

**Launch to Receive**  
XYZ Pipe Co.  
20 inch Oil Pipeline

# *Executive Summary*

A full survey of the XYZ Pipe Co. Launch to Receive pipeline was successfully completed by PII between 01 January 2001 and 01 February 2001.

A total of 1632 metal loss features have been detected on the inspection survey of which the deepest was 75%. These are distributed throughout the pipeline. Approximately 64% of the total number of spools have metal loss reported within them.

The majority of these are internal and are characteristic of corrosion.

We should hereby like to express our appreciation for the assistance and co-operation which we received from XYZ Pipe Co. in the course of this project.

**Analysis Engineer:**      **A. Engineer**

**Data Analyst:**

**Report Approved by:**      **Analysis Team Leader**

**Date:**

**Project Manager:**      **A. Manager**

**Telephone:**      **[44] (0)191 247 9999**

# *Distribution List*

| <b>Name</b>  | <b>Title</b>           | <b>Company</b> | <b>Nº of Copies</b> |
|--------------|------------------------|----------------|---------------------|
|              | Company Representative | XYZ Pipe Co.   | 1                   |
| Central File |                        | PII            | 1                   |

# *Table Of Contents*

## *Inspection Summary*

- 1.1. Metal Loss
- 1.2. Pipeline Anomalies
- 1.3. Inspection Quality

## *Metal Loss Feature Report*

- 2.1. Summary Tables
- 2.2. Inspection Sheets

## *Overall Comments*

## *Pressure Based Pipeline Summary Report*

- 4.1. Metal Loss Information
- 4.2. Pipeline Information
- 4.3. Pipeline Listing

## *Glossary of Terms*

*Appendix A. Locating Metal Loss Features And Pipeline Anomalies*

*Appendix B. Guidance Notes for Recording Excavation of Metal Loss Features*

*Appendix C. Operational Details*

*Appendix D. Pipeline Details*

*Appendix E. Additional Services*

*Appendix F. Pipeline Inspection Report Specification*

*Appendix G. Inspection System Performance Specification*

# Inspection Summary

This section presents a summary of inspection operation C0001\_20A which was conducted for XYZ Pipe Co. in the Launch to Receive, 20 inch nominal diameter, 4.0km, Oil pipeline.

The pipeline was inspected by the PII magnetic inspection vehicle between 01 January 2001 and 01 February 2001.

## 1.1. Metal Loss

A total of 1632 metal loss features have been detected on the inspection survey of which the deepest was 75%. These are distributed throughout the pipeline. Approximately 64% of the total number of spools have metal loss reported within them.

The majority of these are internal and are characteristic of corrosion.

Mill/manufacturing faults will have been present in the pipeline since it was commissioned. It can be difficult to achieve the normal sizing accuracy for mill/manufacturing faults depending on whether these metal loss features are the result of hot working or cold working of the pipe steel. Consequently, it should be noted that the sizing accuracy specified for corrosion in the Inspection System Performance Specification (Appendix G) contained in the contract may not be applicable to mill/manufacturing faults.

Detailed inspection sheets for 5 of these metal loss features are provided in Section 2. Summaries of all the metal loss features are presented in Section 4.1.

## 1.2. Pipeline Anomalies

The following is a summary of any pipeline anomalies which have been detected on the inspection survey:

|                             |   |
|-----------------------------|---|
| ferrous metal objects:      | 5 |
| eccentric pipeline casings: | 1 |
| dents:                      | 4 |
| girth weld anomalies:       | 3 |
| shell repairs:              | 1 |
| patch repaired spools:      | 5 |

More information on pipeline anomalies is given in the anomaly reports presented in Sections 4.2.2 to 4.2.6.

### **1.3. Inspection Quality**

Inspection data was obtained for the full length (4.0km) of the pipeline.

The quality of the inspection data is satisfactory and this has enabled a comprehensive assessment of the pipeline to be carried out.

# ***Metal Loss Feature Report***

The Metal Loss Feature Report provides detailed inspection sheets for selected metal loss features.

The metal loss features are selected for detailed analysis and reporting according to the selection rules given in the Specification for the Pipeline Inspection Report (Appendix F).

Those metal loss features that are reported on inspection sheets have predicted axial lengths, predicted peak depths and location details to the accuracy described in the Inspection System Performance Specification (Appendix G).

The Estimated Repair Factor (ERF) is calculated using the formula given in the “Reporting” section of the contract (Appendix F).

## **2.1. Summary Tables**

This section provides a summary of the metal loss features reported on the inspection sheets.

Tables summarising the inspection sheets are provided in the following sub-sections:

### **2.1.1. Summary of Inspection Sheets in Distance Order**

This table presents a summary of the inspection sheets with the metal loss features sorted in order of their absolute distance from the launch.

### **2.1.2. Summary of Inspection Sheets in Feature Selection Order**

This table presents a summary of the inspection sheets with the metal loss features sorted in order of their selection rule.

### 2.1.1 Summary of Inspection Sheets in Distance Order

| Insp. Sheet Number | Absolute Distance (metres) | Ext. or Int. | Predicted Dimensions |            |            | Pressure Ratio (ERF) | Feature Selection Rule |
|--------------------|----------------------------|--------------|----------------------|------------|------------|----------------------|------------------------|
|                    |                            |              | Axial (mm)           | Circ. (mm) | Depth % WT |                      |                        |
|                    |                            |              |                      |            | Peak       |                      |                        |
| 2                  | 367.9                      | Int          | 61                   | 527        | 75         | 1.010                | 1                      |
| 4                  | 3265.1                     | Int          | 194                  | 37         | 26         | 1.000                | 5                      |
| 3                  | 3618.9                     | Int          | 273                  | 59         | 23         | 1.010                | 4                      |
| 5                  | 3761.7                     | Int          | 89                   | 828        | 42         | 0.980                | 5                      |
| 1                  | 3806.1                     | Int          | 289                  | 163        | 38         | 1.100                | 1                      |

## 2.1.2 Summary of Inspection Sheets in Feature Selection Order

| Insp. Sheet Number | Absolute Distance (metres) | Ext. or Int. | Predicted Dimensions |            |            | Pressure Ratio (ERF) | Feature Selection Rule |
|--------------------|----------------------------|--------------|----------------------|------------|------------|----------------------|------------------------|
|                    |                            |              | Axial (mm)           | Circ. (mm) | Depth % WT |                      |                        |
|                    |                            |              |                      |            | Peak       |                      |                        |
| 1                  | 3806.1                     | Int          | 289                  | 163        | 38         | 1.100                | 1                      |
| 2                  | 367.9                      | Int          | 61                   | 527        | 75         | 1.010                | 1                      |
| 3                  | 3618.9                     | Int          | 273                  | 59         | 23         | 1.010                | 4                      |
| 4                  | 3265.1                     | Int          | 194                  | 37         | 26         | 1.000                | 5                      |
| 5                  | 3761.7                     | Int          | 89                   | 828        | 42         | 0.980                | 5                      |

## **2.2. Inspection Sheets**

This section provides detailed inspection sheets for selected metal loss features.

The metal loss features are selected for detailed analysis and reporting according to the selection rules specified in the Specification for the Pipeline Inspection Report (Appendix F).

Those metal loss features that are reported on inspection sheets have predicted axial lengths, predicted peak depths and location details to the accuracy described in the Inspection System Performance Specification (Appendix G).

### **2.2.1. Structure of the Inspection Sheet**

Each inspection sheet provides information on the location and predicted dimensions of one metal loss feature.

The inspection sheet consists of three areas:

#### **Feature Description**

This section of the inspection sheet provides specific details about the metal loss feature.

#### **Feature Location**

This section of the inspection sheet provides information that will enable the metal loss feature to be located for excavation. Wherever possible, the position of the metal loss feature is related to reference points that can easily be identified and located from the surface.

#### **Schematic Location Summary**

This provides a schematic diagram of the pipeline within the vicinity of the metal loss feature.

The diagram represents five pipe spools, the spool containing the metal loss feature and two spools either side. The girth weld numbers and spool lengths are also given on the diagram.

### **2.2.2. Pictorial Representation**

Accompanying each inspection sheet are two pictorial representations of the magnetic response derived from the reported metal loss feature.

In both cases the metal loss feature is as viewed from outside the pipe with the upstream end being on the left. The vertical (y) axis is annotated with o'clock orientation as viewed in the direction of flow (at the time of the inspection). The horizontal (x) axis is annotated with the absolute distance measured from the launch.

## ***Metal Loss Feature Report***

The monochrome plot (the Overview Plot) shows the magnetic response in the context of the full circumference of the pipe. In order to assist the Client in identifying the areas of metal loss, it is shaded as if illuminated from the left hand side of the plot.

The colour plot (the Detail Contour Plot) is approximately centred on the area of the pipeline in which the reported metal loss feature is located, and identifies the relative magnitudes of the magnetic responses in this area. The magnitude of change in the magnetic responses is represented by designated colours, with like magnitudes having common colours. Due to the behaviour of this magnetic response, the colour plot will not normally provide a true representation of the physical profile of the reported metal loss feature.

### **2.2.3. Inspection Sheets 1 to 5**

Inspection sheets 1 to 5 are presented on the following pages.

**Feature Description**

|  |                     |
|--|---------------------|
| Type:                                  | Internal Metal Loss |
| Orientation:                           | 04:45 (o'clock)     |
| Axial length:                          | 289 mm              |
| Circumferential width:                 | 163 mm              |
| Depth - Peak:                          | 38% WT              |
| Pressure Ratio (ERF):                  | 1.100               |
| Feature Selection Rule:                | 1                   |
| Nominal Pipe wall thickness for spool: | 20.00 mm            |
| Absolute Distance from Launch:         | 3806.1 metres       |

**Comments:**

This isolated metal loss feature is characteristic of corrosion.  
 This feature has the highest calculated ERF value of all the metal loss features detected along the pipeline.  
 There is another metal loss feature within this spool.

**Feature Location**

**Primary Reference/s:**

- MAGNET  
(Girth Weld 760 + 5.1m)

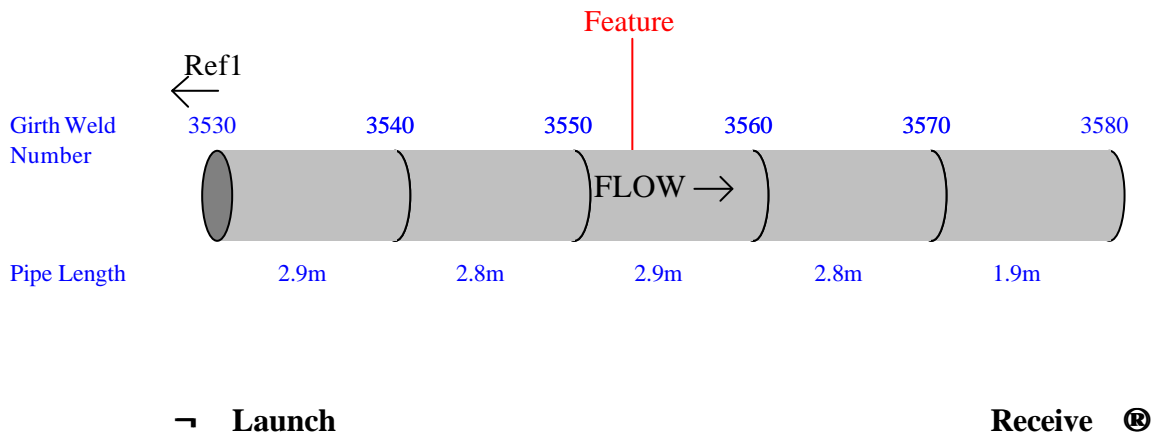
**Reference Girth Weld:**

The reference girth weld at the Launch (upstream) end of the feature spool is number 3550.  
 The location of this weld is 3201.0 metres downstream from reference 1.

**Feature:**

The feature is located 1.0 metres downstream from the reference girth weld.

**Schematic Location Summary:**



**Feature Description**

|  |                     |
|--|---------------------|
| Type:                                  | Internal Metal Loss |
| Orientation:                           | 05:00 (o'clock)     |
| Axial length:                          | 61 mm               |
| Circumferential width:                 | 527 mm              |
| Depth - Peak:                          | 75% WT              |
| Pressure Ratio (ERF):                  | 1.010               |
| Feature Selection Rule:                | 1                   |
| Nominal Pipe wall thickness for spool: | 20.00 mm            |
| Absolute Distance from Launch:         | 367.9 metres        |

**Comments:**

This isolated metal loss feature is characteristic of corrosion.  
 This is the deepest metal loss feature within the pipeline.

**Feature Location**

**Primary Reference/s:**

1. OFFTAKE-SPHERE-TEE  
(Girth Weld 7 + 0m)
2. MAGNET  
(Girth Weld 760 + 5.1m)

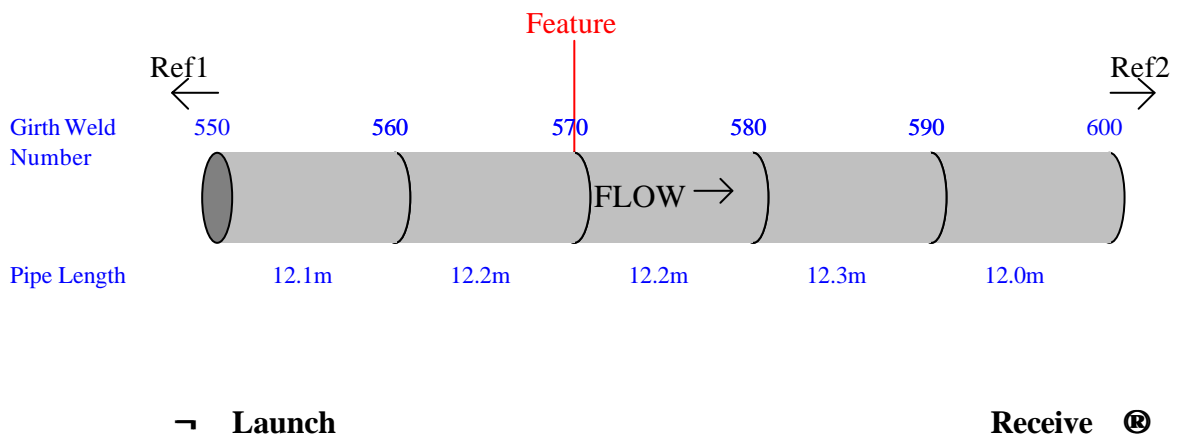
**Reference Girth Weld:**

The reference girth weld at the Launch (upstream) end of the feature spool is number 570.  
 The location of this weld is 363.0 metres downstream from reference 1 and 236.2 metres upstream from reference 2.

**Feature:**

The feature is located 0.0 metres downstream from the reference girth weld.

**Schematic Location Summary:**



**Feature Description**

|  |                     |
|--|---------------------|
| Type:                                  | Internal Metal Loss |
| Orientation:                           | 11:45 (o'clock)     |
| Axial length:                          | 273 mm              |
| Circumferential width:                 | 59 mm               |
| Depth - Peak:                          | 23% WT              |
| Pressure Ratio (ERF):                  | 1.010               |
| Feature Selection Rule:                | 4                   |
| Nominal Pipe wall thickness for spool: | 20.00 mm            |
| Absolute Distance from Launch:         | 3618.9 metres       |

**Comments:**

This isolated metal loss feature is characteristic of corrosion.

There are other very minor metal loss features within this spool.

**Feature Location**

**Primary Reference/s:**

- MAGNET  
(Girth Weld 760 + 5.1m)

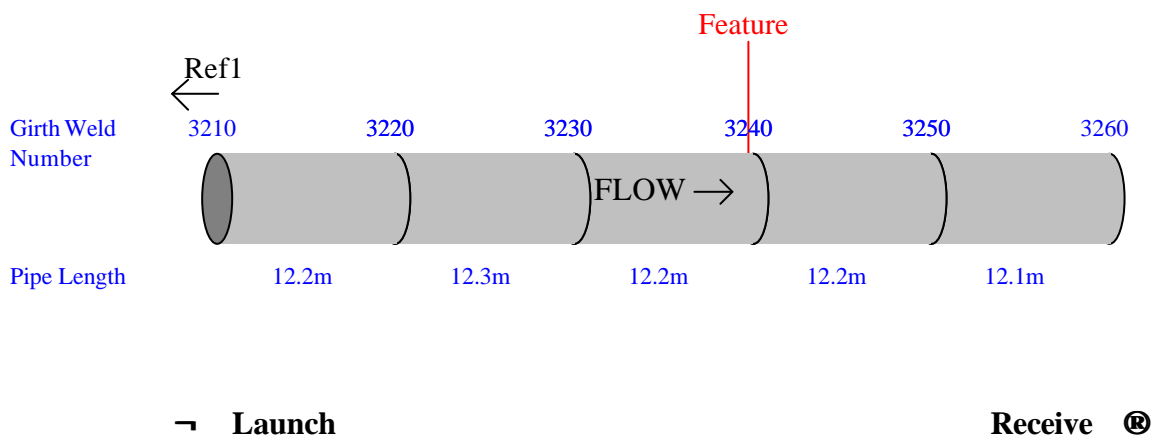
**Reference Girth Weld:**

The reference girth weld at the Launch (upstream) end of the feature spool is number 3230.  
The location of this weld is 3002.9 metres downstream from reference 1.

**Feature:**

The feature is located 11.9 metres downstream from the reference girth weld.

**Schematic Location Summary:**



**Feature Description**

|  |                     |
|--|---------------------|
| Type:                                  | Internal Metal Loss |
| Orientation:                           | 08:45 (o'clock)     |
| Axial length:                          | 194 mm              |
| Circumferential width:                 | 37 mm               |
| Depth - Peak:                          | 26% WT              |
| Pressure Ratio (ERF):                  | 1.000               |
| Feature Selection Rule:                | 5                   |
| Nominal Pipe wall thickness for spool: | 15.00 mm            |
| Absolute Distance from Launch:         | 3265.1 metres       |

**Comments:**

This isolated metal loss feature has the appearance of corrosion.

There is another metal loss feature within this spool.

**Feature Location**

**Primary Reference/s:**

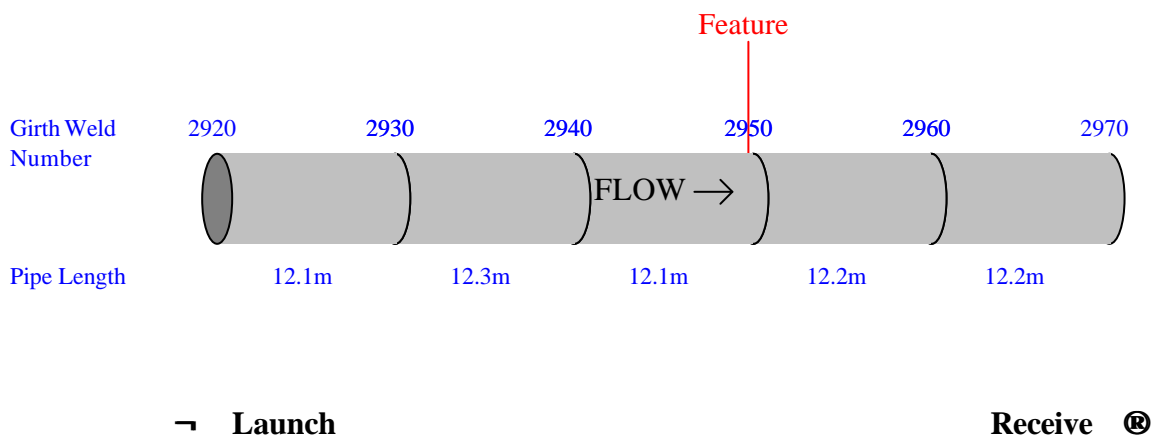
**Reference Girth Weld:**

The reference girth weld at the Launch (upstream) end of the feature spool is number 2940.

**Feature:**

The feature is located 11.8 metres downstream from the reference girth weld.

**Schematic Location Summary:**



**Feature Description**

|  |                     |
|--|---------------------|
| Type:                                  | Internal Metal Loss |
| Orientation:                           | 06:30 (o'clock)     |
| Axial length:                          | 89 mm               |
| Circumferential width:                 | 828 mm              |
| Depth - Peak:                          | 42% WT              |
| Pressure Ratio (ERF):                  | 0.980               |
| Feature Selection Rule:                | 5                   |
| Nominal Pipe wall thickness for spool: | 20.00 mm            |
| Absolute Distance from Launch:         | 3761.7 metres       |

**Comments:**

This metal loss feature is characteristic of corrosion.  
 This is the deepest feature within the pipeline and has the highest calculated ERF value of all the metal loss features detected along the pipeline.

**Feature Location**

**Primary Reference/s:**

- VALVE  
(Girth Weld 4400 + 0m)

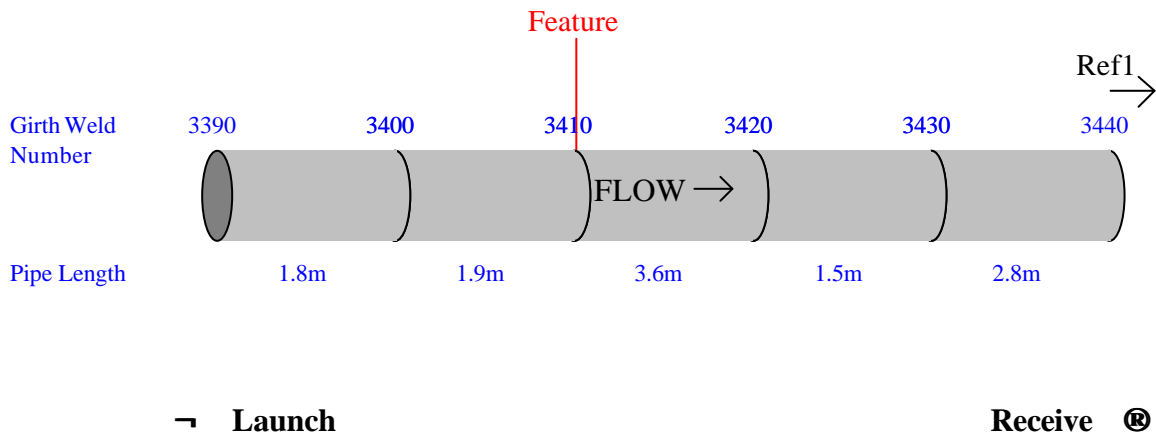
**Reference Girth Weld:**

The reference girth weld at the Launch (upstream) end of the feature spool is number 3410.  
 The location of this weld is 272.6 metres upstream from reference 1.

**Feature:**

The feature is located 0.0 metres downstream from the reference girth weld.

**Schematic Location Summary:**



## *Overall Comments*

The inspection survey has shown no significant detrimental features on this pipeline.

In these circumstances the pipeline operator could consider monitoring the future condition of the pipeline, with further inspections being planned to take account of the operational conditions of the pipeline and relevant national or company codes of practice.

Alternatively, PII are able to offer investigations based on fitness-for-purpose assessments to give analytical indications of when re-inspections might be appropriate. If you do have an interest in this form of assistance please contact, in the first instance, the PII Project Manager identified in the front of this report.

# *Pressure Based Pipeline Summary Report*

The Pressure Based Pipeline Summary Report provides an overview of the pipeline condition.

## **4.1. Metal Loss Information**

This section provides summaries of all the metal loss features detected along the pipeline in the following formats:

- Pressure Sentenced Plot
- Pressure Based Histograms
- Depth Based Histograms
- Orientation Plot
- Severity Table

#### **4.1.1. Pressure Sentenced Plot**

The pressure sentenced plot shows the relative significance of each detected metal loss feature.

Metal loss features that have been identified as manufacturing faults are not included on the pressure sentenced plot.

The significance of each metal loss feature has been assessed using the pressure sentencing formulae based on ASME B31 and defined in the Appendix to the Specification for the Pipeline Inspection Report (Appendix F).

These formulae depend on the following six variables;

***two measured by the PII inspection system:***

- the predicted peak depth of the metal loss feature, or metal loss cluster;
- the predicted axial length of the metal loss feature, or the overall predicted axial length if the metal loss feature consists of two or more metal losses that have been clustered together;

***and four specified by the pipeline operator:***

- the external pipe diameter (D);
- the nominal pipe wall thickness (nwt);
- the maximum allowable operating pressure (MAOP) and,
- the internal design pressure of the pipe (Pi).

The pressure sentenced plot shows the relative significance of each metal loss feature by plotting the predicted peak depth of the metal loss feature against its predicted axial length and by indicating on the graph the appropriate curve that represents an ERF of 1. The curve representing an ERF of 1 will move if any of the values for D, nwt, MAOP or Pi change.

Those metal loss features with ERF values  $>1$  will be plotted above the curve. The higher the value, the higher the significance and the further away from the curve the metal loss feature will be plotted.

It should be noted that the ASME B31 pressure sentencing formulae strictly applies to isolated areas of corrosion in the main body of line pipe operating at stress levels not exceeding 72% SMYS (Specified Minimum Yield Strength). The procedure given in ASME B31 should not be used to assess corroded girth welds, longitudinal welds or long, complex interacting corrosion.

Under these conditions, points on (and below) the ERF unity curve correspond to the dimensions of the metal loss features (of the shape assumed in ASME B31) that would withstand a hydrostatic pressure test at  $1.39 \times \text{MAOP}$ ; where the factor 1.39 is the safety factor. For pipelines designed to operate at stress levels below 72% SMYS the safety factor is higher than 1.39; for pipelines designed to operate at stress levels exceeding 72% SMYS the safety factor is lower than 1.39.

## *Pressure Based Pipeline Summary Report*

The ERF unity curve corresponds to the dimensions of those metal loss features (of the shape assumed in ASME B31) that would withstand a pressure equal to the MAOP x safety factor.

Where the safety factor (SF) is calculated as follows:

$$SF = \frac{2 t SMYS}{P_i D}$$

and SMYS = Specified Minimum Yield Strength.

The report contains one pressure sentenced plot for each major pipeline segment defined by the pipeline operator. Only those metal loss features within the major segment, and any minor segments within the major segment, are shown on the respective pressure sentenced plot. The ERF unity curve is calculated using the values of D, nwt, MAOP and  $P_i$  that have been specified for the major segment by the pipeline operator; these values are also given on each plot.

A pressure sentenced plot will not be provided if the major segment does not contain any metal loss features.

A list of the major segments and the values of nwt, MAOP and  $P_i$  that apply within each segment are provided in the nominal wall thickness listing presented in Section 4.2.8. The value for D is assumed to be constant throughout the pipeline.

There are four symbols used on the pressure sentenced plot to represent metal loss features. These are:

- + The metal loss feature is within the major segment. That is the spool containing the metal loss feature has pipeline parameters equal to those used to calculate the ERF unity curve.
- ⊕ The metal loss feature is reported on an inspection sheet and is within the major segment.
- △ The metal loss feature is within a minor segment. That is the spool containing the metal loss feature has pipeline parameters different to those used to calculate the ERF unity curve.
- ⊕ The metal loss feature is reported on an inspection sheet and is within a minor segment.

Each pressure sentenced plot is presented overleaf.

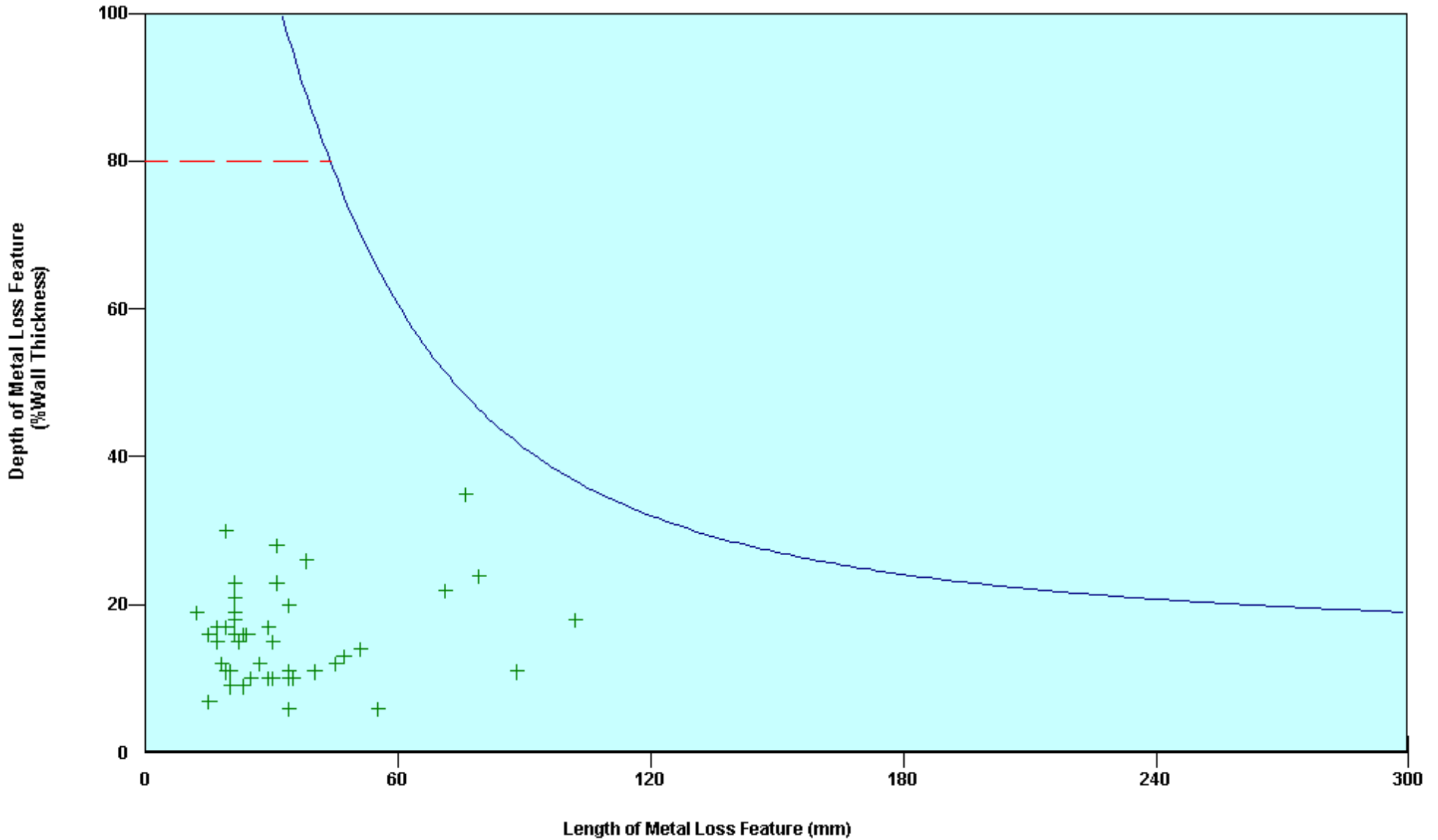
SENTENCED PLOT

Launch to Receive

Major Segment 1

External Diameter 508 mm  
Wall Thickness 15.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.39  
— E.R.F. = 1.0

C0001\_20A  
Page 1 of 9  
Issue 1  
05 February 2001



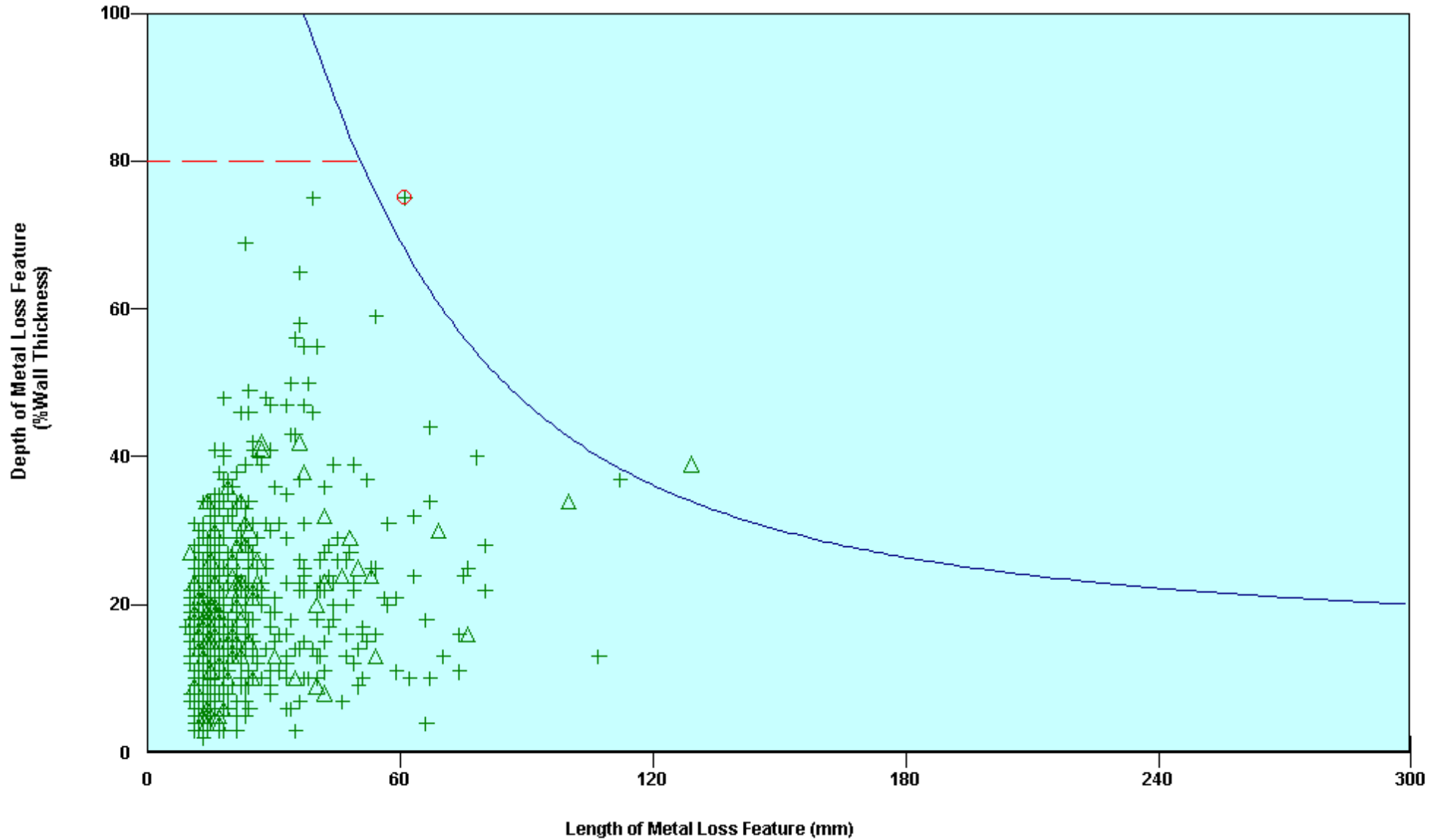
SENTENCED PLOT

Launch to Receive

Major Segment 2

External Diameter 508 mm  
Wall Thickness 20.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.86  
— E.R.F. = 1.0

C0001\_20A  
Page 2 of 9  
Issue 1  
05 February 2001



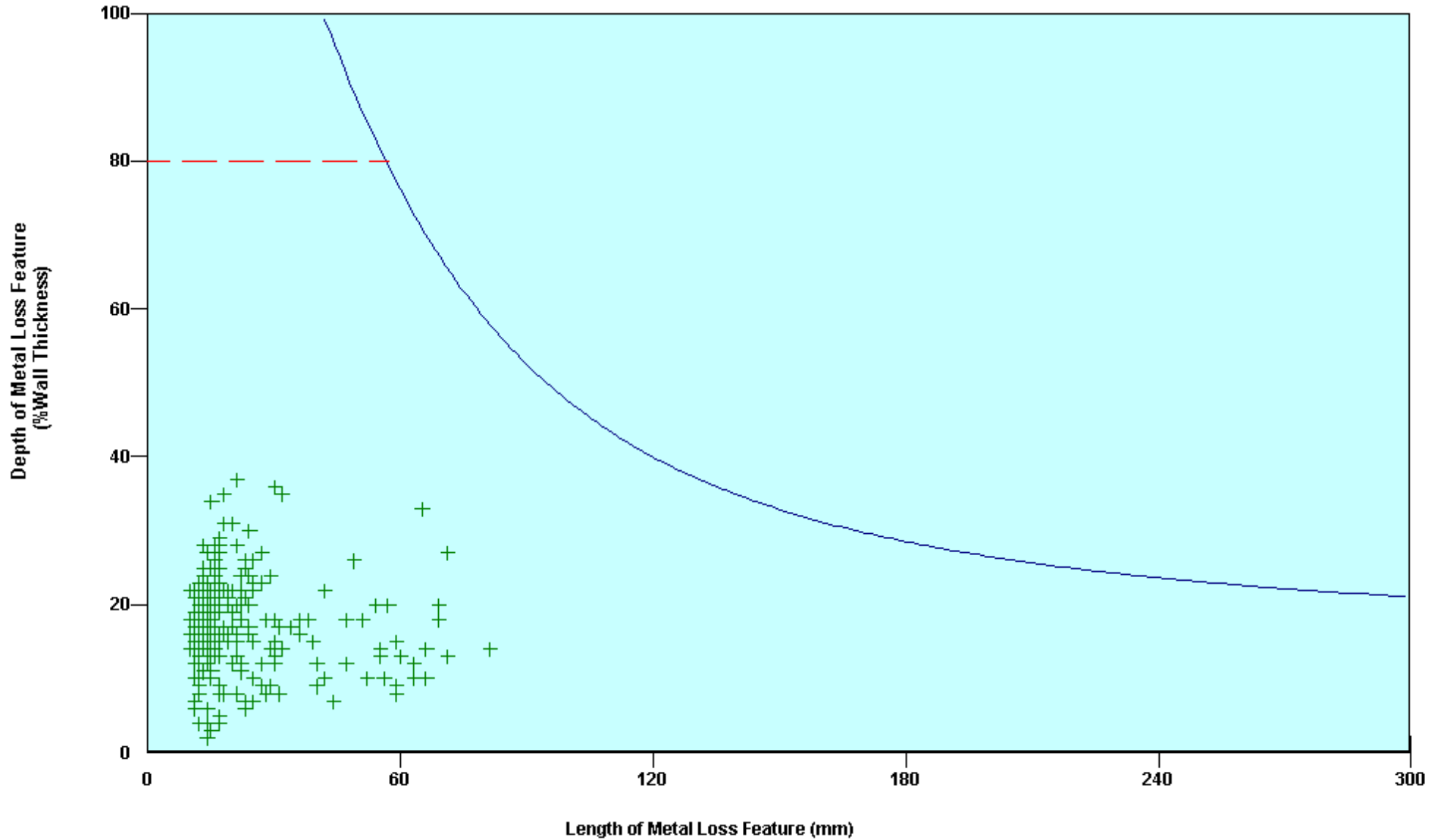
SENTENCED PLOT

Launch to Receive

Major Segment 3

External Diameter 508 mm  
Wall Thickness 25.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 2.32  
— E.R.F. = 1.0

C0001\_20A  
Page 3 of 9  
Issue 1  
05 February 2001



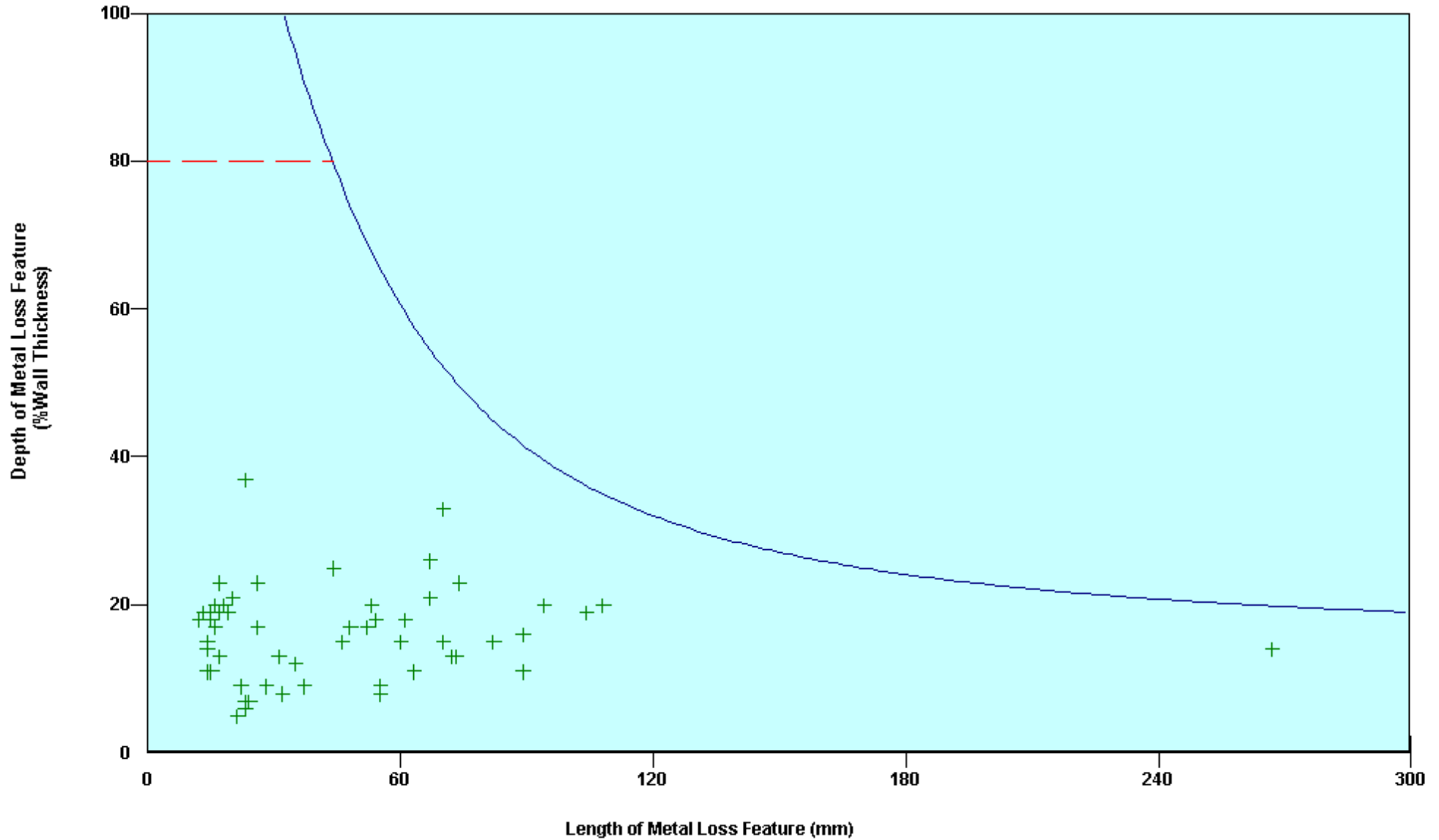
SENTENCED PLOT

Launch to Receive

Major Segment 4

External Diameter 508 mm  
Wall Thickness 15.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.39  
— E.R.F. = 1.0

C0001\_20A  
Page 4 of 9  
Issue 1  
05 February 2001



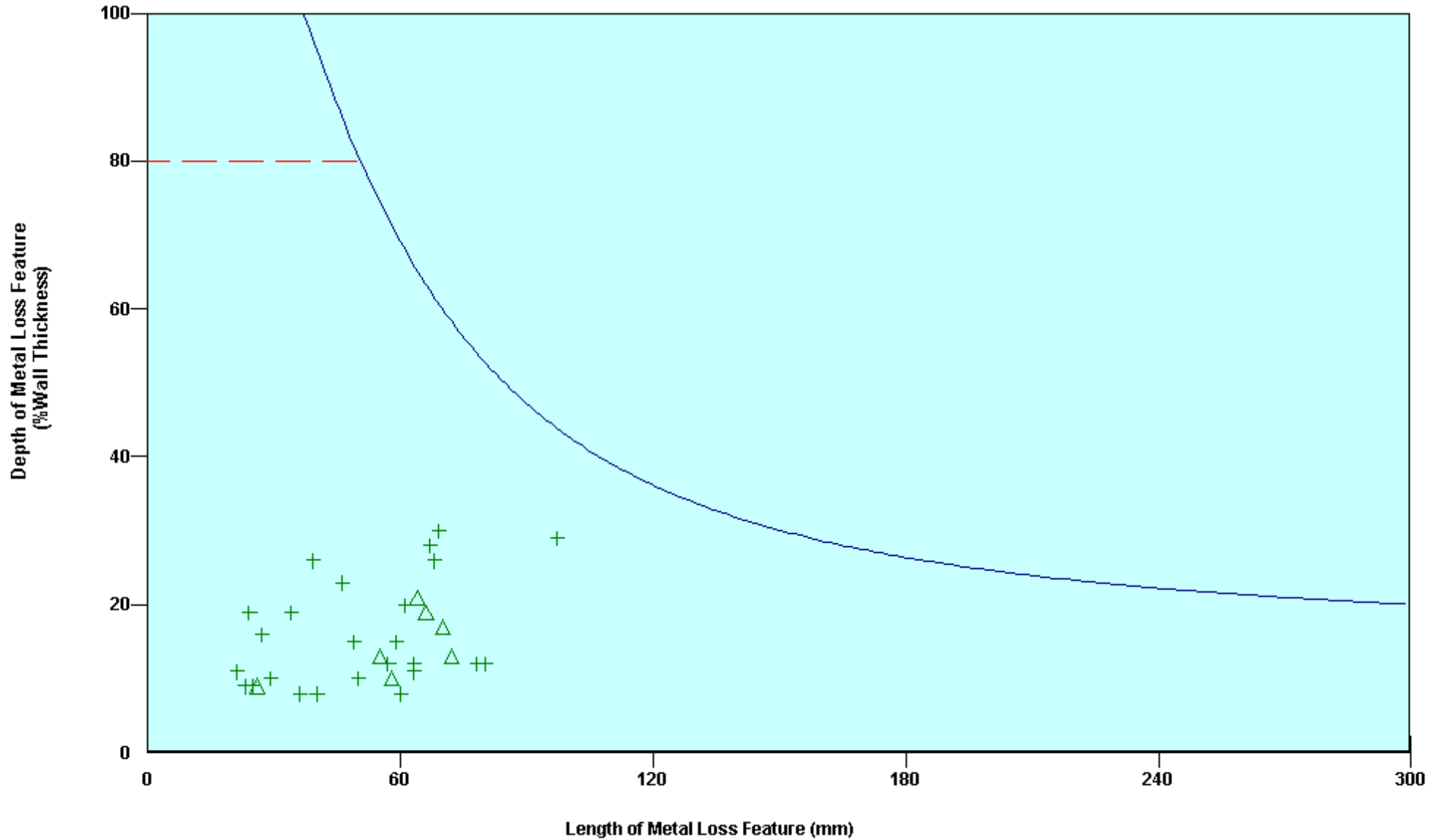
SENTENCED PLOT

Launch to Receive

Major Segment 5

External Diameter 508 mm  
Wall Thickness 20.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.86  
— E.R.F. = 1.0

C0001\_20A  
Page 5 of 9  
Issue 1  
05 February 2001



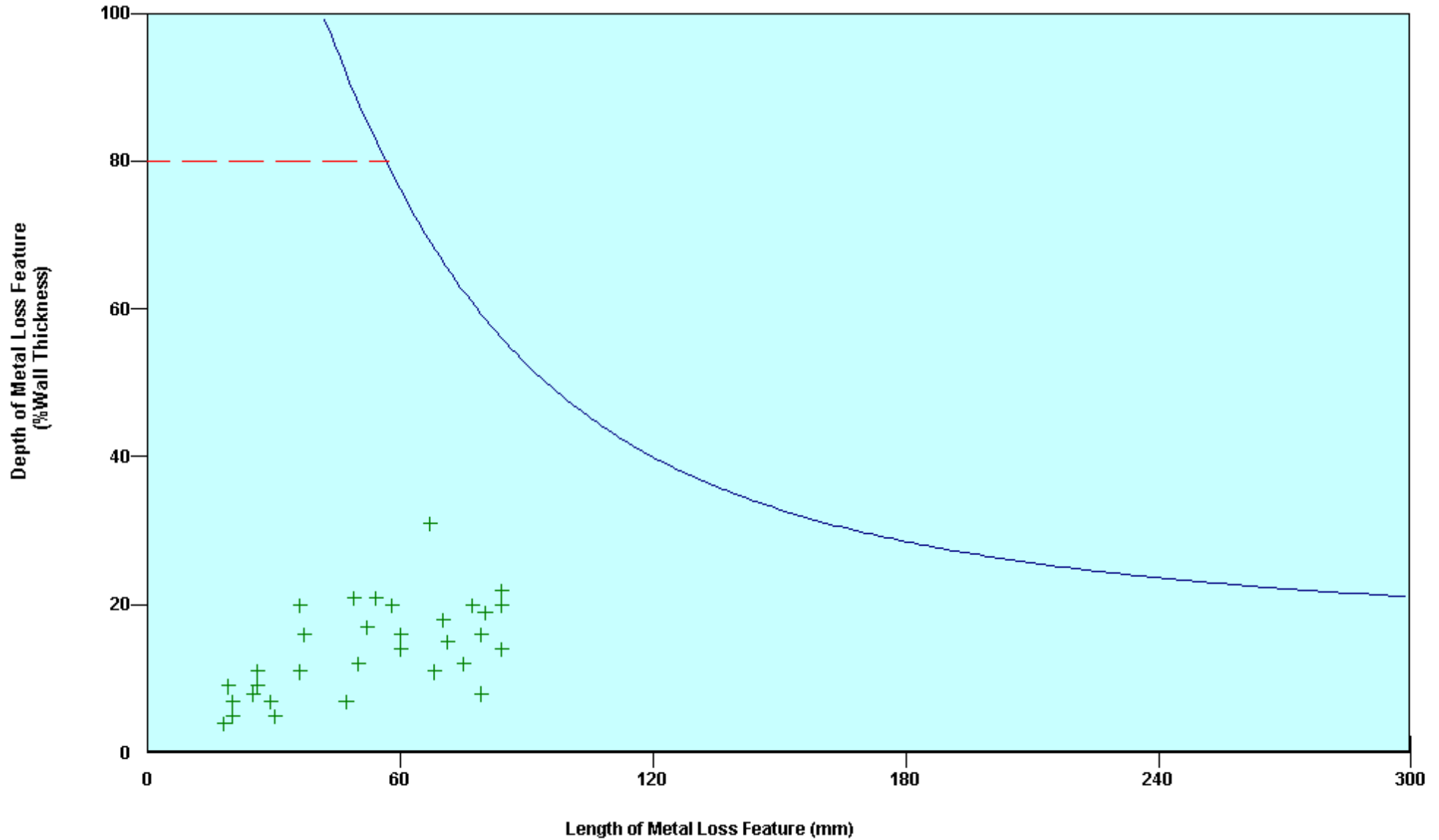
SENTENCED PLOT

Launch to Receive

Major Segment 6

External Diameter 508 mm  
Wall Thickness 25.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 2.32  
— E.R.F. = 1.0

C0001\_20A  
Page 6 of 9  
Issue 1  
05 February 2001



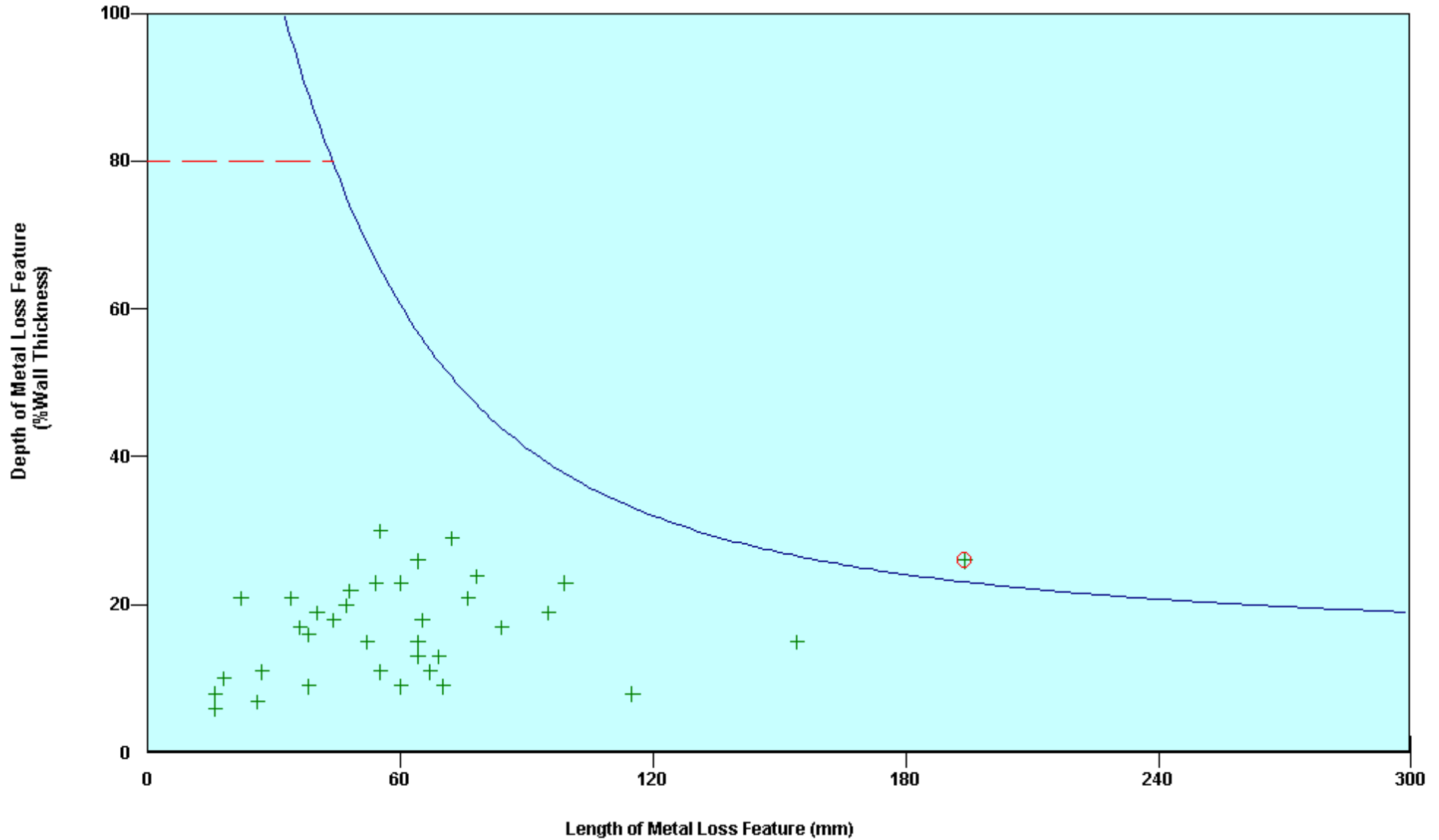
SENTENCED PLOT

Launch to Receive

Major Segment 7

External Diameter 508 mm  
Wall Thickness 15.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.39  
— E.R.F. = 1.0

C0001\_20A  
Page 7 of 9  
Issue 1  
05 February 2001



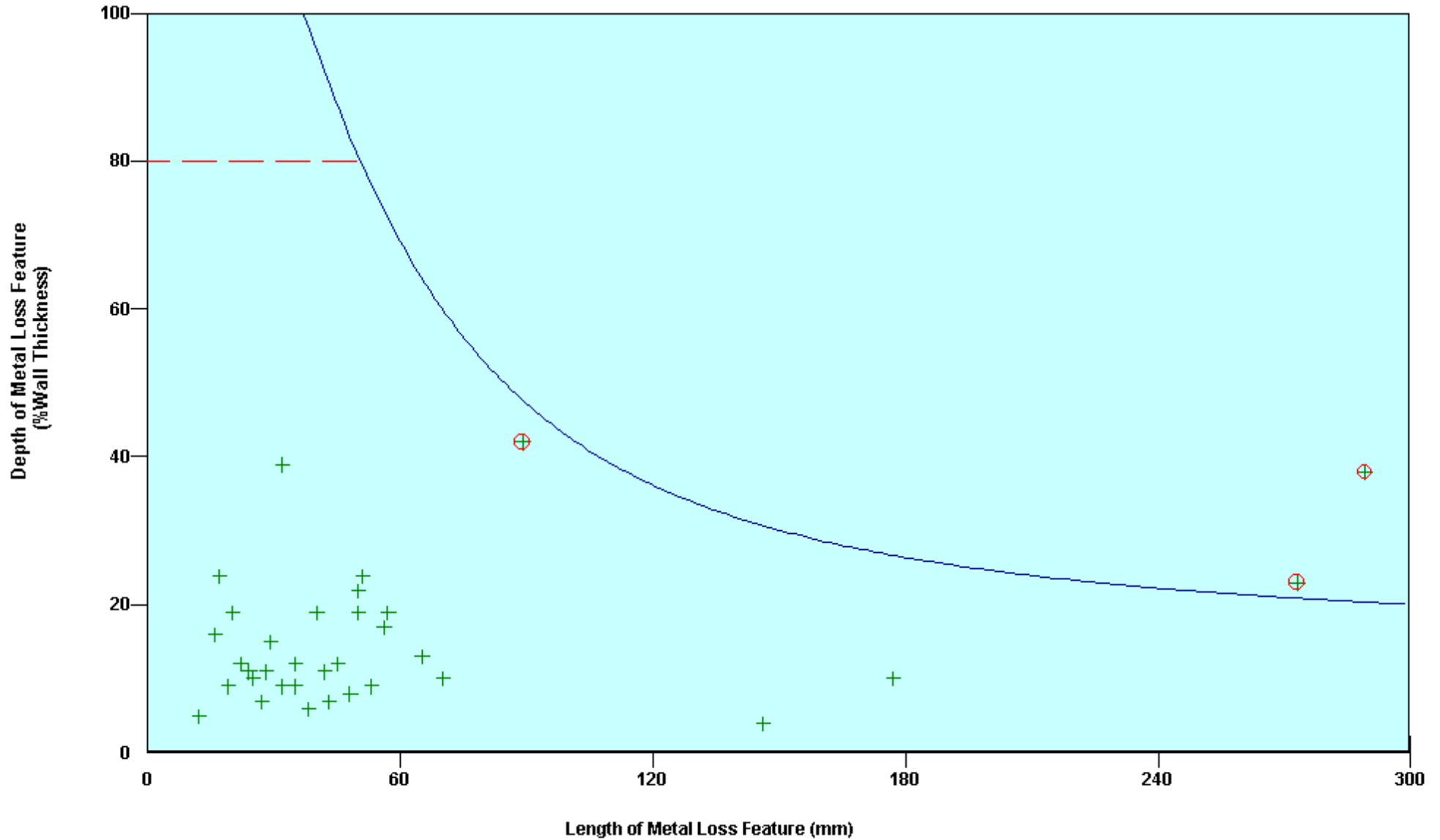
SENTENCED PLOT

Launch to Receive

Major Segment 8

External Diameter 508 mm  
Wall Thickness 20.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.86  
— E.R.F. = 1.0

C0001\_20A  
Page 8 of 9  
Issue 1  
05 February 2001



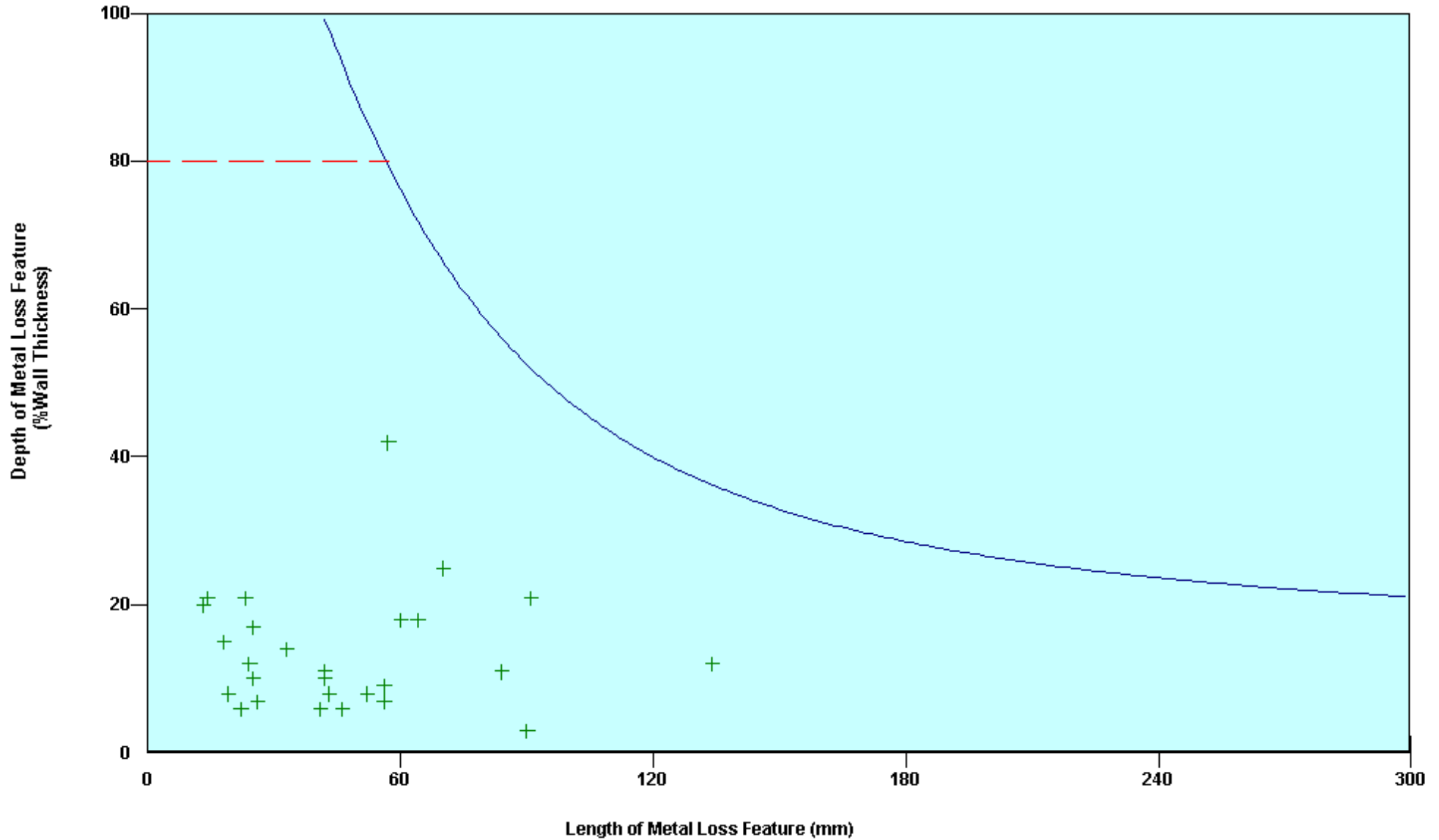
SENTENCED PLOT

Launch to Receive

Major Segment 9

External Diameter 508 mm  
Wall Thickness 25.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 2.32  
— E.R.F. = 1.0

C0001\_20A  
Page 9 of 9  
Issue 1  
05 February 2001



## **4.1.2. Pressure Based Histograms**

The pressure based histograms show the distribution of the most significant metal loss features along the pipeline.

Metal loss features that have been identified as manufacturing faults are not included in the pressure based histograms.

The significance of each metal loss feature has been assessed using the pressure sentencing formulae based on ASME B31 and defined in the Appendix to the Specification for the Pipeline Inspection Report (Appendix F).

Each pressure based histogram shows the distribution along the pipeline of those metal loss features with ERF values above a chosen pressure sentenced threshold.

Each bar on the histogram represents the number of occurrences within a 10m section of the pipeline.

The pressure sentenced thresholds chosen to highlight the most significant metal loss features are as follows:

- all metal loss features with ERF values >0.900
- all metal loss features with ERF values >0.950
- all metal loss features with ERF values >1.000

Summarising from the histograms:

|             |  |
|-------------|--|
| <b>1622</b> | metal loss features with ERF values >0.900 |
| <b>13</b>   | metal loss features with ERF values >0.950 |
| <b>4</b>    | metal loss features with ERF values >1.000 |

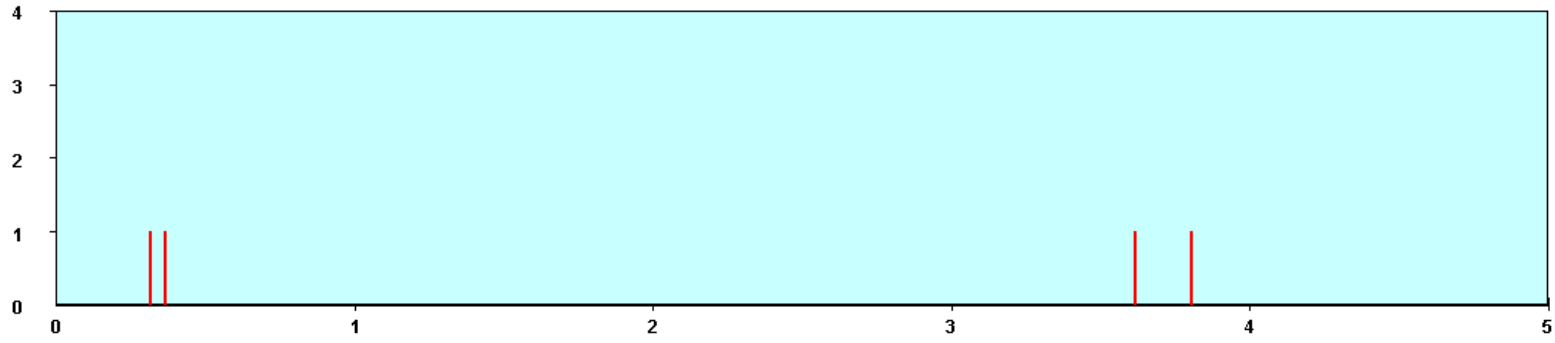
In addition, a single three-dimensional summary histogram is included which shows the distribution along the pipeline of those metal loss features with ERF values above each of the chosen pressure sentenced thresholds.

The pressure based histograms are presented overleaf.

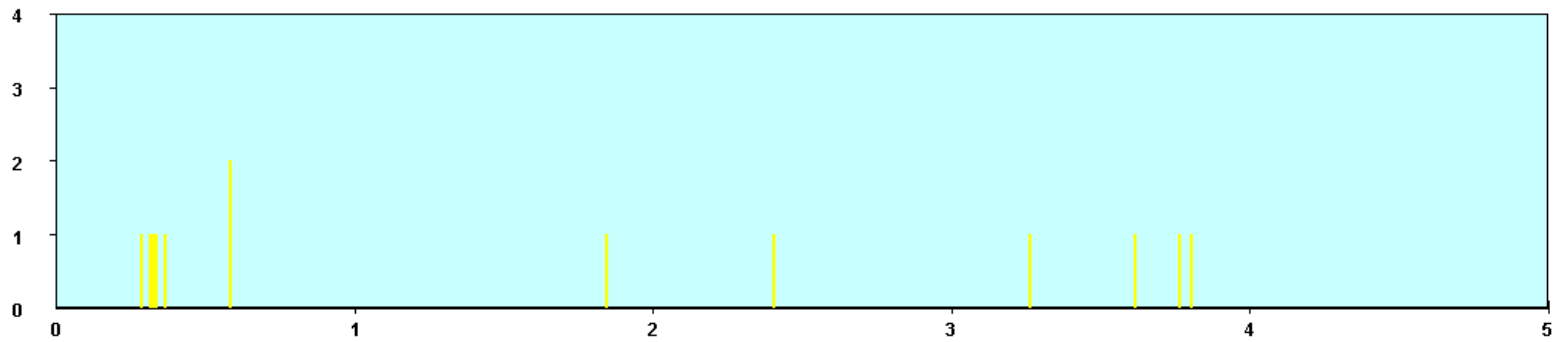
Number of  
Metal Loss  
Features

PRESSURE BASED HISTOGRAM  
Launch to Receive

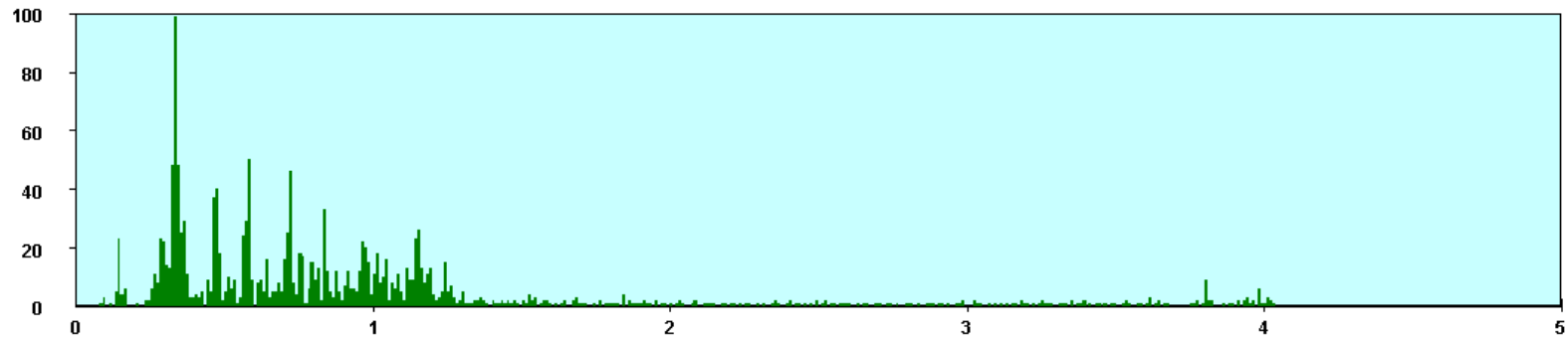
C0001\_20A  
Page 1 of 2  
Issue 1  
05 February 2001



ERF.  
>1.000



>0.950



>0.900

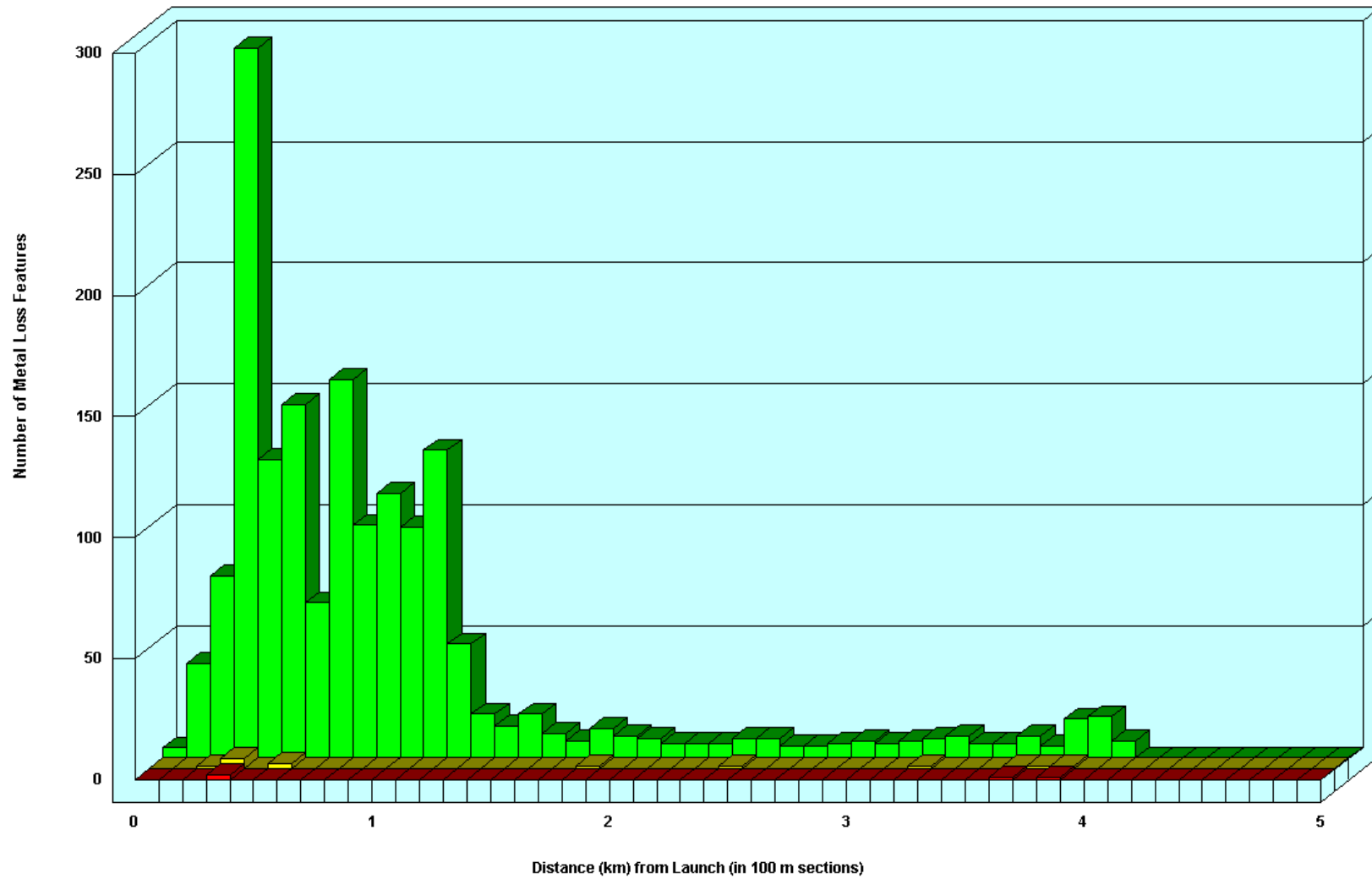
Distance (km) from Launch (in 10 m sections)

PRESSURE BASED HISTOGRAM

Launch to Receive

- E.R.F. > 0.900
- E.R.F. > 0.950
- E.R.F. > 1.000

C0001\_20A  
Page 2 of 2  
Issue 1  
05 February 2001



### **4.1.3. Depth Based Histograms**

The depth based histograms show the distribution of all detected metal loss features along the pipeline.

Twelve histograms are presented in this section:

- three ungraded metal loss histograms
- eight graded metal loss histograms
- one three-dimensional summary histogram

#### **Ungraded Metal Loss Histograms**

The total metal loss histogram shows the distribution of all metal loss features along the pipeline. Each bar on the histogram represents the number of occurrences within a 10m section of the pipeline.

The area metal loss histogram shows how much of the pipe surface has been affected by metal loss. Each bar on the histogram represents the total surface area of the metal loss within a 10m section of the pipeline. This is expressed as a percentage of the surface area of an undamaged pipe section.

The volume metal loss histogram shows how the volume of metal in the pipeline has been affected by metal loss. Each bar on the histogram represents the total volume of the metal loss features within a 10m section of the pipeline. This is expressed as a percentage of the volume of metal in an undamaged pipe section.

#### **Graded Metal Loss Histograms**

The metal loss features are graded into eight categories, which are derived from combinations of two predicted length and four predicted peak depth categories.

There is one graded metal loss histogram for each category. Each bar on the histogram represents the number of occurrences within a 10m section of the pipeline.

## *Pressure Based Pipeline Summary Report*

Summarising from the histograms, a total of 1632 metal loss features have been identified within the pipeline. These have been graded as follows:

**1521** metal loss features with predicted axial lengths  $\leq 3t$ .

Of these:

- 1090** have a predicted peak depth of  $\leq 20\%t$ .
- 401** have a predicted peak depth of  $> 20\%t$  and  $\leq 40\%t$ .
- 27** have a predicted peak depth of  $> 40\%t$  and  $\leq 60\%t$ .
- 3** have a predicted peak depth of  $> 60\%t$ .

**111** metal loss features with a predicted length  $> 3t$ .

Of these:

- 72** have a predicted peak depth of  $\leq 20\%t$ .
- 36** have a predicted peak depth of  $> 20\%t$  and  $\leq 40\%t$ .
- 2** have a predicted peak depth of  $> 40\%t$  and  $\leq 60\%t$ .
- 1** have a predicted peak depth of  $> 60\%t$ .

### **Three-Dimensional Summary Histogram**

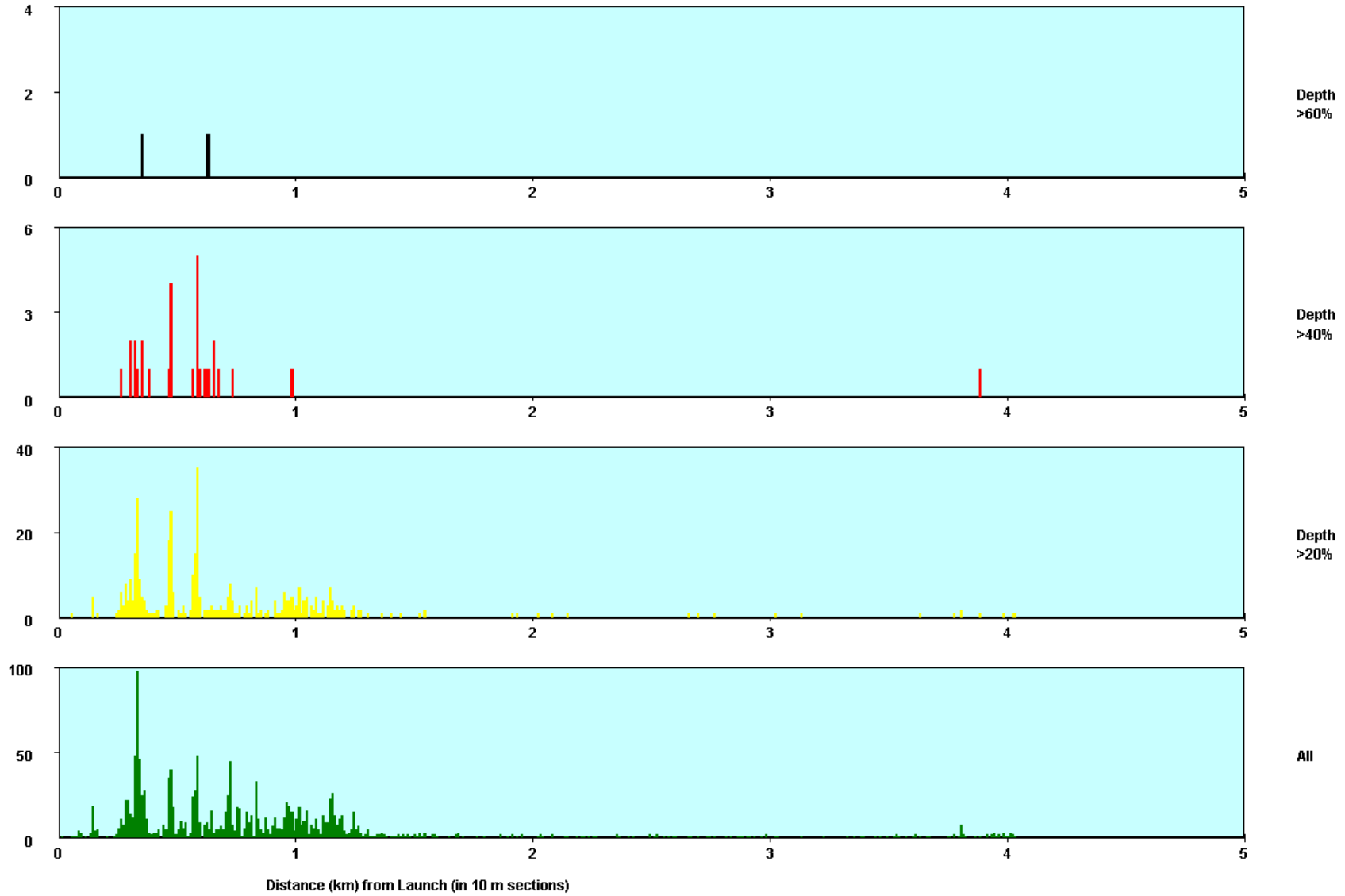
The metal loss features are graded into nine depth categories and displayed on a single three-dimensional histogram. Each bar on the summary histogram represents the number of metal loss occurrences within the appropriate depth category for a specific section of the pipeline.

The histograms are presented on four pages overleaf.

Number of  
Metal Loss  
Features

DEPTH BASED HISTOGRAM  
Axial Length  $\leq 3t$   
Launch to Receive

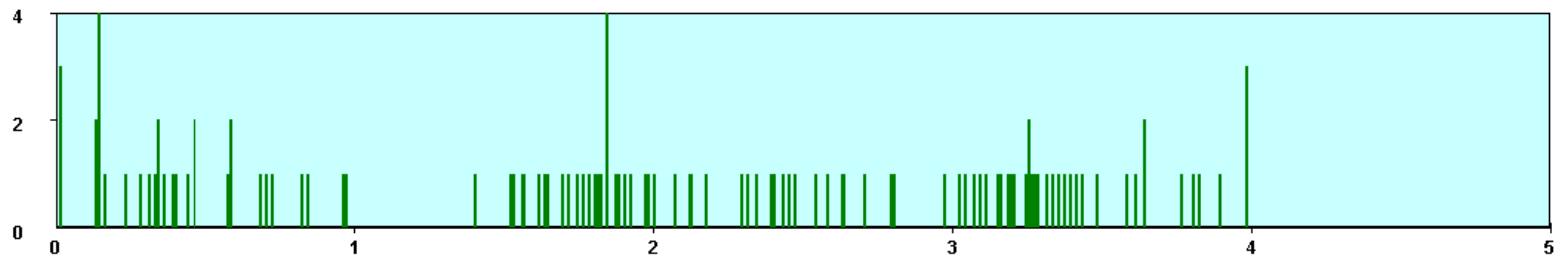
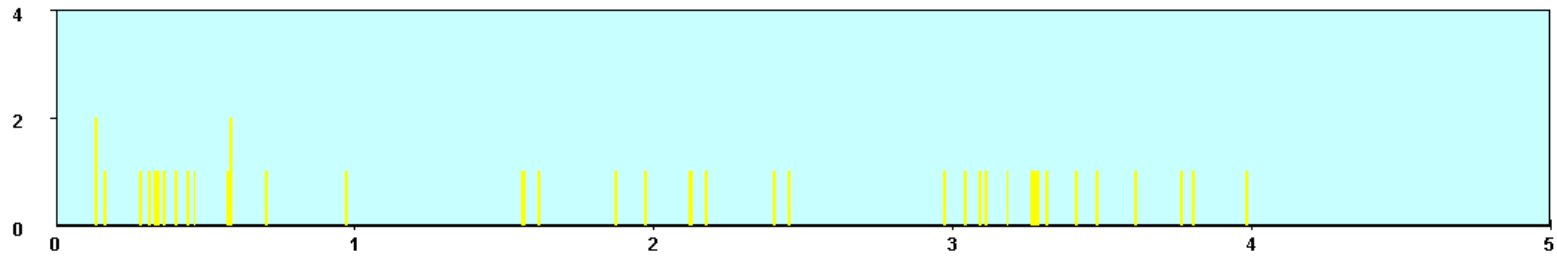
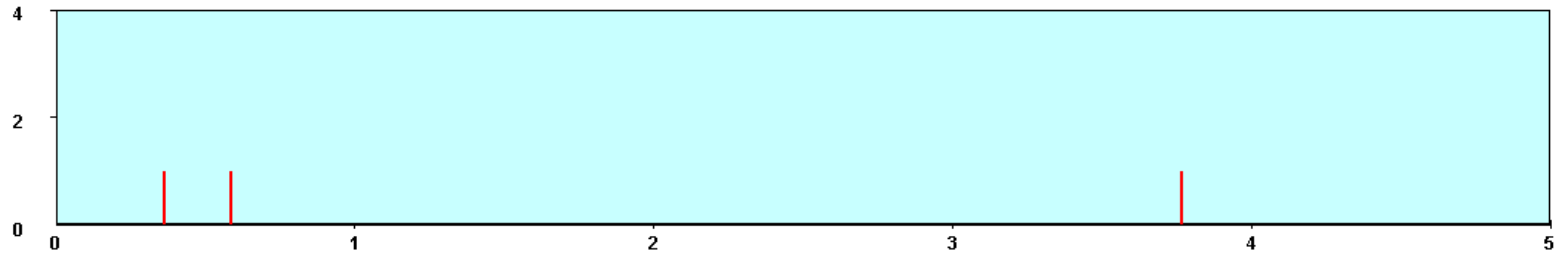
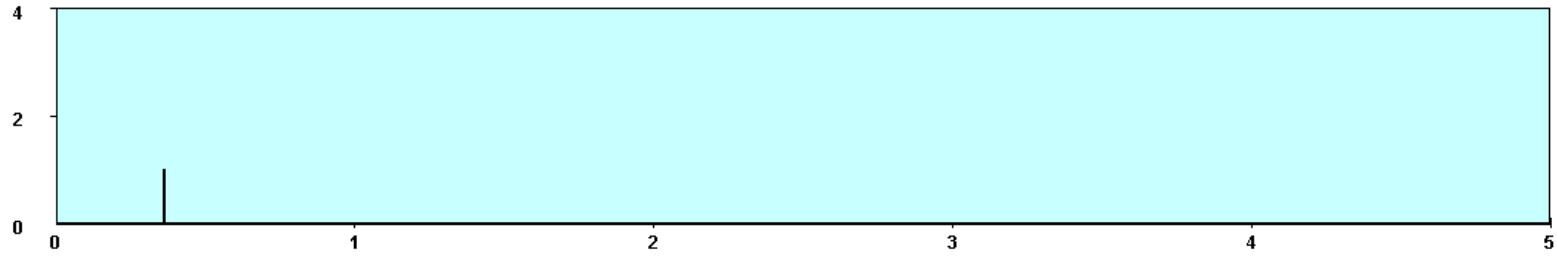
C0001\_20A  
Page 1 of 3  
Issue 1  
05 February 2001



Number of  
Metal Loss  
Features

DEPTH BASED HISTOGRAM  
Axial Length > 3t  
Launch to Receive

C0001\_20A  
Page 2 of 3  
Issue 1  
05 February 2001



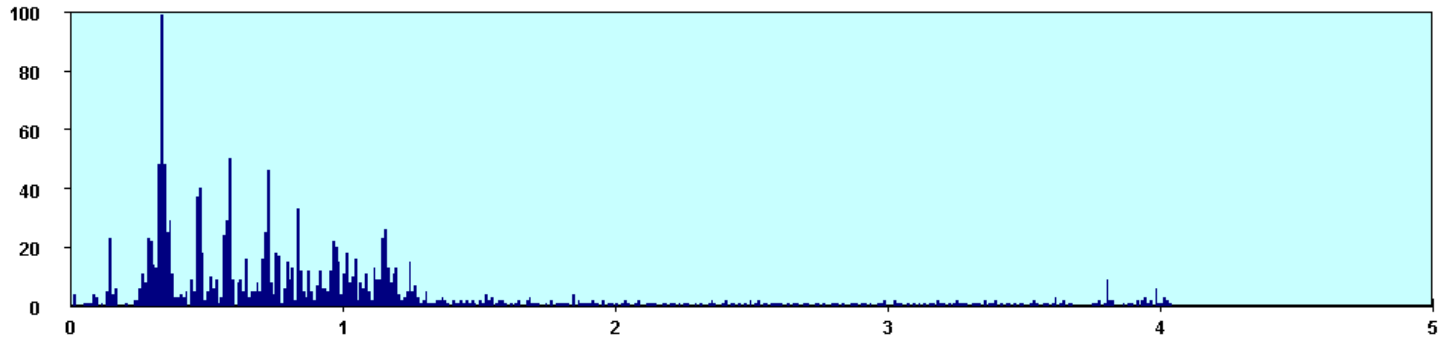
Distance (km) from Launch (in 10 m sections)

DEPTH BASED HISTOGRAM - ALL METAL LOSS

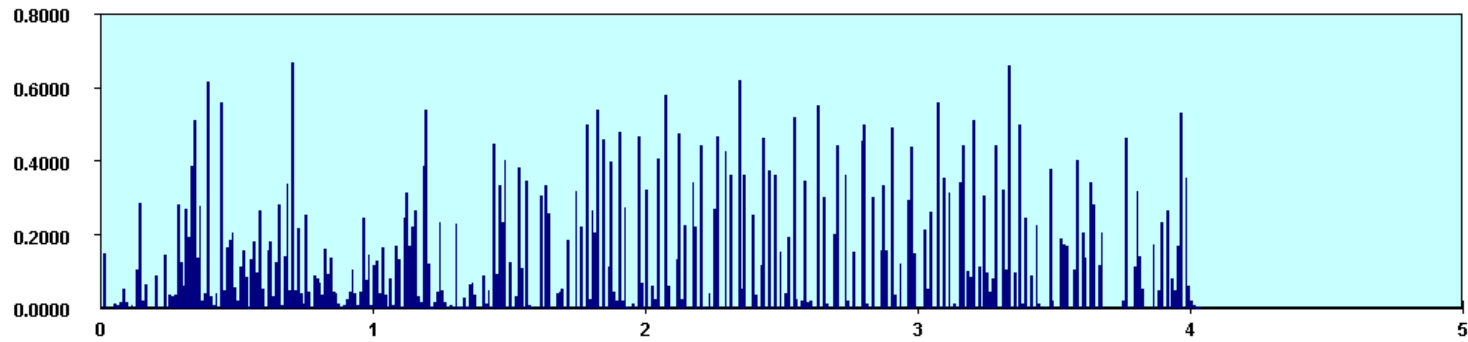
C0001\_20A  
Page 1 of 1  
Issue 1  
05 February 2001

Launch to Receive

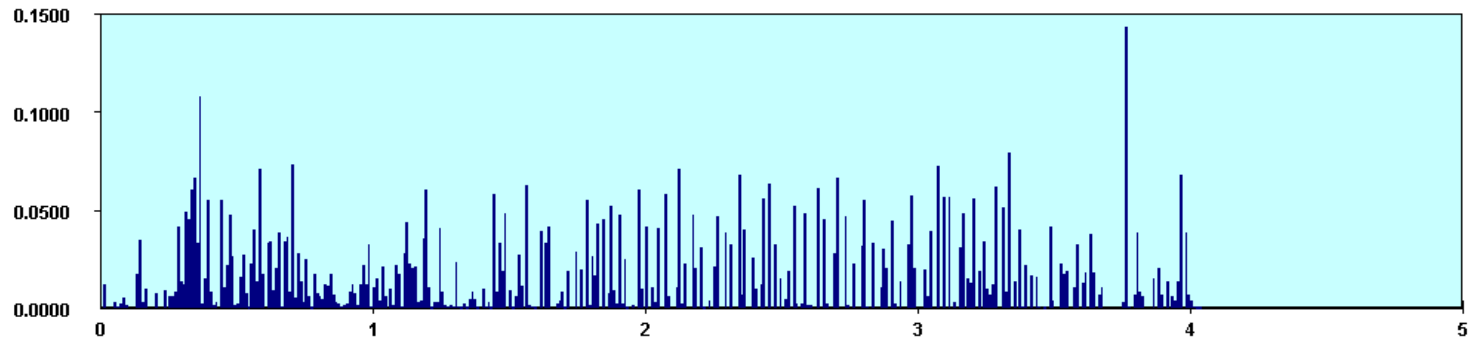
Total  
Number of  
Metal Loss  
Features



Total  
Area of  
Metal Loss  
(%)



Total  
Volume of  
Metal Loss  
(%)

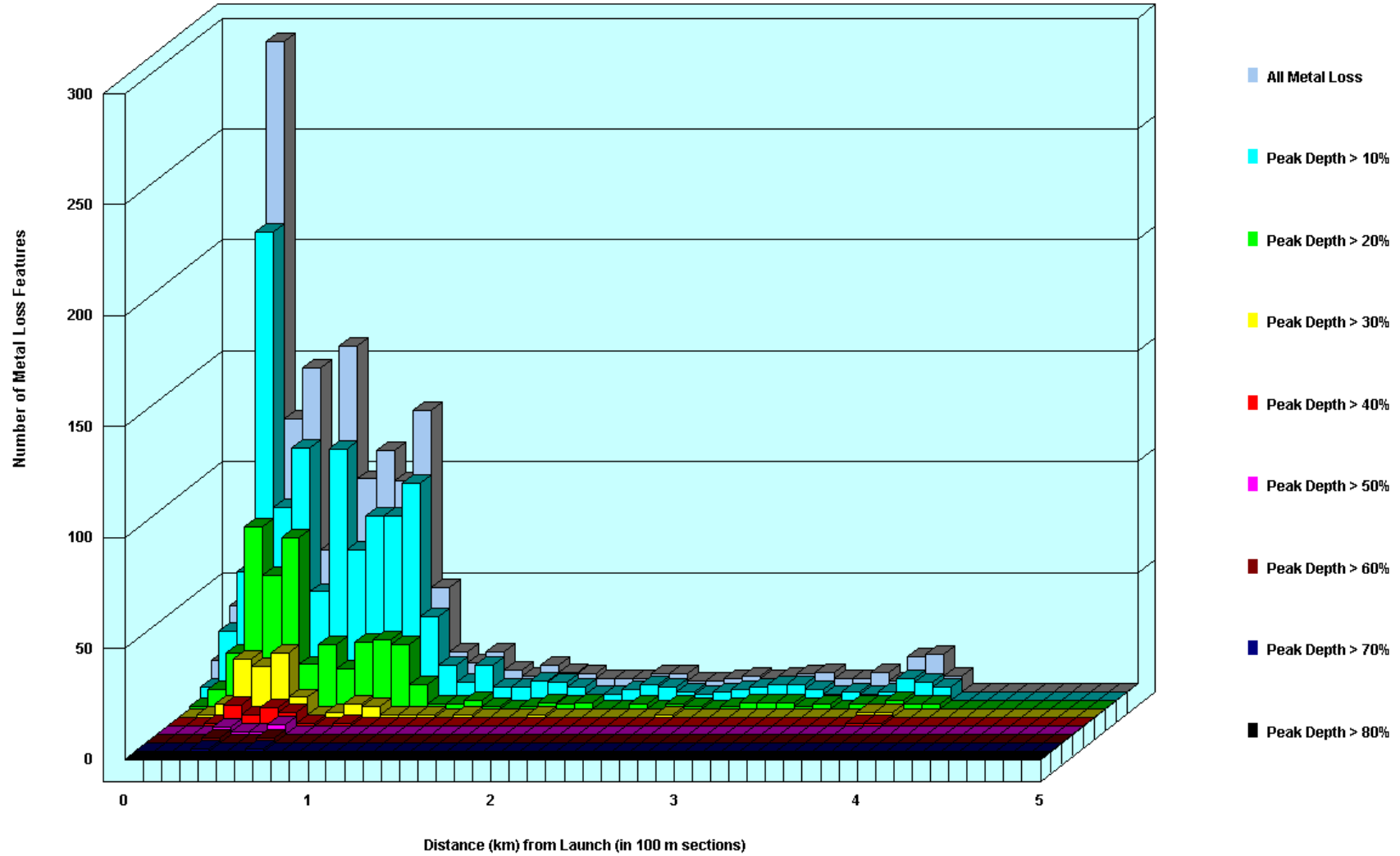


Distance (km) from Launch (in 10 m sections)

DEPTH BASED HISTOGRAM

Launch to Receive

C0001\_20A  
Page 3 of 3  
Issue 1  
05 February 2001

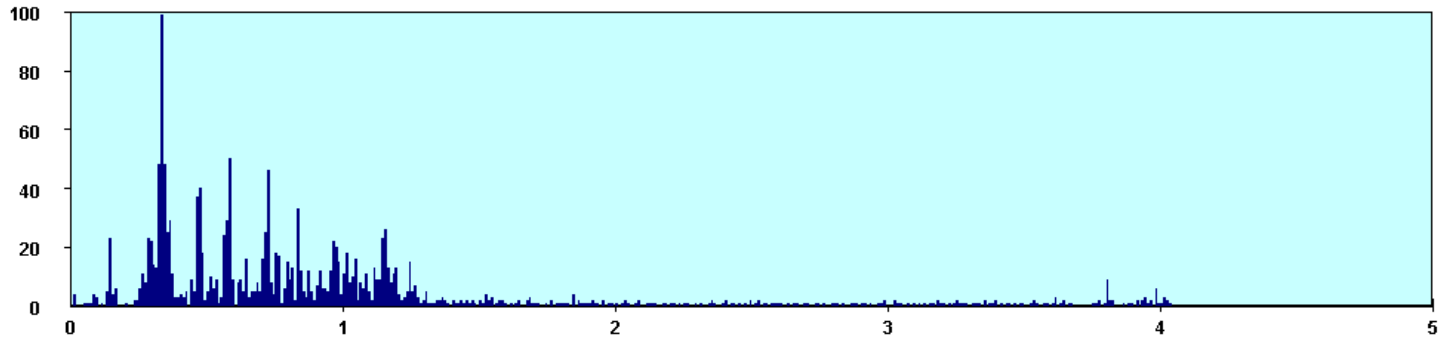


DEPTH BASED HISTOGRAM - ALL METAL LOSS

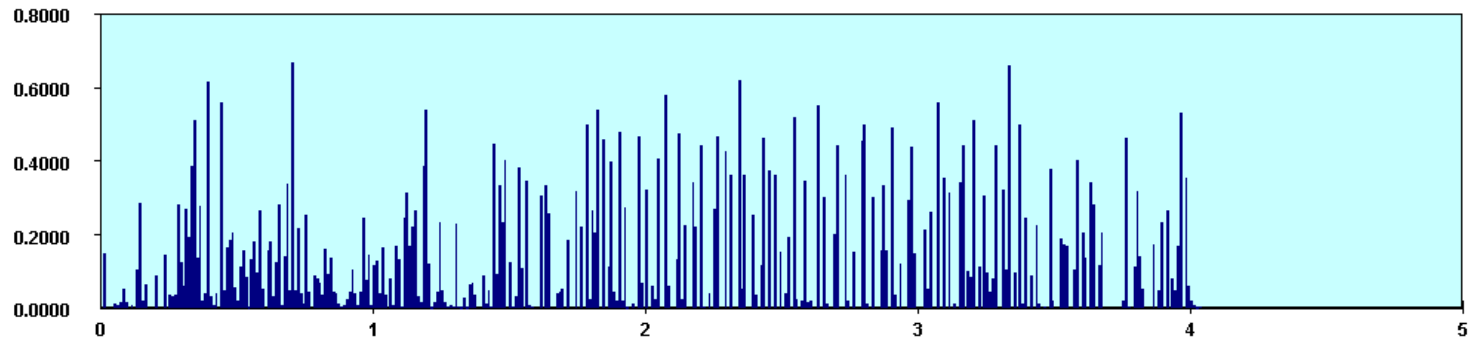
C0001\_20A  
Page 1 of 1  
Issue 1  
05 February 2001

Launch to Receive

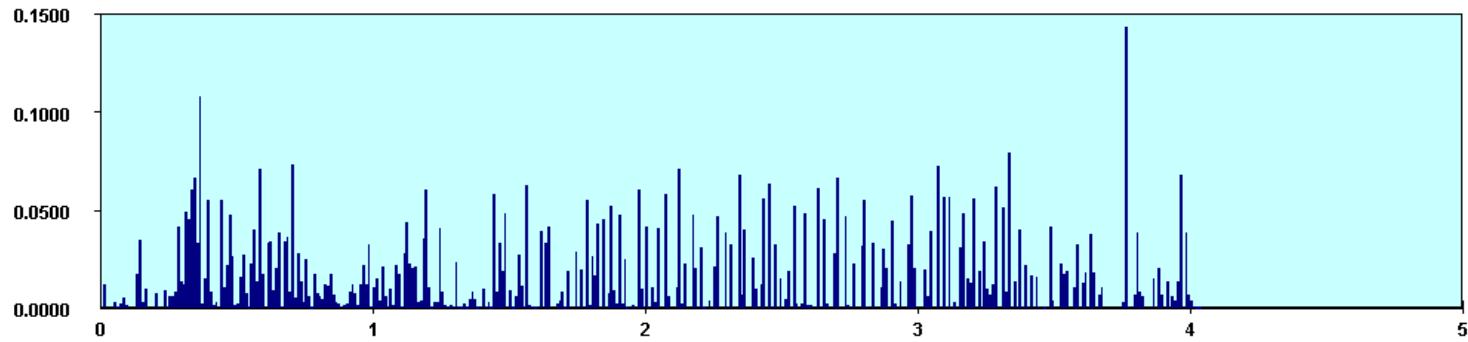
Total  
Number of  
Metal Loss  
Features



Total  
Area of  
Metal Loss  
(%)



Total  
Volume of  
Metal Loss  
(%)



Distance (km) from Launch (in 10 m sections)

#### **4.1.4. Orientation Plot**

The orientation plot shows the location and extent of each metal loss feature around the pipe's circumference.

The absolute distance from the launch is plotted against the orientation of the metal loss. The orientation is based on a 12 hour clock as viewed in the direction of product flow; for example, twelve indicates the top of the pipe and six indicates the bottom.

For each metal loss feature a box is drawn on the plot showing the predicted circumferential and axial extent of the metal loss feature. Due to the scale along the distance axis, each metal loss feature appears as a solid vertical line on the plot.

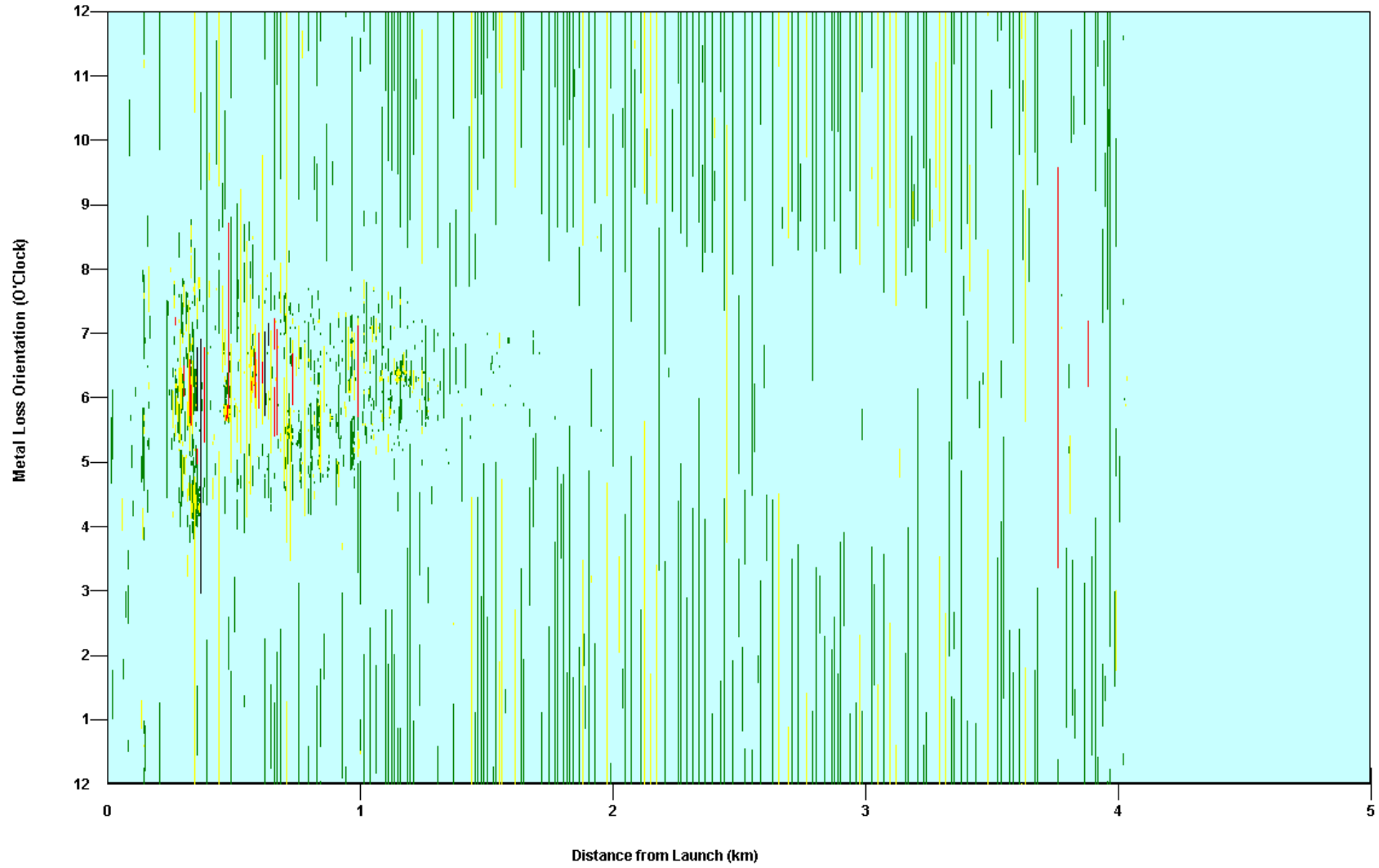
The orientation plot is presented overleaf.

ORIENTATION PLOT

Launch to Receive

- Peak Depth < 20%
- Peak Depth 20%-40%
- Peak Depth 40%-60%
- Peak Depth > 60%

C0001\_20A  
Page 1 of 1  
Issue 1  
05 February 2001



#### **4.1.5. Severity Table**

The severity table identifies those pipe spools which contain the most severe metal loss features.

Metal loss features that have been identified as manufacturing faults are not included in the severity table.

Only the worst metal loss feature in each spool is considered and these are listed in severity order as defined by the selection rules specified in the Specification for the Pipeline Inspection Report contained in the contract (Appendix F).

The severity table lists the twenty-five pipe spools which contain the most severe metal loss features.

The ERF value for undamaged pipe varies between 0.500 and 2.000.

The severity table is presented overleaf.

## Severity Table

### Launch to Receive

| Feature Selection Rule | ERF   | Peak Depth (%) | Axial Length (mm) | Upstream Girth Weld Number | Absolute Distance (metres) | Orientation (hrs:mins) |
|------------------------|-------|----------------|-------------------|----------------------------|----------------------------|------------------------|
| 1                      | 1.100 | 38             | 289               | 3550                       | 3806.1                     | 04:45                  |
| 1                      | 1.010 | 39             | 129               | 520                        | 318.8                      | 06:30                  |
| 1                      | 1.010 | 75             | 61                | 570                        | 367.9                      | 05:00                  |
| 4                      | 1.010 | 23             | 273               | 3230                       | 3618.9                     | 11:45                  |
| 5                      | 1.000 | 26             | 194               | 2940                       | 3265.1                     | 08:45                  |
| 5                      | 0.990 | 37             | 112               | 530                        | 330.6                      | 06:00                  |
| 5                      | 0.980 | 42             | 89                | 3410                       | 3761.7                     | 06:30                  |
| 5                      | 0.970 | 34             | 100               | 480                        | 287.3                      | 05:45                  |
| 5                      | 0.960 | 40             | 78                | 740                        | 583.5                      | 06:30                  |
| 5                      | 0.960 | 29             | 97                | 2230                       | 2401.9                     | 10:15                  |
| 5                      | 0.950 | 75             | 39                | 780                        | 623.4                      | 06:30                  |
| 6                      | 0.920 | 69             | 23                | 790                        | 635.5                      | 07:00                  |
| 6                      | 0.940 | 65             | 36                | 560                        | 355.7                      | 06:15                  |
| 7                      | 0.940 | 42             | 57                | 3790                       | 3880.0                     | 06:45                  |
| 7                      | 0.930 | 56             | 35                | 660                        | 477.5                      | 07:15                  |
| 7                      | 0.930 | 55             | 37                | 760                        | 611.2                      | 06:30                  |
| 7                      | 0.930 | 58             | 36                | 820                        | 672.1                      | 06:15                  |
| 7                      | 0.930 | 46             | 39                | 1080                       | 988.5                      | 06:30                  |
| 7                      | 0.920 | 41             | 27                | 460                        | 265.7                      | 07:15                  |
| 7                      | 0.920 | 42             | 36                | 490                        | 302.7                      | 06:30                  |
| 7                      | 0.920 | 41             | 29                | 580                        | 380.1                      | 06:00                  |
| 7                      | 0.920 | 48             | 28                | 650                        | 475.3                      | 05:45                  |
| 7                      | 0.920 | 49             | 24                | 730                        | 568.8                      | 06:15                  |
| 7                      | 0.920 | 42             | 25                | 810                        | 659.8                      | 07:00                  |
| 7                      | 0.920 | 43             | 34                | 870                        | 732.9                      | 06:15                  |

## **4.2. Pipeline Information**

The Pipeline Information presents summaries of any pipeline anomalies, repairs, location reference points and changes in the nominal pipe wall thickness along the pipeline. The following summaries are provided:

- Velocity Plot
- Metal Object Report
- Eccentric Casing Report
- Dent Report
- Girth Weld Anomaly Report
- Repair Listing
- Location Reference Point Listing
- Nominal Wall Thickness Listing

#### **4.2.1. Velocity Plot**

The velocity plot shows the speed of the inspection vehicle during the inspection run.

The red line on the velocity plot indicates the specified maximum velocity for the inspection vehicle. If the vehicle exceeds the specified maximum velocity then the performance of the inspection vehicle may be degraded.

The inspection vehicle did not exceed the specified maximum velocity during the inspection survey.

The inspection vehicle's average velocity during the inspection run was 2.0m/s.

The velocity profile plot is presented overleaf

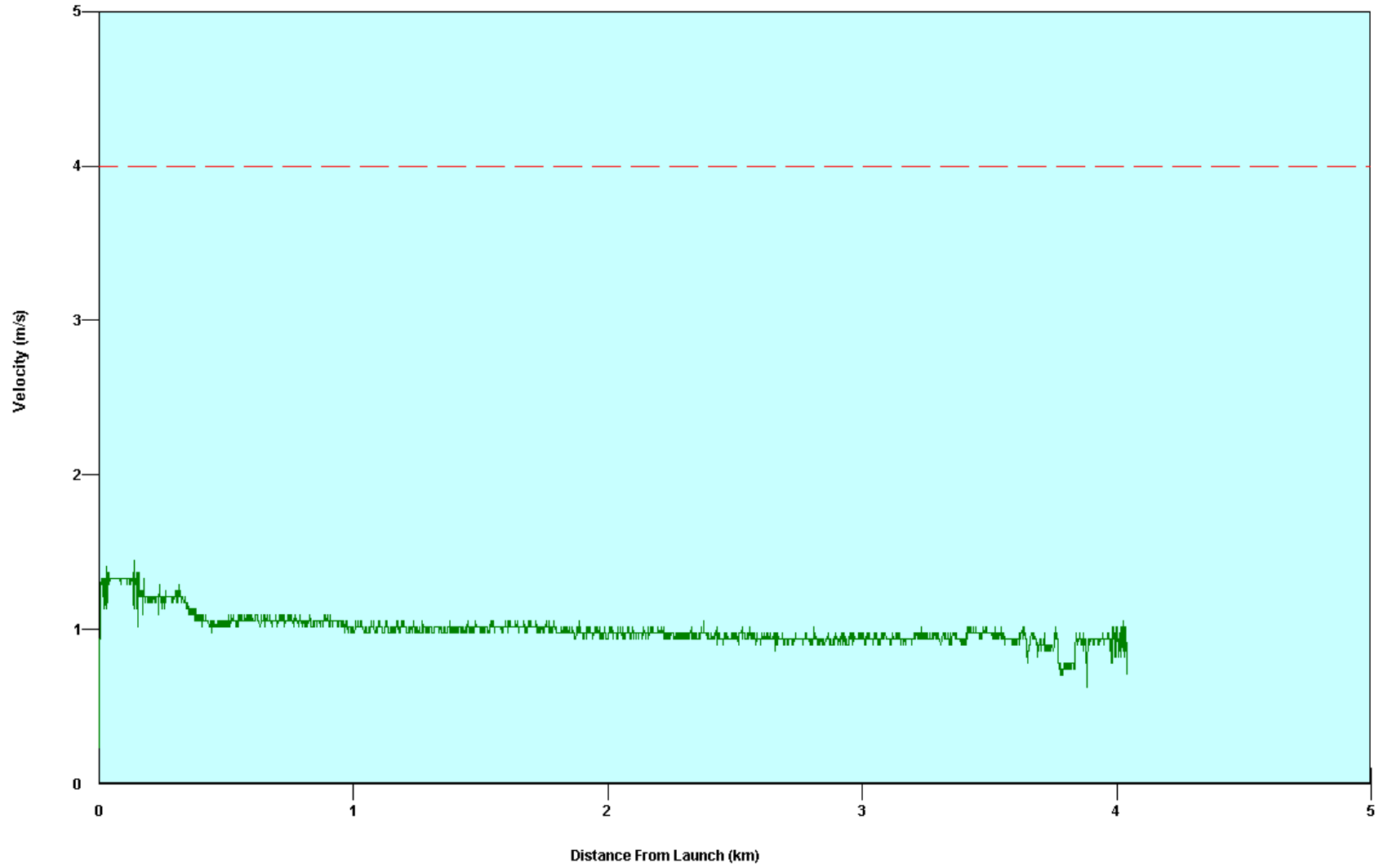
VELOCITY PLOT

Launch to Receive



Contractual Maximum Velocity

C0001\_20A  
Page 1 of 1  
Issue 1  
05 February 2001



#### **4.2.2. Metal Object Report**

The metal object report provides a list of all ferrous metal objects that have been detected along the pipeline.

Metal objects can be potentially hazardous to the pipeline. They can impair the pipeline's protective coating or the cathodic protection system, and over time they can also dent or damage the pipe itself.

Metal objects are classified as close to or touching the pipeline. Those metal objects classified as touching are considered to have damaged the pipeline's protective coating or impaired the cathodic protection system. Metal objects that are considered to be part of the pipeline build, such as supports but excluding attachments, will only be reported if they are touching the pipeline. Pipeline casings that are touching the pipe will be reported in the eccentric pipeline casing report presented in Section 4.2.3.

**5 metal objects** have been detected during this pipeline inspection.

A table listing the metal objects is presented overleaf.

## Metal Object Report

### Launch to Receive

| Upstream Girth Weld | Relative Distance (metres) | Absolute Distance (metres) | Proximity | Orientation (hrs:mins) | Upstream Reference | Distance U/S Ref. to Girth Weld (metres) | Downstream Reference | Distance D/S Ref. to Girth Weld (metres) |
|---------------------|----------------------------|----------------------------|-----------|------------------------|--------------------|--|----------------------|--|
| 640                 | 9.9                        | 463.0                      | CLOSE     | 06:00                  | OFFTAKE-SPHERE-TEE | 448.2                                    | MAGNET               | 151.0                                    |
| 650                 | 2.6                        | 468.0                      | TOUCHING  | 06:00                  | OFFTAKE-SPHERE-TEE | 460.5                                    | MAGNET               | 138.7                                    |
| 680                 | 11.1                       | 513.0                      | CLOSE     | 06:00                  | OFFTAKE-SPHERE-TEE | 497.0                                    | MAGNET               | 102.2                                    |
| 770                 | 6.8                        | 618.0                      | TOUCHING  | 06:00                  | MAGNET             | 7.1                                      | VALVE                | 3423.1                                   |
| 860                 | 2.2                        | 723.0                      | CLOSE     | 06:00                  | MAGNET             | 116.7                                    | VALVE                | 3313.5                                   |

### **4.2.3. Eccentric Casing Report**

The eccentric casing report provides a list of all casings detected along the pipeline which appear to be eccentric to the pipe and may, therefore, have damaged the pipeline's protective coating or impaired the cathodic protection system.

**One eccentric casing** has been detected during this pipeline inspection.

The following points should be noted from the listing:

- Category of Position

This identifies a point along the pipeline casing where eccentricity can occur. This will be either the start or end of the pipeline casing, or an intermediate point along it if the casing is constructed from several unattached pipeline casings.

- Proximity

This denotes whether the casing is close to or touching the pipeline at the casing position. There is no entry in this column if the casing is not eccentric at the casing position.

- Associated Corrosion

This indicates whether any metal loss features have been detected within the pipeline casing.

- Minimum Clearance

This is the orientation, as viewed in the direction of flow, at which the eccentric casing is closest to the pipeline. The value is given to the nearest half hour.

A table listing the eccentric casing is presented overleaf.

#### **4.2.4. Dent Report**

The dent report provides a list of all dents that have been detected along the pipeline.

Dents will affect the integrity of the pipeline and are potentially dangerous. It should be noted that a dent associated with metal loss is potentially more significant than a dent alone.

**4 dents** have been detected during this pipeline inspection.

A table listing the dents is presented overleaf.

## Dent Report

### Launch to Receive

| Upstream<br>Girth Weld | Relative<br>Distance<br>(metres) | Absolute<br>Distance<br>(metres) | Associated<br>Metal<br>Loss | Girth<br>Weld | Seam<br>Weld | Orientation<br>(hrs:mins) | Upstream<br>Reference | Distance<br>U/S Ref. to<br>Girth Weld<br>(metres) | Downstream<br>Reference | Distance<br>D/S Ref. to<br>Girth Weld<br>(metres) |
|------------------------|----------------------------------|----------------------------------|-----------------------------|---------------|--------------|---------------------------|-----------------------|---|-------------------------|---|
| 1420                   | 9.4                              | 1413.0                           | NO                          | NO            | NO           | 06:00                     | MAGNET                | 799.5   | VALVE                   | 2630.7  |
| 1430                   | 2.2                              | 1418.0                           | NO                          | NO            | NO           | 06:00                     | MAGNET                | 811.7   | VALVE                   | 2618.5  |
| 1430                   | 7.2                              | 1423.0                           | NO                          | NO            | NO           | 06:00                     | MAGNET                | 811.7   | VALVE                   | 2618.5  |
| 1440                   | 0.0                              | 1428.0                           | NO                          | NO            | NO           | 06:00                     | MAGNET                | 823.9   | VALVE                   | 2606.3  |

#### **4.2.5. Girth Weld Anomaly Report**

The girth weld anomaly report provides a list of all significant girth weld anomalies that have been detected along the pipeline.

Incomplete welds and circumferential cracks within the weld are examples of girth weld anomalies.

**3 girth weld anomalies** have been detected during this pipeline inspection.

It should be noted on the listing that where a girth weld anomaly cannot be unambiguously classified, the comment remains as "girth weld anomaly".

A table listing the girth weld anomalies is presented overleaf.

## Girth Weld Anomaly Report

### Launch to Receive

| <b>Girth Weld Number</b> | <b>Absolute Distance (metres)</b> | <b>Comment</b>     | <b>Estimated Circ. Extent (mm)</b> | <b>Orientation (hrs:mins)</b> | <b>Upstream Reference</b> | <b>Distance U/S Ref. to Girth Weld (metres)</b> | <b>Downstream Reference</b> | <b>Distance D/S Ref. to Girth Weld (metres)</b> |
|--------------------------|-----------------------------------|--------------------|------------------------------------|-------------------------------|---------------------------|---|-----------------------------|---|
| 1010                     | 913.0                             | CRACK              | 1234                               | 06:00                         | MAGNET                    | 299.1   | VALVE                       | 3131.1  |
| 1020                     | 918.0                             | INCOMPLETE WELD    | 4321                               | 06:00                         | MAGNET                    | 311.3   | VALVE                       | 3118.9  |
| 1020                     | 923.0                             | GIRTH WELD ANOMALY | 2468                               | 06:00                         | MAGNET                    | 311.3   | VALVE                       | 3118.9  |

#### **4.2.6. Repair Listing**

The repair listing provides a list of all fully circumferential repair shells and patch repaired spools that have been detected along the pipeline.

It should be noted that any metal loss detected beneath a repair shell or repair patch will not be included in the inspection analysis.

If a patch repair is detected within the spool then the spool will be reported on this listing as a patch repaired spool. Details of the individual patch repairs within the patch repaired spool will not normally be provided.

The inspection system has detected **one repair shell** and **5 patch repaired spools** during this pipeline inspection.

A table listing the repairs is presented overleaf.

## Repair Listing

### Launch to Receive

| <b>Upstream<br/>Girth<br/>Weld</b> | <b>Relative<br/>Distance<br/>(metres)</b> | <b>Absolute<br/>Distance<br/>(metres)</b> | <b>Comment</b> | <b>Length of<br/>Repair<br/>(metres)</b> |
|------------------------------------|---|---|----------------|--|
| 60                                 | 0.9                                       | 28.0                                      | REPAIRED SPOOL |  |
| 180                                | 4.5                                       | 113.0                                     | REPAIR-SHELL   | 55.0                                     |
| 290                                | 2.8                                       | 163.0                                     | REPAIRED SPOOL |  |
| 300                                | 4.7                                       | 173.0                                     | REPAIRED SPOOL |  |
| 400                                | 0.2                                       | 228.0                                     | REPAIRED SPOOL |  |
| 460                                | 4.1                                       | 263.0                                     | REPAIRED SPOOL |  |

**4.2.7. Location Reference Point Listing**

This is a list of the line markers (timer boxes), magnets, mainline valves, offtakes and anodes, as appropriate, that have been detected by the inspection system and that can be used to locate features along the pipeline.

Line markers were not used on the inspection survey.

A table listing the location reference points along the pipeline is presented overleaf.

## Location Reference Point Listing

### Launch to Receive

| <b>Upstream<br/>Girth<br/>Weld</b> | <b>Relative<br/>Distance<br/>(metres)</b> | <b>Absolute<br/>Distance<br/>(metres)</b> | <b>Comment</b>     | <b>Identification</b> |
|------------------------------------|---|---|--------------------|-----------------------|
| 2                                  | 0.0                                       | 1.2                                       | VALVE              |                       |
| 7                                  | 0.0                                       | 4.9                                       | OFFTAKE-SPHERE-TEE |                       |
| 760                                | 5.1                                       | 604.1                                     | MAGNET             |                       |
| 4400                               | 0.0                                       | 4034.3                                    | VALVE              |                       |
| 4420                               | 0.0                                       | 4036.6                                    | VALVE              |                       |

#### **4.2.8. Nominal Wall Thickness Listing**

The nominal wall thickness listing provides a list of the locations along the pipeline where a change in the nominal pipe wall thickness, or other parameter of the pipeline, has been detected by the inspection system. This listing identifies the major and minor pipeline segments used during the analysis of the inspection data.

A pipeline segment is a section of the pipeline where the nominal wall thickness (nwt), the maximum allowable operating pressure (MAOP) and the internal design pressure of the pipe (Pi) are constant.

Pipeline segments can be categorised as either major or minor segments.

A major segment is a pipeline segment that has been defined by the pipeline operator in the table provided in the Company Defined Operating Parameters section of the contract. In this table the pipeline operator specifies the locations of the start and end of the segment and the values of nwt, MAOP and Pi that apply within it.

A minor segment is a pipeline segment identified by the inspection system. The minor segment is a section within the major segment where the nominal wall thickness is distinctly different from that detected for the major segment.

In the absence of information from the pipeline operator, the MAOP and Pi values for the minor segment will be assumed to be the same as those specified for the major segment in which it is located.

The nominal wall thickness within the minor segment will be estimated from readings obtained from the inspection survey. The estimated nominal wall thickness will be either a wall thickness stated by the pipeline operator as being present in the pipeline, or the nearest American Petroleum Institute (API) nominal wall thickness.

The values of nwt, MAOP and Pi specified for each segment are used to calculate the ERF value of each metal loss feature detected within the segment.

A table listing the pipeline segments is presented overleaf.

## Nominal Wall Thickness Listing

### Launch to Receive

| Upstream<br>Girth Weld | Absolute<br>Distance<br>(metres) | Length of<br>Segment<br>(metres) | NWT<br>(mm) | Segment<br>Number | Pi<br>(kPa) | MAOP<br>(kPa) |
|------------------------|----------------------------------|----------------------------------|-------------|-------------------|-------------|---------------|
| 1                      | 0.0                              | 245.9                            | 15.00       | 1                 | 7800.0      | 7800.0        |
| 440                    | 245.9                            | 13.0                             | 20.00       | 2                 | 7800.0      | 7800.0        |
| 460                    | 258.9                            | 63.6                             | 30.00       | 2/1               | 7800.0      | 7800.0        |
| 530                    | 322.5                            | 678.1                            | 20.00       | 2                 | 7800.0      | 7800.0        |
| 1090                   | 1000.6                           | 500.3                            | 25.00       | 3                 | 7800.0      | 7800.0        |
| 1500                   | 1500.9                           | 499.6                            | 15.00       | 4                 | 7800.0      | 7800.0        |
| 1910                   | 2000.5                           | 48.8                             | 20.00       | 5                 | 7800.0      | 7800.0        |
| 1950                   | 2049.3                           | 24.4                             | 30.00       | 5/1               | 7800.0      | 7800.0        |
| 1970                   | 2073.7                           | 73.0                             | 20.00       | 5                 | 7800.0      | 7800.0        |
| 2030                   | 2146.7                           | 24.5                             | 30.00       | 5/2               | 7800.0      | 7800.0        |
| 2050                   | 2171.2                           | 73.0                             | 20.00       | 5                 | 7800.0      | 7800.0        |
| 2110                   | 2244.2                           | 24.3                             | 35.00       | 5/3               | 7800.0      | 7800.0        |
| 2130                   | 2268.5                           | 85.0                             | 20.00       | 5                 | 7800.0      | 7800.0        |
| 2200                   | 2353.5                           | 24.5                             | 30.00       | 5/4               | 7800.0      | 7800.0        |
| 2220                   | 2378.0                           | 72.7                             | 20.00       | 5                 | 7800.0      | 7800.0        |
| 2280                   | 2450.7                           | 24.3                             | 35.00       | 5/5               | 7800.0      | 7800.0        |
| 2300                   | 2475.0                           | 24.2                             | 20.00       | 5                 | 7800.0      | 7800.0        |
| 2320                   | 2499.2                           | 498.5                            | 25.00       | 6                 | 7800.0      | 7800.0        |
| 2730                   | 2997.7                           | 499.6                            | 15.00       | 7                 | 7800.0      | 7800.0        |
| 3140                   | 3497.3                           | 344.0                            | 20.00       | 8                 | 7800.0      | 7800.0        |
| 3670                   | 3841.3                           | 196.9                            | 25.00       | 9                 | 7800.0      | 7800.0        |

### **4.3. Pipeline Listing**

The pipeline listing presents the sequence of girth welds, metal loss features, metal objects, eccentric pipeline casings, dents, girth weld anomalies and repairs detected along the pipeline. Location reference points and changes in the nominal pipe wall thickness are also included in the pipeline listing.

There are four types of entry in the pipeline listing. These are:

#### **Girth Welds**

Each girth weld entry consists of:

- a girth weld number;
- the relative distance along the pipeline to the girth weld from the previous (upstream) girth weld; and,
- the absolute distance from the start of the pipeline.

#### **Metal Loss Features**

Each entry for a metal loss feature consists of:

- the relative distance along the pipeline to the upstream edge of the metal loss feature from the previous (upstream) girth weld;
- the absolute distance along the pipeline to the upstream edge of the metal loss feature;
- ML to denote that the entry refers to a metal loss feature;
- EXT or INT to denote whether the metal loss feature is on the external or internal surface of the pipe. It should be noted that mid-wall metal loss features would be classified as external;
- the predicted peak depth of the metal loss feature;
- the predicted axial length of the metal loss feature; and,
- the orientation of the metal loss feature, as viewed in the direction of flow.
- the calculated ERF value for the metal loss feature.
- those metal loss features which have undergone detailed processing and analysis are indicated by a \*. This includes all features reported on inspection sheets.

Please be aware that the ERF values in the Pipeline Listing are allocated to individual features. In the case of future corrosion, increasing depth of individual corrosion features is not the only consideration. Individual features in close proximity may link together through low level corrosion leading to higher net ERF values.

## *Pressure Based Pipeline Summary Report*

### **Identified Manufacturing Faults**

The entry for an identified manufacturing fault is the same as that for a metal loss feature with the following differences:

- MFG (in place of ML) to denote that the entry refers to an identified manufacturing fault; and,
- there is no calculated ERF value for an identified manufacturing fault.

### **Pipeline Anomalies and Fittings**

Other entries in the pipeline listing relate to pipeline fittings and pipeline anomalies. These entries consist of:

- the relative distance along the pipeline to the fitting or anomaly relative from the previous (upstream) girth weld;
- the absolute distance along the pipeline to the fitting or anomaly; and,
- a comment describing the fitting or anomaly.

It should be noted that where the orientation of a pipeline fitting has not been specified then the fitting is centred on the 12-00 position.

If a pipe spool contains fifty or more metal loss features (that is corrosion, gouging and mill/manufacturing faults) then a metal loss spool summary will be provided and these features will not be listed individually within the spool on the pipeline listing

The metal loss spool summary will consist of two entries, a metal loss summary entry and the entry for the worst metal loss feature within the spool.

The metal loss summary entry will be placed on the line after the entry for the girth weld located at the upstream end of the spool. This entry will not have relative and absolute distances. The comment will be SUMMARY and the total number of metal loss features (corrosion, gouging and mill/manufacturing faults) within the spool will appear at the end of the line.

The entry for the worst metal loss feature within the spool will be placed at the correct relative distance with respect to the upstream girth weld and will be in the format described above. This feature will be identified according to the selection rules specified in the Specification for the Pipeline Inspection Report (Appendix F).

It should be noted that the pipeline listing in PipeVision will provide an entry for each metal loss feature detected along the pipeline and will not contain metal loss spool summaries.

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment            | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|--------------------|------------|--------|-------|------------------------|
| 1                 | 0.0                        | 0.0                        |                    |            |        |       |                        |
| 2                 | 1.2                        | 1.2                        |                    |            |        |       |                        |
|                   |                            |                            | VALVE              |            |        |       |                        |
| 3                 | 0.8                        | 2.0                        |                    |            |        |       |                        |
| 4                 | 0.5                        | 2.5                        |                    |            |        |       |                        |
| 5                 | 0.1                        | 2.6                        |                    |            |        |       |                        |
| 6                 | 0.5                        | 3.1                        |                    |            |        |       |                        |
|                   |                            |                            | Blinkety Blonk     |            |        |       |                        |
| 7                 | 1.8                        | 4.9                        |                    |            |        |       |                        |
|                   |                            |                            | OFFTAKE-SPHERE-TEE |            |        |       |                        |
| 8                 | 0.9                        | 5.8                        |                    |            |        |       |                        |
| 9                 | 4.1                        | 9.9                        |                    |            |        |       |                        |
| 10                | 3.0                        | 12.9                       |                    |            |        |       |                        |
|                   |                            |                            | Blinkety Blonk     |            |        |       |                        |
| 20                | 1.4                        | 14.3                       |                    |            |        |       |                        |
|                   | 1.8                        | 16.1                       | INT MFG            | 9%         | 61     |       | 05:15                  |
|                   | 2.3                        | 16.6                       | INT MFG            | 7%         | 56     |       | 01:30                  |
|                   | 2.7                        | 17.0                       | INT MFG            | 9%         | 44     |       | 05:45                  |
|                   | 3.6                        | 17.9                       | INT MFG            | 6%         | 62     |       | 05:30                  |
| 30                | 4.3                        | 18.6                       |                    |            |        |       |                        |
|                   |                            |                            | BEND-FORGED RIGHT  |            |        |       |                        |
| 40                | 4.1                        | 22.7                       |                    |            |        |       |                        |
| 50                | 2.4                        | 25.1                       |                    |            |        |       |                        |
|                   |                            |                            | BEND-FORGED RIGHT  |            |        |       |                        |
| 60                | 2.0                        | 27.1                       |                    |            |        |       |                        |
|                   | 0.9                        | 28.0                       | REPAIRED SPOOL     |            |        |       |                        |
| 70                | 4.7                        | 31.8                       |                    |            |        |       |                        |
|                   |                            |                            | BEND-FORGED OVER   |            |        |       |                        |
| 80                | 1.9                        | 33.7                       |                    |            |        |       |                        |
| 90                | 1.6                        | 35.3                       |                    |            |        |       |                        |
| 100               | 8.1                        | 43.4                       |                    |            |        |       |                        |
| 110               | 8.2                        | 51.6                       |                    |            |        |       |                        |
| 120               | 8.1                        | 59.7                       |                    |            |        |       |                        |
|                   | 0.0                        | 59.7                       | INT MFG            | 25%        | 25     |       | 04:15                  |
|                   | 1.2                        | 60.9                       | INT MFG            | 10%        | 32     |       | 01:45                  |
| 130               | 8.1                        | 67.8                       |                    |            |        |       |                        |
|                   | 6.3                        | 74.1                       | INT MFG            | 13%        | 42     |       | 02:45                  |
| 140               | 8.1                        | 75.9                       |                    |            |        |       |                        |
|                   | 4.6                        | 80.5                       | REPAIR-PATCH       |            |        |       | 06:00                  |
|                   | 6.2                        | 82.1                       | INT MFG            | 10%        | 25     |       | 12:30                  |
|                   | 6.9                        | 82.8                       | INT MFG            | 4%         | 22     |       | 02:45                  |
|                   | 7.1                        | 83.0                       | INT MFG            | 16%        | 30     |       | 03:30                  |
| 150               | 8.2                        | 84.1                       |                    |            |        |       |                        |
|                   | 3.5                        | 87.6                       | INT ML             | 11%        | 40     | 0.910 | 10:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment                 | Peak Depth | Length | ERF   | Orientation (hrs:mins) |  |
|-------------------|----------------------------|----------------------------|-------------------------|------------|--------|-------|------------------------|--|
| 160               | 8.1                        | 92.2                       |                         |            |        |       |                        |  |
|                   | 1.1                        | 93.3                       | INT ML                  | 15%        | 17     | 0.910 | 05:45                  |  |
|                   | 1.3                        | 93.5                       | INT ML                  | 10%        | 29     | 0.910 | 05:00                  |  |
|                   | 7.2                        | 99.4                       | INT ML                  | 12%        | 18     | 0.910 | 04:15                  |  |
| 170               | 8.1                        | 100.3                      |                         |            |        |       |                        |  |
| 180               | 8.2                        | 108.5                      |                         |            |        |       |                        |  |
|                   | 2.5                        | 111.0                      | INT ML                  | 12%        | 45     | 0.910 | 06:00                  |  |
|                   | 4.5                        | 113.0                      | REPAIR-SHELL START      |            |        |       |                        |  |
| 190               | 6.8                        | 115.3                      |                         |            |        |       |                        |  |
| 200               | 1.8                        | 117.1                      |                         |            |        |       |                        |  |
| 210               | 0.4                        | 117.5                      |                         |            |        |       |                        |  |
| 220               | 7.0                        | 124.5                      |                         |            |        |       |                        |  |
|                   | 7.3                        | 131.8                      | INT ML                  | 10%        | 35     | 0.910 | 05:00                  |  |
|                   | 7.4                        | 131.9                      | INT ML                  | 35%        | 76     | 0.950 | 01:00                  |  |
| 230               | 7.7                        | 132.2                      |                         |            |        |       |                        |  |
|                   | 4.9                        | 137.1                      | INT ML                  | 24%        | 79     | 0.940 | 04:00                  |  |
|                   | 5.1                        | 137.3                      | INT ML                  | 10%        | 25     | 0.910 | 08:00                  |  |
| 240               | 7.1                        | 139.3                      |                         |            |        |       |                        |  |
|                   | 0.6                        | 139.9                      | INT ML                  | 6%         | 34     | 0.910 | 05:30                  |  |
|                   | 1.1                        | 140.4                      | INT ML                  | 18%        | 21     | 0.910 | 05:00                  |  |
| 250               | 1.2                        | 140.5                      |                         |            |        |       |                        |  |
|                   | 1.1                        | 141.6                      | INT ML                  | 11%        | 88     | 0.920 | 07:00                  |  |
|                   | 1.2                        | 141.7                      | INT ML                  | 17%        | 19     | 0.910 | 07:15                  |  |
|                   | 1.3                        | 141.8                      | INT ML                  | 16%        | 23     | 0.910 | 04:00                  |  |
|                   | 1.3                        | 141.8                      | INT ML                  | 21%        | 21     | 0.910 | 07:30                  |  |
|                   | 1.7                        | 142.2                      | INT ML                  | 10%        | 34     | 0.910 | 05:00                  |  |
|                   | 1.9                        | 142.4                      | INT ML                  | 13%        | 47     | 0.910 | 05:15                  |  |
|                   | 2.0                        | 142.5                      | INT ML                  | 11%        | 20     | 0.910 | 05:45                  |  |
| 260               | 2.2                        | 142.7                      |                         |            |        |       |                        |  |
|                   |                            |                            | BEND-HOT PULLED UNKNOWN |            |        |       |                        |  |
|                   | 0.4                        | 143.1                      | INT ML                  | 30%        | 19     | 0.910 | 05:45                  |  |
|                   | 0.9                        | 143.6                      | INT ML                  | 18%        | 102    | 0.940 | 07:15                  |  |
|                   | 1.5                        | 144.2                      | INT ML                  | 11%        | 34     | 0.910 | 04:45                  |  |
|                   | 1.6                        | 144.3                      | INT ML                  | 26%        | 38     | 0.920 | 05:30                  |  |
|                   | 1.9                        | 144.6                      | INT ML                  | 12%        | 27     | 0.910 | 12:00                  |  |
|                   | 2.0                        | 144.7                      | INT ML                  | 16%        | 24     | 0.910 | 12:00                  |  |
|                   | 2.0                        | 144.7                      | INT ML                  | 23%        | 31     | 0.910 | 12:30                  |  |
|                   | 2.6                        | 145.3                      | INT ML                  | 9%         | 23     | 0.910 | 11:45                  |  |
|                   | 2.7                        | 145.4                      | INT ML                  | 23%        | 21     | 0.910 | 11:15                  |  |
|                   | 2.8                        | 145.5                      | INT ML                  | 10%        | 25     | 0.910 | 11:45                  |  |
|                   | 3.0                        | 145.7                      | INT ML                  | 15%        | 22     | 0.910 | 01:00                  |  |
|                   | 3.2                        | 145.9                      | INT ML                  | 19%        | 21     | 0.910 | 12:00                  |  |
|                   | 270                        | 3.2                        | 145.9                   |            |        |       |                        |  |
| 0.6               |                            | 146.5                      | INT ML                  | 14%        | 51     | 0.920 | 12:45                  |  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment          | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|------------------|------------|--------|-------|------------------------|
| 280               | 1.7                        | 147.6                      | INT ML           | 11%        | 19     | 0.910 | 12:30                  |
|                   | 3.1                        | 149.0                      | INT ML           | 16%        | 15     | 0.910 | 07:00                  |
|                   | 6.3                        | 152.2                      |                  |            |        |       |                        |
|                   | 3.7                        | 155.9                      | INT ML           | 9%         | 20     | 0.910 | 04:30                  |
|                   | 3.9                        | 156.1                      | INT ML           | 17%        | 17     | 0.910 | 05:15                  |
| 290               | 4.0                        | 156.2                      | INT ML           | 15%        | 30     | 0.910 | 08:30                  |
|                   | 4.4                        | 156.6                      | INT ML           | 19%        | 12     | 0.910 | 06:30                  |
|                   | 8.0                        | 160.2                      |                  |            |        |       |                        |
|                   | 1.4                        | 161.6                      | INT ML           | 17%        | 29     | 0.910 | 06:00                  |
|                   | 1.9                        | 162.1                      | INT ML           | 7%         | 15     | 0.910 | 07:30                  |
|                   | 2.5                        | 162.7                      | INT ML           | 28%        | 31     | 0.920 | 06:15                  |
|                   | 2.8                        | 163.0                      | REPAIRED SPOOL   |            |        |       |                        |
| 300               | 4.2                        | 164.4                      | INT ML           | 22%        | 71     | 0.930 | 07:45                  |
|                   | 4.4                        | 164.6                      | INT ML           | 20%        | 34     | 0.910 | 05:15                  |
|                   | 5.0                        | 165.2                      | INT ML           | 16%        | 21     | 0.910 | 07:00                  |
|                   | 7.8                        | 168.0                      | REPAIR-SHELL END |            |        |       |                        |
|                   | 8.1                        | 168.3                      |                  |            |        |       |                        |
|                   |                            |                            | BEND-COLD UNDER  |            |        |       |                        |
|                   |                            |                            | REPAIRED SPOOL   |            |        |       |                        |
|                   | 4.7                        | 173.0                      |                  |            |        |       |                        |
|                   | 7.1                        | 175.4                      |                  |            |        |       |                        |
|                   | 7.7                        | 183.1                      |                  |            |        |       |                        |
| 310               | 3.1                        | 186.2                      |                  |            |        |       |                        |
| 320               | 0.4                        | 186.6                      |                  |            |        |       |                        |
| 330               | 1.8                        | 188.4                      |                  |            |        |       |                        |
| 340               | 7.8                        | 196.2                      |                  |            |        |       |                        |
| 350               | 8.1                        | 204.3                      | INT ML           | 10%        | 30     | 0.910 | 11:30                  |
| 360               | 8.1                        | 204.3                      |                  |            |        |       |                        |
| 370               | 7.2                        | 211.5                      |                  |            |        |       |                        |
| 380               | 8.1                        | 219.6                      |                  |            |        |       |                        |
| 390               | 8.2                        | 227.8                      |                  |            |        |       |                        |
| 400               | 0.2                        | 228.0                      | REPAIRED SPOOL   |            |        |       |                        |
| 410               | 6.5                        | 234.3                      | INT ML           | 6%         | 55     | 0.910 | 06:00                  |
|                   | 7.1                        | 234.9                      |                  |            |        |       |                        |
|                   | 3.5                        | 238.4                      | INT ML           | 11%        | 19     | 0.910 | 07:30                  |
| 420               | 3.9                        | 238.8                      |                  |            |        |       |                        |
| 430               | 5.2                        | 244.0                      |                  |            |        |       |                        |
| 440               | 1.9                        | 245.9                      |                  |            |        |       |                        |
| 450               | 0.6                        | 246.5                      | INT ML           | 15%        | 18     | 0.910 | 06:00                  |
|                   | 2.4                        | 248.3                      | INT ML           | 23%        | 23     | 0.910 | 08:00                  |
|                   | 5.4                        | 251.3                      | INT ML           | 12%        | 15     | 0.910 | 06:00                  |
|                   | 7.8                        | 253.7                      | INT ML           | 8%         | 14     | 0.910 | 06:00                  |
|                   | 9.6                        | 255.5                      | INT ML           | 10%        | 25     | 0.910 | 05:15                  |
|                   | 9.9                        | 255.8                      |                  |            |        |       |                        |
|                   | 0.9                        | 256.7                      | INT ML           | 21%        | 13     | 0.910 | 04:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment        | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|----------------|------------|--------|-------|------------------------|
| 460               | 1.7                        | 257.5                      | INT ML         | 16%        | 19     | 0.910 | 06:30                  |
|                   | 3.1                        | 258.9                      |                |            |        |       |                        |
|                   | 0.0                        | 258.9                      | *INT ML        | 29%        | 48     | 0.920 | 05:45                  |
|                   | 2.2                        | 261.1                      | INT ML         | 15%        | 21     | 0.910 | 07:45                  |
|                   | 2.9                        | 261.8                      | INT ML         | 23%        | 16     | 0.910 | 07:45                  |
|                   | 3.6                        | 262.5                      | INT ML         | 36%        | 19     | 0.910 | 07:30                  |
|                   | 4.1                        | 263.0                      | REPAIRED SPOOL |            |        |       |                        |
|                   | 4.5                        | 263.4                      | INT ML         | 18%        | 22     | 0.910 | 07:00                  |
|                   | 5.7                        | 264.6                      | INT ML         | 20%        | 16     | 0.910 | 05:30                  |
|                   | 6.8                        | 265.7                      | INT ML         | 41%        | 27     | 0.920 | 07:15                  |
|                   | 7.8                        | 266.7                      | INT ML         | 10%        | 19     | 0.910 | 06:00                  |
|                   | 8.6                        | 267.5                      | INT ML         | 26%        | 15     | 0.910 | 06:15                  |
|                   | 9.3                        | 268.2                      | INT ML         | 23%        | 22     | 0.910 | 06:30                  |
| 470               | 10.2                       | 269.1                      | INT ML         | 24%        | 20     | 0.910 | 05:30                  |
|                   | 10.9                       | 269.8                      | INT ML         | 18%        | 13     | 0.910 | 06:15                  |
|                   | 11.9                       | 270.8                      | INT ML         | 28%        | 21     | 0.910 | 06:15                  |
|                   | 12.4                       | 271.3                      |                |            |        |       |                        |
|                   | 0.4                        | 271.7                      | INT ML         | 16%        | 20     | 0.910 | 06:15                  |
|                   | 1.4                        | 272.7                      | INT ML         | 32%        | 42     | 0.920 | 06:00                  |
|                   | 3.5                        | 274.8                      | INT ML         | 10%        | 25     | 0.910 | 06:00                  |
|                   | 4.5                        | 275.8                      | INT ML         | 20%        | 15     | 0.910 | 05:30                  |
|                   | 6.1                        | 277.4                      | INT ML         | 38%        | 37     | 0.920 | 05:45                  |
|                   | 6.9                        | 278.2                      | INT ML         | 18%        | 11     | 0.910 | 06:30                  |
| 480               | 7.6                        | 278.9                      | INT ML         | 13%        | 20     | 0.910 | 05:30                  |
|                   | 7.9                        | 279.2                      |                |            |        |       |                        |
|                   | 1.0                        | 280.2                      | INT ML         | 23%        | 11     | 0.910 | 05:15                  |
|                   | 1.6                        | 280.8                      | INT ML         | 15%        | 24     | 0.910 | 08:30                  |
|                   | 1.9                        | 281.1                      | INT ML         | 28%        | 23     | 0.910 | 06:15                  |
|                   | 2.4                        | 281.6                      | INT ML         | 26%        | 20     | 0.910 | 07:15                  |
|                   | 2.9                        | 282.1                      | INT ML         | 34%        | 14     | 0.910 | 05:30                  |
|                   | 3.3                        | 282.5                      | INT ML         | 19%        | 17     | 0.910 | 07:30                  |
|                   | 3.8                        | 283.0                      | INT ML         | 13%        | 30     | 0.910 | 08:15                  |
|                   | 4.3                        | 283.5                      | INT ML         | 10%        | 25     | 0.910 | 04:30                  |
|                   | 4.7                        | 283.9                      | INT ML         | 10%        | 35     | 0.910 | 05:30                  |
|                   | 5.3                        | 284.5                      | INT ML         | 14%        | 12     | 0.910 | 05:30                  |
|                   | 5.8                        | 285.0                      | INT ML         | 18%        | 11     | 0.910 | 06:00                  |
|                   | 6.3                        | 285.5                      | INT ML         | 27%        | 10     | 0.910 | 05:30                  |
|                   | 6.6                        | 285.8                      | INT ML         | 19%        | 16     | 0.910 | 06:30                  |
| 7.0               | 286.2                      | INT ML                     | 21%            | 13         | 0.910  | 06:15 |                        |
| 7.3               | 286.5                      | INT ML                     | 9%             | 11         | 0.910  | 05:00 |                        |
| 7.7               | 286.9                      | INT ML                     | 6%             | 18         | 0.910  | 04:15 |                        |
| 8.1               | 287.3                      | INT ML                     | 34%            | 100        | 0.970  | 05:45 |                        |
| 8.6               | 287.8                      | INT ML                     | 11%            | 15         | 0.910  | 05:45 |                        |
| 9.3               | 288.5                      | INT ML                     | 16%            | 20         | 0.910  | 05:00 |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 490               | 9.7                        | 288.9                      | INT ML  | 30%        | 69     | 0.940 | 06:15                  |
|                   | 10.1                       | 289.3                      | INT ML  | 25%        | 50     | 0.920 | 06:15                  |
|                   | 10.4                       | 289.6                      | INT ML  | 5%         | 13     | 0.910 | 07:15                  |
|                   | 10.7                       | 289.9                      | INT ML  | 19%        | 11     | 0.910 | 05:45                  |
|                   | 11.2                       | 290.4                      | INT ML  | 10%        | 25     | 0.910 | 07:00                  |
|                   | 12.0                       | 291.2                      | INT ML  | 13%        | 54     | 0.920 | 05:00                  |
|                   | 12.3                       | 291.5                      |         |            |        |       |                        |
|                   | 0.3                        | 291.8                      | INT ML  | 13%        | 22     | 0.910 | 05:00                  |
|                   | 0.7                        | 292.2                      | INT ML  | 4%         | 14     | 0.910 | 07:30                  |
|                   | 1.1                        | 292.6                      | INT ML  | 8%         | 42     | 0.910 | 04:45                  |
|                   | 1.5                        | 293.0                      | INT ML  | 16%        | 76     | 0.930 | 05:00                  |
|                   | 1.9                        | 293.4                      | INT ML  | 20%        | 16     | 0.910 | 05:30                  |
|                   | 2.4                        | 293.9                      | INT ML  | 13%        | 13     | 0.910 | 07:45                  |
|                   | 2.9                        | 294.4                      | INT ML  | 15%        | 14     | 0.910 | 07:00                  |
|                   | 3.5                        | 295.0                      | INT ML  | 10%        | 25     | 0.910 | 07:00                  |
|                   | 3.9                        | 295.4                      | INT ML  | 22%        | 22     | 0.910 | 06:15                  |
|                   | 4.3                        | 295.8                      | INT ML  | 23%        | 16     | 0.910 | 07:00                  |
|                   | 4.8                        | 296.3                      | INT ML  | 26%        | 26     | 0.910 | 05:15                  |
|                   | 5.2                        | 296.7                      | INT ML  | 12%        | 17     | 0.910 | 04:30                  |
|                   | 5.6                        | 297.1                      | INT ML  | 10%        | 25     | 0.910 | 07:30                  |
|                   | 6.1                        | 297.6                      | INT ML  | 20%        | 21     | 0.910 | 06:15                  |
|                   | 6.4                        | 297.9                      | INT ML  | 16%        | 16     | 0.910 | 04:30                  |
|                   | 6.8                        | 298.3                      | INT ML  | 5%         | 14     | 0.910 | 06:00                  |
|                   | 7.2                        | 298.7                      | INT ML  | 20%        | 13     | 0.910 | 05:00                  |
|                   | 7.6                        | 299.1                      | INT ML  | 23%        | 42     | 0.920 | 04:45                  |
|                   | 8.0                        | 299.5                      | INT ML  | 15%        | 15     | 0.910 | 05:00                  |
|                   | 8.4                        | 299.9                      | INT ML  | 18%        | 17     | 0.910 | 05:00                  |
| 8.7               | 300.2                      | INT ML                     | 15%     | 19         | 0.910  | 07:45 |                        |
| 9.0               | 300.5                      | INT ML                     | 21%     | 12         | 0.910  | 07:45 |                        |
| 9.4               | 300.9                      | INT ML                     | 42%     | 27         | 0.920  | 06:00 |                        |
| 9.8               | 301.3                      | INT ML                     | 22%     | 25         | 0.910  | 07:30 |                        |
| 10.0              | 301.5                      | INT ML                     | 30%     | 16         | 0.910  | 07:00 |                        |
| 10.4              | 301.9                      | INT ML                     | 20%     | 16         | 0.910  | 05:00 |                        |
| 10.7              | 302.2                      | INT ML                     | 5%      | 17         | 0.910  | 06:30 |                        |
| 11.2              | 302.7                      | INT ML                     | 42%     | 36         | 0.920  | 06:30 |                        |
| 12.3              | 303.8                      |                            |         |            |        |       |                        |
| 500               | 0.4                        | 304.2                      | INT ML  | 9%         | 40     | 0.910 | 05:30                  |
|                   | 1.5                        | 305.3                      | INT ML  | 18%        | 14     | 0.910 | 06:00                  |
|                   | 2.5                        | 306.3                      | INT ML  | 23%        | 21     | 0.910 | 05:00                  |
|                   | 3.3                        | 307.1                      | INT ML  | 24%        | 53     | 0.920 | 05:00                  |
|                   | 4.3                        | 308.1                      | INT ML  | 31%        | 23     | 0.910 | 05:00                  |
|                   | 5.6                        | 309.4                      | INT ML  | 34%        | 22     | 0.910 | 05:00                  |
|                   | 7.0                        | 310.8                      | INT ML  | 22%        | 20     | 0.910 | 07:00                  |
| 510               | 7.5                        | 311.3                      |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment    | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|------------|------------|--------|-------|------------------------|
|                   | 0.5                        | 311.8                      | INT ML     | 10%        | 25     | 0.910 | 06:45                  |
|                   | 1.5                        | 312.8                      | INT ML     | 4%         | 17     | 0.910 | 07:30                  |
|                   | 2.4                        | 313.7                      | INT ML     | 17%        | 13     | 0.910 | 07:30                  |
|                   | 2.8                        | 314.1                      | INT ML     | 19%        | 14     | 0.910 | 07:30                  |
|                   | 3.5                        | 314.8                      | INT ML     | 10%        | 25     | 0.910 | 05:30                  |
|                   | 4.0                        | 315.3                      | INT ML     | 20%        | 40     | 0.920 | 06:30                  |
|                   | 4.4                        | 315.7                      | INT ML     | 24%        | 46     | 0.920 | 05:45                  |
|                   | 5.0                        | 316.3                      | INT ML     | 10%        | 25     | 0.910 | 04:00                  |
|                   | 5.6                        | 316.9                      | INT ML     | 21%        | 25     | 0.910 | 04:30                  |
| 520               | 6.6                        | 317.9                      |            |            |        |       |                        |
|                   | 0.0                        | 317.9                      | *INT ML    | 23%        | 26     | 0.910 | 03:30                  |
|                   | 0.9                        | 318.8                      | INT ML     | 39%        | 129    | 1.010 | 06:30                  |
|                   | 1.7                        | 319.6                      | INT ML     | 16%        | 12     | 0.910 | 06:00                  |
|                   | 2.8                        | 320.7                      | INT ML     | 6%         | 14     | 0.910 | 07:00                  |
|                   | 4.4                        | 322.3                      | INT ML     | 30%        | 24     | 0.910 | 04:30                  |
| 530               | 4.6                        | 322.5                      |            |            |        |       |                        |
|                   |                            |                            | SUMMARY 63 |            |        |       |                        |
|                   | 8.1                        | 330.6                      | INT ML     | 37%        | 112    | 0.990 | 06:00                  |
| 540               | 8.9                        | 331.4                      |            |            |        |       |                        |
|                   |                            |                            | SUMMARY 95 |            |        |       |                        |
|                   | 12.2                       | 343.6                      | INT ML     | 32%        | 63     | 0.940 | 01:30                  |
| 550               | 12.2                       | 343.6                      |            |            |        |       |                        |
|                   |                            |                            | SUMMARY 53 |            |        |       |                        |
|                   | 11.8                       | 355.4                      | INT ML     | 14%        | 50     | 0.920 | 04:15                  |
| 560               | 12.1                       | 355.7                      |            |            |        |       |                        |
|                   | 0.0                        | 355.7                      | *INT ML    | 65%        | 36     | 0.940 | 06:15                  |
|                   | 0.0                        | 355.7                      | INT ML     | 40%        | 26     | 0.920 | 07:30                  |
|                   | 0.2                        | 355.9                      | INT ML     | 11%        | 11     | 0.910 | 04:15                  |
|                   | 0.6                        | 356.3                      | INT ML     | 41%        | 18     | 0.910 | 05:00                  |
|                   | 3.9                        | 359.6                      | INT ML     | 23%        | 27     | 0.910 | 04:15                  |
|                   | 4.0                        | 359.7                      | INT ML     | 10%        | 25     | 0.910 | 04:30                  |
|                   | 4.1                        | 359.8                      | INT ML     | 11%        | 15     | 0.910 | 04:15                  |
|                   | 4.5                        | 360.2                      | INT ML     | 20%        | 13     | 0.910 | 04:15                  |
|                   | 4.8                        | 360.5                      | INT ML     | 14%        | 21     | 0.910 | 04:30                  |
|                   | 4.9                        | 360.6                      | INT ML     | 24%        | 17     | 0.910 | 07:45                  |
|                   | 5.0                        | 360.7                      | INT ML     | 19%        | 18     | 0.910 | 04:15                  |
|                   | 5.0                        | 360.7                      | INT ML     | 19%        | 17     | 0.910 | 07:45                  |
|                   | 5.2                        | 360.9                      | INT ML     | 16%        | 17     | 0.910 | 04:15                  |
|                   | 5.3                        | 361.0                      | INT ML     | 17%        | 15     | 0.910 | 04:30                  |
|                   | 5.4                        | 361.1                      | INT ML     | 17%        | 13     | 0.910 | 04:30                  |
|                   | 5.6                        | 361.3                      | INT ML     | 10%        | 25     | 0.910 | 07:30                  |
|                   | 5.8                        | 361.5                      | INT ML     | 14%        | 17     | 0.910 | 07:45                  |
|                   | 6.1                        | 361.8                      | INT ML     | 21%        | 21     | 0.910 | 04:15                  |
|                   | 6.2                        | 361.9                      | INT ML     | 31%        | 25     | 0.910 | 07:45                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 6.3                        | 362.0                      | INT ML  | 15%        | 16     | 0.910 | 04:30                  |
|                   | 6.5                        | 362.2                      | INT ML  | 20%        | 16     | 0.910 | 07:45                  |
|                   | 6.8                        | 362.5                      | INT ML  | 9%         | 24     | 0.910 | 04:15                  |
|                   | 7.2                        | 362.9                      | INT ML  | 17%        | 18     | 0.910 | 07:45                  |
|                   | 7.4                        | 363.1                      | INT ML  | 19%        | 13     | 0.910 | 04:30                  |
|                   | 7.5                        | 363.2                      | INT ML  | 26%        | 21     | 0.910 | 04:15                  |
|                   | 7.7                        | 363.4                      | INT ML  | 19%        | 12     | 0.910 | 04:30                  |
|                   | 8.2                        | 363.9                      | INT ML  | 13%        | 15     | 0.910 | 04:15                  |
|                   | 9.0                        | 364.7                      | INT ML  | 17%        | 16     | 0.910 | 04:15                  |
|                   | 9.6                        | 365.3                      | INT ML  | 18%        | 12     | 0.910 | 05:30                  |
|                   | 10.1                       | 365.8                      | INT ML  | 19%        | 13     | 0.910 | 06:15                  |
|                   | 10.3                       | 366.0                      | INT ML  | 20%        | 12     | 0.910 | 06:00                  |
|                   | 11.1                       | 366.8                      | INT ML  | 17%        | 11     | 0.910 | 05:00                  |
|                   | 12.2                       | 367.9                      | INT ML  | 11%        | 29     | 0.910 | 10:00                  |
| 570               | 12.2                       | 367.9                      |         |            |        |       |                        |
|                   | 0.0                        | 367.9                      | *INT ML | 75%        | 61     | 1.010 | 05:00                  |
|                   | 0.4                        | 368.3                      | INT ML  | 20%        | 12     | 0.910 | 04:15                  |
|                   | 0.6                        | 368.5                      | INT ML  | 20%        | 14     | 0.910 | 04:15                  |
|                   | 2.3                        | 370.2                      | INT ML  | 22%        | 17     | 0.910 | 06:00                  |
|                   | 2.4                        | 370.3                      | INT ML  | 14%        | 15     | 0.910 | 06:30                  |
|                   | 2.6                        | 370.5                      | INT ML  | 15%        | 13     | 0.910 | 06:15                  |
|                   | 2.7                        | 370.6                      | INT ML  | 21%        | 16     | 0.910 | 05:30                  |
|                   | 2.8                        | 370.7                      | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 3.3                        | 371.2                      | INT ML  | 10%        | 25     | 0.910 | 06:00                  |
|                   | 3.3                        | 371.2                      | INT ML  | 16%        | 12     | 0.910 | 06:15                  |
|                   | 4.4                        | 372.3                      | INT ML  | 14%        | 11     | 0.910 | 06:15                  |
|                   | 8.2                        | 376.1                      | INT ML  | 15%        | 15     | 0.910 | 04:30                  |
|                   | 8.9                        | 376.8                      | INT ML  | 12%        | 33     | 0.910 | 04:30                  |
|                   | 10.8                       | 378.7                      | INT ML  | 18%        | 15     | 0.910 | 07:30                  |
| 580               | 12.2                       | 380.1                      |         |            |        |       |                        |
|                   | 0.0                        | 380.1                      | *INT ML | 41%        | 29     | 0.920 | 06:00                  |
|                   | 0.5                        | 380.6                      | INT ML  | 19%        | 29     | 0.910 | 06:15                  |
|                   | 0.6                        | 380.7                      | INT ML  | 16%        | 20     | 0.910 | 04:45                  |
|                   | 11.5                       | 391.6                      | INT ML  | 11%        | 14     | 0.910 | 06:00                  |
|                   | 12.2                       | 392.3                      | INT ML  | 11%        | 74     | 0.920 | 09:15                  |
| 590               | 12.3                       | 392.4                      |         |            |        |       |                        |
|                   | 4.5                        | 396.9                      | INT ML  | 23%        | 12     | 0.910 | 06:45                  |
|                   | 12.0                       | 404.4                      | INT ML  | 28%        | 80     | 0.940 | 09:30                  |
| 600               | 12.0                       | 404.4                      |         |            |        |       |                        |
|                   | 0.0                        | 404.4                      | INT ML  | 26%        | 17     | 0.910 | 07:45                  |
|                   | 0.3                        | 404.7                      | INT ML  | 10%        | 12     | 0.910 | 06:00                  |
|                   | 1.9                        | 406.3                      | INT ML  | 20%        | 10     | 0.910 | 06:45                  |
|                   | 11.3                       | 415.7                      | INT ML  | 22%        | 17     | 0.910 | 05:15                  |
|                   | 11.8                       | 416.2                      | INT ML  | 15%        | 13     | 0.910 | 05:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment               | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|-----------------------|------------|--------|-------|------------------------|
| 610               | 12.1                       | 416.5                      |                       |            |        |       |                        |
|                   | 0.0                        | 416.5                      | INT ML                | 22%        | 22     | 0.910 | 04:30                  |
|                   | 4.3                        | 420.8                      | INT ML                | 29%        | 16     | 0.910 | 05:30                  |
|                   | 11.3                       | 427.8                      | INT ML                | 19%        | 12     | 0.910 | 07:00                  |
|                   | 11.5                       | 428.0                      | INT ML                | 8%         | 13     | 0.910 | 05:00                  |
| 620               | 12.1                       | 428.6                      | INT ML                | 5%         | 23     | 0.910 | 10:30                  |
|                   | 12.1                       | 428.6                      |                       |            |        |       |                        |
|                   | 0.0                        | 428.6                      | INT ML                | 31%        | 11     | 0.910 | 07:45                  |
|                   | 11.7                       | 440.3                      | INT ML                | 14%        | 36     | 0.910 | 07:45                  |
|                   | 11.9                       | 440.5                      | INT ML                | 13%        | 14     | 0.910 | 07:45                  |
| 630               | 12.0                       | 440.6                      | INT ML                | 10%        | 27     | 0.910 | 07:30                  |
|                   | 12.2                       | 440.8                      | INT ML                | 25%        | 76     | 0.940 | 01:15                  |
|                   | 12.3                       | 440.9                      |                       |            |        |       |                        |
|                   | 0.2                        | 441.1                      | INT ML                | 6%         | 19     | 0.910 | 04:30                  |
|                   | 0.3                        | 441.2                      | INT ML                | 10%        | 25     | 0.910 | 08:45                  |
| 640               | 0.6                        | 441.5                      | INT ML                | 6%         | 24     | 0.910 | 07:45                  |
|                   | 0.7                        | 441.6                      | INT ML                | 12%        | 26     | 0.910 | 08:15                  |
|                   | 6.0                        | 446.9                      | INT ML                | 18%        | 14     | 0.910 | 05:45                  |
|                   | 12.2                       | 453.1                      |                       |            |        |       |                        |
|                   | 0.0                        | 453.1                      | INT ML                | 7%         | 16     | 0.910 | 09:00                  |
| 650               | 0.0                        | 453.1                      | INT ML                | 35%        | 33     | 0.920 | 07:00                  |
|                   | 0.3                        | 453.4                      | INT ML                | 26%        | 13     | 0.910 | 07:30                  |
|                   | 5.2                        | 458.3                      | INT ML                | 22%        | 12     | 0.910 | 06:00                  |
|                   | 5.3                        | 458.4                      | INT ML                | 18%        | 10     | 0.910 | 06:45                  |
|                   | 7.8                        | 460.9                      | INT ML                | 19%        | 16     | 0.910 | 06:15                  |
|                   | 8.1                        | 461.2                      | INT ML                | 37%        | 19     | 0.910 | 05:45                  |
|                   | 8.3                        | 461.4                      | INT ML                | 11%        | 16     | 0.910 | 06:45                  |
|                   | 8.4                        | 461.5                      | INT ML                | 10%        | 25     | 0.910 | 05:45                  |
|                   | 9.4                        | 462.5                      | INT ML                | 19%        | 12     | 0.910 | 06:00                  |
|                   | 9.6                        | 462.7                      | INT ML                | 10%        | 25     | 0.910 | 05:45                  |
|                   | 9.9                        | 463.0                      | CLOSE METAL OBJECT    |            |        |       | 06:00                  |
|                   | 10.1                       | 463.2                      | INT ML                | 14%        | 12     | 0.910 | 06:15                  |
|                   | 10.3                       | 463.4                      | INT ML                | 34%        | 13     | 0.910 | 06:15                  |
|                   | 10.8                       | 463.9                      | INT ML                | 28%        | 15     | 0.910 | 05:45                  |
|                   | 11.1                       | 464.2                      | INT ML                | 10%        | 67     | 0.920 | 06:00                  |
| 660               | 12.3                       | 465.4                      |                       |            |        |       |                        |
|                   |                            |                            | SUMMARY 54            |            |        |       |                        |
| 660               | 2.6                        | 468.0                      | TOUCHING METAL OBJECT |            |        |       | 06:00                  |
|                   | 9.9                        | 475.3                      | *INT ML               | 48%        | 28     | 0.920 | 05:45                  |
| 660               | 12.1                       | 477.5                      |                       |            |        |       |                        |
|                   | 0.0                        | 477.5                      | *INT ML               | 56%        | 35     | 0.930 | 07:15                  |
|                   | 0.6                        | 478.1                      | INT ML                | 28%        | 11     | 0.910 | 06:00                  |
|                   | 0.6                        | 478.1                      | INT ML                | 15%        | 14     | 0.910 | 07:30                  |
|                   | 0.8                        | 478.3                      | INT ML                | 34%        | 13     | 0.910 | 06:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment            | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|--------------------|------------|--------|-------|------------------------|
|                   | 0.9                        | 478.4                      | INT ML             | 29%        | 14     | 0.910 | 06:00                  |
|                   | 1.1                        | 478.6                      | INT ML             | 27%        | 16     | 0.910 | 06:00                  |
|                   | 1.2                        | 478.7                      | INT ML             | 21%        | 13     | 0.910 | 06:15                  |
|                   | 1.4                        | 478.9                      | INT ML             | 10%        | 25     | 0.910 | 05:45                  |
|                   | 1.4                        | 478.9                      | INT ML             | 21%        | 13     | 0.910 | 07:30                  |
|                   | 1.6                        | 479.1                      | INT ML             | 27%        | 12     | 0.910 | 06:00                  |
|                   | 1.8                        | 479.3                      | *INT ML            | 48%        | 18     | 0.910 | 06:00                  |
|                   | 2.0                        | 479.5                      | INT ML             | 27%        | 42     | 0.920 | 05:45                  |
|                   | 2.2                        | 479.7                      | INT ML             | 25%        | 12     | 0.910 | 05:45                  |
|                   | 2.7                        | 480.2                      | INT ML             | 5%         | 12     | 0.910 | 05:45                  |
|                   | 3.2                        | 480.7                      | INT ML             | 10%        | 25     | 0.910 | 06:00                  |
|                   | 3.6                        | 481.1                      | INT ML             | 10%        | 25     | 0.910 | 05:45                  |
|                   | 4.2                        | 481.7                      | INT ML             | 31%        | 13     | 0.910 | 05:45                  |
|                   | 4.3                        | 481.8                      | INT ML             | 23%        | 11     | 0.910 | 05:45                  |
|                   | 4.6                        | 482.1                      | INT ML             | 36%        | 19     | 0.910 | 05:45                  |
|                   | 5.1                        | 482.6                      | INT ML             | 22%        | 14     | 0.910 | 05:45                  |
|                   | 5.3                        | 482.8                      | INT ML             | 10%        | 25     | 0.910 | 06:00                  |
|                   | 5.9                        | 483.4                      | INT ML             | 16%        | 17     | 0.910 | 06:45                  |
|                   | 6.2                        | 483.7                      | INT ML             | 22%        | 13     | 0.910 | 05:45                  |
|                   | 6.6                        | 484.1                      | INT ML             | 10%        | 25     | 0.910 | 06:30                  |
|                   | 11.6                       | 489.1                      | INT ML             | 14%        | 22     | 0.910 | 08:00                  |
|                   | 11.6                       | 489.1                      | INT ML             | 10%        | 25     | 0.910 | 07:00                  |
|                   | 11.7                       | 489.2                      | INT ML             | 11%        | 16     | 0.910 | 08:00                  |
|                   | 12.0                       | 489.5                      | INT ML             | 3%         | 11     | 0.910 | 06:30                  |
|                   | 12.0                       | 489.5                      | INT ML             | 17%        | 16     | 0.910 | 06:00                  |
|                   | 12.2                       | 489.7                      | INT ML             | 13%        | 47     | 0.920 | 12:15                  |
| 670               | 12.2                       | 489.7                      |                    |            |        |       |                        |
|                   | 0.0                        | 489.7                      | INT ML             | 22%        | 26     | 0.910 | 05:45                  |
|                   | 0.4                        | 490.1                      | INT ML             | 3%         | 35     | 0.910 | 08:00                  |
|                   | 0.8                        | 490.5                      | INT ML             | 16%        | 14     | 0.910 | 05:45                  |
|                   | 10.9                       | 500.6                      | INT ML             | 16%        | 12     | 0.910 | 06:00                  |
|                   | 11.2                       | 500.9                      | INT ML             | 10%        | 25     | 0.910 | 05:45                  |
|                   | 11.4                       | 501.1                      | INT ML             | 21%        | 12     | 0.910 | 06:00                  |
| 680               | 12.2                       | 501.9                      |                    |            |        |       |                        |
|                   | 0.0                        | 501.9                      | *INT ML            | 8%         | 18     | 0.910 | 02:45                  |
|                   | 7.1                        | 509.0                      | INT ML             | 37%        | 18     | 0.910 | 06:00                  |
|                   | 11.1                       | 513.0                      | CLOSE METAL OBJECT |            |        |       | 06:00                  |
|                   | 11.8                       | 513.7                      | INT ML             | 8%         | 11     | 0.910 | 04:45                  |
|                   | 11.9                       | 513.8                      | INT ML             | 18%        | 40     | 0.920 | 04:15                  |
|                   | 12.0                       | 513.9                      | INT ML             | 10%        | 22     | 0.910 | 04:45                  |
|                   | 12.2                       | 514.1                      | INT ML             | 16%        | 33     | 0.910 | 08:00                  |
| 690               | 12.3                       | 514.2                      |                    |            |        |       |                        |
|                   | 0.0                        | 514.2                      | INT ML             | 26%        | 28     | 0.910 | 05:30                  |
|                   | 0.2                        | 514.4                      | INT ML             | 16%        | 17     | 0.910 | 07:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 0.3                        | 514.5                      | INT ML  | 9%         | 12     | 0.910 | 06:30                  |
|                   | 0.3                        | 514.5                      | INT ML  | 17%        | 21     | 0.910 | 07:00                  |
|                   | 0.4                        | 514.6                      | INT ML  | 15%        | 15     | 0.910 | 04:45                  |
|                   | 0.5                        | 514.7                      | INT ML  | 11%        | 31     | 0.910 | 07:45                  |
|                   | 6.2                        | 520.4                      | INT ML  | 21%        | 15     | 0.910 | 05:45                  |
|                   | 7.7                        | 521.9                      | INT ML  | 23%        | 14     | 0.910 | 06:30                  |
|                   | 12.2                       | 526.4                      | INT ML  | 36%        | 42     | 0.930 | 07:15                  |
| 700               | 12.2                       | 526.4                      |         |            |        |       |                        |
|                   | 0.4                        | 526.8                      | INT ML  | 10%        | 25     | 0.910 | 04:45                  |
|                   | 0.6                        | 527.0                      | INT ML  | 10%        | 15     | 0.910 | 04:45                  |
|                   | 0.9                        | 527.3                      | INT ML  | 9%         | 22     | 0.910 | 08:00                  |
|                   | 12.1                       | 538.5                      | INT ML  | 10%        | 25     | 0.910 | 01:15                  |
| 710               | 12.1                       | 538.5                      |         |            |        |       |                        |
|                   | 0.0                        | 538.5                      | INT ML  | 20%        | 18     | 0.910 | 07:45                  |
|                   | 0.2                        | 538.7                      | INT ML  | 10%        | 25     | 0.910 | 08:00                  |
|                   | 0.3                        | 538.8                      | INT ML  | 13%        | 17     | 0.910 | 08:30                  |
|                   | 0.4                        | 538.9                      | INT ML  | 13%        | 33     | 0.910 | 08:00                  |
|                   | 0.4                        | 538.9                      | INT ML  | 8%         | 19     | 0.910 | 08:30                  |
|                   | 0.6                        | 539.1                      | INT ML  | 17%        | 17     | 0.910 | 04:15                  |
|                   | 0.7                        | 539.2                      | INT ML  | 21%        | 14     | 0.910 | 06:30                  |
|                   | 0.9                        | 539.4                      | INT ML  | 9%         | 50     | 0.910 | 04:30                  |
|                   | 11.5                       | 550.0                      | INT ML  | 15%        | 15     | 0.910 | 06:15                  |
| 720               | 12.2                       | 550.7                      |         |            |        |       |                        |
|                   | 0.0                        | 550.7                      | INT ML  | 24%        | 37     | 0.920 | 06:15                  |
|                   | 4.5                        | 555.2                      | INT ML  | 19%        | 11     | 0.910 | 06:45                  |
|                   | 8.6                        | 559.3                      | INT ML  | 22%        | 15     | 0.910 | 06:30                  |
|                   | 11.3                       | 562.0                      | INT ML  | 21%        | 11     | 0.910 | 04:45                  |
|                   | 11.4                       | 562.1                      | INT ML  | 13%        | 20     | 0.910 | 08:30                  |
|                   | 11.5                       | 562.2                      | INT ML  | 10%        | 25     | 0.910 | 05:15                  |
|                   | 11.7                       | 562.4                      | INT ML  | 7%         | 12     | 0.910 | 08:00                  |
|                   | 11.8                       | 562.5                      | INT ML  | 20%        | 17     | 0.910 | 05:00                  |
|                   | 12.2                       | 562.9                      | INT ML  | 28%        | 24     | 0.910 | 06:30                  |
| 730               | 12.2                       | 562.9                      |         |            |        |       |                        |
|                   | 0.0                        | 562.9                      | *INT ML | 29%        | 45     | 0.920 | 06:15                  |
|                   | 0.3                        | 563.2                      | INT ML  | 15%        | 15     | 0.910 | 06:45                  |
|                   | 1.8                        | 564.7                      | INT ML  | 20%        | 12     | 0.910 | 05:30                  |
|                   | 2.4                        | 565.3                      | INT ML  | 19%        | 10     | 0.910 | 06:45                  |
|                   | 2.6                        | 565.5                      | INT ML  | 19%        | 13     | 0.910 | 06:30                  |
|                   | 3.8                        | 566.7                      | INT ML  | 15%        | 11     | 0.910 | 06:45                  |
|                   | 4.4                        | 567.3                      | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 4.6                        | 567.5                      | INT ML  | 12%        | 12     | 0.910 | 06:30                  |
|                   | 5.2                        | 568.1                      | INT ML  | 20%        | 15     | 0.910 | 06:15                  |
|                   | 5.3                        | 568.2                      | INT ML  | 27%        | 15     | 0.910 | 06:45                  |
|                   | 5.6                        | 568.5                      | INT ML  | 22%        | 49     | 0.920 | 06:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment    | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|------------|------------|--------|-------|------------------------|
|                   | 5.8                        | 568.7                      | INT ML     | 31%        | 15     | 0.910 | 06:45                  |
|                   | 5.9                        | 568.8                      | *INT ML    | 49%        | 24     | 0.920 | 06:15                  |
|                   | 6.2                        | 569.1                      | INT ML     | 38%        | 21     | 0.910 | 06:30                  |
|                   | 6.4                        | 569.3                      | INT ML     | 10%        | 25     | 0.910 | 06:45                  |
|                   | 6.7                        | 569.6                      | INT ML     | 10%        | 25     | 0.910 | 06:30                  |
|                   | 6.8                        | 569.7                      | INT ML     | 39%        | 23     | 0.910 | 06:30                  |
|                   | 7.1                        | 570.0                      | *INT ML    | 39%        | 23     | 0.910 | 06:15                  |
|                   | 7.2                        | 570.1                      | INT ML     | 21%        | 15     | 0.910 | 06:00                  |
|                   | 7.3                        | 570.2                      | INT ML     | 23%        | 12     | 0.910 | 06:15                  |
|                   | 7.4                        | 570.3                      | INT ML     | 17%        | 12     | 0.910 | 06:45                  |
|                   | 7.5                        | 570.4                      | INT ML     | 34%        | 24     | 0.910 | 06:15                  |
|                   | 7.6                        | 570.5                      | INT ML     | 27%        | 17     | 0.910 | 06:15                  |
|                   | 7.7                        | 570.6                      | INT ML     | 24%        | 63     | 0.930 | 06:00                  |
|                   | 8.0                        | 570.9                      | INT ML     | 33%        | 20     | 0.910 | 06:00                  |
|                   | 8.2                        | 571.1                      | INT ML     | 27%        | 15     | 0.910 | 06:30                  |
|                   | 8.2                        | 571.1                      | INT ML     | 34%        | 15     | 0.910 | 06:30                  |
|                   | 9.1                        | 572.0                      | INT ML     | 31%        | 15     | 0.910 | 06:15                  |
|                   | 9.5                        | 572.4                      | INT ML     | 34%        | 18     | 0.910 | 06:15                  |
|                   | 10.0                       | 572.9                      | INT ML     | 10%        | 25     | 0.910 | 06:15                  |
|                   | 11.1                       | 574.0                      | INT ML     | 26%        | 13     | 0.910 | 08:30                  |
|                   | 11.2                       | 574.1                      | INT ML     | 22%        | 16     | 0.910 | 06:45                  |
|                   | 11.3                       | 574.2                      | INT ML     | 19%        | 16     | 0.910 | 04:45                  |
|                   | 11.5                       | 574.4                      | INT ML     | 22%        | 40     | 0.920 | 06:15                  |
|                   | 11.6                       | 574.5                      | INT ML     | 10%        | 37     | 0.910 | 08:00                  |
|                   | 11.7                       | 574.6                      | INT ML     | 16%        | 12     | 0.910 | 04:45                  |
| 740               | 11.9                       | 574.8                      |            |            |        |       |                        |
|                   |                            |                            | SUMMARY 59 |            |        |       |                        |
|                   | 8.7                        | 583.5                      | INT ML     | 40%        | 78     | 0.960 | 06:30                  |
| 750               | 12.1                       | 586.9                      |            |            |        |       |                        |
|                   | 0.0                        | 586.9                      | *INT ML    | 36%        | 30     | 0.920 | 06:00                  |
|                   | 0.6                        | 587.5                      | INT ML     | 17%        | 14     | 0.910 | 06:30                  |
|                   | 6.3                        | 593.2                      | INT ML     | 22%        | 13     | 0.910 | 05:00                  |
|                   | 9.2                        | 596.1                      | INT ML     | 21%        | 13     | 0.910 | 06:30                  |
|                   | 10.2                       | 597.1                      | INT ML     | 20%        | 13     | 0.910 | 06:30                  |
|                   | 10.8                       | 597.7                      | INT ML     | 25%        | 14     | 0.910 | 06:30                  |
|                   | 11.1                       | 598.0                      | INT ML     | 28%        | 15     | 0.910 | 06:30                  |
|                   | 11.5                       | 598.4                      | INT ML     | 10%        | 25     | 0.910 | 07:30                  |
|                   | 11.8                       | 598.7                      | INT ML     | 14%        | 18     | 0.910 | 05:00                  |
|                   | 11.9                       | 598.8                      | INT ML     | 10%        | 25     | 0.910 | 06:30                  |
| 760               | 12.1                       | 599.0                      |            |            |        |       |                        |
|                   | 0.0                        | 599.0                      | *INT ML    | 47%        | 37     | 0.930 | 06:30                  |
|                   | 5.1                        | 604.1                      | MAGNET     |            |        |       |                        |
|                   | 11.5                       | 610.5                      | INT ML     | 10%        | 25     | 0.910 | 07:30                  |
|                   | 11.8                       | 610.8                      | INT ML     | 13%        | 12     | 0.910 | 07:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment               | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|-----------------------|------------|--------|-------|------------------------|
| 770               | 12.2                       | 611.2                      | *INT ML               | 55%        | 37     | 0.930 | 06:30                  |
|                   | 12.2                       | 611.2                      |                       |            |        |       |                        |
|                   | 0.0                        | 611.2                      | INT ML                | 31%        | 37     | 0.920 | 07:45                  |
|                   | 0.4                        | 611.6                      | INT ML                | 8%         | 16     | 0.910 | 08:00                  |
|                   | 0.5                        | 611.7                      | INT ML                | 11%        | 15     | 0.910 | 05:15                  |
|                   | 0.5                        | 611.7                      | INT ML                | 10%        | 25     | 0.910 | 05:15                  |
|                   | 0.9                        | 612.1                      | INT ML                | 20%        | 13     | 0.910 | 06:45                  |
|                   | 6.8                        | 618.0                      | TOUCHING METAL OBJECT |            |        |       | 06:00                  |
| 780               | 12.2                       | 623.4                      | INT ML                | 10%        | 51     | 0.910 | 12:45                  |
|                   | 12.2                       | 623.4                      |                       |            |        |       |                        |
|                   | 0.0                        | 623.4                      | *INT ML               | 75%        | 39     | 0.950 | 06:30                  |
|                   | 0.3                        | 623.7                      | INT ML                | 7%         | 13     | 0.910 | 04:30                  |
|                   | 0.5                        | 623.9                      | INT ML                | 15%        | 11     | 0.910 | 07:30                  |
|                   | 0.6                        | 624.0                      | INT ML                | 20%        | 12     | 0.910 | 04:45                  |
|                   | 0.7                        | 624.1                      | INT ML                | 10%        | 25     | 0.910 | 06:00                  |
|                   | 1.7                        | 625.1                      | INT ML                | 20%        | 11     | 0.910 | 07:45                  |
|                   | 6.0                        | 629.4                      | INT ML                | 25%        | 13     | 0.910 | 08:00                  |
|                   | 6.6                        | 630.0                      | INT ML                | 20%        | 10     | 0.910 | 05:00                  |
| 790               | 7.9                        | 631.3                      | INT ML                | 18%        | 12     | 0.910 | 05:00                  |
|                   | 8.7                        | 632.1                      | INT ML                | 20%        | 11     | 0.910 | 06:45                  |
|                   | 12.1                       | 635.5                      |                       |            |        |       |                        |
|                   | 0.0                        | 635.5                      | INT ML                | 13%        | 25     | 0.910 | 04:45                  |
|                   | 0.0                        | 635.5                      | *INT ML               | 69%        | 23     | 0.920 | 07:00                  |
|                   | 0.0                        | 635.5                      | INT ML                | 28%        | 23     | 0.910 | 06:00                  |
|                   | 6.1                        | 641.6                      | INT ML                | 18%        | 10     | 0.910 | 06:00                  |
|                   | 9.0                        | 644.5                      | INT ML                | 29%        | 17     | 0.910 | 05:30                  |
|                   | 11.5                       | 647.0                      | INT ML                | 10%        | 25     | 0.910 | 07:30                  |
|                   | 11.5                       | 647.0                      | INT ML                | 18%        | 14     | 0.910 | 06:00                  |
|                   | 11.6                       | 647.1                      | INT ML                | 15%        | 16     | 0.910 | 07:30                  |
|                   | 11.7                       | 647.2                      | INT ML                | 31%        | 18     | 0.910 | 06:00                  |
|                   | 11.9                       | 647.4                      | INT ML                | 4%         | 13     | 0.910 | 07:45                  |
| 800               | 12.0                       | 647.5                      | INT ML                | 15%        | 42     | 0.910 | 07:45                  |
|                   | 12.1                       | 647.6                      | INT ML                | 10%        | 27     | 0.910 | 04:30                  |
|                   | 12.2                       | 647.7                      | INT ML                | 6%         | 33     | 0.910 | 01:00                  |
|                   | 12.2                       | 647.7                      |                       |            |        |       |                        |
|                   | 0.0                        | 647.7                      | INT ML                | 30%        | 29     | 0.920 | 06:00                  |
|                   | 0.4                        | 648.1                      | INT ML                | 14%        | 13     | 0.910 | 05:15                  |
|                   | 0.5                        | 648.2                      | INT ML                | 13%        | 22     | 0.910 | 04:30                  |
|                   | 0.7                        | 648.4                      | INT ML                | 16%        | 15     | 0.910 | 04:15                  |
|                   | 0.8                        | 648.5                      | INT ML                | 17%        | 11     | 0.910 | 06:45                  |
|                   | 0.9                        | 648.6                      | INT ML                | 10%        | 25     | 0.910 | 06:30                  |
| 810               | 12.1                       | 659.8                      | INT ML                | 11%        | 59     | 0.920 | 10:45                  |
|                   | 12.1                       | 659.8                      |                       |            |        |       |                        |
|                   | 0.0                        | 659.8                      | *INT ML               | 42%        | 25     | 0.920 | 07:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 0.0                        | 659.8                      | *INT ML | 41%        | 25     | 0.920 | 05:45                  |
|                   | 0.3                        | 660.1                      | INT ML  | 10%        | 15     | 0.910 | 07:30                  |
|                   | 0.7                        | 660.5                      | INT ML  | 11%        | 15     | 0.910 | 07:30                  |
|                   | 0.8                        | 660.6                      | INT ML  | 13%        | 15     | 0.910 | 04:45                  |
|                   | 4.2                        | 664.0                      | INT ML  | 25%        | 15     | 0.910 | 06:15                  |
|                   | 6.0                        | 665.8                      | INT ML  | 23%        | 13     | 0.910 | 07:15                  |
|                   | 12.2                       | 672.0                      | INT ML  | 10%        | 33     | 0.910 | 12:30                  |
| 820               | 12.3                       | 672.1                      |         |            |        |       |                        |
|                   | 0.0                        | 672.1                      | *INT ML | 58%        | 36     | 0.930 | 06:15                  |
|                   | 0.3                        | 672.4                      | INT ML  | 19%        | 10     | 0.910 | 06:00                  |
|                   | 0.4                        | 672.5                      | INT ML  | 10%        | 14     | 0.910 | 05:15                  |
|                   | 0.7                        | 672.8                      | INT ML  | 29%        | 15     | 0.910 | 06:45                  |
|                   | 8.0                        | 680.1                      | INT ML  | 18%        | 13     | 0.910 | 07:30                  |
|                   | 9.8                        | 681.9                      | INT ML  | 9%         | 11     | 0.910 | 07:30                  |
|                   | 12.2                       | 684.3                      | INT ML  | 13%        | 70     | 0.920 | 12:00                  |
| 830               | 12.2                       | 684.3                      |         |            |        |       |                        |
|                   | 0.2                        | 684.5                      | INT ML  | 21%        | 59     | 0.920 | 07:45                  |
|                   | 0.3                        | 684.6                      | INT ML  | 15%        | 10     | 0.910 | 07:15                  |
|                   | 0.5                        | 684.8                      | INT ML  | 31%        | 20     | 0.910 | 05:30                  |
|                   | 0.5                        | 684.8                      | INT ML  | 15%        | 13     | 0.910 | 07:00                  |
|                   | 0.8                        | 685.1                      | INT ML  | 23%        | 13     | 0.910 | 05:15                  |
|                   | 11.8                       | 696.1                      | INT ML  | 12%        | 22     | 0.910 | 06:45                  |
|                   | 12.1                       | 696.4                      | INT ML  | 15%        | 20     | 0.910 | 07:30                  |
| 840               | 12.2                       | 696.5                      |         |            |        |       |                        |
|                   | 0.0                        | 696.5                      | INT ML  | 25%        | 26     | 0.910 | 05:30                  |
|                   | 1.5                        | 698.0                      | INT ML  | 24%        | 12     | 0.910 | 05:30                  |
|                   | 2.5                        | 699.0                      | INT ML  | 12%        | 14     | 0.910 | 04:45                  |
|                   | 4.1                        | 700.6                      | INT ML  | 20%        | 15     | 0.910 | 05:30                  |
|                   | 4.2                        | 700.7                      | INT ML  | 18%        | 11     | 0.910 | 07:00                  |
|                   | 4.8                        | 701.3                      | INT ML  | 21%        | 10     | 0.910 | 07:15                  |
|                   | 5.0                        | 701.5                      | INT ML  | 7%         | 10     | 0.910 | 07:15                  |
|                   | 5.4                        | 701.9                      | INT ML  | 18%        | 15     | 0.910 | 07:00                  |
|                   | 6.5                        | 703.0                      | INT ML  | 13%        | 40     | 0.910 | 07:00                  |
|                   | 7.4                        | 703.9                      | INT ML  | 14%        | 11     | 0.910 | 07:30                  |
|                   | 8.0                        | 704.5                      | INT ML  | 14%        | 13     | 0.910 | 05:30                  |
|                   | 8.4                        | 704.9                      | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 9.0                        | 705.5                      | INT ML  | 18%        | 12     | 0.910 | 04:30                  |
|                   | 11.5                       | 708.0                      | INT ML  | 9%         | 16     | 0.910 | 08:30                  |
|                   | 11.6                       | 708.1                      | INT ML  | 16%        | 14     | 0.910 | 06:00                  |
|                   | 11.7                       | 708.2                      | INT ML  | 10%        | 25     | 0.910 | 07:00                  |
|                   | 11.8                       | 708.3                      | INT ML  | 22%        | 41     | 0.920 | 07:00                  |
|                   | 12.0                       | 708.5                      | INT ML  | 15%        | 23     | 0.910 | 05:15                  |
|                   | 12.1                       | 708.6                      | INT ML  | 22%        | 80     | 0.940 | 08:30                  |
| 850               | 12.1                       | 708.6                      |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment            | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|--------------------|------------|--------|-------|------------------------|
|                   | 2.8                        | 711.4                      | INT ML             | 19%        | 11     | 0.910 | 05:45                  |
|                   | 3.3                        | 711.9                      | INT ML             | 13%        | 17     | 0.910 | 05:30                  |
|                   | 3.5                        | 712.1                      | INT ML             | 3%         | 11     | 0.910 | 05:15                  |
|                   | 3.8                        | 712.4                      | INT ML             | 18%        | 13     | 0.910 | 05:30                  |
|                   | 4.2                        | 712.8                      | INT ML             | 16%        | 17     | 0.910 | 05:30                  |
|                   | 4.4                        | 713.0                      | INT ML             | 20%        | 12     | 0.910 | 05:30                  |
|                   | 4.5                        | 713.1                      | INT ML             | 22%        | 13     | 0.910 | 05:30                  |
|                   | 5.0                        | 713.6                      | INT ML             | 19%        | 10     | 0.910 | 05:15                  |
|                   | 5.3                        | 713.9                      | INT ML             | 20%        | 11     | 0.910 | 05:30                  |
|                   | 5.6                        | 714.2                      | INT ML             | 21%        | 12     | 0.910 | 05:30                  |
|                   | 5.8                        | 714.4                      | INT ML             | 23%        | 14     | 0.910 | 05:30                  |
|                   | 6.3                        | 714.9                      | INT ML             | 21%        | 21     | 0.910 | 05:30                  |
|                   | 6.8                        | 715.4                      | INT ML             | 10%        | 25     | 0.910 | 05:30                  |
|                   | 7.3                        | 715.9                      | INT ML             | 28%        | 14     | 0.910 | 05:30                  |
|                   | 7.5                        | 716.1                      | INT ML             | 12%        | 26     | 0.910 | 05:30                  |
|                   | 7.7                        | 716.3                      | INT ML             | 10%        | 25     | 0.910 | 05:30                  |
|                   | 7.9                        | 716.5                      | INT ML             | 14%        | 16     | 0.910 | 07:30                  |
|                   | 8.4                        | 717.0                      | INT ML             | 5%         | 11     | 0.910 | 05:30                  |
|                   | 8.6                        | 717.2                      | INT ML             | 18%        | 10     | 0.910 | 05:30                  |
|                   | 9.0                        | 717.6                      | INT ML             | 10%        | 25     | 0.910 | 05:30                  |
|                   | 9.2                        | 717.8                      | INT ML             | 15%        | 15     | 0.910 | 05:30                  |
|                   | 9.5                        | 718.1                      | INT ML             | 10%        | 25     | 0.910 | 05:30                  |
|                   | 9.7                        | 718.3                      | INT ML             | 10%        | 25     | 0.910 | 05:30                  |
|                   | 11.3                       | 719.9                      | INT ML             | 6%         | 15     | 0.910 | 06:00                  |
|                   | 11.3                       | 719.9                      | INT ML             | 13%        | 15     | 0.910 | 05:30                  |
|                   | 11.5                       | 720.1                      | INT ML             | 19%        | 15     | 0.910 | 05:30                  |
|                   | 11.6                       | 720.2                      | INT ML             | 10%        | 25     | 0.910 | 08:15                  |
|                   | 11.7                       | 720.3                      | INT ML             | 20%        | 20     | 0.910 | 04:45                  |
|                   | 11.9                       | 720.5                      | INT ML             | 9%         | 15     | 0.910 | 05:30                  |
|                   | 12.0                       | 720.6                      | INT ML             | 21%        | 15     | 0.910 | 05:45                  |
|                   | 12.1                       | 720.7                      | INT ML             | 10%        | 33     | 0.910 | 05:15                  |
| 860               | 12.2                       | 720.8                      |                    |            |        |       |                        |
|                   | 0.0                        | 720.8                      | INT ML             | 24%        | 43     | 0.920 | 04:45                  |
|                   | 0.2                        | 721.0                      | INT ML             | 17%        | 19     | 0.910 | 07:00                  |
|                   | 0.3                        | 721.1                      | INT ML             | 15%        | 21     | 0.910 | 05:30                  |
|                   | 0.3                        | 721.1                      | INT ML             | 10%        | 25     | 0.910 | 06:45                  |
|                   | 0.4                        | 721.2                      | INT ML             | 14%        | 11     | 0.910 | 06:30                  |
|                   | 0.4                        | 721.2                      | INT ML             | 16%        | 15     | 0.910 | 04:30                  |
|                   | 0.6                        | 721.4                      | INT ML             | 10%        | 22     | 0.910 | 05:30                  |
|                   | 0.7                        | 721.5                      | INT ML             | 28%        | 17     | 0.910 | 05:30                  |
|                   | 0.7                        | 721.5                      | INT ML             | 19%        | 13     | 0.910 | 07:00                  |
|                   | 0.8                        | 721.6                      | INT ML             | 10%        | 25     | 0.910 | 07:30                  |
|                   | 2.0                        | 722.8                      | INT ML             | 20%        | 15     | 0.910 | 05:30                  |
|                   | 2.2                        | 723.0                      | CLOSE METAL OBJECT |            |        |       | 06:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 2.3                        | 723.1                      | INT ML  | 10%        | 62     | 0.920 | 05:30                  |
|                   | 2.5                        | 723.3                      | INT ML  | 17%        | 12     | 0.910 | 05:30                  |
|                   | 2.7                        | 723.5                      | INT ML  | 20%        | 57     | 0.920 | 05:30                  |
|                   | 3.0                        | 723.8                      | INT ML  | 19%        | 15     | 0.910 | 05:30                  |
|                   | 3.2                        | 724.0                      | INT ML  | 26%        | 11     | 0.910 | 05:30                  |
|                   | 3.4                        | 724.2                      | INT ML  | 16%        | 18     | 0.910 | 05:30                  |
|                   | 3.7                        | 724.5                      | INT ML  | 8%         | 13     | 0.910 | 05:30                  |
|                   | 4.0                        | 724.8                      | INT ML  | 16%        | 47     | 0.920 | 05:15                  |
|                   | 4.2                        | 725.0                      | INT ML  | 14%        | 20     | 0.910 | 05:30                  |
|                   | 4.5                        | 725.3                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 4.7                        | 725.5                      | INT ML  | 18%        | 17     | 0.910 | 05:30                  |
|                   | 4.9                        | 725.7                      | INT ML  | 10%        | 25     | 0.910 | 06:30                  |
|                   | 5.0                        | 725.8                      | INT ML  | 17%        | 15     | 0.910 | 05:30                  |
|                   | 5.2                        | 726.0                      | INT ML  | 18%        | 21     | 0.910 | 05:15                  |
|                   | 5.3                        | 726.1                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 5.7                        | 726.5                      | INT ML  | 21%        | 10     | 0.910 | 05:30                  |
|                   | 5.9                        | 726.7                      | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 6.0                        | 726.8                      | INT ML  | 17%        | 16     | 0.910 | 05:30                  |
|                   | 6.3                        | 727.1                      | INT ML  | 20%        | 14     | 0.910 | 05:30                  |
|                   | 6.4                        | 727.2                      | INT ML  | 22%        | 37     | 0.920 | 05:30                  |
|                   | 6.5                        | 727.3                      | INT ML  | 23%        | 44     | 0.920 | 05:30                  |
|                   | 6.7                        | 727.5                      | INT ML  | 16%        | 14     | 0.910 | 05:30                  |
|                   | 7.0                        | 727.8                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 7.4                        | 728.2                      | INT ML  | 24%        | 13     | 0.910 | 05:30                  |
|                   | 7.7                        | 728.5                      | INT ML  | 15%        | 12     | 0.910 | 05:30                  |
|                   | 7.9                        | 728.7                      | INT ML  | 17%        | 11     | 0.910 | 05:15                  |
|                   | 8.5                        | 729.3                      | INT ML  | 19%        | 15     | 0.910 | 05:30                  |
|                   | 8.8                        | 729.6                      | INT ML  | 18%        | 11     | 0.910 | 05:15                  |
|                   | 9.0                        | 729.8                      | INT ML  | 18%        | 14     | 0.910 | 05:15                  |
|                   | 11.5                       | 732.3                      | INT ML  | 20%        | 17     | 0.910 | 07:15                  |
| 870               | 12.1                       | 732.9                      |         |            |        |       |                        |
|                   | 0.0                        | 732.9                      | *INT ML | 16%        | 24     | 0.910 | 04:45                  |
|                   | 0.0                        | 732.9                      | *INT ML | 43%        | 34     | 0.920 | 06:15                  |
|                   | 0.2                        | 733.1                      | INT ML  | 22%        | 16     | 0.910 | 07:15                  |
|                   | 0.4                        | 733.3                      | INT ML  | 20%        | 14     | 0.910 | 07:15                  |
|                   | 0.6                        | 733.5                      | INT ML  | 25%        | 19     | 0.910 | 06:45                  |
|                   | 0.7                        | 733.6                      | INT ML  | 18%        | 12     | 0.910 | 05:30                  |
|                   | 5.9                        | 738.8                      | INT ML  | 22%        | 14     | 0.910 | 05:45                  |
|                   | 10.8                       | 743.7                      | INT ML  | 18%        | 16     | 0.910 | 07:00                  |
| 880               | 12.1                       | 745.0                      |         |            |        |       |                        |
|                   | 0.0                        | 745.0                      | *INT ML | 23%        | 41     | 0.920 | 06:30                  |
|                   | 1.9                        | 746.9                      | INT ML  | 17%        | 9      | 0.910 | 05:15                  |
|                   | 3.6                        | 748.6                      | INT ML  | 13%        | 26     | 0.910 | 05:15                  |
|                   | 6.5                        | 751.5                      | INT ML  | 15%        | 14     | 0.910 | 05:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 7.0                        | 752.0                      | INT ML  | 20%        | 14     | 0.910 | 05:15                  |
|                   | 7.2                        | 752.2                      | INT ML  | 20%        | 14     | 0.910 | 05:15                  |
|                   | 10.6                       | 755.6                      | INT ML  | 18%        | 14     | 0.910 | 06:30                  |
|                   | 11.3                       | 756.3                      | INT ML  | 14%        | 14     | 0.910 | 05:45                  |
|                   | 11.4                       | 756.4                      | INT ML  | 26%        | 47     | 0.920 | 06:45                  |
|                   | 11.6                       | 756.6                      | INT ML  | 10%        | 14     | 0.910 | 06:30                  |
|                   | 11.8                       | 756.8                      | INT ML  | 10%        | 25     | 0.910 | 06:45                  |
|                   | 11.9                       | 756.9                      | INT ML  | 13%        | 20     | 0.910 | 07:00                  |
|                   | 12.0                       | 757.0                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 12.1                       | 757.1                      | INT ML  | 10%        | 38     | 0.910 | 12:00                  |
| 890               | 12.1                       | 757.1                      |         |            |        |       |                        |
|                   | 0.2                        | 757.3                      | INT ML  | 16%        | 19     | 0.910 | 07:30                  |
|                   | 0.3                        | 757.4                      | INT ML  | 15%        | 15     | 0.910 | 06:30                  |
|                   | 0.5                        | 757.6                      | INT ML  | 19%        | 16     | 0.910 | 06:30                  |
|                   | 0.8                        | 757.9                      | INT ML  | 15%        | 13     | 0.910 | 05:45                  |
|                   | 0.9                        | 758.0                      | INT ML  | 10%        | 25     | 0.910 | 07:00                  |
|                   | 1.6                        | 758.7                      | INT ML  | 9%         | 11     | 0.910 | 05:15                  |
|                   | 2.4                        | 759.5                      | INT ML  | 17%        | 51     | 0.920 | 04:45                  |
|                   | 3.7                        | 760.8                      | INT ML  | 23%        | 16     | 0.910 | 04:45                  |
|                   | 3.9                        | 761.0                      | INT ML  | 18%        | 13     | 0.910 | 05:30                  |
|                   | 4.2                        | 761.3                      | INT ML  | 14%        | 14     | 0.910 | 05:30                  |
|                   | 5.2                        | 762.3                      | INT ML  | 18%        | 16     | 0.910 | 05:00                  |
|                   | 5.6                        | 762.7                      | INT ML  | 20%        | 47     | 0.920 | 05:00                  |
|                   | 5.7                        | 762.8                      | INT ML  | 10%        | 25     | 0.910 | 06:45                  |
|                   | 5.9                        | 763.0                      | INT ML  | 18%        | 16     | 0.910 | 05:00                  |
|                   | 6.6                        | 763.7                      | INT ML  | 10%        | 25     | 0.910 | 06:45                  |
|                   | 6.6                        | 763.7                      | INT ML  | 10%        | 25     | 0.910 | 04:45                  |
|                   | 6.9                        | 764.0                      | INT ML  | 18%        | 16     | 0.910 | 05:00                  |
|                   | 7.2                        | 764.3                      | INT ML  | 4%         | 11     | 0.910 | 05:30                  |
|                   | 8.0                        | 765.1                      | INT ML  | 7%         | 11     | 0.910 | 05:30                  |
|                   | 8.2                        | 765.3                      | INT ML  | 19%        | 15     | 0.910 | 05:00                  |
|                   | 8.4                        | 765.5                      | INT ML  | 16%        | 14     | 0.910 | 05:30                  |
|                   | 8.9                        | 766.0                      | INT ML  | 5%         | 13     | 0.910 | 05:30                  |
|                   | 10.8                       | 767.9                      | INT ML  | 25%        | 11     | 0.910 | 05:00                  |
|                   | 12.1                       | 769.2                      | INT ML  | 22%        | 25     | 0.910 | 11:30                  |
| 900               | 12.1                       | 769.2                      |         |            |        |       |                        |
|                   | 9.5                        | 778.7                      | INT ML  | 20%        | 11     | 0.910 | 07:00                  |
|                   | 11.3                       | 780.5                      | INT ML  | 14%        | 35     | 0.910 | 05:30                  |
|                   | 11.6                       | 780.8                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 11.7                       | 780.9                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 11.8                       | 781.0                      | INT ML  | 16%        | 17     | 0.910 | 07:15                  |
|                   | 11.9                       | 781.1                      | INT ML  | 13%        | 19     | 0.910 | 05:30                  |
| 910               | 12.1                       | 781.3                      |         |            |        |       |                        |
|                   | 0.0                        | 781.3                      | INT ML  | 25%        | 28     | 0.910 | 05:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 920               | 11.3                       | 792.6                      | INT ML  | 12%        | 14     | 0.910 | 05:45                  |
|                   | 11.3                       | 792.6                      | INT ML  | 29%        | 18     | 0.910 | 06:30                  |
|                   | 11.5                       | 792.8                      | INT ML  | 13%        | 12     | 0.910 | 06:45                  |
|                   | 11.6                       | 792.9                      | INT ML  | 10%        | 25     | 0.910 | 07:00                  |
|                   | 12.2                       | 793.5                      | INT ML  | 7%         | 46     | 0.910 | 12:00                  |
|                   | 12.2                       | 793.5                      |         |            |        |       |                        |
|                   | 0.0                        | 793.5                      | INT ML  | 15%        | 30     | 0.910 | 04:30                  |
|                   | 0.2                        | 793.7                      | INT ML  | 15%        | 19     | 0.910 | 05:00                  |
|                   | 0.3                        | 793.8                      | INT ML  | 2%         | 13     | 0.910 | 06:45                  |
|                   | 0.4                        | 793.9                      | INT ML  | 6%         | 15     | 0.910 | 06:45                  |
|                   | 0.7                        | 794.2                      | INT ML  | 15%        | 15     | 0.910 | 05:45                  |
|                   | 0.8                        | 794.3                      | INT ML  | 18%        | 12     | 0.910 | 07:45                  |
|                   | 0.9                        | 794.4                      | INT ML  | 22%        | 16     | 0.910 | 05:30                  |
|                   | 3.1                        | 796.6                      | INT ML  | 19%        | 11     | 0.910 | 06:00                  |
| 930               | 4.0                        | 797.5                      | INT ML  | 20%        | 12     | 0.910 | 04:45                  |
|                   | 5.8                        | 799.3                      | INT ML  | 26%        | 12     | 0.910 | 06:30                  |
|                   | 8.6                        | 802.1                      | INT ML  | 23%        | 15     | 0.910 | 06:15                  |
|                   | 10.0                       | 803.5                      | INT ML  | 16%        | 13     | 0.910 | 06:30                  |
|                   | 12.2                       | 805.7                      |         |            |        |       |                        |
|                   | 0.0                        | 805.7                      | INT ML  | 16%        | 17     | 0.910 | 04:30                  |
|                   | 0.3                        | 806.0                      | INT ML  | 15%        | 15     | 0.910 | 07:15                  |
|                   | 0.4                        | 806.1                      | INT ML  | 16%        | 54     | 0.920 | 05:30                  |
|                   | 0.5                        | 806.2                      | INT ML  | 11%        | 19     | 0.910 | 06:30                  |
|                   | 0.7                        | 806.4                      | INT ML  | 5%         | 13     | 0.910 | 05:30                  |
|                   | 0.8                        | 806.5                      | INT ML  | 7%         | 15     | 0.910 | 05:30                  |
|                   | 0.8                        | 806.5                      | INT ML  | 10%        | 25     | 0.910 | 07:30                  |
|                   | 4.5                        | 810.2                      | INT ML  | 6%         | 11     | 0.910 | 05:00                  |
|                   | 8.6                        | 814.3                      | INT ML  | 26%        | 15     | 0.910 | 04:45                  |
| 940               | 9.3                        | 815.0                      | INT ML  | 16%        | 13     | 0.910 | 07:15                  |
|                   | 12.1                       | 817.8                      | INT ML  | 9%         | 22     | 0.910 | 09:30                  |
|                   | 12.1                       | 817.8                      |         |            |        |       |                        |
|                   | 0.1                        | 817.9                      | INT ML  | 22%        | 27     | 0.910 | 04:30                  |
|                   | 0.2                        | 818.0                      | INT ML  | 14%        | 15     | 0.910 | 06:15                  |
|                   | 0.2                        | 818.0                      | INT ML  | 18%        | 44     | 0.920 | 05:45                  |
|                   | 0.4                        | 818.2                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 0.4                        | 818.2                      | INT ML  | 19%        | 18     | 0.910 | 04:45                  |
|                   | 0.5                        | 818.3                      | INT ML  | 23%        | 16     | 0.910 | 05:45                  |
|                   | 0.6                        | 818.4                      | INT ML  | 23%        | 14     | 0.910 | 05:30                  |
|                   | 0.8                        | 818.6                      | INT ML  | 18%        | 14     | 0.910 | 07:00                  |
|                   | 0.8                        | 818.6                      | INT ML  | 10%        | 25     | 0.910 | 06:30                  |
|                   | 9.7                        | 827.5                      | INT ML  | 4%         | 66     | 0.910 | 09:15                  |
|                   | 950                        | 12.1                       | 829.9   | INT ML     | 12%    | 49    | 0.910                  |
| 12.2              |                            | 830.0                      |         |            |        |       |                        |
| 0.0               |                            | 830.0                      | INT ML  | 12%        | 17     | 0.910 | 05:45                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 2.2                        | 832.2                      | INT ML  | 22%        | 14     | 0.910 | 07:15                  |
|                   | 2.9                        | 832.9                      | INT ML  | 10%        | 25     | 0.910 | 05:45                  |
|                   | 3.0                        | 833.0                      | INT ML  | 19%        | 11     | 0.910 | 06:30                  |
|                   | 3.3                        | 833.3                      | INT ML  | 16%        | 23     | 0.910 | 07:30                  |
|                   | 3.4                        | 833.4                      | INT ML  | 17%        | 15     | 0.910 | 05:30                  |
|                   | 3.4                        | 833.4                      | INT ML  | 10%        | 25     | 0.910 | 06:00                  |
|                   | 3.9                        | 833.9                      | INT ML  | 38%        | 17     | 0.910 | 06:00                  |
|                   | 4.1                        | 834.1                      | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 4.2                        | 834.2                      | INT ML  | 18%        | 17     | 0.910 | 05:30                  |
|                   | 4.3                        | 834.3                      | INT ML  | 15%        | 13     | 0.910 | 05:00                  |
|                   | 4.4                        | 834.4                      | INT ML  | 21%        | 14     | 0.910 | 06:15                  |
|                   | 4.4                        | 834.4                      | INT ML  | 14%        | 14     | 0.910 | 05:30                  |
|                   | 4.5                        | 834.5                      | INT ML  | 17%        | 13     | 0.910 | 06:00                  |
|                   | 4.8                        | 834.8                      | INT ML  | 10%        | 25     | 0.910 | 07:15                  |
|                   | 4.8                        | 834.8                      | INT ML  | 21%        | 18     | 0.910 | 05:00                  |
|                   | 4.9                        | 834.9                      | INT ML  | 14%        | 12     | 0.910 | 06:15                  |
|                   | 5.1                        | 835.1                      | INT ML  | 9%         | 14     | 0.910 | 07:15                  |
|                   | 5.3                        | 835.3                      | INT ML  | 25%        | 17     | 0.910 | 07:15                  |
|                   | 5.4                        | 835.4                      | INT ML  | 10%        | 25     | 0.910 | 05:45                  |
|                   | 5.4                        | 835.4                      | INT ML  | 22%        | 16     | 0.910 | 05:15                  |
|                   | 5.6                        | 835.6                      | INT ML  | 10%        | 40     | 0.910 | 05:15                  |
|                   | 6.0                        | 836.0                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 6.0                        | 836.0                      | INT ML  | 16%        | 12     | 0.910 | 05:30                  |
|                   | 6.4                        | 836.4                      | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 6.8                        | 836.8                      | INT ML  | 14%        | 23     | 0.910 | 05:15                  |
|                   | 7.1                        | 837.1                      | INT ML  | 11%        | 11     | 0.910 | 05:00                  |
|                   | 7.4                        | 837.4                      | INT ML  | 4%         | 14     | 0.910 | 05:30                  |
|                   | 7.8                        | 837.8                      | INT ML  | 28%        | 17     | 0.910 | 05:30                  |
|                   | 8.1                        | 838.1                      | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 8.3                        | 838.3                      | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 8.6                        | 838.6                      | INT ML  | 16%        | 11     | 0.910 | 05:15                  |
|                   | 9.1                        | 839.1                      | INT ML  | 10%        | 25     | 0.910 | 04:45                  |
|                   | 10.1                       | 840.1                      | INT ML  | 14%        | 17     | 0.910 | 05:00                  |
|                   | 11.4                       | 841.4                      | INT ML  | 14%        | 16     | 0.910 | 06:45                  |
|                   | 11.6                       | 841.6                      | INT ML  | 6%         | 16     | 0.910 | 05:30                  |
|                   | 11.7                       | 841.7                      | INT ML  | 16%        | 19     | 0.910 | 07:00                  |
|                   | 11.9                       | 841.9                      | INT ML  | 3%         | 14     | 0.910 | 05:30                  |
|                   | 12.2                       | 842.2                      | INT ML  | 6%         | 34     | 0.910 | 01:15                  |
| 960               | 12.2                       | 842.2                      |         |            |        |       |                        |
|                   | 0.0                        | 842.2                      | INT ML  | 31%        | 31     | 0.920 | 05:30                  |
|                   | 0.2                        | 842.4                      | INT ML  | 6%         | 19     | 0.910 | 05:45                  |
|                   | 0.4                        | 842.6                      | INT ML  | 19%        | 12     | 0.910 | 06:30                  |
|                   | 0.8                        | 843.0                      | INT ML  | 15%        | 15     | 0.910 | 05:00                  |
|                   | 0.9                        | 843.1                      | INT ML  | 6%         | 14     | 0.910 | 05:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 1.2                        | 843.4                      | INT ML  | 13%        | 107    | 0.930 | 11:45                  |
|                   | 8.3                        | 850.5                      | INT ML  | 13%        | 10     | 0.910 | 04:45                  |
|                   | 12.1                       | 854.3                      | INT ML  | 7%         | 23     | 0.910 | 02:00                  |
| 970               | 12.1                       | 854.3                      |         |            |        |       |                        |
|                   | 0.0                        | 854.3                      | INT ML  | 21%        | 30     | 0.910 | 06:15                  |
|                   | 0.4                        | 854.7                      | INT ML  | 23%        | 12     | 0.910 | 06:45                  |
|                   | 0.7                        | 855.0                      | INT ML  | 13%        | 15     | 0.910 | 06:30                  |
|                   | 12.2                       | 866.5                      | INT ML  | 7%         | 21     | 0.910 | 09:15                  |
| 980               | 12.3                       | 866.6                      |         |            |        |       |                        |
|                   | 0.4                        | 867.0                      | INT ML  | 18%        | 15     | 0.910 | 06:00                  |
|                   | 0.9                        | 867.5                      | INT ML  | 17%        | 11     | 0.910 | 06:45                  |
|                   | 3.8                        | 870.4                      | INT ML  | 16%        | 12     | 0.910 | 04:45                  |
|                   | 5.7                        | 872.3                      | INT ML  | 13%        | 12     | 0.910 | 05:00                  |
|                   | 7.4                        | 874.0                      | INT ML  | 16%        | 11     | 0.910 | 05:00                  |
|                   | 9.3                        | 875.9                      | INT ML  | 16%        | 11     | 0.910 | 05:00                  |
|                   | 9.4                        | 876.0                      | INT ML  | 18%        | 13     | 0.910 | 05:00                  |
|                   | 9.8                        | 876.4                      | INT ML  | 19%        | 13     | 0.910 | 05:00                  |
|                   | 10.2                       | 876.8                      | INT ML  | 15%        | 12     | 0.910 | 05:00                  |
| 990               | 12.1                       | 878.7                      |         |            |        |       |                        |
|                   | 0.0                        | 878.7                      | INT ML  | 14%        | 18     | 0.910 | 07:00                  |
|                   | 0.2                        | 878.9                      | INT ML  | 14%        | 13     | 0.910 | 06:30                  |
|                   | 0.3                        | 879.0                      | INT ML  | 19%        | 15     | 0.910 | 05:30                  |
|                   | 0.6                        | 879.3                      | INT ML  | 22%        | 16     | 0.910 | 05:45                  |
|                   | 0.8                        | 879.5                      | INT ML  | 20%        | 14     | 0.910 | 05:45                  |
|                   | 5.7                        | 884.4                      | INT ML  | 13%        | 12     | 0.910 | 05:45                  |
|                   | 8.3                        | 887.0                      | INT ML  | 27%        | 12     | 0.910 | 05:45                  |
|                   | 9.0                        | 887.7                      | INT ML  | 20%        | 16     | 0.910 | 05:45                  |
|                   | 9.6                        | 888.3                      | INT ML  | 23%        | 12     | 0.910 | 05:45                  |
|                   | 10.5                       | 889.2                      | INT ML  | 20%        | 17     | 0.910 | 05:45                  |
| 1000              | 12.2                       | 890.9                      |         |            |        |       |                        |
|                   | 0.0                        | 890.9                      | INT ML  | 18%        | 21     | 0.910 | 09:30                  |
|                   | 5.4                        | 896.3                      | INT ML  | 17%        | 12     | 0.910 | 06:45                  |
|                   | 11.4                       | 902.3                      | INT ML  | 11%        | 17     | 0.910 | 05:45                  |
|                   | 11.8                       | 902.7                      | INT ML  | 19%        | 21     | 0.910 | 05:30                  |
|                   | 11.9                       | 902.8                      | INT ML  | 17%        | 16     | 0.910 | 06:30                  |
| 1010              | 12.3                       | 903.2                      |         |            |        |       |                        |
|                   | 0.0                        | 903.2                      | INT ML  | 6%         | 18     | 0.910 | 04:45                  |
|                   | 3.2                        | 906.4                      | INT ML  | 8%         | 11     | 0.910 | 05:00                  |
|                   | 4.8                        | 908.0                      | INT ML  | 19%        | 13     | 0.910 | 05:00                  |
|                   | 6.8                        | 910.0                      | INT ML  | 15%        | 12     | 0.910 | 05:30                  |
|                   | 7.0                        | 910.2                      | INT ML  | 22%        | 15     | 0.910 | 05:00                  |
|                   | 7.5                        | 910.7                      | INT ML  | 12%        | 10     | 0.910 | 05:00                  |
|                   | 9.1                        | 912.3                      | INT ML  | 15%        | 14     | 0.910 | 05:00                  |
|                   | 9.3                        | 912.5                      | INT ML  | 17%        | 15     | 0.910 | 05:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment                    | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|----------------------------|------------|--------|-------|------------------------|
|                   | 9.8                        | 913.0                      | 1234 MM CRACK              |            |        |       | 06:00                  |
|                   | 11.3                       | 914.5                      | INT ML                     | 22%        | 14     | 0.910 | 07:15                  |
|                   | 11.8                       | 915.0                      | INT ML                     | 10%        | 16     | 0.910 | 07:15                  |
|                   | 12.1                       | 915.3                      | INT ML                     | 26%        | 17     | 0.910 | 04:45                  |
| 1020              | 12.2                       | 915.4                      |                            |            |        |       |                        |
|                   | 0.0                        | 915.4                      | INT ML                     | 9%         | 20     | 0.910 | 05:45                  |
|                   | 0.1                        | 915.5                      | *INT ML                    | 39%        | 44     | 0.930 | 04:45                  |
|                   | 0.3                        | 915.7                      | INT ML                     | 10%        | 25     | 0.910 | 06:30                  |
|                   | 1.5                        | 916.9                      | INT ML                     | 10%        | 25     | 0.910 | 06:15                  |
|                   | 2.6                        | 918.0                      | 4321 MM INCOMPLETE WELD    |            |        |       | 06:00                  |
|                   | 4.5                        | 919.9                      | INT ML                     | 8%         | 12     | 0.910 | 05:15                  |
|                   | 5.4                        | 920.8                      | INT ML                     | 14%        | 11     | 0.910 | 05:45                  |
|                   | 7.6                        | 923.0                      | 2468 MM GIRTH WELD ANOMALY |            |        |       | 06:00                  |
|                   | 7.7                        | 923.1                      | INT ML                     | 16%        | 15     | 0.910 | 05:30                  |
| 1030              | 12.2                       | 927.6                      | INT ML                     | 11%        | 42     | 0.910 | 01:30                  |
|                   | 12.2                       | 927.6                      |                            |            |        |       |                        |
|                   | 0.0                        | 927.6                      | INT ML                     | 24%        | 19     | 0.910 | 03:45                  |
|                   | 0.4                        | 928.0                      | INT ML                     | 13%        | 14     | 0.910 | 06:30                  |
|                   | 0.8                        | 928.4                      | INT ML                     | 20%        | 13     | 0.910 | 07:00                  |
|                   | 6.1                        | 933.7                      | INT ML                     | 20%        | 14     | 0.910 | 05:00                  |
|                   | 6.2                        | 933.8                      | INT ML                     | 19%        | 14     | 0.910 | 05:00                  |
|                   | 7.2                        | 934.8                      | INT ML                     | 11%        | 11     | 0.910 | 05:00                  |
|                   | 11.9                       | 939.5                      | INT ML                     | 23%        | 22     | 0.910 | 06:00                  |
|                   | 12.2                       | 939.8                      | INT ML                     | 20%        | 44     | 0.920 | 12:00                  |
| 1040              | 12.3                       | 939.9                      |                            |            |        |       |                        |
|                   | 0.0                        | 939.9                      | INT ML                     | 20%        | 21     | 0.910 | 06:45                  |
|                   | 0.2                        | 940.1                      | INT ML                     | 23%        | 22     | 0.910 | 07:15                  |
|                   | 0.3                        | 940.2                      | INT ML                     | 22%        | 22     | 0.910 | 05:45                  |
|                   | 0.4                        | 940.3                      | INT ML                     | 10%        | 25     | 0.910 | 07:15                  |
|                   | 0.7                        | 940.6                      | INT ML                     | 14%        | 11     | 0.910 | 07:00                  |
|                   | 0.8                        | 940.7                      | INT ML                     | 15%        | 12     | 0.910 | 06:45                  |
|                   | 12.0                       | 951.9                      | INT ML                     | 22%        | 13     | 0.910 | 06:00                  |
|                   | 12.2                       | 952.1                      | *INT ML                    | 39%        | 49     | 0.930 | 06:45                  |
| 1050              | 12.2                       | 952.1                      |                            |            |        |       |                        |
|                   | 0.7                        | 952.8                      | INT ML                     | 32%        | 16     | 0.910 | 06:30                  |
|                   | 1.0                        | 953.1                      | INT ML                     | 32%        | 19     | 0.910 | 06:15                  |
|                   | 1.5                        | 953.6                      | INT ML                     | 16%        | 10     | 0.910 | 06:15                  |
|                   | 1.6                        | 953.7                      | INT ML                     | 10%        | 25     | 0.910 | 06:15                  |
|                   | 1.9                        | 954.0                      | INT ML                     | 17%        | 12     | 0.910 | 06:00                  |
|                   | 2.2                        | 954.3                      | INT ML                     | 26%        | 15     | 0.910 | 06:15                  |
|                   | 2.4                        | 954.5                      | INT ML                     | 10%        | 25     | 0.910 | 06:15                  |
|                   | 3.3                        | 955.4                      | INT ML                     | 13%        | 12     | 0.910 | 06:00                  |
|                   | 5.2                        | 957.3                      | INT ML                     | 6%         | 11     | 0.910 | 06:15                  |
|                   | 5.9                        | 958.0                      | INT ML                     | 26%        | 11     | 0.910 | 06:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 11.3                       | 963.4                      | INT ML  | 15%        | 15     | 0.910 | 07:45                  |
|                   | 11.4                       | 963.5                      | INT ML  | 19%        | 30     | 0.910 | 06:45                  |
|                   | 11.5                       | 963.6                      | INT ML  | 14%        | 21     | 0.910 | 06:30                  |
|                   | 11.6                       | 963.7                      | INT ML  | 10%        | 25     | 0.910 | 07:15                  |
|                   | 11.7                       | 963.8                      | INT ML  | 27%        | 20     | 0.910 | 06:15                  |
|                   | 11.7                       | 963.8                      | INT ML  | 10%        | 25     | 0.910 | 07:15                  |
|                   | 11.8                       | 963.9                      | INT ML  | 16%        | 20     | 0.910 | 06:45                  |
|                   | 11.9                       | 964.0                      | INT ML  | 23%        | 49     | 0.920 | 06:45                  |
|                   | 12.0                       | 964.1                      | INT ML  | 9%         | 16     | 0.910 | 05:00                  |
|                   | 12.1                       | 964.2                      | INT ML  | 3%         | 21     | 0.910 | 05:15                  |
|                   | 12.2                       | 964.3                      | INT ML  | 7%         | 36     | 0.910 | 09:45                  |
| 1060              | 12.2                       | 964.3                      |         |            |        |       |                        |
|                   | 0.2                        | 964.5                      | INT ML  | 25%        | 15     | 0.910 | 06:45                  |
|                   | 0.3                        | 964.6                      | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 0.3                        | 964.6                      | INT ML  | 17%        | 15     | 0.910 | 06:45                  |
|                   | 0.4                        | 964.7                      | INT ML  | 16%        | 74     | 0.930 | 06:45                  |
|                   | 0.4                        | 964.7                      | INT ML  | 16%        | 51     | 0.920 | 05:30                  |
|                   | 0.5                        | 964.8                      | INT ML  | 16%        | 13     | 0.910 | 06:45                  |
|                   | 0.6                        | 964.9                      | INT ML  | 7%         | 13     | 0.910 | 06:30                  |
|                   | 0.7                        | 965.0                      | INT ML  | 23%        | 21     | 0.910 | 07:00                  |
|                   | 1.0                        | 965.3                      | INT ML  | 17%        | 21     | 0.910 | 07:00                  |
|                   | 5.2                        | 969.5                      | INT ML  | 5%         | 13     | 0.910 | 05:00                  |
|                   | 5.7                        | 970.0                      | INT ML  | 17%        | 13     | 0.910 | 05:30                  |
|                   | 5.8                        | 970.1                      | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 6.2                        | 970.5                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 6.6                        | 970.9                      | INT ML  | 20%        | 13     | 0.910 | 05:45                  |
|                   | 6.9                        | 971.2                      | INT ML  | 20%        | 17     | 0.910 | 05:00                  |
|                   | 7.2                        | 971.5                      | INT ML  | 19%        | 13     | 0.910 | 05:00                  |
|                   | 8.7                        | 973.0                      | INT ML  | 18%        | 15     | 0.910 | 07:00                  |
|                   | 9.1                        | 973.4                      | INT ML  | 16%        | 11     | 0.910 | 05:00                  |
|                   | 9.5                        | 973.8                      | INT ML  | 23%        | 15     | 0.910 | 05:15                  |
|                   | 11.4                       | 975.7                      | INT ML  | 13%        | 10     | 0.910 | 05:00                  |
| 1070              | 12.1                       | 976.4                      |         |            |        |       |                        |
|                   | 0.0                        | 976.4                      | INT ML  | 31%        | 28     | 0.920 | 06:15                  |
|                   | 0.2                        | 976.6                      | INT ML  | 10%        | 25     | 0.910 | 06:30                  |
|                   | 0.3                        | 976.7                      | INT ML  | 21%        | 15     | 0.910 | 05:15                  |
|                   | 0.3                        | 976.7                      | INT ML  | 13%        | 17     | 0.910 | 06:30                  |
|                   | 0.4                        | 976.8                      | INT ML  | 10%        | 25     | 0.910 | 04:45                  |
|                   | 0.5                        | 976.9                      | INT ML  | 24%        | 75     | 0.940 | 06:45                  |
|                   | 0.5                        | 976.9                      | INT ML  | 18%        | 15     | 0.910 | 06:30                  |
|                   | 0.7                        | 977.1                      | *INT ML | 24%        | 21     | 0.910 | 06:45                  |
|                   | 0.7                        | 977.1                      | INT ML  | 16%        | 14     | 0.910 | 05:15                  |
|                   | 0.8                        | 977.2                      | INT ML  | 13%        | 41     | 0.910 | 05:30                  |
|                   | 0.9                        | 977.3                      | INT ML  | 20%        | 17     | 0.910 | 05:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 1080              | 4.6                        | 981.0                      | INT ML  | 16%        | 17     | 0.910 | 06:15                  |
|                   | 12.1                       | 988.5                      |         |            |        |       |                        |
|                   | 0.0                        | 988.5                      | *INT ML | 16%        | 31     | 0.910 | 04:15                  |
|                   | 0.0                        | 988.5                      | *INT ML | 46%        | 39     | 0.930 | 06:30                  |
|                   | 0.2                        | 988.7                      | INT ML  | 25%        | 54     | 0.930 | 07:00                  |
|                   | 0.2                        | 988.7                      | *INT ML | 29%        | 33     | 0.920 | 05:15                  |
|                   | 0.3                        | 988.8                      | INT ML  | 13%        | 16     | 0.910 | 07:15                  |
|                   | 0.3                        | 988.8                      | INT ML  | 23%        | 15     | 0.910 | 05:15                  |
|                   | 0.3                        | 988.8                      | INT ML  | 15%        | 13     | 0.910 | 05:45                  |
|                   | 0.4                        | 988.9                      | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 0.4                        | 988.9                      | INT ML  | 21%        | 27     | 0.910 | 05:30                  |
|                   | 0.5                        | 989.0                      | INT ML  | 20%        | 17     | 0.910 | 05:15                  |
|                   | 0.7                        | 989.2                      | INT ML  | 13%        | 25     | 0.910 | 06:30                  |
|                   | 0.7                        | 989.2                      | INT ML  | 15%        | 16     | 0.910 | 06:45                  |
|                   | 0.7                        | 989.2                      | INT ML  | 19%        | 21     | 0.910 | 05:45                  |
|                   | 0.9                        | 989.4                      | INT ML  | 9%         | 22     | 0.910 | 07:00                  |
|                   | 2.1                        | 990.6                      | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 3.5                        | 992.0                      | INT ML  | 18%        | 19     | 0.910 | 05:30                  |
|                   | 4.5                        | 993.0                      | INT ML  | 21%        | 15     | 0.910 | 05:15                  |
| 5.4               | 993.9                      | INT ML                     | 24%     | 15         | 0.910  | 05:15 |                        |
| 1090              | 12.1                       | 1000.6                     | INT ML  | 8%         | 29     | 0.910 | 04:00                  |
|                   | 12.1                       | 1000.6                     |         |            |        |       |                        |
|                   | 0.2                        | 1000.8                     | INT ML  | 20%        | 69     | 0.930 | 11:15                  |
|                   | 0.2                        | 1000.8                     | INT ML  | 28%        | 21     | 0.910 | 12:30                  |
|                   | 0.3                        | 1000.9                     | INT ML  | 18%        | 51     | 0.920 | 12:45                  |
|                   | 0.4                        | 1001.0                     | INT ML  | 23%        | 14     | 0.910 | 12:30                  |
|                   | 0.5                        | 1001.1                     | INT ML  | 4%         | 14     | 0.910 | 12:45                  |
|                   | 0.7                        | 1001.3                     | INT ML  | 15%        | 25     | 0.910 | 12:45                  |
|                   | 0.7                        | 1001.3                     | INT ML  | 15%        | 15     | 0.910 | 12:45                  |
|                   | 0.8                        | 1001.4                     | INT ML  | 18%        | 12     | 0.910 | 01:00                  |
|                   | 6.5                        | 1007.1                     | INT ML  | 21%        | 12     | 0.910 | 05:30                  |
|                   | 8.3                        | 1008.9                     | INT ML  | 7%         | 11     | 0.910 | 05:45                  |
|                   | 12.2                       | 1012.8                     | INT ML  | 12%        | 47     | 0.910 | 12:45                  |
| 1100              | 12.3                       | 1012.9                     |         |            |        |       |                        |
|                   | 0.0                        | 1012.9                     | INT ML  | 17%        | 31     | 0.910 | 08:45                  |
|                   | 0.2                        | 1013.1                     | INT ML  | 22%        | 17     | 0.910 | 06:00                  |
|                   | 0.3                        | 1013.2                     | INT ML  | 8%         | 17     | 0.910 | 07:00                  |
|                   | 0.3                        | 1013.2                     | INT ML  | 14%        | 16     | 0.910 | 07:00                  |
|                   | 0.4                        | 1013.3                     | INT ML  | 17%        | 24     | 0.910 | 07:30                  |
|                   | 0.6                        | 1013.5                     | INT ML  | 4%         | 12     | 0.910 | 06:00                  |
|                   | 0.7                        | 1013.6                     | INT ML  | 16%        | 24     | 0.910 | 07:45                  |
|                   | 0.8                        | 1013.7                     | INT ML  | 22%        | 22     | 0.910 | 07:45                  |
|                   | 0.9                        | 1013.8                     | INT ML  | 21%        | 23     | 0.910 | 07:30                  |
|                   | 0.9                        | 1013.8                     | INT ML  | 21%        | 14     | 0.910 | 07:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 1.9                        | 1014.8                     | INT ML  | 31%        | 20     | 0.910 | 06:30                  |
|                   | 2.9                        | 1015.8                     | INT ML  | 13%        | 14     | 0.910 | 07:00                  |
|                   | 3.5                        | 1016.4                     | INT ML  | 28%        | 13     | 0.910 | 07:00                  |
|                   | 3.9                        | 1016.8                     | INT ML  | 19%        | 14     | 0.910 | 06:30                  |
|                   | 4.5                        | 1017.4                     | INT ML  | 16%        | 12     | 0.910 | 06:45                  |
|                   | 5.7                        | 1018.6                     | INT ML  | 24%        | 16     | 0.910 | 05:30                  |
|                   | 6.2                        | 1019.1                     | INT ML  | 12%        | 11     | 0.910 | 05:30                  |
|                   | 7.3                        | 1020.2                     | INT ML  | 27%        | 14     | 0.910 | 06:30                  |
|                   | 8.0                        | 1020.9                     | INT ML  | 13%        | 16     | 0.910 | 05:30                  |
|                   | 8.6                        | 1021.5                     | INT ML  | 16%        | 12     | 0.910 | 07:30                  |
|                   | 11.1                       | 1024.0                     | INT ML  | 13%        | 15     | 0.910 | 05:30                  |
| 1110              | 12.2                       | 1025.1                     |         |            |        |       |                        |
|                   | 0.0                        | 1025.1                     | INT ML  | 9%         | 27     | 0.910 | 07:15                  |
|                   | 0.4                        | 1025.5                     | INT ML  | 20%        | 13     | 0.910 | 07:00                  |
|                   | 0.8                        | 1025.9                     | INT ML  | 12%        | 20     | 0.910 | 07:00                  |
|                   | 0.9                        | 1026.0                     | INT ML  | 13%        | 17     | 0.910 | 05:30                  |
|                   | 8.3                        | 1033.4                     | INT ML  | 22%        | 13     | 0.910 | 06:00                  |
|                   | 8.9                        | 1034.0                     | INT ML  | 22%        | 17     | 0.910 | 06:00                  |
|                   | 9.2                        | 1034.3                     | INT ML  | 14%        | 29     | 0.910 | 06:00                  |
|                   | 9.3                        | 1034.4                     | INT ML  | 27%        | 14     | 0.910 | 06:00                  |
|                   | 9.9                        | 1035.0                     | INT ML  | 14%        | 14     | 0.910 | 06:00                  |
|                   | 11.1                       | 1036.2                     | INT ML  | 15%        | 17     | 0.910 | 06:00                  |
|                   | 12.2                       | 1037.3                     | INT ML  | 14%        | 55     | 0.920 | 12:45                  |
| 1120              | 12.3                       | 1037.4                     |         |            |        |       |                        |
|                   | 0.0                        | 1037.4                     | INT ML  | 27%        | 27     | 0.910 | 06:30                  |
|                   | 0.3                        | 1037.7                     | INT ML  | 20%        | 13     | 0.910 | 06:30                  |
|                   | 0.4                        | 1037.8                     | INT ML  | 16%        | 16     | 0.910 | 06:00                  |
|                   | 3.0                        | 1040.4                     | INT ML  | 18%        | 12     | 0.910 | 07:00                  |
|                   | 3.9                        | 1041.3                     | INT ML  | 22%        | 11     | 0.910 | 07:00                  |
|                   | 4.8                        | 1042.2                     | INT ML  | 19%        | 11     | 0.910 | 06:00                  |
|                   | 5.1                        | 1042.5                     | INT ML  | 10%        | 11     | 0.910 | 07:15                  |
|                   | 6.3                        | 1043.7                     | INT ML  | 17%        | 13     | 0.910 | 05:30                  |
|                   | 7.1                        | 1044.5                     | INT ML  | 6%         | 11     | 0.910 | 05:45                  |
|                   | 8.2                        | 1045.6                     | INT ML  | 20%        | 15     | 0.910 | 07:00                  |
|                   | 9.0                        | 1046.4                     | INT ML  | 19%        | 13     | 0.910 | 06:00                  |
|                   | 9.5                        | 1046.9                     | INT ML  | 22%        | 10     | 0.910 | 05:30                  |
|                   | 9.7                        | 1047.1                     | INT ML  | 16%        | 13     | 0.910 | 05:30                  |
|                   | 12.1                       | 1049.5                     | INT ML  | 35%        | 32     | 0.920 | 07:00                  |
| 1130              | 12.1                       | 1049.5                     |         |            |        |       |                        |
|                   | 0.2                        | 1049.7                     | INT ML  | 26%        | 23     | 0.910 | 07:45                  |
|                   | 0.3                        | 1049.8                     | INT ML  | 17%        | 24     | 0.910 | 07:45                  |
|                   | 0.4                        | 1049.9                     | INT ML  | 23%        | 25     | 0.910 | 05:30                  |
|                   | 0.5                        | 1050.0                     | INT ML  | 19%        | 17     | 0.910 | 06:00                  |
|                   | 0.5                        | 1050.0                     | INT ML  | 10%        | 63     | 0.920 | 07:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 0.6                        | 1050.1                     | INT ML  | 12%        | 30     | 0.910 | 06:00                  |
|                   | 4.0                        | 1053.5                     | INT ML  | 11%        | 15     | 0.910 | 06:30                  |
|                   | 12.0                       | 1061.5                     | INT ML  | 16%        | 36     | 0.910 | 01:00                  |
| 1140              | 12.1                       | 1061.6                     |         |            |        |       |                        |
|                   | 0.0                        | 1061.6                     | INT ML  | 10%        | 25     | 0.910 | 08:45                  |
|                   | 0.2                        | 1061.8                     | INT ML  | 36%        | 30     | 0.920 | 07:00                  |
|                   | 0.3                        | 1061.9                     | INT ML  | 25%        | 23     | 0.910 | 05:15                  |
|                   | 0.5                        | 1062.1                     | INT ML  | 25%        | 15     | 0.910 | 07:00                  |
|                   | 0.6                        | 1062.2                     | INT ML  | 3%         | 15     | 0.910 | 06:15                  |
|                   | 0.8                        | 1062.4                     | INT ML  | 11%        | 15     | 0.910 | 07:00                  |
|                   | 1.0                        | 1062.6                     | INT ML  | 15%        | 14     | 0.910 | 06:45                  |
|                   | 11.8                       | 1073.4                     | INT ML  | 18%        | 11     | 0.910 | 05:30                  |
| 1150              | 12.1                       | 1073.7                     |         |            |        |       |                        |
|                   | 0.2                        | 1073.9                     | INT ML  | 16%        | 15     | 0.910 | 07:30                  |
|                   | 0.2                        | 1073.9                     | INT ML  | 23%        | 16     | 0.910 | 07:00                  |
|                   | 0.5                        | 1074.2                     | INT ML  | 12%        | 14     | 0.910 | 07:00                  |
|                   | 3.4                        | 1077.1                     | INT ML  | 27%        | 17     | 0.910 | 06:15                  |
|                   | 5.8                        | 1079.5                     | INT ML  | 18%        | 15     | 0.910 | 06:30                  |
|                   | 6.4                        | 1080.1                     | INT ML  | 22%        | 16     | 0.910 | 06:15                  |
|                   | 7.4                        | 1081.1                     | INT ML  | 16%        | 14     | 0.910 | 05:45                  |
| 1160              | 12.1                       | 1085.8                     |         |            |        |       |                        |
|                   | 0.0                        | 1085.8                     | *INT ML | 18%        | 47     | 0.920 | 08:30                  |
|                   | 0.6                        | 1086.4                     | INT ML  | 18%        | 14     | 0.910 | 06:30                  |
|                   | 0.7                        | 1086.5                     | INT ML  | 37%        | 21     | 0.910 | 06:30                  |
|                   | 0.8                        | 1086.6                     | INT ML  | 30%        | 24     | 0.910 | 06:30                  |
|                   | 0.9                        | 1086.7                     | *INT ML | 34%        | 15     | 0.910 | 06:15                  |
|                   | 1.1                        | 1086.9                     | INT ML  | 21%        | 19     | 0.910 | 05:45                  |
|                   | 2.4                        | 1088.2                     | INT ML  | 20%        | 14     | 0.910 | 06:00                  |
|                   | 3.0                        | 1088.8                     | INT ML  | 2%         | 14     | 0.910 | 06:00                  |
|                   | 3.5                        | 1089.3                     | INT ML  | 16%        | 13     | 0.910 | 06:45                  |
|                   | 5.7                        | 1091.5                     | INT ML  | 17%        | 11     | 0.910 | 06:00                  |
|                   | 7.2                        | 1093.0                     | INT ML  | 18%        | 12     | 0.910 | 06:15                  |
|                   | 10.2                       | 1096.0                     | INT ML  | 21%        | 11     | 0.910 | 05:45                  |
|                   | 12.6                       | 1098.4                     | INT ML  | 15%        | 39     | 0.910 | 12:45                  |
| 1170              | 12.6                       | 1098.4                     |         |            |        |       |                        |
|                   | 0.6                        | 1099.0                     | INT ML  | 13%        | 15     | 0.910 | 06:30                  |
|                   | 11.3                       | 1109.7                     | INT ML  | 31%        | 18     | 0.910 | 06:15                  |
|                   | 11.3                       | 1109.7                     | INT ML  | 18%        | 10     | 0.910 | 06:15                  |
|                   | 11.8                       | 1110.2                     | INT ML  | 26%        | 25     | 0.910 | 07:30                  |
|                   | 12.1                       | 1110.5                     | INT ML  | 13%        | 60     | 0.920 | 11:45                  |
| 1180              | 12.2                       | 1110.6                     |         |            |        |       |                        |
|                   | 0.0                        | 1110.6                     | INT ML  | 15%        | 21     | 0.910 | 06:30                  |
|                   | 0.3                        | 1110.9                     | INT ML  | 26%        | 49     | 0.920 | 05:15                  |
|                   | 0.6                        | 1111.2                     | INT ML  | 16%        | 17     | 0.910 | 06:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 3.3                        | 1113.9                     | INT ML  | 18%        | 12     | 0.910 | 05:45                  |
|                   | 4.5                        | 1115.1                     | INT ML  | 18%        | 11     | 0.910 | 06:00                  |
|                   | 5.8                        | 1116.4                     | INT ML  | 23%        | 27     | 0.910 | 05:45                  |
|                   | 6.4                        | 1117.0                     | INT ML  | 22%        | 19     | 0.910 | 05:45                  |
|                   | 7.4                        | 1118.0                     | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 7.6                        | 1118.2                     | INT ML  | 10%        | 25     | 0.910 | 07:00                  |
|                   | 8.6                        | 1119.2                     | INT ML  | 13%        | 12     | 0.910 | 07:00                  |
|                   | 9.2                        | 1119.8                     | INT ML  | 19%        | 13     | 0.910 | 05:30                  |
|                   | 9.4                        | 1120.0                     | INT ML  | 14%        | 10     | 0.910 | 06:00                  |
|                   | 9.9                        | 1120.5                     | INT ML  | 13%        | 16     | 0.910 | 06:00                  |
|                   | 10.3                       | 1120.9                     | INT ML  | 10%        | 25     | 0.910 | 06:00                  |
|                   | 11.5                       | 1122.1                     | INT ML  | 19%        | 15     | 0.910 | 06:00                  |
|                   | 11.6                       | 1122.2                     | INT ML  | 20%        | 17     | 0.910 | 06:30                  |
|                   | 11.7                       | 1122.3                     | INT ML  | 10%        | 25     | 0.910 | 07:30                  |
|                   | 11.8                       | 1122.4                     | INT ML  | 20%        | 16     | 0.910 | 05:15                  |
|                   | 12.1                       | 1122.7                     | INT ML  | 15%        | 14     | 0.910 | 06:00                  |
|                   | 12.2                       | 1122.8                     | INT ML  | 18%        | 69     | 0.930 | 12:15                  |
| 1190              | 12.2                       | 1122.8                     |         |            |        |       |                        |
|                   | 11.3                       | 1134.1                     | INT ML  | 6%         | 14     | 0.910 | 05:00                  |
|                   | 11.5                       | 1134.3                     | INT ML  | 17%        | 20     | 0.910 | 05:15                  |
|                   | 11.7                       | 1134.5                     | INT ML  | 19%        | 14     | 0.910 | 06:30                  |
|                   | 12.1                       | 1134.9                     | INT ML  | 20%        | 57     | 0.920 | 12:30                  |
| 1200              | 12.1                       | 1134.9                     |         |            |        |       |                        |
|                   | 0.0                        | 1134.9                     | INT ML  | 26%        | 25     | 0.910 | 06:30                  |
|                   | 0.4                        | 1135.3                     | INT ML  | 17%        | 18     | 0.910 | 05:45                  |
|                   | 0.8                        | 1135.7                     | INT ML  | 22%        | 15     | 0.910 | 07:00                  |
|                   | 1.4                        | 1136.3                     | INT ML  | 17%        | 11     | 0.910 | 06:30                  |
|                   | 4.1                        | 1139.0                     | INT ML  | 24%        | 13     | 0.910 | 06:15                  |
|                   | 6.3                        | 1141.2                     | INT ML  | 13%        | 17     | 0.910 | 06:30                  |
|                   | 6.4                        | 1141.3                     | INT ML  | 14%        | 14     | 0.910 | 06:30                  |
|                   | 6.6                        | 1141.5                     | INT ML  | 8%         | 31     | 0.910 | 06:30                  |
|                   | 7.2                        | 1142.1                     | INT ML  | 22%        | 15     | 0.910 | 06:30                  |
|                   | 7.5                        | 1142.4                     | INT ML  | 17%        | 15     | 0.910 | 06:30                  |
|                   | 7.9                        | 1142.8                     | INT ML  | 22%        | 18     | 0.910 | 06:15                  |
|                   | 8.0                        | 1142.9                     | INT ML  | 16%        | 13     | 0.910 | 06:30                  |
|                   | 8.3                        | 1143.2                     | INT ML  | 18%        | 30     | 0.910 | 06:30                  |
|                   | 8.8                        | 1143.7                     | INT ML  | 26%        | 16     | 0.910 | 06:15                  |
|                   | 9.0                        | 1143.9                     | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 9.2                        | 1144.1                     | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 9.6                        | 1144.5                     | INT ML  | 18%        | 28     | 0.910 | 06:15                  |
|                   | 10.0                       | 1144.9                     | INT ML  | 20%        | 12     | 0.910 | 06:15                  |
|                   | 10.3                       | 1145.2                     | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 10.8                       | 1145.7                     | INT ML  | 23%        | 16     | 0.910 | 06:15                  |
|                   | 11.0                       | 1145.9                     | INT ML  | 22%        | 25     | 0.910 | 06:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 1210              | 11.1                       | 1146.0                     | INT ML  | 25%        | 17     | 0.910 | 06:30                  |
|                   | 11.3                       | 1146.2                     | INT ML  | 20%        | 21     | 0.910 | 06:30                  |
|                   | 11.5                       | 1146.4                     | INT ML  | 10%        | 56     | 0.920 | 06:30                  |
|                   | 11.8                       | 1146.7                     | INT ML  | 21%        | 16     | 0.910 | 06:15                  |
|                   | 12.1                       | 1147.0                     | INT ML  | 15%        | 17     | 0.910 | 05:30                  |
|                   | 12.3                       | 1147.2                     | INT ML  | 9%         | 59     | 0.910 | 11:15                  |
|                   | 12.3                       | 1147.2                     |         |            |        |       |                        |
|                   | 0.0                        | 1147.2                     | INT ML  | 15%        | 19     | 0.910 | 04:30                  |
|                   | 3.5                        | 1150.7                     | INT ML  | 21%        | 15     | 0.910 | 06:30                  |
|                   | 4.3                        | 1151.5                     | INT ML  | 25%        | 15     | 0.910 | 06:15                  |
|                   | 5.8                        | 1153.0                     | INT ML  | 18%        | 14     | 0.910 | 05:15                  |
|                   | 6.4                        | 1153.6                     | INT ML  | 16%        | 10     | 0.910 | 06:30                  |
|                   | 6.8                        | 1154.0                     | INT ML  | 15%        | 11     | 0.910 | 05:30                  |
|                   | 6.9                        | 1154.1                     | INT ML  | 12%        | 12     | 0.910 | 05:45                  |
|                   | 7.0                        | 1154.2                     | INT ML  | 11%        | 13     | 0.910 | 05:45                  |
|                   | 7.3                        | 1154.5                     | INT ML  | 14%        | 13     | 0.910 | 06:15                  |
|                   | 7.5                        | 1154.7                     | INT ML  | 10%        | 25     | 0.910 | 05:30                  |
|                   | 7.8                        | 1155.0                     | INT ML  | 14%        | 15     | 0.910 | 05:45                  |
|                   | 7.9                        | 1155.1                     | INT ML  | 10%        | 25     | 0.910 | 06:00                  |
|                   | 8.5                        | 1155.7                     | INT ML  | 10%        | 25     | 0.910 | 06:00                  |
|                   | 8.7                        | 1155.9                     | INT ML  | 20%        | 22     | 0.910 | 06:30                  |
|                   | 9.1                        | 1156.3                     | INT ML  | 10%        | 25     | 0.910 | 05:45                  |
|                   | 9.2                        | 1156.4                     | INT ML  | 16%        | 14     | 0.910 | 05:45                  |
|                   | 9.7                        | 1156.9                     | INT ML  | 24%        | 22     | 0.910 | 06:30                  |
|                   | 10.3                       | 1157.5                     | INT ML  | 10%        | 25     | 0.910 | 06:30                  |
|                   | 11.1                       | 1158.3                     | INT ML  | 17%        | 11     | 0.910 | 06:30                  |
|                   | 11.7                       | 1158.9                     | INT ML  | 10%        | 25     | 0.910 | 07:15                  |
| 11.9              | 1159.1                     | INT ML                     | 16%     | 18         | 0.910  | 07:30 |                        |
| 12.0              | 1159.2                     | INT ML                     | 17%     | 34         | 0.910  | 06:30 |                        |
| 12.2              | 1159.4                     | INT ML                     | 21%     | 16         | 0.910  | 07:30 |                        |
| 12.4              | 1159.6                     | INT ML                     | 10%     | 25         | 0.910  | 06:15 |                        |
| 12.4              | 1159.6                     | INT ML                     | 4%      | 12         | 0.910  | 06:00 |                        |
| 12.6              | 1159.8                     | INT ML                     | 8%      | 59         | 0.910  | 10:45 |                        |
| 1220              | 12.6                       | 1159.8                     |         |            |        |       |                        |
|                   | 0.2                        | 1160.0                     | INT ML  | 16%        | 19     | 0.910 | 07:45                  |
|                   | 0.3                        | 1160.1                     | INT ML  | 6%         | 23     | 0.910 | 07:30                  |
|                   | 0.8                        | 1160.6                     | INT ML  | 21%        | 19     | 0.910 | 06:15                  |
|                   | 0.9                        | 1160.7                     | INT ML  | 16%        | 14     | 0.910 | 05:45                  |
|                   | 0.9                        | 1160.7                     | INT ML  | 8%         | 12     | 0.910 | 05:45                  |
|                   | 1.2                        | 1161.0                     | INT ML  | 10%        | 25     | 0.910 | 06:30                  |
|                   | 1.5                        | 1161.3                     | INT ML  | 18%        | 15     | 0.910 | 06:15                  |
|                   | 1.8                        | 1161.6                     | INT ML  | 10%        | 25     | 0.910 | 06:00                  |
|                   | 2.4                        | 1162.2                     | INT ML  | 10%        | 25     | 0.910 | 06:30                  |
|                   | 4.4                        | 1164.2                     | INT ML  | 19%        | 12     | 0.910 | 06:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |       |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|-------|
| 1230              | 5.2                        | 1165.0                     | INT ML  | 16%        | 18     | 0.910 | 05:15                  |       |
|                   | 5.8                        | 1165.6                     | INT ML  | 10%        | 25     | 0.910 | 06:30                  |       |
|                   | 6.7                        | 1166.5                     | INT ML  | 23%        | 12     | 0.910 | 06:30                  |       |
|                   | 7.1                        | 1166.9                     | INT ML  | 15%        | 12     | 0.910 | 06:30                  |       |
|                   | 10.9                       | 1170.7                     | INT ML  | 20%        | 16     | 0.910 | 06:15                  |       |
|                   | 12.1                       | 1171.9                     | INT ML  | 22%        | 42     | 0.920 | 06:30                  |       |
|                   | 12.3                       | 1172.1                     |         |            |        |       |                        |       |
|                   | 0.2                        | 1172.3                     | INT ML  | 15%        | 17     | 0.910 | 06:30                  |       |
|                   | 0.4                        | 1172.5                     | INT ML  | 22%        | 15     | 0.910 | 06:15                  |       |
|                   | 2.7                        | 1174.8                     | INT ML  | 18%        | 11     | 0.910 | 06:30                  |       |
|                   | 4.1                        | 1176.2                     | INT ML  | 29%        | 17     | 0.910 | 06:30                  |       |
|                   | 5.0                        | 1177.1                     | INT ML  | 19%        | 16     | 0.910 | 06:15                  |       |
|                   | 7.8                        | 1179.9                     | INT ML  | 18%        | 13     | 0.910 | 06:30                  |       |
|                   | 8.2                        | 1180.3                     | INT ML  | 10%        | 12     | 0.910 | 06:45                  |       |
|                   | 9.1                        | 1181.2                     | INT ML  | 22%        | 14     | 0.910 | 06:30                  |       |
|                   | 9.5                        | 1181.6                     | INT ML  | 13%        | 30     | 0.910 | 06:15                  |       |
|                   | 9.8                        | 1181.9                     | INT ML  | 20%        | 15     | 0.910 | 06:30                  |       |
|                   | 10.3                       | 1182.4                     | INT ML  | 16%        | 15     | 0.910 | 05:30                  |       |
|                   | 1240                       | 11.4                       | 1183.5  | INT ML     | 22%    | 19    | 0.910                  | 06:30 |
|                   |                            | 11.7                       | 1183.8  | INT ML     | 15%    | 11    | 0.910                  | 06:30 |
| 11.8              |                            | 1183.9                     | INT ML  | 12%        | 40     | 0.910 | 06:30                  |       |
| 12.0              |                            | 1184.1                     | INT ML  | 15%        | 59     | 0.920 | 12:00                  |       |
| 12.0              |                            | 1184.1                     |         |            |        |       |                        |       |
| 0.3               |                            | 1184.4                     | INT ML  | 14%        | 15     | 0.910 | 07:00                  |       |
| 0.6               |                            | 1184.7                     | INT ML  | 18%        | 14     | 0.910 | 07:30                  |       |
| 8.1               |                            | 1192.2                     | INT ML  | 18%        | 10     | 0.910 | 06:15                  |       |
| 9.6               |                            | 1193.7                     | INT ML  | 17%        | 16     | 0.910 | 06:15                  |       |
| 10.5              |                            | 1194.6                     | INT ML  | 13%        | 17     | 0.910 | 06:00                  |       |
| 1250              | 12.1                       | 1196.2                     | INT ML  | 13%        | 71     | 0.920 | 01:00                  |       |
|                   | 12.1                       | 1196.2                     |         |            |        |       |                        |       |
|                   | 0.3                        | 1196.5                     | INT ML  | 18%        | 22     | 0.910 | 06:15                  |       |
|                   | 0.8                        | 1197.0                     | INT ML  | 26%        | 16     | 0.910 | 06:15                  |       |
|                   | 1.2                        | 1197.4                     | INT ML  | 28%        | 16     | 0.910 | 06:30                  |       |
|                   | 1.4                        | 1197.6                     | INT ML  | 28%        | 17     | 0.910 | 06:30                  |       |
|                   | 1.8                        | 1198.0                     | INT ML  | 16%        | 17     | 0.910 | 06:15                  |       |
|                   | 2.0                        | 1198.2                     | INT ML  | 10%        | 15     | 0.910 | 06:15                  |       |
|                   | 2.1                        | 1198.3                     | INT ML  | 15%        | 11     | 0.910 | 06:15                  |       |
|                   | 2.5                        | 1198.7                     | INT ML  | 15%        | 19     | 0.910 | 06:30                  |       |
| 1260              | 3.1                        | 1199.3                     | INT ML  | 10%        | 52     | 0.910 | 06:30                  |       |
|                   | 8.3                        | 1204.5                     | INT ML  | 21%        | 13     | 0.910 | 06:00                  |       |
|                   | 11.3                       | 1207.5                     | INT ML  | 24%        | 24     | 0.910 | 06:15                  |       |
|                   | 12.2                       | 1208.4                     | INT ML  | 10%        | 42     | 0.910 | 11:30                  |       |
|                   | 12.3                       | 1208.5                     |         |            |        |       |                        |       |
|                   | 1.0                        | 1209.5                     | INT ML  | 17%        | 13     | 0.910 | 06:30                  |       |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 4.3                        | 1212.8                     | INT ML  | 18%        | 12     | 0.910 | 07:15                  |
|                   | 8.0                        | 1216.5                     | INT ML  | 14%        | 16     | 0.910 | 06:45                  |
|                   | 11.8                       | 1220.3                     | INT ML  | 14%        | 16     | 0.910 | 06:15                  |
|                   | 12.2                       | 1220.7                     | INT ML  | 20%        | 54     | 0.920 | 10:45                  |
| 1270              | 12.2                       | 1220.7                     |         |            |        |       |                        |
|                   | 6.4                        | 1227.1                     | INT ML  | 15%        | 14     | 0.910 | 05:45                  |
|                   | 9.4                        | 1230.1                     | INT ML  | 19%        | 14     | 0.910 | 06:15                  |
|                   | 9.9                        | 1230.6                     | INT ML  | 23%        | 12     | 0.910 | 06:15                  |
|                   | 12.2                       | 1232.9                     | INT ML  | 22%        | 20     | 0.910 | 06:00                  |
|                   | 12.2                       | 1232.9                     | INT ML  | 7%         | 25     | 0.910 | 01:45                  |
| 1280              | 12.3                       | 1233.0                     |         |            |        |       |                        |
|                   | 0.0                        | 1233.0                     | INT ML  | 4%         | 17     | 0.910 | 04:00                  |
|                   | 11.3                       | 1244.3                     | INT ML  | 14%        | 11     | 0.910 | 07:15                  |
|                   | 11.4                       | 1244.4                     | INT ML  | 19%        | 15     | 0.910 | 05:45                  |
|                   | 11.5                       | 1244.5                     | INT ML  | 10%        | 25     | 0.910 | 06:15                  |
|                   | 11.6                       | 1244.6                     | INT ML  | 16%        | 21     | 0.910 | 06:15                  |
|                   | 11.7                       | 1244.7                     | INT ML  | 16%        | 16     | 0.910 | 06:00                  |
|                   | 11.8                       | 1244.8                     | INT ML  | 11%        | 22     | 0.910 | 06:15                  |
|                   | 11.9                       | 1244.9                     | INT ML  | 24%        | 29     | 0.910 | 05:30                  |
|                   | 12.0                       | 1245.0                     | INT ML  | 14%        | 15     | 0.910 | 06:15                  |
|                   | 12.1                       | 1245.1                     | INT ML  | 33%        | 65     | 0.940 | 10:00                  |
| 1290              | 12.1                       | 1245.1                     |         |            |        |       |                        |
|                   | 0.0                        | 1245.1                     | INT ML  | 21%        | 19     | 0.910 | 06:15                  |
|                   | 0.2                        | 1245.3                     | INT ML  | 5%         | 17     | 0.910 | 06:30                  |
|                   | 0.7                        | 1245.8                     | INT ML  | 9%         | 12     | 0.910 | 06:15                  |
|                   | 0.8                        | 1245.9                     | INT ML  | 16%        | 17     | 0.910 | 07:00                  |
|                   | 0.9                        | 1246.0                     | INT ML  | 20%        | 24     | 0.910 | 05:00                  |
|                   | 4.6                        | 1249.7                     | INT ML  | 17%        | 12     | 0.910 | 06:30                  |
|                   | 6.0                        | 1251.1                     | INT ML  | 18%        | 12     | 0.910 | 06:30                  |
|                   | 8.3                        | 1253.4                     | INT ML  | 14%        | 12     | 0.910 | 06:00                  |
| 1300              | 12.2                       | 1257.3                     |         |            |        |       |                        |
|                   | 0.0                        | 1257.3                     | INT ML  | 18%        | 36     | 0.910 | 06:30                  |
|                   | 0.4                        | 1257.7                     | INT ML  | 19%        | 15     | 0.910 | 07:00                  |
|                   | 0.9                        | 1258.2                     | INT ML  | 17%        | 14     | 0.910 | 05:30                  |
|                   | 3.8                        | 1261.1                     | INT ML  | 11%        | 13     | 0.910 | 05:45                  |
|                   | 6.0                        | 1263.3                     | INT ML  | 17%        | 16     | 0.910 | 05:45                  |
|                   | 7.0                        | 1264.3                     | INT ML  | 20%        | 15     | 0.910 | 05:45                  |
|                   | 8.4                        | 1265.7                     | INT ML  | 21%        | 14     | 0.910 | 05:45                  |
|                   | 9.2                        | 1266.5                     | INT ML  | 25%        | 13     | 0.910 | 05:45                  |
|                   | 10.6                       | 1267.9                     | INT ML  | 14%        | 12     | 0.910 | 05:45                  |
|                   | 12.2                       | 1269.5                     | INT ML  | 7%         | 23     | 0.910 | 03:00                  |
| 1310              | 12.2                       | 1269.5                     |         |            |        |       |                        |
|                   | 0.5                        | 1270.0                     | INT ML  | 9%         | 17     | 0.910 | 06:00                  |
|                   | 0.7                        | 1270.2                     | INT ML  | 22%        | 14     | 0.910 | 06:15                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 1320              | 2.7                        | 1272.2                     | INT ML  | 22%        | 14     | 0.910 | 06:00                  |
|                   | 11.9                       | 1281.4                     |         |            |        |       |                        |
|                   | 0.0                        | 1281.4                     | INT ML  | 18%        | 38     | 0.910 | 04:30                  |
| 1330              | 11.6                       | 1293.0                     | INT ML  | 18%        | 15     | 0.910 | 06:15                  |
|                   | 12.0                       | 1293.4                     | INT ML  | 5%         | 17     | 0.910 | 07:00                  |
|                   | 12.3                       | 1293.7                     |         |            |        |       |                        |
|                   | 11.6                       | 1305.3                     | INT ML  | 15%        | 12     | 0.910 | 06:00                  |
|                   | 11.8                       | 1305.5                     | INT ML  | 21%        | 19     | 0.910 | 06:15                  |
| 1340              | 12.0                       | 1305.7                     | INT ML  | 14%        | 32     | 0.910 | 07:00                  |
|                   | 12.1                       | 1305.8                     | INT ML  | 14%        | 15     | 0.910 | 05:45                  |
|                   | 12.2                       | 1305.9                     | INT ML  | 12%        | 63     | 0.920 | 10:30                  |
|                   | 12.2                       | 1305.9                     |         |            |        |       |                        |
|                   | 11.9                       | 1317.8                     | INT ML  | 20%        | 19     | 0.910 | 06:15                  |
| 1350              | 12.2                       | 1318.1                     |         |            |        |       |                        |
| 1360              | 11.4                       | 1329.5                     | INT ML  | 13%        | 12     | 0.910 | 06:00                  |
|                   | 12.1                       | 1330.2                     |         |            |        |       |                        |
|                   | 0.0                        | 1330.2                     | INT ML  | 9%         | 29     | 0.910 | 06:15                  |
| 1370              | 10.5                       | 1340.7                     | INT ML  | 18%        | 14     | 0.910 | 05:15                  |
|                   | 12.1                       | 1342.3                     |         |            |        |       |                        |
|                   | 4.4                        | 1346.7                     | INT ML  | 16%        | 14     | 0.910 | 05:00                  |
| 1380              | 11.8                       | 1354.1                     | INT ML  | 13%        | 14     | 0.910 | 06:30                  |
|                   | 12.3                       | 1354.6                     |         |            |        |       |                        |
|                   | 0.0                        | 1354.6                     | INT ML  | 8%         | 28     | 0.910 | 07:30                  |
| 1390              | 12.6                       | 1367.2                     | INT ML  | 12%        | 27     | 0.910 | 11:45                  |
|                   | 12.6                       | 1367.2                     | INT ML  | 35%        | 18     | 0.910 | 02:30                  |
|                   | 12.6                       | 1367.2                     |         |            |        |       |                        |
|                   | 0.4                        | 1367.6                     | INT ML  | 19%        | 20     | 0.910 | 07:00                  |
| 1400              | 12.1                       | 1379.3                     |         |            |        |       |                        |
|                   | 0.0                        | 1379.3                     | INT ML  | 12%        | 22     | 0.910 | 08:15                  |
|                   | 0.0                        | 1379.3                     | INT ML  | 15%        | 30     | 0.910 | 06:30                  |
| 1410              | 9.2                        | 1388.5                     | INT ML  | 18%        | 15     | 0.910 | 06:00                  |
|                   | 12.1                       | 1391.4                     |         |            |        |       |                        |
|                   | 11.2                       | 1402.6                     | INT ML  | 23%        | 17     | 0.910 | 06:00                  |
| 1420              | 12.2                       | 1403.6                     |         |            |        |       |                        |
|                   | 0.0                        | 1403.6                     | INT ML  | 14%        | 81     | 0.930 | 05:00                  |
|                   | 9.4                        | 1413.0                     | DENT    |            |        |       | 06:00                  |
| 1430              | 12.2                       | 1415.8                     |         |            |        |       |                        |
|                   | 0.0                        | 1415.8                     | INT ML  | 8%         | 21     | 0.910 | 06:30                  |
|                   | 2.2                        | 1418.0                     | DENT    |            |        |       | 06:00                  |
| 1440              | 7.2                        | 1423.0                     | DENT    |            |        |       | 06:00                  |
|                   | 12.2                       | 1428.0                     |         |            |        |       |                        |
|                   | 0.0                        | 1428.0                     | DENT    |            |        |       | 06:00                  |
|                   | 0.0                        | 1428.0                     | INT ML  | 6%         | 23     | 0.910 | 09:00                  |
|                   | 6.0                        | 1434.0                     | INT ML  | 15%        | 16     | 0.910 | 05:45                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 9.8                        | 1437.8                     | INT ML  | 17%        | 13     | 0.910 | 05:30                  |
|                   | 12.1                       | 1440.1                     | INT ML  | 27%        | 71     | 0.940 | 12:45                  |
| 1450              | 12.2                       | 1440.2                     |         |            |        |       |                        |
|                   | 12.1                       | 1452.3                     | INT ML  | 9%         | 40     | 0.910 | 12:00                  |
| 1460              | 12.2                       | 1452.4                     |         |            |        |       |                        |
|                   | 0.0                        | 1452.4                     | INT ML  | 8%         | 18     | 0.910 | 08:15                  |
|                   | 12.2                       | 1464.6                     | INT ML  | 13%        | 55     | 0.920 | 12:45                  |
| 1470              | 12.2                       | 1464.6                     |         |            |        |       |                        |
|                   | 11.8                       | 1476.4                     | INT ML  | 10%        | 66     | 0.920 | 12:45                  |
| 1480              | 11.8                       | 1476.4                     |         |            |        |       |                        |
|                   | 0.7                        | 1477.1                     | INT ML  | 13%        | 21     | 0.910 | 06:00                  |
|                   | 12.2                       | 1488.6                     | INT ML  | 14%        | 66     | 0.920 | 01:15                  |
| 1490              | 12.2                       | 1488.6                     |         |            |        |       |                        |
|                   | 12.2                       | 1500.8                     | INT ML  | 7%         | 44     | 0.910 | 01:00                  |
| 1500              | 12.3                       | 1500.9                     |         |            |        |       |                        |
|                   | 0.3                        | 1501.2                     | INT ML  | 17%        | 16     | 0.910 | 07:00                  |
| 1510              | 12.1                       | 1513.0                     |         |            |        |       |                        |
|                   | 3.1                        | 1516.1                     | INT ML  | 14%        | 14     | 0.910 | 06:30                  |
|                   | 9.8                        | 1522.8                     | INT ML  | 11%        | 15     | 0.910 | 06:30                  |
|                   | 11.3                       | 1524.3                     | INT ML  | 19%        | 17     | 0.910 | 06:30                  |
|                   | 12.2                       | 1525.2                     | INT ML  | 18%        | 61     | 0.920 | 12:00                  |
| 1520              | 12.2                       | 1525.2                     |         |            |        |       |                        |
|                   | 0.2                        | 1525.4                     | INT ML  | 21%        | 20     | 0.910 | 06:00                  |
|                   | 12.1                       | 1537.3                     | INT ML  | 9%         | 55     | 0.910 | 12:45                  |
| 1530              | 12.1                       | 1537.3                     |         |            |        |       |                        |
|                   | 2.0                        | 1539.3                     | INT ML  | 19%        | 13     | 0.910 | 06:45                  |
|                   | 11.6                       | 1548.9                     | INT ML  | 17%        | 16     | 0.910 | 06:30                  |
|                   | 12.2                       | 1549.5                     | INT ML  | 25%        | 44     | 0.920 | 12:30                  |
| 1540              | 12.3                       | 1549.6                     |         |            |        |       |                        |
|                   | 0.0                        | 1549.6                     | INT ML  | 23%        | 17     | 0.910 | 07:00                  |
|                   | 12.2                       | 1561.8                     | INT ML  | 33%        | 70     | 0.940 | 01:45                  |
| 1550              | 12.2                       | 1561.8                     |         |            |        |       |                        |
|                   | 11.3                       | 1573.1                     | INT ML  | 20%        | 16     | 0.910 | 06:00                  |
|                   | 12.2                       | 1574.0                     | INT ML  | 17%        | 26     | 0.910 | 01:15                  |
| 1560              | 12.2                       | 1574.0                     |         |            |        |       |                        |
|                   | 11.4                       | 1585.4                     | INT ML  | 15%        | 14     | 0.910 | 07:00                  |
|                   | 11.9                       | 1585.9                     | INT ML  | 20%        | 18     | 0.910 | 07:00                  |
| 1570              | 12.1                       | 1586.1                     |         |            |        |       |                        |
|                   | 7.7                        | 1593.8                     | INT ML  | 18%        | 12     | 0.910 | 06:15                  |
| 1580              | 12.3                       | 1598.4                     |         |            |        |       |                        |
|                   | 12.2                       | 1610.6                     | INT ML  | 26%        | 67     | 0.930 | 12:00                  |
| 1590              | 12.2                       | 1610.6                     |         |            |        |       |                        |
| 1600              | 12.1                       | 1622.7                     |         |            |        |       |                        |
|                   | 12.1                       | 1634.8                     | INT ML  | 13%        | 73     | 0.920 | 12:45                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 1610              | 12.1                       | 1634.8                     |         |            |        |       |                        |
|                   | 12.2                       | 1647.0                     | INT ML  | 20%        | 108    | 0.940 | 12:30                  |
| 1620              | 12.2                       | 1647.0                     |         |            |        |       |                        |
|                   | 0.3                        | 1647.3                     | INT ML  | 13%        | 17     | 0.910 | 06:00                  |
| 1630              | 12.1                       | 1659.1                     |         |            |        |       |                        |
|                   | 11.9                       | 1671.0                     | INT ML  | 9%         | 28     | 0.910 | 05:45                  |
| 1640              | 12.2                       | 1671.3                     |         |            |        |       |                        |
|                   | 0.0                        | 1671.3                     | INT ML  | 5%         | 21     | 0.910 | 03:45                  |
|                   | 11.6                       | 1682.9                     | INT ML  | 11%        | 14     | 0.910 | 07:00                  |
| 1650              | 12.1                       | 1683.4                     |         |            |        |       |                        |
|                   | 0.0                        | 1683.4                     | INT ML  | 8%         | 32     | 0.910 | 04:45                  |
|                   | 0.5                        | 1683.9                     | INT ML  | 9%         | 22     | 0.910 | 06:45                  |
| 1660              | 12.0                       | 1695.4                     |         |            |        |       |                        |
|                   | 0.0                        | 1695.4                     | INT ML  | 16%        | 89     | 0.930 | 05:00                  |
|                   | 11.8                       | 1707.2                     | INT ML  | 18%        | 15     | 0.910 | 06:45                  |
| 1670              | 12.2                       | 1707.6                     |         |            |        |       |                        |
|                   | 12.1                       | 1719.7                     | INT ML  | 17%        | 52     | 0.920 | 11:00                  |
| 1680              | 12.1                       | 1719.7                     |         |            |        |       |                        |
| 1690              | 12.1                       | 1731.8                     |         |            |        |       |                        |
|                   | 12.1                       | 1743.9                     | INT ML  | 15%        | 60     | 0.920 | 11:15                  |
| 1700              | 12.1                       | 1743.9                     |         |            |        |       |                        |
| 1710              | 12.2                       | 1756.1                     |         |            |        |       |                        |
|                   | 11.6                       | 1767.7                     | INT ML  | 19%        | 19     | 0.910 | 05:45                  |
|                   | 12.2                       | 1768.3                     | INT ML  | 20%        | 53     | 0.920 | 01:15                  |
| 1720              | 12.3                       | 1768.4                     |         |            |        |       |                        |
|                   | 12.6                       | 1781.0                     | INT ML  | 13%        | 72     | 0.920 | 12:45                  |
| 1730              | 12.6                       | 1781.0                     |         |            |        |       |                        |
|                   | 12.2                       | 1793.2                     | INT ML  | 6%         | 23     | 0.910 | 04:00                  |
| 1740              | 12.2                       | 1793.2                     |         |            |        |       |                        |
|                   | 12.1                       | 1805.3                     | INT ML  | 15%        | 46     | 0.920 | 01:30                  |
| 1750              | 12.1                       | 1805.3                     |         |            |        |       |                        |
|                   | 12.2                       | 1817.5                     | INT ML  | 17%        | 48     | 0.920 | 11:15                  |
| 1760              | 12.3                       | 1817.6                     |         |            |        |       |                        |
|                   | 12.2                       | 1829.8                     | INT ML  | 11%        | 89     | 0.920 | 02:00                  |
| 1770              | 12.2                       | 1829.8                     |         |            |        |       |                        |
|                   | 12.1                       | 1841.9                     | INT ML  | 8%         | 55     | 0.910 | 11:15                  |
| 1780              | 12.2                       | 1842.0                     |         |            |        |       |                        |
|                   | 0.3                        | 1842.3                     | INT ML  | 14%        | 267    | 0.970 | 11:00                  |
|                   | 2.0                        | 1844.0                     | INT ML  | 20%        | 94     | 0.940 | 11:00                  |
|                   | 3.6                        | 1845.6                     | INT ML  | 19%        | 104    | 0.940 | 11:00                  |
| 1790              | 12.2                       | 1854.2                     |         |            |        |       |                        |
|                   | 12.2                       | 1866.4                     | INT ML  | 9%         | 37     | 0.910 | 12:45                  |
| 1800              | 12.2                       | 1866.4                     |         |            |        |       |                        |
|                   | 0.0                        | 1866.4                     | INT ML  | 7%         | 24     | 0.910 | 08:00                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment                       | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|-------------------------------|------------|--------|-------|------------------------|
| 1810              | 12.2                       | 1878.6                     | INT ML                        | 21%        | 67     | 0.930 | 12:00                  |
|                   | 12.3                       | 1878.7                     |                               |            |        |       |                        |
| 1820              | 3.9                        | 1882.6                     | INT ML                        | 20%        | 108    | 0.940 | 02:00                  |
|                   | 12.2                       | 1890.9                     | INT ML                        | 13%        | 31     | 0.910 | 01:15                  |
| 1830              | 12.2                       | 1890.9                     |                               |            |        |       |                        |
|                   | 12.0                       | 1902.9                     | INT ML                        | 15%        | 82     | 0.930 | 01:30                  |
| 1840              | 12.1                       | 1903.0                     |                               |            |        |       |                        |
|                   | 10.0                       | 1913.0                     | CASING-EPOXY SEAL             |            |        |       |                        |
| 1840              | 12.1                       | 1915.1                     | INT ML                        | 23%        | 26     | 0.910 | 03:15                  |
|                   | 12.1                       | 1915.1                     |                               |            |        |       |                        |
| 1850              | 0.0                        | 1915.1                     | INT ML                        | 7%         | 23     | 0.910 | 06:00                  |
|                   | 2.9                        | 1918.0                     | CLOSE CASING-ECCENTRIC MID    |            |        |       | 06:00                  |
| 1860              | 7.9                        | 1923.0                     | CASING-EPOXY SEAL             |            |        |       |                        |
|                   | 12.2                       | 1927.3                     | INT ML                        | 11%        | 63     | 0.920 | 11:30                  |
| 1870              | 12.2                       | 1927.3                     |                               |            |        |       |                        |
|                   | 12.2                       | 1939.5                     |                               |            |        |       |                        |
| 1870              | 0.0                        | 1939.5                     | INT ML                        | 37%        | 23     | 0.910 | 08:30                  |
|                   | 11.8                       | 1951.3                     | INT ML                        | 19%        | 15     | 0.910 | 05:30                  |
| 1880              | 12.1                       | 1951.6                     |                               |            |        |       |                        |
|                   | 0.0                        | 1951.6                     | INT ML                        | 12%        | 35     | 0.910 | 08:30                  |
| 1880              | 11.4                       | 1963.0                     | CASING-FAB SEAL               |            |        |       |                        |
|                   | 12.3                       | 1963.9                     |                               |            |        |       |                        |
| 1890              | 4.1                        | 1968.0                     | CLOSE CASING-ECCENTRIC MID    |            |        |       | 06:00                  |
|                   | 9.1                        | 1973.0                     | CLOSE CASING-ECCENTRIC MID    |            |        |       | 06:00                  |
| 1900              | 12.2                       | 1976.1                     | INT ML                        | 23%        | 74     | 0.930 | 01:00                  |
|                   | 12.2                       | 1976.1                     |                               |            |        |       |                        |
| 1910              | 1.9                        | 1978.0                     | TOUCHING CASING-ECCENTRIC MID |            |        |       | 06:00                  |
|                   | 6.9                        | 1983.0                     | TOUCHING CASING-ECCENTRIC MID |            |        |       | 06:00                  |
| 1920              | 12.1                       | 1988.2                     | INT ML                        | 18%        | 54     | 0.920 | 11:30                  |
|                   | 12.1                       | 1988.2                     |                               |            |        |       |                        |
| 1930              | 4.8                        | 1993.0                     | CASING-FAB SEAL               |            |        |       |                        |
|                   | 12.2                       | 2000.4                     | INT ML                        | 15%        | 70     | 0.920 | 07:45                  |
| 1940              | 12.3                       | 2000.5                     |                               |            |        |       |                        |
|                   | 12.1                       | 2012.6                     |                               |            |        |       |                        |
| 1950              | 0.4                        | 2013.0                     | CLOSE CASING-ECCENTRIC SRT    |            |        |       | 06:00                  |
|                   | 5.4                        | 2018.0                     | TOUCHING CASING-ECCENTRIC END |            |        |       | 06:00                  |
| 1930              | 12.2                       | 2024.8                     | INT ML                        | 23%        | 46     | 0.920 | 02:45                  |
|                   | 12.2                       | 2024.8                     |                               |            |        |       |                        |
| 1940              | 12.2                       | 2037.0                     | INT ML                        | 16%        | 27     | 0.910 | 01:30                  |
|                   | 12.3                       | 2037.1                     |                               |            |        |       |                        |
| 1950              | 0.0                        | 2037.1                     | INT ML                        | 9%         | 23     | 0.910 | 10:15                  |
|                   | 12.2                       | 2049.3                     | INT ML                        | 15%        | 59     | 0.920 | 12:00                  |
| 1950              | 12.2                       | 2049.3                     |                               |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 1960              | 12.2                       | 2061.5                     |         |            |        |       |                        |
|                   | 12.2                       | 2073.7                     | INT ML  | 17%        | 70     | 0.920 | 12:15                  |
| 1970              | 12.2                       | 2073.7                     |         |            |        |       |                        |
|                   | 12.1                       | 2085.8                     | INT ML  | 26%        | 39     | 0.920 | 11:30                  |
| 1980              | 12.1                       | 2085.8                     |         |            |        |       |                        |
|                   | 0.0                        | 2085.8                     | INT ML  | 8%         | 36     | 0.910 | 10:15                  |
| 1990              | 12.2                       | 2098.0                     |         |            |        |       |                        |
|                   | 12.2                       | 2110.2                     | INT ML  | 8%         | 40     | 0.910 | 12:45                  |
| 2000              | 12.2                       | 2110.2                     |         |            |        |       |                        |
|                   | 12.2                       | 2122.4                     | INT ML  | 28%        | 67     | 0.940 | 01:30                  |
| 2010              | 12.2                       | 2122.4                     |         |            |        |       |                        |
| 2020              | 12.1                       | 2134.5                     |         |            |        |       |                        |
|                   | 0.0                        | 2134.5                     | INT ML  | 9%         | 25     | 0.910 | 09:30                  |
|                   | 12.2                       | 2146.7                     | INT ML  | 26%        | 68     | 0.930 | 11:45                  |
| 2030              | 12.2                       | 2146.7                     |         |            |        |       |                        |
| 2040              | 12.3                       | 2159.0                     |         |            |        |       |                        |
|                   | 12.2                       | 2171.2                     | INT ML  | 21%        | 64     | 0.930 | 12:15                  |
| 2050              | 12.2                       | 2171.2                     |         |            |        |       |                        |
| 2060              | 12.1                       | 2183.3                     |         |            |        |       |                        |
|                   | 0.0                        | 2183.3                     | INT ML  | 10%        | 50     | 0.910 | 06:00                  |
| 2070              | 12.1                       | 2195.4                     |         |            |        |       |                        |
|                   | 12.1                       | 2207.5                     | INT ML  | 8%         | 60     | 0.910 | 11:00                  |
| 2080              | 12.1                       | 2207.5                     |         |            |        |       |                        |
| 2090              | 12.3                       | 2219.8                     |         |            |        |       |                        |
|                   | 0.2                        | 2220.0                     | INT ML  | 11%        | 21     | 0.910 | 06:30                  |
| 2100              | 12.2                       | 2232.0                     |         |            |        |       |                        |
|                   | 0.0                        | 2232.0                     | INT ML  | 10%        | 29     | 0.910 | 09:45                  |
| 2110              | 12.2                       | 2244.2                     |         |            |        |       |                        |
|                   | 12.1                       | 2256.3                     | INT ML  | 10%        | 58     | 0.920 | 01:45                  |
| 2120              | 12.2                       | 2256.4                     |         |            |        |       |                        |
|                   | 12.1                       | 2268.5                     | INT ML  | 19%        | 66     | 0.930 | 12:45                  |
| 2130              | 12.1                       | 2268.5                     |         |            |        |       |                        |
| 2140              | 12.1                       | 2280.6                     |         |            |        |       |                        |
|                   | 12.2                       | 2292.8                     | INT ML  | 12%        | 78     | 0.920 | 11:45                  |
| 2150              | 12.2                       | 2292.8                     |         |            |        |       |                        |
| 2160              | 12.1                       | 2304.9                     |         |            |        |       |                        |
|                   | 12.2                       | 2317.1                     | INT ML  | 12%        | 63     | 0.920 | 12:45                  |
| 2170              | 12.2                       | 2317.1                     |         |            |        |       |                        |
| 2180              | 12.1                       | 2329.2                     |         |            |        |       |                        |
|                   | 12.1                       | 2341.3                     | INT ML  | 12%        | 80     | 0.920 | 01:15                  |
| 2190              | 12.2                       | 2341.4                     |         |            |        |       |                        |
|                   | 12.1                       | 2353.5                     | INT ML  | 19%        | 34     | 0.910 | 11:15                  |
| 2200              | 12.1                       | 2353.5                     |         |            |        |       |                        |
|                   | 0.0                        | 2353.5                     | INT ML  | 9%         | 26     | 0.910 | 08:45                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 12.2                       | 2365.7                     | INT ML  | 13%        | 55     | 0.920 | 12:15                  |
| 2210              | 12.2                       | 2365.7                     |         |            |        |       |                        |
| 2220              | 12.3                       | 2378.0                     |         |            |        |       |                        |
|                   | 12.1                       | 2390.1                     | INT ML  | 11%        | 63     | 0.920 | 10:45                  |
| 2230              | 12.1                       | 2390.1                     |         |            |        |       |                        |
|                   | 11.8                       | 2401.9                     | INT ML  | 29%        | 97     | 0.960 | 10:15                  |
| 2240              | 11.9                       | 2402.0                     |         |            |        |       |                        |
|                   | 0.0                        | 2402.0                     | INT ML  | 19%        | 24     | 0.910 | 09:15                  |
| 2250              | 12.2                       | 2414.2                     |         |            |        |       |                        |
|                   | 12.1                       | 2426.3                     | INT ML  | 15%        | 49     | 0.920 | 12:15                  |
| 2260              | 12.1                       | 2426.3                     |         |            |        |       |                        |
|                   | 12.1                       | 2438.4                     | INT ML  | 20%        | 61     | 0.920 | 12:00                  |
| 2270              | 12.1                       | 2438.4                     |         |            |        |       |                        |
|                   | 12.3                       | 2450.7                     | INT ML  | 30%        | 69     | 0.940 | 07:00                  |
| 2280              | 12.3                       | 2450.7                     |         |            |        |       |                        |
| 2290              | 12.1                       | 2462.8                     |         |            |        |       |                        |
|                   | 12.2                       | 2475.0                     | INT ML  | 13%        | 72     | 0.920 | 11:00                  |
| 2300              | 12.2                       | 2475.0                     |         |            |        |       |                        |
| 2310              | 12.1                       | 2487.1                     |         |            |        |       |                        |
|                   | 12.1                       | 2499.2                     | INT ML  | 12%        | 57     | 0.920 | 06:15                  |
| 2320              | 12.1                       | 2499.2                     |         |            |        |       |                        |
|                   | 0.0                        | 2499.2                     | INT ML  | 7%         | 20     | 0.910 | 03:00                  |
|                   | 12.1                       | 2511.3                     | INT ML  | 11%        | 36     | 0.910 | 01:30                  |
| 2330              | 12.1                       | 2511.3                     |         |            |        |       |                        |
|                   | 12.1                       | 2523.4                     | INT ML  | 14%        | 60     | 0.920 | 10:45                  |
|                   | 12.1                       | 2523.4                     | INT ML  | 5%         | 20     | 0.910 | 04:00                  |
| 2340              | 12.1                       | 2523.4                     |         |            |        |       |                        |
| 2350              | 12.1                       | 2535.5                     |         |            |        |       |                        |
|                   | 12.2                       | 2547.7                     | INT ML  | 20%        | 77     | 0.930 | 08:30                  |
| 2360              | 12.2                       | 2547.7                     |         |            |        |       |                        |
| 2370              | 12.2                       | 2559.9                     |         |            |        |       |                        |
|                   | 0.0                        | 2559.9                     | INT ML  | 9%         | 26     | 0.910 | 05:45                  |
|                   | 12.1                       | 2572.0                     | INT ML  | 12%        | 50     | 0.920 | 01:45                  |
| 2380              | 12.1                       | 2572.0                     |         |            |        |       |                        |
|                   | 12.1                       | 2584.1                     | INT ML  | 20%        | 84     | 0.940 | 12:45                  |
| 2390              | 12.1                       | 2584.1                     |         |            |        |       |                        |
| 2400              | 12.2                       | 2596.3                     |         |            |        |       |                        |
|                   | 0.0                        | 2596.3                     | INT ML  | 11%        | 26     | 0.910 | 06:30                  |
| 2410              | 12.1                       | 2608.4                     |         |            |        |       |                        |
|                   | 0.0                        | 2608.4                     | INT ML  | 8%         | 25     | 0.910 | 04:00                  |
| 2420              | 12.2                       | 2620.6                     |         |            |        |       |                        |
|                   | 12.1                       | 2632.7                     | INT ML  | 16%        | 79     | 0.930 | 12:15                  |
| 2430              | 12.1                       | 2632.7                     |         |            |        |       |                        |
| 2440              | 12.3                       | 2645.0                     |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 12.1                       | 2657.1                     | INT ML  | 31%        | 67     | 0.940 | 01:45                  |
| 2450              | 12.1                       | 2657.1                     |         |            |        |       |                        |
| 2460              | 12.2                       | 2669.3                     |         |            |        |       |                        |
|                   | 0.0                        | 2669.3                     | INT ML  | 20%        | 36     | 0.910 | 08:45                  |
| 2470              | 12.2                       | 2681.5                     |         |            |        |       |                        |
|                   | 12.1                       | 2693.6                     | INT ML  | 21%        | 54     | 0.920 | 10:45                  |
| 2480              | 12.2                       | 2693.7                     |         |            |        |       |                        |
|                   | 12.2                       | 2705.9                     | INT ML  | 19%        | 80     | 0.930 | 12:15                  |
| 2490              | 12.2                       | 2705.9                     |         |            |        |       |                        |
| 2500              | 12.2                       | 2718.1                     |         |            |        |       |                        |
|                   | 12.2                       | 2730.3                     | INT ML  | 20%        | 58     | 0.920 | 12:00                  |
| 2510              | 12.3                       | 2730.4                     |         |            |        |       |                        |
| 2520              | 12.1                       | 2742.5                     |         |            |        |       |                        |
|                   | 0.0                        | 2742.5                     | INT ML  | 7%         | 29     | 0.910 | 09:15                  |
| 2530              | 12.2                       | 2754.7                     |         |            |        |       |                        |
|                   | 11.9                       | 2766.6                     | INT ML  | 21%        | 49     | 0.920 | 11:30                  |
| 2540              | 12.0                       | 2766.7                     |         |            |        |       |                        |
| 2550              | 12.1                       | 2778.8                     |         |            |        |       |                        |
|                   | 12.1                       | 2790.9                     | INT ML  | 8%         | 79     | 0.920 | 09:45                  |
| 2560              | 12.1                       | 2790.9                     |         |            |        |       |                        |
|                   | 12.2                       | 2803.1                     | INT ML  | 14%        | 84     | 0.930 | 11:45                  |
| 2570              | 12.2                       | 2803.1                     |         |            |        |       |                        |
|                   | 12.2                       | 2815.3                     | INT ML  | 4%         | 18     | 0.910 | 02:45                  |
| 2580              | 12.2                       | 2815.3                     |         |            |        |       |                        |
| 2590              | 12.1                       | 2827.4                     |         |            |        |       |                        |
|                   | 12.2                       | 2839.6                     | INT ML  | 16%        | 60     | 0.920 | 11:15                  |
| 2600              | 12.3                       | 2839.7                     |         |            |        |       |                        |
| 2610              | 12.2                       | 2851.9                     |         |            |        |       |                        |
|                   | 12.2                       | 2864.1                     | INT ML  | 7%         | 47     | 0.910 | 12:15                  |
| 2620              | 12.3                       | 2864.2                     |         |            |        |       |                        |
|                   | 12.2                       | 2876.4                     | INT ML  | 11%        | 68     | 0.920 | 11:45                  |
| 2630              | 12.2                       | 2876.4                     |         |            |        |       |                        |
|                   | 12.2                       | 2888.6                     | INT ML  | 17%        | 52     | 0.920 | 12:00                  |
| 2640              | 12.3                       | 2888.7                     |         |            |        |       |                        |
|                   | 12.1                       | 2900.8                     | INT ML  | 12%        | 75     | 0.920 | 11:45                  |
| 2650              | 12.1                       | 2900.8                     |         |            |        |       |                        |
|                   | 12.1                       | 2912.9                     | INT ML  | 5%         | 30     | 0.910 | 03:15                  |
| 2660              | 12.1                       | 2912.9                     |         |            |        |       |                        |
| 2670              | 12.2                       | 2925.1                     |         |            |        |       |                        |
|                   | 12.2                       | 2937.3                     | INT ML  | 16%        | 37     | 0.910 | 11:15                  |
| 2680              | 12.2                       | 2937.3                     |         |            |        |       |                        |
| 2690              | 12.1                       | 2949.4                     |         |            |        |       |                        |
|                   | 12.2                       | 2961.6                     | INT ML  | 15%        | 71     | 0.920 | 10:45                  |
| 2700              | 12.2                       | 2961.6                     |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 2710              | 11.7                       | 2973.3                     | INT ML  | 22%        | 84     | 0.940 | 11:15                  |
|                   | 11.8                       | 2973.4                     |         |            |        |       |                        |
| 2720              | 12.1                       | 2985.5                     | INT ML  | 18%        | 70     | 0.930 | 12:00                  |
|                   | 12.1                       | 2985.5                     |         |            |        |       |                        |
| 2730              | 0.0                        | 2985.5                     | INT ML  | 9%         | 19     | 0.910 | 05:30                  |
|                   | 12.2                       | 2997.7                     |         |            |        |       |                        |
| 2740              | 12.3                       | 3010.0                     | INT ML  | 11%        | 55     | 0.920 | 01:30                  |
|                   | 12.1                       | 3022.1                     |         |            |        |       |                        |
| 2750              | 12.1                       | 3022.1                     | INT ML  | 21%        | 22     | 0.910 | 09:30                  |
|                   | 0.0                        | 3022.1                     |         |            |        |       |                        |
| 2760              | 12.2                       | 3034.3                     | INT ML  | 16%        | 38     | 0.910 | 02:15                  |
|                   | 12.3                       | 3034.4                     |         |            |        |       |                        |
| 2770              | 12.1                       | 3046.5                     | INT ML  | 26%        | 64     | 0.930 | 11:00                  |
|                   | 12.1                       | 3046.5                     |         |            |        |       |                        |
| 2780              | 12.2                       | 3058.7                     | INT ML  | 17%        | 84     | 0.930 | 11:30                  |
|                   | 12.2                       | 3070.9                     |         |            |        |       |                        |
| 2790              | 12.2                       | 3070.9                     | INT ML  | 21%        | 76     | 0.930 | 11:45                  |
|                   | 12.1                       | 3083.0                     |         |            |        |       |                        |
| 2800              | 12.2                       | 3095.2                     | INT ML  | 29%        | 72     | 0.940 | 10:00                  |
|                   | 12.3                       | 3095.3                     |         |            |        |       |                        |
| 2810              | 12.1                       | 3107.4                     | INT ML  | 21%        | 34     | 0.910 | 05:00                  |
|                   | 12.2                       | 3119.6                     |         |            |        |       |                        |
| 2820              | 12.2                       | 3119.6                     | INT ML  | 11%        | 67     | 0.920 | 11:00                  |
|                   | 12.2                       | 3119.6                     |         |            |        |       |                        |
| 2830              | 12.3                       | 3131.9                     | INT ML  | 13%        | 69     | 0.920 | 12:15                  |
|                   | 0.0                        | 3131.9                     |         |            |        |       |                        |
| 2840              | 12.0                       | 3143.9                     | INT ML  | 17%        | 36     | 0.910 | 09:00                  |
|                   | 12.1                       | 3156.0                     |         |            |        |       |                        |
| 2850              | 12.2                       | 3156.1                     | INT ML  | 15%        | 52     | 0.920 | 09:30                  |
|                   | 12.2                       | 3168.3                     |         |            |        |       |                        |
| 2860              | 12.2                       | 3168.3                     | INT ML  | 23%        | 99     | 0.950 | 09:00                  |
|                   | 12.2                       | 3180.5                     |         |            |        |       |                        |
| 2870              | 12.2                       | 3180.5                     | INT ML  | 15%        | 154    | 0.950 | 09:00                  |
|                   | 6.3                        | 3186.8                     |         |            |        |       |                        |
| 2880              | 10.7                       | 3191.2                     | INT ML  | 18%        | 65     | 0.920 | 01:30                  |
|                   | 11.8                       | 3192.3                     |         |            |        |       |                        |
| 2890              | 12.2                       | 3204.5                     | INT ML  | 18%        | 44     | 0.920 | 11:00                  |
|                   | 12.3                       | 3204.6                     |         |            |        |       |                        |
| 2900              | 12.1                       | 3216.7                     | INT ML  | 15%        | 64     | 0.920 | 10:15                  |
|                   | 12.2                       | 3228.9                     |         |            |        |       |                        |
| 2910              | 12.2                       | 3228.9                     | INT ML  | 15%        | 52     | 0.920 | 09:30                  |
|                   | 12.2                       | 3228.9                     |         |            |        |       |                        |
| 2920              | 12.1                       | 3241.0                     | INT ML  | 15%        | 52     | 0.920 | 09:30                  |
|                   | 12.1                       | 3241.0                     |         |            |        |       |                        |
| 2930              | 12.2                       | 3253.2                     | INT ML  | 15%        | 52     | 0.920 | 09:30                  |
|                   | 12.2                       | 3253.2                     |         |            |        |       |                        |
| 2940              | 12.3                       | 3253.3                     | INT ML  | 15%        | 52     | 0.920 | 09:30                  |
|                   | 12.3                       | 3253.3                     |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 0.7                        | 3254.0                     | INT ML  | 8%         | 115    | 0.920 | 08:45                  |
|                   | 11.8                       | 3265.1                     | INT ML  | 26%        | 194    | 1.000 | 08:45                  |
| 2950              | 12.1                       | 3265.4                     |         |            |        |       |                        |
|                   | 12.2                       | 3277.6                     | INT ML  | 22%        | 48     | 0.920 | 10:15                  |
| 2960              | 12.2                       | 3277.6                     |         |            |        |       |                        |
|                   | 12.2                       | 3289.8                     | INT ML  | 24%        | 78     | 0.940 | 12:15                  |
| 2970              | 12.2                       | 3289.8                     |         |            |        |       |                        |
| 2980              | 12.3                       | 3302.1                     |         |            |        |       |                        |
|                   | 12.2                       | 3314.3                     | INT ML  | 23%        | 60     | 0.930 | 11:30                  |
| 2990              | 12.2                       | 3314.3                     |         |            |        |       |                        |
|                   | 12.7                       | 3327.0                     | INT ML  | 9%         | 38     | 0.910 | 03:45                  |
| 3000              | 12.7                       | 3327.0                     |         |            |        |       |                        |
|                   | 12.1                       | 3339.1                     | INT ML  | 19%        | 95     | 0.940 | 09:15                  |
| 3010              | 12.1                       | 3339.1                     |         |            |        |       |                        |
|                   | 12.1                       | 3351.2                     | INT ML  | 20%        | 47     | 0.920 | 12:15                  |
|                   | 12.1                       | 3351.2                     | INT ML  | 11%        | 27     | 0.910 | 02:30                  |
| 3020              | 12.1                       | 3351.2                     |         |            |        |       |                        |
| 3030              | 12.2                       | 3363.4                     |         |            |        |       |                        |
|                   | 12.1                       | 3375.5                     | INT ML  | 9%         | 70     | 0.920 | 12:30                  |
| 3040              | 12.1                       | 3375.5                     |         |            |        |       |                        |
| 3050              | 12.2                       | 3387.7                     |         |            |        |       |                        |
|                   | 0.0                        | 3387.7                     | INT ML  | 7%         | 26     | 0.910 | 07:30                  |
|                   | 12.2                       | 3399.9                     | INT ML  | 13%        | 64     | 0.920 | 10:45                  |
| 3060              | 12.2                       | 3399.9                     |         |            |        |       |                        |
|                   | 0.0                        | 3399.9                     | INT ML  | 6%         | 16     | 0.910 | 06:30                  |
|                   | 12.2                       | 3412.1                     | INT ML  | 30%        | 55     | 0.930 | 08:45                  |
| 3070              | 12.2                       | 3412.1                     |         |            |        |       |                        |
| 3080              | 12.1                       | 3424.2                     |         |            |        |       |                        |
|                   | 12.2                       | 3436.4                     | INT ML  | 9%         | 60     | 0.920 | 10:45                  |
| 3090              | 12.3                       | 3436.5                     |         |            |        |       |                        |
| 3100              | 12.1                       | 3448.6                     |         |            |        |       |                        |
|                   | 0.0                        | 3448.6                     | INT ML  | 8%         | 16     | 0.910 | 06:00                  |
| 3110              | 12.1                       | 3460.7                     |         |            |        |       |                        |
|                   | 0.7                        | 3461.4                     | INT ML  | 10%        | 18     | 0.910 | 06:15                  |
| 3120              | 12.2                       | 3472.9                     |         |            |        |       |                        |
|                   | 12.2                       | 3485.1                     | INT ML  | 23%        | 54     | 0.920 | 04:15                  |
| 3130              | 12.2                       | 3485.1                     |         |            |        |       |                        |
|                   | 12.2                       | 3497.3                     | INT ML  | 19%        | 40     | 0.920 | 10:30                  |
| 3140              | 12.2                       | 3497.3                     |         |            |        |       |                        |
| 3150              | 12.3                       | 3509.6                     |         |            |        |       |                        |
|                   | 12.2                       | 3521.8                     | INT ML  | 19%        | 57     | 0.920 | 01:30                  |
| 3160              | 12.2                       | 3521.8                     |         |            |        |       |                        |
|                   | 12.1                       | 3533.9                     | INT ML  | 12%        | 45     | 0.910 | 02:00                  |
| 3170              | 12.1                       | 3533.9                     |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 0.0                        | 3533.9                     | INT ML  | 9%         | 19     | 0.910 | 06:15                  |
|                   | 12.2                       | 3546.1                     | INT ML  | 19%        | 50     | 0.920 | 03:15                  |
| 3180              | 12.2                       | 3546.1                     |         |            |        |       |                        |
| 3190              | 12.1                       | 3558.2                     |         |            |        |       |                        |
|                   | 12.2                       | 3570.4                     | INT ML  | 12%        | 35     | 0.910 | 12:30                  |
| 3200              | 12.2                       | 3570.4                     |         |            |        |       |                        |
|                   | 12.1                       | 3582.5                     | INT ML  | 10%        | 70     | 0.920 | 10:15                  |
| 3210              | 12.1                       | 3582.5                     |         |            |        |       |                        |
| 3220              | 12.2                       | 3594.7                     |         |            |        |       |                        |
|                   | 12.2                       | 3606.9                     | INT ML  | 9%         | 53     | 0.910 | 12:00                  |
| 3230              | 12.3                       | 3607.0                     |         |            |        |       |                        |
|                   | 11.9                       | 3618.9                     | INT ML  | 23%        | 273    | 1.010 | 11:45                  |
|                   | 12.2                       | 3619.2                     | INT ML  | 11%        | 24     | 0.910 | 10:45                  |
| 3240              | 12.2                       | 3619.2                     |         |            |        |       |                        |
|                   | 0.0                        | 3619.2                     | INT ML  | 7%         | 27     | 0.910 | 08:45                  |
|                   | 12.2                       | 3631.4                     | INT ML  | 22%        | 50     | 0.920 | 09:45                  |
| 3250              | 12.2                       | 3631.4                     |         |            |        |       |                        |
| 3260              | 12.1                       | 3643.5                     |         |            |        |       |                        |
|                   | 0.9                        | 3644.4                     | INT ML  | 4%         | 146    | 0.920 | 08:15                  |
|                   | 2.4                        | 3645.9                     | INT ML  | 10%        | 177    | 0.940 | 08:30                  |
| 3270              | 11.8                       | 3655.3                     |         |            |        |       |                        |
|                   | 12.1                       | 3667.4                     | INT ML  | 9%         | 35     | 0.910 | 11:45                  |
| 3280              | 12.1                       | 3667.4                     |         |            |        |       |                        |
|                   | 12.1                       | 3679.5                     | INT ML  | 7%         | 43     | 0.910 | 12:15                  |
| 3290              | 12.1                       | 3679.5                     |         |            |        |       |                        |
| 3300              | 8.4                        | 3687.9                     |         |            |        |       |                        |
| 3310              | 4.7                        | 3692.6                     |         |            |        |       |                        |
| 3320              | 6.2                        | 3698.8                     |         |            |        |       |                        |
| 3330              | 3.5                        | 3702.3                     |         |            |        |       |                        |
| 3340              | 10.2                       | 3712.5                     |         |            |        |       |                        |
| 3350              | 4.2                        | 3716.7                     |         |            |        |       |                        |
| 3360              | 11.5                       | 3728.2                     |         |            |        |       |                        |
| 3370              | 12.2                       | 3740.4                     |         |            |        |       |                        |
| 3380              | 12.3                       | 3752.7                     |         |            |        |       |                        |
| 3390              | 5.3                        | 3758.0                     |         |            |        |       |                        |
|                   | 1.7                        | 3759.7                     | INT ML  | 17%        | 56     | 0.920 | 12:15                  |
| 3400              | 1.8                        | 3759.8                     |         |            |        |       |                        |
| 3410              | 1.9                        | 3761.7                     |         |            |        |       |                        |
|                   | 0.0                        | 3761.7                     | INT ML  | 42%        | 89     | 0.980 | 06:30                  |
| 3420              | 3.6                        | 3765.3                     |         |            |        |       |                        |
| 3430              | 1.5                        | 3766.8                     |         |            |        |       |                        |
| 3440              | 2.8                        | 3769.6                     |         |            |        |       |                        |
|                   | 3.3                        | 3772.9                     | INT ML  | 39%        | 32     | 0.920 | 07:00                  |
|                   | 3.3                        | 3772.9                     | INT ML  | 19%        | 20     | 0.910 | 07:30                  |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 3450              | 7.3                        | 3776.9                     |         |            |        |       |                        |
| 3460              | 2.9                        | 3779.8                     |         |            |        |       |                        |
| 3470              | 2.8                        | 3782.6                     |         |            |        |       |                        |
| 3480              | 2.9                        | 3785.5                     |         |            |        |       |                        |
| 3490              | 2.8                        | 3788.3                     |         |            |        |       |                        |
| 3500              | 2.8                        | 3791.1                     |         |            |        |       |                        |
|                   | 2.6                        | 3793.7                     | INT ML  | 8%         | 48     | 0.910 | 02:15                  |
| 3510              | 2.7                        | 3793.8                     |         |            |        |       |                        |
| 3520              | 2.8                        | 3796.6                     |         |            |        |       |                        |
| 3530              | 2.8                        | 3799.4                     |         |            |        |       |                        |
| 3540              | 2.9                        | 3802.3                     |         |            |        |       |                        |
|                   | 1.1                        | 3803.4                     | INT ML  | 5%         | 12     | 0.910 | 06:30                  |
|                   | 1.2                        | 3803.5                     | INT ML  | 16%        | 16     | 0.910 | 06:30                  |
|                   | 1.8                        | 3804.1                     | INT ML  | 11%        | 28     | 0.910 | 06:15                  |
|                   | 2.5                        | 3804.8                     | INT ML  | 15%        | 29     | 0.910 | 05:15                  |
| 3550              | 2.8                        | 3805.1                     |         |            |        |       |                        |
|                   | 1.0                        | 3806.1                     | INT ML  | 38%        | 289    | 1.100 | 04:45                  |
|                   | 1.4                        | 3806.5                     | INT ML  | 10%        | 25     | 0.910 | 05:00                  |
|                   | 2.1                        | 3807.2                     | INT ML  | 12%        | 22     | 0.910 | 04:45                  |
|                   | 2.3                        | 3807.4                     | INT ML  | 24%        | 51     | 0.920 | 04:45                  |
|                   | 2.7                        | 3807.8                     | INT ML  | 24%        | 17     | 0.910 | 05:00                  |
| 3560              | 2.9                        | 3808.0                     |         |            |        |       |                        |
|                   | 2.8                        | 3810.8                     | INT ML  | 6%         | 38     | 0.910 | 10:45                  |
| 3570              | 2.8                        | 3810.8                     |         |            |        |       |                        |
| 3580              | 1.9                        | 3812.7                     |         |            |        |       |                        |
| 3590              | 2.9                        | 3815.6                     |         |            |        |       |                        |
|                   | 2.8                        | 3818.4                     | INT ML  | 11%        | 42     | 0.910 | 02:15                  |
| 3600              | 2.8                        | 3818.4                     |         |            |        |       |                        |
| 3610              | 2.8                        | 3821.2                     |         |            |        |       |                        |
| 3620              | 2.9                        | 3824.1                     |         |            |        |       |                        |
|                   | 0.0                        | 3824.1                     | INT ML  | 13%        | 65     | 0.920 | 10:30                  |
|                   | 2.8                        | 3826.9                     | INT ML  | 9%         | 32     | 0.910 | 01:00                  |
| 3630              | 2.8                        | 3826.9                     |         |            |        |       |                        |
| 3640              | 2.8                        | 3829.7                     |         |            |        |       |                        |
| 3650              | 1.5                        | 3831.2                     |         |            |        |       |                        |
| 3660              | 1.5                        | 3832.7                     |         |            |        |       |                        |
| 3670              | 8.6                        | 3841.3                     |         |            |        |       |                        |
| 3680              | 2.9                        | 3844.2                     |         |            |        |       |                        |
| 3690              | 2.8                        | 3847.0                     |         |            |        |       |                        |
| 3700              | 2.8                        | 3849.8                     |         |            |        |       |                        |
| 3710              | 2.5                        | 3852.3                     |         |            |        |       |                        |
| 3720              | 2.8                        | 3855.1                     |         |            |        |       |                        |
| 3730              | 2.8                        | 3857.9                     |         |            |        |       |                        |
| 3740              | 2.6                        | 3860.5                     |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
|                   | 2.8                        | 3863.3                     | INT ML  | 10%        | 42     | 0.910 | 12:45                  |
| 3750              | 2.8                        | 3863.3                     |         |            |        |       |                        |
| 3760              | 2.9                        | 3866.2                     |         |            |        |       |                        |
| 3770              | 7.1                        | 3873.3                     |         |            |        |       |                        |
| 3780              | 1.8                        | 3875.1                     |         |            |        |       |                        |
| 3790              | 2.3                        | 3877.4                     |         |            |        |       |                        |
|                   | 2.6                        | 3880.0                     | INT ML  | 42%        | 57     | 0.940 | 06:45                  |
| 3800              | 2.7                        | 3880.1                     |         |            |        |       |                        |
| 3810              | 3.9                        | 3884.0                     |         |            |        |       |                        |
| 3820              | 2.5                        | 3886.5                     |         |            |        |       |                        |
| 3830              | 2.8                        | 3889.3                     |         |            |        |       |                        |
| 3840              | 0.4                        | 3889.7                     |         |            |        |       |                        |
| 3850              | 1.1                        | 3890.8                     |         |            |        |       |                        |
| 3860              | 2.8                        | 3893.6                     |         |            |        |       |                        |
|                   | 2.6                        | 3896.2                     | INT ML  | 3%         | 90     | 0.910 | 02:00                  |
| 3870              | 2.8                        | 3896.4                     |         |            |        |       |                        |
| 3880              | 2.8                        | 3899.2                     |         |            |        |       |                        |
| 3890              | 0.3                        | 3899.5                     |         |            |        |       |                        |
| 3900              | 2.8                        | 3902.3                     |         |            |        |       |                        |
| 3910              | 2.6                        | 3904.9                     |         |            |        |       |                        |
| 3920              | 0.2                        | 3905.1                     |         |            |        |       |                        |
| 3930              | 3.1                        | 3908.2                     |         |            |        |       |                        |
|                   | 2.7                        | 3910.9                     | INT ML  | 6%         | 41     | 0.910 | 12:45                  |
| 3940              | 2.7                        | 3910.9                     |         |            |        |       |                        |
| 3950              | 2.8                        | 3913.7                     |         |            |        |       |                        |
| 3960              | 2.9                        | 3916.6                     |         |            |        |       |                        |
| 3970              | 2.8                        | 3919.4                     |         |            |        |       |                        |
|                   | 0.0                        | 3919.4                     | INT ML  | 7%         | 26     | 0.910 | 11:45                  |
| 3980              | 2.8                        | 3922.2                     |         |            |        |       |                        |
| 3990              | 2.9                        | 3925.1                     |         |            |        |       |                        |
| 4000              | 2.8                        | 3927.9                     |         |            |        |       |                        |
| 4010              | 2.8                        | 3930.7                     |         |            |        |       |                        |
| 4020              | 2.9                        | 3933.6                     |         |            |        |       |                        |
|                   | 2.8                        | 3936.4                     | INT ML  | 8%         | 52     | 0.910 | 08:00                  |
| 4030              | 2.8                        | 3936.4                     |         |            |        |       |                        |
|                   | 0.0                        | 3936.4                     | INT ML  | 6%         | 22     | 0.910 | 01:30                  |
| 4040              | 2.8                        | 3939.2                     |         |            |        |       |                        |
| 4050              | 2.9                        | 3942.1                     |         |            |        |       |                        |
|                   | 1.3                        | 3943.4                     | INT ML  | 6%         | 46     | 0.910 | 11:15                  |
|                   | 2.8                        | 3944.9                     | INT ML  | 12%        | 24     | 0.910 | 01:30                  |
| 4060              | 2.8                        | 3944.9                     |         |            |        |       |                        |
|                   | 0.0                        | 3944.9                     | INT ML  | 8%         | 19     | 0.910 | 09:30                  |
| 4070              | 2.2                        | 3947.1                     |         |            |        |       |                        |
| 4080              | 2.8                        | 3949.9                     |         |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment        | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|----------------|------------|--------|-------|------------------------|
| 4090              | 1.2                        | 3951.1                     |                |            |        |       |                        |
| 4100              | 2.4                        | 3953.5                     |                |            |        |       |                        |
| 4110              | 2.9                        | 3956.4                     |                |            |        |       |                        |
|                   | 2.8                        | 3959.2                     | INT ML         | 8%         | 43     | 0.910 | 09:45                  |
| 4120              | 2.8                        | 3959.2                     |                |            |        |       |                        |
| 4130              | 2.8                        | 3962.0                     |                |            |        |       |                        |
|                   | 0.4                        | 3962.4                     | INT ML         | 7%         | 56     | 0.910 | 10:15                  |
| 4140              | 2.9                        | 3964.9                     |                |            |        |       |                        |
|                   | 2.2                        | 3967.1                     | INT ML         | 18%        | 60     | 0.920 | 07:15                  |
| 4150              | 2.2                        | 3967.1                     |                |            |        |       |                        |
| 4160              | 2.0                        | 3969.1                     |                |            |        |       |                        |
| 4170              | 4.4                        | 3973.5                     |                |            |        |       |                        |
|                   |                            |                            | Blinkety Blonk |            |        |       |                        |
| 4180              | 1.7                        | 3975.2                     |                |            |        |       |                        |
| 4190              | 2.3                        | 3977.5                     |                |            |        |       |                        |
| 4200              | 2.7                        | 3980.2                     |                |            |        |       |                        |
| 4210              | 0.9                        | 3981.1                     |                |            |        |       |                        |
| 4220              | 2.7                        | 3983.8                     |                |            |        |       |                        |
| 4230              | 1.2                        | 3985.0                     |                |            |        |       |                        |
|                   | 2.4                        | 3987.4                     | INT ML         | 12%        | 134    | 0.940 | 02:15                  |
|                   | 2.8                        | 3987.8                     | INT ML         | 18%        | 64     | 0.920 | 05:00                  |
|                   | 3.2                        | 3988.2                     | INT ML         | 9%         | 56     | 0.910 | 05:00                  |
|                   | 3.7                        | 3988.7                     | INT ML         | 11%        | 84     | 0.920 | 05:15                  |
|                   | 4.1                        | 3989.1                     | INT ML         | 21%        | 91     | 0.940 | 02:30                  |
|                   | 4.6                        | 3989.6                     | INT ML         | 25%        | 70     | 0.930 | 02:15                  |
| 4240              | 6.1                        | 3991.1                     |                |            |        |       |                        |
|                   | 0.0                        | 3991.1                     | INT ML         | 11%        | 42     | 0.910 | 09:15                  |
| 4250              | 2.1                        | 3993.2                     |                |            |        |       |                        |
| 4260              | 1.9                        | 3995.1                     |                |            |        |       |                        |
| 4270              | 3.0                        | 3998.1                     |                |            |        |       |                        |
| 4280              | 0.2                        | 3998.3                     |                |            |        |       |                        |
| 4290              | 6.0                        | 4004.3                     |                |            |        |       |                        |
|                   | 0.0                        | 4004.3                     | INT ML         | 17%        | 25     | 0.910 | 04:30                  |
| 4300              | 2.2                        | 4006.5                     |                |            |        |       |                        |
| 4310              | 2.9                        | 4009.4                     |                |            |        |       |                        |
| 4320              | 3.0                        | 4012.4                     |                |            |        |       |                        |
| 4330              | 2.3                        | 4014.7                     |                |            |        |       |                        |
|                   | 3.2                        | 4017.9                     | INT ML         | 10%        | 25     | 0.910 | 12:30                  |
|                   | 3.7                        | 4018.4                     | INT ML         | 15%        | 18     | 0.910 | 11:30                  |
|                   | 4.0                        | 4018.7                     | INT ML         | 14%        | 33     | 0.910 | 07:30                  |
| 4340              | 4.7                        | 4019.4                     |                |            |        |       |                        |
| 4350              | 3.2                        | 4022.6                     |                |            |        |       |                        |
|                   | 1.2                        | 4023.8                     | INT ML         | 20%        | 13     | 0.910 | 06:00                  |
| 4360              | 3.5                        | 4026.1                     |                |            |        |       |                        |

## Pipeline Listing

### Launch to Receive

| Girth Weld Number | Relative Distance (metres) | Absolute Distance (metres) | Comment | Peak Depth | Length | ERF   | Orientation (hrs:mins) |
|-------------------|----------------------------|----------------------------|---------|------------|--------|-------|------------------------|
| 4370              | 1.9                        | 4028.0                     |         |            |        |       |                        |
|                   | 1.9                        | 4029.9                     | INT ML  | 21%        | 14     | 0.910 | 06:00                  |
| 4380              | 3.1                        | 4031.1                     |         |            |        |       |                        |
| 4390              | 1.7                        | 4032.8                     |         |            |        |       |                        |
|                   | 0.4                        | 4033.2                     | INT ML  | 21%        | 23     | 0.910 | 06:15                  |
| 4400              | 1.5                        | 4034.3                     |         |            |        |       |                        |
|                   |                            |                            | VALVE   |            |        |       |                        |
| 4410              | 1.7                        | 4036.0                     |         |            |        |       |                        |
| 4420              | 0.6                        | 4036.6                     |         |            |        |       |                        |
|                   |                            |                            | VALVE   |            |        |       |                        |
| 4430              | 1.6                        | 4038.2                     |         |            |        |       |                        |

# *Glossary of Terms*

|                                |   |
|--------------------------------|---|
| <b>Absolute Distance</b>       | The distance from the start of the pipeline to the upstream edge of the metal loss feature.   |
| <b>Axial Length</b>            | The predicted axial length of the metal loss feature.   |
| <b>Relative Distance</b>       | The distance between the upstream girth weld and the feature under consideration.   |
| <b>ERF</b>                     | The calculated Estimated Repair Factor value of the metal loss feature.   |
| <b>Ext or Int</b>              | Denotes whether the metal loss feature is on the external or internal surface of the pipe. It should be noted that mid-wall metal loss features would be classified as external.  |
| <b>Feature Selection Rule</b>  | The number of the selection rule under which the metal loss feature was chosen. The selection rules are specified in the Specification for a Pipeline Inspection Report (Appendix F)  |
| <b>FPR</b>                     | The calculated Failure Pressure Ratio value of the metal loss feature.  |
| <b>Girth Weld Number</b>       | The number of the girth weld at which the pipeline segment begins, as used in the pipeline listing.   |
| <b>Identification</b>          | The identification number of the line marker, magnet or anode.  |
| <b>Inspection Sheet Number</b> | The number of the inspection sheet which is summarised by each line in the Summary tables.  |
| <b>Major Segment</b>           | A pipeline segment that has been defined by the pipeline operator in the table provided in the Company Defined Operating Parameters section of the contract. In this table the pipeline operator specifies the locations of the start and end of the segment and the values of nwt, MAOP and Pi that apply within it. |
| <b>MAOP</b>                    | The maximum allowable operating pressure for the pipeline segment, as specified by the pipeline operator.   |
| <b>Minor Segment</b>           | A pipeline segment identified by the inspection system. The minor segment is a section within the major segment where the nominal wall thickness is distinctly different from that detected for the major segment.  |
| <b>Nominal Wall Thickness</b>  | The pipe wall thickness of the spool containing the metal loss feature.   |
| <b>Orientation</b>             | The location of the metal loss feature around the circumference of the pipe, as viewed in the direction of flow. The value has been rounded to the nearest half hour.   |

|                                   |   |
|-----------------------------------|---|
| <b>Peak Depth</b>                 | The predicted peak depth of the metal loss feature, expressed as a percentage of nominal wall thickness.  |
| <b>Pi</b>                         | The internal design pressure for the pipeline segment, as specified by the pipeline operator.   |
| <b>Predicted Dimensions</b>       | The predicted dimensions of a metal loss feature are:<br><br><b>Axial length:</b> The dimension along the pipe and parallel to the pipe axis;<br><br><b>Circumferential width:</b> The dimension around the pipe and perpendicular to the pipe axis;<br><br><b>Peak depth:</b> The depth of the metal loss feature expressed as a percentage of nominal wall thickness. |
| <b>Pressure Ratio</b>             | The Estimated Repair Factor (ERF), Failure Pressure Ratio (FPR) or Rupture Pressure Ratio (RPR) calculated for the metal loss feature. This value was calculated using the formulae defined in the Specification for a Pipeline Inspection Report contained in the contract; a copy of which is given in Appendix F.  |
| <b>Primary Reference</b>          | A pipeline fitting or marker from which the metal loss feature can be easily located. More than one reference point may be provided on an inspection sheet.   |
| <b>Reference Girth Weld</b>       | The girth weld located at the upstream end of the spool containing the metal loss feature.  |
| <b>RPR</b>                        | The calculated Rupture Pressure Ratio value of the metal loss feature.  |
| <b>Segment Number</b>             | Denotes whether the segment is a major or minor segment. A number (n) indicates that the segment is part of the nth major segment defined by the pipeline operator. A number (n/m) indicates that the segment is the mth minor segment within the nth major segment.  |
| <b>Selection Rule</b>             | The selection rule under which the most severe metal loss feature within the pipe spool is rated.   |
| <b>Strip Map Number</b>           | The drawing number, where available, of the pipeline strip map on which the metal loss feature is located.  |
| <b>Type</b>                       | Denotes whether the metal loss feature is on the internal or external surface of the pipe. It should be noted that mid-wall metal loss features would be classified as external.  |
| <b>Upstream Girth Weld Number</b> | The girth weld number of the girth weld located at the upstream end of the pipe spool.  |

# ***Appendix A. Locating Metal Loss Features And Pipeline Anomalies***

Locating metal loss features or pipeline anomalies is a difficult task, which can cost the pipeline operator valuable time and resources. Therefore, it is important that appropriate techniques are used at each stage in locating these features.

This appendix gives guidelines for locating pipeline features efficiently and effectively.

## **A1. Reference Points**

Wherever possible, the position of metal loss features and pipeline anomalies is related to reference points that can be easily identified and located from the surface.

Reference points are either pipeline fittings, such as mainline valves, offtakes, anodes or side bends, or artificial reference points, such as magnets or line markers; these will have been placed on or near the pipeline at the time of the inspection.

At least one reference point is provided for each metal loss feature reported on the inspection sheets. If the reference point is more than 500 metres from the metal loss feature then a second reference point will usually be provided.

Two reference points are provided for each pipeline anomaly. These reference points are extracted automatically from the pipeline listing and are limited to mainline valves and line markers.

## **A2. Location of Features**

The location of the feature can be carried out in two stages; locating the spool that contains the metal loss feature or pipeline anomaly; then locating the feature within that spool.

To locate the spool containing the feature, the distance from the reference point to the girth weld at the upstream end of the spool is provided.

To locate the feature within the spool, the distance from the upstream girth weld to the feature and the location of the feature around the circumference of the pipe, as viewed in the direction of flow, are provided. Girth weld anomalies will be located within the upstream girth weld.

These distances are given to an accuracy of  $\pm 1\%$ . It is recommended that electronic distance measuring equipment (EDM) is used to measure out these distances accurately.

## **A3. Identification of Features**

Metal objects should be easily identified. Metal loss, dents and girth weld anomalies will require an area of the protective wrap to be removed.

## *Locating Metal Loss Features And Pipeline Anomalies*

A minimum area of approximately 0.6m along the pipe axis by 45° of the circumference, centred on the reported feature position, should be cleaned back to bare metal.

Once this has been done, any external metal loss, dents or the girth weld that contains an anomaly should be easily identified. The position of internal metal loss should be marked on the outside of the pipe in preparation for further examination.

Shallow dents can usually be identified by running one's hand along the pipe surface, or by placing a straight edge along the pipe.

**NOTE:** Features that are wholly contained within the pipe wall, such as voids, slag inclusions, or non-magnetic alloys, may have been classified as external metal loss, however these anomalies are quite rare.

### **A4. Contacting PII**

PII aims to provide its clients with a quality service. If you cannot locate a metal loss feature from the information provided on the inspection sheet or if the metal loss is very different from the description given on the inspection sheet, then please do not hesitate to contact the project manager at PII.

#### **PII TELEPHONE NUMBERS:**

|            |  |      |
|------------|--|------|
| Telephone: | [44] (0)191 247 3200   | (UK) |
| Telex No:  | 537945   | (UK) |
| Facsimile: | [44] (0)191 247 3101   | (UK) |
| Address:   | PII Ltd<br>Atley Way<br>North Nelson Industrial Estate<br>Cramlington<br>Northumberland<br>NE23 1WW<br>UK. |      |

# ***Appendix B. Guidance Notes for Recording Excavation of Metal Loss Features***

## ***Contents***

- B1.** Introduction
- B2.** Preparing pipe surface for inspection and recording
  - B2.1** Surface Preparation
- B3.** External metal loss area mapping
  - B3.1** Rubbing and Photographic Methods
- B4.** External metal loss depth recording
- B5.** Wall thickness and remaining ligament thickness recording
- B6.** Locating and quantifying internal metal loss in gas pipelines using x-radiography
  - B6.1** Introduction
  - B6.2** Technique for Quantifying Internal Metal Loss

## ***Illustrations***

- Figure 1** Example of rubbing
- Figure 2** Typical micrometer and bridging bar arrangement
- Figure 3** Typical arrangement for X-ray technique
- Figure 4** Procedure for inspecting and recording reported metal loss features - simplified flow diagram
- Figure 5** Example of completed Pipeline Damage Record form  
Blank 7097A for Client use

## **B1. Introduction**

To help maintain and improve the defect sizing accuracy from these high resolution inspection systems it is extremely valuable to have feedback from defect excavations.

Reliable and accurate information from site investigations can be used to monitor actual defect dimensions against the dimensions reported from the inspection survey. This site data can then be used to improve defect sizing methods which brings benefit to all users of the inspection service.

We would ask pipeline operators wherever possible to feed any available comparison data from excavations back to us to help improve our service even more. For guidance, the most useful format for this data is as shown in the sample Damage Record Form in figure 5. This shows feature dimensions and location information.

We would like to express our appreciation to those who have provided this data in the past.

## **B2. Preparing Pipe Surface For Inspection And Recording**

### **B2.1 Surface Preparation**

To achieve satisfactory recording and measurement of the feature it is essential that the specified area of pipe surface is cleaned back to bare bright metal.

There are a number of methods for removing pipe wrap primer including:

- (a) Solvent cleaning.
- (b) Chemical cleaning.
- (c) Wire brushing.
- (d) Grit blasting.

For certain types of corrosion product it is possible to produce a finish resembling bright metal when cleaned using a wire brush. In this instance grit blasting is the preferred method in order to remove all the corrosion product.

## **B3. External Metal Loss Area Mapping**

### **B3.1 Rubbing and Photographic Methods**

The preferred method of mapping is by taking a simple rubbing. This is achieved by placing a sheet of paper over the feature, holding the paper firmly in place with, for example, small magnets and rubbing the long edge of a wax crayon over the surface of the paper. The edges of the feature will be delineated and if required, can be highlighted by careful manipulation of the crayon.

The following parameters should be annotated on the paper:

- (a) Feature identity (e.g. PII Report Number and Feature Number).

## *Guidance Notes for Recording Excavation of Metal Loss Features*

- (b) Direction of flow.
- (c) Orientation of the feature.
- (d) Distance of the feature from the nearest girth weld.

Refer to Figure 1 for an example of a mapped area using the rubbing technique.

The rubbing technique has a definite advantage over photographic recording methods in that it is possible to record all subsequent measurements directly on the rubbing in the appropriate location e.g. each individual pit depth in multiple pitting. Refer to Figure 1 for the example.

Photographic recording can be used but unless a 'polaroid' type film is used it can be a lengthy process before a result is obtained.

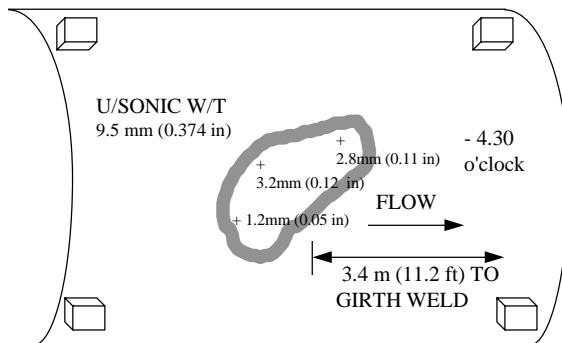


Figure 1: Example of Rubbing

### **B4. External Metal Loss Depth Recording**

The most effective method for recording external metal loss depth is by using a depth micrometer in conjunction with a large bridging bar. Refer to Figure 2 for a typical arrangement.

It is recommended that the micrometer anvil be ground to a taper with a tip diameter of approximately 1.0mm. This will enable entry into the small diameter pitting and concave surfaces found at the bottom of most metal loss features.

A pit gauge is not recommended because of its potential inaccuracy of up to 2.0mm. A depth micrometer has a resolution of better than 0.05mm.

*Guidance Notes for Recording Excavation of Metal Loss Features*

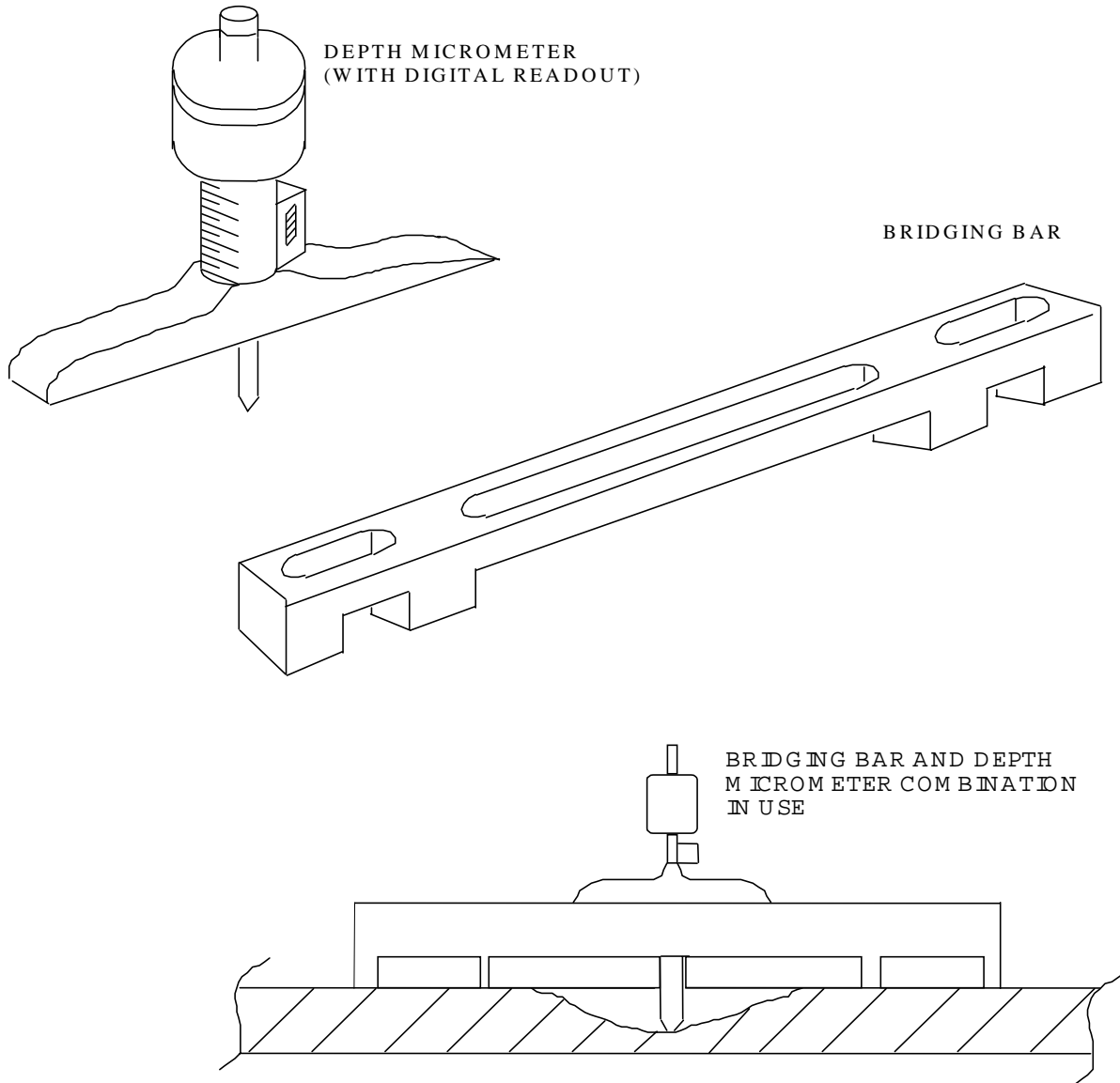


Figure 2: Typical Micrometer and Bridging Bar Arrangement

## **B5. Wall Thickness And Remaining Ligament Thickness Recording**

Pipe wall thicknesses and remaining ligament thicknesses of internal damage can be measured to an accuracy of  $\pm 0.05\text{mm}$  using standard ultrasonic wall thicknesses meters and suitable couplant.

Extreme care should be exercised when attempting to measure remaining ligament thicknesses directly within an area of external damage because there is extra couplant under the transducer when mounted on concave surfaces which results in an overestimated reading.

Decisions on assessing the significance of the damage are primarily based on the remaining ligament thickness. It is therefore important to obtain a reliable reading. This is best accomplished by obtaining the minimum ultrasonic thickness reading immediately surrounding the damage and subtracting the mechanical depth measurement.

## **B6. Locating And Quantifying Internal Metal Loss In Gas Pipelines Using X-Radiography**

### **B6.1 Introduction**

Locating a small area of internal metal loss is occasionally difficult using manual ultrasonic techniques. In these instances it is usually preferable to obtain an X-ray of the suspect area to locate the feature. Although time consuming the X-ray technique does have the advantage of providing a permanent record of the feature, and obtaining full inspection coverage.

Gamma radiography is not recommended since this technique is relatively insensitive to metal loss. Depending on wall thickness and the diameter of the pipe a sensitivity of approximately 10% of wall thickness can be achieved using gamma-ray techniques whereas X-ray techniques can achieve a sensitivity of better than 2% of wall thickness.

### **B6.2 Technique for Quantifying Internal Metal Loss**

The following procedure for quantifying metal loss using X-radiograph has been devised and proved successful by PII. Refer to Figure 3.

- (1) Locate area of metal loss using ultrasonic or Double Wall Single Image (DWSI) X-ray techniques.
- (2) Place plate of known thickness over the metal loss area or deepest part of the metal loss. The plate thickness must be equal to or greater than the damage through-wall thickness.
- (3) Place an ultrasonic step wedge on the pipe surface the adjacent to the metal loss but on sound pipe.
- (4) Carry out DWSI X-radiography aiming for a density of approximately 3 on the parent plate.
- (5) Using a densitometer on the radiograph compare the density of the darkest part in the metal loss plus plate with that on the step wedge and note the step thickness.

## Guidance Notes for Recording Excavation of Metal Loss Features

- (6) Subtract the step thickness from the plate thickness to give the through-wall depth of the metal loss.

NOTE: It has been shown that slag or air are equally transparent to X-ray when using the energies applied to steel pipelines where the density is equal to that of the metal loss.



Figure 3: Typical Arrangement for X-ray Technique

**Guidance Notes for Recording Excavation of Metal Loss Features**

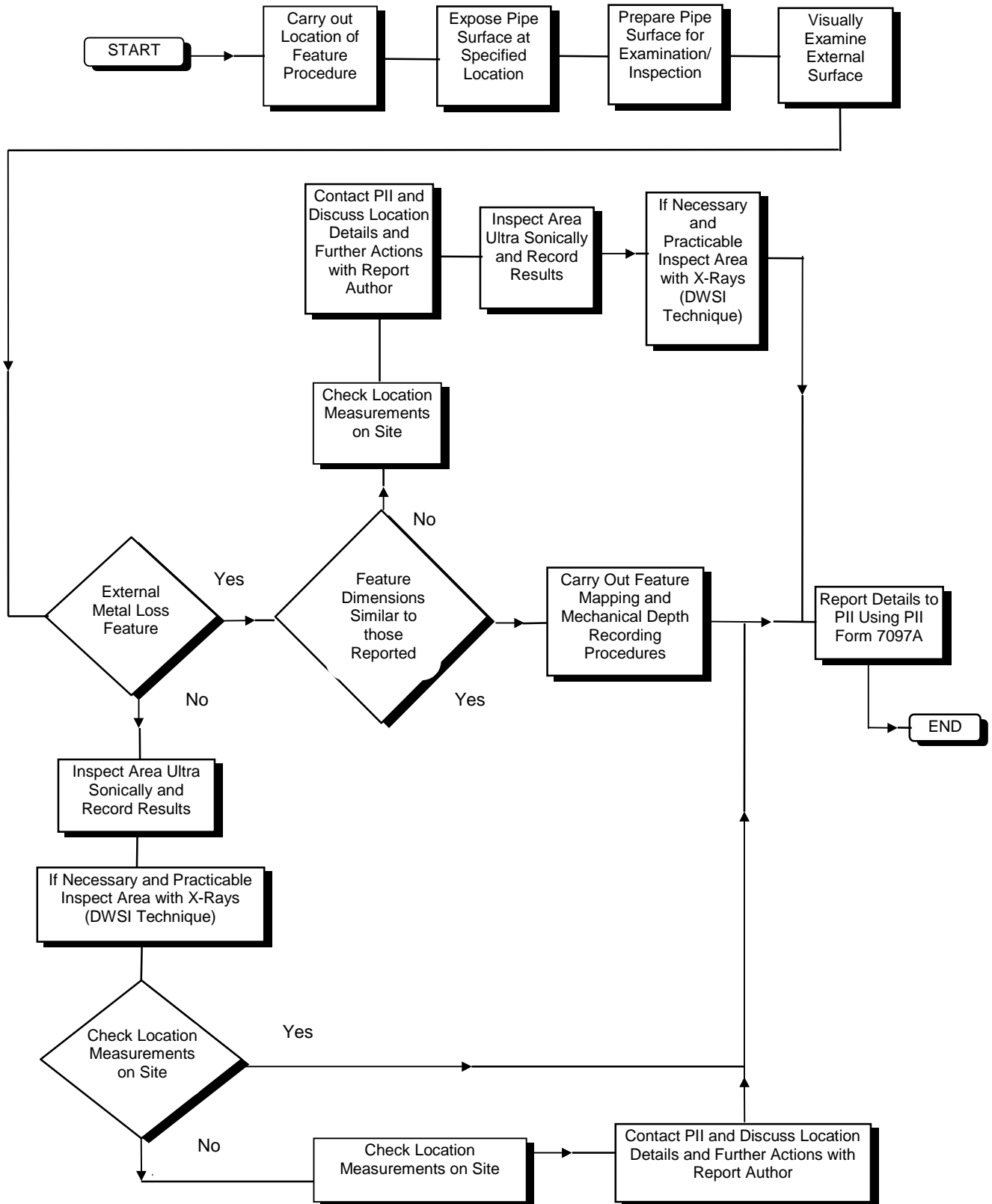


Figure 4: Procedure for Inspecting and Recording Reported Metal Loss Features - Simplified Flow Diagram





## *Appendix C. Operational Details*

|                    |                   |
|--------------------|-------------------|
| Contract Number    | C0001_20A         |
| Operator           | XYZ Pipe Co.      |
| Launch Site        | Launch            |
| Receive Site       | Receive           |
| Inspection Run     |                   |
| Date of Operation  |                   |
| Duration of Run    | 0 hours 0 minutes |
| Data Recorded      | 0.0 km to 4.0 km  |
| Inspection Modules |                   |
| Processor Pack     |                   |
| Project Manager    | A. Manager        |
| Sales Manager      | A. Salesman       |
| Analysis Engineer  | A. Engineer       |

## *Appendix D. Pipeline Details*

|                               |                   |
|-------------------------------|-------------------|
| Contract Number               | C0001_20A         |
| Date of Pipeline Commission   | 1992              |
| Pipeline Outside Diameter     | 20 inches nominal |
| Product                       | Oil               |
| Pipeline Length (Client Data) | 4.0km             |
| Pipeline Length (PII Data)    | 4.0km             |
| API Grade                     | X52               |
| Predominant Pipe Type         | ERW               |
| Previous PII Inspection       | None              |

The nominal wall thickness listing, presented in Section 4.2.8, provides a list of the major and minor pipeline segments.

The listing identifies the locations of the start and end of each segment and the values of the nominal wall thickness (nwt), the maximum allowable operating pressure (MAOP) and the internal design pressure of the pipe (Pi) that apply within it.

## *Appendix E. Additional Services*

As a complement to the inspection service PII can now offer the following:

- Assessment

This involves a Fitness-For-Purpose (FFP) assessment which relates the severity of any defects reported by the inspection to the required future operating conditions of the pipeline. At PII, Cramlington in the UK we now have a dedicated team of engineers who have:

- successfully conducted over 60 commercial consultancies for major oil and gas companies world-wide;
- pioneered new FFP methods now accepted by Regulatory Authorities (which have been included in pipeline codes); and
- initiated and conducted extensive pipeline research.

- Repair

Specialist repair services can be provided based on proven technologies established to support British Gas' 18000 km pipeline transmission system. The repair team, based at Ambergate in the UK, have extensive experience of operating a pipeline repair service, including work for many clients in Europe and the Middle East.

# *Appendix F. Pipeline Inspection Report Specification*

The contents of the pipeline inspection report and the selection rules for selecting individual metal loss features for detailed analysis and reporting are specified in the Specification for the Pipeline Inspection Report, a copy of which is provided overleaf.

# *Appendix G. Inspection System Performance Specification*

The pipeline inspection system employed by PII has been designed to carry out a genuine high resolution pipeline inspection.

The performance capabilities of the inspection system are defined in the Inspection System Performance Specification, a copy of which is provided overleaf:

SENTENCED PLOT

Launch to Receive

Major Segment 1

External Diameter 508 mm  
Wall Thickness 15.00 mm  
Design Pressure 7800.0 kPa  
Operating Pressure 7800.0 kPa  
Safety Factor 1.39  
— E.R.F. = 1.0

C0001\_20A  
Page 1 of 9  
Issue 1  
05 February 2001

