

01-18-017-18W4M  
2ND STG SUCTION SCRUBBER  
A0174987  
REPORT # A#0174987\_GRADY INSPECTION LTD VE UT INSP\_30MAR2022

DATE 3/30/2022  
CLIENT CNRL

Phone: 403-793-7697

8 Sarah King Crt E Brooks, Alberta, T1R 0J8  
grady.rustebakke@gmail.com



#### RESULTS OF INSPECTION:

VE Inspection:  
Fit For Service. Vessel is in good visual condition.  
Minor cracking in concrete base  
UT Inspection:  
(-.9 mm) wall loss found on Pipe CML 55 Nominal: (7.1 mm) T-Previous: (7.2 mm) T-Actual: (6.3 mm) T-Required: (2.8 mm) CR: (.14 mm/yr) RL: (25.36 years)

| PRESSURE EQUIPMENT   |  |                        |  |    |  |      |                      |                    |           | AB-506 INTERVAL |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
|----------------------|--|------------------------|--|----|--|------|----------------------|--------------------|-----------|-----------------|----|---------------------------------|----|-----------------|-------|--|-------|--|----------------|--|--|--|--|--|
| DISTRICT             |  | AB - OIL & NATURAL GAS |  |    |  |      | SHELL                |                    | TUBE      |                 |    | Compressor Bottles in vibrating |    |                 |       |  |       |  |                |  |  |  |  |  |
| FACILITY             |  | Armada Gas Plant       |  |    |  |      | MAWT                 |                    | 298       |                 |    | F                               |    |                 | GRADE |  |       |  |                |  |  |  |  |  |
| A#                   |  | A0174987               |  | YR |  | 1981 |                      | MAWP               |           | 655             |    |                                 |    | psi             |       |  | YEARS |  |                |  |  |  |  |  |
| SERIAL #             |  |                        |  |    |  |      |                      | PSV                |           | 655             |    |                                 |    | psi             |       |  | Equip |  |                |  |  |  |  |  |
| CRN                  |  | D-9136.23              |  |    |  |      | PSV CRN              |                    | 01832.568 |                 |    |                                 |    | REG             |       |  |       |  |                |  |  |  |  |  |
| EQUIP#               |  |                        |  |    |  |      |                      | SERVICED           |           | 9/9/2020        |    |                                 |    |                 | 3     |  |       |  |                |  |  |  |  |  |
| STATUS               |  | IN SERVICE             |  |    |  |      | UNIT                 |                    | K301      |                 |    |                                 |    | INSPECTION TYPE |       |  |       |  |                |  |  |  |  |  |
| VE                   |  | VI                     |  | MT |  | PT   |                      | ET                 |           | UT              |    | X                               |    |                 |       |  |       |  |                |  |  |  |  |  |
| MANUFACTURER         |  | BARBER INDUSTRIES INC  |  |    |  |      | INSPECTION RESULT:   |                    |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
| DH LSD               |  |                        |  |    |  |      | L                    |                    | 4.3       |                 | Ft |                                 | OD |                 | 1.07  |  | Ft    |  | NCR-OPERATIONS |  |  |  |  |  |
| REPAD                |  | UNIQUE ID              |  |    |  |      | NCR-REGULATORY/ADMIN |                    |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
| ACTION ITEM RAISED   |  |                        |  |    |  |      |                      |                    |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
| REPAIR REQUIRED      |  |                        |  |    |  |      |                      |                    |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
| SUITABLE FOR SERVICE |  |                        |  |    |  |      |                      | X                  |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
| RECOMMENDATIONS:     |  |                        |  |    |  |      |                      |                    |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |
| VE Inspection:       |  |                        |  |    |  |      |                      | Monitor foundation |           |                 |    |                                 |    |                 |       |  |       |  |                |  |  |  |  |  |


T-Required: (2.8 mm) CR: (.14 mm/yr) RL: (25.36 years)

| SIGN OFF     |                   | API 510 | EXP.       | IPV   | EXP.      | INSPECTOR - PRIMARY | INSPECTOR - REVIEW | CLIENT SIGN OFF |
|--------------|-------------------|---------|------------|-------|-----------|---------------------|--------------------|-----------------|
| INSPECTED BY | ToddM Mckenzie    | 97445   | 12/31/2022 | 00133 | 7/13/2026 |                     |                    |                 |
| REVIEWED BY  | Ashley Rustebakke | 60285   | 7/31/2024  | 966   | 6/16/2026 |                     |                    |                 |

|   |  |   |           |                  |                   |  |  |
|---|--|---|-----------|------------------|-------------------|--|--|
| <b>Ultrasonic Report</b><br><b>LSD</b> 01-18-017-18W4M<br><b>DH-LSD</b><br><b>Jurisdiction #</b> A0174987<br><b>Serial #</b><br><b>Ultrasonic Report #:</b> A#0174987_GRADY INSPECTION LTD VE UT INSP_30MAR2022 | <b>Date</b><br><b>Facility</b><br><b>Field</b> | <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td style="text-align: center;">3/25/2022</td></tr> <tr><td style="text-align: center;">Armada Gas Plant</td></tr> <tr><td style="text-align: center;">Red Deer District</td></tr> </table> | 3/25/2022 | Armada Gas Plant | Red Deer District | Phone: 403-793-7697<br><br>8 Sarah King Crt E Brooks, Alberta, T1R 0J8<br>grady.rustebakke@gmail.com |  |
| 3/25/2022   |  |   |           |                  |                   |  |  |
| Armada Gas Plant  |  |   |           |                  |                   |  |  |
| Red Deer District   |  |   |           |                  |                   |  |  |

| ULTRASONIC SET    |                 |  | COMPONENT DETAILS |              |        |           | CODE        |                 |          |                 |           |           |
|-------------------|-----------------|--|-------------------|--------------|--------|-----------|-------------|-----------------|----------|-----------------|-----------|-----------|
| EQUIPMENT         | CALIBRATION DUE | SERIAL NUMBER  | MATERIAL GRADE    | SURFACE PREP | TEMP   | THICKNESS | CALIBRATION | EVALUATION      |          |                 |           |           |
| EPOCH 600         | 2/25/2023       | 120388107  | Carbon Steel      | Painted      | 0C     |           | ASME V      | ASME VIII Div 1 |          |                 |           |           |
| CALIBRATION BLOCK |                 | PROBE  |                   |              |        |           |             |                 | COUPLING |                 | METHOD    |           |
| TYPE              | SERIAL#         | REF dB   | SCAN dB           | FREQ.        | SIZE.  | ANGLE     | SERIAL #    | TYPE            | COUPLANT | CABLE           | TECHNIQUE | PROCEDURE |
| 10 Step Metric    | 14-2065         | 60   | 66                | 5 Mhz        | 0.25 " | 0         | 15B00DU3    | Dual            | UT-X     | 6' BNC to Micro | LW Dual   | UT01T1R4  |
|                   |                 |  |                   |              |        |           |             |                 |          |                 |           |           |
|                   |                 |  |                   |              |        |           |             |                 |          |                 |           |           |
|                   |                 |  |                   |              |        |           |             |                 |          |                 |           |           |
| SCOPE             |                 | As requested by Dustin Rumohr an ultrasonic inspection was completed on the SUCTION SCRUBBER   |                   |              |        |           |             |                 |          |                 |           |           |
|                   |                 |  |                   |              |        |           |             |                 |          |                 |           |           |
| LIMITATIONS       |                 | Previous ultrasonic inspection data not obtained by Grady Inspection Ltd.  |                   |              |        |           |             |                 |          |                 |           |           |
| RESULTS           |                 | (-.9 mm) wall loss found on Pipe CML 55 Nominal: (7.1 mm) T-Previous: (7.2 mm) T-Actual: (6.3 mm) T-Required: (2.8 mm) CR: (.14 mm/yr) RL: (25.36 years) |                   |              |        |           |             |                 |          |                 |           |           |

|                        |                           |                        |               |                             |  |  |  |               |
|------------------------|---------------------------|------------------------|---------------|-----------------------------|--|--|--|---------------|
| <b>Technician Name</b> | <b>Certification Body</b> | <b>Certification #</b> | <b>Expiry</b> | <b>Technician Signature</b> |  |  |  |               |
| 3    ToddM             | CGSB                      | 9234                   |               |                             |  |  |  |               |
|                        |                           |                        |               | <b>Client Name</b>          |  |  |  | Dustin Rumohr |
|                        |                           |                        |               | <b>Client Signature</b>     |  |  |  |               |

|                                       |                 |                 |                   |  |  |
|---------------------------------------|-----------------|-----------------|-------------------|--|--|
| <b>External Inspection - (Vessel)</b> |                 | <b>Date</b>     | 3/25/2022         | Phone: 403-793-7697<br>8 Sarah King Crt E Brooks, Alberta, T1R 0J8<br>grady.rustebakke@gmail.com |  |
| <b>LSD</b>                            | 01-18-017-18W4M | <b>Facility</b> | Armada Gas Plant  |  |  |
| <b>DH-LSD</b>                         |                 | <b>Field</b>    | Red Deer District |  |  |
| <b>Jurisdiction #</b>                 |                 | A0174987        |                   |  |  |

|                            |  |
|----------------------------|--|
| <b>Fit For Service:</b>    | Fit For Service.   |
| <b>Inspection Summary:</b> | Vessel is in good visual condition.<br>Minor cracking in concrete base |
| <b>Recommendations:</b>    | Monitor foundation   |

| External Inspection Items        | G/F/P | Comments  |
|----------------------------------|-------|---|
| General Condition:               | Good  | No notable mechanical damage, areas of wear/fretting, distortion, misalignment, or visible weld defects.  |
| External Coating:                | Good  | Vessel is in good visual condition.<br>Vessel is indoors.   |
| Insulation / Cladding:           | N/A   | Non insulated vessel  |
| Nozzles, Piping and Connections: | Good  | Number of nozzles repaded:<br>Number of nozzles without repad:<br>Nozzles and piping in good visual condition   |
| Buried Vessels:                  | N/A   | Above Ground  |
| Ladders, Platforms and Walkways: | N/A   | No attached ladder or platform  |
| Foundations and Supports:        | Fair  | Building is secure<br>Building on concrete foundation, minor cracking noted in concrete base.   |
| Shell:.                          | Good  | No notable mechanical damage, areas of wear/fretting, distortion, misalignment or visible weld defects.   |
| Saddles / Skirts:                | Good  | Skirt is in good visual condition.  |
| Grounding:                       | Good  | Ground Wire is secure<br>Grounded through piping system   |
| Gauges and Instrumentation:      | Fair  | <div>Shell Gauge ( 0 - 600 @ 90 psi )</div> <div>Temp Gauge ( - @ )</div> <div>Gauge is not suitable for MAWP<br/>Compressor is digitally monitored for pressure and temperature.</div> |
| Pressure Protection:             | Good  | The PSV Set Pressure ( 655 psi) is suitable for the MAWP ( 655 psi)   |
| NDE Summary:                     | Good  | No corrosion was found with the ultrasonic inspection.  |
| Manway Davits/Quick Closure:     | N/A   | No Manway   |
| Nameplate:                       | Good  | Nameplate is legible and readily accessible and securely affixed  |
| Code Variance:                   |       |   |

## PSV Data

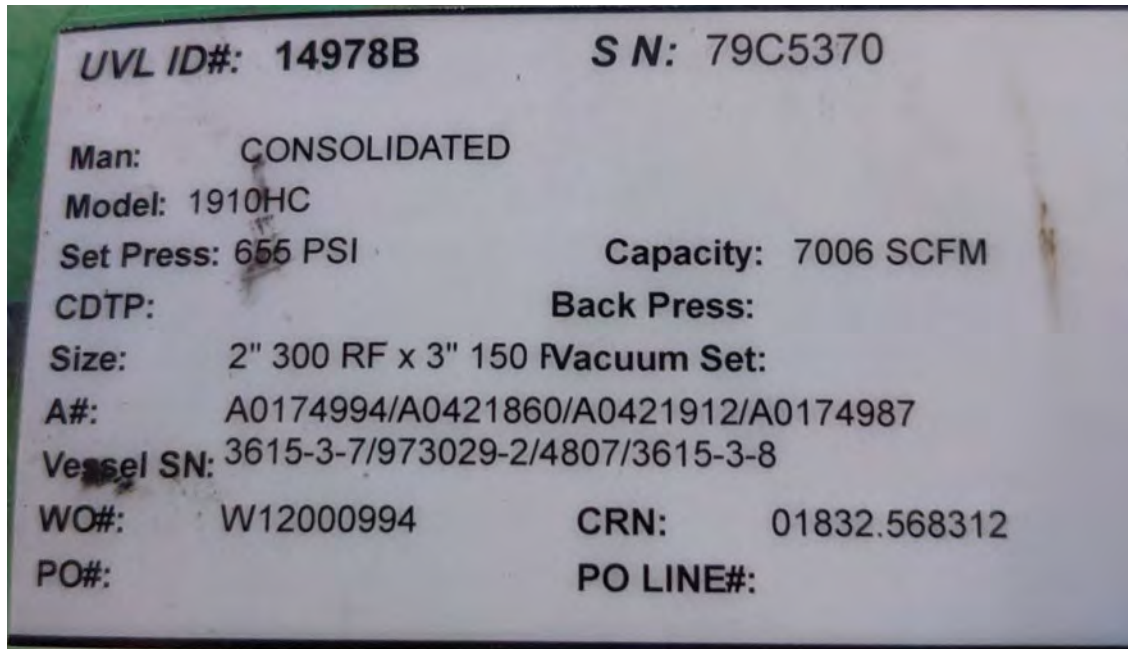
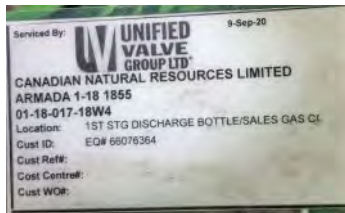
LSD

01-18-017-18W4M

FACILITY Armada Gas Plant

FIELD Red Deer District

Phone: 403-793-7697

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INSPECTION LTD

## ASSOCIATED PRESSURE EQUIPMENT DATA

PV JUR/SER A0174987

SHELL

TUBE

MAWP

655

psi

## PSV FIT FOR SERVICE STATEMENT

Fit For Service.

## PSV STATIC DATA

MODEL 1910HC

SERIAL 79C5370

MANUFACTURER CONSOLIDATED

TAG 14978B

CRN 01832.568312

SEAL Y

SET PRES

655

psi

CAPACITY

7006

SCFM

SERVICE DATE

9/9/2020

SERVICE COMPANY

Unified Valve Group

T/F

UV

NB

F

UV

NB

SIZE

B VALVE

CARSEAL

INLET

2

N

N

OUTLET

3

N

N

## PSV COMMENTS



Overview Photo

LSD 01-18-017-18W4M  
Jur # A0174987  
Serial #

Date

3/30/2022

FACILITY

Armada Gas Plant

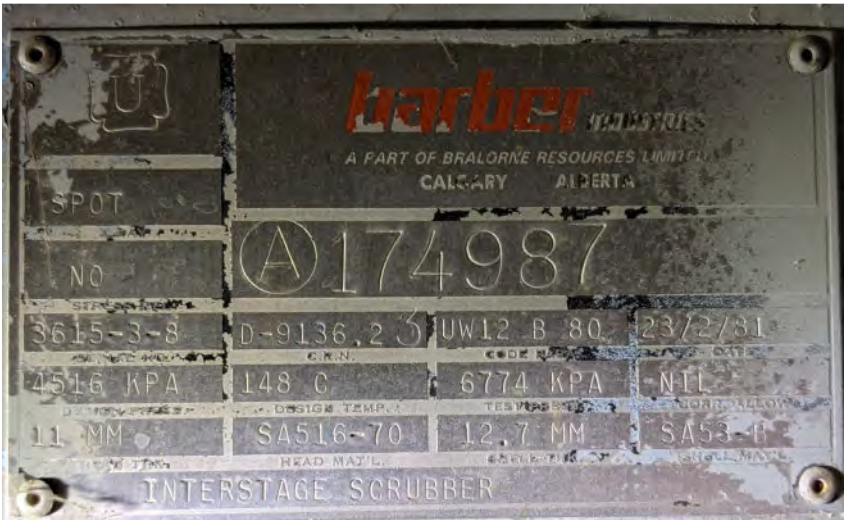
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**GRADY**  
INSPECTION LTD



Nameplate



Overview



Pressure Gauge



Temperature Gauge

**Overview Photo**

**LSD** 01-18-017-18W4M  
**Jur #** A0174987  
**Serial #**

**Date**

3/30/2022

**FACILITY**

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**GRADY**  
INSPECTION LTD

**Liquid Level****Inside Skirt****Foundation**

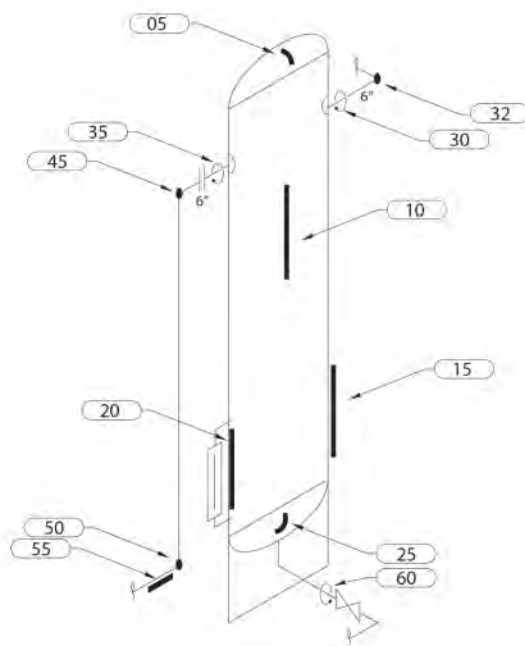
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**Ser #**

| Ser # | Inspection Dates and Thickness Values (mm) |        |       |       |       |        |           |           |      |     |          |         |          |         |          |         |      |         |                          |                 |     |     |          |          |           |       |            |
|-------|--|--------|-------|-------|-------|--------|-----------|-----------|------|-----|----------|---------|----------|---------|----------|---------|------|---------|--------------------------|-----------------|-----|-----|----------|----------|-----------|-------|------------|
| CML#  | Nom  | CA/Tol | SFlag | STmin | PTmin | > Tmin | Comp Type | Pipe Size | Code | MOP | Baseline |         | 3rd Last |         | 2nd Last |         | Last |         | %<br>Nom<br>Wall<br>Loss | Corrosion Rates |     |     | Rem Life | Rem Life | Next      | Insp  | Inspection |
|       |  |        |       |       |       |        |           |           |      |     | Date     | Min Ave | Date     | Min Ave | Date     | Min Ave | Date | Min Ave | # of Insp                | ST              | LtN | LTI | Date     | (yrs)    | Insp Date | (Int) | Comments   |



REPORT # A#0174987\_GRADY INSPECTION LTD VE UT INSP\_30MAR2022  
LSD 01-18-017-18W4M FACILITY Armada Gas Plant  
DH-LSD FIELD Red Deer District  
Jur # A0174987 DWG 1 Location:  
Ser #

Phone: 403-793-7697

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| Ser # | Inspection Dates and Thickness Values (mm) |      |        |       |       |       |        |                    |              |      |         |          |      |          |  |          |      |         |      |           |     |     |      |               |           |      |           |     | %<br>Nom<br>Wall<br>Loss | Corrosion Rates |  |  | Rem<br>Life<br>(yrs) | Next<br>Insp<br>Date | Insp<br>Int<br>(yrs) | Inspection<br>Comments |
|-------|--|------|--------|-------|-------|-------|--------|--------------------|--------------|------|---------|----------|------|----------|--|----------|------|---------|------|-----------|-----|-----|------|---------------|-----------|------|-----------|-----|--------------------------|-----------------|--|--|----------------------|----------------------|----------------------|------------------------|
|       | CML#                                       | Nom  | CA/Tol | SFlag | STmin | PTmin | > Tmin | Comp Type          | Pipe Size    | Code | MOP     | Baseline |      | 3rd Last |  | 2nd Last |      | Last    |      | # of Insp | ST  | LTn | LTi  | Rem Life Date |           |      |           |     |                          |                 |  |  |                      |                      |                      |                        |
| 05    | 13.5                                       | 13.5 | 6.6    |       | 6.6   | 6.6   | Head   |                    | UG32HeadElli | 655  | 9/23/15 | 13.1     | 13.3 |          |  | 11/28/17 | 13.0 | 3/30/22 | 12.4 | 13.0      | 3   | 8%  | 0.14 | 0.11          | 1/10/2064 |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 10    | 12.7                                       | 12.7 | 16.0   |       | 8.0   | 8.0   | Shell  |                    | UG27ShellInt | 655  | 9/23/15 | 12.9     | 13.2 |          |  | 11/28/17 | 12.9 | 3/30/22 | 12.7 | 13.0      | 3   | 0%  | 0.05 | 0.03          |           |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 15    | 12.7                                       | 12.7 | 16.0   |       | 8.0   | 8.0   | Shell  |                    | UG27ShellInt | 655  | 9/23/15 | 13.5     | 13.7 |          |  |          |      | 3/30/22 | 13.2 | 13.6      | 2   | -4% | 0.05 |               |           |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 20    | 12.7                                       | 12.7 | 16.0   |       | 8.0   | 8.0   | Shell  |                    | UG27ShellInt | 655  | 9/23/15 | 13.4     | 13.6 |          |  | 11/28/17 | 13.7 | 3/30/22 | 13.5 | 13.7      | 3   | -6% |      |               |           |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 25    | 13.5                                       | 13.5 | 6.6    |       | 6.6   | 6.6   | Head   |                    | UG32HeadElli | 655  | 9/23/15 | 12.3     | 12.5 |          |  |          |      | 3/30/22 | 11.9 | 12.2      | 2   | 12% | 0.06 |               | 4/30/2108 |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 30    | 11.0                                       |      |        | 6.2   |       | 6.2   | Nozzle | 6" XS 80--(11mm)   | UG45Nozzle   | 655  | 9/23/15 | 11.0     | 11.0 |          |  | 11/28/17 | 11.7 | 3/30/22 | 10.6 | 11.0      | 3   | 4%  | 0.25 | 0.06          | 7/2/2039  |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 32    | 11.0                                       | 9.6  | 3.3    | 2.8   | 2.8   | 2.8   | Elbow  | 6" XS 80--(11mm)   | API570       | 655  | 3/30/22 | 11.2     | 11.6 |          |  |          |      |         |      | 1         | -2% |     |      |               |           |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 35    | 11.0                                       |      |        | 6.2   |       | 6.2   | Nozzle | 6" XS 80--(11mm)   | UG45Nozzle   | 655  | 9/23/15 | 10.9     | 11.4 |          |  | 11/28/17 | 10.9 | 3/30/22 | 10.6 | 11.3      | 3   | 4%  | 0.07 | 0.05          | 7/8/2085  |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 45    | 11.0                                       | 9.6  | 3.3    | 2.8   | 2.8   | 2.8   | Elbow  | 6" XS 80--(11mm)   | API570       | 655  | 9/23/15 | 11.1     | 11.2 |          |  |          |      | 3/30/22 | 10.9 | 11.3      | 2   | 1%  | 0.03 |               |           |      | 3/28/2028 | 6.0 | Mixed schedules          |                 |  |  |                      |                      |                      |                        |
| 50    | 7.1  | 6.2  | 3.3    | 2.8   | 2.8   | 2.8   | Elbow  | 6" STD 40--(7.1mm) | API570       | 655  | 9/23/15 | 6.8      | 7.5  |          |  |          |      | 3/30/22 | 6.7  | 7.0       | 2   | 6%  | 0.02 |               | 5/17/2276 |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 55    | 7.1  | 6.2  | 3.3    | 2.8   | 2.8   | 2.8   | Pipe   | 6" STD 40--(7.1mm) | API570       | 655  | 9/23/15 | 7.2      | 7.4  |          |  |          |      | 3/30/22 | 6.3  | 6.5       | 2   | 11% | 0.14 |               |           | 25.4 | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |
| 60    | 4.5  | 3.9  | 2.0    | 1.8   | 0.5   | 1.8   | Pipe   | 1" XS 80--(4.5mm)  | API570       | 655  | 3/30/22 | 4.8      | 5.2  |          |  |          |      |         |      | 1         | -7% |     |      |               |           |      | 3/28/2028 | 6.0 |                          |                 |  |  |                      |                      |                      |                        |