

**WASKADA UNIT NO. 6  
WATERFLOOD EOR PROJECT**

**ANNUAL WATERFLOOD PROGRESS REPORT FOR 2016**

**May 11, 2017**

**Tundra Oil and Gas Partnership**

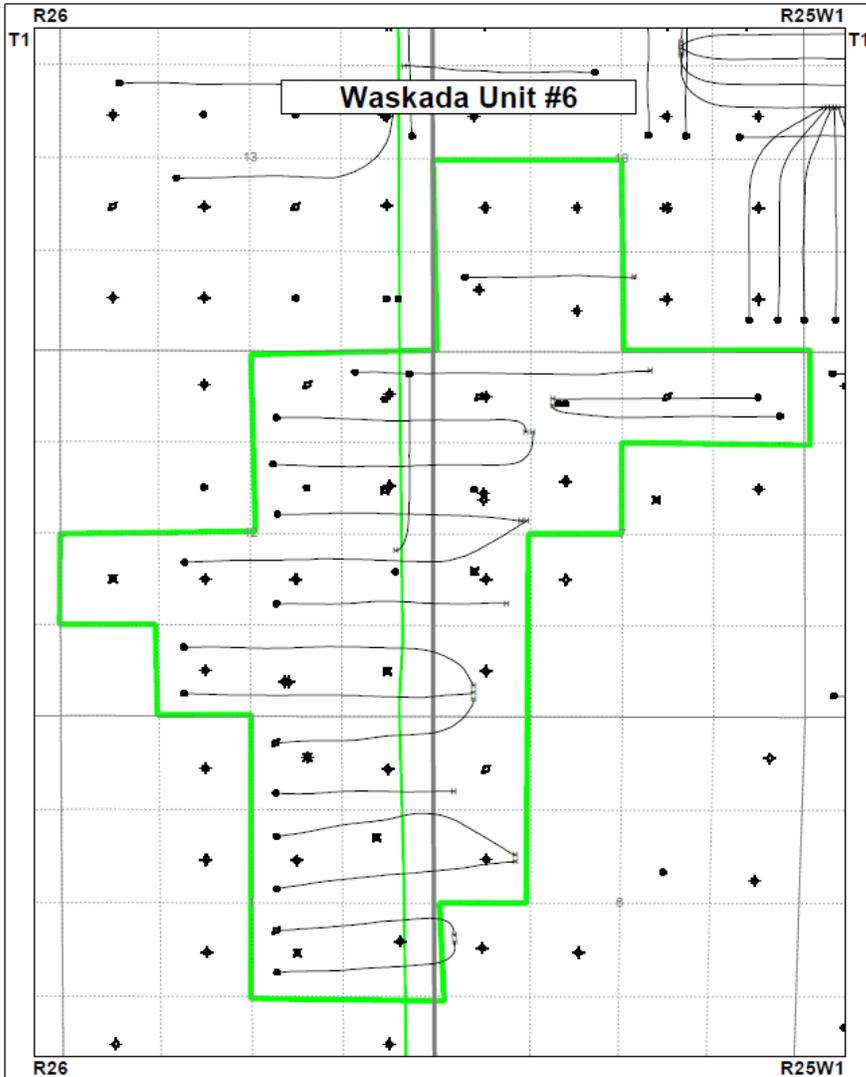
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**INTRODUCTION**

Waskada Unit No. 6 Enhanced Oil Recovery (EOR) Waterflood Project was approved under Board Order No. PM 44 effective May 1985 and then amended into WF Order No. 1 in May 1995. The Unit area contains 22 abandoned/suspended wells, including 11 inactive/abandoned injectors, and 26 producing/injection wells in 31 LSDs in Township 1, Range 26 W1 as shown in the figure below.

**Figure 1: Waskada Unit 6 Area Outline**



In accordance with Section 73 of the Manitoba Drilling and Production Regulation, Tundra hereby submits the following 2016 Annual Progress Report for Waskada Unit No. 6.

## DISCUSSION

### Production History

For the wells included in Waskada Unit No. 6, production started in November 1982 with the 00/10-01-001-26W1/0 Vertical well. Average oil production peaked for the first time at 3.0 m<sup>3</sup>/d per well in May 1985. This production was coming from 30 wells and totaled 91.4 m<sup>3</sup>/d for the whole Unit. The production at the end of December 2016 averaged 0.5 m<sup>3</sup>/d per well, totaling 6.3 m<sup>3</sup>/d for the Unit. Water injection commenced in Waskada Unit No. 6 in January 1985 until present day. The rates and WOR are presented in Figure 2. In 2016, the Unit produced 3.6 e<sup>3</sup>m<sup>3</sup> of Oil, 46.2 e<sup>3</sup>m<sup>3</sup> of Water, 172.0 e<sup>3</sup>m<sup>3</sup> of Gas, and injected 60.9 e<sup>3</sup>m<sup>3</sup> of Water.

**Figure 2: Waskada Unit 6 Production/Injection Rates and WOR vs Time**

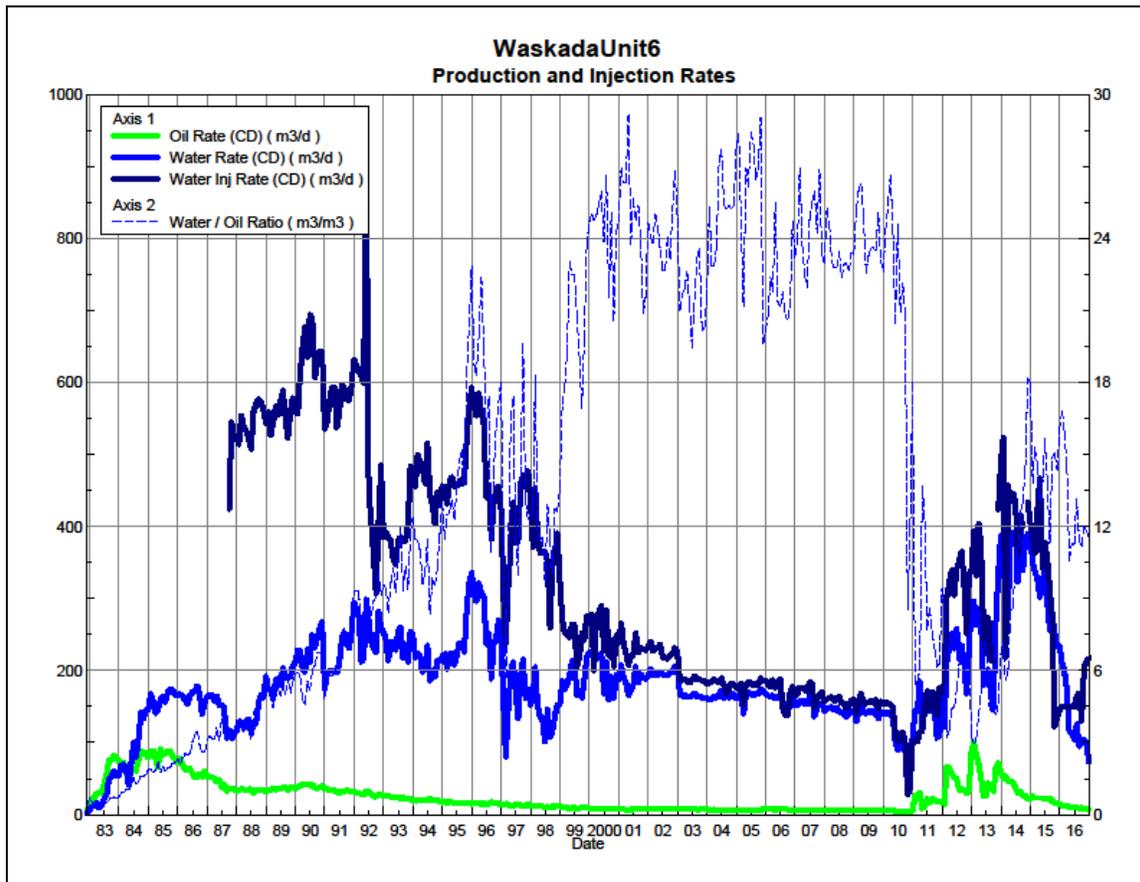
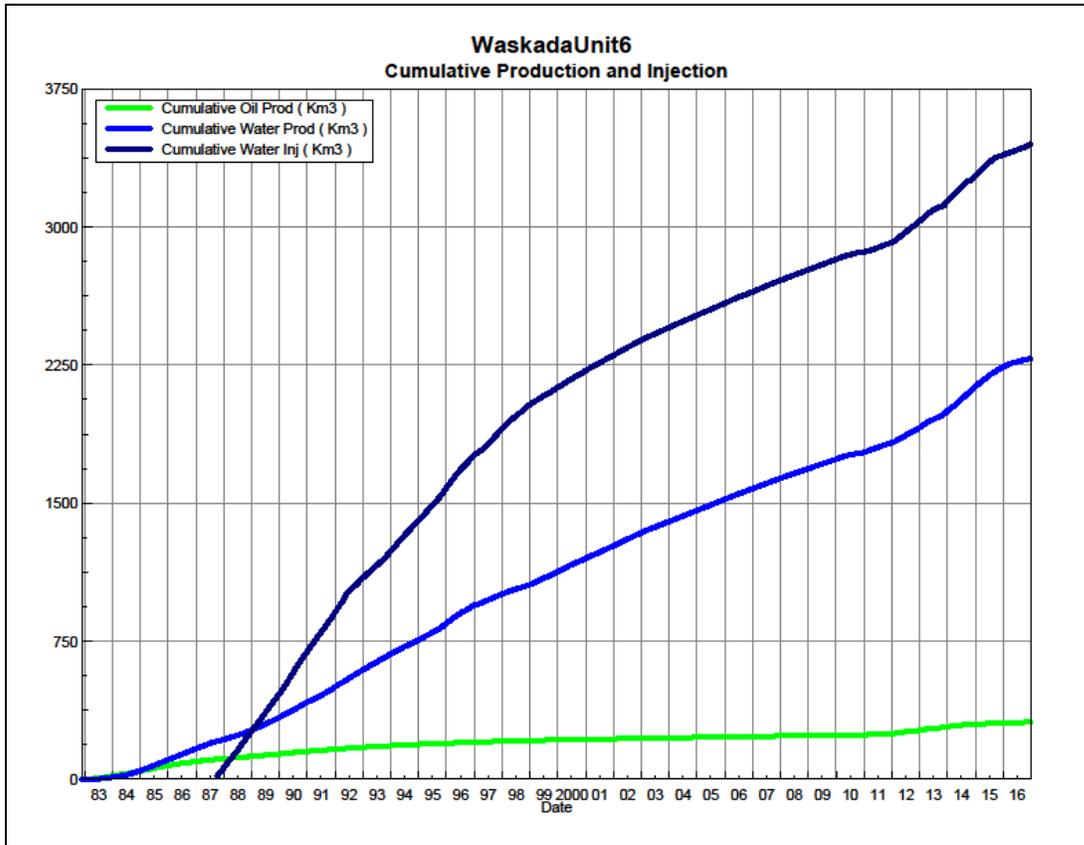


Figure 3 shows the cumulative production for Waskada Unit No. 6 to the end of December 2016 as 310.6 e<sup>3</sup>m<sup>3</sup> of oil, and 2,286.1 e<sup>3</sup>m<sup>3</sup> of water.

**Figure 3: Waskada Unit 6 Cumulative Oil, Water and Water Injected vs Time**



## **Waterflood EOR Operating Strategy and Performance**

### **Corrosion and Scale Prevention**

The facilities in Unit 6 are currently using cathodic and chemical protection against corrosion and scale in the new horizontal wells. All facilities are monitored every 3 months to assess the corrosion and ensure that proper electrical current is being supplied. There have been no issues with corrosion or scale to date.

### **Injection Wellhead Pressures**

Table No. 5 summarizes the Injection Wellhead Pressures that were recorded in 2016.

### **Reservoir Pressure**

Where practical, Tundra is committed to collecting pressure data from newly drilled injection wells. Since no new wells were drilled in the Unit, therefore, no pressure surveys were conducted in 2016.

## Well Servicing

The following table illustrates the maintenance done on the Waskada Unit 6 wells in 2016.

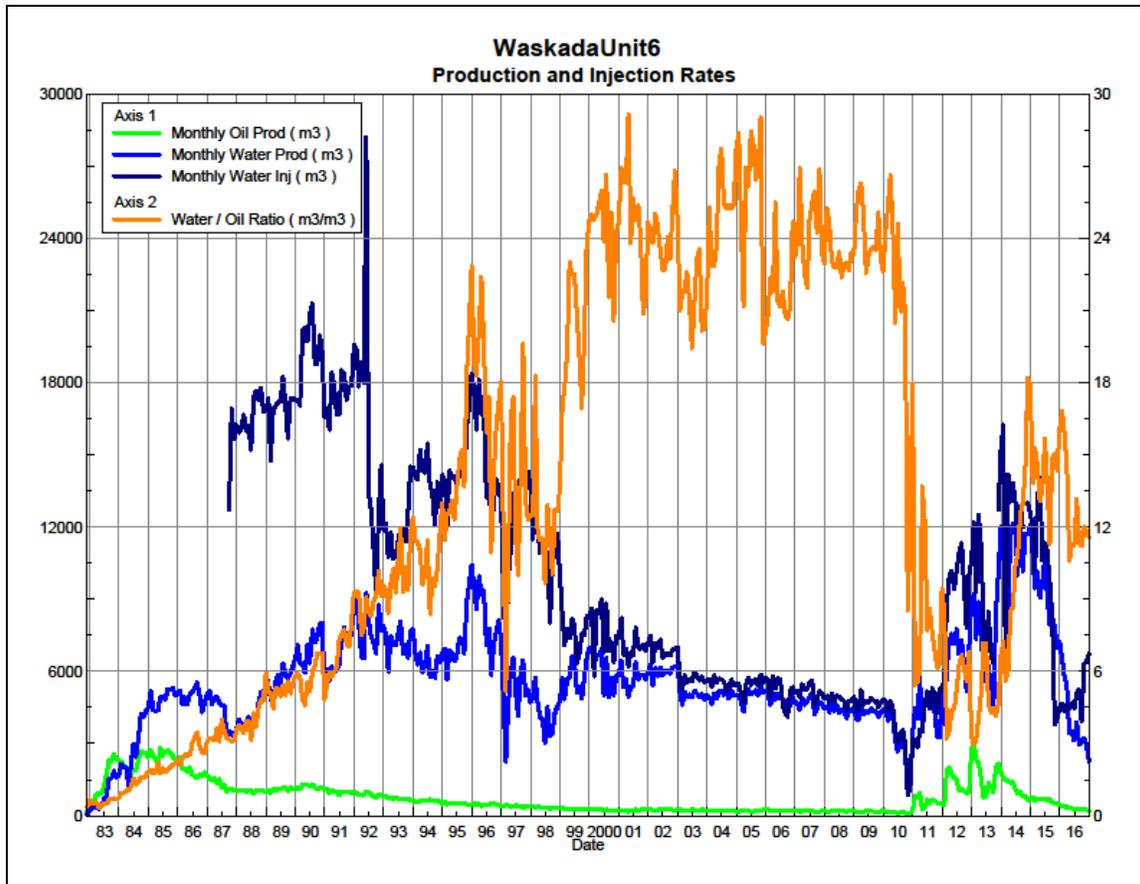
| UWI                   | Workover Type   | Date      |
|-----------------------|---|-----------|
| 103.15-01-001-26W1.00 | Water Injection Well Repair - Failed Packer Integrity | 28-Sep-16 |
| 102.07-12-001-26W1.00 | Pump Change   | 23-Dec-16 |
| 102.15-12-001-26W1.00 | Pump Change   | 3-Oct-16  |

## Waterflood Performance Discussion

From January 1 to December 31 in 2016, Waskada Unit No. 6 produced 49.8 e<sup>3</sup>m<sup>3</sup> of fluid (3.6 e<sup>3</sup>m<sup>3</sup> of Oil, 46.2 e<sup>3</sup>m<sup>3</sup> of Water) and injected 60.9 e<sup>3</sup>m<sup>3</sup> of source water.

Table 2 summarizes the yearly and cumulative VRR for Waskada Unit No. 6. This resulted in a yearly VRR of 1.211, above the minimum target of 1. Despite the yearly VRR being above 1, the cumulative VRR lowered to 1.306.

**Figure 4: Waskada Unit 6 Production and Injection Rate**



**TABLE NO. 1: WASKADA UNIT NO. 6 WELL SUMMARY**

| UWI                  | Type       | Status         | On Prod Date | Cum Prd Oil (m3) | Cum Prd Water (m3) | Last Prod Date | Cum Inj Water (m3) | Last Inj Date |
|----------------------|------------|----------------|--------------|------------------|--------------------|----------------|--------------------|---------------|
| 100/12-06-001-25W1/0 | Vertical   | Abandoned      | 2/1/1985     | 4241.1           | 11334.1            | 3/31/1998      | 0                  |               |
| 100/13-06-001-25W1/0 | Vertical   | Injection      | 4/1/1984     | 34.2             | 942                | 6/30/1984      | 478428.5           | 9/30/2015     |
| 100/04-07-001-25W1/2 | Vertical   | Abandoned      | 8/1/1984     | 774.4            | 28605.5            | 6/30/1994      | 0                  |               |
| 102/05-07-001-25W1/0 | Vertical   | Abandoned      | 7/1/1983     | 5283.7           | 13236.1            | 8/31/1987      | 221669             | 9/30/1996     |
| 100/11-07-001-25W1/0 | Vertical   | Abandoned      | 8/1/1983     | 1171.9           | 31626.8            | 8/31/1987      | 0                  |               |
| 103/12-07-001-25W1/0 | Vertical   | Producing      | 7/1/1983     | 12549.5          | 629315.7           | 8/31/2016      | 0                  |               |
| 102/13-07-001-25W1/0 | Vertical   | Injection      | 2/1/1984     | 2360.4           | 12143.8            | 3/31/1987      | 719516.6           | 9/30/2015     |
| 102/14-07-001-25W1/0 | Vertical   | Producing      | 2/1/1984     | 11383.8          | 200101.9           | 4/30/2010      | 0                  |               |
| 100/15-07-001-25W1/0 | Vertical   | Injection      | 1/1/1985     | 1450.5           | 923.9              | 7/31/1987      | 239538.3           | 12/31/2016    |
| 100/16-07-001-25W1/0 | Vertical   | Producing      | 5/1/1985     | 10754.1          | 8605.4             | 11/30/2016     | 0                  |               |
| 102/16-07-001-25W1/0 | Horizontal | Producing      | 3/1/2014     | 992.7            | 28767.7            | 12/31/2016     | 0                  |               |
| 103/16-07-001-25W1/0 | Horizontal | Producing      | 2/1/2014     | 1897.5           | 10524              | 12/31/2016     | 0                  |               |
| 100/03-18-001-25W1/0 | Vertical   | Abandoned Zone | 10/1/1983    | 13732.3          | 204058.9           | 12/31/2011     | 0                  |               |
| 100/04-18-001-25W1/0 | Vertical   | Abandoned      | 3/1/1983     | 3759.3           | 4724.5             | 9/30/1996      | 0                  |               |
| 102/04-18-001-25W1/0 | Horizontal | Suspended      | 12/1/2010    | 1471.5           | 7262.1             | 2/28/2015      | 0                  |               |
| 100/05-18-001-25W1/0 | Vertical   | Abandoned      | 12/1/1983    | 1675.9           | 829.4              | 8/31/1987      | 231694             | 5/31/1996     |
| 100/06-18-001-25W1/0 | Vertical   | Abandoned      | 12/1/1983    | 1116.3           | 2385.1             | 8/31/1991      | 0                  |               |
| 100/07-01-001-26W1/0 | Vertical   | Abandoned      | 9/1/1984     | 98.4             | 1576               | 6/30/1985      | 176052.2           | 4/30/2010     |
| 102/07-01-001-26W1/0 | Horizontal | Injection      | 10/1/2013    | 634.3            | 6896.2             | 1/31/2015      | 13385              | 12/31/2016    |
| 103/07-01-001-26W1/0 | Horizontal | Producing      | 10/1/2013    | 1345.2           | 15916.4            | 12/31/2016     | 0                  |               |
| 100/08-01-001-26W1/2 | Vertical   | Abandoned Zone | 8/1/1984     | 8523             | 166615.9           | 4/30/2010      | 0                  |               |
| 100/09-01-001-26W1/0 | Vertical   | Abandoned      | 12/1/1983    | 3896.5           | 2034               | 7/31/1995      | 115865.1           | 4/30/2010     |
| 100/10-01-001-26W1/2 | Vertical   | Abandoned Zone | 11/1/1982    | 14140.7          | 87218.1            | 4/30/2010      | 0                  |               |
| 102/10-01-001-26W1/0 | Horizontal | Producing      | 11/1/2012    | 3805.9           | 8015.3             | 12/31/2016     | 0                  |               |
| 103/10-01-001-26W1/0 | Horizontal | Producing      | 11/1/2012    | 2626.1           | 3975.2             | 12/31/2016     | 0                  |               |
| 100/15-01-001-26W1/2 | Vertical   | Abandoned      | 8/1/1984     | 2493.9           | 11767.5            | 7/31/1987      | 258006.9           | 4/30/2010     |
| 102/15-01-001-26W1/0 | Horizontal | Producing      | 1/1/2011     | 3783             | 17683.8            | 12/31/2016     | 0                  |               |
| 103/15-01-001-26W1/0 | Horizontal | Injection      | 1/1/2012     | 3470             | 14440.9            | 10/31/2014     | 13291              | 12/31/2016    |
| 100/16-01-001-26W1/2 | Vertical   | Abandoned Zone | 2/1/1984     | 16167.8          | 24282.2            | 4/30/2010      | 0                  |               |
| 100/01-12-001-26W1/0 | Vertical   | Abandoned      | 10/1/1983    | 7143.7           | 2449               | 7/31/1995      | 187525.5           | 4/30/2010     |
| 100/02-12-001-26W1/2 | Vertical   | Abandoned      | 8/1/1984     | 11076.9          | 49866.5            | 5/31/1998      | 0                  |               |
| 100/03-12-001-26W1/2 | Vertical   | Abandoned      | 8/1/1984     | 6526.2           | 43242              | 7/31/1995      | 32670              | 3/31/1998     |
| 102/03-12-001-26W1/0 | Horizontal | Producing      | 1/1/2012     | 6491.3           | 18992.1            | 12/31/2016     | 0                  |               |
| 103/03-12-001-26W1/0 | Horizontal | Producing      | 1/1/2012     | 7955.7           | 11826              | 12/31/2016     | 0                  |               |
| 100/05-12-001-26W1/0 | Vertical   | Abandoned      | N/A          | 0                | 0                  |                | 81890              | 12/31/1998    |
| 100/06-12-001-26W1/2 | Vertical   | Producing      | 8/1/1984     | 14175.6          | 150615.7           | 12/31/2016     | 0                  |               |
| 102/06-12-001-26W1/0 | Horizontal | Producing      | 12/1/2012    | 7137.8           | 23892.7            | 12/31/2016     | 0                  |               |
| 100/07-12-001-26W1/0 | Vertical   | Abandoned      | 10/1/1983    | 2923.1           | 567.1              | 7/31/1987      | 54892              | 6/30/1997     |
| 102/07-12-001-26W1/0 | Horizontal | Producing      | 12/1/2010    | 7650.7           | 66000.8            | 12/31/2016     | 0                  |               |
| 100/08-12-001-26W1/0 | Vertical   | Producing      | 3/1/1983     | 7098.1           | 2421.2             | 3/31/2015      | 0                  |               |
| 102/09-12-001-26W1/0 | Vertical   | Source         | 7/1/1983     | 27002.3          | 159261.9           | 12/31/2014     | 0                  |               |
| 100/10-12-001-26W1/0 | Vertical   | Producing      | 6/1/1983     | 23243.5          | 4543.4             | 2/28/2014      | 0                  |               |
| 102/10-12-001-26W1/0 | Horizontal | Producing      | 11/1/2012    | 5915.7           | 24923.3            | 12/31/2016     | 0                  |               |
| 103/10-12-001-26W1/0 | Horizontal | Producing      | 10/1/2013    | 6144.2           | 15156.2            | 12/31/2016     | 0                  |               |
| 100/15-12-001-26W1/0 | Vertical   | Injection      | 11/1/1982    | 5834.5           | 2515.3             | 7/31/1987      | 627366.6           | 12/31/2016    |
| 102/15-12-001-26W1/0 | Horizontal | Producing      | 9/1/2013     | 2082.9           | 60530.7            | 12/31/2016     | 0                  |               |
| 102/16-12-001-26W1/0 | Vertical   | Producing      | 1/1/1983     | 25314            | 68393.1            | 8/31/2013      | 0                  |               |
| 104/16-12-001-26W1/0 | Horizontal | Producing      | 11/1/2012    | 1275.7           | 25107.6            | 12/31/2016     | 0                  |               |
|                      |            |                |              | 310625.8         | 2286113.0          |                | 3451790.7          |               |

TABLE NO. 2 - VRR Calculations

| Date       | Mth Oil Prod<br>m3 | Cum Oil Prod<br>Km3 | Mth Water Prod<br>m3 | Cum Water Prod<br>Km3 | Mth Gas Prod<br>Scm | Cum Gas Prod<br>Km3 | Water Oil Ratio<br>m3/m3 | Gas Oil Ratio<br>m3/m3 | Mth Water Inj<br>m3 | Cum Water Inj<br>Km3 | VRR   | Cum VRR |
|------------|--------------------|---------------------|----------------------|-----------------------|---------------------|---------------------|--------------------------|------------------------|---------------------|----------------------|-------|---------|
| 12/31/1982 | 494                | 0.494               | 281                  | 0.281                 | 23712               | 23.712              | 0.57                     | 48.00                  |                     | 0.000                | 0.000 | 0.000   |
| 12/31/1983 | 18868              | 19.362              | 11673                | 11.954                | 905683              | 929.4               | 0.62                     | 48.00                  |                     | 0.000                | 0.000 | 0.000   |
| 12/31/1984 | 25805              | 45.168              | 35563                | 47.517                | 1238654             | 2168.0              | 1.38                     | 48.00                  |                     | 0.000                | 0.000 | 0.000   |
| 12/31/1985 | 29905              | 75.073              | 58995                | 106.511               | 1435450             | 3603.5              | 1.97                     | 48.00                  |                     | 0.000                | 0.000 | 0.000   |
| 12/31/1986 | 21910              | 96.983              | 59447                | 165.958               | 1051666             | 4655.2              | 2.71                     | 48.00                  |                     | 0.000                | 0.000 | 0.000   |
| 12/31/1987 | 15248              | 112.230             | 50655                | 216.613               | 731880              | 5387.0              | 3.32                     | 48.00                  | 61536               | 61.536               | 0.902 | 0.178   |
| 12/31/1988 | 12414              | 124.644             | 51401                | 268.015               | 595867              | 5982.9              | 4.14                     | 48.00                  | 199861              | 261.397              | 3.043 | 0.635   |
| 12/31/1989 | 13139              | 137.783             | 68582                | 336.597               | 630682              | 6613.6              | 5.22                     | 48.00                  | 203383              | 464.780              | 2.430 | 0.939   |
| 12/31/1990 | 14451              | 152.234             | 82867                | 419.464               | 693629              | 7307.2              | 5.73                     | 48.00                  | 229934              | 694.714              | 2.311 | 1.169   |
| 12/31/1991 | 11892              | 164.126             | 82582                | 502.046               | 570821              | 7878.0              | 6.94                     | 48.00                  | 211949              | 906.663              | 2.202 | 1.312   |
| 12/31/1992 | 10464              | 174.590             | 92956                | 595.002               | 502262              | 8380.3              | 8.88                     | 48.00                  | 187670              | 1094.333             | 1.788 | 1.375   |
| 12/31/1993 | 8526               | 183.116             | 86609                | 681.612               | 409243              | 8789.5              | 10.16                    | 48.00                  | 144204              | 1238.537             | 1.496 | 1.388   |
| 12/31/1994 | 7238               | 190.354             | 76511                | 758.122               | 347429              | 9137.0              | 10.57                    | 48.00                  | 167541              | 1406.078             | 1.975 | 1.439   |
| 12/31/1995 | 6017               | 196.371             | 89692                | 847.814               | 288826              | 9425.8              | 14.91                    | 48.00                  | 176159              | 1582.237             | 1.823 | 1.474   |
| 12/31/1996 | 5644               | 202.015             | 97515                | 945.330               | 270907              | 9696.7              | 17.28                    | 48.00                  | 178310              | 1760.547             | 1.714 | 1.495   |
| 12/31/1997 | 4807               | 206.822             | 60790                | 1006.120              | 230741              | 9927.5              | 12.65                    | 48.00                  | 143942              | 1904.489             | 2.170 | 1.531   |
| 12/31/1998 | 4159               | 210.981             | 51395                | 1057.515              | 199627              | 10127.1             | 12.36                    | 48.00                  | 131548              | 2036.037             | 2.342 | 1.566   |
| 12/31/1999 | 3398               | 214.378             | 69699                | 1127.213              | 163080              | 10290.2             | 20.51                    | 48.00                  | 91414               | 2127.451             | 1.242 | 1.549   |
| 12/31/2000 | 2961               | 217.340             | 72428                | 1199.641              | 142147              | 10432.3             | 24.46                    | 48.00                  | 91329               | 2218.780             | 1.204 | 1.531   |
| 12/31/2001 | 2775               | 220.115             | 68585                | 1268.226              | 133219              | 10565.5             | 24.71                    | 48.00                  | 84399               | 2303.179             | 1.176 | 1.514   |
| 12/31/2002 | 2988               | 223.103             | 72169                | 1340.395              | 143438              | 10709.0             | 24.15                    | 48.00                  | 82778               | 2385.957             | 1.095 | 1.494   |
| 12/31/2003 | 2796               | 225.900             | 59930                | 1400.325              | 134218              | 10843.2             | 21.43                    | 48.00                  | 68078               | 2454.035             | 1.078 | 1.478   |
| 12/31/2004 | 2382               | 228.282             | 60185                | 1460.509              | 114346              | 10957.5             | 25.26                    | 48.00                  | 66399               | 2520.434             | 1.055 | 1.463   |
| 12/31/2005 | 2410               | 230.692             | 60474                | 1520.983              | 115666              | 11073.2             | 25.10                    | 48.00                  | 65708               | 2586.143             | 1.039 | 1.448   |
| 12/31/2006 | 2629               | 233.321             | 57899                | 1578.882              | 126211              | 11199.4             | 22.02                    | 48.00                  | 61685               | 2647.828             | 1.013 | 1.433   |
| 12/31/2007 | 2302               | 235.623             | 55893                | 1634.775              | 110496              | 11309.9             | 24.28                    | 48.00                  | 61859               | 2709.687             | 1.057 | 1.422   |
| 12/31/2008 | 2264               | 237.887             | 52693                | 1687.468              | 108667              | 11418.6             | 23.28                    | 48.00                  | 57891               | 2767.578             | 1.047 | 1.411   |
| 12/31/2009 | 2144               | 240.031             | 51611                | 1739.079              | 102907              | 11521.5             | 24.07                    | 48.00                  | 56636               | 2824.214             | 1.047 | 1.402   |
| 12/31/2010 | 1718               | 241.748             | 36596                | 1775.675              | 82445               | 11603.9             | 21.31                    | 48.00                  | 40024               | 2864.237             | 1.038 | 1.395   |
| 12/31/2011 | 7207               | 248.956             | 53060                | 1828.734              | 345950              | 11949.9             | 7.36                     | 48.00                  | 52417               | 2916.655             | 0.854 | 1.379   |
| 12/31/2012 | 17042              | 265.997             | 80993                | 1909.728              | 817997              | 12767.9             | 4.75                     | 48.00                  | 114448              | 3031.103             | 1.138 | 1.368   |
| 12/31/2013 | 20286              | 286.284             | 91043                | 2000.771              | 973747              | 13741.6             | 4.49                     | 48.00                  | 109077              | 3140.179             | 0.954 | 1.348   |
| 12/31/2014 | 13191              | 299.475             | 131905               | 2132.676              | 633168              | 14374.8             | 10.00                    | 48.00                  | 138114              | 3278.293             | 0.939 | 1.323   |
| 12/31/2015 | 7567               | 307.042             | 107258               | 2239.934              | 363226              | 14104.8             | 14.17                    | 48.00                  | 112563              | 3390.857             | 0.971 | 1.308   |
| 12/31/2016 | 3584               | 310.626             | 46179                | 2286.113              | 172032              | 14546.8             | 12.88                    | 48.00                  | 60934               | 3451.791             | 1.211 | 1.306   |

TABLE NO. 3

**Tundra Oil and Gas  
Waskada Unit No. 6  
2016 Injection Volumes**

| Well Location             | Date   | Hours On | H <sub>2</sub> O Inj<br>Cal-d avg<br>(m <sup>3</sup> /d) | Monthly<br>Injected H <sub>2</sub> O<br>(m <sup>3</sup> ) |
|---------------------------|--------|----------|--|---|
| <b>Unit No. 6 Total:</b>  |        |          |  |   |
|                           | Jan-16 | 0        | 150.5  | 4665.00   |
|                           | Feb-16 | 0        | 149.0  | 4320.00   |
|                           | Mar-16 | 0        | 149.4  | 4630.00   |
|                           | Apr-16 | 0        | 148.6  | 4459.00   |
|                           | May-16 | 0        | 151.0  | 4681.00   |
|                           | Jun-16 | 0        | 149.3  | 4479.00   |
|                           | Jul-16 | 0        | 164.6  | 5103.00   |
|                           | Aug-16 | 0        | 168.8  | 5234.00   |
|                           | Sep-16 | 0        | 130.4  | 3911.00   |
|                           | Oct-16 | 0        | 203.7  | 6316.00   |
|                           | Nov-16 | 0        | 213.1  | 6393.00   |
|                           | Dec-16 | 0        | 217.5  | 6743.00   |
| <b>2016 Group Totals:</b> |        |          |  | 60934.00  |
| <b>Unit No. 6 Total:</b>  |        |          |  |   |
|                           | 1981   | 0        | 0  | 0.00  |
|                           | 1982   | 0        | 0  | 0.00  |
|                           | 1983   | 0        | 0  | 0.00  |
|                           | 1984   | 0        | 0  | 0.00  |
|                           | 1985   | 0        | 0  | 0.00  |
|                           | 1986   | 0        | 0  | 0.00  |
|                           | 1987   | 0        | 503.89   | 61,536.00   |
|                           | 1988   | 0        | 546.09   | 199,861.00  |
|                           | 1989   | 0        | 557  | 203,383.00  |
|                           | 1990   | 0        | 630.11   | 229,934.00  |
|                           | 1991   | 0        | 580.62   | 211,949.00  |
|                           | 1992   | 0        | 512.7  | 187,670.00  |
|                           | 1993   | 0        | 395.1  | 144,204.00  |
|                           | 1994   | 0        | 459.3  | 167,541.00  |
|                           | 1995   | 0        | 482.3  | 176,159.00  |
|                           | 1996   | 0        | 487.4  | 178,310.00  |
|                           | 1997   | 0        | 393.4  | 143,942.00  |
|                           | 1998   | 0        | 361.2  | 131,548.00  |
|                           | 1999   | 0        | 250.6  | 91,414.00   |
|                           | 2000   | 0        | 249.3  | 91,329.00   |
|                           | 2001   | 0        | 231.2  | 84,398.90   |
|                           | 2002   | 0        | 226.8  | 82,778.20   |
|                           | 2003   | 0        | 186.5  | 68,078.10   |
|                           | 2004   | 0        | 181.5  | 66,399.00   |
|                           | 2005   | 0        | 180.1  | 65,708.40   |
|                           | 2006   | 0        | 169.1  | 61,685.00   |
|                           | 2007   | 0        | 169.6  | 61,858.90   |
|                           | 2008   | 0        | 158.2  | 57,891.30   |
|                           | 2009   | 0        | 155.2  | 56,636.00   |
|                           | 2010   | 0        | 109.9  | 40,023.50   |
|                           | 2011   | 0        | 143.4  | 52,417.40   |
|                           | 2012   | 0        | 312.9  | 114,448.10  |
|                           | 2013   | 0        | 326.4  | 109,076.50  |
|                           | 2014   | 0        | 411.9  | 138,114.00  |
|                           | 2015   | 0        | 308.9  | 112,563.40  |
|                           | 2016   | 0        | 166.3  | 60,934.00   |
| <b>Group Totals:</b>      |        |          |  | 3,451,790.70  |

**TABLE NO. 4**

**Tundra Oil and Gas  
Waskada Unit No. 6  
2016 Production Volumes**

| Date   | Hours On       | Oil Rate (CD)<br>m3/d | Monthly Oil Prod<br>m3 | Water Rate<br>(CD) m3/d | Monthly Water<br>Prod m3 | Water Oil<br>Ratio m3/m3 | Well Count |
|--------|----------------|-----------------------|------------------------|-------------------------|--------------------------|--------------------------|------------|
| Jan-16 | 11,352         | 12.54                 | 389                    | 210.89                  | 6,538                    | 16.81                    | 15         |
| Feb-16 | 11,016         | 12.53                 | 364                    | 199.57                  | 5,787                    | 15.92                    | 16         |
| Mar-16 | 11,376         | 11.96                 | 371                    | 173.64                  | 5,383                    | 14.51                    | 15         |
| Apr-16 | 9,720          | 10.84                 | 325                    | 114.77                  | 3,443                    | 10.58                    | 14         |
| May-16 | 10,080         | 10.01                 | 310                    | 113.30                  | 3,512                    | 11.32                    | 14         |
| Jun-16 | 9,048          | 9.27                  | 278                    | 104.11                  | 3,123                    | 11.23                    | 13         |
| Jul-16 | 10,152         | 9.55                  | 296                    | 125.72                  | 3,897                    | 13.16                    | 14         |
| Aug-16 | 9,072          | 8.33                  | 258                    | 94.87                   | 2,941                    | 11.39                    | 12         |
| Sep-16 | 10,488         | 9.37                  | 281                    | 104.95                  | 3,149                    | 11.20                    | 15         |
| Oct-16 | 10,488         | 8.68                  | 269                    | 104.21                  | 3,231                    | 12.00                    | 14         |
| Nov-16 | 9,768          | 8.27                  | 248                    | 97.47                   | 2,924                    | 11.79                    | 14         |
| Dec-16 | 8,904          | 6.28                  | 195                    | 72.61                   | 2,251                    | 11.57                    | 12         |
|        | <b>121,464</b> |                       | <b>3,584</b>           |                         | <b>46,179</b>            |                          |            |

| Date       | Hours On         | Oil Rate (CD)<br>m3/d | Monthly Oil Prod<br>m3 | Water Rate<br>(CD) m3/d | Monthly Water<br>Prod m3 | Water Oil<br>Ratio m3/m3 | Well Count |
|------------|------------------|-----------------------|------------------------|-------------------------|--------------------------|--------------------------|------------|
| 31/12/1982 | 1848             | 8.06                  | 494                    | 4.56                    | 281                      | 0.52                     | 1          |
| 31/12/1983 | 61272            | 51.52                 | 18,868                 | 31.85                   | 11673                    | 0.57                     | 7          |
| 31/12/1984 | 164880           | 70.51                 | 25,805                 | 97.12                   | 35563                    | 1.34                     | 19         |
| 31/12/1985 | 229872           | 81.95                 | 29,905                 | 161.61                  | 58995                    | 1.99                     | 26         |
| 31/12/1986 | 228288           | 60.09                 | 21,910                 | 162.87                  | 59447                    | 2.75                     | 26         |
| 31/12/1987 | 207648           | 41.83                 | 15,248                 | 138.98                  | 50655                    | 3.33                     | 24         |
| 31/12/1988 | 173472           | 33.93                 | 12,414                 | 140.38                  | 51401                    | 4.15                     | 20         |
| 31/12/1989 | 170232           | 35.98                 | 13,139                 | 187.80                  | 68582                    | 5.22                     | 19         |
| 31/12/1990 | 167808           | 39.60                 | 14,451                 | 227.08                  | 82867                    | 5.76                     | 19         |
| 31/12/1991 | 166272           | 32.58                 | 11,892                 | 226.03                  | 82582                    | 6.97                     | 19         |
| 31/12/1992 | 157728           | 28.59                 | 10,464                 | 253.97                  | 92956                    | 8.89                     | 18         |
| 31/12/1993 | 159504           | 23.37                 | 8,526                  | 237.19                  | 86609                    | 10.22                    | 18         |
| 31/12/1994 | 144072           | 19.83                 | 7,238                  | 209.73                  | 76511                    | 10.64                    | 17         |
| 31/12/1995 | 138600           | 16.48                 | 6,017                  | 245.40                  | 89692                    | 15.07                    | 16         |
| 31/12/1996 | 125376           | 15.42                 | 5,644                  | 266.55                  | 97515                    | 17.40                    | 14         |
| 31/12/1997 | 113112           | 13.19                 | 4,807                  | 166.10                  | 60790                    | 12.88                    | 13         |
| 31/12/1998 | 93840            | 11.39                 | 4,159                  | 141.17                  | 51395                    | 12.38                    | 11         |
| 31/12/1999 | 93960            | 9.31                  | 3,398                  | 190.88                  | 69699                    | 20.60                    | 11         |
| 31/12/2000 | 99696            | 8.09                  | 2,961                  | 197.94                  | 72428                    | 24.41                    | 11         |
| 31/12/2001 | 96288            | 7.60                  | 2,775                  | 187.87                  | 68585                    | 24.95                    | 11         |
| 31/12/2002 | 104064           | 8.19                  | 2,988                  | 197.69                  | 72169                    | 24.19                    | 12         |
| 31/12/2003 | 101376           | 7.66                  | 2,796                  | 164.19                  | 59930                    | 21.49                    | 12         |
| 31/12/2004 | 101544           | 6.51                  | 2,382                  | 164.43                  | 60185                    | 25.34                    | 12         |
| 31/12/2005 | 99864            | 6.61                  | 2,410                  | 165.74                  | 60474                    | 25.49                    | 11         |
| 31/12/2006 | 102066           | 7.20                  | 2,629                  | 158.67                  | 57899                    | 22.11                    | 12         |
| 31/12/2007 | 100,776          | 6.31                  | 2,302                  | 153.19                  | 55893                    | 24.39                    | 12         |
| 31/12/2008 | 103,920          | 6.18                  | 2,264                  | 143.97                  | 52693                    | 23.30                    | 12         |
| 31/12/2009 | 102,432          | 5.87                  | 2,144                  | 141.43                  | 51611                    | 24.15                    | 12         |
| 31/12/2010 | 75,504           | 4.71                  | 1,718                  | 100.46                  | 36596                    | 20.70                    | 9          |
| 31/12/2011 | 78,720           | 19.77                 | 7,207                  | 145.25                  | 53060                    | 7.98                     | 9          |
| 31/12/2012 | 97,680           | 46.64                 | 17,042                 | 221.43                  | 80993                    | 5.33                     | 11         |
| 31/12/2013 | 138,024          | 55.70                 | 20,286                 | 249.38                  | 91043                    | 4.88                     | 16         |
| 31/12/2014 | 161,736          | 36.24                 | 13,191                 | 361.05                  | 131905                   | 11.13                    | 18         |
| 31/12/2015 | 130,848          | 20.74                 | 7,567                  | 294.19                  | 107258                   | 14.28                    | 15         |
| 31/12/2016 | 121,464          | 9.80                  | 3,584                  | 126.34                  | 46179                    | 12.62                    | 14         |
|            | <b>4,413,786</b> |                       | <b>310,626</b>         |                         | <b>2,286,113</b>         |                          |            |

**TABLE NO. 5 - Average Injection Pressures**

|      | 00/07-01 Inj       | 00/13-06 Inj       | 00/15-01 Inj       | 00/15-07 Inj       | 00/15-12 Inj       | 02/07-01 Inj       | 02/13-07 Inj       | 03/15-01 Inj       |
|------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Year | Inj Pressure (kPa) |
| 2002 | 0.0                | 0.0                | 0.0                | 0.0                | 0.0                | 0.0                | 0.0                | 0.0                |
| 2003 | 1376.1             | 672.6              | 1093.6             | 1291.8             | 384.0              | 0.0                | 113.0              | 0.0                |
| 2004 | 1123.2             | 377.0              | 1361.2             | 1691.3             | 2310.0             | 0.0                | 94.0               | 0.0                |
| 2005 | 1890.0             | 473.7              | 1554.0             | 2108.5             | 2912.6             | 0.0                | 114.2              | 0.0                |
| 2006 | 2109.3             | 519.1              | 1992.3             | 1841.9             | 2820.5             | 0.0                | 42.5               | 0.0                |
| 2007 | 2628.7             | 0.0                | 2740.0             | 2387.7             | 2907.7             | 0.0                | 0.0                | 0.0                |
| 2008 | 2582.5             | 0.0                | 2213.7             | 1807.4             | 2532.3             | 0.0                | 0.0                | 0.0                |
| 2009 | 2078.6             | 0.0                | 1746.3             | 1915.3             | 2507.9             | 0.0                | 0.0                | 0.0                |
| 2010 | 842.2              | 45.0               | 714.5              | 893.7              | 1881.6             | 0.0                | 24.1               | 0.0                |
| 2011 | 0.0                | 128.9              | 0.0                | 187.0              | 166.6              | 0.0                | 76.2               | 0.0                |
| 2012 | 0.0                | 2455.0             | 0.0                | 3257.4             | 3004.5             | 0.0                | 3170.8             | 0.0                |
| 2013 | 0.0                | 1827.6             | 0.0                | 821.8              | 1208.2             | 0.0                | 1398.9             | 0.0                |
| 2014 | 0.0                | 3034.1             | 0.0                | 2875.8             | 1913.5             | 0.0                | 2249.5             | 0.0                |
| 2015 | 0.0                | 2183.8             | 0.0                | 2444.4             | 827.6              | 0.0                | 1476.6             | 0.0                |
| 2016 | 0.0                | 0.0                | 0.0                | 1562.4             | 1052.7             | 0.0                | 0.0                | 0.0                |