

NORTH VIRDEN SCALLION UNIT NO. 2

Waterflood Progress Report 2020

Prepared for:

Manitoba Industry, Economic Development and Mines

Petroleum Branch

Prepared by:



TUNDRA OIL & GAS

Date: 2021-08-26

Introduction

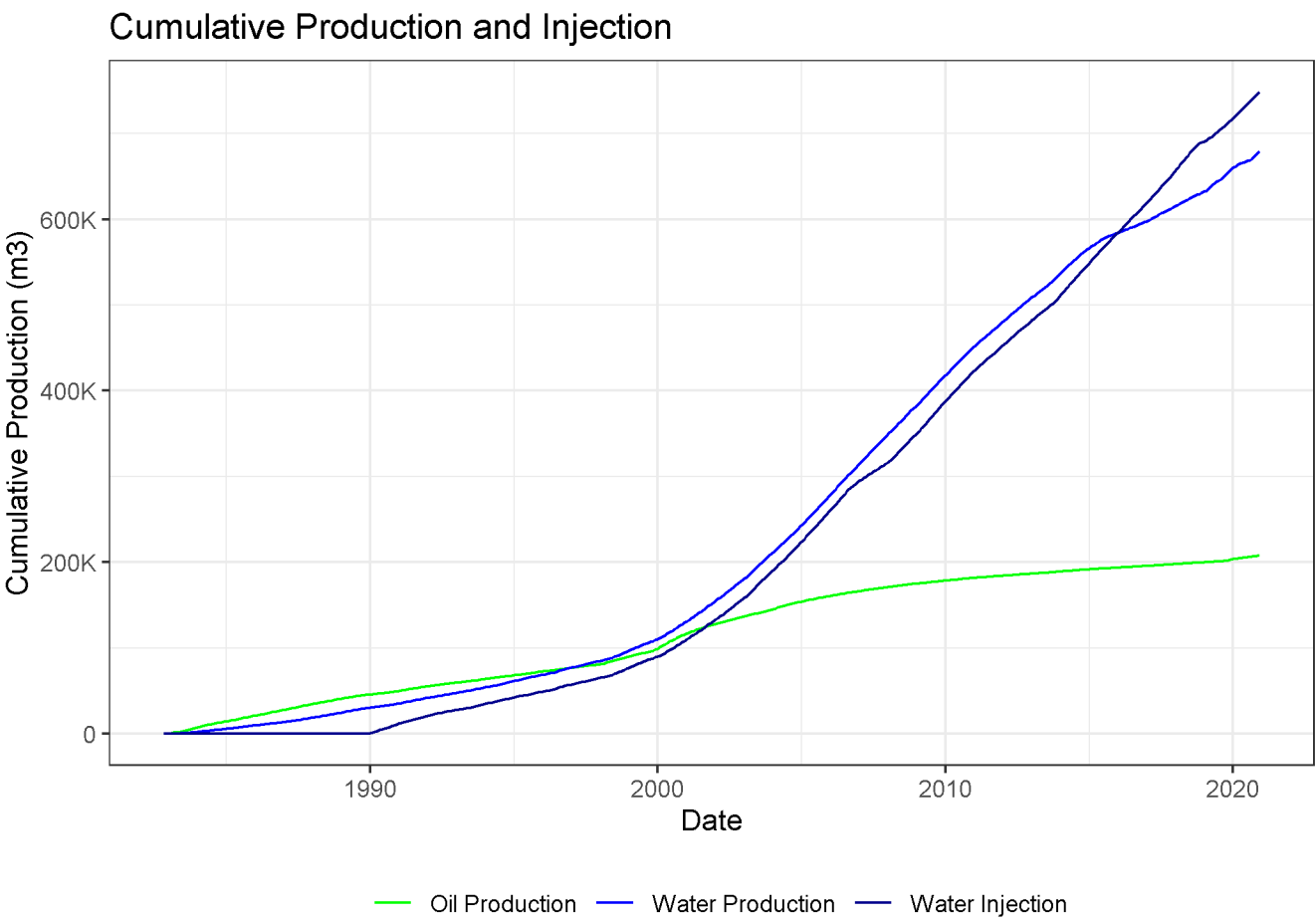
North Virden Scallion Unit No. 2 (NVSU2) Enhanced Oil Recovery (EOR) Waterflood Project was approved under Board Order No. PM 59 effective August 1989 with Saskoil and Gas Corporation as Operator. Mountcliff Resources Ltd. acquired the unit from Saskoil and Gas Corporation and became operator in January 1993. Tundra Oil and Gas (Tundra) acquired the unit from Mountcliff Resources Ltd. in January 2000 and is the current operator of the unit. The EOR project area contains wells in 14 LSDs in Township 11, Range 26 W1. The Unit contains 24 wells. 12 producers, 3 injectors, and 9 abandoned/suspended/other.

Monthly oil and water production rates, injection rate, GOR and WOR

| MONTH | Cal Day Oil m3/d | Cal Day Water m3/d | Cal Day Injection m3/d | WOR | GOR |
|----------|---------------------|-----------------------|---------------------------|------|-----|
| JAN 2020 | 16.36 | 83.98 | 81.58 | 5.13 | 0 |
| FEB 2020 | 14.54 | 63.18 | 87.17 | 4.35 | 0 |
| MAR 2020 | 14.16 | 63.31 | 108.06 | 4.47 | 0 |
| APR 2020 | 14.17 | 61.40 | 103.93 | 4.33 | 0 |
| MAY 2020 | 10.75 | 20.36 | 80.19 | 1.89 | 0 |
| JUN 2020 | 11.57 | 22.89 | 88.37 | 1.98 | 0 |
| JUL 2020 | 12.45 | 37.00 | 88.87 | 2.97 | 0 |
| AUG 2020 | 12.31 | 37.81 | 91.32 | 3.07 | 0 |
| SEP 2020 | 13.45 | 51.08 | 89.73 | 3.80 | 0 |
| OCT 2020 | 13.04 | 90.74 | 90.45 | 6.96 | 0 |
| NOV 2020 | 12.92 | 92.67 | 88.40 | 7.17 | 0 |
| DEC 2020 | 13.40 | 94.10 | 89.94 | 7.02 | 0 |
| Average | 13.26 | 59.88 | 90.67 | | |

Year summary of produced oil, gas, water and fluid injected

| Categories | m3 |
|----------------------|---------|
| Oil Production | 4,852 |
| Water Production | 21,921 |
| Gas Production | 0 |
| Water Injection | 33,184 |
| Cumulative Oil | 207,945 |
| Cumulative Water | 679,215 |
| Cumulative Injection | 748,166 |



Monthly Wellhead Pressure

All readings are in kPa

| UWI | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Average |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| 100.04-32-011-26W1.00 | 5,704 | 5,498 | 5,679 | 5,779 | 4,708 | 4,371 | 4,387 | 4,330 | 4,401 | 4,367 | 3,932 | 4,390 | 4,796 |
| 102.03-32-011-26W1.00 | | 75 | 1,243 | 1,790 | 1,475 | 1,816 | 1,662 | 2,052 | 2,140 | 2,120 | 2,094 | 2,033 | 1,682 |
| 102.16-30-011-26W1.00 | 1,988 | 1,894 | 1,890 | 1,870 | 1,081 | 1,637 | 1,929 | 1,960 | 2,090 | 2,043 | 1,911 | 1,821 | 1,843 |

Monthly Injected Volumes

All Volumes are in m3

| UWI | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 100.04-32-011-26W1.00 | 1,230 | 1,014 | 1,067 | 986 | 755 | 695 | 721 | 703 | 670 | 678 | 669 | 675 | 9,863 |
| 102.03-32-011-26W1.00 | | 326 | 976 | 879 | 768 | 819 | 816 | 921 | 891 | 919 | 864 | 914 | 9,093 |
| 102.16-30-011-26W1.00 | 1,299 | 1,188 | 1,307 | 1,253 | 963 | 1,137 | 1,218 | 1,207 | 1,131 | 1,207 | 1,119 | 1,199 | 14,228 |
| Grand Total | 2,529 | 2,528 | 3,350 | 3,118 | 2,486 | 2,651 | 2,755 | 2,831 | 2,692 | 2,804 | 2,652 | 2,788 | 33,184 |

Voidage

All Volumes are in m3 Oil Formation Volume Factor (Rm3/Sm3) = 1.057

| MONTH | Oil | Water | Injection | Cumulative Oil | Cumulative Water | Cumulative Injection | VRR | Cumulative VRR |
|----------|-----|-------|-----------|-------------------|---------------------|-------------------------|-------|-------------------|
| JAN 2020 | 507 | 2,604 | 2,529 | 203,597 | 659,892 | 717,516 | 0.805 | 0.820 |
| FEB 2020 | 422 | 1,833 | 2,528 | 204,019 | 661,725 | 720,044 | 1.109 | 0.821 |
| MAR 2020 | 440 | 1,963 | 3,350 | 204,459 | 663,688 | 723,394 | 1.380 | 0.822 |
| APR 2020 | 425 | 1,842 | 3,118 | 204,884 | 665,530 | 726,512 | 1.361 | 0.824 |
| MAY 2020 | 333 | 631 | 2,486 | 205,217 | 666,161 | 728,998 | 2.529 | 0.826 |
| JUN 2020 | 347 | 687 | 2,651 | 205,564 | 666,848 | 731,649 | 2.516 | 0.828 |
| JUL 2020 | 386 | 1,147 | 2,755 | 205,950 | 667,995 | 734,404 | 1.772 | 0.829 |
| AUG 2020 | 382 | 1,172 | 2,831 | 206,332 | 669,167 | 737,235 | 1.797 | 0.831 |
| SEP 2020 | 404 | 1,532 | 2,692 | 206,736 | 670,699 | 739,927 | 1.374 | 0.832 |
| OCT 2020 | 404 | 2,813 | 2,804 | 207,140 | 673,512 | 742,731 | 0.865 | 0.832 |
| NOV 2020 | 388 | 2,780 | 2,652 | 207,528 | 676,292 | 745,383 | 0.831 | 0.832 |
| DEC 2020 | 415 | 2,918 | 2,788 | 207,943 | 679,210 | 748,171 | 0.831 | 0.832 |

Workovers

| UWI | Date | Description |
|-----|------|-------------|
|-----|------|-------------|

Well List

| UWI | Type | Status |
|-----------------------|------------|----------------|
| 100.06-29-011-26W1.00 | Vertical | Producing |
| 100.11-29-011-26W1.00 | Vertical | Producing |
| 102.11-29-011-26W1.00 | Horizontal | Producing |
| 100.12-29-011-26W1.00 | Vertical | Injection |
| 100.13-29-011-26W1.00 | Vertical | Injection |
| 102.13-29-011-26W1.02 | Horizontal | Injection |
| 100.14-29-011-26W1.00 | Vertical | Producing |
| 100.09-30-011-26W1.00 | Vertical | Abandoned Zone |
| 102.10-30-011-26W1.00 | Vertical | Injection |
| 102.15-30-011-26W1.00 | Vertical | Abandoned |
| 103.15-30-011-26W1.00 | Horizontal | Pumping |
| 104.15-30-011-26W1.00 | Horizontal | Producing |
| 105.15-30-011-26W1.00 | Horizontal | Producing |
| 100.16-30-011-26W1.00 | Vertical | Producing |
| 102.16-30-011-26W1.00 | Horizontal | Injection |
| 100.01-31-011-26W1.00 | Vertical | Abandoned Zone |
| 102.01-31-011-26W1.02 | Horizontal | Injection |
| 100.02-31-011-26W1.02 | Horizontal | Producing |
| 100.03-32-011-26W1.00 | Vertical | Producing |
| 102.03-32-011-26W1.00 | Horizontal | Injection |
| 103.03-32-011-26W1.00 | Horizontal | Producing |
| 100.04-32-011-26W1.00 | Vertical | Injection |
| 100.05-32-011-26W1.00 | Vertical | Producing |
| 100.06-32-011-26W1.00 | Vertical | Abandoned |