

ALBERTA ENERGY AND UTILITIES BOARD

ENCANA OIL AND GAS PARTNERSHIP (ENCANA)

APPLICATION NO. 1394112

CANADIAN NATURAL RESOURCES LIMITED (CNRL)

APPLICATION NO. 1409180

HUSKY OIL OPERATIONS LIMITED (HUSKY)

APPLICATION NO. 1481725

COLD LAKE OIL SANDS AREA – CLEARWATER DEPOSIT

Supplemental Argument of EnCana

The additional model runs filed by EnCana and Husky on April 5, 2007 continue to demonstrate that gas cap depletion will have no adverse impact on the recovery of bitumen by HWCSS and HSAGD in the CNRL and Husky lease areas.

With regard to Husky's April 5, 2007 runs, as can be determined from the Results Graph of the output files:

1. the HWCSS model achieved bitumen recovery factors of 16.8% and 17.8% OBIP respectively for the depletion and no depletion runs; and
2. the HSAGD model achieved bitumen recovery factors of 24.4% and 24.6% OBIP respectively for the depletion and no depletion runs.

Moreover, these similar recovery factors were achieved notwithstanding the use by Husky of two impractical operating assumptions in its modelling, namely:

1. the HWCSS wells had long and impractical production periods, in which oil production ceased for approximately 12 years out of a total production period of 17 years; and
2. the HWCSS wells in the HWCSS and HSAGD models applied unrealistically high bottomhole producing pressures. The pressures were 1000 and 2000 kPaa respectively for HWCSS and HSAGD.

Extending the CSS cycle production period for an impractically long time, in which there is no oil production rate, leads to much lower bitumen recovery factors. For example, Husky's model runs of January 30, 2007, which applied a more realistic steam injection and production schedule, when rerun by EnCana with acceptable material balance errors (EnCana's March 14, 2007 submission), achieved recovery factors of 32.6 and 33.0% OBIP respectively for the depletion and no depletion runs. Similarly, Husky's January 30 HSAGD reruns achieved bitumen recovery factors of 33.9 and 33.8% OBIP respectively for the depletion and no depletion

runs. These runs with a realistic operating schedule achieved a minimum of 16% OBIP higher recovery factors than those of Husky's April 5 submission with an unrealistic operating schedule.

The high operating bottomhole pressure of 1000 kPaa applied in the Husky HWCSS runs is unrealistic. High operating pressure for HWCSS wells leads to less efficient thermal operations due to properties of steam that allow for higher thermal efficiencies at lower operating pressures. Furthermore, higher bottomhole pressure does not allow for the optimization of the compaction drive which is one of the key performance drivers of CSS. A lower operating pressure also allows for increased drawdown which allows for higher flow rates. With application of a lower producing bottomhole pressure, a much higher bitumen recovery factor and higher thermal efficiencies would be expected. Further, bitumen recovery factors and SORs would be expected to be similar for the depletion and no depletion cases. Similar observations can be made in respect of the unrealistic high minimum operating pressure for the HSAGD analysis.

It should also be observed that Husky reported no bitumen recovery factors in its PowerPoint summary of the input and output files. It is important to report the performance of the no depletion versus depletion cases in terms of bitumen recovery factors because it helps to relate the performance of the process to errors that normally accompany numerical simulation model runs. It also makes it easier to compare any differences between depletion and no depletion cases to potential gains from optimization of the HWCSS and HSAGD processes. Overall, reporting recovery factors helps to put results of simulation runs into proper perspective. For instance, Husky's output file results (April 5, 2007 submission) for HWCSS, using an unrealistically high bottomhole producing pressure, show a minor bitumen recovery factor difference of one percent between depletion and no depletion cases. However, the difference in bitumen recovery factor between its different optimization runs (January 8, 2007, January 30, 2007 and April 5, 2007) is between 3 and 15% OBIP. Therefore, optimization of the HWCSS and HSAGD becomes the key factor in bitumen recovery and not the potential minor difference observed in the impractical HWCSS and HSAGD model runs with long ineffective production cycles (Husky's April 5, 2007 submission).

The results of EnCana's rerun of the CNRL's GOR model with the addition of a gas cap has shown that similar bitumen recovery factors are achievable for GOR = 3, 5 and 8. The maximum difference in bitumen recovery factors between GOR=8 and GOR=1 is only 2.2% OBIP. However, recognizing that the use of GOR=1 in the model is unrealistic due to the large size of bitumen in comparison to the gas cap, and having regard for the accuracy of the reservoir simulation tool and differences in recovery factors between potential optimization runs, it is apparent that there is no adverse impact of gas cap depletion on bitumen recovery factors in the CNRL lease area.

In closing, the results of Husky's model when run with acceptable material balance errors and realistic operating schedule and constraints, and the results of CNRL's GOR model when put into proper perspective, lend strong support to conclusions reached from the results of EnCana model runs that have shown no impact of gas cap depletion on bitumen recovery factors.

All of which is respectfully submitted, this 30th day of April, 2007.