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April 23, 2007

Alberta Energy and Utilities Board
640 - 5 Avenue S.W.
Calgary Alberta
T2P 3G4

Attention: Mr. Gary D. Perkins

Dear Sir:

Re: 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

Attached please find the responses of EnCana to Board Staff Questions on Gas Flanking Bitumen Cases from EnCana's April 5, 2007 Submission.

Yours very truly,

McCarthy Tétrault LLP

Original signed by

D. G. DAVIES

cc: Alberta Energy and Utilities Board
Attention: Mr. Ernie Smith

Canadian Natural Resources Limited
Attention: Mr. Jared Paddock

Thackray Burgess
Attention: Mr. Patrick J. McGovern

Husky Oil Operations Ltd.
Attention: Ms. Susan Anderson

Borden Ladner Gervais LLP
Attention: Mr. Randall W. Block

Imperial Oil Resources
Attention: Ms. Cheryl Trudell

EnCana Oil and Gas Partnership (EnCana) Application No. 1394112
Canadian Natural Resources Limited (CNRL) Application No. 1409180
Husky Oil Operations (Husky) Application No. 1481725
Cold Lake Oil Sands Area - Clearwater Deposit

Response of EnCana Oil and Gas Partnership (EnCana) to
Board Staff (Board) Questions on Gas Flanking Bitumen Cases from EnCana's
April 5, 2007 Submission

With respect to EnCana's gas flanking bitumen cases (FL 19 Revised), EnCana stated in its letter dated April 12, 2007 that it considered these runs would be of assistance to the Board in assessing the impact of gas production on flank bitumen recovery using high pressure HWCSS instead of low pressure HWCSS, in conditions representative of those existing in the CNRL lease area.

(a) It appears that the steam injection pressure was significantly below the dilation pressure (injection pressures were 4500 kPa or lower compared to a dilation pressure of 9800 kPa). Explain how these cases assess the impact of gas production on flank bitumen recovery using high pressure HWCSS instead of low pressure HWCSS.

(b) Explain how these cases are representative of the conditions existing in the CNRL lease area.

(c) It appears that the relative permeability curves used for the revised flank 19 cases were different than the relative permeability curves used for the original flank 19 cases and the relative permeability curves used in the CNRL model. Explain why EnCana used different relative permeability curves.

Response:

(a) EnCana's gas flanking bitumen case input and output files submission of April 5, 2007 involved a revision of the original Flank model FL 19 and incorporated a rough geological configuration of the reservoir in the general area of the Piezometer 00/13-10-068-03W4/00 (Piez 502) as presented in Figure 1. The original FL 19 model was revised to allow the pressure distribution in the flank area, after gas cap depletion to 200 kPaa, to be close to or lower than 1900 kPa calculated[1,2] by CNRL as the expected pressure in

[1] Canadian Natural Resources Opening Statement EUB Applications 1409180, 1394112, and 148175 February 21, 2007, Slides 20-32

[2] Canadian Natural Resources Closing Argument EUB Applications 1409180, 1394112, and 148175 March 1, 2007, Slide 12.

the bitumen zone at 400 m from the gas cap edge in a reservoir with diffusivity of 1.5E-03 m^2/s.

Reservoir parameters changed in the original FL 19 model in addition to the geological configuration were in the relative permeability only. The following relative permeability parameters and values were changed to achieve pressure distribution in the flank area to be approximately close to that observed in the 00/13-10-068-03W4/00 Piezometer:

- Irreducible water saturation changed from 0.45 to 0.30 to increase mobile water saturation to 16.1% from 1.1%.
- Critical gas saturation from 6% to 1%.

However, as correctly observed by Board Staff the model did not achieve dilation. This is primarily due to the high mobile water saturation of 16.1% and a low injection pressure of 400 m^3/d in combination with other parameters in the FL 19 Revised gas flanking bitumen model (Please see our response to IR-2 above regarding the key parameters determining the maximum achievable steam injection pressure for the reservoir).

EnCana has now rerun FL 19 Revised gas flanking bitumen model with the following changes to allow the model to achieve dilation. The following were the new changes made to the FL 19 revised gas flanking bitumen model:

- Irreducible water saturation changed from 0.30 to 0.40 to reduce mobile water saturation to 6.1% from 16.1%.
- Critical gas saturation was decreased from 1% to 0.1%
- Maximum steam injection rate was increased to 1500 m^3/d from 400 m^3/d (Cold Water Equivalent).
- Dilation Rock Compressibility was decreased to 0.5 E-04 from 1.016 E-04 per kPaa
- Rock Compressibility was decreased to 2.0 E-06 from 3.0 E-06 per kPaa

The rerun FL 19 gas flanking bitumen now achieved dilation as shown in Figure 2. Results of HWCSS at the flank showed no adverse impact of gas cap depletion on HWCSS recovery factor and SOR (Table 1, and Figure 3 and 4). HWCSS in the depleted flank area of the pool achieved a bitumen recovery factor of 32.5% OBIP compared to 32.0% OBIP for the no depletion case. Similarly, the SOR are essentially the same for both cases.

EnCana will be pleased to submit the input and output files for the rerun of the FL 19 Revised gas flanking bitumen should the Board Staff request them.

(b) As per discussions in item IR-a) above, the geological configuration of the revised FL 19 model (Figure 1) is a rough representation of that in the area of the 00/13-10-068-03W4/00 Piezometer in the CNRL lease area. Figure 5 is the pressure distribution in the rerun FL 19 gas flanking bitumen model at the end of the conventional gas production phase in the model on December 31, 2006 and prior to start of steam injection operations in the model.

Figure 5 shows the following results at the end of the conventional gas production and gas cap depletion to 200 kPaa in the model:

- The maximum pressure 200 m from the gas cap edge is 966 kPaa.

- The maximum pressure 400 m from the gas cap edge ranges is 1356 kPaa

Please note that these pressures are much lower than a minimum pressure of 1800 kPaa reported by CNRL 200 to 400 m from the edge of the gas cap at the 00/13-10-068-03W4/00 Piezometer. Although results of pressure distribution in the model show that a pressure of 1900 kPaa at 400 m from the gas cap edge was achieved when the gas cap was depleted to approximately 695 kPaa (Figure 6), the gas cap was allowed to deplete to 200 kPaa prior to start of HWCSS operations in the model. A pressure of 1900 kPaa at 400 m from the gas cap edge was the calculated and expected pressure by CNRL for a reservoir with a diffusivity of 1.5 E-03 m^3/s. Therefore, the results for the depleted HWCSS case should provide the worst impact of gas cap depletion on HWCSS.

Results of the rerun of FL 19 gas flanking bitumen shows no adverse impact of gas cap depletion on HWCSS bitumen recovery factor and SOR as discussed in item IR-b) above (Table 1, and Figure 3 and 4).

(c) The relative permeability curves used for the revised Flank 19 cases were the same as those used in the original Flank 19 cases except that two end points of the curves were changed. The curves were scaled following changes to the end point values. Changes made to the end points involved irreducible water saturation and critical gas saturation. Changes were made to the relative permeability curves to allow the pressure distribution in the model to go below those reported by CNRL at the 00/13-10-068-03W4/00 Piezometer 200 - 400 m from the edge of the gas cap. The pressure distribution in the original FL 19 model at 400 m from the gas cap edge was greater than 2600 kPaa.

From reservoir engineering analysis, for a given reservoir geological configuration, the following are the parameters that could be altered in the model to lower pressure in the flank region of the pool:

- Critical gas saturation
- Mobile water saturation
- Gas cap pressure and gas production

The values of these three parameters were changed to reduce pressure in the reservoir. Sensitivity runs carried out using the original FL 19 model indicated that mobile water saturation must be increased and critical gas saturation must be reduced to allow fluids in the reservoir to move in order to lower the pressure in the flank region. In addition to producing the gas cap to 200 kPaa, the following relative permeability end points were changed in the original FL 19 model:

- Irreducible water saturation from 0.45 to 0.30 to increase the mobile water saturation to 16.1% from 1.1%
- Critical gas saturation from 6% to 1%

However, due to high water saturation in the FL 19 revised gas flanking bitumen model (April 5 submission), the model was unable to reach the dilation pressure as per discussions in item IR a) above. The FL 19 revised model has now been rerun with higher irreducible water saturation (lower mobile water saturation) as per discussion in item IR a) above to allow the model to dilate.

Table 1: Summary of Encana's Rerun of FL 19 Gas Flanking Bitumen to Achieve Dilation

HWCSS

Description	Case Name	Oil Recovery Factor %OBIP	CUM SOR m3/m3	Max Material Balance Error %	Material Balance Error at the end %
EnCana's Rerun of Gas Flanking Bitumen	FL19_Revised_GasFlankingBitumen_Depletion	32.5	11.0	0.02	0.01
EnCana's Rerun of Gas Flanking Bitumen	FL19_Revised_GasFlankingBitumen_NoDepletion	32.1	11.2	0.02	0.02

Figure 1: Geological Configuration - Revised FL 19 Gas Flanking Bitumen

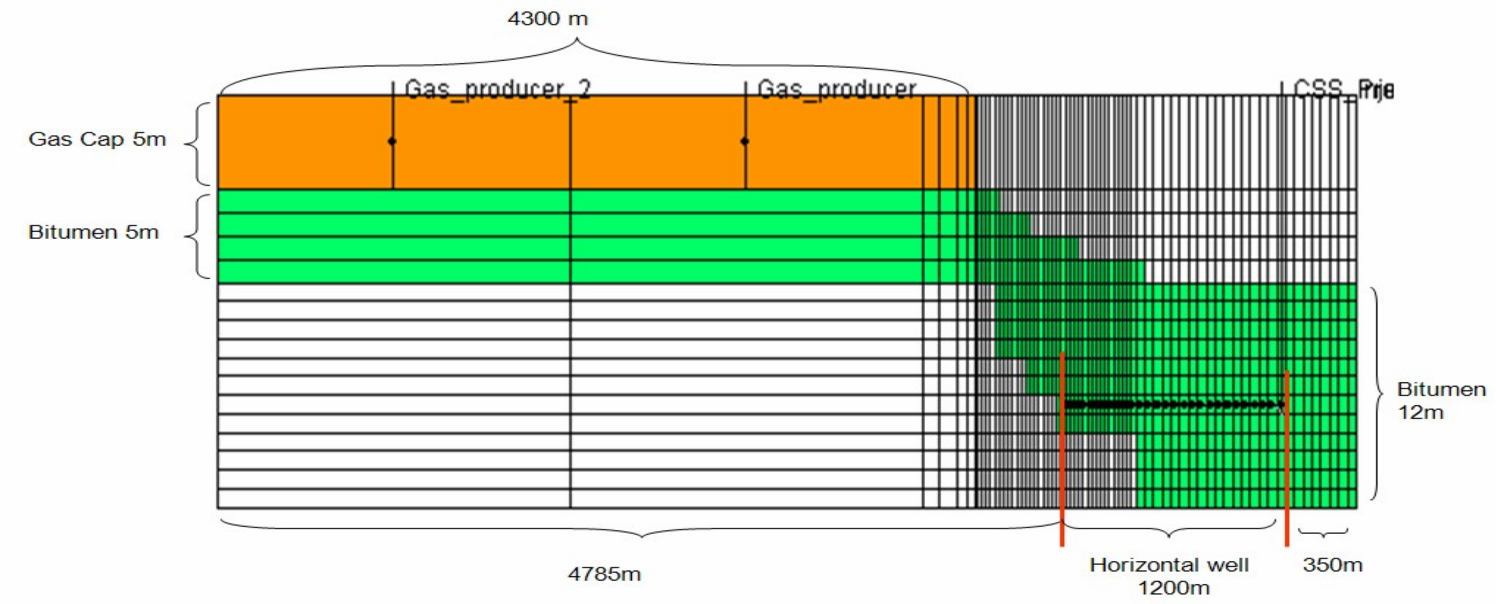

Figure 2: Well Block Pressure of Rerun of FL 19 Gas Flanking Bitumen

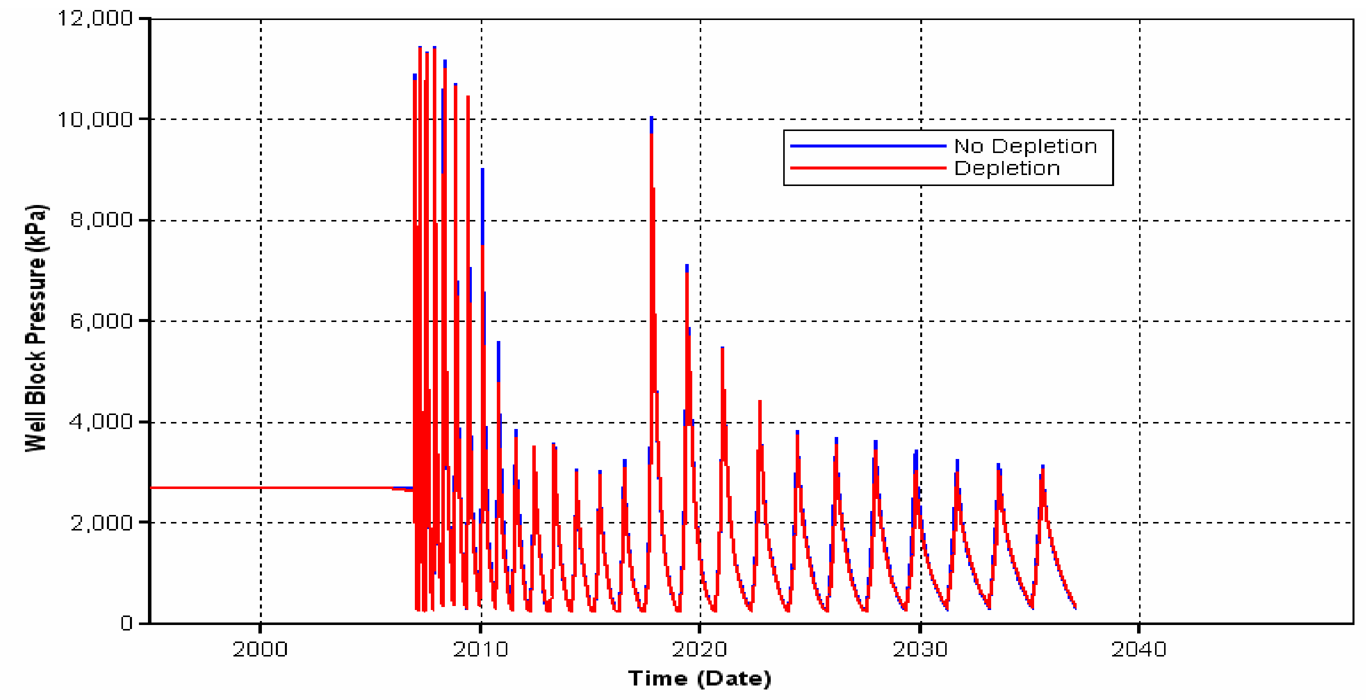

Figure 3: Oil Recovery Factor of Rerun of FL 19 Gas Flanking Bitumen

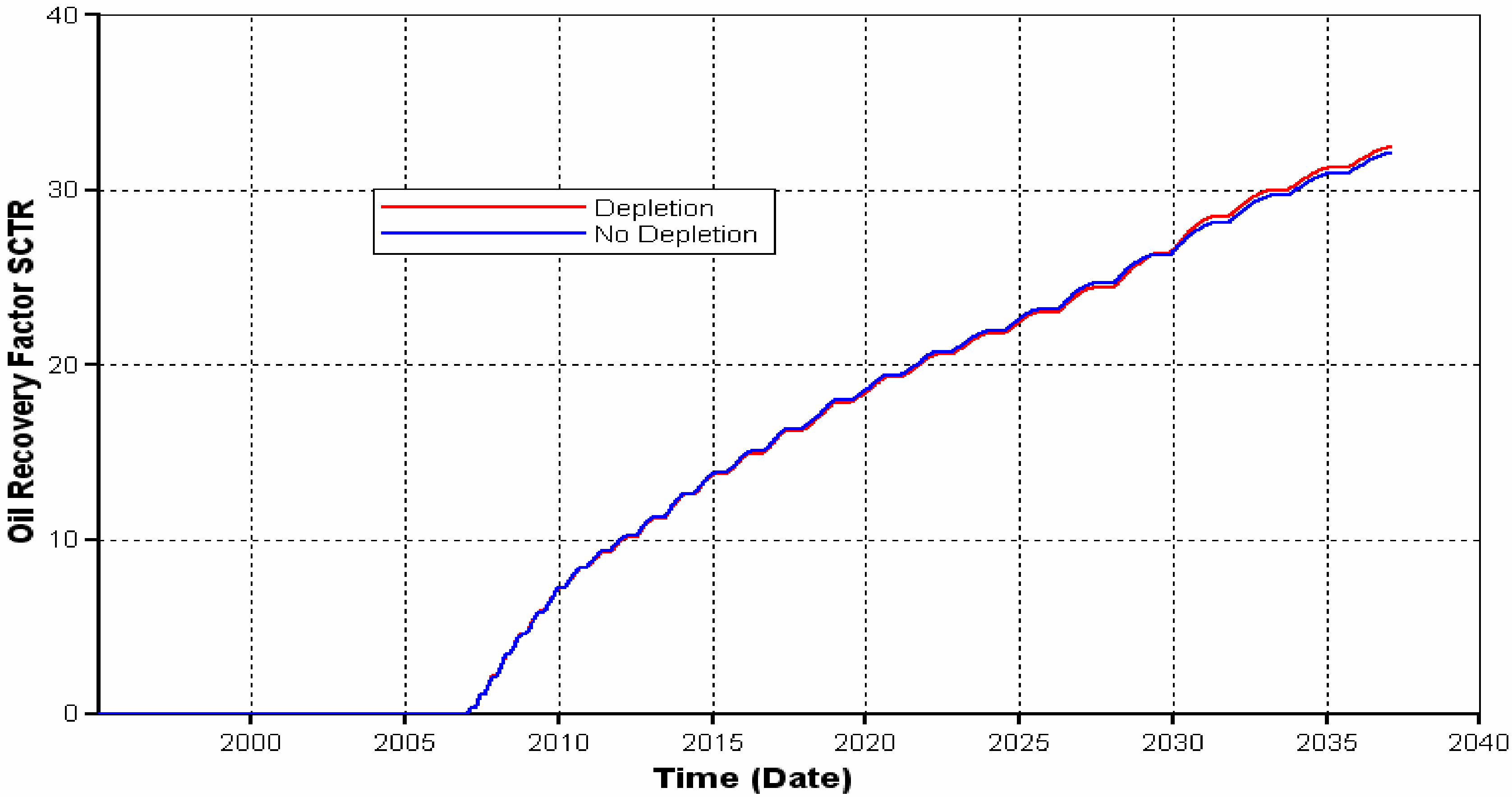

Figure 4: Cumulative SOR of Rerun of FL 19 Gas Flanking Bitumen

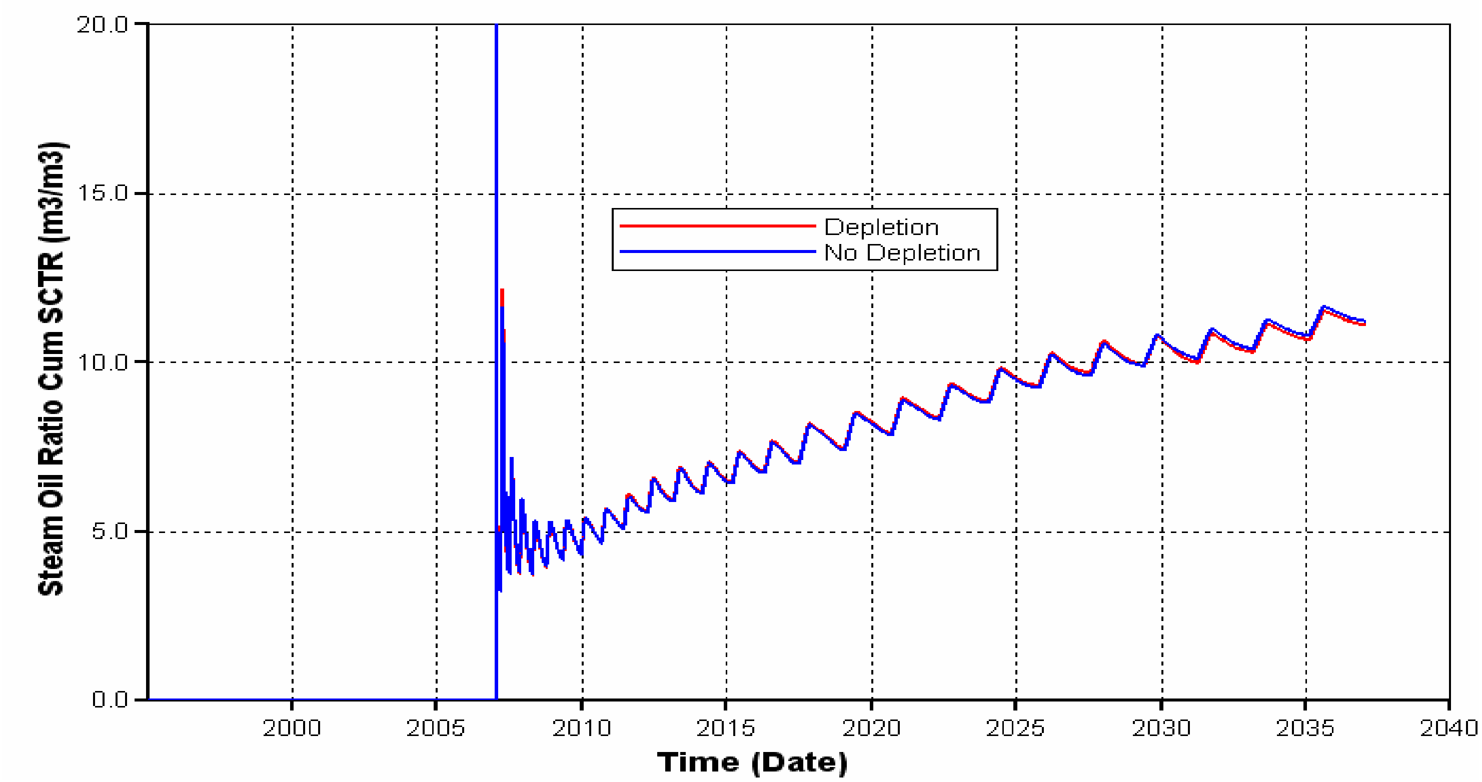

Figure 5: Pressure Distribution of Rerun of FL 19 Gas Flanking Bitumen Prior to Start of HWCSS

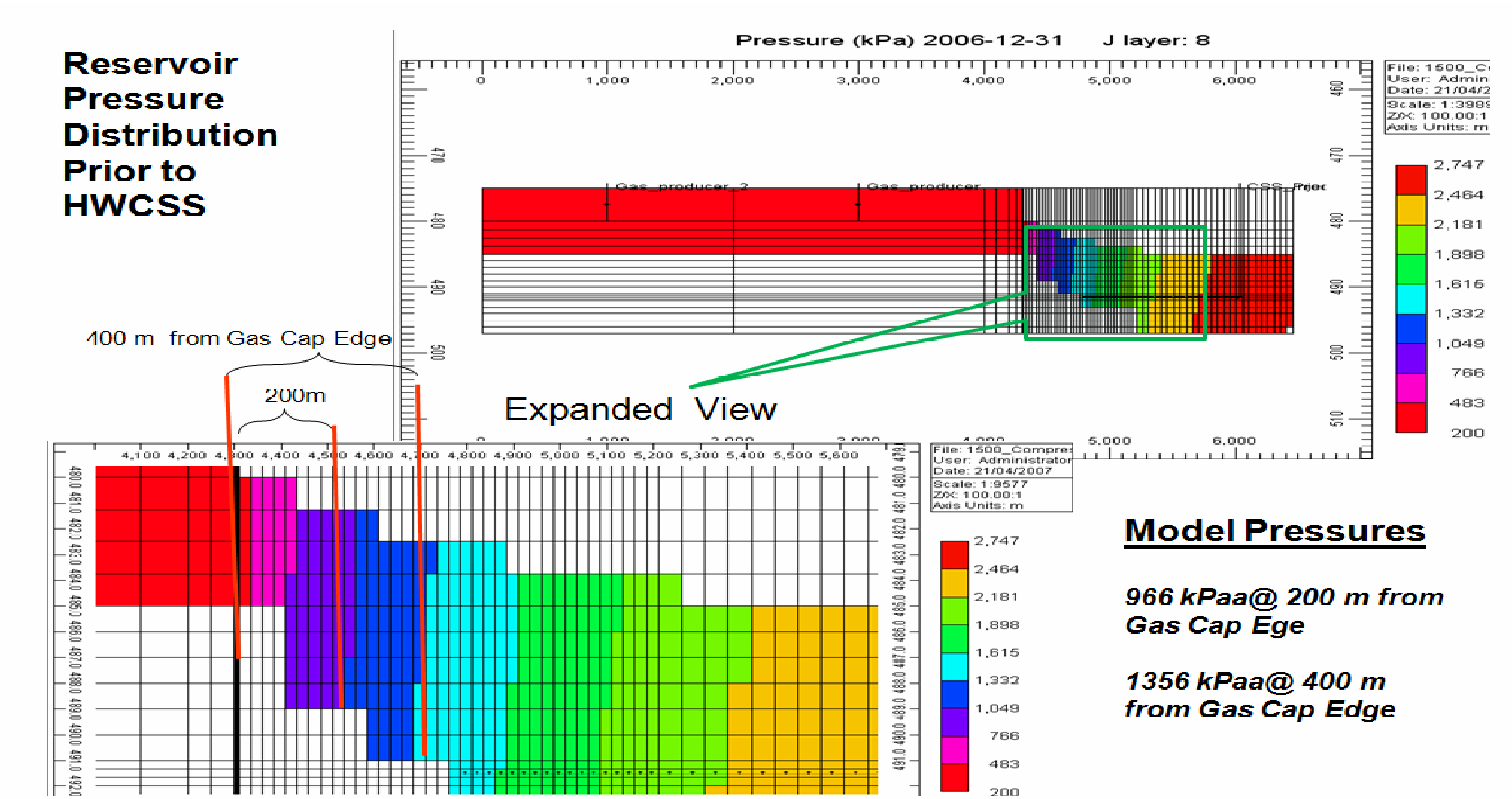

Figure 6: Pressure Distribution of Rerun of FL 19 Gas Flanking Bitumen
showing approximate 1900 kPaa @400m from Gas Cap Edge