



**RESOURCE MANAGEMENT REPORT
LEISMER**

MARCH 2011

Summary

- No oil sands evaluation wells were drilled in 2010.

A. Introduction

This submission is Nexen/OPTI's annual Resource Management Report (RMR) for the Leismer oil sands property as required under the Chard-Leismer Decision (EUB Decision 2003-23). It is specified in the decision that the RMR is to include a review of the management of the oil sands resource, and an assessment of the effect that the pressure in the overlying gas zone has on the recovery of bitumen by SAGD (Steam-Assisted Gravity Drainage). This report is the seventh RMR to be submitted for the property. This submission covers the period from January 1, 2010 to December 31, 2010.

B. Area Overview

Nexen/OPTI's Leismer oil sands property is situated within the Athabasca Oil Sands Area of Alberta in Townships 76, 77, 78, 79 and 80; Ranges 7, 8 and 9 W4M (**Figure 1**). The property is comprised of 134 sections or approximately 34,705 hectares. The oil sands in the Lower Cretaceous McMurray Formation are the target for delineation drilling to evaluate the OBIP (original bitumen in place) on the lands and the production potential using SAGD recovery.

Leismer continues to be an integral part of Nexen Inc. and OPTI Canada's integrated Athabasca Oil Sands development strategy. Commercial development at Leismer is currently planned to take place following completion of the Long Lake SAGD and Upgrading Project. The major bitumen resource trend occurs through Sections 22, 23, 26, 27, 32, 33, 34, 35 in T 77 R7W4, and Section 2 in T 78 R7W4. This part of the trend has a well density of 4 to 5 wells per section and is covered by a 3-D seismic survey. The remaining sections have a well density of one to three wells per section and are covered by a grid of 2-D seismic lines.

No oil sands evaluation well drilling programs were executed in 2010 and 2011 due to budgetary restrictions.

C. Land

The Nexen/OPTI Leismer Property is comprised of 134 sections of oil sands leases, as shown in **Figure 1**. The lands were purchased through the Long Lake Joint Venture Partnership between Nexen Inc. and OPTI Canada.

D. Area Development

1. General Area Activity

Appraisal activity has occurred over the past year on the oil sands leases west, east and south of Nexen/OPTI's oil sands property. Oil sand leases to the west are operated by Petrobank and StatoilHydro Canada Ltd., to the east by MEG Energy and Cenovus, and to the south by Devon and Harvest Operations.

2. Review of Nexen Leismer Appraisal Activity

No oil sands evaluation wells were drilled in 2010

a. Future Delineation

No oil sands evaluation well drilling program was executed in 2011 due to budgetary restrictions. Planning is currently underway for a corehole program in 2012.

E. Bitumen Evaluation Results

The McMurray Bitumen Net Pay Map (**Figure 3**) has been updated with 2010 drilling results on offsetting competitor lands. This map was constructed using the following cut-offs:

- Density porosity greater than or equal to 27%.
- Oil saturation greater than or equal to 50%.
- Net pay section is capped by four metres of non-pay
- Net pay section does not include bitumen found above the McMurray regional A2 and B2 mudstones.

The aforementioned cut-offs delineate the bulk of the bitumen resource within the McMurray valley-fill that may be recovered by SAGD.

Additional core holes and ongoing integration of seismic and well data sets will be required to delineate the distribution and orientation of bitumen-saturated McMurray sand accumulations before horizontal SAGD wells can be planned.

F. Region of Influence Mapping

The updated maps that determine the “region of influence” have been included. These maps have been updated with 2010 competitor well information, and are as follows:

Figure 2 : Wabiskaw/McMurray Gas Shut-ins and Exemptions as of Nov. 10, 2005

Figure 4 : Wabiskaw ‘C’ Structure Map

Figure 5 : Wabiskaw ‘C’ Gas Net Pay (m)

Figure 6 : McMurray Top Gas Net Pay (m)

Figure 7 : McMurray Gross Top Water Isopach (m)

Figure 4, **Figure 5**, **Figure 6**, and **Figure 7** are discussed in the following sections.

a. Wabiskaw ‘C’ Structure and Wabiskaw ‘C’ Sands Gas Net Pay Maps

The Wabiskaw ‘C’ sand is a thin, widespread and porous unit. Wabiskaw ‘C’ gas pools (**Figure 5**) are typically aerially large, continuous, and consistent with structural highs on the Wabiskaw ‘C’ sand surface (**Figure 4**). Structure on the Wabiskaw ‘C’ sand provides a structural reference for both the Wabiskaw ‘C’ sand gas accumulations and the underlying McMurray gas accumulations, which are also generally delineated by Wabiskaw ‘C’ structural highs.

The structure on the Wabiskaw ‘C’ sand shows broad NE/SW structural trends across the Leismer lease. The trend has been mapped to the Nexen/OPTI lease boundary. On this map, the well locations are shown in black font above the well symbol, while Wabiskaw ‘C’ sand elevations (in meters above sea level) are shown in red below the well. The contour interval is two meters with a colour scale that represents structural highlights with warm colours.

As noted in the EUB Regional Geologic Study (Report 2003-A), the Wabiskaw ‘C’ sands have a distinctly different lithology from that of the McMurray Formation. The presence of lithic particles, glauconite, and varying clay content, mask the gas effect in the Wabiskaw ‘C’ sand. Resulting in the neutron and density log curves only “approach” each other, rather than actually “cross over” each other. Sand reservoir quality in the Wabiskaw ‘C’ is somewhat variable and the unit may also contain varying minor amounts of cementation, however, within the Nexen mapping, no instances have been noted on the Leismer lease or surrounding area where the Wabiskaw ‘C’ is non-porous and impermeable. Wabiskaw ‘C’ sand gas accumulations are consistent with structural highs, and wet sands correlate to structurally low areas. The data collected from competitor coreholes drilled in 2010 helped to further delineate the broad regions of

gas found in the Wabiskaw 'C'. The thinness of the sands and its lithology, plus the variable bitumen staining, make gas-water contacts in the Wabiskaw 'C' difficult to detect.

There is no regionally occurring shale in the Leismer area that would provide isolation between the Wabiskaw 'C' sand and the underlying McMurray. Thus, where Wabiskaw 'C' gas or wet sand overlies the McMurray bitumen channel, direct vertical communication is likely.

b. McMurray Gas Net Pay Map

The McMurray Formation gas pools are shown on a single map. **Figure 6** shows where gas occurs above the preserved McMurray regional A2 and B2 mudstones, and where gas occurs in the valley-fill/channel section.

The gas pooling methodology used on this map is as follows:

- Gas-water contacts within +/- 1 meter, and
- Gas-bitumen contacts within +/- 4 meters

Figure 6 shows Nexen's current interpretation of the gas pools that overlie areas where one or more of the McMurray regional mudstones are preserved. The McMurray A2 and B2 mudstones are preserved to the northeast, southwest and north central portions of the Leismer lease. The map shows gas in the McMurray A1, A2 and B1 intervals, and as mentioned, would include some gas that the RGS has interpreted as occurring in the "Wabiskaw D Valley-fill" deposits. Gas pools in the McMurray above the preserved regional A2 mudstone are shown in blue and those above the preserved regional B2 mudstone, are shown in black.

This figure also shows Nexen's current interpretation of gas accumulations in the McMurray channel sands and other deposits related to transgressive filling of the channel cut, including some gas that the RGS has interpreted as occurring in the "Wabiskaw D Valley-fill" deposits.

The map shows numerous gas pools occurring at the top of the McMurray channel deposit, formed by combined structural and stratigraphic trapping. Gas pools at the top of the McMurray channel deposit are shown in red.

c. Wabiskaw D Valley-Fill

Nexen/OPTI's current position on the 'Wabiskaw D Valley-fill' in the Leismer area is outlined in the Leismer RMR submitted in 2008. Although Nexen/OPTI's current interpretation of the Wabiskaw does not include a "Wabiskaw D Valley-fill", the presence of a 'Wabiskaw D Valley-fill' does not change Nexen/OPTI's interpretation that lateral and vertical pressure communication is likely through the Wabiskaw-McMurray interval via sand-to-sand contacts.

d. McMurray Gross Top Water Isopach

The numerous McMurray gas pools (**Figure 6**) overlie broad regions of top water across the Leismer lease. **Figure 7** shows Nexen's current interpretation of water occurring in the channel section of the McMurray Formation. This map was constructed using the following cut-offs:

- Density porosity greater than or equal to 15%.
- Resistivity less than or equal to 10 ohm-metres.
- Shale volume less than or equal to 50%.

Nexen/OPTI's interpretation is that the combination of gas pools and extensive top water forms a broad region of influence through which pressure changes can be transmitted.

G. Assessment of Pressure Depletion in the Leismer Area

Historical pressure measurements from the 2002-2008 corehole programs has been presented in previous RMR reports and will not be repeated here. The only new pressure data collected in 2010 was from the existing vibrating wire piezometer (VWP) wells.

It is expected that pressure measurements will continue to be taken in future drilling programs, where suitable zones are encountered. New data will be used in ongoing pressure analysis to determine and monitor the impact of offsetting gas operations in the area.

i) Pressure Monitoring Program/Vibrating Wire Piezometers

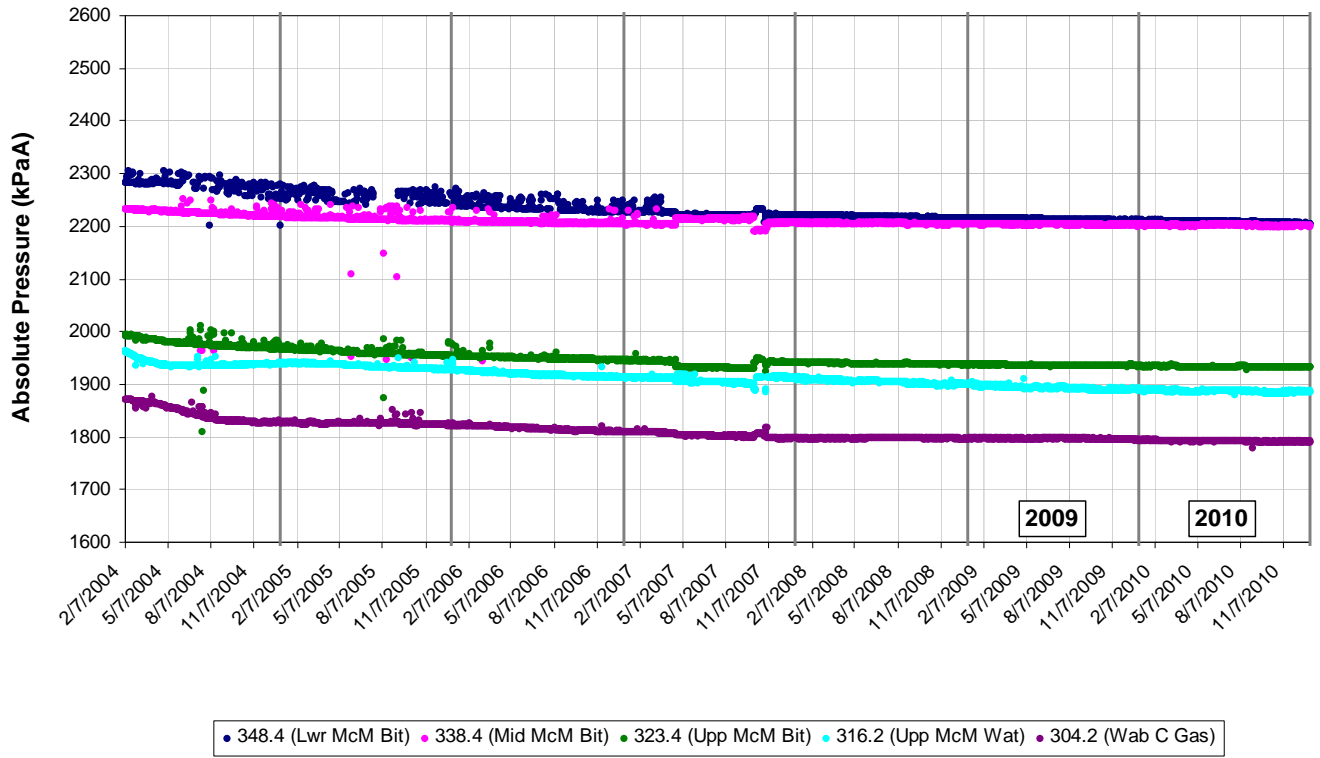
Vibrating Wire Piezometers (VWP) were installed in nine (9) Leismer observation wells. The background information has been provided in previous RMR's and therefore will not be repeated. Updated time-based pressure plots have been included here along with updated observations and discussions regarding VWP performance. Annotated logs of each piezometer well have also been included to show the position of each vibrating wire piezometer pressure sensor.

a. *Nexen et al Leismer 100/02-19-077-06W4*

Five VWPs were installed in this well in 2003. All have remained operational through 2010.

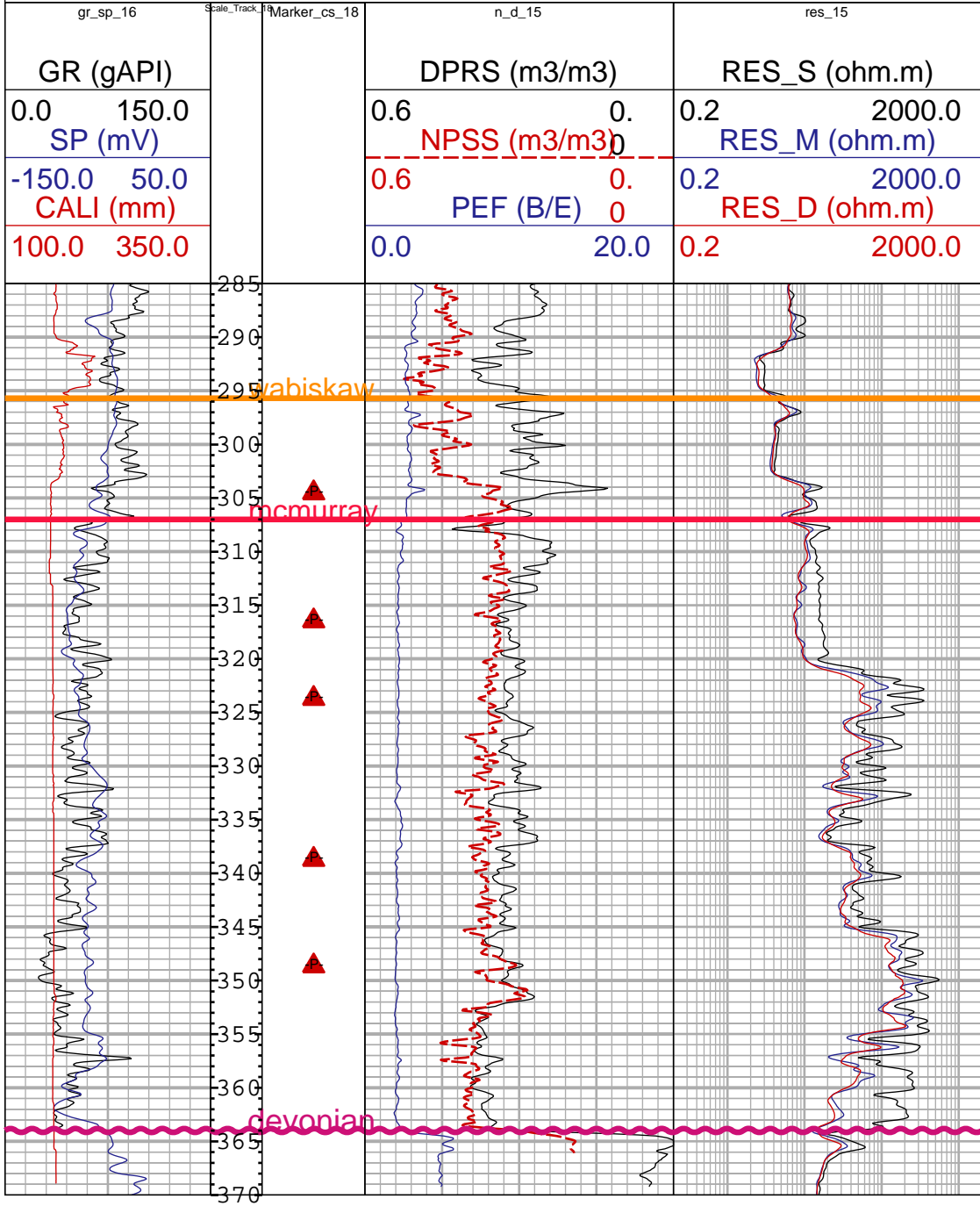
Pressures within the Wabiskaw 'C' gas sand (304.2 mKB), McMurray top water (316.2 mKB), and uppermost McMurray bitumen zone (323.4 mKB) show continuing small rates of decline through 2010. The pressure decline at these sensors is in the order of 2 – 4 kPa through 2010, and is most evident in the Wabiskaw gas and McMurray top water zones. Pressures measured at the other deeper sensors have remained relatively constant through the same period. As has been reported previously, the nearest offsetting gas producers, Devon 100/10-22-077-06W4 and Devon 100/02-06-078-06W4 were shut in in 2003 as a result of the Leismer-Chard gas-over-bitumen hearing decision. However, McMurray gas production continues from the offsetting gas wells, Devon 100/11-32-076-06W4 and Devon 100/09-06-077-06W4. It is evident from the continuing pressure declines recorded at 100/02-19 that lateral pressure communication exists over considerable distances and that gas production continues to depressurize the McMurray to a small degree.

Pressure vs Time
Nexen Leismer 100/02-19-077-06W4, installed 2004
Depth mKB



100021907706W400

KB 569.10 m



b. Nexen et al Leismer 100/02-31-077-07W4

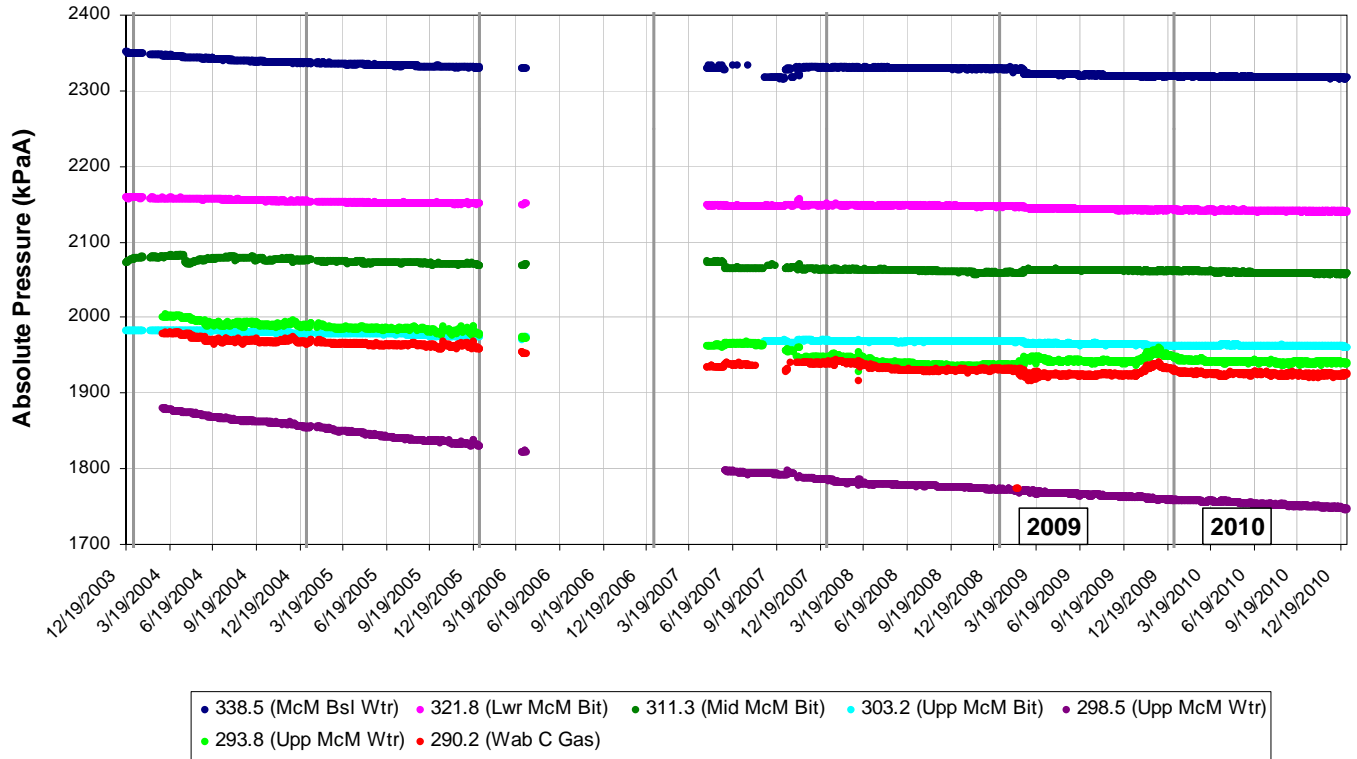
Seven VWP's were installed in this well in 2002. All have continued to transmit data through 2010.

The uppermost 5 sensors have continued to show slight to pronounced pressure declines through 2010, with the exception of the 303.2 mKB sensor which has been relatively unchanging through time. The 303.2 mKB sensor is positioned in a muddy zone in the upper McMurray and so may be locally isolated from the ongoing pressure depletion effects seen by the other upper sensors.

The McMurray top water sensor at 298.5 mKB continues to show the most significant trend in declining pressure. In previous reports, pressure declines in the upper sensors at 100/02-31 were linked to continuing McMurray A shoreface gas production at the Devon 102/11-01-077-08W4 well. This conclusion was supported by comparison of production operations at 102/11-01 to corresponding pressure responses at both the 100/02-31 and 100/07-13-077-08W4 VWP wells. The 102/11-01 gas well continues to produce at a low rate. The most recent publicly-available pressure measurement from the McMurray gas zone at 102/11-01 was a test showing 689 kPa recorded in March, 2006. In addition, the Devon 100/06-02-077-08W4 gas well also continues to produce from the McMurray A shoreface.

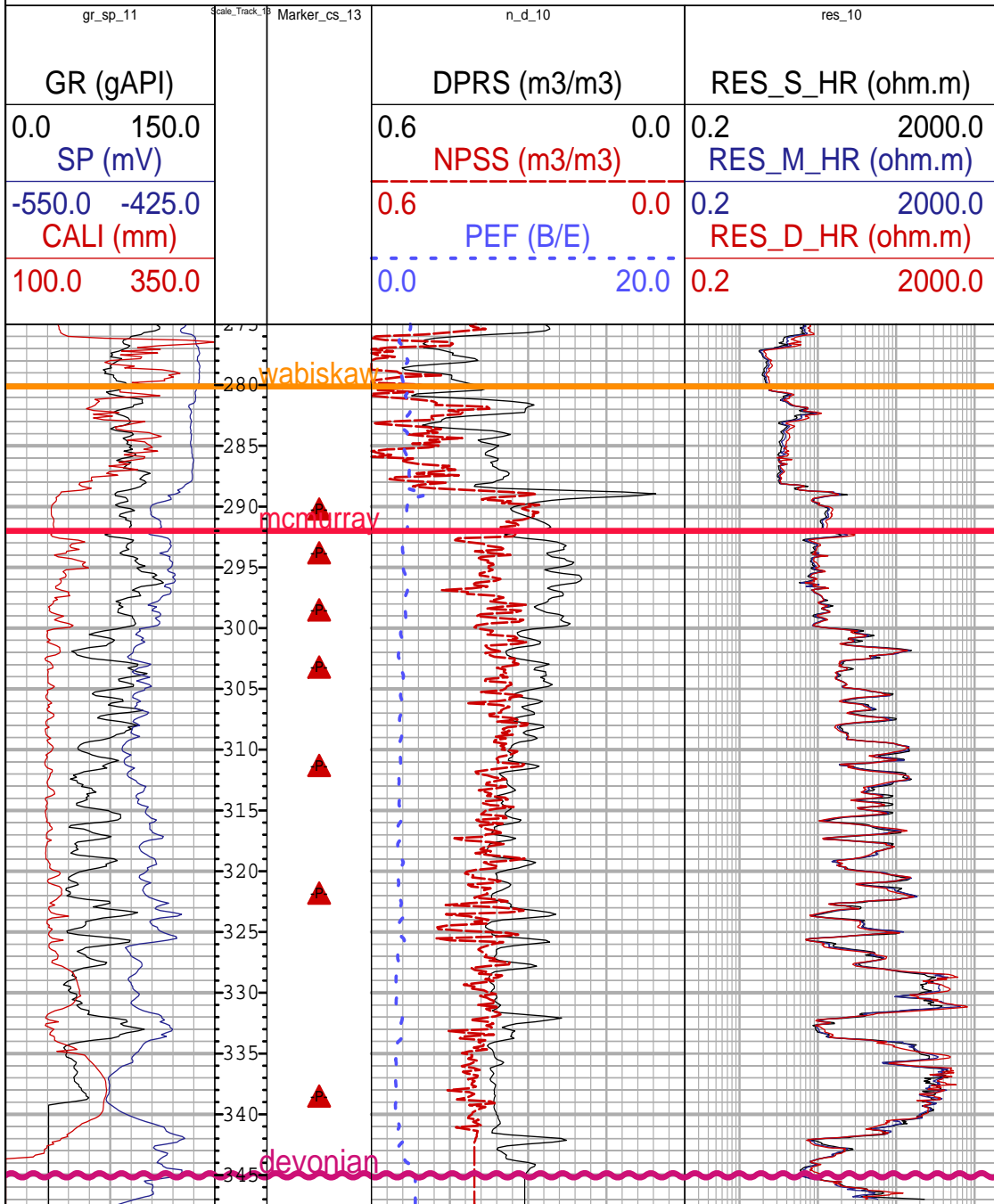
It is noted that the 298.5 mKB McMurray top water sensor shows the lowest McMurray pressure recorded at any of the Nexen Leismer VWP wells. In addition to the ongoing McMurray gas production noted above, there are other nearby sources of pressure depletion that likely contributed to the ongoing pressure decline at the 298.5 mKB sensor. Devon 100/11-36-077-08W4 was perforated in the Wabiskaw-McMurray and produced gas from 1998-2003; the most recent pressure measurement in the public database was 1147 kPa in 2003. Devon 100/07-26-077-08W4 was perforated in the McMurray and produced gas from 1994 to 2007 (Wbsk & McM MU#3) according to public records; there is no record of any pressure tests from the McMurray zone.

Pressure vs Time
Nexen Leismer 100/2-31-077-07W4, installed 2003
Depth mKB



100023107707W400

KB 553.30 m



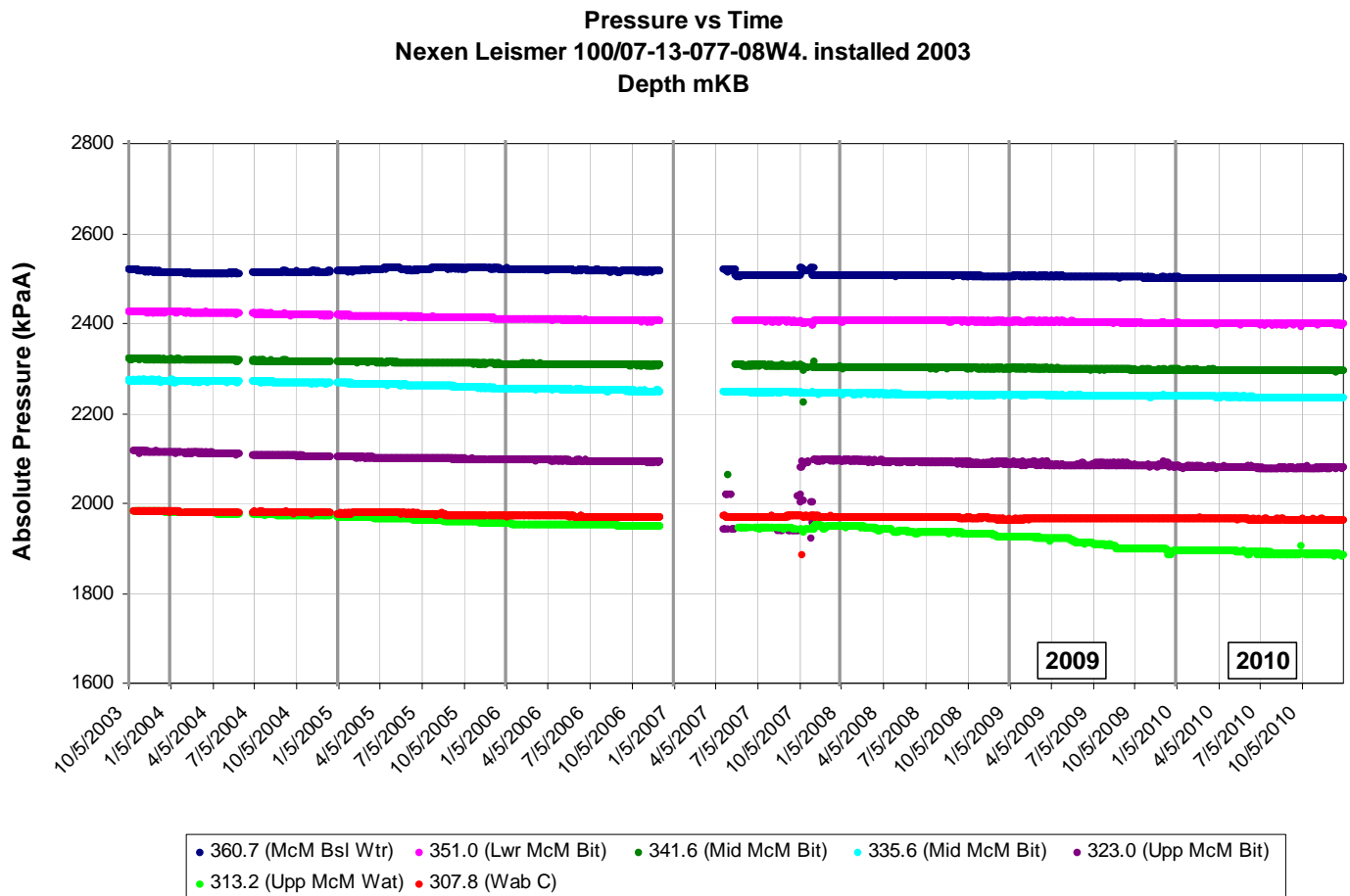
c. Nexen et al Leismer 100/07-13-077-08W4

Seven VWP's were installed in this well in 2002. All have continued to transmit data through 2010.

The upper 4 sensors in this well have continued to show losses in pressure (ranging in magnitude from 3 to 8 kPa), while the lower 3 sensors have remained at relatively constant pressure through 2010.

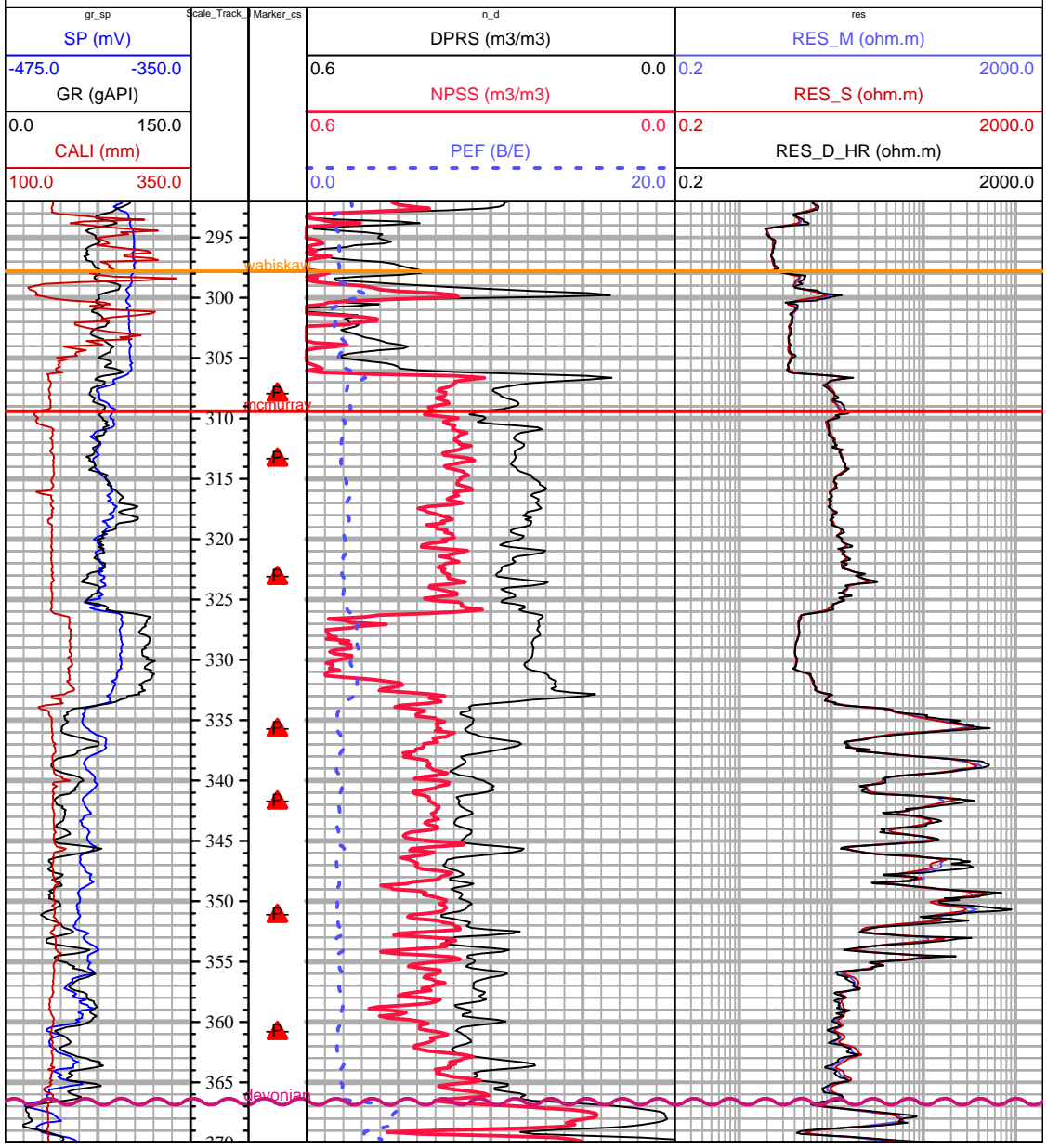
The most pronounced pressure decline continues to be observed at the 313.2 mKB sensor which is located in the upper McMurray in a low bitumen-saturation IHS zone. As has been reported in previous RMRs, the continued pressure decline is interpreted to be the effect of ongoing gas production at the offsetting Devon 102/11-01-077-08W4 well.

The uppermost sensor at 307.8 mKB is in the Wabiskaw C sand, which does not contain producible gas at this location. The zone has low permeability due both to the nature of the Wabiskaw lithology as well as to some bitumen saturation (visible in core). Higher pressure (though still declining) in this zone, as compared to that in the underlying 313.2 mKB McMurray sensor, indicates that it is less well-connected with the source of pressure depletion than is the higher-permeability upper McMurray.



100071307708W400

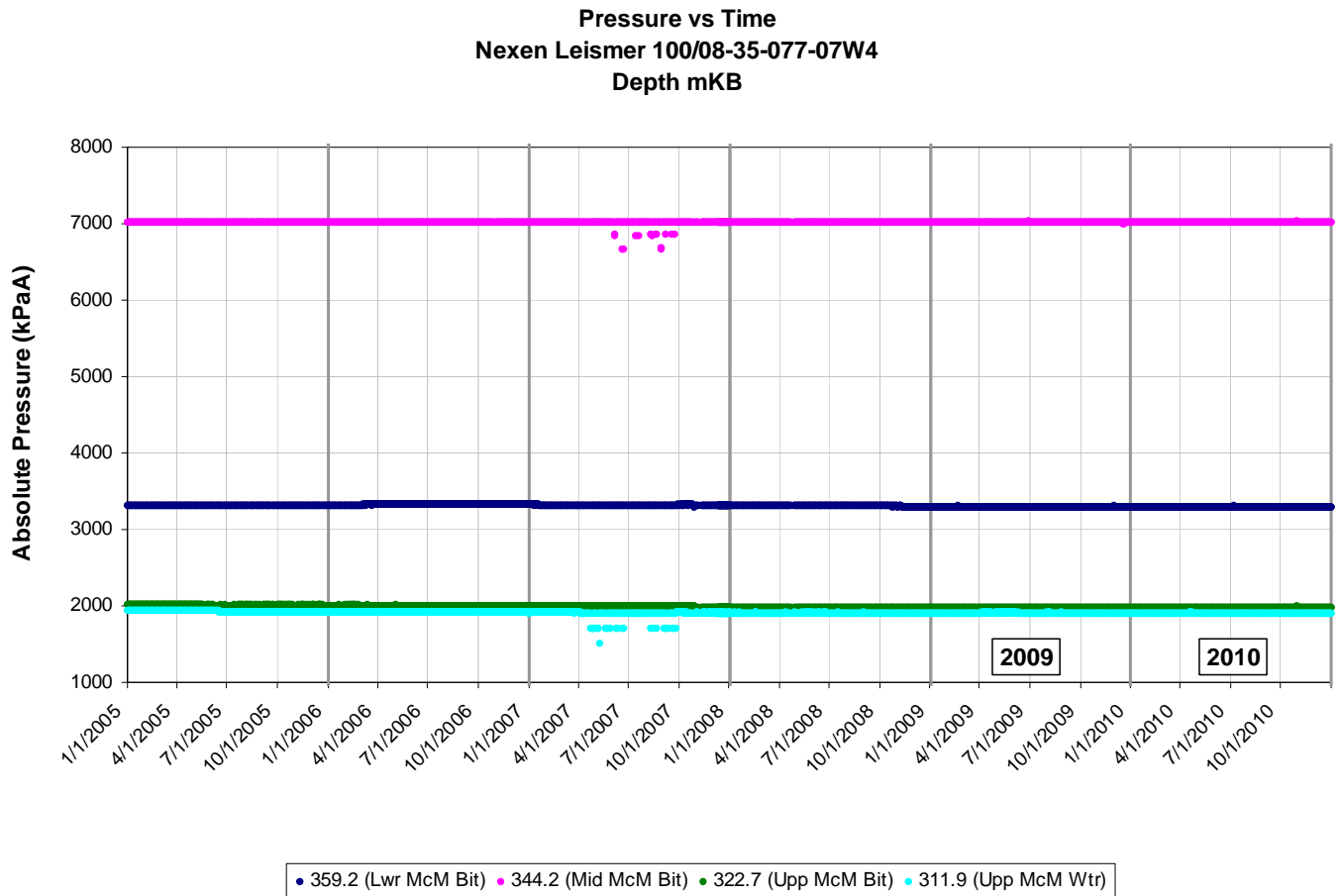
KB 559.50 m



d. Nexen et al Leismer 100/08-35-077-07W4

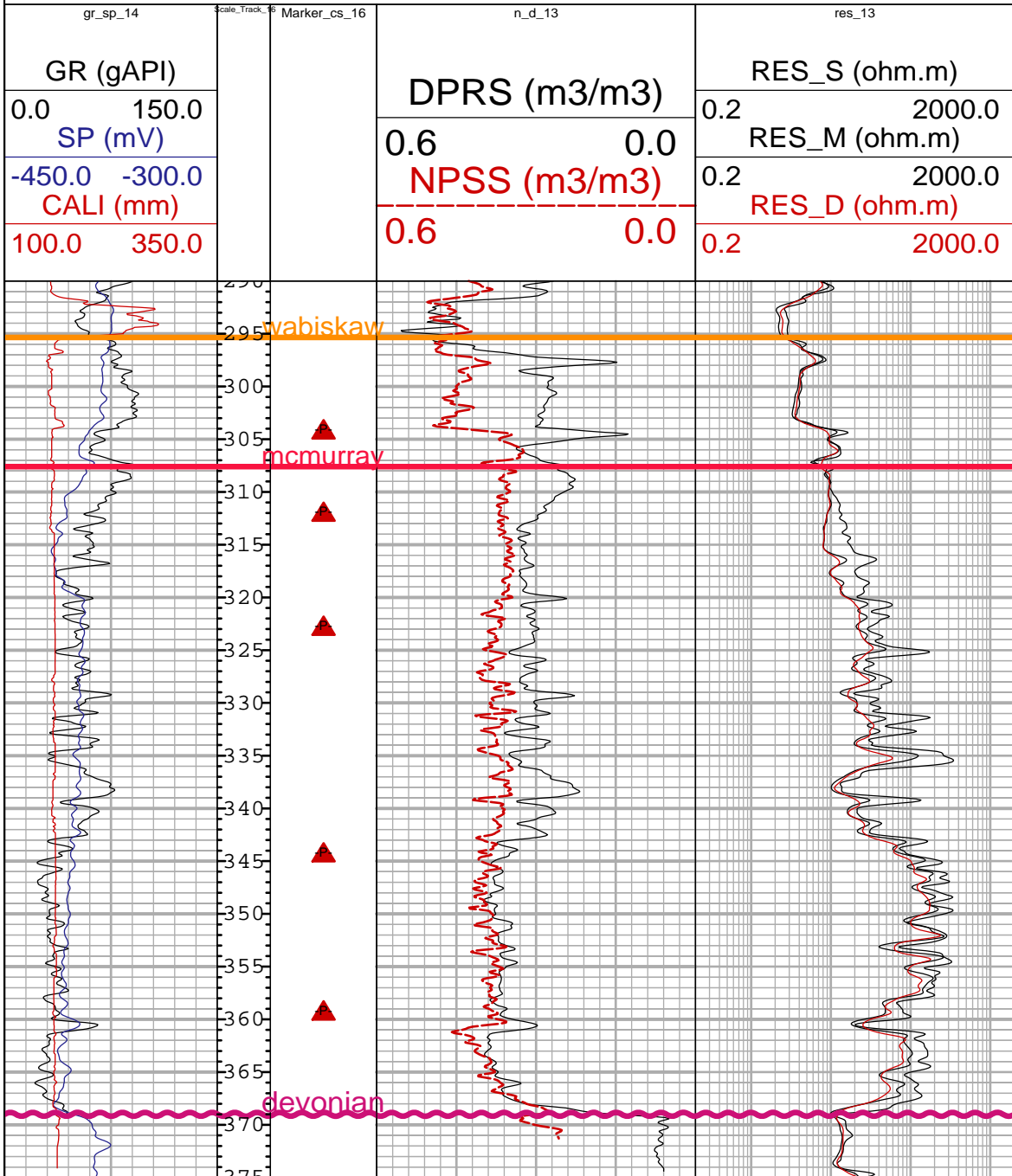
Five VWP's were installed in this well in 2003. Three of the sensors have failed, as follows. The sensor at 344.2 mKB in a middle McMurray bitumen zone is operating at well outside of its effective range (>3 MPa) and is therefore considered to be reporting erroneous data. The sensor at 359.2 mKB in a lower McMurray bitumen zone is reporting values (~3300 kPa) at just outside its rated range and at much higher pressures than would be predicted by the hydrostatic gradient in the area; it is therefore considered to be reporting erroneous data. (A sensor in the Wabiskaw C gas zone at 304.1 mKB failed in the past and is not shown on the following plot.)

The sensors in the upper McMurray bitumen at 322.7 mKB and in the McMurray top water at 311.9 mKB are recording pressures that appear to be reasonable. The two sensors are 10.8m apart, and are showing a difference between them of approximately 73 kPa; the difference from the expected gradient of 10 kPa/m (108 kPa) may be explained by pressure depletion in the area, which may be expected to have had a greater effect on the McMurray top water zone. Both sensors have show slight pressure decline though time (~36 kPa). Through 2010, both sensors have shown very slight fluctuations but no pronounced declining pressure trend.



100083507707W400

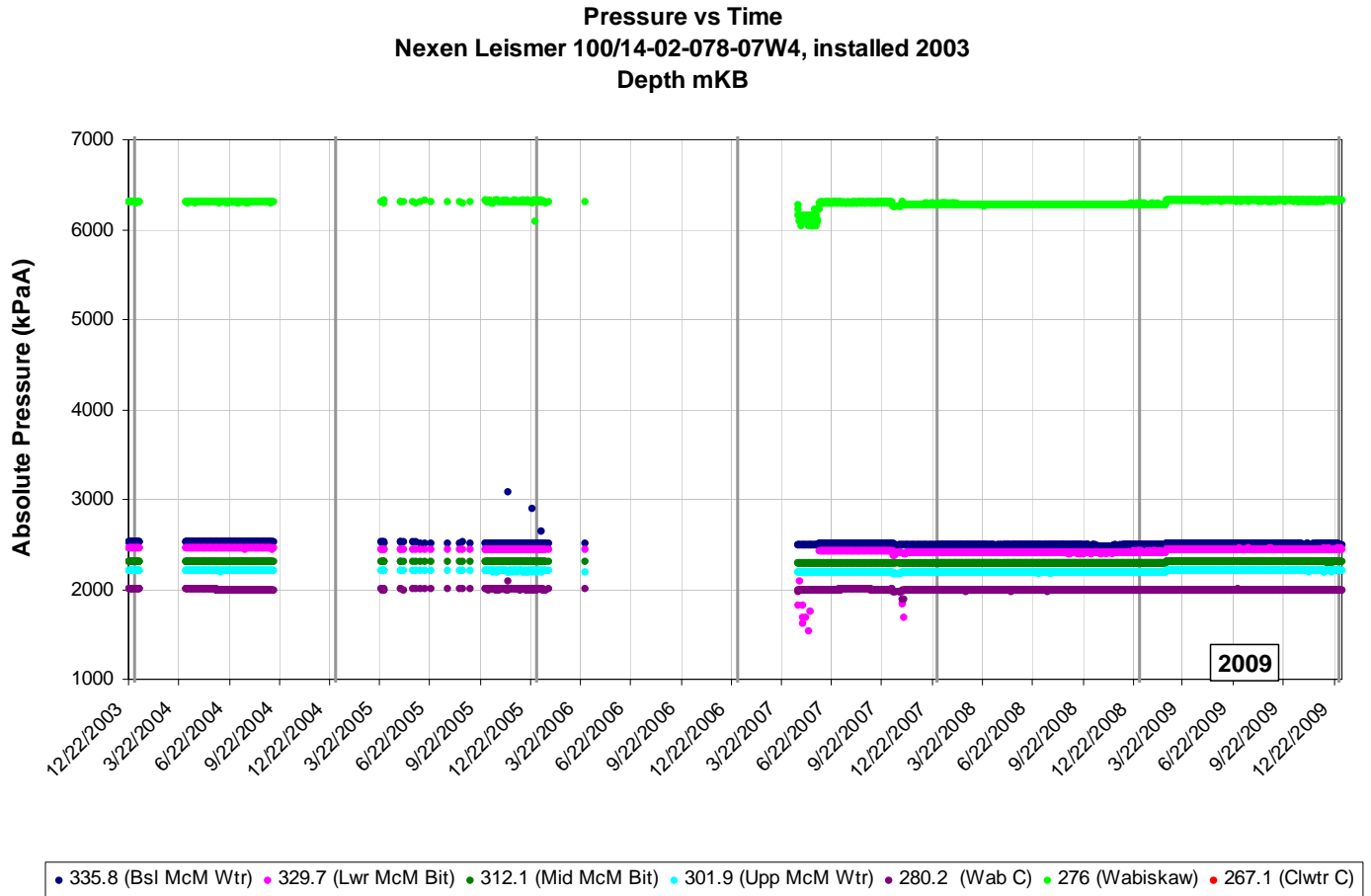
KB 570.00 m



e. Nexen et al Leismer 100/14-02-078-07W4

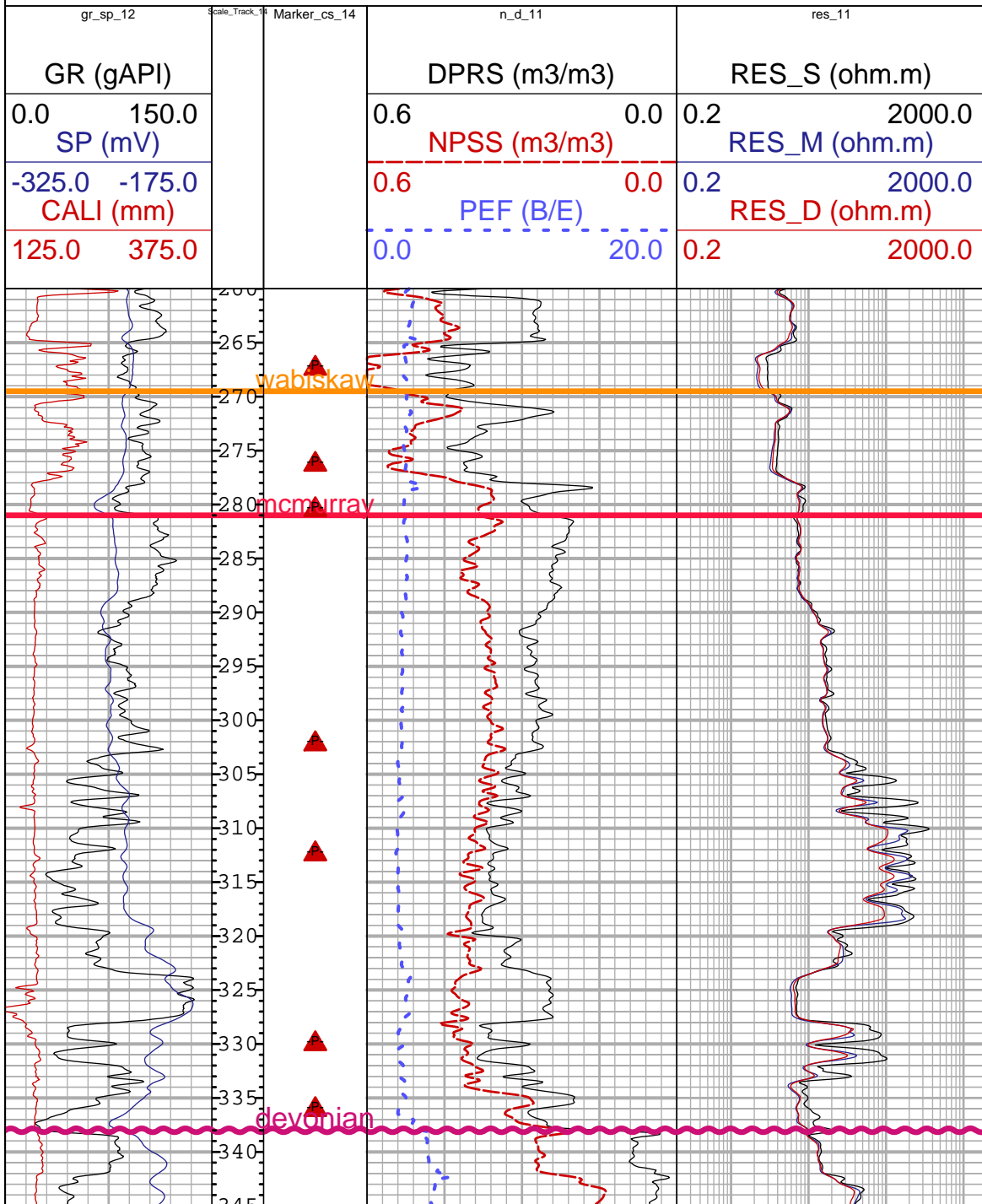
Seven VWP's were installed in this well in 2002. The sensors at 267.1 mKB in the Clearwater 'C' Shale and at 276.0 mKB in the Wabiskaw Shale are believed to have been damaged during installation and have not provided dependable readings.

The remaining five sensors through the Wabiskaw 'C' wet sand, McMurray bitumen and McMurray bottom water zones ceased to transmit data at the end of 2009. Data transmission has not been restored and it is unknown at this time if the problem can be remedied.



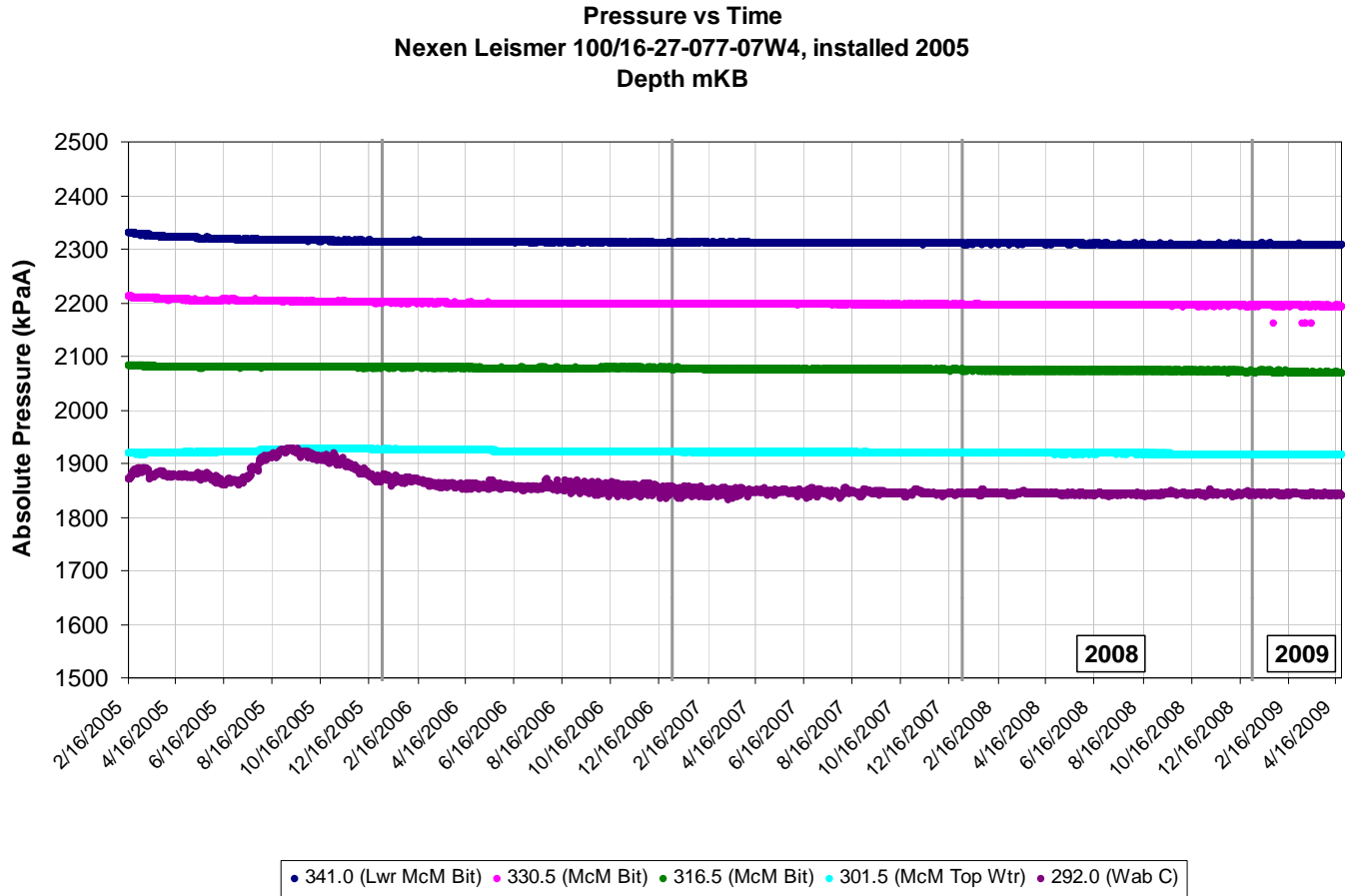
100140207807W400

KB 540.00 m



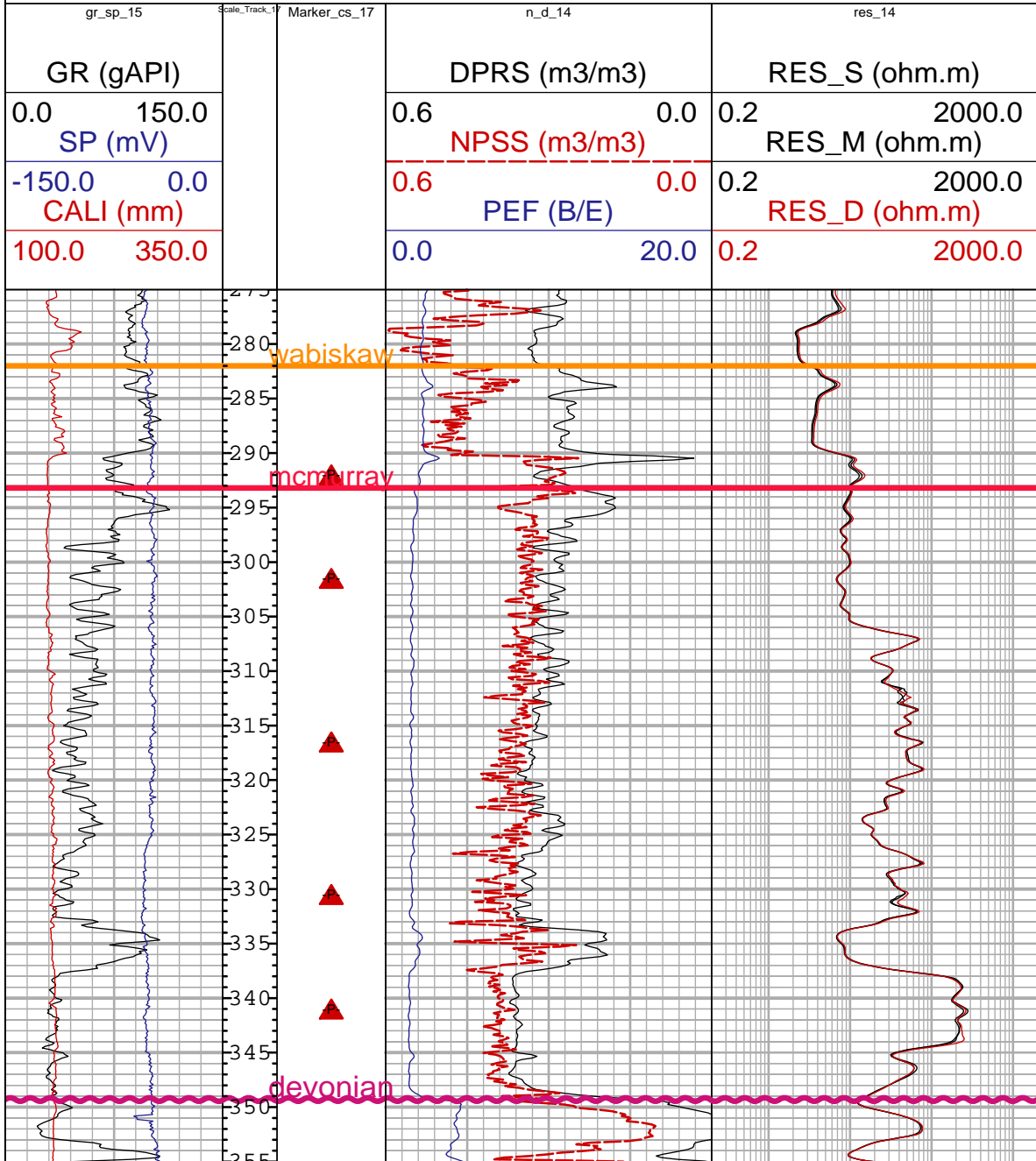
f. **Nexen OPTI Leismer 100/16-27-77-07W4**

Five VWP sensors were installed in this well in 2005. Since April 2009, operational issues have been experienced and as a result no new data was recorded. It is unknown at this time whether data transmission can be restored.



100162707707W400

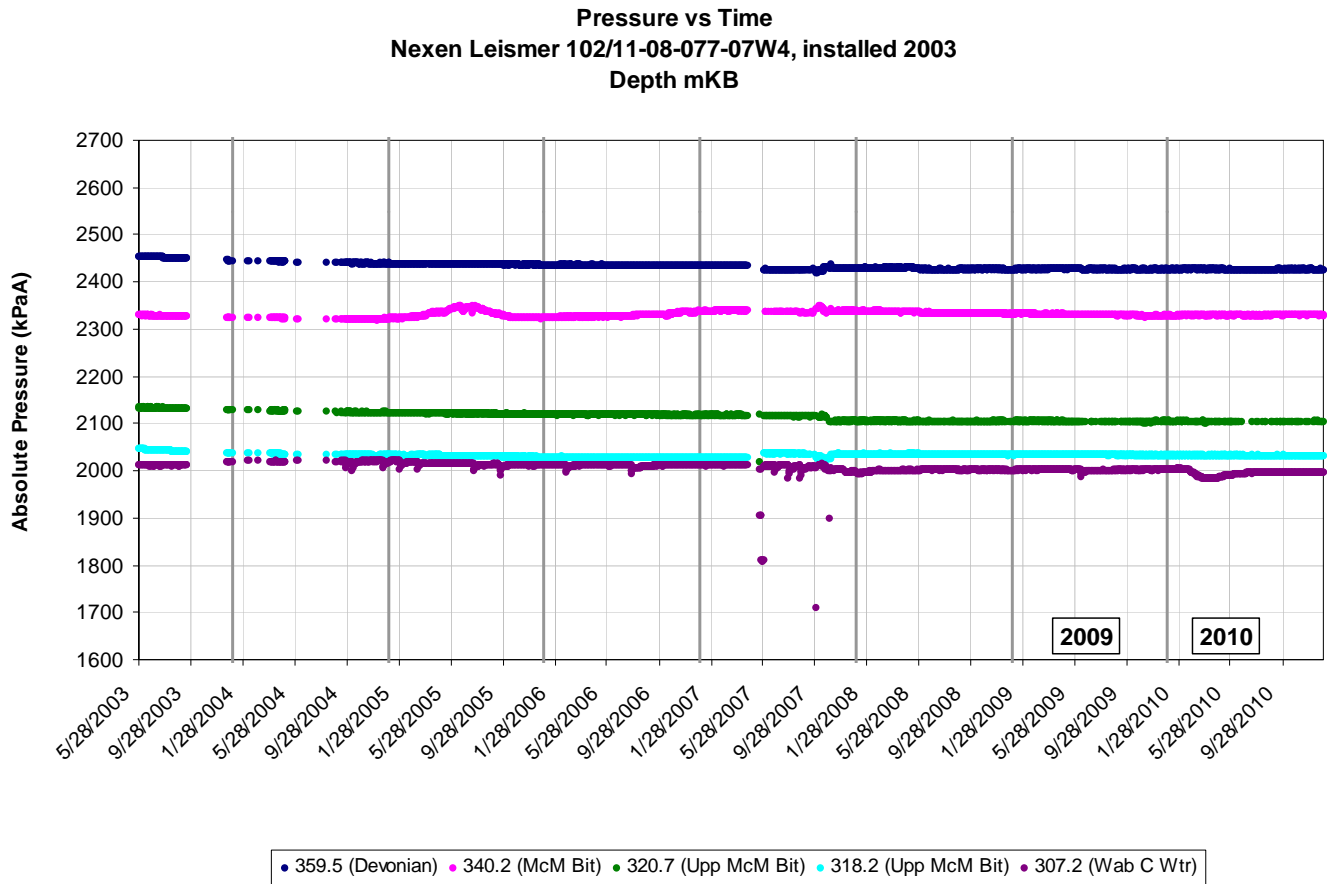
KB 559.80 m



g. Nexen et al Leismer 02/11-08-077-07W4

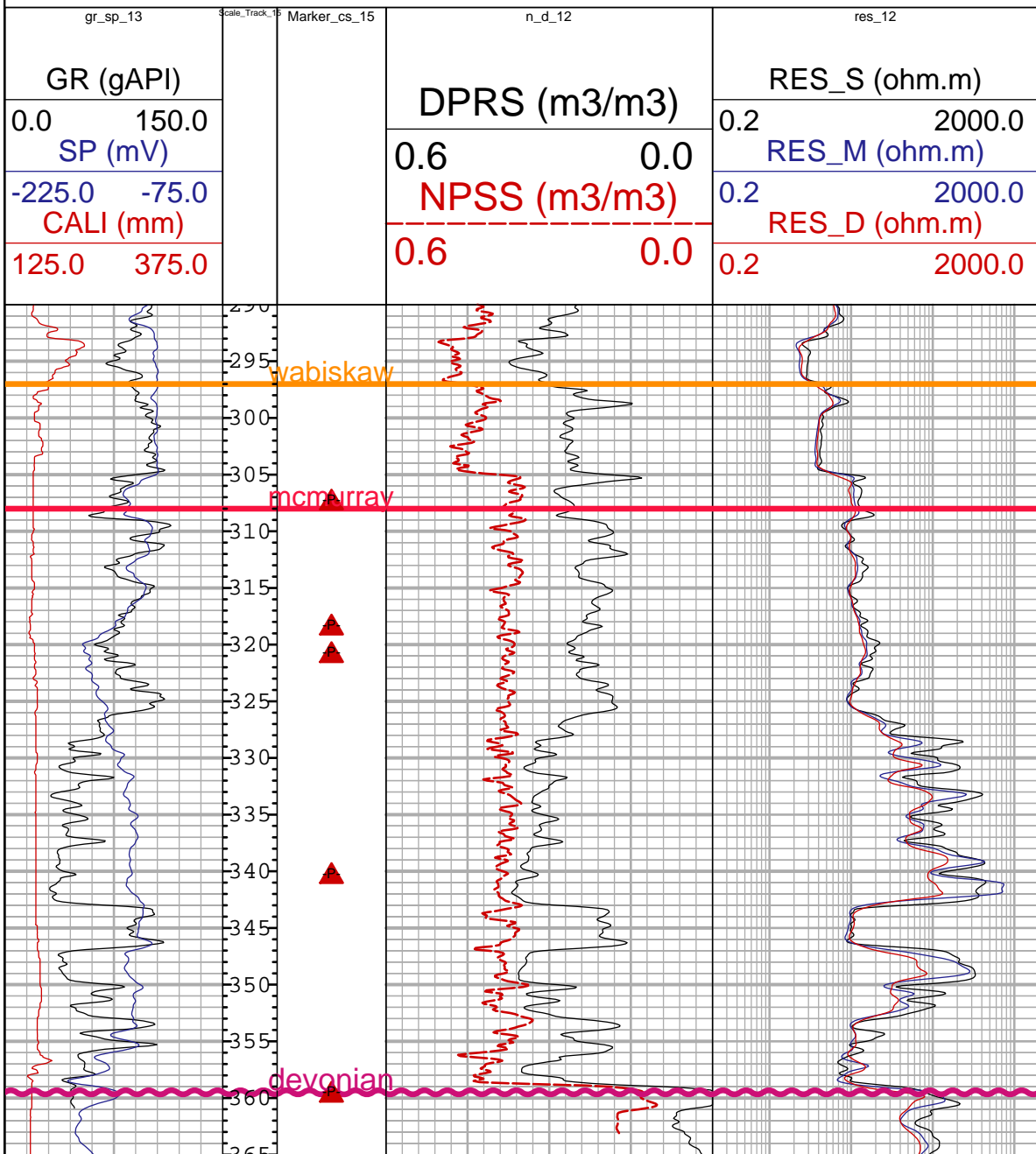
Five VWP sensors were installed in this well in 2003.

The upper two sensors in the Wabiskaw 'C' wet sand at 307.2 mKB and in the upper McMurray bitumen at 318.2 mKB have continued to show slight pressure declines, with a 3 to 6 kPa pressure loss, respectively, occurring through 2010. The sensor at 307.2 mKB in the Wabiskaw 'C' wet sand continues to show the same strong response to operations at the Devon 102/11-01-077-08W4 gas well as was analyzed in detail in previous reports. The 102/11-01 gas well continues to produce gas from the McMurray 'A' shoreface sand at approximately 9 E3 m3/d. The other sensors in the McMurray bitumen and the uppermost Devonian have recorded relatively constant pressures through 2010.



102110807707W400

KB 568.20 m

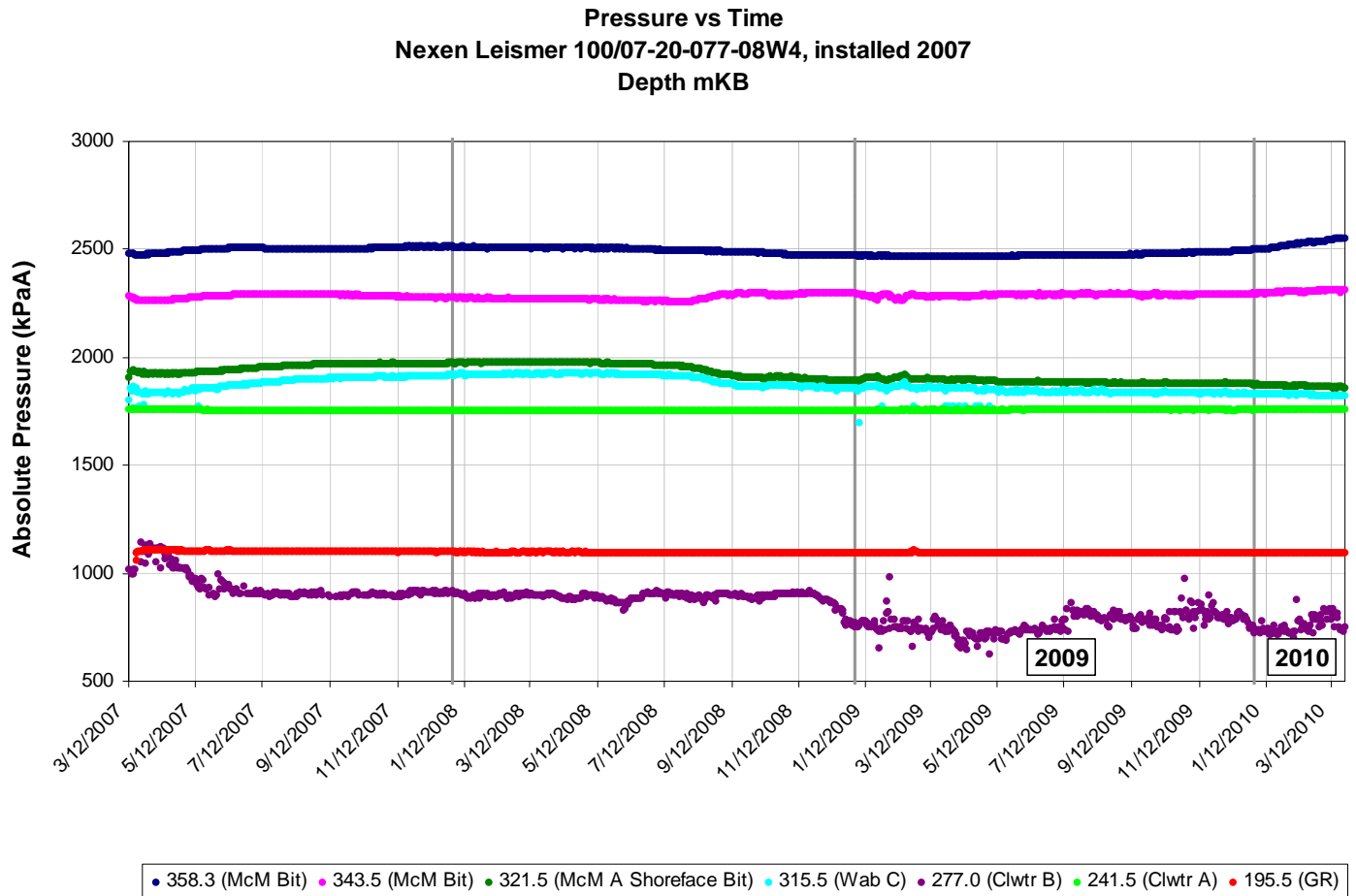


h. Nexen OPTI OBS Leismer 100/07-20-077-08W4

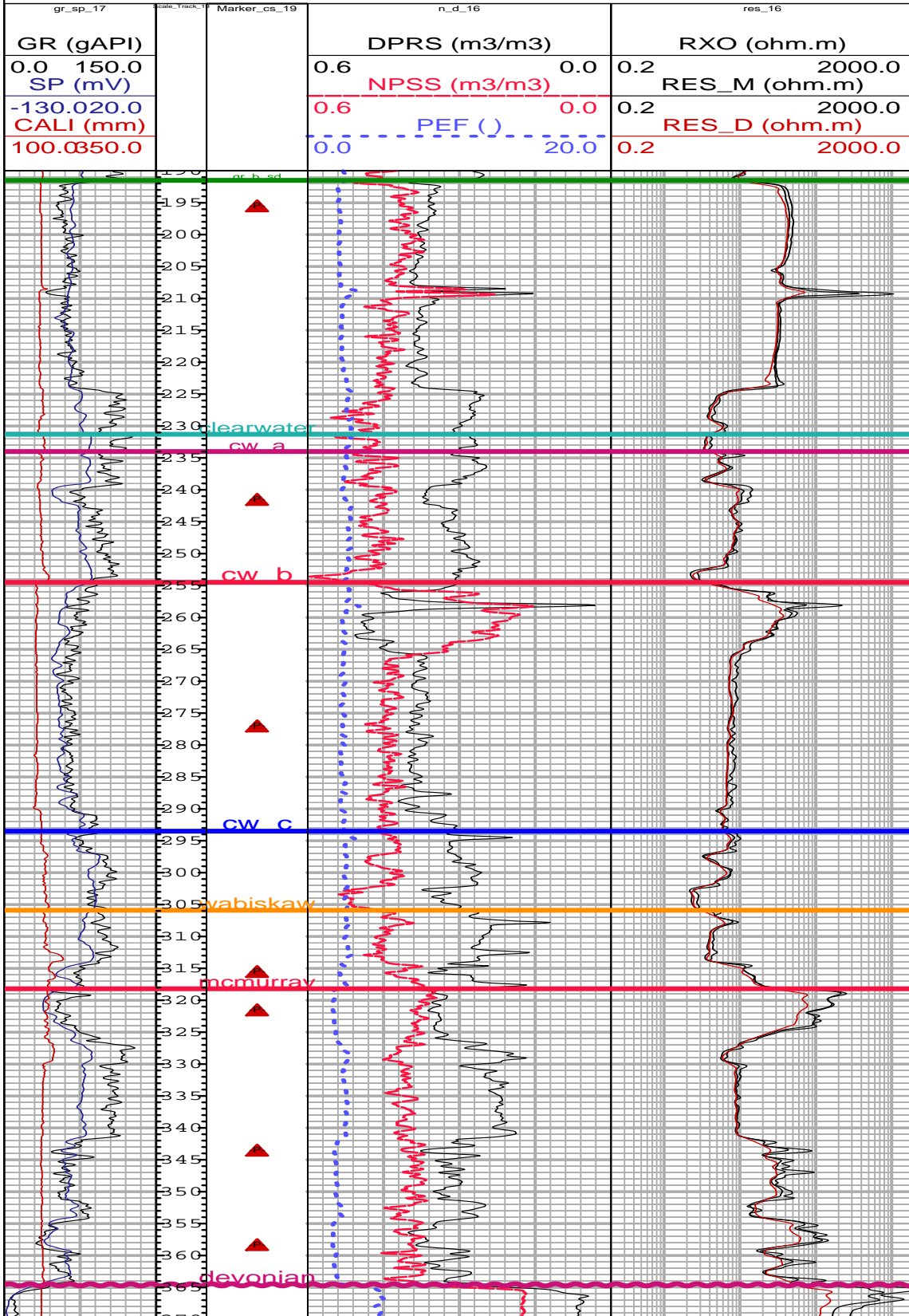
Seven VWP sensors were installed in this well in 2007. Data transmission ceased in mid-March, 2010 and it is unknown at this time whether it can be restored. The main observed influences on this well are operations at Petrobank's Whitesands Project to the southeast in Section 12-77-9W4, and regional pressure depletion in the Wabiskaw-McMurray and Clearwater 'B' due to gas production.

The 343.5 mKB and 358.3 mKB sensors in the middle and lower McMurray bitumen zones continue to show response to operations at the Whitesands project, where a Toe-to-Heel Air Injection (THAI) process is being implemented for bitumen recovery from the McMurray. The 343.5 mKB sensor has seen an increase of approximately 20 kPa over the recorded period in 2010, while the 358.3 mKB sensor has seen a 53 kPa rise over the same period.

The 315.5 mKB sensor in the Wabiskaw 'C' wet sand and the 321.5 mKB sensor in the McMurray A shoreface bitumen zone show decreasing pressures through 2010 with losses of 7 and 13 kPa recorded in each zone respectively, due to the effects of Wabiskaw-McMurray gas production in the area. The sensor at 277.0 mKB, in the Clearwater 'B' sand, continues to show the effects of gas production from this interval. The sensor in the thin Clearwater 'A' sand at 241.5 mKB has remained constant through time, which appears reasonable as this zone has not seen large volumes of gas production nor source water production. The sensor in the Grand Rapids 'B' aquifer sand at 195.5 mKB has remained relatively constant through time.



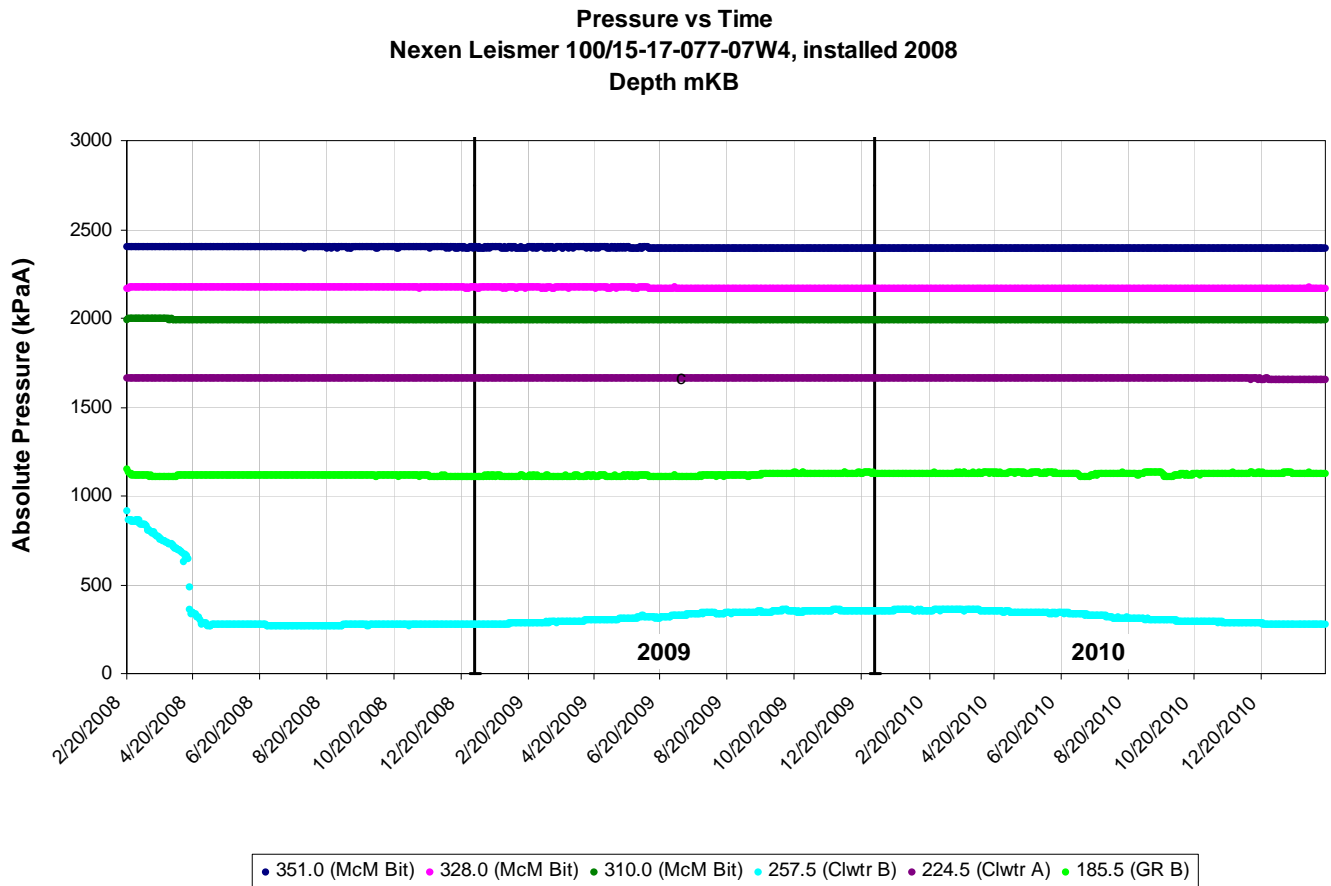
100072007708W400
KB 568.90 m



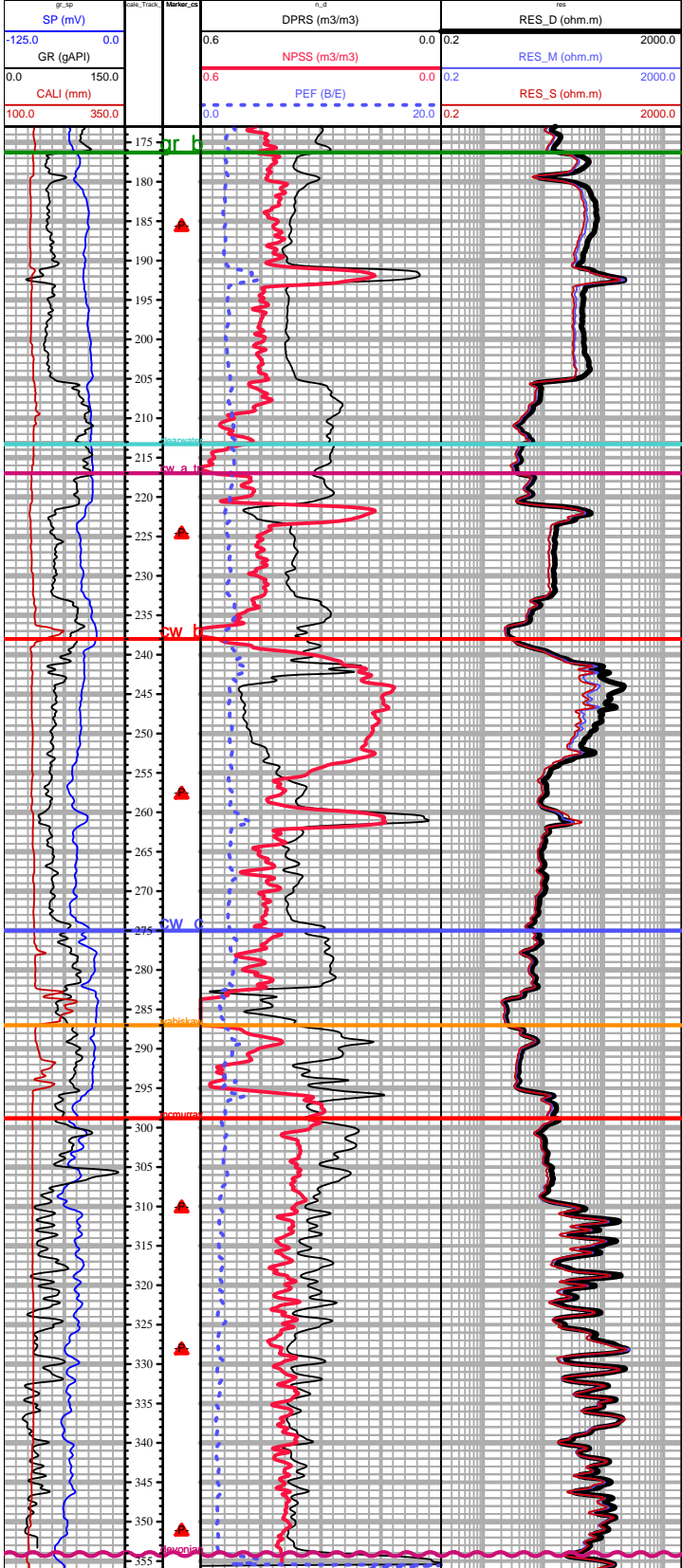
i. Nexen OPTI OBS Leismer 100/15-17-077-07W4

Six VWP sensors were installed in this well in 2008. The sensor at 257.5 mKB in the Clearwater 'B' appears to have failed in the first year after installation. The Clearwater 'B' is a very significant gas accumulation with significant production in this area, however, the pressure responses in 100/15-17 do not appear to be valid, compared to the response at the 277.0 mKB Clearwater 'B' sensor at 100/07-20-077-08W4)

The sensors in the McMurray bitumen at 351.0 mKB and 328.0 mKB, and immediately below the McMurray top water at 310.0 mKB, have shown a flat trend through time that has continued through 2010. The Clearwater 'A' sensor at 224.5 mKB and the Grand Rapids 'B' sensor at 185.5 mKB have also shown very little variation through time.



100151707707W400
KB 559.66 m



H. Conclusions

This report demonstrates Nexen's ongoing commitment to bitumen resource evaluation and development of the Leismer property. As has been noted, pressure monitoring activities have continued through 2010 and are expected to continue, as required. Nexen maintains the position taken at the Chard-Leismer Hearing that a single broad region of influence may exist over the entire Leismer lease area permitting pressure responses to be transmitted over long distances, and Nexen believes that the pressure data collected since the hearing continues to support that conclusion.

APPENDIX A