



Devon Canada Corporation  
Canterra Tower 2000, 400 – 3<sup>rd</sup> Avenue S.W.  
Calgary, AB T2P 4H2  
Phone: (403) 232-7100

Water Register: N7L1-1777

May 30, 2005

N.W.T Water Board  
PO Box 1326  
Yellowknife, NT  
X1A 2N9

Attention: Mr. Gordon Wray

Dear Ms. White:

**Re: 2004 Itiginkpac F-29 Sump Monitoring Program Report**



|         |        |
|---------|--------|
| COPY    |        |
| BOARD   | 6      |
| G. W.   | 1      |
| E. A.   | 1      |
| W. RES. | 0/4:6- |
| NMDO    | 1      |
| FILE    | 1777   |

Devon recently received two letters (April 20 & May 13) from the NWT Water Board requesting information on the sump monitoring program for the Devon F-29 wellsite. The information from the April 20<sup>th</sup> request is presented below. With respect to the May 13 letter, Devon will collect the additional information as requested.

#### April 20<sup>th</sup>, 2005

##### 1. a) Failed Thermistors

The Site 2 (Area B) thermistor at the 0.75 m depth is functioning as indicated by the data (CH-5). Thermistors at the 0.25 m and 3m depths of Site 2 (Area B) have failed. The 0.25 m depth is within the active layer. The temperature variation at this depth is well understood with freezing occurring during the winter and thawing in the summer.

In comparison, the 3 m depth represents a more integral data collection point. However, the failed thermistor at the 3 m depth is within two functioning locations at 2 m and 4 m. Interpolating the temperature regime at the 3 m depth therefore, can be accomplished with a reasonable degree of confidence. The failure of individual thermistors is not uncommon and there is very little that can be done without replacing the entire string. However, since there are 10 thermistors on each string, the basic integrity of the monitoring program should not be compromised even though some data points within the system fail.

In summary, although thermistor locations have failed, our understanding and measurement of the thermal regime is considered adequate. Therefore no plans have been made to repair the failed thermistors.

##### 1. b) Battery Failure

The F-29 sump monitoring control is the Site 3 (Area A) location. This location has experienced battery failure and the battery will be replaced during the summer 2005 field season.



Devon Canada Corporation  
Canterra Tower 2000, 400 – 3<sup>rd</sup> Avenue S.W.  
Calgary, AB T2P 4H2  
Phone: (403) 232-7100

## 2. Pooling

Devon has monitored surface water at the F-29 location since the drilling of the F-29 well (winter 2003). In addition to the field programs scheduled to collect monitoring data (fall 2003 and 2004), Devon has visited the F-29 location during the summer months to observe surface water drainage. During the summer of 2003 unusually wet conditions made it difficult to determine the surface drainage pattern. Upon review of the observations made in 2004, it became clear that surface work would have to be initiated to address pooling at the base of the sump.

To address this concern Devon will complete minor surface work at this location. The work is planned for late July or August of 2005. Prior to commencing any activity at this site water samples will be collected to verify the nature of the surface run-off. Once this information has been obtained and the construction supervisor has completed a survey of the location, the most appropriate modification of the surface drainage pattern will be selected and constructed. The objective of the modification will be to eliminate the surface pooling, and to ensure the surface water does not pose a concern to the receiving environment.

## 3. Clarification

The F-29 sump monitoring control is the Site 3 (Area A) location. "Control Area B" as referenced in the 2004 report should not have been referenced as the control and not used as a determination of whether the sump material is in a frozen state. The temperatures recorded within the sump, Site 1 (Area C), should be used to make this determination. As indicated in the report the Site 1 (Area C) location averaged -4.02 °C and would be sufficient to keep the sump contents in a frozen state. Devon apologizes for any confusion related to statements made in the report.

It is important to note that the drilling waste deposited by Devon in the F-29 sump was not in a liquid state even at temperatures above 0°C. Prior to placing drilling waste in the sump it was mixed with a zeolite additive, transferred into sacs and then deposited in the sump as a solid. Mixing and bagging of the drilling waste was completed at temperatures above 0°C. Also, during the reclamation of the sump large quantities of freshwater were applied to the sump to fill voids in the soil structure during backfilling, thereby creating a frozen solid mass. Because the drilling waste was a solid material and significant quantities of freshwater were added to the sump during reclamation to freeze the sump, it is anticipated that dilution would have occurred and, as a result, temperatures required to begin thawing the sump would be above 0°C.

## 4. Submission of monitoring data


All monitoring data as required in Part B, Item 3 of Water License No. N7L1-1777 has been collected and submitted as required, including the temperatures collected from the temperature monitoring stations. If information has not been submitted in the appropriate format, please indicate the concern and efforts will be made to rectify the situation.



Devon Canada Corporation  
Canterra Tower 2000, 400 – 3<sup>rd</sup> Avenue S.W.  
Calgary, AB T2P 4H2  
Phone: (403) 232-7100

If you have further questions or concerns please do not hesitate to contact me at the above-noted address, or by phone at (403) 232-7294.

Sincerely,  
DEVON CANADA CORPORATION



Peter Millman  
Environmental Planner