Indian and Northern Affairs Canada
Affaires Indiennes et du Nord Canada
Telephone:(867) 587-2011
Fax:(867) 587-2928

North Mackenzie Sub-District
P.O. Box 126
Norman Wells , NT X0E 0V0

July 28, 2010

Canadian Natural Resources Limited
Suite 2500, 855 – 2nd Street S.W.
Calgary, Alberta T2P 4J8

Attention: Mr. Devin Allibone, Development Operations Environmental Coordinator

Re: Land Use Permit - S02A-005, Water License - S02L1-004 (Drill sites 0-52)

Thank you for submitting a copy of the Soil and Vegetation Monitoring Report conducted by Trace Associates. I forwarded it to Julian Kanigan, Environmental Scientist, I.N.A.C. for his review. I have summarized Mr. Kanigan's remarks and they are as follows:

-Planting willow shrubs, if successful, would result in greater winter snow catch and warmer ground temperatures over time. From 2005-2009 measurements it appears that permafrost is aggrading at background locations around the site. It would be advantageous that permafrost growth be encouraged as it could freeze some of the drilling wastes in place. Permafrost growth can be encouraged by leaving the site with low vegetation.

Inspector – In keeping with the opinion of Mr. Kanigan, the planting of willow shrubs is not mandatory and is at your discretion.

JK-Fencing to deter wildlife has resulted in multiple wildlife fatalities in the N.W.T., even at active mine sites where the fences are regularly monitored. Fencing should not be used as a site management option. Perhaps the option that makes the most sense is to fill in the subsided area(s) on the drilling-mud sump. Right now the ponded water is a wildlife attractant and is their only exposure pathway for high salinity levels. Also, ponded water is a heat source for the ground below. The report indicates that the active layer depth has increased below the drilling-mud sump since 2005, perhaps due to the ponded water. It is unlikely that further subsidence would occur once the areas were filled.
(Mr. Kanigan also states that any subsidence due to the melting of exposed ground ice that was going to occur has most likely happened).

Inspector – Before any filling of the ponded areas take place the drill site and surrounding area will have to be inspected to ensure that further disturbance is necessary and could this exercise be carried out with minimal environmental disturbance. In most cases in-situ material may be used, keeping the tprint to a minimum is of great importance. The use of a fence to deter wildlife is discouraged.

JK – I notice that Trace references a SLWB guideline of 25,000 mg/kg chlorides from the 2002 CNRL water license. They note that all of the soil samples taken on the drilling-mud sump are below the guideline value. I think that this is mis-leading since the guideline value was meant for the concentration of chlorides in drilling muds when they were deposited in the sump. The sump was supposed to be capped with clean materials with a lower chloride concentration. However, some of the highest chloride values on the sump cap in 2009 are from the surface layer (0-15cm). This might be a case for adding clean capping material over the top of these high chloride soils with the goal of aggrading permafrost into the saline soils.

Inspector – As with the earlier statement, it would be irresponsible to create another excavation in order to fill another. Any decision of this nature will have to be made after a site inspection.

For clarification: The water license does not state an allowable limit of 25,000 mg\kg chlorides. This was an assumption put forth by KBL in their report of February 13, 2006. The license stipulates that prior to the mix-bury-cover of the drilling sump, the total chlorides must be less than 100,000 ppm. If we agree that all contaminated material was mixed exactly 3:1 then it would stand to reason that an allowable limit of 33,333 mg\kg is allowable. The Water License also states that a lifetime loading limit of 1600 kg of chlorides is permissible. These limits pertain to the sump only and cannot be used for un-reported spilled chlorides such is the case here (reference Environmental Inspection Report dated August 29, 2003).

JK – The report notes that there is a lack of guidance in the NWT for some chemical parameters. In the absence of these guidelines, we can use the natural background levels as a guide for what the site should be remediated to. For example, for chlorides in soils we could use the median value for chlorides from the control sites to create a remediation standard.

Inspector – This area will have to be remediated to an acceptable level. That level will be determined by this office. The CCME Guidelines may be taken into consideration.

I would like to thank CNRL for their continued monitoring and study of the O-52 and D-63 wellsites. I am sure that through our ongoing communication we will be able to come to a mutual agreement for final restoration and the closure of this permit\license.

If you have any questions, do not hesitate to give me a call.

Yours truly

Steve Deschene
Resource Management Officer III

cc: District Manager, Inuvik
Sahtu Land and Water Board

WL and LUP expired 26NOV07

~~Angela~~ AZ Aug 4/10

~~Rhianna~~ RL. Aug 4/10

For your information only

Joan 03AUG10