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Water Register: N7L1-1831

January 27<sup>th</sup>, 2011

Conrad Baetz  
Manager  
Indian and Northern Affairs  
North Mackenzie District  
P.O. Box 2100  
Inuvik, Northwest Territories (X0E 0T0)

Dear Mr. Baetz,

**Re: 2011 Unipkat I-22 Project (Shell Canada Ltd)**

The NWT Water Board support staff reviewed the above project, and based on this review, determined that the Shell Canada Ltd Project Description for Unipkat I-22 is incomplete, and requires additional information and clarification in several areas.

As a Responsible Authority under the *Canadian Environmental Assessment Act (CEAA)*, the NWT Water Board is seeking clarification under Sub-Section 18 (2) of CEAA. Comments and questions on the application have been summarized and are enclosed for your information.

Should you have any questions or concerns, please feel free to contact me at (867) 678-8619 or via e-mail at [damoursgauthier@nwtwb.com](mailto:damoursgauthier@nwtwb.com).

Sincerely,

Véronique D'Amours Gauthier  
Science and Regulatory Officer  
NWT Water Board

Encl.: Review Comments and Questions on Shell Canada Ltd Project.  
Schedule III of the *NWTWR*

## Review Comments and Questions on Shell Canada Ltd Project

### Introduction

The comments and questions provided herein are based on a review of Shell Canada Ltd Project Description and Schedule III of the *NWTWR*.

The following provides general review comments and questions related to overall deficiencies in the Project Description and Schedule III of the *NWTWR*. The Project is lacking detailed information required to process the screening under *CEAA* in regards to water and waste management. According to the NWT Water Board support staff, the following clarifications are needed in order to complete the screening of the Unipkat I-22 project.

### *NWTWR*- Schedule III :

#### Section seven (7) 'Quantity of Water Involved'

It is mentioned in this section "It is estimated that a volumetric water use withdrawal amount of up to 350 m<sup>3</sup>/ day may be required." But in the Project Description (pages 2 and 7) it is mentioned "it is our intention to use less than 100 m<sup>3</sup>/ day."

The NWT Water Board support staff is seeking clarification regarding the quantity of Water to be use for the proposed project.

### Project Description

The NWT Water Board support staff is seeking clarification regarding the following:

- The location for the temporary storage of each type of soil (i.e. soil affected with petroleum hydrocarbons (PHC), potassium chloride (KCl), total barium (Ba), clean soil, sump material);
- The concentration level of soil affected with PHC, KCL and Ba to be deposited of;
- The proposed methods for the disposal of soil contaminated with KCl and Ba;
- The quantity of soil and sump material to be disposed of;
- The proposed methods for temporary soil storage for soil affected with KCl and Ba;
- Does the town of Inuvik approve the disposal of all type of waste, fuel and affected soil from this project in their facilities?
- Does CCS landfill in British-Columbia approve the disposal of dewatered sump material in their solid waste landfill facility?
- It is mentioned in the Project Description page 10 "the surrounding PHC affected soils will then be transported from the site to the treatment cell for dewatering and subsequent treatment for the removal of PHC over approximately two or more summer seasons depending on the results of periodic analytical testing". More information regarding the subsequent treatment is required;

- It is mentioned in the Project Description page 11 "it is anticipated that some of the moisture will be removed through evaporation and the remaining pooled water will undergo testing and possible further treatment before being disposed of at the Inuvik municipal waste water facility." More information regarding the possible further treatment is required;
- It is mentioned in the Project Description page 12 "In the event that the amount of water from the soil needs to be removed from the containment cell, it will be pumped into an 80,000 L holding tank to allow for testing and possible treatment with granular activated carbon to satisfy discharge requirements. The location where contaminated water be disposed of is required;
- The method use for the storage of solid waste before it is being sent to Inuvik
- More information with respect to riverbank disturbance (i.e. How will the material be removed? What measures will be taken to reduce the impact on the riverbank? What is the length and width of the riverbank that will be impacted?); and
- More information with respect to Spill Contingency Planning is required.

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December 2, 2010

Northwest Territories Water Board  
5114 – 49 Street, CJCD Building  
P.O. Box 1326  
Yellowknife, NT X1A 2N9

Attention: Executive Director

**Submission of Water License Application  
2011 Unipkat I-22 Project**

IEG Consultants Ltd. (IEG) is please to submit on behalf of Shell Canada Energy (Shell) a Water License Application and Project Description for the proposed 2011 Unipkat I-22 Sump Remediation.

The following documents are attached for your review:

- Water license application – Schedule III
- Water license application fee and first year fee payment, cheque in the amount of \$60.00
- Project Description for the proposed Unipkat I-22 Sump Remediation

Please find with this cover letter, seven printed copies and one CD copy of Shell Canada's submission to the NWT Water Board.

If you have any questions please feel free to contact me at (403) 990-1382 or at sbird@ieg.ca.

Yours truly,

**IEG CONSULTANTS LTD.**

Sam Bird B.Sc.

c.c. Randall Warren – Shell Canada Energy



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SCHEDULE III  
(Subsection 6 (1))

APPLICATION FOR LICENSE, AMENDMENT OF LICENSE OR RENEWAL OF LICENSE

APPLICATION/LICENSE NO.  
(amendment or renewal only)

1. NAME AND MAILING ADDRESS OF APPLICANT

Shell Canada Energy  
400 – 4<sup>th</sup> Avenue SW  
PO Box 100, Station M  
Calgary, AB T2P 2H5  
Telephone: 403-691-2521  
Fax: 403-269-7948  
Attn: Randall Warren

2. ADDRESS OF HEAD OFFICE

Same as previous

3. LOCATION OF UNDERTAKING (describe and attach a map, indicating watercourses and locations of any proposed waste deposits)

Unipkat I-22 is located within the Inuvialuit Settlement Region along the eastern bank of Arvoknar Channel in the Mackenzie Delta, Northwest Territories. The site is located approximately 115 km northwest of Inuvik, 108 km north of Aklavik, 95 km south west of Tuktoyaktuk. All activities associated with the project are located on federal Crown land. Location coordinates are:

- Latitude 69°11'36.07"N Longitude 135°20'33.88"W
- UTM: 0486531.5 E, 7675777.0 N NAD 83 (zone 8)

Figure 4-1 and 4-2 in the attached Project Description shows the site location.

4. DESCRIPTION OF UNDERTAKING (describe attach plans)

The water use permit application is in reference to the Project Description submitted to the Environmental Impact Screening Committee on November 12, 2010 for the proposed Unipkat I-22 Sump Remediation. Shell has conducted Phase II ESA activities at this site on two occasions (2007 and 2010) to locate the drilling sump, delineate constituents and their concentrations at specific locations. The site is being eroded by a rate of approximately 1 meter per year. Based on Shell's risk based remedial action plan, this site is classified as medium priority due to the potential of the channel eroding the drilling sump. Metal debris visible along the riverbank is proposed to be removed as part of this project.

The primary goal of the planned remedial program is to excavate and remove the historical main drilling sump and any residual petroleum hydrocarbon affected soils around the sump from the site. The sump and surrounding area is at risk of erosion over the next 30 years and the proposed program would reduce or eliminate that risk. To access the site approximately 50 km of ice roads and some ice pads on site are to be constructed for the proposed activities. Please refer to the attached submitted Project Description for additional details.

The proposed project also includes a component that proposes to excavate historical debris from the eroding riverbank to allow for remedial activities at two riverbank locations. The debris in the bank is residual waste from the old camp sump and from the historical flarepit. It is proposed that excavation activities would not be done into free

standing water. The modification of the riverbank and bed is to allow for proper disposal of the waste (soil and debris) and would not disrupt large areas. Attached is figure 1 showing locations of the proposed riverbank modification.

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**5. TYPE OF UNDERTAKING**

- |   |                      |                       |
|---|----------------------|-----------------------|
| 1. Industrial <input checked="" type="checkbox"/> | 4. Power _____       | 6. Conservation _____ |
| 2. Mining and milling _____                       | 5. Agriculture _____ | 7. Recreation _____   |
| 3. Municipal _____                                |                      |                       |
8. Miscellaneous (describe) \_\_\_\_\_
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**6. WATER USE**

- |  |  |
|--|--|
| To obtain water _____                          | <input checked="" type="checkbox"/> Flood control _____                        |
| To cross watercourse _____                     | To divert water _____  |
| To modify the bed or bank of watercourse _____ | <input checked="" type="checkbox"/> To alter the flow or, or store water _____ |

Water will be used for the construction of ice roads to the site, for ice pads for the establishment of the camp, and associated infrastructure. Water will not be used for camp activities, potable water will be tanked and brought in from Inuvik, see section 5.7 Drinking water requirements in the attached Project Description for additional details.

Location of the proposed ice road can be viewed on figures 9-1 and 9-2 on the attached project description. The ice road location is along one reach of the channel and does not cross any overland section.

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**7. QUANTITY OF WATER INVOLVED** (liters per second, liters per day, or cubic meters per year, including both quantity to be used and quality to be returned to source)

The water used for the construction of the ice road and camp ice pads will be obtained from Arvoknar Channel and/or Middle Channel of the Mackenzie River. The proposed water extraction locations will be based on the progression of ice road construction and will be in accordance with NWT Water Board license conditions and DFO guidelines. It is estimated that a volumetric water use withdrawal amount of up to 350 m<sup>3</sup>/day may be required. Daily volumes may vary depending upon thickness of naturally formed ice at the time of program initiation as well as withdrawal locations.

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**8. WATER DEPOSITED** (quantity, quality, treatment and disposal)

The water used for the project will be naturally returned to the ecosystem during spring thaw. No additional water effluent will be discharged as part of the project. Section 5.8 - Waste Management and Wastewater Treatment and Disposal of the project description details the plans for all collected waters from camp activities.

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**9. OTHER PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING** (giving name, mailing address and location; attach list if necessary)

N/A

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## **10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION**

The proposed use of mitigation measures, which includes the completion of the project under winter conditions (snow cover, frozen ground) will result in no significant residual impacts. Section 12 Proposed Mitigation and Anticipated Environmental Impacts and Section 13 Cumulative Effects of the project description has additional details. Methods of riverbank and bed modification discussed in Section 12 of the Project Description have been developed with the input of Department of Fisheries and Oceans (DFO).

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## **11. CONTRACTOR AND SUB-CONTRACTORS (names, addresses and function)**

Hazco Environmental Services – Prime Contractor  
#103, 3055 114<sup>th</sup> Avenue SE  
Calgary, AB T2Z 0K7

IEG Consultants Ltd – Environmental Consultants  
500 -2618 Hopewell Place NE  
Calgary, AB T1Y 7J7

Further sub-consultants will be determined via competitive bids, and will be awarded at a later date.

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## **12. STUDIES UNDERTAKEN TO DATE (attach list if necessary)**

Hrudey et al. (1976) Industry/Government Working Group in Disposal of Waste Fluids from Petroleum Exploratory Drilling in the Canadian North.

Kokelj and GeoNorth (2002). Drilling mud sumps in the Mackenzie Delta region: Construction, abandonment and past performance. Department of Indian Affairs and Northern Development. Yellowknife, NT.

Inuvialuit Environmental and Geotechnical and Komex International Ltd. (2002) Mackenzie Delta Geophysical Survey at the Reclaimed Drilling Sump Sites Unipkat I-22 and N-12, dated October 29, 2002.

IEG Environmental and Komex International Ltd. (2005). 2004 Drilling Waste Sump Inventory Study in the Inuvialuit Settlement Region, dated March 2005.

IEG Consultants Ltd., (2009) Unipkat I-22 2007 Phase II Environmental Site Assessment, dated December 2009.

IEG Consultants Ltd., (2010) Unipkat I-22 2010 Supplementary Delineation Program, unpublished.

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**13. PROPOSED TIME SCHEDULE**

Start date: January 2011 Completion date: March 2011

Randall Warren Manager Reclamation & Drilling Waste  
NAME (Print) TITLE (Print)

*Sam Bird* Dec. 2, 2010  
SIGNATURE DATE  
*Sam Bird  
on behalf of  
Randall Warren*

**FOR WB OFFICE USE ONLY**

<b>APPLICATION FEE</b>	<b>Amount: \$ 30.00</b>	<b>Receipt No.:</b> _____
<b>WATER USE DEPOSIT</b>	<b>Amount: \$ 30.00</b>	<b>Receipt No.:</b> _____

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