



ENVIRONMENTAL IMPACT SCREENING COMMITTEE

Submission Number: [11/10-01]

January 31, 2011

IEG Consultants Ltd.
500, 2618 Hopewell Place NE
Calgary, AB T1Y 7J7

ATTENTION: Sam Bird B.Sc., Environmental Scientist

Dear Mr. Bird:

RE: UNIPKAT I-22 SUMP REMEDIATION

During a meeting held January 26-28, 2011 the Environmental Impact Screening Committee (EISC) screened the above noted project description to determine if the proposed development could have a significant negative environmental impact. Based on the information provided the EISC concluded that the development, if authorized subject to the environmental terms and condition recommended by the Screening Committee, will have no significant negative impact on the environment or on Inuvialuit wildlife harvesting in the Inuvialuit Settlement Region [IFA Section 11(17)b]. A copy of the decision is attached.

The EISC understands that the scope of the above mentioned proposed development is as described in the supplied Project Description dated November 2010 and specifically as described in section "5.3 Sump Remediation Program: Project Scope". The EISC further understands that the scope has been amended to use if approved, frozen river bar sediments as a source of backfill, thus having sufficient volumes of suitable material to avoid leaving depressions and resultant ponds. The EISC understands that without the approval of use of the river bar sediments the project will not proceed.

The Committee received advice on the above mentioned proposed development from Fisheries and Oceans Canada (DFO), Environment Canada (EC), the GNWT Department of the Environment and Natural Resources (ENR), the GNWT Department of Transportation (DOT), the Aklavik Hunters & Trappers Committee (AHTC), and the Fisheries Joint Management Committee (FJMC). All of these communications are available for reference on the EISC Public Registry. The Committee supports these recommendations and additional mitigation measures.

Based on the advice received and the review by the Committee of the proposed development the Committee identified additional concerns and recommends as follows:

Excavated trenches and/or pits shall be sloped at one end to prevent entrapment of wildlife

Excavated materials shall be stabilized and properly stored at a safe distance from any waterbody, prior to transport off-site

Fuel and petroleum products shall be properly stored at a safe distance from any waterbody

Snow and/or ice fill roads and crossings shall be constructed and operated according to Central & Arctic (NWT) DFO Operational Statement Guidelines. The guidelines are available at: <http://www.dfo-mpo.gc.ca/regions/central/habitat/os-ec/provinces-territoires-territoires/nt/os-ec10-eng.htm>

At the ice road access point, it is advised that the road be posted with signage advising the general public of the project and indicating that the road is intended for authorized users only

Where road maintenance and grading are required, bull-dozer blades should be raised to avoid cutting the organic layer

A pre-construction survey of bear dens adjacent the proposed road right-of-way and project area shall be completed prior to undertaking any activities. Where den features are identified, the proponent should consult with E&NR regarding appropriate mitigations to prevent impacts to bears

Relay wildlife sightings by radio to all vehicles to avoid collision occurrences.

A post remediation monitoring and reporting program should be developed and implemented in consultation with responsible authorities

The Committee recommends that the above noted terms and conditions recommended be incorporated into the developer's plans.

Subject to a final decision by the licensing or permitting authority, the issuance of appropriate permits and approvals may proceed.

If you have any questions on the above decision and recommended term and condition, please do not hesitate to contact the EISC office.

Sincerely,



Christine Inglangasuk
Environmental Assessment Coordinator

Attachments: EISC Decision Form
Aklavik Hunters and Trappers Committee Letter of Advice
Fisheries Joint Management Committee Letter of Advice
Environment and Natural Resources Letter of Advice
Fisheries and Oceans Canada Letter of Advice
Environment Canada Letter of Advice
Department of Transportation Letter of Advice

Distribution List

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Randy Lamb;
Olokhatomiut Hunters and Trappers Committee;
James Malone;
Kayla Hansen-Craik;
James Hodson;
Elizabeth Snider;
Norm Snow;
Shawna Kaglik;
NWT Water Board,;
Christy Wickenheiser;
Donald Arey



ENVIRONMENTAL IMPACT SCREENING COMMITTEE

NAME OF PROPONENT: Shell Canada Limited

PROJECT DESCRIPTION: UNIPKAT I-22 SUMP REMEDIATION [11/10-01]

DECISION OF THE SCREENING PANEL (circled):

1. The development will have no such significant negative impact and may proceed without environmental impact assessment and review under the Inuvialuit Final Agreement. [IFA s. 11. (17) (a)]
2. The development if authorized subject to environmental terms and conditions recommended by the screening committee, will have no such significant negative impact and may proceed without environmental assessment and review under the Inuvialuit Final Agreement. [IFA s. 11(17)(b)]
3. The development could have significant negative environmental impact and is subject to assessment and review under the Inuvialuit Final Agreement. [IFA s. 11. (17) (c)]
4. The development proposal has deficiencies of a nature that warrant a termination of its consideration and the submission of another project description. [IFA s. 11. (17) (d)]

Signed on the 28th day of January 2011.

John Ondrack, EISC Chair

Albert Ruben, Canada Member (NT)

Patrick Gruben, Inuvialuit Member

Johnny Lennie, Canada Member

Vacant, Inuvialuit Member

Eric Cockney, Inuvialuit Member

John Ryder, Canada Member (YT)

From: [Michelle Gruben](#)
To: [EISC](#)
Subject: comments
Date: Wednesday, December 15, 2010 11:27:28 AM

The AHTC had a mtg. on Dec 13th...these were the comments they had for:

Unipkat I-22 Sump Remediation

"The board had passed a motion in support of the Unipkat I-22 Sump Remediation submitted by Shell Canada Energy with the conditions that the area be filled back with original contour, do not leave a hole where they propose to dig and to try their best to have it the same way it was before they started digging"

*I copied & pasted from the letter we are submitting to INAC.

Have a great day.....

Michelle Gruben
Resource Person
Aklavik Hunters & Trappers Committee
P.O. Box 133 Aklavik, NT X0E 0A0
Work #: (867) 978-2723 or 978-2414
Fax #: (867) 978-2815
E-mail: ahtc@airware.ca



P. O. Box 1871
Inuvik, Northwest Territories
X0E 0T0

December 9, 2010

Your file Votre référence
11/10-01

Our file Notre référence
10-HCAA-CA6-00097

Christine Inglangasuk
Secretary
Environmental Impact Screening Committee
P.O. Box 2120
Inuvik, Northwest Territories
X0E0T0

Dear Ms. Inglangasuk:

Subject: Proposal not likely to result in impacts to fish and fish habitat provided that additional mitigation measures are applied.

Fisheries and Oceans Canada - Fish Habitat Management Program (DFO) received the proposal on November 15, 2010. Please refer to the file number and title below:

DFO File No.: **10-HCAA-CA6-00097**
Title: **Unipkat I-22 Sump Remediation on Arvoknar Channel**

The proposal has been reviewed to determine whether it is likely to result in impacts to fish and fish habitat which are prohibited by the habitat protection provisions of the *Fisheries Act* or those prohibitions of the *Species at Risk Act* that apply to aquatic species.*

Our review consisted of:

Shell Canada Energy – Proposed Unipkat I-22 Sump Remediation Project Description – November 2010
Unipkat I-22 Phase II ESA Site Plan with Contaminant Areas – Diagram
Photos and emails as provided on November 19, 2010.

We understand that the proponent plans to:

- Build an ice road to access the site. Water will be withdrawn from the Mackenzie River.
- Partially backfill the primary site and re-contour the excavation to the local topography. The maximum depth of the excavation will be 5m.
- Remove a pre-determined contaminated section of the river bank (3-4m wide x 1.5m deep).

To reduce potential impacts to fish and fish habitat we are recommending the following mitigation measures be included into the proposed plans:

1. Ensure that any water withdrawal screen complies with the previously provided Freshwater Intake End-of-Pipe Fish Screen Guideline.
2. Remove the contaminated material along the bank area to be similar to the natural variation of the bank upstream of the area. The removal of material from the bank area will be completed only if the ice in the excavation area is land-fast. If flowing water is

*Those sections most relevant to the review of development proposals include 20, 22, 32 and 35 of the *Fisheries Act* and sections 32, 33 and 58 of the *Species at Risk Act*. For more information please visit www.dfo-mpo.gc.ca.

found DFO will be contacted to determine a new method of material removal. Once the material is removed, the bank will be graded and compacted as much as possible and any loose material will be removed from the ice.

3. The excavation of the main area (~10m from the bank) will be compacted as much as possible to ensure that any potential sediment from the excavation does not enter the river upon the next season's freshet. Any backfill for the excavation will come directly from the surrounding excavation site and not from any sandbars or areas within or near any water body.

Provided that the additional mitigation measures described above are incorporated into the proposed plans, DFO has concluded that the proposal is not likely to result in impacts to fish and fish habitat.

The proponent will not need to obtain a formal approval from DFO in order to proceed with the proposal.

Please ensure that this office is notified at least 10 days before starting the work. A copy of this letter should be kept on site while the work is in progress.

If the plans have changed or if the description of the proposal is incomplete the proponent should contact this office to determine if the advice in this letter still applies.

Please be advised that any impacts to fish and fish habitat which result from a failure to implement the proposal as described or incorporate the additional mitigation measures included in this letter could lead to corrective action such as enforcement.

If you have any questions please contact the undersigned at (867) 777-7515, by fax at (867) 777-7501, or by email at Amanda.Joynt@dfo-mpo.gc.ca.

Yours sincerely,

(original signed by Amanda Joynt)

Amanda Joynt
Fish Habitat Biologist

Copy: S. Bird - IEG
R. Warren – Shell
L. Dow – DFO
K. Burke – DFO
J. Malone – FJMC
C. Baetz – INAC



**FISHERIES JOINT
MANAGEMENT COMMITTEE**

Joint Secretariat – Inuvialuit Renewable Resource Committees

Box 2120, Inuvik, NT, X0E 0T0

Tel: (867) 777-2828 Fax: (867) 777-2610 Email: fjmc@jointsec.nt.ca

December 14, 2010

John Ondrack

Chairman, Environmental Impact Screening Committee

Box 2120

Inuvik, NT, X0E 0T0

Re: FJMC comments on Unipkat I-22 Sump Remediation on Arvoknar Channel

Dear Mr. Ondrack,

The Fisheries Joint Management Committee (FJMC) has reviewed the following project submission to the Environmental Impact Screening Committee:

Shell Canada – Unipkat I-22 Sump Remediation [11/10-01]

The FJMC understands the proponent plans to:

- Build an ice road to its former well site.
- Conduct a partial site backfill and re-contour the excavation within local topography.
- Transport all human wastes (e.g. grey water) from the camp accommodation site to Inuvik for disposal.

The FJMC has the following concerns with this development proposal:

- As sediment discharge may cause disturbances to fish and marine mammals that are common in the former well site area, no excavated loose soil should be left on top of the ice to avoid sediment discharge in the water streams during the spring breakup.
- Fuel and waste water should be handled in a manner to prevent contamination of fish or fish habitat.
- Proposed mitigation measures are deemed acceptable and if implemented as described should avoid impacts on fish and marine mammal species.

The FJMC recommends the following:

- The concerns and practices of the local Hunters & Trappers Committee are observed during the duration of the project.
- The field crew should be properly licensed should any ice fishing take place during the project.

- The proponent should exercise caution when any type of fuel is being handled at or near the proposed project site.

If you require additional information or clarification, please do not hesitate to contact me.

Sincerely,



D.V. Gillman
Chair, Fisheries Joint Management Committee

cc Larry Dow, DFO – Inuvik



November 25, 2010

Ms. Barb Chalmers
Environmental Assessment Coordinator
Environmental Impact Screening Committee
107 Mackenzie Road
Suite 204
PO Box 2120
Inuvik, NT X0E 0T0

Dear Ms. Chalmers:

Re: IEG Consultants Unipkat I-22 Sump Remediation [2010-11-14] – EISC Screening

With regards to the above noted project description for screening, the Department of Transportation – GNWT provides the following comments:

Shell Canada Energy, or their agents, should:

- Obtain an access permit from DOT to link to the Inuvik-Tuktoyaktuk ice road;
- Complete the use of ice road by April 15, 2011; and
- Abide by posted load limits of the ice road.

If you have any questions or more information is required please contact Gurdev Jagpal, Regional Superintendent – DOT Inuvik Region, by phone (867) 777-7348 or by email Gurdev_Jagpal@gov.nt.ca.

Sincerely,

Jon Posynick
Graduate Transportation Planner
Department of Transportation

cc: Gurdev Jagpal, Regional Superintendent – DOT Inuvik Region



Northwest Territories Environment and Natural Resources

Environment Division
Environmental Assessment and Monitoring
Environment and Natural Resources
PO BOX 1320
Yellowknife NT X1A 2L9
Telephone (867) 920-6591
Fax (867) 873-4021

December 10, 2010

Ms. Barb Chalmers
Environmental Assessment Coordinator
Environmental Impact Screening Committee
107 Mackenzie Road, Suite 204
PO Box 2120
Inuvik, NT
X0E 0T0

Dear Ms. Chalmers:

**Re: Shell Canada Energy
11/10-01
Unipkat I-22 Sump Remediation Project
Request for Comments**

The Department of Environment and Natural Resources (ENR) has reviewed the above application based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act* and the *Wildlife Act* and provides the following comments and recommendations for consideration.

ENR understands the intent of proposed project is the excavation and removal of contaminated soil from a historic oil and gas disposal sump at the Shell Unipkat site, in order to prevent this material from entering the Mackenzie River via riverbank erosion. Due to the imminent risk of the sump material eroding into the Mackenzie River, ENR agrees with the intent of the proposed work and that every reasonable effort should be made to this affect.

ENR notes however, that the Project Description (PD) refers to the proposed activities as "site remediation"¹. ENR understands the proposed activities only address the remediation of a single sump, and do not constitute a full site assessment, nor absolve Shell from fully assessing and remediating the remainder of the Unipkat site.

1. CCME Steps for Approach to Contaminated Sites

1.1. General Concerns and Project Context

¹ Page 1, Executive Summary. Shell Canada Energy. Unip kat I-22 Sump Remediation Project Description. Nov 12, 2010.

ENR understands the Proponent asserts the application is to “conduct a sump remediation program”². However, ENR is unaware of a Phase II or III ESA being completed to delineate the sump, to establish effective remedial actions, and submitted to any stakeholder for review.

The overall process in dealing with contaminated sites on Federal Lands, including those for Phase I, II, and III, should follow the guidance offered in the *National Guidelines for Decommissioning Industrial Sites (CCME 1991)*. This process should also include integration of the 10 steps identified by CCME for dealing with contaminated sites, as defined in *CCME Federal Approach to Contaminated Sites, 1999*. The latter document, and a quick reference to the 10 steps, can also be found online at www.ec.gc.ca/etad/csmwg/pub/fed_aprch/en/c2_e.htm). In the absence of these steps being taken, ENR lacks confidence with respect to the nature, quantity, location and extent of the contamination in the subject sump, as well as the remainder of the site.

1.2. Recommendation

ENR recommends that any authorization granted to the Proponent be for the sole purpose of removing identified contamination likely to enter the Mackenzie River on the basis of urgency and for completing a Phase II ESA. Upon submission of the Phase II ESA, it should be submitted for review and comment by stakeholders, and modified accordingly. Following this, ENR expects the Proponent will use this information to then draft a Remedial Action Plan (RAP) which will also be submitted for review and comment by stakeholders. Once the RAP has been approved, then ENR recommends the Proponent can apply for new authorizations for the purpose of implementing the specific measures agreed to in the RAP.

2. Volume of contaminated material

With respect to the volume of identified PHC contaminated soil, the Project Description (PD) provides volumes based on the CCME Guideline *Petroleum Hydrocarbons in Soil*, industrial criteria³. ENR is concerned that applying the industrial criteria for PHC in soils at this site will not provide an adequate level of protection for the environment, wildlife, and potential users of this site. ENR is of the opinion that any delineation of contaminants use, at minimum, the CCME PHC in soil parkland criteria with consideration of the applicable soil texture.

With respect to the supplied contaminated soil estimates the PD states,

- approximately 5000 m³ of PHC contaminated soil onsite above CCME Industrial guidelines for PHC (page 6, Section 5.2 – Previous Work)
- 1600 m³ of sump contents (page 9, section 5.3.5 – Soil Excavation)
- 1400 m³ of PHC contaminated soil around the sump (page 9, section 5.3.5 – Soil Excavation)

² Page 1, Executive Summary. Shell Canada Energy. Unip kat I-22 Sump Remediation Project Description. Nov 12, 2010.

³ Page 6, Section 5.2 Previous Work. Shell Canada Energy. Unip kat I-22 Sump Remediation Project Description. Nov 12, 2010.

- Approximately 6500 m³ of PHC affected material above guideline. (Presentation attached to application)

ENR notes the PD provides inconsistent totals of PHC contaminated soil (5000 m³ and 6500m³) and there is a discrepancy between the total volume of contaminated soil as compared to the total volume of material to be excavated, 3000 m³.

Further assessment by ENR casts additional doubt on the delineation of this site. The PD indicates that in September 2007, 82 boreholes were drilled and that they did not fully delineate the site⁴. Moreover, the PD indicates that in 2010 an additional 18 holes were drilled to work towards fully delineating the site⁵. However, the PD does not state whether this additional work did indeed fully delineate the site.

ENR has additional concerns that other areas of contamination may exist on the site which have not been investigated. The PD makes reference to a Camp Sump and Flare Pit which are actively eroding into the Mackenzie River⁶. These sites have the potential for contamination and should be investigated as part of a Phase II ESA.

2.1. Recommendation

- ENR recommends that any delineation of contamination of PHC use the CCME Parkland criteria and take into account the appropriate soil texture.
- For sites likely to erode into the Mackenzie River, ENR recommends that site specific criteria be developed through a phased ESA process as outlined in section 1.
- ENR recommends clarification is provided regarding the total volume of identified contaminated material exceeding CCME industrial criteria for PHC in soil.
- ENR recommends clarification is provided regarding the volume of material proposed for excavation as compared to the volume of material identified as exceeding CCME industrial criteria for Petroleum Hydrocarbons (PHC) in soil.
- ENR recommends that additional areas of contamination are investigated, such as, but not limited to, the Camp Sump and Flare Pit.

3. Contaminants of concern

The Proponent states, "Soils affected by PHC, potassium chloride, and total barium are of primary concern."⁷ ENR is concerned that there may be other contaminants present due to the nature of oil and gas activities at the time the sump was put in place and related activities that may have occurred at the site. Of primary concern are total metals, and if flaring or burning/incineration occurred on site, then the

⁴ Page 5, Section 5.2 Previous Work. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010

⁵ Page 6, Section 5.2 Previous Work. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010

⁶ Page 10, Section 5.3.5 Soil Excavation. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010

⁷ Page 6, Section 5.3 Sump Remediation Program: Project Scope. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010

presence of polycyclic aromatic hydrocarbons (PAHs) and dioxins and furans must also be considered and assessed.

3.1. Recommendation

ENR recommends that a phased ESA process is undertaken which investigates, but is not limited to, the presence of total metals, PAHs, and dioxins and furans.

4. Regulatory Approvals

The Environment Division (ED) of ENR tracks the movement of contaminated soils as a hazardous waste in the NWT. The Department of Environment and Natural Resources (ENR) is not listed as an agency for the registration of the storage facility of contaminated soils in the Inuvik Industrial Area in Table 3-1⁸. Shell Canada Energy is a registered generator with the Environment Division and was issued the following generator number NTG000408.

4.1. Requirement

- Due to the volume and nature of potential contaminants in the sump material ENR requires Shell Canada Energy to contact the Environment Division and register the storage facility in Inuvik as per section 3.3 and 3.4 of the Guideline for the General Management of Hazardous Waste in the NWT prior to the movement of any contaminated soil into Inuvik.

5. Contaminated material treatment

The PD states, "In October 2010, a lined containment cell was built in Inuvik..."⁹ for the purposes of temporarily storing the drilling sump contents and treating PHC contaminated soil. The PD indicates that the sump contents and PHC contaminated soil will be allowed to be dewatered in the containment cell and the collected water (leachate) will be treated and disposed of in the Inuvik lagoon¹⁰.

With respect to containment cell, ENR references Alberta Environment's CODE OF PRACTICE FOR LAND TREATMENT OF SOIL CONTAINING HYDROCARBONS (2008)¹¹ for the registration of contaminated soil treatment facilities in conjunction with section 3.3 and 3.4 of the Guideline for the General Management of Hazardous

⁸ Page 2 Section 3 Regulatory Approvals. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010

⁹ Page 11, Section 5.3.7 Soil Containment in Inuvik. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010.

¹⁰ Page 11, Section 5.3.7 Soil Containment in Inuvik. Shell Canada Energy. Unipkat I-22 Sump Remediation Project Description. Nov 12, 2010.

¹¹ Also available online at: <http://www.qp.alberta.ca/documents/codes/HYDROCARBONS.pdf>

Waste in the NWT¹². The code of practice will be referenced, where applicable, to determine the capacity of the containment cell to treat excavated soils.

With respect to the leachate, ENR notes the details of the water treatment technology and effluent quality criteria are not provided. Further, ENR notes that the Inuvik lagoon is designed for Municipal effluent, not industrial leachate sourced from industrial activities on Federal Lands.

5.1. Requirement

- Provide as built drawings of the containment cell to the Environment Division including, but not limited to, the specific location.
- Provide to the Environment Division any testing done on the contaminated soils in the containment cell for the purpose of determining if appropriate remedial criteria have been met for any proposed use of this material.

5.2. Recommendation

ENR recommends that alternate disposal options are considered for the disposal of leachate collected from the lined containment cell, such as water treatment methods that meets discharge criteria to allow discharge to the natural environment, or shipping to an approved facility capable of treating the leachate.

6. Treated Soil as backfill

The PD states that, "Once the treated soil meets applicable CCME guidelines it will be available for use as backfill material at sites in Inuvik."

ENR is concerned that soils in the containment cell treated to industrial standards and subsequently removed may be transferred to another party who is not accountable for the ultimate use of the treated soil.

ENR does not have a regulatory tracking mechanism that ensures that once contaminated soils are treated to industrial standards and given to a third party for industrial use as back fill that the remediated soil does not get redistributed as backfill in non industrial areas

6.1. Requirement

- The Proponent provide evidence of how they will ensure that soil removed from the containment cell is used only on lands suitable for the criteria to which it has been remediated to.

7. Tracking of contaminated material

¹² GNWT February 1998, Guideline for the General Management of Hazardous Waste in the NWT. Also available online at: http://www.enr.gov.nt.ca/_live/documents/content/General_management.pdf

The PD states that the sump remediation program will be, "allowing sump material to de-water in Inuvik and disposal (at southern landfill) of the drilling waste."¹³

Shell Canada Energy is a registered generator with the Environment Division and is required to track the movement of hazardous waste to registered receiving facilities.

7.1. Requirement

- The proponent utilizes movement documents to track the movement of all contaminated material out of the containment cell.

7.2. Recommendation

The proponent utilizes scales to quantify the weight of each load of contaminated material entering the containment facility until accurate estimates can be made. Further, the proponent utilizes scales to determine the weight of each load of contaminated material and water leaving the containment facility.

8. Camp Waste Management

The Project Description states that "All solid waste (garbage) will be collected and removed from the site and transported to Inuvik for disposal at an approved landfill site at the end of the Project."¹⁴ And "all grey water and wastewater....disposed at the wastewater processing facility in Inuvik."¹⁵

ENR notes the Proponent has not provided information on onsite waste treatment, storage or segregation, or information on mitigation measures to minimize animal attraction. Further, the Proponent has not provided estimates of the quantity of waste they will generate or any indication that the Town of Inuvik has consented to the proposed use of Inuvik's waste management infrastructure.

Further, ENR is concerned with the Proponent's use of the term "wastewater processing facility" to describe Inuvik's waste water treatment system. Inuvik contains a natural lagoon system designed for municipal wastewater effluent generated from Inuvik. ENR is not aware of any "processing", other than those naturally occurring in a lagoon, hence, the level of treatment offered by Inuvik's lagoon may not meet the expectations of the Proponent or be appropriate for the waste streams proposed.

8.1. Recommendation

ENR recommends that the Proponent prepare and submit for approval, a **Project-Specific Waste Management Plan**, which includes any contaminated soil or sump contents. This Plan must address and/or contain, at a minimum:

¹³ Page 7, Section 5.3.Sump Remediation Program: Project Scope. Shell Canada Energy. Unip kat I-22 Sump Remediation Project Description. Nov 12, 2010.

¹⁴ Page 16, Section 5.8 Waste Management and Wastewater Treatment and Disposal. Shell Canada Energy. Unipk at I-22 Sump Remediation Project Description. Nov 12, 2010.

¹⁵ Page 16, Section 5.8 Waste Management and Wastewater Treatment and Disposal. Shell Canada Energy. Unipk at I-22 Sump Remediation Project Description. Nov 12, 2010.

- The identification of hazardous (or any wastes of special concern) and non-hazardous waste types and volumes expected to be produced, and a detailed listing of storage, treatment and disposal locations for these wastes.
- This waste listing must include an identification of odourous wastes that may attract wildlife, and the identification of its storage and transport mitigative measures to prevent wildlife attraction. Whether odourous waste is stored for the purpose of on-site or off-site disposal (i.e. road or air transport), it must be stored in an airtight sealed container to prevent wildlife from being attracted to odours.
- Listed hazardous wastes (or any wastes of special concern) must also include and demonstrate that the disposal of contaminated materials that may result from accidents and malfunctions (including spills) has been prepared for. This information should be cross-referenced to and included in the Spill Contingency Plan associated with the Project.
- In the case that community facilities are proposed for use in disposal, alternate disposal and transport options must be provided in the case that the referenced community's waste handling facility cannot accommodate the proposed and estimated waste types and quantities listed.
- Should the Proponent propose incineration as a waste management option, details on the incineration must be provided prior to site operations, and annually thereafter. ENR refers the Proponent to Environment Canada's Technical Document for Batch Waste Incineration (www.ec.gc.ca/drgd-wrmd/default.asp?lang=En&n=82401EC7-1). The Information should include but not be limited to the following:
 - Incineration technology selected;
 - Waste audit -- amount and types and mix of waste incinerated;
 - Operational and maintenance records;
 - Operator training;
 - Incineration ash disposal, year round.
- If incinerator bottom and/or fly ash are targeted for disposal in the NWT, it must be tested prior to disposal to ensure that it meets the criteria specified in the *NWT Environmental Guideline for Industrial Waste Discharges*¹⁶. Incineration ash can be contaminated with toxic compounds and should therefore be tested to ensure that it is disposed of in an appropriate and approved manner.

Topic: Wildlife Impacts

¹⁶ <http://www.enr.gov.nt.ca/library/pdf/eps/industrialwastedischarges.pdf>

Comment(s)

The proponent states... While there is small potential for wildlife harm (i.e. human protection from problem wildlife), training of all staff in operational procedures will be used to minimize this potential. This issue as well as other safety concerns, policies and incident management are addressed in the Emergency Response Plans (see Appendix I).

Desired End Result: To increase the protection of wildlife and wildlife habitat, maximize safety of field personnel and acquire wildlife distribution data in the project area

Project Specific Concerns and Context:

The *Species at Risk Act (SARA)* states that adverse effects on listed species must be identified and assessed, and regardless of significance, mitigated and monitored (Section 79). It is ENR's view that the treatment of those species listed under the Act should be consistent with the treatment of species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The following SARA-listed species have the potential to occur in the project area:

- Peregrine Falcon *anatum subspecies*, (Threatened)

The following COSEWIC-assessed species have the potential to occur in the project area:

- Grizzly Bear *Ursus arctos*, (Special Concern)
- Polar Bear *Ursus maritimus* (Special Concern)
- NWT Wolverine *Gulo gulo* - Western population (Special Concern)

Barren-ground caribou herds in the area have declined significantly since 2000 and harvest management actions have been taken to protect the herds. ENR suggest that caribou be avoided during operations.

ENR reminds the proponent that aircraft over-flights can disturb wildlife and decrease available habitat increasing stress levels to the animals and potentially affecting their overall health and condition. ENR comments the proponent for their commitment to adhere to recommended flight altitudes. The EISC Minimum Flight Altitudes Guidelines and Flying Low Brochure are attached for the proponent's convenience.

ENR reminds the proponent that wildlife is protected under NWT law. Section 38 of the *NWT Wildlife Act* protects wildlife by making it illegal to disturb or harass wildlife. ENR also considers the chasing or stalking of wildlife for photography or during eco-tourism to be harassment. No wildlife should be disturbed, chased, or harassed by human beings on foot, in a motorized vehicle, or by aircraft. Flying close enough to an animal that it runs away is flying too close. ENR commends the proponent for

hiring a wildlife monitor to provide advice to prevent wildlife harassment and provide bear protection on the ground.

Recommendation(s)

Term or Condition(s)

1. Follow ENR's Bear Encounter Response Guidelines (attached).
2. Avoid raptors including observed Peregrine Falcon nesting sites by a minimum distance of 1000 meters horizontally and 760 meters vertically from April 15th to September 15th.
3. Avoid any Species at Risk that are encountered during the course of field operations and minimize all activity so as to not disturb these animals.
4. Keep an up-to-date record of wildlife sightings (including GPS location data and animal response if possible) that is to be submitted to the Environment and Natural Resources office in Inuvik upon completion of the project. This information will provide distribution information and may be used to improve mitigation measures in the future.

Topic: Bear Encounter Checklist

If the proponent observes bears on the ground near the sampling site prior to landing, ENR assumes the site will be deferred until the bear leaves the area. If the field crew encounters a bear while on the ground, ENR assumes the field crew will leave the area. If this is not possible the helicopter can be used to deter the bear in order to defend life or property; however, only to the extent necessary. Having a Wildlife monitor with firearms on site to watch for bears while on the ground and deter any that approach helps to ensure the safety of field crews. The Bear Encounter Response Guidelines have been attached for the proponent's convenience.

Recommendation(s)

The proponent is requested to report bear occurrences ASAP using the attached checklist. The proponent is reminded that in the event that they encounter bears and kill a bear in defence of life and property, they will be required to:

- 1) Report the kill to Department of Environment and Natural Resources, as soon as possible.
- 2) Skin the bear, leaving the claws and penis attached (if applicable), and preserve the hide by freezing or salting it and storing it in a cool place. Be generous with the salt.

3) Turn in the hide, the skull, and any other biological samples requested to a Department of Environment and Natural Resources Renewable Resource Officer.

As per section 54.(4) of the NWT Wildlife Act, no person may retain any part of a bear killed in defence of life or property.

Comments and recommendations were provided by ENR technical experts in the Inuvik Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM).

If you have any questions or concerns, please do not hesitate to contact me at 920-6591 or email at patrick.clancy@gov.nt.ca.

Sincerely,



Environmental Regulatory Analyst
Environmental Assessment and Monitoring
Environment and Natural Resources

Attached: Bear Encounter Response Guidelines
EISC Minimum Flight Altitudes
Flying Low Brochure



Environment
Canada

Environnement
Canada

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Environmental Protection Operations
Prairie and Northern
5019 52nd Street, 4th Floor
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December 8, 2010

Our File No.: 4709 001 046 002
Your File No.: EISC 2010-11-14

Christine Inglangasuk
Environmental Assessment Coordinator
Environmental Impact Screening Committee
Joint Secretariat-Inuvialuit Settlement Region
107 Mackenzie Road, Suite 204, PO Box 2120
Inuvik, NT, X0E 0T0

Via Email at eisc@jointsec.nt.ca

Dear Ms. Inglangasuk,

RE: EISC 2010-11-14 – IEG Consultants for Shell Canada Energy – Unipkat I-22 Sump Remediation Project

Environment Canada (EC) has reviewed the information submitted with the above-mentioned application. The following specialist advice is provided pursuant to EC's mandated responsibilities arising from the *Canadian Environmental Protection Act* (CEPA), Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act* (SARA).

It is our understanding that IEG Consultants, the consultant for Shell Energy Canada (the Proponent) has submitted a Project Description with the Environmental Impact Screening Committee (EISC 2010-11-14). The Proponent is proposing to conduct a sump remediation program at their former wellsite, Unipkat I-22 between January and April, 2010. Unipkat I-22 is located within the Inuvialuit Settlement Region, along the eastern bank of the Arvoknar Channel, southwest of the Kendall Island Bird Sanctuary. The sump remediation program would involve the following activities:

- Building an ice road to access the site and mobilize heavy machinery, fuel, and camp accommodations;
- Clean soil stripping, stockpiling, and soil excavation;
- Trucking contaminated soil to Inuvik for containment and future de-watering for disposal (at southern landfill) of drilling waste;
- Soil testing on the sidewalls and base of the excavation as well as stockpiled soils;
- Partial site backfill and re-contouring of excavation within local topography; and
- Demobilization from site of all infrastructure and generated waste (page i of the Project Description).

EC offers the following recommendations and comments for the proposed project:

General:

1. All mitigation measures identified by the Proponent, and the additional measures suggested herein, should be strictly adhered to in conducting project activities. This will require awareness on the part of the Proponents' representatives (including contractors) conducting operations in the field. EC recommends that all field operations staff be made

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aware of the Proponents' commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.

2. Section 5.2 *Previous Work* of the Project Description indicates that 5 000 m³ of contaminated soil is present, but that only 3000m³ will be excavated (Section 5.3.5 *Soil Excavation*). The Proponent should clarify why they only plan to remove 60% of the contaminated soil. In addition, although the "majority" of contamination is said to be in and around the sumps, this indicates that there is other contamination elsewhere, although no details are provided in this regard. EC requests that the Proponent provide details on the other areas of suspected contamination.
3. The delineation was done using CCME industrial land use standards; however EC recommends that agricultural land use criteria be applied to natural / wild lands particularly in the Arctic, where ecosystems are more fragile and known to have more linear, shorter food-webs (Swanson, 2007). If no guidelines are available from the Northwest Territories, and the proponent chooses not to use the CCME Canada Wide Standard for Petroleum Hydrocarbons In Soil (2008) guidance, the proponent may consider adapting the Alberta Tier 1 guidance for petroleum hydrocarbon contaminated soil for a natural area land use.
4. The contaminants of concern (COCs) at the site are noted to include petroleum hydrocarbons, potassium chloride, and total barium. Infrastructure and activities at the site may have contributed to other contaminants of concern at the site. Although it is not mentioned in this report, the Proponent should ensure that total metals are accounted for, and if burning was undertaken, dioxins and furans as well as polyaromatic hydrocarbons (PAHs) may be a concern at the site. In addition, the CCME guidelines for petroleum hydrocarbons are split amongst different hydrocarbon fractions, F1 – F4; comparison to these standards will require proper chemical assessment for each fraction.
5. Permafrost is identified in table 10-2 *Record of Consultation* (first Response / Comment by Shell on page 28) as a barrier employed as a berm. Permafrost may not be the most reliable barrier; especially if the excavated area is expected to be flooded this could create an even more unstable permafrost zone. In addition, studies have shown that melt water may continue to flow beneath permafrost in discontinuous permafrost zones. For that reason, thermistors used to monitor the integrity of the barrier should extend below the depth of impacted soil.

Water Quality

6. Section 5.3.5 *Soil Excavation* states that the flare pit and camp sump have been partially eroded by the river. As such, EC would like to remind the Proponent that meeting the requirements of the *Fisheries Act* is mandatory, irrespective of any other regulatory or permitting system. Section 36(3) of the *Fisheries Act* specifies that unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. The legal definition of deleterious substance provided in section 34(1) of the *Fisheries Act*, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat.

7. The Proponent is advised that environmental soil quality guidelines do not apply within 10m of a surface water body. Contamination that is present within 10m of a surface water body must be dealt with on a site-specific basis to develop criteria which are protective of aquatic life such that no deleterious impacts to fish or sediment occur.
8. Although the Project Description mentions that groundwater monitoring wells and thermistors will be maintained, this presumes that groundwater, or perhaps more appropriately, permafrost meltwater, is a potentially active pathway for the transport of contaminants. However, the Project Description does not refer to any plans to address contaminated sub-surface water, nor does it present evidence that it is not a contaminated media. In particular given the low-land topography of the site and predicted future flooding and erosion, it is important that all potentially operable contaminant pathways are delineated and addressed to prevent migration of contaminants from soil in to groundwater and surface water.
9. If the Proponent requires a watercourse crossing to access the site for the ice road, EC recommends that the following measures be implemented at all watercourse crossings:
 - Winter stream crossings should be located to minimize approach grades and be constructed entirely of ice and snow materials;
 - The banks of any watercourse should be protected using suitable erosion control measures;
 - Mechanized clearing should not be done immediately adjacent to any watercourse; and
 - Water crossings should be at right angles to streams and stream crossings shall be removed or notched prior to spring break-up.

Fuel / Spill Contingency

10. Please note that any spill of fuel or hazardous / deleterious materials, adjacent to or into a water body, **regardless of quantity** must be reported immediately to the NWT / NU 24-hour Spill Line, (867) 920-8130. EC will be notified through this process.
11. A dedicated area should be used for refuelling equipment with measures taken to ensure capture and containment of drips and potential spills. Secondary containment or a surface liner (drip pans, etc.) should be used when refuelling any equipment on site and should also be used at all tent / cabin fuel drum locations. An appropriate spill kit with absorbent material should be located at all fuel storage and transfer sites and at drill sites
 - Spill kits, shovels, barrels, sorbents, pumps, etc. should be consistently maintained and readily available.
12. According to the Project Description the Proponent intends on storing fuel on-site (section 5.6 *Fuel Storage*). Please note the new *CEPA Storage Tank System for Petroleum Products and Allied Petroleum Products Regulations* that came into force on June 12, 2008. These regulations apply to both outside, aboveground and underground storage tank systems (including the piping and other tank associated equipment) under federal jurisdiction containing petroleum and allied petroleum products that have a capacity greater than 230 litres. This includes tanks located on federal or Aboriginal lands. Exceptions are pressurized tanks, mobile tanks, tanks regulated by the National Energy Board, and outdoor, aboveground storage tank systems that have a total combined capacity of 2500 litres or less and are connected to a heating appliance or emergency generator. All storage

tank system owners must identify their tank systems to EC and installation of new systems must comply with the regulation's design requirements. Further information on these regulations can be found at www.ec.gc.ca/st-rs.

Waste Treatment

13. The Proponents soil management plans consist of landfilling and leachate containment for the hydrocarbon-impacted soil. EC recommends that a more active land farming approach be considered as it may result in a more successful soil remediation program that may be useful for more than landfill cover. Land farming can be conducted in cold climates, and if this option is considered, the proponent may refer to EC guidance on land farm construction and operation.

If a landfarm is selected as a remedial option operating, generic, site-specific remediation limits as per the CCME Environmental Quality Guidelines (EQGs) or Canadian Wide Standards for Petroleum Hydrocarbons in Soil (CWS-PHC) should be used to monitor the extent to which the soil has been remediated to acceptable levels. The parameters analyzed during the environmental site assessment should be evaluated using these guidelines to determine chemicals of concern (COCs) and those identified should be tracked during the remediation process.

Wildlife

14. EC recommends that food, domestic wastes, and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) be made inaccessible to wildlife at all times. Such items can attract predators of migratory birds such as foxes, ravens, gulls, and bears. Although these animals may initially be attracted to the novel food sources, they often will also eat eggs and young birds in the area. These predators can have significant negative effects on the local bird populations.
15. Section 5.1 of the *Migratory Birds Convention Act* prohibits persons from depositing substances harmful to migratory birds in waters or areas frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
16. The following comments are pursuant to the SARA, which came into full effect on June 1, 2004. Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, EC suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.

EC recommends:

- Species at Risk that could be encountered or affected by the project should be identified and any potential adverse effects of the project to the species, its habitat, and/or its residence noted. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the Species at Risk registry at www.sararegistry.gc.ca for information on specific species as well as

the booklet "Species at Risk in the Northwest Territories" (2010 Edition) available at http://www.enr.gov.nt.ca/live/pages/wpPages/Species_at_Risk.aspx.

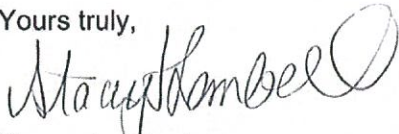
- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the Proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the Proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.
- For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.
- Mitigation and monitoring measures must be taken in a way that is consistent with applicable recovery strategies and action/management plans.

17. EC would like to remind the Proponent that they would need to apply for a permit if any project activities are likely to enter or use existing facilities within the Kendall Island Bird Sanctuary (e.g. Camp Farewell).

18. Implementation of these measures may help to reduce or eliminate some effects of the project on migratory birds and Species at Risk, but will not necessarily ensure that the Proponent remains in compliance with the *Migratory Birds Convention Act*, *Migratory Birds Regulations*, and the SARA. The Proponent must ensure they remain in compliance during all phases and in all undertakings related to the project.

If there are any changes in the project proposal or more information is available, EC should be notified, as further review may be necessary. Please do not hesitate to contact me at (867) 669-4748 or Stacey.Lambert@ec.gc.ca with any questions concerning the above points.

Yours truly,



Stacey Lambert
Environmental Assessment Coordinator, EPO

cc: Randall Warren (Shell Canada Energy)
Carey Ogilvie (Head, Environmental Assessment North, EPO)
Lisa Perry (Sr. Environmental Assessment Coordinator, EPO)
James Hodson (Environmental Assessment Coordinator, CWS)
Jody Klassen (Head, Contaminated Sites, EPO)

References:

Canadian Council of Ministers of the Environment (CCME). 2008. *Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) in Soil Technical Supplement*. CCME, Winnipeg, Manitoba. (<http://www.ccme.ca>)

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