Husky Energy

REPORT

REPORT TITLE

Husky Energy East Coast Operations

Newfoundland & Labrador Offshore Area

Environmental Assessment Review for 2008

SUBMITTED TO

Ms. Kim Coady

Canada-Newfoundland and Labrador Offshore Petroleum Board

5th Floor, TD Place

140 Water Street

St. John's, NL A1C 6H6

SUBMITTED BY

Dave Taylor
Husky Energy
235 Water Street, Suite 901
St. John's, NL
A1C 1B6

Additional Comments		
		1_

Signature:

Date:

Name

Dave Taylor

Title

Environmental Consultant

Prepared By

Reviewed By

Steve Bettles

Don Williams,

Manager, Health, Safety, Environment and Quality

Approved By Department Manager

HDMS No.: 004019082 Report No.: WR-HSE-RP-0655 Version No: 004019082	0
--	---

				OTI	

All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without the written permission of Husky Energy.

Table of Contents

1.0	Intro	duction	. 4
2.0		ky Energy – Jeanne d'Arc Basin 2006 3d Seismic Environmental Assessment ew	. 5
2.1		Project Description and Scope	
	2.1.1	Activities Covered	
	2.1.2	Geographic Scope	
	2.1.3	Temporal Scope	
	2.1.4	Planned activities for 2008	
2.2		Environmental Aspects	
	 2.2.1	Fisheries	
	2.2.2	Species at Risk	
	2.2.3	Mitigations	
3.0	Husl	ky White Rose Development Project: New Drill Centre Construction and rations Program Environmental Assessment	
3.1	l P	Project Description and Scope	. 9
3	3.1.1	Activities Covered	. 9
3	3.1.2	Geographic Scope	. 9
3	3.1.3	Temporal Scope	. 9
3	3.1.4	Planned activities for 2008	10
3.2	2 E	Environmental Aspects	10
3	3.2.1	Fisheries	10
3	3.2.2	Species at Risk	10
3	3.2.3	Mitigations	10
4.0		ky Delineation/Exploration Drilling Program for Jeanne d'Arc Basin Area, 2008	
4.1	l F	Project Description and Scope	11
4	4.1.1	Activities Covered	11
4	4.1.2	Geographic Scope	11
4	4.1.3	Temporal Scope	11
4	4.1.4	Fisheries	11
4	4.1.5	Species at Risk	11
4	4.1.6	Mitigations	11
5.0	Con	cluding Statement	11
6.0	Refe	rences	11
6.1	E	Environmental Assessments	11

6.2	Species at Risk Recovery Strategies	11
7.0 A	Appendices	11
	List of Figures	
Figure	1 - Geographic Scope of Project Area	6
Figure	2 - Area of 2008 Seismic Survey	7
Figure	3 - Geographic Scope of Project Area	9
Figure	4 - Geographic Scope of the drilling program	11
	List of Tables	
Table 1	1 - Environmental Assessment Approvals in Force for Husky Energy	4

1.0 Introduction

Offshore oil and gas exploration and production operations generally encompass long periods of time and multiple, successive, operational steps. As a consequence of this environmental assessments of these activities cover a variety of activities undertaken over a number of years.

This document is the first in a series of annual reviews of the status and ongoing validity of the environmental assessments currently in place for Husky Energy's activities in the Newfoundland and Labrador Offshore Area. These reviews are to assist the C-NLOPB to discharge its responsibilities under the CEA Act by ensuring that the scope of the assessment(s) and the mitigations committed to therein remain technically valid.

The following lists Husky Energy's environmental assessments that have been approved by the C-NLOPB under which Husky will be conducting offshore operations during the coming year – 2008.

Table 1 - Environmental Assessment Approvals in Force for Husky Energy

Screening Determination Reference	EA Report Title			
CEAR No. 05-01-8783	Husky Energy – Jeanne d'Arc Basin 2006 3D Seismic Environmental Assessment Update			
CEAR No. 06-01-7410	Husky White Rose Development Project: New Drill Centre Construction and Operations Program Environmental Assessment			
CEAR No. 07-01-28877	Husky Delineation/Exploration Drilling Program for Jeanne d'Arc Basin Area, 2008-2017			

The following sections organized by specific, individual environmental assessments provide the necessary information to confirm the ongoing validity of the assessment in question or note any changes that need to be addressed.

WR-HSE-RP-0655 Page 4 of 15

2.0 Husky Energy – Jeanne d'Arc Basin 2006 3d Seismic Environmental Assessment Review

2.1 Project Description and Scope

2.1.1 Activities Covered

This assessment encompasses the conduct of 2d/3d seismic surveys in the Jean d'Arc Basin area. Typically up to two 5085 in3 air gun arrays operating at 2000 psi could be employed firing alternately with sound source characteristics of 106.4 bar-m (i.e.,~255 dB re 1μ Pa (0 p)). The assessment also considers the need for a picket vessel to accompany the survey vessel.

Geophysical site surveys (i.e., geo-hazard surveys) using smaller sound sources and other necessary survey equipment needed to conduct a site survey for a drilling location.

Typically four or more sleeve airguns of approximately 160 in 3 in total volume operating at 2000 psi are used. The maximum output from this array has a peak to peak value of 17.0 Bar-metres equating to 244.6 dB (peak to peak)//1 μ Pa@1m, or 238 dB (zero to peak)//1 μ Pa@1m.

2.1.2 Geographic Scope

The geographic scope of the assessment is portrayed in Figure 1. This area encompasses sufficient area to conduct seismic surveys over Husky's land interests in the Jean d'Arc Basin area and allow for end of survey line turn around for the seismic vessel. The corner coordinates of the Project Area are 46° 15' to 47° 50' North and 47° 15' to 49° 15' West.

WR-HSE-RP-0655 Page 5 of 15

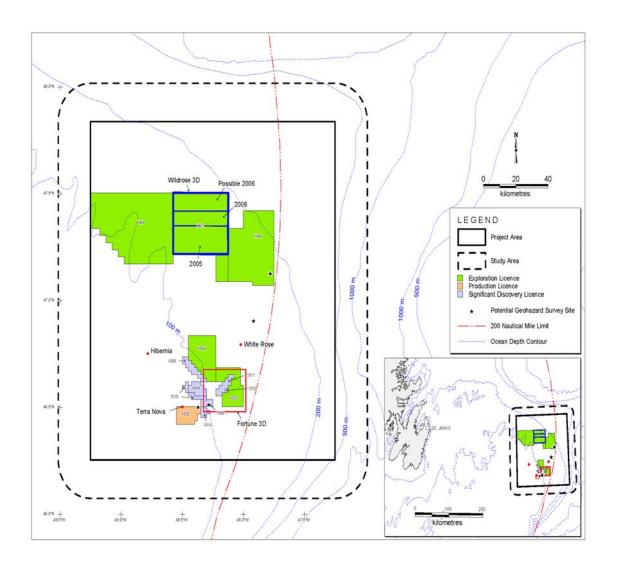


Figure 1 - Geographic Scope of Project Area

2.1.3 Temporal Scope

This assessment prepared to cover the years 2006 through 2017. Within any one year large area surveys were anticipated to occur from May through mid - November. However, geo-hazard surveys were scoped to occur year round to support drilling operations as needed.

2.1.4 Planned activities for 2008

This year Husky Energy plans to conduct a 3-D seismic survey over the area depicted in Figure 2. This survey will start during late June or early July and be complete by the end of October 2008. Geo-hazard surveys may also be carried out in response to identification of drilling targets.

WR-HSE-RP-0655 Page 6 of 15

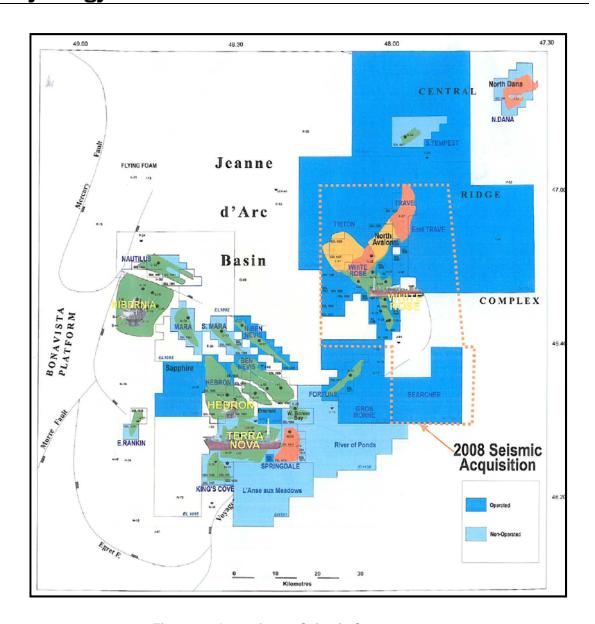


Figure 2 - Area of 2008 Seismic Survey

2.2 Environmental Aspects

2.2.1 Fisheries

Fishing activities in the study area have not changed significantly since the assessment report was accepted and the program approved. Subsequently, in 2006 and 2007, Husky Energy has conducted two other assessments that overlapped the geographic scope of this one. In addition, StatoilHydro Canada Ltd. (StatoilHydro) has conducted two other assessments in late 2007 through early 2008 that encompass the same general geographic area. Each of these assessments each reflect the same patterning for the vast bulk of fishing activity on the Grand Banks as derived from Fisheries and Oceans data bases including research vessel and under utilized species information.

WR-HSE-RP-0655 Page 7 of 15

Fisheries activity maps presenting the most recent data available from Fisheries and Oceans Canada can be found in the StatoilHydro environmental assessments referenced in this Review.

2.2.2 Species at Risk

No new species at risk pursuant to the Species at Risk Act (SARA) or under the auspices of COSEWIC have been identified for the Study/Project areas relevant to this assessment. The most recent listing of SARA and COSEWIC listed species for the Grand Banks area of interest to Husky Energy is provided in Appendix 1. Species with final recovery strategies in place are noted. No species relevant to the scope of this assessment has an associated critical habitat description or an action plan in place.

None of the recovery plans in place materially change the mitigation measures currently committed by Husky for the scope of the operations addressed by the environmental assessment.

2.2.3 Mitigations

Husky regards the environmental predictions and consequent mitigations cited in the environmental assessment and subsequent significance determination that relates to CEAR No. 05-01-8783 as still valid and re-commits to implementing these migitative measures for the activities to be carried out under the scope of this assessment this year.

WR-HSE-RP-0655 Page 8 of 15

3.0 Husky White Rose Development Project: New Drill Centre Construction and Operations Program Environmental Assessment

3.1 Project Description and Scope

3.1.1 Activities Covered

This project involves the construction of up to five (5) glory holes during a construction phase that will continue through 2011. Construction will also include installation of drilling templates and other subsea equipment in the glory holes to support eventual production operations. The glory holes will support up to 28 new well. In addition, subsea flow lines will also be installed to connect new glory holes with existing ones that connect to the White Rose FPSO.

3.1.2 Geographic Scope

The geographic scope of the assessment is portrayed in the inset map in Figure 3.

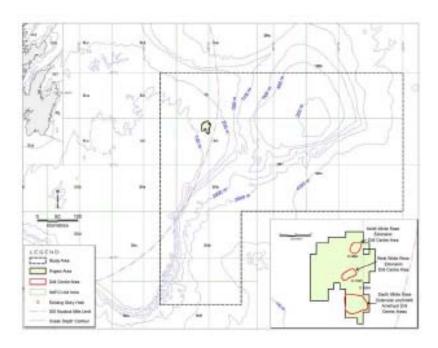


Figure 3 - Geographic Scope of Project Area

3.1.3 Temporal Scope

Annually dredging activities are scheduled for May through mid September each year. Drilling and other construction activities are scoped for year round operations however in glory hole placement of subsea equipment to support drilling and production operations and installation of flow lines will most likely occur during the summer and fall weather windows.

WR-HSE-RP-0655 Page 9 of 15

3.1.4 Planned activities for 2008

No new glory hole excavation is planned for 2008. Development drilling activities to be carried out under the scope of this environmental assessment include drilling at the North Amethyst location in a glory hole excavated in 2007. Temporary Guide Bases will be installed in the North Amethyst glory hole.

3.2 Environmental Aspects

3.2.1 Fisheries

Fishing activities in the study area have not changed significantly since the assessment report was accepted and the program approved. Subsequently, in 2006 and 2007, Husky Energy has conducted two other assessments that overlapped the geographic scope of this one. In addition, StatoilHydro Canada Ltd. (StatoilHydro) has conducted two other assessments in late 2007 through early 2008 that encompass the same general geographic area. Each of these assessments each reflect the same patterning for the vast bulk of fishing activity on the Grand Banks as derived from Fisheries and Oceans data bases including research vessel and under utilized species information.

Fisheries activity maps presenting the most recent data available from Fisheries and Oceans Canada can be found in the StatoilHydro environmental assessments referenced in this Review.

3.2.2 Species at Risk

No new species at risk pursuant to the Species at Risk Act (SARA) or under the auspices of COSEWIC have been identified for the Study/Project areas relevant to this assessment. The most recent listing of SARA and COSEWIC listed species for the Grand Banks area of interest to Husky Energy is provided in Appendix 1. Species with final recovery strategies in place are noted. No species relevant to the scope of this assessment has an associated critical habitat description or an action plan in place.

None of the recovery plans in place materially change the mitigation measures currently committed by Husky for the scope of the operations addressed by the environmental assessment.

3.2.3 Mitigations

Husky regards the environmental predictions and consequent mitigations cited in the environmental assessment and subsequent significance determination that relates to CEAR No. 06-01-7410 as still valid and re-commits to implementing these migitative measures for the activities to be carried out under the scope of this assessment this year.

WR-HSE-RP-0655 Page 10 of 15

4.0 Husky Delineation/Exploration Drilling Program for Jeanne d'Arc Basin Area, 2008-2017

4.1 Project Description and Scope

4.1.1 Activities Covered

This environmental assessment addressed the potential for drilling 18 delineation and/or exploration wells from semi-submersible or jack-up mobile drilling units or drill ships. It also assessed the effects of geo-hazard surveys and vertical seismic profiles associated with the drilling program.

4.1.2 Geographic Scope

The geographic scope of the drilling program is depicted in Figure 4. The project area is depicted by the red rectangle. The coordinates of the project area are as follows: 48° North and 49.5° West, 48° North and 47° West, 46° North and 49.5° West; and, 46° North and 47° West.

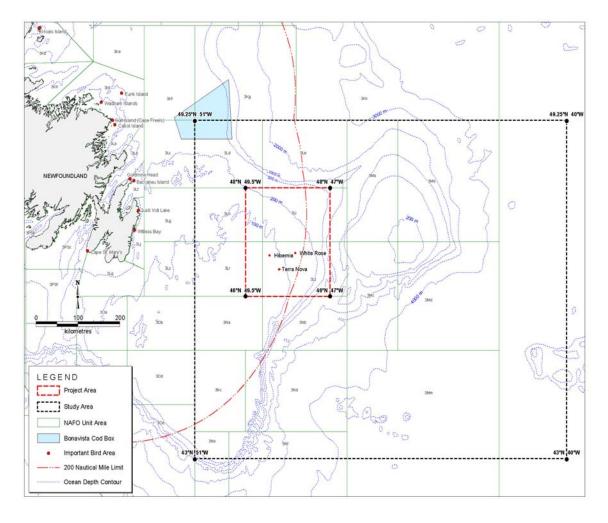


Figure 4 - Geographic Scope of the drilling program

WR-HSE-RP-0655 Page 11 of 15

4.1.3 Temporal Scope

Exploration and delineation drilling activities as outlined above will be carried out year round from 2008 through 2017.

Planned activities for 2008:

This year Husky intends to drill its Primrose prospect in the northern portion of the Jean d'Arc Basin. This well is scheduled to be started in May of 2008 and completed by mid to late summer. Geo-hazard surveys in support of this well were carried out in 2007

4.1.4 Fisheries

Fishing activities in the study area have not changed significantly since the assessment report was accepted and the program approved. Subsequently, in 2006 and 2007, Husky Energy has conducted two other assessments that overlapped the geographic scope of this one. In addition, StatoilHydro Canada Ltd. (StatoilHydro) has conducted two other assessments in late 2007 through early 2008 that encompass the same general geographic area. Each of these assessments each reflect the same patterning for the vast bulk of fishing activity on the Grand Banks as derived from Fisheries and Oceans data bases including research vessel and under utilized species information.

Fisheries activity maps presenting the most recent data available from Fisheries and Oceans Canada can be found in the StatoilHydro <u>environmental assessments reference</u> in this Review.

4.1.5 Species at Risk

No new species at risk pursuant to the Species at Risk Act (SARA) or under the auspices of COSEWIC have been identified for the Study/Project areas relevant to this assessment. The most recent listing of SARA and COSEWIC listed species for the Grand Banks area of interest to Husky Energy is provided in Appendix 1. Species with final recovery strategies in place are noted. No species relevant to the scope of this assessment has an associated critical habitat description or an action plan in place.

None of the recovery plans in place materially change the mitigation measures currently committed by Husky for the scope of the operations addressed by the environmental assessment.

4.1.6 Mitigations

Husky regards the environmental predictions and consequent mitigations cited in the environmental assessment and subsequent significance determination that relates to CEAR No. 07-01-28877 as still valid and re-commits to implementing these migitative measures for the activities to be carried out under the scope of this assessment this year.

WR-HSE-RP-0655 Page 12 of 15

5.0 Concluding Statement

The activities Husky plans to carry out in 2008 have been reviewed and assessed to be within the scope of the environmental assessments referenced herein. The environmental effects predicted in these assessments are still valid. Husky reaffirms its commitment to implement the mitigation measures proposed in these assessments and in the Screening Decisions made by the C-NLOPB.

6.0 References

6.1 Environmental Assessments

- LGL Limited, 2008, Environmental Assessment of StatoilHydro Canada Ltd. Exploration and Appraisal/Delineation Drilling Program for Offshore Newfoundland, 2008-2016. LGL Rep. SA947. by LGL Limited, Canning & Pitt Associates Inc., and Oceans Ltd., St. John's, NL, for StatoilHydro Canada Ltd., St. John's, NL. 174 p. + appendices.
- 2. LGL Limited. 2008. Environmental assessment of StatoilHydro's Jeanne d'Arc Basin area seismic and geo-hazard program, 2008-2016. LGL Rep. SA947a. Rep. by LGL Limited, Canning & Pitt Associates Inc., and Oceans Ltd., St. John's, NL, for StatoilHydro Canada Ltd., St. John's, NL. 174 p. + appendices.
- 3. LGL Limited. 2005c. Northern Jeanne d'Arc Basin Seismic Program Environmental Assessment. LGL Rep. SA836. Rep. by LGL Limited, St. John's, NL for Husky Energy Inc., Calgary, AB. 241 p.
- 4. LGL Limited. 2006c. Husky White Rose Development Project: New Drill Centre Construction & Operations Program Environmental Assessment. LGL Rep. SA883. Rep. by LGL Limited, St. John's, NL, for Husky Energy Inc., Calgary, AB. 299 p. + App.
- LGL Limited. 2007. Husky White Rose Development Project: New Drill Centre Construction & Operations Program Environmental Assessment Addendum. LGL Rep. SA883a. Rep. by LGL Limited, St. John's, NL, for Husky Energy Inc., Calgary, AB. 126 p. + App.

6.2 Species at Risk Recovery Strategies

- 1. Atlantic Leatherback Turtle Recovery Team 2006. Recovery Strategy for Leatherback Turtle (Dermochelys coriacea) in Atlantic Canada. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa, vi + 45 pp.
- 2. Kulka, D., C. Hood and J. Huntington. 2007. Recovery Strategy for Northern Wolffish (Anarhichas denticulatus) and Spotted Wolffish (Anarhichas minor), and Management Plan for Atlantic Wolffish (Anarhichas lupus) in Canada. Fisheries and Oceans Canada: Newfoundland and Labrador Region. St. John's, NL. x + 103 pp.

WR-HSE-RP-0655 Page 13 of 15

7.0 Appendices

Appendix 1 - Current Listing of SARA and COSIWIC Species in the Husky Project Areas

WR-HSE-RP-0655 Page 14 of 15

Husky Energy

Appendix 1 - Current Listing of SARA and COSEWIC Listed Species in the Husky Project Areas 1

Species		SARA Schedule 1			COSEWIC			
Common Name	Scientific Name	Endangered	Threatened	Special Concern	Endangered	Threatened	Special Concern	Candidate
Blue whale	Balaenoptera musculus	Х			Х			
North Atlantic right whale	Eubalaena glacialis	Х			Х			
Leatherback sea turtle	Dermochelys coriacea	X			X			
Northern wolffish	Anarhichas denticulatus		X			Х		
Spotted wolffish	Anarhichas minor		X			Х		
Atlantic wolffish	Anarhichas lupus			Х			X	
Fin whale (Atlantic population)	Balaenoptera physalus			Х			Х	
Ivory Gull	Pagophila eburnean			Х	Х			
Atlantic cod (NL population)	Gadus morhua				Х			
Porbeagle shark	Lamna nasus				Х			
White shark	Carcharodon carcharias				Х			
Cusk	Brosme brosme					Х		
Shortfin mako shark	Isurus oxyrinchus					Х		
Sowerby's beaked whale	Mesoplodon bidens						Х	
Harbour porpoise	Phocoena phocoena						Х	
Blue shark	Prionace glauca						Х	
Atlantic halibut	Hippoglossus hippoglossus							High priority
Spiny eel	Notacanthus chemnitzi							High priority
Pollock	Pollachius virens							High priority
Atlantic salmon	Salmo salar							High priority
Ocean pout	Zoarces americanus							High priority
Sperm whale	Physeter macrocephalus							Low priority
Hooded seal	Cystophora cristata							Low priority
Harp seal	Phoca groenlandica							Low priority

WR-HSE-RP-0655 Page 15 of 15

¹ Green Shade means a final Recovery Strategy is in place but no critical habitat has been identified nor have actions plans been finalized for these species. Note also that two other species that have documented recovery strategies, the Atlantic Walrus and Grey Whale, have been extirpated from Eastern Canadian waters and therefore are not listed in the above table.