



Section 6 – Water Act Application

TABLE OF CONTENTS

6. WATER ACT APPLICATION 1

6.1 Surface Water Diversion from the Storm Water Retention Pond..... 1

6.2 Groundwater Diversion from Grand Rapids Formation 1

6.3 Conclusions..... 1

6.4 Water Act Application 3

6. WATER ACT APPLICATION

This application is an integrated submission to the Alberta Energy Resources Conservation Board (ERCB) and Alberta Environment (AENV) for approval to construct, operate and reclaim the proposed Grizzly Oil Sands ULC (Grizzly), Algar Lake SAGD project. Grizzly is also applying for a *Water Act* licence to divert water for operation of the proposed Algar Lake SAGD project.

The water use requirements for the Algar Lake SAGD Project have been estimated to be:

- Steady state operations of the facility:
 - Daily volume – 714 m³
 - Annual volume – 260,610 m³
- Start-up water requirements for first year of operations:
 - Daily volume –1500 m³ is required (assumes that the water treatment plant is not fully functional and reservoir losses are 10%)
 - Total temporary volume for start-up – 547,500 m³

The water supply for the Project will come from both groundwater sources.

6.1 SURFACE WATER DIVERSION FROM THE STORM WATER RETENTION POND

Grizzly plans to construct a storm water retention pond on the Central Processing Facility. Grizzly is applying for a licence to utilize up to 30,000 m³/year of surface water, which is collected in the storm water retention pond.

6.2 GROUNDWATER DIVERSION FROM GRAND RAPIDS FORMATION

The source of groundwater for the Algar Lake SAGD Project will be obtained from the Clearwater and/or Grand Rapids formations. Grizzly is applying for the following:

- Temporary diversion for the first year for project start-up – 547,500 m³
- Steady state operations - require annual diversion of 260,610 m³/year, or 714 m³/day

Water recycling will be undertaken. Grizzly will continue to evaluate the potential for saline water sources that can be used for the Project.

6.3 CONCLUSIONS

The impacts of disturbances caused by the development of the project on the groundwater and surface water were investigated and found to be negligible. Groundwater production should have no significant effects on the quantity of water in other formations, the surface water resources or on vegetation. No active groundwater production was identified within a 10 km radius of the Algar Lake SAGD Project therefore impacts to other users are not anticipated.

Grizzly will require a total of 328,500 m³ of water per year to run the CPF under steady state conditions. Grizzly requests the full volume from either the Grand Rapids or Clearwater

Formations. Grizzly also plans to utilize surface water collected in the storm water runoff pond, up to a maximum of 30,000 m³ per year. The use of surface water will result in a reduction of groundwater that will be required; the annual combined supply will not exceed 260,610 m³/year. For the first year of operation Grizzly requests a temporary licence of 547,500 m³ (1500 m³/d) of groundwater.

Once details of the individual wells are available an evaluation will be submitted to Alberta Environment to support the application for a licence under the Water Act for diversion of groundwater and as required in the Water Conservation and Allocation Guideline for Oilfield Injection (Alberta Environment 2006).

6.4 WATER ACT APPLICATION

Documents or information provided to Alberta Environment pursuant to section 15(1)(a) of the *Water (Ministerial) Regulation* are public records and are accessible by the public.

Check one or more of the following to indicate type of application:

Diversion of water Renewal of a licence Constructing Works

Applicant:

Print Name and Company Name (if applicable): Grizzly Oil Sands ULC		Home Telephone: (403) 850-9500	Bus. Telephone: (403) 457-2890
Address (Street, PO Box, etc.): 410, 734 - 7th Avenue SW	Place, Province: Calgary, AB	Postal Code: T2P 3P8	Fax:

Are you the registered landowner? Yes No If no, please attach a copy of the consent from the landowner.

Consultant, Signing Authority, or Applicant's Representative (if applicable):

Print Name and Company Name (if applicable): John Pearce – Grizzly Oil Sands ULC		Home Telephone: (403) 850-9500	Bus. Telephone: (403) 457-2890
Address (Street, PO Box, etc.): 410, 734 - 7th Avenue SW	Place, Province: Calgary, AB	Postal Code: T2P 3P8	Fax:

Contact Person if not shown above:

Print Name:	Telephone:	Fax:
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Project Description:

Tentative Starting Date: Q3 2012
(if applicable)

Duration of Construction/Development: Q2 2011 to Q4 2012

Duration of Water Diversion/Use: 30 years

Provide a detailed description including location of works and activities relating to the project and attach plans:

Details are explained in [Section 6](#) of the Algar Lake SAGD application and additional information can be found

In [Section 2.7](#) and [Consultant Report #4](#) (Groundwater).

Affected Water Sources (Location of Works and Activities):

Surface Water (if only constructing works, complete the first two columns):

Source (e.g. lake, stream, or name of source, if known)	Diversion/Activity Location				Annual Quantity (cubic metres)	Rate of Diversion (show units)	Is Construction or Development Required? (Yes or No)	Purpose
	¼	sec	twp	rge				
1. Storm water runoff pond	11	85	12	4	30,000 m3			SAGD
2.								
3.								

Groundwater:

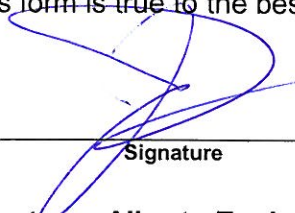
Date Well Drilled or proposed drilling date	Well (proposed) Locations					Total Depth (metres)	Production Interval (metres)	Pumping Rate (show units)	Annual Quantity (cubic metres)	Purpose
	¼	sec	twp	rge	m					
1. Winter 2008/09	2	84	11	4	NA	NA	714 m ³ /day	260,610 m ³ /year	SAGD	
2. Winter 2009/10/11	19 to 21	84	11	4	NA	NA				
3. Winter 2009/10/11	28 to 30	84	11	4	NA	NA				

Please attach a separate sheet if you wish to provide more information.

Statement of Confirmation:

The information given on this form is true to the best of my knowledge.

February 25, 2010
Date of Signing


Signature

John Pearce
Print Name

Grizzly Oil Sands
Company Name
(if applicable)

Return the completed form to an Alberta Environment Regional office nearest you:

Regulatory Approvals Centre
9th Floor, Oxbridge Place
9820 – 106 Street
Edmonton, Alberta T5K 2J6
Telephone: (780) 427-6311
Fax: (780) 422-0154

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OFFICE USE:

File Number:	Fee Receipt Number:	Application ID: Operation ID:
Notice Information:	Application Completion Date:	Priority Number: