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Re: Application for Approval of the JACOS Hangingstone Expansion Project

Japan Canada Oil Sands Limited (JACOS), a 100% Canadian subsidiary of Canada Oil Sands Company Ltd. (CANOS), a Japanese subsidiary of Japan Petroleum Exploration Co. Ltd. (JAPEX), hereby applies to the Energy Resources Conservation Board and Alberta Environment to construct and operate the JACOS Hangingstone Expansion Project. Specifically:

The Energy Resources Conservation Board for:

- Approval under the Oil Sands Conservation Act (OSCA), Chapter 10, and OSCA Regulations, Part 4, to construct and operate the JACOS Hangingstone Expansion Project to recover bitumen from the McMurray Formation on oil sands leases 728108AT58 (lease 58) and 7282010T70 (lease 70)

Alberta Environment for:

- Approval under Division 2, of Part 2 of the Environmental Protection and Enhancement Act (EPEA) to construct and operate the JACOS Hangingstone Expansion Project as proposed in the enclosed Application
- Conservation and Reclamation Approval under Division 2, of Part 2 and Part 6 of EPEA to construct, operate and reclaim the components of the JACOS Hangingstone Expansion Project as proposed in the enclosed Application

The joint Application contains all information required under the *Oil Sands Conservation Act* and *Alberta Environmental Protection and Enhancement Act*. JACOS will seek a water diversion license to augment its existing water supply, pursuant to the *Water Act*, under separate cover. JACOS will also seek approval to construct and operate a distribution and gathering pipeline system in the Project Area pursuant to Part 4 of the *Pipeline Act* under separate cover. Other related applications under provincial statutes will be submitted separately to the agencies having jurisdiction.

The Application is presented in five volumes:

- Summary Report: Environmental Impact Assessment
- Volume 1 Project Description
- Volume 2 Environmental Impact Assessment Part A – Sections 1 to 8
- Volume 2 Environmental Impact Assessment Part B – Sections 9 to 12
- Volume 2 Environmental Impact Assessment Part C – Sections 13 to 23

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Yours truly,

Japan Canada Oil Sands Limited



Toshi Hirata
President

Attachments

E.1 Executive Summary

E.1.1 PURPOSE

Japan Canada Oil Sands Limited (JACOS) is applying to Alberta Environment (AENV) and the Energy Resources Conservation Board (ERCB) for regulatory approval to construct, operate and reclaim the JACOS Hangingstone Expansion Project (the Expansion Project).

E.1.2 PROPOSED PROJECT

E.1.2.1 Project Location

JACOS and its partner, Nexen Inc., propose to construct and operate an in-situ oil sands steam-assisted gravity drainage (SAGD) project situated on the Hangingstone lease area (oil sands leases 58 and 70) about 52 km south southwest of Fort McMurray, Alberta in Twp 84, Rges 10–12, W4M. JACOS is the operator with a 75% working interest in 72 sections of land that make up the leases, with Nexen as Lessee of the remainder.

JACOS currently operates the JACOS Hangingstone Demonstration Project (the Demonstration Project) located in Twp 84, Rge 11, W4M on the north-eastern portion of lease 70, about 4 km north of the proposed Expansion Project.

E.1.2.2 Development Strategy

The proposed development is an expansion of JACOS's existing Hangingstone area in-situ bitumen production operations. JACOS has achieved economic bitumen rates and steam-to-oil ratios (SORs) using SAGD at the Demonstration Project and currently produces about 1200 m³/d (7500 bpd) from 19 well pairs at an instantaneous SOR of 3.9. Since 1999, cumulative bitumen production has exceeded 3.2 million m³ (20 million barrels) and cumulative SOR at the end of 2008 was 3.4.

JACOS has gained valuable technical and operating expertise from the Demonstration Project which provides the basis to proceed with the Expansion Project. Development plans are based upon extensive resource delineation and research work dating to the mid-1970s.

JACOS has completed 94 km² of three-dimensional seismic and has drilled or examined 249 wells with data on the McMurray formation to evaluate the bitumen resource. Reservoir facies and reservoir distribution at the Demonstration Project production area are analogous to the Project Area, which is the resource area that will support all stages of development for the Expansion Project's currently projected 25-year life (may vary depending on actual time for depletion of the wells).

The McMurray Formation, which contains the oil sands in the Hangingstone lease area, is too deep for surface mining and must be developed in place. The SAGD process is an advanced form of steam

stimulation in which a pair of horizontal wells are drilled into the oil reservoir, one a few metres above the other. Steam is continuously injected into the upper wellbore to heat the oil and reduce its viscosity, causing the heated oil to drain into the lower wellbore where it flows to the surface.

The scope of the proposed expansion, increasing capacity by more than 300%, and surface considerations such as Horse Creek favour the construction of a new facility rather than expanding existing facilities. A central processing facility (CPF) will be developed as a standalone facility in a single phase about 4 km south of the Demonstration Project.

E.1.2.3 Major Facilities

The major components of the Expansion Project include:

- a CPF consisting of seven once-through steam generators, production processing, water treatment and recycling facilities, solid waste handling and disposal
- associated water supply and liquid disposal facilities, a proposed landfill and other infrastructure, as required
- 26 wellpads consisting of a total of 175 well pairs required to supply production to the CPF over the currently projected 25-year project life
- associated network of pipelines and roadways connecting the wellpads to the CPF
- camps for drilling, construction and operation, construction laydown areas and civil storage areas
- an all-weather-road connecting the CPF to the existing Highway 63 intersection
- infrastructure expansion to the site including a natural gas pipeline (by JACOS), diluent and diluted bitumen pipelines and power transmission (by other parties)

The initial drilling program will take about two years, beginning in the winter of 2011/2012, and will consist of 61 well pairs on 10 wellpads to supply the required production to the new CPF. A further 114 well pairs on 16 wellpads will be added to maintain production levels at or near the plant capacity. Production wellpads will include multiple well pairs directionally drilled from the surface. Each wellpad will contain steam injection and produced emulsion recovery facilities along with measurement equipment. The average well production life is estimated to be about 13 years.

Pipe racks, roads and infrastructure required to tie-in wellpads will be constructed nearby to minimize surface disturbance. Future development phases will consist primarily of drilling additional wells, extending surface pipe racks and constructing new wellpads to maintain production levels at plant capacity. Bitumen product from the Demonstration Project is currently delivered to market by tanker truck, the only economically viable option for the current volume. The proposed expansion would provide an opportunity to combine bitumen from the Demonstration and Expansion Projects for delivery to market. Existing equipment could be used to transfer hot bitumen to a new pump station and then to the new CPF. The decision to construct a bitumen line connecting the two plants will be made if the local market is no longer an economic option.

E.1.2.4 Resource Base

The development plan for the Expansion Project is based on extensive resource delineation and research conducted at the Demonstration Project. It will support the development of a 5560 m³/d (35 000 bpd) SAGD project for 25 years. The estimated most-likely recoverable bitumen reserves in the Project Area are about 35 million m³ (about 220 million barrels).

E.1.3 DEVELOPMENT SCHEDULE

These projections are based upon the assumption that regulatory and corporate approvals proceed as per the proposed schedule shown in Section 4, Figure 4-2 and outlined as follows:

- initial wellpad, pipeline and road construction will begin in the winter of 2011/2012
- drilling of initial SAGD well pairs will begin in the winter of 2011/2012 and continue for two years
- CPF development from late 2011 to 2014
- start of production in the last quarter of 2014, reaching full production in 2016, with an expected operating life of 25 years

E.1.4 COMMUNITY CONSULTATION

JACOS has actively consulted with stakeholders since 1999 when it began operating the Demonstration Project. Stakeholders include local Aboriginal communities, the Regional Municipality of Wood Buffalo (RMWB), oil sands developers, trapline holders, forestry companies and others.

Community input to the Expansion Project's design was actively solicited through a variety of means. A Public Disclosure Document was distributed, notice requesting input into the proposed Terms of Reference (pToR) for the Environmental Impact Assessment (EIA) was advertised in several newspapers, public open houses to solicit feedback on the pToR were held in Fort McMurray and Anzac, and a plain-language brochure was made available at the open houses and other meetings with stakeholders.

Meetings were held with Aboriginal groups to discuss how Traditional Knowledge could be incorporated into the EIA. An Aboriginal Review Group (ARG) was formed comprising representatives of six Aboriginal communities and two trapline holders with an independent environmental consulting firm providing advice. The group met four times during 2009 and additional regular meetings are planned throughout the life of the Expansion Project. Formation of the ARG provides the opportunity to incorporate input into project development, impact mitigation and monitoring plans.

Preliminary meetings have been held with potentially impacted gas producers, pipeline companies, forestry companies and electric transmission companies. Future meetings and discussions will be held to further identify and resolve issues. JACOS intends to distribute copies of the EIA and post it on its website. Copies will be made available at the Fort McMurray public library, and the Anzac and Janvier RMWB contact offices. Open houses will also be advertised and held in Fort McMurray and Anzac following submission.

E.1.5 ENVIRONMENTAL IMPACTS

E.1.5.1 Biophysical and Socio-Economic Impact Assessment

In 2001, JACOS proposed to develop a project in the same Hangingstone Project Area, and commenced EIA work and conceptual engineering. This proposed project was put on hold prior to filing for approval.

In May of 2008, JACOS issued a new project disclosure document for public review and comment. The details of the Expansion Project, as described in this Application, are similar to what was originally disclosed in 2001 but there are sufficient differences to require completion of a new EIA and Application package.

Through project design and additional mitigative measures, the Expansion Project is expected to have a minimal environmental impact. This EIA has been prepared following the Terms of Reference from AENV.

The effects of the Expansion Project on the Atmospheric Environment, Noise, Hydrogeology, Hydrology and Surface Water Quality are assessed as being not significant. Standards and objectives will be met in most cases, with modelled exceedances likely due to natural variation or regional effects unrelated to the Expansion Project. Construction and operation of the Expansion Project are not expected to affect the Athabasca River.

The effects on the biophysical receptors (Fish and Fish Habitat, Vegetation and Wetlands, Wildlife, Terrain and Soils, and Human and Ecological Health) are assessed as being not significant, as changes to these valued ecosystem components will not result in long-term alterations to the present conditions.

Effects of the Expansion Project on Land Use are assessed as being not significant. The Expansion Project will not limit the existing land uses or conflict with existing land use policies.

Effects on Historical Resources are assessed as not significant since damage to historic sites or artifacts is not expected. While there may be short term effects on use of the Project Area for activities such as hunting, berry picking and harvesting of medicinal plants, the Expansion Project is not expected to affect long-term Aboriginal traditional land use.

From a Socio-economic perspective, the Expansion Project is assessed as having a net positive economic effect on the region. While there is expected to be a slight net increase in the demand for social services due to the Expansion Project, social effects are assessed as not significant.

Accidental events, such as spills, gas releases, forest fires and explosions, have the potential to cause significant effects but the project design, using accepted industry standards and preventive measures in place indicate the likelihood of such events is low.

The findings of the EIA support the conclusion that JACOS can construct, operate and decommission the Expansion Project in a manner that will not have significant effects on the environment.

E.1.5.2 Conceptual Conservation and Reclamation Plan

Soil conservation measures have been proposed for the Expansion Project footprint. Conservation and reclamation material balances were determined for the physical disturbances within the larger footprint area. A conceptual reclamation plan has been developed that includes soil replacement and revegetation prescriptions that will return the majority of the footprint to equivalent land capability when compared to pre-disturbance conditions. The reclamation and revegetation plans comply with provincial regulatory requirements while enlisting the participation of Aboriginal communities to assist in the recovery of traditional land uses in the closure landscape. A conceptual development and reclamation schedule for the wellpads and related facilities has been included to place the various project components in the context of the overall Expansion Project.

E.1.6 INDUSTRIAL BENEFITS

The Expansion Project will provide the following economic benefits over its 25-year expected life span:

- direct economic benefits through capital expenditures, employment, taxes and royalties to the RMWB, Government of Alberta, Government of Canada, local area residents and other stakeholders
- in excess of 2 million person hours of work will be required for facilities construction, drilling and completion of wells
- new facilities will require about 72 additional fulltime workers for ongoing operation and maintenance activities throughout their projected life
- royalties of about \$2405 million (\$ inflated) will be received by the Alberta Government during the 25-year expected life span
- taxes of about \$570 million will be contributed to the various levels of government
- the Expansion Project will provide a reasonable return to its shareholders, employment for its employees and support to the communities where it operates

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