
***TECHNICAL REVIEW COMMENTS
on the Environmental Impact Statement***

***BHP Billiton
Jansen Project***

Jansen, Saskatchewan

Prepared by
Saskatchewan Ministry of Environment
Environmental Assessment Branch
March, 2011

TABLE OF CONTENTS

- Preface..... 1**

- 1. Environmental Assessment and Review Process 2**
 - Introduction 2
 - Submission of the EIS 2
 - Technical Review 3
 - Public Review 3
 - Ministerial Decision 4

- 2. Summary of Proposed Project..... 4**
 - Alternatives Considered 4
 - Social, Cultural and Economic Impacts Considered 5
 - Biophysical Impacts Considered 5
 - Public, First Nations and Métis Engagement Feedback and Response..... 6

- 3. Technical Review Comments 6**
 - Introduction 6
 - Biophysical Considerations 7
 - Ground and Surface Water..... 7
 - Soils..... 8
 - Wetlands 8
 - Grasslands 8
 - Subsidence 8
 - Tailings Management Area..... 9
 - Land Use 9
 - Heritage Resources 9
 - Additional Requirements 9

- 4. Conclusion 10**
 - Invitation to Comment..... 10
 - Contact..... 11

Preface

This document is provided by the Environmental Assessment Branch of Saskatchewan Ministry of Environment as supporting information for the public review of BHP Billiton Canada Incorporated's (BHP Billiton – the Proponent) Environmental Impact Statement for their proposed new conventional potash mine near Jansen, Saskatchewan.

This document has four major parts:

The first part provides an overview of the provincial environmental assessment and review process. It outlines the events and activities that led to the Environmental Impact Statement being released for public review and describes how the public can provide comments to the Minister, Saskatchewan Ministry of Environment on BHP Billiton's proposed potash mine.

The second part provides a brief summary of the development being proposed. This summary is intended to provide information to assist the reader in deciding whether they are interested in finding out more about the proposed development. It is not intended to be a full representation of the development. Interested readers should visit a review centre (see section 1 and 4 of this document for locations) to read the Environmental Impact Statement.

The third section of the document provides the Ministry of Environment's evaluation of the Proponent's conclusions regarding the predicted impacts of the proposed project, the effectiveness of any identified mitigative measures and any follow-up requirements that would be placed on the Proponent by the Minister, should the project be approved.

Section 4 presents the conclusions reached by the Ministry of Environment and again invites the public to comment. The Minister, when making the final decision regarding the environmental acceptability of the proposed project, considers both the public's comments and technical review comments.

1. Environmental Assessment and Review Process

Introduction

The Environmental Assessment Act (the Act) in Saskatchewan requires the Proponents of a “development” to conduct an Environmental Impact Assessment (EIA). The EIA provides the information needed by the Minister responsible for the Act (Minister of Environment) to determine whether, from an environmental perspective, a proposed development should be allowed to proceed and, if so, under what conditions. As part of the environmental assessment process, the Proponent is required to prepare an Environmental Impact Statement (EIS) that documents the developer’s conclusions about the potential environmental effects of the proposed project. The EIS also describes the measures the Proponent plans to take to reduce negative and enhance positive environmental impacts. Once completed, the EIS undergoes both a technical and public review prior to a decision being made by the Minister regarding the project.

The EA review process provides a broad understanding of the potential impacts and ways to minimize the impacts of a project.

The purpose of the environmental assessment and review process is to ensure that adequate environmental safeguards are in place before a development is allowed to proceed and that developments proceed in a manner understood and broadly accepted by the public. These safeguards may arise out of the actual design and nature of the proposed development or, should the development receive approval under the Act, as a result of ongoing regulatory involvement by government agencies.

For the current development, the primary environmental regulatory legislation for potash mines following The Environmental Assessment Act includes The Environmental Management and Protection Act, 2002 and regulations (The Mineral Industry Environmental Protection Regulations; The Water Regulations, 2002; Municipal Refuse Management Regulations; Hazardous Substances and Waste Dangerous Goods Regulations). Other federal and provincial agencies also have legislation and regulations that may be applicable.

Submission of the EIS

In November, 2008, Environmental Assessment Branch (EAB) received a project proposal from BHP Billiton for the proposed Jansen Project potash mine entitled *Jansen Project Proposal*. Following technical review the project was declared a development under Section 2(d) of the Act and BHP Billiton was asked to submit an EIS for the development. EAB worked with the Proponent to develop project specific guidelines to help guide the development of their EIS. These guidelines were finalized in August 2009.

BHP Billiton prepared a draft EIS and submitted it to EAB in December, 2010. The EIS was sent for technical review to provincial agencies and the Government of Canada.

Technical Review

Technical review provides the government perspective on the proposed development.

The EIS, entitled *Jansen Project Environmental Impact Statement*, was reviewed by provincial and federal agencies to ensure that any potential environmental issues (including biophysical, social and economic) had been identified and adequately dealt with. During this review additional technical information was requested from BHP Billiton. An addendum, entitled *Response to Technical Comments*, containing the requested information was received in March 2011 and, upon further review, was judged to contain adequate information to proceed with public review.

The Final Technical Review Comments that you are reading have been prepared to assist the public and government decision-makers in their review of the EIS. The comments, starting on page 6, represent a summary of the provincial and federal government's evaluation of BHP Billiton's EIS.

In preparing technical review comments, the Ministry of Environment focuses on those factors that are considered to be of primary significance with respect to the proposed development and its environment.

Public Review

Public comment is invited on BHP Billiton's EIS for a period ending Friday, May 6, 2011.

The EIS, addendum and the Final Technical Review Comments, are being made available to the public for review at public libraries in Saskatoon and Regina; the University libraries in Saskatoon and Regina; the Legislative Library in Regina; the offices of the Villages of Jansen and Punnichy, Towns of LeRoy and Lanigan, City of Humboldt, and R.M.s of Prairie Rose #309 and LeRoy #339; and the Environmental Assessment Branch office in Regina.

To ensure your comments on the EIS are considered, please submit them to Saskatchewan Environment **no later than Friday, May 6, 2011** to the following address:

Ann Riemer
Senior EA Administrator
Environmental Assessment Branch
Saskatchewan Ministry of Environment
Room 486, 3211 Albert Street
Regina SK S4S 5W6
Phone: 787-5793 Fax: 787-0930
Email: ann.riemer@gov.sk.ca

Please ensure mailed comments are postmarked no later than **Friday, May 6, 2011**.

Ministerial Decision

The Minister considers both the public and technical review comments when making a decision.

Information generated during the public and technical reviews of the EIS will be submitted to the Minister of Saskatchewan Ministry of Environment for consideration. The Minister, under section 15 of The Environmental Assessment Act, may give Ministerial Approval to proceed with the development, with any terms and conditions that the Minister considers necessary or advisable, or the Minister may refuse to approve the development as proposed and will provide reasons for the decision.

2. Summary of Proposed Project

Information in this section is taken from BHP Billiton's EIS and is neither comprehensive nor inclusive of the information contained in that document. Please refer to the Executive Summary and body of the EIS and addendum for more complete information.

BHP Billiton Canada Inc. is a Canadian subsidiary of the world's largest diversified resource company, BHP Billiton Group. BHP Billiton Canada Inc. potash offices are located in Saskatoon, Saskatchewan.

The proposed Jansen Project would be located approximately 140 km east of Saskatoon between the communities of Jansen and LeRoy in the R.M.s of Prairie Rose and LeRoy. The proposed potash mine includes underground mining infrastructure; surface infrastructure (offices, mill, shipping, storage and staff facilities, waste treatment, internal roads and rail beds); and tailings management areas.

Associated third party infrastructure will include: road upgrades, closures and realignment (to be developed by the RMs of LeRoy and Prairie Rose); water (to be supplied by SaskWater); temporary and permanent electrical power (to be supplied by SaskPower); natural gas (to be supplied by TransGas); telecommunications to the site (to be supplied by SaskTel); rail infrastructure (to be supplied by Canadian Pacific (CP) Railway); and marine access to markets (to be developed by BHP Billiton at the Port of Vancouver, Washington).

Alternatives Considered

A number of alternatives were considered relative to site location; mining method; tailings management; water and energy sources; mine closure and reclamation. A detailed analysis of these alternatives is presented in chapter 4

of the EIS.

The preferred location presented in the EIS is based on engineering, environmental, financial and social criteria. The summary in Section 4.8 provides a general description of the preferred alternatives.

Social, Cultural and Economic Impacts Considered

BHP Billiton undertook a Human Environment Effects Assessment (Chapter 12) taking into consideration existing baseline conditions, regulatory requirements, economic and traffic modeling, as well as stakeholder interests, values, and concerns. Information was collected from a variety of sources including literature review, in meetings with government, the public, First Nations and Métis to identify the key components that should be assessed (valued environmental components).

Forty-five residual effects (those that remain following mitigation) on the human environment were identified. Of these, twenty-two are expected to have no significant effect. Of the remaining significant effects eighteen were assessed to be beneficial, four to be locally adverse and one to be both beneficial and adverse. Table 12.3-2 in the EIS describes these effects.

The proposed mine site has undergone a heritage resource impact assessment for the core area and archaeological sites and built heritage sites protected by the Heritage Property Act were found. The Proponent has committed to mitigation of known sites before development and ground-altering activities. Unknown heritage sites, if present, will be documented and mitigated during construction and operation.

Biophysical Impacts Considered

The Proponent conducted a similar analysis to the one above for biophysical impacts. The Proponent collected three years of baseline data and historical information on climate and meteorology; air quality; noise; topography; surficial geology and soils; groundwater; ecosystems (terrestrial vegetation and wetlands); surface hydrology; surface water quality and aquatic resources; and wildlife and wildlife habitat. Potential effects of the project on the biophysical environment were identified and then the residual effects (those that remain following mitigation) were assessed.

Ninety-five residual effects on the biophysical environment were identified. Of these, only one was assessed to be significant; although the magnitude of the change to drainage pattern related to subsidence is low, the change is irreversible. This effect was also classed as neutral as the change in drainage may be beneficial in some areas and negative in others. See Table 11.12-2 in the EIS for a description of these effects.

In particular, the Proponent has examined the potential effects of the development on noise, air quality, groundwater, surface water, soils, vegetation, wildlife, and wetlands. Analyses for each of these components can be found in the relevant sections of the EIS and are summarized in Chapter 14 of the EIS. In addition, commitments made by the Proponent to address impacts on valued environmental components can be found in Table 13-1 in Chapter 13 of the EIS.

Public, First Nations and Métis Engagement Feedback and Response

Chapter 3 provides details of BHP Billiton’s engagement with the public, First Nations and Métis, government and stakeholders. Feedback was documented and considered throughout the EIA. Information, issues and concerns were used to inform the Issue Scoping, Project Alternatives, Effects Assessment, and Environmental Management Framework chapters of the EIS (Chapters 4, 8, 11, 12, and 17). Table 3.5-1 provides a summary of the key themes and issues raised and where these are addressed in the EIS.

After due consideration of the project, including the information provided in the EIS, and its potential environmental impacts, we have concluded that with respect to the Crown’s duty to consult there is no obligation as the project is occurring on privately held land and with no expected off-site impacts.

3. Technical Review Comments

Introduction

The intent of the technical review step of the environmental assessment and review process is to give provincial and federal specialists/agencies an opportunity to examine the EIS to:

- Develop their opinions about how adequately the environmental issues related to the development have been dealt with; and
- Determine whether the information provided is sufficiently complete and technically accurate enough to support the public review phase of the process.

Release of the EIS for public review should not be interpreted as absolute agreement with all items within the EIS, but simply that the issues remaining can be handled through ongoing regulatory relationships or terms and conditions that might flow from a decision made pursuant to The Environmental Assessment Act that would modify the “development” to make it acceptable to the technical reviewers.

In general, the Proponent has addressed, in the EIS and addendum, most of the issues raised during review of the initial EIS submission. As is customary, additional project details will be provided at the time of licencing should the development receive EA approval. Comments provided by technical reviewers are summarized in the following sections.

Biophysical Considerations

Ground and Surface Water

BHP Billiton does not anticipate any off-site impact to groundwater due construction, operation or decommissioning of the mine; however ongoing monitoring will be used to assess the need for additional safeguards beyond those presented in the EIS. Reviewers agree with the EIS's findings that the proposed system of perimeter dykes and ditches, slurry walls, a pile drainage system and pump back wells will be effective in minimizing any impacts to existing ground water resources.

Saskatchewan Watershed Authority has requested that a copy of the finalized plant site perimeter ditch plan be submitted to the Authority's Yorkton office for review under their drainage approval process.

Reviewers have commented that prior to the Ministries of Environment (MOE) and Energy and Resources (ER) issuing approvals for the deep well injection system, BHP Billiton will be required to submit further information. The proponent will be required to provide details on well head protection measures and contingency plans for the duration of injection to ensure both surface and subsurface protection from brine contamination. In particular, the proponent should address what potential impacts the very high brine pressure head (estimated to be 370 meters above ground surface by 2084) may have on overlying aquifers. BHP Billiton should also provide clarification regarding the need for the large injection capacity and if it is related to enhanced dissolution and disposal of tailings. In their addendum, BHP Billiton has committed to providing the above information as part of their application to permit the Construction and Operation of the deep well injection system

Reviewers requested that BHP Billiton give more consideration to other nearby projects injecting into the same formations in their cumulative impacts assessment for deep well injection. In their addendum, BHP Billiton has provided results of the cumulative impacts assessment for deep well injection that include potential impacts at the Colonsay and Allan potash mines.

Reviewers have recommended that BHP Billiton's groundwater monitoring program (Chapter 17.2.4.1) be comprehensive in time and space to assess any possible impacts to groundwater from the TMA throughout the operational and decommissioning phases. Reviewers would also like to see a commitment by

BHP Billiton to be responsible for any mitigation required to maintain current water supplies that are impacted by the regional draw down attributable to the project. In their addendum, BHP Billiton has committed to take responsibility for mitigation to maintain affected water supplies in the unlikely event that existing wells are impacted by pumping at the Jansen mine.

The Proponent is encouraged to consider reduction and recycling options for minimizing water use and waste water when developing their detailed waste management strategy.

Soils

Reviewers agree with the Proponent's suggestion that a soil monitoring program be established around the mine site so that potential impacts the mine can be evaluated and, if impacts do occur, appropriate mitigation measures adopted.

Wetlands

Approximately 38 hectares of wetlands may be impacted by the Jansen Project at the mine's maximum point of development. This represents approximately 1% of wetlands in the Regional Study Area (Chapter 6). Due to the importance of wetlands to wildlife and water processes, reviewers agree with the Proponent's commitment to mitigation for the loss of these wetlands in the form of restoration of existing wetlands or possible construction of new. BHP Billiton has committed to work with the province and other experts to develop a habitat compensation plan that includes the conservation/compensation of wetlands that will be impacted by the project footprint.

Grasslands

There are no native grasslands within the mine surface development area (MSDA), although there are some significant tracts within the predicted subsidence zone. Please see the comment under the Subsidence section.

Subsidence

The Proponent has modeled the predicted impact of subsidence on the landscape and while significant regional changes are not anticipated, some changes to the extent of Jansen Lake, topography and soil moisture/salinity levels may occur over time. Reviewers have suggested that the Proponent monitor the potential effect of subsidence on the area, including the area of Jansen Lake and the public grasslands in the southern portion of the Regional Study Area. Proposed monitoring programs should be discussed with MOE and early awareness and joint planning with local municipalities are important for ensuring that existing and future developments are not unduly effected by predicted subsidence from the Jansen mine.

Additional studies should be carried out in the future by the potash industry and others to assess the potential impact of subsidence on linear structures (e.g., gas lines, railroads and highways), topography and on surface and ground water flow. Reviewers support BHP Billiton’s commitment to carry out future subsidence monitoring and mitigation as required, which is expected to contribute to the industry’s understanding of potential subsidence impacts.

Tailings Management Area

The EIS provided alternative tailings management area (TMA) locations and a detailed assessment of the proposed location, disposal methods, conceptual design, operational plans and monitoring framework for the TMA. As part of the detailed design of the TMA, required prior to issuing operation approvals, reviewers wish to see trigger points established for the development of additional protection features such as a slurry wall or pump back wells. An operation, maintenance and surveillance manual will also be required prior to the tailings disposal.

Land Use

Reviewers support BHP Billiton’s commitment to work with the Rural Municipalities of LeRoy and Prairie Rose to improve intersections at local roads joining the Highways No. 6 and No. 16 for safety reasons. A design plan will be required by the Ministry of Highways and Infrastructure.

Heritage Resources

A Heritage Resources Impact Assessment was conducted for the study area and a few archaeological resources were found and mitigated for. One site (EIND-15), located in a cultivated field within a grid road right of way, is particularly sensitive. This site will have to be considered by the Rural Municipalities as they proceed with construction of the road network that will service the project. Heritage Resources Branch has no further concerns.

Additional Requirements

Additional comments and advice offered by reviewers follows:

- Work that impacts wetlands may be subject to an Aquatic Habitat Protection Permit.
- An application for an Approval to Construct and Operate works / Water Rights Licence to use surface water is to be submitted to Saskatchewan Watershed Authority’s Swift current office.
- An application for Ground Water Investigation Permit and Approval to Construct and Operate works / Water Rights Licence to use ground

water is to be submitted to Saskatchewan Watershed Authority's Ground Water Division in Moose Jaw office.

- Term Licences will be required from Saskatchewan Watershed Authority for using surface water from dugouts, sloughs, creeks, etc. related to dust control or any other construction purpose; Please contact Saskatchewan Watershed Authority's Yorkton office.
- Pursuant to The Planning and Development Act, 2007 any subdivision of land will require approval from Community Planning Branch of Municipal Affairs and a development permit is required from the Rural Municipality prior to development of the site.
- A Preliminary Decommissioning and Reclamation plan and corresponding financial assurance will be required once all alternatives have been identified, assessed and the preferred option chosen.
- A Permit to Construct a Sewage Works and a Permit to Operate a Sewage Works will be required for sewage works.
- A Permit to Construct and a Permit to Operate a Waterworks will be required for the construction, operation and distribution of waterworks with volumes in excess of 18 cubic meters per day.

4. Conclusion

The Saskatchewan Environmental Assessment Review Panel (technical reviewers) and Saskatchewan Ministry of Environment conclude that BHP Billiton has undertaken sufficient studies and provided adequate information about the proposed Jansen Project potash mine such that the EIS can be made available for public review.

The main concerns/issues identified during the technical review related to:

- Waste brine management and potential effects on water sources;
- Potential impacts of subsidence on soils, grasslands and water flow patterns;
- Fresh water use and draw down; and
- Effect of deep well injection on aquifers.

Invitation to Comment

The public is invited to review BHP Billiton's EIS and the Technical Review Comments and to provide their comments regarding the EIS, no later than **Friday, May 6, 2011**.

Again, the EIS along with these Final Technical Review Comments, are being made available to the public for review at public libraries in Saskatoon and Regina; the University libraries in Saskatoon and Regina; the Legislative Library in Regina; the offices of the Villages of Jansen and Punnichy, Towns of LeRoy and Lanigan, City of Humboldt, and R.M.s of Prairie Rose #309 and

LeRoy #339; and the Environmental Assessment Branch office in Regina; or it can be accessed on the internet at:

www.environment.gov.sk.ca/programs-services/ **Environmental Assessment**

The comments received during the public review of the EIS along with the technical review comments will be considered by the Minister of Environment when he makes his decision (under section 15(1) of The Environmental Assessment Act) to either:

- (a) give ministerial approval to proceed with the development and impose any terms and conditions that he considers necessary or advisable; or
- (b) refuse to approve the development.

Contact

For more information, please contact:

Ann Riemer
Senior EA Administrator
Environmental Assessment Branch
Phone: 787-5793 Fax: 787-0930
Email: ann.riemer@gov.sk.ca