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

***Mosaic Potash Esterhazy
Stage 2 Expansion***

Esterhazy, Saskatchewan

Prepared by
Saskatchewan Ministry of Environment
Environmental Assessment Branch
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Preface

This document is provided by the Environmental Assessment Branch of Saskatchewan Ministry of Environment as supporting information for the public review of Mosaic's (the Proponent) Environmental Impact Statement for the proposed Stage 2 Expansion at the Esterhazy K2 potash mine near Esterhazy, Saskatchewan.

The proposed Stage 2 expansion represents a change to the K2 mine as earlier approved (EAB #2008-078) under Section 15 of The Environmental Assessment Act (the Act). A subsequent Section 16 change (EAB#2009-112) to the existing approval saw the mine's tailings management area (TMA) and mill expanded. Approval for the current proposed change is being sought by the proponent under Section 16(2)(c) of the Act.

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 of Saskatchewan's Ministry of Environment on Mosaic's proposed expansion.

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 2 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 2010, Environmental Assessment Branch (EAB) received an EIS from Mosaic for the proposed Stage 2 Expansion at the Esterhazy K2 potash mine. Mosaic had not previously submitted a project proposal and no project specific guidelines were prepared. Proponents are under no obligation to submit a proposal or develop project specific guidelines prior to submitting an EIS.

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 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 Mosaic. An addendum containing the requested information was received in early February, 2011 and upon further review, additional information was requested. A revised addendum was submitted in late February, 2011 and was judged by the reviewers 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 Mosaic's EIS and addendum.

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 Mosaic's EIS for a 30 day period ending Friday, April 29, 2011.

The EIS and addendum, 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 Town of Esterhazy and the R.M. of Spy Hill; 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, April 29, 2011** to the following address:

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Saskatchewan Ministry of Environment
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Please ensure mailed comments are postmarked no later than **Friday, April 29, 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 16(2)(c) 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 Mosaic's EIS and is neither comprehensive nor inclusive of the information contained in that document. Please refer to the Executive Summary, body of the EIS and addendum for more complete information.

Mosaic is the world's leading producer of potash and phosphate crop nutrients. The company operates four potash mines in Saskatchewan including the Esterhazy K2 mine which began operations in 1967. The Esterhazy K2 mine is located approximately 14 km east of Esterhazy in the R.M. of Spy Hill #152. Five hundred and eleven people are employed at K2 producing about 2.36 million tonnes of fertilizer (KCl) annually using conventional room and pillar techniques.

Salt tailings, brine, and a small amount of silt and clay (fine tailings) are by-products of potash mining. The tailings and brine are separated from the potash and deposited in the K2 TMA. Brine is stored in ponds and circulated in the TMA for re-use in the mill. Excess brine is disposed of by deep well injection approximately 1200 m below ground surface.

The proposed change in development would see production increase from 3.13 to 4.04 million tonnes per year by spring of 2016. This expansion is referred to as the Esterhazy Stage 2 Expansion Project and the site of the new shafts is referred to as the K3 site. The expansion involves construction of two new mine shafts, a 13 km haul road, buried raw water and waste water pipelines and some associated infrastructure. Ore from the new shafts will be processed at the existing K2 mill and tailings management area. The expansion is being proposed to provide additional product to meet the world-wide demand for fertilizer.

Alternatives Considered

Two sites were considered for the shaft location; one north of Highway 22 and one south of Highway 22. The north site was rejected due to unfavourable

geology leaving the south site as the preferred location. Alternative locations were also considered for the proposed haul road. If the shaft site had been north of the highway, two locations were proposed for the haul road; one adjacent to and on top of the K2 TMA dyke and one on the north side of the highway. When the proposed shaft site was moved to the south of the highway, the preferred location for the haul road was also chosen to be south of the highway as it is the most direct route to the K2 site.

Social, Cultural and Economic Impacts Considered

Mosaic undertook meetings with the local government and presented the project at an open house that was advertised in the community newspapers. Direct notification was provided to the First Nations in the area. Overall reaction was positive. In meetings with the RM of Spy Hill, Mosaic requested and was given permission to use the grid road right-of-way for their haul road provided local traffic could cross the road and local landowners could travel on it.

The proposed expansion site has undergone a heritage assessment and Heritage Resources Branch found that there were no heritage concerns with the development site. The raw water pipeline will be installed within 55 m of an existing cemetery; however, ground penetrating radar did not identify any burials outside of the cemetery.

The proposed development is anticipated to have a number of socio-economic effects. The majority of effects will be positive in terms of 100 new full time positions at the mine, 1,500 person-years of construction labour and local business opportunities. Local communities should experience substantial growth.

Biophysical Impacts Considered

The Proponent evaluated the possible impact of the Stage 2 expansion on the biophysical environment, the possible mitigation measures that could be employed to eliminate or mitigate (reduce) the impacts, and any residual effects that might remain after the mitigation is in place.

In particular, the Proponent has examined the potential effects of the development on terrain (including wetlands), noise, air quality, groundwater, surface water, soils, vegetation, wildlife, and utility resource use. Analyses for each of these components can be found in the relevant sections of the EIS and are summarized in Table 8.1 of the EIS. In addition, commitments made by the Proponent to address impacts on valued environmental components can be found in the Commitments Register in the EIS.

Public, First Nations and Métis Engagement Feedback and Response

Feedback and response was generally positive with most comments relating to employment and business opportunities. Section 6.0 of the EIS provides details on Mosaic's engagement with the public. Appendix I provides examples of questions and concerns raised during the engagement process.

With respect to the Crown's duty to consult, we do not feel there is an obligation as the project is occurring on privately held land and with no expected off-site impacts. Reviewers have noted that there is a Treaty land entitlement selection adjacent to the haul road.

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 revised addendum most of the issues raised during review of the initial EIS submission and first addendum. As is customary, additional project details will be provided at the time of licencing should the development receive EA approval. Additional comments were provided by technical reviewers after review of the addendum and are summarized in the following sections.

Biophysical Considerations

Ground and Surface Water

Reviewers agree that the proponent's approach to construction of the two new shafts and the use of engineered liners in the perimeter ditch and surge pond will minimize any impacts to groundwater resources.

Due to the large number of injection wells in use and the volumes of brine being injected reviewers commented that the proponent needs to further study contaminant transport and fate. Mosaic has committed to completing a study modelling 3D groundwater flow in the Interlake injection horizon within one year (page 8 and the revised commitments table in the revised addendum).

The proposed ore haul road will require culverts through the embankment to ensure that the existing surface drainage pattern is maintained and sloughs on either side of the roadway are equalized. The final haul road design including temporary slough de-watering plans should be reviewed by the Saskatchewan Watershed Authority's Yorkton office to ensure drainage approval from the Authority is not required.

Rare Species

Mosaic has committed to adhere to activity restriction guidelines for construction near to sensitive species. They have also committed to conduct pre-construction surveys for leopard frogs at wetlands where the frogs have been noted and, if present, relocate a representative portion of individuals to wetlands outside the project footprint. Reviewers recommend that sterile handling techniques be used in order to limit disease (Ranavirus) transmission. In addition, construction impacting water bodies known to contain leopard frogs should be avoided prior to the 15th of July due to the possible presence of the juvenile stages of northern leopard frogs which are unable to disperse out of the ponds.

Air

Reviewers would like the proponent to be aware that dust from increased traffic on gravelled roads has been a source of complaints to regulators by the public in other areas and may become an irritant to residents in this area. Mosaic should monitor this potential concern and consider addressing the issue should it arise.

Wetlands

As many as 202 hectares of wetlands will be impacted by the Stage 2 expansion. Mosaic has committed to work with the province and other experts to develop a mitigation plan for the wetlands that will be impacted. Reviewers commend the

proponent for this commitment, but were concerned that the wetlands may not have been adequately characterized to allow for appropriate mitigation. Mosaic has committed to providing details on the complete characterization of impacted wetlands to the Ministry of Environment prior to wetland disturbance. The characterization will include the wetland class, areal extent, depth, vegetation and surrounding upland vegetation for each wetland impacted by the proposed Stage 2 Expansion Project.

Subsidence

Based on monitoring and modelling for the K2 site, a maximum subsidence of 0.67 m is predicted to result in slight changes to a few drainage basins, but little effect on regional drainage patterns. However, because some changes to the topography and soil moisture/salinity levels may occur over time, reviewers have suggested that the Proponent monitor the effect of subsidence on the area. Early awareness and joint planning with local municipalities are important for ensuring that existing and future developments are not unduly effected by predicted subsidence.

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), terrain and on surface and ground water flow.

Land Use

At peak operation of the K3 site, trucks hauling ore will be crossing Highway No. 22 at a rate of approximately one truck every 7.5 minutes. Reviewers requested that Mosaic worked with the Ministry of Highways and Infrastructure (MHI) to develop a road crossing safety plan. Mosaic is undertaking traffic studies and is committed to ongoing consultation with MHI during the final design phases to ensure safety concerns are mitigated (page 13 of the revised addendum).

Heritage Resources

A Heritage Resources Impact Assessment was carried out for those portions of the project area requiring one. Heritage Resources Branch has no further concerns except for one site adjacent to the raw water pipeline. The raw water pipeline will be installed within 55 m of an existing cemetery, and although ground penetrating radar did not identify any burials outside of the cemetery, Mosaic is required to monitor construction in this area.

Additional Comments

Additional comments and advice offered by reviewers follows:

- Pursuant to The Planning and Development Act, 2007 any subdivision

of land will require approval from Community Planning Branch of Municipal Affairs.

- A development permit may be required from the Rural Municipality prior to development of the site.
- Saskatchewan Watershed Authority reminds the proponent that approval is required for any temporary use of surface or ground water during construction if the water will be obtained from an unlicensed source.

4. Conclusion

The Saskatchewan Environmental Assessment Review Panel (technical reviewers) and Saskatchewan Ministry of Environment conclude that Mosaic has undertaken sufficient studies and provided adequate information about the proposed Stage 2 Expansion such that the EIS can be made available for public review.

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

- Loss of wetlands;
- The fate of deep well injected brine; and
- Impacts to rare species.

Invitation to Comment

The public is invited to review Mosaic's EIS and the Technical Review Comments and to provide their comments, no later than **Friday, April 29, 2011** regarding the EIS.

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 Town of Esterhazy and the R.M. of Spy Hill 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](http://www.environment.gov.sk.ca/programs-services/Environmental%20Assessment)

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:

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