

DRAFT

PROJECT-SPECIFIC GUIDELINES
FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT

STAR-ORION SOUTH DIAMOND PROJECT
FORT À LA CORNE PROVINCIAL FOREST, SASKATCHEWAN

SHORE GOLD INC.

These guidelines have been prepared by the Saskatchewan Ministry of Environment to assist Shore Gold with the environmental impact assessment of their proposed diamond mine and associated ancillary facilities.

Province of Saskatchewan
Ministry of Environment
June 2009

TABLE OF CONTENTS

	Page
1.0 Introduction	1
1.1 Requirement for Environmental Impact Assessment in Saskatchewan.....	1
1.2 Intergovernmental Cooperation on the Environmental Assessment.....	2
1.3 Project-Specific Guidelines for the Environmental Impact Statement.....	2
2.0 EIS Content	3
2.1 General Requirements.....	3
2.2 EIS Executive Summary.....	4
2.3 Project Description.....	4
2.3.1 General Requirements.....	4
2.3.2 Site Plan and Operations.....	5
2.3.3 Objectives/Costs and Benefits.....	6
2.3.4 Project Options/Alternatives.....	6
2.4 Description of Existing Environment.....	7
2.4.1 Climate.....	8
2.4.2 Geology, Hydrogeology and Soils.....	8
2.4.3 Surface Hydrology and Water Quality.....	9
2.4.4 Navigable waterways.....	11
2.4.5 Air Quality.....	11
2.4.6 Noise.....	12
2.4.7 Aquatic and Terrestrial Resources.....	13
2.4.8 Heritage Resources.....	14
2.5 Socio-Economic and Land Use Issues.....	14
2.5.1 Traditional Land Use.....	14
2.6 Occupational Health and Safety.....	15
2.7 Public Involvement.....	15
2.8 Conceptual Decommissioning and Reclamation Plan.....	16
2.9 Impact Assessment and Mitigation.....	17
2.9.1 Project-Specific Impacts.....	17
2.9.2 Regional/Cumulative Impacts.....	20
2.10 Monitoring.....	20
2.11 Ancillary Developments.....	21
2.12 Commitments Register.....	21
3.0 Regulatory Approvals	22
3.1 Provincial Regulatory Approvals.....	22
3.2 Federal Regulatory Approvals.....	23
4.0 Summary	24
Appendix A	25
Example template for a commitments register.....	25

1.0 Introduction

The proposed Star-Orion South Diamond Project includes the excavation on an open pit at the Star Kimberlite and potentially, a second open pit at the Orion South Kimberlite, construction of processing facilities and construction of associated infrastructure to commercially extract diamonds from these kimberlites. The potential development site is located in the Fort à la Corne Provincial Forest (FalC) approximately 65 kilometres east of Prince Albert. The project footprint in the FalC will be 3,000 to 4,000 hectares (2.3 to 3.0% of the forest) in close proximity to the Saskatchewan River.

The Star Kimberlite portion is mainly owned by Shore Gold Inc. (Shore Gold); the Orion South Kimberlite and a small part of the Star Kimberlite known as "Star West" is owned by the Fort à la Corne Joint Venture (Shore Gold's wholly owned subsidiary Kensington Resources Inc. 60%, Newmont Mining Corporation of Canada 40%). Shore Gold is the operator of both parts of the proposed project.

Shore Gold has been informed that the project will require an environmental assessment under the Environmental Assessment Act (the Act). Shore Gold is required, pursuant to section 9 of the Act, to conduct an environmental impact assessment (EIA) and prepare and submit to the Minister of Environment an environmental impact statement (EIS) for technical and public review. These project-specific guidelines have been prepared to assist Shore Gold with the conduct of the environmental impact assessment and preparation of the environmental impact statement.

It should be noted that other kimberlites have been identified in the FalC. The mining of these kimberlites are not included in the Star-Orion South project as described in the November 2008 proposal. The mining of additional kimberlites would require future, and separate, applications for environmental assessment approval.

1.1 Requirement for Environmental Impact Assessment in Saskatchewan

In Saskatchewan, the proponent of a project that is considered to be a "development" pursuant to Section 2(d) of the Act is required to conduct an environmental impact assessment of the proposed project and prepare and submit an environmental impact statement to the Minister of Environment.

The Environmental Assessment Branch (EAB) of the Ministry conducted a technical review of Shore Gold's project proposal including seeking comments on the proposal from other provincial and federal ministries and agencies. Based on the results of the technical review, the project met the definition of a "development". As a consequence, Shore Gold is required to conduct an EIA of the project and submit an EIS to the Minister of Environment.

When the EIS is prepared and submitted, the Ministry will review the EIS and prepare Technical Review Comments. The public will have an opportunity to comment on the EIS and the Technical Review Comments prior to the Minister's decision on the project.

Should the proposal to develop the diamond mine and associated ancillary facilities in the FalC be found to be environmentally acceptable by the Minister, Shore Gold would be required to apply to Saskatchewan regulatory agencies for the necessary approvals, permits and licenses that regulate construction and operation of the proposed development and to comply with all applicable provincial laws.

1.2 Intergovernmental Cooperation on the Environmental Assessment

Government of Canada

In accordance with the Canada-Saskatchewan Agreement on Environmental Assessment Cooperation (2005) Shore Gold's proposal to develop the diamond mine or mines and associated ancillary facilities was provided to the Government of Canada for review. Under the Agreement, federal and provincial environmental assessment processes, directed respectively by the Canadian Environmental Assessment Act and The Environmental Assessment Act (Saskatchewan), are coordinated for projects with joint federal and provincial jurisdiction. The Saskatchewan Ministry of Environment Environmental Assessment Branch is the lead agency and contact for the project.

The diamond project qualifies as a Major Resource Project, as defined under the federal government's Cabinet Directive on Improving the Performance of the Regulatory System for Major Resource Projects. The Major Projects Management Office (MPMO) will work closely with the Canadian Environmental Assessment Agency (CEAA) and federal regulators to monitor and track the project as it moves through the federal regulatory process.

CEAA and MPMO completed a survey of federal departments with respect to determining interest in the FalC diamond project. Based on the responses to this survey, Fisheries and Oceans Canada (DFO), Natural Resources Canada (NRCan), Transport Canada (TC) and Indian and Northern Affairs Canada (INAC) have determined that the application of the Canadian Environmental Assessment Act will be required for the project. The determination on the type (screening or comprehensive study) of federal environmental assessment will be made upon receipt of additional information requested from the proponent.

1.3 Project-Specific Guidelines for the Environmental Impact Statement

These project-specific guidelines (the "guidelines") have been prepared by the Ministry of Environment to assist Shore Gold with the conduct of the EIA for the

development of a diamond mine or mines and associated ancillary facilities and the preparation of the EIS.

The guidelines reflect concerns and issues that have been identified by provincial and federal officials regarding the proposed development and outline the information that should be included in the EIS.

The guidelines should not be considered as either exhaustive or restrictive, as concerns other than those already identified could arise during the investigations associated with the EIA. The Ministry of Environment is prepared to provide advice and assistance throughout the EIA with regard to the identification of environmental concerns and appropriate assessment methodologies.

2.0 EIS Content

2.1 General Requirements

The EIS is a statement of the proponent's environmental conclusions and commitments regarding the development and, as such, must be explicitly endorsed by the proponent.

The EIS will be made available for public review and should be written so that non-specialists can understand it. In particular, the executive summary must be easily understood and printed in black and white so that reproductions can be easily made. A glossary of technical terms is also useful.

The following sections describe the different topics to be addressed in the EIS. Sufficient information needs to be provided for each so that informed conclusions can be reached regarding the potential for impacts on the various components of the environment. However, the greatest time and effort should be applied to data collection and interpretation related to the most significant impacts as identified by the proponent and through these project-specific guidelines. The proponent of the project must provide rationale as to why any issues identified in the guidelines were not adequately addressed in the EIS and highlight key impacts that were identified for more intensive investigation.

Where external sources of information or data are used a brief reference for the source at the point at which the information is presented and a complete reference at the end of the EIS should be provided. Where conclusions that are critical to the assessment of environmental impact are cited from other reports, the proponent should provide sufficient detail of the originating data and analysis so as to enable the critical review of that material. Such detailed reference material could be submitted as an appendix to the EIS. The EIS should be a stand-alone document upon which critical review can be undertaken. Any engineering work as described in The Engineering and Geoscience Professions Act, included or

appended to the EIS, must be stamped by a qualified professional engineer in the appropriate discipline.

When submitting the EIS, one digital copy (Word and/or PDF) and approximately 25 paper copies are required (confirm number with the EAB Project Development Administrator). The proponent may wish to print and bind the EIS in a way that is amenable to revision should changes to the EIS be required following technical and public review.

2.2 EIS Executive Summary

An executive summary of the EIS is required. It should **briefly** summarize the EIS under the following topic areas:

- purpose of carrying out the development;
- description of the preferred option and alternative means for development;
- the benefits and costs of the preferred option and the alternatives;
- potential for short and/or long-term environmental effects of the development, including the potential for spills/malfunctions/accidents;
- potential cumulative environmental effects that are likely to result from the development in combination with other local/adjacent projects (past, present and future) and activities in the short and long term;
- significance of the identified potential environmental impacts;
- mitigation measures including their environmental outcome and technical and economical feasibility;
- decommissioning and reclamation;
- monitoring programs for the development at all phases; and
- public involvement activities and comments received along with Shore Gold's responses.

To enhance public involvement, the executive summary should be written in clear language and avoid the use of technical terms and jargon and be available under separate cover.

2.3 Project Description

2.3.1 General Requirements

The EIS needs to provide detailed descriptions of all project phases: planning; construction; and operation. A conceptual decommissioning and reclamation plan is addressed in section 2.8 of this document. Information and technical data, particularly about the preferred option, must be sufficient in detail and scope to enable an accurate assessment of the potential environmental impacts of the proposed development and any related cumulative impacts. Drawings and maps are to be employed wherever relevant. Information should be included on:

- project ownership;

- project location, including map(s) showing exact location of proposed development and alternative sites/routes mapped at scales appropriate to effects and with identifiable geographic and environmental features, surface and ground water resources, current land use and nearby communities, residences, and industries;
- status and map of current and proposed surface lease(s) and active mineral disposition relative to the project (use NAD 1983 CSRS 98 datum, Zone 13N for maps);
- the purpose and need for the project;
- description of proposed project (including project life, dimensions, plans) up to and including abandonment;
- alternative means of accomplishing the project;
- types and quantities of materials, energy, power and water required;
- construction materials and power supply requirements;
- sourcing of construction/operation supplies and servicing;
- explosives to be manufactured or stored and the maximum quantity of explosives at each facility;
- anticipated schedule for all phases;
- estimated manpower, skill requirements and ongoing employment opportunities for local communities, First Nations and Métis people;
- occupational health and safety considerations;
- assessments of risk of failure at all phases and contingency plans, emergency measures and procedures in place. The proposed development area has been ranked as being at very high risk from wildfire and requires a plan for managing wildfire risks at the mine and ancillary developments;
- technical issues and new technologies specific to the project;
- a description of the potentially affected environment;
- contaminant releases and their impact on the environment; and
- proposed monitoring and mitigation measures.

Diamond exploration activities in the FalC have been ongoing since 1988. A description of currently existing facilities and procedures should be included to provide a context for discussion of the potential project-specific and cumulative impacts of the proposed expansion on environmental conditions. This description should contain an assessment of the performance of the current facilities/operations and include relevant data and related components of the environmental management system.

2.3.2 Site Plan and Operations

In the project proposal, the proponent indicated that the project “includes the excavation of an open pit at the Star Kimberlite and potentially, a second open pit at the Orion South Kimberlite”. Similar to describing project alternatives, proponents are encouraged to describe potential future activities in the EIS. However, the extent of the proposed development for which approval is being

sought must be clearly defined in the EIS. That is, it must be apparent to the reader that estimates and impacts are appropriate for the development proposed.

A conceptual mine plan must be included in the EIS which describes:

- proposed production and mine life;
- mining scenarios;
- mine infrastructure and locations at each kimberlite, including waste management facilities;
- operational procedures for all aspects of the project with the potential to impact the environment;
- characterization and management of kimberlites and overburden components, identifying any potential contaminants;
- water management issues at each kimberlite:
 - description and quantification of surface/waste/potable water handling systems;
 - mine dewatering procedures and anticipated quantity and quality of produced mine waters;
 - zones of ground water, surface water, air or soil with potential to be impacted directly or indirectly;
 - description of type and concentration of potential contaminants that will be in the process and pit water and discharge;
 - potential for and proposed points for control and monitoring of discharge to the environment;
- present and potential long-term effect of leaching and any other environmental effects as a result of storing tailings (unprocessed ores, processed ores and associated wastes and overburden);
- on site works at each kimberlite, storage/treatment of any dewatering waters, sedimentation ponds, effluent and discharge treatment systems;
- residual explosives and potential environmental effects; and
- detailed descriptions and plans of all physical works including requirements such as new access roads, road upgrades and crossings (identify if municipal or provincial highways will be used), borrow pits, waste disposal sites, electrical, gas line and telecommunications options, etc.

2.3.3 Objectives/Costs and Benefits

The EIS should clearly outline the need for the project and describe the associated benefits in contrast to any potential environmental, social or economic costs as they may impact overall operations, the industry, community, First Nations, Métis people or the public.

2.3.4 Project Options/Alternatives

The EIS should present the alternative sites considered for establishing the development as well as alternatives to processes for mining, processing and waste

and tailings management. The EIS should provide a comprehensive description of the preferred site and any changes that would occur to existing operations as a consequence of proceeding with the preferred site versus other sites. The rationale for selecting the proposed preferred location or approach should include a discussion of the potential impacts to the development and reasons for rejecting alternatives that may have less impact on some features of the environment.

The various design options should be described in enough detail to clearly illustrate the differences and advantages and disadvantages of each in the context of the relevant location. The EIS should discuss the criteria (environmental, engineering and economic) used to evaluate the design alternatives. The criteria used to evaluate alternative design options should reflect the potential concern for short-term, long-term and post-decommissioning environmental impacts.

The project proposal presents numerous options for transportation and power access to the mine. As with other design options, the EIS should describe the various corridor alternatives including land uses and critical environmental values along each potential corridor. The routing analysis should include consideration of access, existing corridors, disturbed land and cumulative effects of additional linear disturbance on the wildlife. Reviewers favour minimizing the number and length of linear corridors within the island forest and presenting options for reducing human / wildlife interactions.

It is the proponent's intention, as stated in the project proposal, to continue exploration activities concurrently with construction and operation of the proposed mine. To the extent possible, given that the nature of exploration is results driven, the EIS should indicate estimated work schedules for proposed short and long term exploration activities in the FalC.

2.4 Description of Existing Environment

The information contained in the EIS must provide project-specific data at a level of detail that allows for the evaluation and prediction of potential environmental effects of the proposed development, including ancillary developments such as pipelines, utility corridors and rail and road access. Existing data may be used; however it will need to be supplemented with field data to predict site-specific impacts. Such data must be collected by qualified personnel using known and accepted methodologies which are also described in the EIS.

The EIS should, where appropriate, contain information on already-impacted sites in the area and, if known, their pre-impact baseline conditions. This information allows for the evaluation of potential cumulative effects of the current development in the context of other pre-existing or proposed projects in the region.

The data in the EIS should satisfy the following criteria:

- The baseline data accurately describes the environment affected by the project as proposed such that both project-specific and cumulative impacts can be predicted (where relevant and to the extent possible, existing data should be used to evaluate how historic industrial activities have influenced the current status of the environment at the site);
- The data must provide a sound basis for comparative monitoring and the development of sound decommissioning, reclamation and abandonment procedures;
- The EIS must be complete, in terms of data availability and presentation, especially with respect to those aspects of the environment likely to be impacted (see Section 2(e) of The Environmental Assessment Act for the definition of “environment”);
- Data is to be stored in an acceptable electronic format and be available to Ministry of Environment upon request.

Procedures used in predicting impacts to the environment are presented in Section 2.9. The following sections may also refer to potential impacts and mitigation requirements that are associated with various environmental and baseline conditions.

2.4.1 Climate

Climate and meteorologic information must be provided in the EIS. Precipitation patterns, temperature and evaporation are examples of climate variables that may influence the management of water, especially in the context of local hydrology and proposed discharges to the Saskatchewan River.

2.4.2 Geology, Hydrogeology and Soils

The EIS must contain a description of the soils, geology and hydrogeology within the proposed development area, alternative sites and any adjacent areas that may be influenced. This information should include relevant information on surficial geological parameters that may have impacts on the project (e.g., ground stability, porosity, slumping and material weathering), aquifer systems, aquatards, and soil characteristics.

The geology of kimberlites is complicated and there are numerous kimberlite bodies involved comprised of multiple eruptive units or phases, each of which is texturally, mineralogically, physically and chemically distinct. Mineralogy for all rocks and for each major phase of kimberlite is required, including hydrocarbon content and trace elements whole rock geochemistry to see if there are any unusual elements present that would not normally be expected. If surrogates are used then the EIS must contain sufficient mineralogical research to verify the surrogate is typical of the kimberlite or wall rock.

The EIS should describe the ground water flow paths that may connect to surface waterbodies potentially affected by contaminated ground water. The EIS should provide data as to flow directions and rates, water quality and quantity, results and interpretation of aquifer draw down tests, for all aquifers and specific hydrogeologic conditions that potentially could affect ground water flows or the movement and/or dispersal of contaminants in ground water flows (e.g., permeability, hydraulic conductivity, porosity, fractures, artesian conditions, pH, fluid density, geochemistry and flow path attenuation or adsorption mechanisms).

The EIS should identify the water bodies/watercourses that would be potentially affected by changes to ground water quantity and quality. Describe and quantify, on a seasonal and long-term basis, the significance and influence of ground water withdrawals on discharges, water quality, and fish habitat type and quantity in these water bodies/watercourses. To achieve this, the EIS should include the development of a three-dimensional numerical model of the ground water flow regime, calibrated to observed heads, river stages and flows, in order to determine baseline flow directions and discharge rates to all potentially affected water bodies (e.g., the Saskatchewan River and tributaries).

A characterization of hydraulic parameters and ground water chemistries of all hydrostratigraphic units, including evaporite units (if present in the study area) should be included in the EIS. The EIS should also characterize the natural hydrocarbon concentration of any formation water likely to be discharged in the course of pit dewatering, and of any waste rock that will be excavated.

2.4.3 Surface Hydrology and Water Quality

Alterations of water courses and stream crossings associated with the construction of the mine could result in the harmful alteration, disruption or destruction of fish habitat, increased sediment loading in streams from erosion and impediments to fish movement and navigation on navigable waterways.

Outline the potential impacts to fish and fish habitat that may result from water diversions that may increase and/or decrease water discharge into certain existing watercourses, including the Saskatchewan River, as well as identify any potential changes to seasonal and long-term water quantity and quality and channel morphology in those and surrounding watercourses.

The EIS should present and discuss watershed characteristics, local drainage patterns, water uses/users and current and historical water quality data for significant water bodies. The EIS should also describe and discuss the hydrology of the area. This should include the following:

- Drainage area: delineation of the upstream and downstream watersheds affected by the proposed construction including road/rail/power corridors;

- Proposed water diversions and channel re-alignments: identification (shown on drainage area map) and description of all water diversions and channel re-alignments including the rationale for proposing the diversion;
- Detailed hydrology for stream crossings including an explanation of the role this hydrology played in the design of road/rail/power corridors; and
- Flooding: the anticipated effects of major flood events on the roadway including emergency response plans for crossing and embankment failure arising there from.

Describe the existing and anticipated water quality of water bodies. Discuss the following:

- selection criteria used to determine the study area, including information sources and assessment methods;
- baseline water quality data, its seasonal variation and relationship to flow and other controlling factors. Comprehensive temporal and spatial sampling of the study area, with sufficient replication, should be provided. Demonstrate the adequacy of the baseline, including replication and coverage, for future statistical comparison. Provide appropriate water quality parameters; e.g., temperature, pH, conductivity, cations and anions, metals, dissolved oxygen, suspended sediment, dissolved solids, nutrients and specific diamond mining water contaminants.
- describe the baseline sediment quality including but not limited to particle size, carbon content, organics, metals, sediment toxicity, and diamond mining sediment contaminants;
- project activities that may influence water quality. Place them in context with natural forces that affect water quality and how, where, and when they will act to change water quality;
- calculate probability distributions for concentrations in any surface water receiving site drainage, discharges, or ground water influenced by proposed activities;
- water quality conditions in reclaimed water bodies and any other water bodies potentially affected by the project. Include:
 - the impacts on sediments and compare data with the Canadian Interim Sediment Quality Guidelines (or acceptable alternative);
 - the potential effects of project and cumulative acidic deposition on water quality, aquatic biota and habitat conditions of surface water bodies. Identify water bodies that are sensitive to acid deposition;
 - the potential for seasonal variation in acid input to water bodies (spring acid pulse);
 - any water quality implication of the tailings deposits, including the amount and quality of water or leachate released, their permeability and ground water characteristics;
 - any other activities in the watersheds affected by the project that, together with the proposed development, have potential to influence water quality (e.g., commercial timber harvesting programs). Discuss the potential changes in water quality

anticipated from these other activities during the life cycle of the proposed development. Consider their magnitude, extent, timing, duration, and significance; and

- water quality of the reclaimed site; and
- a comparison of existing and predicted water quality, using water quality guidelines (Canadian Council of Ministers of the Environment or acceptable alternative).

2.4.4 Navigable waterways

Proposed works associated with the project that involve building in, on, over, through or across any navigable waterway could result in interference with the public right to navigate.

The EIS should describe known waterway users, including known vessel use, on affected waterways. As well, all waterways affected by proposed works (new or changes to existing infrastructure) in, on, over, under, through or across any waterway should be discussed in the EIS. This would also include any temporary works that may impede vessel passage and safety.

The EIS should include the following:

- appropriately scaled maps depicting where the existing waterways and in-water works are located (latitude and longitude);
- physical characteristics of the waterway (such as length, width, depth, seasonal flow, fluctuations);
- photographs of the proposed work locations (crossings, upstream and downstream views); and
- conceptual drawings (plan and profile views) and proposed construction schedules and methods of the proposed in-water works, both permanent and temporary.

2.4.5 Air Quality

The EIS should present a characterization of background air quality conditions for the local study area, current emissions (where applicable) and future emissions should the development proceed (source, type and quantity). Characteristics of the operation that could affect air quality (e.g., dusting from coarse processed kimberlite, overburden, and blasting) must also be described. The descriptions should include information about the frequency and duration of these elevated emission events. The effect of any expected emissions on environment and human health must be described in enough detail to determine if there will be adverse environmental impacts.

A list of all emission sources (stationary, mobile, fugitive) with estimated emissions of criteria air contaminants (Total Particulate Matter (TPM), Particulate Matter less than or equal to 10 Microns (PM₁₀), Particulate Matter less than or

equal to 2.5 Microns (PM_{2.5}), Sulphur Oxides (SO_x), Nitrogen Oxides (NO_x), Volatile Organic Compounds (VOC), Carbon Monoxide (CO) and Ammonia (NH₃) should be provided.

Provide air quality modelling to predict how emissions will disperse from the development on a local and regional scale. Modelling should be conducted from three assessment scenarios:

1. Baseline (existing environmental conditions and existing projects and facilities);
2. Project (Project emissions plus Baseline);
3. If other projects are planned and reasonably foreseeable in the region: a Cumulative Effects Assessment which includes the Baseline Case plus the project, anticipated future environmental conditions, plus other approved and planned projects or activities.

Describe how predicted air quality compares to the appropriate available air quality guidelines (e.g., for PM_{2.5}, provide a comparison to the Canada-wide Standards metric).

Greenhouse gas emissions, namely CO₂, is an environmental issue of increasing importance and interest in the province and globally. The proponent must provide estimates of greenhouse gas emissions associated with each major phase of the mine operation. The estimates should include direct and indirect greenhouse gas emissions and related effects, including impacts on carbon ‘sinks’ or large greenhouse gas emissions, which are the consequence of accidents or malfunctions. The proponent must discuss how emission considerations have been addressed, and how emission reduction offset measures have been incorporated in the proposed development.

2.4.6 Noise

The EIS should include an assessment of noise exposure to the human receptors located near the project site including:

- identification of all potential noise-sensitive receptors (e.g., residences, daycares/schools, First Nation reserves, etc.) and their locations relative to the project area. Indicate the distance of the project to nearby sensitive receptors, preferably including a map.
- identification / assessment of baseline sound levels (measured or valid estimates) for both daytime (L_d) and night time (L_n) at the receptor locations;
- identification of all potential noise sources during construction, operation and decommissioning (e.g., blasting, traffic, heavy equipment, transformers); and identification of any tonal (e.g., sirens), impulsive (e.g., mining explosions), and highly impulsive (e.g., hammering, pile driving) types of noise;

- comparison of baseline noise levels with predicted noise levels at sensitive receptor locations during construction, operation and/or decommissioning (during daytime and night-time, and after mitigation, if warranted); and
- the incorporation of noise management and noise monitoring plans, including complaint resolution, as appropriate.

Some wildlife species are sensitive to noise disturbances. The impact of noise on surrounding wildlife must be evaluated in the context of the surrounding lands. The study may extend outside the area of surface disturbance to reflect the area impacted by noise. To reduce the impacts of noise on surrounding wildlife, the Saskatchewan Conservation Data Centre has recommended setback distances for use when a sensitive species is present. These should be integrated into the project and considered at all stages of development. Therefore this section should, at a minimum, be stratified into construction and operational phases.

2.4.7 Aquatic and Terrestrial Resources

Relevant information on aquatic and terrestrial ecology that potentially may be affected by the proposed development should be included in the EIS. Baseline data should be collected or compiled and mapped to address:

- plant or animal species considered rare, endangered or threatened either federally or provincially [refer to Species at Risk Act (Canada), Wild Species at Risk Regulations under the Wildlife Act, 1998 (Saskatchewan) and the Saskatchewan Activity Restriction Guidelines for Sensitive Species in Natural Habitats (September 2003)]. To address this issue, a rare species survey will be required;
- protected areas and designated wildlife habitat;
- presence and nature of wetlands (e.g., permanent, ephemeral);
- vegetation on and adjacent to the site, especially any areas of native vegetation;
- aquatic resources including species at risk (e.g., leopard frogs), fisheries and fish habitat that may occur at the site or in adjacent areas and access corridors that could be impacted as a result of the development; and
- the issue of access to harvesting of wildlife resources should also be discussed in the EIS. Information obtained in interviews, studies and surveys should be evaluated in terms of increased access to wintering locations, travel corridors, dens, nests and other sensitive areas to determine the vulnerability of the species as a result of increased access and related hunting opportunities.

Design and methodology of wildlife and vegetation studies/surveys should be developed in consultation with Fish and Wildlife Branch, Ecological Assessment Unit, Saskatchewan Ministry of Environment prior to commencing field work. Information collected on Species at Risk and their habitat must be submitted to the Conservation Data Centre (CDC), Saskatchewan Ministry of Environment.

2.4.8 Heritage Resources

A Heritage Resource Impact Assessment (HRIA) was submitted to the Heritage Resources Branch of the Ministry of Tourism, Parks, Culture and Sport during the exploration phase. In 2008, the proponent supplied and had approved by Heritage Resources Branch, a plan for mitigation of impacts of the development of the mine and mine infrastructure on the archaeological sites. Approved mitigation activities are ongoing. The HRIA along with the approved mitigation plan must be included in the EIS. Potential changes to the mitigation as a result of the proposed development must be described in the EIS along with rationale for the proposed changes. Any changes to the mitigation plan must be approved by the Heritage Resources Branch.

2.5 Socio-Economic and Land Use Issues

The EIS needs to include a description of the existing land uses, community characteristics and infrastructure within the socio-economic study area. Potential negative and positive impacts arising from all phases of the project that may affect the residents or communities in the local area must be included in the EIS. Details must be provided on:

- impacts on forest vegetation, wildlife, and aquatic resources,
- potential and effects of increased on and off-road traffic in the FaIC,
- effects on hunting, trapping, fishing and gathering activities, waterway users (including recreational, commercial and traditional), domestic and livestock water supplies, transportation, business, recreation, employment and contractor opportunities,
- effects of noise or air quality issues on the environment, residents and communities,
- potential and effects (e.g., school bus safety) of increased traffic on the main transportation routes (e.g., highway 55) including the potential construction and use of a railroad; and
- any other issues identified by potentially affected residents or communities.

An integrated forest land use plan is being developed to provide a framework for resource management decisions about the Fort à la Corne island forest. The proponent should contact the Saskatchewan Ministry of Environment for more information on the panel and contacts.

Describe any employment targets and strategies for achieving those targets with respect to women in management and non-traditional occupations, Aboriginal people (Indian, Métis and Inuit), persons with physical/mental disabilities and members of visible minority groups. This information highlights potential benefits of the development.

2.5.1 Traditional Land Use

The EIS should identify:

- the current use of lands and resources within the study area for traditional purposes by First Nations and Métis peoples (i.e. non-commercial uses including hunting, trapping, fishing and gathering activities);
- the project and cumulative impact of development on these uses; and
- possible mitigation strategies to avoid or reduce these impacts.

The Crown has a constitutional obligation to consult with affected First Nations and Métis communities before any decision is made that may adversely impact the ability to successfully exercise Treaty or Aboriginal rights, particularly the right to hunt, fish and trap. The province will utilize the EIS to inform itself of the project and cumulative impacts of the development on traditional uses, and therefore on Treaty and Aboriginal rights, to determine the level of Crown consultation required. Mitigation proposed within the EIS may provide accommodation for any rights impacted by the proposed project.

2.6 Occupational Health and Safety

The EIS should provide a brief description of existing occupational health and safety programs in place and identify whether the development (e.g., influx of workers during construction phase) would require changes to these programs.

The EIS should document the type(s) of equipment and construction and operational activities involved with the project and the measures employed to ensure compliance with the provisions of the Occupational Health and Safety Act, 1993 and The Occupational Health and Safety Regulations, 1996.

The EIS should demonstrate that safety distances required by the Explosive Regulatory Division of NRCan and Requirements of Saskatchewan's Occupational Health and Safety Act and Regulations there under have been considered and met. This includes specifying the location of facilities (i.e. detailed site plan), with distances to vulnerable features such as dwellings, roads, camps, railways, and bodies of water. Infrastructures should be identified and include: explosives and detonator magazines, fuel storage, ammonium nitrate storage, maintenance/wash area, process trucks and their parking area, any offices, warehouses, buildings, etc. Details on any temporary explosive facilities to be used for starting the project must be provided, giving the same information requirements as above;

2.7 Public Involvement

A public involvement program is a usual requirement of any EIS. This should include at least one public meeting or open house to describe the project to the public and gain feedback from the public.

If the proponent is aware of any potentially affected or interested First Nations or Métis communities then the proponent should provide project information to all potentially

affected / interested First Nations /Métis communities in Saskatchewan with a written invitation to identify any environmental concerns regarding the proposed development.

Public involvement activities and any concerns raised should be documented in the EIS along with methods that will be used to address them. As interest in the development may extend beyond the project area the proponent should be prepared to provide project information to and address issues identified by persons residing outside of the project area.

It should be noted that the draft project-specific guidelines will be made available for public comment for 30 days.

2.8 Conceptual Decommissioning and Reclamation Plan

There are currently detailed Decommissioning and Reclamation Plans in place for the Star and Orion South exploration phases. A detailed plan for decommissioning, reclamation, long-term maintenance of the site(s) and establishing the assurance fund(s) will be required and developed in consultation with regulatory agencies during licensing and, will be subject to periodic review during operations. The EIS should, however, include a revised conceptual plan for the proposed development. The EIS should discuss the decommissioning options in sufficient detail to allow a comparative evaluation of the potential performances of the options.

The conceptual plan should reflect project impact assessment, mitigation and monitoring experience. The plan should identify:

- decommissioning objectives including identification of acceptable post-operational land use options for the site, post-operational landforms and drainage systems;
- environmental impacts which can be mitigated by decommissioning, reclamation or post-decommissioning procedures (e.g., salvage, stockpiling and placement of topsoil to retain native plant seed bank);
- impacts which cannot be mitigated - these impacts constituting irretrievable environmental losses accruing to the province and to future generations;
- any potential opportunities for environmental enhancement;
- an approximate time frame for decommissioning and reclamation;
- alternative methods for decommissioning and reclamation. The preferred alternative should take into account the reclamation of all pits, tailings and associated disturbances back to as close to the original physical and biological conditions as soon as possible. Alternatives considered during project planning should be described. A discussion of why the proponent's preferred decommissioning and reclamation plan was chosen must be included in the EIS. Refer to the "Guidelines for Northern Mine Decommissioning and Reclamation" EPB 381 available from the Ministry of Environment for further guidance;
- post-decommissioning monitoring and contingency planning;
- record keeping or archiving that fully describes past operations, decommissioning plans/assessments and final configurations;

- the need for passive site management;
- estimated costs for decommissioning, reclaiming and monitoring the site;
- a proposed estimate for the assurance fund; and
- land controls.

2.9 Impact Assessment and Mitigation

The information in the following subsections provides general procedures for evaluating impacts and identifying mitigation measures in relation to the base-line information, processes and issues identified throughout sections 2.4, 2.5, 2.6, 2.7 and 2.8.

The environmental impact assessment process must provide the information necessary to determine whether the benefits of the proposed development to the province and its citizens justify the costs (environmental, biophysical, social and economic) of the preferred approach.

2.9.1 Project-Specific Impacts

Information provided in the EIS that is related to potential impacts should be complete and detailed. Impact severity is analyzed as the change from baseline conditions, i.e., the difference between environmental conditions expected if the development were not to proceed and those expected as a consequence of it.

Analyses should consider the severity (i.e., probability, magnitude, frequency and duration) of predicted impacts and the significance they will have for society. Impact analysis is done for each project phase, including the potential impacts of any hazards and / or worst-case scenarios associated with the development. Measures that will be implemented to minimize adverse impacts and enhance positive impacts should be described. The EIS must document how the project design, operational procedures or reclamation serve to avoid, minimize or mitigate potential impacts. The methods and assumptions used to estimate the severity of impacts should be clearly documented.

Any residual impacts which cannot be mitigated during construction, operation and decommissioning should be identified and their significance discussed.

Specific to the proposed development, the following potential impacts or mitigation measures have been identified and must be addressed in the EIS. Also describe any studies planned or underway that are designed to increase understanding and develop mitigation measures for these issues:

- Three water management options for the project were proposed. For each option the EIS must describe how any proposed releases to the environment (surface or ground water) will be managed to avoid causing adverse effects. The EIS must describe the anticipated quality and quantity of wastewater from the proposed operations, alternate methods for treatment /handling the

wastewater and the recommended option that most adequately protects the environment;

- List the potential contaminants in the waste water (e.g., suspended solids, major and minor ions, total dissolved solids). Assess the loading of the contaminant of concern and assess the fate and transport of those contaminants in the surface water including the Saskatchewan River and local and regional ground water regimes;
- Describe the potential impact of removal of approximately 100,000 m³/day of ground water on the local and regional ground water and surface water regimes;
 - The proponent is to use a three-dimensional numerical ground water flow model to assess project impacts on local and regional ground water flow systems;
- possible disturbance to stream crossings of roads/railway/power corridor;
- Installation methods of proposed road/rail and power corridors, including road and rail crossing structure design option (.e.g., bridges, culverts, etc) for watercourses that contain large bodies migratory fish;
- disturbance to habitat and wildlife including a discussion of potential for affect on incidence of wildlife diseases, and depredation of agricultural crops by displaced wildlife;
- discussion of potential for human / wildlife predator interaction;
- describe the extent “no hunting” area proposed for safety reasons and plans to handle wildlife;
- destruction or disturbance of rare, threatened or endangered species or their habitat;
- damage or destruction of sensitive ecosystems such as wetlands;
- any impacts to surface water drainage, including the proposed alterations to water courses, should be described (effect on vegetation, in-stream fish habitat (spawning and rearing)) and mitigation identified;
- environmental effects of any discharges from the proposed operation including effects and potential effects to the air, land, ground water surface water, flora and fauna in the surrounding environment and proposed mitigations;
- contamination of surface water bodies from surface flow or breakthrough from ground water sources and effects on potential water users, aquatic life, recreation, agriculture etc.;
- quality and quantity of leachate from tailings (unprocessed ores, processed ores and associated wastes and overburden), proposed measures to contain, and treat, if required, leachate to minimize potential effects on local and regional ground water and human and environmental health;
- one decommissioning option proposed is to allow the pit to fill with ground water after mining has ended:
 - describe potential impacts on local and regional ground water systems and probable quality of the infiltrated water in the pit(s);

- describe the anticipated long-term water level and quality of the water in the pit and how these will impact the proposed end-use (recreational) including access and fisheries potential;
- describe any potential effect the proposed in-filled pit will have on the stability of the Saskatchewan River bank;
- upon decommissioning, consideration should be given to the re-establishment of the natural drainages for the benefit of fish;
- the residual effects for each stage of the project, including post-reclamation. Predict and describe water and sediment quality conditions and suitability for aquatic biota in constructed water bodies, such as end pit lakes; and
- failures, spills, malfunctions, accidents or inadvertent waste releases including contingency plans addressing the potential worst case scenario at all phases of the development including post reclamation;
- describe the potential effect and mitigation of the clearing and taking out of production of land for the development and associated infrastructure on the local timber harvesters;
- all potential impacts of ground water use and disposal;
- predicted direct and indirect effects of proposed works on navigation, including alterations on surface water hydrology, water withdrawal, fish habitat compensation measures, and proposed works built in, on, over, through, across or under any waterway. Also include a description of proposed mitigation measures and effectiveness of these measures for ensuring navigability and the protection of navigation safety during construction, operation and completion of the proposed works;
- an "Alternatives Analysis" and "Conceptual Fish Habitat Compensation Plan" is required for projects likely to cause a harmful alteration, disruption or destruction (HADD) of fish habitat. DFO will review all information available in order to make a determination on the significance and magnitude of proposed impacts to fish habitat, including the proponent's plan to compensate for any loss in productive capacity of fish habitat resulting from the project. DFO will also request alternatives for all projects likely to cause a HADD of fish habitat, to ensure that all options for minimizing impact to fish and fish habitat are examined.;
- The following information will be required related to the assessment of the potential for adverse environmental effects of an explosive factory (including temporary installation):
 - Fuel and ammonium nitrate storage plans, in conformance with Natural Resources Canada guidelines;
 - Liquid effluent disposal plans;
 - Spill contingency plans; and
 - Evaluation of worst-case scenario (e.g., accidental explosion).

The above list is not necessarily complete and any additional potential impacts identified by the proponent, regulators, technical reviewers the public or First Nations and Métis communities will need to be addressed similarly.

2.9.2 Regional/Cumulative Impacts

The EIS should assess and discuss whether existing environmental conditions, including other developments in the area, might influence the development or its potential impacts. The discussion should address whether the project-specific effects of the development combined with the impacts from the existing and planned developments in the region will result in, or contribute to, any cumulative environmental effects or regional effects in the short or long term.

In particular, the EIS should identify and discuss the any potential downstream effects on the Saskatchewan River system (aquatic resources, uses, flow) in the short or long term.

Explain the approach and methods used to identify and assess cumulative impacts, including cooperative opportunities and initiatives undertaken to further the collective understanding of cumulative impacts. Provide a record of assumptions, including statistical or other quantitative confidence in data and analysis to support conclusions. Describe deficiencies or limitations in the existing database on environmental components and propose measures to deal with resultant uncertainties

2.10 Monitoring

The EIS should describe any current baseline and operational monitoring programs for the development and a description of proposed future monitoring (e.g., parameters, locations, sampling frequency and methodology).

If the proposed development receives environmental assessment approval, detailed monitoring programs to ensure regulatory compliance would be designed in consultation with regulatory agencies during licensing and would be subject to periodic review during operations. Monitoring should allow the systematic audit of the environmental impact assessment process, specifically the accuracy of predictions and the adequacy of proposed mitigation measures. The monitoring programs, in verifying the environmental impact predictions, should confirm the design criteria for reclamation and abandonment objectives and planning procedures. The proponent must ensure that monitoring data is stored in an acceptable electronic format and be available to the Ministry of Environment on request.

In particular, the EIS should address:

- total loading, fate and transport of water discharge to the Saskatchewan River to the water quality, quantity and potential impact on aquatic and adjacent terrestrial ecosystems (e.g., local fish species, (including lake sturgeon - a potentially SARA listed endangered species) especially if spawning, rearing may be affected, vegetation, and macroinvertebrates);

- monitoring programs, including post-decommissioning, for surface water, ground water and sediment for metals and other relevant substances. Consider seasonality, sampling medium (water, sediment, biota) and other factors such as water bodies sampled, sample sites, precipitation and runoff levels, downstream and point-source discharges;
- short and long term affects which may be associated with the potential loss and or enhancement of rare and endangered species identified and their habitats;
- potential long term impacts of the decommissioning alternatives to the current and future use of the FalC, local and regional ground water regime and the Saskatchewan River; and
- commitments for operational response procedures to be followed should monitoring identify environmental changes or unforeseen/unacceptable impacts during the life of the project and post-project, as required.

2.11 Ancillary Developments

For this section, ancillary developments describe those developments whose planning, construction and/or operation are not led by the proponent or are outside the scope of the project proposal. The EIS needs to provide a description of ancillary developments anticipated as a result of the proposed development. Each ancillary development must be described and analyzed in sufficient detail for the reader of the EIS to determine the environmental and social significance of the proposed development and the major social, economic and environmental implications as related to the development described in this EIS.

Ancillary projects may be individually screened under the Act to determine if they are considered a ‘development’. Ministerial approval for the proposed project described in this EIS does not pre-suppose approval for ancillary developments even if the ancillary development is essential to the operation of the mine. Where such ancillary development(s) are inextricably linked to the proposed mine the EAB may need to seek identification of proposed route and anticipated impacts from the proponent of the linked development prior to a final decision being made on the proposed Star Orion south project.

2.12 Commitments Register

The EIS must contain a summary table of the avoidance, mitigation and monitoring commitments made by the proponent throughout the EIS that will be updated with any terms and conditions put forward by the Minister should the Minister approve the development. See Appendix A for an example of structure for a commitments register.

The commitments register can be a component of a proponent’s Environmental Management System or can stand alone. The register is a cost-effective, logical and systematic approach to enhancing the effectiveness of the implementation of EIA by defining and communicating intentions to all interested parties including internal stakeholders; allowing proponents to assign, track and close out these commitments

during the detailed design, construction, installation and commissioning phases of the project; and by assisting regulators to monitor and improve on the delivery of EIA outcomes, particularly when approval conditions are integrated into the register.

3.0 Regulatory Approvals

3.1 Provincial Regulatory Approvals

It should be noted that, if the project is found to be environmental acceptable, Shore Gold would be required to apply to the Ministry and other government ministries and agencies for the necessary approvals, permits and licences that regulate the construction and operation of the project and to comply with all applicable provincial and federal laws. **Identifying and obtaining these approvals is the proponent's responsibility.**

The Ministry has identified the following regulatory requirements:

- Research permits, if required, may be obtained from the Fish & Wildlife Branch;
- Should this development move forward to construction/extraction, the companies will be required to obtain Mineral Surface Leases (MSL) from the Lands Branch. Public access within the MSL boundaries will need to be negotiated with the proponent prior to execution of the MSL. Conditions of the leases will be attached to all environmental, fisheries, etc., permits/approvals;
- The company will be required to remit royalties to the Crown for any gravel/sand/rock extracted within the mineral surface lease area;
- Roadways constructed in the FaC may require additional lease agreements with the Ministry of Environment.
- A Forest Product Permit required from the Forest Service Branch prior to disturbance of the vegetation and as Scaling Plan is required to scale merchantable timber to pay dues and fees;
- Burning permits will be required for all burning activities;
- The following permits are required pursuant to The Environmental Management and Protection Act, 2002:
 - Aquatic Habitat Protection Permit for any work planned in or near water;
 - Fuel or chemical storage will require a Construction and Storage Approval;
 - Approval to Construct Pollutant Control Facility;
 - Approval to Operate Pollutant Control Facility;
 - The proponent will be required to submit a Reclamation and Decommissioning Plan and a Financial Assurance instrument for review;
 - Permit to Operate a Waterworks;
 - Permit to Operate a Sewage Works; and
 - Permit to Operate a Waste Disposal Ground may be required.

Saskatchewan Watershed Authority provided the following information:

- Any diversion, impoundment or drainage of surface water will require a licence and/or approval from the Saskatchewan Watershed Authority. Water used for

processing and the work camp require a Water Rights Licence from the regional office.

- Approval for ground water extractions requires approval. Apply to the head office in Moose Jaw for necessary approvals.

The Ministry of Health has identified the following:

- Construction of the plumbing and sewage system be approved, inspected and permitted by the Kelsey Trail Health Region in accordance with the Saskatchewan Plumbing and Drainage Regulations, 1996. If water usage at the site exceeds 4000 gallons per day, the Ministry of Environment would need to be consulted for approval of the proposed water and sewage system.

The Ministry of Municipal Affairs has determined that the proposed project is located on land zoned F – Provincial Forest District under the RM Zoning Bylaw. Mining, including drilling and exploration activity are a permitted use. The proponent should contact the RM Administrator to obtain the required permits and to determine if there are any local comments or concerns regarding the project.

The Ministry of Highways has indicated that negotiations would be required related to access to the highway system, permits and vehicle dimensions/loading, etc. for any new roads constructed in association with the proposed mine.

The Ministry of Energy and Resources has indicated that the project would be subject to the provisions of The Mineral Disposition Regulations 1986, The Reclaimed Industrial Sites Act and The Reclaimed Industrial Sites Regulations.

3.2 Federal Regulatory Approvals

The Departments of Transport Canada, Fisheries and Oceans Canada, Natural Resources Canada, and Indian and Northern Affairs Canada have contemplated steps enabling various aspects of the project to be implemented. These anticipated regulatory approvals exist under the Law List Regulations of the Canadian Environmental Assessment Act (CEAA), and are triggers under paragraph 5(1)(d). As a result, these departments are likely Responsible Authorities under the CEAA. Thus, they must ensure that an environmental assessment, as scoped by them, is conducted prior to the issuance of federal licences, authorizations, permits, and/or approvals, as described below.

Transport Canada has identified that regulatory approvals may be required under the Navigable Waters Protection Act (NWPA) for proposed works built in, on, over, under, across or through navigable waterways to ensure that these works do not interfere with the public right to navigate. The Authority to determine if the NWPA applies as it relates to the administration and enforcement of the NWPA is the sole responsibility of the Minister of Transport or his/her designated representative.

Fisheries and Oceans' role as a Responsible Authority arises from the anticipated requirement for a Fisheries Act section 35(2) Authorization for the harmful alteration, disruption or destruction of fish habitat.

Natural Resources Canada has indicated that an Explosives Factory Licence under paragraph 7(1)(a) of the Explosives Act is required for the manufacturing and storage of explosives.

Indian and Northern Affairs Canada has indicated that the project, as proposed, may occur on First Nation Reserve lands. As such, land tenure instruments may be required under subsection 18(2) of the Indian Act.

The Canadian Environmental Assessment Agency is the Federal Environmental Assessment Coordinator for the proposed project and is responsible for coordinating the review activities of the federal Responsible Authorities and expert federal authorities in accordance with subsection 12 of the CEEA and in conjunction with the provincial environmental assessment process and The Canadian-Saskatchewan Agreement on EA Cooperation.

4.0 Summary

The EIS must provide a concise, complete statement of the anticipated net environmental costs and benefits of the development in both the short and long terms. The discussion must also include intangible costs and benefits that cannot be expressed in economic terms. The EIS must provide enough information to allow the province and the public to determine the gains and losses (retrievable and irretrievable) which may accrue from the proposed development, should it be allowed to proceed.

Appendix A

Example template for a commitments register

Reference number	Project phase			Commitment type	Description	Source reference	Responsibility/ contractor	Action required by	Action date/ project milestone	Actual close out	Comments
	Design	Construction	Operations								
001		X		management	construction time limited to between 7am and 6pm	meeting minutes, Community Hall meeting #5	Fred Smith, Construct It Ltd.	Construction permit conditions	etc.	etc.	
002			X	etc.	etc.	etc.	etc.	etc.	etc.	etc.	