



**STAR-ORION SOUTH DIAMOND PROJECT  
ENVIRONMENTAL IMPACT STATEMENT**

**EXECUTIVE SUMMARY**



## The Proponent

The key participants in the Star-Orion South Diamond Project (the Project) are Shore Gold Inc. (Shore) and the participants of the Fort à la Corne Joint Venture (FaC-JV), a joint venture between Kensington Resources Ltd. (a wholly owned subsidiary of Shore) with 67% and Newmont Canada FN Holdings ULC (Newmont) with 33%.

Shore is a Canadian based, publicly-traded corporation engaged in the acquisition, exploration, and potential development of mineral properties, and has been actively engaged in diamond exploration in Saskatchewan since 1995.

Newmont is headquartered in Denver, Colorado. Newmont acquired an interest in the FaC-JV in 2006.

For communication purposes, Shore is the Proponent of the Project, on its own behalf and on behalf of the FaC-JV.

### *Environmental Responsibility*

Shore is committed to developing the Project in an environmentally responsible manner. Safety and environmental protection are of paramount importance to the Company in all areas of its operations. Shore has drafted the following environmental policy statement:

*“Shore recognizes and respects the inherent value of our environment, and is committed to reducing our effects on the environment through strategic planning, implementation of best management practices and innovation, while striving to continually improve the quality of our environmental practices.”*

Throughout the Project planning process and the Environmental Impact Assessment (EIA), several options have been considered, presented and discussed. Shore is committed to meaningful engagement with provincial and federal regulators, the Aboriginal community, and other surrounding communities. Shore considered information gathered through this engagement and as well as technical review comments received from Provincial and Federal agencies, and Aboriginal groups, to determine preferred options for final analysis in the revised EIA.

### *Environmental Impact Statement*

This Environmental Impact Statement (EIS) describes the Environmental Impact Assessment (EIA) completed for the Project.

The EIA was completed using the guidance outlined in the Project Specific Guidelines (PSGs) (SMOE 2009) prepared by the Saskatchewan Ministry of Environment (SMOE) and



the Comprehensive Study Scoping Document prepared by Canadian Environmental Assessment Agency (CEAA), Fisheries and Oceans Canada (DFO), Natural Resources Canada (NRCAN) and Transport Canada (TC) (2010). Review comments were received from Provincial and Federal agencies in 2011. Review comments were also formally received from consultants to James Smith Cree Nation and Muskoday First Nation in 2011.

The EIS contains a description of the Project, proposed monitoring programs and preliminary plans for closure along with an environmental effects assessment study. A Base Case is presented that describes the existing environment. The effects assessment component (the Project Case) superimposes the proposed Project onto the Base Case and determines any incremental effects of the Project on the environment. A Cumulative Effects Assessment (CEA) includes the Base Case, Project Case, and overlapping reasonably foreseeable future developments.

Monitoring programs have been developed as part of the EIA process to monitor predictions made in this EIS and Project effects, and will provide additional information as part of the adaptive management process. A preliminary conceptual closure plan has also been developed and is based on a target end land use of self-sustaining forest.

The EIS also contains detailed responses to the technical review questions, and a reference to any sections of the EIS changed or modified as a result of the technical review questions.

In accordance with the Canada Saskatchewan Agreement on Environmental Assessment (EA) Cooperation (Government of Saskatchewan 2007), this EIS is submitted to the Saskatchewan Ministry of Environment (SMOE) and the Government of Canada for technical review and comment pursuant to the application for environmental approval to develop the Project.

### ***History***

Shore has been exploring the Star Kimberlite since 1996 with the intent of proving a resource to determine its economic potential as a mine. Core drilling was conducted on an approximately 100 m spaced grid over the Star Kimberlite to define its geology and to determine the kimberlite thickness and tonnage. Where the results of the core drilling and microdiamond analyses justified the collection of additional information by further sampling, large diameter drilling (LDD) and underground bulk sampling were conducted, including the sinking of a 4.5 metre diameter shaft to a depth of 250 m with associated lateral development to collect approximately 75,400 tonnes of kimberlite. The LDD obtained 'mini-bulk' samples of kimberlite from the kimberlite extents and underground bulk sampling recovered a sufficient sample volume to estimate diamond grade and quality.



Exploration on the Orion South Kimberlite followed a similar methodology to that described above, including the sinking of a 4.5 metre diameter shaft to a depth of 212 metre with associated lateral development to collect approximately 23,400 tonnes of kimberlite.

All of the exploration done to date has provided valuable information about the potential effects of full scale development on the environment.

### **The Project**

The Project is located in central Saskatchewan within the Fort à la Corne (FaC) Provincial Forest, approximately 60 kilometres east of the City of Prince Albert. The kimberlites are located immediately north of the Saskatchewan River, and downstream of the convergence of the North and South Saskatchewan Rivers.

The Project consists of the following major components: Star Kimberlite open pit; Orion South Kimberlite open pit; overburden and rock storage pile; coarse processed kimberlite (Coarse PK) pile; fine processed kimberlite containment facility (PKCF); diamond processing plant; and infrastructure. The proposed Star and Orion South open pits will be conventional open pit mining operations with 15 metre high benches. Key changes in the Project description include the elimination of the water management reservoir and subsequent changes to water management, and relocation of the Coarse PK pile, PKCF and overburden and rock storage pile based on constraints mapping to avoid direct impacts to aquatic habitat. The Project description was also updated based on the feasibility study completed in 2011.

Overburden from the Star and Orion South open pits will be excavated predominantly with an in-pit crush and convey (IPCC) system using hydraulic shovels to place material into a mobile crusher, which will feed a conveyor system for transport of material to a stacker at the overburden pile.

Shore will mine ore from Star and Orion South at 45,000 tonnes per day, maintaining and operating its own equipment and labour force. The ore and associated waste rock will be excavated using conventional hydraulic excavators and 136 tonne capacity in-pit haul trucks. The ore will be hauled to an in-pit ore sizer, and then sized and conveyed to the processing plant ore stockpile. The associated waste rock will be hauled to an in-pit waste sizer and conveyed by the IPCC waste conveying system.

The 45,000 tonnes per day processing plant will receive ore from a stockpile conveyer, and liberate diamonds from the host rock using autogenous grinding (AG) mills. Fine material from the AG mills will then be pumped via slurry to the PKCF.

Coarse material from the AG milling process will be sent to the Dense Media Separation (DMS) plant. The DMS sorts material by density with the lighter minerals (or floats) being



transported to the coarse processed kimberlite pile (coarse PK pile), and the heavy material being sent to the diamond recovery circuit. Diamonds will be separated from the other heavy minerals using magnetic sorting, x-ray sorting, grease belts and Laser Raman spectroscopy (i.e. a technique that measures the unique changes in light wave characteristics as it interacts with a particular material).

All process water required in the plant will be supplied from pit dewatering, and managed through the PKCF. Process water will be recycled from the PKCF to supply the AG mills, with make up water sourced from pit dewatering operations. Excess groundwater from pit dewatering will be discharged to the Saskatchewan River.

When the Star pit is complete, all fine processed kimberlite from Orion South will be back filled into the Star pit, thus reducing environmental impact and reducing cost. Some overburden from Star Phase 4 will be backfilled into the southern edge of the Star pit during mining.

The Star and Orion South pit designs include the mining of a further 80 million tonnes of kimberlite classified in the Inferred resource category and containing an estimated 13 million carats of diamonds at a grade of 16 carats per hundred tonne (cpht). If this material proves economic, the mine life could be extended by over 6 years.

An access corridor encompassing a roadway, communication lines, and a natural gas pipeline is proposed. It will extend from Highway 55 near Smeaton south to the current bridge at the Whitefox River on Shipman Trail. A small (10 centimetre) gas branch line to the site is proposed within the access corridor right of way (ROW) from a TransGas trunk line south of Highway 55 near Shipman to the site. Natural gas will only be used to provide building heat and fuel the incinerator. The nearest electrical power transmission line is located southeast of the Project site. SaskPower is evaluating several options to provide the required electrical power to the site through connection of this line, providing for the construction of a new line ranging in length from 15.6 kilometres to 18.5 kilometres, factoring river crossings, land ownership and heritage resources into the final alignment. The final alignment of the power line will be determined by SaskPower through a separate application process.

A processing plant, administrative building, maintenance shop, technical offices, a warehouse, security buildings, a lube storage, truck wash and emergency response building, and helipads will be located within the site footprint. All buildings will comply with applicable regulations and codes.

A combination of media and membrane filtration will be used to treat shallow groundwater in compliance with the Saskatchewan Drinking Water Quality Standards and Objectives.



Wastes from the media filters and membranes will be placed in the process plant pump box for disposal in the PKCF.

The plant site will have 150,000 litre diesel fuel storage capacity (2 x 75,000 litre above-ground double walled storage tanks), a 10,000 litre gasoline above-ground double walled storage tank, and an in-pit 60,000 litre diesel fuel above-ground double walled storage tank and lubrication station. A 35,000 litre used oil tank (inside the oil storage area) and a 5,000 litre used coolant tank (outside the bulk lubricants building) are planned.

The planned infrastructure includes an interpretive centre, which will be a diamond shaped building located east of the administrative building. It will provide meeting and presentation space for visitors to receive interpretive presentations as well as kitchen and washroom facilities.

The mining will involve the use of explosives, estimated at 70 tonnes per week. To ensure safe transportation of explosives, the individual components of the explosives, ammonium nitrate prills and diesel fuel oil, will be delivered and stored on site separately. The components will be delivered to the pit in a mixing truck, mixed and poured into the blasthole. The storage facility will serve as the base of operations for the explosives delivery vehicles. Explosives will be handled only by trained and certified personnel. The area around explosives storage facilities will be fenced and access restricted. The explosives area will be located approximately 3 kilometres from any point of public road access and at least 3 kilometres from the nearest site boundary. It will be located approximately 21 km from Highway 6, at its closest point. These distances are in excess of the minimum requirement of 670 metres for a 90 tonne storage facility to be located away from “most roads and highways”.

Shore is committed to compliance with and adherence to its current Occupational Health and Safety (OH&S) program during construction to ensure the safety of individuals and to continuously improve policies and procedures to be implemented during operations. Many of these policies and procedures were in place during Shore’s exploration activities and therefore will continue to be refined and optimized so that the transition through construction to production will occur as smoothly and as safely as possible.

An onsite health and safety department will be established for the construction phase of the Project, which will build upon the existing site OH&S program and expanded to include hazards related specifically to heavy construction. The department will continue into the operations phase.

Shore is not proposing any new or unproven technology for the Project, but integrates proven technology in a unique way to optimize plant performance based on the specific characteristics of the ore.



Pit dewatering from active pumping centres around each pit is expected to produce water in volumes up to 120,000 cubic metres per day. This volume of water requires careful consideration in the development of a water management system to meet processing plant water requirements, and to adequately address any potential environmental effects. This has been successfully accomplished such that water discharged from the water management system to the Saskatchewan River will meet both provincial and federal guidelines for the protection of freshwater aquatic life and be within natural background levels within a few metres of the outfall structure which will be located in the river channel.

An average of 669 workers will be required for the four year construction period, although the number of people working on the project at any one time could vary from 100 to 1,000 workers. Total labour effort over the four years will be 3,345 person-years. On average, the mine will employ 730 people annually when in production. Although costs will vary based on the volume of material being moved and processed each year, the workforce is estimated to remain fairly constant.

The conceptual Closure and Reclamation plan is designed to minimize the environmental impacts from the Project. The total footprint area of the proposed facilities has been reduced by approximately 300 hectares to 3,946 hectares; each area will require site-specific treatment at closure.

The objectives of the Closure and Reclamation plan are to: revegetate disturbed areas as soon as they are no longer active; revegetate sites so that the vegetation communities post closure are similar to naturally occurring vegetation communities in the FaIC forest post closure; replace a variety of ecosites (combinations of soil, drainage and aspect) such that a diversity of vegetation communities can be supported; and incorporate traditional knowledge and traditional land use (when information is available) into closure planning so that traditional uses can continue after closure.

Transition plans will be developed for the mine workforce to aid continuity of employment in the mining industry elsewhere in the province or outside Saskatchewan or to transfer into another line of employment for those who so wish. Programs will be developed in consultation with employees and local communities servicing the mine.

### ***Project Alternatives***

The high level alternatives for the Project are open pit mining, underground mining and no project. The feasibility study demonstrated that open pit mining could be done economically. Project economics dictated that underground mining was not feasible at the Star or Orion South kimberlites. The extraction of the high tonnage and low grade deposits requires very large daily mining rates which are not practical using current underground mining methods. The only feasible way to extract the required tonnages is to employ the economies of scale possible using open pit mining methods.





The potential financial benefits of project development to Shore's shareholders, to communities, First Nations and Métis people in the region, and to the Province of Saskatchewan, justified Shore's initiation of the environmental assessment process in November 2008. Accordingly, the option of "no project" was not considered.

Two major options were considered for processing of the kimberlite: conventional crushing and AG milling. Based on detailed processing test work and simulations, AG milling was shown to be beneficial for diamond liberation and causes less diamond damage than conventional crushing equipment. Two major methods of controlling fines disposal were considered: thickening to remove water from fine processed kimberlite prior to placement in the processed kimberlite containment facility (PKCF), and placement of total fines in slurry form directly to the PKCF. The Project has a surplus of water from pit dewatering; therefore, the addition of a thickening circuit to recycle water is unnecessary.

A number of options were considered for the waste handling, support and administrative facilities. Alternatives were also investigated for the water management strategy, with careful consideration of review comments and the regulatory context. Minimizing environmental impact, particularly direct impacts to aquatic habitat, effective environmental control, facility of transition into closure, and economic considerations mandated the site arrangement ultimately chosen.

The selection of a permanent access route to the Project site was based on consideration of a number of objectives and issues including: connecting to and maximizing the use of the existing paved highway system available in the area; minimizing construction costs for the access road including minimizing the quantity of new road construction, eliminating expensive stream or river crossings, and using existing forestry or grid roads to the fullest extent possible; minimizing disruptions of access to the site during road construction; providing a good road connection to Prince Albert, as that city will be a main supply center for the Project, and it is expected that a substantial number of the employees would reside and commute from there; providing good access to local communities to accommodate numerous employees who are expected to choose to reside in locations outside of Prince Albert; avoiding a route that involves a bridge over the Saskatchewan River due to cost and permitting considerations; considering safety as a key selection parameter; and constructing the road to provincial secondary highway grade standards similar to Highway 55. Upgrading existing roads to the northwest connecting to Highway 55 near Shipman was selected as the preferred route for the pre-feasibility study based on the above considerations and public input.

### ***Public and Aboriginal Engagement***

Shore has actively engaged the public and Aboriginal people about its activities in the region for several years with activities such as participation in the Diamond Development Advisory





Committee (DDAC). Public and Aboriginal engagement is an important part of the company's dedication to fostering positive and mutually beneficial community relationships. The following is Shore's corporate community vision statement, which underscores the company's approach to engaging stakeholders and Aboriginal people in the region:

### ***Vision***

*At Shore, we value the communities neighbouring our operations and hope to see the quality of life of their citizens enhanced by emerging employment and business opportunities.*

### ***Community Involvement***

We seek to:

- build long-term relationships with neighbouring communities;
- engage communities through open communication and mutual respect to share information and allow community partners to participate in meaningful ways;
- gather community input to shape project development; and
- provide opportunities for communities to enhance their ability to participate in economic opportunities provided by our projects.

### ***Economic Opportunities***

We strive to:

- work collaboratively with communities, governments and institutions to create training opportunities for skill development in industry-related occupations;
- provide employment opportunities with a focus on local participation; and
- build relationships with local suppliers and businesses to obtain quality, competitively priced goods and services in a timely fashion.

### ***First Nations and Métis Communities***

We recognize:

- the unique position of First Nations and Métis people in Canada through their treaty and constitutional rights;
- the government's duty to consult with First Nations and Métis people and will network with the government to facilitate the process where possible; and
- the potential socio-economic benefits of the projects for First Nations and Métis communities through employment and business participation.



We work to:

- develop meaningful engagement and communication with neighbouring First Nations and Métis communities; and
- create mutually beneficial relationships with First Nations and Métis communities to promote training and recruitment of young people into trades, technical and skilled occupations.

Shore maintains an active community engagement program to inform stakeholders and Aboriginal groups about various activities and plans as well as to share information about the environmental assessment.

The DDAC is a key community stakeholder group. It serves as an effective liaison between the company and urban, rural and Aboriginal communities identified as potentially being impacted by Shore's activities in the FalC area. As the DDAC membership has representation from primary stakeholder groups, it is an important way by which Shore may communicate timely information about the company's activities, and garner feedback.

Two rounds of Open Houses were conducted in the region during February 2009 and June 2010 to explain the proposed Project and garner feedback from the public. In 2009 and 2010 combined, over 1800 members of the Saskatchewan public attended the Open Houses, in four communities in 2009 and six communities in 2010.

*The Star Explorer* newsletter is intended to provide community members neighbouring the Project with written information about Shore's activities and accessible ways (telephone, fax, e-mail and post) to contact the company. The newsletters are published approximately quarterly to coincide with each DDAC meeting as requested by the DDAC.

Press releases are issued by Shore concerning developments that are significant to the company and the business environment in which it operates. The releases are delivered to CNW Group Ltd. (a news distribution service), which distributes them to a list of individuals and agencies provided by Shore. Institutions and individuals can be included on the list on request.

The Shore website, [www.shoregold.com](http://www.shoregold.com), contains extensive information about Shore, news releases, information on properties, and maps and photos. Interested e-mail users can sign up on the website to be notified when Shore issues news releases. The "Community" tab, <http://www.shoregold.com/community/> on the Shore web page explains the environmental assessment process, provides notice about community engagement activities and links to corporate newsletters and other information.



Tours of the FaIC site for stakeholder groups have been provided to groups which have requested them, allowing these groups to learn more about the Project by travelling to the site and viewing exploration activities. Fourteen tours for government agencies, Aboriginal groups and the general public have been conducted since 2008.

In addition to ensuring that all Aboriginal groups were notified and encouraged to participate in engagement activities, Shore has maintained regular contact with the three bands of the James Smith Cree Nation, Muskoday First Nation, Métis Nation – Saskatchewan Eastern Region II and Métis Nation – Saskatchewan Western Region II since early 2007, Sturgeon Lake First Nation since the summer of 2008, Red Earth Cree Nation since late 2009, and, Wahpeton Dakota Nation since late 2010. Shore is focused on continuing to build strong relationships and, where possible, reach appropriate agreements with First Nations and Métis people. Owing to the special Treaty and constitutional status of Aboriginal people, and their unique relationship with resource developers, Shore maintains frequent and regular communications about community engagement activities involving First Nations and Métis groups by meeting regularly when possible and through exchanges of letters, e-mails, telephone calls and faxes.

On August 29, 2008, an Aboriginal Employment Development (AED) program workplace partnership agreement was signed in Melfort with the provincial Ministry of First Nations and Métis Relations, industry, First Nations, Métis and training institutions. Industry was represented by Shore and its primary exploration contractors, Muskoday First Nation and the Métis Nation – Saskatchewan Eastern Region II are both parties to the agreement as are the Saskatchewan Indian Institute of Technologies (SIIT) and Cumberland College.

Engagement will continue through the Project assessment process and beyond into mine construction, operations and closure.

### ***Project Setting***

The climate of the FaIC area can be characterized by long, cold winters with a mean January temperature of -19.1°C and short, hot summers with a mean July temperature of 17.5°C. Air quality is typical of pristine rural areas in northern Canada with any contaminants generated from outside the area either by forest fires or long distance transport of trace elements at very low concentrations.

The FaIC forest is an island forest of 132,502 hectares surrounded by agricultural land. This forested land provides suitable habitat for a wide variety of wildlife species. The occurrence of a number of species is also due to the proximity of the Saskatchewan River and its associated tributaries and riparian habitats that provide travel corridors for wildlife. The forest is habitat for a wide variety of mammalian species, including a number of economically important game species such as elk, white-tailed deer, moose, black bear, and furbearers such as beaver and muskrat. Other mammals that may be commonly found



include red fox, raccoon, coyote, red squirrel, and northern short-tailed shrew. Although not common, there are several small wetland bogs in the FaIC forest. If open water is present, bird species utilizing this habitat may include pied-billed grebe, red-necked grebe, mallard, blue-winged teal, green-winged teal, lesser scaup, common goldeneye, and bufflehead.

Surface water has moderately hard background levels (188 to 336 milligrams per litre) with a moderate salt content (total dissolved solids of 251 to 1,058 milligrams per litre). Metal levels are generally low (with the exception of aluminum, iron, and chromium) with many at concentrations that are below detection levels. Nutrient levels (i.e. nitrogen and phosphorus) are also relatively low. Some natural exceedances of Saskatchewan interim surface water quality objectives occur in the tested waterways: total aluminum, arsenic, cadmium (laboratory detection limit is above objective value), chromium, iron and potentially mercury (laboratory detection limit is above objective value).

The Project is located on the north bank of the Saskatchewan River just downstream of the confluence of the North and South branches of the Saskatchewan River. In the Project area, the Saskatchewan River and English Creek are known fish-bearing waters; the Saskatchewan River supports 26 fish species and English Creek supports 5 species. There are several small tributaries of the Saskatchewan River that originate within the FaIC forest and that have potential to provide fish habitat mostly in their lower reaches just upstream of their junctions with the Saskatchewan River.

The hydrogeology from ground surface to below the pits can be described as three units or systems, which are described below:

- a shallow system comprised of the surficial sands, silts, and clays (often referred to as the surficial stratified drift);
- a confining layer (sometimes referred to as an “aquitard”) comprised of till (Saskatoon and Sutherland Groups), locally the Empress Formation, and underlain by the Joli Fou Shale (part of the Colorado Group); and
- a deep system comprised of the Mannville Group (including the Pense and Cantuar Formations, the latter further broken into seven members of variable sand, silt, and clay content) and the upper several metres of the underlying carbonates of the Souris River Formation.

Shallow groundwater is relatively fresh whereas Mannville Group (deep) groundwater is slightly brackish with elevated total dissolved solids (~4,200 milligrams per litre) and somewhat elevated trace metals.

The FaIC forest is close to several communities and First Nations. The FaIC forest supports a variety of outdoor recreational activities such as snowmobiling, berry picking, skiing,



hiking, and a broad range of natural resource uses such as trapping, hunting, fishing, tourism, logging, traditional Aboriginal uses, mineral exploration, and reforestation activities.

The closest community to the Project site is the James Smith Cree Nation Indian Reserve 100/100A which is located partially within the FaIC forest but mainly on the south side of the Saskatchewan River. The Muskoday First Nation, at Indian Reserve 99, is the next closest First Nation.

Other communities in the region include the cities of Prince Albert and Melfort, the towns of Choiceland, Star City, Kinistino, Birch Hills, Tisdale and Nipawin, villages of Valparaiso, Love, Beatty, Ridgedale, Weirdale, Aylsham, Albertville, Meath Park, Smeaton, Zenon Park, Weldon, Codette and White Fox as well as a number of rural municipalities.

Transportation infrastructure consists of highways, secondary roads, railways, and airports. Several all-weather highways and a network of good quality secondary roads serve the region. Highways 2 and 6 are main routes north and south and Highways 3 and 55 are main routes east and west, Highway 55 is north of the Saskatchewan River and Highway 3 lies to its south.

The regional economy is agricultural and resource-based combined with a sizeable service and transportation sector. The agricultural sector is diverse. The area around Melfort, Tisdale and Nipawin is one of the richest, most productive farmland areas in Canada. Crops such as wheat, barley, canola, peas, flax, lentils, alfalfa, canary seed, rye, various forage crops, spices, and other specialty crops are grown. Livestock such as cattle and hogs and specialty livestock (elk, deer, and wild boar) are also produced. In addition, the area provides important agricultural services such as meat processing, feed mills, seed cleaning plants, the distribution of farm chemicals, and the manufacturing and distribution of farm equipment and grain storage facilities. The resource sector includes mineral exploration, forestry, and wood processing.

The Project is located within the confines of Treaty No. 6 and the three bands of the James Smith Cree Nation, the Muskoday First Nation, Métis Nation – Saskatchewan Eastern Region II and Western Region II, Sturgeon Lake First Nation, Red Earth Cree Nation and Wahpeton Dakota Nation have provided Traditional Land Use information for the EIS through studies supported by Shore as established through Information gathering Agreements. These studies document where traditional activities such as hunting, fishing, trapping, and gathering of berries or medicinal plants have been carried out. The EIS contains a summary of these studies. Aboriginal people have traditionally used lands within the FaIC forest for such activities and for traditional and ceremonial pursuits. The FaIC forest contains numerous traditional cultural areas, including one burial ground, some of which have been identified in the Traditional Land Use studies. A total of 158 archaeological sites were identified in baseline surveys conducted between 2004 and 2007.



To date, these are the only sites that are on record with the Saskatchewan Heritage Resources Branch in the local study area (Project footprint and buffer). These sites were documented during assessments completed in the context of diamond exploration activities. The majority of the recorded heritage sites in the region are located within the Saskatchewan River valley.

### ***Environmental Effects Assessment***

The scope of the Project assessment was set by the PSGs issued by SMOE in November 2009 pursuant to the *Environmental Assessment Act* (EAA). The PSGs also include matters of interest to the Government of Canada pursuant to the *Canadian Environmental Assessment Act*, in accordance with the Canada-Saskatchewan Agreement on Environmental Assessment (2005), which provides for a coordinated federal-provincial review. The Saskatchewan Ministry of Environment, Environmental Assessment Branch is the lead agency for the Project EIA process and EIS review. In addition to the content of the EIS, the PSGs also describe the role of the EIS in the exercising of the Crown's duty to consult with Aboriginal peoples that may be affected by the Project.

The EIA scope includes issues and interests identified in the PSGs and focuses on those identified through a scoping exercise which included analysis by Shore and engagement with affected and interested parties. The scope includes all Project components and activities, including physical works and monetary expenditures, being proposed by Shore for the Project discussed above.

The methods used in the EIA were determined by the following factors: accepted best practice, professional judgment and experience, applicable regulatory requirements and related published guidance. These influences were applied to the goal of producing an EIS which would be a useful planning and management tool for Shore, regulators, public agencies and affected parties over the life of the Project. The assessment was focussed on issues and interests of the greatest environmental, economic and social importance. The approach used incorporates input from regulators, First Nations and Métis people and stakeholders in the EIS, with the objective of contributing to effective project management and implementation. It integrates EIA findings with Project engineering and design as part of an on-going adaptive environmental management process. All phases of the Project (construction, operations, and decommissioning and closure) were considered in the assessment.

Potential interactions between the Project and the biophysical and human environment setting were reviewed and assessed to focus the environmental assessment. The components selected were further validated through government, Aboriginal and public engagement. Components selected ("Valued Components", or "VCs", in environmental assessment terminology) included: climate and air quality; noise; terrain, soils and geology;





vegetation and plant communities; wildlife and habitat; water resources including ground and surface water and water flows; fisheries and aquatic resources; navigable waters; biodiversity; archaeological and heritage resources; economics; family and community well being; family and community services; transportation; visual aesthetics; traditional knowledge; and traditional land use.

Temporal and spatial boundaries were set to limit the extent of assessments. Temporal boundaries were selected to encompass Project-related activities for which there are data. Spatial boundaries are limits to the geographic areas evaluated based on reasonable expectation and professional judgement as to the potential geographic extent of effects.

The environmental assessment process assesses significant effects. An assessment of the significance of project-specific or cumulative effects requires the identification of ecological thresholds, management objectives or community/societal standards against which the level of an effect can be evaluated. Whenever possible, quantitative thresholds were used to evaluate significance. Where established standards, such as Saskatchewan water quality guidelines, exist, they were used. Other metrics used include government regulations, scientific literature, land use plans, and resource management agency goals. Thresholds or regional objectives were not available for some VCs; where established thresholds were not available, professional judgement was used to provide a qualitative classification based on a weight of evidence approach. This approach is based on the Magnitude, Spatial Extent, and Duration of expected change in the VC as a result of the Project.

Various human activities, which individually are considered to cause insignificant effects on a VC, may combine within a period of space and time to cause changes on that VC. The cumulative effects assessment (CEA) for the Project was conducted to assess any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out taking into consideration the following factors: whether the Project causes any likely and measurable residual effect on a VC; whether the Project-specific residual effect is likely to act in combination with the effects of other past, present or future projects or human actions to create a temporal or spatial overlap, and thus, a cumulative effect; and whether the Project's contribution to that cumulative effect is significant.

Central to carrying out CEA is the determination of a list of what past, present and reasonably foreseeable future projects and other human actions may result in residual effects that overlap spatially and/or temporally with those of the Project. This list was developed based on available information, from engagement with interested parties, and from the consideration of the potential of the effects to interact with the Project; CEA followed the methods discussed above. Forestry and mineral exploration are the principal activities within the FaIC forest for which quantitative information was available. Other activities were evaluated qualitatively in the absence of any available quantitative data.





Beyond the borders of the FaIC forest, social and economic effects of the Project in combination with other projects were evaluated as part of the socio-economic effects assessment, which by its nature, is cumulative in scope.

Project effects on the biophysical environment will only be major in relative magnitude at a local scale (e.g., the open pits will permanently change the character of terrestrial habitat where they are located). At broader scales, effects will be lower or extinguished. Overall, effects on the biophysical environment were judged to not be significant, or, if significant, reversible through decommissioning and reclamation.

Project effects on the human environment will be largely positive (e.g., increase in employment, business opportunities, and taxes and royalties accruing to governments). Negative effects will be managed, to the extent within Shore's control, through community-based programs targeted at identified effects in order to enhance positive effects and mitigate negative ones.

### ***Environmental Management***

Shore has developed an environmental management system (EMS), with procedures and protocols to support its exploration activities. These existing programs will be the basis for Shore's environmental component of the safety, health and environmental management system (SHEMS) for the construction phase, and subsequently, the operations phase. For operations, the environment group is anticipated to consist of seven employees, who will be responsible for continued development and refinement of the EMS initiated during construction. In addition, the environment staff will be responsible for the management of monitoring programs, including regulatory requirements and corporate activities developed under the EMS, and to provide reports to government regulatory agencies as required by the applicable permits and licenses.

### ***Follow Up Monitoring***

Verification (or refutation) of predictions from the environmental assessment will be key to Shore's management of the Project. This will be accomplished through comprehensive environmental and social monitoring programs which will evolve throughout the Project. Both compliance (with permit conditions) and effects (manifestations of Project impacts) monitoring programs will be carried out.

### ***Adaptive Management and Continual Improvement***

Despite best efforts at prediction and the use of sophisticated quantitative models, unexpected effects can occur throughout a project's life. Shore has put in place an adaptive management program for exploration that will be carried through all phases of the Project. The program utilizes monitoring and feedback from the affected biophysical and human



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environments to make adjustments in management where required to respond to unexpected changes. Further, the program is designed to anticipate potential changes (either positive or negative) and to adjust management as required in advance of changes, thus relieving sole reliance on reaction to circumstances to affect change.