



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

**SECTION 10.0
CONCLUSIONS AND COMMITMENTS**



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1.0 CONCLUSIONS

This section summarizes the conclusions from this EIA and then provides a listing of the commitments made to management and mitigate the potential environmental and socio-economic effects from the Project.

1.1 CONCLUSIONS

The Project will be a net benefit to the province of Saskatchewan and Canada, and will be constructed and operated in an environmentally and socially responsible manner such that positive effects are enhanced to increase their benefit and negative effects are minimized to the greatest extent possible with best available technology and management.

The Project will create economic activity in the area, contribute to the local, regional and provincial economies, and create both short term and long term full time employment. Opportunities for Aboriginal people and other people in the area will be created through direct employment by Shore through a representative workforce policy and indirectly by creating local contractor and business relationships through Shore's local procurement policy. As well, employment and business opportunities will be created indirectly as result of increased economic activity resulting from the Project.

The Project does not use any toxic chemicals in the extraction of diamonds from kimberlite. Any materials released to the environment will generally occur naturally in the kimberlite or in groundwater.

Construction and operation of the Project will require excavation of a large amount of overburden and country rock, and necessitate a disturbance of 3,946 ha, less than 4 percent of the FaIC forest. This disturbance is expected to have significant effects on soil, vegetation and ravines in the immediate area of the Project while the mine is in operation. Once all reclamation and revegetation activities are complete, vegetation communities similar to those that exist in the FaIC forest at the time of closure are expected to be replaced. In the future, these vegetation communities would be expected to function as wildlife habitat, contribute to biodiversity and provide for land uses similar to those that existed prior to Project development.

Excavation of the Star and Orion South open pits will require dewatering, removing the deep, non-potable, slightly brackish groundwater in order to keep the pits dry. This water will be pumped, used in the processing plant as needed, and recycled from the PKCF to the plant to reduce discharge of metals to the environment. Make up water will be taken from the pit dewatering wells as needed, and excess water would be discharged into the Saskatchewan River. This Mannville formation water has been demonstrated non-acutely toxic and therefore suitable for discharge into the river, and, will represent less than 1% of



normal river flow. Shallow aquifers will also experience drawdowns from pit dewatering as residual passive in-flow of these aquifers will occur into the pits.

Dewatering activities will cause drawdowns in surficial aquifers in the immediate area of the Project, and will cause drawdowns in the deep aquifers that extend beyond the FaIC Forest. The deep aquifer is not suitable for domestic use, and is separated from the shallow groundwater by a thick layer of shale and till. The layer of shale and till limits the effects of the drawdown in the deep aquifer; however, there is the potential for wells deeper than 50 to 100 m to be affected. A groundwater monitoring plan is proposed so that any effects can be identified, and appropriate mitigation (e.g. drilling a new well and/or providing water), for which Shore would be responsible, developed on a case by case basis depending on landowner needs. As a result of the monitoring and mitigation plan, potential effects on groundwater are considered not significant.

Effects on aquatic habitat are considered significant in the immediate area of the Project due to the removal of aquatic habitat in the Project footprint. This habitat will be compensated by the development of a fish habitat compensation plan according to requirements set out by the Department of Fisheries and Oceans Canada. Potential compensation options are described in the EIS. Effects on aquatic habitat and biota in the Saskatchewan River are not significant.

Overall, significant environmental effects are limited to the immediate area of the Project, with no significant effects identified in the Regional Study Area.

Shore has conducted community engagement concerning the Project through; meetings, a continuing community-based and inclusive forum for dialogue through the Diamond Development Advisory Committee, ongoing accessibility and openness to members of the public wishing to make inquiries of the company, transparent disclosure of information on the corporate website, Open Houses, and an environmental interests workshop. Feedback from these activities indicates that the public is generally supportive of the Project.

Traditional Land Use information in the FaIC forest from 7 Aboriginal groups has been incorporated into the revised EIS. This information establishes that Traditional activities have historically been, and are currently, practiced in the FaIC. Effects on hunting are considered significant in one case based on the Project development displacing hunting activities from the LSA. Many of the socio-economic benefits may mitigate this effect, however Shore will work towards formalizing these benefits in mutually beneficial agreements with Aboriginal groups.

1.2 COMMITMENTS

Shore has developed a conceptual Environmental Management Plan, based on experience gained in exploration, to construct, operate and decommission the Project in a sustainable



manner. The environmental and socioeconomic commitments that Shore will implement are listed below as general, construction, operations and closure commitments:

1.2.1 General Commitments

- Shore is committed to identifying, assessing and managing health and safety risks, educating employees in best health and safety practices and educating employees in compliance with applicable health and safety rules and regulations;
- Shore is committed to meaningful engagement with provincial and federal regulators, the Aboriginal community and other surrounding communities;
- Shore is committed to investigating incidents promptly and thoroughly to determine the root cause and prevent re-occurrence;
- A comprehensive Safety, Health and Environmental Management System (“SHEMS”) will be developed, based on the program developed during advanced exploration
- Periodic documented reviews will be carried out of the SHEMS to ensure the continuing relevance and effectiveness of the SHEMS and to address opportunities for improvement;
- Shore is committed to compliance with, and adherence to, its current Occupational Health and Safety (OH&S) program throughout the Project and shall continuously improve policies and procedures to protect the safety of individuals during project implementation;
- Shore will work through its Occupational Health and Safety Committee to develop a worker health monitoring program that will have three key components: health surveillance, exposure assessment and environmental monitoring;
- Monitoring records will be maintained for all significant environmental and health and safety matters, including accidents, spills, fires, occupational illnesses and other emergencies;
- Shore will work collaboratively with local emergency response officials to update its Emergency Response Plan when necessary and appropriate;
- Shore intends to develop a socio-economic monitoring program that will operate throughout the life of the mine;
- Shore will develop a detailed sustainability management plan;
- Shore will build long-term relationships with neighbouring communities and will engage these communities through open communication and mutual respect to share information and allow community partners to participate in meaningful ways;
- Shore is focused on continuing to build strong relationships and, where possible, reach appropriate agreements with First Nations and Métis people;
- Shore will maintain active community and Aboriginal engagement activities throughout all phases of the Project;



- Shore will provide clarification and information to assist First Nations and Métis Regions and their consultants in their review of the EIS, and will, when requested, participate in consultation activities with the Crown;
- Shore will attempt to mitigate impacts to trapping activities and will also provide compensation for affected trapline holder(s) in accordance with the provincial guidelines and associated proof of lost revenue. Shore will undertake appropriate discussions, including the provision of maps and early notification of Project development, with affected parties prior to and throughout the life of the Project to ensure that trappers' interests are properly considered, effects avoided where possible and compensation paid where appropriate;
- If unanticipated archaeological materials or features (including, but not limited to: hearth features, lithic, ceramic and faunal artifacts) are encountered as a result of construction or reclamation activities, all work in the immediate area will cease and the Heritage Resources Branch will be contacted. In the event that human remains are uncovered, the RCMP and the Heritage Resources Branch will be contacted and all work within the immediate area will stop;
- The Project will comply with the objectives of the land use policies, plans and regulations related to all three zones within the FaIC IFLUP and follow the access management guidelines as set out by the FaIC IFLUP;
- Shore will work with local training institutions to identify training that can be provided locally, as well as targeting specific areas outside of the FaIC area for recruitment for positions which require specialized technical skills;
- Shore will work to develop a workforce representative of the geographic areas in which Shore operates, including communities and cultural groups, such as First Nations and Métis, surrounding the Project. It is Shore's intention to maximize local employment where practical;
- Shore will build relationships with local suppliers and businesses to obtain quality, competitively priced goods and services in a timely fashion;
- Shore will operate a dedicated training department responsible for all on-site training required to assist employees in safely and efficiently performing their role;
- Shore will continue to participate as appropriate in the Northern Career Quest, Aboriginal Skills and Employment Program (a training-to-employment partnership including the federal and provincial governments, training institutions, industry, and First Nations and Métis groups in central and northern Saskatchewan);
- Shore will continue to honour responsibilities associated with being a signatory to the FaIC Employment Partnership whereby the parties agreed that Aboriginal persons are significantly under-represented in the provincial workforce and that efforts on the part of all of the partners are needed to facilitate a representative workforce, where Aboriginal people are employed in all classifications in proportion to their representation in the working age population;



- Shore will monitor any traffic-related issues that may emerge and will maintain communication with the RCMP
- Shore will encourage carpooling among its workers and develop policies to encourage compliance with speed limits and general road safety principles;
- Shore will provide on-site emergency response equipment and a nurse at all times to deal with worker injuries or illness, in accordance with regulations
- Shore will restore the site to a condition that is similar to the conditions that existed prior to disturbance;
- Fish salvages will be conducted prior to construction activities in the East Ravine, and all fish captured will be re-located to the Saskatchewan River;
- Shore will promote terrain stability through timely revegetation of slopes, and by application of engineered slope stability and erosion control measures, as necessary;
- Hazardous materials will be stored and transported under appropriate and regulated practices;
- Air quality monitoring will be conducted to enable reporting emissions in support of Canada's Voluntary Challenge Registry; and report particulate matter emissions to National Pollutant Release Inventory (NPRI), if necessary;
- A noise monitoring program will be implemented to effectively manage noise and blast emissions throughout the life of the Project;
- Monitoring wells will be established outside the drawdown cone of the mine dewatering system in analogous environmental conditions to identify seasonal and climate variations; Other monitoring will include continuous measurements of the discharge volume from the dewatering systems, periodic sampling of the discharge water, stream flow measurements in area creeks and in a reference watershed and collection of climate data from established monitoring stations, including precipitation and snow pack data;
- A program of water level monitoring in private wells will be commissioned; The program may utilize existing private wells for monitoring, or may drill new dedicated, strategically located, monitoring wells;
- Water quality monitoring will be undertaken through all Project phases and will be modified as required;
- The physical stability of Project facilities, including all piles and dams, will be monitored annually by an independent geotechnical engineer;
- Shore will use low pressure sodium lights to minimize attraction of insects and potential effects on nocturnal wildlife and reduce upward lighting;
- Shore will work with DFO to finalize a Fish Habitat Compensation Agreement (a No Net Loss plan) and will secure federal approval for habitat loss occurring in the LSA;

- During all Project phases, Shore will initiate clearing and grading before the breeding bird season, avoid initiating construction, where appropriate, during the late winter period when ungulates are in a low energy / nutritional condition, establish and implement a worker education program and wildlife awareness orientation program to educate personnel on wildlife issues (e.g; encounters, safety, feeding, collisions), required best operating practices, worker responsibilities and reporting requirements, establish and implement a strict policy to prohibit staff and contractors from feeding wildlife to avoid conditioning wildlife to human presence, erect wildlife cautionary signage on the access road, maintain (mow) the access right-of-way to maximize visibility for traffic and wildlife and remove any carrion from the Project access road to avoid attracting scavenging wildlife and reduce potential for wildlife-vehicle collisions; Wildlife monitoring will include: monitoring of wildlife mortalities due to human interactions (e.g;, vehicle collisions) along project roads and facilities, migratory bird species monitoring using systematic monitoring transects to determine if changes are occurring as a result of mining operations, monitoring the water management reservoir, sewage lagoon, kimberlite and overburden piles, for wildlife use with an assessment of wildlife that might be in distress as a result of using these areas and maintaining a daily wildlife management log to determine Project areas where wildlife interactions are most common and to help develop a hazard awareness program to reduce wildlife/human/ operations interactions; All wildlife collisions will be investigated with specific management practices adopted to avoid repeat incidents;
- Shore will establish a “no hunting” area around the mine to maintain the safety of the workforce. Specific accommodations may be made on a case by case basis;
- Shore will coordinate efforts with the appropriate wildlife authorities to resolve issues where wildlife may become conditioned to human presence and pose a safety issue; utilize deterrence conditioning, or trap and relocation as the initial response, and euthanasia as a last resort; and
- Shore will develop and implement a Weed Management Plan which should reduce the likelihood of new weed populations becoming established in the LSA and RSA.

1.2.2 Construction

- Shore will provide a work camp on-site to accommodate non-resident workers;
- Shore will provide on-site dedicated health and medical services, commensurate with the size and needs of the population living in the work camp and workers on-site, equipped to deal with all reasonably-anticipated and routine worker injuries or illness;
- Shore will implement staggered daily shifts and bi-weekly camp rotations to prevent bottlenecks on site and on Highway 55 during shift changes. Shift changes and camp rotations will be staggered into four movement times per day. This will reduce daily commuting vehicles on the road by 75% at any given point of the day;



- Shore will work with the Prince Albert Parkland Regional Health Authority to develop a suitable worker transfer arrangement with the Victoria Hospital in the unlikely event of a worker illness/injury beyond their on-site capacity;
- Shore will endeavour to develop a range of recreational programs for its work-camp residents, both on- and off-site. This will include on-site gym, games rooms, and other organized leisure pursuits. Shore may also work with local recreation groups to provide workers with other recreational opportunities at local facilities and outdoor destinations in the SRSA;
- Shore will work to develop a range of policies and programs for employees aimed at influencing workers' behaviour, which may include financial management and work-life balance seminars, and behaviour protocols for employees as part of site orientation (including policies respecting off-duty illicit drug use, zero-tolerance for impaired driving, and interacting with the local community);
- Shore will initiate discussions with local service providers (local RCMP detachments, the Kelsey Trail and Prince Albert Parkland Health Authorities, and the local offices of the Ministry of Social Services), aimed at gathering information about social issues that may emerge or be exacerbated in the SRSA during the timeframe of the Project;
- Shore will work with local training institutions to identify training that can be provided locally, as well as targeting specific areas outside of the FalC area for recruitment for positions which require specialized technical skills;
- Shore will build relationships with local suppliers and businesses to obtain quality, competitively priced goods and services in a timely fashion;
- Shore will communicate regularly with the operators of any waste facilities within the SRSA to monitor any emerging service constraints;
- Lars Road will be re-aligned around the overburden and rock storage pile, and the Lars road fire tower will be replaced to a location suitable to SMOE;
- All merchantable timber will be removed prior to construction; Slash and non-merchantable timber will be stockpiled for future reclamation and temporary security berms, where practical;
- Inert industrial wastes such as unusable scrap metal, wood and other construction debris will be collected and shipped off site for recycling or to a waste handling facility; Other industrial wastes will be segregated and shipped off site by an appropriate contractor;
- All recyclable material will be removed prior to plant start up, and prior to establishment of security zones;
- Shore will discuss cost-sharing options with the RM of Torch River to support the upfront development of the road upgrade;
- Shore will follow Occupational Health and Safety noise guidelines and reduce noise by regular inspections, maintenance of construction vehicles and equipment will be

performed to ensure that they have quality mufflers, and worn and/or faulty parts generating excessive noise will be replaced or repaired; speed limits on site will be enforced; if practicable, equipment will be turned off when not in use; and Project roads will be maintained to reduce noise associated with vibration and vehicle noise;

- Measures that will be implemented during the construction phase to minimize air quality effects include: implementation of a fleet maintenance program to ensure that all diesel-powered equipment will operate efficiently, thereby reducing air emissions; imposition of vehicle speed limits to mitigate fugitive dust; use of dust suppression techniques, as is appropriate for weather conditions; reduction of vehicle emissions by limiting idling of vehicles and equipment; use of delay blasting techniques whenever possible to avoid long distance dust dispersion; use of spill prevention techniques and stationary power equipment to refuel vehicles and avoid release of hydrocarbons; and use of water spray instead of pneumatic flushing to clean vehicles and equipment whenever possible;
- Shore will continue the waste removal practices as established during the exploration phase. Most inert waste will be delivered to the landfill in Prince Albert;
- Sediment control devices will be installed where needed, and will be inspected regularly during the course of construction; and
- Prior to construction, during the first year of operation and subsequently every five years, or in accordance to applicable regulation, sediment samples will be collected and analyzed for metals from: Saskatchewan River downstream of English Creek, Saskatchewan River upstream of Caution Creek and Saskatchewan River 100 m downstream of the diffuser.

1.2.3 Operations

- During operations Shore intends to continue its practice of staggering shift starts to reduce traffic bottle-necks on site and incremental traffic volumes on surrounding highways. Shore will continue to encourage carpooling among its workers, and encourage compliance with speed limits and general road safety principles for workers and contractors;
- Shore will have regular discussions with local RCMP about emerging traffic issues, including accidents and injuries;
- Shore will continue to communicate regularly with the operators of waste management facilities within the SRSA to monitor any emerging service constraints and determine any regional options for waste disposal;
- Shore will work with local service agencies to gather information about social issues or service capacity issues in a collaborative manner;
- Explosives magazines will be protected by a fire break;
- No flammable material, including fuel oil, will be stored within 8 m of any explosive magazine;

- The road to the explosives area will be clearly signed and securely gated. The area around the magazines will be fenced. The explosives area will be located approximately 3 km from any point of public road access and about 3 km from the nearest site boundary;
- All mobile equipment will be maintained to manufacturers' specifications to limit exhaust emissions to the extent practical. All vehicles will use provincially approved low-sulphur fuel;
- Pit slopes will be managed via a comprehensive slope maintenance and monitoring program employing available technology;
- During overburden removal to the overburden and rock storage pile, shale materials unsuitable for reclamation will be buried or capped with at least 2 m of suitable material;
- Monitoring wells will be installed within 50 m from the outer perimeter of the sewage lagoon at three sites (one upgradient and two downgradient of the sewage lagoon). Shallow groundwater quality will be monitored on a seasonal basis;
- Shore will conduct biophysical monitoring in the following areas: air quality, noise, terrain and soils disturbance, vegetation, wildlife habitat and wildlife, hydrology, surface water quality, aquatic effects, groundwater quality and quantity, sediment, reclamation and re-vegetation, geochemical stability (ARD/ML); and geotechnical stability (of berms, dykes and overburden and rock storage and processed kimberlite storage piles);
- Blasting will occur on day shift only during daylight hours; and when possible, Shore will endeavour to inform the public of its blasting timetable;
- Shore is committed to compliance with its Occupational Health and Safety Program during the operations phase and shall develop and maintain an effective Health and Safety Plan to promote the health and safety of individuals working on site;
- Shore will develop a range of policies and programs for employees aimed at influencing workers' behaviour, which may include financial management and work-life balance seminars and behaviour protocols for employees as part of site orientation;
- Shore will continue the monitoring measures associated with traffic volumes as described for the construction phase. Shore will further consider the viability of park and ride sites or other worker shuttle services that would facilitate car pooling into the mine site;
- Shore will explore the possibility of bus services into the mine site for tourists from designated places within the SRSA in order to reduce tourist-related traffic on key SRSA arteries and in the FalC;
- Ongoing water quality monitoring will be completed in the Saskatchewan River downstream of the discharge location to ensure that parameter concentrations are not exceeding regulatory criteria; and
- Drainage from overburden and processed kimberlite storage facilities will be monitored on a monthly basis during operations and periodically post mining.



1.2.4 Closure

- Shore will communicate and engage with stakeholders and First Nations and Métis to ensure that the interests of all potentially-affected parties are considered in mine closure plans;
- Shore will establish a set of indicators that can be used to assess the successful completion of the closure process. Shore will work with the communities to identify their desired post closure outcomes and to establish a set of indicators that will be used to guide the evolution of the Plan;
- Shore will have regular and critical reviews of closure planning to ensure that the plan reflects changing circumstances;
- Upon mine closure Shore will include a conceptual strategy for workforce adjustment and consideration of regional community and business sustainability. Shore appreciates the potential significance of mine closure on the regional economy and is committed to working with the affected communities and government agencies to develop and regularly revise a mine closure plan that includes a strategy for managing the effects of eventual job loss, and establish specific strategies and actions that can be used to minimize the potential adverse effects of mine closure on the population of these communities. Shore is committed to working with the affected communities and government agencies to develop (and regularly revise) a mine closure plan that includes a strategy for buffering the effects on the Project workforce;
- Shore will follow the Closure and Reclamation Plan to restore the developed area to a productive ecosystem consistent with the surrounding FaIC forest;
- The middle reaches of the East Ravine will be re-established after closure to return the ravine to its previous discharge outlet;
- Upon mine closure Shore will revegetate disturbed areas as soon as they are no longer active so that the vegetation communities post closure are similar to naturally occurring vegetation communities in the FaIC forest post closure;
- Upon mine closure Shore will replace a variety of ecosites (combinations of soil, drainage and aspect) such that a diversity of vegetation communities can be supported;
- Upon mine closure Shore will incorporate traditional knowledge and traditional land use information (when available) into closure planning so that traditional uses can continue after closure;
- At closure, areas that were not progressively reclaimed during mine life will be made physically and chemically stable. The areas will be revegetated with native vegetation with an aim of restoring the site to vegetation communities found in other parts of the FaIC forest at that time;
- At closure, the site will be contoured to either blend into the surrounding topography (linear corridors, plant site, etc.) or contoured to provide drainage and variations in microsite conditions (i.e., PKCF and the overburden and rock storage pile). This will

mean that the processed kimberlite piles and the overburden and rock storage pile will remain as changed features of the landscape. All site facilities are designed to have a maximum slope of 3:1. Where needed for stability reasons (i.e. drainage areas) slopes may be recontoured;

- The final pit slope upper benches (i.e., surface sand and clay benches) will be revegetated with annual and perennial grasses as soon as possible, whether or not they will be subsequently buried by back fill, either using broadcast seeding or a straw erosion control blanket over broadcast seeding. Lower bench areas (i.e., benches within till) will be monitored for dust generation and may be revegetated as above. If the former East Ravine channel is to be used as drainage channel, it will be armoured; alternatively, it will be raised to prevent drainage from the Star pit lake to the Saskatchewan River;
- The Star and Orion South pits will be allowed to naturally fill with groundwater. The Star pit will be partially filled in due to its use to as a processed kimberlite containment facility and some placement of the overburden and rock within the pit;
- At closure, periodic sampling of surface water will continue at designated sites until reclamation is complete and the site has stabilized;
- At closure, once all mining and processing has been completed, all infrastructure and equipment will be removed from the site or buried (inert waste only), sold as used equipment or scrap where possible and the land returned to an acceptable end-land use as determined by the EIA. All industrial wastes would be either returned to suppliers or removed from site for disposal by a licensed waste contractor. All concrete foundations would be broken up and buried;
- The plant site will be re-contoured to blend into the surrounding topography, and any salvaged organic material rolled back to an average depth of 15 cm. Deep ripping may be required to alleviate the effects of compaction;
- At closure, the perimeter berms will be rolled back onto the toe slope of the PKCF. The remaining exposed Fine PK will be mixed with a top dressing of at least 100 cm of sand or other overburden material, and/or mixed with suitable soil amendment (composted biosolids or other) based on the results of ongoing research;
- Surface drainage will be constructed to direct any surface runoff into the 101 Ravine to the south, and into the Caution Creek drainage to the north. Slopes within the drainage areas will be designed to be geotechnically stable, and erosion control blankets will be applied as needed; and
- A post-closure monitoring program for reclaimed areas, as well as for areas of “natural” recolonization, will be implemented.