

Prosper Petroleum Ltd.

Rigel Project

June 12, 2018

Alberta Energy Regulator

Decision 2018 ABAER 005: Prosper Petroleum Ltd., Rigel Project

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Prosper Petroleum Ltd. Rigel Project

Oil Sands Conservation Act Applications 1778538

Environmental Protection and Enhancement Act Application 001-341659

Water Act Application 00370772-001

Decision

[1] Subject to the approval of the lieutenant governor in council, the Alberta Energy Regulator (AER) approves, subject to the conditions in appendix 3, Prosper Petroleum Limited's (Prosper's) *Oil Sands Conservation Act (OSCA)* application 1778538 to construct and operate a bitumen recovery scheme, including a central processing facility (CPF) and supporting infrastructure (the Rigel project).

[2] The AER approves, subject to the conditions in appendix 3, Prosper's *Environmental Protection and Enhancement Act (EPEA)* application 001-341659 for the construction, operation, and reclamation of the Rigel project.

[3] The AER approves, subject to the conditions in appendix 3, Prosper's *Water Act* application 00370772-001 for approval to withdraw 255 500 cubic metres per year (m³/year) of non-saline water from the Viking and Undifferentiated Drift (Deep Drift) formations.

[4] To reach these decisions, the AER considered all relevant materials on the record of this proceeding, including the evidence and argument provided by each party. Accordingly, references in this decision to specific parts of the record are intended to help the reader understand the AER's reasoning on a particular matter and do not mean that the AER did not consider all relevant parts of the record with respect to that matter.

Introduction

Applications

[5] Prosper's Rigel project is a proposed bitumen recovery scheme using steam-assisted gravity drainage (SAGD) to produce a maximum of 1600 m³ of bitumen per day (i.e., 10 000 barrels/day) from the Wabiskaw Member.

[6] The bitumen would be recovered from Prosper's leases in Section 20 and the west half of Section 21 of Township 96, Range 17, West of the 4th Meridian, about 64 kilometres northwest of the hamlet of Fort McKay (Fort McKay).

[7] Rigel project components include a CPF for steam generation and production, connected to six multiwell pads. Each pad will have eight horizontal SAGD well pairs (injection and production). Additional surface facilities include observation wells, water source wells, production facilities, water treatment and recycling facilities, pipelines, support buildings, an access road, utility corridors and rights-of-way, a laydown area, sumps, borrow pits, and a construction camp.

[8] In support of the Rigel project, Prosper applied to the AER for approval of the following:

- OSCA application 1778538 to construct and operate a bitumen recovery scheme
- EPEA application 001-341659 for the construction, operation, and reclamation of the project
- *Water Act* application 00370772-001 for approval to withdraw 255 500 m³/year of nonsaline water from the Viking and Deep Drift formations

[9] The three applications considered by the panel are not the only applications Prosper has to make so it can develop the Rigel project. It must also apply for approvals under the *Public Lands Act*, the *Oil and Gas Conservation Act (OGCA)*, the *Hydro and Electric Energy Act*, the *Historical Resources Act*, and the *Pipeline Act*, among others.

Procedural Background

[10] Prosper submitted applications to the AER in support of its Rigel project in 2013. On May 6, 2016, the AER advised it had suspended the processing of those applications. On November 2, 2016, the AER determined it was appropriate to resume the processing of Prosper's applications.

[11] On January 30, 2017, the AER issued a notice of hearing of applications 1778538, 00370772-001, and 001-341659, and received requests to participate in response. Requests to participate were received from Fort Chipewyan Métis Local 125, Athabasca Chipewyan First Nation, Fort McKay First Nation, Fort McKay Métis Community Association (Fort McKay Métis), Fort McMurray Métis Local 1935, Mikisew Cree First Nation, and Brion Energy Corporation (now PetroChina Canada).

[12] The panel determined that Fort McKay First Nation and Fort McKay Métis could take part in the hearing as full participants. Mikisew Cree First Nation was advised that it could take part in the hearing as a full participant to address specific impacts of Prosper's Rigel project on its Aboriginal rights and traditional land use.

[13] Fort McKay Métis and Fort McKay First Nation participated in the hearing. The parties' representatives and witnesses are listed in appendix 1.

[14] After considering submissions from the parties on the process, scope, timing, and venue for the hearing, the panel set a schedule for submissions and confirmed that the hearing would start on July 18, 2017, and would continue into the following week.

[15] In the same letter, the panel also specified the issues participants would be allowed to address in this proceeding:

- 1) Consistency with the *Oil Sands Conservation Act* purposes. In particular those set out in sections 3(a), (b) and (g) of that act.
- 2) Consistency with *Responsible Energy Development Act* purposes. In particular those set out in sections 2(1)(a) and 2(1)(b)(ii) and (iii) of that act.
- 3) Economic effects of the proposed project.
- 4) Social effects of the proposed project.
- 5) Effects on the environment of the activities that would be authorized by the applications including effects on ecosystem function and biodiversity, and on air and water and their ability to support human and ecosystem needs.
- 6) Effects caused by the proposed project other than those covered in issues 3–5 on aboriginal rights and traditional land use.
- 7) Cumulative effects caused by the activities authorized by the applications when considered in combination with effects of existing or approved activities.
- 8) Compliance with *LARP*, including any subregional plans.

[16] The panel also identified issues it deemed to be not in the scope of this proceeding:

- 1) The adequacy of Crown consultation. The AER has no jurisdiction with respect to assessing the adequacy of Crown consultation.
- 2) The adequacy of *LARP* and any existing subregional plans under *LARP*.
- 3) *MLAMP* does not exist as a subregional plan and consideration of it is not within the panel's mandate.
- 4) Cumulative effects unrelated to the effects that might be caused by the Rigel project.

[17] Fort McKay First Nation confirmed in a letter on April 18, 2017, that it intended to file a Notice of Question of Constitutional Law (NQCL) in these proceedings to address the panel's decision to not hear issues related to the *Moose Lake Access Management Plan (MLAMP)*.

[18] On May 10, 2017, counsel for Fort McKay First Nation requested an adjournment. They had learned that community members would not be available for July 18 due to the Lac. St. Anne pilgrimage (July 22–27).

[19] After considering the parties' submissions on the issue, the panel decided it was appropriate to adjourn the hearing. A new hearing date was set for Tuesday, October 17, 2017.

[20] On June 22, 2017, Fort McKay First Nation filed an NQCL under the *Administrative Procedures and Jurisdiction Act* asking that the panel suspend the proceeding and refer their questions to the Alberta Court of Queen's Bench.

[21] On July 27, 2017, the panel extended submission deadlines for the NQCL and asked parties provide their views on the relevance and impacts of Supreme Court of Canada decisions *Clyde River (Hamlet) v. Petroleum Geo-Services Inc.* and *Chippewas of the Thames First Nation v. Enbridge Pipelines Inc.*

[22] On August 9, 2017, Fort McKay First Nation once again asked the panel to suspend the proceeding. It cited the Supreme Court of Canada decisions and argued that *MLAMP* is accommodation owed Fort McKay First Nation that must be satisfied before any more decisions can be made that could affect their treaty and Aboriginal rights. In the alternative Fort McKay First Nation asked for the opportunity to file an amended NQCL.

[23] On August 14, the panel advised that it would not be suspending the hearing process for Prosper's Rigel project. The panel also advised that Fort McKay First Nation could file an amended NQCL. It set forth its reasons in a letter that followed on August 16.

[24] On August 30, 2017, Fort McKay First Nation filed an amended NQCL. Prosper and the Minister of Justice and Solicitor General of Alberta responded in writing on September 13, 2017, and Fort McKay First Nation filed a reply on September 20, 2017.

[25] On October 4, 2017, the AER issued a notice of scheduling of hearing announcing the hearing would take place on October 17, 2017, in Fort McMurray.

[26] On October 12, 2017, the AER issued a notice of adjournment of hearing in response to requests from participants following the panel's request for Prosper to revise its *Water Act* application.

[27] On October 16, 2017, the panel issued its decision on Fort McKay First Nation's amended NQCL.

[28] On November 22, 2017, the AER issued a notice of rescheduling of hearing announcing a hearing commencement date of January 9, 2018.

The Hearing

[29] The hearing was held before hearing commissioners C. Low (presiding), C. Macken, and T. Engen (the panel).

[30] This was an oral hearing held in Fort McMurray, Alberta. It began as scheduled on January 9 and the evidentiary portion adjourned on January 18, 2018. Representatives of the Aboriginal Consultation

Office (ACO) attended to observe. Parties were advised that final oral argument would be scheduled once the panel received the ACO's hearing report.

[31] The panel received the ACO hearing report on February 22, 2018, and final oral arguments were scheduled for one day on March 14, 2018. Final oral arguments concluded the same day, and the hearing was closed. Transcript issues caused the panel to revise the closing date to March 21, 2018, when those issues were resolved.

Decision Framework

[32] To decide whether to grant each of the applications before us, we must take into account the applicable sections of the relevant acts. We must also consider certain factors set out in our governing legislation. The mandate of the AER is set out in section 2 of *REDA*. That mandate is to “provide for the efficient, safe, orderly, and environmentally responsible development of energy resources in Alberta.”

[33] As a statutory decision maker, the AER must take into account potential impacts of Prosper's Rigel project on Aboriginal and treaty rights. However, section 21 of *REDA* prevents us from considering whether Crown consultation for Prosper's Rigel project was adequate. The ACO reports that we received and considered deal with the adequacy of consultation.

[34] To approve an application made under section 10 of the *OSCA*, the AER must find it to be in the public interest. The AER may not issue an approval under section 10 of the *OSCA* without prior authorization from the lieutenant governor in council. And because the *OSCA* is an energy resource enactment, section 15 of *REDA* and section 3 of the *REDA General Regulation* require the AER to consider the Rigel project's social and economic effects, environmental effects, and effects on landowners.

[35] The *EPEA* application was filed under sections 66 and 137 of that act. We must consider whether approval to construct, operate, and reclaim the Rigel project's CPF and associated infrastructure is consistent with the *EPEA* purpose of protecting the environment and promoting sustainable resource development while considering the need for Alberta's economic growth and prosperity. The integrity of ecosystems and human health and the well-being of society are mentioned in section 2 of *EPEA* as factors to be recognized.

[36] The *Water Act* application was filed under section 49 of that act for a licence to divert groundwater. In accordance with the *Water Act*, we must decide whether approving the application would be consistent with the conservation, management, and wise use of water resources in Alberta. The purposes provisions of the *Water Act* require us to take into account economic growth and prosperity, the need to maintain a healthy environment, and the effects of the proposed water diversion on the aquatic environment.

[37] Prosper's Rigel project is located in the *Lower Athabasca Regional Plan (LARP)* area. Section 20 of *REDA* requires the AER to act in accordance with *LARP* and any subregional plans that are in force. In particular, we must decide whether approval of the applications is consistent with the regional outcomes identified in the *LARP*. The relevant outcomes are to optimize the economic potential of the oil sands resource and to ensure that the landscape can maintain ecosystem function and biodiversity taking into account land disturbance and habitat impact. In addition, a specific strategy in *LARP* land-use planning is to ensure the ability of First Nations to exercise their rights in "reasonable proximity of First Nations' population centres."

[38] Finally, the panel is aware that the province has said it intends to finalize an access management plan for the Moose Lake area i.e. (*MLAMP*) and make it a *LARP* subregional plan. At the time of writing this decision, the *MLAMP* has not been implemented as a *LARP* subregional plan. As a result, only the *LARP* and its regulatory details plan guide our decision.

Issues

[39] The participants focused their evidence and final argument on a range of issues that was narrower than the range identified by the panel in its April 28, 2017 letter. Fort McKay Métis said it is not opposed to all resource development in its traditional territory. It said it opposes the Rigel project because

- it will have unacceptable adverse impacts on its traditional land use in an area it describes as being of high cultural value;
- it has the potential to adversely affect the drinking water source for Fort McKay;
- it presents unacceptable risk to water bodies and groundwater; and
- Prosper's *Water Act* application is deficient.

[40] Fort McKay First Nation said it supports "responsible oil sands development." It said it is opposed to the Rigel project because

- Moose Lake is a refuge that must be protected from industrial development to ensure that members of Fort McKay First Nation can continue to meaningfully exercise their Aboriginal and treaty rights from the Moose Lake reserves;
- approval of the Rigel project will frustrate *MLAMP* negotiations;
- the ecological integrity and ability to sustain traditional practices of the Fort McKay First Nation's traditional territory is threatened, and the Rigel project poses an unacceptable risk; and
- the Rigel project might compromise the source of Fort McKay's drinking water.

[41] Since we have to decide on Prosper's applications in accordance with the legislative framework described above, we have incorporated our consideration of the issues as framed by the parties into our consideration of each of the applications. And because effects on treaty and Aboriginal rights are a key

element in the public-interest balance for the *OSCA*, we have addressed them in the *OSCA* part of this decision. That does not mean we did not take them into account when considering the *EPEA* and *Water Act* applications.

Oral Traditional Knowledge Evidence

[42] The AER offered to hear oral traditional knowledge evidence from the participants in Fort McKay. Both participants expressed concern about drawing any distinction, whether procedural or substantive, between oral traditional knowledge evidence and the balance of their evidence. On that basis, Fort McKay First Nation declined our offer.

[43] At the hearing, both participants sat panels composed of outside experts, employees, and community members, including elders and traditional knowledge keepers. We listened to all of the parties' oral evidence and have considered and weighed it without categorizing it or drawing a distinction between oral traditional knowledge evidence and other evidence.

OSCA Application

Background

[44] Prosper obtained approval for an oil sands exploration drilling program in 2013. It drilled eight wells to delineate the target resource in accordance with the AER's *Draft Directive 023: Oil Sands Project Applications*. The Wabiskaw C and D sandstones comprise the target reservoir. Prosper describes the reservoir as being 20–30 m thick and vertically continuous.

[45] Prosper calculates reserves in the Rigel project area to be 23 601 103 m³. Prosper plans to drill two of the six planned well pads initially, to reach the target production rate. Prosper estimates it will add one new well pad every four years to maintain the target production rate.

[46] The overarching question the panel has to answer is whether the Rigel project is in the public interest. To answer that question and to ensure that we address the relevant issues established by the legal framework and evidence as presented by the parties, we answered the questions below.

Can the Proposed Scheme be Carried Out Safely and Efficiently?

Safety

[47] Prosper said it will follow its health and safety program, as well as Enform's Industry Recommended Practice Volume 3 – In-Situ Heavy Oil Operations. Prosper also said it will ensure all industry recommended practices, guidelines for safe work, and best practices are followed by all of its employees and contractors.

[48] Prosper's emergency response plan (ERP) complies with AER *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry* (ERCB 2008) and the Canadian Standards Association's *CAN/CSA-Z-731-03: Emergency Preparedness and Response* (CSA 2009). Prosper said it will update the ERP regularly to reflect changes in regulatory requirements.

[49] Prosper is required to develop a site-specific spill-response plan as part of its ERP before starting construction. That plan must address unexpected sudden or gradual releases to the environment during construction and operation of the Rigel project. Prosper's application shows that its spill-response plan will include commitments to do the following:

- Eliminate potential ignition sources.
- Lessen the severity of the spill.
- Notify appropriate personnel, spill responders, and regulatory officials.
- Identify the type and extent of the spill.
- Identify the spill material.

- Identify equipment, services, and assistance required.
- Determine appropriate ways of containing and cleaning up the spill.
- Document all actions.

[50] Prosper's spill reporting and notifications must be in accordance with all AER and Alberta Environment and Parks requirements.

[51] Prosper said it is a member in good standing of Western Canadian Spill Services Ltd. (WCSS). Prosper will contract WCSS for the provision of assistance in the event of a major oil spill. WCSS maintains oil spill contingency plans and spill response equipment for quick response. Prosper also said its representatives attend annual WCSS exercises for the areas in which Prosper has operations.

[52] The participants did not raise concerns about Prosper's ability to carry out the proposed scheme safely. Fort McKay Métis hydrogeologist Dr. G. Wendling did suggest a concern about the potential for breach of caprock. He referred to the Canadian Natural Resource Limited (CNRL) Primrose Lake incident. He also referred to the risk of a breach of caprock above and below the Wabiskaw.

[53] Dr. Wendling provided no analysis or evidence to support his suggestion. For that reason, and because the CNRL Primrose Lake project used a cyclical steam injection process that will not be used at the Rigel project and because Dr. Wendling admitted he is not an expert in this area, the panel gives this submission negligible weight.

[54] The panel is satisfied that Prosper will meet or exceed the relevant regulatory requirements and can operate the Rigel project safely.

Efficiency

[55] Prosper said that no equivalent pilot or commercial projects are currently operating in the Wabiskaw in the surrounding area. Prosper modelled the SAGD process in the Wabiskaw using thermal reservoir simulation. Prosper said the average bitumen thickness in the Rigel project area is 29.8 m with an average developable thickness of 25.8 m. Prosper included in its model all bitumen-saturated reservoir in the Wabiskaw B and C sandstones with more than 50 per cent oil saturation, Prosper said the simulation projects that 60 per cent of the bitumen will be recovered.

[56] Prosper plans to drill eight well pairs per pad to limit surface disturbance and well-pad construction costs. Each well pad will drain a quarter section. Prosper said it designed its drainage patterns to minimize stranded pay. Prosper reports that modelling shows that each well pair has an expected producing life of 10 years. There has been no production in the area, so repressurization of a depleted zone will not be an issue. Similarly, with no production in the area, impacts on other producers will not be an issue.

[57] Prosper said it designed the CPF to handle a range of fluid volumes because production rates are expected to fluctuate from well to well and in the various production phases of the project. Prosper said the CPF is designed to produce at a cumulative steam-to-oil ratio of 3.5 (annual daily average; calendar day).

[58] The CPF technologies were selected to optimize energy conservation and water recycling and to reduce the amount of waste generated while maximizing bitumen recovery. Prosper has gone to some effort to minimize surface disturbance by

- using existing clearings, where possible;
- placing the initial well pads close to the CPF to minimize steam corridors and associated access;
- locating sumps and borrow pits close to existing access;
- working with other industries to share roads;
- sizing pads to accommodate eight well pairs;
- using shared corridors between the CPF and well pads; and
- locating the CPF laydown area and camp outside of the permanent Rigel project footprint.

[59] The participants did not raise concerns about the efficiency of Prosper's proposed bitumen recovery scheme for the Rigel project.

[60] The panel is satisfied that Prosper's proposed bitumen recovery scheme for the Rigel project will be efficient because it is designed to maximize recovery of the oil sands resource in the Prosper lease while minimizing impacts.

What are the Effects on Existing Rights of Aboriginal People?

Introduction

[61] Prosper said that the Rigel project will affect Aboriginal rights to hunt and trap because an area of land, the Rigel project footprint, will be occupied and disturbed. There will be a further area of land that will effectively be unavailable, for safety reasons, for use for hunting.

[62] The Rigel project footprint will be 105.9 ha. Prosper says that number includes 12.0 ha of previously disturbed land. Prosper's total lease area is 768 ha. The expected life of the Rigel project is 24 years, not including reclamation. The CPF and supporting infrastructure will be in place for at least that long. Prosper has committed to progressively reclaiming components, such as well pads, that are no longer required for operations (see appendix 4).

[63] A matter common to both participants is that the phrases “Moose Lake area” and “Moose Lake” were used to refer to geographic areas of varying extent. No specific geographic delineation or definition was given. What we heard is the following:

- Moose Lake and Buffalo Lake are also known as Gardiner Lake and Namur Lake, respectively. The lakes are north of Prosper’s lease and west of Indian Reserves 174A and 174B (the participants referred to the reserves as the Moose Lake reserves, and so will we). The more northerly of the two lakes is referred to as either Gardiner Lake or Moose Lake. The more southerly of the two is referred to as either Namur Lake or Buffalo Lake. Use of “Buffalo” and “Moose” by forebears of current Fort McKay First Nation and Fort McKay Métis members came about because one lake was found to be a good place to find buffalo, and the other, moose.
- The Moose Lake area was described by some witnesses as the area extending west from Fort McKay to Moose Lake and Buffalo Lake.
- Reference to Moose Lake is a reference to the area including Moose Lake and Buffalo Lake as well as the surrounding territory.
- The Moose Lake area is larger than the requested 10 kilometres (km) buffer around the reserves.
- The Moose Lake area is the intensive-use zone on and around Gardiner and Namur Lakes and is the “heartland” of the Fort McKay First Nation territory.
- The Moose Lake area extends to the lands that surround the reserves and that support the continued exercise of treaty rights from the reserves.

[64] We interpreted the phrases “Moose Lake” and “Moose Lake area” from the contexts in which they were used.

Fort McKay Métis Community Association (Fort McKay Métis)

Background

[65] Fort McKay Métis has 97 members. Most live in Fort McKay. Fort McKay Métis owns and leases land in Fort McKay.

[66] Until some time in the spring or summer of 2014, Fort McKay First Nation and Fort McKay Métis were jointly engaged with Prosper about the Rigel project. The parties filed a joint statement of concern in response to the Rigel project *EPEA* application. The participants then filed separate statements of concern in response to the Rigel project *OSCA* and *Water Act* applications. They participated separately throughout the balance of the hearing process. The ACO did not prepare either a consultation adequacy report or a hearing report about potential adverse effects on Fort McKay Métis.

Fort McKay Métis' Aboriginal Rights and Traditional Land Use

[67] Fort McKay Métis asserts it is a rights-bearing community with unextinguished Aboriginal rights. The Supreme Court of Canada has said that the rights of Métis peoples that are protected under section 35 of the Constitution are those practices integral to the distinctive culture of the community at the time of effective European control of the relevant area.

[68] No challenge was made before us to Fort McKay Métis' assertion of constitutionally protected rights to hunt and harvest (including fish) in its community harvesting area as recognized by the Government of Alberta. Similarly, no challenge was made to Fort McKay Métis' assertion of constitutionally protected rights to hunt and harvest in its traditional territory—specifically including the Prosper lease.

[69] For the purposes of this proceeding, we are prepared to consider Fort McKay Métis to be a rights-bearing community with the rights to hunt and harvest for subsistence purposes and exercise necessarily incidental activities on the lands and waters extending from Fort McKay west to Moose Lake and south to include the Prosper lease. We base this on the undisputed evidence from R. Quintal, President of Fort McKay Métis, and on the evidence of its expert Dr. T. Dyck. Evidence from Fort McKay First Nations' expert Dr. P. McCormack supports this conclusion.

How will Prosper's Rigel Project Affect Fort McKay Métis' Aboriginal Rights and Traditional Land Use

[70] Fort McKay Métis filed a traditional-land-use review (TLU review) completed by Dr. Dyck. He was clear that his TLU review should not be read as a comprehensive analysis. Dr. Dyck gathered information by interviewing five community members, including Fort McKay Métis witnesses, Mr. F. Faichney and President Quintal. Dr. Dyck also visited the Moose Lake area with elders. According to Dr. Dyck, they flew to the lake by float plane (the only means of access in the summer), spent part of the day at the lake sharing stories and other knowledge of traditional use and culture, such as place names, and then flew out. Dr. Dyck said they did not visit the Rigel project site because it would be too difficult for the elders to get there.

[71] Maps included in Dr. Dyck's review show the only traditional use by Fort McKay Métis on the Prosper lease is subsistence use just within the northern limit of the lease boundary, which follows the southern shore of Moose lake in an area that is now within Birch Mountains Wildlands Provincial Park.

[72] Fort McKay Métis evidence shows that the community has used and currently uses lands on and near the Moose Lake reserves for hunting, trapping, and fishing. Community members, such as Mr. Faichney, travel by boat along the lakeshore to hunting sites. Fort McKay Métis community members hunt moose in the Moose Lake area. Their witnesses also mentioned deer.

[73] Fort McKay Métis evidence also demonstrated that Moose Lake is an important year-round fishery for members of the community. We accept Fort McKay Métis' evidence that some members of the community might be afraid to eat fish from Moose Lake if more oil sands development occurs in the Moose Lake area. However, no persuasive evidence was provided in this hearing to establish that it is probable that Prosper's Rigel project will result in harm to the fishery in Moose Lake.

[74] We are persuaded that oil sands development around Fort McKay has interfered with Fort McKay Métis community members' relationships with and connections to the land and that they are afraid of losing that connection and relationship in the Moose Lake area. The fear expressed is genuine. What is missing is evidence that the Rigel project itself will cause a loss of connection and relationship. We say that because there is already oil sands activity in the Moose Lake area: the Sunshine oil sands operation project immediately to the south and west of the Prosper lease, the Dover oil sands exploration project immediately to the east and southeast of the Prosper lease, and the Prosper oil sands exploration project. Yet Fort McKay Métis described the area as a refuge and a place where they can go now and feel that connection to the land.

[75] Fort McKay Métis said that the community needs clean water to drink when its members are out on the land and to sustain the living things they hunt, trap, fish, and harvest. It was not clear whether they assert this as a constitutionally protected right, but for the purposes of this decision, that does not matter because Fort McKay Métis did not provide evidence that would persuade us that the Rigel project will impair surface water quality in the Moose Lake area. Our analysis of potential impacts on surface water is found in the *EPEA* and *Water Act* sections of this decision.

[76] Fort McKay Métis expressed concern that noise, odour, visual disturbance, and better access to the Moose Lake area (via a new, all-season access road) will decrease the availability of animals for harvest. Dr. Dyck explained that the value of an area for subsistence activities can be negatively affected by noise, odour, and visual disturbances because animals are "pushed away" and it can become more difficult to harvest.

[77] Prosper said that development of the Rigel project might displace wildlife species preferred for hunting. Prosper also said that the construction of an all-season access road into the Moose Lake area and an influx of workers might also increase the competition for hunting in the area. Prosper's planned mitigation is to forbid project employees from having firearms on site or at camp. Workers, other than supervisors, will be bussed in. Public access to the all-season access road will be controlled, although we find that the participants have valid concerns about the effectiveness of the current closure to the public of the existing all-season access road.

[78] Prosper's wildlife expert, Mr. R. Lauzon, gave uncontradicted evidence that wildlife has been observed in the region immediately beside oil sands projects that employ accepted mitigation measures.

[79] The panel finds that it is reasonable to expect that clearing required for the Rigel project facilities and for ongoing activity and disturbance in the project footprint will cause some animals to avoid the Rigel project footprint. It is also reasonable to expect that wildlife use of habitat in the immediate project vicinity might change. However, Fort McKay Métis concerns appear to be based largely on the witnesses' experience of the oil sands mining projects near Fort McKay. Fort McKay Métis did not provide evidence that would persuade us that if the Rigel project is approved as proposed with conditions, it will result in fewer animals available for Fort McKay Métis to harvest.

[80] It is clear to the panel from Fort McKay Métis' evidence that it is very important to them to be able to continue to learn and pass on traditional knowledge and practices such as hunting, trapping, and fishing for food in the Moose Lake area. It was described to us as their "traditional school." The panel agrees that to continue to exercise their Aboriginal rights, Fort McKay Métis community members must be able to continue to pass on traditional knowledge. Fort McKay witnesses Mr. Faichney and President Quintal expressed genuine concern about their ability to continue to enjoy the Moose Lake area as they and their families have in the past and about their ability to pass on traditional knowledge if the Rigel project is approved. Mr. Lee Johnson, who is employed by the Fort McKay Métis sustainability office but is not a community member, suggested that if Prosper's Rigel project is approved, generations of community members will lose the opportunity to pass on and receive traditional knowledge in the Moose Lake area.

[81] Fort McKay Métis' evidence as a whole convinced us that their concerns relate to anything taking place in the broad Moose Lake area and not specifically to the Rigel project. For example, Mr. Faichney said the Moose Lake and Buffalo Lake areas are a traditional school that Fort McKay Métis will "protect no matter what ... whether it's an ounce of water or whether it's an inch of land..."

[82] The panel accepts that for Fort McKay Métis, the Moose Lake area is significant. The community has strong family ties to the area going back generations. The cumulative effects of intense oil sands development, forestry, and other industrial and related activity immediately around Fort McKay make the less-developed Moose Lake area that much more important to Fort McKay Métis as a place that members can reconnect with and learn about their history and traditions. However, Fort McKay Métis' evidence does not demonstrate to us that the Rigel project will interfere with their ability to do so.

[83] This panel must consider the impacts of the project that is before us. We can consider the significance of project-specific impacts in the context of cumulative effects of existing and planned development. However, there is insufficient evidence before us to inform us about how the lands that will be taken up by the Prosper Rigel project are or have been used by Fort McKay Métis. We cannot fully evaluate the significance of the impact of the Rigel project on Fort McKay Métis' Aboriginal rights. That is the case whether we consider the Rigel project as a standalone project or in the context of the accumulated impacts of existing and planned projects.

[84] To be clear, that does not mean that we find that the Prosper lease lands do not have value to Fort McKay Métis. The panel finds they do have value to Fort McKay Métis. The evidence leads us to conclude that industrial activity on the lands comprising the Prosper lease might cause members of the community to value/perceive the lands and the resources the lands support differently than they do now. That is a negative social effect. But we cannot conclude based on the evidence before us that the Rigel project will prevent Fort McKay Métis from continuing to exercise its Aboriginal rights in its traditional territory.

[85] Finally, we do find that the Rigel project might limit Fort McKay Métis community members' choice of where and when to exercise their Aboriginal rights. In light of the relatively small project footprint, the plan for progressive reclamation, the 24-year project life (not including reclamation), and the scarcity of evidence of Fort McKay Métis use of the project area, the possible limitation is significant enough to weigh in the public-interest balance but not significant enough to tip the balance against the Rigel project.

Fort McKay First Nation

Background

[86] Fort McKay First Nation is made up of Cree, Chipewyan, and Dene people. Fort McKay First Nation has about 830 members, about 500 of whom live full time on the reserves at Fort McKay. Since the introduction of the fur trade, Fort McKay First Nation has engaged in both the wage and the traditional economies. Fort McKay First Nation is a signatory to Treaty 8.

[87] At the time of the treaty, Fort McKay First Nation selected lands for reserves at Fort McKay. It later selected lands for the Moose Lake reserves through the treaty land entitlement process. The Moose Lake reserve lands were selected because of historical ties of community members to the Moose Lake area. Members of Fort McKay First Nation have cabins at Moose Lake. Some have multiple cabins at Moose Lake. Many members of Fort McKay First Nation have family connections to the Moose Lake area, going back generations.

[88] Because of the intensity of industrial and resource development surrounding Fort McKay, the Moose Lake reserves are considered by Fort McKay First Nation to be an anchor for their culture and for the meaningful exercise of their treaty rights and traditional practices. Fort McKay First Nation members view the Moose Lake area as particularly important to the community's cultural identity, describing it as a "cultural keystone place." They asserted that the Moose Lake area must be protected to "preserve the value of Moose Lake for future generations just as they received it from generations before."

[89] Fort McKay First Nation has been working to establish a no-development buffer zone around the Moose Lake reserves since the early 2000s. To that end, Fort McKay First Nation

- participated in the Dover hearing to ask the regulator to establish a 20 km no-development buffer between the Moose Lake reserves and the proposed project;
- convened the Moose Lake summit to propose/negotiate a no-development buffer around the Moose Lake reserves;
- is now seeking a 10 km no-development buffer around the Moose Lake reserves; and
- has been negotiating with the Government of Alberta for years to establish the *MLAMP*.

[90] Fort McKay First Nation filed a significant amount of information in the form of videos, expert evidence, reports, affidavits, and submissions, including its original statement of concern (Fort McKay First Nation materials). The Fort McKay First Nation materials covered a wide range of topics, including the following:

- The Fort McKay Berry Focus Group work and results: Elders believe the berries in the Moose Lake area are better than berries closer to Fort McKay. The Moose Lake area is considered by elders to be clean spiritually because it has not yet been harmed by industry. The study found that berries picked in the Moose Lake area at locations identified by elders had a higher nutritional value than those picked close to Fort McKay. The authors of the study were not able to say why. The berry study made no link to Prosper's Rigel project or its potential impacts. The berry study did illustrate how the perceived value of a living resource may be negatively affected by uninformed activity. For example stepping over a plant is considered by elders to be disrespectful to the plant and robs it of its value.
- Studies prepared in response to past project applications such as Shell's Jackpine Mine Expansion Project (Jackpine) and Brion's Dover project (Dover): Those projects are different in many ways from the Rigel project; e.g., the location, the extraction process, the nature of Jackpine as a mining operation, and especially scale—both Dover and Jackpine are much larger projects. These studies provide context for assessing the significance of impacts of the Rigel project. They also provide some evidence of where and when Fort McKay First Nation has used lands in the Moose Lake area in the past. However, they are not evidence of specific impacts that might be caused by the Rigel project or of the magnitude of such impacts.
- Traditional use and occupancy studies, such as *From Where We Stand*, published in 1983, and *There is Survival Out There*, published 1994, provide useful background information and context. They also provide some evidence of where and when Fort McKay First Nation has used lands in the Moose Lake area in the past. However, they are not evidence of specific impacts that might be caused by the Rigel project or of the magnitude and duration of such impacts.

[91] Much of Fort McKay First Nation's evidence and the core of its submissions were about shortcomings in the *LARP* process and about the *MLAMP* process. Fort McKay First Nation described *MLAMP* as accommodation owed by the Crown. Fort McKay First Nation said that the Moose Lake area must be protected as a refuge and to avoid frustrating the *MLAMP* process. Fort McKay First Nation said the following:

Ultimately, Fort McKay is asking that the Moose Lake management plan is in place, and it would have specifications presumably about the types of infrastructure that could be permitted in the zone and not about the various aspects of management of air, land, water...

[92] They ask that we ensure protection by either denying Prosper's application or, if we approve it, approve it subject to the condition that the CPF be located more than 10 km from the Moose Lake reserves.

Fort McKay First Nation Aboriginal Rights and Traditional Land Use

[93] In accordance with Treaty 8, Fort McKay First Nation has the right to hunt, trap, and fish throughout Treaty 8 territory subject to the Crown's right to take up lands for certain activities. Oil sands exploration and development are activities for which the Crown may take up lands within the treaty area.

[94] Where taking up lands might adversely affect treaty rights, the Crown has a duty to consult and, if necessary, accommodate the affected First Nations. The Crown may delegate the procedural aspects of the consultation process. First Nations do not have a veto over the taking up of land within a treaty area.

[95] Treaty-rights holders must have access to an adequate land base that is close enough to their community/reserves to exercise those rights; otherwise they are meaningless. So Fort McKay First Nation members have the right to hunt, trap, and fish throughout their traditional territory, subject to the Crown's right to take up land. In the context of Prosper's application, Fort McKay First Nation should be able to exercise those rights on and within reasonable proximity to the Fort McKay and Moose Lake reserves.

How will Prosper's Rigel Project Affect Fort McKay First Nation's Aboriginal Rights?

[96] Fort McKay First Nation did not file a unique TLU study or assessment to deal specifically with the Rigel project. It relied on information in the studies described above and on their oral evidence—as they are entitled to do.

[97] Fort McKay First Nation did produce a map in evidence showing the buffered location of a trail connecting Spruce Lake (which is south of the Prosper lease) to the south end of Moose Lake. Because of the buffering, we don't know whether the trail passes through the project footprint. It does pass through the lease. Prosper committed to working with Fort McKay First Nation to find ways to avoid or mitigate impacts on the trail if Fort McKay First Nation will provide it with more specific information about the location of the trail.

[98] Fort McKay First Nation did not provide evidence to show how that trail is used, other than for travel between the lakes—e.g., we do not know whether there is a favoured hunting or harvesting spot along the trail or whether it has been used for teaching purposes.

[99] Another map produced in evidence by Fort McKay First Nation was prepared by Integral Ecology Group Ltd. It is a buffered transportation values map, which shows buffered transportation values to the east and to the west of the site of the Rigel project. Given the map scale, it is difficult to tell whether there is overlap between those values and the Rigel project area, but it is possible that the western edge of a buffered north-south transportation value corridor catches the eastern edge of the Rigel project area. Otherwise, it appears from that map that there are no, or very few, transportation values over the land portion of the Prosper lease.

[100] Other maps in evidence show transportation values at the northern extent of the Prosper lease where it overlaps the south shore of Namur Lake—likely travel by boat for both fishing and hunting. We have no other information to help us understand whether or how these might be affected.

[101] Fort McKay First Nation said, and we agree, that its use of trails supports its members' ability to hunt, trap, and fish. Interference with trails could adversely affect Fort McKay First Nation's treaty rights. Fort McKay First Nation's evidence leads us to conclude that effects can be direct where project activity results in physical disturbance on or immediately next to a trail, or blockage of a trail. Examples we heard include removal of a section of a trail, gates on a trail, and the need to get approval for access. We also conclude that effects can be indirect—e.g., moose or furbearers avoid the area next to a trail because of project-related disturbance.

[102] We do not have enough evidence to allow us to determine whether, or the extent to which, the Rigel project will interfere with any trails or other transportation values.

[103] Fort McKay First Nation said and we accept that traplines are important not just for trapping. Traplines are used and valuable for hunting, harvesting, and camping, and for social and cultural purposes. Prosper is aware of a trapline that is registered to a member of Fort McKay First Nation and that is impacted by the Rigel project. Prosper has consulted with the affected trapper to work out appropriate mitigation measures. Prosper will also compensate registered trapline holders in accordance with the Alberta Trappers' Compensation Program. The trapper did not file a statement of concern or a request to participate.

[104] Fort McKay First Nation said noise and activity from the Rigel project will cause wildlife to avoid the area, negatively impacting hunting and trapping. Fort McKay First Nation also said that noise from facilities makes it very difficult to hunt moose successfully. The noise interferes with the moose call and with the hunter's ability to hear a moose before seeing it. The evidence about the impact of noise on moose calls was not specific to the Rigel project. We have to assume that some noise is acceptable since

Fort McKay First Nation (as well as Fort McKay Métis) members use quads, snowmobiles, and floatplanes to travel to and around the Moose Lake area. Fort McKay First Nation witnesses also said they heard Prosper’s exploratory drilling, but they did not say whether or how that noise and activity affected their hunting, trapping, and other traditional activity.

[105] Noise levels from the Rigel project are modelled to be less than the regulated maximums. Prosper committed to measures beyond what is required by the AER to abate noise. With those mitigation measures, the sound of the CPF is not expected to reach the Moose Lake reserve lands. Prosper has also committed to considering more measures, as necessary, if noise from the Rigel project is an issue for the participants.

[106] We do not know at what level noise will negatively impact hunting and trapping. The evidence leads us to conclude that sounds from the Rigel project will have no more than a localized, temporary effect on Fort McKay First Nation’s treaty rights and traditional use.

[107] Fort McKay First Nation said that the all-season access road for the project will result in more competition from hunters and fishers who are not Fort McKay First Nation members. Prosper’s submissions also identified this as a possibility. Prosper has committed to several measures to mitigate the risk that increased hunting and fishing pressure will come from its employees and contractors (e.g., no firearms, no pets, no private vehicles except for supervisors).

[108] With regards to an increase in competition from fishers from outside of the Fort McKay First Nation (and Fort McKay Métis) community, Prosper pointed out that the Rigel project will not create direct access to Namur Lake or the Moose Lake reserves. Prosper noted that fishing in the Moose Lake area is regulated by Alberta Environment and Parks. Prosper said it will remind employees that they are bound by the fishing regulations. Prosper committed “to implementing a policy of no firearms, no fishing gear, no personal ATVs on site, and it will be an alcohol free camp.” We do not know how much competition there is from the private fishing camp at the south end of Namur Lake.

[109] In addition, the south end of the existing access road is closed to the public. The new road extending from the end of the existing access road into the Rigel project would only go as far as the CPF. The CPF will be at least 4.5 km from the south end of the Moose Lake reserves. Prosper has also committed to restricting access to existing linear disturbances that intersect its new access road. As noted previously, the effectiveness of the road closure is questionable.

[110] It is reasonable to conclude that easier access to the area at the south end of Buffalo Lake and to Birch Mountains Wildlands Provincial Park will result in more public use. Fort McKay First Nation’s oral evidence leads us to conclude that it is primarily concerned about an increase in recreational users of Buffalo Lake who are not Fort McKay First Nation community members. Specifically, we heard concerns expressed about users who do not respect the area—e.g., by leaving trash or by partying or making

unwelcome noise. Birch Mountains Wildlands Provincial Park is a public park, and provincial park access is a matter for government policy makers, not a matter for the panel.

[111] Other evidence of potential adverse effects on Fort McKay First Nation treaty rights that we reviewed in the Fort McKay First Nation materials includes that the area immediately south of Buffalo Lake was identified in *There is Survival Out There* as having value for sweetgrass and for muskeg moss. However, there was no evidence from any of the Fort McKay First Nation witnesses in their affidavits or in person about harvesting or about the value of sweetgrass and muskeg moss in any location.

[112] Evidence was provided that Buffalo Lake is unique in the region because of its proximity to the mountains, its depth (it is deep), its temperature, and its water source. It is also believed to be unique because lake trout and Arctic grayling are found there. These species are not found in other lakes in the Moose Lake area.

[113] Fort McKay First Nation also said that pelicans breed on an island in the Moose Lake area and that the island has been designated as a sanctuary or is protected. No evidence was provided to demonstrate that these breeding grounds would be adversely affected by the Rigel project.

[114] Fort McKay First Nation expressed concerns about the potential impact on the fishery. The evidence that was submitted did not persuade us that the Rigel project will adversely affect the Moose Lake or Buffalo Lake Aboriginal fisheries. This point is discussed in more detail in the *EPEA* section.

[115] Maps filed by Fort McKay First Nation show that the area immediately south of Moose Lake has value for moose hunting. This is consistent with the evidence of Fort McKay First Nation's witnesses.

[116] Fort McKay First Nation members hunt for food and for cultural purposes. They, especially elders, consider country food to be healthier than store bought. Fort McKay First Nation community members who are successful in a hunt share their bounty with family members and elders. This is an important part of their culture and a way of maintaining a strong sense of community. Impacts on the ability of Fort McKay First Nation members to hunt successfully would be both an adverse effect on their treaty rights and an adverse social effect.

[117] The Rigel project can be expected to make at least 106 ha of land of the 768 ha in the Prosper lease effectively unavailable for hunting. We have also assumed that land within 186 metres (m) of a Rigel project facility will not be available for hunting during the life of the project, which is expected to be 24 years plus a shorter period for the final active reclamation phase.

[118] There is evidence in Fort McKay First Nations' materials that Birch Mountains Wildlands Provincial Park is valued by Fort McKay First Nation for moose hunting and other harvesting activity. A Fort McKay First Nation witness said some community members do hunt in the park. Another said that

he avoided using the park because he wanted to respect and not compete with the holders of traplines in the park.

[119] There was insufficient evidence for us to make any findings about whether the Rigel project will negatively affect the success rate of Fort McKay First Nation hunters or would noticeably increase the effort required to hunt. To the extent that wildlife is displaced, there was no evidence before us that would allow us to conclude that wildlife would be displaced further away from the Moose Lake reserves or other areas where community members currently hunt.

[120] The evidence does suggest that at least some Fort McKay First Nation members will avoid hunting and gathering on lands adjacent to the Rigel project. But there was not enough evidence for us to determine whether and to what extent Fort McKay First Nation members currently hunt or gather on lands in the Rigel project footprint or the Prosper lease as a whole.

[121] According to the evidence before us, there is still moose habitat in the Moose Lake area, especially in Birch Mountains Wildlands Provincial Park. Fort McKay's evidence about preferred traditional-use species focused on population-level impacts in the broader Moose Lake area. The evidence that was submitted in the hearing does not tell us enough about the use of the Prosper lease area for moose hunting, or for any hunting, for us to determine the extent to which the Rigel project will affect Fort McKay First Nation's right to hunt. Fort McKay First Nation's concern about the impact of habitat loss on traditional-use species is discussed in detail in the *EPEA* part of this decision.

[122] The gathering of berries and medicinal plants is important to Fort McKay First Nation. The panel accepts that the medicinal value of plants to Fort McKay First Nation is lost if the plants are not treated with respect. Fort McKay First Nation elders and at least some community members would not harvest plants in an area reclaimed from an oil sands project. We also understand that the spiritual value of plants to Fort McKay First Nation can be harmed by industrial development. Without evidence of how Fort McKay First Nation uses or has used the Prosper lease lands for gathering, we are not able to determine the extent to which the Rigel project will affect berry gathering and the harvesting of medicinal plants. We don't have the evidence to determine whether preferred-harvesting or culturally important sites will be disturbed or even if there are any such sites on the Prosper lease.

[123] Prosper has taken measures to limit clearing and development near the Moose Lake reserves. For example, the project design is compact, with the CPF and well pads closely spaced, and Prosper has negotiated with Sunshine Oil Sands to use a part of the Sunshine oil sands leases for the Rigel project operations camp and lay-down area.

[124] We do find that the presence of the Rigel project might limit Fort McKay First Nation members' choices of where and when to exercise their treaty rights. But Fort McKay First Nation contends that the entire Moose Lake area is important. The Supreme Court of Canada has said, "...for aboriginal people..."

location is important. Twenty three square kilometres alone is serious if it includes the claimants' hunting ground" (emphasis added). We do not have the evidence we need to assess the seriousness of potential impacts of the Rigel project footprint or even of the Prosper lease lands. We do not have sufficient evidence to find that the location of those lands is important, whether as hunting grounds or for gathering or any other established pattern of use by Fort McKay First Nation.

[125] We are persuaded that oil sands development around Fort McKay has interfered with Fort McKay First Nation's relationship with and connection to the land. Its members are clearly afraid of losing that connection and relationship in the Moose Lake area. What is missing is evidence that the Rigel project itself will cause a loss of connection and relationship or that it will disrupt an established pattern of traditional use.

[126] Fort McKay First Nation's evidence does lead us to conclude that the physical presence of industrial development can cause community members to experience a sense of disruption of the community's connection to the land—because, for example, they are aware of an area they will have to, or want to, avoid. The panel is unable to conclude that this would be an impact on a treaty right, but it is a social impact to weigh in the public-interest balance.

[127] Fort McKay First Nation argued that, knowing that the Rigel project is there, simply seeing, hearing, or smelling the project will diminish its members' experience of the land.

[128] Looking at the maps showing existing and approved projects in the Moose Lake area, the panel finds it unsurprising that the area west and south of the Moose Lake reserves has become more important to Fort McKay First Nation and that they have become more determined to protect it from further development.

[129] The panel understands that for Fort McKay First Nation, the Moose Lake area has been and continues to be a place in which to connect with family and traditions. In particular, the area is used to share knowledge and to ensure that the traditional culture of the communities is passed on to new generations.

[130] But we cannot conclude, based on the evidence before us, that the Rigel project will prevent Fort McKay First Nation from continuing to exercise its treaty rights on its Moose Lake reserves or in reasonable proximity to those reserves.

[131] We are also unable to conclude that the presence of the Rigel project would render its treaty rights meaningless. Treaty 8, *REDA*, and *LARP* all expressly contemplate that lands may be taken up for resource development, but they do not suggest that First Nations or anyone must be completely sheltered from associated sensory impacts. Fort McKay First Nation did not provide any case law to support its argument that to see, hear, or smell the Rigel project would adversely affect their treaty rights. Indeed, the Supreme Court of Canada has said the following:

The Mikisew argument presupposes that Treaty 8 promised continuity of nineteenth century patterns of land use. It did not, as is made clear by both the historical context... and the period of transition it foreshadowed.

[132] We rely on the following evidence, in particular, in arriving at this conclusion:

- An aerial video tour shown by Fort McKay First Nation witness Mr. R. Abel of the Moose Lake area shows existing seismic lines, well pads, access roads, a CPF, and steam plumes from several other CPFs. Since approval and development of Jackpine, the Sunshine projects, Dover, and Prosper's exploratory drilling program, the evidence shows that Fort McKay First Nation and Fort McKay Métis have continued to use the Moose Lake area.
- With the industrial development in the Moose Lake area that was shown in evidence, Fort McKay First Nation still describes the area as a "refuge" and says that they want to keep the area "pristine" or "relatively pristine." Fort McKay First Nation members also continue to build cabins at Moose Lake, and new generations of community members have been introduced to the area.
- The Birch Mountains Wildland Provincial Park includes Namur/Buffalo Lake and extends from the park lands on the west side of the lake and follows the southern shoreline around the south end of the lake and up the east side to connect to IR 174B. At least some Fort McKay First Nation members exercise their treaty rights and practise traditional land use in the Birch Mountains Wildland Provincial Park area.
- Elders do not travel far over land in the summer because of the challenging terrain in the Moose Lake area. It is more likely that they are active in areas close to their cabins. The closest cabin is at least 4 km from the Rigel project footprint.
- The Rigel project footprint takes up less than 15 per cent of the Prosper lease lands and is concentrated at the southernmost end of the lease.

Relief Sought by Fort McKay First Nation

[133] Fort McKay First Nation witnesses were clear that their primary concern is not about Prosper's Rigel project per se. The issue is the community's desire to prevent any more industrial development within 10 km of the Moose Lake reserves. For example, we heard the following:

- During cross examination about whether Fort McKay First Nation had specific concerns about Prosper's CPF or whether Fort McKay First Nations' concern is broader, Dr. A. Pinto said, "Fort McKay is not willing to accept any CPF within the 10-kilometre zone."
- Ms. K. Buffalo said that Fort McKay First Nation "has had a long-standing discussion about wanting to ensure that its aboriginal and treaty rights are protected and that members want to ensure that they can practise those in a way that limits the ability to see, hear, or see or feel the impact of development."

- It is important to Fort McKay First Nation to have *MLAMP* completed and in force before any more land within 10 km of the Moose Lake reserves is taken up for industrial or resource development.

[134] The courts have been clear that treaty rights, including Treaty 8 rights, do not include a veto over the taking up of land even where that will result in adverse effects on Aboriginal rights. To make our decision on the *OSCA* application, we have to ask whether the impacts on Fort McKay First Nation's treaty rights identified above are or are not in the public interest when weighed in the balance with the other impacts, such as the social, environmental, and economic impacts discussed elsewhere in this decision.

[135] Fort McKay First Nation asks that if we approve the Rigel project, we make it subject to a condition that the CPF and associated infrastructure be relocated to a place that is at least 10 km from the Moose Lake reserves. They said that section 10 of the *OSCA* gives us powers that are broad enough to make such a condition.

[136] Regardless of whether we have the necessary discretion to grant the requested condition, we cannot do so because

- no party proposed a specific, alternative location;
- Prosper filed applications under the *OSCA* and *EPEA* that provide only the information necessary to assess the Rigel project with the CPF in the location proposed by Prosper; and
- we have no way to assess the impacts of the Rigel project with the CPF in a different location.

What are the Impacts on Landowners?

[137] The Prosper lease is wholly on Crown land. There is no evidence of private landowners in the area. There is a private fishing lodge on the south shore of Namur/Buffalo Lake within the Prosper lease. The operators of the lodge did not file a statement of concern and were not participants in the hearing.

[138] Fort McKay First Nation said we should consider impacts on them as beneficial owners of the Moose Lake reserves. It said that its members do not want to see, hear, or smell the Rigel project. Fort McKay First Nation argued that those impacts will interfere with its quiet enjoyment of the Moose Lake reserves.

[139] The panel makes no finding about whether Fort McKay First Nation should be considered a beneficial landowner. The point was stated but not elaborated on in argument. In any event, it is not necessary to our decision.

[140] Fort McKay First Nation witnesses mentioned being disturbed by the sound of bird-detering cannons when at their homes in Fort McKay. They described the unease they feel when they smell and see oil sands operations around Fort McKay.

[141] There is no evidence before us that the Rigel project will employ bird-detering cannons. The evidence before us leads us to conclude that it is not likely that odours from the Rigel project will extend to the Moose Lake reserves. If they do, Prosper has said it will work to further limit the occurrence of odours from the Rigel project.

[142] Prosper's evidence was that its line-of-sight studies show that only the steam plume from the CPF will be visible in the Moose Lake area, and only on cold days. Video evidence shown by Fort McKay First Nation shows that a number of steam plumes are already visible from the Moose Lake reserves.

[143] Fort McKay First Nation witnesses mentioned that they heard Prosper's oil sands exploration drilling.

[144] Prosper has committed to taking measures over and above the applicable noise regulation to minimize noise disturbance from the Rigel project. It has also said it will establish a hotline that people can call with concerns about noise and odours.

[145] The panel finds that sound from the drilling of the SAGD wells might be heard on the Moose Lake reserves, but it will be temporary. Light might be visible at night from the Prosper lease. Prosper committed to working to minimize the impact.

[146] The regulatory scheme administered by the AER is intended to, among other things, limit the impacts of energy resource activity on neighbours. With that and the commitments made by Prosper that are beyond existing regulatory requirements, the panel is satisfied that the Rigel project will not unduly interfere with Fort McKay First Nation's quiet enjoyment of the Moose Lake reserves.

What are the Impacts on the Environment?

[147] The Rigel project has been designed by Prosper to minimize impacts to the environment. In addition, many of the measures that Prosper has committed to go beyond what is typically required of in situ projects of similar scale. Nonetheless, the Rigel project will have short and long term impacts on the environment. We deal with those impacts in the *EPEA* part of this decision.

What are the Social and Economic Impacts?

Overview

[148] *Directive 023* identifies the information that applicants are to provide so the AER can assess the social and economic effects of proposed oil sands projects—e.g., population, housing, employment and training, economic activity, transportation, infrastructure and services, taxes, royalties, gross domestic product, labour income, capital costs, and annual operating expenditures.

[149] The participants did not single out social or economic impacts of Prosper's Rigel project as areas of concern. Nevertheless, we are required to consider the social and economic effects. We have relied on evidence provided by the parties in doing so.

[150] We have previously identified impacts on Fort McKay Metis and Fort McKay First Nation that we characterize as social effects. We take those negative effects into account when balancing the positive and negative effects in the public-interest test.

Population and Housing

[151] According to Prosper, during the construction stage of the project, workers will be housed in a camp. The construction camp will house 350 workers and will be in use for the entire 12-month construction period. The camp will meet the peak demand for construction.

[152] Prosper's plan is to have a drilling camp in operation for eight months that will accommodate 50 workers. Prosper does not expect that those workers will move permanently to the region. It also said all workers are expected to stay in camp, so no increase in demand is expected for housing in the region during construction and drilling.

[153] During the operations stage of the project, Prosper said workers will be housed in an operations camp during their shifts. The operations camp will have capacity for 25 workers and will be in operation for the life of the project. Prosper expects the operations camp will meet housing needs for all operations staff.

[154] Because camps will be used for construction, drilling, and operations, the panel finds that the population effect on the region will be negligible and the Rigel project will not increase demand for housing in the region.

Employment

[155] Prosper used accepted methods and information that had been published, such as Alberta Treasury Branch multipliers, to calculate expected economic benefits and employment numbers for its Rigel project. Its evidence about economic benefits and employment was unchallenged.

[156] Prosper noted that it did not have an Aboriginal procurement policy or strategy but said it would give preference to local and Aboriginal businesses that can demonstrate competency, capacity, and competitiveness. Prosper said it would take steps, such as breaking up work packages and ensuring that Aboriginal businesses understand prequalification requirements and the bidding process, to enhance the chances of success. For businesses that are not successful, Prosper said it would be willing to provide feedback as to why.

Construction

[157] Prosper calculated that the Rigel project would result in 750 direct person years of employment and 910 indirect and induced person years of employment during the construction phase. Prosper's estimate of total direct regional employment during construction is 150 person years.

Operations

[158] Prosper calculated that the Rigel project would result in 300 person years in total (direct, indirect, and induced) employment during the operations phase. It expects total regional direct employment to be five person years during operations. Prosper anticipates total annual regional employment (direct, indirect, and induced) will average six person years during the operation phase of the Rigel project.

Transportation

[159] Prosper plans to use existing industry roads for vehicle access to the Rigel project CPF. Those roads begin at Highway 63 and extend to about 16 km (straight-line distance) south of the CPF. At the time of the hearing, Prosper said it expects that a new multiuser access road will be constructed to provide access from the Dover West road to the Sunshine Oil Sands Ltd. Legend Lake project (Legend Lake road). In that case, Prosper proposes building a single-user access road from the Legend Lake road to the Rigel project CPF. Prosper said that this single-user road would be about 4 km long.

[160] Prosper's evidence was that if it is able to start construction of the Rigel project before the Legend Lake road is built, it will apply for the necessary *Public Lands Act* disposition to build a multiuser access road. Prosper said it would use a route that mostly follows the planned Legend Lake road, with modifications to avoid wetlands, reduce stream crossings, and reduce the length of the road by 5.1 km and the footprint by about 25 ha.

[161] The Dover West road is closed to the public but is open for industrial use. Prosper said that it expects that the road will remain open for such use and that it currently has other industrial users.

[162] During the construction stage of the project, it is expected that 600 loads will be transported over the 12-month construction phase, including 60 over-dimensional loads over a six-month period. Construction will also require 25–40 light-vehicle trips per day and 10–20 heavy-vehicle trips per day. The operations stage is expected to require 10 light-vehicle trips per day and 2–5 heavy-vehicle trips per day.

Transportation of Workforce

[163] Workers are expected to fly into and out of the Ft. McMurray airport. Prosper expects that the upgraded Ft. McMurray airport will accommodate Rigel project use.

[164] Prosper committed to driving workers to and from the Rigel project by van and bus. Prosper said supervisors will have their vehicles on site, but contractors and operators will be bussed.

Transportation of Product

[165] Prosper said that trucking product to market will require an additional 10 light-vehicle trips per day and 30–60 heavy-vehicle trips per day during the operations stage at full production. Prosper has committed to evaluating opportunities to secure commercial arrangements for pipeline access, should a pipeline option become available.

[166] Ft. McKay First Nation expressed concern that the Rigel project will increase traffic and heavy-equipment movement on the access to and from lands they use for the exercise of their treaty and Aboriginal rights and for access to the Moose Lake reserves. They say it will increase safety risks to members.

[167] Prosper said it will incorporate the following mitigation measures to reduce the traffic impact of the Rigel project:

- Use buses or vans to transport employees and contractors.
- Establish traffic rules on its roads, including speed reductions.
- Coordinate with relevant government authorities.
- Move oversize loads during nonpeak travel times.
- Use a high-load, heavy-haul corridor and follow Alberta Transportation's directives for specific routes and timing.
- Use acceptable industry practices, such as oiling the road or applying water and wetting agents to reduce traffic-generated dust.
- Use existing land disturbances and follow required setbacks from water bodies when planning road routes.
- Use culverts to maintain drainage.
- Work with the participants to mitigate the impacts on any trails if a specific location of a traditional trail is provided to Prosper.

[168] The panel finds that the increase in overall traffic volume resulting from the Rigel project will be minimal and that Prosper's commitments and proposed mitigation are acceptable.

Infrastructure and Services

[169] Prosper said a medic and first aid facilities will be on site during both construction and operations phases of the Rigel project. Prosper expects that most medical needs will be met through the onsite facilities or in workers' home communities. Acute- and emergency-care facilities in Ft. McMurray may be used, if necessary.

[170] As noted above, Prosper has committed to implementing a policy of no firearms, no fishing gear, and no personal all-terrain vehicles on site. Prosper has said it will operate a drug- and alcohol-free camp, although at the time of the hearing Prosper had not considered whether it will be a marijuana-free camp. Prosper said it has a drug and alcohol policy that will be communicated to all workers.

[171] The panel finds that any demand on local infrastructure and services that results from the Rigel project will be within existing capacity.

Economic Effects

Taxes, Royalties, and Gross Domestic Product

[172] Prosper provided estimates of the economic benefits to the Regional Municipality of Wood Buffalo (RMWB), Alberta, and Canada of the Rigel project through taxes and royalties. Those benefits include estimated payment over the life of the Rigel project of \$15 million in property taxes to the RMWB, \$440 million in corporate income taxes to the provincial and federal governments, and \$1 billion in royalties to the provincial government. Prosper also calculated that the Rigel project will contribute about \$90 million in carbon taxes over the lifespan of the project.

[173] Prosper estimates that the Rigel project will create about \$277 million in gross domestic product.

Capital Costs, Labour Income, and Annual Operating Expenditures

[174] Capital costs are estimated by Prosper at \$390 million and are expected to be spent primarily in Alberta. Prosper expects to spend an additional \$50 million on well drilling and completions before start-up.

[175] Prosper calculated that the Rigel project would result in

- \$195 million in total (direct, indirect, and induced) labour income paid during project construction;
- \$18 million in total direct labour income paid in the region during construction;
- \$20 million in total (direct, indirect, and induced) labour income paid during project operations;
- \$1 million in direct regional employment income paid during project operations; and
- \$2 million in total annual regional employment income paid during project operations.

[176] Prosper estimated that it will spend \$55 million annually to maintain operations at full capacity over the life of the project.

[177] The panel finds that the economic benefits expected from the Rigel project will be substantial for a project of its size, particularly in terms of royalties to Alberta, taxes to all levels of government, and employment income.

Is the Rigel Project in the Public Interest?

[178] We find the Rigel project to be in the public interest. To answer this question, we assessed and weighed the impacts identified earlier in this decision. The public that we took into consideration is Albertans. For the Rigel project to be in the public interest, the benefits to Albertans had to outweigh the burdens. We specifically took into account burdens to Fort McKay Métis and Fort McKay First Nation.

[179] The table below summarizes the impacts we weighed and what we found to be the key considerations for each.

Impact Category	Considerations
Indigenous rights Treaty rights	Duration – life of the Rigel project (expected to be 30 years including reclamation according to Prosper witness Mr. D. Meyers) Insufficient evidence was provided about specific use of the Prosper lease, location and timing of exercise of rights to fully assess magnitude of impacts caused by Rigel project. Reasonable to conclude some adverse impact. Evidence does not support conclusion of negative impact to fishery
TLU	Duration – life of the Rigel project Insufficient evidence was provided about specific use, location and timing of traditional use of Prosper lease to fully assess magnitude. Reasonable to conclude some adverse impact. Prosper committed to progressive reclamation. Greatest impact will be loss of choice to use Rigel project footprint plus immediately adjacent lands till CPF site is reclaimed.
Impacts on landowners	No private landowners With mitigation, potential for sight, sound and smell to unduly impact residents and occupants of Moose Lake reserves is minimal
Environmental Air	Modelled cumulative impacts taking into account mitigation are well within air quality guidelines
Water	Duration – life of the Rigel project plus a period of years for rebalancing of Deep Drift aquifer/surface water interaction Impacts within natural variability and barely measurable
Aquatic resources	Duration – life of the Rigel project Use of baseline data with integrated monitoring program will give early warning of potential adverse impacts. Prosper committed to take steps to avoid and or mitigate.
Land	Duration – life of the Rigel project Site is compact and infrastructure located close together to minimize disturbance. Prosper commitments, including progressive reclamation, conditions imposed specifically including with specific targets and timelines for progressive reclamation and restoration should avoid/minimize/restore
Wildlife	Duration – life of the Rigel project Extent expected to be project footprint with varying edge effects Prosper commitments and conditions, including progressive reclamation, should avoid/minimize/restore. Evidence does not support assertion that viability of traditional use species is threatened by Rigel project Caribou mitigation and monitoring programs will specifically address identifying, avoiding, and limiting adverse impacts on caribou and on habitat restoration

Impact Category	Considerations
Social impacts	Duration – may extend beyond the life of the Rigel project and reclamation
Impacts on spiritual and medicinal value of traditional use plants on and immediately next to Rigel project footprint, concern about safety of fish from Moose Lake	Insufficient evidence was provided about specific use, location and timing of exercise of rights on Prosper lease to fully assess magnitude relating to plants including berries. Insufficient evidence was provided about how the Rigel project would cause these impacts and or contribute to historic impacts to fully assess magnitude
Interference with connection to and relationship with the land	
Economic impacts	Duration – life of the project with reduced benefits during active reclamation
Royalties	Overall, substantial for a project of this scale
Taxes payable	
Jobs	
Capital investment	

[180] In our view, the balance between the overall economic benefits, including employment, and the negative impacts of the Prosper Rigel project are more or less even. So to answer the question of whether the Rigel project is in the public interest, we also considered the following public-interest considerations: first, Fort McKay First Nation’s argument that we should not frustrate the *MLAMP* negotiations; second, Prosper’s submissions about the desirability of regulatory and investment certainty; and third, public policy guidance expressed through the *OSCA*, *EPEA*, the *Water Act* and *REDA*.

[181] Fort McKay First Nation described *MLAMP* as accommodation owed to it by the Crown to address historical impacts on their treaty and Aboriginal rights. *LARP* indicates that, once finalized, *MLAMP* will be a *LARP* regional plan.

[182] Fort McKay First Nation provided a significant amount of evidence—e.g. Ms. Buffalo’s affidavit and her oral evidence about the adequacy of the *LARP* and *MLAMP* processes. To the extent that Fort McKay First Nation frames *LARP* and *MLAMP* as elements of Crown consultation, section 21 of *REDA* says we may not assess their adequacy. *LARP* prohibits decision makers, including the AER, from “adjourning, deferring, denying, refusing, or rejecting any application...” by reason only of incompleteness of a *LARP* regional plan. We may not deny Prosper’s application solely because *MLAMP* negotiations are not yet complete. Furthermore, AER approval of an application made under section 10 of *OSCA* is subject to prior authorization by the lieutenant governor in council (cabinet). Cabinet is the most appropriate place for a decision on the need to finalize *MLAMP*. Consequently, Fort McKay First Nation’s assertion that we must not frustrate *MLAMP* negotiations does not tip the public interest balance against approving the Rigel project.

[183] Prosper made the point that it had acquired a valid oil sands lease in an area designated by *LARP* for activities that include oil sands development. It also obtained regulatory approval to carry out an oil sands exploration program. Prosper said that in the interest of regulatory certainty it should be able to proceed to realize on its investment. Prosper also repeatedly asked that the Rigel project be treated the same as similar SAGD projects in the oil sands region.

[184] Section 10 of the *OSCA* makes it clear that an application for an oil sands scheme may be approved if it is found to be in the public interest. Such an application may also be denied. Prosper may well expect to have the opportunity to realize on its investment, but the *OSCA* makes clear that it is not a foregone conclusion. Consistency in regulatory decisions is desirable, but each *OSCA* application must be assessed on its own merits and in light of the relevant regulatory, legal, and factual frameworks. In this case, the evidence leads us to conclude that Prosper made a concerted effort to minimize impacts of the Rigel project, often committing to going beyond the minimum regulatory requirements and addressing concerns of the participants and others—all while maintaining substantial economic benefits for a project of its size. These factors weigh on the positive side of the public interest balance for the Rigel project.

[185] Finally, the purposes provisions of the *OSCA*—especially section 3(b), read with the AER mandate provisions in *REDA* and the purposes provisions of *EPEA* and the *Water Act*—clearly express that in Alberta, the public interest lies in striking a balance between the economic benefits to Alberta and Albertans and protecting the environment, promoting sustainable resource development, and ensuring the conservation and wise use of water. Prosper’s Rigel project strikes that balance.

[186] Taking all of the foregoing into account, we find the Rigel project to be in the public interest.

EPEA Application

[187] The overarching question the panel must answer, given the environmental effects expected of the Rigel project, is whether approving Prosper’s *EPEA* application is consistent with the *EPEA* purpose of protecting the environment and promoting sustainable resource development while considering the need for Alberta’s economic growth and prosperity.

[188] The panel has concluded that approving Prosper’s *EPEA* application is consistent with protecting the environment and promoting sustainable resource development while considering economic growth.

Background

[189] Prosper’s Rigel project is in the Green Area of the province. The setting is categorized as the Lower Boreal Highlands natural subregion of the Boreal Forest natural region. The subregion contains mixed aspen and white- or black-spruce forests. Wetlands are a significant component.

[190] Prosper’s lease extends to Namur Lake and includes a large part of the southernmost part of Birch Mountains Wildlands Provincial Park. *LARP* prohibits oil and gas activity in the park. The closest infrastructure for the Rigel project—a water source well and right-of-way—is about 1.8 km south of the southern shore of Namur Lake and 1.2 km from the park. The Namur Lake setting is different because of its elevation, its proximity to the Birch Mountains, the depth and cold temperature of the lake, and the presence of caribou, breeding pelicans, and certain species of fish in Namur Lake not found in nearby lakes.

[191] There are no environmentally sensitive areas on the Prosper lease.

[192] Prosper’s Rigel project is in an area designated under *LARP* as “mixed use.” The evidence shows linear disturbance throughout the Moose Lake area, other than the park and the reserve lands. Disturbance includes seismic lines, access roads, and surface disturbance from well pads. Map and video evidence filed by Fort McKay First Nation clearly shows the presence of existing and planned oil sands projects, such as the Sunshine Legend Lake and West Ells and the Dover projects.

[193] According to Prosper’s application, the Rigel project will disturb 105.9 ha, including 9.3 ha of previously disturbed vegetation. The Rigel project footprint includes

- a central processing facilities (18.0 ha),
- four borrow pits (A, B, C, and D; 6.1 ha),
- a camp (2.3 ha),
- six well pads (30.9 ha total),
- an access road (17.7 ha),
- utility corridors (rights-of-way; 15.0 ha),

- water source wells (1.9 ha), and
- temporary work space (14.0 ha).

[194] Prosper estimated the disturbance from existing seismic/cut lines, industrial facilities, roads, and well pads to be about 71.1 ha.

[195] Prosper said it designed the Rigel project to use pre-existing disturbance where possible. It said the CPF and well pads are located as close together as practical, so the length of associated interconnecting rights-of-way is minimized. As a result, overall surface disturbance and habitat fragmentation have been minimized.

[196] There is no all-season road into the Prosper lease. The closest all-season road ends about 16 km south of the CPF. It is made up of a series of industry roads that connect to Highway 63.

[197] Both renewable- and nonrenewable-resource use occur near the Rigel project. Renewable-resource use includes forestry, hunting, trapping, fishing, and nonconsumptive recreation (e.g., off-road vehicle use, snowmobiling). Nonrenewable-resource use in the larger Moose Lake area includes in situ oil sands operations, conventional oil and gas, and aggregate-mining operations.

[198] Prosper committed to working with the relevant forest management agreement holder to ensure the conservation and efficient use of timber removed from the Prosper lease.

[199] Prosper's *EPEA* application, including its responses to supplemental information requests, dealt with all of the relevant *EPEA* requirements. No environmental impact assessment was required for the Rigel project. Prosper followed and complied with all of the relevant guides and regulations when it carried out the various assessments, surveys, and studies supporting its *EPEA* application. Prosper also proposed mitigation measures that meet or exceed what is usually required under *EPEA* for an in situ project of the size and scope of the Rigel project.

What are the Expected Environmental Impacts?

Introduction

[200] The Rigel project will cause impacts on the environment, including direct impacts on land, water, and air.

[201] Fort McKay Métis raised concerns about environmental impacts on water and about the potential for impacts on traditional-use wildlife. Impacts on water and concerns about traditional-use species are also addressed in the *OSCA* and *Water Act* parts of this decision.

[202] Fort McKay First Nation focused on potential wildlife and ecosystem impacts. It argued that loss of habitat caused by existing development threatens the viability of important traditional-use wildlife

populations, specifically moose, caribou, and fisher/marten. Fort McKay First Nation's experts said that the habitat-disturbance rate must be reversed to protect wildlife populations and maintain ecosystem integrity. Fort McKay First Nation also mentioned, in its materials and in oral evidence, concern about other potential environmental impacts.

[203] We address (below) the specific environmental concerns we heard from the participants or that we identified in the parties' submissions.

Soils

[204] Soil and other surface cover will be disturbed to varying degrees in the Rigel project footprint. Prosper said it will salvage and stockpile soils according to accepted practices. Prosper plans to stockpile topsoil and subsoil separately to limit mixing and to maintain soil quality. Stockpiles will be revegetated to minimize soil loss from wind and water erosion, and they will be monitored for potential contamination. Prosper also committed to having a qualified environmental scientist with soil science training to supervise soil salvage and handling.

[205] Fort McKay Métis provided no evidence about soils but seems to have concerns about reclamation, and it expressed a particular desire to be included in reclamation planning.

[206] Soils were not a focus for Fort McKay First Nation, although a witness did express concern about the risk that invasive species will be introduced.

[207] The panel finds that with the mitigations proposed by Prosper along with Prosper's commitments and the standard *EPEA* conditions for soil conservation, contamination, and monitoring, impacts on soils will be consistent with *EPEA* goals.

Vegetation

[208] Vegetation will be cleared at various locations throughout the Rigel project footprint for rights-of-way, well pads, CPF construction, etc. None of the disturbed land is within the Moose Lake reserves. All of the disturbed land is within the broader traditional-land-use areas of both Fort McKay First Nation and Fort McKay Métis.

[209] Vegetation clearing results in habitat loss, potential changes in use in zones immediately adjacent to the cleared area, and habitat fragmentation. We address (below) the issue, raised by Fort McKay First Nation, of habitat loss.

[210] Reclamation, discussed below, is intended to alleviate the long-term effects of land disturbance, including loss of vegetation. Long-term impacts of clearing vegetation are uncertain because there is still relatively little information about post-reclamation use of land by wildlife, especially TLU species, and

about native-plant regeneration in the oil sands region. The short-term impacts of vegetation loss during the life of the project and until reclamation are unavoidable.

[211] There was little evidence before us to suggest that the short-term impacts of the Rigel project on vegetation are inconsistent with the purposes of *EPEA* or that they will probably cause unacceptable ecosystem impacts.

[212] Witnesses expressed concern about the potential for dust generated by activity related to the Rigel project, truck traffic in particular, to land on vegetation and harm it or otherwise make it no longer appropriate for traditional use. Prosper proposes mitigation measures to reduce dust generation and dispersion. Prosper also said that if it is able to connect with a pipeline, it will negotiate for a connection and, if successful, it will be able to greatly reduce large-truck traffic associated with the Rigel project. The panel finds that the proposed mitigation measures are appropriate and should reduce the potential for dust to affect vegetation that is not in the immediate vicinity of the project.

[213] The panel finds that Prosper's mitigation measures and compliance with the relevant regulatory provisions, including reclamation requirements discussed below, will ensure that the expected effects on vegetation do not make the Rigel project inconsistent with the purposes of *EPEA*.

Wetlands

[214] Prosper conducted a wetlands survey for the Rigel project. Out of a total of about 89 ha in the study area that will be disturbed about 24 ha of those are wetlands. The wetlands in the study area are primarily peatland. Prosper said avoiding wetlands was an important factor in siting the CPF.

[215] When Prosper filed its *EPEA* application, details about how the new provincial wetland policy would be applied to existing applications were not fully developed. Prosper was unclear about whether the new policy would apply to the Rigel project.

[216] The Rigel project is not subject to the *Alberta Wetland Policy* because Prosper had completed the relevant filing requirements before the date that policy was implemented in the Green Zone of Alberta.

[217] Peatland cannot be easily restored; it is reclaimed as mineral swamps or marshes. The Rigel project will cause long-term changes to wetlands in the project footprint. There is little or no evidence before us that would lead us to conclude such changes would be inconsistent with the purposes of *EPEA*.

Aquatic environment

[218] Prosper describes the Rigel project as being "located near Namur Lake and between Snipe Creek and the Ells River...The CPF will be approximately 8 km west of the Ells River, which flows east to its confluence with the Athabasca River at Fort McMurray. Snipe Creek flows southwest into the Dunkirk River in the MacKay River drainage basin." Fort McMurray is about 100 km to the southeast.

[219] Prosper's aquatics assessment area included lands around the Rigel project footprint and water bodies and watercourses that might be affected by the Rigel project. Among the water bodies in Prosper's aquatics assessment area are

- three unnamed water bodies on the Prosper lease—two are northwest of the project footprint (WB-2 and WB-3), and the third is to the east (WB-4, also called Long Lake);
- one unnamed water body outside of the Prosper lease to the west; and
- Namur/ Buffalo Lake.

[220] Prosper said several watercourses are in its aquatics assessment area. The watercourses connect local drainage areas with local water bodies and the larger watershed.

[221] Prosper also said field data and samples were collected to supplement data from historical sources.

[222] Prosper's Rigel project, as proposed, does not draw water directly from any surface water bodies. Prosper's Rigel project is not planned to discharge water directly to any surface water bodies. Prosper said industrial runoff will be analyzed to confirm that it meets applicable criteria, then discharged if necessary. If analysis shows that runoff is not suitable for discharge, it will be treated on site or sent to an approved offsite treatment facility.

[223] Prosper has also committed to implementing an integrated water-monitoring program to minimize, among other things, the risk of adverse impacts on aquatic resources. The water-monitoring program, described in further detail in the *Water Act* section, uses adaptive management and will compare well-monitoring results with Prosper's model results. Prosper said that if the monitoring results differ from the model results and show or suggest an unanticipated impact, it will work with the relevant regulatory authorities to implement appropriate mitigation measures. Prosper said mitigation could include drawing less water from its water source wells. The water-monitoring program also includes monitoring of surface water quality.

[224] Prosper said that the Rigel project will not impact aquatic resources in Namur Lake / Buffalo Lake because of the distance from the lake. Prosper plans mitigation measures to prevent contaminants from reaching the lake or other surface water bodies in the *EPEA* aquatics assessment area. In response to concerns raised by Fort McKay First Nation, Prosper said the Rigel project is expected to lower the water levels in Buffalo and Moose Lakes by no more than 0.7 mm in each.

[225] Prosper filed a Cumulative Environmental Management Association report (CEMA report) that includes the Rigel project. The CEMA report indicates to us that aquatic resources in the Moose Lake area were considered by CEMA to be, and are expected to remain, sustainable, intact, and healthy.

[226] In its surface water-monitoring program materials, Prosper identified sensitivity to environmental changes among resident species overwintering in water bodies in the area of the Rigel project. Those species might be affected by changes caused by the Rigel project, such as reductions in flow, lower water levels, changes in water temperature, and loss of habitat. Prosper said that the presence of some fish species, such as Arctic grayling, can provide key information on habitat use during sensitive times, including overwintering or other low-flow periods. Prosper proposes monitoring aquatic ecology, including qualitative assessment at select sites. The assessments may include aquatic-habitat mapping, and assessment of the presence and distribution of fish species and benthic invertebrates. Sites closest to the withdrawal wells would be prioritized.

[227] The participants have an established fishery in Buffalo/Namur Lake. Their evidence demonstrates that they value that fishery highly.

[228] Fort McKay Métis also raised concerns about potential contamination of freshwater sources in the Moose Lake area. Fort McKay Métis said members rely on clean, fresh surface water for drinking water when out on the land, and so do the animals and plants they harvest.

[229] The only evidence of potential risk to aquatic resources was given by Fort McKay First Nation witness Dr. B. Miskimmin. Dr. Miskimmin did not conduct any independent study or analysis. She relied on the conclusions of Mr. D. Geller and Mr. R. Bothe about ground water and its interaction with surface water for her conclusion that, among other things, the main concern about fish and fish habitat “in the Prosper project is the potential for significantly reduced water levels.”

[230] Dr. Miskimmin concluded her written report by saying, “this project should not be approved unless Prosper demonstrates the absence of risk” to aquatic health and the status of fish populations in Namur and Gardiner Lakes.

[231] The participants have provided no basis for this panel to require Prosper to demonstrate that there is no risk to aquatic (or other) resources. The applicable regulatory framework, particularly *EPEA* and *REDA*, clearly indicates that a balance of risk and benefit is required. For our analysis of water-level-impact issues, see the *Water Act* part of this decision.

[232] Dr. Miskimmin also commented in her written report that baseline water-level, aquatic habitat, and fish population studies are required before any water is withdrawn from Long Lake. Long Lake is a 130 hectare fish-bearing lake just east of the Rigel project footprint. There is some evidence that the participants fish in Long Lake.

[233] Prosper does not propose withdrawing water directly from Long Lake. Prosper’s modelling shows that nearby surface water bodies such as Long Lake will contribute to the volume of water pumped from the Deep Drift aquifer as a result of the interaction between groundwater and surface water over the

life of the Rigel project. Dr. Miskimmin recommends that baseline water-level, aquatic habitat, and fish population studies be completed at Long Lake before any water is withdrawn from the Deep Drift aquifer.

[234] Prosper has collected both water-quality and fish-habitat baseline information at Namur Lake and Long Lake. Prosper indicated that it plans to install monitoring equipment near the water bodies that are at greatest risk of impact and has committed to a waterbody monitoring program.

[235] Prosper proposes mitigation measures for site runoff that meet industry standards for similar industrial facilities. Those measures include erosion-protection measures and collecting and treating water in sedimentation ponds.

[236] Dr. Miskimmin said climate change, water loss and industrial activity would degrade water quality. Dr. Miskimmin did not conduct or provide any studies relevant to the Moose Lake area generally or to the Prosper Rigel project in particular to support her recommendations and conclusions relating to project interaction with climate change. There is insufficient information before us for the panel to draw any conclusions on this point.

[237] Dr. Miskimmin also mentioned that dust and associated contaminants caused by activities at or associated with the Rigel project could be deposited in surface waters and cause adverse effects. Her suggestion was based on her knowledge of oil sands projects generally and not on her knowledge of the Rigel project and Prosper's proposed mitigation. Fort McKay First Nation did not provide evidence specifically about this point.

[238] The panel understands the concern expressed by Dr. Miskimmin about dust related to potential acidification of water bodies. Prosper estimated the output of acidifying emissions from the Rigel project and the sensitivity of the surrounding water bodies. It said the results showed that it was not necessary to conduct a critical-load assessment for the Rigel project. Prosper also said that the measured pH and alkalinity for the smaller lakes near the Rigel project do not suggest that they would be sensitive to acidification. Prosper's evidence is that the Rigel project will not exceed critical thresholds, and Prosper has proposed mitigation measures that are generally accepted to be appropriate for in situ oil sands projects as means of limiting the risk posed by airborne dust. The evidence leads us to conclude that it is not likely that the Rigel project will cause acidification of water bodies in the Moose Lake area.

[239] There was a reference to the potential for dust that reaches Namur Lake to cause or contribute to the formation of algal blooms through the introduction of nutrients. Prosper's proposed water-quality monitoring program would include monitoring for nutrients that can contribute to algal blooms, and the evidence before us is not sufficient for us to conclude that this is a likely risk.

[240] The panel finds that with Prosper's commitments to mitigation, the potential adverse effects on aquatic ecosystems do not make the Rigel project inconsistent with the purposes of the *EPEA*.

[241] Prosper is required to comply with the Alberta Ambient Air Quality Objectives and Guidelines (AAAQO) issued by Alberta Environment and Parks. To meet this requirement, Prosper conducted an air quality assessment to identify emissions associated with the project. Prosper said the primary source of air emissions associated with the project would be from hydrocarbon vapours and from sulphur dioxide and nitrogen dioxide emissions.

[242] CPF emissions are from mixed fuel-gas combustion in boilers and in the natural gas-fired cogeneration units, and from the utility boiler, two flare stacks, and two emergency diesel generators. The high-pressure flare stack will not produce emissions during normal operations and would be used only for upset conditions. Prosper committed to using the second flare stack (a low-pressure stack) to capture tank vapour emissions during truck loading.

[243] The project will produce greenhouse gas emissions (GHGs) from fuel combustion. Total GHGs for the project were estimated at 0.453 megatonnes per year CO₂ equivalent. This amount is 0.184 per cent and 0.065 per cent of the 2011 Alberta and Canada national totals, respectively.

[244] Fort McKay First Nation said that clean air in the Moose Lake area should be kept clean.

[245] Fort McKay Métis said that NO_x emissions from the Rigel project would be the equivalent of “20 000 vehicles travelling 30 miles per hour 24/7, in an area that is currently clean.” Fort McKay First Nation did not provide any data or modelling work to support its claim.

Prosper's Air Quality Assessment

[246] Prosper used the CALPUFF dispersion model to predict maximum ground-level concentrations of sulphur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), and atmospheric particulate matter (PM_{2.5}) associated with project operations. The participants did not raise any concerns about the air quality modelling.

[247] The concentration of each pollutant was calculated and compared with the AAAQO. The results show that air emissions from the Rigel project are well below the applicable air quality objectives for both the project and the application cases. The project case only includes emissions from the Rigel project. The application case includes emissions from the Rigel project and emissions from other approved industrial activities in the region. Prosper said that even in upset flaring conditions, its emissions would remain below the AAAQO.

[248] Prosper said its modelled emission rates were based on regulatory standards in effect in 2009 and that air quality standards for industrial emissions are currently under review. Prosper said it will procure equipment that complies with the best available technology (BAT) requirements in force at the time of procurement. This equipment would have emission requirements that are more stringent than the

requirements used in its model and would further decrease predicted ground-level concentrations of emissions associated with the project.

[249] Prosper understood that odour is a key concern for stakeholders in Fort McKay. To address these concerns, it said it would implement the following measures:

- Install vapour-recovery units (VRUs) on tanks that might emit odours; the tanks would be gas blanketed and connected to the VRU.
- Recycle, as fuel to the CPF, gases recovered through the VRU.
- Implement a fugitive-emissions management plan to identify and address potential equipment leaks.
- Use a low-pressure flare to combust any vapours from trucks loading at the facility.

[250] Prosper said that with these mitigation measures, off-lease odours are not anticipated, and it will comply with the forthcoming odour management framework.

[251] The panel finds that the Rigel project complies with all applicable AAAQOs.

Wildlife

[252] Fort McKay First Nation said that existing development on the “west side of the Athabasca River” threatens the viability of traditional-use species. Fort McKay First Nation said in its written submissions that new projects should not proceed until the trend is reversed. The specific concern is habitat loss.

Habitat Loss

[253] The Rigel project is about 64 km from Fort McKay, which is west of the Athabasca River. There is significant oil sands development, both in situ and surface mining, and other resource and industrial development between the Athabasca River and the Moose Lake reserves.

[254] Fort McKay First Nation’s evidence, specifically the Management and Solutions in Environmental Science (MSES) report, was regional in scope. The MSES report was presented to support the contention that habitat for the traditional-use species, moose, caribou, and fisher/marten, has declined steeply in the Moose Lake area. The MSES report did not deal with project-level effects and, more specifically, did not deal with effects of the Rigel project. Fort McKay First Nation’s cross-examination was also focused at the regional level, not at the Rigel project level.

[255] Knowledge of cumulative effects from existing and planned projects provides important context for understanding the severity of impacts that are expected to be caused by the Rigel project. However, we must base our decision on our assessment of project-specific impacts, including the likelihood and severity of those impacts. A decision to halt resource and industrial development generally in an area, as

suggested by Fort McKay First Nation, is a policy-level decision that we do not have the authority to make.

[256] Prosper's evidence was as follows:

- It has designed and engineered the Rigel project to have a compact footprint to reduce habitat impacts, including fragmentation.
- It will use best practices to avoid and mitigate impacts on wildlife—e.g., avoiding clearing during restricted-activity periods, installing aboveground-pipeline-crossing structures in accordance with the Alberta Environment and Sustainable Resource Development (now Alberta Environment and Parks) *Above Ground Pipeline Wildlife Crossing Directive*, and imposing speed restrictions on roads.
- Monitoring at other in situ oil-sands projects shows that when similar mitigation measures are used, wildlife continue to use habitat next to project facilities.
- The Alberta Biodiversity Monitoring Institute (ABMI) monitors changes in biodiversity relative to the human footprint. Overall biodiversity intactness in the 2014 ABMI report in the area that includes the Rigel project is primarily 91–100 per cent intact. Intactness compares the expected occurrence of a species in an area with no human footprint with its occurrence in areas with a human footprint. It is important to note that the ABMI measures intactness at a regional level, not at a local level.
- The ABMI report does show that areas with high levels of agricultural and forestry activity, especially if near population centres, are at higher risk of decreases in biodiversity through added disturbance. The Rigel project is about 64 km from the closest population centre, in an area with little to no agriculture and relatively little forestry.

[257] Prosper submitted that Fort McKay First Nation did not provide any evidence of the Rigel project affecting wildlife populations.

[258] Fort McKay First Nation made the point through cross-examination that we are not able to conclude, from the fact that wildlife continues to use habitat next to project facilities, that the project has had no impact on the frequency of use or the number of animals using that habitat.

[259] Fort McKay First Nation's experts said that approval of the Rigel project would not help reverse what they say is a decline in moose, fisher/marten, and caribou populations in the Moose Lake area. They looked at the regional study area used for the Dover project, at a local study area within 10 km of the Moose Lake reserves, and at the Prosper regional study area to draw their conclusion. Fort McKay First Nation specifically said that because the Rigel project will disturb, not restore, habitat, it will contribute to the population declines their experts have modelled.

[260] Fort McKay First Nation's evidence suggests that whether the Rigel project is approved or denied will make little-to-no difference in terms of impact on the regional wildlife population trends modelled by

its experts. Fort McKay First Nation's experts said that a net gain in habitat is required to stabilize populations or reverse what they say is a steeply declining trend. MSES's work was based on estimates of habitat loss over time, using Landsat imagery and statistical modelling of the use of disturbed areas by the species of interest. There is some appeal to the statistical approach because of its apparent objectivity, but the panel finds that the assumptions used by MSES result in an overstatement of effects. The following points were particularly pertinent to the panel's finding:

- The assumption in the model that habitat is either fully present and intact and therefore sustains wildlife or is absent and does not sustain wildlife at all, is not realistic.
- Evidence from existing in situ oil-sands projects shows that wildlife, including traditional-use species, do not completely abandon an active project area.
- Evidence shows that impacts of habitat disturbance vary depending on a number of factors, including the nature of the disturbance—e.g., cutlines for 3D seismic are not avoided and do not have the same impact on mortality as all-season or other industrial-use roads.
- Habitat in the zone of influence is still available to support direct use by wildlife. The frequency and intensity of use will depend on factors such as the quality of the remaining habitat and the hunting pressure.
- Habitat in the zone of influence is still available to mitigate habitat fragmentation.
- The use of 250 m and 500 m zone-of-influence buffers for moose and caribou, respectively, and application of a magnifier of 1.28 to all surface disturbance identified in the Landsat review, regardless of the nature of the disturbance, results in an overestimate of habitat loss.
- MSES admitted that it used a simple model for caribou because lichen, which is food for caribou, is not visible in the Landsat imagery—MSES had to infer the presence or absence of caribou habitat based on its knowledge of where the lichen that caribou prefer tends to be found.
- The MSES model for habitat decline relies on a best-fit line through points for which data exists, and on an assumed starting point. The starting point is critical for determining the slope of the line and thus, the modelled rate of habitat loss. The choice of 1964 to represent MSES's assumed "pristine" starting point for the habitat assessed in the study areas is not supported by sufficient evidence.

[261] We do share Fort McKay First Nation's concern about ongoing habitat loss. Prosper committed to progressive reclamation of all parts of the project footprint that are no longer required for operations (e.g., borrow areas). For that reason and because of our finding that the MSES report overstates habitat loss and potential effects, we are not able to conclude based on the evidence in this hearing that the Rigel project will cause loss of habitat that will result in permanent harm to the ecosystem in the Moose Lake area. In particular, we are not able to conclude that the Rigel project will threaten the viability of the TLU species of concern. We deal with each of those species below.

Moose

[262] Fort McKay First Nation's submission that the moose population is declining at a rate that threatens the viability of the species in the Moose Lake area is not supported by the following evidence filed in this proceeding:

- The Rigel project would be located in wildlife management unit 531 (WMU 531). Moose populations in WMU 531 have varied over the years. There is no clear consensus in the evidence on whether moose populations in WMU 531 are increasing, decreasing, or stable.
- Alberta Environment and Parks continues to issue hunting licences for moose in WMU 531. It manages the harvesting of moose by hunters with the goal of maintaining a stable population.
- The ABMI reported in 2014 that moose occurrence was higher than expected in areas with development.
- Fort McKay First Nation's evidence was that moose are "increasers" when looking at ecosystem integrity.

[263] The most probable conclusion in light of the evidence is that the moose population in WMU 531 is not at risk at this time and, more specifically, that the Rigel project is not likely to cause a decrease in the moose population in the Moose Lake area.

Fisher/Marten

[264] Fort McKay First Nation's expert evidence refers to fisher. There is also reference in the evidence in this proceeding to marten and to the fact that fisher and marten tracks are not easily distinguished. For ease of reading, we will refer only to fisher.

[265] The Rigel project footprint will overlap with some patches of remaining fisher habitat within the footprint.

[266] Fort McKay First Nation submits that the population of fisher is declining at a rate that threatens the viability of the species in the Moose Lake area.

[267] We are not able to conclude that the fisher population would be threatened by the Rigel project. We specifically took the following into account to arrive at our conclusion:

- Trapper harvest records for areas within the Dover project show a consistently low harvest of fisher in the 2000–2009 period, with no trend, either up or down. Trapping effort was not known.
- Fisher typically occupy older, structural-stage coniferous and mixed wood forests, but the species is not limited by habitat availability.
- The Rigel project will affect lowland old-growth forest habitat that is not preferred habitat for fisher.

Caribou

[268] The caribou ranges in northern Alberta have been defined with a high degree of confidence. The Red Earth and the West Side Athabasca River caribou ranges are the closest to the Rigel project.

[269] A corner on the right-of-way access to a well that Prosper plans to use as a water source (i.e., the 08-28 Viking water source well) is just inside the Red Earth caribou range. Prosper proposes widening it as part of the Rigel project. The extent of the new disturbance caused by the Rigel project in the Red Earth caribou range would be about 0.1 ha (i.e., 1/4 acre, or .001 km²). No new access or other disturbance in the Red Earth caribou range is part of the Rigel project.

[270] Caribou are listed as a threatened species under the *Species at Risk Act*. Prosper's evidence is that declines in caribou populations have been seen in Alberta since the early 1900s, with two major declines, one in the late 1940s and another in the early 1970s. Caribou population decline in the oil sands region in northeastern Alberta has given rise to concern about their sustainability. Mortality is the primary cause of population decline.

[271] Prosper has either committed to or proposed implementing restrictions and controls to reduce the risk of increased access to the Rigel project footprint, thereby mitigating the risk of increased caribou mortality. Among the measures are a policy of no vehicles for anyone other than supervisors, an access-control gate on the all-season access road, and speed limits.

[272] We interpret the thrust of Fort McKay First Nation's submissions about caribou to be that no risk to caribou populations is tolerable in the Moose Lake area. Nothing in the current regulatory framework says that a project may not proceed if there is any risk to caribou. Prosper recognized that woodland caribou is a wide-ranging and culturally important species and that "mitigation of potential effects needs to be managed at a regional level." To that end, Prosper committed to developing and implementing a caribou mitigation and monitoring program (CMMP) for the entire Prosper lease. Prosper also committed to

- beginning site preparation and construction as early as possible in the winter, and limiting late-winter activity;
- placing rollback across pipeline rights-of-way where materials are available;
- making breaks in snow berms created when access roads are plowed;
- using coarse, woody debris to restrict access to existing linear disturbances that intersect its access road; and
- restoring habitat through progressive reclamation.

[273] Fort McKay First Nation says that CMMPs are reactive and not effective at preventing impacts on caribou and that CMMPs are not intended to restore caribou populations. Fort McKay First Nation said that caribou "have been virtually removed" from the area around the Rigel project and that the caribou

ranges nearest to the Rigel project are not self-sustaining. Fort McKay First Nation says positive action is required to both restore habitat and “manage” the caribou populations.

[274] There are no recorded instances of collared caribou using habitat on or near the Rigel project footprint or the Prosper lease. Fort McKay First Nation experts’ analysis confirms this.

[275] Fort McKay First Nation’s evidence shows that the closest caribou tracked near the Prosper lease was about 20 km away. Fort McKay First Nation and Prosper agree that that caribou (or those caribou) was crossing between ranges.

[276] It is possible that caribou that have not been collared have used habitat on or near the Rigel project footprint, but no observations of such use or evidence of such use were put before us.

[277] Based on the evidence in this proceeding, we conclude that pre-industrialization decline in caribou populations suggests that project-related habitat disturbance is not the only contributing factor. In light of the evidence before us, and with the commitments made by Prosper and the conditions that form part of this decision, the panel finds that there is a low probability that the Rigel project will increase existing risk to caribou. However, because caribou are wide ranging and culturally important, the panel will accept Prosper’s commitment to develop and implement a CMMP. That requirement will form a part of wildlife mitigation and monitoring plan condition.

Ecosystem Integrity

[278] The panel finds that the Rigel project is not likely to cause an ecosystem shift that would cause environmental impacts that are inconsistent with the purposes of *EPEA*.

[279] Fort McKay First Nation submitted evidence to support its assertion that the Moose Lake area is on the threshold of an ecosystem shift and that the Rigel project would “add to the disturbance pushing it past a potential ecological threshold.” Fort McKay First Nation also said that the Rigel project will “cause and significantly advance” an ecosystem shift that will result in “dramatic” biodiversity degradation.

[280] That conclusion is based on Fort McKay First Nation’s interpretation of data it says show that the relative population trends of predator-prey species have been reversing. For example, it provided a chart to show that, relative to the wolf population, the moose population is now increasing, whereas in the past it was decreasing. Fort McKay First Nation did not explain how relative changes in population trends of predator-prey species, absent the elimination of a species, degrade biodiversity.

[281] Prosper said that the ABMI report for region reported in 2014 supports its conclusion that the Rigel project will not cause ecosystem shift. The panel finds that because the ABMI measures intactness at a regional scale, changes to intactness at the local level that might be caused by the Rigel project would not be accurately reflected by the ABMI report. However, the panel also finds that the ABMI report does

show that, as noted above, the region where the Rigel project is located is at lower risk for a decrease in biodiversity.

[282] The evidence in this proceeding leads the panel to conclude that ecosystem shift happens. The reasons are varied and may be simple (e.g., after a forest fire) or complex.

[283] The panel does agree that, regionally, there has been loss and fragmentation of habitat. Approval of the Rigel project will contribute to that. However, the evidence before us does not persuade us that the Rigel project will cause a harmful ecosystem shift in the Moose Lake area.

Reclamation

[284] Under *EPEA*, the goal of reclamation is to return areas disturbed for industrial development to equivalent land capability, which it defines as “...the ability of the land to support various land uses after conservation and reclamation is similar to the ability that existed before an activity being conducted on the land, but that the individual land uses will not necessarily be identical.”

[285] Prosper said its construction and reclamation plan presents general guidelines for mitigating potential impacts of construction and operation of the CPF and associated facilities. Key activities through the life of the Rigel project integrate conservation and reclamation measures—e.g., soil salvage and stockpiling, weed control, surface water management, erosion control, decommissioning, and final reclamation.

[286] Prosper’s stated reclamation objectives for the Rigel project include

- reclaiming disturbances to baseline equivalent land capability,
- ensuring that reclaimed lands conform to surrounding landform and drainage patterns,
- meeting reclamation criteria that is current at the time of reclamation, and
- providing for self-sustaining ecosystems on reclaimed lands.

[287] Prosper said it might make site-specific adjustments to account for topography, soils, vegetation, and other factors that differ from the conditions observed in the field that were used in developing its initial construction and reclamation plan.

[288] Prosper also said that after reclamation, the landscape is expected to support a range of end-land uses, including wildlife habitat, forestry, traditional land use, and recreation. Prosper said its goal for final reclamation is to achieve a sustainable cover of natural forest vegetation similar to what existed before disturbance.

[289] Prosper said it will develop planting prescriptions for reforestation in consultation with the regulator and affected stakeholders to meet current reclamation criteria. Species, planting density, and spacing distances will be selected and may be adjusted on a site-specific basis to ensure that the site is

revegetated appropriately for the final site conditions. Invasive or persistent agronomic species will not be used.

[290] Generally, the participants expressed scepticism about the effectiveness of reclaiming oil sands project sites. In particular, they doubt that the lands can be restored in a way that will support traditional land use. Of particular concern is the loss of spiritual and medicinal value of plants that have been disturbed by industrial activity or grown on a site that has been previously used for industrial activity.

[291] Since the Rigel project is exempt from the new *Alberta Wetland Policy* and the application is for a pilot facility, Prosper will be expected to reclaim disturbed land back to the ecosite types and wetlands that were most common in the area before the disturbance.

[292] Prosper is not required to submit a reclamation plan until just before it decommissions the Rigel project. When it does so, the AER will review the plan and, when satisfied that it meets the applicable requirements, it will approve the plan.

[293] Evidence in the course of the hearing suggested to the panel that Fort McKay Métis has an interest in being involved in reclamation or reclamation planning. A condition of the *EPEA* approval is that if it has not already done so, Prosper will seek input from Fort McKay Métis and, if the community is interested, Fort McKay First Nation for the purpose of planning reclamation for the Rigel project. To be clear, “for the purpose of planning” does not mean that Prosper should develop a plan, then send it to the participants for comment—unless that is what they ask for. Our intention is that to the extent Fort McKay Métis or Fort McKay First Nation, or both, are willing to engage, Prosper will seek their input in the very early stages of developing its reclamation plan. It is required to describe its efforts and how any input from either participant is reflected in the plan that it does file.

[294] The panel finds that Prosper’s reclamation plans are reasonable and appropriate at this stage of project development. The panel encourages Prosper and the participants to work together to plan a reclamation program that is intended to support traditional use.

Water Act Application

Introduction

[295] The question the panel must answer is whether the proposed water withdrawals are consistent with the purpose of the *Water Act* and related guidelines. The purpose of the *Water Act* is to promote the conservation and management of water, including the wise allocation and use of water, while recognizing the need to conserve water to sustain the environment and the need for Alberta's economic growth and prosperity.

[296] The *Water Conservation and Allocation Guideline for Oilfield Injection (WCAGOI)* is central to Prosper's *Water Act* application. The objective of the guidelines and the companion *Water Conservation and Allocation Policy for Oilfield Injection* (the *WCAGOI Policy*) is to minimize the use of fresh water whenever possible. Applicants needing water for oilfield injection must conduct a comprehensive assessment of available saline and nonsaline sources. Environmental, engineering, and economic considerations must be part of the assessment.

[297] Prosper must also meet requirements in the *Alberta Environment Guide to Groundwater Authorization*, 2011 (AGGA). Prosper must justify the need for the water and confirm that the aquifer is capable of sustaining the amount of water required over the life of the project without adversely impacting other licensed users or existing households.

[298] Prosper filed *Water Act* application 00370772-001 on July 10, 2015, for a licence to divert 850 cubic metres per day (m^3/d) of fresh water from the Viking and Deep Drift formations. The water is for steam production and utility purposes at the Rigel project.

[299] On October 12, 2017, Prosper revised its water strategy and submitted an amended application to use water from two existing water supply wells as follows:

- 620 m^3/d , or 226 300 m^3/year , from the 8-20 well completed in the Deep Drift aquifer
- 80 m^3/d , or 29 200 m^3/year , from the 8-28 well completed in the Viking aquifer

[300] Total withdrawals would be 700 m^3/d , or 255 500 m^3/year , over the life of the project, which is expected to be 25 years beginning in October 2019. The bulk of Prosper's withdrawals (88 per cent) would be from the Deep Drift aquifer.

Prosper's Need for Water

[301] Prosper said in its June 2015 *Water Act* application that it had initially identified a need for 983 m^3/d of water but was able to reduce this to 850 m^3/d by installing H_2O recycling equipment. In the amended application, Prosper said its use of water recycling technology outperforms requirements in *Directive 081: Water Disposal Limits and Reporting Requirements for Thermal In Situ Oil Sands*

Schemes. It also said that 90 per cent of the produced water will be recycled back into the system for steam injection, with the remainder trucked off site for disposal.

[302] The participants did not present an objection to the amount of water needed to operate the project.

Objections to the *Water Act* Application

[303] On September 15, 2015, Fort McKay First Nation filed a statement of concern objecting to the *Water Act* application. Fort McKay Métis filed an objection on September 25, 2015. They each filed subsequent submissions in response to Prosper's amended application.

[304] A fundamental concern of the participants is that groundwater withdrawals by Prosper pose an unacceptable risk to the supply of drinking water in Fort McKay. Fort McKay gets its domestic water from the Ells River via a water licence held by the RMWB. Participants believe any drawdown of water from the Deep Drift aquifer will lower water levels in Namur Lake and the Ells River and ultimately threaten the viability of domestic water supply to Fort McKay.

[305] The participants opposed the use of fresh water for the project. They said Prosper's assessment of alternative water sources was inadequate and based on poor data. As a result, the application is deficient and should be rejected. They also said that Prosper should take saline water from a source 35 km away from the project.

[306] The participants' experts said the Ells River and the MacKay River are already water-short areas. Given this condition, Prosper should have been required to conduct an instream flow needs assessment when assessing the impacts of its withdrawals.

[307] Fort McKay First Nation described Prosper's proposed water-monitoring program as inadequate because it was reactive—i.e., an approach that tries to detect impacts as opposed to one that would avoid impacts. Fort McKay Métis expressed similar concerns.

[308] In speaking about the relief sought, participants said that Prosper's failure to conduct an adequate assessment renders its application deficient and, as a result, it should be rejected. In the alternative, if the application were to be approved, Prosper should be required to use saline water from another source and to move its water supply wells to an alternative location. The licence should also be conditioned so that Prosper would be required to stop pumping during low flow events on the Ells River.

Is the Proposed Use of Fresh Water Supported by the Evidence?

[309] Fort McKay Métis said use of fresh water is contrary to the Alberta Water for Life Strategy, the *WCAGOI* and *WCAGOI Policy*, and section 2 of the *Water Act*. Its hydrogeologist, Dr. G. Wendling, submitted that Prosper's modelling results were based on unconfirmed assumptions and poor data, and that as a result its conclusions are not reliable.

[310] Dr. Wendling said Prosper failed to sufficiently consider other sources of saline water. He said other aquifers—the Cooking Lake, the Keg River, and the Basal-Wabiskaw—were reported to have saline water. He said Prosper should have drilled deeper, or more, wells to test for the presence of saline water in the Keg River and in the Basal-Wabasca Formation. These failures on Prosper’s part render its application deficient and it should be refused.

[311] Given the provincial policy goal of conserving water, and the objections of participants, the panel put its mind to the question of whether use of fresh water for this project is reasonable and supported by the evidence.

[312] Prosper engaged Matrix Solutions Inc. to evaluate water sources with the objective of finding an aquifer capable of supplying water for the project’s needs. Matrix’s reports were prepared by Mr. G. MacMillan, Dr. H.de Pennart, and Mr. B. Fuchs. For the *Water Act* application, Matrix explained that it evaluated aquifers in a broad geographic region, the Regional Study Area (RSA) (see appendix 5).

[313] Using criteria in the *WCAGOI*, it was determined that Prosper must conduct a Tier II assessment of the aquifers. A Tier II assessment requires applicants to look for and evaluate saline water sources within a minimum 10 km of a project. Prosper provided a concordance table summarizing the Tier II requirements and its evidence for each requirement. Among other things, its evidence included a technical assessment of alternatives to using saline water, and an economic and environmental assessment of viable water sources.

Technical Review of Alternative Water Sources

[314] Prosper’s initial search was to find a saline aquifer within the 10 km range with little or no connectivity to surface water. It subsequently expanded the search beyond 10 km and found the following:

- The Deep Drift aquifer was found to have sufficient water, thickness, lateral extent, hydraulic conductivity, and groundwater quality to make it a good candidate for make-up water supply.
- The Viking aquifer was found to be of sufficient thickness, to have good hydraulic conductivity, and to have available head of 15 m within the project lease area.
- The Grand Rapids aquifer did not have sufficient thickness or sufficient lateral continuity to be an adequate supply of water.
- Within the 10 km radius, the saline Basal Wabiskaw/McMurray aquifer did not have sufficient thickness or lateral continuity to be deemed an adequate water supply. The aquifer appeared to be thicker 35 km northeast of the project, but lateral continuity was unknown.
- The Cooking Lake aquifer was assessed using data from five wells. Salinity results taken 15 km south of Prosper’s lease ranged from 14 200 to 26 700 milligrams per litre (mg/L). Water with this

concentration of salts is potentially useable with treatment. Furthermore, the aquifer is within the 10 km radius but is not under the Prosper lease. In any event, it is bitumen saturated, and water sourcing at this location would potentially impact future bitumen recovery.

- Data available for the Keg River aquifer showed total dissolved solids (TDS) levels higher than 200 000 mg/L in the RSA. Prosper said these level renders the water unusable.
- Because the Granite Wash aquifer is deeper than the Keg River aquifer, it was assumed to have even higher salinity levels and so was discounted as a potential water source.
- The closest viable saline source was found 35 km away in the Cooking Lake aquifer where TDS levels were predicted to be 8200–9200 mg/L. To be useable, water with these concentrations would have to be diluted with fresh water.

[315] Prosper also explored the potential to source saline water from other operators. It said that should the Dover project go ahead, it would look for an opportunity to share that project's infrastructure in order to access a source of saline water. Apart from Dover, Prosper found no other feasible options for sourcing produced water, municipal waste water, or saline water for its project.

[316] Prosper deemed the Deep Drift and Viking aquifers to be the only technically feasible options suitable for further evaluation.

Environmental and Economic Assessment of Candidate Aquifers

[317] In a Tier II review, applicants must conduct a screening-level review of the costs of alternative water source options. Fort McKay Métis said Prosper's screening-level review is deficient because it considered only the Deep Drift and Viking water sources, not the other aquifers examined in the technical review. It also said Prosper did not include a saline option for comparison and reviewed only its preferred freshwater alternatives, which is contrary to the purpose and intent of the *WCAGOI*.

[318] In response, Prosper said there were no other options to evaluate. Its technical analysis found no viable options because of either very high TDS concentrations or groundwater deliverability challenges. Consequently, it focused the screening-level assessment on the Viking and Deep Drift aquifers.

[319] For this assessment, Prosper considered three scenarios for supplying its water needs: the Deep Drift, the Viking, and a hybrid using both the Viking and Deep Drift aquifers. It assessed the environmental effects of the three scenarios against the *WCAGOI* criteria. Taking into account energy consumption (i.e., GHGs), water use, habitat disturbed, waste, air emissions, and other factors, it concluded that the net environmental effects of withdrawals from the Deep Drift aquifer would be minimal.

[320] Prosper said the Viking could supply the entire water needs for the project only if a network of four additional water supply wells was installed 10 km east of the CPF. Putting in these additional water supply wells would cause significant environmental disturbance.

[321] Prosper considered the cumulative effects of other licensees on the aquifers. While it found a number of licensed wells within the RSA, it found no other current or planned users of the Deep Drift aquifer.

[322] Prosper said the results of pumping from a test well showed that the Deep Drift is able to meet all of its water requirements. The Deep Drift was also found to have much greater water availability than the Viking. However, because of hydraulic connection to nearby surface waters, groundwater and surface water are expected to interact.

[323] The Viking aquifer was found to have limited capacity in the assessment area. To support the project's water needs over the life of the project, withdrawals from the Viking would have to be supplemented by water from the Deep Drift aquifer. Because of this, and as a precautionary measure, Prosper decided to take less of its requirements from the Viking, and more from the Deep Drift.

[324] Prosper provided the following cost estimates for sourcing water under the three scenarios:

- \$2 003 000 for the Deep Drift
- \$23 988 000 for the Viking
- \$7 202 000 for drilling one well in the Deep Drift and one well in the Viking

The high cost of sourcing water from the Viking aquifer is for the infrastructure costs of installing the additional water supply well network.

[325] Prosper said that on a cost comparison alone, the Deep Drift would be the preferred candidate. But given the potential for surface water interactions at the Deep Drift, Prosper opted for a strategy that would allow it to minimize interactions between groundwater and surface water while avoiding the additional environmental impacts and high costs of adding another water well network in the Viking. Prosper also said it would revisit the option of using saline water if and when the Dover project proceeds.

[326] The participants did not raise any concerns about Prosper's cost assessment or environmental analysis (other than Fort McKay Métis's assertion that the assessment should have included a saline option for comparison).

Is the Cooking Lake Aquifer a Viable Source of Saline Water?

[327] The participants proposed that Prosper should source saline water from the Cooking Lake aquifer 35 km from the Rigel project. Prosper said that option would require drilling and testing a new water

supply well. Should the new well prove capable of meeting its water requirements, Prosper would then have to do the following:

- Clear land for construction of a 35 km all-season access road that would take up an additional 122 ha of land. This 122 ha would be larger than the Rigel project's existing footprint and would create significant surface disturbances.
- Install a water pipeline with a 35 m right-of-way to move water to its well pads.
- Install a power source and power lines to the new well.

All of this would create more environmental impacts and habitat disturbance and would cost an additional \$55 million (or \$1.5 per km).

[328] In response to the claim that its data was insufficient and that it should have drilled wells to a depth of 700 m to test the Keg River aquifer, Prosper said Dr. Wendling either ignored the data or failed to understand that readily available geologic data shows the Keg River aquifer to have TDS levels of 200 000 mg/L.

[329] Prosper said it is accepted practice to use available geologic data to identify salinity levels in aquifers without drilling new wells. It examined data from 270 wireline logs to measure salinity in the RSA, and it examined data from 45 wells in the RSA. Data from four of those wells were within the 10 km radius.

[330] Prosper submitted that the *WCAGOI* guidelines are rigorous and are designed to ensure that the use of fresh water for energy use is reserved for situations where sourcing saline water would be very costly or the technical feasibility is very low, such as the case here. The panel agrees with this statement.

[331] Prosper's Tier II assessment showed no viable saline source within the 10 km minimum radius. Between the 10 to 35 km radii, the closer water sources either had TDS levels that are too high to be treated or geotechnical challenges that rendered them unsuitable.

[332] The panel finds Prosper's assessment of alternative water sources to be comprehensive and consistent with the provisions in *WCAGOI*. It accepts Prosper's evidence that the nearest source of useable saline water is 35 km from the project site.

[333] The fact the *WCAGOI* contains criteria for assessing alternative water sources means that the Government of Alberta had contemplated circumstances in which using fresh water would be acceptable when saline water might not be a viable option. The panel finds, subject to other considerations in this report, the proposed use of fresh water to be acceptable.

[334] We agree with Prosper that taking water from the Cooking Lake aquifer creates additional environmental and habitat disturbances. These disturbances would also cause more impacts on traditional

land use for Fort McKay Métis and Fort McKay First Nation. The impacts are significant and are not acceptable to the panel.

Capability of the Deep Drift and Viking Aquifers to Sustain the Amount of Water Required

[335] Under section 2.2.7 of the *AGGA*, Prosper is required to determine the long-term sustainable yield of an aquifer from which they propose to draw water. They must also comply with the requirements that 35 per cent of the available hydraulic head in an aquifer cannot be exceeded in the first year of pumping, and 50 per cent of the available hydraulic head cannot be exceeded thereafter. In effect, 50 per cent of the available head must remain in the aquifer.

[336] Prosper's evaluation of the Viking aquifer considered three scenarios:

- The baseline case, which took into account groundwater schemes already approved.
- The application case, which included Prosper's proposed withdrawals in addition to the baseline case.
- The planned development case, which included all planned development and the application case.

[337] Only the application case was modelled for the Deep Drift because there were no other users within the numerical model domain.

[338] Prosper's experts created a numerical model of groundwater flow to simulate drawdown of the aquifers for each of the three scenarios. The model was also used to predict changes in groundwater flux to surface water.

[339] After assessing all aquifers in the RSA, the experts found that the Deep Drift aquifer has the best hydraulic conductivity. With a withdrawal of 620 m³/d of water, drawdown in the aquifer is predicted to reach a maximum of 2.6 m (for a decrease in available head of 4.4 per cent) at a theoretical observation well 150 m from the 8-20 well. The maximum drawdown would be reached 2.6 km from the well 23 years in the future.

[340] A withdrawal of 80 m³/d of water from the Viking well is predicted to reach a maximum of 7 m (or a decrease in available head of 26 per cent) at a theoretical observation well 150 m away. The simulation for drawdown in the Viking aquifer included water withdrawals from the Sunshine West Ells and Legend Lake projects.

[341] Prosper concluded that the Deep Drift and Viking aquifers have sufficient sustainable yield to meet the needs of the project without affecting the integrity of the aquifers. Their water withdrawals are considerably less than the 50 per cent threshold prescribed in the *WCAGOI*. We have no reason to doubt this conclusion.

Will Prosper's Groundwater Withdrawals Impact Surface Water Bodies or Other Licensees?

[342] Under the AGGA, Prosper is required to evaluate the cumulative impact on the aquatic environment and on existing users that would result from its withdrawal and from other withdrawals in the area in which its water will be sourced.

Concerns About Groundwater Withdrawals

[343] Fort McKay First Nation and Fort McKay Métis submitted that Prosper's groundwater withdrawals will:

- result in capture, or change in flux, that will adversely impact surface water flow in Namur Lake, the Ells River, and the MacKay River;
- lower the amount of water available in Namur Lake, an important headwater for the MacKay and Ells rivers; and
- impact the amount of water available in the Ells River for domestic supply to the Fort McKay community.

[344] Fort McKay First Nation's hydrogeologist, Mr. Geller, said Prosper should have conducted a baseline study to understand groundwater connection to surface flow. He also said that groundwater withdrawals should protect instream flow needs where there is connectivity to a river.

Effect of Withdrawals on the Aquatic Environment (Surface Water)

[345] Dr. Wendling, hydrogeologist for Fort McKay Métis, explained how groundwater withdrawals create a cone of depression. This phenomenon starts at the source water well. Water is initially withdrawn from the area around the well and as pumping continues, water is drawn from further away in the aquifer, creating a cone of depression that eventually captures water from surface water bodies.

[346] Dr. Wendling said Prosper's capture of surface water would cause the water level in Namur Lake to fall below the outlet sill, especially in low-flow or drought years. This would impede the flow of water to the Ells River.

[347] Mr. Bothe, hydrologist for Fort McKay First Nation, said that Namur Lake and Gardiner Lake provide significant flow to the Ells River in winter months. Examples he provided were 98 per cent in November, 95 per cent in December, and 96 per cent in January. He said any decrease in flows at the headwaters of the Ells River would significantly impact Fort McKay's water supply. Mr. Bothe also said that capture of surface water would make up 86 per cent of Prosper's total withdrawal volume.

[348] Prosper agreed with the participants that water is captured when drawdown approaches surface water bodies. The parties disagreed on the magnitude of capture and on the resulting impact on surface waters.

[349] Prosper said that at the end of project life around 2041, 85 per cent of its withdrawals from the Deep Drift (i.e., 527 m³/d) would effectively be coming from surface waters. This capture would be distributed across multiple surface water bodies throughout the MacKay River and Ells River watersheds. Prosper's calculation is that at most 1 per cent of all surface water will be captured over the life of the project, an amount it said is well within the range of natural variability.

[350] Prosper said that the Viking aquifer is well contained, meaning there is little possibility that groundwater will interact with surface water. Its assessment is that withdrawals from the Viking aquifer will not result in capture of surface water. The parties did not challenge this conclusion.

Change in Flux and Impacts on Surface Water Levels

[351] Prosper agreed with participants that pumping of groundwater can cause changes to groundwater flux and that these changes can impact surface water bodies over time.

[352] Dr. Geller said Prosper's water use would cause a decrease in surface water runoff of 4.5 mm and 2.8 mm over the Ells and MacKay Rivers subwatersheds, respectively.

[353] Prosper's experts presented data on predicted changes in average annual runoff to surface water bodies as a result of its groundwater withdrawals. These decreases are predicted to be as follows:

- Namur Lake: 0.3 per cent
- WB4 (Long Lake): 5.2 per cent
- Snipe Creek (which includes Whitefish Lake): 1.1 per cent
- Unnamed tributary WB2: 7.0 per cent

[354] Prosper said maximum change in groundwater flux to Namur Lake is predicted to be 0.2 mm. This would be equal to 0.1 per cent (upper range) to 0.3 per cent (lower range) of the average annual runoff into the lake, which corresponds with a drop in water level of 0.7 mm over the lake surface. Prosper said this decrease is well within the natural range of variability.

[355] The change in flux to Namur Lake is predicted to cause a 0.9 mm drop in water level in the Ells River under low-flow conditions over the life of the project. For this calculation, Prosper said it used data from the lowest flow ever recorded on the Ells River. It also said a change in water level of 0.9 mm would be well within the natural range of variability for the river.

[356] Prosper also predicted that decreases in February low flows due to the Rigel project would be

- a decrease of 0.27 per cent in the Ells River, and
- a decrease of 0.68 per cent in the McKay River.

Mr. Bothe interpreted Prosper's data to suggest that the contribution to groundwater withdrawals would be as follows:

- 13 per cent from Namur Lake
- 10 per cent from Snipe Creek, including Whitefish Lake
- 54 per cent from other water bodies, including Long Lake

[357] In response, Prosper said the maximum change in flux to Long Lake would be 140 m³/d, which would translate to a 3.1–6.7 per cent decrease in annual surface water runoff. It said this is a small change that is not expected to measurably change water quality or fish health in Long Lake.

[358] Prosper's evidence is that the cumulative impact on surface water bodies is interpreted to be negligible. Based on the considerable analyses conducted, it concluded that its withdrawals would not have a measurable impact on surface water bodies. It also said that the surface of Namur Lake and other surface water bodies would recover once pumping stops at the end of project life.

Methodology for Determining Groundwater and Surface Water Impacts

[359] Mr. Bothe and Mr. Geller said Prosper ought to have relied on the Tessman method and the Alberta desktop method to assess groundwater and surface water impacts. These are methods for estimating the in stream flow needs (IFN) or the amount of water that should remain in stream to meet environmental flow needs. They also took issue with Prosper's use of "average flows." In their estimation, use of average flow underestimated the degree of impact and did not adequately represent the worst-case scenario.

[360] In response, Prosper said that average-flow data for winter months is a reliable benchmark and an accepted practice. While Alberta requires applicants to evaluate groundwater and surface water effects, it does not prescribe a method for doing so. Prosper pointed to British Columbia and Ontario as jurisdictions that have used average flows in the development of guidance documents for comparing the magnitude of groundwater and surface water effects.

[361] To address concerns that its withdrawals could exacerbate low flows in the Ells River, Prosper compared the recorded flow conditions in the river with the RMWB's water withdrawals and with the change of flux predicted by its withdrawals. This comparison shows that the combined effects of Prosper's withdrawals and the RMWB's withdrawals are a decrease in average annual flow of less than 0.2 per cent and a decrease in February low flow of 1.5 per cent. Prosper said this is equal to a decrease in available flow of 0.0028 cubic metres per second (m³/s) and would have negligible impact on the supply of water.

[362] Prosper objected to the claim that it should have used the Tessman and desktop methods to ensure that its groundwater withdrawals protect IFNs. It said that these methods were designed to manage

surface water where a licensee is taking water directly from a river or stream and that they do not apply to groundwater withdrawals.

[363] Prosper's expert said that even if an IFN were to be established for the Ells River, it can't be used to manage groundwater withdrawals. He described the "latency" effect whereby if a low-flow event were anticipated and a licensee responded by stopping the pumping of groundwater, there would be a significant time lag before the effect of shutting off the pumps would show at the surface. The panel observes that this explanation would align with Dr. Wendling's cone of depression, which he used to describe how groundwater withdrawal over time eventually captures water from surface bodies.

[364] Throughout the proceeding, Prosper reiterated that the desktop methods are simplistic statistical analyses. They are used to establish minimum instream thresholds that, by design, are higher than naturally occurring flows in rivers with seasonally dependent flow. Prosper said most rivers in Alberta would not meet the thresholds established by the methods, so the Ells and MacKay Rivers are not unique in having flow levels that at times fall below the thresholds calculated by these methods.

[365] To support its position that IFN methodologies do not apply to groundwater, Prosper pointed to the statement in the Alberta desktop method document that "the method does not account for the vertical connection of surface to groundwater and lateral connectivity to adjacent floodplain areas"¹. IFN assessments are discussed below.

Did Prosper Assess Impacts on Other Licensees in the Deep Drift and Viking Aquifers?

[366] Dr. Wendling claimed that Prosper's estimated drawdown would be much larger than identified because its analysis did not include the Dover project's water use.

[367] Mr. Bothe referenced a surface-groundwater study of the MacKay River conducted by Earthfx. The conclusion of the study is that under full-build scenarios (all approved, applied for, and proposed projects), cumulative groundwater diversions appear to create unsustainable local impacts when measured by the Alberta desktop method.

[368] Mr. Bothe also said Prosper's cumulative effects assessment is deficient because it did not consider water use from Southern Pacific's MacKay thermal plant. He said Southern Pacific's project alone would cause a 59–100 per cent decrease in March mean monthly flow in the MacKay River.

Impact on Groundwater Licensees

[369] Prosper's application includes a table of planned and current groundwater demands for in situ oil sands operations in the RSA. The information shows that the Dover project will withdraw water from a combination of the Empress, Grand Rapids, and Leduc aquifers at varied rates over time with a maximum

¹ *A Desktop Method for Establishing Environmental Flows in Alberta Rivers and Streams*, section 4.5.

withdrawal of 5333 m³/d. Prosper did not consider this withdrawal in its cumulative effects assessment because the Empress aquifer is located in the Birch Channel, 45 km south of the Rigel project lease.

[370] Prosper also said that given the very local, less than 5 km, extent of its drawdown in the Deep Drift aquifer, there is no link between it and the aquifers from which the Dover project intends to take water.

[371] The Sunshine Oilsands Ltd., West Ells SAGD Project and the Legend Lake SAGD Project each hold a licence to withdraw water at rates of 970 m³/d and 1080 m³/d, respectively, from the Viking aquifer. Prosper included these amounts in its assessment and found the cumulative drawdown to be well below the 50 per cent limit prescribed in the *WCAGOI*.

[372] The Athabasca Oil Corporation Dover West Sands Project will take water from the Empress or Leduc aquifer. BP Energy's Terre de Glace Project has a licence to take water from the Grand Rapids or Basal McMurray aquifer. Again, Prosper said there is no link to its proposed withdrawals from the Deep Drift.

[373] Canadian Natural Resources Limited has a water diversion licence at the far southwestern edge of the RSA. Prosper said that based on depth, this licence might be associated with the Viking aquifer. However, the licensed volume is relatively low (10 m³/d) and the well is not associated with any known projects. Prosper did not include this licence in its assessment.

[374] Prosper said it did not include Southern Pacific's MacKay Thermal Project because that project is taking water from an aquifer in the MacKay River watershed.

[375] The Athabasca Oil Corporation Leduc TAGB Project has a licence to take water from the Deep Drift at an average rate of 5 m³/d between 2016 and 2028. Prosper said this very small amount of withdrawal would have negligible incremental impact given the amount of water available in the Deep Drift.

Impact on Surface Water Licensees

[376] In the RSA, Prosper found 11 wells with surface water allocation licences. Two of these licences are in the Ells River. Both are issued to the RMWB with a combined maximum diversion rate of 0.0130 m³/s. Total surface water allocation for the Ells River is 553 843 m³, or 0.3 per cent of total water available in the river. As mentioned previously, Prosper's evidence is that its withdrawals will have negligible impact on the amount of water available in the Ells River.

Does Prosper's Assessment Meet *WCAGOI* and *AGGA* Requirements?

[377] The panel finds Prosper's examination of the potential impacts of its groundwater withdrawals to be robust and reliable. Its evidence shows that the Deep Drift and Viking aquifers can sustain the amount of water needed for the life of the project.

[378] Prosper acknowledged the potential for interaction between the Deep Drift aquifer and surface water. The Ells River, which is the source of Fort McKay's domestic water, would experience a maximum 0.9 mm drop in water level near the mouth under February low flows. We accept Prosper's conclusion that this change is within the range of natural variability.

[379] The panel is satisfied that Prosper's withdrawals will not adversely impact the aquifers, the aquatic environment, or other licensed users. The panel agrees with Prosper's experts that its estimates are conservative, based on modelling work, and representative of worst-case scenarios. Further discussion of impact on the aquatic environment is in the *EPEA* section of this report.

[380] Dr. Wendling's and Mr. Geller's evidence, for the most part, is a critique of the work conducted by Prosper's experts. In some areas, Dr. Wendling ignored evidence provided in Prosper's application and subsequent submissions. Neither Mr. Wendling nor Mr. Geller conducted any modelling work or provided any independent data to support their assumptions.

[381] The panel agrees with Prosper that any changes in surface water levels will have marginal impact on the Ells River. The issue of impact on Fort McKay's drinking water is addressed below.

Was Prosper required to conduct an Instream Flow Needs Assessment?

[382] In its statement of concern and subsequent submissions, Fort McKay First Nation claimed the project is in a water-short area and, as a result, will adversely impact IFNs of the Ells and MacKay Rivers, Namur Lake, and Gardiner Lake. At the hearing, counsel for Fort McKay First Nation used the *Water for Life – Alberta's Strategy for Sustainability* document and the *WCAGOI* document to support the claim that Prosper is required to conduct an IFN assessment.

[383] Fort McKay Métis and Fort McKay First Nation each pointed to the *WCAGOI* where a "water short" area is defined as "an area where natural conditions and/or development pressures limit the availability of surface water and groundwater for future sustainable development and protection of the aquatic environment."

[384] The participants said the Ells River in particular is already water short and not sustainable either from an environmental perspective or in terms of supplying water to Fort McKay. Their expert witnesses said that without an IFN assessment, Prosper cannot demonstrate that its withdrawals will not adversely impact surface water bodies.

[385] The participants and Prosper agreed that in certain years very low flows have occurred in the Ells River. They disagreed with each other on the cause and the consequences of the low flows.

[386] To support his argument that the Ells River is water short, Mr. Bothe provided a table on low-flow events in the Ells River and data from the Water Survey of Canada and the Oil Sands Regional

Aquatics Monitoring Program. These data show long-term average annual flow in the Ells River of 7.50 m³/s and an average February low flow of 1.17 m³/s.

[387] The data also shows that between 1975 and 1986, the median annual flow was 5.3 m³/s, or 167 million m³/year. The participants and Prosper said this period was relatively dry over the entire watershed.

[388] Mr. Bothe conducted an assessment for the Ells River using the Tessman method and the Alberta desktop method. He compared the IFN from each method against the recorded flows in the river to show there was insufficient water to meet IFN needs in the Ells River during 8 of 11 years between 1975 and 2014.

[389] Mr. Bothe said his analysis shows 1982 mean-monthly flow in the Ells River was 5.4 per cent of the IFN or of the ecological base flow. He showed 2002 and 2003 as years with winter flows beneath the ecological base flow and said that, if approved, Prosper's withdrawals would take all the flow available in the river if a 2003 or 1982 scenario were replicated. Based on his analysis, there is insufficient water to accommodate Prosper's application for a groundwater licence.

[390] Mr. Bothe advocated for any future *Water Act* licences for the Ells River to use IFN when establishing conditions. He said Alberta should engage stakeholders to develop a water-management plan for the Ells and MacKay Rivers watersheds. And specifically, these plans should establish limits for groundwater withdrawals and appropriate IFN compensation.

[391] Dr. Geller and Mr. Bothe advocated for IFN limits to be used as a "cut-off," above which water licences should not be issued. Alternatively, if issued, the licences would include conditions such that if withdrawals were to approach or meet the IFN, the licensee would be required to stop withdrawing.

[392] Mr. Bothe held that surface water licences issued in the Ells River since 2008 have included restrictions that, in his opinion, are based on IFN or ecological base flows. He also said the AER had rejected other *Water Act* applications in the Ells River because of concerns about low water levels. He referenced two licences that have withdrawal restrictions:

- A licence to PTI Environmental Services containing conditions on the amount of surface water that can be diverted. Specifically, if the flow of the Ells River is 0.1 m³/s, withdrawals must stop.
- A licence to take surface water issued to Fort McKay First Nation with a condition that if flow at the point of diversion is less than 0.2 m³/s, withdrawals must stop.

[393] Mr. Bothe also said an application by Deer Creek Energy to take water from the Ells River was rejected in 2003 because of concerns about Fort McKay's drinking water and about the ecosystem of the river. He asserted that denial of the Deer Creek licence is sufficient grounds for the panel to deny Prosper's *Water Act* application.

[394] As discussed earlier, Prosper said it is impossible to use IFNs to regulate groundwater withdrawals. Its evidence is that IFNs are used to manage surface water withdrawals in areas designated as water short.

[395] Prosper used the same data sets as Mr. Bothe to show that after low-flow events, water levels in the Ells River returned to normal. One example is the low-flow period from January to March 1982 and the following months of April and May in which average flow was 6.69 mm and 30.3 mm, respectively. The historical annual mean flow for May is 23 mm. Prosper said these data show that low-flow events don't necessarily correspond with adverse impacts in a river.

[396] Prosper pointed to data from the Water Survey of Canada and the Oil Sands Regional Aquatics Monitoring Program to show that the median annual flow for the Ells River watershed for the period 1975 to 2014 was 93 mm. For the 1975–1986 period, the median annual flow was 68 mm. Prosper and the participants all agreed that this latter period was considered relatively dry. In contrast, the definition of “potentially water short” in the *WCAGOI* is an area with annual average flow of 5–10 mm, and “water short” is an area with amounts less than 5 mm.

[397] Taking our guidance from the *WCAGOI* and *WCAGOI Policy* documents, the panel observes that annual surface water runoff is one of the criteria for designating an area as water short. Mr. Bothe and Prosper agreed that the annual surface water runoff in the RSA is about 100 mm. The Namur Lake, Ells River, and MacKay River watersheds do not meet the *WCAGOI* requirements of a water short (less than 5 mm) or a potentially water short (5 to 10 mm) area.

[398] Our reading of the *WCAGOI* is that in areas formally designated as “water short,” Alberta Environment and Parks has required that IFNs be defined for certain rivers and streams in a basin. In those water-short situations, IFN conditions have been applied to surface water allocation licences.

[399] The evidence before us does not support the claim that the Namur Lake, Ells River, and MacKay River watersheds are water short. We also observe, on page 50 of the *WCAGOI*, the statement, “areas not water short or potentially water short, should be able to meet environmental flows of the aquatic ecosystem – ‘environmental flows’ is a general term that covers instream objectives (IO) and instream flow needs (IFNs).”

[400] The panel is not persuaded that the environmental needs of Namur Lake, Gardiner Lake, and the Ells and McKay Rivers are not being met. We considered the evidence on average annual flows in the Ells River against the criteria used by Alberta Environment and Parks to define an area as “water short.” We also note the fact that even during the lowest recorded low flow on the Ells River (February 1982), the average median annual flow for the area was 68 mm, a level well outside of the criteria.

[401] This fact, together with the rest of the evidence, gives us confidence that surface water in the area does not require special protections or management strategies.

[402] The panel considered the claim that the AER has placed restrictions on water licences in the Ells River and that, therefore, we should do likewise. The panel notes that both the PTI Environmental Services and Fort McKay First Nations licences are not for groundwater; rather, they are for surface allocations of water to be taken directly from a river. The panel has no evidence to show how the water limits and related restrictions in these two licences came about.

[403] The panel has no reliable evidence of why Deer Creek's 2003 application was denied. Statements that the application was rejected because of concerns about Fort McKay's water supply weren't corroborated. The panel is unable to give any weight to the statements.

[404] The panel finds that the regulatory regime for managing water draws a clear distinction between groundwater withdrawals and surface water allocation. Different policy considerations, different regulations, and different guidelines apply to each type of licence. The Fort McKay First Nation and Fort McKay Métis did not provide sufficient evidence to support their claim that Prosper's withdrawals would have enough impact on surface water to justify placing IFN conditions on its licence.

[405] The panel finds consistent application of water policy, legislation, and guidelines to be highly desirable. To require an applicant to follow requirements that do not apply to its particular application would be inconsistent with this principle.

Impact on the Supply of Domestic Water to the Hamlet of Fort McKay

[406] Throughout the proceeding, Fort McKay First Nation and Fort McKay Métis voiced concerns about the impact of Prosper's withdrawals on the supply of domestic water to the community. The dwellings and businesses occupied by community members rely on domestic water supply from the Ells River.

[407] Fort McKay Métis pointed to a statement in the *2015 Water Master Plan* (prepared by Associated Engineering for the RMWB) that the population of the community is expected to increase threefold, from 750 in 2010 to over 2250 by 2040.

[408] In final argument, Fort McKay First Nation counsel pointed to section 51(4) of the *Water Act* to support the claim that Prosper was required to consider effects on household users.

[409] The panel heard that restrictions are already in place in Fort McKay that prevent the community from developing water-dependent infrastructure, including housing, a car wash, and a spray park. Fort McKay Métis community members told the panel that residents of the hamlet had to use bottled water from 2008 to 2016. Fort McKay Métis said these constraints are caused partly by water scarcity on the Ells River.

[410] Prosper filed a report, the *Fort McKay Water Treatment Plant, Water Supply Feasibility Study*, in August 2012, prepared by Associated Engineering for the RMWB. Fort McKay Métis's reading of the

report is that there might not be enough water in the Ells River to meet domestic water needs in Fort McKay by 2030.

[411] At the hearing, the participants entered into evidence a January 2018 report prepared for the RMWB by Associated Engineering. The participants said the two reports bolster their claim that the Ells River is at or near its capacity to supply water to Fort McKay. As a result, the community cannot meet its infrastructure needs.

[412] Prosper said the *2015 Water Master Plan* and section 4 of the 2012 water study support its position that the Rigel project has no link to water supply issues in Fort McKay. The reports list several reasons why the municipality is looking at an alternative water supply for the Fort McKay community:

- Fort McKay's peak daily volume demand could exceed the licensed maximum daily withdrawal of 1054 m³/d by 2020.
- The maximum daily withdrawal could be exceeded by 2030, assuming continuing growth patterns in the community.
- Access to the water intake at the Ells River is limited—there is no motor vehicle access, snowmobiles are used in winter, and helicopters are used the rest of the year. This restricts the RMWB's ability to do maintenance work when emergencies occur.
- The water intake itself is unreliable because of shifting sands and deposits. If the Ells River continues to be the source of the community's water, a new intake would be required.
- The intake system is not able to deliver the current peak-day raw-water flows to the storage reservoir.
- Reservoir storage capacity is not sufficient to compensate for periods of low flow events in the Ells River beyond 2025.
- Water treatment in Fort McKay is not adequate.

[413] Since 2010, discussions between Fort McKay and the RMWB about finding alternative water supply options have been ongoing. The 2012 water study identified that the RMWB's preferred alternative was to construct a new transmission pipeline to take treated water from Fort McMurray to Fort McKay. The intent was to provide Fort McKay with a new water supply and to have the pipeline operational by 2023. The other options: continuing to use the Ells River, and upgrading Fort McKay's water treatment plant; or building a new water intake in the Athabasca River, also with upgrades to the water treatment plant.

[414] The January 2018 report is, in part, an infrastructure assessment of several communities in the municipality, including Fort McKay. The report addresses the fact that the RMWB's fiscal resources are constrained because of the economic downturn, thus impacting its ability to build the new water pipeline. The municipality is considering other options and has approached other levels of government for infrastructure funding.

[415] Prosper maintained that it is not the amount of water in the Ells River that constrains the amount available to the community, but rather inadequate infrastructure. It added the following facts:

- The RMWB's licensed annual allocation amount is 280 840 m³/year.
- The total surface water allocation in the Ells River basin is 553 850 m³, or 0.3 per cent of available water.
- Predicted change in flux to the Ells River as a result of Prosper's drawdown is 0.27 per cent, or 0.17 per cent of the river's water supply.
- The maximum change in flux, which would occur in 2041, would be
 - 11 years after the RMWB's maximum allocation granted by the licence is reached, and
 - 18 years after the RMWB anticipated building a new water pipeline to Fort McKay.

[416] The panel observes that the water supply to Fort McKay has been constrained for several years. Reaching the licensed maximum daily withdrawal or annual allocation is not the same as saying that the Ells River is at capacity.

[417] The evidence tells us that the Ells River would be capable of supplying sufficient water for domestic use were it not for challenges with the water infrastructure. If Fort McKay's water demand approaches the maximum daily withdrawal (which is predicted to happen by 2030) and an alternative supply system has not been built by that time, the municipality could apply for a new licence to increase its allocation volume.

[418] The evidence before us is that Prosper's withdrawals will not reduce water levels in the Ells River or Namur Lake beyond the natural range of variability. The anticipated change in flux in the Ells River will be so small as to not create an impact beyond what Fort McKay currently experiences. Constraints on domestic water supply to Fort McKay are outlined in the 2012 Water Study and are all linked to infrastructure.

Location of Prosper's Water Supply Wells

[419] Fort McKay Métis opposed the location of the water supply wells. Mr. Bothe said Prosper should be directed to relocate both wells so that no water is being withdrawn from Namur Lake or from the Ells River watershed. Mr. Bothe also said that the Earthfx study and the Alberta desktop method indicate that pumping from these locations would impact surface waters during low-flow events.

[420] In response, Prosper said the results of the Earthfx study, which is focused on the MacKay River, cannot be extrapolated to the Ells River. Moreover, there is no link between its project and the MacKay River because the 8-20 well is in the Deep Drift aquifer and would not draw water from the MacKay River watershed.

[421] Prosper acknowledged that the 8-20 well will eventually capture water from the Ells River. This would happen by about 2040 and thereafter would be reversible. Prosper calculated the amount of capture to be 0.2 per cent of total surface water, which would be a negligible change in the water level of the Ells River over time.

[422] Prosper did more modelling to understand the impact on the watersheds of moving the wells. It found that moving the 8-20 well 3000 m to the west would create a change in flux to the Ells River of 98 m³/d and a change in flux to Namur Lake of 59 m³/d. This is a 142 m³/d decrease in flux in the Ells River watershed. Prosper said this decrease would be contrary to the assertions of Mr. Bothe and Mr. Geller that no water should be taken from these watersheds. To completely avoid any impacts on Namur Lake and the Ells River, the wells would have to be moved several more kilometres away, assuming a viable water supply is available.

[423] In response to Mr. Bothe's assertion that Prosper should take its water from the Athabasca River, Prosper said sourcing water from a location 65 km east of its lease would need to be considered in the context of environmental impacts, a bigger project footprint, loss of habitat, and the associated infrastructure requirement to install a power source and pipeline to take water back to the CPF.

Environmental Impacts of the 8-20 Well

[424] Prosper acknowledged that connecting the 8-20 well site to a water pipeline would create more disturbance, including disturbance to land during pipeline construction and while the pipeline right-of-way is being widened to provide access to the well for maintenance.

[425] Prosper said it located the 8-20 well within an area of existing disturbance so as to minimize the project footprint. Moving the well 35 km away from the project would result in an area of disturbance greater than the total size of the current footprint. This disturbance would have adverse impacts on wildlife habitat, trees, and plant life, and would create the following environmental disturbances:

- An additional 122 ha of land cleared for construction of an 35 km access road
- Infrastructure added to provide increased power to pump water back to CPF
- A new water line built to bring water to the well pads

[426] Prosper would also incur additional costs of \$55 million, and proceeding with the project would be delayed further.

[427] Opposition to the location of the wells also stems from their proximity to Namur (Moose) Lake. Of the infrastructure associated with the Rigel project, the 8-28 well and its ancillary equipment are closest to Namur Lake.

[428] Prosper said its wells are in areas that it believes have lesser environmental impacts than the suggested alternatives: “If the objective is to avoid impacts we don’t know how moving the wells would achieve that.”

[429] The panel is not aware of whether the participants weighed the significant impacts of moving the wells against the impacts of keeping them in the proposed location. Environmental trade-offs are key considerations in both the *OSCA* and the *Water Act*. Proponents are expected to take seriously the need to limit environmental impacts when making decisions on siting their surface facilities and related infrastructure. The panel finds that relocating the wells would have significant additional environmental and cost impacts that are not justified by the evidence.

[430] In any event, the panel has no authority to direct Prosper to relocate the wells. We can either approve or not approve the wells in the locations currently applied for. We find the current locations to be acceptable.

Is Prosper’s Water Monitoring Program Sufficient?

[431] Prosper is required to monitor and conduct annual reviews of water use and water levels, in keeping with the *WCAGOI*. It is required to submit the results of these reviews to the AER.

[432] Prosper said it would implement an integrated groundwater/surface water monitoring program. The program would be an early-detection tool and would include hydrometric monitoring, installation of mini-piezometers, a weather station, water-quality monitoring, and aquatic-ecology monitoring. Prosper said that the inclusion of surface water monitoring in its program exceeds regulatory requirements for this type of application.

[433] Mr. Bothe said Prosper was using monitoring as mitigation; that in Prosper’s approach if monitoring is being performed then adequate mitigation is considered to be in place. He also said Prosper has no contingency plans if impacts were to occur in an already stressed watershed.

[434] At the hearing, Fort McKay First Nation questioned the usefulness of the monitoring program, saying “it’s too late if an impact is detected.” Fort McKay Métis told the panel that, “once the monitoring plan recognizes that effects have actually materialized, it’s too late; the effects are there”. It added that meaningful mitigation seeks to avoid or reduce impacts, not just measure them after the fact.

[435] Prosper said Mr. Bothe’s statements are a mischaracterization of its application. Its long-term monitoring would be used to evaluate surface water response to groundwater withdrawals. The data generated could be used to validate the numerical model it used to assess the Deep Drift aquifer. Prosper’s expert also said the integrated monitoring program would provide early warning of any potential problem or risk to water in plenty of time to allow it to take mitigative measures.

[436] Prosper's groundwater monitoring program also includes an adaptive-management component to enable it to monitor for unexpected changes in flow and in pressure in the aquifers. Prosper said this would enable it to take appropriate mitigative action before changes result in any lasting impact.

[437] Prosper said that if the monitoring results were to show any adverse impacts on Namur Lake, it would work with regulatory agencies and stakeholders to take appropriate action to address these effects, including considering alternative water sources. Ms. Cochrane made a similar commitment at the hearing. She said that if any adverse impacts arose, Prosper would look to alternative strategies, such as taking more water from the Viking, locating produced water, or sourcing water from a different source.

[438] Prosper acknowledged that its plan is conceptual in nature. If its application is approved, it would be required to submit a full plan for approval. Prosper committed to consulting participants in the development of the monitoring program.

[439] The panel finds that the inclusion of surface water monitoring exceeds regulatory requirements for this type of application. The program, as described in the application, would be comprehensive and meaningful.

[440] The panel acknowledges Prosper's commitment to consult with stakeholders. The panel finds that for consultation to be effective, it is desirable to get input before designing a program. The panel requires that Prosper to seek input from Fort McKay Métis and Fort McKay First Nation before fleshing out the details of its monitoring program. As with the condition about reclamation, our intention is not for Prosper to develop a plan and send it to the participants for comment, unless that is what they ask for. Our intention is, to the extent that Fort McKay First Nation and Fort McKay Metis are willing to engage, for Prosper to seek their input in the early stages of developing its plan. Prosper is required to describe its efforts and say how any input from either participant is reflected in the plan.

Is Our Decision Consistent with *LARP*?

[441] We are required to consider *LARP* and the *LARP* strategic plan before making our decision, and our decision must be consistent with *LARP*. According to section 13 of the *Alberta Land Stewardship Act*, *LARP* is an expression of the public policy of the government of Alberta. Section 15(1) says it binds the AER as a decision maker unless expressly stated otherwise. Prosper's Rigel project is in an area designated by *LARP* as mixed use, which means that oil sands development is allowed. Under *LARP*, oil sands activity is not allowed in the Birch Mountains Wildland Provincial Park. Treaty rights may be exercised in the park.

[442] The Rigel project with the conditions for approval is consistent with the *LARP* objectives of optimizing Alberta's oil sands resource and the strategy of ensuring First Nations' ability to continue to exercise constitutionally protected rights to hunt fish and trap for food within reasonable proximity to

their main population centres. It is also consistent with the *LARP* objectives of maintaining ecosystem function and biodiversity and of managing air and water to support human and ecosystem needs.

ACO Reports

[443] The ACO provided, in March 2016, a consultation adequacy report about Prosper's *EPEA* application to construct, operate, and reclaim the CPF. It also provided a consultation adequacy report about Prosper's *Water Act* application for a groundwater diversion licence in August 2016. The ACO's conclusion in both was that consultation with Fort McKay First Nation had been adequate pending the outcome of the AER's process for the applications. The ACO did not provide reports about Fort McKay Métis.

[444] The ACO provided its hearing report about the *EPEA* and *Water Act* applications on February 22, 2018.

Consultation Adequacy Reports

EPEA Application

[445] The ACO said that Fort McKay First Nation had not provided information about any specific sites where treaty rights or traditional uses are being exercised, or any information about how its members might be adversely affected by the Rigel project.

[446] The ACO described the concerns expressed by Fort McKay First Nation as "broad environmental concerns." The ACO noted that Fort McKay First Nation's concerns about broader regional and historical cumulative impacts are being addressed through the development of the *MLAMP* as well as through other *LARP* implementation plans.

[447] The ACO said that it and Fort McKay First Nation both acknowledged that it is not Prosper's responsibility and that it is beyond its ability to mitigate historical cumulative effects.

[448] Finally, the ACO said that Prosper's responses to Fort McKay First Nation's concerns were "reasonably responsive." It also said that "it would be up to the AER to consider causation and the effectiveness of proposed project-specific mitigation measures."

Water Act Application

[449] The ACO said that Fort McKay First Nation "did not provide any site specific comments or concerns regarding any potential impacts" of the proposed water diversion on their treaty rights and traditional use.

[450] As in the *EPEA* report, the ACO found that Prosper's responses to Fort McKay First Nation's concerns were "reasonably responsive" and that it would be up to the AER to determine whether the proposed water withdrawals will or will not impact surface water bodies, and to what extent.

ACO Hearing Report

[451] Three ACO staff attended the Prosper hearing, including the ACO regional lead for the area. The ACO said in its hearing report that it attended to "observe the hearing, consider all relevant evidence submitted during the hearing, and address adequacy of consultation and whether actions may be required to address potential adverse impacts on treaty rights and traditional uses for Prosper's Rigel project associated with its *EPEA* and *Water Act* applications."

[452] In Part 1 of the hearing report, the ACO identified the following issues, specific to the Rigel project, that suggest site-specific concerns about potential adverse impacts of the Rigel project on the continued exercise of Fort McKay First Nation's treaty rights and traditional uses:

- The proximity of the access road, construction camp, and CPF to IRs 174A and 174B. The ACO said that no alternative locations were proposed by either party.
- In response to Fort McKay First Nation's request that the AER refuse Prosper's applications with leave to reapply when *MLAMP* is complete, the ACO noted that "*LARP* prohibits any decision-maker from adjourning, deferring, denying, refusing, or rejecting any application, proceeding, or decision-making process before it by reason only of the incompleteness of any commitment made in the *LARP*. Alberta considers the Moose Lake Access Management Plan to be a *LARP* implementation item. The ACO has previously communicated this in correspondence to FMFN."
- Impacts on a trail between Spruce Lake and Namur/Bufalo Lake that is used by Fort McKay First Nation members. No detailed information beyond a buffered trail location map was provided to Prosper before or in the hearing.
- Namur Lake contains species such as lake trout and Arctic grayling that are not found in nearby lakes, such as Gardiner Lake. Fort McKay First Nation is concerned about the potential for the Rigel project to affect the aquatic ecosystem of Namur Lake.
- "FMFN is concerned that within 20 km of Moose Lake, the Project footprint overlays buffered habitation values, cultural/spiritual values, transportation values and Indigenous landscape values." The ACO notes that Prosper said the information provided by Fort McKay First Nation does show buffered trapping values, transportation values, and landscape values overlaying the Rigel project footprint.

[453] The ACO found that "the avoidance or mitigation measures proposed by Prosper are reasonably responsive" to Fort McKay First Nation's concerns. The ACO also found that "overall," Fort McKay First

Nation’s concerns “have been reasonably heard, considered and addressed by Prosper. Based on the above the ACO finds that consultation is adequate.”

[454] The ACO recommends action to address the potential adverse impacts identified above—specifically, avoidance or mitigation measures consistent with those proposed by Prosper, or “other measures that are equally effective to address these impacts.”

[455] In Part 2 of the hearing report, the ACO listed a series of concerns identified by Fort McKay First Nation that the ACO characterized as “generalized non-site-specific concerns about the continued exercise of Treaty rights and traditional uses,” and as “substantively environmental concerns.” The concerns listed were impacts on biodiversity and wildlife, impacts on air and water quality, and the impact of trucks. The ACO said the listed concerns were best dealt with outside of the Crown consultation process.

[456] The panel has considered the advice provided in the ACO hearing report in arriving at its decisions on the applications. The avoidance and mitigation measures proposed by Prosper and the conditions imposed by the AER in the three approvals are intended to be responses to concerns raised by Fort McKay First Nation and Fort McKay Métis.

Conclusion

[457] Based on the submissions, evidence, and relevant legislation, Prosper’s commitments, and the conditions of approval for each of the applications, the panel has determined the following:

- Prosper’s Rigel project is in the public interest, taking into account its expected impacts on Aboriginal and treaty rights and traditional land use, its expected social and economic impacts, its impacts on the environment, and its impacts on landowners.
- Prosper’s *EPEA* application to construct, operate, and reclaim the Rigel project CPF and associated infrastructure is consistent with protecting the environment and promoting sustainable resource development while considering the need for Alberta’s economic growth and prosperity.
- Prosper’s *Water Act* application is consistent with the conservation and wise use of water resources in Alberta, taking into account economic growth and prosperity, the need to maintain a healthy environment, and the effects of the proposed diversion on the aquatic environment.

[458] Dated in Calgary, Alberta, on June 12, 2018.

Alberta Energy Regulator

< *Original signed by* >

C. Low

Presiding Hearing Commissioner

< *Original signed by* >

C. Macken

Hearing Commissioner

< *Original signed by* >

T. Engen

Hearing Commissioner

Appendix 1 Hearing Participants

Principals and Representatives	Witnesses	
Prosper Petroleum Ltd. (applicant) Sander Duncanson (counsel) Jessica Kennedy (counsel)	Carrie Cochran Timothy Kozmyk Blair Rudy Brian Fuchs Rick Lauzon Gordon MacMillan Dan Meyer Henri De Pennart	
Fort McKay First Nation (participants) Tarlan Razzaghi (counsel) James C. Coady (counsel)	Doug Geller Ron Bothe Brenda Miskimmin Alvaro Pinto Raymond Powder Ryan Abel Karla Buffalo Marie Lagimodiere Ann Garibaldi Patricia McCormack Petr Komers Abbie Stewart	John Sedley Kelly Finigan Clara Mercer Celina Harp Clara Boucher Jean L'Hommecourt Lee Wilson Melinda Stewart Chris Wilson Audrey Redcrow Shay Laurent
Fort McKay Metis Community Association (participants) Meagan Conroy (counsel) Jessica Buhler (counsel)	Gilles Wending Ron Quintal Felix Faicnney Eddison Lee Johnson Thomas Dyck	
Alberta Energy Regulator staff Meighan LaCasse, AER counsel Barbara Kapel Holden, AER counsel AER panel Cecilia Low (chair) Christine Macken Terry Engen AER Hearing Services Tara Wheaton Elaine Arruda Mike Schuster AER staff Emilee Mailes Cynthia Estrop AER technical staff Amit Panwar Wayne Bell Rebecca Keeler Chris Teichreb Jeff Smith Dan Slavik		

Appendix 2 Prosper's Amended *Water Act* Application

During the proceeding, and before the oral hearing, the panel became aware that Prosper's application for the Rigel project was missing information required under the *Alberta Guide to Groundwater Authorizations* (the *Guide*). Specifically, Prosper had not included testing results for its planned 16-20 water well in the Viking aquifer. In its *OSCA* and *EPEA* applications, Prosper's water strategy was described as drawing make-up water from three water supply wells: two in the Viking aquifer and one in the Deep Drift aquifer. The 08-20 well in the Deep Drift aquifer and the 08-28 well in the Viking aquifer were already in place and had been approved for the exploration phase of the Rigel project.

In September 2017, the AER wrote to Prosper asking how it proposed addressing the discrepancy between the amount of water required for the project (850 m³/d) and the amount that would be authorized under the *Water Act* applications submitted for the Rigel project (700 m³/d). By letter of September 29, 2017, Prosper advised that it intended to drill the 16-20 water well and provide the outstanding information if and when it receives its *Water Act*, *EPEA*, and *OSCA* approvals for the Rigel project.

Prosper said it had included information on the full water volume required for the project so that the AER could fully understand the environmental effects of the project when considering its *OSCA* application. Prosper provided a table of previous oil sands applications under which water supply wells had been drilled and tested after applicants had received their regulatory approvals. Prosper said this is common industry practice that had been acceptable to the AER in the past.

The panel found itself in the position of being asked to approve an in situ scheme under the *OSCA*, which would require 850 m³/d of water, whereas the accompanying *Water Act* applications were for a lower volume. The panel was not satisfied with Prosper's proposal to apply for the 16-20 water well licence if and when it receives approval for the Rigel project. The panel noted that all of the projects in the table provided were filed under a previous regulatory regime under which the regulator at the time did not have jurisdiction for the *Water Act*. The AER now has jurisdiction for *Water Act* and *EPEA* applications, and proponents are aware that integrated applications are preferable, although not mandatory.

The following extract from the October 11, 2017, direction to Prosper highlights the panel's thoughts on the issue:

More importantly, in this case, issues relating to water are clearly the focus of Fort McKay Métis Community's participation and are important to Fort McKay First Nation. The testing information for the water sources relied on in Prosper's *OSCA* application and that is required by the *Guide* is not available. That information is necessary to allow the panel to consider whether the complete *Water Act* application would support the volume of water required by the project as applied for and any related impacts from the requested diversion. In the circumstances, the panel cannot adequately assess the merits of the Rigel project without that information. Without that information modified *OSCA* and *EPEA* applications are required.

In addition, by splitting its water licencing applications, Prosper creates the likelihood that further proceedings would be required to fully consider the impacts of the water diversions needed for the project, especially given

the nature of the concerns raised by the other parties. This duplication of proceedings is costly for all parties involved, including the AER and should be avoided where possible.

The panel gave Prosper two options that it could pursue in order to continue the proceeding. It could either

- 1) submit a complete *Water Act* application that would license all the water required for the Rigel project, which at the time would include the 16-20 water supply well; or
- 2) amend its *OSCA* and *EPEA* applications so they are consistent with and accurately reflect the impact of sourcing water from the two wells for which a complete application has been provided.

The panel said that if Prosper identified another option, the panel would consider it. The panel also adjourned the hearing, which was to commence on October 17, 2017, to allow Prosper time to comply with the panel's direction.

Prosper revised its water strategy, and on October 12, 2017, it submitted an amended *Water Act* application to use water from two existing water supply wells as follows:

- 620 m³/d (i.e., 200 750 m³/year) from the 8-20 well completed in the Deep Drift aquifer
- 80 m³/d (i.e., 54 750 m³/year) from the 8-28 well completed in the Viking aquifer

Prosper also amended its *EPEA* and *OSCA* applications so that they are consistent with the revised strategy of sourcing make-up water from the two existing water wells.

Appendix 3 Summary of Panel's Conditions

OSCA Conditions

Preamble: Prosper made commitments in its application that will form the below conditions of the OSCA approval if it receives Lieutenant Governor in Council approval.

Conditions

- 1) Prosper will place coarse woody debris to restrict access to existing linear disturbances that intersect its access road.
- 2) Prosper will prohibit firearms, fishing gear, pets and personal ATVs in Prosper's Rigel project camps and worksites throughout the construction and operation phases of the Rigel project.
- 3) Prosper will install pumps at well pads and the CPF in buildings to reduce their noise contribution.
- 4) Prosper will notify Fort McKay First Nation, Fort McKay Métis and any other group Prosper chooses about planned events that may generate more noise than usual.
- 5) Prosper will establish a toll free line so anyone can access information on daily activities for the Rigel project and register any complaint or concern.
- 6) If Fort McKay Métis or Fort McKay First Nation shares with Prosper the specific location of a trail or traditional use site located within the Prosper lease, Prosper will work with the relevant community to avoid or mitigate any impacts to that site.

EPEA Conditions

Preamble: Prosper committed to a caribou mitigation and monitoring plan. That plan will be included as a component of the wildlife mitigation and monitoring plan that is a term of the *EPEA* approval.

Conditions

- 1) In addition to any other requirements specified in this approval, the approval holder shall conduct wildlife mitigation in accordance with the master schedule of standards and conditions (MSSC), Alberta Energy Regulator and Government of Alberta, June 28, 2017, as amended, unless otherwise authorized in writing by the director.
- 2) The approval holder shall submit a wildlife mitigation and monitoring program proposal to the director by June 1, 2019, or six months prior to commencing construction, whichever is earlier, unless otherwise authorized in writing by the director.

- 3) The wildlife mitigation and monitoring program proposal shall, at minimum, include all of the following information:
 - a) A description of the strategies that will be implemented to meet the desired outcomes as stated in the MSSC, as amended
 - b) A description of the approval holder's alignment with the woodland caribou policy for Alberta, Alberta Sustainable Resource Development, 2011, as amended, including any Alberta caribou policies or range plans released prior to program submission
 - c) A description of the strategies that will be implemented to mitigate the effects of the project on woodland caribou, while aligning with the desired outcomes as stated in Caribou Protection Plan Guidelines and Caribou Calving Information, Environment and Sustainable Resource Development, September 14, 2012, as amended
 - d) Strategies for identifying wildlife features to meet MSSC requirements
 - e) A description of how the achievement of desired outcomes will be measured, and demonstrated
 - f) A description of the strategies and actions that will be implemented, adhering to the mitigation hierarchy of avoid, minimize, restore, and offset, to mitigate project and site-specific effects on fish and wildlife species at risk and of cultural significance throughout the life of the project that may occur through
 - i) direct habitat loss,
 - ii) indirect habitat loss,
 - iii) habitat fragmentation and effects on fish and wildlife movement, and
 - iv) mortality
 - g) Detailed descriptions of mitigation measures to minimize project-induced impacts to fisheries and aquatic habitat at a hydrologic unit class 8 scale
 - h) A description of the adaptive management approach that will be used to assess and improve the effectiveness of mitigations
 - i) A description of how the wildlife monitoring will align with and support regional monitoring, consistent with provincially recognized priorities
 - j) Any other information as required by the director
- 4) If the wildlife mitigation and monitoring program proposal is found deficient by the director, the approval holder shall correct all deficiencies identified in writing by the director, by the date specified in writing by the director.

- 5) The approval holder shall implement the wildlife mitigation and monitoring program as authorized in writing by the director.
- 6) The approval holder shall only implement changes to the wildlife mitigation and monitoring program as authorized in writing by the director.
- 7) The approval holder shall submit a comprehensive wildlife report to the director according to the following schedule:
 - a) For the first comprehensive wildlife report, on or before May 15, 2022
 - b) For the second comprehensive wildlife report, on or before May 15, 2025
 - c) For the third comprehensive wildlife report, on or before May 15, 2028, unless otherwise authorized in writing by the director
- 8) The comprehensive wildlife report shall include, at a minimum, all of the following:
 - a) The methods and results of the monitoring conducted in the wildlife mitigation and monitoring program
 - b) The mitigations implemented in the wildlife mitigation and monitoring program
 - c) Discussion of the effectiveness of the mitigation implemented in the wildlife mitigation and monitoring program relative to measureable outcomes as identified in the approved wildlife mitigation and monitoring program
 - d) Adaptive management measures taken or planned
 - e) Changes in habitat availability and habitat conditions for species at risk and of cultural significance, which have been identified in the application, stakeholder consultation, and wildlife sensitivity maps, as amended
 - f) A summary of discussions with stakeholders on the implementation, monitoring, and adaptive management measures, including any concerns raised and how or if these concerns were addressed
 - g) Changes proposed to the wildlife mitigation and monitoring program
 - h) Any other information as required in writing by the director
- 9) If the comprehensive wildlife report is found deficient by the director, the approval holder shall correct all deficiencies identified in writing by the director by the date specified in writing by the director.

Preamble: Prosper committed to groundwater monitoring as part of its *EPEA* application and to receiving input from Aboriginal groups and other stakeholders about its groundwater monitoring plans.

Condition

- 1) The licensee shall submit a groundwater monitoring program proposal to the director on or before [six months after licence effective date] unless otherwise authorized in writing by the director. The groundwater monitoring program proposal shall
 - a) include description of the opportunities provided to Fort McKay First Nation and Fort McKay Métis to provide their input to the groundwater monitoring program, and how the groundwater monitoring program includes or does not include that input; and
 - b) include the participants as a recipient of the annual reports.
- 2) If the groundwater monitoring program proposal is found to be deficient by the director, the licensee shall correct all deficiencies identified in writing by the director by the date specified by the director.
- 3) The licensee shall implement the groundwater monitoring program as authorized in writing by the director.
- 4) Prosper's groundwater monitoring program shall include plans to comply with the Directive for the Assessment of Thermally Mobilized Constituents in Groundwater for Thermal In Situ Operations (AER Bulletin 2018 12).

Preamble: Prosper committed to incorporating Aboriginal input to its reclamation plans so specific Aboriginal interests can be reflected in those plans.

Conditions

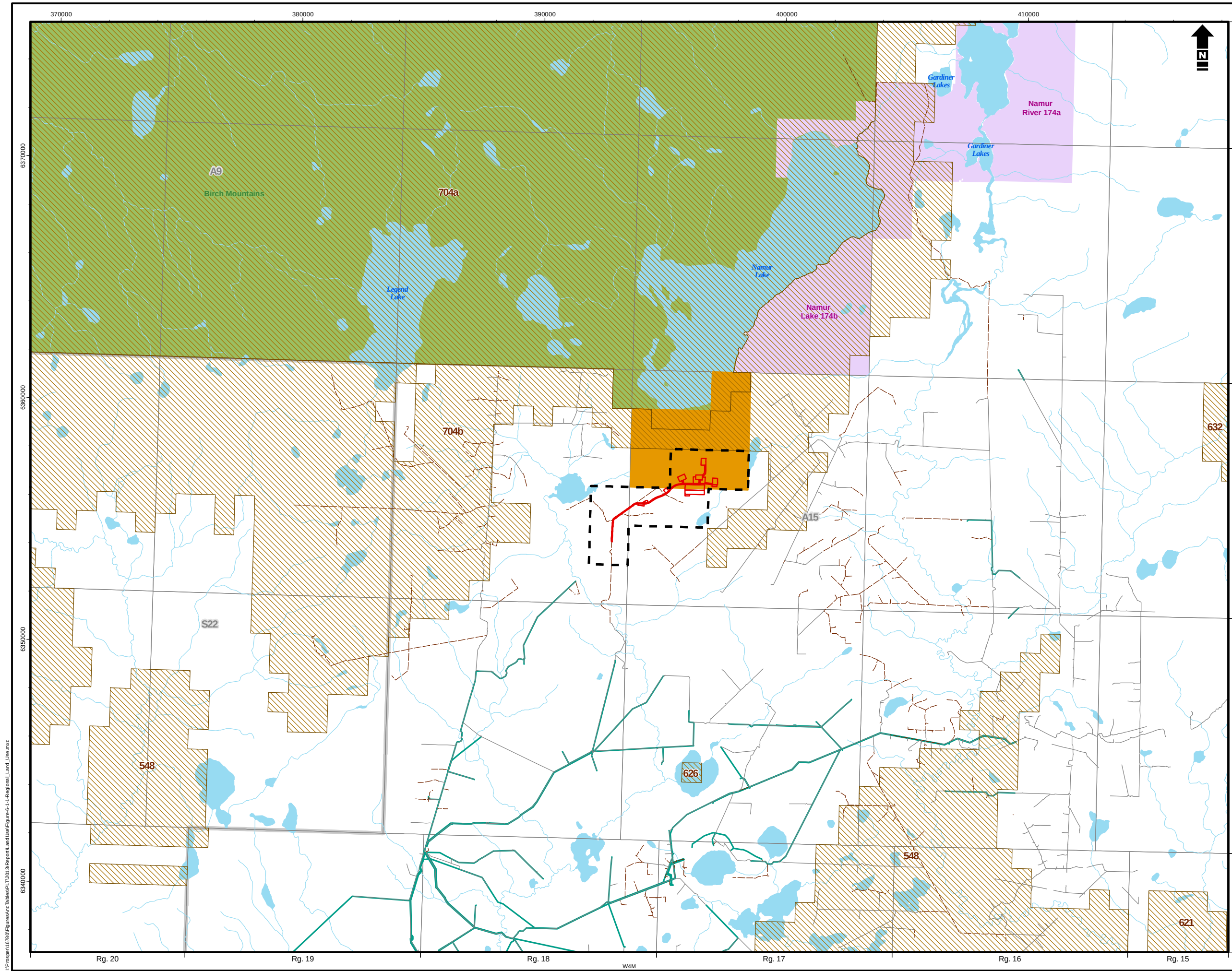
- 1) For the purpose of planning reclamation for the Rigel project Prosper will seek input from Fort McKay Métis and Fort McKay First Nation. Prosper may also choose to seek input from other Aboriginal communities that Prosper is engaged with regarding the Rigel project.
- 2) The reclamation plan and reclamation monitoring program shall include a description of the opportunities provided to Fort McKay Métis and Fort McKay First Nation to provide their input to the plan and how the reclamation plan includes or does not include that input.

Water Act Conditions

- 1) The licensee shall submit an integrated water monitoring program proposal as described in appendix G of application 00370772-R001 (the Rigel Project Groundwater Diversion Licence Application – Water Act Tier 2 Evaluation) to the director on or before [six months after licence effective date] unless otherwise authorized in writing by the director. The integrated water monitoring plan shall
 - a) include description of the opportunities provided to Fort McKay First Nation and Fort McKay Métis to provide their input to the integrated water monitoring program, and how the integrated water monitoring plan includes or does not include that input; and

- b) include the participants as a recipient of the annual reports.
- 2) If the integrated water monitoring program is found to be deficient by the director, the licensee shall correct all deficiencies identified in writing by the director by the date specified by the director.
- 3) The licensee shall implement the updated integrated water monitoring program as authorized in writing by the director.

Appendix 4 Rigel Oil Sands Regional Land Use Map



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Footprint

Land Use Assessment Area

Lease Boundary

Environmentally Significant Area

Forest Management Units

Indian Reserve

Wildland Provincial Park

Industry Road

Winter Road

Pipeline

Reference: Data obtained from AltaLIS® Government of Alberta, GeoBase®, GDM midstream and transportation infrastructure data provided by IHS© 2013, GeoGratis® Department of Natural Resources Canada (all rights reserved) used under license.

1:150,000

3 0 3

Kilometres

NAD 1983 UTM Zone 12N

Prosper

PETROLEUM LTD

Rigel Oil Sands Project

Regional Land Use

Date: 31 Oct 2013

Project: 16780-514

Technical: L. Wright

Reviewer: T. Hodgson

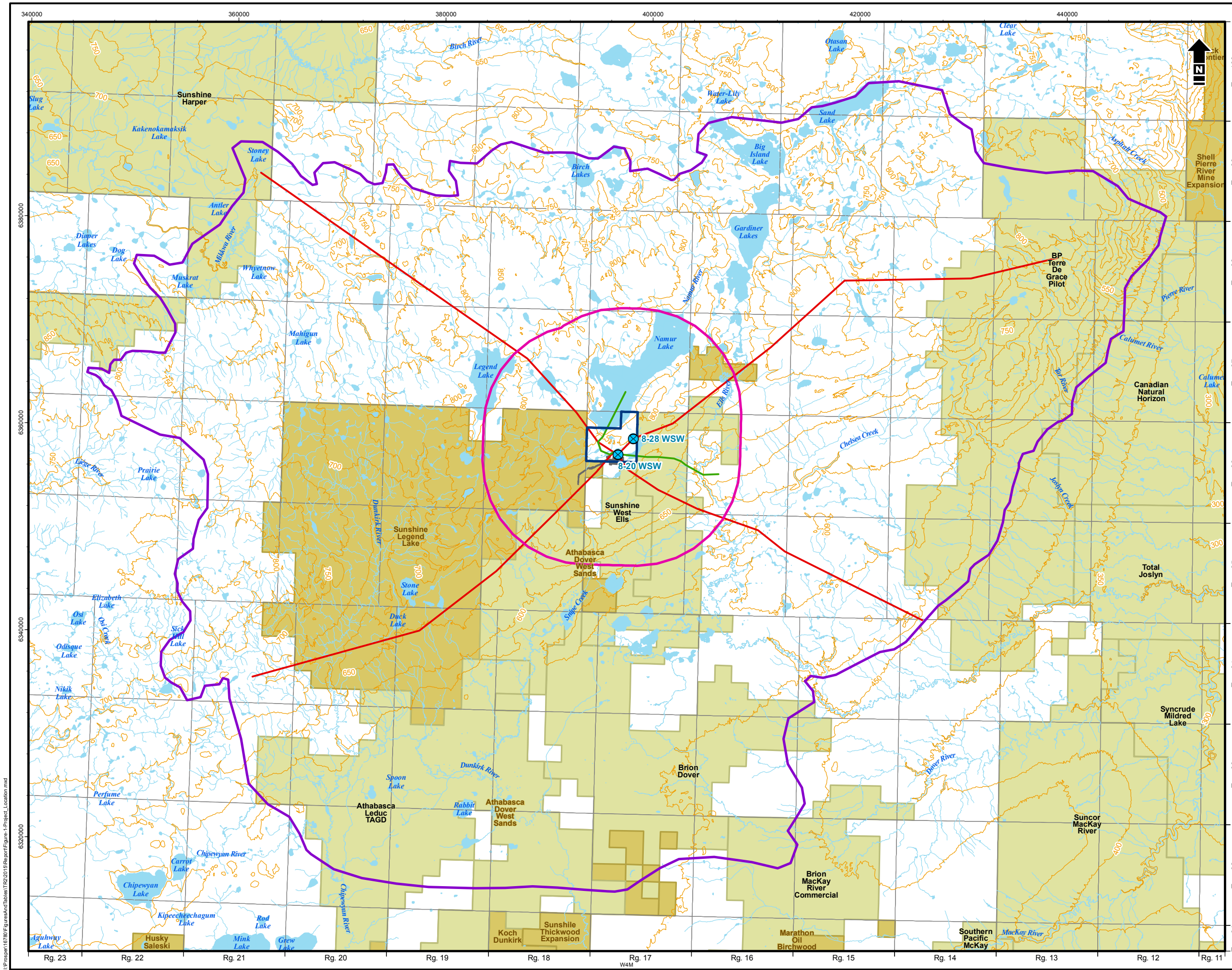
Drawn: M. Darroch

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Figure

6.1-1

Appendix 5 Rigel Project Location



801

Footprint

Project Lease

Tier 2 Assessment Area

Hydrogeology Regional Study Area

Existing Development

Planned Development

Water Body

Watercourse

Topography Contour (50 m)

Quaternary Cross Section

Regional Cross Section

2014 Tested Water Well

Reference: Data obtained from AltaLIS © Government of Alberta and GeoBase® used under license.

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Kilometres

NAD 1983 UTM Zone 12N

Prosper

PETROLEUM LTD

Rigel Tier 2 Assessment

Project Location

Date: 08 Jul 2015

Project: 16780-505

Technical: A. Haluszka

Reviewer: A. Freer

Drawn: M. Pfeifer

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Figure

1