

Dover Operating Corp.

**Application for a Bitumen Recovery Scheme
Athabasca Oil Sands Area**

August 6, 2013

ALBERTA ENERGY REGULATOR

Decision 2013 ABAER 014: Dover Operating Corp., Application for a Bitumen Recovery Scheme,
Athabasca Oil Sands Area

August 6, 2013

Published by

Alberta Energy Regulator
Suite 1000, 250 – 5 Street SW
Calgary, Alberta
T2P 0R4

Telephone: 403-297-8311
Toll free: 1-855-297-8311
E-mail: infoservices@ aer.ca
Website: www.aer.ca

CONTENTS

Decision	1
Introduction.....	1
Name Change of Dover Operating Corp.	1
Application.....	2
Background.....	3
Interventions	3
Hearing.....	4
Constitutional Questions.....	4
Issues.....	6
Need for the Project	6
Evidence.....	6
Findings.....	6
Lower Athabasca Regional Plan.....	7
Evidence.....	7
Findings.....	7
Resource Recovery	8
Evidence.....	8
Environmental Effects	9
Evidence.....	9
Wildlife	11
ALCES Modelling.....	12
Access Management	14
Reclamation	14
Sulphur Recovery.....	15
Odours, Emissions, and Air Quality	15
Findings.....	17
Traditional Land Use	21
Evidence.....	21
Traditional Land Use Studies.....	21
Trails and Access	22
Findings.....	26
Social and Economic Effects	28
Evidence.....	28
Land Release, Housing, and Camps	28
Traffic and Transportation	29
Economic Benefits	29
Findings.....	30
20 Km Buffer	30
Evidence.....	30
Buffer Zone.....	30
Factors to Consider in Assessing the Application	33

Appendices

1	Hearing Participants.....	35
2	Summary of Conditions and Commitments.....	37
3	Project Maps	39

Figures

1	Regional Setting.....	39
2	Project Leases and Initial Development Phases.....	40

ALBERTA ENERGY REGULATOR

Calgary Alberta

DOVER OPERATING CORP.

APPLICATION FOR A BITUMEN RECOVERY SCHEME ATHABASCA OIL SANDS AREA

2013 ABAER 014
Application No. 1673682

DECISION

[1] The Alberta Energy Regulator (AER) hereby approves Application No. 1673682 for a bitumen recovery scheme, which includes an initial area where Dover Operating Corp. (Dover) has delineated sufficient resources to complete its phase 1 development, subject to the report's conditions summarized in appendix 2 and approval by the Lieutenant Governor in Council.

INTRODUCTION

[2] On June 17, 2013, the *Responsible Energy Development Act (REDA)* came into force in Alberta. The *Energy Resources Conservation Act (ERCA)*, which established the Energy Resources Conservation Board (ERCB/Board), was repealed and the AER was created. In accordance with the terms of the *REDA*, the AER assumed all of the ERCB's (and its predecessors') powers, duties, and functions under Alberta's energy resource enactments, which includes the *Oil Sands Conservation Act (OSCA)*. Throughout this transition from the ERCB to the AER, the authority of the Board members continued without interruption in accordance with the *Transition Regulation*. The Board members assigned to this hearing are referred to as the Panel throughout this document, and the ERCB is referred to as the AER regardless of whether the organization was known at the time as the ERCB.

[3] Section 3 of the *ERCA* required the AER to consider whether the application was in the public interest when it conducted the hearing. A purpose of the *OSCA*, as set out in section 3(g), is to ensure the observance, in the public interest, of safe and efficient practices in the exploration for and the recovery, storage, processing, and transport of oil sands, discard, crude bitumen, derivatives of crude bitumen, and oil sands products. Furthermore, section 10(3) provides that the AER may, if in its opinion it is in the public interest to do so, and with the prior authorization of the Lieutenant Governor in Council, grant an approval on any terms and conditions that the AER considers appropriate. The Panel has therefore included findings about the public interest in this decision. The AER is also aware of its responsibilities under section 15 of the *REDA* and section 3 of the *REDA General Regulation* and is satisfied that throughout this proceeding and in this decision the Panel has considered the factors that are identified in those provisions. This includes a consideration of the social and economic effects of the application and of the effects of the application on the environment.

Name Change of Dover Operating Corp.

[4] On May 30, 2013, Dover changed its name to Brion Energy Corporation. The AER is prepared to issue the licence for the proposed bitumen recovery project scheme in the name of Brion Energy Corporation. It is for convenience only that this decision refers to Dover throughout the application despite the corporate name change.

Application

[5] Dover has applied to construct, operate, and reclaim a bitumen recovery project scheme (the Project) under section 10 of the *OSCA*. The Project will use steam-assisted gravity drainage (SAGD) technology.

[6] The application describes the Project area from which bitumen is expected to be produced over the life of the project. It also describes an initial area where it has delineated sufficient resources to complete its phase 1 development. Dover will be required to obtain future authorizations from the AER to expand development beyond the initial approval area to the entire Project area.

[7] The Project will produce bitumen from the upper member of the McMurray Formation. The Project would be located about 95 kilometres (km) northwest of Fort McMurray in the Regional Municipality of Wood Buffalo (Wood Buffalo) and the Municipal District of Opportunity within Townships 92–96, Ranges 15–18, West of the Fourth Meridian (W4M). The initial development area includes Sections 1, 6, and 12 of Township 96-16W4M and Legal Subdivisions (LSDs) 1–4 of Section 13-96-17W4M. The Dover leases extend over 376.8 square kilometres (145.5 square miles; 37 684 hectares [ha]).

[8] Dover intends to construct the Project in five phases with two central processing facilities. Initial production of 7 950 cubic metres per day (m^3/d) (50 000 barrels per day [bpd]) from phase 1 will be directed to the Dover North Plant (DNP). Future development will expand the bitumen throughput of the DNP to 15 900 m^3/d (100 000 bpd) and extend well pad development into the phase 2 area. Bitumen production from phases 3, 4, and 5 will be directed to the Dover South Plant (DSP). The Project is proposed to attain a total production capacity of 39 750 m^3/d (250 000 bpd). As these initial development phases are depleted, well pads will be developed in the remaining area of the Project to support production for the life of the Project.

[9] Steam will be generated using drum boilers and, potentially, cogeneration units. A vapour-recovery unit (VRU) and a high-pressure flare have been incorporated into the design to capture hydrocarbon vapours that are to be either used in the process or combusted in the event of an emergency or upset condition.

[10] Dover plans to begin construction of the DNP and the phase 1 well pads in the winter of 2013–2014, with first steam injection in 2016–2017. The DNP would be located 13 km from the boundaries of the Namur Lake and Namur River reserves, 174A and 174B (referred to as the Moose Lake Reserves). Phases 2 through 5 would start steaming in 2018, 2021, 2023, and 2025, respectively. Construction of the DSP would begin in 2019 and operations would start up when phase 3 well pad development begins in 2021.

[11] Dover noted that the well pads are expected to have a life span of at least 8–10 years, after which additional well pads would be developed to maintain production rates over the 65-year life of the Project. Some of the well pads for sustaining future production would be located within 1500 m of the Moose Lake Reserves. Reclamation of the Project would be completed in 70 years.

[12] Terms of reference for the environmental impact assessment (EIA) were issued on October 15, 2010. Alberta Environment and Sustainable Resource Development (ESRD) and

other government agencies received the EIA on December 17, 2010, and received responses to supplemental information requests in September 2011, March 2012, and May 2012. In July 2012, ESRD deemed that the EIA was complete in accordance with section 53 of the *Environmental Protection and Enhancement Act (EPEA)*. No environmental assessment was required by the Government of Canada under the *Canadian Environmental Assessment Act, 2012 (CEAA, 2012)*.

[13] Dover identified a variety of local and regional groups that could potentially be affected by development of the Project lease area, including First Nations, Métis locals, local residents, trappers, landowners, businesses and industry, and municipal, provincial, and federal governments.

[14] The AER and ESRD received several objections and statements of concern from various parties throughout the application process.

Background

[15] In support of the Project, Dover submitted the following:

- Application No. 1673682 to the AER in accordance with section 10 of the *OSCA* for approval to construct and operate the 39 750 m³/d (250 000 bpd) bitumen recovery scheme.
- Application No. 001-268285 to ESRD in accordance with part 2, division 2 of the *EPEA* for approval to construct, operate, and reclaim the Project.
- An application (File No. 00285847) to ESRD, in accordance with the *Water Act*, to divert 784 300 cubic metres (m³) of groundwater from the Empress (Birch) Channel Aquifer and 1 257 700 m³ of groundwater from the Grand Rapids Formation (unit 3 sand) for steam injection (i.e., SAGD). The proposed water source wells—two in the Empress Formation and ten in the Grand Rapids Formation—would be in Townships 92 to 94 and Ranges 16 and 17, W4M.

Interventions

[16] The Community of Fort McKay, including the Fort McKay First Nation and the Fort McKay Métis Community Association (Fort McKay), submitted an objection to the Project. Fort McKay expressed concerns in two general areas. First, Fort McKay expressed concerns about the effects of the Project on the Moose Lake Reserves, based on their proximity to the Project (see appendix 3). Second, Fort McKay expressed concerns about the cumulative effects of oil sands development on traditional land use regionally. Fort McKay asked that the AER impose a 20 km buffer zone around its Moose Lake Reserves.

[17] Wood Buffalo requested participation in the hearing. It did not object to the Project but did have social and economic concerns about its development. Because it appeared to the Board that Wood Buffalo may be affected by the Project, the Panel, using its discretion, gave Wood Buffalo the opportunity to participate in the hearing through the presentation of sworn evidence and legal argument.

[18] The Panel also gave the Fort Chipewyan Métis Local 125 and Total E & P Canada Ltd. the opportunity to provide a brief statement during the hearing, but neither chose to attend.

Hearing

[19] The AER held a public hearing in Fort McMurray, Alberta, beginning on April 23, 2013, and concluding on April 29, 2013, before Panel members G. Eynon, P.Geo., FGC (Presiding member); R. C. McManus, M.E.Des.; and T. C. Engen.

[20] Those who appeared at the hearing are listed in [appendix 1](#).

[21] At the close of the hearing, Fort McKay was required to complete one undertaking. The undertakings were considered complete on May 9, 2013. The AER considers the hearing to have been closed on that date.

CONSTITUTIONAL QUESTIONS

[22] On March 28, 2013, Fort McKay submitted to the AER a notice of questions of constitutional law (NQCL), which posed the following two questions:

1. Would approvals sought by Dover in Application #1673682, if granted, constitute a *prima facie* infringement of the rights guaranteed by Treaty 8, s. 35 of the *Constitution Act, 1982* and the *Indian Act*, so as to be of no force or effect or otherwise inapplicable by virtue that the Province of Alberta has no jurisdiction over Indians and Lands Reserved for the Indians under s. 91(24) of the *Constitution Act, 1867* (“Inter-jurisdictional Immunity Argument”)? [Constitutional Question No. 1]
2. Has the Crown discharged its duty to consult and accommodate Fort McKay with respect to adverse impacts arising from the proposed project upon the rights guaranteed to Fort McKay pursuant to Treaty 8, s. 35, and the *Natural Resources Transfer Agreement* (“Inadequate Consultation Argument”)? [Constitutional Question No. 2]

[23] After receiving submissions from Dover, Alberta,¹ and Fort McKay on the AER’s jurisdiction to decide these questions, the Panel, on April 18, 2013, determined that it does not have the authority to determine the above constitutional questions, and they were dismissed from this proceeding.

[24] During its closing argument, Fort McKay submitted that the Constitution of Canada binds all governments and that a fundamental principle of the Canadian constitution is protection of minority rights and recognition and affirmation of treaty and aboriginal rights. Fort McKay further submitted that recognizing and upholding these rights is in the interests of Fort McKay and society as a whole and informs key components of the public interest.

[25] The *Administrative Procedures and Jurisdiction Act (APJA)* makes clear that questions of constitutional law² can be decided by the AER as a designated decision-maker³ only if they meet

¹ Minister of Justice and Attorney General of Alberta.

² As defined by section 10(d) of the *APJA*.

³ Defined by section 10 (c) and schedule 1 of the Alberta Regulation 69/2006 *Administrative Procedures and Jurisdiction Act, Designation of Constitutional Decision Makers Regulation* (the *Decision Makers Regulation*).

the requirements of section 12 of the *APJA*, including providing notice of the constitutional questions in the specified form⁴ to Dover, to the Attorney General of Canada, and to Alberta.

[26] In this matter, the only NQCL filed and served was the one filed on March 28, 2013, as described above. The AER could not consider other constitutional questions or issues because it is not authorized by the *APJA* to do so.

[27] At the hearing, Fort McKay presented evidence through Dr. Patricia McCormack with regard to the historical interpretation of Treaty 8 and in particular the relationship of that treaty to Fort McKay's entitlement to reserve lands. Fort McKay also made submissions about the importance of reserve lands under the *Indian Act*, asserting that any activity with more than an insignificant effect on its reserve lands would be outside the jurisdiction of the AER and would offend the principles of interjurisdictional immunity.

[28] The AER considers that the issues raised by these submissions fall squarely within question 1 described above. The AER's May 23, 2013, reasons regarding Fort McKay's NQCL make clear that the AER had no jurisdiction to consider this question. It was not within the AER's mandate, as described in sections 2 and 3 of the *ERCA* and sections 3 and 10 of the *OSCA*, to determine the issues raised in the interjurisdictional immunity argument articulated in question 1 and largely repeated by Fort McKay's counsel in her argument. Similarly, the AER's mandate as set out in section 2 of *REDA* and sections 3 and 10 of the *OSCA* does not extend its jurisdiction to considering this constitutional question.

[29] Even if the submissions made regarding reserve lands and the AER's jurisdiction do not overlap with question 1, the AER is satisfied that it does not have the authority to consider the issues raised by Fort McKay's submissions. These submissions in essence raise questions of constitutional law, and the provisions of the *APJA* and *Decision Makers Regulation* have not been complied with, and the necessary notice has not been provided. Therefore, the AER cannot consider these issues.

[30] In final argument, counsel for Fort McKay spoke to the issue of the Crown's consultation with and accommodation of Fort McKay regarding impacts arising from the Project. It was submitted on behalf of Fort McKay that the AER must comply with the Constitution of Canada. It was further submitted that the AER must not approve the Project in a manner that will remove or diminish the Crown's power to ensure that resources are developed in a way that affirms Fort McKay's treaty rights and that does not otherwise cause harm to Fort McKay's constitutional rights. Fort McKay sought recognition from the AER that it is not in the public interest to prejudice the Crown's ability to meet its constitutional duty.

[31] In regard to some of the broad statements made by Fort McKay's counsel in its submissions on Crown consultation and accommodation (e.g., that the AER must comply with the constitution), these are general propositions on which the AER does need to comment in the abstract in considering the application. However, as Fort McKay asked the decision maker to apply these principles to the specifics of this proceeding, the AER considers that it cannot satisfy Fort McKay's request. The application of the principles to this matter raises questions of constitutional law for which no notice has been provided to Dover, Alberta, or Canada. Such questions are not properly before the AER.

⁴ The *Decision Makers Regulation*, schedule 2.

[32] As noted above, the AER had already determined that it did not have the jurisdiction to assess the adequacy of Crown consultation and accommodation in this matter. Section 21 of *REDA* expressly states that the AER has no jurisdiction to assess the adequacy of Crown consultation associated with the rights of aboriginal peoples. To the extent that the issues raised overlap with constitutional question 2 above, the AER has no jurisdiction.

ISSUES

[33] The Panel considered the issues in this proceeding to be

- the need for the Project,
- the Lower Athabasca Regional Plan (LARP),
- resource recovery,
- environmental effects,
- traditional land use,
- the 20 km buffer, and
- social and economic effects.

[34] In reaching the determinations in this decision, the Panel considered all relevant materials constituting the record of this proceeding, including the evidence and argument provided by each party. Therefore, references in this decision to specific parts of the record are intended to help the reader understand the Panel's reasoning relating to a particular matter and should not be taken as an indication that the Panel did not consider all relevant parts of the record on that matter.

NEED FOR THE PROJECT

Evidence

[35] Dover submitted that its Project is located in an area that has been selected by the Government of Alberta for oil sands development under LARP. It has obtained oil sands leases for the Project, which it believes contain about 654 million cubic metres (4.1 billion barrels) of recoverable bitumen. Dover argued that, under the leases, it has a legal obligation to the people of Alberta to develop the resources in a timely and efficient manner. It also submitted that it has a responsibility to its shareholders to develop the lease holdings economically and efficiently in order to realize value from the investment. Dover indicated that it would decide whether to proceed with the construction of the Project depending on the economics, taking into account the price of bitumen and the cost of materials, among other things.

Findings

[36] The Panel recognizes that the purpose of the project is to recover and market bitumen located on Dover's leases. The Panel notes that no interveners argued against Dover's stated need for the Project.

[37] The Panel also recognizes that the Project represents an economic opportunity, not only for Dover but also for Alberta, and will have a positive impact on the Province's economy.

[38] The Panel concludes that there is sufficient information to support the purpose of and need for the project.

LOWER ATHABASCA REGIONAL PLAN

Evidence

[39] The Project is in an area that is subject to LARP, which has recently been approved by the Government of Alberta. LARP has prescribed what the land-use priorities are for each area of the Lower Athabasca Region. The Dover Project is in an area that has been selected by the government to include oil sands development. The Project is not in and does not overlap any of the conservation areas to be established under LARP.

[40] LARP was developed through consultations with industry, aboriginal groups, and other stakeholders. Fort McKay participated in this consultation process. Fort McKay stated that LARP did not address its concerns about protecting its land use interests on its reserve lands and traditional territory. During development of LARP, Fort McKay requested that buffers be established to restrict oil sands development near its IR174A and IR174B lands. This recommendation for a buffer zone was not incorporated into LARP, although some additional conservation lands were established (Birch Mountains Wildland Park [expansion]) immediately adjacent to IR174A and IR174B. Under LARP, a new biodiversity management framework will set targets for selected biodiversity indicators and address caribou habitat needs in alignment with Alberta's caribou policy. LARP disturbance limits and a biodiversity framework are anticipated. Fort McKay also noted that access management was to be incorporated into subregional plans prepared under LARP.

[41] Dover argued that the AER is bound by LARP and cannot reverse government policy by designating new areas where development is prohibited. It was Dover's position that the AER must determine whether the Project is in the public interest, taking into account that this area has been identified for potential oil sands development by the Government of Alberta after extensive consultation with all stakeholders, including Fort McKay.

[42] The AER is required under section 20 of *REDA* to act in accordance with any applicable *Alberta Land Stewardship Act (ALSA)* regional plan. The applicable regional plan for this subject application is LARP. LARP was approved by the Government of Alberta on August 22, 2012, and became effective September 1, 2012.

Findings

[43] The Panel accepts that broad-scale land use decisions are directed by LARP. While LARP is still a work in progress, the Panel believes that through mechanisms being developed—such as the proposed biodiversity management framework and the Alberta wetlands policy—LARP is the appropriate mechanism for identifying and addressing the regional cumulative effects of resource development activities.

[44] In addition to considering social, economic, and environmental factors and the public interest in making its determination on the subject application, the AER must also act in accordance with LARP as it exists today. The Panel heard evidence that Fort McKay had requested a protected buffer area around its reserves during development of LARP. The Panel notes that such an area was not included in LARP, reflecting the province's overall land-use intent for the lands where the Project is located. The Panel notes that proper application of LARP is based on regional limits, not project-specific effects. It is expected that as subregional plans and management frameworks continue to be developed they will influence project-specific land use decisions.

[45] The Panel accepts Dover's submission that the Project is located in an area that is designated for oil sands development under LARP, and that developing its subsurface rights under the terms of its leases issued by the province of Alberta is not contrary to LARP.

[46] The Panel notes that Dover's Project is not in, and does not overlap, any of the conservation areas to be established under LARP, and that development of oil sands resources is permitted in the Project area. The Panel finds that Dover's application is compliant with LARP.

RESOURCE RECOVERY

Evidence

[47] The main geological target horizon in the Project area is the Upper McMurray bitumen-bearing sand, which extends over the Project area and exhibits on average 33 per cent porosity and 72 per cent bitumen saturation. The bitumen net pay varies from 7 to 27 metres (m). The thickest sands are associated with structural lows, while the thin sands are associated with structural highs. Future delineation drilling will improve the geological interpretation for the Project area for net pay distribution and reservoir characterization.

[48] The bitumen-bearing sands in the northern part of the Project area occur at depths of about 360 m and are relatively clean with low clay content (less than 3 per cent). The net pay varies from 15 to 20 m. No gas caps were identified in the initial development area.

[49] The bitumen-bearing sands in the southern area of the Project area occur at depths of about 270 m and appear to have higher clay content. The net pay thickness varies from 15 to 27 m. A depleted gas cap, up to 5 m thick, is overlying the bitumen in parts of the Project area.

[50] Based on a 50 per cent recovery factor, the Project would recover 654 million m³ (4.1 billion barrels) of bitumen over its projected 65-year life. The northern part of the Project area, Townships 95 and 96, would recover 222 million m³ (1.4 billion barrels).

[51] Dover proposed to begin development, which would include commissioning of the DNP, in the northern parts of the Project area. Dover argued that the northern area of its leases has the highest reservoir quality in terms of bitumen saturation, net pay, porosity, and permeability, and has lower clay content. The reservoir occurs at an average depth of 360 m, which allows for higher operating pressures and higher initial production rates than in other parts of the Dover lease area. The absence of any significant depleted gas zones is also beneficial for SAGD development in this area.

[52] Fort McKay requested that the Project be developed in a different sequence than that proposed by Dover. Mr. Edgar, in his report for Fort McKay, proposed that Dover could start the Project in Township 94, Range 17, West of the Fourth Meridian, the area of phases 3 through 5 and the DSP, rather than phases 1 and 2 and the DNP as Dover has proposed.

[53] However, Dover argued that its preliminary delineation work indicated that in the area of phases 3 to 5 the reservoir is at a depth of about 270 m, which would require lower steam operating pressures. Dover further noted that this area has a higher abundance of shale interbeds as well as thick depleted gas zones, which would act as barriers to steam chamber growth and as thief zones for steam and heat, respectively. Dover currently has AER approval for a pilot facility in Townships 93 and 94, Range 17, W4M, to develop technology to access the bitumen reserves under depleted gas zones.

Findings

[54] The Panel agrees with Dover's interpretation that the highest-quality reservoir and bitumen reserves are in the northern part of the Project area.

[55] The Panel notes the request by Fort McKay to construct the DSP facility and to develop the southern part of the Dover leases first. However, the Panel acknowledges that the bitumen reserves in those areas occur at much shallower depths and in conjunction with extensive depleted gas caps. The Panel notes Dover's assertion that the industry SAGD community requires additional time to develop the technologies necessary to produce these reserves effectively at lower steam-injection pressures and under such reservoir conditions. The Panel therefore finds that Dover's proposed sequencing is reasonable.

ENVIRONMENTAL EFFECTS

Evidence

Water Use

[56] Dover proposed to use the Empress and Grand Rapids 3 aquifers for nonsaline source water in phase 1; waste fluids would be trucked off site to a licensed waste handling facility for disposal.

[57] Dover proposed using the saline Leduc/Cooking Lake aquifer 70 km south for make-up water proposed for both water sourcing and disposal as phases 2 through 5 become operational. The disposal and source-water wells would be located 10 km apart, and Dover does not believe the saline source well will be impacted by the disposal operation. Dover also proposed using a salt cavern for future disposal; wash water for the cavern would be sourced from the Empress Channel.

[58] In its application, Dover noted a permanent water body at the location of the proposed DNP. However, during the hearing Dover advised that it had revised its plans and that the north plant would now be 350 m east of the water body.

Environmental Impact Assessment and Cumulative Effects

[59] Dover submitted an EIA to ESRD and the AER as part of its application. The EIA considered the effects of the Project locally and the cumulative effects regionally. The EIA considered the potential effects on numerous components, including air quality, noise, human health, hydrology, hydrogeology, surface water quality, aquatic ecology, terrain and soils, terrestrial vegetation, wetlands, forestry, wildlife and wildlife health, biological diversity, and traditional and other land uses.

[60] The EIA examined three development scenarios: a baseline case, the application case, and a planned development case. Dover's EIA concluded that the Project will directly disturb less than 1 per cent of Fort McKay's traditional territory. This increased to 5 per cent when the cumulative effects of all industry planned or proposed developments in the regional study area were considered.

[61] The EIA considered potential cumulative effects throughout a regional study area, which included the Moose Lake Reserves. In response to Fort McKay's concern about direct effects on these reserves, Dover prepared desktop assessments of the likely impacts on the Moose Lake Reserves. These assessments included air quality, odour, visual effects, water quality and quantity, fish, noise, soils, vegetation, and wildlife. Dover concluded there would be no effects on most environmental components, although there would be minor effects on air quality, visible water vapour plumes, fish and fish habitat, and noise. Dover also concluded that effects on wildlife are regional and would be much the same as those identified in the EIA. In July 2012, ESRD declared the EIA to be complete, indicating that the terms of reference had been satisfied. However, such a declaration does not indicate that the predicted effects and mitigations are acceptable.

[62] Dover argued that regional cumulative effects assessments of planned and approved future developments (the planned development case) are useful to inform regional planning but should not be used to decide on the public interest of specific projects.

[63] Fort McKay expressed concerns about the effects of the Project on its Moose Lake Reserves based on the proximity of the Project, noting that Dover's leases abut the south boundary of the Moose Lake Reserves. Fort McKay also expressed concerns about cumulative effects of oil sands development on traditional land use regionally.

[64] In its application, Dover also submitted estimates of direct and indirect habitat loss at the project level. Dover's analysis provided different findings for each of the wildlife indicators examined based on habitat associations. Dover's modelling predicted a 57 per cent decline in available caribou habitat as a result of indirect disturbance and a 9 per cent decline due to direct disturbance. However, habitat availability for moose was predicted to increase.

[65] Fort McKay submitted a study of its traditional territory, excluding the Wood Buffalo National Park area, based on the ALCES model, a landscape cumulative effects simulator. The study identified practices that might reduce adverse effects, including expanded protected areas, regional access management, improved reclamation practices, and minimizing exploration disturbances.

[66] The FMFN asserted that 70 per cent of the Fort McKay traditional territory has been leased for industrial developments. Fort McKay further stated that there are 99 469 ha of direct disturbance, but that the overall disturbance is 1 356 000 ha, or 37 per cent of its traditional territory given all the oil sands activities and supporting infrastructure. It argued that the Dover Project will further affect additional lands within Fort McKay's traditional territory.

Wildlife

[67] Fort McKay noted that the west side of the Athabasca River (WSAR) caribou range overlaps the Dover Project leases, and that the Red Earth caribou range overlaps both the north portion of the Project area and the Moose Lake Reserves. Fort McKay argued that large game animals are essential to the exercise of its treaty and aboriginal rights, and that management thresholds should maintain a harvestable surplus, not simply prevent extirpation.

[68] Fort McKay expressed concerns that the Project would contribute to the regional decline of wildlife. Moose and caribou are of particular concern as Dover's EIA predicted that the caribou are likely to be, and the moose will nearly be, extirpated from the reserves and surrounding lands within 30 years.

[69] The parties agreed that habitat fragmentation is the major cause of declines in caribou populations. Fort McKay noted that peatlands constitute over 50 per cent of the local study area (LSA), and provide important caribou habitat. Fort McKay also noted that Dover's EIA predicted that the density of linear features in the Project area would increase by about 58 per cent as a result of Project construction and operations.

[70] Dover noted that the Project area may be a refuge for caribou and for a source population for the herds using the region. Moose population declines are attributed largely to pressure from both aboriginal and nonaboriginal harvesting. Both Dover and Fort McKay expected that hunting pressure is likely to increase in the region despite access management. Fort McKay also expressed concern about long-term loss of fur bearers such as marten and fisher. Both Dover and Fort McKay agreed that the Dover lease area provides high quality habitat for caribou. Few wolves and no deer are currently in the area, making it a caribou refuge that has potentially regional importance.

[71] In addition to standard project-level on-site mitigations and reclamation, Dover described broader compensation or offset measures that would include wolf and ungulate monitoring, deer and wolf population management, and an off-site caribou habitat enhancement program that includes access management. Reclamation would occur as project facilities are no longer needed. In its EIA, Dover concluded that caribou and moose populations will increase in the area because of the planned wildlife and habitat enhancement programs.

[72] Dover committed to a coordinated approach to wildlife monitoring in the region and a deer and wolf management program in collaboration with ESRD and other in situ operators.

[73] Dover argued that it is not proposing to manage or implement a predator management program, as the Government of Alberta has committed to do so in this region, which forms a central assumption of the EIA. Dover argued that population control of predators and prey is a mitigation measure that forms a part of the Woodland Caribou Policy for Alberta (Caribou Policy), and that the provincial government has committed to active intervention through that policy.

[74] Fort McKay argued that reclamation would not be an effective mitigation for caribou and moose populations, as it would occur after severe declines or extirpation have already occurred. The Gould report submitted by Fort McKay evaluated Dover's proposed mitigation for caribou. Mr. Gould claimed that the Project-specific mitigation proposed by Dover were no more than best industry practices from 2001, which have been shown to be ineffective. Mr. Gould also argued that Dover's caribou and moose mitigation relies entirely on a wolf-kill program that is the responsibility of the Government of Alberta and outside Dover's control, and therefore should not be considered as Project mitigation. Mr. Gould did not dispute that without such a program, the regional declines of caribou and moose populations would be substantially the same under both the baseline case and application case.

[75] Noting that the federal *Recovery Strategy for Boreal Woodland Caribou*⁵ sets a target of maintaining 65 per cent of habitat within caribou range as undisturbed, Fort McKay indicated that 62 per cent of the Red Earth range and 69 per cent of the WSAR range are already disturbed, according to estimates in the recovery strategy. These estimates include both human-caused disturbances and naturally-occurring fire. It further noted that both the federal recovery strategy and Alberta's caribou policy call for preventing extirpation by reducing disturbance levels caused by human land use.

ALCES Modelling

[76] The ALCES Fort McKay study area included 84 per cent of the Fort McKay traditional territory, excluded Wood Buffalo National Park, and was 3.62 million ha in size. Fort McKay argued that its "Traditional Land Use Overview Study" and "Update Report" presented a much more complex, comprehensive, and accurate assessment of the impacts expected of the Project. The ALCES model estimated future regional effects of oil sands development based on two scenarios: business as usual and a Fort McKay scenario using a variety of wildlife management levers.

[77] Fort McKay pointed to modelling conducted for the Terrestrial Effects Management Framework (TEMF) and prepared by the Cumulative Environmental Management Association, which indicated that there was a decline in the performance of ecological indicators in the region. The density of linear disturbances is a major driver of declines in indicator performance relating to wildlife populations. TEMF also considered expanded protected areas, access management, reclamation of linear features, and innovative management approaches. Dr. Stelfox indicated that it formed much of the basis for the ALCES modelling. TEMF was provided to the Government of Alberta as a recommendation but was never accepted as policy.

⁵ Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*). Boreal population, in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa.

[78] Dover identified what it considered to be several key flaws in the ALCES modelling conducted by Fort McKay. First, the ALCES model used a gross overestimation, by about 50 per cent, of the number of wells that would be required, creating a predicted cumulative land disturbance much higher than would actually occur. Second, the ALCES study assumed about 175 000 m³ per day (1.1 million barrels per day) of future in situ production in the region, while the calculations used to estimate the number of future wells used a production level of 320 000 m³ per day (2 million barrels per day). Third, the study excluded Fort McKay's traditional territory within Wood Buffalo National Park.

[79] Dover argued that neither of these scenarios is realistic or useful in evaluating whether or not the Project is in the public interest. The business-as-usual scenario was conducted before LARP was developed, so it did not incorporate either expanded protected areas or regional strategies such as integrated land management. The Fort McKay scenario incorporated aspects of LARP, but added expanded protected areas such as the 20 km buffer zone around the Moose Lake Reserves.

[80] Dover also questioned the avoidance areas that ALCES used in its habitat suitability models. Dover expressed the opinion that seismic lines, unlike roads, create high-quality habitat for moose, and the only reason that moose would avoid seismic lines is because of vehicle traffic and hunting. Under cross-examination, Dr. Stelfox agreed that the ALCES modelling assumed 200 m for wildlife avoidance setbacks from seismic lines. Dr. Stelfox further agreed that this distance is twice that of the wildlife avoidance areas for minor roads reported in the same literature that he himself quoted for other purposes. Because seismic makes up a major part of the linear disturbance in this study area, such large avoidance areas around seismic lines suggests that ALCES's predictions about future disturbance on the landscape are overstated.

[81] By contrast, Fort McKay expressed concern that the ALCES model underpredicts impacts compared with empirical data from aerial wildlife surveys. Data provided in the EIA and by Mr. Gould about the aerial moose counts show a 50 per cent decline in the moose population in the region after oil sands development began. Fort McKay noted that this is not reflected in the modelling, suggesting that what is actually happening to wildlife is more dramatic than predicted. Fort McKay further noted that the impacts on moose and caribou populations that Dover predicted (extirpation or near extirpation in 30 years) are not predicted by the ALCES model in so short a time frame, indicating that the model is underpredicting effects.

[82] The ALCES modelling found that dramatic declines in wildlife and fish populations would continue.⁶ The impact on fish is most dramatic because they are already well below the natural range of variation and that modelling indicates populations will drop significantly over the next 40 years. The moose population fares slightly better than the fish population, but it still drops significantly below levels that would allow a sustainable harvest.

⁶ J.S. Nishi, S. Berryman, J.B. Stelfox, A. Garibaldi, and J. Straker. 2013. Fort McKay Cumulative Effects Project: Technical Report of Scenario Modeling Analyses with ALCES. ALCES Landscape and Land Use Ltd., Calgary, AB., and Integral Ecology Group, Victoria, BC. Prepared for the Fort McKay Sustainability Department, Fort McMurray, AB. 126 pp + 5 appendices.

Access Management

[83] In 2006 Fort McKay prepared a draft access management plan for the area west of the Fort McKay IR174. Although ESRD was involved in its development and review, this draft plan has not been accepted.

[84] Dover indicated that it would manage access to its Project at a gate located about 30 km southwest of Fort McKay IR174. Dover noted that there will be control gates at each of its processing plants, but that these plant sites are only small areas of the Project. Dover also committed to restricting access to its operations and prohibiting workers residing in its camp from using all-terrain vehicles for recreational use while on site.

[85] Dr. Berryman, testifying for Fort McKay, noted that many of the access management measures that she would recommend for the region have been adopted by Dover for this Project.

Reclamation

[86] Dover's application and EIA included a conceptual conservation and reclamation plan. Dover stated that it will prepare site-specific plans annually as required by Government of Alberta regulation. Dover asserted that the assumptions about slow reclamation progress used in the ALCES modelling are not valid because they are based on evaluation of projects whose facilities are only at the early stages of reclamation. Dover identified reclamation of caribou habitat outside its leases as a potential mitigation; such a program would be developed and accomplished in conjunction with other operators and ESRD.

[87] Dover stated that progressive reclamation will be undertaken throughout the project. Dover indicated that the average operating well life is expected to be at least 8–12 years and that of the 525 total anticipated pads, about 175 would be active—i.e., under construction, operating, or being reclaimed—at any given time. Once the project reaches full production capacity, sustaining well pads will be added to replace expired well pads. Facilities will be reclaimed once they are no longer required for ongoing operations. Dover stated that it will reclaim right-of-ways when they are no longer in use. No timelines were provided as to when linear disturbances would be reclaimed, and Dover's application did not address existing and ongoing exploration activities.

[88] Fort McKay pointed out that Dover has created additional linear disturbances on its leases since 2006 but has not reclaimed any of them; Dover said that these areas might be reused in the near future. Fort McKay expressed concern about the time lag between creation of the disturbance and initiation of reclamation.

[89] More fundamentally, Fort McKay argued that reclamation would not effectively mitigate the effects of oil sands development on traditional land use resources. Fort McKay estimated that only about 0.15 per cent of disturbed lands within its traditional territory have been certified as reclaimed. It argued that none of the peat lands, which make up 56 per cent of the Project's local study area, would be reclaimed to predisturbance capability because this is currently not technically possible.

[90] Fort McKay argued that reclamation will not effectively mitigate the Project effects within a meaningful timeframe. It noted that some species traditionally relied on by Fort McKay (such as marten, fisher, and caribou) prefer old-growth forest, which is expected to take at least 100 years to regenerate.

Sulphur Recovery

[91] Dover proposed to install scavenger systems at both the DNP and the DSP, noting operational benefits achieved by other SAGD operators, including relatively low capital investment, and maintenance of required sulphur recovery levels over a wide range of gas compositions and rates. Dover stated that the sulphur removal efficiency of the scavenger unit is close to 100 per cent, but that sulphur streams will be managed to achieve overall sulphur recovery of at least 70 per cent while minimizing chemical and disposal costs. This includes allowing a portion of the produced gas stream to bypass the sulphur scavenger unit.

[92] Dover has applied to have each proposed facility (DNP and DSP) treated independent of the other when assigning requirements, noting that AER *Interim Directive 2001-03* has been applied in this fashion in the past to other in situ projects that have several central processing facilities. This would allow each facility to maintain a separate sulphur inlet rate and corresponding sulphur recovery rate.

[93] Fort McKay requested that the AER apply sulphur recovery requirements on a project-wide basis instead of on an individual facility-by-facility basis. A single sulphur inlet rate and a single recovery rate would be applied to the DNP and DSP together.

[94] Dover acknowledged that by treating each facility independently of the other, sulphur emissions would increase over the lifetime of the Project and timelines for installing sulphur recovery at the DSP would be extended. Dover stated that an additional 1165 tonnes of sulphur dioxide (SO₂) could be emitted over the first four years of DSP operations if sulphur recovery requirements were applied facility-by-facility rather than on a cumulative project basis.

Odours, Emissions, and Air Quality

[95] Dover submitted an odour assessment as part of its EIA. Dover considered thresholds from the scientific literature and the Alberta Ambient Air Quality Objectives (AAAQO) for the variety of compounds assessed. Dover concluded that the addition of the Project did not exceed the mean odour threshold at the Moose Lake Reserves for any assessment scenario.

[96] Fort McKay expressed concerns over the appropriateness of the thresholds selected from the scientific literature and in the approach used by Dover in the EIA (Fort McKay 2012, Adamache and Spink 2012) for detecting odour potential.

[97] Dover provided two additional components to its original odour assessment to address Fort McKay concerns: an additive odour approach based on the concentrations and thresholds provided in the EIA, and a comparison between predicted concentrations and lower thresholds found in the scientific literature.

[98] Dover predicted there would be no potential for aggregate odours above thresholds at the Moose Lake Reserves using the additive odour approach. For the comparison between predicted

concentrations and lower thresholds found in scientific literature, Dover recognized that odours are more likely to be detected at the Moose Lake Reserves if a lower threshold for H₂S were to be used. However, Dover argued that these odours would already be detected in the baseline case and that by comparing concentrations in the application and baseline cases, the Project contribution to H₂S concentrations appear to be negligible at the southern boundary of the Moose Lake Reserves.

[99] Fort McKay expressed general concerns about potential air quality impacts from the proposed Project.

[100] Dover provided an air quality assessment as part of the EIA. The assessment conducted by Dover for both the baseline and application cases identified exceedances of the AAAQO at the regional study area (RSA) maximum point of impingement (MPOI) for the annual average nitrogen dioxide (NO₂), the 24-hour average PM_{2.5} (i.e., airborne particles that are 2.5 microns or smaller in diameter), and the 1-hour and 24-hour averages for hydrogen sulphide (H₂S). The assessment also identified an exceedance of the Alberta Ambient Air Quality Guideline for 1-hour average PM_{2.5} at the RSA MPOI.

[101] However, Dover showed that for the noted exceedances at the RSA MPOI, the baseline and application modelling results were similar. Dover concluded that the magnitude of residual air quality effects was low in that no AAAQO exceedances were predicted as a result of the Project's emissions.

[102] Dover also submitted predicted concentrations for a receptor on the south border of the Moose Lake Reserves and noted that the air quality model results show no exceedance of AAAQO as a result of Dover's proposed project.

[103] Dover committed to reduce or minimize light pollution concerns by using directional and motion-sensitive lighting on the plant sites and well pads.

[104] Dover submitted light visibility analyses for the DNP flare as part of its hearing submissions. Dover concluded that under normal operation or upset conditions, flaring would not be visible from the Moose Lake Reserves.

[105] Fort McKay argued that while the flare itself might not be visible, a glow from the flare and light reflection from low clouds would be expected during the night and light from the flare will sometimes be visible.

[106] Dover responded that it is possible that reflected light from flaring could be seen, but believed this to be unlikely. Dover also stated that it is unaware of any mitigation that will prevent light from a flare reflecting off the base of low clouds. Dover stated that venting or flaring would be infrequent and necessary only to protect equipment during process upsets, emergency conditions, and some maintenance operations.

Findings

Water Sources

[107] The Panel accepts in principle the plans Dover presented for nonsaline water source wells and off-site disposal of waste fluids in phase 1. The Panel also accepts in principle the use of the saline Leduc/Cooking Lake aquifer system for make-up water as phases 2 through 5 become operational. The Panel notes that Dover will have to apply for the specific facilities prior to development.

[108] The Panel notes that the proposed DNP was initially to be located over a permanent water body, but that during the hearing Dover indicated that it had relocated the proposed plant 350 m to the east.

EIA and Cumulative Effects

[109] The magnitude of indirect disturbance effects from facilities was the subject of some debate during the hearing. Key areas of disagreement included the sizes of the avoidance zones and disturbance buffers and the validity of the assumptions used in the ALCES modelling, particularly regarding seismic cutlines.

[110] The Panel notes that modelling is predictive by nature; models are simply tools that can assist in understanding the implications of various options. What is more important are the actual effects detected through monitoring.

[111] The Panel acknowledges that policy objectives for environmental protection and development of bitumen resources will be balanced through issuance of surface dispositions by ESRD and the required order in council issued by the Government of Alberta before the Project can proceed.

[112] The Panel understands that the focus of the AER is on project-level effects and acceptability of the Project. Over the life of the Project, the direct footprint would be 7875 ha (78.75 square kilometres; about 21 per cent of the total area of Dover's lease). The Panel notes that broader cumulative effect issues, such as designation of protected areas, land use policy and regulation, and access management on Crown lands, are the jurisdiction of ESRD.

Wildlife

[113] The Panel is concerned about potential declines in both woodland caribou (a threatened species) and moose populations in the region. Although Dover has committed to an off-site habitat enhancement program, it presented no details of what such a plan would include. The Panel notes Dover's commitment to participate in regional wildlife monitoring, a deer and wolf population management program, and a habitat enhancement program. However, the Panel notes that Dover does not have the ability to unilaterally initiate or implement a deer and wolf population control program.

[114] The Panel accepts that the primary causes of the decline in moose populations are predation and harvesting. Harvesting by nonaboriginal hunters is controlled by ESRD through hunting licences. The Panel notes that moose harvesting by First Nations is not monitored or formally managed.

[115] The Panel notes Dover's commitment to mitigate on-lease disturbances to create suitable habitat for caribou. Dover has also committed to habitat enhancement; however, those habitat enhancement activities are focused off-lease. The Panel encourages Dover to conduct the same habitat enhancement activities on its own leases.

ALCES Modelling

[116] The Panel heard concerns expressed by both Dover and Fort McKay about the assumptions used in the ALCES modelling and the consequent results.

[117] The Panel notes that Dover identified what it considered to be key flaws in the ALCES modelling. First was a 50 per cent overestimation of the number of wells that would be required, creating a predicted cumulative land disturbance much higher than would actually occur. Second was an associated assumption of the level of future in situ production in the region of 175 000 m³ per day (1.1 million barrels per day) while calculations used to estimate the number of future wells used a production level of 320 000 m³ per day (2.0 million barrels per day). Third, Dover questioned the size of the avoidance zones used in habitat suitability models. Dover noted that seismic lines, unlike roads, create high-quality habitat for moose, and the only reasons that moose would avoid seismic lines are to avoid vehicle traffic and hunting. The authors admitted using an assumption of 200 m for wildlife avoidance zones from seismic lines, which was twice the size of the wildlife avoidance zones used for minor roads.

[118] The Panel notes the inconsistent manner in which the concept of disturbance buffers was treated in the various environmental impact studies presented at the hearing. The ALCES modelling used zones ranging from zero to 1000 m for various footprint types. The federal caribou recovery strategy used a 500 m zone. The Panel notes that these zones are within the range of what is in common use. In its EIA local study area (LSA) for terrestrial resources, Dover used a 500 m zone adjacent to its Project's direct disturbances, and applied a disturbance coefficient to evaluate the use of habitats within those areas.

[119] The Panel notes that, on the other hand, Fort McKay expressed concern that the modelling underpredicted impacts when compared with empirical studies from aerial wildlife surveys. Fort McKay compared the impacts on moose and caribou populations that Dover predicted (i.e., extirpation or near extirpation within 30 years) with those of ALCES and argued that its model could be underpredicting effects.

[120] The Panel acknowledges the importance of understanding how industrial development and habitat alteration affects the viability of wildlife populations and the traditional land use activities they support, and understands that seismic cutlines are a major component of linear disturbances in this study area. However, the Panel also notes that evaluating a 500–1000 m zone for disturbances such as seismic cutlines likely results in overestimating the environmental effects of these features.

[121] The Panel finds that the ALCES model, which has been used extensively at the regional scale for comparing various scenarios, is less useful for predicting impacts of a specific development at a local scale. The Panel also notes that assumptions, in particular avoidance setbacks from various linear disturbances, were not well supported. Therefore, the Panel has not relied fully on the results of the ALCES modelling in assessing the effects of the Project.

[122] The Panel encourages Dover to work with other in situ operators and ESRD to develop and implement appropriate, regionally-based monitoring and compensation programs that would offset the effects of oil sands development on caribou habitat. These plans could inform the decisions of regulatory agencies issuing surface dispositions on Crown lands.

Reclamation

[123] Dover submitted a conservation and reclamation plan in its application, stating that it will prepare updated site-specific plans on an annual basis.

[124] Dover and Fort McKay agreed that linear disturbances and human land use are the primary drivers of declines in wildlife populations. The Panel notes that Dover committed to a progressive reclamation program for linear disturbances such as rights-of-way, minor roads, and seismic cutlines. The Panel understands that these include existing and ongoing exploration activities as well as Project development activities.

[125] However, the Panel notes that Dover did not provide any timelines as to when these linear disturbances would be reclaimed. The Panel notes the importance of timely reclamation and other habitat enhancement as appropriate ways of mitigating many of Fort McKay's concerns about the Project. The Panel considers good corporate citizenship to be an important aspect of stakeholder and community relations. The Panel expects Dover to begin reclaiming the existing linear disturbances immediately and not to wait until phase 1 development begins.

[126] Dover also identified that reclaiming caribou habitat outside its leases is a potential mitigation and that a program involving collaboration with other operators and ESRD is needed. The Panel supports this approach and encourages Dover to begin this process as soon as possible.

Sulphur Recovery

[127] The Panel recognizes that AER *Interim Directive 2001-03* authorizations have allowed past projects that have several central processing facilities to treat each facility independent of the other when implementing sulphur recovery requirements. However, the Panel recognizes that treating the DNP and DSP facilities separately will delay the implementation of sulphur recovery for the DSP and cause 1165 additional tonnes of SO₂ to be emitted over the first four years of DSP operation.

[128] The Panel notes that the scavenger systems proposed appear to be able to capture significantly more than 70 per cent. These systems have operated successfully in other SAGD schemes, have relatively low capital costs, and can maintain the required sulphur recovery levels through a wide range of gas compositions and rates.

[129] The Panel finds that there are feasible options that would eliminate increased emissions and allow AER *Interim Directive 2001-03* requirements to be met on a project-wide basis instead

of on a facility-by-facility basis. Therefore, the Panel directs Dover to provide a plan to mitigate SO₂ emissions and meet those requirements on a project-wide basis. The plan must be submitted to the AER for review.

Odours, Emissions, and Air Quality

[130] The Panel notes that Dover attempted to present a robust analysis of the odour impacts on the Moose Lake Reserves. The Panel further notes Dover's use of an approach other than what was originally provided in its EIA, but is aware that the revised assessment was conducted only for receptors near the Moose Lake Reserves.

[131] The Panel recognizes the potential for odours at the Moose Lake Reserves, but that specific protocols, operating procedures, technology adoption, and monitoring practices can help mitigate concerns. The Panel notes the following commitments made by Dover:

- Plant-wide fugitive emissions will be identified and controlled using the protocol recommended by the *Environmental Code of Practice for the Measurement and Control of Fugitive Emissions from Equipment Leaks* (Canadian Council of Ministers of the Environment, 1993).
- A leak detection and repair system will be implemented.
- A program will be developed and implemented to detect and repair leaks, and it must meet or exceed CAPP's *Best Management Practice for Fugitive Emissions Management*.
- A low oxides of nitrogen emissions technology will be selected as required by the *Alberta Interim Emission Guidelines for Oxides of Nitrogen for New Boilers, Heaters and Turbines using Gaseous Fuels for the Oil Sands Region* (Alberta Environment, 2007).
- VRU will be used to reduce hydrocarbon emissions.
- There will be no continuous flaring other than of pilot and purge gas.
- Odour indicator species will be continuously monitored.
- A protocol will be developed for responding to odours, including investigating the source of the odour, notifying communities near the Project, addressing the odour source, and monitoring to verify that the source of the odour has been addressed.

[132] The Panel directs that these commitments be conditions of the scheme approval.

[133] The Panel is not aware of any mandated methodology or thresholds for conducting odour assessments in Alberta. The Panel recognizes that scientific literature and studies on odour thresholds generate varying results and conclusions for odour assessment.

[134] The Panel accepts Dover's conclusion that its proposed project does not appear to contribute significantly to the predicted exceedances of AAAQO at the RSA MPOI as noted in the modelling results for both the baseline and application cases considered by Dover. The Panel also notes that predicted concentrations of emissions for a receptor on the south border of the Moose Lake Reserves show no exceedance of AAAQO as a result of Dover's proposed project. The Panel accepts that residual air quality effects would be low.

Visual Effects

[135] The Panel recognizes that while the flare itself may not be visible, light from the flare may be visible at times. The Panel also notes that no continuous flaring will occur at the proposed project site other than during process upsets, emergency conditions, and maintenance scenarios. The Panel also notes Dover's commitment to reduce or minimize light pollution concerns by using directional and motion-sensitive lighting on the plant sites and well pads. However, the Panel finds there may be limited options to prevent light from an operation reflecting off the base of low clouds.

[136] The Panel notes the concerns expressed by Fort McKay about visual light pollution. The Panel finds that light pollution from the facilities can be minimized through thoughtful design and operations and encourages Dover to work with Fort McKay to monitor this concern during final Project design, construction (including consideration of the appropriate height of lighting installations), and operations and to address any further concerns that might arise.

[137] Noting Dover's commitment above, the Panel requires that the scheme approval include directional and motion-sensitive lighting at the plant sites, well pads, and associated facilities and makes it a condition of the approval.

TRADITIONAL LAND USE**Evidence***Traditional Land Use Studies*

[138] Dover submitted a traditional land use (TLU) study of the potential effects of the Project on traditional activities of the Fort McKay First Nation (FMFN), Mikisew Cree First Nation (MCFN), Athabasca Chipewyan First Nation (ACFN), and Fort McMurray First Nation (FM468). The TLU was prepared as part of the environmental assessment required by ESRD's terms of reference for the Dover Project. The study included a review of reports commissioned by industry as well as by First Nations. Dover noted that it provided support to FMFN to carry out its own TLU study, which was then considered in the Dover TLU assessment. Dover also noted that it had consulted with the MCFN and the FM468 to arrange TLU studies for the Project and had negotiated a traditional knowledge sharing agreement with the ACFN for the same purpose.

[139] Dover's TLU study included discussion of a number of issues.

- Access to opportunity for traditional activities as a part of Aboriginal culture and daily life.
- Acknowledgement that First Nations people in the area maintain a strong connection to the land and value environmental integrity.
- The belief among First Nations people that existing regional development is diminishing opportunity to pass these values on to succeeding generations.
- The increased access that regional development has given nonaboriginal resource harvesters.

- The cumulative effects of resource development activities have negatively impacted TLU resources and habitats.
- Traditional users believe they should have an active role in resource management in the region.

[140] The Dover and Fort McKay TLU reports established several areas of analysis: an RSA for the TLU assessment based on the traditional territories of FMFN, ACFN, and MCFN; and the culturally significant ecosystems (CSEs) identified by Fort McKay. Dover also evaluated the effects on traditional land use in the LSAs used to evaluate other terrestrial effects (i.e., a 500 m buffer around the project footprint). Dover stated that its study considered the potential effects of the Project on wildlife habitat, hunting and trapping, fish and fish habitat, traditional use plants, and culturally significant sites.

[141] Dover submitted that the PDC considered the maximum impact on social and environmental conditions in that projects included in this assessment may or may not proceed and that the scope or size of these projects may change in the future. The baseline and application cases also examine the maximum impacts in that they assume all developments occur simultaneously.

Trails and Access

[142] Fort McKay identified various trails that they use through the Dover leases. In the phase 1 development area, the proposed access road and the proposed utility ROW may cause only a minor disturbance to using those trails. However, subsequent phases of development will cause more extensive disturbance given the additional elevated pipelines, well pads, and infield roads. The proposed access road is subject to a road closure order that permits industrial traffic only, and access will be controlled at a manned gate 70 km south of the Moose Lake Reserves. This road could increase traffic in the region with the potential to increase access to resources for traditional resource users (a positive impact), but it could create competition for resources from nonaboriginal harvesters (a negative effect).

[143] Dover's quantitative analysis determined that the total loss of traditional-use area caused by the Project and other planned developments in the region is predicted to be 6 per cent of the Fort McKay CSE for all traditional uses.

[144] Dover proposed four measures to mitigate effects on TLU: continued consultation with Fort McKay, facilitation of access for trapping and traditional uses, progressive reclamation, and employee/contractor education about respect for traditional resource users, trap lines, cabins, trails, and related equipment. Dover also plans to update traditional knowledge and TLU information in its project planning as they become available.

[145] Fort McKay submitted that the area where the Dover Project will be developed is one of the last and best areas for traditional activities close to the Moose Lake Reserves. Concerns expressed by Fort McKay about the ability to practise traditional land uses include loss of resources such as fish, wildlife, and culturally important plants, access to harvesting areas, and reduction in quality of life on the Moose Lake Reserves as a result of noise and odours. Many of these concerns are not limited to the Dover Project but are related to regional cumulative effects that include other in situ projects, oil sands mining, and other land uses.

[146] Councillor Raymond Powder described the role the Moose Lake Reserves play in helping the community cope with the impacts they are experiencing in Fort McKay. He asserted that there is increasing demand among community members to access the Reserves. Given the difficulty of travel to Moose Lake when the ground is wet and soft, they have a program to fly community members during the summer months. He said that more members want to and are building cabins there, and submitted that, increasingly, members are discussing the possibility of moving to the Moose Lake Reserves.

[147] Councillor Powder submitted that the community wants the Moose Lake Reserves to continue to provide a refuge and cultural home base for the Fort McKay traditional way of life. He described the need for a place where the land, air, and water are clean; where there are plants, animals, and fish to harvest that are safe to eat; and where residents will not hear, smell, or see oil sands projects—a place people are familiar with and where they can feel safe. He maintained that the Dover Project, without a buffer, is not compatible “with our designated land use for this area”.

[148] Fort McKay indicated that areas within 5 km of the Moose Lake Reserves are considered to be of high cultural value and traditional use, and that a buffer of this size would be needed to minimize immediate effects on traditional use.

[149] Fort McKay argued that, even with companies’ commitments to provide access to trappers and other traditional users, community members continue to have challenges and delays in getting to their traditional land use areas. Restrictions are common at access gates and control points. Community members are required to wait while identification is checked and licence plates recorded, and for an escort through the site. The waiting time can be up to several hours; sometimes community members are even turned away. A company can, for whatever reason, just simply deem the area unfit for access. Fort McKay asserted that security personnel have been disrespectful to its members.

[150] Dover committed to accommodating Fort McKay members who wish to access their traditional lands through the Project area.

Community Member Affidavits

[151] A number of Fort McKay community members had pre-filed affidavit evidence that they adopted at the hearing. These affidavits generally focussed on the importance of the Moose Lake and Buffalo Lake Reserves to Fort McKay community members. Each member’s affidavit evidence is briefly summarized.

[152] Flora Grandjambe described being raised by her parents living off the land at her family’s cabin on Moose Lake where she lived most of the time. She is concerned that if development is allowed close to Moose Lake and Buffalo Lake, the animals will move away and the air and water will become polluted. She wishes that her children and grandchildren, and their children and grandchildren, will have a clean place to go to learn and live the bush life, and continue to be Indians.

[153] Celina Harpe described living at Moose Lake near the Buffalo Narrows and moving each March back to Fort McKay, where her mother and sisters would stay while her father and brother went trapping and hunting. At that time, no men stayed in Fort McKay; they would be out

hunting while the women would remain to tan moose hides. The family would return to Moose Lake in the fall where they would fish, hunt, and harvest berries. She described the abundance of fish, animals, and berries that her family harvested. She noted that there are many burial locations along the Moose Lake trail; people were buried where they died. She tries to travel to Moose Lake annually with her family and feels at home and peaceful there. She said, “This area is a sacred place for me because I spent my life there.” She expressed concern that if projects are built too close to the reserve there will be smells, noise, and pollution at Moose Lake. She said that a buffer zone around the reserves would give her peace of mind and a feeling of safety.

[154] Dayle Hyde has been to Moose Lake two times (when she was 3 years of age and again at 28). She described Moose Lake as a place that is untouched and where you can’t see any significant footprints. She described working for the band and hiring camp attendants who work at the camp in August and September when members fly to Moose Lake on the Suncor flights. She said that “a buffer zone will help maintain the feeling of being away from industry” and that “I would like to preserve the lakes for traditional uses, healing, and maintaining a sense of home and a connection to the past ways.” She said that people have described to her how being at Moose Lake heals their spirits. She believes that her community needs this area for its long-term well-being.

[155] Gerald Gladue described his experience of flying into Moose Lake in August/September on flights paid for by Suncor. He expressed frustration with accessing Moose Lake by land as both Total and BP have security gates and require security escorts. He goes to Moose Lake three to four times in the summer and tries to go every weekend in the winter. He expressed concern that the Project would scare the animals away from the Moose Lake and Buffalo Lake reserves and that the water would become polluted. He noted that more and more Fort McKay members are going to Moose Lake because there is nowhere else to go for good fishing, hunting, trapping, and berry picking. He said that it is “still peaceful and clean up there.” He also said that a buffer zone around these reserves is necessary to protect them, noting that “Moose Lake and Buffalo Lake are basically the last place we have to go. They have chopped off our arms and our legs. Now they are going for our heart.”

[156] Jean L’Hommecourt described growing up at Poplar Point and travelling by dog sled or canoe to Ft. McKay and by foot to the Birch Mountains Wildland Provincial Park for hunting. She remembers Buffalo Lake and Moose Lake Reserves as being like the place of “milk and honey” because food was so abundant. She described how she could hear industrial noise from Shell and from BP drilling activities. She travels to Moose Lake by plane every summer but can only travel once because so many people want to go. In the winter she travels to Moose Lake by truck with her snowmobile in the back with her sons and daughters so they can learn to fish and live on the land. She had two main concerns with the Project. First, that increased access will facilitate more outsiders travelling into the Moose Lake area, and that they will compete with Fort McKay members for the fish, berries, and animals. Second, that Dover will further restrict access to traditional lands, describing the difficulty accessing lands around Ft. McKay due to restrictions from oil sands developments. She argued that a buffer zone around Moose Lake and Buffalo Lake is a good idea but would prefer that there are no more projects at all. “Enough is enough already. I want to have a place to teach my grandchildren the way that I was taught—that is who I am. If I can’t do that, what is the point of living?”

[157] Joseph Grandjambe, son of Flora Grandjambe, said that he has been going to Moose Lake and Buffalo Lake his entire life. As a youngster he travelled by dogsled to his uncle's trapline where they would work for a week, come in for two or three days and head out again. When he started working at Syncrude and raising a family, it was hard to get out into the bush and he tried to do it annually. Now that he is retired, he spends more time on his trapline and at Moose Lake where he has a cabin. He now flies or travels by Argo to Moose Lake three to four times per month. He describes Moose Lake and Buffalo Lake as peaceful and clean. He said that the peace and quiet restores Fort McKay members, as they can get away from the noise, smells, pollution, and disruption of the mines and industrial activity that surround the community. He said that his trapline has been badly affected by industrial activity: there are fewer animals than before, and he now has trouble trapping enough animals to meet his quota, which could result in him losing his trapline. He described Buffalo Lake and Moose Lake as a clean and quiet refuge where people have not left footprints. He submits that the Dover Project could pollute the area or scare away the animals and that this is too big a risk for the community.

[158] Larry Boucher described how he would travel to Moose Lake with his father, who was born there in 1910. His parents, grandparents, and ancestors all grew up there. He described his family history living, trapping, gathering medicines, and hunting in and around Moose Lake. He noted that there are many cemeteries in the area. He recalled catching more than 1000 fish in 10–12 days for personal use and for feeding their dogs. He also described harvesting various medicinal plants and berries at Moose Lake. He said that the protection of the Moose Lake area is important so that the children and grandchildren will have a clean, peaceful place to go to practise traditional ways.

[159] Lee Wilson described his personal and family history hunting and fishing at Namur/Buffalo Lake. He began to travel to Namur/Buffalo Lake about 15 years ago when it became too difficult to hunt and fish nearer to Fort McKay. He described himself as an avid hunter and fisherman who loves to teach his five children about bush life, noting that the Namur/Buffalo Lake area always had really good fishing. He built a cabin there, starting in 2000, and travels to the Namur/Buffalo Lake often (eight times last winter) to hunt and fish. He noted how difficult it is to travel through the security gates of oil companies whose projects must be crossed to access Namur/Buffalo Lake. He said that in the 1960s and 1970s fewer and fewer Fort McKay members lived exclusively on the land, and attributed this trend to the fact that kids had to be in school and more men started taking jobs in Fort McMurray or with oil companies after a drop in fur prices. He described how increasing development with noise and pollution has resulted in more Fort McKay people wanting to travel to the Buffalo Lake/Moose Lake area where it is still peaceful and clean. It remains a place that still looks how it looked when he was a child and his grandparents were children. He said, "we have history there and we want to have a future there too," and he wants to ensure that the lakes are protected from air and water pollution and smells. He supported the establishment of a buffer zone around the Namur/Buffalo reserves to ensure that they are not polluted and to maintain the moose population. It would provide comfort and peace of mind to know that development could not come up to the boundary of the reserves.

[160] Mel Grandjambe, a former chief and council member, has a trapline about a mile from the Moose Lake trail. As a child, he learned about trapping from his father, and they fished Moose Lake for family food and to feed their dogs. He expressed concerns about extensive development around Fort McKay. He is now unable to access areas where he trapped and hunted

as a child because of access restrictions imposed by oil and gas companies operating around Fort McKay. He considers it insulting to have to ask permission to access lands where he has lived his whole life and where he has a right to be. He is concerned that new development will eventually surround Moose Lake and Buffalo Lake just as it has Fort McKay. He stated that he used to bring young people to Moose Lake to learn about trapping, hunting, and the bush life. He does not believe that the Fort McKay culture can be sustained without being connected to the land of his grandparents. He stated that a buffer zone is the only way to preserve and protect Moose Lake and Buffalo Lake reserves as a reliable place to get food from and to preserve traditional land use and culture. He says, “we need a physical, cultural, and mental refuge from the development that surrounds us.”

[161] Melinda Stewart, daughter of Stella and James Stewart, described being raised living up and down the Athabasca River. Her father was a fisherman, and they would eat fish from the Athabasca River and other area rivers all the time. They were never concerned about the health of the fish or the cleanliness of the water, but they are now afraid to eat the fish from the Athabasca River; neither she nor her father believes the fish from the river are safe to eat. Her great uncles had traplines in the Fort McKay area where they used to hunt and fish to live off the land. She noted that these areas are now under oil sands industrial development. She started going to Moose Lake in 2001 when flights were offered in the summer. Her brother has a cabin on Namur Lake where she has an opportunity to teach her girls how to fish and set snares the way she was taught to live off the land. She said that there are lots of different fish at Moose Lake that are still healthy, and the water is still clean. She argued that it is essential this area be protected for the well-being of the children and the community. She said, “I need to have a place to take my kids to teach them how I was taught to live.”

[162] Wilfred Grandjambe has been a member of Fort McKay since 1948. He has been a trapper his whole life and operates trapline #33 east of Moose Lake. He was born on the trapline and raised in the Moose Lake area. He described how his family travelled to Moose Lake often for good hunting, fishing, and berry picking, and said that as a child his family would spend the summer at their cabin on Moose Lake. He described the challenge of access as oil and gas activities and security gates have created physical barriers to being able to get to the Moose Lake Reserves. He argued that it is not sufficient just to stop development at the boundary of Fort McKay reserve lands; it is important to have a protected area between any development and the reserves. He said that this is the only way to provide assurance that the reserve lands and waters will not end up being polluted. He does not want Buffalo Lake and Moose Lake to end up like Fort McKay. He does not want the community to lose the place that “fed our people for hundreds of years.”

Findings

[163] The Panel acknowledges that the lands in Dover’s Project area are considered to be the traditional territory of Fort McKay and that some of its members carry out traditional land use activities on those lands. The Panel specifically acknowledges and accepts the importance of the Moose Lake Reserves lands for Fort McKay members who practise TLU activities in this area. The Panel noted that the Moose Lake Reserves lands are contiguous with the Birch Mountains Wildland Provincial Park and new conservation areas designated under LARP.

[164] The Panel notes the 8 km distance from the Dover Project boundary to Fort McKay's settlement area on the shores of Moose Lake and the additional 13 km from the boundary to the DNP, as well as the fact that the nearest well pads could eventually be about 1.2 km from the boundary. The Panel further notes that Fort McKay identified 5 km as a distance at which noise, odour, and visual disturbances are minimal, and that Dover agreed.

[165] Acknowledging the distance of the DNP from the boundary, the Panel finds that the southernmost area of the Moose Lake Reserves lands will only be minimally affected by these types of disturbances, and the Dover Project will have little or no impact on traditional land use activities on the Moose Lake Reserves lands as a whole.

[166] The Panel finds that conclusions based on regional studies, such as the RSA or CSE, that were submitted at this hearing are of limited value in evaluating the effects of a specific project such as Dover's. An LSA assessment is more appropriate.

[167] The Panel acknowledges that there would be localized adverse affects on Fort McKay's traditional land use activities within the Dover leases. These effects will occur during development, operations, and reclamation, recognizing that these activities are phased over time.

[168] The TLU section of the EIA identified that, when considering existing disturbances in addition to the proposed Project at the LSA scale, the total disturbance will be about 15 per cent, which is an increase from the baseline condition of 3 per cent. Although both the area of disturbance footprint and the density of linear disturbances will increase, the Panel notes that no thresholds that were identified from policy statements or the scientific literature would allow evaluation of project and cumulative effects. The Panel expects that disturbance will be minimized through both project and cooperative planning and by rapidly initiating the reclamation of disturbances no longer needed for project operations.

[169] The Panel notes that regional effects on traditional land use cannot be attributed solely to the Project. Rather, the primary concern is the cumulative effect of all land uses, including oil sands in situ development and mining and forestry activities. The Panel notes that cumulative effects must be addressed through regional planning and the development of regionally based management frameworks. The Panel further notes that while such plans and frameworks are subject to constant revision, they do not preclude further industrial development in the region.

[170] The Panel notes that two of the mitigations requested by Fort McKay have already been considered by the Government of Alberta. First, an expanded protected areas network has been identified in LARP. Second, the Panel notes that Dover has collaborated with Athabasca Oil and Sunshine Oil Sands to develop a common access road that will service multiple projects, and that traffic on this road is restricted to industrial traffic as a result of a road closure order.

[171] The Panel accepts that some ecological indicators, such as moose, marten, and fisher, and fish populations, have declined below preindustrial and predisturbance levels regionally. However, it is not clear to the Panel how these declines have affected the ability of Fort McKay members to exercise their TLU rights and activities, or at what level of decline of these and other ecological indicators their rights would stop being meaningful to pursue.

[172] The Panel found the various affidavits submitted by members of Fort McKay to be informative with respect to how their traditional land use activities used to be conducted and how

they are currently conducted. The Panel acknowledges the concerns of community members about ground transportation access to the Moose Lake Reserves, particularly the difficulties with access by road given the security arrangements industry has developed. The Panel notes industry's cooperation with Fort McKay in providing access to Moose Lake Reserves by air to community members wishing to travel there in the summer.

[173] The Panel acknowledges the concerns expressed by Fort McKay members about access to traditional land use areas, including the delays at gates and checkpoints and the reported disrespectful treatment. The Panel expects Dover to live up to its commitment to accommodate Fort McKay members who wish to access their traditional lands through the Project area.

[174] While the Panel understands the importance of its traditional territory to Fort McKay and acknowledges that there will be some localized adverse effects from the project, it finds that the disturbance levels will not prevent Fort McKay from exercising its traditional land use activities in the Moose Lake Reserves area or regionally.

SOCIAL AND ECONOMIC EFFECTS

Evidence

Land Release, Housing, and Camps

[175] Dover noted that it was in discussions with third-party camp providers but has not decided whether it will build its own camp or use existing third-party camps.

[176] Wood Buffalo stated that there is a lack of housing for workers and high associated rental rates because not enough land is available for economic residential development. The high cost of rent has created a significant and often concerning secondary rental market in Fort McMurray, including illegal suites and rooms, long-term stays in campgrounds, hotels, and motels, and instances of unrelated adults doubling-up or tripling-up in bedrooms.

[177] Wood Buffalo argued that the lack of land and the subsequent high housing prices makes the goal of owning a home unattainable for many individuals and families. Wood Buffalo testified that a new three-bedroom home in the Timberlea subdivision lists for \$940 000—a home that in Calgary can be bought for \$600 000 and in Edmonton for \$450 000. With the new Canada Mortgage and Housing Corporation rules, people are expected to come up with \$100 000 cash as a down payment to buy a home.

[178] Wood Buffalo expressed concerns about the development of camps because often it is not coordinated. In some cases, camps receive ESRD approval, but not Wood Buffalo approval, and continue to operate after the ESRD approval expires. Wood Buffalo is concerned about the safety of these unpermitted camps during evacuation events such as forest fires. In 2012 alone, Wood Buffalo located 21 camps that were unpermitted.

[179] Wood Buffalo stated that the fly-in and fly-out of workers is valid for the construction phase of a project but not for the ongoing operations. Wood Buffalo encourages and supports companies that choose not to use a fly-in, fly-out model for their operations staff. It argued that

encouraging operations staff to live within the community is essential for the development of a sustainable region that would better support the development of the oil sands.

Traffic and Transportation

[180] Dover plans to use the AOSTRA road north of Fort McMurray as its primary access, via the STP road for 29 km and the McKay River bridge crossing. The proposed Project access road would take off from the STP road west of the McKay River Bridge. Dover confirmed that Southern Pacific has completed the access road and bridge crossing.

[181] Dover anticipates about 100 oversized loads, including pipe rack modules, steam generators, evaporators, and oil treatment vessels, per development phase. Phase 1 loads will be spread over a two-year period during construction. Phase 1 construction traffic is expected to peak in 2015. Peak traffic levels for the Project are expected in 2022 with an average of 201 daily trips.

[182] Wood Buffalo testified that Highway 63 and other roads in the region are not able to keep pace with the increasing traffic volumes and population growth. Wood Buffalo noted, for example, that according to the Oil Sands Developers Group about 5000 large modules are expected to be shipped north on Highway 63.

[183] Fort McKay also raised concerns about traffic volumes and unsafe road conditions on Highway 63. It gets many complaints from community members about the Fort McKay access road leading from Highway 63 into the community. Industry uses that road, and it is not wide enough for the large trucks and the current volume. An increase in traffic related to any project development only makes matters worse for Fort McKay residents.

Economic Benefits

[184] Dover submitted that the initial capital expenditures for phase 1 development will be about \$2.5 billion, while the total capital cost to achieve ultimate production rates, excluding inflation, would be \$8 billion. An additional \$18 billion of sustaining capital would be required over the life of the Project. The estimated annual operating cost for phase 1 will be \$262 million and is expected to increase to \$890 million at ultimate production rates.

[185] Dover stated that the estimated annual operational costs during phase 1 for the 7950 m³ per day (50 000 barrels per day) production will be \$262 million starting in 2016. These costs will increase to \$890 million once the Project builds out to 39 750 m³ per day (250 000 barrels per day) in 2025.

[186] Dover stated that the Project would have the greatest economic impact on the region and the province over the course of the five construction stages between 2014 and 2025.

[187] Dover estimated that during construction there would be an addition of 13 947 person-years of employment within the region and 30 000 person-years of work in Alberta. Dover predicted that the construction expenditures and associated economic impact would have two peaks, in 2020 and 2021. Dover stated that at full build, the continuing operations of the Project would create 9080 new positions in Alberta, 1655 of those within the region.

[188] As a result of construction, \$8.98 billion would be added to the economy of Alberta, \$1.46 billion of which would be within the region. These numbers include contributions from new wages and salaries of \$2.0 billion to the province, of which \$1.1 billion would be within the region; as well as revenues of \$1.85 billion to the Government of Alberta, of which \$47 million would accrue to the municipal government.

[189] Dover estimated that during operations from 2023 to 2069, the Project would contribute \$5.32 billion to the province, of which \$3.16 billion would accrue to the region. These numbers include contributions from new wages and salaries of \$555 million to the province, of which \$160 million would be within the region; as well as revenues of \$1.53 billion to the Government of Alberta, of which \$103 million would accrue to the municipal government.

[190] Dover estimated that Crown royalties generated from the Project would total \$26 billion uninflated, based on an oil price of US\$70.00 a barrel.

[191] Fort McKay, using data provided in Dover's application, concluded that the Project has economic benefits to Alberta. However, it asserted that they are not as significant in the context of the overall size of the provincial economy.

[192] Wood Buffalo did not oppose the Project, noting that it had a memorandum of understanding with Dover that serves to further identify and mitigate some of the Project's impacts in the region.

Findings

[193] The Panel acknowledges Wood Buffalo's concerns about infrastructure planning. The Panel encourages Wood Buffalo to work with the relevant provincial and federal authorities as well as with its industry partners to address the infrastructure and social issues within the region.

[194] The Panel finds that the Project will result in economic benefits to the region, the province, and Canada in terms of bitumen recovery, employment, royalties, and taxes.

[195] The Panel accepts the magnitude of the economic benefits as reported by the parties and notes that the parties agree the Project will create economic benefits. The Panel acknowledges that Dover and Fort McKay assessed the economic benefits of the Project in different contexts. The Panel recognizes Fort McKay's position that the benefits are of less significance in the context of the provincial economy. However, the Panel finds that the magnitude of the economic benefits is significant to the region and the province.

20 KM BUFFER

Evidence

Buffer Zone

[196] Fort McKay requested that a buffer zone be established around the Moose Lake Reserves to protect the reserves from effects of oil sands development, arguing that 20 km is the minimum buffer that would achieve the desired protection from direct effects of in situ development. Fort McKay further stated that such a "no development" buffer zone would serve as a biological

refugium that would help maintain landscape diversity both on the reserves and nearby. It argued that such a buffer would facilitate Fort McKay members' traditional use activities and benefit the community by keeping pollution sources and industrial noise farther away.

[197] Fort McKay indicated that it was in discussions with the Government of Alberta to develop a specific regional access management plan and establish a buffer zone to protect the Moose Lake Reserves from the effects of industrial development. Fort McKay argued that the 20 km buffer would also increase the conservation benefits of the existing protected area in the Birch Mountains Wildland Provincial Park.

[198] The ALCES modelling evaluated three scenarios: no buffer zone, a 20 km "no development" buffer, and a 20 km "no development" buffer zone with an additional 20 km intensive management zone. Fort McKay argued that the Moose Lake Reserves are not extensive enough in themselves to support a harvestable supply of moose. The modelling indicated that without a buffer Fort McKay would be able to harvest only three moose per year, but that with a 20 km buffer in place the harvest could be more than 50 per year.

[199] Dover asserted that the Project would have negligible to minor effects on air quality, visual effects, odour, water quantity and quality, noise, soils, vegetation, and wildlife habitat and abundance on the Moose Lake Reserves. Its analysis showed that a "no development" buffer around the reserves is not required to ensure ecological integrity or provide enough lands for members of Fort McKay to pursue traditional land use activities. Dover asserted that moose populations fare better if hunting and predation are reduced, regardless of the existence of a buffer.

[200] Dover recognized that a buffer could be beneficial, but found no scientific evidence to indicate that 20 km is the appropriate size. Dover also noted that Fort McKay was not asking for a 20 km buffer on any other projects, despite Fort McKay's analysis that a buffer would only provide the predicted benefits if applied to all projects around its reserve lands.

[201] Fort McKay acknowledged that the best quality reservoir is in the northern area of the leases, and that there could be 222 million m³ (1.4 billion recoverable barrels) in the proposed 20 km buffer zone. However, Fort McKay asserted that not all of the bitumen is at risk of sterilization as a result of the proposed buffer. Mr. Edgar suggested that 1600 m horizontal wells could be used to access bitumen within the buffer zone as this length is currently used in conventional horizontal oil production.

[202] Dover argued that horizontal wells of this length are not currently practical for SAGD because uniform steam conformance over such a distance has not been commercially proven. Dover noted that industry is assessing SAGD well pairs up to 1480 m, but these have not performed as well as shorter SAGD wells.

[203] Fort McKay assessed the possible reduction in economic benefits to Alberta as a result of the 20 km buffer, arguing that Dover's total production with the buffer would be 447 million m³ (2812 million barrels), compared with 652 million m³ (4100 million barrels) without a buffer. Fort McKay also asserted that, over the 65-year life of the project, the annual revenue losses from the buffer would be \$174 million of labour income, \$1189 million of gross domestic product, \$67 million of income taxes, and \$173 million of royalties.

[204] Dover argued that these losses in total bitumen production, combined with reduced Project economics and delayed Project execution timelines, would reduce the net present value (NPV) of the Project by about 75 per cent. Dover further argued that Alberta would lose about 50 per cent of the NPV of the royalties associated with the Project. Dover noted that a reduction of bitumen production from the Project of 31 per cent as a result of the buffer corresponds to a 31 per cent decrease in jobs.

Findings

[205] The Panel notes that Fort McKay presented a similar buffer proposal for consideration by the Government of Alberta as part of the LARP consultation process. The Panel also notes that some additional protected lands contiguous with the Moose Lake Reserves have been identified by the LARP.

[206] The Panel notes that what Fort McKay sought from the AER was not a buffer around the entire reserve; rather, it requested that the AER create a 20 km buffer between the Project area and the reserve within Dover's lease area. The Panel acknowledges that the ALCES model predicts positive impacts on wildlife as a result of establishing a 20 km buffer, particularly on the levels of harvestable moose within the FMFN traditional land use area.

[207] The Panel notes that Fort McKay's traditional lands include large protected areas such as Birch Mountains Wildland Provincial Park and Wood Buffalo National Park (which was not included in the ALCES study), and also form part of the biological refugium and support traditional land use activities.

[208] The Panel acknowledges Dover's current proposed buffer of about 1.2 km from well pad locations that would, eventually, be developed close to the Moose Lake Reserves boundary. The Panel also notes the distances from Dover's proposed activities to the settlement area of Moose Lake to be in excess of 8 km and finds that community members in the Moose Lake settlement area are unlikely to hear, smell, or see Project-related activities.

[209] The Panel notes that the buffer zone would exclude between 205 and 222 million m³ (1.2–1.4 billion barrels) of bitumen from production. The Panel finds that, even accepting that Dover's estimate of lost bitumen may have been overstated by about 17 million m³ (106 million barrels), the adverse impact on the project is not acceptable given the benefits that would accrue from developing all of the reserves.

[210] The Panel therefore finds that the economic impacts on the province and regional municipality of establishing a buffer are significant and would not be in the public interest.

[211] The Panel agrees that the AER has the authority to create a setback between a project and adjacent lands. However, given that there would be little if any impact on the Moose Lake Reserves lands directly, it is not necessary or in the public interest to impose the requested buffer.

FACTORS TO CONSIDER IN ASSESSING THE APPLICATION

[212] In accordance with section 3 of the *Responsible Energy Development Act General Regulation*, where the AER is to consider an application for an energy resource activity under the *OSCA*, the Panel must consider (a) the social and economic effects of the energy resource activity, (b) the effects of the energy resource activity on the environment, and (c) the impacts on a landowner that result from the use of the land on which the energy resource activity is or will be located.

[213] As noted in this decision, the predicted positive economic impacts of this project would be significant. On the other hand, the Project is one of many in the region and as such contributes to some of the negative social impacts associated with a rapidly expanding population and workforce in the region, such as housing pressures, traffic problems, and physical and social infrastructure inadequacies.

[214] It is also likely that there will be some negative environmental impacts on wildlife habitat and animal species that are important to First Nations' traditional land use activities and to the nonindigenous population's recreational enjoyment of the area.

[215] The Project is located on Crown lands. The Panel has concluded there will be little if any impact on the Fort McKay reserve lands at Moose Lake. The Panel recognizes that Fort McKay conducts traditional activities on lands within Dover's project area, and finds that Fort McKay will be able to continue its traditional activities within the immediately adjacent area until project development occurs there.

[216] The Panel notes that Fort McKay's traditional lands are large (about 3 526 226 ha) and Dover's project area (38 000 ha) is only a small fraction, about 1 per cent, of those lands. The Panel has concluded that Fort McKay members will be able to carry on their traditional activities in other parts of their traditional territory and that the Project will not negate the ability of Fort McKay members to continue their traditional activities.

[217] Dover has also obtained valid leases that allow it to exercise rights to extract the bitumen.

[218] When the Panel balanced all of these factors, it was apparent that the economic benefits are so significant that despite the social and environmental impacts described by the parties, the positive aspects of the Project outweigh the negative impacts.

[219] Section 10 of the *OSCA* requires the AER to also have regard for the public interest in considering the application. The Panel notes that its assessment as to whether an application is in the public interest involves considering the social, economic, and environmental impacts of a project. It also notes that to be in the public interest, a project must not only benefit the applicant and those directly connected to it, it must benefit Albertans in general. The Panel recognizes that the determination of the public interest is a subjective matter, constrained only by the objectives of the legislation and the power of the AER to carry out those objectives. At the same time, determination of the public interest must arise from the evidence presented and the careful and fair consideration of that evidence by the Panel.

[220] The Panel has concluded that the positive economics of the Project and the magnitude of the benefits provided to the people of Alberta as a whole, when balanced against the negative effects that might occur, demonstrate that the Project is in the public interest.

CONCLUSION

[221] The AER hereby approves Application No. 1673682 for a bitumen recovery scheme, which includes an initial area where Dover has delineated sufficient resources to complete its phase 1 development, subject to the report's conditions summarized in appendix 2 and approval by the Lieutenant Governor in Council.

Dated in Calgary, Alberta, on August 6, 2013.

ALBERTA ENERGY REGULATOR

<original signed by>

G. Eynon, P.Geo., FGC
Presiding Panel Member

<original signed by>

R. C. McManus, M.E.Des.
Panel Member

<original signed by>

T. C. Engen
Panel Member

APPENDIX 1 HEARING PARTICIPANTS

Principals and Representatives
 (Abbreviations used in report)

Witnesses

Dover Operating Corp. (Dover)

M. Ignasiak
 S. Duncanson
 T. O'Sullivan
 J. Kennedy
 J. Demchuk
 D. Neuman

T. Bachynski
 D. Hausermann
 T. Cuthbert
 M. Jalkotzy
 M. Goodjohn
 K. Ingoldsby
 A. Shannon
 R. Rudolph

**Fort McKay First Nation and Fort McKay
 Métis Community Association**

K. Buss
 K. Lambert
 T. Razzaghi

F. Grandjambe
 J. Grandjambe
 R. Quintal
 K. Buffalo
 R. Powder
 A. Pinto
 D. Stuckless
 G. Gladue
 M. Grandjambe
 L. Wilson
 J. L'Homme-court
 M. Stewart
 P. McCormack
 A. Garibaldi
 T. Behr
 C. Harpe
 D. Hyde
 R. Edgar
 J. Sedley
 S. Berryman
 J. Nishi
 B. Stelfox
 M. Carlson
 L. Gould

Regional Municipality of Wood Buffalo

R. Purdy
 K. Morianos

G. Laubenstein
 M. Evans

 (continued)

Principals and Representatives
(Abbreviations used in report)

Witnesses

Alberta Energy Regulator staff

- M. LaCasse, AER Counsel
 - B. Kapel Holden, AER Counsel
 - A. Allum
 - S. Power
 - C. Dickinson
 - T. Poon
 - N. Sitek
 - Z. Semaine
 - B. Greenfield
 - A. Mahmood
 - B. Curran
 - E. Johnston
-

APPENDIX 2 SUMMARY OF CONDITIONS AND COMMITMENTS

Conditions generally are requirements in addition to or otherwise expanding upon existing regulations and guidelines. An applicant must comply with conditions or it is in breach of its approval and subject to enforcement action by the AER. Enforcement of an approval includes enforcement of the conditions attached to that licence. Sanctions imposed for the breach of such conditions can include the suspension of the approval, resulting in the shut-in of a facility. The conditions imposed on the licence are summarized below.

The Panel notes that Dover has made certain promises and commitments (collectively referred to as commitments) to parties involving activities or operations that are not strictly required under AER requirements. These commitments are separate arrangements between the parties and do not constitute conditions of the AER's approval of the application. The commitments that have been given some weight by the Panel are summarized below.

The Panel expects the applicant to comply with commitments made to all parties. However, while the Panel has considered these commitments in arriving at its decision, the Panel cannot enforce them. If the applicant does not comply with commitments made, affected parties can request a review of the original approval. At that time, the AER will assess whether the circumstances of any failed commitment warrant a review of the original approval.

CONDITIONS

The Panel notes the following commitments made by Dover, which the Panel has decided to make conditions of the approval [see paragraph 131]:

- Plant-wide fugitive emissions will be identified and controlled using the protocol recommended by the *Environmental Code of Practice for the Measurement and Control of Fugitive Emissions from Equipment Leaks* (Canadian Council of Ministers of the Environment, 1993).
- A leak detection and repair system will be implemented.
- A program will be developed and implemented to detect and repair leaks, and that program must meet or exceed the *CAPP Best Management Practice for Fugitive Emissions Management*.
- A low oxides of nitrogen emissions technology will be selected as required by the *Alberta Interim Emission Guidelines for Oxides of Nitrogen for New Boilers, Heaters and Turbines using Gaseous Fuels for the Oil Sands Region* (Alberta Environment, 2007).
- VRU will be used to reduce hydrocarbon emissions.
- There will be no continuous flaring other than of pilot and purge gas.
- Odour indicator species will be continuously monitored.
- A protocol must developed for responding to odours, including investigating the source of the odour, notifying communities near the Project, addressing the odour source, and monitoring to verify that the source of the odour has been addressed.

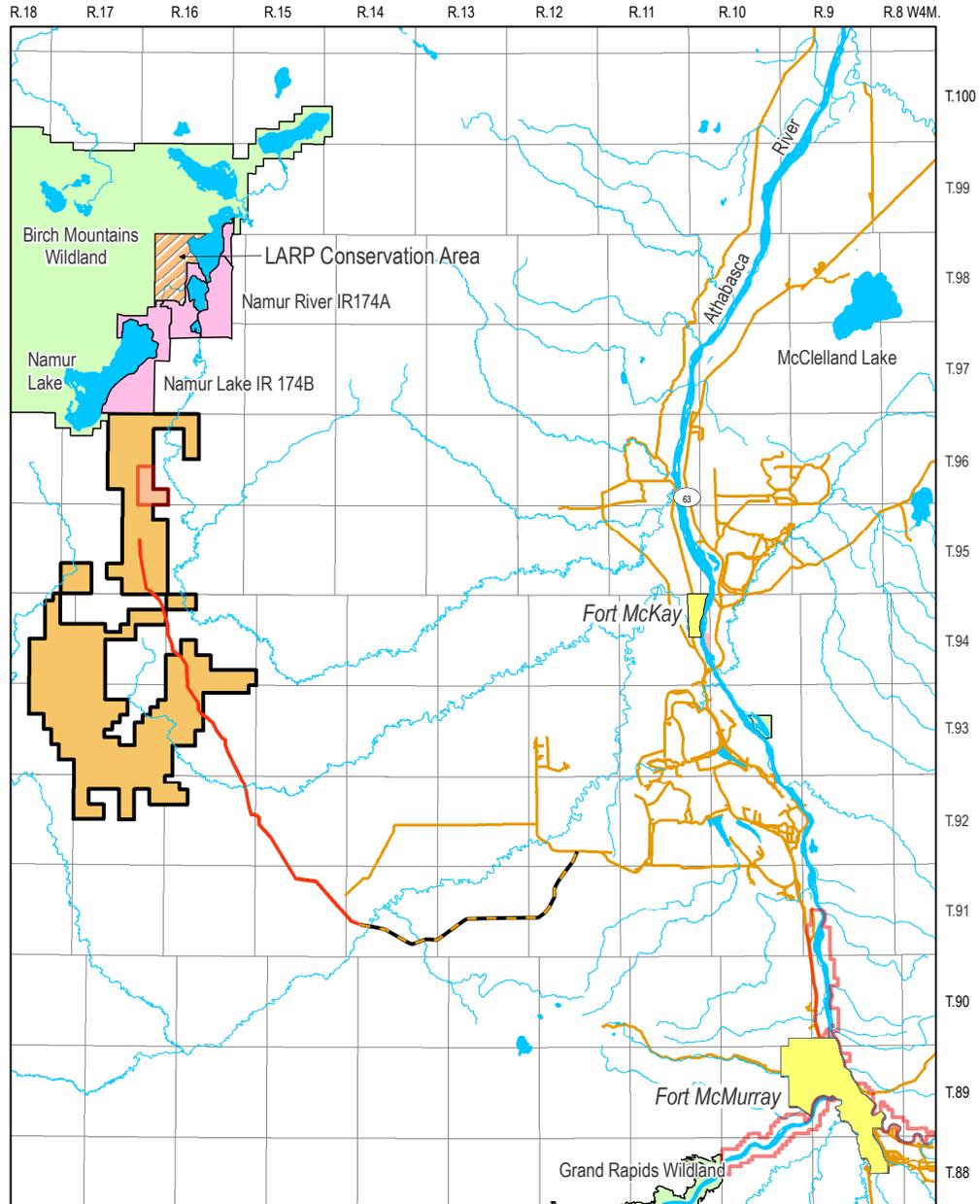
The Panel also requires the following:

- Dover must provide a plan to mitigate SO₂ emissions and meet AER *Interim Directive 2001-03* on a project-wide basis. The plan must be submitted to the AER for review. [See paragraph 129.]
- The scheme approval must include directional and motion-sensitive lighting at the plant sites, well pads, and associated facilities. [See paragraph 137.]

COMMITMENTS BY DOVER

- Dover committed to a coordinated approach to wildlife monitoring in the region and to a deer and wolf management program in collaboration with ESRD and other in situ operators. To reduce effects on caribou habitat, Dover proposed on-site mitigations that reflect standard industry practices, as well as an off-site caribou habitat enhancement program. [See paragraph 72.]
- Dover indicated that it would manage access to its Project at a gate located about 30 km southwest of Fort McKay IR174. Dover noted that there will be control gates at each of its processing plants, but that these plant sites are only small areas of the Project. Dover also committed to restricting access to its operations and prohibiting workers residing in its camp from using all-terrain vehicles for recreational use while on site. [See paragraph 84.]
- Dover committed to accommodating Fort McKay members who wish to access their traditional lands through the Project area. [See paragraph 150.]

APPENDIX 3 PROJECT MAPS



Legend

- Dover project area
- Indian Reserves
- Phase 1 development area
- Southern Pacific access road
- Major roads
- Proposed main access road

Figure 1. Regional setting

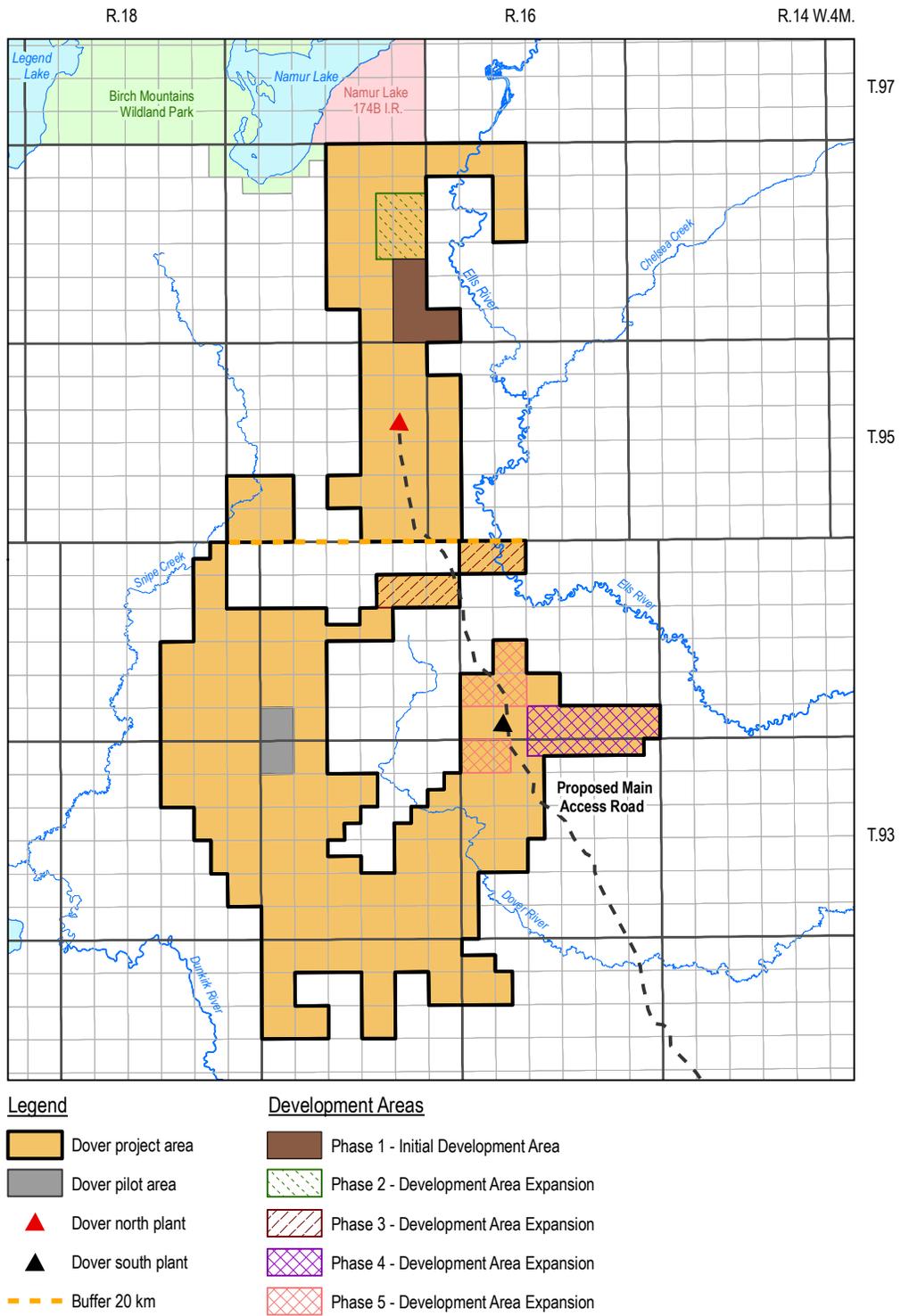


Figure 2. Project leases and initial development phases