

Suncor Base Mine Extension Project - Summary of Issues

This document provides a high-level summary of the issues submitted to the Impact Assessment Agency of Canada on the Suncor Base Mine Extension Project (the Project) during the comment period on the Initial Project Description submitted by Suncor Energy Inc. (the proponent). Original submissions are posted on the Canadian Impact Assessment Registry (Reference Number #80521). Categories are listed in alphabetical order.

Accidents and Malfunctions
Potential effects to the environment, particularly nearby waterways, groundwater and surface water quality, and environmentally sensitive areas, from accidents and malfunctions, such as failure of containment structures on tailings impoundment areas, spills or leaks, uncontrolled releases of explosive gases, or incidents associated with other project components or activities, and means to mitigate and monitor effects.
Clarity on the spill prevention, preparedness, response measures and systems, response capacities, and emergency management plans that will be implemented.
Acoustic Environment
Potential effects to human health and well-being due to increased noise levels from project activities such as machinery use, blasting, drilling activities, and increased traffic, including timing of activities and proposed mitigation and monitoring plans.
Alternative Means of Carrying Out the Project
Clarity on alternative means of carrying out the Project, including any technologies and processes considered, and justification for selection(s).
Alternatives to the Project
Clarity and further detail on the alternatives to the Project that were considered and rationale for why the current approach was selected.
Atmospheric Environment
Effects to air quality and to local residents' health and well-being due to increased fugitive dust emissions and concentrations of particulate matter in the atmosphere from fuel combustion by-products, earth moving, and project operations, and means to mitigate and monitor effects.
Clarity on if the Canadian Ambient Air Quality Standards and objectives will be used to undertake an assessment of existing (baseline) and predicted future (Project, Project + baseline, and Project + baseline + existing and planned future developments) air quality (e.g. for nitrogen dioxide (NO ₂), sulphur dioxide (SO ₂), fine particulate matter (PM _{2.5}), and ozone).
Consideration of secondary pollutants, such as ozone, in the air quality assessment.
Effects to air quality, including cumulative effects, due to emissions of criteria air contaminants (e.g. nitrous oxides (NO _x), PM _{2.5} , volatile organic compounds (VOCs), SO ₂ , polycyclic aromatic compounds (PACs), and metals) from the combustion of diesel fuel in large off-road vehicles, the processing of bitumen, and exposed surfaces such as the mine face and tailings ponds.
Potential for increased production of secondary organic aerosols, such as PM _{2.5} , downwind of the project area due increased emissions of precursor compounds.
Potential effects of the Project and cumulative effects to terrestrial and aquatic ecosystems, including sensitive ecosystem receptors, due to local and regional degradation of ambient air

quality and deposition of atmospheric contaminants, which may result in impacts to water quality, soil resources, flora, and fauna in and around the project area.
Acidification and exceedance of ecosystems' critical loads due to emissions of NO _x and SO ₂ from the Project, and resultant impacts to plants, wildlife, and fish and fish habitat.
Contribution of the Project to light pollution and potential effects to nearby communities.
Climate Change and Greenhouse Gas Emissions
Assessment of the Project's greenhouse gas (GHG) emissions and contribution to climate change as per the draft Strategic Assessment of Climate Change ¹ , and description of how the Project aligns with the Government of Canada's long-term goal to achieve net-zero emissions by 2050.
Clarity on the scope of activities included in the annual estimate of GHG emissions, an estimate of GHG emissions for each phase of the Project, and information on the methodology, data, emissions factors, and assumptions used to quantify GHG estimates.
Clarity on the specific technologies and practices under consideration to reduce the Project's GHG emissions, including best available technologies and best environmental practices.
Effects on carbon sinks (e.g. forested areas, wetlands, etc.) and implications for climate change.
Cumulative Effects – Regional Initiatives and Assessments
Description and/or map of the existing land disturbances in the area, current and approved projects in the region (including SAGD projects), and information on their reclamation plans and how these will integrate with the reclamation plan for the Project.
Current status of regional and local environmental monitoring and trends including for air, water, and sediment quality.
Clarity on whether a joint review of the Project will be conducted with the Mackenzie Valley Resource Management Board to assess potential transboundary effects on water quality and quantity in the Northwest Territories.
Clarity on how information from the environmental assessment of the Voyager South Project will be considered.
Potential effects of the Project on the ability to achieve the Wood Buffalo National Park Action Plan goals and any associated monitoring or management actions implemented by the Wood Buffalo National Park Action Plan Committee.
Potential effects of the Project and cumulative effects on Wood Buffalo National Park and the Peace-Athabasca Delta due to downstream movement of contaminants along the Athabasca River from the project area, particularly from tailings disposal areas. Include information and findings of the Strategic Environmental Assessment.
Request that if the Lower Athabasca Regional Plan is referenced that clarity is provided regarding Indigenous perspectives on the document.
Drinking Water
Potential effects to drinking and recreational water quality due to spills and local alteration of groundwater flow patterns and local and regional drinking water sources, both treated and on the land, and means to mitigate and monitor effects.
Potential effects to drinking water treatment facilities and their treatment capacity, and means to mitigate and monitor effects.

¹ Government of Canada. 2019. Draft Strategic Assessment of Climate Change. Available at <https://www.strategicasessmentclimatechange.ca/>

Economic Conditions
Potential effects on the local economy, including effects related to the use of automated haul trucks, such as direct and indirect impacts to employment and GDP, the local housing market and property values, local businesses, provincial and federal government revenues, and means to mitigate adverse effects, enhance positive effects, and monitor effects.
Potential effects to local municipal infrastructure and increased financial and environmental liability that may be associated with re-routing the Poplar Creek Road, including costs associated with maintaining road access for oil sands projects west of the proposed Project that currently rely on this road.
Effects of the Environment on the Project
Potential effects of climate change on the Project that could lead to accidents and malfunctions or changes in baseline conditions, including clarity on measures or design features to increase the resilience of the Project to climate change, information on tailings management, water management, and post-operation closure plans.
Fish and Fish Habitat
Potential for the Project to cause harmful alteration, disruption, or destruction of fish habitat, or death of fish, and means to mitigate, offset, and monitor effects, including consideration of potential cumulative effects.
Potential effects of the Project and cumulative effects on the ability of fish to use fish habitat to carry out life processes due to water withdrawals, water drawdown, and erosion and sedimentation in waterbodies, and means to mitigate, offset, and monitor effects.
Potential effects to fish and fish habitat within Poplar Creek, which provides important fish spawning habitat and feed forage for Lake Athabasca fish species.
Potential effects to benthic invertebrate communities due to alteration and removal of waterbodies and watercourses, and resultant effects to fish populations and the ability of Indigenous peoples to practice the right to fish.
Potential changes in water quality that may result in fish tainting, effects on fish health and productivity that could result in changes to abundance, reduced survival and reproduction rates, including consideration of long-term population sustainability and productivity.
Human Health and Well-Being
Production of silica dust from the Project and potential effects to human health, including silicosis, and proposed means to mitigate and monitor effects.
Effects of the Project to regional Indigenous peoples, residents and businesses of Fort McMurray and Fort MacKay due to impacts to the visual aesthetics of the area and along the Athabasca River.
Potential generation of odours and solvent vapours during oil sands extraction and any real or perceived effects to Indigenous communities and other residents and businesses of Fort McMurray and Fort MacKay.
Requirement to conduct a Human Health Risk Assessment that contains all relevant contaminants and exposure pathways, and locations of human receptors relative to the Project.
Requirement to include a Health Impact Assessment that considers potential positive and negative socio-economic factors that may impact physical, mental, and social well-being, and incorporates community concerns, Indigenous determinants of health and gender-based analysis plus.
Potential human health effects of diesel exhaust or diesel particulate matter.

Potential human health effects of local and regional degradation of ambient air quality from the Project.
Indigenous and Stakeholder Consultation and Engagement
Clarity on consultation and engagement processes with Indigenous groups and local residents of Fort McMurray and the surrounding area that will support the identification of different needs and ensure transparency and inclusivity, including barriers to participation in consultation for local under-represented groups.
Need for meaningful and collaborative consultation and engagement with Indigenous communities, including development of a consultation plan, identification of both positive and negative consequences of changes to the environment or to health, social and economic conditions as early as possible in project planning, pre-disturbance assessments, effects monitoring (e.g. Indigenous monitoring), and site visits.
Need for co-management and positive collaboration between Indigenous peoples and the proponent to mitigate project-specific effects, to protect the sustainability of regional Indigenous communities' health and wellness, and to protect key cultural sites.
Need for consultation and engagement with Indigenous communities that follows appropriate consultation protocols and ensures that vulnerable and underrepresented groups are considered.
Indigenous Knowledge
Need for traditional land use studies to augment proponent studies and consideration of Indigenous knowledge throughout the impact assessment process.
Need to provide Indigenous communities with capacity to support community-specific and project-specific cultural impact assessments regarding effects to socio-economic well-being, Aboriginal or Treaty rights, and traditional land use; collaborative development of mitigation and monitoring plans; and participation in the impact assessment process and follow-up and monitoring.
Consideration of existing reports and studies where appropriate, including re-validation with the respective communities of any information used from any previous Indigenous Knowledge studies regarding the Project-specific scope and effects consideration to avoid potential misrepresentation or de-contextualization of Indigenous perspectives.
Indigenous Peoples' Use of Lands and Resources for Traditional Purposes
Effects of the Project and cumulative effects on Indigenous peoples' culture, connection to the land and interconnectedness with the ecosystem, access and availability of lands, the current and future use of lands and resources for traditional purposes, food security and the ability to sustainably continue traditional practices such as trapping, hunting, fishing, gathering (e.g. traditional plants, medicinal plants), teaching, and spiritual practices.
Effects of the Project and cumulative effects to biodiversity and species of cultural importance to Indigenous peoples, including for traditional use, due to tree clearing, habitat loss and fragmentation, sensory disturbance, and effects to wildlife health, and means to mitigate and monitor effects.
Indigenous Peoples' Health and Well-being
Potential effects of the Project and cumulative effects to Indigenous peoples' health through consumption or use of country foods and medicinal plants exposed to contaminants from the Project in water, air, or soil; bioaccumulation of contaminants such as mercury; and means to mitigate and monitor effects.
Effects of the Project and cumulative effects on the mental health and culture of Indigenous peoples and communities (including those living in Fort McMurray), due to permanent

alteration and loss of the traditional cultural landscape.
Indigenous Peoples' Rights
Potential impacts of the Project and cumulative impacts to Aboriginal or Treaty rights, and means to mitigate, accommodate, and monitor impacts.
Need for collaborative development and shared understanding of methodologies for assessing impacts to rights and Indigenous engagement in development of mitigation and accommodation measures.
Request that the Agency undertake a regional assessment focused on cumulative effects and sustainability with deliverables being concrete actions and management plans to address cumulative effects and sustainability and to accommodate impacts to rights.
Indigenous Peoples' Social and Economic Conditions
Clarity on potential job and training opportunities for Indigenous peoples, including women and youth.
Effects of the Project and cumulative effects on the social and economic conditions of Indigenous peoples, including effects to the price of goods, culture and language transmission, racism and violence, and alcohol and substance abuse.
Potential social and economic effects of the Project and cumulative effects to Indigenous peoples from increased reliance on commercial foods as opposed to traditional subsistence foods due to real or perceived contamination and health risks or through reduced availability.
Potential effects of the Project and cumulative effects to infrastructure and Indigenous communities due to an influx of workers from outside the region.
Indigenous Peoples' Spiritual, Physical, and Cultural Heritage
Effects of the Project and cumulative effects to structures, sites, or things of historical, archaeological, and paleontological significance to Indigenous peoples, including trails; burial, ceremonial, spiritual, and sacred sites; and means to mitigate and monitor effects.
Generational impacts to Indigenous communities through potential impacts to the meaningful intergenerational transmission of culture, laws, customs, language, and the practice of rights.
Migratory Birds and their Habitat
Clarity on the proponent's plan to ensure compliance with the <i>Migratory Birds Convention Act, 1994</i> and its regulations.
Potential effects of the Project and cumulative effects to migratory birds due to the removal of nesting, foraging, staging, and overwintering habitat, and potential direct harm or mortality if project site disturbance or vegetation removal is undertaken during the nesting season.
Potential mortality of migratory birds due to contact with harmful substances in tailings ponds or other contaminated open water on the project site, and collisions with vehicles or project infrastructure, including consideration of cumulative effects.
Potential effects of the Project and cumulative effects to migratory birds from sensory disturbance (i.e. noise, vibrations, light) and the presence of workers, such as avoidance of habitats adjacent to the Project and disorientation or attraction to the project area, resulting in injury or death. Include details on the amount, duration, frequency, and timing of sensory disturbances.
Potential effects of the Project and cumulative effects on wetland function, direct loss of wetlands, quality of wetland habitat, and residual effects, including consideration of socio-economic and ecological functions of wetlands and any resultant effects to migratory birds, species at risk, and other wildlife.
Clarity on measures to mitigate, monitor, and adaptively respond to potential effects to migratory birds throughout the project life.

Navigation
Potential effects of the Project and cumulative effects to navigation and safety on the Athabasca River by Indigenous peoples, information on relevant Water Act license(s), and means to mitigate and monitor effects.
Reclamation and Waste Management
Potential effects of the Project and cumulative effects associated with tailings and tailings management, including management strategies, wastes produced (e.g. exploratory drilling wastes, tailings, overburden and other mining wastes, and by-products), measures to minimize fine fluid tailings production, construction of disposal sites, feasibility and effectiveness of reclamation strategies, and measures for recycling wastes, preventing pollution, and minimizing waste throughout the life of the Project, and means to mitigate and monitor effects.
Potential effects of the Project and cumulative effects related to increasing land disturbance, and clarity on the proposed reclamation plan for the Project, including if pit lakes are planned.
Description of uncertainty regarding regional reclamation success for this Project and related projects, which may contribute to cumulative effects to wildlife, including migratory birds and species at risk, and land disturbance.
Clarity on whether the reclamation plan for the existing Base Mine will use the newest strategies, technologies, and timelines, and how reclamation of the Base Mine will be timed with the proposed Project.
Clarity on whether intact pockets of healthy boreal forest within the Project area will be preserved for wildlife habitat and to support future reclamation purposes given current and future cumulative losses of northern boreal forest habitat.
Potential effects to the future viability and usability of the project area for traditional purposes, following reclamation and closure, particularly of tailings impoundment areas.
Species at Risk, Terrestrial Wildlife, and their Habitat
Potential effects of the Project and cumulative effects to wildlife and other species at risk due to loss of habitat and migration corridor area and quality, diversity, changes in predator movements, and potential changes in soil quality and quantity that may result in reduced soil productivity, and means to mitigate and monitor effects.
Potential injury or death of species listed under Schedule 1 of the <i>Species at Risk Act</i> or the destruction of residences or structures necessary for the reproduction and survival of species at risk during all project phases, including construction activities and vegetation removal that would be undertaken during key periods (e.g. breeding seasons).
Potential effects of the Project and cumulative effects to species at risk, including displacement, due to the removal of habitat that may serve important ecological functions for these species, such as mixed wood and old-growth forests and riparian wetland areas.
Potential for harmful substances to enter environments and result in adverse effects and cumulative effects to wildlife habitat and wildlife health, including migratory birds and species at risk.
Consideration of all migratory bird, non-migratory bird, and terrestrial species at risk with the potential to occur in the project area.
Potential effects of the Project to whooping crane population survival and migration behaviours due to wetland habitat alterations and loss, and potential for contact with contaminants in tailings disposal areas, and means to mitigate and monitor effects.

Potential effects to forest resources, including cumulative effects, due to impacts of the Project on the hydrology of surrounding surface watersheds, and means to mitigate and monitor effects.
Vulnerable Population Groups (GBA+)
Potential positive and negative impacts of the Project on diverse groups of people and across the Project's lifecycle, including clarity on efforts to narrow gender gaps and other disparities, as demonstrated through GBA+ (gender based analysis plus) assessment.
Analysis of the current socio-economic environment, considering demographics, socio-economic conditions, and cultural trends, including relevant laws and policies.
Inclusion of monitoring programs to reveal inequalities and design mitigation strategies regarding effects to specific populations.
Water – Groundwater and Surface Water
Potential effects of the Project and cumulative effects, to groundwater recharge and discharge quantities, groundwater levels, and groundwater-surface water interactions due to landscape alterations, the Project's groundwater management system, and tailings facilities, and means to mitigate and monitor effects.
Potential effects of tailings facilities, wastewater streams from all project components including release of treated process water, and other project-related emissions on groundwater quality and systems, including cumulative effects, and means to mitigate and monitor effects. Consideration of all possible project conditions (i.e. normal, start-up, worst-case scenarios, and upset conditions).
Potential effects of the Project and cumulative effects to groundwater and surface water quality from dust deposition in waterbodies and soil erosion.
Potential alterations to the water table and groundwater elevation from depressurization of the basal aquifer and dewatering of surficial deposits, including potential cumulative effects.
Potential effects of the Project and cumulative effects to stream flows and water levels, and to sediment quality in receiving environments due to excavation and the loss of the Beaver Creek and Poplar Creek Reservoirs, which may result in changes to geomorphology and suspended solid concentrations in surface waters.
Potential effects to ecosystem function due to the removal of waterbodies and watercourses in the project area, including means to avoid the removal of waterbodies to the extent possible, and mitigate and monitor effects.