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## 7.7 Cumulative Effects

### 7.7.1 Attawapiskat

Potential cumulative effects involving socio-economic effects to Attawapiskat VECs are categorized as follows:

- Effect on traditional pursuits including continued and possibly accentuated cultural change; and,
- Change in community physical and social infrastructure.

#### 7.7.1.1 Effects

Meaningful cumulative effects to traditional pursuits and to cultural and heritage resources due to other mineral projects are not anticipated, as there are no other projects in the area that are known to be economically viable.

With regard to the potential for more generalized cumulative effects involving cultural change and evolution, such changes are part of an ongoing process that is influenced by a number of factors including media, travel, and education. There is a general desire in the community to take advantage of the positive effects of the project such as training and employment. Training and employment will require proficiency in English potentially contributing to a decrease in Cree use.

The physical and social infrastructure will see no negative cumulative effect unless there is a dramatic net in-migration of AttFN members to the community. In-migration would place a cumulative effect on already stressed housing and social infrastructure. Based on experience with other mines such as Musselwhite, this consequence is deemed to be unlikely. With regard to the social infrastructure, the project will assist in increasing educational attainment and potentially create a reduced use of health and welfare services because of employment and the provision of health services at the Victor site.

Further details on cumulative effects are provided in Table 7-2.

#### 7.7.1.2 Mitigation

The Proponent will offer cross-cultural training of all employees and provide a workplace environment that accommodates traditional pursuits.

#### 7.7.1.3 Significance

Since there are no anticipated additional mines or development in the area, the project will have no cumulative effects of significance on the AttFN.

**TABLE 7-2**
**CUMULATIVE EFFECTS ASSESSMENT - SOCIO-ECONOMIC ENVIRONMENT**

| Regional VECs | Spatial Boundaries | Temporal Boundaries | Other Actions or Potential Actions of Interest | Mitgation Required | Potential Cumulative Impact |
|---|---|---|---|---|---|
| **Attawapiskat** | | | | | |
| Traditional pursuits | PSA - community of Attawapiskat and associated traditional lands | Construction, operation and closure | Other mineral exploration in the region (no other projects currently economic) | No | Project development will disturb wildlife and wildlife habitat; restrictions on firearm discharge for safety reasons<br><br>**Effect not Significant** (no other defined projects) |
| Health | PSA - community of Attawapiskat and associated traditional lands | Construction, operation and closure | Country foods at background level for contaminants | No - adverse contaminant releases that could potentially affect country foods lack one or more of - source strength, pathway, or receptor | Adverse health effects linked to biophysical aspects not anticipated<br><br>**Effect not Significant** |
| Cultural and heritage sites | PSA - community of Attawapiskat and associated traditional lands | Construction | Other mineral exploration in the region (no other projects currently economic) | No | Project development not expected to adversely affect cultural and heritage sites<br><br>**Effect not Significant** |
| Physical infrastructure | PSA - minor Attawapiskat area facilities (training centres, Proponent office, possible barge landing area to support construction phase) | Construction, operation and closure | Community solid waste disposal at local lanfill | Yes - any waste materials associated with the barge landing facility (if constructed) to be removed off site | Proponent will remove wastes associated with its activities at barge landing facility for off-site disposal.<br><br>**Effect not Significant** |
| **Other James Bay Coastal Cree Communities** | | | | | |
| Traditional pursuits | PSA - communities of Moosonee, Moose Factory, Fort Albany and Kashechewan and traditional lands bordering James Bay winter road | Construction, operation and closure | Existing ONR and 115 kV transmission line; existing coastal winter road; limited commercial forestry operations in Otter Rapids area | No - Project-related adverse effects from new transmission line expected to be of short duration (construction period) and not likely to meaningfully affect hunting and trapping in the area | Project development has limited potential to disturb wildlife beyond that already associated with existing railway and winter road use<br><br>**Effect not Significant** |
| Health | PSA - communities of Moosonee, Moose Factory, Fort Albany and Kashechewan | Construction, operation and closure | Country foods at background level for contaminants | No - adverse contaminant releases that could potentially affect country foods lack one or more of - source strength, pathway, or receptor | Adverse health effects linked to biophysical aspects not anticipated<br><br>**Effect not Significant** |
| Cultural and heritage sites | PSA - new transmission line route | Construction | Existing ONR and 115 kV transmission line; existing coastal winter road; limited commercial forestry operations in Otter Rapids area | No - line would be constructed in winter, negligible potential for ground disturbance | Project development not expected to adversely affect cultural and heritage sites<br><br>**Effect not Significant** |
| Physical infrastructure | PSA - James Bay winter road and coastal barge operations | Construction, operation and closure | Regular use of west James Bay winter road; possibly some limited use of coastal barge during construction phase | Yes - improve quality and safety of winter road operations - as per current Project plans | Construction and operation of the VDP will place increased demands on the James Bay winter road, and possibly the coastal barge operations - increased demands to be offset by infrastructure improvements<br><br>**Effect not Significant** |

na - not applicable; PSA - Project Study Area; RSA - Regional Study Area

### 7.7.2 Other James Bay Affected Cree Communities

Potential cumulative effects involving socio-economic impacts to the other James Bay affected Cree communities include:

- Continued and possibly accentuated cultural change;
- Possible adverse effects to wildlife (mainly caribou and moose) associated with winter road use; and,
- Capacity considerations involving use of the west James Bay winter road and coastal barge services.

#### 7.7.2.1 Effects

Aspects of cumulative environmental effects relating to cultural change are the same as those described above in connection with Attawapiskat, but the level of project-related effect to these communities would be smaller.

Increased use of the west James Bay winter road in connection with the VDP is not expected to result in any meaningful increase in wildlife disturbance beyond that which already occurs with existing road use. Victor traffic is expected to be limited mainly to 4 to 6 convoys of 5 to 6 trucks per day during the project construction phase, each way; and to about 2 convoys of 4 to 5 trucks per day during operations.

#### 7.7.2.2 Mitigation

To minimize interference with other users, and to provide for safety, De Beers will contribute to upgrading the quality of the west James Bay winter road. Project-related truck traffic will also move mainly in convoys, as stated above, to limit interference with other users and also to reduce the risk of possible accidents. By taking these actions, the potential for adverse cumulative impacts to regional transportation capacity can be effectively eliminated.

#### 7.7.2.3 Significance

While there may be other industrial developments such as forestry in the other James Bay Affected Cree Communities, there will not be a cumulative effect of significant consequence caused by the project.

### 7.7.3 RA Conclusions

The RAs conclude that there will not likely be any significant adverse cumulative environmental effects.

**TABLE 7-1**
**SIGNIFICANCE DETERMINATIONS OF RESIDUAL EFFECTS AFTER MITIGATION - SOCIO-ECONOMIC EFFECTS**

| Feature | Potential Impact | Proposed Mitigation | Residual Effects After Mitigation | | | | | Overall Significance | Likelihood |
|---|---|---|---|---|---|---|---|---|---|
| | | | Direction | Geographic Extent | Magnitude | Duration | Frequency | | |
| **ATTAWAPISKAT - TRADITIONAL PURSUITS** | | | | | | | | | |
| **Land Use** | | | | | | | | | |
| Mine and infrastructure development and operation | Direct displacement of wildlife habitat, noise and other disturbance, and general restriction on firearm discharge near working areas to protect worker safety, resulting in reduced access to wildlife and possibly fisheries resources in project development areas | Financial consideration and compensation for temporary (life-of-mine) interference with hunting and trapping activities in project development areas | Negative | Victor site buffer zone, and along south and west winter road corridors (<10% of PSA) | Compensation for effect to be provided by the Proponent | Life of project | Continuous | Compensation will be provided to the AttFN for the temporary loss of hunting and trapping opportunities in project development areas | Will occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **Traditional Values and Skills** | | | | | | | | | |
| Project employment | Opportunity for personal choice with regard to combining traditional pursuits with participation in the wage economy | Rotational work schedules; workplace culture that accomodates traditional pursuits; increased income will provide additional resources to undertake traditional activities | Positive | Attawapiskat and at individual level | Low at community level moderate at the individual level, matter of personal choice | Life of project | Continuous | Increased freedom of choice through provision of good options is considered a positive benefit at the individual level. But see below | Will occur |
| | | | | | | **Level II** | | **Not Significant** | |
| | Cross-cultural experience of Aboriginals, potentially leading to reduced value placed on traditional skills and values | Cross-cultural training, workplace culture that accomodates traditional pursuits, pending actual trends and magnitude of any resultant problems, discussion with the AttFN on possible mitigation measures. | Negative | Attawapiskat and at individual level | Low insofar as the project may contribute to a pre-existing trend; matter of individual choice | Life of project | Continuous | There is some possibility that an overall shift towards the formal economy could undermine traditional activity, especially at the indiviual level through matters of personal choice | May occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **ATTAWAPISKAT - ABORIGINAL COMMUNITY (PHYSICAL DISTURBANCE)** | | | | | | | | | |
| **Disturbance** | | | | | | | | | |
| Various Project activities, including construction and transportation of goods and people | Disturbance mainly as a result of winter noise and truck exhaust emissions | Implementation of best practice and/or industry standard construction and operations procedures | Negative | Truck traffic along winter road, and possibly water activity at barge landing area during construction project phase | Winter road truck traffic to pass about 2 km from community, MOE noise standards expected to be met (options for routing traffic further away) | Life of project | Seasonal or infrequent | Noise modeling shows that MOE noise criteria are predicted to be met at the nearest residences | Will occur |
| | | | | | | **Level II** | **Level II** | **Not Significant** | |
| **ATTAWAPISKAT - HEALTH** | | | | | | | | | |
| **Public Health and Security** | | | | | | | | | |
| Traffic and workplace accidents | For the individuals involved, the effects range from inconvenience to death | Compliance with legislation, implementation of best practice, public education, roads outside communities, improved road quality | Negative | Truck traffic along winter road, and Victor site | Improved road construction standards and use of convoys for De Beers' traffic will off-set the potential for increased accidents; strict safety enforcement at Victor site | Life of project | Seasonal for winter roads; continuous at Victor site | Safety designs and operating procedures will be put in place to reduce the potential for winter road and workplace accidents | Likely to occur |
| | | | | | | **Level II** | | **Not Significant** | |

| Feature | Potential Impact | Proposed Mitigation | Residual Effects After Mitigation | | | | | Overall Significance | Likelihood |
|---|---|---|---|---|---|---|---|---|---|
| | | | Direction | Geographic Extent | Magnitude | Duration | Frequency | | |
| **Health Related Project Emissions** | | | | | | | | | |
| Project activity | Potential contamination of food, water and air | Project design features and footprint to avoid contamination of resources that people use | Negative | Mainly Attawapiskat River corridor and near community | Low to negligible | Life of project | Continuous | There is very limited potential for contamination of resources | Unlikely to occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **ATTAWAPISKAT - CULTURAL HERITAGE RESOURCES** | | | | | | | | | |
| Construction of Project related facilities and infrastructure | Limited potential for disturbance to heritage and archaeological sites | Avoidance of known archaeological sites, protocols for mitigation if new sites are encountered | Negative | Mainly Attawapiskat River corridor and near community | Low to negligible | Life of Project | Infrequent | No harm or loss of cultural heritage resources is expected with mitigation | May occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **ATTAWAPISKAT - PHYSICAL INFRASTRUCTURE** | | | | | | | | | |
| Project requirements for physical infrastructure | Potential for project requirements to exceed capacity of existing infrastructure | Improvements to existing infrastructure (roads and power lines) | Positive | Mainly Attawapiskat River corridor and near community | Moderate | Life of project | Continuous | The potential for negative effect is transformed into a positive effect with payment for services and improvements to existing infrastructure | Will occur |
| | | | | | **Level II** | **Level II** | | **No Significant Adverse Effects** | |
| **OTHER JAMES BAY COASTAL CREE COMMUNITIES - TRADITIONAL PURSUITS** | | | | | | | | | |
| Power line construction and operation | Direct displacement of wildlife habitat | Discussion with communities to minimize effects | Positive | Displacement <10% of PSA | Groundcover left largely intact | Beyond life of Project | Continuous | The activity will not substantively affect traditional pursuits, affected communities will see benefit through increased reliability of power supply and profitability of FNEI | Will occur |
| | | | | | | | | **Not Significant** | |
| Project employment | Opportunity for personal choice with regard to combining traditional pursuits with participation in the wage economy | Rotational work schedules; workplace culture that accommodates traditional pursuits; increased income will provide additional resources to undertake traditional activities | Positive | Attawapiskat and at individual level | Low at community level moderate at the individual level, matter of personal choice | Life of project | Continuous | Increased freedom of choice through provision of good options is considered a positive benefit at the individual level. But see below | Will occur |
| | | | | | | **Level II** | | **Not Significant** | |
| | Cross-cultural experience of Aboriginals, potentially leading to reduced value placed on traditional skills and values | Cross-cultural training, workplace culture that accommodates traditional pursuits, pending actual trends and magnitude of any resultant problems, discussion with the AttFN on possible mitigation measures. | Negative | Attawapiskat and at individual level | Low insofar as the project may contribute to a pre-existing trend; matter of individual choice | Life of project | Continuous | There is some possibility that an overall shift towards the formal economy could undermine traditional activity, especialty at the individual level through matters of personal choice | May occur |
| | | | | | | **Level II** | | **Not Significant** | |

| Feature | Potential Impact | Proposed Mitigation | Residual Effects After Mitigation | | | | | Overall Significance | Likelihood |
|---|---|---|---|---|---|---|---|---|---|
| | | | Direction | Geographic Extent | Magnitude | Duration | Frequency | | |
| **OTHER JAMES BAY COASTAL CREE COMMUNITIES - HEALTH** | | | | | | | | | |
| Traffic and workplace accidents | For the individuals involved, the effects range from inconvenience to death | Compliance with legislation, implementation of best practice, public education, roads outside communities, improved road quality | Negative | Other James Bay Coastal Cree Communities and at individual level | It is not expected that there will be an increase in the number of accidents | Life of project | Seasonal for winter roads; continuous at Victor site | It is not expected that there will be an increase in the number of accidents | Likely to occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **NAVIGATION** | | | | | | | | | |
| Barge landing facilities, water intake and discharge structures, temporary winter road bridges, all-season road crossings of Granny Creek, water pipeline crossing of Nayshkootayaow River | Very minor potential to interfere with boat traffic in affected zones | Proper siting of facilities, worksite management during construction, seasonal removal of temporary winter road bridges so as not to obstruct waters in the non-winter period | Positive (barge landing facilities); negative (potential obstructions) | Attawapiskat River, along winter roads, and Victor site area watercourses | All effects considered to be minor | Life of project | Seasonal for winter roads; continuous at Victor site | No meaningful potential to interfere with water navigation | Unlikely to occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **RECREATION AND AESTHETICS** | | | | | | | | | |
| Otoskwin-Attawapiskat River Provincial Waterway Park; guided moose hunting | No concerns have been raised | Undeveloped buffer zone to be preserved along major waterways to preserve river aesthetics, except in minor instances where avoidance is not reasonably practical | Negative | Minor reaches of Attawapiskat and Nayshkootayaow Rivers | All effects considered to be minor | Life of project | Continuous | No meaningful potential to interfere with recreation or aesthetics | Unlikely to occur |
| | | | | | | **Level II** | | **Not Significant** | |
| **SUSTAINABLE USE** | | | | | | | | | |
| Fisheries, hunting and trapping resources | Potential effects to riverine flows and water quality; disturbance of wildlife and wildlife habitat | Riverine flow supplementation and water quality management to protect fisheries resources; limited site footprint and noise control measures to limit effects to wildlife; compensation for adverse effects on traditional pursuits; site restoration at closure | Negative | Mainly river corridors and associated forested margins, and open areas for caribou | All effects considered to be minor | Life of project | Continuous | Effects to be managed through mitigation and adaptive management strategies | Likely to occur |
| | | | | **Level II** | | **Level II** | | **Not Significant** | |
| Mineral and forestry resources | Mining the Victor kimberlites will remove that specific resource; limited tree clearing associated with new transmission line mainly south of Moosonee | Development of the Victor Diamond Project will encourage the identification of other mineral resources in the area; mitigation for forestry effects not required | Positive (mineral exploration); negative (mineral resource depletion, minor tree clearing) | Limited to Victor site and transmission line corridor mainly south of Moosonee | All effects considered to be minor | Beyond life of project | Continuous | Effects are of low magnitude and geographic extent | Will occur |
| | | | | | | | | **Not Significant** | |