



JAY PROJECT

Caribou

EA1314--01

INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY



SEPTEMBER 15, 2015

OUTLINE

- Significant Adverse Cumulative Effect
- Zone of Influence
- Compensatory Mitigation (Off-Setting)

Significant Adverse Cumulative Effect

■ ISSUE

- Whether the cumulative effects from the Jay Project and other activities are significant, and
- Whether the Developer has considered all mitigation options to reduce impacts to caribou that will be further intensified with the Jay Project

■ DEVELOPER'S CONCLUSIONS

- Incremental and cumulative changes to measurement indicators from the Project and other developments should have no significant adverse effect on self-sustaining and ecologically effective barren-ground caribou populations

Significant Adverse Cumulative Effect

- The developer bases its conclusions on modeled results
- We base our findings on what has already happened to the Bathurst herd – collapse from over 450,000 animals to perhaps 20,000, a >95% decline – in addition to the modelling

Significant Adverse Cumulative Effect

■ AGENCY'S CONCLUSIONS

- The Developer's modelling suggests declines in pregnancy rates and calf survival under the cumulative effects scenario (with Sable), and annual exposure of up to 39% of the cows (average 19%) to Ekati zone of influence (ZOI)
- This suggests an adverse effect of the proposed Jay expansion



Significant Adverse Cumulative Effect

■ EVIDENCE AND RATIONALE

- There is an existing significant adverse (cumulative) impact on the Bathurst caribou herd
- Uncertainty regarding how much of this population decline is caused by human activities
- Agency believes that the Jay Project would result in an additional reduction in pregnancy rates and calf survival to further decrease abundance possibly below historical lows encountered in the past

Significant Adverse Cumulative Effect

■ EVIDENCE AND RATIONALE

- Modelling suggests there are reasonable grounds to expect a significant adverse cumulative impact from the Jay Project
- The argument here is that, if you make an existing significant adverse impact worse (even slightly), it is still a significant adverse effect

Significant Adverse Cumulative Effect

■ REASONS FOR SIGNIFICANCE

- Precipitous population decline suggests herd is at risk
- Related to population decline – the ecotype is being examined for possible SARA listing
- Bathurst herd is an important source of country food for Aboriginal peoples - the low population is having an adverse effect on their ability to obtain caribou

Significant Adverse Cumulative Effect

- Even if the science is uncertain, the Agency is of the view that the Board should take a precautionary approach and find that there is likely a significant adverse impact to caribou from the Jay Project

Significant Adverse Cumulative Effect

- **AGENCY RECOMMENDATIONS**
- **To the Review Board**
 - That it find the Jay project would cause a significant adverse cumulative effect to caribou
 - Accordingly, that it adopt the following measures



Significant Adverse Cumulative Effect

- **AGENCY RECOMMENDATIONS**
- **Measure:** Implement further measures to minimize the ecological disturbance footprint for the Jay Project as follows:
 - Selection of the Jay haul road route that minimizes disturbance to high quality caribou habitat;
 - Additional mitigation to reduce the effect of haul truck and other traffic on caribou; and
 - Selection of esker crossing that involves less critical habitat, one-way traffic, buried power lines, and other innovative approaches.

Significant Adverse Cumulative Effect

- **AGENCY RECOMMENDATIONS**
- **Measure:** DDEC to develop and implement a collaborative research program designed to identify the causes of the Zone of Influence (ZOI) for caribou avoidance and then reduce it.



ZONE OF INFLUENCE

■ ISSUE

- T of R: Developer should “assess... the indirect disturbance effects to available habitat through lowered habitat suitability”
- Whether the Ekati Mine is causing an increasing disturbance impact on caribou that will be further intensified with the Jay Project

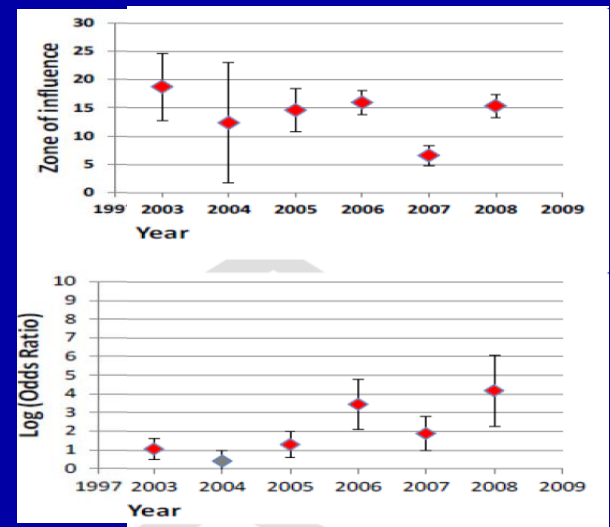
■ DEVELOPER'S CONCLUSIONS

- No variation in the ZOI calculated annually from 2003–08 and that generation of annual estimates from 2009 and 2012 aerial survey data is unlikely to change the ZOI and the results of the DAR

ZONE OF INFLUENCE

■ AGENCY'S CONCLUSIONS

- These two additional years of analysis of the ZOI would be of benefit because:
 - There is uncertainty in the trend in ZOI over time;
 - These two years coincide with the lowest abundance of the Bathurst herd recorded (2009 to 2012)
- The *magnitude* of the ZOI over time is in fact increasing



ZONE OF INFLUENCE

■ EVIDENCE AND RATIONALE

- 2009 aerial surveys observed the highest and the 2012 surveys the lowest numbers of caribou since 2006. These data would allow testing of the ZOI for a wide difference of caribou densities.
- Analysis of 2009 and 2012 aerial survey data would reduce uncertainty in the ZOI value used in the DAR, clarify trends over time, and reduce uncertainty regarding potential impacts of the Jay Project on caribou.

ZONE OF INFLUENCE

- **AGENCY RECOMMENDATIONS**

- **Measure:** Analyze estimates of ZOI distance and magnitude from the 2009 and 2012 aerial survey data using the new R code analysis

These estimates should be reported within the 2015 Wildlife Effects Monitoring Program report



ZONE OF INFLUENCE

- **AGENCY RECOMMENDATIONS**
- **Measure:** Undertake aerial surveys to measure the effectiveness of mitigation measures for caribou and to track trends over time.
 - Estimates of ZOI distance and magnitude for the Jay Project using the new R code analysis.
 - The results of the aerial surveys and analysis of the ZOI are to be reported annually in the Wildlife Effects Monitoring Program reports.

COMPENSATORY MITIGATION (OFF-SETTING)

■ ISSUE

- T of R: The Developer should “*identify and evaluate any proposed mitigation measures...and clearly identify all mitigation commitments*”
- Has the Developer considered all mitigation options given the perilous state of the Bathurst herd?

■ DEVELOPER'S CONCLUSIONS

- No significant adverse effects from the Project on caribou and wildlife, so no offset mitigation has been proposed

COMPENSATORY MITIGATION (OFF-SETTING)

■ AGENCY'S CONCLUSIONS

- Agency believes that there are significant adverse (cumulative) impacts from the proposed Jay Project and that the Developer should use the entire suite of accepted mitigations to reduce and eliminate impacts, including use of off-setting or compensatory mitigations

COMPENSATORY MITIGATION (OFF-SETTING)

■ EVIDENCE AND RATIONALE

- Impacts to caribou currently exist, but our ability to measure those changes at the demographic level may be limited by our monitoring
- Given the perilous state of the Bathurst herd, every effort to reduce all impacts to caribou should be considered
- The Developer intends to shift expenditures related to closure activities back 10 years to the period 2032-2034 rather than 2022-2024 in the currently approved closure plan

COMPENSATORY MITIGATION (OFF-SETTING)

■ EVIDENCE AND RATIONALE

- Other projects that have successfully used off-setting as mitigation including the Roman Coal Mine in BC
 - The Proponent was required to secure areas of high quality caribou habitat that could not be developed, and contribute \$2.5 million to an endowment fund for caribou management, to be used for mitigation and monitoring activities
- Key question for the Review Board is whether caribou will be better off (or no worse off) with the Jay Project?

COMPENSATORY MITIGATION (OFF-SETTING)

- **AGENCY RECOMMENDATIONS**
- **Measure:** Prepare a Compensatory Mitigation (Off-Setting) Plan for caribou to enhance the ability of the Bathurst caribou herd to recover to its previous abundance
 - Measured through reductions in energy loss, positive changes in calf production and survival
 - Should be developed collaboratively with interested parties

THANK YOU



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