

Martin Haefe

From: Johannesen, Daryl [Daryl_Johannesen@golder.com]
Sent: August 15, 2003 12:04 PM
To: 'Gavin_More@gov.nt.ca'; Martin Haefe
Cc: Collard, Tod; De La Mare, Corey
Subject: Copy of the Paramount Presentation

Hi Gavin and Martin:

As promised, here is the presentation we gave - recognizing that all of the details are not in this.

Gavin - a phone conversation on Monday afternoon would be good if you can set it up. We are looking at more detailed habitat breakdown than just upland, riparian, etc. so it would be good to discuss this, and any initiatives that are going on in the NWT.

Thanks,

Daryl

15/08/2003

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Draft Cumulative Effects Assessment Discussion Paper for Paramount Cameron Hills Project

August 2003

Paramount Resources Ltd.
and
Golder Associates Ltd.



Outline

- Background on EAs in the Cameron Hills
- EAs
 - Cases, components, study areas, VECs
- Approaches for the various components
 - Baseline tasks, CEA case

Assessment History

- Two previous EAs
- Individual project components were not likely to have a significant effect on environment
- Latest proposed project sent to EA based on cumulative effects



Assessment Cases

EA will make comparisons of several cases:

- Pre-project case
- Baseline case
- Application case
- Potential development case



Assessment Components

The major components of the EA are:

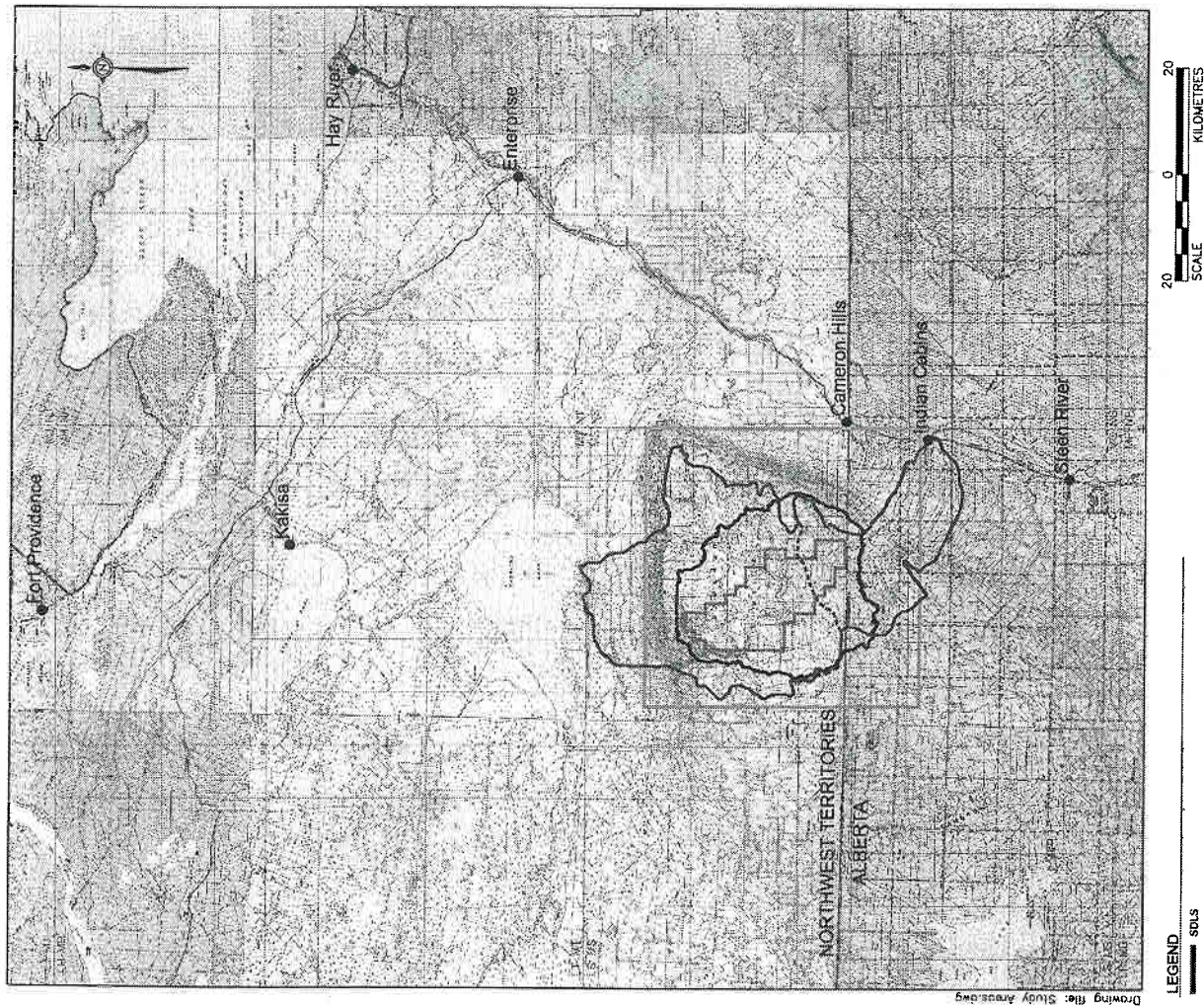
- Air
- Terrestrial
- Aquatics
- Socio-Economics



Cumulative Effects Study Areas

- Cumulative Effects Study areas are discipline specific

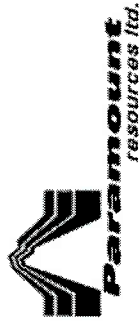




Drawing File: Study Area.dwg

Valued Ecosystem Components

- **Air** – SO₂, NO₂, emissions from flaring, and greenhouse gases
- **Terrain** – permafrost and landforms
- **Soils** – soil disturbance and erosion potential
- **Wildlife** – moose, caribou, fisher, riparian song bird



VECs Cont'd

- **Vegetation** – community composition and fragmentation parameters
- **Surface Water** – water bodies, watercourses, and water quality
- **Groundwater** – quantity and quality
- **Fish** –habitat and abundance

VECs Cont'd

- **Cultural and Heritage Resources** – individual resources
- **Traditional Harvesting** – traditional land use
- **Health, Social and Economic Factors** – use of social services, NWT economy and community economy



Air Study Approach

- Use ISCST3 Model
- SO₂ and NO₂ from the various cases
- SO₂ from well test flaring
- Discuss Kyoto and global warming



Terrain Study – Baseline Tasks

- Summarize existing conditions
- Use Landsat vegetation map and Soil Map of Canada to produce a terrain map
- Map terrain types where permafrost is expected



Terrain Study – CEA Approach

- Landforms will be classified into common units and the disturbance predicted
- Potential area of disturbance in permafrost areas will be quantified and assessed



Soils Study – Baseline Tasks

- Summarize existing conditions and residual impacts
- Utilize Landsat vegetation map and Soil Map of Canada to produce a soil map
- Map soil erosion risk



Soils Study – CEA Approach

- Soil types and development disturbances will be overlaid on the soil map.
- Areas of disturbance will be quantified
- Erosion potential will be predicted
- Impact of development disturbances will be predicted



Surface Water Balance

- Estimate water usage
- Evaluate lake water balance
- Predict effect of withdrawals on the Cameron River



Water Quality

- Will be a component of surface water and groundwater sections as appropriate



Groundwater – Baseline Tasks

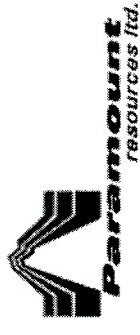
- Examine surficial and geologic maps for hydrostratigraphic units of interest
- Evaluate information from the existing water well

Groundwater – CEA Approach

- Discussion of potential for spills or leaks and the related potential for contamination
- If there is a potential for additional groundwater extraction as a drilling fluid source, the potential impacts will be discussed

Fish Studies – Baseline Tasks

- Evaluate existing fisheries resources based on past EA work and existing literature
- Summarize predicted effects of stream crossings and potential spills



Fish Studies – CEA Approach

- Assess effects of stream crossings (plus related direct and indirect effects)
- Integrate information from the surface water and water quality sections
- Potential fish bearing water bodies and watercourses will be identified and discussed



Wildlife Study – General Approach

- Discuss species protected under the Species at Risk Act
- Habitat effectiveness determined for each VEC (i.e., quantity and quality of habitat)
- Fragmentation parameters



Wildlife Study – Baseline Tasks

- Summarize existing information
- Model habitat under different cases and estimate available habitat (ha), habitat effectiveness and fragmentation parameters



Wildlife Study – CEA Approach

- Integrated approach between traditional habitat suitability index (HSI) approaches and potentially ALCES



Traditional HSI Approach

- HSI Models with spatial components (i.e., buffering) for VEC species to determine changes in habitat availability and quality;
- Use GIS to determine changes in fragmentation levels for VECs; and
- Compare results generated with baseline values

Vegetation Study – Baseline Tasks

- Summarize existing information from previous EAs and monitoring programs; and
- Summarize vegetation VECs from landsat imagery and generate fragmentation indices for cases



Vegetation Study – CEA Approach

Use traditional approach and potentially
ALCES.

Traditional

- overlay project footprint at various project cases and measure vegetation VEC variables
- compare results between each case



Vegetation Study – CEA Approach

Cont'd

IF ALCES USED:

- ensure all vegetation related variables are user-defined and document assumptions
- generate vegetation variables for each case

Cultural and Heritage Resources – Baseline Tasks

- Summarize results of previously conducted heritage inventory work
- Evaluate the potential of the terrain, proximity to the Cameron River, Traditional Knowledge and heritage resource monitoring results

Cultural and Heritage Resources – CEA Approach

- Identify sensitive terrain features
- Assess the potential for heritage resources based on terrain features



Traditional Harvesting Study – Baseline Tasks

- Establish a baseline level of traditional harvesting (hunting, fishing and trapping)
- Use information from Traditional Knowledge study

Traditional Harvesting Study – CEA

Approach

- Predict effects of the project cases
- ALCES model may be used to track harvest rates (sport, aboriginal, poaching)
- Information from the wildlife assessment will be used to supplement this section

Health, Social and Economic Factors Study

- Review EAs in the area, as well as other documentation (e.g., records of consultation)
- Update the data on affected communities.
- Scope the CEA issues
- Qualitative and quantitative analysis to identify potential cumulative impacts
- Summarize existing mitigation and monitoring
- Assess residual cumulative effects