

D.5. Environmental Baseline Data Needs and Implications  
for an Environmental Impact Statement:  
The Voisey's Bay Experience

*by*  
*William Napier*  
*INCO Limited*

*and*  
*David Lemon*  
*Jacques Whitford Environment Ltd.*

0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99

# Environmental Baseline Data Needs and Implications for an Environmental Impact Statement: The Voisey's Bay Experience

David Lemon  
Jacques Whitford Environment Ltd.  
607 Torbay Road  
St. John's, Newfoundland  
A1A 4Y6

William Napier  
Director of Environmental Affairs  
INCO Limited  
145 King Street West, Suite 1500  
Toronto, Ontario  
M5H 1B7



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company



## Overview

- Project Features
- Project Milestones
- Importance of Baseline Data
- Summary

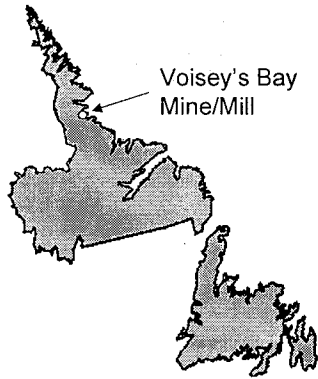


Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Project Features



- 20,000 t/d of Ni, Cu and Co
- 32 mt drill proven reserves
- 150 mt indicated resources
- 20+ years life-of-mine
- year-round shipping of concentrate
- area under claim by Aboriginal peoples - yet unresolved
- fly in - fly operation
- large labour force
- acid generating waste rock



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Project Milestones

- 1993** Discovery of First Showing
- 1994** Drilling - Exploration
- 1995** Drilling continues  
Develop Environmental Protection Plan  
Initiate biophysical studies for anticipated EIS requirements



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Project Milestones, cont.

- 1996** Drilling continues
- Resources more extensive (Ovoid and Eastern Deep)
- Comprehensive biophysical baseline studies
- Government negotiations for multi-party MOU for the environmental assessment
- Newfoundland
  - Canada
  - Labrador Inuit Association
  - Innu Nation
- First draft of EIS completed (December)



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Project Milestones, cont.

- 1997** EA panel formed
- Second draft of EIS completed (June)
- Final EIS guidelines issued (June)
- EIS submitted to Panel (December)
- 1998** Panel initiates public review of EIS
- VBNC requested to provide supplemental information to panel (April)
- Panel holds public hearings (Sept-Nov)
- 1999** Panel reports to Governments and Parties (March)
- Project discharged from further EA (August)



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Needs/Uses for a Thorough Environmental Baseline

- **Issues scoping**
- To meet future and unknown expectations of panel and EIS guidelines
- Supports strategic use of models to predict future conditions
- Modification of project design
- Consideration and evaluation of alternatives within the project
- EIS production (VEC selection)
- Environmental management system



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Issues Scoping

- Owner needs to become as familiar as possible, as quickly as possible
- Baseline studies are good "currency" for discussions with local residents, regulators, and special interest groups
- Increase proponent confidence - develop site specific environmental protection measures (avoidance and scheduling)
- Need to identify Valued Environmental Components (VECs) early in the project to set up EIS production schedule



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Issues Scoping : VBNC Experience

- Initiated baseline studies in 1995 - 2 years prior to Panel issuing final guidelines
- Baseline used to develop site-specific environmental protection planning for exploration activities
- Baseline study results and future strategy provided to key regulators, Innu Nation and Labrador Innu Association (early 1996), prior to field season
- VECs and EIS methodology decided early, to advance draft EIS production for December 1996
- Verification of other data - Traditional Ecological Knowledge (TEK)



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Needs/Uses for a Thorough Environmental Baseline

- Issues scoping
- **To meet future and unknown expectations of Panel and EIS guidelines**
- Supports strategic use of models to predict future conditions
- Modification of project design
- Consideration and evaluation of alternatives within the project
- EIS production (VEC selection)
- Environmental management system



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Expectations of Panel and EIS Guidelines : Concern

- “Purpose-built” environmental assessment MOU for the Project
- Aboriginal groups given “jurisdiction” in the process - full party to MOU
- Aboriginal groups had previous low level of satisfaction with another recent EIS in Labrador
- Minimum of two Aboriginal groups expressing rights and title interest in the project area
- Relatively new concepts : Precautionary Principle



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Expectations of Panel and EIS Guidelines : VBNC Experience

- Lengthy process for governments to establish EA MOU framework and establish Panel
- Expansive definitions used from those under CEAA - environment and environmental effect
- Land claims and Traditional Ecological Knowledge expectations lead to direct contracting of IN and LIA for TEK and issues scoping
- Second draft EIS completed prior to final guidelines being released by Panel
- VBNC had to keep schedule on track



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited





## Needs/Uses for a Thorough Environmental Baseline

- Issues scoping
- To meet future and unknown expectations of panel and EIS guidelines
- **Supports strategic use of models to predict future conditions**
- Modification of project design
- Consideration and evaluation of alternatives within the project
- EIS production (VEC selection)
- Environmental management system



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Strategic Use of Models to Anticipate Future Conditions : Concern

- Atmospheric emissions (concentrate dust): contamination
- Noise (construction and operations): disturbance of wildlife
- Environmental loading of contaminants as a result of seepage through dams/dykes: untreated effluent discharge on fish habitat
- Marine discharge of treated effluent : marine contamination of fish habitat



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Strategic Use of Models to Duplicate Future Conditions : VBNC Experience

- Simple atmospheric emissions and noise attenuation models used to predict reasonable zone of influence to set practical limits on project-VEC interactions, context for following monitoring. Baseline studies provided background, existing conditions for soil, water, vegetation, and resident wildlife
- Marine outfall zone of influence to quantify effects, context for follow-up monitoring. Baseline studies provided existing conditions for sediment, water quality and organisms
- Beak impact model used to predict long term, post-closure environmental loadings in ponds, and brooks against background levels. Baseline studies provided existing conditions for sediment, water and organisms



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Needs/Uses for a Thorough Environmental Baseline

- Issues scoping
- To meet future and unknown expectations of panel and EIS guidelines
- Supports strategic use of models to predict future conditions
- **Modification of project design**
- Consideration and evaluation of alternatives within the project
- EIS production (VEC selection)
- Environmental management system



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Proponent Modification of Project Design : Concern

- Need for proponent to define the Project that is being assessed
- Engineer "proofing" the EIS schedule - to be able to address Project changes (feasibility, pre-design, design stages) without facing delays or without having to go back into the field to collect more data
- Project optimization usually occurs well after opportunities to collect site-specific baseline data



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Proponent Modification of Project Design : VBNC Experience

- 1995-1996 Project "footprint" kept increasing as more mineralized zones were discovered
- Baseline study area had to be increased
- 1995-1996, two years of baseline in some areas, only one year in others
- Primary elements of the Project had to remain variable until late in the EIS production schedule, after opportunities to collect additional baseline data (eg. production rate, tailings management, water balance, airstrip location, site of outfall diffuser)
- Environmental certainty achieved well before engineering certainty



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Needs/Uses for a Thorough Environmental Baseline

- Issues scoping
- To meet future and unknown expectations of panel and EIS guidelines
- Supports strategic use of models to predict future conditions
- Modification of project design
- **Consideration and evaluation of alternatives within the project**
- EIS production (VEC selection)
- Environmental management system



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Consideration of Alternatives : Concerns

- Panel requirement, including the "No Project" alternative
- Need to show best practical options for Project features for comparison by Panel, governments and the public



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Consideration of Alternatives : VBNC Experience

- Shipping of concentrate : year-round, extended season and seasonal
- Location of airstrip : three locations
- Location of port facility : three locations
- Site for tailings placement : 8 ponds/valleys, 1 marine disposal



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Needs/Uses for a Thorough Environmental Baseline

- Issues scoping
- To meet future and unknown expectations of panel and EIS guidelines
- Supports strategic use of models to predict future conditions
- Modification of project design
- Consideration and evaluation of alternatives within the project
- **EIS production (VEC selection)**
- Environmental management system



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## EIS Document Production : Concern

- Full Panel review
- Large, controversial project
- "Bullet-proof", defensible EIS needed
- Early indications for a comprehensive document
- multitude of contractors and consultants - need for choreography



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## EIS Document Production : VBNC Experience

- Proponent needed to establish own EIS guidelines, EA methodology and selection of VECs well in advance of Panel
- 1995 baseline used to establish VECs
- First draft EIS produced December 1996
- Panel formed in January 1997
- Panel issues draft EIS guidelines in March 1997
- Second draft EIS produced in June 1997 prior to final guidelines
- Constant state of readiness. Baseline provided much of the confidence



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Needs/Uses for a Thorough Environmental Baseline

- Issues scoping
- To meet future and unknown expectations of panel and EIS guidelines
- Supports strategic use of models to predict future conditions
- Modification of project design
- Consideration and evaluation of alternatives within the project
- EIS production (VEC selection)
- **Environmental management system**



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Environmental Management System: Concern

- High Panel expectations
- Corporate history in Canada and worldwide
- Record of compliance



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Environmental Management System: VBNC Experience

- Strong performance to date on the exploration site
- High priority for Environment, Health and Safety in VBNC organization
- Proactive in areas of environmental protection, adherence to all permits and approvals, community consultation including Aboriginal elders
- Thorough baseline provides for detailed site-specific environmental protection measure, focused monitoring and follow-up programs



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited



## Summary:

### You can go a long way with a good baseline

- Increase options or alternatives for Project layout and design
- Allows for increased confidence in EIS production schedule in advance of Panel and guidelines
- Minimizes risk of having to conduct more field studies after EIS submission - consequences high risk
- Increase the defensibility of the EIS and more specific Environmental Management System
- Assists Panel in sticking to their schedule



Jacques Whitford  
Environment Limited

Voisey's Bay  
Nickel Company  
Limited

