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Colomac Mine

Presentation to the Mine Closure and **Reclamation Workshop** February 2005





History

1989–90, 10,000 ton/day open pit gold mine and mill constructed by Neptune Resources

1991, Operation suspended for economic reasons

1993–94, Royal Oak purchases and resumes operation

1997, Operation suspended for economic reasons

1999, Royal Oak in receivership, DIAND assumes responsibility









Colomac Mine

Looking North





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Indian and Northern Affairs Canada Affaires indiennes et du Nord Canada Water Quality









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Water Treatment



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Water Management





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Dam 1







Discharge Location



Canadä



Tailings





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Waste Rock Piles







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Tailings Spills





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Tankfarm & Fuel Spills







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Waste

Marthe

Roads, Yards & Airstrip



Approach to Remediation

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 Involve affected first nations in making project decisions and determining project direction, rather than consultation after the fact

Benefits:

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- Community issues or concerns are dealt with proactively and incorporated into plans for the site
- Greater understanding of contaminated sites, site issues and remediation



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Incorporation of **Traditional Knowledge**

Caribou Fence



Caribou Fence



Evaluation Process

- Divide mine into various components
- For each component, determine the closure issues, objectives and remediation options
- Rank the options as to how they meet the objectives
 - High meets objectives
 - Med partially meets objectives
 - Low does not meet objectives
- Then rank them overall into:
 - P= preferred
 - A= acceptable
 - NA = not acceptable



Evaluation Considerations

Requirements	Environmental &	First Nations	Cost
	Technical Factors	criteria	
•Legal compliance	 Meets overall site 	•Future land use of the	 Capital cost
•Time	objectives	area	 Operating cost
Proven technology	 Reduce risk to 	•Walk-away solution	•Best Available
•Meets minimum	environment	•Socio-economic	Technology
objectives	•Work can be done	impacts	Economically-
	safely	•Training & business	Achievable
	•Future land use potentia	lopportunities	•Long-term costs for monitoring and maintenance
	 Regulatory approvals 		
	 Meet environmental 		
	guidelines		
	•Liability reduction at end		
	of project		

Waste Rock Piles

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What do we want?

- Rock piles to be chemically stable 1.
- Rock piles to be physically stable 2.
- Promote vegetation & wildlife habitat 3.
- Promote wildlife passage over rock 4. piles
- 5. Reestablish natural drainage between

Baton and Steeves Lake

Waste Rock Piles

What can we do?

1. Do Nothing

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- 2. Contour tops, dig up surface and create islands of plants
- 3. Contour tops and slopes, dig up surface and create islands of plants
- 4. Contour tops and sides and cover the surface with soil



Comparison of Options for the Waste Rock Piles

Goals	Contour Top	Contour Top & Sides	Full Contour & Full Cover	Do Nothing
Stability	High	High	High	Med
Vegetation	Low	Low	Med	Low
Wildlife Passage	Low	Med	Med - High	Low
No New Areas Disturbed	Med	Med	Low	High

Comparison of Other Factors for the waste rock piles

	Contour Top	Contour Top & Slope	Contour & full cover	Do Nothing
Cost (\$)	462,000	4,764,000	17,080,000	0
Demonstrated	Yes	Yes	Yes	
Worker Hours	2,200	10,500	56,000	
Other	Disturbance of other areas for soil cover	Disturbance of other areas for soil cover	Disturbance of other areas for soil cover	



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Waste Rock Piles

	Contour Top	Contour Top & Sides	Contour with full cover	Do Nothing
Tli Cho Preference	A	P (partial sloping; field work to finalize contour locations)	N	N
DIAND Rating	65% (Partial sloping should be considered in unstable areas)	49%	43%	Ν





DN LAKE

ZONE 2.0 PIT

Caribou Pathways Around Rock Piles

LOWER LONG LAKE



Dam 1 P = Preferred A = Acceptable N = Not acceptable





3. Location of Undertaking (describe and attach a nap, indicating watercourses and location of any proposed waste deposits).

Site in 1987



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Lessons Learned

-Closure required as part of **Project Design** -Risk Based Approach versus **Standards** -Feasibility Costs should include remediation costs



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