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## Layout

- ☐ Purpose
- ☐ General approach to regulations
- ☐ Content of regulations
  - O US EPA, Alaska
  - O Canada, Yukon placer mining
  - O Latin America
- ☐ Application to Guyana







☐ Sustainable Development

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

- ☐ Focus is on society and ecosystems
  - O Clean air and water
  - Productive land
- ☐ Realistic regulations are a component of SD







"If sustainability is a threat then we are out of business" (Placer Dome, 1999)

- ☐ Maintain control of the industry
- ☐ Demonstrate the long term value of the industry
- ☐ Positive impact on society







- ☐ Increase viability of industry
- ☐ Consistency across the industry
- ☐ Recognition by international community
- ☐ Increased international investment and trade





## General Approach

- Canada
  - O Cooperative, multistakeholder approach
  - O Sound science
- □ US
  - Science based recommendations
  - Moving toward public consultation
  - O Does not specifically include industry input
- ☐ Latin America
  - Relatively new
  - O Using multistakeholder approach

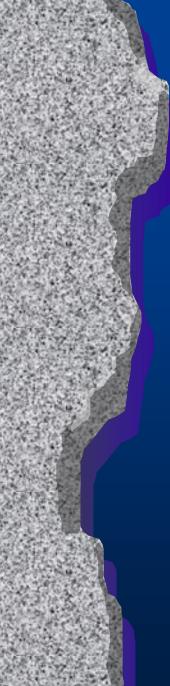




## Us Epa

- ☐ Resource Conservation and Recovery Act
  - O Mining excluded since 1991
- ☐ Clean Water Act
  - Effluent is either technology based or water quality based
- ☐ Specific regulations for placer mining



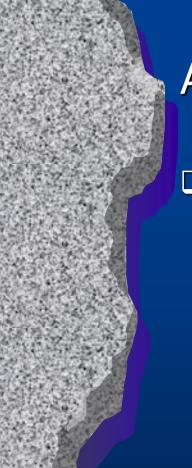


## US EPA - Placer Mining

- ☐ No specific regulations for small scale placer mining
- ☐ Large scale defined by;
  - o 1,500 yards/year of material moved
  - 50,000 yards/year of material moved for dredges
- ☐ Permits may be issued to discharge dredge material into waterways
  - Only after public hearings







### Alaska

- ☐ Mining operations
  - Prevent unnecessary degradation of land and water resources
  - Site reclaimed as practicable as possible
  - Must have an approved reclamation plan
  - A bond to ensure requirements of the approved reclamation plan are met
  - Water permits







- ☐ State water quality standards for turbidity and for arsenic
- ☐ Turbidity 5 NTU above background
- ☐ Arsenic 0.05 mg/l





# Canadian Approach

Exploration &
Development

**Exploration Permit** 

Environmental Assessment

Construction Permit

Certificate of Approval

Operation

Fisheries Act

MMLER's

Jurisdiction Specific Regulations

**Decommissioning** 

Decommissioning Plan

Bond



GGMC CANMET - MMSL





- ☐ Metal Mine Liquid Effluent Regulations
- ☐ Promulgated in 1977
  - Undergoing comprehensive re-write
- ☐ Focus on effluent limits
- ☐ Based on best practicable technology in 1977
- ☐ "Grandfathering"
- ☐ Minimum requirement







- ☐ Re-written with a government, industry, environmentalist and aboriginal consortium
- ☐ Based on Best Available Technology Economically Achievable (BATEA)
- ☐ Includes 5 components
  - Water quality
  - Environmental Effects Monitoring (EEM)
  - Toxicity
  - Decommissioning
  - O Codes of Practice





# Yukon Placer Mining

- ☐ Two sectors
  - O Quartz
  - O Placer
  - O Separate acts
- ☐ Yukon Placer Mining Act
- ☐ Yukon Waters Act
- ☐ Fisheries Act



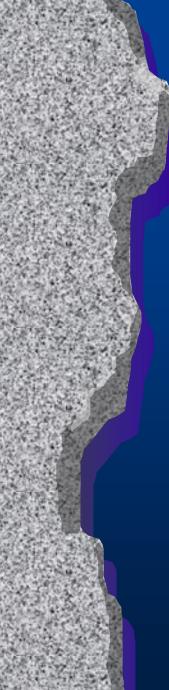




- ☐ Yukon Placer Mining Act
  - O Disposition of placer mining rights
  - O Placer title
- ☐ Mining land use Yukon
  - 1998 amendment
  - Four different classes of operations depending on
    - Degree of land disturbance
    - Potential environmental consequences





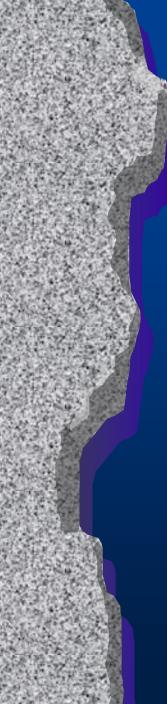


#### Water Acts

- ☐ Yukon Waters Act
  - O Governs the use of surface or ground waters and the deposit of waste in water courses
  - Water license required
- ☐ Yukon Water License
  - Application is a fifty page document requiring detailed mining plans





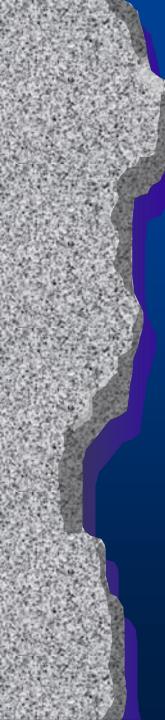


## Latin America - General

- ☐ Actively seeking new trade partners
- ☐ Needed to modernize its environmental legislation
  - For its own protection
  - Satisfy the conditions of trade agreements
- ☐ Legislation is often rushed to meet external demands
- ☐ Technical capacity to ensure practicality or purpose often missing
- ☐ Workshop exhanges facilitate sound regulatory development





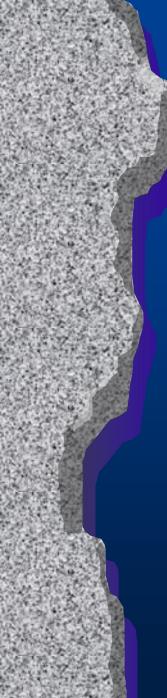


#### Venezuela

- ☐ Ministry of Environment and Renewable Natural Resources
  - O Ministerio del Ambiente y de los Recursos Naturales Renovables, MARNR
- □ Responsible to ensure that the usage of any natural resource will not endanger the existence and potential usage of water resources
  - Sustainable development?
- ☐ Water quality regulated by the application of national, regional and local water quality plans







## Brazil

- ☐ In 1981, Brazil enacted its environmental policy
- ☐ Organised the National Environmental System (SISNAMA)
- ☐ National Council of Environment (CONAMA)
  - O Responsible to propose environmental protection policies, guidelines and standards
  - O States can develop their own regulations following CONAMA's guidelines
  - Regulations are spread among different institutions and legal documents







- ☐ Water quality criteria developed for drinking water and effluent
- ☐ Applicable to mining and other sectors
- Peru, Brazil, Costa Rica, Chile and Venezuela
- ☐ Water bodies classified according to use (Brazil and Venezuela)
  - i) domestic use and potable water for industries
  - ii) agricultural use
  - iii) marine water for shellfish or fish farming
  - iv) recreational use





## **Common Themes**

- ☐ Multistakeholder approach
- ☐ Multi-tiered regulations
- ☐ Flexible
- ☐ Grandfathering
- ☐ Classification of water bodies
- ☐ Technology based
  - Achievable by industry





## Application to Guyana

- ☐ Recognize context of mining in Guyana
  - O Simple
- ☐ Protect environment
  - Reduced degradation
- ☐ Ensure mining remains sustainable







- ☐ Cooperative, multistakeholder approach
- ☐ Flexibility
- ☐ Sustainability of industry
- ☐ Simple, measurable and enforceable
- ☐ Code of practice
  - O Generic "how to"





## Specifics - 1

- □ Solids in water
  - Suspended
  - O Total
  - O Settleable
- ☐ Mercury
- ☐ Classification of water bodies
- ☐ Aquatic effects?
- ☐ Toxicity?





# Specifics - 2

- ☐ Phased monitoring
  - O Regular self-monitoring
  - O Interval monitoring by GGMC
    - Quarterly, semi-annual
  - Yearly validation by EPA





- ☐ Regulations can be beneficial to the industry
- ☐ Must be developed in a cooperative fashion
  - O Industry, government, public
- ☐ Realistic goals



