

# Maintenance of Environmental Quality – Criterion and Indicators

Bob Green

Kennecott Energy

Gillette, Wyoming

This criterion on the maintenance of environmental quality covers the influences of the mining and energy sectors on the environment, including air, surface water, groundwater, and land. Extraction, processing and transportation to the smelter/refinery are included.

# Categories

E 1 – Ambient environmental indicators

E 2 – Management of extraction and  
processing

E 3 – Reclamation/remediation/ “R” of all  
extraction sites

E 4 – Environmental releases

# Priority Indicators

- All indicators that were developed for the Environmental Criterion have been prioritized
- There are 7 environmental indicators in at this time
- Some sub-indicators will result from these

# Tabled Indicators

- Area of permitted extraction or processing sites where concentration of chemicals in the soil exceeds preceding ambient levels, as a share of total mining area; not superfund
- Disposed material relative to total wastes in extraction or processing

# *E 1 – Ambient environmental indicators*

- Compliance; 5<sup>th</sup> code watersheds
  - Relativity
  - Culpability issues
  - Description
- Water withdrawal
  - Neutrality & definition of “problems”
  - How to address O&G Water Production
  - How to capture positive impacts
- Groundwater contamination
  - Exceeds applicable standards; use class?
  - Culpability

## *E 2 – Management of Extraction & Processing*

- Water Use Efficiency
  - Relativity: make-up water: process water
  - Site-specific; aggregation considerations
  - Works for mining but not O&G
  - O&G production water aspects?
  - Accountability for meteorologic conditions?

## *E 3 – Reclamation/Remediation*

- Contemporaneous Reclamation
  - Measured against permit schedule
  - Not readily applicable to O&G
- Creation/remediation of abandoned sites
  - Starting date?
  - How to capture O&G abandonment vs shut-in

## *E 4 – Environmental Releases*

- Quantity of release to environment per quantity of output
  - Output vs Mining Unit
  - Specific parameters to be determined
  - TRI base for some:
    - Off-site surface discharges
    - GW discharges
    - Air Emissions
    - SIC Code limitations

# Status

- Indicator development and population must occur next
- Some data collection has started

# Example Indicator

- Pace of abandoned mine and other extraction sites creation and reclamation/remediation/restoration
- Will no try to identify how many sites there are
- Will start with a zero baseline and consider the number of sites reclaimed vs. created on an annual basis for different jursidictions