GROUND WATER QUALITY PROTECTION PROGRAM OVERVIEW

(UAC R317-6)

Background

- R317-6 rules enacted in August 1989
- State program to protect current and future beneficial uses of ground water
- No direct oversight by EPA
- Based on Utah anti-degradation policy

Anti-degradation Policy

- Recognizes that there are some effects to ground water quality from man's activities and limits those effects to acceptable levels by issuing ground water discharge permits.

Primary Program Elements

- Ground Water Quality Standards
- Ground Water Classes
- Permit By Rule
- Ground Water Discharge Permits
- Best Available Technology
- Ground Water Protection Levels
- Compliance Monitoring and Evaluation
- Corrective Actions

Ground Water Quality Standards

- Table 1 of R317-6
- Primarily, federal drinking water maximum contaminant levels (MCLs)
- If no MCL, EPA life-time health advisories, MCL goals, secondary drinking water standards, or risk-based standards

Ground Water Quality Classes

Based primarily on Total Dissolved Solids (TDS)

- Class IA Pristine: TDS < 500 mg/l
- Class IB Irreplaceable: (no TDS criteria)
- Class IC Ecologically Important: (surface water standards)
- Class II Drinking Water Quality
  500 mg/l < TDS < 3,000 mg/l
- Class III Limited Use:
  3,000 mg/l < TDS < 10,000 mg/l
- Class IV Saline: TDS > 10,000 mg/l

Permit By Rule

- Operations that pose minimal threat to GW quality or facilities already regulated by other agencies or programs, e.g.,
  - LHD approved septic systems
  - DOGM produced water/reserve pits, and other oil field waste treatment, storage, and disposal facilities
  - DSHW solid waste management units, landfills
  - UIC facilities and wells

Ground Water Discharge Permits

- Issued to facilities that will probably result in a discharge of pollutants to ground water, e.g.,
  - Wet tailings impoundments
  - Chemical heap leach operations
  - Process water and wastewater ponds

Best Available Technology

- The application of design, equipment, work practice, operation standard or combination thereof at a facility to effect the maximum reduction of a pollutant achievable by available processes and methods taking into account energy, public health, environmental and economic impacts and other costs.

Mining/Milling Example

- Double Liner System with Leak Detection
  - Primary (upper) 60-mil HDPE liner
  - Geo-grid leak detection layer
  - Secondary (lower) 60-mil HDPE liner
  - Leak collection sump with water level sensor
  - Automated pump back system activated when water level in leak collection sump exceeds one foot

BAT Performance Standards

- Maximum Allowable Leakage Rate on primary liner: 200 gal/acre/day
- Maximum Allowable Head in leak detection sump: 1 foot
- Minimum Freeboard: 2 feet

Ground Water Protection Levels

- Based on pre-operational background data
- Provide early warning to allow time for source assessment and corrective action
- More stringent values for higher quality GW
- Example: Nitrate GWQS = 10 mg/l
  - Class I and II GWPL = 25% of GWQS = 2.5 mg/l
  - Class III GWPL = 50% of GWQS = 5.0 mg/l
  - Class IV GWPL = Executive Secretary discretion

Compliance Evaluation

- Probable Out-of-Compliance (R317-6-6.16)
  - Notify Executive Secretary
  - Initiate Accelerated Monitoring
- Out-of-Compliance (R317-6-6.17)
  - Notify Executive Secretary
  - Submit Source Assessment Plan
  - Implement Contingency Plan/Corrective Actions

Corrective Action

- R317-6-6.15
- Contingency Plan for all GW discharge permits
- Restoration of BAT
- Natural Resource Damage Claims

Natural Resource Damage Claims

- Under State Law, Utah DEQ has responsibility to take action on behalf of State's natural resources when damages occur, e.g.,
  - Southwest Jordan Valley Ground Water Cleanup
  - Ensign-Bickford Mapleton Ground Water Cleanup