

# Monitoring



*Pinson Mine, NV. Heap leach vadose zone monitoring wells*

*Photo by Ann Maest*

# Independent Monitoring

- Why independent?
  - Community feels it has a voice and technical power
  - People who live closest to mine know environment best
  - Especially important if regulatory agency understaffed
- Participative monitoring vs. independent monitoring
- Funding
  - \$\$ from companies
  - Directly/indirectly to citizens' groups
  - Citizens' group conducts own monitoring or hires their own consultants
- Examples
  - Yanacocha, Peru; Camisea, Peru; Corrientes, Peru
  - Stillwater, MT: independent (good neighbor agreement)
  - Buckhorn Mountain, WA: independent monitoring by Okanogan Highlands Alliance

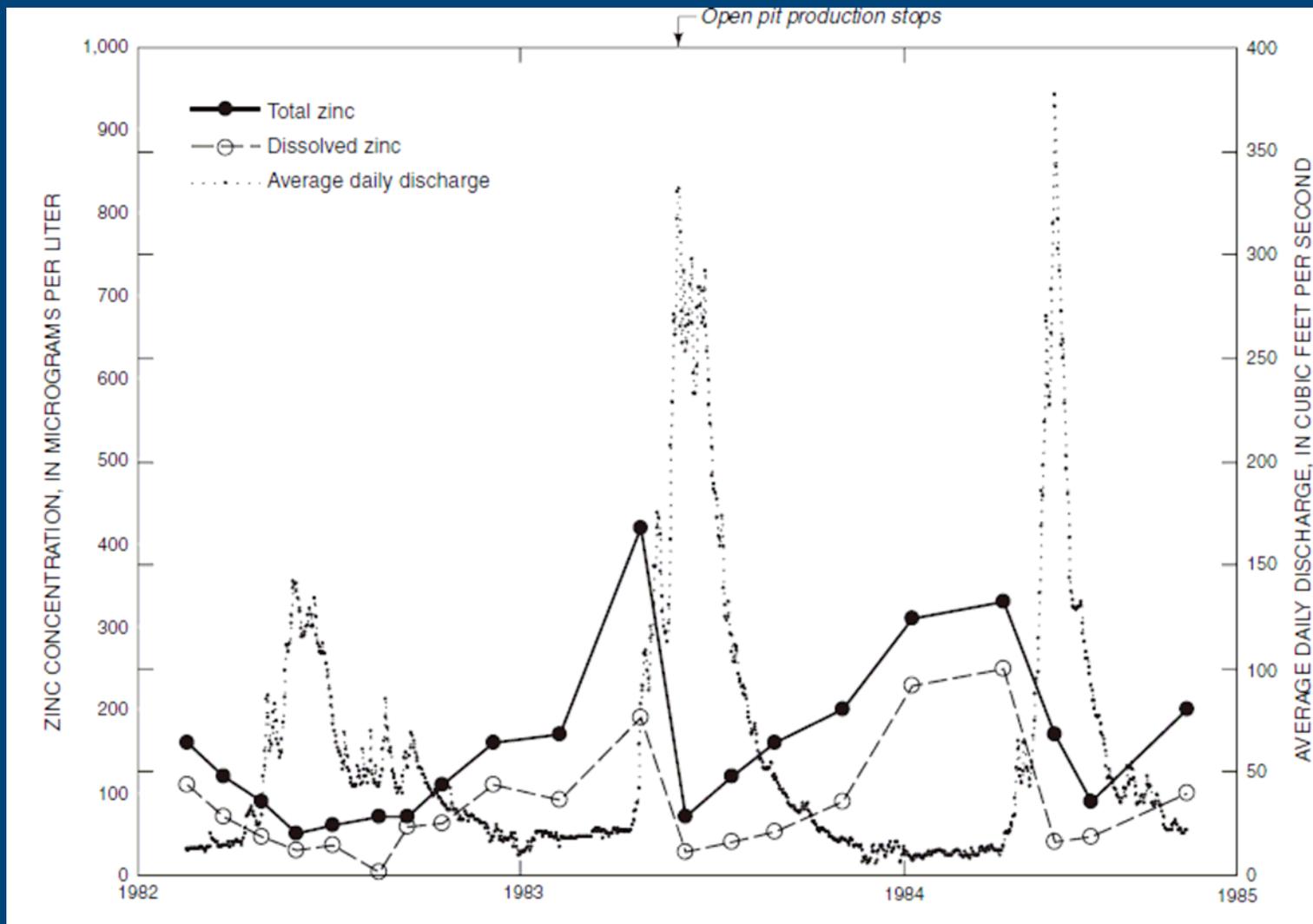
# Monitoring: Timing, climate, seasonality

- Inputs to models
- Check on predictions and mitigations
- Timing
  - Surface water
    - Rising limb of hydrograph and summer thunderstorm events
    - Changing locations of gaining/losing reaches
  - Sediment: less variable in contaminant content
  - Groundwater
    - Seasonal water level fluctuations



Photo by Ann Maest

# Questa Mine, NM: Total and dissolved Zn



Maest et al., 2004