Land Quality Division
Land Quality

Wyoming Dept of Environmental Quality

- Land Quality
- Air Quality
- Solid & Hazardous Waste
- Abandoned Mine Lands
- Water Quality
- Industrial Siting
- Administration Services
Land Quality: Mining Permits

- Issued for uranium, coal, bentonite, trona, gravel, etc
- Certifies a project area may be mined in conformance with an approved mining & reclamation plan
- Require reclamation to pre-mine use
- Opportunity for public comment prior to permit issuance
Land Quality Uranium Mining

**Open pit**
- 11 permitted
- 4 pre-DEQ

**Underground**
- 2 permitted
- 1 pre-DEQ

**In situ**
- 7 permitted
Land Quality: Other Agencies Involved

- Game & Fish (sage grouse)
- Fish & Wildlife Service (endangered species)
- State Historic Preservation Office (cultural)
- Water Quality Division (gw classification)
- State Engineer (ponds, potable water, water rights)
- EPA (approve minor program revisions aquifer exemption)
- Nuclear Regulatory Commission (federal license)
- BLM (federal mineral and/or surface manager)
# Land Quality

What’s in an application?

<table>
<thead>
<tr>
<th>Permit Application Sections</th>
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<tbody>
<tr>
<td><strong>Adjudication:</strong> land ownership, reclamation bond, surface owner consent</td>
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<tr>
<td><strong>Cultural Resource:</strong> fossils, historical sites, SHPO consultation</td>
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<tr>
<td><strong>Geology:</strong> regional &amp; local descriptions, ore zone characteristics, confining zones</td>
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<td><strong>Hydrology:</strong> baseline quality/quantity, pump tests, excursion levels</td>
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<td><strong>Soils:</strong> soil units, topsoil volume, chemical analyses, protection measures</td>
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<td><strong>Vegetation:</strong> species diversity, vegetative cover</td>
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<td><strong>Wildlife:</strong> species, migration routes, mitigation, G&amp;F/USFWS consultation</td>
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<tr>
<td><strong>Mine Plan:</strong> production sequence &amp; schedule, injection rates &amp; pressures, fluids, well construction &amp; completion, monitor well network, monitoring plan, capacity of disposal systems</td>
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<tr>
<td><strong>Reclamation Plan:</strong> aquifer restoration, surface reclamation, schedule, concurrent production &amp; restoration, adequate disposal capacity, final water quality</td>
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Land Quality Risk Assessment

September, 2009 Uranium Conference

LQD statutes/rules

LQD managing risk
Land Quality Managing Risk

- Baseline data collection to assess pre-mine quality
- Well construction, completion, integrity (MIT)
- Pump tests to confirm lateral communication in the ore zone, confinement in layers above & below the ore zone, and identify problem drill holes
- Assessment of impacts expected & mitigation
- Maintenance plan for wells & monitoring equipment
- Installation of monitor wells to identify excursions
- Excursion protocol & operator plan
- Reclamation bond until restoration complete
Land Quality Example Mitigation

- Baseline private or livestock wells
- Baseline regional monitor wells
- If impacts to surrounding project well:
  - Lower pump level in well if possible
  - Deepen the well if possible
  - Replace the well with new well in deeper aquifer not impacted by insitu operation
Land Quality Effectiveness

- Restoration: Bison Basin, Irigaray, Smith
- Wells: higher quality materials & methods
- Well casing integrity: lower MIT failures
- Historical drill holes: finding & plugging
- Current plugging practices: improved
- Spills: monitoring, materials, incidents down
- Impact mitigation: better commitments
Land Quality  Current/Proposed Activity

- One active production facility (2 permits)
  - LQD averages monthly inspections
- Overall exploration has dropped off since 2009
- Two start-ups of previously permitted sites submitted
  - Christensen, Gas Hills
- Five instu applications received
  - Lost Creek, JAB/Antelope, Nichols, Moore, Ludeman
- Several others insitu projects proposed
Land Quality Overall Workload

- Includes permits, exploration, licensing, and limited mining operations
- Nature of application is changing

NEW AUTHORIZATIONS

- Includes monitoring, baseline collection, revisions, amendments transfers, exploration and bonding
- Rise since 2005 primarily due to amendment, non-significant revisions, self bonding, exploration & limited mining operation increases
Land Quality Additional Issues

- New coal oversight, rule initiatives, and proposed 15% cut in grant
- Implement sage grouse stipulations
- Federal coal leasing slow down/pinch point
- Required inspections & compliance grow as permits grow
- Increased interest uranium, underground coal gasification, coal farming
- Increased public involvement and citizen complaints
Land Quality Actions

Steps Taken to Address Increased Workload

- Rotated staff time to address uranium 2006-2010
- E-permit process development 2008-2010
- Standardized smaller mine inspection reports 2008
- Shifted open positions in Cheyenne to district offices in 2008-2009
- Held “lean government” event for coal annual reports in September 2009
- Filled new uranium position in Sheridan Office November 2009
- Expanding hydrology database 2010
- Submitting position needs to Minerals Committee in September, 2010
Land Quality