NRC Topics for Discussion on October 22, 2008

Section 2.6 Geology and Seismology – part e – This is not discussed in the geology portion. Need to know the relevant section where the porosity of 0.05 question was developed from so that it can be sufficiently addressed.

Discuss the majority of RAI's related to Section 2.7 Hydrology. Some of the questions will be quick in asking for clarity, but others may warrant lengthy discussion such as question relating to CBM and surficial aquifers.

Chapter 3.0

Section 3.2 Site Facilities Layout

a. Provide (in one location) a specific listing of each potential source of emissions or releases, a clear description (or location on the plant layout figure) of potential source locations, the planned monitoring associated with the potential release, and the preventive/mitigative controls for the potential release. In Chapter 3.0, The applicant addresses what general potential radioactive and chemical emissions or releases would exist at the Nichols Ranch and Hank sites, and, in Chapter 4.0, provides some detail on effluent controls.

Is the NRC asking for ANY potential source of emission/release, or only potential radiological releases? A similar question for locating potential sources on the plant layout figure – is this for any potential chemical/process release or only potential radiological releases?

Section 3.3 Chemical Storage Facilities

Provide detailed and specific descriptions of the process and wellfield instrumentation, controls and radiation safety monitoring instrumentation, including their minimum specifications and operating characteristics. The applicant provides only a general commitment to have instrumentation and controls to monitor production, injection, and waste flows, and to have instrumentation to alarm for system failures. The descriptions of the process and wellfield instrumentation and controls and radiation safety monitoring instrumentation need to be more detailed and specific, including their minimum specifications and operating characteristics (alarms, interlocks, etc.). The descriptions should focus on how the instrumentation and controls are adequate to quickly identify and remedy all potential processing problems that can increase exposures to radiological and chemical hazards.

Please clarify the detail of the request for minimum specifications, operating characteristics, alarms, and interlocks. Uranerz has not yet identified the operating system for the programmable logic controllers, and thus have not specifically designed all of the controls, alarms and interlocks. In section 3.5 Uranerz committed to having instrumentation and controls listed in detail below in blue. Is the NRC asking for detailed electrical drawings with control schemes?

3.5 PLANT EQUIPMENT, INSTRUMENTATION, AND CONTROL

The plant equipment at the proposed facilities will consist of standard design, construction, and materials for uranium in-situ recovery extraction. Uranerz plans to install automated devices within the plant circuits to assist the operators with their coverage and reduce the number of operators required for successful coverage. Most of the automated devices will be pre-programmed to control operating parameters and the process information will be recorded. The automated systems will include alarms and shutoffs to prevent overflow and overpressure situations and provide centralized monitoring of the process variables.

The central processing plant, satellite plant, production circuits, wellfields, header houses, lines from the wellfield to the plant, and the deep disposal well will have instrumentation. The control system will have continuous monitoring, and alarms that are set when operating parameters are outside of the specified operating ranges. The alarms signal the operators to proceed with corrective actions until the parameter is back within specific ranges. Extreme tank levels or pressures will activate automatic shutdown of equipment for that area. The header houses, pipelines, and deep disposal wells are the sources of greatest risk for large spills and will have high and low pressure, and flow alarms for automatic shutdown of related equipment.

The total plant flow, total waste flow leaving the plant, and tank levels will be monitored. There will also be a low vacuum alarm for the dyer that will indicate either corrective action or automatic shut down. Manufacture's recommendations for the operating and maintenance of the dryer will be followed and recorded according to 10 CFR Part 40, Appendix A, Criterion 8. The critical systems will be equipped with back up systems that are automatically activated in a power failure or operating failure. The wellfield flows and pressures may be continually recorded, but at a minimum once a day recordings. The pressures will be kept under casing and formation rupture pressures.

The Uranerz Standard Operating Procedures (SOP) will address alarm responses, automatic shutdowns, and start up after automatic shutdowns. The SOP at both the Nichols Ranch Unit and Hank Unit facilities are designed to minimize the risks of

uncontrolled releases of leaching fluids, chemicals, and plant fluids, and provide the maximum safety and protection to the environment and personnel.

In the event that a spill occurs in the wellfield or process plants, measures will be taken to safely and quickly contain the spill and mitigate the impacts of any released material. Proper notification of plant and corporate management will be made along with properly contacting the NRC and State if applicable.

Spills are likely to occur from leaking pipelines and fittings. If a pipeline leak or spill occurs in the plants, the spill or leak will be contained within the building with all spilled material collected in the plant sump. This material will either be pumped backed into the process or sent to the deep disposal well.

Wellfield spills will be contained as soon as possible. The area of the spill will be surveyed to identify any contaminated areas and then cleaned up and removed for disposal according to NRC and State regulations.

If any process vessels or tanks that contain or have contained radioactive materials have to be entered for any reason such as cleaning, inspection, or repairs, a radiation work permit (RWP) will be issued detailing the requirements for special air sampling, protective equipment, and increased exposure surveillance.

To notify operating personnel of potential issues with process and wellfield operations, instrumentation such as flow meters and pressure indicators will be used. If any process condition falls out of the normal operating range, audible and visual alarms will sound notifying employees of potential plant problems. The alarm notification will aid in reducing the severity of any potential spills that might occur.

Section 7.5 Effects of Accidents – Is the RAI meant to include information on occupational accidents? Please clarify the RAI.

Topic for discussion

1. Particulate releases from normal operations of ISL with vacuum dryer:

   A. How does licensee invoke NRC acceptance criteria "Aspects of design that can significantly limit airborne releases include … the use of vacuum dryers that eliminate airborne uranium particulate releases from drying operations."? (see NUREG-1569, page 4-1, last sentence).

      This condition is also recognized by NRC at:
      i. MILDOS AREA – An update, Section 4.3, 1st sentence.
      ii. Draft MILDOS Users Guide, page 25, first sentence.
      iii. NUREG/CR-6733, page 2-9, 1st full paragraph.
      iv. NUREG-1910, page 2-24, lines 7 through 16.
      v. NUREG-1508, page 2-15

   B. The uranium recovery process at an ISL is wet until the dryer; i.e. no significant opportunity for airborne particulate during normal operations until drying/packaging. The drying packaging operations are conducted in a closed room under negative pressure with exhaust filtered through same system as dryer. Considering intermittent and short duration of packaging compared to drying, this contribution to particulate should be negligible.

   C. Applicable RAIs
      i. Section 4.1 b. ii.
      ii. Section 5.7.1 a.
      iii. Section 5.7.7 a.
      iv. Section 7.3 a.

   D. What are other licensees with vacuum dryers doing?

2. Size of Uranerz organization vs "management groups"

   A. Discuss NRC expectations of license application verse Uranerz staffing plan below "Mine Superintendent" and construction vs management.

Specific requests for clarification:

3. RAI 5.7.5 d. – Can this RAI be resolved by a more accurate reference to Reg Gde 8.22, Table 1; i.e. at Section 5.7.5, last paragraph, replace "Action levels" with "Corrective actions"?

4. RAI 5.7.7 b. v. – This section refers to operational monitoring: inquire why confusion.

5. RAI 5.7.7 b. vi. – The word "sediment" should read "surface water", then radionuclides are specified.

6. RAI 7.3 d. – The population beyond 80km is substantially larger than w/in 80km: a little number times a little number is still little, however a little number times a very large number becomes large.

   The information presented in this section has no utility for compliance assessment or decision making: can it be removed from the license application?