From:	Mike Thomas
To:	Linton, Ron
Subject:	FW: Latest URZ QAP per LC 12.13
Date:	Thursday, February 13, 2014 4:25:03 PM
Attachments:	ADM-SOP-08 Quality Assurance Program (QAP).zip

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From: Mike Thomas
Sent: Thursday, February 13, 2014 2:14 PM
To: 'Linton, Ron'
Subject: Latest URZ QAP per LC 12.13

Ron,

Attached is the QAP that we sent out in January 2014.

Mike

Mike Thomas
Vice President Regulatory and Public Affairs

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URANERZ ENERGY CORPORATION

Revision Number: New
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Document: ADM-SOP-08

Approved by:	Date:
Department Manager	1/28/14
Mine Manager	1/28/14
Radiation Safety Officer	1/28/14

QUALITY ASSURANCE PROGRAM (QAP)

PURPOSE/SCOPE

The Quality Assurance Plan (QAP) has been prepared to ensure the quality of the results of measurements of radioactive materials in the effluents from, and the environment outside of, the Nichols Ranch ISR Project Facilities. The QAP documents how data shall be collected, assessed and analyzed. The responsibilities and objectives described below have been designed to ensure compliance and further implement a policy for providing a safe working atmosphere that is protective of the environment with cost effective incorporation of philosophy of maintaining radiation exposures As Low as is Reasonably Achievable (ALARA), in accordance with ALARA Program (RAD-SOP-02), for all employees, contractors, visitors, environment, and the public.

In order for ALARA to be successfully implemented all individuals including management, supervisors, radiation safety staff, and workers must take part in and share responsibility for keeping exposures ALARA. Quality assurance (QA) and Quality Control (QC) for radiation protection and radiological effluent monitoring is a component of external radiation exposure monitoring, airborne radiation monitoring, bioassays for workers, and contamination controls. The QAP provides a framework for quality control for the site. Standard Operating Procedures (SOP) developed for the site provide the implementation of the QAP elements.

As defined in the Nuclear Regulatory Commission (NRC) Regulatory Guide 4.15, Quality Assurance comprises planned and systematic actions that are necessary to provide adequate confidence in the assessment of monitoring results. QC comprises those QA actions that provide a means to measure and control the characteristics of measurement equipment and processes to meet established standards. QA includes QC and the terms may overlap for some actions. Thus, Uranerz documents do not distinguish between the terms QA and QC.

The QAP shall take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality, and the need for verification of quality by inspection and test. QA/QC shall provide for training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. The Environmental, Safety, and Health (ESH) Manager and/or Radiation Safety Officer (RSO) shall regularly review the status and adequacy of the Uranerz QAP.

SAFETY

The performance of this task does not have any safety hazards associated with it.

ENVIRONMENTAL

The performance of this task does not have any environmental issues associated with it.

RADIATION

The performance of this task does not have any radiation issues associated with it.

EQUIPMENT LIST

The performance of this task does not require the use of any equipment.

PROCEDURE

1. **Organizational Structure and Responsibilities of Managerial and Operational Personnel**
   The authorities, duties, and responsibilities of positions within the organization responsible for developing, reviewing, approving, implementing, and enforcing the QAP are designated.
   1.1. Uranerz Senior Managers (e.g., President; Chief Operating Officer; Vice President, Production)
   Uranerz Senior Managers are responsible for overall implementation of programs, policies, and guidance pertaining to uranium mining activities at Uranerz. Senior management shall ensure that persons and organizations performing QA functions shall have sufficient authority and organizational freedom to identify quality problems and to initiate, recommend, or provide solutions.
   1.2. Vice President of Regulatory Affairs
   The Vice President of Regulatory Affairs has responsibility and authority for oversight of environmental monitoring programs for Uranerz. The Vice President of Regulatory Affairs, shall provide input to Mine Manager and ESH Manager or RSO to ensure that all ESH, radiation safety, environmental compliance, QA/QC, and permitting/licensing programs are conducted in a responsible manner, and in compliance with all regulations and permit/license conditions. This person shall report directly to a Senior Manager (e.g., the Chief Operating Officer, Uranerz, President, Uranerz).
   1.3. Mine Manager
   The Mine Manager is responsible for uranium mining activity at the mine site. All site operations, maintenance, construction, environmental, safety and health, and support groups report to the Mine Manager. The Mine Manager reports to the Vice President, Operations. The Mine Manager has the authority to immediately suspend, postpone, or modify an action or work which may be deemed threatening to human health or the environment or deemed in violation of state or federal regulations. The Mine Manager is responsible for:
   - Ensuring the implementation of industrial, radiation safety and environmental protection programs associated with operations;
   - Assist in the development, administration, and enforcement of the QAP;

- Designate a person that shall oversee the QAP, those qualifications will be kept on file for internal use. Designation of this person will be made known to the company employees ;
- Ensuring that personnel adhere to SOPs for the preparation, review, and evaluation of monitoring data and reports;
- Ensuring that adequate technical and QA training is provided for personnel performing activities important to the QAP;
- Reviewing and approving written procedures;
- Ensuring contractors provide records and reporting and maintain a Quality Assurance Manual (or equivalent) as needed to support the Uranerz Environmental QAP; and
- Investigating and correcting quality problems.

1.4. Environmental, Safety and Health (ESH) Manager

The ESH Supervisor reports to the Mine Manager and indirectly to the Vice President of Regulatory Affairs. The ESH Manager is responsible for day-to-day operations of the ESH for the project. This individual's responsibilities shall include implementing the QAP.

1.5. Radiation Safety Officer (RSO)

The RSO is responsible for the overall management of the radiation safety program including implementation of QAP requirements related to the radiation safety program. The RSO reports to the ESH Manager. The RSO provides awareness of events and issues that could affect the quality of program performance

1.6. Health Physics Technician

The Health Physics Technician (HPT) or Radiation Safety Technician (RST) shall assist the RSO with the implementation of the QAP. The HPT reports directly to the RSO.

1.7. QA/QC Administrators

The QA/QC Administrators are responsible for the implementation of quality control procedure. A minimum of two individuals are designated QA/QC Administrators by the Mine Manager with one designated lead. The Administrators are responsible for the completion of QA/QC audits and corrective actions, as needed. At a minimum one administrator will be on an audit team that involves additional employees.

1.8. Supervisors

Workplace supervisors are responsible for developing, implementing, and maintaining SOPs that implement the QAP. The supervisors document proficiency for quality-related activities initially through task training and at least annually during performance reviews in accordance with the Task Training procedure (SFT-SOP-31). Supervisors are responsible for coordinating quality procedures with the QA Administrator(s). With assistance from the QA Administrator(s) and upper level management, supervisors also identify, investigate, report and correct quality problems.

1.9. Employees

Employees are responsible for implementing the QAP as required by SOPs. Employees provide recommendations, implement corrections, and verify effectiveness of quality improvements as needed.

1.10. Contractors

Contractors providing support activities (e.g., sampling, analysis, evaluations, and records) for environmental programs are required to retain records sufficient for Uranerz to maintain the QAP.

2. Specifications of Qualifications of Personnel

Uranerz employees and staff shall have proper qualifications for the positions they hold.. Qualifications of individuals carrying out assigned tasks are defined in their job descriptions and or corresponding SOPs. Individuals performing quality-related activities are trained and qualified in the principles and techniques of the activities. Proficiency is maintained by retraining, reexamining, recertification, or by periodic performance review. Continual training, through refresher and on the job training shall be conducted as needed to ensure that personnel maintain awareness of events and issues that could affect the quality of performance.

2.1 Initial Training

All employees shall receive initial training on principles and ethics of collecting data and samples in regards to quality control, general safety, and radiation safety as outlined in Uranerz Employee Training (TRN-SOP-01) and ALARA Program (RAD-SOP-02). Ethics involves but is not limited to data integrity, need of honesty and full disclosure in reporting, and expectations and consequences for inappropriate practices Uranerz policy is to train contractors to the appropriate level of hazards as dictated by the RSO and Safety Personnel. Written or oral exams shall be given to show proficiency, and shall be filed and maintained on site.

2.2 On the Job Training

All employees shall be given specialized instructions on quality control, safety, and radiation safety aspects of the specific job they shall perform. This shall be on-the-job training (OJT) and is outlined in Task Training (SFT-SOP-31).

2.3 Refresher Training

Refresher training for quality control, safety, and radiation safety shall be given annually. Training is an abbreviated course and topics may include, ethics, quality controls issues, safety concerns, exposure trends, relevant information that became available the past year, or other changes in the regulations or license. Oral or written tests may be given to show proficiency.

3. Operating Procedures and Instructions

Guidelines for writing standard operating procedures are outlined in Standard Operating Procedure and Log Sheet Guidelines (ADM-SOP-04). Written SOPs are suggested for all activities that generate data applicable to this QAP. This may include but is not limited to the following activities for Uranerz:

- Dose calculations and measurements (Radiation Dose Assessments (RAD-SOP-14));
- Sample collection (Preoperational Ground and Surface Water Baseline Sampling (ENV-SOP-01), Operational Ground and Surface Water Sampling (ENV-SOP-03), Operational Soil and Sediment Sampling (ENV-SOP-21), and Radiological Effluent and Environmental Monitoring Program (RAD-SOP-17);
- Chain of Custody (Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01));
- Sample preparation and analysis (Individual SOPs);
- Data recording (Individual SOPs, Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01)) ;
- Data reporting (Individual SOPs, Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01));
- Final sample disposal (Individual SOPs, Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01));
- Training (Uranerz Employee Training (TRN-SOP-01));
- Preparation of QC Samples; (Individual SOPs);
- Collection of meteorological data (Downloading Meteorological Station (ENV-SOP-16));

- Production Samples;
- Corrective actions (Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01), Quality Assurance Program (QAP) (ADM-SOP-08));
- Audits (Auditing Standard (ADM-SOP-02), ALARA Program (RAD-SOP-02));
- Records (Recordkeeping Standard (ADM-SOP-03), Individual SOPs);
- Ancillary laboratory functions, including cleaning of glassware, contamination control, and storage of standards and chemicals,, (Laboratory SOPs, Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01));
- Outside laboratory functions (including quality control);
- Calibration and QC of instrumentation ,including frequency, types, acceptance criteria for the laboratory Performance Testing samples, and individual analyst qualifications, (Individual SOPs); and
- Timetable for Verification and Validation (V&V) of data (before reporting data).

For a list of SOPs involving the generation of data see Addendum B.

4. Record Keeping And Reporting Requirements

Records including QAP records shall be maintained as hard copies, or stored electronically. Records shall be readily available for regulatory inspection and may be transferred to the NRC after license termination. The RSO shall be responsible for ensuring that required records are maintained in site-wide or workplace-specific files as outlined in individual SOPs. Requirements for documentation and records management apply to the preparation, review, approval, issue, use, and revision of documents or forms that prescribe processes, specify requirements, or establish design. Records must be specified, prepared, reviewed, approved, and maintained according to Uranerz policy found in Recordkeeping Standard (ADM-SOP-03). Field and Laboratory data shall be sufficiently documented to provide a scientifically defensible record of activities and analysis performed. Records of field variance, internal reviews, field logs, Chain-of–Custody forms, and project reports shall be used to determine the usefulness of the data. Standardized forms and log sheets shall be designed to eliminate errors made during data entry. Contractors performing support activities shall retain records sufficient to access QA/QC.

4.1. Types of Documents, Records, and Reports

Uranerz shall generate and maintain sufficient records, and reports to demonstrate regulatory compliance. These records may include but are not limited to:

- Procedure revisions (Any revisions to SOPs are approved by departmental supervisors and reviewed annually by the Radiation Safety Officer. Upon changes they are then distributed to affected personnel.);
- Personnel training and qualification (All training records will be maintained in employee's individual folders. Personnel folders will be maintained by the Safety department and annually reviewed by the RSO.);
- Analytical results (The sample information, methodology, unprocessed data, and calculated results will be maintained in either electronic databases such as LIMS or hard copies maintained by each department. At least annually these records will be reviewed for completeness by the RSO and more frequently if determined necessary by the QA Administrators.);
- Audits (All audits will be performed in accordance with Auditing Standard (ADM-SOP-02). Records of these audits will be maintained in a central location and maintained by the ESH

department. Review of these records will be at frequencies determined by regulatory guidance and need as determined by the QA Administrator(s).);

- Corrective actions (Is required when nonconformance or other departure of Uranerz procedures or policies is identified or data is quality is suspect. Records of all out of specification events, the causes, and corrective actions will be filed and maintained on site. These files will be reviewed as specified by regulatory requirements and as needed as determined by the QA Administrator(s).);
- Records of tracking and control e.g., chain of custody (The use of both internal and external COC will be used to ensure proper transfer of samples to the laboratory. For internal samples a Chain of Custody is implemented as the users input the field sample data into LIMS. Samples being sent to outside laboratories use external COC to ensure the sample remains undisturbed and proper sampling analysis is performed. Records whether it be electronically as in LIMS or a hard copy for external labs will be maintained on site to demonstrate the proper paper trails.);
- Field logs with sufficient information describing environmental conditions and data documenting the nature of the sample and where and how it was taken (This will be created and filed based on department. A periodic review of at least annually or more if deemed prudent by the QA Administrator(s) will be done by an outside department.);
- Laboratory notebooks (Provide a record, paper or electronic, of the analytical methods used and other information pertinent to LAB analysis.);
- QA documentation;
- Calculations (including data reduction, analysis, and verification);
- QC for radiation monitoring equipment, including results of:
    - Radioactive source checks;
    - Calibrations; and
    - Instrument background determinations;
- Maintenance activities affecting equipment performance (These records will be created by the radiation protection staff and they will file and maintain these records on site. These records will be reviewed at least annually by the RSO and annually as part of the ALARA audit as outlined in ALARA Program (RAD-SOP-02)). QC for laboratory counting systems, support instrumentation and equipment, including:
    - Calibrations;
    - Maintenance or repair;
    - QC sample results; and
    - Traceability of standards used for instrument calibration (will be filed and maintained by laboratory personnel. Review of these records will occur annually, carried out by the QA Administrator(s).).

4.2. Field and Laboratory Documentation

Documentation requirements are specified in individual sampling and analysis procedures. Any data entered on forms will be made with waterproof ink and will be legible, accurate, complete, and traceable to the sample or site location. Documentation will occur on log sheets and employee notebooks. Field documents are intended to provide sufficient data and observation to enable someone to reconstruct the activity.

Changes to workbooks or log sheets to correct information shall be done by crossing the erroneous data or remark out with a single line ensuring that the data is still readable and then

adding initials to the changed data or remark. The correct data should be placed next to the crossed out erroneous data.

4.3. Record Retention

Each record owner ensures specific requirements for record retention are included in applicable SOPs. Requirements include the following:

- Records are to be legible and identifiable, retained in predetermined locations, and protected against damage, deterioration, or loss;
- Records should be easily retrievable;
- The document retention system should allow reconstruction of activities associated with the generation of analytical results; and
- Records are to be retained for a time as required by license condition, if a record retention time is not known, records are to be retained indefinitely until otherwise determined.

4.4. Electronic Records

If the media for storage of records is electronic, equipment is to be maintained to read and present the data in an uncorrupted form. Electronic data will be secured through the use of passwords and limited access.

4.5. Reporting Requirements

Reports of the Radiological Effluent and Environmental Monitoring Program are submitted to the NRC semi-annually in compliance with regulation. Additionally all spills, excursions of recovery solutions and process chemicals, and other limits described in 10 CFR 20 part M, 10 CFR 40.60, and SUA-1597 License Condition 11.6 is reported to the NRC Headquarters Project Manager by telephone or electronic mail within 48 hours of the incident. A written report is submitted to the NRC Headquarters Project Manager detailing the conditions of the spill or incident, corrective action, and results within 30 days of the notification.

The reports along with correspondence from the NRC is filed and maintained on site for all assessments, audits, or surveillances.

5. QA/QC in Environmental Sampling

5.1. Regulatory Limits

Uranerz operates in compliance with all radiological and environmental regulatory limits as described in the license conditions, technical report, NRC regulations, Wyoming Department of Environmental Quality (WDEQ) Permit to Mine, and WDEQ regulations throughout all pre-operational, operational, restoration, and decommissioning reclamation activities. Limits for individual activities are found in individual SOPs and within the license application.

5.2. Radiological Monitoring

5.2.1. Survey Methods for Radiological Exposure Monitoring

Passive gamma, air particulates, and radon measurements are conducted in the vicinity of the project site to determine the potential dose to the general public from off-site exposure. Radiological effluent and environmental monitoring is conducted according to established procedures prepared to be in compliance with regulatory requirements, see Radiological Effluent and Environmental Monitoring Program (RAD-SOP-17).

Health physics surveys are performed to protect workers at Uranium recovery facilities from radiation exposures in excess of background and chemical toxicities of uranium while on the job. Occupational Exposure surveys are performed according to established procedures prepared to be in compliance with regulatory requirements Contamination

Control and Personnel Monitoring (RAD-SOP-05) and Decontamination and Release of Equipment and Material for Unrestricted Use (RAD-SOP-06).

5.2.2. Quality Control of Radiological Exposure Monitoring Measurements.

The radiological effluent and environmental monitoring program generates valid data of a defined level of quality. Sample and monitoring procedures are designed to identify sampling and measurement processes, including deficiencies and report them, provide confidence that the monitoring results can be validated. The QA for these procedures include provisions for analytical sampling, sample shipment, chain of custody documentation, radiological measurement data reduction, data evaluation, and reporting.

5.3. Radiological Effluent and Environmental Monitoring

Radiological effluent and environmental monitoring QA/QC objective is to ensure that all radiation safety, radiological effluent, and environmental monitoring measurements are conducted in a safe manner and in compliance with regulatory guidance.

Air particulate samples are collected continuously at 6 air particulate sampling locations. Air filters are collected weekly, composited, and analyzed quarterly to determine U-nat, Th-230, Ra-226, and Pb-210. Radiation Dose Assessment (RAD-SOP-14) and Radiological Effluent and Environmental Monitoring Program (RAD-SOP-17) detail the QA/QC involved with air particulate sampling. Flow rates are set to insure that the required volume of air to meet the laboratory LLD, 10 percent of the DAC, is met.

Radon gas is monitored continuously using alpha track etch detectors or equivalent. Devices are changed quarterly and sent off for analysis. The sensitivity of the devises is 0.06 pCi/L per 90 days of exposure as outlined in section 5.7.3.2 TR. Locations may have two monitoring devices as part of QA/QC in accordance with Radiological Effluent and Environmental Monitoring Program (RAD-SOP-17).

Passive gamma is measured continuously with quarterly analysis using passive integrating devices or equivalent. The devices shall have a sensitivity of at least 1mrem. Locations may have two monitoring devices as part of QA/QC in accordance with Radiological Effluent and Environmental Monitoring Program (RAD-SOP-17).

5.4. Surface and Groundwater Sampling

Surface water and ground water are sampled before operations to establish a baseline water quality in aquifers and local surface water features. This allows for comparison with operational monitoring data. Operational monitoring is performed to ensure that the facility is being constructed and operated in a responsible manner. Operational samples are collected from underlying, overlying, and production aquifers to compare results with pre operational data. The intent is to understand the impacts from the Nichols Ranch facility on these aquifers. Additionally data from wells and surface water when compared to baseline data allows for the impacts to these resources from operations.

Water sampling is performed in accordance with Preoperational Ground and Surface Water Baseline Sampling (ENV-SOP-01), and Operational Ground and Surface Water Sampling (ENV-SOP-03). Care should be taken to obtain quality field samples as discussed in the individual SOPs. Cross contamination should also be limited by cleaning equipment in between sample locations.

Soil and sediment sampling is performed during pre-operations as part of the site characterization process. These samples establish baseline radionuclide concentrations, which provides a basis for comparing operational monitoring data. Soil and sediment sampling during operational sampling is performed to ensure that the facility is being constructed and operated in a responsible manner. Operational monitoring data is compared to preoperational data to determine whether operations have an impact on soil radiation levels. Surface soil samples are collected annually in the same locations as radon sampling. They are grab samples of 0-15 cm and are analyzed for U, Th-230, Ra-226, and Pb-210. Sediment samples are collected in the same locations as preoperational samples. For locations of the sediment and soil samples refer to TR 2.9.1.

Soil and sediment sampling are collected in accordance with the standard operating procedure Soil and Sediment Sampling (ENV-SOP-21). Samples should be collected with clean equipment making sure sampling tools are cleaned between uses to avoid cross contamination. Results of soil sampling will be reported to the NRC semiannually.

Soil Samples are also collected when a spill of injection or production fluid occurs on the surface soil. Sampling of these soils is in accordance with Reclamation Procedures (ENV-SOP-12) and Unplanned Releases (ENV-SOP-05). When collecting these samples care should be taken to limit contamination as outlined in these procedures.

Sampling program shall be periodically assessed to determine if additional sampling locations improves regulatory requirements or enhance the ability to demonstrate public radiation exposures above background.

5.4.1. Air Particulate Monitoring QA/QC Considerations

Errors in estimates of volume of air that has passed through filters should be avoided by accurate calibration of the flow rate and by preventing or correcting for the loss of flow caused by accumulation of material on the filter. As material accumulates on the filter material the air flow drops, thus less air volume is sampled. Air flow rates through filters should be determined by calibrating pumps with filter in place once every 12 months to ± 20%.

5.4.2. Liquid Effluent

11e.(2) by product material is produced at the site in the form of liquid process waste including chemicals from the laboratory, "affected" groundwater generated during well development and operations, and groundwater generated during aquifer restoration. The liquid 11e.(2) by product generated during the project is managed by deep well injection. Monitoring of the 11e.(2) liquid stream is in accordance with the established procedure.

5.4.3. Quality Control of Radiological Effluent and Environmental Monitoring Measurements

Monitoring site conditions requires the use of a variety of instruments, equipment, sampling tools, and supplies. Proper inspection, calibration, maintenance, and use of each equipment is required to ensure field data quality. Field QA/QC is implemented through the use of approved procedures, proper cleaning and decontamination, protective storage of equipment and supplies, and timely data reviews during field activities. QA/QC objectives are to obtain reproducible and comparable measurements to a degree of accuracy consistent with the intended use of the data.

Field duplicates, field blanks, and trip blanks as appropriate are used to quantitatively and qualitatively evaluate the analytical performance of external laboratories to access external

and internal effects on the accuracy and comparability of reported results. These samples are uniquely identified.

Where applicable field measurements data is compared to historical location data to evaluate if large variations exist and general trends are developing.

5.5. Sample Collection and Documentation

Each sample is labeled with a unique identifier which allows it to be traced from collection to final disposition. Where samples have a definite hold time, methods are in place to preclude the use of the sample beyond this time, or to determine the applicability to results if the time can be extended.

Chain of custody forms are used to provide a document trail of persons who have custody of a given sample. The form includes descriptions, sources, packaging, and preparation, hold time, shipping, required analysis, dates/times, as applicable to ensure the quality of the sample and analysis. Sample integrity is maintained through the use of chain of custody and may include custody seals as appropriate. Currently, for Radiological Effluent and Monitoring Program samples, Nichols Ranch uses two laboratories and their chain of custodies are attached in Addendum A.

5.6. Quality Control Samples

Environmental data must be of sufficient quantity and quality to determine if performance criteria are being met. The type and quality of data provided to appropriate regulatory agencies is used to document performance of the uranium recovery operation and later attainment of reclamation and restoration goals. Data should be of sufficient quality to withstand scientific and legal scrutiny, acquired in accordance to established procedure appropriate for the intended use, of known accuracy and precision, complete, representative, and comparable. To assist in the achievement of the objectives, quality control samples are necessary.

Field duplicates verify representativeness, indicating that results are representative of the environment. Field duplicates are two samples of the same material, collected in similar locations at the same time and under the same conditions as is practical.

5.7. Sample Handling, Storage, and Shipping for Radiological Effluent and Environmental Monitoring Samples

Procedures for handling, storing, cleaning, packaging, shipping, and preserving samples are included in Uranerz SOPs. Storage considerations include maintenance of sample characteristics, sample integrity, and sample identification.

5.8. Spatial and Temporal Variation

Spatial or temporal variations are considered and planned for as needed. Spatial variations can occur when analytes vary by sample location. For example, this can include the amount of water pumped from a monitoring well prior to taking a sample.

The frequency of sampling and number of samples and locations depends on the level of variability and amount of radioactivity.

Temporal variations can occur when analytes vary throughout a time cycle, such as seasonally. Continuous sampling or integrated measurements can be used to assess temporal variability.

5.9. Uncertainty Limits for Volume and Mass Measurements

Sample volumes are derived for each type of sample based on measurement requirements. For liquid or solid samples consideration is given for the density/composition of the matrix, counting

efficiency of the instrumentation or laboratory, applicable analytical chemical recovery, preservation techniques, and homogeneity of the sample. Air particulate volumes are impacted by filter collection efficiency, filter dust loading, and flow rates of sampling equipment. Methods for reporting sample analysis and result are found in specified environmental sampling and analysis SOPs and in agreement with regulatory requirements.

6.0. Laboratory Management and Quality Control

Performance indicators are used in the on-site Plant and Radioanalytical Laboratories to determine if the laboratory's measurement processes are in control. The type, frequency, and evaluation criteria for QC samples are developed during SOP development for specific analyses.

Performance indicators are selected to provide a management tool for tracking and trending performance and to identify precursors to nonconforming conditions. Laboratories consider necessary levels of precision, acceptable bias, and applicable detection limits. This is documented in applicable SOPs. Definitions are as follows:

- Precision is the closeness of agreement between independent test results and can be assessed using replicate samples. It may be expressed as the standard deviation.
- Bias of a measurement process is a persistent deviation of the mean from the accepted reference value of the quantity being measured. It does not vary if a measurement is repeated.
- The term "detection limit" can be used as a synonym for "Minimum Detectable Concentration (MDC)" or for "Minimum Detectable Value". When necessary, the MDC is calculated to confirm that radioactivity levels are below a specified fraction of an established concentration limit.

6.1. Onsite Laboratory

Uranerz is responsible for the validity of our analytical results. To aid in the precision of the onsite laboratory a laboratory QA/QC manual has been established (Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01)). The onsite laboratory will be reviewed annually to ensure quality control objectives are being met. Additionally the onsite laboratory will be involved with inter-laboratory comparisons to compare results between external labs.

Uranerz is responsible for the validity of any analytical result provided to demonstrate compliance. The Effluent and Environmental Monitoring Program is dependent on radio-analytical laboratories to show compliance, therefore prior onsite audits of laboratories may be conducted to ensure that the laboratory is capable of completing desired outcomes with accuracy and precision. To ensure quality of results Uranerz may require external laboratories to participate in performance evaluations program or inter-laboratory comparison. These programs help check accuracy of results and identify possible biases. The results of this program should be tracked and trended as a performance indicator of the laboratory.

6.2. Laboratory documentation

The format and content of laboratory reports depends on the contract requirement, regulatory requirements, and if additional information is needed. All reports should include the analytical method used, date and time of analysis, chain of custody form, sample receiving documentation, detection limits, dilution factors, and the analytical uncertainty including a confidence level.

Logsheets as outlined in SOPs are used to record data, observations of analysts, and other conditions potentially affecting the measurement process. This can be done electronically or be handwritten.

7.0. Calibration and Quality Control of Instruments, Measuring Devices, and Test Equipment for the Radiological Effluent and Environmental Monitoring Program.

Instruments, devices, and test equipment used for measuring radioactivity should be operated, calibrated, and maintained to ensure that analytical specification are met. The requirement for how instruments are to be operated, calibrated, and maintained are found in the established SOPs.

7.1. Flow Monitoring Instrumentation

All flow-rate measuring devices associated with the radiological effluent and environmental monitoring program are calibrated to determine actual flow rates at the conditions of temperature and pressure under which the instrument shall operate. These flow rates are calibrated annually and the flow rates are monitored throughout the year to determine if calibration is needed more frequently.

7.2. Radiological Survey Instruments

Radiation survey instruments are calibrated to manufactures instruction and regulatory requirements as outlined in HP Instrumentation Quality Control and Procedures (RAD-SOP-04). Instruments are externally calibrated using certified reference materials of known and documented value traceable to a national standards body, such as the National Institute of Standards and Technology (NIST).

Upon reception of instruments sent for calibration, an internal review of the calibration is performed to ensure no harm came to the instrument during transit. Check sources are used for instrument reliability checks as described in HP Instrumentation Quality Control and Procedures (RAD-SOP-04). Calibration QC checks are tracked and compared with predetermined ranges of acceptable performance.

Background counting rates are performed on regular, predefined frequencies for instruments in routine use. Instrument backgrounds used to determine a net count rate should replicate actual sample measurement conditions as closely as possible (i.e., using appropriate sample containers and geometries).

7.3. Sampling Equipment and Containers

Sampling equipment to make precise measurements, such as thermometers, balances, conductivity meters, and sample collection containers are calibrated according to manufacture recommendations or using best practices as appropriate to meet requirements. These quality controls are outlined in individual SOPs for each instrument.

7.4. Cross Contamination

Potential for cross contamination exists when samples are taken in different locations with the same equipment. There is potential for cross contamination in the field collecting samples as well as in the laboratory analyzing samples. Rinsing equipment between samples with DI water and even an abrasive brush such as a wire brush may limit the amount of cross contamination. The use of blank samples also is a check to ensure cross contamination is limited. Methods used to limit cross contamination are outlined in individual sample collection SOPs.

8.0. Verification and Validation

8.1. Validation and Verification for Accuracy and Completeness

The objective of verification is to ensure that data is collected and reported in a consistent manner with approved procedures and per time requirements. This involves the review of raw data for completeness, transcription errors, accuracy of calculations, and whether proper procedures are followed. The RSO is principally responsible for the validation and verification

of activities, whose failure could have an impact on the environment, health, or safety. The RSO or designee is responsible to review and initial logbooks, QC reports, and logs at least monthly for completeness and accuracy (Operational Radiation Safety Program (RAD-SOP-03)). Technical data is routinely verified and validated to ensure that the data is of sufficient quality and quantity.

Computer programs and spreadsheets used in the implementation of radiological monitoring is documented, verified, and validated before initial routine use and after each modification of the computer program. Verification of spreadsheets and computer programs used in the laboratory follow guidelines established in Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01). Verification checks are performed on all routine data-transfer and data-entry.

8.2. Anomalous Data
The determination of anomalous data is done through the validation process. It involves screening of the data, technical review, and corrective actions to determine if the data point is indeed anomalous.

8.3. Screening of the Data
Sampling data is screened for values that fall outside of the historical data ranges. The historical data ranges are established by historic sampling events.

8.4. Technical Review
Technical Review involves reviewing screened data points to determine if the point is acceptable or corrective action is needed. This evaluation takes into consideration factors such as number of historical data points, analyte concentrations, magnitude of deviation, variability of historical data, and location of sample point in regards to other potentially interfering activities. If point is not acceptable corrective action is taken.

8.5. Corrective Action
Corrective action allows for further investigation into the reasoning behind anomalous data. Corrective action may include requesting a laboratory check of calculations and dilutions, sample reanalysis, re-sampling, and comparison of data to the next sampling event. Based on the corrective action the ESH Manager, RSO or designee can then determine if the data point is acceptable or an anomalous point. Anomalous points are considered unusable.

8.6. Verification and Validation of Field Data
Field data verification ensures that data is collected in accordance with designated procedures and per required schedules. The data should be reviewed for completeness, transcription errors, compliance with procedure, and accuracy of calculations.

The individual validating the data, in consultation with ESH Manager, RSO or designee, may correct problems that are found or noted in the documentation by lining through the incorrect entry with a single line, correcting the information, then initialing changes made to the document. Care must be made not to obscure the erroneous information. The person validating the data must also ensure that erroneous data is not entered into the database. Additional validation and verification can be found in individual SOPs that generate field data

8.7. Field Variance and Nonconformance
Changes from field protocols established by supporting SOPs must be authorized by the ESH Manager, RSO or designee and fully documented by the initiator or the person sampling. Field variance will be reported immediately to evaluate the impact the variance has on the data. Examples of variance in the field would be the activity performed or sample collection technique did not follow proper protocols, the monitoring or measurement instrument used was out of calibration, or there is a loss or damage to the record that cannot be duplicated. In events of

variance it may be necessary for corrective action. Field variance will be recorded in field notebooks and log sheets.

8.8. Verification and Validation of Laboratory Data

Data received from external laboratories is verified for completeness and validated by personnel qualified in data validation. Analysis should be in accordance with accepted analytical procedures.

QA/QC data provided by the laboratory (blanks, spikes, etc.) shall be evaluated to see if they fall within an acceptable range. If QA/QC samples are not within the set range, samples are evaluated to determine if corrective action is warranted. Additional Verification and Validation methods are outlined in Lab Quality Assurance/Quality Control Manual and Procedures (LAB-SOP-01) and individual SOPs.

8.9. Laboratory Variance and Nonconformance

Changes from laboratory protocols established by supporting SOPs must be authorized by the Lab Supervisor or designee and fully documented. Laboratory variance will be reported immediately to lab supervisor to evaluate the impact the variance has on the data. Refer to Lab Quality Assurance/Quality Control Manual and Procedure (LAB-SOP-01) for more information regarding laboratory variance.

8.10. Quality Control Samples

QA/QC samples, blanks, duplicates, spikes, or laboratory control samples, are evaluated in the data validation process. The number and frequency of QA/QC samples are individually determined for each data set taking in to consideration regulatory requirements and individual SOPs.

9.0. Assessments, Audits, and Surveillances

Assessments, audits, and surveillance are tools used to evaluate the effectiveness of the QA/QC program, and to control the quality of the radiological effluent and environmental monitoring program. The policy and processes for performance assurance of the radiological and environmental monitoring program are outlined in established standard operating procedures ALARA Program (RAD-SOP-02), and Auditing Standard (ADM-SOP-02). It is the responsibility of both management and employees to participate in assessments, audits, surveillance, and inspections.

9.1. Authorities and Qualification of Inspectors and Auditors

The minimum qualifications and experience levels required of personnel assigned the responsibility of conducting inspections, assessments, surveillances, and audits are described in Organization and Administration of the Radiation Safety Program (RAD-SOP-01). Supervisors having responsibility in the area under review shall document and review the results of these activities.

It is the responsibility of the RSO and the radiation safety staff to conduct radiation safety surveillances and investigations to ensure occupational exposures are as far below the specified limits as is reasonably achievable. The RSO is assigned sufficient authority to enforce safe ALARA operations, and employees are trained to understand and apply the ALARA philosophy.

It is the responsibility of the Quality Control Administrators to conduct surveillance of activities that generate data and assess if QA/QC objectives are being met. This employee is given sufficient authority to enforce QC protocols. Employees will be trained to understand the importance of QA/QC through periodic training and review.

9.2. Annual Audits: Verification and Validation of License Compliance and ALARA

A comprehensive review of the radiation protection and ALARA program is performed annually. The audit is conducted by individuals that are knowledgeable concerning radiation protection programs at uranium recovery facilities. The ESH Manager or RSO assists the audit team, but is not be a member of the team and does not assist in the writing of the ALARA Audit Report.

The purpose of the audit should be to (1) determine the effectiveness of the radiation safety and ALARA program including veracity of radiation measurements and calculations; (2) ensure compliance with applicable regulations, procedures, and policies; (3) ascertain trends in employee and public exposure, potential explanations as well; and (4) Look for methods to further mitigate employee and public exposure to radionuclides. The report is submitted to corporate management and the report's findings and their implications should be discussed with all employees during annual radiation safety training.

The Annual ALARA Audit Report shall specifically address trends in personnel exposures for identifiable categories of workers and type of operational activities, whether equipment for exposure control is being properly used, maintained, and inspected, and recommend ways to further reduce personnel exposures from uranium and its daughters. The report should also summarize:

- Employee exposure records;
- Bioassay results;
- Inspection results (daily, weekly, monthly);
- Documented training activities;
- Radiation safety meeting reports;
- Radiological survey and sampling data;
- Reports on overexposure;
- Operating procedures that were reviewed; and
- Emergency preparedness.

9.3. QA/QC Audit

A comprehensive review of quality assurance program is performed at least annually and additional audits may be deemed necessary by the QA/QC Administrator. The audit is conducted by or under the direction of the QA/QC administrator. The purpose of the audit should be to (1) determine the effectiveness of the QA/QC program including veracity of measurements and calculations; (2) ensure compliance with applicable regulations, procedures, and policies; (3) ascertain trends in data; and (4) Look for methods to further mitigate variances from standard protocols. The report is submitted to management and the report's findings and their implications should be discussed with all employees.

9.4. Routine Operational Inspections

9.4.1. Daily inspections

Daily inspections are performed as outlined in Operational Radiation Safety Program (RAD-SOP-3).

9.4.2. Weekly Inspections

Weekly inspections are performed as outlined in Operational Radiation Safety Program (RAD-SOP-3).

9.4.3. Monthly Report

The RSO provides a monthly report as outlined in Operational Radiation Safety Program (RAD-SOP-3).

9.5. Safety and Environmental Review Panel (SERP)

The Safety and Environmental Review Panel is responsible for monitoring any proposed change in the facility or process, making changes to procedure, and conducting tests or experiments not contained in the current NRC license. No license amendment or NRC approval is needed in the SERP process as long as they do not conflict with any requirements specifically stated in the license or impair licensee's ability to meet all applicable NRC regulation, there is non-degradation in the essential safety or environmental commitments in the license application or those provided in an approved reclamation plan, and they are consistent with NRC conclusions regarding actions analyzed and selected in the facility environmental assessment. An annual report that describes all changes, tests, or experiments including a summary of the SERP evaluation of each change shall be submitted to the NRC.

9.6. Documentation and Record Retention for Assessments, Surveys, and Audits
All assessments, audits, and surveillances are documented and a record of all assessment, audits, surveillance findings, corrective actions, and finding closeouts are maintained on site as specified in ALARA Program (RAD-SOP-02).

10. Preventive and Corrective Actions

Continuous improvement processes are implemented to ensure quality of measurements and evolution of the QAP are maintained as necessary.

Deficiencies and non-conformance are identified through assessment, audits, inspections, and surveillance. Input to management from these sources allow actions to be taken to correct deficiencies and identify more efficient methods of accomplishing tasks. Corrective action is taken when conditions fall outside quality or regulatory acceptance criteria. The corrective action process involves the basic elements:

- Identification and documentation;
- Classification;
- Cause analysis;
- Corrections;
- Follow-up; and
- Closure.

Findings and corrective actions are documented, tracked, and reported to management or regulatory agencies if needed. Follow-up reviews are performed to verify the effectiveness and adequacy of the corrective action. Violations or corrective actions should be reviewed by personnel who have the authority to correct the problem.

RESPONSIBILITY

It is the responsibility of all personnel at Uranerz to achieve quality, identify problems, and recommend improvements. Uranerz management establishes and cultivates principles and practices that integrate QAP requirements and performance standards into their management approach and control systems.

TRAINING

Personnel are trained on the QAP during task-specific and SOP training. Additional training is required for certain tasks under this SOP. Training is specified in applicable SOPs.

ADDENDA

Addendum A Chain of Custody Examples
Addendum B List of SOPs

REFERENCES

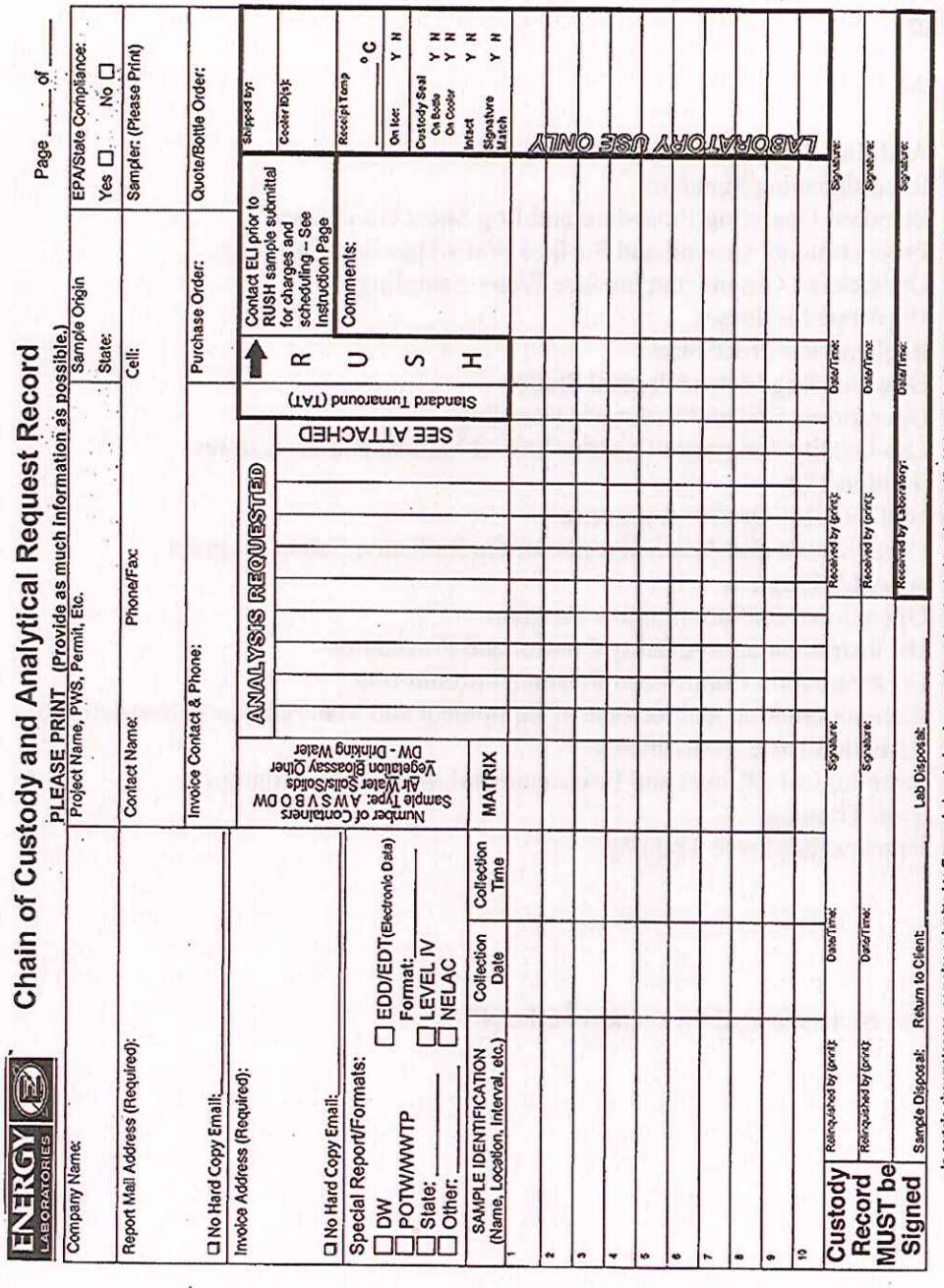
10 CFR 20, Part M
10 CFR 40.60
ADM-SOP-02 Auditing Standard
ADM-SOP-03 Recordkeeping Standard
ADM-SOP-04 Standard Operating Procedure and Log Sheet Guidelines
ENV-SOP-01 Preoperational Ground and Surface Water Baseline Sampling
ENV-SOP-03 Operational Ground and Surface Water Sampling
ENV-SOP-05 Unplanned Releases
ENV-SOP-12 Reclamation Procedures
ENV-SOP-16 Downloading Meteorological Station
ENV-SOP-21 Operational Soil and Sediment Sampling
LAB-SOP-01 Lab Quality Assurance/Quality Control Manual and Procedures
NRC License Condition 11.6
NRC Regulatory Guide 4.15, Quality Assurance
RAD-SOP-01 Organization and Administration of the Radiation Safety Program
RAD-SOP-02 ALARA Program
RAD-SOP-03 Operational Radiation Safety Program
RAD-SOP-04 HP Instrumentation Quality Control and Procedures
RAD-SOP-05 Contamination Control and Personnel Monitoring
RAD-SOP-06 Decontamination and Release of Equipment and Materials for Unrestricted Use
RAD-SOP-14 Radiation Dose Assessments
RAD-SOP-17 Radiological Effluent and Environmental Monitoring Program
SFT-SOP-31 Task Training
TRN-SOP-01 Uranerz Employee Training

REVISION

New
Rev 1 1/8/14 Revisions made at the request of the NRC.

ADDENDA A

Chain of Custody Examples



ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Page ____ of ____

Company Name:

Project Name, PWS, Permit, Etc.

Sample Origin State:

EPA/State Compliance: Yes ☐ No ☐

Report Mail Address (Required):

Contact Name: Phone/Fax: Cell:

Sampler: (Please Print)

☐ No Hard Copy Email:

Invoice Address (Required):

Invoice Contact & Phone:

Purchase Order:

Quote/Bottle Order:

☐ No Hard Copy Email:

Special Report/Formats:
☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format:
☐ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by:

Cooler ID(s):

Receipt Temp ____ °C

On Ice: Y N

Custody Seal On Bottle Y N On Cooler Y N

Intact Y N

Signature Match Y N

LABORATORY USE ONLY

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Custody Record MUST be Signed

Relinquished by (print): Date/Time: Signature: Received by (print): Date/Time: Signature:

Relinquished by (print): Date/Time: Signature: Received by (print): Date/Time: Signature:

Sample Disposal: Return to Client: Lab Disposal: Received by Laboratory: Date/Time: Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

IML INTER-MOUNTAIN LABS

Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

All shaded fields must be completed.
This is a legal document: any misrepresentation may be construed as fraud.

Page of
148725

Client Name | Project Identification | Sampler (Signature/Attestation of Authenticity) | Telephone #

Report Address | Contact Name | Email | Phone

Invoice Address | Purchase Order # | Quote #

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	ANALYSES / PARAMETERS						REMARKS
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

LAB COMMENTS | Relinquished By (Signature/Printed) | DATE | TIME | Received By (Signature/Printed) | DATE | TIME

SHIPPING INFO
- ☐ UPS
- ☐ Fed Express
- ☐ US Mail
- ☐ Hand Carried
- ☐ Other _____

MATRIX CODES

Water	WT
Soil	SL
Solid	SD
Filter	FT
Other	OT

TURNAROUND TIMES
Check desired service
- ☐ Standard turnaround
- ☐ RUSH - 5 Working Days
- ☐ URGENT - < 2 Working Days

Rush & Urgent Surcharges will be applied

COMPLIANCE INFORMATION
- Compliance Monitoring? Y / N
- Program (SDWA, NPDES,...) _____
- PWSID / Permit # _____
- Chlorinated? Y / N
- Sample Disposal: Lab Client

ADDITIONAL REMARKS

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ADDENDUM B

List of SOPs

ACCOUNTING (ACC):

ACC-SOP-01	Material and Equipment Procurement

ADMINISTRATIVE (ADM):

ADM-SOP-01	Site Inspections
QADM-SOP-02	Auditing Standard
QADM-SOP-03	Recordkeeping Standard
QADM-SOP-04	Standard Operating Procedure and Log Sheet Guidelines
QADM-SOP-05	Document Routing and Control
ADM-SOP-06	Management of Change & Safety Environmental Review Panel
ADM-SOP-07	Safe Work Program
ADM-SOP-08	Quality Assurance Program (QAP)

EMERGENCY RESPONSE MANUAL (ERM):

ERM-SOP-01	Medical Emergencies
ERM-SOP-02	Fire, Electrical or Gas Emergencies
ERM-SOP-03	Emergency Evacuation
ERM-SOP-04	Chemical Emergencies
ERM-SOP-05	Security Plan
ERM-SOP-06	Natural Emergencies
ERM-SOP-08	Transportation Emergencies
ERM-SOP-09	Emergency Notification and Reporting

ENVIRONMENTAL (ENV):

QENV-SOP-01	Preoperational Ground and Surface Water Baseline Sampling
QENV-SOP-02	pH/Conductivity Meter Calibration Procedure
QENV-SOP-03	Operational Ground & Surface Water Sampling Procedure
ENV-SOP-04	Storm Water Pollution Prevention Plan
QENV-SOP-05	Unplanned Releases
QENV-SOP-06	Wellfield Excursion Verification and Reporting
ENV-SOP-07	Regulatory Compliance and Schedules
ENV-SOP-08	Topsoil Salvage and Management
ENV-SOP-09	Wildlife Surveys and Monitoring
ENV-SOP-10	Regulatory Reporting Procedure

ENV-SOP-12	Reclamation Procedures
QENV-SOP-14	Storage & Disposal of Non-Hazardous Solid Waste
QENV-SOP-16	Downloading Meteorological Station
QENV-SOP-17	Spill Prevention Control and Countermeasures
QENV-SOP-19	Well Water Level Measurement
QENV-SOP-20	pH, Conductivity and Temperature Measurements
QENV-SOP-21	Operational Soil and Sediment Sampling

EXPLORATION & DRILLING (EXP):

EXP-SOP-01	Drill Hole and Well Abandonment
EXP-SOP-02	Well Completion
EXP-SOP-03	Calculations for Cementing and Displacement
EXP-SOP-04	Mechanical Integrity Test
EXP-SOP-05	General Drilling Expectations

LABORATORY (LAB):

QLAB-SOP-01	Lab Quality Assurance/Quality Control Manual and Procedures
QLAB-SOP-02	Turbidity
LAB-SOP-03	Laboratory Chemical Hygiene Plan
QLAB-SOP-04	Chloride by Ion Selective Electrode
QLAB-SOP-05	Alkalinity by Manual Titration
QLAB-SOP-06	Sulfate Turbidimetric Method
QLAB-SOP-07	Metrohm Automated Analysis
QLAB-SOP-08	Inductively Couples Plasma (ICP)-Optical Emissions Spectometry (OES)
QLAB-SOP-09	Bench Top pH and Conductivity
QLAB-SOP-10	Bromo-PADAP Uranium
QLAB-SOP-11	Total Suspended Solids
QLAB-SOP-12	Chlorine, Free and Total
QLAB-SOP-13	Total Dissolved Solids

LAND (LND):

LND-SOP-02	Excalibur Industries Royalty Calculations
LND-SOP-03	Payne Zink Royalty Calculations

PRODUCTION (PRD):

PRD-SOP-01	Restoration Procedure
PRD-SOP-02	Wellfield Oxygen Injection
PRD-SOP-03	Header House Operations and Flow Balancing

PRD-SOP-04	Emergency Back-Up Power Generator
PRD-SOP-05	Alarms
PRD-SOP-06	Header House Emergency Shut Down and Re-Start
PRD-SOP-07	Domestic Water System Monitoring and Sampling
PRD-SOP-09	Steel Pipe Pressure Test Standard
PRD-SOP-11	Carbon Dioxide System
PRD-SOP-12	Propane System
PRD-SOP-13	Bicarb Silo System
PRD-SOP-14	Air Compressor and Air Lines
PRD-SOP-15	Sand Filters and Ion Exchange Vessels
PRD-SOP-17	Injection and Recovery Pumps Procedures
PRD-SOP-18	Ion Exchange Resin Transfer Procedure
PRD-SOP-19	Reverse Osmosis and Permeate Injection
PRD-SOP-20	Sodium Bicarbonate System
PRD-SOP-21	Plant Water System
PRD-SOP-23	Waste Water System
PRD-SOP-24	Deep Disposal Well Operations
PRD-SOP-25	Domestic Water System
PRD-SOP-26	Heating, Ventilation and Air Conditioning
PRD-SOP-27	Heating, Ventilation and Air Conditioning General Operation
PRD-SOP-29	Human Machine Interface (HMI) Operations and Supervisory Control and Data Acquisition (SCADA)
PRD-SOP-30	Emergency Shut Down and Emergency Plant Bypass
PRD-SOP-31	Byproduct Material Handling
PRD-SOP-34	Tank and Sump Cleaning
PRD-SOP-42	General Maintenance and Radiological Controls
PRD-SOP-45	Line Breaking and Purging

RADIATION PROTECTION (RAD):

RAD-SOP-01	Organization and Administration of the Radiation Safety Program
QRAD-SOP-02	ALARA Program
QRAD-SOP-03	Operational Radiation Safety Program
QRAD-SOP-04	Health Physics Instrumentation Quality Control and Procedures
QRAD-SOP-05	Contamination Control and Personnel Monitoring

QRAD-SOP-06	Decontamination and Release of Equipment and Materials for Unrestricted Use
RAD-SOP-07	Transportation and Handling of Radioactive Materials
RAD-SOP-08	External Radiation Monitoring and Controls
QRAD-SOP-09	Airborne Radioactive Material Monitoring and Controls
QRAD-SOP-10	Bioassay Program
RAD-SOP-11	Respiratory Protection Program
RAD-SOP-12	Radiation Work Permit Policy
RAD-SOP-13	Pregnant Worker Policy
QRAD-SOP-14	Radiation Dose Assessments
RAD-SOP-15	General Radiological Controls and Housekeeping
QRAD-SOP-16	Quality Assurance Program (QAP)
QRAD-SOP-17	Radiological Effluent and Environmental Monitoring Programs Radiological Effluent and Environmental Monitoring Program

SAFETY (SFT):

SFT-SOP-01	Pre Startup Safety Review
SFT-SOP-02	Environmental, Safety, and Health Mission
SFT-SOP-03	Environmental, Safety, and Health Policy
SFT-SOP-04	Risk Assessment
SFT-SOP-07	Incident Analysis and Reporting
SFT-SOP-08	Fire Prevention Plan
SFT-SOP-10	Personal Protective Equipment Policy
SFT-SOP-11	Hearing Conservation Program
SFT-SOP-13	Vehicle Safety Policy
SFT-SOP-14	Job Safety Analysis Policy
SFT-SOP-15	Blood Borne Pathogen Protection Policy
SFT-SOP-16	Hazard Communication Policy
SFT-SOP-17	Lockout/Tagout Policy
SFT-SOP-19	No Smoking Policy
SFT-SOP-20	Fall Protection Policy
SFT-SOP-21	Dead or Injured Animal Reporting Policy
SFT-SOP-22	Housekeeping Policy
SFT-SOP-23	Powered Industrial Truck and Mobile Equipment Program
SFT-SOP-24	Confined Space Entry
SFT-SOP-28	Excavations Policy

SFT-SOP-29	Contractor Guidelines & Requirements
SFT-SOP-31	Task Training
SFT-SOP-33	Critical Lift Policy
	TRAINING (TRN):
TRN-SOP-01	Uranerz Employee Training
	WELLFIELD (WEL):
WEL-SOP-01	Wiring Submersible Pump Motors
WEL-SOP-02	Installing and Removing Submersible Pumps
WEL-SOP-03	Wellfield Flow Lines and Leak Detection Systems

Note: SOP Numbers preceded by a Q denotes tasks that include quality control/quality assurance information