



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

June 13, 2011

John H. Ellis, President
Sequoyah Fuels Corporation
P.O. Box 610
Gore, Oklahoma 74435

SUBJECT: NRC INSPECTION REPORT 040-08027/11-001

Dear Mr. Ellis:

This refers to the inspection conducted on May 11-13, 2011, at your Sequoyah Fuels Corporation site located near Gore, Oklahoma. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The enclosed report presents the results of this inspection. No violations were identified, and no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, should you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Robert Evans, Senior Health Physicist, at (817) 860-8234 or the undersigned at (817) 860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Docket: 040-08027
License: SUB-1010

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NRC Inspection Report 040-08027/11-001

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-08027

License: SUB-1010

Report: 040-08027/11-001

Licensee: Sequoyah Fuels Corporation

Location: P.O. Box 610
Gore, Oklahoma

Dates: May 11-13, 2011

Inspectors: Robert Evans, PE, CHP, Senior Health Physicist
Repository and Spent Fuel Safety Branch

Linda M. Gersey, Health Physicist
Repository and Spent Fuel Safety Branch

Approved by: D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Attachment: Supplemental Inspection Information

ENCLOSURE

EXECUTIVE SUMMARY

Sequoyah Fuels Corporation
NRC Inspection Report 040-08027/11-001

This inspection was a routine, announced inspection of decommissioning activities being conducted at the Sequoyah Fuels Corporation site. Overall, the licensee was conducting decommissioning activities in accordance with the NRC-approved Reclamation Plan.

Management Organization and Controls

- The organizational structure was in agreement with license requirements. A sufficient number of staff members were available for the decommissioning activities in progress. Routine program reviews were conducted as required by the license and by regulations. The licensee had a functioning As Low As Reasonably Achievable program as required by the license (Section 1.2).

Radiation Protection

- The licensee conducted its radiation protection program in accordance with the requirements of 10 CFR Part 20 and the license. In accordance with the requirements of 10 CFR Part 20 for monitoring of external doses, the licensee discontinued external exposure monitoring due to low external exposures. Occupational exposures were below regulatory limits (Section 2.2).

Maintenance and Surveillance Testing

- The licensee maintained a sufficient number of calibrated survey meters for use at the facility. The licensee also conducted daily inspections of tailings and waste retention systems as required by the license (Section 3.2).

Effluent Control and Environmental Protection

- The effluent and environmental monitoring programs were implemented in accordance with license and regulatory requirements, and releases were less than regulatory limits (Sections 4.2.a and 4.2.b).
- Elevated concentrations of radioactive material continued to be identified by the licensee in selected groundwater monitoring wells. In response, the licensee continued to implement its groundwater corrective action program (Section 4.2.c).
- The licensee implemented the fertilizer distribution program in accordance with license application requirements (Section 4.2.d).

Onsite Construction

- The licensee was constructing the Phase II disposal cell in accordance with the technical specifications provided in the Reclamation Plan. The draft construction report provided adequate details of the construction of the Phase I disposal cell. Deviations to the

design of the Phase I portion of the disposal cell were being documented as stipulated by the Reclamation Plan (Section 5.2).

Low Level Radioactive Waste Storage

- The licensee continued to store low level radioactive wastes in accordance with license requirements (Section 6.2).

Report Details

Summary of Plant Status

At the time of the inspection, the licensee was conducting site decommissioning in accordance with the NRC-approved Reclamation Plan. As part of decommissioning, the licensee plans to dismantle and remove systems and equipment, demolish structures, remove and treat sludges and sediments, remediate contaminated soils, and treat wastewater. Most of the residual waste material will be placed into an onsite disposal cell for permanent disposal. The disposal cell will be constructed in three phases. The disposal cell was originally designed for a capacity of 8.3 million cubic feet of waste material, although the cell can be modified to accommodate up to 11 million cubic feet of material.

The Phase I area includes the northeastern portion of the cell and is approximately 11,400 square meters in size. The licensee began placing material into this portion of the cell during June 2010. At the time of this inspection, the Phase I area had been filled with waste material and was covered with an interim cover. The licensee was observed to be constructing the base of the Phase II portion of the disposal cell. The Phase II area includes the northwestern portion of the cell and is approximately 18,600 square meters in size. The Phase II footprint encompasses the former emergency basin and north ditch areas.

In addition to cell construction, the licensee was in the process of decontaminating and radiologically surveying equipment for free-release from the DUF₄ building including autoclaves and electrical switchgear. The licensee plans to return the autoclaves to the manufacturer for recertification. The licensee completed asbestos abatement work in the main process building. The asbestos waste material was bagged and staged for eventual disposal into the disposal cell. The licensee also recently reclaimed Burial Pit 1 and placed the exhumed waste material into the Phase I portion of the disposal cell.

The licensee still possessed de-watered raffinate sludge. Most of the raffinate sludge originated from the four onsite clarifier basins. Since the last inspection, the licensee dewatered and bagged additional sludge material from the emergency basin and north ditch areas. The sludge was staged in bags for possible transfer to an out of state uranium mill for processing as alternate feed material. If the licensee is unable to transfer the material, the NRC-approved Reclamation Plan allows the licensee to dispose of the raffinate sludge in the onsite disposal cell.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

The inspectors reviewed management organization and controls to ensure that the licensee was maintaining effective oversight of decommissioning activities.

1.2 Observations and Findings

The organizational structure is provided in Section 11.1 and Figure 2-1 of the license application. At the time of the inspection, the plant staff consisted of five individuals: the president, environmental manager, senior health and safety technician, decommissioning and decontamination project supervisor, and administrative assistant. The licensee also received part-time support from the director of regulatory affairs.

Contractors were used for geotechnical support, cell construction, radiation safety support, and miscellaneous site maintenance activities as needed. In addition, security guards provided facility oversight during nights, weekends, and holidays. The inspectors concluded that the licensee had sufficient staff to ensure compliance with license and regulatory requirements.

The licensee conducted routine audits to ensure compliance with regulatory and license requirements. The audits included monthly inspections, quarterly audits, and annual meetings. In accordance with License Application Section 2.8, the licensee conducted monthly inspections of all plant activities involving radioactive material. The inspectors reviewed the monthly reports issued since the last inspection and interviewed the individual who conducted these monthly inspections. The licensee slightly revised the scope of the monthly inspections to include different radiation protection program elements each month. Over the course of a year, the monthly inspections would cover all radiation protection program areas.

The corporate office conducted quarterly compliance audits. The corporate audits were conducted, in part, to ensure compliance with license requirements. Details of these audits were documented in quarterly reports which were available to the inspectors for review during the inspection. The inspectors reviewed the quarterly audit reports issued since the last inspection, and the reports were thorough and comprehensive.

The requirements for the As Low As Reasonably Achievable (ALARA) program committee are provided in Section 3.2.2 of the license application. In addition to annual committee meetings, the licensee is required to conduct an annual ALARA audit. The annual meeting was last conducted on December 8, 2010. The inspectors reviewed the meeting minutes and discussed the results of the annual audit with committee members. The meeting participants reviewed the status of 2010 ALARA goals, and the participants established goals for 2011. The committee also discussed future work projects that had the potential for occupational exposures to site workers including building demolition work.

The NRC issued a performance-based license to the licensee during December 2010. License Condition 54 allows the licensee to make certain changes without prior NRC approval. The licensee's determinations are to be made by the Plant Review Committee. The committee met once since the last inspection. This meeting was held during September 2010, prior to NRC approval of the performance-based license. At this meeting, the committee discussed changes to the Phase I cell design, although the changes were not specifically approved by the committee pending review of a contractor's report. The inspectors discussed the licensee's future plans for implementing its performance-based license. This subject area will be reviewed in depth during future NRC inspections.

1.3 Conclusions

The organizational structure was in agreement with license requirements. A sufficient number of staff members were available for the decommissioning activities in progress. Routine program reviews were conducted as required by the license and by regulations. The licensee had a functioning ALARA program as required by the license.

2 Radiation Protection (83822)

2.1 Inspection Scope

The inspectors examined the licensee's radiation protection program for compliance with the license and 10 CFR Part 20 requirements.

2.2 Observations and Findings

a. Occupational Exposures

The inspectors reviewed the licensee's occupational exposure records from May 2010 through March 2011. To monitor for external exposures, thermoluminescent dosimeters were assigned to selected individuals. During 2010, the highest deep dose equivalent exposure to an individual was 10 millirems. After January 1, 2011, the licensee discontinued the use of dosimeters, and radiation dose will be determined through air monitoring and bioassay sample results. The licensee's records indicate that for the past ten years, no occupational worker had received greater than 92 millirems deep dose equivalent. These doses were significantly lower than 500 millirems, the NRC's required threshold for external monitoring specified in 10 CFR 20.1502. During the inspection, the licensee stated that it would evaluate the need to monitor for external exposures during future work.

The bioassay requirements are specified in License Conditions 9.4, 42, and 43. The licensee assigned internal exposures based on bioassay sample results. Bioassay sampling consisted of measurement of uranium concentrations in urine. The bioassay samples were analyzed by an outside laboratory.

On November 29, 2010, the license was notified that two bioassays collected during mid-October 2010 were found to be elevated. The licensee's contract with the analytical lab states that the licensee will be notified of the sample results within five working days, although this did not occur in these two situations. The two samples were reanalyzed on November 30, 2010. The confirmed results were 127 and 80 micrograms of uranium per liter of urine ($\mu\text{g/l}$) for the respective employees. The licensee initiated an internal investigation to determine why they were not notified within the time frame specified in the contract by the analytical lab and why the two contractors had elevated bioassays. The analytical lab stated that the employee who ran the samples initially noted the high readings and set the two samples aside for reanalysis. That employee did not rerun the samples until late November 2010, and simultaneously, the licensee did not notice that they had not received the bioassay results within the normal five day period. The licensee also reviewed the work assignments for the two contractors. The two contractors were assigned to conduct asbestos abatement work. The two contractors provided their bioassay samples on October 15, 2010, directly after work on a Friday, instead of the normal routine of providing the samples prior to work on the following Monday. The surveys and air sampling results taken at the time of the elevated bioassays did not show any elevated readings. Also, the biweekly bioassay results before and after the elevated samples were less than 1.22 micrograms of uranium per liter of urine. The licensee concluded that the two contractors may have accidentally contaminated the samples since the samples were provided directly after working. The inspectors reviewed the licensee's responses and found them to be acceptable. License Condition 42 requires the licensee to consider corrective actions if an employee's

bioassay exceeds 15 µg/l. Also, License Condition 43 requires notification to the NRC of corrective actions for any two consecutive urine specimens exceeding 35 µg/l or 130 µg/l for any one specimen. The inspectors confirmed that these elevated sample results did not meet the threshold for reporting to the NRC.

To complement the bioassay program, the site also monitored internal exposures through air sampling. The licensee measured the derived air concentration-hours (DAC-hours) to which individuals were exposed. During August 2010, the site total DAC-hour exposure was 125 DAC-hours, with levels decreasing to less than 45 DAC-hours in any month for the period May to October 2010. During February 2011, one employee had elevated DAC-hours for two consecutive days, 26.4 and 5.5, respectively. The licensee reported that this employee was pushing sludge at the bottom of Pond 2, and some material may have dried out and become airborne, thus exposing the operator. None of the internal exposures exceeded the NRC's annual limit of 2,000 DAC-hours.

b. Hazardous Work Permits

Section 3.2.1 of the license application outlines hazardous work permit requirements. Hazardous work permits are used to control non-routine work activities, particularly when these activities involve radioactive material or when a significant potential for personnel exposure exists. The inspectors reviewed selected hazardous work permits and noted that the permits identified specific radiological hazards and personnel protective equipment requirements for the identified hazards.

2.3 Conclusions

The licensee conducted its radiation protection program in accordance with the requirements of 10 CFR Part 20 and the license. In accordance with the requirements of 10 CFR Part 20 for monitoring of external doses, the licensee discontinued external exposure monitoring due to low external exposures. Occupational exposures were below regulatory limits.

3 Maintenance and Surveillance Testing (88025)

3.1 Inspection Scope

The inspectors reviewed general maintenance, operations, and surveillance tests to ensure compliance with license requirements and approved procedures.

3.2 Observations and Findings

a. Instrument Calibrations

License application Section 3.3.3 requires that radiation survey instrumentation be calibrated at least every 6 months. The inspectors reviewed selected survey results and confirmed that survey instruments used to perform these surveys had been calibrated within the required 6-month frequency. The inspectors noted that the daily operation check tags were being completed by employees prior to use.

b. Daily Site Inspections

License Condition 46 states that the licensee shall perform and document daily inspections of tailings and waste retention systems during normally scheduled workdays. The licensee conducted these inspections in accordance with guidance provided in site procedures. The inspectors reviewed the daily impoundment inspection records for April 2010 to April 2011 and confirmed that the inspections were completed on all normally scheduled workdays. The licensee's records indicate that recent rains have challenged the freeboard levels of certain ponds, and the licensee took actions as necessary to reduce pond levels.

The inspectors noted that the daily impoundment inspection procedure included references to the emergency basin and north ditch ponds, two ponds that have since been remediated. The licensee stated that it would update the procedure in the near future to remove these two areas from the procedure.

3.3 Conclusions

The licensee maintained a sufficient number of calibrated survey meters for use at the facility. The licensee also conducted daily inspections of tailings and waste retention systems as required by the license.

4 Effluent Control and Environmental Protection (88045)

4.1 Inspection Scope

The inspectors reviewed the licensee's effluent, groundwater, and environmental monitoring programs to verify compliance with regulatory and license requirements.

4.2 Observations and Findings

a. Effluent Monitoring Program

The liquid effluent monitoring program is described in Section 5.1 of the license application. The licensee monitored two release points, the combined stream Outfall 001 and the storm water Outfall 008. The inspectors observed the sampling equipment in service, and the equipment appeared to be operable at both locations.

From February 2010 to May 2011, the licensee reported nine exceedances of total suspended solids at storm water Outfall 008. The highest sample result, 1780 milligrams per liter, was collected on April 25, 2011. This sample result exceeded the action level of 114 milligrams per liter. The licensee concluded that the elevated total suspended solids in the storm water were due to clay runoff from the construction of the onsite disposal cell. The licensee reported these exceedances to the appropriate Oklahoma state office as required by the discharge permit.

b. Groundwater Monitoring Program

License Condition 49.A requires the licensee to implement a groundwater compliance monitoring program as described in the groundwater monitoring plan dated February 25, 2005. Table 4 of the groundwater monitoring plan provides the sampling

and analyses schedules. The program consisted of 83 monitoring locations, including six background wells, 61 point-of-compliance (POC) wells, six intercept trenches, four surface waters, and six corrective action monitoring locations. Since 2009, six groundwater monitoring wells were plugged and abandoned; therefore, no samples were collected from these wells in 2010.

The inspectors examined and compared the monitoring results for 2010 with the groundwater protection standards as specified in License Condition 49.B. The primary chemical constituents analyzed included uranium, fluoride, nitrate, and arsenic. The highest uranium concentrations were detected in Wells MW012A and MW025, and the highest fluoride concentrations were detected in Wells FD-B and MW057A. Finally, arsenic was detected with relatively high concentrations in Wells MW042, MW121A, and MW057A, among others. As noted in the Reclamation Plan, the groundwater was impacted by previous spills and leaks that occurred during plant operations. Cleanup of the groundwater continues in accordance with a groundwater corrective action program.

Seepage and drainage were monitored at six locations (2241 through 2246) in the western portion of the site. Water samples were collected quarterly during 2010. Uranium concentrations ranged from below 1 microgram per liter to 632 micrograms per liter. The licensee continues to recover seepage and drainage through the use of collection trenches, French drains, and recovery wells.

The corrective action monitoring program consisted of four trench locations (2224A, 2224B, 2247, and 2248) and two monitoring wells (MW095A and MW031). These six monitoring stations were located down-gradient of the groundwater intercept trenches. The water samples were collected by the licensee at least quarterly, although monitoring location 2224B was dry during 2010. The licensee continued to recover potentially contaminated groundwater from the trenches during 2010.

The surface water was monitored annually at four monitoring stations (2201 through 2204). The most recent samples were collected during October 2010. The samples were analyzed for uranium, radium-226, radium-228, arsenic, and nitrate. None of the collected surface water samples exceeded the respective action levels.

License Condition 49.C requires the licensee to submit an annual groundwater report to the NRC. The most recent report was submitted to the NRC on March 2, 2011. The data that was reported to the NRC in the annual report were reviewed by the inspectors during the onsite inspection.

c. Environmental Monitoring Program

The licensee conducted air particulate, sediment, radon, and impoundment under-drain sampling. The inspectors reviewed the results of air particulate and radon samples collected during 2010. In summary, no sample obtained by the licensee exceeded the respective action level or effluent concentration limit.

As part of its environmental monitoring program, the licensee maintained four perimeter air sampling stations. Ambient air was continuously sampled at these four stations. The filter media was exchanged weekly and was analyzed for gross alpha concentrations. During 2010, all sample results were below the NRC-approved action level.

The environmental air sample filters were composited quarterly and analyzed for uranium, radium-226, and thorium-230 concentrations. During 2010, the sample results were less than the effluent concentration limit as specified in Appendix B to 10 CFR Part 20.

Although radon sampling was not required by the license, the licensee elected to collect quarterly radon samples at eight locations. Radon samples were collected at five fence line locations, the main gate, inside the raffinate bagging (laundry) building, and the yellowcake storage pad. The highest sample result, through July 2010, was 12.5 picocuries per liter. This sample was obtained inside the raffinate bagging building, a building located within the radiologically restricted area. In summary, the radon sample results through July 2010 remained below the effluent concentration limit of 30 picocuries per liter.

d. Ammonium Nitrate Fertilizer Distribution Program

Section 1.8 of the license application allows the licensee to use ammonium nitrate solution generated from onsite dewatering activities as fertilizer, subject to a number of limitations. The solution can only be used as fertilizer on crops grown for animal food or for seed production. The licensee is required by its license to submit an annual completion report to the NRC. The most recent report was submitted to the NRC on April 28, 2011. This report provided by the licensee discussed the results of 2010 growing season. During the 2010 growing season, the licensee applied 12.8 million gallons of solution on four tracts of land totaling 142.9 acres.

The license application specifies a limit of 700 pounds of nitrogen per acre. The application rate reported by the licensee ranged from 106 to 275 pounds of nitrogen per acre of land. The license application also specifies a radium-226 concentration limit of 2 picocuries per liter and uranium concentration limit of 0.1 milligrams per liter (100 micrograms per liter) of solution. The composite sample results obtained by the licensee indicated a radium-226 concentration of less than 0.085 picocuries per liter and a uranium concentration of 4.63 micrograms per liter.

The license application also specifies that the licensee will collect soil and vegetation samples from the fertilized areas. The sample results obtained by the licensee are reviewed by an agronomist who subsequently provides recommendations for the nitrogen application rates. Similar to the previous years, the 2010 vegetation samples continued to contain elevated molybdenum concentrations. However, the vegetation (hay) could still be consumed by animals but with specific dietary restrictions imposed.

4.3 Conclusions

The effluent and environmental monitoring programs were implemented in accordance with license and regulatory requirements, and releases were less than regulatory limits. Elevated concentrations of radioactive material continued to be identified by the licensee in selected groundwater monitoring wells. In response, the licensee continued to implement its groundwater corrective action program. The licensee implemented the fertilizer distribution program in accordance with license application requirements.

5 Onsite Construction (88001)

5.1 Inspection Scope

The inspectors observed onsite construction activities to determine if they were being accomplished in accordance with the NRC-approved Reclamation Plan, license conditions, and construction specifications.

5.2 Observations and Findings

a. Overview of Construction Activities

License Condition 51 allows the licensee to conduct site decommissioning in accordance with the NRC-approved Reclamation Plan. At the time of the inspection, the licensee had finished placing waste material into the Phase I portion of the disposal cell, and the licensee had commenced with construction of the Phase II portion of the disposal cell. The licensee's records document that the material placed into the Phase I area included calcium fluoride sludge from the north basin, Burial Area 1 material, north basin soil, Pond 4 spoils, Pond 2 liner material, Phase II footprint soil, north ditch soil, and emergency basin soil. (The north ditch and emergency basin sludge material was bagged for offsite disposal.) As discussed below, the licensee overfilled the Phase I area with Pond 2 material, but the licensee plans to relocate this material into the Phase II disposal area after the construction of the Phase II base had been completed.

A temporary cover had been installed on the Phase I disposal cell, including installation of an erosion protection layer. The inspectors observed the temporary cover, and the cover appeared to be in good condition. The licensee was conducting repairs of the cover material as needed.

Since the previous inspection, the licensee started reclaiming Pond 2, an area that contained Type A waste material. Type A material contains relatively high activity concentrations of radionuclides when compared to the other types of waste material that are present onsite. These materials are supposed to be placed in the lowest layers of the disposal cells. The licensee was temporarily storing Pond 2 material at the top of the Phase I disposal cell. When the licensee completes the Phase II portion of the cell, the licensee plans to relocate the Pond 2 material from the Phase I area into Phase II area. The licensee will then continue to remove material from Pond 2 and place the material directly into the Phase II area.

Additional Type A material is located in the sanitary lagoon. This lagoon is located within the footprint of Phase III. The sanitary lagoon will be reclaimed during preparation of the Phase III footprint for construction of the disposal cell base.

The licensee also plans to place calcium fluoride material into the base of the Phase II area. Later, contaminated plant equipment and debris will be placed into the Phase II area. The Pond 2 material will be used as filler material in and around the equipment to stabilize the equipment and to fill in the voids that may be present. At some point in the future, the Phase II area will reach the height of the Phase I area, and the licensee will continue to place material into both areas, including contaminated soils, until the design

height is reached. At that point, the licensee will then construct the final cover over these two areas.

b. Review of Draft Phase I Construction Report

The inspectors reviewed the draft construction report for the Phase I area. The construction report was compared to the requirements provided in Section 3 of the Reclamation Plan, disposal cell technical specifications (Attachment A to the Reclamation Plan), and construction drawings. The inspectors concluded that the licensee was constructing the cell in accordance with Reclamation Plan requirements. The inspectors confirmed that the material being used in the construction of the disposal cell met the requirements specified in the Reclamation Plan, and the radioactive waste material was being added to the cell in the thickness dimensions specified in the Plan. The records indicate that the construction tests passed the performance standards provided in the Reclamation Plan.

Section 1.5 of technical specifications allows the licensee to deviate from the construction requirements. The deviations include field modifications due to the as-built design and changes in approved construction work. The licensee is required to document these deviations. The deviations were documented in the draft Phase I construction report. These deviations included adjustment of the Phase I cell footprint based on as-built conditions, a revised storm water retention basin, a revised perimeter berm, and revised leak detection/leachate collection sumps. The inspectors reviewed each deviation and discussed the deviations with licensee representatives. Justifications for each deviation were documented in the draft report.

In addition to the Phase I construction deviations, the inspectors discussed the proposed deviations to the Phase II construction area. The licensee planned to reduce the leachate system piping spacing from 60-foot intervals to 40-foot intervals. The licensee also planned to change the source of the construction sand from offsite to onsite sources. In accordance with technical specifications requirements, these proposed changes require licensee management approval prior to implementation. The licensee plans to approve these changes through its performance-based license.

In accordance with technical specifications, a quality assurance manager is required to provide routine oversight of construction activities. The inspectors interviewed the quality assurance manager and concluded that the individual appeared knowledgeable of the tasks being performed, and the individual provided daily oversight of construction activities.

c. Observation of Construction Activities

The inspectors conducted tours of the Phase II construction area to observe work in progress. The inspectors also compared the work in progress to requirements specified in the Reclamation Plan. At the time of the inspection, the licensee was constructing the base of Phase II area. The subgrade fill and the clay liner had been installed, compacted, and tested. The licensee was constructing the synthetic liner bedding layer using sand that had been stockpiled onsite. After the sand layer has been installed, the licensee plans to install the synthetic liner. Following liner installation, the licensee will construct the liner cover using more sand material. After liner cover installation, the

licensee plans to start placing contaminated material into the Phase II cell for permanent disposal.

During Phase II construction, the licensee plans to install two sets of drain piping. The first set will be a leak detection system that will be installed within the bedding layer. The second set will be a leachate collection system that will be installed in the liner cover material. At the time of the inspection, the synthetic liner and the drain piping material were staged for installation. The inspector observed these items and confirmed that they appeared to meet technical specifications requirements.

The inspectors also toured the location where the licensee was excavating the sand material for use in construction of the Phase II portion of the disposal cell. The sand material had slightly different physical characteristics than the sand that had been previously used in the Phase I area. As noted above, the licensee elected to change the dimensions of the leachate collection system piping grid to compensate for this different sand material. These changes are expected to be approved by the licensee through its performance-based license prior to installation in the Phase II area.

In summary, the inspectors concluded that the licensee appeared to be constructing the Phase II disposal cell base in accordance with the requirements specified in the Reclamation Plan.

5.3 Conclusions

The licensee was constructing the Phase II disposal cell in accordance with the technical specifications provided in the Reclamation Plan. The draft construction report provided adequate details of the construction of the Phase I disposal cell. Deviations to the design of the Phase I portion of the disposal cell were being documented as stipulated by the Reclamation Plan.

6 Low Level Radioactive Waste Storage (84900)

6.1 Inspection Scope

The inspectors attempted to determine if the licensee had established and maintained an effective program for management of radioactive wastes

6.2 Observations and Findings

The inspectors reviewed the licensee's control and oversight of radioactive wastes in storage. License Condition 50.C requires periodic inspections of the temporary storage cells. The instructions for these inspections were provided in a site procedure. The temporary storage cells include the areas where bagged raffinate sludge materials are stored. The records indicate that the bagged material continues to be stored in compliance with license requirements, although some minor problems were identified. For example, some cell liners were showing signs of deterioration and wear because some of the cells have been in place for about five years. Corrective actions have been taken to repair damaged liners. Other noted problems included minor water intrusion and degraded integrity of the top vents.

The individual who performed the temporary storage cell inspections was interviewed, and the individual stated that all bags appear to be in acceptable condition. No broken or damaged bags have been observed. The inspectors toured the area where the temporary storage cells were located. The bagged material appeared to be adequately stored.

6.3 Conclusions

The licensee continued to store low level radioactive wastes in accordance with license requirements.

7 **Exit Meeting**

The inspectors reviewed the scope and findings of the inspection during an exit meeting that was conducted at the conclusion of the onsite inspection on May 13, 2011. During the inspection, the licensee did not identify any information reviewed by the inspectors as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

John Ellis, President
Scott Munson, Environmental Manager
Billy Reid, Quality Assurance Manager

INSPECTION PROCEDURES USED

IP 83822	Radiation Protection
IP 84900	Low Level Radioactive Waste Storage
IP 88001	Onsite Construction
IP 88005	Management Organization and Controls
IP 88025	Maintenance and Surveillance Testing
IP 88045	Effluent Control and Environmental Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DAC-hour	derived air concentration-hour
IP	NRC Inspection Procedure
µg/l	micrograms of uranium per liter of urine