TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 24, 2013

U.S. Nuclear Regulatory Commission
ATTN: Brian McDermott, Director
Division of Materials Safety and State Agreements
Washington, DC 20555-0001

Re: Completion Review Report for
Proposed License Termination of
Radioactive Material License R03024

Dear Mr. McDermott:

We have reviewed your letter dated November 20, 2012, and its enclosure, pertaining to the proposed license termination of the O'Hern site, located near Bruni, Texas for the Uranium One, Inc. license (Texas Radioactive Material License No. R03024). In response to your comments in your letter's enclosure the subject completion review report (CRR) has been revised, and is herein enclosed.

For your convenience, we have summarized the comments from your letter and the responding revision to and its location in the CRR as follows:

Comment 1: The CRR has been reviewed to clear up inconsistencies. Several minor modifications and clarifications have been made.

Comment 2: Site surveys, sampling and background data was elaborated upon in Sections 5a and 5b.

Comment 3a: All five well fields were covered in the licensee's characterization and remediation activities. Due to the proximity of the well fields to each other, groupings were made and resulted in three well field groups. Section 5G has been amended for clarity because it was agreed the original wording was misleading.

Comment 3b: A continuation of the explanation from comment 3a; survey data for all sites have been reviewed. Also, no well fields at the O'Hern were released for unrestricted use by the Texas Department of Health (TDH). The only well fields released by the TDH are those at the Holiday/El Mesquite (HEM) site. Those well fields at the HEM are addressed in its respective CRR.

Comment 3c: One underground injection control permit was issued for the O'Hern site. The permit was revoked by the Texas Natural Resources Conservation Commission

upon determination the groundwater had been restored. COGEMA Mining, Inc. at that time was authorized to cease any restoration activities. Section 2 of the CRR covers the topic of groundwater restoration for the O'Hern site. Thus, groundwater data for all five of the O'Hern well fields has been reviewed.

Additional: Stephen Poy made a comment in a phone discussion regarding the site's layout, therefore a map was added detailing the relative locations of the Holiday/El Mesquite, O'Hern and released West Cole Site.

We look forward to receiving the NRC's concurrence, under the provisions of 10 CFR 150.14a(a) and Section 274c of the Atomic Energy Act of 1954, as amended (Act), that the O'Hern site meets the criteria for release to unrestricted use. Upon receipt of NRC's concurrence, the license authorizing the O'Hern site will be amended to stipulate the site has been released to unrestricted use and that no further possession or use of radioactive materials under the license is authorized at the site. Please address written correspondence to my attention, using mail code MC-233 at P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

Gary L. Smith

Gary L. Smith, Ph.D., Section Manager
Uranium and Technical Assessments Section
Radioactive Materials Division

Enclosure

CC: Duncan White, Chief
Agreement State Programs Branch, NRC

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
RADIOACTIVE MATERIALS DIVISION

COMPLETION REVIEW REPORT

Date: January 23, 2013
Licensee: Uranium One USA, Inc.
License Number: R03024
Facility Name: O'Hern Project
Location: 2.8 Miles Southeast of Bruni, Texas
Licensed Area Being Terminated: Approximately 820 acres
Manager: Gary L. Smith, PhD, Manager, Uranium Section
Technical Reviewer: Tony J. Gonzalez, Health Physicist, Uranium Section

I. SUMMARY

Uranium One USA's O'Hern Project is an in- situ leach uranium mining site which has been decommissioned and reclaimed under Texas' Agreement State authority, derived from Title II of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). The Texas Commission on Environmental Quality (TCEQ) is the agency of the State of Texas currently granted jurisdictional authority for regulation of source material recovery licensees, under the provisions of Chapter 401 of the Texas Health and Safety Code. UMTRCA requires that prior to termination of the license, the U.S. Nuclear Regulatory Commission (NRC) shall make a determination that the licensee has complied with the applicable standards and requirements. Further, the NRC has reserved the right to provide concurrence on release to unrestricted use of licensed sites prior to license termination, under the provisions of Title 10 of the Code of Federal Regulations, Section 150.15a. Under the Agreement State program, the State of Texas via its agency, the TCEQ, is responsible for approval of the remediation plans for O'Hern and for site inspections to ensure that the actual remedial actions have been completed pursuant to the approved plans and complies with the applicable criteria.

This report documents the TCEQ's basis for its conclusion that decommissioning and reclamation have been acceptably completed at the O'Hern Project site. The NRC STP Procedure SA-900 entitled, "Termination of Uranium Milling Licenses in Agreement States," was used to prepare this report. The primary applicable standards for uranium mill reclamation in Texas is Title 30 of the Texas Administrative Code (30 TAC), Section (§) 336.1115, entitled "Expiration and Termination of Licenses; Decommissioning of Sites Separate Building or Outdoor Areas." This state rule is consistent with and compatible with NRC regulations, as required by the state's Agreement State status with the NRC.

The applicable standards and requirements, with appropriate references to related sections of this completion review report (CRR), are identified in Table 1 of this CRR. In response to the licensee's request for release to unrestricted use of the O'Hern Project site on Radioactive Material License No. R03024 (Uranium 2011B), the TCEQ has performed a review of the O'Hern Project site for compliance with all applicable standards and requirements for release to unrestricted use. As part of that review, the TCEQ has prepared a Review Sheet (Log No. CN601313802) to document the TCEQ's review of the licensee's request to release the O'Hern Project site to unrestricted use and so amend the license to reflect that status. This CRR is a part of the License Amendment Review Sheet; however, additional information recorded on the Review Sheet may provide reference to more detailed evaluations made by the TCEQ and to Uranium One's documents submitted for TCEQ

review during the site's reclamation period. The TCEQ's reviews of licensee submittals were conducted using guidance from NRC's NUREG-1569.

Table 1 Applicable Standards and Requirements Related to Topics Discussed in the CRR

<table>
<tr><th colspan="4">Applicable Standards/Requirements</th><th>CRR Sections</th></tr>
<tr><td colspan="4">State Rule: Title 30 TAC § 331.107

Aquifer Restoration.</td><td>Sections II.2 and II.3</td></tr>
<tr><td colspan="4">State Rule: Title 30 TAC § 331.46

Plugging and abandonment of wells.</td><td>Section 2 and 3</td></tr>
<tr><td colspan="4">State Rule: Title 30 TAC § 336.364 and § 336.1115

Release of equipment and materials.

Criteria for release of equipment, facilities and materials (i.e., discrete solid objects) for unrestricted use.</td><td rowspan="4">Section 4</td></tr>
<tr><td>Nuclide</td><td>Average</td><td>Maximum</td><td>Removable</td></tr>
<tr><td>U-nat</td><td>5,000 dpm alpha/100 cm^2</td><td>15,000 dpm alpha/cm^2</td><td>1,000 dpm alpha/cm^2</td></tr>
<tr><td>Ra-226, Ra-228, Th-nat,</td><td>1,000 dpm/100 cm^2</td><td>3,000 dpm/100 cm^2</td><td>200 dpm/100 cm^2</td></tr>
<tr><td>Beta-gamma emitters</td><td>5,000 dpm beta, gamma/100 cm^2</td><td>15,000 dpm beta, gamma/100 cm^2</td><td>1,000 dpm beta, gamma/100 cm^2</td></tr>
</table>

State Rule: 30 TAC §336.1115(e) Outdoor areas are considered suitable for release for unrestricted use if the following limits are not exceeded. Criteria for release to unrestricted use of soils (i.e., land) are the following limits averaged over 100 square meters: Radium-226 or –228 - (A) 5 pCi/g averaged over the first 15 cm of soil below the surface; and (B) 15 pCi/g, averaged over 15 cm thick layers of soil more than 15 cm below the surface. Natural uranium – (A) 30 pCi/g, averaged over the top 15 cm of soil below the surface; and (B) 150 pCi/g, average concentration at depths greater than 15 centimeters below the surface so that no individual member of the public will receive an effective dose equivalent in excess of 100 mrem per year.	Section 4

In conclusion, the TCEQ considers Uranium One's O'Hern Project site to have met the applicable standards and requirements for release to unrestricted use. Upon receipt of a determination by the NRC, as required by Section 274c(4) of the Atomic Energy Act, that the applicable standards and requirements have been met, the licensee will be notified and Radioactive Material License No. R03024 will be amended to signify that Site No. 001 (O'Hern Project) may be released to unrestricted use.

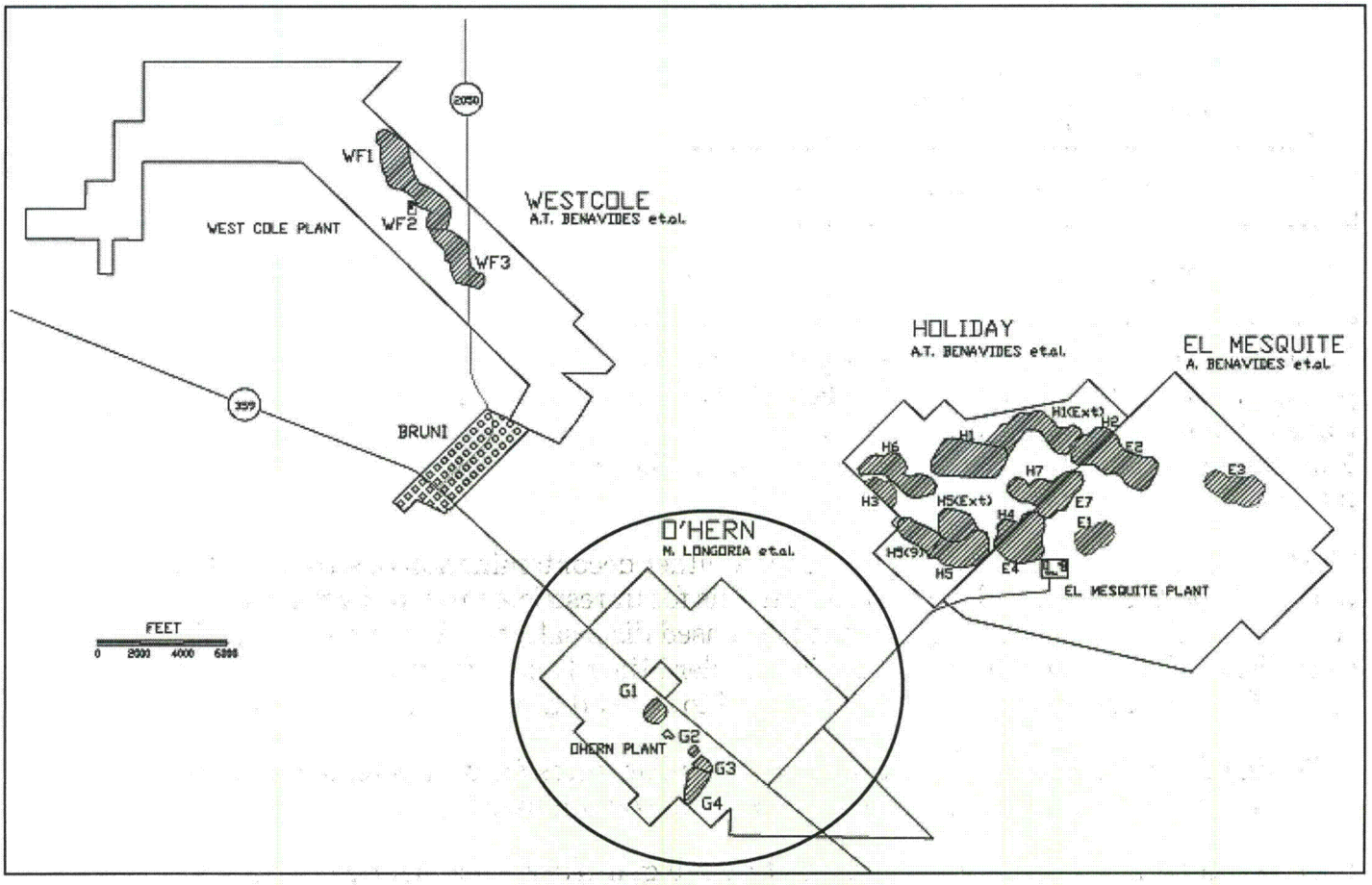
II. DOCUMENTATION OF BASES FOR CONCLUSION

The following are the TCEQ's review results for items specified in STP Procedure SA-900 "Termination of Uranium Milling Licenses in Agreement States."

1. Description of licensee's activities associated with decommissioning and license termination

The O'Hern Project is an in-situ leach uranium mine located near 2.8 miles southeast of Bruni, Texas (Figure 1). The O'Hern Project's uranium leases cover approximately 820 contiguous acres of land. Of that acreage, 61 acres comprise the production area divided among five well fields. In addition to the well fields, the site also had a concrete pad with sumps, two sets of cascading ion exchange columns, a reverse osmosis unit, a precipitation tank, several 10x14 reinforced fiberglass tanks, three sand filters, one byproduct waste storage pond, a backwash pit, a small warehouse, a shop, a lab/small office, a restroom/change room, and three pipelines connecting the O'Hern site to the Holiday/El Mesquite Plant site.

Figure 1: Site Layout



Surface activities at the site were licensed by the Department of State Health Services (DSHS), formerly the Texas Department of Health (TDH), and recently transferred to the Texas Commission on Environmental Quality (TCEQ) an agency of the State of Texas, under Radioactive Material License No. R03024. Subsurface activities were permitted by the Texas Water Commission (TWC), subsequently renamed the Texas Natural Resource Conservation Commission (TNRCC), now currently named the TCEQ under TWC Permit No. URO1941 for injection wells, and Underground Injection Control Permit WDW-197 for a waste disposal well (located at the Holiday/El Mesquite site).

The O'Hern Project Site was operated from 1975 to 1987 when production operations were ceased, and groundwater restoration began. Table 1 below depicts the change in ownership of the site over time (A) as well as regulatory authorities during the same time period for both groundwater (B) and source material recovery and by-product disposal activities (C). Active groundwater restoration was begun in 1980 under the jurisdiction of the TWC. The TNRCC (successor to the TWC) authorized cessation of groundwater restoration and plugging and abandonment of all uranium recovery related wells in 1998 (TNRCC 1998). Following the plugging and abandonment of the wells, full-scale surface reclamation and decommissioning could proceed.

Table 1: Timeline of Events

	Production Period	1987	Reclamation and Restoration Period							
A	Mobil Oil	1987	Malapai Resources	1990	COGEMA Mining			2009	Uranium One	
B	Texas Water Commission		1993	TNRCC		2001	TCEQ			
C	TDH: Bureau of Radiation Control		1993	TNRCC	1997	TDH/DSHS		2007	TCEQ	

The licensee initiated decommissioning of the well fields by removal of wellheads and related piping, including piping connecting O'Hern to Holiday/ El Mesquite. These items were either transferred to another of the licensee's sites on License No. R03024 or transferred to Pathfinder Mines (a sister company of the licensee) at Shirley Basin, Wyoming for disposal in the tailings impoundment at that site.

The licensee decommissioned the plant site by either decontamination of structures (e.g., office building) and transferring them to other persons for unrestricted use, or by transferring contaminated structures and equipment to licensed disposal sites. Items no longer of value or use were dismantled and transferred to the Pathfinder Mines facility for disposal. The liners and the rubble from the concrete pads were transferred to the Pathfinder Mines facility for disposal.

Following the removal of structures, equipment and features from the site, the licensee initiated a survey program to identify areas where the soil was contaminated.

2. Information which demonstrates that the groundwater has been restored to meet applicable standards and requirements.

Injection authorization associated with the mining of uranium and restoration of the groundwater in the mining zones was the jurisdiction initially of the Texas Water Commission (TWC) and subsequently, the Texas Natural Resource Conservation Commission (TNRCC) during mining activities at the O'Hern. Thus, all data pertaining to the restoration of the groundwater was sent to the TWC/TNRCC and reviewed by that agency. During the initial decommissioning and restoration, the radioactive materials regulatory authority over O'Hern at the time was the TDH, and thus the TDH relied on the TNRCC to determine that the data pertaining to groundwater restoration was acceptable and that the groundwater had been restored to meet applicable standards and requirements.

The TCEQ (was the TNRCC) has jurisdiction over the underground injection control program and has reviewed a letter dated September 18, 1998, from the TNRCC/TCEQ to COGEMA Mining, Inc (TNRCC 1998) and obtained the following information: The TCEQ reviewed the restoration data for Production Area 1 and determined that the production area (groundwater) has been restored to the specifications in permit UR01941-011 and as required by rule in 30 TAC § 331.107. COGEMA Mining, Inc. was authorized to cease any restoration activities, including monitoring, in the production areas (TNRCC 1998). Furthermore, Permit UR01941, was revoked, per the certification

of revocation dated 1984 (TCEQ 1984). Thus, the referenced correspondence from TNRCC to COGEMA demonstrates that the groundwater at the O'Hern has been restored to meet applicable standards and requirements.

3. Documentation that the production, injection and monitoring wells have been plugged and abandoned in accordance with applicable standards and requirements

The TCEQ Radioactive Materials Division reviewed correspondence from the Underground Injection Control Team to COGEMA Mining, Inc. and obtained the following information:

> "The Executive Director [of the TNRCC] acknowledges that plugging and abandonment of wells in UR01941 have been completed in substantial compliance with the approved closure plans and in accordance with the closure requirements of 30 TAC § 331.46 and 30 TAC § 331.86. Such acknowledgement was cited in the revocation of the permit granted March 13, 1984" (TCEQ 1984).

Thus, the referenced correspondence from TNRCC to COGEMA demonstrates that the wells at the O'Hern site have been closed and abandoned to meet applicable standards and requirements.

4. Decommissioning information which documents that all radiologically contaminated materials have been properly disposed of, transferred to licensees authorized to possess such materials, or meet applicable standards and requirements for release.

Agency inspectors periodically (at least once every 12 months) observed aspects and effects of licensee decommissioning efforts and reviewed licensee's records to ascertain disposition of contaminated materials. As documented in agency inspection reports, under the section of the report titled "Scope of Operations", the licensee was noted to ship contaminated materials to COGEMA's Pathfinder operation at Shirley Basin, Wyoming for disposal (TDH 2004). The authorization for Pathfinder to receive this material was verified by a review of the Pathfinder license (Amendment 34 dated 3/19/93). This was documented under the section of the inspection report titled "License Conditions", specifically Condition 24.A (TDH 2004).

Agency inspectors verified the removal of the plant pad and the decommissioning and reclamation of waste water ponds, and documented such in an inspection report (TCEQ 2012). Agency inspectors also verified that equipment and materials released from the site for unrestricted use met the surface contamination levels specified at 25 TAC § 336.364 and documented such in inspection reports (TDH 1999, TDH 2000, TDH 2003).

Uranium One also submitted documentation of decommissioning and disposition of waste in a report entitled "Holiday/El Mesquite and O'Hern: Final Disposition of Byproduct Material, Non-Byproduct Material, Equipment Transfers, and TCEQ Acknowledgements on Groundwater Restoration, Well Plugging and Abandonment and UIC Permit Revocations" (Uranium One 2011A). This report has copies of the records related to the disposition of waste. The report was reviewed to ensure compliance with all pertinent regulations when transferring or disposing of materials from O'Hern. In accordance with 30 TAC § 336.1123(b)(4) and the acceptable method of verification

provided in 30 TAC § 336.1123(c) and 336.1123(d)(1), parties interested in obtaining certain equipment or materials had to provide Uranium One with a copy of their current Radioactive Materials License to demonstrate that the party was authorized to receive the certain type, form and quantity of radioactive material. Such material was transferred to either of two Texas licensees: Uranium Resources, Inc. or Mesteña Uranium LLC, both Texas agreement state licensees.

The agency's inspections reports and the documentation provided by the licensee confirm the use of the surface contamination limits referenced at 30 TAC § 336.364 and 336.1115 and appropriate survey and radiation detection instrumentation for determining the release of material from the O'Hern site to unrestricted use; and confirms the licensee's proper transfer of contaminated material to an appropriate facility for disposal or to other appropriately licensed persons or facilities.

5. Discussion of the results of radiation surveys and soil sample analyses which confirm that the licensed site meets applicable standards and requirements for release.

The licensee submitted a document titled "Closure Report for the O'Hern Project" dated July 22, 2011 (Uranium One 2011B). This report described the licensee's efforts to demonstrate that the site meets the criteria for release to unrestricted use. Those efforts included the following:

General Survey Information:

The licensee engaged Health Physics Consultants (HPC) of Austin, Texas to conduct surveys of the site after Uranium One had performed the removal of soils exhibiting levels of radioactivity above cleanup standards from its HEM and O'Hern operations. HPC used a GPS-based automated survey system (GASS) to conduct gamma surveys. The system consisted of Ludlum Model 2221 digital ratemeter/scalars with 2-inch by 2-inch sodium iodide, Ludlum Model 44-10 detectors paired with a Trimble ProXRS global positioning system. Two of the detectors were mounted on a vehicle separated by approximately 3 meters and positioned at approximately 45 centimeters above the ground surface. The detectors were operated in ratemeter mode and counts were automatically recorded in one-second intervals. The vehicle was operated at a speed to produce data at approximately 1 to 3 meter intervals. Instrumentation calibration and function check data are also presented.

A. Description of method for and establishment of background gamma levels.

Prior to ownership by Uranium One, COGEMA Mining, Inc. contracted with Environmental Restoration Group (ERG) to conduct pre-reclamation surveys in preparation to close the West Cole, the HEM and O'Hern sites.

Uranium One also completed pre-reclamation surveys after they acquired ownership of the HEM and O'Hern. A combination of manual and automated surveys were employed during this time at which point removal of equipment, facilities and materials were initiated with the objective of identifying the nature and extent of any elevated gamma radiation in excess of twice the background. Soil sampling was conducted as part of these surveys to assess Ra-226 and uranium

concentrations for comparison to regulatory limits. Experience from these efforts demonstrated 2,500 cpm on a 1" x 1" NaI detector and 7,500 cpm on a 2" x 2" NaI scanned approximately 5 cm and 45 cm, respectively, above the surface correlated to 5 pCi/g clean-up limit. At that time, areas confirmed to be above the 2,500 cpm action limit were remediated.

A background study generated by SENES Consultants Limited was also incorporated by HPC to establish background levels (SENES 1999). In the report, background gamma levels and soil concentrations were determined by surveying and sampling areas outside the license boundaries at several HEM well fields. Based on this report, an initial background gamma count rate of 4,500 cpm was indicated. Surveys by SENES to determine background, were made using a survey system identical to the one previously described under "General Survey Information", incorporated by HPC.

In addition to having a previous background study, HPC conducted one as well at the HEM site in order to correlate previous readings with theirs. Using the setup described in the previous section, measurements were made in each of the 5 well fields with counts ranging from 2,964 to 28,070 counts per minute (cpm). An average of 4,031 cpm was derived by averaging the counts from all 5 areas. The standard deviation for the data set was determined to be 489.2 cpm.

B. Description of method for development of a correlation between radium-226 concentrations in soil and the gross gamma rate obtained in the surveys.

The background study of the area previously done by ERG was also incorporated by HPC to establish a correlation between Ra-226 concentrations and gamma count rate (COGEMA 2003). In the ERG report, correlation between gamma counts and soil concentration of radium-226 was made using data collected at 74 locations using a 5-spot composite sampling procedure. Prior to sampling, static gamma counts were made at each of the 5 sub-sampling locations (74 x 5 = 370 static gamma measurements). ERG used an unshielded Ludlum 2" x 2" NaI probe coupled to a 2221 ratemeter at 45cm above grade for a one minute scalar counts. The soil samples were analyzed on site using a mobile laboratory gamma spectrometry system. Split samples were also analyzed by Energy Labs in Casper, Wyoming. There were 19 sample points with Ra-226 above 2 pCi/g, two outliers were removed from the data set, leaving only 17 data points. The data was plotted with a least-squares-fit line and bounding 95-percent confidence lines. Using a radium-226 concentration of 5.5 picocuries per gram (pCi/g), derived from a correlation equation and an assumed Ra-226 background of 0.5 pCi/g, a gamma count rate of 7,500 cpm was obtained as a guide during real time excavations.

C. Description of the survey methodology employed for the initial survey and the data obtained from the survey.

Surveys were made of the entire site using the methodology described in "General Survey Information" above. Statistical background levels for each well field varied by as much as a factor of 2. An appropriate background was designated for each well field which would correlate to the statistical mean of each area. Gamma readings were grouped into ranges of less than mean background (less than 4,500 cpm), mean background to 1.25 times background (4,500 to 6,750 cpm), 1.25 times mean background to twice mean background (6,750 to 9,000 cpm) and greater than twice mean background (greater than 9,000 cpm).

D. Description of the cleanup criteria used.

Soil cleanup criteria is cited in TCEQ Rules at 30 TAC § 336.1115(e). Soil cleanup criteria uses the limits of 5 pCi/g for Ra-226 in the first 15 centimeter horizon of soil, and 15 pCi/g for soil more than 15 centimeters below the surface. For uranium, the cleanup standard is 30 pCi/g of uranium in the first 15 centimeter horizon of soil, and 150 pCi/g for soil more than 15 centimeters below the surface.

Additionally, a dose limit is also specified at 30 TAC § 336.1115(e)(4). The dose limit is as follows: no individual member of the public will receive an effective dose equivalent in excess of 100 mrem (1 mSv) per year as calculated by the methodology provided in NUREG-1620, Appendix H- "Guidance to the U.S. Nuclear Regulatory Commission Staff on the Radium Dose Approach."

E. Description of the methodology used for identifying and delineating the areas for soil removal, the method for removing the soil, and the disposition of the removed soil.

The action limit of 7,500 cpm was used by HPC to designate areas as exceeding the regulatory limits for Ra-226 concentration. These areas were staked for a second phase manual survey. Surface soils were delineated at that time at count rates greater than 7,500 cpm for removal in 3 to 6 inch lifts. Subsurface surveys were then done on these to investigate possible exceedance of the 15 pCi/g subsurface concentration limit for Ra-226. Any artifacts encountered on these surveys were removed during the excavation phase using a front end loader and/or backhoe. Removed soil was stockpiled and shipped to Pathfinder Mines (Uranium One 2011A).

F. Description of the final verification survey methodology and the data obtained from the survey.

Final surveys were conducted in reclaimed areas in the manner previously described in "General Survey Information" above, with the exception that the spacing between the detectors was decreased to approximately 1.8m which limited the field of view to 4.8m and vehicle speed was reduced (approximately 1 m/s). The reduction in spacing and speed allowed for a denser survey protocol. In the case where vehicle access was limited (e.g., deep excavations, trenches, etc.), the surveys were conducted on foot. Surveys of trenches were conducted with the detector held within 18 inches of the bottom of the trench and with the detector held at mid-depth of the trench. The results of the final gamma surveys for all the areas at O'Hern indicate no expectation for incidence of areas in excess of release criteria.

G. Description of the methodology used to select areas for collection of soil samples, the criteria for collection of soil samples, the methodology used to collect the soil samples, the analytical service provider used to analyze the soil samples, and the analytical service provider's methodology for analyzing the soils, and the results of the soil sample analysis.

The survey and sampling was conducted in an initial and final phase. The initial phase was conducted to provide comprehensive survey coverage in all accessible areas at each site. This survey used the GASS and generated maps showing color tracks and indicating areas above twice background and/or above the action level for additional remediation. Areas above the action level would be staked for remediation. A handheld survey would then be employed to demarcate the extent of any areas having elevated readings. Following remediation, the areas would be re-surveyed with the automated system to ensure satisfactory reclamation. The final survey was done

in the same manner but using a denser scanning technique and with focus paid to areas which had previously been identified for further remediation.

The total production area for the OH well fields is 22.4 acres. After the final survey was done and areas shown to be satisfactorily remediated, twenty-eight random soil samples were collected among three sampling zones and plant area in both 0-6" and 6-12" soil horizons for a total of fifty-six discrete soil samples. For sampling purposes well fields G1, G1x, G3 and G4 were grouped together based on their proximity and their respective monitor well rings into two groups. Twenty-two samples each were collected in G1+G1x (7.6 acres) and G3+G4 (13.3 acres) areas with the remaining twelve samples collected in the remaining G2 (1.5 acres) and Plant (2.6 acres). Randomized locations for sampling were generated using Spatial Analysis and Detection Assistance (SADA) software generated by the University of Tennessee. The SADA software includes a MARSSIM module and a simple random option for determining sample locations. Although random locations were chosen for the samples, sampling density was consistent throughout the site at about 0.9 acres per sample.

For each spot designated for sampling, a five spot composite sample was collected. For QA/QC purposes four samples were chosen and split producing a total of sixty-four samples submitted to Energy Labs for analysis. All samples were analyzed for natural uranium and Ra-226. The laboratory dried, pulverized, homogenized and digested the samples in acid prior to analysis. Radium concentration was determined using U.S. EPA Method 903.0. Uranium analysis was performed using U.S. EPA Method 6020. All of the discrete sample laboratory results were reviewed by the TCEQ and found to be below release limits for uranium and Ra-226.

6. Discussion of results of the state's site closure inspection.

On July 20, 2011, TCEQ staff performed surveys of Uranium One's O'Hern site (TCEQ 2012). The surveys were performed on foot using Ludlum 1" x 1" NaI probes coupled to Model 2241-3I ratemeters. The purpose of the survey was to confirm the results of the survey data submitted by Uranium One (Uranium One 2011) to the TCEQ and to determine if the site met the criteria for release to unrestricted use. Background readings were around 1,300 cpm for the one-by-one NaI probed instruments.

Surveys were conducted according to a draft internal procedure for conducting confirmatory close-out surveys of in-situ leach uranium recovery facilities (TCEQ DIP). Using two times background as an allowable limit, the confirmatory surveys were performed in a two-fold manner: selected area survey and random survey.

For the selected area survey, data submitted by HPC showing gamma rates and their respective coordinates were analyzed for areas of interest. The data was mapped using ArcGIS and manipulated to focus on areas with elevated readings. Clusters of high readings, as well anomalously high readings were considered areas of interest and their coordinates entered into a database. The database was then imported to a Trimble Juno GPS unit as waypoints which were then found on site and surveyed. Total areas of interest on the selected area surveys per well field and plant site varied relative to the amount of elevated readings for each data set.

A secondary random survey was also done of the areas. The random survey focused on areas that might be neglected during remediation. Areas adjacent to the fence line, beneath trees or surrounded by denser brush were some of the areas of focus during the random survey.

A few areas were noted to have exceeded twice background. Soil samples were collected at the areas that exceeded two times background. Samples were also collected at areas that did not exceed twice background. For each area designated for sampling, a center point was made of the high spot, around which a 100 m^2 sampling area was set with flags. Five spots were then sampled in this area and composited. Sample collection was made in each area at surface (0-6") and subsurface (6-12").

The DSHS Lab was used for analysis of the samples and each sample was analyzed for Ra-226 and natural uranium by standard actinide separation procedures in DOE Method A-20. Lab analysis of these samples confirmed that the areas do not exceed the criteria for release to unrestricted use (TCEQ 2011).

On-site disposal of radioactive material, including byproduct material, was not authorized at the O'Hern project site, thus, there is no land to be transferred to the state or the Federal Government. As a result of these findings, the TCEQ is proposing to authorize Uranium One to release the O'Hern Project site to unrestricted use and remove the site from the license.

7. Documentation that release of a portion of the site will not negatively impact the remainder of the site to be closed at a later date.

The O'Hern site was the final site Uranium One decommissioned. The West Cole Plant, which was under the same license, was released for unrestricted use through NRC concurrence March 21, 2006 (NRC 2006). The Holiday/El Mesquite site is not contiguous with the O'Hern site and was decommissioned prior to the O'Hern site. Recontamination of the Holiday/El Mesquite or the West Cole sites did not occur. Byproduct material and waste from the site was disposed of at authorized waste disposal facilities.

III. REFERENCES

COGEMA 2003	Background study conducted by ERG dated October 20, 2003 of the Holiday/El Mesquite and O'Hern area.
ERG 2004	"Closure Report for the West Cole Site" for COGEMA Mining Inc. by Environmental Restoration Group, December 2004.
NRC 2006	Letter of Nuclear Regulatory Commission concurrence of West Cole Project's release for unrestricted use, dated March 21, 2006 and signed by Janet R. Schlueter, Director of Office of State and Tribal Programs.

SENES 1999	SENES Background Radiological Survey of Well Fields E-1, H-2/E-2, and H-3, COMIN Holiday/El Mesquite Project prepared by Everest Environmental Services Corporation in with SENES Consultants Limited, September 1999.
TCEQ 1984	Certificate of Revocation of Class III Underground Injection Control Permit No. URO1941, Issued on March 13, 1984. (This document further provides proof restoration was achieved.)
TCEQ 2011	TCEQ Radionuclide Analysis Report dated October 10, 2011. Subject: Soil Sample Analysis for samples collected July 20-21, 2011 at O'Hern during a confirmatory survey.
TCEQ 2012	TCEQ Interoffice Memorandum by Tony Gonzalez dated June 14, 2012 on a confirmatory survey performed July 20, 2011 by Bob Beleckis and Tony Gonzalez. The memo discusses gamma survey and soil sampling analyses detailed in TCEQ 2011 which indicate all well fields along with the plant site meet release criteria.
TCEQ DIP	TCEQ Draft Internal Procedure: "Procedure for Conducting Confirmatory Close-Out Surveys of Open Lands at In-Situ Leach Uranium Recovery Facilities".
TDH 1999	TDH Facility Inspection (Report) dated May 4-5, 1999 by Martin Utley. Subject: In addition to the inspection of the facility, also describes the disposition of items and material transferred from the site, and verifies that equipment and materials released for unrestricted use meet the surface contamination limits or soil concentration limits.
TDH 2000	TDH Facility Inspection (Report) dated October 25, 2000 by Martin Utley. Subject: In addition to the inspection of the facility, also describes the disposition of items and material transferred from the site, and verifies that equipment and materials released for unrestricted use meet the surface contamination limits or soil concentration limits.
TDH 2003	TDH Health report of inspection conducted on January 22-23, 2003 of the COGEMA Mining, Inc. West Cole, O'Hern, and Holiday/El Mesquite Projects performed by Martin Utley. Subject: In addition to the inspection of the facility, also verifies that equipment and materials released for unrestricted use meet the surface contamination limits or soil concentration limits.

TDH 2004	TDH Inspection Report dated April 8, 2004 of the COGEMA Mining, Inc. West Cole, O'Hern, and Holiday/El Mesquite Projects performed by Bob Burkhart. Subject: In addition to the inspection of the facility, also describes the disposition of items and material transferred from the site.
TNRCC 1998	TNRCC letter dated September 15, 1998 from Ben Knape to Donna L. Wichers of COGEMA Mining, Inc. Subject: Authorization to cease restoration activities at Production Area 1
Uranium One 2011A	"Holiday/El Mesquite and O'Hern: Final Disposition of Byproduct Material, Non-Byproduct Material, Equipment Transfers, and TCEQ Acknowledgements on Groundwater Restoration, Well Plugging and Abandonment and UIC Permit Revocations" dated September 12, 2011 submitted by Uranium One.
Uranium One 2011B	Closure Report for the O'Hern Project dated July 22, 2011. Subject: Provides description of Uranium One's survey methods and data to support request for release to unrestricted use of the O'Hern site.