15.0 Salt Lake City, Utah, Disposal Site

15.1 Compliance Summary

The Salt Lake City, Utah, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site was inspected on June 22, 2015. The disposal cell was in good condition. Observations of rock quality monitoring plots indicated no obvious change from the previous year. Inspectors did note vegetation buildup along the access road that surrounds the cell. No waste debris or indication of windblown or spillover contamination was noted. A radiological survey completed in 2015 by EnergySolutions did not detect contamination above recommended limits.

Inspectors identified no maintenance needs or cause for a follow-up or contingency inspection.

15.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the site are specified in the *Long-Term Surveillance Plan for the South Clive Disposal Site, Clive, Utah* (LTSP) (DOE/AL/62350-228, Rev. 2, U.S. Department of Energy [DOE], September 1997) and in procedures that DOE established to comply with requirements of Title 10 *Code of Federal Regulations* Section 40.27 (10 CFR 40.27). Table 15-1 lists these requirements.

Table 15-1. License Requirements for the Salt Lake City Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 3.0	Section 15.4
Follow-Up Inspections	Section 3.4	Section 15.5
Maintenance and Repairs	Section 5.0	Section 15.6
Groundwater Monitoring	Section 4.0	Section 15.7
Corrective Action	Section 6.0	Section 15.8

15.3 Institutional Controls

The 100-acre disposal site (Figure 15-1) is owned by the United States of America and was accepted under the U.S. Nuclear Regulatory Commission general license (10 CFR 40.27) in 1997. DOE is the licensee and, in accordance with the requirements for UMTRCA Title I sites, is responsible for the custody and long-term care of the site. Institutional controls at the site include federal ownership of the property and the following physical features that are inspected annually: site markers, boundary monuments, perimeter warning signs, a site perimeter fence, and locked gates at the site entrances.

15.4 Inspection Results

The site, 85 miles west of Salt Lake City, Utah, was inspected on June 22, 2015. The inspection was conducted by J. Gillespie of the DOE Legacy Management Support contractor. DOE Site Lead Jason Nguyen assisted in the inspection. Charles Bishop, Russ Topham, and Phillip Goble of the Utah Department of Environmental Quality attended the inspection. EnergySolutions provided a radiation technician (Sam Stanley) to escort the inspectors. The new point of contact

for EnergySolutions, Vern Rodgers, was accompanied by Garrett Dutton, also of EnergySolutions.

The purposes of the inspection were to confirm the integrity of visible features at the site, to identify changes in conditions that might affect site integrity, and to determine the need, if any, for maintenance or additional inspections and monitoring. Numbers in the left margin of this report refer to items summarized in Table ES-1 of the "Executive Summary."

15.4.1 Site Surveillance Features

Figure 15-1 shows the locations of site surveillance features. Inspection results and recommended maintenance activities associated with site surveillance features are included in the following subsections. Photographs to support specific observations are identified in the text and on Figure 15-1 by photograph location (PL) numbers.

15.4.1.1 Site Access, Entrance Gates, and Entrance Signs

The disposal site is at the EnergySolutions radioactive waste facility near Clive, Utah, and is completely surrounded by EnergySolutions active radioactive waste disposal operations. A perpetual right-of-way easement is in place that ensures DOE and its representatives continued access (across the EnergySolutions property) to the site. DOE provides EnergySolutions access to the disposal site to perform, as needed, periodic maintenance activities through a signed access agreement and license. EnergySolutions is to notify DOE anytime access to the site is needed.

All personnel entering the EnergySolutions facility must sign in at the security building. Because EnergySolutions radioactive waste disposal activities surround the site, posted radiological control areas have to be crossed to access the site. EnergySolutions, therefore, requires inspectors and other site visitors to receive a radiological hazard awareness briefing, sign a Radiological Work Permit, be issued a dosimeter, and be escorted to and from the DOE disposal cell. Typically, the escort provided by EnergySolutions is also a health physics technician. Following the inspection, personnel and equipment are scanned upon leaving the radiological control area. Prior to leaving the EnergySolutions facility, inspectors and other visitors are again monitored for any radiological surface contamination with a personnel contamination monitor. Hardhats, safety glasses, and leather work boots are also required on the EnergySolutions property.

Access to the DOE disposal cell is via a route across the EnergySolutions property to the southwest corner of the site. Four locked gates provide access to the DOE disposal cell; one in the southwest corner of the chain-link perimeter fence that EnergySolutions maintains around the entire DOE property, and three in the interior chain-link security fence DOE maintains around the disposal cell (two in the northwest corner and one in the southwest corner). The entrance gates and entrance signs were in good condition.

15.4.1.2 Fences and Perimeter Signs

Two chain-link fences are at the site. The exterior EnergySolutions perimeter fence, located along the site boundary, and the interior DOE security fence (PL-1) were in good condition. Nineteen perimeter signs are attached to the DOE fence, and all of the signs were in good condition.

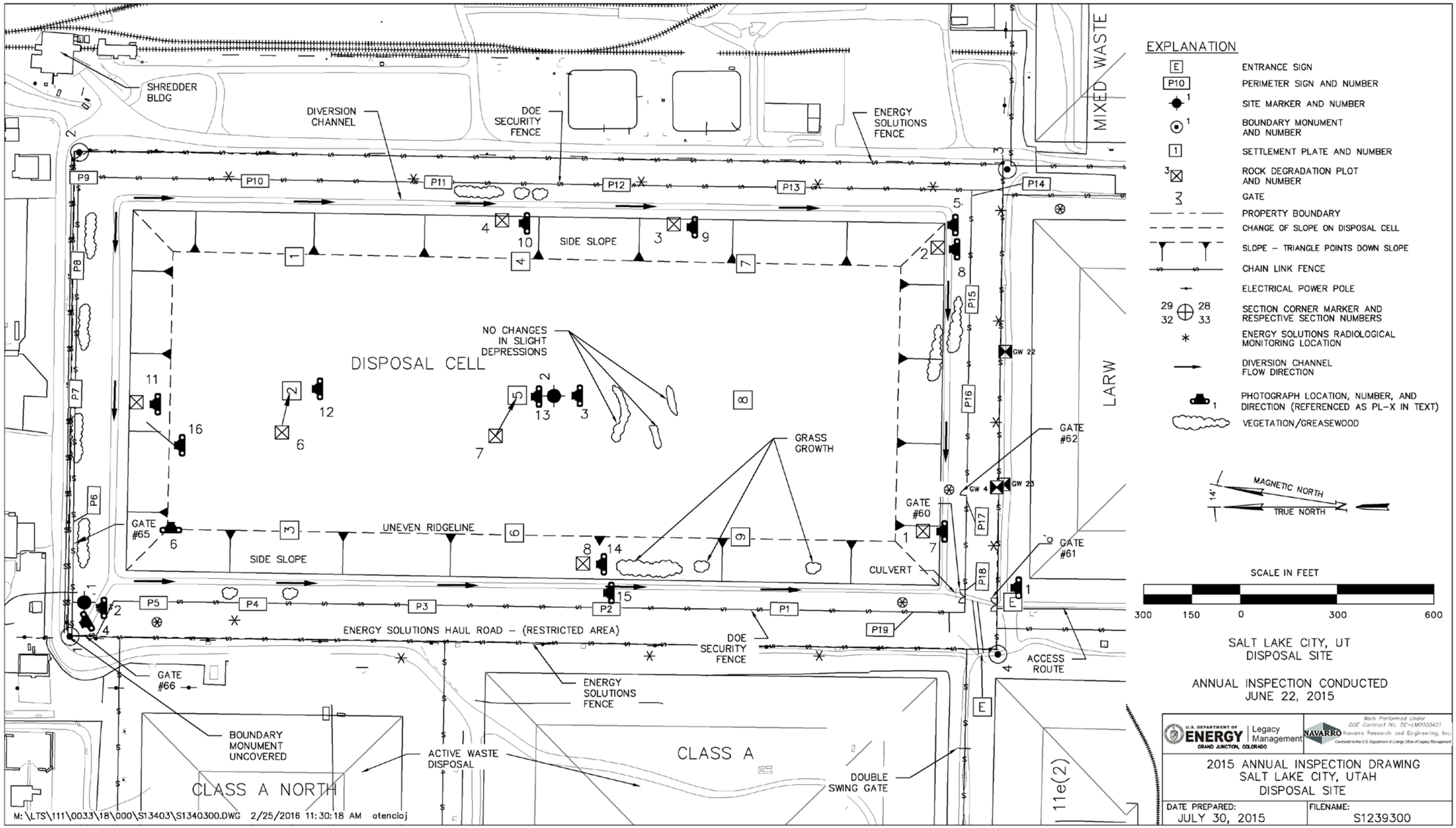

Figure 15-1. 2015 Annual Inspection Drawing for the Salt Lake City Disposal Site

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15.4.1.3 Site Markers

Granite site marker SMK-1 near the northwest site entrance gate was in good condition (PL-2). The site marker is etched from windblown sand and dirt but remains legible. EnergySolutions removed vegetation to clear the area surrounding SMK-1. Site marker SMK-2, located on top of the disposal cell, was in excellent condition (PL-3).

15.4.1.4 Survey Monuments and Boundary Monuments

All four boundary monuments were in good condition. Protective casings installed over each monument by EnergySolutions (PL-4) continue to protect the monuments from damage by surrounding earth-moving activities.

15.4.2 Inspection Areas

In accordance with the LTSP, the site is divided into three inspection areas to ensure a thorough and efficient inspection. The inspection areas are: (1) the disposal cell, (2) the area between the disposal cell and the site perimeter, and (3) the outlying area.

Within each area, the inspectors examined specific site surveillance features. Inspectors also looked for evidence of erosion, settling, slumping, or other disturbances that might affect the site's integrity, protectiveness, or long-term performance.

15.4.2.1 Disposal Cell

The disposal cell top and side slopes are armored with rock riprap. The top and side slopes were in good condition, and no evidence of erosion or slumping of the side slopes was observed (PL-5 and PL-6). Several slight depressions are present in the riprap on the top slope of the cell. They appear to be remnants of heavy equipment tracks that occurred during riprap installation. These depressions continue to be monitored to ensure that settlement is not occurring. No deep-rooted plants were growing on the top or side slopes of the cell.

A minor portion of the riprap has exhibited some degradation due to weathering. Eight one-square-meter rock-quality plots were established during the 2010 inspection to visually monitor
15A the degradation. The rock type is consistent in all the monitoring plots. Approximately 1 to 10 percent of the rock in the plots showed signs of weathering (PL-7 through PL-14), with no visual change from the previous inspection. The minimal rock degradation has not reduced the effectiveness of the riprap cover, but the plots will continue to be monitored to ensure that the riprap protects the disposal cell as designed.

Nine settlement plates are located on the cell top; several were inspected and observed to be in good condition. Surveying of the settlement plates is not required unless settlement appears to be occurring.

15.4.2.2 Area Between Disposal Cell and Site Perimeter

The inspectors examined the area between the toe of the disposal cell and the EnergySolutions security fence on the site boundary. No evidence of erosion or significant vegetation encroachment was seen. The surface water diversion channels along the toe of the disposal cell were functioning as designed and in good condition (PL-15).

Radiological surveys are performed on the site by EnergySolutions personnel every couple of years during site inspections to identify the potential presence of spillover or windblown radioactive contamination from surrounding radioactive waste disposal activities. Survey measurements include taking dose rate measurements at random locations across the site, and the collection of smears (PL-16) that are subsequently analyzed for removable alpha/beta contamination. Additionally, EnergySolutions maintains several surface soil radiological monitoring and sampling locations between its fence and DOE's fence.

The most recent radiological survey was performed in 2015. Results of the survey is included as
15B part of this report. To date, survey results have been below the limits in the DOE *Radiological Control Manual* (LMS/POL/S04322). Consequently, spillover and windblown radiological contamination has not been problem. The next radiological survey is scheduled to occur during the 2017 inspection. EnergySolutions personnel conduct periodic walkthroughs of the site to remove any windblown debris.

15.4.2.3 Outlying Area

The area within 0.25 mile of the site boundary was visually observed for erosion, changes in land use, or other phenomena that might affect the long-term integrity of the site. A variety of features and ongoing waste disposal activities managed by EnergySolutions surround the site. The most obvious waste disposal activities are occurring directly west of the site where a Class A (low-level radioactive waste) disposal cell is being capped. On the northeast and east sides of the site, incoming wastes are unloaded from railcars and transferred to haul trucks; decontamination facilities are also present. Directly to the south is a completed low-level radioactive waste disposal cell, to the southwest is an 11e.(2) byproduct material waste disposal cell, and to the southeast is an operating mixed-waste treatment and disposal facility. Administration, security, and maintenance buildings lie directly to the north-northwest. A shredding facility, rotary dump, and railroad spur delivery loop are located northwest of the site. These adjacent operations and facilities are not impacting the site.

15.5 Follow-Up Inspections

DOE will conduct follow-up or contingency inspections if (1) an annual inspection or other site visit identifies a condition that requires a return to the site to evaluate the condition or (2) a citizen or outside agency notifies DOE that conditions at the site or in the vicinity of the site are substantially changed. No need for a follow-up or contingency inspection was identified.

15.6 Maintenance and Repairs

No maintenance needs were identified during the inspection.

15.7 Groundwater Monitoring

In accordance with 40 CFR 192.21(g), groundwater at the site qualified for supplemental standards. The uppermost aquifer is classified as "limited use" due to naturally occurring concentrations of total dissolved solids that exceed 10,000 milligrams per liter, and the site is not contributing to contamination of any currently or potentially useful aquifer. Consequently, the
15C LTSP does not require groundwater monitoring at the site.

15.8 Corrective Action

In accordance with the LTSP, corrective action is taken to correct conditions that create a potential health and safety problem or that may threaten the integrity of the disposal cell or compliance with 40 CFR 192. No need for corrective action was identified.

15.9 Photographs

Photograph Location Number	Azimuth	Photograph Description
PL-1	0	Perimeter sign P18.
PL-2	0	Granite site marker SMK-1 missing numbers 4 and 8 from weathering.
PL-3	0	Granite site marker SMK-2.
PL-4	330	Boundary monument #1, northwest corner.
PL-5	0	View of the east slope and drainage.
PL-6	90	East along the top of the north slope of the disposal cell.
PL-7	NA	Rock Quality Plot #1; (2010 photo for comparison).
PL-8	NA	Rock Quality Plot #2; (2010 photo for comparison).
PL-9	NA	Rock Quality Plot #3; (2010 photo for comparison).
PL-10	NA	Rock Quality Plot #4; (2010 photo for comparison).
PL-11	NA	Rock Quality Plot #5; (2010 photo for comparison).
PL-12	NA	Rock Quality Plot #6; (2010 photo for comparison).
PL-13	NA	Rock Quality Plot # 7; (2010 photo for comparison).
PL-14	NA	Rock Quality Plot # 8; (2010 photo for comparison).
PL-15	0	North along the west drainage of the disposal cell.
PL-16	NA	Rad tech performing swipe sampling #3 near Rock Quality Plot # 5.

SLD 6/2015. PL-1. Perimeter sign P18.

SLD 6/2015. PL-2. Granite site marker SMK-1 missing numbers 4 and 8 from weathering.

SLD 6/2015. PL-3. Granite site marker SMK-2.

SLD 6/2015. PL-4. Boundary monument #1, northwest corner.

SLD 6/2015. PL-5. View of the east slope and drainage.

SLD 6/2015. PL-6. East along the top of the north slope of the disposal cell.

SLD 6/2015. PL-7. Rock Quality Plot #1.

Rock Quality Plot #1 — 2010 photo for comparison.

SLD 6/2015. PL-8. Rock Quality Plot #2.

Rock Quality Plot #2 — 2010 photo for comparison.

SLD 6/2015. PL-9. Rock Quality Plot #3.

Rock Quality Plot #3 — 2010 photo for comparison.

SLD 6/2015. PL-10. Rock Quality Plot #4.

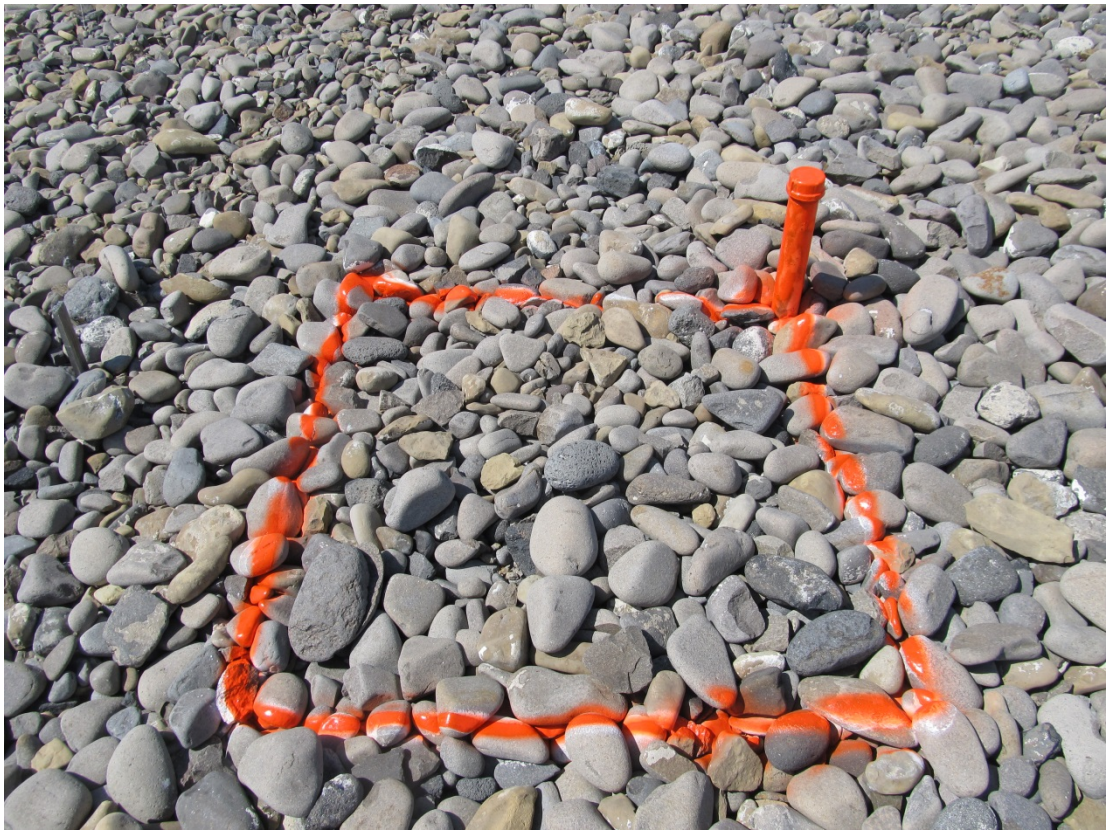
Rock Quality Plot #4 — 2010 photo for comparison.

SLD 6/2015. PL-11. Rock Quality Plot #5.

Rock Quality Plot #5 — 2010 photo for comparison.

SLD 6/2015. PL-12. Rock Quality Plot #6.

Rock Quality Plot #6 — 2010 photo for comparison.



SLD 6/2015. PL-13. Rock Quality Plot #7.

Rock Quality Plot #7 — 2010 photo for comparison.

SLD 6/2015. PL-14. Rock Quality Plot #8.

Rock Quality Plot #8 — 2010 photo for comparison.

SLD 6/2015. PL-15. North along the west drainage of the disposal cell.

SLD 6/2015. PL-16. Rad tech performing swipe sampling #3 near Rock Quality Plot # 5.

ENERGYSOLUTIONS

Radiological Survey Form

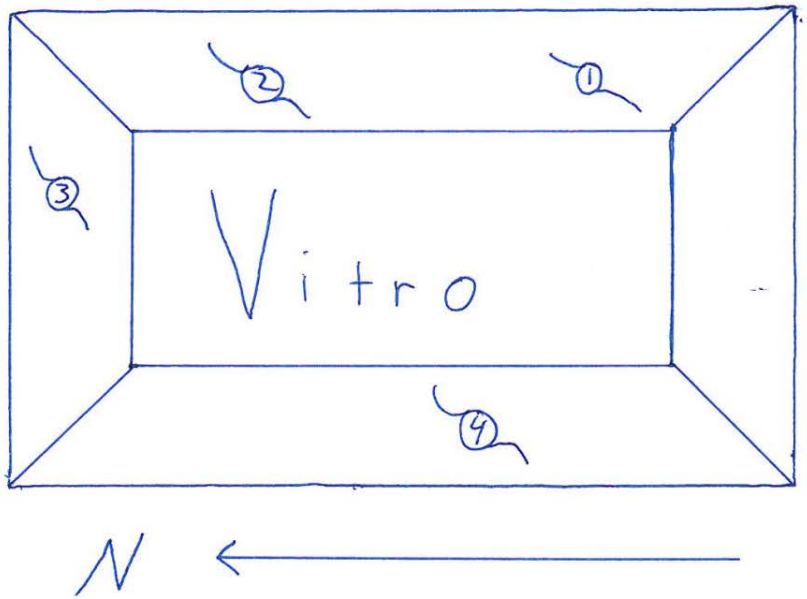
CL-RS-PR-115 F1
Rev. 0

Survey Information

Date: 6-23-15
Survey number:
Bates number: N/A
Location: on-site chem. Lab.
Item: large Area Wipes
Reason:

Instrument Information

Model	Serial Number	Cal Due	Background alpha	Background beta	MDA alpha	MDA beta
2360	193661	11-18-15	2	167	53.3	238.5
N/A						



	α	β
Sample 1	<MDA	<MDA
Sample 2	<MDA	<MDA
Sample 3	<MDA	<MDA
Sample 4	<MDA	<MDA

Remarks:

Surveyed by (Print): Sam Stanley Sign: Date: 6-23-15
Surveyed by (Print): Sign: Date:
Reviewed by (Print): Sign: Date:

Page ___ of ___