LA-UR-15-24595
Approved for public release; distribution is unlimited.

Title: Dose Assessment of Los Alamos National Laboratory-Derived Residual Radionuclides in Soils within Tract A-16-b for Land Conveyance and Transfer Decisions

Author(s): Gillis, Jessica M
Whicker, Jeffrey J

Intended for: Report

Issued: 2016-01-26 (rev.1)

Dose Assessment of Los Alamos National Laboratory-Derived Residual Radionuclides in Soils within Tract A-16-b for Land Conveyance and Transfer Decisions

January 2016

LA-UR-15-24595

Contents

Abstract

In 2015, soil sampling for radiological materials was conducted within Tract A-16-b specifically for land conveyance decisions. Measurements of radionuclides in soil samples were evaluated against a recreational use scenario, and all measurements were below screening action levels for each radionuclide. The total estimated dose was less than 1 mrem/y (< 10 μSv/y) for a hypothetical recreational user (compared to an action level of 15 mrem/y (150 μSv/y). Dose estimates were based on the 95% upper confidence limits for radionuclide concentrations within the tracts. Additionally, dose estimates less than 3 mrem/y are considered to be As Low As Reasonably Achievable, so no follow-up analysis was conducted. Release of this property is consistent with the requirements of DOE Order 458.1 and Los Alamos National Laboratory Policy 412.

1.0 Background for A-16-b Dose Assessment

1.1 Site Location

Tract A-16-b consists of the North-facing slope of DP canyon from the top of DP mesa at Los Alamos National Laboratory (LANL or the Laboratory) Technical Area-21 to the drainage at the canyon bottom (see Figure 1.1). It is bordered on three sides by other Land Conveyance and Transfer tracts and its eastern border is contiguous with the northern border of Tract A-15-1 (DOE/EIS 0293). This Tract covers an area of approximately 6 acres (~25,000 m^2) of undeveloped hill slope that can be accessed from DP Road through Tract A-15-1.

Figure 1.1 Aerial view of the A-16-b Tract and its spatial relation to other Land Conveyance & Transfer tracts. ***Note***: Map locations and boundaries are approximate for dose assessment purposes. Legal property descriptions and maps are in progress for this Tract.

1.2 Sampling and Analysis Plan

The Sampling and Analysis Plan for this Tract, "Sampling and Analysis Plan (SAP) for Assessment of LANL-Derived Residual Radionuclides in Soils within Tract A-16-b for Land Conveyance and Transfer" was produced in May 2015. Preliminary soil and sediment data from Intellus (2015) were used to plan sampling in this Tract based the MARSSIM method (2000) and a comparison to accepted background concentrations from Ryti et al (1998) and the Screening Action Levels (SALs) for recreational use (LANL 2014b).

Based on the expected near-background levels of radionuclides in this Tract, the single decision unit was classified as Class 3 [i.e., not expected to contain any residual radioactivity or expected to contain levels that are close to background or at a small fraction of the threshold for intended use (MARSSIM 2000)].

Eleven samples were collected via simple random sampling in the Tract based on statistical choices of α error (5%) and β error (10%). Figure 1.2 shows the sampling locations as labeled by the subcontractor.

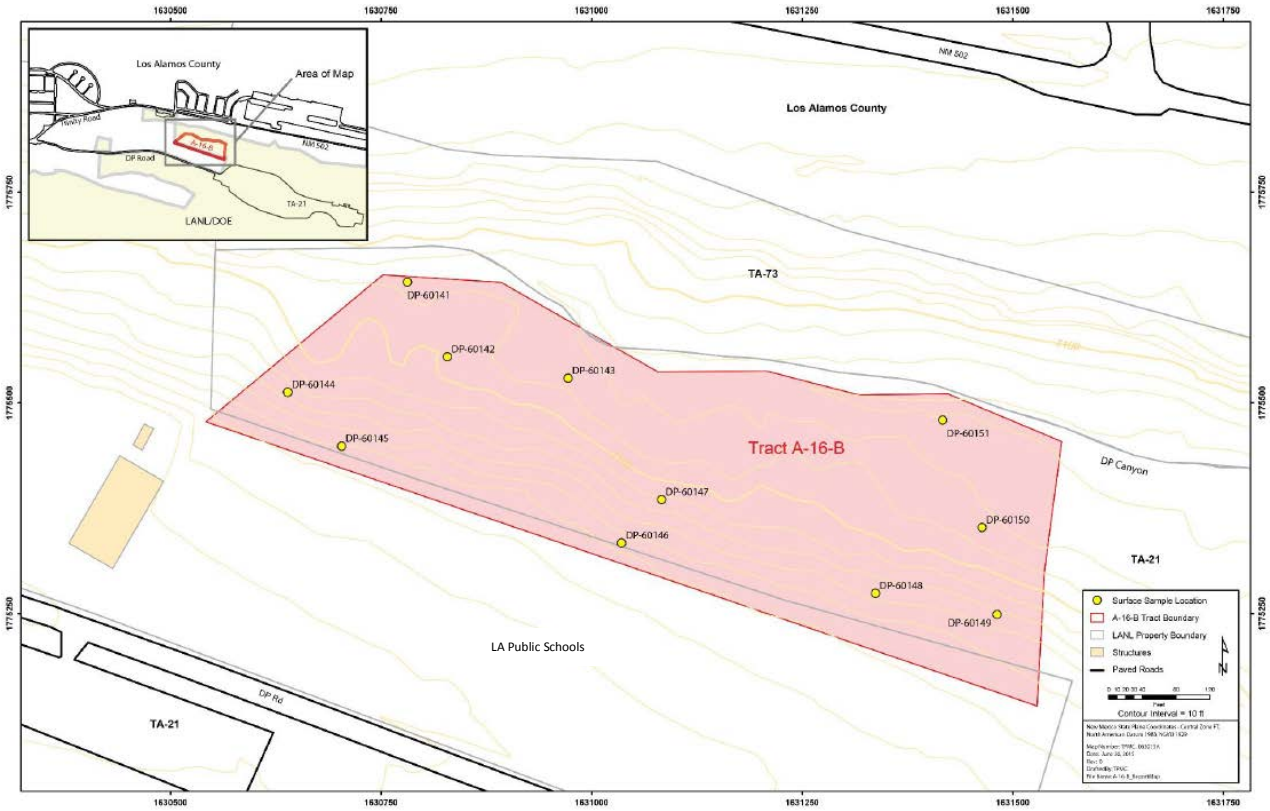


Figure 1.2 Sampling locations within Tract A-16-b. ***Note***: Map locations and boundaries are approximate.

1.3 Statistical Analysis

The principle study question was: Does the residual radioactive contamination exceed Authorized Limits (ALs), individually or collectively, for the recreational exposure scenario?

The decision alternatives were:

- If results from the soil radioactive contamination measurements are at or above the AL (collectively), the site is not a candidate for land transfer.
- If results from the soil radioactive contamination measurements are below the AL (collectively), the site is a candidate for land transfer.

The decision rule was based on the ***null hypothesis*** that the mean residual contamination levels in soil and/or sediment in the Tract, individually or combined over all radionuclides, are above the ALs and likely to result in an all pathway radiation dose to the critical receptor above 15 mrem/y (150 µSv/y). The ***alternative hypothesis*** is that the mean residual contamination levels in soil and/or sediment in the Tract, individually or combined over all radionuclides, are below the ALs and unlikely to result in an all pathway radiation dose to the critical receptor above 15 mrem/y (150 µSv/y) (LANL 2015b and 2014b).

The assumed future land use and exposure pathway presumes a recreational user exposure scenario for the full Tract. The 15 mrem/y (150 μSv/y) ALs used in this analysis were calculated using RESRAD (RESRAD 2001 and LANL 2014b).

1.3.1 Statistical Evaluation of the Survey Results

All the applicable data that passed the Measurement Quality Objective (MQO) evaluation was used to determine the upper-bound 95% confidence level (UCL) estimate of the mean for soil concentrations for each radionuclide. The EPA software ProUCL (EPA 2013) was used to determine the UCLs. The analyses were done at an independent laboratory and all passed requisite DQOs, as required for the comparisons to the ALs.

The following statistical decision criteria were used to determine whether the residual soil contamination levels (i.e., the 95% UCLs) were below the ALs in the Tract:

Decision Criteria:

1. If all samples are ≤ recreational ALs, then no further action is required and the site passes the criteria for planned use. No further actions are needed except for ALARA evaluation (see Section 1.3.2).

2. If all samples or the UCL are > the AL, then the site is not a candidate for release and site remediation is needed followed by resampling before it can be released.

3. If the UCL is below the AL but some individual measurements are above the AL, then statistical analysis is needed. Generally, non-parametric statistical approaches are used to evaluate the null hypothesis. If contamination is present in background, the Wilcoxon Rank Sum test is suggested, and if contamination is not present in background or very low relative to the AL, the Sign Test is suggested. In this report, the Sign Test will be used with a $p < 0.05$ decision threshold for significance. See MARSSIM (2000) Chapter 8 for details and examples.

4. If the sum of the ratios of the UCL radionuclide concentrations over their respective ALs (as shown in Equation 1) does not exceed unity (1), then the Tract has been adequately evaluated for multiple radionuclides, and no further action is required.

Equation 1

$$\sum_{i=1}^{n} \frac{\bar{C}_{\mathrm{UCL},i}}{C_{\mathrm{AL}}} \leq 1$$

Here $\bar{C}_{\mathrm{UCL},i}$ is the 95% upper bound estimate of the concentration mean and C_{AL} is the construction or recreational AL (15 mrem/y (150 μSv/y)).

1.3.2 ALARA Evaluation

LANL Program Description PD410 “Los Alamos National Laboratory Environmental ALARA Program” (LANL 2011) requires an ALARA evaluation based on procedure ENV-ES-TP-5254 “Performing

ALARA Analysis for Public Exposures" (LANL 2015a). If the calculated individual dose exceeds 3 mrem/y (30 μSv/y) then a quantitative ALARA evaluation is performed.

1.4 Instrumentation and Measurement Quality Objectives

To ensure confidence that the measurement results are valid and appropriate for the decisions being made, appropriate analysis technique must be used for each radionuclide and Measurement Quality Objectives (MQOs) should be satisfied.

1.4.1 Measurement Quality Objectives

- Detection Capability: Minimum Detection Concentration (MDC) should be below the MARSSIM-defined Lower Bound of the Gray Region (LBGR).
- The degree of measurement uncertainty (combined precision and bias) should be reported and the level reasonable relative to the needed accuracy of the decision and accounted for in the statistical analysis.
- Range of the instrument and measurement technique should be appropriate for the concentrations expected.
- The instrument and measurement technique should be specific for the radionuclide(s) being measured. Specificity is the ability of the measurement method to measure the radionuclide of concern in the presence of interferences.
- For field instruments, the instrument should be rugged enough to consistently provide reliable measurements. However, in this case, all samples were analyzed in the laboratory.

2.0 Results and Analyses of Measurements

The sample results for Tract A-16-b were all below the ALs for recreational use from Revision 3 of "Derivation and Use of Radionuclide Screening Action Levels" (LANL 2014b). Additionally, radionuclide concentration UCLs were close to background levels from Ryti et al (1998), with the exception of Pu-239 being slightly elevated above background (but consistent with known concentrations in the TA-21 air shed).

The raw data returned from the analytical laboratory are included in Appendix C. Results are summarized in the following:

- Table 2.1 presents the mean and standard deviation of sample concentrations with a comparison to background concentrations and the SALs
- Figure 2.1 graphically represents the distributions of radionuclide concentrations in the Tract
- Table 2.2 includes the dose calculation inputs and outputs supporting a summed dose estimate of 0.13 mrem/y (1.3 μSv/y) for Tract A-16-b

Table 2.1 Results of sampling (mean ± 1σ) compared to estimated means, background levels (Ryti et al 1998) and SALs (LANL 2014b, Table B-1)

Radionuclide	Sample Mean ± 1σ	Background [pCi/g] (Ryti et al 1998)	Recreational SAL [pCi/g] 15 mrem/yr (150 µSv/yr) (LANL 2014b)
Am-241	0.05 ± 0.08	0.013	890
Cs-137	0.54 ± 0.38	1.65	210
Tritium (H-3)	0.96 ± 0.79	0.08	430,000
Pu-238	0.01 ± 0.01	0.023	850
Pu-239	0.78 ± 0.80	0.054	770
Sr-90	0.16 ± 0.08	1.31	3200
U-234	1.42 ± 0.42	2.59	2300
U-235	0.22 ± 0.06	0.2	570
U-238	1.45 ± 0.32	2.29	1700

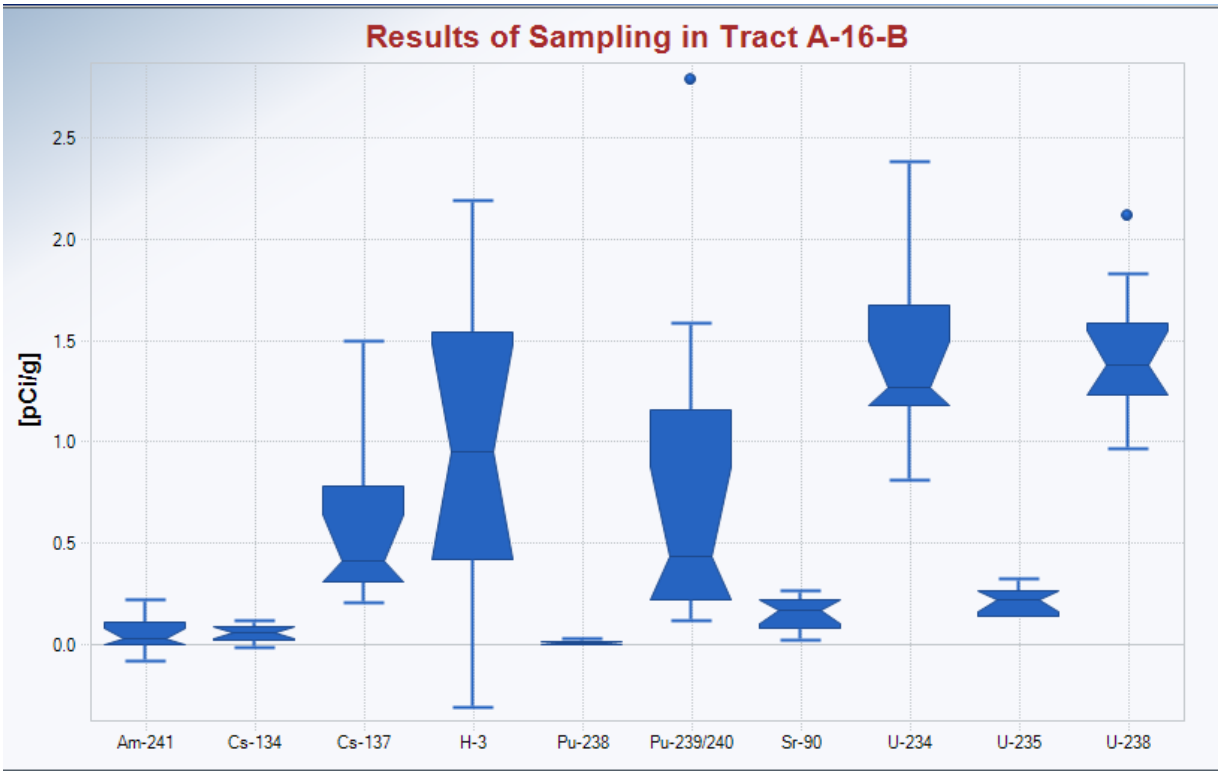


Figure 2.1 Box plots for sampling data in Tract A-16-b

Table 2.2 Sample data for radionuclides of interest in Tract A-16-b

Sample ID	Subcontractor Location ID	Am-241	Cs-134	Cs-137	H-3	Pu-238	Pu-239/240	Sr-90	U-234	U-235	U-238
A-16-B (1)	DP-60143	0.031	0.033	0.414	1.045	0.004	0.223	0.21	1.338	0.319	1.322
A-16-B (2)	DP-60149	0	0.083	0.417	-0.3	0.006	0.435	0.21	1.183	0.141	1.235
A-16-B (3)	DP-60151	0.039	0.002	0.324	0.704	0.013	0.521	0.08	1.652	0.247	1.586
A-16-B (4)	DP-60141	-0.001	0.022	0.212	-0.07	0.004	0.13	0.03	1.088	0.143	1.121
A-16-B (5)	DP-60146	0.114	0.047	0.842	2.183	0.002	1.157	0.25	2.372	0.267	2.118
A-16-B (6)	DP-60147	-0.003	0.082	0.217	1.347	0.011	0.207	0.08	0.822	0.215	0.975
A-16-B (7)	DP-60142	0.044	-0.009	0.427	0.421	0.011	0.392	0.17	1.255	0.193	1.289
A-16-B (8)	DP-60148	0.167	0.057	1.492	1.541	0.024	1.576	0.26	1.271	0.138	1.522
A-16-B (9)	DP-60145	0.216	0.11	0.785	2.048	0.011	2.782	0.08	1.673	0.224	1.818
A-16-B (10)	DP-60150	0.015	0.087	0.309	0.672	0.014	0.399	0.12	1.235	0.254	1.38
A-16-B (11)	DP-60144	-0.071	0.088	0.496	0.949	0.004	0.732	0.22	1.731	0.282	1.535
Field Duplicate	DP-60146	0.08	0.084	1.097	0.587	0.006	0.921	0.31	1.431	0.281	1.606
Field Duplicate	DP-60151	0.061	0.01	0.397	0.992	0.01	0.274	0.13	1.399	0.111	1.373

Table 2.3 Summary statistics (not including field duplicates) for radionuclides of interest in Tract A-16-b

	Am-241	Cs-134	Cs-137	H-3	Pu-238	Pu-239/240	Sr-90	U-234	U-235	U-238
Average	0.05	0.05	0.54	0.96	0.01	0.78	0.16	1.42	0.22	1.45
Max	0.22	0.11	1.49	2.18	0.02	2.78	0.26	2.37	0.32	2.12
Median	0.03	0.06	0.42	0.95	0.01	0.44	0.17	1.27	0.22	1.38
STD	0.08	0.04	0.38	0.79	0.01	0.80	0.08	0.42	0.06	0.32
UCL (ProUCL 5.0)	0.10	0.08	0.83	1.39	0.01	1.21	0.20	1.65	0.25	1.62
Background (Ryti et al)	0.013	0.000	1.650	0.080	0.023	0.054	1.310	2.590	0.200	2.290
Recreational SAL (Revision 3)	890	87	210	4E+05	850	770	3200	2300	570	1700

Table 2.4. Dose estimates (not including field duplicates) for radionuclides of interest in Tract A-16-b

	Am-241	Cs-134	Cs-137	H-3	Pu-238	Pu-239/240	Sr-90	U-234	U-235	U-238	Total
mrem/y	0.002	0.013	0.059	0.000	0.000	0.024	0.001	0.011	0.007	0.014	0.13
µSv/y	0.02	0.13	0.59	0.00	0.00	0.24	0.01	0.11	0.07	0.14	1.3

2.1 ALARA Analysis

The doses calculated based on sampling data for this Tract indicate doses to recreational users would be less than 1 mrem/y (less than 10 µSv/y). The threshold for follow-up ALARA analysis is 3 mrem/y (30 µSv/y), so no further investigation was conducted.

2.2 Quality Assurance

Soils were collected according to procedures and the laboratory analysis techniques were appropriate for the specific radionuclides, as required in the SAP (Appendix A). The analysis at the independent laboratory was within their predefined boundaries and met all quality assurance requirements. Only qualified data was used in this analysis and minimum detectable concentrations were below the LBGR. Thus, all measurement quality objectives were met for this data set.

3.0 Conclusion

Given that:

- All measurements were below the ALs for each individual radionuclide;
- The sum of the ratios was below 1; and
- The resulting combined calculated dose was less than the 15 mrem/y (150 μSv/y) for a hypothetical recreational user

ENV-ES concludes that Tract A-16-b meets the criteria for real property release under DOE Order 458.1 (2013) and LANL Policy 412 (2014a) and is a candidate for conveyance to the public for future recreational use. Specific dose assessments and/or additional sampling can be completed to provide more information if the land use changes or specific tasks are conducted within the Tract.

4.0 References

U.S. Department of Energy (DOE) 1999, October. Final Environmental Impact Statement for the Conveyance and Transfer of Certain Tracts Administered by the US DOE and Located at Los Alamos National Laboratory," US Department of Energy, DOE/EIS-0293.

U.S. Department of Energy (DOE) 2008. Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, US Department of Energy, DOE/EIS-0380.

U.S. Department of Energy (DOE) 2012. "Amended Record of Decision (AROD) for the Environmental Impact Statement for the Conveyance and Transfer of Certain Land Tracts Administered by the Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico," DOE/EIS–0293.

U.S. Department of Energy (DOE) 2013, January 15. Order 458.1 Radiation Protection of the Public and the Environment. Administrative Change 3.

U.S. Environmental Protection Agency (EPA), 2013. ProUCL Version 5.0.

INTELLUS 2015. Web address for database access: < http://www.intellusnmdata.com/>

Los Alamos National Laboratory (LANL) 2015a. "Performing ALARA Analysis for Public Exposures" Technical Procedure. ENV-ES-TP-5254.

Los Alamos National Laboratory (LANL) 2015b. “Dose Assessment Data Quality Objectives for Land Transfers into the Public Domain” Technical Procedure. ENV-ES-TP-238.

Los Alamos National Laboratory (LANL) 2014a. Policy 412 Environmental Radiation Protection, Revision 1. 24 November 2014. LA-UR-14-28987.

Los Alamos National Laboratory (LANL) 2014b. “Derivation and Use of Radionuclide Screening Action Levels”, Revision 3; LA-UR-14-29225, EP2014-0574.

Los Alamos National Laboratory (LANL) 2011. Program Description 410 Environmental ALARA Program, Revision 1. 28 September 2011.

Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) 2000. NUREG-1575, EPA 402-R-97 Rev.1, DOE/EH-0624, Rev.1.

RESRAD (Residual Radioactivity Computer Code) 2001. Version 6.5. Developed by Argonne National Laboratory.

Ryti, R.T., Longmire, P.A., Broxton, D.E., Reneau, S.L., McDonald, E.V. 1998. Inorganic and radionuclide data for soils, canyon sediments, and Bandelier tuff at Los Alamos National Laboratory. Los Alamos National Laboratory report LA-UR-4847.

5.0 List of Appendices

Appendix A: Sampling and Analysis Plan (SAP) for Assessment of LANL-Derived Residual Radionuclides in Soils within Tract A-16-b for Land Conveyance and Transfer

Appendix B: Pages from Field Documents for A-16-b Land Transfer Soil Sampling

Appendix C: Raw Sampling Data

Appendix A

Sampling and Analysis Plan (SAP) for Assessment of LANL-Derived Residual Radionuclides in Soils within Tract A-16-B for Land Conveyance and Transfer

Draft: May 2015

LA-UR-15-XXXXX

1.0 Background for A-16-B

1.1 Site Location

The A-16-B tract consists of the North-facing slope of DP canyon from the top of DP mesa (Los Alamos National Laboratory (LANL or the Laboratory) Technical Area-21) to the drainage at the canyon bottom (see Figure 1). It is bordered on three sides by other Land Conveyance & Transfer tracts and its eastern border is contiguous with the northern border of tract A-15-1. This tract covers an area of approximately 6 acres (~25,000 m^2) of undeveloped hill slope and canyon bottom accessed from DP road.

Figure 1. Aerial view of the A-16-B tract and its spatial relation to other Land Conveyance & Transfer tracts. ***Note***: Map locations and boundaries are approximate.

DP Canyon has an ephemeral stream and receives runoff from surrounding mesas and urban areas. The tract contains sensitive wildlife habitat which is covered in a Biological Assessment. Noise in the vicinity of this tract comes primarily from motor vehicles traveling along State Highway 502, and there is a negligible amount of night-shine from the artificial light sources on the mesa top to the west. Storm water runs off of the DP mesa top into the natural drainage of the canyon[1].

1.2 General History

Historical maps from the pre-LANL era, aerial photographs, and historical accounts of life in the area show little development prior to LANL occupancy (pre-World War II). Detroit businessman

[1] Location information was adapted from "Dose Assessment of LANL-Derived Residual Radionuclides in Soils Within Tract A-5-3 for Land Transfer Decisions" 2014. (LA-UR-14-26915) because of the proximity and similarity of this tract to Tract A-5-3

Ashley Pond started the "Los Alamos Ranch School" in 1917. The school began with a few ranch buildings from the Harold H. Brook homestead. The Mattie Brooke Trail was originally a wagon road that came up from Los Alamos Canyon onto the mesa in the vicinity of what is now called DP Mesa.

Laboratory operations began on nearby DP Mesa in the late 1940s. Plutonium processing operations were conducted on DP Mesa in Technical Area-21. Additionally, waste disposal operations were conducted at areas now designated as Material Disposal Areas A, B, T, U, and V (MDA-A, MDA-B, etc.) on the mesa-top. Tract A-16-B has remained vacant and undeveloped.

There are three Potential Release Sites (PRSs) that intersect with the A-16-B tract (see section 1.4), and several PRSs that are associated with the historical Laboratory operations on nearby lands.

1.3 Current Use

Tract A-16-B is unoccupied, vacant land. No structures or facilities associated with LANL's federal, state, or local permits (such as air monitoring stations, radiation monitoring stations, or wastewater discharge outfalls) are located within A-16-B. This tract was never actively used by the Laboratory, no Laboratory operations were conducted within the tract boundaries, and no Laboratory structures were situated within the tract. The western part of adjacent tract A-15-1 is being used as a landscaping materials and contractor's yard without the benefit of best management practices for storm water runoff protection.

1.4 Summary of Historical Evaluation of LANL Impact

The DP canyon drainage is considered an Area of Concern (AOC), labeled C-00-021, which runs through the northern edge of the tract (see Figure 2a). In the area southeast (downstream) of this tract, there are records of radioactive materials being spilled into the canyon bottom (Pu-239, Cs-137, Sr-90 and Am-241). However, these downstream spills are unlikely to have impacted sediment concentrations in A-16-B. Additionally, 21-024(f) is a PRS associated with a former septic system outfall which received sewage from building 21-45 from 1947 to 1954 (see Figure 2b). In 1949, Building 21-45 was renovated for the Industrial Waste Studies Group, a group that studied various waste streams in an attempt to recover valuable materials such as plutonium and uranium[2].

The full area of the tract is included within the air shed of Solid Waste Management Unit (SWMU) 21-021 associated with historical operations at TA-21. Stack emissions from TA-1 may have resulted in surface deposition of radionuclides, particularly plutonium (LANL 2004). Therefore, tract A-16-B has the potential for contamination from past activities conducted at LANL, and is considered radiologically "impacted." Available data indicate that the levels of contamination in sediments do not present a significant human health or ecological risk and that no remedial action is required. There is no record that hazardous substances were ever stored at this site, and there are no current requirements for federal cleanup activities.

[2] PRS data was retrieved from the LANL PRS database: http://wesweb.lanl.gov/PRS/Details.asp?PRSID=21-024(f)

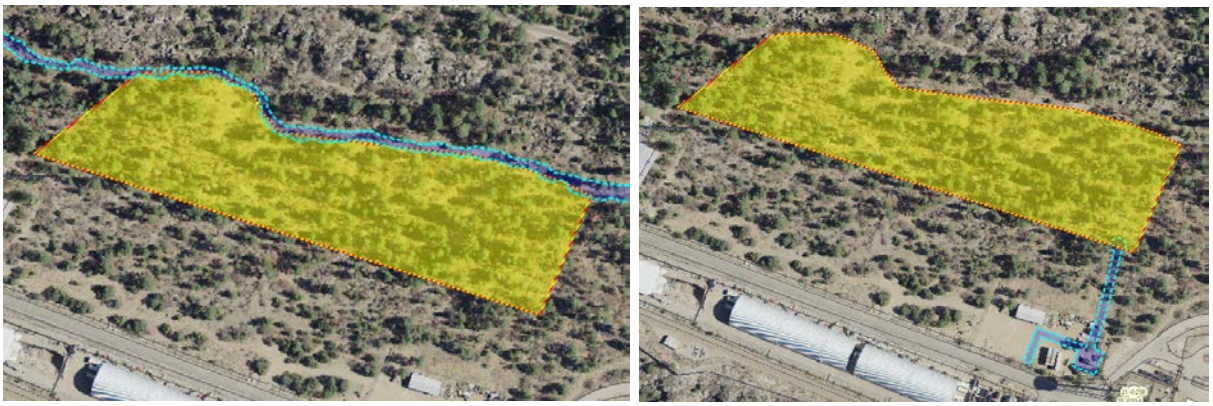


Figure 2. a) Image on the left shows tract A-16-B with C-00-021 highlighted in blue and b) image on the right shows tract A-16-B with 21-024(f) highlighted in blue. ***Note***: Tract boundary is approximate.

1.4.1 Adjacent Properties with Known or Suspected Releases

SWMU 21-021 is indicated for a site-wide systematic release from stacks Technical Area-21 resulting in surface soil contamination including Pu-239 and Am-241 above background. Additionally, there are five Material Disposal Areas in the vicinity of the tract, with the closest being MDA-B directly to the South. MDA-B was actively used to dispose of radioactively contaminated wastes from April 1944 to June 1948.

1.5 Preliminary Results from Surveys for Residual Contamination

For the purpose of developing a MARSSIM-based sampling plan (MARSSIM 2000), previous sampling data were used to determine expected standard deviations for sample plan development. Raw data for Am-241, Pu-239/240, Cs-137, and Sr-90 is provided at the end of this SAP in Attachment 1. The sampling locations are indicated in Figure 3, and summary statistics are provided in Table 3. The highest concentrations are for Pu-239. Samples indicating elevated levels of Pu-239 were collected near the outfall of AOC 21-024(f), though these concentrations are well within the release levels for recreational use.

The soil surface and sediment concentrations in the vicinity of Tract A-16-B represent sample collection from 1992 through 2003 (data from INTELLUS 2015). From this data:

- Am-241 concentrations in the tract are 0.1 ± 0.2 pCi/g,
- Pu-239/240 concentrations are 1.0 ± 2.8 pCi/g,
- Cs-137 concentrations are 0.4 ± 0.5 pCi/g, and
- Sr-90 concentrations are 0.3 ± 0.2 pCi/g.

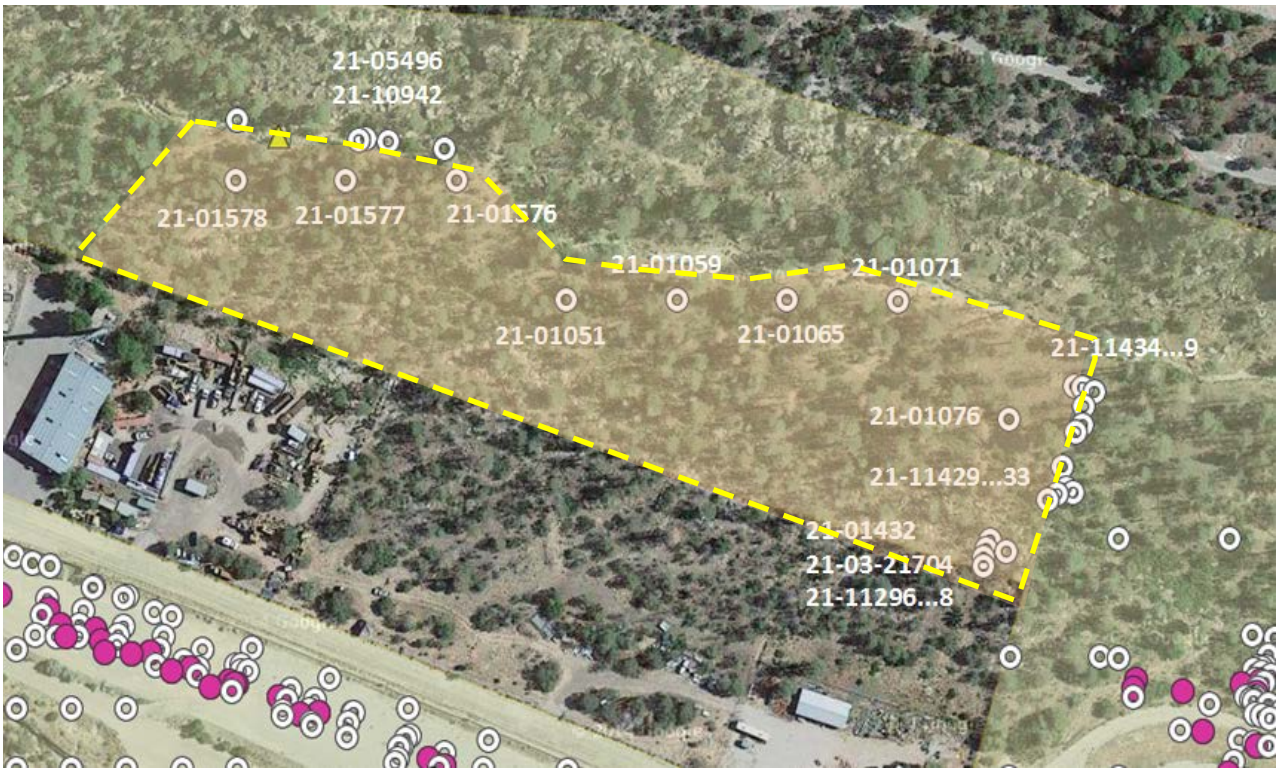


Figure 3. Existing sampling locations in the vicinity of the A-16-B tract with the approximate area of A-16-B outlined. Location IDs are provided for the points included in the preliminary data set. ***Note***: Tract boundary is approximate.

Table 1. Summary statistics for preliminary data collected for A-16-B. The "confidence level" indicates an estimated value that, if added to the mean, provides a 95% Upper Confidence Limit (UCL). For example, Pu-239 has an estimated UCL of 1.00 + 0.897 or 1.9 pCi/g.

Am-241 [pCi/g]	
Mean	0.12
Standard Error	0.03
Median	0.04
Standard Deviation	0.20
Sample Variance	0.04
Range	0.88
Minimum	-0.18
Maximum	0.70
Count	39
Confidence Level(95.0%)	0.065

Pu-239/240 [pCi/g]	
Mean	1.00
Standard Error	0.44
Median	0.21
Standard Deviation	2.80
Sample Variance	7.87
Range	13.89
Minimum	0.01
Maximum	13.90
Count	40
Confidence Level(95.0%)	0.897

Cs-137 [pCi/g]	
Mean	0.44
Standard Error	0.16
Median	0.13
Standard Deviation	0.53
Sample Variance	0.29
Range	1.37
Minimum	0.00
Maximum	1.37
Count	11
Confidence Level(95.0%)	0.359

Sr-90 [pCi/g]	
Mean	0.28
Standard Error	0.06
Median	0.27
Standard Deviation	0.24
Sample Variance	0.06
Range	0.83
Minimum	-0.15
Maximum	0.68
Count	17
Confidence Level(95.0%)	0.121

1.6 Conclusions regarding the classification of A-16-B relative to potential for residual radioactive contamination

The soil concentrations of nuclides of interest in soil/sediment from the preliminary set of measurements suggest that general levels are likely to be substantially below all SALs for recreational use and near background levels. Thus, remedial activities are unlikely to be required.

The A-16-B tract qualifies as a Class 3 area under MARSSIM [i.e., not expected to contain any residual radioactivity or expected to contain levels that are close to background or at a small fraction of the threshold for intended use (MARSSIM 2000)]. Due to the location and gradient of the terrain within the tract (70 foot drop from the edge of DP mesa into the canyon bottom), the future land use scenario for this tract is recreational. One decision area is defined for the full tract. If future use designation changes in these areas, sampling plans for specifically identified exposure scenarios could be considered.

2.0 Data Quality Objectives for the Sampling and Analysis Plan

The sampling and analysis plans (SAPs) for tract A-16-B follows the LANL (2012a) procedure EDA-QP-238, **"Dose assessment data quality objectives for land transfers into the public domain."**

2.1 Objective of the SAP

The objective of this SAP is to confirm, within the stated statistical confidence limits, that the mean levels of potential radioactive residual contamination in soils in A-16-B are documented in appropriate units, and are below the 15 mrem/yr (150 µSv/y) limit for public recreational use. The Screening Action Levels (SALs) for the recreational scenario are provided in Table 2. SALs, as derived in LANL (2014), are used by LANL as preapproved Authorization Limits (ALs), as required in DOE Order 458.1 (section 2.k.(6)(f)2 in the Contractor Requirements Document (DOE 2013)), and are identified as ALs in the rest of this SAP with regards to statistical decisions.

Table 2. Estimated means, background levels (Ryti et al 1998) and SALs based on an annual dose of 15 mrem (0.15 mSv) (LANL 2014, Table B-1)

Radionuclide	Estimated Mean (Table 1)	Background [pCi/g] (Ryti et al 1998)	Recreational SAL [pCi/g] 15 mrem/yr (150 µSv/yr)
Am-241	0.12	0.013	890
Cs-137	0.44	1.65	210
Co-60	-	-	46
Tritium (H-3)	-	0.08	430,000
Pu-238	-	0.023	850
Pu-239	1	0.054	770
Sr-90	0.28	1.31	3200
U-234	-	2.59	2300
U-235	-	0.2	570
U-238	-	2.29	1700

2.2 Decision Identification

The principle study question is: Does the residual radioactive contamination exceed ALs for the respective exposure scenarios the decision area A-16-B? The decision alternatives are:

- If results from the soil radioactive contamination measurements are at or above the AL (collectively), the site is not a candidate for land transfer.
- If results from the soil radioactive contamination measurements are below the AL (collectively), the site is a candidate for land transfer.

2.3 Inputs into the Decision

The assumed near-term future land use and exposure pathway is for recreational use. ALs for all the analyzed radionuclide constituents and the respective SALs are provided in Table 2 and the derivation of the SALs is documented in LANL (2014). The 15 mrem/yr (150 µSv/y) SALs used in this analysis were calculated using RESRAD (RESRAD 2001).

Data to be used in the analysis include surface soil/sediment concentration measurements for radionuclides. The unity (sum of fractions) rule will be applied. The formula used in for the unity rule is:

$$\frac{C_1}{AL_1} + \frac{C_2}{AL_2} + \frac{C_3}{AL_3} \ldots\ldots \frac{C_n}{AL_n} \leq 1$$

where $C_{1\text{-}n}$ and $AL_{1\text{-}n}$ are the upper-bound estimates of the mean concentrations for radionuclides (e.g., upper 95% values) and Authorized Levels 1 through n, respectively.

2.4 Study Boundaries

The study is limited to Tract A-16-B, as identified in Figure 1. The list of radionuclides in the analysis includes: Am-241, Cs-137, Co-60, H-3, Pu-238, Pu-239, Sr-90, U-234, U-235, and U-238. Individual doses are evaluated out to 1000 years.

2.5 Decision Rule

A single decision area was used for the full tract, as described in the Visual Sample Plan output in Attachment 2. The decision rule is based on the null hypothesis that the mean residual contamination levels in soil and/or sediment in tract A-16-B combined over all radionuclides is above the AL and likely to result in an all-pathway radiation dose to the critical receptor above 15 mrem/yr (150 µSv/y). The alternative hypothesis is that the mean residual contamination levels in soil and/or sediment in tract A-16-B combined over all radionuclides is below the AL and not likely to result in an all-pathway radiation dose to the critical receptor above 15 mrem/yr (150 µSv/y).

2.6 Limits on Decision Errors

The acceptable statistical errors for this analysis are that Type I error (i.e., conclude contamination levels at site are < AL when in fact it is > AL) has a probability of $p < 0.05$; and

the Type II error is (i.e., conclude soil contamination level is > AL when in fact it is < AL) has a probability of $p < 0.1$. The distribution for the preliminary data is *not* assumed to be normal.

2.7 Optimization of Design Process

The survey design is optimized by analyzing historical data. Specifically, the lack of evidence of radiological operations within tract A-16-B and preliminary data suggest that the concentrations are expected to be substantially lower than the SALs. Treating the tract as Class 3 optimizes the number of required sample locations based on recreational land use. Sampling areas for the full A-16-B tract are included in Figure 4. If land use requirements change in the future, sampling could be targeted to the specific area of the proposed activity.

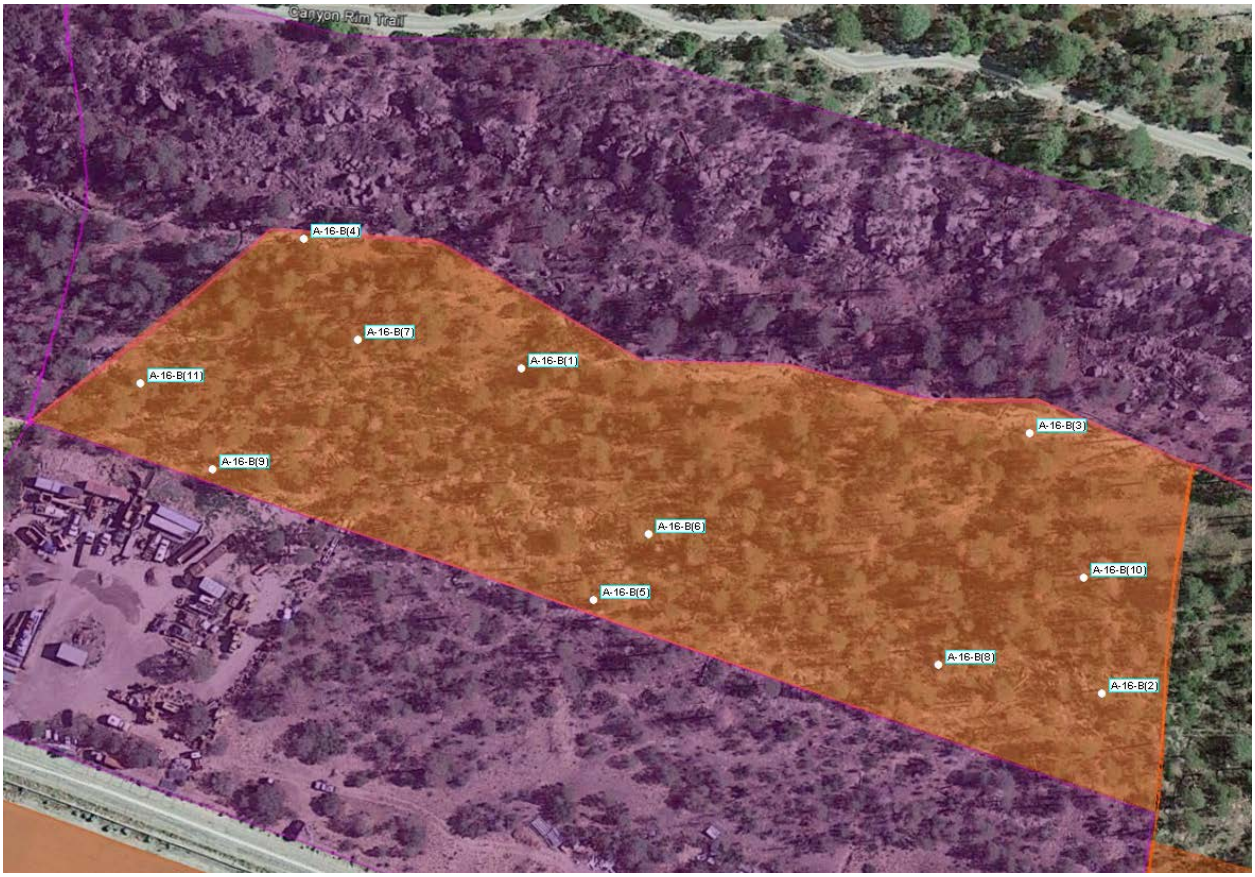


Figure 4. Map of sampling locations in the decision area for tract A-16-B. ***Note***: tract boundary is approximate

2.8 Statistically-Based Evaluation for Number of Samples Required using MARSSIM

Google Earth was used to plan sampling in A-16-B, and an image of the tract was incorporated into Visual Sampling Plan (VSP) software (Matzke et al. 2010). The MARSSIM application within VSP was then used to determine the statistically-based sampling plan for comparing an average to a fixed threshold. The preliminary sampling data in Table 1 and Attachment 1 were used to determine the standard deviations needed for calculating the necessary number of samples for each of the identified radionuclides. Because of the Class 3 designation and the

expectation of generally homogeneous deposition of contaminants, all sampling locations were randomly placed within the tract. However, previous data including the results of bias sampling within AOC 21-024(f) will be included in the dose assessment for land transfer and conveyance.

2.9 Instrumentation and Measurement Quality Objectives

The main objectives are to determine appropriate analysis techniques for each radionuclide and ensure Measurement Quality Objectives (MQOs) are satisfied. One should be confident that the measurement results are valid and appropriate for the decisions being made.

2.9.1 Measurement Quality Objectives:

- Detection Capability: Minimum Detection Concentration should be below the MARSSIM-defined Lower-Bound of the Gray Region.
- The degree of measurement uncertainty (combined precision and bias) should be reported and the level should be reasonable relative to the needed accuracy of the decision and accounted for in the statistical analysis.
- Range of the instrument and measurement technique should be appropriate for the concentrations expected.
- The instrument and measurement technique should be specific for the radionuclide(s) being measured. Specificity is the ability of the measurement method to measure the radionuclide of concern in the presence of interferences.
- For field instruments, the instrument should be rugged enough to consistently provide reliable measurements. However, in this case, all samples will be analyzed in the laboratory.

2.9.2 Procedures used to meet these Measurement Quality Objectives:

1) Collection of valid soil sample appropriate for the dose assessment,
    a. Soil sampling will follow the LANL (2012b) procedure SOP-5132 **"Collection of soil and vegetation samples for the environmental surveillance program."** These are surface soil samples appropriate for the deposition pathway and the exposure scenario (i.e., top 5 cm). Subsurface soil samples are not required as depositions would be to surfaces with little migration to deeper soil expected.
    b. Additional quality assurance for the collection of the samples is provided through LANL (2008) procedure QAPP-0001 **"Quality and assurance project plan for the soils, foodstuffs, and non-foodstuff biota monitoring project."**
2) Soil sample analysis will use EPA-approved analytical procedures for each radionuclide. The following will be used by the independent laboratory:
    a. Environmental Measurements Laboratory (EML). **The procedures manual of the Environmental Measurements Laboratory**. Report HASL-300; 1997. Radionuclide specific procedures for the radionuclides of Am-241, Pu-239 and U-238 are provided in EML (EML 1997).
    b. Environmental Protection Agency (EPA). **Method 901.1 - Gamma Emitting Radionuclides in Drinking Water***: Prescribed Procedures for Measurement of Radioactivity in Drinking Water*, EPA 600/4-80-032, prepared by EPA's

Environmental Monitoring and Support Laboratory, August 1980 (EPA 1980). Available from NTIS, document no. PB 80-224744.

c. Environmental Protection Agency (EPA). **Method 905.0 - Radioactive Strontium in Drinking Water***: Prescribed Procedures for Measurement of Radioactivity in Drinking Water*, EPA 600/4-80-032, prepared by EPA's Environmental Monitoring and Support Laboratory, August 1980 (EPA 1980). Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, document no. PB 80-224744.

d. Environmental Protection Agency (EPA). **Method 906.0 - Tritium in Drinking Water***: Prescribed Procedures for Measurement of Radioactivity in Drinking Water*, EPA 600/4-80-032, prepared by EPA's Environmental Monitoring and Support Laboratory, August 1980 (EPA 1980). Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, document no. PB 80-224744.

After the measurements are completed, the laboratory results in units equivalent to the ALs will be evaluated with respect to the MQOs, as stated above.

2.10 Statistical Evaluation of the Survey Results

All the applicable data that has passed the MQO evaluation will be used to determine the upper-bound estimate of the mean for soil concentrations (generally, the 95% value) for each radionuclide. The EPA software ProUCL (EPA 2013) will be used to determine this value. The statistical decision as to whether the residual soil contamination levels (i.e., the 95% UCLs) are below the authorized limits will be evaluated using the following criteria. All analyses and results will be documented.

Decision Criteria:

1) When evaluating individual sample results, if all samples are ≤ the recreational AL, then no further action is required and the site passes the criteria for the specific use. No further actions are needed.
2) If all individual samples or the UCL are > the recreational AL, then the site is not a candidate for release and site remediation is needed, followed by resampling before it can be released.
3) If the UCL is below the AL but some individual measurements are above the AL, then statistical analysis is needed. Generally, non-parametric statistical approaches are used to evaluate the null hypothesis. If contamination is present in background, the Wilcoxon Rank Sum test is suggested, and if contamination is not present in background or very low relative to the AL, the Sign Test is suggested. For this tract, the Sign Test will be used with a $p < 0.05$ decision threshold for significance. See MARSSIM Chapter 8 for details and examples (2000).
4) Alternatively, one could confirm that the ratio of the upper-confidence limit (UCL) of the average concentration divided by the AL and the sum of hot spot activity ratios do not exceed unity:

$$\frac{\overline{C}_{UCL}}{C_{AL}} + \sum_{i=1}^{n} \frac{C_{i,C>AL}}{C_{AL} * AF} \leq 1$$

Here $\overline{C}_{UCL}$ is the 95% upper bound estimate of the concentration mean, C_{AL} is the recreational AL (15 mrem/yr (150 µSv/y)), $C_{i,c>AL}$ is the sample concentration for a single sample above the AL (i.e., has elevated measured concentrations), and *AF* is the Area Factor [ratio of effective dose calculated for area of contamination normalized to effective dose calculated for 10,000 m^2 (RESRAD default)]. If the result of this calculation is > 1, the site is a candidate for further characterization of the nature and extent of the contamination, remediation of the site, follow up confirmatory sampling, and reanalysis against the decision criteria in this section. Area Factors are dependent on the exposure scenario and should be calculated individually.

5) If there are multiple radionuclides (*i*) being evaluated in a sampling unit, the sum of the ratios should be less than or equal to 1.
6) The dose assessment based on the soil measurements will include the sum of doses from all radionuclides, and this sum will be compared to the 3 mrem/yr (30 µSv/yr) threshold for follow-up ALARA analysis.

3.0 Results of the Analysis for Sampling Number and Locations

The specific details of the analysis (specific statistical parameter values, analysis, results, and approximate coordinates for the randomly selected sampling locations using MARSSIM) are provided in Attachment 2 of this report. Results showed that 11 randomly-sited samples are needed within the Class 3 decision area of tract A-16-B. The approximate locations are indicated in Figure 4, and coordinates are provided in the Attachment. Locations were selected using a quasi-random number generator for x and y coordinates (Matzke et al. 2010).

4.0 References

DOE 2008. Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, US Department of Energy, DOE/EIS-0380, May 2008.

DOE (Department of Energy), 2013. Order 458.1 Radiation Protection of the Public and the Environment. Administrative Change 3. 2013 January 15.

EPA (Environmental Protection Agency), 1980. EPA 901.1 Gamma emitting radionuclides in drinking water EPA 600/4-80-032 PB 80-224744 National Technical Information Service (NTIS).

EPA (Environmental Protection Agency), 1980. EPA 905.0 Prescribed procedures for measurement of radioactivity in drinking water EPA 600/4-80-032 PB 80-224744 National Technical Information Service (NTIS).

EPA (Environmental Protection Agency), 1980. EPA 906. Tritium Analysis by Liquid Scintillation Counting (EPA Method 906.0) EPA 600/4-80-032 PB 80-224744 National Technical Information Service (NTIS).

EPA (Environmental Protection Agency), 2013. ProUCL Version 5.0 Available from: http://www.epa.gov/osp/hstl/tsc/software.htm

INTELLUS 2015. Web address for database access: < http://www.intellusnmdata.com/>

LANL (Los Alamos National Laboratory), 2004, "Los Alamos and Pueblo Canyons Investigation Report." LA-UR-04-2714, ER2004-0027.

LANL (Los Alamos National Laboratory), 2008. Procedure: QAPP-0001 "Quality and assurance project plan for the soils, foodstuffs, and non-foodstuff biota monitoring project."

LANL (Los Alamos National Laboratory), 2012a. Procedure: EDA-QP-238 "Dose assessment data quality objectives for land transfers into the public domain."

LANL (Los Alamos National Laboratory), 2012b. Procedure: SOP-5132 "Collection of soil and vegetation samples for the environmental surveillance program."

LANL (Los Alamos National Laboratory), 2014, "Derivation and Use of Radionuclide Screening Action Levels, Revision 3." (LA-UR-012-23292, EP2012-0158)

LANL (Los Alamos National Laboratory), 2014, "Dose Assessment of LANL-Derived Residual Radionuclides in Soils within Tract A-5-3 for Land Transfer Decisions" (LA-UR-14-26915)

MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual), 2000. NUREG-1575, EPA 402-R-97 Rev.1, DOE/EH-0624, Rev.1

Matzke, B.D., Nuffer, L.L., Hathaway, J.E., Sego, L.H., Pulsipher, B.A., McKenna, S., Wilson, J.E., Dowson, S.T., Hassig, N.L., Murray, C.J., Roberts, B. 2010. Visual Sampling Plan Version 6.0 user's guide. Pacific Northwest National Laboratory report PNNL-19915.

RESRAD, 2001. User's manual for RESRAD Version 6.0. Argonne National Report ANL/EAD-4.

Ryti, R. T., Longmire, P. A., Broxton, D. E., Reneau, S. L., & McDonald, E. V. (1998). Inorganic and radionuclide background data for soils, canyon sediments, and Bandelier tuff at Los Alamos National Laboratory. Los Alamos, NM: Los Alamos National Laboratory Environmental Restoration Project.

Attachment 1 – Preliminary Data

Am-241

Location ID	Date	Am-241 [pCi/g]
21-01051	6/17/1992	0.084
21-01059	6/17/1992	0.031
21-01065	6/16/1992	0.046
21-01071	6/16/1992	0.019
21-01576	7/20/1993	0.011
21-01577	7/20/1993	0.022
21-01577	7/20/1993	0.015
21-01578	7/20/1993	0.023
21-05496	10/23/1997	0.038
21-10942	11/17/1998	-0.18
21-10942	11/17/1998	0.4
21-11434	1/18/2002	0.04
21-11435	1/18/2002	0.021
21-11435	1/18/2002	0.04
21-11436	1/18/2002	0.02
21-11437	1/18/2002	0.024
21-11437	1/18/2002	0.06
21-11438	1/18/2002	0.105
21-11438	1/18/2002	-0.005
21-11439	1/18/2002	0.043
21-11439	1/18/2002	0.032
21-01076	6/16/1992	0.076
21-01432	7/22/1992	0.677
21-01432	7/22/1992	0.62
21-01432	7/22/1992	0.699
21-01432	7/22/1992	0.598
21-01432	7/22/1992	0.2
21-01432	7/22/1992	0.163
21-01432	7/22/1992	0.2
21-01432	7/22/1992	0.0782
21-11296	11/29/2001	0.059
21-11297	11/29/2001	0.103
21-11298	11/29/2001	0.0806
21-11298	11/29/2001	0.127
21-11429	1/16/2002	0.027
21-11430	1/16/2002	0.038
21-11431	1/16/2002	0.023
21-11432	1/16/2002	0.027
21-11433	1/18/2002	0.032

Cs-137

Location ID	Date	Cs-137 [pCi/g]
21-01576	7/20/1993	0.13
21-01576	7/20/1993	0.77
21-01577	7/20/1993	1.12
21-01577	7/20/1993	1.11
21-01577	7/20/1993	0
21-01577	7/20/1993	0
21-01578	7/20/1993	0
21-01578	7/20/1993	1.37
21-05496	10/23/1997	0.114
21-10942	11/17/1998	0.159
21-10942	11/17/1998	0.101

Pu-239/240

Location ID	Date	Pu-239/240 [pCi/g]
21-01076	6/16/1992	1.382
21-01432	7/22/1992	13.9
21-01432	7/22/1992	11.8
21-01432	7/22/1992	0.571
21-01432	7/22/1992	0.153
21-03-21704	1/17/2003	2.43
21-11296	11/29/2001	0.613
21-11297	11/29/2001	0.897
21-11298	11/29/2001	0.591
21-11298	11/29/2001	0.992
21-11429	1/16/2002	0.086
21-11430	1/16/2002	0.23
21-11431	1/16/2002	0.011
21-11432	1/16/2002	0.025
21-11433	1/18/2002	0.237
21-01051	6/17/1992	1.285
21-01059	6/17/1992	0.387
21-01059	6/17/1992	0.109
21-01065	6/16/1992	0.976
21-01071	6/16/1992	0.403
21-01071	6/16/1992	0.227
21-01576	7/20/1993	0.089
21-01577	7/20/1993	0.125
21-01577	7/20/1993	0.089
21-01578	7/20/1993	0.227
21-05496	10/23/1997	0.039
21-10942	11/17/1998	0.075
21-10942	11/17/1998	0.061
21-11434	1/18/2002	0.169
21-11435	1/18/2002	0.034
21-11435	1/18/2002	0.043
21-11436	1/18/2002	0.049
21-11437	1/18/2002	0.07
21-11437	1/18/2002	0.43
21-11438	1/18/2002	0.134
21-11438	1/18/2002	0.03
21-11439	1/18/2002	0.43
21-11439	1/18/2002	0.059
21-11439	1/20/2003	0.193
21-11439	1/20/2003	0.407

Sr-90

Location ID	Date	Sr-90 [pCi/g]
21-01051	6/17/1992	0.5
21-01059	6/17/1992	0.1
21-01059	6/17/1992	0.1
21-01065	6/16/1992	0.4
21-01071	6/16/1992	0.3
21-01071	6/16/1992	0.1
21-01576	7/20/1993	0.06
21-01577	7/20/1993	0.56
21-01577	7/20/1993	0.39
21-01578	7/20/1993	0.1
21-05496	10/23/1997	-0.15
21-10942	11/17/1998	0.05
21-10942	11/17/1998	0.22
21-01432	7/22/1992	0.669
21-01432	7/22/1992	0.356
21-01432	7/22/1992	0.681
21-01432	7/22/1992	0.27

Attachment 2 – Visual Sample Plan (VSP) Output for Tract A-16-B

Random sampling locations for comparing a median with a fixed threshold (nonparametric - MARSSIM)

Summary

This report summarizes the sampling design used, associated statistical assumptions, as well as general guidelines for conducting post-sampling data analysis. Sampling plan components presented here include how many sampling locations to choose and where within the sampling area to collect those samples. The type of medium to sample (i.e., soil, groundwater, etc.) and how to analyze the samples (in-situ, fixed laboratory, etc.) are addressed in other sections of the sampling plan.

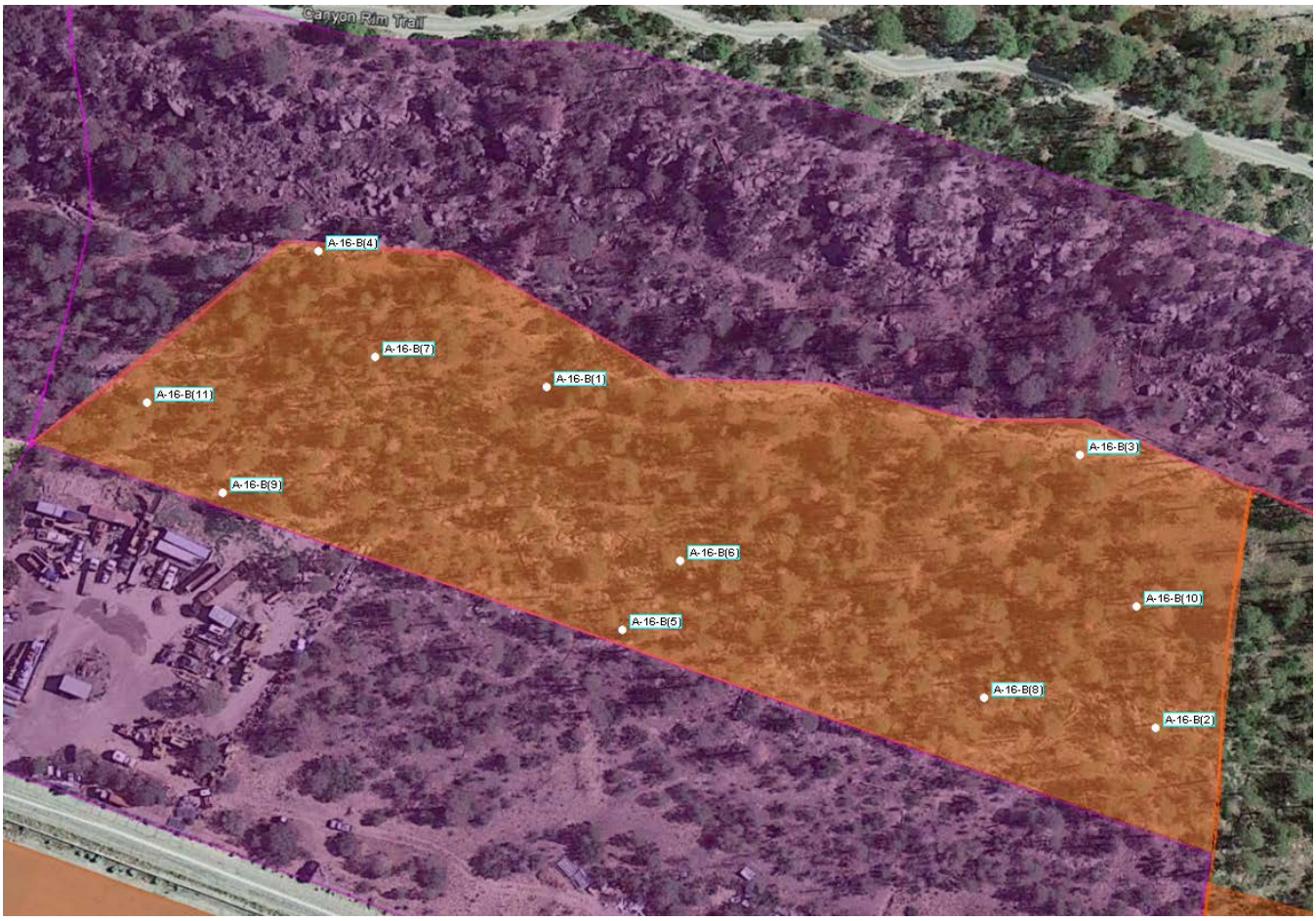
The following table summarizes the sampling design developed. A figure that shows sampling locations in the field and a table that lists sampling location coordinates are also provided below.

SUMMARY OF SAMPLING DESIGN	
Primary Objective of Design	Compare a site mean or median to a fixed threshold
Type of Sampling Design	Nonparametric
Sample Placement (Location) in the Field	Simple random sampling
Working (Null) Hypothesis	The median(mean) value at the site exceeds the threshold
Formula for calculating number of sampling locations	Sign Test – MARSSIM version
Calculated total number of samples	11
Number of samples on map[a]	11
Number of selected sample areas [b]	1
Specified sampling area [c]	24,628 m^2

[a] This number may differ from the calculated number because of 1) grid edge effects, 2) adding judgment samples, or 3) selecting or unselecting sample areas.

[b] The number of selected sample areas is the number of colored areas on the map of the site. These sample areas contain the locations where samples are collected.

[c] The sampling area is the total surface area of the selected colored sample areas on the map of the site.



Tract A-16-B Class 3 Recreation (Simple Random Sampling – UTM Coordinates)		
	X Coordinate (m)	Y Coordinate (m)
A-16-B (1)	384288.5250	3971379.0218
A-16-B (2)	384445.0306	3971291.5973
A-16-B (3)	384425.4674	3971361.5369
A-16-B (4)	384229.8354	3971413.9915
A-16-B (5)	384308.0882	3971316.8533
A-16-B (6)	384322.7606	3971334.3382
A-16-B (7)	384244.5078	3971386.7928
A-16-B (8)	384401.0134	3971299.3684
A-16-B (9)	384205.3814	3971351.8231
A-16-B (10)	384440.1398	3971322.6816
A-16-B (11)	384185.8182	3971375.1362

Note: due to potential image distortion in VSP, some of the coordinates listed in the table may not accurately reflect the point shown in the image. Additionally, some of the locations may not be readily accessible. Samples may be field located or moved based on accessibility; accurate GPS locations should be recorded with the sample data.

Primary Sampling Objective
The primary purpose of sampling at this site is to compare a site median or mean value with a fixed threshold. The working hypothesis (or 'null' hypothesis) is that the median (mean) value at the site is equal to or exceeds the threshold. The alternative hypothesis is that the median (mean) value is less than the threshold. VSP calculates the number of samples required to reject the null hypothesis in favor of the alternative one, given a selected sampling approach and inputs to the associated equation.

Selected Sampling Approach
A nonparametric random sampling approach was used to determine the number of samples and to specify sampling locations. A nonparametric formula was chosen because the conceptual model and historical information (e.g., historical data from this site or a very similar site) indicate that typical parametric assumptions may not be true.

Both parametric and non-parametric equations rely on assumptions about the population. Typically, however, non-parametric equations require fewer assumptions and allow for more uncertainty about the statistical distribution of values at the site. The trade-off is that if the parametric assumptions are valid, the required number of samples is usually less than if a non-parametric equation was used.

Locating the sample points randomly provides data that are separated by many distances, whereas systematic samples are all equidistant apart. Therefore, random sampling provides more information about the spatial structure of the potential contamination than systematic sampling does. As with systematic sampling, random sampling also provides information regarding the mean value, but there is the possibility that areas of the site will not be represented with the same frequency as if uniform grid sampling were performed.

Number of Total Samples: Calculation Equation and Inputs
The equation used to calculate the number of samples is based on a Sign test (see PNNL 13450 for discussion). For this site, the null hypothesis is rejected in favor of the alternative one if the median (mean) is sufficiently smaller than the threshold. The number of samples to collect is calculated so that if the inputs to the equation are true, the calculated number of samples will cause the null hypothesis to be rejected.

The formula used to calculate the number of samples is:

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(SignP - 0.5)^2} \qquad \text{where} \qquad SignP = \Phi\left(\frac{\Delta}{s_{total}}\right)$$

$\Phi(z)$ is the cumulative standard normal distribution on $(-\infty,z)$ (see PNNL-13450 for details),
n is the number of samples,
S_{total} is the estimated standard deviation of the measured values including analytical error,
Δ is the width of the gray region,
α is the acceptable probability of incorrectly concluding the site median(mean) is less than the threshold,
β is the acceptable probability of incorrectly concluding the site median(mean) exceeds the

threshold,

$Z_{1-\alpha}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\alpha}$ is $1-\alpha$,

$Z_{1-\beta}$ is the value of the standard normal distribution such that the proportion of the distribution less than $Z_{1-\beta}$ is $1-\beta$.

Note: MARSSIM suggests that the number of samples should be increased by at least 20% to account for missing or unusable data and uncertainty in the calculated value of n. VSP allows a user-supplied percent overage as discussed in MARSSIM.

The values of these inputs that result in the calculated number of sampling locations are:

Analyte	n[a]	Parameter					
		S	Δ	α	β	$Z_{1-\alpha}$ [b]	$Z_{1-\beta}$ [c]
Am-241	11	0.2 pCi/g	889.96 pCi/g	0.05	0.1	1.64485	1.28155
Cs-137	11	0.53 pCi/g	209.87 pCi/g	0.05	0.1	1.64485	1.28155
Pu-239	11	2.8 pCi/g	769.79 pCi/g	0.05	0.1	1.64485	1.28155
Sr-90	11	0.24 pCi/g	3199.73 pCi/g	0.05	0.1	1.64485	1.28155

[a] The final number of samples has been increased by the MARSSIM Overage of 20%.

[b] This value is automatically calculated by VSP based upon the user defined value of α.

[c] This value is automatically calculated by VSP based upon the user defined value of β.

Statistical Assumptions

The assumptions associated with the formulas for computing the number of samples are:

1. the computed sign test statistic is normally distributed,
2. the variance estimate, S^2, is reasonable and representative of the population being sampled,
3. the population values are not spatially or temporally correlated, and
4. the sampling locations will be selected randomly or systematically with a randomized start.

The first three assumptions will be assessed in a post data collection analysis. The last assumption is valid because the sample locations were selected using a random process.

Sensitivity Analysis

The sensitivity of the calculation of number of samples was explored by varying the standard deviation, lower bound of gray region (% of action level), beta (%), probability of mistakenly concluding that μ > action level and alpha (%), probability of mistakenly concluding that μ < action level. The following table shows the results of this analysis.

Number of Samples							
AL=3200		α=5		α=10		α=15	
		s=0.48	s=0.24	s=0.48	s=0.24	s=0.48	s=0.24
LBGR=90	β=5	14	14	11	11	10	10
	β=10	11	11	9	9	8	8
	β=15	10	10	8	8	6	6
LBGR=80	β=5	14	14	11	11	10	10

	β=10	11	11	9	9	8	8
	β=15	10	10	8	8	6	6
LBGR=70	β=5	14	14	11	11	10	10
	β=10	11	11	9	9	8	8
	β=15	10	10	8	8	6	6

s = Standard Deviation
LBGR = Lower Bound of Gray Region (% of Action Level)
β = Beta (%), Probability of mistakenly concluding that μ > action level
α = Alpha (%), Probability of mistakenly concluding that μ < action level
AL = Action Level (Threshold)

Recommended Data Analysis Activities
Post data collection activities generally follow those outlined in EPA's Guidance for Data Quality Assessment. The data analysts will become familiar with the context of the problem and goals for data collection and assessment. The data will be verified and validated before being subjected to statistical or other analyses. Graphical and analytical tools will be used to verify to the extent possible the assumptions of any statistical analyses that are performed as well as to achieve a general understanding of the data. The data will be assessed to determine whether they are adequate in both quality and quantity to support the primary objective of sampling.

Because the primary objective for sampling for this site is to compare the site median(mean) value with a threshold value, the data will be assessed in this context. Assuming the data are adequate, at least one statistical test will be done to perform a comparison between the data and the threshold of interest. Results of the exploratory and quantitative assessments of the data will be reported, along with conclusions that may be supported by them.

Appendix B

Field Documents for A-16-B Land Transfer Soil Sampling

CONTENTS

Sample Location Maps

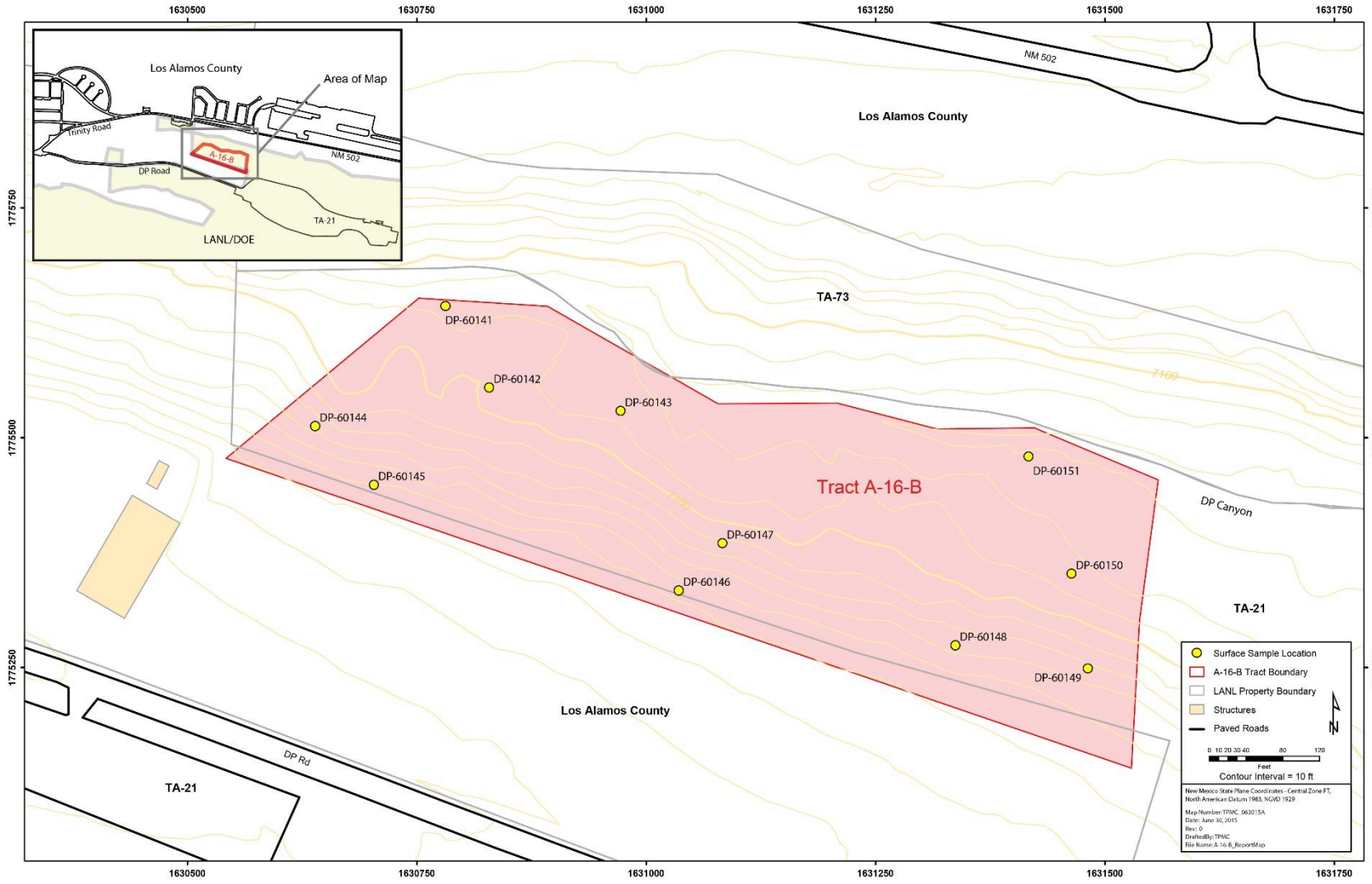


Figure 1 **Tract A-16-B sample locations**

Samples Collected and Analyses Requested Table

Summary of Samples Collected and Analyses Requested from Tracts A-16-B and A-16-A Parking Lot

Location ID[a]	Sample ID	Sample Usage	Depth (ft bgs)	Media	Sample Date	Easting (ft)[b]	Northing (ft)[b]	Field Location	Comments
Tract A-16-A Parking Lot									
DP-60152	CADP-15-101791	INV	0–0.5	Fill[c]	6/23/2015	1629629.737	1775265.508	A-16-A (21-254)	Sampled at original tract A-16-A field location B-7, which is located in parking lot north (outside) of MDA-B fence line.
DP-60153	CADP-15-101792	INV	0–0.5	Fill[c]	6/23/2015	1630100.9	1775270.178	A-16-A (21-208)	Sampled at original tract A-16-A field location C-9, which is located in parking lot north (outside) of MDA-B fence line.
DP-60153	CADP-15-101795	FD	0–0.5	Fill[c]	6/23/2015	1630100.9	1775270.178	A-16-A (21-208)	Field Duplicate of CADP-15-101792
Tract A-16-B									
DP-60141	CADP-15-101780	INV	0–0.5	Soil	6/23/2015	1630781.529	1775642.989	A-16-B (4)	—[d]
DP-60142	CADP-15-101781	INV	0–0.5	Soil	6/23/2015	1630829.227	1775554.407	A-16-B (7)	—
DP-60143	CADP-15-101782	INV	0–0.5	Soil	6/23/2015	1630972.322	1775529.098	A-16-B (1)	—
DP-60144	CADP-15-101783	INV	0–0.5	Soil	6/23/2015	1630639.408	1775512.549	A-16-B (11)	Bedrock (tuff) contact at 0.5 ft bgs.
DP-60145	CADP-15-101784	INV	0–0.5	Soil	6/23/2015	1630703.655	1775448.622	A-16-B (9)	Moved 12 ft north to stay inside fence (tract boundary). Bedrock (tuff) contact at 0.5 ft bgs.
DP-60146	CADP-15-101785	INV	0–0.5	Soil	6/23/2015	1631035.595	1775333.651	A-16-B (5)	Moved 8 ft north to stay inside fence (tract boundary).
DP-60147	CADP-15-101786	INV	0–0.5	Soil	6/23/2015	1631083.293	1775385.03	A-16-B (6)	—
DP-60148	CADP-15-101787	INV	0–0.5	Soil	6/23/2015	1631337.358	1775274.059	A-16-B (8)	—
DP-60149	CADP-15-101788	INV	0–0.5	Soil	6/23/2015	1631481.426	1775248.75	A-16-B (2)	—
DP-60150	CADP-15-101789	INV	0–0.5	Soil	6/23/2015	1631463.905	1775351.933	A-16-B (10)	—
DP-60151	CADP-15-101790	INV	0–0.5	Soil	6/23/2015	1631417.18	1775479.453	A-16-B (3)	—
DP-60146	CADP-15-101793	FD	0–0.5	Soil	6/23/2015	1631035.595	1775333.651	A-16-B (5)	Field Duplicate of CADP-15-101785
DP-60151	CADP-15-101794	FD	0–0.5	Soil	6/23/2015	1631417.18	1775479.453	A-16-B (3)	Field Duplicate of CADP-15-101790

[a] Note: All samples analyzed for Americium-241, Isotopic Plutonium, Isotopic Uranium, Gamma Spectroscopy, Strontium-90, and Tritium.
[b] SPCS New Mexico Central Zone, Feet, NAD83
[c] Sieved base-coarse
[d] — No comment

Appendix C

SAMPLING PLAN NAME	FIELD SAMPLE ID	SAMPLE NUMBER	ANALYTICAL METHOD	PARAMETER CODE	REPORT RESULT	REPORT UNITS	REPORT UNCERTAINTY	REPORT MDA	VALIDATION QUALIFIER	VALIDATION REASON CODES	LAB QUALIFIER	DETECT FLAG	LAB ID	DISPLAY ANALYSIS DATE	DISPLAY SAMPLE DATE	LOCATION ID	NORTHING	EASTING
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Am-241	-0.001	pCi/g	0.048	0.153	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	HASL-300:AM-241	Am-241	0.044	pCi/g	0.069	0.245	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Bi-211	3.036	pCi/g	0.234	0.43	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Bi-214	0.943	pCi/g	0.094	0.137	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Cd-109	-0.233	pCi/g	0.402	1.32	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Ce-139	-0.021	pCi/g	0.018	0.057	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Co-60	-0.005	pCi/g	0.029	0.08	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Cs-134	0.022	pCi/g	0.02	0.067	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Cs-137	0.212	pCi/g	0.038	0.064	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Eu-152	0.262	pCi/g	0.087	0.152	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:906.0	H-3	-0.07	pCi/g	0.307	1.034	U	R5	U	N	ARSL	07/13/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Hg-203	0	pCi/g	0.017	0.058	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	K-40	23.368	pCi/g	1.156	0.853	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Na-22	0	pCi/g	0.022	0.079	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Pb-212	1.265	pCi/g	0.073	0.099	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Pb-214	1.036	pCi/g	0.085	0.132	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	HASL-300:ISOPU	Pu-238	0.004	pCi/g	0.005	0.019	U	R5	U	N	ARSL	07/09/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	HASL-300:ISOPU	Pu-239/240	0.13	pCi/g	0.019	0.015	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Ra-223	0.361	pCi/g	0.113	0.343	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Ra-224	1.658	pCi/g	0.522	1.61	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Ra-226	1.928	pCi/g	0.65	1.53	NQ	R33,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Ra-228	1.111	pCi/g	0.095	0.172	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Ru-106	0.001	pCi/g	0.127	0.462	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Sn-113	-0.022	pCi/g	0.026	0.085	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Sr-85	-0.042	pCi/g	0.028	0.089	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:905.0	Sr-90	0.028	pCi/g	0.099	0.171	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Th-227	0.434	pCi/g	0.099	1.23	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Th-231	0.502	pCi/g	0.155	0.478	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Tl-208	0.366	pCi/g	0.037	0.055	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	HASL-300:ISOU	U-234	1.088	pCi/g	0.084	0.059	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	U-235	0.143	pCi/g	0.031	0.093	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	HASL-300:ISOU	U-235/236	0.043	pCi/g	0.015	0.042	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	HASL-300:ISOU	U-238	1.121	pCi/g	0.085	0.052	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101780	A-16-B (4)	EPA:901.1	Y-88	0	pCi/g	0.017	0.064	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60141	1775642.989	1630781.529
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Am-241	0.044	pCi/g	0.045	0.148	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	HASL-300:AM-241	Am-241	0.096	pCi/g	0.048	0.144	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Bi-211	3.358	pCi/g	0.243	0.447	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Bi-214	0.946	pCi/g	0.08	0.127	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Cd-109	3.205	pCi/g	0.437	1.2	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Ce-139	0.002	pCi/g	0.016	0.053	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Co-60	-0.006	pCi/g	0.023	0.08	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Cs-134	-0.009	pCi/g	0.021	0.071	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Cs-137	0.427	pCi/g	0.042	0.062	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Eu-152	0.313	pCi/g	0.058	0.14	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:906.0	H-3	0.421	pCi/g	0.278	0.914	U	R5	U	N	ARSL	07/14/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Hg-203	0.002	pCi/g	0.02	0.069	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	K-40	20.149	pCi/g	1.048	0.565	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Na-22	0.015	pCi/g	0.022	0.074	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Pb-212	1.451	pCi/g	0.076	0.099	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Pb-214	1.175	pCi/g	0.089	0.137	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	HASL-300:ISOPU	Pu-238	0.011	pCi/g	0.005	0.006	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	HASL-300:ISOPU	Pu-239/240	0.392	pCi/g	0.038	0.006	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Ra-223	0.28	pCi/g	0.116	0.366	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Ra-224	1.757	pCi/g	0.52	1.6	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Ra-226	2.95	pCi/g	0.651	1.55	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Ra-228	1.353	pCi/g	0.106	0.2	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Ru-106	-0.149	pCi/g	0.199	0.664	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Sn-113	0	pCi/g	0.03	0.101	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Sr-85	-0.098	pCi/g	0.078	0.11	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:905.0	Sr-90	0.168	pCi/g	0.123	0.187	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Th-227	0.058	pCi/g	0.424	1.39	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Th-231	0.368	pCi/g	0.188	0.605	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Tl-208	0.474	pCi/g	0.046	0.074	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	HASL-300:ISOU	U-234	1.255	pCi/g	0.091	0.032	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	U-235	0.193	pCi/g	0.033	0.093	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	HASL-300:ISOU	U-235/236	0.058	pCi/g	0.013	0.025	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	HASL-300:ISOU	U-238	1.289	pCi/g	0.093	0.035	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101781	A-16-B (7)	EPA:901.1	Y-88	-0.008	pCi/g	0.02	0.071	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60142	1775554.407	1630829.227
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Am-241	0.031	pCi/g	0.052	0.169	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	HASL-300:AM-241	Am-241	0.069	pCi/g	0.035	0.109	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Bi-211	3.413	pCi/g	0.253	0.475	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Bi-214	1.264	pCi/g	0.102	0.15	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Cd-109	0.076	pCi/g	0.458	1.52	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Ce-139	-0.018	pCi/g	0.02	0.061	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Co-60	-0.003	pCi/g	0.024	0.084	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Cs-134	0.033	pCi/g	0.026	0.086	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Cs-137	0.414	pCi/g	0.043	0.067	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Eu-152	0.511	pCi/g	0.095	0.151	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:906.0	H-3	1.045	pCi/g	0.301	0.952	NQ	NQ		Y	ARSL	07/14/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Hg-203	-0.008	pCi/g	0.026	0.08	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	K-40	19.75	pCi/g	1.019	0.535	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Na-22	-0.009	pCi/g	0.024	0.084	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Pb-212	1.56	pCi/g	0.094	0.123	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Pb-214	1.23	pCi/g	0.093	0.169	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	HASL-300:ISOPU	Pu-238	0.004	pCi/g	0.004	0.014	U	R5	U	N	ARSL	07/09/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	HASL-300:ISOPU	Pu-239/240	0.223	pCi/g	0.025	0.02	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Ra-223	0.373	pCi/g	0.138	0.431	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Ra-224	-4.28	pCi/g	1.012	3.11	U	R5,R33	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Ra-226	0	pCi/g	0.01	1.95	U	R5,R33	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Ra-228	1.381	pCi/g	0.106	0.22	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Ru-106	0.016	pCi/g	0.152	0.532	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Sn-113	-0.036	pCi/g	0.038	0.102	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Sr-85	-0.092	pCi/g	0.055	0.119	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:905.0	Sr-90	0.208	pCi/g	0.114	0.163	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Th-227	0.503	pCi/g	0.188	0.356	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Th-231	0.362	pCi/g	0.171	0.552	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Tl-208	0.409	pCi/g	0.038	0.068	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	HASL-300:ISOU	U-234	1.338	pCi/g	0.097	0.034	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	U-235	0.319	pCi/g	0.124	0.325	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	HASL-300:ISOU	U-235/236	0.069	pCi/g	0.015	0.032	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	HASL-300:ISOU	U-238	1.322	pCi/g	0.097	0.071	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101782	A-16-B (1)	EPA:901.1	Y-88	0	pCi/g	0.026	0.093	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60143	1775529.098	1630972.322
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Am-241	-0.071	pCi/g	0.297	0.219	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	HASL-300:AM-241	Am-241	-0.038	pCi/g	0.049	0.209	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Bi-211	3.82	pCi/g	0.247	0.382	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Bi-214	0.995	pCi/g	0.09	0.143	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Cd-109	-0.2	pCi/g	0.437	1.44	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Ce-139	0	pCi/g	0.019	0.063	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Co-60	-0.001	pCi/g	1.064	0.082	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Cs-134	0.088	pCi/g	0.025	0.073	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Cs-137	0.496	pCi/g	0.044	0.065	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Eu-152	0.634	pCi/g	0.089	0.143	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:906.0	H-3	0.949	pCi/g	0.301	0.959	U	R5	U	N	ARSL	07/14/2015	06/23/2015	DP-60144	1775512.549	1630639.408

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Hg-203	-0.013	pCi/g	0.02	0.067	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	K-40	27.873	pCi/g	1.286	0.942	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Na-22	-0.007	pCi/g	0.025	0.088	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Pb-212	1.626	pCi/g	0.086	0.116	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Pb-214	1.301	pCi/g	0.092	0.135	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	HASL-300:ISOPU	Pu-238	0.004	pCi/g	0.004	0.015	U	R5	U	N	ARSL	07/09/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	HASL-300:ISOPU	Pu-239/240	0.732	pCi/g	0.06	0.022	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Ra-223	0.009	pCi/g	0.139	0.465	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Ra-224	2.099	pCi/g	0.594	1.84	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Ra-226	4.481	pCi/g	0.655	1.52	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Ra-228	1.618	pCi/g	0.115	0.126	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Ru-106	-0.036	pCi/g	0.742	0.735	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Sn-113	-0.014	pCi/g	0.027	0.091	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Sr-85	-0.053	pCi/g	0.03	0.097	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:905.0	Sr-90	0.221	pCi/g	0.125	0.18	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Th-227	-0.008	pCi/g	0.564	1.34	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Th-231	0.655	pCi/g	0.172	0.524	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Tl-208	0.477	pCi/g	0.039	0.056	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	HASL-300:ISOU	U-234	1.731	pCi/g	0.12	0.027	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	U-235	0.282	pCi/g	0.035	0.091	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	HASL-300:ISOU	U-235/236	0.055	pCi/g	0.014	0.033	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	HASL-300:ISOU	U-238	1.535	pCi/g	0.108	0.02	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101783	A-16-B (11)	EPA:901.1	Y-88	-0.001	pCi/g	0.017	0.084	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60144	1775512.549	1630639.408
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Am-241	0.216	pCi/g	0.061	0.151	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	HASL-300:AM-241	Am-241	0.276	pCi/g	0.067	0.168	NQ	NQ		Y	ARSL	07/11/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Bi-211	3.201	pCi/g	0.237	0.439	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Bi-214	1.258	pCi/g	0.09	0.125	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Cd-109	-0.3	pCi/g	0.505	1.36	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Ce-139	-0.011	pCi/g	0.019	0.063	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Co-60	0.013	pCi/g	0.024	0.081	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Cs-134	0.11	pCi/g	0.025	0.065	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Cs-137	0.785	pCi/g	0.055	0.066	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Eu-152	0.533	pCi/g	0.072	0.127	R	R5a	UI	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:906.0	H-3	2.048	pCi/g	0.34	1	NQ	NQ		Y	ARSL	07/14/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Hg-203	0.028	pCi/g	0.017	0.054	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	K-40	26.092	pCi/g	1.277	0.687	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Na-22	0.033	pCi/g	0.022	0.073	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Pb-212	1.484	pCi/g	0.087	0.13	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Pb-214	1.073	pCi/g	0.084	0.143	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	HASL-300:ISOPU	Pu-238	0.011	pCi/g	0.006	0.016	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	HASL-300:ISOPU	Pu-239/240	2.782	pCi/g	0.188	0.023	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Ra-223	0.433	pCi/g	0.138	0.424	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Ra-224	-5.02	pCi/g	1.015	3.11	U	R5,R33	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Ra-226	3.745	pCi/g	0.588	1.42	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Ra-228	1.572	pCi/g	0.119	0.22	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Ru-106	0	pCi/g	0.209	0.722	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Sn-113	0.002	pCi/g	0.025	0.087	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Sr-85	-0.085	pCi/g	0.088	0.107	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:905.0	Sr-90	0.079	pCi/g	0.126	0.21	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Th-227	0.34	pCi/g	0.137	1.46	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Th-231	0.494	pCi/g	0.182	0.574	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Tl-208	0.537	pCi/g	0.046	0.073	NQ	NQ,R33		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	HASL-300:ISOU	U-234	1.673	pCi/g	0.116	0.033	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	U-235	0.224	pCi/g	0.035	0.097	NQ	NQ		Y	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	HASL-300:ISOU	U-235/236	0.071	pCi/g	0.014	0.029	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	HASL-300:ISOU	U-238	1.818	pCi/g	0.125	0.034	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101784	A-16-B (9)	EPA:901.1	Y-88	0.006	pCi/g	0.019	0.07	U	R5	U	N	ARSL	06/26/2015	06/23/2015	DP-60145	1775448.622	1630703.655
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Am-241	0.114	pCi/g	0.06	0.193	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	HASL-300:AM-241	Am-241	0.093	pCi/g	0.036	0.1	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Bi-211	3.963	pCi/g	0.293	0.57	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Bi-214	1.249	pCi/g	0.111	0.173	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Cd-109	-0.11	pCi/g	0.857	1.81	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Ce-139	-0.02	pCi/g	0.024	0.074	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Co-60	-0.011	pCi/g	0.027	0.093	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Cs-134	0.047	pCi/g	0.026	0.084	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Cs-137	0.842	pCi/g	0.058	0.066	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Eu-152	0.627	pCi/g	0.087	0.156	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:906.0	H-3	2.183	pCi/g	0.345	1.006	NQ	NQ		Y	ARSL	07/14/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Hg-203	0.029	pCi/g	0.021	0.07	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	K-40	27.927	pCi/g	1.328	0.481	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Na-22	0.013	pCi/g	0.027	0.092	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Pb-212	1.458	pCi/g	0.085	0.134	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Pb-214	1.396	pCi/g	0.122	0.196	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	HASL-300:ISOPU	Pu-238	0.002	pCi/g	0.006	0.023	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	HASL-300:ISOPU	Pu-239/240	1.157	pCi/g	0.087	0.016	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Ra-223	0.307	pCi/g	0.146	0.464	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Ra-224	-0.029	pCi/g	1.378	0.977	U	R5,R33	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Ra-226	4.481	pCi/g	0.718	1.79	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Ra-228	1.617	pCi/g	0.136	0.269	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Ru-106	-0.099	pCi/g	0.199	0.676	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Sn-113	-0.005	pCi/g	0.568	0.104	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Sr-85	-0.064	pCi/g	0.068	0.117	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:905.0	Sr-90	0.252	pCi/g	0.138	0.199	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Th-227	0.006	pCi/g	0.225	0.748	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Th-231	0.68	pCi/g	0.23	0.617	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Tl-208	0.442	pCi/g	0.048	0.087	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	HASL-300:ISOU	U-234	2.372	pCi/g	0.161	0.034	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	U-235	0.267	pCi/g	0.041	0.114	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	HASL-300:ISOU	U-235/236	0.085	pCi/g	0.016	0.028	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	HASL-300:ISOU	U-238	2.118	pCi/g	0.145	0.04	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101785	A-16-B (5)	EPA:901.1	Y-88	0	pCi/g	0.004	0.03	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60146	1775333.651	1631035.595
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Am-241	-0.003	pCi/g	0.195	0.154	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	HASL-300:AM-241	Am-241	0.147	pCi/g	0.062	0.183	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Bi-211	3.597	pCi/g	0.237	0.374	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Bi-214	0.903	pCi/g	0.08	0.138	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Cd-109	2.413	pCi/g	0.415	1.2	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Ce-139	-0.012	pCi/g	0.016	0.053	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Co-60	0.004	pCi/g	0.019	0.067	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Cs-134	0.082	pCi/g	0.021	0.058	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Cs-137	0.217	pCi/g	0.03	0.053	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Eu-152	0.181	pCi/g	0.055	0.138	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:906.0	H-3	1.347	pCi/g	0.326	1.014	NQ	NQ		Y	ARSL	07/14/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Hg-203	-0.001	pCi/g	0.02	0.068	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	K-40	23.979	pCi/g	1.161	0.511	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Na-22	0.007	pCi/g	0.026	0.089	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Pb-212	1.459	pCi/g	0.084	0.094	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Pb-214	1.103	pCi/g	0.074	0.139	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	HASL-300:ISOPU	Pu-238	0.011	pCi/g	0.006	0.016	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	HASL-300:ISOPU	Pu-239/240	0.207	pCi/g	0.025	0.006	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Ra-223	-0.134	pCi/g	0.123	0.402	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Ra-224	-5.112	pCi/g	0.981	2.99	U	R5,R33	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Ra-226	3.294	pCi/g	0.609	1.45	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Ra-228	1.401	pCi/g	0.101	0.196	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Ru-106	-0.229	pCi/g	0.204	0.67	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Sn-113	0.02	pCi/g	0.027	0.089	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Sr-85	-0.097	pCi/g	0.074	0.108	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:905.0	Sr-90	0.082	pCi/g	0.106	0.174	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Th-227	0.355	pCi/g	0.127	0.384	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Th-231	0.881	pCi/g	0.265	0.617	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Tl-208	0.519	pCi/g	0.047	0.077	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	HASL-300:ISOU	U-234	0.822	pCi/g	0.065	0.029	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	U-235	0.215	pCi/g	0.032	0.09	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	HASL-300:ISOU	U-235/236	0.032	pCi/g	0.009	0.017	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	HASL-300:ISOU	U-238	0.975	pCi/g	0.075	0.034	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101786	A-16-B (6)	EPA:901.1	Y-88	-0.011	pCi/g	0.023	0.08	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60147	1775385.03	1631083.293
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Am-241	0.167	pCi/g	0.029	0.063	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	HASL-300:AM-241	Am-241	0.1	pCi/g	0.031	0.083	NQ	NQ		Y	ARSL	07/11/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Bi-211	0.642	pCi/g	0.126	0.39	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Bi-214	0.913	pCi/g	0.073	0.088	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Cd-109	0.134	pCi/g	0.199	0.555	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Ce-139	-0.014	pCi/g	0.012	0.028	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Co-60	0.013	pCi/g	0.023	0.042	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Cs-134	0.057	pCi/g	0.02	0.035	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Cs-137	1.492	pCi/g	0.056	0.037	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Eu-152	1.23	pCi/g	0.062	0.064	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:906.0	H-3	1.541	pCi/g	0.395	1.235	NQ	NQ		Y	ARSL	07/14/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Hg-203	0	pCi/g	0.004	0.03	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	K-40	20.584	pCi/g	0.801	0.353	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Na-22	0	pCi/g	0.01	0.044	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Pb-212	1.292	pCi/g	0.054	0.054	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Pb-214	0.963	pCi/g	0.051	0.078	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	HASL-300:ISOPU	Pu-238	0.024	pCi/g	0.007	0.014	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	HASL-300:ISOPU	Pu-239/240	1.576	pCi/g	0.111	0.017	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Ra-223	-0.007	pCi/g	0.079	0.18	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Ra-224	1.31	pCi/g	0.342	0.95	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Ra-226	1.791	pCi/g	0.301	0.908	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Ra-228	0.967	pCi/g	0.062	0.124	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Ru-106	0.05	pCi/g	0.18	0.324	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Sn-113	0.017	pCi/g	0.02	0.043	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Sr-85	0.018	pCi/g	0.012	0.02	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:905.0	Sr-90	0.26	pCi/g	0.126	0.175	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Th-227	0.231	pCi/g	0.097	0.216	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Th-231	0.619	pCi/g	0.083	0.24	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Tl-208	0.388	pCi/g	0.024	0.036	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	HASL-300:ISOU	U-234	1.271	pCi/g	0.088	0.023	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	U-235	0.138	pCi/g	0.089	0.194	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	HASL-300:ISOU	U-235/236	0.037	pCi/g	0.009	0.02	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	HASL-300:ISOU	U-238	1.522	pCi/g	0.103	0.024	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101787	A-16-B (8)	EPA:901.1	Y-88	0	pCi/g	0.002	0.044	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60148	1775274.059	1631337.358
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Am-241	0	pCi/g	0.044	0.149	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	HASL-300:AM-241	Am-241	0.916	pCi/g	0.129	0.208	NQ	NQ		Y	ARSL	07/11/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Bi-211	3.664	pCi/g	0.241	0.438	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Bi-214	1.371	pCi/g	0.093	0.114	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Cd-109	0.172	pCi/g	0.412	1.35	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Ce-139	-0.019	pCi/g	0.018	0.058	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Co-60	-0.001	pCi/g	0.016	0.056	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Cs-134	0.083	pCi/g	0.022	0.063	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Cs-137	0.417	pCi/g	0.038	0.058	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Eu-152	0.498	pCi/g	0.072	0.143	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:906.0	H-3	-0.297	pCi/g	0.322	1.094	U	R5	U	N	ARSL	07/15/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Hg-203	0.035	pCi/g	0.013	0.041	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	K-40	26.348	pCi/g	1.174	0.76	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Na-22	-0.013	pCi/g	0.026	0.089	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Pb-212	1.626	pCi/g	0.08	0.092	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Pb-214	1.251	pCi/g	0.083	0.12	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	HASL-300:ISOPU	Pu-238	0.006	pCi/g	0.009	0.031	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	HASL-300:ISOPU	Pu-239/240	0.435	pCi/g	0.041	0.023	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Ra-223	0.349	pCi/g	0.112	0.345	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Ra-224	1.822	pCi/g	0.496	1.53	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Ra-226	0.152	pCi/g	0.493	1.67	U	R5,R33	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Ra-228	1.571	pCi/g	0.138	0.171	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Ru-106	-0.149	pCi/g	0.26	0.58	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Sn-113	0.001	pCi/g	0.018	0.062	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Sr-85	-0.056	pCi/g	0.03	0.096	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:905.0	Sr-90	0.211	pCi/g	0.113	0.161	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Th-227	0.414	pCi/g	0.143	1.25	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Th-231	0.215	pCi/g	0.199	0.647	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Tl-208	0.483	pCi/g	0.038	0.057	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	HASL-300:ISOU	U-234	1.183	pCi/g	0.086	0.021	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	U-235	0.141	pCi/g	0.031	0.399	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	HASL-300:ISOU	U-235/236	0.052	pCi/g	0.011	0.018	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	HASL-300:ISOU	U-238	1.235	pCi/g	0.089	0.033	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101788	A-16-B (2)	EPA:901.1	Y-88	-0.001	pCi/g	0.015	0.02	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60149	1775248.75	1631481.426
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Am-241	0.015	pCi/g	0.046	0.153	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	HASL-300:AM-241	Am-241	0.139	pCi/g	0.071	0.22	U	R5	U	N	ARSL	07/11/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Bi-211	3.501	pCi/g	0.247	0.455	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Bi-214	1.197	pCi/g	0.101	0.159	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Cd-109	0.141	pCi/g	0.459	1.51	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Ce-139	-0.001	pCi/g	0.084	0.057	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Co-60	0.001	pCi/g	0.022	0.077	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Cs-134	0.087	pCi/g	0.025	0.072	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Cs-137	0.309	pCi/g	0.035	0.059	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Eu-152	0.162	pCi/g	0.049	0.148	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:906.0	H-3	0.672	pCi/g	0.279	0.901	U	R5	U	N	ARSL	07/15/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Hg-203	0.029	pCi/g	0.018	0.058	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	K-40	18.057	pCi/g	0.923	0.403	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Na-22	-0.001	pCi/g	0.024	0.083	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Pb-212	1.638	pCi/g	0.085	0.11	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Pb-214	1.231	pCi/g	0.094	0.146	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	HASL-300:ISOPU	Pu-238	0.014	pCi/g	0.006	0.015	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	HASL-300:ISOPU	Pu-239/240	0.399	pCi/g	0.038	0.022	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Ra-223	0.374	pCi/g	0.128	0.395	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Ra-224	1.988	pCi/g	0.611	1.9	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Ra-226	4.293	pCi/g	0.717	1.68	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Ra-228	1.613	pCi/g	0.134	0.158	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Ru-106	0.126	pCi/g	0.17	0.57	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Sn-113	0.014	pCi/g	0.027	0.091	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Sr-85	-0.088	pCi/g	0.05	0.11	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:905.0	Sr-90	0.118	pCi/g	0.114	0.181	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Th-227	0.721	pCi/g	0.196	1.47	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Th-231	1.204	pCi/g	0.223	0.673	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Tl-208	0.542	pCi/g	0.045	0.07	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	HASL-300:ISOU	U-234	1.235	pCi/g	0.089	0.03	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	U-235	0.254	pCi/g	0.036	0.098	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	HASL-300:ISOU	U-235/236	0.046	pCi/g	0.013	0.032	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	HASL-300:ISOU	U-238	1.38	pCi/g	0.098	0.029	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101789	A-16-B (10)	EPA:901.1	Y-88	-0.004	pCi/g	0.019	0.069	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60150	1775351.933	1631463.905
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Am-241	0.039	pCi/g	0.058	0.191	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	HASL-300:AM-241	Am-241	0.851	pCi/g	0.142	0.3	NQ	NQ		Y	ARSL	07/11/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Bi-211	3.868	pCi/g	0.305	0.563	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Bi-214	1.255	pCi/g	0.111	0.157	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Cd-109	0.019	pCi/g	0.585	1.95	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Ce-139	-0.009	pCi/g	0.023	0.077	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Co-60	-0.006	pCi/g	0.023	0.083	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Cs-134	0.002	pCi/g	0.028	0.098	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Cs-137	0.324	pCi/g	0.048	0.083	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Eu-152	-0.033	pCi/g	0.075	0.168	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:906.0	H-3	0.704	pCi/g	0.326	1.059	U	R5	U	N	ARSL	07/15/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Hg-203	0.007	pCi/g	0.018	0.063	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	K-40	23.212	pCi/g	1.277	0.532	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Na-22	0.001	pCi/g	0.023	0.084	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Pb-212	1.575	pCi/g	0.106	0.165	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Pb-214	1.282	pCi/g	0.109	0.18	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	HASL-300:ISOPU	Pu-238	0.013	pCi/g	0.005	0.006	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	HASL-300:ISOPU	Pu-239/240	0.521	pCi/g	0.047	0.023	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Ra-223	0.018	pCi/g	0.133	0.452	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Ra-224	-5.657	pCi/g	1.27	3.9	U	R5,R33	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Ra-226	4.16	pCi/g	0.782	1.83	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Ra-228	1.722	pCi/g	0.135	0.211	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Ru-106	0.005	pCi/g	0.212	0.749	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Sn-113	0.015	pCi/g	0.03	0.103	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Sr-85	-0.093	pCi/g	0.096	0.133	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:905.0	Sr-90	0.084	pCi/g	0.113	0.186	U	R5	U	N	ARSL	07/10/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Th-227	0.029	pCi/g	0.532	1.75	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Th-231	0.974	pCi/g	0.309	0.788	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Tl-208	0.517	pCi/g	0.058	0.097	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	HASL-300:ISOU	U-234	1.652	pCi/g	0.114	0.019	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	U-235	0.247	pCi/g	0.04	0.111	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	HASL-300:ISOU	U-235/236	0.067	pCi/g	0.012	0.005	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	HASL-300:ISOU	U-238	1.586	pCi/g	0.11	0.032	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101790	A-16-B (3)	EPA:901.1	Y-88	-0.015	pCi/g	0.027	0.097	U	R5	U	N	ARSL	07/02/2015	06/23/2015	DP-60151	1775479.453	1631417.18
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Am-241	0.08	pCi/g	0.049	0.16	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	HASL-300:AM-241	Am-241	0.104	pCi/g	0.084	0.284	U	R5	U	N	ARSL	07/14/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Bi-211	4.035	pCi/g	0.26	0.435	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Bi-214	1.101	pCi/g	0.083	0.119	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Cd-109	-0.55	pCi/g	0.457	1.48	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Ce-139	-0.001	pCi/g	0.018	0.061	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Co-60	0	pCi/g	0.047	0.07	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Cs-134	0.084	pCi/g	0.023	0.068	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Cs-137	1.097	pCi/g	0.066	0.069	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Eu-152	1.031	pCi/g	0.099	0.143	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:906.0	H-3	0.587	pCi/g	0.331	1.081	U	R5	U	N	ARSL	07/16/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Hg-203	-0.019	pCi/g	0.021	0.068	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	K-40	27.301	pCi/g	1.244	0.861	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Na-22	0	pCi/g	0.025	0.087	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Pb-212	1.471	pCi/g	0.079	0.105	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Pb-214	1.338	pCi/g	0.087	0.124	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	HASL-300:ISOPU	Pu-238	0.006	pCi/g	0.005	0.018	U	R5	U	N	ARSL	07/10/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	HASL-300:ISOPU	Pu-239/240	0.921	pCi/g	0.071	0.014	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Ra-223	0.445	pCi/g	0.129	0.395	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Ra-224	1.861	pCi/g	0.555	1.72	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Ra-226	0	pCi/g	0.01	1.92	U	R5,R33	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Ra-228	1.297	pCi/g	0.127	0.189	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Ru-106	-0.105	pCi/g	0.334	0.576	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Sn-113	0.014	pCi/g	0.023	0.076	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Sr-85	-0.059	pCi/g	0.03	0.097	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:905.0	Sr-90	0.31	pCi/g	0.129	0.168	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Th-227	-0.1	pCi/g	1.162	1.31	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Th-231	0.241	pCi/g	0.208	0.678	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Tl-208	0.475	pCi/g	0.051	0.079	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	HASL-300:ISOU	U-234	1.431	pCi/g	0.102	0.017	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	U-235	0.281	pCi/g	0.041	0.455	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	HASL-300:ISOU	U-235/236	0.048	pCi/g	0.011	0.019	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	HASL-300:ISOU	U-238	1.606	pCi/g	0.113	0.021	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101793	Field Duplicate A-16-B (5)	EPA:901.1	Y-88	-0.012	pCi/g	0.025	0.077	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Am-241	0.061	pCi/g	0.052	0.122	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	HASL-300:AM-241	Am-241	0.249	pCi/g	0.082	0.226	NQ	NQ		Y	ARSL	07/14/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Bi-211	0.741	pCi/g	0.183	0.402	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Bi-214	1.206	pCi/g	0.086	0.108	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Cd-109	0	pCi/g	0.409	1.18	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Ce-139	-0.01	pCi/g	0.021	0.051	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Co-60	-0.004	pCi/g	0.035	0.066	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Cs-134	0.01	pCi/g	0.041	0.084	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Cs-137	0.397	pCi/g	0.041	0.062	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954

DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Eu-152	0.238	pCi/g	0.056	0.131	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:906.0	H-3	0.992	pCi/g	0.3	0.95	NQ	NQ		Y	ARSL	07/16/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Hg-203	0.056	pCi/g	0.017	0.037	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	K-40	25.802	pCi/g	1.179	0.603	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Na-22	0.002	pCi/g	0.047	0.089	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Pb-212	1.753	pCi/g	0.083	0.093	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Pb-214	1.23	pCi/g	0.12	0.169	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	HASL-300:ISOPU	Pu-238	0.01	pCi/g	0.004	0.005	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	HASL-300:ISOPU	Pu-239/240	0.274	pCi/g	0.028	0.005	NQ	NQ		Y	ARSL	07/10/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Ra-223	0	pCi/g	0.123	0.344	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Ra-224	2.001	pCi/g	0.582	1.8	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Ra-226	1.156	pCi/g	0.494	1.57	U	R5,R33	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Ra-228	1.626	pCi/g	0.104	0.181	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Ru-106	0	pCi/g	0.101	0.554	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Sn-113	0.022	pCi/g	0.031	0.069	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Sr-85	0	pCi/g	0.005	0.037	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:905.0	Sr-90	0.125	pCi/g	0.114	0.179	U	R5	U	N	ARSL	07/10/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Th-227	0.508	pCi/g	0.122	0.451	NQ	NQ		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Th-231	0.759	pCi/g	0.227	0.518	R	R5a	UI	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Tl-208	0.56	pCi/g	0.044	0.057	NQ	NQ,R33		Y	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	HASL-300:ISOU	U-234	1.399	pCi/g	0.1	0.017	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	U-235	0.111	pCi/g	0.156	0.372	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	HASL-300:ISOU	U-235/236	0.053	pCi/g	0.012	0.023	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	HASL-300:ISOU	U-238	1.373	pCi/g	0.099	0.026	NQ	NQ		Y	ARSL	07/09/2015	06/23/2015	UNK	1757767.082	1645126.954
DP Canyon Land Transfer - Tract A-16-B	CADP-15-101794	Field Duplicate A-16-B (3)	EPA:901.1	Y-88	0	pCi/g	0.009	0.077	U	R5	U	N	ARSL	07/02/2015	06/23/2015	UNK	1757767.082	1645126.954