Addendum to
Report on Annual Groundwater Monitoring, 2010
Santa Susana Field Laboratory
Ventura County, California

April 2011

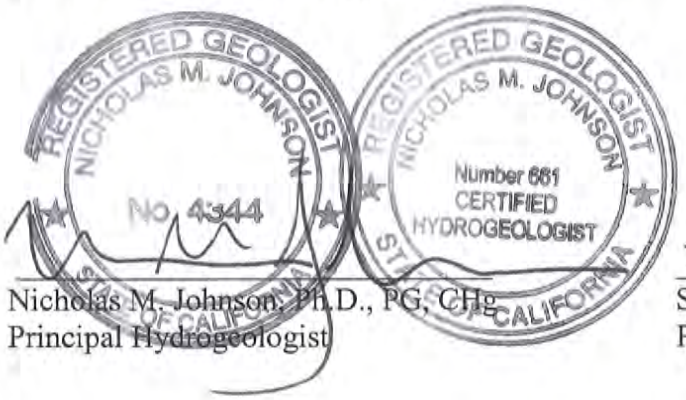
MWH

PROFESSIONAL CERTIFICATION
Addendum to Report on Annual Groundwater Monitoring Report, 2010

Santa Susana Field Laboratory
Ventura County, California

April 20, 2011

This Addendum to the 2010 Report on Annual Groundwater Monitoring has been prepared by a team of qualified professionals under the supervision of the senior staff whose seal and signature appears below.



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LIST OF ACRONYMS AND ABBREVIATIONS

Cs-137	cesium-137
EPA	U.S. Environmental Protection Agency
HGL	HydroGeoLogic
MCL	Maximum Contaminant Level
MDA	maximum detectable activity
mrem/yr	millirem per year
pCi/L	picocuries per liter
QAPP	quality assurance project plan
SSFL	Santa Susana Field Laboratory
Sr-90	strontium-90
U	uranium

1.0 INTRODUCTION

This addendum to the *Report on Annual Groundwater Monitoring, 2010, Santa Susana Field Laboratory* (SSFL or Site), *Ventura County, California* (MWH, March 2011) summarizes radiochemistry results for the third and fourth quarters of 2010. Technical difficulties associated with the change to a sample preparation and analysis approach advocated by the United States Environmental Protection Agency (EPA) could not be resolved in time to present these results in the annual report.

Beginning in third quarter 2010, radiochemistry analyses (except for tritium) for the Site-wide program and other groundwater samples were performed using a new approach described in EPA's Area IV Radiochemistry Study Quality Assurance Project Plan (QAPP) (HydroGeoLogic [HGL], 2010). This approach involves filtering at the laboratory followed by separate analysis of the liquid filtrate (dissolved) and the solid residue (particulate) captured by the filter. Each of the results has its own associated counting error and minimum detectable activity (MDA).

EPA's QAPP describes an approach for combining the liquid and solid results to provide a calculated total result, and indicates that the dissolved and total (calculated) results should be reported. However, the QAPP does not provide sufficient technical detail regarding the combination of a detect with a non-detect result, or how MDAs and errors will be combined for the calculated total results. These technical issues have not yet been resolved. It is anticipated that EPA will provide the needed technical details for calculating a total value during the course of their Area IV radiochemistry study work in 2011.

In the absence of needed guidance from EPA, the initial plan was to report the filtrate and solid residue results separately without a calculated total in the 2010 annual report. However, programming errors in the computer code written by the laboratory to implement these reporting revisions resulted in incorrect analytical result values. These further technical difficulties could not be corrected in time to present these results in the annual report and hence are presented in this addendum.

2.0 RADIOCHEMISTRY RESULTS

Radiochemistry analyses were performed for samples collected during the third and fourth quarters of 2010 under the Site-wide Program (22 locations) and Area IV sampling (1 location). The radiochemistry analysis results for the third and fourth quarters of 2010 are presented in Table 1. A quality assurance assessment of the data is presented in Appendix A and the laboratory analytical reports are provided in Appendix B.

Radiochemistry constituents detected for the first time in groundwater at individual locations are presented in Table 2. Constituents previously detected in groundwater at a particular location but reported at a new maximum concentration are presented in Table 3. For particulate results, a detection was considered new if the constituent was never detected in historical dissolved or total results, and a detection was considered a new maximum if the constituent was detected at a higher activity than the previous maximum activity reported in historical dissolved or total results.

During the third and fourth quarters of 2010, radiochemistry constituent activity levels in groundwater samples collected at SSFL were below detectable activity or, if detected, consistent with past activity levels, other than the exceptions identified in Tables 2 and 3. These exceptions fall within the following categories:

- First-time detection and first-time analysis; results of analyses performed for the first time are indicated by an asterisk in Table 2;
- First-time detection near the MDA, and only a recent and brief sampling history (i.e., small total number of analyses for that constituent);
- First-time detection and lower MDA compared to historical results;
- New maximum activity only slightly exceeds previous maximum, and a clear increasing trend is not apparent;
- Detection not repeatable in consecutive sampling events, or not consistent between primary, duplicate, and split sample results; and
- Combinations of the above.

In nearly all of these cases, the results are consistent with known groundwater conditions in those areas. The following subsections present the few exceptions where historical data are insufficient to provide further context to the recent results or where the results otherwise warrant further discussion.

These radiochemistry results for the third and fourth quarters of 2010 are the first from utilization of the aforementioned new approach with separate analysis of liquid filtrate (dissolved) and solid residue (particulate). As such, comparison of these results with historical results (especially for the particulate results) may not be representative. Any of the new detections or new maximums discussed below in Sections 2.1 and 2.2 may be due, at least in part, to the use of this new sample preparation and analysis methodology or to the comparison with historical data collected using other methods. Continued sampling and analysis using this approach will provide further context for these results.

2.1 ON-SITE RESULTS

Radiochemistry results for the third and fourth quarters of 2010 collected from locations within SSFL boundaries were consistent with known groundwater conditions in those areas or fell within the categories listed above in Section 2.0 except for the following:

- Dissolved gross alpha activity was detected for the first time at monitoring well RD-96 at 5.06 ± 1.5 picocuries per liter (pCi/L). Particulate gross alpha activity was detected for the first time at RD-96 at 7.19 ± 1.8 pCi/L and was detected at a new maximum activity of 12.1 ± 1.4 pCi/L at RD-98. Adjusted dissolved gross alpha activity (for uranium) at RD-96 was less than zero pCi/L. Adjusted particulate gross alpha activities at RD-96 and RD-98 were 6.79 and 11.69 pCi/L, respectively. All of these results are below the Primary maximum contaminant level (MCL) of 15 pCi/L. Gross alpha activity was previously analyzed only one time at RD-96 and three times at RD-98 with a maximum dissolved activity of 5.39 pCi/L. RD-96 is scheduled for semi-annual Site-wide Program sampling and analysis for gross alpha activity. RD-98 is not monitored under the Site-wide Program, but is scheduled for sampling and analysis for gross alpha activity in the second quarter of 2011. Continued sampling and analysis will provide further context for these results.
- Dissolved gross beta activity was detected at new maximums ranging between 12.1 ± 2.1 and 22.8 ± 1.7 pCi/L at RD-50 (Zone 2 [Z2]), RD-57 (Z7), and RD-98. Particulate gross beta activity was detected at a new maximum of 16.4 ± 1.6 pCi/L at RD-98. These detections are below the California MCL of 50 pCi/L. Gross beta activity was previously analyzed six times at RD-50 with a maximum of 10.7 pCi/L, 25 times at RD-57 with a

maximum of 8.6 pCi/L, and three times at RD-98 with a maximum of 10.9 pCi/L. RD-50 and RD-57 are scheduled for semi-annual Site-wide Program sampling and analysis for gross beta activity. RD-98 is not monitored under the Site-wide Program, but is scheduled for sampling and analysis for gross beta activity in the second quarter of 2011. Continued sampling and analysis will provide further context for these results.

- Dissolved strontium-90 (Sr-90) activity was detected at a new maximum of 9.68 ± 0.64 pCi/L at RD-98, which is above the Primary MCL of 8 pCi/L. Dissolved Sr-90 has only been previously analyzed three times from samples collected at RD-98 with a maximum activity of 2.63 pCi/L. RD-98 is not monitored under the Site-wide Program, but is scheduled for sampling and analysis for Sr-90 in the second quarter of 2011. Continued sampling and analysis will provide further context for this result.
- Uranium (U) isotope activity was detected for the first time or at new maximums at the locations listed below. Each of these wells is scheduled for semi-annual Site-wide Program sampling and analysis for U isotope activity, and continued sampling and analysis will provide further context for these results.
  - At RD-33A (Z2), dissolved U-238 was detected for the first time at an activity level of 1.02 ± 0.16 pCi/L. RD-33A was previously sampled for U-238 16 times with no detections.
  - At RD-13, dissolved U-238 was detected at a new maximum activity of 1.86 ± 0.26 pCi/L. U-238 was previously analyzed only one time at RD-13 with a detected activity of 1.29 pCi/L.
  - At RD-50 (Z2), dissolved U-238 was detected at a new maximum activity of 8.45 ± 0.53 pCi/L and dissolved U-233/234 was detected at a new maximum activity of 11.1 ± 0.65 pCi/L. U isotope activity was previously analyzed only one time at RD-50 with a detected U-238 activity of 3.24 pCi/L and a detected U-233/234 activity of 5.85 pCi/L.
  - At RD-57 (Z7), dissolved U-238 was detected at a new maximum activity of 3.76 ± 0.36 pCi/L and dissolved U-233/234 was detected at a new maximum activity of 4.42 ± 0.4 pCi/L. U isotope activity was previously analyzed only one time at RD-57 with a detected U-238 activity of 0.93 pCi/L and a detected U-233/234 activity of 1.2 pCi/L.
  - At RD-63, dissolved U-238 was detected at a new maximum activity of 4.86 ± 0.41 pCi/L and dissolved U-233/234 was detected at a new maximum activity of 5.22 ± 0.43 pCi/L. U isotope activity was previously analyzed only one time at RD-63 with a detected U-238 activity of 2.92 pCi/L and a detected U-233/234 activity of 3.66 pCi/L.
  - At RD-19, dissolved U-235 was detected at a new maximum activity of 1.05 ± 0.13 pCi/L. U isotope activity was previously analyzed three times at RD-19 with a maximum detected U-235 activity of 0.723 pCi/L.

  The sum of dissolved isotopic uranium activities was 2.869 pCi/L for RD-33A (Z2), 4.33 pCi/L for RD-13, 20.097 pCi/L for RD-50 (Z2), 8.444 pCi/L for RD-57 (Z7), 10.382 pCi/L for RD-63, and 26.55 pCi/L for RD-19. The sum of dissolved isotopic

uranium activities for RD-50 (Z2) and RD-19 exceed the California MCL of 20 pCi/L. These uranium isotope activities appeared to be naturally occurring uranium as indicated by the activity ratio of U-234 to U-238 (U-234:U-238). Naturally occurring uranium (non-enriched and non-processed) has a U-234:U-238 activity ratio of approximately 1:1 (Federal Register, 2000b).

2.2 OFF-SITE DETECTIONS

During the third and fourth quarters of 2010, radiochemistry results from groundwater samples collected from off-site wells were consistent with known groundwater conditions in those areas or fell within the categories listed in Section 2.0 with only one exception as described below.

Dissolved cesium-137 (Cs-137) was detected for the first time at RD-59B at an estimated value of 8.18 J ± 2.1 pCi/L. RD-59B was previously sampled for Cs-137 22 times with no detections. This estimated value is low compared to both the gross beta California Primary MCL of 50 pCi/L (Cs-137 is a beta emitter) and the isotope-specific Cs-137 MCL of 200 pCi/L based on the Primary MCL of 4 millirem per year for gross beta (EPA, 2002). Though not scheduled to be reported until June 1, 2011, the first quarter 2011 sampling and analysis for Cs-137 at RD-59B has been completed and the results validated, and Cs-137 was not detected, further refuting the detection in third quarter 2010.

A summary of SSFL groundwater sampling and analysis results for Cs-137 is presented in Table 4. In the history of groundwater sampling at SSFL from 1989 through first quarter 2011, 1,276 Cs-137 analyses have been performed, with Cs-137 not detected 1,266 times and detected only 10 times in a total of 9 samples from a total of 6 wells, all of which are located on site. These six wells have historical non-detect results ranging in number from 7 to 34, and totaling 150 non-detects. In one case (RD-23 sample collected March 11, 1991), the detection in the field duplicate sample is contradicted by the non-detect result in the primary sample. In another case where the primary result was rejected and the analysis was repeated three times (RD-27 sample collected March 6, 2009), inconsistent results were obtained with two low-level detections, and one non-detect. 110 additional locations at SSFL were sampled and analyzed for Cs-137 during that time period, resulting in 1,116 non-detect results and no detections. These

data strongly suggest that the very few Cs-137 detections during 22 years of sampling at SSFL are false positives, and that Cs-137 is not present in groundwater beneath SSFL.

3.0 REFERENCES

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HydroGeoLogic, Inc. (HGL), 2010. Quality Assurance Project Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, California. Prepared for U.S. Environmental Protection Agency Region 9, EPA AES Contract Number EP-S7-05-05, Task Order Number 0038. August 11.

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TABLES

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	OS-02	OS-02	OS-02	OS-03	OS-03	OS-03	OS-04	OS-04	OS-04
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Sample Name:	OS-02_081210_01	OS-02_081210_01	OS-02_081210_01	OS-03_081210_01	OS-03_081210_01	OS-03_081210_01	OS-04_081210_01	OS-04_081210_01	OS-04_081210_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	8/12/2010	8/12/2010	8/12/2010	8/12/2010	8/12/2010	8/12/2010	8/12/2010	8/12/2010	8/12/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	0.097 U	2.5	4.38	-0.496 U	3.3	5.72	1.68 U	3.4	5.87
Antimony-125, Particulate (pCi/L)	901.0	-2.12 U	5.5	9.73	1.13 U	4.1	7.03	0.592 U	4.1	7.22
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	-0.567 U	1.4	2.48	0.451 U	0.5	2.12	0.143 U	0.28	1.68
Barium-133, Particulate (pCi/L)	901.0	-1.32 U	3.1	5.39	-2.67 U	3.2	5.55	0.194 U	2.6	4.51
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	0.675 U	1.6	2.71	-0.183 U	1.6	1.99	1.15 U	1.9	3.2
Cesium-134, Particulate (pCi/L)	901.0	0.944 U	2.6	3.51	0.797 U	2	3.47	0.456 U	2.6	4.53
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	1.29 U	1.6	2.66	-0.662 U	1.6	2.82	-0.236 U	1.6	2.77
Cesium-137, Particulate (pCi/L)	901.0	-0.584 U	1.9	3.36	-1.3 U	2.4	4.16	0.914 U	1.5	2.58
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	1.47 U	1.5	2.58	0.426 U	1.4	2.38	0.977 U	1.8	3.03
Cobalt-60, Particulate (pCi/L)	901.0	1.27 U	2.7	4.63	-0.145 U	1	1.93	1.14 U	1.4	2.4
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	1.21 U	3.1	5.35	1.25 U	1.9	4.35	-2.23 U	3.1	5.6
Europium-152, Particulate (pCi/L)	901.0	1.69 U	6.1	10.4	-4.81 U	5.9	10.3	0.754 U	9.2	15.8
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	-1.9 U	2.7	5.25	1.52 U	3	5.26	2.31 U	2.6	4.34
Europium-154, Particulate (pCi/L)	901.0	-2.8 U	5	9.44	1.03 U	3.2	5.72	3.91 U	3.9	6.43
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	0.134 U	2.6	4.53	0.583 U	3.8	6.51	1.53 U	2.6	4.47
Europium-155, Particulate (pCi/L)	901.0	-2.45 U	3.6	6.4	2.41 U	4	6.7	1.16 U	5.2	8.86
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	0.907 U	1.2	1.96	-0.036 U	1	1.82	0.154 U	1.5	2.69
Manganese-54, Particulate (pCi/L)	901.0	0.924 U	2.6	4.51	-1.39 U	1.6	2.86	0.862 U	1.8	3.06
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	1.41 U	17	30.3	-13 U	21	37.7	-7.3 U	13	24.7
Potassium-40, Particulate (pCi/L)	901.0	12.4 U	22	37.4	0.63 U	29	50.7	1.53 U	36	63.3
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	-0.648 U	0.91	1.8	0.525 U	1	1.82	0.791 U	0.89	1.49
Sodium-22, Particulate (pCi/L)	901.0	-0.965 U	1.7	3.25	0.354 U	1.1	1.97	1.34 U	1.3	2.21
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	0.939 U	1.6	2.6	1.65 J	1	1.63	0.471 U	1.2	2.04
Gross alpha, Particulate (pCi/L)	900.0	0.216 U	0.41	0.694	-0.074 U	0.37	0.687	0.018 U	0.52	0.936
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	0.447 U	1.6	2.67	3.93 J	1.1	1.65	5.23	2.5	3.85
Gross beta, Particulate (pCi/L)	900.0	-0.357 U	0.96	1.61	-0.419 U	1	1.72	0.358 U	1.4	2.26
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	-0.119 U	0.2	0.272	-0.064 U	0.2	0.269	0.048 U	0.23	0.289
Strontium-90, Particulate (pCi/L)	905.0	-0.097 U	0.18	0.254	0.061 U	0.34	0.349	-0.253 U	0.37	0.37
Tritium (pCi/L)	906.0	-27.5 U	89	153	1.62 U	90	153	-8.3 U	92	157
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	0.311 U	0.093	0.073	0.321 U	0.12	0.093	0.445 J	0.15	0.137
Uranium-235, Dissolved (pCi/L)	908.0	0.016 U	0.032	0.061	0.035 U	0.047	0.09	0 U	0.03	0.115
Uranium-238, Dissolved (pCi/L)	908.0	0.066 J	0.04	0.051	0.097 J	0.059	0.074	0.198 J	0.1	0.095
Uranium-233/234, Particulate (pCi/L)	908.0	-0.006 U	0.024	0.067	-0.01 U	0.019	0.091	-0.017 U	0.034	0.105
Uranium-235, Particulate (pCi/L)	908.0	-0.015 U	0.015	0.07	0.023 U	0.023	0.088	0 U	0.021	0.079
Uranium-238, Particulate (pCi/L)	908.0	0 U	0.012	0.046	-0.01 U	0.019	0.073	0 U	0.017	0.065
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	0.066	--	--	0.097	--	--	0.643	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	ND	--	--	ND	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	NA	--	--	1.55	--	--	NA	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	NA	--	--	NA	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-13	RD-13	RD-13	RD-14	RD-14	RD-14	RD-18	RD-18	RD-18
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Sample Name:	RD-13_082410_01	RD-13_082410_01	RD-13_082410_01	RD-14_081910_01	RD-14_081910_01	RD-14_081910_01	RD-18_081910_01	RD-18_081910_01	RD-18_081910_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	8/24/2010	8/24/2010	8/24/2010	8/19/2010	8/19/2010	8/19/2010	8/19/2010	8/19/2010	8/19/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	1.61 U	2.9	5	1.1 U	3.5	5.99	0.635 U	2.7	4.75
Antimony-125, Particulate (pCi/L)	901.0	-1.13 U	5.3	9.28	0.616 U	2.8	4.81	0.536 U	5.5	9.52
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	-0.176 U	0.39	1.98	-2.13 U	2.6	4.42	0.491 U	0.53	1.34
Barium-133, Particulate (pCi/L)	901.0	-0.28 U	2.2	3.83	0.529 U	0.72	2.34	-1.81 U	3	5.29
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	-0.167 U	1.1	1.91	0.3 U	1.5	2.62	-0.34 U	1.3	2.25
Cesium-134, Particulate (pCi/L)	901.0	-2.5 U	2.6	4.84	-0.046 U	2.2	2.67	1.52 U	2.7	3.55
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	1.59 U	1.6	2.74	0.223 U	1.3	2.32	0.431 U	1.2	2.01
Cesium-137, Particulate (pCi/L)	901.0	-0.33 U	1.7	3.04	0.471 U	1.6	2.78	-0.373 U	1.7	2.99
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	-0.215 U	0.97	1.79	0.662 U	1.2	2	-0.115 U	1.4	2.52
Cobalt-60, Particulate (pCi/L)	901.0	-0.612 U	2.1	3.89	-0.565 U	1.1	2.2	0.1 U	2.3	4.02
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	-0.826 U	3.5	6.04	-2.04 U	4.3	7.49	-2.78 U	4.5	7.88
Europium-152, Particulate (pCi/L)	901.0	3.02 U	5.3	8.97	1.24 U	4.1	7.14	0.853 U	4.6	7.97
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	1.02 U	2.5	4.44	-0.015 U	2.5	4.52	-0.584 U	2	3.81
Europium-154, Particulate (pCi/L)	901.0	0.006 U	5.1	9.36	-0.692 U	2.4	4.69	-2.32 U	3.6	7.04
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	2.62 U	3.4	5.74	-2.65 U	6.4	10.9	2.06 U	3.2	5.43
Europium-155, Particulate (pCi/L)	901.0	3.94 U	5.2	8.81	0.477 U	3.8	6.55	2.83 U	3.4	5.75
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	-0.485 U	0.81	1.53	-0.482 U	1.1	2.01	0.508 U	1	1.76
Manganese-54, Particulate (pCi/L)	901.0	-1.37 U	2.4	4.41	-1.03 U	1.6	2.99	0.328 U	1.2	2.21
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	-2.47 U	15	27	-4.1 U	20	35.5	7.88 U	12	20
Potassium-40, Particulate (pCi/L)	901.0	2.75 U	31	55.2	-2.84 U	19	34.3	-11.4 U	22	40.6
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	0.353 U	0.87	1.54	-0.005 U	0.86	1.57	-0.202 U	0.68	1.32
Sodium-22, Particulate (pCi/L)	901.0	0.002 U	1.8	3.24	-0.239 U	0.83	1.62	-0.804 U	1.2	2.44
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	4.03	1.6	1.61	2.21 J	1.3	1.6	5.94	1.3	1.17
Gross alpha, Particulate (pCi/L)	900.0	0.919 U	0.79	1.17	2.7 J	0.93	0.938	0.158 U	0.28	0.528
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	4.62	2.2	3.29	5.88	1.8	2.7	6.88	1.6	2.54
Gross beta, Particulate (pCi/L)	900.0	-0.661 U	1.9	3.23	2.03 U	1.6	2.57	-0.824 U	0.88	1.58
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	-0.1 U	0.33	0.595	-0.16 U	0.3	0.638	-0.116 U	0.5	0.802
Strontium-90, Particulate (pCi/L)	905.0	-0.088 U	0.24	0.482	0.084 U	0.34	0.622	-0.116 U	0.31	0.602
Tritium (pCi/L)	906.0	73.3 U	89	146	-41.7 U	91	156	-4.53 U	90	153
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	2.37	0.3	0.126	2.08	0.21	0.069	3.05	0.26	0.066
Uranium-235, Dissolved (pCi/L)	908.0	0.1 J	0.08	0.096	0.081 J	0.044	0.052	0.139 J	0.056	0.043
Uranium-238, Dissolved (pCi/L)	908.0	1.86	0.26	0.091	1.59	0.18	0.05	2.57	0.24	0.057
Uranium-233/234, Particulate (pCi/L)	908.0	0 U	0.024	0.074	0.082 J	0.047	0.064	0.032 U	0.043	0.072
Uranium-235, Particulate (pCi/L)	908.0	0 U	0.015	0.056	0.007 U	0.014	0.054	0.007 U	0.026	0.063
Uranium-238, Particulate (pCi/L)	908.0	-0.006 U	0.012	0.046	0.017 U	0.023	0.056	0.005 U	0.022	0.06
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	4.33	--	--	3.751	--	--	5.759	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	0.082	--	--	ND	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	<0	--	--	<0	--	--	0.18	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	2.618	--	--	NA	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-19	RD-19	RD-19	RD-33A (Z2)	RD-33A (Z2)	RD-33A (Z2)	RD-33B	RD-33B	RD-33B
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Sample Name:	RD-19_081910_01	RD-19_081910_01	RD-19_081910_01	33A_081810_01A	33A_081810_01A	33A_081810_01A	RD-33B_090210_01	RD-33B_090210_01	RD-33B_090210_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	8/19/2010	8/19/2010	8/19/2010	8/18/2010	8/18/2010	8/18/2010	9/2/2010	9/2/2010	9/2/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	1.92 U	4.4	7.62	-3.83 U	4.6	8	-0.013 U	2.7	4.79
Antimony-125, Particulate (pCi/L)	901.0	-0.859 U	3.7	6.63	-0.196 U	3.1	5.38	4.5 U	5.6	9.37
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	0.662 U	2.4	4.21	-1.25 U	2.3	3.99	-0.995 U	2	3.42
Barium-133, Particulate (pCi/L)	901.0	0.269 U	2.5	4.27	0.106 U	1	3.09	1.17 U	1.3	2.76
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	-0.609 U	1.9	3.59	0.021 U	2.1	3.68	0.648 U	0.82	1.39
Cesium-134, Particulate (pCi/L)	901.0	0.056 U	2.2	3.97	-1 U	2.1	3.77	2.24 U	3	5.12
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	1.52 U	2.3	3.93	-1.47 U	2	3.49	-0.236 U	1.1	1.9
Cesium-137, Particulate (pCi/L)	901.0	0.184 U	2	3.61	1.96 U	2.5	4.26	1.55 U	2.6	4.38
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	0.752 U	2.1	3.78	-0.291 U	1.4	2.57	-0.207 U	1	1.86
Cobalt-60, Particulate (pCi/L)	901.0	-1.68 U	1.9	3.84	-0.351 U	2	3.59	0.943 U	2.6	4.5
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	2.2 U	10	17.7	-3.9 U	5.6	9.7	-1.6 U	2.4	5.34
Europium-152, Particulate (pCi/L)	901.0	-4.27 U	5.2	9.36	1.41 U	4.7	8.12	1.54 U	2.8	7.84
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	-1.32 U	5.9	11	0.214 U	3.2	5.78	-0.984 U	2.2	4.32
Europium-154, Particulate (pCi/L)	901.0	-3.04 U	5.1	9.99	2.24 U	4.7	8.12	0.296 U	3.7	6.82
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	5.45 U	8.2	13.8	0.135 U	3.8	6.55	2.4 U	3.2	5.33
Europium-155, Particulate (pCi/L)	901.0	0.726 U	4.7	8.04	0.444 U	4.9	8.29	-0.223 U	3.9	6.71
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	1.09 U	1.6	2.68	0.825 U	1.2	2.07	-0.061 U	1.1	1.96
Manganese-54, Particulate (pCi/L)	901.0	-0.51 U	1.5	2.87	0.31 U	1.5	2.61	0.821 U	1.9	3.33
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	7.96 U	40	68.9	18.7 U	27	46	0.275 U	13	23
Potassium-40, Particulate (pCi/L)	901.0	-14.9 U	36	65	4.54 U	6.9	51.4	-13.1 U	24	44
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	-0.459 U	2	3.82	0.073 U	1.1	1.97	-0.34 U	0.78	1.5
Sodium-22, Particulate (pCi/L)	901.0	-1.05 U	1.8	3.45	0.765 U	1.6	2.77	0.102 U	1.3	2.36
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	20.5	5.6	5.51	5.62	1.5	1.05	1.64 J	1	1.45
Gross alpha, Particulate (pCi/L)	900.0	0.081 U	0.7	1.48	-0.074 U	0.17	0.453	0.764 J	0.51	0.613
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	18	4.4	5.87	7.32	1.1	1.25	4.56	1.9	3.03
Gross beta, Particulate (pCi/L)	900.0	1.84 U	3.6	6.18	0.504 U	1	1.76	0.507 U	1.2	2
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	-0.095 U	0.28	0.57	-0.043 U	0.36	0.652	0.128 U	0.28	0.521
Strontium-90, Particulate (pCi/L)	905.0	0.111 U	0.3	0.57	-0.119 U	0.28	0.571	-0.222 U	0.24	0.511
Tritium (pCi/L)	906.0	9.53 U	95	161	64.8 U	310	121	90.7 U	95	156
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	13.3	0.54	0.095	1.79	0.22	0.082	-0.024 U	0.047	0.121
Uranium-235, Dissolved (pCi/L)	908.0	1.05	0.13	0.048	0.059 J	0.044	0.056	-0.01 U	0.057	0.117
Uranium-238, Dissolved (pCi/L)	908.0	12.2	0.51	0.09	1.02	0.16	0.067	-0.008 U	0.032	0.087
Uranium-233/234, Particulate (pCi/L)	908.0	0.041 U	0.081	0.138	0 U	0.023	0.07	0.014 U	0.042	0.077
Uranium-235, Particulate (pCi/L)	908.0	0 U	0.033	0.091	0 U	0.014	0.053	0 U	0.017	0.064
Uranium-238, Particulate (pCi/L)	908.0	0 U	0.041	0.084	0.023 U	0.023	0.044	0.007 U	0.014	0.053
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	26.55	--	--	2.869	--	--	ND	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	ND	--	--	ND	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	<0	--	--	2.75	--	--	1.64	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	NA	--	--	0.764	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-33C	RD-33C	RD-33C	RD-34A	RD-34A	RD-34A	RD-34B	RD-34B	RD-34B
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Sample Name:	RD-33C_090310_01	RD-33C_090310_01	RD-33C_090310_01	RD-34A_082010_01	RD-34A_082010_01	RD-34A_082010_01	RD-34B_082010_01	RD-34B_082010_01	RD-34B_082010_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	9/3/2010	9/3/2010	9/3/2010	8/20/2010	8/20/2010	8/20/2010	8/20/2010	8/20/2010	8/20/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	-3.52 U	3.9	6.96	0.877 U	3.1	5.3	-0.78 U	4	6.97
Antimony-125, Particulate (pCi/L)	901.0	2.52 U	4.4	7.54	4.31 U	4.5	7.48	2.13 U	2.8	4.77
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	-0.069 U	0.43	2.09	0.018 U	1.8	2.38	-2.06 U	2.1	3.66
Barium-133, Particulate (pCi/L)	901.0	-0.033 U	0.54	2.47	-0.002 U	0.83	1.48	-0.397 U	0.72	2.61
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	-0.215 U	1.1	1.96	0.89 U	1.6	2.7	0.143 U	1.3	2.25
Cesium-134, Particulate (pCi/L)	901.0	0.479 U	1.4	2.52	-0.503 U	2	3.47	0.168 U	1.3	2.34
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	-0.697 U	1.5	2.74	0.049 U	1.4	2.4	-0.694 U	1.5	2.7
Cesium-137, Particulate (pCi/L)	901.0	-0.562 U	1.5	2.64	-0.702 U	2.3	3.98	-0.548 U	1.4	2.59
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	1.2 U	2	3.4	0.127 U	2.1	3.72	0.666 U	1.4	2.38
Cobalt-60, Particulate (pCi/L)	901.0	0.158 U	1.5	2.66	0.936 U	1.6	2.77	-0.401 U	1.3	2.44
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	0.246 U	1.1	4.79	0.246 U	2.3	5.37	-4.19 U	4.9	8.54
Europium-152, Particulate (pCi/L)	901.0	1.31 U	1.6	4.25	2.57 U	5.1	8.7	0.622 U	2	4.01
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	0.535 U	2.4	4.36	-1.63 U	2.8	5.41	-0.587 U	2.5	4.66
Europium-154, Particulate (pCi/L)	901.0	0.921 U	2.5	4.55	1.31 U	3.3	5.8	2.1 U	2.6	4.44
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	3.48 U	4.2	6.98	0.327 U	3.3	5.58	0.124 U	4.3	7.38
Europium-155, Particulate (pCi/L)	901.0	-2.55 U	3.9	6.82	1.87 U	4	6.76	-1.79 U	3.4	6.01
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	0.789 U	1.4	2.43	-0.521 U	1.4	2.47	0 U	0.89	1.59
Manganese-54, Particulate (pCi/L)	901.0	0.988 U	1.7	2.86	-0.194 U	1.3	2.4	0.154 U	1.5	2.57
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	1.3 U	17	29.6	6.07 U	18	31.5	-5.56 U	23	39.7
Potassium-40, Particulate (pCi/L)	901.0	-9.33 U	18	32.7	-12.2 U	28	49.9	6.49 U	17	29.2
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	0.185 U	0.83	1.51	-0.567 U	0.97	1.88	-0.204 U	0.87	1.62
Sodium-22, Particulate (pCi/L)	901.0	0.319 U	0.87	1.57	0.456 U	1.1	2.02	0.728 U	0.91	1.54
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	4.29	1.9	1.91	12.4	2.9	2.18	3.3 U	2.1	3.31
Gross alpha, Particulate (pCi/L)	900.0	0.455 U	0.63	1.02	20.8	2.4	0.768	0.14 U	0.89	1.64
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	4.8	1.9	2.79	17.3	2.6	3.43	5.67	2.6	3.87
Gross beta, Particulate (pCi/L)	900.0	-0.893 U	1.5	2.67	19.2	2.9	3.96	-0.115 U	2.2	3.77
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	-0.052 U	0.2	0.407	0.12 U	0.32	0.592	0.19 U	0.36	0.627
Strontium-90, Particulate (pCi/L)	905.0	-0.135 U	0.21	0.435	-0.078 U	0.38	0.748	0.007 U	0.36	0.709
Tritium (pCi/L)	906.0	-59.2 U	84	145	992	130	180	50.5 U	110	184
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	0.152 U	0.064	0.061	9.59	0.43	0.073	1.19	0.14	0.051
Uranium-235, Dissolved (pCi/L)	908.0	-0.008 U	0.015	0.059	0.546 J	0.089	0.035	0.059 J	0.037	0.035
Uranium-238, Dissolved (pCi/L)	908.0	0.044 U	0.038	0.061	9.78	0.44	0.067	0.964 J	0.12	0.046
Uranium-233/234, Particulate (pCi/L)	908.0	-0.006 U	0.022	0.068	0.109 J	0.05	0.052	0.023 U	0.035	0.071
Uranium-235, Particulate (pCi/L)	908.0	0.007 U	0.013	0.051	0.02 U	0.02	0.039	0 U	0.028	0.077
Uranium-238, Particulate (pCi/L)	908.0	-0.006 U	0.011	0.053	0.1 J	0.042	0.032	0.006 U	0.023	0.064
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	ND	--	--	19.92	--	--	2.213	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	0.209	--	--	ND	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	4.29	--	--	<0	--	--	NA	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	20.6	--	--	NA	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-34C	RD-34C	RD-34C	RD-50 (Z2)	RD-50 (Z2)	RD-50 (Z2)	RD-57 (Z7)	RD-57 (Z7)	RD-57 (Z7)
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Sample Name:	RD-34C_083010_01	RD-34C_083010_01	RD-34C_083010_01	RD-50_081810_01A	RD-50_081810_01A	RD-50_081810_01A	RD-57_081810_01A	RD-57_081810_01A	RD-57_081810_01A
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	8/30/2010	8/30/2010	8/30/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010	8/18/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	-2.52 U	3.3	6	-0.421 U	3.8	6.64	-3.46 U	3.5	6.35
Antimony-125, Particulate (pCi/L)	901.0	1.31 U	3.2	5.43	-2.24 U	2.9	5.4	0.888 U	4	6.94
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	-0.722 U	1.5	2.6	0.249 U	0.6	1.77	-0.192 U	1.5	2.57
Barium-133, Particulate (pCi/L)	901.0	0.319 U	0.54	1.68	-0.776 U	1.9	2.37	-0.572 U	2.6	4.6
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	0.918 U	2	2.76	0.439 U	1.4	2.5	0.141 U	1.4	2.48
Cesium-134, Particulate (pCi/L)	901.0	-0.405 U	1.4	2.56	0.604 U	1.8	2.36	-0.557 U	2.3	4.12
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	-1.56 U	1.6	2.9	0.949 U	1.7	2.87	2.67 U	1.7	2.7
Cesium-137, Particulate (pCi/L)	901.0	0.023 U	1.3	2.34	-0.13 U	1.5	2.57	0.783 U	2.2	3.83
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	-0.433 U	1.9	3.48	1.28 U	2.3	3.86	-0.107 U	1	1.94
Cobalt-60, Particulate (pCi/L)	901.0	-0.327 U	1.6	2.96	-0.502 U	1.1	2.06	-0.049 U	2	3.75
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	-1.48 U	7.1	12.2	2.29 U	3.5	5.91	-0.454 U	3	5.41
Europium-152, Particulate (pCi/L)	901.0	-0.634 U	4.2	5.24	1.2 U	4	6.83	-1.68 U	6.4	11.2
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	2.47 U	3.7	6.41	3.52 U	6.5	11.1	0.143 U	2.2	4.11
Europium-154, Particulate (pCi/L)	901.0	-0.16 U	2.6	4.82	-1.89 U	2.4	5.04	2.03 U	5.1	9.06
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	-0.151 U	4.4	7.54	1.75 U	2.6	4.42	0.517 U	3.1	5.34
Europium-155, Particulate (pCi/L)	901.0	0.606 U	2.8	4.85	-4.04 U	4.7	8.3	-1.24 U	5.8	10.1
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	-0.922 U	1.6	2.97	-0.434 U	1.1	2.04	0.331 U	0.87	1.55
Manganese-54, Particulate (pCi/L)	901.0	0.593 U	0.88	1.5	0.124 U	1.2	2.19	0.453 U	2	3.54
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	17.9 U	28	47.8	-1.03 U	15	27.5	-8.26 U	18	33.6
Potassium-40, Particulate (pCi/L)	901.0	-7.25 U	14	25.3	-12.2 U	15	28.5	-27 U	39	70.3
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	0.855 U	1.3	2.22	1.2 U	2.2	3.79	0.049 U	0.74	1.4
Sodium-22, Particulate (pCi/L)	901.0	-0.056 U	0.89	1.67	-0.646 U	0.84	1.72	0.692 U	1.7	3.09
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	2.25 J	1.2	1.27	18.8	3.8	2.35	8.91	2.4	1.93
Gross alpha, Particulate (pCi/L)	900.0	-0.102 U	0.36	0.973	0.176 U	0.39	0.69	-0.239 U	0.43	0.983
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	2.76 U	2.2	3.44	14.6	1.9	2.11	12.1	2.1	2.82
Gross beta, Particulate (pCi/L)	900.0	-0.913 U	1.4	2.53	-0.399 U	1.1	1.99	-0.323 U	1.3	2.17
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	-0.102 U	0.17	0.352	-0.01 U	0.29	0.574	-0.078 U	0.28	0.56
Strontium-90, Particulate (pCi/L)	905.0	0.077 U	0.22	0.403	0.009 U	0.28	0.559	-0.042 U	0.4	0.701
Tritium (pCi/L)	906.0	9.71 U	92	156	-8.9 U	290	119	33 U	310	118
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	0.259 U	0.073	0.075	11.1	0.65	0.11	4.42	0.4	0.094
Uranium-235, Dissolved (pCi/L)	908.0	0 U	0.029	0.06	0.547 J	0.12	0.072	0.264 J	0.1	0.065
Uranium-238, Dissolved (pCi/L)	908.0	0.061 J	0.041	0.05	8.45	0.53	0.099	3.76	0.36	0.094
Uranium-233/234, Particulate (pCi/L)	908.0	0 U	0.031	0.075	0.006 U	0.034	0.069	0.021 U	0.064	0.13
Uranium-235, Particulate (pCi/L)	908.0	0.009 U	0.019	0.073	0 U	0.014	0.052	0 U	0.026	0.098
Uranium-238, Particulate (pCi/L)	908.0	-0.008 U	0.016	0.06	0.006 U	0.022	0.054	-0.011 U	0.042	0.102
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	0.061	--	--	20.097	--	--	8.444	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	ND	--	--	ND	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	2.189	--	--	<0	--	--	0.47	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	NA	--	--	NA	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-59A	RD-59A	RD-59A	RD-59A	RD-59A	RD-59A	RD-59B	RD-59B	RD-59B
	Sample Type:	Primary	Primary	Primary	Field Duplicate	Field Duplicate	Field Duplicate	Primary	Primary	Primary
	Sample Name:	RD-59A_081110_01	RD-59A_081110_01	RD-59A_081110_01	RD-59A_081110_36	RD-59A_081110_36	RD-59A_081110_36	RD-59B_081110_01	RD-59B_081110_01	RD-59B_081110_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	1.27 U	1.9	8.35	-0.066 U	2.5	4.32	-2.1 U	3.2	5.68
Antimony-125, Particulate (pCi/L)	901.0	1.46 U	3	5.18	-3.4 U	5.3	9.22	-0.295 U	5.8	10.2
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	-0.961 U	2.3	4.03	-0.63 U	1.3	2.34	0.014 U	0.27	1.62
Barium-133, Particulate (pCi/L)	901.0	0.438 U	1.5	2.64	0.165 U	0.86	3.03	0.528 U	1.1	2.75
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	0.031 U	2.3	4.1	0.324 U	1	1.74	0.796 U	1.2	2.12
Cesium-134, Particulate (pCi/L)	901.0	-0.025 U	1.3	2.39	-0.442 U	1.8	3.16	-1.01 U	2.6	4.69
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	0.517 U	2.8	4.82	-0.484 U	1.3	2.31	8.18 J	2.1	3.23
Cesium-137, Particulate (pCi/L)	901.0	0.553 U	1.3	2.23	0.263 U	2.2	3.75	-2.97 U	3	5.35
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	0.033 U	1.9	3.52	-0.742 U	0.91	1.78	1.6 U	2	3.44
Cobalt-60, Particulate (pCi/L)	901.0	-0.482 U	1.3	2.51	-0.874 U	1.2	2.36	-0.414 U	3	5.24
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	-0.578 U	4.7	8.39	-0.235 U	2.3	4.11	0.484 U	3.5	6.06
Europium-152, Particulate (pCi/L)	901.0	0.863 U	3	5.19	0.938 U	1.8	7.87	1.96 U	5.5	9.51
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	-1.78 U	8.5	9.64	-0.257 U	2.1	3.88	1.7 U	4.6	6.11
Europium-154, Particulate (pCi/L)	901.0	1.6 U	4.6	6.2	-2.62 U	6.8	7.43	-1.49 U	4.4	8.41
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	-1.02 U	6.4	11.2	3.58 U	3.9	6.46	0.23 U	2.9	5.02
Europium-155, Particulate (pCi/L)	901.0	-2.76 U	2.8	5.01	1.21 U	4.5	7.64	1.32 U	3	5.21
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	1.5 U	1.8	2.97	-0.348 U	0.77	1.44	-0.263 U	1.1	1.91
Manganese-54, Particulate (pCi/L)	901.0	-0.069 U	0.84	1.56	0.515 U	1.1	1.84	1.83 U	2.5	4.31
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	33.9 U	40	67.3	9.03 U	8.5	14	-8.69 U	17	30.8
Potassium-40, Particulate (pCi/L)	901.0	-7.84 U	20	36	36.2 U	32	54	5.22 U	25	44.4
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	1.06 U	1.6	2.68	-0.088 U	0.7	1.32	-0.251 U	0.98	1.85
Sodium-22, Particulate (pCi/L)	901.0	-0.538 U	0.98	1.95	0.638 U	1.1	1.86	-0.507 U	1.5	2.86
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	2.06 J	1.3	1.79	2.01 J	1.2	1.98	1.36 U	1	1.45
Gross alpha, Particulate (pCi/L)	900.0	1.98 J	0.72	0.725	0.762 U	0.58	0.81	-0.145 U	0.3	0.63
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	4.93	1.5	2.26	3.92 J	1.5	2.23	4.22	1.2	1.74
Gross beta, Particulate (pCi/L)	900.0	1.18 U	1.3	2.11	1.3 U	1.3	2.15	-0.262 U	1.2	1.99
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	0.122 U	0.31	0.579	-0.027 U	0.31	0.615	-0.258 U	0.32	0.698
Strontium-90, Particulate (pCi/L)	905.0	-0.228 U	0.46	0.829	-0.056 U	0.35	0.681	0.082 U	0.38	0.724
Tritium (pCi/L)	906.0	-48.2 U	93	161	-42.1 U	94	162	-29.6 U	96	165
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	0.91 J	0.21	0.138	0.625 J	0.18	0.18	0.191 U	0.13	0.171
Uranium-235, Dissolved (pCi/L)	908.0	0.041 U	0.054	0.104	0.054 U	0.054	0.103	-0.013 U	0.051	0.123
Uranium-238, Dissolved (pCi/L)	908.0	0.438 J	0.14	0.086	0.446 J	0.14	0.085	0.074 U	0.085	0.117
Uranium-233/234, Particulate (pCi/L)	908.0	-0.029 U	0.088	0.224	-0.023 U	0.045	0.139	0 U	0.048	0.115
Uranium-235, Particulate (pCi/L)	908.0	0 U	0.071	0.17	0.014 U	0.027	0.105	0 U	0.029	0.111
Uranium-238, Particulate (pCi/L)	908.0	-0.044 U	0.059	0.162	-0.011 U	0.023	0.087	-0.012 U	0.024	0.092
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	1.348	--	--	1.071	--	--	ND	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	ND	--	--	ND	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	0.712	--	--	0.939	--	--	NA	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	1.98	--	--	NA	--	--	NA	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-59C	RD-59C	RD-59C	RD-63	RD-63	RD-63	RD-63	RD-63	RD-63
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Split	Split	Split
	Sample Name:	RD-59C_081110_01	RD-59C_081110_01	RD-59C_081110_01	RD-63_090210_01	RD-63_090210_01	RD-63_090210_01	RD-63_090210_03	RD-63_090210_03	RD-63_090210_03
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	GEL	GEL	GEL
	Collection Date:	8/11/2010	8/11/2010	8/11/2010	9/2/2010	9/2/2010	9/2/2010	9/2/2010	9/2/2010	9/2/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	-9.92 U	9.34	13.4
Antimony-125, Dissolved (pCi/L)	901.0	-1.9 U	4	6.92	2.34 U	3.3	5.65	--	--	--
Antimony-125, Particulate (pCi/L)	901.0	-1.4 U	5.9	10.4	-0.479 U	3.6	6.39	--	--	--
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	-4.06 U	5.5	7.23
Barium-133, Dissolved (pCi/L)	901.0	-0.008 U	1.3	2.2	-0.457 U	2.4	2.37	--	--	--
Barium-133, Particulate (pCi/L)	901.0	0.65 U	1.8	3.18	-0.824 U	2.6	4.44	--	--	--
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	-2.13 U	3.81	5.79
Cesium-134, Dissolved (pCi/L)	901.0	1.5 U	1.4	1.99	-0.588 U	1.6	2.78	--	--	--
Cesium-134, Particulate (pCi/L)	901.0	1.14 U	2.4	4.1	0.629 U	1.5	2.56	--	--	--
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	1.26 U	3.1	5.5
Cesium-137, Dissolved (pCi/L)	901.0	-1.2 U	1.7	2.97	-0.114 U	1.1	1.98	--	--	--
Cesium-137, Particulate (pCi/L)	901.0	-0.519 U	2.3	4.04	0.124 U	1.7	2.99	--	--	--
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	-2.58 U	3.16	4.37
Cobalt-60, Dissolved (pCi/L)	901.0	0.216 U	0.79	1.41	-0.006 U	1.8	3.12	--	--	--
Cobalt-60, Particulate (pCi/L)	901.0	0.162 U	1.8	3.24	-0.699 U	1.3	2.49	--	--	--
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	1.87 U	10.4	16.2
Europium-152, Dissolved (pCi/L)	901.0	-2.72 U	4.3	7.46	-1.33 U	3	5.54	--	--	--
Europium-152, Particulate (pCi/L)	901.0	-4.34 U	6.6	11.7	-4.31 U	5.5	9.72	--	--	--
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	1.16 U	8.5	14.7
Europium-154, Dissolved (pCi/L)	901.0	1.06 U	2.6	4.58	2.67 U	3.4	5.7	--	--	--
Europium-154, Particulate (pCi/L)	901.0	2.01 U	4.6	8.16	-1.7 U	2.9	5.74	--	--	--
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	-10.7 U	14	21.7
Europium-155, Dissolved (pCi/L)	901.0	2.57 U	4.2	7.04	-0.173 U	3.4	5.84	--	--	--
Europium-155, Particulate (pCi/L)	901.0	1.72 U	4.6	7.92	-0.338 U	3.8	6.62	--	--	--
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	1.77 U	2.74	5.01
Manganese-54, Dissolved (pCi/L)	901.0	0.948 U	1.5	2.54	0.44 U	1.5	2.6	--	--	--
Manganese-54, Particulate (pCi/L)	901.0	0.578 U	2.3	3.98	-0.128 U	1.1	1.95	--	--	--
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	-15.9 U	43	77.3
Potassium-40, Dissolved (pCi/L)	901.0	-9.03 U	11	34.5	-17 U	20	23	--	--	--
Potassium-40, Particulate (pCi/L)	901.0	18.7 U	37	63.3	-8.92 U	19	34	--	--	--
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	0.472 U	3.02	5.23
Sodium-22, Dissolved (pCi/L)	901.0	0.363 U	0.89	1.56	0.925 U	1.2	1.97	--	--	--
Sodium-22, Particulate (pCi/L)	901.0	0.686 U	1.6	2.78	-0.59 U	1	1.99	--	--	--
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	6.91 J	3.25	2.9
Gross Alpha, Dissolved (pCi/L)	900.0	2.94 J	1.3	1.5	7.17	3.3	3.32	--	--	--
Gross alpha, Particulate (pCi/L)	900.0	-0.047 U	0.36	0.7	4.46	1.6	1.38	--	--	--
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	12.7	3	3.53
Gross Beta, Dissolved (pCi/L)	900.0	4.05	1.3	1.92	9.82	4.7	7.18	--	--	--
Gross beta, Particulate (pCi/L)	900.0	-0.891 U	1.3	2.21	2.16 U	2.6	4.38	--	--	--
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	0.673 U	0.703	1.17
Strontium-90, Dissolved (pCi/L)	905.0	-0.067 U	0.31	0.597	-0.132 U	0.25	0.516	--	--	--
Strontium-90, Particulate (pCi/L)	905.0	-0.175 U	0.31	0.616	-0.067 U	0.23	0.47	--	--	--
Tritium (pCi/L)	906.0	-71 U	89	155	34.6 U	95	158	-127 U	101	182
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	4.86	1.98	1.14
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	0.193 U	0.511	1.22
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	7.7	2.48	1.14
Uranium-233/234, Dissolved (pCi/L)	908.0	0.176 U	0.094	0.112	5.22	0.43	0.094	--	--	--
Uranium-235, Dissolved (pCi/L)	908.0	-0.014 U	0.028	0.109	0.302 J	0.096	0.061	--	--	--
Uranium-238, Dissolved (pCi/L)	908.0	0.047 U	0.047	0.09	4.86	0.41	0.088	--	--	--
Uranium-233/234, Particulate (pCi/L)	908.0	0.026 U	0.038	0.071	0.03 U	0.045	0.072	--	--	--
Uranium-235, Particulate (pCi/L)	908.0	0.008 U	0.015	0.059	0.009 U	0.018	0.069	--	--	--
Uranium-238, Particulate (pCi/L)	908.0	0 U	0.026	0.061	0.052 U	0.045	0.057	--	--	--
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	12.56	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	ND	--	--	10.382	--	--	--	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	ND	--	--	--	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	<0	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	2.94	--	--	<0	--	--	--	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	4.46	--	--	--	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-85	RD-85	RD-85	RD-86	RD-86	RD-86	RD-96	RD-96	RD-96
	Sample Type:	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary
	Sample Name:	RD-85_082610_01	RD-85_082610_01	RD-85_082610_01	RD-86_081910_01	RD-86_081910_01	RD-86_081910_01	RD-96_081910_01	RD-96_081910_01	RD-96_081910_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	8/26/2010	8/26/2010	8/26/2010	8/19/2010	8/19/2010	8/19/2010	8/19/2010	8/19/2010	8/19/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	0.484 U	5.2	8.97	-1.98 U	3.8	6.73	1.65 U	3.7	6.22
Antimony-125, Particulate (pCi/L)	901.0	-2.83 U	5.4	9.6	1.46 U	4.3	7.46	-1.85 U	3.2	5.72
Barium-133 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	0.503 U	0.7	1.84	-0.118 U	2.2	3.79	-1.17 U	1.7	3.01
Barium-133, Particulate (pCi/L)	901.0	-1.31 U	1.7	3.05	-0.107 U	2.8	4.82	0.095 U	0.59	2.34
Cesium-134 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	0.322 U	1.3	2.34	0.461 U	1.1	1.88	0.014 U	0.46	2.09
Cesium-134, Particulate (pCi/L)	901.0	-1.21 U	1.9	3.6	0.176 U	1.9	3.37	0.071 U	1.9	3.39
Cesium-137 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	0.086 U	1.2	2.01	1.51 U	1.7	2.92	-1.19 U	1.4	2.56
Cesium-137, Particulate (pCi/L)	901.0	1.2 U	2.2	3.77	-1.41 U	1.7	3.14	0.367 U	1.7	2.9
Cobalt-60 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	-0.793 U	1	1.99	0.041 U	0.98	1.77	0.431 U	1.3	2.31
Cobalt-60, Particulate (pCi/L)	901.0	-1.3 U	1.9	3.77	0.689 U	1.6	2.88	-0.156 U	1.2	2.2
Europium-152 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	-4.41 U	4.7	8.3	0.267 U	24	3.48	0.018 U	0.35	3.49
Europium-152, Particulate (pCi/L)	901.0	-0.121 U	4.9	8.62	-0.665 U	5.4	9.49	-0.673 U	4.8	8.32
Europium-154 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	-1.68 U	2.6	4.92	-4.7 U	5.9	5.96	-0.065 U	2.5	4.63
Europium-154, Particulate (pCi/L)	901.0	2 U	4.3	7.71	-4.76 U	5.1	10.2	1.91 U	3.9	6.77
Europium-155 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	2.61 U	3.7	6.16	4.56 U	4.6	7.74	-0.394 U	3.8	6.59
Europium-155, Particulate (pCi/L)	901.0	-1.95 U	5.1	8.89	1.49 U	6	10.2	-0.178 U	3.7	6.37
Manganese-54 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	-0.244 U	0.91	1.65	-0.042 U	0.91	1.63	-0.394 U	0.92	1.68
Manganese-54, Particulate (pCi/L)	901.0	0.093 U	2.3	4.06	0.611 U	1.4	2.43	-1.4 U	1.6	2.91
Potassium-40 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	15.2 U	21	34.8	-4.17 U	22	37.7	-4.22 U	20	35.8
Potassium-40, Particulate (pCi/L)	901.0	16.8 U	32	54.4	-17.8 U	36	65.2	8.84 U	16	27.6
Sodium-22 (pCi/L)	901.0	--	--	--	--	--	--	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	-0.583 U	0.89	1.71	0.064 U	1.3	2.22	-0.022 U	0.88	1.61
Sodium-22, Particulate (pCi/L)	901.0	0.695 U	1.5	2.68	-1.65 U	1.8	3.54	0.661 U	1.3	2.35
Gross alpha (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	3.77	2.5	3.3	1.8 J	1.2	1.77	5.06	1.5	1.59
Gross alpha, Particulate (pCi/L)	900.0	1.38 U	0.94	1.52	1.23 J	0.66	1.03	7.19	1.8	1.28
Gross beta (pCi/L)	900.0	--	--	--	--	--	--	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	6.74	4.1	6.66	3.58 J	2	3.12	7.04	1.7	2.48
Gross beta, Particulate (pCi/L)	900.0	0.136 U	2.5	4.18	1.27 U	1.4	2.3	9.06	2.4	3.33
Strontium-90 (pCi/L)	905.0	--	--	--	--	--	--	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	-0.199 U	0.2	0.43	1.13 J	0.39	0.566	-0.11 U	0.37	0.675
Strontium-90, Particulate (pCi/L)	905.0	-0.16 U	0.18	0.402	-0.023 U	0.27	0.544	-0.094 U	0.3	0.596
Tritium (pCi/L)	906.0	30 U	86	144	-17 U	92	157	80.2 U	95	156
Uranium-233/234 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--	--	--	--	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	1.48	0.18	0.062	2.33	0.2	0.059	3.88	0.29	0.076
Uranium-235, Dissolved (pCi/L)	908.0	0.08 J	0.049	0.047	0.08 J	0.035	0.034	0.175 J	0.06	0.038
Uranium-238, Dissolved (pCi/L)	908.0	1.01	0.15	0.056	1.93	0.18	0.045	3.54	0.27	0.059
Uranium-233/234, Particulate (pCi/L)	908.0	0.031 U	0.041	0.069	0.048 U	0.038	0.059	0.187 J	0.082	0.094
Uranium-235, Particulate (pCi/L)	908.0	-0.006 U	0.013	0.048	0 U	0.023	0.056	0.014 U	0.028	0.054
Uranium-238, Particulate (pCi/L)	908.0	-0.005 U	0.01	0.049	0.014 U	0.019	0.046	0.216 J	0.071	0.045
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	2.57	--	--	4.34	--	--	7.595	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	ND	--	--	ND	--	--	0.403	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--	--	--	--	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	1.2	--	--	<0	--	--	<0	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	NA	--	--	1.23	--	--	6.79	--	--

TABLE 1
RADIOCHEMISTRY ANALYTICAL RESULTS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

	Well Identifier:	RD-98	RD-98	RD-98
	Sample Type:	Primary	Primary	Primary
	Sample Name:	RD-98_111910_01	RD-98_111910_01	RD-98_111910_01
	Groundwater Unit:	Chatsworth	Chatsworth	Chatsworth
	Lab Name:	TA- Denver	TA- Denver	TA- Denver
	Collection Date:	11/19/2010	11/19/2010	11/19/2010
Parameter	**Method**	**Activity**	**Error**	**MDA**
Antimony-125 (pCi/L)	901.0	--	--	--
Antimony-125, Dissolved (pCi/L)	901.0	0.833 U	3.3	5.63
Antimony-125, Particulate (pCi/L)	901.0	-1.18 U	3.5	6.17
Barium-133 (pCi/L)	901.0	--	--	--
Barium-133, Dissolved (pCi/L)	901.0	-1.11 U	1.1	2.42
Barium-133, Particulate (pCi/L)	901.0	0.686 U	0.86	2.37
Cesium-134 (pCi/L)	901.0	--	--	--
Cesium-134, Dissolved (pCi/L)	901.0	0.7 U	1	1.76
Cesium-134, Particulate (pCi/L)	901.0	-0.114 U	2.8	4.82
Cesium-137 (pCi/L)	901.0	--	--	--
Cesium-137, Dissolved (pCi/L)	901.0	-0.061 U	2.1	3.56
Cesium-137, Particulate (pCi/L)	901.0	-0.398 U	2.3	4.06
Cobalt-60 (pCi/L)	901.0	--	--	--
Cobalt-60, Dissolved (pCi/L)	901.0	0.223 U	1.7	3
Cobalt-60, Particulate (pCi/L)	901.0	0.318 U	2	3.53
Europium-152 (pCi/L)	901.0	--	--	--
Europium-152, Dissolved (pCi/L)	901.0	-0.512 U	3.3	7.15
Europium-152, Particulate (pCi/L)	901.0	1.48 U	2.6	6.98
Europium-154 (pCi/L)	901.0	--	--	--
Europium-154, Dissolved (pCi/L)	901.0	0.523 U	3.2	5.7
Europium-154, Particulate (pCi/L)	901.0	2.6 U	4.8	8.26
Europium-155 (pCi/L)	901.0	--	--	--
Europium-155, Dissolved (pCi/L)	901.0	-0.642 U	3.3	5.74
Europium-155, Particulate (pCi/L)	901.0	2.1 U	4.5	7.66
Manganese-54 (pCi/L)	901.0	--	--	--
Manganese-54, Dissolved (pCi/L)	901.0	-0.82 U	1.3	2.34
Manganese-54, Particulate (pCi/L)	901.0	-0.567 U	1.2	2.18
Potassium-40 (pCi/L)	901.0	--	--	--
Potassium-40, Dissolved (pCi/L)	901.0	-2.1 U	17	29.9
Potassium-40, Particulate (pCi/L)	901.0	8.81 U	30	52
Sodium-22 (pCi/L)	901.0	--	--	--
Sodium-22, Dissolved (pCi/L)	901.0	0.177 U	1.1	1.93
Sodium-22, Particulate (pCi/L)	901.0	0.882 U	1.6	2.8
Gross alpha (pCi/L)	900.0	--	--	--
Gross Alpha, Dissolved (pCi/L)	900.0	1.9 U	1.4	1.98
Gross alpha, Particulate (pCi/L)	900.0	12.1	1.4	0.637
Gross beta (pCi/L)	900.0	--	--	--
Gross Beta, Dissolved (pCi/L)	900.0	22.8	1.7	1.81
Gross beta, Particulate (pCi/L)	900.0	16.4	1.6	1.98
Strontium-90 (pCi/L)	905.0	--	--	--
Strontium-90, Dissolved (pCi/L)	905.0	9.68	0.64	0.459
Strontium-90, Particulate (pCi/L)	905.0	-0.064 U	0.23	0.479
Tritium (pCi/L)	906.0	41.3 U	79	132
Uranium-233/234 (pCi/L)	908.0	--	--	--
Uranium-235 (pCi/L)	908.0	--	--	--
Uranium-238 (pCi/L)	908.0	--	--	--
Uranium-233/234, Dissolved (pCi/L)	908.0	2	0.26	0.078
Uranium-235, Dissolved (pCi/L)	908.0	0.12 J	0.069	0.066
Uranium-238, Dissolved (pCi/L)	908.0	1.34	0.21	0.078
Uranium-233/234, Particulate (pCi/L)	908.0	0.205 J	0.038	0.033
Uranium-235, Particulate (pCi/L)	908.0	0.035 J	0.019	0.024
Uranium-238, Particulate (pCi/L)	908.0	0.17 J	0.035	0.021
Sum of total isotopic uranium activity (pCi/L)	Calculated	--	--	--
Sum of dissolved isotopic uranium activity (pCi/L)	Calculated	3.46	--	--
Sum of particulate isotopic uranium activity (pCi/L)	Calculated	0.41	--	--
Adjusted total gross alpha (pCi/L)	Calculated	--	--	--
Adjusted dissolved gross alpha (pCi/L)	Calculated	NA	--	--
Adjusted particulate gross alpha (pCi/L)	Calculated	11.69	--	--

NOTES AND ABBREVIATIONS

Chatsworth - Chatsworth Formation groundwater unit
Shallow - Near-surface groundwater unit
MDA - minimum detectable activity
pCi/L - picocuries per liter
-- Not available
J - Result is estimated
U - Not detected above the minimum detectable activity (MDA) or required detection limit (RDL)
NA - not applicable
ND - not detected

TABLE 2
RADIOCHEMISTRY FIRST-TIME DETECTIONS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Parameter	Well	Quarter	Sample Type	Result (pCi/L)	Groundwater Screening Reference Value	Units	Screening Type	Groundwater Unit	Monitoring Program	
									Site-wide	Area IV
Cesium-137, Dissolved	RD-59B	3	Primary	8.18 J ± 2.1	50 / 200	pCi/L	Primary MCL (a)	Chatsworth	X	
Gross Alpha, Dissolved	RD-96	3	Primary	5.06 ± 1.5	15	pCi/L	Primary MCL	Chatsworth	X	
Gross Alpha, Particulate	RD-96	3	Primary	7.19 ± 1.8	15	pCi/L	Primary MCL	Chatsworth	X	
Strontium-90, Dissolved	RD-86 *	3	Primary	1.13 J ± 0.39	8	pCi/L	Primary MCL	Chatsworth	X	
Uranium-233/234, Dissolved	OS-04 *	3	Primary	0.445 J ± 0.15	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-18 *	3	Primary	3.05 ± 0.26	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-33A (Z2) *	3	Primary	1.79 ± 0.22	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-59A *	3	Primary	0.91 J ± 0.21	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-59A *	3	Field Duplicate	0.625 J ± 0.18	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-85 *	3	Primary	1.48 ± 0.18	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-86 *	3	Primary	2.33 ± 0.2	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-96 *	3	Primary	3.88 ± 0.29	20	pCi/L	Cal MCL	Chatsworth	X	
Uranium-233/234, Total	RD-63 *	3	Split Sample	4.86 ± 1.98	20	pCi/L	Cal MCL	Chatsworth	X	
Uranium-235, Dissolved	RD-18 *	3	Primary	0.139 J ± 0.056	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-33A (Z2) *	3	Primary	0.059 J ± 0.044	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-85	3	Primary	0.08 J ± 0.049	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-86	3	Primary	0.08 J ± 0.035	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-96 *	3	Primary	0.175 J ± 0.06	20	pCi/L	Cal MCL	Chatsworth	X	
Uranium-238, Dissolved	OS-02 *	3	Primary	0.066 J ± 0.04	20	pCi/L	Cal MCL	Chatsworth	X	
	OS-03 *	3	Primary	0.097 J ± 0.059	20	pCi/L	Cal MCL	Chatsworth	X	
	OS-04 *	3	Primary	0.198 J ± 0.1	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-18 *	3	Primary	2.57 ± 0.24	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-33A (Z2)	3	Primary	1.02 ± 0.16	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-34C *	3	Primary	0.061 J ± 0.041	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-59A *	3	Primary	0.438 J ± 0.14	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-59A *	3	Field Duplicate	0.446 J ± 0.14	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-85 *	3	Primary	1.01 ± 0.15	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-86 *	3	Primary	1.93 ± 0.18	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-96 *	3	Primary	3.54 ± 0.27	20	pCi/L	Cal MCL	Chatsworth	X	
Uranium-238, Total	RD-63 *	3	Split Sample	7.7 ± 2.48	20	pCi/L	Cal MCL	Chatsworth	X	

NOTES AND ABBREVIATIONS

* first time analyzed for the detected analyte
bold - indicates results that exceed the screening value
J - Result is estimated
pCi/L - picocuries per liter
Primary MCL - Primary Maximum Contaminant Level
Cal MCL - California Primary Maximum Contaminant Level
Chatsworth - Chatsworth Formation groundwater unit
Shallow - Near-surface groundwater unit

(a) - gross beta Primary MCL is 50 pCi/L; isotope-specific MCL for Cesium-137 based on Primary MCL of 4 millirem per year is 200 pCi/L (EPA, 2002)

TABLE 3
RADIOCHEMISTRY NEW MAXIMUM CONCENTRATIONS
THIRD AND FOURTH QUARTERS 2010
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Parameter	Well	Quarter	Sample Type	Result (pCi/L)		Groundwater Screening Reference Value	Units	Screening Type	Groundwater Unit	Monitoring Program	
										Site-wide	Area IV
Gross Alpha, Dissolved	RD-57 (Z7)	3	Primary	8.91	± 2.4	15	pCi/L	Primary MCL	Chatsworth	X	
	RD-59C	3	Primary	2.94 J	± 1.3	15	pCi/L	Primary MCL	Chatsworth	X	
Gross Alpha, Particulate	RD-98	4	Primary	12.1	± 1.4	15	pCi/L	Primary MCL	Chatsworth		X
Gross Beta, Dissolved	RD-50 (Z2)	3	Primary	14.6	± 1.9	50	pCi/L	Cal MCL	Chatsworth	X	
	RD-57 (Z7)	3	Primary	12.1	± 2.1	50	pCi/L	Cal MCL	Chatsworth	X	
	RD-98	4	Primary	22.8	± 1.7	50	pCi/L	Cal MCL	Chatsworth		X
Gross Beta, Particulate	RD-96	3	Primary	9.06	± 2.4	50	pCi/L	Cal MCL	Chatsworth	X	
	RD-98	4	Primary	16.4	± 1.6	50	pCi/L	Cal MCL	Chatsworth		X
Gross Beta, Total	RD-63	3	Split Sample	12.7	± 3	50	pCi/L	Cal MCL	Chatsworth	X	
Strontium-90, Dissolved	RD-98	4	Primary	**9.68**	**± 0.64**	8	pCi/L	Primary MCL	Chatsworth		X
Uranium-233/234, Dissolved	RD-13	3	Primary	2.37	± 0.3	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-19	3	Primary	13.3	± 0.54	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-50 (Z2)	3	Primary	11.1	± 0.65	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-57 (Z7)	3	Primary	4.42	± 0.4	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-63	3	Primary	5.22	± 0.43	20	pCi/L	Cal MCL	Chatsworth	X	
Uranium-235, Dissolved	RD-13	3	Primary	0.1 J	± 0.08	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-19	3	Primary	1.05	± 0.13	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-34B	3	Primary	0.059 J	± 0.04	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-63	3	Primary	0.302 J	± 0.1	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-98	4	Primary	0.12 J	± 0.07	20	pCi/L	Cal MCL	Chatsworth		X
Uranium-238, Dissolved	RD-13	3	Primary	1.86	± 0.26	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-50 (Z2)	3	Primary	8.45	± 0.53	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-57 (Z7)	3	Primary	3.76	± 0.36	20	pCi/L	Cal MCL	Chatsworth	X	
	RD-63	3	Primary	4.86	± 0.41	20	pCi/L	Cal MCL	Chatsworth	X	

NOTES AND ABBREVIATIONS

bold - indicates results that exceed the screening value
J - Result is estimated
pCi/L - picocuries per liter
Primary MCL - Primary Maximum Contaminant Level
Cal MCL - California Primary Maximum Contaminant Level
Chatsworth - Chatsworth Formation groundwater unit
Shallow - Near-surface groundwater unit

TABLE 4
CESIUM-137 DATA SUMMARY
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Well ID	Location	Collection Date	Sample Type	Result Type	Analysis Method	Isotope	Result Value (pCi/L)	Error +/-	MDA (pCi/L)	Validated	Total Number of Samples with Detects	Max Detection (pCi/L)	Min Detection (pCi/L)	Total Number of ND results	Max MDA for ND results (pCi/L)	Min MDA for ND results (pCi/L)
RD-17	on site	2/25/2009	Primary Sample	Lab Repeat Analysis	901.1	Cesium-137, Dissolved	1.79 (b)	--	1.49	Level I	1	1.79	1.79	21	18.7	-1.47
RD-23	on site	3/11/1991	Field Duplicate	Primary Result	901.1	Cesium-137, Dissolved	104 (a)	4.91	10	No	2	104	3.01	32	13.3	-3.05
		2/24/2009	Primary Sample	Lab Repeat Analysis	901.1	Cesium-137, Dissolved	3.01	--	2.05	Level I						
RD-27	on site	3/6/2009	Primary Sample	Lab Repeat Analysis	901.1	Cesium-137, Total	2.49 (b)	--	1.29	Level I	1	3.08	2.49	7	2.66	-1.6
		3/6/2009	Primary Sample	Lab Repeat Analysis	901.1	Cesium-137, Total	2.01 U (b)	--	2.86	Level I						
		3/6/2009	Primary Sample	Lab Repeat Analysis	901.1	Cesium-137, Total	3.08 (b)	--	1.54	Level I						
RD-33B	on site	2/27/1994	Primary Sample	Primary Result	901.1	Cesium-137, Dissolved	21.6	7.6	6.4	No	2	32.6	21.6	32	14.4	-13
		11/4/2004	Primary Sample	Primary Result	901.1	Cesium-137, Dissolved	32.6	--	2.9	No						
RD-34A	on site	2/26/1994	Primary Sample	Primary Result	901.1	Cesium-137, Dissolved	19	7.3	6.4	No	2	19	9.2	34	24	-13.3
		8/9/1994	Primary Sample	Primary Result	901.1	Cesium-137, Dissolved	9.2	4.4	5	No						
RD-59B	off site	8/11/2010	Primary Sample	Primary Result	901.1	Cesium-137, Dissolved	8.18 J	2.1	3.23	Level IV	1	8.18 J	8.18 J	24	14.6	-6.2
110 additional locations	on site and off site	1989-2011	All	All	901.1	Cesium-137, Total, Dissolved, and Particulate	ND	varies	varies	varies	0	NA	NA	1116	99.2	-19
										TOTALS:	**9**			**1266**		

NOTES AND ABBREVIATIONS

MDA - minimum detectable activity
Max - maximum
Min - minimum
ND - not detected
pCi/L - picocuries per liter
-- not reported
NA - not applicable
U - Not detected above the minimum detectable activity (MDA) or required detection limit (RDL)
(a) - Not Detected in the primary sample (4.7 U pCi/L)
(b) - the original result was rejected; sample was reanalyzed

APPENDICES

Appendix A

Quality Assurance Assessment

APPENDIX A
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A-1 Summary of Third and Fourth Quarter 2010 Radiochemistry Data Qualification

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1 Data Validation Reports

1. OVERVIEW

Beginning in third quarter 2010, radiochemistry sample preparation and analysis (except for tritium) for the Site-wide program and other groundwater samples were performed using a new approach described in the United States Environmental Protection Agency's (EPA's) Area IV Radiochemistry Study Quality Assurance Project Plan (QAPP) (HydroGeoLogic [HGL], 2010). In short, this approach involves filtering at the laboratory followed by separate analysis of the liquid filtrate (dissolved) and the solid residue (particulate) captured by the filter. This new approach was implemented so that the Site-wide Program and other sampling and analysis results would be more directly comparable to the results of EPA's Area IV radiochemistry study. All other field and laboratory activities followed the *Groundwater Monitoring Quality Assurance Project Plan, Santa Susana Field Laboratory* (Haley & Aldrich, 2010). Field and laboratory data from third and fourth quarter radiological sampling activities were reviewed for consistency with the procedures outlined in the HGL and Haley & Aldrich QAPPs. Results of the review are discussed in the following sections.

2. INTRODUCTION

2.1 Quality Assurance/Quality Control (QA/QC) Procedures

Following the third and fourth quarter 2010 groundwater sampling events, field and laboratory data were reviewed for consistency with procedures outlined in the *Groundwater Monitoring Quality Assurance Project Plan, Santa Susana Field Laboratory* (Haley & Aldrich, 2010) and the *Quality Assurance Project Plan for* Groundwater*, Surface Water, and Sediment Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, CA* (HGL, 2010). As the project develops, it is anticipated that the quality assurance assessment conducted following each quarterly event may be modified. The current procedures include reviewing (a) field forms and documentation and evaluating whether field data were complete, and (b) analytical laboratory data for precision, accuracy, representativeness, comparability, completeness, and sensitivity.

Groundwater samples were submitted to the following laboratories:

Laboratory	Abbreviation	Location
TestAmerica-Denver (Primary)	TA-Denver	Arvada, Colorado
GEL Laboratories, LLC (Split)	GEL	Charleston, South Carolina

2.2 Procedures for Collection of Quality Control Samples

The following quality control (QC) samples were collected as part of the Groundwater Monitoring Program in order to ensure that all groundwater sample analysis results are consistent with the quality assurance (QA) objectives.

- **Field duplicates:** Duplicate samples are replicate groundwater samples collected from a given well. Both duplicates samples are submitted to the primary laboratory, but one of them is submitted as a "regular" sample, while the other is submitted as a "blind" duplicate. Field duplicates should be collected for approximately five percent of the total number of primary field samples, per method, for each sampling event.

- **Split Samples:** Split samples are replicate groundwater samples collected from a given well. One of the split samples is submitted to the primary laboratory and the other to the "split laboratory" for separate analysis and reporting. If there is a change in the primary laboratory or when verification sampling is required, then split samples should be collected at a rate of once per year, per method, for groundwater samples collected per the Groundwater Monitoring QAPP (Haley & Aldrich, 2010).

- **Field Blanks:** Field blank samples are prepared in the field using de-ionized or High Performance Liquid Chromatography (HPLC) grade water and are "collected" by filling sample containers used for the groundwater samples. Field blanks are then stored with field samples. In this manner, field blanks are intended to provide evidence of any contaminant in the source water or ambient air, cross contamination between field samples, and/or artifacts in sample containers. One field blank should be submitted per batch of water used for equipment rinse blanks.

- **Equipment Rinse Blanks:** Equipment rinse blank samples are prepared using de-ionized or HPLC grade water that has been used to rinse non-dedicated sampling equipment after decontaminating the equipment. Per the Groundwater Monitoring QAPP (Haley & Aldrich, 2010), equipment rinse blanks should be collected once per sampling event for any parameter analyzed in groundwater samples collected using non-dedicated sampling equipment.

- **Matrix Spike/Matrix Spike Duplicates:** A matrix spike (MS) is an aliquot of a field sample spiked with a known concentration of all target analytes. A matrix spike duplicate (MSD) is a replicate of this process. Typically, thrice the number of sample containers are filled with groundwater collected from a given well in order to provide

sufficient volume of sample for MS/MSD preparation and analysis. MS/MSDs should be collected at a rate of approximately five percent of the total number of samples collected, by method, for each sampling event.

2.3 Sample Custody

Chain-of-custody forms were completed by MWH personnel during the performance of sampling activities conducted at SSFL, as per the processes described in the QAPPs. These external chain-of-custody documents were completed appropriately upon sample transfer to analytical laboratory personnel.

2.4 Data Verification Process

Hardcopy data packages and electronic data containing particulate and dissolved radiological results were provided to Laboratory Data Consultants, Inc. (LDC) of Carlsbad, California. LDC performed a Level V review of the dissolved radiological results. This encompassed an evaluation of sample collection procedures, holding times, blanks (to assess contamination), sample duplicates (to assess precision), laboratory control samples (LCS) (to assess accuracy), and MS recoveries (to assess accuracy and matrix effects). LDC provided a comprehensive Level IV data review of the particulate results since the sample preparation and reporting processes were new and had proven problematic to execute. The Level IV validation included a complete review of summary information for instrument calibrations (to assess performance), compound identification, and quantitation, in addition to the Level V items.

Data were assessed in accordance with guidance from the *Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual* (USEPA, July 2004), a modified version of *USEPA Contract* Laboratory *Program National Functional Guidelines for Inorganic Data Review* (EPA 540-R-04-004, October 2004), and the USEPA Method specific protocol criteria, where applicable.

3. QA/QC EVALUATION

3.1 Field Data

3.1.1 Groundwater Sample Collection

During the third and fourth quarter 2010 sampling event, 25 wells, seeps, or piezometers were scheduled for sampling and analysis of radiological parameters. Of the locations scheduled for sampling, 22 wells or piezometers (88 percent) were sampled. Samples were not collected at three locations because two of the wells contained insufficient water for sampling, and one well had a bent casing that prevented sampling equipment from being lowered into the well. A sampling completeness of 100 percent was achieved for those wells that could be sampled versus those that were scheduled or planned to be collected in the third and fourth quarters of 2010.

3.1.2 QA/QC Sample Collection

The QA/QC sample collection targets are listed in the Groundwater Monitoring QAPP (Haley & Aldrich, 2010). During the third and fourth quarter radiochemistry sampling activities, the QA/QC sample collection targets were generally met exclusive of the wells that could not be sampled as described above in Section 3.1.1.

Percent Completeness for QA/QC Sample Collection

QC Sample Type	QAPP (Haley & Aldrich, 2010)
Duplicate samples	100%
Split samples	100%
MS/MSD samples	56%
Field blanks	100%
Equipment rinse blank	100%

Percent completeness (% C) values present in this summary were calculated using the following equation:

$$\% C = \frac{\text{Number of Valid (Usable) Measurements}}{\text{Number of Measurements Planned}} \times 100$$

The MS/MSD percent completeness was below the project goal of ninety percent (90%) largely because uncertainty regarding the new sample preparation and analysis approach led to matrix spikes being performed only on the dissolved analyses and not on the particulate analyses. MS/MSD percent completeness is one hundred percent (100%) for dissolved analyses (gross alpha/beta, gamma spectroscopy, uranium isotopes, and strontium-90) and total tritium, which meets the project goal. Subsequent clarification of details regarding the sample preparation and analysis approach has resolved the issue of MS/MSDs for the particulate analyses, and sufficient MS/MSDs will be analyzed during future sampling events.

3.2 Analytical Data

All laboratories are certified by the California Department of Public Health Environmental Laboratory Accreditation Program.

3.2.1 Laboratory Performance Comparison

Primary and split sample results were compared to evaluate inter-laboratory precision and primary laboratory performance. Relative percent differences (RPDs) were calculated for each analyte detected by both the primary and split laboratories if the analytes were detected at a concentration exceeding five times their respective required detection limits (RDLs). The split laboratory, GEL, misunderstood the sample filtering process defined in Section 3.3.6 of the HGL QAPP (HGL, 2010) and determined that their sample volume did not contain enough gross suspended solids to warrant filtration. As a result, the split sample was only reported with total radioisotope values and was not able to be compared to the dissolved and particulate values reported by the primary laboratory.

3.2.2 Field Duplicate Sample Precision

The RPDs of field duplicate samples are calculated for all radioisotopes detected in both the primary and duplicate samples if the isotopes were detected at a concentration exceeding five times their RDLs. The field duplicate pair did not have any isotopes that met this criterion in both samples.

3.2.3 Blank Accuracy

The minimum detectable activity (MDA) reported for radioisotopes in field blanks and equipment rinse blanks were compared to the RDL requirements defined in the Groundwater Monitoring QAPP (Haley & Aldrich, 2010). As required by the project, the MDAs in the blank samples were less than the required RDLs.

3.2.4 Data Representativeness, Reproducibility, and Completeness

Data representativeness, reproducibility, and completeness of results were evaluated by verifying the following:

- Locations were sampled as scheduled,
- Samples were properly collected,
- Procedures to maintain the integrity of samples during shipment were followed,
- Sample dilutions were properly conducted,
- Chain-of-custody documents were complete when submitted or changed appropriately, and
- Laboratory QA/QC data were obtained for each sample submitted.

Locations were sampled as scheduled except as described in Section 3.1. All samples were collected and shipped following acceptable procedures. The samples were received appropriately, identified correctly, and analyzed according to the monitoring requirements.

3.2.5 Data Usability Summary

LDC provided a comprehensive data verification report for each data package, which summarized laboratory and project criteria that were not met and sample results requiring

qualification due to QC discrepancies. The verification reports were reviewed by MWH to ensure the verification procedures as described in the QAPPs were followed. The final validated and flagged data were reviewed by the project chemist and team to assess against the project data quality objectives (DQOs) to determine data usability.

3.2.5.1 Sample Data Reporting

Laboratory analytical reports contain laboratory specific data qualifiers. When an analysis was performed without dilution, the RDL was determined relative to the most recent MDA study conducted by the contract laboratory. The RDL values for the dilution analyses were adjusted for the level of dilution performed. Values presented for target analytes detected at concentrations below the RDL but above the MDA were flagged with a "J" as estimated values.

3.2.5.2 Data Qualifiers

The use of the data qualifiers is intended to aid users in their interpretation of the sample results. Laboratory specific data qualifiers were assigned by the laboratories to the reported results in accordance with each laboratory's standard operating procedures. However, some data qualifiers used by the laboratories do not correspond with standard USEPA guidance as referenced in this document. The recommended USEPA data qualifiers preclude the use of the laboratory-specific qualifiers so that comparability of the reported results can be achieved if future analyses are performed at other laboratories.

The following is a summary of the data verification/validation qualifiers used in the review:

Qualifier	Description
J	The result is estimated.
U	Not detected above the minimum detectable activity (MDA) or required detection limit (RDL)

3.2.5.3 Summary

All final qualified results summarized on Table A-1 were found to be compliant with the DQOs for the project and are usable for the intended purpose as specified in the Draft Site-wide Water Quality Sampling and Analysis Plan (Haley & Aldrich, 2009).

4. REFERENCES

Haley & Aldrich, 2009. Draft Site-wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, California, Revision 1, December.

Haley & Aldrich, 2010. Groundwater Monitoring Quality Assurance Project Plan, Santa Susana Field Laboratory, Ventura County, California. April.

HydroGeoLogic, Inc. (HGL), 2010. Quality Assurance Project Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, California. Prepared for U.S. Environmental Protection Agency Region 9, EPA AES Contract Number EP-S7-05-05, Task Order Number 0038. August 11.

U.S. Environmental Protection Agency, 2004. Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP). July.

U.S. Environmental Protection Agency, 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. October.

TABLE

TABLE A-1
SUMMARY OF THIRD AND FOURTH QUARTER 2010 RADIOLOGICAL DATA QUALIFICATION
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result (pCi/L)	Validation Level	Validator Qualifier Code	Validation Notes	Validation Report Identifier
OS-02	8/12/2010	Primary Sample	908.0	Uranium-238, Dissolved	0.066	V	J	Isotope was reported below the RDL	24251
OS-02	8/12/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.311	V	U	Presumed contamination from field blank or equipment rinse blank	24251
OS-03	8/12/2010	Primary Sample	900.0	Gross Alpha, Dissolved	1.65	V	J	Isotope was reported below the RDL	24251
OS-03	8/12/2010	Primary Sample	900.0	Gross Beta, Dissolved	3.93	V	J	Isotope was reported below the RDL	24251
OS-03	8/12/2010	Primary Sample	908.0	Uranium-238, Dissolved	0.097	V	J	Isotope was reported below the RDL	24251
OS-03	8/12/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.321	V	U	Presumed contamination from field blank or equipment rinse blank	24251
OS-04	8/12/2010	Primary Sample	908.0	Uranium-238, Dissolved	0.198	V	J	Isotope was reported below the RDL	24251
OS-04	8/12/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.445	V	J	Isotope was reported below the RDL	24251
RD-13	8/24/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.1	V	J	Isotope was reported below the RDL	24264
RD-14	8/19/2010	Primary Sample	900.0	Gross Alpha, Dissolved	2.21	V	J	Isotope was reported below the RDL	24295
RD-14	8/19/2010	Primary Sample	900.0	Gross alpha, Particulate	2.7	IV	J	Isotope was reported below the RDL	25059
RD-14	8/19/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.081	V	J	Isotope was reported below the RDL	24295
RD-14	8/19/2010	Primary Sample	908.0	Uranium-233/234, Particulate	0.082	IV	J	Isotope was reported below the RDL	25059
RD-18	8/19/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.139	V	J	Isotope was reported below the RDL	24295
RD-33A	8/18/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.059	V	J	Isotope was reported below the RDL	24264
RD-33B	9/2/2010	Primary Sample	900.0	Gross Alpha, Dissolved	1.64	V	J	Isotope was reported below the RDL	24290
RD-33B	9/2/2010	Primary Sample	900.0	Gross alpha, Particulate	0.764	IV	J	Isotope was reported below the RDL	25059
RD-33C	9/3/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.152	V	U	Presumed contamination from field blank or equipment rinse blank	24290
RD-34A	8/20/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.546	V	J	Isotope was reported below the RDL	24281
RD-34A	8/20/2010	Primary Sample	908.0	Uranium-238, Particulate	0.1	IV	J	Isotope was reported below the RDL	25059
RD-34A	8/20/2010	Primary Sample	908.0	Uranium-233/234, Particulate	0.109	IV	J	Isotope was reported below the RDL	25059
RD-34B	8/20/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.059	V	J	Isotope was reported below the RDL	24281
RD-34B	8/20/2010	Primary Sample	908.0	Uranium-238, Dissolved	0.964	V	J	Isotope was reported below the RDL	24281
RD-34C	8/30/2010	Primary Sample	900.0	Gross Alpha, Dissolved	2.25	V	J	Isotope was reported below the RDL	24281
RD-34C	8/30/2010	Primary Sample	908.0	Uranium-238, Dissolved	0.061	V	J	Isotope was reported below the RDL	24281
RD-34C	8/30/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.259	V	U	Presumed contamination from field blank or equipment rinse blank	24281
RD-50	8/18/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.547	V	J	Isotope was reported below the RDL	24264
RD-57	8/18/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.264	V	J	Isotope was reported below the RDL	24264

TABLE A-1
SUMMARY OF THIRD AND FOURTH QUARTER 2010 RADIOLOGICAL DATA QUALIFICATION
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result (pCi/L)	Validation Level	Validator Qualifier Code	Validation Notes	Validation Report Identifier
RD-59A	8/11/2010	Field Duplicate	900.0	Gross Alpha, Dissolved	2.01	V	J	Isotope was reported below the RDL	24215
RD-59A	8/11/2010	Primary Sample	900.0	Gross Alpha, Dissolved	2.06	V	J	Isotope was reported below the RDL	24215
RD-59A	8/11/2010	Primary Sample	900.0	Gross alpha, Particulate	1.98	IV	J	Isotope was reported below the RDL	25059
RD-59A	8/11/2010	Field Duplicate	900.0	Gross Beta, Dissolved	3.92	V	J	Isotope was reported below the RDL	24215
RD-59A	8/11/2010	Field Duplicate	908.0	Uranium-238, Dissolved	0.446	V	J	Isotope was reported below the RDL	24215
RD-59A	8/11/2010	Primary Sample	908.0	Uranium-238, Dissolved	0.438	V	J	Isotope was reported below the RDL	24215
RD-59A	8/11/2010	Field Duplicate	908.0	Uranium-233/234, Dissolved	0.625	V	J	Isotope was reported below the RDL	24215
RD-59A	8/11/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.91	V	J	Isotope was reported below the RDL	24215
RD-59B	8/11/2010	Primary Sample	901.1	Cesium-137, Dissolved	8.18	IV	J	Isotope was reported below the RDL	24215
RD-59B	8/11/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.191	V	U	Presumed contamination from field blank or equipment rinse blank	24215
RD-59C	8/11/2010	Primary Sample	900.0	Gross Alpha, Dissolved	2.94	V	J	Isotope was reported below the RDL	24215
RD-59C	8/11/2010	Primary Sample	908.0	Uranium-233/234, Dissolved	0.176	V	U	Presumed contamination from field blank or equipment rinse blank	24215
RD-63	9/2/2010	Split Sample	900.0	Gross alpha	6.91	V	J	MS recovery was poor	24081
RD-63	9/2/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.302	V	J	Isotope was reported below the RDL	24290
RD-85	8/26/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.08	V	J	Isotope was reported below the RDL	24281
RD-86	8/19/2010	Primary Sample	900.0	Gross Alpha, Dissolved	1.8	V	J	Isotope was reported below the RDL	24295
RD-86	8/19/2010	Primary Sample	900.0	Gross alpha, Particulate	1.23	IV	J	Isotope was reported below the RDL	25059
RD-86	8/19/2010	Primary Sample	900.0	Gross Beta, Dissolved	3.58	V	J	Isotope was reported below the RDL	24295
RD-86	8/19/2010	Primary Sample	905.0	Strontium-90, Dissolved	1.13	V	J	Isotope was reported below the RDL	24295
RD-86	8/19/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.08	V	J	Isotope was reported below the RDL	24295
RD-96	8/19/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.175	V	J	Isotope was reported below the RDL	24295
RD-96	8/19/2010	Primary Sample	908.0	Uranium-238, Particulate	0.216	IV	J	Isotope was reported below the RDL	25059
RD-96	8/19/2010	Primary Sample	908.0	Uranium-233/234, Particulate	0.187	IV	J	Isotope was reported below the RDL	25059
RD-98	11/19/2010	Primary Sample	908.0	Uranium-235, Dissolved	0.12	V	J	Isotope was reported below the RDL	24807
RD-98	11/19/2010	Primary Sample	908.0	Uranium-235, Particulate	0.035	IV	J	Isotope was reported below the RDL	24807
RD-98	11/19/2010	Primary Sample	908.0	Uranium-238, Particulate	0.17	IV	J	Isotope was reported below the RDL	24807
RD-98	11/19/2010	Primary Sample	908.0	Uranium-233/234, Particulate	0.205	IV	J	Isotope was reported below the RDL	24807

NOTES AND ABBREVIATIONS

pCi/L - picrocuries per liter
J - Result is estimated
U - Not detected above the minimum detectable activity (MDA) or required detection limit (RDL)
RDL - required detection limit
MS - matrix spike

Abridged Data

Pages 39 to 6,710 have been removed from this abridged version in order to limit file size.

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Appendix A. Quality Assurance Assessment

Attachment 1. Data Validation Reports

Third Quarter Data Validation Reports
Fourth Quarter Data Validation Reports

Appendix B. Laboratory Analytical Reports

Third Quarter 2010
Fourth Quarter 2010