Ameren MISSOURI

Callaway Plant

April 29, 2016

ULNRC-06301

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

40 CFR 190

Ladies and Gentlemen:

DOCKET NUMBERS 50-483 and 72-1045
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
2015 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Please find enclosed the 2015 Annual Radiological Environmental Operating Report for Callaway Plant. This report is submitted in accordance with Section 5.6.2 of the Callaway Plant Technical Specifications and Appendix B to the Callaway Plant Operating License.

This letter does not contain new commitments.

If there are any questions, please contact Johann S. Geyer at (314) 225-1589

Sincerely,

Johann S. Geyer
Director, Radiation Protection

TAW

Enclosure

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AMEREN MISSOURI
CALLAWAY ENERGY CENTER
FULTON, MISSOURI

Docket Numbers 50-483 and 72-1045

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

to

THE UNITED STATES NUCLEAR REGULATORY COMMISSION

Part I

January 1 to December 31, 2015

Prepared by

ENVIRONMENTAL, Inc.
Midwest Laboratory
and
Ameren Missouri
Callaway Energy Center

Submitted by

UNION ELECTRIC CO.
dba Ameren Missouri

Project No. 8036

PREFACE

This Annual Radiological Environmental Operating Report (AREOR) describes the Ameren Missouri Callaway Energy Center Radiological Environmental Monitoring Program (REMP), and the program results for the calendar year 2015. It is submitted in accordance with section 5.6.2 of the Callaway Energy Center Technical Specifications.

Staff members of the Environmental, Inc., Midwest Laboratory were responsible for the acquisition of data presented in this report. Environmental samples were collected by Ameren Missouri personnel or contractors to Ameren Missouri and shipped to Environmental, Inc. – Midwest Laboratory and Stanford Dosimetry, LLC, for analysis.

The report was prepared by Environmental, Inc., Midwest Laboratory and the Ameren Missouri Callaway Energy Center.

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1.0 INTRODUCTION

This report presents an analysis of the results of the Radiological Environmental Monitoring Program (REMP) conducted during 2015 for the Union Electric Company (dba Ameren Missouri) Callaway Energy Center.

The objectives of the REMP are to monitor potential critical pathways of radioactive effluent to man and determine the radiological impact on the environment caused by operation of the Callaway Energy Center. The Radiological Environmental Monitoring Program was initiated in April 1982.

The Callaway Energy Center consists of one 3565 MWt pressurized water reactor, which achieved initial criticality on October 2, 1984. The plant is located on a plateau approximately ten miles southeast of the City of Fulton in Callaway County, Missouri and approximately eighty miles west of the St. Louis metropolitan area. The Missouri River flows by the site in an easterly direction approximately five miles south of the site at its closest point.

Tabulation of the individual analyses for the year 2015 is included in Part II of this report.

2.0 SUMMARY

The Radiological Environmental Monitoring Program, as required by the U.S. Nuclear Regulatory Commission (NRC) Technical Specifications for the Callaway Energy Center is described herein. Results for the year 2015 are summarized and discussed.

For the year, the Callaway Energy Center was operated in compliance with Offsite Dose Calculation Manual (ODCM) and Radiological Effluent Controls (REC) requirements. Results from the REMP indicate the Callaway Energy Center has had no significant radiological impact on the health and safety of the public or on the environment.

3.0 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

3.1 Program Design and Data Interpretation

The purpose of the Radiological Environmental Monitoring Program at the Callaway Energy Center is to assess the impact of the plant on its environment. For this purpose, samples are collected from waterborne, airborne, ingestion and terrestrial pathways and analyzed for radioactive content. Ambient gamma radiation levels are monitored by thermoluminescent dosimeters (TLDs).

Sources of environmental radiation can include the following:

(1) Natural background radiation arising from cosmic rays and primordial radionuclides;
(2) Fallout from atmospheric nuclear detonations;
(3) Releases from nuclear power plants, planned or accidental; and
(4) Industrial and medical radioactive waste.

Effects due to operation of the Callaway Energy Center must be distinguished from those due to other sources in interpreting the data,.

The indicator-control concept is a major interpretive aid; where feasible the design of the Callaway Energy Center program has both indicator and control stations. Most types of samples are collected at indicator locations (nearby, downwind, or downstream) and at control locations (distant, upwind, or upstream). A station effect would be indicated if the radiation level at an indicator location was significantly larger than that at the control location. The difference would have to be greater than could be accounted for by typical fluctuations in radiation levels arising from other sources.

The monitoring program includes analyses for iodine-131, a fission product, and tritium, which is produced by cosmic rays, atmospheric nuclear detonations, and also by nuclear power plants. Most samples are analyzed for gamma-emitting isotopes, with results for the following groups quantified: zirconium-95, cesium-137, and cerium-144. These three gamma-emitting isotopes are selected as radiological impact indicators because of the different characteristic proportions in which they appear in the fission product mix produced by a nuclear reactor and that produced by a nuclear detonation. Each of the three isotopes is produced in roughly equivalent amounts by a reactor: each constitutes about 10% of the total activity of fission products ten days after reactor shutdown. On the other hand, ten days after a nuclear explosion, the contributions of zirconium-95, cerium-144, and cesium-137 to the activity of the resulting debris are in the approximate ratio 4:1:0.03 (Eisenbud,1963).

The other group quantified consists of niobium-95, ruthenium-103 and -106, cesium-134, barium-lanthanum-140, and cerium-141. These isotopes are released in small quantities by nuclear power plants, but to date their major source of injection into the general environment has been atmospheric nuclear testing. Nuclides of the next group, manganese-54, cobalt-58 and-60, and zinc-65, are activation products and arise from activation of corrosion products. They are typical components of nuclear power plant effluents, but are not produced in significant quantities by nuclear detonation.

Nuclides of the final group, beryllium-7, which is of cosmogenic origin, and potassium-40, a naturally-occurring isotope, were chosen as analytical monitors and should not be considered radiological impact indicators.

Other means of distinguishing sources of environmental radiation can be employed in interpreting the data. Current radiation levels can be compared with previous levels, including pre-operational data. Results of the monitoring program can be related to those obtained in other parts of the world. Finally, results can be related to events known to cause elevated levels of radiation in the environment, e.g., a nuclear accident.

3.2 Program Description

The sampling and analysis schedules for the environmental radiological monitoring program at the Callaway Energy Center are summarized in Tables 5.1 and 5.2 and briefly reviewed below. Table 5.1 identifies sampling locations and specifies as to type (indicator or control) and its distance, and direction relative to the reactor site. The types of samples collected at each location, required analyses and the frequency of collections are presented in Table 5.2.

To monitor the air environment, airborne particulate and airborne iodine samples are collected by continuous pumping, at five locations. The airborne particulates are collected on glass fiber filters and the airborne iodine through an activated charcoal cartridge. Both filters and cartridges are exchanged weekly. Airborne particulates are analyzed for gamma-emitting isotopes. Charcoal cartridges are analyzed for iodine-131.

The ingestion pathway is monitored by sampling of milk (if available), fish and green leafy vegetation.

Milk samples are collected semimonthly when animals are on pasture and monthly the rest of the year. There were no milk indicator stations identified by the Land Use Census for the subject year. The control station continued to be collected. Samples are analyzed for iodine-131 and gamma-emitting isotopes.

Monthly during the growing season, edible green leafy vegetation is collected from both indicator and control locations. Vegetation samples typically consist of mustard greens, turnip greens, cabbage, lettuce, collards, radish greens, Swiss chard, broccoli and poke. Other edible broad leaf vegetation is collected if primary varieties are not available. The samples are analyzed for iodine-131 and other gamma-emitting isotopes.

Feed crops (soybeans, sorghum, corn) are collected from locations FC-1 through FC-4. FC-1, FC-2 and FC-3 are located on Ameren property traversed by the discharge pipeline. The samples are collected at harvest and analyzed for tritium and gamma emitting isotopes. FC-4 is a control location, beyond the influence of plant operations. Feed crops are grown for animal feed and not for human consumption. The soybean field for sample FC-1 is planted by the Missouri State Department of Conservation (MODOC) to provide feed to wildlife living in the Reform Wildlife Conservation Area. MODOC did not plant the field this year and there was no crop to sample.

The waterborne pathway is monitored by sampling surface water, groundwater and drinking water, and bottom and shoreline sediments. Water samples are analyzed for tritium and gamma-emitting isotopes, and sediments are analyzed for gamma-emitting isotopes.

The waterborne pathway is also monitored by upstream and downstream semiannual collections of fish. The five most abundant recreational or commercial fish species are collected. Samples are analyzed for gamma-emitting isotopes.

Monthly composite samples of surface water from the Missouri River are collected from one indicator location (S02) and from one control location (S01). The surface water samples are composites of daily collections by automatic river samplers.

Onsite surface water from ten ponds is analyzed for tritium and gamma-emitting isotopes. The collection frequencies are either semiannually or quarterly.

To monitor possible sources of ground water contamination due to plant operations, non-potable ground water was collected monthly or quarterly from well locations both onsite and along the discharge pipeline. The samples were analyzed for tritium and gamma-emitting isotopes.

Potable well water samples are collected quarterly from the plant drinking water supply, neighboring property owners, and from the town of Portland, MO. The samples were analyzed for tritium and gamma-emitting isotopes.

River bottom sediment is collected semiannually at the plant's intake (A) and discharge (C). The samples are taken from water at least 2 meters deep to prevent influence of bank erosion. Shoreline sediments are collected semiannually in the same area as bottom sediment. These samples are collected within two feet of the edge of the water. The samples are analyzed for gamma-emitting isotopes.

The direct ambient gamma radiation pathway is also considered. This exposure is monitored by thermoluminescent dosimeters (TLDs) at forty-eight locations in and around the Callaway site. The TLDs are placed in 16 sectors around the plant as specified in the ODCM-RECS. Five of the TLD stations have neutron monitoring capability and three locations are designated as controls. TLDs are exchanged and analyzed quarterly.

Soil is collected annually from seven indicator locations (F2, PR3, F6, PR7, W2, W3, and W4) and two control locations (M9, W1) to monitor the terrestrial environment. The samples are analyzed for gamma-emitting isotopes.

3.3 Program Execution

The program was executed as described in the preceding section with the following exceptions.

(1) Surface Water:

The sampler at S01 was out of service 32 days (9%); the sampler at S02 was out-of service 22 days (6%).

(2) Ground Water:

No groundwater samples were available from location 937D for the 1/14/15 scheduled collection due to ice making the well inaccessible (CAR 201500361). No groundwater was available from location 937B for the 11/12/15 or 12/13/15 scheduled collection due to construction in the area (CAR 201508200). No groundwater samples were available from monitoring well U1MW-028 for the first, second or third quarters of 2015 because the well was dry (CAR 201505641). Location U1MW-028 was subsequently deleted from the REMP program because it is dry most of the time.

(3) Drinking Water:

No drinking water sample was available at location DWA-08 for the 7/29/15 scheduled collection. The provider was on vacation. Also, no drinking water was available at location DWA-05 10/26/15. The property was sold and the new owner hasn't been identified in order to arrange for future sampling (CAR 201507721).

(4) Broadleaf Vegetation:
Edible broadleaf vegetation, collected at the five area gardens was available for harvest from June through October, 2015 with the following exceptions: Location V-17 started producing in May but was finished by September. Location V-9 was unavailable in June due to flooding of the garden (CAR 201504200). Location V-9 last produced in September. Locations V-12 and V-16 didn't start producing until June and V-11 and V-16 both stopped producing in September. Missing samples during the periods when the gardens were producing are listed in Table 5.5.

The growing season is defined as April 1 through November 1 (ref: Hammer, Gregory R.). A vegetation sample unavailable after October 31 is not considered a missed sample.

(5) Shoreline and Bottom Sediment:
The shoreline and bottom sediment indicator samples are required to be taken downstream

of the plant discharge. The sampling personnel were recently observed attempting to sample at a location approximately 150' upstream of the plant discharge. The plant discharge line was relocated approximately 400' downstream of the previous location in 2007 to eliminate recycling of plant effluents into the plant intake and in preparation for installation of the replacement discharge pipeline. The sampling personnel were not aware the discharge line had been relocated and stated they had always taken the samples at the same location. Due to ineffective change management, the new location was not communicated to the personnel overseeing the sampling, therefore it is likely, but not certain, that the shoreline and bottom sediment indicator samples continued to be collected at the previous location, approximately 150' upstream of the plant discharge for the years 2007- 2015. This is described in plant corrective action document CAR 201603408. The 2015 samples are listed as missed samples in Table 5.5.

(6) Fish:
The fish indicator samples were also taken in the same location as the sediment samples as described in section 3.3(5) above. The integrity of the fish samples was not compromised, however. The Missouri River in the vicinity of the referenced plant infrastructure has been highly modified and anthropomorphically altered in order to more efficiently support the operation of the river as a commercial navigation corridor. These modifications resulted in the narrowing and incision of the Missouri River, eliminating many micro-habitat features that would otherwise be present for habitat utilization by the targeted fish species. In order to reduce channel maintenance costs while providing some measure of habitat heterogeneity, the US Army Corps of Engineers (USACE) subsequently installed a series of river training structures (wing-dikes, longitudinal rock weirs, etc.). The Callaway intake/discharge is situated immediately downstream of a cross-over of the primary downstream river discharge, which is evidenced by the alternating location of the training structures in the intake/discharge vicinity. Immediately upstream of the intake/outfall the training structures occur along the south-descending bank (opposite the intake/discharge), while the training structures immediately downstream of the intake/outfall are located along the north-descending bank. As these training structures create flow dynamics that provided resting space, foraging habitat and cover for many of the targeted species, fish will aggregate along the training structures as refugia and migrate between them. As the primary downstream river discharge crosses-over just upstream of the intake structure the fish will utilize back-waters and eddies of the upstream most portion of these training structures as resting locations prior to making a burst-swim across the channel to the downstream- most portion of the training structures along the bank opposite the intake/outfall. As has historically been observed by the Callaway plant staff and operators, the intake structure given its configuration and proximity to the upstream- most portion of the adjacent training structures, creates a backwater/eddy environment which would also serve to aggregate fish working their way from below the discharge to above the intake and are preparing to make the burst-swim across the channel. Contextually, a sampling location difference of <150 lineal feet would have minimal consequence in this scenario as the sampling location in such an area is an artificial constraint in both the temporal and spatial context in the order of a few hours to a few feet, while the eco-toxicological context controlling the bio-accumulation of radionuclides in the fish is governed by months of occupancy of over 2 miles of downstream habitat, while the fish are constantly moving in and out of this space. Thus the integrity of the fish samples was not compromised and the fish samples are not listed as missing samples.

3.4 Laboratory Procedures

The iodine-131 analyses in milk were made using a sensitive radiochemical procedure involving separation of the iodine by ion-exchange, solvent extraction and subsequent beta counting.

Gamma-spectroscopic analyses were performed with HPGe detectors. Levels of iodine-131 in vegetation and concentrations of airborne iodine-131 in charcoal samples were also determined by gamma spectroscopy.

Tritium was measured by liquid scintillation.

Analytical Procedures used by Environmental, Inc. are on file at the laboratory and are available for inspection. Procedures are based on those prescribed by the Health and Safety Laboratory of the U.S. Dep't of Energy, Edition 28, 1997, U.S. Environmental Protection Agency for Measurement of Radioactivity in Drinking Water, 1980, and the U.S. Environmental Protection Agency, EERF, Radiochemical Procedures Manual, 1984.

Environmental, Inc., Midwest Laboratory has a comprehensive quality control/quality assurance program designed to assure the reliability of data obtained. Details of the QA Program are presented elsewhere (Environmental, Inc., Midwest Laboratory, 2012). The QA Program includes participation in Interlaboratory Comparison (crosscheck) Programs. Results obtained through Quality control samples and crosscheck program results are presented in Appendix A.

Environmental TLDs are processed by Stanford Dosimetry, LLC.

3.5 Program Modifications

The monitoring wells in the program were adjusted as described below based on the hydrogeological model developed in the 2014 Limited /site Investigation (LSI) and the frequency of drinking water sample collection was changed back to the pre- LSI frequency based on recommendations of the hydrogeological consultants. (CAR 201504965)

Wells samples were deleted from the program at the following locations: CA-WWA-937A, CA-WWA-937C, CA-WWA-937E, CA-WWA-937F, CA-WWA-938, CA-WWA-OW-4, CA-WWA-OW-5, CA-WWA-U1MW-017, CA-WWA-U1-MW021, CA-WWA-U1MW-022, CA-WWA-U1MW-023, CA-WWA-U1MW-024, CA-WWA-U1MW-025, CA-WWA-U1MW-026, CA-WWA-U1MW-027, CA-WWA-U1MW-028, CA-WWA-U1MW-029, CA-WWA-U1MW-030, CA-WWA-U2MW-9, CA-WWA-U2-12.

Well samples were added at the following locations:
CA-WWA-U1-036, CA-WWA-U1MW-039, CA-WWA-U1MW-047, CA-WWA-U1MW-058, CA-WWA-U1-059, “inside old BDL” and “ISFSI sump”. The collection frequency for the well sample at location CA-WWA-U1MW-031 was changed from monthly to quarterly collection.

The frequency of drinking water sample collections was changed from monthly back to quarterly. The frequency had been changed previously from quarterly to monthly in response to the LSI (Limited Site Investigation) performed in 2014.

The surface water sample at location CA-SWA-UHS was deleted from the program after the 7/25/15 collection.

The drinking water sample at location CA-DWA-05 was deleted from the program after the participating resident sold the property. (CAR201507721)

Four neutron sensitive TLD stations were added to monitor for possible neutron dose from the Independent Spent Fuel Storage Installation. The first fuel loading campaign was conducted in August - October, 2015.

3.6 Detection and Reporting Limits

Table 5.3 gives the minimum required detection limits for radiological environmental sample analysis. For each sample type, the table lists the detection level for each isotope. The lower limit of detection (LLD) used in this report is described in NRC Regulatory Guide 4.1 Rev. 1, "Program for Monitoring Radioactivity in the Environs of Nuclear Power Plants" and the NRC Radiological Assessment Branch Technical Position, Rev. 1, November 1979, "An Acceptable Radiological Environmental Monitoring Program".

3.7 Land Use Census

The Land Use Census is performed annually during the growing season. In 2015, the survey was conducted within a five mile canvassing radius of the Callaway Energy Center. The location of the nearest resident, nearest milk animal, and nearest garden of greater than 50 square meters producing broadleaf vegetation was identified by aerial photography and by contacting residents by phone, mail and/or in field surveys for each of the sixteen meteorological sectors using the midpoint of the two units. Residences in the vicinity of the plant were surveyed in person and by telephone.

The Land Use Census was conducted in July- September, 2015. The results of the census are presented in Table 5.4. The table includes radial direction and distance from the Callaway Energy Center for each location, determined by a Global Positioning System (GPS) receiver.

No new well water sources were identified along the Callaway Plant pipeline corridor. No irrigation uses of the Missouri River were identified during the survey. The Missouri Department of Natural Resources confirmed that no new drinking water intakes have been located along the Missouri River within ten (10) river miles downstream from the plant.

3.8 Corrections to Previous AREORs

The shoreline and bottom sediment indicator samples are required to be taken downstream of the plant discharge. The sampling personnel were recently observed attempting to sample at a location approximately 150' upstream of the plant discharge. The plant discharge line was relocated approximately 400' downstream of the previous location in 2007 to eliminate recycling of plant effluents into the plant intake and in preparation for installation of the replacement discharge pipeline. The sampling personnel were not aware the discharge line had been relocated and stated they had always taken the samples at the same location. Due to ineffective change management, the new location was not communicated to the Ameren personnel overseeing the sampling, therefore it is likely, but not certain, that the shoreline and bottom sediment indicator samples continued to be collected at the previous location, approximately 150' upstream of the plant discharge for the years 2007- 2015. Those samples should be considered as missed samples. This is described in plant corrective action document CAR 201603408.

4.0 RESULTS AND DISCUSSION

All collections and analyses were made as scheduled, except for the listing in Table 5.5.

Results are summarized in Table 5.6 as recommended by the Nuclear Regulatory Commission. For each type of analysis and sample medium, the table lists the mean and range of all indicator and control locations, as well as that location with the highest mean and range.

The tabulated results of all measurements are not included in this section, although references to these results will be made in the discussion. A complete tabulation of results for 2015 is contained in Part II of the Annual Report on the Radiological Environmental Monitoring Program for the Callaway Energy Center.

4.1 Atmospheric Nuclear Detonations and Nuclear Accidents

The Fukushima Daiichi nuclear accident occurred March 11, 2011. There were no reported accidents involving significant release to the environment at nuclear reactor facilities in 2015. The last reported atmospheric test was conducted on October 16, 1980 by the People's Republic of China. There were no reported atmospheric nuclear tests in 2015.

4.2 Program Findings

Airborne Particulates and Iodine

Gamma spectroscopic analysis of the air particulate filters yielded similar results for all locations. In 34 of the 260 samples tested, Beryllium-7 was detected with an average activity of 0.24 pCi/m^3. Beryllium-7 is produced continuously in the upper atmosphere by cosmic radiation. No gamma emitting isotopes of plant origin were identified.

There was no I-131 activity detected in any of the charcoal canister samples.

Direct Radiation (TLDs)

Forty-three gamma sensitive TLDs were placed in 16 sectors around the Callaway site. Measurements from forty indicator locations averaged 15.3 mrem/quarter and the three control locations averaged 14.7 mrem/quarter. Readings ranged from 10.5 to 17.8 mrem /quarter, with the highest from the indicator location CA-IDM-27, averaging 17.0 mrem/quarter. The differences are statistically insignificant. The TLD readings were consistent with previously accumulated data and no effect from plant operation was identified.

Four neutron sensitive TLDs were placed in locations at the Site Boundary closest to the Independent Spent Fuel Storage Facility Installation (ISFSI) and at a control location approximately 14 miles from the site. There was no measureable neutron dose there was no effect from the ISFSI.

Milk

There are no milk indicator stations. No Iodine-131 was detected in samples from the control station. No gamma-emitting isotopes, excepting naturally occurring potassium-40, were detected in milk. Milk data for 2015 show no radiological effects of plant operation.

Broadleaf Vegetation

There was no I-131 activity detected in broadleaf vegetation samples. No gamma-emitting isotopes were detected in broadleaf vegetation samples excepting naturally occurring potassium-

40. Vegetation data for 2015 show no radiological effects of plant operation.

Non-Food Crops

Soybean samples were analyzed for tritium and gamma-emitting isotopes. No tritium activity was detected. No gamma-emitting isotopes, excepting naturally occurring potassium-40, were detected in non-food crops.

Fish

Edible portions of fish were analyzed by gamma spectroscopy. No gamma-emitting isotopes, excepting naturally occurring potassium-40, were detected in fish.

Soil

Cesium-137 activity was detected in ten of the fourteen indicator samples at an average concentration of 292 pCi/kg dry. The cesium-137 activity is consistent with levels observed from 1999 through 2014; these levels are attributable to the deposition of fallout from previous decades.

Surface Water

Low level tritium was detected in four of the twelve samples collected at the downstream location S02 at an average concentration of 239 pCi/L. There was no tritium detected in the remaining eight samples from S02. No gamma-emitting isotopes were detected.

Surface Water, Ponds

Tritium activity was detected in one sample from the UHS pond. This is believed to be historical tritium due to river water recycle of tritium in liquid effluents prior to 2007. No tritium activity was detected in the remaining pond samples. No gamma-emitting isotopes were detected in the pond samples.

Drinking Water Wells (potable water)

Samples from fourteen locations were analyzed for tritium and gamma-emitting isotopes. No tritium or gamma-emitting isotopes were detected.

Wells and Ponds (non-potable water)

Groundwater samples from deep wells F-05 and F-15 were analyzed for tritium and gamma-emitting isotopes. There were no tritium or gamma emitting isotopes detected.

Wells MW-31, MW-34, MW-36, MW-39, MW-47, MW-58, and MW-59 were installed during the 2014 LSI (the 2014 LSI is described in detail in the Callaway Energy Center 2014 Annual Radioactive Effluents Release Report). These wells continue to monitor the natural attenuation of tritium which decreased significantly during 2015. Tritium activity was detected in 34 of 44 samples from these wells. The highest concentration was measured in MW-36 which peaked at 13,295 pCi/L in January. By years end, the concentration in MW-36 had fallen to 1,614 pCi/L. The average concentration among positive results for these wells was 4,371pCi/L. The contamination is being remediated by monitored natural attenuation. There are no active leaks.

Wells OW-4, OW-5, GWS, 936, 937A to 937F, 938, 939R, 940 and 941 are located in the Plant Protected Area, adjacent to the power block. Low level tritium in wells OW-4 and OW-5 is believed to be historical tritium due to river water recycle of tritium in liquid effluents prior to 2007. Tritium activity in the remainder of these wells is believed to be the result of washout from gaseous effluents. The low level tritium activity observed in wells MW-014, MW-018 and MW-019 is due to residual low level contamination from moisture carryover during normal operation of air

release valves (ARVs) in manholes 5 and 6B on the now-retired discharge pipeline. The pipeline was replaced in 2008 and there has been no new contamination of this area since then. The existing contamination is being remediated by monitored natural attenuation. There are no active leaks.

Sediments

Samples of shoreline and bottom sediments were analyzed for gamma-emitting isotopes. Cesium-137 was detected in one of the two bottom sediment indicator samples at a concentration of 76 pCi/kg dry weight, but measured below detection limits at both of the samples from the control location. Cesium-137 was also detected in one of the two shoreline sediment indicator samples at a measured concentration of 90 pCi/kg dry weight. These results are consistent with results from previous years. There were no other gamma-emitting isotopes excepting naturally occurring potassium-40 in any of the sediment samples.

5.0 TABLES

Table 5.1. Sampling Locations. (TLD's)

Location Code	Distance / Direction [1]	Description	Sample Types [2]
1a	11 mi. NW	City of Fulton on Hwy Z, 0.65 mi. E of Bus. 54, W of Campus Apartments.	IDM
3	1.2 mi. NW	0.1 mi. West of Hwy CC on Gravel Rd., 0.8 mi. South Hwy O, Pole No. 18559.	IDM
5	1.3 mi. ENE	Primary Meteorological Tower.	IDM
6	2.0 mi. W	Cty Rd. 428, 1.2 mi. West of Hwy CC, Utility Pole No. 18609.	IDM
7	1.4 mi. S	Cty Rd. 459, 2.6 mi. North of Hwy 94, Utility Pole No. 35097.	IDM
9	3.8 mi. S	NW Side of the Cty Rd. 459 and Hwy 94 Junction, Utility Pole No. 06754.	IDM
10	3.9 mi. SSE	Hwy 94, 1.8 mi. East of Cty Rd. 459, Utility Pole No. 12182.	IDM
11a	4.7 mi. SE	City of Portland, Utility Pole No. 12110.	IDM
14	4.9 mi. ESE	SE Side of Intersection D and 94, Utility Pole No. 11940.	IDM
17	3.8 mi. E	Cty Rd. 4053, 0.3 mi. E of Hwy 94, Kingdom Telephone Co., Pole No. 3X12.	IDM
18a	3.7 mi. ENE	East side of Hwy D, 0.5 mi. South of O, Utility Pole No. 38579.	IDM
20	4.7 mi. NE	City of Readsville, Utility Pole No. 12830.	IDM
21	3.8 mi. NNE	Cty Rd. 155, 1.9 mi. North of Hwy O, Utility Pole No. 19100.	IDM
22a	1.9 mi. NNE	North side of Hwy O, 100 feet East of Cty Rd. 150, Utility Pole No. 31094.	IDM
23	6.6 mi. NNE	City of Yucatan, Utility Pole No. 12670.	IDM
26 [3]	12 mi. E	Town of Americus, Utility Pole No. 11159.	IDM
27 [3]	9.3 mi. ESE	Town of Bluffton, Utility Pole No. 11496.	IDM
30a	4.4 mi. SSW	City of Steedman, Utility Pole No. 06557.	IDM
31a	7.8 mi. SW	City of Mokane, Hwy C and Cty Rd. 400, 0.9 mi. N. of Hwy 94, Utility Pole.52071	IDM
32	5.4 mi. WSW	Hwy VV, 0.6 mi.West of Cty Rd. 447, Utility Pole No. 27031.	IDM
32a	5.0 mi. WSW	Cty Rd. 447, Utility Pole No. 06357.	IDM
33	7.4 mi. W	City of Hams Prairie, SE of Hwy C and AD Junction.	IDM
34	9.5 mi. WNW	NE Side of Hwy C and Cty Rd. 408 Junction.	IDM
35	5.8 mi. NNW	City of Toledo, Utility Pole No. 17684.	IDM
36	4.9 mi. N	Cty Rd. 155, 0.8 mi. South of Cty Rd. 132, Utility Pole No. 19137	IDM
37	0.5 mi. SSW	Cty Rd. 459, 0.9 mi. South of Hwy CC, Utility Pole No. 35077.	IDM
38	4.6 mi. NNW	Cty Rd. 133, 1.5 mi. South of Hwy UU, Utility Pole No. 34708.	IDM
39	5.4 mi. NW	Cty Rd. 111, Utility Pole No. 17516.	IDM
39a	5.0 mi. NW	Cty Rd. 111, Utility Pole No. 17526.	IDM
40	4.2 mi. WNW	NE Side of Cty Rd. 112 and Hwy O, Utility Pole No. 18145.	IDM
41	4.9 mi. W	Hwy AD, 2.8 mi. East of Hwy C, Utility Pole No. 18239.	IDM
42	4.4 mi. SW	Cty Rd. 447, 2.6 mi. North of Cty Rd. 463, Utility Pole No. 06326.	IDM
43	0.5 mi. SW	Cty Rd. 459, 0.7 mi. South of Hwy CC, Utility Pole No. 35073.	IDM
44	1.7 mi. WSW	Hwy CC, 1.0 mi. South of Cty Rd. 459, Utility Pole No. 1877.	IDM
45	1.0 mi. WNW	Cty Rd. 428, 0.1 mi. West of Hwy CC, Utility Pole No. 18580.	IDM
46	1.5 mi. NNW	NE Side of Hwy CC and Cty Rd. 466 Intersection, Utility Pole No. 28242.	IDM
47	1.0 mi. N	Cty Rd. 448, 0.9 mi. South of Hwy O, Utility Pole No. 28151.	IDM
48	0.4 mi. NE	Cty Rd. 448, 1.5 mi. South of Hwy O, Plant Security Sign Post.	IDM
49	1.6 mi. E	Cty Rd. 448, Utility Pole No. 06959, Reform Wildlife Mgmt. Parking Area.	IDM
50	0.9 mi. SSE	Cty Rd. 459, 3.3 mi. North of Hwy 94, Utility Pole No. 35086	IDM
51a	0.3 mi. SE	Owner Control Fence, SE of the Water Treatment Plant.	IDM
52	0.4 mi. ESE	Light Pole Near the East Plant Security Fence.	IDM
60 [3]	14 mi. SW	Utility Pole No. 43744, just past Tebbetts City sign.	IDM

Table 5.1. Sampling Locations. (TLD's, continued)

Location Code	Distance / Direction [1]	Description	Sample Types [2]
60N [3]	14 mi. SW	Utility Pole No. 43744, just past Tebbetts City sign; co- located with IDM-60.	IDM
61N	1.9 mi NNW	Co- located with air monitoring station A1; Corner of CC and O.	IDM
62N	1.2 mi. NW	Co-located with location 3	IDM
63N	1.9 mi. NNE	Co-located with location 22a	IDM
64N	1.0 mi. WNW	Co-located with location 45	IDM

Table 5.1. Sampling Locations (Airborne Radioiodine and Particulate samples, Surface Ponds, Potable Water)

A1	1.3 mi. ENE	Primary Meteorological Tower.	APT, AIO
A7	9.5 mi. NW	C. Bartley Farm, Fulton, MO.	APT, AIO
A8	0.9 mi. NNE	Cty Rd. 448, 0.9 miles South of Hwy 0.	APT, AIO
A9	1.9 mi. NNW	Community of Reform.	APT, AIO
B3	1.8 mi. NNW	0.3 mi. East of the O and CC Junction, Utility Pole No. 50422.	APT, AIO
3	2.9 mi. SSE	Potable water, County Road 448	DWA
4	2.6 mi. SSE	Potable water, County Road 448	DWA
5	2.5 mi. SSE	Potable water, County Road 448	DWA
6	2.2 mi. SE	Potable water, County Road 448	DWA
7	2.1 mi. ESE	Potable water, County Road 448	DWA
8	3.4 mi. SSW	Potable water, County Road 457	DWA
9	2.9 mi. SSW	Potable water, County Road 457	DWA
10	2.7 mi. SSW	Potable water, County Road 457	DWA
12	3.6 mi. SSE	Potable water, County Road 464	DWA
21	4.8 mi. ESE	Potable water, County Road 469	DWA
22	2.4 mi. SE	Potable water, State Road 94	DWA
V16	1.6 mi. WSW	Wallendorf Farm, Steedman, MO	DWA
D01	5.0 mi. SE	Potable water, Riverside Bar and Grill (Portland, MO).	DWA
PW1	Onsite	Potable water, Unit 1 Construction well #3	DWA
Pond 01	0.6 mi. W	Fishing Pond	SWA
Pond 02	0.7 mi. SW	Fishing Pond	SWA
Outfall 010	0.6 mi. NE	Stormwater Run-Off Pond	SWA
Outfall 011	1.0 mi. ENE	Stormwater Run-Off Pond	SWA
Outfall 012	0.5 mi. S	Stormwater Run-Off Pond	SWA
Outfall 013	0.5 mi. S	Stormwater Run-Off Pond	SWA
Outfall 014	0.6 mi. NNW	Stormwater Run-Off Pond	SWA
Outfall 015	0.7 mi. N	Stormwater Run-Off Pond	SWA
Sludge Lagoon, # 4	0.8 mi. SSE	On service Sewage Sludge Lagoon	SWA
UHS pond	Inside OCA	UHS pond	
S01 [3]	4.8 mi. SSE	555 feet Upstream of Discharge North Bank	SWA
S02	4.9 mi. SE	1.1 River Miles Downstream of Discharge North Bank	SWA

Table 5.1. Sampling Locations, Non-potable Groundwater Wells

Location Code	Distance / Direction [1]	Description	Sample Types [2]
936	Inside OCA	Diesel Fuel Remediation Well, NW of SFSB	WWA
937A	Inside OCA	Monitoring Well, North of the Powerblock area	WWA
937B	Inside OCA	Monitoring Well, West of the Turbine Bldg.	WWA
937C	Inside OCA	Monitoring Well, West of Radwaste Bldg Drum Storage.	WWA
937D	Inside OCA	Monitoring Well, North of Discharge Monitor Tanks.	WWA
937E	Inside OCA	Monitoring Well, East of Auxilliary Bldg.	WWA
937F	Inside OCA	Monitoring Well, West of the Turbine Bldg.	WWA
939R	Inside OCA	Monitoring Well, East of the Fuel Bldg.	WWA
940	Inside OCA	Monitoring Well, West of the Radwaste Bldg.	WWA
941	Inside OCA	Monitoring Well, West of the Radwaste Bldg.	WWA
GWS	Inside OCA	Ground Water Sump, West of Reactor Bldg and SFSB	WWA
ISFSI	Inside OCA	ISFSI Sump	WWA
OW-4	Inside OCA	UHS Pond Berm	WWA
OW-5	Inside OCA	UHS Pond Berm	WWA
U1MW-001	0.3 mi. NNW	Outside OCA , Groundwater Monitoring Well	WWA
U1MW-002	0.4 mi. SSW	Outside OCA , Groundwater Monitoring Well	WWA
U1MW-004	3.7 mi. SSE	Dillon, Groundwater Monitoring Well	WWA
U1MW-005	3.8 mi. SSE	Brownlee / Hudson, Groundwater Monitoring Well	WWA
U1MW-006	3.0 mi. S	Ward, Groundwater Monitoring Well	WWA
U1MW-010	3.1 mi. S	Pipeline, Groundwater Monitoring Well	WWA
U1MW-012	3.0 mi. S	Ward, Groundwater Monitoring Well	WWA
U1MW-013	0.8 mi. SSE	Pipeline Corridor	WWA
U1MW-014	3.7 mi. S	Pipeline Corridor	WWA
U1MW-015	3.9 mi. SSE	Pipeline Corridor	WWA
U1MW-016	4.5 mi. SSE	Pipeline Corridor	WWA
U1MW-017	3.8 mi S	Pipeline Corridor	WWA
U1MW-018	3.8 mi. S	Pipeline Corridor	WWA
U1MW-019	3.7 mi. S	Pipeline Corridor	WWA
U1MW-020	3.9 mi. SSE	Pipeline Corridor	WWA
U1MW-021	3.7 mi. S	Down gradient of Pipeline Corridor	WWA
U1MW-022	3.8 mi. S	Down gradient of Pipeline Corridor	WWA
U1MW-023	3.8 mi. S	Down gradient of Pipeline Corridor	WWA
U1MW-024	3.8 mi. S	Down gradient of Pipeline Corridor	WWA
U1MW-025	3.9 mi. S	Down gradient of Pipeline Corridor	WWA
U1MW-026	3.9 mi. S	Down gradient of Pipeline Corridor	WWA
U1MW-027	1.5 mi. S	Pipeline Corridor, downgrade of discharge vacuum breaker	WWA
U1MW-028	3.2 mi. S	Pipeline Corridor, downgrade of MH-9B	WWA
U1MW-029	0.2 mi. E	Down gradient of DMTdischarge piping	WWA
U1MW-030	0.2 mi. ESE	Down gradient of DMTdischarge piping	WWA
U1MW-031	0.2 mi. ENE	3’ from manhole 86-2	WWA
U1MW-034	0.2 mi. E	~130m from MH86-2	WWA
U1MW-036	0.3 mi. ESE	~300m from MH86-2	WWA
U1MW-039	0.6 mi. SSE	~1100m from MH86-2	WWA
U1MW-047	4.6 mi. SSE	Upstream from Gate Valve Vault at intake structure	WWA
U1MW-058	0.3 mi. SE	~400m from MH86-2	WWA

Table 5.1. Sampling Locations, Non-potable Groundwater Wells.(Cont.)

U1MW-059	1.0 mi. SSE	~1700m from MH86-2	WWA
Inside Old BDL	1.4 mi. SSE	Sampled through hole in Techite blowdown line	WWA
U2 MW-2S	1.8 mi. N	Groundwater Monitoring Well	WWA
U2 MW-5S	1.1 mi. E	Groundwater Monitoring Well	WWA
U2 MW-8	0.4 mi. N	Groundwater Monitoring Well	WWA
U2 MW-10	0.4 mi. SSW	Groundwater Monitoring Well	WWA
U2 MW-16	2.9 mi. SSE	Groundwater Monitoring Well	WWA
F05	0.9 mi. SSE	Offsite Groundwater Monitoring well.	WWA
F15	0.4 mi. NNE	Onsite Groundwater Monitoring well.	WWA

Table 5.1. Sampling Locations, Soil, Food Products, Milk, Fish, Bottom Sediments and Inedible Crops.

Location Code	Distance / Direction [1]	Description	Sample Types [2]
F2	1.0 mi. SW	Callaway Plant Forest Ecology Plot F2.	SOL
F6	1.6 mi. NE	Callaway Plant Forest Ecology Plot F6.	SOL
PR3	1.0 mi. ESE	Callaway Plant Forest Ecology Plot PR3.	SOL
PR7	0.5 mi. NNW	Callaway Plant Forest Ecology Plot PR7.	SOL
W1 [3]	0.5 mi. SE	Callaway Plant Wetlands, High Ground.	SOL
W2	0.5 mi. SSE	Callaway Plant Wetlands, Inlet Area.	SOL
W3	0.6 mi. SSE	Callaway Plant Wetlands, Discharge Area.	SOL
W4	0.6 mi. SSE	Callaway Plant Wetlands, SW Bank.	SOL
M9 [3]	13 mi. SW	Ferguson Farm, Tebbetts, MO.	SOL
V9	1.9 mi. WNW	Meehan Farm, Steedman, MO	FPL
V11	3.2 mi. NW	Hickman Farm, Steedman, MO	FPL
V12 [3]	18.7 mi. WSW	Kissock Farm, South of New Bloomfield, MO	FPL
V16	1.6 mi. WSW	Wallendorf Farm, Steedman, MO	FPL
V17	1.8 mi. NNW	West Residence, Steedman, MO	FPL
M9 [3]	13 mi. SW	Ferguson Farm, Tebbetts, MO.	MLK
A [3,4]	4.9 mi. SSE	Between 0.6 and 3.0 river miles upstream of the plant discharge on the north bank.	AQS, AQF
C [4]	4.9 mi. SE	Between the discharge area and 1.5 miles downstream of the discharge, on the north bank..	AQS, AQF
FC1	3.4 mi. S	Between discharge pipeline MH-8 and the Katy Trail	FC
FC2	3.8 mi. ESE	Between discharge pipeline MH-5 and MH-3B.	FC
FC3	4.1 mi. SSE	Between Hwy 94 and the barge loading dock access road.	FC
FC4 [3]	7.9 mi. SW	South Callaway High School	FC

[1] Distances are measured from the midpoint of the two reactors as described in Final Safety Analysis Report (FSAR) Sec. 2.1.1.1.

[2] AIO = Air Iodine, APT = Air Particulate, AQF = Fish, AQS = Sediment, FPL = Leafy Green Vegetables, FC = Food Crops, IDM = TLD, MLK = Milk, SOL = Soil, SWA = Surface Water, DWA = Drinking Water, WWA = Ground Water.

[3] Control Location.

[4] The expanded collection areas provide sufficient habitat to collect the required number of species.

Table 5.2. Collection Frequencies and Required Analyses [1] (January 1 through December 31, 2015)

Sample Type	Media Code	Collection Frequency	Required Analyses
Direct radiation	IDM	Quarterly	Deep Dose Equivalent (DDE)
Airborne iodine	AIO	Weekly	^{131}I
Air particulate	APT	Weekly	PGE[5] each sample
Surface water (river)	SWA	Monthly composite	PGE and ^{3}H
Surface water (except UHS pond)	SWA	Semiannually	PGE and ^{3}H. If contaminated with gamma emitting nuclides of plant origin, analyze for HTD[6] nuclides.
Surface water (UHS pond)	SWA	Semiannually	PGE and ^{3}H
Groundwater (not potable)	WWA	Quarterly	PGE and ^{3}H. If contaminated with gamma emitting nuclides of plant origin, analyze for HTD nuclides.
Well water-potable	DWA	Monthly	PGE and ^{3}H. If contaminated with gamma emitting nuclides of plant origin, analyze for HTD nuclides.
Shoreline sediment	AQS	Semiannually	PGE
Bottom sediment [2]	AQS	Semiannually	PGE
Sludge pond sediment	SOL	Annually	PGE
Soil	SOL	Annually	PGE
Milk animal	MLK	Semimonthly when animals are on pasture, monthly other times [3]	PGE and ^{131}I
Leafy green vegetables	FPL	Monthly when available [4]	PGE and ^{131}I
Inedible crops	FC	At time of harvest	PGE and ^{3}H
Fish	AQF	Semiannually	PGE on edible portion

[1] Samples required by ODCM unless specified otherwise.

[2] Required by NPDES permit.

[3] The grazing season is defined as April 15- December 15, but will vary according to weather conditions.

[4] The growing season is defined as the months April 1- November 1, but will vary according to weather conditions.

[5] Principal Gamma Emitters (PGE) are defined as ^{54}Mn, ^{59}Fe, ^{58}Co, ^{60}Co, ^{65}Zn, ^{95}Zr/Nb, ^{134}Cs, ^{137}Cs, ^{140}Ba/La and other gamma- emitting nuclides that may be identified during the gamma spectroscopy analysis.

[6] Hard to Detect (HTD) nuclides are defined as ^{89}Sr, ^{90}Sr, ^{55}Fe, ^{63}Ni, ^{237}Np, ^{238}Pu, ^{239}/^{240}Pu, ^{241}Pu, ^{241}Am, ^{242}Cm and ^{243}/^{244}Cm.

Table 5.3. Minimum Required Detection Capabilities for REMP Sample Analysis[1]

Analysis	Water (pCi/L)	Airborne (pCi/m^3)	Fish (pCi/kg wet)	Milk (pCi/L)	Food Products (pCi/kg wet)	Non-Food Products (pCi/kg wet)	Soil and Sediment (pCi/kg dry)
H-3	3000/2000[3]					3000	
Mn-54	15		130				
Fe-59	30		260				
Co-58/60	15		130				
Zn-65	30		260				
Zr-Nb-95 [2]	15						
I-131	1000/1[3]	0.07		1	60		
Cs-134	15	0.05	130	15	60	60	150
Cs-137	18	0.06	150	18	80	80	180
Ba-La-140 [2]	15			15			

[1] This list does not mean only these nuclides will be detected and reported. Other peaks which are measurable and identifiable will be reported.

[2] Total activity, parent plus daughter activity.

[3] LLDs for Surface and Drinking / Ground water are the same, with the exception of H-3 and I-131. The Drinking / Ground water LLDs for H-3 and I-131 are 2000 and 1 pCi/liter respectively.

Table 5.4 2015 Land Use Census Results

Closest Receptor in Miles

Sector	Residence	Garden [1, 2]	Milk [1]
N(A)	1.84	NI	NI
NNE(B)	2.16	2.37 **	NI
NE(C)	2.26	NI	NI
ENE(D)	1.66	2.86	NI
E(E)	3.51	3.94	NI
ESE(F)	2.11	NI	NI
SE(G)	2.21	NI	NI
SSE(H)	3.17	3.57	NI
S(J)	2.86	2.86	NI
SSW(K)	2.38	NI	NI
SW(L)	2.63	2.63	NI
WSW(M)	1.20	1.96	NI
W(N)	1.56	3.53	NI
WNW(P)	1.93	1.93	NI
NW(Q)	2.07	3.16	NI
NNW(R)	1.81	NI	NI

[1] NI = None Identified.
[2] Broadleaf Vegetation
* Declined to participate in the program.
* * History as a poor provider, not included in program.

Table 5.5. Missed collections and analyses, Callaway Energy Center

Sample Type	Analysis	Location(s)	Collection Date or Period	Comments
WWA	H-3, Gamma	U1MW-28	01-28-15	Well dry.
WWA	H-3, Gamma	WWA-937D	01-14-15	Outer Casing covered in ice; well inaccessible.
WWA	H-3, Gamma	U1MW-028	04-20-15	Well dry.
AQS	Gamma	A & C	04-23-15	Indicator samples in wrong location.
FPL	Gamma	CA-FPL-V-9	05-11-15	Vegetables unavailable at this time.
FPL	Gamma	CA-FPL-V-11	05-11-15	Vegetables unavailable at this time.
FPL	Gamma	CA-FPL-V-12	05-11-15	Vegetables unavailable at this time.
FPL	Gamma	CA-FPL-V-16	05-11-15	Vegetables unavailable at this time.
FPL	Gamma	CA-FPL-V-9	06-10-15	Vegetables unavailable due to flooding.
DWA	H-3, Gamma	CA-DWA-8	07-29-15	Well pump off. Provider on vacation.
WWA	H-3, Gamma	U1MW-28	07-13-15	Well dry.
WWA	H-3, Gamma	Old Pipeline	07-15-15	Insufficient water for sample.
FPL	Gamma	CA-FPL-V-11	09-08-15	Garden done producing for the year.
FPL	Gamma	CA-FPL-V-16	09-08-15	Garden done producing for the year.
FC	Gamma	CA-FC-1	10-12-15	Field not planted.
FPL	Gamma	CA-FPL-V-9	10-13-15	Garden done producing for the year.
FPL	Gamma	CA-FPL-V-17	10-13-15	Garden done producing for the year.
AQS	Gamma	A & C	10-22-15	Indicator samples in wrong location.
DWA	H-3, Gamma	CA-DWA-5	10-26-15	Property sold. Not occupied.
WWA	H-3, Gamma	WWA-937B	11-12-15	Construction in area. Not safely accessible.
WWA	H-3, Gamma	WWA-937B	12-13-15	Construction in area. Not safely accessible.

Table 5.6 Radiological Environmental Monitoring Program Summary

Sample Type (Units)	Type and Number of Analyses(a)		Req'd LLD(b)	Indicator Locations Mean, Fraction, Range (c)	Location with Highest Annual Mean		Control Locations Mean, Fraction, Range (c)	Number Non-Routine Results(e)
					Location (d)	Mean, Fraction, Range (c)		
Waterborne Pathway								
Surface Water (pCi/L)	H-3	24	3000	239 (4/12) (171-351)	SWA-S02 4.9 mi SE	239 (4/12) (171-351)	ND	0
	GS	24	(b)	ND	-	-	ND	0
Surface Water, Ponds (pCi/L)	H-3	21	3000	178 (1/21)	SWA-UHS	178 (1/21)	none	0
	GS	21	(b)	ND	-	-	ND	0
Potable Wells (pCi/L)	H-3	83	2000	ND	-	-	ND	0
	GS	83	(b)	ND	-	-	ND	0
Wells (non-potable) (pCi/L)	H-3	287	3000	1700 (98/287) (156-13295)	CA-U1MW-36	6237 (8/8) (1614-13295)	None	0
	GS	273	(b)	ND	-	-	ND	0
Sediments (pCi/kg) dry	Cs-134	8	150	ND	-	-	ND	0
	Cs-137	8	180	83 (2/4) (76-90)	CA-AQS-C 4.9 mi SE	83 (2/4) (76-90)	ND	0
Airborne Pathway								
Airborne Particulates (pCi/m^3)	GS	260	(b)	ND	-	-	None	0
Airborne Iodine (pCi/m^3)	I-131	260	0.07	ND	-	-	None	0
Soil								
Soil (pCi/kg) dry	Cs-134	18	150	ND	-	-	ND	0
	Cs-137	18	180	292 (10/14) (114-531)	F-002 1.0 mi. SW	511 (2/2) (491-531)	115 (3/4) (65-176)	0

Table 5.6 Radiological Environmental Monitoring Program Summary

Sample Type (Units)	Type and Number of Analyses(a)	Req'd LLD(b)	Indicator Locations Mean, Fraction, Range (c)	Location with Highest Annual Mean		Control Locations Mean, Fraction, Range (c)	Number Non-Routine Results(e)
				Location (d)	Mean, Fraction, Range (c)		
Ingestion Pathway							
Food Products Leafy Green Vegetables (pCi/kg wet)	GS 30	(b)	ND	-	-	ND	0
Non- food Products Soybeans (pCi/kg) wet	H-3 (f) 7	3000	ND	-	-	ND	0
	GS 7	(b)	ND	-	-	ND	0
Fish Edible Flesh (pCi/kg) wet	GS 20	(b)	ND	-	-	ND	0
Milk (pCi/L)	I-131 20	1	none	-	-	ND	0
	GS 20	(b)	ND	-	-	ND	0
Direct Radiation							
(Quarterly TLDs) (mrem/Qtr)	Gamma 172		15.3 (160/160) (10.6-17.8)	CA-IDM-27, 9.3 mi. ESE	17.0 (4/4) (16.2-17.8)	14.7 (12/12) (10.5-17.8)	0
	Neutron 18		ND	-	-	ND	0

(a) GS = gamma spectroscopy.
(b) LLD = nominal lower limit of detection based on a 4.66 sigma counting error for background sample. LLD's for gamma spectroscopy are in Table 5.3.
(c) Mean and range are based on detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (F). ND= not detected.
(d) Locations are specified by station code (Table 5.2) and distance (miles) and direction relative to reactor site.
(e) Non-routine results are those which exceed ten times the control station value. If no control station value is available, the result is considered non-routine if it exceeds ten times the preoperational value for the location.
(f) Units: pCi/L.

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APPENDIX A

INTERLABORATORY COMPARISON PROGRAM RESULTS

NOTE: Environmental Inc., Midwest Laboratory participates in intercomparison studies administered by Environmental Resources Associates, and serves as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada. Results are reported in Appendix A. TLD Intercomparison results, in-house spikes, blanks, duplicates and mixed analyte performance evaluation program results are also reported. Appendix A is updated four times a year; the complete Appendix is included in March, June, September and December monthly progress reports only.

January, 2015 through December, 2015

Appendix A

Interlaboratory Comparison Program Results

Environmental, Inc., Midwest Laboratory has participated in interlaboratory comparison (crosscheck) programs since the formulation of it's quality control program in December 1971. These programs are operated by agencies which supply environmental type samples containing concentrations of radionuclides known to the issuing agency but not to participant laboratories. The purpose of such a program is to provide an independent check on a laboratory's analytical procedures and to alert it of any possible problems.

Participant laboratories measure the concentration of specified radionuclides and report them to the issuing agency. Several months later, the agency reports the known values to the participant laboratories and specifies control limits. Results consistently higher or lower than the known values or outside the control limits indicate a need to check the instruments or procedures used.

Results in Table A-1 were obtained through participation in the environmental sample crosscheck program administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.

Table A-2 lists results for thermoluminescent dosimeters (TLDs), via internal laboratory testing and by irradiation and evaluation by the University of Wisconsin-Madison Radiation Calibration Laboratory at the University of Wisconsin Medical Radiation Research Center.

Table A-3 lists results of the analyses on in-house "spiked" samples for the past twelve months. All samples are prepared using NIST traceable sources. Data for previous years available upon request.

Table A-4 lists results of the analyses on in-house "blank" samples for the past twelve months. Data for previous years available upon request.

Table A-5 lists REMP specific analytical results from the in-house "duplicate" program for the past twelve months. Acceptance is based on the difference of the results being less than the sum of the errors. Complete analytical data for duplicate analyses is available upon request.

The results in Table A-6 were obtained through participation in the Mixed Analyte Performance Evaluation Program.

Results in Table A-7 were obtained through participation in the environmental sample crosscheck program administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurement Laboratory Quality Assessment Program (EML).

Attachment A lists the laboratory precision at the 1 sigma level for various analyses. The acceptance criteria in Table A-3 is set at ± 2 sigma.

Out-of-limit results are explained directly below the result.

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

LABORATORY PRECISION: ONE STANDARD DEVIATION VALUES FOR VARIOUS ANALYSES[a]

Analysis	Level	One standard deviation for single determination
Gamma Emitters	5 to 100 pCi/liter or kg > 100 pCi/liter or kg	5.0 pCi/liter 5% of known value
Strontium-89[b]	5 to 50 pCi/liter or kg > 50 pCi/liter or kg	5.0 pCi/liter 10% of known value
Strontium-90[b]	2 to 30 pCi/liter or kg > 30 pCi/liter or kg	5.0 pCi/liter 10% of known value
Potassium-40	≥ 0.1 g/liter or kg	5% of known value
Gross alpha	≤ 20 pCi/liter > 20 pCi/liter	5.0 pCi/liter 25% of known value
Gross beta	≤ 100 pCi/liter > 100 pCi/liter	5.0 pCi/liter 5% of known value
Tritium	≤ 4,000 pCi/liter > 4,000 pCi/liter	$\pm 1\sigma$ = $169.85 \times (\text{known})^{0.0933}$ 10% of known value
Radium-226,-228	≥ 0.1 pCi/liter	15% of known value
Plutonium	≥ 0.1 pCi/liter, gram, or sample	10% of known value
Iodine-131, Iodine-129[b]	≤ 55 pCi/liter > 55 pCi/liter	6 pCi/liter 10% of known value
Uranium-238, Nickel-63[b] Technetium-99[b]	≤ 35 pCi/liter > 35 pCi/liter	6 pCi/liter 15% of known value
Iron-55[b]	50 to 100 pCi/liter > 100 pCi/liter	10 pCi/liter 10% of known value
Other Analyses [b]	---	20% of known value

[a] From EPA publication, "Environmental Radioactivity Laboratory Intercomparison Studies Program, Fiscal Year, 1981-1982, EPA-600/4-81-004.

[b] Laboratory limit.

TABLE A-1. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a].

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result [b]	ERA Result [c]	Control Limits	Acceptance
ERW-1444	4/6/2015	Sr-89	59.71 ± 5.44	63.20	51.10 - 71.20	Pass
ERW-1444	4/6/2015	Sr-90	43.41 ± 2.43	41.90	30.80 - 48.10	Pass
ERW-1448	4/6/2015	Ba-133	77.75 ± 4.69	82.50	69.30 - 90.80	Pass
ERW-1448	4/6/2015	Cs-134	68.82 ± 3.08	75.70	61.80 - 83.30	Pass
ERW-1448	4/6/2015	Cs-137	191.9 ± 5.9	189.0	170.0 - 210.0	Pass
ERW-1448	4/6/2015	Co-60	85.05 ± 4.59	84.50	76.00 - 95.30	Pass
ERW-1448	4/6/2015	Zn-65	196.0 ± 12.0	203.0	183.0 - 238.0	Pass
ERW-1450	4/6/2015	Gr. Alpha	34.05 ± 1.90	42.60	22.10 - 54.00	Pass
ERW-1450	4/6/2015	G. Beta	26.93 ± 1.12	32.90	21.30 - 40.60	Pass
ERW-1453	4/6/2015	I-131	22.47 ± 0.83	23.80	19.70 - 28.30	Pass
ERW-1456	4/6/2015	Ra-226	8.20 ± 0.56	8.43	6.33 - 9.90	Pass
ERW-1456	4/6/2015	Ra-228	5.00 ± 0.67	4.39	2.56 - 6.01	Pass
ERW-1456	4/6/2015	Uranium	5.98 ± 0.31	6.59	4.99 - 7.83	Pass
ERW-1461	4/6/2015	H-3	3,254 ± 180	3280	2,770 - 3,620	Pass
ERW-5528	10/5/2015	Sr-89	34.76 ± 0.06	35.70	26.70 - 42.50	Pass
ERW-5528	10/5/2015	Sr-90	29.23 ± 0.06	31.10	22.70 - 36.10	Pass
ERW-5531	10/5/2015	Ba-133	30.91 ± 0.53	32.50	25.90 - 36.70	Pass
ERW-5531	10/5/2015	Cs-134	57.40 ± 2.57	62.30	50.69 - 68.50	Pass
ERW-5531	10/5/2015	Cs-137	163.1 ± 4.8	157.0	141.0 - 175.0	Pass
ERW-5531	10/5/2015	Co-60	73.41 ± 1.72	71.10	64.00 - 80.70	Pass
ERW-5531	10/5/2015	Zn-65	138.9 ± 5.7	126.0	113.0 - 149.0	Pass
ERW-5534	10/5/2015	Gr. Alpha	29.99 ± 0.08	51.60	26.90 - 64.70	Pass
ERW-5534	10/5/2015	G. Beta	27.52 ± 0.04	36.60	24.10 - 44.20	Pass
ERW-5537	10/5/2015	I-131	25.54 ± 0.60	26.30	21.90 - 31.00	Pass
ERW-5540	10/5/2015	Ra-226	7.32 ± 0.37	7.29	5.49 - 8.63	Pass
ERW-5540 [d]	10/5/2015	Ra-228	7.80 ± 0.02	4.25	2.46 - 5.85	Fail
ERW-5540 [e]	10/5/2015	Ra-228	4.45 ± 0.96	4.25	2.46 - 5.85	Pass
ERW-5540	10/5/2015	Uranium	53.30 ± 0.55	56.20	45.70 - 62.40	Pass
ERW-5543	10/5/2015	H-3	21,260 ± 351	21,300	18,700 - 23,400	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing in drinking water conducted by Environmental Resources Associates (ERA).

[b] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

[c] Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA.

[d] Ra-228 spike was at a level close to the detection level. The high result was likely caused by interference from short-lived Rn-222 daughters.

[e] The result of reanalysis (Compare to original result, footnoted "e" above).

TABLE A-2. Table has been intentionally omitted.

TABLE A-3. In-House "Spiked" Samples

Lab Code [b]	Date	Concentration (pCi/L)[a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
W-020315	2/3/2015	Ra-226	16.19 ± 0.42	16.70	13.36 - 20.04	Pass
W-021215	2/12/2015	Gr. Alpha	18.38 ± 0.39	20.10	16.08 - 24.12	Pass
W-021215	2/12/2015	Gr. Beta	27.98 ± 0.32	30.90	24.72 - 37.08	Pass
SPW-687	2/27/2015	Ni-63	239.6 ± 3.5	202.4	161.9 - 242.9	Pass
SPAP-689	3/2/2015	Gr. Beta	42.37 ± 3.50	43.61	34.89 - 52.33	Pass
SPAP-691	3/2/2015	Cs-134	1.77 ± 0.61	1.90	1.52 - 2.28	Pass
SPAP-691	3/2/2015	Cs-137	83.02 ± 2.60	97.20	77.76 - 116.64	Pass
SPW-693	3/2/2015	Cs-134	44.30 ± 2.53	53.40	42.72 - 64.08	Pass
SPW-693	3/2/2015	Cs-137	74.82 ± 3.50	73.80	59.04 - 88.56	Pass
SPW-693	3/2/2015	Sr-89	87.45 ± 3.62	87.48	69.98 - 104.98	Pass
SPW-693	3/25/2015	Sr-90	37.22 ± 1.55	38.10	30.48 - 45.72	Pass
SPMI-697	3/2/2015	Cs-134	96.67 ± 7.74	107.00	85.60 - 128.40	Pass
SPMI-697	3/2/2015	Cs-137	78.51 ± 7.02	73.84	59.07 - 88.61	Pass
SPMI-697	3/2/2015	Sr-89	72.98 ± 4.86	87.48	69.98 - 104.98	Pass
SPMI-697	3/2/2015	Sr-90	39.17 ± 1.51	38.10	30.48 - 45.72	Pass
SPW-699	3/2/2015	H-3	59,592 ± 703	58,445	46,756 - 70,134	Pass
W-031115	3/11/2015	Ra-226	13.73 ± 0.35	16.70	13.36 - 20.04	Pass
W-030215	3/2/2015	Ra-228	32.79 ± 2.31	31.44	25.15 - 37.73	Pass
SPF-1040	3/16/2015	Cs-134	787.5 ± 9.2	840.0	672.0 - 1,008.0	Pass
SPF-1040	3/16/2015	Cs-137	2,599 ± 24	2,360	1,888 - 2,832	Pass
SPW-1036	3/25/2015	Fe-55	1,792 ± 63	1961	1,569 - 2,353	Pass
SPW-1374	4/6/2015	U-238	46.03 ± 2.25	41.70	25.02 - 58.38	Pass
W-040815	4/8/2015	Gr. Alpha	20.18 ± 0.42	20.10	16.08 - 24.12	Pass
W-040815	4/8/2015	Gr. Beta	29.70 ± 0.33	30.90	24.72 - 37.08	Pass
SPW-1038	4/13/2015	C-14	3,497 ± 9	4,734	2,840 - 6,628	Pass
W-2165	4/20/2015	H-3	5550 ± 226	5,780	3,468 - 8,092	Pass
W-2165	4/20/2015	Sr-89	90.70 ± 8.20	108.70	65.22 - 152.18	Pass
W-2165	4/20/2015	Sr-90	76.80 ± 2.00	75.90	45.54 - 106.26	Pass
W-2165	4/20/2015	Cs-134	62.40 ± 6.40	57.30	34.38 - 80.22	Pass
W-2165	4/20/2015	Cs-137	91.30 ± 7.70	84.00	50.40 - 117.60	Pass
W-2392	4/13/2015	H-3	5032 ± 214	5780	3468 - 8092	Pass
W-2392	4/13/2015	Ni-63	222.4 ± 3.8	202.0	121.2 - 282.8	Pass
W-2392	4/13/2015	Cs-134	53.26 ± 5.01	57.30	34.38 - 80.22	Pass
W-2392	4/13/2015	Cs-137	91.90 ± 7.76	84.20	50.52 - 117.88	Pass
W-042415	4/24/2015	Ra-226	12.52 ± 0.39	16.70	10.02 - 23.38	Pass
W-050715	5/7/2015	Gr. Alpha	19.05 ± 0.41	20.10	12.06 - 28.14	Pass
W-050715	5/7/2015	Gr. Beta	27.30 ± 0.32	30.90	18.54 - 43.26	Pass
W-061215	6/12/2015	Gr. Alpha	20.72 ± 0.44	20.10	12.06 - 28.14	Pass
W-061215	6/12/2015	Gr. Beta	28.51 ± 0.33	30.90	18.54 - 43.26	Pass
U-2982	6/9/2015	Gr. Beta	500.1 ± 5.1	604.0	362.4 - 845.6	Pass
U-3200	6/9/2015	H-3	2229 ± 424	2346	1408 - 3284	Pass
W-70915	7/9/2015	Gr. Alpha	18.76 ± 0.40	20.10	12.1 - 28.1	Pass
W-70915	7/9/2015	Gr. Beta	29.71 ± 0.33	30.90	18.5 - 43.3	Pass
SPAP-3859	7/21/2015	Gr. Beta	41.59 ± 0.12	43.61	26.17 - 61.05	Pass
SPAP-3861	7/21/2015	Cs-134	1.69 ± 0.60	1.69	1.0 - 2.4	Pass

TABLE A-3. In-House "Spiked" Samples

Lab Code [b]	Date	Concentration (pCi/L)[a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
SPAP-3861	7/21/2015	Cs-137	93.71 ± 2.64	96.45	57.87 - 135.03	Pass
SPMI-3863	7/21/2015	Cs-134	38.21 ± 5.12	47.02	28.21 - 65.83	Pass
SPMI-3863	7/21/2015	Cs-137	78.65 ± 7.94	73.18	43.91 - 102.45	Pass
SPMI-3863	7/21/2015	Sr-90	41.05 ± 1.62	37.78	22.67 - 52.89	Pass
SPW-3871	7/21/2015	Cs-134	45.59 ± 6.39	47.02	28.21 - 65.83	Pass
SPW-3871	7/21/2015	Cs-137	78.73 ± 7.03	73.18	43.91 - 102.45	Pass
SPW-3871	7/21/2015	Sr-90	38.36 ± 1.58	37.78	22.67 - 52.89	Pass
SPW-3873	7/21/2015	H-3	60,034 ± 671	57,199	34,319 - 80,079	Pass
SPW-3875	7/21/2015	Ni-63	451.3 ± 3.3	403.7	242.2 - 565.2	Pass
SPW-3877	7/21/2015	Tc-99	483.0 ± 8.3	539.1	323.5 - 754.7	Pass
SPMI-3879	7/21/2015	C-14	4,921 ± 19	4,736	2,842 - 6,630	Pass
SPSO-4037	7/21/2015	Ni-63	42,458 ± 309	40,370	24,222 - 56,518	Pass
SPW-072515	7/17/2015	Ra-228	35.48 ± 3	31.44	18.86 - 44.02	Pass
SPF-4104	7/29/2015	Cs-134	661.5 ± 115.9	740.0	444.0 - 1036.0	Pass
SPF-4104	7/29/2015	Cs-137	2,469 ± 59	2,340	1,404 - 3,276	Pass
SPW-81015	8/10/2015	Gr. Alpha	21.59 ± 0.46	20.10	12.06 - 28.14	Pass
SPW-81015	8/10/2015	Gr. Beta	27.58 ± 0.32	30.90	18.54 - 43.26	Pass
SPW-81315	8/13/2015	Ra-226	15.05 ± 0.36	16.70	10.02 - 23.38	Pass
SPW-90615	9/6/2015	Gr. Alpha	18.32 ± 0.40	20.10	12.06 - 28.14	Pass
SPW-90615	9/6/2015	Gr. Beta	29.43 ± 0.33	30.90	18.54 - 43.26	Pass
W-091415	9/14/2016	Gr. Alpha	19.35 ± 0.51	20.10	12.06 - 28.14	Pass
W-091415	9/14/2016	Gr. Beta	31.53 ± 0.35	30.90	18.54 - 43.26	Pass
W-100815	10/8/2015	Ra-228	12.27 ± 0.33	16.70	10.02 - 23.38	Pass
W-100615	10/6/2016	Gr. Alpha	20.62 ± 0.43	20.10	12.06 - 28.14	Pass
W-100615	10/6/2016	Gr. Beta	29.35 ± 0.33	30.90	18.54 - 43.26	Pass
W-5277	10/16/2015	H-3	5,224 ± 218	5,466	3,280 - 7,652	Pass
W-5277	10/16/2015	Cs-134	99.40 ± 6.64	99.20	59.52 - 138.88	Pass
W-5277	10/16/2015	Cs-137	89.60 ± 6.64	83.20	49.92 - 116.48	Pass
W-110415	11/4/2015	Ra-226	12.27 ± 0.33	16.70	10.02 - 23.38	Pass
W-111115	11/11/2015	Ra-228	31.78 ± 2.48	31.44	18.86 - 44.02	Pass
W-6086,6087	11/18/2015	H-3	10,882 ± 309	11,231	6,738 - 15,723	Pass
W-6086,6087	11/18/2015	Cs-134	92.98 ± 7.29	96.25	57.75 - 134.75	Pass
W-6086,6087	11/18/2015	Cs-137	76.65 ± 7.81	82.94	49.76 - 116.12	Pass
W-112515	11/25/2015	Gr. Alpha	20.91 ± 0.52	20.10	12.06 - 28.14	Pass
W-112515	11/25/2015	Gr. Beta	31.59 ± 0.35	30.90	18.54 - 43.26	Pass
W-120715	12/7/2015	Fe-55	2,431 ± 97	2,319	1,391 - 3,247	Pass
W-120815	12/8/2015	Gr. Alpha	20.72 ± 0.43	20.10	12.06 - 28.14	Pass
W-120815	12/8/2015	Gr. Beta	29.50 ± 0.33	30.90	18.54 - 43.26	Pass
W-121515	12/15/2015	Ra-226	14.77 ± 0.42	16.70	10.02 - 23.38	Pass

[a] Liquid sample results are reported in pCi/Liter, air filters(pCi/m3), charcoal (pCi/charcoal canister), and solid samples (pCi/kg).

[b] Laboratory codes : W (Water), MI (milk), AP (air filter), SO (soil), VE (vegetation), CH (charcoal canister), F (fish), U (urine).

[c] Results are based on single determinations.

[d] Control limits are established from the precision values listed in Attachment A of this report, adjusted to ± 2s.

NOTE: For fish, Jello is used for the spike matrix. For vegetation, cabbage is used for the spike matrix.

TABLE A-4. In-House "Blank" Samples

Lab Code	Sample Type	Date	Analysis[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
W-020315	Water	2/3/2015	Ra-226	0.03	0.03 ± 0.02	1
W-021215	Water	2/12/2015	Gr. Alpha	0.47	-0.37 ± 0.30	2
W-021215	Water	2/12/2015	Gr. Beta	0.76	-0.62 ± 0.51	4
SPW-686	Water	2/27/2015	Ni-63	2.36	-0.74 ± 1.42	20
SPAP-688	Air Particulate	3/2/2015	Gr. Beta	0.003	-0.001 ± 0.002	0.01
SPAP-690	Air Particulate	3/2/2015	Cs-134	0.006	0.428 ± 0.927	0.05
SPAP-690	Air Particulate	3/2/2015	Cs-137	0.006	-0.785 ± 1.146	0.05
W-030215	Water	3/2/2015	Ra-228	0.76	0.22 ± 0.38	2
SPW-692	Water	3/2/2015	Cs-134	6.70	-1.57 ± 3.55	10
SPW-692	Water	3/2/2015	Cs-137	6.18	-0.15 ± 3.20	10
SPW-692	Water	3/2/2015	Sr-89	0.61	-0.51 ± 0.51	5
SPW-692	Water	3/2/2015	Sr-90	0.60	0.38 ± 0.33	1
SPMI-696	Milk	3/2/2015	Cs-134	3.75	-0.25 ± 2.24	10
SPMI-696	Milk	3/2/2015	Cs-137	4.36	-0.25 ± 2.24	10
SPMI-696	Milk	3/2/2015	Sr-89	0.80	-0.40 ± 0.84	5
SPMI-696	Milk	3/2/2015	Sr-90	0.49	0.98 ± 0.32	1
SPW-698	Water	3/2/2015	H-3	144.0	28.6 ± 88.9	200
SPW-1035	Water	3/16/2015	Fe-55	599.7	72.6 ± 368.1	1000
SPW-1037	Water	3/16/2015	C-14	8.94	2.16 ± 5.47	200
SPF-1039	Fish	3/16/2015	Cs-134	13.54	-1.00 ± 6.80	100
SPF-1039	Fish	3/16/2015	Cs-137	9.80	4.87 ± 7.00	100
W-040615	Water	4/6/2015	Ra-226	0.04	0.01 ± 0.03	2
W-1373	Water	4/6/2015	U-238	0.08	0.01 ± 0.01	1
W-1375	Water	4/6/2015	Pu-238	0.03	0.00 ± 0.01	1
W-050715	Water	5/7/2015	Gr. Alpha	0.38	-0.10 ± 0.25	2
W-050715	Water	5/7/2015	Gr. Beta	0.74	-0.14 ± 0.51	4
W-061215	Water	6/12/2015	Gr. Alpha	0.42	-0.10 ± 0.29	2
W-061215	Water	6/12/2015	Gr. Beta	0.75	-0.04 ± 0.53	4
SPW-3858	Water	7/21/2015	Gr. Beta	0.003	0.004 ± 0.002	2
SPAP-3860	Air Particulate	7/21/2015	Cs-134	0.011	0.010 ± 0.005	0.05
SPAP-3860	Air Particulate	7/21/2015	Cs-137	0.009	0.000 ± 0.005	0.05
SPMI-3862	Milk	7/21/2015	Cs-134	3.13	1.56 ± 1.74	10
SPMI-3862	Milk	7/21/2015	Cs-137	3.20	1.69 ± 1.89	10
SPMI-3862	Milk	7/21/2015	Sr-89	2.17	-1.30 ± 2.05	5
SPMI-3862	Milk	7/21/2015	Sr-90	0.90	0.74 ± 0.50	1
SPW-3870	Water	7/21/2015	Cs-134	3.01	0.71 ± 1.66	10
SPW-3870	Water	7/21/2015	Cs-137	3.94	0.81 ± 1.86	10
SPW-3870	Water	7/21/2015	Sr-89	2.28	-0.42 ± 1.80	5
SPW-3870	Water	7/21/2015	Sr-90	0.84	0.25 ± 0.42	1

TABLE A-4. In-House "Blank" Samples

Lab Code	Sample Type	Date	Analysis[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-3872	Water	7/21/2015	H-3	142.6	82.7 ± 79.4	200
SPW-3874	Water	7/21/2015	Ni-63	2.98	0.77 ± 1.82	20
SPW-3876	Water	7/21/2015	Tc-99	5.49	-3.81 ± 3.26	10
SPW-3878	Water	7/21/2015	C-14	17.06	8.52 ± 10.54	200
SPSO-4036	Soil	7/21/2015	Ni-63	135.7	51.3 ± 83.0	1000
SPF-4103	Fish	7/29/2015	Cs-134	14.17	-37.70 ± 9.67	100
SPF-4103	Fish	7/29/2015	Cs-137	12.39	1.13 ± 8.06	100
W-081015	Water	8/10/2015	Gr. Alpha	0.48	-0.10 ± 0.33	2
W-081015	Water	8/10/2015	Gr. Beta	0.78	-0.18 ± 0.54	4
W-081815	Water	8/18/2015	Ra-226	0.03	0.03 ± 0.02	2
W-090615	Water	9/6/2015	Gr. Alpha	0.40	0.00 ± 0.28	2
W-090615	Water	9/6/2015	Gr. Beta	0.77	0.22 ± 0.54	4
W-091415	Water	9/14/2015	Gr. Alpha	0.41	0.10 ± 0.30	2
W-091415	Water	9/14/2015	Gr. Beta	0.77	0.04 ± 0.54	4
W-100615	Water	10/6/2015	Gr. Alpha	0.41	-0.15 ± 0.27	2
W-100615	Water	10/6/2015	Gr. Beta	0.75	-0.12 ± 0.52	4
W-112515	Water	11/25/2015	Gr. Alpha	0.42	0.05 ± 0.30	2
W-112515	Water	11/25/2015	Gr. Beta	0.78	-0.31 ± 0.54	4
W-120815	Water	12/8/2015	Gr. Alpha	0.42	-0.08 ± 0.29	2
W-120815	Water	12/8/2015	Gr. Beta	0.76	0.17 ± 0.54	4
W-121515	Water	12/15/2015	Ra-226	0.01	0.01 ± 0.01	2

[a] Liquid sample results are reported in pCi/Liter, air filters(pCi/m^3), charcoal (pCi/charcoal canister), and solid samples (pCi/kg).

[b] I-131(G); iodine-131 as analyzed by gamma spectroscopy.

[c] Activity reported is a net activity result.

TABLE A-5. In-House "Duplicate" Samples

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
CF-62,63	1/7/2015	Gr. Beta	5.72 ± 0.12	5.78 ± 0.12	5.75 ± 0.42	Pass
CF-62,63	1/7/2015	Be-7	0.915 ± 0.135	0.919 ± 0.102	0.917 ± 0.15	Pass
CF-62,63	1/7/2015	K-40	3.97 ± 0.28	3.88 ± 0.23	3.92 ± 0.33	Pass
CF-62,63	1/7/2015	Sr-90	0.017 ± 0.006	0.011 ± 0.006	0.014 ± 0.004	Pass
SG-83,84	1/12/2015	K-40	10.11 ± 1.42	9.69 ± 1.20	9.90 ± 1.16	Pass
SG-83,84	1/12/2015	Tl-208	0.57 ± 0.07	0.56 ± 0.06	0.57 ± 0.05	Pass
SG-83,84	1/12/2015	Pb-212	1.73 ± 0.10	1.58 ± 0.09	1.65 ± 0.13	Pass
SG-83,84	1/12/2015	Pb-214	13.33 ± 0.33	13.88 ± 0.28	13.61 ± 0.22	Pass
SG-83,84	1/12/2015	Bi-214	13.48 ± 0.39	13.45 ± 0.29	13.47 ± 0.24	Pass
SG-83,84	1/12/2015	Ra-226	25.68 ± 2.19	26.22 ± 1.53	25.95 ± 1.34	Pass
SG-83,84	1/12/2015	Ac-228	13.33 ± 0.59	12.86 ± 0.43	13.09 ± 0.36	Pass
AP-011215A/B	1/12/2015	Gr. Beta	0.025 ± 0.004	0.023 ± 0.004	0.024 ± 0.003	Pass
WW-315,316	1/27/2015	H-3	1,961 ± 178	1,868 ± 174	1,915 ± 124	Pass
DW-60010,60011	1/28/2015	Ra-226	1.25 ± 0.14	1.40 ± 0.15	1.33 ± 0.10	Pass
DW-60010,60011	1/28/2015	Ra-228	2.00 ± 0.66	1.39 ± 0.60	1.70 ± 0.45	Pass
SG-336,337	1/30/2015	Bi-214	6.63 ± 0.20	6.45 ± 0.45	6.54 ± 0.21	Pass
SG-336,337	1/30/2015	Pb-214	6.45 ± 0.19	6.45 ± 0.37	6.45 ± 0.21	Pass
SG-336,337	1/30/2015	Ac-228	4.43 ± 0.24	4.20 ± 0.58	4.32 ± 0.31	Pass
AP-020415A/B	2/4/2015	Gr. Beta	0.021 ± 0.004	0.019 ± 0.035	0.035 ± 0.020	Pass
AP-021115A/B	2/11/2015	Gr. Beta	0.034 ± 0.004	0.040 ± 0.047	0.037 ± 0.003	Pass
DW-60023,60024	2/26/2015	Ra-226	1.52 ± 0.15	1.51 ± 0.15	1.52 ± 0.11	Pass
DW-60023,60024	2/26/2015	Ra-228	0.97 ± 0.48	1.66 ± 0.58	1.32 ± 0.38	Pass
S-799,800	2/26/2015	K-40	11.96 ± 0.98	11.49 ± 0.82	11.72 ± 0.64	Pass
S-799,800	2/26/2015	Tl-208	0.36 ± 0.04	0.31 ± 0.04	0.34 ± 0.03	Pass
S-799,800	2/26/2015	Pb-212	0.92 ± 0.06	0.91 ± 0.06	0.91 ± 0.05	Pass
S-799,800	2/26/2015	Bi-212	1.26 ± 0.45	1.50 ± 0.40	1.38 ± 0.30	Pass
S-799,800	2/26/2015	Ac-228	1.35 ± 0.22	1.23 ± 0.17	1.29 ± 0.14	Pass
SG-834,835	2/2/2015	Gr. Alpha	113.3 ± 6.3	117.2 ± 2.8	115.2 ± 3.4	Pass
SG-834,835	2/2/2015	Gr. Beta	82.27 ± 2.79	84.33 ± 2.74	83.30 ± 1.96	Pass
DW-60031,60032	3/4/2015	Gr. Alpha	185.4 ± 7.4	177.0 ± 7.2	181.2 ± 5.2	Pass
DW-60036,60037	3/4/2015	Ra-226	6.89 ± 0.34	6.88 ± 0.32	6.89 ± 0.23	Pass
DW-60036,60037	3/4/2015	Ra-228	4.43 ± 0.73	4.41 ± 0.72	4.42 ± 0.51	Pass
DW-60048,60049	3/4/2015	Ra-226	0.84 ± 0.10	0.94 ± 0.11	0.89 ± 0.07	Pass
DW-60048,60049	3/4/2015	Ra-228	0.68 ± 0.41	1.42 ± 0.58	1.05 ± 0.36	Pass
AP-1169,1170	3/19/2015	Be-7	0.20 ± 0.02	0.24 ± 0.10	0.22 ± 0.07	Pass
DW-60069,60070	4/8/2015	Gr. Alpha	3.58 ± 0.88	3.92 ± 0.88	3.75 ± 0.62	Pass
AP-040915	4/9/2015	Gr. Beta	0.027 ± 0.005	0.023 ± 0.005	0.025 ± 0.003	Pass
WW-2394,2395	4/13/2015	H-3	1,628 ± 139	1,695 ± 141	1,662 ± 99	Pass
SG-1847,1848	4/20/2015	K-40	3.24 ± 1.18	1.99 ± 0.76	2.62 ± 0.70	Pass
SG-1847,1848	4/20/2015	Pb-214	5.80 ± 0.22	6.23 ± 0.76	6.02 ± 0.40	Pass
SG-1847,1848	4/20/2015	Ac-228	5.26 ± 0.51	5.00 ± 0.42	5.13 ± 0.33	Pass
XWW-2267,2268	4/23/2015	H-3	6,584 ± 244	6,164 ± 237	6,374 ± 170	Pass
XWW-2078,2079	4/27/2015	H-3	359.0 ± 89.6	418.7 ± 92.3	388.9 ± 64.3	Pass

TABLE A-5. In-House "Duplicate" Samples

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
XWW-2162,2163	4/28/2015	H-3	4,408 ± 201	4,242 ± 198	4,325 ± 141	Pass
SG-1868,1869	4/28/2015	Gr. Alpha	47.57 ± 3.63	43.61 ± 3.58	45.59 ± 2.55	Pass
SG-1868,1869	4/28/2015	Gr. Beta	50.90 ± 1.94	51.90 ± 2.02	51.40 ± 1.40	Pass
SG-1868,1869	4/28/2015	Pb-214	13.80 ± 0.52	13.54 ± 0.62	13.67 ± 0.40	Pass
SG-1868,1869	4/28/2015	Ra-228	20.10 ± 0.92	22.10 ± 1.29	21.10 ± 0.79	Pass
AP-042915	4/29/2015	Gr. Beta	0.014 ± 0.003	0.014 ± 0.003	0.014 ± 0.002	Pass
DW-60076,60077	5/4/2015	Ra-228	2.89 ± 0.61	2.45 ± 0.57	2.67 ± 0.42	Pass
AP-050515	5/5/2015	Gr. Beta	0.026 ± 0.004	0.025 ± 0.004	0.026 ± 0.003	Pass
AP-051115	5/11/2015	Gr. Beta	0.006 ± 0.005	0.010 ± 0.005	0.008 ± 0.004	Pass
DW-60087,60088	5/14/2015	Ra-226	1.58 ± 0.17	1.52 ± 0.17	1.55 ± 0.12	Pass
DW-60087,60088	5/14/2015	Ra-228	0.94 ± 0.50	0.94 ± 0.50	0.94 ± 0.35	Pass
SG-2436,2437	5/15/2015	Pb-214	22.90 ± 2.31	24.10 ± 2.43	23.50 ± 1.68	Pass
SG-2436,2437	5/15/2015	Ra-228	47.95 ± 0.61	47.80 ± 0.71	47.88 ± 0.47	Pass
SG-2436,2437	5/15/2015	Gr. Alpha	267.8 ± 7.9	254.6 ± 7.6	261.2 ± 5.5	Pass
SG-2458,2459	5/19/2015	Pb-214	75.00 ± 1.66	77.70 ± 1.75	76.35 ± 1.21	Pass
SG-2458,2459	5/19/2015	Ra-228	41.10 ± 0.92	40.80 ± 0.83	40.95 ± 0.62	Pass
DW-60095,60096	5/26/2015	Gr. Alpha	1.34 ± 0.69	0.91 ± 0.62	1.13 ± 0.46	Pass
AP-052715	5/27/2015	Gr. Beta	0.010 ± 0.003	0.010 ± 0.003	0.010 ± 0.002	Pass
S-2627,2628	5/29/2015	Pb-214	0.85 ± 0.07	0.85 ± 0.07	0.85 ± 0.05	Pass
S-2627,2628	5/29/2015	Ac-228	0.85 ± 0.14	1.08 ± 0.12	0.97 ± 0.09	Pass
S-2627,2628	5/29/2015	Cs-137	0.07 ± 0.02	0.07 ± 0.02	0.07 ± 0.01	Pass
S-2605,2606	6/1/2015	Ac-228	0.42 ± 0.06	0.38 ± 0.07	0.40 ± 0.05	Pass
S-2605,2606	6/1/2015	Ra-226	0.44 ± 0.03	0.49 ± 0.03	0.47 ± 0.02	Pass
S-2605,2606	6/1/2015	K-40	10.89 ± 0.51	11.40 ± 0.48	11.15 ± 0.35	Pass
S-2605,2606	6/1/2015	Cs-137	0.05 ± 0.01	0.05 ± 0.01	0.05 ± 0.01	Pass
S-2858,2859	6/2/2015	Cs-137	34.30 ± 16.05	40.66 ± 17.79	37.48 ± 11.98	Pass
S-2858,2859	6/2/2015	Be-7	1501 ± 264	1171 ± 214	1336 ± 170	Pass
S-2858,2859	6/2/2015	K-40	22,122 ± 658	20,987 ± 600	21,555 ± 445	Pass
AP-060315	6/3/2015	Gr. Beta	0.022 ± 0.004	0.021 ± 0.004	0.022 ± 0.003	Pass
DW-30107,30108	6/8/2015	Gr. Alpha	1.34 ± 0.82	1.47 ± 0.85	1.41 ± 0.59	Pass
SG-2900,2901	6/9/2015	Ac-228	10.22 ± 1.36	8.32 ± 1.07	9.27 ± 0.87	Pass
SG-2900,2901	6/9/2015	Pb-214	7.55 ± 0.43	7.27 ± 0.41	7.41 ± 0.30	Pass
AP-061515	6/15/2015	Gr. Beta	0.022 ± 0.004	0.021 ± 0.004	0.022 ± 0.003	Pass
XWW-3173,3174	6/18/2015	H-3	841.9 ± 123.6	799.3 ± 122.4	820.6 ± 87.0	Pass
AP-062215	6/22/2015	Gr. Beta	0.023 ± 0.004	0.018 ± 0.004	0.020 ± 0.003	Pass
S-3216,3217	6/24/2015	K-40	10.38 ± 0.51	10.51 ± 0.53	10.45 ± 0.37	Pass
S-3216,3217	6/24/2015	Be-7	3.65 ± 0.24	3.38 ± 0.27	3.52 ± 0.18	Pass
VE-3300,3301	6/24/2015	Be-7	0.78 ± 0.15	0.83 ± 0.23	0.81 ± 0.14	Pass
VE-3300,3301	6/24/2015	K-40	29.12 ± 0.62	29.36 ± 0.64	29.24 ± 0.45	Pass
AP-062915	6/29/2015	Gr. Beta	0.023 ± 0.005	0.023 ± 0.005	0.023 ± 0.003	Pass
WW-3632,3633	6/30/2015	H-3	5,169 ± 225	5,058 ± 223	5,114 ± 158	Pass

TABLE A-5. In-House "Duplicate" Samples

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
AP-3822, 3823	7/1/2015	Be-7	0.075 ± 0.011	0.068 ± 0.012	0.072 ± 0.008	Pass
AP-3969, 3970	7/1/2015	Be-7	0.063 ± 0.008	0.064 ± 0.010	0.063 ± 0.006	Pass
WW-3632, 3633	7/6/2015	H-3	5,169 ± 225	5,058 ± 223	5,114 ± 159	Pass
W-4368, 4369	7/6/2015	Gr. Alpha	26.70 ± 4.00	24.10 ± 3.90	25.40 ± 2.79	Pass
W-4368, 4369	7/6/2015	Gr. Beta	34.62 ± 2.10	33.30 ± 2.02	33.96 ± 1.46	Pass
DW-60138, 60139	7/7/2015	Ra-226	0.07 ± 0.04	0.11 ± 0.05	0.09 ± 0.03	Pass
DW-60138, 60139	7/7/2015	Ra-228	1.04 ± 0.41	1.15 ± 0.47	1.10 ± 0.31	Pass
WW-4158, 4159	7/9/2015	H-3	138.8 ± 82.4	174.0 ± 84.1	156.4 ± 58.9	Pass
MI-2902, 2903	7/10/2015	K-40	1271 ± 118	1308 ± 115	1289 ± 82	Pass
SG-3533, 3534	7/10/2015	Gr. Alpha	238.0 ± 8.2	249.5 ± 8.5	243.8 ± 5.9	Pass
DW-60150, 60151	7/10/2015	Ra-226	1.53 ± 0.16	1.49 ± 0.12	1.51 ± 0.10	Pass
DW-60150, 60151	7/10/2015	Ra-228	2.68 ± 0.68	1.89 ± 0.62	2.29 ± 0.46	Pass
VE-3716, 3717	7/14/2015	K-40	3.85 ± 0.33	3.71 ± 0.31	3.78 ± 0.23	Pass
MI-3759, 3760	7/15/2015	K-40	1819 ± 127	1764 ± 140	1791 ± 94	Pass
MI-3759, 3760	7/15/2015	Sr-90	1.00 ± 0.36	0.61 ± 0.32	0.80 ± 0.24	Pass
AP-072115	7/21/2015	Gr. Beta	0.022 ± 0.004	0.027 ± 0.004	0.024 ± 0.003	Pass
VE-4053, 4054	7/21/2015	Be-7	0.52 ± 0.15	0.49 ± 0.11	0.50 ± 0.09	Pass
VE-4053, 4054	7/21/2015	K-40	8.00 ± 0.42	7.61 ± 0.31	7.81 ± 0.26	Pass
AP-4200, 4201	7/29/2015	Be-7	1.06 ± 0.12	0.96 ± 0.11	1.01 ± 0.08	Pass
AP-4200, 4201	7/29/2015	K-40	5.03 ± 0.24	4.96 ± 0.23	4.99 ± 0.16	Pass
W-4137, 4138	7/31/2015	Ra-226	0.58 ± 0.13	0.45 ± 0.14	0.52 ± 0.10	Pass
XWW-4431, 4432	8/5/2015	H-3	4,773 ± 213	4,915 ± 216	4,844 ± 152	Pass
SG-4305, 4306	8/6/2015	Ra-228	10.34 ± 0.58	11.46 ± 0.62	10.90 ± 0.42	Pass
AP-081015	8/10/2015	Gr. Beta	0.038 ± 0.005	0.039 ± 0.005	0.039 0.004	Pass
AP-081115	8/11/2015	Gr. Beta	0.024 ± 0.004	0.020 ± 0.004	0.022 0.003	Pass
VE-4452, 4453	8/11/2015	K-40	3.77 ± 0.29	3.78 ± 0.26	3.77 ± 0.20	Pass
AP-081715	8/17/2015	Gr. Beta	0.030 ± 0.005	0.030 ± 0.005	0.030 ± 0.003	Pass
DW-60195, 60196	8/17/2015	Ra-226	0.39 ± 0.10	0.37 ± 0.10	0.38 ± 0.07	Pass
DW-60195, 60196	8/17/2015	Ra-228	1.43 ± 0.51	1.97 ± 0.61	1.70 ± 0.40	Pass
DW-60198, 60199	8/17/2015	Gr. Alpha	2.93 ± 0.94	2.11 ± 0.96	2.52 ± 0.67	Pass
VE-4578, 4579	8/18/2015	K-40	4.14 ± 0.25	4.32 ± 0.24	4.23 ± 0.17	Pass
SW-4662, 4663	8/25/2015	H-3	351.3 ± 89.8	415.6 ± 92.8	383.4 ± 64.6	Pass
DW-60212, 60213	8/25/2015	Ra-226	0.09 ± 0.07	0.10 ± 0.08	0.10 ± 0.05	Pass
LW-4788, 4789	8/27/2015	Gr. Beta	0.97 ± 0.51	1.68 ± 0.59	1.32 ± 0.39	Pass
AP-083115	8/31/2015	Gr. Beta	0.032 ± 0.005	0.031 ± 0.005	0.031 ± 0.003	Pass
AP-4875, 4876	9/3/2015	Be-7	0.294 ± 0.125	0.202 ± 0.109	0.248 ± 0.083	Pass
VE-5083, 5084	9/14/2015	Be-7	0.47 ± 0.23	0.56 ± 0.19	0.52 ± 0.15	Pass
VE-5083, 5084	9/14/2015	K-40	6.20 ± 0.51	6.36 ± 0.50	6.28 ± 0.36	Pass
VE-5167, 5168	9/16/2015	Be-7	0.40 ± 0.11	0.41 ± 0.10	0.41 ± 0.07	Pass
VE-5167, 5168	9/16/2015	K-40	3.56 ± 0.27	3.91 ± 0.24	3.74 ± 0.18	Pass
BS-5188, 5189	9/16/2015	K-40	9.69 ± 0.51	10.51 ± 0.52	10.10 ± 0.36	Pass
F-5419, 5420	9/17/2015	K-40	3.48 ± 0.47	3.49 ± 0.56	3.49 ± 0.36	Pass
DW-60238, 60239	9/18/2015	Ra-226	1.93 ± 0.23	2.31 ± 0.26	2.12 ± 0.17	Pass
DW-60238, 60239	9/18/2015	Ra-228	4.44 ± 0.78	5.61 ± 0.84	5.03 ± 0.57	Pass
AP-092215A/B	9/22/2015	Gr. Beta	0.021 ± 0.004	0.025 ± 0.004	0.023 ± 0.00	Pass
WW-5398, 5399	9/22/2015	H-3	1,857 ± 145	1,846 ± 144	1,852 ± 102	Pass
AP-6007, 6008	9/28/2015	Be-7	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	Pass

TABLE A-5. In-House "Duplicate" Samples

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
XW-7490, 7491	9/29/2015	Ni-63	2,332 ± 233	2,108 ± 211	2,220 ± 157	Pass
WW-5377, 5378	9/30/2015	H-3	220.0 ± 84.6	197.0 ± 83.5	208.5 ± 59.4	Pass
AP-6028, 6029	9/30/2015	Be-7	0.073 ± 0.009	0.083 ± 0.012	0.078 ± 0.007	Pass
G-5461,2	10/1/2015	Be-7	2.02 ± 0.32	1.98 ± 0.25	2.00 ± 0.20	Pass
G-5461,2	10/1/2015	K-40	8.77 ± 0.66	9.31 ± 0.59	9.04 ± 0.44	Pass
SO-5482, 5483	10/1/2015	Ac-228	0.76 ± 0.12	0.74 ± 0.30	0.75 ± 0.16	Pass
SO-5482, 5483	10/1/2015	Bi-214	0.53 ± 0.04	0.52 ± 0.04	0.52 ± 0.03	Pass
SO-5482, 5483	10/1/2015	Cs-137	0.12 ± 0.03	0.12 ± 0.03	0.12 ± 0.02	Pass
SO-5482, 5483	10/1/2015	K-40	2.17 ± 0.73	2.10 ± 0.72	2.13 ± 0.51	Pass
SO-5482, 5483	10/1/2015	Pb-214	0.57 ± 0.04	0.55 ± 0.04	0.56 ± 0.03	Pass
SO-5482, 5483	10/1/2015	Ra-226	1.45 ± 0.27	1.46 ± 0.30	1.45 ± 0.20	Pass
SO-5482, 5483	10/1/2015	Tl-208	0.24 ± 0.03	0.25 ± 0.03	0.24 ± 0.02	Pass
WW-5524, 5525	10/5/2015	H-3	1,192 ± 123	1,318 ± 127	1,255 ± 89	Pass
AP-5881, 5882	10/5/2015	Be-7	0.078 ± 0.008	0.085 ± 0.011	0.082 ± 0.007	Pass
AP-5881, 5882	10/5/2015	K-40	0.009 ± 0.004	0.010 ± 0.006	0.010 ± 0.004	Pass
SG-6400,1	10/5/2015	Gr. Alpha	19.09 ± 3.14	19.45 ± 3.25	19.27 ± 2.26	Pass
SG-6400,1	10/5/2015	Gr. Beta	31.36 ± 2.08	29.80 ± 2.13	30.58 ± 1.49	Pass
VE-5923, 5924	10/12/2015	K-40	4.29 ± 0.29	4.13 ± 0.33	4.21 ± 0.22	Pass
SS-5818, 5819	10/14/2015	Ac-228	0.20 ± 0.06	0.24 ± 0.06	0.22 ± 0.04	Pass
SS-5818, 5819	10/14/2015	Cs-137	0.03 ± 0.02	0.02 ± 0.01	0.03 ± 0.01	Pass
SS-5818, 5819	10/14/2015	Gr. Beta	8.10 ± 0.87	8.08 ± 0.96	8.09 ± 0.65	Pass
SS-5818, 5819	10/14/2015	Pb-212	0.19 ± 0.03	0.17 ± 0.02	0.18 ± 0.02	Pass
SS-5818, 5819	10/14/2015	Ra-226	0.47 ± 0.24	0.45 ± 0.19	0.46 ± 0.15	Pass
SS-5818, 5819	10/14/2015	Tl-208	0.06 ± 0.02	0.06 ± 0.02	0.06 ± 0.01	Pass
DW-60251, 60252	10/15/2015	Ra-226	0.56 ± 0.12	0.50 ± 0.08	0.53 ± 0.07	Pass
DW-60251, 60252	10/15/2015	Ra-228	0.79 ± 0.48	1.16 ± 0.59	0.98 ± 0.38	Pass
SO-5944, 5945	10/21/2015	Ac-228	1.08 ± 0.15	1.14 ± 0.15	1.11 ± 0.10	Pass
SO-5944, 5945	10/21/2015	Bi-214	0.89 ± 0.08	0.82 ± 0.06	0.85 ± 0.05	Pass
SO-5944, 5945	10/21/2015	Cs-137	0.06 ± 0.02	0.08 ± 0.03	0.07 ± 0.02	Pass
SO-5944, 5945	10/21/2015	Pb-212	1.06 ± 0.06	0.99 ± 0.05	1.03 ± 0.04	Pass
SO-5944, 5945	10/21/2015	Pb-214	1.00 ± 0.09	0.89 ± 0.06	0.95 ± 0.05	Pass
SO-5944, 5945	10/21/2015	Ra-226	2.13 ± 0.43	2.16 ± 0.37	2.14 ± 0.28	Pass
SO-5944, 5945	10/21/2015	Tl-208	0.36 ± 0.04	0.34 ± 0.04	0.35 ± 0.03	Pass
S-6175, 6176	10/23/2015	K-40	16.86 ± 1.92	14.28 ± 1.66	15.57 ± 1.27	Pass
XWW-6196, 6197	10/26/2015	H-3	2,856 ± 170	2,815 ± 169	2,836 ± 120	Pass
SO-6259, 6260	10/28/2015	Ac-228	0.60 ± 0.10	0.53 ± 0.08	0.57 ± 0.07	Pass
SO-6259, 6260	10/28/2015	Bi-214	0.40 ± 0.06	0.50 ± 0.05	0.45 ± 0.04	Pass
SO-6259, 6260	10/28/2015	Cs-137	0.17 ± 0.03	0.19 ± 0.03	0.18 ± 0.02	Pass
SO-6259, 6260	10/28/2015	Gr. Beta	21.6 ± 1.1	23.36 ± 1.21	22.48 ± 0.82	Pass
SO-6259, 6260	10/28/2015	Pb-212	0.53 ± 0.04	0.49 ± 0.04	0.51 ± 0.03	Pass
SO-6259, 6260	10/28/2015	Tl-208	0.16 ± 0.03	0.19 ± 0.04	0.18 ± 0.02	Pass

TABLE A-5. In-House "Duplicate" Samples

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
LW-6280, 6281	10/29/2015	Gr. Beta	2.03 ± 0.91	1.97 ± 0.97	2.00 ± 0.67	Pass
MI-6484, 6485	11/11/2015	K-40	1,384 ± 82	1,432 ± 89	1,408 ± 60	Pass
SO-6841, 6842	11/24/2015	Cs-137	0.18 ± 0.03	0.16 ± 0.03	0.17 ± 0.02	Pass
SO-6841, 6842	11/24/2015	K-40	13.62 ± 0.76	13.67 ± 0.69	13.64 ± 0.51	Pass
WW-6978, 6979	11/30/2015	H-3	569.0 ± 97.7	480.3 ± 93.9	524.7 ± 67.8	Pass
SW-6936, 6937	12/10/2015	H-3	151.9 ± 80.0	176.2 ± 81.2	164.0 ± 57.0	Pass
SW-7017, 7018	12/10/2015	H-3	584.3 ± 98.7	451.6 ± 93.9	518.0 ± 68.1	Pass
LW-7020, 7021	12/10/2015	H-3	236.9 ± 84.2	285.6 ± 86.5	261.2 ± 60.3	Pass
AP-7351, 7352	12/29/2015	Be-7	0.099 ± 0.020	0.084 ± 0.018	0.091 ± 0.014	Pass
AP-7414, 7415	12/30/2015	Be-7	0.049 ± 0.013	0.048 ± 0.011	0.048 ± 0.008	Pass

Note: Duplicate analyses are performed on every twentieth sample received in-house. Results are not listed for those analyses with activities that measure below the LLD.

[a] Results are reported in units of pCi/L, except for air filters (pCi/Filter or pCi/m3), food products, vegetation, soil, sediment (pCi/g).

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MASO-975	2/1/2015	Ni-63	341 ± 18	448	314 - 582	Pass
MASO-975	2/1/2015	Sr-90	523 ± 12	653	457 - 849	Pass
MASO-975	2/1/2015	Tc-99	614 ± 12	867	607 - 1,127	Pass
MASO-975	2/1/2015	Cs-134	533 ± 6	678	475 - 881	Pass
MASO-975	2/1/2015	Cs-137	0.8 ± 2.5	0.0	NA [c]	Pass
MASO-975	2/1/2015	Co-57	0.5 ± 1.0	0.0	NA [c]	Pass
MASO-975	2/1/2015	Co-60	741 ± 8	817	572 - 1,062	Pass
MASO-975	2/1/2015	Mn-54	1,153 ± 9	1,198	839 - 1,557	Pass
MASO-975	2/1/2015	Zn-65	892 ± 18	1064	745 - 1,383	Pass
MAW-969	2/1/2015	Am-241	0.650 ± 0.078	0.654	0.458 - 0.850	Pass
MAW-969	2/1/2015	Cs-134	21.1 ± 0.3	23.5	16.5 - 30.6	Pass
MAW-969	2/1/2015	Cs-137	19.6 ± 0.3	19.1	13.4 - 24.8	Pass
MAW-969 [d]	2/1/2015	Co-57	10.2 ± 0.4	29.9	20.9 - 38.9	Fail
MAW-969	2/1/2015	Co-60	0.02 ± 0.05	0.00	NA [c]	Pass
MAW-969	2/1/2015	H-3	569 ± 13	563	394 - 732	Pass
MAW-969	2/1/2015	Fe-55	6.00 ± 6.60	6.88	4.82 - 8.94	Pass
MAW-969	2/1/2015	Mn-54	0.02 ± 0.07	0.00	NA [c]	Pass
MAW-969	2/1/2015	Ni-63	2.9 ± 3.0	0.00	NA [c]	Pass
MAW-969	2/1/2015	Zn-65	16.5 ± 0.9	18.3	12.8 - 23.8	Pass
MAW-969	2/1/2015	Tc-99	3.40 ± 0.60	3.18	2.23 - 4.13	Pass
MAW-969	2/1/2015	Pu-238	0.02 ± 0.03	0.01	NA [e]	Pass
MAW-969	2/1/2015	Pu-239/240	0.81 ± 0.10	0.83	0.58 - 1.08	Pass
MAW-969	2/1/2015	U-233/234	0.150 ± 0.040	0.148	0.104 - 0.192	Pass
MAW-969	2/1/2015	U-238	0.84 ± 0.09	0.97	0.68 - 1.26	Pass
MAW-969	2/1/2015	Sr-90	9.40 ± 1.30	9.48	6.64 - 12.32	Pass
MAW-950	2/1/2015	Gr. Alpha	0.66 ± 0.05	1.07	0.32 - 1.81	Pass
MAW-950	2/1/2015	Gr. Beta	2.72 ± 0.06	2.79	1.40 - 4.19	Pass
MAW-947	2/1/2015	I-129	1.26 ± 0.12	1.49	1.04 - 1.94	Pass
MAAP-978	2/1/2015	Am-241	0.069 ± 0.200	0.068	0.048 - 0.089	Pass
MAAP-978	2/1/2015	Cs-134	1.00 ± 0.04	1.15	0.81 - 1.50	Pass
MAAP-978	2/1/2015	Cs-137	0.004 ± 0.023	0.00	NA [c]	Pass
MAAP-978 [f]	2/1/2015	Co-57	0.04 ± 0.04	1.51	1.06 - 1.96	Fail
MAAP-978	2/1/2015	Co-60	0.01 ± 0.02	0.00	NA [c]	Pass
MAAP-978	2/1/2015	Mn-54	1.11 ± 0.08	1.02	0.71 - 1.33	Pass
MAAP-978	2/1/2015	Zn-65	0.83 ± 0.10	0.83	0.58 - 1.08	Pass
MAAP-978	2/1/2015	Pu-238	-0.003 ± 0.010	0.000	NA [c]	Pass
MAAP-978	2/1/2015	Pu-239/240	0.090 ± 0.022	0.085	0.059 - 0.110	Pass
MAAP-978	2/1/2015	U-233/234	0.020 ± 0.010	0.016	0.011 - 0.020	Pass
MAAP-978	2/1/2015	U-238	0.073 ± 0.018	0.099	0.069 - 0.129	Pass

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MAAP-981	2/1/2015	Sr-89	38.1 ± 1.0	47.5	33.3 - 61.8	Pass
MAAP-981	2/1/2015	Sr-90	1.22 ± 0.13	1.06	0.74 - 1.38	Pass
MAAP-984	2/1/2015	Gr. Alpha	0.59 ± 0.06	1.77	0.53 - 3.01	Pass
MAAP-984	2/1/2015	Gr. Beta	0.95 ± 0.07	0.75	0.38 - 1.13	Pass
MAVE-972	2/1/2015	Cs-134	6.98 ± 0.13	7.32	5.12 - 9.52	Pass
MAVE-972	2/1/2015	Cs-137	9.73 ± 0.21	9.18	6.43 - 11.93	Pass
MAVE-972	2/1/2015	Co-57	0.01 ± 0.04	0.00	NA [c]	Pass
MAVE-972	2/1/2015	Co-60	3.89 ± 0.20	5.55	3.89 - 7.22	Pass
MAVE-972	2/1/2015	Mn-54	0.04 ± 0.07	0.00	NA [c]	Pass
MAVE-972	2/1/2015	Zn-65	0.09 ± 0.12	0.00	NA [c]	Pass
MAAP-978	2/1/2015	Pu-238	-0.003 ± 0.010	0.000	NA [c]	Pass
MAAP-978	2/1/2015	Pu-239/240	0.090 ± 0.022	0.085	0.059 - 0.110	Pass
MAAP-978	2/1/2015	U-233/234	0.020 ± 0.010	0.016	0.011 - 0.020	Pass
MAAP-978	2/1/2015	U-238	0.073 ± 0.018	0.099	0.069 - 0.129	Pass
MAAP-981	2/1/2015	Sr-89	38.1 ± 1.0	47.5	33.3 - 61.8	Pass
MAAP-981	2/1/2015	Sr-90	1.22 ± 0.13	1.06	0.74 - 1.38	Pass
MAAP-984	2/1/2015	Gr. Alpha	0.59 ± 0.06	1.77	0.53 - 3.01	Pass
MAAP-984	2/1/2015	Gr. Beta	0.95 ± 0.07	0.75	0.38 - 1.13	Pass
MAVE-972	2/1/2015	Cs-134	6.98 ± 0.13	7.32	5.12 - 9.52	Pass
MAVE-972	2/1/2015	Cs-137	9.73 ± 0.21	9.18	6.43 - 11.93	Pass
MAVE-972	2/1/2015	Co-57	0.01 ± 0.04	0.00	NA [c]	Pass
MAVE-972	2/1/2015	Co-60	3.89 ± 0.20	5.55	3.89 - 7.22	Pass
MAVE-972	2/1/2015	Mn-54	0.04 ± 0.07	0.00	NA [c]	Pass
MAVE-972	2/1/2015	Zn-65	0.09 ± 0.12	0.00	NA [c]	Pass
MASO-4903	8/1/2015	Ni-63	556 ± 18	682	477 - 887	Pass
MASO-4903 [g]	8/1/2015	Sr-90	231 ± 7	425	298 - 553	Fail
MASO-4903 [g]	8/1/2015	Sr-90	352 ± 10	425	298 - 553	Pass
MASO-4903 [h]	8/1/2015	Tc-99	411 ± 11	631	442 - 820	Fail
MASO-4903	8/1/2015	Cs-134	833 ± 10	1,010	707 - 1,313	Pass
MASO-4903	8/1/2015	Cs-137	808 ± 11	809.00	566 - 1,052	Pass
MASO-4903	8/1/2015	Co-57	1,052 ± 10	1,180	826 - 1,534	Pass
MASO-4903	8/1/2015	Co-60	2 ± 2	1.3	NA [e]	Pass
MASO-4903	8/1/2015	Mn-54	1,331 ± 13	1,340	938 - 1,742	Pass
MASO-4903	8/1/2015	Zn-65	686 ± 15	662	463 - 861	Pass

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
MAW-5007	8/1/2015	Cs-134	16.7 ± 0.4	23.1	16.2 - 30.0	Pass
MAW-5007	8/1/2015	Cs-137	-0.4 ± 0.1	0.0	NA [c]	Pass
MAW-5007	8/1/2015	Co-57	21.8 ± 0.4	20.8	14.6 - 27.0	Pass
MAW-5007	8/1/2015	Co-60	17.3 ± 0.3	17.1	12.0 - 22.2	Pass
MAW-5007	8/1/2015	H-3	227.5 ± 8.9	216.0	151.0 - 281.0	Pass
MAW-5007 [i]	8/1/2015	Fe-55	4.2 ± 14.1	13.1	9.2 - 17.0	Fail
MAW-5007	8/1/2015	Mn-54	16.6 ± 0.5	15.6	10.9 - 20.3	Pass
MAW-5007	8/1/2015	Ni-63	9.1 ± 2.6	8.6	6.0 - 11.1	Pass
MAW-5007	8/1/2015	Zn-65	15.5 ± 0.9	13.9	9.7 - 18.1	Pass
MAW-5007	8/1/2015	Tc-99	6.80 ± 0.60	7.19	5.03 - 9.35	Pass
MAW-5007	8/1/2015	Sr-90	4.80 ± 0.50	4.80	3.36 - 6.24	Pass
MAW-5007	8/1/2015	Gr. Alpha	0.41 ± 0.04	0.43	0.13 - 0.73	Pass
MAW-5007	8/1/2015	Gr. Beta	3.45 ± 0.07	3.52	1.76 - 5.28	Pass
MAW-5007	8/1/2015	I-129	1.42 ± 0.13	1.49	1.04 - 1.94	Pass
MAAP-4911	8/1/2015	Sr-89	3.55 ± 0.67	3.98	2.79 - 5.17	Pass
MAAP-4911	8/1/2015	Sr-90	0.94 ± 0.16	1.05	0.74 - 1.37	Pass
MAAP-4907	8/1/2015	Gr. Alpha	0.30 ± 0.04	0.90	0.27 - 1.53	Pass
MAAP-4907	8/1/2015	Gr. Beta	1.85 ± 0.09	1.56	0.78 - 2.34	Pass
MAVE-4901	8/1/2015	Cs-134	5.56 ± 0.16	5.80	4.06 - 7.54	Pass
MAVE-4901	8/1/2015	Cs-137	-0.02 ± 0.06	0.00	NA [c]	Pass
MAVE-4901	8/1/2015	Co-57	7.74 ± 0.18	6.62	4.63 - 8.61	Pass
MAVE-4901	8/1/2015	Co-60	4.84 ± 0.15	4.56	3.19 - 5.93	Pass
MAVE-4901	8/1/2015	Mn-54	8.25 ± 0.25	7.68	5.38 - 9.98	Pass
MAVE-4901	8/1/2015	Zn-65	5.78 ± 0.29	5.46	3.82 - 7.10	Pass

[a] Results are reported in units of Bq/kg (soil), Bq/L (water) or Bq/total sample (filters, vegetation).

[b] Laboratory codes as follows: MAW (water), MAAP (air filter), MASO (soil), MAVE (vegetation).

[c] MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP. A known value of "zero" indicates an analysis was included in the testing series as a "false positive". MAPEP does not provide control limits.

[d] Lab result was 27.84. Data entry error resulted in a non-acceptable result.

[e] Provided in the series for "sensitivity evaluation". MAPEP does not provide control limits.

[f] Lab result was 1.58. Data entry error resulted in a non-acceptable result.

[g] The incomplete separation of calcium from strontium caused a failed low result. The result of reanalysis acceptable.

[h] The complex sample matrix is interfering with yield calculations causing a failed low result. An investigation is in process to determine a more reliable yield determination.

[I] The known activity was below the routine laboratory detection limits for the available aliquot fraction.

TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a].

Lab Code [b]	Date	Analysis	Concentration (pCi/L) [b] Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
ERAP-1091	3/16/2015	Am-241	46.8 ± 2.2	49.8	30.7 - 67.4	Pass
ERAP-1091	3/16/2015	Co-60	85.1 ± 2.9	79.1	61.2 - 98.8	Pass
ERAP-1091	3/16/2015	Cs-134	825.6 ± 34.7	909.0	578.0 - 1,130.0	Pass
ERAP-1091	3/16/2015	Cs-137	1,312 ± 12	1,170	879 - 1,540	Pass
ERAP-1091	3/16/2015	Fe-55	760.6 ± 48.2	836.0	259.0 - 1630.0	Pass
ERAP-1091	3/16/2015	Mn-54	<2.7	<50	0.0 - 50.0	Pass
ERAP-1091	3/16/2015	Pu-238	51.0 ± 3.9	52.1	35.7 - 68.5	Pass
ERAP-1091	3/16/2015	Pu-239/240	38.3 ± 1.3	40.3	29.20 - 52.70	Pass
ERAP-1091	3/16/2015	Sr-90	95.3 ± 11.4	96.6	47.2 - 145.0	Pass
ERAP-1091	3/16/2015	U-233/234	29.0 ± 1.2	34.3	21.3 - 51.7	Pass
ERAP-1091	3/16/2015	U-238	31.0 ± 1.1	34.0	22.0 - 47.0	Pass
ERAP-1091	3/16/2015	Zn-65	1099.3 ± 146.5	986.0	706.0 - 1360.0	Pass
ERAP-1094	3/16/2015	Gr. Alpha	73.7 ± 0.7	62.2	20.8 - 96.6	Pass
ERAP-1094	3/16/2015	Gr. Beta	69.6 ± 0.8	58.4	36.9 - 85.1	Pass
ERSO-1098	3/16/2015	Am-241	1571.8 ± 209.6	1,500	878 - 1,950	Pass
ERSO-1098	3/16/2015	Ac-228	1198.8 ± 140.4	1,250	802 - 1,730	Pass
ERSO-1098	3/16/2015	Bi-212	1420.1 ± 455.7	1,780	474 - 2,620	Pass
ERSO-1098	3/16/2015	Bi-214	3466.9 ± 86.9	4,430	2,670 - 6,380	Pass
ERSO-1098	3/16/2015	Co-60	1779.8 ± 41.0	1,880	1,270 - 2,590	Pass
ERSO-1098	3/16/2015	Cs-134	5204.6 ± 64.5	6,390	4,180 - 7,680	Pass
ERSO-1098	3/16/2015	Cs-137	1417.1 ± 41.9	1,490	1,140 - 1,920	Pass
ERSO-1098	3/16/2015	K-40	10,597 ± 380	10,700	7,810 - 14,400	Pass
ERSO-1098	3/16/2015	Mn-54	<62.2	< 1000	0.0 - 1,000	Pass
ERSO-1098	3/16/2015	Pb-212	1,032 ± 41	1,230	806 - 1,710	Pass
ERSO-1098	3/16/2015	Pb-214	3,629 ± 93	4,530	2,640 - 6,760	Pass
ERSO-1098	3/16/2015	Pu-238	942.9 ± 128.8	998.0	600.0 - 1,380.0	Pass
ERSO-1098	3/16/2015	Pu-239/240	1,185 ± 140	1,210	791 - 1,670	Pass
ERSO-1098	3/16/2015	Sr-90	1,724 ± 125	1,940	740 - 3,060	Pass
ERSO-1098	3/16/2015	Th-234	3,666 ± 948	3,890	1,230 - 7,320	Pass
ERSO-1098	3/16/2015	U-233/234	3,474 ± 226	3,920	2,400 - 5,020	Pass
ERSO-1098	3/16/2015	U-238	3,620 ± 232	3,890	2,410 - 4,930	Pass
ERSO-1098	3/16/2015	Zn-65	7,362 ± 145	7,130	5,680 - 9,470	Pass
ERW-1095	3/16/2015	Gr. Alpha	93.4 ± 11.5	119.0	42.2 - 184.0	Pass
ERW-1095	3/16/2015	Gr. Beta	145.2 ± 4.8	158.0	90.5 - 234.0	Pass
ERW-1110	3/16/2015	H-3	10,573 ± 78	10,300	6,900 - 14,700	Pass
ERVE-1100	3/16/2015	Am-241	4,537 ± 266	4,340	2,650 - 5,770	Pass
ERVE-1100	3/16/2015	Cm-244	1,338 ± 146	1,360	666 - 2,120	Pass

TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a].

Lab Code [b]	Date	Analysis	Concentration (pCi/L) [b] Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
ERVE-1100 [e]	3/16/2015	Co-60	1,030 ± 29	1,540	1,060 - 2,150	Fail
ERVE-1100 [f]	3/16/2015	Co-60	1,684 ± 48	1,540	1,060 - 2,150	Pass
ERVE-1100 [e]	3/16/2015	Cs-134	1,615 ± 27	2,650	1,700 - 3,440	Fail
ERVE-1100 [f]	3/16/2015	Cs-134	2,554 ± 49	2,650	1,700 - 3,440	Pass
ERVE-1100 [e]	3/16/2015	Cs-137	1,248 ± 29	1,810	1,310 - 2,520	Fail
ERVE-1100 [f]	3/16/2015	Cs-137	2,078 ± 68	1,810	1,310 - 2,520	Pass
ERVE-1100 [e]	3/16/2015	K-40	22,037 ± 463	30,900	22,300 - 43,400	Fail
ERVE-1100 [f]	3/16/2015	K-40	34,895 ± 764	30,900	22,300 - 43,400	Pass
ERVE-1100 [e]	3/16/2015	Mn-54	<13.8	<300	0.0 - 300.0	Pass
ERVE-1100 [f]	3/16/2015	Mn-54	<24.4	<300	0.0 - 300.0	Pass
ERVE-1100	3/16/2015	Pu-238	3,232 ± 232	3,680	2,190 - 5,040	Pass
ERVE-1100	3/16/2015	Pu-239/240	3,606 ± 240	4,180	2,570 - 5,760	Pass
ERVE-1100	3/16/2015	Sr-90	6,023 ± 326	6,590	3,760 - 8,740	Pass
ERVE-1100	3/16/2015	U-233/234	2,653 ± 153	3,150	2,070 - 4,050	Pass
ERVE-1100	3/16/2015	U-238	2,717 ± 163	3,130	2,090 - 3,980	Pass
ERVE-1100 [e]	3/16/2015	Zn-65	<94.6	1,090	786 - 1,530	Fail
ERVE-1100 [f]	3/16/2015	Zn-65	1,306 ± 75	1,090	786 - 1,530	Pass
ERW-1103	3/16/2015	Am-241	47.1 ± 4.0	46.0	31.0 - 61.7	Pass
ERW-1103	3/16/2015	Co-60	1,217 ± 17	1,250	1,090 - 1,460	Pass
ERW-1103	3/16/2015	Cs-134	1,121 ± 18	1,260	925 - 1,450	Pass
ERW-1103	3/16/2015	Cs-137	1,332 ± 31	1,360	1,150 - 1,630	Pass
ERW-1103	3/16/2015	Mn-54	<3.7	<100	0.00 - 100.00	Pass
ERW-1103	3/16/2015	Pu-238	54.5 ± 1.6	72.4	53.6 - 90.1	Pass
ERW-1103 [g]	3/16/2015	Pu-239/240	140.2 ± 7.8	184.0	143.0 - 232.0	Fail
ERW-3742 [h]	9/27/2012	Pu-239/240	89.3 ± 4.9	97.7	66.6 - 108.0	Pass
ERW-1103	3/16/2015	U-233/234	56.5 ± 6.4	61.8	46.4 - 79.7	Pass
ERW-1103	3/16/2015	U-238	58.4 ± 5.8	61.3	46.7 - 75.2	Pass
ERW-1103	3/16/2015	Zn-65	1,191 ± 136	1,180	984 - 1,490	Pass
ERW-1103	3/16/2015	Fe-55	1,149 ± 144	1,070	638 - 1,450	Pass
ERW-1103	3/16/2015	Sr-90	860.0 ± 37.0	912.0	594.0 - 1,210.0	Pass

[a] Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurements Laboratory Quality Assessment Program (EML).

[b] Laboratory codes as follows: ERW (water), ERAP (air filter), ERSO (soil), ERVE (vegetation). Results are reported in units of pCi/L, except for air filters (pCi/Filter), vegetation and soil (pCi/kg).

[c] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

[d] Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA. A known value of "zero" indicates an analysis was included in the testing series as a "false positive". Control limits are not provided.

[e] Technician error weighing sample caused submitted gamma results to be understated and outside the control limits.(low)

[f] The result of reanalysis with the correct sample volume (Compare to original result, footnoted "e" above).

[g] The results of reanalysis were outside the control limits (low).

[h] Sample ERW-3742 was ordered from ERA to determine why ERW-1103 results for Pu-239 were outside the acceptable range. The results for ERW-3742 were acceptable. No reason for the unacceptable results for ERW-3742 was determined.

APPENDIX B. DATA REPORTING CONVENTIONS

Data Reporting Conventions

1.0. All activities, except gross alpha and gross beta, are decay corrected to collection time or the end of the collection period.

2.0. Single Measurements

Each single measurement is reported as follows: $x \pm s$

where: x = value of the measurement;
$s = 2\sigma$ counting uncertainty (corresponding to the 95% confidence level).

In cases where the activity is less than the lower limit of detection L, it is reported as: < L, where L = the lower limit of detection based on 4.66σ uncertainty for a background sample.

3.0. Duplicate analyses

If duplicate analyses are reported, the convention is as follows. :

3.1 Individual results: For two analysis results; $x_1 \pm s_1$ and $x_2 \pm s_2$

Reported result: $x \pm s$; where $x = (1/2)(x_1 + x_2)$ and $s = (1/2)\sqrt{s_1^2 + s_2^2}$

3.2. Individual results: $< L_1$, $< L_2$ Reported result: < L, where L = lower of L_1 and L_2

3.3. Individual results: $x \pm s$, < L Reported result: $x \pm s$ if $x \geq L$; < L otherwise.

4.0. Computation of Averages and Standard Deviations

4.1 Averages and standard deviations listed in the tables are computed from all of the individual measurements over the period averaged; for example, an annual standard deviation would not be the average of quarterly standard deviations. The average and standard deviation "s" of a set of n numbers x_1, x_2 . . . x_n are defined as follows:

$$= \frac{1}{n} \sum x \qquad s = \sqrt{\frac{\sum (x-)^2}{n-1}}$$

4.2 Values below the highest lower limit of detection are not included in the average.

4.3 If all values in the averaging group are less than the highest LLD, the highest LLD is reported.

4.4 If all but one of the values are less than the highest LLD, the single value x and associated two sigma error is reported.

4.5 In rounding off, the following rules are followed:

4.5.1. If the number following those to be retained is less than 5, the number is dropped, and the retained numbers are kept unchanged. As an example, 11.443 is rounded off to 11.44.

4.5.2. If the number following those to be retained is equal to or greater than 5, the number is dropped and the last retained number is raised by 1. As an example, 11.445 is rounded off to 11.45.

Appendix C. NON-RADIOLOGICAL MONITORING PROGRAM

1.0. Introduction

Union Electric Company Callaway Plant, d.b.a. Ameren Missouri Callaway Energy Center, in accordance with federal regulations and a desire to maintain the quality of the local environment around Callaway Plant has implemented an Environmental Protection Plan, (EPP) contained in Appendix B of the Callaway Plant Operating License.

The objective of the EPP is to provide for protection of non-radiological environmental values during operation of the Callaway Plant.

This report describes the conduct of the EPP for the Callaway Plant during 2015.

2.0. Unusual or Important Events

No unusual or important events reportable under the EPP Section 4.1 were identified during 2015.

3.0. EPP Non-compliances

During 2015, there were no non-compliances with the EPP.

4.0. Nonroutine Reports

There were no nonroutine reports submitted in accordance with the EPP, Section 5.4.2 in 2015.

5.0. Plant Design and Operation Environmental Evaluations.

This section lists all changes in the plant design, operation, tests or experiments installed during 2015, which could have involved a potentially significant unreviewed environmental question in accordance with section 3.1 of Appendix B.

During 2015, three plant changes could have involved a potentially significant unreviewed environmental question. The interpretations and conclusions regarding these plant changes along with a description of the change and activity are presented below.

MP 13-0031, MP 14-0015, MP 14-0016, MP 14-0017 (Rev 2) – Permanent Storage of Major Equipment in the Hardened Storage Facility for Emergency Response

Description of Change:

Modifications MP 13-0031, MP 14-0015, MP 14-0016, and MP 14-0017 include permanent storage of emergency response equipment in the hardened storage facility at Callaway Energy Center. This evaluation includes a review of the requirements for storage and operation of major equipment to be permanently stored in this facility to respond to a beyond design basis external event (BDBEE) accident.

Major equipment to be stored in the hardened storage facility includes:

1) 2 – portable emergency generators - Caterpillar 500KWe, trailer mounted with a double walled 600 gallon fuel tank

2) 2 – John Deere Model 4045 portable diesel driven pumps, each with a 100 gallon dual walled fuel tank

3) 2 – John Deere Model 6090 portable diesel driven pumps, each with a 245 gallon dual walled fuel tank

4) 1 – Refueling trailer to contain a maximum volume of 1500 gallons diesel fuel

5) 1 – 300 Series Transformer (XPG322) containing 261 gallons of non-PCB mineral oil to be located between the hardened storage facility and the ISFSI support building

Evaluation of Change:

As part of the Final Environmental Evaluation, both the ER and FES-OL were reviewed for any previously evaluated adverse environmental impacts and any new adverse environmental impacts not previously evaluated. No adverse environmental impacts were identified. The construction of this facility was evaluated in a separate final environmental evaluation reported in the 2014 report. Because this equipment is to be permanently stored in this facility, an application for an air construction permit was submitted under the Part 70 air program. Approval was granted from the Missouri Department of Natural Resources Air Program to

permanently house this equipment on March 23, 2015 indicating no construction permit is required. This change does not involve an un-reviewed environmental question. Therefore, NRC approval is not required for this portion of the construction project.

MP 14-0012 – Construction of two additional Water Treatment Plant Sedimentation Lagoons #5 & #6

Description of Change:

MP 14-0012 covers the construction of two additional sedimentation lagoons to store Missouri River solids removed by the water treatment plant. There are currently 2 sedimentation lagoons in service (lagoon #3 & #4) along with 2 wetlands (lagoon #1 & #2) for polishing the sewage treatment effluent from the outlet of a three-cell sewage stabilization pond system. The current sedimentation lagoons are approaching design capacity. The new lagoons will occupy an area adjacent to existing lagoons #3 & #4, measuring approximately 1200 feet by 600 feet and with the bottom elevations near 820 feet. Effluent from the lagoons will tie into the existing piping, utilize the current NPDES outfall (Outfall 003), and will be recycled back to the head of the water treatment plant as it has for more than 16 years.

Evaluation of Change:

As part of the Final Environmental Evaluation, both the ER and FES-OL were reviewed for any previously evaluated adverse environmental impacts and any new adverse environmental impacts not previously evaluated. No adverse environmental impacts were identified. Because the new sedimentation lagoons are water treatment devices as well as being earthen basins, a construction permit was required by the Missouri Department of Natural Resources Water Program prior to beginning construction. Construction Permit # CP0001707 was obtained on June 3, 2015. In addition, a land disturbance permit was obtained as greater than one acre was disturbed during this construction. The construction area for the new sedimentation lagoons is located on Callaway plant property and was previously evaluated for cultural resources with no cultural resources identified. During construction, storm water runoff from this area was controlled using Best Management Practices (BMPs) to minimize sediment runoff.

This change does not involve an un-reviewed environmental question and NRC approval was not required.

RFR 201408691 – Use of BULAB 8031 as a Dispersant in the Circulating/Service Water, Essential Service Water (ESW), and Fire Water Systems

Description of Change:

This change involves the use of BULAB 8031 as a dispersant for the circulating/service water system, essential service water system and fire water system as BULAB 8006 (used in the past) is being discontinued and is no longer available.

Evaluation of Change:

As part of the Final Environmental Evaluation, both the ER and FES-OL were reviewed for any previously evaluated adverse environmental impacts and any new adverse environmental impacts not previously evaluated. No adverse environmental impacts were identified. Missouri DNR approval or permits were not required as a similar dispersant (BULAB 8006) was previously used in these systems. Both products contain the same biopenetrant DMAD which will be maintained at the same concentration. BULAB 8031 contains a slightly different anionic surfactant. Aquatic toxicity data was reviewed for both BULAB products and both products indicated a similar 48-hour LC50. Both products have been previously reviewed and approved by the Missouri DNR for use at Callaway and there intended use in these systems should have no adverse effect on the environment.

This evaluation concluded that this change to utilize BULAB 8031 as a dispersant in these systems does not involve an un-reviewed environmental question and NRC approval was not required.

APPENDIX D

Sampling Location Maps

Figure D-1. Radiological Environmental Sampling Locations 1, 2, 3, mile radius from site location.

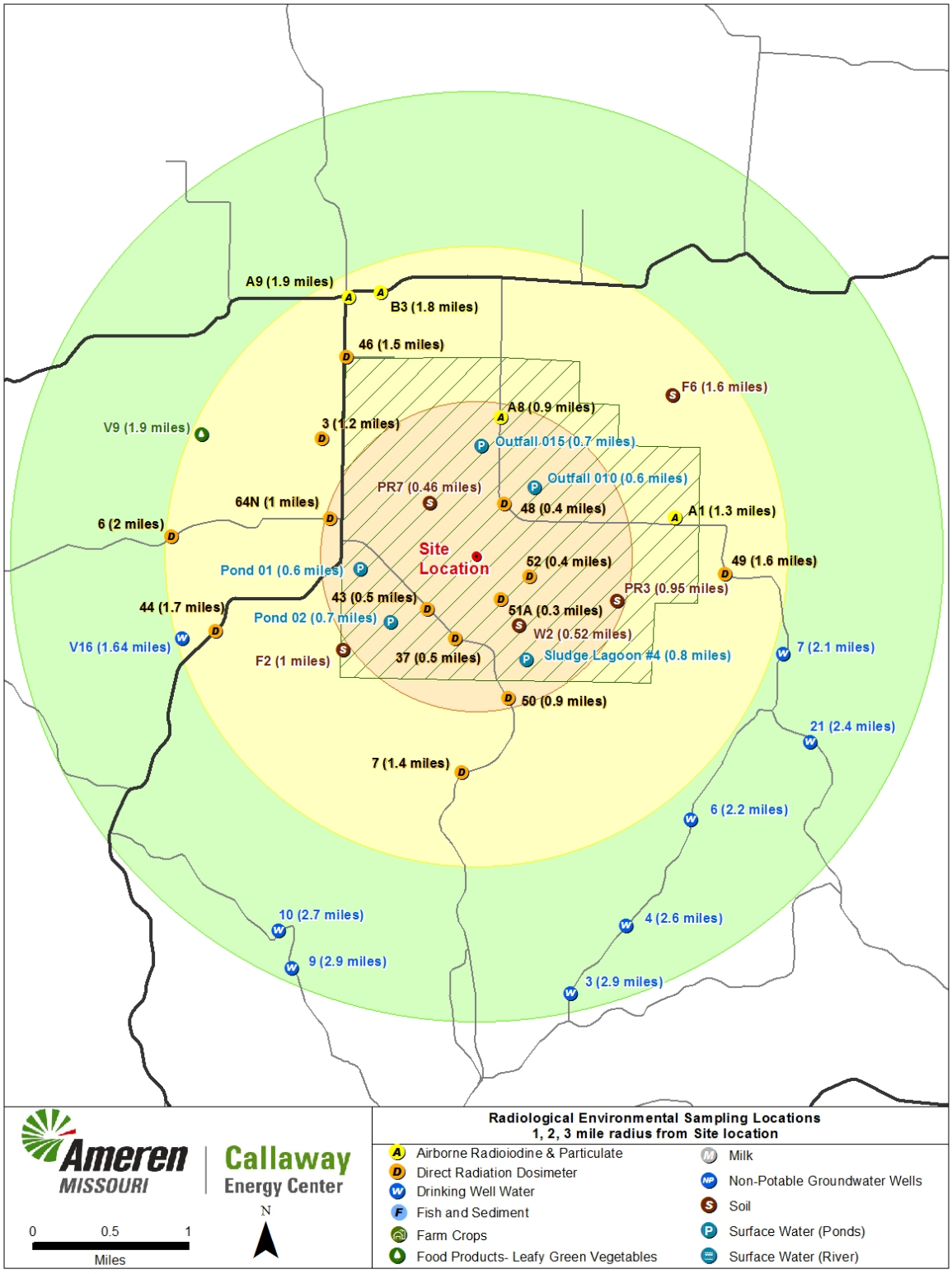


Figure D-2. Radiological Environmental Sampling Locations 3, 4, 5, 6 mile radius from site location.

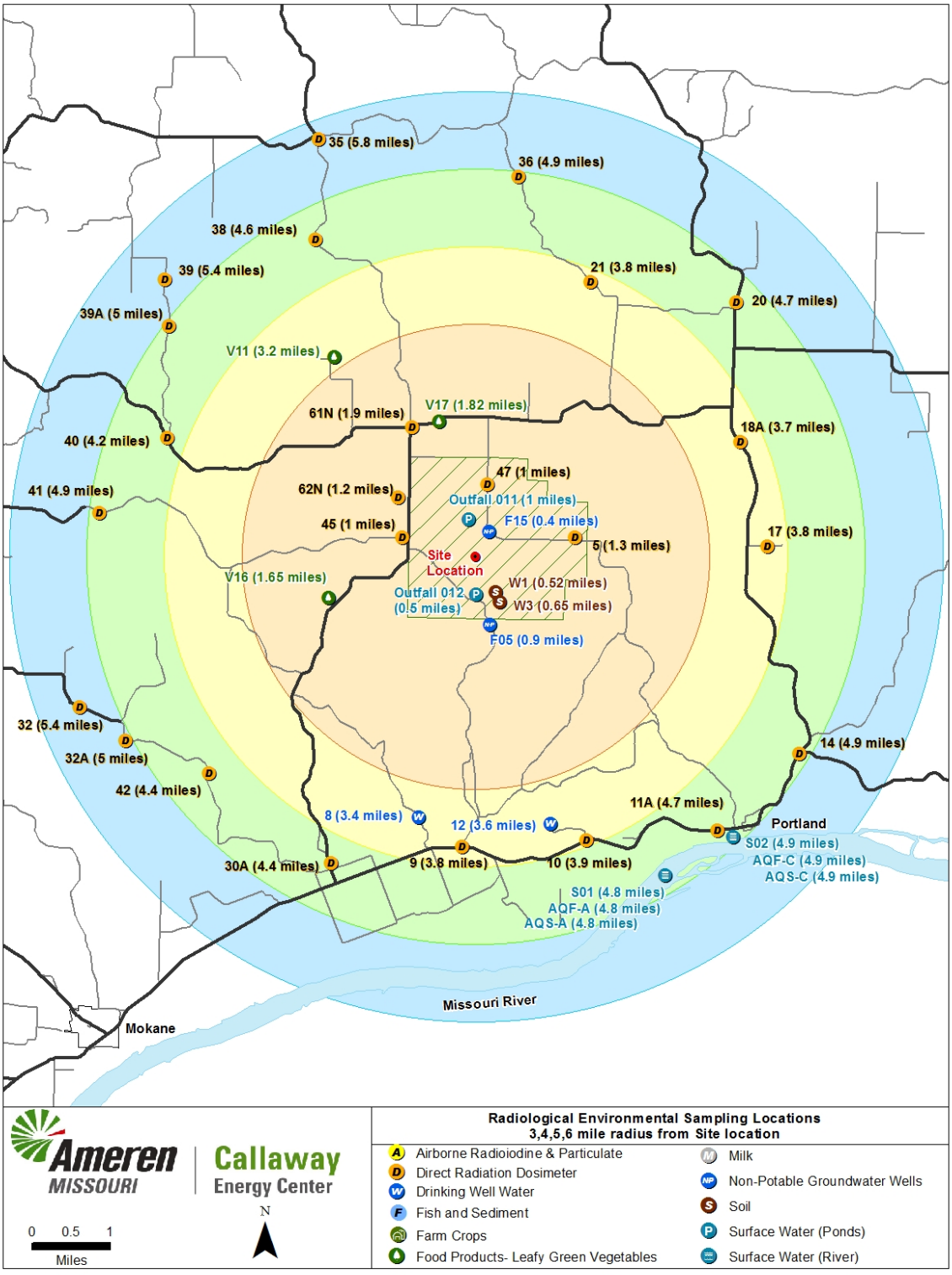


Figure D-3. Radiological Environmental Sampling Locations 5, 10, 15 mile radius from site location.

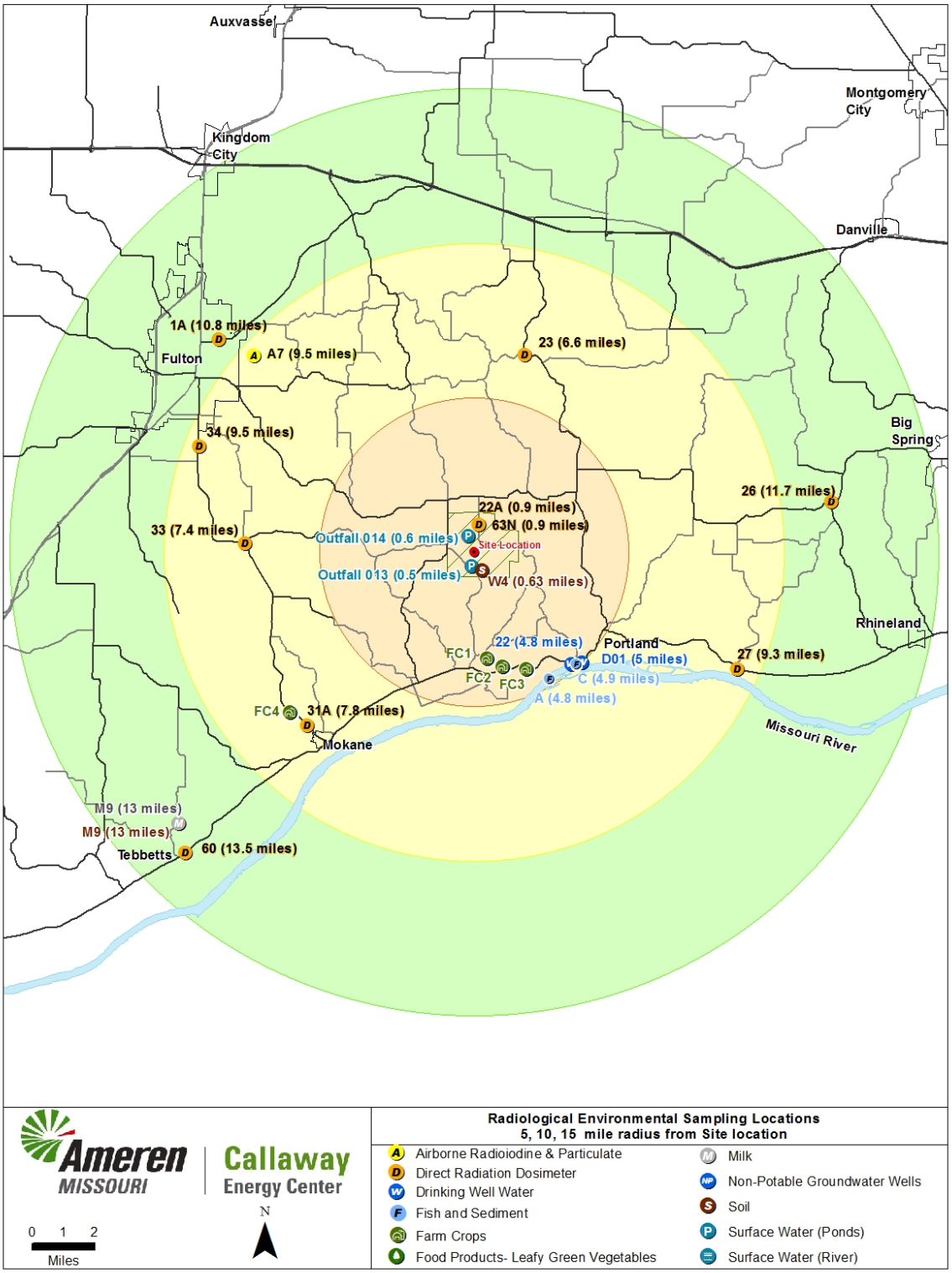


Figure D-4a. Groundwater Monitoring Wells, Owner Controlled Area and Vicinity.

Note: Not all wells shown are included in the REMP. Refer to Table 5.1 for a listing of monitored wells.

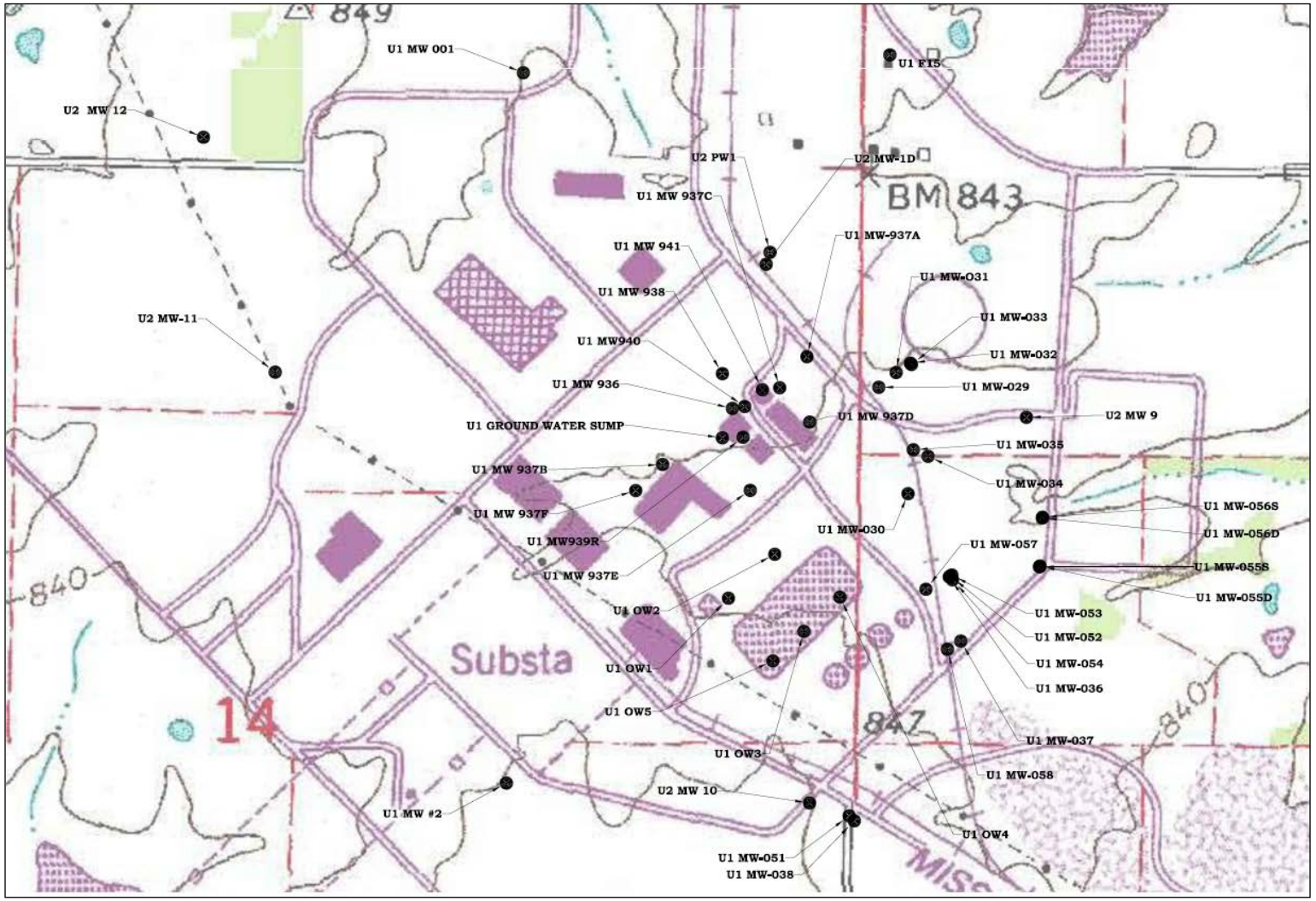


Figure D-4b. Groundwater Monitoring Wells, Northern Area.

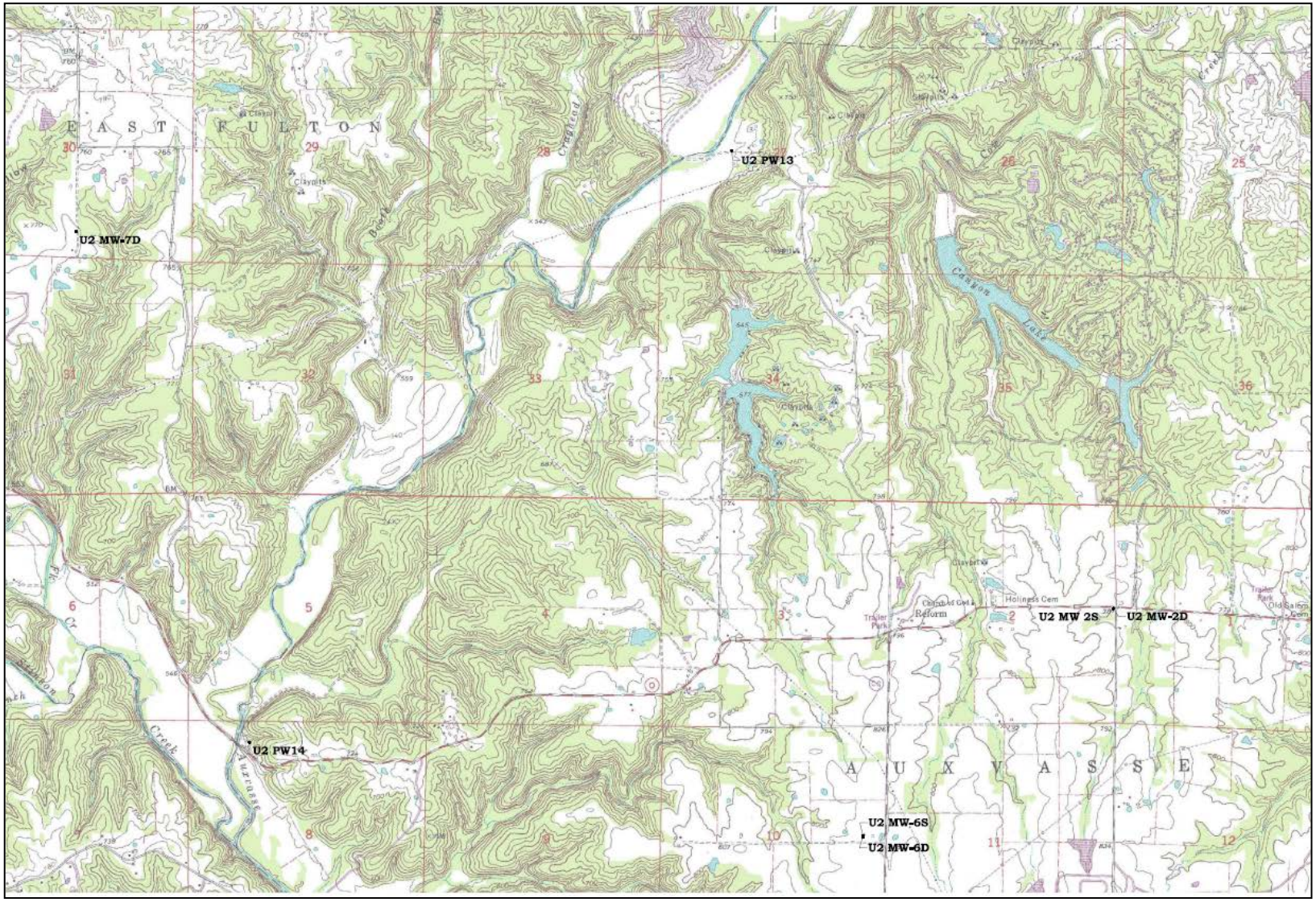


Figure D-4c. Groundwater Monitoring Wells, Central Area.

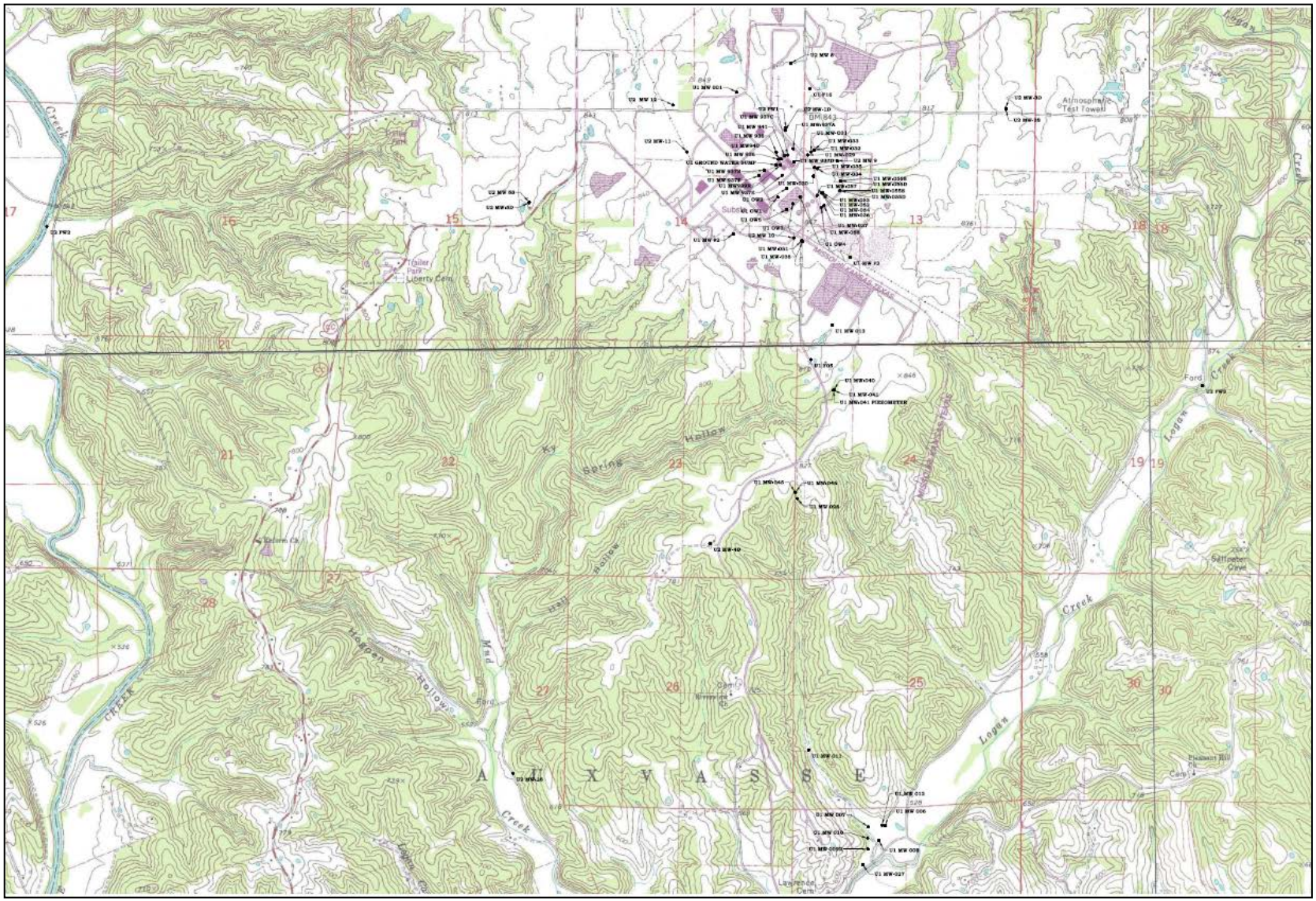
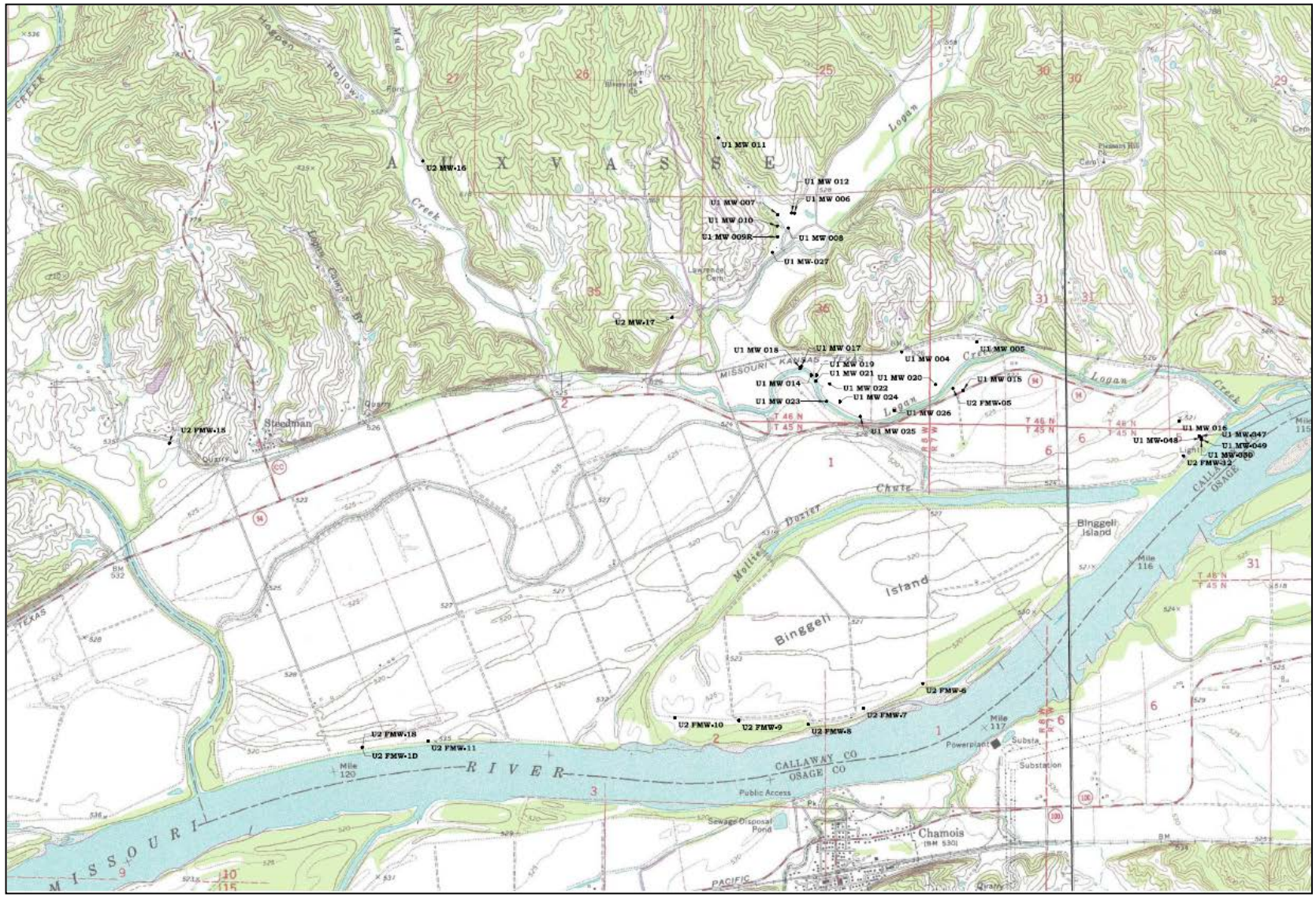


Figure D-4d. Groundwater Monitoring Wells, Alluvial Area.



AMEREN MISSOURI
CALLAWAY ENERGY CENTER
FULTON, MISSOURI

Docket Numbers 50-483 and 72-1045

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

to

THE UNITED STATES NUCLEAR REGULATORY COMMISSION

Part II

January 1 to December 31, 2015

Prepared by

ENVIRONMENTAL, Inc.
Midwest Laboratory
and
Ameren Missouri
Callaway Energy Center

Submitted by

UNION ELECTRIC CO.
dba Ameren Missouri

Project No. 8036

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LIST OF TABLES

1.0 INTRODUCTION

The following constitutes a supplement to the Annual Report for the Radiological Environmental Monitoring Program conducted at the Ameren Missouri, Callaway Energy Center, Fulton, Missouri in 2015. Results of completed analyses are presented in the attached tables.

For information regarding sampling locations, type and frequency of collection, and sample codes, refer to Part I, Tables 5.1 - 5.2 and Figures 5.1 through 5.8.

Analyses results from additional sampling may be found in Appendix A.

2.0 DATA TABLES

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-001							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	$^{140}BaLa$	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
01-08-15	349	0.13 ± 0.08	< 0.004	< 0.006	< 0.009	< 0.006	< 0.005	< 0.009	< 0.024
01-15-15	311	0.17 ± 0.09	< 0.008	< 0.006	< 0.009	< 0.007	< 0.006	< 0.008	< 0.032
01-22-15	318	< 0.07	< 0.004	< 0.006	< 0.009	< 0.008	< 0.006	< 0.005	< 0.033
01-29-15	302	< 0.06	< 0.004	< 0.006	< 0.011	< 0.008	< 0.005	< 0.006	< 0.030
02-05-15	297	0.18 ± 0.11	< 0.006	< 0.007	< 0.012	< 0.006	< 0.004	< 0.011	< 0.025
02-12-15	295	0.15 ± 0.08	< 0.005	< 0.007	< 0.011	< 0.008	< 0.005	< 0.009	< 0.038
02-19-15	283	< 0.07	< 0.006	< 0.005	< 0.017	< 0.008	< 0.010	< 0.011	< 0.045
02-26-15	294	0.20 ± 0.08	< 0.005	< 0.007	< 0.011	< 0.008	< 0.007	< 0.007	< 0.041
03-05-15	298	< 0.08	< 0.004	< 0.003	< 0.010	< 0.007	< 0.007	< 0.005	< 0.047
03-12-15	306	0.25 ± 0.12	< 0.006	< 0.003	< 0.008	< 0.007	< 0.005	< 0.014	< 0.042
03-19-15	307	0.20 ± 0.09	< 0.005	< 0.007	< 0.010	< 0.009	< 0.004	< 0.006	< 0.038
03-26-15	307	< 0.09	< 0.007	< 0.008	< 0.007	< 0.007	< 0.006	< 0.008	< 0.039
04-02-15	304	< 0.11	< 0.008	< 0.006	< 0.012	< 0.008	< 0.009	< 0.021	< 0.047
04-09-15	305	< 0.11	< 0.006	< 0.007	< 0.009	< 0.008	< 0.006	< 0.016	< 0.048
04-16-15	306	< 0.13	< 0.008	< 0.007	< 0.010	< 0.009	< 0.006	< 0.038	< 0.028
04-23-15	302	< 0.10	< 0.008	< 0.007	< 0.007	< 0.006	< 0.007	< 0.012	< 0.048
04-30-15	308	< 0.10	< 0.011	< 0.011	< 0.014	< 0.014	< 0.007	< 0.048	< 0.056
05-07-15	310	0.24 ± 0.11	< 0.004	< 0.007	< 0.007	< 0.008	< 0.007	< 0.011	< 0.039
05-14-15	272	0.22 ± 0.11	< 0.011	< 0.011	< 0.020	< 0.011	< 0.010	< 0.043	< 0.041
05-21-15	271	< 0.13	< 0.006	< 0.009	< 0.019	< 0.009	< 0.011	< 0.038	< 0.043
05-28-15	269	< 0.11	< 0.007	< 0.008	< 0.010	< 0.011	< 0.009	< 0.014	< 0.039
06-04-15	272	< 0.13	< 0.006	< 0.006	< 0.012	< 0.010	< 0.009	< 0.024	< 0.042
06-11-15	264	< 0.14	< 0.010	< 0.006	< 0.013	< 0.008	< 0.010	< 0.028	< 0.040
06-18-15	266	< 0.12	< 0.005	< 0.008	< 0.016	< 0.011	< 0.010	< 0.014	< 0.062
06-25-15	261	< 0.09	< 0.007	< 0.005	< 0.009	< 0.009	< 0.005	< 0.023	< 0.034
07-02-15	263	0.13 ± 0.08	< 0.005	< 0.005	< 0.009	< 0.008	< 0.008	< 0.010	< 0.043
07-09-15	258	< 0.13	< 0.006	< 0.005	< 0.012	< 0.010	< 0.005	< 0.013	< 0.053
07-16-15	259	< 0.12	< 0.009	< 0.008	< 0.020	< 0.010	< 0.010	< 0.013	< 0.048
07-23-15	260	0.25 ± 0.14	< 0.009	< 0.010	< 0.020	< 0.010	< 0.006	< 0.015	< 0.064
07-30-15	256	< 0.11	< 0.009	< 0.010	< 0.020	< 0.011	< 0.010	< 0.017	< 0.052
08-06-15	257	0.15 ± 0.09	< 0.006	< 0.008	< 0.008	< 0.009	< 0.010	< 0.014	< 0.041
08-13-15	257	< 0.12	< 0.013	< 0.010	< 0.020	< 0.012	< 0.007	< 0.012	< 0.059
08-20-15	273	< 0.12	< 0.011	< 0.006	< 0.014	< 0.010	< 0.009	< 0.013	< 0.049
08-27-15	305	< 0.11	< 0.005	< 0.007	< 0.013	< 0.007	< 0.006	< 0.011	< 0.045
09-03-15	330	0.25 ± 0.09	< 0.009	< 0.006	< 0.017	< 0.007	< 0.006	< 0.012	< 0.044
09-10-15	273	0.27 ± 0.12	< 0.005	< 0.006	< 0.013	< 0.009	< 0.010	< 0.008	< 0.050
09-17-15	276	< 0.10	< 0.009	< 0.007	< 0.013	< 0.008	< 0.011	< 0.013	< 0.037
09-24-15	284	< 0.11	< 0.008	< 0.005	< 0.012	< 0.009	< 0.009	< 0.016	< 0.050
10-01-15	285	< 0.10	< 0.008	< 0.005	< 0.013	< 0.011	< 0.010	< 0.022	< 0.032

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-001 (cont.)							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	$^{140}BaLa$	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
10-08-15	290	< 0.13	< 0.007	< 0.009	< 0.019	< 0.010	< 0.007	< 0.022	< 0.043
10-15-15	290	< 0.17	< 0.014	< 0.010	< 0.026	< 0.016	< 0.012	< 0.055	< 0.055
10-22-15	296	< 0.13	< 0.007	< 0.006	< 0.018	< 0.009	< 0.009	< 0.015	< 0.042
10-29-15	296	< 0.14	< 0.010	< 0.006	< 0.012	< 0.009	< 0.010	< 0.018	< 0.047
11-05-15	304	< 0.07	< 0.009	< 0.006	< 0.014	< 0.008	< 0.011	< 0.028	< 0.046
11-12-15	293	< 0.10	< 0.009	< 0.008	< 0.014	< 0.008	< 0.008	< 0.012	< 0.043
11-19-15	299	< 0.09	< 0.008	< 0.007	< 0.017	< 0.008	< 0.011	< 0.016	< 0.045
11-25-15	250	< 0.12	< 0.010	< 0.007	< 0.016	< 0.010	< 0.006	< 0.021	< 0.038
12-03-15	338	< 0.08	< 0.008	< 0.004	< 0.012	< 0.009	< 0.007	< 0.013	< 0.049
12-10-15	300	< 0.10	< 0.007	< 0.007	< 0.009	< 0.008	< 0.005	< 0.011	< 0.039
12-17-15	298	< 0.11	< 0.007	< 0.003	< 0.013	< 0.008	< 0.007	< 0.019	< 0.038
12-23-15	253	< 0.11	< 0.007	< 0.008	< 0.014	< 0.009	< 0.008	< 0.028	< 0.034
12-31-15	335	< 0.07	< 0.005	< 0.005	< 0.009	< 0.006	< 0.007	< 0.017	< 0.029

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-007							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	^{140}BaLa	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
01-08-15	307	< 0.11	< 0.004	< 0.003	< 0.013	< 0.009	< 0.007	< 0.012	< 0.049
01-15-15	270	0.16 ± 0.09	< 0.007	< 0.007	< 0.012	< 0.007	< 0.004	< 0.009	< 0.033
01-22-15	276	< 0.08	< 0.005	< 0.007	< 0.012	< 0.009	< 0.007	< 0.006	< 0.032
01-29-15	281	< 0.08	< 0.008	< 0.009	< 0.013	< 0.009	< 0.008	< 0.011	< 0.039
02-05-15	274	< 0.09	< 0.005	< 0.007	< 0.011	< 0.008	< 0.004	< 0.012	< 0.023
02-12-15	272	< 0.08	< 0.004	< 0.007	< 0.010	< 0.009	< 0.005	< 0.010	< 0.048
02-19-15	266	0.13 ± 0.07	< 0.007	< 0.009	< 0.011	< 0.010	< 0.008	< 0.011	< 0.041
02-26-15	268	< 0.11	< 0.005	< 0.008	< 0.011	< 0.009	< 0.005	< 0.007	< 0.035
03-05-15	271	0.16 ± 0.06	< 0.008	< 0.005	< 0.010	< 0.007	< 0.008	< 0.006	< 0.043
03-12-15	278	0.19 ± 0.11	< 0.004	< 0.008	< 0.016	< 0.007	< 0.007	< 0.019	< 0.040
03-19-15	282	0.27 ± 0.10	< 0.005	< 0.009	< 0.011	< 0.007	< 0.003	< 0.013	< 0.028
03-26-15	286	0.16 ± 0.10	< 0.007	< 0.007	< 0.012	< 0.007	< 0.008	< 0.009	< 0.043
04-02-15	277	0.19 ± 0.10	< 0.009	< 0.009	< 0.020	< 0.010	< 0.010	< 0.030	< 0.048
04-09-15	283	< 0.12	< 0.008	< 0.007	< 0.014	< 0.010	< 0.011	< 0.046	< 0.033
04-16-15	284	0.23 ± 0.11	< 0.009	< 0.010	< 0.027	< 0.009	< 0.008	< 0.030	< 0.038
04-23-15	284	< 0.10	< 0.006	< 0.008	< 0.010	< 0.009	< 0.010	< 0.014	< 0.030
04-30-15	284	< 0.10	< 0.004	< 0.008	< 0.011	< 0.007	< 0.007	< 0.014	< 0.043
05-07-15	284	0.18 ± 0.10	< 0.005	< 0.007	< 0.019	< 0.009	< 0.007	< 0.035	< 0.031
05-14-15	280	0.24 ± 0.14	< 0.010	< 0.007	< 0.016	< 0.010	< 0.010	< 0.029	< 0.049
05-21-15	289	< 0.10	< 0.011	< 0.008	< 0.009	< 0.009	< 0.009	< 0.030	< 0.046
05-28-15	284	< 0.11	< 0.006	< 0.006	< 0.010	< 0.009	< 0.007	< 0.024	< 0.047
06-04-15	292	< 0.10	< 0.011	< 0.007	< 0.009	< 0.010	< 0.008	< 0.023	< 0.048
06-11-15	283	0.21 ± 0.13	< 0.006	< 0.007	< 0.009	< 0.008	< 0.006	< 0.017	< 0.050
06-18-15	289	< 0.11	< 0.004	< 0.008	< 0.010	< 0.008	< 0.007	< 0.013	< 0.047
06-25-15	244	< 0.11	< 0.007	< 0.005	< 0.021	< 0.009	< 0.008	< 0.016	< 0.032
07-02-15	250	< 0.12	< 0.006	< 0.013	< 0.016	< 0.012	< 0.006	< 0.031	< 0.045
07-09-15	243	0.21 ± 0.12	< 0.007	< 0.005	< 0.011	< 0.008	< 0.005	< 0.015	< 0.063
07-16-15	242	< 0.13	< 0.011	< 0.008	< 0.013	< 0.011	< 0.006	< 0.014	< 0.054
07-23-15	240	< 0.12	< 0.009	< 0.011	< 0.022	< 0.010	< 0.011	< 0.016	< 0.063
07-30-15	239	< 0.12	< 0.009	< 0.010	< 0.020	< 0.011	< 0.012	< 0.014	< 0.037
08-06-15	240	< 0.16	< 0.014	< 0.011	< 0.023	< 0.015	< 0.009	< 0.020	< 0.061
08-13-15	242	< 0.11	< 0.010	< 0.008	< 0.014	< 0.011	< 0.010	< 0.018	< 0.048
08-20-15	240	0.21 ± 0.11	< 0.006	< 0.007	< 0.012	< 0.012	< 0.009	< 0.015	< 0.044
08-27-15	260	< 0.11	< 0.007	< 0.005	< 0.017	< 0.009	< 0.011	< 0.016	< 0.049
09-03-15	258	< 0.13	< 0.009	< 0.010	< 0.018	< 0.010	< 0.010	< 0.010	< 0.053
09-10-15	257	< 0.14	< 0.009	< 0.010	< 0.019	< 0.012	< 0.012	< 0.032	< 0.045
09-17-15	266	0.21 ± 0.12	< 0.006	< 0.007	< 0.020	< 0.009	< 0.009	< 0.014	< 0.048
09-24-15	266	< 0.12	< 0.006	< 0.007	< 0.021	< 0.011	< 0.007	< 0.023	< 0.036
10-01-15	261	< 0.13	< 0.009	< 0.006	< 0.023	< 0.011	< 0.006	< 0.015	< 0.059

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-007 (cont.)							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	^{140}BaLa	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
10-08-15	268	< 0.13	< 0.013	< 0.005	< 0.013	< 0.010	< 0.011	< 0.023	< 0.056
10-15-15	262	< 0.16	< 0.008	< 0.006	< 0.012	< 0.013	< 0.011	< 0.036	< 0.048
10-22-15	264	0.26 ± 0.15	< 0.010	< 0.009	< 0.022	< 0.010	< 0.009	< 0.019	< 0.050
10-29-15	269	< 0.11	< 0.006	< 0.009	< 0.016	< 0.011	< 0.007	< 0.015	< 0.054
11-05-15	275	< 0.10	< 0.008	< 0.005	< 0.017	< 0.009	< 0.008	< 0.018	< 0.040
11-12-15	272	< 0.09	< 0.006	< 0.011	< 0.010	< 0.009	< 0.011	< 0.014	< 0.053
11-19-15	270	< 0.09	< 0.009	< 0.015	< 0.012	< 0.009	< 0.011	< 0.019	< 0.053
11-25-15	229	< 0.13	< 0.011	< 0.007	< 0.015	< 0.012	< 0.012	< 0.045	< 0.061
12-03-15	318	< 0.11	< 0.009	< 0.005	< 0.015	< 0.009	< 0.008	< 0.019	< 0.046
12-10-15	278	< 0.09	< 0.008	< 0.008	< 0.010	< 0.008	< 0.008	< 0.022	< 0.044
12-17-15	272	< 0.15	< 0.012	< 0.008	< 0.020	< 0.010	< 0.007	< 0.036	< 0.052
12-23-15	238	< 0.12	< 0.006	< 0.003	< 0.008	< 0.009	< 0.009	< 0.017	< 0.041
12-31-15	319	< 0.09	< 0.008	< 0.006	< 0.009	< 0.008	< 0.007	< 0.020	< 0.042

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-008							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	^{140}BaLa	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
01-08-15	275	< 0.07	< 0.009	< 0.007	< 0.012	< 0.007	< 0.007	< 0.012	< 0.045
01-15-15	241	< 0.08	< 0.005	< 0.008	< 0.013	< 0.009	< 0.004	< 0.012	< 0.048
01-22-15	242	< 0.10	< 0.006	< 0.008	< 0.013	< 0.011	< 0.005	< 0.007	< 0.057
01-29-15	241	< 0.10	< 0.009	< 0.008	< 0.018	< 0.009	< 0.005	< 0.016	< 0.048
02-05-15	239	< 0.19	< 0.012	< 0.007	< 0.025	< 0.009	< 0.010	< 0.129	< 0.054
02-12-15	237	< 0.08	< 0.006	< 0.009	< 0.021	< 0.010	< 0.008	< 0.010	< 0.036
02-19-15	237	0.23 ± 0.10	< 0.011	< 0.006	< 0.016	< 0.012	< 0.007	< 0.010	< 0.055
02-26-15	240	< 0.08	< 0.005	< 0.009	< 0.020	< 0.008	< 0.007	< 0.008	< 0.048
03-05-15	240	0.16 ± 0.08	< 0.005	< 0.007	< 0.014	< 0.009	< 0.007	< 0.007	< 0.026
03-12-15	238	0.16 ± 0.08	< 0.009	< 0.008	< 0.011	< 0.010	< 0.006	< 0.010	< 0.045
03-19-15	239	< 0.13	< 0.005	< 0.010	< 0.021	< 0.010	< 0.011	< 0.015	< 0.054
03-26-15	232	< 0.09	< 0.010	< 0.008	< 0.020	< 0.007	< 0.007	< 0.012	< 0.048
04-02-15	237	0.20 ± 0.11	< 0.009	< 0.008	< 0.024	< 0.011	< 0.012	< 0.026	< 0.058
04-09-15	257	< 0.17	< 0.010	< 0.006	< 0.021	< 0.010	< 0.007	< 0.057	< 0.038
04-16-15	267	< 0.12	< 0.005	< 0.011	< 0.013	< 0.010	< 0.009	< 0.022	< 0.070
04-23-15	270	< 0.11	< 0.004	< 0.010	< 0.014	< 0.011	< 0.009	< 0.015	< 0.035
04-30-15	278	0.15 ± 0.08	< 0.004	< 0.008	< 0.010	< 0.010	< 0.008	< 0.014	< 0.043
05-07-15	278	0.27 ± 0.10	< 0.007	< 0.007	< 0.008	< 0.009	< 0.008	< 0.023	< 0.044
05-14-15	291	0.24 ± 0.09	< 0.010	< 0.008	< 0.012	< 0.009	< 0.007	< 0.026	< 0.038
05-21-15	299	< 0.12	< 0.006	< 0.007	< 0.012	< 0.008	< 0.007	< 0.019	< 0.042
05-28-15	299	0.19 ± 0.10	< 0.004	< 0.007	< 0.013	< 0.010	< 0.008	< 0.013	< 0.023
06-04-15	300	< 0.09	< 0.008	< 0.006	< 0.020	< 0.007	< 0.007	< 0.035	< 0.036
06-11-15	302	0.19 ± 0.11	< 0.008	< 0.009	< 0.011	< 0.007	< 0.006	< 0.016	< 0.037
06-18-15	310	0.16 ± 0.09	< 0.004	< 0.009	< 0.017	< 0.006	< 0.007	< 0.012	< 0.049
06-25-15	315	0.19 ± 0.10	< 0.004	< 0.007	< 0.019	< 0.008	< 0.004	< 0.026	< 0.043
07-02-15	318	< 0.10	< 0.010	< 0.012	< 0.014	< 0.009	< 0.009	< 0.012	< 0.044
07-09-15	321	0.16 ± 0.08	< 0.007	< 0.004	< 0.010	< 0.005	< 0.006	< 0.011	< 0.035
07-16-15	318	< 0.11	< 0.005	< 0.009	< 0.010	< 0.009	< 0.007	< 0.023	< 0.028
07-23-15	321	< 0.09	< 0.009	< 0.007	< 0.011	< 0.008	< 0.007	< 0.012	< 0.027
07-30-15	320	< 0.12	< 0.008	< 0.007	< 0.018	< 0.008	< 0.006	< 0.017	< 0.047
08-06-15	320	0.26 ± 0.11	< 0.008	< 0.006	< 0.014	< 0.008	< 0.009	< 0.014	< 0.027
08-13-15	325	0.21 ± 0.11	< 0.009	< 0.004	< 0.013	< 0.008	< 0.009	< 0.026	< 0.028
08-20-15	325	< 0.13	< 0.006	< 0.004	< 0.010	< 0.009	< 0.007	< 0.028	< 0.033
08-27-15	329	0.18 ± 0.07	< 0.006	< 0.004	< 0.010	< 0.006	< 0.005	< 0.007	< 0.029
09-03-15	303	0.29 ± 0.12	< 0.010	< 0.008	< 0.011	< 0.009	< 0.009	< 0.010	< 0.041
09-10-15	298	< 0.12	< 0.008	< 0.008	< 0.013	< 0.009	< 0.005	< 0.010	< 0.041
09-17-15	310	0.21 ± 0.12	< 0.006	< 0.004	< 0.018	< 0.009	< 0.008	< 0.018	< 0.030
09-24-15	313	0.14 ± 0.08	< 0.011	< 0.004	< 0.011	< 0.010	< 0.008	< 0.026	< 0.046
10-01-15	310	0.21 ± 0.12	< 0.008	< 0.006	< 0.020	< 0.009	< 0.009	< 0.020	< 0.045

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-008 (cont.)							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	$^{140}BaLa$	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
10-08-15	314	< 0.12	< 0.008	< 0.004	< 0.013	< 0.010	< 0.008	< 0.025	< 0.031
10-15-15	307	< 0.12	< 0.010	< 0.007	< 0.015	< 0.009	< 0.006	< 0.040	< 0.035
10-22-15	308	0.20 ± 0.10	< 0.006	< 0.005	< 0.013	< 0.009	< 0.009	< 0.017	< 0.029
10-29-15	318	< 0.10	< 0.007	< 0.007	< 0.013	< 0.009	< 0.006	< 0.012	< 0.042
11-05-15	323	< 0.10	< 0.010	< 0.006	< 0.013	< 0.008	< 0.005	< 0.016	< 0.042
11-12-15	311	< 0.10	< 0.005	< 0.005	< 0.020	< 0.009	< 0.008	< 0.015	< 0.036
11-19-15	319	0.18 ± 0.10	< 0.007	< 0.006	< 0.018	< 0.008	< 0.008	< 0.021	< 0.037
11-25-15	273	< 0.13	< 0.013	< 0.013	< 0.016	< 0.010	< 0.007	< 0.033	< 0.031
12-03-15	367	< 0.09	< 0.007	< 0.006	< 0.016	< 0.008	< 0.004	< 0.010	< 0.033
12-10-15	322	< 0.09	< 0.008	< 0.006	< 0.017	< 0.009	< 0.009	< 0.015	< 0.029
12-17-15	318	< 0.10	< 0.008	< 0.003	< 0.018	< 0.009	< 0.007	< 0.048	< 0.039
12-23-15	272	< 0.10	< 0.006	< 0.006	< 0.009	< 0.009	< 0.007	< 0.014	< 0.044
12-31-15	357	< 0.09	< 0.006	< 0.004	< 0.014	< 0.007	< 0.007	< 0.011	< 0.030

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-009							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	^{140}BaLa	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
01-08-15	338	0.15 ± 0.08	< 0.006	< 0.003	< 0.016	< 0.008	< 0.008	< 0.011	< 0.049
01-15-15	300	< 0.09	< 0.004	< 0.009	< 0.013	< 0.008	< 0.007	< 0.008	< 0.035
01-22-15	308	0.09 ± 0.05	< 0.005	< 0.006	< 0.009	< 0.006	< 0.005	< 0.006	< 0.029
01-29-15	311	< 0.10	< 0.006	< 0.006	< 0.013	< 0.006	< 0.004	< 0.013	< 0.034
02-05-15	302	< 0.08	< 0.006	< 0.006	< 0.011	< 0.009	< 0.003	< 0.012	< 0.041
02-12-15	298	< 0.08	< 0.008	< 0.008	< 0.015	< 0.008	< 0.006	< 0.009	< 0.034
02-19-15	291	0.18 ± 0.09	< 0.005	< 0.007	< 0.010	< 0.007	< 0.005	< 0.008	< 0.035
02-26-15	296	< 0.10	< 0.004	< 0.007	< 0.010	< 0.009	< 0.005	< 0.011	< 0.034
03-05-15	297	< 0.10	< 0.008	< 0.005	< 0.009	< 0.008	< 0.008	< 0.010	< 0.039
03-12-15	315	0.21 ± 0.11	< 0.007	< 0.007	< 0.009	< 0.009	< 0.008	< 0.017	< 0.038
03-19-15	317	0.16 ± 0.08	< 0.005	< 0.007	< 0.011	< 0.007	< 0.008	< 0.011	< 0.029
03-26-15	314	< 0.11	< 0.009	< 0.005	< 0.015	< 0.009	< 0.007	< 0.010	< 0.037
04-02-15	318	< 0.10	< 0.004	< 0.007	< 0.013	< 0.008	< 0.005	< 0.012	< 0.025
04-09-15	313	< 0.12	< 0.007	< 0.009	< 0.012	< 0.009	< 0.008	< 0.043	< 0.045
04-16-15	317	< 0.15	< 0.010	< 0.006	< 0.014	< 0.014	< 0.009	< 0.036	< 0.040
04-23-15	314	< 0.08	< 0.008	< 0.006	< 0.011	< 0.007	< 0.004	< 0.025	< 0.030
04-30-15	318	< 0.09	< 0.007	< 0.006	< 0.008	< 0.008	< 0.007	< 0.043	< 0.026
05-07-15	313	< 0.13	< 0.008	< 0.008	< 0.018	< 0.008	< 0.008	< 0.030	< 0.036
05-14-15	329	< 0.12	< 0.005	< 0.007	< 0.013	< 0.008	< 0.008	< 0.027	< 0.041
05-21-15	326	< 0.08	< 0.009	< 0.007	< 0.009	< 0.006	< 0.008	< 0.017	< 0.041
05-28-15	329	0.21 ± 0.08	< 0.004	< 0.007	< 0.010	< 0.006	< 0.008	< 0.012	< 0.040
06-04-15	305	< 0.11	< 0.011	< 0.009	< 0.017	< 0.009	< 0.009	< 0.037	< 0.040
06-11-15	317	0.25 ± 0.10	< 0.008	< 0.007	< 0.012	< 0.008	< 0.008	< 0.016	< 0.037
06-18-15	316	0.19 ± 0.11	< 0.008	< 0.007	< 0.010	< 0.006	< 0.007	< 0.012	< 0.031
06-25-15	282	< 0.09	< 0.010	< 0.008	< 0.010	< 0.008	< 0.010	< 0.022	< 0.040
07-02-15	284	0.19 ± 0.09	< 0.006	< 0.006	< 0.010	< 0.009	< 0.009	< 0.031	< 0.051
07-09-15	284	< 0.09	< 0.004	< 0.005	< 0.010	< 0.004	< 0.006	< 0.013	< 0.040
07-16-15	282	< 0.11	< 0.006	< 0.010	< 0.015	< 0.009	< 0.007	< 0.020	< 0.034
07-23-15	284	< 0.13	< 0.010	< 0.007	< 0.013	< 0.006	< 0.010	< 0.043	< 0.052
07-30-15	281	0.23 ± 0.10	< 0.010	< 0.007	< 0.018	< 0.009	< 0.011	< 0.017	< 0.035
08-06-15	280	< 0.12	< 0.009	< 0.005	< 0.017	< 0.010	< 0.007	< 0.015	< 0.033
08-13-15	285	< 0.11	< 0.008	< 0.006	< 0.010	< 0.009	< 0.011	< 0.017	< 0.038
08-20-15	282	0.18 ± 0.09	< 0.006	< 0.008	< 0.016	< 0.010	< 0.008	< 0.022	< 0.044
08-27-15	282	< 0.13	< 0.011	< 0.007	< 0.019	< 0.010	< 0.007	< 0.014	< 0.047
09-03-15	285	0.24 ± 0.11	< 0.006	< 0.009	< 0.017	< 0.010	< 0.008	< 0.013	< 0.047
09-10-15	281	0.17 ± 0.10	< 0.007	< 0.005	< 0.014	< 0.010	< 0.008	< 0.011	< 0.043
09-17-15	279	< 0.20	< 0.010	< 0.012	< 0.016	< 0.016	< 0.013	< 0.047	< 0.066
09-24-15	284	< 0.11	< 0.011	< 0.007	< 0.007	< 0.007	< 0.008	< 0.025	< 0.028
10-01-15	278	< 0.10	< 0.008	< 0.005	< 0.016	< 0.009	< 0.009	< 0.013	< 0.043

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-A-009 (cont.)							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	$^{140}BaLa$	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
10-08-15	277	< 0.15	< 0.007	< 0.008	< 0.027	< 0.010	< 0.008	< 0.031	< 0.067
10-15-15	275	< 0.12	< 0.007	< 0.006	< 0.012	< 0.009	< 0.009	< 0.033	< 0.066
10-22-15	278	< 0.15	< 0.007	< 0.010	< 0.013	< 0.012	< 0.011	< 0.032	< 0.058
10-29-15	283	< 0.12	< 0.008	< 0.005	< 0.013	< 0.009	< 0.008	< 0.015	< 0.055
11-05-15	285	< 0.16	< 0.017	< 0.013	< 0.018	< 0.013	< 0.012	< 0.031	< 0.052
11-12-15	281	< 0.13	< 0.006	< 0.009	< 0.020	< 0.009	< 0.011	< 0.017	< 0.048
11-19-15	288	< 0.15	< 0.013	< 0.007	< 0.014	< 0.012	< 0.007	< 0.029	< 0.054
11-25-15	244	< 0.16	< 0.008	< 0.008	< 0.010	< 0.011	< 0.012	< 0.040	< 0.063
12-03-15	334	< 0.09	< 0.009	< 0.006	< 0.014	< 0.008	< 0.006	< 0.019	< 0.051
12-10-15	302	< 0.11	< 0.008	< 0.008	< 0.008	< 0.009	< 0.009	< 0.037	< 0.043
12-17-15	304	0.17 ± 0.08	< 0.004	< 0.005	< 0.014	< 0.008	< 0.007	< 0.018	< 0.039
12-23-15	263	< 0.12	< 0.007	< 0.005	< 0.008	< 0.007	< 0.008	< 0.029	< 0.042
12-31-15	350	< 0.10	< 0.006	< 0.007	< 0.008	< 0.008	< 0.005	< 0.016	< 0.047

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-B-003							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	^{140}BaLa	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
01-08-15	338	< 0.08	< 0.003	< 0.003	< 0.013	< 0.007	< 0.007	< 0.022	< 0.042
01-15-15	296	0.14 ± 0.07	< 0.005	< 0.007	< 0.014	< 0.009	< 0.006	< 0.008	< 0.034
01-22-15	285	< 0.08	< 0.005	< 0.009	< 0.014	< 0.007	< 0.006	< 0.006	< 0.034
01-29-15	294	< 0.10	< 0.003	< 0.005	< 0.016	< 0.009	< 0.007	< 0.017	< 0.039
02-05-15	291	< 0.15	< 0.009	< 0.009	< 0.012	< 0.009	< 0.009	< 0.210	< 0.049
02-12-15	287	0.13 ± 0.08	< 0.006	< 0.007	< 0.012	< 0.010	< 0.005	< 0.010	< 0.045
02-19-15	291	< 0.10	< 0.009	< 0.005	< 0.011	< 0.009	< 0.006	< 0.009	< 0.048
02-26-15	291	0.18 ± 0.08	< 0.006	< 0.007	< 0.010	< 0.008	< 0.005	< 0.007	< 0.045
03-05-15	291	< 0.10	< 0.007	< 0.006	< 0.015	< 0.010	< 0.010	< 0.010	< 0.039
03-12-15	297	0.22 ± 0.09	< 0.006	< 0.007	< 0.009	< 0.008	< 0.009	< 0.018	< 0.051
03-19-15	291	< 0.13	< 0.008	< 0.008	< 0.011	< 0.009	< 0.007	< 0.016	< 0.054
03-26-15	294	< 0.08	< 0.006	< 0.005	< 0.011	< 0.007	< 0.007	< 0.009	< 0.036
04-02-15	291	0.19 ± 0.09	< 0.004	< 0.010	< 0.013	< 0.008	< 0.007	< 0.013	< 0.044
04-09-15	287	< 0.15	< 0.011	< 0.006	< 0.012	< 0.008	< 0.009	< 0.053	< 0.051
04-16-15	286	0.15 ± 0.11	< 0.006	< 0.008	< 0.012	< 0.008	< 0.007	< 0.019	< 0.043
04-23-15	281	< 0.11	< 0.006	< 0.008	< 0.020	< 0.008	< 0.009	< 0.037	< 0.052
04-30-15	287	0.21 ± 0.10	< 0.004	< 0.008	< 0.011	< 0.009	< 0.006	< 0.014	< 0.026
05-07-15	282	< 0.14	< 0.008	< 0.008	< 0.017	< 0.010	< 0.007	< 0.040	< 0.039
05-14-15	290	< 0.09	< 0.008	< 0.008	< 0.014	< 0.009	< 0.006	< 0.028	< 0.039
05-21-15	291	< 0.09	< 0.004	< 0.008	< 0.010	< 0.009	< 0.006	< 0.019	< 0.041
05-28-15	288	0.25 ± 0.11	< 0.003	< 0.008	< 0.011	< 0.008	< 0.009	< 0.014	< 0.052
06-04-15	285	< 0.11	< 0.012	< 0.013	< 0.019	< 0.009	< 0.008	< 0.036	< 0.051
06-11-15	289	< 0.14	< 0.006	< 0.008	< 0.012	< 0.007	< 0.009	< 0.018	< 0.034
06-18-15	284	< 0.12	< 0.006	< 0.007	< 0.020	< 0.008	< 0.007	< 0.025	< 0.041
06-25-15	256	< 0.15	< 0.011	< 0.011	< 0.015	< 0.011	< 0.006	< 0.022	< 0.060
07-02-15	286	< 0.12	< 0.010	< 0.009	< 0.018	< 0.009	< 0.009	< 0.023	< 0.041
07-09-15	284	< 0.10	< 0.006	< 0.004	< 0.009	< 0.008	< 0.007	< 0.013	< 0.027
07-16-15	288	< 0.13	< 0.008	< 0.007	< 0.017	< 0.010	< 0.009	< 0.022	< 0.034
07-23-15	287	< 0.13	< 0.009	< 0.006	< 0.018	< 0.009	< 0.008	< 0.051	< 0.049
07-30-15	284	< 0.14	< 0.007	< 0.008	< 0.017	< 0.010	< 0.009	< 0.021	< 0.044
08-06-15	278	< 0.14	< 0.008	< 0.007	< 0.009	< 0.011	< 0.007	< 0.017	< 0.045
08-13-15	286	< 0.12	< 0.006	< 0.007	< 0.013	< 0.010	< 0.010	< 0.016	< 0.050
08-20-15	281	< 0.12	< 0.007	< 0.007	< 0.019	< 0.009	< 0.006	< 0.042	< 0.050
08-27-15	285	< 0.12	< 0.005	< 0.009	< 0.017	< 0.009	< 0.009	< 0.019	< 0.030
09-03-15	288	0.26 ± 0.12	< 0.008	< 0.008	< 0.014	< 0.008	< 0.010	< 0.012	< 0.037
09-10-15	280	0.26 ± 0.12	< 0.007	< 0.006	< 0.009	< 0.010	< 0.006	< 0.016	< 0.031
09-17-15	278	< 0.10	< 0.007	< 0.005	< 0.019	< 0.010	< 0.006	< 0.022	< 0.045
09-24-15	295	< 0.11	< 0.013	< 0.005	< 0.014	< 0.008	< 0.008	< 0.023	< 0.043
10-01-15	297	0.17 ± 0.09	< 0.005	< 0.005	< 0.014	< 0.007	< 0.007	< 0.010	< 0.028

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 1. Air particulates and charcoal cartridges, analyses for gamma-emitting isotopes and I-131[a].

Collection: Continuous, weekly exchange.

Units: pCi/m^3

Location		CA-B-003 (cont.)							
		^{7}Be	^{58}Co	^{60}Co	^{95}Zr	^{134}Cs	^{137}Cs	^{140}BaLa	^{144}Ce
Required LLDs		-	-	-	-	0.050	0.060	-	-
Date Collected	Vol.								
10-08-15	293	< 0.13	< 0.010	< 0.006	< 0.010	< 0.010	< 0.009	< 0.042	< 0.056
10-15-15	289	< 0.10	< 0.007	< 0.012	< 0.013	< 0.009	< 0.007	< 0.033	< 0.055
10-22-15	285	< 0.12	< 0.009	< 0.007	< 0.018	< 0.010	< 0.008	< 0.029	< 0.055
10-29-15	289	< 0.10	< 0.008	< 0.006	< 0.007	< 0.008	< 0.008	< 0.014	< 0.047
11-05-15	291	< 0.12	< 0.010	< 0.007	< 0.021	< 0.010	< 0.006	< 0.023	< 0.049
11-12-15	278	< 0.13	< 0.007	< 0.009	< 0.011	< 0.011	< 0.012	< 0.019	< 0.050
11-19-15	279	< 0.16	< 0.008	< 0.007	< 0.028	< 0.011	< 0.009	< 0.061	< 0.042
11-25-15	234	< 0.16	< 0.010	< 0.011	< 0.023	< 0.012	< 0.007	< 0.031	< 0.051
12-03-15	313	< 0.08	< 0.008	< 0.004	< 0.015	< 0.008	< 0.005	< 0.015	< 0.039
12-10-15	276	< 0.13	< 0.007	< 0.004	< 0.018	< 0.010	< 0.006	< 0.021	< 0.036
12-17-15	277	< 0.11	< 0.007	< 0.003	< 0.015	< 0.008	< 0.007	< 0.024	< 0.032
12-23-15	231	< 0.14	< 0.011	< 0.009	< 0.023	< 0.011	< 0.008	< 0.042	< 0.048
12-31-15	300	< 0.08	< 0.005	< 0.007	< 0.013	< 0.009	< 0.009	< 0.011	< 0.039

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 2. Milk, analyses for iodine-131 and gamma-emitting isotopes.

Collection: Semimonthly during grazing season, monthly otherwise.

Units: pCi/L

Location		CA-MLK-M9					
Date	Lab	Concentration (pCi/L)					
Collected	Code	I-131	K-40	Zn-65	Cs-134	Cs-137	Ba-La-140
Required LLDs		1	-	-	15	18	15
01-12-15	CAMI -110	< 0.4	1007 ± 114	< 5.8	< 4.4	< 4.1	< 3.0
02-10-15	CAMI -539	< 0.3	1260 ± 71	< 5.3	< 2.5	< 2.3	< 2.2
03-10-15	CAMI -987	< 0.3	889 ± 97	< 7.8	< 3.9	< 3.5	< 3.3
04-13-15	CAMI -1644	< 0.5	1229 ± 115	< 6.5	< 3.8	< 4.6	< 2.7
04-27-15	CAMI -1963	< 0.2	1213 ± 127	< 14.2	< 6.0	< 6.5	< 6.4
05-12-15	CAMI -2379	< 0.3	977 ± 104	< 7.4	< 3.5	< 3.7	< 3.4
05-26-15	CAMI -2583	< 0.4	960 ± 92	< 7.2	< 3.5	< 4.2	< 2.2
06-09-15	CAMI -2908	< 0.3	952 ± 88	< 7.6	< 3.9	< 4.1	< 2.5
06-23-15	CAMI -3209	< 0.2	844 ± 87	< 4.4	< 3.9	< 3.7	< 3.5
07-14-15	CAMI -3715	< 0.5	945 ± 92	< 5.8	< 3.1	< 3.7	< 3.4
07-28-15	CAMI -4108	< 0.3	1232 ± 113	< 7.8	< 3.8	< 4.4	< 2.4
08-11-15	CAMI -4448	< 0.4	964 ± 98	< 3.1	< 3.2	< 3.4	< 2.2
08-25-15	CAMI -4664	< 0.2	1251 ± 101	< 3.5	< 3.6	< 4.3	< 2.7
09-08-15	CAMI -4929	< 0.2	1148 ± 126	< 11.4	< 4.6	< 5.0	< 3.7
09-22-15	CAMI -5232	< 0.3	1065 ± 113	< 4.7	< 4.5	< 4.0	< 1.5
10-13-15	CAMI -5770	< 0.2	1205 ± 128	< 9.8	< 4.9	< 4.2	< 2.0
10-27-15	CAMI -6233	< 0.4	1220 ± 102	< 5.3	< 3.3	< 4.7	< 3.3
11-10-15	CAMI -6452	< 0.2	1412 ± 135	< 7.3	< 5.1	< 3.2	< 1.9
11-24-15	CAMI -6661	< 0.4	1173 ± 108	< 2.9	< 3.0	< 4.7	< 2.3
12-08-15	CAMI -6934	< 0.3	1350 ± 103	< 6.1	< 2.6	< 3.1	< 1.4

Table 3. Vegetation, analyses for iodine-131 and gamma-emitting isotopes.

Collection: Monthly, during growing season

Units: pCi/kg wet

Lab Code	Collection Date	Sample Type	Concentration (pCi/kg wet) ^{40}K	^{54}Mn	^{58}Co	^{60}Co	^{131}I	^{134}Cs	^{137}Cs
			Location: CA-FPL-V9						
	5/11/2015			NS[a]					
	6/10/2015			NS[a]					
CAVE- 3716	7/14/2015	Mustard greens	3849 ± 329	< 7.4	< 10.4	< 7.5	< 18.3	< 11.6	< 9.8
CAVE- 4452	8/11/2015	Mustard Greens	3766 ± 291	< 7.8	< 8.5	< 4.4	< 19.9	< 9.1	< 10.1
CAVE- 4960	9/8/2015	Turnip greens	4577 ± 325	< 8.7	< 9.1	< 8.1	< 29.7	< 12.2	< 13.4
CAVE- 4961	9/8/2015	Mustard greens	4101 ± 386	< 10.5	< 12.0	< 10.1	< 36.9	< 13.9	< 11.5
			Location: CA-FPL-V11						
	5/11/2015			NS[a]					
CAVE- 2942	6/8/2015	Lettuce	4177 ± 242	< 3.8	< 6.2	< 5.6	< 13.2	< 6.1	< 5.5
CAVE- 3718	7/14/2015	Lettuce	3965 ± 250	< 6.6	< 3.9	< 4.7	< 17.5	< 7.2	< 8.2
CAVE- 4454	8/10/2015	Cabbage	3510 ± 265	< 8.4	< 10.0	< 5.4	< 15.7	< 7.0	< 9.8
	9/8/2015			NS[a]					
			Location: CA-FPL-V12						
	5/11/2015			NS[a]					
CAVE- 2944	6/10/2015	Lettuce	4617 ± 297	< 8.8	< 5.2	< 7.4	< 15.0	< 8.8	< 9.3
CAVE- 2945	6/10/2015	Cabbage	3895 ± 254	< 7.2	< 5.4	< 6.1	< 13.7	< 7.6	< 5.5
CAVE- 3719	7/14/2015	Cabbage	3126 ± 240	< 6.4	< 3.5	< 6.3	< 25.4	< 7.9	< 9.1
CAVE- 3720	7/14/2015	Lettuce	5260 ± 333	< 7.7	< 5.3	< 4.6	< 23.0	< 9.5	< 7.7
CAVE- 4455	8/11/2015	Cabbage	3850 ± 310	< 11.8	< 10.8	< 6.6	< 18.6	< 11.9	< 10.3
CAVE- 4962	9/8/2015	Spinach mustard tendergreen	4279 ± 390	< 7.3	< 8.0	< 8.4	< 24.4	< 14.2	< 11.1
CAVE- 5771	10/13/2015	Spinach Mustard	4977 ± 376	< 12.2	< 9.2	< 9.5	< 22.0	< 11.8	< 13.0

[a] "NS" = No sample; refer to Part I, Table 5.5, Missed Collections and Analyses.

Table 3. Vegetation, analyses for iodine-131 and gamma-emitting isotopes.

Collection: Monthly, during growing season

Units: pCi/kg wet

Lab Code	Collection Date	Sample Type	Concentration (pCi/kg wet) ^{40}K	^{54}Mn	^{58}Co	^{60}Co	^{131}I	^{134}Cs	^{137}Cs
			Location: CA-FPL-V16						
	5/11/2015			NS[a]					
CAVE- 2946	6/8/2015	Lettuce	4923 ± 334	< 9.7	< 7.4	< 9.2	< 24.8	< 9.0	< 10.4
CAVE- 2947	6/8/2015	Collards	6474 ± 418	< 9.8	< 8.8	< 7.8	< 21.9	< 8.9	< 11.8
CAVE- 2948	6/8/2015	Mustard greens	6554 ± 371	< 11.8	< 5.8	< 7.5	< 16.5	< 9.0	< 8.8
CAVE- 2949	6/8/2015	Turnip greens	6312 ± 328	< 10.3	< 8.6	< 6.6	< 16.9	< 8.1	< 9.8
CAVE- 3721	7/13/2015	Mustard	6069 ± 360	< 9.0	< 7.0	< 10.9	< 14.4	< 8.8	< 12.1
CAVE- 3722	7/13/2015	Lettuce	6959 ± 410	< 12.2	< 10.2	< 10.8	< 24.0	< 11.9	< 10.1
CAVE- 3723	7/13/2015	Turnips	7401 ± 477	< 12.6	< 9.9	< 11.4	< 25.4	< 12.4	< 15.9
CAVE- 4456	8/10/2015	Collard Greens	7785 ± 375	< 9.3	< 5.2	< 8.6	< 21.2	< 9.7	< 7.0
	9/8/2015			NS[a]					
			Location: CA-FPL-V17						
CAVE- 2380	5/11/2015	Lettuce	5519 ± 621	< 15.9	< 12.8	< 18.0	< 22.3	< 14.2	< 17.6
CAVE- 2950	6/9/2015	Mustard greens	2831 ± 162	< 5.0	< 6.4	< 4.6	< 17.9	< 6.2	< 5.8
CAVE- 2951	6/9/2015	Turnip greens	2977 ± 169	< 5.9	< 5.0	< 3.3	< 16.3	< 6.0	< 6.5
CAVE- 3724	7/14/2015	Mustard	3956 ± 210	< 10.3	< 9.3	< 7.5	< 24.4	< 9.6	< 9.1
CAVE- 3725	7/14/2015	Lettuce	5639 ± 425	< 11.0	< 15.8	< 11.7	< 38.6	< 12.3	< 15.7
CAVE- 4457	8/11/2015	Mustard Greens	5003 ± 517	< 14.5	< 15.9	< 9.8	< 30.4	< 17.2	< 14.8
CAVE- 4963	9/8/2015	Mustard greens	4524 ± 457	< 16.5	< 11.5	< 12.3	< 41.8	< 15.1	< 15.1
CAVE- 4964	9/8/2015	Turnip greens	4384 ± 390	< 12.1	< 9.0	< 12.2	< 30.3	< 10.2	< 10.8

[a] "NS" = No sample; refer to Part I, Table 5.5, Missed Collections and Analyses.

Table 4. Non-food Crops, analyses for tritium and gamma-emitting isotopes.

Collection: Annually, at harvest

Units: pCi/kg wet

Lab Code	Sample Type	Collection Date	(pCi/L) ^{3}H	Concentration (pCi/kg wet) ^{40}K	^{54}Mn	^{58}Co	^{60}Co	^{134}Cs	^{137}Cs
				Location: CA-FC-1					
		10/12/2015			NS[a]				
		10/12/2015			NS[a]				
		10/12/2015			NS[a]				
				Location: CA-FC-2					
CAVE- 5923	1-Soybeans	10/12/2015	< 148	4291 ± 286	< 8.1	< 6.1	< 7.8	< 7.8	< 9.1
CAVE- 5925	2-Soybeans	10/12/2015	< 144	5329 ± 320	< 7.1	< 6.9	< 10.5	< 9.1	< 9.1
CAVE- 5926	3-Soybeans	10/12/2015	< 144	5119 ± 342	< 7.4	< 8.8	< 9.7	< 9.3	< 10.2
				Location: CA-FC-3					
CAVE- 5927	1-Soybeans	10/12/2015	< 144	5279 ± 323	< 4.9	< 8.9	< 7.4	< 10.0	< 10.5
CAVE- 5928	2-Soybeans	10/13/2015	< 148	13280 ± 642	< 17.6	< 8.8	< 16.4	< 14.0	< 15.0
CAVE- 5929	3-Soybeans	10/13/2015	< 148	14412 ± 672	< 18.1	< 19.8	< 17.3	< 16.0	< 16.2
				Location: CA-FC-4					
CAVE- 5930	Soybeans	10/15/2015	< 148	15843 ± 401	< 6.6	< 4.9	< 7.0	< 7.7	< 9.1

[a] "NS" = No sample; see Table 2.0, Listing of Missed Samples.

Table 5. Soil, analyses for gamma-emitting isotopes.
Collection: Annually

Lab Code	Collection Date	Concentration (pCi/kg dry) ^{40}K	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{95}ZrNb	^{134}Cs	^{137}Cs	^{140}BaLa
Location: SOL-F-002										
CASO- 6837	11/25/2015	12007 ± 671	< 24.2	< 35.6	< 21.0	< 22.0	< 52.2	< 17.5	491 ± 40	< 57.2
CASO- 6838	11/25/2015	12319 ± 692	< 24.4	< 57.1	< 24.9	< 22.1	< 57.1	< 22.9	531 ± 52	< 147.6
Location: SOL-F-006										
CASO- 6839	11/23/2015	11119 ± 671	< 29.5	< 73.1	< 28.1	< 14.5	< 59.6	< 17.4	372 ± 38	< 64.1
CASO- 6840	11/23/2015	11865 ± 592	< 25.2	< 54.5	< 23.9	< 15.5	< 43.3	< 18.8	264 ± 26	< 45.7
Location: SOL-PR-003										
CASO- 6844	11/25/2015	10585 ± 561	< 25.6	< 52.5	< 25.7	< 18.2	< 47.6	< 18.0	391 ± 32	< 156.6
CASO- 6845	11/25/2015	11147 ± 673	< 24.1	< 56.2	< 31.3	< 18.7	< 59.6	< 22.8	203 ± 39	< 63.9
Location: SOL-PR-007										
CASO- 6846	11/23/2015	10491 ± 610	< 24.0	< 75.7	< 25.7	< 19.4	< 43.2	< 16.9	224 ± 25	< 146.6
CASO- 6847	11/23/2015	11137 ± 667	< 23.1	< 49.0	< 29.0	< 11.7	< 61.3	< 17.3	208 ± 34	< 83.5
Location: SOL-M-009										
CASO- 6841	11/24/2015	13616 ± 755	< 21.5	< 54.5	< 28.1	< 20.2	< 45.8	< 20.3	176 ± 28	< 37.9
CASO- 6843	11/24/2015	12892 ± 638	< 24.6	< 61.7	< 14.4	< 16.0	< 46.9	< 13.7	156 ± 20	< 94.5
Location: SOL-W-001										
CASO- 6848	11/23/2015	13276 ± 709	< 21.8	< 40.6	< 32.1	< 19.9	< 60.0	< 18.3	65 ± 26	< 72.9
CASO- 6849	11/23/2015	12621 ± 646	< 21.8	< 68.5	< 19.7	< 18.2	< 45.1	< 17.6	< 23.8	< 109.7
Location: SOL-W-002										
CASO- 6850	11/23/2015	16597 ± 769	< 29.2	< 88.6	< 28.1	< 23.0	< 48.1	< 21.6	122 ± 23	< 167.9
CASO- 6851	11/23/2015	15850 ± 757	< 28.5	< 88.6	< 33.4	< 21.4	< 47.8	< 19.7	114 ± 29	< 202.0
Location: SOL-W-003										
CASO- 6852	11/23/2015	7313 ± 534	< 26.7	< 59.6	< 23.4	< 20.4	< 21.9	< 22.4	< 19.0	< 82.9
CASO- 6853	11/23/2015	10138 ± 643	< 26.7	< 80.4	< 20.3	< 15.1	< 41.8	< 17.3	< 21.6	< 91.3
Location: SOL-W-004										
CASO- 6854	11/23/2015	11267 ± 649	< 27.3	< 38.6	< 26.2	< 22.8	< 37.0	< 24.0	< 26.5	< 135.4
CASO- 6855	11/23/2015	11917 ± 662	< 24.9	< 32.7	< 28.1	< 20.8	< 47.6	< 18.7	< 25.5	< 252.4

Table 6. Surface water, analyses for tritium and gamma-emitting isotopes.

Collection: Monthly

Location: CA-SWA-S01 Units: pCi/L

Lab Code Date Collected	Required LLD	CASW- 271 01-26-15	CASW- 747 02-24-15	CASW- 1413 03-31-15	CASW- 2004 04-28-15
H-3	3000	< 192	< 146	< 148	< 147
Mn-54	15	< 4.4	< 3.1	< 2.0	< 1.0
Fe-59	30	< 9.2	< 6.8	< 9.9	< 3.0
Co-58	15	< 4.3	< 5.6	< 2.5	< 1.2
Co-60	15	< 2.9	< 2.6	< 4.0	< 1.1
Zn-65	30	< 3.1	< 5.7	< 4.9	< 2.0
Zr-Nb-95	15	< 2.6	< 3.3	< 4.0	< 2.1
I-131	1000	< 4.7	< 11.9	< 15.3	< 15.9
Cs-134	15	< 4.3	< 4.7	< 4.5	< 1.2
Cs-137	18	< 4.2	< 3.9	< 4.3	< 1.4
Ba-La-140	15	< 3.7	< 5.6	< 10.6	< 6.6

Lab Code Date Collected	Required LLD	CASW- 2584 05-26-15	CASW- 3390 06-29-15	CASW- 4205 07-28-15	CASW- 4661 08-25-15
H-3	3000	< 148	< 143	< 142	< 145
Mn-54	15	< 3.0	< 3.1	< 3.6	< 4.4
Fe-59	30	< 5.9	< 5.2	< 6.5	< 8.0
Co-58	15	< 2.8	< 2.9	< 3.2	< 4.5
Co-60	15	< 2.4	< 1.9	< 1.7	< 2.2
Zn-65	30	< 2.4	< 5.3	< 3.2	< 4.5
Zr-Nb-95	15	< 3.5	< 3.2	< 2.8	< 2.9
I-131	1000	< 9.4	< 7.7	< 7.9	< 19.5
Cs-134	15	< 3.9	< 3.7	< 3.2	< 4.3
Cs-137	18	< 3.7	< 3.3	< 3.3	< 4.1
Ba-La-140	15	< 3.4	< 5.4	< 3.6	< 4.6

Lab Code Date Collected	Required LLD	CASW- 5409 09-29-15	CASW- 6248 10-27-15	CASW- 6667 11-24-15	CASW- 7253 12-29-15
H-3	3000	< 149	< 143	< 144	< 140
Mn-54	15	< 4.8	< 1.0	< 2.2	< 2.3
Fe-59	30	< 5.4	< 3.5	< 5.9	< 3.5
Co-58	15	< 3.1	< 1.9	< 1.8	< 1.7
Co-60	15	< 4.2	< 1.3	< 3.3	< 2.9
Zn-65	30	< 8.5	< 3.1	< 2.6	< 2.8
Zr-Nb-95	15	< 5.9	< 2.5	< 2.3	< 2.8
I-131	1000	< 12.0	< 23.2	< 7.9	< 16.1
Cs-134	15	< 6.2	< 1.6	< 3.3	< 2.9
Cs-137	18	< 5.9	< 1.8	< 2.0	< 2.5
Ba-La-140	15	< 8.2	< 6.0	< 5.6	< 6.1

Table 6. Surface water, analyses for tritium and gamma-emitting isotopes.

Collection: Monthly
Location: CA-SWA-S02 Units: pCi/L

Lab Code Date Collected	Required LLD	CASW- 272 01-26-15	CASW- 748 02-24-15	CASW- 1414 03-31-15	CASW- 2005 04-28-15
H-3	3000	< 192	< 146	< 148	< 147
Mn-54	15	< 6.0	< 2.8	< 2.6	< 1.3
Fe-59	30	< 7.1	< 6.4	< 3.3	< 1.9
Co-58	15	< 5.1	< 2.7	< 3.6	< 1.3
Co-60	15	< 2.9	< 1.8	< 1.4	< 0.9
Zn-65	30	< 17.0	< 4.9	< 5.2	< 1.5
Zr-Nb-95	15	< 7.7	< 3.7	< 3.5	< 1.7
I-131	1000	< 7.6	< 8.4	< 19.6	< 15.2
Cs-134	15	< 6.5	< 3.7	< 3.2	< 1.1
Cs-137	18	< 6.3	< 2.5	< 3.3	< 1.3
Ba-La-140	15	< 6.2	< 5.5	< 7.6	< 4.3

Lab Code Date Collected	Required LLD	CASW- 2586 05-26-15	CASW- 3391 06-29-15	CASW- 4206 07-28-15	CASW- 4662 08-25-15
H-3	3000	< 148	< 143	< 176	351 ± 90 [a]
Mn-54	15	< 2.5	< 1.9	< 3.4	< 4.9
Fe-59	30	< 5.0	< 5.9	< 7.4	< 5.7
Co-58	15	< 2.8	< 1.8	< 3.9	< 2.9
Co-60	15	< 2.6	< 2.6	< 2.2	< 4.0
Zn-65	30	< 6.3	< 2.5	< 3.0	< 5.7
Zr-Nb-95	15	< 4.0	< 4.1	< 2.8	< 3.4
I-131	1000	< 14.3	< 13.2	< 12.7	< 17.0
Cs-134	15	< 3.3	< 3.4	< 3.4	< 5.8
Cs-137	18	< 3.2	< 2.6	< 4.3	< 4.9
Ba-La-140	15	< 6.0	< 2.6	< 3.1	< 9.8

Lab Code Date Collected	Required LLD	CASW- 5410 09-29-15	CASW- 6249 10-27-15	CASW- 6668 11-24-15	CASW- 7254 12-29-15
H-3	3000	212 ± 85	222 ± 83	171 ± 80	< 140
Mn-54	15	< 4.5	< 1.9	< 3.6	< 3.2
Fe-59	30	< 6.4	< 4.1	< 5.0	< 3.9
Co-58	15	< 4.2	< 2.1	< 3.3	< 1.9
Co-60	15	< 3.8	< 1.8	< 2.7	< 2.7
Zn-65	30	< 4.9	< 3.3	< 4.2	< 3.6
Zr-Nb-95	15	< 3.6	< 3.8	< 4.3	< 4.7
I-131	1000	< 13.2	< 24.2	< 10.5	< 10.5
Cs-134	15	< 5.4	< 2.1	< 4.6	< 3.2
Cs-137	18	< 5.7	< 2.5	< 4.3	< 2.3
Ba-La-140	15	< 7.8	< 12.9	< 3.8	< 4.0

[a] Duplicate result = 416±93 pCi/L.

7. Surface Water (Ponds), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-SWA-UHS						
CASW- 155	01/13/15	< 188	< 3.6	< 6.1	< 3.8	< 2.9	< 4.9	< 4.2	< 3.8	< 4.2	< 5.1
CASW- 1702	04/14/15	< 158	< 3.1	< 5.4	< 3.3	< 2.7	< 3.2	< 5.2	< 3.2	< 3.5	< 7.4
CASW- 4094	07/27/15	178 ± 86	< 5.5	< 4.5	< 4.9	< 4.5	< 11.3	< 3.7	< 4.7	< 2.5	< 5.7
					Location: CA-SWA-POND 01						
CASW- 902	03/03/15	< 147	< 3.7	< 5.2	< 3.0	< 1.7	< 6.4	< 2.8	< 3.5	< 2.8	< 3.3
CASW- 4879	09/01/15	< 147	< 2.0	< 7.0	< 3.1	< 2.4	< 4.2	< 3.6	< 3.5	< 3.6	< 3.1
					Location: CA-SWA-POND 02						
CASW- 903	03/03/15	< 147	< 4.2	< 10.1	< 4.7	< 2.2	< 7.6	< 3.9	< 4.0	< 3.7	< 5.0
CASW- 4880	09/01/15	< 147	< 0.9	< 2.1	< 1.2	< 1.1	< 1.9	< 1.6	< 1.3	< 1.3	< 8.2
					Location: CA-SWA-SLUDGE LAGOON #4						
CASW- 910	03/03/15	< 147	< 2.2	< 3.0	< 3.3	< 2.6	< 2.3	< 2.9	< 2.8	< 2.3	< 7.2
CASW- 4887	09/01/15	< 147	< 3.7	< 10.2	< 4.6	< 3.7	< 5.0	< 6.2	< 5.4	< 5.2	< 12.2

7. Surface Water (Ponds), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-SWA-OUTFALL 010						
CASW- 904	03/03/15	< 147	< 1.8	< 3.3	< 1.9	< 1.8	< 3.3	< 2.2	< 2.6	< 2.1	< 5.5
CASW- 4881	09/01/15	< 147	< 1.4	< 3.8	< 1.8	< 1.3	< 1.9	< 2.3	< 1.4	< 1.6	< 5.9
					Location: CA-SWA-OUTFALL 011						
CASW- 905	03/03/15	< 147	< 3.4	< 8.2	< 3.9	< 2.2	< 2.1	< 3.2	< 3.6	< 3.2	< 5.9
CASW- 4882	09/01/15	< 147	< 1.3	< 4.0	< 1.6	< 1.2	< 2.9	< 1.7	< 1.6	< 1.7	< 2.8
					Location: CA-SWA-OUTFALL 012						
CASW- 906	03/03/15	< 147	< 2.4	< 7.4	< 2.9	< 1.5	< 3.6	< 3.3	< 2.9	< 2.0	< 4.1
CASW- 4883	09/01/15	< 147	< 0.8	< 2.4	< 1.1	< 0.9	< 2.2	< 1.8	< 1.2	< 1.1	< 3.0
					Location: CA-SWA-OUTFALL 013						
CASW- 907	03/03/15	< 147	< 2.7	< 3.9	< 3.3	< 1.6	< 3.0	< 2.6	< 3.0	< 3.7	< 7.9
CASW- 4884	09/01/15	< 147	< 1.3	< 3.1	< 1.5	< 1.0	< 2.9	< 1.9	< 1.3	< 1.1	< 4.5
					Location: CA-SWA-OUTFALL 014						
CASW- 908	03/03/15	< 147	< 2.1	< 7.2	< 1.1	< 1.9	< 3.1	< 2.4	< 3.0	< 2.2	< 4.9
CASW- 4885	09/01/15	< 147	< 1.2	< 4.3	< 1.1	< 1.2	< 2.0	< 2.3	< 1.6	< 1.4	< 5.7
					Location: CA-SWA-OUTFALL 015						
CASW- 909	03/03/15	< 147	< 2.2	< 3.1	< 1.8	< 1.2	< 2.1	< 1.9	< 1.8	< 2.1	< 4.8
CASW- 4886	09/01/15	< 147	< 1.3	< 3.0	< 1.3	< 1.0	< 1.8	< 1.8	< 1.3	< 1.3	< 8.3

Table 8. Drinking Water Wells, analysis for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					CA-DWA-003 (Ward)						
CADW- 353	1/27/2015	< 180	< 2.5	< 4.5	< 2.1	< 0.9	< 2.4	< 3.3	< 2.7	< 2.9	< 4.0
CADW- 732	2/23/2015	< 146	< 2.6	< 3.3	< 1.5	< 1.8	< 2.5	< 3.2	< 2.8	< 2.9	< 3.5
CADW- 1398	3/30/2015	< 148	< 3.5	< 10.9	< 2.4	< 3.2	< 6.9	< 3.9	< 4.0	< 4.2	< 7.2
CADW- 2237	5/1/2015	< 187	< 2.1	< 8.6	< 3.6	< 2.6	< 5.3	< 2.2	< 2.8	< 2.1	< 13.7
CADW- 4234	7/29/2015	< 139	< 1.5	< 5.7	< 3.0	< 1.6	< 2.5	< 4.0	< 3.4	< 2.9	< 9.2
CADW- 6234	10/26/2015	< 143	< 2.0	< 6.4	< 2.1	< 1.9	< 3.0	< 4.1	< 2.5	< 2.8	< 6.3
					CA-DWA-004 (Miller)						
CADW- 354	1/27/2015	< 180	< 4.4	< 10.5	< 3.8	< 2.4	< 3.5	< 3.8	< 3.9	< 1.8	< 7.1
CADW- 733	2/23/2015	< 146	< 2.2	< 2.6	< 1.3	< 2.2	< 4.8	< 2.2	< 2.8	< 2.4	< 3.6
CADW- 1399	3/31/2015	< 148	< 3.0	< 8.3	< 3.0	< 3.3	< 6.7	< 6.1	< 4.3	< 3.0	< 6.7
CADW- 2238	5/1/2015	< 187	< 1.8	< 4.4	< 2.1	< 1.4	< 3.2	< 2.9	< 2.4	< 1.9	< 4.1
CADW- 4235	7/29/2015	< 139	< 1.6	< 7.5	< 3.4	< 1.7	< 3.8	< 2.7	< 3.2	< 3.7	< 13.6
CADW- 6235	10/27/2015	< 143	< 2.7	< 4.8	< 2.6	< 2.0	< 3.6	< 3.0	< 2.8	< 3.7	< 11.6
					CA-DWA-005 (Hux)						
CADW- 355	1/27/2015	< 180	< 2.9	< 7.4	< 2.5	< 2.0	< 4.6	< 3.0	< 2.7	< 2.5	< 5.2
CADW- 734	2/23/2015	< 146	< 4.4	< 6.0	< 3.4	< 2.8	< 9.6	< 6.5	< 4.4	< 3.6	< 6.7
CADW- 1400	3/30/2015	< 148	< 1.5	< 2.9	< 1.3	< 0.8	< 2.5	< 2.0	< 1.1	< 1.1	< 5.7
CADW- 2239	5/1/2015	< 187	< 2.4	< 3.9	< 2.2	< 1.8	< 2.3	< 2.8	< 2.8	< 2.7	< 8.6
CADW- 4236	7/29/2015	< 139	< 2.1	< 6.1	< 2.6	< 1.8	< 5.4	< 5.2	< 3.4	< 3.1	< 12.4
	10/26/2015					NS[a]					
					CA-DWA-006 (Lindeman)						
CADW- 356	1/27/2015	< 180	< 2.6	< 5.2	< 3.0	< 2.9	< 3.5	< 4.0	< 3.2	< 2.3	< 7.9
CADW- 735	2/23/2015	< 146	< 2.3	< 6.0	< 2.7	< 2.5	< 2.3	< 2.8	< 2.8	< 1.9	< 4.2
CADW- 1402	3/30/2015	< 148	< 3.6	< 9.9	< 2.4	< 5.2	< 6.2	< 6.5	< 5.6	< 4.9	< 9.8
CADW- 2240	5/1/2015	< 187	< 1.4	< 4.5	< 2.6	< 2.1	< 4.0	< 2.8	< 2.5	< 2.5	< 6.4
CADW- 4237	7/29/2015	< 139	< 1.6	< 6.6	< 2.2	< 2.0	< 3.8	< 3.8	< 3.0	< 2.9	< 14.8
CADW- 6236	10/26/2015	< 143	< 1.8	< 7.2	< 1.3	< 2.4	< 3.9	< 2.3	< 2.9	< 2.5	< 12.0
					CA-DWA-007 (Kriete)						
CADW- 357	1/27/2015	< 180	< 2.3	< 3.7	< 2.9	< 1.4	< 3.5	< 3.4	< 2.8	< 2.7	< 6.1
CADW- 736	2/23/2015	< 146	< 3.1	< 5.1	< 3.8	< 2.3	< 5.4	< 2.4	< 3.4	< 3.2	< 5.7
CADW- 1403	3/30/2015	< 148	< 2.3	< 6.7	< 3.0	< 2.1	< 5.1	< 2.5	< 3.7	< 3.8	< 4.3
CADW- 2241	5/1/2015	< 187	< 1.1	< 2.7	< 1.3	< 1.1	< 1.9	< 2.2	< 1.2	< 1.4	< 3.9
CADW- 4238	7/29/2015	< 139	< 1.5	< 3.9	< 1.5	< 2.0	< 2.7	< 2.2	< 2.5	< 3.2	< 6.4
CADW- 6237	10/26/2015	< 143	< 2.2	< 4.8	< 1.8	< 2.5	< 4.4	< 4.0	< 2.4	< 2.3	< 5.4
					CA-DWA-008 (Brandt)						
CADW- 359	1/27/2015	< 180	< 2.3	< 4.4	< 1.7	< 1.4	< 3.1	< 2.6	< 2.5	< 2.6	< 5.0
CADW- 738	2/23/2015	< 146	< 2.6	< 6.2	< 2.2	< 2.5	< 1.9	< 3.4	< 2.9	< 3.0	< 2.5
CADW- 1404	3/30/2015	< 148	< 2.6	< 6.0	< 3.3	< 1.8	< 5.4	< 5.4	< 4.1	< 4.7	< 3.2
CADW- 2242	5/1/2015	< 187	< 1.2	< 2.7	< 1.7	< 1.1	< 2.7	< 2.4	< 1.3	< 1.6	< 3.7
	7/29/2015					NS[a]					
CADW- 4486	8/11/2015	< 145	< 2.5	< 6.1	< 3.0	< 1.8	< 5.4	< 3.6	< 3.2	< 3.1	< 11.1
CADW- 6238	10/26/2015	< 143	< 2.5	< 5.5	< 3.6	< 1.5	< 3.7	< 3.6	< 2.9	< 3.0	< 7.6

[a] "NS" = No sample; see Table 2.0, Listing of Missed Samples.

Table 8. Drinking Water Wells, analysis for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					CA-DWA-009 (Clardy)						
CADW- 360	1/27/2015	< 180	< 2.6	< 6.3	< 3.0	< 1.6	< 2.8	< 2.9	< 3.1	< 2.6	< 10.4
CADW- 739	2/23/2015	< 146	< 2.3	< 4.5	< 2.5	< 1.7	< 5.3	< 2.0	< 2.6	< 3.3	< 2.7
CADW- 1405	3/30/2015	< 148	< 3.7	< 10.6	< 2.1	< 3.3	< 6.8	< 5.8	< 3.9	< 4.3	< 9.3
CADW- 2243	5/1/2015	< 187	< 0.9	< 2.7	< 0.8	< 1.2	< 1.9	< 2.3	< 1.3	< 1.2	< 2.8
CADW- 4239	7/29/2015	< 139	< 3.0	< 4.9	< 2.3	< 1.8	< 5.1	< 2.1	< 3.2	< 1.8	< 7.5
CADW- 6240	10/26/2015	< 143	< 2.2	< 4.7	< 2.6	< 2.0	< 3.4	< 4.9	< 2.5	< 2.4	< 4.6
					CA-DWA-010 (Dillon, Susan)						
CADW- 361	1/27/2015	< 180	< 1.9	< 4.8	< 1.9	< 2.1	< 2.7	< 3.2	< 2.6	< 1.9	< 8.1
CADW- 740	2/23/2015	< 146	< 4.1	< 5.5	< 3.3	< 3.2	< 4.8	< 5.2	< 4.1	< 3.1	< 6.1
CADW- 1406	3/30/2015	< 148	< 2.8	< 2.8	< 3.6	< 2.5	< 5.8	< 4.7	< 3.0	< 2.2	< 5.5
CADW- 2244	5/1/2015	< 187	< 1.2	< 1.9	< 1.2	< 1.3	< 1.7	< 1.5	< 1.1	< 1.2	< 5.1
CADW- 4240	7/29/2015	< 139	< 3.4	< 5.1	< 3.9	< 1.7	< 4.4	< 2.3	< 3.2	< 3.0	< 8.6
CADW- 6241	10/26/2015	< 143	< 3.0	< 4.4	< 2.9	< 1.8	< 4.3	< 2.8	< 2.9	< 3.1	< 7.5
					CA-DWA-012 (Dillon, Joe)						
CADW- 362	1/27/2015	< 180	< 2.3	< 3.8	< 1.6	< 1.1	< 3.2	< 3.5	< 2.5	< 2.1	< 6.7
CADW- 741	2/23/2015	< 146	< 3.1	< 5.9	< 2.9	< 1.9	< 5.2	< 3.8	< 3.6	< 3.8	< 5.7
CADW- 1407	3/30/2015	< 148	< 2.7	< 5.5	< 2.8	< 1.7	< 5.6	< 2.3	< 2.9	< 3.4	< 6.1
CADW- 2245	5/1/2015	< 187	< 2.4	< 7.4	< 1.9	< 1.7	< 3.8	< 3.5	< 2.1	< 2.6	< 9.8
CADW- 4241	7/29/2015	< 139	< 2.4	< 4.2	< 2.5	< 1.6	< 1.5	< 3.3	< 3.0	< 3.0	< 15.0
CADW- 6242	10/26/2015	< 143	< 1.3	< 4.0	< 2.5	< 1.7	< 4.3	< 3.4	< 3.0	< 2.7	< 11.3
					CA-DWA-022 (Plummer)						
CADW- 364	1/27/2015	< 180	< 1.7	< 2.9	< 2.0	< 1.5	< 3.4	< 2.2	< 2.2	< 2.5	< 6.5
CADW- 743	2/23/2015	< 146	< 3.3	< 6.0	< 2.9	< 2.7	< 5.3	< 3.8	< 3.8	< 2.5	< 5.8
CADW- 1409	3/30/2015	< 148	< 2.8	< 3.7	< 1.9	< 1.9	< 3.0	< 3.0	< 2.9	< 1.7	< 5.2
CADW- 2248	5/1/2015	< 187	< 1.3	< 3.1	< 1.2	< 0.7	< 1.8	< 2.1	< 1.2	< 1.1	< 6.0
CADW- 4242	7/29/2015	< 139	< 2.8	< 8.7	< 3.4	< 1.6	< 2.6	< 3.4	< 3.6	< 4.2	< 12.1
CADW- 6244	10/26/2015	< 143	< 2.5	< 5.6	< 1.8	< 1.4	< 4.5	< 2.7	< 2.6	< 2.1	< 8.1
					CA-DWA-D01 (Portland Bar/Grill)						
CADW- 366	1/27/2015	< 180	< 1.5	< 4.0	< 2.0	< 1.5	< 1.3	< 2.8	< 2.0	< 2.6	< 5.3
CADW- 745	2/23/2015	< 146	< 2.4	< 2.7	< 2.8	< 1.9	< 3.7	< 2.6	< 3.3	< 1.8	< 4.8
CADW- 1411	3/30/2015	< 148	< 2.6	< 5.2	< 2.0	< 1.4	< 2.9	< 2.1	< 2.5	< 2.8	< 3.5
CADW- 2250	5/1/2015	< 187	< 1.2	< 3.1	< 0.9	< 0.9	< 2.4	< 1.4	< 1.1	< 1.1	< 4.9
CADW- 4244	7/29/2015	< 139	< 0.8	< 7.2	< 3.7	< 2.2	< 2.0	< 3.6	< 2.7	< 2.1	< 6.2
CADW- 6246	10/26/2015	< 143	< 1.2	< 5.8	< 1.8	< 2.5	< 3.9	< 3.6	< 2.6	< 2.7	< 4.8

Table 8. Drinking Water Wells, analysis for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					CA-DWA-PW1 (Plant Cafeteria)						
CADW- 367	1/27/2015	< 180	< 1.2	< 1.9	< 1.4	< 1.0	< 2.4	< 1.9	< 1.3	< 1.3	< 3.5
CADW- 746	2/23/2015	< 146	< 3.0	< 3.6	< 1.8	< 1.8	< 4.1	< 2.2	< 2.9	< 3.0	< 2.0
CADW- 1412	3/31/2015	< 148	< 2.4	< 8.5	< 2.2	< 2.6	< 4.7	< 3.5	< 3.8	< 4.2	< 3.2
CADW- 2251	5/1/2015	< 187	< 1.5	< 4.3	< 1.2	< 1.7	< 3.0	< 2.3	< 1.6	< 1.6	< 4.9
CADW- 4245	7/29/2015	< 139	< 1.7	< 3.4	< 1.1	< 1.5	< 2.5	< 1.6	< 1.6	< 1.6	< 3.4
CADW- 6247	10/26/2015	< 143	< 2.5	< 4.6	< 2.4	< 2.1	< 3.1	< 3.6	< 2.0	< 2.9	< 6.1
					CA-DWA-21						
CADW- 363	1/27/2015	< 180	< 2.1	< 4.6	< 2.1	< 1.9	< 2.1	< 3.1	< 2.2	< 1.5	< 9.4
CADW- 742	2/23/2015	< 146	< 3.5	< 7.3	< 3.8	< 3.5	< 4.1	< 5.3	< 5.3	< 2.4	< 6.2
CADW- 1408	3/30/2015	< 148	< 2.6	< 3.9	< 1.9	< 2.0	< 3.6	< 2.1	< 2.9	< 3.0	< 2.6
CADW- 2246	5/1/2015	< 187	< 1.3	< 1.5	< 1.2	< 1.0	< 1.8	< 2.2	< 1.2	< 1.2	< 3.0
CADW- 4246	7/29/2015	< 139	< 2.2	< 5.3	< 3.0	< 2.5	< 3.8	< 2.6	< 2.9	< 2.0	< 8.7
CADW- 6243	10/26/2015	< 143	< 1.5	< 4.3	< 2.2	< 2.0	< 2.5	< 3.0	< 2.1	< 1.8	< 5.3
					CA-DWA-V16						
CADW- 365	1/27/2015	< 180	< 2.0	< 4.0	< 2.1	< 1.9	< 4.1	< 2.8	< 1.9	< 2.3	< 4.8
CADW- 744	2/23/2015	< 146	< 2.2	< 4.8	< 2.2	< 1.3	< 2.8	< 3.4	< 3.5	< 3.8	< 6.1
CADW- 1410	3/30/2015	< 148	< 5.0	< 11.1	< 3.9	< 3.7	< 6.8	< 5.5	< 5.7	< 3.5	< 9.6
CADW- 2249	5/1/2015	< 187	< 1.2	< 2.5	< 1.0	< 1.2	< 1.6	< 1.8	< 1.1	< 1.1	< 5.2
CADW- 4247	7/29/2015	< 139	< 2.4	< 6.4	< 2.8	< 1.4	< 4.9	< 3.6	< 3.0	< 2.5	< 5.9
CADW- 6245	10/26/2015	< 143	< 2.2	< 4.4	< 2.9	< 1.7	< 4.9	< 3.7	< 2.6	< 2.6	< 9.1

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-936						
CAWW- 156	1/14/2015	294 ± 111	< 2.9	< 5.8	< 1.9	< 1.6	< 3.0	< 2.2	< 3.0	< 3.8	< 7.5
CAWW- 601	2/12/2015	394 ± 119	< 2.7	< 7.4	< 2.8	< 1.7	< 5.5	< 2.2	< 3.4	< 3.3	< 4.7
CAWW- 1067	3/12/2015	269 ± 88	< 3.1	< 5.1	< 1.8	< 2.6	< 4.6	< 4.5	< 3.8	< 3.4	< 5.0
CAWW- 1681	4/16/2015	218 ± 89	< 2.3	< 6.4	< 4.1	< 2.0	< 6.5	< 3.7	< 3.7	< 2.5	< 8.1
CAWW- 2406	5/13/2015	< 148	< 3.0	< 5.5	< 3.0	< 2.8	< 4.2	< 5.0	< 3.8	< 3.9	< 3.1
CAWW- 3154	6/19/2015	180 ± 81	< 3.1	< 3.7	< 3.7	< 2.1	< 1.7	< 1.8	< 3.9	< 4.3	< 2.8
CAWW- 3943	7/20/2015	< 176	< 2.8	< 3.2	< 4.2	< 4.2	< 7.6	< 5.8	< 6.0	< 5.4	< 7.5
CAWW- 4545	8/17/2015	347 ± 90	< 1.7	< 5.7	< 2.6	< 2.5	< 5.6	< 4.1	< 3.1	< 2.3	< 7.1
CAWW- 5112	9/16/2015	233 ± 83	< 1.5	< 3.6	< 1.8	< 1.4	< 2.5	< 2.2	< 1.4	< 1.5	< 4.7
CAWW- 5718	10/9/2015	< 149	< 2.0	< 4.8	< 2.3	< 1.8	< 2.9	< 4.2	< 3.3	< 2.0	< 10.2
CAWW- 6555	11/12/2015	332 ± 88	< 3.9	< 8.6	< 4.1	< 3.1	< 6.9	< 2.5	< 4.4	< 4.3	< 3.8
CAWW- 7011	12/13/2015	260 ± 84	< 5.3	< 5.3	< 2.6	< 5.3	< 4.2	< 3.9	< 4.8	< 3.5	< 5.4
					Location: CA-WWA-937A						
CAWW- 157	1/13/2015	< 188	< 3.0	< 6.6	< 1.8	< 2.4	< 3.2	< 3.6	< 2.9	< 2.6	< 4.8
CAWW- 602	2/13/2015	< 188	< 3.7	< 5.1	< 3.8	< 3.6	< 3.5	< 3.9	< 3.3	< 3.3	< 7.3
CAWW- 1068	3/13/2015	< 148	< 2.9	< 5.1	< 2.8	< 2.6	< 6.0	< 2.6	< 3.0	< 3.5	< 4.7
CAWW- 1682	4/16/2015	< 158	< 4.0	< 6.8	< 2.9	< 2.5	< 4.8	< 4.9	< 4.3	< 4.4	< 8.9
CAWW- 2508	5/19/2015	< 154	< 4.1	< 6.8	< 4.3	< 3.0	< 6.8	< 4.7	< 4.4	< 3.5	< 7.5
CAWW- 3155	6/19/2015	< 143	< 2.6	< 5.3	< 4.2	< 3.1	< 5.5	< 6.3	< 3.9	< 2.5	< 3.7
CAWW- 3944	7/18/2015	< 176	< 2.9	< 8.9	< 4.1	< 2.4	< 4.2	< 3.8	< 4.7	< 4.1	< 5.5
	8/17/2015					NS[a]					
					Location: CA-WWA-937B						
CAWW- 158	1/13/2015	< 188	< 3.7	< 5.8	< 2.9	< 2.4	< 4.8	< 4.0	< 3.9	< 3.5	< 4.4
CAWW- 603	2/12/2015	< 188	< 3.8	< 8.4	< 4.2	< 3.2	< 5.6	< 5.2	< 4.3	< 4.9	< 3.2
CAWW- 1069	3/12/2015	< 148	< 2.1	< 3.3	< 3.1	< 2.0	< 5.0	< 3.6	< 3.5	< 4.0	< 7.7
CAWW- 1683	4/15/2015	244 ± 90	< 4.1	< 12.7	< 4.2	< 3.6	< 4.3	< 3.9	< 4.4	< 3.9	< 5.8
CAWW- 2509	5/19/2015	< 154	< 3.5	< 6.9	< 1.7	< 2.4	< 2.1	< 4.4	< 4.3	< 4.6	< 7.9
CAWW- 3156	6/19/2015	238 ± 84	< 2.3	< 3.6	< 2.0	< 2.1	< 2.9	< 3.7	< 3.1	< 3.6	< 1.5
CAWW- 3945	7/20/2015	334 ± 105	< 3.0	< 5.2	< 3.6	< 2.1	< 4.6	< 2.6	< 4.4	< 4.3	< 3.4
CAWW- 4546	8/17/2015	314 ± 88	< 3.3	< 8.1	< 3.1	< 2.0	< 6.2	< 4.9	< 3.5	< 3.4	< 7.8
CAWW- 5113	9/16/2015	264 ± 85	< 3.2	< 8.8	< 3.7	< 1.5	< 1.6	< 2.8	< 3.4	< 3.3	< 9.1
CAWW- 5719	10/9/2015	169 ± 81	< 3.0	< 6.0	< 2.3	< 1.9	< 4.2	< 4.8	< 3.0	< 3.2	< 11.3
	11/12/2015					NS[a]					
	12/13/2015					NS[a]					

[a] "NS" = No sample; see Table 2.0, Listing of Missed Samples.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-937C						
CAWW- 159	1/14/2015	< 188	< 2.3	< 7.2	< 3.8	< 3.0	< 8.3	< 4.7	< 3.3	< 3.6	< 5.0
CAWW- 604	2/12/2015	193 ± 108	< 3.6	< 7.8	< 3.5	< 1.7	< 3.8	< 5.1	< 4.9	< 4.9	< 7.1
CAWW- 1070	3/12/2015	244 ± 86	< 3.1	< 4.2	< 1.3	< 2.5	< 4.3	< 3.6	< 3.5	< 2.7	< 5.7
CAWW- 1684	4/16/2015	< 158	< 3.8	< 6.6	< 3.4	< 2.4	< 2.1	< 4.4	< 3.1	< 2.9	< 6.6
CAWW- 2407	5/13/2015	< 148	< 3.1	< 6.4	< 2.8	< 2.7	< 4.7	< 4.3	< 3.3	< 2.9	< 4.6
CAWW- 3145	6/18/2015	189 ± 81	< 2.1	< 3.0	< 2.5	< 1.4	< 4.3	< 2.6	< 3.1	< 2.4	< 2.7
CAWW- 3946	7/20/2015	< 176	< 3.5	< 7.1	< 4.1	< 2.6	< 7.6	< 3.5	< 4.0	< 3.0	< 2.7
	8/17/2015					NS[a]					
					Location: CA-WWA-937D						
	1/14/2015					NS[a]					
CAWW- 605	2/12/2015	452 ± 122	< 2.5	< 6.9	< 2.9	< 2.6	< 6.2	< 5.1	< 3.9	< 3.5	< 6.9
CAWW- 1071	3/12/2015	568 ± 101	< 2.8	< 6.4	< 2.9	< 1.3	< 7.1	< 5.0	< 3.9	< 3.2	< 10.6
CAWW- 1685	4/15/2015	275 ± 92	< 1.6	< 3.9	< 1.7	< 1.6	< 2.2	< 2.5	< 1.8	< 1.1	< 4.4
CAWW- 2408	5/13/2015	< 148	< 3.2	< 9.5	< 4.3	< 3.7	< 3.6	< 6.5	< 4.5	< 4.9	< 7.1
CAWW- 3146	6/18/2015	158 ± 80	< 2.9	< 4.3	< 1.8	< 2.3	< 3.3	< 3.6	< 3.4	< 2.0	< 1.8
CAWW- 3947	7/20/2015	< 176	< 3.7	< 9.7	< 3.0	< 4.2	< 4.5	< 4.6	< 4.8	< 5.2	< 5.3
CAWW- 4547	8/17/2015	< 145	< 3.0	< 7.2	< 1.6	< 1.4	< 4.4	< 3.1	< 3.6	< 3.5	< 11.8
CAWW- 5114	9/16/2015	< 143	< 1.7	< 3.8	< 1.9	< 1.2	< 2.3	< 2.0	< 1.7	< 1.9	< 6.3
CAWW- 5720	10/9/2015	< 149	< 1.2	< 2.9	< 1.6	< 1.2	< 2.3	< 1.8	< 1.1	< 1.1	< 5.0
CAWW- 6556	11/12/2015	194 ± 81	< 2.3	< 6.0	< 3.5	< 3.3	< 3.6	< 3.9	< 3.9	< 3.8	< 9.7
CAWW- 7012	12/13/2015	< 149	< 2.4	< 4.2	< 1.9	< 2.0	< 4.1	< 2.4	< 3.0	< 2.5	< 3.9
					Location: CA-WWA-937E						
CAWW- 160	1/14/2015	251 ± 109	< 2.6	< 6.7	< 2.0	< 2.0	< 3.6	< 4.2	< 2.7	< 2.8	< 7.7
CAWW- 606	2/12/2015	< 188	< 4.2	< 7.5	< 3.3	< 2.0	< 3.8	< 3.9	< 3.8	< 3.8	< 5.7
CAWW- 1072	3/12/2015	< 148	< 1.6	< 2.6	< 2.1	< 2.4	< 4.1	< 3.0	< 2.2	< 2.4	< 4.9
CAWW- 1686	4/15/2015	< 158	< 1.6	< 2.7	< 1.7	< 1.8	< 2.6	< 2.6	< 1.5	< 1.7	< 5.3
CAWW- 2510	5/19/2015	< 154	< 2.0	< 5.4	< 2.3	< 1.6	< 3.4	< 3.9	< 3.5	< 3.2	< 5.6
CAWW- 3157	6/19/2015	< 148	< 1.7	< 8.3	< 3.7	< 2.9	< 4.2	< 3.0	< 5.5	< 4.7	< 4.2
CAWW- 3948	7/20/2015	< 176	< 4.6	< 7.2	< 2.9	< 2.6	< 2.7	< 2.4	< 5.0	< 3.0	< 5.4
	8/17/2015					NS[a]					

[a] "NS" = No sample; see Table 2.0, Listing of Missed Samples.

[b] "NS" = No sample; see Table 2.0, Listing of Missed Samples.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
						Location: CA-WWA-937F					
CAWW- 161	1/13/2015	< 188	< 3.2	< 5.9	< 2.6	< 1.5	< 3.2	< 5.1	< 3.1	< 2.4	< 6.3
CAWW- 607	2/12/2015	< 154	< 4.0	< 8.7	< 6.0	< 4.2	< 9.2	< 3.9	< 4.9	< 5.8	< 11.3
CAWW- 1073	3/12/2015	< 148	< 2.4	< 5.8	< 1.3	< 0.9	< 5.3	< 2.6	< 2.6	< 3.0	< 3.0
CAWW- 1687	4/15/2015	< 158	< 2.5	< 6.4	< 3.6	< 2.5	< 6.3	< 4.2	< 3.1	< 3.1	< 4.2
CAWW- 2409	5/13/2015	< 148	< 4.1	< 5.0	< 3.6	< 2.5	< 6.4	< 4.0	< 3.7	< 3.1	< 11.5
CAWW- 3158	6/19/2015	< 148	< 2.8	< 13.2	< 2.4	< 5.0	< 4.2	< 5.4	< 5.0	< 4.2	< 4.7
CAWW- 3950	7/20/2015	< 162	< 5.3	< 6.6	< 5.4	< 5.2	< 9.1	< 4.6	< 5.4	< 4.7	< 5.8
	8/17/2015					NS[a]					
						Location: CA-WWA-938					
CAWW- 162	1/13/2015	211 ± 112	< 1.7	< 6.2	< 1.7	< 3.0	< 3.5	< 3.8	< 3.0	< 2.9	< 6.3
CAWW- 608	2/12/2015	< 154	< 3.2	< 10.7	< 5.2	< 5.8	< 4.3	< 6.1	< 5.1	< 5.6	< 14.3
CAWW- 1074	3/12/2015	< 148	< 2.8	< 5.1	< 2.9	< 2.5	< 4.3	< 2.6	< 3.6	< 2.7	< 5.1
CAWW- 1688	4/15/2015	< 158	< 1.9	< 4.0	< 3.2	< 1.8	< 5.8	< 3.7	< 3.1	< 3.7	< 6.2
CAWW- 2511	5/19/2015	< 154	< 3.4	< 7.2	< 4.7	< 3.8	< 5.7	< 6.2	< 5.4	< 4.0	< 5.7
CAWW- 3144	6/18/2015	174 ± 80	< 4.2	< 10.0	< 2.3	< 2.8	< 3.1	< 3.6	< 6.1	< 2.9	< 5.9
CAWW- 3951	7/20/2015	< 176	< 3.9	< 8.9	< 4.4	< 2.3	< 4.5	< 2.9	< 4.1	< 4.6	< 6.0
	8/17/2015					NS[a]					
						Location: CA-WWA-939R					
CAWW- 163	1/14/2015	392 ± 121	< 3.3	< 6.1	< 2.1	< 1.5	< 3.3	< 5.1	< 3.4	< 2.7	< 7.2
CAWW- 565	2/12/2015	241 ± 121	< 3.4	< 6.6	< 4.8	< 2.4	< 5.4	< 5.2	< 4.2	< 3.2	< 4.4
CAWW- 1075	3/12/2015	200 ± 84	< 2.8	< 4.5	< 1.5	< 3.3	< 4.1	< 4.0	< 3.6	< 2.7	< 5.1
CAWW- 1689	4/15/2015	414 ± 98	< 1.9	< 3.7	< 1.2	< 1.4	< 2.5	< 2.4	< 1.5	< 1.5	< 3.3
CAWW- 2512	5/19/2015	376 ± 109	< 3.5	< 4.2	< 2.9	< 3.3	< 2.7	< 3.0	< 3.5	< 3.2	< 7.2
CAWW- 3159	6/19/2015	316 ± 93	< 3.3	< 3.5	< 3.6	< 2.4	< 1.8	< 5.6	< 4.5	< 3.8	< 1.8
CAWW- 3952	7/20/2015	548 ± 112	< 2.5	< 4.7	< 3.1	< 1.2	< 6.3	< 2.8	< 3.9	< 3.1	< 4.7
CAWW- 4548	8/17/2015	355 ± 90	< 3.6	< 10.2	< 3.9	< 2.8	< 4.1	< 7.3	< 3.9	< 3.9	< 8.7
CAWW- 5115	9/16/2015	281 ± 86	< 2.1	< 6.6	< 2.8	< 1.9	< 3.1	< 2.1	< 3.2	< 2.6	< 13.9
CAWW- 5721	10/9/2015	179 ± 81	< 2.9	< 5.3	< 2.2	< 1.8	< 3.6	< 3.0	< 2.6	< 2.8	< 8.1
CAWW- 6557	11/12/2015	266 ± 85	< 3.2	< 4.8	< 4.5	< 1.9	< 4.7	< 4.5	< 3.6	< 3.4	< 12.0
CAWW- 7013	12/13/2015	276 ± 85	< 2.4	< 3.8	< 1.6	< 3.1	< 5.0	< 2.0	< 2.8	< 2.2	< 2.1

[a] "NS" = No sample; see Table 2.0, Listing of Missed Samples.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-940						
CAWW- 164	1/14/2015	< 165	< 2.4	< 4.3	< 3.5	< 3.8	< 4.7	< 3.3	< 2.7	< 2.4	< 4.6
CAWW- 609	2/12/2015	< 154	< 1.4	< 4.0	< 1.9	< 1.3	< 3.7	< 2.0	< 1.8	< 1.6	< 2.7
CAWW- 1076	3/12/2015	156 ± 82	< 1.8	< 5.4	< 2.0	< 2.0	< 5.3	< 4.4	< 3.5	< 2.7	< 9.9
CAWW- 1690	4/15/2015	< 158	< 2.6	< 7.2	< 1.5	< 2.7	< 4.8	< 4.3	< 2.7	< 2.5	< 5.3
CAWW- 2410	5/13/2015	< 148	< 2.1	< 7.0	< 1.7	< 2.0	< 5.8	< 5.4	< 3.0	< 2.2	< 9.0
CAWW- 3160	6/19/2015	< 148	< 3.9	< 5.8	< 4.2	< 3.8	< 6.8	< 6.0	< 4.4	< 3.1	< 2.6
CAWW- 3953	7/20/2015	< 176	< 7.0	< 5.9	< 3.2	< 4.4	< 5.4	< 7.0	< 6.0	< 3.9	< 8.1
CAWW- 4549	8/17/2015	< 145	< 3.1	< 9.1	< 5.2	< 2.0	< 6.3	< 5.8	< 5.3	< 3.3	< 7.3
CAWW- 5116	9/16/2015	< 142	< 1.5	< 4.3	< 1.8	< 1.2	< 2.7	< 2.6	< 1.6	< 1.8	< 7.7
CAWW- 5722	10/9/2015	< 149	< 2.2	< 6.0	< 2.1	< 2.1	< 3.5	< 3.2	< 2.6	< 2.5	< 10.8
CAWW- 6558	11/12/2015	< 143	< 3.1	< 7.1	< 3.6	< 2.4	< 3.9	< 2.8	< 3.2	< 3.9	< 8.3
CAWW- 7014	12/13/2015	< 146	< 3.1	< 2.6	< 3.5	< 1.7	< 5.7	< 3.2	< 4.2	< 2.9	< 2.1
					Location: CA-WWA-941						
CAWW- 165	1/14/2015	< 165	< 2.4	< 5.3	< 3.9	< 2.1	< 5.0	< 4.5	< 3.2	< 4.3	< 4.4
CAWW- 610	2/12/2015	< 154	< 2.4	< 7.4	< 3.4	< 2.8	< 4.0	< 3.9	< 3.6	< 3.1	< 5.6
CAWW- 1077	3/12/2015	< 148	< 2.8	< 2.3	< 2.4	< 2.2	< 3.7	< 3.1	< 3.3	< 3.0	< 8.6
CAWW- 1691	4/15/2015	< 158	< 2.0	< 4.3	< 2.5	< 2.6	< 3.3	< 4.8	< 3.2	< 3.2	< 12.6
CAWW- 2513	5/19/2015	< 154	< 2.0	< 5.0	< 3.0	< 2.1	< 5.3	< 3.1	< 3.6	< 4.3	< 3.3
CAWW- 3161	6/19/2015	< 148	< 3.2	< 5.4	< 4.5	< 2.8	< 7.1	< 4.0	< 4.3	< 5.1	< 2.0
CAWW- 3954	7/20/2015	< 176	< 2.6	< 4.0	< 4.3	< 3.4	< 5.7	< 4.3	< 4.0	< 3.9	< 5.1
CAWW- 4550	8/17/2015	< 145	< 2.5	< 6.8	< 6.1	< 3.5	< 3.3	< 4.2	< 4.3	< 3.7	< 5.5
CAWW- 5117	9/16/2015	< 143	< 2.7	< 5.6	< 2.4	< 2.0	< 2.6	< 3.8	< 2.8	< 2.3	< 12.9
CAWW- 5723	10/9/2015	< 149	< 1.6	< 4.4	< 2.5	< 1.0	< 3.3	< 2.8	< 1.7	< 1.9	< 7.6
CAWW- 6559	11/12/2015	< 143	< 4.1	< 3.9	< 2.7	< 4.1	< 5.5	< 5.6	< 4.2	< 3.2	< 10.2
CAWW- 7015	12/13/2015	< 146	< 3.7	< 5.0	< 2.3	< 2.6	< 6.0	< 1.7	< 3.5	< 3.8	< 1.8
					Location: CA-WWA-GWS						
CAWW- 166	1/14/2015	226 ± 113	< 3.6	< 5.4	< 2.8	< 3.9	< 3.8	< 5.0	< 3.6	< 3.0	< 5.8
CAWW- 612	2/12/2015	201 ± 93	< 3.3	< 6.8	< 3.3	< 2.8	< 6.1	< 4.6	< 3.5	< 3.3	< 3.7
CAWW- 1081	3/12/2015	< 148	< 3.2	< 8.0	< 3.9	< 2.0	< 6.4	< 3.1	< 4.6	< 2.6	< 8.4
CAWW- 1692	4/16/2015	187 ± 88	< 3.0	< 6.9	< 3.4	< 3.2	< 5.5	< 3.7	< 3.2	< 3.6	< 10.5
CAWW- 2411	5/13/2015	170 ± 86	< 3.7	< 7.3	< 2.2	< 2.3	< 2.9	< 2.8	< 3.8	< 3.4	< 4.7
CAWW- 3162	6/19/2015	756 ± 111	< 1.9	< 5.8	< 3.1	< 3.5	< 3.6	< 4.2	< 3.9	< 4.2	< 2.9
CAWW- 4272 [a]	6/19/2015	771 ± 110									
CAWW- 3955	7/20/2015	550 ± 112	< 4.6	< 6.0	< 2.7	< 2.3	< 5.7	< 3.0	< 4.3	< 2.8	< 6.6
CAWW- 4551	8/17/2015	271 ± 86	< 4.1	< 6.9	< 2.1	< 2.5	< 3.9	< 3.1	< 3.9	< 4.0	< 4.7
CAWW- 5118	9/16/2015	226 ± 83	< 1.3	< 3.1	< 1.3	< 1.1	< 2.2	< 2.1	< 1.4	< 1.4	< 7.8
CAWW- 5724	10/9/2015	< 149	< 2.5	< 5.2	< 1.9	< 2.2	< 2.3	< 2.8	< 2.6	< 2.7	< 13.0
CAWW- 6560	11/12/2015	161 ± 80	< 2.4	< 7.0	< 2.1	< 3.1	< 4.2	< 3.8	< 3.9	< 2.6	< 9.5
CAWW- 7016	12/13/2015	248 ± 83	< 2.7	< 3.6	< 2.4	< 2.5	< 8.0	< 3.5	< 3.6	< 3.8	< 2.0

[a] No gamma isotopic requested.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-OW-4						
CAWW- 153	1/13/2015	260 ± 109	< 1.7	< 5.9	< 2.2	< 2.3	< 4.5	< 2.4	< 2.4	< 3.3	< 4.4
CAWW- 1693	4/16/2015	213 ± 89	< 1.7	< 4.7	< 1.1	< 1.8	< 3.0	< 2.8	< 2.1	< 1.9	< 4.3
CAWW- 4090	7/27/2015	284 ± 91	< 3.4	< 7.2	< 2.1	< 2.2	< 3.4	< 3.5	< 3.2	< 4.0	< 2.7
					Location: CA-WWA-OW-5						
CAWW- 154	1/13/2015	< 188	< 2.1	< 8.0	< 2.9	< 1.7	< 4.6	< 4.7	< 4.2	< 2.5	< 6.7
CAWW- 1694	4/16/2015	236 ± 90	< 1.9	< 4.5	< 2.9	< 2.6	< 4.5	< 2.3	< 2.3	< 2.6	< 8.2
CAWW- 4091	7/27/2015	244 ± 89	< 4.1	< 4.9	< 2.9	< 2.3	< 7.1	< 2.5	< 3.7	< 3.3	< 3.8
					Location: CA-WWA-U1MW-001						
CAWW- 184	1/19/2015	< 184	< 3.2	< 9.0	< 3.4	< 3.3	< 2.2	< 4.0	< 3.3	< 3.0	< 6.9
CAWW- 1784	4/20/2015	< 150	< 3.2	< 4.2	< 3.2	< 2.7	< 2.2	< 3.9	< 2.9	< 3.0	< 6.9
CAWW- 3884	7/16/2015	< 155	< 2.9	< 6.6	< 5.1	< 3.9	< 8.8	< 2.8	< 4.8	< 5.6	< 8.3
CAWW- 5726	10/8/2015	< 149	< 0.7	< 2.8	< 1.5	< 0.7	< 2.0	< 2.0	< 1.3	< 1.1	< 6.7
					Location: CA-WWA-U1MW-002						
CAWW- 304	1/26/2015	< 181	< 2.5	< 5.5	< 2.2	< 1.3	< 1.8	< 2.8	< 3.1	< 1.4	< 5.5
CAWW- 2030	4/30/2015	< 159	< 1.2	< 2.4	< 0.9	< 0.9	< 2.6	< 2.0	< 1.3	< 1.3	< 3.8
CAWW- 3956	7/21/2015	< 176	< 3.2	< 5.8	< 3.3	< 3.4	< 6.1	< 3.5	< 4.4	< 5.0	< 5.0
CAWW- 5728	10/8/2015	< 149	< 1.4	< 2.9	< 1.2	< 1.2	< 3.0	< 2.6	< 1.6	< 1.6	< 5.3
					Location: CA-WWA-U1MW-004						
CAWW- 180	1/19/2015	< 184	< 2.4	< 2.4	< 1.2	< 1.0	< 3.4	< 2.2	< 2.2	< 1.6	< 2.3
CAWW- 1429	4/3/2015	< 148	< 1.1	< 2.7	< 1.2	< 1.4	< 2.8	< 1.9	< 1.3	< 1.3	< 5.8
CAWW- 3677	7/13/2015	< 153	< 3.9	< 5.0	< 5.3	< 1.5	< 8.2	< 5.4	< 4.2	< 5.1	< 5.4
CAWW- 5516	10/5/2015	< 144	< 3.8	< 9.8	< 4.0	< 2.4	< 4.2	< 3.1	< 3.7	< 4.0	< 13.9
					Location: CA-WWA-U1MW-005						
CAWW- 181	1/19/2015	< 184	< 3.4	< 5.5	< 2.8	< 2.7	< 3.7	< 2.7	< 3.3	< 3.8	< 3.4
CAWW- 1430	4/3/2015	< 148	< 1.0	< 2.2	< 1.2	< 0.7	< 2.2	< 1.5	< 1.1	< 1.3	< 2.9
CAWW- 3678	7/13/2015	< 153	< 3.3	< 5.0	< 1.7	< 2.5	< 6.4	< 2.4	< 3.3	< 2.3	< 5.1
CAWW- 5517	10/5/2015	< 144	< 3.1	< 9.7	< 2.5	< 2.0	< 3.9	< 4.2	< 3.5	< 3.3	< 12.1
					Location: CA-WWA-U1MW-006						
CAWW- 307	1/27/2015	< 181	< 1.6	< 1.8	< 1.5	< 1.3	< 2.3	< 2.0	< 1.4	< 2.0	< 3.7
CAWW- 2028	4/29/2015	< 159	< 1.4	< 2.9	< 1.5	< 1.5	< 2.1	< 1.7	< 1.3	< 1.6	< 6.6
CAWW- 3882	7/16/2015	< 155	< 3.3	< 6.7	< 3.7	< 3.1	< 4.6	< 3.5	< 4.1	< 4.6	< 6.5
CAWW- 5730	10/8/2015	< 149	< 1.2	< 2.4	< 1.2	< 1.0	< 2.9	< 1.8	< 1.3	< 1.5	< 4.9

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-U1MW-010						
CAWW- 223	1/23/2015	< 173	< 3.9	< 6.4	< 3.4	< 2.4	< 4.5	< 5.0	< 3.7	< 4.7	< 9.8
CAWW- 1790	4/21/2015	< 150	< 3.2	< 5.9	< 3.9	< 2.1	< 3.7	< 2.9	< 3.1	< 3.1	< 8.3
CAWW- 3883	7/16/2015	< 155	< 5.4	< 7.2	< 4.2	< 5.9	< 8.6	< 7.9	< 5.8	< 6.4	< 13.5
CAWW- 5725	10/7/2015	< 149	< 1.4	< 4.3	< 1.3	< 1.4	< 3.5	< 2.5	< 1.6	< 2.0	< 5.2
					Location: CA-WWA-U1MW-012						
CAWW- 306	1/27/2015	< 181	< 2.3	< 3.6	< 2.5	< 3.0	< 4.1	< 2.5	< 3.5	< 3.4	< 7.1
CAWW- 2027	4/29/2015	< 159	< 2.5	< 2.5	< 2.0	< 1.7	< 4.0	< 2.4	< 2.5	< 1.7	< 7.9
CAWW- 4082	7/24/2015	< 146	< 1.5	< 4.6	< 2.5	< 1.7	< 3.8	< 1.7	< 3.6	< 2.5	< 5.3
CAWW- 5729	10/8/2015	< 149	< 1.9	< 2.9	< 1.5	< 1.6	< 3.0	< 2.3	< 1.6	< 1.7	< 3.2
					Location: CA-WWA-U1MW-013						
CAWW- 186	1/20/2015	< 184	< 4.5	< 5.9	< 4.1	< 2.5	< 7.9	< 4.7	< 4.9	< 3.6	< 3.5
CAWW- 1786	4/21/2015	< 150	< 4.1	< 8.9	< 2.8	< 2.7	< 5.9	< 6.6	< 3.6	< 3.4	< 4.5
CAWW- 4077	7/21/2015	< 146	< 4.2	< 7.5	< 3.9	< 2.3	< 4.7	< 5.2	< 3.5	< 3.9	< 5.4
CAWW- 5727	10/8/2015	< 149	< 1.8	< 4.2	< 1.9	< 1.3	< 3.7	< 2.5	< 1.9	< 2.3	< 2.8
					Location: CA-WWA-U1MW-014						
CAWW- 310	1/27/2015	224 ± 108	< 2.5	< 4.4	< 3.0	< 1.4	< 3.8	< 3.1	< 2.5	< 2.4	< 4.4
CAWW- 1513	4/6/2015	215 ± 84	< 2.9	< 3.5	< 1.3	< 1.9	< 3.4	< 2.5	< 2.6	< 2.5	< 4.1
CAWW- 4085	7/24/2015	< 146	< 3.4	< 5.0	< 1.3	< 1.7	< 4.1	< 3.9	< 2.7	< 3.8	< 5.2
CAWW- 5518	10/5/2015	280 ± 86	< 3.7	< 8.4	< 3.9	< 3.8	< 6.3	< 6.0	< 3.1	< 4.0	< 9.1
					Location: CA-WWA-U1MW-015						
CAWW- 182	1/19/2015	< 184	< 2.1	< 4.2	< 1.7	< 1.2	< 2.4	< 1.5	< 2.1	< 2.2	< 3.9
CAWW- 1787	4/20/2015	< 150	< 2.7	< 4.5	< 2.5	< 1.8	< 2.5	< 3.5	< 2.4	< 2.3	< 5.4
CAWW- 3679	7/13/2015	< 153	< 0.8	< 7.0	< 1.7	< 2.5	< 4.8	< 2.9	< 3.1	< 3.3	< 5.7
CAWW- 5519	10/5/2015	< 144	< 3.1	< 7.5	< 3.6	< 1.7	< 6.4	< 4.7	< 3.5	< 3.4	< 6.0
					Location: CA-WWA-U1MW-016						
CAWW- 185	1/19/2015	< 184	< 2.8	< 3.0	< 2.9	< 3.0	< 4.5	< 3.3	< 2.4	< 2.4	< 3.0
CAWW- 1428	4/3/2015	< 148	< 1.3	< 3.0	< 1.1	< 1.3	< 2.1	< 2.0	< 1.3	< 1.4	< 3.7
CAWW- 3881	7/15/2015	< 155	< 3.5	< 5.0	< 2.5	< 3.1	< 4.6	< 6.2	< 4.2	< 4.7	< 3.0
CAWW- 5520	10/5/2015	< 144	< 3.5	< 8.0	< 3.8	< 2.8	< 5.3	< 3.8	< 3.9	< 2.3	< 13.0
					Location: CA-WWA-U1MW-017						
CAWW- 308	1/27/2015	< 181	< 3.6	< 8.3	< 2.4	< 3.2	< 5.9	< 4.5	< 3.6	< 2.3	< 4.9
CAWW- 1514	4/6/2015	< 147	< 0.8	< 2.6	< 0.9	< 1.3	< 1.3	< 1.6	< 1.3	< 1.2	< 2.4
CAWW- 4083	7/24/2015	< 146	< 3.6	< 7.0	< 3.3	< 3.4	< 1.9	< 2.7	< 3.3	< 3.9	< 2.9
					Location: CA-WWA-U1MW-18						
CAWW- 309	1/27/2015	< 181	< 4.3	< 5.2	< 3.3	< 2.7	< 1.9	< 5.5	< 3.5	< 3.6	< 5.4
CAWW- 1515	4/6/2015	227 ± 85	< 2.0	< 2.9	< 3.0	< 2.4	< 1.5	< 2.4	< 2.8	< 1.7	< 3.9
CAWW- 4084	7/24/2015	197 ± 87	< 3.2	< 4.8	< 3.8	< 2.8	< 6.2	< 3.6	< 3.9	< 4.7	< 3.8
CAWW- 5521 [a]	10/5/2015	157 ± 80									

[a] Gamma isotopic not requested.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-U1MW-19						
CAWW- 301	1/26/2015	209 ± 107	< 2.9	< 10.8	< 2.7	< 3.0	< 6.1	< 6.0	< 4.2	< 4.6	< 7.2
CAWW- 1517	4/6/2015	344 ± 90	< 1.0	< 3.0	< 1.3	< 1.5	< 2.2	< 1.8	< 1.3	< 1.0	< 3.5
CAWW- 4079	7/22/2015	176 ± 86	< 3.7	< 4.2	< 4.0	< 3.3	< 3.5	< 2.6	< 4.3	< 3.8	< 4.2
CAWW- 5522 [a]	10/5/2015	< 150									
					Location: CA-WWA-U1MW-20						
CAWW- 296	1/26/2015	< 181	< 4.7	< 11.6	< 6.3	< 2.9	< 9.1	< 5.9	< 5.0	< 6.0	< 7.8
CAWW- 1712	4/17/2015	< 158	< 1.5	< 3.2	< 1.7	< 1.7	< 2.9	< 2.0	< 1.7	< 1.5	< 4.6
CAWW- 4081	7/22/2015	< 146	< 5.1	< 5.2	< 3.9	< 3.9	< 12.1	< 6.6	< 6.0	< 4.1	< 7.9
CAWW- 5523 [a]	10/5/2015	< 150									
					Location: CA-WWA-U1MW-021						
CAWW- 302	1/26/2015	< 181	< 2.7	< 6.8	< 1.9	< 2.5	< 4.8	< 4.0	< 3.5	< 3.8	< 6.6
CAWW- 1518	4/6/2015	< 147	< 1.2	< 2.1	< 1.4	< 1.2	< 1.8	< 2.2	< 1.3	< 1.3	< 2.4
CAWW- 4078	7/22/2015	< 146	< 3.1	< 5.0	< 3.2	< 1.6	< 2.4	< 2.4	< 3.3	< 3.9	< 4.2
					Location: CA-WWA-U1MW-022						
CAWW- 303	1/26/2015	< 181	< 4.4	< 8.3	< 3.5	< 3.6	< 6.4	< 4.4	< 5.0	< 5.0	< 3.8
CAWW- 1519	4/6/2015	< 147	< 1.2	< 2.1	< 1.2	< 0.8	< 2.2	< 1.2	< 1.1	< 1.3	< 2.4
CAWW- 4080	7/22/2015	< 146	< 3.2	< 5.4	< 2.1	< 2.4	< 6.9	< 3.2	< 3.8	< 2.7	< 2.7
					Location: CA-WWA-U1MW-023						
CAWW- 300	1/26/2015	< 181	< 1.9	< 7.4	< 3.1	< 2.5	< 5.8	< 4.3	< 3.1	< 2.5	< 3.1
CAWW- 1713	4/17/2015	< 158	< 2.3	< 3.7	< 2.7	< 2.1	< 2.4	< 2.7	< 2.6	< 2.2	< 7.0
CAWW- 3885	7/17/2015	< 155	< 2.6	< 5.8	< 3.8	< 2.7	< 4.8	< 2.2	< 3.8	< 2.9	< 5.7
					Location: CA-WWA-U1MW-024						
CAWW- 299	1/26/2015	< 181	< 3.3	< 5.9	< 2.9	< 1.8	< 4.2	< 3.8	< 3.1	< 3.3	< 4.8
CAWW- 1714	4/17/2015	< 158	< 3.5	< 5.7	< 4.0	< 3.2	< 5.2	< 2.9	< 3.4	< 3.3	< 2.1
CAWW- 3887	7/17/2015	< 155	< 4.9	< 10.4	< 5.1	< 4.1	< 4.9	< 5.9	< 5.3	< 4.6	< 10.3
					Location: CA-WWA-U1MW-025						
CAWW- 298	1/26/2015	< 181	< 2.5	< 6.1	< 2.5	< 3.3	< 4.5	< 3.3	< 4.0	< 3.8	< 2.6
CAWW- 1715	4/17/2015	< 158	< 2.4	< 8.0	< 2.3	< 2.0	< 4.7	< 2.6	< 2.2	< 2.6	< 9.3
CAWW- 3888	7/17/2015	< 155	< 3.7	< 6.8	< 3.6	< 1.9	< 4.8	< 6.3	< 4.1	< 5.6	< 8.0

[a] Gamma isotopic not requested.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-U1MW-26						
CAWW- 297	1/26/2015	< 181	< 4.3	< 7.0	< 4.1	< 3.0	< 4.1	< 2.9	< 4.2	< 4.3	< 5.3
CAWW- 1716	4/17/2015	< 158	< 2.7	< 5.7	< 2.7	< 3.3	< 3.6	< 4.2	< 3.3	< 2.8	< 10.2
CAWW- 3889	7/17/2015	< 155	< 4.2	< 9.4	< 4.6	< 2.5	< 5.8	< 3.9	< 4.1	< 4.0	< 5.5
					Location: CA-WWA-U1MW-27						
CAWW- 183	1/19/2015	< 184	< 2.7	< 5.2	< 2.0	< 2.2	< 5.6	< 2.4	< 3.9	< 3.7	< 5.2
CAWW- 1788	4/20/2015	< 150	< 2.3	< 4.3	< 2.2	< 1.6	< 3.2	< 2.9	< 2.2	< 2.1	< 8.2
CAWW- 3674	7/13/2015	< 153	< 6.8	< 8.4	< 5.0	< 5.1	< 5.6	< 7.0	< 5.7	< 5.5	< 10.9
					Location: CA-WWA-U1MW-28						
	1/26/2015					NS[a]					
	4/20/2015					NS[a]					
	7/13/2015					NS[a]					
					Location: CA-WWA-U1MW-29						
CAWW- 224	1/23/2015	< 173	< 3.9	< 6.4	< 3.4	< 2.4	< 4.5	< 5.0	< 3.7	< 4.7	< 9.8
CAWW- 1789	4/21/2015	< 150	< 3.6	< 5.8	< 3.4	< 2.3	< 3.6	< 4.8	< 3.2	< 2.2	< 7.8
CAWW- 3957	7/18/2015	< 176	< 5.2	< 5.6	< 4.6	< 3.9	< 4.0	< 4.1	< 5.7	< 3.7	< 7.9
					Location: CA-WWA-U1MW-30						
CAWW- 305	1/26/2015	< 181	< 2.4	< 4.4	< 1.7	< 2.4	< 3.8	< 4.6	< 3.2	< 3.1	< 2.9
CAWW- 2029	4/30/2015	< 159	< 2.8	< 6.4	< 2.4	< 2.3	< 5.5	< 5.2	< 3.9	< 2.8	< 11.1
CAWW- 4092	7/27/2015	< 146	< 3.5	< 7.2	< 2.5	< 2.3	< 5.6	< 4.5	< 3.7	< 3.2	< 4.3
					Location: CA-WWA-U1MW-31						
CAWW- 149	1/12/2015	6269 ± 295	< 4.0	< 4.9	< 2.9	< 2.5	< 6.5	< 4.9	< 3.4	< 3.7	< 5.9
CAWW- 585	2/13/2015	4553 ± 278	< 2.8	< 5.1	< 3.3	< 2.3	< 3.0	< 2.8	< 3.3	< 4.6	< 3.0
CAWW- 1078	3/13/2015	7012 ± 254	< 2.5	< 4.9	< 1.7	< 2.0	< 2.3	< 1.7	< 2.7	< 2.7	< 2.3
CAWW- 1695	4/14/2015	4931 ± 217	< 1.8	< 4.2	< 2.2	< 1.7	< 2.9	< 2.9	< 1.7	< 1.1	< 5.9
CAWW- 2412	5/12/2015	9213 ± 284	< 1.7	< 2.9	< 2.7	< 2.8	< 2.4	< 2.5	< 3.2	< 3.5	< 8.8
CAWW- 3143	6/17/2015	2215 ± 152	< 2.7	< 4.5	< 3.2	< 2.6	< 3.0	< 4.8	< 3.2	< 3.4	< 3.4
CAWW- 3625	7/10/2015	1683 ± 151	< 1.4	< 5.2	< 3.6	< 3.8	< 5.2	< 4.0	< 3.6	< 3.9	< 6.4
CAWW- 5745 [b]	10/12/2015	1960 ± 145									

[a] "NS = No sample; see Table 2.0, Listing of Missed Samples.

[b] Gamma isotopic not requested.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
		Location: CA-WWA-U1MW-34									
CAWW- 151	1/12/2015	7748 ± 325	< 2.0	< 5.9	< 2.0	< 1.6	< 1.9	< 2.8	< 2.6	< 2.6	< 5.2
CAWW- 586	2/13/2015	6701 ± 326	< 6.1	< 8.8	< 7.1	< 2.4	< 7.6	< 4.7	< 6.4	< 5.3	< 13.7
CAWW- 1079	3/13/2015	6270 ± 241	< 2.4	< 3.4	< 1.8	< 2.4	< 3.3	< 5.1	< 3.3	< 3.5	< 8.0
CAWW- 1696	4/14/2015	3691 ± 192	< 3.0	< 3.4	< 2.2	< 2.3	< 4.0	< 4.2	< 3.2	< 2.3	< 5.6
CAWW- 2413	5/12/2015	2608 ± 165	< 1.9	< 4.1	< 3.3	< 2.5	< 2.1	< 4.1	< 3.4	< 3.3	< 6.0
CAWW- 3129	6/17/2015	1518 ± 132	< 3.4	< 7.3	< 2.2	< 3.0	< 6.1	< 2.6	< 3.8	< 4.2	< 2.4
CAWW- 3626	7/10/2015	1541 ± 147	< 2.2	< 5.8	< 3.4	< 2.1	< 3.5	< 4.6	< 3.4	< 3.1	< 9.6
CAWW- 5746 [a]	10/12/2015	1151 ± 120									
		Location: CA-WWA-U1MW-36									
CAWW- 152	1/12/2015	13295 ± 418	< 3.7	< 3.2	< 2.4	< 2.0	< 5.6	< 4.0	< 3.6	< 2.3	< 4.7
CAWW- 587	2/13/2015	12732 ± 434	< 5.3	< 8.8	< 4.0	< 3.6	< 6.6	< 3.7	< 3.6	< 4.5	< 6.5
CAWW- 1080	3/13/2015	10074 ± 300	< 3.6	< 7.8	< 2.2	< 3.6	< 5.0	< 3.4	< 4.1	< 2.7	< 5.9
CAWW- 1698	4/14/2015	3669 ± 191	< 1.5	< 3.3	< 1.5	< 0.9	< 2.7	< 1.9	< 1.5	< 1.8	< 3.2
CAWW- 2414	5/12/2015	4360 ± 204	< 3.5	< 7.1	< 3.6	< 3.3	< 4.5	< 4.9	< 4.7	< 4.8	< 5.9
CAWW- 3128	6/17/2015	2437 ± 158	< 2.7	< 6.1	< 2.2	< 3.8	< 6.4	< 4.6	< 4.2	< 2.3	< 5.0
CAWW- 3627	7/10/2015	1712 ± 152	< 2.9	< 5.2	< 3.0	< 2.9	< 2.9	< 3.2	< 4.4	< 3.2	< 9.9
CAWW- 5747 [a]	10/12/2015	1614 ± 135									
		Location: CA-WWA-U1MW-39									
CAWW- 1697	4/14/2015	< 158	< 2.7	< 6.4	< 2.6	< 1.5	< 5.4	< 2.6	< 2.6	< 2.9	< 4.6
CAWW- 2415	5/12/2015	< 148	< 4.0	< 6.6	< 4.4	< 3.0	< 4.0	< 2.3	< 4.4	< 3.8	< 6.7
CAWW- 3126	6/16/2015	< 143	< 3.4	< 5.1	< 2.8	< 2.2	< 4.8	< 4.5	< 3.6	< 2.9	< 2.0
CAWW- 3628	7/10/2015	< 154	< 5.7	< 5.1	< 4.9	< 3.1	< 5.6	< 5.7	< 4.6	< 3.7	< 10.7
CAWW- 5717 [a]	10/8/2015	< 149									

[a] Gamma isotopic not requested.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
		Location: CA-WWA-U1MW-47									
CAWW- 2417	5/12/2015	5325 ± 222	< 2.5	< 6.8	< 3.2	< 2.9	< 4.5	< 4.1	< 3.3	< 2.6	< 5.6
CAWW- 3123	6/16/2015	1783 ± 140	< 3.5	< 6.0	< 3.2	< 2.5	< 5.8	< 3.5	< 3.5	< 2.8	< 2.5
CAWW- 3676	7/13/2015	1914 ± 148	< 1.6	< 5.2	< 1.9	< 0.9	< 1.6	< 2.9	< 2.9	< 2.4	< 2.4
CAWW- 5524 [a]	10/5/2015	1192 ± 123									
		Location: CA-WWA-U1MW-58									
CAWW- 150	1/12/2015	7121 ± 312	< 2.8	< 4.3	< 1.9	< 2.2	< 3.1	< 3.0	< 2.4	< 2.9	< 2.2
CAWW- 1699	4/14/2015	3669 ± 191	< 3.4	< 6.8	< 3.4	< 3.4	< 2.4	< 5.6	< 3.0	< 2.5	< 7.1
CAWW- 2418	5/12/2015	2911 ± 172	< 2.1	< 3.5	< 1.8	< 1.1	< 2.8	< 3.4	< 3.2	< 3.6	< 7.4
CAWW- 3127	6/17/2015	2441 ± 158	< 4.4	< 8.8	< 3.3	< 3.8	< 6.4	< 4.3	< 4.1	< 4.5	< 4.7
CAWW- 3629	7/10/2015	1957 ± 158	< 3.0	< 7.7	< 3.1	< 1.6	< 3.7	< 5.1	< 4.0	< 3.9	< 7.7
CAWW- 5748 [a]	10/12/2015	1333 ± 126									
		Location: CA-WWA-U1MW-59									
CAWW- 1700	4/14/2015	< 158	< 3.1	< 7.0	< 2.5	< 2.1	< 5.4	< 5.2	< 3.7	< 3.1	< 13.4
CAWW- 2419	5/12/2015	< 148	< 2.3	< 6.2	< 2.9	< 1.9	< 4.8	< 4.3	< 2.9	< 3.3	< 8.3
CAWW- 3125	6/16/2015	< 143	< 4.6	< 11.9	< 4.5	< 2.9	< 7.5	< 3.4	< 4.7	< 3.5	< 5.0
CAWW- 3880	7/15/2015	< 155	< 3.6	< 6.3	< 3.1	< 3.5	< 5.3	< 4.4	< 3.8	< 5.7	< 7.8
CAWW- 5800	10/15/2015	< 148	< 3.8	< 7.6	< 2.8	< 3.4	< 5.6	< 4.1	< 3.1	< 3.7	< 3.5

[a] Gamma isotopic not requested.

Table 9. Wells and Ponds (non-potable), analyses for tritium and gamma-emitting isotopes.

Lab Code	Collection Date	Concentration (pCi/L) ^{3}H	^{54}Mn	^{59}Fe	^{58}Co	^{60}Co	^{65}Zn	$^{95}ZrNb$	^{134}Cs	^{137}Cs	$^{140}BaLa$
					Location: CA-WWA-U2MW-2S						
CAWW- 47	1/8/2015	< 172	< 4.0	< 6.5	< 5.8	< 3.9	< 12.1	< 8.7	< 6.1	< 5.4	< 5.0
CAWW- 1791	4/20/2015	< 150	< 2.3	< 3.0	< 2.1	< 1.6	< 5.2	< 3.2	< 2.6	< 2.0	< 5.6
CAWW- 3891	7/16/2015	< 155	< 5.8	< 6.0	< 4.2	< 4.6	< 8.0	< 5.4	< 6.3	< 4.2	< 14.1
CAWW- 5716 [a]	10/7/2015	< 149									
					Location: CA-WWA-U2MW-5S						
CAWW- 187	1/19/2015	< 184	< 2.4	< 7.1	< 3.6	< 2.3	< 4.7	< 4.3	< 3.6	< 3.1	< 8.3
CAWW- 1793	4/20/2015	< 150	< 4.7	< 9.7	< 3.4	< 3.3	< 11.9	< 9.2	< 4.9	< 3.9	< 10.1
CAWW- 3890	7/15/2015	< 155	< 3.0	< 4.2	< 1.7	< 1.9	< 3.6	< 3.2	< 3.6	< 2.4	< 7.2
CAWW- 5715 [a]	10/7/2015	< 149									
					Location: CA-WWA-U2MW-8						
CAWW- 225	1/22/2015	< 173	< 3.4	< 7.2	< 2.0	< 3.3	< 8.3	< 6.8	< 5.5	< 3.2	< 8.4
CAWW- 1796	4/21/2015	< 150	< 2.3	< 5.3	< 3.3	< 1.6	< 4.2	< 2.7	< 2.6	< 2.9	< 3.8
CAWW- 3958	7/18/2015	< 176	< 3.9	< 4.4	< 4.4	< 4.1	< 8.0	< 6.8	< 5.1	< 4.0	< 5.3
CAWW- 5749 [a]	10/12/2015	< 149									
					Location: CA-WWA-U2MW-9						
CAWW- 226	1/22/2015	< 173	< 5.5	< 7.0	< 5.1	< 4.2	< 10.4	< 7.1	< 5.2	< 6.3	< 11.5
CAWW- 1795	4/21/2015	< 150	< 2.5	< 3.6	< 3.0	< 2.6	< 2.7	< 3.1	< 2.6	< 2.7	< 4.3
CAWW- 3959	7/18/2015	< 176	< 4.5	< 3.9	< 2.5	< 3.5	< 8.0	< 3.5	< 4.9	< 4.5	< 5.4
					Location: CA-WWA-U2MW-10						
CAWW- 228	1/23/2015	< 173	< 2.4	< 3.9	< 3.0	< 2.5	< 4.3	< 2.7	< 2.5	< 3.2	< 5.6
CAWW- 1794	4/21/2015	< 150	< 3.3	< 3.9	< 3.0	< 2.0	< 3.1	< 4.3	< 2.7	< 2.7	< 6.8
CAWW- 4086	7/24/2015	< 146	< 1.2	< 3.2	< 1.5	< 2.9	< 3.7	< 2.8	< 3.0	< 2.3	< 4.6
CAWW- 5731	10/8/2015	< 149	< 1.4	< 3.4	< 1.0	< 0.8	< 1.8	< 2.4	< 1.2	< 1.1	< 2.6
					Location: CA-WWA-U2MW-12						
CAWW- 227	1/23/2015	< 173	< 3.1	< 3.8	< 2.4	< 2.4	< 5.7	< 3.4	< 3.3	< 3.4	< 3.3
CAWW- 1792	4/20/2015	< 150	< 2.4	< 8.6	< 3.4	< 2.2	< 5.0	< 5.4	< 3.3	< 4.2	< 7.8
CAWW- 3892	7/16/2015	< 155	< 4.1	< 11.5	< 2.5	< 2.9	< 4.7	< 4.1	< 4.2	< 5.1	< 4.2
					Location: CA-WWA-U2MW-16						
CAWW- 188	1/19/2015	< 184	< 2.5	< 4.7	< 2.9	< 2.4	< 2.0	< 2.7	< 2.9	< 1.6	< 2.8
CAWW- 1427	4/3/2015	< 148	< 3.1	< 6.3	< 3.2	< 2.3	< 5.5	< 2.2	< 3.1	< 2.0	< 6.7
CAWW- 3630	7/10/2015	< 154	< 2.7	< 6.8	< 2.9	< 2.0	< 7.1	< 4.8	< 3.6	< 4.2	< 9.3
CAWW- 5713 [a]	10/7/2015	< 149									
					Location: CA-WWA-F-005						
CAWW- 104	1/9/2015	< 173	< 2.1	< 3.1	< 2.1	< 2.0	< 4.1	< 2.3	< 2.5	< 1.4	< 3.0
CAWW- 1415	4/1/2015	< 148	< 1.6	< 6.2	< 2.5	< 2.2	< 2.3	< 2.5	< 2.2	< 2.5	< 7.0
CAWW- 3392	6/29/2015	< 143	< 2.6	< 3.1	< 2.8	< 3.0	< 3.2	< 2.4	< 3.3	< 2.5	< 3.2
CAWW- 5920	10/16/2015	< 142	< 3.5	< 9.2	< 6.4	< 6.3	< 14.9	< 4.9	< 6.6	< 3.3	< 6.7
					Location: CA-WWA-F-015						
CAWW- 106	1/9/2015	< 173	< 1.6	< 5.7	< 1.8	< 2.0	< 3.5	< 3.5	< 2.4	< 2.3	< 4.3
CAWW- 1416	4/1/2015	< 148	< 3.6	< 6.0	< 1.9	< 2.2	< 5.2	< 3.5	< 3.2	< 3.5	< 4.1
CAWW- 3393	6/29/2015	< 143	< 2.0	< 2.7	< 2.2	< 1.6	< 2.8	< 2.9	< 2.9	< 2.1	< 4.3
CAWW- 5921	10/16/2015	< 142	< 5.3	< 7.2	< 4.0	< 6.0	< 8.2	< 3.4	< 5.7	< 5.6	< 9.0

[a] Gamma isotopic not requested.

Table 10a. Bottom sediments, analyses for gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/kg dry

Location		CA-AQS-A	
Lab Code	Req. LLD	CABS- 1888	CABS- 6161
Date Collected	-	04-23-15	10-22-15
K-40	-	13781 ± 666	15245 ± 741
Mn-54	-	< 17.1	< 29.8
Fe-59	-	< 26.3	< 60.4
Co-58	-	< 17.5	< 26.0
Co-60	-	< 12.4	< 24.0
Zr-Nb-95	-	< 20.9	< 47.1
Cs-134	150	< 16.5	< 18.6
Cs-137	180	< 19.7	< 27.4
Ba-La-140	-	< 17.5	< 68.9

Location		CA-AQS-C	
Lab Code	Req. LLD	CABS- 1889	CABS- 6162
Date Collected	-	04-23-15	10-22-15
K-40	-	14471 ± 713	12009 ± 667
Mn-54	-	< 25.5	< 24.5
Fe-59	-	< 26.6	< 40.1
Co-58	-	< 22.4	< 28.6
Co-60	-	< 8.5	< 21.7
Zr-Nb-95	-	< 38.7	< 52.9
Cs-134	150	< 20.6	< 23.1
Cs-137	180	76 ± 30.7	< 23.4
Ba-La-140	-	< 27.4	< 121.0

Table 10b. Shoreline sediments, analyses for gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/kg dry

Location		CA-AQS-A	
Lab Code	Req. LLD	CASS- 1886	CASS- 6159
Date Collected	-	04-23-15	10-22-15
K-40	-	13063 ± 674	14781 ± 691
Mn-54	-	< 18.9	< 24.6
Fe-59	-	< 23.2	< 80.6
Co-58	-	< 16.1	< 33.1
Co-60	-	< 8.4	< 19.4
Zr-Nb-95	-	< 38.1	< 56.2
Cs-134	150	< 20.0	< 19.2
Cs-137	180	< 21.9	< 24.2
Ba-La-140	-	< 30.9	< 271.6

Location		CA-AQS-C	
Lab Code	Req. LLD	CASS- 1887	CASS- 6160
Date Collected	-	04-23-15	10-22-15
K-40	-	14968 ± 684	12957 ± 603
Mn-54	-	< 24.3	< 22.7
Fe-59	-	< 60.4	< 59.5
Co-58	-	< 19.6	< 23.8
Co-60	-	< 9.3	< 19.0
Zr-Nb-95	-	< 28.8	< 49.9
Cs-134	150	< 20.0	< 18.4
Cs-137	180	90 ± 24.5	< 17.1
Ba-La-140	-	< 68.0	< 59.0

Table 11. Fish, analyses for gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/kg wet

Location		CA-AQF-A				
Lab Code	Req. LLD	CAF- 1876	CAF- 1877	CAF- 1878	CAF- 1879	CAF- 1880
Date Collected		04-23-15	04-23-15	04-23-15	04-23-15	04-23-15
Sample Type		Common Carp	Silver Carp	River Carpsucker	Bigmouth Buffalo	Freshwater Drum
K-40	-	3766 ± 424	2353 ± 328	2349 ± 337	2986 ± 396	2224 ± 367
Mn-54	130	< 11.7	< 12.8	< 13.2	< 13.7	< 14.0
Fe-59	260	< 48.9	< 44.4	< 42.6	< 48.3	< 52.3
Co-58	130	< 10.9	< 18.9	< 17.7	< 9.9	< 11.0
Co-60	130	< 12.7	< 12.9	< 10.7	< 12.4	< 17.7
Zn-65	260	< 16.4	< 24.2	< 31.4	< 9.7	< 24.6
Cs-134	130	< 13.6	< 16.3	< 14.3	< 13.6	< 19.9
Cs-137	150	< 15.3	< 10.8	< 10.2	< 16.5	< 18.3
Lab Code		CAF- 6148	CAF- 6149	CAF- 6150	CAF- 6151	CAF- 6152
Date Collected		10-22-15	10-22-15	10-22-15	10-22-15	10-22-15
Sample Type		Freshwater Drum	Common Carp	Black Buffalo	Channel Catfish	Silver Carp
K-40	-	2950 ± 352	2949 ± 387	3030 ± 358	3104 ± 350	2340 ± 325
Mn-54	130	< 12.8	< 16.1	< 15.3	< 12.4	< 12.0
Fe-59	260	< 27.2	< 37.9	< 29.7	< 29.0	< 39.6
Co-58	130	< 18.1	< 17.6	< 16.1	< 14.8	< 13.5
Co-60	130	< 13.9	< 10.3	< 7.5	< 9.8	< 8.1
Zn-65	260	< 17.9	< 36.6	< 22.0	< 18.4	< 13.6
Cs-134	130	< 13.7	< 16.4	< 14.3	< 15.6	< 15.2
Cs-137	150	< 9.1	< 14.5	< 15.9	< 10.0	< 13.7

Table 11. Fish, analyses for gamma-emitting isotopes.

Collection: Semiannually
Units: pCi/kg wet

Location		CA-AQF-C				
Lab Code	Req. LLD	CAF- 1881	CAF- 1882	CAF- 1883	CAF- 1884	CAF- 1885
Date Collected		04-23-15	04-23-15	04-23-15	04-23-15	04-23-15
Sample Type		Common Carp	Silver Carp	River Carpsucker	Bigmouth Buffalo	Freshwater Drum
K-40	-	3181 ± 455	2931 ± 401	2839 ± 396	3029 ± 401	2771 ± 361
Mn-54	130	< 12.8	< 18.3	< 21.6	< 13.1	< 12.2
Fe-59	260	< 67.3	< 56.3	< 50.7	< 53.6	< 47.4
Co-58	130	< 10.6	< 12.9	< 10.3	< 13.2	< 19.2
Co-60	130	< 13.7	< 12.9	< 15.3	< 13.3	< 11.2
Zn-65	260	< 11.9	< 25.3	< 37.3	< 19.5	< 29.9
Cs-134	130	< 14.6	< 18.0	< 19.7	< 15.6	< 14.3
Cs-137	150	< 15.1	< 19.6	< 17.1	< 15.3	< 18.9
Lab Code		CAF- 6153	CAF- 6154	CAF- 6156	CAF- 6157	CAF- 6158
Date Collected		10-22-15	10-22-15	10-22-15	10-22-15	10-22-15
Sample Type		Freshwater Drum	Common Carp	Black Buffalo	Channel Catfish	Silver Carp
K-40	-	2524 ± 339	2542 ± 362	2918 ± 367	3384 ± 429	2383 ± 362
Mn-54	130	< 15.9	< 7.3	< 13.1	< 14.3	< 10.0
Fe-59	260	< 15.1	< 32.6	< 46.0	< 60.6	< 41.9
Co-58	130	< 21.3	< 18.6	< 19.3	< 15.2	< 12.3
Co-60	130	< 15.9	< 6.7	< 9.3	< 16.6	< 15.1
Zn-65	260	< 24.0	< 21.5	< 33.8	< 41.8	< 15.9
Cs-134	130	< 14.9	< 17.5	< 13.5	< 18.2	< 13.3
Cs-137	150	< 10.9	< 17.4	< 15.3	< 17.6	< 13.7

Table 12a. Direct Radiation Gamma (quarterly exposure)

Location	Gamma Dose (mrem/90 days)			
	QTR 1	QTR 2	QTR 3	QTR 4
CA-IDM-1A	16.55	15.06	15.53	15.95
CA-IDM-3	17.25	15.65	16.28	16.59
CA-IDM-5	14.39	13.11	14.13	14.27
CA-IDM-6	16.37	15.54	15.42	16.13
CA-IDM-7	16.51	14.95	15.73	16.26
CA-IDM-9	14.54	13.65	15.50	15.11
CA-IDM-10	16.94	16.16	16.84	16.83
CA-IDM-11A	16.48	16.48	17.11	17.05
CA-IDM-14	15.53	14.31	15.31	16.22
CA-IDM-17	15.18	14.28	14.36	15.85
CA-IDM-18A	15.58	15.05	15.15	16.48
CA-IDM-20	16.00	15.21	15.78	17.05
CA-IDM-21	15.63	14.35	15.49	15.91
CA-IDM-22A	13.11	12.66	12.33	12.67
CA-IDM-23	16.54	15.40	15.92	17.08
CA-IDM-26 (C)	11.88	10.54	11.30	11.44
CA-IDM-27 (C)	17.79	16.38	16.24	17.74
CA-IDM-30A	15.38	13.97	15.97	16.07
CA-IDM-31A	16.32	15.24	16.52	17.05
CA-IDM-32	15.83	14.71	16.10	16.07
CA-IDM-32A	14.86	14.33	14.88	15.34
CA-IDM-33	15.65	13.99	16.43	15.63
CA-IDM-34	16.27	14.29	14.92	14.44
CA-IDM-35	14.75	13.50	15.01	14.34
CA-IDM-36	14.80	13.43	14.54	15.15
CA-IDM-37	15.59	13.79	14.54	15.99
CA-IDM-38	11.13	10.58	11.23	10.95
CA-IDM-39	16.22	14.40	15.62	15.71
CA-IDM-39A	16.04	14.67	15.74	15.55
CA-IDM-40	16.98	15.52	17.02	17.25
CA-IDM-41	15.51	15.24	15.23	15.69
CA-IDM-42	13.81	12.57	13.16	13.84
CA-IDM-43	16.23	13.95	15.80	15.91
CA-IDM-44	15.71	14.32	15.42	15.33
CA-IDM-45	14.53	12.99	13.77	14.34
CA-IDM-46	16.68	15.32	16.79	16.17
CA-IDM-47	15.07	14.52	15.49	15.78
CA-IDM-48	15.71	14.87	15.72	15.94
CA-IDM-49	15.18	14.76	13.95	15.50
CA-IDM-50	16.32	15.04	14.84	16.04
CA-IDM-51A	16.70	15.56	16.23	17.83
CA-IDM-52	16.87	16.58	16.39	16.88
CA-IDM-60 (C)	16.23	15.91	15.00	15.80

Table 12b. Direct Radiation Neutron (quarterly exposure)

	Neutron Dose (mrem/91 days)			
Location	QTR 1	QTR 2	QTR 3	QTR 4
CA-IDM-60N*	-	-	0.0	0.0
CA-IDM-61N	0.0	0.0	0.0	0.0
CA-IDM-62N	0.0	0.0	0.0	0.0
CA-IDM-63N	0.0	0.0	0.0	0.0
CA-IDM-64N	0.0	0.0	0.0	0.0

* Control station. Neutron control TLDs were not placed until the 3rd quarter, 2015.