

Environmental, Inc.
Midwest Laboratory
an Allegheny Technologies Co.

700 Landwehr Road • Northbrook, IL 60062-2310
ph. (847) 564-0700 • fax (847) 564-4517

AMEREN UE, CALLAWAY PLANT
FULTON, MISSOURI

DOCKET NO. 50-483

ANNUAL REPORT
to the

UNITED STATES NUCLEAR REGULATORY COMMISSION

Radiation Environmental Operating Report

January 1 to December 31, 2007

Prepared by

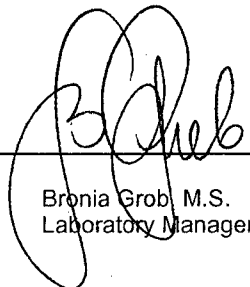
ENVIRONMENTAL, Inc.
Midwest Laboratory

Submitted by

UNION ELECTRIC CO.
dba AmerenUE Corp.

Project No. 8036

Approved : _____



Bronia Grob, M.S.
Laboratory Manager

PREFACE

This Annual Radiological Environmental Operating Report describes the AmerenUE Corp., Callaway Plant Radiological Environmental Monitoring Program (REMP), and the program results for the calendar year 2007. It is submitted in accordance with section 5.6.2 of the Callaway Plant 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 AmerenUE personnel or contractors to AmerenUE and shipped to Environmental, Inc. – Midwest Laboratory and Framatone for analysis.

The report was prepared by Environmental, Inc., Midwest Laboratory for the AmerenUE, Callaway Plant.

TABLE OF CONTENTS

<u>No.</u>		<u>Page</u>
	PREFACE.....	ii
	List of Tables	v
	List of Figures	vi
1.0	INTRODUCTION.....	1
2.0	SUMMARY	2
3.0	ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM	3
3.1	Program Design and Data Interpretation.....	3
3.2	Program Description.....	4
3.3	Program Execution.....	5
3.4	Laboratory Procedures	6
3.5	Program Modifications.....	7
3.6	Detection and Reporting Limits	7
3.7	Land Use Census	7
4.0	RESULTS AND DISCUSSION	8
4.1	Atmospheric Nuclear Detonations and Nuclear Accidents.....	8
4.2	Program Findings	8
5.0	TABLES AND FIGURES	12
6.0	REFERENCES CITED	32

APPENDICES

A	Interlaboratory Comparison Program Results.....	A-1
B	Data Reporting Conventions	B-1
C	Effluent Concentration Limits for Radioactivity in Air and Water Above Background in Unrestricted Areas.....	C-1
D	Non-Radiological Monitoring Program.....	D-1

TABLE OF CONTENTS (continued)

<u>PART II</u>	<u>Page</u>
Data Tabulations and Analyses.....	i

LIST OF TABLES

<u>No.</u>		<u>Page</u>
5.1	Sampling Locations, AmerenUE, Callaway Plant.....	13
5.2	Collection Frequencies and Required Analyses.....	24
5.3	Minimum Required Detection Capabilities for REMP Sample Analysis.....	25
5.4	Results of the Land Use Census.....	26
5.5	Missed Collections and Analyses.....	27
5.6	Radiological Environmental Monitoring Program Summary.....	28

In addition, the following tables are in the Appendices:

Appendix A

A-1	Environmental Resource Associates (substitute program for EPA).....	A1-1
A-2	Interlaboratory Comparison Program Results, Thermoluminescent Dosimeters (TLDs).....	A2-1
A-3	In-house Spiked Samples.....	A3-1
A-4	In-house "Blank" Samples.....	A4-1
A-5	In-house "Duplicate" Samples.....	A5-1
A-6	Department of Energy MAPEP comparison results.....	A6-1
A-7	Environmental Resource Associates (substitute program for EML).....	A7-1
	Attachment A: Acceptance criteria for spiked samples.....	A-2

Appendix C

C-1	Effluent Concentration Limits for Radioactivity in Air and Water Above Background in Unrestricted Areas.....	C-2
-----	---	-----

Appendix D

D-1	Introduction.....	D-2
D-2	Unusual or Important Events.....	D-3
D-3	EPP Noncompliances.....	D-3
D-4	Nonroutine Reports.....	D-3
D-2	Plant Design and Operation Environmental Evaluations.....	D-4

LIST OF FIGURES

<u>No.</u>		<u>Page</u>
5.1	Radiological Environmental Monitoring Program, Air Sampling Stations	16
5.2a	Direct Radiation Monitoring Stations, Inner Ring locations	17
5.2b	Direct Radiation Monitoring Stations, Outer Ring and Special Interest locations	18
5.3a	Milk and Edible Vegetation, Near Plant locations	19
5.3b	Milk and Edible Vegetation, Distant locations	20
5.4a	Soil Samples, Near Plant locations	21
5.4b	Soil Samples, Distant locations	22
5.5	Fish, Sediment and Surface Water locations	23

1.0 INTRODUCTION

This report presents an analysis of the results of the Radiological Environmental Monitoring Program (REMP) conducted during 2007 for the AmerenUE Corp., Callaway Plant.

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 Callaway Plant. The radiological environmental monitoring program was initiated in April 1982.

Callaway Plant 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 2007 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 Plant is herein described. Results for the year 2007 are summarized and discussed.

For the year, the Callaway Plant was operated in compliance with Off Site Dose Calculation Manual (ODCM) requirements. Comparison of results for 2007 show no significant differences to historical data. Results from the REMP indicate the Callaway Plant 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 Plant 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; and
- (4) Industrial and medical radioactive waste.

In interpreting the data, effects due to operation of the Callaway Plant must be distinguished from those due to other sources.

A major interpretive aid in assessment of these effects is the design of the monitoring program at the Callaway Plant, based on the indicator-control concept. 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.

An additional interpretive technique involves analyses for specific radionuclides present in the environmental samples collected from the Callaway site. 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 calibration monitors and should not be considered radiological impact indicators.

3.1 Program Design and Data Interpretation (continued)

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 Plant 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, direction, and sector relative to the reactor site. The types of samples collected at each location and the frequency of collections are presented in Table 5.2.

To monitor the air environment, airborne particulates and airborne iodine samples are collected by continuous pumping, at five locations. Airborne particulates are collected on glass fiber filters, and analyzed for gross beta activity. Gamma isotopic analysis is performed on any filter exceeding a baseline action limit of 0.037 pCi/m^3 . Airborne iodine is collected through an activated charcoal filter cartridge and analyzed weekly for iodine-131. Filters are changed and counted weekly. Quarterly composites of airborne particulates are analyzed for gamma emitting isotopes.

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

Milk samples are collected semimonthly during the grazing season (typically April through September) and monthly during the winter. The 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.

This 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.

The waterborne pathway is monitored by sampling surface water, ground water and drinking water, and bottom and shoreline sediments.

Monthly composite samples of surface water from the Missouri River are collected from one indicator location (SO2) and from one control location (SO1). The samples are analyzed for gross alpha, gross beta, tritium and gamma-emitting isotopes.

Ground water is collected quarterly from two deep aquifer sampling wells (F05 and F15) and one drinking water well (D01). The samples are analyzed for gross beta, tritium, iodine-131 and gamma emitting isotopes.

3.2 Program Description (continued)

Additional drinking water and ground water sampling has been added to the REMP, as described in Part II, Appendix C.

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.

Another pathway considered is direct ambient gamma radiation. This exposure is monitored by thermoluminescent dosimeters (TLDs), at forty-three locations in and around the Callaway site. The TLDs are placed in 16 sectors around the plant as specified in the ODCM-RECS. Three locations are designated as controls (IDM-26, IDM-27 and IDM-60). The TLDs are placed at each location and are exchanged and analyzed quarterly.

To monitor the terrestrial environment, soil is collected annually from four indicator locations (F2, PR3, F6, and PR7) and one control location (V3). The samples are analyzed for gross alpha, gross beta and gamma-emitting isotopes.

Additional testing of soil and sediment samples are included in Part II, App. C.

3.3 Program Execution

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

(1) Air Particulates / Air Iodine:

No air particulate / air iodine sample was available from location B-3 for the week ending 10-25-07. A fault was traced to the electrical disconnect box.

Partial samples were collected from air sampling stations A-7 (362m³) and A-8 (245m³) for the week ending 12-14-07. The shorter run-times were due to power failures resulting from ice storms in the area.

(2) Surface Water:

Corrective action reports were written concerning the high failure rate of the Portland River samplers at stations S-01 and S-02.

The electronic controls for the sampler at Station S01 were inoperable for 112 days during 2007 (69% operable). Due to the age of the unit, the manufacturer could not provide repairs. A new unit was custom fabricated and the sampler was restored. There were no other outages on S01 during 2007. Daily manual grab sampling was performed during the outage period. The events are documented in plant corrective action reports.

Station S02 was inoperable for 43 days during 2007 (88% operable). The downtimes were due to pump failure caused by freezing of the Missouri River, loss of electrical power and a piping leak. The events are documented in plant corrective action reports.

3.3 Program Execution (continued)

(3) Milk:

Milk was not available from location M-08 for the October and December, 2007 collections. The cow died and the sample provider has dropped out of the program.

(4) Direct Radiation:

TLDs for locations 18A and 30A were missing for the second quarter, 2007. Vandalism is suspected. Both TLDs and holders were missing from the assigned location. The TLDs were replaced for the third quarter.

(5) Fish:

The fish sample collection for Spring, 2007 was delayed due to flood conditions on the Missouri River.

3.4 Laboratory Procedures

The iodine-131 analyses in milk were made using a sensitive radiochemical procedure involving separation of the iodine using an ion-exchange method, 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 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, 2003). 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 Framatome. The laboratory meets the requirements of Reg. Guide 4.13 and is accredited by NVLAP for photon, beta and photon/beta mixture categories, in accordance with ANSI N 13.11.

3.5 Program Modifications

Milk was no longer available from location M-13 for 2007. The cow died and was not replaced.

A new location V-14, Amorine Farm was added to the program.

In response to the nationwide Groundwater Protection Initiative, drinking well water samples from neighboring land owners and groundwater wells, both onsite and at locations along the discharge pipeline, were added to the permanent program.

A large number of supplemental samples were taken in response to the nationwide Groundwater Protection Initiative. These samples are not considered part of the permanent program.

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 2007, the survey was expanded from a five mile radius to a six mile canvassing radius of the Callaway Plant. The location of the nearest resident, milking animal, and garden greater than 50 square meters was identified by contacting residents by phone and/or in field surveys for each of the sixteen meteorological sectors using the midpoint of the two units.

The Land Use Census was completed on October 25, 2007. The results of the census are presented in Table 5.4. The table includes radial direction and distance from the Callaway Plant for each location. These parameters were determined using a combination of map position, aerial photography, and Global Positioning System (GPS) receiver.

Missouri river water intake, within 10 river miles downstream of the plant, is checked, and new construction identified. No new water intake was developed in 2007.

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 2006 is contained in Part II of the Annual Report on the Radiological Environmental Monitoring Program for the Callaway Plant.

4.1 Atmospheric Nuclear Detonations and Nuclear Accidents

There were no reported nuclear accidents or atmospheric nuclear testing done in 2007.

4.2 Program Findings

Results obtained show background levels of radioactivity in the environmental samples collected in 2007.

Airborne Particulates

All five air particulate sampling locations are considered indicators. One station is located at the community with the highest D/Q, another on the outskirts of Fulton, Missouri.

The average annual gross beta concentrations in airborne particulates averaged (0.024 pCi/m³) and ranged from 0.011 to 0.056 pCi/m³, similar to levels observed from 1998 through 2006. Averages are tabulated below.

Year	Average (pCi/m ³)	Minimum	Maximum
1998	0.023	0.006	0.058
1999	0.025	0.008	0.048
2000	0.030	0.012	0.085
2001	0.023	0.006	0.054
2002	0.024	0.010	0.043
2003	0.023	0.009	0.041
2004	0.021	0.010	0.049
2005	0.024	0.005	0.052
2006	0.023	0.010	0.039
2007	0.024	0.011	0.056

Average annual gross beta concentrations in airborne particulates.

4.2 Program Findings (continued)

Airborne Particulates

During 2007, there were eighteen weekly samples with gross beta activities above the base line action level of 0.037 pCi/m³. Gamma spectral analysis was performed on these filters and no gamma emitting isotopes of plant origin were detected.

Gamma spectroscopic analysis of quarterly composites of air particulate filters yielded similar results for indicator and control locations. Beryllium-7, which is produced continuously in the upper atmosphere by cosmic radiation, was detected in all samples, with an average activity of 0.082 pCi/m³. All other gamma-emitting isotopes were below their respective LLD limits.

Airborne Iodine

Weekly levels of airborne iodine-131 were below the lower limit of detection (LLD) of 0.07 pCi/m³ in all samples.

Direct Radiation (TLDs)

Forty-three TLDs were placed in 16 sectors around the Callaway site. Measurements from the forty indicator locations averaged 16.1 mrem /quarter. The three control locations averaged 15.0 mrem/quarter. The readings ranged from 10.4 to 18.7 mrem /quarter, with the highest readings from location CA-IDM-11A, with an average of 17.5 mrem /quarter. The differences are statistically insignificant.

The TLD readings are consistent with previously accumulated data and no effects from plant operation were identified.

Milk

Iodine-131 results were below the detection limit of 0.5 pCi/L in all samples.

No gamma-emitting isotopes, except naturally occurring potassium-40, were detected in any milk samples. This is consistent with the finding of the National Center for Radiological Health that most radiocontaminants in feed do not find their way into milk due to the selective metabolism of the cow. The common exceptions are radioisotopes of potassium, cesium, strontium, barium, and iodine (National Center for Radiological Health, 1968).

In summary, milk data for 2007 show no radiological effects of plant operation.

4.2 Program Findings (continued)

Vegetation

Iodine-131 concentrations in broadleaf vegetation were below the LLD level of 42.9 pCi/kg wet weight in all samples.

Except for potassium-40, which was observed in all vegetation samples, all other gamma-emitting isotopes were below detection limits. No effect from plant operation is indicated.

Fish

All gamma-emitting isotopes, except naturally-occurring potassium-40, in edible portions were below detection limits. The potassium-40 levels were similar at both indicator and control locations (3,012 and 2,769 pCi/kg wet, respectively).

No plant effect on the fish population is indicated.

Soil

Cesium-137 activity was detected at both indicator and control locations, at average concentrations of 550 and 250 pCi/kg dry, respectively. The cesium-137 activity is similar to or less than levels observed from 1998 through 2006, these levels are generally attributable to deposition of fallout from previous decades.

Naturally-occurring potassium-40 averaged 11,927 pCi/kg dry weight.

Analysis results for soil samples in 2007 were consistent with previously accumulated data and no plant operational effects were identified.

Soil samples listed in Part II, Table C-6, are boring samples from various locations along the discharge pipeline. The results are discussed in Part II, Appendix D. (Terracon Consultants, Inc.)

The drum samples shown in Part II, Table C-6, are drums of soil taken from the bottom of the manholes on the discharge pipeline. These drums were subsequently classified as radioactive waste and properly disposed of.

Surface Water

Tritium was the only radionuclide detected in surface water samples collected during 2007. Four of twelve surface water samples, collected at indicator location S02, contained measurable levels of tritium with a mean concentration of 427 pCi/L. The results are less than 2.5% of the reporting limit in surface water and well within regulatory requirements. Tritium results for location S02 are being trended along with monthly liquid H-3 releases and Missouri river flow. The 2007 results are consistent with previous operational levels and there was no significant radiological impact on the health and safety of the public or the environment.

Gamma spectroscopic analysis for surface water samples were consistent with previously accumulated data and no plant operational effects were identified.

Ground and Drinking Water

The annual mean for gross beta activity measured 7.1 pCi/L, ranging from 2.5 to 10.6 pCi/L and similar to levels observed from 1998 through 2006.

Tritium activity measured below the LLD of 174 pCi/L in all samples.

No gamma-emitting isotopes were detected above respective LLDs.

Data for ground water samples were consistent with previously accumulated data and no plant operational effects were identified.

Sediments

Bottom sediments were collected in May and November, 2007, and analyzed for gamma-emitting isotopes. Slight Cs-137 activity was detected from both the control and indicator locations at an average concentration of 55.5 pCi/kg dry weight. Potassium-40 activity ranged from 11,370 – 14,854 pCi/kg dry weight and averaged 13,435 pCi/kg dry weight.

One sample from Pond 21 was analyzed for tritium, strontium-89, strontium-90 and gamma-emitting isotopes. No tritium or strontium activity was measured above detection limits. Cs-137 was detected at a concentration of 19.3 pCi/kg dry weight. Potassium-40 measured 9,693 pCi/kg dry weight.

Shoreline sediments were collected in May and November, 2007, and analyzed for gamma-emitting isotopes. An almost identical distribution of Cs-137 was observed from both the control and indicator locations at an average concentration of 51.0 pCi/kg dry weight. Potassium-40 activity ranged from 12,994 – 15,504 pCi/kg dry weight and averaged 14,536 pCi/kg dry weight.

Potassium-40 is a naturally occurring isotope. The slight cesium-137 activities observed are indicative of the influence of fallout deposition. All other gamma-emitting isotopes were below detection limits. No effect from the plant operation is indicated.

In January, 2007 the discharge point was relocated ~450' downstream and fitted with a jet to increase exit velocity and improve mixing. Station CA-AQS-Y was sampled in May, 2007 to monitor for residual radioactivity at the former discharge point. No activity of plant origin was detected.

Supplemental Samples- Miscellaneous

The samples reported in Table C-8 are soybeans grown on commercial farms which are transited by the discharge pipeline easement. All sample results measured less than the lower limit of detection.

Table C-9 reports the results of samples of air conditioning unit condensate and frost from site freezers. These samples were taken in response to USNRC Regulatory Issue Summary 08-03, "Return/Re-use of Previously Discharged Radioactive Effluents". The ^3H reported in these samples is due to ^3H in the air from the licensed discharge of gaseous effluents.

5.0 TABLES AND FIGURES

Table 5.1. Sampling Locations, continued.

Location Code	Distance / Direction ¹	Description	Sample Types ²
1a	10.8 mi. NW	City of Fulton on Hwy Z, 0.65 mi. East of Business 54, West 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, Utility 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. East of Hwy 94, Kingdom Telephone Company, 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	11.7 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, N side of Belgian Dr., 150 feet East of Hwy CC, Pole No. 06557.	IDM
31a	7.8 mi. SW	City of Mokane, Hwy C and Cty Rd. 400, 0.9 mi. North of Hwy 94, Utility Pole.	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. 06354.	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

Table 5.1. Sampling Locations, continued.

Location Code	Distance / Direction ¹	Description	Sample Types ²
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	1.6 mi. WSW	Hwy CC, 1.0 mi. South of Cty Rd. 459, Utility Pole No. 18769.	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	13.5 mi. SW	Utility Pole No. 43744 just past Tebbetts City sign.	IDM
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 O.	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
D01	5.0 mi. SE	Holzouser Grocery Store/Tavern (Portland, MO).	WWA
F05	0.9 mi. SSE	Offsite Groundwater Monitoring well.	WWA
F15	0.4 mi. NNE	Onsite Groundwater Monitoring well.	WWA
PW1 ⁵	Onsite	Callaway Cafeteria.	WWA

Table 5.1. Sampling Locations, continued.

Location Code	Distance / Direction ¹	Description	Sample Types ²
M6	2.6 mi. NW	Pierce Farm	MLK
M8 ³	18.7 mi. WSW	Kissock Farm, South of New Bloomfield, MO	MLK
V3 ³	15.0 mi. SW	Beazley Farm, West of Tebbetts, MO.	SOL
V9	2.0 mi. WNW	Meehan Farm.	FPL
V11	3.2 mi. NW	Hickman Farm.	FPL
V12 ³	18.7 mi. WSW	Kissock Farm, South of New Bloomfield, MO	FPL
V14 ⁵	3.0 mi. NNE	Amorine Farm, Williamsburg, MO	FPL
A ^{3,4}	4.9 mi. SSE	0.6 River Miles Upstream of Discharge North Bank.	AQS, AQF
C ⁴	4.9 mi. SE	1.0 River Miles Downstream of Discharge North Bank.	AQS, AQF
S01 ³	4.7 mi. SSE	105 feet Upstream of Discharge North Bank.	SWA
S02	4.9 mi. SE	1.1 River Miles Downstream of Discharge North Bank.	SWA
F2	1.64 mi. SW	Callaway Plant Forest Ecology Plot F2.	SOL
F6	1.72 mi. NE	Callaway Plant Forest Ecology Plot F6.	SOL
PR3	1.02 mi. ESE	Callaway Plant Forest Ecology Plot PR3.	SOL
PR7	0.45 mi. NNW	Callaway Plant Forest Ecology Plot PR7.	SOL
W4 ⁵	0.68 mi. SSE	Callaway Plant Wetlands, SW Bank.	SOL
W2 ⁵	0.60 mi. SSE	Callaway Plant Wetlands, Inlet Area.	SOL
W1 ^{3, 5}	0.61 mi. SE	Callaway Plant Wetlands, High Ground.	SOL
W3 ⁵	0.72 mi. SSE	Callaway Plant Wetlands, Discharge Area.	SOL
GWS ⁵	Onsite	Ground Water Sump, Plant East of containment and Spent Fuel Pool Bldg.	WWA
936 ⁵	Onsite	Diesel Fuel Remediation Well, Plant SE of Spent Fuel Pool Bldg.	WWA
937C ⁵	Onsite	Monitoring Well, Plant East of Radwaste Building Drum Storage.	WWA
937D ⁵	Onsite	Monitoring Well, Plant South of Discharge Monitor Tanks.	WWA

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, IDM = TLD, MLK = Milk, SOL = Soil, SWA = Surface Water, WWA = Ground Water.

³ Control Location.

⁴ The fish collection area for location "A" is between 0.6 and 3.0 river miles upstream of the plant discharge on the north bank. Location "C" is sampled between the discharge area and 1.5 miles downstream of the discharge, on the north bank. The expanded collection areas guarantee sufficient habitat to collect the required number of species.

⁵ Additional sampling, not part of REMP program.

Figure 5.1. Radiological Environmental Monitoring Program, Air Sampling Stations

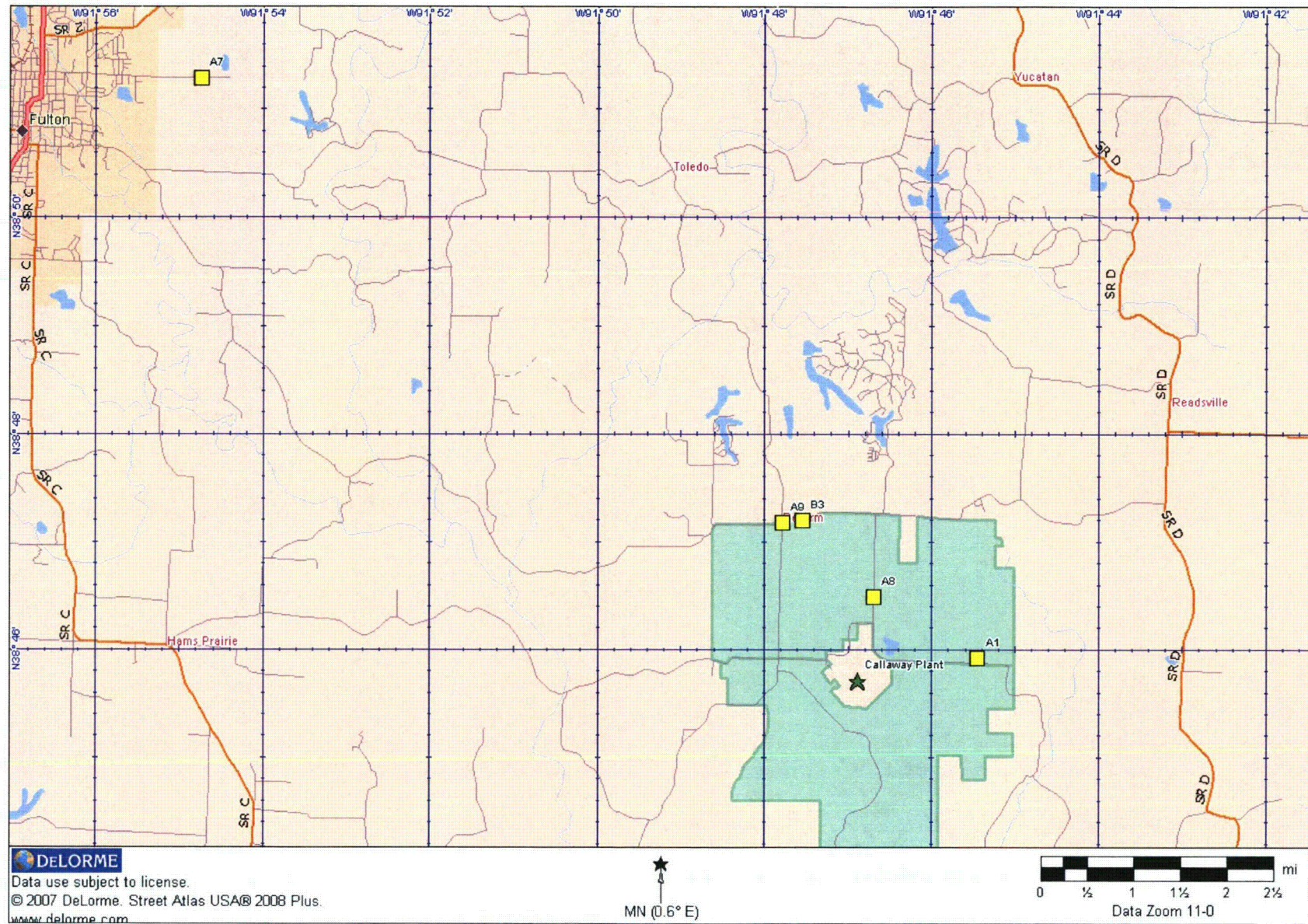


Figure 5.2 Direct Radiation Monitoring Stations, Inner Ring Locations.

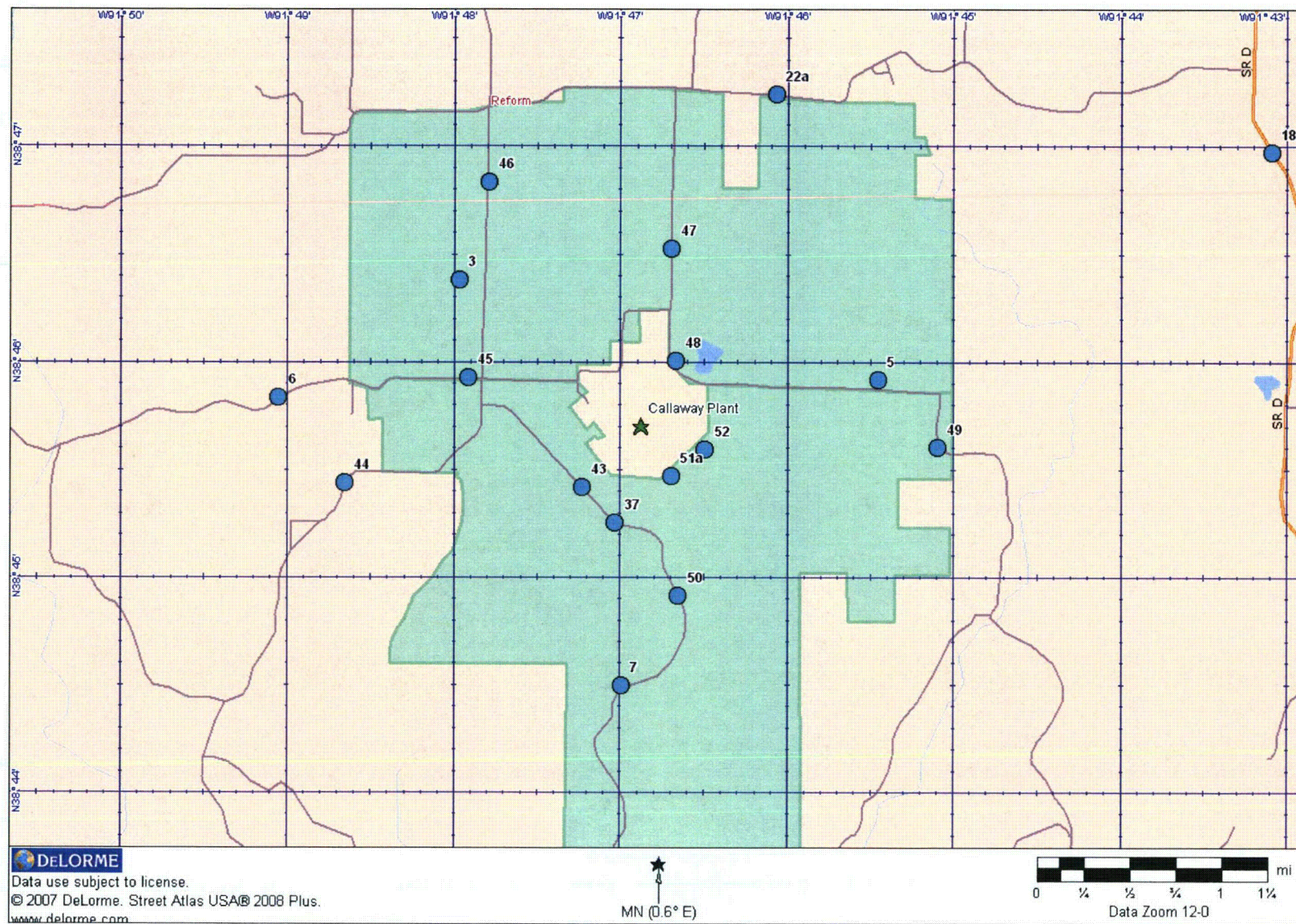


Figure 5.2b. Direct Radiation Monitoring, Outer Ring and Special Interest Locations.

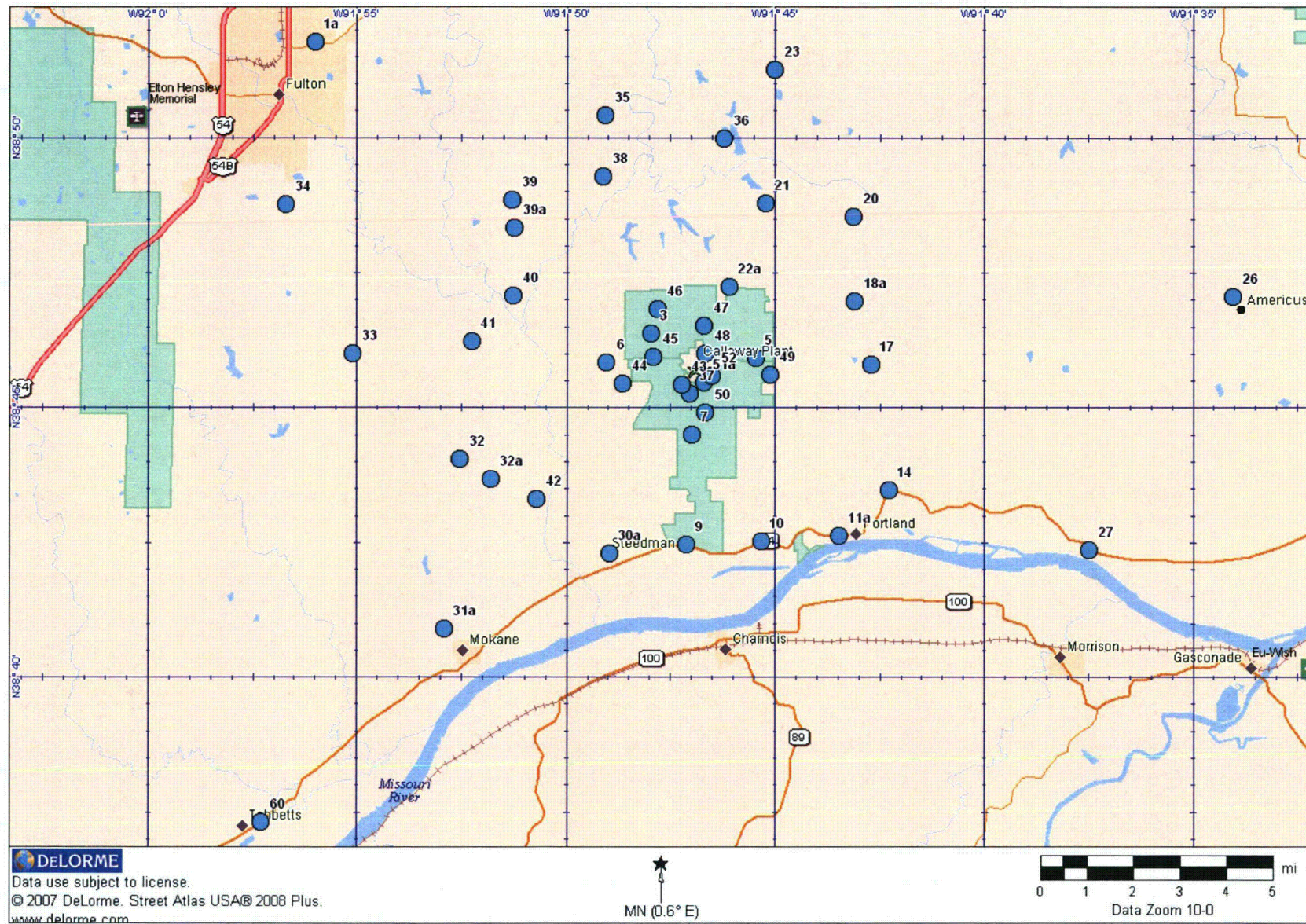


Figure 5.3a. Milk and Edible Vegetation Samples, Near Plant locations.

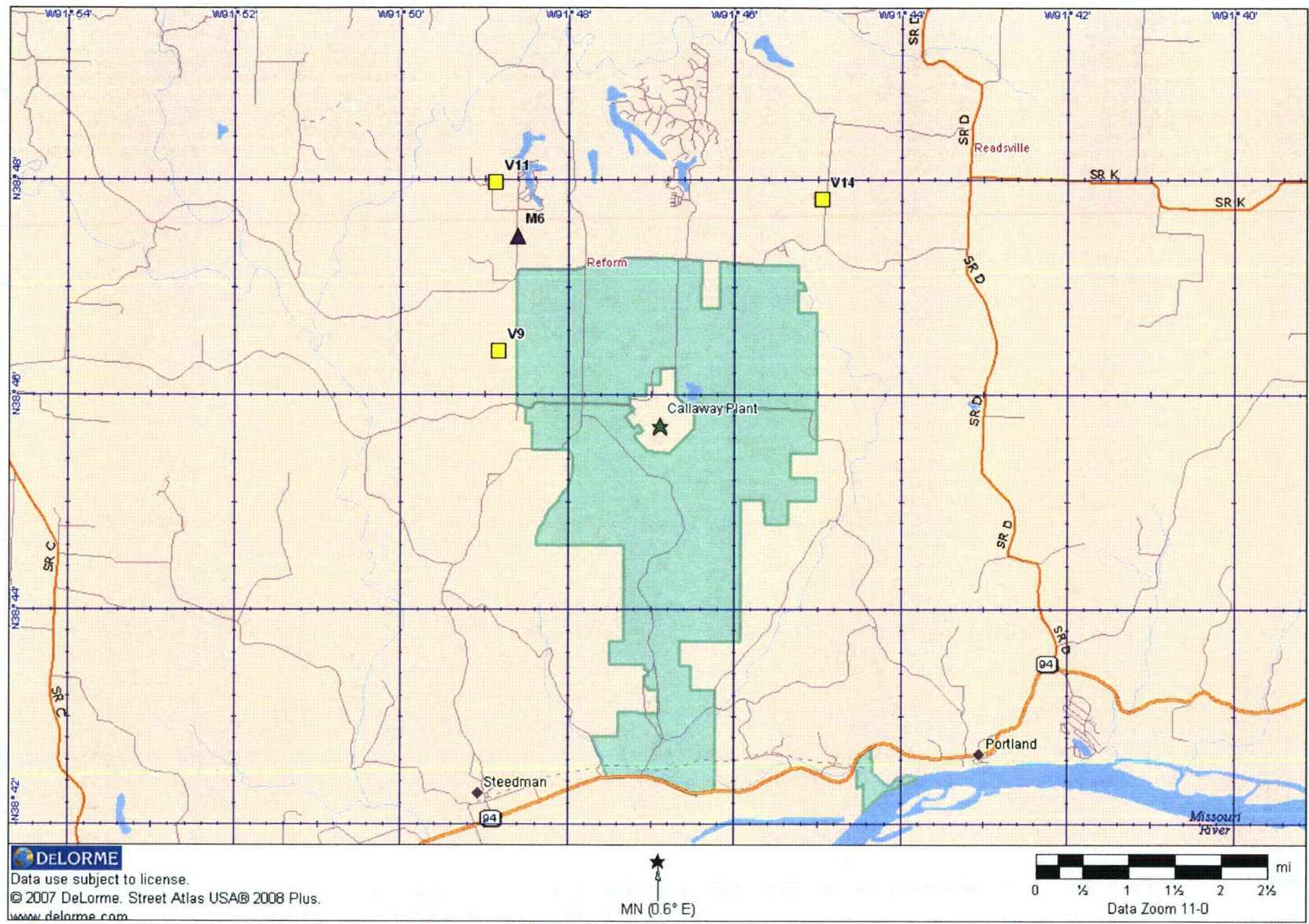


Figure 5.3b. Milk and Edible Vegetation Samples, Distant locations.

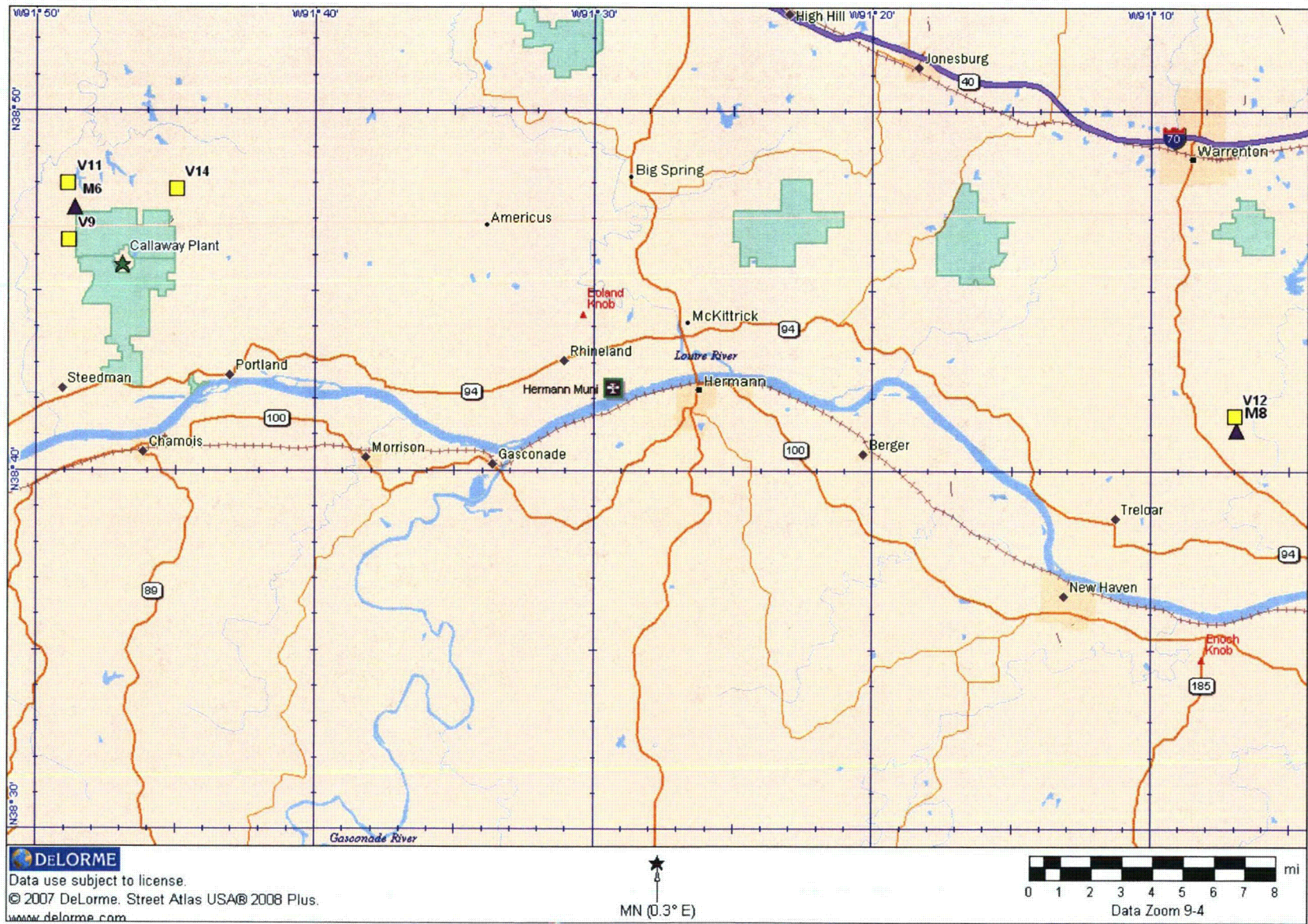


Figure 5.4a. Soil Samples, Near Plant locations.

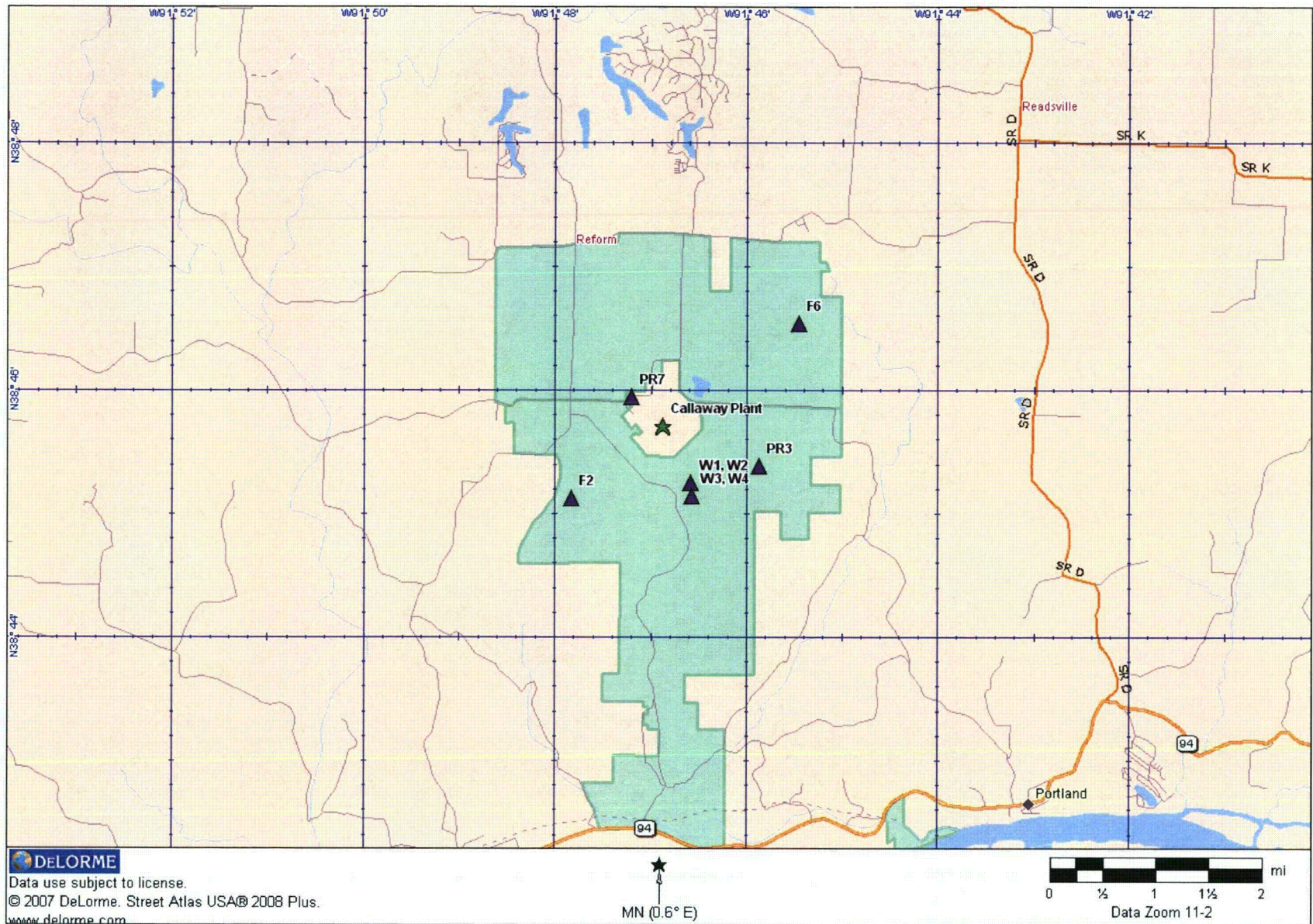


Figure 5.4b. Soil Samples, Distant locations

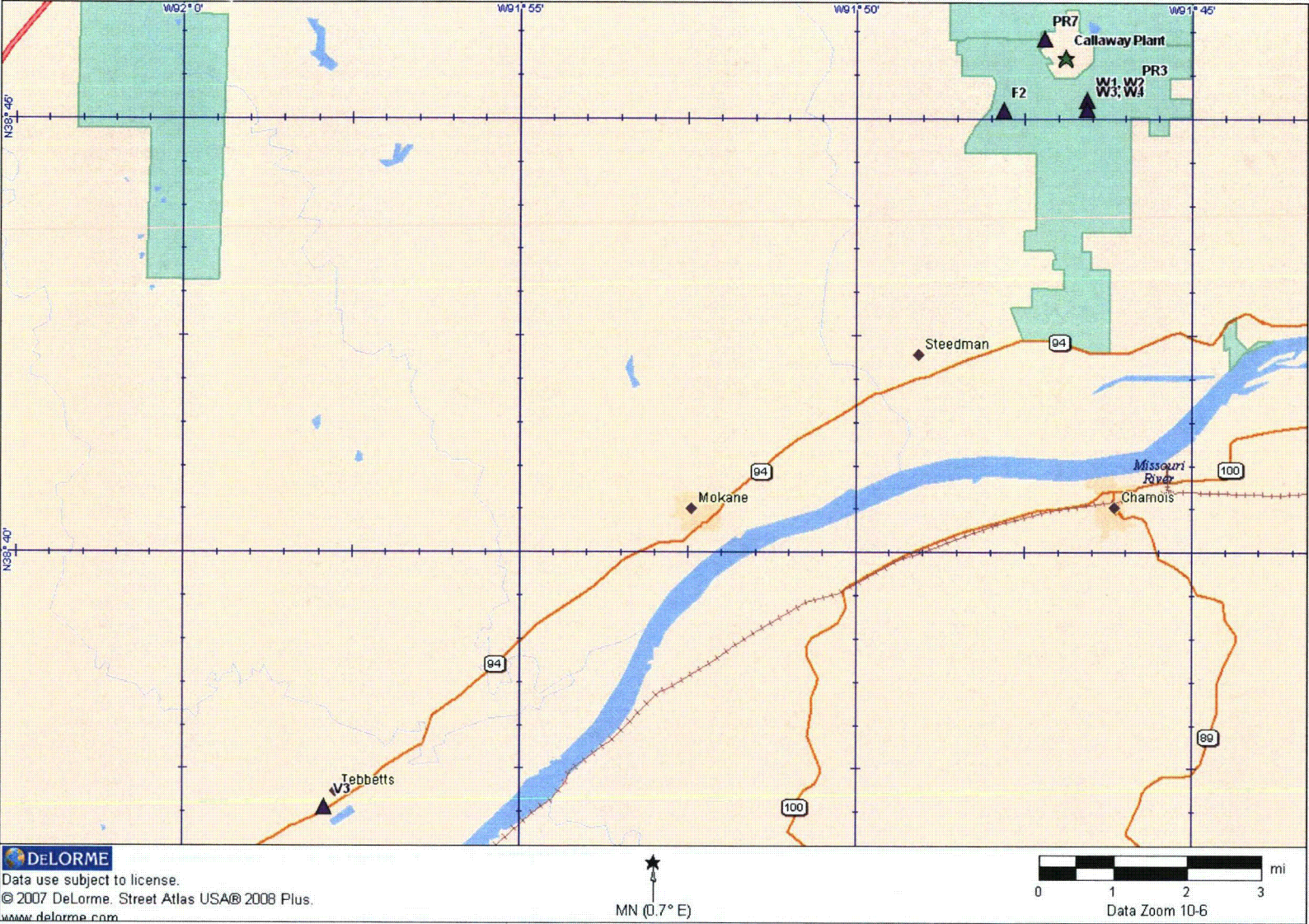


Figure 5.5. Fish, Sediment and Surface Water locations.

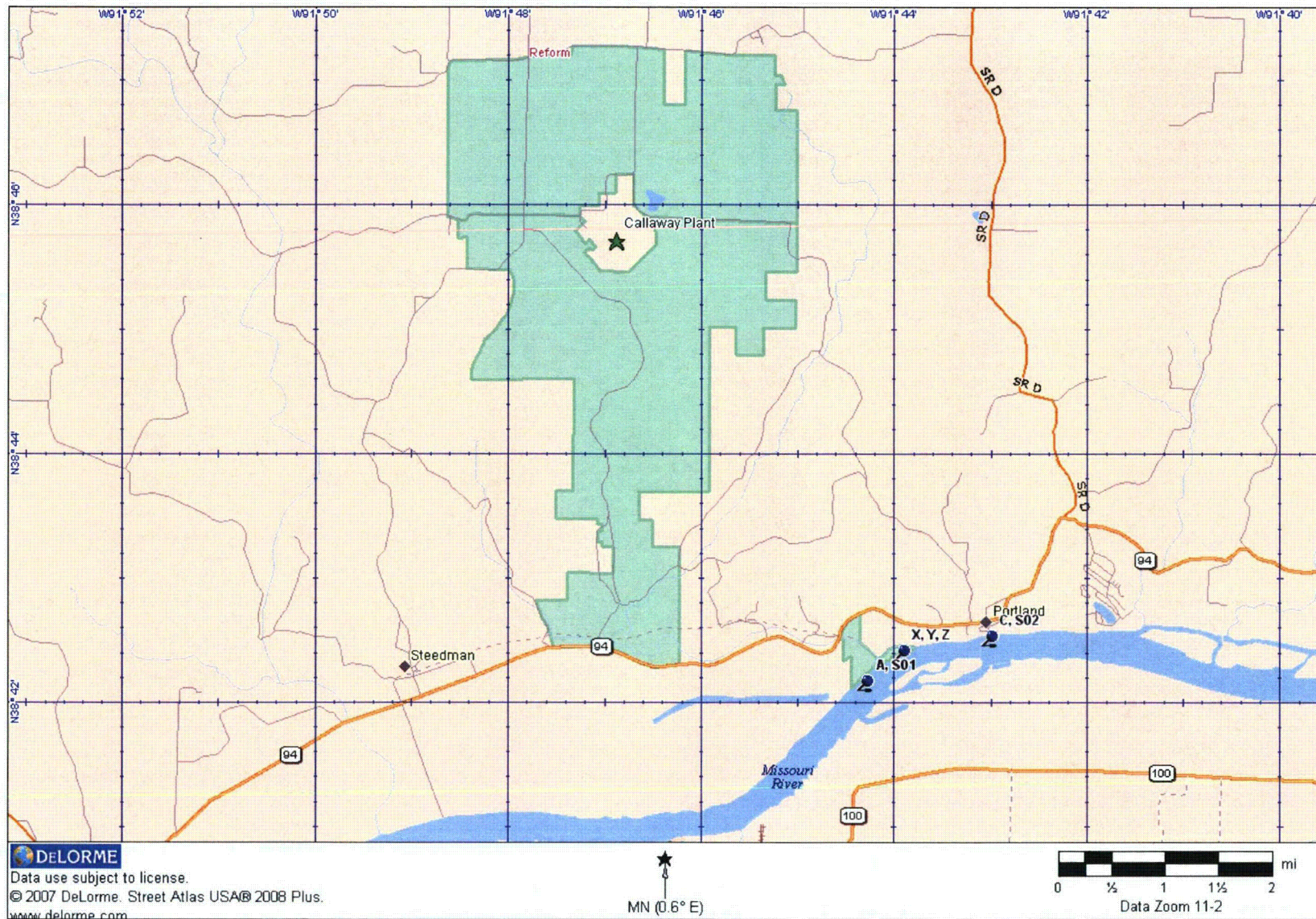


Table 5.2. Collection Frequencies and Required Analyses ¹

Sample Type	Sample Code	Collection Frequency	Required Analysis
Airborne Iodine	AIO	Weekly	I-131
Air Particulate	APT	Weekly	Gr. Beta weekly ² ; Gamma Isotopic of quarterly filter composite.
Fish	AQF	Semiannually	Gamma Isotopic (Bottom sample NPDES requirement)
Sediment (Shoreline and Bottom)	AQS	Semiannually	Gamma Isotopic
Leafy Green Vegetables	FPL	Monthly during the growing season ³	Gr. Alpha, Gr. Beta, I-131 and Gamma Isotopic
TLD	IDM	Quarterly	Gamma Dose
Milk	MLK	Semimonthly, when animals on pasture; monthly otherwise	I-131, and Gamma Isotopic
Soil	SOL	Annually	Gr. Alpha, Gr. Beta and Gamma Isotopic (Continuation of preoperational program)
Surface Water	SWA	Monthly composite	H-3 and Gamma Isotopic
Drinking / Ground Water	WWA	Quarterly Grab	H-3 and Gamma Isotopic

¹ Samples required by ODCM and NPDES permit. Additional sampling is performed as a continuation of the preoperational monitoring program.

² If gross beta activity is greater than the established base line activity level, gamma isotopic analysis is performed on the individual sample.

³ The growing season is defined as the months of May through November; however, the growing season will vary from year to year due to weather conditions.

Table 5.3. Minimum Required Detection Capabilities for REMP Sample Analysis¹

Analysis	Water (pCi/L)	Airborne (pCi/m ³)	Fish (pCi/kg wet)	Milk (pCi/L)	Food Products (pCi/kg wet)	Soil and Sediment (pCi/kg dry)
Gross beta	4	0.01				
H-3	3000/2000 ³					
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	150
Cs-137	18	0.06	150	18	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 2007 Land Use Census Results

Closest Receptor in Miles

Sector	Residence	Garden ¹	Milk ¹
N(A)	2.2	5.6	NI
NNE(B)	2.2	2.4	NI
NE(C)	2.3	4.0	NI
ENE(D)	1.7	2.9	NI
E(E)	3.5	NI	NI
ESE(F)	2.1	4.4	NI
SE(G)	2.2	4.7	NI
SSE(H)	2.5	2.5	3.2*
S(J)	2.7	2.9	NI
SSW(K)	2.4	2.8	NI
SW(L)	2.6	3.1	NI
WSW(M)	1.2	3.2	NI
W(N)	1.6	2.3	4.0
WNW(P)	1.9	1.9	2.4
NW(Q)	2.1	3.2	2.6
NNW(R)	1.8	3.5	NI

¹ NI = None Identified

* Not currently producing milk.

Table 5.5. Missed collections and analyses, Callaway Plant.

Sample Type	Analysis	Location(s)	Collection Date or Period	Comments
APT / AIO	I-131, Gamma	B-3	10-25-07	Electrical disconnect box failure. Disconnect box was repaired.
TLD	Ambient Gamma	CA-IDM-18A	2nd Qtr., 2007	Missing, replaced for third quarter.
TLD	Ambient Gamma	CA-IDM-30A	2nd Qtr., 2007	Missing, replaced for third quarter.
MI	I-131, Gamma	M-8	10-09-07 10-23-07 12-11-07	No milk available; cow died.

Table 5.6 Radiological Environmental Monitoring Program Summary

Sample Type (Units)	Type and Number of Analyses ^a	LLD ^b	Indicator Locations Mean (F) ^c Range ^c	Location with Highest Annual Mean		Control Locations Mean (F) ^c Range ^c	Number Non-Routine Results ^e	
				Location ^d	Mean (F) ^c Range ^c			
Waterborne Pathway								
Surface Water (pCi/L)	GA	24	2.0	4.7 (12/12) (2.3-9.7)	SW-02 4.9 mi. SE	4.7 (12/12) (2.3-9.7)	3.2 (10/12) (2.3-4.0)	0
	GB (TR)	24	1.0	8.2 (12/12) (5.8-9.9)	SW-02 4.9 mi. SE	8.2 (12/12) (5.8-9.9)	7.9 (12/12) (5.8-10.1)	0
	H-3	24	192	427 (4/12) (242-890)	SW-02 4.9 mi. SE	427 (4/12) (242-890)	198 (1/12)	0
	GS	24						
	Mn-54	15		< LLD	-	-	< LLD	0
	Fe-59	30		< LLD	-	-	< LLD	0
	Co-58	15		< LLD	-	-	< LLD	0
	Co-60	15		< LLD	-	-	< LLD	0
	Zn-65	30		< LLD	-	-	< LLD	0
	Zr-Nb-95	15		< LLD	-	-	< LLD	0
	I-131	1000		< LLD	-	-	< LLD	0
	Cs-134	15		< LLD	-	-	< LLD	0
Cs-137	18		< LLD	-	-	< LLD	0	
Ba-La-140	15		< LLD	-	-	< LLD	0	
Ground Water (pCi/L)	GB	12	1.0	7.05 (12/12) (2.5-10.6)	F05, Offsite 0.9 mi. SSE	8.8 (4/4) (5.5-10.6)	None -	0
	H-3	12	174	< LLD	-	-	None	0
	I-131	12	0.5	< LLD	-	-	None	0
	GS	12						
	Mn-54	15		< LLD	-	-	None	0
	Fe-59	30		< LLD	-	-	None	0
	Co-58	15		< LLD	-	-	None	0
	Co-60	15		< LLD	-	-	None	0
	Zn-65	30		< LLD	-	-	None	0
	Zr-Nb-95	15		< LLD	-	-	None	0
	Cs-134	15		< LLD	-	-	None	0
	Cs-137	18		< LLD	-	-	None	0
Ba-La-140	15		< LLD	-	-	None	0	

Table 5.6 Radiological Environmental Monitoring Program Summary

Sample Type (Units)	Type and Number of Analyses ^a	LLD ^b	Indicator Locations Mean (F) ^c Range ^c	Location with Highest Annual Mean		Control Locations Mean (F) ^c Range ^c	Number Non-Routine Results ^e		
				Location ^d	Mean (F) ^c Range ^c				
Waterborne Pathway (continued)									
Sediments (pCi/kgdry)	GS 8	50.0	14023 (4/4) (12740-15504)	CA-AQS-C	14023 (4/4) (12740-15504)	13948 (4/4) (11370-15374)	0		
	K-40			4.9 mi. SE					
	Mn-54			-				< LLD	0
	Fe-59			-				< LLD	0
	Co-58			-				< LLD	0
	Co-60			-				< LLD	0
	Zr-Nb-95			-				< LLD	0
	Cs-134			-				< LLD	0
	Cs-137			CA-AQS-A				53.5 (2/4) (48.8-58.3)	53.5 (2/4) (48.8-58.3)
Ba-La-140	4.9 mi. SSE	< LLD	0						
Direct Radiation									
(Quarterly TLDs) (mR/91days)	Gamma 170	3.0	16.1 (158/158) (11.2-18.5)	CA-IDM-11A 4.7 mi. SE	17.5 (4/4) (15.7-18.5)	15.0 (12/12) (10.4-18.7)	0		
Airborne Pathway									
Airborne Particulates (pCi/m ³)	GB 264	0.002	0.024 (264/264) (0.011-0.056)	A-1, Met Tower	0.025 (53/53) (0.015-0.050)	None	0		
	GS 20			1.3 mi. ENE					
	Be-7			A-8, Cty. Rd. 448				0.087 (4/4) (0.058-0.117)	0
	Co-58			0.9 mi. NNE				-	0
	Co-60			-				-	0
	Zr-Nb-95			-				-	0
	Cs-134			-				-	0
	Cs-137			-				-	0
	Ba-La-140			-				-	0
Ce-144	-	-	0						
Airborne Iodine (pCi/m ³)	I-131 264	0.07	< LLD	-	-	< LLD	0		

Table 5.6 Radiological Environmental Monitoring Program Summary

Sample Type (Units)	Type and Number of Analyses ^a		LLD ^b	Indicator Locations Mean (F) ^c Range ^c	Location with Highest Annual Mean		Control Locations Mean (F) ^c Range ^c	Number Non-Routine Results ^e
					Location ^d	Mean (F) ^c Range ^c		
Ingestion Pathway								
Vegetation (pCi/kg wet)	GA	44	158	226 (9/38) (159-491)	V-14, 3.0 mi. NNE	311 (5/6) (214-491)	192 (3/6) (182-198)	0
	GB	44	50	5361 (38/38) (2511-9949)	V-12, 18.7 mi. WSW	5613 (6/6) (3846-8440)	5613 (6/6) (3846-8119)	0
	GS K-40	44	100	4809 (38/38) (1688-7693)	V-9, 2.0 mi. WNW	5431 (17/17) (3805-7693)	4725 (6/6) (3543-8119)	0
	Mn-54		20.6	< LLD	-	-	< LLD	0
	Co-58		24.5	< LLD	-	-	< LLD	0
	Co-60		27.4	< LLD	-	-	< LLD	0
	I-131		42.9	< LLD	-	-	< LLD	0
	Cs-134		22.4	< LLD	-	-	< LLD	0
	Cs-137		21.7	< LLD	-	-	< LLD	0
Fish (Flesh) (pCi/kg wet)	GS K-40	18	100	3012 (9/9) (2307-3630)	CA-AQF-C 4.9 mi. SE	3012 (9/9) (2307-3630)	2769 (9/9) (2546-2940)	0
	Mn-54		24.9	< LLD	-	-		0
	Fe-59		68.8	< LLD	-	-		0
	Co-58		24.6	< LLD	-	-		0
	Co-60		22.0	< LLD	-	-		0
	Zn-65		31.5	< LLD	-	-		0
	Cs-134		20.8	< LLD	-	-		0
	Cs-137		23.3	< LLD	-	-		0
Milk (pCi/L)	I-131	35	1.0	< LLD	-	-	< LLD	0
	GS K-40	35	100	1232 (19/19) (1002-1396)	M-8 (C) 18.7 mi. S	1261 (16/16) (1100-1685)	1261 (16/16) (1100-1685)	0
	Cs-134		15	< LLD	-	-	< LLD	0
	Cs-137		18	< LLD	-	-	< LLD	0
	Ba-140		60	< LLD	-	-	< LLD	0
	La-140		15	< LLD	-	-	< LLD	0

Table 5.6 Radiological Environmental Monitoring Program Summary

Sample Type (Units)	Type and Number of Analyses ^a	LLD ^b	Indicator Locations Mean (F) ^c Range ^c	Location with Highest Annual Mean		Control Locations Mean (F) ^c Range ^c	Number Non-Routine Results ^e
				Location ^d	Mean (F) ^c Range ^c		
Soil							
Soil (pCi/kg dry)	GA 10	1.0	15252 (8/8) (10431-18834)	F-006 1.72 mi. NE	17430 (2/2) (16025-18834)	10382 (2/2) (10382-16657)	0
	GB 10	2.0	29468 (10/10) (25828-33685)	V-003 0.12 mi. N	32758 (2/2) (30761-34755)	32758 (2/2) (30761-34755)	0
	GS K-40 10	50.0	11080 (8/8) (10089-12313)	V-003 0.12 mi. N	15262 (2/2) (15239-15285)	15262 (2/2) (15239-15285)	0
	Mn-54	32.9	< LLD	-	-	< LLD	0
	Fe-59	73.4	< LLD	-	-	< LLD	0
	Co-58	28.5	< LLD	-	-	< LLD	0
	Co-60	17.5	< LLD	-	-	< LLD	0
	Zr-Nb-95	61.1	< LLD	-	-	< LLD	0
	Cs-134	28.2	< LLD	-	-	< LLD	0
	Cs-137	55.2	550 (8/8) (298-797)	F-002 1.64 mi. SW	750 (2/2) (703-797)	250 (2/2) (241-258)	0
Ba-La-140	102.2	< LLD	-	-	< LLD	0	

^a GA = gross alpha, GB = gross beta, GS = gamma spectroscopy, SS = suspended solids, DS = dissolved solids, TR = total residue.

^b LLD = nominal lower limit of detection based on a 4.66 sigma counting error for background sample.

^c Mean and range are based on detectable measurements only (i.e., >LLD) Fraction of detectable measurements at specified locations is indicated in parentheses (F).

^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.

6.0 REFERENCES

Arnold, J. R. and H. A. Al-Salih. 1955. Beryllium-7 Produced by Cosmic Rays. Science 121: 451-453.

Eisenbud, M. 1963. Environmental Radioactivity, McGraw-Hill, New York, New York, pp. 213, 275-276.

Environmental, Inc., Midwest Laboratory. 2001 - 2007. Environmental Radiological Monitoring Program for the Callaway Plant, Annual Report - Part II, Data Tabulations and Analyses, January - December, 2000 - 2006.

_____ 2003. Quality Assurance Program Manual, Rev. 1, 21 October 2003.

_____ 2005. Quality Control Procedures Manual, Rev. 1, 17 September 2005.

_____ 2003. Quality Control Program, Rev. 1, 21 August 2003.

Gold, S., H. W. Barkhau, B. Shlein, and B. Kahn, 1964. Measurement of Naturally Occurring Radionuclides in Air, in the Natural Environment, University of Chicago Press, Chicago, Illinois, 369-382.

National Center for Radiological Health, 1968. Radiological Health and Data Reports, Vol. 9, Number 12, 730-746.

Teledyne Brown Engineering Environmental Services, Midwest Laboratory. 1999 - 2000. Environmental Radiological Monitoring Program for the Callaway Plant, Annual Report - Part II, Data Tabulations and Analyses, January - December, 1998 - 1999.

U.S. Environmental Protection Agency, 2007. RadNet, formerly Environmental Radiation Ambient Monitoring System, Gross Beta in Air (MO) 1981 - 2006, Gross Beta in Drinking Water (MO) 1982- 2004.

Wilson, D. W., G. M. Ward and J. E. Johnson. 1969. In Environmental Contamination by Radioactive Materials, International Atomic Energy Agency. p.125.



700 Landwehr Road • Northbrook, IL 60062-2310
ph. (847) 564-0700 • fax (847) 564-4517

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 through December, 2007

Appendix A

Interlaboratory Comparison Program Results

Environmental, Inc., Midwest Laboratory has participated in interlaboratory comparison (crosscheck) programs since the formulation of its 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.

The results in Table A-2 list results for thermoluminescent dosimeters (TLDs), via International Intercomparison of Environmental Dosimeters, when available, and internal laboratory testing.

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 acceptance criteria for "spiked" samples.

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	± 1σ = 169.85 x (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	6.0 pCi/liter 10% of known value
Uranium-238, Nickel-63 ^b Technetium-99 ^b	≤ 35 pCi/liter > 35 pCi/liter	6.0 pCi/liter 15% of known value
Iron-55 ^b	50 to 100 pCi/liter > 100 pCi/liter	10 pCi/liter 10% of known value
Others ^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)			Acceptance
			Laboratory Result ^b	ERA Result ^c	Control Limits	
STW-1121	04/09/07	Sr-89	30.7 ± 4.3	35.4	26.7 - 44.1	Pass
STW-1121	04/09/07	Sr-90	39.3 ± 1.8	42.1	33.4 - 50.8	Pass
STW-1122	04/09/07	Ba-133	30.0 ± 2.4	29.3	20.6 - 38.0	Pass
STW-1122	04/09/07	Co-60	118.5 ± 3.9	119.0	109.0 - 129.0	Pass
STW-1122	04/09/07	Cs-134	52.6 ± 2.3	54.3	45.6 - 63.0	Pass
STW-1122	04/09/07	Cs-137	49.5 ± 3.8	50.3	41.6 - 59.0	Pass
STW-1122	04/09/07	Zn-65	91.7 ± 6.3	88.6	73.3 - 104.0	Pass
STW-1123	04/09/07	Gr. Alpha	33.8 ± 3.5	56.5	32.0 - 81.0	Pass
STW-1123	04/09/07	Gr. Beta	24.2 ± 2.3	25.3	16.6 - 34.0	Pass
STW-1124	04/09/07	I-131	19.2 ± 1.2	18.9	13.7 - 24.1	Pass
STW-1125	04/09/07	H-3	7540.0 ± 255.0	8060.0	6660.0 - 9450.0	Pass
STW-1125	04/09/07	Ra-226	13.0 ± 0.6	13.4	9.9 - 16.9	Pass
STW-1125	04/09/07	Ra-228	19.9 ± 2.7	18.2	10.3 - 26.1	Pass
STW-1125	04/09/07	Uranium	4.5 ± 0.2	4.6	0.0 - 9.8	Pass
STW-1127	07/09/07	Sr-89	51.7 ± 5.0	58.2	49.5 - 66.9	Pass
STW-1127	07/09/07	Sr-90	21.4 ± 2.3	19.0	10.3 - 27.7	Pass
STW-1128	07/09/07	Ba-133	19.4 ± 2.2	19.4	10.7 - 28.1	Pass
STW-1128	07/09/07	Co-60	32.8 ± 2.0	33.5	24.8 - 42.2	Pass
STW-1128	07/09/07	Cs-134	67.0 ± 2.9	68.9	60.2 - 77.6	Pass
STW-1128	07/09/07	Cs-137	61.6 ± 3.8	61.3	52.6 - 70.0	Pass
STW-1128	07/09/07	Zn-65	55.6 ± 7.5	54.6	45.2 - 64.0	Pass
STW-1129	07/09/07	Gr. Alpha	19.2 ± 1.6	27.1	15.4 - 38.8	Pass
STW-1129	07/09/07	Gr. Beta	9.1 ± 0.9	11.5	2.8 - 20.2	Pass
STW-1130	07/09/07	Ra-226	7.0 ± 0.5	7.7	5.7 - 9.7	Pass
STW-1130	07/09/07	Ra-228	9.2 ± 2.3	9.1	5.2 - 13.1	Pass
STW-1130	07/09/07	Uranium	23.9 ± 1.1	25.1	19.9 - 30.3	Pass
STW-1131	10/05/07	Sr-89	27.3 ± 3.3	27.4	19.3 - 33.9	Pass
STW-1131	10/05/07	Sr-90	17.7 ± 1.2	18.2	12.9 - 21.6	Pass
STW-1132	10/05/07	Ba-133	12.2 ± 3.3	12.6	8.6 - 15.5	Pass
STW-1132	10/05/07	Co-60	23.8 ± 1.4	23.2	19.9 - 28.3	Pass
STW-1132	10/05/07	Cs-134	70.5 ± 4.2	71.1	58.0 - 78.2	Pass
STW-1132	10/05/07	Cs-137	178.2 ± 3.3	180.0	162.0 - 200.0	Pass
STW-1132	10/05/07	Zn-65	263.9 ± 6.9	251.0	226.0 - 294.0	Pass
STW-1133	10/05/07	Gr. Alpha	54.7 ± 2.1	58.6	30.6 - 72.9	Pass
STW-1133	10/05/07	Gr. Beta	11.9 ± 0.9	9.7	4.3 - 18.2	Pass
STW-1134	10/05/07	I-131	33.0 ± 1.5	28.9	24.0 - 33.8	Pass
STW-1135	10/05/07	H-3	9965.0 ± 250.0	9700.0	8430.0 - 10700.0	Pass
STW-1135	10/05/07	Ra-226	12.7 ± 0.2	12.9	9.6 - 14.9	Pass
STW-1135	10/05/07	Ra-228	19.6 ± 2.4	17.9	12.0 - 21.5	Pass
STW-1135	10/05/07	Uranium	27.3 ± 1.1	27.5	22.1 - 30.8	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.

TABLE A-2. Crosscheck program results; Thermoluminescent Dosimetry, (TLD, CaSO₄: Dy Cards).

Lab Code	Date	Description	Known Value	mR		Control Limits	Acceptance
				Lab Result	± 2 sigma		
<u>Environmental, Inc.</u>							
2007-1	7/13/2007	30 cm.	54.25	60.56 ± 5.54		37.98 - 70.53	Pass
2007-1	7/13/2007	40 cm.	30.51	34.23 ± 0.96		21.36 - 39.66	Pass
2007-1	7/13/2007	50 cm.	19.53	17.95 ± 1.86		13.67 - 25.39	Pass
2007-1	7/13/2007	60 cm.	13.56	16.61 ± 0.60		9.49 - 17.63	Pass
2007-1	7/13/2007	70 cm.	9.96	9.72 ± 0.90		6.97 - 12.95	Pass
2007-1	7/13/2007	80 cm.	7.63	7.79 ± 0.33		5.34 - 9.92	Pass
2007-1	7/13/2007	90 cm.	6.03	5.53 ± 0.72		4.22 - 7.84	Pass
2007-1	7/13/2007	100 cm.	4.88	5.32 ± 0.17		3.42 - 6.34	Pass
2007-1	7/13/2007	110 cm.	4.03	3.49 ± 0.14		2.82 - 5.24	Pass
2007-1	7/13/2007	120 cm.	3.39	2.64 ± 0.14		2.37 - 4.41	Pass
2007-1	7/13/2007	150 cm.	2.17	2.13 ± 0.87		1.52 - 2.82	Pass
<u>Environmental, Inc.</u>							
2007-2	11/12/2007	30 cm.	54.37	65.47 ± 5.25		38.06 - 70.68	Pass
2007-2	11/12/2007	40 cm.	30.59	37.43 ± 2.18		21.41 - 39.77	Pass
2007-2	11/12/2007	60 cm.	13.59	15.18 ± 0.50		9.51 - 17.67	Pass
2007-2	11/12/2007	70 cm.	9.99	12.18 ± 0.46		6.99 - 12.99	Pass
2007-2	11/12/2007	80 cm.	7.65	8.74 ± 0.39		5.36 - 9.95	Pass
2007-2	11/12/2007	90 cm.	6.04	5.89 ± 0.25		4.23 - 7.85	Pass
2007-2	11/12/2007	110 cm.	4.04	4.13 ± 0.41		2.83 - 5.25	Pass
2007-2	11/12/2007	120 cm.	3.4	2.92 ± 0.13		2.38 - 4.42	Pass
2007-2	11/12/2007	120 cm.	3.4	2.91 ± 0.31		2.38 - 4.42	Pass
2007-2	11/12/2007	150 cm.	2.17	1.95 ± 0.72		1.52 - 2.82	Pass
2007-2	11/12/2007	180 cm.	1.51	1.38 ± 0.05		1.06 - 1.96	Pass

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

Lab Code ^b	Date	Analysis	Concentration (pCi/L) ^a			Acceptance
			Laboratory results 2s, n=1 ^c	Known Activity	Control Limits ^d	
W-30707	3/7/2007	Gr. Alpha	19.51 ± 0.40	20.08	10.04 - 30.12	Pass
W-30707	3/7/2007	Gr. Beta	67.45 ± 0.49	65.73	55.73 - 75.73	Pass
SPAP-1566	3/23/2007	Cs-134	25.35 ± 1.31	27.82	17.82 - 37.82	Pass
SPAP-1566	3/23/2007	Cs-137	107.52 ± 3.02	116.48	104.83 - 128.13	Pass
SPW-1568	3/23/2007	H-3	65595.00 ± 672.00	71118.00	56894.40 - 85341.60	Pass
SPW-1678	3/28/2007	Tc-99	28.44 ± 1.12	32.35	20.35 - 44.35	Pass
SPW-1595	4/5/2007	Cs-134	54.48 ± 2.12	54.99	44.99 - 64.99	Pass
SPW-1595	4/5/2007	Cs-137	59.03 ± 2.94	58.19	48.19 - 68.19	Pass
SPW-1595	4/5/2007	I-131(G)	83.11 ± 3.51	82.07	72.07 - 92.07	Pass
SPW-1595A	4/5/2007	I-131	78.40 ± 1.10	82.07	65.66 - 98.48	Pass
SPW-1595B	4/5/2007	I-131	78.97 ± 1.10	82.07	65.66 - 98.48	Pass
SPMI-1597	4/5/2007	Cs-134	54.03 ± 2.15	54.99	44.99 - 64.99	Pass
SPMI-1597	4/5/2007	Cs-137	59.81 ± 4.75	58.19	48.19 - 68.19	Pass
SPMI-1597	4/5/2007	I-131(G)	83.97 ± 4.07	82.07	72.07 - 92.07	Pass
SPMI-1597A	4/5/2007	I-131	79.53 ± 1.03	82.07	65.66 - 98.48	Pass
SPMI-1597B	4/5/2007	I-131	83.51 ± 1.05	82.07	65.66 - 98.48	Pass
SPCH-2839	5/17/2007	I-131(G)	78.70 ± 7.36	70.40	60.40 - 80.40	Pass
SPW-2847	5/17/2007	Cs-134	55.43 ± 1.68	52.85	42.85 - 62.85	Pass
SPW-2847	5/17/2007	Cs-137	59.86 ± 2.71	58.03	48.03 - 68.03	Pass
SPW-2847	5/17/2007	I-131(G)	63.95 ± 2.69	70.87	60.87 - 80.87	Pass
SPMI-2849	5/17/2007	Cs-134	51.37 ± 1.65	52.85	42.85 - 62.85	Pass
SPMI-2849	5/17/2007	Cs-137	60.42 ± 4.31	58.03	48.03 - 68.03	Pass
SPMI-2849	5/17/2007	I-131(G)	62.44 ± 3.14	70.87	60.87 - 80.87	Pass
SPCH-2922	5/17/2007	I-131(G)	80.00 ± 6.40	70.40	41.60 - 99.20	Pass
SPW-2847	5/18/2007	I-131	60.14 ± 0.89	70.87	56.70 - 85.04	Pass
SPW-2847	5/18/2007	Sr-89	104.93 ± 6.64	121.90	97.52 - 146.28	Pass
SPW-2847	5/18/2007	Sr-89	46.72 ± 1.97	46.08	36.08 - 56.08	Pass
SPMI-2849	5/18/2007	I-131	67.97 ± 0.88	70.87	56.70 - 85.04	Pass
SPW-2909 ^e	5/22/2007	Fe-55	11137.00 ± 316.00	14271.50	11417.20 - 17125.80	Fail
SPW-2911	5/22/2007	H-3	65023.00 ± 679.00	70485.00	56388.00 - 84582.00	Pass
SPAP-2913	5/22/2007	Gr. Beta	55.27 ± 8.51	52.65	42.12 - 73.71	Pass
SPAP-2915	5/22/2007	Cs-134	22.53 ± 1.12	26.42	16.42 - 36.42	Pass
SPAP-2915	5/22/2007	Cs-137	111.14 ± 3.57	116.06	104.45 - 127.67	Pass
SPF-2922	5/22/2007	Cs-134	0.52 ± 0.03	0.53	0.32 - 0.74	Pass
SPF-2922	5/22/2007	Cs-137	2.58 ± 0.07	2.32	1.39 - 3.25	Pass
SPW-3223	5/24/2007	Ni-63	2233.10 ± 10.32	2135.90	1281.54 - 2990.26	Pass
W-60507	6/5/2007	Gr. Alpha	20.93 ± 0.42	20.08	10.04 - 30.12	Pass
W-60507	6/5/2007	Gr. Beta	60.50 ± 0.46	65.73	55.73 - 75.73	Pass
SPW-4327	7/18/2007	Tc-99	25.58 ± 1.11	32.35	20.35 - 44.35	Pass
SPW-5476	8/17/2007	Ni-63	1925.18 ± 9.62	2135.90	1281.54 - 2990.26	Pass
W-92107	9/21/2007	Gr. Alpha	23.02 ± 0.44	20.08	10.04 - 30.12	Pass
W-92107	9/21/2007	Gr. Beta	61.48 ± 0.47	65.73	55.73 - 75.73	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) ^a			Acceptance
			Laboratory results 2s, n=1 ^b	Known Activity	Control Limits ^c	
SPW-6880	10/10/2007	Tc-99	30.97 ± 1.21	32.35	20.35 - 44.35	Pass
w-111007	11/10/2007	Gr. Alpha	22.43 ± 0.42	20.08	10.04 - 30.12	Pass
w-111007	11/10/2007	Gr. Beta	64.49 ± 0.48	65.73	55.73 - 75.73	Pass
SPAP-7742	11/13/2007	Cs-134	21.18 ± 1.29	22.41	12.41 - 32.41	Pass
SPAP-7742	11/13/2007	Cs-137	113.61 ± 3.16	114.76	103.28 - 126.24	Pass
SPAP-7744	11/13/2007	Gr. Beta	53.41 ± 0.13	52.03	41.62 - 72.84	Pass
SPMI-7746	11/13/2007	Cs-134	42.20 ± 1.48	44.83	34.83 - 54.83	Pass
SPMI-7746	11/13/2007	Cs-137	56.05 ± 2.83	57.40	47.40 - 67.40	Pass
SPMI-7746	11/13/2007	Sr-90	41.02 ± 1.61	45.54	36.43 - 54.65	Pass
SPW-7748	11/13/2007	Cs-134	43.11 ± 1.52	44.80	34.80 - 54.80	Pass
SPW-7748	11/13/2007	Cs-137	59.28 ± 3.50	57.40	47.40 - 67.40	Pass
SPW-7748	11/13/2007	Sr-90	37.23 ± 1.51	45.54	36.43 - 54.65	Pass
SPW-7752	11/13/2007	Fe-55	12935.10 ± 357.00	12640.50	10112.40 - 15168.60	Pass
SPW-7758	11/13/2007	H-3	65405.00 ± 712.50	68618.00	54894.40 - 82341.60	Pass
SPF-7760	11/13/2007	Cs-134	0.45 ± 0.02	0.45	0.27 - 0.63	Pass
SPF-7760	11/13/2007	Cs-137	2.45 ± 0.07	2.29	1.37 - 3.21	Pass
SPW-8034	11/13/2007	Ni-63	2194.06 ± 10.77	2129.03	1277.42 - 2980.64	Pass

^a Liquid sample results are reported in pCi/Liter, air filters (pCi/filter), charcoal (pCi/m³), and solid samples (pCi/g).

^b Laboratory codes as follows: W (water), MI (milk), AP (air filter), SO (soil), VE (vegetation), CH (charcoal canister), F (fish).

^c Results are based on single determinations.

^d Control limits are based on Attachment A, Page A2 of this report.

^e Sample recount: 12557 ± 335.

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 Criteria (4.66 σ)
				LLD	Activity ^c	
W-30707	water	3/7/2007	Gr. Alpha	0.40	0.01 ± 0.28	2
W-30707	water	3/7/2007	Gr. Beta	0.75	0.06 ± 0.53	4
SPAP-1567	Air Filter	3/23/2007	Cs-134	0.79		100
SPW-1567	Air Filter	3/23/2007	Cs-137	1.01		100
SPW-1568	water	3/23/2007	H-3	176.10	-26.16 ± 91.62	200
SPW-1596	water	4/5/2007	Cs-134	3.28		10
SPW-1596	water	4/5/2007	Cs-137	3.45		10
SPW-1596	water	4/5/2007	I-131	0.27	0.02 ± 0.18	0.5
SPW-1596	water	4/5/2007	I-131(G)	2.91		20
SPMI-1598	Milk	4/5/2007	Cs-134	3.30		10
SPMI-1598	Milk	4/5/2007	Cs-137	5.08		10
SPMI-1598	Milk	4/5/2007	I-131	0.26	-0.10 ± 0.17	0.5
SPMI-1598	Milk	4/5/2007	I-131(G)	4.10		20
SPCH-2839	Charcoal Canister	5/17/2007	I-131(G)	2.24		9.6
SPW-2848	water	5/17/2007	Cs-134	3.14		10
SPW-2848	water	5/17/2007	Cs-137	1.37		10
SPW-2848	water	5/17/2007	I-131(G)	5.34		20
SPMI-2850	Milk	5/17/2007	Cs-134	3.32		10
SPMI-2850	Milk	5/17/2007	Cs-137	2.60		10
SPMI-2850	Milk	5/17/2007	I-131(G)	4.77		20
SPW-2848	water	5/18/2007	I-131	0.34	-0.06 ± 0.19	0.5
SPW-2848	water	5/18/2007	Sr-89	0.81	-0.02 ± 0.65	5
SPW-2848	water	5/18/2007	Sr-90	0.53	0.01 ± 0.25	1
SPMI-2850	Milk	5/18/2007	I-131	0.45	0.20 ± 0.26	0.5
SPMI-2850	Milk	5/18/2007	Sr-89	0.96	-0.73 ± 1.02	5
SPMI-2850 ^d	Milk	5/18/2007	Sr-90	0.58	0.96 ± 0.38	1
SPAP-2914	Air Filter	5/22/2007	Gr. Beta	0.004	-0.002 ± 0.002	0.01
SPAP-2916	Air Filter	5/22/2007	Cs-134	2.84		100
SPAP-2916	Air Filter	5/22/2007	Cs-137	2.24		100
SPF-2923	Fish	5/22/2007	Cs-134	8.71		100
SPF-2923	Fish	5/22/2007	Cs-137	8.35		100
SPW-3224	water	5/24/2007	Ni-63	1.61	-0.30 ± 0.84	20
W-60507	water	6/5/2007	Gr. Alpha	0.43	-0.01 ± 0.30	2
W-60507	water	6/5/2007	Gr. Beta	0.77	0.01 ± 0.54	4
SPW-4328	water	7/18/2007	Tc-99	6.41	-3.12 ± 3.84	10
SPW-5477	water	8/17/2007	Ni-63	1.48	4.38 ± 1.01	20
W-92107	water	9/21/2007	Gr. Alpha	0.41	0.09 ± 0.29	2
W-92107	water	9/21/2007	Gr. Beta	0.75	-0.26 ± 0.51	4

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

Lab Code	Sample Type	Date	Analysis ^b	Concentration (pCi/L) ^a		
				Laboratory results (4.66σ)		Acceptance Criteria (4.66σ)
				LLD	Activity ^c	
SPW-6881	water	10/10/2007	Tc-99	6.82	-6.58 ± 4.04	10
SPAP-7743	Air Filter	11/13/2007	Gr. Beta	0.003	-0.002 ± 0.002	0.01
SPMI-7745	Milk	11/13/2007	Cs-134	2.16		10
SPMI-7745	Milk	11/13/2007	Cs-137	3.46		10
SPMI-7745	Milk	11/13/2007	I-131(G)	5.89		20
SPMI-7745	Milk	11/13/2007	Sr-90	0.59	0.73 ± 0.35	1
SPW-7747	water	11/13/2007	Cs-134	2.39		10
SPW-7747	water	11/13/2007	Cs-137	3.53		10
SPW-7747	water	11/13/2007	I-131(G)	12.51		20
SPW-7747	water	11/13/2007	Sr-90	0.71	-0.04 ± 0.32	1
SPW-7751	water	11/13/2007	Fe-55	15.50	-4.18 ± 9.20	1000
SPW-7757	water	11/13/2007	H-3	151.35	-14.98 ± 78.85	200
SPF-7759	Fish	11/13/2007	Cs-134	5.50		100
SPF-7759	Fish	11/13/2007	Cs-137	5.10		100
SPW-8033	water	11/13/2007	Ni-63	1.45	-0.19 ± 0.87	20
W-120607	water	12/6/2007	Gr. Alpha	0.40	0.02 ± 0.28	2
W-120607	water	12/6/2007	Gr. Beta	0.77	-0.70 ± 0.51	4

^a Liquid sample results are reported in pCi/Liter, air filters(pCi/filter), 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. For gamma spectroscopic analysis, activity detected below the LLD value is not reported.

^d Low levels of Sr-90 are still detected in the environment. A concentration of (1-5 pCi/L) in milk is not unusual.

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

Lab Code	Date	Analysis	Concentration (pCi/L) ^a			Acceptance
			First Result	Second Result	Averaged Result	
E-20, 21	1/2/2007	Gr. Beta	1.76 ± 0.07	1.70 ± 0.06	1.73 ± 0.05	Pass
E-20, 21	1/2/2007	K-40	1.49 ± 0.24	1.57 ± 0.27	1.53 ± 0.18	Pass
CF-41, 42	1/2/2007	Gr. Beta	18.02 ± 0.41	18.81 ± 0.42	18.42 ± 0.29	Pass
CF-41, 42	1/2/2007	K-40	11.68 ± 1.12	12.67 ± 0.97	12.18 ± 0.74	Pass
CF-41, 42	1/2/2007	Sr-90	0.039 ± 0.011	0.026 ± 0.010	0.033 ± 0.007	Pass
P-9516, 9517	1/3/2007	H-3	270.78 ± 91.74	301.18 ± 92.99	285.98 ± 65.31	Pass
LW-9579, 9580	1/4/2007	Gr. Beta	0.91 ± 0.31	0.93 ± 0.30	0.92 ± 0.22	Pass
DW-70085, 70086	1/9/2007	Gr. Alpha	7.95 ± 1.20	7.92 ± 1.42	7.94 ± 0.93	Pass
DW-70037, 70038	1/11/2007	Gr. Alpha	55.47 ± 3.99	52.87 ± 4.02	54.17 ± 2.83	Pass
DW-70054, 70055	1/18/2007	Gr. Alpha	2.68 ± 0.88	1.88 ± 0.78	2.28 ± 0.59	Pass
DW-70122, 70123	1/18/2007	Gr. Alpha	4.30 ± 1.14	6.25 ± 1.16	5.28 ± 0.81	Pass
DW-70122, 70123	1/18/2007	Gr. Beta	4.22 ± 0.70	5.33 ± 0.75	4.78 ± 0.51	Pass
DW-70098, 70099	1/25/2007	Gr. Alpha	3.27 ± 0.90	1.97 ± 0.92	2.62 ± 0.64	Pass
DW-70110, 70111	1/25/2007	Gr. Alpha	2.19 ± 0.92	1.69 ± 0.79	1.94 ± 0.61	Pass
SWU-676, 677	1/30/2007	Gr. Beta	1.77 ± 0.39	2.11 ± 0.39	1.94 ± 0.28	Pass
DW-70148, 70149	1/30/2007	Gr. Alpha	4.65 ± 1.37	5.20 ± 1.81	4.93 ± 1.14	Pass
SW-600, 601	2/1/2007	K-40	1.24 ± 0.12	1.20 ± 0.12	1.22 ± 0.08	Pass
SW-601, 602	2/1/2007	Gr. Beta	0.89 ± 0.37	1.02 ± 0.25	0.96 ± 0.22	Pass
DW-1138, 1139	2/9/2007	H-3	2707.00 ± 161.00	2700.00 ± 161.00	2703.50 ± 113.84	Pass
MI-721, 722	2/13/2007	K-40	1330.40 ± 117.60	1316.40 ± 116.50	1323.40 ± 82.77	Pass
SW-847, 848	2/13/2007	Gr. Alpha	3.82 ± 1.67	2.61 ± 1.24	3.22 ± 1.04	Pass
SW-847, 848	2/13/2007	Gr. Beta	7.33 ± 1.37	5.89 ± 0.90	6.61 ± 0.82	Pass
DW-70175, 70176	2/14/2007	Gr. Alpha	11.72 ± 1.68	8.84 ± 1.32	10.28 ± 1.07	Pass
DW-70187, 70188	2/14/2007	Gr. Alpha	6.79 ± 1.18	6.47 ± 1.08	6.63 ± 0.80	Pass
SWU-1162, 1163	2/27/2007	Gr. Beta	3.63 ± 0.69	2.61 ± 0.44	3.12 ± 0.41	Pass
DW-70205, 70206	2/28/2007	Gr. Alpha	0.88 ± 0.80	1.31 ± 0.79	1.10 ± 0.56	Pass
PW-1117, 1118	3/1/2007	Gr. Alpha	3.79 ± 1.91	3.62 ± 2.09	3.71 ± 1.42	Pass
PW-1117, 1118	3/1/2007	Gr. Beta	7.12 ± 1.40	7.20 ± 1.39	7.16 ± 0.99	Pass
W-2122, 2123	3/5/2007	Gr. Alpha	6.10 ± 4.16	3.80 ± 4.30	4.95 ± 2.99	Pass
W-2122, 2123	3/5/2007	Gr. Beta	10.65 ± 2.15	13.11 ± 2.42	11.88 ± 1.62	Pass
W-2085, 2086	3/6/2007	Gr. Alpha	2.51 ± 2.29	1.10 ± 2.78	1.81 ± 1.80	Pass
W-2085, 2086	3/6/2007	Gr. Beta	11.02 ± 1.85	9.50 ± 2.01	10.26 ± 1.37	Pass
DW-70232, 70233	3/8/2007	Gr. Alpha	4.75 ± 1.28	5.98 ± 1.31	5.37 ± 0.92	Pass
WW-1477, 1478	3/12/2007	Gr. Beta	6.41 ± 1.48	4.10 ± 1.25	5.26 ± 0.97	Pass
WW-1498, 1499	3/15/2007	Gr. Beta	0.83 ± 0.31	0.97 ± 0.33	0.90 ± 0.22	Pass
W-2140, 2141	3/19/2007	Gr. Alpha	2.31 ± 1.57	1.33 ± 1.64	1.82 ± 1.14	Pass
W-2140, 2141	3/19/2007	Gr. Beta	4.26 ± 1.00	5.58 ± 1.02	4.92 ± 0.71	Pass
DW-1626, 1627	3/21/2007	H-3	4973.00 ± 209.00	5190.00 ± 213.00	5081.50 ± 149.21	Pass
MI-1647, 1648	3/21/2007	K-40	1448.80 ± 120.20	1439.30 ± 126.00	1444.05 ± 87.07	Pass
DW-70248, 70249	3/21/2007	Gr. Alpha	11.10 ± 1.18	9.90 ± 1.16	10.50 ± 0.83	Pass
W-2150, 2151	3/26/2007	Gr. Alpha	3.56 ± 2.20	3.30 ± 1.81	3.43 ± 1.42	Pass
W-2150, 2151	3/26/2007	Gr. Beta	9.26 ± 1.00	10.17 ± 1.90	9.72 ± 1.07	Pass
LW-1941, 1942	3/31/2007	Gr. Beta	1.35 ± 0.43	1.36 ± 0.41	1.36 ± 0.30	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) ^a		Averaged Result	Acceptance
			First Result	Second Result		
MI-1824, 1825	4/2/2007	K-40	1316.10 ± 110.60	1229.80 ± 110.50	1272.95 ± 78.17	Pass
MI-1824, 1825	4/2/2007	Sr-90	1.20 ± 0.50	1.10 ± 0.36	1.15 ± 0.31	Pass
AP-2170, 2171	4/2/2007	Be-7	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	Pass
WW-1850, 1851	4/3/2007	H-3	-5.83 ± 102.29	150.05 ± 80.14	72.11 ± 64.97	Pass
AP-2198, 2199	4/3/2007	Be-7	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	Pass
AP-2370, 2371	4/3/2007	Be-7	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
DW-70300, 70301	4/4/2007	Gr. Alpha	3.78 ± 0.89	3.66 ± 0.96	3.72 ± 0.65	Pass
DW-70300, 70301	4/4/2007	Gr. Beta	2.93 ± 0.61	2.91 ± 0.64	2.92 ± 0.44	Pass
DW-70335, 70336	4/5/2007	Gr. Alpha	24.37 ± 2.89	22.72 ± 2.91	23.55 ± 2.05	Pass
DW-70335, 70336	4/5/2007	Gr. Beta	20.26 ± 1.37	18.33 ± 1.34	19.30 ± 0.96	Pass
SW-1898, 1899	4/10/2007	Gr. Alpha	3.86 ± 1.40	4.78 ± 1.51	4.32 ± 1.03	Pass
SW-1898, 1899	4/10/2007	Gr. Beta	6.31 ± 1.36	7.03 ± 1.42	6.67 ± 0.98	Pass
SW-1898, 1899	4/10/2007	H-3	241.99 ± 93.35	318.10 ± 96.48	280.04 ± 67.12	Pass
DW-70346, 70347	4/11/2007	Gr. Alpha	1.83 ± 1.08	2.54 ± 1.04	2.19 ± 0.75	Pass
DW-70346, 70347	4/11/2007	Gr. Beta	4.62 ± 0.72	4.01 ± 0.71	4.32 ± 0.51	Pass
DW-70376, 70377	4/11/2007	Gr. Alpha	1.81 ± 0.80	1.66 ± 0.86	1.74 ± 0.59	Pass
DW-70376, 70377	4/11/2007	Gr. Beta	1.84 ± 0.62	2.24 ± 0.61	2.04 ± 0.44	Pass
DW-70311, 70312	4/12/2007	Gr. Alpha	10.82 ± 1.50	13.20 ± 1.56	12.01 ± 1.08	Pass
WW-2349, 2350	4/17/2007	Gr. Alpha	0.71 ± 0.56	0.62 ± 0.52	0.66 ± 0.38	Pass
WW-2461, 2462	4/25/2007	H-3	190.30 ± 100.31	115.95 ± 97.65	153.13 ± 70.00	Pass
LW-2437, 2438	4/26/2007	Gr. Beta	2.71 ± 0.50	2.15 ± 0.45	2.43 ± 0.34	Pass
LW-2917, 2918	4/30/2007	Gr. Beta	1.97 ± 0.79	2.78 ± 0.81	2.38 ± 0.57	Pass
SO-2583, 2584	5/1/2007	Be-7	544.99 ± 247.70	601.13 ± 192.20	573.06 ± 156.76	Pass
SO-2583, 2584	5/1/2007	Cs-137	119.22 ± 36.61	87.46 ± 23.97	103.34 ± 21.88	Pass
SO-2583, 2584	5/1/2007	K-40	17825.00 ± 749.90	17672.00 ± 724.30	17748.50 ± 521.29	Pass
SO-2583, 2584	5/1/2007	Gr. Alpha	11.49 ± 3.96	8.04 ± 3.88	9.77 ± 2.77	Pass
SO-2583, 2584	5/1/2007	Gr. Beta	31.02 ± 3.74	26.10 ± 3.40	28.56 ± 2.53	Pass
SO-2583, 2584	5/1/2007	Sr-90	0.086 ± 0.024	0.068 ± 0.025	0.077 ± 0.017	Pass
S-2620, 2621	5/2/2007	H-3	277.90 ± 126.70	304.40 ± 101.00	291.15 ± 81.02	Pass
MI-2610, 2611	5/3/2007	K-40	1549.20 ± 184.20	1388.80 ± 128.20	1469.00 ± 112.21	Pass
W-4469, 4470	5/7/2007	Gr. Beta	10.60 ± 1.90	11.10 ± 1.80	10.85 ± 1.31	Pass
SS-2697, 2698	5/8/2007	Cs-137	0.06 ± 0.02	0.05 ± 0.03	0.05 ± 0.02	Pass
SS-2697, 2698	5/8/2007	K-40	8.03 ± 0.57	7.36 ± 0.68	7.70 ± 0.44	Pass
MI-2790, 2791	5/14/2007	K-40	1694.30 ± 126.20	1627.60 ± 128.80	1660.95 ± 90.16	Pass
W-4505, 4506	5/14/2007	Gr. Beta	3.30 ± 1.70	3.90 ± 1.50	3.60 ± 1.13	Pass
DW-3219, 3220	5/26/2007	I-131	0.62 ± 0.32	0.69 ± 0.31	0.66 ± 0.22	Pass
SO-3416, 3417	5/31/2007	Cs-137	0.15 ± 0.03	0.15 ± 0.03	0.15 ± 0.02	Pass
SO-3416, 3417	5/31/2007	Gr. Beta	22.88 ± 2.33	22.46 ± 2.37	22.67 ± 1.66	Pass
SO-3416, 3417	5/31/2007	K-40	12.26 ± 0.80	12.36 ± 0.65	12.31 ± 0.52	Pass
F-3561, 3562	5/31/2007	K-40	3.06 ± 0.39	3.37 ± 0.45	3.21 ± 0.30	Pass
SL-3311, 3312	6/4/2007	Be-7	0.61 ± 0.29	0.55 ± 0.25	0.58 ± 0.19	Pass
SL-3311, 3312	6/4/2007	K-40	5.78 ± 0.67	4.87 ± 0.25	5.33 ± 0.36	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) ^a			Acceptance
			First Result	Second Result	Averaged Result	
SL-3992, 3993	6/4/2007	Be-7	0.75 ± 0.19	0.74 ± 0.32	0.75 ± 0.19	Pass
SL-3992, 3993	6/4/2007	Gr. Beta	13.61 ± 1.12	14.06 ± 1.08	13.84 ± 0.78	Pass
SL-3992, 3993	6/4/2007	K-40	2.43 ± 0.36	2.29 ± 0.40	2.36 ± 0.27	Pass
W-5087, 5088	6/11/2007	Gr. Beta	8.70 ± 1.90	7.70 ± 1.90	8.20 ± 1.34	Pass
SW-3710, 3711	6/14/2007	H-3	9571.51 ± 287.22	9879.21 ± 291.42	9725.36 ± 204.59	Pass
W-4062, 4063	6/28/2007	Gr. Alpha	0.76 ± 0.63	0.32 ± 0.66	0.54 ± 0.45	Pass
W-4062, 4063	6/28/2007	Gr. Beta	0.97 ± 0.53	0.58 ± 0.57	0.78 ± 0.39	Pass
AP-4448, 4449	6/28/2007	Be-7	0.10 ± 0.02	0.09 ± 0.02	0.10 ± 0.01	Pass
SG-3735, 3736	6/30/2007	Be-7	0.84 ± 0.12	0.82 ± 0.18	0.83 ± 0.11	Pass
SG-3735, 3736	6/30/2007	Cs-137	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
SG-3735, 3736	6/30/2007	Gr. Beta	29.51 ± 2.22	30.81 ± 2.22	30.16 ± 1.57	Pass
SG-3735, 3736	6/30/2007	K-40	9.41 ± 0.31	8.90 ± 0.48	9.16 ± 0.29	Pass
LW-4175, 4176	6/30/2007	Gr. Beta	2.18 ± 0.60	1.93 ± 0.68	2.06 ± 0.45	Pass
SG-5422, 5423	7/2/2007	Gr. Alpha	10.31 ± 1.98	10.57 ± 1.99	10.44 ± 1.40	Pass
SG-5422, 5423	7/2/2007	Gr. Beta	18.59 ± 1.46	20.97 ± 1.49	19.78 ± 1.04	Pass
AP-4656, 4657	7/3/2007	Be-7	0.09 ± 0.02	0.10 ± 0.02	0.10 ± 0.01	Pass
AP-4763, 4764	7/3/2007	Be-7	0.11 ± 0.02	0.10 ± 0.02	0.11 ± 0.01	Pass
SG-5430, 5431	7/11/2007	Be-7	10.17 ± 0.48	10.06 ± 0.51	10.12 ± 0.35	Pass
SG-5430, 5431	7/11/2007	Cs-137	0.050 ± 0.010	0.059 ± 0.011	0.055 ± 0.007	Pass
SG-5430, 5431	7/11/2007	Gr. Alpha	17.86 ± 2.78	15.74 ± 2.70	16.80 ± 1.94	Pass
SG-5430, 5431	7/11/2007	Gr. Beta	26.19 ± 1.74	25.04 ± 1.86	25.62 ± 1.27	Pass
SG-5430, 5431	7/11/2007	K-40	7.69 ± 0.30	7.65 ± 0.28	7.67 ± 0.21	Pass
WW-4298, 4299	7/12/2007	Gr. Beta	1.74 ± 0.74	2.22 ± 0.80	1.98 ± 0.55	Pass
DW-70612, 70613	7/23/2007	Gr. Alpha	4.54 ± 1.11	4.19 ± 0.97	4.37 ± 0.74	Pass
WW-4918, 4919	7/25/2007	H-3	240.43 ± 111.12	216.68 ± 110.27	228.56 ± 78.27	Pass
MI-4742, 4743	7/26/2007	K-40	1820.30 ± 134.10	1802.90 ± 199.50	1811.60 ± 120.19	Pass
VE-4939, 4940	8/1/2007	Be-7	0.39 ± 0.21	0.45 ± 0.20	0.42 ± 0.15	Pass
VE-4939, 4940	8/1/2007	Gr. Beta	5.50 ± 0.14	5.76 ± 0.13	5.63 ± 0.10	Pass
VE-4939, 4940	8/1/2007	K-40	3.36 ± 0.45	3.36 ± 0.21	3.36 ± 0.25	Pass
SG-6274, 6275	8/6/2007	Gr. Alpha	16.68 ± 3.29	19.26 ± 3.39	17.97 ± 2.36	Pass
SG-6274, 6275	8/6/2007	Gr. Beta	40.93 ± 2.74	42.42 ± 2.66	41.68 ± 1.91	Pass
SW-5218, 5219	8/7/2007	I-131	1.31 ± 0.24	1.42 ± 0.24	1.37 ± 0.17	Pass
SG-6284, 6285	8/8/2007	Cs-137	0.043 ± 0.006	0.051 ± 0.007	0.047 ± 0.005	Pass
SG-6284, 6285	8/8/2007	Gr. Alpha	9.38 ± 2.93	13.61 ± 3.38	11.50 ± 2.24	Pass
SG-6284, 6285	8/8/2007	Gr. Beta	33.46 ± 2.84	32.87 ± 2.93	33.17 ± 2.04	Pass
SG-6284, 6285	8/8/2007	K-40	16.15 ± 0.24	16.23 ± 0.25	16.19 ± 0.17	Pass
WW-5310, 5311	8/9/2007	H-3	644.00 ± 106.00	831.00 ± 113.00	737.50 ± 77.47	Pass
SW-5393, 5394	8/14/2007	Gr. Beta	2.32 ± 1.31	1.71 ± 1.27	2.02 ± 0.92	Pass
SW-5393, 5394	8/14/2007	H-3	190.06 ± 86.80	69.05 ± 80.88	129.55 ± 59.32	Pass
W-5468, 5469	8/15/2007	H-3	262.58 ± 108.43	346.53 ± 111.42	304.55 ± 77.74	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) ^a			Acceptance
			First Result	Second Result	Averaged Result	
VE-5553, 5554	8/22/2007	K-40	1.89 ± 0.33	1.89 ± 0.22	1.89 ± 0.20	Pass
WW-5643, 5644	8/22/2007	H-3	259.00 ± 110.00	266.00 ± 110.00	262.50 ± 77.78	Pass
SWU-5799, 5800	8/28/2007	Gr. Beta	2.64 ± 1.18	3.62 ± 1.06	3.13 ± 0.79	Pass
DW-70752, 70753	8/31/2007	Gr. Alpha	14.41 ± 1.48	12.90 ± 1.50	13.66 ± 1.05	Pass
VE-5917, 5918	9/4/2007	Be-7	0.94 ± 0.17	0.83 ± 0.20	0.89 ± 0.13	Pass
VE-5917, 5918	9/4/2007	K-40	3.73 ± 0.37	3.58 ± 0.36	3.66 ± 0.26	Pass
VE-5917, 5918	9/4/2007	Gr. Beta	2.71 ± 0.10	2.69 ± 0.10	2.70 ± 0.07	Pass
MI-6009, 6010	9/11/2007	K-40	1348.90 ± 113.40	1388.10 ± 116.40	1368.50 ± 81.25	Pass
MI-6030, 6031	9/12/2007	K-40	1242.70 ± 118.00	1475.60 ± 119.60	1359.15 ± 84.01	Pass
MI-6030, 6031	9/12/2007	Sr-90	1.00 ± 0.38	0.90 ± 0.34	0.95 ± 0.26	Pass
DW-70718, 70719	9/12/2007	Gr. Alpha	23.04 ± 3.71	23.22 ± 3.61	23.13 ± 2.59	Pass
DW-70718, 70719	9/12/2007	Gr. Beta	16.13 ± 1.59	17.36 ± 1.69	16.75 ± 1.16	Pass
SO-6156, 6157	9/14/2007	H-3	181.99 ± 90.67	232.19 ± 92.95	207.09 ± 64.92	Pass
SO-6484, 6485	9/17/2007	Cs-137	0.01 ± 0.00	0.01 ± 0.00	0.01 ± 0.00	Pass
SO-6484, 6485	9/17/2007	Gr. Beta	24.20 ± 2.60	23.30 ± 2.30	23.75 ± 1.74	Pass
SO-6484, 6485	9/17/2007	K-40	11.52 ± 1.16	10.89 ± 1.10	11.20 ± 0.80	Pass
WW-6469, 6470	9/21/2007	Gr. Beta	27.19 ± 2.51	24.23 ± 2.29	25.71 ± 1.70	Pass
E-6647, 6648	10/1/2007	Gr. Beta	1.82 ± 0.10	1.93 ± 0.11	1.88 ± 0.07	Pass
E-6647, 6648	10/1/2007	K-40	1.48 ± 0.24	1.31 ± 0.23	1.40 ± 0.17	Pass
WW-6656, 6657	10/1/2007	Gr. Beta	2.80 ± 0.97	1.95 ± 0.87	2.38 ± 0.65	Pass
TD-7080, 7081	10/2/2007	H-3	332.00 ± 229.00	383.00 ± 191.00	357.50 ± 149.10	Pass
SG-6891, 6892	10/3/2007	Gr. Alpha	12.93 ± 2.12	13.52 ± 2.07	13.23 ± 1.48	Pass
SG-6891, 6892	10/3/2007	Gr. Beta	18.08 ± 1.41	18.27 ± 1.36	18.18 ± 0.98	Pass
AP-7191, 7192	10/3/2007	Be-7	0.09 ± 0.01	0.09 ± 0.01	0.09 ± 0.01	Pass
WW-6786, 6787	10/8/2007	H-3	13333 ± 322	13532 ± 324	13433 ± 228	Pass
WW-6786, 6787	10/8/2007	H-3	13188 ± 322	13556 ± 326	13372 ± 229	Pass
VE-6828, 6829	10/8/2007	Gr. Alpha	0.06 ± 0.04	0.06 ± 0.05	0.06 ± 0.03	Pass
VE-6828, 6829	10/8/2007	Gr. Beta	5.55 ± 0.21	5.20 ± 0.22	5.38 ± 0.10	Pass
VE-6828, 6829	10/8/2007	K-40	5.45 ± 0.43	5.20 ± 0.49	5.32 ± 0.33	Pass
SS-6870, 6871	10/9/2007	Gr. Beta	18.10 ± 2.08	21.71 ± 2.19	19.90 ± 1.51	Pass
SS-6870, 6871	10/9/2007	K-40	10.19 ± 0.66	9.72 ± 0.68	9.95 ± 0.47	Pass
LW-7507, 7508	10/11/2007	Gr. Beta	1.40 ± 0.56	1.44 ± 0.54	1.42 ± 0.39	Pass
MI-6933, 6934	10/16/2007	K-40	1386.60 ± 104.70	1331.20 ± 106.70	1358.90 ± 74.74	Pass
MI-6933, 6934	10/16/2007	Sr-90	1.73 ± 0.52	2.17 ± 0.57	1.95 ± 0.39	Pass
MI-7059, 7060	10/17/2007	K-40	1424.80 ± 106.60	1448.60 ± 115.30	1436.70 ± 78.51	Pass
F-7213, 7214	10/24/2007	H-3	6.83 ± 0.22	7.24 ± 0.22	7.03 ± 0.16	Pass
F-7213, 7214	10/24/2007	K-40	3.13 ± 0.51	3.16 ± 0.48	3.15 ± 0.35	Pass
WW-7408, 7409	10/24/2007	H-3	340.71 ± 90.45	346.22 ± 90.67	343.46 ± 64.03	Pass
DW-70856, 70857	10/24/2007	Gr. Alpha	11.03 ± 1.66	10.71 ± 1.34	10.87 ± 1.07	Pass
SO-7508, 7509	10/26/2007	Cs-137	0.30 ± 0.04	0.29 ± 0.05	0.29 ± 0.03	Pass
SO-7508, 7509	10/26/2007	Gr. Beta	34.43 ± 2.72	37.25 ± 3.07	35.84 ± 2.05	Pass
SO-7508, 7509	10/26/2007	K-40	16.84 ± 0.84	17.43 ± 1.05	17.14 ± 0.67	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) ^a			Acceptance
			First Result	Second Result	Averaged Result	
SS-7529, 7530	10/29/2007	Cs-137	0.12 ± 0.03	0.12 ± 0.02	0.12 ± 0.02	Pass
SS-7529, 7530	10/29/2007	K-40	11.85 ± 0.68	11.75 ± 0.58	11.80 ± 0.45	Pass
SW-7589, 7590	10/30/2007	Gr. Beta	1.75 ± 0.29	1.24 ± 0.26	1.50 ± 0.19	Pass
SWU-7733, 7734	10/30/2007	Gr. Beta	1.66 ± 1.01	2.43 ± 1.13	2.05 ± 0.76	Pass
MI-7618, 7619	10/31/2007	K-40	1376.80 ± 114.30	1426.70 ± 128.80	1401.75 ± 86.10	Pass
VE-7666, 7667	11/5/2007	Gr. Alpha	0.07 ± 0.04	0.16 ± 0.05	0.11 ± 0.03	Pass
VE-7666, 7667	11/5/2007	Gr. Beta	6.03 ± 0.15	6.13 ± 0.15	6.08 ± 0.10	Pass
VE-7666, 7667	11/5/2007	K-40	5.82 ± 0.36	5.74 ± 0.36	5.78 ± 0.25	Pass
DW-7853, 7854	11/9/2007	I-131	1.61 ± 0.40	1.08 ± 0.39	1.35 ± 0.28	Pass
MI-7874, 7875	11/14/2007	K-40	1407.70 ± 101.30	1362.60 ± 114.50	1385.15 ± 76.44	Pass
WW-8142, 8143	11/28/2007	Gr. Beta	9.51 ± 2.21	7.86 ± 2.01	8.68 ± 1.49	Pass
DW-8094, 8095	11/29/2007	Gr. Beta	1.60 ± 0.58	1.25 ± 0.54	1.43 ± 0.40	Pass
F-8328, 8329	12/11/2007	Gr. Beta	3.97 ± 0.08	4.00 ± 0.08	3.99 ± 0.05	Pass
WW-8378, 8379	12/11/2007	H-3	296.00 ± 103.00	407.00 ± 107.00	351.50 ± 74.26	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), food products, vegetation, soil, sediment (pCi/g).

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

Lab Code ^c	Date	Analysis	Concentration ^b			Acceptance
			Laboratory result	Known Activity	Control Limits ^d	
STW-1110	01/01/07	Gr. Alpha	0.45 ± 0.08	0.33	0.00 - 0.65	Pass
STW-1110	01/01/07	Gr. Beta	0.90 ± 0.14	0.85	0.43 - 1.28	Pass
STW-1111 ^e	01/01/07	Am-241	2.80 ± 0.21	1.71	1.20 - 2.22	Fail
STW-1111	01/01/07	Co-57	151.60 ± 10.00	143.70	100.60 - 186.80	Pass
STW-1111	01/01/07	Cs-134	79.20 ± 8.00	83.50	58.50 - 108.60	Pass
STW-1111	01/01/07	Cs-137	168.70 ± 12.10	163.00	114.10 - 211.90	Pass
STW-1111	01/01/07	Fe-55	130.30 ± 19.90	129.30	90.50 - 168.10	Pass
STW-1111	01/01/07	H-3	262.20 ± 9.10	283.00	198.10 - 367.90	Pass
STW-1111	01/01/07	Mn-54	130.60 ± 11.50	123.80	86.70 - 160.90	Pass
STW-1111	01/01/07	Ni-63	127.80 ± 3.60	130.40	91.30 - 169.50	Pass
STW-1111	01/01/07	Ni-63	127.80 ± 3.60	130.40	91.30 - 169.50	Pass
STW-1111	01/01/07	Pu-238	2.03 ± 0.17	2.25	1.58 - 2.93	Pass
STW-1111	01/01/07	Pu-239/40	2.27 ± 0.17	2.22	1.55 - 2.89	Pass
STW-1111	01/01/07	Sr-90	9.60 ± 1.40	8.87	6.21 - 11.53	Pass
STW-1111	01/01/07	Tc-99	8.80 ± 1.50	88.00	7.40 - 13.70	Pass
STW-1111	01/01/07	U-233/4	2.44 ± 0.21	2.49	1.74 - 3.24	Pass
STW-1111	01/01/07	U-238	2.44 ± 0.21	2.48	1.74 - 3.22	Pass
STW-1111	01/01/07	Zn-65	123.70 ± 17.00	114.80	80.40 - 149.20	Pass
STSO-1112 ^f	01/01/07	Am-241	46.40 ± 9.00	34.80	24.40 - 45.20	Fail
STSO-1112	01/01/07	Co-57	501.20 ± 2.90	471.20	329.80 - 612.60	Pass
STSO-1112	01/01/07	Co-60	285.90 ± 2.10	274.70	192.30 - 357.10	Pass
STSO-1112	01/01/07	Cs-134	325.90 ± 7.40	327.40	229.20 - 425.60	Pass
STSO-1112	01/01/07	Cs-137	855.70 ± 4.60	799.70	559.80 - 1039.60	Pass
STSO-1112	01/01/07	Mn-54	750.90 ± 4.70	685.20	479.60 - 890.80	Pass
STAP-1113	01/01/07	Gr. Alpha	0.27 ± 0.04	0.60	0.00 - 1.20	Pass
STAP-1113	01/01/07	Gr. Beta	0.57 ± 0.05	0.44	0.22 - 0.66	Pass
STAP-1114	01/01/07	Am-241	0.10 ± 0.03	0.10	0.07 - 0.13	Pass
STAP-1114	01/01/07	Co-57	3.51 ± 0.07	2.89	2.02 - 3.75	Pass
STAP-1114	01/01/07	Co-60	2.98 ± 0.10	2.91	2.03 - 3.78	Pass
STAP-1114	01/01/07	Cs-134	4.02 ± 0.16	4.20	2.94 - 5.45	Pass
STAP-1114	01/01/07	Cs-137	2.75 ± 0.12	2.57	1.80 - 3.34	Pass
STAP-1114	01/01/07	Mn-54	3.94 ± 0.12	3.52	2.46 - 4.57	Pass
STAP-1114	01/01/07	Pu-238	0.07 ± 0.01	0.07	0.05 - 0.09	Pass
STAP-1114	01/01/07	Pu-239/40	0.08 ± 0.01	0.08	0.06 - 0.11	Pass
STAP-1114	01/01/07	Sr-90	0.58 ± 0.18	0.61	0.43 - 0.79	Pass
STAP-1114	01/01/07	U-233/4	0.09 ± 0.01	0.10	0.07 - 0.13	Pass
STAP-1114	01/01/07	U-238	0.09 ± 0.01	0.10	0.07 - 0.13	Pass
STAP-1114	01/01/07	Zn-65	2.70 ± 0.10	2.68	1.88 - 3.49	Pass

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

Lab Code ^c	Date	Analysis	Concentration ^b		Control Limits ^d	Acceptance
			Laboratory result	Known Activity		
STVE-1115	01/01/07	Co-57	8.90 ± 0.20	8.19	5.73 - 10.64	Pass
STVE-1115	01/01/07	Co-60	6.50 ± 0.20	5.82	4.08 - 7.57	Pass
STVE-1115	01/01/07	Cs-134	6.90 ± 0.30	6.21	4.35 - 8.07	Pass
STVE-1115	01/01/07	Cs-137	8.20 ± 0.30	6.99	4.90 - 9.09	Pass
STVE-1115	01/01/07	Mn-54	10.10 ± 0.30	8.46	5.91 - 10.98	Pass

^a Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the Department of Energy's Mixed Analyte Performance Evaluation Program, Idaho Operations office, Idaho Falls, Idaho

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

^c Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

^d MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP.

^e Result of reanalysis, 2.08 ± 0.13 pCi/L.

^f The test samples were recounted on lower background detectors. Result of the recounts: 41.4 ± 6.3 Bq/kg.

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

Lab Code ^b	Date	Analysis	Concentration (pCi/L)		Control Limits	Acceptance
			Laboratory Result ^c	ERA Result ^d		
STAP-1116	03/19/07	Gr. Alpha	34.64 ± 2.56	25.8	12.4 - 39	Pass
STAP-1116	03/19/07	Gr. Beta	93.41 ± 3.20	79.5	48.8 - 116	Pass
STAP-1117	03/19/07	Am-241	56.04 ± 3.90	57.5	33.1 - 80	Pass
STAP-1117	03/19/07	Co-60	1610.00 ± 8.40	1300.0	1010.0 - 1620	Pass
STAP-1117	03/19/07	Cs-134	1340.40 ± 48.84	1120.0	732.0 - 1380	Pass
STAP-1117 ^e	03/19/07	Cs-137	345.30 ± 8.20	255.0	192.0 - 336	Fail
STAP-1117 ^f	03/19/07	Fe-55	< 134.0	0.0		Pass
STAP-1117 ^f	03/19/07	Mn-54	< 5.0	0.0		Pass
STAP-1117	03/19/07	Pu-238	43.32 ± 2.28	37.4	25.7 - 49	Pass
STAP-1117	03/19/07	Pu-239/40	35.23 ± 2.24	31.6	22.9 - 41	Pass
STAP-1117	03/19/07	Sr-90	156.10 ± 6.60	156.0	66.6 - 246	Pass
STAP-1117	03/19/07	U-233/4	42.22 ± 1.84	47.8	30.1 - 71	Pass
STAP-1117	03/19/07	U-238	42.00 ± 1.84	47.4	30.2 - 68	Pass
STAP-1117	03/19/07	Uranium	85.79 ± 3.60	97.3	49.5 - 155	Pass
STAP-1117	03/19/07	Zn-65	363.80 ± 11.90	245.0	208.0 - 412	Pass
STSO-1118	03/19/07	Ac-228	3097.77 ± 94.96	2790.0	1790.0 - 3930	Pass
STSO-1118	03/19/07	Am-241	1000.70 ± 156.10	927.0	548.0 - 1200	Pass
STSO-1118	03/19/07	Bi-212	2467.87 ± 114.33	2500.0	658.0 - 3730	Pass
STSO-1118	03/19/07	Co-60	7847.40 ± 86.60	7330.0	5340.0 - 9820	Pass
STSO-1118	03/19/07	Cs-134	7910.60 ± 356.88	7560.0	4850.0 - 9070	Pass
STSO-1118	03/19/07	Cs-137	4635.00 ± 99.10	4300.0	3290.0 - 5580	Pass
STSO-1118	03/19/07	K-40	12201.60 ± 423.20	11100.0	8050.0 - 15000	Pass
STSO-1118 ^f	03/19/07	Mn-54	< 34.0	0.0		Pass
STSO-1118	03/19/07	Pb-212	2046.80 ± 127.20	1730.0	1120.0 - 2430	Pass
STSO-1118	03/19/07	Pb-214	4142.80 ± 110.40	3330.0	1980.0 - 4980	Pass
STSO-1118	03/19/07	Pu-238	1099.20 ± 73.10	857.0	490.0 - 1200	Pass
STSO-1118	03/19/07	Pu-239/40	1586.10 ± 82.00	1360.0	928.0 - 1810	Pass
STSO-1118	03/19/07	Sr-90	6163.30 ± 791.60	7500.0	2610.0 - 12400	Pass
STSO-1118	03/19/07	Th-234	4329.40 ± 569.10	3590.0	2190.0 - 4560	Pass
STSO-1118	03/19/07	U-233/4	3236.70 ± 106.00	3620.0	2280.0 - 4520	Pass
STSO-1118	03/19/07	U-238	3425.20 ± 134.00	3590.0	2190.0 - 4560	Pass
STSO-1118	03/19/07	Uranium	6787.80 ± 240.00	7380.0	4210.0 - 9930	Pass
STSO-1118	03/19/07	Uranium	6787.80 ± 240.00	7380.0	4210.0 - 9930	Pass
STSO-1118 ^f	03/19/07	Zn-65	0.00 ± 0.00	0.0	0.0 - 0	Pass

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

Lab Code ^b	Date	Analysis	Concentration (pCi/L)		Control Limits	Acceptance
			Laboratory Result ^c	ERA Result ^d		
STVE-1119	03/19/07	Am-241	3249.60 ± 150.30	3550.0	2020.0 - 4890	Pass
STVE-1119	03/19/07	Cm-244	1860.70 ± 91.50	1840.0	905.0 - 2870	Pass
STVE-1119	03/19/07	Co-60	2827.90 ± 62.40	2600.0	1760.0 - 3720	Pass
STVE-1119	03/19/07	Cs-134	654.80 ± 48.40	579.0	308.0 - 822	Pass
STVE-1119	03/19/07	Cs-137	3307.30 ± 58.80	2920.0	2150.0 - 4060	Pass
STVE-1119	03/19/07	K-40	40814.20 ± 618.80	37900.0	27200.0 - 53600	Pass
STVE-1119 ^f	03/19/07	Mn-54	< 27.6	0.0		Pass
STVE-1119	03/19/07	Pu-238	2762.00 ± 251.10	2430.0	1250.0 - 3600	Pass
STVE-1119	03/19/07	Pu-239/40	2156.60 ± 83.40	1900.0	1180.0 - 2600	Pass
STVE-1119	03/19/07	Sr-90	8999.70 ± 580.90	8890.0	4900.0 - 11800	Pass
STVE-1119	03/19/07	U-233/4	2821.90 ± 73.50	2940.0	1930.0 - 3920	Pass
STVE-1119	03/19/07	U-238	2896.10 ± 50.70	2910.0	2090.0 - 3610	Pass
STVE-1119	03/19/07	Uranium	5718.00 ± 124.15	5980.0	4110.0 - 7770	Pass
STVE-1119	03/19/07	Zn-65	474.30 ± 45.70	366.0	267.0 - 500	Pass
STW-1120	03/19/07	Am-241	133.50 ± 10.60	179.0	123.0 - 243	Pass
STW-1120	03/19/07	Co-60	541.40 ± 9.00	536.0	467.0 - 631	Pass
STW-1120	03/19/07	Cs-134	1623.80 ± 66.10	1750.0	1290.0 - 2020	Pass
STW-1120	03/19/07	Cs-137	1839.10 ± 17.90	1850.0	1570.0 - 2220	Pass
STW-1120	03/19/07	Fe-55	829.50 ± 226.80	671.0	392.0 - 896	Pass
STW-1120 ^f	03/19/07	Mn-54	< 8.1	0.0		Pass
STW-1120	03/19/07	Pu-238	123.30 ± 4.30	116.0	87.6 - 144	Pass
STW-1120	03/19/07	Pu-239/40	95.10 ± 3.80	90.9	70.3 - 113	Pass
STW-1120	03/19/07	Sr-90	949.40 ± 16.70	989.0	630.0 - 1320	Pass
STW-1120	03/19/07	U-233/4	164.20 ± 6.58	192.0	145.0 - 247	Pass
STW-1120	03/19/07	U-238	169.20 ± 8.22	190.0	145.0 - 236	Pass
STW-1120	03/19/07	Uranium	339.60 ± 10.66	391.0	282.0 - 521	Pass
STW-1120	03/19/07	Zn-65	2009.00 ± 36.40	1910.0	1600.0 - 2410	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: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

^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.

^e A high bias (~ 20%) was observed in gamma results for air filters. A composite filter geometry was used in the calculations vs. a single filter geometry. Result of recalculation. Cs-137, 305.8 ± 6.0 pCi/filter.

^f Included in the testing series as a "false positive". No activity expected.

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

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 \bar{x} and standard deviation s of a set of n numbers x_1, x_2, \dots, x_n are defined as follows:

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

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 number s 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

Maximum Permissible Concentrations
of Radioactivity in Air and Water
Above Background in Unrestricted Areas

Table C-1. Maximum permissible concentrations of radioactivity in air and water above natural background in unrestricted areas^a.

	Air (pCi/m ³)		Water (pCi/L)
Gross alpha	1 x 10 ⁻³	Strontium-89	8,000
Gross beta	1	Strontium-90	500
Iodine-131 ^b	2.8 x 10 ⁻¹	Cesium-137	1,000
		Barium-140	8,000
		Iodine-131	1,000
		Potassium-40 ^c	4,000
		Gross alpha	2
		Gross beta	10
		Tritium	1 x 10 ⁶

^a Taken from Table 2 of Appendix B to Code of Federal Regulations Title 10, Part 20, and appropriate footnotes. Concentrations may be averaged over a period not greater than one year.

^b Value adjusted by a factor of 700 to reduce the dose resulting from the air-grass-cow-milk-child pathway.

^c A natural radionuclide.

Appendix D. NON-RADIOLOGICAL MONITORING PROGRAM

1.0, Introduction

Union Electric Company, d.b.a. AmerenUE, 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 2007.

Appendix D. Non-radiological Monitoring Program (Continued)

2.0. Unusual or Important Events

No unusual or important events reportable under the EPP Section 4.1 were identified during 2007.

3.0. EPP Non-compliances

During 2007 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 2007.

5.0. Plant Design and Operation Environmental Evaluations.

This section lists all changes in the plant design, operation, tests or experiments installed during 2007, which could have involved a potentially significant unreviewed environmental question in accordance with section 3.1 of Appendix B.

During 2007, there was one plant design that 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.

Appendix D. Non-radiological Monitoring Program (Continued)

Callaway Modification 07-0012, Replacement of the Cooling Tower Blowdown / Plant Discharge Piping

Description of Modification:

This modification replaces the existing cooling tower blowdown / plant discharge pipe from the Circ and Service Water Pumphouse to the tie in point (first valve pit) for the new section of piping installed in 2006 which begins approximately 450 feet from the Missouri River (approximately 5.8 miles long). This replacement was required due to the existing pipe having reached its service life expectancy. The new manufactured pipe will be approximately 36 inch in diameter, seamless high density polyethylene pipe (HDPE) to accommodate additional capacity for future generation. The new design will also eliminate the air release valves used in the old piping design that resulted in some minor leakage of radioactive water into the manholes. The new design uses a single pressure relief valve located near the highest elevation of the pipe that is equipped with a self contained catch type basin that drains back into the discharge line.

This 2 inch thick walled pipe will be installed to a general depth of 7 to 9 feet from bottom of pipe (although some section will have a depth of up to 28'). The intention is to provide a minimum of 6' of cover for river bottom land and 4' of cover on the hill. The HDPE pipe sections will be joined by a fusion process in which the ends of the pipe are melted and pressed together under pressure to ensure a leak-tight joint. The new pipe will also be hydrostatically tested to insure and verify a leak-tight system. The new pipe routing will generally follow the existing discharge line with a 20 foot offset and be located approximately 5-30 feet from the existing pipe. Construction of the new line will include crossing both Logan Creek and Mud Creek. In order to eliminate the need for open trenching of the creeks, these crossings will be made utilizing directional drilling. Crossings of the Katy Trail, Highway 94 and the existing intake structure access road will be made by directional or straight boring to prevent surface disturbance. All work will be located on Ameren property with exception of a section 0.8 miles south of Route 94 in the Missouri River alluvial plain.

The existing carbon steel discharge pipe will be flushed, drained and sealed at both ends and will remain in place until decommissioning of the Callaway Plant Site. A separate evaluation will be completed to address leaving the entire existing plant discharge pipe in place until site decommissioning.

The U. S. Army Corps of Engineers (USACE) was contacted and issued a letter (2007-353-JC) allowing the installation of the new discharge pipe by trenching excavation within waters of the US for individual crossings in 19 locations under nationwide permit (NWP) No.12 provided that all conditions of Notice 72 FR 11092 are met (NWP is valid for two years from the date of the letter).

The Missouri Department of Natural Resources (DNR), - Historic Preservation Program Office (Judith Deel) was notified in writing of the proposed discharge line replacement. A response was received which indicates a resurvey is required for the lower portion of the project area where Logan Creek enters the river valley (letter from the Missouri DNR dated May 17, 2007). The need for this survey arises from questions concerning the reliability of the studies conducted during the 1970's and 1980's. It is estimated that this will require approximately 2 miles to be surveyed with some deep trenching via backhoe to verify no cultural resources exist in this area. The survey was completed in 2006 with no significant findings identified.

Appendix D. Non-radiological Monitoring Program (Continued)

Approximately 150 acres of land will be disturbed during construction of the new plant discharge line. This requires that a Land Disturbance Permit be obtained prior to beginning construction as more than one acre of land will be disturbed. A formal Storm Water Pollution Prevention Plan along with a Best Management Practices Plan was submitted to the Missouri DNR Northwest Regional Office and the land disturbance permit was issued June 29, 2007.

The Missouri Department of Conservation was contacted on a Heritage Review Report was received providing suggestions for species/habitats of the acre relating to this modification.

The replacement pipe installation was started in summer 2007 with an expected completion date in the summer 2008.

Evaluation of Change:

As part of the evaluation for Modification Package 07-0012, both the Callaway Plant ER and FES-OL were reviewed for any previously evaluated adverse environmental impacts and any adverse environmental impacts not previously evaluated. This modification replaced the existing plant discharge line and did not change any plant liquid effluents or the concentration of effluents released. All NPDES Outfalls are sampled/analyzed for pollutants to meet the requirements prior to entering the combined plant discharge pipe. Although the estimated velocity may be somewhat reduced for the new larger discharge pipe to be installed (new pipe designed for two units), it will not significantly impact the mixing of plant effluents. The USACE and the Missouri DNR have reviewed and approved this new design. Installation of this new discharge pipe did not adversely impact the environment as the construction will be completed as agreed upon by Callaway Plant Engineering, the USACE and the Missouri DNR.



Environmental, Inc.
Midwest Laboratory
an Allegheny Technologies Co.

700 Landwehr Road • Northbrook, IL 60062-2310
ph. (847) 564-0700 • fax (847) 564-4517

AMEREN UE, CALLAWAY PLANT
FULTON, MISSOURI
DOCKET NO. 50-483

RADIOLOGICAL ENVIRONMENTAL
MONITORING PROGRAM (REMP)

ANNUAL REPORT - PART II
DATA TABULATIONS AND ANALYSES

January 1 to December 31, 2007

Prepared by

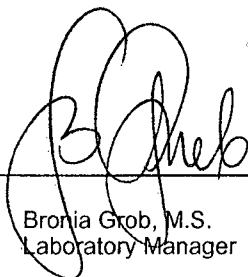
ENVIRONMENTAL, Inc.
Midwest Laboratory

Submitted by

Union Electric Co.
dba AmerenUE Corp.

Project No. 8036

Approved : _____



Bronja Grob, M.S.
Laboratory Manager

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
	List of Tables	iii
1.0	Introduction.....	iv
2.0	Listing of Missed Samples.....	v

<u>Appendices</u>		<u>Page</u>
C	Supplemental Analyses	C-1
D	Site Investigation Reports, Terracon Consultants, Inc.	D-1

LIST OF TABLES

No.	Title	Page
1	Airborne particulates and charcoal cartridges, analysis for gross beta and iodine-131	1-1
2	Airborne particulates, quarterly composites of weekly collections, analysis for gamma-emitting isotopes	2-1
2.1	Airborne particulates, weekly collections, analysis for gamma-emitting isotopes	2-3
3	Milk samples, analysis for iodine-131 and gamma emitting isotopes.....	3-1
4	Vegetation, analysis for gross alpha, gross beta and gamma-emitting isotopes	4-1
5	Soil, analysis for gross alpha, gross beta and gamma-emitting isotopes.....	5-1
6	Surface water, analysis for tritium and gamma-emitting isotopes	6-1
7	Ground water, analysis for tritium and gamma-emitting isotopes.....	7-1
8	Bottom sediments, analysis for gamma-emitting isotopes	8-1
9	Shoreline sediments, analysis for gamma-emitting isotopes.....	9-1
10	Fish, analysis for gamma-emitting isotopes	10-1
11	Direct Radiation	11-1

1.0 INTRODUCTION

The following constitutes a supplement to the Annual Report for the Radiological Environmental Monitoring Program conducted at the AmerenUE, Callaway Plant, Fulton, Missouri in 2007. 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 5.5.

Additional sampling information may be found in Appendix C, Tables 1 and 2 and Figures 1 through 8. Specifics of the limited site investigations conducted by Terracon Consultants, Inc. is provided in the reports contained in Appendix D.

2.0 DATA TABLES

CALLAWAY

Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131^a.

Location: A-1

Units: pCi/m³

Collection: Continuous, weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-04-07	428	0.025 ± 0.003	07-05-07	428	0.020 ± 0.003
01-11-07	428	0.015 ± 0.003	07-12-07	428	0.027 ± 0.003
01-18-07	426	0.017 ± 0.003	07-19-07	428	0.030 ± 0.003
01-25-07	456	0.027 ± 0.003	07-26-07	431	0.025 ± 0.003
02-01-07	426	0.027 ± 0.003	08-02-07	463	0.034 ± 0.003
02-08-07	426	0.021 ± 0.003	08-09-07	426	0.032 ± 0.004
02-16-07	492	0.023 ± 0.003	08-16-07	418	0.034 ± 0.004
02-22-07	364	0.022 ± 0.004	08-23-07	428	0.029 ± 0.003
03-01-07	436	0.015 ± 0.003	08-30-07	426	0.029 ± 0.003
03-08-07	426	0.022 ± 0.003	09-06-07	433	0.030 ± 0.003
03-15-07	423	0.021 ± 0.003	09-13-07	423	0.025 ± 0.003
03-22-07	428	0.023 ± 0.003	09-20-07	431	0.034 ± 0.003
03-29-07	433	0.016 ± 0.003	09-27-07	431	0.031 ± 0.004
1st Quarter Mean ± s.d.		0.021 ± 0.004	3rd Quarter Mean ± s.d.		0.029 ± 0.004
04-05-07	423	0.019 ± 0.003	10-04-07	428	0.032 ± 0.003
04-12-07	431	0.018 ± 0.003	10-11-07	426	0.016 ± 0.003
04-19-07	423	0.023 ± 0.003	10-18-07	428	0.027 ± 0.003
04-26-07	428	0.015 ± 0.003	10-25-07	431	0.024 ± 0.003
05-03-07	431	0.020 ± 0.003	11-01-07	423	0.022 ± 0.003
05-10-07	426	0.023 ± 0.003	11-09-07	492	0.022 ± 0.003
05-17-07	428	0.019 ± 0.003	11-15-07	370	0.036 ± 0.004
05-24-07	431	0.023 ± 0.003	11-23-07	487	0.024 ± 0.003
05-31-07	426	0.018 ± 0.003	11-28-07	308	0.028 ± 0.004
06-07-07	433	0.020 ± 0.003	12-06-07	492	0.028 ± 0.003
06-15-07	484	0.028 ± 0.003	12-14-07	489	0.036 ± 0.003
06-21-07	370	0.030 ± 0.004	12-20-07	359	0.050 ± 0.004
06-28-07	428	0.023 ± 0.003	12-27-07	431	0.028 ± 0.003
2nd Quarter Mean ± s.d.		0.021 ± 0.004	01-03-08	428	0.032 ± 0.003
			4th Quarter Mean ± s.d.		0.029 ± 0.008
Cumulative Average					0.025
Previous Annual Average					0.023

^a Iodine-131 concentrations are < 0.07 pCi/m³ unless noted otherwise.

CALLAWAY

Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131^a.

Location: B-3

Units: pCi/m³

Collection: Continuous, weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-04-07	433	0.024 ± 0.003	07-05-07	428	0.016 ± 0.003
01-11-07	426	0.017 ± 0.003	07-12-07	431	0.026 ± 0.003
01-18-07	426	0.022 ± 0.003	07-19-07	426	0.022 ± 0.003
01-25-07	434	0.026 ± 0.003	07-26-07	431	0.023 ± 0.003
02-01-07	428	0.027 ± 0.003	08-02-07	431	0.030 ± 0.003
02-08-07	428	0.023 ± 0.003	08-09-07	426	0.032 ± 0.003
02-16-07	489	0.022 ± 0.003	08-16-07	428	0.032 ± 0.004
02-22-07	364	0.025 ± 0.004	08-23-07	428	0.029 ± 0.003
03-01-07	441	0.014 ± 0.003	08-30-07	428	0.026 ± 0.003
03-08-07	421	0.022 ± 0.003	09-06-07	433	0.027 ± 0.003
03-15-07	423	0.023 ± 0.003	09-13-07	423	0.019 ± 0.003
03-22-07	428	0.021 ± 0.003	09-20-07	431	0.030 ± 0.003
03-29-07	433	0.017 ± 0.003	09-27-07	433	0.030 ± 0.003
1st Quarter Mean ± s.d.		0.022 ± 0.004	3rd Quarter Mean ± s.d.		0.026 ± 0.005
04-05-07	421	0.018 ± 0.003	10-04-07	426	0.031 ± 0.003
04-12-07	433	0.016 ± 0.003	10-11-07	423	0.013 ± 0.003
04-19-07	423	0.021 ± 0.003	10-18-07	428	0.024 ± 0.003
04-26-07	431	0.015 ± 0.003	10-25-07		NS ^b
05-03-07	428	0.019 ± 0.003	11-01-07	357	0.021 ± 0.003
05-10-07	426	0.021 ± 0.003	11-09-07	489	0.023 ± 0.003
05-17-07	428	0.020 ± 0.003	11-15-07	370	0.039 ± 0.004
05-24-07	433	0.026 ± 0.003	11-23-07	487	0.022 ± 0.003
05-31-07	423	0.019 ± 0.003	11-28-07	308	0.027 ± 0.004
06-07-07	431	0.017 ± 0.003	12-06-07	492	0.029 ± 0.003
06-15-07	484	0.026 ± 0.003	12-14-07	489	0.038 ± 0.003
06-21-07	372	0.026 ± 0.004	12-20-07	362	0.044 ± 0.004
06-28-07	426	0.021 ± 0.003	12-27-07	431	0.029 ± 0.003
2nd Quarter Mean ± s.d.		0.020 ± 0.004	01-03-08	433	0.037 ± 0.003
			4th Quarter Mean ± s.d.		0.029 ± 0.009
Cumulative Average					0.024
Previous Annual Average					0.026

^a Iodine-131 concentrations are < 0.07 pCi/m³ unless noted otherwise.

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

CALLAWAY

Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131^a.

Location: A-7

Units: pCi/m³

Collection: Continuous, weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-04-07	431	0.022 ± 0.003	07-05-07	433	0.020 ± 0.003
01-11-07	426	0.014 ± 0.003	07-12-07	431	0.023 ± 0.003
01-18-07	426	0.018 ± 0.003	07-19-07	426	0.023 ± 0.003
01-25-07	399	0.041 ± 0.004 ^b	07-26-07	431	0.022 ± 0.003
02-01-07	423	0.022 ± 0.003	08-02-07	434	0.029 ± 0.003
02-08-07	428	0.016 ± 0.003	08-09-07	428	0.030 ± 0.003
02-16-07	489	0.014 ± 0.003	08-16-07	426	0.033 ± 0.004
02-22-07	370	0.021 ± 0.003	08-23-07	431	0.026 ± 0.003
03-01-07	436	0.017 ± 0.003	08-30-07	426	0.020 ± 0.003
03-08-07	423	0.025 ± 0.003	09-06-07	431	0.025 ± 0.003
03-15-07	421	0.026 ± 0.003	09-13-07	426	0.041 ± 0.003
03-22-07	428	0.022 ± 0.003	09-20-07	423	0.030 ± 0.003
03-29-07	436	0.015 ± 0.003	09-27-07	431	0.036 ± 0.004
1st Quarter Mean ± s.d.		0.021 ± 0.007	3rd Quarter Mean ± s.d.		0.028 ± 0.006
04-05-07	413	0.020 ± 0.003	10-04-07	431	0.033 ± 0.003
04-12-07	431	0.016 ± 0.003	10-11-07	426	0.015 ± 0.003
04-19-07	426	0.018 ± 0.003	10-18-07	428	0.024 ± 0.003
04-26-07	431	0.014 ± 0.003	10-25-07	428	0.022 ± 0.003
05-03-07	431	0.019 ± 0.003	11-01-07	426	0.020 ± 0.003
05-10-07	423	0.020 ± 0.003	11-09-07	489	0.026 ± 0.003
05-17-07	428	0.023 ± 0.003	11-15-07	375	0.031 ± 0.004
05-24-07	433	0.022 ± 0.003	11-23-07	482	0.023 ± 0.003
05-31-07	426	0.017 ± 0.003	11-28-07	308	0.025 ± 0.004
06-07-07	426	0.015 ± 0.003	12-06-07	497	0.034 ± 0.003
06-15-07	489	0.025 ± 0.003	12-14-07	464	0.040 ± 0.003
06-21-07	372	0.025 ± 0.004	12-20-07	362	0.054 ± 0.004
06-28-07	421	0.022 ± 0.003	12-27-07	428	0.029 ± 0.003
2nd Quarter Mean ± s.d.		0.020 ± 0.004	01-03-08	431	0.040 ± 0.003
			4th Quarter Mean ± s.d.		0.030 ± 0.010
Cumulative Average					0.025
Previous Annual Average					0.022

^a Iodine-131 concentrations are < 0.07 pCi/m³ unless noted otherwise.

^b Results of gamma spectroscopic analysis listed in Table 2.1.

CALLAWAY

Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131^a.

Location: A-8

Units: pCi/m³

Collection: Continuous, weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-04-07	428	0.019 ± 0.003	07-05-07	428	0.018 ± 0.003
01-11-07	431	0.018 ± 0.003	07-12-07	431	0.024 ± 0.003
01-18-07	426	0.023 ± 0.003	07-19-07	426	0.024 ± 0.003
01-25-07	454	0.026 ± 0.003	07-26-07	431	0.018 ± 0.003
02-01-07	426	0.033 ± 0.003	08-02-07	422	0.028 ± 0.003
02-08-07	428	0.027 ± 0.003	08-09-07	426	0.031 ± 0.003
02-16-07	492	0.027 ± 0.003	08-16-07	428	0.030 ± 0.003
02-22-07	364	0.029 ± 0.004	08-23-07	428	0.023 ± 0.003
03-01-07	441	0.017 ± 0.003	08-30-07	428	0.025 ± 0.003
03-08-07	421	0.025 ± 0.003	09-06-07	431	0.022 ± 0.003
03-15-07	421	0.027 ± 0.003	09-13-07	426	0.029 ± 0.003
03-22-07	428	0.024 ± 0.003	09-20-07	431	0.027 ± 0.003
03-29-07	436	0.018 ± 0.003	09-27-07	431	0.026 ± 0.003
1st Quarter Mean ± s.d.		0.024 ± 0.005	3rd Quarter Mean ± s.d.		0.025 ± 0.004
04-05-07	421	0.019 ± 0.003	10-04-07	428	0.031 ± 0.003
04-12-07	431	0.019 ± 0.003	10-11-07	423	0.011 ± 0.003
04-19-07	426	0.023 ± 0.003	10-18-07	428	0.018 ± 0.003
04-26-07	428	0.019 ± 0.003	10-25-07	433	0.020 ± 0.003
05-03-07	428	0.023 ± 0.003	11-01-07	415	0.019 ± 0.003
05-10-07	426	0.019 ± 0.003	11-09-07	492	0.017 ± 0.003
05-17-07	428	0.020 ± 0.003	11-15-07	393	0.027 ± 0.004
05-24-07	431	0.020 ± 0.003	11-23-07	484	0.026 ± 0.003
05-31-07	426	0.016 ± 0.003	11-28-07	311	0.030 ± 0.004
06-07-07	431	0.018 ± 0.003	12-06-07	489	0.031 ± 0.003
06-15-07	484	0.025 ± 0.003	12-14-07	245	0.029 ± 0.005
06-21-07	372	0.023 ± 0.003	12-20-07	362	0.056 ± 0.004
06-28-07	426	0.022 ± 0.003	12-27-07	431	0.029 ± 0.003
2nd Quarter Mean ± s.d.		0.020 ± 0.002	01-03-08	431	0.040 ± 0.003
			4th Quarter Mean ± s.d.		0.027 ± 0.011
			Cumulative Average		0.024
			Previous Annual Average		0.023

^a Iodine-131 concentrations are < 0.07 pCi/m³ unless noted otherwise.

CALLAWAY

Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131^a.

Location: A-9

Units: pCi/m³

Collection: Continuous, weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-04-07	433	0.020 ± 0.003	07-05-07	431	0.015 ± 0.003
01-11-07	426	0.016 ± 0.003	07-12-07	431	0.024 ± 0.003
01-18-07	426	0.017 ± 0.003	07-19-07	426	0.021 ± 0.003
01-25-07	403	0.032 ± 0.004	07-26-07	436	0.021 ± 0.003
02-01-07	428	0.026 ± 0.003	08-02-07	446	0.028 ± 0.003
02-08-07	428	0.018 ± 0.003	08-09-07	426	0.027 ± 0.003
02-16-07	492	0.022 ± 0.003	08-16-07	428	0.030 ± 0.003
02-22-07	362	0.025 ± 0.004	08-23-07	428	0.023 ± 0.003
03-01-07	441	0.013 ± 0.003	08-30-07	426	0.027 ± 0.003
03-08-07	421	0.023 ± 0.003	09-06-07	433	0.023 ± 0.003
03-15-07	423	0.022 ± 0.003	09-13-07	426	0.023 ± 0.003
03-22-07	428	0.019 ± 0.003	09-20-07	431	0.026 ± 0.003
03-29-07	436	0.014 ± 0.003	09-27-07	431	0.027 ± 0.003
<u>1st Quarter Mean ± s.d.</u>		<u>0.020 ± 0.005</u>	<u>3rd Quarter Mean ± s.d.</u>		<u>0.024 ± 0.004</u>
04-05-07	418	0.017 ± 0.003	10-04-07	428	0.027 ± 0.003
04-12-07	433	0.015 ± 0.003	10-11-07	423	0.011 ± 0.003
04-19-07	423	0.018 ± 0.003	10-18-07	428	0.017 ± 0.003
04-26-07	431	0.016 ± 0.003	10-25-07	433	0.019 ± 0.003
05-03-07	428	0.017 ± 0.003	11-01-07	423	0.017 ± 0.003
05-10-07	426	0.019 ± 0.003	11-09-07	492	0.018 ± 0.003
05-17-07	428	0.020 ± 0.003	11-15-07	370	0.028 ± 0.004
05-24-07	431	0.021 ± 0.003	11-23-07	484	0.027 ± 0.003
05-31-07	428	0.017 ± 0.003	11-28-07	311	0.028 ± 0.004
06-07-07	428	0.016 ± 0.003	12-06-07	489	0.029 ± 0.003
06-15-07	484	0.023 ± 0.003	12-14-07	489	0.040 ± 0.003
06-21-07	372	0.023 ± 0.003	12-20-07	370	0.051 ± 0.004
06-28-07	426	0.018 ± 0.003	12-27-07	431	0.037 ± 0.003
<u>2nd Quarter Mean ± s.d.</u>		<u>0.018 ± 0.003</u>	01-03-08	433	0.042 ± 0.003
			<u>4th Quarter Mean ± s.d.</u>		<u>0.028 ± 0.011</u>
Cumulative Average					0.023
Previous Annual Average					0.025

^a Iodine-131 concentrations are < 0.07 pCi/m³ unless noted otherwise.

CALLAWAY

Table 2. Airborne particulates, analyses for gamma-emitting isotopes.
 Collection : Quarterly composites of weekly collections.
 Units: pCi/m³

		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Location		A-1			
Lab Code	Req. LLD	CAAP- 2173	CAAP- 4791	CAAP- 7245	CAAP- 8937
Volume	-	5592	5562	5593	5992
Be-7	-	0.074 ± 0.012	0.116 ± 0.014	0.098 ± 0.015	0.051 ± 0.010
Co-58	-	< 0.0003	< 0.0005	< 0.0005	< 0.0004
Co-60	-	< 0.0005	< 0.0005	< 0.0002	< 0.0005
Zr-Nb-95	-	< 0.0005	< 0.0007	< 0.0010	< 0.0004
Cs-134	0.050	< 0.0006	< 0.0006	< 0.0005	< 0.0005
Cs-137	0.060	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Ba-La-140	-	< 0.0012	< 0.0018	< 0.0030	< 0.0030
Ce-144	-	< 0.0024	< 0.0035	< 0.0027	< 0.0022
Location		A-7			
Lab Code	Req. LLD	CAAP- 2174	CAAP- 4792	CAAP- 7246	CAAP- 8938
Volume	-	5535	5549	5575	5975
Be-7	-	0.079 ± 0.010	0.091 ± 0.011	0.098 ± 0.015	0.059 ± 0.012
Co-58	-	< 0.0003	< 0.0003	< 0.0003	< 0.0005
Co-60	-	< 0.0003	< 0.0002	< 0.0002	< 0.0005
Zr-Nb-95	-	< 0.0006	< 0.0005	< 0.0005	< 0.0006
Cs-134	0.050	< 0.0005	< 0.0005	< 0.0006	< 0.0005
Cs-137	0.060	< 0.0005	< 0.0004	< 0.0004	< 0.0004
Ba-La-140	-	< 0.0012	< 0.0017	< 0.0030	< 0.0026
Ce-144	-	< 0.0026	< 0.0025	< 0.0025	< 0.0026
Location		A-8			
Lab Code	Req. LLD	CAAP- 2175	CAAP- 4793	CAAP- 7247	CAAP- 8939
Volume	-	5595	5556	5566	5766
Be-7	-	0.078 ± 0.011	0.117 ± 0.015	0.095 ± 0.017	0.058 ± 0.012
Co-58	-	< 0.0004	< 0.0006	< 0.0003	< 0.0003
Co-60	-	< 0.0004	< 0.0007	< 0.0002	< 0.0005
Zr-Nb-95	-	< 0.0006	< 0.0009	< 0.0006	< 0.0004
Cs-134	0.050	< 0.0006	< 0.0003	< 0.0005	< 0.0005
Cs-137	0.060	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Ba-La-140	-	< 0.0012	< 0.0052	< 0.0031	< 0.0027
Ce-144	-	< 0.0034	< 0.0023	< 0.0015	< 0.0025

CALLAWAY

Table 2. Airborne particulates, analyses for gamma-emitting isotopes.

Collection : Quarterly composites of weekly collections.

Units: pCi/m³

		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
<u>A-9</u>					
Lab Code	Req. LLD	CAAP- 2176	CAAP- 4794	CAAP- 7248	CAAP- 8940
Volume	-	5546	5556	5597	6005
Be-7	-	0.078 ± 0.010	0.107 ± 0.018	0.097 ± 0.013	0.049 ± 0.009
Co-58	-	< 0.0004	< 0.0005	< 0.0004	< 0.0006
Co-60	-	< 0.0003	< 0.0007	< 0.0002	< 0.0005
Zr-Nb-95	-	< 0.0005	< 0.0006	< 0.0005	< 0.0006
Cs-134	0.050	< 0.0004	< 0.0007	< 0.0004	< 0.0004
Cs-137	0.060	< 0.0005	< 0.0005	< 0.0003	< 0.0004
Ba-La-140	-	< 0.0021	< 0.0038	< 0.0030	< 0.0029
Ce-144	-	< 0.0023	< 0.0016	< 0.0032	< 0.0027
<u>B-3</u>					
Lab Code	Req. LLD	CAAP- 2177	CAAP- 4795	CAAP- 7249	CAAP- 8941
Volume	-	5575	5559	5577	5495
Be-7	-	0.074 ± 0.009	0.112 ± 0.015	0.050 ± 0.011	0.063 ± 0.013
Co-58	-	< 0.0003	< 0.0006	< 0.0004	< 0.0003
Co-60	-	< 0.0003	< 0.0006	< 0.0002	< 0.0006
Zr-Nb-95	-	< 0.0006	< 0.0008	< 0.0004	< 0.0010
Cs-134	0.050	< 0.0004	< 0.0004	< 0.0004	< 0.0003
Cs-137	0.060	< 0.0005	< 0.0007	< 0.0004	< 0.0003
Ba-La-140	-	< 0.0010	< 0.0020	< 0.0031	< 0.0028
Ce-144	-	< 0.0019	< 0.0037	< 0.0025	< 0.0028

CALLAWAY

Table 2. 1 Airborne particulates, analyses for gamma-emitting isotopes ^a.
 Collection: Weekly Collections
 Units: pCi/m³

Location		A-1		
Lab Code		CAAP- 195	CAAP- 8825	
Date Collected	Required	12-14-07	12-20-07	
Volume (m ³)	LLD	489	359	
Be-7	-	< 0.059	< 0.067	
Co-58	-	< 0.003	< 0.008	
Co-60	-	< 0.005	< 0.006	
Zr-95	-	< 0.006	< 0.011	
Cs-134	0.050	< 0.004	< 0.004	
Cs-137	0.060	< 0.002	< 0.005	
Ba-La-140	-	< 0.019	< 0.035	
Ce-144	-	< 0.015	< 0.039	

Location		B-3			
Lab Code		CAAP- 8685	CAAP- 198	CAAP- 8829	CAAP- 8835
Date Collected	Required	11-15-07	12-14-07	12-20-07	01-03-08
Volume (m ³)	LLD	370	489	362	433
Be-7	-	< 0.088	< 0.059	< 0.080	< 0.049
Co-58	-	< 0.004	< 0.005	< 0.007	< 0.004
Co-60	-	< 0.005	< 0.004	< 0.007	< 0.005
Zr-95	-	< 0.007	< 0.007	< 0.008	< 0.006
Cs-134	0.050	< 0.003	< 0.002	< 0.002	< 0.004
Cs-137	0.060	< 0.003	< 0.004	< 0.005	< 0.004
Ba-La-140	-	< 0.031	< 0.017	< 0.033	< 0.013
Ce-144	-	< 0.025	< 0.025	< 0.037	< 0.030

Location		A-7			
Lab Code		CAAP- 1008	CAAP- 6942	CAAP- 6943	CAAP- 196
Date Collected	Required	01-25-07	09-13-07	09-27-07	12-14-07
Volume (m ³)	LLD	399	426	431	464
Be-7	-	0.099 ± 0.057	0.117 ± 0.059	0.119 ± 0.057	< 0.073
Co-58	-	< 0.004	< 0.004	< 0.004	< 0.004
Co-60	-	< 0.004	< 0.002	< 0.002	< 0.004
Zr-95	-	< 0.010	< 0.008	< 0.006	< 0.009
Cs-134	0.050	< 0.006	< 0.004	< 0.003	< 0.004
Cs-137	0.060	< 0.004	< 0.003	< 0.003	< 0.004
Ba-La-140	-	< 0.016	< 0.009	< 0.005	< 0.044
Ce-144	-	< 0.022	< 0.021	< 0.012	< 0.027

^a Gamma spectroscopic analysis is performed on air filters exceeding a gross beta activity of 0.037 pCi/m³.

CALLAWAY

Table 2. 1 Airborne particulates, analyses for gamma-emitting isotopes ^a.

Collection: Weekly Collections

Units: pCi/m³

Location		A-7 (cont.)			
Lab Code		CAAP- 8826	CAAP- 8832		
Date Collected	Required	12-20-07	01-03-08		
Volume (m ³)	LLD	362	431		
Be-7	-	0.117 ± 0.064	< 0.059		
Co-58	-	< 0.009	< 0.003		
Co-60	-	< 0.006	< 0.006		
Zr-95	-	< 0.011	< 0.007		
Cs-134	0.050	< 0.002	< 0.003		
Cs-137	0.060	< 0.004	< 0.004		
Ba-La-140	-	< 0.032	< 0.013		
Ce-144	-	< 0.030	< 0.021		

Location		A-8			
Lab Code		CAAP- 8827	CAAP- 8833		
Date Collected	Required	12-20-07	01-03-08		
Volume (m ³)	LLD	362	431		
Be-7	-	0.158 ± 0.078	< 0.060		
Co-58	-	< 0.008	< 0.005		
Co-60	-	< 0.006	< 0.006		
Zr-95	-	< 0.011	< 0.014		
Cs-134	0.050	< 0.005	< 0.002		
Cs-137	0.060	< 0.006	< 0.003		
Ba-La-140	-	< 0.035	< 0.013		
Ce-144	-	< 0.025	< 0.024		

Location		A-9			
Lab Code		CAAP- 197	CAAP- 8828	CAAP- 8830	CAAP- 8834
Date Collected	Required	12-14-07	12-20-07	12-27-07	01-03-08
Volume (m ³)	LLD	489	370	431	433
Be-7	-	0.163 ± 0.085	< 0.093	0.156 ± 0.061	< 0.049
Co-58	-	< 0.003	< 0.004	< 0.003	< 0.004
Co-60	-	< 0.006	< 0.005	< 0.006	< 0.005
Zr-95	-	< 0.008	< 0.012	< 0.009	< 0.007
Cs-134	0.050	< 0.004	< 0.005	< 0.004	< 0.004
Cs-137	0.060	< 0.004	< 0.006	< 0.003	< 0.004
Ba-La-140	-	< 0.020	< 0.036	< 0.019	< 0.014
Ce-144	-	< 0.014	< 0.032	< 0.020	< 0.024

^a Gamma spectroscopic analysis is performed on air filters exceeding a gross beta activity of 0.037 pCi/m³.

CALLAWAY

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

Collection: Semimonthly during grazing season, monthly otherwise.

Units: pCi/L

Location		CA-MLK-M6					
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
01-09-07	CAMI -94	< 0.4	1002 ± 102	< 7.3	< 3.6	< 5.5	< 2.8
02-13-07	CAMI -850	< 0.4	1122 ± 105	< 6.3	< 3.5	< 5.0	< 2.0
03-12-07	CAMI -1399	< 0.3	1396 ± 128	< 10.6	< 3.2	< 5.8	< 5.4
04-10-07	CAMI -1895	< 0.4	1259 ± 108	< 5.3	< 3.5	< 3.6	< 1.4
04-24-07	CAMI -2283	< 0.2	1249 ± 119	< 5.9	< 4.0	< 2.7	< 2.4
05-08-07	CAMI -2673	< 0.5	1266 ± 124	< 7.7	< 2.7	< 3.3	< 1.9
05-22-07	CAMI -3018	< 0.5	1162 ± 102	< 6.6	< 2.4	< 3.0	< 2.3
06-12-07	CAMI -3588	< 0.4	1286 ± 183	< 6.6	< 5.4	< 6.7	< 3.3
06-26-07	CAMI -3917	< 0.4	1105 ± 163	< 10.4	< 5.2	< 6.2	< 3.1
07-10-07	CAMI -4159	< 0.4	1342 ± 174	< 12.1	< 4.7	< 7.3	< 4.0
07-24-07	CAMI -4652	< 0.3	1275 ± 93	< 2.6	< 2.8	< 3.4	< 1.9
08-14-07	CAMI -5384	< 0.3	1239 ± 116	< 5.4	< 3.0	< 4.3	< 1.4
08-27-07	CAMI -5762	< 0.3	1389 ± 126	< 7.2	< 3.9	< 2.8	< 3.5
09-11-07	CAMI -6021	< 0.4	1307 ± 175	< 8.1	< 7.7	< 7.4	< 6.6
09-25-07	CAMI -6495	< 0.3	1143 ± 110	< 6.8	< 2.5	< 3.8	< 1.4
10-09-07	CAMI -6825	< 0.4	1240 ± 126	< 9.5	< 3.7	< 3.8	< 2.9
10-23-07	CAMI -7205	< 0.3	1273 ± 116	< 7.0	< 3.7	< 4.5	< 1.6
11-06-07	CAMI -7655	< 0.4	1228 ± 148	< 7.7	< 5.3	< 5.4	< 9.5
12-11-07	CAMI -8304	< 0.3	1133 ± 107	< 6.8	< 3.4	< 3.5	< 4.3

CALLAWAY

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

Collection: Semimonthly during grazing season, monthly otherwise.

Units: pCi/L

Location		CA-MLK-M8					
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
01-09-07	CAMI -95	< 0.4	1163 ± 116	< 5.3	< 4.8	< 2.8	< 4.4
02-13-07	CAMI -851	< 0.4	1282 ± 126	< 6.4	< 3.7	< 3.8	< 3.0
03-11-07	CAMI -1400	< 0.4	1685 ± 207	< 18.9	< 7.6	< 8.8	< 6.6
04-10-07	CAMI -1896	< 0.4	1363 ± 121	< 4.6	< 3.5	< 3.6	< 2.0
04-23-07	CAMI -2284	< 0.3	1162 ± 110	< 5.3	< 3.1	< 2.3	< 1.6
05-07-07	CAMI -2674	< 0.3	1241 ± 111	< 4.5	< 2.2	< 4.5	< 2.5
05-21-07	CAMI -3019	< 0.4	1202 ± 116	< 4.7	< 3.3	< 3.6	< 1.8
06-10-07	CAMI -3589	< 0.5	1249 ± 125	< 7.3	< 4.5	< 4.3	< 2.4
06-24-07	CAMI -3918	< 0.4	1202 ± 119	< 7.8	< 4.3	< 4.5	< 3.8
07-08-07	CAMI -4160	< 0.4	1100 ± 105	< 6.6	< 2.8	< 3.7	< 1.9
07-22-07	CAMI -4653	< 0.3	1108 ± 127	< 7.6	< 2.4	< 5.8	< 3.6
08-14-07	CAMI -5385	< 0.2	1305 ± 148	< 8.5	< 5.1	< 5.0	< 5.8
08-28-07	CAMI -5763	< 0.3	1166 ± 108	< 4.4	< 2.4	< 3.5	< 1.5
09-09-07	CAMI -6022	< 0.5	1278 ± 171	< 8.8	< 6.5	< 6.3	< 7.9
09-23-07	CAMI -6496	< 0.2	1222 ± 114	< 7.6	< 2.7	< 5.7	< 3.6
10-09-07	NS ^a	-	-	-	-	-	-
10-23-07	NS ^a	-	-	-	-	-	-
11-05-07	CAMI -7656	< 0.4	1443 ± 147	< 5.1	< 4.3	< 4.8	< 2.4
12-11-07	NS ^a	-	-	-	-	-	-

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

CALLAWAY

Table 4. Vegetation, analyses for gross alpha, gross beta, iodine-131 and gamma-emitting isotopes.
 Collection: Monthly; during growing season
 Units: pCi/kg wet

Location		CA-FPL-V9			
Lab Code	Req. LLD	CAVE- 3594	CAVE- 3595	CAVE- 3596	CAVE- 3597
Date Collected	-	06-11-07	06-11-07	06-11-07	06-11- 07
Sample Type	-	Lettuce	Collard	Mustard	Cabbage
Gross Alpha	-	< 37	< 56	75 ± 54	56 ± 33
Gross Beta	-	5055 ± 111	6178 ± 153	5285 ± 166	5218 ± 114
K-40	-	4725 ± 498	5807 ± 629	5064 ± 522	4547 ± 394
Mn-54	-	< 15.2	< 20.1	< 16.4	< 9.4
Co-58	-	< 12.8	< 18.2	< 11.0	< 7.8
Co-60	-	< 15.4	< 16.2	< 15.9	< 4.7
I-131	60	< 25.1	< 18.5	< 30.3	< 14.6
Cs-134	60	< 11.6	< 17.6	< 8.0	< 8.3
Cs-137	80	< 17.0	< 19.5	< 15.2	< 11.3
Lab Code	Req. LLD	CAVE- 4150	CAVE- 4151	CAVE- 4152	CAVE- 5386
Date Collected	-	07-09-07	07-09-07	07-09-07	08-14- 07
Sample Type	-	Collards	Lettuce	Cabbage	Cabbage
Gross Alpha	-	< 128	< 74	120 ± 84	70 ± 36
Gross Beta	-	6546 ± 294	6426 ± 237	4433 ± 216	5046 ± 134
K-40	-	6710 ± 463	6053 ± 407	3872 ± 338	3805 ± 378
Mn-54	-	< 12.5	< 12.0	< 6.6	< 10.0
Co-58	-	< 13.7	< 8.0	< 5.9	< 8.1
Co-60	-	< 7.5	< 14.7	< 8.1	< 11.0
I-131	60	< 20.3	< 22.0	< 9.8	< 12.0
Cs-134	60	< 9.0	< 10.8	< 8.5	< 8.3
Cs-137	80	< 13.0	< 11.8	< 9.4	< 8.0
Lab Code	Req. LLD	CAVE- 5387	CAVE- 6826	CAVE- 6827	CAVE- 6828
Date Collected	-	08-14-07	10-08-07	10-08-07	10-08- 07
Sample Type	-	Collards	Cabbage	Mustard	Turnip
Gross Alpha	-	182 ± 82	< 29	< 60	57 ± 44
Gross Beta	-	9949 ± 257	2628 ± 111	3799 ± 144	5554 ± 205
K-40	-	7693 ± 659	5539 ± 623	5080 ± 525	5451 ± 433
Mn-54	-	< 14.4	< 19.9	< 16.6	< 12.3
Co-58	-	< 16.5	< 23.9	< 13.2	< 12.5
Co-60	-	< 16.0	< 20.3	< 10.2	< 11.2
I-131	60	< 24.5	< 18.8	< 19.1	< 16.1
Cs-134	60	< 11.9	< 21.0	< 14.8	< 13.4
Cs-137	80	< 21.7	< 14.6	< 14.1	< 11.4

CALLAWAY

Table 4. Vegetation, analyses for gross alpha, gross beta, iodine-131 and gamma-emitting isotopes.

Collection: Monthly, during growing season

Units: pCi/kg wet

Location		CA-FPL-V9			
Lab Code	Req. LLD	CAVE- 6830	CAVE- 7666	CAVE- 7668	CAVE- 7669
Date Collected	-	10-08-07	11-05-07	11-05-07	11-05-07
Sample Type	-	Collards	Collards	Turnips	Mustard
Gross Alpha	-	< 49	66 ± 39	126 ± 54	90 ± 42
Gross Beta	-	2632 ± 100	6033 ± 149	6336 ± 168	6848 ± 146
K-40	-	5124 ± 596	5817 ± 355	5695 ± 506	6477 ± 352
Mn-54	-	< 20.6	< 10.4	< 12.2	< 6.6
Co-58	-	< 19.0	< 6.3	< 16.9	< 8.5
Co-60	-	< 16.5	< 9.3	< 10.3	< 11.7
I-131	60	< 33.4	< 15.4	< 29.5	< 23.5
Cs-134	60	< 9.7	< 7.5	< 11.5	< 9.1
Cs-137	80	< 21.7	< 9.3	< 19.6	< 11.5
Lab Code	Req. LLD	CAVE- 7670			
Date Collected	-	11-05-07			
Sample Type	-	Cabbage			
Gross Alpha	-	93 ± 50			
Gross Beta	-	5577 ± 151			
K-40	-	4874 ± 330			
Mn-54	-	< 9.2			
Co-58	-	< 8.6			
Co-60	-	< 7.1			
I-131	60	< 13.7			
Cs-134	60	< 6.9			
Cs-137	80	< 6.2			

CALLAWAY

Table 4. Vegetation, analyses for gross alpha, gross beta, iodine-131 and gamma-emitting isotopes.
 Collection: Monthly, during growing season.
 Units: pCi/kg wet

Location		CA-FPL-V11			
Lab Code	Req. LLD	CAVE- 3598	CAVE- 3599	CAVE- 4153	CAVE- 4154
Date Collected	-	06-11-07	06-11-07	07-09-07	07-09-07
Sample Type	-	Turnip	Swiss Chard	Lettuce	Turnips
Gross Alpha	-	< 59	< 58	182 ± 81	217 ± 107
Gross Beta	-	7599 ± 179	6701 ± 153	6043 ± 209	5363 ± 228
K-40	-	6904 ± 480	6132 ± 607	5104 ± 533	4580 ± 452
Mn-54	-	< 11.7	< 17.5	< 15.4	< 12.7
Co-58	-	< 13.8	< 18.5	< 13.3	< 13.6
Co-60	-	< 7.0	< 19.2	< 20.3	< 16.9
I-131	60	< 14.0	< 27.1	< 17.5	< 17.6
Cs-134	60	< 7.8	< 12.2	< 12.1	< 10.5
Cs-137	80	< 14.6	< 16.3	< 14.1	< 11.0
Lab Code	Req. LLD	CAVE- 4156	CAVE- 5388	CAVE- 5389	CAVE- 5390
Date Collected	-	07-09-07	08-14-07	08-14-07	08-14-07
Sample Type	-	Cabbage	Lettuce	Broccoli	Cabbage
Gross Alpha	-	57 ± 33	114 ± 60	159 ± 77	41 ± 22
Gross Beta	-	2917 ± 98	6286 ± 182	8763 ± 262	2511 ± 72
K-40	-	2201 ± 359	4920 ± 590	4387 ± 512	1688 ± 201
Mn-54	-	< 12.5	< 14.3	< 14.6	< 6.7
Co-58	-	< 5.2	< 24.5	< 19.3	< 6.4
Co-60	-	< 13.5	< 20.6	< 8.7	< 5.6
I-131	60	< 12.7	< 35.2	< 33.6	< 13.7
Cs-134	60	< 13.1	< 15.9	< 17.7	< 4.9
Cs-137	80	< 9.4	< 18.5	< 13.6	< 5.8
Lab Code	Req. LLD	CAVE- 6023	CAVE- 6024	CAVE- 6025	CAVE- 6831
Date Collected	-	09-10-07	09-10-07	09-10-07	10-08-07
Sample Type	-	Cabbage	Broccoli	Lettuce	Cabbage
Gross Alpha	-	42 ± 25	93 ± 60	128 ± 65	125 ± 51
Gross Beta	-	2788 ± 85	4980 ± 167	5390 ± 179	3172 ± 125
K-40	-	2648 ± 458	5083 ± 657	5846 ± 533	2473 ± 348
Mn-54	-	< 13.9	< 20.1	< 18.6	< 9.1
Co-58	-	< 13.9	< 10.1	< 17.9	< 13.7
Co-60	-	< 15.8	< 10.8	< 15.3	< 12.1
I-131	60	< 27.8	< 33.7	< 42.4	< 19.8
Cs-134	60	< 14.4	< 17.6	< 21.4	< 15.8
Cs-137	80	< 18.0	< 17.9	< 18.1	< 11.9

CALLAWAY

Table 4. Vegetation, analyses for gross alpha, gross beta, iodine-131 and gamma-emitting isotopes.
 Collection: Monthly, during growing season
 Units: pCi/kg wet

Location		CA-FPL-V11		
Lab Code	Req. LLD	CAVE- 6832	CAVE- 7671	CAVE- 7672
Date Collected	-	10-08-07	11-05-07	11-05-07
Sample Type	-	Broccoli	Broccoli	Cabbage
Gross Alpha	-	127 ± 91	68 ± 43	< 45
Gross Beta	-	5677 ± 257	4420 ± 137	3131 ± 104
K-40	-	4737 ± 540	5599 ± 498	3308 ± 422
Mn-54	-	< 8.1	< 13.2	< 8.7
Co-58	-	< 16.0	< 10.2	< 12.9
Co-60	-	< 15.6	< 12.2	< 10.3
I-131	60	< 25.0	< 26.0	< 32.9
Cs-134	60	< 17.8	< 12.2	< 7.6
Cs-137	80	< 20.7	< 13.2	< 12.3

CALLAWAY

Table 4. Vegetation, analyses for gross alpha, gross beta, iodine-131 and gamma-emitting isotopes.
 Collection: Monthly, during growing season
 Units: pCi/kg wet

Location		CA-FPL-V12			
Lab Code	Req. LLD	CAVE- 3600	CAVE- 4157	CAVE- 5391	CAVE- 6027
Date Collected	-	06-12-07	07-10-07	08-14-07	09-11-07
Sample Type	-	Poke Weed	Lettuce	Cabbage	Cabbage
Gross Alpha	-	197 ± 80	67 ± 32	198 ± 91	182 ± 90
Gross Beta	-	8440 ± 239	3846 ± 101	5867 ± 205	6072 ± 225
K-40	-	8119 ± 583	3543 ± 425	4353 ± 313	3623 ± 562
Mn-54	-	< 19.1	< 14.3	< 12.7	< 18.4
Co-58	-	< 14.4	< 12.9	< 9.5	< 17.0
Co-60	-	< 19.1	< 19.9	< 11.5	< 8.6
I-131	60	< 37.0	< 16.1	< 19.6	< 39.8
Cs-134	60	< 15.4	< 15.1	< 9.5	< 22.4
Cs-137	80	< 15.1	< 10.7	< 13.0	< 21.3
Lab Code	Req. LLD	CAVE- 6833	CAVE- 7673		
Date Collected	-	10-09-07	11-05-07		
Sample Type	-	Cabbage	Cabbage		
Gross Alpha	-	< 158	< 74		
Gross Beta	-	4899 ± 281	4551 ± 156		
K-40	-	4316 ± 430	4399 ± 315		
Mn-54	-	< 15.3	< 7.1		
Co-58	-	< 13.3	< 12.0		
Co-60	-	< 8.9	< 10.0		
I-131	60	< 18.0	< 20.0		
Cs-134	60	< 11.8	< 8.5		
Cs-137	80	< 9.9	< 11.8		

CALLAWAY

Table 4. Vegetation, analyses for gross alpha, gross beta, iodine-131 and gamma-emitting isotopes.
 Collection: Monthly, during growing season
 Units: pCi/kg wet

Location		CA-FPL-V14			
Lab Code	Req. LLD	CAVE- 3601	CAVE- 3602	CAVE- 4158	CAVE- 6026
Date Collected	-	06-11-07	06-11-07	07-10-07	09-11-07
Sample Type	-	Turnip	Lettuce	Lettuce	Turnip greens
Gross Alpha	-	247 ± 94	491 ± 126	214 ± 78	245 ± 105
Gross Beta	-	6124 ± 209	7217 ± 220	4325 ± 163	5829 ± 217
K-40	-	5091 ± 430	4923 ± 441	3586 ± 428	4976 ± 632
Mn-54	-	< 9.9	< 13.9	< 14.4	< 16.7
Co-58	-	< 8.8	< 11.2	< 13.4	< 18.9
Co-60	-	< 9.8	< 13.8	< 6.4	< 27.4
I-131	60	< 19.3	< 24.8	< 27.2	< 42.9
Cs-134	60	< 10.9	< 15.7	< 16.6	< 18.0
Cs-137	80	< 15.3	< 10.9	< 21.6	< 20.6
Lab Code	Req. LLD	CAVE- 6834	CAVE- 7674		
Date Collected	-	10-08-07	11-05-07		
Sample Type	-	Turnip	Turnip leaves		
Gross Alpha	-	359 ± 132	142 ± 50		
Gross Beta	-	4536 ± 231	5151 ± 125		
K-40	-	4787 ± 390	4375 ± 413		
Mn-54	-	< 12.6	< 8.3		
Co-58	-	< 6.6	< 10.5		
Co-60	-	< 9.5	< 13.9		
I-131	60	< 20.1	< 23.6		
Cs-134	60	< 8.3	< 5.6		
Cs-137	80	< 12.3	< 14.3		

CALLAWAY

Table 5. Soil, analyses for gross alpha, gross beta and gamma-emitting isotopes.

Collection: Annually

Units: pCi/kg dry

Location		SOL-F-002-#1	SOL-F-002-#2	SOL-F-006-#1	SOL-F-006-#2
Lab Code	Req. LLD	CASO- 8836 ^a	CASO- 8838	CASO- 8839	CASO- 8840
Date Collected	-	01-14-08	01-14-08	01-14-08	01-14-08
Gross Alpha	-	13302 ± 4311	16076 ± 4264	18834 ± 5065	16025 ± 4118
Gross Beta	-	33685 ± 3733	28168 ± 3216	30437 ± 3755	29103 ± 3048
K-40	-	12313 ± 743	11819 ± 726	11002 ± 729	11605 ± 785
Mn-54	-	< 23.2	< 31.0	< 29.6	< 32.9
Fe-59	-	< 65.6	< 64.3	< 29.8	< 47.9
Co-58	-	< 28.5	< 22.6	< 20.8	< 24.2
Co-60	-	< 10.6	< 7.3	< 9.8	< 13.2
Zr-Nb-95	-	< 61.1	< 21.0	< 18.8	< 39.2
Cs-134	150	< 28.2	< 24.4	< 20.8	< 19.4
Cs-137	180	797 ± 47.0	703.3 ± 54.5	763.6 ± 56.2	733.7 ± 55.4
Ba-La-140	-	< 102.2	< 62.9	< 31.3	< 40.2

Location		SOL-PR-003-#1	SOL-PR-003-#2	SOL-PR-007-#1	SOL-PR-007-#2
Lab Code	Req. LLD	CASO- 8841	CASO- 8842	CASO- 8843	CASO- 8844
Date Collected	-	01-14-08	01-14-08	01-15-08	01-15-08
Gross Alpha	-	14844 ± 4079	14913 ± 4158	17591 ± 4226	10431 ± 3493
Gross Beta	-	25828 ± 3058	30134 ± 3112	29833 ± 3000	28557 ± 3084
K-40	-	10987 ± 695	10670 ± 683	10155 ± 727	10089 ± 668
Mn-54	-	< 21.1	< 28.4	< 24.5	< 29.3
Fe-59	-	< 30.1	< 30.7	< 27.7	< 35.4
Co-58	-	< 19.2	< 25.1	< 20.6	< 23.5
Co-60	-	< 5.8	< 15.0	< 7.0	< 11.0
Zr-Nb-95	-	< 29.8	< 23.0	< 16.4	< 20.6
Cs-134	150	< 23.2	< 21.1	< 18.1	< 22.2
Cs-137	180	449 ± 46.5	298 ± 46.5	356 ± 40.6	300 ± 42.8
Ba-La-140	-	< 23.1	< 46.7	< 24.0	< 21.2

Location		SOL-V-003-#1	SOL-V-003-#2
Lab Code	Req. LLD	CASO- 8845	CASO- 8846
Date Collected	-	01-15-08	01-15-08
Gross Alpha	-	10382 ± 3284	16657 ± 4560
Gross Beta	-	30761 ± 3095	34755 ± 3567
K-40	-	15239 ± 820	15285 ± 814
Mn-54	-	< 30.5	< 24.5
Fe-59	-	< 54.5	< 22.5
Co-58	-	< 27.2	< 22.1
Co-60	-	< 12.0	< 12.9
Zr-Nb-95	-	< 27.3	< 38.0
Cs-134	150	< 15.7	< 23.3
Cs-137	180	241 ± 34.5	258.5 ± 41.0
Ba-La-140	-	< 24.7	< 44.8

^a Duplicate sample, refer to Appendix C, Table 1.3.

CALLAWAY

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

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

Lab Code	Required	CASW- 96	CASW- 847	^a CASW- 1401	CASW- 1897
Date Collected	LLD	01-09-07	02-13-07	03-13-07	04-10-07
Gross alpha	-	1.5 ± 0.9	3.8 ± 1.7	3.9 ± 1.3	3.8 ± 1.4
Gross beta	4	7.0 ± 0.9	7.3 ± 1.4	8.4 ± 1.3	7.8 ± 1.5
H-3	3000	< 166	< 144	< 176	< 167
Mn-54	15	< 2.4	< 2.6	< 5.5	< 3.6
Fe-59	30	< 6.6	< 2.4	< 4.8	< 5.5
Co-58	15	< 3.9	< 2.9	< 3.9	< 3.2
Co-60	15	< 4.5	< 2.3	< 4.1	< 3.8
Zn-65	30	< 5.5	< 5.3	< 6.0	< 10.3
Zr-Nb-95	15	< 4.6	< 3.1	< 4.1	< 3.1
I-131	1000	< 6.5	< 4.6	< 5.8	< 5.3
Cs-134	15	< 5.1	< 2.5	< 5.6	< 5.5
Cs-137	18	< 4.9	< 2.5	< 7.0	< 5.6
Ba-La-140	15	< 5.4	< 1.3	< 5.1	< 2.3
Lab Code	Required	CASW- 2681	CASW- 3590	CASW- 4253	CASW- 5392
Date Collected	LLD	05-08-07	06-12-07	07-11-07	08-14-07
Gross alpha	-	3.1 ± 1.3	4.0 ± 1.9	2.9 ± 0.8	< 1.6
Gross beta	4	8.7 ± 1.3	8.4 ± 2.2	6.7 ± 0.7	8.6 ± 1.4
H-3	3000	< 158	< 149	< 146	< 156
Mn-54	15	< 3.0	< 3.1	< 4.2	< 2.5
Fe-59	30	< 5.3	< 7.1	< 9.3	< 6.0
Co-58	15	< 3.1	< 2.9	< 3.1	< 2.0
Co-60	15	< 2.7	< 4.5	< 3.6	< 1.8
Zn-65	30	< 4.2	< 6.7	< 8.0	< 2.8
Zr-Nb-95	15	< 4.1	< 5.3	< 3.8	< 2.3
I-131	1000	< 7.9	< 7.8	< 4.0	< 3.5
Cs-134	15	< 3.2	< 2.5	< 2.7	< 3.3
Cs-137	18	< 1.5	< 4.0	< 5.0	< 3.0
Ba-La-140	15	< 2.8	< 3.3	< 7.1	< 3.8
Lab Code	Required	CASW- 6032	CASW- 6851	CASW- 7657	CASW- 8295
Date Collected	LLD	09-11-07	10-10-07	11-06-07	12-05-07
Gross alpha	-	2.3 ± 1.1	3.0 ± 0.9	2.9 ± 1.4	2.4 ± 0.9
Gross beta	4	7.8 ± 1.0	8.5 ± 0.9	10.1 ± 1.4	5.8 ± 0.7
H-3	3000	< 160	< 192	198 ± 100	< 183
Mn-54	15	< 4.7	< 2.7	< 3.0	< 3.0
Fe-59	30	< 5.2	< 7.6	< 7.2	< 3.2
Co-58	15	< 4.7	< 3.9	< 2.7	< 3.6
Co-60	15	< 2.0	< 3.7	< 1.9	< 4.0
Zn-65	30	< 5.3	< 7.4	< 1.6	< 7.1
Zr-Nb-95	15	< 5.6	< 7.0	< 3.4	< 6.1
I-131	1000	< 7.1	< 8.9	< 4.2	< 9.7
Cs-134	15	< 3.9	< 5.9	< 2.5	< 2.2
Cs-137	18	< 6.1	< 4.8	< 2.8	< 3.8
Ba-La-140	15	< 6.1	< 8.1	< 2.0	< 6.9

^a Duplicate sample, refer to Appendix C, Table 1.2.

CALLAWAY

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

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

Lab Code	Required	CASW- 97	CASW- 849	CASW- 1402	CASW- 1898
Date Collected	LLD	01-09-07	02-13-07	03-13-07	04-10-07
Gross alpha	-	2.6 ± 1.0	2.3 ± 1.2	3.7 ± 1.4	3.9 ± 1.4
Gross beta	4	7.4 ± 1.0	6.0 ± 0.9	9.7 ± 1.4	7.0 ± 1.4
H-3	3000	325 ± 97	250 ± 83	890 ± 122	^a 242 ± 93
Mn-54	15	< 4.6	< 2.4	< 3.0	< 2.4
Fe-59	30	< 4.6	< 2.0	< 5.7	< 3.0
Co-58	15	< 3.0	< 2.0	< 4.8	< 2.4
Co-60	15	< 5.0	< 2.1	< 3.0	< 1.5
Zn-65	30	< 6.9	< 3.8	< 5.4	< 4.7
Zr-Nb-95	15	< 6.3	< 1.5	< 3.8	< 3.0
I-131	1000	< 9.1	< 2.1	< 5.8	< 3.7
Cs-134	15	< 6.1	< 2.6	< 5.2	< 3.3
Cs-137	18	< 6.5	< 2.3	< 3.1	< 3.8
Ba-La-140	15	< 7.3	< 2.2	< 2.2	< 3.4

Lab Code	Required	CASW- 2682	CASW- 3591	CASW- 4254	CASW- 5393
Date Collected	LLD	05-08-07	06-12-07	07-11-07	08-14-07
Gross alpha	-	3.5 ± 1.4	5.5 ± 1.8	2.3 ± 0.9	2.3 ± 1.3
Gross beta	4	9.2 ± 1.4	7.9 ± 1.5	9.1 ± 1.1	9.6 ± 1.4
H-3	3000	< 158	< 149	< 146	190 ± 87
Mn-54	15	< 3.1	< 3.5	< 4.1	< 2.3
Fe-59	30	< 2.6	< 8.5	< 9.0	< 3.0
Co-58	15	< 2.8	< 2.6	< 3.7	< 1.3
Co-60	15	< 2.5	< 3.2	< 3.7	< 2.7
Zn-65	30	< 3.1	< 8.2	< 3.4	< 3.6
Zr-Nb-95	15	< 2.1	< 3.2	< 5.0	< 2.1
I-131	1000	< 6.0	< 9.2	< 13.5	< 2.6
Cs-134	15	< 3.7	< 3.0	< 5.9	< 1.5
Cs-137	18	< 2.7	< 4.0	< 3.4	< 2.7
Ba-La-140	15	< 2.2	< 6.2	< 9.1	< 2.0

Lab Code	Required	CASW- 6033	CASW- 6852	CASW- 7658	CASW- 8296
Date Collected	LLD	09-11-07	10-10-07	11-06-07	12-05-07
Gross alpha	-	3.0 ± 1.2	3.2 ± 0.9	3.0 ± 1.3	2.9 ± 1.0
Gross beta	4	7.6 ± 1.0	9.9 ± 0.9	9.7 ± 1.4	5.8 ± 0.7
H-3	3000	< 160	< 192	< 176	< 183
Mn-54	15	< 4.9	< 3.1	< 4.1	< 4.6
Fe-59	30	< 6.7	< 7.0	< 7.6	< 8.1
Co-58	15	< 4.9	< 4.2	< 3.7	< 3.9
Co-60	15	< 4.4	< 4.6	< 3.7	< 2.8
Zn-65	30	< 8.0	< 5.6	< 2.7	< 5.0
Zr-Nb-95	15	< 6.5	< 3.9	< 4.6	< 4.2
I-131	1000	< 6.5	< 9.3	< 7.5	< 9.3
Cs-134	15	< 6.7	< 4.9	< 2.0	< 3.7
Cs-137	18	< 3.3	< 4.1	< 1.9	< 5.4
Ba-La-140	15	< 6.1	< 7.8	< 6.5	< 6.9

^a Tritium analysis repeated; result of reanalysis, 928±142 pCi/L.

CALLAWAY

Table 7. Drinking Water and Ground water, analyses for gross beta, tritium, iodine-131 and gamma-emitting isotopes.

Collection: Quarterly

Units: pCi/L

Location		CA-WWA-D01 (Drinking water)			
Quarter	Required	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	LLD	CAWW- 69	CAWW- 1900	CAWW- 4165	CAWW- 6794
Gross Beta	4	4.0 ± 1.3	3.6 ± 1.3	2.5 ± 0.7	4.0 ± 1.4
H-3	2000	< 166	< 167	< 143	< 174
I-131	1	< 0.4	< 0.4	< 0.4	< 0.3
Mn-54	15	< 3.5	< 2.2	< 2.3	< 5.1
Fe-59	30	< 11.7	< 3.2	< 4.8	< 5.5
Co-58	15	< 3.8	< 3.7	< 2.4	< 4.4
Co-60	15	< 5.1	< 2.5	< 3.2	< 3.0
Zn-65	30	< 4.9	< 6.0	< 4.5	< 11.2
Zr-Nb-95	15	< 3.2	< 2.1	< 5.1	< 5.0
Cs-134	15	< 3.5	< 3.5	< 3.8	< 5.1
Cs-137	18	< 4.0	< 3.2	< 4.3	< 6.9
Ba-La-140	15	< 5.4	< 2.6	< 1.9	< 7.5

Location		CA-WWA-F05			
Quarter	Required	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	LLD	CAWW- 70	CAWW- 1901	CAWW- 4166	CAWW- 6795
Gross Beta	4	10.6 ± 1.4	5.5 ± 1.3	9.3 ± 1.4	9.9 ± 1.5
H-3	2000	< 166	< 167	< 143	< 174
I-131	1	< 0.5	< 0.4	< 0.4	< 0.3
Mn-54	15	< 3.6	< 2.3	< 2.7	< 4.6
Fe-59	30	< 7.5	< 3.2	< 4.3	< 3.8
Co-58	15	< 4.1	< 2.2	< 3.1	< 3.0
Co-60	15	< 5.1	< 1.5	< 2.5	< 5.5
Zn-65	30	< 3.7	< 2.8	< 4.2	< 7.9
Zr-Nb-95	15	< 4.8	< 2.0	< 3.5	< 4.0
Cs-134	15	< 4.5	< 2.1	< 3.7	< 5.7
Cs-137	18	< 4.2	< 3.5	< 2.9	< 3.1
Ba-La-140	15	< 6.2	< 3.1	< 2.6	< 7.9

CALLAWAY

Table 7. Ground water, analyses for gross beta, tritium, iodine-131 and gamma-emitting isotopes.
 Collection: Quarterly
 Units: pCi/L

Location		CA-WWA-F015			
Quarter Lab Code	Required LLD	1st Quarter CAWW- 71	2nd Quarter CAWW- 1902	3rd Quarter CAWW- 4167	4th Quarter CAWW- 6796
Gross Beta	4	10.2 ± 1.5	5.7 ± 1.4	9.8 ± 1.5	9.5 ± 1.5
H-3	2000	< 151	< 167	< 143	< 174
I-131	1	< 0.4	< 0.4	< 0.3	< 0.3
Mn-54	15	< 1.8	< 4.1	< 5.3	< 6.0
Fe-59	30	< 4.5	< 5.6	< 7.2	< 8.5
Co-58	15	< 1.9	< 3.4	< 3.6	< 5.3
Co-60	15	< 2.6	< 4.1	< 4.1	< 3.1
Zn-65	30	< 2.3	< 8.6	< 8.5	< 8.6
Zr-Nb-95	15	< 2.7	< 6.0	< 5.0	< 5.2
Cs-134	15	< 2.8	< 5.6	< 4.2	< 4.3
Cs-137	18	< 2.9	< 4.2	< 4.4	< 4.1
Ba-La-140	15	< 4.5	< 3.4	< 5.0	< 6.8

CALLAWAY

Table 8. Bottom sediments, analyses for gross alpha, gross beta and gamma-emitting isotopes.
 Collection: Semiannually
 Units: pCi/kg dry

Location		CA-AQS-A	
Lab Code	Req. LLD	CABS- 4361	CABS- 8078
Date Collected	-	05-17-07	11-29-07
Gross Alpha	-	NA ^a	NA ^a
Gross Beta	-	NA	NA
K-40	-	14774 ± 713	11370 ± 532
Mn-54	-	< 28.6	< 16.8
Fe-59	-	< 78.0	< 20.2
Co-58	-	< 42.0	< 16.9
Co-60	-	< 9.4	< 8.4
Zr-Nb-95	-	< 85.7	< 24.7
Cs-134	150	< 23.1	< 13.4
Cs-137	180	49 ± 24.4	< 15.6
Ba-La-140	-	< 944.1	< 28.1

Location		CA-AQS-C	
Lab Code	Req. LLD	CABS- 4362	CABS- 8080
Date Collected	-	05-17-07	11-29-07
Gross Alpha	-	NA ^a	NA ^a
Gross Beta	-	NA	NA
K-40	-	14854 ± 713	12740 ± 843
Mn-54	-	< 30.7	< 25.7
Fe-59	-	< 174.7	< 69.8
Co-58	-	< 42.2	< 16.4
Co-60	-	< 11.4	< 16.0
Zr-Nb-95	-	< 116.3	< 27.7
Cs-134	150	< 16.8	< 22.8
Cs-137	180	62 ± 25.7	< 29.2
Ba-La-140	-	< 1422.2	< 72.6

^a NA=Not Analyzed; analysis not requested.

CALLAWAY

Table 8. Bottom sediments, analyses for gross alpha, gross beta and gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/kg dry

Location		CA-AQS-X
Lab Code	Req. LLD	CABS- 4363
Date Collected	-	05-17-07
Gross Alpha	-	NA ^a
Gross Beta	-	NA
K-40	-	13797 ± 663
Mn-54	-	< 25.1
Fe-59	-	< 137.7
Co-58	-	< 44.6
Co-60	-	< 21.4
Zr-Nb-95	-	< 97.0
Cs-134	150	< 16.1
Cs-137	180	< 16.9
Ba-La-140	-	< 1122.8

Location		CA-AQS-Y
Lab Code	Req. LLD	CABS- 4364
Date Collected	-	05-17-07
Gross Alpha	-	NA ^a
Gross Beta	-	NA
K-40	-	12934 ± 566
Mn-54	-	< 21.4
Fe-59	-	< 150.2
Co-58	-	< 21.3
Co-60	-	< 19.0
Zr-Nb-95	-	< 121.9
Cs-134	150	< 17.1
Cs-137	180	< 17.8
Ba-La-140	-	< 1201.0

^a NA=Not Analyzed; analysis not requested.

CALLAWAY

Table 8. Bottom sediments, analyses for gross alpha, gross beta and gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/kg dry

Location		CA-AQS-Z
Lab Code	Req. LLD	CABS- 4366
Date Collected	-	05-17-07
Gross Alpha	-	NA ^a
Gross Beta	-	NA
K-40	-	12046 ± 824
Mn-54	-	< 31.9
Fe-59	-	< 194.5
Co-58	-	< 46.8
Co-60	-	< 15.5
Zr-Nb-95	-	< 157.4
Cs-134	150	< 24.5
Cs-137	180	< 20.9
Ba-La-140	-	< 3341.0

^a NA=Not Analyzed; analysis not requested.

CALLAWAY

Table 9. Shoreline sediments, analyses for gross alpha, gross beta and gamma-emitting isotopes.
 Collection: Semiannually
 Units: pCi/kg dry

Location		CA-AQS-A	
Lab Code	Req. LLD	CASS- 4367	CASS- 8079
Date Collected	-	05-17-07	11-29-07
Gross Alpha	-	NA ^a	NA ^a
Gross Beta	-	NA	NA
K-40	-	15374 ± 765	14273 ± 749
Mn-54	-	< 30.6	< 25.2
Fe-59	-	< 98.2	< 47.4
Co-58	-	< 37.0	< 22.1
Co-60	-	< 13.6	< 17.9
Zr-Nb-95	-	< 83.3	< 18.3
Cs-134	150	< 18.7	< 15.9
Cs-137	180	58 ± 27.1	< 23.8
Ba-La-140	-	< 748.9	< 23.7

Location		CA-AQS-C	
Lab Code	Req. LLD	CASS- 4368	CASS- 8081
Date Collected	-	05-17-07	11-29-07
Gross Alpha	-	NA ^a	NA ^a
Gross Beta	-	NA	NA
K-40	-	15504 ± 719	12994 ± 625
Mn-54	-	< 29.0	< 22.4
Fe-59	-	< 91.6	< 56.4
Co-58	-	< 37.2	< 18.4
Co-60	-	< 13.6	< 12.6
Zr-Nb-95	-	< 115.2	< 41.6
Cs-134	150	< 17.4	< 17.7
Cs-137	180	44 ± 21.7	< 19.0
Ba-La-140	-	< 868.2	< 39.1

^a NA=Not Analyzed; analysis not requested.

CALLAWAY

Table 9. Shoreline sediments, analyses for gross alpha, gross beta and gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/kg dry

Location		CA-AQS-Y
Lab Code	Req. LLD	CASS- 4369
Date Collected	-	05-17-07
Gross Alpha	-	NA ^a
Gross Beta	-	NA
K-40	-	15788 ± 749
Mn-54	-	< 29.4
Fe-59	-	< 97.1
Co-58	-	< 36.0
Co-60	-	< 12.9
Zr-Nb-95	-	< 96.9
Cs-134	150	< 15.0
Cs-137	180	65 ± 31.4
Ba-La-140	-	< 669.0

^a NA=Not Analyzed; analysis not requested.

CALLAWAY

Table 10. Fish, analyses for gross alpha, gross beta, and gamma-emitting isotopes.
 Collection: Semiannually
 Units: pCi/kg wet

Location		CA-AQF-A				
Lab Code	Req. LLD	CAF- 4202	CAF- 4203	CAF- 4204	CAF- 4205	CAF- 8067
Date Collected		06-20-07	06-20-07	06-20-07	06-20-07	11-29-07
Sample Type		Channel Catfish	Carp	River Carpsucker	Freshwater Drum	Carp
Gross Alpha	-	NA ^a	NA ^a	NA ^a	NA ^a	NA ^a
Gross Beta	-	NA	NA	NA	NA	NA
K-40	-	2780 ± 380	2745 ± 379	2791 ± 489	2868 ± 365	2895 ± 395
Mn-54	130	< 9.0	< 14.3	< 24.9	< 13.2	< 8.9
Fe-59	260	< 32.3	< 20.6	< 68.8	< 20.6	< 24.0
Co-58	130	< 18.1	< 13.6	< 24.6	< 14.9	< 5.7
Co-60	130	< 12.9	< 14.5	< 22.0	< 15.6	< 14.5
Zn-65	260	< 11.2	< 22.4	< 31.5	< 27.4	< 17.4
Cs-134	130	< 6.3	< 13.1	< 20.8	< 7.7	< 9.0
Cs-137	150	< 9.9	< 10.9	< 14.6	< 7.8	< 8.2
Lab Code	Req. LLD	CAF- 8068	CAF- 8069	CAF- 8070	CAF- 8071	
Date Collected		11-29-07	11-29-07	11-29-07	11-29-07	
Sample Type		River Carpsucker	Channel Catfish	Freshwater Drum	Bigmouth Buffalo	
Gross Alpha	-	NA ^a	NA ^a	NA ^a	NA ^a	
Gross Beta	-	NA	NA	NA	NA	
K-40	-	2633 ± 348	2546 ± 425	2940 ± 430	2724 ± 337	
Mn-54	130	< 10.5	< 14.9	< 11.9	< 9.4	
Fe-59	260	< 34.6	< 59.8	< 22.8	< 28.2	
Co-58	130	< 12.9	< 18.0	< 9.9	< 6.9	
Co-60	130	< 13.0	< 14.1	< 18.3	< 8.6	
Zn-65	260	< 11.9	< 32.5	< 10.6	< 23.3	
Cs-134	130	< 11.4	< 14.5	< 12.7	< 9.1	
Cs-137	150	< 9.8	< 11.2	< 10.4	< 7.1	

^a NA=Not Analyzed; analysis not requested.

CALLAWAY

Table 10. Fish, analyses for gross alpha, gross beta, and gamma-emitting isotopes.
 Collection: Semiannually
 Units: pCi/kg wet

Location		CA-AQF-C				
Lab Code	Req. LLD	CAF- 4206	CAF- 4207	CAF- 4208	CAF- 4209	CAF- 8072
Date Collected		06-20-07	06-20-07	06-20-07	06-20-07	11-29-07
Sample Type		Channel Catfish	Carp	River Carpsucker	Freshwater Drum	Carp
Gross Alpha	-	NA ^a	NA ^a	NA ^a	NA ^a	NA ^a
Gross Beta	-	NA	NA	NA	NA	NA
K-40	-	3037 ± 394	3630 ± 517	2867 ± 356	3556 ± 538	2790 ± 368
Mn-54	130	< 11.7	< 10.7	< 14.6	< 9.9	< 12.5
Fe-59	260	< 26.0	< 37.6	< 39.7	< 50.1	< 30.1
Co-58	130	< 18.3	< 17.8	< 16.0	< 21.4	< 9.3
Co-60	130	< 13.6	< 16.0	< 13.0	< 17.6	< 12.9
Zn-65	260	< 17.8	< 15.8	< 9.6	< 30.2	< 13.5
Cs-134	130	< 11.4	< 8.8	< 11.9	< 15.5	< 16.1
Cs-137	150	< 6.9	< 13.7	< 11.6	< 23.3	< 10.1
Lab Code	Req. LLD	CAF- 8073	CAF- 8075	CAF- 8076	CAF- 8077	
Date Collected		11-29-07	11-29-07	11-29-07	11-29-07	
Sample Type		River carpsucker	Channel Catfish	Freshwater Drum	Bigmouth Buffalo	
Gross Alpha	-	NA ^a	NA ^a	NA ^a	NA ^a	
Gross Beta	-	NA	NA	NA	NA	
K-40	-	2354 ± 323	3281 ± 398	2307 ± 319	3288 ± 486	
Mn-54	130	< 13.4	< 13.1	< 9.2	< 15.9	
Fe-59	260	< 26.1	< 30.1	< 33.6	< 58.4	
Co-58	130	< 5.5	< 5.3	< 11.6	< 21.6	
Co-60	130	< 5.5	< 5.2	< 5.8	< 16.6	
Zn-65	260	< 7.8	< 16.0	< 11.2	< 24.2	
Cs-134	130	< 14.3	< 12.5	< 12.3	< 19.1	
Cs-137	150	< 11.6	< 13.2	< 13.1	< 19.3	

^a NA=Not Analyzed; analysis not requested.

Table 11. Direct Radiation

Location	Gamma Dose (mrem)			
	QTR 1	QTR 2	QTR 3	QTR 4
CA-IDM-1A	14.50	15.33	16.62	17.01
CA-IDM-3	15.33	16.58	17.45	17.27
CA-IDM-5	13.60	14.29	15.00	14.20
CA-IDM-6	14.94	16.75	16.99	17.34
CA-IDM-7	15.25	15.81	17.16	16.75
CA-IDM-9	14.14	15.01	16.06	15.63
CA-IDM-10	15.88	17.41	16.69	17.19
CA-IDM-11A	15.75	17.57	18.48	18.05
CA-IDM-14	15.05	15.78	16.58	16.87
CA-IDM-17	15.35	16.33	17.36	17.60
CA-IDM-18A	14.49	Missing ^a	17.92	16.55
CA-IDM-20	15.46	16.41	17.31	17.39
CA-IDM-21	15.02	16.21	17.35	16.18
CA-IDM-22A	13.88	16.06	16.61	16.40
CA-IDM-23	15.59	16.88	18.11	18.23
CA-IDM-26 (C)	10.37	11.49	11.66	11.96
CA-IDM-27 (C)	16.49	17.14	18.67	17.17
CA-IDM-30A	14.61	Missing ^a	16.39	15.41
CA-IDM-31A	15.64	16.74	17.48	17.44
CA-IDM-32	15.65	16.86	17.94	17.79
CA-IDM-32A	15.21	17.04	17.06	18.15
CA-IDM-33	14.44	16.51	16.43	16.92
CA-IDM-34	13.38	14.49	15.65	16.09
CA-IDM-35	14.20	15.09	15.73	15.87
CA-IDM-36	15.47	16.22	16.69	17.18
CA-IDM-37	14.88	15.38	15.90	17.44
CA-IDM-38	11.19	11.71	11.41	11.77
CA-IDM-39	14.47	16.72	16.46	17.30
CA-IDM-39A	15.13	15.59	16.66	16.49
CA-IDM-40	16.26	16.59	17.61	18.29
CA-IDM-41	14.01	15.04	17.63	16.65
CA-IDM-42	13.14	13.89	14.05	14.56
CA-IDM-43	14.85	16.03	17.14	16.97
CA-IDM-44	15.39	16.59	18.25	17.63
CA-IDM-45	14.68	15.03	14.97	15.74
CA-IDM-46	15.57	16.44	17.12	16.29
CA-IDM-47	14.96	15.30	17.63	16.74
CA-IDM-48	15.87	16.83	17.71	17.05
CA-IDM-49	14.39	15.27	16.62	15.84
CA-IDM-50	16.32	16.06	16.35	17.15
CA-IDM-51A	16.16	17.26	17.52	17.85
CA-IDM-52	15.73	16.77	17.35	17.79
CA-IDM-60 (C)	15.48	16.07	16.53	17.10

^a TLD and holder missing from assigned location.

Appendix C

Supplemental Analyses

List of Tables	iii
List of Figures	iii
Introduction	iv
C-1 Cooling Tower Blow Down, analysis for tritium	C-11
C-2 Drinking Well water, quarterly collections, analyses for gross beta, tritium, iodine-131 and gamma-emitting isotopes	C-12
C-3 Drinking Well water, analysis for tritium	C-13
C-4 Ground and surface water, analysis for tritium and gamma-emitting isotopes	C-18
C-4a Ground and surface water, analysis for gross beta and iodine-131	C-23
C-5 Wetlands Soil, annual collection, analyses for gross alpha, gross beta and gamma-emitting isotopes	C-24
C-6 Soil, analysis for tritium and gamma-emitting isotopes	C-25
C-7 Sediments, analysis for strontium-89, strontium-90, tritium and gamma-emitting isotopes	C-34
C-8 Vegetation, analysis for tritium and gamma-emitting isotopes	C-35
C-9 Condensate, analysis for tritium	C-36

Appendix C

List of Tables

1	REMP Wells and Ponds, Collection Frequency and Analyses	C-1
2	Neighboring Property Owners, Drinking Well Water, Collection Frequency and Analyses	C-2

Appendix C

List of Figures

1	Sampling sites, Drinking Well Water	C-3
2	Sampling sites, pond sampling locations	C-4
3	Sampling sites, pond #21 location.....	C-5
4	Groundwater Monitoring Wells, Highway 94 Area.....	C-6
5	Groundwater Monitoring Wells, Logan Creek Area.....	C-7
6	Groundwater Monitoring Wells, Owner Controlled Area and Vicinity.....	C-8
7	Groundwater Monitoring Wells, Outside the Plant Owned Controlled Area	C-9
8	Sampling sites, soybean collections.....	C-10

Supplemental Samples

In 2006, the Nuclear Energy Institute (NEI), with the support of every nuclear utility in the United States, announced a voluntary nationwide Groundwater Protection Initiative (GPI).

During 2007, a large number of supplemental samples were taken in response to the NEI GPI. Samples were taken from:

- Water from the cooling tower blowdown
- Water from onsite and offsite groundwater monitoring wells
- Water from nearby property owners who rely on well water for their drinking water supply
- Soil and water from core sampling performed at locations along the discharge pipeline
- Water from onsite transformer pits and berms
- Sediment from the Missouri River in the area of the former location of the discharge point into the river

Maps have been provided to show the approximate location of the supplemental samples. Sample locations corresponding to onsite plant equipment, such as transformers, are not shown on the maps due to security considerations.

The sampling has revealed areas with low level contamination. All contamination has been confined to Ameren property, and there has been no contamination of the local drinking water supply.

Onsite wells and water from neighboring property owners have been added to the permanent monitoring program. The samples, collection frequency, and analyses performed are shown in Table 1 and Table 2.

Table 1. REMP Wells and Ponds, Collection and Analysis Schedule (non-drinking water).

Description	Collection Frequency	³ H	PGE	^{89/90} Sr
936 Powerblock	Q	√	√	√
937A Powerblock	Q	√	√	√
937B Powerblock	Q	√	√	√
937C Powerblock	Q	√	√	√
937D Powerblock	Q	√	√	√
937E Powerblock	Q	√	√	√
937F Powerblock	Q	√	√	√
Ground Water Sump	Q	√	√	√
UHS pond	Q	√		
Unit 2 pond	Q	√		
Cooling Tower Blowdown	W	√		
OW-1 UHS pond	Q	√		
OW-2 UHS pond	Q	√		
OW-3 UHS pond	Q	√		
OW-4 UHS pond	Q	√		
OW-5 UHS pond	Q	√		
MW-001 Outside OCA	Q	√		
MW-002 Outside OCA	Q	√		
MW-003 Outside OCA	Q	√		
MW-004 Dillon	M	√	√	
MW-005 Brownlee	M	√	√	
MW-006 Ward	M	√	√	
MW-007 Ward	M	√	√	
MW-008 Ward	M	√	√	
MW-012 Ward	M	√	√	
MW-010 Pipeline	Q	√		
MW-011 Pipeline	Q	√		
MW-009 Pipeline	Q	√		
MW-013 Pipeline	Q	√		
MW-014 Pipeline	Q	√		
MW-015 Pipeline	Q	√		
MW-016 Pipeline	Q	√		
MW-501 Landfill	Q	√		
MW-502 Landfill	Q	√		
M-2	Q	√		
M-7	Q	√		

**Table 2. Neighboring Property Owners, Well Water Collection and Analysis Schedule
(drinking water)**

Description	Collection Frequency	³ H
CA-DWA-1	M	√
CA-DWA-2	M	√
CA-DWA-3	M	√
CA-DWA-4	M	√
CA-DWA-5	M	√
CA-DWA-6	M	√
CA-DWA-7	M	√
CA-DWA-8	M	√
CA-DWA-9	M	√
CA-DWA-10	M	√
CA-DWA-11	M	√
CA-DWA-12	M	√
CA-DWA-13	*	*
CA-DWA-14	M	√
CA-DWA-15	M	√
CA-DWA-16	M	√
CA-DWA-17	M	√
CA-DWA-18	M	√
CA-DWA-19	M	√
CA-DWA-20	M	√
CA-DWA-21	M	√
CA-DWA-22	M	√

* Location CA-DWA-13 was eliminated from the program at the property owner's request.

Figure 1. Drinking Well Water sample locations

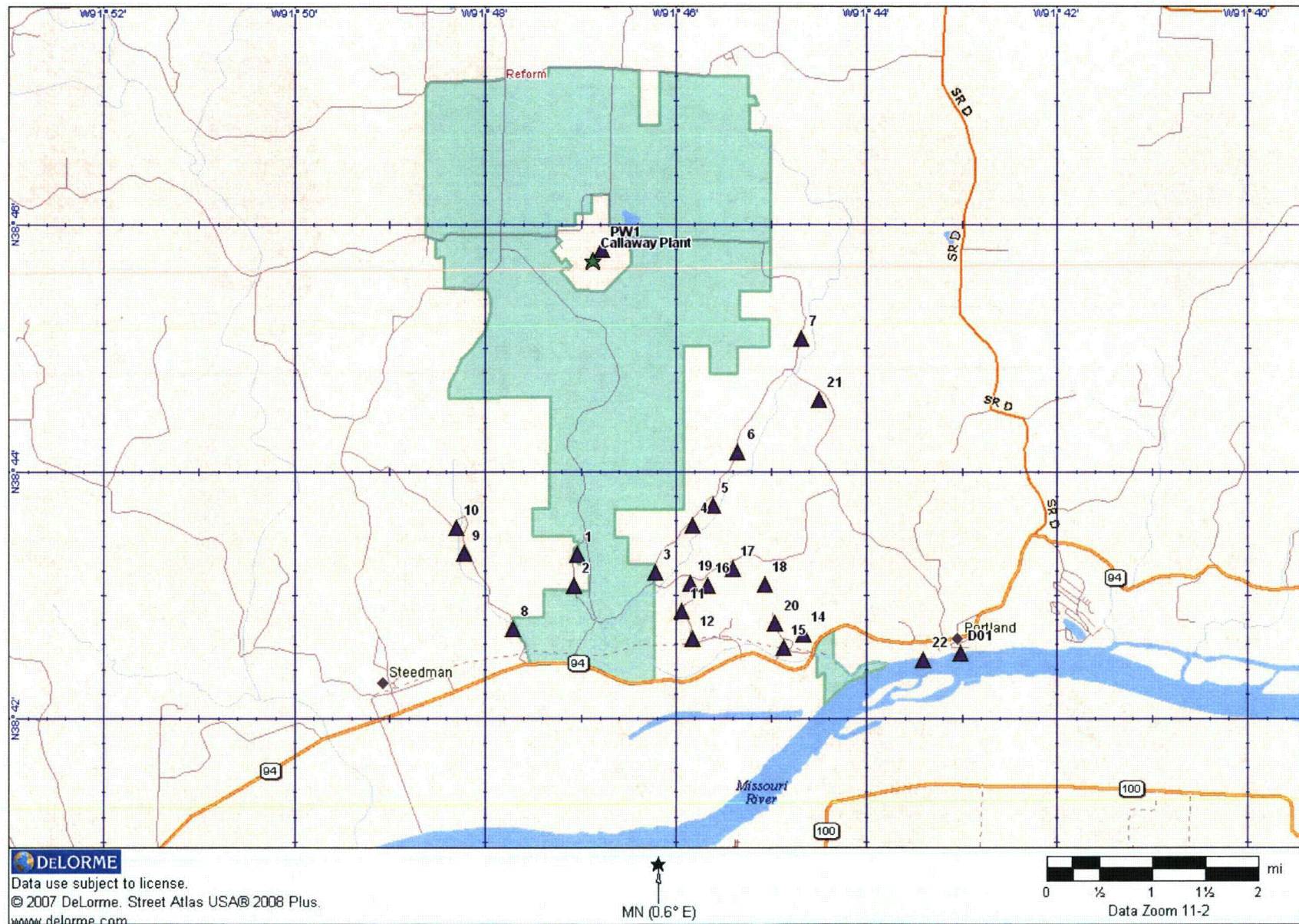


Figure 2. Pond locations (on-site)

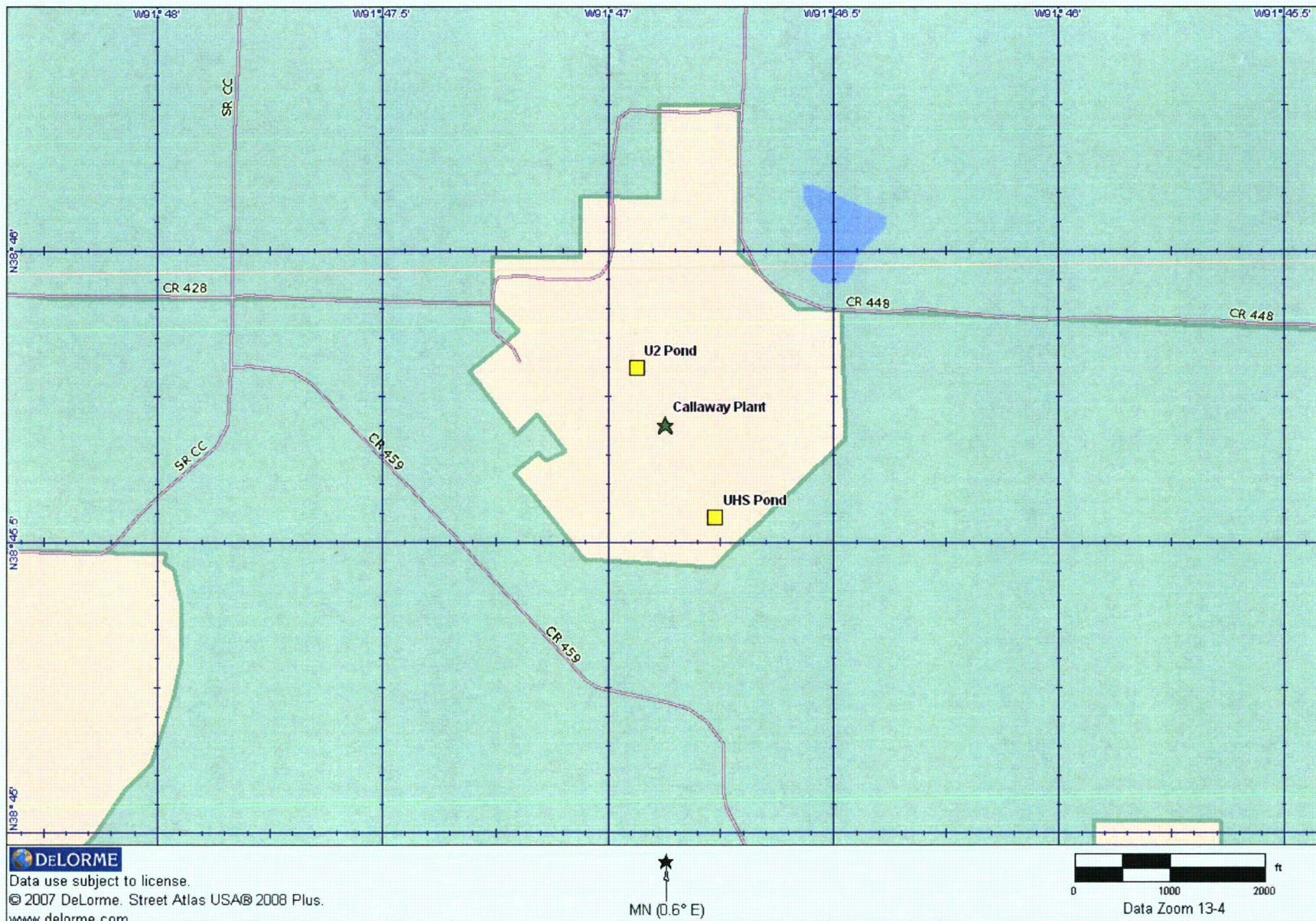


Figure 3. Pond 21 location

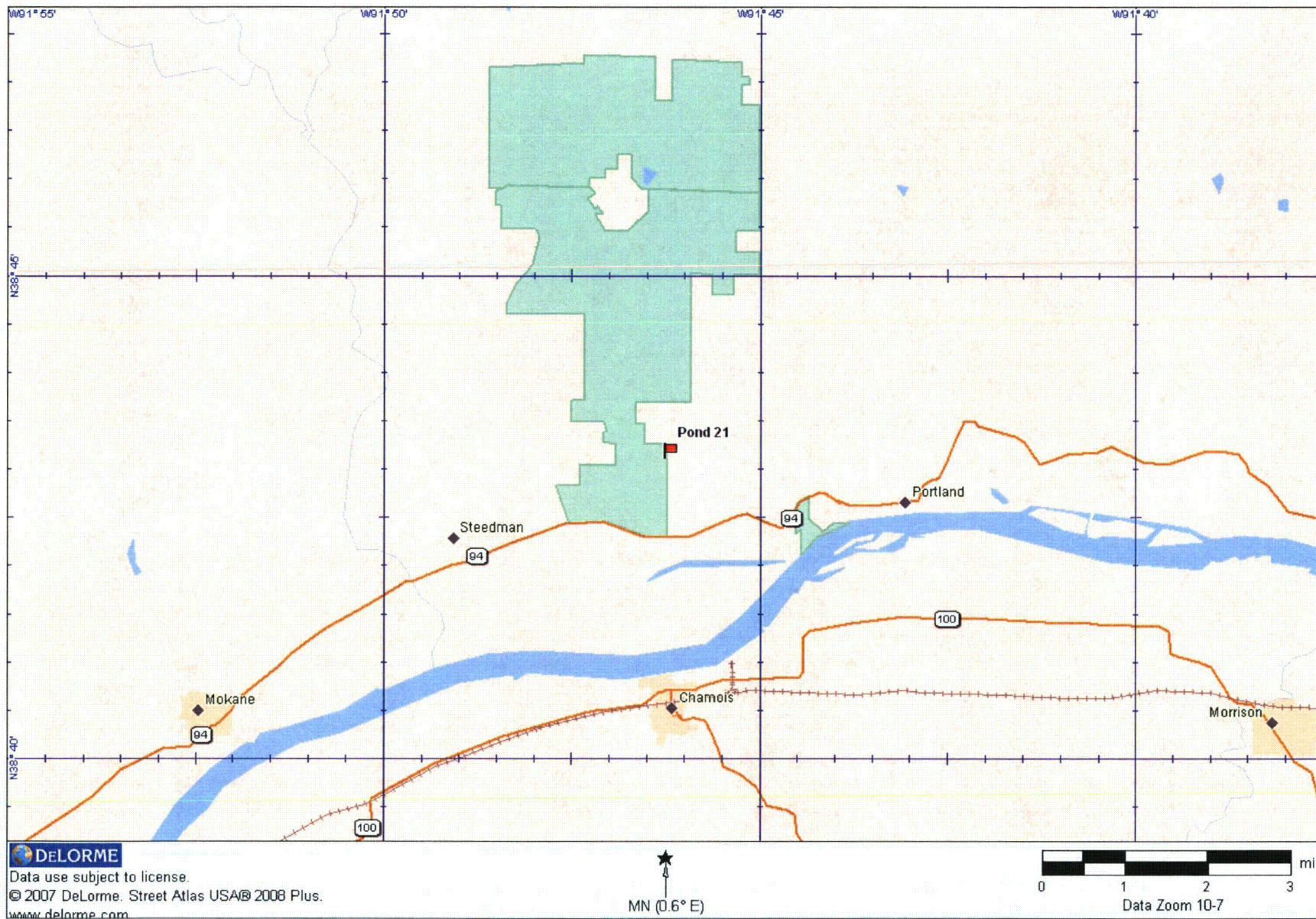


Figure 4. Groundwater Monitoring Wells, Highway 94 Area

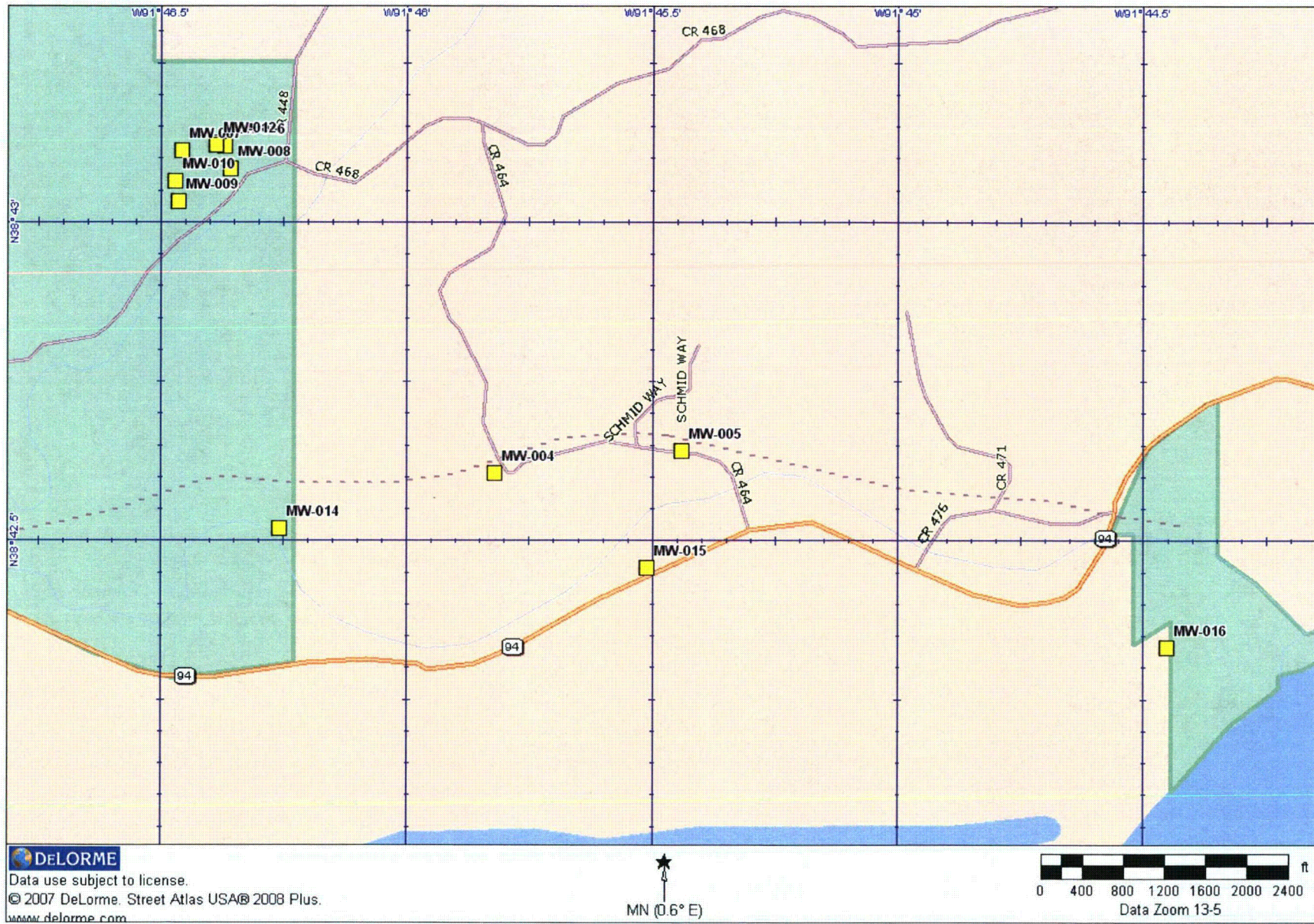


Figure 5. Groundwater Monitoring Wells, Logan Creek Area

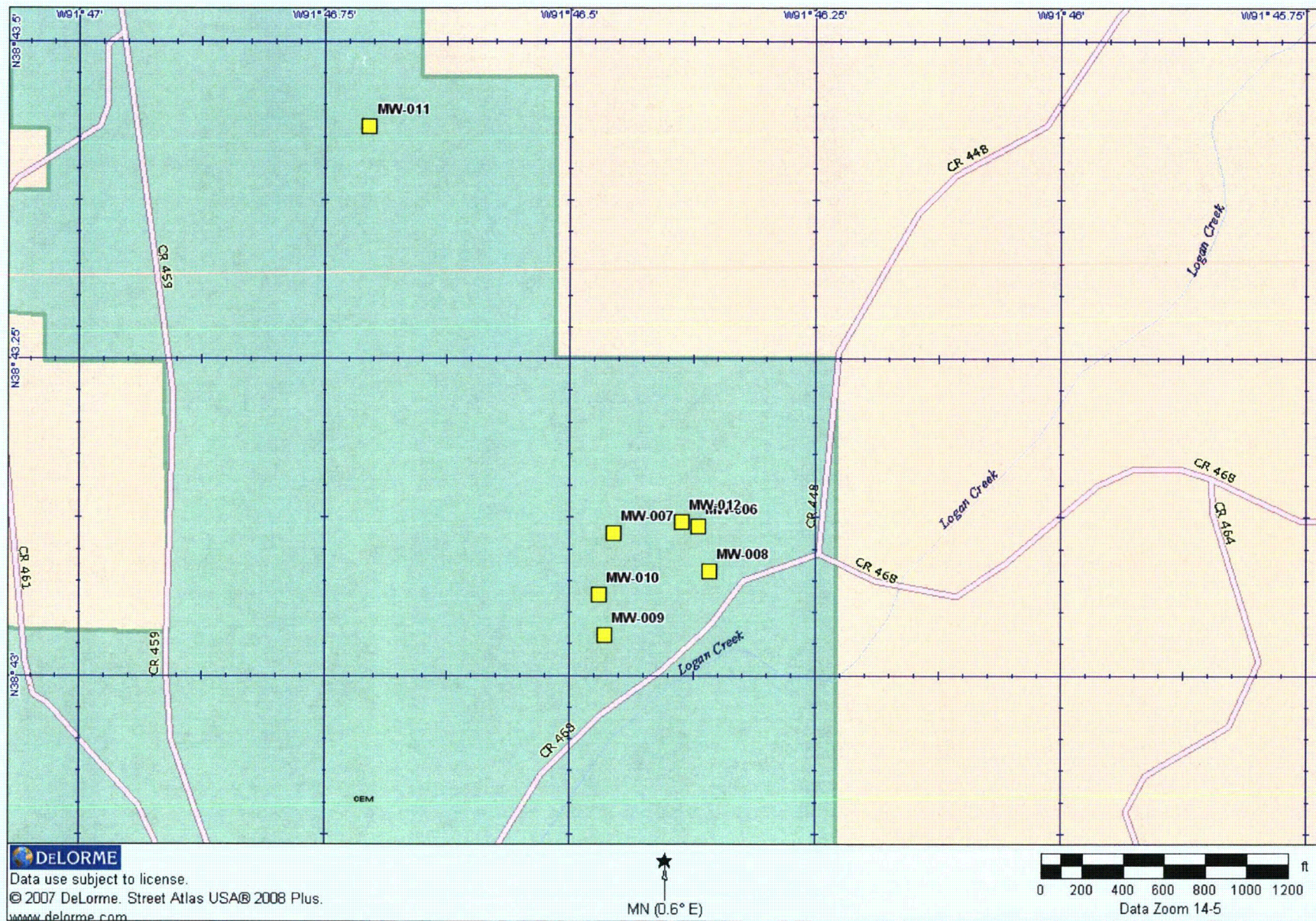


Figure 6. Groundwater Monitoring Wells, Owner Controlled Area and Vicinity

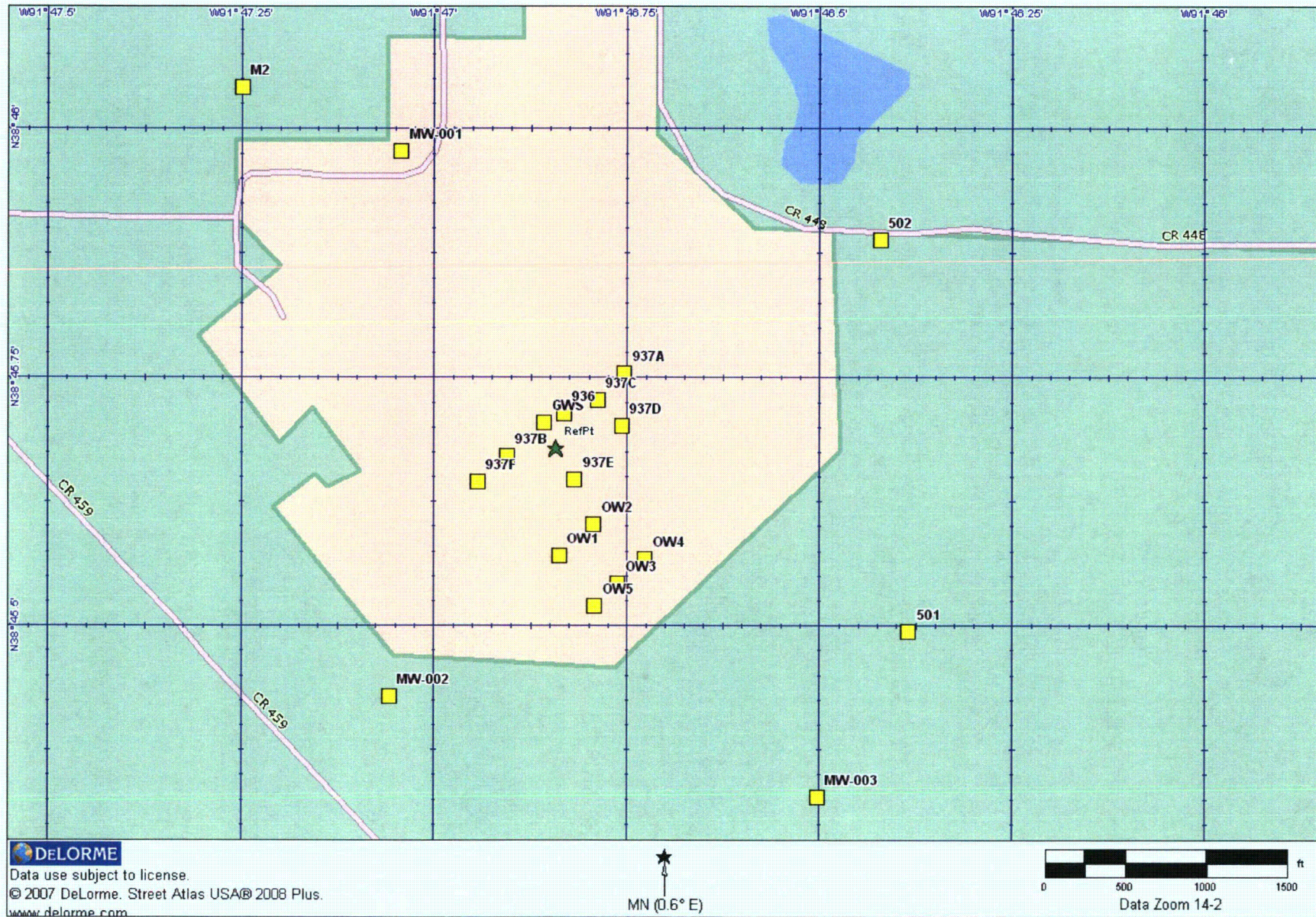


Figure 7. Groundwater Monitoring Wells, Outside the Controlled Area

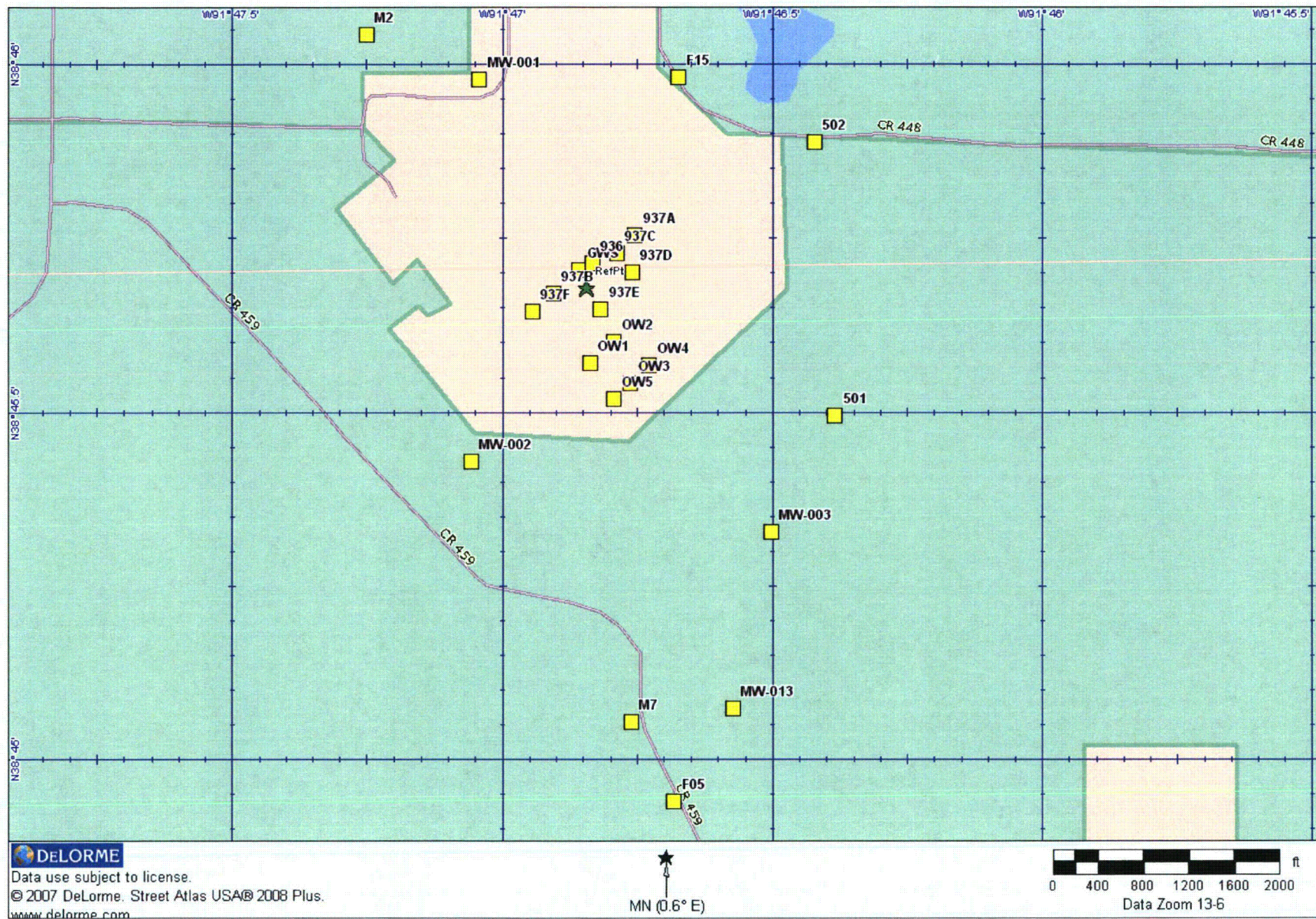
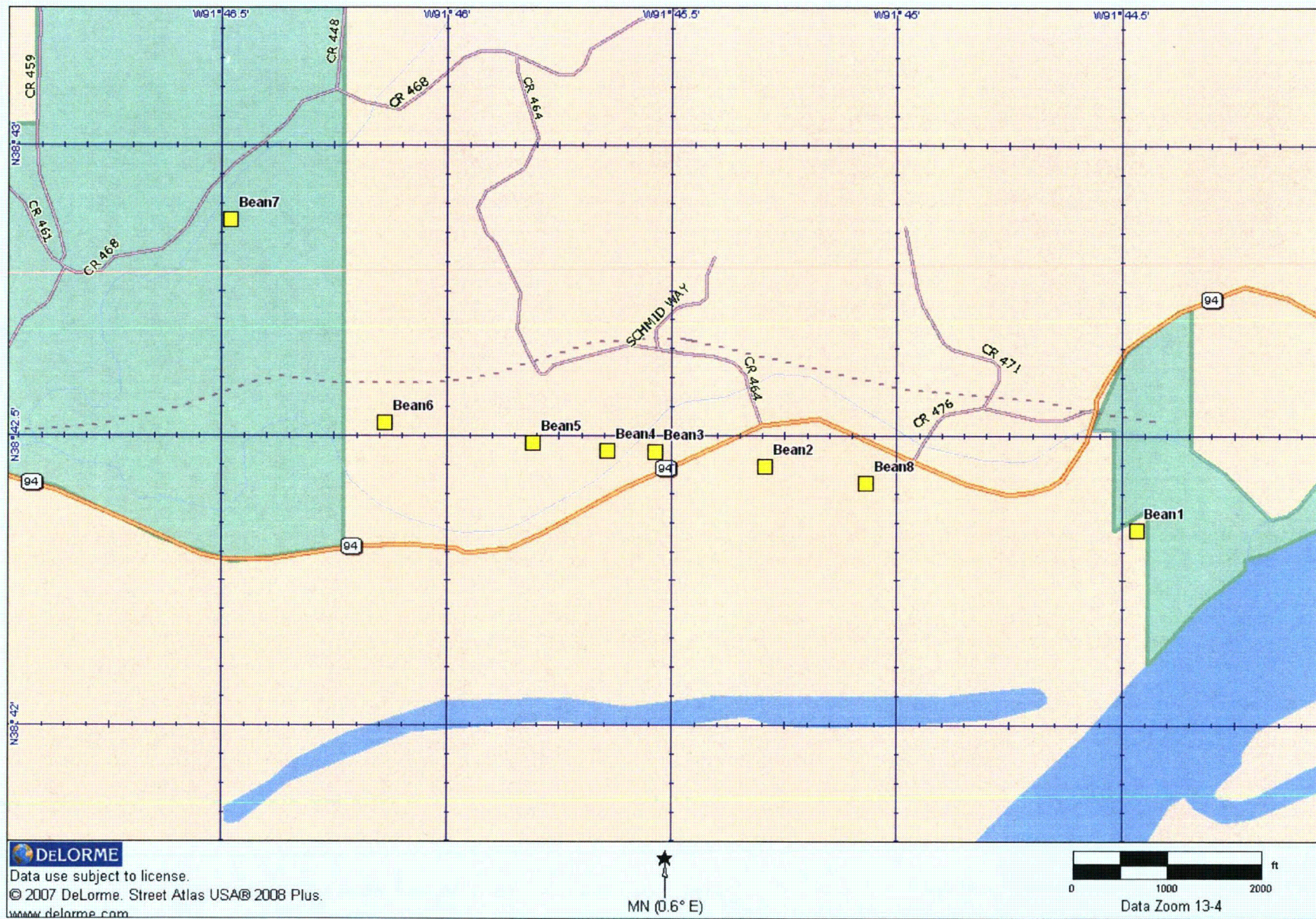


Figure 8. Soybean sampling locations



C-1. Cooling Tower Blow Down, results of analyses for tritium.

Collection Date	Lab Code	Tritium (pCi/L)
01/10/07	CAW- 215	< 146
01/17/07	CAW- 285	< 142
01/24/07	CAW- 495	< 150
01/31/07	CAW- 583	< 162
02/07/07	CAW- 694	< 144
02/14/07	CAW- 852	< 144
02/21/07	CAW- 1082	< 151
02/28/07	CAW- 1198	< 168
03/07/07	CAW- 1277	< 180
03/14/07	CAW- 1463	< 164
03/21/07	CAW- 1593	< 170
03/28/07	CAW- 1779	< 169
04/04/07	CAW- 1870	< 155
04/25/07	CAW- 2425	< 188
05/02/07	CAW- 2561	< 177
05/16/07	CAW- 2853	< 177
05/23/07	CAW- 3164	< 144
05/30/07	CAW- 3275	< 175
06/06/07	CAW- 3513	< 153
06/13/07	CAW- 3638	< 167
06/20/07	CAW- 3805	< 172
06/27/07	CAW- 4033	< 177
07/04/07	CAW- 4069	< 143
07/11/07	CAW- 4286	< 149
07/18/07	CAW- 4556	< 148
07/25/07	CAW- 4778	< 177
08/01/07	CAW- 5122	< 147
08/08/07	CAW- 5276	< 147
08/15/07	CAW- 5468	263 ± 108
08/22/07	CAW- 5616	< 154
08/29/07	CAW- 5775	< 163
09/05/07	CAW- 5982	< 165
09/12/07	CAW- 6135	< 165
09/19/07	CAW- 6380	< 181
09/26/07	CAW- 6617	< 147
10/03/07	CAW- 6785	< 174
10/10/07	CAW- 6919	< 148
10/17/07	CAW- 7158	< 144
10/24/07	CAW- 7424	< 187
10/31/07	CAW- 7632	< 174
11/07/07	CAW- 7712	< 146
11/14/07	CAW- 7901	< 182
11/21/07	CAW- 8040	< 182
11/28/07	CAW- 8096	< 157
12/05/07	CAW- 8265	< 145
12/12/07	CAW- 8390	< 173
12/19/07	CAW- 8475	< 173
12/26/07	CAW- 8675	< 178

CALLAWAY

C-2. Drinking well water, Quarterly collections, analyses for gross beta, tritium, iodine-131 and gamma-emitting isotopes.

Units: pCi/L

Location	-WWA-PW-001									
----------	-------------	--	--	--	--	--	--	--	--	--

Quarter		1st Qtr.		2nd Qtr.		3rd Qtr.		4th Qtr.	
Lab Code	Req. LLD	CAWW-	72	CAWW-	1903	CAWW-	4168	CAWW-	6797
Gross Beta	4								
H-3	2000		151		< 167		< 143		< 174
I-131	1								
Mn-54	15		< 2.0		< 2.9		< 2.9		< 3.5
Fe-59	30		< 2.2		< 3.2		< 9.0		< 7.3
Co-58	15		< 1.7		< 1.6		< 3.9		< 5.4
Co-60	15		< 2.8		< 3.5		< 4.1		< 3.7
Zn-65	30		< 3.8		< 1.9		< 4.0		< 4.7
Zr-Nb-95	15		< 3.7		< 3.0		< 3.4		< 3.6
Cs-134	15		< 2.6		< 3.1		< 3.8		< 3.5
Cs-137	18		< 4.1		< 3.6		< 5.0		< 5.2
Ba-La-140	15		< 3.7		< 3.9		< 7.1		< 6.7

C-3, Drinking Water, Analysis for tritium.

Location	Collection Date	Concentration H-3 (pCi/L)
CA-DWA-1	1/18/2007	< 150
CA-DWA-2	1/18/2007	< 150
CA-DWA-3	1/18/2007	< 150
CA-DWA-4	1/18/2007	< 147
CA-DWA-5	1/18/2007	< 139
CA-DWA-6	1/18/2007	< 150
CA-DWA-7	1/18/2007	< 150
CA-DWA-8	1/18/2007	< 150
CA-DWA-9	1/18/2007	< 150
CA-DWA-10	1/18/2007	< 150
CA-DWA-11	1/18/2007	< 150
CA-DWA-12	1/18/2007	< 150
CA-DWA-14	1/18/2007	< 150
CA-DWA-15	1/18/2007	< 150
CA-DWA-16	1/18/2007	< 150
CA-DWA-17	1/18/2007	< 150
CA-DWA-18	1/18/2007	< 147
CA-DWA-19	1/18/2007	< 147
CA-DWA-20	1/18/2007	< 147
CA-DWA-21	1/18/2007	< 147
CA-DWA-1	2/20/2007	< 151
CA-DWA-2	2/20/2007	< 151
CA-DWA-3	2/20/2007	< 151
CA-DWA-4	2/20/2007	< 151
CA-DWA-5	2/20/2007	< 151
CA-DWA-6	2/20/2007	< 151
CA-DWA-7	2/20/2007	< 151
CA-DWA-8	2/20/2007	< 151
CA-DWA-9	2/20/2007	< 151
CA-DWA-10	2/20/2007	< 151
CA-DWA-12	2/20/2007	< 151
CA-DWA-11	2/20/2007	< 151
CA-DWA-14	2/20/2007	< 151
CA-DWA-15	2/20/2007	< 151
CA-DWA-16	2/20/2007	< 151
CA-DWA-17	2/20/2007	< 151
CA-DWA-18	2/20/2007	< 151
CA-DWA-19	2/20/2007	< 151
CA-DWA-20	2/20/2007	< 151
CA-DWA-21	2/20/2007	< 151
CA-DWA-1	3/20/2007	< 179
CA-DWA-2	3/20/2007	< 179
CA-DWA-3	3/20/2007	< 179
CA-DWA-4	3/20/2007	< 179
CA-DWA-5	3/20/2007	< 179
CA-DWA-6	3/20/2007	< 179
CA-DWA-7	3/20/2007	< 179
CA-DWA-8	3/20/2007	< 179
CA-DWA-9	3/20/2007	< 179
CA-DWA-10	3/20/2007	< 179

C-3, Drinking Water, Analysis for tritium.

Location	Collection Date	Concentration H-3 (pCi/L)
CA-DWA-11	3/20/2007	< 179
CA-DWA-12	3/20/2007	< 179
CA-DWA-14	3/20/2007	< 179
CA-DWA-15	3/20/2007	< 179
CA-DWA-16	3/20/2007	< 179
CA-DWA-17	3/20/2007	< 179
CA-DWA-18	3/20/2007	< 179
CA-DWA-19	3/20/2007	< 179
CA-DWA-20	3/20/2007	< 179
CA-DWA-21	3/20/2007	< 179
CA-DWA-1	4/17/2007	< 171
CA-DWA-2	4/17/2007	< 171
CA-DWA-3	4/17/2007	< 171
CA-DWA-4	4/17/2007	< 171
CA-DWA-5	4/17/2007	< 171
CA-DWA-6	4/17/2007	< 171
CA-DWA-7	4/17/2007	< 176
CA-DWA-8	4/17/2007	< 176
CA-DWA-9	4/17/2007	< 176
CA-DWA-10	4/17/2007	< 176
CA-DWA-11	4/17/2007	< 176
CA-DWA-12	4/17/2007	< 171
CA-DWA-14	4/17/2007	< 176
CA-DWA-15	4/17/2007	< 176
CA-DWA-16	4/17/2007	< 176
CA-DWA-17	4/17/2007	< 176
CA-DWA-18	4/17/2007	< 171
CA-DWA-19	4/17/2007	< 176
CA-DWA-20	4/17/2007	< 176
CA-DWA-21	4/17/2007	< 176
CA-DWA-1	5/15/2007	< 174
CA-DWA-2	5/15/2007	< 174
CA-DWA-3	5/15/2007	< 174
CA-DWA-4	5/15/2007	< 174
CA-DWA-5	5/15/2007	< 174
CA-DWA-6	5/15/2007	< 174
CA-DWA-7	5/15/2007	< 174
CA-DWA-8	5/15/2007	< 174
CA-DWA-9	5/15/2007	< 174
CA-DWA-10	5/15/2007	< 174
CA-DWA-11	5/15/2007	< 174
CA-DWA-12	5/15/2007	< 174
CA-DWA-14	5/15/2007	< 174
CA-DWA-15	5/15/2007	< 174
CA-DWA-16	5/15/2007	< 174
CA-DWA-17	5/15/2007	< 174
CA-DWA-18	5/15/2007	< 174
CA-DWA-19	5/15/2007	< 174
CA-DWA-20	5/15/2007	< 174
CA-DWA-21	5/15/2007	< 174

C-3, Drinking Water, Analysis for tritium.

Location	Collection Date	Concentration H-3 (pCi/L)
CA-DWA-1	6/22/2007	< 145
CA-DWA-2	6/22/2007	< 145
CA-DWA-3	6/22/2007	< 145
CA-DWA-4	6/22/2007	< 145
CA-DWA-5	6/22/2007	< 169
CA-DWA-6	6/22/2007	< 169
CA-DWA-7	6/22/2007	< 169
CA-DWA-8	6/22/2007	< 169
CA-DWA-9	6/22/2007	< 169
CA-DWA-10	6/22/2007	< 169
CA-DWA-11	6/22/2007	< 169
CA-DWA-12	6/22/2007	< 142
CA-DWA-14	6/22/2007	< 142
CA-DWA-15	6/22/2007	< 142
CA-DWA-16	6/22/2007	< 142
CA-DWA-17	6/22/2007	< 142
CA-DWA-18	6/22/2007	< 142
CA-DWA-19	6/22/2007	< 142
CA-DWA-20	6/22/2007	< 142
CA-DWA-21	6/22/2007	< 142
CA-DWA-1	7/17/2007	< 149
CA-DWA-2	7/17/2007	< 149
CA-DWA-3	7/17/2007	< 149
CA-DWA-4	7/17/2007	< 149
CA-DWA-5	7/17/2007	< 149
CA-DWA-6	7/17/2007	< 172
CA-DWA-7	7/17/2007	< 172
CA-DWA-8	7/17/2007	< 172
CA-DWA-9	7/17/2007	< 172
CA-DWA-10	7/17/2007	< 172
CA-DWA-11	7/17/2007	< 179
CA-DWA-12	7/17/2007	< 172
CA-DWA-14	7/17/2007	< 179
CA-DWA-15	7/17/2007	< 179
CA-DWA-16	7/17/2007	< 179
CA-DWA-17	7/17/2007	< 179
CA-DWA-18	7/17/2007	< 179
CA-DWA-19	7/17/2007	< 149
CA-DWA-20	7/17/2007	< 149
CA-DWA-21	7/17/2007	< 149
CA-DWA-22	7/17/2007	< 149
CA-DWA-1	8/21/2007	< 148
CA-DWA-2	8/21/2007	< 148
CA-DWA-3	8/21/2007	< 148
CA-DWA-4	8/21/2007	< 148
CA-DWA-5	8/21/2007	< 148
CA-DWA-6	8/21/2007	< 148
CA-DWA-7	8/21/2007	< 148

C-3, Drinking Water, Analysis for tritium.

Location	Collection Date	Concentration H-3 (pCi/L)
CA-DWA-8	8/21/2007	< 148
CA-DWA-9	8/21/2007	< 148
CA-DWA-10	8/21/2007	< 148
CA-DWA-11	8/21/2007	< 148
CA-DWA-12	8/21/2007	< 197
CA-DWA-14	8/21/2007	< 197
CA-DWA-15	8/21/2007	< 197
CA-DWA-16	8/21/2007	< 197
CA-DWA-17	8/21/2007	< 197
CA-DWA-18	8/21/2007	< 197
CA-DWA-19	8/21/2007	< 197
CA-DWA-20	8/21/2007	< 197
CA-DWA-21	8/21/2007	< 197
CA-DWA-22	8/21/2007	< 197
CA-DWA-1	9/21/2007	< 148
CA-DWA-2	9/21/2007	< 148
CA-DWA-3	9/21/2007	< 148
CA-DWA-4	9/21/2007	< 148
CA-DWA-5	9/21/2007	< 148
CA-DWA-6	9/21/2007	< 148
CA-DWA-7	9/21/2007	< 148
CA-DWA-8	9/21/2007	< 148
CA-DWA-9	9/21/2007	< 148
CA-DWA-10	9/21/2007	< 148
CA-DWA-11	9/21/2007	< 148
CA-DWA-12	9/21/2007	< 148
CA-DWA-14	9/21/2007	< 148
CA-DWA-15	9/21/2007	< 148
CA-DWA-16	9/21/2007	< 148
CA-DWA-17	9/21/2007	< 148
CA-DWA-18	9/21/2007	< 148
CA-DWA-19	9/21/2007	< 148
CA-DWA-20	9/21/2007	< 148
CA-DWA-21	9/21/2007	< 148
CA-DWA-22	9/21/2007	< 148
CA-DWA-1	10/23/2007	< 193
CA-DWA-2	10/23/2007	< 193
CA-DWA-3	10/23/2007	< 193
CA-DWA-4	10/23/2007	< 193
CA-DWA-5	10/23/2007	< 193
CA-DWA-6	10/23/2007	< 193
CA-DWA-7	10/23/2007	< 193
CA-DWA-8	10/23/2007	< 193
CA-DWA-9	10/23/2007	< 193
CA-DWA-10	10/23/2007	< 193
CA-DWA-11	10/23/2007	< 193
CA-DWA-12	10/23/2007	< 193
CA-DWA-14	10/23/2007	< 193

C-3, Drinking Water, Analysis for tritium.

Location	Collection Date	Concentration H-3 (pCi/L)
CA-DWA-15	10/23/2007	< 193
CA-DWA-16	10/23/2007	< 193
CA-DWA-17	10/23/2007	< 193
CA-DWA-18	10/23/2007	< 193
CA-DWA-19	10/23/2007	< 193
CA-DWA-20	10/23/2007	< 193
CA-DWA-21	10/23/2007	< 193
CA-DWA-22	10/23/2007	< 193
CA-DWA-1	12/4/2007	< 183
CA-DWA-2	12/4/2007	< 183
CA-DWA-3	12/4/2007	< 183
CA-DWA-4	12/4/2007	< 183
CA-DWA-5	12/4/2007	< 183
CA-DWA-6	12/4/2007	< 183
CA-DWA-7	12/4/2007	< 183
CA-DWA-8	12/4/2007	< 183
CA-DWA-9	12/4/2007	< 183
CA-DWA-10	12/4/2007	< 183
CA-DWA-11	12/4/2007	< 183
CA-DWA-12	12/4/2007	< 183
CA-DWA-14	12/4/2007	< 183
CA-DWA-15	12/4/2007	< 183
CA-DWA-16	12/4/2007	< 183
CA-DWA-17	12/4/2007	< 183
CA-DWA-18	12/4/2007	< 183
CA-DWA-19	12/4/2007	< 183
CA-DWA-20	12/4/2007	< 183
CA-DWA-21	12/4/2007	< 183
CA-DWA-22	12/4/2007	< 183

C-4, Ground and Surface Water, Analysis for tritium and gamma-emitting isotopes.

Location	Collection Date	Concentration (pCi/L)						
		H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
XPG-236	1/8/2007	< 166	-	-	-	-	-	-
XPG-135	1/8/2007	< 166	-	-	-	-	-	-
XPG-210	1/8/2007	245 ± 93	-	-	-	-	-	-
XPB-121	1/8/2007	< 166	-	-	-	-	-	-
XPG-109	1/8/2007	< 166	-	-	-	-	-	-
MAIN TRANSFORMER PIT	1/8/2007	< 166	-	-	-	-	-	-
GROUNDWATER SUMP	1/9/2007	152 ± 84	< 4.4	< 3.5	< 5.7	< 5.7	< 6.6	< 5.7
MW-936	1/9/2007	185 ± 86	< 4.8	< 3.0	< 4.0	< 4.5	< 3.8	< 5.6
MW-937B	1/9/2007	438 ± 96	< 3.5	< 2.0	< 2.5	< 6.7	< 3.5	< 4.2
MW-937C	1/9/2007	< 147	< 2.4	< 2.6	< 3.3	< 6.2	< 3.0	< 3.1
MW-937D	1/9/2007	< 147	< 2.8	< 3.1	< 2.2	< 2.8	< 3.4	< 2.2
MW-937F	1/9/2007	168 ± 85	< 6.0	< 3.9	< 4.7	< 9.2	< 5.3	< 2.9
OW-1	1/10/2007	< 143	-	-	-	-	-	-
OW-2	1/10/2007	< 143	-	-	-	-	-	-
OW-3	1/10/2007	< 143	-	-	-	-	-	-
OW-4	1/10/2007	167 ± 83	-	-	-	-	-	-
OW-5	1/10/2007	296 ± 88	-	-	-	-	-	-
UHS POND	1/10/2007	246 ± 85	-	-	-	-	-	-
UNIT 2 HOLE	1/10/2007	293 ± 87	-	-	-	-	-	-
MW-502	1/11/2007	194 ± 83	-	-	-	-	-	-
MW-006	1/11/2007	< 150	-	-	-	-	-	-
MW-007	1/11/2007	< 150	-	-	-	-	-	-
MW-012	1/11/2007	< 139	-	-	-	-	-	-
MW-937A	1/11/2007	< 156	< 3.1	< 3.4	< 4.5	< 5.4	< 3.2	< 3.5
XPB121	1/27/2007	< 142	-	-	-	-	-	-
XPY-148B	1/27/2007	< 142	-	-	-	-	-	-
XPG-144	1/27/2007	< 142	-	-	-	-	-	-
XPG-37	1/27/2007	< 142	-	-	-	-	-	-
XPG-206	1/27/2007	< 134	-	-	-	-	-	-
MW-001	1/31/2007	< 162	-	-	-	-	-	-
MW-002	1/31/2007	< 162	-	-	-	-	-	-
MW-003	1/31/2007	< 162	-	-	-	-	-	-
MW-009	1/31/2007	< 162	-	-	-	-	-	-
MW-010	1/31/2007	< 162	-	-	-	-	-	-
MW-501	1/31/2007	< 162	-	-	-	-	-	-
MW-005	1/31/2007	< 162	< 2.8	< 2.0	< 3.3	< 7.3	< 4.2	< 3.6
MW-006	1/31/2007	< 138	< 1.9	< 3.6	< 2.8	< 4.2	< 3.0	< 3.3
MW-007	1/31/2007	< 138	< 3.8	< 3.8	< 2.1	< 7.0	< 3.8	< 3.5
MW-008	1/31/2007	< 138	< 3.5	< 4.6	< 2.2	< 9.3	< 3.7	< 2.9
MW-012	1/31/2007	< 138	< 1.6	< 3.1	< 3.0	< 2.6	< 2.8	< 1.6
GWA-STA 105+39 100'LT (MH-5)	2/9/2007	2707 ± 161	< 7.5	< 8.9	< 7.4	< 16.1	< 9.4	< 5.8
MW-005	2/20/2007	< 188	< 1.8	< 2.5	< 3.8	< 9.2	< 3.4	< 5.7
MW-006	2/20/2007	< 188	< 6.6	< 6.0	< 5.5	< 7.9	< 4.7	< 5.8
MW-007	2/20/2007	< 188	< 2.8	< 3.9	< 2.7	< 4.9	< 4.3	< 3.3
MW-008	2/20/2007	< 188	< 6.1	< 3.6	< 3.7	< 8.3	< 5.5	< 5.2
MW-009	2/21/2007	< 188	< 4.6	< 5.3	< 5.1	< 8.7	< 4.8	< 5.0
MW-011	2/20/2007	< 188	< 2.4	< 3.2	< 4.3	< 7.5	< 4.6	< 7.2

C-4, Ground and Surface Water, Analysis for tritium and gamma-emitting isotopes.

Location	Collection Date	Concentration (pCi/L)						
		H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
MW-502	2/21/2007	< 188	-	-	-	-	-	-
M-2	2/21/2007	< 188	-	-	-	-	-	-
MW-501	2/21/2007	< 188	-	-	-	-	-	-
M-7	2/21/2007	< 188	-	-	-	-	-	-
XPG-208	2/27/2007	< 134	-	-	-	-	-	-
XPG-206	2/27/2007	< 134	-	-	-	-	-	-
SAMPLE BERM	2/27/2007	289 ± 83	-	-	-	-	-	-
XNB-02	2/28/2007	401 ± 88	-	-	-	-	-	-
XPB03	2/28/2007	322 ± 85	-	-	-	-	-	-
XNB-01	2/28/2007	425 ± 89	-	-	-	-	-	-
XPB04	2/28/2007	276 ± 83	-	-	-	-	-	-
DEMIN BERM A	2/28/2007	< 134	-	-	-	-	-	-
DEMIN BERM B	2/28/2007	< 134	-	-	-	-	-	-
AUX FUEL BERM	2/28/2007	< 182	-	-	-	-	-	-
XPG-212	3/2/2007	< 182	-	-	-	-	-	-
XPG-236	3/2/2007	< 182	-	-	-	-	-	-
XPG-130	3/2/2007	< 182	-	-	-	-	-	-
XPG-111	3/2/2007	< 182	-	-	-	-	-	-
XMR-01	3/2/2007	242 ± 99	-	-	-	-	-	-
XPG-135	3/2/2007	< 182	-	-	-	-	-	-
XFMR-A	3/2/2007	< 182	-	-	-	-	-	-
XFMR-B	3/2/2007	< 182	-	-	-	-	-	-
MW-004	3/13/2007	< 164	< 2.2	< 1.5	< 2.4	< 6.5	< 3.9	< 2.3
MW-005	3/13/2007	< 164	< 3.2	< 3.0	< 2.9	< 5.9	< 2.3	< 4.3
MW-006	3/13/2007	< 164	< 4.2	< 4.3	< 2.3	< 5.5	< 4.6	< 6.0
MW-007	3/13/2007	< 164	< 1.5	< 1.7	< 2.5	< 3.8	< 4.0	< 2.4
MW-008	3/13/2007	< 164	< 3.5	< 2.8	< 3.4	< 9.1	< 4.1	< 4.8
MW-009	3/13/2007	< 164	< 3.1	< 2.5	< 1.5	< 4.8	< 2.9	< 3.8
GWA-DRUM 7133 (MH-8)	3/15/2007	44880 ± 601	< 2.7	< 3.1	< 2.7	< 5.8	< 2.5	< 3.6
GWA-DRUM 7135	3/15/2007	< 171	-	-	-	-	-	-
OW-1	4/9/2007	< 150	-	-	-	-	-	-
OW-2	4/9/2007	< 149	-	-	-	-	-	-
OW-3	4/9/2007	< 149	-	-	-	-	-	-
OW-4	4/9/2007	< 150	-	-	-	-	-	-
OW-5	4/9/2007	308 ± 92	-	-	-	-	-	-
UHS POND	4/9/2007	< 149	-	-	-	-	-	-
MW-001	4/11/2007	< 179	-	-	-	-	-	-
MW-002	4/11/2007	< 179	-	-	-	-	-	-
MW-003	4/11/2007	< 179	-	-	-	-	-	-
MW-009	4/18/2007	< 149	-	-	-	-	-	-
MW-010	4/18/2007	< 149	-	-	-	-	-	-
MW-011	4/12/2007	< 149	-	-	-	-	-	-
UNIT 2 POND	4/11/2007	208 ± 101	-	-	-	-	-	-
MW-501	4/12/2007	< 149	-	-	-	-	-	-
MW-502	4/19/2007	< 178	-	-	-	-	-	-
TRAINING ANNEX FLOOR	4/11/2007	< 177	-	-	-	-	-	-
TRAINING ANNEX EXCAVATION	4/11/2007	< 177	-	-	-	-	-	-

C-4, Ground and Surface Water, Analysis for tritium and gamma-emitting isotopes.

Location	Collection Date	Concentration (pCi/L)						
		H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
GROUNDWATER SUMP	4/9/2007	< 180	< 3.1	< 3.7	< 5.8	< 4.4	< 3.2	< 3.8
MW-936	4/9/2007	< 180	< 5.0	< 2.9	< 3.4	< 4.9	< 4.0	< 5.7
MW-937A	4/10/2007	< 180	< 1.5	< 3.6	< 3.8	< 8.3	< 3.9	< 5.2
MW-937B	4/10/2007	260 ± 99	< 4.5	< 6.2	< 4.3	< 6.5	< 4.3	< 3.7
MW-937C	4/10/2007	< 180	< 2.4	< 2.3	< 1.3	< 4.7	< 2.4	< 3.0
MW-937D	4/10/2007	< 180	< 1.9	< 2.8	< 1.1	< 3.7	< 2.9	< 3.6
MW-937E	4/18/2007	< 180	< 3.2	< 2.1	< 1.6	< 3.7	< 1.1	< 3.3
MW-937F	4/10/2007	< 180	< 1.6	< 4.6	< 3.5	< 11.0	< 2.4	< 4.5
UHS POND	4/12/2007	< 167	-	-	-	-	-	-
M-2	4/18/2007	< 149	-	-	-	-	-	-
M-7	4/18/2007	< 149	-	-	-	-	-	-
MW-004	4/19/2007	< 178	< 3.4	< 1.7	< 1.4	< 4.9	< 2.5	< 3.3
MW-005	4/19/2007	< 178	< 2.3	< 2.7	< 2.7	< 6.3	< 3.2	< 2.7
MW-006	4/13/2007	< 179	< 2.7	< 2.8	< 3.3	< 3.4	< 4.3	< 3.7
MW-007	4/13/2007	< 179	< 4.7	< 5.5	< 3.6	< 12.7	< 4.8	< 3.8
MW-008	4/13/2007	< 179	< 2.1	< 2.4	< 2.9	< 6.9	< 2.5	< 3.2
MW-012	4/13/2007	< 179	< 3.0	< 2.1	< 1.6	< 4.8	< 2.8	< 3.6
MH-9B	5/18/2007	< 174	< 5.1	< 4.2	< 4.1	< 3.7	< 3.6	< 4.8
MW-501	5/22/2007	< 177	-	-	-	-	-	-
MW-502	5/22/2007	< 177	-	-	-	-	-	-
MW-004	5/24/2007	< 177	< 5.7	< 6.6	< 3.2	< 6.3	< 5.9	< 5.2
MW-005	5/24/2007	< 177	< 1.9	< 3.6	< 3.5	< 4.1	< 5.2	< 4.9
MW-006	5/22/2007	< 177	< 2.7	< 3.4	< 2.9	< 3.3	< 3.4	< 3.0
MW-007	5/22/2007	< 177	< 2.3	< 3.7	< 1.7	< 4.4	< 5.0	< 2.8
MW-008	5/22/2007	< 177	< 2.6	< 2.6	< 3.0	< 5.4	< 3.5	< 3.0
MW-009	5/24/2007	< 177	< 2.8	< 2.6	< 2.2	< 4.5	< 3.4	< 2.3
SINKHOLE NEXT TO CONTROL I	5/31/2007	< 175	-	-	-	-	-	-
MH-8	6/7/2007	232 ± 91	< 3.7	< 3.6	< 5.3	< 6.1	< 5.1	< 3.2
MW-004	6/14/2007	< 166	< 3.4	< 5.3	< 3.1	< 5.2	< 6.5	< 3.7
MW-005	6/14/2007	< 166	< 4.3	< 6.7	< 4.1	< 9.0	< 5.7	< 4.1
MW-006	6/14/2007	< 166	< 2.4	< 2.5	< 3.5	< 3.0	< 3.3	< 3.9
MW-007	6/14/2007	< 166	< 1.9	< 2.5	< 1.9	< 6.7	< 3.8	< 4.1
MW-008	6/14/2007	< 166	< 4.5	< 3.8	< 3.7	< 11.9	< 4.6	< 4.8
MW-009	6/14/2007	< 166	< 5.3	< 5.3	< 5.3	< 8.4	< 3.5	< 5.2
MH-8	6/20/2007	268 ± 96	-	-	-	-	-	-
MW-004	7/12/2007	< 146	< 1.7	< 1.5	< 1.3	< 4.1	< 2.7	< 2.0
MW-005	7/12/2007	< 146	< 2.4	< 3.4	< 2.7	< 4.4	< 2.2	< 2.0
MW-006	7/21/2007	< 146	< 3.4	< 3.5	< 2.0	< 1.8	< 4.8	< 2.9
MW-007	7/21/2007	< 146	< 4.3	< 5.5	< 3.1	< 15.2	< 5.4	< 5.4
MW-008	7/12/2007	< 146	< 2.9	< 2.6	< 2.4	< 2.9	< 2.8	< 3.6
MW-012	7/21/2007	< 146	< 2.3	< 2.8	< 2.5	< 4.0	< 2.0	< 3.0
M-2	7/24/2007	< 153	-	-	-	-	-	-
M-7	7/24/2007	< 153	-	-	-	-	-	-

C-4, Ground and Surface Water, Analysis for tritium and gamma-emitting isotopes.

Location	Collection Date	Concentration (pCi/L)						
		H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
GROUNDWATER SUMP	7/26/2007	< 146	< 2.7	< 4.2	< 4.6	< 5.9	< 4.5	< 6.6
MW-936	7/26/2007	< 146	< 2.0	< 3.4	< 3.0	< 9.1	< 2.2	< 5.2
MW-937A	7/26/2007	< 146	< 4.3	< 2.7	< 4.4	< 3.3	< 4.0	< 4.7
MW-937B	7/25/2007	270 ± 85	< 2.6	< 2.7	< 2.8	< 5.6	< 2.5	< 3.0
MW-937C	7/26/2007	< 146	< 2.4	< 4.5	< 3.6	< 6.5	< 4.7	< 6.9
MW-937D	7/26/2007	< 146	< 5.4	< 3.6	< 3.2	< 6.2	< 4.4	< 3.5
MW-937E	7/26/2007	194 ± 81	< 4.1	< 3.3	< 5.3	< 6.3	< 5.6	< 5.7
MW-937F	7/25/2007	228 ± 83	< 1.9	< 2.1	< 2.4	< 4.4	< 3.8	< 2.9
MW-001	7/16/2007	< 178	-	-	-	-	-	-
MW-002	7/13/2007	< 178	-	-	-	-	-	-
MW-003	7/13/2007	< 178	-	-	-	-	-	-
MW-010	7/12/2007	< 178	-	-	-	-	-	-
MW-009	7/12/2007	< 178	-	-	-	-	-	-
MW-501	7/26/2007	< 146	-	-	-	-	-	-
MW-502	7/16/2007	< 146	-	-	-	-	-	-
OW-1	7/26/2007	< 177	-	-	-	-	-	-
OW-2	7/25/2007	< 177	-	-	-	-	-	-
OW-3	7/25/2007	< 177	-	-	-	-	-	-
OW-4	7/25/2007	182 ± 100	-	-	-	-	-	-
OW-5	7/25/2007	334 ± 105	-	-	-	-	-	-
MW-004	8/21/2007	< 187	< 2.8	< 2.1	< 2.5	< 5.0	< 3.0	< 3.3
MW-005	8/21/2007	< 187	< 4.7	< 3.9	< 5.1	< 5.5	< 5.2	< 3.5
MW-006	8/21/2007	< 187	< 4.1	< 7.5	< 6.0	< 5.1	< 6.1	< 3.5
MW-007	8/21/2007	< 187	< 5.2	< 2.8	< 4.1	< 6.5	< 6.3	< 3.7
MW-008	8/21/2007	< 187	< 2.2	< 3.2	< 4.0	< 6.1	< 2.9	< 2.4
MW-012	8/21/2007	< 187	< 4.6	< 3.2	< 4.4	< 4.8	< 3.9	< 4.6
MW-013	8/23/2007	< 188	-	-	-	-	-	-
MW-014	8/23/2007	< 154	-	-	-	-	-	-
MW-015	8/22/2007	259 ± 110	-	-	-	-	-	-
MW-502	8/22/2007	< 154	-	-	-	-	-	-
MW-501	8/22/2007	< 188	-	-	-	-	-	-
MW-004	9/4/2007	< 148	< 3.4	< 2.9	< 2.9	< 2.7	< 3.2	< 3.8
MW-005	9/4/2007	< 148	< 2.7	< 1.9	< 2.8	< 4.9	< 2.9	< 3.8
MW-006	9/4/2007	< 148	< 5.5	< 5.3	< 1.9	< 9.4	< 5.1	< 4.8
MW-007	9/4/2007	< 148	< 2.9	< 2.4	< 3.4	< 4.5	< 3.8	< 4.0
MW-008	9/4/2007	< 148	< 4.9	< 5.8	< 4.2	< 3.9	< 6.3	< 4.8
MW-012	9/4/2007	< 148	< 2.2	< 3.9	< 2.2	< 4.9	< 3.2	< 3.2
MH-9B	10/8/2007	13333 ± 322	< 1.2	< 2.0	< 3.2	< 4.5	< 2.2	< 3.2
MW-013	10/8/2007	< 189	< 6.8	< 4.1	< 2.3	< 14.4	< 7.1	< 7.2
MW-014	10/8/2007	< 189	< 4.8	< 4.1	< 3.6	< 15.8	< 6.3	< 3.8
MW-015	10/8/2007	266 ± 108	< 2.8	< 2.8	< 1.9	< 3.9	< 3.1	< 4.3
MW-016	10/8/2007	< 189	< 3.8	< 2.5	< 3.1	< 7.6	< 3.8	< 2.8
OW-1	10/9/2007	< 180	-	-	-	-	-	-
OW-2	10/9/2007	< 180	-	-	-	-	-	-
OW-3	10/9/2007	< 180	-	-	-	-	-	-
OW-4	10/9/2007	< 180	-	-	-	-	-	-
OW-5	10/9/2007	334 ± 102	-	-	-	-	-	-

C-4, Ground and Surface Water, Analysis for tritium and gamma-emitting isotopes.

Location	Collection Date	Concentration (pCi/L)						
		H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
MW-001	10/10/2007	< 180	-	-	-	-	-	-
MW-002	10/24/2007	< 180	-	-	-	-	-	-
MW-003	10/24/2007	< 180	-	-	-	-	-	-
MW-009	10/24/2007	< 180	-	-	-	-	-	-
MW-010	10/24/2007	< 180	-	-	-	-	-	-
MW-501	10/24/2007	< 180	-	-	-	-	-	-
MW-502	10/10/2007	< 180	-	-	-	-	-	-
M-2	10/10/2007	< 180	-	-	-	-	-	-
M-7	10/25/2007	< 180	-	-	-	-	-	-
UHS POND	10/9/2007	< 180	-	-	-	-	-	-
UNIT 2 POND	10/11/2007	< 180	-	-	-	-	-	-
GROUNDWATER SUMP	10/11/2007	< 187	< 2.1	< 2.7	< 1.9	< 3.5	< 2.1	< 2.5
MW-936	10/11/2007	< 176	< 3.1	< 2.1	< 2.2	< 4.3	< 3.6	< 3.3
MW-937A	10/11/2007	< 176	< 2.1	< 2.1	< 2.7	< 3.4	< 2.2	< 2.8
MW-937B	10/9/2007	< 179	< 1.8	< 3.6	< 1.1	< 6.7	< 3.3	< 3.0
MW-937C	10/11/2007	< 176	< 2.9	< 2.2	< 2.1	< 4.3	< 2.3	< 3.9
MW-937D	10/11/2007	< 176	< 1.9	< 3.6	< 1.2	< 4.6	< 2.6	< 2.5
MW-937E	10/11/2007	< 179	< 3.1	< 2.2	3.4 ± 1.8	< 6.9	< 2.0	< 2.6
MW-937F	10/9/2007	< 176	< 2.5	< 1.6	< 2.6	< 2.4	< 2.3	< 2.6
MW-004	10/23/2007	< 175	< 3.5	< 3.4	< 4.1	< 6.2	< 4.8	< 5.4
MW-005	10/23/2007	< 175	< 6.1	< 4.6	< 4.5	< 10.3	< 4.2	< 5.0
MW-006	10/23/2007	< 175	< 3.4	< 3.3	< 5.2	< 3.7	< 8.0	< 3.5
MW-007	10/24/2007	< 175	< 3.7	< 6.3	< 3.2	< 10.4	< 5.5	< 3.9
MW-008	10/24/2007	< 175	< 3.9	< 3.5	< 3.9	< 6.5	< 8.0	< 3.0
MW-012	10/23/2007	< 175	< 3.1	< 4.9	< 2.6	< 5.0	< 4.7	< 7.1
GW1 1 -SOL-STA 104 + 90, 21 LT	11/8/2007	429 ± 113	-	-	-	-	-	-
GW1 2 -SOL-STA 104 + 20, 46 LT	11/8/2007	367 ± 111	-	-	-	-	-	-
GW1 3 -SOL-STA 103 + 50, 69 LT	11/8/2007	< 172	-	-	-	-	-	-
BG -SOL-STA 101 + 80, 210 RT	11/8/2007	< 172	-	-	-	-	-	-
GWA-SOL-STA 105 + 24, 300 LT	11/9/2007	< 160	-	-	-	-	-	-
GWA-SOL-STA 105 + 24, 300 LT	11/9/2007	< 160	-	-	-	-	-	-
FMW-5	11/8/2007	320 ± 103	-	-	-	-	-	-
MW-015	11/8/2007	< 160	-	-	-	-	-	-
9B INV 1 GW-A/B	11/9/2007	< 172	< 4.9	< 5.7	< 4.3	< 12.0	< 7.4	< 6.3
9B INV 2 GW-A/B	11/9/2007	< 172	< 4.5	< 4.9	< 3.5	< 7.9	< 4.7	< 4.9
9B INV 3 GW-A/B	11/9/2007	< 172	< 5.5	< 6.0	< 5.8	< 5.3	< 6.3	< 4.6
9B INV 4 GW-A/B	11/9/2007	< 172	< 3.3	< 5.2	< 4.1	< 6.8	< 5.4	< 5.7
MW-004	11/19/2007	< 179	< 3.8	< 1.6	< 2.2	< 7.8	< 3.8	< 3.3
MW-005	11/19/2007	< 179	< 3.5	< 2.4	< 1.2	< 2.7	< 3.4	< 3.7
MW-006	11/19/2007	< 179	< 3.6	< 2.7	< 1.3	< 4.0	< 3.2	< 3.9
MW-007	11/19/2007	< 179	< 2.5	< 5.5	< 4.4	< 6.9	< 3.8	< 4.3
MW-008	11/19/2007	< 179	< 4.3	< 2.7	< 2.2	< 6.2	< 3.8	< 3.5
MW-012	11/19/2007	< 179	< 2.0	< 1.9	< 2.0	< 2.6	< 2.4	< 3.6
MW-502	11/19/2007	< 182	-	-	-	-	-	-
MW-501	11/20/2007	< 182	-	-	-	-	-	-
105 + 00, 400 LT	12/3/2007	< 188	-	-	-	-	-	-

C-4, Ground and Surface Water, Analysis for tritium and gamma-emitting isotopes.

Location	Collection Date	Concentration (pCi/L)						
		H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
MW-004	12/20/2007	< 158	< 2.7	< 3.1	< 2.3	< 4.9	< 3.7	< 4.6
MW-005	12/20/2007	< 158	< 2.2	< 1.5	< 2.7	< 3.2	< 2.2	< 2.0
MW-006	12/20/2007	< 158	< 2.3	< 2.1	< 2.5	< 6.0	< 2.2	< 2.7
MW-007	12/20/2007	< 158	< 2.3	< 3.1	< 1.0	< 3.5	< 2.9	< 2.7
MW-008	12/20/2007	< 158	< 4.4	< 4.8	< 3.4	< 12.1	< 4.9	< 3.7
MW-012	12/20/2007	< 158	< 3.1	< 1.4	< 2.3	< 4.9	< 3.3	< 3.0

C-4a, Ground Water, Analyses for gross beta and iodine-131.

Location	Collection Date	Concentration (pCi/L)	
		Gross Beta	I-131
Groundwater Sump (GWS)	1/9/2007	11.9 1.7	< 0.5
936	1/9/2007	11.8 2.4	< 0.5
937B	1/9/2007	12.8 ± 3.4	< 0.5
937C	1/9/2007	4.2 ± 1.0	< 0.4
937D	1/9/2007	13.4 ± 2.1	< 0.3
937F	1/9/2007	11.6 ± 2.9	< 0.4

C-5. Wetlands Soil, annual collection, analyses for gross alpha, gross beta and gamma-emitting isotopes.

Units: pCi/kg dry

Location		SOL-W-001-#1	SOL-W-001-#2	SOL-W-002-#1	SOL-W-002-#2
Lab Code	Req. LLD	CASO- 8847	CASO- 8848	CASO- 8849	CASO- 8850
Date Collected	-	01-15-08	01-15-08	01-15-08	01-15-08
Gross Alpha	-	14326 ± 3977	7062 ± 2972	7209 ± 3072	11918 ± 3446
Gross Beta	-	28280 ± 3078	23258 ± 2788	16705 ± 2585	25410 ± 2247
K-40	-	9648 ± 755	12266 ± 835	9494 ± 657	10338 ± 630
Mn-54	-	< 34.7	< 18.0	< 22.1	< 16.3
Fe-59	-	< 49.5	< 100.3	< 26.9	< 43.7
Co-58	-	< 25.5	< 28.9	< 23.7	< 19.1
Co-60	-	< 23.0	< 29.1	< 8.7	< 14.4
Zr-Nb-95	-	< 34.9	< 24.5	< 20.4	< 38.6
Cs-134	150	< 25.5	< 22.3	< 19.7	< 14.8
Cs-137	180	69 ± 30.1	< 26.6	< 20.3	< 22.7
Ba-La-140	-	< 62.5	< 98.3	< 42.2	< 26.1

Location		SOL-W-003-#1	SOL-W-003-#2	SOL-W-004-#1	SOL-W-004-#2
Lab Code	Req. LLD	CASO- 8851	CASO- 8852	CASO- 8853	CASO- 8854
Date Collected	-	01-15-08	01-15-08	01-15-08	01-15-08
Gross Alpha	-	9568 ± 3117	11916 ± 3446	19907 ± 5092	12230 ± 3637
Gross Beta	-	28851 ± 2734	21241 ± 2455	30363 ± 3637	22184 ± 2693
K-40	-	14980 ± 745	9628 ± 672	12631 ± 712	9171 ± 622
Mn-54	-	< 28.9	< 23.8	< 25.8	< 29.2
Fe-59	-	< 53.6	< 39.1	< 73.4	< 49.2
Co-58	-	< 22.3	< 24.0	< 23.4	< 22.3
Co-60	-	< 7.3	< 8.4	< 11.7	< 17.5
Zr-Nb-95	-	< 20.4	< 18.7	< 34.2	< 34.2
Cs-134	150	< 17.8	< 20.0	< 21.8	< 17.5
Cs-137	180	145 ± 35.0	< 18.7	111 ± 30.5	< 20.8
Ba-La-140	-	< 23.2	< 29.1	< 46.7	< 30.6

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location	Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)				
			Co-58	Co-60	Cs-134	Cs-137	
MH-86-5 STA 2303 + 98 20`LT	4-6`	1/11/2007	< 169	< 10.4	< 6.8	< 15.4	< 13.3
MH-86-5 STA 2303 + 98 20`LT	9-11`	1/11/2007	< 169	< 15.9	< 13.4	< 14.5	< 6.6
MH-86-5 STA 2303 + 98 20`LT	14-16`	1/11/2007	< 169	< 15.0	< 8.1	< 11.9	< 15.8
MH-86-5 STA 2303 + 98 20`LT	19-21`	1/11/2007	< 169	< 11.6	< 3.4	< 14.1	< 8.3
MH-86-5 STA 2303 + 98 20`LT	24-26`	1/11/2007	< 169	< 15.8	< 12.8	< 15.1	< 14.7
MH-86-5 STA 2303 + 98 20`LT	29-31`	1/11/2007	< 169	< 15.8	< 6.2	< 15.9	< 17.2
BETWEEN MH-9B AND MH-10A NORTH	3.5-5.5`	1/9/2007	< 169	< 10.8	< 11.7	< 10.1	< 17.0
BETWEEN MH-9B AND MH-10A SOUTH	3.5-5.5`	1/9/2007	< 169	< 16.6	< 12.2	< 12.0	< 14.0
BETWEEN MH-9B AND MH-10A CENTRAL	3.5-5.5`	1/9/2007	< 169	< 14.6	< 8.4	< 13.8	< 15.2
MH-86-6 STA 2294 + 30 35`RT	4-6`	1/10/2007	< 169	< 15.0	< 12.1	< 15.7	< 16.0
MH-86-6 STA 2294 + 30 35`RT	9-11`	1/10/2007	< 171	< 10.5	< 12.5	< 21.0	< 10.6
MH-86-6 STA 2294 + 30 35`RT	14-16`	1/10/2007	1616 ± 145	< 14.5	< 8.9	< 23.6	34.4 ± 15.6
MH-86-6 STA 2294 + 30 35`RT	19-21`	1/10/2007	< 171	< 11.7	< 10.6	< 25.3	< 14.3
MH-86-6 STA 2294 + 30 35`RT	24-26`	1/10/2007	< 171	< 14.0	< 13.2	< 16.4	< 8.0
MH-86-6 STA 2294 + 30 35`RT	29-31`	1/10/2007	< 171	< 19.0	< 16.8	< 19.4	< 12.5
MH-86-6 STA 2294 + 30 35`RT	34-35.5`	1/10/2007	< 171	< 13.4	< 10.7	< 14.6	< 17.7
STA 19+35 27`LT DOCK HAUL ROAD	A-1 0-5`	2/7/2007	< 166	< 18.7	< 12.6	< 14.6	< 20.7
STA 19+35 27`LT DOCK HAUL ROAD	A-2 5-10`	2/7/2007	< 166	< 27.7	< 23.8	< 49.1	< 25.4
STA 19+35 27`LT DOCK HAUL ROAD	A-3 10-15`	2/7/2007	< 166	< 20.6	< 5.3	< 12.1	< 15.1
STA 19+35 27`LT DOCK HAUL ROAD	A-4 15-20`	2/7/2007	< 166	< 12.3	< 10.1	< 15.4	< 10.2
STA 19+35 27`LT DOCK HAUL ROAD	A-5 20-25`	2/7/2007	< 166	< 6.2	< 13.9	< 12.4	< 8.6
STA 19+35 27`LT DOCK HAUL ROAD	A-6 25-30`	2/7/2007	657 ± 113	< 12.6	< 15.4	< 13.7	< 11.9
STA 73+70 75` LT (MH-2)	B-1 0-5`	2/7/2007	< 166	< 20.1	< 8.1	< 16.9	< 16.5
STA 73+70 75` LT (MH-2)	B-2 5-10`	2/7/2007	< 166	< 25.0	< 36.4	< 39.8	< 33.6
STA 73+70 75` LT (MH-2)	B-3 10-15`	2/7/2007	< 166	< 15.1	< 11.7	< 14.5	< 13.4
STA 73+70 75` LT (MH-2)	B-4 15-20`	2/7/2007	< 166	< 14.6	< 8.8	< 12.7	< 11.4
STA 73+47 69` LT (MH-2)	C-1 0-5`	2/7/2007	< 166	< 10.1	< 13.0	< 14.7	< 15.3
STA 73+47 69` LT (MH-2)	C-2 5-10`	2/7/2007	< 166	< 14.5	< 12.0	< 15.7	< 12.7
STA 73+47 69` LT (MH-2)	C-3 10-15`	2/7/2007	< 162	< 17.2	< 14.4	< 14.5	< 18.5
STA 73+47 69` LT (MH-2)	C-4 15-20`	2/7/2007	< 162	< 15.1	< 8.3	< 11.7	< 14.2
STA 73+47 69` LT (MH-2)	C-5 20-25`	2/7/2007	282 ± 92	< 12.1	< 11.7	< 9.9	< 9.9
STA 72+82 70` LT (MH-2)	D-1 0-5`	2/7/2007	< 162	< 21.8	< 16.3	< 35.1	< 28.1
STA 72+82 70` LT (MH-2)	D-2 5-10`	2/7/2007	< 181	< 18.9	< 6.6	< 11.7	< 14.9
STA 72+82 70` LT (MH-2)	D-3 10-15`	2/7/2007	< 162	< 23.1	< 16.3	< 26.2	< 18.8

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location	Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)				
			Co-58	Co-60	Cs-134	Cs-137	
STA 72+82 70' LT (MH-2)	D-3 10-15'	2/7/2007	< 162	< 16.9	< 13.5	< 12.7	< 6.7
STA 72+82 70' LT (MH-2)	D-4 15-20'	2/7/2007	< 162	< 23.2	< 25.8	< 42.3	< 28.1
STA 72+82 70' LT (MH-2)	D-5 20-25'	2/7/2007	238 ± 91	< 13.7	< 17.8	< 12.4	< 8.1
STA 72+80 25' LT (MH-2)	E-1 0-5'	2/7/2007	< 181	< 16.2	< 13.3	< 16.8	< 21.2
STA 72+80 30' LT (MH-2)	F-1 0-5'	2/7/2007	< 162	< 27.2	< 24.5	< 36.5	< 33.4
STA 72+80 30' LT (MH-2)	F-2 5-10'	2/7/2007	< 165	< 7.1	< 11.7	< 12.4	< 15.0
STA 72+80 30' LT (MH-2)	F-3 10-15'	2/7/2007	< 165	< 30.5	< 22.1	< 41.1	< 20.3
STA 72+80 30' LT (MH-2)	F-4 15-20'	2/7/2007	< 162	< 15.6	< 16.6	< 13.6	< 17.4
STA 72+80 30' LT (MH-2)	F-5 20-25'	2/7/2007	< 181	< 18.2	< 16.0	< 28.8	< 19.9
STA 73+57 57' RT (MH-2)	G-1 0-5'	2/7/2007	497 ± 108	< 16.2	< 15.2	< 14.6	< 16.2
STA 73+57 57' RT (MH-2)	G-2 5-10'	2/7/2007	< 167	< 17.0	< 12.1	< 12.4	< 11.3
STA 73+57 57' RT (MH-2)	G-3 10-15'	2/7/2007	< 167	< 12.9	< 8.8	< 13.5	< 21.0
STA 73+57 57' RT (MH-2)	G-4 15-20'	2/7/2007	< 168	< 14.8	< 10.2	< 12.6	< 13.0
STA 73+57 57' RT (MH-2)	G-5 20-25'	2/7/2007	229 ± 97	< 15.2	< 10.8	< 13.9	< 13.7
STA 75+82 26' RT (MH-3A)	H-1 0-5'	2/8/2007	< 181	< 11.5	< 11.2	< 12.0	86.4 ± 36.1
STA 75+82 26' RT (MH-3A)	H-2 5-10'	2/8/2007	< 167	< 28.0	< 12.2	< 37.3	< 24.7
STA 75+82 26' RT (MH-3A)	H-3 10-15'	2/8/2007	< 181	< 23.5	< 25.2	< 31.7	< 19.8
STA 75+93 37' LT (MH-3A)	I-1 0-5'	2/8/2007	< 167	< 17.2	< 14.3	< 30.8	< 19.7
STA 75+93 37' LT (MH-3A)	I-2 5-10'	2/8/2007	< 181	< 15.5	< 6.1	< 12.3	< 14.9
STA 75+93 37' LT (MH-3A)	I-3 10-15'	2/8/2007	< 168	< 18.3	< 14.0	< 16.5	< 17.2
STA 75+93 37' LT (MH-3A)	I-4 15-20'	2/8/2007	229 ± 97	< 14.9	< 4.1	< 12.8	< 11.9
STA 75+93 37' LT (MH-3A)	I-5 20-25'	2/8/2007	< 181	< 14.0	< 7.2	< 11.9	< 8.6
STA 83+37 52' RT (MH-3B TO MH-4 EAST)	J-1 0-5'	2/8/2007	< 167	< 15.6	< 12.6	< 11.5	< 16.8
STA 83+37 52' RT (MH-3B TO MH-4 EAST)	J-2 5-10'	2/8/2007	< 167	< 17.4	< 10.0	< 12.8	< 12.7
STA 83+37 52' RT (MH-3B TO MH-4 EAST)	J-3 10-15'	2/8/2007	< 167	< 13.9	< 12.6	< 12.8	< 17.8
STA 83+37 52' RT (MH-3B TO MH-4 EAST)	J-4 15-20'	2/8/2007	< 167	< 12.5	< 14.0	< 16.9	< 8.5
STA 83+37 52' RT (MH-3B TO MH-4 EAST)	J-5 20-25'	2/8/2007	< 167	< 13.6	< 14.8	< 14.8	< 16.8
STA 95+09 63' RT (MH-3B TO MH-4 WEST)	K-1 0-5'	2/8/2007	< 167	< 18.8	< 6.5	< 12.6	< 22.4
STA 95+09 63' RT (MH-3B TO MH-4 WEST)	K-2 5-10'	2/8/2007	< 167	< 16.5	< 5.1	< 11.1	< 10.6
STA 95+09 63' RT (MH-3B TO MH-4 WEST)	K-3 10-15'	2/8/2007	< 167	< 13.3	< 10.7	< 13.0	< 13.5
STA 95+09 63' RT (MH-3B TO MH-4 WEST)	K-4 15-20'	2/8/2007	< 167	< 20.3	< 19.0	< 36.5	< 22.6
STA 95+09 63' RT (MH-3B TO MH-4 WEST)	K-5 20-25'	2/8/2007	< 169	< 13.4	< 12.4	< 10.6	< 8.4
STA 104+30 100' LT (MH-5)	L-1 0-5'	2/8/2007	< 169	< 13.8	< 6.3	< 14.2	< 19.9
STA 104+30 100' LT (MH-5)	L-2 5-10'	2/8/2007	< 169	< 17.5	< 7.8	< 12.8	< 17.9
STA 104+30 100' LT (MH-5)	L-3 10-15'	2/8/2007	< 169	< 15.4	< 19.0	< 12.8	< 10.8
STA 104+30 100' LT (MH-5)	L-4 15-20'	2/8/2007	< 169	< 15.7	< 9.5	< 13.1	< 15.1

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location	Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)				
			Co-58	Co-60	Cs-134	Cs-137	
STA 109+93 116' LT (MH-5)	M-1 0-5'	2/8/2007	< 169	< 18.7	< 13.1	< 13.2	< 14.5
STA 109+93 116' LT (MH-5)	M-2 5-10'	2/8/2007	< 169	< 15.8	< 13.8	< 14.4	< 15.6
STA 109+93 116' LT (MH-5)	M-3 10-15'	2/8/2007	< 169	< 20.2	< 8.9	< 13.9	< 15.3
STA 109+93 116' LT (MH-5)	M-4 15-20'	2/8/2007	< 169	< 16.8	< 8.0	< 14.2	< 13.3
STA 105+39 100' LT (MH-5)	N-1 0-5'	2/8/2007	< 169	< 15.2	< 8.3	< 14.4	< 16.5
STA 105+39 100' LT (MH-5)	N-1 0-5'	2/8/2007	< 169	< 22.2	< 31.0	< 34.7	< 22.5
STA 105+39 100' LT (MH-5)	N-2 5-10'	2/8/2007	402 ± 100	< 21.3	< 5.6	< 14.8	< 8.9
STA 105+39 100' LT (MH-5)	N-3 10-15'	2/8/2007	2890 ± 171	< 18.4	< 14.0	< 11.9	< 14.6
STA 105+39 100' LT (MH-5)	N-4 15-20'	2/8/2007	1706 ± 142	< 15.7	< 9.1	< 15.7	< 16.1
STA 107+13 21' LT (MH-6)	O-1 0-5'	2/8/2007	< 169	< 21.0	< 14.2	< 17.2	< 18.9
STA 107+13 21' LT (MH-6)	O-2 5-10'	2/8/2007	< 169	< 13.9	< 7.5	< 11.9	< 12.6
STA 107+13 21' LT (MH-6)	O-3 10-15'	2/8/2007	< 169	< 19.9	< 8.3	< 17.0	< 14.2
STA 107108+45 28' RT (MH-6)	P-1 0-5'	2/8/2007	< 157	< 12.2	< 8.7	< 18.4	55.6 ± 23.7
STA 107108+45 28' RT (MH-6)	P-2 5-10'	2/8/2007	< 157	< 14.5	< 9.6	< 11.7	< 18.4
STA 107108+45 28' RT (MH-6)	P-3 10-15'	2/8/2007	< 157	< 20.3	< 15.1	< 13.5	< 14.7
STA 266+95 10.5' RT (MH-12 TO MH-13)	Q-1 0-5'	2/9/2007	< 163	< 13.9	< 16.3	< 10.1	40.3 ± 20.0
STA 266+95 10.5' RT (MH-12 TO MH-13)	Q-2 5-10'	2/9/2007	< 157	< 19.7	< 10.8	< 16.7	< 8.7
STA 266+95 10.5' RT (MH-12 TO MH-13)	Q-3 10-15'	2/9/2007	< 157	< 16.5	< 6.5	< 12.5	< 15.9
STA 266+95 10.5' RT (MH-12 TO MH-13)	Q-4 15-18.2'	2/9/2007	< 157	< 15.2	< 8.9	< 15.3	< 6.5
STA 132+87 30' RT (MH-6 TO MH-8)	R-1 0-5'	2/9/2007	< 157	< 14.2	< 9.2	< 16.3	< 17.4
STA 132+87 30' RT (MH-6 TO MH-8)	R-2 5-10'	2/9/2007	< 157	< 12.6	< 11.1	< 11.5	< 15.3
STA 132+87 30' RT (MH-6 TO MH-8)	R-3 10-15'	2/9/2007	< 157	< 14.5	< 6.0	< 11.6	< 16.5
STA 139+47 70' LT (MH-8)	S-1 0-5'	2/9/2007	334 ± 100	< 13.9	< 8.3	< 11.0	< 14.7
STA 139+47 70' LT (MH-8)	S-2 5-10'	2/9/2007	< 164	< 11.8	< 11.9	< 10.7	< 14.5
STA 139+47 70' LT (MH-8)	S-3 10-15'	2/9/2007	< 164	< 15.1	< 4.3	< 11.4	< 19.2
STA 138+76 75' LT (MH-8)	T-1 0-5'	2/9/2007	196 ± 94	< 16.9	< 12.6	< 11.4	< 13.9
STA 138+76 75' LT (MH-8)	T-1 0-5'	2/9/2007	267 ± 97	< 23.0	< 24.0	< 35.3	< 18.0
STA 138+76 75' LT (MH-8)	T-2 5-10'	2/9/2007	< 164	< 14.9	< 8.5	< 9.2	< 8.0
STA 138+76 75' LT (MH-8)	T-3 10-15'	2/9/2007	305 ± 99	< 12.4	< 29.9	< 9.6	< 10.7
STA 143+65.5 26' LT (MH-9B)	U-1 0-5'	2/9/2007	< 164	< 17.8	< 8.3	< 9.7	< 17.2
STA 143+65.5 26' LT (MH-9B)	U-2 5-10'	2/9/2007	< 164	< 21.7	< 10.1	< 24.6	< 14.3
STA 143+65.5 26' LT (MH-9B)	U-3 10-15'	2/9/2007	< 164	< 29.9	< 31.0	< 41.0	< 31.0

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location	Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)				
			Co-58	Co-60	Cs-134	Cs-137	
STA 270+60 39' RT (MH-13)	V-1 0-5'	2/9/2007	< 164	< 10.9	< 10.7	< 24.3	116.2 ± 23.9
STA 270+60 39' RT (MH-13)	V-2 5-10'	2/9/2007	< 164	< 14.6	< 7.4	< 10.4	< 15.9
STA 270+60 39' RT (MH-13)	V-3 10-15'	2/9/2007	< 164	< 22.8	< 20.4	< 31.1	< 23.3
STA 270+60 42' LT (MH-13)	W-1 0-5'	2/9/2007	< 164	< 13.9	< 3.8	< 13.1	48.7 ± 21.5
STA 270+60 42' LT (MH-13)	W-2 5-10'	2/9/2007	< 164	< 11.0	< 13.7	< 12.1	< 16.5
STA 270+60 42' LT (MH-13)	W-3 10-15'	2/9/2007	< 171	< 19.8	< 6.0	< 11.8	< 18.9
STA 270+60 42' LT (MH-13)	W-4 15-20'	2/9/2007	< 171	< 18.7	< 9.7	< 16.3	< 19.1
STA 2320+70 20' RT (MH-86-2)	X-1 0-5'	2/9/2007	< 156	< 16.4	< 8.2	< 14.7	30.7 ± 14.9
STA 2320+70 20' RT (MH-86-2)	X-2 5-10'	2/9/2007	< 165	< 21.9	< 12.4	< 11.8	< 12.8
STA 2320+70 20' RT (MH-86-2)	X-3 10-15'	2/9/2007	< 165	< 16.5	< 7.5	< 11.4	< 15.4
STA 2320+70 20' RT (MH-86-2)	X-4 15-20'	2/9/2007	< 165	< 18.9	< 15.2	< 12.6	< 16.0
STA 2320+70 20' RT (MH-86-2)	X-5 20-25'	2/9/2007	< 158	< 24.3	< 6.7	< 13.9	< 17.3
STA 2310+47.7 33' LT (MH-86-4A)	Y-1 0-5'	2/9/2007	< 158	< 28.6	< 7.2	< 14.5	< 22.1
STA 2310+47.7 33' LT (MH-86-4A)	Y-2 5-10'	2/9/2007	< 158	< 19.6	< 12.9	< 17.9	< 7.7
STA 2310+47.7 33' LT (MH-86-4A)	Y-3 10-15'	2/9/2007	< 158	< 14.4	< 6.8	< 12.8	< 9.6
STA 2310+47.7 33' LT (MH-86-4A)	Y-4 15-20'	2/9/2007	< 158	< 15.7	< 7.6	< 15.3	< 12.6
STA 2316+66.7 22' RT (MH-86-3)	Z-1 0-5'	2/9/2007	< 155	< 15.9	< 13.3	< 14.9	< 17.1
STA 2316+66.7 22' RT (MH-86-3)	Z-2 5-10'	2/9/2007	< 158	< 8.0	< 5.4	< 12.7	< 13.1
STA 2316+66.7 22' RT (MH-86-3)	Z-3 10-15'	2/9/2007	< 158	< 15.8	< 4.8	< 10.7	< 15.2
STA 2316+66.7 22' RT (MH-86-3)	Z-4 15-20'	2/9/2007	< 158	< 22.8	< 6.7	< 16.5	< 9.1
STA 2316+66.7 22' RT (MH-86-3)	Z-5 20-25'	2/9/2007	< 158	< 18.6	< 9.9	< 12.8	< 14.5
STA 2316+1.7 37' RT (MH-86-3)	AA-1 0-5'	2/9/2007	< 158	< 22.3	< 9.9	< 13.3	< 21.6
STA 2316+1.7 37' RT (MH-86-3)	AA-2 5-10'	2/9/2007	< 158	< 19.9	< 5.8	< 15.2	< 16.1
STA 2316+1.7 37' RT (MH-86-3)	AA-3 10-15'	2/9/2007	< 158	< 15.9	< 10.6	< 12.3	< 15.8
STA 2316+1.7 37' RT (MH-86-3)	AA-4 15-20'	2/9/2007	< 158	< 17.2	< 11.7	< 12.8	< 16.3
STA 2316+1.7 37' RT (MH-86-3)	AA-5 20-25'	2/9/2007	< 158	< 15.9	< 12.1	< 13.2	< 11.6
B-1 (0-4)		3/4/2007	< 161	< 13.1	< 20.1	< 33.5	< 27.8
B-1 (4-8)		3/4/2007	< 161	< 22.0	< 15.1	< 30.5	< 11.2
B-1 (8-12)		3/4/2007	< 161	< 18.9	< 4.3	< 13.3	< 11.1
B-1 (12-16)		3/4/2007	< 161	< 16.0	< 15.8	< 12.6	< 13.5
B-1 (12-16)		3/4/2007	< 161	< 19.3	< 15.1	< 26.4	< 13.6
B-1 (16-20)		3/4/2007	< 161	< 22.1	< 20.6	< 29.3	< 12.7
B-1 (20-24)		3/4/2007	< 161	< 9.9	< 7.9	< 10.0	< 11.1
B-2 (0-4)		3/4/2007	< 161	< 15.5	< 15.6	< 11.8	< 8.3

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location	Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)				
			Co-58	Co-60	Cs-134	Cs-137	
B-2 (4-8)	3/4/2007	< 161	< 18.5	< 5.5	< 10.6	< 15.4	
B-2 (8-12)	3/4/2007	< 164	< 17.4	< 7.2	< 14.1	< 15.0	
B-2 (12-16)	3/4/2007	< 164	< 17.5	< 16.2	< 26.4	< 15.7	
B-2 (16-20)	3/4/2007	< 164	< 12.5	< 12.0	< 13.5	< 12.5	
B-2 (20-24)	3/4/2007	< 164	< 11.0	< 7.5	< 9.3	< 10.2	
B-3 (0-4)	3/4/2007	738 ± 114	< 19.1	< 15.3	< 15.0	< 14.6	
B-3 (4-8)	3/4/2007	< 164	< 17.7	< 10.0	< 16.9	< 11.7	
B-3 (8-12)	3/4/2007	< 164	< 16.2	< 13.9	< 17.6	< 19.7	
B-3 (12-16)	3/4/2007	< 164	< 16.7	< 12.0	< 13.8	< 15.3	
B-3 (16-20)	3/4/2007	< 164	< 15.4	< 6.0	< 9.8	< 11.7	
B-3 (20-24)	3/4/2007	< 164	< 22.1	< 24.5	< 23.9	< 19.6	
B-4 (0-4)	3/4/2007	462 ± 104	< 17.3	< 17.7	< 14.3	< 16.3	
B-4 (4-8)	3/4/2007	< 164	< 15.4	< 16.6	< 15.9	< 13.3	
B-4 (8-12)	3/4/2007	< 164	< 20.1	< 16.4	< 12.9	< 14.9	
B-4 (12-16)	3/4/2007	< 164	< 21.6	< 21.2	< 20.8	< 21.8	
B-4 (16-20)	3/4/2007	< 164	< 17.0	< 20.2	< 13.7	< 11.3	
B-4 (20-24)	3/4/2007	< 164	< 19.6	< 12.0	< 13.3	< 11.3	
DRUM 7128 (MH-2)	A	3/15/2007	258396 ± 1389	< 6.9	87.1 ± 19.1	< 10.3	30.3 ± 17.3
DRUM 7123 (MH-3B)	B	3/15/2007	6769 ± 240	< 16.2	156.7 ± 21.6	< 23.2	113.9 ± 23.7
DRUM 7122 (MH-3B)	C	3/15/2007	9577 ± 280	< 16.7	490.4 ± 32.4	< 25.9	317.5 ± 35.5
DRUM 7125 (MH-5)	D	3/15/2007	30711 ± 485	< 20.2	478.6 ± 33.7	< 28.2	721.2 ± 45.7
DRUM 7132 (MH-6B)	E	3/15/2007	1526 ± 137	< 17.2	111.2 ± 17.9	< 30.0	509.1 ± 34.2
DRUM 7130 (MH-6B)	F	3/15/2007	3769 ± 188	< 18.1	208.8 ± 23.8	< 27.6	120.9 ± 32.5
DRUM 7124 (MH-6B)	G	3/15/2007	1704 ± 141	< 25.8	200.8 ± 34.4	< 39.9	363.2 ± 40.7
DRUM 7131 (MH-8)	I	3/15/2007	106351 ± 893	< 13.5	40.0 ± 13.7	< 14.9	82.7 ± 20.5
STA 140+78 159' LT (MH-9B)	A-1	6/20/2007	< 190	-	-	-	-
STA 140+78 159' LT (MH-9B)	A-2	6/20/2007	< 193	-	-	-	-
STA 140+78 159' LT (MH-9B)	A-3	6/20/2007	< 193	-	-	-	-
STA 140+78 159' LT (MH-9B)	A-4	6/20/2007	< 193	-	-	-	-
STA 140+58 102.5' RT (MH-8)	B-1	6/20/2007	< 193	-	-	-	-
STA 140+58 102.5' RT (MH-8)	B-2	6/20/2007	< 193	-	-	-	-
STA 140+58 102.5' RT (MH-8)	B-3	6/20/2007	< 193	-	-	-	-
STA 140+58 102.5' RT (MH-8)	B-4	6/20/2007	< 193	-	-	-	-
STA 137+85 62' LT (MH-8)	C-1	6/21/2007	< 190	-	-	-	-
STA 137+85 62' LT (MH-8)	C-2	6/21/2007	< 190	-	-	-	-

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location	Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)				
			Co-58	Co-60	Cs-134	Cs-137	
STA 137+85 62' LT (MH-8)	C-3	6/21/2007	< 190	-	-	-	-
STA 137+85 12' RT (MH-8)	D-1	6/21/2007	< 190	-	-	-	-
STA 137+85 12' RT (MH-8)	D-2	6/21/2007	< 193	-	-	-	-
STA 137+85 12' RT (MH-8)	D-3	6/21/2007	< 193	-	-	-	-
STA 104+64 60' LT (MH-4)	E-1	6/21/2007	< 193	-	-	-	-
STA 104+64 60' LT (MH-4)	E-2	6/21/2007	< 190	-	-	-	-
STA 104+64 60' LT (MH-4)	E-3	6/21/2007	< 192	-	-	-	-
STA 104+64 60' LT (MH-4)	E-4	6/21/2007	< 192	-	-	-	-
STA 104+64 60' LT (MH-4)	E-5	6/21/2007	< 192	-	-	-	-
STA 104+64 60' LT (MH-4)	E-5	6/21/2007	< 192	-	-	-	-
STA 104+64 60' LT (MH-4)	E-6	6/21/2007	< 190	-	-	-	-
STA 107+00 90' LT (MH-4)	F-1	6/21/2007	< 193	-	-	-	-
STA 107+00 90' LT (MH-4)	F-2	6/21/2007	< 190	-	-	-	-
STA 107+00 90' LT (MH-4)	F-3	6/21/2007	967 ± 136	-	-	-	-
STA 107+00 90' LT (MH-4)	F-4	6/21/2007	691 ± 126	-	-	-	-
STA 107+00 90' LT (MH-4)	F-5	6/21/2007	< 191	-	-	-	-
STA 107+00 90' LT (MH-4)	F-6	6/21/2007	< 191	-	-	-	-
STA;232,25,25LT	RA-1	9/27/2007	< 146	-	-	-	-
STA;224,34,23LT	RA-2	9/27/2007	< 146	-	-	-	-
STA 24+82	3-5'	9/28/2007	< 147	-	-	-	-
STA 24+82	8-10'	9/28/2007	< 147	-	-	-	-
STA 24+82	13-15'	9/28/2007	< 147	-	-	-	-
STA 24+82	18-20'	9/28/2007	< 147	-	-	-	-
STA 24+82	23-25'	9/28/2007	< 147	-	-	-	-
STA 24+82	28-30'	9/28/2007	< 147	-	-	-	-
STA 24+82	33-35'	9/28/2007	< 147	-	-	-	-
STA 72+80	3-5'	9/28/2007	< 147	-	-	-	-
STA 72+80	8-10'	9/28/2007	< 147	-	-	-	-
STA 72+80	13-15'	9/28/2007	< 147	-	-	-	-
STA 72+80	18-20'	9/28/2007	< 147	-	-	-	-
STA 72+80	18-20'	9/28/2007	< 147	-	-	-	-
STA 72+80	23-25'	9/28/2007	< 147	-	-	-	-
STA 72+80	28-30'	9/28/2007	< 147	-	-	-	-
STA 72+05	3-5'	10/1/2007	< 147	-	-	-	-

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location		Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)			
				Co-58	Co-60	Cs-134	Cs-137
STA 72+05	8-10'	10/1/2007	< 147	-	-	-	-
STA 72+05	13-15'	10/1/2007	< 147	-	-	-	-
STA 72+05	18-20'	10/1/2007	< 147	-	-	-	-
STA 72+05	23-25'	10/1/2007	< 147	-	-	-	-
STA 72+05	28-30'	10/1/2007	< 147	-	-	-	-
STA 72+05	33-35'	10/1/2007	< 147	-	-	-	-
STA 72+05	38-40'	10/1/2007	< 147	-	-	-	-
STA 105+24	3-5'	10/1/2007	< 147	-	-	-	-
STA 105+24	8-10'	10/1/2007	< 147	-	-	-	-
STA 105+24	13-15'	10/1/2007	1046 ± 117	-	-	-	-
STA 105+24	18-20'	10/1/2007	616 ± 103	-	-	-	-
STA 105+24	23-25'	10/1/2007	< 147	-	-	-	-
STA 140+24	3-5'	10/2/2007	< 147	-	-	-	-
STA 140+24	8-10'	10/2/2007	< 147	-	-	-	-
STA 140+24	13-15'	10/2/2007	< 147	-	-	-	-
STA 140+24	13-15'	10/2/2007	< 147	-	-	-	-
STA 143+17	3-5'	10/2/2007	< 147	-	-	-	-
STA 143+17	8-10'	10/2/2007	< 147	-	-	-	-
STA 143+17	13-15'	10/2/2007	< 147	-	-	-	-
STA 2294+59	13-15'	10/2/2007	< 147	-	-	-	-
STA 2294+59	18-20'	10/2/2007	< 147	-	-	-	-
STA 2294+59	23-25'	10/2/2007	< 147	-	-	-	-
STA 2293+94	3-5'	10/2/2007	< 145	-	-	-	-
STA 2293+94	8-10'	10/2/2007	< 145	-	-	-	-
STA 2293+94	13-15'	10/2/2007	< 145	-	-	-	-
STA 2293+94	18-20'	10/2/2007	< 145	-	-	-	-
STA 2293+94	23-25'	10/2/2007	< 145	-	-	-	-
MW-016	3-5'	10/3/2007	< 145	-	-	-	-
MW-016	8-10'	10/3/2007	< 145	-	-	-	-
MW-016	13-15'	10/3/2007	< 145	-	-	-	-
MW-016	18-20'	10/3/2007	< 145	-	-	-	-
MW-016	23-25'	10/3/2007	< 145	-	-	-	-
MW-016	28-30'	10/3/2007	< 145	-	-	-	-
MW-016	33-35'	10/3/2007	< 145	-	-	-	-

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location		Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)			
				Co-58	Co-60	Cs-134	Cs-137
MW-016	33-35'	10/3/2007	< 145	-	-	-	-
MW-016	38-40'	10/3/2007	< 145	-	-	-	-
STA 2294+89	3-5'	10/4/2007	< 145	-	-	-	-
STA 2294+89	8-10'	10/4/2007	< 145	-	-	-	-
STA 2294+89	13-15'	10/4/2007	< 145	-	-	-	-
STA 2294+89	18-20'	10/4/2007	< 145	-	-	-	-
STA 2294+89	23-25'	10/4/2007	< 145	-	-	-	-
(MH-86-1)	3-5'	10/4/2007	< 145	-	-	-	-
(MH-86-1)	8-10'	10/4/2007	< 145	-	-	-	-
(MH-86-1)	13-15'	10/4/2007	< 156	-	-	-	-
(MH-86-1)	18-20'	10/4/2007	< 156	-	-	-	-
(MH-86-1)	23-25'	10/4/2007	< 156	-	-	-	-
(MH-86-1)	28-29'	10/4/2007	< 156	-	-	-	-
STA 106+50	3-5'	10/12/2007	< 156	-	-	-	-
STA 106+50	8-10'	10/12/2007	< 156	-	-	-	-
STA 106+50	13-15'	10/12/2007	< 156	-	-	-	-
STA 106+50	18-20'	10/12/2007	< 156	-	-	-	-
STA 106+50	23-25'	10/12/2007	339 ± 96	-	-	-	-
STA 106+50	28-30'	10/12/2007	< 156	-	-	-	-
STA 24+82	1/0/1900	10/3/2007	< 156	-	-	-	-
STA 72+05	1/0/1900	10/3/2007	< 156	-	-	-	-
STA 72+05	1/0/1900	10/3/2007	< 156	-	-	-	-
STA 72+80	1/0/1900	10/9/2007	< 156	-	-	-	-
STA 105+24	1/0/1900	10/9/2007	473 ± 101	-	-	-	-
STA 140+24	1/0/1900	10/9/2007	< 156	-	-	-	-
STA 143+17	1/0/1900	10/9/2007	< 156	-	-	-	-
(MH-86-1)	1/0/1900	10/12/2007	< 156	-	-	-	-
STA 106+50	1/0/1900	10/12/2007	< 156	-	-	-	-

C-6, Soil, Analyses for tritium and gamma-emitting isotopes.

Location		Collection Date	H-3 (pCi/L)	Concentration (pCi/kg dry)			
				Co-58	Co-60	Cs-134	Cs-137
STA 105 + 24, 300 LT	3-5'	11/9/2007	< 144	< 19.8	< 22.5	< 22.9	< 25.3
STA 105 + 24, 300 LT	8-10'	11/9/2007	< 144	< 13.2	< 9.2	< 15.0	< 13.8
STA 105 + 24, 300 LT	13-15	11/9/2007	< 144	< 16.6	< 20.1	< 15.5	< 10.3
STA 105 + 24, 300 LT	18-20	11/9/2007	644 ± 103	< 13.1	< 14.2	< 10.8	< 9.7
STA 105 + 24, 300 LT	23-25	11/9/2007	215 ± 87	< 18.6	< 17.5	< 23.5	< 20.0
9B INV 1 STA 142 +77.5, 55 RT	3-5'	11/9/2007	< 144	< 14.4	< 13.5	< 10.8	68.8 ± 27.0
9B INV 1 STA 142 +77.5, 55 RT	8-10'	11/9/2007	< 157	< 6.2	< 9.2	< 15.1	< 19.4
9B INV 1 STA 142 +77.5, 55 RT	13-15	11/9/2007	< 144	< 15.5	< 14.5	< 14.3	< 8.8
9B INV 1 STA 142 +77.5, 55 RT	18-20	11/9/2007	< 157	< 19.1	< 11.4	< 15.2	< 17.3
9B INV 1 STA 142 +77.5, 55 RT	23-25	11/9/2007	< 157	< 10.2	< 4.0	< 11.3	55.6 ± 16.3
9B INV 2 STA 142 +22.5, 23 RT	3-5'	11/9/2007	< 157	< 13.1	< 15.1	< 15.6	< 16.2
9B INV 2 STA 142 +22.5, 23 RT	8-10'	11/9/2007	< 157	< 21.7	< 23.3	< 24.3	< 29.8
9B INV 2 STA 142 +22.5, 23 RT	13-15	11/9/2007	< 157	< 12.7	< 9.4	< 9.7	< 5.7
9B INV 2 STA 142 +22.5, 23 RT	18-20	11/9/2007	< 144	< 13.5	< 12.5	< 16.5	< 11.2
9B INV 2 STA 142 +22.5, 23 RT	20-25	11/9/2007	< 157	< 14.6	< 7.0	< 8.9	< 10.8
9B INV 3 STA 142 +20.5, 75 LT	3-5'	11/9/2007	< 157	< 13.9	< 14.7	< 13.9	< 13.5
9B INV 3 STA 142 +20.5, 75 LT	8-10'	11/9/2007	< 157	< 16.0	< 7.5	< 14.8	< 13.9
9B INV 3 STA 142 +20.5, 75 LT	13-15	11/9/2007	< 157	< 12.8	< 13.6	< 9.2	< 5.7
9B INV 3 STA 142 +20.5, 75 LT	18-20	11/9/2007	< 157	< 22.1	< 22.1	< 14.8	< 14.4
9B INV 3 STA 142 +20.5, 75 LT	23-25	11/9/2007	< 157	< 9.4	< 6.9	< 8.1	< 5.7
9B INV 4 STA 142 +97.5, 41 LT	3-5'	11/9/2007	< 157	< 20.3	< 10.1	< 17.4	47.0 ± 21.4
9B INV 4 STA 142 +97.5, 41 LT	8-10'	11/9/2007	< 157	< 11.0	< 9.5	< 9.7	< 10.6
9B INV 4 STA 142 +97.5, 41 LT	13-15	11/9/2007	< 157	< 11.5	< 12.1	< 17.2	< 14.8
9B INV 4 STA 142 +97.5, 41 LT	18-20	11/9/2007	< 157	< 13.0	< 14.0	< 10.2	< 15.4
9B INV 4 STA 142 +97.5, 41 LT	23-25	11/9/2007	< 157	< 6.6	< 6.1	< 7.9	< 6.6
STA- 105 + 00, 400 LT	0-5 ft.	12/4/2007	< 144	-	-	-	-
STA- 105 + 00, 400 LT	5-10 ft.	12/4/2007	< 144	-	-	-	-
STA- 105 + 00, 400 LT	10-15 ft.	12/4/2007	< 144	-	-	-	-
STA- 105 + 00, 400 LT	15-20 ft.	12/4/2007	< 144	-	-	-	-
STA- 105 + 00, 400 LT	20-25 ft.	12/4/2007	< 144	-	-	-	-
STA 105 + 00, 400 LT	25-28 ft.	12/4/2007	< 144	-	-	-	-

C-7, Sediments, Analysis for strontium-89, -90, tritium and gamma-emitting isotopes.

Location	Collection		Concentration (pCi/kg dry)						
	Date	H-3 (pCi/L)	Sr-89	Sr-90	Co-58	Co-60	Zn-65	Cs-134	Cs-137
CA-POND-21	3/27/2007	< 167	< 38.2	< 26.6	< 18.3	< 8.1	< 26.9	< 12.1	19.3 ± 2.7

C-8, Vegetation, Analyses for tritium.

	Location	Collection Date	Concentration H-3 (pCi/L)
CA-BEAN-1	SCHMID FIELD	9/24/2007	< 159
CA-BEAN-2	SCHMID FIELD	9/24/2007	< 145
CA-BEAN-3	UE FIELD	9/24/2007	< 159
CA-BEAN-4	CRUZ FIELD	9/24/2007	< 158
CA-BEAN-5	CRUZ FIELD	9/24/2007	< 158
CA-BEAN-6	CRUZ FIELD	9/24/2007	< 158
CA-BEAN-7	DOC FIELD	9/25/2007	< 158
CA-BEAN-8	SCHMID FIELD	9/27/2007	< 147
CA-CONTROL	RHINELAND GRAIN ELEVATOR	10/26/2007	< 155

C-9, Condensate, analysis for tritium.

Location	Collection Date	Concentration H-3 (pCi/L)
SB A/C UNIT 1A	6/29/2007	585 ± 113
SB A/C UNIT 1B	6/29/2007	454 ± 109
SB A/C UNIT 2	6/29/2007	< 178
SB A/C UNIT 3	6/29/2007	239 ± 102
CMB A/C UNIT	6/29/2007	< 177
ANNEX A/C UNIT	6/29/2007	640 ± 115
SB ICE MACHINE	6/29/2007	< 177
COLD LAB FREEZER	6/30/2007	411 ± 108
SB LUNCH RM	6/30/2007	897 ± 123
TB 2016 FREEZER	6/30/2007	2135 ± 154

Appendix D

Site Investigation Reports

Terracon Consultants, Inc

Appendix D

Site Investigation Reports

- 1 Discharge Pipeline Manhole Tritium Investigation, Phase I (MTI-PI)
 - 2 Discharge Pipeline Manhole Tritium Investigation, Phase II (MTI-PII)
 - 3 Limited Site Investigation, October 2007 Release, Callaway Power Plant
Intake / Discharge Pipelines Manhole 9B
 - 4 Limited Site Investigation, Highway 94 Tracts, Portland, Missouri
-

Discharge Pipeline Manhole Tritium Investigation, Phase I (MTI-PI)

This report is provided as Appendix G to “Discharge Pipeline Manhole Tritium Investigation, Phase I (MTI-PI)”

**DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION
PHASE II**

**AmerenUE
Callaway Power Plant
Reform, Missouri**

**Terracon Project No. 09067011T
April 25, 2008**

Prepared for:

**AmerenUE
Callaway Plant
Reform, Missouri**

Prepared by:

Terracon
Columbia, Missouri

Terracon

Terracon

Consulting Engineers & Scientists

April 25, 2008

AmerenUE
Callaway Plant
Junction CC & Hwy O
PO Box 620
Fulton, MO 65251

Terracon Consultants, Inc.
3601 Mojave Court, Suite A
Columbia, Missouri 65202
Phone 573.214.2677
Fax 573.214.2714

Attention: Mr. Corey Jutting, P.E.
Design Engineer, Nuclear Generation Development
PHN: (573) 676-4563
FAX: (573) 676-4334

Regarding: Discharge Pipeline Manhole Tritium Investigation – Phase II
Callaway Plant
Reform, Missouri
Terracon Project No. 09067011T

Dear Mr. Jutting:

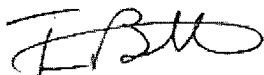
Per your request, Terracon Consultants, Inc. (Terracon) has completed an additional investigation of detected tritium in soil and shallow groundwater at and near several of the access manholes for the Discharge Pipeline at the Callaway Plant. This additional investigation is referred to as Manhole Tritium Investigation – Phase II (MTI-PII). Enclosed are four (4) copies of the MTI-PII Report.

As indicated in the MTI-PII Report, soil and shallow groundwater at the site has been affected by tritium. The highest levels were detected in water extracted from within the confines of several manholes. Terracon recommends consideration of periodic monitoring of soils and groundwater along the pipeline in the future.

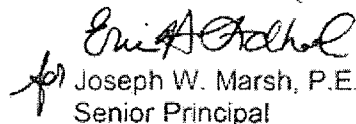
We appreciate the opportunity to perform these services for you. Please contact us if you have questions regarding this information or if we can provide any other services.

Sincerely,

Terracon



Timothy L. Bennett, R.G.
Environmental Services Manager



for Joseph W. Marsh, P.E.
Senior Principal

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	PHASE II TRITIUM INVESTIGATION FIELD ACTIVITIES	2
2.1	Borehole Investigation Drilling and Borehole Identification Field Activities	3
2.1.1	Soil Sample Collection	4
2.1.2	Groundwater Sample Collection	4
2.1.3	Groundwater Monitoring Wells	4
3.0	Results	4
3.1	Analytical Laboratory and Analytical Methods	5
3.2	Geology	5
3.2	Soil Results	5
3.3	Groundwater Results	5
4.0	SUMMARY AND CONCLUSIONS	6
5.0	GENERAL COMMENTS	7

APPENDIX A

Site Location Map Figure A-1

APPENDIX B

Summary Borehole and Manhole Identification Tables with Soil/Groundwater Results
Boring Location Figures B-1 through B-19

APPENDIX C

Boring Logs

APPENDIX D

Monitoring Well Location Map Figure D-2
Summary Monitoring Well Identification Table
Monitoring Well Boring Logs
Monitoring Well Certification Records

APPENDIX E

Laboratory Reports and Chain of Custody Forms

APPENDIX F

Analytical Laboratory Testing Procedure No. T-06
Analytical Laboratory Testing Procedure No. T-02

APPENDIX G

Discharge Pipeline Manhole Tritium Investigation Phase I

**DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION
PHASE II**

**AmerenUE
Callaway Power Plant
Reform, Missouri**

**Terracon Project No. 09067011T
April 25, 2008**

1.0 INTRODUCTION

At the AmerenUE Callaway Power Plant (Plant) in Reform Missouri, the Water Intake Pipeline transports water from the Missouri River to the Plant; the Water Discharge Pipeline returns water back to the Missouri River. These two pipelines are generally collocated in the pipeline corridor, a backfilled trench containing both pipelines. The pipelines are approximately 6 miles long and have numerous manholes for inspection and maintenance access. Integral to operation of the manholes are Air Release Valves (ARVs), which are incorporated into the design to allow entrained air to collect and vent to the atmosphere.

Discharge water contains low levels of tritium (H^3), which the Plant is authorized to discharge to the Missouri River under existing permits. However, direct releases into soil and groundwater are not allowed under the permit conditions and are of concern due to the potential for migration to receptors.

According to the U.S. Environmental Protection Agency (USEPA) web page www.epa.gov/radiation/radionuclides/tritium, H^3 occurs naturally in the environment in very low concentrations in the form of tritiated water, which is colorless and odorless, and easily disbursts in the atmosphere, water bodies, soil, and rock. With a half-life of 12.3 years, H^3 is considered one of the least dangerous radionuclides because it emits very weak radiation and leaves the body relatively quickly. As it undergoes radioactive decay, H^3 transforms to stable, non-radioactive helium.

Samples obtained and analyzed by AmerenUE in May and June 2006 indicated the presence of H^3 in water collected outside the pipe but within the confines of several manholes (MHs) in the Water Discharge Pipeline. Terracon Consultants, Inc. (Terracon), on behalf AmerenUE, conducted a soil and groundwater investigation at select Water Discharge Pipeline access manholes equipped with ARVs as directed by AmerenUE.

Terracon's initial efforts focused on delineation of H^3 detections related to Manholes 2, 3B, 5, 6, 6B, 8, 9B and 11A. Terracon issued a report titled *Discharge Pipeline Manhole Tritium Investigation Phase I (MTI-PI)* in August 2006 which provided initial investigation data. A

copy of the MTI-PI report is provided in Appendix G for reference. Based on the results of the initial investigation, AmerenUE directed Terracon to conduct additional soil and groundwater sampling and laboratory analysis, resulting in this Discharge Pipeline Manhole Tritium Investigation - Phase II (MTI- II).

2.0 PHASE II TRITIUM INVESTIGATION FIELD ACTIVITIES

The main objective of the Phase II activities was to delineate the extent of detectable H³ in and around the Discharge and Intake pipelines. This report documents Phase II of the H³ investigation efforts conducted by Terracon. A general site location topographic map is shown in Figure A-1 of Appendix A.

Prior to Plant access and field activities, Terracon personnel were provided with on-site safety training, provided by AmerenUE, including Plant access policies and procedures, general safety, and confined space entry. All field activities were conducted in general accordance with these safety policies and procedures.

For the MTI-PII, borings were advanced in the vicinity of manholes 86-1, 86-3, 86-4A, 86-6, 13, 10 and 10A, 9A, 4, and 3 and 3A to supplement additional borings in the vicinity of the manholes investigated during the Phase I activities. The MTI-PII work scope included the following activities:

- 82 borings were advanced in and around selected manholes along the pipeline, at distances extending outward from previous investigation borings that were reported to contain tritium, and at locations selected by AmerenUE.
- 13 new groundwater monitoring wells were installed to supplement the three installed during MT-PHI activities. The new well locations were selected based on collaborative evaluation of data between AmerenUE and Terracon. These wells were incorporated into the existing wells associated with the Callaway Plant groundwater monitoring program.
- Terracon collected soil and groundwater samples and submitted them for laboratory analyses.

The Phase II investigation consisted of advancing borings into the shallow overburden, installation of temporary piezometers, collection of soil and groundwater samples for laboratory analysis, and installing groundwater monitoring wells.

2.1 Borehole Investigation Drilling and Borehole Identification

Based upon the type of installation (i.e. soil boring vs. monitoring well), topographic access, and anticipated subsurface conditions, a combination of drilling equipment was used to conduct the boring activities. The equipment used consisted of a CME 75 truck-mounted drilling rig and CME 55, 550, and 750 all-terrain vehicle (ATV) drill rigs equipped with solid flight and hollow-stem augers, truck-mounted Geoprobe® direct-push sampling system, and hand auger sample collection equipment.

Borings were advanced to either shallow bedrock or to maximum depths not exceeding approximately 40 feet below ground surface (bgs). During drilling activities, all down-hole equipment was cleaned using a pressurized water wash and allowed to dry prior to reuse in subsequent borings.

Borehole locations were identified using a system to develop a boring number including one or more of the following descriptions:

- Pipeline coordinate stations;
- Manhole numbers; and
- Other permanent features in the boring vicinity (e.g., Dock Haul Road).

Boring identifications (e.g., CA-SOL Sta. 78+10, 17L) indicate approximate station locations measured from the beginning of the water intake/discharge at the Missouri River (Sta. 0+00) and progressing northward toward the Plant. Designations of L or LT and R or RT identify that the borings were conducted to the left or right side of the pipeline, respectively, when facing the Plant. In addition, boring locations were documented using global positioning system (GPS) instrumentation. A Summary Borehole Identification Table is presented in Appendix B displaying the boring identifications and GPS coordinates in decimal degrees (DD) and universal transverse mercator (UTM) designations.

For this phase of investigation, borings were advanced at locations extending outward laterally based upon previous detection of tritium in soil and/or groundwater laboratory analytical results. Boring and sampling in the site areas terminated where no tritium was detected in soils or groundwater, where borings would extend into a stream discharging to the Missouri River, and at the Plant property boundary.

2.1.1 Soil Sample Collection

During boring activities, discrete soil samples were collected within approximate 5-foot intervals from ground surface to the total depth of the boring. The soil samples were collected using either split-spoon samplers or acetate liners, then logged for lithology. Soil descriptions are provided in the Boring Logs provided in Appendix C. The collected soil samples were documented on chain-of-custody (COC) forms and placed in zip-lock plastic bags provided by AmerenUE or sample containers provided by SFB Plastics, Inc. The samples were shipped to the client's designated laboratory for analysis.

2.1.2 Groundwater Sample Collection

Upon reaching the final drilling depth for each borehole, PVC well screen and riser pipe were placed temporarily into the boreholes to allow for groundwater, if present, to accumulate for obtaining water samples. Standing water samples were also collected from within selected manholes. Water level measurements, if applicable, were obtained with a cleaned, electronic water-level indicator. If sufficient groundwater was present to sample, water samples were obtained using a dedicated disposable bailer or a sampling pump with dedicated disposable tubing. Water samples were placed in containers provided by Phoenix Enclosures, Inc. The collected water samples were documented on COC forms and shipped to the client's designated laboratory.

2.1.3 Groundwater Monitoring Wells

Sixteen monitoring wells (prefix designation MW) were requested by the client to be installed to monitor for the presence of detectable H³ concentrations at selected points in the pipeline region. The boring logs, monitoring well registration forms with detailed well construction, and a topographic map identifying locations for these monitoring wells (MW-001 through MW-016) are presented in Appendix D. These wells are monitored on a monthly and quarterly basis for H³ and other radionuclides as part of the Plant's groundwater monitoring program.

3.0 Results

3.1 Analytical Laboratory and Analytical Methods

The soil and groundwater samples from the MTI-P11 were submitted by AmerenUE or Terracon to AmerenUE's designated laboratory, Environmental, Inc. Midwest Laboratory

(EIML). Upon completion of laboratory analyses, EIML provided reports to AmerenUE for distribution.

Detectable H^3 concentration in soil appears to consist of H^3 affected water held as soil moisture. Testing for H^3 in soil typically includes extracting the water held as soil moisture using distillation procedures by the laboratory; the distillate is then tested by the laboratory for H^3 in the extracted water. EIML's procedures for performing this testing are: Procedure T-06: Water Extraction from Solid Samples and Milk for Tritium Analysis, followed by Procedure T-02: Determination of Tritium in Water.

The testing for H^3 in groundwater samples was conducted by the EIML using Procedure T-02: Determination of Tritium in Water. Copies of laboratory test method procedures T-06 and T-02 are provided in Appendix F.

3.2 Geology

Lithologic information for each borehole is included in the Boring Logs in Appendix C. As delineated by the boring logs, shallow overburden material at the site generally consists of clays, silty and sandy clays and sands with occasional stringers of gravel or fractured-cherty limestone. Auger refusal (presumed depth to bedrock), if encountered, generally occurred on limestone. Based upon the results of laboratory analytical data, it was determined in the field and in consultation with AmerenUE representatives that deeper drilling or a detailed geologic investigation was outside the scope of this investigation.

3.3 Soil Results

Concentrations of H^3 were detected in soil samples during the MTI-P11 activities. The detected concentrations ranged from 171 to 3,116 picoCuries/liter (pCi/L). Detected concentrations were located in the vicinities of the Dock Haul Road, MH-2, MH-4, MH-5, MH-6, MH-6B, MH-8, MH-9, MH-9B, MH-10A, MH-12, and MH-86-6. Analytical laboratory results for the soil samples are provided in the Summary Borehole and Manhole Identification Tables with Soil/Groundwater Results and Boring Location Figures (Appendix B). Copies of the laboratory analysis reports and COCs are provided in Appendix E.

3.4 Groundwater Results

Concentrations of H^3 were detected in the groundwater samples during the MTI-P11 activities. Laboratory results for the groundwater samples collected from boreholes are included in the

Summary Borehole and Manhole Identification Tables with Soil/Groundwater Results and laboratory analysis reports. The maximum detected concentrations from the borehole water samples ranged from 162 to 2,707 pCi/L. The highest detected groundwater H³ concentration from the borehole samples was an order of magnitude below the USEPA Drinking Water Standards of 20,000 pCi/L.

Concentrations of H³ were also detected in water samples collected from within MHs during the MTI-P II activities. Concentrations of 609,232 pCi/L and 1,110,239 pCi/L were reported from standing water samples in MH-86-3. These levels exceed the USEPA Drinking Water Standards of 20,000 pCi/L. Significantly lower levels of H³ were detected in standing water samples from MH-6A (277 pCi/L) and MH-3 (809 pCi/L), which are below USEPA Drinking Water Standards. Borings were advanced in the vicinities of each of the MHs with detected H³ concentrations. Analytical laboratory results for water samples from these borings are provided in the Summary Borehole Identification Table, with Soil/Groundwater Results and Boring Location Figures (Appendix B). The laboratory analysis reports and COCs are provided in Appendix E.

4.0 SUMMARY AND CONCLUSIONS

The laboratory analytical results from the MTI-P II indicated detectable concentrations of H³ in soil and groundwater samples in the vicinity of the effluent pipeline. The levels of H³ in all samples of water extracted from borehole soil samples and borehole groundwater samples were at least one order of magnitude below USEPA Drinking Water Standards. Water samples collected from standing water inside Manhole MH-86-3 exceeded the USEPA regulatory criteria for H³ levels in drinking water; however, samples from borings advanced laterally out from MH-86-3 did not have any reportable levels of H³.

Detectable concentrations of H³ were observed in approximately 14% of the samples tested in soils and groundwater in the vicinity of the manholes. The MTI-P II activities horizontally delineated detectable H³ in soils and groundwater to (1) no tritium detected, (2) a stream barrier discharging to the Missouri River, or (3) Plant property boundaries.

Because the backfill along the pipeline corridor is a potential conduit for H³ migration, additional future testing of soil and groundwater at periodic intervals along the pipeline should be considered. This testing could be used to identify releases and monitor decay rates for previously detected H³. The results of the detailed hydrogeologic investigation, in development at this time by others, should be referenced to determine appropriate sampling locations for a periodic monitoring program.

As part of any future soil and groundwater sampling activities, it is recommended that borehole locations and elevations be professionally surveyed to provide more accurate information on the horizontal and vertical extent of any detectable H³ and further refine the site model for shallow groundwater flow directions.

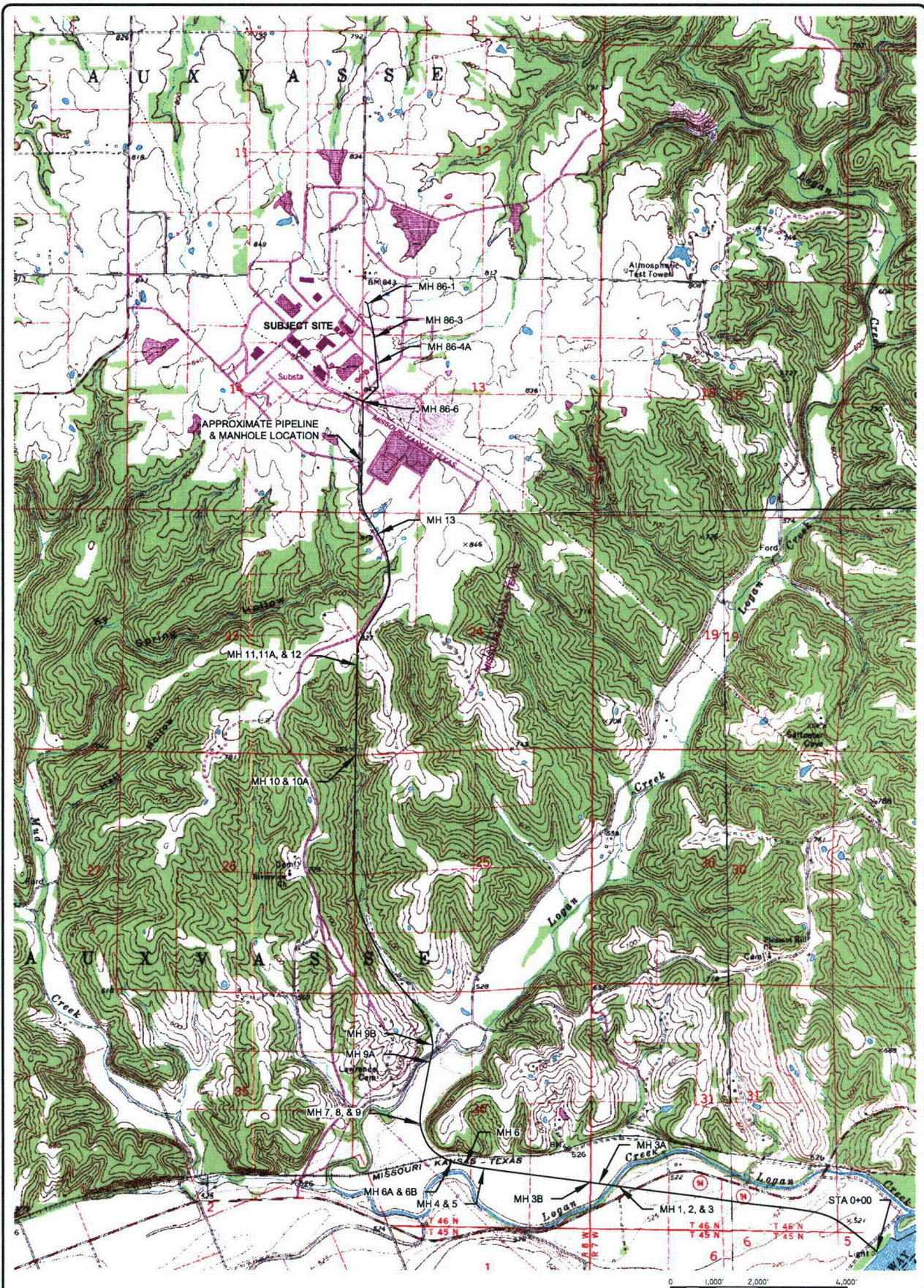
5.0 GENERAL COMMENTS

The MTI-P11 work scope was designed to further delineate H³ contamination previously observed on site. This work scope should not be considered a comprehensive assessment. It is Terracon's understanding that a Hydrogeologic Investigation is currently being conducted by others. Collecting samples at different times and locations, and collecting samples from permanently installed monitor wells versus uncased borings/probes may yield different results. If additional information is developed in the future, this report should be reviewed and modified, if appropriate. Terracon does not warrant the work of regulatory agencies or other third parties who may have provided information during the preparation of this report.

This report has been prepared for the exclusive use of our client for specific applications as discussed. It has been prepared in accordance with generally accepted environmental assessment practices within the constraints of the client's directives. No warranties, either express or implied, are intended or made. Others drawing conclusions from the results of this assessment should recognize the limitations of the assessment methods used.

* * * * *

APPENDIX A



REFORM QUADRANGLE
 MISSOURI - CALLAWAY COUNTY
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 1975 - PHOTO REVISED IN 1985



SITE LOCATION MAP
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY, MISSOURI

Project Mgr:	TLB	Scale:	SHOWN
Designed By:	TLB/JMW	Date:	03/20/08
Checked By:	TLB	Project No.:	09067011T
Approved By:	TLB	File Name:	7011T.DWG
Drawn By:	BCB	Figure No.:	A-1

Terracon
 3601 Mojave Court, Suite A
 Columbia, Missouri 65202
 Phone: (573) 214-2677
 Fax: (573) 214-2714

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

APPENDIX B

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 19 + 35, 27' LT (Vicinity of Dock Haul Road)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<166	2/7/2007	38.7054	-91.7406	1857119.57	1046600.61
5-10'	<166	2/7/2007				
10-15'	<166	2/7/2007				
15-20'	<166	2/7/2007				
20-25'	<166	2/7/2007				
25-30'	657 ± 113	2/7/2007				
Tritium in Water	<145	2/9/2007				

Boring: CA-SOL-Sta. 20 + 62, 60' LT (a.k.a MW-016)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<145	10/3/2007	38.7093	-91.7577	1852231.94	1047973.94
8-10'	<145	10/3/2007				
13-15'	<145	10/3/2007				
18-20'	<145	10/3/2007				
23-25'	<145	10/3/2007				
28-30'	<145	10/3/2007				
33-35'	<145	10/3/2007				
38-40'	<145	10/3/2007				

Boring: CA-SOL-Sta. 24 + 82, 64' LT (West of Dock Haul Road)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	9/28/2007	38.7058	-91.74222	1856668.3	1046737.59
8-10'	<147	9/28/2007				
13-15'	<147	9/28/2007				
18-20'	<147	9/28/2007				
23-25'	<147	9/28/2007				
28-30'	<147	9/28/2007				
33-35'	<147	9/28/2007				
Tritium in Water	<156	10/3/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 69 + 45, 45' RT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<171	12/28/2006	38.7078	-91.7579	1852187.95	1047414.42
9-11'	<171	12/28/2006				
14-16'	<171	12/28/2006				
19-21'	<171	12/28/2006				
24-26'	<171	12/28/2006				
Tritium in Water	<143	12/28/2006				

Boring: CA-SOL-Sta. 72 + 05, 40' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	10/1/2007	38.70773	-91.75868	1851956.06	1047399.9
8-10'	<147	10/1/2007				
13-15'	<147	10/1/2007				
18-20'	<147	10/1/2007				
23-25'	<147	10/1/2007				
28-30'	<147	10/1/2007				
33-35'	<147	10/1/2007				
38-40'	<147	10/1/2007				
Tritium in Water	<156	10/3/2007				

Boring: CA-SOL-Sta. 72 + 61, 34' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	12/15/2006	38.7078	-91.7589	1851897.3	1047410.67
9-11'	<167	12/15/2006				
14-16'	<167	12/15/2006				
19-21'	429 ± 105	12/15/2006				
24-26'	451 ± 106	12/15/2006				
29-31'	431 ± 105	12/15/2006				
34-36'	274 ± 99	12/15/2006				
Tritium in Water	583 ± 105	12/18/2006				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 72 + 80, 25' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<181	2/7/2007	38.7078	-91.7589	1851879.77	1047422.4

Boring: CA-SOL-Sta. 72 + 80, 30' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<162	2/7/2007	38.7078	-91.7589	1851879.10	1047417.66
5-10'	<165	2/7/2007				
10-15'	<165	2/7/2007				
15-20'	<162	2/7/2007				
20-25'	<181	2/7/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 72 + 80, 105' RT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	9/28/2007	38.7081	-91.7592	1851806.59	1047533.45
8-10'	<147	9/28/2007				
13-15'	<147	9/28/2007				
18-20'	<147	9/28/2007				
23-25'	<147	9/28/2007				
28-30'	<147	9/28/2007				
Tritium in Water	<156	10/9/2007				

Boring: CA-SOL-Sta. 72 + 82, 70' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<162	2/7/2007	38.7077	-91.7590	1851871.69	1047378.14
5-10'	<181	2/7/2007				
10-15'	<162	2/7/2007				
10-15'	<162	2/7/2007				
15-20'	<162	2/7/2007				
20-25'	238 ± 91	2/7/2007				
Tritium in Water	313 ± 87	2/9/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 73 + 47, 69' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<167	2/7/2007	38.7077	-91.7592	1851808.32	1047387.84
5-10'	<167	2/7/2007				
10-15'	<167	2/7/2007				
15-20'	<167	2/7/2007				
20-25'	<167	2/7/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 73 + 57, 57' RT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	497 ± 108	2/7/2007	38.7080	-91.7592	1851815.54	1047514.2
5-10'	<167	2/7/2007				
10-15'	<167	2/7/2007				
15-20'	<168	2/7/2007				
20-25'	229 ± 97	2/7/2007				
Tritium in Water	162 ± 80	2/9/2007				

Boring: CA-SOL-Sta. 73 + 70, 75' LT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<167	2/7/2007	38.7077	-91.7593	1851782.9	1047385.41
5-10'	<167	2/7/2007				
10-15'	<167	2/7/2007				
15-20'	<167	2/7/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 73 + 94, 100' RT (Vicinity of MH-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<171	12/28/2006	38.7082	-91.7592	1851800.63	1047559.44
8-10'	<171	12/28/2006				
13-15'	<171	12/28/2006				
19-20'	<171	12/28/2006				
23-25'	<171	12/28/2006				
Tritium in Water	<143	1/3/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 74 + 03, 117' LT (Vicinity of MH-3)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	12/27/2006	38.7076	-91.7594	1851748.79	1047346.51
9-11'	<165	12/27/2006				
14-16'	<165	12/27/2006				
19-21'	<171	12/27/2006				
24-26'	<171	12/27/2006				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 75 + 82, 26' RT (Vicinity of MH-3A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<181	2/8/2007	38.7081	-91.7600	1851591.17	1047513.61
5-10'	<167	2/8/2007				
10-15'	<181	2/8/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 75 + 93, 37' LT (Vicinity of MH-3A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<167	2/8/2007	38.7079	-91.7600	1851571.86	1047452.55
5-10'	<181	2/8/2007				
10-15'	<168	2/8/2007				
15-20'	<169	2/8/2007				
20-25'	<181	2/8/2007				
Tritium in Water	<145	2/9/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 83 + 37, 52' RT (Vicinity of MH-3B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<167	2/8/2007	38.7084	-91.7626	1850844.05	1047642.02
5-10'	<167	2/8/2007				
10-15'	<167	2/8/2007				
15-20'	<167	2/8/2007				
20-25'	<167	2/8/2007				
Tritium in Water	<145	2/9/2007				

Boring: CA-SOL-Sta. 95 + 09, 63' RT (Vicinity of MH-3B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<167	2/8/2007	38.7089	-91.7666	1849684.02	1047811.28
5-10'	<167	2/8/2007				
10-15'	<167	2/8/2007				
15-20'	<167	2/8/2007				
20-25'	<169	2/8/2007				
Tritium in Water	<145	2/9/2007				

Boring: CA-SOL-Sta. 104 + 30, 100' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<169	2/8/2007	38.7088	-91.7699	1848744.63	1047774.37
5-10'	<169	2/8/2007				
10-15'	<169	2/8/2007				
15-20'	<169	2/8/2007				
Tritium in Water	<145	2/9/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 104 + 64, 60' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3.2-5.2'	<193	6/21/2007	38.7089	-91.7699	1849610.71	1047809.22
8-10'	<190	6/21/2007				
13-15'	<192	6/21/2007				
18-20'	<192	6/21/2007				
23-25'	<192	6/21/2007				
28-30'	<190	6/21/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 104 + 94, 60' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	12/4/2006	38.7093	-91.7701	1848703.25	1047949.56
9-11'	<167	12/4/2006				
14-16'	556 ± 110	12/4/2006				
Tritium in Water	468 ± 104	12/5/2006				

Boring: CA-SOL-Sta. 104 + 96, 71' RT (Vicinity of MH-4)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	12/4/2006	38.7093	-91.7701	1848703.25	1047949.56
9-11'	<167	12/4/2006				
14-16'	<167	12/4/2006				
Tritium in Water	<177	12/5/2006				

Boring: CA-SOL-Sta. 105 + 00, 400' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<144	12/4/2007	38.7082	-91.7705	1848582.70	1047535.14
5-10'	<144	12/4/2007				
10-15'	<144	12/4/2007				
15-20'	<144	12/4/2007				
20-25'	<144	12/4/2007				
25-28'	<144	12/4/2007				
Tritium in Water	<188	12/4/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 105 + 24, 200' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	10/1/2007	38.7087	-91.7709	1848481.40	1047712.80
8-10'	<147	10/1/2007				
13-15'	1046 ± 117 ; 975 ± 117	10/1/2007				
18-20'	616 ± 103 ; 525 ± 101	10/1/2007				
23-25'	<147	10/1/2007				
Tritium in Water	473 ± 101	10/9/2007				

Boring: CA-SOL-Sta. 105 + 24, 300' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<144	11/9/2007	38.7085	-91.7706	1848570.27	1047662.52
8-10'	<144	11/9/2007				
13-15'	<144	11/9/2007				
18-20'	644 ± 103 ; 535 ± 99	11/9/2007				
23-25'	215 ± 87	11/9/2007				
Tritium in Water	<160	11/9/2007				

Boring: CA-SOL-Sta. 105 + 39, 100' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<169	2/8/2007	38.7089	-91.7703	1848640.48	1047788.49
5-10'	402 ± 100	2/8/2007				
10-15'	2956 ± 175 ; 2890 ± 171	2/8/2007				
15-20'	1305 ± 141 ; 1706 ± 142	2/8/2007				
Tritium in Water ¹	2700	2/9/2007				
Tritium in Water	2707	2/9/2007				

Boring: CA-SOL-Sta. 106 + 50, 200' LT (Vicinity of MH-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<156	10/12/2007	38.7087	-91.7709	1848477.70	1047710.71
8-10'	<156	10/12/2007				
13-15'	<156	10/12/2007				
18-20'	<156	10/12/2007				
23-25'	339 ± 96	10/12/2007				
28-30'	<156	10/12/2007				
Tritium in Water	<156	10/12/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 107 + 00, 90' LT (Vicinity of MH-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	12/13/2006	38.7090	-91.7709	1848476.99	1047820.82
9-11'	171 ± 95	12/13/2006				
14-16'	<167	12/13/2006				
Tritium in Water	<184	12/13/2006				

Boring: CA-SOL-Sta. 107 + 00, 90' LT (Vicinity of MH-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<193	6/21/2007	38.7090	-91.7709	1848469.00	1047836.53
8-10'	<190	6/21/2007				
13-15'	967 ± 136	6/21/2007				
18-20'	691 ± 126	6/21/2007				
23-25'	<191	6/21/2007				
28-30'	<191	6/21/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 107 + 13, 21' LT (Vicinity of MH-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<169	2/8/2007	38.7092	-91.7709	1848473.49	1047891.03
5-10'	<169	2/8/2007				
10-15'	<169	2/8/2007				
Tritium in Water	<145	2/9/2007				

Boring: CA-SOL-Sta. 107 + 62, 110' LT (Vicinity of MH-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<177	12/6/2006	38.7089	-91.7711	1848414.59	1047809.04
9-11'	<177	12/6/2006				
14-16'	3116 ± 185	12/6/2006				
19-21'	1662 ± 149	12/6/2006				
19-21'	1531 ± 146	12/6/2006				
24-26'	2343 ± 167	12/6/2006				
Tritium in Water	None	Not sampled				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 108 + 03, 100' RT (Vicinity of MH-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<181	12/11/2006	38.7095	-91.7711	1848408.03	1048022.24
5-10'	<181	12/11/2006				
10-15'	<181	12/11/2006				
Tritium in Water	<184	12/13/2006				

Boring: CA-SOL-Sta. 108 + 45, 28' RT (Vicinity of MH-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<157	2/8/2007	38.7093	-91.7716	1848354.59	1047956.66
5-10'	<157	2/8/2007				
10-15'	<157	2/8/2007				
Tritium in Water	<145	2/9/2007				

Boring: CA-SOL-Sta. 109 + 39, 63' RT (Vicinity of MH-6A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<181	12/11/2006	38.7095	-91.7716	1848268.93	1048003.68
9-11'	<181	12/11/2006				
14-16'	<181	12/11/2006				
19-21'	<181	12/11/2006				
24-26'	<181	12/11/2006				
Tritium in Water	<184	12/13/2006				

Boring: CA-SOL-Sta. 109 + 85, 67' LT (Vicinity of MH-6B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<177	12/6/2006	38.7091	-91.7718	1848201.11	1047881.36
9-11'	<177	12/6/2006				
14-16'	3116 ± 185	12/6/2006				
19-21'	1662 ± 149	12/6/2006				
19-21'	1531 ± 146	12/6/2006				
24-26'	2343 ± 167	12/6/2006				
Tritium in Water	2518 ± 171	12/13/2006				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 109 + 93, 116' LT (Vicinity of MH-6B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<169	2/8/2007	38.7090	-91.7719	1848186.49	1047834.28
5-10'	<169	2/8/2007				
10-15'	<169	2/8/2007				
15-20'	<169	2/8/2007				
Tritium in Water	<145	2/9/2007				

Boring: CA-SOL-Sta. 110 + 65, 70' LT (Vicinity of MH-6B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	228 ± 103	12/6/2006	38.7092	-91.7721	1848118.97	1047889.89
9-11'	<177	12/6/2006				
14-16'	<177	12/6/2006				
19-21'	<177	12/6/2006				
24-26'	<177	12/6/2006				
Tritium in Water	<176	12/8/2006				

Boring: CA-SOL-Sta. 132 + 87, 30' RT (Vicinity of MH-6B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<157	2/9/2007	38.7141	-91.7742	1847520.49	1049684.52
5-10'	<157	2/9/2007				
10-15'	<157	2/9/2007				
Tritium in Water	<145	2/10/2007				

Boring: CA-SOL-Sta. 137 + 85, 12' RT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<190	6/21/2007	38.7155	-91.7740	1847565.64	1050196.73
9-11'	<193	6/21/2007				
14-16'	<193	6/21/2007				
Tritium in Water	None	Not sampled				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 137 + 85, 62' LT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<190	6/21/2007	38.7155	-91.7742	1847508.58	1050196.28
8-10'	<190	6/21/2007				
13-15'	<190	6/21/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 138 + 40, 28' LT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	403 ± 102	12/22/2006	38.7156	-91.7741	1847544.22	1050238.75
4-6'	249 ± 97	12/22/2006				
9-11'	213 ± 96	12/22/2006				
9-11'	<165	12/22/2006				
14-16'	<165	12/22/2006				
14-16'	216 ± 96	12/22/2006				
Tritium in Water	<142	12/22/2006				

Boring: CA-SOL-Sta. 138 + 76, 75' LT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	267 ± 97	2/9/2007	38.7157	-91.7745	1847503.56	1050282.85
5-10'	<164	2/9/2007				
10-15'	305 ± 99	2/9/2007				
Tritium in Water	<145	2/10/2007				

Boring: CA-SOL-Sta. 138 + 86, 137' LT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<161	11/27/2006	38.7158	-91.7744	1847443.12	1050298.04
9-11'	<161	11/27/2006				
14-16'	<161	11/27/2006				
19-21'	<161	11/27/2006				
Tritium in Water	<177	12/5/2006				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 138 + 90, 28' RT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<172	11/28/2006	38.7158	-91.7740	1847551.63	1050288.57
9-11'	273	11/28/2006				
14-16'	<172	11/28/2006				
19-21'	<172	11/28/2006				
Tritium in Water	<177	12/5/2006				

Boring: CA-SOL-Sta. 139 + 17, 62' RT (Vicinity of MH-7)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<161	11/28/2006	38.7158	-91.7737	1847645.29	1050302.7
9-11'	<161	11/28/2006				
14-16'	<161	11/28/2006				
19-21'	<161	11/28/2006				
Tritium in Water	<177	12/5/2006				

Boring: CA-SOL-Sta. 139 + 47, 70' LT (Vicinity of MH-8)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	334 ± 100	2/9/2007	38.7159	-91.7741	1847518.77	1050351.81
5-10'	<164	2/9/2007				
10-15'	<164	2/9/2007				
Tritium in Water	<145	2/10/2007				

Boring: CA-SOL-Sta. 140 + 20, 90' RT (Vicinity of MH-9)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<161	11/28/2006	38.7161	-91.7735	1847688.83	1050401.07
9-11'	<161	11/28/2006				
14-16'	<161	11/28/2006				
19-21'	<161	11/28/2006				
Tritium in Water	343 ± 100	12/5/2006				
Tritium in Water	<170	12/22/2006				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 140 + 24, 40' RT (Vicinity of MH-9)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	10/2/2007	38.7161	-91.7738	1847600.10	1050420.75
8-10'	<147	10/2/2007				
13-15'	<147	10/2/2007				
Tritium in Water	<156	10/9/2007				

Boring: CA-SOL-Sta. 140 + 58, 102.5' RT (Vicinity of MH-9)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<193	6/20/2007	38.7162	-91.7735	1847706.80	1050452.80
8-10'	<193	6/20/2007				
13-15'	<193	6/20/2007				
18-20'	<193	6/20/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 140 + 78, 159' LT (Vicinity of MH-9A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<190	6/20/2007	38.7163	-91.7744	1847445.51	1050485.08
8-10'	<193	6/20/2007				
13-15'	<193	6/20/2007				
18-20'	<193	6/20/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 141 + 24.5 56' LT (Vicinity of MH-9A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	1537 ± 138	11/21/2006	38.7164	-91.7740	1847558.40	1050524.29
9-11'	<170	11/21/2006				
14-16'	<170	11/21/2006				
19-21'	<178	11/21/2006				
24-26'	<170	11/21/2006				
Tritium in Water	211 ± 96	11/27/2006				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 141 + 24.5, 100' LT (Vicinity of MH-9A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<170	12/22/2006	38.7164	-91.7742	1847514.97	1050528.99
9-11'	<170	12/22/2006				
14-16'	<170	12/22/2006				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 142 + 06, 88' RT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	253 ± 95	11/21/2006	38.7166	-91.7735	1847713.25	1050584.16
9-11'	<170	11/21/2006				
14-16'	<170	11/21/2006				
19-21'	<170	11/21/2006				
24-26'	<170	11/21/2006				
Tritium in Water	191 ± 95	11/27/2006				

Boring: CA-SOL-Sta. 142 + 17.5, 127' LT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<161	11/27/2006	38.7168	-91.7741	1847515.30	1050680.79
9-11'	<161	11/27/2006				
14-16'	<172	11/27/2006				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 142 + 20.5, 75' LT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<157	11/9/2007	38.7165	-91.7739	1847587.59	1050559.05
8-10'	<157	11/9/2007				
13-15'	<157	11/9/2007				
18-20'	<157	11/9/2007				
23-25'	<157	11/9/2007				
Tritium in Water	<172	11/9/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 142 + 22.5, 23' RT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<157	11/9/2007	38.7166	-91.7736	1847672.90	1050596.14
8-10'	<157	11/9/2007				
13-15'	<157	11/9/2007				
18-20'	<144	11/9/2007				
20-25'	<157	11/9/2007				
Tritium in Water	<172	11/9/2007				

Boring: CA-SOL-Sta. 142 + 77.5, 55' RT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<144	11/9/2007	38.7167	-91.7736	1847672.61	1050632.56
8-10'	<157	11/9/2007				
13-15'	<144	11/9/2007				
18-20'	<157	11/9/2007				
23-25'	<157	11/9/2007				
Tritium in Water	<172	11/9/2007				

Boring: CA-SOL-Sta. 142 + 97.5, 41' LT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<157	11/9/2007	38.7165	-91.7740	1847701.72	1050559.95
8-10'	<157	11/9/2007				
13-15'	<157	11/9/2007				
18-20'	<157	11/9/2007				
23-25'	<157	11/9/2007				
Tritium in Water	<172	11/9/2007				

Boring: CA-SOL-Sta. 143 + 17 40' RT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	10/2/2007	38.7168	-91.7736	1847663.56	1050694.41
8-10'	<147	10/2/2007				
13-15'	<147	10/2/2007				
Tritium in Water	<156	10/9/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 143 + 65.5, 26' LT (Vicinity of MH-9B)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<164	2/9/2007	38.7170	-91.7738	1847623.47	1050759.11
5-10'	<164	2/9/2007				
10-15'	<164	2/9/2007				
Tritium in Water	<145	2/10/2007				

Boring: CA-SOL-Sta. 160 + 53, 30' RT (Vicinity of MH-10A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3.5 - 5.5'	<167	1/9/2007	38.7209	-91.7762	1846930.07	1052160.11

Boring: CA-SOL-Sta. 181 + 42, 14' RT (Vicinity of MH-10A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3.5 - 5.5'	<167	1/9/2007	38.7260	-91.7793	1846011.41	1054016.07

Boring: CA-SOL-Sta. 203 + 63, 14' RT (Vicinity of MH-10A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3.5 - 5.5'	<167	1/9/2007	38.7321	-91.7794	1845982.14	1056231.70

Boring: CA-SOL-Sta. 224 + 34, 23' RT (Vicinity of MH-10A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0 - 2.5'	920 ± 121	12/21/2006	38.7572	-91.7792	1845945.41	1065362.69
0 - 2.5'	<146	9/27/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 230 + 45, 25' RT (Vicinity of MH-12)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<165	12/21/2006	38.7390	-91.7793	1845993.63	1058913.78
8-10'	<165	12/21/2006				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 230 + 95, 25' RT (Vicinity of MH-12)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<170	11/20/2006	38.7396	-91.7793	1845993.61	1058963.84
8-10'	<170	11/20/2006				
13-15'	247 ± 95	11/20/2006				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 232 + 25, 25' LT (Vicinity of MH-12)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<146	9/27/2007	38.7403	-91.7791	1846046.77	1059203.93
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 232 + 83, 123' LT (Vicinity of MH-12)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<170	11/20/2006	38.7401	-91.7798	1845845.72	1059151.70
8-10'	<170	11/20/2006				
Tritium in Water	None	Not sampled				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 233 + 35, 78' RT (Vicinity of MH-12)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<170	11/20/2006	38.7403	-91.7791	1846046.77	1059203.93
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 266 + 95, 10.5' RT (Vicinity of MH-13)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<163	2/9/2007	38.7486	-91.7772	1846555.95	1062253.46
5-10'	<157	2/9/2007				
10-15'	<157	2/9/2007				
15-18.2'	<157	2/9/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 270 + 60, 39' RT (Vicinity of MH-13)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<164	2/9/2007	38.7495	-91.7770	1846401.79	1062585.27
5-10'	<164	2/9/2007				
10-15'	<164	2/9/2007				
Tritium in Water	<145	2/10/2007				

Boring: CA-SOL-Sta. 270 + 60, 42' LT (Vicinity of MH-13)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<164	2/9/2007	38.7494	-91.7780	1846330.71	1062546.52
5-10'	<164	2/9/2007				
10-15'	<171	2/9/2007				
15-20'	<171	2/9/2007				
Tritium in Water	<145	2/10/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 2293 + 94, 50' RT (Vicinity of Manhole 86-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<145	10/2/2007	38.7570	-91.7785	1846150.12	1065323.75
8-10'	<145	10/2/2007				
13-15'	<145	10/2/2007				
18-20'	<145	10/2/2007				
23-25'	<145	10/2/2007				
Tritium in water	None	Not sampled				

Boring: CA-SOL-Sta. 2294 + 30, 35' RT (Vicinity of Manhole 86-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	1/10/2007	38.7572	-91.7786	1846117.98	1065362.69
9-11'	<171	1/10/2007				
14-16'	1616 ± 145	1/10/2007				
19-21'	<171	1/10/2007				
24-26'	<171	1/10/2007				
29-31'	<171	1/10/2007				
34-36'	<171	1/10/2007				
Tritium in water	None	Not sampled				

Boring: CA-SOL-Sta. 2294 + 59, 80' LT (Vicinity of Manhole 86-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<147	10/2/2007	38.7570	-91.7789	1846044.70	1065311.99
8-10'	<147	10/2/2007				
13-15'	<147	10/2/2007				
18-20'	<147	10/2/2007				
23-25'	<147	10/2/2007				
Tritium in water	None	Not sampled				

Boring: CA-SOL-Sta. 2294 + 89, 45' RT (Vicinity of Manhole 86-6)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<145	10/4/2007	38.7573	-91.7786	1846109.51	1065410.84
8-10'	<145	10/4/2007				
13-15'	<145	10/4/2007				
18-20'	<145	10/4/2007				
23-25'	<145	10/4/2007				
Tritium in water	None	Not sampled				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

Boring: CA-SOL-Sta. 2303 + 98, 20' LT (Vicinity of Manhole 86-5)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
4-6'	<167	1/11/2007	38.7880	-91.7777	1846375.90	1065662.88
9-11'	<167	1/11/2007				
14-16'	<167	1/11/2007				
19-21'	<167	1/11/2007				
24-26'	<167	1/11/2007				
29-31'	<167	1/11/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 2310 + 47.7, 33' LT (Vicinity of Manhole 86-4A)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<158	2/9/2007	38.7596	-91.7774	1846479.21	1066248.3
5-10'	<158	2/9/2007				
10-15'	<158	2/9/2007				
15-20'	<158	2/9/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 2316 + 1.7, 37' RT (Vicinity of Manhole 86-3)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<158	2/9/2007	38.7612	-91.7774	1846452.23	1066823.75
5-10'	<158	2/9/2007				
10-15'	<158	2/9/2007				
15-20'	<158	2/9/2007				
20-25'	<158	2/9/2007				
Tritium in Water	None	Not sampled				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

**BOREHOLE IDENTIFICATION TABLES
CALLAWAY POWER PLANT
TERRACON PROJECT NO. 09067011T**

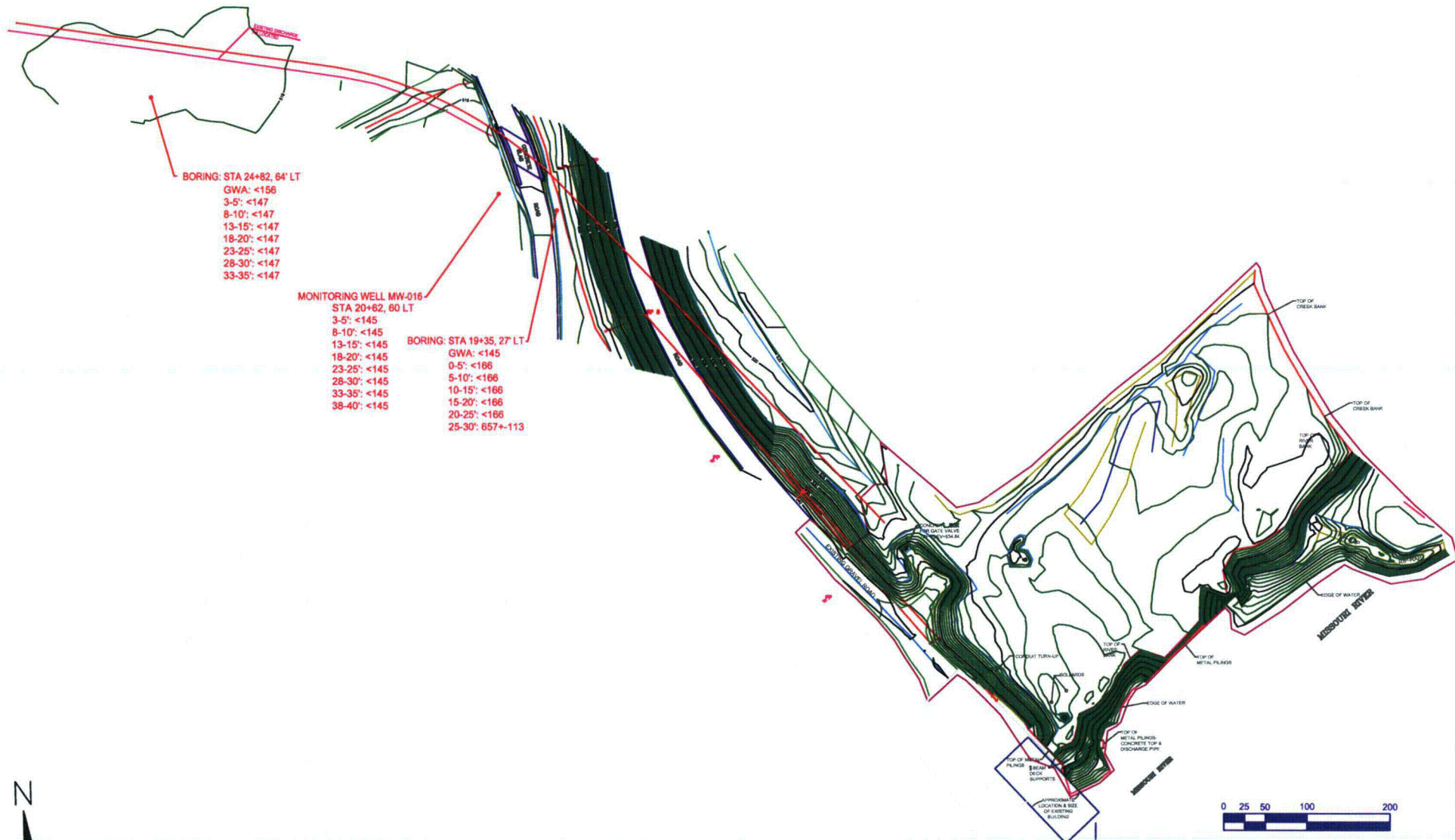
Boring: CA-SOL-Sta. 2316 + 66.7, 22' RT (Vicinity of Manhole 86-3)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<155	2/9/2007	38.7613	-91.7775	1846425.86	1066883.24
5-10'	<158	2/9/2007				
10-15'	<158	2/9/2007				
15-20'	<158	2/9/2007				
20-25'	<158	2/9/2007				
Tritium in Water	None	Not sampled				

Boring: CA-SOL-Sta. 2320 + 70, 20' RT (Vicinity of Manhole 86-2)						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
0-5'	<156	2/9/2007	38.7624	-91.7777	1846378.19	1067280.49
5-10'	<165	2/9/2007				
10-15'	<165	2/9/2007				
15-20'	<165	2/9/2007				
20-25'	<158	2/9/2007				
Tritium in Water	None	Not sampled				

MH - 86-1						
Sample Interval (feet bgs)	Tritium (pCi/L)	Sampling Date	DD Latitude	DD Longitude	UTM Easting	UTM Northing
3-5'	<156	10/4/2007	38.7634	-91.7791	1845957.75	1067660.48
8-10'	<156	10/4/2007				
13-15'	<156	10/4/2007				
18-20'	<156	10/4/2007				
23-25'	<156	10/4/2007				
28-29'	<156	10/4/2007				
Tritium in Water	<156	10/12/2007				

NOTES:

- 1) Bold value represents value detected above reporting limits.
- 2) DD = Decimal Degrees.
- 3) RT = Right of pipeline.
- 4) LT = Left of pipeline.
- 5) Analysis conducted by Environmental Inc. Midwest Laboratory.
- 6) Stations represent field measured approximations. Not measured by professional surveyors.

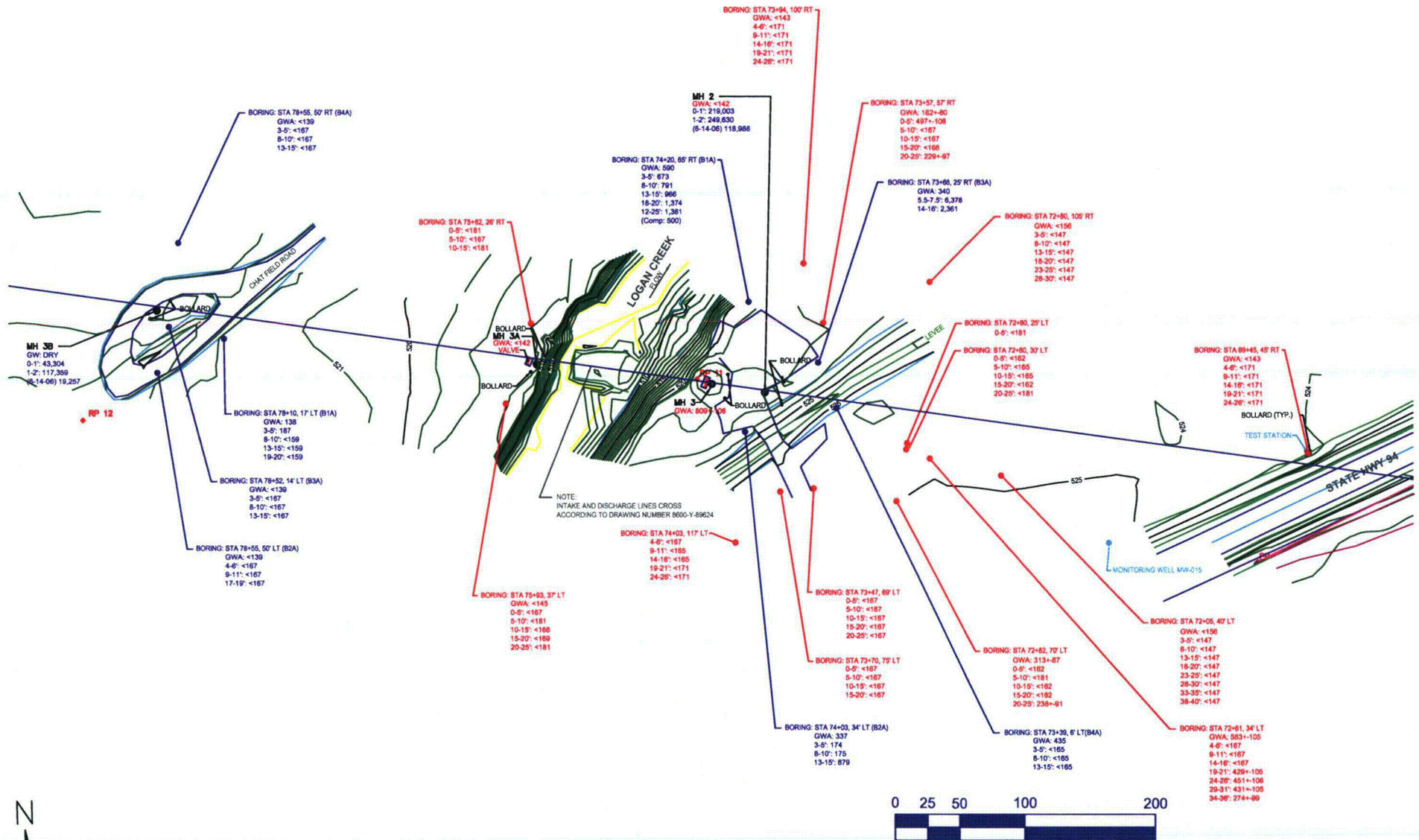


Legend

- ⊕ Phase I Boring Location
- ⊕ Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

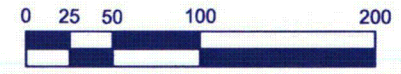
NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PUPOSES. LOCATIONS ARE APPROXIMATE

INTAKE FACILITY TO SCHMID PROPERTY BOUNDARY SOIL AND GROUNDWATER ANALYTICAL RESULTS DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II CALLAWAY POWER PLANT CALLAWAY COUNTY		
Project Mngr:	TLB	Project No. 09067011T
Designed By:	JMK	Scale: SHOWN
Checked By:	AJW	Date: 3/20/2008
Approved By:	JWM	Drawn By: OTHERS
		Figure No. B-1
3601 Mojave Court, Suite A Columbia, Missouri 65202		



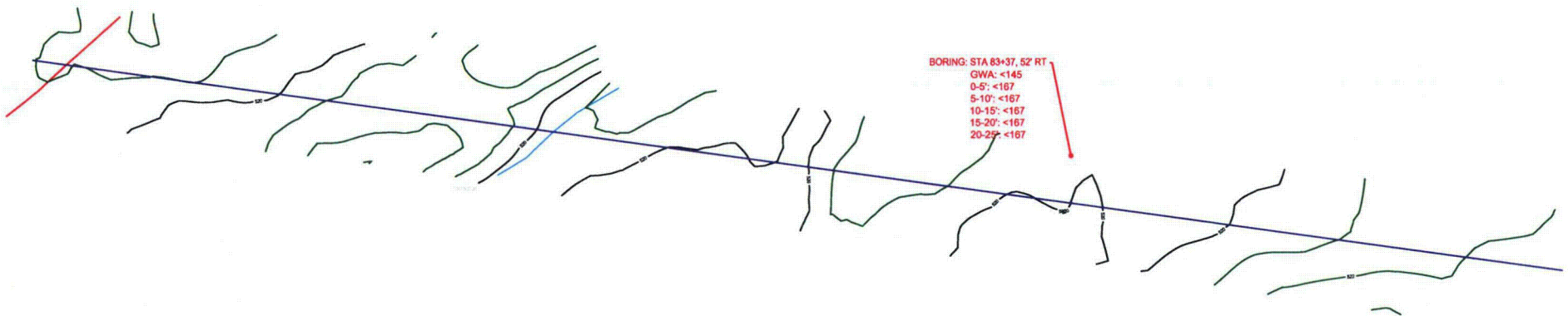
NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

- Legend**
- Phase I Boring Location
 - Phase II Boring Location
 - 174 Tritium Concentration (pCi/L)
 - ND Non Detect
 - GWA Groundwater Concentration (pCi/L)





**MANHOLES 2, 3A, & 3B & SCHMID PROPERTY BOUNDARY
 SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY**

Project Mngr:	TLB	3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-2



Legend

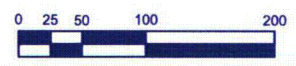
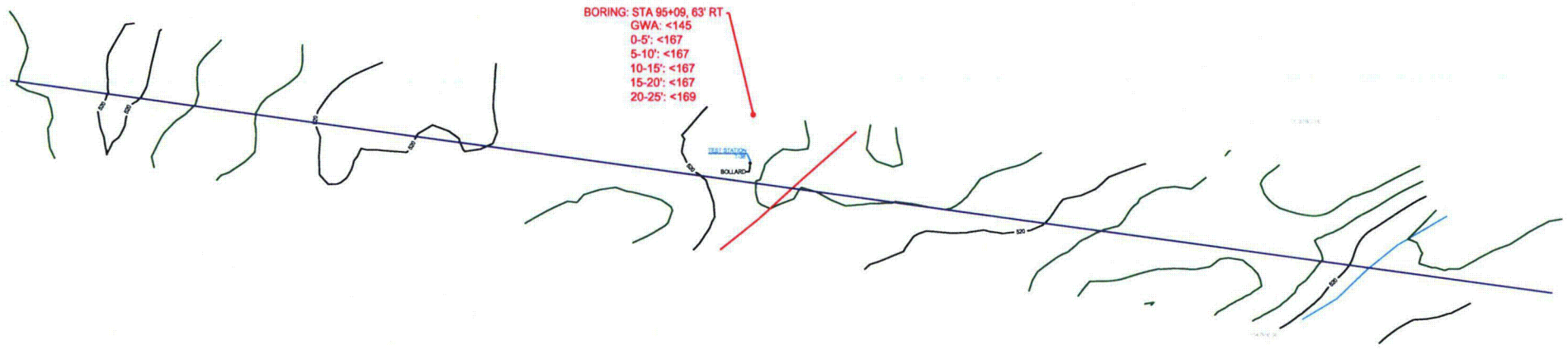
-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:



1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

BETWEEN MANHOLES 3B & 4 (EAST)
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY

Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-3

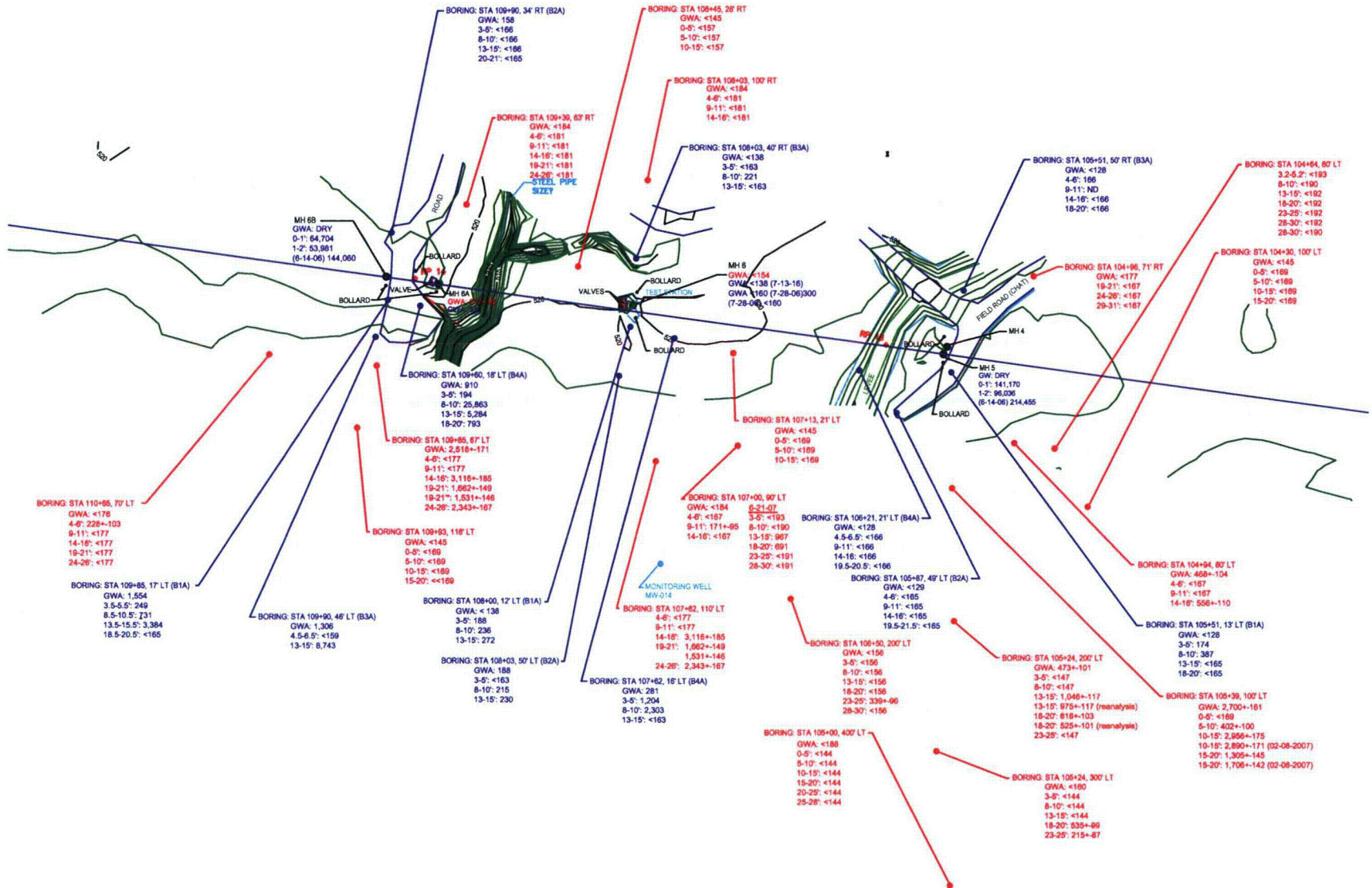


Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

MANHOLE 3B TO MANHOLE 4 (WEST) SOIL AND GROUNDWATER ANALYTICAL RESULTS DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II CALLAWAY POWER PLANT CALLAWAY COUNTY			
Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No. 09067011T
Designed By:	JMK		Scale: SHOWN
Checked By:	AJW		Date: 3/20/2008
Approved By:	JWM		Drawn By: OTHERS
			Figure No. B-4



NOTES:

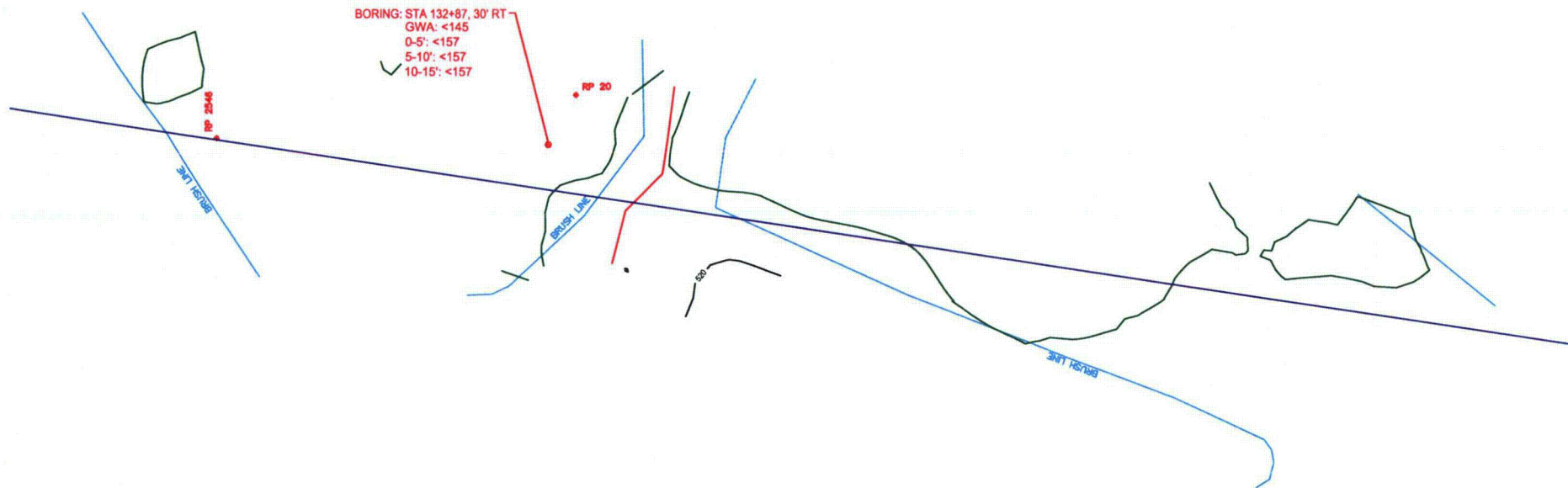
1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

Legend

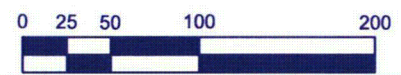
- Phase I Boring Location
- Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

**MANHOLES 4, 5, 6 AND 6B
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY**



Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-5



BORING: STA 132+87, 30' RT
 GWA: <145
 0-5': <157
 5-10': <157
 10-15': <157



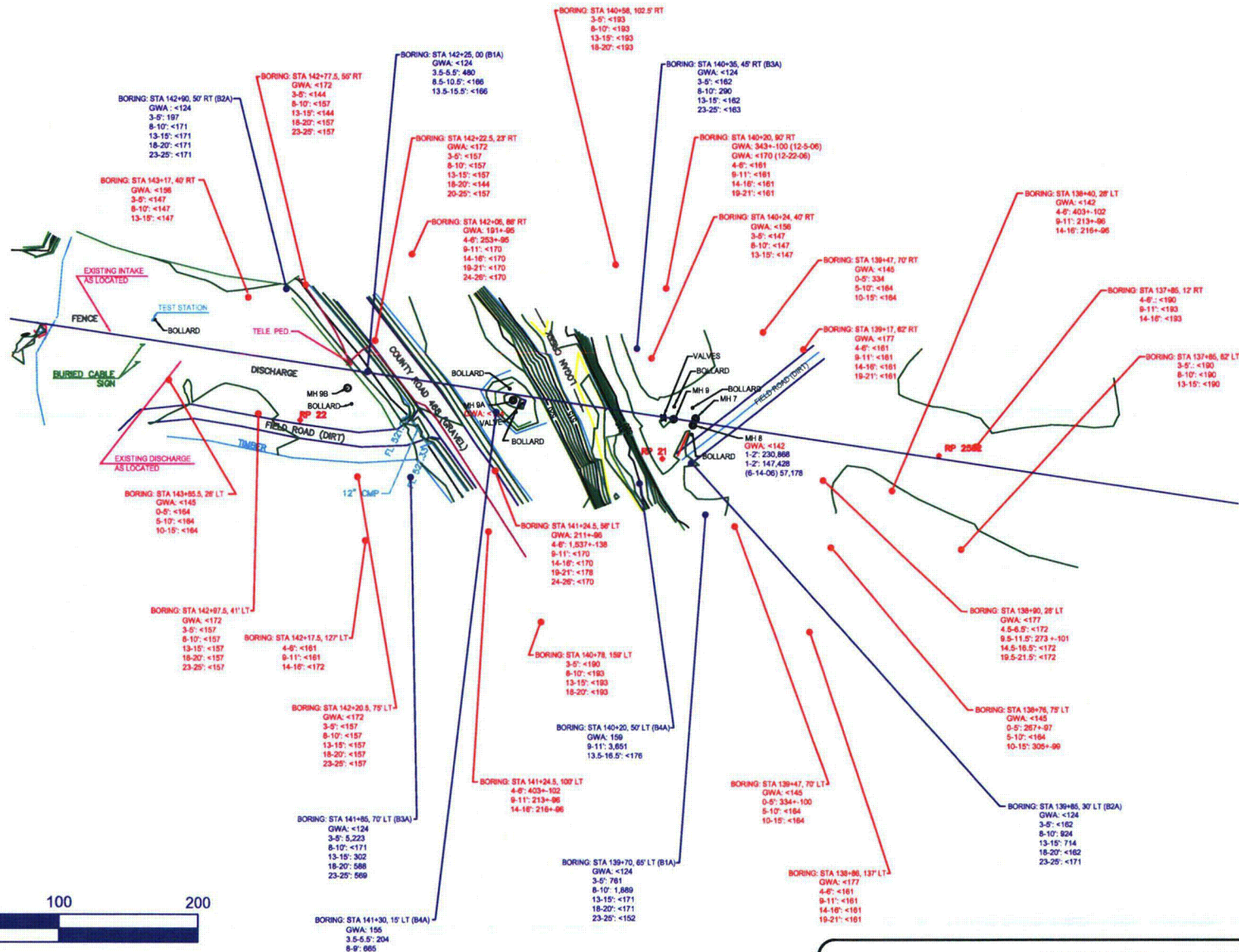
Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

**MANHOLE 6B TO MANHOLE 8
 SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY**

Project Mngr:	TLB	Terracon 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-6



NOTES:

1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PUPOSES. LOCATIONS ARE APPROXIMATE

Legend

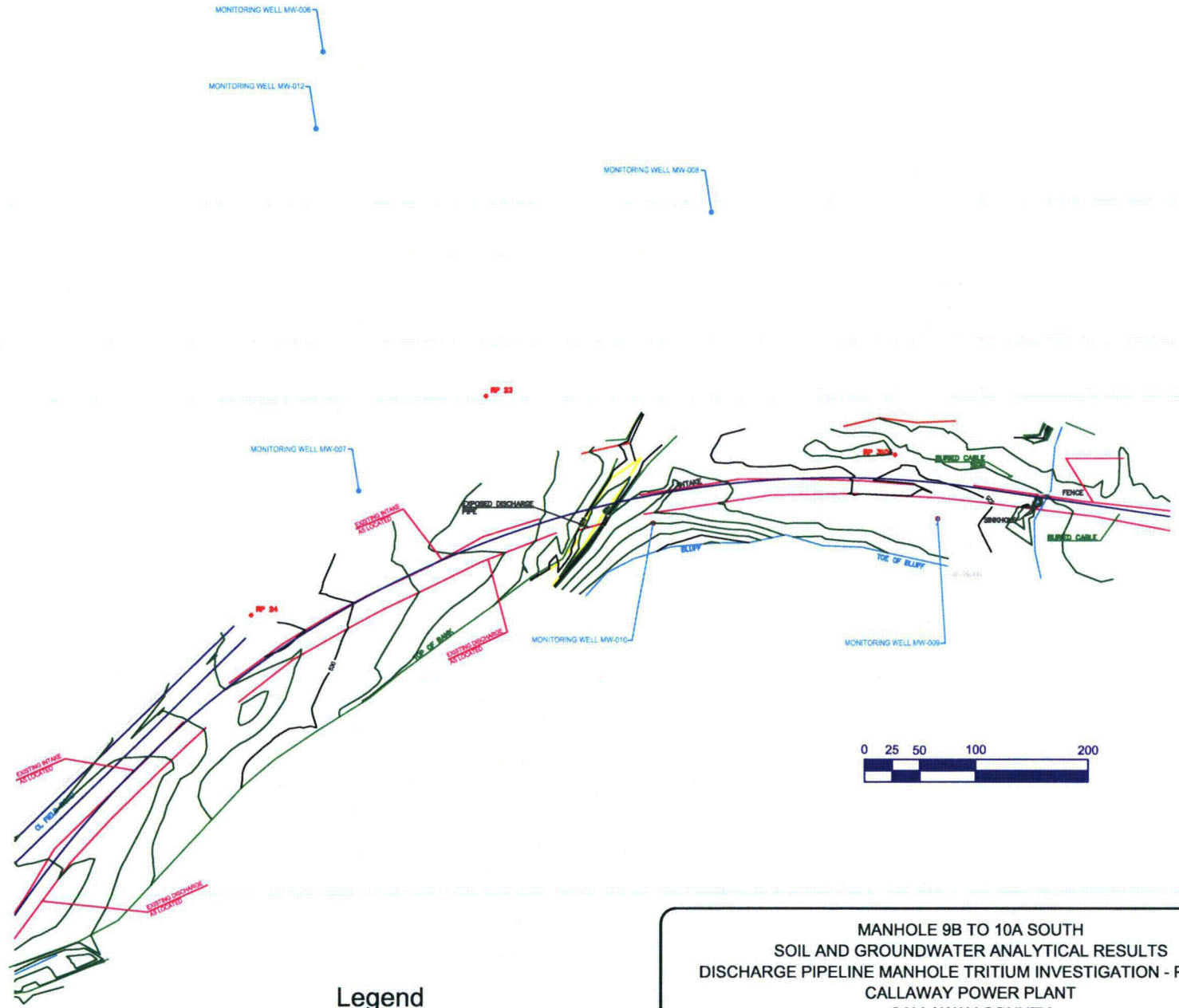
- Phase I Boring Location
- Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

**MANHOLES 7, 8, 9A & 9B
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY**



Project Mngr:	TLB
Designed By:	JMK
Checked By:	AJW
Approved By:	JWM

Terracon
3601 Mojave Court, Suite A
Columbia, Missouri 65202

Project No.	09067011T
Scale:	SHOWN
Date:	3/20/2008
Drawn By:	OTHERS
Figure No.	B-7



Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)



NOTES:

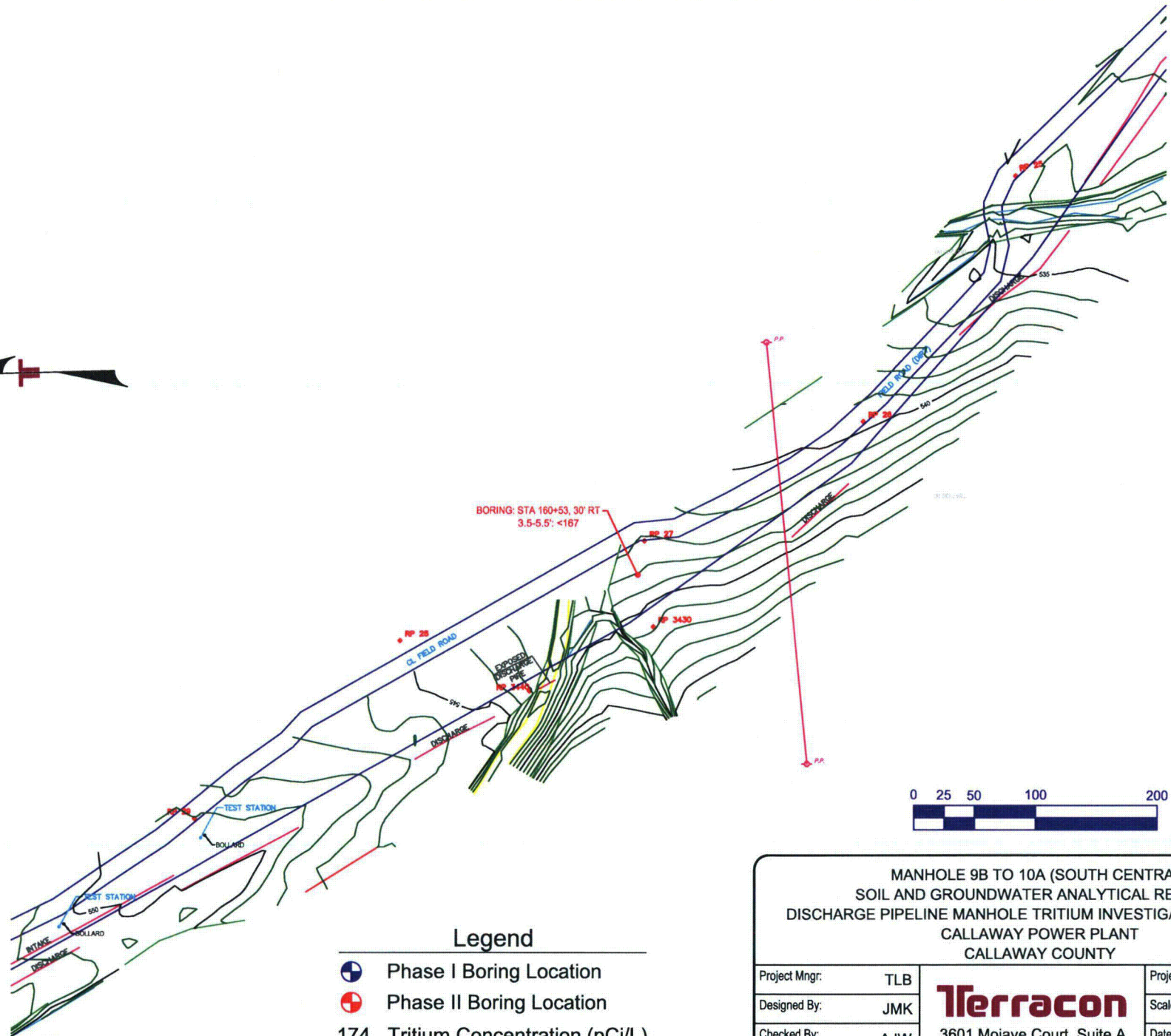
1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

**MANHOLE 9B TO 10A SOUTH
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY**



Project Mngr:	TLB
Designed By:	JMK
Checked By:	AJW
Approved By:	JWM

Terracon
3601 Mojave Court, Suite A
Columbia, Missouri 65202

Project No.	09067011T
Scale:	SHOWN
Date:	3/20/2008
Drawn By:	OTHERS
Figure No.	B-8

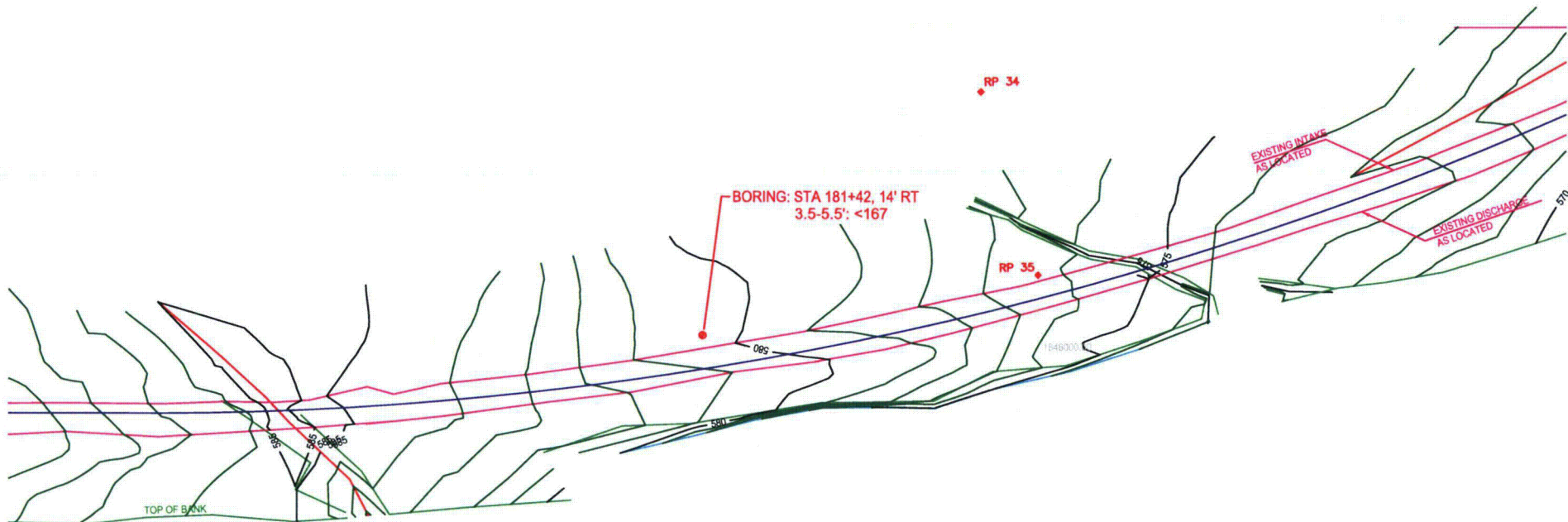


Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE



MANHOLE 9B TO 10A (SOUTH CENTRAL) SOIL AND GROUNDWATER ANALYTICAL RESULTS DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II CALLAWAY POWER PLANT CALLAWAY COUNTY			
Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No. 09067011T
Designed By:	JMK		Scale: SHOWN
Checked By:	AJW		Date: 3/20/2008
Approved By:	JWM		Drawn By: OTHERS
			Figure No. B-9



MANHOLE 9B TO 10A (NORTH CENTRAL)
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY

Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-10

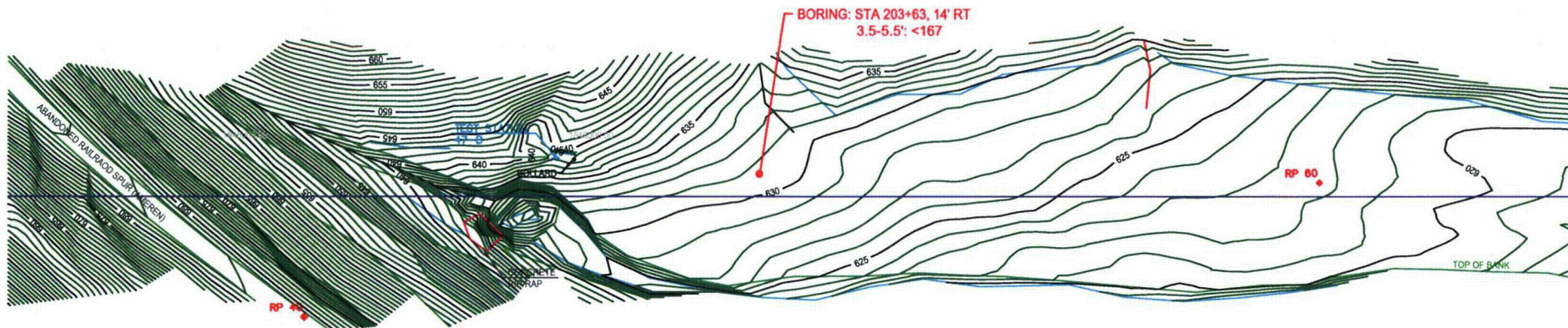
Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)



NOTES:



1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PUPOSES. LOCATIONS ARE APPROXIMATE



NOTES:

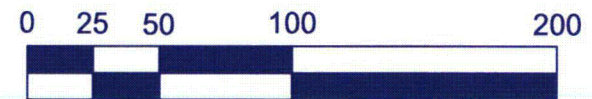
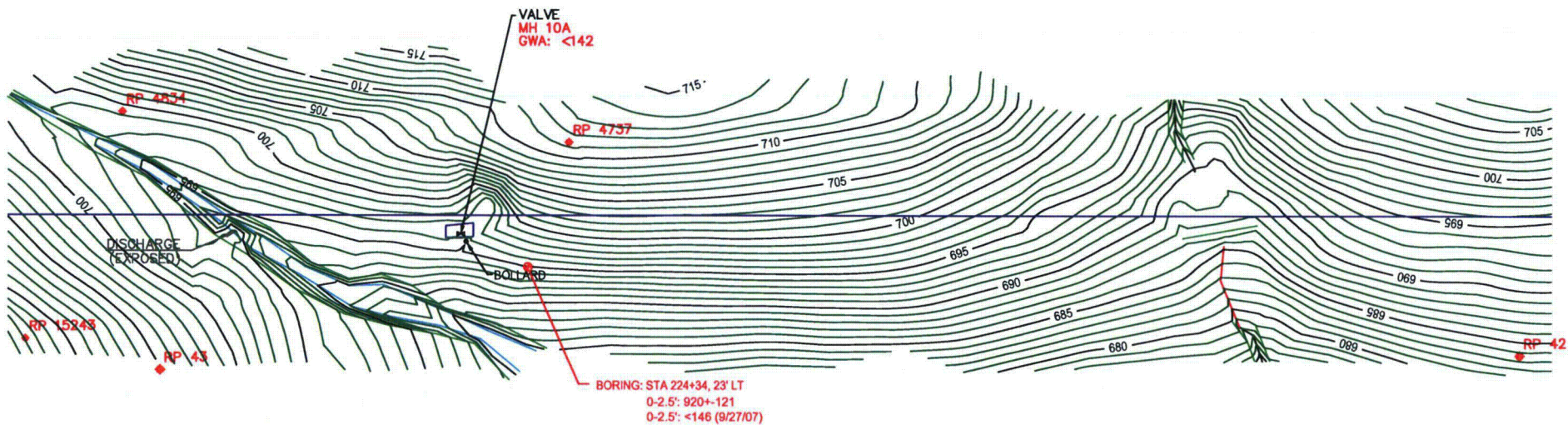
1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

Legend



-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

**MANHOLE 9B TO 10A (NORTH)
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY**

Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-11



Legend

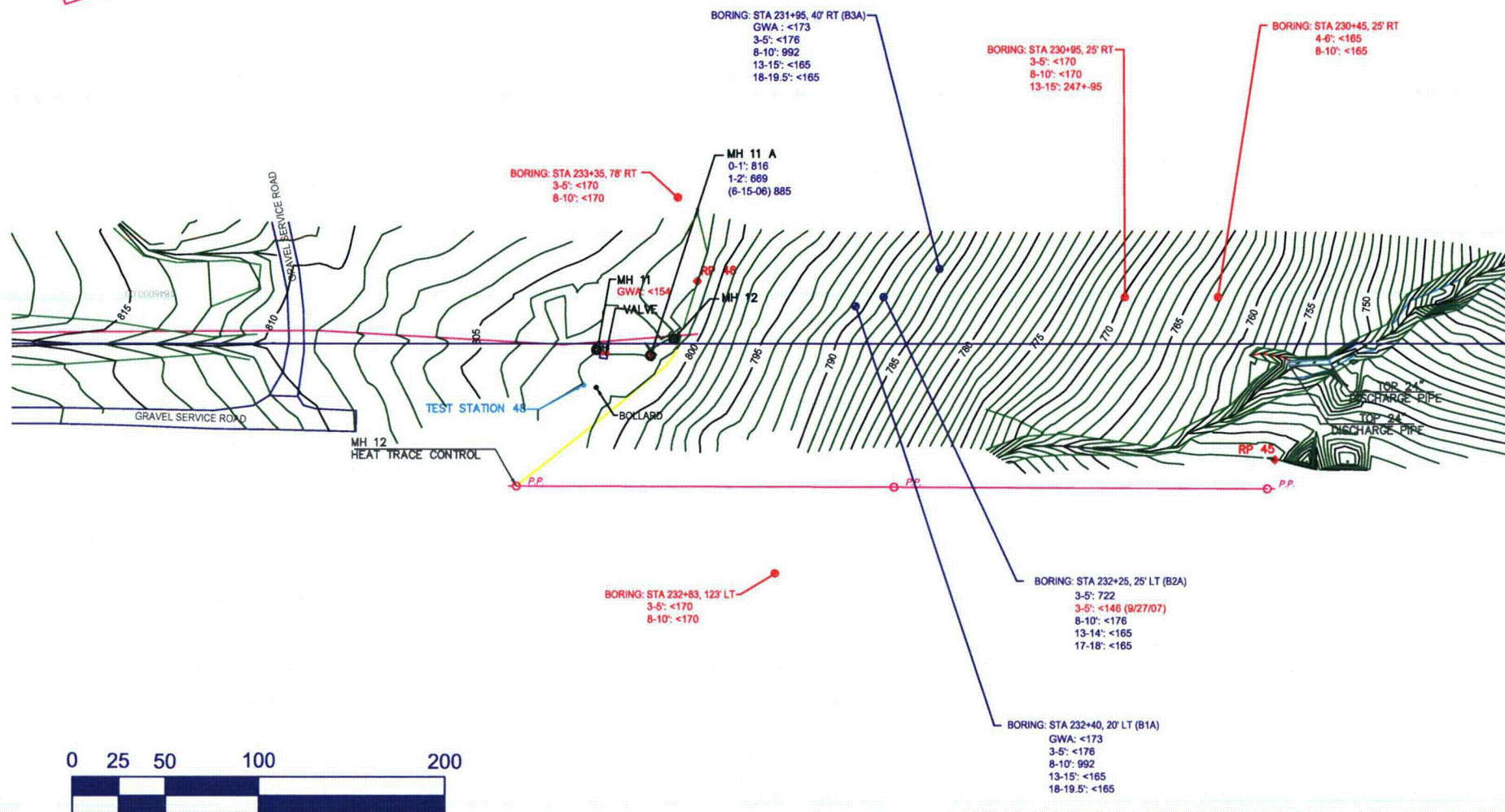
-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:

1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

**MANHOLE 10A
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY**

Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-12



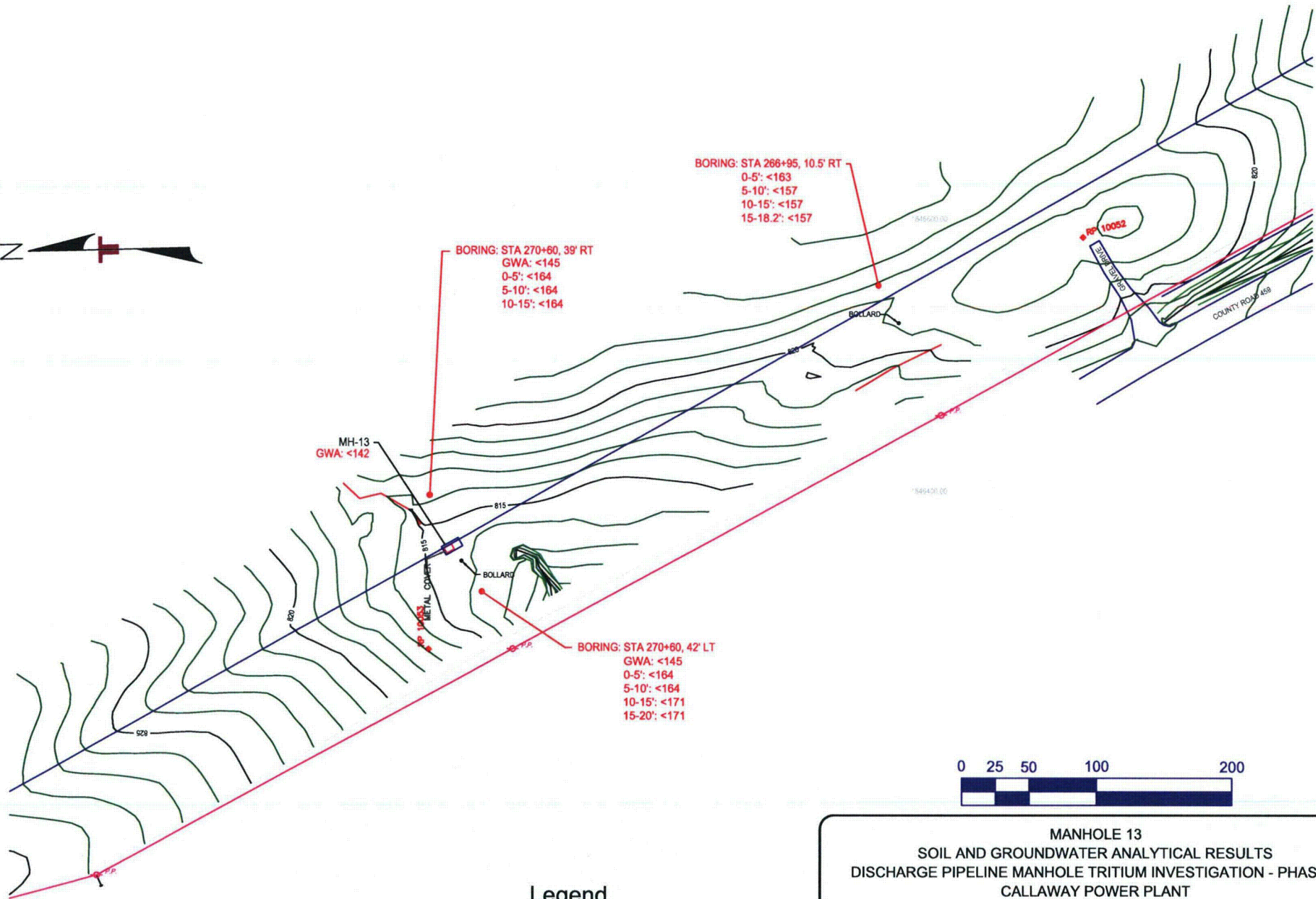
Legend

- Phase I Boring Location
- Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)



NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

MANHOLES 11 & 12
SOIL AND GROUNDWATER ANALYTICAL RESULTS
DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
CALLAWAY POWER PLANT
CALLAWAY COUNTY

Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No. 09067011T
Designed By:	JMK		Scale: SHOWN
Checked By:	AJW		Date: 3/20/2008
Approved By:	JWM		Drawn By: OTHERS
			Figure No. B-13



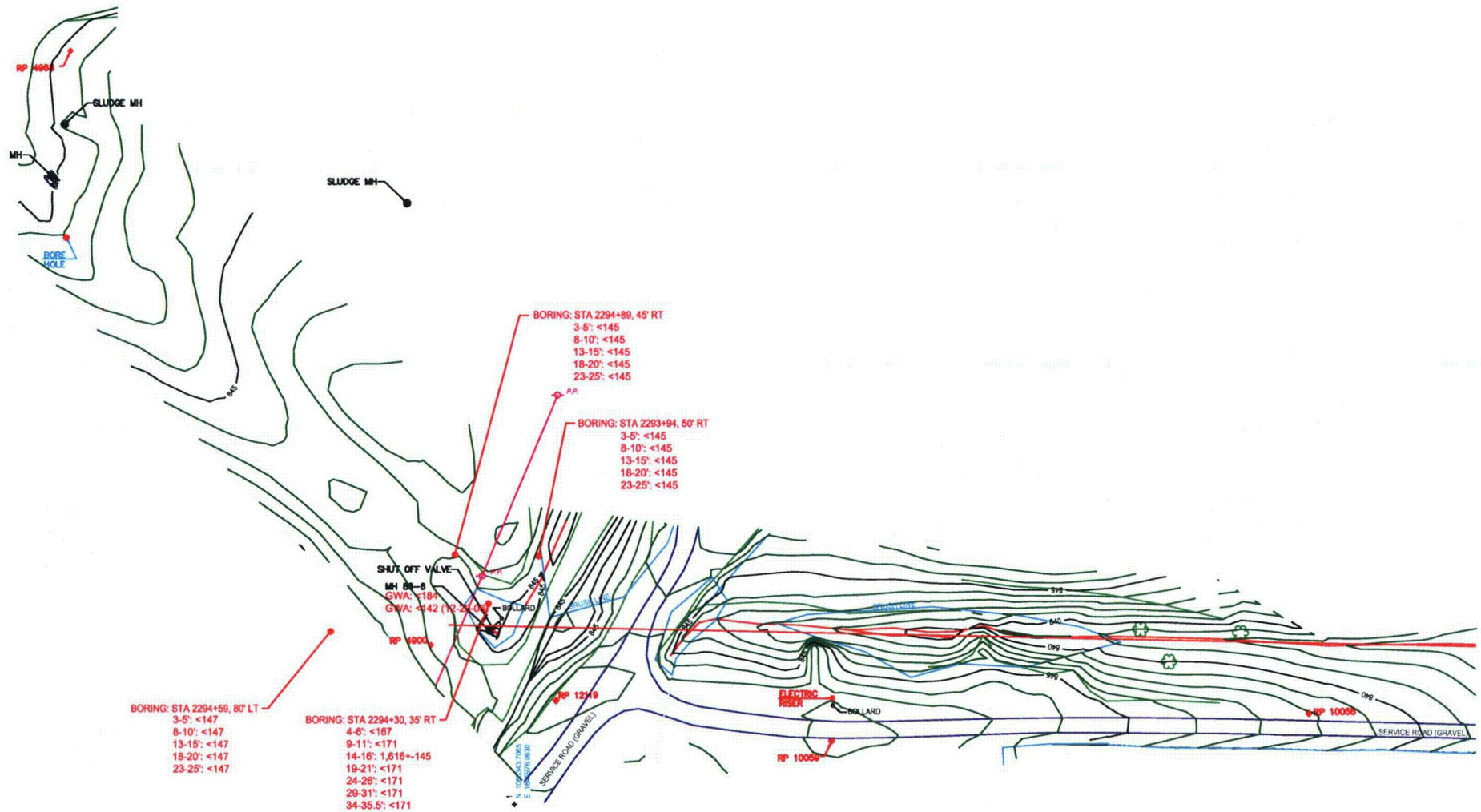
Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PUPOSES. LOCATIONS ARE APPROXIMATE

**MANHOLE 13
 SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY**

Project Mngr:	TLB	Terracon 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-14

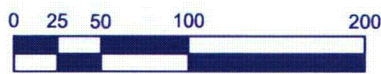


BORING: STA 2294+59, 80' LT
 3-5': <147
 8-10': <147
 13-15': <147
 18-20': <147
 23-25': <147

BORING: STA 2294+30, 35' RT
 4-6': <167
 9-11': <171
 14-16': 1,616+-145
 19-21': <171
 24-26': <171
 29-31': <171
 34-35.5': <171

BORING: STA 2294+89, 45' RT
 3-5': <145
 8-10': <145
 13-15': <145
 18-20': <145
 23-25': <145

BORING: STA 2293+94, 50' RT
 3-5': <145
 8-10': <145
 13-15': <145
 18-20': <145
 23-25': <145



Legend

- Phase I Boring Location
- Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

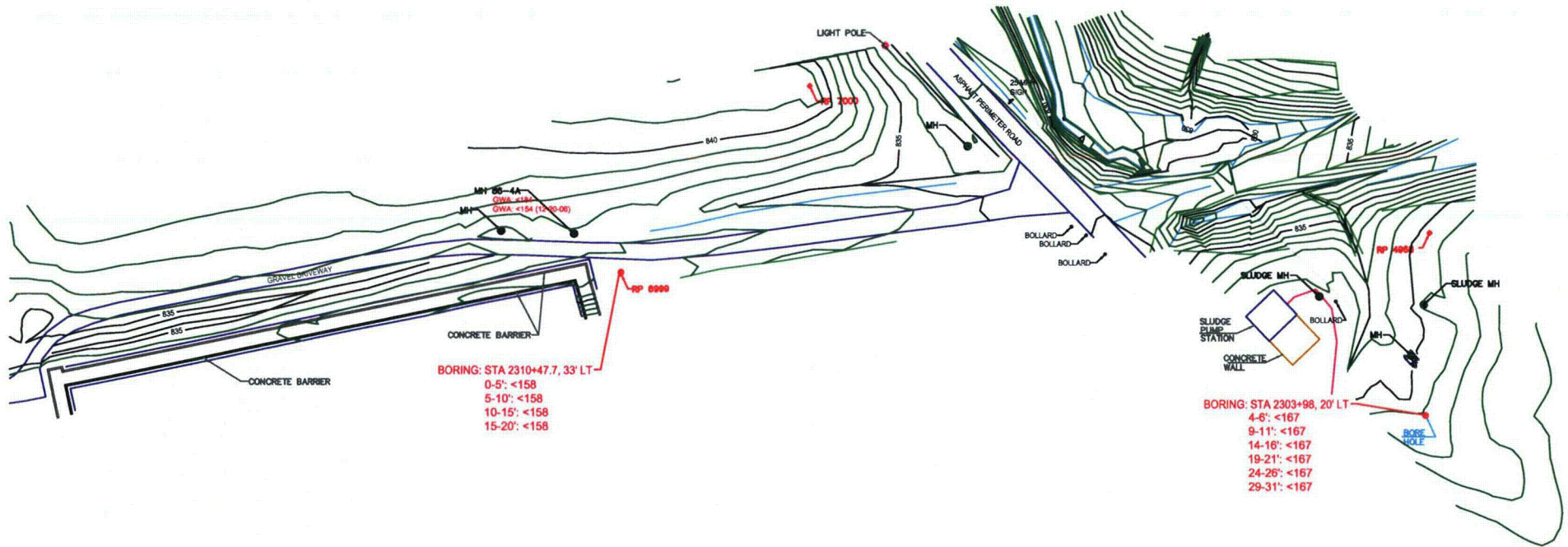
NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

**MANHOLE 86-6
 SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY**

Project Mgr:	TLB
Designed By:	JMK
Checked By:	AJW
Approved By:	JWM

Terracon
 3601 Mojave Court, Suite A
 Columbia, Missouri 65202

Project No.	09067011T
Scale:	SHOWN
Date:	3/20/2008
Drawn By:	OTHERS
Figure No.	B-15





BORING: STA 2310+47.7, 33' LT
 0-5': <158
 5-10': <158
 10-15': <158
 15-20': <158

BORING: STA 2303+98, 20' LT
 4-8': <167
 9-11': <167
 14-18': <167
 19-21': <167
 24-26': <167
 29-31': <167



Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

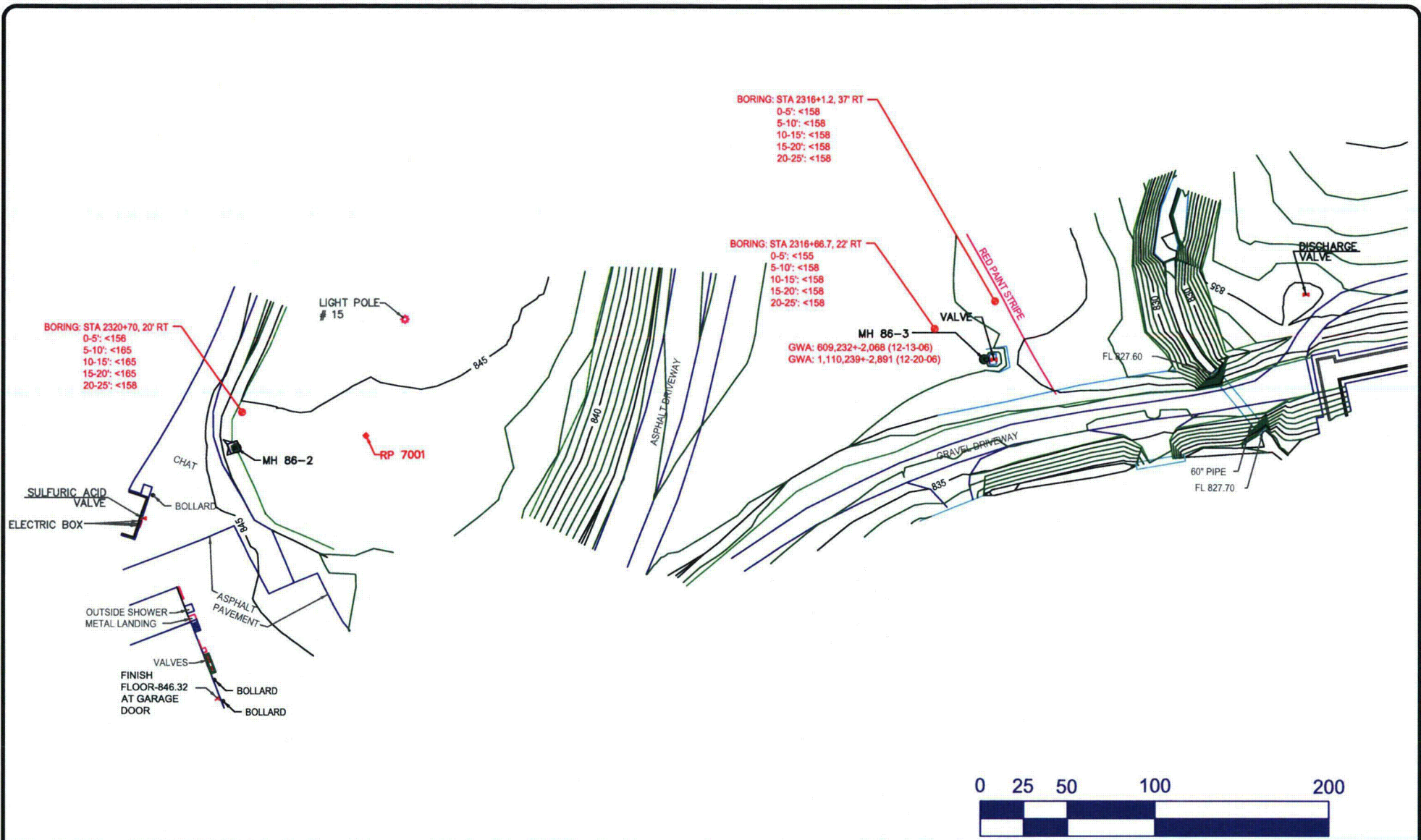
NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PUPOSES. LOCATIONS ARE APPROXIMATE

MANHOLES 86-4A & 86-5
 SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY



Project Mngr:	TLB
Designed By:	JMK
Checked By:	AJW
Approved By:	JWM

Terracon
 3601 Mojave Court, Suite A
 Columbia, Missouri 65202

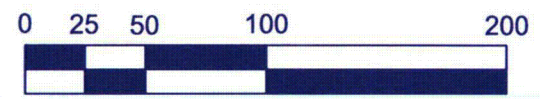
Project No.	09067011T
Scale:	SHOWN
Date:	3/20/2008
Drawn By:	OTHERS
Figure No.	B-16




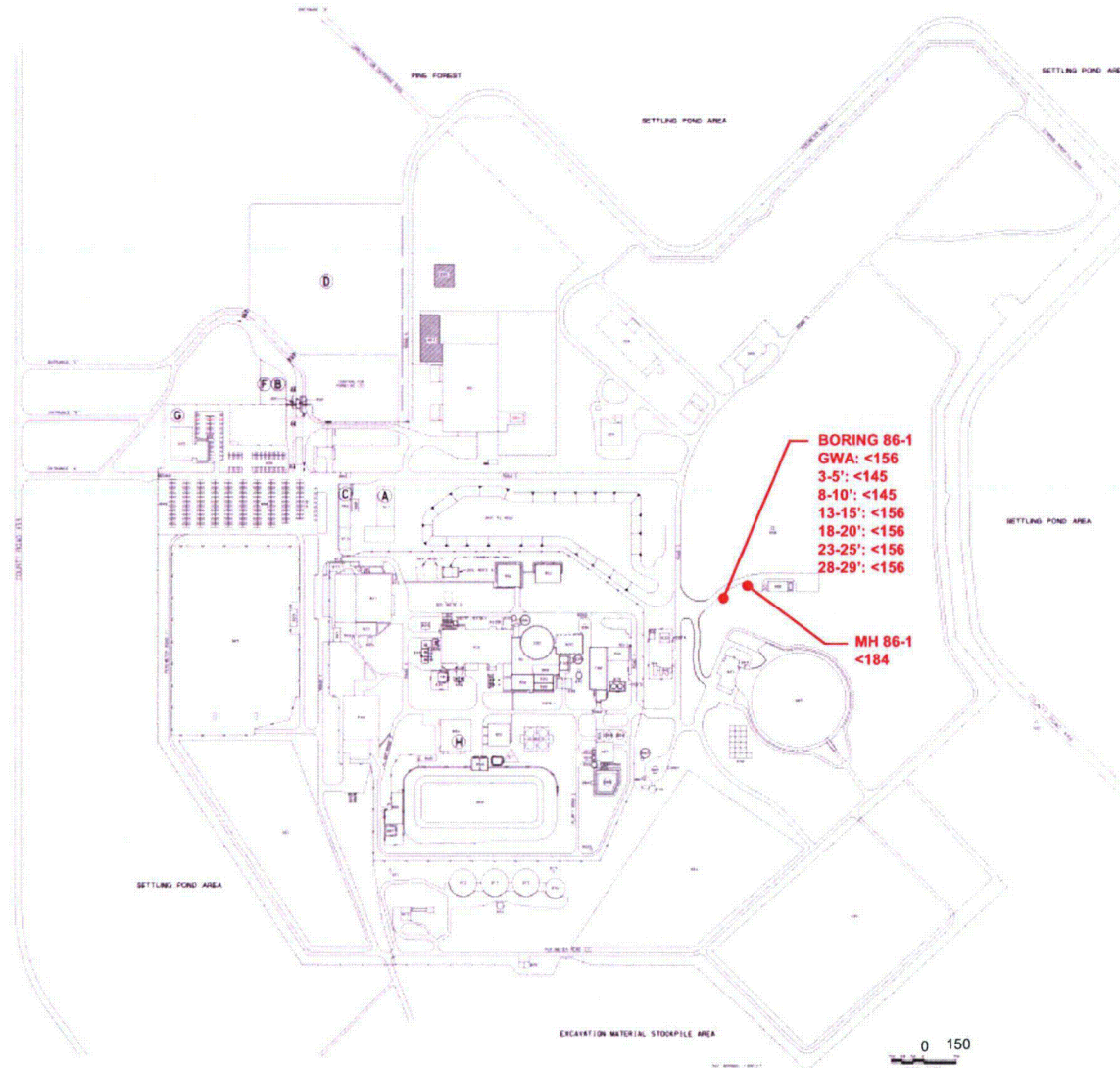
Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)



NOTES:
 1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE



MANHOLES 86-2 & 86-3 SOIL AND GROUNDWATER ANALYTICAL RESULTS DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II CALLAWAY POWER PLANT CALLAWAY COUNTY			
Project Mngr:	TLB	 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No. 09067011T
Designed By:	JMK		Scale: SHOWN
Checked By:	AJW		Date: 3/20/2008
Approved By:	JWM		Drawn By: OTHERS
			Figure No. B-17



Legend

-  Phase I Boring Location
-  Phase II Boring Location
- 174 Tritium Concentration (pCi/L)
- ND Non Detect
- GWA Groundwater Concentration (pCi/L)

NOTES:

1. DIAGRAM ADAPTED FROM PLANS SURVEYED AND GENERATED BY CENTRAL MISSOURI PROFESSIONAL SERVICES
 2. DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE

**MANHOLE 86-1
 SOIL AND GROUNDWATER ANALYTICAL RESULTS
 DISCHARGE PIPELINE MANHOLE TRITIUM INVESTIGATION - PHASE II
 CALLAWAY POWER PLANT
 CALLAWAY COUNTY**

Project Mngr:	TLB	Terracon 3601 Mojave Court, Suite A Columbia, Missouri 65202	Project No.	09067011T
Designed By:	JMK		Scale:	SHOWN
Checked By:	AJW		Date:	3/20/2008
Approved By:	JWM		Drawn By:	OTHERS
			Figure No.	B-18