Radiation Inspection Branch Environmental Monitoring Summary for 2012

January 2014

NOTE: Items within these environmental summaries have been removed due to confidential homeland security information under The Texas Public Information Act and House Bill 9, Gov. § code 418.

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Introduction

The document consists of the data collected for each monitoring point at each facility. The data are presented in the same manner as in the past. Limits of detection were not included with data in an effort to reduce the space required for data entry. A listing of expected limits of detection for various media, geometries, and radionuclides is found in the appendices. Maps of the facilities are included, but some details have been omitted. Specific information about individual facilities can be found in the license files. Redacted copies of this and previous annual reports can be found at http://www.dshs.state.tx.us/radiation/publications.shtm

All analyses of environmental media, i.e., soil, air, water, vegetation, and sewage are performed by the Texas Department of State Health Services (DSHS), Laboratory Services Section. The Laboratory Services Section operates a highly capable radio-chemistry program. Currently, the Environmental Sciences Branch participates in a program sponsored by the United States Department of Energy (USDOE), referred to as Department of Energy Laboratory Accreditation Program. It was developed by the USDOE in order to provide quality assurance and control for USDOE contractors. The most recent results of the Laboratory Services Section's performance in these "cross checks" can be found in the appendices to this document or on the internet at the following location (http://www.eml.st.dhs.gov/qap/reports/).

Landauer, Inc. performs Optimally Stimulated Luminescence (OSL) readings for the facilities that have neutron sources. Approximately 200 OSLs are exchanged and read each calendar quarter. Background is subtracted from all station readings except for Comanche Peak Nuclear Power Plant, South Texas Project, and Pantex. Background is not subtracted from these three locations because the readings identify ambient doses.

Analysis of sample data from the monitored facilities indicated no release of radioactive material to the environment that exceeded the regulatory or license limits of the DSHS or any other agency such as the United States Nuclear Regulatory Commission or the USDOE. Some of the OSL readings at a few of the monitored facilities exceeded 100 mrem for the year. All licensed facilities are required by rule to document that exposures from conducting operations do not cause doses in excess of the regulatory limits to employees or individual members of the general public. The documentation is maintained for inspection by the Radiation Branch. Licensees are allowed to use mitigating factors, such as occupancy and distance to nearest occupied areas, in demonstrating compliance with those limits. Taking into account occupancy all facilities monitored during the 2012 calendar year were found to be in compliance with radiation dose limits.

Any questions should be directed to Robert E. Free at 512-834-6770, ext. 2022 or robert.free@dshs.state.tx.us.

Robert Free

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Fixed Nuclear

Facilities

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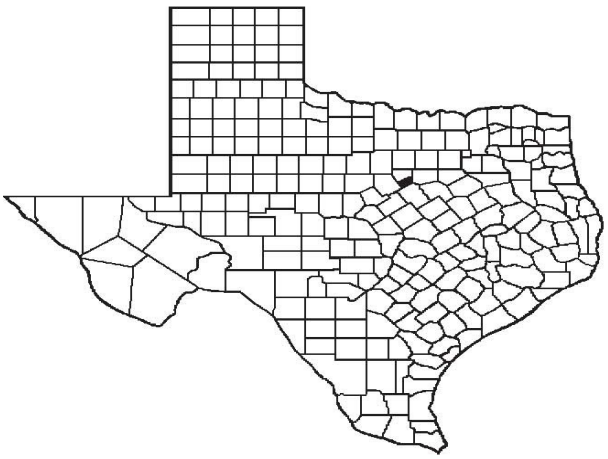
Comanche Peak Nuclear Power Plant

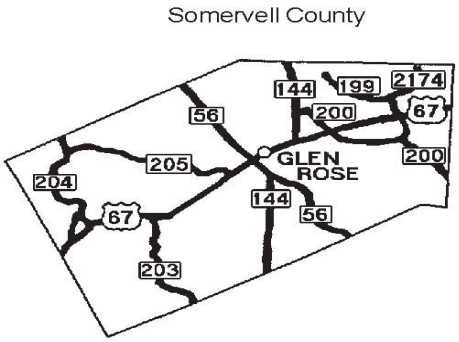
Radiation Branch Site No. 031

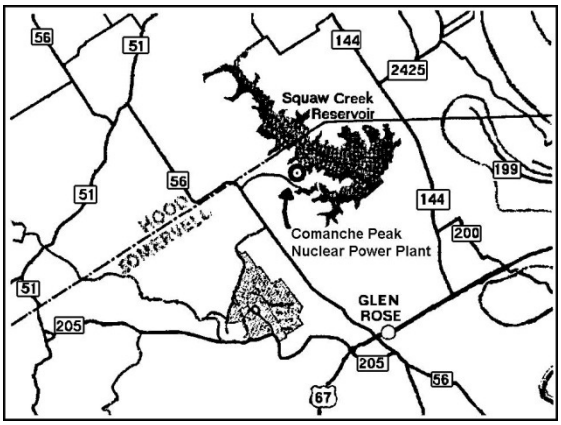
Comanche Peak Nuclear Power Plant (CPNPP) is a two-unit nuclear-fueled power plant owned and operated by Luminant Power. The plant is located in Somervell County four and one-half miles northwest of Glen Rose and approximately 80 miles southwest of downtown Dallas.

CPNPP, Luminant Power's sole nuclear power plant, with an operating capacity of 2,500 megawatts [two Westinghouse 1,250 megawatt (electric) pressurized water reactor units], began operation in 1990, although fuel had been received on-site in 1982-1983. The plant has approximately 1,300 employees. The Radiation Branch surveillance program consists of OSL monitoring and sampling air, fish, food products, sediment, vegetation, and water.



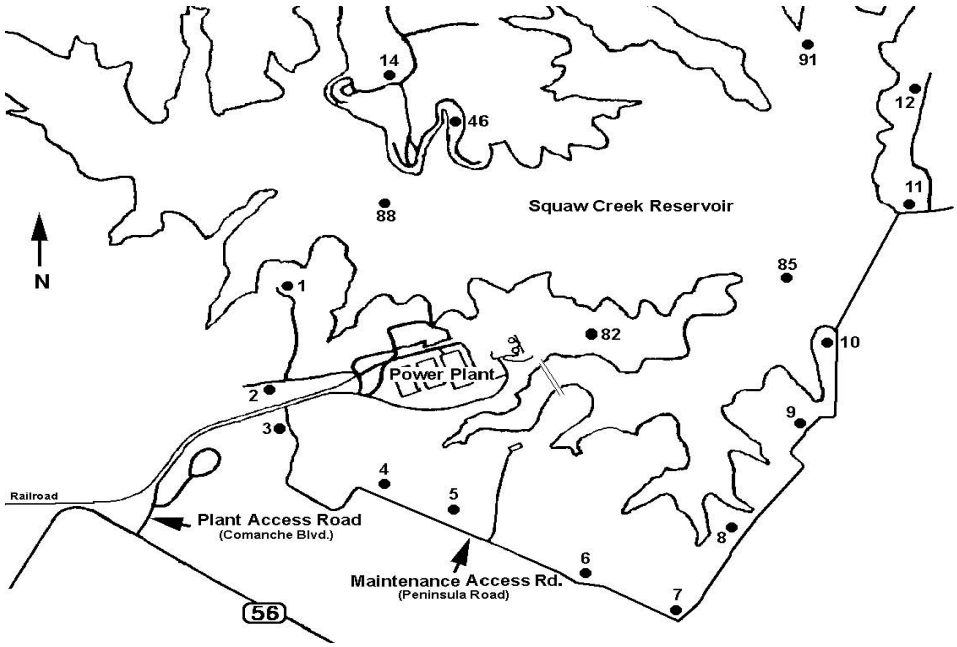
Shaded area indicates location of Somervell County

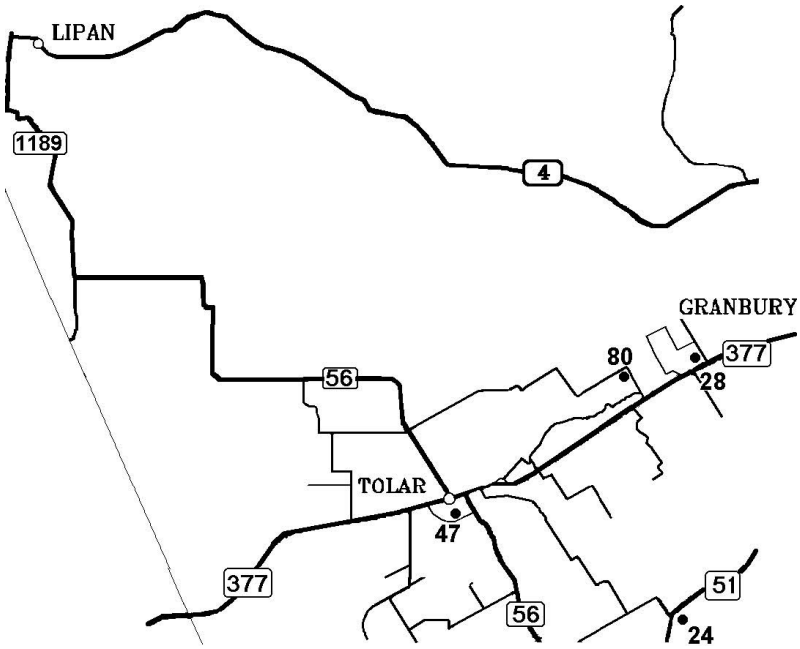




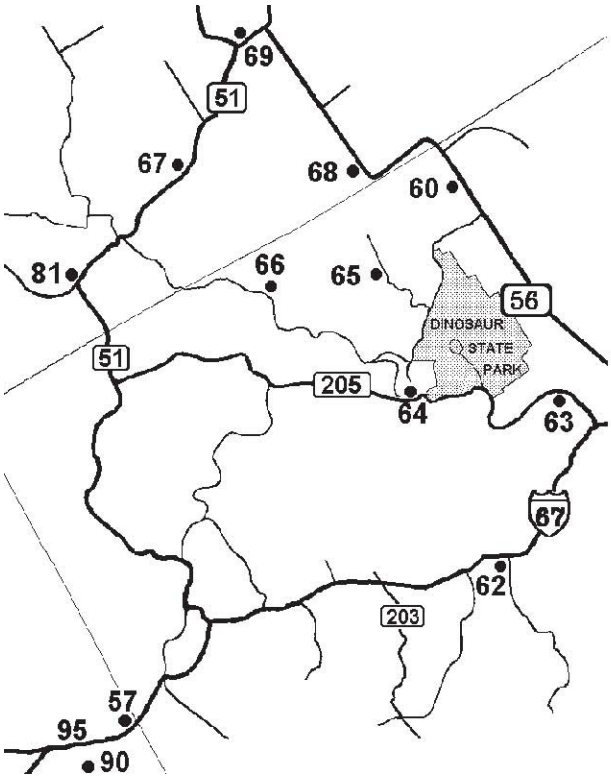
Comanche Peak Nuclear Power Plant
Monitoring Station Locations

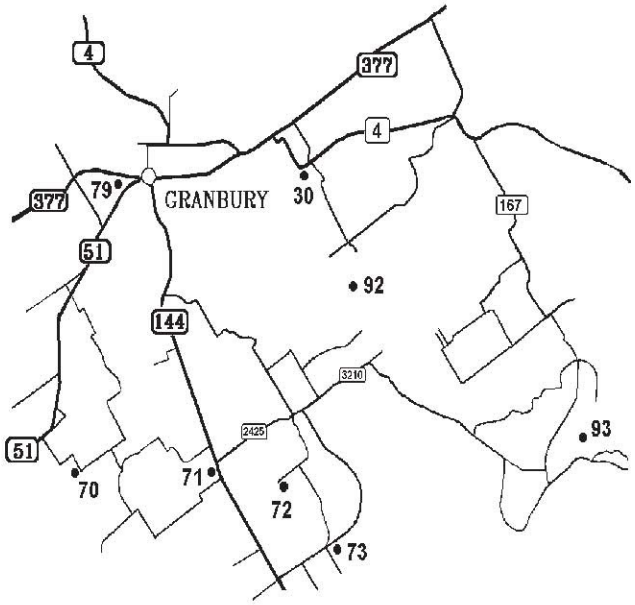
Note: Sample type not indicated on maps.

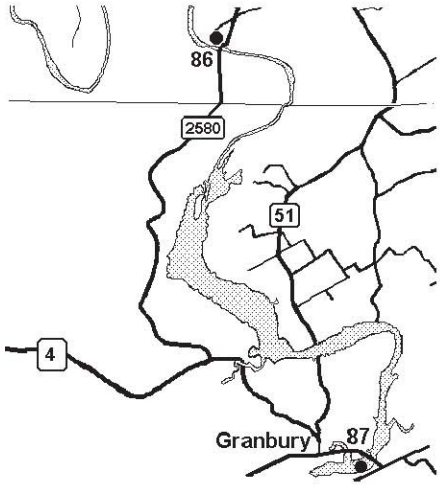


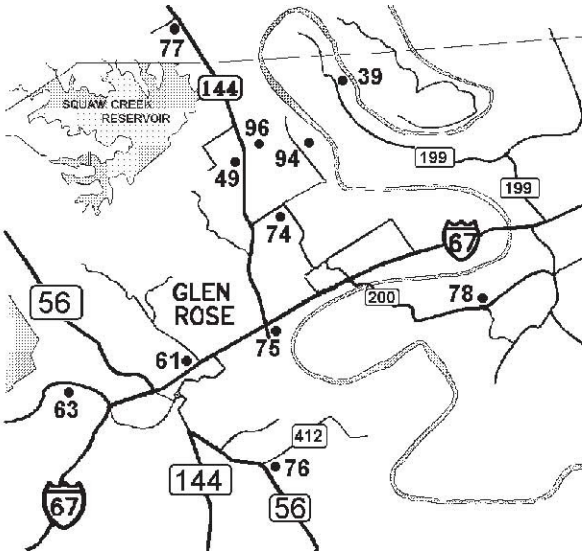


Comanche Peak Nuclear Power Plant
Monitoring Station Locations









Comanche Peak Nuclear Power Plant
Optically Stimulated Luminescence (OSL) Monitoring Results
[1](quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE	NOTES
STATION 01	30	33	43	25	131	
STATION 02	19	30	44	27	120	
STATION 03	29	32	43	23	127	
STATION 04	18	30	46	26	120	
STATION 05	30	34	46	26	136	
STATION 06	29	32	43	25	129	
STATION 07	29	32	42	24	127	
STATION 08	27	32	44	24	127	
STATION 09	31	34	45	26	136	
STATION 10	30	33	44	25	132	
STATION 11	29	33	45	24	131	
STATION 12	26	33	47	26	132	
STATION 14	19	29	43	25	116	
STATION 24	34	34	45	24	137	
STATION 28	31	34	45	27	137	
STATION 30	29	33	45	25	132	
STATION 39	29	32	42	24	127	
STATION 46	29	31	42	23	125	
STATION 47	30	34	47	26	137	
STATION 49	27	32	43	25	127	
STATION 60	30	32	44	23	129	
STATION 61	30	33	43	25	131	
STATION 62	19	29	42	26	116	
STATION 63	24	32	46	27	129	
STATION 64	18	28	41	26	113	
STATION 65	18	27	42	22	109	
STATION 66	30	33	43	25	131	
STATION 67	29	32	43	23	127	
STATION 68	30	32	43	22	127	
STATION 69	29	32	42	24	127	
STATION 70	33	33	43	23	132	
STATION 71	23	30	44	24	121	
STATION 72	32	34	45	26	137	
STATION 73	23	30	43	25	121	
STATION 74	31	33	42	25	131	
STATION 75	28	32	44	23	127	
STATION 76	31	33	43	25	132	
STATION 77	29	30	40	21	120	
STATION 78	31	33	43	24	131	
STATION 79	28	32	43	25	128	
STATION 80	32	34	43	26	135	
STATION 81	31	34	44	26	135	
STATION 82	32	33	43	25	133	

NOTE: [1]Background is not subtracted from the data

[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
Air Particulate Composite pCi/Sample														
23-Mar-12	AB82806	1	<5.8e-6	<1.8e-6	<2.1e-6	<1.9e-6	<2.1e-6	<4.4e-6	<1.7e-6	<2.4e-6	<2.0e-6	<2.0e-6	<4.4e-6	<3.3e-6
23-Mar-12	AB82807	57	<4.2e-6	<1.3e-6	<1.7e-6	<1.4e-6	<1.5e-6	<2.8e-6	<1.2e-6	<1.8e-6	<1.4e-6	<1.3e-6	<3.3e-6	<2.4e-6
12-Jul-12	AB92899	1	<5.3e-6	<1.7e-6	<2.4e-6	<1.9e-6	<1.8e-6	<4.2e-6	<1.6e-6	<2.0e-6	<1.9e-6	<1.8e-6	<4.2e-6	<3.1e-6
12-Jul-12	AB92900	57	<4.3e-6	<1.3e-6	<1.7e-6	<1.4e-6	<1.4e-6	<2.7e-6	<1.2e-6	<1.9e-6	<1.4e-6	<1.3e-6	<3.6e-6	<2.0e-6
14-Sep-12	AC00442	1	<8.0e-6	<2.1e-6	<2.7e-6	<2.4e-6	<2.4e-6	<4.6e-6	<2.3e-6	<3.1e-6	<2.3e-6	<2.3e-6	<6.1e-6	<3.7e-6
14-Sep-12	AC00443	57	<7.7e-6	<2.3e-6	<2.8e-6	<2.4e-6	<2.5e-6	<4.6e-6	<2.2e-6	<3.3e-6	<2.5e-6	<2.2e-6	<5.8e-6	<4.0e-6
17-Oct-12	AC03189	1	<1.2e-5	<3.4e-6	<4.2e-6	<3.4e-6	<3.8e-8	<6.6e-6	<3.1e-6	<4.3e-6	<3.7e-6	<3.5e-6	<8.3e-6	<6.0e-6
17-Oct-12	AC03190	57	<7.5E-6	<2.2E-6	<2.9E-6	<2.4E-6	<2.6E-6	<4.9E-6	<2.3E-6	<3.0E-6	<2.4E-6	<2.3E-6	<5.7E-6	<4.0E-6
Food Product pCi/kg														
13-Nov-12	AC05219	093	<3.3e-8	<8.5e-9	<1.1e-8	<9.2e-9	<9.4e-9	<2.0e-8	<9.5e-9	<1.2e-8	<8.9e-9	<9.0e-9	<2.2e-8	<1.6e-8
Fish pCi/kg														
04-Mar-12	AB87413	092	<1.62e-7	<6.3e-9	<5.0e-9	<4.1e-9	<4.3e-9	<2.2e-8	<2.09e-7	<3.9e-8	<4.6e-9	<9.8e-9	<1.4e-8	<1.2e-8
17-Apr-12	AB87412	091	<9.6e-8	<4.9e-9	<4.2e-9	<3.3e-9	<3.7e-9	<1.5e-8	<9.9e-8	<2.4e-8	<3.8e-9	<7.2e-9	<9.9e-9	<8.8e-9
14-Sep-12	AC02620	092	<4.6e-8	<5.4e-9	<5.8e-9	<4.7e-9	<5.1e-9	<1.3e-8	<2.6e-8	<1.5e-8	<4.7e-9	<6.7e-9	<1.3e-8	<9.8e-9
16-Sep-12	AC02619	091	<4.4e-8	<5.7e-9	<5.6e-9	<4.6e-9	<5.2e-9	<1.4e-8	<2.2e-8	<1.3e-8	<5.3e-9	<6.6e-9	<1.3e-8	<1.1e-8
Sediment pCi/kg														
10-Jul-12	AB95269	088	<8.0e-8	<2.1e-8	<2.3e-8	<2.6e-8	<2.3e-8	<4.5e-8	<2.4e-8	<3.2e-8	<1.8e-8	<2.9e-8	<7.1e-8	<3.8e-8
Vegetation for Milk pCi/kg														
31-Jan-12	AB79900	014	<1.07e-7	<2.3e-8	<2.4e-8	<2.5e-8	<2.6e-8	<4.2e-8	<4.2e-8	<3.2e-8	<2.3e-8	<2.5e-8	<4.8e-8	<4.1e-8
28-Feb-12	AB82469	014	<3.2e-8	<6.7e-9	<7.7e-9	<6.8e-9	<7.4e-9	<1.7e-9	<1.2e-8	<9.0e-9	<6.8e-9	<7.4e-9	<1.8e-8	<1.3e-8
27-Mar-12	AB85455	014	<3.8e-8	<8.9e-9	<9.6e-9	<8.4e-9	<8.9e-9	<2.0e-8	<1.4e-8	<1.1e-8	<8.9e-9	<9.4e-9	<2.1e-8	<1.6e-8
27-Mar-12	AB85456	090	<3.3e-8	<7.5e-9	<8.7e-9	<7.3e-9	<7.6e-9	<1.9e-8	<1.3e-8	<9.1e-9	<7.1e-9	<7.8e-9	<2.0e-8	<1.3e-8
27-Mar-12	AB88058	014	<5.9e-8	<1.4e-8	<1.7e-8	<1.6e-8	<1.6e-8	<3.1e-8	<2.0e-8	<1.9e-8	<1.5e-8	<1.6e-8	<3.6e-8	<2.7e-8

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
29-May-12	AB91362	014	<3.2e-8	<7.3e-9	<7.6e-9	<6.9e-9	<7.6e-9	<1.5e-8	<1.2e-8	<1.1e-8	<7.2e-9	<7.8e-9	<1.6e-8	<1.3e-8
26-Jun-12	AB93986	014	<7.7e-8	<1.6e-8	<1.9e-8	<1.6e-8	<1.7e-8	<3.9e-8	<2.8e-8	<2.1e-8	<1.7e-8	<1.9e-8	<4.2e-8	<2.9e-8
26-Jun-12	AB93987	090	<6.7e-8	<1.4e-8	<1.3e-8	<1.3e-8	<1.4e-8	<2.7e-8	<2.8e-8	<2.1e-8	<1.2e-8	<1.4e-8	<2.8e-8	<2.4e-8
28-Aug-12	AB99809	014	<9.8e-8	<1.8e-8	<2.0e-8	<1.9e-8	<1.9e-8	<4.0e-8	<4.1e-8	<2.8e-8	<1.7e-8	<2.0e-8	<4.1e-8	<3.1e-8
25-Sep-12	AC02037	014	<6.9e-8	<1.5e-8	<1.6e-8	<1.4e-8	<1.6e-8	<3.2e-8	<2.6e-8	<1.7e-8	<1.5e-8	<1.6e-8	<3.4e-8	<2.7e-8
25-Sep-12	AC02038	090	<6.5e-8	<1.3e-8	<1.5e-8	<1.4e-8	<1.4e-8	<2.9e-8	<2.5e-8	<2.0e-8	<1.3e-8	<1.5e-8	<3.3e-8	<2.3e-8
30-Oct-12	AC04342	014	<8.6e-8	<1.8e-8	<1.9e-8	<1.8e-8	<2.0e-8	<3.7e-8	<3.2e-8	<2.7e-8	<1.9e-8	<2.0e-8	<3.9e-8	<3.2e-8
27-Nov-12	AC05850	014	<1.10e-7	<1.8e-8	<1.9e-8	<1.7e-8	<1.7e-8	<4.3e-8	<4.6e-8	<3.2e-8	<1.6e-8	<2.0e-8	<4.2e-8	<3.0e-8

Date	Lab No	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	H-3	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
Water-Surface pCi/l																
31-Jan-12	AB79894	085	1.7e-8	<8.2e-9	<2.0e-9	<2.1e-9	<2.1e-9	<2.2e-9	<3.9e-9		<2.9e-9	<2.7e-9	<1.9e-9	<1.9e-9	<3.9e-9	<3.4e-9
31-Jan-12	AB79895	086	5.7e-9	<9.4e-9	<1.8e-9	<1.9e-9	<2.0e-9	<2.2e-9	<4.1e-9		<3.6e-9	<3.3e-9	<1.9e-9	<2.1e-9	<4.4e-9	<3.6e-9
28-Feb-12	AB82467	086	4.1e-9	<1.1e-8	<2.3e-9	<2.3e-9	<2.3e-9	<2.5e-9	<4.1e-9		<3.7e-9	<3.1e-9	<2.2e-9	<2.4e-9	<4.5e-9	<3.8e-9
28-Feb-12	AB82468	085	1.3e-8	<9.4e-9	<1.9e-9	<2.1e-9	<2.0e-9	<2.2e-9	<4.3e-9		<3.6e-9	<3.2e-9	<2.0e-9	<2.1e-9	<4.3e-9	<3.5e-9
27-Mar-12	AB85457	086	5.0e-9	<9.0e-9	<2.2e-9	<2.3e-9	<2.3e-9	<2.5e-9	<4.2e-9		<2.9e-9	<2.7e-9	<2.2e-9	<2.3e-9	<4.5e-9	<3.8e-9
27-Mar-12	AB85458	085	1.2e-8	<8.1e-9	<2.0e-9	<2.1e-9	<2.0e-9	<2.1e-9	<4.2e-9		<2.8e-9	<2.9e-9	<2.0e-9	<2.0e-9	<4.3e-9	<3.2e-9
27-Mar-12	AB88059	086	7.3e-9	<8.5e-9	<2.3e-9	<2.2e-9	<2.3e-9	<2.5e-9	<3.9e-9		<2.7e-9	<2.7e-9	<2.3e-9	<2.2e-9	<4.4e-9	<3.7e-9
27-Mar-12	AB88060	085	1.6e-8	<8.9e-9	<2.2e-9	<2.3e-9	<2.3e-9	<2.5e-9	<4.1e-9		<2.9e-9	<2.7e-9	<2.3e-9	<2.3e-9	<4.6e-9	<3.9e-9
29-May-12	AB91363	085	1.8e-8	<8.5e-9	<2.2e-9	<2.3e-9	<2.3e-9	<2.5e-9	<4.0e-9		<2.7e-9	<2.6e-9	<2.2e-9	<2.2e-9	<4.3e-9	<3.8e-9
29-May-12	AB91364	086	7.9e-9	<7.7e-9	<1.9e-9	<2.2e-9	<2.0e-9	<2.0e-9	<3.9e-9		<2.6e-9	<2.5e-9	<2.0e-9	<2.0e-9	<4.1e-9	<3.4e-9
26-Jun-12	AB93984	086	6.3e-9	<8.9e-9	<2.3e-9	<2.3e-9	<2.3e-9	<2.4e-9	<4.1e-9		<3.0e-9	<2.8e-9	<2.2e-9	<2.3e-9	<4.6e-9	<3.8e-9
26-Jun-12	AB93985	085	1.8e-8	<7.9e-9	<1.8e-9	<2.0e-9	<2.0e-9	<2.2e-9	<4.0e-9		<2.8e-9	<2.9e-9	<1.8e-9	<2.0e-9	<4.4e-9	<3.4e-9
31-Jul-12	AB96709	085	2.5e-8	<8.0e-9	<2.2e-9	<2.3e-9	<2.3e-9	<2.4e-9	<4.0e-9		<2.5e-9	<2.5e-9	<2.2e-9	<2.2e-9	<4.5e-9	<3.7e-9
31-Jul-12	AB96710	086	9.4e-9	<7.0e-9	<1.9e-9	<2.1e-9	<2.0e-9	<2.2e-9	<4.2e-9		<2.3e-9	<2.5e-9	<1.8e-9	<1.9e-9	<4.3e-9	<3.3e-9

Date	Lab No.	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	H3	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
28-Aug-12	AB99808	086	8.7e-9	<1.1e-8	<1.8e-9	<2.0e-9	<2.0e-9	<2.0e-9	<4.1e-9		<3.8e-9	<3.4e-9	<1.9e-9	<2.1e-9	<4.1e-9	<3.2e-9
25-Sep-12	AC02039	086	7.1e-9	<6.0e-9	<1.4e-9	<1.6e-9	<1.6e-9	<1.6e-9	<3.0e-9		<2.0e-9	<1.9e-9	<1.5e-9	<1.6e-9	<3.4e-9	<2.6e-9
25-Sep-12	AC02040	085	1.8e-8	<8.8e-9	<2.1e-9	<2.3e-9	<2.1e-9	<2.4e-9	<4.1e-9		<2.9e-9	<2.7e-9	<2.2e-9	<2.3e-9	<4.5e-9	<3.8e-9
30-Oct-12	AC04340	085	1.4e-8	<8.4e-9	<2.1e-9	<2.2e-9	<2.2e-9	<2.5e-9	<3.9e-9		<2.7e-7	<2.5e-9	<2.3e-9	<2.2e-9	<4.4e-9	<3.8e-9
30-Oct-12	AC04341	086	5.9e-9	<7.2e-9	<1.9e-9	<2.2e-9	<2.1e-9	<2.2e-9	<4.1e-9		<2.5e-9	<2.7e-9	<1.8e-9	<2.0e-9	<4.1e-9	<3.2e-9
27-Nov-12	AC05848	086	6.8e-9	<1.2e-8	<2.1e-9	<2.0e-9	<2.0e-9	<2.1e-9	<4.7e-9		<4.8e-9	<4.1e-9	<2.0e-9	<2.4e-9	<4.6e-9	<3.5e-9
27-Nov-12	AC05849	085	1.1e-8	<1.2e-8	<1.9e-9	<2.0e-9	<2.0e-9	<2.0e-9	<4.3e-9		<4.6e-9	<3.7e-9	<1.9e-9	<2.3e-9	<4.4e-9	<3.6e-9
25-Dec-12	AC07299	085	1.2e-8	<7.8e-9	<1.5e-9	<1.6e-9	<1.6e-9	<1.7e-9	<3.5e-9		<3.1e-9	<2.8e-9	<1.5e-9	<1.9e-9	<3.4e-9	<2.9e-9
25-Dec-12	AC07300	086	7.3e-9	<1.1e-8	<2.0e-9	<2.0e-9	<2.1e-9	<2.1e-9	<4.1e-9		<3.9e-9	<3.6e-9	<1.8e-9	<2.1e-9	<4.4e-9	<3.4e-9
23-Mar-12	AB82813	86								<1.0e-6						
12-Jul-12	AB92905	85								1.31e-5						
12-Jul-12	AB92906	86								<1.0e-6						
10-Sep-12	AC00440	85								1.52e-15						
10-Sep-12	AC00441	86								<1.0e-6						
15-Oct-12	AC03195	85								1.48e-5						
15-Oct-12	AC03196	86								<1.0e-6						

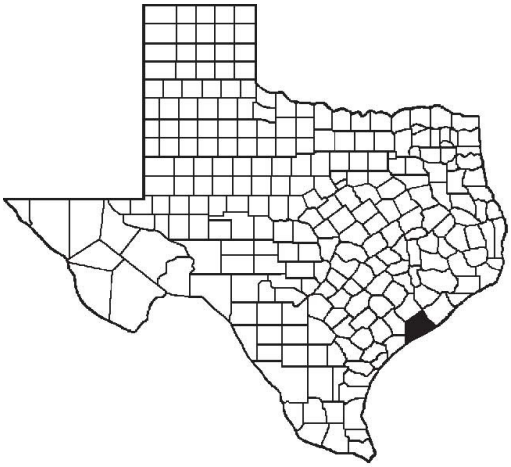
*NOTE: * indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.*
***Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in UCi/ml*

South Texas Project

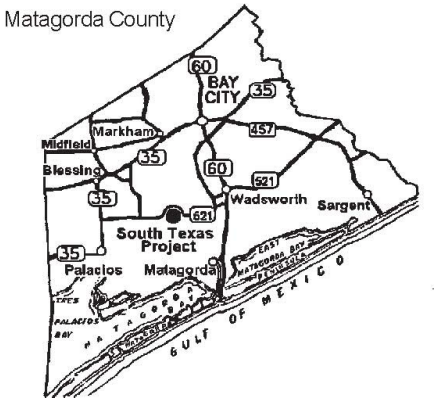
Radiation Branch Site No. 012

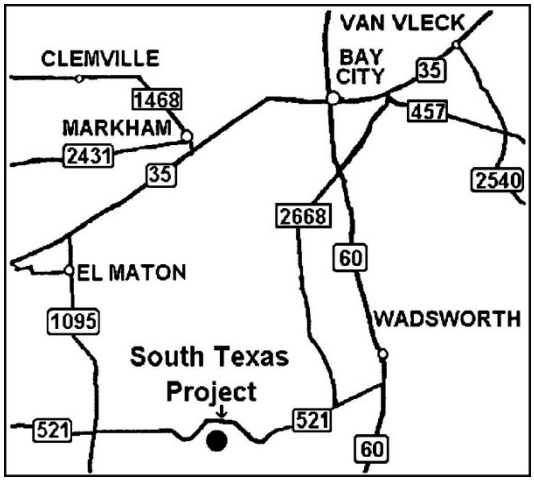
The South Texas Project (STP) is a commercial nuclear power plant operated by STP Nuclear Operating Company and is located 89 miles southwest of Houston and 14 miles south-southwest of Bay City. Two 1250 megawatt (electric) Westinghouse pressurized water nuclear reactors are in operation at the site. Unit 1 became operational in August of 1988 and Unit 2 in June of 1989.

STP Nuclear Operating Company is owned by NRG Energy, Austin Energy, and City Public Service of San Antonio. STP Nuclear Operating Company manages and operates the plant for its owners, who share its energy in proportion to their ownership interest. The Radiation Branch surveillance program consists of OSL monitoring and sampling air, fish, food products, sediment, vegetation, and water.

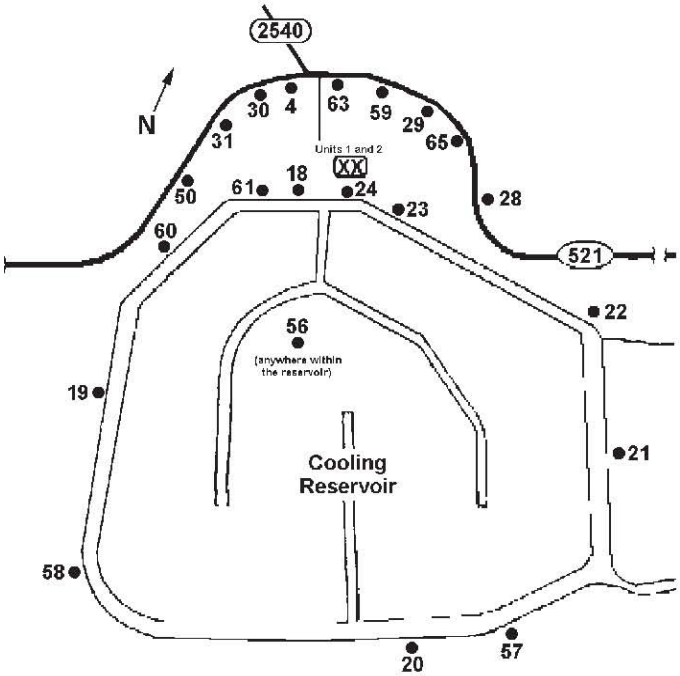


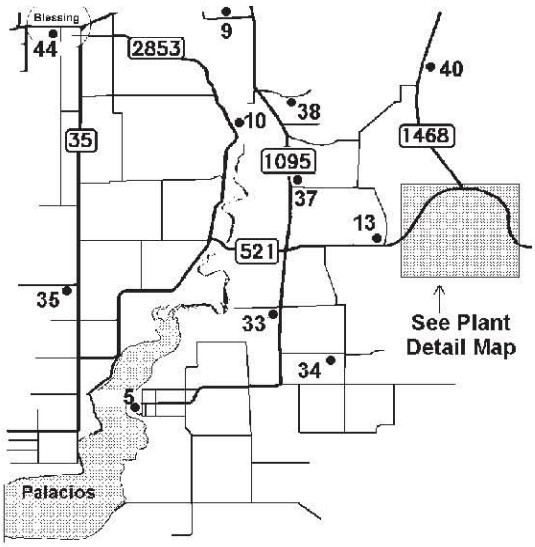
Shaded area indicates location of Matagorda County

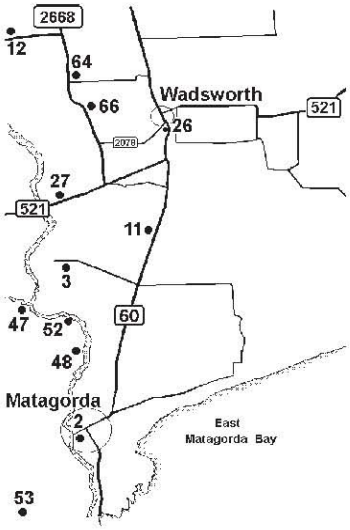


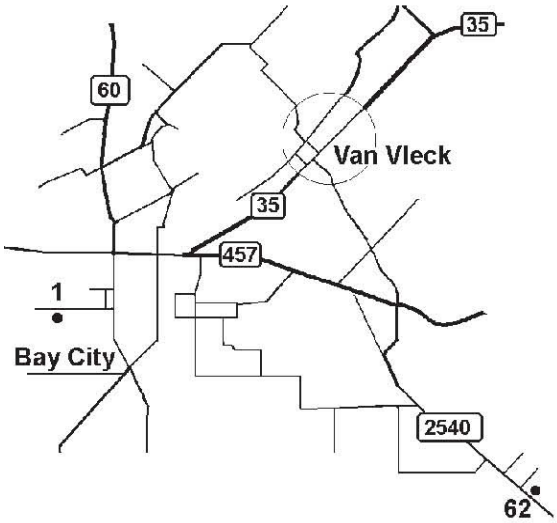


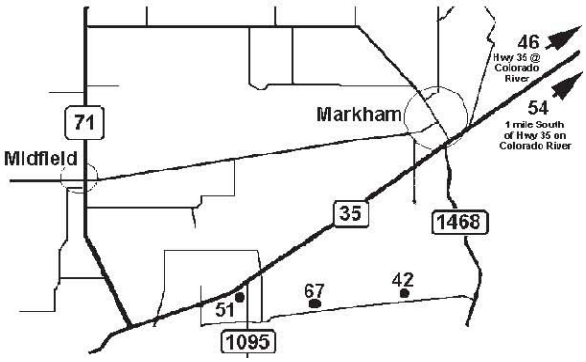
South Texas Project
Monitoring Station Locations











Note: Sample type not indicated on maps.

South Texas Project
Optically Stimulated Luminescence (OSL) Monitoring Results
[1](quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE	NOTES
STATION 01	31	33	43	25	132	
STATION 02	37	36	45	26	144	
STATION 03	38	36	45	25	144	
STATION 04	39	37	44	27	147	
STATION 05	29	32	44	23	128	
STATION 09	42	37	44	24	147	
STATION 10	19	29	43	25	116	
STATION 11	30	33	42	28	133	
STATION 12	27	32	44	26	129	
STATION 13	29	33	43	26	131	
STATION 18	24	30	43	23	120	
STATION 19	30	33	43	25	131	
STATION 20	29	32	42	24	127	
STATION 21	29	31	42	23	125	
STATION 22	30	33	44	25	132	
STATION 23	31	32	43	23	129	
STATION 24	30	33	44	25	132	
STATION 26	29	31	41	23	124	
STATION 27	29	32	42	25	128	
STATION 28	27	32	44	26	129	
STATION 29	31	35	46	27	139	
STATION 30	29	33	45	26	133	
STATION 31	26	34	47	30	137	
STATION 33	19	29	43	25	116	
STATION 34	30	33	44	26	133	
STATION 35	34	36	47	26	143	
STATION 37	18	30	45	26	119	
STATION 38	18	29	43	25	115	
STATION 40	29	32	43	24	128	
STATION 41	23	36	52	34	145	
STATION 42	33	33	44	23	133	
STATION 50	32	36	48	29	145	
STATION 51	30	34	47	26	137	
STATION 57	30	36	43	---	146	[2]Q4-OSL Missing
STATION 58	23	30	42	24	119	
STATION 59	29	34	46	27	136	
STATION 60	----	34	44	25	138	[2]Q1-OSL Missing
STATION 61	31	32	41	23	127	
STATION 62	31	35	46	29	141	
STATION 63	29	33	44	26	132	
STATION 64	31	33	44	25	133	
STATION 65	28	33	44	27	132	
STATION 66	31	34	47	25	137	
STATION 67	32	35	45	27	139	

NOTE: [1]Background is not subtracted from the data

[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
Air Particulate Composite pCi/Sample														
23-Mar-12	AB82808	30	<4.1e-6	<1.3e-6	<1.7e-6	<1.5e-6	<1.4e-6	<2.8e-6	<1.2e-6	<1.9e-6	<1.3e-6	<1.3e-6	<3.5e-6	<2.3e-6
23-Mar-12	AB82809	35	<5.8e-6	<1.8e-6	<2.2e-6	<2.0e-6	<2.0e-6	<3.8e-6	<1.7e-6	<2.7e-6	<1.8e-6	<1.9e-6	<5.0e-6	<3.1e-6
12-Jul-12	AB92901	30	<1.2e-5	<3.6e-6	<4.2e-6	<3.6e-6	<4.0e-6	<7.0e-6	<3.2e-6	<4.1e-6	<3.6e-6	<3.6e-6	<7.9e-6	<6.3e-6
12-Jul-12	AB92902	35	<8.7e-6	<2.1e-6	<2.8e-6	<2.4e-6	<2.5e-6	<4.7e-6	<2.3e-6	<2.9e-6	<2.3e-6	<2.3e-6	<5.8e-6	<4.0e-6
14-Sep-12	AC00444	30	<1.2e-5	<3.4e-6	<4.2e-6	<3.6e-6	<3.9e-6	<6.5e-6	<3.1e-6	<4.2e-6	<3.7e-6	<3.4e-6	<7.4e-6	<6.0e-6
14-Sep-12	AC00445	35	<7.9e-6	<2.2e-6	<2.7e-6	<2.3e-6	<2.6e-6	<4.8e-6	<2.2e-6	<3.2e-6	<2.2e-6	<2.3e-6	<5.8e-6	<3.9e-6
17-Oct-12	AC03191	30	<5.6e-6	<1.7e-6	<2.0e-6	<2.0e-6	<1.9e-6	<3.3e-6	<1.6e-6	<2.1e-6	<2.0e-6	<1.7e-6	<4.4e-6	<3.0e-6
17-Oct-12	AC03192	35	<4.2e-6	<1.3e-6	<1.6e-6	<1.4e-6	<1.3e-6	<2.8e-6	<1.2e-6	<1.7e-6	<1.3e-6	<1.3e-6	<3.2e-6	<2.2e-6
Food Product pCi/kg														
19-Jun-12	AB93401	035	<3.5e-8	<9.0e-9	<1.1e-8	<9.0e-9	<9.7e-9	<2.1e-8	<1.1e-8	<9.5e-9	<9.3e-9	<9.5e-9	<2.3e-8	<1.6e-8
19-Jun-12	AB93402	004	<5.3e-8	<1.2e-8	<1.5e-8	<1.5e-8	<1.5e-8	<3.0e-8	<1.8e-8	<1.6e-8	<1.4e-8	<1.4e-8	<3.2e-8	<2.4e-8
27-Sep-12	AC02390	035	<6.7e-8	<1.5e-8	<1.6e-8	<1.5e-8	<1.7e-8	<3.1e-8	<2.4e-8	<2.0e-8	<1.6e-8	<1.6e-8	<3.4e-8	<2.8e-8
27-Sep-12	AC02391	030	<4.8e-8	<1.1e-8	<1.3e-8	<1.1e-8	<1.1e-8	<2.6e-8	<1.8e-8	<1.2e-8	<1.1e-8	<1.2e-8	<2.7e-8	<1.9e-8
18-Dec-12	AC07228	035	<1.29e-7	<1.7e-8	<1.6e-8	<1.7e-8	<1.7e-8	<4.2e-8	<6.5e-8	<3.7e-8	<1.7e-8	<2.1e-8	<4.0e-8	<3.3e-8
18-Dec-12	AC07229	004	<2.43e-7	<2.4e-8	<2.6e-8	<2.3e-8	<2.3e-8	<6.3e-8	<1.37e-7	<6.3e-8	<2.2e-8	<3.2e-8	<5.5e-8	<4.5e-8
Fish pCi/kg														
12-Jun-12	AB92880	053	<4.3e-8	<8.0e-9	<9.7e-9	<8.9e-9	<8.7e-9	<2.0e-8	<1.4e-8	<1.3e-8	<8.6e-9	<9.1e-9	<2.0e-8	<1.6e-8
14-Nov-12	AC05467	53	<1.03e-7	<1.6e-8	<1.8e-8	<1.6e-8	<1.7e-8	<3.9e-8	<4.7e-8	<3.1e-8	<1.5e-8	<1.8e-8	<3.7e-8	<2.9e-8
24-May-12	AB91141	052	<2.31e-7	<4.6e-8	<5.3e-8	<5.5e-8	<5.5e-8	<9.9e-8	<7.3e-8	<6.9e-8	<4.8e-8	<5.3e-8	<1.57e-7	<8.2e-8
Sediment pCi/kg														
24-May-12	AB91141	052	<2.31e-7	<4.6e-8	<5.3e-8	<5.5e-8	<5.5e-8	<9.9e-8	<7.3e-8	<6.9e-8	<4.8e-8	<5.3e-8	<1.57e-7	<8.2e-8

Vegetation for Milk pCi/kg

Date	Lab No	Station	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
27-Mar-12	AB85450	030	<2.4e-8	<5.3e-9	<5.7e-9	<5.0e-9	<5.6e-9	<1.4e-8	<8.1e-9	<6.1e-9	<5.1e-9	<5.9e-9	<1.4e-8	<9.3e-9
30-Apr-12	AB88588	004	<2.8e-8	<6.8e-9	<7.2e-9	<6.8e-9	<6.9e-9	<1.6e-8	<8.9e-9	<7.3e-9	<6.7e-9	<6.9e-9	<1.7e-9	<1.3e-8
05-Jun-12	AB91870	063	<5.2e-8	<1.4e-8	<1.6e-8	<1.4e-8	<1.5e-8	<2.8e-8	<1.6e-8	<1.5e-8	<1.4e-8	<1.5e-8	<3.3e-8	<2.4e-8
25-Jul-12	AB96386	004	<3.8e-8	<1.1e-8	<1.3e-8	<9.9e-9	<1.1e-8	<2.5e-8	<1.2e-8	<1.1e-8	<1.1e-8	<1.1e-8	<2.9e-8	<1.8e-8
28-Aug-12	AB99879	030	<7.6e-8	<1.4e-8	<1.5e-8	<1.4e-8	<1.5e-8	<3.3e-8	<3.1e-8	<2.3e-8	<1.4e-8	<1.6e-8	<3.6e-8	<2.4e-8
25-Sep-12	AC02285	030	<3.3e-8	<7.2e-9	<8.3e-9	<7.3e-9	<7.5e-9	<1.9e-8	<1.2e-9	<9.8e-9	<6.8e-9	<7.4e-9	<2.0e-8	<1.4e-9
30-Oct-12	AC04442	030	<4.3e-8	<9.1e-9	<1.1e-8	<8.6e-9	<9.1e-9	<2.4e-8	<1.6e-8	<1.2e-8	<8.6e-9	<1.1e-8	<2.5e-8	<1.7e-7
20-Nov-12	AC05505	4	<3.2e-8	<6.9e-9	<8.0e-9	<6.6e-9	<6.9e-9	<1.8e-8	<1.1e-8	<8.3e-9	<6.7e-9	<7.1e-9	<1.9e-8	<1.2e-8
18-Dec-12	AC07230	030	<9.4e-8	<9.9e-9	<1.1e-8	<8.6e-9	<8.7e-9	<2.9e-8	<5.6e-8	<2.8e-8	<8.3e-9	<1.3e-8	<2.5e-8	<1.9e-8

Water-Surface pCi/l

Date	Lab No	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
31-Jan-12	AB79893	052	6.5e-8	<9.3e-9	<2.3e-9	<2.3e-9	<2.3e-9	<2.5e-9	<4.3e-9	<3.2e-9	<2.7e-9	<2.3e-9	<2.4e-9	<4.4e-9	<3.9e-9
07-Feb-12	AB80658	054	8.1e-9	<9.8e-9	<2.0e-9	<2.1e-9	<2.0e-9	<2.1e-9	<4.5e-9	<3.9e-9	<3.4e-9	<1.9e-9	<2.2e-9	<4.4e-9	<3.2e-9
23-Feb-12	AB82033	052	1.3e-8	<9.9e-9	<2.2e-9	<2.4e-9	<2.3e-9	<2.5e-9	<4.4e-9	<3.5e-9	<3.0e-9	<2.3e-9	<2.3e-9	<4.4e-9	<3.9e-9
13-Mar-12	AB83993	046	2.1e-8	<5.9e-9	<1.5e-9	<1.5e-9	<1.6e-9	<1.7e-9	<3.0e-9	<1.9e-9	<2.0e-9	<1.5e-9	<1.6e-9	<3.4e-9	<2.6e-9
02-Apr-12	AB85791	052	1.7e-8	<8.5e-9	<2.1e-9	<2.3e-9	<2.3e-9	<2.4e-9	<4.1e-9	<2.7e-9	<2.5e-9	<2.2e-9	<2.3e-9	<4.7e-9	<3.9e-9
10-Apr-12	AB86759	046	5.0e-9	<8.2e-9	<2.3e-9	<2.3e-9	<2.3e-9	<2.4e-9	<4.1e-9	<2.8e-9	<2.5e-9	<2.2e-9	<2.3e-9	<4.5e-9	<3.8e-9
26-Apr-12	AB88428	052	2.0e-8	<9.2e-9	<1.9e-9	<2.1e-9	<2.1e-9	<2.2e-9	<4.2e-9	<3.2e-9	<3.0e-9	<1.9e-9	<2.0e-9	<4.2e-9	<3.4e-9
08-May-12	AB89526	054	5.6e-9	<8.2e-9	<1.8e-9	<2.1e-9	<2.0e-9	<2.1e-9	<4.1e-9	<2.8e-9	<2.7e-9	<1.8e-9	<2.1e-9	<3.9e-9	<3.4e-9
24-May-12	AB91140	052	3.9e-8	<1.1e-8	<2.3e-9	<2.3e-9	<2.3e-9	<2.4e-9	<4.1e-9	<3.8e-9	<3.4e-9	<2.2e-9	<2.4e-9	<4.5e-9	<4.0e-9
12-Jun-12	AB92879	054	6.4e-9	<1.6e-8	<2.6e-9	<2.3e-9	<2.3e-9	<2.5e-9	<4.8e-9	<7.4e-9	<5.2e-9	<2.2e-9	<2.8e-9	<4.5e-9	<4.4e-9
20-Jun-12	AB93544	052	4.9e-8	<9.5e-9	<2.0e-9	<2.1e-9	<2.1e-9	<2.3e-9	<4.2e-9	<3.5e-9	<3.2e-8	<1.9e-9	<2.2e-9	<4.5e-9	<3.6e-9
17-Jul-12	AB95880	054	5.0e-9	<1.2e-8	<2.3e-9	<2.2e-9	<2.2e-9	<2.4e-9	<4.3e-9	<4.0e-9	<3.4e-9	<2.2e-9	<2.4e-9	<4.5e-9	<4.0e-9
26-Jul-12	AB96868	052	1.17e-7	<1.1e-8	<2.3e-9	<2.4e-9	<2.3e-9	<2.5e-9	<4.6e-9	<4.1e-9	<3.5e-9	<2.3e-9	<2.5e-9	<4.7e-9	<4.1e-9

Water-Surface pCi/l

Date	Lab No	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
21-Aug-12	AB99310	054	5.2e-9	<6.3e-9	<1.5e-9	<1.7e-9	<1.5e-9	<1.7e-9	<3.1e-9	<2.1e-9	<1.9e-9	<1.6e-9	<1.6e-9	<3.5e-9	<2.5e-9
28-Aug-12	AB99880	052	7.6e-8	<8.8e-9	<1.6e-9	<1.8e-9	<1.6e-9	<1.8e-9	<3.6e-9	<3.2e-9	<2.9e-9	<1.6e-9	<1.9e-9	<3.6e-9	<2.9e-9
18-Sep-12	AC01345	046	4.6e-9	<5.9e-9	<1.5e-9	<1.6e-9	<1.7e-9	<1.7e-9	<3.3e-9	<1.9e-9	<1.8e-9	<1.5e-9	<1.7e-9	<3.5e-9	<2.7e-9
26-Sep-12	AC02286	052	8.9e-8	<7.7e-9	<2.0e-9	<2.1e-9	<2.1e-9	<2.2e-9	<4.1e-9	<2.5e-9	<2.6e-9	<2.0e-9	<2.0e-9	<4.4e-9	<3.4e-9
17-Oct-12	AC03566	054	5.0e-9	<7.1e-9	<1.9e-9	<2.0e-9	<2.0e-9	<2.1e-9	<4.0e-9	<2.5e-9	<2.7e-9	<2.0e-9	<2.0e-9	<4.4e-9	<3.2e-9
30-Oct-12	AC04441	052	5.4e-8	<3.31e-7	<3.6e-9	<2.3e-9	<2.2e-9	<2.2e-9	<1.1e-8	<9.74e-7	<1.06e-7	<2.2e-9	<7.8e-9	<5.5e-9	<7.1e-9
14-Nov-12	AC05336	054	4.4e-9	<7.0e-9	<1.5e-9	<1.6e-9	<1.6e-9	<1.7e-9	<3.1e-9	<2.4e-9	<2.3e-9	<1.5e-9	<1.7e-9	<3.4e-9	<2.7e-9
27-Nov-12	AC05843	052	5.5e-8	<9.0e-9	<1.6e-9	<1.7e-9	<1.6e-9	<1.7e-9	<3.7e-9	<3.4e-9	<2.8e-9	<1.7e-9	<1.9e-9	<3.7e-9	<3.0e-9
11-Dec-12	AC06594	054	<3.4e-9	<7.4e-9	<1.9e-9	<2.0e-9	<2.0e-9	<2.0e-9	<3.9e-9	<2.5e-9	<2.6e-9	<1.8e-9	<2.0e-9	3.5e-9	<4.3e-9
18-Dec-12	AC07231	047	<3.4e-9	<7.6e-9	<1.9e-9	<2.2e-9	<2.1e-9	<2.3e-9	<3.9e-9	<2.9e-9	<2.7e-9	<1.8e-9	<2.0e-9	6.3e-9	<4.4e-9

Water- Surface Composite pCi/l

Date	Lab No	Station	H-3
3/23/2012	AB82810	054	<1.0e-6
3/23/2012	AB82811	052	<1.0e-6
7/12/2012	AB92903	054	<1.0e-6
7/12/2012	AB92904	052	<1.0e-6
9/10/2012	AC00438	054	<1.0e-6
9/10/2012	AC00439	052	<1.0e-6
10/15/2012	AC03193	054	<1.0e-6

*NOTE: * indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.*
***Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in UCi/ml*

South Texas Project
Environmental Sample Results

Air Iodine pCi/m3				Air Particulate pCi/m3			
Date	Lab No	Station	I-131	Date	Lab No	Station	Beta
24-Jan-12	AB79041	035	<9e-15	24-Jan-12	AB79040	035	3.0e-14
24-Jan-12	AB79043	030	<6e-15	31-Jan-12	AB79889	035	2.1e-14
31-Jan-12	AB79890	035	<7e-15	31-Jan-12	AB79891	030	1.8e-14
31-Jan-12	AB79892	030	<6e-15	07-Feb-12	AB80654	035	1.7e-14
07-Feb-12	AB80655	035	<7e-15	07-Feb-12	AB80656	030	1.7e-14
07-Feb-12	AB80657	030	<5e-15	14-Feb-12	AB81253	035	2.6e-14
14-Feb-12	AB81254	035	<3e-15	14-Feb-12	AB81255	030	2.4e-14
14-Feb-12	AB81256	030	<7e-15	21-Feb-12	AB81973	035	2.0e-14
21-Feb-12	AB81974	035	<7e-15	21-Feb-12	AB81975	030	2.1e-14
21-Feb-12	AB81976	030	<5e-15	28-Feb-12	AB82459	035	1.5e-14
28-Feb-12	AB82460	035	<4e-15	28-Feb-12	AB82461	030	1.5e-14
28-Feb-12	AB82462	030	<1.0e-14	05-Mar-12	AB83631	035	1.7e-14
05-Mar-12	AB83632	035	<1.3e-14	05-Mar-12	AB83633	030	1.5e-14
05-Mar-12	AB83634	030	<8e-15	13-Mar-12	AB83989	035	1.2e-14
13-Mar-12	AB83990	035	<6e-15	13-Mar-12	AB83991	030	1.1e-14
13-Mar-12	AB83992	030	<5e-15	21-Mar-12	AB85332	035	1.2e-14
21-Mar-12	AB85333	035	<9e-15	21-Mar-12	AB85334	030	9e-15
21-Mar-12	AB85335	030	<7e-15	27-Mar-12	AB85446	035	2.1e-14
27-Mar-12	AB85447	035	<8e-15	27-Mar-12	AB85448	030	2.1e-14
27-Mar-12	AB85449	030	<6e-15	04-Apr-12	AB86242	035	2.7e-14
04-Apr-12	AB86243	035	<8e-15	04-Apr-12	AB86244	030	2.4e-14
04-Apr-12	AB86245	030	<6e-15	10-Apr-12	AB86755	035	2.7e-14
10-Apr-12	AB86756	035	<4e-15	10-Apr-12	AB86757	030	2.6e-14
10-Apr-12	AB86758	030	<3e-15	18-Apr-12	AB87553	035	2.4e-14
18-Apr-12	AB87554	035	<4e-15	18-Apr-12	AB87555	030	2.8e-14
18-Apr-12	AB87556	030	<3e-15	25-Apr-12	AB88365	035	1.7e-14
25-Apr-12	AB88366	035	<7e-15	25-Apr-12	AB88367	030	2.6e-14
25-Apr-12	AB88368	030	<1.4e-14	01-May-12	AB88794	035	1.9e-14
01-May-12	AB88795	035	<7e-15	01-May-12	AB88796	030	1.6e-14
01-May-12	AB88797	030	<4e-15	08-May-12	AB89522	035	1.4e-14
08-May-12	AB89523	035	<4e-15	08-May-12	AB89524	030	1.3e-14
08-May-12	AB89525	030	<8e-15	15-May-12	AB90114	035	2.2e-14
15-May-12	AB90115	035	<4e-15	15-May-12	AB90116	030	1.9e-14
15-May-12	AB90117	030	<3e-15	22-May-12	AB90674	035	3.3e-14
22-May-12	AB90675	035	<7e-15	22-May-12	AB90676	030	3.1e-14
22-May-12	AB90677	030	<5e-15	29-May-12	AB91414	035	1.9e-14
29-May-12	AB91415	035	<7e-15	29-May-12	AB91416	030	1.8e-14
29-May-12	AB91417	030	<6e-15	05-Jun-12	AB91866	035	1.6e-14
05-Jun-12	AB91867	035	<4e-15	05-Jun-12	AB91868	030	1.6e-14
05-Jun-12	AB91869	030	<3e-15	12-Jun-12	AB92875	035	1.8e-14

South Texas Project
Environmental Sample Results

Air Iodine pCi/m3

Date	Lab No	Station	I-131
19-Jun-12	AB93398	035	<7e-15
19-Jun-12	AB93400	030	<3e-15
26-Jun-12	AB94290	035	<1.0e-14
03-Jul-12	AB94618	035	<5e-15
03-Jul-12	AB94620	030	<5e-15
10-Jul-12	AB95158	035	<4e-15
10-Jul-12	AB95160	030	<3e-15
17-Jul-12	AB95877	035	<4e-15
17-Jul-12	AB95879	030	<3e-15
25-Jul-12	AB96383	035	<3e-15
25-Jul-12	AB96385	030	<2e-15
01-Aug-12	AB97234	035	<5e-15
01-Aug-12	AB97236	030	<4e-15
08-Aug-12	AB97821	035	<4e-15
08-Aug-12	AB97823	030	<3e-15
14-Aug-12	AB98910	035	<6e-15
14-Aug-12	AB98912	030	<4e-15
21-Aug-12	AB99307	035	<4e-15
21-Aug-12	AB99309	030	<3e-15
28-Aug-12	AB99876	035	<4e-15
28-Aug-12	AB99878	030	<3e-15
04-Sep-12	AC00382	035	<4e-15
04-Sep-12	AC00384	030	<3e-15
11-Sep-12	AC00709	035	<4e-15
11-Sep-12	AC00711	030	<3e-15
18-Sep-12	AC01342	035	<7e-15
18-Sep-12	AC01344	030	<5e-15
25-Sep-12	AC02282	035	<4e-15
25-Sep-12	AC02284	030	<3e-15
03-Oct-12	AC02713	035	<4e-15
03-Oct-12	AC02715	030	<3e-15
10-Oct-12	AC03257	035	<5e-15
10-Oct-12	AC03259	030	<4e-15
17-Oct-12	AC03563	035	<4e-15
17-Oct-12	AC03565	030	<3e-15
25-Oct-12	AC04107	035	<8e-15
25-Oct-12	AC04109	030	<6e-15
31-Oct-12	AC04438	035	<4e-15
31-Oct-12	AC04440	030	<3e-15
07-Nov-12	AC04936	035	<4e-15

Air Particulate pCi/m3

Date	Lab No	Station	Beta
12-Jun-12	AB92877	030	1.7e-14
19-Jun-12	AB93397	035	1.9e-14
19-Jun-12	AB93399	030	1.7e-14
26-Jun-12	AB94289	035	2.0e-14
26-Jun-12	AB94291	030	1.9e-14
03-Jul-12	AB94617	035	3.1e-14
03-Jul-12	AB94619	030	3.4e-14
10-Jul-12	AB95157	035	1.9e-14
10-Jul-12	AB95159	030	1.7e-14
17-Jul-12	AB95876	035	1.5e-14
17-Jul-12	AB95878	030	1.3e-14
25-Jul-12	AB96382	035	2.1e-14
25-Jul-12	AB96384	030	1.8e-15
01-Aug-12	AB97233	035	2.6e-14
01-Aug-12	AB97235	030	2.2e-14
08-Aug-12	AB97820	035	2.3e-14
08-Aug-12	AB97822	030	2.1e-14
14-Aug-12	AB98909	035	1.8e-14
14-Aug-12	AB98911	030	1.8e-14
21-Aug-12	AB99306	035	1.7e-14
21-Aug-12	AB99308	030	1.6e-14
28-Aug-12	AB99875	035	2.4e-14
28-Aug-12	AB99877	030	2.2e-14
04-Sep-12	AC00381	035	2.2e-14
04-Sep-12	AC00383	030	2.1e-14
11-Sep-12	AC00708	035	2.4e-14
11-Sep-12	AC00710	030	2.2e-14
18-Sep-12	AC01341	035	2.1e-14
18-Sep-12	AC01343	030	1.9e-14
25-Sep-12	AC02281	035	2.8e-14
25-Sep-12	AC02283	030	2.7e-14
03-Oct-12	AC02712	035	3.2e-14
03-Oct-12	AC02714	030	2.6e-14
10-Oct-12	AC03256	035	4.0e-14
10-Oct-12	AC03258	030	3.4e-14
17-Oct-12	AC03562	035	3.8e-14
17-Oct-12	AC03564	030	3.1e-14
25-Oct-12	AC04106	035	2.7e-14
25-Oct-12	AC04108	030	2.1e-14
31-Oct-12	AC04437	035	2.8e-14

South Texas Project
Environmental Sample Results

Air Iodine pCi/m3

Date	Lab No	Station	I-131
14-Nov-12	*AC05333*	*35*	*<5e-15*
14-Nov-12	*AC05335*	*30*	*<3e-15*
20-Nov-12	*AC05502*	*35*	*<8e-15*
20-Nov-12	*AC05504*	*30*	*<4e-15*
27-Nov-12	*AC05840*	*35*	*<4e-15*
27-Nov-12	*AC05842*	*30*	*<3e-15*
5-Dec-12	*AC06381*	*35*	*<2e-15*
5-Dec-12	*AC06383*	*30*	*<5e-15*
11-Dec-12	*AC06591*	*35*	*<4e-15*
11-Dec-12	*AC06593*	*30*	*<3e-15*
18-Dec-12	*AC07225*	*35*	*<4e-15*
18-Dec-12	*AC07227*	*30*	*<3e-15*
26-Dec-12	*AC07469*	*35*	*<6e-15*
26-Dec-12	*AC07471*	*30*	*<1.2e-14*

Air Particulate pCi/m3

Date	Lab No	Station	I-131
7-Nov-12	*AC04935*	*35*	*2.90E-14*
7-Nov-12	*AC04937*	*30*	*2.80E-14*
14-Nov-12	*AC05332*	*35*	*3.20E-14*
20-Nov-12	*AC05501*	*35*	*4.80E-14*
20-Nov-12	*AC05503*	*30*	*5.10E-14*
27-Nov-12	*AC05839*	*35*	*3.20E-14*
27-Nov-12	*AC05841*	*30*	*3.40E-14*
5-Dec-12	*AC06380*	*35*	*3.10E-14*
5-Dec-12	*AC06382*	*30*	*3.00E-14*
11-Dec-12	*AC06590*	*35*	*2.70E-14*
11-Dec-12	*AC06592*	*30*	*2.60E-14*
18-Dec-12	*AC07224*	*35*	*2.50E-14*
18-Dec-12	*AC07226*	*30*	*2.60E-14*
26-Dec-12	*AC07468*	*35*	*2.10E-14*
26-Dec-12	*AC07470*	*30*	*2.20E-14*

Research Reactors

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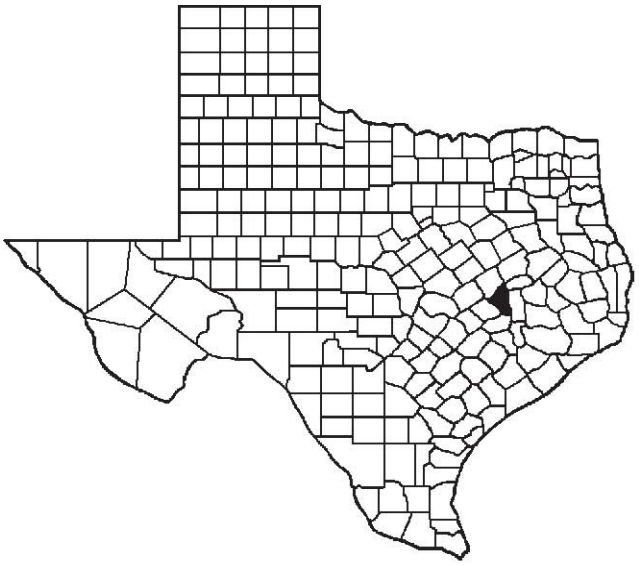
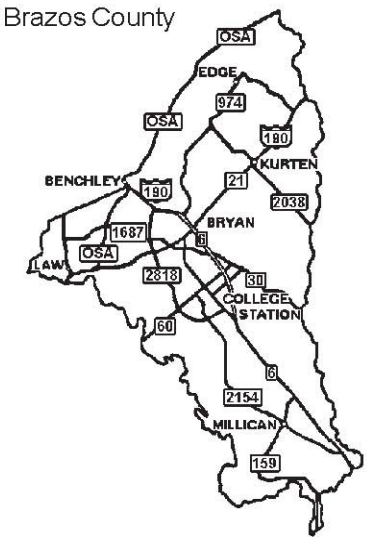
Texas A & M University Nuclear Science Center

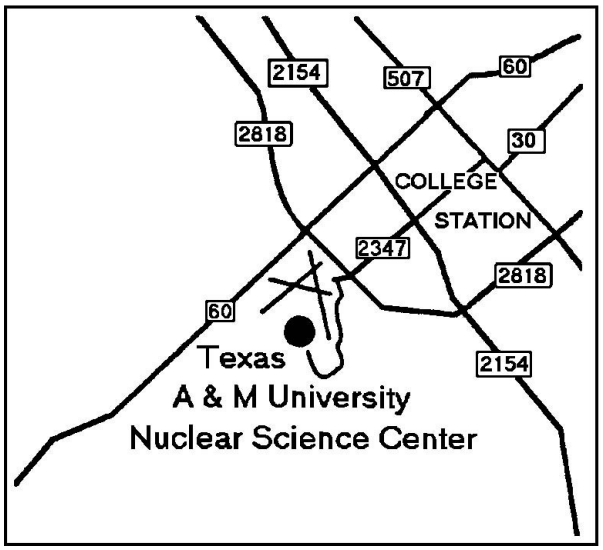
Radiation Branch Site No. 001

Texas A&M Nuclear Science Center (NSC) is located seven miles south of downtown Bryan just south of Easterwood Airport. NSC houses a one-megawatt TRIGA (Testing, Research, Isotope Production, General Atomics) research reactor that came online in 1961. The Radiation Branch surveillance program consists of OSL monitoring.





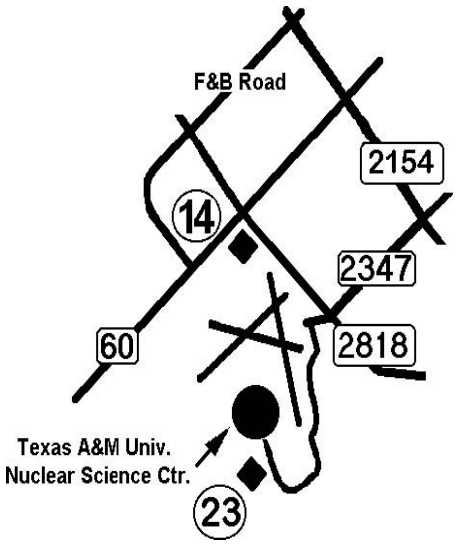
Shaded area indicates location of Brazos County



Texas A & M University Nuclear Science Center
Monitoring Station Locations

♦ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



Texas A & M Nuclear Science Center
Optically Stimulated Luminescence (OSL) Monitoring Results
[1](quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE	NOTES
STATION 02	37	46	56	46	185	
STATION 03	35	43	50	---	171	[2]Q4-OSL Missing
STATION 04	39	47	62	39	187	
STATION 05	35	44	55	41	175	
STATION 10	32	39	50	36	157	
STATION 11	32	40	50	37	159	
STATION 14	--	38	44	31	151	Background; [2]Q1-OSL Missing
STATION 18	33	42	54	38	167	
STATION 19	31	38	49	35	153	
STATION 20	50	42	44	32	168	
STATION 21	64	49	48	36	197	
STATION 22	31	37	49	30	147	
STATION 23	32	39	50	35	156	Background
STATION 24	38	33	39	21	131	
STATION 25	33	32	41	23	129	
STATION 26	32	32	42	23	129	
STATION 27	32	34	42	27	135	
STATION 28	32	33	43	25	133	

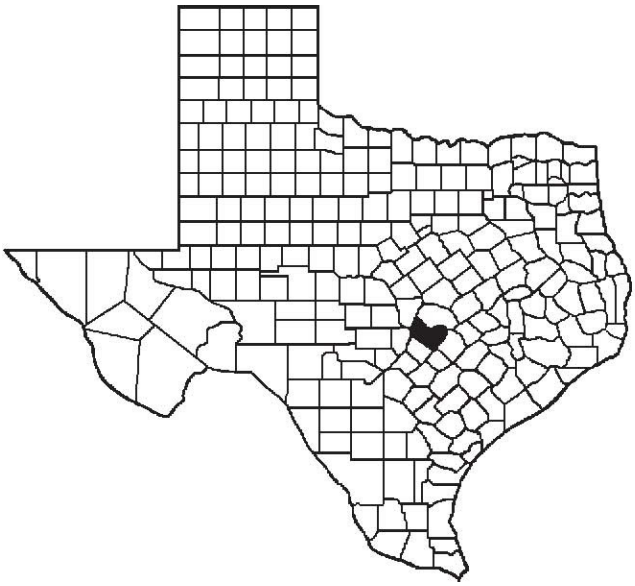
NOTE: [1]Background is not subtracted from the data

[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

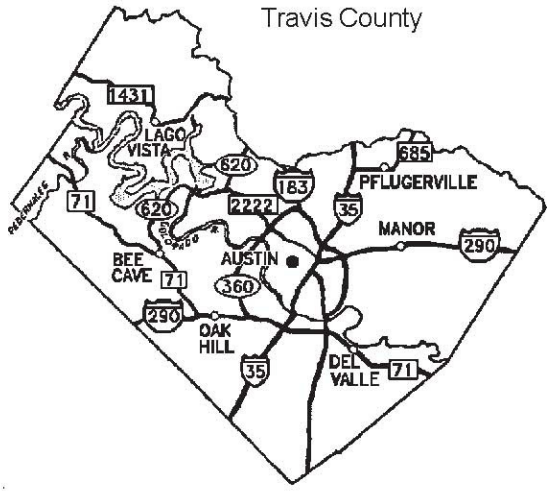
University of Texas Nuclear Engineering Teaching Laboratory

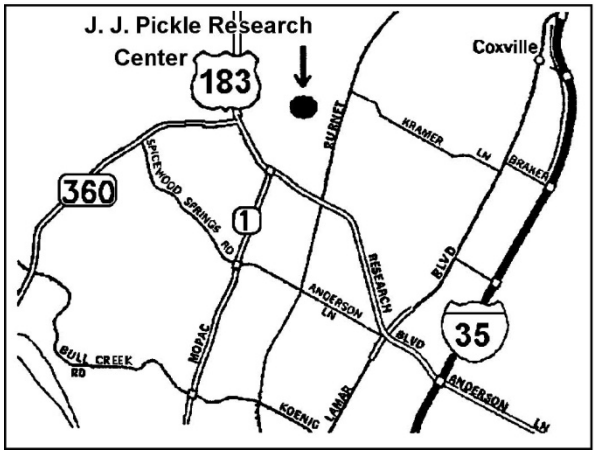
Radiation Branch Site No. 003

University of Texas Nuclear Engineering Teaching Laboratory (NETL) is located at the J. J. Pickle Research Center, approximately five miles north of the Texas Department of State Health Services main campus. NETL houses an above-ground, fixed-core 1.1 megawatt TRIGA (Testing, Research, Isotope Production, General Atomics) research reactor that came online in 1992. The Radiation Branch surveillance program consists of sampling sewage and water and OSL monitoring.



Shaded area indicates location of Travis County

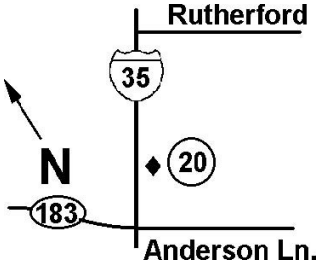




University of Texas Nuclear Engineering Teaching Laboratory
Monitoring Station Locations

♦ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



University of Texas Nuclear Engineering Teaching Laboratory
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE	NOTES
STATION 01	30	29	23	39	91	
STATION 02	33	46	26	39	111	
STATION 03	32	40	26	38	104	
STATION 04	34	42	30	41	113	
STATION 05	30	56	27	39	122	
STATION 20	31	33	26	38	97	Background

NOTE: [1]Background is not subtracted from the data
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Other Facilities

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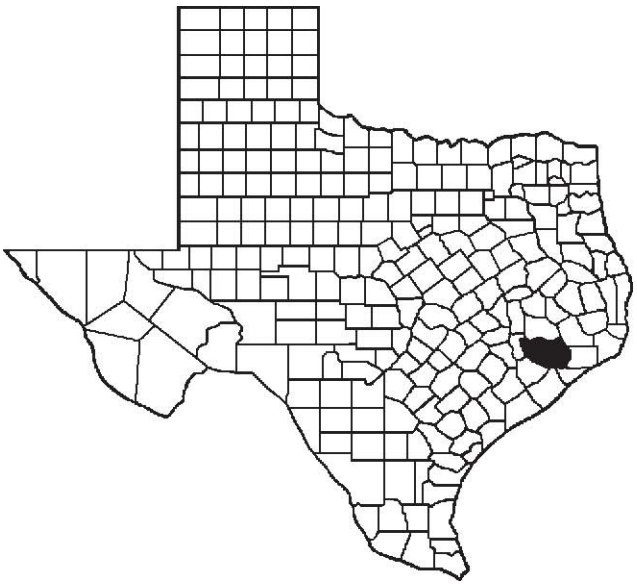
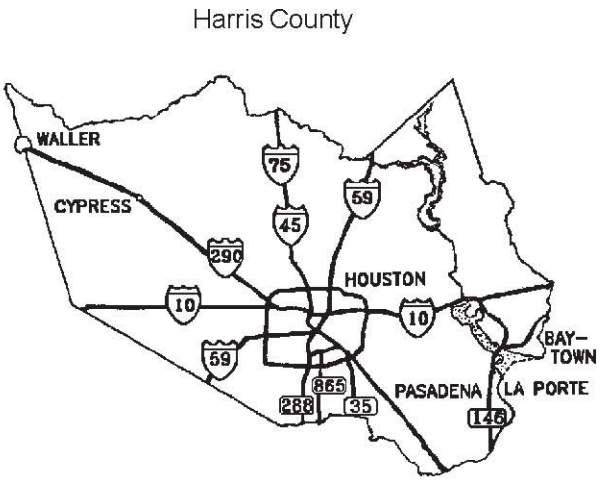
Gammatron, Inc.

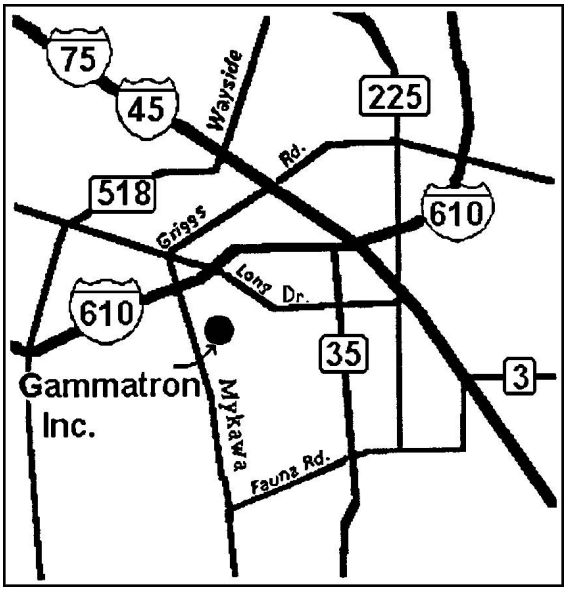
Radiation Branch Site No. 018

Gammatron, Inc. is a manufacturer of sealed radioactive sources. The facility is located in an industrial area of Houston approximately four miles northwest of William P. Hobby Airport. The Radiation Branch surveillance program consists of soil sampling and OSL monitoring.



Shaded area indicates location of Harris County

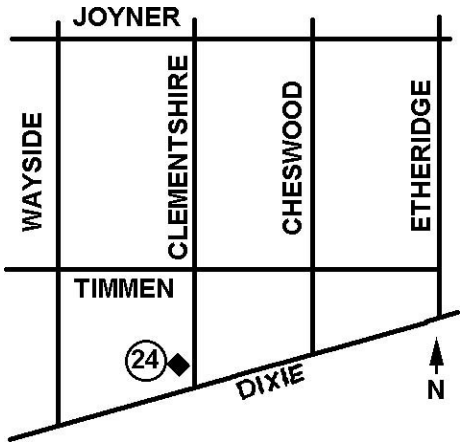




Gammatron, Inc.
Monitoring Station Locations

♦ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



Gammatron, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
[1](quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE[3]	NOTES
STATION 31	47	50	53	51	148	
STATION 03	59	61	63	61	181	
STATION 05	---	125	117	134	502	[2]Q1-OSL Missing
STATION 08	161	165	285	48	374	
STATION 30	52	49	59	36	137	
STATION 24	25	29	40	23	117	Background
STATION 34	107	105	107	102	421	
STATION 40	45	46	55	38	129	

NOTE: [1]Background is not subtracted from the data

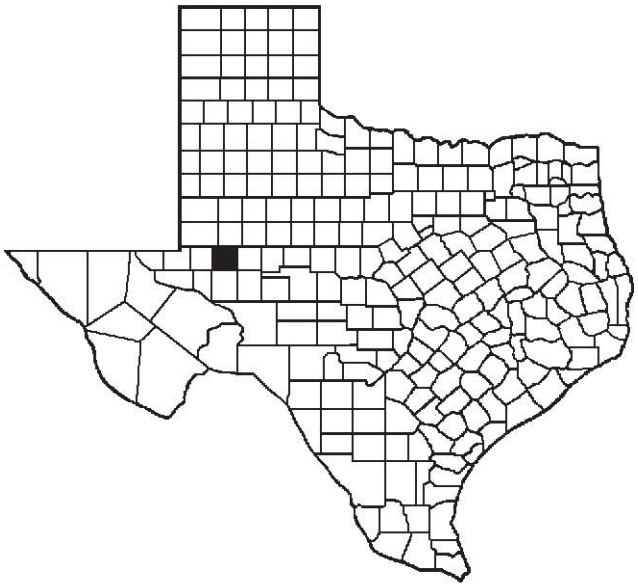
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

[3]An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

GeoCo, Inc.

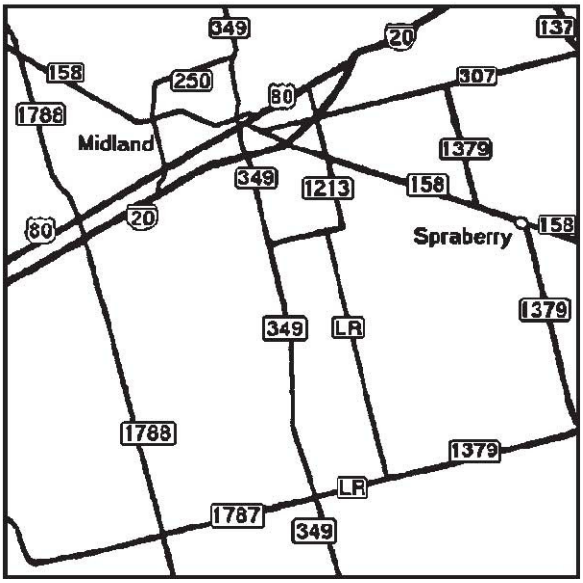
Radiation Branch Site No. 051

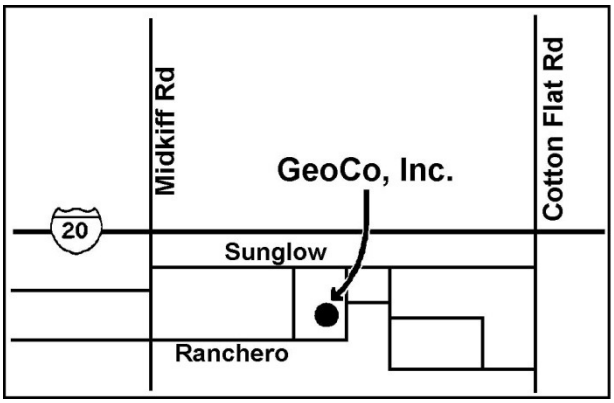
GeoCo, Inc. is a tracer studies company specializing in oil and gas wells. The facility is located in Midland approximately six miles east of Midland-Odessa International Airport. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Midland County

Midland County

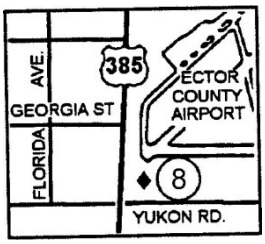




GeoCo, Inc.
Monitoring Station Locations

♦ TLD Station	♥ Sample Station	♣ TLD & Sample Station

Homeland Security -Diagram Removed



GeoCo, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE[3]	NOTES
STATION 01	44	24	54	29	151	
STATION 08	36	21	48	27	132	Background

NOTE: [1]Background is not subtracted from the data

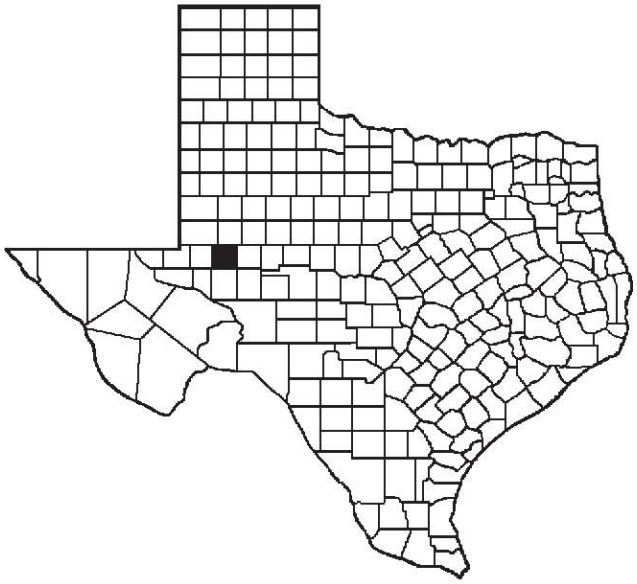
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

[3]An occupancy factor of 1/10 may be applied to this number to obtain radiation dose to members of the public.

Isotech Laboratories, Inc.

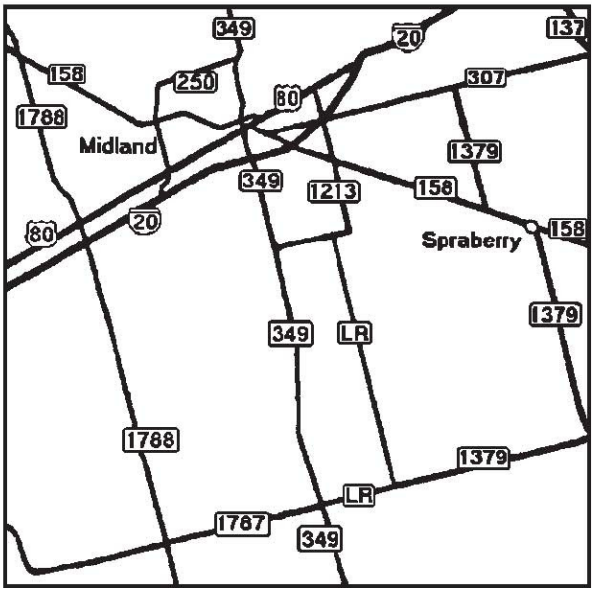
Radiation Branch Site No. 008

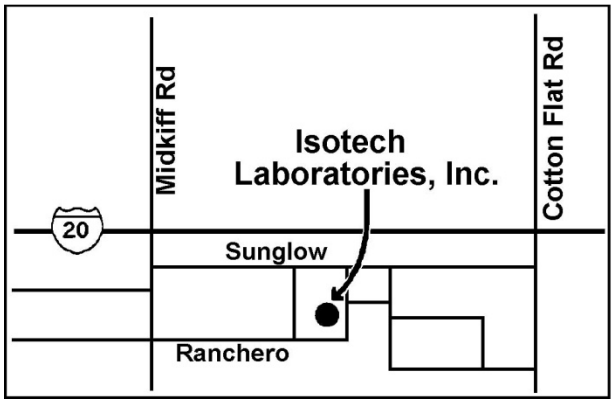
Isotech Laboratories, Inc. manufactures tracer material for the oil and gas industry, calibrates radiation detection instruments, and provides radiation safety training for well-logging and tracer services. The facility is located in Midland approximately six miles east of Midland-Odessa International Airport. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Midland County

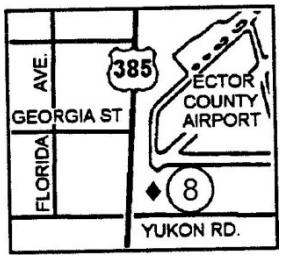
Midland County





♦ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



Isotech Laboratories, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

Station	**Q1**	**Q2**	**Q3**	**Q4**	ANNUAL DOSE[3]	**Notes**
1	24	2	21	20	67	
2	46	12	35	29	189	
3	271	10	29	32	464	
4	44	8	26	29	449	
6	7	10	22	27	173	
8	19	2	14	9	110	Background

NOTE: [1]Background is not subtracted from the data

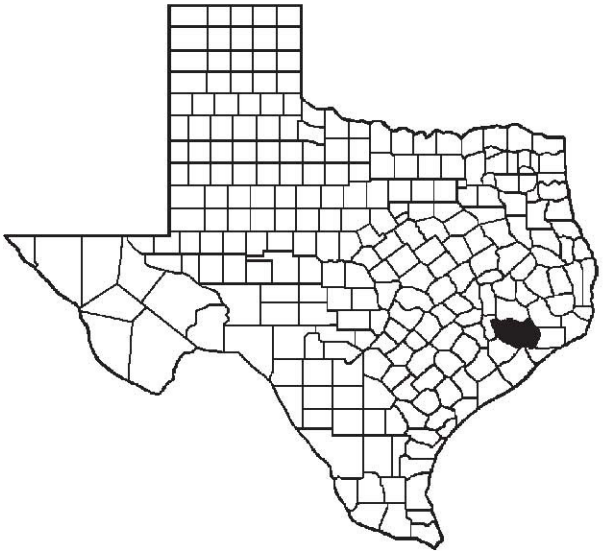
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

[3]An occupancy factor of 1/4 may be applied to this number to obtain radiation dose to members of the public.

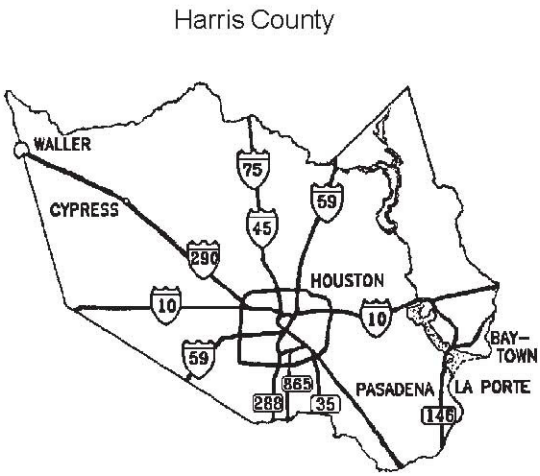
Nuclear Sources and Services, Inc.

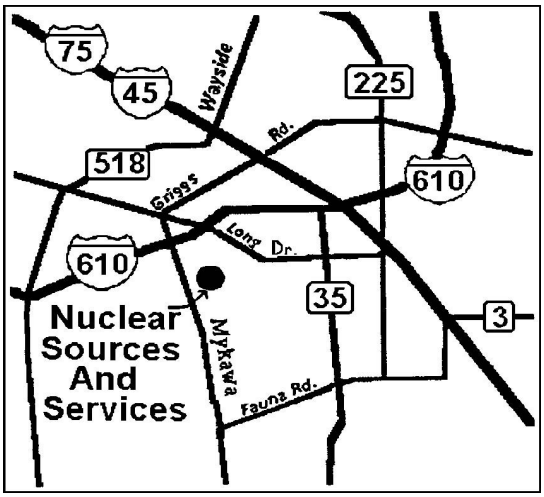
Radiation Branch Site No. 023

The Nuclear Sources and Services, Inc. (NSSI) facility occupies approximately five acres in a light industrial area of Southeast Houston approximately four miles northwest of William P. Hobby Airport. The primary activities of NSSI currently are waste treatment, storage, and disposal of radioactive and chemical hazardous materials. NSSI receives wastes from a variety of off-site generators both inside and outside of Texas. At the conclusion of treatment or storage, the residues are shipped to permitted off-site facilities for disposal. The Radiation Branch surveillance program consists of soil sampling and OSL monitoring.



Shaded area indicates location of Harris County

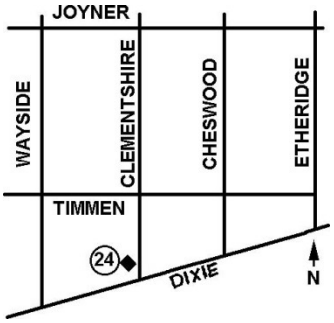




Nuclear Sources and Services, Inc.
Monitoring Station Locations

♦ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



Nuclear Sources and Services, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
[1](quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE[3]	NOTES
STATION 03	76	68	77	52	273	
STATION 04	27	37	51	32	147	
STATION 06	42	44	52	38	176	
STATION 07	36	44	57	38	175	
STATION 11	37	37	46	28	148	
STATION 12	66	73	59	95	293	
STATION 16	42	49	51	54	196	
STATION 18	16	31	49	29	125	
STATION 19	39	41	52	33	165	
STATION 20	38	46	48	51	183	
STATION 21	129	99	92	75	395	
STATION 22	31	34	44	26	135	
STATION 23	37	36	45	26	144	
STATION 24	25	29	40	23	117	Background
STATION 25	16	48	71	58	177	
STATION 41	88	69	75	43	275	

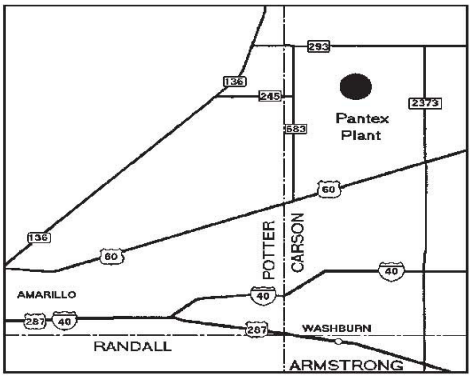
NOTE: [1]Background is not subtracted from the data
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data
[3]An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

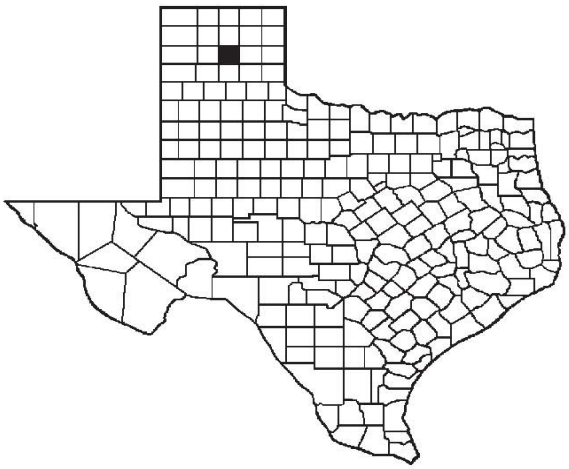
Pantex

Radiation Branch Site No. 005

The Pantex plant site is located in Carson County in the Texas Panhandle, north of U.S. Highway 60. The plant is located 17 miles (27 kilometers) northeast of downtown Amarillo. It is centered on a 16,000-acre site. The Pantex facility consists of 11,703 acres of United States Department of Energy (USDOE) owned land and 5,800 acres of land leased from Texas Tech University used as a safety and security buffer zone. The buffer area is managed by Texas Tech Research Farm and is used as rangeland and farmland. An additional 1,080 acres northwest of the plant is called Pantex Lake. Pantex Lake was formally used as the receiving area for treated wastewater discharges, and is now managed by Texas Tech University. An additional 7,926 acres to the east of the plant is USDOE-owned and is used for agricultural purposes through a cooperative agreement.

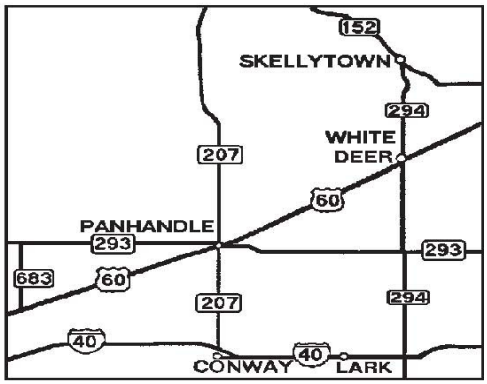
The Radiation Branch surveillance program consists of OSL monitoring and sampling air, food products, sediment, soil, vegetation, and water. Analysis of samples is performed to determine the presence of any special nuclear material.





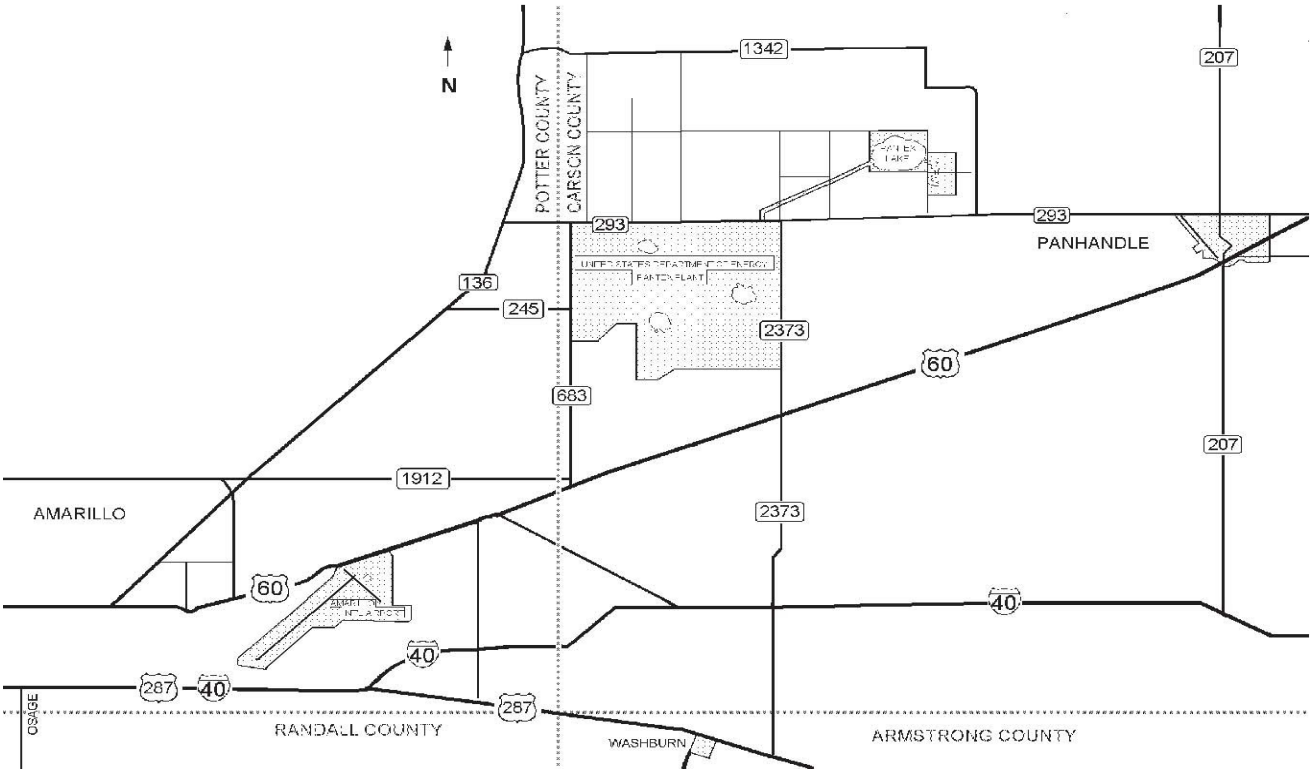
Shaded area indicates location of Carson County

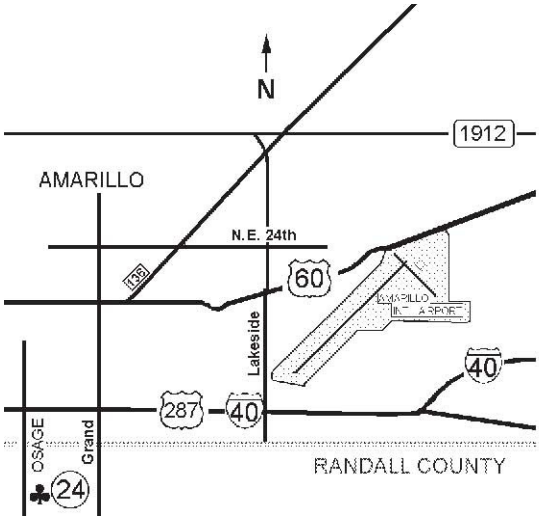
Carson County

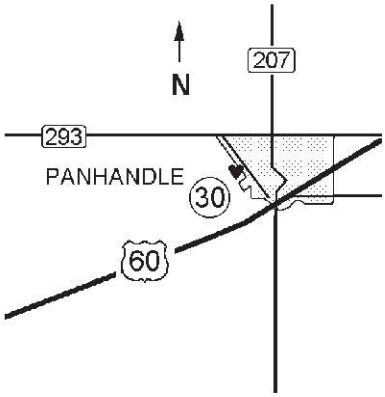


Pantex
Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

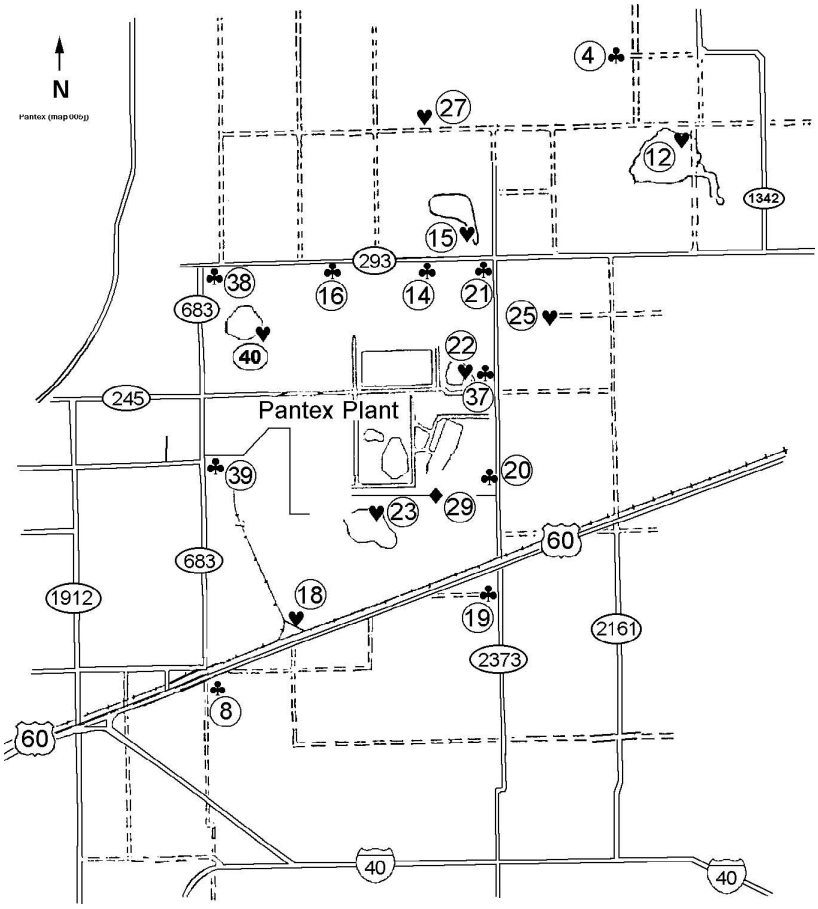






Pantex
Monitoring Station Locations

Homeland Security -Diagram Removed



Pantex
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE	NOTES
STATION 04	47	44	56	38	188	
STATION 08	45	43	54	37	181	
STATION 14	46	45	56	37	139	
STATION 16	49	44	56	36	139	
STATION 19	47	43	58	37	142	
STATION 20	48	45	55	37	139	
STATION 21	43	41	53	32	128	
STATION 24	46	43	53	35	133	Background
STATION 29	49	45	56	39	143	
STATION 37	48	46	56	36	139	
STATION 38	44	44	55	36	136	
STATION 39	47	44	54	37	137	

NOTE: [1]Background is not subtracted from the data

[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

Pantex
Environmental Air Sample Results

Date	*Lab No*	*Station*	*Pu-239**	*U-234**	*U-235**	*U-238**	*Ra-226*
12/28/2011	*AB89962*	*104*	*<6e-17*	*<5.8e-16*	*<5.8e-16*	*<5.8e-16*	*<1.4e-14*
1/31/2012	*AB89961*	*104*	*<6e-17*	*<5.8e-16*	*<5.8e-16*	*<5.8e-16*	*<1.4e-14*
2/29/2012	*AB89960*	*105*	*<6e-17*	*<5.6e-16*	*<5.6e-16*	*<5.6e-16*	*<1.1e-14*
3/7/2012	*AB89964*	*105*	*<7e-17*	*<6.1e-16*	*<6.1e-16*	*<6.1e-16*	*<8.7e-15*
3/12/2012	*AB89958*	*104*	*<7e-17*	*<6.2e-16*	*<6.2e-16*	*<6.2e-16*	*<1.5e-14*
3/12/2012	*AB89959*	*104*	*<1.3e-16*	*<6.0e-16*	*<6.0e-16*	*<6.0e-16*	*<8.3e-15*
3/27/2012	*AB89957*	*105*	*<6e-17*	*<5.8e-16*	*<5.8e-16*	*<5.8e-16*	*<2.1e-14*
4/13/2012	*AB95916*	*105*	*<6e-17*	*<5.6e-16*	*<5.6e-16*	*<5.6e-16*	*<7.7e-15*
4/18/2012	*AB89963*	*105*	*<6e-17*	*<5.3e-16*	*<5.3e-16*	*<5.3e-16*	*<9.9e-15*
4/24/2012	*AB95915*	*104*	*<6e-17*	*<6.0e-16*	*<6.0e-16*	*<6.0e-16*	*<1.2e-14*
4/24/2012	*AB95917*	*105*	*<6e-17*	*<5.3e-16*	*<5.3e-16*	*<5.3e-16*	*<2.4e-14*
5/18/2012	*AB95918*	*105*	*<6e-17*	*<5.5e-16*	*<5.5e-16*	*<5.5e-16*	*<1.3e-14*
5/31/2012	*AB95919*	*104*	*<6e-17*	*<6.1e-16*	*<6.1e-16*	*<6.1e-16*	*<1.2e-14*
6/8/2012	*AB95920*	*105*	*<6e-17*	*<5.6e-16*	*<5.6e-16*	*<5.6e-16*	*<7.9e-15*
6/15/2012	*AB95913*	*105*	*<6e-17*	*<5.6e-16*	*<5.6e-16*	*<5.6e-16*	*<1.1e-14*
6/27/2012	*AB95914*	*105*	*<6e-17*	*<5.6e-16*	*<5.6e-16*	*<5.6e-16*	*<8.2e-15*
11/29/2012	*AC09211*	*102*	*<5e-17*	*<4.9e-16*	*<4.9e-16*	*<4.9e-16*	*<1.8e-14*
12/05/2012	*AC09212*	*105*	*<5e-17*	*<4.8e-16*	*<4.8e-16*	*<4.8e-16*	*<9.8e-15*
12/13/2012	*AC09213*	*105*	*<5E-17*	*<4.9E-16*	*<4.9E-16*	*<4.9E-16*	*<8.2e-15*

Pantex
Environmental Sample Results

Date	Lab No	Station	Pu-239*	U-234*	U-235*	U-238*	H-3**	Ra-226	U-238
Food Product uCi/g									
5/16/2012	AB90541	25	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<4e-7	<9e-7
07/12/2012	AB95339	25	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.5e-6	<1.0e-6
10/09/2012	AC03059	25	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<6E-7
Sediment uCi/g									
2/13/2012	AB81067	22	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<2.2e-6	<2.0e-6
5/16/2012	AB90531	40	<1e-7	1.0e-6	1.0e-6	1.0e-6	7e-7	<2.2e-6	<2.0e-6
7/12/2012	AB95335	23	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	1.5e-6	<2.3e-6
10/09/2012	AC03053	15	<1e-7	1.1e-6	<1.0e-6	<1.0e-6	-	<2.7e-6	<1.8e-6
Soil uCi/g									
2/13/2012	AB81062	14	<1e-7	1.0e-6	<1.0e-6	1.0e-6	-	<2.2e-6	<5.3e-6
2/13/2012	AB81063	18	<1e-7	<1.0e-6	<1.0e-6	1.2e-6	-	1.8e-6	<3.2e-6
2/13/2012	AB81064	20	<1e-7	<2.0e-6	1.1e-6	<1.0e-6	-	<3.0e-6	2.1e-6
2/13/2012	AB81065	37	<1e-7	<1.0e-6	<1.0e-6	1.1e-6	-	<2.9e-6	<2.6e-6
2/13/2012	AB81066	39	<1e-7	1.0e-6	<1.0e-6	1.2e-6	-	<2.9e-6	<1.8e-6
5/16/2012	AB90525	4	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<1.9e-6	<1.7e-6
5/16/2012	AB90526	8	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<2.8e-6	<1.8e-6
5/16/2012	AB90527	16	<1e-7	1.1e-6	<1.0e-6	<1.0e-6	-	<2.3e-6	<2.2e-6
5/16/2012	AB90528	19	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<1.6e-6	<1.1e-6
5/16/2012	AB90529	21	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<2.4e-6	<2.0e-6
5/16/2012	AB90530	38	<1e-7	1.1e-6	<1.0e-6	<1.0e-6	-	<2.5e-6	<1.6e-6
7/12/2012	AB95330	14	<1e-7	1.1e-6	<1.0e-6	<1.0e-6	-	<1.9e-6	<4.4e-6
7/12/2012	AB95331	18	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	2.0e-6	<2.4e-6
7/12/2012	AB95332	20	<1e-7	<1.0e-6	<1.0e-6	1.1e-6	-	<1.7e-6	<3.7e-6
7/12/2012	AB95333	34	<1e-7	1.0e-6	<1.0e-6	<1.0e-6	-	1.6e-6	<2.5e-6
7/12/2012	AB95334	39	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<1.9e-6	<4.5e-6
10/09/2012	AC03047	4	<1e-7	<1.0e-6	<1.0e-6	1.1e-6	-	<1.8e-6	<4.2e-6
10/09/2012	AC03049	16	<1e-7	1.1e-6	<1.0e-6	<1.0e-6	-	<2.5e-6	<1.6e-6
10/09/2012	AC03050	19	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<1.8e-6	<1.7e-6
10/09/2012	AC03051	21	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<1.7e-6	<4.0e-6
10/09/2012	AC03052	38	<1e-7	<1.0e-6	<1.0e-6	1.0e-6	-	2.1e-6	<2.4e-6
10/10/2012	AC03048	8	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	-	<1.2e-6	<2.2e-6

Pantex
Environmental Sample Results

Date	Lab No	Station	Pu-239*	U-234*	U-235*	U-238*	H-3**	Ra-226	U-238
Vegetation uCi/g									
2/13/2012	AB81068	14	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<1.1e-6	<7e-7
2/13/2012	AB81069	18	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<7e-7	<5e-7
2/13/2012	AB81070	20	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		9e-7	<2.7e-6
2/13/2012	AB81071	32	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		2.2e-6	3e-7
2/13/2012	AB81072	39	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6		<8e-7	<6e-7
5/16/2012	AB90532	4	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<1.3e-6
5/16/2012	AB90533	8	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<4e-7
5/16/2012	AB90534	16	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<5e-7
5/16/2012	AB90535	19	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<5e-7	<1.0e-6
5/16/2012	AB90536	21	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<5e-7
5/16/2012	AB90537	38	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7
7/12/2012	AB95336	14	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7
7/12/2012	AB95337	20	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<7e-7
7/12/2012	AB95338	20	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7	<1.6e-6
7/12/2012	AB95340	37	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<9e-7	9e-7
7/12/2012	AB95341	39	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<8e-7	<5e-7
10/9/2012	AC03054	4	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<6e-7	<1.3e-6
10/9/2012	AC03055	8	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<9e-7	<6e-7
10/9/2012	AC03056	16	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<9e-7	<7e-7
10/9/2012	AC03057	19	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7	<5e-7
10/9/2012	AC03058	21	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<7e-7	<1.5e-6
10/9/2012	AC03060	38	<1e-7	<1.0e-6	<1.0e-6	<1.0e-6	<1.0e-6	<9e-7	<7e-7

Pantex
Environmental Sample Results

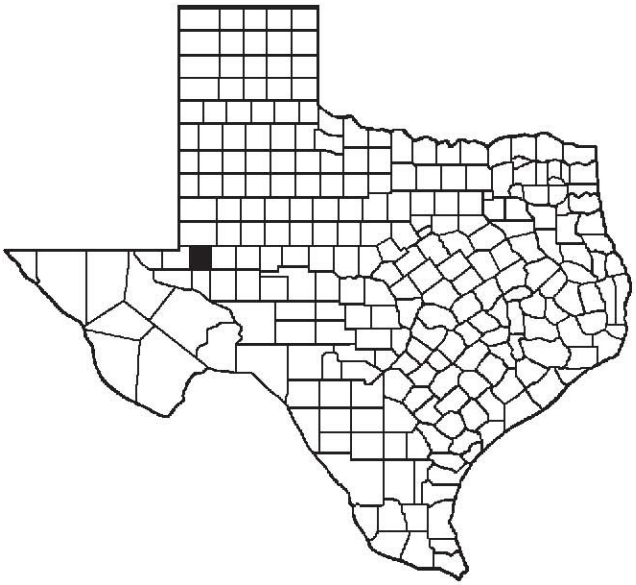
Date	*Lab No*	*Station*	*H-3***	*Pu-239**	*Ra-226**	*U-238**	*U-234**	*U-235**	*U-238*
Water-Drinking uCi/ml									
2/13/2012	*AB81075*	*30*	*<1.0e-6*	*<1e-10*	*<4.5e-8*	*<1.10e-7*	*4.7e-9*	*<1.0e-9*	*2.0e-9*
5/17/2012	*AB90538*	*30*	*<1.0e-6*	*<1e-10*	*<5.6e-8*	*<3.6e-8*	*5.3e-9*	*<1.0e-9*	*2.5e-9*
7/12/2012	*AB95344*	*30*	*<1.0e-6*	*<1e-10*	*<4.4e-8*	*<1.08e-7*	*4.5e-9*	*<1.0e-9*	*2.5e-9*
10/9/2012	*AC03063*	*30*	*<1.0e-6*	*<1e-10*	*<4.8e-8*	*<1.16e-7*	*4.6e-9*	*<1.0e-9*	*2.3e-9*
Water-Surface uCi/ml									
2/13/2012	*AB81073*	*24*	*<1.0e-6*	*<1e-10*	*<5.6e-8*	*<3.7e-8*	*4.4e-9*	*<1.0e-9*	*1.6e-9*
5/17/2012	*AB90539*	*24*	*<1.0e-6*	*<1e-10*	*<5.0e-8*	*<4.1e-8*	*4.4e-9*	*<1.0e-9*	*1.8e-9*
7/12/2012	*AB95342*	*24*	*<1.0e-6*	*<1e-10*	*<5.5e-8*	*<3.7e-8*	*5.0e-9*	*<1.0e-9*	*1.9e-9*
10/9/2012	*AC03061*	*24*	*<1.0e-6*	*<1e-10*	*<5.4e-8*	*<3.6e-8*	*5.0e-9*	*<1.0e-9*	*1.9e-9*
Water-Ground uCi/ml									
2/13/2012	*AB81074*	*27*	*<1.0e-6*	*<1e-10*	*<5.3e-8*	*<4.3e-8*	*3.8e-9*	*<1.0e-9*	*2.1e-9*
5/17/2012	*AB90540*	*27*	*<1.0e-6*	*<1e-10*	*<5.5e-8*	*<3.6e-8*	*3.7e-9*	*<1.0e-9*	*1.9e-9*
7/12/2012	*AB95343*	*27*	*<1.0e-6*	*<1e-10*	*<5.1e-8*	*<4.2e-8*	*3.4e-9*	*<1.0e-9*	*2.0e-9*
10/9/2012	*AC03062*	*27*	*<1.0e-6*	*<1e-10*	*<5.5e-8*	*<4.5e-8*	*3.7e-9*	*<1.0e-9*	*1.7e-9*

*NOTE: *Indicates the analysis was by alpha spectrometry, or Ra-226, analysis by radon emanation.*
***Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in uCi/ml*

Radiation Technology, Inc.

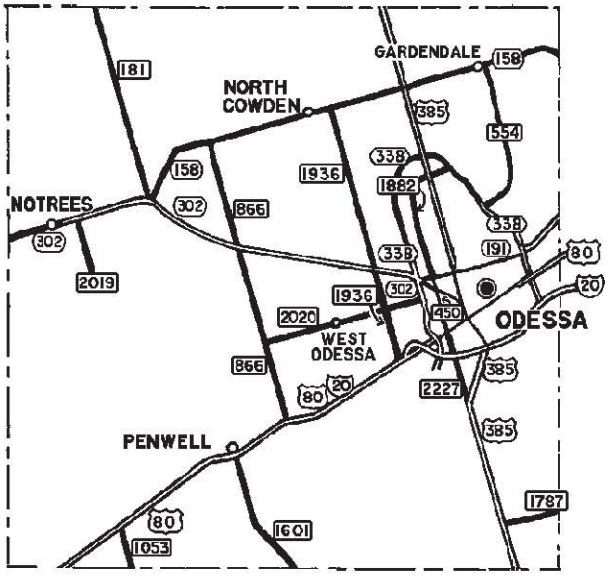
Radiation Branch Site No. 050

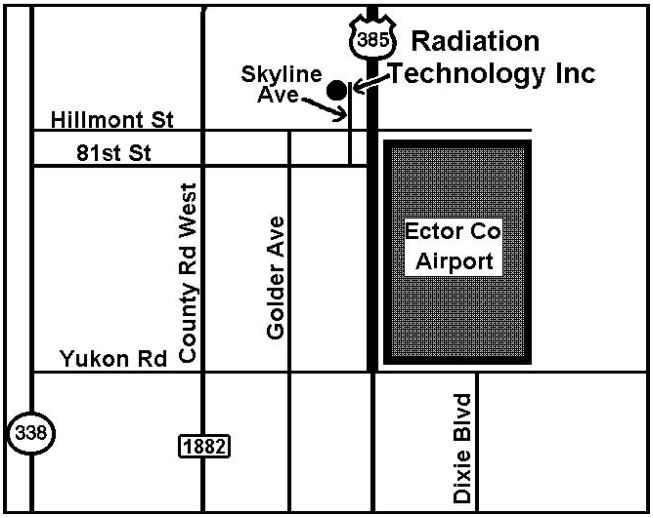
Radiation Technology, Inc. (RTI), located six miles north of downtown Odessa, provides installation, repair, and maintenance of nuclear gauging devices and services for loading and unloading radioactive sources in nuclear gauges. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Ector County

Ector County

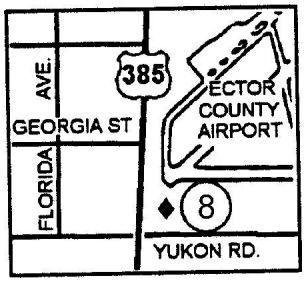




Radiation Technology, Inc.
Monitoring Station Locations

♦ TLD Station	♥ Sample Station	♣ TLD & Sample Station

Homeland Security -Diagram Removed



Radiation Technology, Inc.
Optically Stimulated Luminescence (OSL) Monitoring Results
[1](quarterly and annual readings are in mrem)

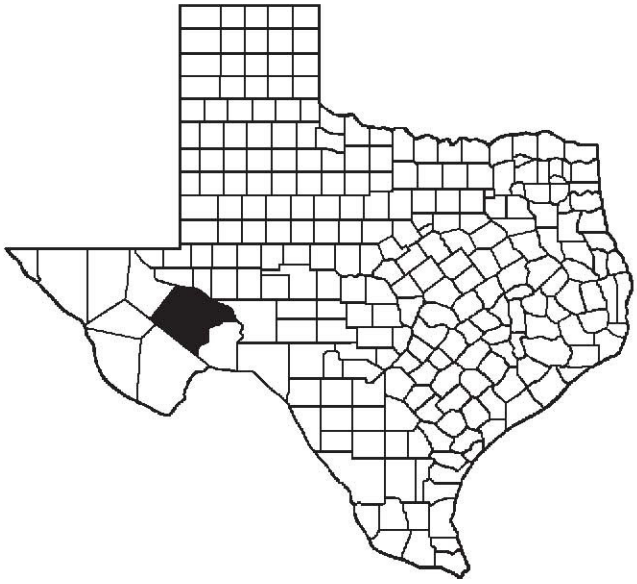
	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE[3]	NOTES
STATION 01	41	42	56	30	169	
STATION 02	159	135	----	110	538	[2]Q3-OSL Missing
STATION 03	80	68	86	39	273	
STATION 04	43	42	50	32	167	
STATION 08	36	37	48	27	148	Background

NOTE: [1]Background is not subtracted from the data
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data
[3]An occupancy factor of 1/16 may be applied to this number to obtain radiation dose to members of the public.

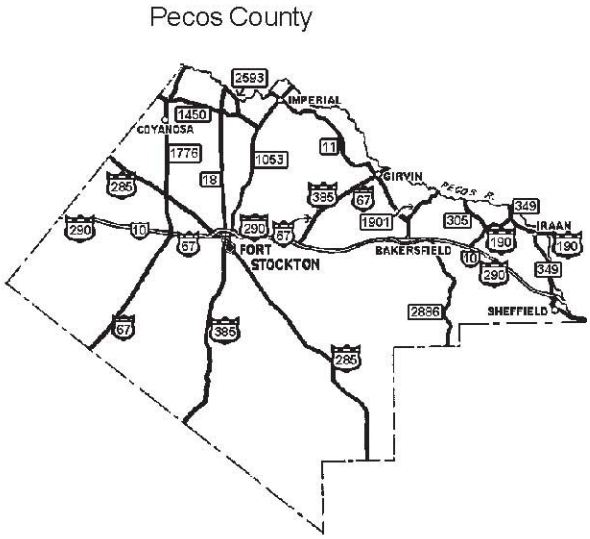
University of Texas Systems Interim Waste Storage Facility

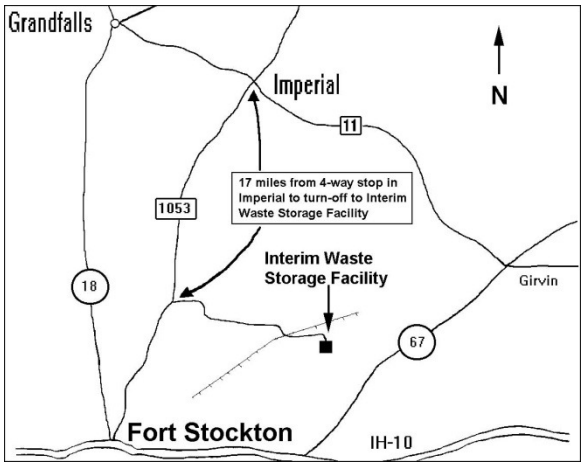
Radiation Branch Site No. 042

University of Texas Systems Interim Waste Storage Facility, located in Pecos County, provides temporary storage for low-level radioactive waste from several University of Texas campuses throughout Texas. The Radiation Branch surveillance program consists of OSL monitoring.



Shaded area indicates location of Pecos County

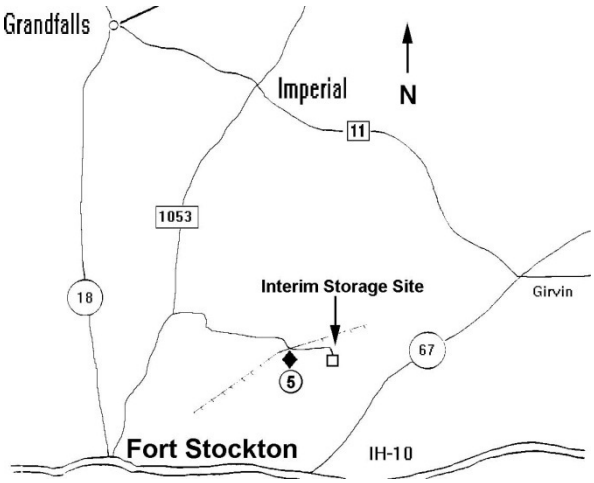




University of Texas Systems Interim Waste Storage Facility
Monitoring Station Locations

♦ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security -Diagram Removed



University of Texas Systems Interim Waste Storage Facility
Optically Stimulated Luminescence (OSL) Monitoring Results
(quarterly and annual readings are in mrem)

	Q1	Q2[2]	Q3	Q4	ANNUAL DOSE	NOTES
STATION 01	43	46	38	57	184	
STATION 02	40	42	33	52	167	
STATION 03	39	41	32	51	351	
STATION 04	25	34	29	49	137	
STATION 05	41	43	34	53	171	Background

NOTE: [1]Background is not subtracted from the data
[2]If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data

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Appendices

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Mixed Analyte Performance Evaluation Program

Laboratory Results for MAPEP Series 26
(TDHL01) Texas Department of State Health Services Laboratory
1100 W 49th Street
Austin, TX 78756

MAPEP-12-MaS26: Radiological and inorganic combined soil standard

Inorganic

Units: (mg/kg)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Arsenic	NR	48.2				33.7 - 62.7		
Barium	NR	655				459 -852		
Beryllium	NR	47.5				33.3 - 61.8		
Cadmium	NR	10.6				7.4 -13.8		
Chromium	NR	89.3				62.5 - 116.1		
Cobalt	NR	113				79 -147		
Copper	NR	206				144 - 268		
Lead	NR	74.4				52.1 -96.7		
Mercury	NR	0.0733				0.0513 - 0.0953		
Nickel	NR	186				130 -242		
Selenium	NR	14.2				9.9 - 18.5		
Silver	NR	85.5				59.9 -111.2		
Technetium-99	NR	0.000596				0.000417 - 0.000775		
Thallium	NR	14.4				10.1 -18.7		
Uranium-235	NR	0.0653				0.0457 - 0.0849		
Uranium – 238	NR	26.5				18.6 – 34.5		
Uranium-Total	NR	26.5				18.6 - 34.5		
Vanadium	NR	104				73 -135		
Zinc	NR	286				200 - 372		

Radiological

Units: (Bq/kg)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	145	159	A		-8.8	111-207	9	
Cesium-134	748	828	A		-9.7	580 - 1076	10	L
Cesium-137	2.15		A			False Positive Test	2.15	
Cobalt-57	1160	1179	A		-1.6	825 - 1533	20	L
Cobalt-60	0.93	1.56	A	(17)		Sensitivity Evaluation	0.93	
Iron-55	NR	1370				959 - 1781		
Manganese-54	578	558	A		3.6	391 -725	14	L
Nickel-63	NR	862				603 - 1121		

Plutonium-238	128	136	A	-5.9	95 -177	12	
Plutonium-239/240	59.0	65.8	A	-10.3	46.1 - 85.5	6.5	
Potassium-40	1520	1491	A	1.9	1044 -1938	40	L
Strontium-90	414	392	A	5.6	274 - 510	20	
Technetium-99	NR	374			262 -486		

Radiological Units: (Bq/kg)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-234/233	61.8	68.1	A		-9.3	47.7 - 88.5	5.2	
Uranium-238	326	329	A		-0.9	230 -428	23	
Zinc-65	682	642	A		6.2	449 - 835	17	L

Radiological Reference Date: February 1, 2012

MAPEP-12-MaW26: Radiological and inorganic combined water standard

Inorganic Units: (mg/L)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	2.71				-1.90 3.52		
Arsenic	NR	<0.01				False Positive Test		
Barium	NR	0.808				0.566 -1.050		
Beryllium	NR	0.808				0.566 - 1.050		
Cadmium	NR	0.418				0.293 -0.543		
Chromium	NR	1.73				1.21 - 2.25		
Cobalt	NR	1.45				1.02 -1.89		
Copper	NR	0.929				0.650 - 1.208		
Lead	NR	0.779				0.545 -1.013		
Mercury	NR	3.75E-3				0.00263 - 0.00488		
Nickel	NR	<0.01				False Positive Test		
Selenium	NR	0.223				0.156 - 0.290		
Technetium-99	NR	4.45E-5				0.00003 -0.00006		
Thallium	NR	0.846				0.592 - 1.100		
Uranium-235	NR	4.50E-4				0.00032-0.00059		
Uranium-238	NR	0.222				0.155 - 0.289		
Uranium-Total	NR	0.222				0.155 -0.289		
Vanadium	NR	1.44				1.01 - 1.87		
Zinc	NR	2.28				1.60-2.96		

Radiological Units: (Bq/L)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.62	1.63	A		-0.6	1.14 - 2.12	0.10	
Cesium-134	-0.20		A			False Positive Test	0.20	L
Cesium-137	42.0	39.9	A		5.3	27.9 - 51.9	1.2	L

Cobalt-57	33.8	32.9	A	2.7	23.0 -42.8	0.8	L
Cobalt-60	24.9	23.72	A	5.0	16.60 - 30.84	0.5	L
Hydrogen-3	441	437	A	0.9	306 -568	11	L
Iron-55	NR	81.9			57.3 - 106.5		
Manganese-54	33.4	31.8	A	5.0	22.3 -41.3	0.9	L
Nickel-63	NR	60.0			42.0 - 78.0		
Plutonium-238	0.581	0.629	A	-7.6	0.440 -0.818	0.058	
Plutonium-239/240	1.14	1.34	A	-14.9	0.94 - 1.74	0.10	
Potassium-40	151	142	A	6.3	99 -185	5	

Radiological — Units: (Bq/L)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Strontium-90	-0.012		A			False Positive Test	0.036	
Technetium-99	NR	27.9				19.5 -36.3		
Uranium-234/233	0.371	0.392	A		-5.4	0.274 - 0.510	.039	
Uranium-238	2.95	2.76	A		6.9	1.93-3.59	0.21	
Zinc-65	-0.170		A			False Positive Test	0.170	

Radiological Reference Date: February 1, 2012

MAPEP-12-GrW26: Gross alpha/beta water

Radiological — Units: (Bq/L)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	1.70	2.14	A		-20.6	-0.64 3.64	0.07	
Gross beta	6.12	6.36	A		-3.8	3.18 - 9.54	0.12	L

Radiological Reference Date: February 1, 2012

MAPEP-12-RdF26: Radiological air filter

Inorganic — Units: (ug/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0187				-0.0131 0.0243		
Uranium-238	NR	10.0				7.0 - 13.0		
Uranium-Total	NR	10.0				7.0 -13.0		

Radiological — Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.073	0.073	A		0.0	0.051 - 0.095	0.007	
Cesium-134	2.14	2.38	A		-10.1	1.67-3.09	0.04	L
Cesium-137	1.94	1.79	A		8.4	1.25 - 2.33	0.08	
Cobalt-57	0.027		A			False Positive Test	0.027	
Cobalt-60	2.25	2.182	A		3.1	1.527 - 2.837	0.06	L

Manganese-54	3.51	3.24	A		8.3	2.27-4.21	0.10	L
Plutonium-238	0.001	0.0015	A	(17)		Sensitivity Evaluation	0.001	
Plutonium-239/240	0.104	0.097	A		7.2	0.068 -0.126	0.012	
Strontium-90	0.013		A			False Positive Test	0.008	
Uranium-234/233	0.019	0.0188	A		1.1	0.0132 -0.0244	0.004	H
Uranium-238	0.131	0.124	A		5.6	0.087 - 0.161	0.013	
Zinc-65	3.19	2.99	A		6.7	2.09 -3.89	0.13	

Radiological Reference Date: February 1, 2012

MAPEP-12-GrF26: Gross alpha/beta air filter

Radiological — Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.759	1.2	A		-36.8	0.4 - 2.0	0.024	
Gross beta	2.25	2.4	A		-6.3	1.2 - 3.6	0.03	L

Radiological Reference Date: February 1, 2012

MAPEP-12-RdV26: Radiological vegetation

Inorganic — Units: (ug/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0434				0.0304 - 0.0564		
Uranium-238	NR	22.4				15.7 -29.1		
Uranium-Total	NR	22.4				15.7 - 29.1		

Radiological — Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.007		N	(1)		False Positive Test	0.002	
Cesium-134	9.84	8.43	A		16.7	5.90 - 10.96	0.17	L
Cesium-137	-0.064		A			False Positive Test	0.064	
Cobalt-57	15.4	12.0	W		28.3	8.4 - 15.6	0.4	L
Cobalt-60	6.69	6.05	A		10.6	4.24 -7.87	0.17	L
Manganese-54	0.009		A			False Positive Test	0.009	
Plutonium – 238	0.179	0.219	A		-18.3	0.153 – 0.285	0.021	
Plutonium-239/240	0.148	0.152	A		-2.6	0.106 - 0.198	0.018	
Strontium-90	1.98	2.11	A		-6.2	1.48 -2.74	0.04	L
Uranium-234/233	0.086	0.0411	N		109.2	0.0288 - 0.0534	0.011	
Uranium-238	0.307	0.278	A		10.4	0.195 -0.361	0.026	
Zinc-65	9.60	8.90	A		7.9	6.23 - 11.57	0.42	

Radiological Reference Date: February 1, 2012

Notes:

(1) = False Positive
(17) = NOT DETECTED - reported a statistically zero result

Mixed Analyte Performance Evaluation Program

Department of Energy RESL - 1955 Fremont Ave, MS4149 - Idaho Falls, ID 83415

Laboratory Results for MAPEP Series 27

(TDHL01) Texas Department of State Health Services Laboratory
1100 W 49th Street
Austin, TX 78756

MAPEP-12-MaS27: Radiological and inorganic combined soil standard

Inorganic

Units: (mg/kg)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	111.5				78.1 - 145.0		
Arsenic	NR	55.7				39.0 -72.4		
Barium	NR	896				627 - 1165		
Beryllium	NR	47.0				32.9 -61.1		
Cadmium	NR	15.4				10.8 - 20.0		
Chromium	NR	99.0				69.3-128.7		
Cobalt	NR	127				89 - 165		
Copper	NR	204				143 -265		
Lead	NR	97.6				68.3 - 126.9		
Mercury	NR	0.172				0.120 -0.224		
Nickel	NR	300				210 - 390		
Selenium	NR	17.7				12.4-23.0		
Silver	NR	95.5				66.9 - 124.2		
Technetium-99	NR	0.000748				0.000524-0.000972		
Thallium	NR	91.0				63.7 - 118.3		
Uranium-235	NR	0.0533				0.0373-0.0693		
Uranium-238	NR	21.1				14.8 - 27.4		
Uranium Total	NR	21.2				14.8-27.6		
Vanadium	NR	271				190 - 352		
Zinc	NR	549				384-714		

Radiological

Units: (Bq/kg)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	106	111	A		-4.5	78 - 144	8	
Cesium-134	896	939	A		-4.6	657 -1221	11	L
Cesium-137	1106	1150	A		-3.8	805 - 1495	31	L
Cobalt-57	1246	1316	A		-5.3	921 -1711	26	L
Cobalt-60	520	531	A		-2.1	372 - 690	9	L
Iron-55	NR	508				356 -660		
Manganese-54	911	920	A		-1.0	644 - 1196	22	L
Nickel-63	NR	406				284 -528		
Plutonium-238	91.3	105.8	A		-13.7	74.1 - 137.5	8.7	
Plutonium-239/240	117	134	A		-12.7	94 -174	11	
Potassium-40	625	632	A		-1.1	442 - 822	19	
Strontium-90	565	508	A		11.2	356 -660	21	

Radiological								Units: (Bq/kg)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Technetium-99	NR	469				328 - 610		
Uranium-234/233	59	60.3	A		-2.2	42.2 -78.4	5	
Uranium-238	248	263	A		-5.7	184 - 342	17	
Zinc-65	625	606	A		3.1	424 -788	15	L

Radiological Reference Date: August 1, 2012

MAPEP-12-MaW27: Radiological and inorganic combined water standard

Inorganic								Units: (mg/L)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Antimony	NR	3.38				2.37 - 4.39		
Arsenic	NR	1.13				0.79 -1.47		
Barium	NR	4.00				2.80 - 5.20		
Beryllium	NR					False Positive Test		
Cadmium	NR	0.506				0.354 - 0.658		
Chromium	NR	0.561				0.393 -0.729		
Cobalt	NR	3.11				2.18 - 4.04		
Copper	NR					False Positive Test		
Lead	NR	2.06				1.44 - 2.68		
Mercury	NR	0.00349				0.00244 -0.00454		
Nickel	NR	3.99				2.79 - 5.19		
Selenium	NR					False Positive Test		
Technetium-99	NR	7.30E-06				0.000005 - 0.000009		
Thallium	NR	2.47				1.73-3.21		
Uranium-235	NR	0.00052				0.00036 - 0.00068		
Uranium-238	NR	0.268				0.188-0.348		
Uranium-Total	NR	0.268				0.188 - 0.348		
Vanadium	NR	1.59				1.11-2.07		
Zinc	NR	3.27				2.29 - 4.25		

Radiological								Units: (Bq/L)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	1.02	1.06	A		-3.8	0.74 -1.38	0.08	
Cesium-134	22.5	23.2	A		-3.0	16.2 - 30.2	0.3	L
Cesium-137	17.9	16.7	A		7.2	11.7 -21.7	0.5	L
Cobalt-57	31.2	29.3	A		6.5	20.5 - 38.1	0.7	L
Cobalt-60	0.21		A			False Positive Test	0.10	
Hydrogen-3	333	334	A		-0.3	234 - 434	5	L
Iron-55	NR	89.3				62.5 -116.1		
Manganese-54	19.3	17.8	A		8.4	12.5 - 23.1	0.5	L
Nickel-63	NR	66.3				46.4 -86.2		
Plutonium-238	0.024	0.013	A	(17)		Sensitivity Evaluation	0.009	
Plutonium-239/240	1.30	1.61	A		-19.3	1.13 -2.09	0.12	

Radiological									Units: (Bq/L)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Potassium-40	146	134	A		9.0	94 - 174	5		
Strontium-90	11.8	12.2	A		-3.3	8.5 -15.9	0.2	L	
Technetium-99	NR	4.58				3.21 - 5.95			
Uranium-234/233	0.426	0.451	A		-5.5	0.316 -0.586	.041		
Uranium-238	2.99	3.33	A		-10.2	2.33 - 4.33	0.21		
Zinc-65	29.2	25.9	A		12.7	18.1 -33.7	0.8	L	

Radiological Reference Date: August 1, 2012

MAPEP-12-GrW27: Gross alpha/beta water

Radiological									Units: (Bq/L)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Gross alpha	1.94	1.79	A		8.4	0.54 - 3.04	0.07		
Gross beta	9.40	9.1	A		3.3	4.6-13.7	0.14	L	

Radiological Reference Date: August 1, 2012

MAPEP-12-RdF27: Radiological air filter

Inorganic									Units: (ug/sample)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Uranium-235	NR	0.0148				0.0104 - 0.0192			
Uranium-238	NR	8.0				5.6-10.4			
Uranium-Total	NR	8.1				5.7 - 10.5			

Radiological									Units: (Bq/sample)
Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag	
Americium-241	0.080	0.0780	A		2.6	-0.0546 - 0.1014	0.008		
Cesium-134	2.44	2.74	A		-10.9	1.92 - 3.56	0.05	L	
Cesium-137	0.023		A			False Positive Test	0.012		
Cobalt-57	1.98	1.91	A		3.7	1.34 - 2.48	0.06		
Cobalt-60	1.79	1.728	A		3.6	1.210 -2.246	0.05	L	
Manganese-54	2.56	2.36	A		8.5	1.65 - 3.07	0.08		
Plutonium-238	0.053	0.0625	A		-15.2	0.0438 -0.0813	0.007		
Plutonium-239/240	0.001	0.00081	A	(17)		Sensitivity Evaluation	0.001		
Strontium-90	1.11	1.03	A		7.8	0.72 -1.34	0.03	L	
Uranium-234/233	0.014	0.0141	A		-0.7	0.0099 - 0.0183	0.003	H	
Uranium-238	0.093	0.100	A		-7.0	0.070 -0.130	0.010		
Zinc-65	-0.006		A			False Positive Test	0.003		

Radiological Reference Date: August 1, 2012

MAPEP-12-GrF27: Gross alpha/beta air filter

Radiological — Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Gross alpha	0.873	0.97	A		-10.0	-0.29 1.65	0.026	L
Gross beta	1.88	1.92	A		-2.1	0.96 - 2.88	0.03	L

Radiological Reference Date: August 1, 2012

Radiological — Units: (Bq/L)

MAPEP-12-RdV27: Radiological vegetation

Inorganic — Units: (ug/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Uranium-235	NR	0.0240				-0.0168 0.0312		
Uranium-238	NR	12.7				8.9 - 16.5		
Uranium Total	NR	12.7				8.9-16.5		

Radiological — Units: (Bq/sample)

Analyte	Result	Ref Value	Flag	Notes	Bias (%)	Acceptance Range	Unc Value	Unc Flag
Americium-241	0.168	0.163	A		3.1	0.114 - 0.212	0.017	
Cesium-134	6.79	6.51	A		4.3	4.56-8.46	0.17	L
Cesium-137	4.85	4.38	A		10.7	3.07 - 5.69	0.20	
Cobalt-57	6.71	5.66	A		18.6	3.96-7.36	0.21	
Cobalt-60	5.34	5.12	A		4.3	3.58 - 6.66	0.15	L
Manganese-54	3.43	3.27	A		4.9	2.29-4.25	0.15	
Plutonium-238	0.201	0.187	A		7.5	0.131-0.243	0.025	
Plutonium-239/240	0.149	0.123	W		21.1	0.086-0.160	0.020	
Strontium-90	0.064		N	(1)		False Positive Test	0.014	
Uranium-234/233	0.093	0.0257	N		261.9	0.0180 -0.0334	0.013	
Uranium-238	0.256	0.158	N		62.0	0.111 - 0.205	0.026	
Zinc-65	0.456		A			False Positive Test	0.228	

Radiological Reference Date: August 1, 2012

Notes:

(1) = False Positive

(17) = NOT DETECTED - reported a statistically zero result

Texas Department of State Health Services Laboratory Detection Limits

Laboratory Services Section
Environmental Sciences Branch

Each laboratory procedure is performed under unique analysis conditions. Variations occur in volumes, counting efficiencies, detector backgrounds, count times, decay factors, chemical recoveries, and other analysis parameters which affect the sensitivity of the measurement. The detection limits listed in the following tables were derived using standard analysis conditions and are routinely achievable on normal samples. If greater sensitivity is required, it is usually possible to adjust detection limits by changing one or more of these parameters.

Detection Limits for Gamma Spectroscopy
Sample Type

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation – Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Ac-228	2.0E-07	2.0E+02	2.0E-05	2.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
Ag-110m	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Am-241	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ba-140	4.0E-07	4.0E+02	2.0E-05	2.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
Be-7	1.0E-06	1.0E+03	3.0E-05	3.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Bi-212	5.0E-07	5.0E+02	3.0E-05	3.0E+01	1.0E-07	1.0E+02	1.0E-07	1.0E+02
Bi-214	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Co-57	1.0E-07	1.0E+02	2.0E-06	2.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Co-58	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Co-60	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Cr-51	1.0E-06	1.0E+03	3.0E-05	3.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Cs-134	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Cs-137	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Fe-59	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
I-125	1.0E-06	1.0E+03	1.0E-05	1.0E+01	2.0E-08	2.0E+01	1.0E-07	1.0E+02
I-131*	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ir-192	1.0E-07	1.0E+02	5.0E-06	5.0E+00	1.0E-08	1.0E+01	1.0E-07	1.0E+02
K-40	2.0E-06	2.0E+03	1.0E-04	1.0E+02	4.0E-08	4.0E+01	1.0E-07	1.0E+02
La-140	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Mn-54	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Nb-95	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Pb-210	4.0E-07	4.0E+02	2.0E-05	2.0E+01	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Pb-212	2.0E-07	2.0E+02	1.0E-05	1.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
Pb-214	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Ra-226	2.0E-06	2.0E+03	1.0E-04	1.0E+02	1.0E-07	1.0E+02	2.0E-07	2.0E+02
Sb-124	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Sc-46	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
Th-230	1.0E-05	1.0E+04	3.0E-04	3.0E+02	1.0E-06	1.0E+03	2.0E-06	2.0E+03
Th-234	1.0E-06	1.0E+03	4.0E-05	4.0E+01	1.0E-07	1.0E+02	2.0E-07	2.0E+02
Tl-208	1.0E-07	1.0E+02	5.0E-06	5.0E+00	5.0E-09	5.0E+00	1.0E-07	1.0E+02
U-235	4.0E-07	4.0E+02	2.0E-05	2.0E+01	3.0E-08	3.0E+01	1.0E-07	1.0E+02
U-238	1.0E-06	1.0E+03	3.0E-05	3.0E+01	6.0E-08	6.0E+01	2.0E-07	2.0E+02
Zn-65	2.0E-07	2.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02
Zr-95	1.0E-07	1.0E+02	1.0E-05	1.0E+01	1.0E-08	1.0E+01	1.0E-07	1.0E+02

*Air iodine can be determined by using cartridges. Detection limits are 2.0E-14µCi/ml or 2.0E-02 pCi/m^3.

Texas Department of State Health Services Laboratory Detection Limits

Laboratory Services Section
Environmental Sciences Branch

Detection Limits for Chemical Analysis Procedures
Sample Type

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Alpha	6.1E-06	6.1E+03	7.0E-07	7.0E-01	3.3E-09	3.3E+00	3.3E-06	3.3E+03
Beta	1.2E-05	1.2E+04	1.3E-06	1.3E+00	6.6E-09	6.6E+00	6.6E-06	6.6E+03
C-14					3.0E-07	3.0E+02		
H-3			2.0E-06	2.0E+00	1.0E-06	1.0E+03		
Ra-226	4.0E-07	4.0E+02	8.0E-07	8.0E-01	8.0E-10	8.0E-01	4.0E-07	4.0E+02
Ra-228	1.9E-06	1.9E+03	3.9E-06	3.9E+00	3.9E-09	3.9E+00	1.9E-06	1.9E+03
Sr-89	9.0E-07	9.0E+02	1.7E-06	1.7E+00	1.7E-09	1.7E+00	9.0E-07	9.0E+02
Sr-90	1.3E-06	1.3E+03	2.7E-06	2.7E+00	2.7E-09	2.7E+00	1.3E-06	1.3E+03

Detection Limits for Alpha Spectroscopy
Sample Type

Isotope	Soil - Sediment		Air Filter		Water - Milk		Vegetation - Fish	
	µCi/g	pCi/kg	µCi/filter	pCi/filter	µCi/ml	pCi/l	µCi/g	pCi/kg
Am-241	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Pu-239	2.0E-07	2.0E+02	2.0E-07	2.0E-01	2.0E-10	2.0E-01	2.0E-07	2.0E+02
Th-228	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Th-230	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
Th-232	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
U-234	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03
U-238	1.0E-06	1.0E+03	1.0E-06	1.0E+00	1.0E-09	1.0E+00	1.0E-06	1.0E+03

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