



Radiation Inspection Branch Environmental Monitoring Summary for 2009

February 2011

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

This is the thirteenth annual reporting of environmental monitoring results to be produced as an internal document. 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/>).

Thermoluminescent dosimeter (TLD) readings are performed by the staff of the Radiation Branch. The Radiation Branch maintains a Harshaw/Bicron Model 6600 TLD reader. Staff of Landauer, Inc. also perform Optimally Stimulated Luminescence (OSL) readings for the facilities that have neutron sources. Approximately 200 TLDs 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 TLD 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.

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

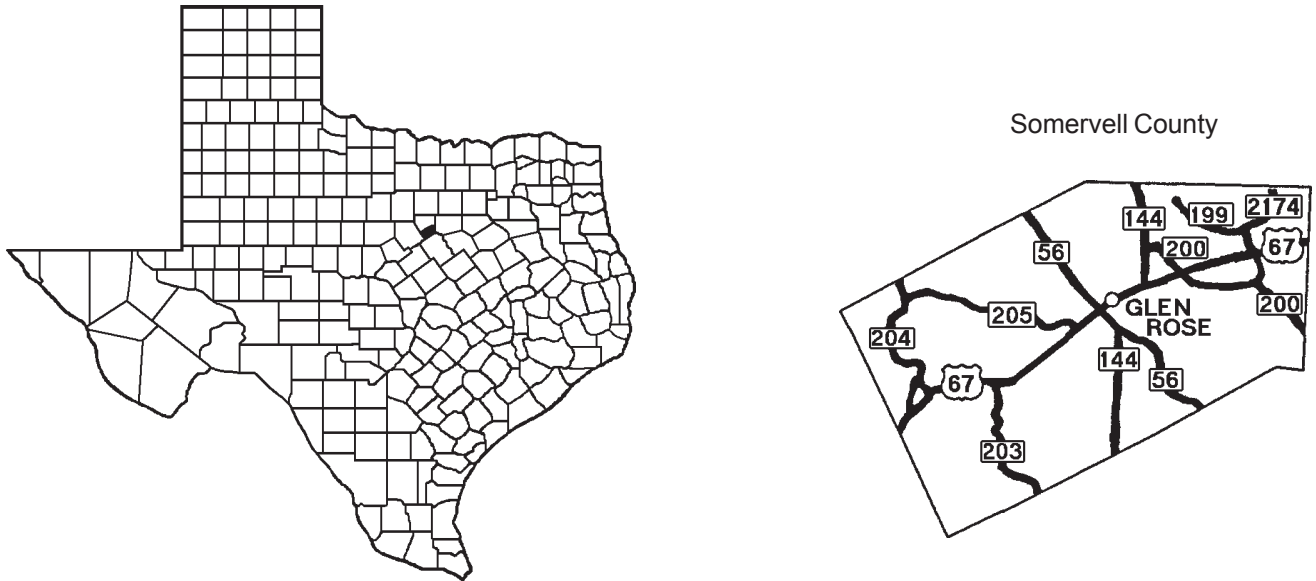
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Comanche Peak Nuclear Power Plant

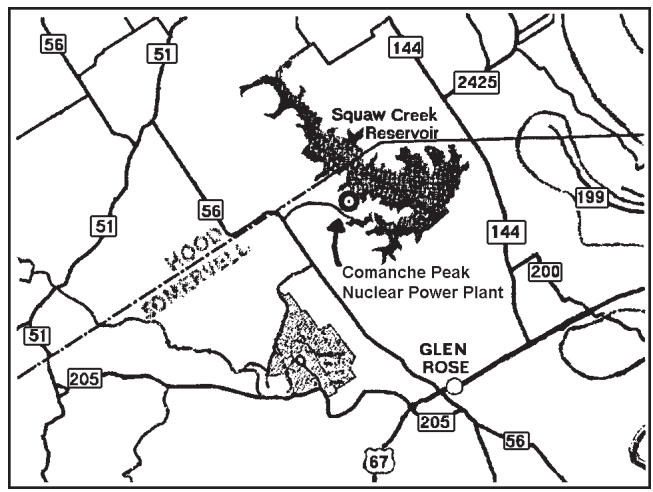
Radiation Branch Site No. 031

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 TLD monitoring and sampling air, fish, food products, sediment, vegetation, and water.

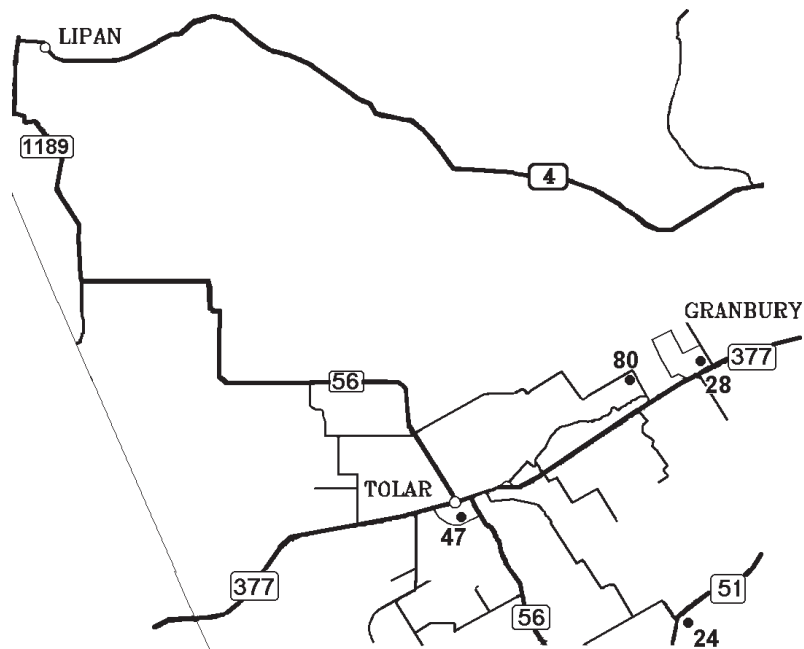
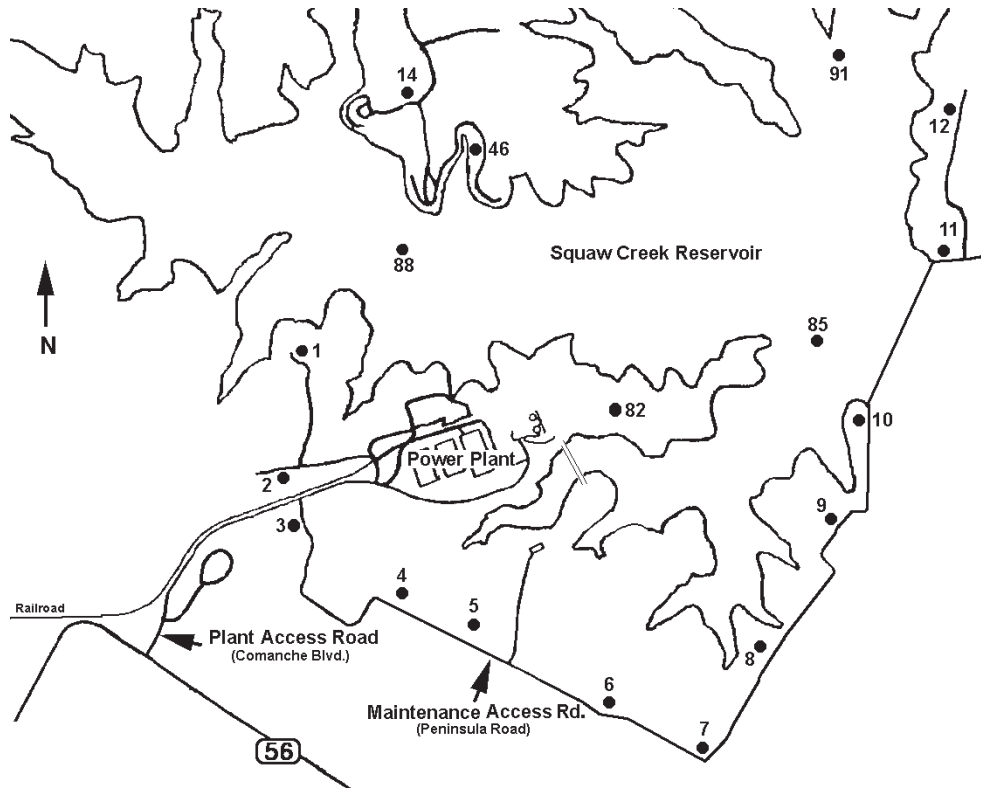


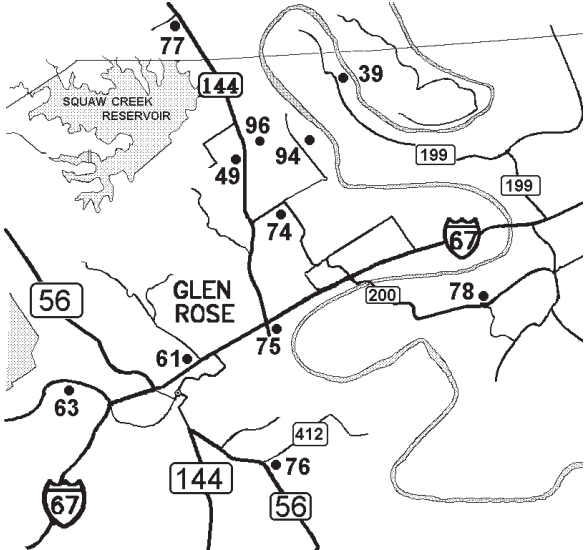
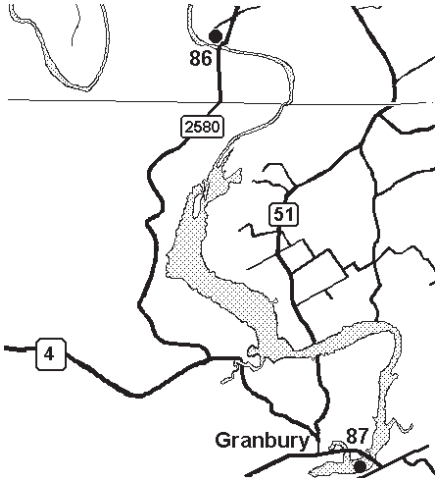
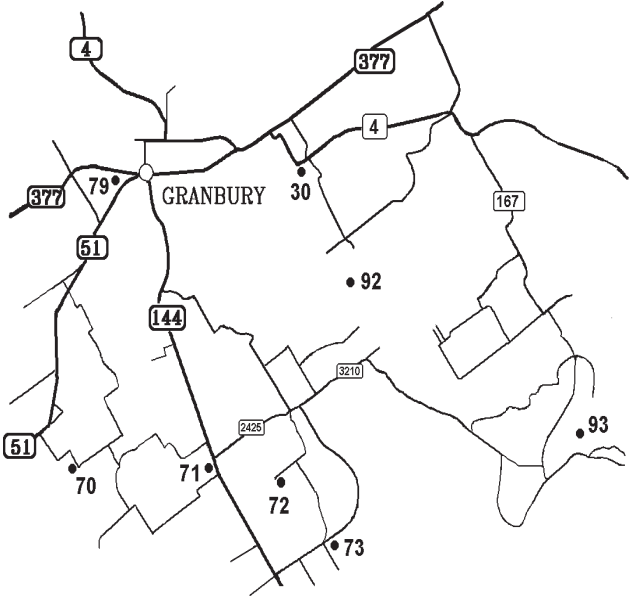
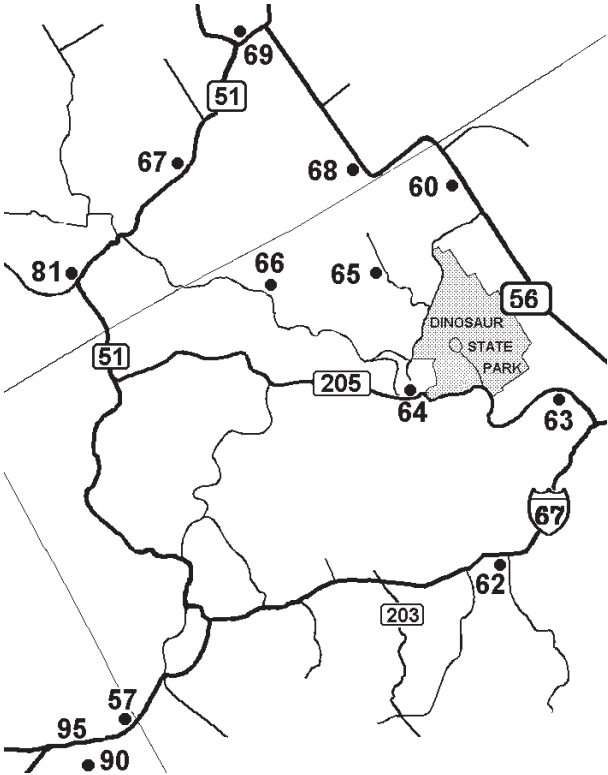
Shaded area indicates location of Somervell County



Monitoring Station Locations

Note: Sample type not indicated on maps.





Comanche Peak Nuclear Power Plant

Thermoluminescent Dosimeter (TLD) Monitoring Results¹
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
01	24.3	10.4	11.5	14.3	60.5	
02	24.3	11.7	11.9	15.3	63.2	
03	23.1	7.8	9.3	13.0	53.2	
04	24.3	10.4	12.1	15.2	62.0	
05	24.3	10.4	11.1	14.1	59.9	
06	24.3	10.4	11.1	14.1	59.9	
07	23.1	9.1	10.2	11.9	54.3	
08	23.1	9.1	11.1	14.1	57.4	
09	25.5	11.7	13.0	15.2	65.4	
10	24.3	10.4	12.1	14.1	60.9	
11	24.3	10.4	11.1	11.9	57.7	
12	26.7	11.7	13.9	15.2	67.5	
14	17.5	10.3	12.2	14.1	54.1	
24	24.5	11.7	12.1	14.1	62.4	
28	24.5	11.7	13.9	15.2	65.3	
30	24.2	10.4	12.2	15.2	62.0	
39	23.3	10.3	11.3	14.1	59.0	
46	24.5	10.3	11.3	14.1	60.2	
47	25.7	11.7	12.1	15.2	64.7	
49	24.5	10.3	12.2	14.1	61.1	
60	24.3	10.4	12.1	12.8	59.6	
61	23.3	10.4	11.1	14.1	58.9	
62	23.3	10.4	12.1	14.1	59.9	
63	23.3	11.7	13.9	16.3	65.2	
64	24.5	11.7	12.1	21.7	70.0	
65	22.2	9.1	10.2	11.9	53.4	
66	23.3	10.4	11.1	13.0	57.8	
67	23.3	10.4	10.2	13.0	56.9	
68	25.5	10.3	11.3	11.8	58.9	
69	23.3	9.1	10.2	13.0	55.6	
70	22.2	10.4	12.1	14.1	58.8	
71	23.3	10.3	11.3	14.1	59.0	
72	23.3	10.3	11.3	14.1	59.0	
73	22.2	10.3	11.3	13.0	56.8	
74	21.0	0.0	12.2	13.0	46.2	tld missing 2nd quarter
75	21.0	9.1	11.1	13.0	54.2	
76	21.0	10.4	10.2	13.0	54.6	
77	21.0	9.0	10.3	11.9	52.2	
78	24.5	10.3	12.2	14.1	61.1	
79	23.3	10.4	14.9	15.2	63.8	
80	24.5	11.7	12.1	14.1	62.4	
81	24.5	10.4	12.1	14.1	61.1	
82	29.1	11.7	13.8	15.3	69.9	

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.

Environmental Sample Results

Comanche Peak Nuclear Power Plant

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
Air Iodine pCi/m³																
2009-01-06	ER090006	01								<4E-3						
2009-01-06	ER090008	57								<4E-3						
2009-01-13	ER090020	01								<5E-3						
2009-01-13	ER090022	57								<3E-3						
2009-01-20	ER090025	01								<4E-3						
2009-01-20	ER090027	57								<4E-3						
2009-01-27	ER090045	01								<6E-3						
2009-01-27	ER090047	57								<8E-3						
2009-02-03	ER090072	01								<4E-3						
2009-02-03	ER090074	57								<4E-3						
2009-02-10	ER090083	01								<4E-3						
2009-02-10	ER090081	57								<4E-3						
2009-02-17	ER090091	01								<3E-3						
2009-02-17	ER090089	57								<4E-3						
2009-02-24	ER090099	01								<4E-3						
2009-02-24	ER090097	57								<6E-3						
2009-03-03	ER090112	01								<5E-3						
2009-03-03	ER090110	57								<7E-3						
2009-03-10	ER090133	01								<7E-3						
2009-03-10	ER090135	57								<5E-3						
2009-03-17	ER090145	01								<5E-3						
2009-03-17	ER090147	57								<5E-3						
2009-03-24	ER090150	01								<5E-3						
2009-03-24	ER090152	57								<4E-3						
2009-03-31	ER090163	01								<8E-3						
2009-03-31	ER090165	57								<5E-3						
2009-04-08	ER090176	01								<3E-3						
2009-04-08	ER090178	57								<6E-3						
2009-04-14	ER090185	01								<4E-3						
2009-04-14	ER090183	57								<5E-3						
2009-04-21	ER090192	01								<7E-3						
2009-04-21	ER090194	57								<4E-3						
2009-04-28	ER090226	01								<7E-3						
2009-04-28	ER090224	57								<4E-3						
2009-05-05	ER090242	01								<4E-3						
2009-05-05	ER090244	57								<7E-3						
2009-05-12	ER090255	01								<7E-3						
2009-05-12	ER090257	57								<7E-3						
2009-05-19	ER090267	01								<6E-3						
2009-05-19	ER090269	57								<3E-3						
2009-05-26	ER090271	01								<5E-3						
2009-05-26	ER090273	57								<7E-3						
2009-06-02	ER090291	01								<7E-3						
2009-06-02	ER090293	57								<6E-3						
2009-06-09	ER090295	01								<4E-3						

Environmental Sample Results

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
2009-06-09	ER090297	57								<5E-3						
2009-06-16	ER090304	01								<4E-3						
2009-06-16	ER090306	57								<4E-3						
2009-06-23	ER090316	01								<8E-3						
2009-06-23	ER090318	57								<4E-3						
2009-06-30	ER090330	01								<5E-3						
2009-06-30	ER090328	57								<7E-3						
2009-07-07	ER090339	01								<7E-3						
2009-07-07	ER090341	57								<7E-3						
2009-07-14	ER090365	01								<3E-3						
2009-07-14	ER090363	57								<6E-3						
2009-07-21	ER090388	01								<9E-3						
2009-07-21	ER090386	57								<9E-3						
2009-07-28	ER090411	01								<5E-3						
2009-07-28	ER090413	57								<7E-3						
2009-08-04	ER090416	01								<6E-3						
2009-08-04	ER090418	57								<4E-3						
2009-08-11	ER090426	01								<7E-3						
2009-08-11	ER090428	57								<4E-3						
2009-08-18	ER090435	01								<4E-3						
2009-08-18	ER090437	57								<3E-3						
2009-08-25	ER090449	01								<6E-3						
2009-08-25	ER090451	57								<7E-3						
2009-09-01	ER090458	01								<4E-3						
2009-09-01	ER090456	57								<3E-3						
2009-09-08	ER090465	01								<5E-3						
2009-09-08	ER090467	57								<3E-3						
2009-09-15	ER090474	01								<6E-3						
2009-09-15	ER090476	57								<4E-3						
2009-09-22	AB11629	01								<5E-3						
2009-09-22	AB11631	57								<4E-3						
2009-09-29	AB12234	01								<7E-3						
2009-09-29	AB12232	57								<6E-3						
2009-10-06	AB12444	01								<8E-3						
2009-10-06	AB12446	57								<4E-3						
2009-10-13	AB12833	01								<4E-3						
2009-10-13	AB12835	57								<3E-3						
2009-10-20	AB13463	57								<4E-3						
2009-10-22	AB13461	01								<5E-3						
2009-10-27	AB13976	01								<6E-3						
2009-10-27	AB13974	57								<8E-3						
2009-11-03	AB14541	01								<5E-3						
2009-11-03	AB14543	57								<4E-3						
2009-11-10	AB15130	01								<7E-3						
2009-11-10	AB15128	57								<7E-3						
2009-11-17	AB15560	01								<6E-3						
2009-11-17	AB15562	57								<5E-3						
2009-11-24	AB15962	01								<5E-3						
2009-11-24	AB15960	57								<1.E						

Environmental Sample Results

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
2009-12-01	AB16062	01								<1.0E						
2009-12-01	AB16064	57								<5E-3						
2009-12-08	AB16638	01								<7E-3						
2009-12-08	AB16640	57								<4E-3						
2009-12-15	AB17089	01								<3E-3						
2009-12-15	AB17087	57								<6E-3						
2009-12-22	AB17415	01								<7E-3						
2009-12-22	AB17417	57								<3E-3						
2009-12-28	AB17489	01								<8E-3						
2009-12-28	AB17491	57								<4E-3						
Air Particulate pCi/m³																
2009-01-06	ER090005	01	2.9E-2													
2009-01-06	ER090007	57	3.2E-2													
2009-01-13	ER090019	01	3.1E-2													
2009-01-13	ER090021	57	3.1E-2													
2009-01-20	ER090024	01	2.7E-2													
2009-01-20	ER090026	57	2.7E-2													
2009-01-27	ER090044	01	2.6E-2													
2009-01-27	ER090046	57	2.9E-2													
2009-02-03	ER090071	01	2.9E-2													
2009-02-03	ER090073	57	3.0E-2													
2009-02-10	ER090082	01	1.9E-2													
2009-02-10	ER090080	57	1.9E-2													
2009-02-17	ER090090	01	2.5E-2													
2009-02-17	ER090088	57	2.5E-2													
2009-02-24	ER090098	01	2.6E-2													
2009-02-24	ER090096	57	2.8E-2													
2009-03-03	ER090111	01	2.9E-2													
2009-03-03	ER090109	57	3.1E-2													
2009-03-10	ER090132	01	2.3E-2													
2009-03-10	ER090134	57	2.2E-2													
2009-03-17	ER090146	01	1.7E-2													
2009-03-17	ER090148	57	1.8E-2													
2009-03-24	ER090149	01	3.1E-2													
2009-03-24	ER090151	57	3.1E-2													
2009-03-31	ER090162	01	1.8E-2													
2009-03-31	ER090164	57	1.9E-2													
2009-04-08	ER090175	01	2.0E-2													
2009-04-08	ER090177	57	1.9E-2													
2009-04-14	ER090184	01	1.6E-2													
2009-04-14	ER090182	57	1.8E-2													
2009-04-21	ER090191	01	1.7E-2													
2009-04-21	ER090193	57	1.8E-2													
2009-04-28	ER090227	01	1.9E-2													
2009-04-28	ER090225	57	2.1E-2													
2009-05-05	ER090241	01	1.3E-2													
2009-05-05	ER090243	57	1.4E-2													
2009-05-12	ER090254	01	1.8E-2													

Environmental Sample Results

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
2009-05-12	ER090256	57	2.0E-2													
2009-05-19	ER090266	01	1.7E-2													
2009-05-19	ER090268	57	1.8E-2													
2009-05-26	ER090270	01	1.7E-2													
2009-05-26	ER090272	57	1.6E-2													
2009-06-02	ER090290	01	2.3E-2													
2009-06-02	ER090292	57	2.5E-2													
2009-06-09	ER090294	01	2.2E-2													
2009-06-09	ER090296	57	2.5E-2													
2009-06-16	ER090303	01	1.9E-2													
2009-06-16	ER090305	57	2.2E-2													
2009-06-23	ER090315	01	1.6E-2													
2009-06-23	ER090317	57	1.6E-2													
2009-06-30	ER090331	01	2.6E-2													
2009-06-30	ER090329	57	3.1E-2													
2009-07-07	ER090338	01	2.1E-2													
2009-07-07	ER090340	57	2.3E-2													
2009-07-08	ER080360	01	1.9E-2													
2009-07-14	ER090364	01	2.4E-2													
2009-07-14	ER090362	57	2.6E-2													
2009-07-21	ER090387	01	2.1E-2													
2009-07-21	ER090385	57	2.2E-2													
2009-07-28	ER090410	01	2.3E-2													
2009-07-28	ER090412	57	2.7E-2													
2009-08-04	ER090415	01	1.8E-2													
2009-08-04	ER090417	57	1.9E-2													
2009-08-11	ER090427	01	1.8E-2													
2009-08-11	ER090429	57	1.9E-2													
2009-08-18	ER090434	01	2.2E-2													
2009-08-18	ER090436	57	2.4E-2													
2009-08-25	ER090448	01	1.9E-2													
2009-08-25	ER090450	57	2.3E-2													
2009-09-01	ER090459	01	2.6E-2													
2009-09-01	ER090457	57	3.2E-2													
2009-09-08	ER090464	01	3.2E-2													
2009-09-08	ER090466	57	3.8E-2													
2009-09-15	ER090473	01	1.6E-2													
2009-09-15	ER090475	57	1.7E-2													
2009-09-22	AB11628	01	2.7E-2													
2009-09-22	AB11630	57	3.0E-2													
2009-09-29	AB12233	01	1.8E-2													
2009-09-29	AB12231	57	1.9E-2													
2009-10-06	AB12443	01	1.5E-2													
2009-10-06	AB12445	57	1.4E-2													
2009-10-13	AB12832	01	1.1E-2													
2009-10-13	AB12834	57	1.3E-2													
2009-10-20	AB13460	01	2.1E-2													
2009-10-22	AB13462	57	2.3E-2													
2009-10-27	AB13975	01	1.7E-2													

Environmental Sample Results

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	
2009-10-27	AB13973	57	1.7E-2														
2009-11-03	AB14540	01	1.8E-2														
2009-11-03	AB14542	57	2.0E-2														
2009-11-10	AB15129	01	2.5E-2														
2009-11-10	AB15127	57	2.8E-2														
2009-11-17	AB15559	01	3.3E-2														
2009-11-17	AB15561	57	3.6E-2														
2009-11-24	AB15961	01	3.4E-2														
2009-11-24	AB15959	57	3.8E-2														
2009-12-01	AB16061	01	2.2E-2														
2009-12-01	AB16063	57	2.3E-2														
2009-12-08	AB16637	01	2.0E-2														
2009-12-08	AB16639	57	2.0E-2														
2009-12-15	AB17088	01	2.9E-2														
2009-12-15	AB17086	57	3.0E-2														
2009-12-22	AB17414	01	2.7E-2														
2009-12-22	AB17416	57	3.0E-2														
2009-12-28	AB17488	01	2.3E-2														
2009-12-28	AB17490	57	2.4E-2														
Air Particulate Composite pCi/Sample																	
2009-01-30	ER090031	01	<7.2	<2.2	<2.5	<2.3	<2.7	<4.6	<2.1	<2.5	<2.1	<2.5	<2.2	<2.1	<5.5	<3.9	
2009-01-30	ER090030	57	<9.6	<3.3	<5.7	<3.6	<4.3	<6.4	<3.0	<4.1	<3.0	<3.1	<3.2	<3.2	<8.2	<5.6	
2009-04-30	ER090206	01	<1.1E+1	<3.1	<3.4	<3.3	<3.3	<6.3	<2.9	<4.0	<2.0	<3.6	<3.2	<3.2	<8.1	<5.2	
2009-04-30	ER090207	57	<7.3	<2.2	<2.6	<2.2	<2.7	<4.5	<2.0	<3.2	<2.0	<2.5	<2.5	<2.1	<5.3	<4.1	
2009-07-17	ER090357	01	<6.7	<2.2	<3.5	<2.1	<2.8	<4.2	<1.9	<2.5	<1.9	<2.2	<2.2	<2.0	<4.7	<3.5	
2009-07-17	ER090358	57	<6.8	<2.1	<2.3	<1.9	<2.1	<4.2	<1.9	<2.6	<1.9	<2.2	<2.2	<2.1	<5.0	<3.6	
2009-12-04	AB15999	01	<7.7	<2.5	<2.7	<2.6	<2.7	<4.8	<2.2	<3.0	<2.2	<2.5	<2.5	<2.6	<6.2	<3.9	
2009-12-04	AB16002	57	<7.7	<2.4	<3.6	<2.3	<2.9	<4.6	<2.3	<2.6	<2.3	<2.4	<2.4	<2.3	<5.5	<4.0	
Fish pCi/kg																	
2009-05-04	ER090250	91	<3.1E+1	<5.9	<8.4	<5.5	<7.0	<1.5E+1	<1.2E+1	<9.8	<1.2E+1	<9.8	<5.8	<6.6	<1.6E+1	<1.1E+1	
2009-05-04	ER090251	91	<2.7E+1	<5.0	<5.8	<4.2	<5.1	<1.2E+1	<1.2E+1	<9.2	<1.3E+1	<9.2	<4.8	<5.7	<1.2E+1	<8.9	
2009-05-06	ER090252	92	<2.9E+1	<5.0	<7.0	<4.3	<5.7	<1.3E+1	<1.3E+1	<7.7	<1.3E+1	<7.7	<4.9	<5.6	<1.2E+1	<9.0	
2009-05-06	ER090253	92	<3.2E+1	<5.3	<6.4	<4.5	<5.3	<1.3E+1	<1.3E+1	<1.1E+1	<1.5E+1	<1.1E+1	<5.2	<6.1	<1.3E+1	<9.8	
2009-10-20	AB13465	91	<2.3E+1	<5.0	<5.4	<4.4	<5.1	<1.3E+1	<1.3E+1	<6.8	<7.6	<6.8	<5.2	<5.4	<1.3E+1	<8.9	
2009-10-20	AB13466	91	<2.2E+1	<4.8	<5.5	<4.5	<5.2	<1.2E+1	<1.2E+1	<6.3	<7.3	<6.3	<4.5	<4.9	<1.3+1	<8.3	
2009-10-20	AB13467	91	<2.3E+1	<5.1	<5.6	<4.4	<5.0	<1.3E+1	<1.3E+1	<6.6	<7.7	<6.6	<4.5	<5.3	<1.3E+1	<8.4	
2009-10-20	AB13464	92	<2.4E+1	<5.4	<7.1	<4.9	<5.9	<1.3E+1	<1.3E+1	<5.9	<8.7	<5.9	<5.1	<5.7	<1.5E+1	<9.5	
Food Product pCi/kg																	
2009-11-10	AB15131	93	<4.0E+1	<8.4	<1.1E+1	<8.8	<8.9	<2.2E+1	<1.4E+1	<1.2E+1	<1.2E+1	<8.6	<9.7	<2.3E+1	<1.5E+1		
Sediment pCi/kg																	
2009-01-13	ER090023	88	<1.10E+2	<2.5E+1	<2.6E+1	<2.7E+1	2.40E+2	<4.6E+1	<3.2E+1	<3.4E+1	<2.5E+1	<2.9E+1	<2.9E+1	<2.9E+1	<6.3E+1		
2009-07-07	ER090342	88	<2.62E+2	<6.0E+1	<5.9E+1	<7.0E+1	<6.8E+1	<1.26E+2	<7.7E+1	<7.2E+1	<6.4E+1	<6.8E+1	<6.8E+1	<6.8E+1	<1.63E+2	<1.07E+2	
Vegetation for Milk pCi/kg																	
2009-01-27	ER090048	14	<4.9E+1	<9.5	<9.5	<8.1	<9.5	<2.1E+1	<1.8E+1	<1.6E+1	<8.9	<1.1E+1	<8.9	<1.1E+1	<2.0E+1	<1.7E+1	

Environmental Sample Results

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
2009-02-24	ER090100	14		<1.27E+2	<1.9E+1	<2.0E+1	<1.9E+1	<1.9E+1	<4.2E+1		<6.3E+1	<4.1E+1	<1.9E+1	<2.4E+1	<4.2E+1	<3.5E+1
2009-03-31	ER090166	14		<2.6E+1	<6.1	<6.9	<5.2	<6.0	<1.6E+1		<8.8	<6.5	<5.9	<6.3	<1.7E+1	<1.1E+1
2009-03-31	ER090167	90		<2.7E+1	<6.1	<6.7	<5.0	<5.7	<1.6E+1		<9.0	<6.7	<6.1	<6.4	<1.7E+1	<1.1E+1
2009-04-28	ER090230	14		<6.3E+1	<1.5E+1	<1.4E+1	<1.3E+1	<1.5E+1	<3.8E+1		<2.5E+1	<2.0E+1	<1.4E+1	<1.6E+1	<3.0E+1	<2.5E+1
2009-05-26	ER090276	14		<7.4E+1	<1.8E+1	<2.6E+1	<1.6E+1	<2.2E+1	<2.8E+1		<2.6E+1	<2.2E+1	<1.8E+1	<1.9E+1	<4.1E+1	<3.0E+1
2009-06-30	ER090324	14		<4.8E+1	<1.1E+1	<1.2E+1	<9.5	<1.1E+1	<2.5E+1		<1.7E+1	<1.5E+1	<1.2E+1	<1.2E+1	<2.6E+1	<2.0E+1
2009-06-30	ER090325	90		<4.4E+1	<9.2	<1.1E+1	<1.0E+1	<9.4E+1	<2.1E+1		<1.7E+1	<1.3E+1	<9.0	<1.0E+1	<2.5E+1	<1.7E+1
2009-07-28	ER090409	14		<3.4E+1	<7.4	<8.9	<7.7	<8.2	<1.7E+1		<1.2E+1	<9.8	<8.4	<8.0	<2.0E+1	<1.3E+1
2009-08-25	ER090452	14		<6.8E+1	<1.4E+1	<1.6E+1	<1.4E+1	<1.4E+1	<3.6E+1		<2.7E+1	<1.9E+1	<1.4E+1	<1.6E+1	<3.6E+1	<2.4E+1
2009-09-29	AB12227	14		<5.0E+1	<1.0E+1	<1.1E+1	<9.7	<1.1E+1	<2.2E+1		<1.9E+1	<1.6E+1	<1.1E+1	<1.2E+1	<2.4E+1	<1.9E+1
2009-09-29	AB12228	90		<6.7E+1	<1.3E+1	<1.5E+1	<1.3E+1	<1.4E+1	<2.9E+1		<2.7E+1	<1.8E+1	<1.3E+1	<1.4E+1	<3.1E+1	<2.4E+1
2009-10-27	AB13979	14		<6.3E+1	<1.1E+1	<1.4E+1	<1.3E+1	<1.3E+1	<2.8E+1		<2.5E+1	<1.8E+1	<1.2E+1	<1.4E+1	<2.9E+1	<2.2E+1
2009-11-24	AB15963	14		<1.02E+2	<2.2E+1	<2.0E+1	<1.9E+1	<2.1E+1	<4.1E+1		<3.9E+1	<3.1E+1	<2.1E+1	<2.2E+1	<4.4E+1	<3.6E+1
2009-12-28	AB17493	14		<1.73E+2	<2.3E+1	<2.3E+1	<2.3E+1	<2.2E+1	<5.2E+1		<9.3E+1	<5.8E+1	<2.2E+1	<2.7E+1	<5.1E+1	<4.1E+1
2009-12-28	AB17492	90		<1.74E+2	<2.5E+1	<2.3E+1	<2.2E+1	<2.5E+1	<5.3E+1		<8.3E+1	<4.9E+1	<2.5E+1	<3.0E+1	<5.2E+1	<4.7E+1
Water-Surface pCi/l																
2009-01-27	ER090049	85	1.2E+1	<7.6	<1.9	<2.0	<1.9	<2.1	<3.9		<2.5	<2.7	<1.8	<2.0	<3.8	<3.3
2009-01-27	ER090050	86	6.4	<9.7	<2.1	<2.2	<1.9	<2.0	<4.2		<3.5	<3.3	<2.1	<2.2	<4.6	<3.7
2009-02-24	ER090101	85	1.2E+1	<1.1E+1	<2.1	<2.2	<2.0	<2.0	<4.2		<4.1	<3.7	<2.0	<2.3	<4.6	<3.7
2009-02-24	ER090102	86	7.3	<1.1E+1	<2.0	<2.0	<2.1	<2.1	<4.6		<4.3	<3.9	<2.1	<2.4	<4.4	<3.8
2009-03-31	ER090168	85	1.14E+1	<8.3	<2.2	<2.2	<2.0	<2.2	<4.1		<2.7	<2.7	<2.2	<2.2	<4.9	<3.7
2009-03-31	ER090169	86	6.2	<7.5	<1.8	<1.9	<1.9	<2.1	<3.9		<2.6	<2.9	<1.9	<1.8	<4.4	<3.1
2009-04-28	ER090228	85	8.4	<9.9	<2.3	<2.2	<1.9	<2.3	<4.4		<3.4	<3.3	<2.2	<2.4	<4.7	<3.9
2009-04-28	ER090229	86	7.4	<1.2E+1	<2.3	<2.2	<1.9	<2.3	<4.5		<4.3	<3.7	<2.2	<2.6	<4.7	<4.1
2009-05-26	ER090274	85	1.2E+1	<8.5	<2.2	<2.2	<2.0	<2.3	<4.1		<2.7	<2.8	<2.2	<2.3	<4.7	<3.9
2009-05-26	ER090275	86	5.9	<9.6	<2.3	<2.2	<2.0	<2.4	<4.5		<3.4	<3.2	<2.2	<2.4	<4.7	<3.8
2009-06-30	ER090326	85	1.0E+1	<7.5	<1.9	<2.0	<1.8	<2.0	<4.1		<2.3	<2.6	<2.1	<2.0	<4.6	<3.4
2009-06-30	ER090327	86	8.5	<7.4	<1.8	<1.9	<1.9	<2.1	<3.7		<2.5	<2.6	<1.9	<2.1	<4.1	<3.4
2009-07-28	ER090408	85	1.0E+1	<8.3	<2.1	<2.1	<1.9	<2.2	<3.9		<2.7	<2.6	<2.1	<2.1	<4.3	<3.5
2009-07-28	ER090407	86	5.5	<7.6	<2.0	<2.0	<2.0	<2.2	<4.0		<2.5	<2.5	<2.1	<2.1	<4.4	<3.5
2009-08-25	ER090453	85	1.2E+1	<1.1E+1	<2.2	<2.0	<2.0	<2.1	<4.2		<3.9	<3.2	<2.0	<2.2	<4.5	<3.1
2009-08-25	ER090454	86	8.1	<9.1	<1.9	<2.0	<2.0	<2.1	<4.1		<3.6	<3.0	<1.9	<2.2	<4.2	<3.5
2009-09-29	AB12226	85	1.4E+1	<9.3	<2.0	<2.1	<1.9	<2.1	<4.2		<3.5	<3.3	<2.1	<2.3	<4.4	<3.7
2009-09-29	AB12225	86	6.4	<8.6	<1.8	<1.9	<2.0	<2.1	<4.0		<2.8	<2.7	<1.9	<2.0	<3.9	<3.3
2009-10-27	AB13977	85	1.2E+1	<7.8	<2.0	<2.1	<2.0	<2.1	<3.9		<2.5	<2.5	<2.0	<2.1	<4.4	<3.5
2009-10-27	AB13978	86	1.0E+1	<8.3	<1.7	<2.0	<2.0	<2.2	<3.7		<2.7	<2.7	<1.7	<1.9	<4.1	<3.3
2009-11-24	AB15964	85	1.1E+1	<1.1E+1	<2.0	<2.0	<2.0	<2.1	<4.2		<4.5	<3.5	<1.9	<2.2	<4.3	<3.6
2009-11-24	AB15965	86	6.3	<1.2E+1	<1.9	<2.1	<1.9	<2.0	<4.4		<5.0	<3.8	<2.0	<2.1	<4.1	<3.5
2009-12-28	AB17494	85	1.2E+1	<1.5E+1	<2.1	<2.0	<1.9	<2.1	<4.4		<7.2	<4.7	<1.9	<2.5	<4.1	<3.9
2009-12-28	AB17495	86	6.1	<1.2E+1	<2.2	<1.9	<2.0	<2.1	<4.5		<4.8	<3.8	<2.0	<2.1	<4.1	<3.4
Water-Surface Composite pCi/l																
2009-02-17	ER090034	85								1.29E+4						
2009-02-17	ER090035	86								<1.0E+3						
2009-05-29	ER090204	85								1.12E+4						
2009-05-29	ER090205	86								<1.0E+3						
2009-07-31	ER090355	85								1.17E+4						
2009-07-31	ER090356	86								<1.0E+3						

Environmental Sample Results

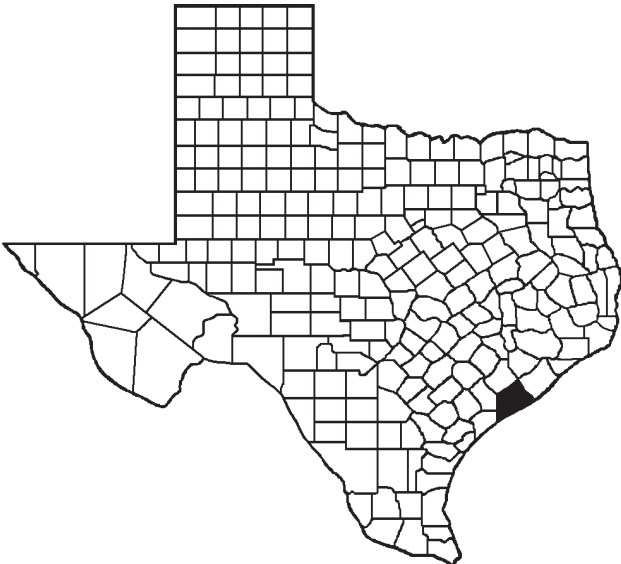
Date	Lab. No.	Station	Beta	Ba-140	Co-58	Co-60	Cs-134	Cs-137	Fe-59	H-3	I-131	La-140	Mn-54	Nb-95	Zn-65	Zr-95
2009-12-02	AB15997	85								1.25E+4						
2009-12-02	AB15988	86								<1.0E+3						

South Texas Project

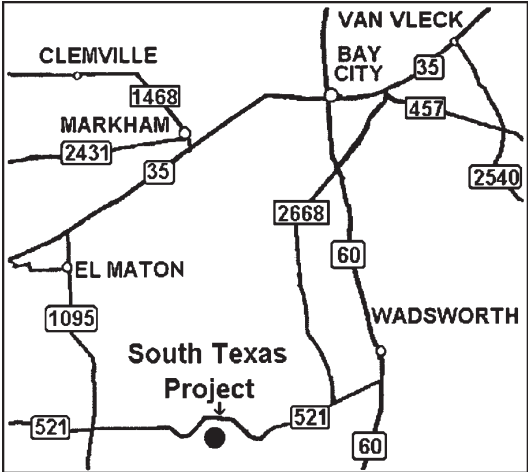
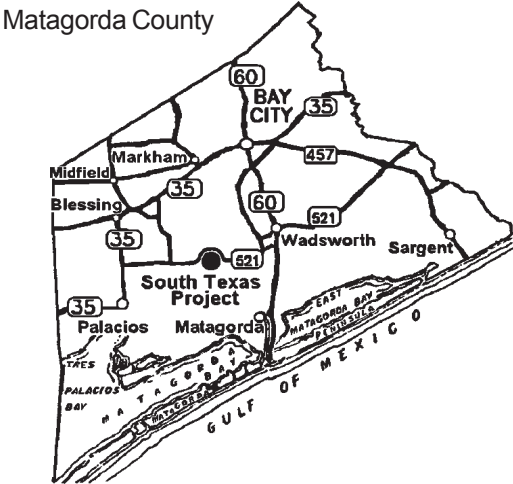
Radiation Branch Site No. 012

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 TLD monitoring and sampling air, fish, food products, sediment, vegetation, and water.

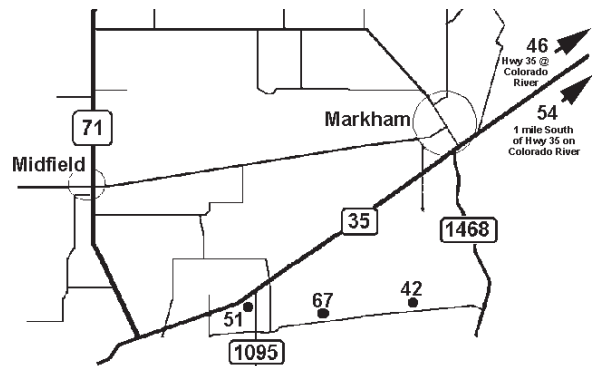
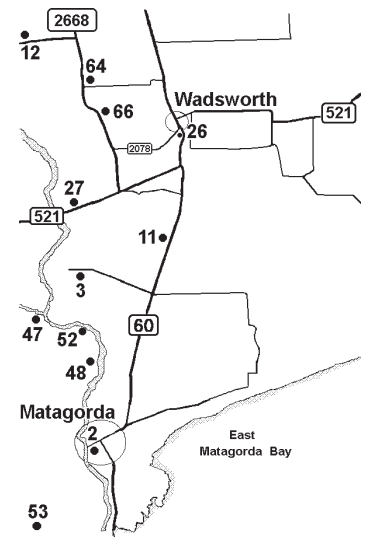
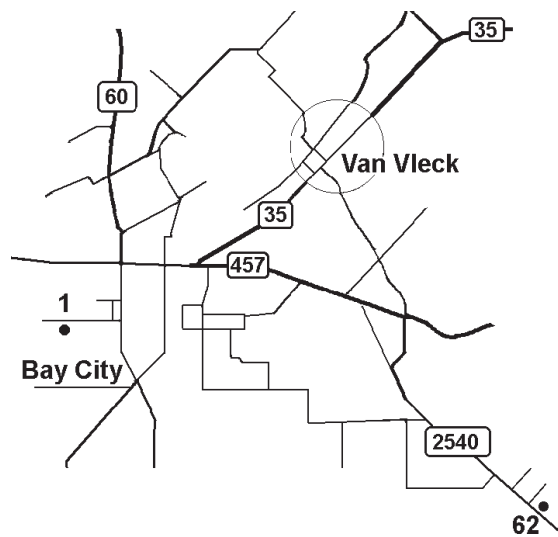
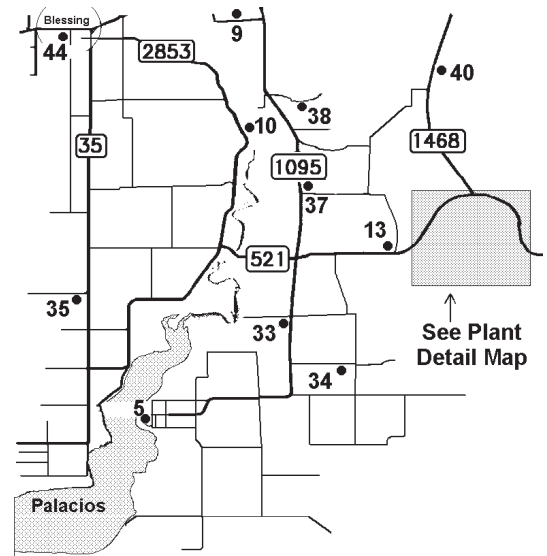
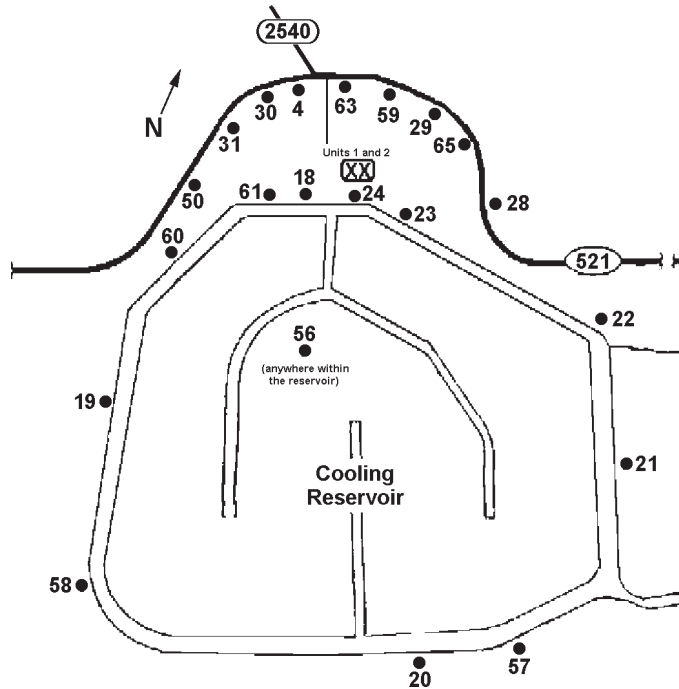


Shaded area indicates location of Matagorda County



Monitoring Station Locations

Note: Sample type not indicated on maps.



Thermoluminescent Dosimeter (TLD) Monitoring Results¹
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual Dose	Notes
01	18.2	9.5	13.0	13.0	53.7	
02	18.2	9.5	14.0	13.0	54.7	
03	17.3	8.3	11.0	10.0	46.6	
04	19.9	10.6	14.0	16.0	60.5	
05	17.3	9.5	11.0	12.0	49.8	
09	19.1	10.6	15.0	13.0	57.7	
10	18.2	10.6	13.0	13.0	54.8	
11	17.3	10.6	12.0	13.0	52.9	
12	19.1	10.6	0.0	13.0	42.7	
13	19.9	10.6	13.0	14.0	57.5	
18	18.2	10.6	12.0	13.0	53.8	tld missing 3rd quarter
19	18.2	10.6	12.0	13.0	53.8	
20	18.2	10.6	12.0	12.0	52.8	
21	16.5	9.5	11.0	12.0	49.0	
22	19.1	9.5	12.0	14.0	54.6	
23	17.3	9.5	12.0	12.0	50.8	
24	18.2	9.5	13.0	21.0	61.7	
26	17.3	9.5	11.0	11.0	48.8	
27	17.3	8.3	12.0	11.0	48.6	
28	18.2	11.8	14.0	13.0	57.0	
29	19.1	10.6	14.0	13.0	56.7	
30	17.3	10.6	13.0	13.0	53.9	
31	20.8	13.0	16.0	16.0	65.8	
33	19.1	10.6	13.0	13.0	55.7	
34	18.2	10.6	13.0	14.0	55.8	
35	18.2	11.8	13.0	13.0	56.0	
37	20.8	13.0	16.0	15.0	64.8	
38	19.1	10.6	15.0	13.0	57.7	
40	19.9	9.5	12.0	12.0	53.4	
42	23.4	13.0	17.0	19.0	72.4	
44	17.3	9.5	14.0	12.0	52.8	
50	21.7	13.0	16.0	16.0	66.7	
51	19.9	11.8	14.0	13.0	58.7	
57	16.5	9.5	11.0	12.0	49.0	
58	17.3	9.5	15.0	12.0	53.8	
59	19.9	11.8	20.0	14.0	65.7	
60	17.3	10.6	13.0	12.0	52.9	
61	18.2	9.5	13.0	12.0	52.7	
62	19.9	11.8	15.0	15.0	61.7	
63	18.2	10.6	14.0	13.0	55.8	
64	18.2	10.6	13.0	13.0	54.8	
65	17.3	10.6	14.0	13.0	54.9	
66	18.2	9.5	14.0	13.0	54.7	
67	19.9	10.6	15.0	14.0	59.5	

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.

Environmental Sample Results

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
Air Iodine pCi/m³																
2009-01-07	ER090015	30									<4E-3					
2009-01-07	ER090013	35									<4E-3					
2009-01-13	ER090039	30									<1.3E-2					
2009-01-13	ER090037	35									<1.3E-2					
2009-01-21	ER090043	30									<8E-3					
2009-01-21	ER090041	35									<4E-3					
2009-01-28	ER090069	30									<6E-3					
2009-01-28	ER090067	35									<4E-3					
2009-02-04	ER090078	30									<6E-3					
2009-02-04	ER090076	35									<6E-3					
2009-02-11	ER090087	30									<7E-3					
2009-02-11	ER090085	35									<4E-3					
2009-02-18	ER090095	30									<4E-3					
2009-02-18	ER090093	35									<6E-3					
2009-02-25	ER090107	30									<9E-3					
2009-02-25	ER090105	35									<6E-3					
2009-03-04	ER090130	30									<4E-3					
2009-03-04	ER090128	35									<8E-3					
2009-03-11	ER090139	30									<8E-3					
2009-03-11	ER090137	35									<9E-3					
2009-03-17	ER090142	30									<8E-3					
2009-03-17	ER090141	35									<9E-3					
2009-03-25	ER090156	30									<4E-3					
2009-03-25	ER090154	35									<4E-3					
2009-03-31	ER090160	30									<4E-3					
2009-03-31	ER090158	35									<6E-3					
2009-04-07	ER090174	30									<4E-3					
2009-04-07	ER090172	35									<5E-3					
2009-04-14	ER090189	30									<3E-3					
2009-04-14	ER090187	35									<4E-3					
2009-04-21	ER090201	30									<9E-3					
2009-04-21	ER090199	35									<9E-3					
2009-04-28	ER090234	30									<5E-3					
2009-04-28	ER090232	35									<5E-3					
2009-05-05	ER090248	30									<5E-3					
2009-05-05	ER090246	35									<5E-3					
2009-05-11	ER090261	30									<1.3E-2					
2009-05-11	ER090259	35									<5E-3					
2009-05-18	ER090265	30									<4E-3					
2009-05-18	ER090263	35									<5E-3					
2009-05-26	ER090280	30									<5E-3					
2009-05-26	ER090278	35									<6E-3					
2009-06-02	ER090289	30									<2.2					
2009-06-02	ER090301	30									<8E-3					

Environmental Sample Results

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
2009-06-02	ER090287	35									<6E-3					
2009-06-02	ER090299	35									<7E-3					
2009-06-16	ER090310	30									<6E-3					
2009-06-16	ER090308	35									<7E-3					
2009-06-23	ER090322	30									<7E-3					
2009-06-23	ER090320	35									<8E-3					
2009-07-01	ER090335	30									<7E-3					
2009-07-01	ER090333	35									<3E-3					
2009-07-08	ER090346	30									<4E-3					
2009-07-08	ER090344	35									<6E-3					
2009-07-15	ER090384	30									<3E-3					
2009-07-15	ER090382	35									<9E-3					
2009-07-22	ER090392	30									<1.0E-2					
2009-07-22	ER090390	35									<6E-3					
2009-07-27	ER090405	30	2.8E-2								<7E-3					
2009-07-27	ER090406	30									<9E-3					
2009-07-27	ER090404	35									<4E-3					
2009-08-04	ER090424	30									<6E-3					
2009-08-04	ER090422	35									<6E-3					
2009-08-11	ER090433	30									<7E-3					
2009-08-11	ER090431	35									<4E-3					
2009-08-18	ER090441	30									<4E-3					
2009-08-18	ER090439	35									<4E-3					
2009-08-25	ER090445	30									<5E-3					
2009-08-25	ER090443	35									<5E-3					
2009-09-01	ER090463	30									<4E-3					
2009-09-01	ER090461	35									<5E-3					
2009-09-09	ER090471	30									<3E-3					
2009-09-09	ER090469	35									<4E-3					
2009-09-15	ER090480	30									<1.2E-2					
2009-09-15	ER090478	35									<8E-3					
2009-09-22	AB11702	30									<4E-3					
2009-09-22	AB11700	35									<5E-3					
2009-09-29	AB12275	30									<5E-3					
2009-09-29	AB12273	35									<6E-3					
2009-10-06	AB12640	30									<5E-3					
2009-10-06	AB12638	35									<7E-3					
2009-10-13	AB13034	30									<7E-3					
2009-10-13	AB13032	35									<1.6E-2					
2009-10-20	AB13471	30									<9E-3					
2009-10-20	AB13469	35									<1.1E-2					
2009-10-27	AB13983	30									<5E-3					
2009-10-27	AB13981	35									<5E-3					
2009-11-03	AB14593	30									<8E-3					
2009-11-03	AB14591	35									<5E-3					
2009-11-10	AB15126	30									<1.0E-2					
2009-11-10	AB15124	35									<8E-3					
2009-11-17	AB15558	30									<4E-3					
2009-11-17	AB15556	35									<5E-3					

Environmental Sample Results

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	
2009-11-24	AB15973	30									<8E-3						
2009-11-24	AB15971	35									<1.0E-2						
2009-12-02	AB16285	30									<1.3E-2						
2009-12-02	AB16283	35									<6E-3						
2009-12-09	AB16829	30									<9E-3						
2009-12-09	AB16827	35									<7E-3						
2009-12-15	AB17124	30									<4E-3						
2009-12-15	AB17122	35									<8E-3						
2009-12-22	AB17421	30									<5E-3						
2009-12-22	AB17419	35									<1.0E-2						
2009-12-29	AB17659	30									<6E-3						
2009-12-29	AB17657	35									<8E-3						
Air Particulate pCi/m³																	
2009-01-07	ER090014	30	2.9E-2														
2009-01-07	ER090012	35	3.1E-2														
2009-01-13	ER090038	30	3.9E-2														
2009-01-13	ER090036	35	3.6E-2														
2009-01-21	ER090042	30	2.4E-2														
2009-01-21	ER090040	35	2.4E-2														
2009-01-28	ER090068	30	2.6E-2														
2009-01-28	ER090066	35	2.7E-2														
2009-02-04	ER090077	30	2.6E-2														
2009-02-04	ER090075	35	2.7E-2														
2009-02-11	ER090086	30	2.0E-2														
2009-02-11	ER090084	35	1.5E-2														
2009-02-18	ER090094	30	2.2E-2														
2009-02-18	ER090092	35	2.3E-2														
2009-02-25	ER090106	30	2.6E-2														
2009-02-25	ER090104	35	2.7E-2														
2009-03-04	ER090129	30	2.5E-2														
2009-03-04	ER090127	35	2.4E-2														
2009-03-11	ER090138	30	2.1E-2														
2009-03-11	ER090136	35	2.0E-2														
2009-03-17	ER090144	30	1.4E-2														
2009-03-17	ER090143	35	1.3E-2														
2009-03-25	ER090155	30	2.5E-2														
2009-03-25	ER090153	35	2.5E-2														
2009-03-31	ER090159	30	2.0E-2														
2009-03-31	ER090157	35	2.1E-2														
2009-04-07	ER090173	30	2.2E-2														
2009-04-07	ER090171	35	2.1E-2														
2009-04-14	ER090188	30	2.1E-2														
2009-04-14	ER090186	35	2.1E-2														
2009-04-21	ER090200	30	1.6E-2														
2009-04-21	ER090198	35	1.6E-2														
2009-04-28	ER090233	30	2.1E-2														
2009-04-28	ER090231	35	2.0E-2														
2009-05-05	ER090247	30	1.3E-2														

Environmental Sample Results

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
2009-05-05	ER090245	35	1.1E-2													
2009-05-11	ER090260	30	1.9E-2													
2009-05-11	ER090258	35	1.6E-2													
2009-05-18	ER090264	30	1.5E-2													
2009-05-18	ER090262	35	1.5E-2													
2009-05-26	ER090279	30	1.9E-2													
2009-05-26	ER090277	35	2.0E-2													
2009-06-02	ER090288	30	2.3													
2009-06-02	ER090286	35	2.5E-2													
2009-06-09	ER090300	30	2.4E-2													
2009-06-09	ER090298	35	2.4E-2													
2009-06-16	ER090309	30	1.9E-2													
2009-06-16	ER090307	35	2.0E-2													
2009-06-23	ER090321	30	1.8E-2													
2009-06-23	ER090319	35	1.8E-2													
2009-07-01	ER090334	30	1.5E-2													
2009-07-01	ER090332	35	1.5E-2													
2009-07-08	ER090345	30	1.7E-2													
2009-07-08	ER090343	35	1.7E-2													
2009-07-15	ER090383	30	2.3E-2													
2009-07-15	ER090381	35	2.4E-2													
2009-07-22	ER090391	30	2.2E-2													
2009-07-22	ER090389	35	2.3E-2													
2009-07-27	ER090403	35	2.8E-2													
2009-08-04	ER090423	30	2.3E-2													
2009-08-04	ER090421	35	2.4E-2													
2009-08-11	ER090432	30	1.7E-2													
2009-08-11	ER090430	35	1.7E-2													
2009-08-18	ER090440	30	1.9E-2													
2009-08-18	ER090438	35	2.0E-2													
2009-08-25	ER090444	30	2.0E-2													
2009-08-25	ER090442	35	2.0E-2													
2009-09-01	ER090462	30	3.0E-2													
2009-09-01	ER090460	35	3.1E-2													
2009-09-09	ER090470	30	3.2E-2													
2009-09-09	ER090468	35	3.6E-2													
2009-09-15	ER090479	30	1.1E-2													
2009-09-15	ER090477	35	1.1E-2													
2009-09-22	AB11701	30	2.6E-2													
2009-09-22	AB11699	35	2.7E-2													
2009-09-29	AB12274	30	1.9E-2													
2009-09-29	AB12272	35	1.9E-2													
2009-10-06	AB12639	30	1.6E-2													
2009-10-06	AB12637	35	1.6E-2													
2009-10-13	AB13033	30	1.2E-2													
2009-10-13	AB13031	35	1.2E-2													
2009-10-20	AB13470	30	2.0E-2													
2009-10-20	AB13468	35	2.0E-2													
2009-10-27	AB13982	30	1.5E-2													

Environmental Sample Results

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
2009-10-27	AB13980	35	1.6E-2													
2009-11-03	AB14592	30	1.8E-2													
2009-11-03	AB14590	35	2.0E-2													
2009-11-10	AB15125	30	2.9E-2													
2009-11-10	AB15123	35	2.9E-2													
2009-11-17	AB15557	30	3.5E-2													
2009-11-17	AB15555	35	3.5E-2													
2009-11-24	AB15972	30	3.0E-2													
2009-11-24	AB15970	35	3.1E-2													
2009-12-02	AB16284	30	2.3E-2													
2009-12-02	AB16282	35	2.4E-2													
2009-12-09	AB16828	30	1.9E-2													
2009-12-09	AB16826	35	1.8E-2													
2009-12-15	AB17123	30	2.9E-2													
2009-12-15	AB17121	35	2.9E-2													
2009-12-22	AB17420	30	2.6E-2													
2009-12-22	AB17418	35	2.8E-2													
2009-12-29	AB17658	30	2.4E-2													
2009-12-29	AB17656	35	2.4E-2													
Air Particulate Composite pCi/Sample																
2009-01-30	ER090028	30	<1.1+1	<3.3	<3.6	<2.8	<3.4	<6.6	<2.9	<4.0	<3.3	<3.1	<7.5	<5.5		
2009-01-30	ER090029	35	<7.3	<2.3	<2.7	<2.2	<2.5	<4.2	<2.1	<3.0	<2.2	<2.1	<5.6	<3.9		
2009-04-30	ER090208	30	<6.7	<2.0	<2.2	<2.0	<2.2	<4.2	<2.0	<2.5	<2.2	<2.0	<4.9	<3.5		
2009-04-30	ER090209	35	<7.3	<2.1	<3.6	<2.1	<2.9	<4.3	<2.1	<2.5	<2.1	<2.2	<4.8	<3.8		
2009-07-17	ER090359	30	<5.3	<1.5	<1.9	<1.5	<1.6	<3.0	<1.5	<1.9	<1.5	<1.4	<3.9	<2.5		
2009-07-17	ER090360	35	<1.1E+1	<3.2	<3.5	<3.0	<3.2	<6.5	<2.9	<3.9	<3.5	<3.3	<8.0	<5.4		
2009-12-04	AB16000	30	<1.1E+1	<3.8	<5.5	<3.6	<4.3	<7.1	<3.6	<3.8	<3.5	<3.7	<8.4	<6.3		
2009-12-04	AB16001	35	<9.7	<3.0	<3.4	<3.1	<3.4	<6.3	<3.0	<3.9	<3.4	<3.2	<7.4	<5.1		
Fish pCi/kg																
2009-05-26	ER090283	53	<6.9E+1	<1.8E+1	<2.6E+1	<1.8E+1	<2.3E+1	<3.6E+1	<2.1E+1	<2.0E+1	<1.9E+1	<1.8E+1	<4.0E+1	<3.1E+1		
2009-10-27	AB13984	53	<9.4E+1	<2.4E+1	<3.4E+1	<2.5E+1	<3.0E+1	<4.9E+1	<3.0E+1	<2.5E+1	<2.3E+1	<2.4E+1	<5.5E+1	<4.2E+1		
Food Product pCi/kg																
2009-07-01	ER090337	04	<4.5E+1	<9.8	<1.2E+1	<9.8	<1.0E+1	<2.5E+1	<1.6E+1	<1.3E+1	<9.3	<1.1E+1	<2.6E+1	<1.8E+1		
2009-07-01	ER090336	35	<5.7E+1	<1.4E+1	<1.5E+1	<1.2E+1	<1.3E+1	<3.2E+1	<2.0E+1	<1.7E+1	<1.4E+1	<1.4E+1	<3.3E+1	<2.4E+1		
2009-09-29	AB12230	04	<6.9E+1	<1.3E+1	<1.5E+1	<1.4E+1	<1.4E+1	<3.2E+1	<2.7E+1	<1.7E+1	<1.3E+1	<1.4E+1	<3.4E+1	<2.3E+1		
2009-09-29	AB12230	35	<5.1E+1	<1.1E+1	<1.2E+1	<9.5	<1.1E+1	<2.4E+1	<2.0E+1	<1.5E+1	<1.1E+1	<1.2E+1	<2.6E+1	<1.9E+1		
2009-12-09	AB16832	04	<1.0E+2	<2.1E+1	<2.2E+1	<2.1E+1	<2.2E+1	<4.6E+1	<4.2E+1	<2.6E+1	<2.0E+1	<2.3E+1	<5.2E+1	<3.6E+1		
2009-12-09	AB16831	35	<5.4E+1	<1.2E+1	<1.3E+1	<1.3E+1	<1.4E+1	<2.8E+1	<2.2E+1	<1.5E+1	<1.2E+1	<1.3E+1	<3.1E+1	<2.1E+1		
Sediment pCi/kg																
2009-04-29	ER090236	52	<2.62E+2	<7.3E+1	<8.5+1	<8.2E+1	<9.0E+1	<1.51E+2	<8.0E+1	<8.5E+1	<7.5E+1	<8.5E+1	<2.07E+2	<1.29E+2		
Vegetation for Milk pCi/kg																
2009-10-20	AB13472	63	<4.1E+1	<8.6	<8.9	<7.9	<8.9	<2.0E+1	<1.6E+1	<1.2E+1	<8.7	<9.5	<2.1E+1	<1.6E+1		
2009-02-25	ER090103	04	<5.7	<9.2	<9.2	<8.0	<8.4	<2.5E+1	<2.6E+1	<1.6E+1	<9.1	<1.1E+1	<2.3E+1	<1.7E+1		
2009-03-31	ER090161	30	<3.6E+1	<8.6	<9.1	<7.1	<8.1	<2.1E+1	<1.2E+1	<1.1E+1	<8.6	<9.0	<2.2E+1	<1.6E+1		

Environmental Sample Results

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
2009-04-30	ER090240	30		<4.1E+1	<9.4	<1.1E+1	<8.8	<9.2	<2.4E+1		<1.6E+1	<1.2E+1	<9.5	<1.1E+1	<2.5E+1	<1.7E+1
2009-05-26	ER090282	30		<4.2E+1	<9	<9	<8	<9	<2.1E+1		<1.6E+1	<1.3E+1	<9	<1.0E+1	<2.3E+1	<1.6E+1
2009-06-18	ER090311	30		<2.5E+1	<6.8	<7.2	<5.9	<6.7	<1.7E+1		<8.7	<7.0	<6.7	<6.5	<1.8E+1	<1.2E+1
2009-07-22	ER090393	30		<5.6E+1	<1.0E+1	<1.2E+1	<1.1E+1	<1.1E+1	<2.6E+1		<2.1E+1	<1.6E+1	<1.1E+1	<1.2E+1	<2.7E+1	<1.9E+1
2009-08-25	ER090446	30		<5.0E+1	<9.7	<1.3E+1	<1.1E+1	<1.1E+1	<2.5E+1		<1.9E+1	<1.5E+1	<9.6	<1.2E+1	<2.6E+1	<1.9E+1
2009-09-29	AB12277	30		<6.3E+1	<1.2E+1	<1.3E+1	<1.2E+1	<1.2E+1	<2.7E+1		<2.5E+1	<1.4E+1	<1.2E+1	<1.2E+1	<3.0E+1	<2.1E+1
2009-11-03	AB14595	04		<3.7E+1	<9.3	<1.1E+1	<1.0E+1	<1.0E+1	<2.2E+1		<1.2E+1	<1.1E+1	<1.0E+1	<9.7	<2.6E+1	<1.7E+1
Water-Surface pCi/l																
2009-01-07	ER090016	46	7.2	<7.0	<1.8	<2.0	<1.9	<2.2	<3.8		<2.4	<2.5	<1.8	<1.9	<4.2	<3.0
2009-01-28	ER090070	52	7.1E+1	<9.8	<2.0	<2.1	<1.9	<2.2	<4.2		<3.9	<3.4	<1.9	<2.2	<4.3	<3.4
2009-02-04	ER090079	46	6.5	<8.6	<2.0	<2.1	<2.0	<2.1	<4.0		<3.2	<3.1	<1.9	<2.2	<4.3	<3.5
2009-02-26	ER090108	52	8.2E+1	<1.1E+1	<2.1	<2.1	<2.0	<2.2	<4.2		<4.0	<3.7	<2.2	<2.3	<4.7	<3.6
2009-03-04	ER090131	46	7.9	<1.1E+1	<2.1	<2.1	<2.0	<2.0	<4.4		<3.9	<3.4	<2.0	<2.2	<4.1	<3.6
2009-03-31	ER090170	47	4.3E+1	<9.5	<2.0	<2.1	<1.8	<2.1	<4.3		<3.6	<3.2	<1.9	<2.3	<4.4	<3.4
2009-04-14	ER090190	46	3.8	<6.9	<2.0	<1.9	<1.8	<2.2	<3.9		<2.4	<2.7	<1.9	<2.0	<3.9	<3.3
2009-04-29	ER090235	52	1.5E+1	<1.1E+1	<2.3	<2.2	<1.9	<2.3	<4.6		<3.7	3.2	<2.1	<2.4	<4.7	<3.9
2009-05-05	ER090249	54		<1.1E+1	<2.3	<2.2	<2.0	<2.3	<4.3	1.0E+1	<4.0	<3.5	<2.2	<2.6	<4.6	<4.1
2009-05-21	ER090281	52	6.4E+1	<1.5E+1	<2.5	<2.3	<2.1	<2.3	<4.9		<5.7	<4.6	<2.3	<2.8	<4.8	<4.4
2009-06-09	ER090302	54	7.7	<7.6	<2.0	<2.0	<1.9	<2.0	<4.0		<2.5	<2.7	<2.0	<2.1	<4.3	<3.5
2009-06-29	ER090323	52	7.8E+1	<7.9	<1.9	<2.1	<2.0	<2.2	<4.1		<2.6	<2.5	<1.9	<2.1	<4.6	<3.4
2009-07-08	ER090347	54	7.8	<7.6	<1.8	<2.1	<1.9	<2.1	<3.8		<2.5	<2.5	<1.9	<1.9	<4.1	<3.3
2009-07-28	ER090414	52	5.7E+1	<1.1E+1	<2.1	<2.1	<2.0	<2.1	<4.3		<3.9	<3.5	<2.0	<2.2	<4.2	<3.6
2009-08-04	ER090425	54	1.4E+1	<7.8	<1.9	<2.0	<1.9	<2.1	<4.2		<2.5	<2.6	<2.0	<2.0	<4.3	<3.3
2009-08-20	ER090447	52	5.8E+1	<1.1E+1	<2.0	<2.3	<2.0	<2.1	<4.7		<4.2	<3.8	<1.9	<2.2	<4.3	<3.6
2009-09-09	ER090472	54	1.3E+1	<9.1	<2.1	<2.0	<2.0	<2.2	<4.2		<3.3	<2.9	<2.0	<2.3	<4.5	<3.6
2009-09-28	AB12276	52	2.7E+1	<1.1E+1	<2.0	<2.3	<2.0	<2.2	<4.3		<4.2	<3.4	<1.9	<2.1	<4.3	<3.5
2009-10-06	AB12641	46	1.9E+1	<8.3	<2.0	<2.0	<2.0	<2.1	<4.0		<2.7	<2.6	<2.0	<2.1	<4.4	<3.5
2009-10-25	AB15974	47	9.9	<1.4E+1	<2.0	<2.0	<2.1	<2.0	<4.7		<6.4	<4.5	<1.9	<2.4	<4.4	<3.7
2009-11-02	AB14596	52	1.5E+1	<8.5	<1.9	<2.0	<2.0	<2.1	<3.9		<2.8	<2.7	<1.9	<1.9	<4.2	<3.2
2009-11-03	AB14594	46	9.1	<7.7	<2.0	<1.8	<2.0	<2.1	<4.0		<2.5	<2.4	<2.1	<2.1	<4.5	<3.4
2009-12-09	AB16830	46	9.8	<7.7	<1.8	<2.1	<2.0	<2.1	<3.8		<2.6	<2.5	<1.9	<2.0	<4.3	<3.3
2009-12-22	AB17422	47	8.7	<1.1E+1	<1.9	<2.0	<2.0	<2.0	<4.2		<4.1	<3.4	<1.8	<2.1	<4.3	<3.6
Water-Surface Composite pCi/l																
2009-02-17	ER090032	46								<1.0E+3						
2009-02-17	ER090052	52								<1.0E+3						
2009-05-29	ER090202	46								<1.0E+3						
2009-05-29	ER090203	52								<1.0E+3						
2009-07-31	ER090354	52								<1.0E+3						
2009-07-31	ER090353	54								<1.0E+3						
2009-12-02	AB15995	52								<1.0E+3						
2009-12-02	AB15996	54								<1.0E+3						

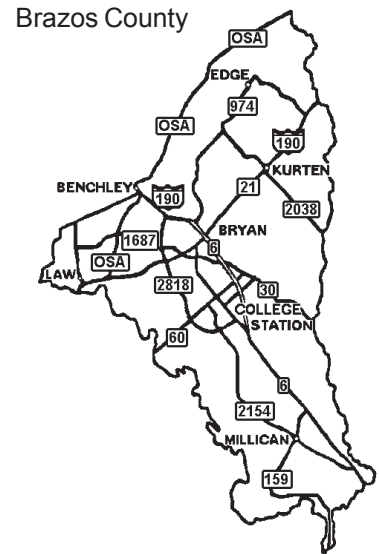
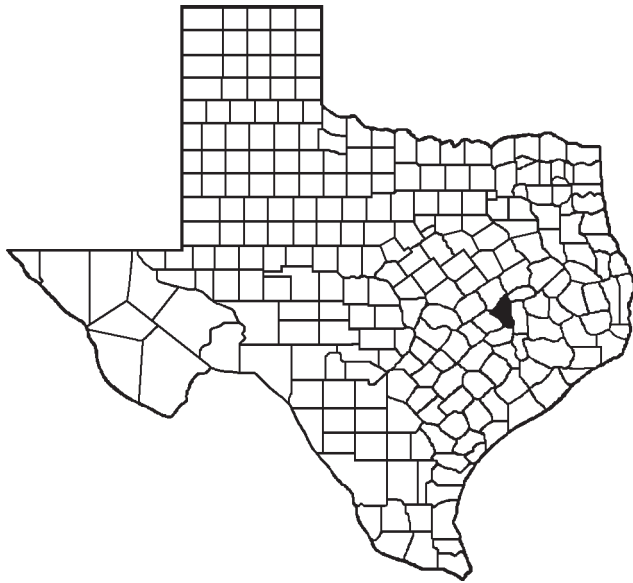
Research Reactors

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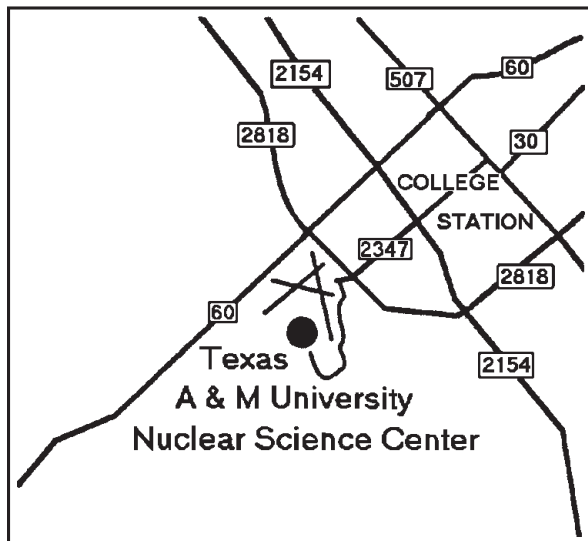
Texas A & M University Nuclear Science Center

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 TLD monitoring.



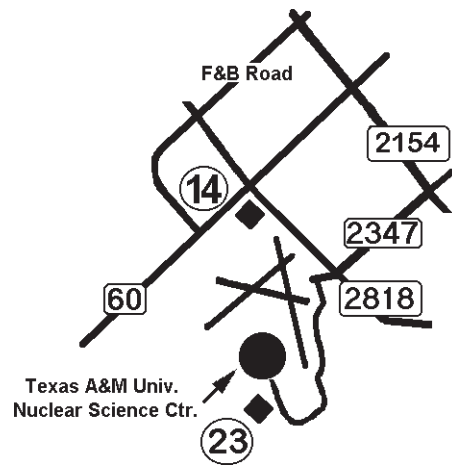
Shaded area indicates location of Brazos County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



**Thermoluminescent Dosimeter (TLD) Monitoring Results
(quarterly and annual readings are in mrem)**

<i>Station</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Annual² Dose</i>	<i>Notes</i>
02	3.0	3.0	4.0	4.0	14.0	
03	0.0	1.0	1.3	2.0	4.3	
04	3.0	3.0	5.3	5.0	16.3	
05	1.0	2.0	1.3	2.0	6.3	
10	0.0	0.0	1.3	1.0	2.3	
11	2.0	0.0	1.3	2.0	5.3	
14	18.8	9.0	18.5	13.0	59.3	Background
18	3.0	2.0	2.6	3.0	10.6	
19	1.0	0.0	1.3	0.0	2.3	
20	0.0	0.0	0.0	0.0	0.0	
21	0.0	0.0	0.0	0.0	0.0	
22	0.0	0.0	0.0	0.0	0.0	
23	21.8	11.0	18.5	14.0	65.3	Background
24	0.0	2.0	2.6	0.0	4.6	
25	0.0	0.0	1.3	0.0	1.3	

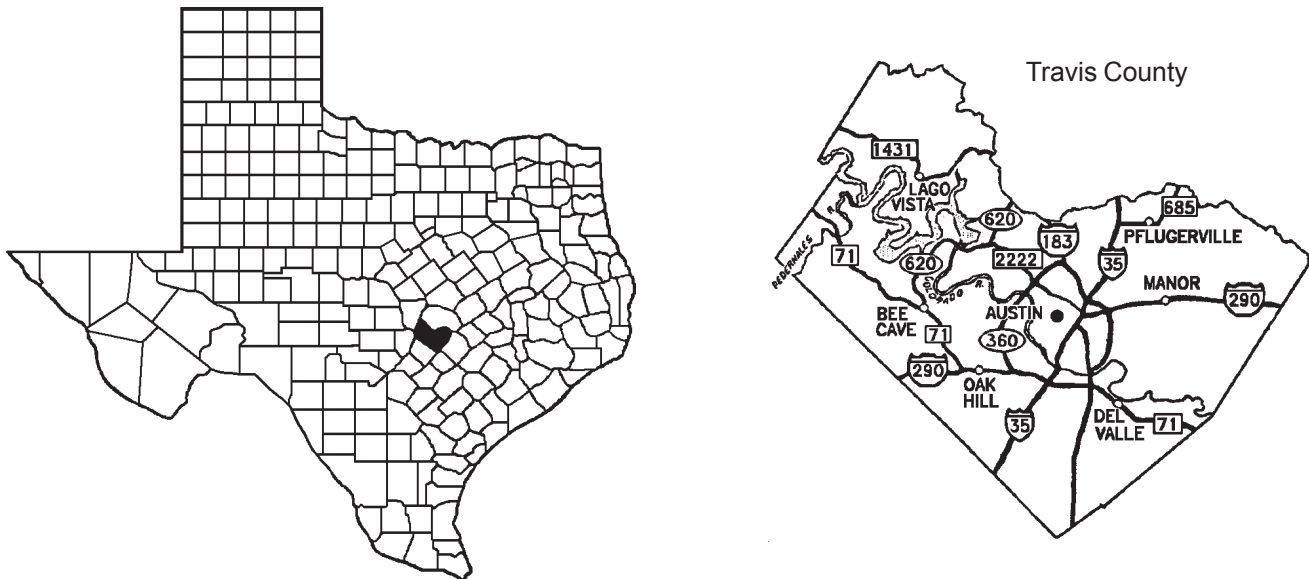
NOTE: ¹ If data are missing during a quarter, an average of known quarter readings for that year and location is used to fill in for the missing data.

² Value does not include 1/16 occupancy factor.

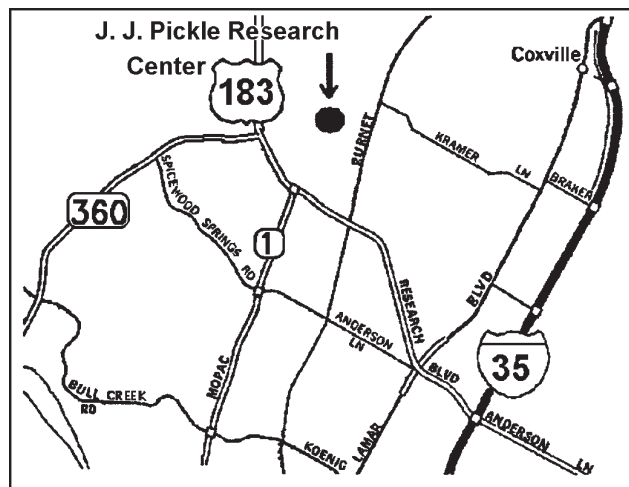
University of Texas Nuclear Engineering Teaching Laboratory

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 TLD monitoring.



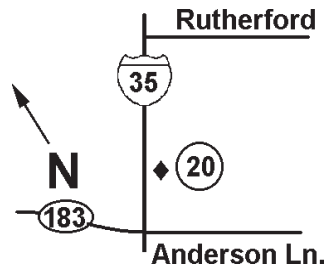
Shaded area indicates location of Travis County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



Thermoluminescent Dosimeter (TLD) Monitoring Results
(quarterly and annual readings are in mrem)

<i>Station</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Annual*</i> <i>Dose</i>	<i>Note</i>
01	0.0	0.0	0.0	0.0	0.0	
02	0.0	0.0	0.0	0.0	0.0	
03	0.0	0.0	0.0	0.0	0.0	
04	1.7	1.3	1.9	2.2	7.1	
05	0.0	0.0	0.0	1.0	1.0	
20	17.4	11.4	13.3	14.1	56.2	Background

NOTE: *Occupancy factors not provided.

Environmental Sample Results

University of Texas Nuclear Engineering Teaching Laboratory

Date	Lab No.	Station	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	
	Sewage $\mu\text{Ci/ml}$															
2009-01-14	ER090018	08	<2.2E-8	<6.6E-9	<1.1E-8	<6.4E-9	<8.7E-9	<1.4E-8	<1.0E-6	<6.6E-9	<7.4E-9	<6.7E-9	<6.6E-9	<1.5E-8	<1.2E-8	
2009-05-04	ER090239	09	<2.4E-8	<7.0E-9	<1.1E-8	<7.3E-9	<8.7E-9	<1.3E-8	<1.0E-6	<6.7E-9	<7.2E-9	<7.2E-9	<6.6E-9	<1.6E-8	<1.2E-8	
2009-07-15	ER090361	08	<2.3E-8	<6.7E-9	<1.1E-8	<6.6E-9	<8.5E-9	<1.4E-8	<1.0E-6	<6.4E-9	<7.3E-9	<7.0E-9	<6.6E-9	<1.5E-8	<1.2E-8	
2009-10-19	AB13203	09	<2.7E-9	<7.5E-9	<1.1E-8	<7.9E-9	<9.5E-9	<1.5E-8	<1.0E-6	<8.6E-9	<8.9E-9	<7.8E-9	<7.8E-9	<1.9E-8	<1.4E-8	

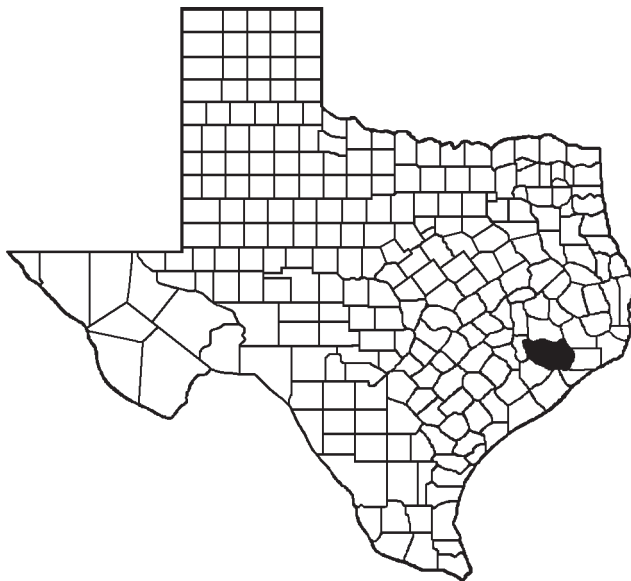
Other Facilities

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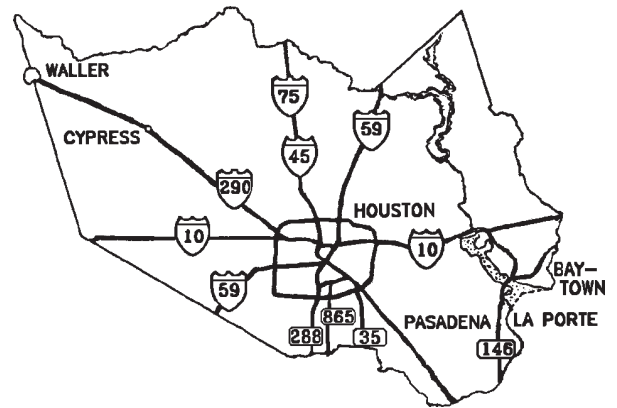
Gammatron, Inc.

Radiation Branch Site No. 018

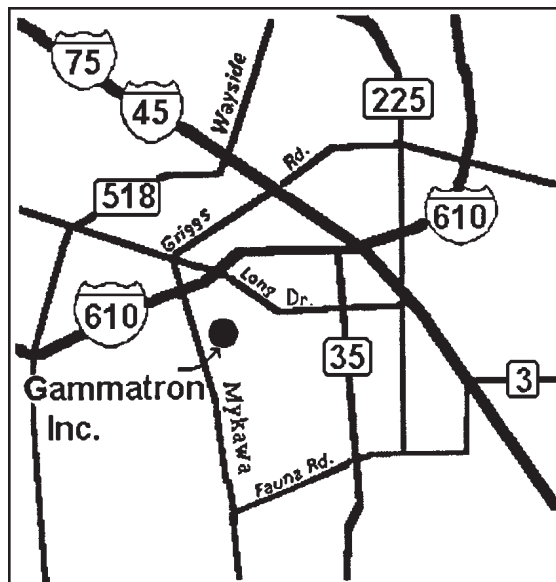
Gammatron, Inc. is a manufacturer of sealed radioactive sources. The facility is located in an industrial area of Houston approximately four miles northwest of William P. Hobby Airport. The Radiation Branch surveillance program consists of soil sampling and TLD monitoring.



Harris County



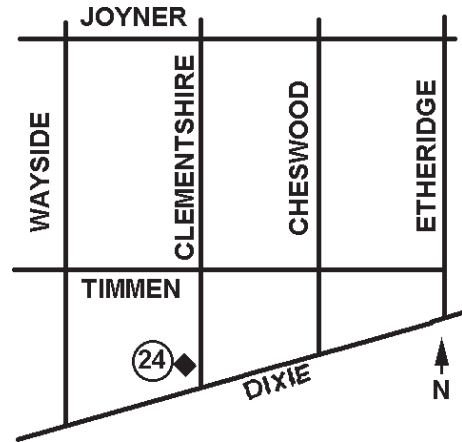
Shaded area indicates location of Harris County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



Thermoluminescent Dosimeter (TLD) Monitoring Results¹
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual ² Dose	Notes
03	42.5	49.6	19.0	4.0	115.1	
05	247.0	476.3	264.0	246.0	1233.3	
08	375.3	265.9	240.0	269.0	1149.9	
24	0.9	1.2	1.0	20.0	23.1	Background - Landauer AM #40
24	16.5	9.5	12.0	11.0	49.0	Background
30	40.7	40.2	37.0	57.0	174.9	
31	5.2	5.9	7.0	8.0	26.1	
34	277.3	284.8	221.0	0.0	783.1	tld missing 4th quarter
40	44.2	10.6	14.0	17.0	85.8	

NOTE: ¹Combined neutron/gamma dosimeters are deployed at this facility. Exposure reported includes neutron and gamma doses.
²Occupancy factors not provided. Occupancy factors have been requested from licensee.

Environmental Sample Results

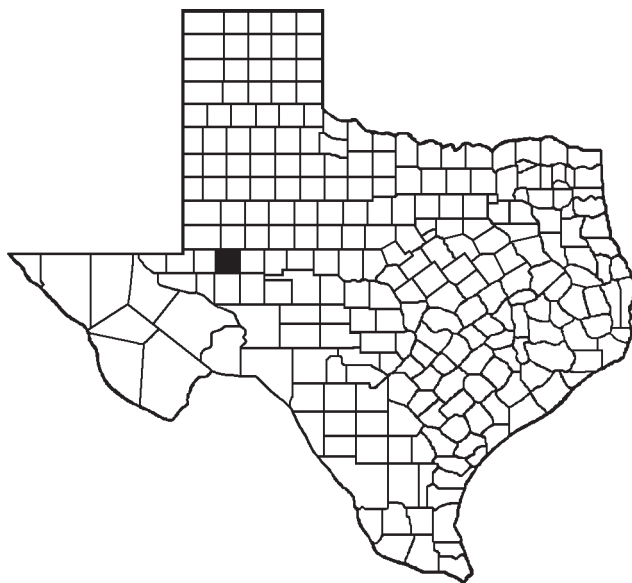
Date	Lab No.	Station	Alpha	Ra-226*	Am-241	Co-60	Cs-137	Ra-226
Soil µCi/g								
2009-01-07	ER090011	31	1.9E-5	1E-6	<3E-7	<2E-7	<2E-7	<2.4E-6
2009-04-22	ER090197	31	1.6E-5	9E-7	<3E-7	<2E-7		
2009-07-08	ER090350	31	1.3E-5	1.2E-6	<3E-7	<2E-7	<2E-7	<3.0E-6
2009-10-07	AB12652	31	1.6E-5	1.0E-6	<4E-7	<2E-7	<2E-7	<3.1E-6

NOTE: *Indicates the analysis was by alpha spectrometry, or if Ra-226, analysis by radon emanation.

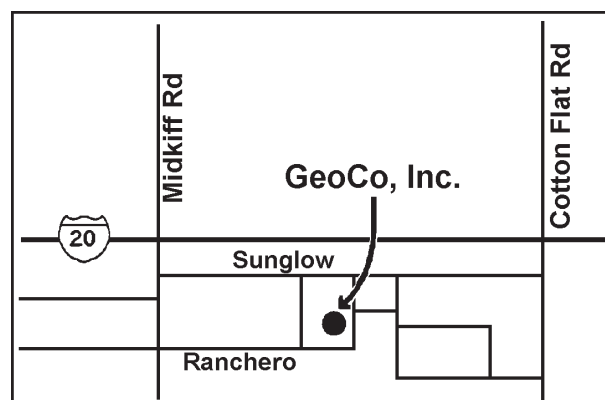
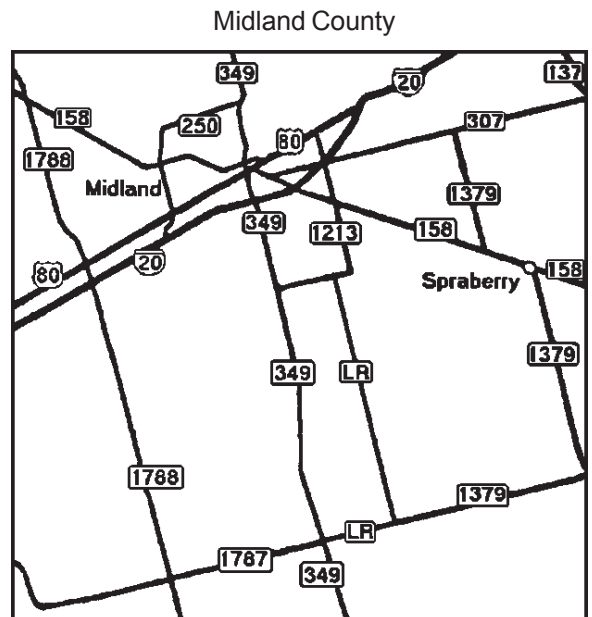
GeoCo, Inc.

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 TLD monitoring.



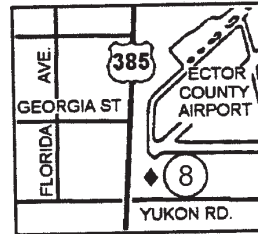
Shaded area indicates location of Midland County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
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Thermoluminescent Dosimeter (TLD) Monitoring Results
(quarterly and annual readings are in mrem)

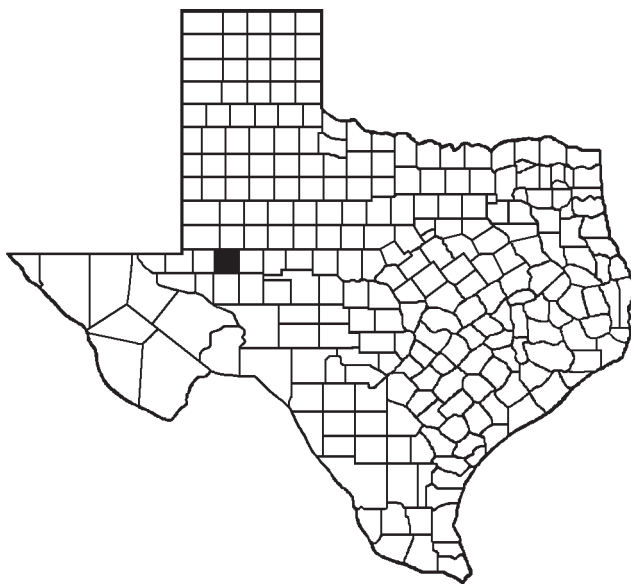
Station	Q1	Q2	Q3	Q4	Annual* Dose	Notes
01	42.9	0.0	2.0	20.1	65.0	
08	5.3	20.8	15.8	20.1	62.0	Background

Note: *Value does not include 1/10 occupancy factor.

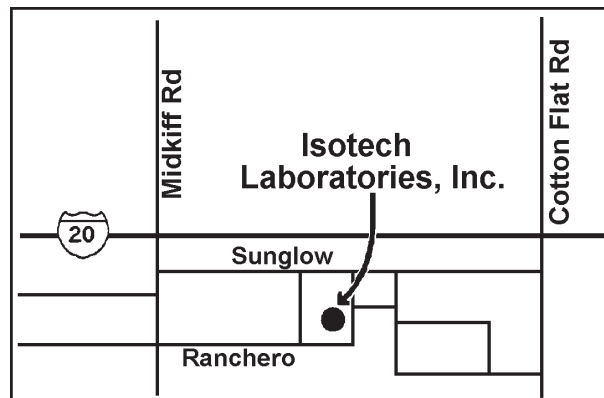
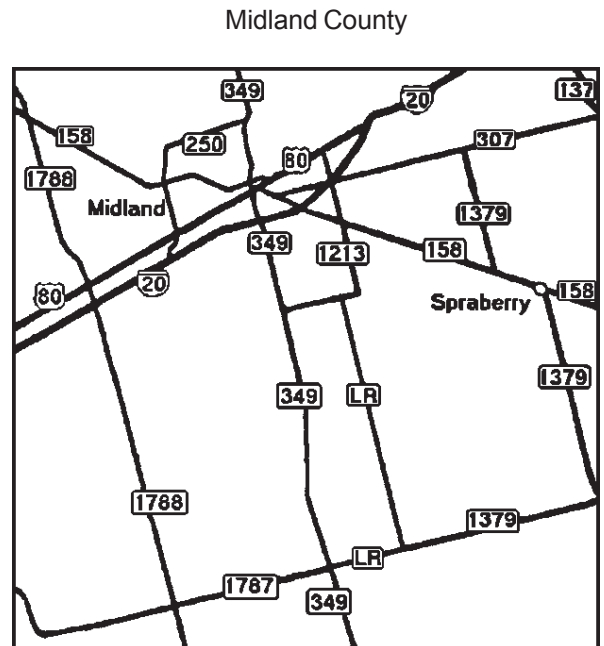
Isotech Laboratories, Inc.

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 TLD monitoring.



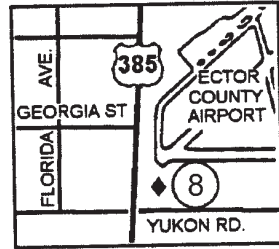
Shaded area indicates location of Midland County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



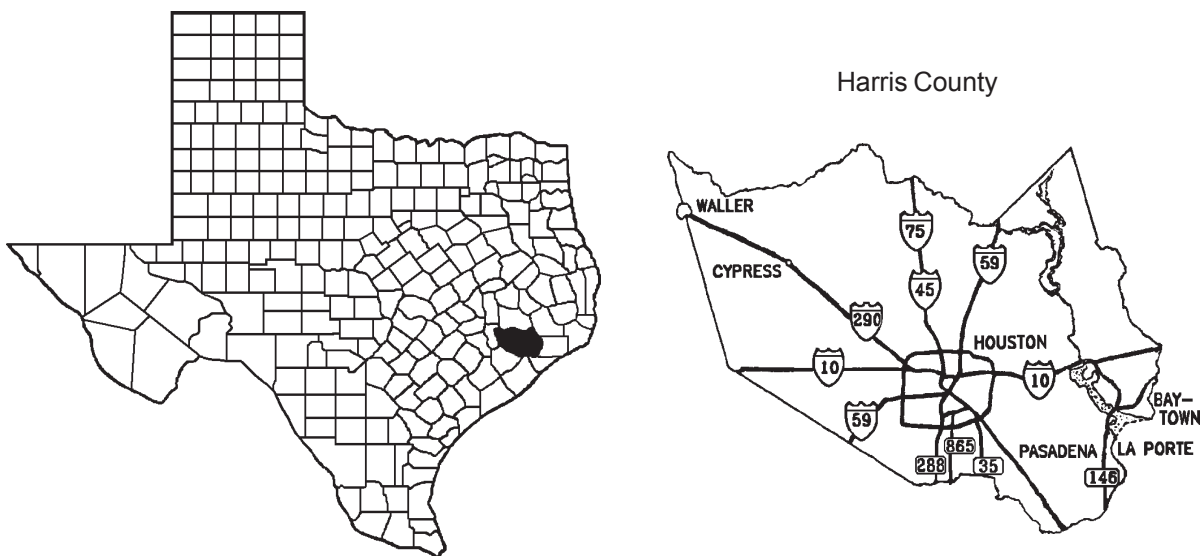
Thermoluminescent Dosimeter (TLD) Monitoring Results
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual* Dose	Notes
01	0.8	0.0	5.9	3.8	10.5	
02	9.8	9.6	53.4	69.0	141.8	
03	7.5	11.2	30.7	28.7	78.1	
04	10.5	8.0	18.8	18.2	55.5	
06	5.3	8.0	18.8	19.2	51.3	
08	19.0	20.8	15.8	20.1	75.7	Background

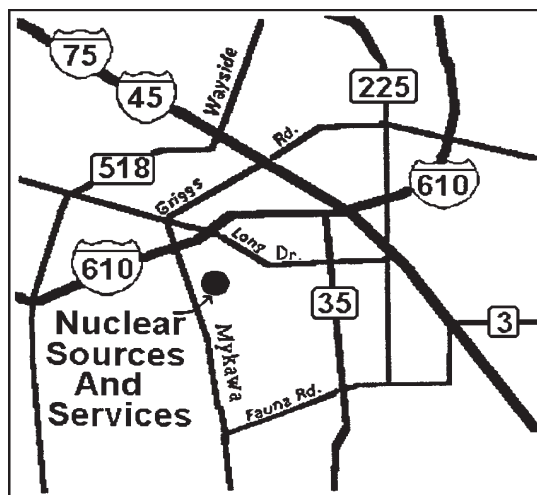
Note: *Value does not include 1/4 occupancy factor.

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 TLD monitoring.



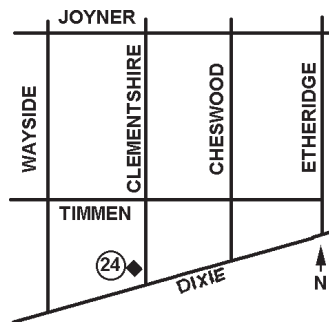
Shaded area indicates location of Harris County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



Thermoluminescent Dosimeter (TLD) Monitoring Results¹
(quarterly and annual readings are in mrem)

<i>Station</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Annual² Dose</i>	<i>Notes</i>
03	298.1	348.6	326.0	286.0	1258.7	
04	8.7	7.1	22.0	341.0	378.8	
06	22.5	5.9	11.0	791.0	830.4	
07	110.1	228.1	210.0	860.0	1408.2	
11	2.6	0.0	1.0	0.0	3.6	tld missing 2nd quarter
12	105.7	78.0	19.0	36.0	238.7	
16	42.5	31.9	38.0	21.0	133.4	
18	62.4	3.5	8.0	40.0	113.9	
19	41.6	42.5	40.0	23.0	147.1	
20	28.6	24.8	33.0	28.0	114.4	
21	1216.8	502.3	440.0	442.0	2601.1	
22	6.9	4.7	15.0	0.0	26.6	
23	6.9	8.3	17.0	0.0	32.2	
24	0.9	1.2	1.0	20.0	23.1	Background - Landauer AM #40
24	16.5	9.5	12.0	11.0	49.0	Background
25	24.3	56.7	26.0	55.0	162.0	
41	153.4	140.6	159.0	159.0	612.0	

NOTE: ¹Combined neutron/gamma dosimeters are deployed at this facility. Exposure reported includes neutron and gamma doses.

²Value does not include 1/16 occupancy factor.

Environmental Sample Results

<i>Date</i>	<i>Lab No.</i>	<i>Station</i>	<i>Alpha</i>	<i>Ra-226*</i>	<i>Am-241</i>	<i>Co-60</i>	<i>Cs-137</i>	<i>I-125</i>	<i>Ra-226</i>
Soil $\mu\text{Ci/g}$									
2009-01-07	ER090009	26	2.1E-5	9E-7	<3E-7	<2E-7	<3E-7	<3E-7	<2.9E-6
2009-01-07	ER090010	28	1.7E-5	8E-7	<3E-7	<2E-7		<2E-7	<2.7E-6
2009-04-22	ER090195	26	1.5E-5		<3E-7	<2E-7	<3E-7	<3E-7	<3.1E-6
2009-04-22	ER090196	28	1.2E-5		<3E-7	<2E-7		<3E-7	<3.0E-6
2009-07-08	ER090348	26	1.7E-5	6E-7	<3E-7	<3E-7	<2E-7	<3E-7	<3.1E-6
2009-07-08	ER090349	28	1.6E-5	9E-7	<3E-7	<2E-7	1.1E-6	<2E-7	1.2E-6
2009-10-07	AB12650	26	1.4E-5	6E-7	<4E-7	<3E-7		<3E-7	1.1E-6
2009-10-07	AB12651	28	2.2E-5	7E-7	<4E-7	<2E-7		<4E-7	<4.9E-6

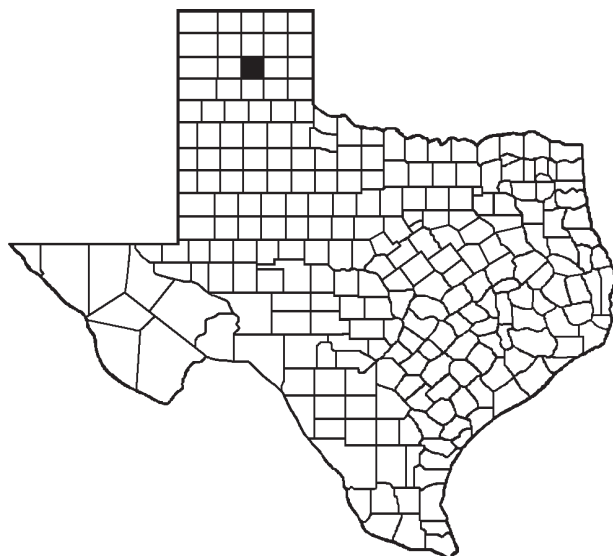
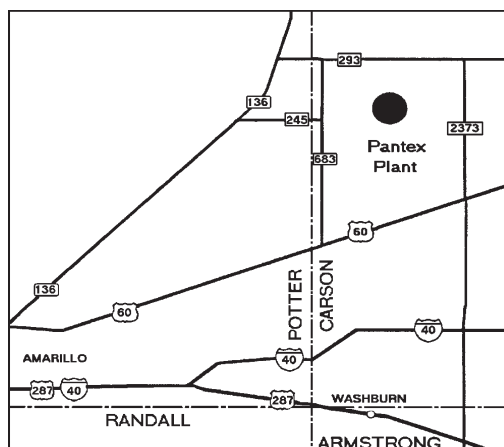
NOTE: *Indicates the analysis was by alpha spectrometry, or if Ra-226, analysis by radon emanation.

Pantex

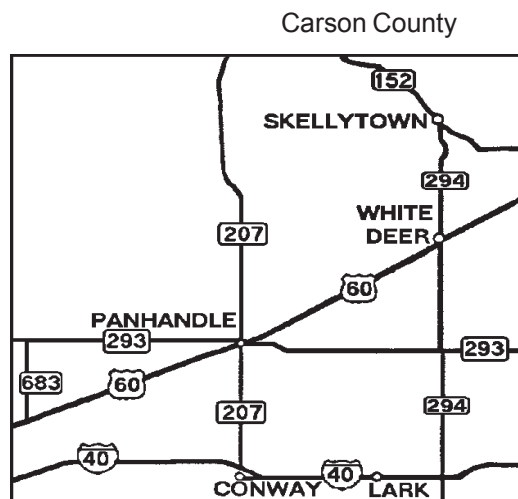
Radiation Branch Site No. 005

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 TLD monitoring and sampling air, food products, sediment, soil, vegetation, and water. Analysis of samples are performed to determine the presence of any special nuclear material.

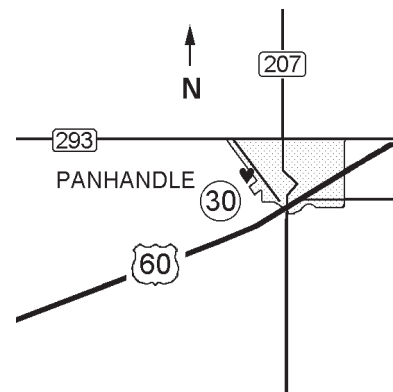
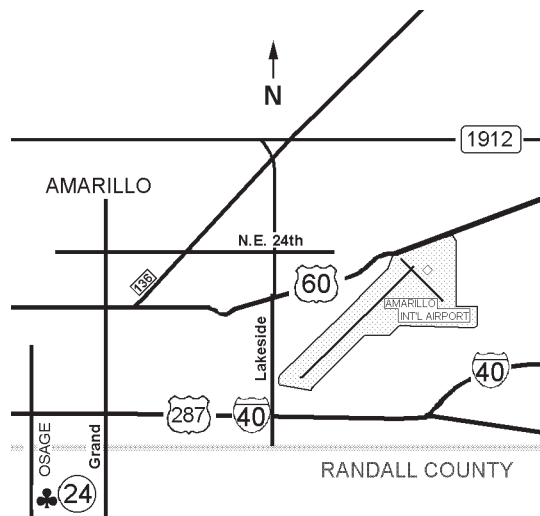
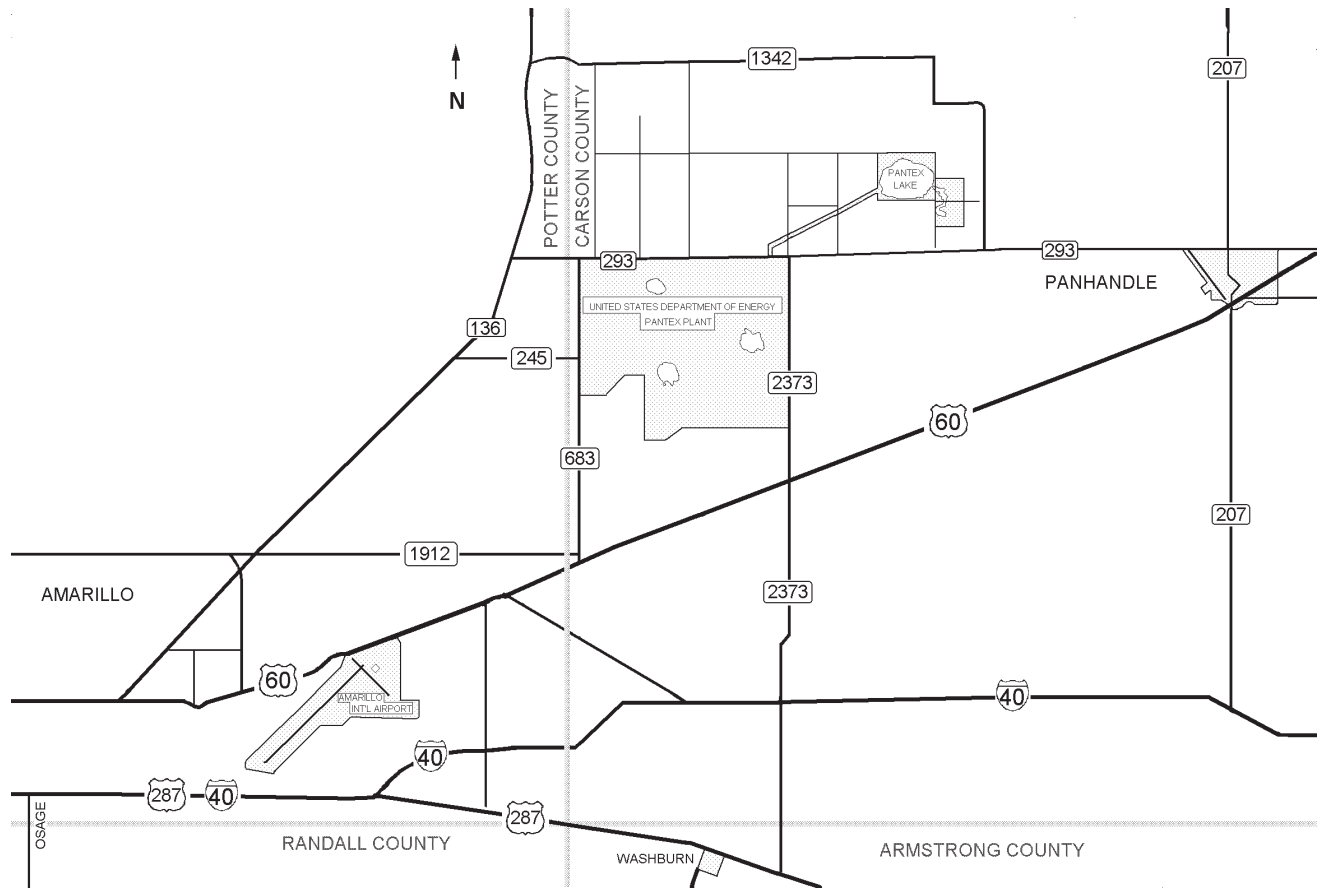


Shaded area indicates location of Carson County

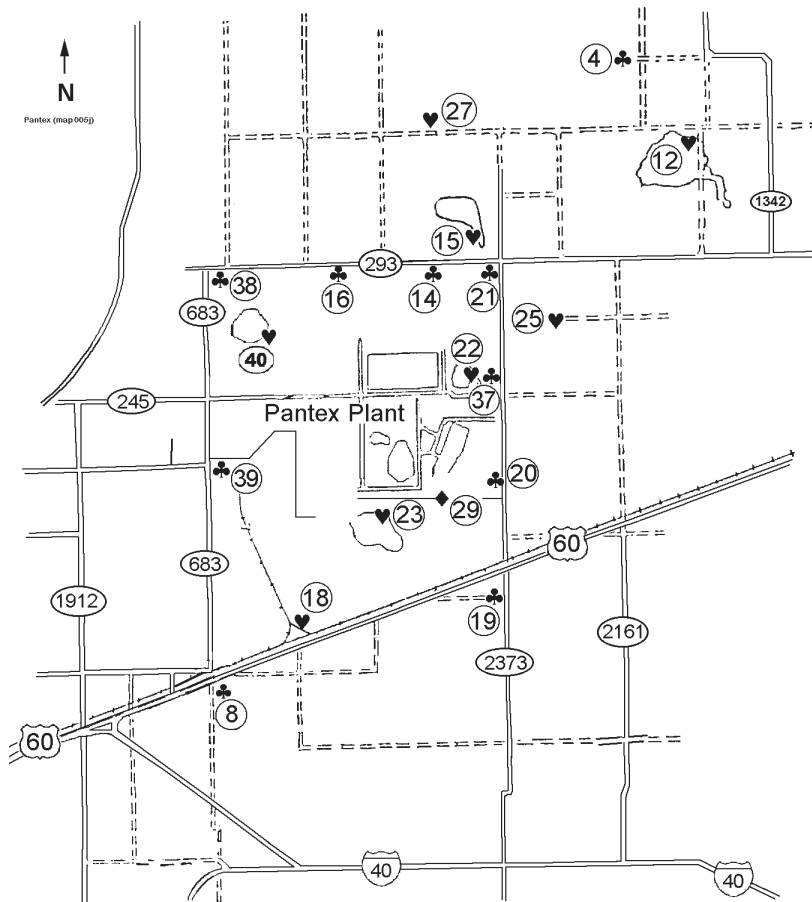


Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station



Homeland Security -- Diagram Removed



Thermoluminescent Dosimeter (TLD) Monitoring Results*
(quarterly and annual readings are in mrem)

<i>Station</i>	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Annual Dose</i>	<i>Notes</i>
04	8.5	18.9	22.0	23.7	73.1	
08	8.5	18.7	21.2	23.7	72.1	
14	9.5	19.8	22.2	25.7	77.2	
16	8.5	18.7	22.0	24.7	73.9	
19	10.4	18.7	24.3	23.7	77.1	
20	9.5	19.8	23.3	25.7	78.3	
21	7.6	17.5	22.2	23.7	71.0	
24	7.6	16.5	24.0	22.8	70.9	Background
29	10.4	19.8	23.3	23.7	77.2	
37	9.5	19.8	25.3	26.7	81.3	
38	8.5	18.7	21.2	23.7	72.1	
39	7.6	17.5	21.2	23.7	70.0	

NOTE: *Background is not subtracted from the data.

**OSL dosimeters were used for the 1st Quarter 2009 due to broken TLD reader. Landauer performed readings for 1st Quarter.

Environmental Sample Results

<i>Date</i>	<i>Lab No.</i>	<i>Station</i>	<i>Pu-239*</i>	<i>U-234*</i>	<i>U-235*</i>	<i>U-238*</i>	<i>Ra-226</i>
Air Samples $\mu\text{Ci/ml}$							
2009-01-08	ER090124	104	<5E-17	<4.9E-16	<4.9E-16	<4.9E-16	<1.4E-14
2009-01-14	ER090125	105	<5E-17	<4.5E-16	<4.5E-16	<4.5E-16	<8.2E-15
2009-01-30	ER090122	104	<6E-17	<5.1E-16	<5.1E-16	<5.1E-16	<1.5E-14
2009-02-12	ER090126	104	<6E-17	<5.4E-16	<5.4E-16	<5.4E-16	<1.1E-14
2009-02-20	ER090121	104	<6E-17	<5.3E-16	<5.3E-16	<5.3E-16	<2.5E-14
2009-03-03	ER090179	105	<5E-17	<4.8E-16	<4.8E-16	<4.8E-16	<9.1E-15
2009-03-05	ER090180	105	<5E-17	<4.9E-16	<4.9E-16	<4.9E-16	<1.4E-14
2009-03-25	ER090181	104	<6E-17	<5.4E-16	<5.4E-16	<5.4E-16	<9.9E-15
2009-04-08	AB15942	105	<5E-17	<4.9E-16	<4.9E-16	<4.9E-16	<2.5E-14
2009-04-22	AB15943	105	<5E-7	<4.8E-16	<4.8E-16	<4.8E-16	<1.6E-14
2009-05-06	AB15944	105	<6E-17	<5.3E-16	<5.3E-16	<5.3E-16	<1.5E-14
2009-05-15	AB15945	105	<6E-17	<5.4E-16	<5.4E-16	<5.4E-16	<1.6E-14
2009-05-29	AB15950	104	<6E-17	<5.2E-16	<5.2E-16	<5.2E-16	<2.0E-14
2009-06-03	AB15952	104	<5E-17	<4.8E-16	<4.8E-16	<4.8E-16	<1.5E-14
2009-06-17	AB15947	104	<5E-17	<5.0E-16	<5.0E-16	<5.0E-16	<1.5E-14
2009-07-02	AB15940	105	<6E-17	<5.4E-16	<5.4E-16	<5.4E-16	<2.7E-14
2009-08-12	AB15941	105	<6E-17	<5.4E-16	<5.4E-16	<5.4E-16	<2.6E-14
2009-09-11	AB15948	104	<6E-17	<5.7E-16	<5.7E-16	<5.7E-16	<1.3E-14
2009-09-15	AB15951	104	<6E-17	<5.7E-16	<5.7E-16	<5.7E-16	<1.3E-14
2009-10-21	AB15946	105	<6E-17	<5.2E-16	<5.2E-16	<5.2E-16	<1.5E-14
2009-11-17	AB15949	104	<6E-17	<5.7E-16	<5.7E-16	<5.7E-16	<1.8E-14
2009-11-23	AB20523	104	<6E-17	<5.6E-16	<5.6E-16	<5.6E-16	<2.2E-14
2009-12-11	AB20525	105	<5E-17	<4.9E-16	<4.9E-16	<4.9E-16	<1.5E-14
2009-12-15	AB20524	104	<6E-17	<5.6E-16	<5.6E-16	<5.6E-16	<1.3E-14

Date	Lab No.	Station	Pu-239*	U-234*	U-235*	U-238*	H-3**	Ra-226	U-238
Food Product $\mu\text{Ci/g}$									
2009-07-14	ER090374	25	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.1E-6		
2009-10-12	AB13047	25	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
Sediment $\mu\text{Ci/g}$									
2009-01-21	ER090061	22	<1E-7	1.1E-6	<1.0E-6	<1.0E-6	<2.0E-6		
2009-04-29	ER090223	40	<1E-7	<1.0E-6	<1.0E-6	1.0E-6	<3.7E-6		
2009-07-13	ER090380	23	<1E-7	1.0E-6	<1.0E-6	1.1E-6	<2.2E-6		
2009-10-12	AB13041	15	<1E-7	1.0E-6	<1.0E-6	1.0E-6	<3.5E-6		
2009-10-19	AB13656	40	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.4E-6		
Soil $\mu\text{Ci/g}$									
2009-01-21	ER090051	14	<1E-7	1.0E-6	<1.0E-6	1.2E-6	<2.3E-6		
2009-01-21	ER090052	18	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.0E-6		
2009-01-21	ER090053	20	<1E-7	<1.0E-6	<1.0E-6	1.0E-6	<1.3E-6		
2009-01-21	ER090054	37	<1E-7	1.0E-6	<1.0E-6	1.0E-6	<2.2E-6		
2009-01-21	ER090055	39	<1E-7	<1.0E-6	<1.0E-6	1.0E-6	<1.9E-6		
2009-04-27	ER090210	04	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.3E-6		
2009-04-27	ER090211	08	<1E-7	1.0E-6	<1.0E-6	1.1E-6	1.3E-6		
2009-04-27	ER090212	16	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.3E-6		
2009-04-27	ER090213	19	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.9E-6		
2009-04-27	ER090214	21	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.0E-6		
2009-04-27	ER090215	38	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.4E-6		
2009-07-14	ER090366	14	<1E-7	<1.0E-6	<1.0E-6	1.2E-6	<2.3E-6		
2009-07-14	ER090367	18	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.9E-6		
2009-07-14	ER090368	20	<1E-7	1.0E-6	<1.0E-6	1.0E-6	<2.1E-6		
2009-07-14	ER090369	37	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.1E-6		
2009-07-14	ER090370	39	<1E-7	1.0E-6	<1.0E-6	1.0E-6	2.3E-6		
2009-10-12	AB13035	04	<1E-7	<1.0E-6	<1.0E-6	1.0E-6	1.1E-6		
2009-10-12	AB13036	08	<1E-7	1.0E-6	<1.0E-6	<1.0E-6	1.9E-6		
2009-10-12	AB13037	16	<1E-7	<1.0E-6	<1.0E-6	<1.4E-6	<2.3E-6		
2009-10-12	AB13038	19	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.8E-6		
2009-10-12	AB13039	21	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<2.0E-6		
2009-10-12	AB13040	38	<1E-7	1.1E-6	<1.0E-6	1.1E-6	<2.1E-6		
Vegetation $\mu\text{Ci/g}$									
2009-01-21	ER090060	14	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<6E-7		
2009-01-21	ER090058	18	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<6E-7		
2009-01-21	ER090057	20	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
2009-01-21	ER090056	37	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<8E-7		
2009-01-21	ER090059	39	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
2009-04-27	ER090216	04	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.0E-6		
2009-04-27	ER090217	08	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.5E-6		
2009-04-27	ER090218	16	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.1E-6		
2009-04-27	ER090219	19	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.0E-6		
2009-04-27	ER090220	21	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<9E-7		
2009-04-27	ER090221	38	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.1E-6		
2009-07-14	ER090371	14	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
2009-07-14	ER090372	18	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<6E-7		
2009-07-14	ER090373	20	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.0E-6		
2009-07-14	ER090375	37	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<6E-7		
2009-07-14	ER090376	39	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
2009-10-12	AB13042	04	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<4E-7		
2009-10-12	AB13043	08	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<8E-7		
2009-10-12	AB13044	16	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.0E-6		
2009-10-12	AB13045	19	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<1.0E-6		
2009-10-12	AB13046	21	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
2009-10-12	AB13048	38	<1E-7	<1.0E-6	<1.0E-6	<1.0E-6	<7E-7		
Water-Drinking $\mu\text{Ci/ml}$									
2009-01-21	ER090065	30	<1E-10	5.0E-9	<1.0E-9	2.6E-9	<4.3E-8		
2009-04-27	ER090222	30	<1E-10	4.9E-9	<1.0E-9	2.0E-9	<5.2E-8		
2009-07-13	ER090379	30	<1E-10	4.9E-9	<1.0E-9	2.4E-9	<5.3E-8		
2009-10-12	AB13052	30	<1E-10	4.9E-9	<1.0E-9	2.0E-9	<5.5E-8		

Pantex

<i>Date</i>	<i>Lab No.</i>	<i>Station</i>	<i>Pu-239*</i>	<i>U-234*</i>	<i>U-235*</i>	<i>U-238*</i>	<i>H-3**</i>	<i>Ra-226</i>	<i>U-238</i>
Water-Ground $\mu\text{Ci/ml}$									
2009-01-21	ER090064	27	<1E-10	4.3E-9	<1E-9	1.9E-9	<4.4E-8		
2009-04-29	ER090238	27	<1E-10	4.2E-9	<1.0E-4	2.2E-9	<5.2E-8		
2009-07-13	ER090378	27	<1E-10	4.3E-9	<1.0E-9	2.1E-9	<4.9E-8		
2009-10-12	AB13051	27	<1E-10	3.9E-9	<1.0E-9	<2.0E-9	6.0E-8		
Water-Surface $\mu\text{Ci/ml}$									
2009-01-21	ER090062	22	<1E-10	4.1E-9	<1.0E-9	3.4E-9	<5.1E-8		
2009-01-21	ER090063	24	<1E-10	3.8E-9	<1.0E-9	<1.9E-9	<4.5E-8		
2009-04-29	ER090237	24	<1E-10	4.4E-9	<1.0E-9	2.2E-9	<4.3E-8		
2009-07-13	ER090377	24	<1E-10	4.3E-9	<1.0E-9	<3.0E-9	5.3E-8		
2009-10-12	AB13049	15	<1E-10	<1.0E-9	<1.0E-9	<1.0E-9	<7.1E-8		
2009-10-12	AB13050	24	<1E-10	5.1E-9	<1.0E-9	<2.2E-10	<5.8E-8		
2009-10-19	AB13653	22	<1E-10	<1.0E-9	<1.0E-9	<1.0E-9	<5.1E-8		
2009-10-19	AB13654	23	<1E-10	<1.0E-9	<1.0E-9	<1.0E-9	<5.3E-8		
2009-10-19	AB13655	40	<1E-6	<1.0E-9	<1.0E-9	<1.0E-9	<5.1E-8		

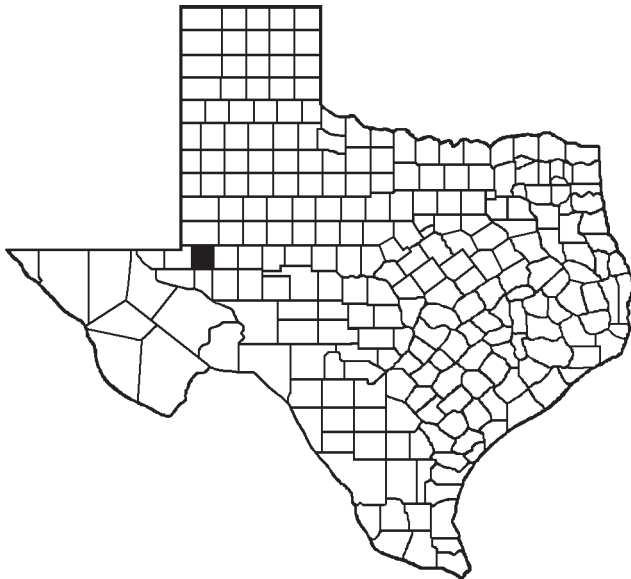
NOTE: *Indicates the analysis was by alpha spectrometry, or if Ra-226, analysis by radon emanation.

**Indicates the tritium (H-3) analysis for food product, sediment, and vegetation is reported in $\mu\text{Ci/ml}$.

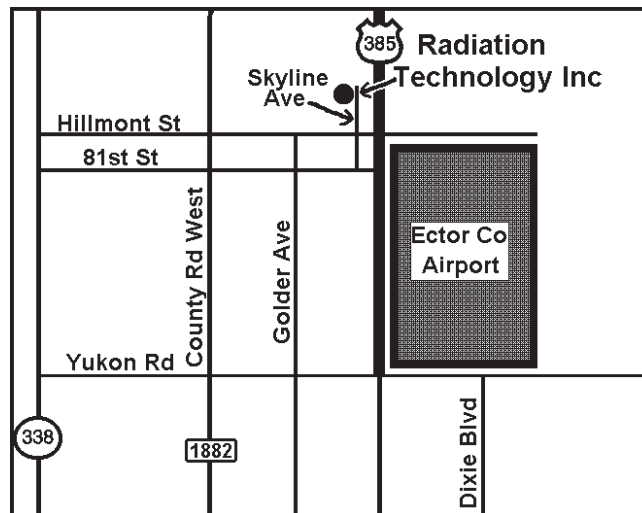
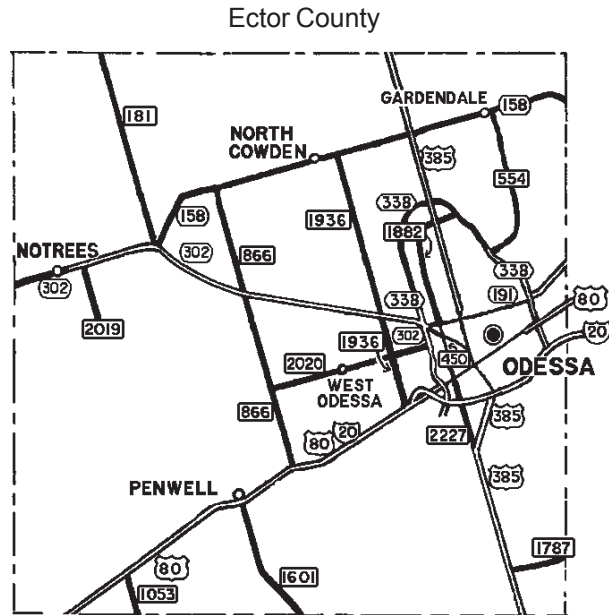
Radiation Technology, Inc.

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 TLD monitoring.



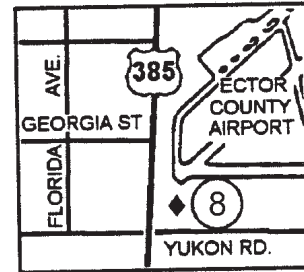
Shaded area indicates location of Ector County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



Thermoluminescent Dosimeter (TLD) Monitoring Results¹
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual ² Dose	Notes
01	0.8	1.6	5.9	4.8	13.1	
02	339.7	266.6	284.9	261.5	1152.7	
03	26.5	36.7	44.5	34.5	142.2	
04	4.6	4.8	5.9	1.0	16.3	
08	5.3	3.2	2.0	7.7	18.2	Background - Landauer AM #41

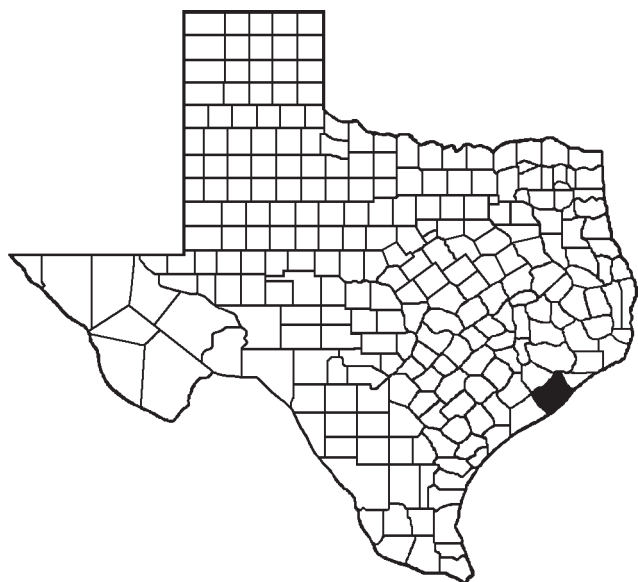
NOTE: ¹Combined neutron/gamma dosimeters are deployed at this facility. Exposure reported includes neutron and gamma doses.

²Value does not include 1/16 occupancy factor.

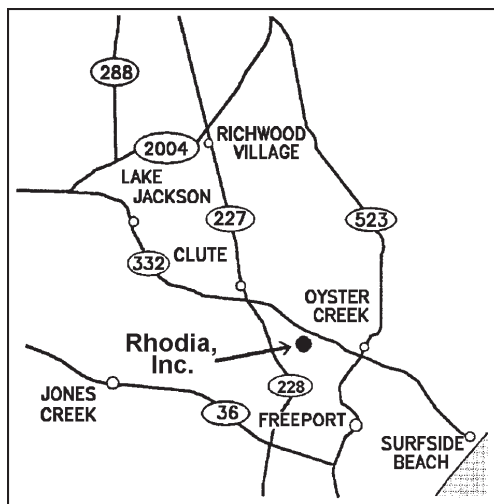
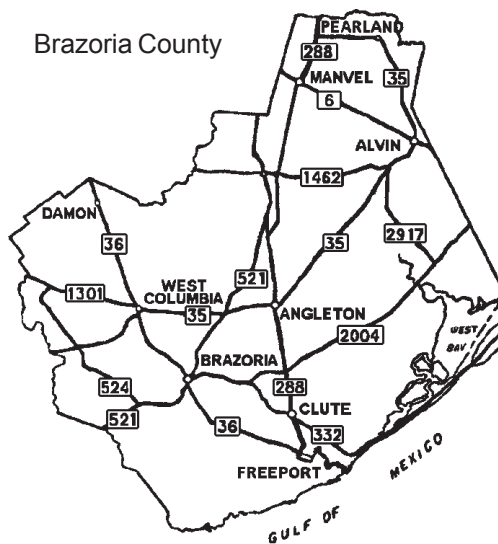
Rhodia, Inc.

Radiation Branch Site No. 026

Rhodia, Inc. is an international specialty chemicals manufacturer. Rhodia's Freeport facility, located approximately 55 miles south of Houston, uses material containing uranium and thorium. The Radiation Branch surveillance program consists of TLD monitoring.



Shaded area indicates location of Brazoria County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed

Thermoluminescent Dosimeter (TLD) Monitoring Results
(quarterly and annual readings are in mrem)

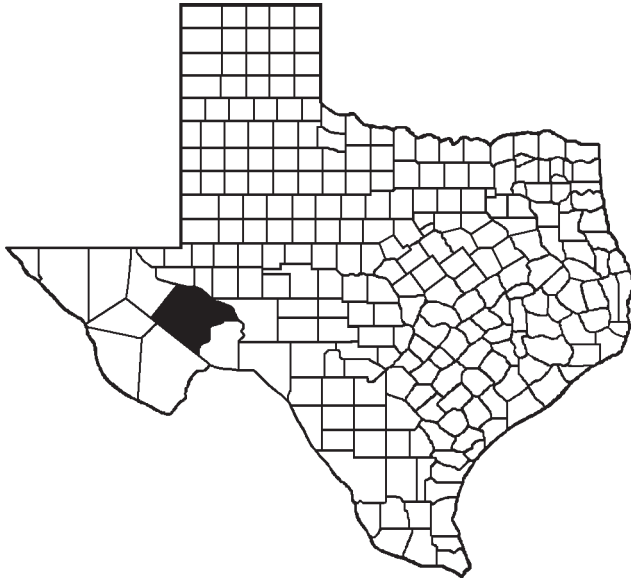
Station	Q1	Q2	Q3	Q4	Annual* Dose	Notes
01	0.0	0.0	0.0	0.0	0.0	
02	0.0	0.0	0.0	0.0	0.0	
04	6.1	4.7	7.0	5.0	22.8	
05	26.9	24.8	29.0	24.0	104.7	
06	21.7	18.9	23.0	21.0	84.6	
16	19.1	11.8	13.0	15.0	58.9	Background

Note: *Value does not include 1/16 occupancy factor.

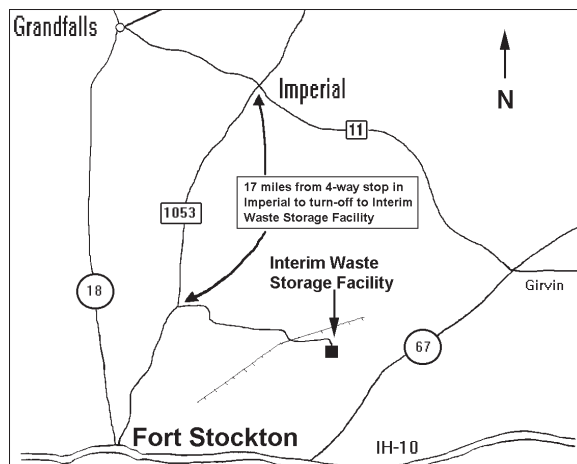
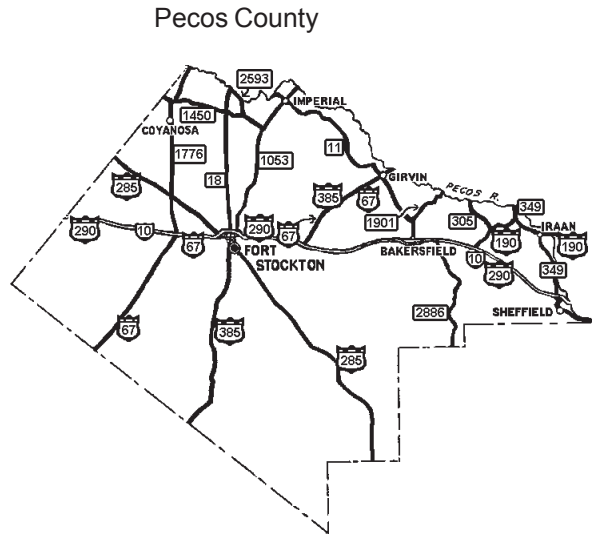
University of Texas Systems Interim Waste Storage Facility

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 TLD monitoring.



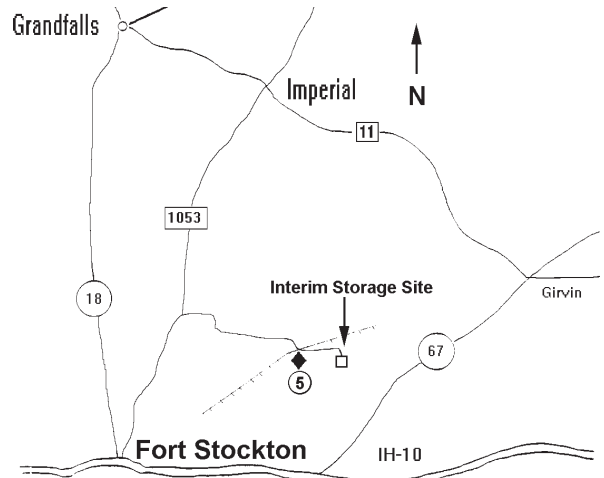
Shaded area indicates location of Pecos County



Monitoring Station Locations

◆ TLD Station ♥ Sample Station ♣ TLD & Sample Station

Homeland Security --
Diagram Removed



Thermoluminescent Dosimeter (TLD) Monitoring Results
(quarterly and annual readings are in mrem)

Station	Q1	Q2	Q3	Q4	Annual Dose	Note
01	0.8	1.4	0.0	2.9	5.1	
02	0.0	0.0	0.0	0.0	0.0	
03	0.0	0.0	0.0	0.0	0.0	
04	0.0	0.0	0.0	0.0	0.0	
05	23.6	19.3	36.0	20.1	99.0	Background

NOTE: *If data is 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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Department of Energy Quality Assessment Program Results

QAP 0403

QAP 60 Results by Laboratory

Lab: TX Texas Dept. of Health/Laboratories, Austin

No. Test	Radionuclide	Reported Value	Reported Error	EML Value	EML Error	Reported EML	Evaluation
Matrix: AI Air Filter Bq/filter							
1	AM241	0.115	0.01	0.1045	0.0025	1.100	A
1	CO60	37.5	0.4	35.4	0.85	1.059	A
1	CS134	16.7	0.2	18.2	0.402	0.918	A
1	CS137	28.9	0.5	26.4	0.86	1.095	A
1	Gross Alpha	1.19	0.08	1.2	0.12	0.992	A
1	Gross Beta	2.89	0.13	2.85	0.28	1.014	A
1	PU238	0.041	0.002	0.0405	0.0027	1.012	A
1	PU239	0.164	0.005	0.1644	0.0112	0.998	A
1	U234	0.092	0.005	0.0858	0.0008	1.072	A
1	U238	0.09	0.005	0.085	0.0029	1.059	A
Matrix: SO Soil Bq/kg							
1	AC228	52.4	1.8	49.0	1.96	1.069	A
1	AM241	13.9	0.9	13.0	0.43	1.069	A
1	BI212	51.2	8.2	50.43	4.61	1.015	A
1	BI214	52.3	1.9	58.4	2.2	0.896	A
1	CS137	1359.0	30.0	1323.0	66.17	1.027	A
1	K40	564.0	17.0	539.0	29.11	1.046	A
1	PB212	50.1	1.9	47.73	2.53	1.050	A
1	PB214	55.6	2.0	61.0	2.38	0.911	A
1	PU238	0.888	0.185	0.82	0.05	1.083	A
1	PU239	22.4	1.2	22.82	0.56	0.982	A
1	SR90	52.5	9.4	51.0 *	5.9	1.029	A
1	TH234	71.1	8.9	84.0	5.96	0.846	A
1	U234	84.6	2.7	87.22	1.97	0.970	A
1	U238	90.6	2.7	89.73	4.22	1.010	A
Matrix: VE Vegetation Bq/kg							
1	AM241	5.33	0.56	4.93	0.29	1.081	A
1	CO60	17.7	0.9	14.47	0.64	1.223	A
1	CS137	659.0	11.0	584.67	29.23	1.127	A
1	K40	837.0	25.0	720.0	37.92	1.163	A
1	PU238	0.592	0.159	0.455	0.0485	1.301	A
1	PU239	6.56	0.53	6.81	0.28	0.963	A
1	SR90	688.0	22.0	734.0 *	82.0	0.937	A
Matrix: WA Water Bq/L							
1	AM241	1.22	0.11	1.31	0.04	0.931	A
1	CO60	162.0	1.0	163.2	5.9	0.993	A
1	CS137	52.2	0.9	51.95	2.7	1.005	A
1	Gross Alpha	320.0	28.0	326.0	32.0	0.982	A
1	Gross Beta	1217.0	60.0	1170.0	117.0	1.040	A
1	H3	255.0	18.0	186.6	3.3	1.367	W
1	PU238	1.03	0.06	1.1	0.03	0.936	A
1	PU239	2.86	0.14	3.08	0.1	0.929	A
1	SR90	5.68	0.67	4.76 *	0.5	1.193	W
1	U234	2.26	0.09	2.28	0.02	0.991	A
1	U238	2.25	0.09	2.25	0.06	1.000	A

Values for elemental uranium are reported in µg/filter, g, or mL.

pCi/g or mL = Bq x 0.027

Evaluation: A=Acceptable, W=Acceptable with Warning, N=Not Acceptable

If the evaluation system is not appropriate for the types of analyses performed in your lab, apply site specific evaluation.

* Grand mean average used in lieu of experimentally determined EML value

Department of Homeland Security
Environmental Measurements Laboratory
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March 1, 2004

To: Participants in Quality Assessment Program (QAP)
From: Mitchell D. Erickson, Laboratory Director

TERMINATION OF THE QUALITY ASSESSMENT PROGRAM

The Department of Energy's (DOE) Quality Assessment Program (QAP), managed by the Environmental Measurements Laboratory (EML), will be terminated after we issue the report for this current performance sample distribution (QAP 60).

The Program was established in 1976 to test the quality of the environmental radiological analysis being reported to DOE by its contractors for site cleanup and regulatory compliance. Since the Program's inception, DOE/EML successfully prepared, analyzed, and distributed thousands of performance samples to DOE contractors and other participants in the program. DOE/EML then collected, compiled, assessed, and reported the resulting analytical data, which was used by DOE program managers to select qualified contractors, monitor contractors' performance, and assure data quality. QAP data show continuous improvement in radiochemical analyses as labs gained proficiency and EML's QA scientists encouraged better performance through consultation, feedback, and new methods. Detailed information on QAP, including full reports, is available at <http://www.eml.doe.gov/qap/>.

EML is proud to have successfully managed the Program for 27 years on behalf of DOE; helping the Nation by ensuring that the quality of the radiological analysis from DOE contractors was demonstrated. We would also like to take this opportunity to thank all those individuals and organizations that have helped and supported us over the years.

EML transferred to the Science and Technology (S&T) Directorate of the Department of Homeland Security (DHS) on March 1, 2003. As we continue to respond to the challenges of our new mission, we need to redirect our proficiency testing (PT) activities to reflect our new mission. We will keep you informed as these new PT activities develop.

**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/m³.

**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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