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Alameda County  
Environmental Health

January 23, 2009

Aminifilibadi Masood & Amini Sharbano  
909 Blue Bell Drive  
Livermore, CA 94551

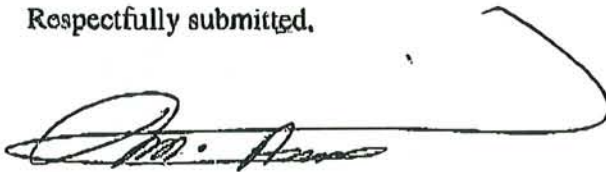
Re: Transmittal Letter  
Site Location: Springtown Gas  
909 Blue Bell Drive, Livermore, CA 94551

Dear Mr. Wickham:

On behalf of Aminifilibadi Masood & Amini Sharbano, Geological Technics Inc. (GTI) prepared the 4<sup>th</sup> Quarter Groundwater Monitoring Report, dated January 23, 2009 that was sent to your office via electronic delivery per Alameda County's guidelines on January 29, 2009.

I declare under penalty of law that the information and/or recommendations contained in the above referenced document or report is true and correct to the best of my knowledge.

Respectfully submitted,



Aminifilibadi Masood/Amini Sharbano  
Property Owner  
909 Blue Bell Drive  
Livermore, CA 94551

*Geological Technics Inc.* \_\_\_\_\_

## **REPORT**

**Groundwater Monitoring  
4th Quarter 2008**

**Springtown Gas  
909 Bluebell Drive  
Livermore, California**

**Project No. 1409.2  
January 23, 2009**

**Prepared for:  
Masood Filibadi and Sharbano Amini  
909 Bluebell Drive  
Livermore, California 95353**

**Prepared by:  
*Geological Technics Inc.*  
1101 7<sup>th</sup> Street  
Modesto, California 95354  
(209) 522-4119**

# Geological Technics Inc.

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January 23, 2009

Project No.: 1409.2  
Project Name: Springtown Gas (Bluebell)

Massod Filibadi and Sharbano Amini  
Springtown Gas  
909 Bluebell Drive  
Livermore, California 94551

RE: Report – 4th Quarter 2008 Groundwater Monitoring  
Springtown Gas, 909 Bluebell Drive, Livermore, California

Dear Massod Filibadi and Sharbano Amini:

Geological Technics Inc. (GTI) has prepared the following Report for the 4th Quarter 2008 groundwater monitoring event performed on December 29, 2008 at Springtown Gas, 909 Bluebell Drive, Livermore, California. The groundwater data for the event are consistent with historical trends.

If you have any questions, please do not hesitate to call me at (209) 522-4119.

Respectfully submitted,



Raynold I. Kablanow II, Ph.D.  
Vice President

cc: Jerry Wickham – ACEHS  
USTCFP

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# *Geological Technics Inc.*

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## **REPORT**

### **Groundwater Monitoring 4th Quarter 2008**

**Springtown Gas  
909 Bluebell Drive  
Livermore, California**

Project No. 1409.2  
January 23, 2009

#### **1.0 EXECUTIVE SUMMARY**

This report summarizes the results of the 4th Quarter 2008 groundwater monitoring and sampling event that took place on December 29, 2008 at Springtown Gas, 909 Bluebell Drive, Livermore, Alameda County, California (Site).

The average groundwater elevation at the site was 511.67 feet above mean sea level (AMSL) and the groundwater flow was N64°W at 0.004 ft/ft for this event.

The results of analyses conducted on groundwater samples collected from the three monitoring wells on the site (STMW-1, STMW-2, STMW-3) did not detect total petroleum hydrocarbons as gasoline (TPH-G) above laboratory reporting limits. Concentrations of methyl tertiary butyl ether (MtBE) were detected in groundwater samples collected from monitoring wells STMW-1 and STMW-3, but not in groundwater samples collected from STMW-2. Concentrations of tert-butyl alcohol (TBA) were detected in groundwater samples collected from monitoring wells STMW-1 and STMW-2 but not in groundwater samples collected from STMW-3. The concentrations detected are consistent with historical site data. Concentrations of di-isopropyl alcohol (DIPE), ethyl-tertiary butyl ether (EtBE), tert-amyl-methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), methanol ethanol, or benzene, toluene, ethylbenzene and total xylenes (BTEX) were not detected in groundwater samples collected from the three monitoring wells.

Geological Technics Inc. (GTI) submitted a work plan to the Alameda County Environmental Health Services (ACEHS) on July 30, 2008 to prepare a Site Conceptual Model for the Site, and conduct hydrogen peroxide injection and groundwater

monitoring/sampling/analyses (*Work Plan, Site Conceptual Model, Hydrogen Peroxide Injection, Groundwater Monitoring/Sampling/Analyses, Springtown Gas, 909 Bluebell Drive, Livermore, California*). The work plan was approved by the ACEHS in correspondence dated August 8, 2008. GTI commenced the field work on September 19, 2008 with the installation of hydrogen peroxide injection pilot test well P1. The 4<sup>th</sup> Quarter 2008 monitoring/sampling/analyses event was conducted at the Site on December 29, 2008. Hydrogen peroxide injections began on October 2, 2008 using well P1, and existing groundwater monitoring wells STMW-1 and STMW-3, and continued until November 6, 2008. The results of the hydrogen peroxide injection pilot test and the Site Conceptual Model were submitted to the ACEHS on December 5, 2008.

Alameda County Health Care Services Agency in their correspondence dated December 24, 2008 requested GTI to prepare a Corrective Action Plan addressing required further site characterization mentioned in Site Conceptual Model dated December 5, 2008, hydrogen peroxide injection, monitoring methods, frequency and parameters to be collected. GTI is in the process of preparing this corrective action plan and will submit it in early February.

## **2.0 PHYSICAL SETTING**

The Site is situated in a mixed commercial-residential land-use area of Livermore, California, and is located at the southeast corner of the intersection of Springtown Boulevard and Blue Bell Drive, approximately 300 feet north of westbound Interstate 580 (Figure 1). The Site occupies approximately 0.74 acres, and is currently an operating service station with mini-mart retailing Chevron-branded gasoline and diesel fuel products. The site contains one UST cluster in the east portion of the Site consisting of one 12,000 gallon capacity unleaded gasoline UST, and a 12,000 gallon capacity segmented UST storing 6,000 gallons of diesel and 6,000 gallons of premium unleaded. A single story mini-mart is located on the southern portion of the Site, and six canopied fuel dispensers in the north portion of the Site. No automotive repair facilities exist on the Site. The Site is adjoined by Springtown Boulevard on the west, motel properties on the south and east, and Bluebell Drive on the north. Retail land-use is located on the north side of Bluebell Drive, with residential land-use beyond to the north and northeast.

The Site is located at an elevation of approximately 520 feet above mean sea level in the northeast portion of the Livermore Valley (USGS 1981). The Livermore Valley is a structural basin bounded by faults on the east and west that create the Altamont Hills uplift on the east and the Pleasanton Ridge uplift on the west (CDM&G, 1991). The shallow Pleistocene to recent sediments underlying the basin consist of alluvial deposits that have been informally divided into upper and lower units. The sediment, ranging from coarse-grained gravel to fine-grained mud, was transported northward from the Northern Diablo Range on the southern margin of the basin and deposited in an alluvial fan, braided stream, and lacustrine environments. Because the sediment prograded northward, the coarse-grained sediment makes up nearly 80% of the sediment in the southern part of the basin, but northward and westward interfingers with clay deposits that may be as much as 30 feet thick (DWR, 2004)

Drainages from the south, north, and east converge in the western part of the basin and flow out of the basin toward the Sunol Valley and Alameda Creek west of Pleasanton Ridge. The nearest surface drainages are Las Positas Creek located approximately 1 mile west of the Site, and Cavetano Creek 2 miles west of the Site (USGS 1981).

The alluvial fan, braided stream and lacustrine deposits are the principal aquifers for most domestic and irrigation purposes in the Livermore Valley, although the underlying Livermore Formation, which may be as much as 4,000 feet thick, yields significant quantities of groundwater on the eastern side of the basin (DWR 2004).

### **3.0 GROUNDWATER MONITORING**

#### **3.1 Groundwater Elevation and Flow Direction**

The average groundwater elevation for the 4<sup>th</sup> Quarter 2008 event was 511.67 feet AMSL on December 29, 2008, which corresponds to approximately 7.5 feet below ground surface (bgs). This elevation represents an increase of 0.92 feet since the 3<sup>rd</sup> Quarter 2008 event (September 25, 2008). The groundwater gradient for the 4<sup>th</sup> Quarter 2008 event was 0.004 ft/ft flowing N64°W, which is consistent with historical trends.

The gradient direction for the 4<sup>th</sup> Quarter 2008 event is shown on Figure 2 (Groundwater Gradient). The calculated groundwater gradient and flow direction is shown on Figure 3 (Groundwater Gradient Rose Diagram). The groundwater elevation data are summarized in Table 1 included in Appendix A. Table 4 provides a summary of monitoring well completion data.

#### **3.2 Groundwater Sampling Procedure**

The 4<sup>th</sup> Quarter 2008 groundwater monitoring event was conducted on December 29, 2008. GTI monitored groundwater elevations and collected groundwater samples for analyses from four groundwater monitoring wells on the Site. Depth to water in each monitoring well was measured and recorded before groundwater samples were collected from the wells. The wells were purged of at least three well volumes of stagnant water using dedicated Waterra® foot valves and tubing. Purging continued until the temperature, conductivity, and pH of the groundwater stabilized (<10% variation in three consecutive readings), indicating that formation water representative of aquifer conditions was entering the wells. These water quality parameters were measured at intervals of each well volume purged. All purge water was placed in a 55-gallon DOT drums and secured on-site.

Before a sample was collected from each well, the water level was allowed to recharge to at least 80% of its initial level. Dedicated tubing attached to Waterra® foot valves were used to collect groundwater samples from the monitoring wells. The samples were placed into 40-ml VOA vials preserved with hydrochloric acid. Care was taken to minimize sample aeration during sample collection and avoid generating headspace. All samples were checked for the presence of headspace, labeled, recorded on a chain-of-custody, and placed in an ice chest

cooled to 4°C for transport to the analytical laboratory. All non-disposable sampling equipment was decontaminated in an Alconox solution and double-rinsed with de-ionized water before initial use and between use at each monitoring well.

Groundwater monitoring field logs are included in Appendix C.

### **3.3 Laboratory Analyses**

The collected groundwater samples were transported via courier to Argon Laboratories of Ceres, California (Certification No. 2359) for analyses.

The laboratory utilized USEPA Method 8260B to analyze the groundwater samples for the following constituents:

- Total petroleum hydrocarbons as gasoline (TPH-G),
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX),
- Methyl tertiary butyl ether (MtBE), and,
- Di-isopropyl alcohol (DIPE), ethyl-tertiary butyl ether (EtBE), tert-amyl-methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), tert butyl alcohol (TBA), methanol and ethanol

The results and detection limits for the above analyses are listed in Table 2 included in Appendix A. Certified analytical reports are included in Appendix B.

As required under AB2886, the groundwater elevation and laboratory analytical data were submitted electronically to GeoTracker on January 21, 2009 for the groundwater elevation data, (confirmation number 7065346837), and for the laboratory analytical data (confirmation number 3644734263).

## **4.0 CONCLUSIONS**

The results of the 4<sup>th</sup> Quarter 2008 event indicate the following:

- The average groundwater elevation at the site was 511.67 feet AMSL and the groundwater flow was N64°W at 0.004 ft/ft for this event.
- The groundwater gradient and the direction of groundwater flow for the 4<sup>th</sup> Quarter 2008 event is consistent with the gradients and groundwater flow directions for the three preceding quarterly monitoring events (3<sup>rd</sup> and 4<sup>th</sup> Quarters 2007 and 3<sup>rd</sup> Quarter 2008).
- The results of analyses conducted on groundwater samples collected from the three monitoring wells (STMW-1, STMW-2, STMW-3) on the site did not detect total petroleum hydrocarbons as gasoline (TPH-G) above laboratory reporting limits.
- Concentrations of methyl tertiary butyl ether (MtBE) were detected in groundwater samples collected from monitoring wells STMW-1 (15 µg/l) and STMW-3 (2.2 µg/l), but not in groundwater samples collected from STMW-2. Figure 4 is a contour map showing the distribution of MtBE concentrations for the 4<sup>th</sup> Quarter 2008 event. The contours



suggest the MtBE groundwater plume is localized in the vicinity of the existing USTs and monitoring well STMW-1.

- Concentrations of tert-butyl alcohol (TBA) were detected in groundwater samples collected from monitoring wells STMW-1 (1,000 µg/l) and STMW-2 (56 µg/l), but not in groundwater samples collected from STMW-3. Figure 5 is a contour map showing the distribution of TBA concentrations for the 4<sup>th</sup> Quarter 2008 event. The contours mirror the same conclusion as for the MtBE groundwater plume, the TBA groundwater plume is localized in the vicinity of the existing USTs and monitoring well STMW-1.
- Concentrations of di-isopropyl alcohol (DIPE), ethyl-tertiary butyl ether (EtBE), tert-amyl-methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), methanol ethanol, or benzene, toluene, ethylbenzene and total xylenes (BTEX) were not detected in groundwater samples collected from the three monitoring wells.
- The concentrations of MtBE and TBA detected in the groundwater samples collected from monitoring wells STMW-1, STMW-2 and STMW-3 are much lower than those MtBE and TBA concentrations detected during the 3<sup>rd</sup> and 4<sup>th</sup> Quarters of 2007.

## **5.0 RECOMMENDATIONS**

- Maintain the quarterly monitoring schedule.
- Alameda County Health Care Services Agency in their correspondence dated December 24, 2008 requested GTI to prepare a Corrective Action Plan addressing required further site characterization mentioned in Site Conceptual Model dated December 5, 2008, hydrogen peroxide injection, monitoring methods, frequency and parameters to be collected. GTI is in the process of preparing this corrective action plan and will submit it in early February.

## **6.0 LIMITATIONS**

This report was prepared in accordance with the generally accepted standard of care and practice in effect at the time Services were rendered. It should be recognized that definition and evaluation of environmental conditions is an inexact science and that the state or practice of environmental geology/hydrology is changing and evolving and that standards existing at the present time may change as knowledge increases and the state of the practice continues to improve. Further, that differing subsurface soil characteristics can be experienced within a small distance and therefore cannot be known in an absolute sense. All conclusions and recommendations are based on the available data and information.

The tasks proposed and completed during this project were reviewed and approved by the local regulatory agency for compliance with the law. No warranty, expressed or implied, is made.

**7.0 CERTIFICATION**

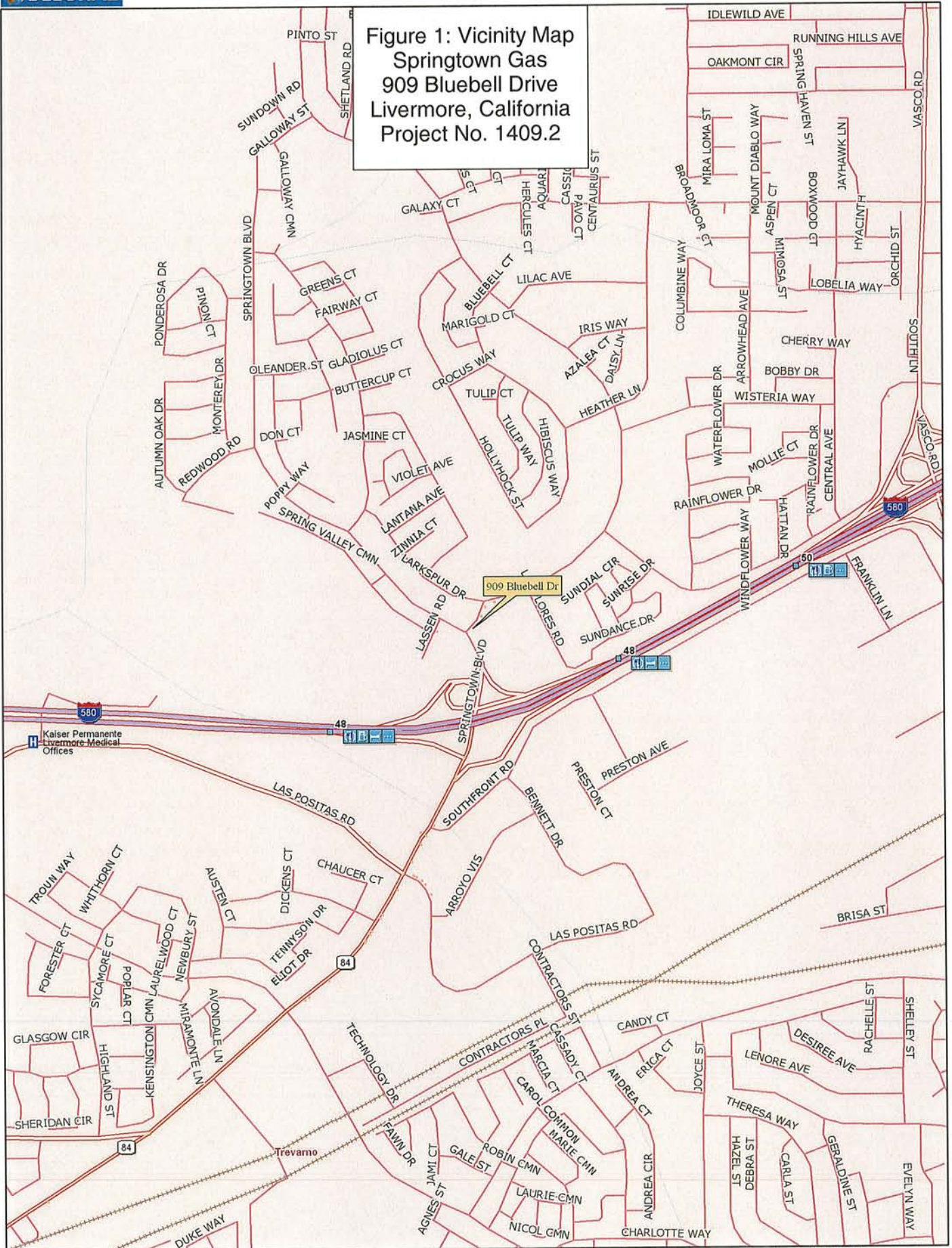
This report was prepared under the direction of:



Raynold Kablanow II, Ph.D.  
California Professional Geologist #5234  
Certified Hydrogeologist #442



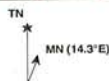
Figure 1: Vicinity Map  
Springtown Gas  
909 Bluebell Drive  
Livermore, California  
Project No. 1409.2



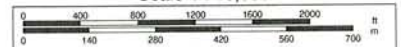
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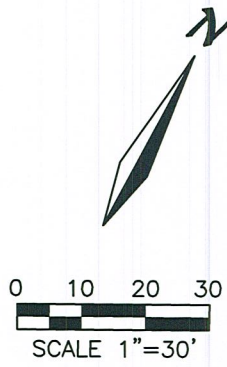
Scale 1 : 16,000



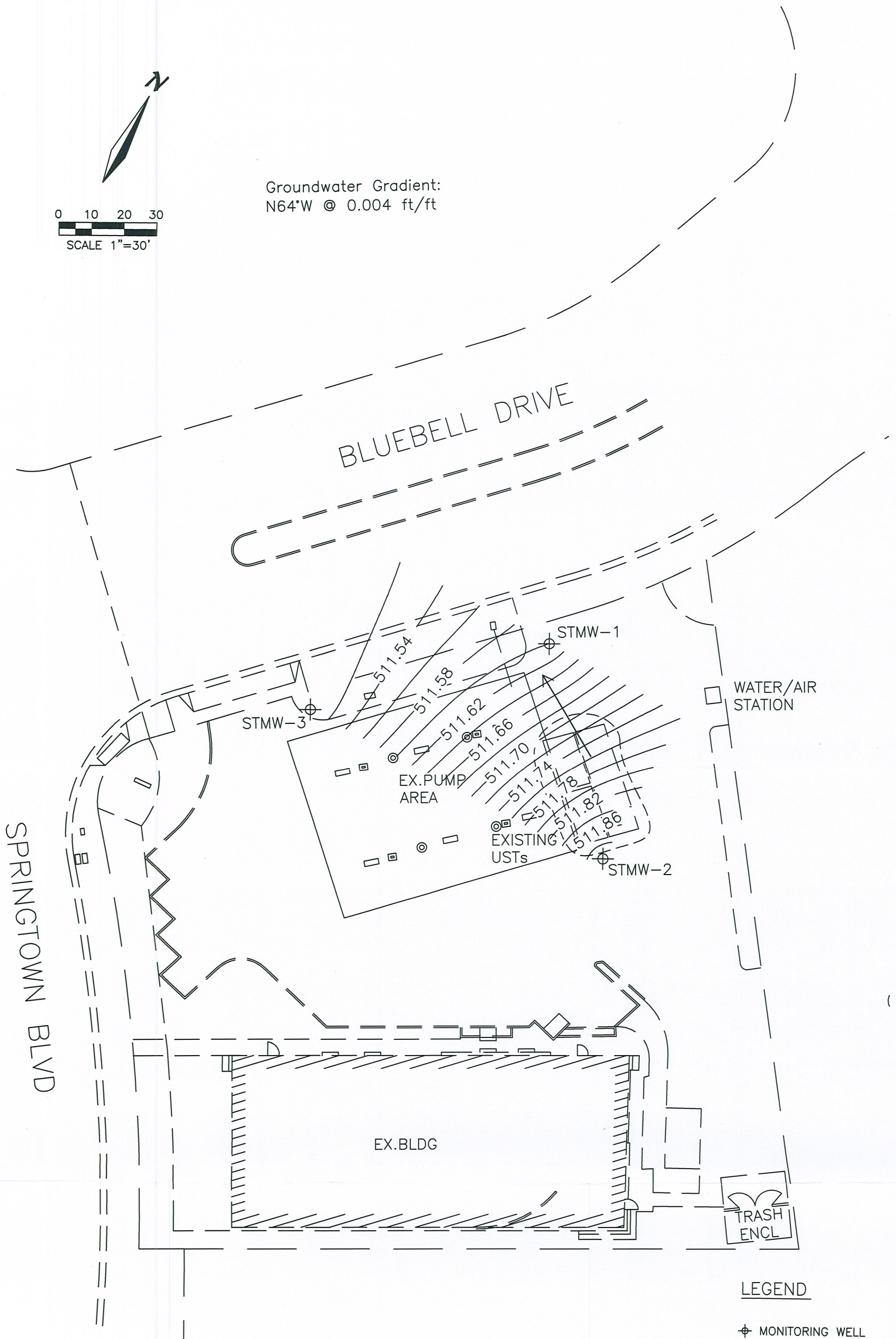
1" = 1,333.3 ft

Data Zoom 13-6





Groundwater Gradient:  
N64°W @ 0.004 ft/ft



**LEGEND**

⊕ MONITORING WELL

By:	EN
Job No:	1409.2 Date: 12/29/08
Scale:	1"=30'
File:	4Q08 Springtown GWG

**Geological Technics, Inc.**

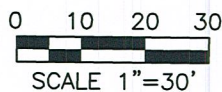


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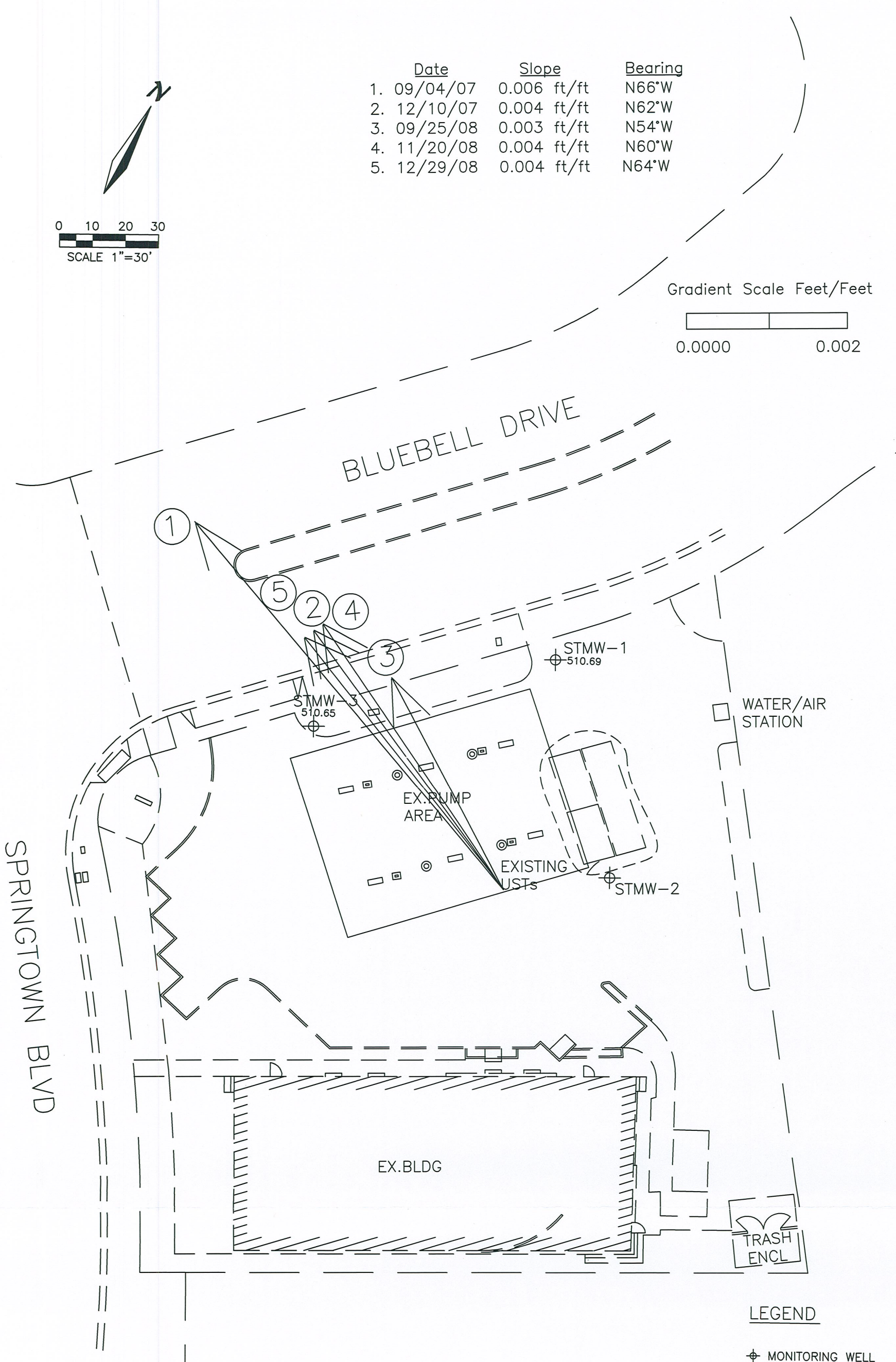
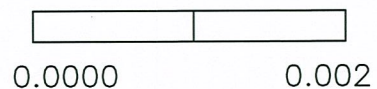
Figure 2 Groundwater Gradient Map  
DECEMBER 29, 2008  
SPRINGTOWN GAS (BLUEBELL)  
909 BLUEBELL DRIVE  
LIVERMORE, CA



	Date	Slope	Bearing
1.	09/04/07	0.006 ft/ft	N66°W
2.	12/10/07	0.004 ft/ft	N62°W
3.	09/25/08	0.003 ft/ft	N54°W
4.	11/20/08	0.004 ft/ft	N60°W
5.	12/29/08	0.004 ft/ft	N64°W



Gradient Scale Feet/Feet



By:	EN
Job No:	1409.2 Date: 12/29/08
Scale:	1"=30'
File:	4Q08 Rose Springtown

**Geological Technics, Inc.**

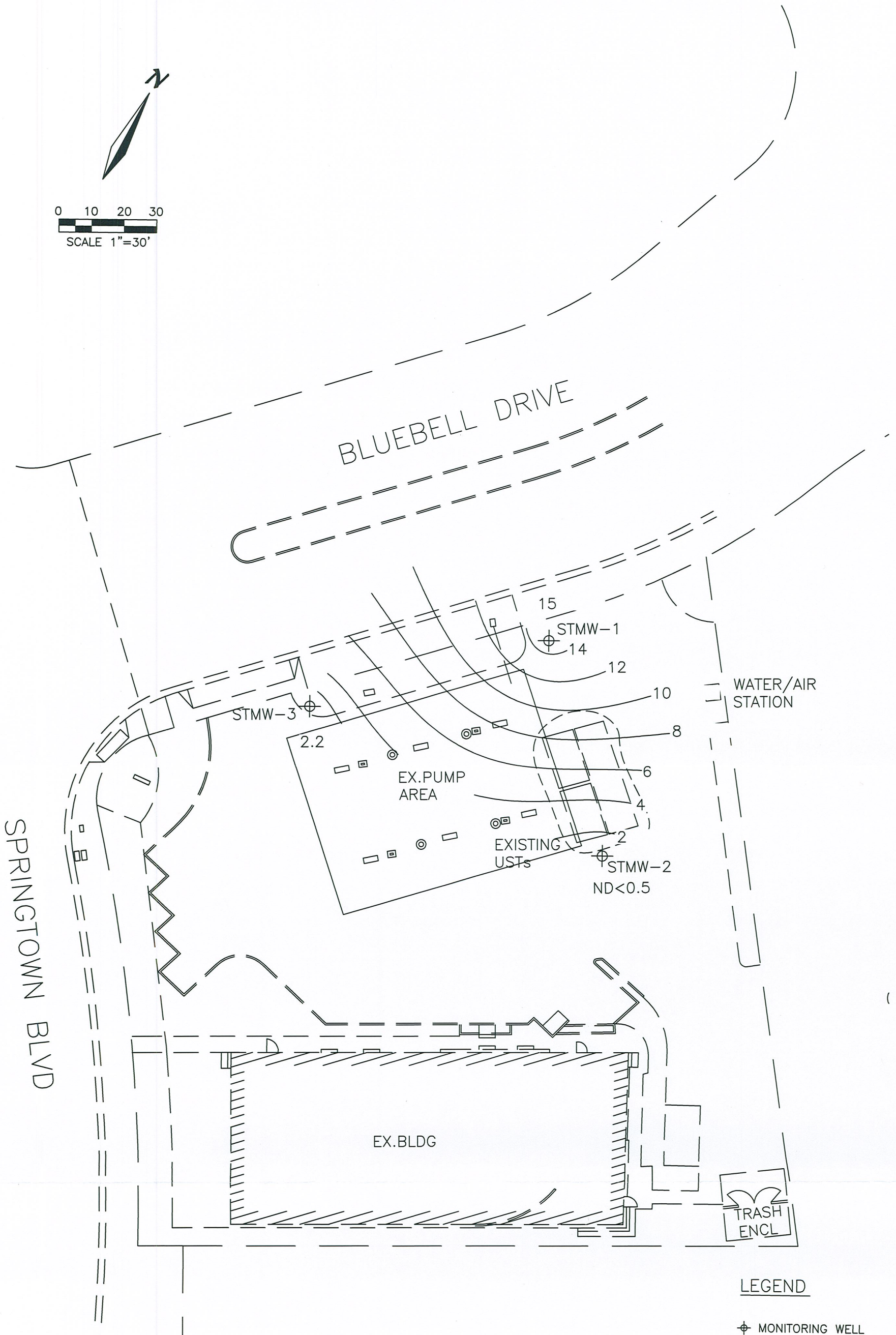
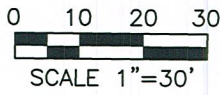


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Figure 3 Groundwater Gradient Rose Diagram

SPRINGTOWN GAS (BLUEBELL)  
909 BLUEBELL DRIVE  
LIVERMORE, CA





LEGEND

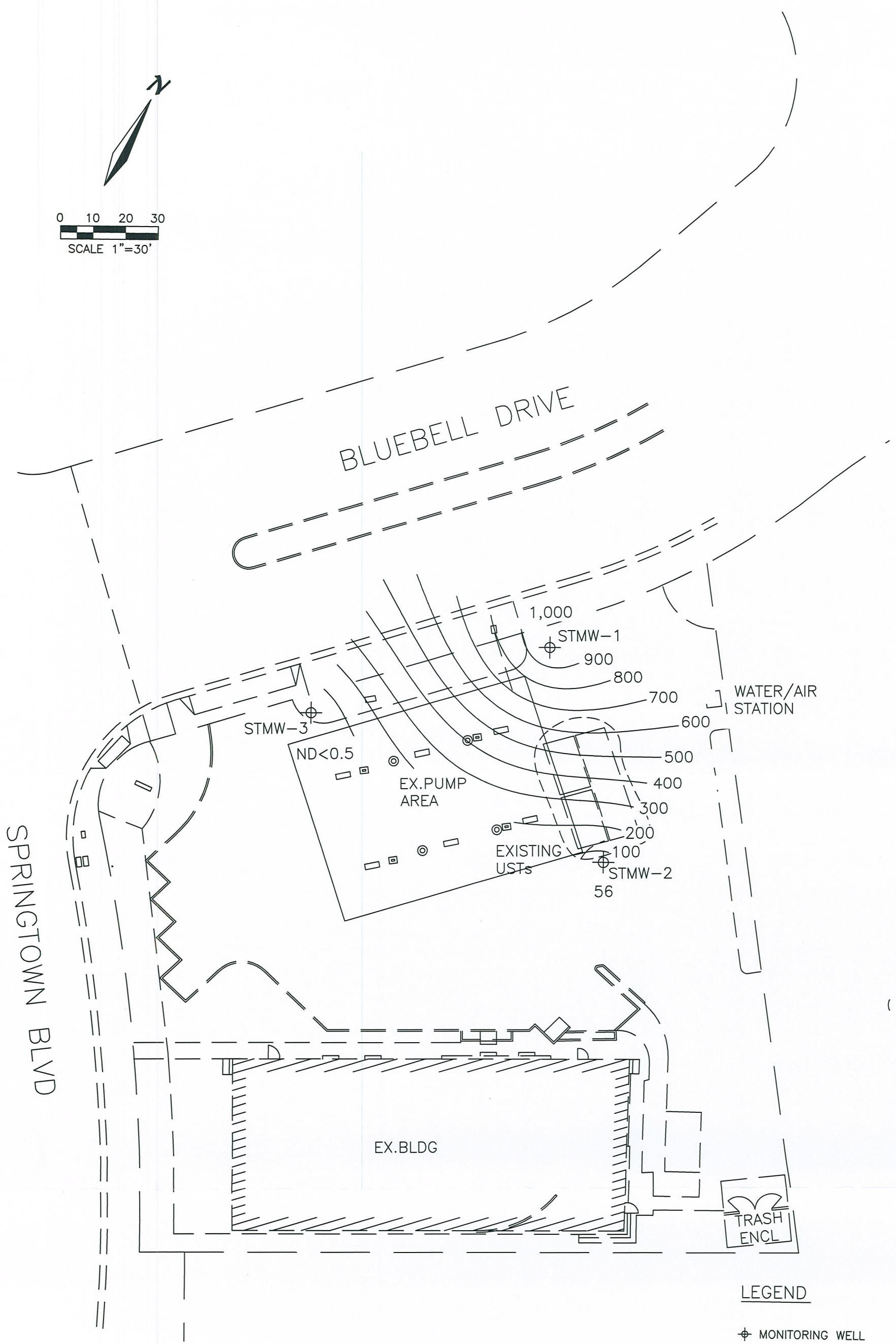
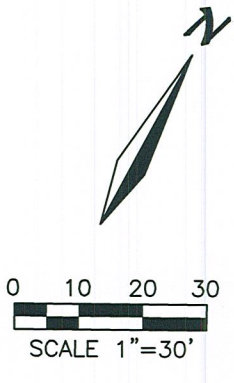
⊕ MONITORING WELL

By:	EN
Job No:	1409.2 Date: 01/08/09
Scale:	1"=30'
File:	4Q08 MTBE Springtown

**Geological Technics, Inc.**  
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Figure 4 MTBE CONTOUR MAP  
 DECEMBER 29, 2008  
 SPRINGTOWN GAS (BLUEBELL)  
 909 BLUEBELL DRIVE  
 LIVERMORE, CA





By:	EN
Job No:	1409.2 Date: 01/08/09
Scale:	1"=30'
File:	4Q08 TBA Springtown

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Figure 5 TBA CONTOUR MAP  
 DECEMBER 29, 2008  
 SPRINGTOWN GAS (BLUEBELL)  
 909 BLUEBELL DRIVE  
 LIVERMORE, CA

# **Appendix A**

## **Summary Tables**



**Table 1  
Summary of Groundwater Elevation**

Springtown Gas  
909 Bluebell Drive  
Livermore, California

Date		STMW-1	STMW1	STMW-2	STMW2	STMW-3	STMW3	Avg GW Elev	GW Gradient	
		GW Elev	DTW	GW Elev	DTW	GW Elev	DTW		Slope ft/ft	Direction
	<i>top of casing*</i>	517.55		519.59		520.37				
9/4/2007		510.97	6.58	511.59	8.00	510.85	9.52	511.14	0.006	N66°W
12/10/07		511.29	6.26	511.59	8.00	511.25	9.12	511.38	0.004	N62°W
09/25/08		510.69	6.86	510.9	8.69	510.65	9.72	510.75	0.003	N54°W
11/20/08		510.81	6.74	511.17	8.42	510.82	9.55	510.93	0.004	N60°W
12/29/08		511.60	5.95	511.90	7.69	511.50	8.87	511.67	0.004	N64°W
Historical								511.17	0.004	N61°W

\*TOC elevations surveyed in on 9/06/07 by Muir Consulting Inc. NAD 83 and NGVD 29

\*\*Gradient and slope determined from computer generated contours

**Table 2  
Summary of Groundwater Analytical Data**

Springtown Gas  
909 Bluebell Drive  
Livermore, California

MONITORING WELL	Date	TPHg	B	T	E	X	MtBE	TBA	DIPE	EtBE	TAME	1,2-DCA	EDB	Methanol	Ethanol
		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
STMW-1	9/4/2007	220	<10	<10	<10	<10	850	6,500	-	-	-	-	-	-	-
	12/10/2007	210	<5	<5	<5	<5	540	4,200	-	-	-	-	-	-	-
	9/25/2008	230	<0.5	<0.5	<0.5	<1.0	204	704	<0.5	<0.5	0.6	<0.5	<0.5	<5	<20
	11/20/2008	<50	<0.5	<0.5	<0.5	<1.0	14	930	<0.5	<0.5	<0.5	-	-	-	-
	12/29/2009	<50	<0.5	<0.5	<0.5	<1.0	15	1,000	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
STMW-2	9/4/2007	<50	<0.5	<0.5	<0.5	<0.5	<1	42	-	-	-	-	-	-	-
	12/10/2007	<50	<0.5	<0.5	<0.5	<0.5	<1	83	-	-	-	-	-	-	-
	9/25/2008	<50	<0.5	<0.5	<0.5	<1	<0.5	71	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<20
	11/20/2008	90	1.7	6.9	1.7	7.6	2.2	190	<0.5	<0.5	<0.5	-	-	-	-
	12/29/2009	<50	<0.5	<0.5	<0.5	<1.0	<0.5	56	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
STMW-3	9/4/2007	59	<1	<1	<1	<1	160	120	-	-	-	-	-	-	-
	12/10/2007	<50	<0.5	<0.5	<0.5	<0.5	17	86	-	-	-	-	-	-	-
	9/25/2008	<50	<0.5	<0.5	<0.5	<0.5	67	31.7	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<20
	11/20/2008	<50	<0.5	<0.5	<0.5	<1.0	12	<5	<0.5	<0.5	<0.5	-	-	-	-
	12/29/2009	<50	<0.5	<0.5	<0.5	<1.0	2.2	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
P1	11/20/2008	<50	<5	<5	<5	<10	180	2,300	<5	<5	<5	-	-	-	-
	12/29/2009	<50	<0.5	<0.5	<0.5	<1.0	120	3,900	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5

Notes:

- TPHg Total petroleum hydrocarbons as gasoline
- TPHd Total petroleum hydrocarbons:
- B Benzene
- T Toluene
- E Ethylbenzene
- X Total xylenes
- MtBE Methyl tertiary butyl ether
- TBA Tert-butyl alcohol
- DIPE Di-isopropyl ether
- EtBE Ethyl-tertiary butyl ether
- TAME Tert-amyl-methyl ether
- 1,2-DCA 1,2-Dichloroethane
- EDB 1,2-Dibromoethane
- bgs below ground surface
- ug/l micrograms per liter
- Not analyzed or not reported



**Table 3  
Summary of Water Quality Parameter Data**

Springtown Gas  
909 Bluebell Drive  
Livermore, California

Monitoring Well Date	STMW-1						STMW-2						STMW-3					
	pH	E.C.	°C	°F	ORP	DO	pH	E.C.	°C	°F	ORP	DO	pH	E.C.	°C	°F	ORP	DO
9/4/2007	6.37	1462	21.4	70.5	NM	NM	6.43	1405	21.1	70.0	NM	NM	6.14	2115	20	68.0	NM	NM
12/10/2007	6.92	1090	18.5	65.3	NM	NM	7.02	1074	19.8	67.6	NM	NM	6.77	1267	NM	NM	NM	NM
9/25/2008	7.22	1706	21.63	70.9	48.3	0.38	7.15	1652	21.26	70.3	34	0.7	6.84	1838	20.32	68.6	60.2	0.84
10/2/2008	7.16	1701	21.57	70.8	45.6	0.68	7.07	1650	21.14	70.1	51.8	0.58	6.82	1892	20.47	68.8	156	1.81
10/9/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/16/2008	7.53	970	21.48	70.7	71.6	36.39	7.07	1611	21.35	70.4	56.7	0.21	7.38	656	20.64	69.2	66.6	37.4
10/23/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/30/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/6/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
11/20/2008	7.36	1554	20.74	69.3	208.3	11.17	7.20	1782	21.21	70.2	211.4	1.13	7.88	771	20.63	69.1	194.6	15.53
12/29/2008	7.8	1685	18.61	65.5	168.8	41.24	7.64	1577	20.21	68.4	66.9	2.04	7.55	1196	19.69	67.4	141.5	32.54
Monitoring Well Date	P-1						VE-1						VE-2					
	pH	E.C.	°C	°F	ORP	DO	pH	E.C.	°C	°F	ORP	DO	pH	E.C.	°C	°F	ORP	DO
9/4/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
9/25/2008	7.2	1941	20.6	69.1	50.3	1.19	6.9	2072	22.8	73.0	-44.9	3.07	7.1	1933	21.67	71.0	-13.6	6.48
10/2/2008	7.1	1893	20.44	68.8	59.6	1.18	7.18	1780	22.02	71.6	2.1	8.29	NM	NM	NM	NM	NM	NM
10/9/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/16/2008	7.75	1285	20.61	69.1	85.9	18.23	6.84	1668	22.29	72.1	3.3	1.53	7.16	1912	21.38	70.5	-1.1	7.25
10/23/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	7.42	1924	19.91	67.8	49.6	8.48
10/30/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	7.81	1052	20.05	68.1	164.0	172.1
11/6/2008	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	7.13	1329	19.94	67.9	183.5	9.77
11/20/2008	7.99	1392	19.96	67.9	180	8.19	6.99	1960	18.91	66.0	38.6	4.82	6.89	1593	19.47	67.0	224.5	9.09
12/29/2008	7.99	1766	18.99	66.2	285.5	43.92	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

notes:

- E.C.            Electricval conductivity
- °C             Degrees centigrade
- °F             Degrees fahrenheit
- ORP           Oxygen reduction potential
- DO            Dissolved oxygen
- NM            Not measured

**Table 4  
Summary of Monitoring Well Completion Data**

Springtown Gas  
909 Bluebell Drive  
Livermore, California

Well Number	Status	Date Drilled	Total Depth (ft)	Boring Diameter (in)	Well Casing Diameter (in)	Casing Type	Slot Size (in)	Sand Type	Well Screen		Filter Pack		Annular Seal		Grout Seal	
									From	To	From	To	From	To	From	To
STMW-1	Active	8/23/2007	20.00	10	2	PVC	0.02	#2/12	10	20	20	8	8	7	7	0
STMW-2	Active	8/23/2007	20.00	10	2	PVC	0.02	#2/12	10	20	20	8	8	7	7	0
STMW-3	Active	8/23/2007	20.00	10	2	PVC	0.02	#2/12	10	20	20	8	8	7	7	0
P1	Active	9/19/2008	20.00	10	4	PVC	0.02	#3/12	10	20	20	8	8	7	7	0

## **Appendix B**

### **Laboratory Analytical Data Sheets**

# argon laboratories

08 January 2009

Ray Kabanow  
Geological Technics, Inc.  
1101 7th Street  
Modesto, CA 95354

RE: Springtown Gas Project Data

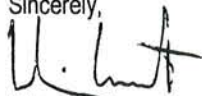
Enclosed are the results for sample(s) received on 12/30/08 13:24 by Argon Laboratories. The sample(s) were analyzed according to instructions in accompanying chain-of-custody. Results are summarized on the following pages.

Please see quality control report for a summary of QC data pertaining to this project.

The sample(s) will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Sample(s) may be archived by prior arrangement.

Thank you for the opportunity to service the needs of your company.

Sincerely,



Hiram Cueto  
Lab Manager



# Geological Technics Inc.

1101 7th Street  
 Modesto, CA  
 (209) 522-4119 Fax 522-4227  
 E-mail: gti@geologicaltechnics.com



## Chain of Custody

Project #: 1409.2		Client/Project Name: Springtown Gas		No. of Containers Matrix (Soil, Water, Gas, Other) Preservation Type TPH-G, BTEX, 9 Oxys (92608) *	Analysis Requested					Laboratory: Argon																																									
Site Address: 909 Bluebell Drive, Livermore, CA					<table border="1" style="width:100%; height: 100%; border-collapse: collapse;"> <tr><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td><td style="width: 20px;"> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>																																													Temp. @ Shipping: C°	
Global ID No.: T06019716197				Temp. @ Lab Receipt: C°		Purchase Order # 1409-162529		EDF Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																											
Sampled By: (print and sign name) Evaria Nona Eggin				Turnaround Time: <u>3</u> = Standard		1 day    2 day    5 day		Remarks																																											
Date	Time	Field I.D.	Sample I.D.	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type																																													
12/24/08	1155		STMW-1	4	W	HCL	↓																																												
	1120		STMW-2	↓	↓	↓	↓						* The 9 Oxys include:																																						
	1030		STMW-3	↓	↓	↓	↓						MTBE, ETBE, DIPE, TAME, TBA,																																						
	1405		P-1	↓	↓	↓	↓						1,2-DCA, EDB, Ethanol,																																						
													Methanol																																						
											Reporting Limits																																								
											① TPH-G → RL = 50 µg/L																																								
											② BTEX → RL = 0.5 µg/L																																								
											③ 9 Oxys → RL = 0.5 µg/L																																								
Relinquished by: (signature) Evaria Nona Eggin			Date: 12/24/08		Time: 1550		Received by: (signature) Evaria Nona Eggin			Date: 12/21/08		Time: 1550																																							
Relinquished by: (signature) Evaria Nona Eggin			Date: 12/30/08		Time: 13:34		Received by: (signature) Christie Reed			Date: 12/30/08		Time: 13:24																																							
Relinquished by: (signature)			Date:		Time:		Received by: (signature)			Date:		Time:																																							

Please return cooler/ice chest to Geological Technics Inc.

# Argon Laboratories Sample Receipt Checklist

Client Name: Geological Technics Date & Time Received: 12/30/08 13:24  
Project Name: Springtown Gas Client Project Number: 1409.2  
Received By: C.R. Matrix: Water  Soil  Sludge   
Sample Carrier: Client  Laboratory  Fed Ex  UPS  Other   
Argon Labs Project Number: 1812066  
Shipper Container in good condition? N/A  Yes  No  Samples received in proper containers? Yes  No   
Samples received intact? Yes  No  Samples received under refrigeration? Yes  No   
Sufficient sample volume for requested tests? Yes  No  Chain of custody present? Yes  No   
Samples received within holding time? Yes  No  Chain of Custody signed by all parties? Yes  No   
Do samples contain proper preservative? N/A  Yes  No   
Chain of Custody matches all sample labels? Yes  No  Do VOA vials contain zero headspace? (None submitted ) Yes  No

ANY "No" RESPONSE MUST BE DETAILED IN THE COMMENTS SECTION BELOW

Date Client Contacted: \_\_\_\_\_ Person Contacted: \_\_\_\_\_

Contacted By: \_\_\_\_\_ Subject: \_\_\_\_\_

Comments:

Action Taken:

ADDITIONAL TEST(S) REQUEST / OTHER

Contacted By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Call Received By: \_\_\_\_\_

Comments:





Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1409.2 Project Name: Springtown Gas Project Manager: Ray Kablanow	Work Order No.: I812066
---	---	----------------------------

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
STMW-1	I812066-01	Water	12/29/08 00:00	12/30/08 13:24
STMW-2	I812066-02	Water	12/29/08 11:20	12/30/08 13:24
STMW-3	I812066-03	Water	12/29/08 10:30	12/30/08 13:24
P-1	I812066-04	Water	12/29/08 14:00	12/30/08 13:24

---

Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc. 1101 7th Street Modesto, CA 95354	Project Number: 1409.2 Project Name: Springtown Gas Project Manager: Ray Kablanow	Work Order No.: I812066
---	---	----------------------------

**TPH-gas & Volatile Organic Compounds by GC/MS**

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
<b>STMW-1 (I812066-01) Water</b> <b>Sampled: 29-Dec-08 00:00</b> <b>Received: 30-Dec-08 13:24</b>							
Total Petroleum Hydrocarbons @	ND	50	ug/L	1	06-Jan-09	EPA 8260B	
Gasoline							
Benzene	ND	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	
Ethyl Benzene	ND	0.5	"	"	"	"	
Methanol	ND	50	"	"	"	"	
Ethanol	ND	5.0	"	"	"	"	
<b>t-Butanol</b>	<b>1000</b>	5.0	"	"	"	"	
<b>Methyl tert-Butyl Ether</b>	<b>15</b>	0.5	"	"	"	"	
Di-Isopropyl Ether	ND	0.5	"	"	"	"	
Ethyl tert-Butyl Ether	ND	0.5	"	"	"	"	
tert-Amyl Methyl Ether	ND	0.5	"	"	"	"	
1,2-Dichloroethane	ND	0.5	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.5	"	"	"	"	
Surr. Rec.:			87 %				
<b>STMW-2 (I812066-02) Water</b> <b>Sampled: 29-Dec-08 11:20</b> <b>Received: 30-Dec-08 13:24</b>							
Total Petroleum Hydrocarbons @	ND	50	ug/L	1	06-Jan-09	EPA 8260B	
Gasoline							
Benzene	ND	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	
Ethyl Benzene	ND	0.5	"	"	"	"	
Methanol	ND	50	"	"	"	"	
Ethanol	ND	5.0	"	"	"	"	
<b>t-Butanol</b>	<b>56</b>	5.0	"	"	"	"	
<b>Methyl tert-Butyl Ether</b>	<b>ND</b>	0.5	"	"	"	"	
Di-Isopropyl Ether	ND	0.5	"	"	"	"	
Ethyl tert-Butyl Ether	ND	0.5	"	"	"	"	
tert-Amyl Methyl Ether	ND	0.5	"	"	"	"	
1,2-Dichloroethane	ND	0.5	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.5	"	"	"	"	
Surr. Rec.:			93 %				

Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc.  
1101 7th Street  
Modesto, CA 95354

Project Number: 1409.2  
Project Name: Springtown Gas  
Project Manager: Ray Kablanow

Work Order No.:  
1812066

**TPH-gas & Volatile Organic Compounds by GC/MS**

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
<b>STMW-3 (I812066-03) Water</b> Sampled: 29-Dec-08 10:30 Received: 30-Dec-08 13:24							
Total Petroleum Hydrocarbons @	ND	50	ug/L	1	06-Jan-09	EPA 8260B	
Gasoline							
Benzene	ND	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	
Ethyl Benzene	ND	0.5	"	"	"	"	
Methanol	ND	50	"	"	"	"	
Ethanol	ND	5.0	"	"	"	"	
t-Butanol	ND	5.0	"	"	"	"	
<b>Methyl tert-Butyl Ether</b>	<b>2.2</b>	0.5	"	"	"	"	
Di-Isopropyl Ether	ND	0.5	"	"	"	"	
Ethyl tert-Butyl Ether	ND	0.5	"	"	"	"	
tert-Amyl Methyl Ether	ND	0.5	"	"	"	"	
1,2-Dichloroethane	ND	0.5	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.5	"	"	"	"	
Surr. Rec.:		102 %					
<b>P-1 (I812066-04) Water</b> Sampled: 29-Dec-08 14:00 Received: 30-Dec-08 13:24							
Total Petroleum Hydrocarbons @	ND	50	ug/L	1	06-Jan-09	EPA 8260B	
Gasoline							
Benzene	ND	0.5	"	"	"	"	
Toluene	ND	0.5	"	"	"	"	
Xylenes, total	ND	1.0	"	"	"	"	
Ethyl Benzene	ND	0.5	"	"	"	"	
Methanol	ND	50	"	"	"	"	
Ethanol	ND	5.0	"	"	"	"	
<b>t-Butanol</b>	<b>3900</b>	5.0	"	"	"	"	
<b>Methyl tert-Butyl Ether</b>	<b>120</b>	0.5	"	"	"	"	
Di-Isopropyl Ether	ND	0.5	"	"	"	"	
Ethyl tert-Butyl Ether	ND	0.5	"	"	"	"	
tert-Amyl Methyl Ether	ND	0.5	"	"	"	"	
1,2-Dichloroethane	ND	0.5	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.5	"	"	"	"	
Surr. Rec.:		82 %					

Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc.  
1101 7th Street  
Modesto, CA 95354

Project Number: 1409.2  
Project Name: Springtown Gas  
Project Manager: Ray Kablanow

Work Order No.:  
1812066

**TPH-gas & Volatile Organic Compounds by GC/MS - Quality Control**

**Argon Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch J900020 - EPA 5030B**

**Blank (J900020-BLK1)**

Prepared & Analyzed: 01/06/09

<i>Surrogate: Fluorobenzene</i>	41.5		ug/L	50		83	70-130			
Total Petroleum Hydrocarbons @ Gasoline	ND	50	"							
Benzene	ND	0.5	"							
Toluene	ND	0.5	"							
Xylenes, total	ND	1.0	"							
Ethyl Benzene	ND	0.5	"							
Methanol	ND	50	"							
Ethanol	ND	5.0	"							
t-Butanol	ND	5.0	"							
Methyl tert-Butyl Ether	ND	0.5	"							
Di-Isopropyl Ether	ND	0.5	"							
Ethyl tert-Butyl Ether	ND	0.5	"							
tert-Amyl Methyl Ether	ND	0.5	"							
1,2-Dichloroethane	ND	0.5	"							
1,2-Dibromoethane (EDB)	ND	0.5	"							

**LCS (J900020-BS1)**

Prepared & Analyzed: 01/06/09

Methyl tert-Butyl Ether	22.3		ug/L	25		89	80-120			
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**LCS Dup (J900020-BSD1)**

Prepared & Analyzed: 01/06/09

Methyl tert-Butyl Ether	22.1		ug/L	25		88	80-120	0.9	20	
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**Matrix Spike (J900020-MS1)**

Source: I812066-01

Prepared & Analyzed: 01/06/09

Total Petroleum Hydrocarbons @ Gasoline	960		ug/L	1000	ND	96	70-130			
---	-----	--	------	------	----	----	--------	--	--	--

**Matrix Spike Dup (J900020-MSD1)**

Source: I812066-01

Prepared & Analyzed: 01/06/09

Total Petroleum Hydrocarbons @ Gasoline	1020		ug/L	1000	ND	102	70-130	6	20	
---	------	--	------	------	----	-----	--------	---	----	--

Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

Geological Technics, Inc.  
1101 7th Street  
Modesto, CA 95354

Project Number: 1409.2  
Project Name: Springtown Gas  
Project Manager: Ray Kablanow

Work Order No.:  
1812066

**Notes and Definitions**

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

---

Approved By

Argon Laboratories, Inc. California D.O.H.S. Cert. #2359

## **Appendix C**

### **Groundwater Monitoring Field Notes**



# Geological Technics, Inc.

## Groundwater Monitoring Field Log

Project Name: Springtown Gas (Blue Bell)

Well I.D.: P-1

Project No.: 1409.2

Date: 12/29/2008

Project Location: 909 Bluebell Drive

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:41	0.00	15.69	1512	7.93	143.4	37.10	Brown, no odor, few sediments
12:54	8.25	18.86	1648	8.11	347.5	40.44	Clear, no odor, no sediments
13:10	16.50	18.93	1723	8.01	307.3	44.77	Clear, no odor, no sediments
13:25	24.75	18.99	1766	7.99	285.5	43.92	Clear, no odor, no sediments
14:00							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: 0.57 gal/min

Well Constructed TD (ft):	<u>20.00</u>
* Well TD (ft):	<u>19.29</u>
Silt Thickness (ft):	<u>0.71</u>
Initial DTW (ft):	<u>6.77</u>
Water column height (ft):	<u>12.52</u>
One casing volume (gal):	<u>8.14</u>
** Final DTW (ft):	<u>7.50</u>
Casing diameter (in):	<u>4"</u>

Sample Containers used: 4 # VOAs X preserved \_\_\_ non-preserved  
 \_\_\_ # amber liters \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved

Notes: \_\_\_\_\_  
 Sampled By: E. Nona / R. Estioko *E. Nona* *Richard Estioko*

Sample Method: Waterra  Bailer  Other  \* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: 4

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

# Geological Technics, Inc.

## Groundwater Monitoring Field Log

Project Name: Springtown Gas (Blue Bell)

Well I.D.: STMW-1

Project No.: 1409.2

Date: 12/29/2008

Project Location: 909 Bluebell Drive

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
11:28	0.0	18.34	1373	7.92	195.1	32.81	Clear, mild odor, few sediments
11:35	2.5	18.97	1495	7.85	189.7	33.47	Clear, mild odor, no sediments
11:43	5.0	18.80	1640	7.79	187.4	42.63	Clear, mild odor, no sediments
11:50	7.5	18.61	1685	7.78	168.8	41.24	Clear, mild odor, no sediments
11:55							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: 0.34 gal/min

Well Constructed TD (ft):	<u>20.00</u>
* Well TD (ft):	<u>19.01</u>
Silt Thickness (ft):	<u>0.99</u>
Initial DTW (ft):	<u>5.95</u>
Water column height (ft):	<u>13.06</u>
One casing volume (gal):	<u>2.22</u>
** Final DTW (ft):	<u>6.10</u>
Casing diameter (in):	<u>2"</u>

Sample Containers used: 4 # VOAs X preserved \_\_\_ non-preserved  
 \_\_\_ # amber liters \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved

Notes: \_\_\_\_\_  
 Sampled By: E. Nona / R. Estioko *[Signature]*

Sample Method: Waterra  Bailer  Other  \* = measured \*\* = @ sampling

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_



# Geological Technics, Inc.

## Groundwater Monitoring Field Log

Project Name: Springtown Gas (Blue Bell)

Well I.D.: STMW-2

Project No.: 1409.2

Date: 12/29/2008

Project Location: 909 Bluebell Drive

Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
10:52	0.00	18.01	1543	7.51	68.3	8.66	Brown, no odor, a lot of sediments
10:58	2.25	20.03	1579	7.61	69.2	0.52	Brown, no odor, a lot of sediments
11:04	4.50	20.05	1577	7.62	68.4	0.84	Brown, no odor, a lot of sediments
11:10	6.75	20.21	1577	7.64	66.9	2.04	Brown, no odor, a lot of sediments
11:20							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: 0.38 gal/min

Well Constructed TD (ft):	<u>20.00</u>
* Well TD (ft):	<u>19.70</u>
Silt Thickness (ft):	<u>0.30</u>
Initial DTW (ft):	<u>7.69</u>
Water column height (ft):	<u>12.01</u>
One casing volume (gal):	<u>2.04</u>
** Final DTW (ft):	<u>7.75</u>
Casing diameter (in):	<u>2"</u>

Sample Containers used: 4 # VOAs X preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # amber liters \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_\_\_ # polys \_\_\_\_\_ preserved \_\_\_ non-preserved

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 Sampled By: E. Nona / R. Estioko *E. Nona* *Richard Estioko*

Sample Method: Waterra  Bailer  Other  \* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48

# Geological Technics, Inc.

## Groundwater Monitoring Field Log

Project Name: Springtown Gas (Blue Bell)

Well I.D.: STMW-3

Project No.: 1409.2

Date: 12/29/2008

Project Location: 909 Bluebell Drive  
Livermore, CA

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
9:54	0.0	16.72	1201	7.36	103.9	38.50	Brown, mild odor, few sediments
9:57	2.0	19.55	1201	7.63	102.0	34.42	Clear, no odor, no sediments
10:01	4.0	19.59	1174	7.59	102.7	32.36	Clear, no odor, no sediments
10:05	6.0	19.69	1196	7.55	141.5	32.54	Clear, no odor, no sediments
10:30							Collected samples

Purge Method:  Dedicated Waterra  Centrifugal pump with dedicated tubing  Other \_\_\_\_\_

Pumping Rate: 0.55 gal/min

Well Constructed TD (ft):	<u>20.00</u>
* Well TD (ft):	<u>19.69</u>
Silt Thickness (ft):	<u>0.31</u>
Initial DTW (ft):	<u>8.87</u>
Water column height (ft):	<u>10.82</u>
One casing volume (gal):	<u>1.84</u>
** Final DTW (ft):	<u>9.00</u>
Casing diameter (in):	<u>2"</u>

Sample Containers used: 4 # VOAs X preserved \_\_\_ non-preserved  
 \_\_\_ # amber liters \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved  
 \_\_\_ # polys \_\_\_ preserved \_\_\_ non-preserved

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 Sampled By: E. Nona / R. Estioko *E. Nona / R. Estioko*

Sample Method: Waterra  Bailer  Other  \* = measured \*\* = @ sampling

Purged Water Drummed:  Yes  No  
 No. of Drums: \_\_\_\_\_

Gallons per foot of casing. 2" dia. = 0.17, 3" dia. = 0.38 4" dia. = 0.65, 5" dia. = 1.02, 6" dia. = 1.48