March 26, 2010

Jerry Wickham
Alameda County Environmental Health Svcs
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

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 1st Quarter Groundwater Monitoring Report, dated March 26, 2010 that was sent to your office via electronic delivery per Alameda County's guidelines on April 5, 2010.

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
1st Quarter 2010

Springtown Gas
909 Bluebell Drive
Livermore, California

Project No. 1409.2
March 26, 2010

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

Prepared by:
Geological Technics Inc.
1172 Kansas Avenue
Modesto, California 95351
(209) 522-4119
www.gtienv.com

Geological Technics Inc.

1172 Kansas Avenue
Modesto, California 95351
(209) 522-4119/Fax (209) 522-4227
www.gtienv.com

March 26, 2010

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

Masood Amini Filibadi and Shahrbano Amini
Springtown Gas
909 Bluebell Drive
Livermore, California 94551

RE: Report – 1st Quarter 2010 Groundwater Monitoring
Springtown Gas, 909 Bluebell Drive, Livermore, California

Dear Masood Amini Filibadi and Shahrbano Amini:

Geological Technics Inc. (GTI) has prepared the following Report for the 1st Quarter 2010 groundwater monitoring event performed on February 10, 2010 at Springtown Gas, 909 Bluebell Drive, Livermore, California.

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

Respectfully submitted,

Tamorah Bryant, P.E.

cc: Jerry Wickham – ACEHS
USTCFP

TABLE OF CONTENTS

FIGURES

APPENDICES

Geological Technics Inc.
1172 Kansas Avenue
Modesto, California 95351
(209) 522-4119/Fax (209) 522-4227

REPORT

Groundwater Monitoring
1st Quarter 2010

Springtown Gas
909 Bluebell Drive
Livermore, California

Project No. 1409.2
March 26, 2010

1.0 EXECUTIVE SUMMARY

This report summarizes the results of the 1st Quarter 2010 groundwater monitoring and sampling event that took place on February 10, 2010 at Springtown Gas, 909 Bluebell Drive, Livermore, Alameda County, California (Site).

The average groundwater elevation at the site was 512.51 feet above mean sea level (AMSL) and the groundwater flow was variable for this event. This was the fourth monitoring event in which well P-1 was incorporated into the contours. The additional data point shows that the core of MTBE and TBA plumes are centered on well P-1 whereas before they were centered on STMW-1.

The results of analyses conducted on groundwater samples collected from the four monitoring wells (STMW-1, STMW-2, STMW-3 and P-1) did not detect total petroleum hydrocarbons as gasoline (TPH-G) above laboratory reporting limits. Please note that reporting limits for constituents reported in P-1 were elevated due to the 1 to 5 dilution that the California Certified Laboratory applied to the groundwater samples.

The Oxidation Reduction Potential (ORP) factor is consistent with recent data.

During the 1st Quarter 2010, GTI has implemented the Additional Site Characterization and Interim Remedial Action Work Plan that was approved by ACHCSA in their correspondence dated March 13, 2009. The Geoprobe, CPT investigation, and monitoring well installation

were conducted in February and March, 2010, and the hydrogen peroxide injections are anticipated in March and April. A report of findings will be forthcoming.

The following recommendations are made:

- Continue semi-annual groundwater monitoring as directed in the ACEHS correspondence dated July 2009,
- Proceed with hydrogen peroxide injection pilot test as directed.

2.0 PHYSICAL SETTING

The Site is situated in a mixed commercial-residential land-use area of Livermore, California, 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 are located 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 1st Quarter 2010 monitoring event was 512.51 feet AMSL on February 10, 2010, which corresponds to approximately 6.61 feet below ground surface (bgs). This elevation represents an increase of 1.72 feet since the 3rd Quarter 2009 monitoring event (September 8, 2009), and an elevation decrease of 0.30 feet since the 1st Quarter 2009 monitoring event (March 10, 2009). The groundwater gradient for the 1st Quarter 2010 groundwater monitoring event was variable, which was inconsistent with the previous three events. Groundwater gradient was typically north westerly before data from monitoring well P-1 was incorporated into the calculations.

The gradient direction for the 1st Quarter 2010 groundwater monitoring 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 1st Quarter 2010 groundwater monitoring event was conducted on February 10, 2010. 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 uses at each monitoring well.

Groundwater monitoring field logs are included in Appendix C. A summary of Water Quality Parameter Data is included in Table 3 of Appendix A.

3.3 Laboratory Analyses

The groundwater samples collected on February 10, 2010, were delivered to Argon Laboratories of Ceres, California (ELAP #2359) for the following 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 March 26, 2010 for the groundwater elevation data, (confirmation number 3745629848), and the laboratory analytical data (confirmation number 9605302214).

4.0 CONCLUSIONS

The results of the 1st Quarter 2010 groundwater monitoring event indicate the following:

- The average groundwater elevation at the site was 512.51 feet AMSL and the groundwater flow was variable for this event.
- The groundwater gradient and the direction of groundwater flow for the 1st Quarter 2010 monitoring event is consistent with the 1st, 2nd, and 3rd quarters of 2009 and inconsistent with the gradients and groundwater flow directions during the first five quarters due to the addition of the new monitoring well P-1, which shows a higher groundwater elevation at this point.
- The results of analyses conducted on groundwater samples collected from the four monitoring wells (STMW-1, STMW-2, STMW-3 and P-1) did not detect total petroleum hydrocarbons as gasoline (TPH-G) above laboratory reporting limits. Please note that reporting limits for constituents reported in P-1 were elevated due to the 1 to 5 dilution that the California Certified Laboratory applied to the groundwater samples.
- Concentrations of Methyl tertiary Butyl Ether (MtBE) were detected in groundwater samples collected from three of the sites four monitoring wells STMW-1 (32 µg/l),

STMW-3 (44 µg/l) and P-1 (110 µg/l). Figure 4 is a contour map showing the distribution of MtBE concentrations for the 1st Quarter 2010 monitoring event. The contours suggest the MtBE groundwater plume is localized in the vicinity of monitoring well P-1.

- Concentrations of Tert-Butyl Alcohol (TBA) were detected in groundwater samples collected from the sites four monitoring wells STMW-1 (28 µg/l), STMW-2 (110 µg/l), STMW-3 (610 µg/l) and P-1 (5,200 µg/l). Figure 5 is a contour map showing the distribution of TBA concentrations for the 1st Quarter 2010 event. The contours mirror the same conclusion as for the MtBE groundwater plume, the TBA groundwater plume is localized in the vicinity of monitoring well P-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, benzene, toluene, ethylbenzene and total xylenes (BTEX) were not detected in groundwater samples collected from the sites four monitoring wells. Please note that reporting limits for constituents reported in P-1 were elevated for the second consecutive quarter due to the 1 to 5 dilution that the California Certified Laboratory applied to the groundwater samples.
- Concentrations of MtBE and TBA detected in the groundwater samples collected from the sites four monitoring wells STMW-1, STMW-2, STMW-3 and P-1 are consistent with historical trends dating back to November 20, 2008.
- Dissolved Oxygen (DO) concentrations increased during the hydrogen peroxide injection pilot test in the injection wells and two extraction wells at the site and depleted to lower levels again after the pilot test was done.
- The Oxidation Reduction Potential (ORP) factor is consistent with recent data.
- During the 1st Quarter 2010, GTI has implemented the Additional Site Characterization and Interim Remedial Action Work Plan that was approved by ACHCSA in their correspondence dated March 13, 2009. The Geoprobe, CPT investigation, and monitoring well installation was conducted in February and March, 2010, and the hydrogen peroxide injections are anticipated in March and April. A report of findings will be forthcoming.

5.0 RECOMMENDATIONS

- In response to State Water Resources Control Board Resolution No. 2009-0042, *Actions to Improve Administration of the Underground Storage Tank (UST) Cleanup Fund and UST Cleanup Program*, we recommend to revise the groundwater monitoring schedule as directed by ACEHS in their July, 2009 correspondence and continue semi-annual groundwater monitoring during the 1st and 3rd quarters for this Site.
- Begin hydrogen peroxide injection pilot test as tentatively scheduled.

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 by:

Michael van den Enden, B.S.c
Geology

This report was prepared under the direction of:

Tamorah Bryant, P.E.

Figure 1: Vicinity Map
Springtown Gas (Blue Bell)
909 Blue Bell Drive
Livermore, California
Project No. 1409.2

TN
MN (14.2°E)

Scale 1 : 22,400

1" = 1,866.7 ft Data Zoom 13-2

N

0 10 20 30

SCALE 1"=30'

BLUEBELL DRIVE

SPRINGTOWN BLVD

STMW-3

CPT-2

512.00

VE-2

512.39

STMW-1

P1

CPT-1

R-2

512.8

EXISTING USTs

512.7

VE-1

EX.PUMP AREA

512.6

512.5

512.4

512.3

512.2

STMW-2

R-1

512.68

WATER/AIR STATION

EX.BLDG

TRASH ENCL

LEGEND

- SOIL BORING
- MONITORING WELL
- UST MONITORING WELL
- EXTRACTION WELL
- CPT BORING
- PROPOSED PILOT TEST INJECTION WELL

By:	MV
Job No:	1409.2 Date: 02/22/10
Scale:	1"=30'
File:	14092 site plan

Geological Technics, Inc.
1172 Kansas Avenue
Modesto, CA
95351
209.522.4119 (tel)
209.522.4227 (fax)

FIGURE 2: Groundwater Gradient Map

SPRINGTOWN GAS (BLUEBELL)
909 BLUEBELL DRIVE
LIVERMORE, CA

	Date	Slope	Bearing
1.	9/04/07	0.006 ft/ft	N66°W
2.	12/10/07	0.004 ft/ft	N62°W
3.	9/25/08	0.003 ft/ft	N54°W
4.	12/29/08	0.004 ft/ft	N64°W
5.	3/10/09	variable	variable
6.	6/10/09	variable	variable
7.	9/08/09	variable	variable
8.	2/10/10	variable	variable

N

0 10 20 30

SCALE 1"=30'

0 0.005

SLOPE (ft/ft)

BLUEBELL DRIVE

SPRINGTOWN BLVD

1

2

3

4

VE-2

STMW-1

STMW-3

CPT-1

P1

WATER/AIR STATION

CPT-2

R-2

EXISTING USTs

VE-1

EX.PUMP AREA

R-1

STMW-2

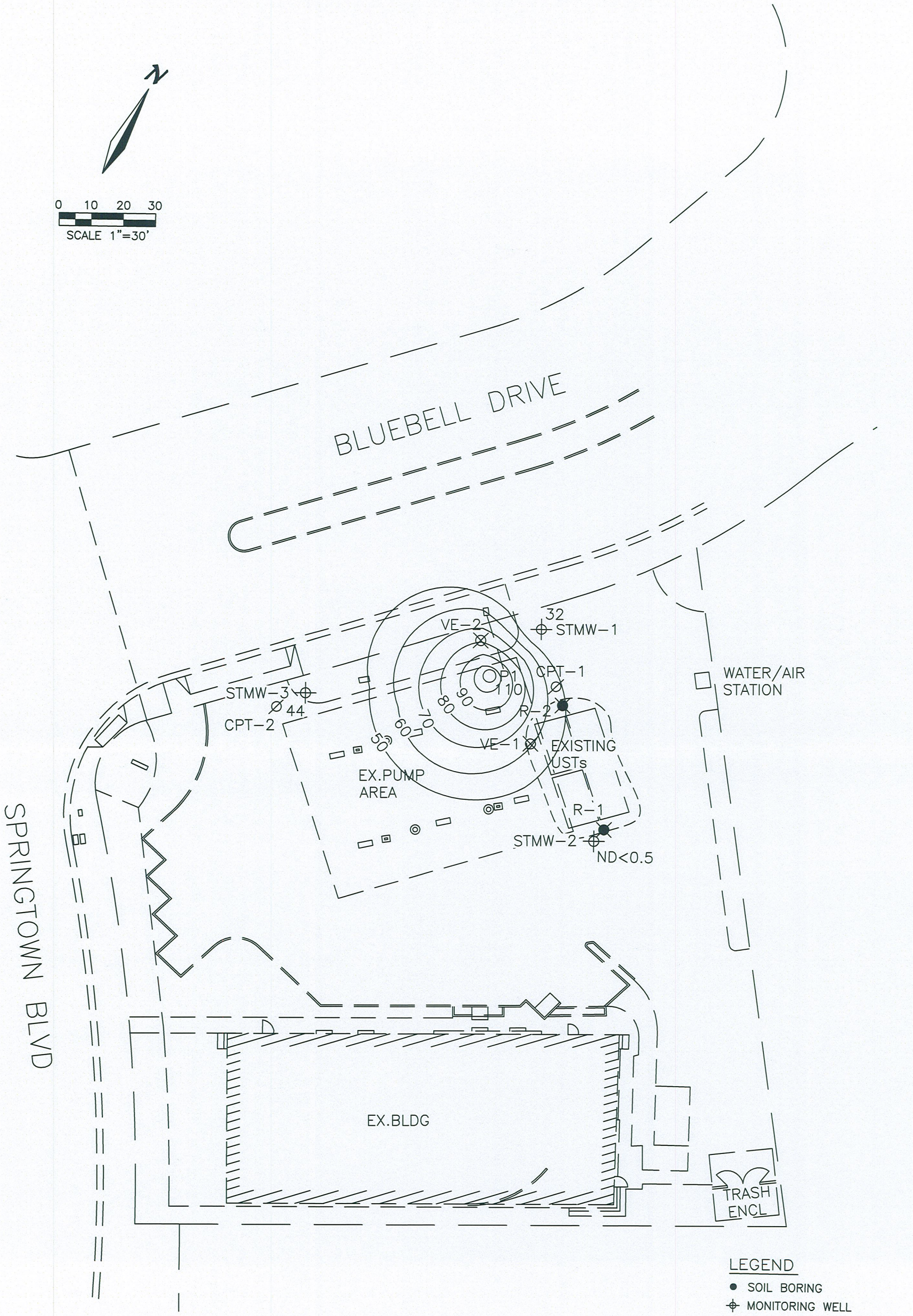
EX.BLDG

TRASH ENCL

LEGEND

- SOIL BORING
- MONITORING WELL
- UST MONITORING WELL
- EXTRACTION WELL
- CPT BORING
- PROPOSED PILOT TEST INJECTION WELL

By: MV	*Geological Technics, Inc.*	FIGURE 3: Groundwater Gradient Rose Diagram
Job No: 1409.2 Date: 2/22/10	1172 Kansas Avenue Modesto, CA 95351 209.522.4119 (tel) 209.522.4227 (fax)	SPRINGTOWN GAS (BLUEBELL) 909 BLUEBELL DRIVE LIVERMORE, CA
Scale: 1"=30'		
File: 14092 site plan		Page 1 of 1



By:	MV
Job No:	1409.2 Date: 02/22/10
Scale:	1"=30'
File:	14092 site plan

Geological Technics, Inc.
1172 Kansas Avenue
Modesto, CA
95351
209.522.4119 (tel)
209.522.4227 (fax)

FIGURE 4: MTBE Contour Map

SPRINGTOWN GAS (BLUEBELL)
909 BLUEBELL DRIVE
LIVERMORE, CA

N

0 10 20 30

SCALE 1"=30'

BLUEBELL DRIVE

SPRINGTOWN BLVD

1000

2000

3000

4000

28

STMW-1

610

STMW-3

P1

5200

CPT-1

CPT-2

R-2

WATER/AIR
STATION

EXISTING
USTs

VE-1

EX.PUMP
AREA

R-1

STMW-2

110

EX.BLDG

TRASH
ENCL

LEGEND

- SOIL BORING
- MONITORING WELL
- UST MONITORING WELL
- EXTRACTION WELL
- CPT BORING
- PROPOSED PILOT TEST INJECTION WELL

By:	MV
Job No:	1409.2 Date: 02/22/10
Scale:	1"=30'
File:	14092 site plan

Geological Technics, Inc.

1172 Kansas Avenue
Modesto, CA
95351
209.522.4119 (tel)
209.522.4227 (fax)

FIGURE 5: TBA Contour Map

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	P-1	P-1	Avg GW	AVG GW	GW Gradient	
		GW Elev	DTW	GW Elev	DTW	GW Elev	DTW	GW Elev	DTW	Elev	DTW	Slope	Direction
	*top of casing**	517.55		519.59		520.37		518.93				ft/ft	
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	511.9	7.69	511.50	8.87	-	-	511.67		0.004	N64°W
03/10/09		512.60	4.95	512.99	6.60	512.44	7.93	513.20	5.73	512.81	6.30	variable	variable
06/10/09		510.90	6.65	511.21	8.38	510.84	9.53	511.50	7.43	511.11	8.00	variable	variable
09/08/09		510.62	6.93	510.78	8.81	510.59	9.78	511.17	7.76	510.79	8.32	variable	variable
02/10/10		512.39	5.16	512.68	6.91	512.00	8.37	512.95	5.98	512.51	6.61	variable	variable
Historical										511.45	7.31	0.004	N61°W

*TOC elevations surveyed on 9/06/07 by Muir Consutling Inc. NAD 83 and NGVD 29
**Gradient and slope determined from computer generated contours
"-" Well P-1 not surveyed until 2/03/09

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	-	-	-	-
	12/29/2008	<50	<0.5	<0.5	<0.5	<1.0	**15**	**1,000**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	3/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**29**	**3,000**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	6/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**60**	**3,800**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	9/8/2009	<50	<0.5	<0.5	<0.5	<1.0	**52**	**190**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	2/10/2010	<50	<0.5	<0.5	<0.5	<1.0	**44**	**610**	<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	-	-	-	-
	12/29/2008	<50	<0.5	<0.5	<0.5	<1.0	<0.5	**56**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	3/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**1.5**	**96**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	6/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**1.1**	**43**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	9/8/2009	<50	<0.5	<0.5	<0.5	<1.0	<0.5	**45**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	2/10/2010	<50	<0.5	<0.5	<0.5	<1.0	<0.5	**110**	<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	-	-	-	-
	12/29/2008	<50	<0.5	<0.5	<0.5	<1.0	**2.2**	<5.	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	3/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**3**	**95**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	6/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**8.3**	**45**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	9/8/2009	<50	<0.5	<0.5	<0.5	<1.0	**11**	**29**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	2/10/2010	<50	<0.5	<0.5	<0.5	<1.0	**32**	**28**	<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	-	-	-	-
	12/29/2008	<50	<0.5	<0.5	<0.5	<1.0	**120**	**3,900**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	3/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**240**	**9,300**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	6/10/2009	<50	<0.5	<0.5	<0.5	<1.0	**250**	**6,300**	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5
	9/8/2009	<250	<2.5	<2.5	<2.5	<5	**180**	**2,900**	<2.5	<2.5	<2.5	<2.5	<2.5	<250	<25
	2/10/2010	<250	<2.5	<2.5	<2.5	<5	**110**	**5,200**	<2.5	<2.5	<2.5	<2.5	<2.5	<250	<25

Notes:

TPHg	Total petroleum hydrocarbons as gasoline
TPHd	Total petroleum hydrocarbon
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	STMW-1						STMW-2						STMW-3					
Date	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	7.78	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
3/10/2009	7.23	1861	16.14	61.1	401.3	20.56	7.31	1600	17.94	64.3	372.9	0.67	7.10	1555	17.29	63.1	509.3	7.17
6/10/2009	7.24	1624	18.76	65.8	469.2	12.69	7.30	1548	18.58	65.4	348.7	0.38	7.08	1476	17.97	64.3	557.5	2.17
9/8/2009	7.07	NM	21.66	71.0	544.3	NM	7.22	NM	20.88	69.6	250.1	NM	6.83	NM	20.15	68.3	564.2	NM
2/10/2010	7.35	1660	17.09	62.8	531.3	6.77	7.30	1618	18.71	65.7	394.4	0.87	7.20	1642	17.99	64.4	469.0	0.89

Monitoring Well	P-1						VE-1						VE-2					
Date	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
3/10/2009	7.30	1797	16.81	62.3	473.9	3.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
6/10/2009	7.34	1795	17.85	64.1	455.7	1.09	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
9/8/2009	7.14	NM	19.98	68.0	312.2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
2/10/2010	7.42	1658	17.22	63.0	139.0	0.85	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

18 February 2010

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

RE: Springtown Gas Project Data

Enclosed are the results for sample(s) received on 02/11/10 08:07 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

2905 Railroad Avenue, Ceres, CA 95307 • Phone (209) 581-9280 • Fax (209) 581-9282
email: main@argonlabs.com

Geological Technics Inc.
1172 Kansas Avenue
Modesto, CA
(209) 522-4119 Fax 522-4227
E-mail: gti@gtienv.com

Chain of Custody

Project #: 1409.2
Client/Project Name: Springtown Gas
Site Address: 909 Bluebell Dr. Livermore, CA
Global ID No.: T0600197197
Sampled By: (print and sign name) Michael Vanden Enden

Laboratory: Argon
Temp. @ Shipping: C°
Temp. @ Lab Receipt: C°
Purchase Order # 1409-362281
EDF Report: ☒ Yes ☐ No
Turnaround Time: S = Standard
1 day 2 day 5 day

Date	Time	Field I.D.	Sample I.D.	No. of Containers	Matrix (Soil, Water, Gas, Other)	Preservation Type	Analysis Requested: *-Method 8260B	Remarks
2/10/10	1110		STMW-3	4	W	HCl	X	*TPH-g, BTEX, MTBE,
↓	1140		STMW-2	↓	↓	↓	↓	ETBE, DIPE, TAME, TBA,
	1245		STMW-1					1,2-DCA, EDB, Methanol,
↓	1345		P-1	↓	↓	↓	↓	Ethanol

Reporting limits:
TPH-g = 50 µg/l
BTEX, 7 oxys, Methanol,
Ethanol = 0.5 µg/l

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:
	2/10/10	1530		2/10/10	1611
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:
	2/11/10	807	Sherry Hoffman	2/11/10	810
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

Please return cooler/ice chest to Geological Technics Inc.

Rev. 2/2009

Argon Laboratories Sample Receipt Checklist

Client Name: Geological Technics Date & Time Received: 02/11/10 8:07

Project Name: Springtown Gas Client Project Number: 1409.2

Received By: S.H. Matrix: Water ☑ Soil ☐ Sludge ☐

Sample Carrier: Client ☐ Laboratory ☑ Fed Ex ☐ UPS ☐ Other ☐

Argon Labs Project Number: K002006

Shipper Container in good condition?				Samples received in proper containers?	Yes ☑	No ☐	
N/A_____	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:

♥ ♣ ♦ ♠

argon laboratories 2905 Railroad Ave. Ceres, CA 95307 (209)581-9280 Fax (209)581-9282

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

Project Number: 1409.2
Project Name: Springtown Gas
Project Manager: GTI

Work Order No.:
K002006

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
STMW-3	K002006-01	Water	02/10/10 11:10	02/11/10 08:07
STMW-2	K002006-02	Water	02/10/10 11:40	02/11/10 08:07
STMW-1	K002006-03	Water	02/10/10 12:45	02/11/10 08:07
P-1	K002006-04	Water	02/10/10 13:45	02/11/10 08:07

Approved By

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

argon laboratories 2905 Railroad Ave. Ceres, CA 95307 (209)581-9280 Fax (209)581-9282

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

Project Number: 1409.2
Project Name: Springtown Gas
Project Manager: GTI

Work Order No.: K002006

TPH-gas & Volatile Organic Compounds by GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
STMW-3 (K002006-01) Water Sampled: 10-Feb-10 11:10 Received: 11-Feb-10 08:07							
Total Petroleum Hydrocarbons @ Gasoline	ND	50	ug/L	1	11-Feb-10	EPA 8260B	
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	**28**	5.0	"	"	"	"	
Methyl tert-Butyl Ether	**32**	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.:		*108 %*			"	"	
STMW-2 (K002006-02) Water Sampled: 10-Feb-10 11:40 Received: 11-Feb-10 08:07							
Total Petroleum Hydrocarbons @ Gasoline	ND	50	ug/L	1	11-Feb-10	EPA 8260B	
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	**110**	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	"	"	"	"	
Surr. Rec.:		*107 %*			"	"	

Approved By

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

argon laboratories 2905 Railroad Ave. Ceres, CA 95307 (209)581-9280 Fax (209)581-9282

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

Project Number: 1409.2
Project Name: Springtown Gas
Project Manager:GTI

Work Order No.:
K002006

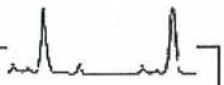
TPH-gas & Volatile Organic Compounds by GC/MS

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes
STMW-1 (K002006-03) Water Sampled: 10-Feb-10 12:45 Received: 11-Feb-10 08:07							
Total Petroleum Hydrocarbons @ Gasoline	ND	50	ug/L	1	11-Feb-10	EPA 8260B	
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	**610**	5.0	"	"	"	"	
Methyl tert-Butyl Ether	**44**	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.:		*106 %*			"	"	
P-1 (K002006-04) Water Sampled: 10-Feb-10 13:45 Received: 11-Feb-10 08:07							
Total Petroleum Hydrocarbons @ Gasoline	ND	250	ug/L	5	11-Feb-10	EPA 8260B	
Benzene	ND	2.5	"	"	"	"	
Toluene	ND	2.5	"	"	"	"	
Xylenes, total	ND	5.0	"	"	"	"	
Ethyl Benzene	ND	2.5	"	"	"	"	
Methanol	ND	250	"	"	"	"	
Ethanol	ND	25	"	"	"	"	
t-Butanol	**5200**	25	"	"	"	"	
Methyl tert-Butyl Ether	**110**	2.5	"	"	"	"	
Di-Isopropyl Ether	ND	2.5	"	"	"	"	
Ethyl tert-Butyl Ether	ND	2.5	"	"	"	"	
tert-Amyl Methyl Ether	ND	2.5	"	"	"	"	
1,2-Dichloroethane	ND	2.5	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	2.5	"	"	"	"	
Surr. Rec.:		*105 %*			"	"	

Approved By

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

argon laboratories 2905 Railroad Ave. Ceres, CA 95307 (209)581-9280 Fax (209)581-9282



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

Project Number: 1409.2
Project Name: Springtown Gas
Project Manager: GTI

Work Order No.: K002006

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
Batch K000211 - EPA 5030B										
Blank (K000211-BLK1)				Prepared & Analyzed: 02/11/10						
Surrogate: Fluorobenzene	*50.5*		*ug/L*	*50*		*101*	*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 (K000211-BS1)				Prepared & Analyzed: 02/11/10						
Methyl tert-Butyl Ether	28.2		ug/L	25		113	80-120			
LCS Dup (K000211-BSD1)				Prepared & Analyzed: 02/11/10						
Methyl tert-Butyl Ether	29.9		ug/L	25		120	80-120	6	20	
Matrix Spike (K000211-MS1)		**Source: K002006-01**		Prepared & Analyzed: 02/11/10						
Toluene	27.1		ug/L	25	ND	108	70-130			
Matrix Spike Dup (K000211-MSD1)		**Source: K002006-01**		Prepared & Analyzed: 02/11/10						
Toluene	24.8		ug/L	25	ND	99	70-130	9	20	

Approved By

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

argon laboratories 2905 Railroad Ave. Ceres, CA 95307 (209)581-9280 Fax (209)581-9282

Geological Technics, Inc.	Project Number: 1409.2	
1101 7th Street	Project Name: Springtown Gas	Work Order No.:
Modesto, CA 95354	Project Manager:GTI	K002006

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.: STMW-1

Project No.: 1409.2

Date: 2/10/2010

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
12:25	0.0	14.23	1601	7.58	395.1	10.12	Clear, no odor, very few sediments
12:30	2.5	17.26	1643	7.46	536.6	9.16	Clear, no odor, no sediments
12:35	5.0	17.17	1664	7.39	536.5	7.39	Clear, no odor, no sediments
12:40	7.5	17.09	1660	7.35	531.3	6.77	Clear, no odor, no sediments
12:45							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.50 gal/min

Well Constructed TD (ft):	20.00
* Well TD (ft):	18.99
Silt Thickness (ft):	1.01
Initial DTW (ft):	5.16
Water column height (ft):	13.83
One casing volume (gal):	2.35
** Final DTW (ft):	5.47
Casing diameter (in):	2"

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: M. van den Enden

Sample Method: Waterra ☒ Bailer ☐ Other ☐

* = measured ** = @ sampling

Purged Water Drummed: ☒ Yes ☐ No

No. of Drums: 3

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-2

Project No.: 1409.2

Date: 2/10/2010

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
11:20	0.0	14.41	1546	7.70	291.9	7.86	Brown, no odor, few sediments
11:26	2.5	18.57	1603	7.41	415.7	1.20	Clear, no odor, no sediments
11:31	5.0	18.59	1607	7.35	409.4	1.17	Clear, no odor, no sediments
11:37	7.5	18.71	1618	7.30	394.4	0.87	Clear, no odor, no sediments
11:40							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.44 gal/min

Well Constructed TD (ft):	20.00
* Well TD (ft):	19.67
Silt Thickness (ft):	0.33
Initial DTW (ft):	6.91
Water column height (ft):	12.76
One casing volume (gal):	2.17
** Final DTW (ft):	6.97
Casing diameter (in):	2"

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: M. van den Enden

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: 2/10/2010

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
10:50	0.0	13.33	1515	8.67	159.8	7.16	Brown, mild odor, few sediments
10:55	2.0	17.99	1631	7.51	155.7	2.18	Brown, mild odor, few sediments
11:00	4.0	17.92	1594	7.32	231.9	2.20	Brown, mild odor, few sediments
11:05	6.0	17.99	1642	7.20	469.0	0.89	Brown, mild odor, few sediments
11:10							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.40 gal/min

Well Constructed TD (ft):	20.00
* Well TD (ft):	19.57
Silt Thickness (ft):	0.43
Initial DTW (ft):	8.37
Water column height (ft):	11.20
One casing volume (gal):	1.90
** Final DTW (ft):	10.00
Casing diameter (in):	2"

Sample Containers used: 4 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Moderately rapid charge.

Sampled By: M. van den Enden

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)

Project No.: 1409.2

Project Location: 909 Bluebell Drive

Livermore, CA

Well I.D.: P-1

Date: 2/10/2010

Samples sent to: Argon

Time	Cumulative Volume Purged (gal)	Temp C°	EC (µS/cm)	pH	ORP (millivolts)	DO (mg/L)	Remarks
12:50	0.0	14.96	1669	7.68	401.9	7.34	Clear, mild odor, no sediments
13:05	9.0	17.23	1649	7.72	177.3	1.26	Clear, mild odor, no sediments
13:20	18.0	17.20	1656	7.53	158.8	0.67	Clear, mild odor, no sediments
13:35	27.0	17.22	1658	7.42	139.0	0.85	Clear, mild odor, no sediments
13:45							Collected samples

Purge Method: ☒ Dedicated Waterra ☐ Centrifugal pump with dedicated tubing ☐ Other _____

Pumping Rate: 0.60 gal/min

Well Constructed TD (ft):	20.00
* Well TD (ft):	19.30
Silt Thickness (ft):	0.70
Initial DTW (ft):	5.98
Water column height (ft):	13.32
One casing volume (gal):	2.26
** Final DTW (ft):	6.85
Casing diameter (in):	4"

Sample Containers used: 4 # VOAs X preserved ____ non-preserved

_____ # amber liters _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

_____ # polys _____ _____ preserved ____ non-preserved

Notes: Moderately rapid recharge.

Sampled By: M. van den Enden

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.

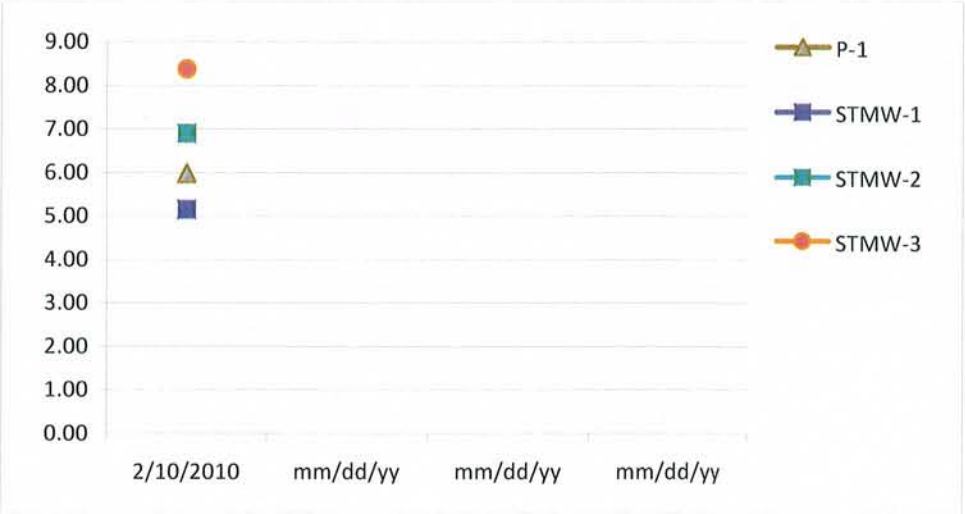
(209) 522-4119 (Office) * (209) 522-4227 (Fax)
1172 Kansas Avenue, Modesto, CA 95351
gti@gtienv.com

SPRINGTOWN GAS (BLUE BELL) 1409.2
909 BLUE BELL DRIVE, LIVERMORE

MONITORING WELL FIELD SUMMARY LOG 2010
DEPTH TO WATER MEASUREMENTS

	QTR. 1	QTR. 2	QTR. 3	QTR. 4	WELL
DATE	2/10/2010	mm/dd/yy	mm/dd/yy	mm/dd/yy	**TD**
	(ft)	(ft)	(ft)	(ft)	
LOCATION					
P-1	5.98				20.00
STMW-1	5.16				20.00
STMW-2	6.91				20.00
STMW-3	8.37				20.00

*TD Total Depth



NOTE:
ALL MEASUREMENTS ARE MADE FROM THE NORTH SIDE AND TOP EDGE OF THE WELL CASING. THE TOP OF CASING WITH A NOTCH OR PERMANENT MARKINGS, WHICH EVER ONE CONDITION IS APPROPRIATE.