Appendix A –

Modified Schedule for Residential and Business Indoor Air Analysis

Wasatch Environmental Letter to Wind River September 15, 2008

WASATCH
ENVIRONMENTAL

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September 15, 2008
Project No.: 1241-026A

SUBJECT: Modified Schedule for Residential and Business Indoor Air Analysis
C-4 Top Stop
15 South Main Street
Gunnison, Utah
UST Facility No. 2000220
Release Site EMHB

Sixteen residences and sixteen businesses were identified for monthly indoor air testing according to the recommendations set forth in the Corrective Action Plan Summary Letter (See Table 1). Residences and businesses will be tested for three consecutive months, and thereafter tesfing will be quarterly.

Table 1 PROPOSED INDOOR AIR TESTING LOCATIONS

Residences	Businesses
26 West 100 South Street	Casino Star Theater
36 West 100 South Street	Dorius Law Offices
29 West 100 South Sireet	Fitness Center
39 West 100 South Street	Gunnison Barber Shop
40 West 100 South Street	Gunnison Plumbing and Heating
49 West 100 South Street	Gunnison Telephone Company
40 West 200 South Street	Gunnison Valley Bank
59 Wesl 200 Soulh Streei	His N Hers
60 West 200 South Sireet	Hometown Café
68 West 200 South Streei	Malt Shop (Hometown Apartments)
78 West 200 Soulh Street	Jensen Pharmacy
96 Wesl 200 South Streei	Lila Lee's
220 South 100 Wesl Street	Lotsa Motsa Pizza
255 Soulh 100 Wesl Street	Nails and Hair
70 West 300 Soulh Street	State Farm Insurance
44 South 100 West Sireel	White Hills Trading

As outlined in the Schedule for Residential and Business Indoor Air Analysis submitted on June 7, 2008, residences are lesled during the first week of each monlh, and businesses are lesled during the second week. The testing consisls of 6-liter summa canisters regulated lo collect an air sample over an 8-hour period. The collecled air samples are analyzed for volatile organic compounds, using U.S. EPA Toxic Organic Analytical Method TO-15.

The Schedule for Residenliai and Business Indoor Air Analysis will be further modified to include the testing of currently vacant businesses if and when they become occupied, or if tesling of adjacent businesses yields above target concentrations.

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Appendix B –

Soil Vapor Monitoring Proposal

SOIL VAPOR SAMPLING PROPOSAL

TOP STOP PETROLEUM RELEASE SITE
GUNNISON, UTAH

Prepared for:

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March 9, 2009

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FIGURE 1 – SAMPLE TRAIN ASSEMBLY

FIGURE 2 – TYPICAL SUB-SLAB VAPOR WELL CONSTRUCTION

FIGURE 3 – TYPICAL NEAR-SLAB VAPOR WELL CONSTRUCTION

1.0 INTRODUCTION AND SCOPE OF WORK

RMEC Environmental, Inc. (RMEC) has prepared this Soil Vapor Sampling Proposal (Proposal) for the Division of Environmental Response and Remediation (DERR) on behalf of Wind River Petroleum/Top Stop Convenience Stores. This Proposal was developed as an element of the overall corrective action plan (CAP) for the petroleum release that occurred at the Top Stop Convenience store in Gunnison, Utah. The purpose of this Proposal is to detail the methods and materials that will be used to collect samples of petroleum vapors in soils under and around homes and businesses in Gunnison that were impacted by the Top Stop Petroleum release.

1.1 Purpose and Scope

The soil vapor sampling will be performed at residential homes and businesses potentially impacted by the Top Stop release. For the purpose of this Proposal, the potentially impacted homes and businesses are those that were included in previous indoor air monitoring and that have been determined to be above the petroleum plume from the Top Stop release.

Many of the commercial structures containing the impacted businesses are interconnected and are faced with unique structural and subsurface conditions that will complicate the soil vapor sampling process. Therefore, the initial sampling efforts will entail conducting soil vapor sampling (sub-slab and/or near-slab) at residential structures that have been determined to be above the petroleum plume and businesses with concrete basement floors that are above the plume.

Sections 2.3 and 2.4 provide a comprehensive list of residential and commercial structures that will be included in the initial soil vapor monitoring. RMEC intends to perform soil vapor sampling to evaluate the vapor intrusion pathway for all impacted structures, both residential and commercial; however, any future soil vapor sampling for the impacted commercial structures that do not have basements with concrete floors will be addressed as a separate addendum to this Proposal.

1.2 Background

Beginning in October of 2007, indoor air sampling has been conducted in various residential and commercial structures that were potentially impacted by the Top Stop petroleum release. Tables 1 and 2 at the end of this Proposal summarize the results of the residential indoor air monitoring conducted to date. As indicated in these tables, the vapor levels (specifically benzene) in the structures have fluctuated with time. In general, those structures with elevated vapor levels during the initial stages of the release have shown decreased petroleum vapor levels after the soil vapor extraction (SVE) systems began operating. However, there are some buildings where the vapor levels have remained consistently low, even though the buildings are situated above the ground water plume. For other buildings, the petroleum vapor levels have continually fluctuated without any correlation to the operation of the SVE system or other environmental factors.

While these fluctuations may be related to vapor intrusion from the Top Stop release, they may, in part or in whole, be due to unrelated variables, such as influences by indoor sources and/or random variations in outdoor vapor levels. In order to determine if the petroleum vapors from the Top Stop release are responsible for fluctuations in indoor petroleum vapor levels, RMEC proposes to conduct soil vapor monitoring beneath or adjacent to the structures where monthly indoor air monitoring has occurred in the past. Testing for soil vapors will allow RMEC and Wasatch Environmental, Inc. (Wasatch), to verify if a complete vapor intrusion pathway exists between the plume and the impacted structures. Data generated

from the soil vapor sampling will also provide information as to possible mitigation methods for those properties where a complete vapor intrusion pathway has been identified.

2.0 SOIL VAPOR SAMPLING AND ANALYSIS

RMEC is proposing to perform the soil vapor sampling with the installation of permanent soil vapor monitoring points. Installation of permanent soil vapor monitoring points will allow soil vapor wells to be capped and secured shut to prevent infiltration of water and/or ambient air into the subsurface probe(s) and to prevent accidental damage or vandalism. This will allow for long-term monitoring of soil vapors adjacent to and/or under existing buildings. Site-specific concentrations of petroleum vapors beneath and adjacent to the impacted structures will be measured to evaluate the vapor intrusion pathway for each of the properties listed in sections 2.3 and 2.4, below. The establishment of permanent soil gas monitoring points will allow for periodic evaluations of subsurface conditions and will provide data to help evaluate the effectiveness of the soil vapor extraction (SVE) systems.

2.1 Contaminants of Concern

The contaminants of concern for this site are the aliphatic and aromatic hydrocarbons that are components of gasoline. Therefore, the soil vapor sampling will include characterization for the compounds benzene, toluene, ethyl benzene and xylene (BTEX), the primary aromatic hydrocarbons in gasoline, as well as other aromatic and aliphatic hydrocarbons typically found in gasoline.

2.2 General Considerations

Measurement of soil vapors is a common approach for evaluating the vapor intrusion pathway from sub-surface sources such as releases from leaking underground storage tanks (LUSTs). Soil vapor data are reflective of subsurface properties and can allow for real-time air monitoring results. Soil vapor monitoring can be differentiated by the location of the samples relative to a structure. "Near-slab" soil vapor samples are collected within a short distance (usually 10 feet) of a structure. Soil vapor samples collected more than 10 feet away from the perimeter of a structure are generally referred to as "exterior" samples. Finally, soil vapor samples can be collected below a building foundation or slab and are termed "sub-slab" samples. Each of these sampling methods has different applicability in a vapor intrusion study.

Sub-slab monitoring is the preferred approach to investigating vapor intrusion primarily due to the proximity of the sample location to the receptors and the elimination of background interferences (when proper sampling methods are employed). Sub-slab soil vapor sampling involves collecting soil vapors from the space immediately under a slab-on-grade floor or concrete basement floor. RMEC is proposing to conduct sub-slab monitoring whenever feasible. Near-slab monitoring will be used for residential buildings that do not have slab-on-grade construction or a concrete basement floor. Near-slab monitoring will also be used as an alternative to sub-slab monitoring where building owners object to sub-slab sampling.

2.3 Residential Properties for Soil Vapor Sampling

The following residential properties in Gunnison have been included in previous indoor air monitoring events and will be solicited for inclusion in the soil vapor sampling. The homes listed below have been determined to be above the petroleum plume from the Top Stop release. Please note that other have been included in the previous air monitoring events; however, these homes have been determined to not be above the petroleum plume and therefore will not be included in the soil vapor sampling.

- 26 West 100 South Street
- 36 West 100 South Street
- 29 West 100 South Street
- 39 West 100 South Street
- 40 West 100 South Street
- 49 West 100 South Street
- 59 West 200 South Street
- 70 West 300 South Street*
- 40 West 200 South Street*
- 60 West 200 South Street*
- 68 West 200 South Street
- 78 West 200 South Street
- 96 West 200 South Street
- 220 South 100 West Street
- 255 South 100 West Street

Properties marked with an asterisk (*), above, are believed not have slab-on-grade or concrete basement floors. RMEC anticipates conducting near-slab monitoring for these homes or any other stmctures where the owners will not allow sub-slab sampling, but will allow external near slab sampling.

2.4 Commercial Properties for Soil Vapor Sampling

In addition to the residential properties listed above, RMEC will conduct soil vapor monitoring at the following business along Main Street. These structures are known to have basements with concrete floors that will allow for sub-slab monitoring.

- Gunnison Valley Bank - 10 South Main Street
- Gunnison Plumbing and Heating - 20 South Main Street
- Lila Lee's Apparel - 70 South Main Street
- His and Hers, Inc. - 98 South Main Street
- Mah Shop - 30 South Main Street

Information gathered during the initial sampling effort will be used to determine the sub-slab or near slab sample points for the remainder of the commercial structures that have been impacted by the Top Stop release.

2.5 Selection of Sample Methodology and Sample Points

The selection of sample methodology (sub-slab vs. near slab) and the location of sample points for each stmcture will be determined on a case-by-case basis. Each building will undergo a pre-sampling inspection process. Sub-slab monitoring is the preferred approach to investigating the vapor intmsion pathway and will be performed whenever feasible and permitted by the building owner. There are several factors to consider in the selection of sample points for each building. Factors that will be considered include:

- The orientation of buildings in relationship to the plume.
- The proximity of buildings to soil vapor extraction (SVE) systems.
- Potential conflicts with drain lines, utihties, interior furnishings, foundation features, and/or other structural elements.

In general, RMEC will try to target areas that would represent a worst-case scenario. In the absence of any special circumstances, sub-slab samples will generally target centrally located points within the building footprint and near slab samples will generally be performed within 10-feet of the building foundation in the direction of the plume. Special considerations will have to be made at locations where the sub-slab or near slab sampling points may be in an area that is potentially under the influence of SVE systems. Determination regarding the sample locations will need to be made on a case-by-case basis with the approval of the building owner. Therefore, rather than establishing pre-determined sample locations for each structure, RMEC will solicit input from Wasatch, DERR, and building owners along with their representatives to determine sample locations for each structure on a case-by-case basis.

2.6 Sample Train Assembly

RMEC will use the Entech Instruments Inc. 64450QT "Micro-QT™" soil gas sample train depicted in Figure 1 (attached). Details of the equipment and other materials that will be used in the sample train assembly include the following:

- 1-liter Summa canisters
- 1/4-inch outer diameter (OD) nylon tubing
- stainless steel probes
- 200-cc/min flow rate restrictors
- 60-cc syringe (for purging and flushing of the sample lines)
- purge isolation valves and other applicable fittings

2.7 Sub-slab Soil Vapor Sampling Wells

If a portion of a structure is situated on a concrete slab on grade or has a poured concrete basement floor under at least a portion of the building footprint, sub-slab monitoring will be the preferred method of sub-surface soil vapor monitoring. Some building owners may object to this sampling since it requires access into the home or business and somewhat invasive work practices (peeling back carpeting, drilling holes in floors).

2.7.1 Sub-slab Sample Locations

A minimum of two soil vapor monitoring wells will be placed in each of the structures identified as being amenable to sub-slab monitoring. One of the sub-slab vapor monitoring wells will be placed in the center of the building's foundation. Site-specific conditions will be evaluated to determine the location of the second sub-slab vapor monitoring well. In general, a location that is indicative of a highest expected level of sub-slab soil vapors will be chosen for the second vapor well. This will generally be a location in the building footprint that is in the direction of the Top Stop plume. Air flow patterns created by the SVE system and individual building vapor remediation systems will also be considered when choosing the location for the second well. All decisions regarding placement of the wells in the affected structures will incorporate input from DERR personnel along with input from building owners and their representatives.

2.7.2 Sub-slab Sample Well Construction

Figure 2 (attached) shows the typical construction of a sub-slab soil vapor sampling well. This basic construction will be used for the proposed sub-slab monitoring in Gunnison structures. An impact hammer drill with a 1-inch diameter drill bit will be used to penetrate the slab at each sub-slab sampling point. Once the 1-inch hole through the foundafion has been established, a 1-inch auger-type drill bit will be used to drill through the sub-slab soils and/or fill materials to the completed well depth and sweep all loose concrete, sub-slab soils and/or fill materials out of the

hole. Once the sub-slab sampling hole is cleared, the sample probe will be connected to the nylon tubing, nested in a bed of sand and sealed beneath a layer of bentonite with a concrete cap, as depicted in Figure 3.

2.8 Near-slab Soil Vapor Sampling Wells

Near-slab soil vapor monitoring will be performed at those properties that are deemed not to be conducive to sub-slab soil vapor monitoring (i.e.: structures without slabs on grade or concrete basement floors).

2.8.1 Near-slab Sample Locations

A minimum of two near-slab soil vapor monitoring wells will be placed within 10-feet of each of the structures selected for near-slab monitoring. Site-specific conditions will be evaluated to determine the location of the soil vapor monitoring wells. In general, a location that is indicative of a highest expected level of sub-surface soil vapors will be selected for soil vapor sampling. This will generally be a location outside the building footprint that is in the direction of the Top Stop plume. Air flow patterns created by the SVE system and individual building vapor remediation systems will also be considered when choosing the location for the wells. In some cases, a combination of interior sub-slab wells and near-slab wells may be used to evaluate the potential vapor intrusion at a structure. All decisions regarding placement of the wells around the affected structures will incorporate input from DERR personnel along with input from building owners and their representatives.

2.8.2 Near-slab Sample Well Construction

Figure 3 (attached) shows the typical construction of a near-slab soil vapor sampling well. The wells will be completed to the required depth using direct push methods with a hollow-stem auger. A GeoProbe® company with experience in installing multi-depth vapor wells (Direct Push) will assist in the installation of the near slab vapor sampling wells.

Depending on the depth to ground water at the specific sample locations, from one to three soil vapor probes with discrete sampling intervals will be installed within each soil boring well. These wells will be nested in the same borehole or installed in separate borings adjacent to one another as depicted in Figure 3. Site-specific conditions will dictate which method will be used. One well will be installed in locations where the depth to groundwater is <10 feet, two will be installed where the depth to ground water is between 10 and 20 feet and three will be installed in locations where the depth to ground water is >20 feet. Since groundwater at most locations in the release area is between 10 and 20 feet, it is anticipated that most sample locations will have two soil vapor wells. RMEC will coordinate with Wasatch to determine appropriate well depths for each site.

2.9 Sample Collection

After each sampling well is constructed, RMEC will allow a minimum of 60 minutes for soil vapors to come to equilibrium before purging and collecting a sample. The sampling train depicted in Figure 1 will be attached to the sample probe tubing. A 60-cc syringe will be attached to the purge isolation valve and three internal dead-volumes of air will be purged from the sample train system (also depicted in Figure 1). Dead volume of the 1/4" nylon tubing is 4-cc per foot. After the system has been purged, the 1-liter Summa canister will be attached and the sample collected. Flow rate into the canister will be regulated by a 200-cc/minute critical orifice choke built into the sample train.

2.10 Leak Testing

To ensure the soil probe is not short-circuiting and drawing air from the surface rather than the sub-surface, a leak/tracer compound will be placed around the base of the probe where it enters the ground and in other locations where leakage of ambient air into the system may occur. Towelettes soaked with isopropyl alcohol (IPA) will be placed on top of the vapor well and any other points where short-circuiting can occur. The IPA will serve as the tracer compound to indicate if short-circuiting is occurring. If a significant amount of IPA (> 100 pg/m^3) appears in the sub-surface soil vapor sample, the system likely leaked and the sample results will be rejected.

2.11 Sample Analysis

The Summa canisters will be analyzed by EPA Method T015 by a laboratory that is accredited to perform this sample analysis under the National Environmental Laboratory Accreditation Program (NELAP). RMEC will select a laboratory based on its ability to provide the needed number of Summa canisters in a timely fashion and on the laboratory's ability to achieve a benzene limit of detection as close as possible to the 0.31 microgram per cubic meter (pg/m^3) indoor benzene risk-based screening level.

2.12 Sample Handling, Identification and Custody

Sample chain-of-custody procedures will be followed to account for each sample during collection, storage, handling and shipping activities. Every sample collected at the site will be labeled with the following information:

- Project name or number.
- Unique sample identification number that includes the physical address of the structure.
- Sample date and time.
- Sampler's initials.
- Pertinent remarks as needed.

The individual physically responsible for sample collection will complete a chain-of-custody record in the field. The sampler is personally responsible for the care and custody of samples until shipped to H&P. When transferring sample possession, the persons relinquishing and receiving the sample(s) will sign, date and write the time of day on the chain-of-custody record. This record may also serve as a laboratory request form, specifying the analyses requested for each set of samples.

3.0 REFERENCES

Guidance or Evaluating Soil Vapor Intrusion on the State of New York. New York Department of Health, Center for Environmental Health, Bureau of Environmental Exposure Investigation. October 2006.

Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air. Department of Toxic Substances Control, California Environmental Protection Agency. Interim Final, Revised Febmary 7, 2005.

Petroleum Hydrocarbon Vapor Intrusion Guidance Document. Colorado Department of Labor and Employment, Division of Oil and Public Safety. December 11, 2007.

Vapor Monitoring Wells/Implants Standard Operating Procedures for Vapor Intrusion Applications. H&P Mobile Geochemistry. Revised October, 2004 .

Table 1 –

Summary of Residential Indoor Air Testing

TABLE 1 - RESIDENTIAL INDOOR AIR TESTING

(SUMMA CANISTER SAMPLING RESULTS BY WASATCH ENVIRONMENTAL, INC.)

Updated 1/14/09

Residence	Sample Location	Collection Date	Analytical (ug/m^3)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
20 East Center Street	Residence (East of Plume)	11/7/07	3.2	23	4.2	24.4
12 East Center Street	Kitchen (East of Plume)	11/9/07	2.2	5.5	<0.65	3.49
12 East Center Street	Unoccupied Basement (East of Plume)	11/9/07	1.4	4.5	<0.65	2.94
43 West Center		12/5/07	1.4	7.4	<0.65	2.6
89 West Center	Small Furnace Room	11/19/07	130	450	42	274
89 West Center	Downstairs Kitchen Counter	12/3/07	17	63	6.3	39
89 West Center	Upstairs Kitchen Table	12/3/07	20	73	7.8	55
89 West Center		4/25/08	12	40	3.5	23.1
26 West 100 South	Rental	11/16/07	25	60	4.1	27.5
26 West 100 South	Rental - Bedroom Storage Room	12/3/07	17	20	0.95	6.5
26 West 100 South	Rental Home	1/7/08	1.2	2.4	0.95	4.29
26 West 100 South	Rental Home	4/2/08	1.7	3.1	<1.3	2.9
26 West 100 South	Rental - Kitchen Floor	7/10/08	<1.0	1.4	<1.3	<3.4
26 West 100 South	Rental - Kitchen Floor	8/7/08	1.1	3.2	<1.3	<3.4
26 West 100 South	Rental - Kitchen Floor	9/4/08	1.7	4.7	<1.3	<3.4
29 West 100 South	Unoccupied Basement	10/26/07	20	11	0.84	4.9
29 West 100 South		2/7/08	13	27	3.4	28.1
29 West 100 South		3/17/08	6.9	13	<1.3	22
29 West 100 South	Living Room - Table next to Fireplace	6/26/08	<1.0	3.2	<1.3	4.3
29 West 100 South	Living Room - Table next to Fireplace	8/7/08	<1.0	4.4	<1.3	<3.4
29 West 100 South	Living Room - Table next to Fireplace	9/4/08	<1.0	2.7	<1.3	<3.4
36 West 100 South	Rental - Unoccupied Basement	11/16/07	8.8	13	1.5	15.7
36 West 100 South	Rental - Unoccupied Basement	2/7/08	1.5	2.7	<0.65	2.44
36 West 100 South	Rental - Unoccupied Basement	4/2/08	2.7	2.1	<1.3	<3.4
36 West 100 South	Rental - Living Room Floor	7/15/08	1	6.5	<1.3	2.7
36 West 100 South	Rental - Living Room Floor	8/7/08	1.9	6.8	<1.3	2.6
36 West 100 South	Rental - Living Room Floor	9/4/08	1.2	6.5	<1.3	<3.4
39 West 100 South		12/5/07	27	23	0.8	17.9
39 West 100 South		1/23/08	1.2	3.3	1.8	9
39 West 100 South	Kitchen Counter	7/9/08	2	4	<1.3	4.4
39 West 100 South	Kitchen Counter	8/11/08	<1.0	4.9	<1.3	5.6
39 West 100 South	Kitchen Counter	9/4/08	1.3	3.9	<1.3	2.6
40 West 100 South	Crawl Space	11/14/07	0.86	3.4	<0.65	1.5
40 West 100 South	Kitchen	7/9/08	2.8	6.7	<1.3	5.6
40 West 100 South	Kitchen	8/7/08	<1.0	3	<1.3	<3.4
40 West 100 South	Kitchen	9/4/08	1.4	3.8	<1.3	<3.4
49 West 100 South		1/7/08	1.1	3.5	<0.65	<1.4
49 West 100 South	Living Room by Fireplace	7/9/08	<1.0	2.3	<1.3	<3.4
49 West 100 South	Living Room by Fireplace	8/7/08	<1.0	4.3	2.1	4.9
49 West 100 South	Living Room by Fireplace	9/4/08	1.7	4.4	1.7	7.2
50 West 100 South	Bedroom	11/14/07	1.4	7.2	<0.65	4
50 West 100 South		1/7/08	0.96	4.8	<0.65	<1.4
40 West 200 South	Living Room Floor	7/9/08	<1.0	36	2.3	3.6
40 West 200 South	Living Room Floor	8/7/08	<1.0	93	<1.3	<3.4
40 West 200 South	Living Room Floor	9/4/08	1.6	75	1.4	5.1
59 West 200 South		11/14/07	1.8	4	1.1	6
59 West 200 South		1/23/08	1	5.9	0.69	3.41
59 West 200 South	Living room/basement[1]	7/9/08	<1.0	7.9	<1.3	<3.4
59 West 200 South	Basement	8/14/08	13	56	4.9	35.9
59 West 200 South	Basement	9/4/08	12	50	5.4	38.6

Residence	Sample Location	Collection Date	Analytical (ug/m³)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
60 West 200 South	Crawl Space	11/14/07	34	47	5.3	16.1
60 West 200 South		12/12/07	0.67	3.1	26	90
60 West 200 South		3/5/08	<1.0	4.3	1.5	6.1
60 West 200 South		4/25/08	<1.0	2.7	<1.3	<3.4
60 West 200 South	Kitchen Counter	6/26/08	<1.0	6.8	<1.3	<3.4
60 West 200 South	Kitchen Counter	8/7/08	3.5	19	2.4	12.5
60 West 200 South	Kitchen Counter	9/4/08	1.7	12	2	7.4
60 West 200 South	Kitchen Counter	11/19/08	47	140	9.8	62
60 West 200 South	Kitchen Counter	12/1/08	14	51	9.8	62
68 (70) West 200 South	Occupied Basement	11/9/07	4.1	20	1.4	7.1
68 (70) West 200 South	Crawl Space	12/14/07	0.72	7.1	7	24.8
68 (70) West 200 South	Occupied Basement	6/26/08	1.3	9.8	1.5	3.9
68 (70) West 200 South	Occupied Basement	8/7/08	<1.0	7.4	<1.3	<3.4
68 (70) West 200 South	Occupied Basement	9/4/08	1.6	15	2.2	14
78 West 200 South	Basement Floor - North Wall	7/9/08	3.9	23	<1.3	7.6
78 West 200 South	Basement Floor - North Wall	8/7/08	3.4	41	<1.3	6.4
78 West 200 South	Basement Floor - North Wall	9/4/08	1.5	6.8	<1.3	3.1
96 West 200 South	Basement	11/16/07	2.8	6	<0.65	2.13
96 West 200 South	Bedroom	11/16/07	2.1	8.5	<0.65	3.66
96 West 200 South		12/14/07	8.1	42	3.7	25.5
96 West 200 South		1/23/08	1.1	3.7	<0.65	1.1
96 West 200 South		3/17/08	<1.0	<1.1	<1.3	<3.4
96 West 200 South	Bedroom Floor	6/26/08	<1.0	2.3	<1.3	<3.4
96 West 200 South	Bedroom Floor	8/11/08	5.8	19	2.2	20.3
96 West 200 South	Bedroom Floor	9/5/08	1.5	3.7	<1.3	2.7
44 South 100 West	Kitchen Floor	8/7/08	81	330	27	226
220 South 100 West	Basement	11/9/07	3	12	1.3	7.8
220 South 100 West		1/7/08	1.5	7.9	<0.65	1.2
220 South 100 West	Kitchen Floor	7/9/08	2.3	14	<1.3	5.5
220 South 100 West	Kitchen Floor	8/7/08	1	8.1	<1.3	<3.4
220 South 100 West	Kitchen Floor	9/4/08	78	330	31	197
220 South 100 West	Kitchen Floor	9/22/08	7.4	12	<1.3	5.3
220 South 100 West	Crawl Space South	9/25/08	1.5	6.3	<1.3	<3.4
220 South 100 West	Crawl Space East	9/25/08	2.3	10	<1.3	3.2
220 South 100 West	Upper Story - Childs Bdrm	9/25/08	2	13	<1.3	3
220 South 100 West	Kitchen Floor	10/21/08	<1.0	5.4	<1.3	3.2
220 South 100 West	Basement Office	10/21/08	<1.0	3.9	<1.3	<1.1
255 South 100 West	Occupied Basement	11/7/07	33	110	10	55
255 South 100 West	Occupied Basement	12/3/07	16	67	7.2	42
255 South 100 West	Occupied Basement	12/14/07	0.9	1.9	<0.65	1.6
255 South 100 West	Occupied Basement	1/3/08	17	80	11	110
255 South 100 West	Occupied Basement	1/23/08	19	61	6.9	56
255 South 100 West	Occupied Basement	2/7/08	7.3	41	4.7	33.9
255 South 100 West	Occupied Basement	3/25/08	12	48	5.3	9.9
255 South 100 West	Occupied Basement	4/25/08	11	55	5.7	45
255 South 100 West	Occupied Basement	9/4/08	5.3	28	2.6	12.3
255 South 100 West	Occupied Basement	12/1/08	24	80	7.6	47
70 West 300 South	Crawl Space	11/12/07	0.77	2.2	0.86	4.55
70 West 300 South	Crawl Space	2/7/08	0.83	1.4	<0.65	<1.4
70 West 300 South	Crawl Space	6/26/08	<1.0	1.2	<1.3	<3.4
70 West 300 South	Crawl Space	8/7/08	<1.0	<1.1	<1.3	<3.4
70 West 300 South	Crawl Space	9/5/08	1.1	2	<1.3	<3.4
Unknown	Lapierre	12/5/07	2.7	9.8	1.3	5.7

Table 2 –

Summary of Commercial Indoor Air Testing

TABLE 2 - BUSINESS
SUMMA CANISTER RESULTS
Updated 10/08/08

Sample Location	Address	Collection Date	Analytical (ug/m³)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
Casino Star Theater -	78 South Main	10/26/07	110	19	9	60
Casino Star Theater - Basement	78 South Main	11/19/07	4200	8300	1400	7000
Casino Star Theatre -	78 South Main	3/2/08	2000	7200	960	5600
Casino Star - Basement (Grab)	78 South Main	9/25/08	6	33	9.1	116
Casino Star - Basement (8-hour sample period)	78 South Main	9/25/08	1	5.9	1.8	27
Dorius Law Offices	47 South Main	9/6/07	2	5.4	<0.65	2.94
Dorius Law Offices - In office	47 South Main	7/15/08	<1.0	4.1	<1.3	<3.4
Dorius Law Offices - In office	47 South Main	8/11/08	<1.0	3.2	<1.3	<3.4
Dorius Law Offices - In office	47 South Main	9/17/08	<1.0	8.1	<1.3	<3.4
Fitness Center - On floor by north wall	62 South Main	9/18/07	4.1	13	1.8	11.2
Fitness Center - On floor by north wall	62 South Main	7/15/08	<1.0	2.3	<1.3	<3.4
Fitness Center - On floor by north wall	62 South Main	8/11/08	1.4	2.6	<1.3	8.7
Fitness Center - On floor by north wall	62 South Main	9/17/08	<1.0	1.6	<1.3	3.7
Gunnison Barber Shop - On floor in SE corner	76 South Main	7/15/08	61	460	54	550
Gunnison Barber Shop - On floor in SE corner	76 South Main	7/30/08	2.2	56	18	198
Gunnison Barber Shop - On floor in SE corner	76 South Main	8/11/08	1.5	11	3.6	38
Gunnison Barber Shop - On floor in SE corner	76 South Main	9/17/08	13	82	19	232
Gunnison Plumbing	20 South Main	9/18/07	1.4	6.1	<0.65	0.93
Gunnison Plumbing - Basement	20 South Main	7/15/08	<1.0	53	3.2	18.9
Gunnison Plumbing - Basement	20 South Main	8/11/08	1.3	37	1.9	11.1
Gunnison Plumbing - Basement	20 South Main	9/17/08	<1.0	19	<1.3	4.7
Gunnison Telephone - On floor in office	29 South Main	9/6/07	1.8	4.8	0.73	3.46
Gunnison Telephone - On floor in office	29 South Main	7/15/08	<1.0	1.9	<1.3	<3.4
Gunnison Telephone - On floor in office	29 South Main	8/11/08	<1.0	2.5	<1.3	<3.4
Gunnison Telephone - On floor in office	29 South Main	9/17/08	<1.0	<1.1	<1.3	<3.4
Gunnison Valley Bank - Rear Storage	10 South Main	10/23/07	5.6	9.9	0.69	10.4
Gunnison Valley Bank - Unoccupied Basement	10 South Main	10/26/07	8.8	11	0.84	14.1
Gunnison Valley Bank - Unoccupied Basement	10 South Main	1/7/08	1.9	4.5	<0.65	2.75
Gunnison Valley Bank - Upper Level	10 South Main	7/15/08	<1.0	4.1	<1.3	<3.4
Gunnison Valley Bank - Upper Level	10 South Main	8/11/08	1.1	5.3	<1.3	2.9
Gunnison Valley Bank - Upper Level	10 South Main	9/17/08	<1.0	4.5	<1.3	2.4
Head Start	189 South Main	1/2/08	1.4	2.2	0.65	1.1
His N Hers - On table in center of store	98 South Main	9/6/07	1	2.8	<0.65	1.2
His N Hers - On table in center of store	98 South Main	11/19/07	53	180	22	160
His N Hers - On table in center of store	98 South Main	2/7/08	13	46	4.1	35.3
His N Hers - On table in center of store	98 South Main	4/16/08	2.3	97	14	77
His N Hers - On table in center of store	98 South Main	7/15/08	1	5.6	<1.3	8.9
His N Hers - On table in center of store	98 South Main	8/11/08	1.1	5.5	<1.3	5.1
His N Hers - On table in center of store	98 South Main	9/17/08	<1.0	4.7	<1.3	6.7
Home Town Café - Basement	50 South Main	9/18/07	8.1	36	1.4	7
Home Town Apartment	50 South Main	11/20/07	1.2	3.7	ND	0.67
Home Town Apartment - Basement	50 South Main	11/20/07	1.2	3.7	<0.65	2.54
Jensen Drug	77 South Main	12/3/07	1.3	4.5	<0.65	2.99
Jensen Drug - On floor in front of counter	77 South Main	7/15/08	4.1	6.7	2.3	5.9
Jensen Drug - On floor in front of counter	77 South Main	8/11/08	4.9	15	3.1	7.9

TABLE 2 - BUSINESS
SUMMA CANISTER RESULTS
Updated 10/08/08

Sample Location	Address	Collection Date	Analytical (ug/m^3)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
Jensen Drug - On floor in front of counter	77 South Main	9/17/08	12	22	5.6	10.1
Lila Lee's - Basement	70 South Main	9/7/07	27	50	3.9	14.8
Lila Lee's - Basement	70 South Main	12/5/07	1.6	5.7	<0.65	3.36
Lila Lee's - Basement	70 South Main	3/25/08	2.1	12	1.7	8.1
Lila Lee's - Fitting room in basement	70 South Main	7/15/08	1.8	15	2.7	21.1
Lila Lee's - Fitting room in basement	70 South Main	8/11/08	1.8	16	2	16.9
Lila Lee's - Fitting room in basement	70 South Main	9/17/08	1.2	8.8	1.4	8.1
Lotsa Motsa - On floor in kitchen	54 South Main	9/6/07	9.2	10	0.72	4.6
Lotsa Motsa - On floor in kitchen	54 South Main	4/16/08	3.5	5.7	<1.3	<3.4
Lotsa Motsa - On floor in kitchen	54 South Main	7/15/08	1	1.4	<1.3	<3.4
Lotsa Motsa - On floor in kitchen	54 South Main	8/11/08	<1.0	1.9	<1.3	<3.4
Lotsa Motsa - On floor in kitchen	54 South Main	9/17/08	<1.0	1.6	<1.3	<3.4
Malt Shop (Home Town Café)	30 (?) South Main	9/18/07	11	140	1.2	5.8
Nails N Hair -On table in shop	65 South Main	7/15/08	<1.0	72	<1.3	6
Nails N Hair -On table in shop	65 South Main	8/11/08	1.5	56	1.3	4.2
Nails N Hair -On table in shop	65 South Main	9/17/08	<1.0	40	<1.3	<3.4
State Farm Insurance	28 South Main	9/18/07	1.5	6	0.83	4.7
State Farm Insurance - On desk in office	28 South Main	7/15/08	1.6	5.3	<1.3	5.8
State Farm Insurance - On desk in office	28 South Main	8/11/08	1.7	5.9	<1.3	2.6
State Farm Insurance - On desk in office	28 South Main	9/17/08	1.1	5.4	<1.3	<3.4
White Hills Trading Co.	74 South Main	9/6/07	1.3	4.1	<0.65	2.26
White Hills Trading Co.	74 South Main	11/20/07	0.41	1.1	<0.65	<1.4
White Hills Trading Co. - On Floor in Store	74 South Main	7/15/08	45	340	40	374
White Hills Trading Co. - On Floor in Store	74 South Main	7/31/08	<1.0	4.8	<1.3	5.5
White Hills Trading Co. - On Floor in Store	74 South Main	8/11/08	<1.0	4.4	<1.3	<3.4
White Hills Trading Co. - On Floor in Store	74 South Main	9/17/08	1.2	4.8	2.9	10.4
			Benzene	Toluene	Ethyl-benzene	Total Xylenes

1Canister Disturbed and Relocated During Sample Collection Period

2Total Xylenes = m,p-xylene + o-xylene

Figure 1 –

Sample Train Assembly

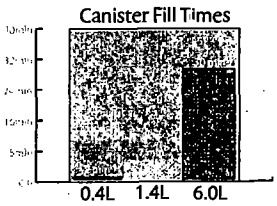
Soil Gas Sampling

Entech's new 64450QT raises the bar for excellence in soil gas sampling. This sample train technology features everything required to effectively and reliably collect soil gas samples.

Features

- Large Silonite coated filter with generous surface area that resists clogs during sampling.
- Critical orifice gives optimal 200 cc/min flow control as required by sampling guidelines.
- A compact, Silonite coated flow path to minimize surface interaction.
- Integrated Micro Valve allows shipping under vacuum to ensure contamination-free field operation (as shown below).
- Thoughtful design and uncompromised reliability ensures better data with greater confidence built-in.
- Simple Step-by-Step procedure provides the most convenient, and reliable way to collect soil vapor into evacuated canisters for analysis by EPA method TO-15.

Soil vapor analysis of volatile organic compounds has proven to be an extremely effective approach in the evaluation of soil and groundwater contamination. As a result, regulatory agencies often require this technique to be employed in performing site investigations.



Soil Gas Sample Train: Micro-QT™ (Assembly 39-64450QT)

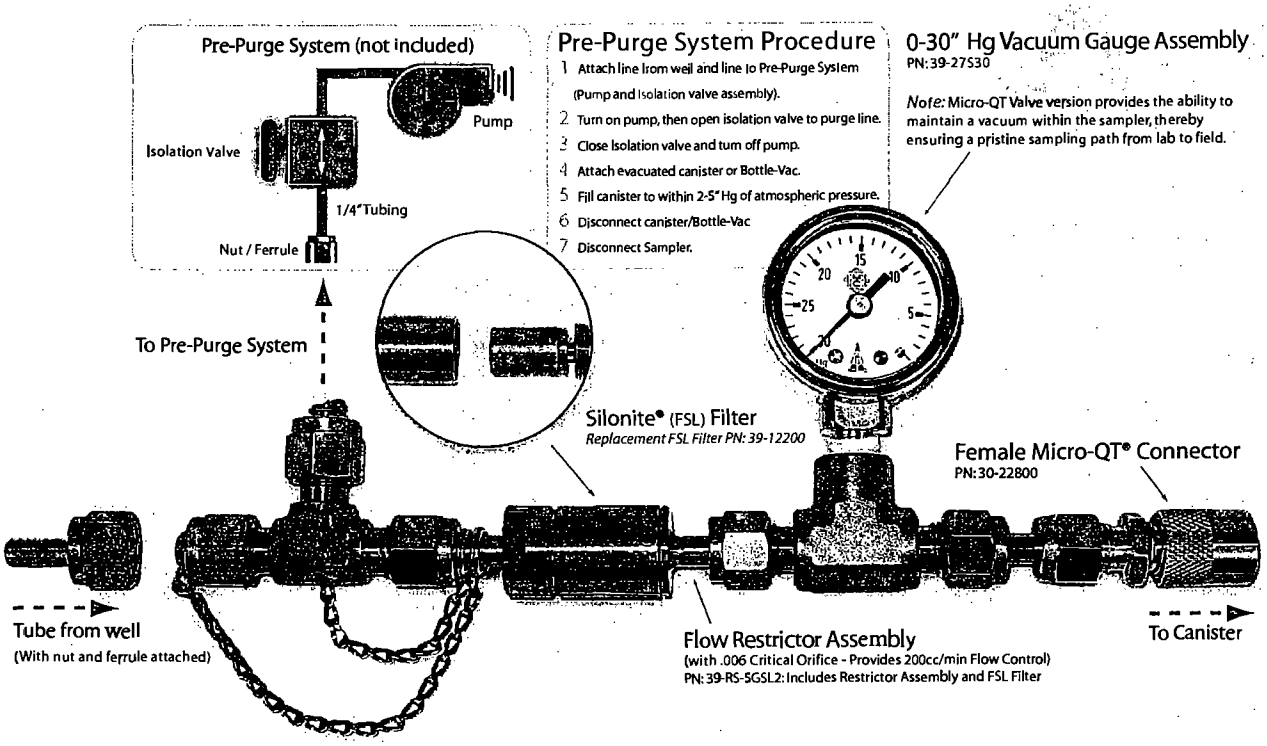


Figure 2 –

Typical Sub-slab Vapor Well Construction

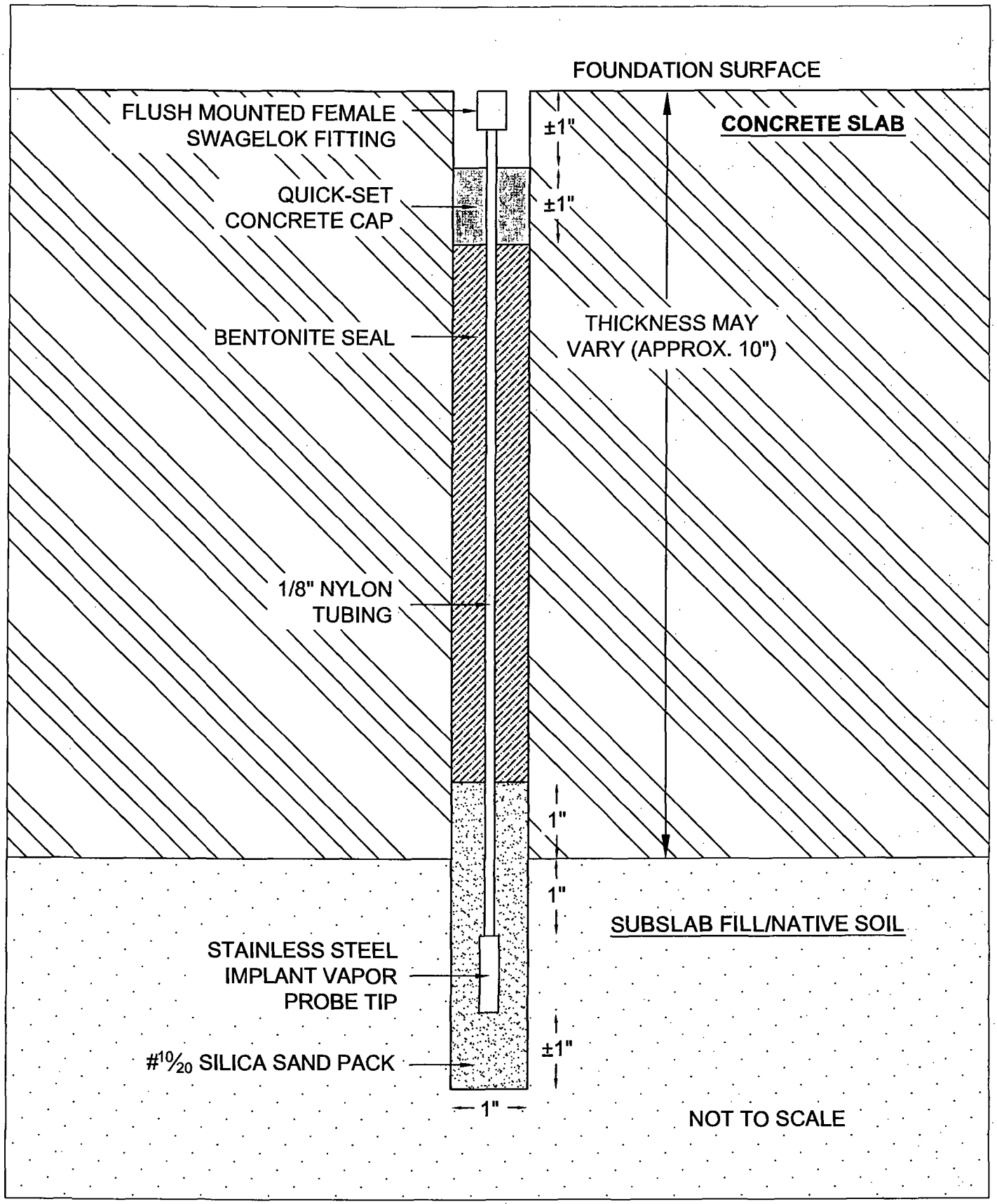


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FIGURE 2: TYPICAL SUBSLAB VAPOR-WELL CONSTRUCTION

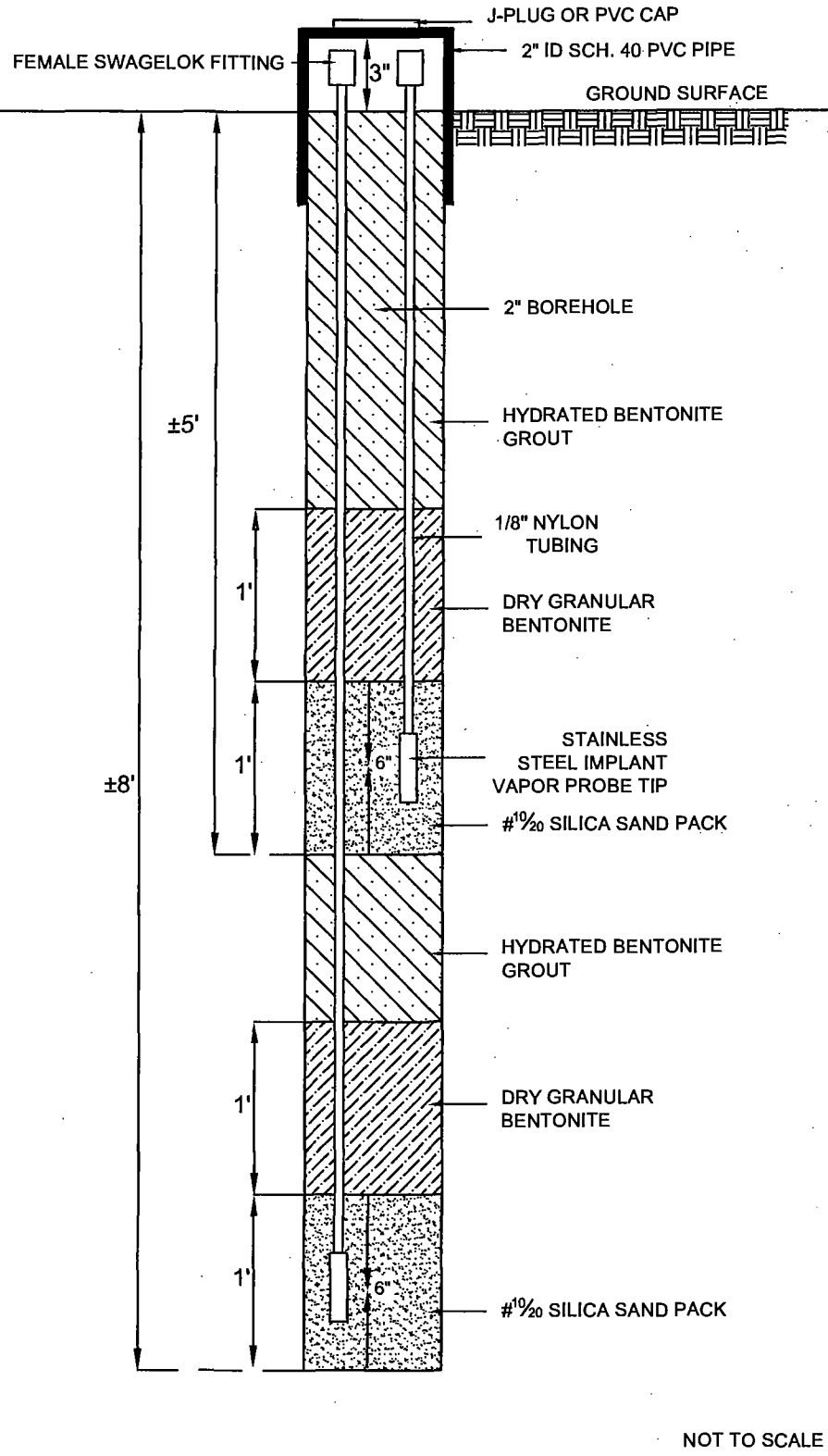
PREPARED FOR STATE OF UTAH DIVISION OF ENVIRONMENTAL RESPONSE AND REMEDIATION

TOP-STOP PETROLEUM RELEASE SITE - GUNNISON, UTAH

FEBRUARY 2009

Figure 3 –

Typical Near-slab Vapor Well Construction



NOT TO SCALE

RMEC ENVIRONMENTAL, INC.

FIGURE 3: TYPICAL NEAR-SLAB VAPOR-WELL CONSTRUCTION

PREPARED FOR STATE OF UTAH DIVISION OF ENVIRONMENTAL RESPONSE AND REMEDIATION
TOP-STOP PETROLEUM RELEASE SITE - GUNNISON, UTAH
FEBRUARY 2009