



Heating Oil Tank (HOT) Program Guidance for Assessing the Vapor Intrusion Pathway





HOT VI Site Statistics

(As of March 1, 2010)

- Number of Soil Gas Sites submitted since January, 2009:
74
- Number of Soil Gas Sites with certifications and closure letters issued since January, 2009: 50
- Number of Soil Gas Sites that have exceeded Soil Gas RBCs since January, 2009: 3

All three sites that failed involved both soil and groundwater contamination



Unique Characteristics of HOT Sites:

- Volatility of contaminants of concern is less than gasoline or solvents
- Proximity of Source Area to Residence
- Difficulty in performing excavations of petroleum impacted soil
- Well characterized site conditions



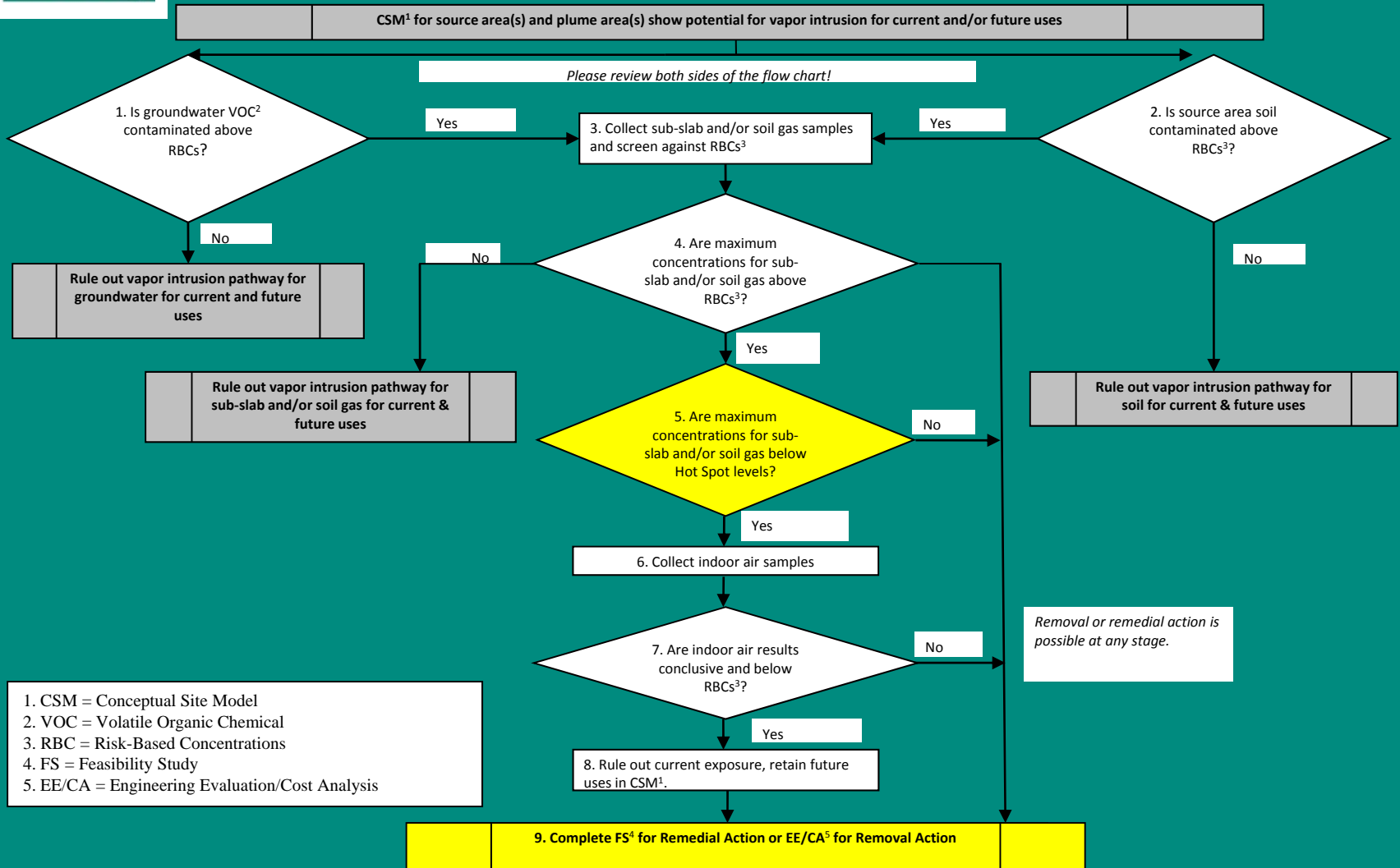
HOT Program Vapor Intrusion Drivers

<i>Contaminant of Concern</i>	<i>Volatilization to Indoor Air Soil RBC (mg/kg)</i>	<i>Volatilization to Indoor Air Groundwater RBC (mg/kg)</i>	<i>Soil Gas RBC (ug/m³)</i>
Benzene	.08	190	62
Ethylbenzene	0.82	490	190
Naphthalene	5.4	670	14
TPH-Dx	20,000	6,000	26,000



Variations from Guidance

Figure 1: Vapor Intrusion Investigation Process





Variations from Guidance

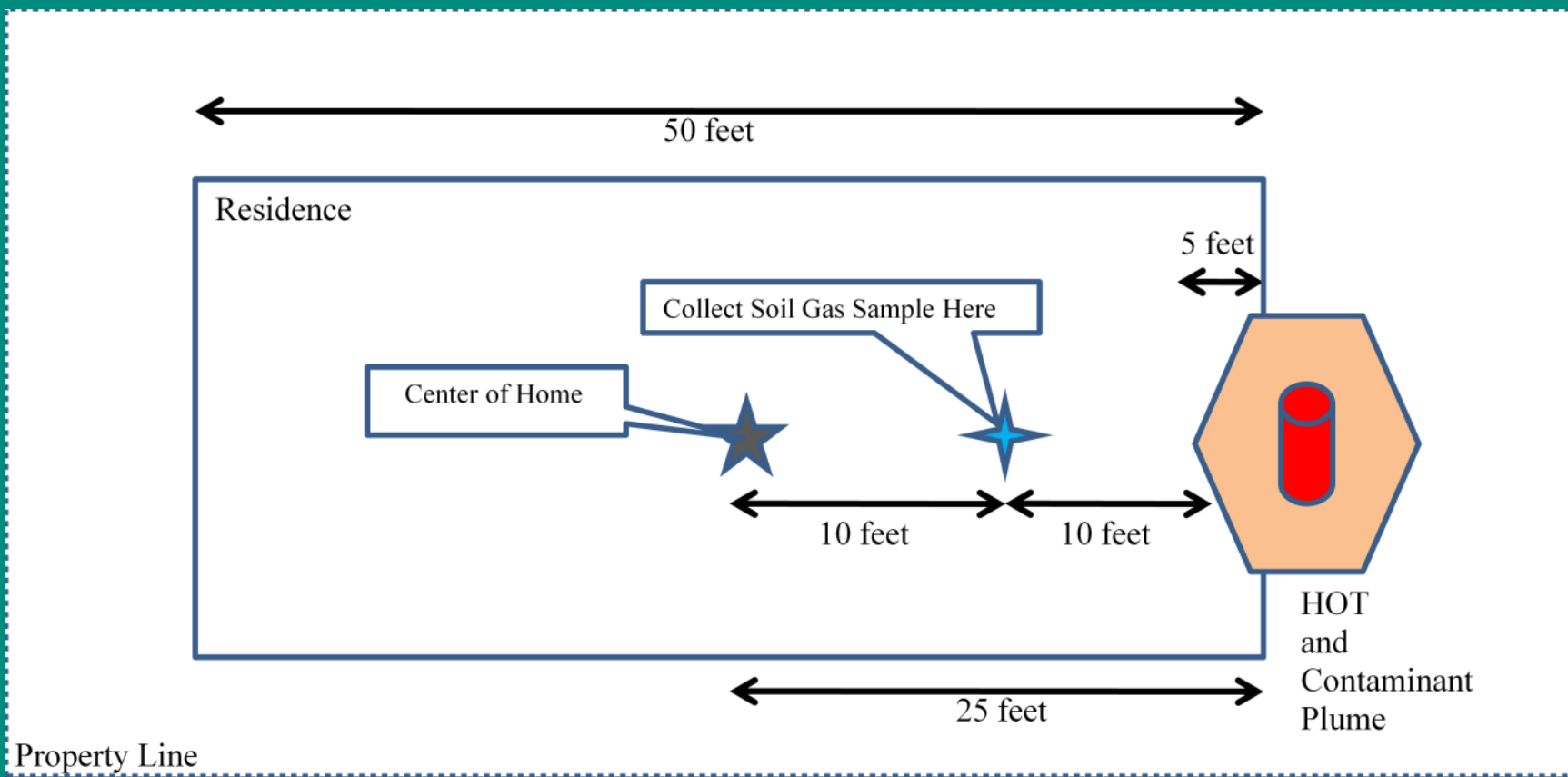


Figure B-1, Appendix B



Work Plan Requirements

- Vapor Intrusion Checklist, [Appendix B of VI Guidance](#)
- Estimate of remaining volume of pcs
- Map presenting soil and groundwater sample locations (including depth of sample, contaminant concentrations)
- Type of home construction (slab on grade, crawlspace, basement)
- Contaminants of concern to be reported for soil vapor analysis



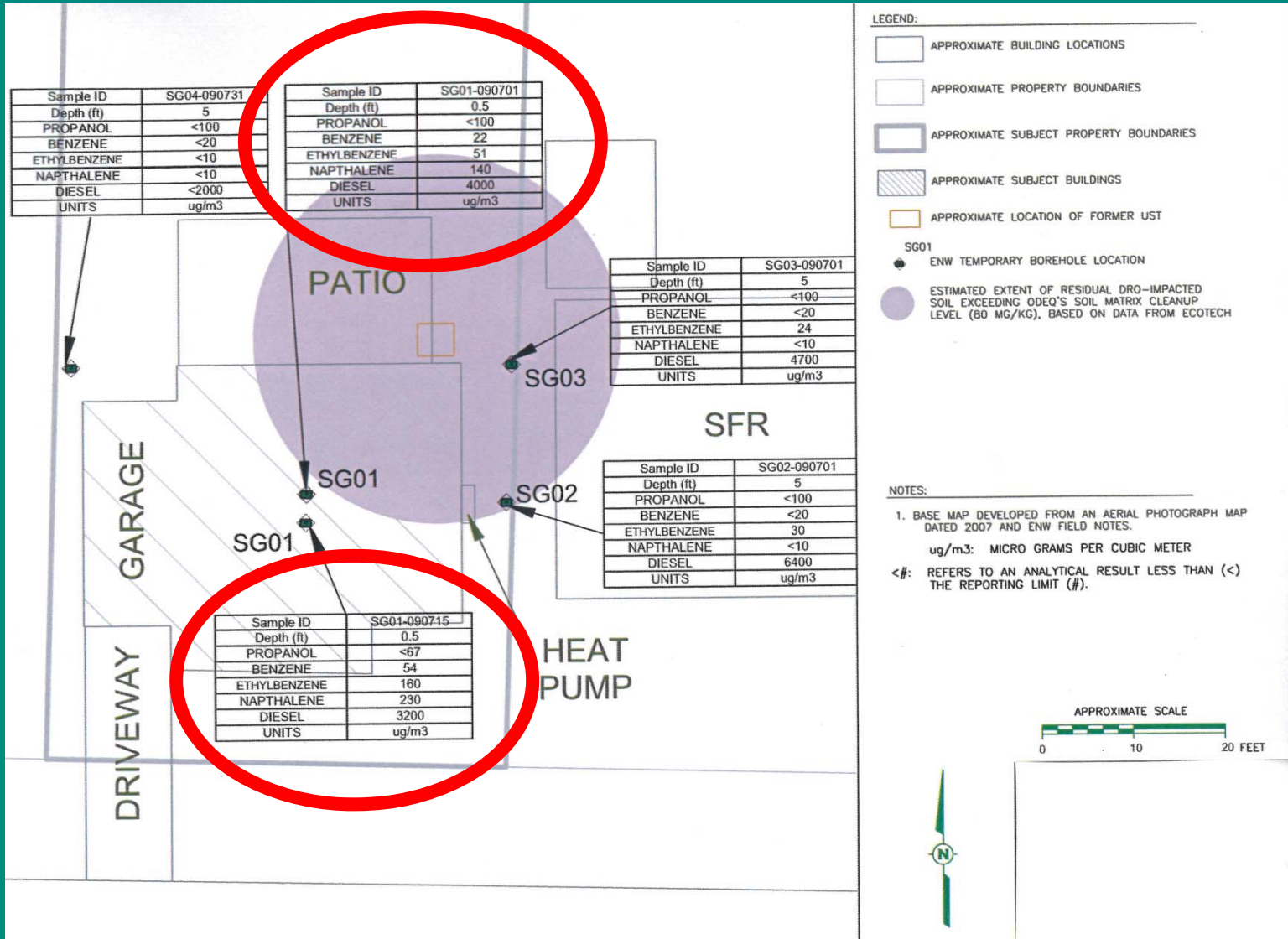
Work Plan Requirements

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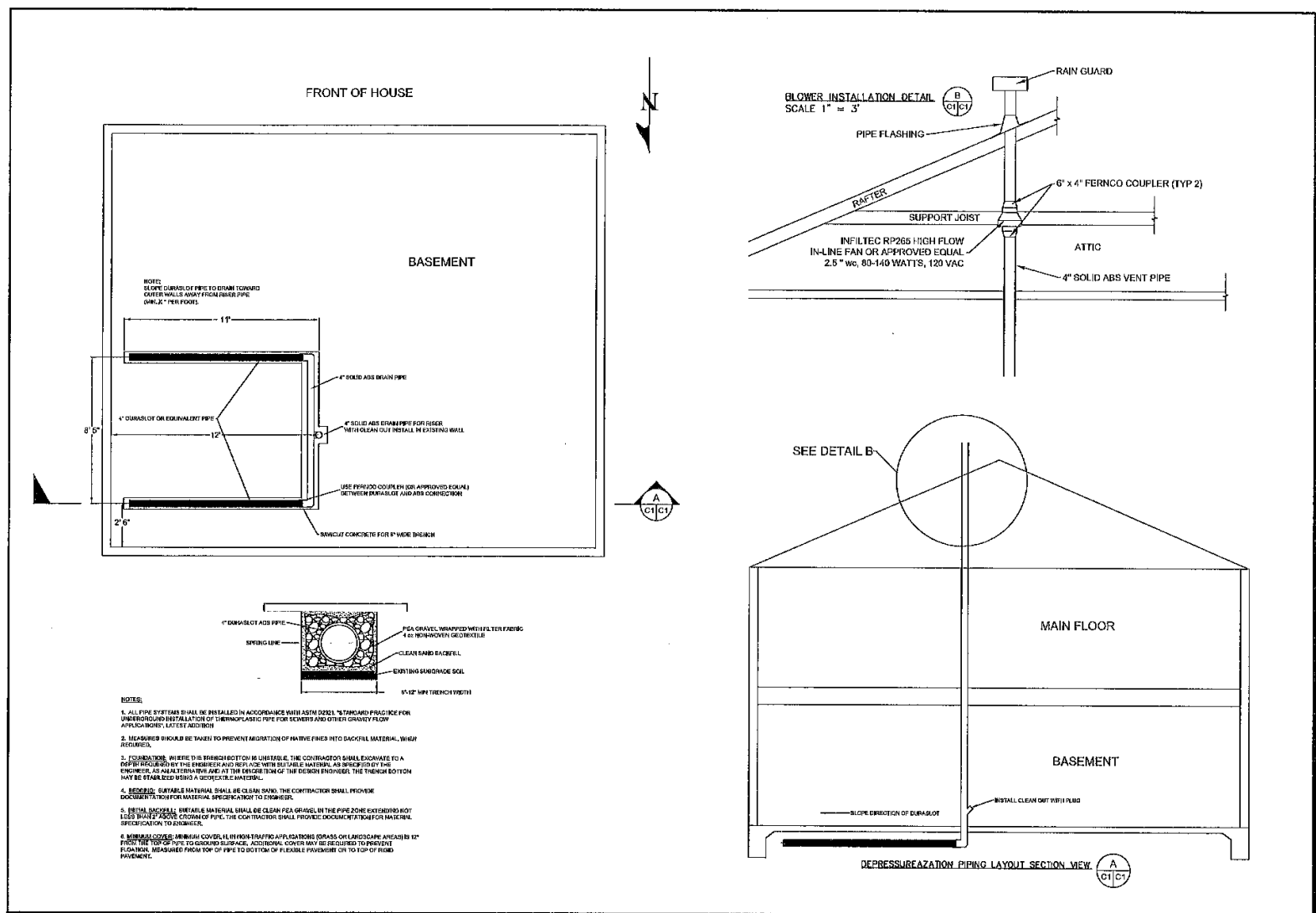
- Diagram of sampling train to be used, including leak detection
- Description of how boreholes will be advanced (auger or direct push)
- Description of borehole and surface seal
- Estimate of sampling time and vacuum change
- Equilibration time between advancement of borehole and purge

** May be necessary to collect soil gas sample through sidewall of basement **

Department of Environmental Quality



Now What?



Verification Sampling?



Other Sites/Discussion Topics

- Radon Tracer to determine a site-specific attenuation factor (following exceedance of naphthalene soil gas RBC)
- Collecting air sample from closed off crawlspace due to presence of visqueen vapor barrier already installed at residence