

Table 4-6. Summary of Passive Soil Vapor Data – Carbon Tetrachloride

Location	Group	Type	Depth (feet bgs)	Sample Date	Carbon tetrachloride
					Analytical Data ($\mu\text{g}/\text{m}^3$)
SV02	Passive Soil Vapor	N	5	10/12/2017	6.6 U
SV03	Passive Soil Vapor	N	5	10/12/2017	6.6 U
SV04	Passive Soil Vapor	N	5	10/12/2017	6.6 U
SV05	Passive Soil Vapor	N	5	10/12/2017	6.6 U
SV06	Passive Soil Vapor	N	5	10/12/2017	6.6 U
SV07	Passive Soil Vapor	N	5	10/12/2017	6.6 U
SV08	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV10	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV11	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV12	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV13	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV14	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV15	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV16	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV17	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV18	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV19	Passive Soil Vapor	N	5	10/16/2017	160
SV20	Passive Soil Vapor	N	5	10/16/2017	5.8 U
SV23	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV24	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV25	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV26	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV27	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV28	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV29	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV30	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV31	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV32	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV33	Passive Soil Vapor	N	3	10/17/2017	5.8 U
SV34	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV35	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV36	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV37	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV38	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV39	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV40	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV41	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV42	Passive Soil Vapor	N	5	10/17/2017	5.8 U
SV43	Passive Soil Vapor	N	5	10/17/2017	5.9 U
SV44	Passive Soil Vapor	N	5	10/17/2017	5.9 U
SV45	Passive Soil Vapor	N	5	10/17/2017	5.9 U
SV46	Passive Soil Vapor	N	5	10/17/2017	16
SV47	Passive Soil Vapor	N	5	10/17/2017	5.9 U
SV49	Passive Soil Vapor	N	5	10/17/2017	390
SV50	Passive Soil Vapor	N	5	10/17/2017	92
SV51	Passive Soil Vapor	N	5	10/17/2017	44
SV52	Passive Soil Vapor	N	5	10/17/2017	140
SV53	Passive Soil Vapor	N	5	10/17/2017	480
SV54	Passive Soil Vapor	N	5	10/17/2017	15
SV55	Passive Soil Vapor	N	5	10/17/2017	40
SV56	Passive Soil Vapor	N	5	10/17/2017	210
SV57	Passive Soil Vapor	N	5	10/17/2017	6 U
SV58	Passive Soil Vapor	N	5	10/17/2017	150
SV59	Passive Soil Vapor	N	5	10/17/2017	88
SV60	Passive Soil Vapor	N	5	10/17/2017	25

Table 4-6. Summary of Passive Soil Vapor Data – Carbon Tetrachloride

Location	Group	Type	Depth (feet bgs)	Sample Date	Carbon tetrachloride Analytical Data ($\mu\text{g}/\text{m}^3$)
SV61	Passive Soil Vapor	N	5	10/17/2017	6 U
SV62	Passive Soil Vapor	N	5	10/17/2017	6 U
SV63	Passive Soil Vapor	N	5	10/17/2017	6 U
SV64	Passive Soil Vapor	N	5	10/17/2017	6 U
SV65	Passive Soil Vapor	N	5	10/17/2017	6 U
SV66	Passive Soil Vapor	N	5	10/17/2017	6 U
SV67	Passive Soil Vapor	N	5	10/17/2017	6 U
SV68	Passive Soil Vapor	N	5	10/17/2017	6 U
SV69	Passive Soil Vapor	N	5	10/17/2017	6 U
SV70	Passive Soil Vapor	N	5	10/17/2017	6 U
SV72	Passive Soil Vapor	N	5	10/17/2017	6 U
SV73	Passive Soil Vapor	N	5	10/17/2017	6.9
SV74	Passive Soil Vapor	N	5	10/17/2017	9.1
SV75	Passive Soil Vapor	N	5	10/17/2017	90
SV76	Passive Soil Vapor	N	5	10/17/2017	39
SV77	Passive Soil Vapor	N	5	10/17/2017	210
SV78	Passive Soil Vapor	N	5	10/17/2017	6 U
SV80	Passive Soil Vapor	N	5	10/17/2017	14
SV81	Passive Soil Vapor	N	5	10/17/2017	48
SV82	Passive Soil Vapor	N	5	10/17/2017	37
SV83	Passive Soil Vapor	N	5	10/17/2017	6 U
SV84	Passive Soil Vapor	N	5	10/17/2017	6 U
SV85	Passive Soil Vapor	N	5	10/17/2017	6 U
SV86	Passive Soil Vapor	N	5	10/17/2017	6 U
SV87	Passive Soil Vapor	N	5	10/17/2017	6 U
SV88	Passive Soil Vapor	N	5	10/17/2017	6 U
SV89	Passive Soil Vapor	N	5	10/17/2017	6 U
SV90	Passive Soil Vapor	N	5	10/17/2017	6 U
SV92	Passive Soil Vapor	N	4	10/17/2017	26

Notes:

Detections in **bold**

$\mu\text{g}/\text{m}^3$ = microgram(s) per cubic meter

bgs = below ground surface

N = normal sample

U = not detected at or above the indicated reporting limit

Table 4-7. Summary of Analytical Soil Vapor Data – Carbon Tetrachloride, Chloroform, and Carbon Disulfide

Location	Group	Type	Depth	Sample Date	Carbon disulfide	Carbon tetrachloride	Chloroform
					Analytical Data ($\mu\text{g}/\text{m}^3$)		
SB101A	Soil Vapor	N	5	2/7/2018	46.5	8.7	3.4 J
	Soil Vapor	N	25	2/7/2018	199 J	25,700	4,170 J
	Soil Vapor	FD	25	2/7/2018	102 J	28,000	2,220 J
SB102A	Soil Vapor	N	5	2/7/2018	41.4	903	509
	Soil Vapor	N	15	2/7/2018	32.9	3,500	1,500
SB103A	Soil Vapor	N	5	2/7/2018	17.6	2,160	2,000
SB104A	Soil Vapor	N	5	2/7/2018	17.6	281	141
	Soil Vapor	N	15	2/7/2018	46.7	1,850	996
	Soil Vapor	N	22	2/7/2018	42.5	12,100	840
	Soil Vapor	N	27	2/7/2018	46.4	19,700	1,320

Notes:

Detections in **bold**

$\mu\text{g}/\text{m}^3$ = microgram(s) per cubic meter

bgs = below ground surface

FD = field duplicate

J = estimated result

N = normal sample

Table 4-8. Summary of Analytical Sub-slab Soil Vapor Data - Carbon Tetrachloride, Chloroform, and Carbon Disulfide

Location	Group	MTCA Method B Cancer Type	Sample Date	Carbon disulfide	Carbon tetrachloride	Chloroform
				NE	Screening Levels ($\mu\text{g}/\text{m}^3$)	
					14	3.6
				Analytical Data ($\mu\text{g}/\text{m}^3$)		
Elementary School Gym Supply Closet	Sub-slab Soil Vapor	N	12/19/2017	NA	0.23	0.12
High School Basement Utility Room	Sub-slab Soil Vapor	N	12/19/2017	NA	0.29	0.12
Middle School Basement Storage Closet	Sub-slab Soil Vapor	N	12/19/2017	NA	1.8	1.8
SV-105 ^a	Sub-slab Soil Vapor	N	3/1/2018	3.2	160	8.8
SV-107 ^a	Sub-slab Soil Vapor	N	3/1/2018	2.5	225	9.3
SV-111 ^a	Sub-slab Soil Vapor	N	3/1/2018	17	396	56.4
SV-112 ^a	Sub-slab Soil Vapor	N	4/3/2018	NA	1.4	0.19 J
SV-113 ^a	Sub-slab Soil Vapor	N	4/3/2018	NA	503	34.2
SV-114 ^a	Sub-slab Soil Vapor	N	3/8/2018	NA	6.6	0.69

^a Samples collected at locations SV-105, SV-107, SV-111, SV-112, SV-113, and SV-114 were used to evaluate the presence of potential secondary sources of carbon tetrachloride and chloroform, and not to evaluate potential vapor instruction. Therefore, results were not evaluated in comparison to screening levels.

Notes:

Detections in **bold**

$\mu\text{g}/\text{m}^3$ = microgram(s) per cubic meter

J = estimated result

MTCA = Model Toxics Control Act

N = normal sample

NA = not analyzed

NE = not established



LEGEND

- ⊕ Sub-Slab Soil
- ⊕ Monitoring Well
- ⊕ Domestic Well
- Excavation Area
- Grain Handling Facility at Freeman
- Access Tunnel

SV-113 ← Location ID
 SO: ND (0.55) (03/30/18, 0) FD ← Sample Type Field Duplicate
 ↑ Depth (feet bgs)
 ↑ Sample Date
 ↑ Concentration
 ↑ Matrix

Notes:
Bold values indicate detected concentrations
 Soil concentrations are shown in micrograms per kilogram (µg/kg)
 Soil concentrations are shown in micrograms per cubic meter (mg/m³)
 ft bgs = feet below ground surface
 ND (###) = Compound not detected at or above the adjusted method detection limit.
 SO = Soil matrix
 SV = Soil vapor matrix

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

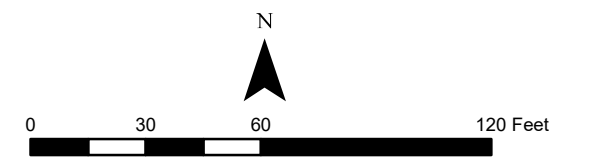
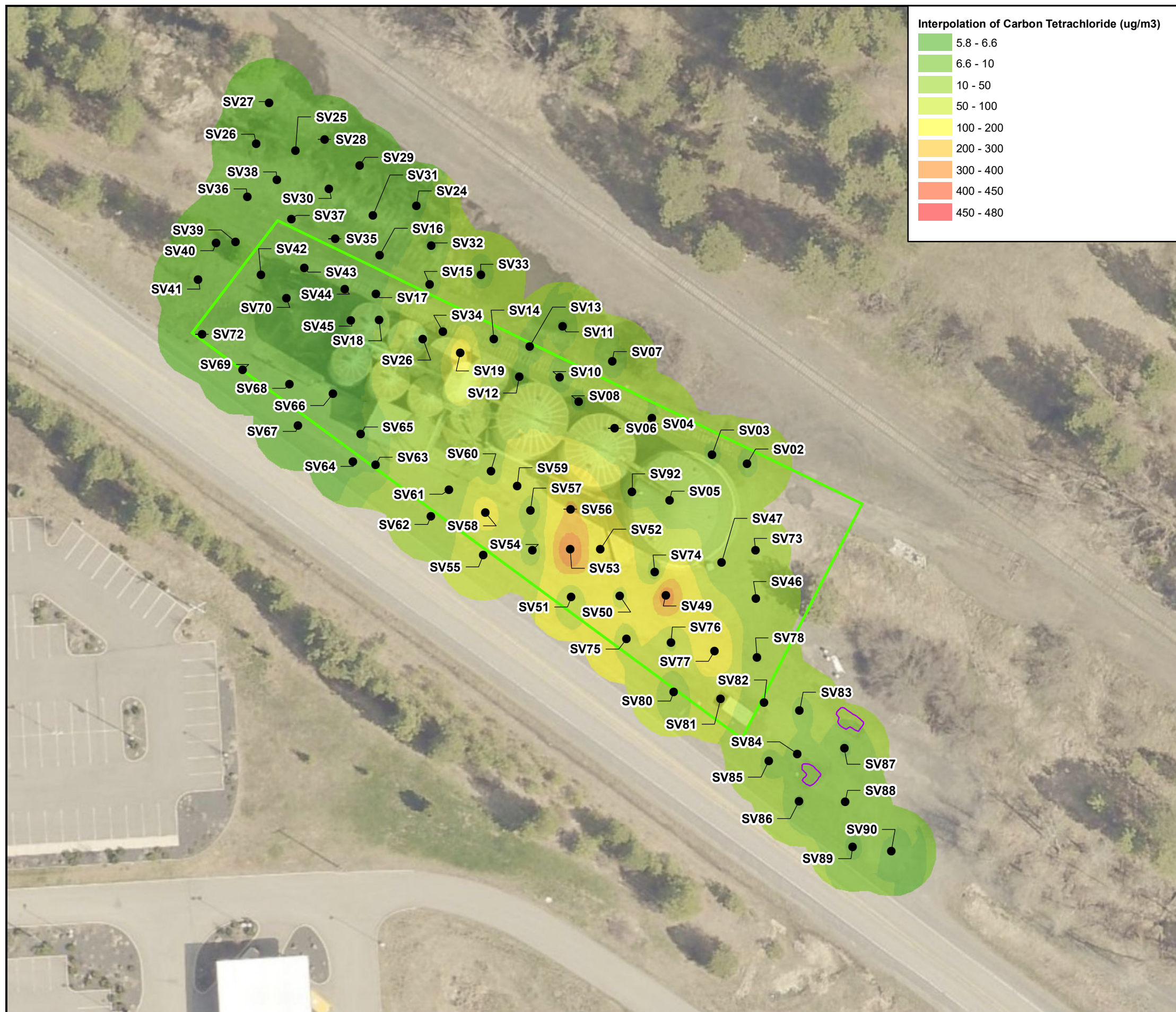


Figure 4-2
Carbon Tetrachloride in Sub-slab Soil and Soil Vapor Samples
 Remedial Investigation/Feasibility Study Report
 Grain Handling Facility at Freeman,
 Freeman, Washington



LEGEND

- Passive Soil Gas Sampling Location (2017)
- ▭ Grain Handling Facility at Freeman
- ▭ Excavation Boundary

Notes:
ug/m3 = micrograms per cubic meter

The purpose of the excavation was to identify the subsurface anomaly detected during the geophysical survey.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

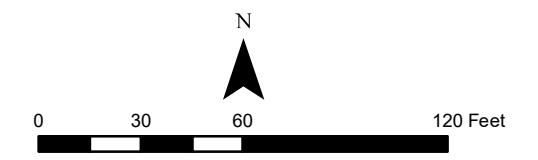
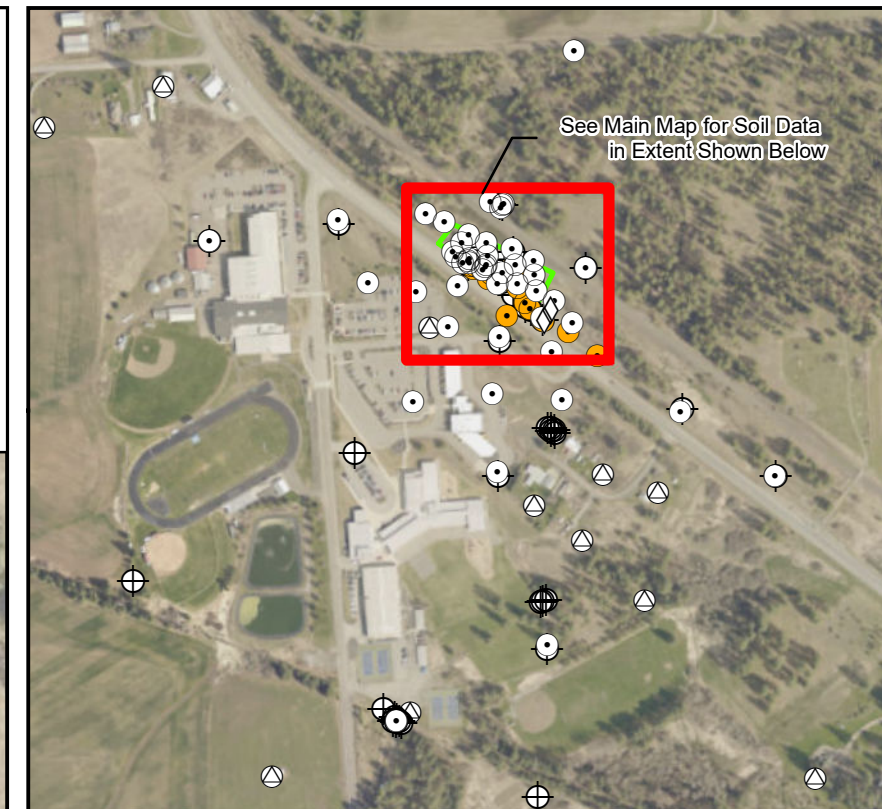
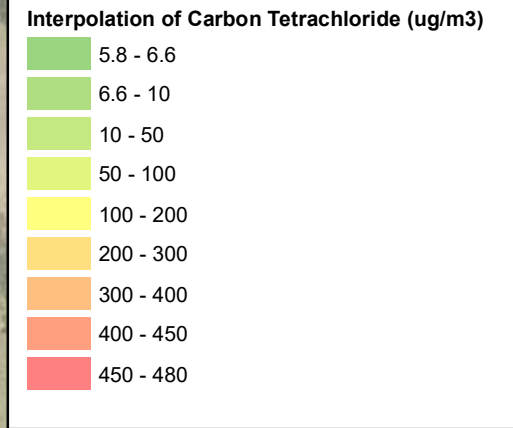
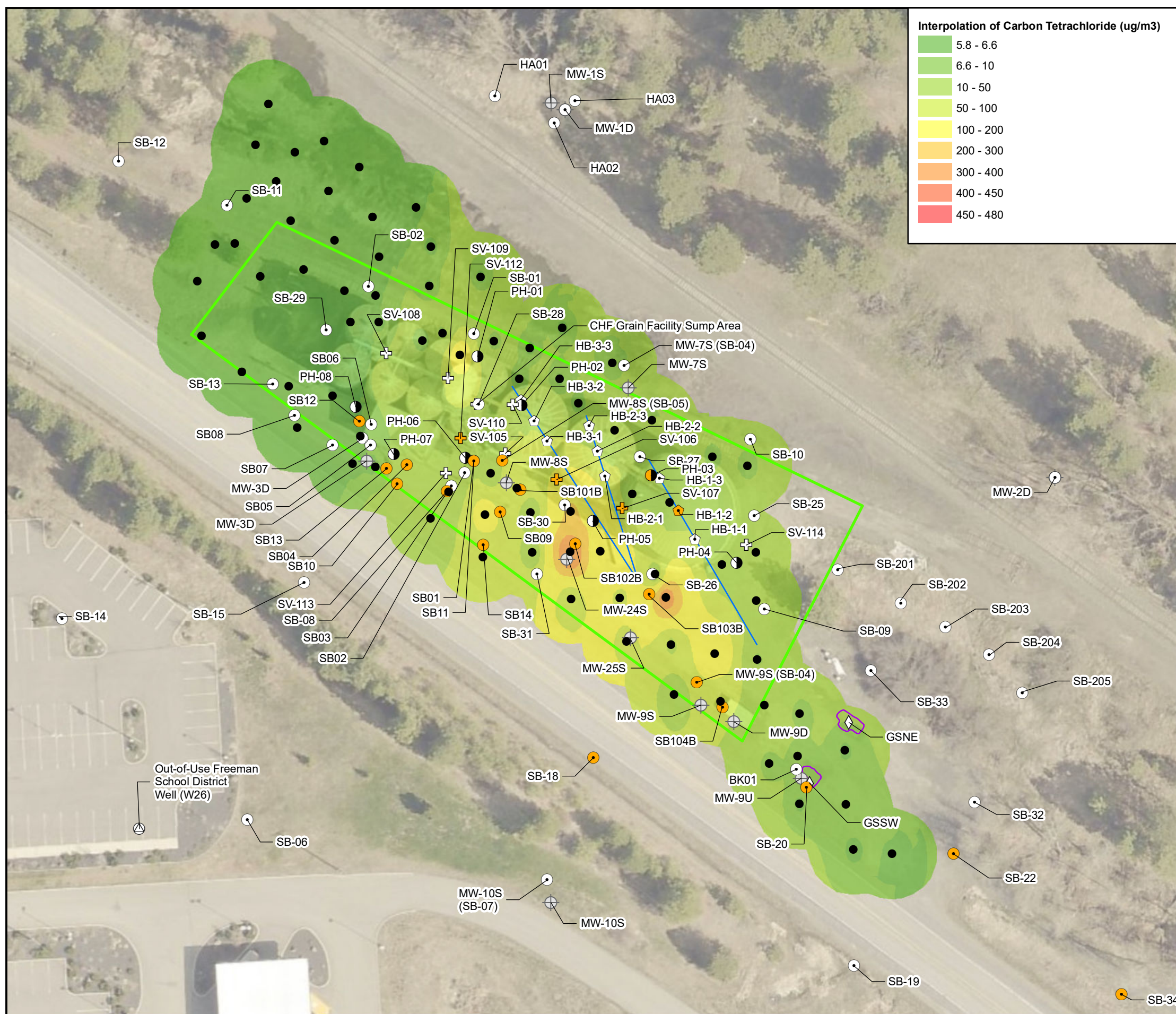


Figure 4-4
Passive Soil Gas Survey Results
Remedial Investigation/Feasibility Study Report
Grain Handling Facility at Freeman,
Freeman, Washington



LEGEND

- ⬠ Horizontal Soil Boring Location
- Pothole Location
- ⊕ Sub-Slab Location
- ◇ Soil Excavation Location
- Soil Boring Location
- ⊕ Monitoring Well
- ⊕ Domestic Well
- Location With At Least One Detected Concentration
- Passive Soil Gas Sampling Location (2017)
- Horizontal Boring (HB)
- ▭ Grain Handling Facility at Freeman
- ▭ Excavation Boundary

Notes:
ug/m3 = micrograms per cubic meter

The purpose of the excavation was to identify the subsurface anomaly detected during the geophysical survey.

Some MWs (shown in light gray) are included for context only (no soil data collected).

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

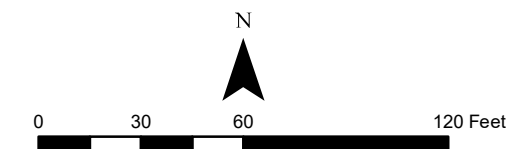


Figure 4-5
Passive Soil Vapor Survey and Soil Sample Results
Remedial Investigation/Feasibility Study Report
Grain Handling Facility at Freeman,
Freeman, Washington



LEGEND

- ✱ Crawl Space
- ⊕ Indoor Air
- ⬠ Outdoor Air
- △ Soil Vapor
- ⊕ Sub-slab Soil Vapor
- ☆ Background Air
- ▭ Grain Handling Facility at Freeman

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

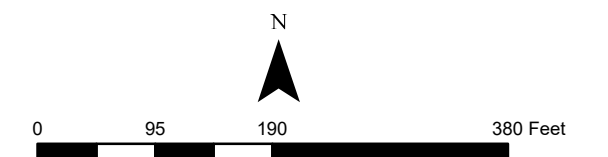


Figure 4-11
Outdoor Air, Indoor Air, Indoor Crawl Space, Background Air, Sub-Slab Soil Vapor, and Soil Vapor Sampling Locations
 Remedial Investigation/Feasibility Study Report
 Grain Handling Facility at Freeman, Freeman, Washington