TABLE 1

Borehole Headspace Monitoring

Casper PCE Plumes Orphan Site
Casper, WY

Borehole/ Well ID	Date	Monitoring Interval (ft bgs)	Background Organic Vapor Conc. (ppm)	Borehole Organic Vapor Conc. (ppm)	Visual Observations
EMW-01	11/11/2009	0-5	0	45	Strong petroleum odor, black stain
		5-10	0	0.57	Wet sand, no odor
		10-15	0	6.00	Trace hydrocarbon odor, black stain
EMW-02	11/11/2009	0-5	0	0	Black stain, no odor
		5-10	0	>199	Hydrocarbon odor, black, green, yellow stain
		10-15	0	>199	Strong petroleum odor, black stain, free product?
		15-20	0	>199	Strong petroleum odor, black stain
EMW-03D	11/11/2009	0-5	0	60	Dark brown clay/orange brown sand, no odor
		5-10	0	45	Damp to moist sand, no odor, no stain
		10-15	0	92	Damp to moist sand, no odor, no stain
		15-20	0	145	Damp to moist sand, no odor, no stain
		20-25	0	>199	Wet sand and gravel, no odor, no stain
		25-30	0	47	Wet sand, no odor, no stain
		30-35	N/A	N/A	
		35-40	N/A	N/A	
EMW-03S	11/11/2009	0-5	0	>199	Wet sand and gravel, no odor, no stain
		5-10	0	>199	Wet sand and gravel, no odor, no stain
		10-15	0	>199	Trace green stain, no odor
		15-20	0	>199	Wet sand and gravel, no odor, no stain
		20-25	0	>199	Wet sand and gravel, no odor, no stain
EMW-04D	11/12/2009	0-5	0	0	
		5-10	0	0	
		10-15	0	0	
		15-20	0	0.818	Wet sand, no odor, no stain, sample collected 15.5-16.0' bgs
		20-25	0	3.5	Wet sand, no odor, no stain, sample collected 24.0-25.0' bgs
		25-30	0	0	
		30-33	0	7.6	Dark grey weathered claystone, no odor, no stain
EMW-04S	11/11/2009	0-5	0	0	
		5-10	0	0	
		10-15	0	1.208	Wet sand, no odor, no stain
		15-20	0	1.00	Wet sand, no odor, no stain
EMW-05	11/12/2009	0-5	0	0	
		5-10	0	17	Sand & gravel, no odor, no stain, sample collected 6.5-8.4' bgs
		10-15	0	50	Damp to moist sand, no odor, no stain
		15-20	0	243	Wet sand, no odor, no stain
EMW-06D	11/12/2009	0-5	0	0	
		5-10	0	0	
		10-15	0	0	
		15-20	0	0	
		20-25	0	0	
		25-30	0	0	
		30-33	0	0	
EMW-06S	11/12/2009	0-5	0	0	
		5-10	0	0	
		10-15	0	0	
		15-20	0	0	
EMW-07	11/12/2009	0-5	0	0	
		5-10	0	0	
		10-15	0	0	
		15-20	0	0	
EMW-08	7/27/2010	0-5	0	20	Moist, orange-brown sand, no odor
		5-10	0	0.33	Moist, black-grey weathered claystone
EMW-09	7/27/2010	0-5	0	1.5	Moist, sand and gravel, no odor, FeO stain
		5-10	0	0.6	
		10-15	0	0.6	
		15-20	0	0.029	
EMW-10	7/28/2010	0-5	0	9	Dry sand, no odor, no stain
		5-10	0	4.8	Damp to moist (to wet) sand, no odor, no stain
		10-15	0	2.2	Damp to moist sand, no odor, no stain
		15-20	0	2.0	Moist sand and gravel, no odor, no stain
		20-25	0	0.25	
		25-28	0	0.007	
EMW-11	7/28/2010	0-5	0	3.5	Damp sand, no odor, no stain
		5-10	0	0.2	
		10-14	0	0	
EMW-12	7/28/2010	0-5	0	0.04	
		5-10	0	0.09	
		10-15	0	0.022	
EMW-13	7/28/2010	0-5	0	11	Damp sand, no odor, no stain
		5-10	0	0.7	
		10-15	0	0.182	
		15-17	0	0.30	
EMW-14	7/28/2010	0-5	0	1.0	Damp sand, no odor, no stain
		5-10	0	0.38	
		10-15	0	20	Wet sand, no odor, no stain

Notes:
1) ft bgs - Feet below ground surface.
2) ppm - Parts per million.
3) N/A - No monitoring conducted, saturated soil.
4) >199 - Exceeded PID meter range.

TABLE 2

Well Completion and Water Level Summary

Casper PCE Plumes Orphan Site
Casper, WY

Well ID	Installation Date	Borehole Depth (ft bgs)	Well Depth (ft bgs)	Screen Interval (ft bgs)	Depth to Water (ft btoc)	Top of Casing Elevation (ft)	Water Level Elevation (ft btoc)
EMW-01	11/11/2009	16.0	15.0	9.7-14.7	N/A	5110.98	N/A
EMW-02	11/11/2009	20.0	20.0	14.7-19.7	N/A	5114.41	N/A
EMW-03D	11/11/2009	41.0	41.0	30.7-40.7	N/A	5120.60	N/A
EMW-03S	11/11/2009	26.0	26.0	20.7-25.7	20.64	5120.46	5099.82
EMW-04D	11/12/2009	33.0	30.5	20.2-30.2	N/A	5113.22	N/A
EMW-04S	11/11/2009	20.0	18.0	12.7-17.7	14.27	5113.02	5098.75
EMW-05	11/12/2009	22.0	22.0	16.7-21.7	17.11	5116.37	5099.26
EMW-06D	11/12/2009	33.0	33.0	22.7-32.7	N/A	5111.12	N/A
EMW-06S	11/12/2009	20.0	18.0	12.7-17.7	14.95	5111.22	5096.27
EMW-07	11/12/2009	20.0	18.0	12.7-17.7	12.57	5107.59	5095.02
EMW-08	7/27/2010	10.0	10.0	4.7-9.7	7.19	5104.75	5097.56
EMW-09	7/27/2010	20.0	18.0	12.7-17.7	17.30	5116.51	5099.21
EMW-10	7/28/2010	28.0	27.0	21.7-26.7	24.55	5124.69	5100.14
EMW-11	7/28/2010	14.0	13.5	8.2-13.2	10.13	5106.65	5096.52
EMW-12	7/28/2010	15.0	14.5	9.2-14.2	DRY, TD @ 13.48	5107.43	TD @ 5093.95
EMW-13	7/28/2010	17.0	17.0	11.7-16.7	13.87	5108.13	5094.26
EMW-14	7/28/2010	15.0	14.5	9.2-14.2	12.72	5106.02	5093.30
EMW-15	12/8/2010	22.0	21.5	11.2-21.2	15.41	5108.04	5092.63
EMW-16	12/8/2010	17.0	16.5	6.2-16.2	10.72	5105.12	5094.40
EMW-17	12/8/2010	14.0	14.0	3.7-13.7	7.19	5100.65	5093.46
EMW-18	12/8/2010	13.0	13.0	2.7-12.7	6.49	5099.45	5092.96
EMW-19	12/8/2010	13.0	13.0	2.7-12.7	8.28	5100.68	5092.40
EMW-20	12/8/2010	19.5	19.5	9.2-19.2	13.29	5109.62	5096.33
EMW-21	12/7/2010	17.0	17.0	6.7-16.7	8.96	5103.75	5094.79
EMW-22	12/7/2010	17.5	17.5	7.2-17.2	10.79	5106.02	5095.23
EMW-23	12/7/2010	17.0	17.0	6.7-16.7	7.90	5103.11	5095.21
EMW-24	12/7/2010	17.0	17.0	6.7-16.7	9.14	5104.51	5095.37
EMW-25	12/9/2010	24.0	24.0	13.7-23.7	19.18	5118.94	5099.76
EMW-26	12/9/2010	22.0	22.0	11.7-21.7	15.45	5114.54	5099.09
EMW-27	12/9/2010	14.0	14.0	3.7-13.7	10.85	5109.42	5098.57
EMW-28	9/7/2011	16.0	15.0	4.7-14.7	8.42	5100.40	5091.98
EMW-29	9/7/2011	16.0	15.0	4.7-14.7	8.98	5100.75	5091.77
EMW-30	9/7/2011	15.0	14.0	3.7-13.7	8.26	5100.08	5091.82
EMW-31	2/9/2012	13.0	13.0	2.7-12.7	9.61	5101.62	5092.01
EMW-32	2/9/2012	13.0	13.0	2.7-12.7	8.54	5100.37	5091.83
EMW-33	2/9/2012	13.0	13.0	2.7-12.7	9.70	5101.52	5091.82
MW-1054-2	N/A	N/A	19.42 (btoc*)	N/A	12.45*	5109.17	5096.72*
MW-2	N/A	N/A	17.88 (btoc*)	N/A	12.08	5108.13	5096.05
MW-7A	N/A	N/A	33.91 (btoc*)	N/A	8.76	5103.76	5095.00
CG-1	N/A	N/A	14.52 (btoc*)	N/A	10.33	5105.93	5095.60
CG-4A	N/A	N/A	29.11 (btoc*)	N/A	9.26	5104.49	5095.23

Notes:
1) ft bgs - Feet below ground surface.
2) ft btoc - Feet below top of casing.
3) Depth to water measured February 22 and 23, 2012.
4) Well surveys conducted on January 22, 2010, October 25, 2010, January 21, 2011, and February 22, 2012 by WLC-Casper. Wyoming State Plane (NAD83; vertical)
5) N/A - Not available. MW and CG wells are existing monitor wells, no well completion information provided.
6) C.N.A. - Could not access well for water level measurement.
7) (btoc*) - Well depth measured from top of casing during 2009 sampling.
8) EMW-12 was dry in February 2012.
9) * - Possible erroneous water level; was omitted from groundwater elevation evaluation.

TABLE 3

Groundwater Field Water Quality Parameters

Casper PCE Plumes Orphan Site
Casper, WY

Sample ID	Measurement Date	pH	Temperature (°C)	Specific Conductance (mS/cm)	ORP (mV)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)
CG-1	10/9/2009	7.37	17.35	1.039	63.4	27.8	2.75
CG-4A	10/9/2009	7.37	13.84	0.964	44.4	10.6	1.09
EMW-01	12/1/2009	7.11	14.40	1.366	163.0	17.1	1.73
EMW-02	12/1/2009	6.92	14.82	2.893	-57.8	9.2	0.92
EMW-03D	12/1/2009	7.00	16.82	5.775	90.8	6.1	0.58
EMW-03S	12/1/2009	7.14	17.90	3.414	41.9	12.4	1.17
EMW-04D	12/1/2009	6.96	15.46	5.860	191.3	9.2	0.90
EMW-04S	12/1/2009	7.09	15.36	2.617	185.4	44.1	4.37
EMW-05/EMW-05 DUP	12/1/2009	7.17	16.60	2.958	165.9	12.1	1.17
EMW-06D/EMW-06D DUP	12/1/2009	6.98	14.45	2.248	83.0	8.8	0.88
EMW-06S	12/2/2009	7.08	15.19	2.542	163.8	39.0	3.89
EMW-07	12/2/2009	7.07	12.61	3.839	164.0	18.3	1.98
HC-3	10/9/2009	7.15	14.19	3.504	70.4	11.8	1.20
HC-11	10/9/2009	7.24	15.85	3.166	65.6	7.9	0.71
HC-12	10/9/2009	7.08	12.57	4.562	76.1	10.0	1.04
MW-1054-2	12/1/2009	6.88	14.54	3.330	108.2	17.0	1.72
MW-2/MW-2 REP	12/1/2009	7.25	13.18	1.001	107.7	23.5	2.45
MW-7A	12/1/2009	7.49	12.50	1.014	123.1	8.1	0.86
EMW-08/EMW-08 DUP	8/11/2010	6.71	20.62	2.729	168.7	32.4	2.89
EMW-09	8/11/2010	7.09	18.79	2.779	152.0	58.2	5.32
EMW-10	8/11/2010	6.98	16.02	3.120	172.2	59.1	5.78
EMW-11	8/11/2010	7.24	15.08	1.734	193.4	31.7	3.17
EMW-12	8/11/2010	6.77	15.55	4.416	243.5	23.7	2.32
EMW-13	8/11/2010	6.74	17.00	2.749	135.6	30.4	2.91
EMW-14	8/11/2010	6.90	18.61	3.364	161.8	56.5	5.18
EMW-15	12/16/2010	7.18	12.78	3.945	68.4	22.8	2.38
EMW-16	12/15/2010	7.08	13.29	2.314	-1.0	10.3	1.07
EMW-17	12/16/2010	7.39	10.94	2.091	-31.2	325*	34*
EMW-18/EMW-18 DUP	12/16/2010	7.10	12.17	2.739	65.2	26.3	2.79
EMW-19/EMW-19 REP	12/16/2010	7.11	11.32	2.621	58.2	47.8	5.30
EMW-20	12/16/2010	7.14	13.05	3.059	73.8	10.6	1.10
EMW-21/EMW-21 DUP	12/16/2010	7.27	12.13	1.429	-7.8	42.2	4.50
EMW-22	12/16/2010	7.28	13.18	1.502	45.3	16.9	1.75
EMW-23/EMW-23 REP	12/17/2010	7.10	12.09	1.252	103.4	14.6	1.55
EMW-24	12/17/2010	7.43	12.26	1.088	-15.0	6.4	0.68
EMW-25	12/15/2010	7.42	15.87	3.045	186.7	60.0	5.97
EMW-26	12/15/2010	7.46	16.05	2.323	-8.5	32.7	3.29
EMW-27	12/15/2010	7.15	14.17	2.335	22.9	31.7	3.43
EMW-28	9/9/2011	7.35	20.83	0.597	172.1	4.2	0.39
EMW-29/EMW-29 DUP	9/9/2011	7.12	17.41	1.564	28.0	3.6	0.34
EMW-30	9/9/2011	6.99	15.07	3.235	89.3	3.7	0.37
EMW-31/EMW-31 DUP	2/23/2012	7.26	15.59	1.071	188.1	3.1	0.29
EMW-32	2/23/2012	7.03	14.31	1.587	140.2	2.6	0.25
EMW-33	2/23/2012	6.97	13.29	3.225	119.6	7.1	0.69

Notes:
1) mS/cm - MilliSiemens per centimeter.
2) mV - Millivolts.
3) mg/L - Milligrams per liter.
4) * - Possible meter malfunction, may not be representative of actual conditions.

TABLE 4

Surface Water Field Water Quality Parameters

Casper PCE Plumes Orphan Site
Casper, WY

Sample ID	Measurement Date	pH	Temperature (°C)	Specific Conductance (mS/cm)	ORP (mV)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)
ESW-01	12/2/2009	11.21	0.01	0.621	126.2	119.0	17.23
ESW-02	12/2/2009	10.83	0.03	0.631	150.1	123.2	17.78
ESW-03/ESW-03 REP	12/2/2009	8.66	-0.01	0.636	150.2	105.3	15.40
ESW-04	10/13/2010	8.74	11.30	0.740	232.8	92.0	n/a
ESW-05	10/13/2010	8.65	11.16	0.731	233.4	98.1	10.70
ESW-06/ESW-06 DUP	10/13/2010	8.80	11.15	0.733	237.1	99.6	11.10
ESW-07	10/13/2010	8.58	11.12	0.718	236.3	102.7	8.60

Notes:
1) mS/cm - MilliSiemens per centimeter.
2) mV - Millivolts.
3) mg/L - Milligrams per liter.
4) n/a - Not available.

TABLE 5

Soil Analytical Results

Casper PCE Plumes Orphan Site
Casper, Wyoming

Soil Analytical Parameter	Residential Soil Cleanup Levels (mg/kg)	Migration to Groundwater Cleanup Levels (mg/kg)	Sample ID	EMW-04D (15.5-16.0)	EMW-04D (24.0-25.0)	EMW-05 (6.5-7.5)	EMW-05 (7.5-8.4)
			Sample Date	11/12/2009	11/12/2009	11/12/2009	11/12/2009
			Units				
1,1,1-Trichloroethane	9,000	3.3	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,1,2,2-Tetrachloroethane	0.59	0.000028	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,1,2-Trichloro-1,2,2-trifluoroethane	43,000	150	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,1,2-Trichloroethane	1.1	0.000082	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,1-Dichloroethane	3.4	0.0007	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,1-Dichloroethene	250	0.12	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,1-Dichloropropene	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,2,3-Trichlorobenzene	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,2,3-Trichloropropane	0.091	0.0000044	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,2,4-Trimethylbenzene	67	0.024	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,2-Dichloroethane	0.45	0.000044	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,2-Dichloropropane	0.93	0.00013	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,3,5-Trimethylbenzene	47	0.02	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,3-Dichloropropane	1,600	0.27	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
1,4-Dioxane	44	0.0012	mg/kg	<0.094	<0.100	<0.088	<0.090
2,2-Dichloropropane	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
2-Butanone (MEK)	28,000	1.5	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
2-Hexanone	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
2-Nitropropane	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
4-Methyl-2-pentanone (MIBK)	5,300	0.44	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Acetone	61,000	4.4	mg/kg	**0.0058** J	<0.026	<0.022	<0.023
Acetonitrile	870	0.026	mg/kg	<0.047	<0.051	<0.044	<0.045
Benzene	1.1	0.00023	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Bromoform	61	0.0023	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Bromomethane	7.9	0.0022	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Carbon disulfide	670	0.27	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Carbon tetrachloride	0.25	0.000079	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Chlorobenzene	310	0.068	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Chlorodibromomethane	5.8	0.00022	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Chloroethane	15,000	6	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Chloroform	0.3	0.000055	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Chloromethane	1.7	0.00046	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
cis-1,2-Dichloroethene	780	0.11	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
cis-1,3-Dichloropropene	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Dibromomethane	780	0.091	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Dichlorobromomethane	10	0.0003	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Dichlorodifluoromethane	190	0.61	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Ethyl acetate	70,000	7	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Ethyl ether	16,000	1.6	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Ethyl methacrylate	7,000	0.79	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Ethylbenzene	5.7	0.0019	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Ethylene Dibromide	0.034	0.0000019	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Iodomethane	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Methyl methacrylate	4,700	0.31	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Methyl tert-butyl ether	39	0.0027	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Methylene Chloride	11	0.0012	mg/kg	<0.023	<0.026	<0.022	<0.023
Styrene	6,500	2	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Tetrachloroethene (PCE)	0.57	0.000052	mg/kg	**0.0031** J	<0.0051	<0.0044	<0.0045
Toluene	5,000	1.7	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
trans-1,2-Dichloroethene	110	0.034	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
trans-1,3-Dichloropropene	---	---	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Trichloroethene (TCE)	2.8	0.00061	mg/kg	**0.00042** J	<0.0051	<0.0044	<0.0045
Trichlorofluoromethane	800	0.84	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Vinyl acetate	990	0.088	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Vinyl chloride	0.06	0.0000056	mg/kg	<0.0047	<0.0051	<0.0044	<0.0045
Xylenes, Total	600	0.23	mg/kg	**0.0015** J	<0.015	**0.00079** J	**0.0011** J

Notes:
1) Wyoming Department of Environmental Quality (WDEQ) Residential Soil and Migration to Groundwater Cleanup Levels, Voluntary Remediation Program (VRP) Fact Sheet #12, Soil Cleanup Level Look-up Table, revised 2009.
2) mg/kg - Milligrams per kilogram.
3) --- - Parameter not listed on the Soil Cleanup Level Look-up Table.
4) < - Not detected at the reporting limit (RL).
5) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
6) **Bold** - Result reported above the MDL.
7) Yellow Highlight - Result exceeds WDEQ Migration to Groundwater Cleanup Level.

TABLE 6

Groundwater Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Groundwater Cleanup Levels	EPA MCL	Sample ID	CG-1	CG-4A	EMW-01	EMW-02	EMW-03S	EMW-03D	EMW-04S	EMW-04D	EMW-05	EMW-05 DUP	EMW-06S	EMW-06D	EMW-06D DUP	EMW-07	HC-3	HC-11	HC-12	MW-2	MW-2 REP	MW-7A	MW-1054-2	RIZOR#1	EMW-08	EMW-08 DUP	EMW-09	EMW-10	EMW-11	EMW-12	EMW-13
			Sample Date	10/9/2009	10/9/2009	12/1/2009	12/1/2009	12/1/2009	12/1/2009	12/1/2009	12/1/2009	12/1/2009	12/1/2009	12/2/2009	12/1/2009	12/1/2009	12/2/2009	10/9/2009	10/9/2009	10/9/2009	12/1/2009	12/1/2009	12/1/2009	12/1/2009	10/8/2009	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010	8/11/2010
			Units																													
1,1,1,2-Tetrachloroethane	3.27	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,1,1-Trichloroethane	200	200	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,1,2,2-Tetrachloroethane	0.425	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,1,2-Trichloroethane	5	5	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,1-Dichloroethane	7,290	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,1-Dichloroethene	7	7	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,1-Dichloropropene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2,3-Trichlorobenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2,3-Trichloropropane	219	---	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2	<2.5	<2.5	<2.5	<2.5	<2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5
1,2,4-Trichlorobenzene	70	70	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2,4-Trimethylbenzene	365	---	µg/L	<1	<1	<1	**55**	**0.18** J	<1	<20	**0.2** J	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	µg/L	<5	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<2.5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<10
1,2-Dibromoethane (EDB)	0.05	0.05	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2-Dichlorobenzene	600	600	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2-Dichloroethane	5	5	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2-Dichloroethene (total)	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	**2.9**	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,2-Dichloropropane	5	5	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,3,5-Trimethylbenzene	1,820	---	µg/L	<1	<1	<1	**8.3**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,3-Dichlorobenzene	320	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,3-Dichloropropane	729	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
1,4-Dichlorobenzene	75	75	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
2,2-Dichloropropane	---	---	µg/L	<5	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<1	<5	<10	<5	<1	<1	<1	<1	<1	<1	<2
2-Butanone (MEK)	21,900	---	µg/L	<6	<6	<6	<6	<6	<6	<120	<6	<6	<6	<6	<6	<6	<6	<6	<12	<6	<6	<10	<6	<12	<6	<6	<6	<6	<6	<6	<6	<12
2-Chlorotoluene	729	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
2-Hexanone	---	---	µg/L	<5	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<10	<5	<10	<5	<5	<5	<5	<5	<5	<5	<10
4-Chlorotoluene	2,550	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
4-Isopropyltoluene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
4-Methyl-2-pentanone	2,920	---	µg/L	<5	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<10	<5	<10	<5	<5	<5	<5	<5	<5	<5	<10
Acetone	32,800	---	µg/L	<10	**2.6** J B	<10	**50**	<10	<10	<200	**59**	<10	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	**7.6** J	<20	<10	**4.5** J	**4.5** J	<10	**2.4** J	<10	<10	<20
Benzene	5	5	µg/L	<1	<1	<1	**3.1**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Bromobenzene	729	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Bromochloromethane	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Bromodichloromethane	80	80	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Bromoform	80	80	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Bromomethane	51	---	µg/L	<2	<2	<2	<2	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<1	<2	<4	<2	<2	<2	<2	<2	**0.24** J	<2	<4
Carbon tetrachloride	5	5	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Chlorobenzene	100	100	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Chloroethane	---	---	µg/L	<2	<2	<2	<2	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<1	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4
Chloroform	80	80	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Chloromethane	---	---	µg/L	<2	<2	<2	<2	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<1	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4
cis-1,2-Dichloroethene	70	70	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	**2.9**	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
cis-1,3-Dichloropropene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Dibromochloromethane	80	80	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Dibromomethane	365	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Dichlorodifluoromethane	7,290	---	µg/L	<2	<2	<2	<2	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<1	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4
Ethylbenzene	700	700	µg/L	<1	<1	<1	**3.4**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Hexachlorobutadiene	1.09	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Isopropylbenzene	3,600	---	µg/L	<1	<1	<1	**14**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Methyl tert-butyl ether	47.3	---	µg/L	<5	<5	<5	<5	<5	<5	<100	**3.3** J	<5	<5	<5	<5	<5	<5	**0.78** J	<10	<5	<5	<1	**0.51** J	<10	<5	<5	<5	<5	<5	<5	<5	<10
Methylene chloride	5	5	µg/L	<5	<5	**0.35** J B	<5	**0.34** J B	**0.32** J B	**21** J B	**0.35** J B	**0.41** J B	**0.42** J B	**0.41** J B	**0.39** J B	**0.4** J B	**0.39** J B	<5	<10	<5	**0.44** J B	<1	**0.41** J B	<10	<5	**0.35** J	<2	<2	**0.4** J	<2	<2	**0.8** J
m-Xylene & p-Xylene	72,900	---	µg/L	<2	<2	<2	**6.7**	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	---	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4
Naphthalene	729	---	µg/L	<1	<1	<1	**13**	**0.38** J	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<10	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
n-Butylbenzene	---	---	µg/L	<1	<1	<1	**4.6**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	**0.18** J	<1	**0.19** J	<2
n-Propylbenzene	---	---	µg/L	**0.2** J	<1	<1	**19**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
o-Xylene	72,900	---	µg/L	<1	<1	<1	**0.2** J	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	---	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
sec-Butylbenzene	---	---	µg/L	<1	<1	<1	**4.2**	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Styrene	100	100	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
tert-Butylbenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Tetrachloroethene (PCE)	5	5	µg/L	**4.4**	**49**	<1	<1	**33**	**9.2**	**420**	**1.4**	**42**	**42**	**18**	**30**	**31**	**19**	**6.3**	**73**	**59**	**1.8**	**1.9**	**20**	**41**	**41**	<1	<1	**0.24** J	<1	**0.37** J	<1	**65**
Toluene	1,000	1,000	µg/L	<1	<1	<1	<1	<1	<1	<20	**0.22** J	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
trans-1,2-Dichloroethene	100	100	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
trans-1,3-Dichloropropene	---	---	µg/L	<3	<3	<3	<3	<3	<3	<60	<3	<3	<3	<3	<3	<3	<3	<3	<6	<3	<3	<1	<3	<6	<3	<3	<3	<3	<3	<3	<3	<6
Trichloroethene (TCE)	5	5	µg/L	<1	**1.1**	<1	<1	**1**	**0.27** J	**7** J	<1	**0.3** J	**0.3** J	<1	**0.27** J	**0.28** J	<1	**1.1**	**0.74** J	**1.1**	<1	<1	**0.98** J	**0.34** J	**4.5**	<1	<1	<1	<1	<1	<1	**1.4** J
Trichlorofluoromethane	10,900	---	µg/L	<2	<2	<2	<2	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<1	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4
Vinyl chloride	2	2	µg/L	<1	<1	<1	<1	<1	<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2
Xylenes (total)	10,000	10,000	µg/L	<2	<2	<2	**6.9**	<2	<2	<40	<2	<2	<2	<2	<2	<2	<2	<2	<4	**0.44** J	<2	<3	**0.3** J	<4	<2	<2	<2	<2	<2	<2	<2	<4

Notes:
1) Wyoming Department of Environmental Quality (WDEQ) Groundwater Cleanup Levels based on Voluntary Remediation Program (VRP) Fact Sheet #13, revised 2009.
2) EPA MCL - Environmental Protection Agency National Primary Drinking Water Standard, Maximum Contaminant Level.
3) µg/L - Micrograms per liter.
4) --- - Not available or not analyzed.
5) < - Not detected at the reporting limit (RL).
6) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
7) B - Laboratory Data Qualifier; analyte detected in method blank.
8) & - Indicates one or more QA/QC requirements were not met.
9) **Bold** - Result reported above the MDL.
10) Yellow Highlight - Result exceeds WDEQ Groundwater Cleanup Levels and/or EPA MCL.

TABLE 6

Groundwater Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Groundwater Cleanup Levels	EPA MCL	Sample ID	EMW-14	EMW-15	EMW-16	EMW-17	EMW-18	EMW-18 DUP	EMW-19	EMW-19 REP	EMW-20	EMW-21	EMW-21 DUP	EMW-22	EMW-23	EMW-23 REP	EMW-24	EMW-25	EMW-26	EMW-27	EMW-28	EMW-29	EMW-29 DUP	EMW-30	EMW-31	EMW-31 DUP	EMW-32	EMW-33
			Sample Date	8/11/2010	12/16/2010	12/15/2010	12/16/2010	12/16/2010	12/16/2010	12/16/2010	12/16/2010	12/16/2010	12/16/2010	12/16/2010	12/16/2010	12/17/2010	12/17/2010	12/17/2010	12/15/2010	12/15/2010	12/15/2010	9/9/2011	9/9/2011	9/9/2011	9/9/2011	2/23/2012	2/23/2012	2/23/2012	2/23/2012
			Units																										
1,1,1,2-Tetrachloroethane	3.27	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200	200	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	0.425	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	5	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	7,290	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	7	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	**0.30** J	<1
1,1-Dichloropropene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	219	---	µg/L	<2.5	<2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,2,4-Trichlorobenzene	70	70	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	365	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	µg/L	<5	<10	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	0.05	0.05	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600	600	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5	5	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	**0.42** J	<1	<1	<1	<1	<1
1,2-Dichloropropane	5	5	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	1,820	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	320	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	729	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75	75	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	21,900	---	µg/L	<6	<12	<6	<6	<6	<6	<6	<10	<6	<6	<6	<6	<6	<10	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
2-Chlorotoluene	729	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	---	---	µg/L	<5	<10	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Chlorotoluene	2,550	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Isopropyltoluene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	2,920	---	µg/L	<5	<10	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	32,800	---	µg/L	**2.5** J	**5.7** J	<10	<10	<10	**2.1** J	**2.4** J	<10	**2.1** J	<10	<10	<10	**2.5** J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**4.2** J	<10	<10
Benzene	5	5	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	729	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80	80	µg/L	<1	<4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80	80	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	51	---	µg/L	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Carbon tetrachloride	5	5	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100	100	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	---	---	µg/L	<2	<4	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloroform	80	80	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	**0.31** J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	---	---	µg/L	<2	<4	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
cis-1,2-Dichloroethene	70	70	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	**0.42** J	<1	<1	<1	**0.3** J	<1
cis-1,3-Dichloropropene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80	80	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	365	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	7,290	---	µg/L	<2	<4	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Ethylbenzene	700	700	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	1.09	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	3,600	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether	47.3	---	µg/L	<5	<10	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene chloride	5	5	µg/L	<2	<4	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	**0.56** J B	<2	**0.57** J B	<2	**0.40** J B	**0.37** J B	**0.38** J B	**0.36** J B
m-Xylene & p-Xylene	72,900	---	µg/L	<2	<4	<2	<2	<2	<2	<2	---	<2	<2	<2	<2	<2	---	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Naphthalene	729	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	72,900	---	µg/L	<1	<2	<1	<1	<1	<1	<1	---	<1	<1	<1	<1	<1	---	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100	100	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	---	---	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene (PCE)	5	5	µg/L	**47**	**68**	<1	<1	**2.0**	**1.9**	**25**	**30.2**	<1	**0.64** J	**0.64** J	**0.40** J	**11** &	**14.4** &	<1	**0.22** J	**1.3**	**0.30** J	**2.6**	**6** &	**7.2** &	<1	**15**	**15**	**9.9**	**12**
Toluene	1,000	1,000	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	100	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	---	---	µg/L	<3	<6	<3	<3	<3	<3	<3	<1	<3	<3	<3	<3	<3	<1	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Trichloroethene (TCE)	5	5	µg/L	**0.9** J	**0.92** J	<1	<1	<1	<1	**0.93** J	**1.1**	<1	<1	<1	<1	**0.30** J	<1	<1	<1	<1	<1	<1	**0.95** J	**1.2**	<1	**0.38** J	**0.38** J	**1.5**	**0.91** J
Trichlorofluoromethane	10,900	---	µg/L	<2	<4	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Vinyl chloride	2	2	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (total)	10,000	10,000	µg/L	<2	<4	<2	<2	<2	<2	<2	<3	<2	<2	<2	<2	<2	<3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

Notes:
1) Wyoming Department of Environmental Quality (WDEQ) Groundwater Cleanup Levels based on Voluntary Remediation Program (VRP) Fact Sheet #13, revised 2009.
2) EPA MCL - Environmental Protection Agency National Primary Drinking Water Standard, Maximum Contaminant Level.
3) µg/L - Micrograms per liter.
4) --- - Not available or not analyzed.
5) < - Not detected at the reporting limit (RL).
6) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
7) B - Laboratory Data Qualifier; analyte detected in method blank.
8) & - Indicates one or more QA/QC requirements were not met.
9) **Bold** - Result reported above the MDL.
10) Yellow Highlight - Result exceeds WDEQ Groundwater Cleanup Levels and/or EPA MCL.

TABLE 7

Groundwater Analytical Results - Grab Samples

Casper PCE Plumes Orphan Site
Casper, WY

Sample ID	Sample Date	Units	Tetrachloroethene (PCE)	Trichloroethene (TCE)
WDEQ Groundwater Cleanup Levels (µg/L)			*5*	*5*
EPA MCL (µg/L)			*5*	*5*
EMW-15	2/7/2012	µg/L	**51**	**1.2 J**
EMW-15 DUP	2/7/2012	µg/L	**49**	<2
EMW-19	2/8/2012	µg/L	**20**	<2
EMW-28	2/7/2012	µg/L	**15**	**1.2 J**
EMW-29	2/7/2012	µg/L	**10**	**1.6 J**
EMW-30	2/7/2012	µg/L	<2	<2
EBH-01	2/7/2012	µg/L	**8.5**	<2
EBH-02	2/7/2012	µg/L	**12**	<2
EBH-03	2/7/2012	µg/L	**9.6**	<2
EBH-04	2/7/2012	µg/L	**7.9**	**1.0 J**
EBH-05	2/7/2012	µg/L	**3.1**	<2
EBH-06	2/7/2012	µg/L	**7.7**	**1.3 J**
EBH-07	2/7/2012	µg/L	**5.2**	**1.3 J**
EBH-08	2/7/2012	µg/L	**6.7**	**1.6 J**
EBH-09	2/7/2012	µg/L	**6.6**	**1.4 J**
EBH-10	2/7/2012	µg/L	**6.4**	**1.1 J**
EBH-11	2/7/2012	µg/L	**6.8**	**1.4 J**
EBH-12	2/7/2012	µg/L	**8.4**	**2.1**
EBH-12 DUP	2/7/2012	µg/L	**8.0**	**1.5 J**
EBH-13	2/7/2012	µg/L	**9.4**	**1.3 J**
EBH-14	2/7/2012	µg/L	**7.1**	<2
EBH-15	2/7/2012	µg/L	**7.2**	<2
EBH-16	2/7/2012	µg/L	**9.6**	<2
EBH-17	2/7/2012	µg/L	**8.6**	<2
EBH-18	2/8/2012	µg/L	**9.8**	**0.99 J**
EBH-19	2/8/2012	µg/L	**10**	**1.2 J**
EBH-20	2/8/2012	µg/L	**8.8**	**1.0 J**
EBH-21	2/8/2012	µg/L	**9.0**	<2
EBH-22	2/8/2012	µg/L	**5.8**	<2
EBH-22 DUP	2/8/2012	µg/L	**5.8**	<2
EBH-23	2/8/2012	µg/L	**4.3**	<2
EBH-24	2/8/2012	µg/L	**3.8**	<2
EBH-25	2/8/2012	µg/L	**4.4**	<2
EBH-26	2/8/2012	µg/L	**2.2**	<2
EBH-27	2/8/2012	µg/L	**1.4 J**	<2
EBH-28	2/8/2012	µg/L	<2	<2
EBH-29	2/8/2012	µg/L	**1.4 J**	<2
EBH-30	2/8/2012	µg/L	**1.2 J**	<2
EBH-31	2/8/2012	µg/L	**1.7 J**	<2
EBH-32	2/8/2012	µg/L	**13**	<2
EBH-32 DUP	2/8/2012	µg/L	**12**	<2
EBH-33	2/8/2012	µg/L	**10**	<2
EBH-34	2/8/2012	µg/L	**14**	<2
EBH-35	2/8/2012	µg/L	**8.2**	<2
EBH-36	2/8/2012	µg/L	**6.9**	<2
EBH-37	2/8/2012	µg/L	**5.1**	<2
EBH-38	2/8/2012	µg/L	**1.9 J**	<2
EBH-39	2/9/2012	µg/L	**9.1**	<2
EBH-40	2/9/2012	µg/L	**8.8**	<2
EBH-41	2/9/2012	µg/L	**14**	<2
EBH-42	2/9/2012	µg/L	**7.3**	<2
EBH-43	2/9/2012	µg/L	**22**	**1.0 J**
EBH-43 DUP	2/9/2012	µg/L	**20**	**1.1 J**
EBH-44	2/9/2012	µg/L	**20**	<2

Notes:
1) Wyoming Department of Environmental Quality (WDEQ) Groundwater Cleanup Levels based on Voluntary Remediation Program (VRP) Fact Sheet #13, revised 2009.
2) EPA MCL - Environmental Protection Agency (EPA) National Primary Drinking Water Standard, Maximum Contaminant Level.
3) µg/L - Micrograms per liter.
4) < - Not detected at the reporting limit (RL).
5) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
6) **Bold** - Result reported above the MDL.
7) Yellow Highlight - Result exceeds WDEQ Groundwater Cleanup Levels and/or EPA MCL.

TABLE 8

Surface Water Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Groundwater Cleanup Levels	EPA MCL	Sample ID	ESW-01	ESW-02	ESW-03	ESW-03 REP	ESW-04	ESW-05	ESW-06	ESW-06 DUP	ESW-07
			Sample Date	12/2/2009	12/2/2009	12/2/2009	12/2/2009	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
			Units									
1,1,1,2-Tetrachloroethane	3.27	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200	200	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	0.425	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	5	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	7290	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	7	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	219	---	µg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
1,2,4-Trichlorobenzene	70	70	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	365	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	µg/L	<5	<5	<5	<2.5	<5	<5	<5	<5	<5
1,2-Dibromoethane (EDB)	0.05	0.05	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600	600	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5	5	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5	5	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	1820	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	320	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	729	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75	75	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	---	---	µg/L	<5	<5	<5	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	21900	---	µg/L	<6	<6	<6	<10	<6	<6	<6	<6	<6
2-Chlorotoluene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	---	---	µg/L	<5	<5	<5	<10	<5	<5	<5	<5	<5
4-Chlorotoluene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Isopropyltoluene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	---	---	µg/L	<5	<5	<5	<10	<5	<5	<5	<5	<5
Acetone	32800	---	µg/L	<10	**4.8** J	**11**	<10	**2.3** J B	<10	**2.3** J B	**2.4** J B	**1.9** J B
Benzene	5	5	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	729	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80	80	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	80	80	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	51	---	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2
Carbon tetrachloride	5	5	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	100	100	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	---	---	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2
Chloroform	80	80	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	---	---	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2
cis-1,2-Dichloroethene	70	70	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	80	80	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	7290	---	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2
Ethylbenzene	700	700	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	1.09	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	3600	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether	47.3	---	µg/L	<5	<5	<5	<1	<5	<5	<5	<5	<5
Methylene chloride	5	5	µg/L	<5	<5	<5	<1	<5	<5	<5	<5	<5
m-Xylene & p-Xylene	72900	---	µg/L	<2	<2	<2	---	<2	<2	<2	<2	<2
Naphthalene	729	---	µg/L	<1	<1	<1	<10	<1	<1	<1	<1	<1
n-Butylbenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	72,900	---	µg/L	<1	<1	<1	---	<1	<1	<1	<1	<1
sec-Butylbenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	100	100	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	---	---	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene (PCE)	5	5	µg/L	<1	**0.43** J	**0.75** J	<1	<1	<1	<1	<1	**0.3** J
Toluene	1000	1000	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	100	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	---	---	µg/L	<3	<3	<3	<1	<3	<3	<3	<3	<3
Trichloroethene (TCE)	5	5	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	10900	---	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2
Vinyl chloride	2	2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes (total)	10000	10000	µg/L	<2	<2	<2	<3	<2	<2	<2	<2	<2

Notes:
1) Wyoming Department of Environmental Quality (WDEQ) Groundwater Cleanup Levels based on Voluntary Remediation Program (VRP) Fact Sheet #13, revised 2009.
2) EPA MCL - Environmental Protection Agency (EPA) National Primary Drinking Water Standard, Maximum Contaminant Level.
3) µg/L - Micrograms per liter.
4) --- - Not available or not analyzed.
5) < - Not detected at the reporting limit (RL).
6) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
7) B - Laboratory Data Qualifier; analyte detected in method blank.
8) **Bold** - Result reported above the MDL.

TABLE 9

Soil Vapor Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Soil Vapor Screening Level	Sample ID	ESV-01	ESV-02	ESV-03	ESV-04	ESV-05	ESV-06	ESV-07	ESV-08	ESV-09	ESV-10	ESV-10 DUP	ESV-11	ESV-12	ESV-13	ESV-14	ESV-14 DUP	ESV-15	ESV-16	ESV-17	ESV-18	ESV-19	ESV-20	ESV-21	ESV-22	ESV-22 DUP	ESV-23	ESV-24
		Sample Date	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009
		Units																											
1,1,1-Trichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.83	---	---	---	---	<0.83	---	---	---	---	---	---	---	---	<0.83	---	---
1,1,2,2-Tetrachloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1	---	---	---	---	<1	---	---	---	---	---	---	---	---	<1	---	---
1,1,2-Trichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.83	---	---	---	---	<0.83	---	---	---	---	---	---	---	---	<0.83	---	---
1,1-Dichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.62	---	---	---	---	<0.62	---	---	---	---	---	---	---	---	<0.62	---	---
1,1-Dichloroethene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.6	---	---	---	---	<0.6	---	---	---	---	---	---	---	---	<0.6	---	---
1,2,4-Trichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.1	---	---	---	---	<1.1	---	---	---	---	---	---	---	---	<1.1	---	---
1,2,4-Trimethylbenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.75	---	---	---	---	**0.95**	---	---	---	---	---	---	---	---	**2**	---	---
1,2-Dibromoethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	---	<1.2	---	---	---	---	---	---	---	---	<1.2	---	---
1,2-Dichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	---	<0.92	---	---	---	---	---	---	---	---	<0.92	---	---
1,2-Dichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.62	---	---	---	---	<0.62	---	---	---	---	---	---	---	---	<0.62	---	---
1,2-Dichloropropane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.7	---	---	---	---	<0.7	---	---	---	---	---	---	---	---	<0.7	---	---
1,3,5-Trimethylbenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.75	---	---	---	---	<0.75	---	---	---	---	---	---	---	---	**0.5** J	---	---
1,3-Butadiene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.34	---	---	---	---	<0.34	---	---	---	---	---	---	---	---	<0.34	---	---
1,3-Dichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	---	<0.92	---	---	---	---	---	---	---	---	<0.92	---	---
1,4-Dichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	---	<0.92	---	---	---	---	---	---	---	---	<0.92	---	---
1,4-Dioxane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.1	---	---	---	---	<1.1	---	---	---	---	---	---	---	---	<1.1	---	---
2,2,4-Trimethylpentane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.71	---	---	---	---	<0.71	---	---	---	---	---	---	---	---	<0.71	---	---
4-Ethyltoluene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.75	---	---	---	---	**0.5** J	---	---	---	---	---	---	---	---	**0.65** J	---	---
Acetone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**8.2**	---	---	---	---	**14**	---	---	---	---	---	---	---	---	**12**	---	---
Allyl chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.48	---	---	---	---	<0.48	---	---	---	---	---	---	---	---	<0.48	---	---
Benzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**0.97**	---	---	---	---	**1**	---	---	---	---	---	---	---	---	**0.58**	---	---
Benzyl chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.88	---	---	---	---	<0.88	---	---	---	---	---	---	---	---	<0.88	---	---
Bromodichloromethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1	---	---	---	---	<1	---	---	---	---	---	---	---	---	<1	---	---
Bromoform	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.6	---	---	---	---	<1.6	---	---	---	---	---	---	---	---	<1.6	---	---
Bromomethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.59	---	---	---	---	<0.59	---	---	---	---	---	---	---	---	<0.59	---	---
Carbon disulfide	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**0.51**	---	---	---	---	**0.76**	---	---	---	---	---	---	---	---	<0.47	---	---
Carbon tetrachloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.96	---	---	---	---	<0.96	---	---	---	---	---	---	---	---	<0.96	---	---
Chlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.7	---	---	---	---	<0.7	---	---	---	---	---	---	---	---	<0.7	---	---
Chloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.4	---	---	---	---	<0.4	---	---	---	---	---	---	---	---	<0.4	---	---
Chloroform	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**1.2**	---	---	---	---	<0.74	---	---	---	---	---	---	---	---	<0.74	---	---
Chloromethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**0.23** J	---	---	---	---	**0.63**	---	---	---	---	---	---	---	---	<0.31	---	---
cis-1,2-Dichloroethene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.6	---	---	---	---	**1.2**	---	---	---	---	---	---	---	---	<0.6	---	---
cis-1,3-Dichloropropene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.69	---	---	---	---	<0.69	---	---	---	---	---	---	---	---	<0.69	---	---
Cumene (Isopropyl benzene)	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cyclohexane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**8.4**	---	---	---	---	<0.52	---	---	---	---	---	---	---	---	**7.8**	---	---
Dibromochloromethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.3	---	---	---	---	<1.3	---	---	---	---	---	---	---	---	<1.3	---	---
Ethyl acetate	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	---	<0.92	---	---	---	---	---	---	---	---	<0.92	---	---
Ethylbenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**0.49** J	---	---	---	---	**5.9**	---	---	---	---	---	---	---	---	**1.5**	---	---
Freon 11	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**0.97**	---	---	---	---	**1.2**	---	---	---	---	---	---	---	---	**1**	---	---
Freon 113	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**0.78** J	---	---	---	---	**0.78** J	---	---	---	---	---	---	---	---	**0.78** J	---	---
Freon 114	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.1	---	---	---	---	<1.1	---	---	---	---	---	---	---	---	<1.1	---	---
Freon 12	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**2**	---	---	---	---	**2.1**	---	---	---	---	---	---	---	---	**2.6**	---	---
Heptane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.62	---	---	---	---	<0.62	---	---	---	---	---	---	---	---	**0.75**	---	---
Hexachloro-1,3-butadiene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.6	---	---	---	---	<1.6	---	---	---	---	---	---	---	---	<1.6	---	---
Hexane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.54	---	---	---	---	**0.79**	---	---	---	---	---	---	---	---	<0.54	---	---
Isopropyl alcohol	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**1.6**	---	---	---	---	**2.8**	---	---	---	---	---	---	---	---	**3.5**	---	---
m&p-Xylene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**1** J	---	---	---	---	**10** J	---	---	---	---	---	---	---	---	**4.3**	---	---
Methyl Butyl Ketone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	---	<1.2	---	---	---	---	---	---	---	---	<1.2	---	---
Methyl Ethyl Ketone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**1.7**	---	---	---	---	**1.4**	---	---	---	---	---	---	---	---	**1.2**	---	---
Methyl Isobutyl Ketone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	---	<1.2	---	---	---	---	---	---	---	---	<1.2	---	---
Methyl tert-butyl ether	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.55	---	---	---	---	<0.55	---	---	---	---	---	---	---	---	<0.55	---	---
Methylene chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.53	---	---	---	---	**3.8**	---	---	---	---	---	---	---	---	**0.35** J	---	---
o-Xylene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.66	---	---	---	---	**8.5**	---	---	---	---	---	---	---	---	**1.5**	---	---
Propylene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.26	---	---	---	---	<0.26	---	---	---	---	---	---	---	---	<0.26	---	---
Styrene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.65	---	---	---	---	<0.65	---	---	---	---	---	---	---	---	**0.82**	---	---
Tetrachloroethylene (PCE)	810	µg/m^3	**2660**	**20**	**>27000**	**180**	**51**	**>39000**	**940**	**61**	**505**	**830**	**620**	**550**	**1060**	**260**	**1500**	**160**	**610**	**2600**	**1100**	**11**	**6500**	**1300**	**26**	**1400**	**540**	**1940**	**2120**
Tetrahydrofuran	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.45	---	---	---	---	<0.45	---	---	---	---	---	---	---	---	<0.45	---	---
Toluene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	**1.5**	---	---	---	---	**2.5**	---	---	---	---	---	---	---	---	**5.9**	---	---
trans-1,2-Dichloroethene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.6	---	---	---	---	<0.6	---	---	---	---	---	---	---	---	<0.6	---	---
trans-1,3-Dichloropropene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.69	---	---	---	---	<0.69	---	---	---	---	---	---	---	---	<0.69	---	---
Trichloroethene (TCE)	90	µg/m^3	<15	<15	**620**	<15	<15	**1900**	<15	<15	<15	<15	**0.6** J	<15	<15	<15	<15	**3.4**	<15	<15	<15	<15	**460**	<15	<15	<15	**0.76** J	<15	<15
Vinyl Acetate	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.54	---	---	---	---	<0.54	---	---	---	---	---	---	---	---	<0.54	---	---
Vinyl Bromide	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.67	---	---	---	---	<0.67	---	---	---	---	---	---	---	---	<0.67	---	---
Vinyl Chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	<0.39	---	---	---	---	<0.39	---	---	---	---	---	---	---	---	<0.39	---	---

Notes:
1) WDEQ Soil Vapor Screening Level - PCE screening level was calculated based on the 1x10^{-5} target indoor air concentration risk level of 8.1 µg/m^3 from the 2002 EPA OSWER Draft Vapor Intrusion Guidance (EPA, 2002), with an assumed attenuation factor of 0.01 from shallow soil gas to indoor air.
TCE screening level was calculated based on an estimated 1x10^{-5} target indoor air concentration risk level of 0.9 µg/m^3 (thirteen times lower than the current EPA 10^{-5} risk level for TCE) with an assumed attenuation factor of 0.01 for shallow soil vapor to indoor air.
2) µg/m^3 - Micrograms per cubic meter.
3) --- - Not available or not analyzed.
4) < - Not detected at the reporting limit (RL).
5) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
6) G - Field Data Qualifier; laboratory post-test canister vacuums were less than 2" Hg higher than final field vacuums.
7) **Bold** - Result reported above the MDL.
8) Yellow Highlight - Result exceeds the WDEQ Soil Vapor Screening Level.
9) Samples analyzed by Hartman Environmental Geoscience Mobile Lab via EPA Method 8021.
10) Duplicate samples (except DUP* - mobile lab duplicates) analyzed by Centek Laboratories or Air Toxics via EPA Method TO-15.

TABLE 9

Soil Vapor Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Soil Vapor Screening Level	Sample ID	ESV-25	ESV-26	ESV-26 DUP	ESV-27	ESV-28	ESV-29	ESV-29 DUP*	ESV-30	ESV-31	ESV-32	ESV-33	ESV-34	ESV-34 DUP	ESV-35	ESV-36	ESV-37	ESV-37 DUP	ESV-38	ESV-39	ESV-39 DUP	ESV-40	ESV-40 DUP	ESV-41	ESV-42	ESV-43	ESV-43 DUP*
		Sample Date	11/12/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/11/2009	11/12/2009	11/12/2009	11/12/2009	11/12/2009	7/27/2010	7/27/2010	7/27/2010	7/27/2010
		Units																										
1,1,1-Trichloroethane	---	µg/m^3	---	---	<0.83	---	---	---	---	---	---	---	---	---	<0.83	---	---	---	**0.61** J	---	---	<0.83	---	<0.83	---	---	---	---
1,1,2,2-Tetrachloroethane	---	µg/m^3	---	---	<1	---	---	---	---	---	---	---	---	---	<1	---	---	---	<1	---	---	<1	---	<1	---	---	---	---
1,1,2-Trichloroethane	---	µg/m^3	---	---	<0.83	---	---	---	---	---	---	---	---	---	<0.83	---	---	---	<0.83	---	---	<0.83	---	<0.83	---	---	---	---
1,1-Dichloroethane	---	µg/m^3	---	---	<0.62	---	---	---	---	---	---	---	---	---	<0.62	---	---	---	<0.62	---	---	<0.62	---	<0.62	---	---	---	---
1,1-Dichloroethene	---	µg/m^3	---	---	<0.6	---	---	---	---	---	---	---	---	---	<0.6	---	---	---	<0.6	---	---	<0.6	---	<0.6	---	---	---	---
1,2,4-Trichlorobenzene	---	µg/m^3	---	---	<1.1	---	---	---	---	---	---	---	---	---	<1.1	---	---	---	<1.1	---	---	<1.1	---	<1.1	---	---	---	---
1,2,4-Trimethylbenzene	---	µg/m^3	---	---	<0.75	---	---	---	---	---	---	---	---	---	**0.7** J	---	---	---	**0.6** J	---	---	<0.75	---	<0.75	---	---	---	---
1,2-Dibromoethane	---	µg/m^3	---	---	<1.2	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	<1.2	---	---	<1.2	---	<1.2	---	---	---	---
1,2-Dichlorobenzene	---	µg/m^3	---	---	<0.92	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	<0.92	---	---	<0.92	---	<0.92	---	---	---	---
1,2-Dichloroethane	---	µg/m^3	---	---	<0.62	---	---	---	---	---	---	---	---	---	<0.62	---	---	---	<0.62	---	---	<0.62	---	<0.62	---	---	---	---
1,2-Dichloropropane	---	µg/m^3	---	---	<0.7	---	---	---	---	---	---	---	---	---	<0.7	---	---	---	<0.7	---	---	<0.7	---	<0.7	---	---	---	---
1,3,5-Trimethylbenzene	---	µg/m^3	---	---	<0.75	---	---	---	---	---	---	---	---	---	<0.75	---	---	---	<0.75	---	---	<0.75	---	<0.75	---	---	---	---
1,3-Butadiene	---	µg/m^3	---	---	<0.34	---	---	---	---	---	---	---	---	---	<0.34	---	---	---	<0.34	---	---	<0.34	---	<0.34	---	---	---	---
1,3-Dichlorobenzene	---	µg/m^3	---	---	<0.92	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	<0.92	---	---	<0.92	---	<0.92	---	---	---	---
1,4-Dichlorobenzene	---	µg/m^3	---	---	<0.92	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	<0.92	---	---	<0.92	---	<0.92	---	---	---	---
1,4-Dioxane	---	µg/m^3	---	---	<1.1	---	---	---	---	---	---	---	---	---	<1.1	---	---	---	<1.1	---	---	<1.1	---	<1.1	---	---	---	---
2,2,4-Trimethylpentane	---	µg/m^3	---	---	<0.71	---	---	---	---	---	---	---	---	---	**9**	---	---	---	<0.71	---	---	<0.71	---	<0.71	---	---	---	---
4-Ethyltoluene	---	µg/m^3	---	---	<0.75	---	---	---	---	---	---	---	---	---	<0.75	---	---	---	<0.75	---	---	<0.75	---	<0.75	---	---	---	---
Acetone	---	µg/m^3	---	---	**5.8** J	---	---	---	---	---	---	---	---	---	**12**	---	---	---	**5.2**	---	---	**5.1**	---	**7.2**	---	---	---	---
Allyl chloride	---	µg/m^3	---	---	<0.48	---	---	---	---	---	---	---	---	---	<0.48	---	---	---	<0.48	---	---	<0.48	---	<0.48	---	---	---	---
Benzene	---	µg/m^3	---	---	<0.49	---	---	---	---	---	---	---	---	---	**0.42** J	---	---	---	<0.49	---	---	<0.49	---	**0.36** J	---	---	---	---
Benzyl chloride	---	µg/m^3	---	---	<0.88	---	---	---	---	---	---	---	---	---	<0.88	---	---	---	<0.88	---	---	<0.88	---	<0.88	---	---	---	---
Bromodichloromethane	---	µg/m^3	---	---	<1	---	---	---	---	---	---	---	---	---	<1	---	---	---	<1	---	---	<1	---	<1	---	---	---	---
Bromoform	---	µg/m^3	---	---	<1.6	---	---	---	---	---	---	---	---	---	<1.6	---	---	---	<1.6	---	---	<1.6	---	<1.6	---	---	---	---
Bromomethane	---	µg/m^3	---	---	<0.59	---	---	---	---	---	---	---	---	---	<0.59	---	---	---	<0.59	---	---	<0.59	---	<0.59	---	---	---	---
Carbon disulfide	---	µg/m^3	---	---	<0.47	---	---	---	---	---	---	---	---	---	**0.44** J	---	---	---	<0.47	---	---	<0.47	---	<0.47	---	---	---	---
Carbon tetrachloride	---	µg/m^3	---	---	<0.96	---	---	---	---	---	---	---	---	---	<0.96	---	---	---	<0.96	---	---	<0.96	---	<0.96	---	---	---	---
Chlorobenzene	---	µg/m^3	---	---	<0.7	---	---	---	---	---	---	---	---	---	<0.7	---	---	---	<0.7	---	---	<0.7	---	<0.7	---	---	---	---
Chloroethane	---	µg/m^3	---	---	<0.4	---	---	---	---	---	---	---	---	---	<0.4	---	---	---	<0.4	---	---	<0.4	---	<0.4	---	---	---	---
Chloroform	---	µg/m^3	---	---	**0.84**	---	---	---	---	---	---	---	---	---	**0.69** J	---	---	---	<0.74	---	---	<0.74	---	<0.74	---	---	---	---
Chloromethane	---	µg/m^3	---	---	**0.38**	---	---	---	---	---	---	---	---	---	<0.31	---	---	---	<0.31	---	---	<0.31	---	<0.31	---	---	---	---
cis-1,2-Dichloroethene	---	µg/m^3	---	---	<0.6	---	---	---	---	---	---	---	---	---	<0.6	---	---	---	<0.6	---	---	<0.6	---	<0.6	---	---	---	---
cis-1,3-Dichloropropene	---	µg/m^3	---	---	<0.69	---	---	---	---	---	---	---	---	---	<0.69	---	---	---	<0.69	---	---	<0.69	---	<0.69	---	---	---	---
Cumene (Isopropyl benzene)	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cyclohexane	---	µg/m^3	---	---	**3.5**	---	---	---	---	---	---	---	---	---	**24**	---	---	---	**7**	---	---	**10**	---	**7.3**	---	---	---	---
Dibromochloromethane	---	µg/m^3	---	---	<1.3	---	---	---	---	---	---	---	---	---	<1.3	---	---	---	<1.3	---	---	<1.3	---	<1.3	---	---	---	---
Ethyl acetate	---	µg/m^3	---	---	<0.92	---	---	---	---	---	---	---	---	---	<0.92	---	---	---	<0.92	---	---	<0.92	---	<0.92	---	---	---	---
Ethylbenzene	---	µg/m^3	---	---	<0.66	---	---	---	---	---	---	---	---	---	**0.79**	---	---	---	<0.66	---	---	<0.66	---	**0.57** J	---	---	---	---
Freon 11	---	µg/m^3	---	---	**0.97**	---	---	---	---	---	---	---	---	---	**1.5**	---	---	---	**2.2**	---	---	**0.91**	---	**1.1**	---	---	---	---
Freon 113	---	µg/m^3	---	---	**0.86** J	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	<1.2	---	---	<1.2	---	**0.86** J	---	---	---	---
Freon 114	---	µg/m^3	---	---	<1.1	---	---	---	---	---	---	---	---	---	<1.1	---	---	---	<1.1	---	---	<1.1	---	<1.1	---	---	---	---
Freon 12	---	µg/m^3	---	---	**2.2**	---	---	---	---	---	---	---	---	---	**2**	---	---	---	**2.5**	---	---	**2**	---	**2.2**	---	---	---	---
Heptane	---	µg/m^3	---	---	<0.62	---	---	---	---	---	---	---	---	---	<0.62	---	---	---	<0.62	---	---	<0.62	---	<0.62	---	---	---	---
Hexachloro-1,3-butadiene	---	µg/m^3	---	---	<1.6	---	---	---	---	---	---	---	---	---	<1.6	---	---	---	<1.6	---	---	<1.6	---	<1.6	---	---	---	---
Hexane	---	µg/m^3	---	---	<0.54	---	---	---	---	---	---	---	---	---	<0.54	---	---	---	<0.54	---	---	<0.54	---	<0.54	---	---	---	---
Isopropyl alcohol	---	µg/m^3	---	---	<0.37	---	---	---	---	---	---	---	---	---	<0.37	---	---	---	**1.7**	---	---	**1.4**	---	**1.1**	---	---	---	---
m&p-Xylene	---	µg/m^3	---	---	<1.3	---	---	---	---	---	---	---	---	---	**1.8**	---	---	---	<1.3	---	---	<1.3	---	**1.4**	---	---	---	---
Methyl Butyl Ketone	---	µg/m^3	---	---	<1.2	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	<1.2	---	---	<1.2	---	<1.2	---	---	---	---
Methyl Ethyl Ketone	---	µg/m^3	---	---	**1.1**	---	---	---	---	---	---	---	---	---	**2.9**	---	---	---	**2.4**	---	---	**1.5**	---	**1.4**	---	---	---	---
Methyl Isobutyl Ketone	---	µg/m^3	---	---	<1.2	---	---	---	---	---	---	---	---	---	<1.2	---	---	---	<1.2	---	---	<1.2	---	<1.2	---	---	---	---
Methyl tert-butyl ether	---	µg/m^3	---	---	<0.55	---	---	---	---	---	---	---	---	---	<0.55	---	---	---	<0.55	---	---	<0.55	---	<0.55	---	---	---	---
Methylene chloride	---	µg/m^3	---	---	<0.53	---	---	---	---	---	---	---	---	---	<0.53	---	---	---	<0.53	---	---	<0.53	---	<0.53	---	---	---	---
o-Xylene	---	µg/m^3	---	---	<0.66	---	---	---	---	---	---	---	---	---	**0.62** J	---	---	---	<0.66	---	---	<0.66	---	**0.49** J	---	---	---	---
Propylene	---	µg/m^3	---	---	<0.26	---	---	---	---	---	---	---	---	---	<0.26	---	---	---	<0.26	---	---	<0.26	---	<0.26	---	---	---	---
Styrene	---	µg/m^3	---	---	<0.65	---	---	---	---	---	---	---	---	---	**0.48** J	---	---	---	<0.65	---	---	<0.65	---	<0.65	---	---	---	---
Tetrachloroethylene (PCE)	810	µg/m^3	**26**	**21**	**8.1**	**1030**	**60**	**15**	**16**	**27**	**40**	**8**	**75**	<7	<1	**63**	**450**	**660**	**710**	**36**	**294**	**210**	**4970**	**2000**	**28**	**187**	**30**	**26**
Tetrahydrofuran	---	µg/m^3	---	---	<0.45	---	---	---	---	---	---	---	---	---	<0.45	---	---	---	<0.45	---	---	<0.45	---	<0.45	---	---	---	---
Toluene	---	µg/m^3	---	---	**0.65**	---	---	---	---	---	---	---	---	---	**2.8**	---	---	---	**1.2**	---	---	**0.92**	---	**1.1**	---	---	---	---
trans-1,2-Dichloroethene	---	µg/m^3	---	---	<0.6	---	---	---	---	---	---	---	---	---	<0.6	---	---	---	<0.6	---	---	<0.6	---	<0.6	---	---	---	---
trans-1,3-Dichloropropene	---	µg/m^3	---	---	<0.69	---	---	---	---	---	---	---	---	---	<0.69	---	---	---	<0.69	---	---	<0.69	---	<0.69	---	---	---	---
Trichloroethene (TCE)	90	µg/m^3	<15	<15	**2.1**	<15	<15	<15	<15	<15	<15	<15	<15	<15	<0.82	<15	<15	<15	<0.82	<15	<15	<0.82	<15	**1.9**	<15	<15	<15	<15
Vinyl Acetate	---	µg/m^3	---	---	<0.54	---	---	---	---	---	---	---	---	---	<0.54	---	---	---	<0.54	---	---	<0.54	---	<0.54	---	---	---	---
Vinyl Bromide	---	µg/m^3	---	---	<0.67	---	---	---	---	---	---	---	---	---	<0.67	---	---	---	<0.67	---	---	<0.67	---	<0.67	---	---	---	---
Vinyl Chloride	---	µg/m^3	---	---	<0.39	---	---	---	---	---	---	---	---	---	<0.39	---	---	---	<0.39	---	---	<0.39	---	<0.39	---	---	---	---

Notes:
1) WDEQ Soil Vapor Screening Level - PCE screening level was calculated based on the $1x10^{-5}$ target indoor air concentration risk level of 8.1 µg/m^3 from the 2002 EPA OSWER Draft Vapor Intrusion Guidance (EPA, 2002), with an assumed attenuation factor of 0.01 from shallow soil gas to indoor air.
TCE screening level was calculated based on an estimated $1x10^{-5}$ target indoor air concentration risk level of 0.9 µg/m^3 (thirteen times lower than the current EPA 10^{-5} risk level for TCE) with an assumed attenuation factor of 0.01 for shallow soil vapor to indoor air.
2) µg/m^3 - Micrograms per cubic meter.
3) --- - Not available or not analyzed.
4) < - Not detected at the reporting limit (RL).
5) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
6) G - Field Data Qualifier; laboratory post-test canister vacuums were less than 2" Hg higher than final field vacuums.
7) **Bold** - Result reported above the MDL.
8) Yellow Highlight - Result exceeds the WDEQ Soil Vapor Screening Level.
9) Samples analyzed by Hartman Environmental Geoscience Mobile Lab via EPA Method 8021.
10) Duplicate samples (except DUP* - mobile lab duplicates) analyzed by Centek Laboratories or Air Toxics via EPA Method TO-15.

TABLE 9

Soil Vapor Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Soil Vapor Screening Level	Sample ID	ESV-43 DUP		ESV-44	ESV-45	ESV-46	ESV-47	ESV-48	ESV-49	ESV-49 DUP*	ESV-50	ESV-51	ESV-52	ESV-52 DUP		ESV-53	ESV-54	ESV-55	ESV-56	ESV-57	ESV-57 DUP	ESV-58	ESV-58 DUP	ESV-59	ESV-60	ESV-61	ESV-62	ESV-62 DUP		ESV-63	ESV-64	ESV-64 DUP	ESV-65
		Sample Date	7/27/2010		7/27/2010	7/27/2010	7/27/2010	40386.00	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010		7/27/2010	7/27/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010		12/8/2010	12/8/2010	12/8/2010	12/8/2010
		Units																																
1,1,1-Trichloroethane	---	µg/m^3	<0.83	G	---	---	---	---	---	---	---	---	---	---	**2.2**	G	---	---	---	---	---	<6.6	---	<7.2	---	---	---	---	<6.4	G	---	---	<7.5	---
1,1,2,2-Tetrachloroethane	---	µg/m^3	<1.0	G	---	---	---	---	---	---	---	---	---	---	<1.0	G	---	---	---	---	---	<8.3	---	<9.1	---	---	---	---	<8.0	G	---	---	<9.5	---
1,1,2-Trichloroethane	---	µg/m^3	<0.83	G	---	---	---	---	---	---	---	---	---	---	<0.83	G	---	---	---	---	---	<6.6	---	<7.2	---	---	---	---	<6.4	G	---	---	<7.5	---
1,1-Dichloroethane	---	µg/m^3	<0.62	G	---	---	---	---	---	---	---	---	---	---	<0.62	G	---	---	---	---	---	<4.9	---	<5.3	---	---	---	---	<4.7	G	---	---	<5.6	---
1,1-Dichloroethene	---	µg/m^3	<0.60	G	---	---	---	---	---	---	---	---	---	---	<0.60	G	---	---	---	---	---	<4.8	---	<5.2	---	---	---	---	<4.6	G	---	---	<5.5	---
1,2,4-Trichlorobenzene	---	µg/m^3	<1.1	G	---	---	---	---	---	---	---	---	---	---	<1.1	G	---	---	---	---	---	<36	---	<39	---	---	---	---	<34	G	---	---	<41	---
1,2,4-Trimethylbenzene	---	µg/m^3	**8.3**	G	---	---	---	---	---	---	---	---	---	---	**9.7**	G	---	---	---	---	---	**7.1**	---	<6.5	---	---	---	---	<5.7	G	---	---	**8.8**	---
1,2-Dibromoethane	---	µg/m^3	<1.2	G	---	---	---	---	---	---	---	---	---	---	<1.2	G	---	---	---	---	---	<9.3	---	<10	---	---	---	---	<9.0	G	---	---	<11	---
1,2-Dichlorobenzene	---	µg/m^3	<0.92	G	---	---	---	---	---	---	---	---	---	---	<0.92	G	---	---	---	---	---	<7.3	---	<7.9	---	---	---	---	<7.0	G	---	---	<8.3	---
1,2-Dichloroethane	---	µg/m^3	**2.4**	G	---	---	---	---	---	---	---	---	---	---	<0.62	G	---	---	---	---	---	<4.9	---	<5.3	---	---	---	---	<4.7	G	---	---	<5.6	---
1,2-Dichloropropane	---	µg/m^3	**5.0**	G	---	---	---	---	---	---	---	---	---	---	<0.70	G	---	---	---	---	---	<5.6	---	<6.1	---	---	---	---	<5.4	G	---	---	<6.4	---
1,3,5-Trimethylbenzene	---	µg/m^3	**2.1**	G	---	---	---	---	---	---	---	---	---	---	**2.3**	G	---	---	---	---	---	<5.9	---	<6.5	---	---	---	---	<5.7	G	---	---	<6.8	---
1,3-Butadiene	---	µg/m^3	<0.34	G	---	---	---	---	---	---	---	---	---	---	<0.34	G	---	---	---	---	---	<2.7	---	<2.9	---	---	---	---	<2.6	G	---	---	<3.0	---
1,3-Dichlorobenzene	---	µg/m^3	<0.92	G	---	---	---	---	---	---	---	---	---	---	<0.92	G	---	---	---	---	---	<7.3	---	<7.9	---	---	---	---	<7.0	G	---	---	<8.3	---
1,4-Dichlorobenzene	---	µg/m^3	**5.0**	G	---	---	---	---	---	---	---	---	---	---	<0.92	G	---	---	---	---	---	<7.3	---	<7.9	---	---	---	---	<7.0	G	---	---	<8.3	---
1,4-Dioxane	---	µg/m^3	<1.1	G	---	---	---	---	---	---	---	---	---	---	<1.1	G	---	---	---	---	---	<17	---	<19	---	---	---	---	<17	G	---	---	<20	---
2,2,4-Trimethylpentane	---	µg/m^3	**1.1**	G	---	---	---	---	---	---	---	---	---	---	**2.7**	G	---	---	---	---	---	<5.6	---	<6.2	---	---	---	---	<5.4	G	---	---	<6.4	---
4-Ethyltoluene	---	µg/m^3	**1.0**	G	---	---	---	---	---	---	---	---	---	---	**1.8**	G	---	---	---	---	---	**7.3**	---	<6.5	---	---	---	---	<5.7	G	---	---	**13**	---
Acetone	---	µg/m^3	**170**	G	---	---	---	---	---	---	---	---	---	---	**28**	G	---	---	---	---	---	**130**	---	**35**	---	---	---	---	<11	G	---	---	**40**	---
Allyl chloride	---	µg/m^3	<0.48	G	---	---	---	---	---	---	---	---	---	---	<0.48	G	---	---	---	---	---	<15	---	<16	---	---	---	---	<14	G	---	---	<17	---
Benzene	---	µg/m^3	**2.1**	G	---	---	---	---	---	---	---	---	---	---	**6.5**	G	---	---	---	---	---	**19**	---	<4.2	---	---	---	---	<3.7	G	---	---	**13**	---
Benzyl chloride	---	µg/m^3	<0.88	G	---	---	---	---	---	---	---	---	---	---	<0.88	G	---	---	---	---	---	<6.3	---	<6.8	---	---	---	---	<6.0	G	---	---	<7.1	---
Bromodichloromethane	---	µg/m^3	**2.1**	G	---	---	---	---	---	---	---	---	---	---	<1.0	G	---	---	---	---	---	<8.1	---	<8.8	---	---	---	---	<7.8	G	---	---	<9.2	---
Bromoform	---	µg/m^3	<1.6	G	---	---	---	---	---	---	---	---	---	---	<1.6	G	---	---	---	---	---	<12	---	<14	---	---	---	---	<12	G	---	---	<14	---
Bromomethane	---	µg/m^3	<0.59	G	---	---	---	---	---	---	---	---	---	---	<0.59	G	---	---	---	---	---	<4.7	---	<5.1	---	---	---	---	<4.5	G	---	---	<5.4	---
Carbon disulfide	---	µg/m^3	**1.8**	G	---	---	---	---	---	---	---	---	---	---	**1.3**	G	---	---	---	---	---	**5.0**	---	<4.1	---	---	---	---	<3.6	G	---	---	**5.8**	---
Carbon tetrachloride	---	µg/m^3	**0.83**	JG	---	---	---	---	---	---	---	---	---	---	<0.96	G	---	---	---	---	---	<7.6	---	<8.3	---	---	---	---	<7.3	G	---	---	<8.7	---
Chlorobenzene	---	µg/m^3	<0.70	G	---	---	---	---	---	---	---	---	---	---	<0.70	G	---	---	---	---	---	<5.6	---	<6.1	---	---	---	---	<5.4	G	---	---	<6.4	---
Chloroethane	---	µg/m^3	<0.40	G	---	---	---	---	---	---	---	---	---	---	<0.40	G	---	---	---	---	---	<3.2	---	<3.5	---	---	---	---	<3.1	G	---	---	<3.6	---
Chloroform	---	µg/m^3	**9.0**	G	---	---	---	---	---	---	---	---	---	---	**3.0**	G	---	---	---	---	---	<5.9	---	<6.4	---	---	---	---	<5.7	G	---	---	<6.7	---
Chloromethane	---	µg/m^3	**1.9**	G	---	---	---	---	---	---	---	---	---	---	<0.31	G	---	---	---	---	---	<10	---	<11	---	---	---	---	<9.6	G	---	---	<11	---
cis-1,2-Dichloroethene	---	µg/m^3	**0.44**	JG	---	---	---	---	---	---	---	---	---	---	<0.60	G	---	---	---	---	---	<4.8	---	<5.2	---	---	---	---	<4.6	G	---	---	<5.5	---
cis-1,3-Dichloropropene	---	µg/m^3	<0.69	G	---	---	---	---	---	---	---	---	---	---	<0.69	G	---	---	---	---	---	<5.5	---	<6.0	---	---	---	---	<5.3	G	---	---	<6.3	---
Cumene (Isopropyl benzene)	---	µg/m^3	---		---	---	---	---	---	---	---	---	---	---	---		---	---	---	---	---	<5.9	---	<6.5	---	---	---	---	<5.7	G	---	---	<6.8	---
Cyclohexane	---	µg/m^3	**9.1**	G	---	---	---	---	---	---	---	---	---	---	**16**	G	---	---	---	---	---	<4.2	---	<4.5	---	---	---	---	<4.0	G	---	---	<4.8	---
Dibromochloromethane	---	µg/m^3	<1.3	G	---	---	---	---	---	---	---	---	---	---	<1.3	G	---	---	---	---	---	<10	---	<11	---	---	---	---	<9.9	G	---	---	<12	---
Ethyl acetate	---	µg/m^3	**24**	G	---	---	---	---	---	---	---	---	---	---	<0.92	G	---	---	---	---	---	<9.1	---	**10**	---	---	---	---	<8.8	G	---	---	**12**	---
Ethylbenzene	---	µg/m^3	**4.2**	G	---	---	---	---	---	---	---	---	---	---	**4**	G	---	---	---	---	---	**6.8**	---	<5.7	---	---	---	---	<5.0	G	---	---	**11**	---
Freon 11	---	µg/m^3	**2.6**	G	---	---	---	---	---	---	---	---	---	---	**1.5**	G	---	---	---	---	---	<6.8	---	<7.4	---	---	---	---	<6.5	G	---	---	<7.8	---
Freon 113	---	µg/m^3	<1.2	G	---	---	---	---	---	---	---	---	---	---	<1.2	G	---	---	---	---	---	<9.3	---	<10	---	---	---	---	<8.9	G	---	---	<10	---
Freon 114	---	µg/m^3	<1.1	G	---	---	---	---	---	---	---	---	---	---	<1.1	G	---	---	---	---	---	<8.4	---	<9.2	---	---	---	---	<8.1	G	---	---	<9.6	---
Freon 12	---	µg/m^3	**2.3**	G	---	---	---	---	---	---	---	---	---	---	**2.5**	G	---	---	---	---	---	<6.0	---	<6.5	---	---	---	---	<5.8	G	---	---	<6.8	---
Heptane	---	µg/m^3	**4.5**	G	---	---	---	---	---	---	---	---	---	---	**6.6**	G	---	---	---	---	---	**6.5**	---	<5.4	---	---	---	---	<4.8	G	---	---	**10**	---
Hexachloro-1,3-butadiene	---	µg/m^3	<1.6	G	---	---	---	---	---	---	---	---	---	---	<1.6	G	---	---	---	---	---	<52	---	<56	---	---	---	---	<50	G	---	---	<59	---
Hexane	---	µg/m^3	<0.54	G	---	---	---	---	---	---	---	---	---	---	**13**	G	---	---	---	---	---	**4.6**	---	<4.6	---	---	---	---	<4.1	G	---	---	**13**	---
Isopropyl alcohol	---	µg/m^3	**220**	G	---	---	---	---	---	---	---	---	---	---	<0.37	G	---	---	---	---	---	<12	---	<13	---	---	---	---	<11	G	---	---	<14	---
m&p-Xylene	---	µg/m^3	**9.5**	G	---	---	---	---	---	---	---	---	---	---	**13**	G	---	---	---	---	---	**16**	---	**9.7**	---	---	---	---	<5.0	G	---	---	**26**	---
Methyl Butyl Ketone	---	µg/m^3	**0.96**	JG	---	---	---	---	---	---	---	---	---	---	<1.2	G	---	---	---	---	---	<20	---	<22	---	---	---	---	<19	G	---	---	<23	---
Methyl Ethyl Ketone	---	µg/m^3	**7.8**	JG	---	---	---	---	---	---	---	---	---	---	<0.90	G	---	---	---	---	---	**45**	---	**7.8**	---	---	---	---	<3.4	G	---	---	**4.3**	---
Methyl Isobutyl Ketone	---	µg/m^3	**1.5**	G	---	---	---	---	---	---	---	---	---	---	**2.6**	G	---	---	---	---	---	**37**	---	<5.4	---	---	---	---	<4.8	G	---	---	<5.6	---
Methyl tert-butyl ether	---	µg/m^3	<0.55	G	---	---	---	---	---	---	---	---	---	---	<0.55	G	---	---	---	---	---	<4.4	---	<4.8	---	---	---	---	<4.2	G	---	---	<5.0	---
Methylene chloride	---	µg/m^3	**1.6**	G	---	---	---	---	---	---	---	---	---	---	<0.53	G	---	---	---	---	---	**7.1**	---	<4.6	---	---	---	---	<4.0	G	---	---	<4.8	---
o-Xylene	---	µg/m^3	**3.4**	G	---	---	---	---	---	---	---	---	---	---	**4.1**	G	---	---	---	---	---	**5.2**	---	<5.7	---	---	---	---	<5.0	G	---	---	**8.3**	---
Propylene	---	µg/m^3	<0.26	G	---	---	---	---	---	---	---	---	---	---	<0.26	G	---	---	---	---	---	<5.9	---	<6.5	---	---	---	---	<5.7	G	---	---	<6.8	---
Styrene	---	µg/m^3	<0.65	G	---	---	---	---	---	---	---	---	---	---	<0.65	G	---	---	---	---	---	<5.2	---	<5.6	---	---	---	---	<5.0	G	---	---	<5.9	---
Tetrachloroethylene (PCE)	810	µg/m^3	**1.9**	G	**106**	**86**	**5160**	**1800**	**169**	**453**	**678**	**86**	**36**	**8**	**12**	G	**122**	**18**	**334**	**254**	**216**	**130**	**121**	**79**	**145**	**28**	**<7**	**29**	**73**	G	**680**	**407**	**400**	**159**
Tetrahydrofuran	---	µg/m^3	**8.1**	G	---	---	---	---	---	---	---	---	---	---	<0.45	G	---	---	---	---	---	**3.9**	---	<3.9	---	---	---	---	<3.4	G	---	---	<4.1	---
Toluene	---	µg/m^3	**57**	G	---	---	---	---	---	---	---	---	---	---	**18**	G	---	---	---	---	---	**41**	---	**22**	---	---	---	---	<4.4	G	---	---	**75**	---
trans-1,2-Dichloroethene	---	µg/m^3	<0.60	G	---	---	---	---	---	---	---	---	---	---	<0.60	G	---	---	---	---	---	<4.8	---	<5.2	---	---	---	---	<4.6	G	---	---	<5.5	---
trans-1,3-Dichloropropene	---	µg/m^3	**2.9**	G	---	---	---	---	---	---	---	---	---	---	<0.69	G	---	---	---	---	---	<5.5	---	<6.0	---	---	---	---	<5.3	G	---	---	<6.3	---
Trichloroethene (TCE)	90	µg/m^3	**1.7**	G	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<0.82	G	<15	<15	<15	<15	<15	<6.5	<15	<7.1	<15	<15	<15	<15	<6.3	G	<15	<15	<7.4	<15
Vinyl Acetate	---	µg/m^3	<0.54	G	---	---	---	---	---	---	---	---	---	---	<0.54	G	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	---
Vinyl Bromide	---	µg/m^3	<0.67	G	---	---	---	---	---	---	---	---	---	---	<0.67	G	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	---
Vinyl Chloride	---	µg/m^3	<0.39	G	---	---	---	---	---	---	---	---	---	---	<0.39	G	---	---	---	---	---	<3.1	---	<3.4	---	---	---	---	<3.0	G	---	---	<3.5	---

Notes:
1) WDEQ Soil Vapor Screening Level - PCE screening level was calculated based on the 1x10^{-5} target indoor air concentration risk level of 8.1 µg/m^3 from the 2002 EPA OSWER Draft Vapor Intrusion Guidance (EPA, 2002), with an assumed attenuation factor of 0.01 from shallow soil gas to indoor air.
TCE screening level was calculated based on an estimated 1x10^{-5} target indoor air concentration risk level of 0.9 µg/m^3 (thirteen times lower than the current EPA 10^{-5} risk level for TCE) with an assumed attenuation factor of 0.01 for shallow soil vapor to indoor air.
2) µg/m^3 - Micrograms per cubic meter.
3) --- - Not available or not analyzed.
4) < - Not detected at the reporting limit (RL).
5) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
6) G - Field Data Qualifier; laboratory post-test canister vacuums were less than 2" Hg higher than final field vacuums.
7) **Bold** - Result reported above the MDL.
8) Yellow Highlight - Result exceeds the WDEQ Soil Vapor Screening Level.
9) Samples analyzed by Hartman Environmental Geoscience Mobile Lab via EPA Method 8021.
10) Duplicate samples (except DUP* - mobile lab duplicates) analyzed by Centek Laboratories or Air Toxics via EPA Method TO-15.

Soil Vapor Analytical Results

Casper PCE Plumes Orphan Site
Casper, WY

Analytical Parameter	WDEQ Soil Vapor Screening Level	Sample ID	ESV-66	ESV-67	ESV-68	ESV-69	ESV-70	ESV-71	ESV-72	ESV-73	ESV-74	ESV-75	ESV-75 DUP*	ESV-76	ESV-77	ESV-78	ESV-78 DUP
		Sample Date	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
		Units															
1,1,1-Trichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<7.0
1,1,2,2-Tetrachloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<8.8
1,1,2-Trichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<7.0
1,1-Dichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.2
1,1-Dichloroethene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.1
1,2,4-Trichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<38
1,2,4-Trimethylbenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.3
1,2-Dibromoethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<9.9
1,2-Dichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<7.8
1,2-Dichloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.2
1,2-Dichloropropane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.0
1,3,5-Trimethylbenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.3
1,3-Butadiene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<2.8
1,3-Dichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<7.8
1,4-Dichlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<7.8
1,4-Dioxane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<18
2,2,4-Trimethylpentane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.0
4-Ethyltoluene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.3
Acetone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**160**
Allyl chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<16
Benzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<4.1
Benzyl chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.7
Bromodichloromethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<8.6
Bromoform	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<13
Bromomethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.0
Carbon disulfide	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<4.0
Carbon tetrachloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<8.1
Chlorobenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.9
Chloroethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<3.4
Chloroform	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.3
Chloromethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<11
cis-1,2-Dichloroethene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.1
cis-1,3-Dichloropropene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.8
Cumene (Isopropyl benzene)	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.3
Cyclohexane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<4.4
Dibromochloromethane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<11
Ethyl acetate	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**32**
Ethylbenzene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.6
Freon 11	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<7.2
Freon 113	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<9.9
Freon 114	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<9.0
Freon 12	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.4
Heptane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.3
Hexachloro-1,3-butadiene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<55
Hexane	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<4.5
Isopropyl alcohol	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<13
m&p-Xylene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.6
Methyl Butyl Ketone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<21
Methyl Ethyl Ketone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**170**
Methyl Isobutyl Ketone	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**12**
Methyl tert-butyl ether	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<4.6
Methylene chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<4.5
o-Xylene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.6
Propylene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<6.3
Styrene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.5
Tetrachloroethylene (PCE)	810	µg/m^3	<7	**10**	**135**	**420**	**318**	**271**	**415**	**2000**	**633**	**82**	**139**	<7	<7	<7	<8.8
Tetrahydrofuran	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<3.8
Toluene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	**9.2**
trans-1,2-Dichloroethene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.1
trans-1,3-Dichloropropene	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<5.8
Trichloroethene (TCE)	90	µg/m^3	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<6.9
Vinyl Acetate	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vinyl Bromide	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Vinyl Chloride	---	µg/m^3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<3.3

Notes:
1) WDEQ Soil Vapor Screening Level - PCE screening level was calculated based on the 1x10^{-5} target indoor air concentration risk level of 8.1 µg/m^3 from the 2002 EPA OSWER Draft Vapor Intrusion Guidance (EPA, 2002), with an assumed attenuation factor of 0.01 from shallow soil gas to indoor air.
TCE screening level was calculated based on an estimated 1x10^{-5} target indoor air concentration risk level of 0.9 µg/m^3 (thirteen times lower than the current EPA 10^{-5} risk level for TCE) with an assumed attenuation factor of 0.01 for shallow soil vapor to indoor air.
2) µg/m^3 - Micrograms per cubic meter.
3) --- - Not available or not analyzed.
4) < - Not detected at the reporting limit (RL).
5) J - Laboratory Data Qualifier; estimated result between method detection limit (MDL) and RL.
6) G - Field Data Qualifier; laboratory post-test canister vacuums were less than 2" Hg higher than final field vacuums.
7) **Bold** - Result reported above the MDL.
8) Yellow Highlight - Result exceeds the WDEQ Soil Vapor Screening Level.
9) Samples analyzed by Hartman Environmental Geoscience Mobile Lab via EPA Method 8021.
10) Duplicate samples (except DUP* - mobile lab duplicates) analyzed by Centek Laboratories or Air Toxics via EPA Method TO-15.