

Date: July 8, 2016

To: file

From: Bob Schwarz, Project Manager
Eastern Region Cleanup Program

Subject: Mosier spill, ECSI # 6115; status report

This memo summarizes the first two weeks of groundwater data, which was collected on June 24 and 30, 2016 and submitted to DEQ on July 6, 2016. Maximum concentrations of detected contaminants are presented in Table 1. This table also shows some human health and ecological risk screening levels for reference. As shown on the attached figure, samples were collected from the two extraction wells (EW-1 and EW-2) installed at the crash site, and the four groundwater monitoring wells (MW-1 through MW-4) installed on the north (presumably downgradient) side of the tracks. We are still waiting for groundwater flow direction information from CH2M, the consultant for Union Pacific Railroad.

Wells MW-1, 2 and 3 show little or no contamination. Moderate contamination was found in the two extraction wells. Elevated contaminant concentrations were found in MW-4. This well is east of the spill site.

CH2M has proposed putting in an air sparging system to address the contamination found near MW-4. This involves installing pipes through which air is injected into the groundwater, to drive off contaminants. Details regarding the design of this system and the schedule for installation will be summarized in the next memo.

Table 1
June 24 and 30 groundwater results
Maximum contaminant concentrations in groundwater at MW-4
Units: ug/L (micrograms per liter, or parts per billion)

Analyte	Max conc.	RBC_{tw-} Resl	RBC_{wo-} Resl	RBC_{wi-} Resl	Eco SLVs
Petroleum hydrocarbons					
Gasoline-range	9,900	110	>S	22,000	NL
Diesel-range	980	100	>S	>S	NL
Heavy oil-range	75	NL	>S	>S	NL
Volatile Organic Compounds					
1,2,3-Trimethylbenzene	130	NL	NL	NL	NL
1,2,4-Trimethylbenzene	220	61	>S	5,800	33
1,3,5-Trimethylbenzene	56	600	>S	>S	71
4-Isopropyltoluene	6.4	NL	NL	NL	85
Benzene	1,800	0.46	3,100	210	130
Ethylbenzene	140	1.5	9,900	620	7.3
Isopropylbenzene	34	440	>S	>S	NL
m-Xylene & p-Xylene	630	190	>S	86,000	13
Naphthalene	44	0.17	3,600	840	12
n-Butylbenzene	33	NL	NL	NL	NL
n-Propylbenzene	25	NL	NL	NL	128
o-Xylene	360	190	>S	86,000	13
sec-Butylbenzene	6.1	NL	NL	NL	NL
Styrene	1.4	1,200	>S	>S	72
tert-Butylbenzene	0.51	NL	NL	NL	NL
Toluene	1,600	1,100	>S	>S	9.8
Semi-Volatile Organic Compounds					
1-Methylnaphthalene	26	NL	NL	NL	2.1
2-Methylnaphthalene	29	NL	NL	NL	NL
Acenaphthene	0.12	510	>S	>S	56
Acenaphthylene	0.29	NL	NL	NL	NL
Anthracene	0.019	>S	>S	>S	0.73
Fluorene	0.48	280	>S	>S	3.9
Naphthalene	19	0.17	3,600	840	12
Phenanthrene	0.69	NL	NL	NL	19
Pyrene	0.019	110	>S	>S	0.025

Notes:

1. RBC: human health Risk Based Concentrations, published by DEQ (<http://www.deq.state.or.us/lq/rbdc.htm>).

2. $RBC_{tw-Resl}$: RBCs for drinking water, in a residential setting.
3. $RBC_{wo-Resl}$: RBCs for volatilization to outdoor air, in a residential setting.
4. $RBC_{wi-Resl}$: RBCs for volatilization to indoor air, in a residential setting.
5. Ecological screening level values published by DEQ (<http://www.deq.state.or.us/lq/cu/ecorisks.htm>).
6. >S: The RBC for this contaminant exceeds the contaminant's solubility limit
7. NL: not listed; DEQ does not publish a risk screening value for this contaminant.