UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL RESPONSE TEAM
Las Vegas, Nevada 89119

Date: October 2, 2014

MEMORANDUM

SUBJECT: Evaluation of the Wedron Groundwater Site's Identified BTEX Source Areas and Their Relationship to BTEX Groundwater Contamination in the Village of Wedron, Illinois

FROM: Donald T. Bussey, Environmental Scientist, CPG-08847 DTB

TO: Tinka G. Hyde, Director
USEPA Region 5 Water Division

Margaret M. Guerriero, Director
USEPA Region 5 Land and Chemicals Division

I have reviewed recent assessment reports prepared for the Illinois Railroad (IR) property (by IR's contractor), the Hoxsey property (by the Illinois EPA (IEPA)), and the Wedron Silica Company property (by a contractor for Wedron Silica Company, Technisand, Inc., and Lockheed Martin Corp.). Based upon BTEX soil and groundwater data for these sites, I have concluded that the Hoxsey property and the IR property (identified on the attached figure) are local source areas for BTEX groundwater and private well contamination in Wedron, IL. The location on Wedron Silica Company property where soil BTEX exceedances were detected requires additional investigation before the site can be adequately evaluated as to possible BTEX soil to groundwater impacts in Wedron.

The IR and Hoxsey sites are located in the eastern portion of the Village of Wedron. Based upon groundwater elevation contours and the inferred groundwater direction of flow, BTEX contaminants will migrate from these two source areas in groundwater to the west, towards Wedron Silica Company's Pit #3, induced by previous and current pumping of that pit by that company and prior owners of the sand mine for their process operations. As depicted on the figure, both of these sources have significant soil and groundwater contamination. The IR source is directly hydraulically upgradient of the Hoxsey source, resulting in a co-mingled BTEX groundwater plume which travels towards the west from the Hoxsey property towards Pit #3. Also as depicted on the figure, local monitoring and residential wells with BTEX groundwater contamination close to and above MCLs, are contained to a rather narrow band extending from the IR and Hoxsey property to the pit. With the significant groundwater gradient, and a highly permeable aquifer as exists within the Village, this is expected.

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Additionally, soil and groundwater source area Ethylbenzene, Toluene, and Xylenes contamination at the IR site and the Hoxsey property are significantly greater than what has been detected in the groundwater hydraulically downgradient. Benzene source area contamination in general is greater than detected in groundwater downgradient, with the exception of two private well locations. This phenomenon is insignificant to concluding the two sources are not the cause for the higher benzene detections in downgradient groundwater, as the differences are not significant, and that many reasons for this are possible. These reasons include: source area disruption (tank removal and resultant volatilization), an historical fire at the Hoxsey property (volatilization), differential weathering of source areas, different well depths, and different casing depths. Lastly, the Ethylbenzene, Toluene, and Xylenes source to downgradient groundwater assessment is overwhelming.

In conclusion, I concur with IEPA's assessment (in reports dated August 2013 and December 2014) that the Hoxsey property should be considered as a potential source of BTEX contamination to downgradient groundwater receptors. I further conclude the Hoxsey and IR properties are indeed sources of BTEX groundwater and private well contamination in Wedron, IL.

Cc: Jacqueline Clark, Associate Regional Counsel, USEPA Region 5
Stephen Faryan, On-Scene Coordinator, USEPA Region 5

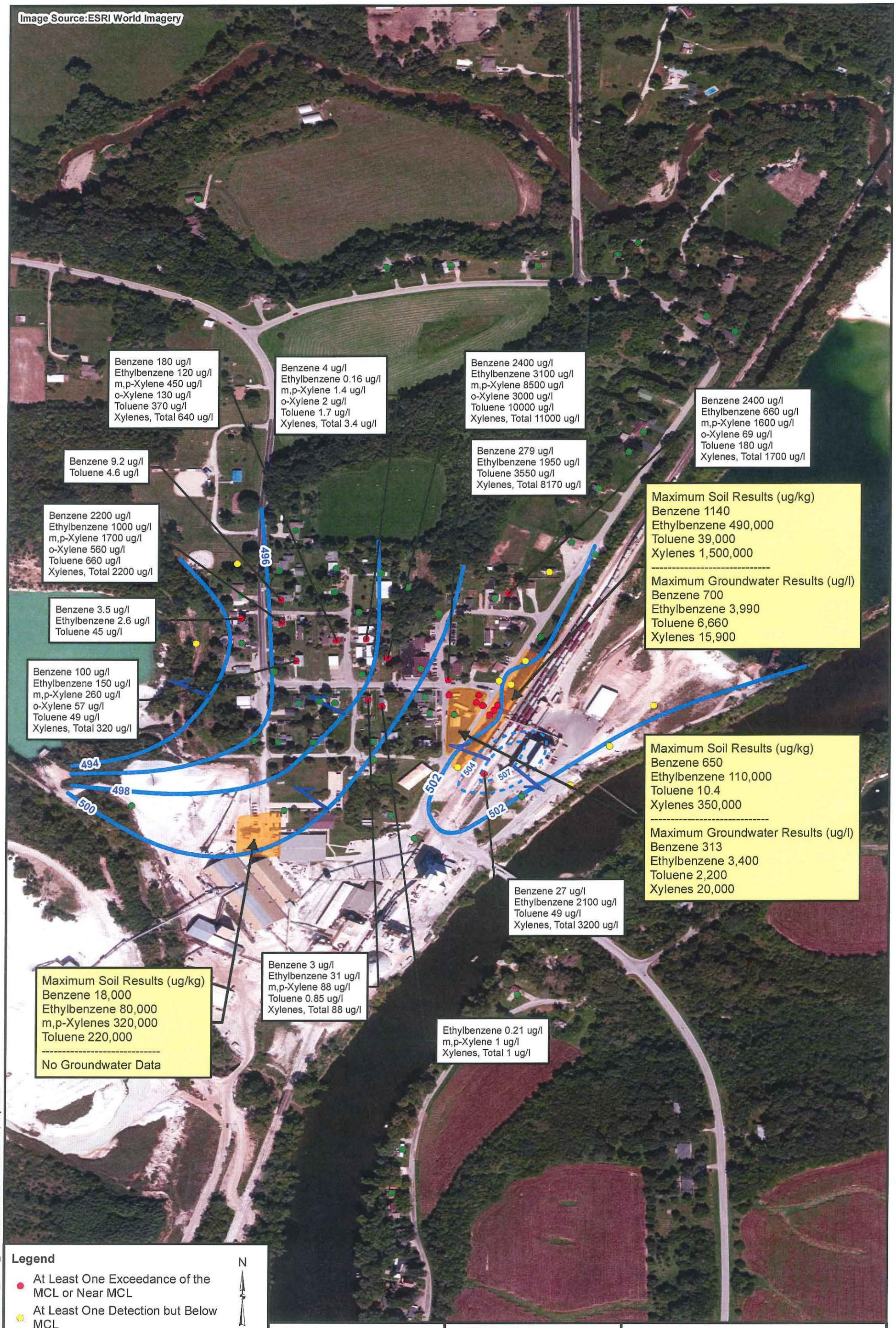
Image Source:ESRI World Imagery
Benzene 180 ug/l
Ethylbenzene 120 ug/l
m,p-Xylene 450 ug/l
o-Xylene 130 ug/l
Toluene 370 ug/l
Xylenes, Total 640 ug/l
Benzene 4 ug/l
Ethylbenzene 0.16 ug/l
m,p-Xylene 1.4 ug/l
o-Xylene 2 ug/l
Toluene 1.7 ug/l
Xylenes, Total 3.4 ug/l
Benzene 2400 ug/l
Ethylbenzene 3100 ug/l
m,p-Xylene 8500 ug/l
o-Xylene 3000 ug/l
Toluene 10000 ug/l
Xylenes, Total 11000 ug/l
Benzene 2400 ug/l
Ethylbenzene 660 ug/l
m,p-Xylene 1600 ug/l
o-Xylene 69 ug/l
Toluene 180 ug/l
Xylenes, Total 1700 ug/l
Benzene 9.2 ug/l
Toluene 4.6 ug/l
Benzene 279 ug/l
Ethylbenzene 1950 ug/l
Toluene 3550 ug/l
Xylenes, Total 8170 ug/l
Maximum Soil Results (ug/kg)
Benzene 1140
Ethylbenzene 490,000
Toluene 39,000
Xylenes 1,500,000
Maximum Groundwater Results (ug/l)
Benzene 700
Ethylbenzene 3,990
Toluene 6,660
Xylenes 15,900
Benzene 2200 ug/l
Ethylbenzene 1000 ug/l
m,p-Xylene 1700 ug/l
o-Xylene 560 ug/l
Toluene 660 ug/l
Xylenes, Total 2200 ug/l
Benzene 3.5 ug/l
Ethylbenzene 2.6 ug/l
Toluene 45 ug/l
Benzene 100 ug/l
Ethylbenzene 150 ug/l
m,p-Xylene 260 ug/l
o-Xylene 57 ug/l
Toluene 49 ug/l
Xylenes, Total 320 ug/l
496
494
498
500
502
504
507
Maximum Soil Results (ug/kg)
Benzene 650
Ethylbenzene 110,000
Toluene 10.4
Xylenes 350,000
Maximum Groundwater Results (ug/l)
Benzene 313
Ethylbenzene 3,400
Toluene 2,200
Xylenes 20,000
Benzene 27 ug/l
Ethylbenzene 2100 ug/l
Toluene 49 ug/l
Xylenes, Total 3200 ug/l
Maximum Soil Results (ug/kg)
Benzene 18,000
Ethylbenzene 80,000
m,p-Xylenes 320,000
Toluene 220,000
No Groundwater Data
Benzene 3 ug/l
Ethylbenzene 31 ug/l
m,p-Xylene 88 ug/l
Toluene 0.85 ug/l
Xylenes, Total 88 ug/l
Ethylbenzene 0.21 ug/l
m,p-Xylene 1 ug/l
Xylenes, Total 1 ug/l
Legend
At Least One Exceedance of the MCL or Near MCL
At Least One Detection but Below MCL
No Detections
GW Flow Direction
Groundwater Contours
Identifed BTEX Source Areas
N
0
400
Feet
Prepared for:
U.S. EPA REGION V
Contract No.: EP-S8-13-01
TDD: 0001/1406-08
Prepared By:
WESTON SOLUTIONS
300 Plaza Circle, Suite 202
Mundelein, IL 60060
Maximum BTEX Results Map
Wedron Ground Water
Wedron, Lasalle County, Illinois
File: D:\Wedron\mxd\PRP_BTEX_Max.mxd, 7/31/2014 10:47:00 PM, wojdakon