

APPENDIX D

**AIR MONITORING RESULTS AND POST-REMEDATION HUMAN
HEALTH RISK ASSESSMENT REPORT FOR AOC 3**

The following data is a collection of environmental readings taken during the drilling and monitoring well installation activities. These activities occurred over the course of three days: May 7-9, 2001 and followed the installation of three Monitoring Wells MW-5, MW-6 and MW-7 on the property of the Guilderland High School in Guilderland Center, NY.

Dust readings were collected using an MIE Personal DataRAM® real-time aerosol meter. The meter is calibrated annually at the manufacturer, and zero air is used to check the meter response against a programmed standard once daily. This zero calibration check was performed at the beginning of each day on the site. The meter will respond to dust concentration changes as low as 0.001 milligrams per cubic meter or mg/m³. The meter will also maintain a Short Term Exposure Limit or STEL value which is a dynamic 15 minute average of the previous 15 minutes of data collection. This value is noted in the observation column when deemed appropriate. Most of the recorded values were 10 second average values.

Photoionization Detector (PID) readings were also recorded using a MiniRAE 2000® PID equipped with a 10.7 electron volt ultraviolet lamp. This meter can record a response as low as 0.1 parts per million (ppm). The meter is calibrated to 100 ppm isobutylene. A calibration check was performed prior to each day's activities.

All readings were recorded by hand and observations were made regarding the sample location, the drilling crew's activities, the relative wind direction and the time.

Table 1 – PID and Personal DataRAM readings on 5/7/2001

Time	Location	PID ppm	Dust mg/m ³	Activity, Observations
1230	50' SW of MW-7 (upwind)		0.012	Light breeze from the west, upwind location.
1252	50' SW of MW-7 (upwind)	0.4		Driller begins driving split spoon.
1300	30' NE of MW-7 (downwind)	0.7	0.015	0-2' split spoon pulled from boring, no PID response at 2" from soil in spoon
1315	30' NE of MW-7 (upwind)		0.015	Drilling/ augering -- Dust levels range from 0.003 – 0.030
1316	30' NE of MW-7 (upwind)	0.4		Range – 0.1-0.4 ppm
1330	30' NE of MW-7 (downwind)	0.7	0.005	Wind shifts again along tree line, Drillers boring 6-8'
1335	20' W of MW-7	0.6	0.011	8-12' Depth augering casing.
1336	30' SW of MW-7	0.4	0.001	8-12' Depth augering casing.
1350	20' NE of MW-7	0.2	0.010	Auger to 10', Some dust visible at auger but background levels 30' downwind.
1405	20' NE of MW-7 (downwind)	0.3	0.015	Split spoon sample to 12'
1415	At MW-7 split spoon reading	0.4	0.015	Checking soil for PID response, none detected.
1415	20' W of MW-7 (upwind)	0.3	0.006	Augering to 14', wind light 0-5 mph from WSW along tree line.
1416	30' SSW of MW-7 along tree line	0.1	0.004	Auger slowing.
1417				Drill rig stopped due to hardness of soil, smallness of rig. Work to commence next day with larger drill rig.
				End of Day Calibrations performed on MiniRAE 2000. 100 ppm isobutylene checks out ok. (=89 ppm response on

				meter) Less than cal gas due to dilution using tedlar bag, and variation on gas conc.

Frequent wind shift at MW-7 on 5/7/01, Clear skies, 70 deg. F. , light breeze 0-5 mph generally from the west. Steve Laramie – Driller, Zebb Davis – Drilling Helper, Northstar Drilling out of Cortland, NY on site by Noon on Monday 5/7/01.

Table 2 – PID and Personal DataRAM readings on 5/8/2001

Time	Location	PID ppm	Dust mg/m ³	Activity, Observations
1120	30' NE (downwind) of MW-7	0.4	0.010	No visible dust or odors
1133				Augering to 12' before split spoon sampling begins. Drill cuttings shoveled to a 55 gallon drum for staging.
1144	20' N of MW-7	0.3	0.015	Split spoon and auger to 16'. No response on PID from soil.
1155	15' N of MW-7	0.2	0.008	Split spoon to 18'. No visible dust, no odors.
1159	40' SW of MW-7 along fenceline.	0.2	0.012	Split spoon to 20'. Dust levels from upwind fluxuate to as high as 0.060 mg/m ³
1310	20' NE of MW-7 (downwind)	0.6	0.005	Finishing boring and setting screen. Only background readings at borehole.
1320	30 NE of MW-7	0.1	0.006	STEL reading for dust. Split spoon to 24'.
1335	10' NE of borehole	0.1	0.098	Split spoon to 26'. Dust reading due to proximity to diesel exhaust (instantaneous).
1345				Drilling subsided.
1350	20' NE (downwind) of MW-7	0.2	0.014	Sand and grout added to well (setting well screen)
1430	20' NE (downwind) of MW-7	0.3	0.015	Non-intrusive stage of well construction
1436	30' SW of MW-7 (upwind)	0.2	0.009	STEL value for dust.
1500	25' NE (downwind) of MW-7	0.2	0.015	Well construction continues.
1510	25' NE (downwind) of MW-7	0.3	0.010	Bentonite grout poured into old and new boring locations. Well construction complete for the day.
1700	40' W of MW-5 (downwind)	0.3	0.015	Set up on MW-5. Positioning rig over boring location.
1705	20' NW of MW-5 (downwind)	0.2	0.012	Split spoon to 4' without a PID response.
1707	20' W of drill rig and MW-5	0.3	0.040	Split spoon to 4' without a PID response.
1716	30' SW of MW-5 (downwind)	0.3	0.006	Auger to 4', & prep for 6' split spoon.
1721	30' SW of MW-5 (downwind)	0.2	0.029	Split spoon advanced to 6'
1723	30' SW of MW-5 (downwind)	0.3	0.030	Split spoon advanced to 6'
1725	30' SW of MW-5 (downwind)	0.1	0.040	Auger to 6'
1727	20' N of MW-5	0.2	0.028	Split spoon advance to 8', auger to 8'
1729	20' ENE of MW-5	0.3	0.019	Auger to 8'
1732	30' SW of MW-5 (downwind)	0.7	0.052	Advance split spoon to 10'
1738	20' W of drill rig and MW-5	0.3	0.130	Diesel exhaust spike on dust level from the rig. No emission from MW-5 drilling point.
1739	Spoon readings	0.3	0.055	Dust STEL value entirely due to diesel exhaust. No PID Response to soils at 10'
1744	15' NE of MW-5	0.3	0.018	STEL = 0.002
1748	30 SW of MW-56	0.3	0.016	Advancing Split spoon to 14'. Soil wet at 12-14' and below.

Time	Location	PID ppm	Dust mg/m ³	Activity, Observations
1755	20' N of MW-5 (downwind)	0.4	0.025	Augering to 14'. Intrusive stage of work is over. No PID response noted from soil within Split Spoon.
1758		0.4	0.032	Final STEL reading. Rig shut down for the night.

Steady light wind for MW-7 on 5/8/01, Clear skies, 75 deg. F., Light breeze, variable, 0-5 mph generally from the west. Scott Preeds – Driller, Brandon Fisher – Drilling Helper, Northstar Drilling out of Cortland, NY. On site by 1100 on Tuesday 5/8/01. Baseball diamond on school grounds contributed dust levels to background when students walk across infield and kick up dust. Lack of rain has made infield a dust bowl. Dust levels reached 0.235 mg/m³ at the MW-7 work area for a short time < 2 min. following the disturbance of soils within the infield by some passing students.

At MW-5 set up and initial borings, winds are from the SW at 5-10 mph. Cool Breeze at 1700-1800. Breezy w/ frequent wind shifts to WNW and then to North.

Table 3 – PID and Personal DataRAM readings on 5/9/2001

Time	Location	PID ppm	Dust mg/m ³	Activity, Observations
0748	25' N of MW-5	0.4	0.018	Spoon advanced to 18', No sensible wind, wet soils at boring, high humidity
0757	30' NE of MW-5	0.8	0.019	Auger to 16', w/ no sensible breeze.
0759	30' SW of MW-5 (upwind)	0.6	0.022	Auger to 18'
0810	30' SW of MW-5 (upwind)	1.1	0.075	STEL= 0.037, Advancing spoon to 20'
0820	30' SW of MW-5 (upwind)	0.3	0.050	Drill rig engine turned off as well construction begins. Well set at 20' BGS
0825	20' N of MW-5 (downwind)	0.7	0.031	Bentonite slurry prep begins
0845	25' NW of MW-5	0.7	0.029	Periodic engine exhaust, high humidity are viable contributors to PID and dust levels. Levels not due to fugitive soil emissions.
0857	20' N of MW-5 (downwind)	0.8	0.034	Background levels recorded while installing well screen.
0859	30' SW of MW-5	0.6	0.054	Installing well screen. Light wind from the south now.
0910	30' SW of MW-5	1.2	0.134	Diesel exhaust readings drift into sampling zone.
0911	20' N of MW-5	0.4	0.042	Adjacent to drill rig, no sensible breeze.
1008	Adjacent to MW-6	0.4	0.029	Site is 1' east of Shot put / Javelin circle and 20' south of running track.
1013	12' W of MW-6, at fenceline around running track.	1.7	0.030	Diesel exhaust readings drift into sampling zone. Split spoon advances to 4', with no odor or PID response in soils. STEL = 0.019
1018	12' W of MW-6	1.8	0.110	Again, diesel exhaust drifts to meter. Split spoon advances to 8', with no odor or PID response in soils. STEL = 0.029
1022	12' W of MW-6	1.0	0.029	Auger to 8', STEL = 0.031
1025	12' W of MW-6	0.9	0.031	Wind shift, now from NE. Split spoon advances to 10',

Time	Location	PID ppm	Dust mg/m ³	Activity, Observations
1027	30' NE of MW-6 (upwind)	0.7	0.031	Split spoon advances to 10'
1028	30' SW of MW-6 (downwind)	1.0	0.027	Auger to 10'
1029	30' SW of MW-6 (downwind)	1.1	0.030	Auger to 10'
1031	15' E of MW-6 (lateral/upwind)	1.3	0.027	Auger to 10'. No PID response to soils in 8'-10' split spoon
1033	30' NE of MW-6 (upwind)	1.1	0.028	Split spoon and augering to 12' bgs
1036	12' W of MW-6 (lateral)	1.0	0.034	Light & variable wind 5-10 mph from NE
1040	12' W of MW-6 (lateral)	1.0	0.029	Ground water reached in 12-14' bgs
1048	20' SW of MW-6 (downwind)	1.1	0.030	Diesel exhaust only, soils have been drummed or tamped down. Split spoons are pushed to below water table.
1055	Both 20' upwind and 20' downwind of MW-6 = same concentrations in air.	1.1	0.023	Drill rig off. Water level allowed to stabilize.
1100	20' NE of MW-6 (upwind)	1.2	0.022	Auger to 17' and set well screen from 7' to 17'.
1103	15' SW of MW-6	1.1	0.033	Driller augers to 15' bgs
1110	Meters off	-	-	Drill crew returns to decon pad.
1241	20' SW of MW-6 (downwind)	0.4	0.006	Pouring sand for well construction. Well completed with no concentrations exceeding background. Any exceedances above background were due to drill rig diesel exhaust emissions only.

Weather on 5/9/01 is cool, overcast, 50 deg. F at 0745.