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January 18, 2011

VIA EMAIL AND REGULAR MAIL

Mr. Galo Jackson
Remedial Project Manager
US EPA Region 4
61 Forsyth St. S.W.
Atlanta, Georgia 30303-8960

Re: Screening of Constituents with Limited Detections and Detection Limits Exceeding the EPA Regional Screening Level Table
Operable Unit #3 (OU3), LCP Chemicals Site, Brunswick, Georgia

Dear Mr. Jackson:

The purpose of this correspondence is to provide you with the information regarding the above-referenced subject that you requested during our meeting on December 8, 2010, which was held at the U.S. Environmental Protection Agency's ("EPA") offices, and during our follow-up webinar held on December 22, 2010.

The previous discussions between Honeywell and EPA regarding this topic focused on whether to carry forward in the Human Health Baseline Risk Assessment ("HHBRA") for OU3 as Constituents of Potential Concern ("COPC") chemicals that have not been detected in site soils or that have a low frequency of detection but have detection limits ("DLs") that often exceed the EPA's residential Regional Screening Levels ("RSLs")[1] for soil. The EPA suggested using a methodology of comparing the DLs for these chemicals with the EPA's Contract Required Quantitation Limits ("CRQLs") and RSLs. On December 2, 2010, EPA provided Honeywell with a table illustrating the proposed methodology applied to the Quadrant 4 data set.[2] Exhibits 1-6, which are attached to this letter, present the implementation of your proposed methodology to the full datasets used for the individual Exposure Units ("EUs") (comprised of the Offsite Tank Farm ("OTF") and Quadrants 1 through 4). For sake of completeness, we have also applied your proposed methodology to the site-wide data set (i.e., the pooled data for all EUs).

The specific criteria for the EPA's requested methodology includes the elimination of chemicals with fewer than:

- 10% of detection limits below the CRQL (red font text in Exhibits 1-6);

[1] These are the constituents identified with a "B" footnote in Exhibits A1-A5 of Honeywell's April 21, 2010 OU3 response to comment letter.
[2] An updated Quad 4 table was provided on December 21, 2010.

- 5% of detection limits below the RSL[3] (blue font text in Exhibits 1-6); and
- 10 analyses in the site-wide data set (yellow shaded rows in Exhibits 1-6).

The chemicals remaining after the application of the criteria listed above are shown in black font text in Exhibits 1-6 and are summarized in the following table:

EU Based Parameters	Exposure Unit	Site-Wide Based Parameters
1,1,1,2-Tetrachloroethane	[illegible]	
1,1,2,2-Tetrachloroethane	[illegible]	
1,1,2-Trichloroethane	[illegible]	
1,2-Dichloroethane	[illegible]	
1,2-Dichloropropane	[illegible]	
1,2,3-Trichloropropane	[illegible]	1,2,3-Trichloropropane
1,2,4-Trichlorobenzene	[illegible]	
2,4-Dinitrophenol	[illegible]	2,4-Dinitrophenol
2,4-Dinitrotoluene	[illegible]	2,4-Dinitrotoluene
2,6-Dinitrotoluene	[illegible]	2,6-Dinitrotoluene
3,3'-Dichlorobenzidine	[illegible]	3,3'-Dichlorobenzidine
4-Chloroaniline	[illegible]	4-Chloroaniline
4,6-Dinitro-2-methylphenol	[illegible]	4,6-Dinitro-2-methylphenol
Alpha-Chlordane	[illegible]	
Aroclor-1016	[illegible]	Aroclor-1016
Aroclor-1221	[illegible]	Aroclor-1221
Aroclor-1232	[illegible]	Aroclor-1232
Aroclor-1242	[illegible]	Aroclor-1242
Aroclor-1248	[illegible]	Aroclor-1248
Aroclor-1254	[illegible]	Aroclor-1254
Aroclor-1260	[illegible]	Aroclor-1260
Aroclor-1262	[illegible]	
Aroclor-1268	[illegible]	Aroclor-1268
Benzo(b/k)fluoranthene	[illegible]	Benzo(b/k)fluoranthene
Bis(2-Chloroethyl) ether	[illegible]	bis(2-Chloroethyl) ether
Bromobenzene	[illegible]	
Bromodichloromethane	[illegible]	
Bromomethane	[illegible]	
Carbon tetrachloride	[illegible]	
Chloroform	[illegible]	
Cobalt	[illegible]	Cobalt
Dieldrin	[illegible]	Dieldrin
Hexachlorobenzene	[illegible]	Hexachlorobenzene
Hexachlorobutadiene	[illegible]	Hexachlorobutadiene
Naphthalene	[illegible]	
Nitrobenzene	[illegible]	Nitrobenzene
N-Nitroso-di-n-propylamine	[illegible]	N-Nitroso-di-n-propylamine
Pentachlorophenol	[illegible]	Pentachlorophenol
Tetrachloroethene	[illegible]	
Thallium	[illegible]	
Toxaphene	[illegible]	Toxaphene
Vinyl chloride	[illegible]	

[3] The RSLs for non-carcinogens were adjusted to a hazard quotient of 0.1.

The analysis illustrates that significantly fewer chemicals carry forward as COPC when the criteria are applied on a site-wide basis. This is because when the data set is segregated into smaller EU-specific data sets, a small number of DLs exceeding either the CRQLs or RSLs can disproportionately affect the exceedence percentages. In addition, the vast majority of detection limit exceedences of RSLs and CRQLs are those associated with the QAL on-site laboratory utilized during the Time Critical Removal Action.

It is our understanding that EPD perhaps desires the condition that all of the constituents eliminated as COPC based on this methodology would still be discussed qualitatively in the uncertainty section of the HHBRA. In addition, EPA's proposal also suggests that additional site characterization might be performed for the "black font" chemicals during a later stage in the remedial action process (e.g., remedial design). However as we discussed during our meeting on December 8, 2010, any method of examining data on a frequency–of-exceedence basis for this Site is strongly biased to the large percentage of on-site laboratory data records to the overall data set. Additional site characterization performed at a later stage in the remedial action process will not substantially change the percentages.

Because of this bias, EPA asked Honeywell to further examine the Level IV data portion of the overall data set for the "blank font" parameters with respect to comparison of detections and DL values to the respective RSL values. When the dataset is evaluated in this manner, there is still a significant amount of Level IV data collected from all areas of the Site for all of the parameters of interest herein. We have illustrated this using a GIS-based analysis that shows that for most of these parameters the Level IV data DLs are not of issue (i.e., DLs below CRQLs and RSLs). The figures associated with this analysis are provided as Exhibit 7.[4]

This GIS-based analysis demonstrates that all of the parameters evaluated herein have been adequately characterized and do not warrant being considered as COPC, given that there are very few detects and where detected the values are below RSLs. The parameters with more significant DLs issues are as follows:

- 2,4-dinitrotoluene – **no samples with detections**; 154 of 154 DLs (100%) exceed the adjusted RSL while 31 of 154 DLs (20%) exceed the actual RSL value.
- 3,3'-dichlorobenzidine – **no samples with detections**; 33 of 154 (21%) DLs exceed the RSL.
- 4,6-dinitro-2-methylphenol – **of two detections, only one is above the RSL**; 144 of 146 (99%) of DLs exceed the RSL. However, only 28/146 (19%) DLs exceed the CRQL on a site-wide basis. All of the samples with DLs that exceed the CQRL were analyzed by EPA's Environmental Sciences Division ("ESD") laboratory.
- bis(2-chloroethyl)ether - **no samples with detections**; 153 of 154 (99%) DLs exceed the RSL. However, only 25/154 (16%) DLs exceed the CRQL on a site-wide basis. All of the samples with DLs that exceed the CQRL were analyzed by the ESD laboratory.

[4] The figures in Exhibit 7 are not individually numbered, but they do include all of the "blank font" parameters in the table above and in Exhibits 1-6. There are two figures associated with each chemical; the first shows actual detections (no locations are depicted where all results are non-detect) and the second shows the non-detect DL values. In both cases the values are grouped into concentration range classes with "break points" corresponding to the residential RSL values.

- hexachlorobenzene – **three detections all below the RSL value**; 151 of 154 (98%) DLs exceed the RSL. However, only 25/154 (16%) DLs exceed the CRQL on a site-wide basis. All of the samples with DLs that exceed the CQRL were analyzed by the ESD laboratory.
- n-nitroso-di-n-propylamine - **no samples with detections**; 154 of 154 (100%) DLs exceed the RSL. However, only 25/154 (16%) DLs exceed the CRQL on a site-wide basis. All of the samples with DLs that exceed the CQRL were analyzed by the ESD laboratory.
- pentachlorophenol - **no samples with detections**; 128 of 154 (83%) DLs exceed the RSL. However, only 30/154 (19%) DLs exceed the CRQL on a site-wide basis. All of the samples with DLs that exceed the CQRL were analyzed by the ESD laboratory.
- thallium – 31 samples with detections site-wide, **all below the adjusted RSL**; 92 of 122 DLs (75%) exceed the adjusted RSL; 16 of 122 (13%) DLs exceed the RSL.

The data for the polychlorinated biphenyls (PCB), as represented by the Aroclor-specific analyses, warrants further discussion in the context of this analysis. For most of the EUs, Aroclors 1254, 1260, and 1268 are identified as COPC based on maximum detected concentrations that exceed the residential RSLs. As shown in the Attachment 7 figures for these Aroclors, there are multiple detections in the Level IV laboratory data, many of which are above the residential RSL value of 0.22 mg/kg used for COPC screening. Indeed, these three Aroclors are known to have been used at the Site and, thus, is appropriate that they are indentified as COPC.

All of the other Aroclors, however, have very few detections and only one of these detections (for Aroclor 1221) exceeds the residential RSL within the entire Level IV data set. Further, the Level IV datasets for all of the Aroclors demonstrate robust spatial coverage of the Site and furthermore, the vast majority of detection limits that are below the residential RSLs. Given the fact that each Aroclor represents a mixture of individual PCB congeners, and that differential environmental "weathering" of these congeners over time can make it more difficult to identify the specific Aroclor present in a sample,[5] it is not surprising that there might be a few detections reported by the laboratory for Aroclors not associated with the Site. A stark contrast in number of detections is evident when comparing the figures for the three site-related Aroclors (1254, 1260, and 1268) to all other Aroclors. Therefore, COPC status is justified only for the three site-related Aroclors – 1254, 1260, and 1268.

Finally, EPA's ESD laboratory did not differentiate between benzo(b)- and benzo(k)-fluoranthene. There is no RSL value for benzo(b/k)fluoranthene. Honeywell proposes that the results reported by the ESD laboratory for benzo(b/k)fluoranthene be grouped with the analytical data for benzo(b)fluoranthene for calculating exposure point concentrations. This is a conservative manner of handling these data as the RSL value for benzo(b)fluoranthene is lower than the value for benzo(k)fluoranthene by one order of magnitude.

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[5] EPA's SW846 Method 8082A (Polychlorinated Biphenyls by Gas Chromatography) states "Aroclors are multi-component mixtures. When samples contain more than one Aroclor, a higher level of analyst expertise is required to attain acceptable levels of qualitative and quantitative analysis. The same is true of Aroclors that have been subjected to environmental degradation ("weathering") or degradation by treatment technologies. Such weathered multi-component mixtures may have significant differences in peak patterns compared to those of Aroclor standards."

We appreciate the opportunity to provide the above information to EPA for its consideration. Please let me know if you have any additional questions or need any other information related to this topic. As always, I can be reached at 973-722-1656.

Sincerely,

Kirk J. Kessler, P.G.
Environmental Planning Specialists, Inc.

Exhibits

cc: Jim McNamara, Georgia EPD
Prashant Gupta, Honeywell

Exhibit 1

Comparisons of Detection Limits to CRQLs and RSLs - OTF Data Set

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
2,4-Dinitrotoluene	5	1.6	3	0	0	0	0	
4,6-Dinitro-2-methylphenol	10	0.49	3	0	0	0	0	
Aroclor-1016	0.033	0.39	27	27	100	24	89	ALL QAL
Aroclor-1221	0.033	0.14	27	27	100	24	89	ALL QAL
Aroclor-1232	0.033	0.14	27	27	100	24	89	ALL QAL
Aroclor-1242	0.033	0.22	27	27	100	24	89	" "
Aroclor-1248	0.033	0.22	27	27	100	24	89	" "
Aroclor-1254 keep	0.033	0.22	27	27	100	24	89	" "
Aroclor-1260 keep	0.033	0.22	27	27	100	24	89	" "
Aroclor-1268 keep	0.033	0.22	27	27	100	24	89	
bis(2-Chloroethyl) ether	5	0.21	3	0	0	3	100	only 3 records
Indeno(1,2,3-cd)pyrene	5	0.15	27	0	0	27	100	ALL QAL
N-Nitroso-di-n-propylamine	5	0.069	3	0	0	3	100	ALL CORR
Thallium	2.5 ?	0.51	3	0	0	3	100	ALL CORR

Notes:

(1) Values are the current EPA Contract Laboratory Program "Medium Soil" Contract Required Quantitation Limits (CRQL).

(2) Values are November 2010 Residential RSLs; RSLs for non-carcinogens were adjusted to a HQ of 0.1.

Yellow shaded rows indentify chemicals with fewer than 10 analytical records in the Sitewide dataset.

Red text indentifies chemicals with less than 10% of the detection limits (DLs) exceeding the relevant Medium Soil CRQLs.

Blue text identifies chemicals with less than 5% of the DLs exceeding residential RSLs.

(1)

Exhibit 2

Comparisons of Detection Limits to CRQLs and RSLs - Quad 1 Data Set

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
1,2,3-Trichloropropane	NA	0.005	10	NA	NA	7	70	
1,2,4-Trichlorobenzene	0.25	22	45	42	93	6	13.3	
2-Nitroaniline	10	61	42	1	2	0	0	
2,4-Dinitrophenol	10	12	42	19	45	17	40.5	
2,4-Dinitrotoluene	5	1.6	42	19	45	19	45.2	
2,6-Dinitrotoluene	5	6.1	42	19	45	17	40.5	
3-Nitroaniline	10	61	42	1	2	0	0	
3,3'-Dichlorobenzidine	5	1.1	42	19	45	19	45.2	
4-Chloroaniline	5	2.4	42	19	45	19	45.2	
4,6-Dinitro-2-methylphenol	10	0.49	42	19	45	19	45.2	
Aroclor-1016	0.033	0.39	60	48	80	24	40	
Aroclor-1221	0.033	0.14	60	48	80	24	40	
Aroclor-1232	0.033	0.14	60	48	80	24	40	
Aroclor-1242	0.033	0.22	60	48	80	24	40	
Aroclor-1248	0.033	0.22	60	48	80	24	40	
Aroclor-1254	0.033	0.22	60	45	75	24	40	
bis(2-Chloroethyl) ether	5	0.21	42	19	45	42	100	
Hexachlorobenzene	5	0.3	42	19	45	42	100	
Hexachlorobutadiene	5	6.2	45	19	42	17	37.8	
Naphthalene	5	3.6	68	19	28	19	27.9	
Nitrobenzene	5	4.8	42	19	45	19	45.2	
N-Nitroso-di-n-propylamine	5	0.069	42	19	45	42	100	
Pentachlorophenol	10	0.89	42	19	45	25	59.5	
Pyridine	NA	7.8	1	NA	NA	1	100	Less than 10 total records Site-wide
Thallium	5	0.51	30	4	13	27	90	

Notes:

(1) Values are the current EPA Contract Laboratory Program "Medium Soil" Contract Required Quantitation Limits (CRQL).

(2) Values are November 2010 Residential RSLs; RSLs for non-carcinogens were adjusted to a HQ of 0.1.

Yellow shaded rows indentify chemicals with fewer than 10 analytical records in the Sitewide dataset.

Red text indentifies chemicals with less than 10% of the detection limits (DLs) exceeding the relevant Medium Soil CRQLs.

Blue text identifies chemicals with less than 5% of the DLs exceeding residential RSLs.

Exhibit 3

Comparisons of Detection Limits to CRQLs and RSLs - Quad 2 Data Set

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
2,4-Dinitrotoluene	5	1.6	19	0	0	0	0	
4,6-Dinitro-2-methylphenol	10	0.49	19	0	0	0	0	
Aldrin	0.0017	0.069	19	2	0	0	100	ALL ESD
Aroclor-1016	0.033 0.0017	0.029	60 21	35 20	95	35 1	5	ALL QAL & ESD
Aroclor-1232	0.033	0.39	60	35	58	13	22	ALL QAL & ESD
Aroclor-1242	0.033	0.14	60	35	58	15	25	QAL & ESD
Aroclor-1248	0.033	0.22	60	35	58	14	23	QAL & ESD
bis(2-Chloroethyl) ether	5	0.21	19	0	0	19	100	
Dieldrin	0.0033	0.03	21	21	100	1	5	
Hexachlorobenzene	5	0.21	19	0	0	19	100	
N-Nitroso-di-n-propylamine	5	0.3	19	0	0	19	100	
Thallium	1.5	0.51	20	0	0	18	90	
Toxaphene	0.17	0.44	21	21	100	2	10	ALL ESD
Vinyl chloride	0.25	0.06	34	0	0	2	6	ALL ESD

Notes:

(1) Values are the current EPA Contract Laboratory Program "Medium Soil" Contract Required Quantitation Limits (CRQL).

(2) Values are November 2010 Residential RSLs; RSLs for non-carcinogens were adjusted to a HQ of 0.1.

Yellow shaded rows indentify chemicals with fewer than 10 analytical records in the Sitewide dataset.

Red text indentifies chemicals with less than 10% of the detection limits (DLs) exceeding the relevant Medium Soil CRQLs.

Blue text identifies chemicals with less than 5% of the DLs exceeding residential RSLs.

(3)

Exhibit 4

Comparisons of Detection Limits to CRQLs and RSLs - Quad 3 Data Set

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
1,1,1,2-Tetrachloroethane	NA	1.9	13	NA	NA	2	15	ALL BELOW ESD
1,1,2,2-Tetrachloroethane	0.25	0.56	287	52	18	40	14	MIXED LABS
1,1,2-Trichloroethane	0.25	1.1	287	52	18	25	9	" "
1,2-Dibromoethane	0.25	0.034	20	0	0	2	10	
1,2-Dibromo-3-chloropropane	0.25	0.0056	20	0	0	8	40	
1,2-Dichloroethane	0.25	0.45	287	52	18	40	14	
1,2-Dichloropropane	0.25	0.89	287	52	18	25	9	
1,2,3-Trichloropropane	NA	0.005	13	NA	NA	5	38	
1,2,4-Trichlorobenzene	0.25	22	74	64	86	2	3	ALL ESD
2,4-Dinitrophenol	10	12	64	9	14	5	8	
2,4-Dinitrotoluene	5	1.6	64	5	8	11	17	
2,4,6-Trichlorophenol	5	44	64	5	8	2	3	
2,6-Dinitrotoluene	5	6.1	64	5	8	5	8	
3-Nitroaniline	10	61	64	5	8	0	0	
3,3'-Dichlorobenzidine	5	1.1	64	5	8	12	19	
4-Chloroaniline	5	2.4	64	5	8	7	11	
4,6-Dinitro-2-methylphenol	10	0.49	59	8	14	57 ~~10~~	17	
Aldrin	0.0017	0.029	38	27	71	1	3	
alpha-BHC	0.0017	0.077	38	28	74	1	3	
Aroclor-1016	0.033	0.39	399	384	96	323	81	
Aroclor-1221	0.033	0.14	399	387	97	339 ~~336~~	85 ~~84~~	
Aroclor-1232	0.033	0.14	399	386	97	335	84	
Aroclor-1242	0.033	0.22	399	386	97	334	84	
Aroclor-1248	0.033	0.22	399	385	96	334	84	
Benzo(b/k)fluoranthene	~~5.0~~ NA	0.15	3	~~3~~ NA	~~100~~ NA	3	100	
bis(2-Chloroethyl) ether	5	0.21	64	5	8	63	98	
bis(2-Ethylhexyl) phthalate	5	35	64	5	8	2	3	
Bromobenzene	NA	30	13	NA	NA	0	0	
Bromodichloromethane	0.25	0.27	287	52	18	48	17	
Bromomethane	0.25	0.73	285	51	18	~~24~~ 2	~~8~~ 1	
Cadmium	~~5.0~~ NA	7	39	NA	NA	2	5	
Carbon tetrachloride	0.25	0.61	287	51	18	35	12	
Chloroform	0.25	0.29	287	52	18	~~47~~ ~~45~~	16	
Chrysene	5	15	312	8	3	2	1	
Cobalt	~~5.0~~ NA	2.3	34	~~13~~ NA	~~38~~ NA	14	41	
Dibenzo(a,h)anthracene	5	0.015	312	9	3	298	96	

(4)

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
Dieldrin	0.0033	0.03	38	28	74	13	34	
Heptachlor epoxide	0.0017	0.053	38	30	79	1	3	
Hexachlorobenzene	5	0.3	64	5	8	63	98	
Hexachlorobutadiene	5	6.2	72	5	7	5	7	
N-Nitroso-di-n-propylamine	5	0.069	64	5	8	64	100	
Pentachlorophenol	10	0.89	64	10 0	0	61	95	
Selenium	3.5 NA	39	39	2 NA	5.0 NA	1	3	
Tetrachloroethene	0.25	0.55	287	52	18	40	14	
Trichloroethene	0.25	2.8	287	52	18	8	3	
Vinyl chloride	0.25	0.06	285	52	18	88	31	

Notes:

(1) Values are the current EPA Contract Laboratory Program "Medium Soil" Contract Required Quantitation Limits (CRQL).

(2) Values are November 2010 Residential RSLs; RSLs for non-carcinogens were adjusted to a HQ of 0.1.

Yellow shaded rows indentify chemicals with fewer than 10 analytical records in the Sitewide dataset.

Red text indentifies chemicals with less than 10% of the detection limits (DLs) exceeding the relevant Medium Soil CRQLs.

Blue text identifies chemicals with less than 5% of the DLs exceeding residential RSLs.

5

Exhibit 5

Comparisons of Detection Limits to CRQLs and RSLs - Quad 4 Data Set

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
1,2-Dibromoethane	0.25	0.034	25	0	0	8	32	
1,2-Dibromo-3-chloropropane	0.25	0.0056	25	0	0	8	32	
2,4-Dinitrotoluene	5	1.6	26	1	4	1	4	
3-Nitroaniline	10	61	26	0	0	0	0	
3,3-Dichlorobenzidine	5	1.1	26	1	4	2	8	
4,6-Dinitro-2-methylphenol	10	0.49	23	1	4	23	100	
4,4'-DDT	0.0033	1.7	37	19	51	1	3	
Aldrin	0.0017	0.029	37	20	54	2	5	
alpha-BHC	0.0017	0.077	37	21	57	1	3	
Aroclor-1016	0.033	0.39	364	333	91	259	71	
Aroclor-1221	0.033	0.14	364	333	91	275 273	76 75	
Aroclor-1232	0.033	0.14	364	333	91	270 269	74	
Aroclor-1242	0.033	0.22	364	332	91	265	73	
Aroclor-1248	0.033	0.22	364	332	91	264	73	
Aroclor-1262	0.033	0.14	17	2	12	1	6	
Benzidine	5	0.0005	7	1	14	7	100	Less than 10 total records Site-wide
Benzo(b/k)fluoranthene	5.0 NA	0.15	10	1 NA	10 NA	9	90	
beta-BHC	0.0017	0.27	37	22	59	1	3	
bis(2-Chloroethyl) ether	5	0.21	26	1	3.8	26	100	
Chlordane	0.0017 5	1.6	1	1	100	1	100	one record ESL
Dieldrin	0.0033	0.03	37	22	59	5	14	
Endrin	0.0033	1.8	37	21	57	1	3	
Heptachlor	0.0017	0.11	37	23	62	1	3	
Heptachlor epoxide	0.0017	0.053	37	22	59	1	3	
Hexachlorobenzene	5	0.3	26	1	4	24	92	
Nitrobenzene	5	4.8	26	1	4	1	4	
N-Nitrosodimethylamine	NA	0.0023	7	NA	NA	7	100	Less than 10 total records Site-wide
N-Nitroso-di-n-propylamine	5	0.069	26	1	4	26	100	
Pentachlorophenol	10	0.89	26	1	4	23	88	
Thallium	2.5 5	0.51	35	6 4	17 11	18	51	

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	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
Toxaphene	✓ 0.17	0.44	37	✓ 25	68	✓ 13	35	
Vinyl chloride	✓ 0.25	0.06	179	✓ 3	2	✓ 19	11	

Notes:

(1) Values are the current EPA Contract Laboratory Program "Medium Soil" Contract Required Quantitation Limits (CRQL).

(2) Values are November 2010 Residential RSLs; RSLs for non-carcinogens were adjusted to a HQ of 0.1.

Yellow shaded rows indentify chemicals with fewer than 10 analytical records in the Sitewide dataset.

Red text indentifies chemicals with less than 10% of the detection limits (DLs) exceeding the relevant Medium Soil CRQLs.

Blue text identifies chemicals with less than 5% of the DLs exceeding residential RSLs.

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Exhibit 6

Comparisons of Detection Limits to CRQLs and RSLs - Site Wide Data Set

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
1,1,1,2-Tetrachloroethane	NA	2	45	NA	NA	2	4	
1,1,2,2-Tetrachloroethane	0.25	0.59	585	55	9	42	7	
1,1,2-Trichloroethane	0.25	1.1	585	55	9	27	5	
1,2-Dibromoethane	0.25	0.034	50	0	0	10	20	
1,2-Dibromo-3-chloropropane	0.25	0.0056	50	0	0	16	32	
1,2-Dichloroethane	0.25	0.45	585	55	9	42	7	
1,2-Dichloropropane	0.25	0.89	585	55	9	27	5	
1,2,3-Trichloropropane	NA	0.005	51	NA	NA	21	41	
1,2,4-Trichlorobenzene	0.25	22	194	154	79	2	1	
2-Nitroaniline	10	NA	154	6	4	NA	NA	
2,4-Dinitrophenol	10	12	154	29	19	23	15	
2,4-Dinitrotoluene	5	1.6	154	25	16	31	20	
2,4,6-Trichlorophenol	5	44	154	25	16	2	1	
2,6-Dinitrotoluene	5	6.1	154	25	16	23	15	
3-Nitroaniline	10	61	154	6	4	0	0	
3,3'-Dichlorobenzidine	5	1.1	154	25	16	33	21	
4-Chloroaniline	5	2.4	154	25	16	27	18	
4,4'-DDT	0.0033	1.7	125	87	70	1	1	
4,6-Dinitro-2-methylphenol	10	0.49	146	28	19	31	21	
Aldrin	0.0017	0.029	125	93	74	4	3	
alpha-BHC	0.0017	0.077	125	95	76	2	2	
Aroclor-1016	0.033	0.39	910	827	91	643	71	
Aroclor-1221	0.033	0.17	910	830	91	672	74	
Aroclor-1232	0.033	0.17	910	829	91	667	73	
Aroclor-1242	0.033	0.22	910	828	91	661	73	
Aroclor-1248	0.033	0.22	910	827	91	660	73	
Aroclor-1254	0.033	0.22	910	790	87	659	72	
Aroclor-1260	0.033	0.22	910	811	89	658	72	
Aroclor-1262	0.033	0.14	30	3	10	2	7	
Aroclor-1268	0.033	0.22	860	744	87	655	76	
Benzidine	5	0.0005	7	0	0	7	100	Less than 10 total records Site-wide
Benzo(b/k)fluoranthene	NA	0.15	72	NA	NA	56	78	
beta-BHC	0.0017	0.27	125	97	78	1	1	
bis(2-Chloroethyl) ether	5	0.21	154	25	16	153	99	
bis(2-Ethylhexyl) phthalate	5	35	154	25	16	2	1	
Bromobenzene	NA	30	51	NA	NA	0	0	

	CRQL Medium Soil [1] (ppm)	Residential RSL [2] (ppm)	<=10 # of records	# DL above CRQL	<10% Above % DL above CRQL	# DL above RSL	<5% Above % DL above RSL	Comments
Bromodichloromethane	0.25	0.28	585	55	9	51	9	
Bromomethane	0.25	0.73	575	54	9	2	0.35	
Cadmium	0.5 NA	7	130	NA	NA	2	2	
Carbon tetrachloride	0.25	0.61	585	54	9	37	6	
Chlordane	5	1.6	11	0	0	1	9	
Chloroform	0.25	0.3	585	55	9	47	8	
Chrysene	5	15	649	29	4	2	0	
Cobalt	5.0 NA	2.3	122	NA	NA	21	17	
Dibenzo(a,h)anthracene	5	0.015	648	31	5	599	92	
Dieldrin	0.0033	0.03	125	97	78	19	15	
Endrin	0.0033	1.8	125	96	77	1	1	
Heptachlor	0.0017	0.11	125	96	77	1	1	
Heptachlor epoxide	0.0017	0.053	125	99	79	2	2	
Hexachlorobenzene	5	0.3	154	25	16	151	98	
Hexachlorobutadiene	5	6.2	184	25	14	23	13	
Indeno(1,2,3-cd)pyrene	5	0.15	649	31	5	578	89	
Naphthalene	5	3.6	649	29	4	31	5	
Nitrobenzene	5	4.8	154	25	16	25	16	
N-Nitrosodimethylamine	NA	0.0023	7	NA	NA	7	100	Less than 10 total records Site-wide
N-Nitroso-di-n-propylamine	5	0.069	154	25	16	154	100	
Pentachlorophenol	10	0.89	154	30	19	128	83	
Pyridine	NA	7.8	1	NA	NA	1	100	Less than 10 total records Site-wide
Selenium	3.5 NA	39	130	NA	NA	1	1	
Tetrachloroethene	0.25	0.55	585	55	9	42	7	
Thallium	2.5 5	0.51	122	0	0	92	75	
Toxaphene	0.17	0.44	125	105	84	30	24	
Trichloroethene	0.25	2.8	585	55	9	8	1	
Vinyl chloride	0.25	0.06	575	55	10	112	19	

Notes:

(1) Values are the current EPA Contract Laboratory Program "Medium Soil" Contract Required Quantitation Limits (CRQL).

(2) Values are November 2010 Residential RSLs; RSLs for non-carcinogens were adjusted to a HQ of 0.1.

Yellow shaded rows indentify chemicals with fewer than 10 analytical records in the Sitewide dataset.

Red text indentifies chemicals with less than 10% of the detection limits (DLs) exceeding the relevant Medium Soil CRQLs.

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Exhibit 7

GIS Figures for "Black Font" Chemicals