

TABLE 3.6-1
DYE TRACER LABORATORY RESULTS FOR EXTRACTION WELLS (water samples)
 Former York Naval Ordnance Plant
 1425 Eden Road, York, PA 17402

CRAWFORD HYDROLOGY LAB

* Hydrogeologists, Geologists, Environmental Scientists *
 * Karst Groundwater Investigations * Fluorescent Dye Analysis

LABORATORY REPORT SHEET
FLUORIMETRIC ANALYSIS RESULTS

Harley Davidson

Analysis requested by:

Jennifer Reese - GSC

D&C GREEN 8	FLUORESCIN	EOSINE	RHODAMINE WT	SULPHORHODAMINE B
Fabric Brightening	Color Index: Acid Yellow 73	Color Index: Acid Red 87	Color Index:	Color Index: Acid Red 52
Dye Receptor: Activated Charcoal	Dye Receptor: Activated Charcoal	Dye Receptor: Activated Charcoal	Dye Receptor: Activated Charcoal	Dye Receptor: Activated Charcoal
Analysis by: Spectrofluorophotometer	Analysis by: Spectrofluorophotometer	Analysis by: Spectrofluorophotometer	Analysis by: Spectrofluorophotometer	Analysis by: Spectrofluorophotometer

WATER SAMPLES																		Comments		
D&C GREEN 8			FLUORESCIN			EOSINE			RHODAMINE WT			SULPHORHODAMINE B								
PQL in Eluent: 0.100 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb								
PQL in Water: 0.100 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb								
λ in Eluent: 493.2 nm			λ in Eluent: 515.6 nm			λ in Eluent: 540.0 nm			λ in Eluent: 567.3 nm			λ in Eluent: 577.0 nm								
Lab ID	Event	Date Collected	Feature Name	TIME	Peakfit	D&C GREEN 8		FLUORESCIN		EOSINE		RHODAMINE WT		SULPHORHODAMINE B						
						Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)			
WL-009-0	BG1	11/11/13	CW-9	1119							B	0.138	527.0,POR	ND	ND					
WH-009-D	02	11/12/13	CW-9	830											+++	581.900	581.6	DILUTED 1:100		
WH-009-D	03	11/13/13	CW-9	1316											+++	1300.100	581.6	DILUTED 1:100		
WH-009-D	04	11/14/13	CW-9	1156											+++	714.600	581.2	DILUTED 1:100		
WH-009-D	05	11/15/13	CW-9	734											+++	525.900	581.2	DILUTED 1:100		
WH-009-D	06	11/18/13	CW-9	0900											+++	197.300	581.2	DILUTED 1:100		
WH-009-D	07	11/20/13	CW-9	836											+++	145.800	581.0	DILUTED 1:100		
WH-009-D	08	11/22/13	CW-9	853											+++	97.100	581.0	DILUTED 1:100		
WH-009-D	09	11/25/13	CW-9	810											+++	807.000	581.4	DILUTED 1:100		
WH-009-0	23	01/23/14	CW-9	611		ND									+	4.277	580.2			
WH-009-0	24	02/21/14	CW-9	630		ND									+	3.395	580.2			
WH-009-0	25	03/18/14	CW-9	845		ND									+	2.504	580.4	POSSIBLE EO SHOULDER		
WH-009-0	26	01/27/15	CW-9	1435		ND					+	0.895	534.8	ND	+	0.402	579.2			
WH-009-0	27	01/28/15	CW-9	1035		ND					+	0.944	533.2	ND	+	0.387	579.4			
WH-009-0	28	01/30/15	CW-9	0520		ND					+	0.613	533.4	ND	++	1.282	580.8			
WH-009-0	29	02/02/15	CW-9	1100	x	ND					++	1.909	538.5	ND	++	9.186	581.6	PEAKFIT RESULTS		
WH-009-0	30	02/06/15	CW-9	800	x	ND					++	1.707	538.4	ND	++	7.778	581.6	PEAKFIT RESULTS		
WH-009-0	31	02/11/15	CW-9	902	x	ND					++	1.621	538.6	ND	++	6.999	581.5	PEAKFIT RESULTS		
WH-009-0	32	02/18/15	CW-9	810	x	ND					+	0.959	532.7	+	1.880	571.6	++	3.746	582.1	PEAKFIT RESULTS
WH-009-0	33	02/25/15	CW-9	650	x	ND					+	0.823	530.6	ND	++	2.791	581.9	PEAKFIT RESULTS		
WH-009-0	34	03/04/15	CW-9	830	x	ND					+	0.711	529.0	ND	++	1.520	581.9	PEAKFIT RESULTS		
WH-009-1	35	03/11/15	CW-9	922	x	ND					+	0.710	529.0	ND	++	1.217	581.9	PEAKFIT RESULTS		
WH-009-0	36	03/18/15	CW-9	810	x	ND					++	1.402	531.3	ND	+	0.676	579.6	PEAKFIT RESULTS/STATS OUT OF RANGE		
WH-009-0	37	03/25/15	CW-9	600	x	ND					++	1.041	532.4	ND	+	0.784	579.9	PEAKFIT RESULTS/STATS OUT OF RANGE		
WH-009-0	38	04/09/15	CW-9	830	x	ND					+	0.991	533.3	ND	+	0.802	579.9	PEAKFIT RESULTS/STATS OUT OF RANGE		
WH-009-0	39	04/22/15	CW-9	1445	x	ND					++	1.019	533.3	ND	+	0.782	579.8	PEAKFIT RESULTS/STATS OUT OF RANGE		
WH-009-0	40	05/07/15	CW-9	0407	x	ND					+	0.982	533.9	ND	+	0.607	579.8	PEAKFIT RESULTS/STATS OUT OF RANGE		
WH-009-0	41	05/20/15	CW-9	1010	x	ND					++	1.090	533.4	ND	+	0.656	580.2	PEAKFIT RESULTS		
WL-009-0	42	06/15/15	CW-9	750	x	ND					+	0.779	529.1	ND	+	0.453	580.1	PEAKFIT RESULTS/STATS OUT OF RANGE		
WL-009-0	43	07/15/15	CW-9	955	x	ND					+	0.660	529.8	ND	+	0.579	581.2	PEAKFIT RESULTS		
WL-013-0	BG1	11/11/13	CW-13	1135																
WL-013-0	02	11/12/13	CW-13	835																
WL-013-0	03	11/13/13	CW-13	1318																
WH-013-0	04	11/14/13	CW-13	1158																
WH-013-0	05	11/15/13	CW-13	736																

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 1425 Eden Road, York, PA 17402

WATER SAMPLES																			Comments		
Lab ID	Event	Date Collected	Feature Name	TIME	Peakfit	D&C GREEN 8			FLUORESCIN			EOSINE			RHODAMINE WT			SULPHORHODAMINE B			
						PQL in Eluent: 0.100 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			
						PQL in Water: 0.100 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			
						λ in Eluent: 493.2 nm			λ in Eluent: 515.6 nm			λ in Eluent: 540.0 nm			λ in Eluent: 567.3 nm			λ in Eluent: 577.0 nm			
						λ in Water: 490.9 nm			λ in Water: 509.8 nm			λ in Water: 534.5 nm			λ in Water: 574.6 nm			λ in Water: 582.0 nm			
Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)				
WL-013-0	06	11/18/13	CW-13	905		ND			B	0.491	536.0	ND			ND	0.013	583.2				
WH-013-0	07	11/20/13	CW-13	836																	
WH-013-0	08	11/22/13	CW-13	854																	
WH-013-0	09	11/25/13	CW-13	815		ND			B	0.462	536.0	ND			ND						
WL-013-0	23	01/23/14	CW-13	629	ND	ND			B	1.116	536.0	ND			ND						
WH-013-0	24	02/21/14	CW-13	644	ND	ND			B	1.333	536.0	ND			ND						
WH-013-0	25	03/18/14	CW-13	904	ND	ND			B	2.303	535.8	ND			ND						
WH-013-0	26	01/27/15	CW-13	1437	ND	ND			B	1.298	535.8	ND			ND						
WL-013-0	27	01/28/15	CW-13	1037	ND	ND			B	0.884	535.8	ND			ND						
WL-013-0	28	01/30/15	CW-13	0522	ND	ND			B	0.806	535.8	ND			ND						
WL-013-0	29	02/02/15	CW-13	1102	ND	ND			B	0.636	535.8	ND			B	0.069	581.4				
WL-013-0	30	02/06/15	CW-13	808	ND	ND			B	0.628	535.8	ND			B	0.090	581.4				
WL-013-0	31	02/11/15	CW-13	905	ND	ND			B	0.628	535.8	ND			+	0.109	581.4				
WL-013-0	32	02/18/15	CW-13	817	ND	ND			B	0.666	535.8	ND			+	0.142	581.2				
WL-013-0	33	02/25/15	CW-13	655	ND	ND			B	0.693	536.2	ND			+	0.480	581.4				
WL-013-0	34	03/04/15	CW-13	835	ND	ND			B	0.625	536.0	ND			+	0.285	581.2				
WL-013-1	35	03/11/15	CW-13	925	ND	ND			B	0.353	536.0	ND			+	0.140	581.2				
WL-013-0	36	03/18/15	CW-13	825	ND	ND			B	0.421	536.2	ND			+	0.171	580.8				
WL-013-0	37	03/25/15	CW-13	615	ND	ND			B	0.457	536.2	ND			+	0.146	580.8				
WL-013-0	38	04/09/15	CW-13	840	ND	ND			B	0.549	536.2	ND			+	0.124	580.6				
WL-013-0	39	04/22/15	CW-13	1500	x	ND			B	0.635	536.2	ND			+	0.174	579.0	PEAKFIT RESULTS/STATS OUT OF RANGE			
WL-013-0	40	05/07/15	CW-13	0412	x	ND			B	0.613	536.0	ND			+	0.141	579.0	PEAKFIT RESULTS/STATS OUT OF RANGE			
WL-013-0	41	05/20/15	CW-13	1015	x	ND			B	0.683	536.1	ND			+	0.159	578.2	PEAKFIT RESULTS/STATS OUT OF RANGE			
WL-013-0	42	06/15/15	CW-13	800	x	ND			B	0.548	535.9	ND			+	0.112	577.9	PEAKFIT RESULTS/STATS OUT OF RANGE			
WL-013-0	43	07/15/15	CW-13	950	x	ND			B	0.024	514.4	B	0.430	535.1	ND	B	0.045	582.0	PEAKFIT RESULTS/STATS OUT OF RANGE		
WL-15A-0	BG1	11/11/13	CW-15A	1125		ND			ND			ND			IB	0.158	580.6				
WL-15A-0	02	11/12/13	CW-15A	837											B	0.152	581.0				
WL-15A-0	03	11/13/13	CW-15A	1313											B	0.152	581.0				
WL-15A-0	04	11/14/13	CW-15A	1154											B	0.163	580.6				
WL-15A-0	05	11/15/13	CW-15A	732											B	0.159	581.6				
WL-15A-0	06	11/18/13	CW-15A	855		ND			ND			ND			B	0.156	580.4				
WL-15A-0	07	11/20/13	CW-15A	835											B	0.169	580.4				
WL-15A-0	08	11/22/13	CW-15A	852											B	0.166	580.6				
WL-15A-0	09	11/25/13	CW-15A	805		ND			ND			ND			B	0.166	580.4				
WL-15A-0	23	01/23/14	CW-15A	735	ND	ND			+	0.122	535.0	B	0.040	579.0	B	0.070	579.0	RWT/SRB PEAK AREAS OVERLAP			
WL-15A-0	24	02/21/14	CW-15A	708	ND	ND			B	0.098	529.6	B	0.015	578.2	B	0.027	578.2	RWT/SRB PEAK AREAS OVERLAP			
WL-15A-0	25	03/18/14	CW-15A	1001	ND	ND			B	0.055	527.6,POR	ND			ND						
WL-15A-0	26	01/27/15	CW-15A	1440	ND	ND			ND			B	0.025	576.2	ND						
WL-15A-0	27	01/28/15	CW-15A	1040	ND	ND			ND			B	0.010	577.4	B	0.015	577.4	RWT/SRB PEAK AREAS OVERLAP			
WL-15A-0	28	01/30/15	CW-15A	525	ND	ND			ND			B	0.026	579.0	B	0.036	579.0	RWT/SRB PEAK AREAS OVERLAP			
WL-15A-0	29	02/02/15	CW-15A	1105	ND	ND			ND			ND			B	0.041	581.2				
WH-15A-0	30	02/06/15	CW-15A	810	ND	ND			ND			ND			+	5.364	581.4				
WL-15A-0	31	02/11/15	CW-15A	900	ND	ND			ND			ND			B	0.091	580.6				
WL-15A-0	32	02/18/15	CW-15A	807	ND	ND			ND			ND			B	0.079	580.4				
WL-15A-0	33	02/25/15	CW-15A	640	ND	ND			ND			ND			B	0.128	580.6				
WL-15A-0	34	03/04/15	CW-15A	820	ND	ND			ND			ND			B	0.093	580.6				
WL-15A-1	35	03/11/15	CW-15A	920	ND	ND			ND			ND			B	0.069	580.2				
WL-15A-0	36	03/18/15	CW-15A	815	ND	ND			ND			ND			B	0.115	580.0				

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WATER SAMPLES																					
Lab ID	Event	Date Collected	Feature Name	TIME	Peakfit	D&C GREEN 8			FLUORESCIN			EOSINE			RHODAMINE WT			SULPHORHODAMINE B			Comments
						PQL in Eluent: 0.100 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			PQL in Eluent: 0.005 ppb			
						PQL in Water: 0.100 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			PQL in Water: 0.010 ppb			
						λ in Eluent: 493.2 nm			λ in Eluent: 515.6 nm			λ in Eluent: 540.0 nm			λ in Eluent: 567.3 nm			λ in Eluent: 577.0 nm			
λ in Water: 490.9 nm			λ in Water: 509.8 nm			λ in Water: 534.5 nm			λ in Water: 574.6 nm			λ in Water: 582.0 nm									
Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)				
WL-15A-0	37	03/25/15	CW-15A	555		ND			ND			ND			B	0.111	580.2				
WL-15A-0	38	04/09/15	CW-15A	825		ND			ND			ND			B	0.110	580.2				
WL-15A-0	39	04/22/15	CW-15A	1540		ND			ND			ND			B	0.105	580.4				
WL-15A-0	40	05/07/15	CW-15A	0405		ND			ND			ND			B	0.120	580.4				
WL-15A-0	41	05/20/15	CW-15A	1025		ND			ND			ND			B	0.069	580.2				
WL-15A-0	42	06/15/15	CW-15A	745		ND			ND			ND			B	0.130	580.4				
WL-15A-0	43	07/15/15	CW-15A	1003		ND			ND			ND	0.079	NPI		0.127	580.4				
WL-017-0	BG1	11/11/13	CW-17	1140					ND			ND			ND						
WL-017-0	02	11/12/13	CW-17	834											ND						
WH-017-0	03	11/13/13	CW-17	1320											+++	29.064	581.6				
WH-017-0	04	11/14/13	CW-17	1200											++	1.865	581.2				
WH-017-0	05	11/15/13	CW-17	738											B	0.029	581.0				
WL-017-0	06	11/18/13	CW-17	915				ND			ND				B	0.017	581.4				
WH-017-0	07	11/20/13	CW-17	837											ND						
WH-017-0	08	11/22/13	CW-17	855											ND						
WL-017-0	09	11/25/13	CW-17	820				ND			ND				ND						
WL-017-0	23	01/23/14	CW-17	619		ND			ND		ND				ND						
WL-017-0	24	02/21/14	CW-17	659		ND			ND		ND				ND						
WH-017-D	25	03/18/14	CW-17	916		ND			ND		ND				+++	237.500	581.2				
WH-017-DD	26	01/27/15	CW-17	1442		ND			ND		ND				+++	4416.000	581.2				
WH-017-D	27	01/28/15	CW-17	1045		ND			ND		ND				+++	1690.500	581.2				
WH-017-D	28	01/30/15	CW-17	530		ND			ND		ND				+++	316.600	581.2				
WH-017-D	29	02/02/15	CW-17	1110		ND			ND		ND				+++	109.400	581.4				
WH-017-D	30	02/06/15	CW-17	815		ND			ND		ND				+++	84.500	581.4				
WH-017-D	31	02/11/15	CW-17	910		ND			ND		ND				+++	82.100	581.4				
WH-017-D	33	02/26/15	CW-17	555		ND			ND		ND				+++	124.800	581.2				
WH-017-0	34	03/04/15	CW-17	840		ND			ND		ND				+++	48.257	581.4				
WH-017-0	35	03/11/15	CW-17	930		ND			ND		ND				+++	39.275	581.4				
WH-017-D	36	03/18/15	CW-17	830		ND			ND		ND				+++	29.600	581.2				
WH-017-D	37	03/25/15	CW-17	620		ND			ND		ND				+++	25.100	581.2				
WH-017-0	38	04/09/15	CW-17	845		ND			ND		ND				+++	23.092	581.4				
WH-017-0	39	04/22/15	CW-17	1505	x	ND			ND		++	3.722	535.8	ND	+++	22.192	581.4				
WH-017-0	40	05/07/15	CW-17	0415	x	ND			ND		++	2.997	532.9	ND	+++	18.420	581.4				
WH-017-0	41	05/20/15	CW-17	1035	x	ND			ND		++	2.830	532.4	ND	+++	17.366	581.4				
WH-017-0	42	06/15/15	CW-17	805	x	ND			ND		++	2.106	530.7	ND	+++	13.056	581.4				
WH-017-0	43	07/15/15	CW-17	1005	x	ND			ND		++?	1.916	529.9	ND		11.133	281.4				
WH-200-D	11	12/09/13	CW-20	1115							ND				+++	562.800	581.2				
WH-200-0	26	01/27/15	CW-20	1445		B	0.653	492.4	ND		++	1.815	535.2	ND	++	1.118	580.0				
WH-200-0	27	01/28/15	CW-20	1043		B	0.881	491.4	ND		++	1.618	533.6	ND	++	1.322	580.2				
WH-200-0	28	01/30/15	CW-20	527		B	0.329	492.3	ND		++	1.284	534.2	ND	++	1.843	580.8				
WH-200-0	29	02/02/15	CW-20	1108		B	0.206	490	ND		++	2.092	530.9	ND	++	4.038	582.1				
WH-200-0	30	02/06/15	CW-20	812	x	B	0.237	490.5	ND		++	1.824	530.1	ND	++	3.368	582.1				
WH-200-0	31	02/11/15	CW-20	907	x	B	0.191	490.1	ND		++	1.418	530.2	ND	++	2.035	582.0				
WH-200-0	32	02/18/15	CW-20	820	x	B	0.188	489.8	ND		++	1.277	530.5	ND	++	1.290	582.0				
WH-200-0	33	02/25/15	CW-20	645	x	B	0.280	494.4	ND		++	2.585	537.9	ND	++	1.446	580.3				
WL-200-0	34	03/04/15	CW-20	825	x	B	0.186	493.5	ND		++	2.035	534.5	ND	++	1.062	579.8				
WL-200-1	35	03/11/15	CW-20	927	x	B	0.235	493.4	ND		++	2.493	537.0	ND	++	1.095	580.1				

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WATER SAMPLES																			Comments		
Lab ID	Event	Date Collected	Feature Name	TIME	Peakfit	D&C GREEN 8			FLUORESCCEIN			EOSINE			RHODAMINE WT			SULPHORHODAMINE B			
						Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	Results	Conc in ppb	Peak Center (nm)	
WH-200-0	36	03/18/15	CW-20	820	x	B	0.240	490.6	ND			++	2.072	541.0	ND			++	1.014	580.9	PEAKFIT RESULTS/STATS OUT OF RANGE
WH-200-0	37	03/25/15	CW-20	610	x	B	0.235	491.4	ND			++	1.852	540.0	ND			+	0.887	580.6	PEAKFIT RESULTS/STATS OUT OF RANGE
WH-200-0	38	04/09/15	CW-20	835	x	B	0.408	490.8	ND			++	1.737	537.6	ND			+	0.764	580.4	PEAKFIT RESULTS/STATS OUT OF RANGE
WH-200-0	39	04/22/15	CW-20	1455	x	B	0.310	488.3	ND			++	1.899	535.6	ND			+	0.611	579.0	PEAKFIT RESULTS/STATS OUT OF RANGE
WH-200-0	40	05/07/15	CW-20	0410	x	B	0.222	490.7	ND			++	1.629	536.9	ND			+	0.504	580.5	PEAKFIT RESULTS/STATS OUT OF RANGE
WH-200-0	41	05/20/15	CW-20	1045	x	B	0.295	490.9	ND			++	1.553	536.0	ND			+	0.458	580.3	PEAKFIT RESULTS
WH-200-0	42	06/15/15	CW-20	755	x	B	0.232	491.8	ND			++	1.256	533.9	ND			+	0.564	580.4	PEAKFIT RESULTS
WH-200-0	43	07/15/15	CW-20	1010	x	+7	22.777	490.4	ND			ND			ND			++	3.246	581.0	PEAKFIT RESULTS/STATS OUT OF RANGE

Approved by: **L.Bledsoe** on **07/24/15**

Comments:

DUP = Field Duplicate NS = No Sample Recovered Q = Lab Duplicate
 B = Background GS = Grab Sample + = Positive
 ND = No Detection NPI = No Peak Identified POR = Peak Out of Range