Memorandum

October 2, 2017

To:	Amanda Armbruster (MDEQ)	Ref. No.:	007878
From:	J.E.P. John-eric Pardys/kf/170		
cc:	Dave Favero, RACER		
Subject:	**Quench Pit Well Re-Installation**		

The following memorandum has been prepared to document the re-installation of nine Quench Pit Area monitoring wells at RACER's Saginaw Malleable Iron Industrial Land (Site) in Saginaw, MI. Monitoring wells in the Quench Pit Area were abandoned in September 2016 to facilitate the installation of a 1-foot clay cover over the former Saginaw Malleable Iron facility concrete floor slab. MDEQ approved re-installation of nine of the Quench Pit Monitoring Wells (QPTW-01R, QPTW-03R2, QPTW-04R, QPTW-05R, QPTW-10R, QPTW-13R, QP-1R, QP-2R, and QP-3R) following the installation of the cover. The cover was completed in early June 2017 and the monitoring well re-installations were completed between June and August of 2017. Figure 1 presents the location of the re-installed Quench Pit Area monitoring wells and Attachment A presents the stratigraphy logs and the well completion details for the re-installations.

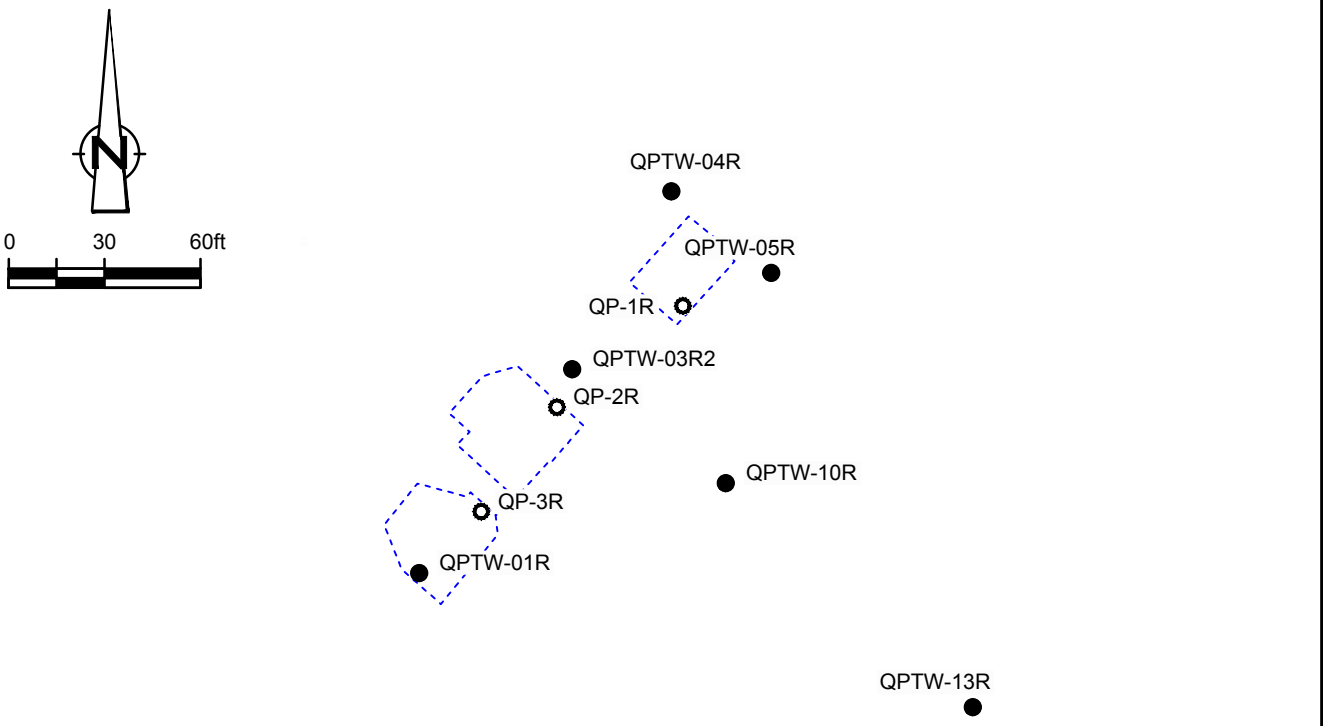
The wells were installed by Job Site Services, Inc (JSS) using a hollow-stem auger rig with oversight conducted by GHD. The wells were installed with a lockable flushmount cover. The monitoring wells designated by QPTW were installed as 2-inch diameter wells and the monitoring wells designated by QP were installed as 4-inch diameter wells. The wells were installed within a foot or two of the historical locations. The screens are 10-feet (ft) in length in order to account for variations in the water table and ensure the water table was always within the screened interval and were installed to straddle the water table. See Table 1 which presents the Well Construction Details for the re-installed monitoring wells. Following installation, GHD developed the monitoring wells by removing a minimum of three well volumes.

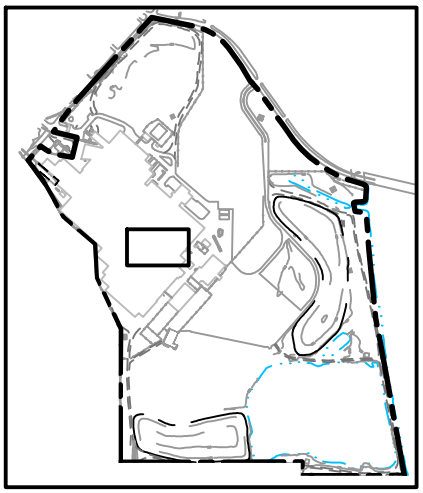
In accordance with the email from the MDEQ on September 2, 2017, GHD initiated quarterly gauging of the Quench Pit monitoring wells on September 6, 2017. Table 2 presents the gauging information for the monitoring wells that were re-installed.

On September 19, 2017, GHD conducted transmissivity testing on the monitoring wells with sufficient LNAPL thickness (QPTW-4R and QPTW-5R). Table 3 presents the results of the transmissivity testing. The results for each well were both below the MDEQ threshold of 0.5 square feet per day (ft^2/day), so de minimis recoverability. GHD will continue to collect quarterly gauging events and will complete transmissivity testing if a well has sufficient LNAPL thickness.

GHD
651 Colby Drive Waterloo Ontario N2V 1C2 Canada
T 519 884 0510 F 519 884 0525 W www.ghd.com

Enclosures: Figure 1 – Re-Installed Quench Pit Area Monitoring Well Locations
Table 1 – Well Construction Details
Table 2 – Gauging
Table 3 – Transmissivity Testing Results
Attachment A – Monitoring well stratigraphic logs and well completion details





KEY MAP
SCALE: 1" = 1500'

LEGEND

QPTW-01R ●	MONITORING WELL (2-INCH DIAMETER)
QP-1R ○	RECOVERY POINT (4-INCH DIAMETER)
	EDGE OF CONCRETE FLOOR SLAB
	FORMER QUENCH PIT

figure 1

RE-INSTALLED QUENCH PIT AREA MONITORING WELL LOCATIONS RACER SAGINAW MALLEABLE INDUSTRIAL LAND

Saginaw, Michigan

NOTE:
MICHIGAN SOUTH STATE PLANE COORDINATE SYSTEM
NAD 83, IN U.S. INTERNATIONAL FEET.

Table 1

Monitoring Well Completion Details
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Monitoring Well Location	Date Installed	Easting Coordinate [1]	Northing Coordinate [1]	Reference Elevation (ft AMSL)[1]	Ground Surface Elevation (ft AMSL)[1]	Screen Interval (feet)	Well Construction Materials
QPTW-01R	6/29/2017	13227838.19	692761.40	594.49	594.69	2-12	2" PVC
QPTW-03R2	6/29/2017	13227886.02	692825.09	594.61	594.91	2-12	2" PVC
QPTW-04R	6/30/2017	13227917.01	692880.67	594.46	594.96	2-12	2" PVC
QPTW-05R	6/29/2017	13227948.18	692855.21	594.28	595.00	2-12	2" PVC
QPTW-10R	7/5/2017	13227934.01	692789.47	594.20	594.82	2-12	2" PVC
QPTW-13R	8/16/2017	13228011.23	692719.47	594.04	594.80	4-14	2" PVC
QP-1R	6/29/2017	13227920.65	692844.91	594.59	594.87	1.5-11.5	4" PVC
QP-2R	6/30/2017	13227881.29	692813.24	594.22	594.81	2-12	4" PVC
QP-3R	6/29/2017	13227857.62	692780.63	594.41	594.80	2-12	4" PVC

Notes:

(1) Monitoring wells were surveyed by SPICER Group (Horizontal Coordinate System: Michigan State Plan, South Zone, fti, Vertical Datum: NGVD'29) on July 6 and September 5, 2017
AMSL = above mean sea level, datum referenced to NGVD'29
R = replacement well

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-01	03/17/05	592.3	591.95	2.85	12.85	10.48	7.28	3.20	584.29	7.66
	04/12/05	592.3	591.95	2.85	12.85	10.63	7.30	3.33	584.25	7.70
	05/31/05	592.3	591.95	2.85	12.85	10.69	7.36	3.33	584.19	7.76
	06/24/05	592.3	591.95	2.85	12.85	10.45	7.04	3.41	584.50	7.45
	08/12/05	592.3	591.95	2.85	12.85	10.20	6.95	3.25	584.61	7.34
	10/14/05	592.3	591.95	2.85	12.85	10.58	7.29	3.29	584.27	7.68
	11/08/05	592.3	591.95	2.85	12.85	10.82	7.44	3.38	584.10	7.85
	12/19/05	592.3	591.95	2.85	12.85	10.91	7.52	3.39	584.02	7.93
	01/31/06	592.3	591.95	2.85	12.85	10.53	7.29	3.24	584.27	7.68
	02/15/06	592.3	591.95	2.85	12.85	10.46	7.21	3.25	584.35	7.60
	03/13/06	592.3	591.95	2.85	12.85	9.71	6.93	2.78	584.69	7.26
	04/10/06	592.3	591.95	2.85	12.85	10.02	7.04	2.98	584.55	7.40
	05/22/06	592.3	591.95	2.85	12.85	10.23	7.11	3.12	584.47	7.48
	06/21/06	592.3	591.95	2.85	12.85	10.22	7.05	3.17	584.52	7.43
	07/11/06	592.3	591.95	2.85	12.85	9.67	6.82	2.85	584.79	7.16
	08/23/06	592.3	591.95	2.85	12.85	9.99	6.78	3.21	584.78	7.17
	09/26/06	592.3	591.95	2.85	12.85	9.90	6.82	3.08	584.76	7.19
	10/30/06	592.3	591.95	2.85	12.85	9.62	6.83	2.79	584.79	7.16
	11/27/06	592.3	591.95	2.85	12.85	9.79	6.91	2.88	584.69	7.26
	12/27/06	592.3	591.95	2.85	12.85	9.97	6.96	3.01	584.63	7.32
	01/15/07	592.3	591.95	2.85	12.85	9.79	6.94	2.85	584.67	7.28
	02/21/07	592.3	591.95	2.85	12.85	10.35	7.29	3.06	584.29	7.66
	03/23/07	592.3	591.95	2.85	12.85	10.18	7.27	2.91	584.33	7.62
	04/09/07	592.3	591.95	2.85	12.85	10.39	7.25	3.14	584.32	7.63
	05/15/07	592.3	591.95	2.85	12.85	10.09	7.32	2.77	584.30	7.65
	06/11/07	592.3	591.95	2.85	12.85	10.36	7.47	2.89	584.13	7.82
	07/11/07	592.3	591.95	2.85	12.85	10.36	7.43	2.93	584.17	7.78
	08/16/07	592.3	591.95	2.85	12.85	10.41	7.48	2.93	584.12	7.83
	09/17/07	592.3	591.95	2.85	12.85	10.11	7.38	2.73	584.24	7.71
	11/26/07	592.3	591.95	2.85	12.85	10.62	7.64	2.98	583.95	8.00
	12/12/07	592.3	591.95	2.85	12.85	10.79	7.77	3.02	583.82	8.13
	01/11/08	592.3	591.95	2.85	12.85	10.32	7.56	2.76	584.06	7.89
	02/05/08	592.3	591.95	2.85	12.85	9.91	7.42	2.49	584.23	7.72
	04/11/08	592.3	591.95	2.85	12.85	8.41	6.60	1.81	585.13	6.82
	05/16/08	592.3	591.95	2.85	12.85	8.65	6.56	2.09	585.14	6.81
	10/29/08	592.3	591.95	2.85	12.85	8.71	6.39	2.32	585.28	6.67
	01/21/09	592.3	591.95	2.85	12.85	8.22	6.26	1.96	585.45	6.50
	03/18/09	592.3	591.95	2.85	12.85	***8.07***	***6.16***	1.91	585.56	6.39
	10/17/09	592.3	591.95	2.85	12.85	8.46	6.39	2.07	585.31	6.64
	10/23/09	592.3	591.95	2.85	12.85	8.07	6.34	1.73	585.40	6.55
	06/24/10	592.3	591.95	2.85	12.85	8.31	5.06	3.25	586.50	5.45
	07/08/10	592.3	591.95	2.85	12.85	8.88	4.62	4.26	586.82	5.13
	07/22/10	592.3	591.95	2.85	12.85	9.86	4.81	5.05	586.53	5.42
	07/29/10	592.3	591.95	2.85	12.85	8.27	5.11	3.16	586.46	5.49
	08/06/10	592.3	591.95	2.85	12.85	8.13	5.41	2.72	586.21	5.74
	08/13/10	592.3	591.95	2.85	12.85	6.83	4.04	2.79	587.58	4.37
	08/27/10	592.3	591.95	2.85	12.85	7.40	4.42	2.98	587.17	4.78
	09/23/10	592.3	591.95	2.85	12.85	5.54	3.05	2.49	588.60	3.35
	10/15/10	592.3	591.95	2.85	12.85	7.14	4.01	3.13	587.56	4.39
	10/29/10	592.3	591.95	2.85	12.85	6.90	3.99	2.91	587.61	4.34
	12/07/10	592.3	591.95	2.85	12.85	7.61	3.87	3.74	587.63	4.32
	03/18/11	592.3	591.95	2.85	12.85	6.57	3.54	3.03	588.05	3.90
	04/08/11	592.3	591.95	2.85	12.85	6.15	2.77	3.38	588.77	3.18
	05/09/11	592.3	591.95	2.85	12.85	5.98	3.11	2.87	588.50	3.45
	06/09/11	592.3	591.95	2.85	12.85	6.31	3.16	3.15	588.41	3.54
	07/05/11	592.3	591.95	2.85	12.85	5.62	3.31	2.31	588.36	3.59
	08/23/11	592.3	591.95	2.85	12.85	4.21	2.88	1.33	588.91	3.04
	10/14/11	592.3	591.95	2.85	12.85	5.72	3.81	1.91	587.91	4.04
	01/24/12	592.3	591.95	2.85	12.85	6.28	1.66	4.62	589.74	2.21
	03/20/12	592.3	591.95	2.85	12.85	5.41	2.67	2.74	588.95	3.00
	04/23/12	592.3	591.95	2.85	12.85	5.53	2.16	3.37	589.39	2.56
	06/11/12	592.3	591.95	2.85	12.85	6.72	2.87	3.85	588.62	3.33
	07/10/12	592.3	591.95	2.85	12.85	5.41	3.69	1.72	588.05	3.90
	08/29/12	592.3	591.95	2.85	12.85	5.75	3.04	2.71	588.58	3.37
	09/12/12	592.3	591.95	2.85	12.85	4.25	2.90	1.35	588.89	3.06
	11/06/12	592.3	591.95	2.85	12.85	4.06	3.04	1.02	588.79	3.16
	12/05/12	592.3	591.95	2.85	12.85	4.41	3.26	1.15	588.55	3.40
	04/03/13	592.3	591.95	2.85	12.85	4.91	3.37	1.54	588.40	3.55
	07/18/13	592.3	591.95	2.85	12.85	3.48	2.80	0.68	589.07	2.88
	09/23/13	592.3	591.95	2.85	12.85	4.34	3.74	0.60	588.14	3.81
	06/02/14	592.3	591.95	2.85	12.85	3.06	2.36	0.70	589.51	2.44
	07/09/14	592.3	591.95	2.85	12.85	2.92	1.07	1.85	590.66	1.29
	07/31/14	592.3	591.95	2.85	12.85	3.17	1.99	1.18	589.82	2.13
	09/16/14	592.3	591.95	2.85	12.85	3.31	2.27	1.04	589.56	2.39
	03/24/15	592.3	591.95	2.85	12.85	4.51	3.14	1.37	588.65	3.30
	06/17/15	592.3	591.95	2.85	12.85	3.31	1.25	2.06	590.45	1.50
	09/09/15	592.3	591.95	2.85	12.85	3.81	1.11	2.70	590.52	1.43
	12/04/15	592.3	591.95	2.85	12.85	4.70	3.48	1.22	588.32	3.63
	03/15/16	592.3	591.95	2.85	12.85	5.13	1.94	3.19	589.63	2.32
	06/17/16	592.3	591.95	2.85	12.85	2.23	1.17	1.06	590.65	1.30
	09/22/16	592.3	591.95	2.85	12.85	3.82	2.86	0.96	588.97	2.98
	09/27/16	ABANDONED								
QPTW-01R	09/06/17	594.69	594.49	2.00	12.00	4.14	---	---	590.35	4.14

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
QPTW-02	03/17/05	592.6	592.35	2.80	12.80	7.54	7.51	0.03	584.84	7.51
	04/12/05	592.6	592.35	2.80	12.80	7.64	7.58	0.06	584.76	7.59
	05/31/05	592.6	592.35	2.80	12.80	7.54	7.50	0.04	584.85	7.50
	06/24/05	592.6	592.35	2.80	12.80	7.41	7.38	0.03	584.97	7.38
	08/12/05	592.6	592.35	2.80	12.80	7.30	7.26	0.04	585.09	7.26
	10/14/05	592.6	592.35	2.80	12.80	7.50	7.44	0.06	584.90	7.45
	11/08/05	592.6	592.35	2.80	12.80	7.52	7.49	0.03	584.86	7.49
	12/19/05	592.6	592.35	2.80	12.80	7.67	7.63	0.04	584.72	7.63
	01/31/06	592.6	592.35	2.80	12.80	7.53	7.48	0.05	584.86	7.49
	02/15/06	592.6	592.35	2.80	12.80	7.50	7.47	0.03	584.88	7.47
	03/13/06	592.6	592.35	2.80	12.80	7.30	7.26	0.04	585.09	7.26
	04/10/06	592.6	592.35	2.80	12.80	7.39	7.36	0.03	584.99	7.36
	05/22/06	592.6	592.35	2.80	12.80	7.38	7.35	0.03	585.00	7.35
	06/21/06	592.6	592.35	2.80	12.80	7.33	7.29	0.04	585.06	7.29
	07/11/06	592.6	592.35	2.80	12.80	7.29	7.26	0.03	585.09	7.26
	08/23/06	592.6	592.35	2.80	12.80	7.28	7.26	0.02	585.09	7.26
	09/26/06	592.6	592.35	2.80	12.80	7.39	7.37	0.02	584.98	7.37
	10/30/06	592.6	592.35	2.80	12.80	7.38	7.35	0.03	585.00	7.35
	11/27/06	592.6	592.35	2.80	12.80	7.41	7.38	0.03	584.97	7.38
	12/27/06	592.6	592.35	2.80	12.80	7.44	7.42	0.02	584.93	7.42
	01/15/07	592.6	592.35	2.80	12.80	7.46	7.42	0.04	584.93	7.42
	02/21/07	592.6	592.35	2.80	12.80	7.47	7.46	0.01	584.89	7.46
	03/23/07	592.6	592.35	2.80	12.80	7.42	7.40	0.02	584.95	7.40
	04/09/07	592.6	592.35	2.80	12.80	7.45	7.43	0.02	584.92	7.43
	05/15/07	592.6	592.35	2.80	12.80	7.50	7.48	0.02	584.87	7.48
	08/16/07	592.6	592.35	2.80	12.80	7.65	7.62	0.03	584.73	7.62
	09/17/07	592.6	592.35	2.80	12.80	7.51	7.48	0.03	584.87	7.48
	11/26/07	592.6	592.35	2.80	12.80	7.73	7.71	0.02	584.64	7.71
	12/12/07	592.6	592.35	2.80	12.80	7.76	7.74	0.02	584.61	7.74
	01/11/08	592.6	592.35	2.80	12.80	7.15	7.14	0.01	585.21	7.14
	02/05/08	592.6	592.35	2.80	12.80	7.27	7.26	0.01	585.09	7.26
	04/11/08	592.6	592.35	2.80	12.80	6.79	---	---	585.56	6.79
	05/16/08	592.6	592.35	2.80	12.80	7.30	---	---	585.05	7.30
	10/29/08	592.6	592.35	2.80	12.80	6.99	---	---	585.36	6.99
	01/21/09	592.6	592.35	2.80	12.80	6.53	---	---	585.82	6.53
	03/18/09	592.6	592.35	2.80	12.80	6.28	---	---	586.07	6.28
	10/17/09	592.6	592.35	2.80	12.80	6.93	---	---	585.42	6.93
	10/23/09	592.6	592.35	2.80	12.80	7.08	---	---	585.27	7.08
	10/15/10	592.6	592.35	2.80	12.80	5.23	---	---	587.12	5.23
	10/29/10	592.6	592.35	2.80	12.80	5.30	---	---	587.05	5.30
	03/18/11	592.6	592.35	2.80	12.80	3.96	---	---	588.39	3.96
	04/08/11	592.6	592.35	2.80	12.80	3.19	---	---	589.16	3.19
	05/09/11	592.6	592.35	2.80	12.80	3.47	---	---	588.88	3.47
	06/09/11	592.6	592.35	2.80	12.80	3.58	---	---	588.77	3.58
	07/05/11	592.6	592.35	2.80	12.80	3.79	---	---	588.56	3.79
	08/23/11	592.6	592.35	2.80	12.80	3.11	---	---	589.24	3.11
	10/14/11	592.6	592.35	2.80	12.80	4.04	---	---	588.31	4.04
	11/23/11	592.6	592.35	2.80	12.80	3.81	---	---	588.54	3.81
	03/20/12	592.6	592.35	2.80	12.80	2.77	---	---	589.58	2.77
	04/23/12	592.6	592.35	2.80	12.80	3.02	---	---	589.33	3.02
	06/11/12	592.6	592.35	2.80	12.80	3.22	---	---	589.13	3.22
	07/10/12	592.6	592.35	2.80	12.80	3.88	---	---	588.47	3.88
	08/29/12	592.6	592.35	2.80	12.80	3.22	---	---	589.13	3.22
	09/12/12	592.6	592.35	2.80	12.80	3.01	---	---	589.34	3.01
	10/01/12	592.6	592.35	2.80	12.80	3.79	---	---	588.56	3.79
	11/06/12	592.6	592.35	2.80	12.80	2.98	---	---	589.37	2.98
	12/05/12	592.6	592.35	2.80	12.80	3.61	---	---	588.74	3.61
	04/03/13	592.6	592.35	2.80	12.80	3.25	---	---	589.10	3.25
	07/18/13	592.6	592.35	2.80	12.80	2.59	---	---	589.76	2.59
	09/23/13	592.6	592.35	2.80	12.80	3.94	---	---	588.41	3.94
	04/25/14	592.6	592.35	2.80	12.80	1.81	---	---	590.54	1.81
	06/02/14	592.6	592.35	2.80	12.80	2.62	---	---	589.73	2.62
	07/31/14	592.6	592.35	2.80	12.80	2.31	---	---	590.04	2.31
	09/16/14	592.6	592.35	2.80	12.80	2.36	---	---	589.99	2.36
	03/24/15	592.6	592.35	2.80	12.80	3.20	---	---	589.15	3.20
	06/17/15	592.6	592.35	2.80	12.80	under water	---	---	---	under water
	09/09/15	592.6	592.35	2.80	12.80	1.84	---	---	590.51	1.84
	12/04/15	592.6	592.35	2.80	12.80	3.85	---	---	588.50	3.85
	03/15/16	592.6	592.35	2.80	12.80	1.98	---	---	590.37	1.98
	06/17/16	592.6	592.35	2.80	12.80	1.66	---	---	590.69	1.66
	09/22/16	592.6	592.35	2.80	12.80	2.98	---	---	589.37	2.98
	09/27/16	ABANDONED								
QPTW-03R	04/25/14	592.5	592.13	2.75	12.75	2.19	1.82	0.37	590.27	1.86
	06/02/14	592.5	592.13	2.75	12.75	3.13	2.86	0.27	589.24	2.89
	07/09/14	592.5	592.13	2.75	12.75	2.10	1.98	0.12	590.14	1.99
	07/31/14	592.5	592.13	2.75	12.75	2.74	2.66	0.08	589.46	2.67
	09/16/14	592.5	592.13	2.75	12.75	3.27	---	---	588.86	3.27
	03/24/15	592.5	592.13	2.75	12.75	3.56	3.55	0.01	588.58	3.55
	06/17/15	592.5	592.13	2.75	12.75	3.36	2.72	0.64	589.33	2.80
	09/09/15	592.5	592.13	2.75	12.75	2.74	2.46	0.28	589.64	2.49
	12/04/15	592.5	592.13	2.75	12.75	4.14	---	---	587.99	4.14
	03/15/16	592.5	592.13	2.75	12.75	2.46	2.39	0.07	589.73	2.40
	06/17/16	592.5	592.13	2.75	12.75	2.30	1.77	0.53	590.30	1.83
	09/22/16	592.5	592.13	2.75	12.75	3.78	3.05	0.73	588.99	3.14
	09/27/16	ABANDONED								
QPTW-03R2	09/06/17	594.91	594.61	2.00	12.00	5.24	---	---	589.37	5.24
QPTW-04	03/17/05	592.3	591.73	2.50	12.50	8.54	7.51	1.03	584.10	7.63
	04/12/05	592.3	591.73	2.50	12.50	8.53	7.54	0.99	584.07	7.66

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
	05/31/05	592.3	591.73	2.50	12.50	8.58	7.50	1.08	584.10	7.63
	06/24/05	592.3	591.73	2.50	12.50	8.34	7.29	1.05	584.31	7.42
	08/12/05	592.3	591.73	2.50	12.50	8.28	7.26	1.02	584.35	7.38
	10/14/05	592.3	591.73	2.50	12.50	8.61	7.68	0.93	583.94	7.79
	11/08/05	592.3	591.73	2.50	12.50	8.70	7.72	0.98	583.89	7.84
	12/19/05	592.3	591.73	2.50	12.50	8.87	7.83	1.04	583.78	7.95
	01/31/06	592.3	591.73	2.50	12.50	8.58	7.46	1.12	584.14	7.59
	02/15/06	592.3	591.73	2.50	12.50	8.45	7.33	1.12	584.27	7.46
	03/13/06	592.3	591.73	2.50	12.50	8.14	7.16	0.98	584.45	7.28
	04/10/06	592.3	591.73	2.50	12.50	8.29	7.32	0.97	584.29	7.44
	05/22/06	592.3	591.73	2.50	12.50	8.41	7.39	1.02	584.22	7.51
	06/21/06	592.3	591.73	2.50	12.50	8.34	7.41	0.93	584.21	7.52
	07/11/06	592.3	591.73	2.50	12.50	8.16	7.12	1.04	584.49	7.24
	08/23/06	592.3	591.73	2.50	12.50	8.39	7.10	1.29	584.48	7.25
	09/26/06	592.3	591.73	2.50	12.50	8.09	7.11	0.98	584.50	7.23
	10/30/06	592.3	591.73	2.50	12.50	8.05	7.08	0.97	584.53	7.20
	11/27/06	592.3	591.73	2.50	12.50	8.08	7.19	0.89	584.43	7.30
	12/27/06	592.3	591.73	2.50	12.50	8.58	7.48	1.10	584.12	7.61
	01/15/07	592.3	591.73	2.50	12.50	8.07	7.29	0.78	584.35	7.38
	02/21/07	592.3	591.73	2.50	12.50	8.45	7.57	0.88	584.05	7.68
	03/23/07	592.3	591.73	2.50	12.50	8.32	7.56	0.76	584.08	7.65
	04/09/07	592.3	591.73	2.50	12.50	8.47	7.52	0.95	584.10	7.63
	05/15/07	592.3	591.73	2.50	12.50	8.42	7.51	0.91	584.11	7.62
	06/11/07	592.3	591.73	2.50	12.50	8.61	7.64	0.97	583.97	7.76
	07/11/07	592.3	591.73	2.50	12.50	8.67	7.61	1.06	583.99	7.74
	08/16/07	592.3	591.73	2.50	12.50	8.80	7.69	1.11	583.91	7.82
	09/17/07	592.3	591.73	2.50	12.50	8.62	7.54	1.08	584.06	7.67
	11/26/07	592.3	591.73	2.50	12.50	9.05	7.99	1.06	583.61	8.12
	12/12/07	592.3	591.73	2.50	12.50	9.15	8.09	1.06	583.51	8.22
	01/11/08	592.3	591.73	2.50	12.50	8.81	7.82	0.99	583.79	7.94
	02/05/08	592.3	591.73	2.50	12.50	8.69	7.64	1.05	583.96	7.77
	04/11/08	592.3	591.73	2.50	12.50	7.75	6.68	1.07	584.92	6.81
	05/16/08	592.3	591.73	2.50	12.50	7.82	6.81	1.01	584.80	6.93
	10/29/08	592.3	591.73	2.50	12.50	7.70	6.69	1.01	584.92	6.81
	01/21/09	592.3	591.73	2.50	12.50	7.35	6.61	0.74	585.03	6.70
	03/18/09	592.3	591.73	2.50	12.50	6.86	6.12	0.74	585.52	6.21
	10/17/09	592.3	591.73	2.50	12.50	7.76	6.85	0.91	584.77	6.96
	10/23/09	592.3	591.73	2.50	12.50	7.76	6.83	0.93	584.79	6.94
	06/09/10	592.3	591.73	2.50	12.50	6.23	5.65	0.58	586.01	5.72
	08/27/10	592.3	591.73	2.50	12.50	7.06	6.17	0.89	585.45	6.28
	09/17/10	592.3	591.73	2.50	12.50	5.61	5.02	0.59	586.64	5.09
	09/23/10	592.3	591.73	2.50	12.50	5.47	4.87	0.60	586.79	4.94
	10/15/10	592.3	591.73	2.50	12.50	6.03	5.20	0.83	586.43	5.30
	10/29/10	592.3	591.73	2.50	12.50	6.39	5.86	0.53	585.81	5.92
	03/18/11	592.3	591.73	2.50	12.50	5.16	4.20	0.96	587.41	4.32
	04/08/11	592.3	591.73	2.50	12.50	4.27	3.54	0.73	588.10	3.63
	05/09/11	592.3	591.73	2.50	12.50	4.60	3.64	0.96	587.97	3.76
	06/09/11	592.3	591.73	2.50	12.50	4.35	3.63	0.72	588.01	3.72
	07/05/11	592.3	591.73	2.50	12.50	4.84	3.87	0.97	587.74	3.99
	08/23/11	592.3	591.73	2.50	12.50	4.16	3.34	0.82	588.29	3.44
	03/20/12	592.3	591.73	2.50	12.50	5.21	2.78	2.43	588.66	3.07
	04/23/12	592.3	591.73	2.50	12.50	5.59	3.06	2.53	588.37	3.36
	06/11/12	592.3	591.73	2.50	12.50	5.85	3.16	2.69	588.25	3.48
	07/10/12	592.3	591.73	2.50	12.50	5.97	3.40	2.57	588.02	3.71
	08/29/12	592.3	591.73	2.50	12.50	5.32	2.99	2.33	588.46	3.27
	09/12/12	592.3	591.73	2.50	12.50	5.03	2.68	2.35	588.77	2.96
	10/01/12	592.3	591.73	2.50	12.50	5.80	3.31	2.49	588.12	3.61
	11/06/12	592.3	591.73	2.50	12.50	4.85	2.88	1.97	588.61	3.12
	12/05/12	592.3	591.73	2.50	12.50	5.49	3.50	1.99	587.99	3.74
	04/03/13	592.3	591.73	2.50	12.50	5.36	3.16	2.20	588.31	3.42
	07/18/13	592.3	591.73	2.50	12.50	4.74	2.48	2.26	588.98	2.75
	09/23/13	592.3	591.73	2.50	12.50	4.73	3.61	1.12	587.99	3.74
	04/25/14	592.3	591.73	2.50	12.50	3.16	1.73	1.43	589.83	1.90
	06/02/14	592.3	591.73	2.50	12.50	3.98	2.39	1.59	589.15	2.58
	07/09/14	593.3	592.73	2.50	12.50	2.74	1.61	1.13	590.98	1.75
	07/31/14	592.3	591.73	2.50	12.50	3.53	2.33	1.20	589.26	2.47
	09/16/14	591.3	590.73	2.50	12.50	4.00	2.10	1.90	588.40	2.33
	03/24/15	590.3	589.73	2.50	12.50	4.66	3.02	1.64	586.51	3.22
	06/17/15	589.3	588.73	2.50	12.50	3.51	2.05	1.46	586.50	2.23
	09/09/15	588.3	587.73	2.50	12.50	4.09	2.64	1.45	584.92	2.81
	12/04/15	587.3	586.73	2.50	12.50	5.56	3.51	2.05	582.97	3.76
	03/15/16	586.3	585.73	2.50	12.50	3.68	1.76	1.92	583.74	1.99
	06/17/16	585.3	584.73	2.50	12.50	2.27	2.16	0.11	582.56	2.17
	09/22/16	584.3	583.73	2.50	12.50	4.61	2.80	1.81	580.71	3.02
	09/27/16	ABANDONED								
QPTW-04R	09/06/17	594.96	594.46	2.00	12.00	5.61	4.75	0.86	589.61	4.85
QPTW-05	03/17/05	592.4	592.13	2.70	12.70	8.94	7.67	1.27	584.31	7.82
	04/12/05	592.4	592.13	2.70	12.70	8.98	7.69	1.29	584.29	7.84
	05/31/05	592.4	592.13	2.70	12.70	9.10	7.73	1.37	584.24	7.89
	06/24/05	592.4	592.13	2.70	12.70	8.65	7.50	1.15	584.49	7.64
	08/12/05	592.4	592.13	2.70	12.70	8.76	7.68	1.08	584.32	7.81
	10/14/05	592.4	592.13	2.70	12.70	9.38	7.91	1.47	584.04	8.09
	11/08/05	592.4	592.13	2.70	12.70	9.55	7.99	1.56	583.95	8.18
	12/19/05	592.4	592.13	2.70	12.70	9.74	8.05	1.69	583.88	8.25
	01/31/06	592.4	592.13	2.70	12.70	8.84	7.68	1.16	584.31	7.82
	02/15/06	592.4	592.13	2.70	12.70	8.63	7.54	1.09	584.46	7.67
	03/13/06	592.4	592.13	2.70	12.70	8.20	7.33	0.87	584.70	7.43
	04/10/06	592.4	592.13	2.70	12.70	8.44	7.47	0.97	584.54	7.59

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
	05/22/06	592.4	592.13	2.70	12.70	8.65	7.58	1.07	584.42	7.71
	06/21/06	592.4	592.13	2.70	12.70	8.70	6.71	1.99	585.18	6.95
	07/11/06	592.4	592.13	2.70	12.70	8.35	7.38	0.97	584.63	7.50
	08/23/06	592.4	592.13	2.70	12.70	8.52	7.46	1.06	584.54	7.59
	09/26/06	592.4	592.13	2.70	12.70	8.46	7.45	1.01	584.56	7.57
	10/30/06	592.4	592.13	2.70	12.70	8.32	7.33	0.99	584.68	7.45
	11/27/06	592.4	592.13	2.70	12.70	8.50	7.44	1.06	584.56	7.57
	12/27/06	592.4	592.13	2.70	12.70	8.18	7.23	0.95	584.79	7.34
	01/15/07	592.4	592.13	2.70	12.70	8.55	7.49	1.06	584.51	7.62
	02/21/07	592.4	592.13	2.70	12.70	9.27	7.84	1.43	584.12	8.01
	03/23/07	592.4	592.13	2.70	12.70	9.19	7.81	1.38	584.15	7.98
	04/09/07	592.4	592.13	2.70	12.70	9.27	7.77	1.50	584.18	7.95
	05/15/07	592.4	592.13	2.70	12.70	9.11	7.74	1.37	584.23	7.90
	06/11/07	592.4	592.13	2.70	12.70	9.41	7.92	1.49	584.03	8.10
	07/11/07	592.4	592.13	2.70	12.70	9.52	7.96	1.56	583.98	8.15
	08/16/07	592.4	592.13	2.70	12.70	9.71	8.04	1.67	583.89	8.24
	09/17/07	592.4	592.13	2.70	12.70	9.25	7.82	1.43	584.14	7.99
	11/26/07	592.4	592.13	2.70	12.70	10.10	8.21	1.89	583.69	8.44
	12/12/07	592.4	592.13	2.70	12.70	10.31	8.30	2.01	583.59	8.54
	01/11/08	592.4	592.13	2.70	12.70	9.62	8.07	1.55	583.87	8.26
	02/05/08	592.4	592.13	2.70	12.70	9.05	7.90	1.15	584.09	8.04
	04/11/08	592.4	592.13	2.70	12.70	7.50	7.00	0.50	585.07	7.06
	05/16/08	592.4	592.13	2.70	12.70	7.67	7.12	0.55	584.94	7.19
	10/29/08	592.4	592.13	2.70	12.70	7.71	7.23	0.48	584.84	7.29
	01/21/09	592.4	592.13	2.70	12.70	7.43	6.87	0.56	585.19	6.94
	03/18/09	592.4	592.13	2.70	12.70	7.11	6.57	0.54	585.50	6.63
	10/17/09	592.4	592.13	2.70	12.70	7.98	7.18	0.80	584.85	7.28
	10/23/09	592.4	592.13	2.70	12.70	7.68	7.09	0.59	584.97	7.16
	06/09/10	592.4	592.13	2.70	12.70	7.07	6.23	0.84	585.80	6.33
	06/24/10	592.4	592.13	2.70	12.70	7.40	6.59	0.81	585.44	6.69
	07/29/10	592.4	592.13	2.70	12.70	7.34	6.14	1.20	585.85	6.28
	08/06/10	592.4	592.13	2.70	12.70	7.31	6.28	1.03	585.73	6.40
	08/13/10	592.4	592.13	2.70	12.70	6.08	5.57	0.51	586.50	5.63
	08/27/10	592.4	592.13	2.70	12.70	6.51	5.70	0.81	586.33	5.80
	09/17/10	592.4	592.13	2.70	12.70	6.36	5.83	0.53	586.24	5.89
	09/23/10	592.4	592.13	2.70	12.70	6.12	5.59	0.53	586.48	5.65
	10/15/10	592.4	592.13	2.70	12.70	6.31	6.01	0.30	586.08	6.05
	10/29/10	592.4	592.13	2.70	12.70	5.48	5.14	0.34	586.95	5.18
	12/07/10	592.4	592.13	2.70	12.70	6.46	5.72	0.74	586.32	5.81
	01/03/11	592.4	592.13	2.70	12.70	5.99	5.71	0.28	586.39	5.74
	03/18/11	592.4	592.13	2.70	12.70	5.43	5.11	0.32	586.98	5.15
	04/08/11	592.4	592.13	2.70	12.70	4.63	4.32	0.31	587.77	4.36
	05/09/11	592.4	592.13	2.70	12.70	4.55	4.31	0.24	587.79	4.34
	06/09/11	592.4	592.13	2.70	12.70	4.83	4.56	0.27	587.54	4.59
	07/05/11	592.4	592.13	2.70	12.70	5.11	4.64	0.47	587.43	4.70
	08/23/11	592.4	592.13	2.70	12.70	4.26	4.03	0.23	588.07	4.06
	10/14/11	592.4	592.13	2.70	12.70	5.28	4.94	0.34	587.15	4.98
	11/23/11	592.4	592.13	2.70	12.70	4.75	4.42	0.33	587.67	4.46
	01/24/12	592.4	592.13	2.70	12.70	3.73	3.58	0.15	588.53	3.60
	03/20/12	592.4	592.13	2.70	12.70	4.05	3.72	0.33	588.37	3.76
	04/23/12	592.4	592.13	2.70	12.70	4.10	3.74	0.36	588.35	3.78
	06/11/12	592.4	592.13	2.70	12.70	4.44	4.00	0.44	588.08	4.05
	07/10/12	592.4	592.13	2.70	12.70	5.17	4.52	0.65	587.53	4.60
	08/29/12	592.4	592.13	2.70	12.70	4.44	3.80	0.64	588.25	3.88
	09/12/12	592.4	592.13	2.70	12.70	4.39	3.63	0.76	588.41	3.72
	11/06/12	592.4	592.13	2.70	12.70	4.49	3.69	0.80	588.34	3.79
	12/05/12	592.4	592.13	2.70	12.70	5.28	4.31	0.97	587.70	4.43
	04/03/13	592.4	592.13	2.70	12.70	5.07	4.01	1.06	587.99	4.14
	07/18/13	592.4	592.13	2.70	12.70	4.80	3.10	1.70	588.83	3.30
	09/23/13	592.4	592.13	2.70	12.70	6.20	4.26	1.94	587.64	4.49
	04/25/14	592.4	592.13	2.70	12.70	4.87	2.36	2.51	589.47	2.66
	06/02/14	592.4	592.13	2.70	12.70	4.45	3.16	1.29	588.82	3.31
	07/09/14	592.4	592.13	2.70	12.70	3.66	2.19	1.47	589.76	2.37
	07/31/14	592.4	592.13	2.70	12.70	4.25	2.93	1.32	589.04	3.09
	09/16/14	592.4	592.13	2.70	12.70	4.77	2.99	1.78	588.93	3.20
	03/24/15	592.4	592.13	2.70	12.70	5.11	3.70	1.41	588.26	3.87
	06/17/15	592.4	592.13	2.70	12.70	4.77	2.59	2.18	589.28	2.85
	09/09/15	592.4	592.13	2.70	12.70	5.30	2.49	2.81	589.30	2.83
	12/04/15	592.4	592.13	2.70	12.70	6.38	4.10	2.28	587.76	4.37
	03/15/16	592.4	592.13	2.70	12.70	4.86	2.49	2.37	589.36	2.77
	06/17/16	592.4	592.13	2.70	12.70	4.14	1.99	2.15	589.88	2.25
	09/22/16	592.4	592.13	2.70	12.70	5.67	3.15	2.52	588.68	3.45
	09/27/16	ABANDONED								
QPTW-05R	09/06/17	595	594.28	2.00	12.00	5.64	4.98	0.66	589.22	5.06
QPTW-10	03/17/05	592.4	592.15	2.60	12.60	9.83	7.58	2.25	584.30	7.85
	04/12/05	592.4	592.15	2.60	12.60	9.96	7.63	2.33	584.24	7.91
	05/31/05	592.4	592.15	2.60	12.60	10.29	7.83	2.46	584.02	8.13
	06/24/05	592.4	592.15	2.60	12.60	9.72	7.43	2.29	584.45	7.70
	08/12/05	592.4	592.15	2.60	12.60	9.79	7.58	2.21	584.30	7.85
	10/14/05	592.4	592.15	2.60	12.60	10.56	7.80	2.76	584.02	8.13
	11/08/05	592.4	592.15	2.60	12.60	10.82	7.88	2.94	583.92	8.23
	12/19/05	592.4	592.15	2.60	12.60	11.01	7.95	3.06	583.83	8.32
	01/31/06	592.4	592.15	2.60	12.60	9.79	7.54	2.25	584.34	7.81
	02/15/06	592.4	592.15	2.60	12.60	9.73	7.44	2.29	584.44	7.71
	03/13/06	592.4	592.15	2.60	12.60	9.22	7.23	1.99	584.68	7.47
	04/10/06	592.4	592.15	2.60	12.60	9.59	7.34	2.25	584.54	7.61
	05/22/06	592.4	592.15	2.60	12.60	9.95	7.43	2.52	584.42	7.73
	06/21/06	592.4	592.15	2.60	12.60	10.00	7.49	2.51	584.36	7.79

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
	07/11/06	592.4	592.15	2.60	12.60	9.69	7.30	2.39	584.56	7.59
	08/23/06	592.4	592.15	2.60	12.60	9.58	7.30	2.28	584.58	7.57
	09/26/06	592.4	592.15	2.60	12.60	9.85	7.33	2.52	584.52	7.63
	10/30/06	592.4	592.15	2.60	12.60	9.68	7.19	2.49	584.66	7.49
	11/27/06	592.4	592.15	2.60	12.60	9.91	7.33	2.58	584.51	7.64
	12/27/06	592.4	592.15	2.60	12.60	9.99	7.34	2.65	584.49	7.66
	01/15/07	592.4	592.15	2.60	12.60	9.90	7.37	2.53	584.48	7.67
	02/21/07	592.4	592.15	2.60	12.60	10.81	7.78	3.03	584.01	8.14
	03/23/07	592.4	592.15	2.60	12.60	10.71	7.72	2.99	584.07	8.08
	04/09/07	592.4	592.15	2.60	12.60	10.63	7.64	2.99	584.15	8.00
	05/15/07	592.4	592.15	2.60	12.60	10.38	7.46	2.92	584.34	7.81
	06/11/07	592.4	592.15	2.60	12.60	10.81	7.81	3.00	583.98	8.17
	07/11/07	592.4	592.15	2.60	12.60	11.05	7.86	3.19	583.91	8.24
	08/16/07	592.4	592.15	2.60	12.60	11.27	7.95	3.32	583.80	8.35
	09/17/07	592.4	592.15	2.60	12.60	10.54	7.73	2.81	584.08	8.07
	11/26/07	592.4	592.15	2.60	12.60	11.57	8.11	3.46	583.62	8.53
	12/12/07	592.4	592.15	2.60	12.60	11.80	8.18	3.62	583.54	8.61
	01/11/08	592.4	592.15	2.60	12.60	10.96	7.95	3.01	583.84	8.31
	02/05/08	592.4	592.15	2.60	12.60	10.21	7.78	2.43	584.08	8.07
	04/11/08	592.4	592.15	2.60	12.60	8.71	6.83	1.88	585.09	7.06
	05/16/08	592.4	592.15	2.60	12.60	8.91	6.95	1.96	584.96	7.19
	10/29/08	592.4	592.15	2.60	12.60	9.12	6.94	2.18	584.95	7.20
	01/21/09	592.4	592.15	2.60	12.60	7.96	6.68	1.28	585.32	6.83
	03/18/09	592.4	592.15	2.60	12.60	8.69	6.36	2.33	585.51	6.64
	10/17/09	592.4	592.15	2.60	12.60	9.10	7.04	2.06	584.86	7.29
	10/23/09	592.4	592.15	2.60	12.60	8.67	6.97	1.70	584.98	7.17
	06/09/10	592.4	592.15	2.60	12.60	8.42	6.23	2.19	585.66	6.49
	06/24/10	592.4	592.15	2.60	12.60	8.91	6.48	2.43	585.38	6.77
	07/29/10	592.4	592.15	2.60	12.60	9.37	6.51	2.86	585.30	6.85
	08/06/10	592.4	592.15	2.60	12.60	9.22	6.71	2.51	585.14	7.01
	08/13/10	592.4	592.15	2.60	12.60	8.06	5.73	2.33	586.14	6.01
	08/27/10	592.4	592.15	2.60	12.60	8.83	6.03	2.80	585.78	6.37
	09/17/10	592.4	592.15	2.60	12.60	8.68	5.72	2.96	586.07	6.08
	09/23/10	592.4	592.15	2.60	12.60	8.54	5.64	2.90	586.16	5.99
	10/15/10	592.4	592.15	2.60	12.60	8.92	5.82	3.10	585.96	6.19
	10/29/10	592.4	592.15	2.60	12.60	8.87	5.68	3.19	586.09	6.06
	03/18/11	592.4	592.15	2.60	12.60	8.03	4.92	3.11	586.86	5.29
	04/08/11	592.4	592.15	2.60	12.60	7.75	4.06	3.69	587.65	4.50
	05/09/11	592.4	592.15	2.60	12.60	8.24	3.95	4.29	587.69	4.46
	06/09/11	592.4	592.15	2.60	12.60	8.28	4.24	4.04	587.43	4.72
	07/05/11	592.4	592.15	2.60	12.60	8.75	4.38	4.37	587.25	4.90
	08/23/11	592.4	592.15	2.60	12.60	8.50	3.67	4.83	587.90	4.25
	10/14/11	592.4	592.15	2.60	12.60	8.64	4.58	4.06	587.08	5.07
	11/23/11	592.4	592.15	2.60	12.60	8.38	3.98	4.40	587.64	4.51
	04/23/12	592.4	592.15	2.60	12.60	4.13	3.78	0.35	588.33	3.82
	07/10/12	592.4	592.15	2.60	12.60	5.65	4.51	1.14	587.50	4.65
	11/12/14	592.4	592.15	2.60	12.60	4.83	3.91	0.92	588.13	4.02
	09/09/15	592.4	592.15	2.60	12.60	2.99	2.85	0.14	589.28	2.87
	03/15/16	592.4	592.15	2.60	12.60	3.37	2.77	0.60	589.31	2.84
	06/17/16	592.4	592.15	2.60	12.60	2.84	2.41	0.43	589.69	2.46
	09/22/16	592.4	592.15	2.60	12.60	5.60	3.27	2.33	588.60	3.55
	09/27/16	ABANDONED								
QPTW-10R	09/06/17	594.82	594.20	2.00	12.00	4.99	---	---	589.21	4.99
QPTW-13	10/15/10	592.7	592.36	2.76	12.76	7.17	6.65	0.52	585.65	6.71
	10/29/10	592.7	592.36	2.76	12.76	6.77	6.49	0.28	585.84	6.52
	03/18/11	592.7	592.36	2.76	12.76	4.56	4.47	0.09	587.88	4.48
	05/09/11	592.7	592.36	2.76	12.76	4.59	4.56	0.03	587.80	4.56
	06/09/11	592.7	592.36	2.76	12.76	4.88	4.85	0.03	587.51	4.85
	07/05/11	592.7	592.36	2.76	12.76	5.08	5.02	0.06	587.33	5.03
	08/23/11	592.7	592.36	2.76	12.76	4.43	4.38	0.05	587.97	4.39
	10/14/11	592.7	592.36	2.76	12.76	5.12	5.03	0.09	587.32	5.04
	03/20/12	592.7	592.36	2.76	12.76	4.12	---	---	588.24	4.12
	04/23/12	592.7	592.36	2.76	12.76	4.16	4.15	0.01	588.21	4.15
	06/11/12	592.7	592.36	2.76	12.76	4.38	---	---	587.98	4.38
	07/10/12	592.7	592.36	2.76	12.76	5.06	4.84	0.22	587.49	4.87
	08/29/12	592.7	592.36	2.76	12.76	4.30	4.24	0.06	588.11	4.25
	09/12/12	592.7	592.36	2.76	12.76	4.13	4.09	0.04	588.27	4.09
	04/15/13	592.7	592.36	2.76	12.76	2.85	---	---	589.51	2.85
	07/18/13	592.7	592.36	2.76	12.76	3.54	---	---	588.82	3.54
	09/23/13	592.7	592.36	2.76	12.76	4.74	4.71	0.03	587.65	4.71
	04/25/14	592.7	592.36	2.76	12.76	2.98	---	---	589.38	2.98
	06/02/14	592.7	592.36	2.76	12.76	3.65	---	---	588.71	3.65
	07/09/14	592.7	592.36	2.76	12.76	2.73	---	---	589.63	2.73
	07/31/14	592.7	592.36	2.76	12.76	3.41	---	---	588.95	3.41
	09/16/14	592.7	592.36	2.76	12.76	3.48	---	---	588.88	3.48
	03/24/15	592.7	592.36	2.76	12.76	4.12	---	---	588.24	4.12
	06/17/15	592.7	592.36	2.76	12.76	3.17	---	---	589.19	3.17
	09/09/15	592.7	592.36	2.76	12.76	3.17	---	---	589.19	3.17
	03/15/16	592.7	592.36	2.76	12.76	3.11	---	---	589.25	3.11
	06/17/16	592.7	592.36	2.76	12.76	2.53	---	---	589.83	2.53
	09/22/16	592.7	592.36	2.76	12.76	3.72	---	---	588.64	3.72
	09/27/16	ABANDONED								
QPTW-13R	09/06/17	594.8	594.04	4	14	4.83	---	---	589.21	4.83
QP-1	06/24/10	---	---	5	15	9.65	9.51	0.14	---	9.53
	07/22/10	---	---	5	15	12.22	12.14	0.08	---	12.15
	08/06/10	---	---	5	15	4.40	4.21	0.19	---	4.23
	08/13/10	---	---	5	15	1.63	1.56	0.07	---	1.57

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
	08/27/10	---	---	5	15	9.79	---	---	---	9.79
	09/17/10	---	---	5	15	8.64	---	---	---	8.64
	09/23/10	---	---	5	15	8.45	---	---	---	8.45
	10/15/10	---	---	5	15	8.91	---	---	---	8.91
	10/29/10	---	---	5	15	8.85	---	---	---	8.85
	12/07/10	---	---	5	15	9.22	---	---	---	9.22
	01/03/11	---	---	5	15	8.73	---	---	---	8.73
	03/18/11	---	---	5	15	8.83	---	---	---	8.83
	04/08/11	---	---	5	15	8.26	---	---	---	8.26
	05/09/11	---	---	5	15	8.19	---	---	---	8.19
	06/09/11	---	---	5	15	7.72	---	---	---	7.72
	07/05/11	---	---	5	15	8.54	---	---	---	8.54
	08/23/11	---	---	5	15	7.47	---	---	---	7.47
	10/14/11	---	---	5	15	8.82	---	---	---	8.82
	11/23/11	---	---	5	15	8.21	---	---	---	8.21
	01/24/12	---	---	5	15	6.58	---	---	---	6.58
	03/20/12	---	---	5	15	7.63	---	---	---	7.63
	04/23/12	---	---	5	15	7.15	---	---	---	7.15
	06/11/12	---	---	5	15	7.91	---	---	---	7.91
	07/10/12	---	---	5	15	8.54	---	---	---	8.54
	08/29/12	---	---	5	15	7.91	---	---	---	7.91
	09/12/12	---	---	5	15	7.66	---	---	---	7.66
	10/01/12	---	---	5	15	8.47	---	---	---	8.47
	11/06/12	---	---	5	15	7.66	---	---	---	7.66
	12/05/12	---	---	5	15	7.68	---	---	---	7.68
	04/03/13	---	---	5	15	7.93	---	---	---	7.93
	07/18/13	---	---	5	15	7.37	---	---	---	7.37
	09/23/13	---	---	5	15	8.55	---	---	---	8.55
	04/25/14	---	---	5	15	6.49	---	---	---	6.49
	06/02/14	---	---	5	15	7.17	---	---	---	7.17
	07/09/14	---	---	5	15	6.16	---	---	---	6.16
	07/31/14	---	---	5	15	6.48	---	---	---	6.48
	09/16/14	---	---	5	15	6.94	---	---	---	6.94
	03/24/15	---	---	5	15	7.55	---	---	---	7.55
	06/17/15	---	---	5	15	6.51	---	---	---	6.51
	09/09/15	---	---	5	15	6.12	---	---	---	6.12
	12/04/15	---	---	5	15	8.25	---	---	---	8.25
	03/15/16	---	---	5	15	6.88	---	---	---	6.88
	06/17/16	---	---	5	15	6.12	---	---	---	6.12
	09/22/16	---	---	5	15	7.45	---	---	---	7.45
	09/27/16	ABANDONED								
QP-1R	09/06/17	594.87	594.59	1.5	12	5.20	---	---	589.39	5.20
QP-2	06/24/10	---	---	5	15	10.27	10.25	0.02	---	10.25
	06/28/10	---	---	5	15	9.49	9.45	0.04	---	9.45
	07/08/10	---	---	5	15	8.57	8.48	0.09	---	8.49
	07/22/10	---	---	5	15	8.31	8.22	0.09	---	8.23
	07/29/10	---	---	5	15	8.55	8.46	0.09	---	8.47
	08/06/10	---	---	5	15	8.88	8.74	0.14	---	8.76
	08/13/10	---	---	5	15	6.70	6.61	0.09	---	6.62
	08/27/10	---	---	5	15	7.76	7.66	0.10	---	7.67
	09/17/10	---	---	5	15	7.44	7.28	0.16	---	7.30
	09/23/10	---	---	5	15	7.14	6.98	0.16	---	7.00
	10/15/10	---	---	5	15	7.96	7.73	0.23	---	7.76
	10/29/10	---	---	5	15	7.74	7.48	0.26	---	7.51
	12/07/10	---	---	5	15	7.71	7.40	0.31	---	7.44
	01/03/11	---	---	5	15	7.62	7.31	0.31	---	7.35
	03/18/11	---	---	5	15	7.51	7.25	0.26	---	7.28
	04/08/11	---	---	5	15	7.03	6.73	0.30	---	6.77
	05/09/11	---	---	5	15	6.97	6.61	0.36	---	6.65
	06/09/11	---	---	5	15	7.36	6.93	0.43	---	6.98
	07/05/11	---	---	5	15	7.45	6.92	0.53	---	6.98
	08/23/11	---	---	5	15	7.13	6.42	0.71	---	6.51
	10/14/11	---	---	5	15	8.31	7.34	0.97	---	7.46
	11/23/11	---	---	5	15	7.99	7.07	0.92	---	7.18
	01/24/12	---	---	5	15	6.79	5.81	0.98	---	5.93
	03/20/12	---	---	5	15	7.25	6.29	0.96	---	6.41
	04/23/12	---	---	5	15	7.21	6.18	1.03	---	6.30
	06/11/12	---	---	5	15	7.20	6.48	0.72	---	6.57
	07/10/12	---	---	5	15	8.43	7.04	1.39	---	7.21
	08/29/12	---	---	5	15	8.00	6.44	1.56	---	6.63
	09/12/12	---	---	5	15	7.75	6.17	1.58	---	6.36
	10/01/12	---	---	5	15	8.66	6.81	1.85	---	7.03
	11/06/12	---	---	5	15	7.02	6.29	0.73	---	6.38
	12/05/12	---	---	5	15	7.59	6.86	0.73	---	6.95
	04/03/13	---	---	5	15	7.12	6.40	0.72	---	6.49
	07/18/13	---	---	5	15	6.91	5.86	1.05	---	5.99
	09/23/13	---	---	5	15	7.73	6.95	0.78	---	7.04
	04/25/14	---	---	5	15	5.86	5.40	0.46	---	5.46
	06/02/14	---	---	5	15	6.24	5.74	0.50	---	5.80
	07/09/14	---	---	5	15	5.86	5.29	0.57	---	5.36
	07/31/14	---	---	5	15	6.16	5.55	0.61	---	5.62
	09/16/14	---	---	5	15	5.93	5.76	0.17	---	5.78
	03/24/15	---	---	5	15	6.51	6.30	0.21	---	6.33
	06/17/15	---	---	5	15	5.79	5.53	0.26	---	5.56
	09/09/15	---	---	5	15	5.71	5.36	0.35	---	5.40
	12/04/15	---	---	5	15	7.35	6.88	0.47	---	6.94
	03/15/16	---	---	5	15	5.77	5.51	0.26	---	5.54
	06/17/16	---	---	5	15	5.53	5.22	0.31	---	5.26

Table 2

Summary of Groundwater Gauging Data - Quench Pit Area
RACER Trust - Saginaw Malleable Iron Industrial Land
Saginaw, Michigan

Well ID	Date	Ground Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Top of Screen (ft btoc)	Total Depth (ft btoc)	Depth to Water (ft btoc)	Depth to Product (ft btoc)	LNAPL Thickness (ft)	Corrected Groundwater Elevation [1] (ft amsl)	Corrected Water Table Depth [1] (ft btoc)
	09/22/16	---	---	5	15	6.38	5.99	0.39	---	6.04
	09/27/16	ABANDONED								
QP-2R	09/06/17	594.81	594.22	2	12	4.29	4.27	0.02	589.95	4.27
QP-3	06/24/10	---	---	5	15	17.53	16.80	0.73	---	16.89
	06/28/10	---	---	5	15	12.56	12.53	0.03	---	12.53
	07/08/10	---	---	5	15	12.37	12.32	0.05	---	12.33
	07/29/10	---	---	5	15	12.47	12.35	0.12	---	12.36
	08/06/10	---	---	5	15	12.89	12.81	0.08	---	12.82
	08/13/10	---	---	5	15	11.69	11.62	0.07	---	11.63
	08/27/10	---	---	5	15	11.78	11.71	0.07	---	11.72
	09/17/10	---	---	5	15	11.78	11.69	0.09	---	11.70
	09/23/10	---	---	5	15	11.55	11.41	0.14	---	11.43
	10/15/10	---	---	5	15	8.19	8.03	0.16	---	8.05
	10/29/10	---	---	5	15	8.27	8.09	0.18	---	8.11
	12/07/10	---	---	5	15	7.92	7.82	0.10	---	7.83
	01/03/11	---	---	5	15	7.70	7.57	0.13	---	7.59
	03/18/11	---	---	5	15	7.69	7.59	0.10	---	7.60
	04/08/11	---	---	5	15	6.78	6.72	0.06	---	6.73
	05/09/11	---	---	5	15	7.08	7.02	0.06	---	7.03
	06/09/11	---	---	5	15	7.33	7.25	0.08	---	7.26
	07/05/11	---	---	5	15	7.26	7.18	0.08	---	7.19
	08/23/11	---	---	5	15	6.41	6.37	0.04	---	6.37
	10/14/11	---	---	5	15	7.44	7.35	0.09	---	7.36
	11/23/11	---	---	5	15	7.06	7.00	0.06	---	7.01
	01/24/12	---	---	5	15	5.63	5.60	0.03	---	5.60
	03/20/12	---	---	5	15	6.25	6.22	0.03	---	6.22
	04/23/12	---	---	5	15	6.02	6.00	0.02	---	6.00
	06/11/12	---	---	5	15	6.55	6.51	0.04	---	6.51
	07/10/12	---	---	5	15	7.21	7.11	0.10	---	7.12
	08/29/12	---	---	5	15	6.58	6.49	0.09	---	6.50
	09/12/12	---	---	5	15	6.16	6.10	0.06	---	6.11
	10/01/12	---	---	5	15	7.11	7.01	0.10	---	7.02
	11/06/12	---	---	5	15	7.07	7.01	0.06	---	7.02
	12/05/12	---	---	5	15	6.58	6.55	0.03	---	6.55
	04/03/13	---	---	5	15	6.57	6.54	0.03	---	6.54
	07/18/13	---	---	5	15	5.98	5.92	0.06	---	5.93
	09/23/13	---	---	5	15	7.01	6.91	0.10	---	6.92
	04/25/14	---	---	5	15	5.41	5.39	0.02	---	5.39
	06/02/14	---	---	5	15	5.74	5.71	0.03	---	5.71
	07/09/14	---	---	5	15	5.17	5.13	0.04	---	5.13
	07/31/14	---	---	5	15	5.25	5.24	0.01	---	5.24
	09/16/14	---	---	5	15	5.47	5.41	0.06	---	5.42
	03/24/15	---	---	5	15	6.36	6.34	0.02	---	6.34
	06/17/15	---	---	5	15	5.20	5.18	0.02	---	5.18
	09/09/15	---	---	5	15	5.12	5.09	0.03	---	5.09
	12/04/15	---	---	5	15	6.40	6.39	0.01	---	6.39
	03/15/16	---	---	5	15	5.40	5.39	0.01	---	5.39
	06/17/16	---	---	5	15	5.13	5.11	0.02	---	5.11
	09/22/16	---	---	5	15	5.72	5.68	0.04	---	5.68
	09/27/16	ABANDONED								
QP-3R	09/06/17	594.8	594.41	2	12	4.17	4.08	0.09	590.32	4.09

NOTES:

LNAPL	Light Non-Aqueous Phase Liquid
ft	Feet
ft amsl	Feet Above Mean Sea Level
ft btoc	Feet Below Top of Casing
---	No LNAPL measured
[1]	A specific gravity of 0.88 (quench/hydraulic oil) was used to calculate corrected groundwater levels

LNAPL Transmissivity Testing: QPTW-04R
RACER Saginaw Malleable Iron
Saginaw, MI

Day	Time	Elapsed Time (hours)	DTP (ft btor)	DTW (ft btor)	In-Well LNAPL Thickness (in)	Volume Removed (fl oz)	Volume Removed (gal)	LNAPL Recovery Rate - Q_n (gal/day)	25% of Recovery Rate (gal/day)	Recovery Rate Difference (gal/day)	LNAPL Drawdown - S_n (feet)	LNAPL Recovery Rate - Q_n (ft^3/day)
9/19/2017	9:45	0:00	4.98	5.80	9.84	16.00	0.13					
9/19/2017	9:55	0:10	5.05	5.15	1.20	2.00	0.02	2.3			0.07	0.30
9/19/2017	10:05	0:20	5.06	5.12	0.72						0.08	
9/19/2017	10:10	0:25	5.06	5.13	0.84						0.08	
9/19/2017	10:15	0:30	5.06	5.13	0.84						0.08	
9/19/2017	10:25	0:40	5.05	5.14	1.08	1.50	0.01	0.6	0.14		0.07	0.08
9/19/2017	10:35	0:50	5.06	5.11	0.60						0.08	
9/19/2017	10:45	1:00	5.06	5.13	0.84						0.08	
9/19/2017	10:55	1:10	5.06	5.13	0.84						0.08	
9/19/2017	11:05	1:20	5.05	5.13	0.96						0.07	
9/19/2017	11:15	1:30	5.05	5.13	0.96						0.07	
9/19/2017	11:25	1:40	5.05	5.13	0.96						0.07	
9/19/2017	11:40	1:55	5.05	5.14	1.08						0.07	
9/19/2017	11:55	2:10	5.06	5.14	0.96						0.08	
9/19/2017	12:10	2:25	5.05	5.14	1.08	1.50	0.01	0.2	0.04	0.10	0.07	0.02
9/19/2017	12:25	2:40	5.06	5.11	0.60						0.08	
9/19/2017	12:40	2:55	5.06	5.12	0.72						0.08	
9/19/2017	13:10	3:25	5.06	5.12	0.72						0.08	
9/19/2017	13:40	3:55	5.06	5.13	0.84						0.08	
9/19/2017	14:10	4:25	5.05	5.13	0.96						0.07	
9/19/2017	14:40	4:55	5.06	5.14	0.96						0.08	
9/19/2017	15:10	5:25	5.06	5.14	0.96						0.08	
9/19/2017	15:40	5:55	5.06	5.14	0.96						0.08	

Inputs	**0.08**	**0.02**
LNAPL Transmissivity - T_n (ft^2/day)		**0.21**

Table 3

LNAPL Transmitivity Testing: QPTW-05R
RACER Saginaw Malleable Iron
Saginaw, MI

Day	Time	Elapsed Time (hours)	DTP (ft btor)	DTW (ft btor)	In-Well LNAPL Thickness (in)	Volume Removed (fl oz)	Volume Removed (gal)	LNAPL Recovery Rate - Q_n (gal/day)	25% of Recovery Rate (gal/day)	Recovery Rate Difference (gal/day)	LNAPL Drawdown - S_n (feet)	LNAPL Recovery Rate - Q_n (ft^3/day)
9/19/2017	8:15	0:00	5.23	5.76	6.36	12.00	0.09					
9/19/2017	8:20	0:05	5.27	5.40	1.56	4.00	0.03	9.0			0.04	1.20
9/19/2017	8:25	0:10	5.29	5.35	0.72						0.06	
9/19/2017	8:30	0:15	5.28	5.35	0.84						0.05	
9/19/2017	8:35	0:20	5.27	5.35	0.96						0.04	
9/19/2017	8:40	0:25	5.27	5.35	0.96						0.04	
9/19/2017	8:50	0:35	5.27	5.35	0.96	1.50	0.01	0.6	0.1		0.04	0.08
9/19/2017	8:55	0:40	5.28	5.31	0.36						0.05	
9/19/2017	9:00	0:45	5.28	5.32	0.48						0.05	
9/19/2017	9:10	0:55	5.28	5.32	0.48						0.05	
9/19/2017	9:40	1:25	5.28	5.32	0.48						0.05	
9/19/2017	10:00	1:45	5.28	5.32	0.48						0.05	
9/19/2017	10:20	2:05	5.28	5.32	0.48						0.05	
9/19/2017	10:50	2:35	5.28	5.32	0.48						0.05	
9/19/2017	11:20	3:05	5.28	5.32	0.48						0.05	
9/19/2017	11:50	3:35	5.28	5.32	0.48						0.05	
9/19/2017	12:30	4:15	5.28	5.32	0.48						0.05	
9/19/2017	13:15	5:00	5.28	5.32	0.48						0.05	
9/19/2017	14:00	5:45	5.28	5.32	0.48						0.05	
9/19/2017	14:45	6:30	5.28	5.33	0.60						0.05	
9/19/2017	15:30	7:15	5.28	5.33	0.60						0.05	

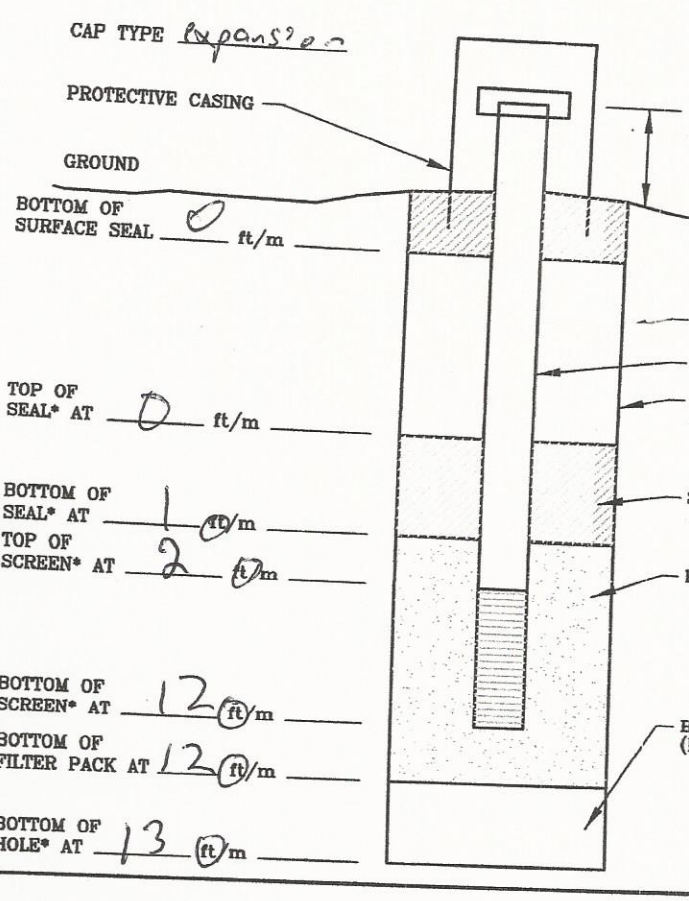
Inputs	**de minimis**	**de minimis**
LNAPL Transmissivity - T_n (ft^2/day)		**de minimis**

Attachment A

WELL INSTRUMENTATION LOG

PROJECT NAME SMI
PROJECT NUMBER 7978
CLIENT Kaer Trust
LOCATION Saginaw, MI

WELL DESIGNATION QPTW-10
DATE COMPLETED 7/5/17
DRILLING METHOD HSA
CRA SUPERVISOR



SCREEN TYPE: ☒ continuous slot ☐ wire wrapped ☐ louvre ☐ other:

SCREEN MATERIAL: ☐ stainless steel ☒ pvc ☐ other:

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE:

RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: PVC in/cm

SURFACE CASING (Y/N) MATERIAL DEPTH ft/m

DIAMETER in/cm SEALANT

DEVELOPMENT: METHOD: whale pump DURATION: 35 gals

DESCRIPTION OF PURGED WATER: light brownish grey

STRATIGRAPHY LOG (OVERBURDEN)

PAGE ___ OF ___

PROJECT NAME _____
PROJECT NUMBER _____
CLIENT _____
LOCATION _____

DRILLING CONTRACTOR _____
DRILLER _____
SURFACE ELEVATION _____
WEATHER (A.M.) _____
(P.M.) _____

HOLE DESIGNATION QPTW-10
DATE/TIME STARTED 7/5/17
DATE/TIME COMPLETED _____
DRILLING METHOD _____
CRA SUPERVISOR _____

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		1	topsoil / clay														
1		2	concrete														
2			foundry sand, black, moist, odor														
	5		mix of slag, etc (wet)														
		8															
8		9	fine silt, trace sand, black, odor, wet														
9		13	grey sand, fine to med, wet trace silt														

NOTES AND COMMENTS

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____

COMPLETION DETAILS: _____

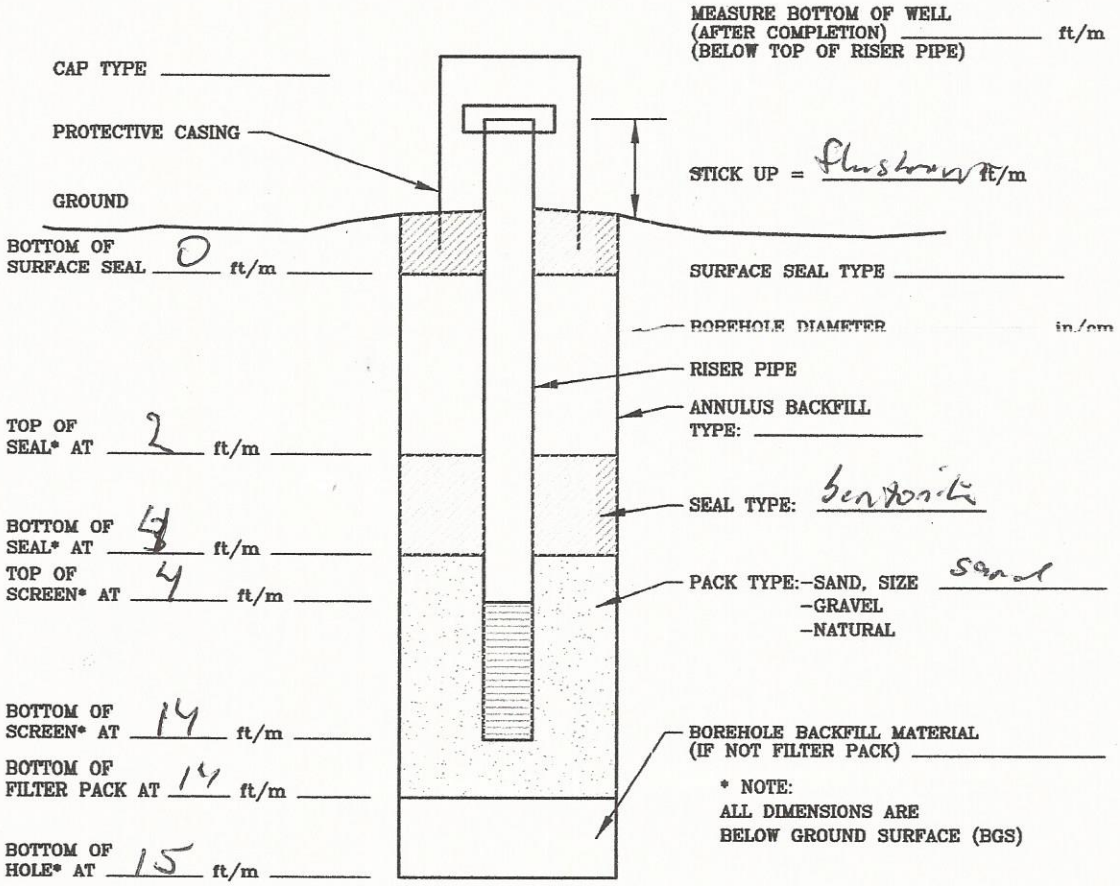
NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

NOTES:

WELL INSTRUMENTATION LOG

PROJECT NAME SMT
PROJECT NUMBER 7878
CLIENT Fort Trust
LOCATION Saginaw, MT

WELL DESIGNATION QPTW-13
DATE COMPLETED 6/16/17
DRILLING METHOD HSA
CRA SUPERVISOR S. Hovorka



SCREEN TYPE: ☒ continuous slot ☐ wire wrapped ☐ louvre ☐ other: _____

SCREEN MATERIAL: ☐ stainless steel ☒ pvc ☐ other: _____

SCREEN LENGTH: 10 (ft)/m SCREEN DIAMETER: 2 (in)/cm SCREEN SLOT SIZE: _____

RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 2 (in)/cm

SURFACE CASING (Y/N) _____ MATERIAL _____ DEPTH _____ ft/m

DIAMETER _____ in/cm SEALANT _____

DEVELOPMENT: METHOD: whale pump DURATION: 40 gals

DESCRIPTION OF PURGED WATER: light grey

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME: SMI
PROJECT NUMBER:
CLIENT:
LOCATION:

DRILLING CONTRACTOR: JSS
DRILLER: Bob
SURFACE ELEVATION:
WRATHER (A.M.): cloudy, shared rain, 70s
(P.M.):

HOLE DESIGNATION: QPTW-13
DATE/TIME STARTED: 8/16/17
DATE/TIME COMPLETED:
DRILLING METHOD: HSA
CRA SUPERVISOR: S. Hoerman

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
			ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).												
0		1	topsoil/clay									0-5			
1		2	Concrete									5-10			
2		11	foundry fill, sand slag, dry to moist, black, trace silt & gravel									10-15			
	7-8		wet												
	8-9		dry												
	9-13		wet												
11		13	foundry fill, black, sheen mix of foundry sand & grey sand, trace gravel & silt												
13		15	grey sand, trace silt, wet												

DEPTH OF BOREHOLE CAVING: DEPTH OF FIRST GROUNDWATER ENCOUNTER: TOPSOIL THICKNESS:
WATER LEVEL IN OPEN BOREHOLE ON COMPLETION: AFTER HOURS:
COMPLETION DETAILS:

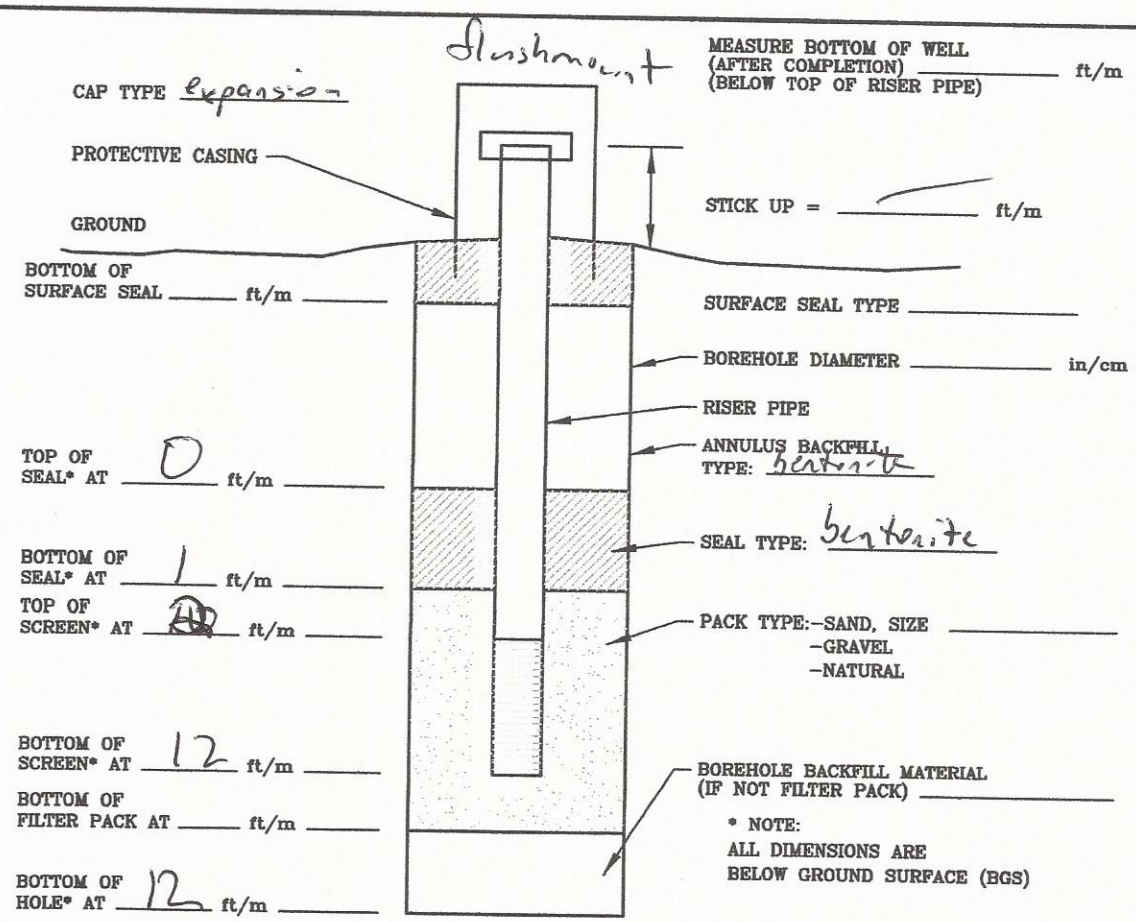
NOTES AND COMMENTS

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.
NOTES:

WELL INSTRUMENTATION LOG

PROJECT NAME SMI
PROJECT NUMBER 7878
CLIENT Race Trust
LOCATION Saginaw, MI

WELL DESIGNATION QPTW-3
DATE COMPLETED 6/29/17
DRILLING METHOD HSA
CRA SUPERVISOR SSH



SCREEN TYPE: ☒ continuous slot ☐ wire wrapped ☐ louvre ☐ other:
SCREEN MATERIAL: ☐ stainless steel ☒ pvc ☐ other:
SCREEN LENGTH: 10 (ft)/m SCREEN DIAMETER: 2 (in)/cm SCREEN SLOT SIZE:
RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 2 (in)/cm
SURFACE CASING (Y/N) MATERIAL DEPTH ft/m
DIAMETER in/cm SEALANT
DEVELOPMENT: METHOD: whale pump DURATION: 40 gals
DESCRIPTION OF PURGED WATER: trace silt with black tint

STRATIGRAPHY LOG (OVERBURDEN)

PAGE ___ OF ___

PROJECT NAME: SMI
PROJECT NUMBER: 7878
CLIENT:
LOCATION:

DRILLING CONTRACTOR: JSS
DRILLER:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

HOLE DESIGNATION: QPTW 3
DATE/TIME STARTED: 6/29/17
DATE/TIME COMPLETED:
DRILLING METHOD:
CRA SUPERVISOR:

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) - PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).	SAMPLE #	SAMPLING METHOD	6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		1	clay / topsoil												
1		2	Concrete												
2		4	sand / gravel, dry, brown to grey												
4		4½	light brown wet sand + gravel / wet												
	4½														
4½		9	black silt, sand with black slag + red mottling, wet, LNAPL odor												
9		10½	black sand, trace silt + gravel, wet, fine to med												
10½		12	grey sand, trace silt + gravel, wet, fine to med												

(Penetration record columns: SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES))

NOTES AND COMMENTS

DEPTH OF BOREHOLE CAVING ______ DEPTH OF FIRST GROUNDWATER ENCOUNTER ______ TOPSOIL THICKNESS ______

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION ______, AFTER ____ HOURS ____

COMPLETION DETAILS:

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

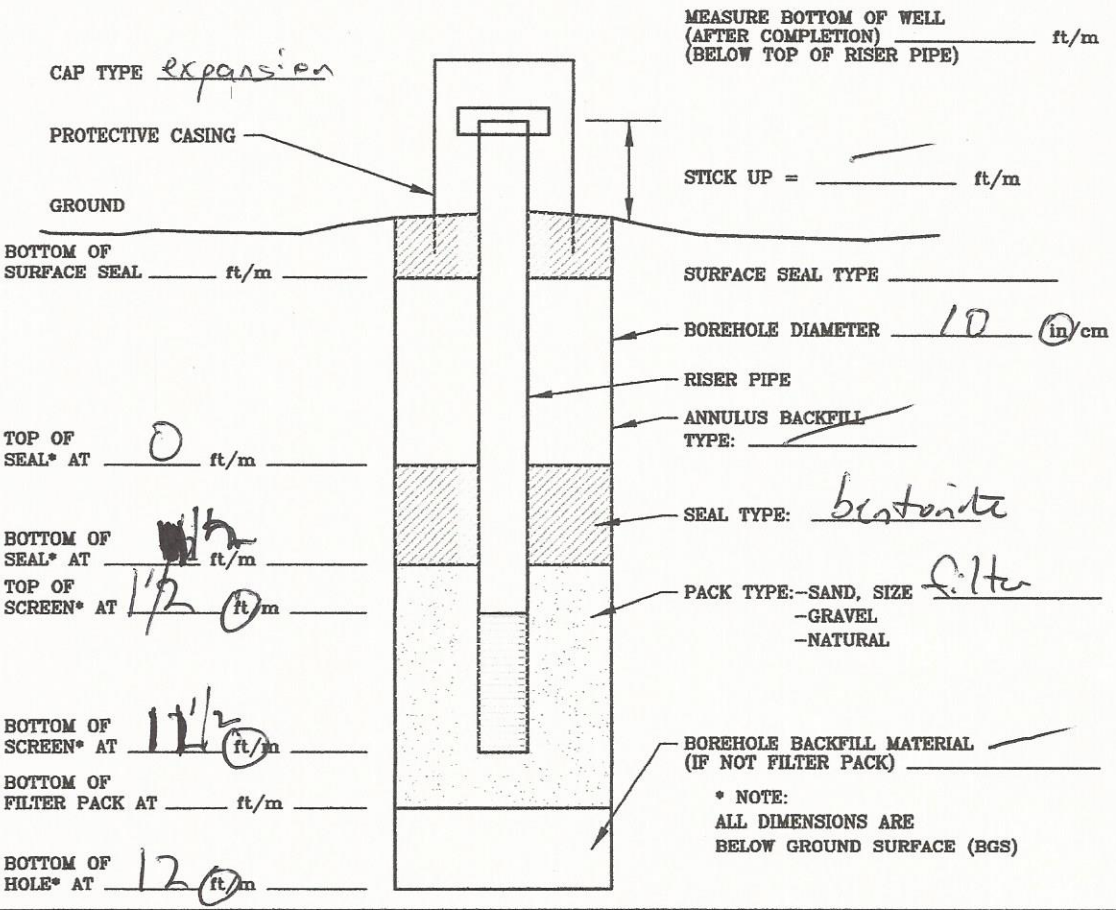
NOTES:

CRA

WELL INSTRUMENTATION LOG

PROJECT NAME SMJ
PROJECT NUMBER 7878
CLIENT RacerTrust
LOCATION Saginaw, MI

WELL DESIGNATION OP1
DATE COMPLETED 6/29/17
DRILLING METHOD HSA
CRA SUPERVISOR SSH



SCREEN TYPE: ☒ continuous slot ☐ wire wrapped ☐ louvre ☐ other: _____

SCREEN MATERIAL: ☐ stainless steel ☒ pvc ☐ other: _____

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 4 in/cm SCREEN SLOT SIZE: _____

RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 4 in/cm

SURFACE CASING (Y/N) _____ MATERIAL _____ DEPTH _____ ft/m

DIAMETER _____ in/cm SEALANT _____

DEVELOPMENT: METHOD: whale pump HSA SSH DURATION: 40 gals

DESCRIPTION OF PURGED WATER: fairly clear – slight sheen

CRA

STRATIGRAPHY LOG (OVERBURDEN)

PAGE ___ OF ___

PROJECT NAME: SMT
PROJECT NUMBER: 7678
CLIENT:
LOCATION:

DRILLING CONTRACTOR: JSS
DRILLER:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

HOLE DESIGNATION: QP1
DATE/TIME STARTED: 6/29/17
DATE/TIME COMPLETED:
DRILLING METHOD: HSA 10"
CRA SUPERVISOR:

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		1	topsoil/clay												
1		3	concrete												
	4		wet gravel at 4'												
3		12	gravel												

ORDER OF DESCRIPTORS:
SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS

NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).

DEPTH OF BOREHOLE CAVING ___ DEPTH OF FIRST GROUNDWATER ENCOUNTER ___ TOPSOIL THICKNESS ___

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION ___, AFTER ___ HOURS ___

COMPLETION DETAILS:

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

NOTES AND COMMENTS

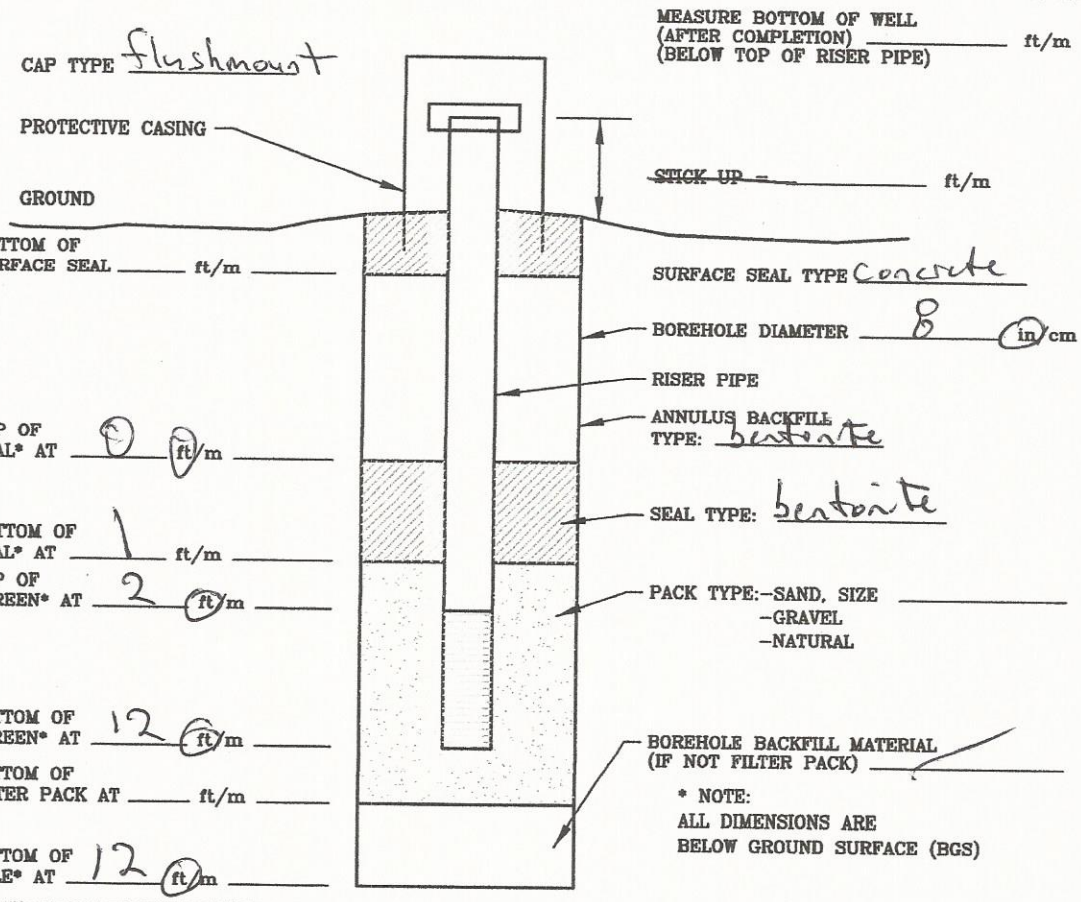
NOTES:

In old QP

WELL INSTRUMENTATION LOG

PROJECT NAME SMI
PROJECT NUMBER 7878
CLIENT RacerTrust
LOCATION Saginaw, MI

WELL DESIGNATION OPTW-5
DATE COMPLETED 6/29/17
DRILLING METHOD HSA
CRA SUPERVISOR S. Hoeneman



SCREEN TYPE: [X] continuous slot [ ] wire wrapped [ ] louvre [ ] other: _____

SCREEN MATERIAL: [ ] stainless steel [X] pvc [ ] other: _____

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE: _____

RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 2 in/cm

SURFACE CASING (Y/N) _____ MATERIAL _____ DEPTH _____ ft/m

DIAMETER _____ in/cm SEALANT _____

DEVELOPMENT: METHOD: whale pump DURATION: 35 gals

DESCRIPTION OF PURGED WATER: light brownish grey

STRATIGRAPHY LOG (OVERBURDEN)

PAGE ___ OF ___

PROJECT NAME: SMI
PROJECT NUMBER: 7878
CLIENT: Race Trust
LOCATION: Saginaw, MT

DRILLING CONTRACTOR: JSS
DRILLER: Dave
SURFACE ELEVATION:
WEATHER (A.M.): cloudy, wind ≤10, high 60s
(P.M.):

HOLE DESIGNATION: QPTW-5
DATE/TIME STARTED: 6/29/17 0930
DATE/TIME COMPLETED:
DRILLING METHOD: HSA
CRA SUPERVISOR: S. Heisemeyer

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		12	topsoil / clay															
12'		2'	concrete, gravel, clay															
2'			foundry sand, slag, brick, etc., black															
	4		wet, slight sheen to LNAPL															
		7																
7			gray silty sand, trace gravel, wet															
		12	Bot															

DEPTH OF BOREHOLE CAVING ___ DEPTH OF FIRST GROUNDWATER ENCOUNTER 4' TOPSOIL THICKNESS ___

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION ___ AFTER ___ HOURS ___

COMPLETION DETAILS:

NOTES AND COMMENTS

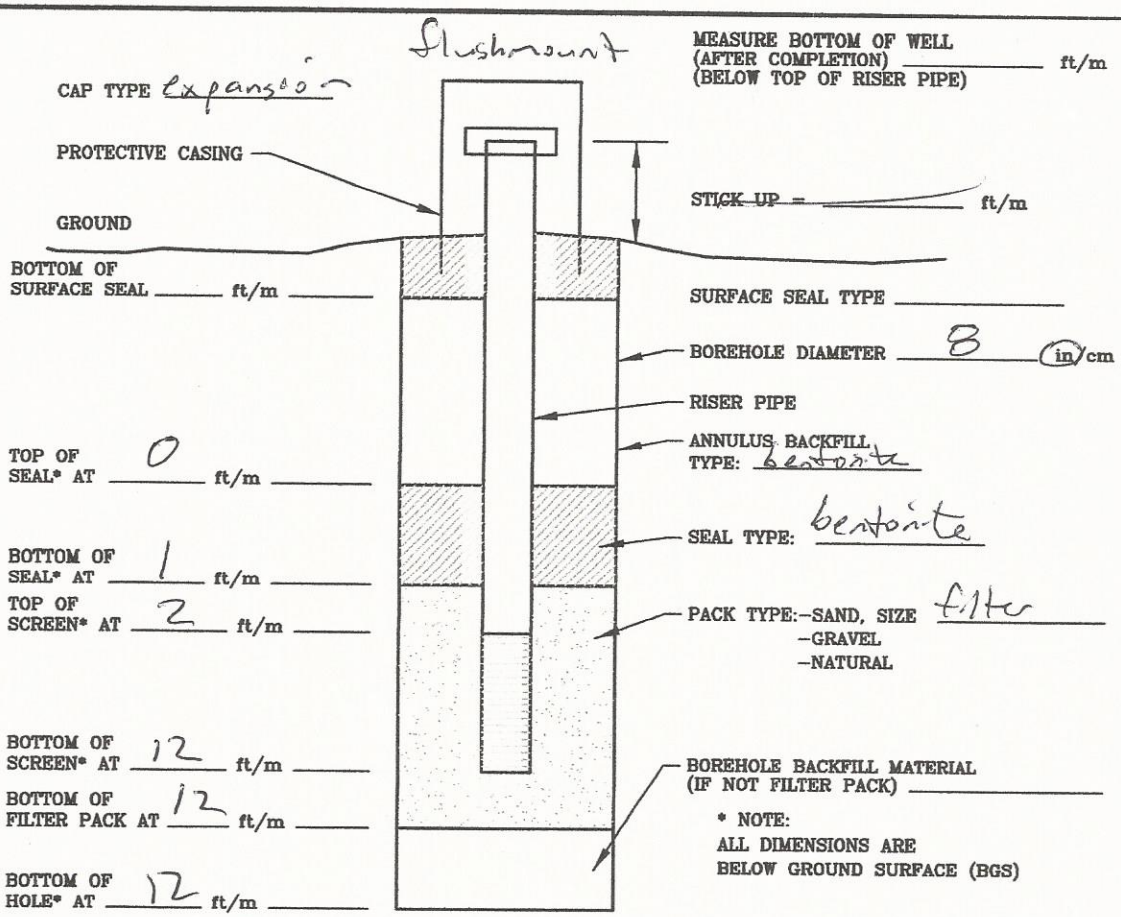
NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

NOTES:

WELL INSTRUMENTATION LOG

PROJECT NAME SMT
PROJECT NUMBER 7870
CLIENT RaceTrust
LOCATION CMT

WELL DESIGNATION QPTW-01
DATE COMPLETED 6/29/17
DRILLING METHOD HSA
CRA SUPERVISOR SSH



SCREEN TYPE: ☒ continuous slot ☐ wire wrapped ☐ louvre ☐ other:
SCREEN MATERIAL: ☐ stainless steel ☒ pvc ☐ other:
SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE:
RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 2 in/cm
SURFACE CASING (Y/N) MATERIAL DEPTH ft/m
DIAMETER in/cm SEALANT
DEVELOPMENT: METHOD: whale pump DURATION: 35 gals
DESCRIPTION OF PURGED WATER: light grey

STRATIGRAPHY LOG (OVERBURDEN)

PAGE ___ OF ___

PROJECT NAME: SMI
PROJECT NUMBER: 7673
CLIENT:
LOCATION:

DRILLING CONTRACTOR: JSS
DRILLER:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

HOLE DESIGNATION: GP1W-01
DATE/TIME STARTED: 6/29/15
DATE/TIME COMPLETED:
DRILLING METHOD: HSA
CRA SUPERVISOR: SSH

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		1	topsoil / clay														
1		2	concrete														
2		3½	sand & gravel, grey, moist, fine to med														
3½		6	grey sand fine to med, trace silt & gravel moist to wet – 2-3" silt seam, mottled brown/grey														
6		7	black sand, wet, trace sand & gravel fine to med														
7 –		11	grey sand fine to med wet some black mottling, sheen/odour														
	10		brown tint														
11		12	black sand, fine to med, wet														

NOTES AND COMMENTS

DEPTH OF BOREHOLE CAVING: ___ DEPTH OF FIRST GROUNDWATER ENCOUNTER: ___ TOPSOIL THICKNESS: ___

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION: ___ AFTER ___ HOURS ___

COMPLETION DETAILS:

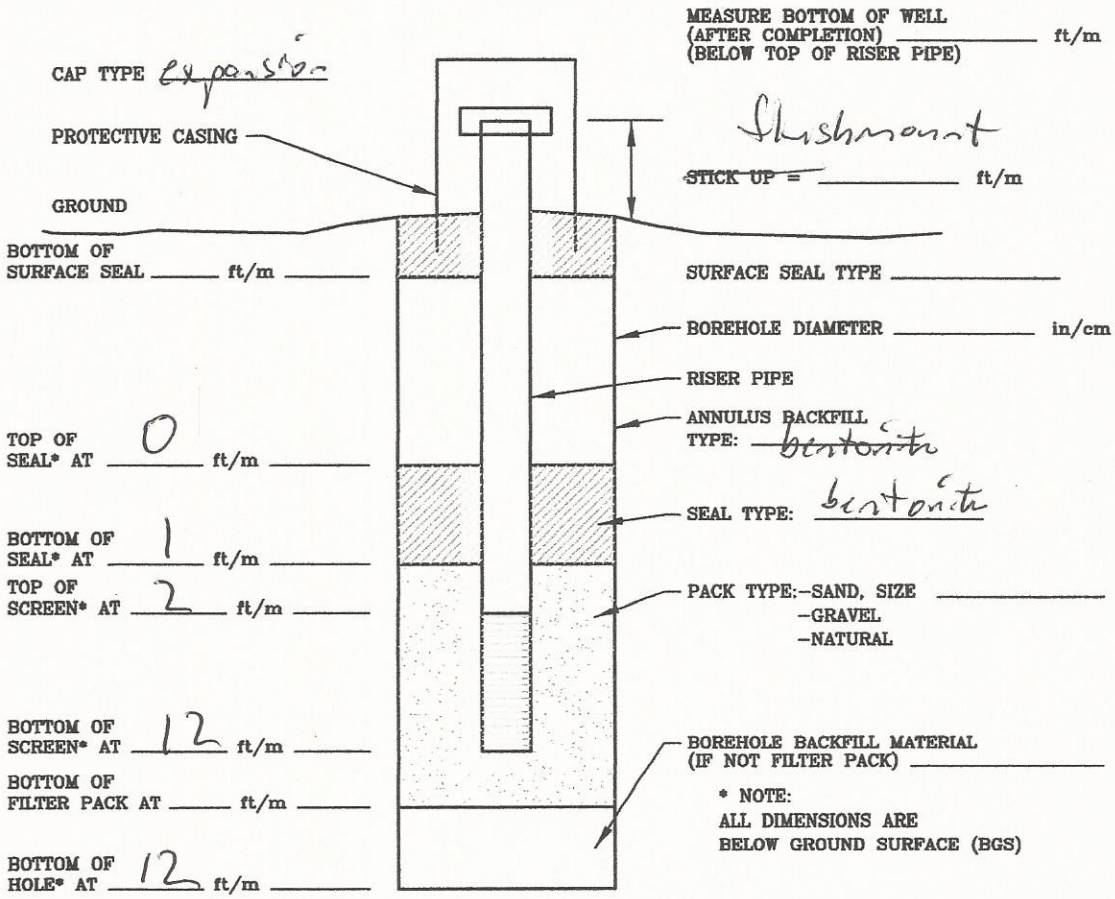
NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

NOTES:

WELL INSTRUMENTATION LOG

PROJECT NAME SMI
PROJECT NUMBER 7678
CLIENT RacerTrust
LOCATION Saginaw, MI

WELL DESIGNATION QP3
DATE COMPLETED 6/29/17
DRILLING METHOD HSA
CRA SUPERVISOR SSH



SCREEN TYPE: [X] continuous slot [ ] wire wrapped [ ] louvre [ ] other: _____

SCREEN MATERIAL: [ ] stainless steel [X] pvc [ ] other: _____

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 4 in/cm SCREEN SLOT SIZE: _____

RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 4 in/cm

SURFACE CASING (Y/N) _____ MATERIAL _____ DEPTH _____ ft/m

DIAMETER _____ in/cm SEALANT _____

DEVELOPMENT: METHOD: whale pump DURATION: 40 gals

DESCRIPTION OF PURGED WATER: clear with grey tint

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME: SMI
PROJECT NUMBER: 7878
CLIENT:
LOCATION:

DRILLING CONTRACTOR: JSS
DRILLER:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

HOLE DESIGNATION: QP3
DATE/TIME STARTED: 6/30/17
DATE/TIME COMPLETED:
DRILLING METHOD: HSA
CRA SUPERVISOR: SSH

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		1	topsoil / clay														
1		2	concrete														
3			gravel + sand – more sand at first then gravelly gravelly sand, moist														
	6		wet														
8		12	all gravel														

NOTES AND COMMENTS

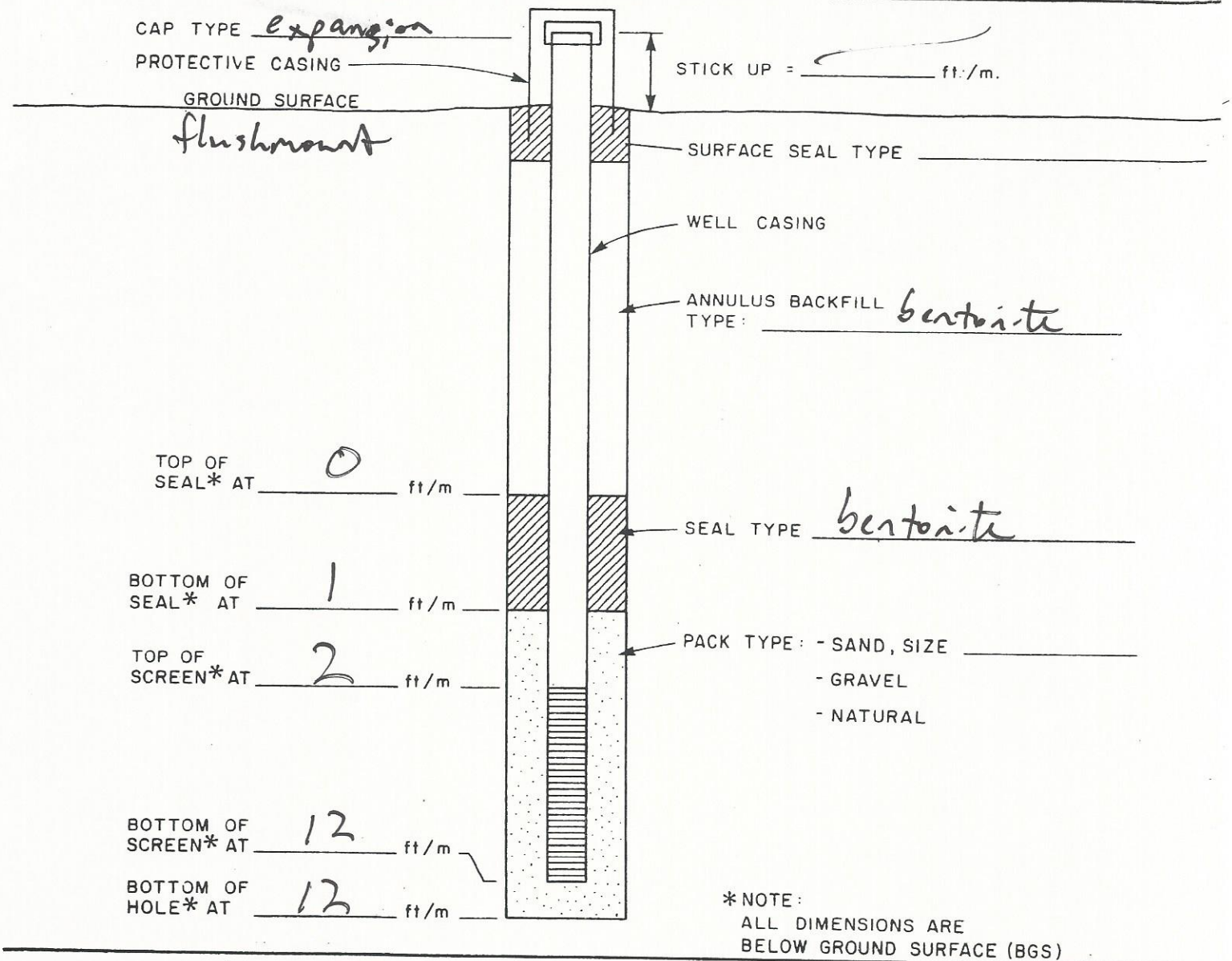
DEPTH OF BOREHOLE CAVING: DEPTH OF FIRST GROUNDWATER ENCOUNTER: TOPSOIL THICKNESS:
WATER LEVEL IN OPEN BOREHOLE ON COMPLETION: AFTER: HOURS:
COMPLETION DETAILS:

NOTE: FOR EACH SPLIT–SPOON SAMPLE, RECORD BLOW COUNTS, N–VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.
NOTES:

WELL INSTRUMENTATION LOG

PROJECT NAME: SMI
PROJECT Nº: 7878
CLIENT: RacoTrust
LOCATION: Saginaw, MI

HOLE DESIGNATION: QP2
DATE COMPLETED: 6/30/17
DRILLING METHOD: HSA
CRA SUPERVISOR: SSH



SCREEN TYPE: ☒ continuous slot ☐ perforated ☐ louvre ☐ other:

SCREEN MATERIAL: ☐ stainless steel ☒ plastic ☐ other:

SCREEN LENGTH: 10 (ft)/m SCREEN DIAMETER: 4 (in)/cm SCREEN SLOT SIZE:

WELL CASING MATERIAL: PVC WELL CASING DIAMETER: 4 (in)/cm

HOLE DIAMETER: 10"

DEVELOPMENT: METHOD: whale pump DURATION: 24 gals

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME SMT
PROJECT NUMBER 187½
CLIENT
LOCATION

DRILLING CONTRACTOR JSS
DRILLER
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION QP2
DATE/TIME STARTED 6/30/17
DATE/TIME COMPLETED
DRILLING METHOD HSA
CRA SUPERVISOR SSH

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		1	topsoil clay														
1		2	concrete - wire mesh - used during *														
2		5	sand + gravel mix														
5		9	sand fine to med, grey, wet, some black mottling, grey,														
9		10	brown sand, wet fine														
10		12	brown/grey mottled sand with black seams, fine to med, wet														

NOTES AND COMMENTS

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____

COMPLETION DETAILS:

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

NOTES:

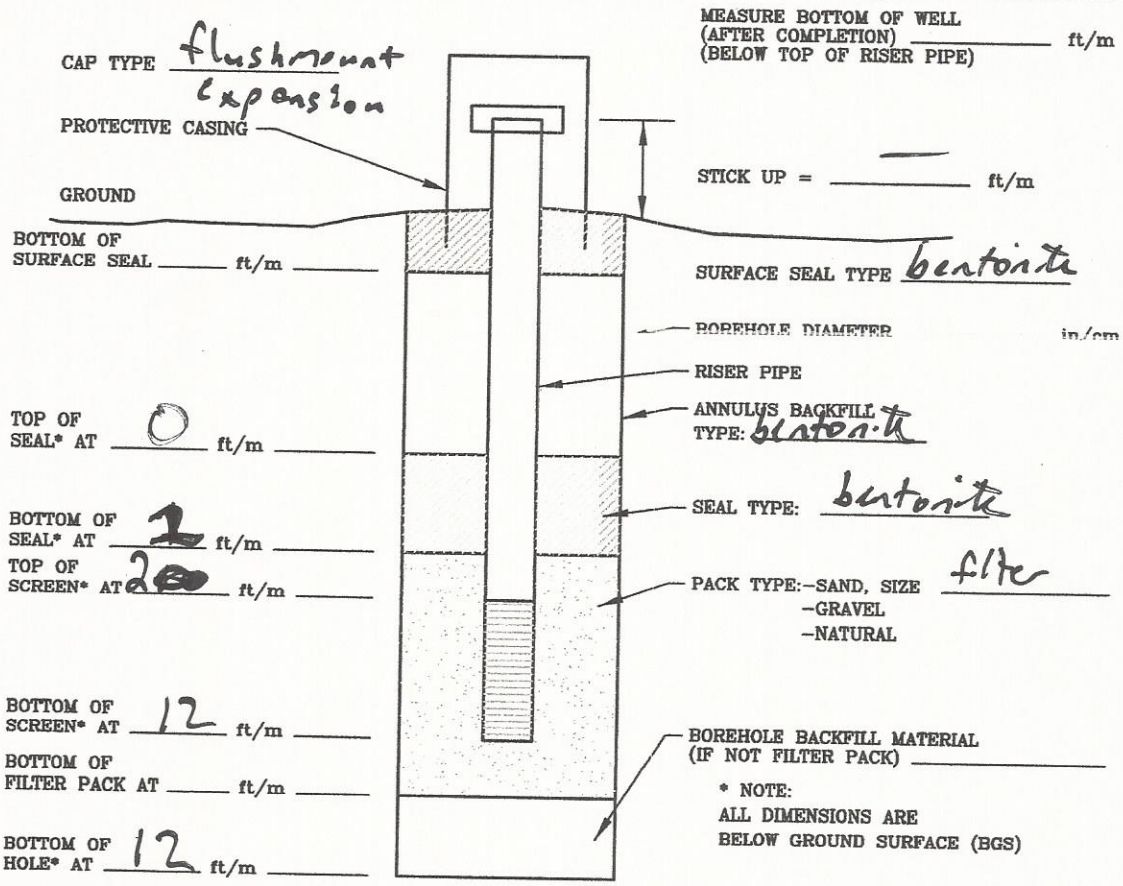
* covering QP

hit steel shell of QP - unable to set MW

WELL INSTRUMENTATION LOG

PROJECT NAME SMT
PROJECT NUMBER 767B
CLIENT RaceTrac
LOCATION Saginaw, MI

WELL DESIGNATION QPTW-4
DATE COMPLETED 6/30/17
DRILLING METHOD HSA
CRA SUPERVISOR SSA



SCREEN TYPE: ☒ continuous slot ☐ wire wrapped ☐ louvre ☐ other:
SCREEN MATERIAL: ☐ stainless steel ☒ pvc ☐ other:
SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE:
RISER PIPE MATERIAL: PVC RISER PIPE DIAMETER: 2 in/cm
SURFACE CASING (Y/N) MATERIAL DEPTH ft/m
DIAMETER in/cm SEALANT
DEVELOPMENT: METHOD: whale pump DURATION: 35 gals
DESCRIPTION OF PURGED WATER: light greyish brown

CRA

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME: SMI
PROJECT NUMBER: 7878
CLIENT:
LOCATION:

DRILLING CONTRACTOR: JSS
DRILLER:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

HOLE DESIGNATION: QPTW-4
DATE/TIME STARTED: 6/30/17
DATE/TIME COMPLETED:
DRILLING METHOD: HSA
CRA SUPERVISOR: SCH

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – PRIMARY COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)
0		1	topsoil / clay
1		2	concrete
2			foundry fill black sand / slag / gravel / some grey / brown mottling, moist
	5 1/2		wet, little silt
		8	
8		10	blackish / grey foundry sand - wet sheen, trace silt fine to med
10		12	grey wet sand fine to med sheen trace gravel + silt shell fragments

SAMPLE DETAILS

SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	N	R	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE

NOTES AND COMMENTS

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____

COMPLETION DETAILS:

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

NOTES: