APPENDIX A3
Applicable Field Notes and Forms (2019-2020 Investigation)

3/18/19

Water bottles we do have:

33 presv. voas

1 x 1L presv HCl amber

25 x 1L nonpresv. amber

We'll be doing/taking water samples from 11 wells ~~next~~ this week) plus one duplicate, so 12 water samples ~~next~~ this week.

Field Notes - MMB well development 3/18/19

0745 - arrive onsite
0815 - 1 team from Holt arrives
0820 - I go over what needs to be done w/ Holt team, give them my maps + #
0900 - leave site; go back to HC to prep samples for lab
1300 - take coolers of samples to AAL + Onsite

Val needs:
1 x 1L amber (better if preserved) → Val will get them
2 x 40mL voa (presv. voas) → we have enough

Val says to bring back the non-presv. ambers and will make them presv. for us for another (or same) HC project.
(Unless we'll be taking gw samples for PAHs - those need to be nonpresv.)

Scale: 1 square = _____

3/18/19

MMB 1940901 -well development
back@site ~1430

HMW-21B } pumped very well
HMW-21A }

HMW-2S } ~45 gal out, thinned out, but still ^Mucky layer
HMW-2D } pumped slowly-dried up, waited to recharge, etc.

HMW1-shallow=dirtiest
HMW1-deeper=clearer/clearest

HMW3A-dries out, has to recharge

Done (as of 1440):
HMW-1S, HMW-1D, HMW-1B
HMW-21A, HMW-2D, HMW-21B

Working on (as of 1440):
HMW-2S, HMW-31A

Remaining (as of 1440):
HMW-3D, HMW-41A, DMW-1S

Only 2 drums left (as of 1440):
HMW-41A - pumped very well, 55 gallons
HMW-3D - pumped slowly, kept drying up; 20 gallons
HMW-31A - pumped slowly, kept drying up; 20 gallons
Holt finishes up ~1715
Leave site @ 1730

One more well to develope: DMW-1S

Scale: 1 square =_____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-1D

WELL LOCATION DESC. (for new wells) East side of MMB
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940901
PROJECT MANAGER Roy Jensen
FIELD REPS Doziet + Shaljian

DATE/TIME SAMPLED 3/20/19 1200
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 90'
SCREENED INTERVAL IN FEET 80-90'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 90'
DEPTH TO SEDIMENT (DTS) IN FEET 91.41'
DEPTH TO WATER (DTW) IN FEET 20.33'
(DTS – DTW) 71.08'

CASING VOLUME IN GALLONS 11.59
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 2.5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µs/cm	Diss. Oxygen in %	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1151	0.3	6.96	14.8	690	4.1	161	-34	slightly cloudy, NO, NS
1153	1	7.07	14.9	680	2.8	101	-58	s. cloudy, NO, NS
1154	1.5	7.08	14.8	686	2.4	73	-68	s. cloudy, NO, NS
1155	2	7.07	14.9	695	2.1	52	-73	s. cloudy, NO, NS
sample: 1200								

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	Sub. Pump	0.2	85'
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume drums on site

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-	Y	N
voa	2	VOCs	Y	N

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive SS/PE
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe Solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-1B

WELL LOCATION DESC. (for new wells) East side of MMB
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940901
PROJECT MANAGER Roy Jensen
FIELD REPS Dozier + Shradjian

DATE/TIME SAMPLED 3/20/19 1128
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 65.4ft
SCREENED INTERVAL IN FEET 54.3-64.3'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 65.4ft
DEPTH TO SEDIMENT (DTS) IN FEET 65.29ft
DEPTH TO WATER (DTW) IN FEET 19.29ft
(DTS – DTW) 46

CASING VOLUME IN GALLONS 7.50
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 4

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1121	0.2	7.07	14.4	608	5.2	60	47	cloudy, NO, NS
1124	1	7.07	14.4	607	3.5	60	12	cloudy NO, NS
1125	2	7.11	14.4	605	2.4	60	-52	cloudy, NO, NS
sample: 1128	4							

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub. pump	0.2	60'
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
drums on site

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-	Y	N
voa	2	VOCs	Y	N

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive SS/PE
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe Solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-15

WELL LOCATION DESC. (for new wells) Far east side of MMB
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 194090
PROJECT MANAGER Roy Jensen
FIELD REPS Robert Shaljian

DATE/TIME SAMPLED 3/20/19 1320
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 30.21
SCREENED INTERVAL IN FEET 20 - 30'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 30.2'
DEPTH TO SEDIMENT (DTS) IN FEET 28.71 ft
DEPTH TO WATER (DTW) IN FEET 16.11 ft
(DTS – DTW) 12.3

CASING VOLUME IN GALLONS 2.00
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 3

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µs/cm	Diss. Oxygen in %	Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1313	1	6.30	14.6	496.3	6.1	168	-49	turbid, NO, NS
1314	1.3	6.3	14.5	495	4.3	115	-57	turbid, NO, NS
1315	1.5	6.33	14.4	494	3.4	128	-64	turbid, NO, NS
sample: 1320								clear

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub. pump	0.2	25'
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume drums on site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-	Y	N
VOA	2	VOCs	Y	N
poly	1	Metals	Y	N
poly	1	TSS	N	N

Total number of Bottles 5
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive 55 / PE
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe solinst
Other ____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER

Groundwater Sampling Data - Well I.D. HMW-2D

WELL LOCATION DESC. (for new wells) Middle of MMB, ~250ft from Bay + 9th
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940901
PROJECT MANAGER Jensen
FIELD REPS Doerr/Shaljian

DATE/TIME SAMPLED 3/19/19 1635
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 90'
SCREENED INTERVAL IN FEET 79-89'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 90'
DEPTH TO SEDIMENT (DTS) IN FEET 89.65'
DEPTH TO WATER (DTW) IN FEET 27.98'
(DTS – DTW) 61.67

CASING VOLUME IN GALLONS 10.05
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss. Oxygen in %	Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1629	2.5	7.47	15.4	292.5	4.2	–	-410.6	Cloudy, NS, NO
1630	3	7.65	15.4	292.5	2.9	–	-446	clear, NS, NO
1631	3.5	7.71	15.4	292.6	2.4	–	-457.8	clear, NS, NO
1632	4	7.75	15.4	292.4	1.9	–	-467.3	clear, NS, NO
sample: 1635	5							

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	Sub. Pump	0.2	45'
Sample	"	"	"

Bails dry? Yes ____ No ____
At no. of casing volumes ____
Purge Water Disposal Method/Volume drums on site

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-D	Y	N
VOA	2	VOCs	Y	N

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive Sub/ P.E.
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe Solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

Ecol. Tag = BLI-198

HARTCROWSER **Groundwater Sampling Data - Well I.D.** HMW-21A

WELL LOCATION DESC. (for new wells) Middle of MMB, ~250ft from Roy + 9th, SE corner of cluster
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940901
PROJECT MANAGER Roy Jensen
FIELD REPS Dolek + Shaljian

DATE/TIME SAMPLED 3/20/19 1000
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 46
SCREENED INTERVAL IN FEET 34.8-44.8 ft

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 46'
DEPTH TO SEDIMENT (DTS) IN FEET 45.43'
DEPTH TO WATER (DTW) IN FEET 18.61 ft
(DTS – DTW) 26.82

CASING VOLUME IN GALLONS 4.37
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
0952	2.5	6.92	14.7	956	4.4	36	-15	cloudy, NO NS
0953	3	7.41	14.7	959	3.6	25	-116	clear, NO, NS
0954	3.5	7.50	14.7	959	3.0	17	-149	clear, NO, NS
0955	4	7.55	14.7	958	2.6	14	-166	clear, NO, NS
sample: 1000	5							

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub. pump	0.3	40
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume drums on site

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH -	Y	N
VOA	2	VOCs	Y	N

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive SS. / P.E.
Bailer Type ____
Filter Type ____
Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe Solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-21B

WELL LOCATION DESC. (for new wells) Middle of MMB, ~250ft from Roy + 9th, SW corner of dugout
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940901
PROJECT MANAGER Roy Jensen
FIELD REPS Daniel + Shaljian

DATE/TIME SAMPLED 8/20/19 1034
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 66.5
SCREENED INTERVAL IN FEET 52.8-62.8'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 66.5'
DEPTH TO SEDIMENT (DTS) IN FEET 61.71'
DEPTH TO WATER (DTW) IN FEET 27.50'
(DTS – DTW) 34.21

CASING VOLUME IN GALLONS 5.56
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 3

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1020	1	7.78	14.8	759	8.9	900	-66	turbid, NO, NS
1024	1.5	7.96	14.8	761	7.3	600	-94	turbid, NO, NS
1026	2	8.11	14.8	763	5.0	400	-149	cloudy, NO, NS
1027	2.5	8.16	14.8	764	3.1	200	-180	cloudy, NO, NS
sample: 1034	3							

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	Sub. pump	0.3	55
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume drums on site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-	Y	N
VOA	2	VOCs	Y	N

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive SS / PE.
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe Solinst
Other ____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER **Groundwater Sampling Data - Well I.D.** HMW-25

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): Middle of MMB, 250ft from Bay + 94h

PROJECT: MMB
JOB NO.: 144090
PROJECT MANAGER: Jensen
FIELD REPS: Dozier/Sheljian

DATE/TIME SAMPLED: 3/19/19
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 30
SCREENED INTERVAL IN FEET: 19.8-29.8

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 30'
DEPTH TO SEDIMENT (DTS) IN FEET: 29.85ft
DEPTH TO WATER (DTW) IN FEET: 21.68ft
(DTS – DTW): 8.17

CASING VOLUME IN GALLONS: 1.33
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: ____
ACTUAL PURGE IN GALLONS: 3

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in us/cm	Diss. Oxygen in %	Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1705	0.2	7.60	17.4	695	31.6	274	42.0	cloudy, NO, NS
1707	0.3	7.31	16.1	695	15.5	250	26.7	cloudy, NO, NS
1709	0.5	7.30	15.9	691	19.8	150	26.7	clear, NO, NS
1710	1	7.31	15.3	686	19.9	110	29.3	clear, NO, NO
sample: 1720	3							

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub. pump	0.2	25'
Sample	"	"	"

Bails dry? Yes ____ No N/A
At no. of casing volumes ____

Purge Water Disposal Method/Volume: drums on site

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-	Y	N
voa	2	VOCs	Y	N
poly	1	metals	Y	N
amber	1	TSS	N	N

Total number of Bottles: 5
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: Proactive SS/PE
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter: YSI Pro DSS
Water Level Probe: solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

Ecol. tag: BLR 924

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW3D

WELL LOCATION DESC. (for new wells) NW corner of MMB
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940901
PROJECT MANAGER Jensen
FIELD REPS Doziet/Shaljian

DATE/TIME SAMPLED 3/19/19 1430
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 92'
SCREENED INTERVAL IN FEET 82-92

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 92' (90' in log)
DEPTH TO SEDIMENT (DTS) IN FEET 91.21
DEPTH TO WATER (DTW) IN FEET 38.96
(DTS – DTW) 52.31'

CASING VOLUME IN GALLONS 8.53 gal
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS 4.5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
14:08	0.5							cloudy, N.O, N.S
14:12	1.5	8.11	16.5	546	5.0	—	-305	clear, NO, NS
14:22	2.5	8.25	18.7	545	68.0	—	-353	clear, NO, NS
1423	3	8.13	16.9	544	9.0	—	-434	clear, NO, NS
sample: 1430	4					—		

Comments: turbidity probe not working

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub.pump	0.2	85.0'
Sample	"	0.2	"

Bails dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume drums on site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-D	Y	N
VOA	2	VOCs	Y	N
			Y	

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive S./PE
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe solinst
Other ____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

Ecology tag: BLI 199

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-31A

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): NW corner of MMB, east of HMW-3D

PROJECT: MMB
JOB NO.: 1940901
PROJECT MANAGER: Jensen
FIELD REPS: Datler/Shaljian

DATE/TIME SAMPLED: 3/19/19 1520
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 45.5 ft
SCREENED INTERVAL IN FEET: 34.8 - 44.8 ft

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 45.5 ft
DEPTH TO SEDIMENT (DTS) IN FEET: 45.62 ft
DEPTH TO WATER (DTW) IN FEET: 23.71 ft
(DTS – DTW): 21.91 ft

CASING VOLUME IN GALLONS: 3.57
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: ____
ACTUAL PURGE IN GALLONS: 3

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1511	0.7	7.13	17.4	586	75.3	—	53.1	turbid, NO, NS
1513	1	7.16	17.4	586	73.9	—	50.9	clear, NO, NS
1514	1.2	7.21	17.4	585	73.2	—	47.8	clear, NO, NS
1515	2	7.23	17.4	585	72.8	—	45.7	clear, NO, NS
sample: 1520	3							

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	Sub. pump	0.2	40'
Sample	"	"	"

Bails dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume: drums on site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-D	Y	N
voa	2	VOCs	Y	N

Total number of Bottles: 3
Duplicate Sample I.D.: ____
Field Blank I.D.: ____
Rinseate Sample I.D.: ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: Proactive SS/PE
Bailer Type: ____
Filter Type: ____
Temp/pH/E.C. meter: YSI Pro DSS
Water Level Probe: solinst
Other: ____

4 Well Conditions

OK [X] Not OK [ ] Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-41A

WELL LOCATION DESC. (for new wells) SW corner of MMB
(e.g., 20' NW of E corner of building A)

PROJECT MMB
JOB NO. 1940401
PROJECT MANAGER Jensen
FIELD REPS Dozier Khaljian

DATE/TIME SAMPLED 3/19/19 / 1235
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 60'
SCREENED INTERVAL IN FEET 50 - 60'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 60'
DEPTH TO SEDIMENT (DTS) IN FEET 57.5ft
DEPTH TO WATER (DTW) IN FEET 29.5ft
(DTS – DTW) 26.0

CASING VOLUME IN GALLONS 4.56 gal/ft
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS
ACTUAL PURGE IN GALLONS 5.5 gal

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ms/cm	Diss. Oxygen in %	Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1226	2							turbid, NS, NO
1227	2.5	7.80	15.8	571	19.1	49	80.1	clear, NS, NO
1228	3	7.91	15.6	571	18.2	50	75.5	clear, NS, NO
1230	4	7.95	15.9	569	17.1	25	69.1	clear, NS, NO
sample: 1235	5							

Comments:

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub. pump	0.2 GPM	55.0'
Sample	"	"	"

Bails dry? Yes ____ No X
At no. of casing volumes ____

Purge Water Disposal Method/Volume
drums on site

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	TPH-	y	N
voa	2	VOCs	y	N
			y	

Total number of Bottles 3
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Proactive SS/PE
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe Solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

56 Location MMB-19409-04 Date 9/10/20

Project / Client Well Development

HMW-17S: 25 gal (16 gal theoretical)

HMW-18S = 20 gal (16 gal theoretical)

HMW-19S : 25 gal (17 gal theoretical)

HMW-20S: 12 gal (12 gal theoretical)
- pumped well dry 5 times
- still turbid

HMW-201A = 35 gal (31 theoretical)

0.163 gal/ft

Well Development Data

Project: MMB
Field Rep.: A. Nakahara + B. Dozier
Job No.: 1445904
Date: 3/16/2020

WELL NUMBER	DATE DEVELOPED	WELL DEPTH IN FEET	BEFORE DEVELOPMENT: DEPTH TO WATER IN FEET	DEPTH TO SEDIMENT IN FEET	AFTER: SEDIMENT THICKNESS IN FEET	CASING VOLUME IN GALLONS	METHOD OF DEVELOPING	DEVELOPING VOLUME IN GALLONS	COMMENTS
DMW-4S-r	3/16/20	33	~~8.25~~ @1428: 26.61' 32.35' (3/16/2020)	~~32.84~~ 32.81' (3/16/2020)	~~0 sew cm?~~ ~0.05' (?)	4.01 (x10=40.08)	plastic sub	~~40.08~~ BD 𝍸𝍸𝍸𝍸 𝍸 III (23)	Pressurized, popped when well cap removed allowed to equilibrate 0905-0915. Plastic shavings in well, likely from cutting PVC. Well ran dry, after 13 gal 1035, allowed to recharge until 1111; depth to water 30.25'. ran dry again after an additional 2-gal pumped. Still turbid. (AN) starting @1420, started purging again; 5 gallons before well dry again. Wait for recharge 1511-1608; purged another 2 gallons before running dry @1616; turned off pump to allow recharge 1616-1655; purges another ~1 gal. still very turbid gray.

See reverse for 3/17/2020 notes →

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Well ID	Date	well depth (ft)	b/a DTW	b/a DTS	b/a sed thickness	casing vol	Method	Devl. gal	Notes
DMW-4S-T	3/17/2020	33'	~~22.16'~~ 30.72'	~~33.06'~~ 33.12'	~~a few cm~~ 1cm ?	~~4.01 BD~~ 1.76	dev. pump	7.5 gal	opened well + allowed to equib. 0920-0944; initially v. turbid, gray; strong petro. odor, NS; became less turbid after a few mins; well dried after pumping 7.5 gal.

Well Development Data

Project MERCER MEGABLOCK — Job No. 1940904

Field Rep. JOSH VANDERWAL — Date 10/21 - 11/2

WELL NUMBER	DATE DEVELOPED	WELL DEPTH IN FEET	BEFORE DEVELOPMENT / AFTER: DEPTH TO WATER IN FEET	BEFORE DEVELOPMENT / AFTER: DEPTH TO SEDIMENT IN FEET	BEFORE DEVELOPMENT / AFTER: SEDIMENT THICKNESS IN FEET	CASING VOLUME IN GALLONS	METHOD OF DEVELOPING	DEVELOPING VOLUME IN GALLONS	COMMENTS
DMW 10S	10/21/20 10/22/20	55	32.41 / 39.81	54.71 / 54.80	0.29 / 0.20	3.6	SS BAILER 12 GALLONS	36	PUMP ISSUES RESULTED IN HAND BAILING ON 10/21 THEN PUMPING 10/22
						2.8	PUMP 24		
DMW 11S	10/23/20	50	32.49 / 48.1	49.90 / 49.98	0.10 / 0.05		SS BAILER 24.5 GALLONS	28	BAILED 15 GALLONS WITH SS BAILER BEFORE WATER LEVEL FELL TO 49.20
							PUMP 2.5 GALLONS		
DMW 12S	10/28/20	50	34.61 / 47.44	46.81 / 49.95	3.19 / 0.05	1.9	SS BAILER 19 GALLONS	19	PUMP ISSUES RESULTED IN HAND BAILING REMAINING VOLUME
DMW 22S	10/28/20	37	31.25 / 34.10	36.01 / 36.21	0.99	0.8	SS BAILER 9 GALLONS	9	
MBB-25	10/30/20	40	32.91 / 38.54	39.90 / 39.98	0.10 / 0.02	1.1	SS BAILER 11 GALLONS	11	

Well Development Data

Project MERCER MEGA BLOCK / DEXTER Job No. 1940904

Field Rep. JP Blandford Date 3/6/20

WELL NUMBER	DATE DEVELOPED	WELL DEPTH IN FEET	BEFORE DEVELOPMENT AFTER: DEPTH TO WATER IN FEET	DEPTH TO SEDIMENT IN FEET	SEDIMENT THICKNESS IN FEET	CASING VOLUME IN GALLONS	METHOD OF DEVELOPING	DEVELOPING VOLUME IN GALLONS	COMMENTS
DMW-3A	3/6/20	50	39.8/25.68	~~47.8~~/49.15		1.30	bailer/ plastic pump	30	arrived after pumping began, ~5 gal each, let recharge for 15-20 min + measured DTW/DTS
DMW-2S	3/6/20	40	37.53/23.15	37.7/34.20		1.55	plastic pump	30	
DMW-4S *	3/6/20	~~40~~ ?	31.12/22.82	32.85/33.42		0.28	bailer + plastic pump	10	→ at 33 ft, started bailing indust. silica sand + found piece of PVC in bailer. Seems as though casing is unstable + sand filled well + water draining may need to re-dall
DMW-6	3/6/20	50	29.27/29.95	44.3/44.25		2.37	plastic pump	25	
DMW-11	3/6/20	50	~~38.6~~/38.05	48.1/49.65		1.71	bailer + plastic pump	<5	bailed day after 2 boods w/ SS bailer

Hart Crowser, Inc

Drums added 3/9/20

DMW 2S

"S" (~~HH~~ 1)

601 Dex HC Vac #17

MBGW-12 Soil #2 (13-25)

DMW-6 2

DMW-6 4

DMW-2S

DMW-6 3

DMW 6 1

MMB Well Develoment

	Before Development						After Development			
Well ID	DTW (ft, from temp TOC)	DTS (ft, from temp TOC)	DTS - DTW (ft)	1 Casing Volume (gallons)	10 Casing Volumes (gallons)	Date Developed	DTW (ft, from TOC)	DTS (ft, from TOC)	DTS - DTW (ft)	Notes
HMW-5IB	35.06	63.58	28.52	4.65	46.49	4-Mar	34.46	63.33		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-6IA	32.79	50.4	17.61	2.87	28.70	4-Mar	34.08	51.7		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-6IB	34.67	60.3	25.63	4.18	41.78	4-Mar	35.11	64.18		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-6D	42.94	90.42	47.48	7.74	77.39	6-Mar	46.74	93.42		Initially very turbid (gray); at end of development, 85 gallons total purged, slightly turbid (gray)
HMW-7IB	37.38	63.1	25.72	4.19	41.92	4-Mar	35.61	64.38		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-8IB	30	60.8	30.8	5.02	50.20	4-Mar	36.78	62.96		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-9S	34.92	38.99	4.07	0.66	6.63	5-Mar	32.92	39.12		Bailed 15 gallons 3/4; initially very turbid (gray); Total of 23 gallons purged; Fairly clear at end of development
HMW-9IA	33.94	51.18	17.24	2.81	28.10	5-Mar	34.1	51.25		Initially very turbid (gray); 43 gallons purged total; After purging, turbid (gray)
HMW-9IB	36.55	71.41	34.86	5.68	56.82	5-Mar	36.66	71.75		Initially very turbid (gray); bailed dry after 15 gallons, recharged 3-5 gallons every 15 minutes; After purging, turbid (gray)
HMW-9D	43.04	95.06	52.02	8.48	84.79	6-Mar	43.40 43.72	93.36		Started development on 3/5, pump blew a fuse, so need to finish 3/6; at end of development, 85 gallons purged total, appears clear
HMW-10S	25.95	38.12	12.17	1.98	19.84	9-Mar	26.57 *	38.12		
HMW-10D	43.4 39.38	91.6	52.22	8.51	85.12	9-Mar	39.80	91.55		
HMW-11S	36.28	41.09	4.81	0.78	7.84	6-Mar	35.06	39.11		Initially very turbid (gray-brown); at end of development 8 gallons total purged, slightly turbid (gray-brown)
HMW-11IB	34.43	60.81	26.38	4.30	43.00	6-Mar	33.2	59.92		Initially very turbid (gray-brown); at end of development 45 gallons total purged, slightly turbid (gray-brown)

Boring ID	DTW (ft, from temp TOC)	DTS (ft, from temp TOC)	DTS - DTW (ft)	1 Casing Volume (gallons)	3 Casing Volumes (gallons)	Date Sampled				Notes
MBB-11	34.69	35.81	1.12	0.18	0.55					TOC flush with ground surface; Bailed dry on 3/5 (very sludge-y), left to recharge
MBB-12	25.72	35.62	9.9	1.61	4.84	6-Mar				TOC ~3ft above ground surface
MBB-13	25.76	35.68	9.92	1.62	4.85					TOC ~1in above ground surface
MBB-14	34.16	35.49	1.33	0.22	0.65					TOC ~1in below ground surface; ~4in of gray sediment on water level tape; Bailed dry on 3/5 (very sludge-y), left to recharge
MBB-15	26.5	35.87	9.37	1.53	4.58	6-Mar				TOC flush with ground surface

* HMW10S - noticed pressurized when getting post dev. measurements. Dev'd @ 11:00, measured post @ 1723

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MMB Well Develoment

	Before Development						After Development			
Well ID	DTW (ft, from temp TOC)	DTS (ft, from temp TOC)	DTS - DTW (ft)	1 Casing Volume (gallons)	10 Casing Volumes (gallons)	Date Developed	DTW (ft, from TOC)	DTS (ft, from TOC)	DTS - DTW (ft)	Notes
HMW-5IB	35.06	63.58	28.52	4.65	46.49	4-Mar	34.46	63.33		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-6IA	32.79	50.4	17.61	2.87	28.70	4-Mar	34.08	51.7		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-6IB	34.67	60.3	25.63	4.18	41.78	4-Mar	35.11	64.18		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-6D	42.94	90.42	47.48	7.74	77.39	6-Mar	46.74	93.42		Initially very turbid (gray); at end of development, 85 gallons total purged, slightly turbid (gray)
HMW-7IB	37.38	63.1	25.72	4.19	41.92	4-Mar	35.61	64.38		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-8IB	30	60.8	30.8	5.02	50.20	4-Mar	36.78	62.96		Initially very turbid (gray); after purging slightly less turbid (gray)
HMW-9S	34.92	38.99	4.07	0.66	6.63	5-Mar	32.92	39.12		Bailed 15 gallons 3/4; initially very turbid (gray); Total of 23 gallons purged; Fairly clear at end of development
HMW-9IA	33.94	51.18	17.24	2.81	28.10	5-Mar	34.1	51.25		Initially very turbid (gray); 43 gallons purged total; After purging, turbid (gray)
HMW-9IB	36.55	71.41	34.86	5.68	56.82	5-Mar	36.66	71.75		Initially very turbid (gray); bailed dry after 15 gallons, recharged 3-5 gallons every 15 minutes; After purging, turbid (gray)
HMW-9D	43.04	95.06	52.02	8.48	84.79	6-Mar	43.40 43.72	93.36		Started development on 3/5, pump blew a fuse, so need to finish 3/6; at end of development, 85 gallons purged total, appears clear
HMW-10S	25.95	38.12	12.17	1.98	19.84	9-Mar	26.57 *	38.12		Init. v. turbid. (lt brown/gray), purge ~30gal, still turbid
HMW-10D	43.4 39.38	91.6	52.22	8.51	85.12	9-Mar	39.80	91.55		Init. v. turbid, purge ~35gal, not as turbid, slightly cloudy
HMW-11S	36.28	41.09	4.81	0.78	7.84	6-Mar	35.06	39.11		Initially very turbid (gray-brown); at end of development 8 gallons total purged, slightly turbid (gray-brown)
HMW-11IB	34.43	60.81	26.38	4.30	43.00	6-Mar	33.2	59.92		Initially very turbid (gray-brown); at end of development 45 gallons total purged, slightly turbid (gray-brown)

Boring ID	DTW (ft, from temp TOC)	DTS (ft, from temp TOC)	DTS - DTW (ft)	1 Casing Volume (gallons)	3 Casing Volumes (gallons)	Date Sampled				Notes
MBB-11	34.69	35.81	1.12	0.18	0.55					TOC flush with ground surface; Bailed dry on 3/5 (very sludge-y), left to recharge
MBB-12	25.72	35.62	9.9	1.61	4.84	6-Mar				TOC ~3ft above ground surface
MBB-13	25.76	35.68	9.92	1.62	4.85					TOC ~1in above ground surface
MBB-14	34.16	35.49	1.33	0.22	0.65					TOC ~1in below ground surface; ~4in of gray sediment on water level tape; Bailed dry on 3/5 (very sludge-y), left to recharge
MBB-15	26.5	35.87	9.37	1.53	4.58	6-Mar				TOC flush with ground surface

* HMW10S - noticed pressurized when getting post dev. measurements. Dev'd @ 11:00, measured post @ 1723

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Groundwater Sampling Data - Well I.D. DMW-1S

Project	615 Dexter	Date/Time Sampled	March 18 2020 0945
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	28.2 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	17 to 28.2 (bgs)

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* TOC is 0.29' BGS

Well Depth	28.2 (bgs)	Casing Volume in Gallons	1.13
Depth of Sediment (DTS) in Feet	29.89	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	22.98	Purge Volume in Gallons	3.38
(DTS - DTW)	6.91	Actual Purge in Gallons	1.5

	Time	No. of Gallons Purged	pH	Temp in °C	~~mS/cm~~ Conduct ~~in mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	0915	0.1	7.22	14.3	407.1	3.37	28.23	197.0	INITIALLY CLEAR, NS, STRONG SOLVENT/PETROLEUM-LIKE ODOR
	0923	0.5	7.27	14.4	409.2	1.64	32.16	100.4	CLEAR, NS, " " " " " "
	0929	1.0	7.29	14.2	410.5	1.59	35.88	93.7	" " " " " " " "
SMPL	0945	1.5	7.31	13.8	414.0	1.61	8.20	102.7	CLEAR, NS, STRONG SOLVENT/PETROLEUM-LIKE ODOR

Comments @ 0924 REDUCED PUMPING RATE TO LOWER TURBIDITY @ 0930 REDUCED PUMP RATE FURTHER

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	PERISTALTIC	0.03	23.98' BTOC
Sample	"	0.03	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	PERISTALTIC/PE	Temp/pH/E.C./D.O	YSI 055
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. DMW-2S

Project	615 Dexter	Date/Time Sampled	March 18 2020 1152 [1157 FOR DMW-200S]
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	34.7
Field Reps.	B. Dozier/B. ~~Lytle~~/J. Higgins/A. Nakahara	Screened Interval in Feet	24.7 to 34.7

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* TOC IS 0.33' BGS

Well Depth	34.7	Casing Volume in Gallons	1.9
Depth of Sediment (DTS) in Feet	34.35	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	22.89	Purge Volume in Gallons	5.6
(DTS - DTW)	11.46	Actual Purge in Gallons	1.5

	Time	No. of Gallons Purged	pH	Temp in °C	~~mS/cm~~ Conduct ~~in mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1106	0.1	7.20 BE 8.59	14.6	287.0	5.47	11.70	242.1	INITIALLY CLEAR, NO, NS
	1118	0.5	7.06	14.7	293.5	5.06	31.80	259.0	CLEAR, NO, NS
	1131	1.0	7.07	14.3	294.2	4.98	8.87	266.3	" , " , "
	~~115~~								
SMPL	1152	1.5	7.09	14.3	293.3	4.89	4.21	275.5	CLEAR, NO, NS

Comments @1118 DECREASED PUMPING RATE. @1225 PUMP OUT OF BATTERY, 2ND PERI. PUMP DEAD THOUGH IT CHARGED OVERNIGHT, @1255 RESUMED SAMPLING (AMBER BOTTLES & POLYS, ~~DMW~~ DMW-2S & DMW-200S).

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	PERISTALTIC	0.02	29.7 BTOC ~~23.9 BTOC~~ BL
Sample	"	0.02	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	8	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx	no	no
0.5 L poly	2	Total MTCA Metals	HNO3	no
0.5 L Poly	2	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 14

Duplicate Sample I.D. DMW-200S
SAMPLING TIME @ 1157

Field Blank I.D. —

Rinseate Sample I.D.

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	PERISTALTIC / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [x] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. DMW-3IA

Project	615 Dexter	Date/Time Sampled	March 18 2020 / 1237
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	48.75
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	38.75 to 48.75

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* → -0.29'

Well Depth	48.75	Casing Volume in Gallons	3.96
Depth of Sediment (DTS) in Feet	49.61'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	25.32'	Purge Volume in Gallons	11.88
(DTS - DTW)	24.29	Actual Purge in Gallons	5.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~#~~S/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start @1146	1155	1.0	7.42	16.3	492.5	0.54	6.30	54.1	initially clear, NO, NS
	1207	2.0	7.06	16.3	536	0.20	5.10	-39.3	clear, NO, NS
	1217	3.0	7.17	16.2	587	0.18	3.31	-58.0	" " "
	1228	4.0	7.20	16.4	606	0.15	2.88	-68.3	" " "
SMPL	1237	5.0	7.21	16.2	614	0.14	2.35	-73.2	" " "
DSMPL									

Comments

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	Monsoon SS sub pump	0.1	38'
Sample	"	"	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS sub pump/ PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 um	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

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Groundwater Sampling Data - Well I.D. DMW-4S

Project	615 Dexter	Date/Time Sampled	March 18 2020
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	33'
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	23'-33'

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	33'	Casing Volume in Gallons	1.74
Depth of Sediment (DTS) in Feet	32.80'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	22.15'	Purge Volume in Gallons	5.2
(DTS - DTW)	10.65'	Actual Purge in Gallons	

	Time	No. of Gallons Purged	pH	Temp in °C	~~mS/cm~~ Conduct ~~in mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1445	0.1	7.58	16.3	444.2	5.39	51.32	219.9	INITIALLY CLEAR, NS, MODERATE SOLVENT-LIKE ODOR
SMPL									

Comments ABORTED @ 1515. WELL MUST BE PASSED 48 HOURS SINCE DEVELOPING.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	PERISTALTIC		28' BTOC
Sample	"		"

Bails dry? Yes [ ] No [ ]

At no. of Casing Volumes

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 8

Duplicate Sample I.D.

Field Blank I.D.

Rinseate Sample I.D.

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	PERISTALTIC/PE	Temp/pH/E.C./D.O	YSI 055
Bailer Type		Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	

4) Well Conditions

OK [X] Not OK [ ] Explain

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-45

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT 615 DEXTER
JOB NO. 19409-04-05
PROJECT MANAGER M. OAGEL
FIELD REPS BLAKE LYTLE

DATE/TIME SAMPLED ~~3/18/2020~~ BL 3/19/2020 1558
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 33'
SCREENED INTERVAL IN FEET 23'-33'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 33'
DEPTH TO SEDIMENT (DTS) IN FEET 32.80
DEPTH TO WATER (DTW) IN FEET 22.28'
(DTS – DTW) 10.52

CASING VOLUME IN GALLONS 1.7
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 5.1
ACTUAL PURGE IN GALLONS ____

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	NTU Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
START	1456	0.1	7.73	15.2	412.6	5.89	35.61	245.5	INITIALLY CLEAR, SLIGHT SOLVENT-LIKE ODOR, NS
1513	~~0313~~ BL	0.5	7.75	15.0	416.4	5.17	35.23	258.0	CLEAR, NS, MODERATE SOLVENT-LIKE ODOR
	1532	1.0	7.69	14.9	401.7	5.50	21.07	268.3	CLEAR, NS, MODERATE SOLVENT-LIKE ODOR
	↓								
sample:	1558	1.5	7.69	15.1	406.0	4.97	19.51	244.6	" , " , "

Comments: @ 1515 REDUCED PUMPING RATE TO SEE IF NEW TURBIDITY DECREASES.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	PERISTALTIC		28
Sample	"		"

Boils dry? Yes ____ No ____
At no. of casing volumes ____
Purge Water Disposal Method/Volume
DRUM LEFT ON SITE

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	NWTPH-GX, BTEX/HVOC's	HCl	NO
0.5L AMBER	2	NWTPH-Dx, PAH's	NO	NO
0.5L POLY	1	TOTAL MTCA METALS	HNO3	NO
0.5L POLY	1	DISSOLVED MTCA METALS	HNO3	YES

Total number of Bottles 8
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type PERISTALTIC
Bailer Type ____
Filter Type 0.45 µM

Temp/pH/E.C. meter YSI DSS
Water Level Probe WATERLINE
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

Groundwater Sampling Data - Well I.D. DMW-5IA

Project	615 Dexter	Date/Time Sampled	March 18 2020
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	49.6
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	39.6 to 49.6

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	49.6	Casing Volume in Gallons	1.9
Depth of Sediment (DTS) in Feet	49.75'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	38.09	Purge Volume in Gallons	5.7
(DTS - DTW)	11.66'	Actual Purge in Gallons	

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS/cm~~ µS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1606	0.1	8.77	15.9	380.5	1.53	25.90	130.0	INITIALLY CLEAR, NO, NS
SMPL									

Comments: WELL DRY AT 1 GALLON

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	MONSOON SS SUB		44.6'
Sample	"		"

Bails dry? Yes [X] No [ ]

At no. of Casing Volumes: 0.5

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D.: —

Field Blank I.D.: —

Rinseate Sample I.D.: —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUBMERSIBLE / PE	Temp/pH/E.C./D.O	YSI 05S
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µM	Other	—

4) Well Conditions

OK [ ] Not OK [X] Explain: MONUMENT PARTIALLY FLOODED.

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-5IA

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT 615 DEKTER
JOB NO. 19409-04-05
PROJECT MANAGER M. DAGEL
FIELD REPS B. LYTLE

DATE/TIME SAMPLED ~~3/18/2020~~ BL 3/19/2020 | 1800
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 49.6
SCREENED INTERVAL IN FEET 39.6 TO 49.6

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 49.6
DEPTH TO SEDIMENT (DTS) IN FEET 50.23
DEPTH TO WATER (DTW) IN FEET 38.71
(DTS – DTW) 11.52

CASING VOLUME IN GALLONS 1.9
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 5.6
ACTUAL PURGE IN GALLONS 1.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
START	1158	0.1	8.86	15.7	419.1	2.18	25.13	300.7	INITIALLY CLEAR, NO, NS
	1237	1.0	8.96	16.6	421.2	1.66	38.40	200.9	CLEAR, NO, NS
	1321	1.5	8.92	16.2	427.6	3.95	72.52	122.6	
sample:	1800	1.5	NO PARAMETERS TAKEN AT SAMPLING TIME.						slightly turbid

Comments: @1200 MOVED PUMP AS LOW AS POSSIBLE TO KEEP FLOW BUT NOT DRY WELL @1225 FLOW STOPPED AND WATER LEVEL IS AT THE PUMP. LOWERING 1' TO 45.6' @1238 FLOW IS INCONSISTENT, MUST KEEP ADJUSTING PUMP @1242 LOWERING PUMP TO 46.6'. WATER LEVEL IS AT PUMP. CONTINUED ON BACK

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	~<0.1	46 47.6
Sample	SS SUB	~<0.1	"

Boils dry? Yes ____ No ____
At no. of casing volumes ____
Purge Water Disposal Method/Volume
DRUM LEFT ON SITE

(2) Sampling Data

ORDER	Bottle Type	# of Containers	Analyses	Preserv.	Filter
1	VOA	4	NWTPH-Gx, BTEX-HVOC's	HCl	NO
3	0.5 L AMBER	1	NWTPH-Dx	NO	NO
2	0.5 L POLY	1	TOTAL MTCA METALS	HNO3	NO
	0.5 L POLY	1	DISSOLVED MTCA METALS	~~HNO3~~ NO BD	~~YES~~ LAB BD

Total number of Bottles 7
Duplicate Sample I.D. —
Field Blank I.D. ____
Rinseate Sample I.D. —

(3) Field Equipment

Pump Type/Tubing Type SUBSPUMP / PE
Bailer Type —
Filter Type —

Type/Brand/Serial No./Material Units
Temp/pH/E.C. meter YSI DSS
Water Level Probe waterline
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

UP TO 47/46'

COMMENTS

@1314 TALKED TO MARISSA. LOWERING PUMP 1½ AND, IF FLOW CAN BE MAINTAINED, WILL SAMPLE W/OUT STABLE PARAMETERS. @1340 PAUSING – LEAVING PUMP IN WELL (PER MARISSA) AND LETTING WELL RECHARGE. WILL SAMPLE DMW-45 IN THE MEANTIME.

@1730 MAKE NOTE OF CLOUDINESS AT SAMPLING. USE AN UNFILTERED POLY FOR DISSOLVED METALS. (PER CALL W/ MARISSA). ACCORDING TO THE LAB, AMBER BOTTLES NEED ½ BOTTLE MINIMUM, POLY BOTTLES 10 mL ~~MAY~~ MINIMUM, VOA'S FULL.

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-SIA

WELL LOCATION DESC. (for new wells) 615/601 DEXTER
(e.g., *20' NW of E corner of building A*)

PROJECT MERLONE MEGABLOCK - DEXTER
DATE/TIME SAMPLED 10/14/2020
JOB NO. 1940904/10
TIDALLY INFLUENCED YES ____ NO X
PROJECT MANAGER M GOODMAN / M DABEL
WELL DEPTH IN FEET 50'
FIELD REPS B LYTLE
SCREENED INTERVAL IN FEET 40-50'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 50
CASING VOLUME IN GALLONS 1.34
DEPTH TO SEDIMENT (DTS) IN FEET 50.1' BTOC
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
DEPTH TO WATER (DTW) IN FEET 41.87' BTOC
PURGE VOLUME IN GALLONS 4.0
(DTS – DTW) 8.23'
ACTUAL PURGE IN GALLONS ~~1.0~~ 1.3

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1348	0.1	7.66	17.2	0.502	2.12	29.32	-10.8	INITIALLY CLEAR, NO, NS
	1423	1.0	7.43	18.1	0.504	1.09	23.04	6.1	CLEAR, NO, NS
	~~1510~~ 1410	~1.3							
sample:									

Comments: WELL DRAWS WATER DOWN QUICKLY. FLOW IS AS LOW AS PUMP ALLOWS. KEPT WATERLINE DOWN WELL TO MONITOR WATER LEVEL SO PUMP DOESN'T RUN DRY. 1430 TURBIDITY SHOT UP AFTER 1 GALLON (60 NTU), DECREASED TO 30 NTU AFTER 5 MIN.
CONTINUED ON BACK

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.03	45' BTOC
Sample	"	"	"

Boils dry? Yes X No ____
At no. of casing volumes 1.0
Purge Water Disposal Method/Volume
ON-SITE DRUM / 1.3 GAL

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5L AMBER	2	NWTPH-Dx (WITH & W/O SILICA GEL)	—	—

Total number of Bottles 2
Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS SUB / PE
Temp/pH/E.C. meter YSI DSS PRO
Bailer Type ____
Water Level Probe WATERLINE
Filter Type ____
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

COMMENTS

1437 WATER LEVEL RESTRICTS PUMP AT 45', LOWERING PUMP 1 FT.

1440 WATER LEVEL AT PUMP, LOWERED TO ~47 FT.

1443 WATER AT PUMP, LOWER TO ~48', WILL BE PUMPED TO CONTINUE PURGE, CALLING MARISSA

1500 WILL CONTINUE TO PUMP WELL "COMPLETELY DRY", THEN STOP PURGE FOR TODAY. RETURN TOMORROW & SAMPLE IMMEDIATELY W/OUT WAITING FOR STABLE PARAMETERS PER M GOODMAN / M DAGGER.

1510 WELL WILL NOT PRODUCE EVEN WHEN PUMPING VOLTAGE INCREASED.

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-5IA

WELL LOCATION DESC. (for new wells) 615/601 DEXTER, IN ALLEY
(e.g., *20' NW of E corner of building A*)

PROJECT 1940904 MERCER MEGABLOCK
JOB NO. 1940904 /10
PROJECT MANAGER M DAGER / M. GOODMAN
FIELD REPS B. LYTLE

DATE/TIME SAMPLED 10/15/2020 0844
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 50'
SCREENED INTERVAL IN FEET 40-50'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 50'
DEPTH TO SEDIMENT (DTS) IN FEET 50.1' BTOC
DEPTH TO WATER (DTW) IN FEET 41.96' BTOC
(DTS – DTW) 8.14

CASING VOLUME IN GALLONS 1.33
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 4.0
ACTUAL PURGE IN GALLONS 0.1

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ____	Diss. Oxygen in ____	Turbidity	ORP in ____	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
sample:								

Comments: NO PARAMETERS TAKEN AS WELL RUNS DRY, PER PROJECT MANAGERS

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	~ 0.07	45'
Sample	"	"	"

Boils dry? Yes X No ____
At no. of casing volumes 1
Purge Water Disposal Method/Volume
ON SITE DRUM / ~ 0.1 GAL

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5L AMBER	2	NWTPH-Dx WITH & W/OUT SILICA GEL	—	—

Total number of Bottles 2

Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS/SUB / PE TUBING
Bailer Type ~~~~
Filter Type ~~~~

Temp/pH/E.C. meter ~~~~
Water Level Probe WATER LINE
Other ~~~~

(4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. DMW-6

Project	615 Dexter	Date/Time Sampled	March 16 2020 // 0956
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	43.25
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	33.25 to 43.25

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* -0.25'

Well Depth	43.25	Casing Volume in Gallons	2.59
Depth of Sediment (DTS) in Feet	44.74'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	29.96'	Purge Volume in Gallons	7.77
(DTS - DTW)	~~44.74 BD~~ 15.88'	Actual Purge in Gallons	6.0

0913 BD = 0918 Start

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS~~ µS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
0918 BD	1.0	6.08	15.3	373.0	3.11	13.20	226.5	initially clear, NO, NS
0926	2.0	5.94	15.4	426.0	1.29	5.74	158.8	clear, NO, NS
0933	3.0	6.00	15.4	426.2	1.12	4.31	138.0	clear, NO, NS
0941	4.0	6.05	15.5	436.1	0.87	3.57	127.9	clear, NO, NS
0947 SMPL	5.0	6.06	15.6	441.9	0.69	3.00	121.4	" " "
0956	6.0	6.04	15.5	437.2	0.74	2.60	118.9	" " "

Comments

	Method	Purging Rate in GPM	Depth of Equipment in Feet (from TOC)
Purge	Monsoon SS sub pump	0.1	36.5
Sample	"	"	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS pump / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-7S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M Dagel/M Goodman
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 11/2/2020 0956
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: ____
SCREENED INTERVAL IN FEET: 28-38

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 38'
DEPTH TO SEDIMENT (DTS) IN FEET: 38.10
DEPTH TO WATER (DTW) IN FEET: 28.09
(DTS – DTW): 10.01

CASING VOLUME IN GALLONS: 1.6
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 4.9
ACTUAL PURGE IN GALLONS: 3.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0859	0.1	7.54	16.4	496.9	5.46	62.42	93.7	INITIALLY SLIGHT BROWN TURBIDITY, NO NS
	0920	1.0	7.13	17.8	499.4	1.66	18.21	-11.5	CLEAR, NO, NS
	0940	2.0	7.04	18.1	479.0	1.20	15.70	-20.7	" , " , "
sample:	0956	3.0	7.08	18.2	466.6	1.18	24.21	-29.9	" , " , "

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.08	33
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume: ON SITE DRUM / 3.5 bbl

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	~	~
40 mL VOA	3	TPH-Gx, BTEX	HCl	~

Total number of Bottles: 4
Duplicate Sample I.D.: ~
Field Blank I.D.: ~
Rinseate Sample I.D.: ~

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: ~
Filter Type: ~

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ~

4 Well Conditions

OK [X] Not OK [ ] Explain: _____

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-8S

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): SIDEWALK OF DEXTER AVENUE (WEST SIDE OF STREET)

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M Dagel/M Goodman
FIELD REPS: J VANDERVAL

DATE/TIME SAMPLED: 11/2/2020 10:29
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 38'
SCREENED INTERVAL IN FEET: 28-38

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 38'
DEPTH TO SEDIMENT (DTS) IN FEET: 37.75
DEPTH TO WATER (DTW) IN FEET: 28.73
(DTS – DTW): 9.02

CASING VOLUME IN GALLONS: 1.5
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 4.5
ACTUAL PURGE IN GALLONS: 4.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
0856	0.1	7.46	17.1	0.304	5.12	4.13	79.3	
0916	1	6.96	16.9	0.304	3.55	1.21	45.1	
0940	2	6.99	17.8	0.311	2.95	0.88	3.8	
1008	3	7.01	18.0	0.311	2.90	1.35	-9.6	
sample: 1029	4	6.98	18.2	0.303	2.95	1.21	-15.1	

Comments:

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.04	33
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____

Purge Water Disposal Method/Volume: ONSITE DRUM 4 GALLONS

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	—	—
40 mL VOA	3	TPH-Gx, BTEX	HCl	—

Total number of Bottles: 4
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB/PE
Bailer Type: —
Filter Type: —

Temp/pH/E.C. meter: YSI PRODSS
Water Level Probe: WATER LINE
Other: —

(4) Well Conditions

OK [X] Not OK [ ] Explain: —

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-9S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M Dagel/M Goodman
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 11/2/2020 1143
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 33
SCREENED INTERVAL IN FEET: 23-33

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 33'
DEPTH TO SEDIMENT (DTS) IN FEET: 32.20
DEPTH TO WATER (DTW) IN FEET: 29.00
(DTS – DTW): 3.20

CASING VOLUME IN GALLONS: 0.5
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 1.5
ACTUAL PURGE IN GALLONS: 1.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	~~0.1~~ 1121	0.1	7.30	18.6	527	4.49	11.26	32.7	INITIALLY CLEAR, NO, NS
	1134	0.5	6.86	18.0	522	2.83	4.95	46.8	CLEAR, NO, NS
SAMPLE	1143	1.0	6.83	18.1	522	2.75	3.84	47.3	" , " , "
~~sample:~~									

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	PERISTALTIC	0.06	30
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 1.5 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	—	—
40 mL VOA	3	TPH-Gx, BTEX	HCl	—

Total number of Bottles: 4
Duplicate Sample I.D.: ____
Field Blank I.D.: ____
Rinseate Sample I.D.: ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: PERISTALTIC / PE
Bailer Type: ____
Filter Type: ____
Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ____

4 Well Conditions

OK [X] Not OK [ ] Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-10S

WELL LOCATION DESC. (for new wells) PARKING LOT OF COPIER'S NORTHWEST
(e.g., *20' NW of E corner of building A*)

PROJECT Mercer Megablock
JOB NO. 1940904
PROJECT MANAGER M Dagel/M Goodman
FIELD REPS J VANDERWAL

DATE/TIME SAMPLED 11/2/2020 1259
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 55'
SCREENED INTERVAL IN FEET 35-55'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 55'
DEPTH TO SEDIMENT (DTS) IN FEET 54.46
DEPTH TO WATER (DTW) IN FEET 32.18
(DTS – DTW) 22.28

CASING VOLUME IN GALLONS 3.63
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 10.8
ACTUAL PURGE IN GALLONS 5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ms/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1118	0.1	7.93	16.4	0.469	5.50	495.8	35.1	
1153	1	7.83	17.0	0.470	1.57	171.2	-49.8	
1205	2	7.83	17.1	0.468	1.28	58.6	-76.0	
1217	3	7.79	17.1	0.471	1.16	35.3	-100.0	
~~sample~~ 1230	4	7.77	17.2	0.477	1.11	25.2	-117.6	

Comments: SAMPLE PARAMETERS CONTINUED ON BACK

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.07	45
Sample	~~SS~~ SUBMERSIBLE	0.07	45

Boils dry? Yes ____ No X
At no. of casing volumes —
Purge Water Disposal Method/Volume
ONSITE DRUM 6 GALLONS

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	—	—
40 mL VOA	3	TPH-Gx, BTEX	HCl	—

Total number of Bottles 4
Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS SUB / PE
Bailer Type —
Filter Type —

Temp/pH/E.C. meter YSI PRODSS
Water Level Probe WATER LINE
Other —

4 Well Conditions

OK X Not OK ____ Explain —

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ms/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV
	1243	5	7.79	17.2	0.480	1.09	26.5	-129.6
SAMPLE	1259	6	7.80	17.3	0.481	1.06	24.3	-140.4

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-11S

WELL LOCATION DESC. (for new wells) Parking Lot of Copiers Northwest
(e.g., *20' NW of E corner of building A*)

PROJECT Mercer Megablock
JOB NO. 1940904,
PROJECT MANAGER M Dagel/M Goodman
FIELD REPS J. VanDerwal

DATE/TIME SAMPLED 11/2/20 1452
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 51'
SCREENED INTERVAL IN FEET 30-50

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 51'
DEPTH TO SEDIMENT (DTS) IN FEET 50.52
DEPTH TO WATER (DTW) IN FEET 32.80
(DTS – DTW) 17.72

CASING VOLUME IN GALLONS 2.8
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 8.4
ACTUAL PURGE IN GALLONS 4

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ms/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
	1400	0.1	7.90	16.3	0.460	6.58	49.21	51.3	
	1421	1	7.39	17.1	0.464	3.22	61.50	25.2	
	1431	2	7.36	16.9	0.467	2.52	17.83	-15.0	
	1441	3	7.55	17.0	0.437	3.24	10.23	-48.7	
sample:	1452	4	7.70	17.2	0.451	4.19	7.83	-51.9	

Comments:

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.1	40
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes —
Purge Water Disposal Method/Volume
ONSITE DRUM 4 GALLONS

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	—	—
40 mL VOA	3	TPH-Gx, BTEX	HCl	—

Total number of Bottles 4
Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

3 Field Equipment

Pump Type/Tubing Type SS SUB/PE
Bailer Type —
Filter Type —

Type/Brand/Serial No./Material Units

Temp/pH/E.C. meter YSI Pro DSS
Water Level Probe WATERLINE
Other —

4 Well Conditions

OK X Not OK ☐ Explain

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-12S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M Dagel/M Goodman
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 11/2/2020 1426
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 50'
SCREENED INTERVAL IN FEET: 30-50'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 50'
DEPTH TO SEDIMENT (DTS) IN FEET: 49.90
DEPTH TO WATER (DTW) IN FEET: 34.60
(DTS – DTW): 15.3

CASING VOLUME IN GALLONS: 2.5
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 7.5
ACTUAL PURGE IN GALLONS: 5.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µs/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL 1305	0.1	7.21	16.2	468.2	3.41	598.6	23.5	INITIALLY STRONG GRAY TURBIDITY, AND, SLIGHT SHINDY WHITE SHEEN
1327	1.0	6.90	17.3	468.8	1.08	146.31	-34.1	MODERATE GRAY TURBIDITY, NO, NS
1344	2.0	6.99	17.0	479.9	1.50	72.51	-51.9	SLIGHTLY TURBID, NO, NS
1356	3.0	7.00	17.2	460.1	0.90	43.80	-63.6	CLEAR, NO, NS
~~sample:~~ 1408	4.0	6.89	16.8	463.8	0.99	43.24	-60.5	" , " , "

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.07	40
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 5.5 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	~	~
40 mL VOA	3	TPH-Gx, BTEX	HCl	~

Total number of Bottles: 4
Duplicate Sample I.D.: ~
Field Blank I.D.: ~
Rinseate Sample I.D.: ~

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: ~
Filter Type: ~

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ~

4 Well Conditions

OK [X] Not OK [ ] Explain: _____

	TIME	GAL	pH	T	COND	DO	TURB	ORP	COMMENT
	1408	4.0	6.89	16.8	463.8	0.99	43.24	-60.5	CLEAR, NO, NS
SAMPLE	1426	5.0	6.93	17.4	460.1	0.45	24.12	-75.1	", ", "

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-13S

WELL LOCATION DESC. (for new wells) ALLEY OF COPIERS NORTHWEST
(e.g., *20' NW of E corner of building A*)

PROJECT Mercer Megablock
JOB NO. 1940904
PROJECT MANAGER M Dagel/M Goodman
FIELD REPS J VANDERWAL

DATE/TIME SAMPLED 11/3/2020 1050
TIDALLY INFLUENCED YES / NO X
WELL DEPTH IN FEET 50'
SCREENED INTERVAL IN FEET 30-50'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 50'
DEPTH TO SEDIMENT (DTS) IN FEET 49.02
DEPTH TO WATER (DTW) IN FEET 37.71
(DTS – DTW) 11.32

CASING VOLUME IN GALLONS 1.8
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 5.5
ACTUAL PURGE IN GALLONS 3

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1010	0.1	7.89	15.3	0.425	5.09	91.19	87.5	
1024	1	6.90	16.5	0.331	4.55	45.25	89.5	
1038	2	6.76	16.6	0.317	4.45	21.44	89.8	
1050	3	6.73	16.6	0.313	4.19	18.20	91.6	
sample:								

Comments:

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.07	43
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____

Purge Water Disposal Method/Volume
ONSITE DRUM 3 GALLONS

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	—	—
40 mL VOA	3	TPH-Gx, BTEX	HCl	—

Total number of Bottles 4

Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS SUB / PE
Bailer Type —
Filter Type —

Temp/pH/E.C. meter YSI PRO DSS
Water Level Probe WATER LINE
Other —

4 Well Conditions

OK X Not OK ☐ Explain

HARTCROWSER Groundwater Sampling Data - Well I.D. DMW-14S

WELL LOCATION DESC. (for new wells) (e.g., 20' NW of E corner of building A): Alley of Cherry Northwest (East of Aurora

PROJECT: Mercer Megablock

DATE/TIME SAMPLED: 11/3/2020 1234

JOB NO.: 1940904

TIDALLY INFLUENCED: YES ___ NO X

PROJECT MANAGER: M Dagel/M Goodman

WELL DEPTH IN FEET: 51'

FIELD REPS: J. Vanderwa

SCREENED INTERVAL IN FEET: 41-51'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 51'

CASING VOLUME IN GALLONS: 1.2

DEPTH TO SEDIMENT (DTS) IN FEET: 50.82

[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]

DEPTH TO WATER (DTW) IN FEET: 43.76

PURGE VOLUME IN GALLONS: 3.6

(DTS – DTW): 7.06

ACTUAL PURGE IN GALLONS: 3

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
	1140	0.1	7.10	15.5	0.473	6.54	192.2	1.1	
	1158	1	6.96	16.1	0.434	3.01	114.2	-36.5	
	1213	2	6.79	17.4	0.376	1.37	82.2	-87.3	
	1234	3	6.68	17.3	0.358	1.31	14.90	-31.0	
sample:									

Comments:

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS Submersible		47.5
Sample			

Boils dry? Yes ___ No X

At no. of casing volumes ___

Purge Water Disposal Method/Volume: Onsite Drum 3 gallons

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH-Dx	—	—
40 mL VOA	3	TPH-Gx, BTEX	HCl	—

Total number of Bottles: 4

Duplicate Sample I.D.: —

Field Blank I.D.: —

Rinseate Sample I.D.: —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS Sub/PE

Temp/pH/E.C. meter: YSI Pro D33

Bailer Type: —

Water Level Probe: Waterline

Filter Type: —

Other: —

4 Well Conditions

OK [X] Not OK [ ] Explain ___

J:\Docs\Forms\Field & Lab\Groundwater Sampling Data Form.doc

Public Review Draft

Groundwater Sampling Data - Well I.D. HMW-1D

Project	MMB	Date/Time Sampled	3/ 9/2020 // 1630
Job No.	1940904-04	Tidally Influenced	Yes ☐ No ☒
Project Manager	M. Dagel	Well Depth in Feet	90'
Field Reps.	BD / AN / JB / BL / JH	Screened Interval in Feet	(80-90')

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC) Measure TOC → -0.40'*

Well Depth	90	Casing Volume in Gallons	10.29
Depth of Sediment (DTS) in Feet	91.41	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	28.29	Purge Volume in Gallons	30.87'
(DTS - DTW)	63.12'	Actual Purge in Gallons	3.5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start 1516	0.1	7.48	13.3	383.5	3.61	8.41	-110.8	moderate odor, NS, clear; sulfur-like odor
1536	0.5	7.50	14.2	429.2	1.67	6.28	-292.0	sulfur-like odor; SS; clear
1542	1.0	7.55	14.2	441.8	1.57	9.71	-326.3	sulfur-like odor, SS, clear
1552	1.75	7.25	14.2	580	1.49	2.56	-324.1	" " "
1604	2.5	7.10	14.1	705	1.45	2.10	-277.8	" NS, clear
SAMPLE 1620	3.0	7.11	14.1	742	1.43	2.01	-295.7	" NS, clear
~~Comments~~ sample 1630	3.5	7.07	7.48	1.41	1.99	-257.4		sulfur-like odor not as strong, NS, clear

Comments: transducer pulled up with pump, reset 1700

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS pump	<0.1	~85
Sample	"	"	"

Bails dry? Yes ☐ No ☒

At no. of Casing Volumes —

Purge Water Disposal Method/Volume drums on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	2	NWTPH-Gx	HCl	N
500mL amber	1	NWTPH-Dx	no	N
VOA	2	HVOCs + BTEX	HCl	N
poly	1	Tot Metals	HNO_3	N
poly	1	Diss. Metals	HNO_3	Y

→ may be not on COC

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS sub / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	solinst
Filter Type	0.45 Microns	Other	—

4) Well Conditions

OK ☐ Not OK ☒ Explain Missing T bolt

Groundwater Sampling Data - Well I.D. HMW-11B

Project: MMB
Job No.: 1940904-04
Project Manager: M. Dagel
Field Reps.: (BD) / AN / JB / BL / JH

Date/Time Sampled: 3/10/2020 // 1225
Tidally Influenced: Yes [ ] No [X]
Well Depth in Feet: ~~65~~ 64.5'
Screened Interval in Feet: (54.3-64.3')

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* measure TOC -0.26'

Well Depth: ~~65~~ 64.51'
Depth of Sediment (DTS) in Feet: 64.49'
Depth of Water (DTW) in Feet: ~~30.25~~ 30.25'
(DTS - DTW): 36.24

Casing Volume in Gallons [2" diameter = x 0.163 gal/ft]: 5.91
Purge Volume in Gallons: 17.72
Actual Purge in Gallons: 3.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start ~~HMW-11B~~	1100	0.1	7.02	13.8	502	1.97	61.02	113.4	clear, NS, slight sulfur-like odor
	1109	1.0	7.03	13.9	503	1.84	44.37	46.5	" " NO
	1120	2.0	7.13	13.9	503	1.80	40.90	9.6	" " "
	1207	2.5	7.08	12.4	500	2.77	16.21	45.2	" " "
SMPL	1225	3.0	7.08	13.0	497.1	1.88	14.95	0.7	clear, NO, NS

Comments: flow stopped, so I turned up the flow controller; stop pumping 1145-1200 to allow recharge

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	~~SS~~ sub pump	<0.1	59.47
Sample	"	"	"

Bails dry? Yes [ ] No [ ] maybe?
At no. of Casing Volumes: slow recharge
Purge Water Disposal Method/Volume: drums on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	2	NWTPH-Gx	HCl	N
~~SOM~~ amber	1	NWTPH-Dx	no	N
VOA	2	HVOCs + BTEX	HCl	N
poly	1	Tot. Metals	HNO_3	N
poly	1	Diss. Metals	HNO_3	Y → maybe not on COC

Total Number of Bottles: 7
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type: SS pump / PE
Bailer Type: —
Filter Type: 0.45 MICRONS

Temp/pH/E.C./D.O: YSI DSS
Water Level Probe: waterline
Other: replaced both bolt

4) Well Conditions

OK [ ] Not OK [X] Explain: Missing 1 bolt, monument flooded

pull up sleeve, put back @ 1305

Public Review Draft

Groundwater Sampling Data - Well I.D. HMW-1S

Project: MMB
Job No.: 1940904-~~04~~ 05
Project Manager: M. Dagel
Field Reps.: (BD) / AN / JB / (BL) JH

Date/Time Sampled: 3/11/2020 // 1115
Tidally Influenced: Yes [ ] No [X]
Well Depth in Feet: (30')
Screened Interval in Feet: (20-30')

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* → -0.46'

Well Depth: (30')
Depth of Sediment (DTS) in Feet: 27.71'
Depth of Water (DTW) in Feet: 24.49'
(DTS - DTW): 3.22'

Casing Volume in Gallons: 0.52
[2" diameter = x 0.163 gal/ft]
Purge Volume in Gallons: 1.57
Actual Purge in Gallons: 2.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1004	0.1	6.51	10.3	634	4.41	10.82	74.1	NO, NS, CLEAR : INITIALLY
	1025	1.0	6.57	12.1	644	1.69	93.41	-12.4	INCREASING GRAY TURBIDITY
	1056	2.0	6.60	11.9	635	1.68	94.04	-40.4	NO, NS, VARIABLE GRAY TURB.
		2 BL							
SMPL	1115	2.5	6.61	11.9	620	1.68	47.78	-43.5	SLIGHT SHEEN, GRAY TURBIDITY, NO

Comments: pulled up tubing ~1 ft, AIR BUBBLES @ 1035 MOVED BACK DOWN 1 FT

1 PUMP WORKS OK

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	PERISTALTIC		~26'
Sample			

Bails dry? Yes [ ] No [ ]
At no. of Casing Volumes: ____
Purge Water Disposal Method/Volume: DRUMS ON SITE

2) Sampling Data

AND HVOC's + BTEX

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	~~2~~ 4	NWTPH-Gx & HVOCs & BTEX	HCl	N
500mL Amber	1	NWTPH - Dx	NO	N
POLY	1	TOT. METALS	HNO_3	N
POLY	1	DIS. METALS	HNO_3	Y

Total Number of Bottles: 7
Duplicate Sample I.D.: ____
~~(SAMPLE NOT ON COC)~~ BL Field Blank I.D.: ____
Rinseate Sample I.D.: ____

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type: PERISTALTIC / PE
Bailer Type: ____
Filter Type: 0.45 µm

Temp/pH/E.C./D.O: YSI
Water Level Probe: WATERLINE
Other: ____

4) Well Conditions

OK [X] Not OK [ ] Explain: replaced bolt 3/10/20

Groundwater Sampling Data - Well I.D. HMW-2IB

Project	Broad Block	Date/Time Sampled	March 12 2020 / 1337
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	62.8 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	52.8 to 62.8 (bgs)

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	62.8 (bgs)	Casing Volume in Gallons	4.23
Depth of Sediment (DTS) in Feet	62.10'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	36.15'	Purge Volume in Gallons	12.69
(DTS - DTW)	25.95	Actual Purge in Gallons	7.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS~~/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1146	0.1	8.31	14.1	752	1.97	94.00	86.7	initially turbid (brown), slight odor, NS
1153	1.0	8.28	14.5	756	1.57	54.72	-6.6	clearer, slight odor, NS
1201	2.0	8.29	14.5	758	1.50	35.06	-63	clear, " , NS
1301	3.0	8.18	14.2	774	2.02	661.57	164.3	cloudy, odor, NS. Pump was taken
1310	4.0	8.30	14.5	737	1.58	201.36	-87.1	clearer, odor, NS Out and cleaned
1318	5.0	8.19	14.7	753	1.48	35.64	8.2	" odor, NS Galvanized pump

SMPL

Comments: Pulled up Xducer 0908 – 1500, Did not collect Dissolved b/c pump shut off and could not be restarted

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	(Geotech) sub pump	0.12	57.8
Sample	"	"	56.8

Bails dry? Yes [ ] No [x]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: ~~7~~ 6

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	sub pump/ PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 µM	Other	

4) Well Conditions

OK [x] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-2D

Project	Broad Block	Date/Time Sampled	March 12 2020 / 1012
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	90 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	80 to 90 (bgs)

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	90 (bgs)	Casing Volume in Gallons	9.69
Depth of Sediment (DTS) in Feet	89.23'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	35.94'	Purge Volume in Gallons	26.06
(DTS - DTW)	53.29'	Actual Purge in Gallons	7.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
0930	0.1	7.59	13.6	308.3	2.67	37.31	-46.9	Clear, NS, petroleum-like (sulfur?) odor
0939	1.0	7.87	14.4	309.6	1.59	29.34	-46.4	" " " bucket appears dark
0947	2.5	7.86	14.5	308.8	1.50	33.06	-48.6	" " " "
0953	4.0	7.85	14.7	308.0	1.44	25.98	-48.1	" " " "
1000	5.25	7.83	14.3	305.1	1.48	70.72	-48.6	cloudy " " pump rate reduced
1005	6.0	7.87	14.3	302.3	1.46	29.57	-49.5	clearer " " bucket appears dark

SMPL

Comments: Pulled up Xducer 0908 - 1111, Dissolved poly only filled halfway b/c pump shut off

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	Sub	0.17	85
Sample	"	"	85

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	Geotech Sub	Temp/pH/E.C./D.O	YSI DSSPro
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 um	Other	

4) Well Conditions

OK [ ] Not OK [X] Explain: monument flooded

Groundwater Sampling Data - Well I.D. HMW-2IA

Project	Broad Block	Date/Time Sampled	March 12 2020 1327
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	44.8 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	34.8 to 44.8 (bgs)

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	44.8 (bgs)	Casing Volume in Gallons	2.99
Depth of Sediment (DTS) in Feet	45.39'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	27.00'	Purge Volume in Gallons	8.99
(DTS - DTW)	16.39	Actual Purge in Gallons	~~12.5~~ BD 10.5

Time	No. of Gallons Purged	pH	Temp in °C	~~mS/cm~~ µS/cm BC Conduct ~~in mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START 1215	0.1	7.66	14.6	0.534	2.85	79.13	-56.8	INITIALLY SLIGHT GRAY TURBIDITY, NS, SLIGHT FISHY (?) ODOR
1224	1.0	7.42	14.6	0.557	0.76	37.11	-78.4	NS, SLIGHT FISHY ODOR, GRAY TURBIDITY
1230	2.0	7.36	14.6	0.585	0.36	11.96	-88.6	NS, " , "
1235	3.0	7.38	14.5	0.603	0.22	5.93	-95.9	" , " , "
1241	4.0	7.39	14.6	0.609	0.16	4.35	-99.8	NS, NO ODOR CLEAR
SMPL 1247	5.0	7.40	14.6	0.619	0.11	3.22	-103.0	" , SLIGHT FISHY ODOR, "

Comments: XDUCER OUT @ 1145. WELL IS ~ 6 FT FROM WASTE BARRELS @ TIME OF SAMPLING. CONTINUED ON BACK
XDUCER REPLACED @ 1412.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS PUMP	0.13	39.8'
Sample	SS PUMP	0.08	39.8'

Bails dry? Yes [ ] No [✓]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

		Type/Brand/Serial No./Material/Units	
Pump Type/Tubing Type	SS / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

	ORP mV	TURB NTU	DO mg/L	COND mS/cm	T °C	pH	GALLONS	TIME	NOTES
	-103.0	3.22	0.11	0.619	14.6	7.40	5.0	1247	
	-104.1	2.96	0.08	0.624	14.6	7.41	6.0	1251	NS, NO, CLEAR
	-105.2	2.86	0.06	0.626	14.7	7.41	7.0	1257	NS, SLIGHT FISHY ODOR, CLEAR
	-106.3	2.71	0.05	0.629	14.7	7.42	8.0	1303	" , " , "
	-107.1	2.65	0.05	0.633	14.5	7.43	9.0	1310	NS, NO, CLEAR, FLOW RATE DECREASED DRAMATICALLY. BATTERY?
	-108.6	2.64	0.03	0.634	14.8	7.42	10.0	1322	NS, NO, CLEAR.
	-109.2	2.50	0.02	0.637	14.8	7.42	10.5	1327 SMPL	" , " , "

Groundwater Sampling Data - Well I.D. HMW-2IB

Project	Broad Block	Date/Time Sampled	March 12 2020 1337
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	62.8 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	52.8 to 62.8 (bgs)

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	62.8 (bgs)	Casing Volume in Gallons	4.23
Depth of Sediment (DTS) in Feet	62.10'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	36.15'	Purge Volume in Gallons	12.69
(DTS - DTW)	25.95	Actual Purge in Gallons	7.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1146	0.1	8.31	14.1	752	1.97	94.00	86.7	initially turbid (brown), slight odor, NS (Petrol sulfur?)
1153	1.0	8.28	14.5	756	1.57	54.72	-6.6	clearer, slight odor, NS
1201	2.0	8.29	14.5	758	1.50	35.06	-63	clear, " , NS
1301	3.0	8.18	14.2	774	2.07	661.57	164.3	cloudy, odor, NS, Pump was taken
1310	4.0	8.30	14.5	737	1.58	201.36	87.1	clearer, odor, NS Out and cleaned
1318	5.0	8.19	14.7	753	1.48	35.64	8.2	" odor, NS Galvanized pump

SMPL

Comments: Pulled up Xducer 0908 - 1500, Did not collect Dissolved b/c depth pump shut off and could not be restarted

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	(Geotech) sub pump	0.12	57.8
Sample	"	"	56.8

Bails dry? Yes [ ] No [x]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: ~~7~~ 6

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	Sub pump/ PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 µM	Other	

4) Well Conditions

OK [x] Not OK [ ] Explain

time	gallons	pH	Temp	Cond	DO	Turb	ORP	
1327	6.0	8.19	14.7	752	1.44	17.04	-46.8	NS, slight odor, clear
1332	6.5	8.19	14.7	751	1.42	15.98	-66.2	NS, SO, clear
1337	7.0	8.19	14.7	750	1.41	13.80	-73.1	NS, SO, clear

Groundwater Sampling Data - Well I.D. HMW-2S

Project	Broad Block	Date/Time Sampled	March 12 2020 1033
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	29.5
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	19.5 to 29.5

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	29.5	Casing Volume in Gallons	0.79
Depth of Sediment (DTS) in Feet	29.61'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	24.77'	Purge Volume in Gallons	2.37
(DTS - DTW)	4.84'	Actual Purge in Gallons	~~3.5~~ BD 2.0

	Time	No. of Gallons Purged	pH	Temp in °C	~~µS~~ mS/cm Conduct in ~~µS~~/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1002	0.1	7.01	13.3	0.584	4.81	6.22	124.6	INITIALLY CLEAR, NO, NS
	1010	0.5	6.70	13.5	0.574	2.38	4.99	124.8	CLEAR, NS, NO
	1018	1.0	6.67	13.6	0.563	1.78	5.83	122.4	CLEAR, NS, NO
	1027	1.5	6.67	13.5	0.566	1.62	12.06	124.9	" " "
	~~1033~~	~~2.0~~	~~6.67~~	~~13.5~~					
SMPL	1033	2.0	6.67	13.5	0.567	1.62	15.71	127.8	" "

Comments PERISTALTIC WORKED WELL.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	PERISTALTIC	0.065	26'
Sample	PERISTALTIC	0.065	26'

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	PERISTALTIC / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-3D

Project	Broad Block	Date/Time Sampled	March 13 2020 1208
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	90 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	80 to 90 (bgs) → notes mon. well says 82-92'

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	90 (bgs)	Casing Volume in Gallons	7.92
Depth of Sediment (DTS) in Feet	90.41'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	41.82'	Purge Volume in Gallons	23.76
(DTS - DTW)	48.59'	Actual Purge in Gallons	6.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS~~ µS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1049	1.0	7.93	15.7	579	2.18	39.11	6.6	initially turbid (brown) NS slight petro-like odor
1051	2.0	8.14	15.8	574	1.65	31.96	-49.1	turbid, ~~NS~~ SS, slight sheen, petro-like odor
1106	3.0	8.15	13.6	592	1.57	56.29	-190.0	turbid, SS, petro-like odor
1125	4.0	8.21	15.0	588	1.43	26.91	-218.7	clear, SS, NO
1141	5.0	8.22	14.9	585	1.41	12.01	-235.1	clear, NS, slight odor (petro-like
1208	6.0	8.21	14.7	583	1.41	8.03	-234.0	clear, NS, slight petro odor

SMPL

Comments pull up Xducer 0939 – lowered pump rate

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	Monsoon SS sub pump	~0.05	~~85~~ 84'
Sample	"	"	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D.

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	Ss sub pump / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 µm	Other	

4) Well Conditions

OK [ ] Not OK [X] Explain Monument flooded

Groundwater Sampling Data - Well I.D. HMW-3IA

Project	Broad Block	Date/Time Sampled	March 13 2020 1139
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	44.8 (bgs)
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	34.8 to 44.8 (bgs)

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	44.8 (bgs)	Casing Volume in Gallons	2.67
Depth of Sediment (DTS) in Feet	45.68'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	29.29'	Purge Volume in Gallons	8.01
(DTS - DTW)	16.39'	Actual Purge in Gallons	8.10

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1003	0.1	6.86	14.0	0.629	4.41	14.60	111.7	INITIALLY CLEAR, NS, ND
	1017	1.0	6.39	15.8	0.653	0.41	7.36	5.4	CLEAR, NS, ND
	1030	2.0	6.72	15.9	0.629	0.47	4.63	-17.5	CLEAR, NS, STRONG SOLVENT/PETROLEUM-LIKE ODOR
	1043	3.0	6.77	16.0	0.620	0.58	4.41	-21.6	" " "
	1054	4.0	6.80	15.9	0.623	0.71	4.33	-18.6	" " MEDIUM SOLVENT/PETRO-LIKE ODOR
SAMPLE	1105	5.0	6.80	15.8	0.630	0.56	3.35	-19.2	" " STRONG " / " " " "

Comments TRANSDUCER OUT OF WELL [0915-1240] CONTINUED ON BACK

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUBMERSIBLE	0.1	39.8'
Sample	SS SUBMERSIBLE	0.1	39.8'

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Pump Type/Tubing Type	SS / PE	Temp/pH/E.C./D.O	YSS DSI
Bailer Type	—	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	—

Type/Brand/Serial No./Material/Units

4) Well Conditions

OK [ ] Not OK [X] Explain FLOODED MONUMENT

NOTES

↳ CLEAR, NS, SXLONG SOLVENT/PETROLEUM-LIKE ODOR

" , " , " " " / " " "

SAMPLE

ORP mV	TURB NTU	DO mg/L	COND mS/cm	T °C	pH	GALONS	TIME
-19.5	3.35	0.56	0.630	15.8	6.80	5.0	1105
-23.3	3.77	0.38	0.633	16.2	6.78	6.0	1118
-20.6	2.44	0.40	0.642	16.0	6.80	7.0	1128
-23.0	2.43	0.32	0.641	16.1	6.79	8.1	1139

Public Review Draft

Groundwater Sampling Data - Well I.D. HMW-4IA

Project	Broad Block	Date/Time Sampled	March 10 2020 1730
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	59.75
Field Reps.	(B. Dozier)/(B. Lytle)/J. Higgins/A. Nakahara	Screened Interval in Feet	49.75 to 59.75

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	59.75	Casing Volume in Gallons	3.82
Depth of Sediment (DTS) in Feet	57.27' [SED. ON BOTTOM 0.25' OF WL METER]	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	33.84'	Purge Volume in Gallons	11.46
(DTS - DTW)	23.43'	Actual Purge in Gallons	3.75

@1602 Start

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand (initially)
1645	1.5	8.19	14.3	555	2.01	79.00	140.1	VERY TURBID, PULLED PUMP UP 2', GRAY TURBIDITY, NO, NS
1700	2.5 BL	8.20	16.6	555	1.58	31.14	98.9	NO, NS, CLEAR
1715	3.0	8.17	16.3	556	1.52	15.02	78.3	", ", "
SMPL 1730	3.75	8.18	16.8	556	1.48	12.06	59.2	", ", "
SMPL								

Comments

took out xducer 1533 – 1810

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	Pump	0.03	~~54.7 ft~~ 52.4 FT 53.6 BL
Sample	"	"	52.4

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCI	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS pump/ PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 microns	Other	—

4) Well Conditions

OK [ ] Not OK [X] Explain: Monument flooded

Groundwater Sampling Data - Well I.D. HMW-5IB

Project	Broad Block	Date/Time Sampled	March 17 2020 / 1332
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	62.2
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	52.2 to 62.2

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

0.3+2.48'-0.29' = 2.49'

Well Depth	62.2	Casing Volume in Gallons	4.67
Depth of Sediment (DTS) in Feet	63.09'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	34.45'	Purge Volume in Gallons	14.00
(DTS - DTW)	28.64'	Actual Purge in Gallons	14.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start	1117	0.1	6.72	14.6	555	1.56	17.41	137.8	initially clear, NO, NS
	1121	1.0	7.15	14.7	556	0.55	9.25	52.3	clear, NO, NS
	1133	2.0	7.34	14.9	556	0.24	4.80	-22.7	clear, NO, NS
	1145	3.0	7.35	15.0	555	0.16	3.38	-40.9	clear, NO, NS
BD	1156	4.0	7.35	15.1	553	0.18	4.16	-48.0	clear, NO, NS
	1207	5.0	7.36	15.2	552	0.13	4.95	-54.6	clear, NO, NS

Comments see reverse

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	monsoon SS sub pump	0.1	54.7'
Sample	"	"	54.7'

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS pump / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Time	#Gal Purged	pH	Temp °C	Cond µs/cm	DO mg/L	Turb NTU	ORP MV	Comments
1217	6.0	7.36	15.2	551	0.11	3.65	-59.1	clear, NO, NS
1227	7.0	7.37	15.2	551	0.10	3.20	-62.5	clear, NO, NS
1236	8.0	7.36	15.3	550	0.06	2.96	-66.3	clear, NO, NS
1245	9.0	7.37	15.1	550	0.04	2.79	-69.7	clear, NO, NS
1257	10.0	7.37	15.4	549	0.04	2.73	-71.3	" " "
1305	11.0	7.36	15.6	549	0.02	2.87	-72.6	" " "
1313	12.0	7.37	15.6	548	0.06	2.81	-73.2	" " "
1323	13.0	7.37	15.6	548	0.03	2.71	-75.4	" " "
SMPL 1332	14.0	7.37	15.6	549	0.01	2.64	-77.3	" " "

0.060
-0.001
0.059

0.060
-0.006
0.054

Groundwater Sampling Data - Well I.D. HMW-6D

Project	Broad Block	Date/Time Sampled	March 16 2020 1040
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	92.4
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	82.4 to 92.4

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

TOC = 3.21' - 0.32' = 2.88' AGS

Well Depth	92.4	Casing Volume in Gallons	7.89
Depth of Sediment (DTS) in Feet	95.33'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	46.91'	Purge Volume in Gallons	23.7
(DTS - DTW)	48.42'	Actual Purge in Gallons	5.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS~~/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	0956	0.1	8.05	14.5	642	2.88	129.36	-91.1	INITIALLY SLIGHT GRAY TURBIDITY, NS, NO
	1007	1.0	8.36	15.0	641	1.61	122.64	-346.5	MILD GRAY TURBIDITY, NS, SLIGHT SOLVENT-LIKE ODOR
	1018	2.0	8.43	15.8	628	1.43	35.76	-465.6	CLEAR, NO, NS
	1025	3.0	8.51	15.8	626	1.40	17.29	-474.6	" , " , "
	1032	4.0	8.47	16.0	629	1.36	14.41	-528.8	" , " , "
SMPL	1040	5.0	8.44	15.8	628	1.36	16.47	-534.5	" , " , "

Comments: TOC IS ~2.88' ABOVE GROUND SURFACE.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUBMERSIBLE	0.1	87.4' BGS 90.3' BTOC
Sample	SS SUBMERSIBLE	0.1	87.4' BGS 90.3' BTOC

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUBMERSIBLE / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-6IA

Project	Broad Block	Date/Time Sampled	March 13 2020 / 1545
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	50.25
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	40.25 to 50.25

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* 2.68' stick up

Well Depth	50.25	Casing Volume in Gallons	2.86
Depth of Sediment (DTS) in Feet	51.55	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	33.99	Purge Volume in Gallons	9.59
(DTS - DTW)	17.56	Actual Purge in Gallons	4.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS~~ µS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start	1519	0.1	8.59	14.7	691	2.79	~~50.33~~	151.2	initially clear, NO, NS
	1523	1.0	10.09	15.0	759	2.01	11.19	126.0	clear, NO, NS
	1532	2.0	9.92	15.4	706	2.12	4.77	105.3	clear, NO, NS
	1539	3.0	9.36	15.4	674	2.14	4.01	102.0	clear, NS, NO
SMPL	1545	4.0	9.09	15.5	672	2.14	3.69	99.8	clear, NO, NS

Comments: Slowed pump rate

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	Monsoon SS sub pump		48' from TOC
Sample	"	"	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS sub pump / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-6IB

Project	Broad Block	Date/Time Sampled	March 13 2020 1635
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	63
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	53 to 63

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC) = 2.98' AGS*

Well Depth	63	Casing Volume in Gallons	4.80
Depth of Sediment (DTS) in Feet	64.58'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	35.15	Purge Volume in Gallons	14.40
(DTS - DTW)	29.43'	Actual Purge in Gallons	12.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START 1518	0	7.77	10.9	0.625	1.89	713.94	208.6	INITIALLY CLEAR, NO, NS, GETS GRAY TURBID
1529	1.0	8.61	14.7	0.622	0.54	211.43	186.8	GRAY TURBIDITY, NO, NS
1544	2.0	8.67	14.5	0.629	0.25	20.06	133.0	CLEAR, NO, NS
1554	3.0	8.63	15.9	0.628	0.12	11.13	117.3	" " "
1559	4.0	8.71	15.6	0.624	0.09	9.38	106.7	" " "
SMPL 1605	5.0	8.68	15.6	0.629	0.06	5.65	92.7	" " "

CONTINUED ON BACK

Comments

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUB PUMP	0.18	58' BGS (61' BTOC)
Sample	SS SUB PUMP	0.18	58 (61' BTOC)

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUBMERSIBLE / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

2.96 + 0.04 − 0.38 = 2.98

NOTES

CLEAR, NO, NS

" , " , "

CLOUDY, NO, NS

" , " , "

" , " , "

" , " , "

" , " , "

ORP mV	TURB NTU	DO mg/L	COND mS/cm	T °C	pH	GALLONS	TIME
79.5	6.04	0.04	0.633	15.7	8.62	6.0	1610
68.5	6.21	0.03	0.633	15.5	8.61	7.0	1614
55.2	4.63	0.02	0.633	15.7	8.61	8.0	1618
40.1	3.84	0.01	0.635	15.5	8.59	9.0	1622
28.4	3.29	0.00	0.635	15.6	8.58	10.0	1627
13.9	3.18	0.00	0.635	15.6	8.57	11.0	1631
1.2	1.48	0.00	0.634	15.6	8.57	12.0	1635

Groundwater Sampling Data - Well I.D. HMW-7IB

Project	Broad Block	Date/Time Sampled	March 12 2020 1638
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	62.45
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	52.45 to 62.45

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* → 2.38'

Well Depth	62.45	Casing Volume in Gallons	4.59
Depth of Sediment (DTS) in Feet	63.93'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	35.80'	Purge Volume in Gallons	13.76
(DTS - DTW)	28.13'	Actual Purge in Gallons	14.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START 1530	0.2	8.19	14.7	0.657	2.10	370.86	-76.8	INITIALLY SLIGHT GRAY TURBIDITY, NS
1537	1.0	7.73	16.2	0.644	0.47	126.83	-124.6	GRAY TURBID, NS, SLIGHT ODOR
1544 BL	2.0	7.71	16.2	0.623	0.25	34.80	-149.1	CLEAR, NS, SLIGHT ODOR
1550	3.0	7.70	16.1	0.628	0.18	15.75	-161.6	" , NS, NO
1551	4.0	7.70	16.1	0.623	0.13	11.01	-170.2	" , " , "
SAMPLE								

CONTINUED ON BACK

Comments: TOC is 2.38' above ~~MONUMENT~~ BD concrete footing (which is 0.3' above ground)

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS pump	0.2	57.45'
Sample	SS pump	0.2	57.45'

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain: STICK UPS ARE GREAT

CLEAR, NO, NS

NOTES

ORP mV	TURB NTU	DO mg/L	COND mS/cm	T °C	pH	GALLONS	TIME
-170.2	11.01	0.13	0.623	16.1	7.70	4.0	1551
-175.4	8.82	0.09	0.619	16.1	7.69	5.0	1600
-177.6	7.79	0.07	0.617	16.1	7.69	6.0	1605
-180.9	10.38	0.05	0.615	16.0	7.69	7.0	1610
-183.3	7.82	0.03	0.611	16.0	7.68	8.0	1615
-184.5	6.60	0.02	0.609	16.0	7.68	9.0	1620
-186.9	4.81	0.02	0.608	15.9	7.68	10.0	1623
-186.9	4.31	0.01	0.607	15.9	7.67	11.0	1627
-187.2	4.11	0.00	0.606	15.9	7.67	12.0	1630
-187.3	5.76	-0.00	0.605	15.9	7.67	13.0	1634
-187.6	6.08	0.00	0.606	15.9	7.67	14.0	1638

CLEAR, NO, NS

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

SMPL

• FLOW RATE INCREASED ON ITS OWN

Public Review Draft

Groundwater Sampling Data - Well I.D. HMW-8IB

Project	Broad Block	Date/Time Sampled	March 11 2020 1642
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	63.15
Field Reps.	B. Dozier, B. Lytle, J. Higgins/A. Nakahara	Screened Interval in Feet	53.15 to 63.15

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	63.15	Casing Volume in Gallons	4.16
Depth of Sediment (DTS) in Feet	62.50'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	36.95'	Purge Volume in Gallons	12.50
(DTS - DTW)	25.55'	Actual Purge in Gallons	~~5.0~~ BD 6.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~m~~S/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start 1513	<0.1	9.57	BD 15.1	697	2.97	160.72	-62.4	initially slight odor, NS, clear
1533	1.50	9.51	15.4	636	1.48	303.7	-301.3	slight (salty?) odor, NS, turbid (brown)
1543	2.0	9.29	15.4	611	1.43	~~601.2~~ BD	-364.9	turb: 71.06 (moved param, turb dropped), V. slight odor, slight white flaky sheen, slightly turbid
1600	3.0	9.08	15.8	593	1.36	61.15	-370.9	SLIGHT ODOR, NS, SLIGHT TURBID
1615	4.0	9.00	15.7	585	1.33	39.60	-383.5	NS, NO, SLIGHTLY TURBID
SMPL 1630	5.0	8.85	15.7	578	1.32	28.02	-391.2	SLIGHT WHITE SHEEN, SLIGHT ODOR, CLEAR

Comments see reverse for more parameters

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	ss pump	<0.1	56.5
Sample	"	"	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes ____

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx, PAHs	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 8

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATER LINE
Filter Type	0.45 um	Other	

4) Well Conditions

OK [X] Not OK [ ] Explain

	ORP mV	TURB NTU	DO mg/L	COND µS/cm	T °C	pH	VOL GAL	TIME	SAMPL
NO, NS, CLEAR	-392.2	28.24	1.31	577	15.8	8.87	6.0	1642	↙

Groundwater Sampling Data - Well I.D. HMW-9D

Project	Broad Block	Date/Time Sampled	March 17 2020 1359 [1404 HMW-900D]
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	92.63
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	82.63 to 92.63

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* 0.35+2.82-0.25 = 2.92'

Well Depth	92.63	Casing Volume in Gallons	8.3
Depth of Sediment (DTS) in Feet	94.61'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	43.40'	Purge Volume in Gallons	25.0
(DTS - DTW)	51.21	Actual Purge in Gallons	17.0

Time	No. of Gallons Purged	pH	Temp in °C	~~mS/cm~~ Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START 1113 SU 1123	0.2	9.00	13.9	508	2.43	700.64	277	VERY TURBID, GRAY, NO, NS
1129	1.0	9.00	14.9	508	1.60	323.19	-159.8	MODERATELY GRAY TURBID, SLIGHT SALTY ODOR, NS
1140	2.0	8.99	15.8	501	1.43	100.73	-520.1	" , NO , NS
1148	3.0	8.99	15.9	501	1.37	95.62	-508.4	" , " , "
1233	4.0	8.97	14.8	485.7	1.65	1549.9	-231.4	STRONGLY GRAY TURBID, NS, NO
SAMPLE 1244	5.0	9.00	14.8	484.3	1.50	376.04	~~-523~~ -524.5	MODERATELY GRAY TURBID, NO, NS

Comments @1130 SLOWLY INCREASING FLOW RATE. HAD TO KEEP CONSISTENT. @1152 HAD TO STRONGLY INCREASE FLOW. FLOW STOPPED TEMPORARILY - TUBING GOT DISCONNECTED FROM PUMP. PULLING OUT OF WELL @ 1208, ~3.75 GAL @1227 RESTARTING PUMP. @1235 FLOW IS HIGHLY VARIABLE. CONTINUED ON BACK.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUBMERSIBLE	0.18	87.63' BGS 90.6' BTOC
Sample	"	"	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	8	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx	no	no
0.5 L poly	2	Total MTCA Metals	HNO3	no
0.5 L Poly	2	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 14

Duplicate Sample I.D. HMW-900D
SAMPLE TIME @ 1404

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µM	Other	

4) Well Conditions

OK [X] Not OK [ ] Explain

COMMENTS: FLOW STILL VARIABLE @ 1252. @ 1300 FLOW VARIABLE, KEEP INCREASING VOLTAGE. @ 1305 FLOW VARIABLE, KEEP INCREASING VOLTAGE. @ 1316 MOVED DSS PROBE & TURBIDITY SHOT UP TO 125 NTU. @ 1322. 451 DSS TIPPED, REPOSITIONED IT & TURBIDITY INCREASED TO ~ 50 NTU. @ 1331 TURBIDITY HIGHLY VARIABLE (50-250) FLOW STILL VARIABLE. @ 1341 FLOW DECREASING ON ITS OWN. @ 1350 WANT TO MAKE SURE TURBIDITY STAYS < 25 NTU. SINCE IT'S SPIKED SEVERAL TIMES. 1430 OVERALL DIFFICULT TO KEEP FLOW AT VERY LOW RATES.

NOTES	ORP mV	TURB NTU	DO mg/L	COND µS/cm	pH	T °C	GAL	TIME
MODERATELY GRAY TURBID, NS, ND	-524.5	376.04	1.50	484.3	9.00	14.8	5.0	1249
" , " , "	-527.6	110.31	1.42	480.3	9.01	14.9	6.0	1253
ND, MOD. GRAY TURBID, SLIGHT WHITE BLOCKY SHEEN	-526.4	65.27	1.41	475.6	8.98	15.0	7.0	1302
ND, DECREASING WHITE SHEEN, MODERATELY TURBID	-539.5	57.19	1.38	473.1	8.98	15.1	8.0	1309
ND, NS, MOD. TURBID, GRAY	-558.0	57.91	1.35	477.0	8.99	15.3	9.0	1314
CLEAR, ND, NS	-563.7	36.20	1.35	473.9	8.92	15.2	10.0	1319
SLIGHTLY TURBID, ND, NS	-552.1	84.81	1.35	470.1	8.87	15.2	11.0	1324
MODERATE GRAY TURBID, ND, NS	-550.4	251.84	1.34	470.9	8.86	15.1	12.0	1329
CLEAR, ND, NS	-555.8	24.09	1.35	471.4	8.87	15.1	13.0	1335
" , " , "	-551.4	30.02	1.34	470.4	8.86	15.1	14.0	1341
" , " , "	-555.7	22.43	1.34	471.6	8.86	15.1	15.0	1347
" , " , "	-559.6	24.40	1.33	473.0	8.84	15.2	16.0	1354
SMPL " , " , "	-527.6	17.63	1.33	470.4	8.85	15.0	17.0	1359 SMPL

Groundwater Sampling Data - Well I.D. HMW-9IA

Project	Broad Block	Date/Time Sampled	March 19 2020 / 1651
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	49.63
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	39.63 to 49.63

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* 33+2.8-19 =2.94

Well Depth	49.63	Casing Volume in Gallons	2.78
Depth of Sediment (DTS) in Feet	51.18	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	34.12	Purge Volume in Gallons *3	8.34
(DTS - DTW)	17.06	Actual Purge in Gallons	5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1630	1	9.78	16.1	584	2.15	68.25	25.0	NO, NS, cloudy
1636	2	7.41	16.0	582	0.65	17.4	-8.9	NO, NS, clear
1641	3	7.23	16.0	582	0.36	10.21	-16.5	NO, NS, clear
1646	4	7.16	15.9	582	0.24	6.72	-19.9	NO, NS, clear
SMPL 1651	5	7.12	15.9	581	0.17	4.01	-21.6	NO, NS, clear

Comments

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	monsoon SS submp	0.2	47.0
Sample	↓	↓	↓

Bails dry? Yes [ ] No [X]

44.65 = 47.59

At no. of Casing Volumes

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D.: —

Field Blank I.D.: —

Rinseate Sample I.D.: —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS submp/PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type		Water Level Probe	waterline
Filter Type	0.4 um	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-9IB

Project	Broad Block	Date/Time Sampled	March 19 2020 / 1322
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	69.45
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	59.45 to 69.45

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

0.3272.93 - .80 +2.45

Well Depth	69.45	Casing Volume in Gallons	5.60
Depth of Sediment (DTS) in Feet	70.89	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	36.54	Purge Volume in Gallons	16.80
(DTS - DTW)	34.35	Actual Purge in Gallons	7.5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1234	1.5	7.89	15.0	612	2.67	15.65	-42.2	Clear, NO, NS
1241	2.5	8.25	15.3	619	0.42	12.43	-151.8	clear, NO, NS
1246	3.5	8.21	15.3	642	0.26	11.55	-163.0	clear, NO, NS
1252	4.5	8.21	15.3	648	0.19	10.13	-173.0	clear, NO, NS
1302	5.5	8.19	15.4	669	0.13	9.57	-179.6	clear, NO, NS
1312	6.5	8.15	15.2	691	.08	4.25	-181.7	clear, NO, NS
1322	7.5	8.14	15.5	700	0.05	12.15	-182	clear, NO, NS

Sampl Comments

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	monsoon SS sub pump	0.1	66.54 (66.9)
Sample	↓	↓	↓

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D.: —

Field Blank I.D.: —

Rinseate Sample I.D.: —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS sub pump / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45um	Other	

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-9S

Project	Broad Block	Date/Time Sampled	March 17 2020 0959
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	38.12
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	28.12 to 38.12

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* 3.07+0.35 −0.28 = 3.14'

Well Depth	38.12	Casing Volume in Gallons	0.86
Depth of Sediment (DTS) in Feet	38.42'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	33.15'	Purge Volume in Gallons	2.58
(DTS - DTW)	5.27'	Actual Purge in Gallons	2.5

	Time	No. of Gallons Purged	pH	Temp in °C	~~mS/cm~~ Conduct ~~in mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	0931	0.1	7.22	14.9	477.8	3.35	31.92	197.7	INITIALLY CLEAR, NO, NS
	0940	1.0	7.27	15.2	525	2.57	37.41	168.8	SLIGHT GRAY TURBIDITY, NO, NS
	0945	1.5	7.25	15.3	548	2.35	11.90	160.7	CLEAR, NO, NS
	0951	2.0	7.26	15.0	549	2.35	9.10	160.8	CLEAR, NS, SLIGHT SWEET/SOLVENT-LIKE ODOR
									~~II, NO, NS~~ BL
SMPL	0959	2.5	7.24	15.1	557	2.29	6.41	160.6	CLEAR, NO, NS

Comments PUMP SET 1' BELOW WATER. @ 0941 DECREASED FLOW RATE TO REDUCE TURB. @ 0954 FLOW RATE DECREASED ON ITS OWN.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUBMERSIBLE	0.07	~~36.15' BGS~~ 34.15' BTOC ~~39.3 BTOC~~ BL
Sample	"	0.07	BL ~~II~~ 34.15' BTOC

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUBMERSIBLE / PE	Temp/pH/E.C./D.O	YSI 051
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-10D

Project	Broad Block	Date/Time Sampled	March 16 2020 1627
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	91.95
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	81.95 to 91.95

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

TOC = 0.25' + 2.80' - 0.14' = 2.91'

Well Depth	91.95	Casing Volume in Gallons	8.74
Depth of Sediment (DTS) in Feet	93.44'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	39.82'	Purge Volume in Gallons	26.2
(DTS - DTW)	53.62'	Actual Purge in Gallons	8.0

	Time	No. of Gallons Purged	pH	Temp in °C	µS/cm Conduct in ~~mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1518	0.1	7.70	14.4	400.1	2.73	739.13	-119.3	INITIALLY VERY GRAY TURBID, NO, NS
	1526	1.0	7.92	14.4	396.8	1.61	380.2	-487.2	MODERATE GRAY-BROWN TURBIDITY, NO, NS
	1532	2.0	7.94	14.5	393.8	1.49	88.71	-504.3	" " " "
	1538	3.0	7.96	14.5	397.3	1.46	100.70	-503.8	SLIGHT TURBID, NO, NS
	1543	4.0	7.95	14.5	400.9	1.45	121.50	-497.1	" " "
SAMPLE	1548	5.0	7.94	14.4	400.5	1.45	277.63	-493.0	MODERATE GRAY TURBID, NO, NS.

Comments JUST ENOUGH TUBING TO WORK. @ 1542 RAISED PUMP 1'. @ 1550 DECREASED FLOW RATE.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUBMERSIBLE	0.08	86.95' BGS (89.86' BTOC)
Sample	"	0.08	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C./D.O	YSI 0 SS
Bailer Type	—	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

NOTES	ORP mV	TURB NTU	DO mg/L	COND µS/cm	T °C	pH	GAL	TIME
MOD. GRAY TURBID, NO, NS	-493.0	277.63	1.45	400.5	14.4	7.94	5.0	1548
SLIGHTLY TURBID, NO, NS	-468.3	156.04	1.46	402.8	14.3	7.93	6.0	1602
CLEAR, NO, NS. HAD + ASK BECCA RE: CASING VOLUME & SAMPLING.	-477.1	13.32	1.43	407.9	14.4	7.92	7.0	1616
" , " , "	-480.2	18.50	1.42	409.1	14.5	7.93	8.0	1627

Groundwater Sampling Data - Well I.D. HMW-10S

Project	Broad Block	Date/Time Sampled	March 16 2020 1420
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	37.56
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	27.56 to 37.56

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

2.84 + 0.26 - 0.2 = 2.9' AGS

Well Depth	37.56	Casing Volume in Gallons	2.0
Depth of Sediment (DTS) in Feet	38.62'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	26.31'	Purge Volume in Gallons	6.0
(DTS - DTW)	~~38.62'~~ 12.31'	Actual Purge in Gallons	3.5

	Time	No. of Gallons Purged	pH	Temp in °C	µS/cm Conduct in ~~mS/cm~~	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
START	1349	0.1	7.58	14.8	507	2.29	88.41	49.0	INITIALLY CLEAR, NO, NS
	1355	1.0	7.54	14.5	508	1.65	62.13	-142.0	GRAY TURBIDITY, NS, NO, TURNED FLOW RATE DOWN.
	1412	2.0	7.40	14.8	513	1.62	10.07	-317.2	CLEAR, NO, NS
	1415	2.5	7.36	14.7	510	1.59	5.77	-324.5	" , " , " . DECREASED FLOW RATE SLIGHTLY
	1417	3.0	7.36	14.6	509	1.62	5.33	-319.0	" , " , "
SMPL	1420	3.5	7.33	14.6	509	1.62	4.21	-312.3	" , " , "

Comments: TOC IS ~2.9' ABOVE GROUND SURFACE. @1412 HAD TO INCREASE PUMP RATE TO KEEP FLOW.

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS SUBMERSIBLE	0.1	32.56' BGS (35.46 BTOC)
Sample	SS SUBMERSIBLE	~0.1	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes —

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	SS SUBMERSIBLE / PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	—

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-11IB

Project	Broad Block	Date/Time Sampled	March 16 2020 / 1112
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [X]
Project Manager	M. Dagel	Well Depth in Feet	57.47
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	47.47 to 57.47

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)* 3.00' above ground surface

Well Depth	57.47	Casing Volume in Gallons	4.24
Depth of Sediment (DTS) in Feet (from TOC)	59.36'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	33.37'	Purge Volume in Gallons	12.72
(DTS - DTW)	26.01'	Actual Purge in Gallons	

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~mS~~/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1040	1.0	6.70	14.6	470.3	1.11	26.20	149.2	NO, NS, clear
1046	2.0	6.60	14.5	466.7	0.92	10.86	126.9	NO, NS, clear
1054	3.0	6.56	14.3	465.3	0.89	5.93	111.3	NO, NS, clear
1103	4.0	6.54	14.5	463.6	0.90	3.70	96.1	NO, NS, clear
			14.6					
SMPL 1112	5.0	6.53	~~16.6~~	463.7	0.89	3.85	82.2	NO, NS, Clear

Comments: slowed pump rate a little bit,

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	monsoon ss sub pump	0.1	49.5' below TOC
Sample	"	0.1	"

Bails dry? Yes [ ] No [X]

At no. of Casing Volumes

Purge Water Disposal Method/Volume: Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	8	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	2	NWTPH-Dx	no	no
0.5 L poly	2	Total MTCA Metals	HNO3	no
0.5 L Poly	2	Dissolved MTCA Metals	HNO3	yes

Total Number of Bottles: 14

Duplicate Sample I.D.: HMW-1100IB @ 1113

Field Blank I.D.:

Rinseate Sample I.D.:

3) Field Equipment — Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	ss pump/ PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type		Water Level Probe	Weterline
Filter Type	0.45 um	Other	

4) Well Conditions

OK [X] Not OK [ ] Explain

Groundwater Sampling Data - Well I.D. HMW-11S

Project	Broad Block	Date/Time Sampled	March 11 2020 / 1420
Job No.	19409-04-05	Tidally Influenced	Yes [ ] No [x]
Project Manager	M. Dagel	Well Depth in Feet	38.2
Field Reps.	B. Dozier/B. Lytle/J. Higgins/A. Nakahara	Screened Interval in Feet	28.2 to 38.2

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	38.2	Casing Volume in Gallons	1.5295 V.530
Depth of Sediment (DTS) in Feet	38.40	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	35.15	Purge Volume in Gallons	1.59
(DTS - DTW)	3.25	Actual Purge in Gallons	

SMPL

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
1140	0.5	7.49	14.1	1494	2.48	324.8	73	initially turbid, grey silt
1155	1	7.15	12.5	1278	2.09	90.75	274	
1213	1.5	7.05	12.1	1194	1.99	26.01	1057	> stopped flow. Turned off pump to recharge *
*								
1420	1.6	7.09	13.7	1217	3.64	39.5	233	>could not get flow through filter. submit unfiltered poly

Comments * checked flow on + off every 15-25 min. no flow still. ↓unfiltered poly looked v clear well continues to either run dry or have pump connectivity issues til end of sampling @1445

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	SS pump	"24" or flow 0.5/10m	36'
Sample	SS pump	1/20	36-37'

Bails dry? Yes [X] No [ ]

At no. of Casing Volumes 2

Purge Water Disposal Method/Volume Drum left on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
VOA	4	NWTPH-Gx, BTEX/HVOCs	HCl	no
0.5 L Amber	1	NWTPH-Dx	no	no
0.5 L poly	1	Total MTCA Metals	HNO3	no
0.5 L Poly	1	Dissolved MTCA Metals	HNO3	~~yes~~ no

Total Number of Bottles 7

Duplicate Sample I.D. –

Field Blank I.D. –

Rinseate Sample I.D. –

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	geotech SS	Temp/pH/E.C./D.O	YSI DSS pm
Bailer Type		Water Level Probe	waterlin
Filter Type	~~0.45~~	Other	

4) Well Conditions

OK [X] Not OK [ ] Explain

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-12D

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): CORNER 9TH AVE & ROY ST, INSIDE FENCE LINE.

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M DAGEL
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 9/10/2020 1123
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 92
SCREENED INTERVAL IN FEET: 82-92

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 92'
DEPTH TO SEDIMENT (DTS) IN FEET: 97.70
DEPTH TO WATER (DTW) IN FEET: 27.54
(DTS – DTW): 66.16

CASING VOLUME IN GALLONS: 10.8
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 32.4
ACTUAL PURGE IN GALLONS: 5.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL 1014	0.1	8.15	15.9	0.674	1.97	60.89	170.2	INITIALLY CLEAR, NO, NS
1021	0.5	6.71	16.0	0.821	0.58	16.17	25.9	SLIGHT GRAY TURBIDITY, NO, NS
1028	1.0	6.51	16.0	0.828	0.57	34.70	~~-26.6~~ -16.6	CLEAR, NO, NS
1044	2.0	6.43	15.8	0.830	0.35	5.55	-59.4	" , " , "
~~sample:~~ 1107	4.0	6.50	16.1	0.843	0.31	3.78	-73.4	" , " , " CONTINUED ON BACK

Comments: CITY REP CAME TO PUT NEW LOCK ON AT GALLON 3 SO I MISSED READINGS.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.09	87 + 1.8 = 88.8'
Sample	"	0.09	"

STICK UP 1.8'

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume: DRUM ON SITE. 6.0 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO/VOC's	HCl	—
500mL AMBER	1/1	DRO/cPAH's	—	—
250mL POLY	1	TOTAL METALS.	HNO3	—
250 mL POLY	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles: 10
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: —
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI 0 55 PRO
Water Level Probe: WATER LINE
Other: —

4 Well Conditions

OK [X] Not OK [ ] Explain: ____

	TIME	GALLONS	pH	T °C	COND	DO	TURB	ORP	COMMENTS
	1107	4.0	6.50	16.1	0.843	0.31	3.78	-73.4	CLEAR, NO, N S
SAMPLE	1123	5.0	6.62	16.0	0.846	0.29	3.18	-82.0	" , " , "

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-13D

WELL LOCATION DESC. (for new wells) 800 MERCER, EAST SIDE, CENTER OF RESERVOIR
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940904
PROJECT MANAGER M DAGEL
FIELD REPS B LYTLE

DATE/TIME SAMPLED 9/10/2020 1545
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 99
SCREENED INTERVAL IN FEET 89-99

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH ____
DEPTH TO SEDIMENT (DTS) IN FEET 98.8
DEPTH TO WATER (DTW) IN FEET 37.12
(DTS – DTW) 61.71

CASING VOLUME IN GALLONS 10.0
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 30.0
ACTUAL PURGE IN GALLONS 7.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1335	0.1	8.11	15.6	0.328	0.88	2300	211.1	INITIALLY STRONG GRAY-BROWN TURBIDITY, NO, NS
	1358	1.0	7.97	16.1	0.339	1.29	384.21	208.6	STRONG GRAY-BROWN TURBIDITY, NO, NS
	1410	2.0	7.34	16.5	0.355	0.42	162.91	190.4	MODERATE GRAY-BROWN TURBIDITY, NO, NS
	1424	3.0	7.16	16.0	0.379	0.32	107.09	124.0	" , " , "
~~sample~~:									

Comments: COULD SMELL ABOUT HIGH TURBIDITY, "PA USED" & SHUT OFF PUMP AT 1342. RESUMED 1357 AFT. BECCA. RAISED PUMP 1 FT (@ 93') CONTINUED ON BACK

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.05	94
Sample	"	0.05	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / ~8.0 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO/VOC's	HCl	—
500ml AMBER	1/1	DRO/cPAH's	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45µm

Total number of Bottles 10
Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

3 Field Equipment

Pump Type/Tubing Type SS SUB/PE
Bailer Type ____
Filter Type 0.45 µm

Type/Brand/Serial No./Material Units
Temp/pH/E.C. meter YSI DSS PRO
Water Level Probe WATER LINE
Other ____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

TIME	GAL	pH	Temp	COND	DO	TURB	ORP	COMMENTS
1424	3.0	7.16	16.0	0.379	0.32	107.09	124.0	MODERATE GRAY-BROWN TURBIDITY, NO, NS
1434	4.0	7.14	16.2	0.374	0.31	58.80	86.4	" , " , " , REDUCED FLOW RATE.
1450	5.0	7.19	16.8	0.358	0.34	180.51	38.8	" , " , " . TURBIDITY SPIKED UP TO 250 NTU JUST BEFORE TAKING READINGS.
1520	6.0	7.21	~~17.2~~ 17.2	0.376	0.33	58.92	-17.3	CLEAR, NO, NS. DECREASED FLOW RATE.
1545	7.0	7.20	17.4	0.382	0.31	24.15	-27.5	CLEAR, NO, NS

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-14D

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M DAGEL
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 9/16/2020 0906
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 80
SCREENED INTERVAL IN FEET: 70-80

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 80'
DEPTH TO SEDIMENT (DTS) IN FEET: 79.70
DEPTH TO WATER (DTW) IN FEET: 38.40
(DTS – DTW): 41.30

CASING VOLUME IN GALLONS: 6.7
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 20.2
ACTUAL PURGE IN GALLONS: 4.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0817	0.1	7.87	15.0	0.392	1.06	54.91	278.2	SLIGHTLY GRAY TURBIDITY, NO, NS
	0833	1.0	6.95	15.0	0.381	0.54	31.32	248.5	CLEAR, NO, NS
	0844	2.0	6.84	15.2	0.395	0.39	10.02	187.8	" , " , "
	0856	3.0	6.88	15.2	0.422	0.35	6.02	134.8	" , " , "
sample:	0906	4.0	6.89	15.3	0.440	0.33	4.96	98.2	" , " , "

~~CONTINUED ON BACK~~

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.08	75
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
50 GAL / ON SITE DRUM

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO/VOCs	HCl	—
500mL AMBER	1/1	DRO/cPAH	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles: 10
Duplicate Sample I.D.: ____
Field Blank I.D.: ____
Rinseate Sample I.D.: ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: ____
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ____

(4) Well Conditions

OK [X] Not OK [ ] Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-15IB

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT MNB
JOB NO. 1940904
PROJECT MANAGER M DAGEL
FIELD REPS B LYTLE

DATE/TIME SAMPLED 9/16/2020 ~~1101~~ BL 1155
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 73
SCREENED INTERVAL IN FEET 63-73

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 73
DEPTH TO SEDIMENT (DTS) IN FEET 72.05
DEPTH TO WATER (DTW) IN FEET 41.04
(DTS – DTW) 31.01

CASING VOLUME IN GALLONS 5.0
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 15.0
ACTUAL PURGE IN GALLONS ~~5.0~~ 7.0 BL

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1025	0.1	7.96	16.8	0.597	0.95	122.18	-96.3	SLIGHTLY SALTY ODOR, SLIGHTLY GRAY TURBID, NS
	1040	1.0	7.73	16.7	0.602	0.60	76.31	-28.2	" , " , "
BL	1052	2.0	7.77	17.1	0.595	0.34	18.47	-119.7	SLIGHTLY SALTY ODOR, NO CLEAR, NS
~~SAMPLE~~	1101	3.0	7.79	17.2	0.596	0.35	17.85	-134.4	SLIGHTLY SALTY ODOR, CLEAR, NS
~~sample~~ **	1118	4.0	7.91	17.2	0.598	0.42	136.73	-71.9	" , SLIGHT GRAY TURBIDITY, NS

Comments: ** DURING SAMPLING, PUMP DROPPED ~ 2FT & WATER BECAME VERY TURBID, STOPPED SAMPLING, MOVED PUMP BACK UP TO 68', RESTARTED PARAMETER READINGS (RECALC W/ M. GOODMAN), DISCARDING SAMPLES INTO IDW, TAKING NEW. (AMBER BOTTLES ONLY) CONTINUED ON BACK

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.08	68
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
80 GAL / ON SITE DRUM

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO / VOCs	HCl	—
500 mL AMBER	1/1	DRO / cPAHs	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles 10
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS SUBMERSIBLE / PE
Bailer Type ____
Filter Type 0.45 µm

Temp/pH/E.C. meter YSI DSS PRO
Water Level Probe WATER LINE
Other ____

4 Well Conditions

OK X Not OK ____ Explain ____

RESTARTED PARAMETERS:

TIME	GAL	pH	TEMP	COND	DO	TURB	ORP	COMMENTS
1118	4.0	7.91	17.2	0.598	0.42	136.73	-71.9	SLIGHTLY SALTY ODOR, SLIGHT GRAY TURBIDITY, NS
1132	5.0	7.88	17.8	0.601	0.35	39.53	-135.4	" , CLEAR, NS
1143	6.0	7.88	17.9	0.601	0.33	33.49	-150.3	CLEAR, NO, NS
1155	7.0	7.88	17.9	0.603	0.33	16.71	-158.4	" , " , "

* PER CONVERSATION W/ M. DAGEL: PURGE ONE CASING VOLUME, REDUCE INITIALLY HIGHER TURBIDITY. THEN, SAMPLE WITHOUT WAITING FOR PARAMETERS TO STABILIZE TO ENSURE ENOUGH VOLUME PRODUCED TO GET BOTTLES FILLED.

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-16IB

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT	MMB	DATE/TIME SAMPLED	9/18/2020 0850
JOB NO.	1940904	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M. DAGEL	WELL DEPTH IN FEET	65
FIELD REPS	B. LYTLE	SCREENED INTERVAL IN FEET	55-65

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	65	CASING VOLUME IN GALLONS	4.0
DEPTH TO SEDIMENT (DTS) IN FEET	63.92	[2" diam = x .163 gal/ft	4" diam = x .653 gal/ft]
DEPTH TO WATER (DTW) IN FEET	39.18	PURGE VOLUME IN GALLONS	12.0
(DTS – DTW)	24.77	ACTUAL PURGE IN GALLONS	1.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0827	0.1	6.98	18.1	1.173	1.39	40.50	93.0	CLEAR, SLIGHT SULFUR-LIKE ODOR, NS
	0838	0.5	6.94	17.9	1.177	0.52	55.30	-92.3	CLEAR, STRONG SULFUR-LIKE ODOR, NS
SAMPLE	0850	1.0	7.18	18.0	1.178	0.45	28.47	-141.5	" , " , "
~~sample:~~									

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.04	60
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 1.5 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO / VOCs	HCl	—
500mL AMBER	1	cPAHs	—	~
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles 9
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C. meter	YSI DSS PRO
Bailer Type	~~~~	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	

4 Well Conditions

OK [X] Not OK [ ] Explain _____

NO SAMPLES TAKEN 9/16/2020

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-16IB

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT	MMB	DATE/TIME SAMPLED	9/16/2020
JOB NO.	140904	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M DABEL	WELL DEPTH IN FEET	65
FIELD REPS	B LYTLE	SCREENED INTERVAL IN FEET	55-65

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	65'	CASING VOLUME IN GALLONS	4.0
DEPTH TO SEDIMENT (DTS) IN FEET	63.95	[2" diam = x .163 gal/ft	4" diam = x .653 gal/ft]
DEPTH TO WATER (DTW) IN FEET	39.18	PURGE VOLUME IN GALLONS	12.0
(DTS – DTW)	24.77	ACTUAL PURGE IN GALLONS	4.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1320	0.1	7.92	18.0	1.210	0.61	520.76	74.6	STRONG SULFUR-LIKE ODOR, STRONG DARK GRAY TURBIDITY, NS
	1339	1.0	7.39	18.1	1.188	0.38	74.91	-194.3	STRONG SULFUR-LIKE ODOR, SLIGHT GRAY TURBIDITY, NS
	1350	2.0	7.37	18.4	1.189	0.27	36.86	-215.4	CLEAR, STRONG SULFUR-LIKE ODOR, NS
	1357	3.0	7.36	18.6	1.191	0.27	33.50	-220.2	CLEAR, MODERATE SULFUR-LIKE ODOR, NS
~~sample:~~	1414	4.0	7.44	20.2	1.188	0.25	35.51	-224.6	" " "

↑CONTINUED ON BACK

Comments: INITIALLY VERY TURBID, CLEARED CONSIDERABLY AFTER ~ 0.25 - 0.5 GAL. TURBIDITY SPIKED TO 70 NTU JUST AFTER 3 GALLONS. DECREASED FLOW RATE.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.08	60.0
Sample	"	"	"

Boils dry? Yes X No ____
At no. of casing volumes 1
Purge Water Disposal Method/Volume
ON SITE DRUM / 5.0 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO / VOCs	HCl	—
500mL Amber	1/1	DRO / cPAHs	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45µm

Total number of Bottles 10
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C. meter	YSI DSS PRO
Bailer Type		Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	

4 Well Conditions

OK [X] Not OK [ ] Explain ____

Comments

1420 Flow stopped. Water level is ~ 1 ft above pump. Lowered to 61 ft, starting pump again. Turbidity spiked to over 900 NTU.

1435 Turbidity kept increasing even with very low flow rate. Called Marissa, she suggests waiting it out until tomorrow. Stopping flow, waiting for recovery, but likely stopping until tomorrow.

1525 Restarted pump. Water came out at 1500+ NTU & level dropped quickly. Marissa recommends waiting 24 hrs, trying again, but sampling right around 4 gallons even if turbidity >30 NTU as best-case scenario if turbidity spikes so much after purging well volume.

Time	Gal	pH	Temp	Cond	DO	Turb	ORP	Comments
1414	4.0	7.44	20.2	1188	0.25	35.51	-224.6	Clear, moderate sulfur-like odor, NS

* 1 SAMPLE TO BE SUBMITTED FOR ANALYSIS

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-16IB

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT	HMB	DATE/TIME SAMPLED	9/17/2020 1040
JOB NO.	194090 4	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M DAGEL	WELL DEPTH IN FEET	65
FIELD REPS	B LYTLE	SCREENED INTERVAL IN FEET	55-65

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	65	CASING VOLUME IN GALLONS	4.0
DEPTH TO SEDIMENT (DTS) IN FEET	63.95	[2" diam = x .163 gal/ft	4" diam = x .653 gal/ft]
DEPTH TO WATER (DTW) IN FEET	39.21	PURGE VOLUME IN GALLONS	12.0
(DTS – DTW)	24.74	ACTUAL PURGE IN GALLONS	2.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
▽ (BTOC) 41.5 INITIAL →	0930	0.1	7.61	17.7	1.184	0.84	95.49	94.6	INITIALLY SLIGHTLY TURBID, SMALL SULFUR-LIKE ODOR, NS
43.9	0957	1.0	7.35	18.1	1.189	0.51	41.02	-139.7	CLEAR, MODERATE SULFUR-LIKE ODOR, NS
46.1	1013	1.5	7.40	18.7	1.190	0.38	24.93	-162.1	CLEAR, NO, NS
47.75	1029	2.0	7.42	18.9	1.185	0.35	20.47	-171.9	" , " , "
49.85 sample:	1040	2.5	7.43	19.0	1.183	0.35	21.31	-178.3	" , " , "

Comments: MONITORING GW LEVEL DURING PURGE. ~~1.5~~ 2.5
1107 DURING SAMPLING TURBIDITY SPIKED. GOT ONE AMBER THAT MAY BE OIL, OTHERS JUST CLOUDY. NOT SAMPLING MORE TODAY PER M. DAGEL.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.04	60.0
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 3.0 GAL

2 Sampling Data

* ONLY SUBMITTING 1 AMBER TO LAB DUE TO TURBIDITY SPIKE

	Bottle Type	# of Containers	Analyses	Preserv.	Filter
	40 mL VOA	3 / 3	BRO / VOCS	HCl	—
*	500 mL AMBER	1 / 1	DRO / cPAHs	—	—
	250 mL Poly	1	TOTAL METALS	HNO3	—
	250 mL Poly	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles ~~10~~ 1 TAKEN
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C. meter	YSI DSS PRO
Bailer Type	____	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

45' 1006
46' 1012
47' 1022
48 1031
49 1034
50

* 1 SAMPLE TO BE SUBMITTED FOR ANALYSIS

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-16IB

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT	HMB	DATE/TIME SAMPLED	9/17/2020 1040
JOB NO.	194090 4	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M DAGEL	WELL DEPTH IN FEET	65
FIELD REPS	B LYTLE	SCREENED INTERVAL IN FEET	55-65

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	65	CASING VOLUME IN GALLONS	4.0
DEPTH TO SEDIMENT (DTS) IN FEET	63.95	[2" diam = x .163 gal/ft	4" diam = x .653 gal/ft]
DEPTH TO WATER (DTW) IN FEET	39.21	PURGE VOLUME IN GALLONS	12.0
(DTS – DTW)	24.74	ACTUAL PURGE IN GALLONS	2.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
▽ (BTOC) 41.5 INITIAL →	0930	0.1	7.61	17.7	1.184	0.84	95.49	94.6	INITIALLY SLIGHTLY TURBID, SMALL SULFUR-LIKE ODOR, NS
43.9	0957	1.0	7.35	18.1	1.189	0.51	41.02	-139.7	CLEAR, MODERATE SULFUR-LIKE ODOR, NS
46.1	1013	1.5	7.40	18.7	1.190	0.38	24.93	-162.1	CLEAR, NO, NS
47.75	1029	2.0	7.42	18.9	1.185	0.35	20.47	-171.9	" , " , "
49.85 sample:	1040	2.5	7.43	19.0	1.183	0.35	21.31	-178.3	" , " , "

Comments: MONITORING GW LEVEL DURING PURGE. ~~1.5~~ 2.5
1107 DURING SAMPLING TURBIDITY SPIKED. GOT ONE AMBER THAT MAY BE OIL, OTHERS JUST CLOUDY. NOT SAMPLING MORE TODAY PER M. DAGEL.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.04	60.0
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 3.0 GAL

2 Sampling Data

* ONLY SUBMITTING 1 AMBER TO LAB DUE TO TURBIDITY SPIKE

	Bottle Type	# of Containers	Analyses	Preserv.	Filter
	40 mL VOA	3 / 3	BRO / VOCS	HCl	—
*	500 mL AMBER	1 / 1	DRO / cPAHs	—	—
	250 mL Poly	1	TOTAL METALS	HNO3	—
	250 mL Poly	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles ~~10~~ 1 TAKEN
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C. meter	YSI DSS PRO
Bailer Type	____	Water Level Probe	WATER LINE
Filter Type	0.45 µm	Other	____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

45' 1006
46' 1012
47' 1022
48 1031
49 1034
50

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-17S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M DABEL
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 9/17/2020 0832
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 45
SCREENED INTERVAL IN FEET: 35-45

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: _____
DEPTH TO SEDIMENT (DTS) IN FEET: 41.30
DEPTH TO WATER (DTW) IN FEET: 29.82
(DTS – DTW): 11.48

CASING VOLUME IN GALLONS: 1.87
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 5.61
ACTUAL PURGE IN GALLONS: 2.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0743	0.1	6.42	17.1	0.594	2.50	1722.49	294.7	INITIAL BROWN GRAY BROWN TURBIDITY, NO, NS
	0758	1.0	6.02	17.7	0.594	2.02	351.30	286.8	STRONG GRAY TURBIDITY, NO, NS
	0812	1.5	6.08	17.7	0.595	1.94	50.66	269.4	SLIGHTLY TURBID, NO, NS
	0823	2.0	6.27	17.7	0.597	2.08	48.11	253.6	" , " , "
sample:	0832	2.5	6.33	17.9	0.596	2.10	22.33	201.4	CLEAR, NO, NS

Comments: TURBIDITY SPIKED FROM ~35 TO 50 NTU JUST PRIOR TO 2.0 GAL READINGS.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.05	40
Sample	"	"	"

Boils dry? Yes ____ No —
At no. of casing volumes —
Purge Water Disposal Method/Volume
ON SITE DRUM / 3.0

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40 mL VOA	3/3	GRO / VOCs	HCl	—
500 mL Amber	1/1	DRO / cPAHs	—	—
250 mL Poly	1	TOTAL METALS	HNO3	—
250 mL Poly	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles: 10
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: —
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: —

4 Well Conditions

OK [X] Not OK [ ] Explain: _____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-185

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M. DABEL
FIELD REPS: B. LYTLE

DATE/TIME SAMPLED: 9/17/2020 1317
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 45
SCREENED INTERVAL IN FEET: 35-45

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 45
DEPTH TO SEDIMENT (DTS) IN FEET: ~~30.47~~ 43.25
DEPTH TO WATER (DTW) IN FEET: 30.47
(DTS – DTW): 1688

CASING VOLUME IN GALLONS: 1.9
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 5.8
ACTUAL PURGE IN GALLONS: _____

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1210	0.1	8.17	18.1	0.554	1.30	77.92	153.6	INITIALLY CLEAR, NO, NS
	1232	1.0	7.21	19.0	0.549	0.84	26.13	107.0	CLEAR, NO, NS
	1302	2.0	7.08	18.6	0.542	0.71	6.11	49.6	" , " , "
SAMPLE	1317	3.0	7.08	18.5	0.543	0.70	4.97	33.6	" , " , "
sample:									

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.04	40
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 4.0 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO / VOC	HCl	—
500 mL AMBER	1/1	DRO / cPAHs	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45µm

Total number of Bottles: 10
Duplicate Sample I.D.: ____
Field Blank I.D.: ____
Rinseate Sample I.D.: ____

3 Field Equipment

	Type/Brand/Serial No./Material Units		
Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C. meter	YSI DSS PRO
Bailer Type	____	Water Level Probe	WATERLINE
Filter Type	0.45 µm	Other	____

4 Well Conditions

OK [X] Not OK [ ] Explain _____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-19S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M. DAGEL
FIELD REPS: B. LYTLE

DATE/TIME SAMPLED: 9/17/2020 1440
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 45
SCREENED INTERVAL IN FEET: 35-45

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 45'
DEPTH TO SEDIMENT (DTS) IN FEET: 47.20
DEPTH TO WATER (DTW) IN FEET: 34.83
STICK UP 2.9' (DTS – DTW): 12.37

CASING VOLUME IN GALLONS: 2.0
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 6.0
ACTUAL PURGE IN GALLONS: 3.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1400	0.1	7.66	18.2	0.585	0.90	434.60	122.4	INITIALLY MODERATE GRAY TURBIDITY, NO, NS
	1412	1.0	6.85	18.2	0.582	0.56	176.11	1.4	MODERATE GRAY TURBIDITY, NO, NS
	1428	2.0	6.63	17.6	0.585	0.43	45.55	-40.8	CLEAR, NO, NS
sample:	1440	3.0	6.58	17.4	0.586	0.41	21.59	-38.2	" , " , "

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.07	40 (42.9)
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 4.0 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO / VOCs	HCl	—
500mL AMBER	1/1	DRO / cPAHs	—	—
250mL PLAY	1	TOTAL METALS	HNO3	—
250mL PLAY	1	DISSOLVED METALS	HNO3	0.45µm

Total number of Bottles: 10
Duplicate Sample I.D.: ____
Field Blank I.D.: ____
Rinseate Sample I.D.: ____

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: ____
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ____

4 Well Conditions

OK [X] Not OK [ ] Explain: _____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-20IA

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M DAGEL
FIELD REPS: B LYTLE

DATE/TIME SAMPLED: 9/18/2020 1028
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 51
SCREENED INTERVAL IN FEET: 41 - 51

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 51
DEPTH TO SEDIMENT (DTS) IN FEET: 52.80 BTOC
DEPTH TO WATER (DTW) IN FEET: 34.52 BTOC
(DTS – DTW): 18.28

CASING VOLUME IN GALLONS: 3.0
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 9.0
ACTUAL PURGE IN GALLONS: 3.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0958	0.1	8.32	16.0	0.656	1.07	11.60	163.2	INITIALLY CLEAR, NO, NS
	1003	1.0	7.55	16.0	0.656	0.58	4.71	135.3	CLEAR, NO, NS
	1016	2.0	7.51	16.3	0.659	0.51	2.89	39.9	" , " , "
SAMPLE	1028	3.0	7.54	16.2	0.658	0.47	3.88	-3.5	" , " , "
~~sample~~									

Comments: BATTERY MAY BE LOW, NEED TO GET FLOW WITHOUT CONTINUALLY INCREASING VOLTAGE

STICK UP +2.7

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.08	46 (48.78 TOC)
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 3.5 GAL

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO / VOCs	HCl	—
500mL AMBER	1/1	DRO / cPAHs	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45µm

Total number of Bottles: 10
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: —
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI PSS PRO
Water Level Probe: WATER LINE
Other: —

4 Well Conditions

OK [X] Not OK [ ] Explain: —

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-20S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: NMB
JOB NO.: 1940904
PROJECT MANAGER: M. DABEL
FIELD REPS: B. LYTLE

DATE/TIME SAMPLED: 9/18/2020 1148
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 35
SCREENED INTERVAL IN FEET: 25-35

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: _____
DEPTH TO SEDIMENT (DTS) IN FEET: 37.75 (BTOC)
DEPTH TO WATER (DTW) IN FEET: 32.40 (BTOC)
(DTS – DTW): 5.35

CASING VOLUME IN GALLONS: 0.87
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 2.6
ACTUAL PURGE IN GALLONS: 1.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1122	0.1	8.21	16.4	0.482	4.66	24.43	198.4	INITIALLY CLEAR, SLIGHT SOLVENT-LIKE ODOR, NS
	1127	0.5	7.33	16.3	0.484	4.41	8.15	203.0	CLEAR, NO, NS
	1135	1.0	6.80	17.0	0.482	4.40	5.30	200.4	" , " , "
SAMPLE	1148	1.5	6.64	17.3	0.482	4.32	7.82	199.7	" , " , "
~~sample:~~									

STICK UP +2.8

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	~~PERISTALTIC~~ SS SUBMERSIBLE	0.05	~~32~~ ~~34~~ 32.8 (BTOC)
Sample	"	"	

Boils dry? Yes ____ No X
At no. of casing volumes: ____
Purge Water Disposal Method/Volume: ON SITE DRUM / 2.0 GAL

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
40mL VOA	3/3	GRO/VOCs	HCl	—
500mL AMBER	1/1	PRO / cPAHs	—	—
250mL POLY	1	TOTAL METALS	HNO3	—
250mL POLY	1	DISSOLVED METALS	HNO3	0.45 µm

Total number of Bottles: 10
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

(3) Field Equipment

	Type/Brand/Serial No./Material	Units
Pump Type/Tubing Type	SS SUBMERSIBLE / ~~PERISTALTIC~~ / PE	
Bailer Type		
Filter Type	0.45 µm	
Temp/pH/E.C. meter	YSI DSS PRO	
Water Level Probe	WATERLINE	
Other		

(4) Well Conditions

OK [X] Not OK [ ] Explain: _____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-21S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M Dagel/M Goodman
FIELD REPS: B Lyre

DATE/TIME SAMPLED: 11/3/2020 1013
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40
SCREENED INTERVAL IN FEET: 30-40

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40
DEPTH TO SEDIMENT (DTS) IN FEET: 38.70
DEPTH TO WATER (DTW) IN FEET: 30.33
(DTS – DTW): 8.37

CASING VOLUME IN GALLONS: 1.3
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 4.1
ACTUAL PURGE IN GALLONS: 3.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0913	0.1	7.68	14.2	683	6.04	35.03	105.8	INITIALLY CLEAR, NO, NS
	0937	1.0	7.70	16.0	724	1.13	20.16	107.9	CLEAR, NO, NS
	0956	2.0	7.49	15.6	713	0.99	7.29	118.6	" , " , "
sample:	1013	3.0	7.31	15.7	689	0.83	4.34	123.2	" , " , "

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.06	35
Sample	SS SUB	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 3.5

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH_Dx	—	—

Total number of Bottles: 1
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: —
Filter Type: —
Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: —

(4) Well Conditions

OK [X] Not OK [ ] Explain _____

HARTCROWSER Groundwater Sampling Data - Well I.D. HMW-22S

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M Dagel/M Goodman
FIELD REPS: B LaTTE

DATE/TIME SAMPLED: 11/3/2020 1142
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 37
SCREENED INTERVAL IN FEET: 27-37

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 37
DEPTH TO SEDIMENT (DTS) IN FEET: 35.20
DEPTH TO WATER (DTW) IN FEET: 31.30
(DTS – DTW): 4 3.9

CASING VOLUME IN GALLONS: 0.6
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 1.9
ACTUAL PURGE IN GALLONS: 2.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1102	0.1	7.69	14.5	698	7.02	29.36	94.6	INITIALLY CLEAR, NO, NS
	1121	1.0	6.75	15.9	763	0.99	15.23	110.1	CLEAR, NO, NS
sample:	1142	2.0	6.67	16.0	751	0.59	3.44	114.3	" , " , "

Comments: _____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.05	32.5
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUM / 2.0

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	TPH_Dx	—	—

Total number of Bottles: 1
Duplicate Sample I.D.: —
Field Blank I.D.: ____
Rinseate Sample I.D.: —

(3) Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUB / PE
Bailer Type: ____
Filter Type: ____

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ____

(4) Well Conditions

OK [X] Not OK [ ] Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-16

WELL LOCATION DESC. (for new wells) (e.g., 20' NW of E corner of building A): 60'E OF HMW-3IA, 20' S OF SIDEWALK ALONG ROY ST.

PROJECT: MARION MEDABLOCK
JOB NO.: 1940904
PROJECT MANAGER: M. OAGLE
FIELD REPS: B. LYTLE

DATE/TIME SAMPLED: 9/3/2020 0857
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40'
SCREENED INTERVAL IN FEET: 30-40'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40'
DEPTH TO SEDIMENT (DTS) IN FEET: 39.95'
DEPTH TO WATER (DTW) IN FEET: 29.45'
(DTS – DTW): 10.5'

CASING VOLUME IN GALLONS: 1.7
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 5.1
ACTUAL PURGE IN GALLONS: 1.5

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0814	0.1	7.89	18.0	0.563	4.65	114.95	159.1	INITIALLY SLIGHT GRAY TURBIDITY, NO, NS
	0826	0.5	7.21	17.9	0.559	4.68	62.11	120.2	SLIGHT GRAY TURBIDITY, NO, NS
	0840	1.0	7.04	17.9	0.560	4.20	21.89	101.7	CLEAR, NO, NS
sample:	0857	1.5	6.99	18.0	0.562	3.88	20.40	88.3	CLEAR, NO, NS

Comments: TOO EASY ?

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	PERISTALTIC	0.03	35'
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume: DRUM / 2 GALLONS

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
~~1L AMBER~~ 500mL AMBER	4 2	PCB	—	—
40mL VOA	3/3	GRO / VOCs	HCl	~
500mL AMBER	1/1	DRO / cPAHs	—	—
250mL POLY	1	TOTAL METALS	HNO_3	—
250mL POLY	1	DISSOLVED METALS	HNO_3	0.45µm

Total number of Bottles: ~~10~~ ~~11~~ 12
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: PERISTALTIC / PE
Bailer Type: ____
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI DSS PRO
Water Level Probe: WATER LINE
Other: ____

4 Well Conditions

OK [X] Not OK [ ] Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-24

WELL LOCATION DESC. (for new wells) ~35' NE OF HMW-95.
(e.g., 20' NW of E corner of building A)

PROJECT: MERLEX MEGABLOCK
JOB NO.: 140904
PROJECT MANAGER: M. DABEL
FIELD REPS: B. LYTLE

DATE/TIME SAMPLED: 9/10/2020 0840
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40'
SCREENED INTERVAL IN FEET: 30-40'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40'
DEPTH TO SEDIMENT (DTS) IN FEET: 40'
DEPTH TO WATER (DTW) IN FEET: 28.80
(DTS – DTW): 11.20

CASING VOLUME IN GALLONS: 1.83
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 5.5
ACTUAL PURGE IN GALLONS: 45.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0800	0.1	9.16	16.8	0.795	3.05	515.98	203.1	INITIALLY VERY TURBID, GRAY TURBIDITY, NS, STRONG PETROLEUM-LIKE ODOR
	0805	0.5	8.09	16.7	0.780	3.26	210.39	153.9	VERY TURBID, GRAY TURBIDITY, NS MODERATE PETROLEUM-LIKE ODOR
	0810	1.0	7.61	16.8	0.782	3.45	105.61	114.0	MODERATE TURBIDITY, GRAY TURBIDITY NS, SLIGHT PETROLEUM-LIKE ODOR
	0820	1.5	7.33	17.1	0.788	2.85	33.51	58.8	CLEAR, NO, NS
sample:									CONTINUED ON BACK

Comments: 0810 DECREASED FROM SLIGHTLY. TURBIDITY DROPPED RAPIDLY.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUBMERSIBLE	0.06	35
Sample	"	"	35

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON SITE DRUMS

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA-40mL	3/3	GRO/VOC's	HCl	—
500mL AMBER	1/1	DRO/cPAH's	—	—
250mL POLY	1	TOTAL METALS	HNO_3	—
250mL POLY	1	DISSOLVED METALS	HNO_3	0.45 µm

Total number of Bottles: 10
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS SUBMERSIBLE / PE
Bailer Type: ____
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI 055 PRO
Water Level Probe: WATER LINE
Other: ____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

	0820	1.5	7.33	17.1	0.788	2.85	33.51	58.8	
	TIME	GAL	pH	Temp °C	Cond	DO	TURBIDITY	ORP	COMMENTS
	0828	2.0	7.20	16.9	0.786	2.40	14.10	26.5	CLEAR, SLIGHT PETROLEUM-LIKE ODOR, NS
	0834	2.5	7.15	16.7	0.785	2.08	8.91	10.6	CLEAR, SLIGHT PETROLEUM-LIKE ODOR, NS
SAMPLE	0840	3.0	7.12	16.9	0.787	1.98	8.13	-4.0	DECREASED FLOW RATE SLIGHTLY. CLEAR, SLIGHT PETROLEUM-LIKE ODOR, NS

Public Review Draft

HARTCROWSER **Groundwater Sampling Data - Well I.D.** MBB-25

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): SIDEWALK, NE CORNER OF MERCER AVE / DEXTER AVE, SEATTLE, WA

PROJECT	Mercer Megablock	DATE/TIME SAMPLED	10/31/2020
JOB NO.	1940904	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M Dagel/M Goodman	WELL DEPTH IN FEET	40
FIELD REPS	B LYTLE	SCREENED INTERVAL IN FEET	30-40

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	40	CASING VOLUME IN GALLONS	1.2
DEPTH TO SEDIMENT (DTS) IN FEET	40.20	[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]	
DEPTH TO WATER (DTW) IN FEET	32.73	PURGE VOLUME IN GALLONS	3.6
(DTS – DTW)	7.47	ACTUAL PURGE IN GALLONS	4.0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ~~µS/cm~~ mS/cm (BL)	Diss. Oxygen in ~~%~~ mg/L (BL)	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	0936	0.1	7.49	14.9	0.590	~~93.8~~ 8.52	~~175.8~~ 34.76	~~52.7~~ 106.4	INITIALLY SLIGHT BROWN TURBIDITY, NO, NS
	1034	1.0	8.53	17.7	0.503	8.25	19.00	43.6	CLEAR, NO, NS
	1055	2.0	8.45	17.6	0.501	7.39	14.48	-5.9	CLEAR, NO, NS
	1117	3.0	7.94	17.5	0.480	6.38	14.10	-38.5	CLEAR, NO, NS
sample:	1138	4.0	7.48	17.6	0.455	4.91	6.99	-60.0	", ", "

Comments: TURBIDITY SENSOR WASN'T WORKING IN INITIAL READINGS, HAD TO GET OTHER YSI FROM OFFICE. UNIT READINGS WERE DIFFERENT (DO, COND) BETWEEN THE TWO. SAMPLING W/OUT STABLE D.O. PER M. GOODMAN.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.05	35
Sample	"	"	"

Boils dry? Yes ____ No X

At no. of casing volumes —

Purge Water Disposal Method/Volume: ON SITE DRUM / 4.0

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	cPAHs	—	—

Total number of Bottles: 1

Duplicate Sample I.D.: —

Field Blank I.D.: —

Rinseate Sample I.D.: —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type	SS SUB / PE	Temp/pH/E.C. meter	YSI DSS PRO
Bailer Type	—	Water Level Probe	WATER LINE
Filter Type	—	Other	—

4 Well Conditions

OK [X] Not OK [ ] Explain ____

J:\Docs\Forms\Field & Lab\Groundwater Sampling Data Form.doc

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-26

WELL LOCATION DESC. (for new wells) SIDEWALK, MERCER AVE / DEXTER AVE (NE CORNER), SEATTLE
(e.g., *20' NW of E corner of building A*)

PROJECT Mercer Megablock
JOB NO. 1940904
PROJECT MANAGER M Dagel/M Goodman
FIELD REPS B LYTLE

DATE/TIME SAMPLED 10/30/20 1410
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 40
SCREENED INTERVAL IN FEET 30-40

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 40
DEPTH TO SEDIMENT (DTS) IN FEET 40.10
DEPTH TO WATER (DTW) IN FEET 32.96 ' BTOC
(DTS – DTW) 7.14

CASING VOLUME IN GALLONS 1.2
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 3.6
ACTUAL PURGE IN GALLONS 3.75

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	30 NTU Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
INITIAL	1248	0.1	~~6.77~~ 7.41	16.7	733	80.7	149.0	31.5	SLIGHTLY GRAY TURBID, NO, NS INITIALLY
	1314	1.0	6.95	17.2	740	60.1	20.44	-10.3	CLEAR, NO, NS
	1333	2.0	6.91	17.0	734	45.9	7.36	-28.2	" , " , "
	1355	3.0	6.98	17.8	742	40.6	7.20	-43.4	" , " , "
sample:	1410	3.75	6.98	17.7	739	34.6	8.14	-51.7	" , " , "

Comments: YSI ONLY SHOWED DO AS %, NOT [mg/L]. 1410 DO NOT QUITE STABLE AT 3 CASING VOL'S, SAMPLING ANYWAY PER M. GOODMAN.

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS SUB	0.05	36
Sample	SS SUB	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume
ON-SITE DRUM / 4.0

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
0.5 L amber	1	cPAHs	~~~	~~~

Total number of Bottles 1
Duplicate Sample I.D. ~~~
Field Blank I.D. ~~~
Rinseate Sample I.D. ~~~

3 Field Equipment

Pump Type/Tubing Type SS SUB / PE
Bailer Type ~~~
Filter Type ~~~

Type/Brand/Serial No./Material Units

Temp/pH/E.C. meter YSI PRO DSS
Water Level Probe WATER LINE
Other ~~~

4 Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MW-146

WELL LOCATION DESC. (for new wells) Roy St ROW
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1946904
PROJECT MANAGER M. Dagel
FIELD REPS B. Dozier + Ben (PES)

DATE/TIME SAMPLED 11/10/20 1145
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET ~50'
SCREENED INTERVAL IN FEET 39.8-49.8'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH ~50
DEPTH TO SEDIMENT (DTS) IN FEET ~50
DEPTH TO WATER (DTW) IN FEET 26.68' @1057
(DTS – DTW) ____

CASING VOLUME IN GALLONS ____
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS ____
ACTUAL PURGE IN GALLONS ~1.5

DTW	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
26.91	1115	<0.5	7.14	15.9	652	0.71		-124.2	initially slightly turbid, NS
26.94	1118	~0.5	7.13	16.0	659	0.43		-132.0	cleared, NS
26.97	1121	~0.75	7.12	16.1	663	0.38	10.9	-135.6	" " clear, NS
26.99	1124	~1	7.12	16.1	665	0.35		-139.6	" "
~~26.99~~	1127	~1.5	7.12	16.1	665	0.30		-143.3	clear, NS

Comments: 1130: PES sampling time
1145: HC sampling time; turbidity 3.17

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS bladder	200mL/min	~34.8'
Sample	"	"	"

Boils dry? Yes ____ No ____
At no. of casing volumes ____
Purge Water Disposal Method/Volume tote on site (PES)

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	6			
amber	1			

Total number of Bottles 7
Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS bladder (Micro purge basics)
Bailer Type —
Filter Type —
Temp/pH/E.C. meter YSI Pro + and 2100P turbidimeter
Water Level Probe Solinst
Other ____

4 Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MW-147

WELL LOCATION DESC. (for new wells) _____
(e.g., *20' NW of E corner of building A*)

PROJECT MMB
JOB NO. 1940904-09
PROJECT MANAGER M. Doagel
FIELD REPS B. Dozier + Ben (PES)

DATE/TIME SAMPLED 11/10/2020 1015
TIDALLY INFLUENCED YES X NO ____
WELL DEPTH IN FEET 80
SCREENED INTERVAL IN FEET 70-80

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH ~80.4'
DEPTH TO SEDIMENT (DTS) IN FEET 80
DEPTH TO WATER (DTW) IN FEET 29.83'
(DTS – DTW) _____

CASING VOLUME IN GALLONS _____
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS _____
ACTUAL PURGE IN GALLONS ~1 gal

DTW	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in mg/L	Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
30.10'	0844	~0.25	7.17	13.3	779	2.23		-104.9	initially turbid, brown, NS
30.37	0849	"	7.16	13.6	785	1.61		-124.5	turbid, NS
30.59	0854	"	7.16	13.6	790	1.04		-130.6	" "
	0859	~0.5	7.16	13.5	790	0.89		-133.9	" "
sample: 31.14	0910	"	7.15	13.9	789	0.96	683	-130.5	turbid, brown

Comments: see reverse for further notes
pump stopped working/lost seal

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS bladder	50mL/min	~75'
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume tote on site (PES)

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	6			
Amber	1			

Total number of Bottles 7
Duplicate Sample I.D. ____
Field Blank I.D. ____
Rinseate Sample I.D. ____

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type SS bladder pump
Bailer Type ____
Filter Type ____

Temp/pH/E.C. meter YSI Pro + and 2100P turbidimeter
Water Level Probe ~~solinst~~ Solinst
Other ____

(4) Well Conditions

OK [X] Not OK [ ] Explain ____

29.18'

DTW	Time	No. gal. purged	pH	Temp °C	Cond. uS/cm	DO mg/L	Turb (NTU)	ORP mV	Comments
31.38'	0919	~0.5	7.16	13.7	~~787~~	0.70	576	-134.9	turbid, NS
31.57	0920	"	7.16	13.7	790	0.64	442	-137.3	turbid, NS
31.74	0925	~1	7.16	13.6	793	0.61	370	-139.3	turbid, NS
31.95	0931	"	7.16	13.7	~~789~~	0.56	~~317~~ 311	-141.2	turbid, NS
32.09	0936	"	7.16	13.5	~~787~~	0.54	194	-141.7	turbid, NS
32.21	0941	~1.0	7.16	13.4	790	0.54	132	-143.0	turbid, NS
32.37	0946	"	7.16	13.6	790	0.52	80.3	-144.0	" "
	1003						41.3		
	1015	~1.0 BD					24.4		

*0950 – PES to start sampling. They need turbidity to be under 100 NTU, so he'll fill his containers first, then the turbidity will be lower when I sample after PES.

1015 – sample time

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-1

WELL LOCATION DESC. (for new wells) Loop road NW corner
(e.g., *20' NW of E corner of building A*)

PROJECT Mercer Megablock
JOB NO. 1940904
PROJECT MANAGER M. Dagel
FIELD REPS J. Blanchette

DATE/TIME SAMPLED 3/3/10 / 1400
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 40
SCREENED INTERVAL IN FEET ____

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH 40
DEPTH TO SEDIMENT (DTS) IN FEET 40.0 (3.22')
DEPTH TO WATER (DTW) IN FEET 28.40 (27.62')
(DTS – DTW) 11.6

Top of casing = 0.78'

CASING VOLUME IN GALLONS 1.89
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 5.67
ACTUAL PURGE IN GALLONS 3.5

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in ppm	Turbidity	ORP in ____	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1310	2	7.63	16.5	511	2.01	13.45	-261.3	initially clear, no odor
1326	2.75	7.49	16.3	513	1.51	10.62	-284.6	
→ 1340	3.5	7.46	17.6	503	1.65	9.86	-164	
sample:								

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump		33
Sample	plastic pump		

Boils dry? Yes X No ____
At no. of casing volumes 1 to 1.5
Purge Water Disposal Method/Volume
in drum

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	TPH G ; VOCs, BTEX	HCl	N
Amber	2	PAH + TPH D	-	N
poly	1	metals	NO_3	Y
poly	1	metals	NO_3	N

Total number of Bottles 8
Duplicate Sample I.D. -
Field Blank I.D. -
Rinseate Sample I.D. -

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type plastic pump + 0.25"
Bailer Type -
Filter Type 0.45µm

Temp/pH/E.C. meter YSI
Water Level Probe Waterline
Other ____

4 Well Conditions

OK ☑ Not OK ☐ Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-2

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): Temp well @ MBB-2, NW corner of site

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M. Dagel
FIELD REPS: J. Blanchette

DATE/TIME SAMPLED: 3/3/20 / 1700
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40
SCREENED INTERVAL IN FEET: ____

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40
DEPTH TO SEDIMENT (DTS) IN FEET: 40.56 (39.94)
DEPTH TO WATER (DTW) IN FEET: 28.73 (28.11)
(DTS – DTW): 11.83

top of casing = 0.62'

CASING VOLUME IN GALLONS: 1.93
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 5.79
ACTUAL PURGE IN GALLONS: 2

Time (1521 START)	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in ppm	Turbidity	ORP in ____	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1534	0.4	7.41	15.5	632	0.86	26.81	-326	initial: v. clear, n/o, turb <30 NTU
1559	1	7.39	15.7	633	0.68	28.76	-327	
1625	1.5	7.37	16.0	628	0.77	19.79	-304	
→ 1651	2	7.36	15.6	622	0.78	12.21	-330	
sample:								

Comments: slight odor when packaging bottles, not noticeable in field

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump	0.04	32 ft
Sample	"	"	"

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume: in drilling decon truck

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	Gx; VOC + BTEX	HCl	-
amber	2	PAH + DRO	-	-
poly	1	metals	HNO3	-
poly	1	metals	"	Y

Total number of Bottles: 8
Duplicate Sample I.D.: -
Field Blank I.D.: -
Rinseate Sample I.D.: -

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: plastic "monsoon"; 0.25"
Bailer Type: -
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI
Water Level Probe: Waterline
Other: ____

4 Well Conditions

OK X Not OK ____ Explain ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-3

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): temp well @ MBB-3, NW corner of site, south boring of MBB1-4 cluster

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M. Dagel
FIELD REPS: J. Blanchette

DATE/TIME SAMPLED: 3/4/20 / 1330
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40
SCREENED INTERVAL IN FEET: 32-37'

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40
DEPTH TO SEDIMENT (DTS) IN FEET: 40.15'
DEPTH TO WATER (DTW) IN FEET: 29.19'
(DTS – DTW): 10.96

CASING VOLUME IN GALLONS: 1.79
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 5.36
ACTUAL PURGE IN GALLONS: ____

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in ppm	<25um Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
start 0919	0	7.94	12.6	672	2.19	58.20	-343	initially clear
0947	0.5	7.68	12.7	676	0.86	63.77	-385	
1022	1	7.78	10.6	673	0.77	47.23	-336	
1050	1.5	7.68	10.2	667	0.75	36.99	-367	
sample: 1124	2	7.86	13.6	670	0.50	53.60	-337	slight odor
1230	2.5	7.83	13.9	657	0.47	22.48	-379	

Comments: (continued on back)

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump		35
Sample	"		35

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume: in dicon trailer

(2) Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	HVOC + BTEX + GX	HCl	N
amber	2	DX + PAHs	-	N
poly	1	Metals (T)	HNO_3	N
poly	1	Metals (dissolved)	HNO_3	Y

Total number of Bottles: 8
Duplicate Sample I.D.: -
Field Blank I.D.: -
Rinseate Sample I.D.: -

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: plastic / 0.25"
Bailer Type: -
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI DSS Pro
Water Level Probe: waterline
Other: -

(4) Well Conditions

OK [X] Not OK [ ] Explain: ____

	Time	Gallons purged	pH	Temp (C)	Conduct µS/cm	DO ppm	Turbidity NTU	ORP
→ Sample	1300	3	7.82	13.8	655	0.44	16.12	-379

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-4

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): temp well @ MBB4; NW area of site, SE most of cluster

PROJECT: Mercer Megablock

JOB NO.: 1940904

PROJECT MANAGER: M. Dagel

FIELD REPS: J. Blanchette

DATE/TIME SAMPLED: 3/5/20 / 1032

TIDALLY INFLUENCED: YES ____ NO X

WELL DEPTH IN FEET: ____

SCREENED INTERVAL IN FEET: ____

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: ____

CASING VOLUME IN GALLONS: 1.27

top of casing -0.165

DEPTH TO SEDIMENT (DTS) IN FEET: 36.05' (35.4 bgs)

DEPTH TO WATER (DTW) IN FEET: 28.28 (27.63 bgs)

[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]

PURGE VOLUME IN GALLONS: 3.30

(DTS – DTW): 7.77

ACTUAL PURGE IN GALLONS: 3

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in ppm	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
0924	0.5	7.40	16.2	641	0.90	39.88	-122	clear
0936	1	7.09	15.5	652	0.65	24.62	-232	
0949	1.5	7.05	15.8	653	0.50	19.22	-266	
1005	2	7.03	16.1	656	0.41	18.64	-294	
~~sample:~~ 1020	2.6	7.016	16.1	658	0.37	18.98	-279	
sample → 1032	3	7.02	16.1	657	0.36	19.69	-307	

Comments: * possible slight / light odor

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump	1/3; 0.03	32'
Sample	"	"	"

Boils dry? Yes ____ No X

At no. of casing volumes ____

Purge Water Disposal Method/Volume: in driller decon trailer

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	VOC/BTEX/GX	HCl	N
poly	1	metals; total	HNO_3	N
poly	1	Metals; diss	HNO_3	Y
amber	2	PAHs + D	-	N

Total number of Bottles: 8

Duplicate Sample I.D.: -

Field Blank I.D.: -

Rinseate Sample I.D.: -

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: plastic

Bailer Type: -

Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI PRODS

Water Level Probe: Waterline

Other: ____

4 Well Conditions

OK X Not OK ☐ Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-5

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): temp well at MBB5, N-central site

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M. Dagel
FIELD REPS: J. Blanchette + B. Dotzler

DATE/TIME SAMPLED: 3/5/20 /
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40.00
SCREENED INTERVAL IN FEET: 32-37'

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40.00
DEPTH TO SEDIMENT (DTS) IN FEET: 40.00 (30.8 bgs)
DEPTH TO WATER (DTW) IN FEET: 31.05 (29.85 bgs)
(DTS – DTW): 8.95

TOC 1.21

CASING VOLUME IN GALLONS: 1.46 [2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 4.38
ACTUAL PURGE IN GALLONS:

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in PPM	NTU Turbidity	ORP in MV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1225	0.1	8.35	15.4	474.0	1.00	107.16	-173.5	initially clear, NO, NS
1230	0.5	8.53	15.5	469.2	0.70	94.44	-433.6	" "
1235	1.0	8.55	15.9	467.7	0.74	62.08	-435.7	" dried @ 1 gal, turned pump off to recharge (10 min)
1255	1.5	8.48	16.1	467.4	0.88	46.11	-423.3	"
1315	2.0	8.37	16.2	468.9	0.80	29.9	-413.3	turbidity stopped working on PSI,

let recharge for sample: a few min (~3)

Comments: used oakton turbidimeter T-100 for sample/last reading

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	SS pump	0.1	35'
Sample	"	"	"

Boils dry? Yes X No
At no. of casing volumes 1.0 ~0.7 (1 gal)

Purge Water Disposal Method/Volume: drums on site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4		Y HCl	N
poly	2 & 1		Y HNO3	N
poly	1		HNO3	Y
amber	1		N	N

Total number of Bottles: 7
Duplicate Sample I.D.: —
Field Blank I.D.: —
Rinseate Sample I.D.: —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: SS / PE
Bailer Type: —
Filter Type: —

Temp/pH/E.C. meter: YSI DSS
Water Level Probe: waterline
Other: —

4 Well Conditions

OK ☐ Not OK ☐ Explain: N/A

*Jeremiah from cascade says American Linen dewatering wells across the st are @ 40' bgs.

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-6

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): Temp well @MBB6 ; E of MBB5

PROJECT: Mercer Megablock
JOB NO.: 1940904
PROJECT MANAGER: M. Dagel
FIELD REPS: J. Blanchette

DATE/TIME SAMPLED: 3/5/20 / 1333
TIDALLY INFLUENCED: YES ____ NO X
WELL DEPTH IN FEET: 40
SCREENED INTERVAL IN FEET: 25-30

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 40
DEPTH TO SEDIMENT (DTS) IN FEET: 35.18
DEPTH TO WATER (DTW) IN FEET: 30.81
(DTS – DTW): 4.37

top of casing: 3.8

CASING VOLUME IN GALLONS: 0.71
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 2.14
ACTUAL PURGE IN GALLONS: 2

Time (1242)	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in %	Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1250	0.25	7.44	15.1	558	42.1	1025	-30	
1312	~1.0	7.20	16.1	510	49.4	28.08	24.6	
1323	1.5	7.19	16.1	507	49.7	23.13	35.5	
sample → 1333	2	7.23	15.5	507	49.3	20.37	37.8	
sample:								

Comments: ____

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump		33.2
Sample			

Boils dry? Yes ____ No X
At no. of casing volumes: X
Purge Water Disposal Method/Volume: in driller decon trailer

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	VOC / BTEX / Gx	HCl	N
poly	1	metals (T)	HNO_3	N
poly	1	metals (D)	HNO_3	Y
amber	1	Dx	Ø	N

Total number of Bottles: 7
Duplicate Sample I.D.: –
Field Blank I.D.: –
Rinseate Sample I.D.: –

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: plastic, 0.25 OD
Bailer Type: –
Filter Type: 0.45 µm

Temp/pH/E.C. meter: YSI Pro DSS
Water Level Probe: waterline
Other: ____

4 Well Conditions

OK ☐ Not OK ☐ Explain: ____

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-7

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): temp well @ MBB-7, N central site; in line w/ Ray ~50' from sidewalk

PROJECT	Mercer Megablock	DATE/TIME SAMPLED	3/4/2020 / 1630
JOB NO.	1940904	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M. Dagel	WELL DEPTH IN FEET	40
FIELD REPS	J. Blanchette	SCREENED INTERVAL IN FEET	27-32

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	40	CASING VOLUME IN GALLONS	0.69
DEPTH TO SEDIMENT (DTS) IN FEET	35.15'	[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]	
DEPTH TO WATER (DTW) IN FEET	30.89	PURGE VOLUME IN GALLONS	2.08
(DTS – DTW)	4.26	ACTUAL PURGE IN GALLONS	~~0~~

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ____	Diss. Oxygen in ____	Turbidity	ORP in ____	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
							16.91	—	pass 1
							123.		pass 2
							214.		pass 3
sample:	1630							—	slight odor

Comments: no purge, used bailer to collect sample

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	—	-	-
Sample	bailer	-	33'

Boils dry? Yes ____ No X

At no. of casing volumes X

Purge Water Disposal Method/Volume: in decon truck

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
pass 1 - VOA	4	HVOCs BTEX + Ox	HCl	N
1/2 pass 1 / 1/2 pass 2 - amber	1	DX	-	N
pass 2 - poly	1	Metals (T)	HNO_3	N
pass 3 - poly	1	metals (D)	HNO_3	N

Total number of Bottles 7

Duplicate Sample I.D. —

Field Blank I.D. —

Rinseate Sample I.D. —

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type	—	Temp/pH/E.C. meter	Oakton tribal meter
Bailer Type	plastic / disposable	Water Level Probe	waterline
Filter Type	~~0~~	Other	

4 Well Conditions

OK ☑ Not OK ☐ Explain

RICO: 360-827-1866

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-8

WELL LOCATION DESC. (for new wells) Temp well @ MBB-8
(e.g., *20' NW of E corner of building A*)

PROJECT Mercer Megablock
JOB NO. 1940904
PROJECT MANAGER M. Dagel
FIELD REPS J. Blanchette

DATE/TIME SAMPLED 2/27/20 / 1230
TIDALLY INFLUENCED YES ____ NO X
WELL DEPTH IN FEET 32
SCREENED INTERVAL IN FEET 27-32

(1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH ~~40~~ 32
DEPTH TO SEDIMENT (DTS) IN FEET 34.95
DEPTH TO WATER (DTW) IN FEET 28.97
(DTS – DTW) 5.98
Top of casing

CASING VOLUME IN GALLONS 0.974
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS 2.92
ACTUAL PURGE IN GALLONS 0

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in ____	Diss. Oxygen in ____	NTU Turbidity	ORP in ____	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
									pass1 - 54.7 NTU
									pass2 - 700 NTU
									pass3 - 6.75 NTU
sample:	1230	–	–	–	–	–	54.7	–	

Comments: *Well too deep for peristaltic. Used bailer to sample. No purge. Sampled from mid-depth. First pass filled VOAs

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	–	–	–
Sample	bailer	–	32 ft

Boils dry? Yes ____ No X
At no. of casing volumes ____
Purge Water Disposal Method/Volume ____

(2) Sampling Data

	Bottle Type	# of Containers	Analyses	Preserv.	Filter
pass 1 -	VOA	4	VOCs	HCl	no
pass3 -	Poly	1	metals total	NO_3	no
pass 2 -	Poly	1	metals dissolved	Ø	no
pass3 -	amber	1/2	TPH	Ø	no

Total number of Bottles ____
Duplicate Sample I.D. –
Field Blank I.D. ____
Rinseate Sample I.D. –

(3) Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type Ø
Bailer Type stainless steel
Filter Type –

Temp/pH/E.C. meter (54.7 NTU ; no flow cell)
Water Level Probe waterline
Other –

(4) Well Conditions

OK ☐ Not OK ☐ Explain ____

Public Review Draft

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-9-GW

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): temp well @ MBB9; in line w/E side of 8th Ave, [illegible]

PROJECT	Mercer Megablock	DATE/TIME SAMPLED	2/28/20 / 1010
JOB NO.	1940904	TIDALLY INFLUENCED	YES ____ NO X
PROJECT MANAGER	M. Dagel	WELL DEPTH IN FEET	
FIELD REPS	J. Blanchette	SCREENED INTERVAL IN FEET	27-32

① Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH	32	CASING VOLUME IN GALLONS	1.46
DEPTH TO SEDIMENT (DTS) IN FEET	35.54'	[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]	
DEPTH TO WATER (DTW) IN FEET	26.6	PURGE VOLUME IN GALLONS	4.37
(DTS – DTW)	8.94	ACTUAL PURGE IN GALLONS	

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in µS/cm	Diss. Oxygen in ppm	NTU Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
	1039	1	7.46	14.2	690	1.18	660	-190.1	V silty (grey)
	1101	2	7.54	14.1	699	0.75	278.6	-199.6	
	1122	3	7.44	15.0	693	0.42	324	-223	
	1141	4	7.42	14.3	694	0.36	236	-225	
sample:	1200	4.5	7.40	13.5	695	0.32	132.6	-226.9	
	1223	5	7.42	13.2	693	0.33	102	-214	

Comments: (*when attempting to pull the purge/sampling depth higher, it seemed to be in airspace (30.4')

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump		30.4
Sample	"		

Boils dry? Yes ____ No X

At no. of casing volumes ____

Purge Water Disposal Method/Volume

② Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	VOCs + TPHG	HCl	N
amber	1	TPH D	—	N
poly	1	Metals	NO3	N
poly	1	Metals	NO3	Y

Total number of Bottles: 7 @1238

Duplicate Sample I.D. ____

Field Blank I.D. —

Rinseate Sample I.D. —

③ Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type ____ Temp/pH/E.C. meter ____

Bailer Type — Water Level Probe ____

Filter Type ____ Other ____

④ Well Conditions

OK [X] Not OK [ ] Explain ____

HARTCROWSER **Groundwater Sampling Data - Well I.D.** MBB10-GW

WELL LOCATION DESC. (for new wells) (e.g., *20' NW of E corner of building A*): temp well @ MBB10

PROJECT: Mercer Megablock | DATE/TIME SAMPLED: 2/27/20 / 1534

JOB NO.: 1940904 | TIDALLY INFLUENCED: YES ____ NO X

PROJECT MANAGER: M. Dagel | WELL DEPTH IN FEET: 40

FIELD REPS: J. Blanchette | SCREENED INTERVAL IN FEET: 35-40

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

measured from stick up (5.7')

WELL DEPTH: 40 | CASING VOLUME IN GALLONS: 1.88

DEPTH TO SEDIMENT (DTS) IN FEET: 44.25 (39.06 bgs) [2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]

DEPTH TO WATER (DTW) IN FEET: 32.69 (27.52 bgs) | PURGE VOLUME IN GALLONS: 5.65

(DTS – DTW): 11.56 | ACTUAL PURGE IN GALLONS: 4

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in mS/cm	Diss. Oxygen in ppm	Turbidity	ORP in ____	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1556	1	8.17	16.2	1575	0.52	49.5	-251.2	
1616	2	8.14	16	1283	0.45	33.33	-269.2	
1636	3	8.08	16.0	1077	0.36	19.85	-274.7	
1655	4	8.01	16.0	1022	0.32	19.65	-272.9	
sample:								

Comments: sample MBB10-GW @ 1700

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	plastic pump	0.05	36.4
Sample	"	"	"

Boils dry? Yes ____ No X

At no. of casing volumes ____

Purge Water Disposal Method/Volume: 4 gallons, combined w/ HMW9D

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
VOA	4	VOCs + TPHGx		no
amber	1	TPHDx		no
poly	1	Metals	NO_3	yes
poly	1	Metals	NO_3	no

Total number of Bottles: 7

Duplicate Sample I.D.: -

Field Blank I.D.: -

Rinseate Sample I.D.: -

3 Field Equipment — Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: plastic / poly | Temp/pH/E.C. meter: YSI

Bailer Type: - | Water Level Probe: waterline

Filter Type: 0.45 µ | Other: ____

4 Well Conditions

OK [X] Not OK [ ] Explain: ____

Public Review Draft

2.15
2.63

HARTCROWSER Groundwater Sampling Data - Well I.D. MBB-12

WELL LOCATION DESC. (for new wells) (e.g., 20' NW of E corner of building A): Northern-most temp well on east side of property

PROJECT: MMB
JOB NO.: 1940904
PROJECT MANAGER: M. Dagel
FIELD REPS: Dozier

DATE/TIME SAMPLED: 3/6/20 / 1335
TIDALLY INFLUENCED: YES ___ NO X
WELL DEPTH IN FEET: 35'
SCREENED INTERVAL IN FEET: 27-32

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

TOC 2.15' from ground (cobbles) (+2.63' from liner)

WELL DEPTH: 35' from GSE
DEPTH TO SEDIMENT (DTS) IN FEET: 35.62'
DEPTH TO WATER (DTW) IN FEET: 25.70'
(DTS – DTW): 9.92

CASING VOLUME IN GALLONS: 1.617
[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]
PURGE VOLUME IN GALLONS: 4.85
ACTUAL PURGE IN GALLONS: 5.0

Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss. Oxygen in %	NTU Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
1123	0.1	8.64	13.5	944	62.0	160.0	-190.9	Slightly cloudy, NO, NS
1133	0.5	8.16	13.8	1162	33.4	22.0	-314.6	" " "
1139	1.0	8.11	13.7	1273	23.7	259.0	-379	cloudy, NO, NS
1152	1.5	7.58	13.6	1245	18.8	188.10	-444.0	" "
PD sample: 1202	2.0	7.36	13.5	1181	17.0	169.1	-479.0	"

Comments: (see comment) pulled pump up 0.5' to 29' CSG, then pump moved to ~28' @ 1202

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	sub. pump	0.1	~29.5
Sample	"	"	~28

Boils dry? Yes ___ No X
At no. of casing volumes —
Purge Water Disposal Method/Volume: drums on site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
poly	1	metals ~~(lead)~~	HNO_3	N
poly	1	metals ~~(lead)~~	HNO_3	Y

Total number of Bottles: 2
Duplicate Sample I.D. —
Field Blank I.D. —
Rinseate Sample I.D. —

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: sub / PE
Bailer Type: —
Filter Type:
Temp/pH/E.C. meter: YSI DSS
Water Level Probe: waterline
Other: —

4 Well Conditions

OK ☐ Not OK ☐ Explain: N/A - temp well

time	#gallpurged	pH	temp	cond	DO%	Turb	ORP	Notes:
1218	2.5	7.20	13.3	1154	20.7	167.83	-422.1	NO, NS
1233	3.0	7.16	13.5	1041	15.5	196.61	-503.9	NO, NS
1250	3.5	7.08	13.9	944	14.5	149.07	-501.5	NO, NS
1303	4.0	7.04	13.5					
1317	4.5	7.01	13.5	890	14.4	122.21	-501.9	NO, NS
Semple 1335	5.0	7.00	13.8	849	14.2	122.87	-498	NO, NS
				805	14.0	129.95	-491	NO, NS

Groundwater Sampling Data - Well I.D. tempwell at MBB-13

Project	MMB	Date/Time Sampled	3/ 9 /2020 // 1150, 1151 (Dup)
Job No.	1940904-04	Tidally Influenced	Yes ☐ No ☒
Project Manager	M. Dagel	Well Depth in Feet	35
Field Reps.	(BD) / (AN) / JB / BL / JH	Screened Interval in Feet	30-35'

1) Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

Well Depth	36'	Casing Volume in Gallons	1.60
Depth of Sediment (DTS) in Feet	36.05'	[2" diameter = x 0.163 gal/ft]	
Depth of Water (DTW) in Feet	26.24'	Purge Volume in Gallons	4.80
(DTS - DTW)	9.81	Actual Purge in Gallons	2.55

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss Oxygen in mg/L	Turbidity in NTU	ORP in mV	Comments: Quality, Recovery Color, Odor, Sheen, Accumulated Silt/Sand
start	1030	0.1	6.96	11.6	769	4.77	60.70	-119.3	initially clear, NO, NS
	1048	0.5	6.87	12.9	821	1.92	22.60	-411.4	clear, NO, NS
	1058	1.0	6.87	14.2	760	1.61	16.16	-449.3	" " "
	1119	2.0	6.88	13.8	750	1.57	14.93	-453.7	" " "
	1147	2.5	6.87	13.3	742	1.56	14.04	-410.8	" " "
SMPL	1150	2.55	6.87	13.7	741	1.54	13.47	-457.5	" " "

Comments

	Method	Purging Rate in GPM	Depth of Equipment in Feet
Purge	sub pump	0.1	32'
Sample	"	"	"

Bails dry? Yes ☐ No ☒

At no. of Casing Volumes —

Purge Water Disposal Method/Volume drums on site

2) Sampling Data

Bottle Type	No of Containers	Analyses	Perserv.	Filter
poly	2	MTCAS Metals	HNO_3	No
poly	2	MTCAS Metals	HNO_3	yes

Total Number of Bottles BD 2 4

Duplicate Sample I.D. MBB-13-GW-1051 BD

Field Blank I.D. —

Rinseate Sample I.D. —

3) Field Equipment

Type/Brand/Serial No./Material/Units

Pump Type/Tubing Type	sub. pump/ PE	Temp/pH/E.C./D.O	YSI DSS
Bailer Type	—	Water Level Probe	waterline
Filter Type	0.45 Microns	Other	—

4) Well Conditions

OK ☐ Not OK ☐ Explain NA - temp well

HARTCROWSER

Groundwater Sampling Data - Well I.D. MBB-15

WELL LOCATION DESC. (for new wells) (e.g., 20' NW of E corner of building A): temp well @ MBB-15 eastern side of property about 1/2 way b/w N+S boundaries

PROJECT: MMB

DATE/TIME SAMPLED: 3/6/20 1630

JOB NO.: 1940904

TIDALLY INFLUENCED: YES ___ NO X

PROJECT MANAGER: M. Dagel

WELL DEPTH IN FEET: 35

FIELD REPS: A. Nakahara + B. Pozzi

SCREENED INTERVAL IN FEET: 30-35

1 Purging Data/Field Measurements: *All Measurements Relative to Top of Casing (TOC)*

WELL DEPTH: 35 bgs

CASING VOLUME IN GALLONS: 1.51

DEPTH TO SEDIMENT (DTS) IN FEET: 35.75'

[2" diam = x .163 gal/ft 4" diam = x .653 gal/ft]

DEPTH TO WATER (DTW) IN FEET: 26.49'

PURGE VOLUME IN GALLONS: 4.53

(DTS – DTW): 9.26

ACTUAL PURGE IN GALLONS: 4.75

	Time	No. of Gallons Purged	pH	Temp in °C	Conduct in uS/cm	Diss. Oxygen in mg/L	NTU Turbidity	ORP in mV	Comments: quality, recovery, color, odor, sheen, accumulated silt/sand
	1426	0.1	7.46	13.6	709	3.70	492.13	-161.6	initially turbid, NO, NS
	1440	0.75	7.25	14.3	1199	1.41	290.63	-424.4	less turbid, NO, NS
	1444	1.0	7.16	14.3	1254	1.76	230.17	-438.3	slightly less turbid, NO, NS
	1453	1.5	7.08	14.4	1322	1.60	144.80	-461.8	slightly cloudy, NO, NS
sample:	1503	2.0	7.01	14.5	1296	1.55	106.32	-467.3	clearer, NO, NS

Comments: ___

	Method	Pumping Rate in GPM	Depth of Equip. in Feet
Purge	Submersible	~0.05	32
Sample	"	"	"

Boils dry? Yes ___ No X

At no. of casing volumes ___

Purge Water Disposal Method/Volume: disposed of in drums on-site

2 Sampling Data

Bottle Type	# of Containers	Analyses	Preserv.	Filter
amber	1	PAHs	no	no
amber	1	DRO + HRO	no	no

Total number of Bottles ___

Duplicate Sample I.D. N/A

Field Blank I.D. N/A

Rinseate Sample I.D. N/A

3 Field Equipment

Type/Brand/Serial No./Material Units

Pump Type/Tubing Type: plastic submersible

Temp/pH/E.C. meter: YSI DSS Pro

Bailer Type: N/A

Water Level Probe: waterline 75'

Filter Type: N/A

Other: ___

4 Well Conditions

OK ☐ Not OK ☐ Explain: N/A – temp well

J:\Docs\Forms\Field & Lab\Groundwater Sampling Data Form.doc

Time	gal	pH	Temp	Conduct	DO	Turbidity	ORP	Comments
1512	2.5	6.97	14.3	1267	1.51	81.57	-465.2	CV 0, CV 5
1523	3.0	6.95	14.4	1241	1.47	72.81	-488.4	CV 0, CV 5
1533	3.5	6.93	14.2	1217	1.46	68.95	-487.1	CV 0, CV 5
1543	4.0	6.95	14.1	1197	1.46	63.02	-456.7	CV 0, CV 5
1618	4.75	6.88	14.3	1115	1.41	35.88	-488.9	CV 0, CV 5