

**ATTACHMENT A – Field Notes**

## Summary of Field Notes

Field activities associated with the 2014 Pilot Study occurred from Tuesday, July 29<sup>th</sup> thru Wednesday, August 6<sup>th</sup>. During the Pilot Study, multiple members of the Technical Team were present including Diversified Building Solutions, LLC, EBA Engineering, Inc., BrightFields Inc., and Ivey-International Inc. The field notes contained herein are those from EBA and BrightFields as they were tasked to document site activities.

The field notes from EBA provide details on the following:

- Capturing of daily activities with time notations.
- Documentation of personnel onsite including members of the Technical Team, MDE, Clean Harbors, and Mr. Sipes.
- Documentation that gauging and sampling events was performed.
- Visual inspections of the influent tank for the presence of surfactant or liquid phase hydrocarbons.
- Documentation of surface tension field test results.
- Documentation of surface agitation field test results.
- Documentation of injection events.
- Documentation of extraction events with emphasis on having sufficient data to cease extraction efforts.
- Documentation that surfactant did not migrate south of Brown Street.

The field notes from BrightFields provide details on the following:

- Capturing of daily activities with time notations.
- Recording of gauging data from the monitoring wells.
- Recording of system checks and maintenance activities associated with the pump and treat system with emphasis on pressure readings, presence of sediment, and bio-fouling of filters.
- Documentation of injection events.
- Documentation of extraction events.
- Documentation of surface tension field test results.

All of the field notes were reviewed and significant findings were included in the Pilot Study report text. Furthermore, much of the detailed information in the field notes has been extracted in the development of the tables that were included in the Pilot Study appendices.



**ATTACHMENT A – EBA Field Notes**

10:00 AM BOA ARRIVES  
 OF INSITE SAMPLING  
 MORE ON SITE SUSAN, FOREST ARNOLD, DANIEL,  
 - CHAIRS  
 - PUMP  
 - TANK

10:30-11:30 SITE WALK  
 WHERE IS TOWN WELL #8?  
 ATTEMPT ON MW-38 FOR PUMP REMOVAL?  
 OBTAIN ELEVATIONS FROM DF?  
 #1 NOW OPERATIONAL -  
 MW-14 - CHAIRS

OK TO SAMPLE 5-DAYS AFTER

11:40 TAILGATE MTG. - CONDUCTED BY MIKE  
 - SCIPS, TRIPS,  
 - TARGET, MEASUREMENTS  
 - WORKLOAD / GAT'S  
 - PPE  
 - CONSTITUENTS - ZINC  
 - THERMAL - EXHAUST  
 - WEATHER - HOT

11:45 - FINAL PAPER BEFORE INJECT  
 - COLLECT SURFACTANT BULKLINE  
 - MIXING TOTES W/ ZINC-501

12:10 - SHUT DOWN MW-22

1:00 { INJECT MW-40 w/ SUMP @ ~ 25 gal/min  
 1:00 { INJECT MW-42 w/ SUMP

1:25 - COMPLETE INJECT MW-40 ~~42~~  
 1:25 - COMPLETE INJECT MW-42

1:30 - INJECT MW-22 / MW-41 1:32 CHECK POT DLOG TANK FOR BUBBLES - NONE  
 2:00 - COMPLETE INJECT MW-22 ~~41~~ 2:02 " " " " " " - NONE  
 2:19 - COMPLETE INJECT MW-41 2:20 MORE DEPARTS SITE  
 (PUMP ~~STARTED~~ STOPPED / RESTARTED)

2:42 - CHECK POT DLOG TANK - NO BUBBLES 4:05 - CHECK POT TANK - NO BUBBLES  
 3:27 - " " " " " " 4:30 - BOA OFFSITE / DF



\* CROSS SECTIONS

9:25 FEA ARRIVES

BF ON SITE

MOE ON SITE - SUSAN, DANIEL

1WAY-30L ON SITE

UMMS - DANIEL MEALY

- 443-250-5486

- LACK OF NOTIFICATION / DAMAGE

9:30 COLLECT SURFACE TENSION 14, 47, 46, 13 + WET WALL OF P&T

- MODIFICATIONS TO MW-22 FOR EXTRACTION

9:45 CHECK WET WALL IN P&T ALOG - NO (BUBBLES)

10:00 - COLLECT RW-4, RW-5 FOR SURFACE TENSION

10:15 START SURFACE TENSION FIELD TESTS

- USE CONTROL ON EACH SIDE

- MW 13, 14, 47, 46

- FIELD TEST SHOWS ABSENCE OF SURFACTANT

10:25 DDB ARRIVES

10:30 - DF COLLECT SURFACTANT

10:40 - SYSTEM INFLUENT - ABSENT SURFACE TENSION

- RW-5 - (14:30 7-29; -NONE; 16:15 7-29 - NONE; 10:00 7-30 - NONE)

- RW-4 - (14:45 7-29; -NONE; 15:30 7-29 - NONE; 10:00 7-30 - PRESENT)

11:45 - PRE EXTRACTION PERIOD

- SURFACE TENSION, SURFACTANT, TPH-ORO FOR MW-22, MW-40, MW-41, MW-42

11:20 - SURFACE TENSION

- MW-22 - PRESENT, MW-40 - PRESENT; MW-41 - PRESENT; MW-42 - PRESENT

11:30

12:00 - COLLECT PRE-EXTRACTION SAMPLES FROM GRADE

12:10 - START EXTRACTIONS ON MW-42 (2") 0.5 GPM

12:15 - START EXTRACTIONS ON MW-22, MW-40, MW-41

12:30 - START SAMPLING FROM TOP OF TANK

12:35-12:40 - DDB SITES VISITS SITE



1:20 AGITATION TEST of PRE-EXTRACTION (11:30 Tank)

MW	BUBBLE (Y/N)	THICKNESS (mm)	ODOR
MW-40	Y	2-3	TPH ODOR
MW-41	Y	5-7	TPH ODOR
MW-42	Y	1-2	TPH ODOR
MW-22	Y	<del>2-3</del> 2-3	TPH ODOR

2:15 MORE LEAKS

2:55 SURFACE TENSION of 1420 SAMPLES

MW-22  
 MW-40  
 MW-41  
 MW-42

AGITATION TEST BUBBLE

MW-42	Y
MW-40	Y
MW-41	Y
MW-22	Y

3:00 AGITATION TEST of 1450 SAMPLES

~~MW-42~~ BUBBLE

MW-40	Y
MW-41	Y
MW-22	Y
MW-42	Y

3:15 SYSTEM CHECK

- CHANGE OUT 2 FILTERS
- NO SURFACE BUBBLES IN WATER

3:40 SURFACE TENSION of 1520 SAMPLES

MW-42 - PRESENT      MW-41 - PRESENT  
 MW-40 - PRESENT (SLIGHT)      MW-22 - PRESENT

4:00 SURFACE TENSION of 1550 SAMPLES (~ 80/90% APPROVED)

MW-22 - PRESENT

MW 41 - PRESENT

MW-40 - PRESENT

MW 42 - PRESENT

4:15 SYSTEM CHECK of PAT BLOC - NO BUBBLES

4:25 SURFACE TENSION of 1620 SAMPLES

MW-22 - ABSENT

MW-41 - ABSENT

MW-40 - ABSENT

MW-42 - <sup>NEARLY</sup> ABSENT

4:30 STOP ~~FROM~~ EXTRACTION SYSTEM ACTIVITIES

START GAUGING MW'S

5:00 EDA/BF DEPARTS



8:00-8:30 KBA ARRIVES AT PHASE TO PICK-UP SUPPLIES

9:45 - KBA ARRIVES, BT ONSITE, CRAW HARBORS ONSITE EMPTYING TANKS,  
 - VAN ONSITE

10:00 - LIQUID LEVELS OF 16 MW'S COMPLETE  
 - FIELD SCANNING 13, 14, 46, 47 COMPLETE  
 - FIELD SCANNING RW-4, RW-5, RW-6, SYSTEM INFLUENT COMPLETE  
 - ~~INJECT~~ INJECT SOL SOLUTION PREPARED  
 - SHOWN ON MW 40 + MW 42

10:10 - INJECT SOL SOLUTION = 0.22% ~~22 GALLONS~~ 10 GALLONS PER 275

10:32 - START INJECTION MW-~~22~~<sup>40</sup> + MW 42

10:35 - FIELD SCANNING SURFACE TENSION OF 0945 SAMPLES

<del>MW 13</del> MW-13 - ABSENT	MW 46 - ABSENT
MW-14 - ABSENT	MW 47 - ABSENT
<del>MW 46</del> - SUSPECT SCREEN	

10:40 - SURFACE TENSION OF 0942 SAMPLES (RW-4, RW-5, RW-6)

RW-4 - ABSENT	RW-6 - ABSENT
RW-5 - ABSENT	SYSTEM INFLUENT - ABSENT

11:05 - CRAW HARBORS DEPARTS 3378 GALLONS

10:54 - STOP INJECTION MW-42 + MW-40

11:05 - START INJECTION MW-22 + MW-41

11:24 - STOP INJECTION MW-41

11:35 - " " MW-22

11:42 - SYSTEM CHECK - NO BUBBLES

11:45 - START GAUGING MW'S

12:15 - SYSTEM CHECK - NO BUBBLES

12:50 - GAUGING - WATER LEVELS RETURN

- SYSTEM CHECK - NO BUBBLES

GAUGE 16 MW'S FLOW 1/2 HR  
 SYSTEM VISUAL " " 4  
 MW 13, 14, 46, 47 FIELD/ANALYTICAL  
 RW-4, RW-5, RW-6, SYSTEM - FIELD  
 RW-4, RW-5, RW-6 - DR. OF SURFACE  
 (HOLD)



~~1:15~~ SURFACE TENSION OF 1300 SAMPLES

~~FIELD SURFACTANT MW-13, MW-~~

MW-13 - ABSENT

MW-46 - ABSENT

MW-14 - ABSENT

MW-47 - ABSENT

1:15 SURFACE TENSION OF 1250 SAMPLES

RW-4 - PRESENT

RW-5 - PRESENT

RW-6 - PRESENT

Tomorrow -

Plan 2:30 - BF TO COLLECT FROM ~~MW-13, MW-14, MW-46, MW-47~~, MW-22, MW-40, MW-41, MW-42, RW-4, RW-5, RW-6  
 - SURFACTANT & DRO

1:45 PLAN FOR TOMORROW

- ③ - SAMPLE MW-22, MW-40, MW-41, MW-42, RW-4, RW-5, RW-6 (DRO/SURFACTANT)
- ② - GAUGE ALL 16 MW'S
- ④ - START EXTRACTION
- ⑤ - SAMPLE 4 EXTRACTION WELLS EVERY 1/2 HR. OF 4 EXTRACTION WELLS (DRO/SURFACTANT/FIELD)
- ⑥ - AT END OF EXTRACTION SAMPLE MW-13, MW-14, MW-46, MW-47 (DRO/SURF/FIELD)
- ① - SYSTEM CHECK AM
- ⑦ - FULL SYSTEM CHECK PRIOR TO DEPARTURE

2:20 COLLECT FIELD SYSTEM DISCHARGE FOR SURFACE TENSION - GENERALLY ABSENT / POTENTIAL MYCELIX (DRO) CONTAM. / NO MYCELIX

2:30 - COLLECT SAMPLES FROM MW-22, MW-40, MW-41, MW-42, RW-4, RW-5, RW-6  
 - SURFACE TENSION / DRO / SURFACTANT

2:55 - SURFACE TENSION OF 1430 SAMPLES

RW-4 - ABSENT

MW-40 - PRESENT

MW-22 - PRESENT

RW-5 - ABSENT

MW-41 - PRESENT

RW-6 - ABSENT

MW-42 - PRESENT

3:20 - EBA OFFSITE



8:00-8:30 EBA RT. MAKE TO PICKUP MATERIALS

9:45 EBA ARRIVES

- DT ONSITE - SYSTEM CHECK / CHANGE OUT 4 DAB FILTERS & MUCKLAX
- COLLECTED SAMPLES FROM MW-22, MW-40, MW-41, MW-42 (DRO/FIELD/SURFACTANT)
- COLLECTED SAMPLES FROM RW-4, RW-5, RW-6 (DRO/FIELD/SURFACTANT)
- COLLECTED SURFACE TENSION MW-13, MW-14, MW-46, MW-47, SYSTEM WET WIRE
- ZUKY ONSITE
- GAUGED ALL 16 MW'S / SHEEN ON MW22, MW-40, MW-41, MW-42

10:05 - SURFACE TENSION OF 0910 SAMPLES

MW-22 - ABSENT  
 MW-40 - ABSENT (MOSTLY)  
 MW-41 - PRESENT  
 MW-42 - PRESENT

10:20 - START EXTRACTION MW-22, MW 40, MW-41, MW-42

SYSTEM ON RW-4 5.6 GPM, RW-5 11.24 GPM, RW-6 26.06 GPM, RW20-22.47 GPM

10:22 SURFACE TENSION OF 0930 SAMPLES

RW-4 - ABSENT  
 RW-5 - ABSENT  
 RW-6 - ABSENT

10:22	GPM	MW-40	5.0 <del>5.0</del> GPM	MW-42	1.0 GPM
	GPM	MW-22	5.0 GPM		
	GPM	MW-41	3.5 GPM		

10:25 SURFACE TENSION OF 1000 SAMPLES

MW-13 - ABSENT MW-46 - ABSENT  
 MW-14 - ABSENT MW-47 - ABSENT

10:30-10:40 KAN KOBEL VISITS SITE

10:40-10:45 BOB SOPER VISITS SITE

10:50 - COLLECT 1/2 ML SAMPLES

- VISUAL SYSTEM CHECK - NO PROBLEMS



10:10 SURFACE TENSION OF 1050 SAMPLES  
 MW-22 ABSENT (MOSTLY) MW-41 PRESENT  
 MW-40 PRESENT MW-42 PRESENT

11:20 COLLECT 1/2 SAMPLES OF MW-22, MW-40, MW-41, MW-42  
 VISUAL SYSTEM CHECK - NO BUBBLES

11:25 SURFACE TENSION OF 1120 SAMPLES  
 MW-22 - PRESENT MW-41 - PRESENT  
 MW-40 - PRESENT MW-42 - PRESENT

\*NOTE X 11:00 BRAMBLE EXCAVATING ADJACENT RW-6 & FIRE HYDRANT

11:50 COLLECT 1/2 M SAMPLES  
 VISUAL SYSTEM CHECK - NO BUBBLES

12:00 SURFACE TENSION OF 1150 SAMPLES (MOVING TOWARDS ABSENT)  
 MW-22 - PRESENT MW-41 - PRESENT  
 MW-40 - PRESENT MW-42 - PRESENT (BARELY)

12:25 SURFACE TENSION OF 1220 SAMPLES (MOVING TOWARDS ABSENT)  
 MW-22 - PRESENT MW-41 - PRESENT  
 MW-40 - PRESENT MW-42 - PRESENT

1:05 SURFACE TENSION OF 1250 SAMPLES (MOVING TOWARDS MORE ABSENT)  
 MW-22 - PRESENT (SLIGHTLY) MW-41 - ABSENT (MOSTLY)  
 MW-40 - ABSENT (MOSTLY) MW-42 - PRESENT (SLIGHTLY)

1:20 VISUAL SYSTEM CHECK - NO BUBBLES

1:35 SURFACE TENSION OF 1320 SAMPLES (MOVING ~~START~~ MOVING TOWARDS ABSENT)  
 MW-22 - ABSENT (MOSTLY) MW-41 - ABSENT (MOSTLY)  
 MW-40 - ABSENT (MOSTLY) MW-42 - ABSENT (MOSTLY)

1:40 STOP EXTRACTION ACTIVITIES



1:50 VISUAL SYSTEM CHECK - NO BUBBLES

1:55 SURFACE TENSION OF 1350 SAMPLES (SLIGHT DIFFERENCE FROM 1720)  
 MW-22 - ABSENT (MOSTLY) MW-41 - ABSENT (MOSTLY)  
 MW-40 - ABSENT (MOSTLY) MW-42 - ABSENT (MOSTLY)

2:25 SURFACE TENSION OF 1420 SAMPLES - (SLIGHT DIFFERENCE FROM 1350)  
 MW-22 - ABSENT (MOSTLY) MW-41 - ABSENT (MOSTLY)  
 MW-40 - ABSENT (MOSTLY) MW-42 - ABSENT (MOSTLY)

2:55 SURFACE TENSION OF 1450 SAMPLES - (SLIGHT DIFFERENCE FROM 1420)  
 MW-22 - ABSENT (MOSTLY) MW-41 - ABSENT (MOSTLY)  
 MW-40 - ABSENT (MOSTLY) MW-42 - ABSENT (MOSTLY)

3:30 SURFACE TENSION OF 1520 SAMPLES - (SLIGHT DIFFERENCE FROM 1450)  
 MW-22 - ABSENT (MOSTLY) MW-41 - ABSENT (MOSTLY)  
 MW-40 - ABSENT (MOSTLY) MW-42 - ABSENT (MOSTLY)

PLAN FOR MONDAY

- 1) SAMPLER 13, 14, 46, 47 (~~DAO / SURFACTANT~~ FIELD)
- 2) SAMPLER RW-4, RW-5, RW-6 (~~DAO / SURFACTANT~~ FIELD)
- 3) GAUGE ALL 16 MW'S

3:50 ~~STOP EXTRACTION~~  
 SURFACE TENSION OF 1550 SAMPLES  
 MW-22 - ABSENT MW-41 - ABSENT  
 MW-40 - ABSENT MW-42 - ABSENT

3:50 STOP EXTRACTION / START GAUGING 16 MW'S  
 4:50 SAMPLER MW-13, MW-14, MW-46, MW-47 (DAO / SURFACTANT / FIELD)  
 4:50 SAMPLER RW-4, RW-5, RW-6, ~~SAMPLER~~ (DAO / SURFACTANT / FIELD)  
 SAMPLER MW-22, MW-40, MW-41, MW-42 (DAO / SURFACTANT)

4:30 SURFACE TENSION OF 1625  
 MW-13 - ABSENT MW-46 - ABSENT 5:45 FMA / BT OFFSITE  
 MW-14 - ABSENT MW-47 - ABSENT



8:00-8:30 EBA AT PHASE TO PICKUP COOLERS / NETWORK

9:40 EBA ARRIVES

1VBY ONSITE - 0.11% MINIMUM COMPLETE

BF ONSITE - GAUGED ALL 16 MW'S

0945 - SAMPLE 13, 14, 46, 47 (DRO/SURFACT/FIELD)

0955 - SAMPLE RW-4, RW-5, RW-6, COMBINED (DRO/SURFACTANT/FIELD)

CLEAN HANDS ONSITE - AMIT-11-6 FLAC TANKS

0920 NO SHEEN IN MW-22, MW-40, MW-41, MW-42

9:50 START INJECTION MW-42

10:05 START INJECTION MW-40

10:00 SURFACE TENSION OF 0945

MW-13 - ABSENT MW-46 - ABSENT

MW-14 - ABSENT MW-47 - ABSENT (SHEEN)

10:15 SURFACE TENSION OF 0955

RW-4 - ABSENT RW-6 - ABSENT

RW-5 - ABSENT SYSTEM - ABSENT

10:20 STOP INJECTION MW-40

10:31 STOP INJECTION MW-42

10:36 START INJECTION MW-41 & MW-22

10:40 VISUAL SYSTEM CHECK - NO BUBBLES

11:00 CLEAN HANDS DEPARTS SITE - 4,884 GALLONS

11:05 STOP INJECTION MW-41 & MW-22

START GAUGING MW'S

11:35 GAUGE MW'S

12:15 WORKER CHECKS RETURN

12:15 SAMPLE RW-4, RW-5, RW-6, MW-22, MW-40, MW-41, MW-42 (DRO/SURFACTANT/FIELD)

SAMPLE MW-13, MW-14, MW-46, MW-47 (SURFACTANT/FIELD)



12:15 SURFACE TENSION OF 1200 SAMPLES

RW-4 - ABSENT

RW-5 - ABSENT

RW-6 - ABSENT

12:30 SURFACE TENSION OF 1215 SAMPLES

MW-13 - ABSENT

MW-46 - ABSENT

MW-14 - ABSENT

MW-47 - ABSENT (SHEEN)

PLAN FOR TOMORROW

1- FULL SYSTEM CHECK AM

2- GAUGE ALL 16 MW'S

3- SAMPLE MW-22, MW-40, MW-41, MW-42, RW-4, RW-5, RW-6 (DRO/SURFACTANT/FIELD)

4- SAMPLE MW-13, MW-14, MW-46, MW-47 (DRO/SURFACTANT/FIELD)

5- START EXTRACTION

6- SAMPLE 4- EXTRACTION WALLS (DRO/SURFACTANT/FIELD) EVERY 1/2 HR.

\* AT END OF EXTRACTION SAMPLE MW-13, MW-14, MW-46, MW-47 (DRO/SURFACTANT/FIELD)

- AT END OF EXTRACTION SAMPLE MW-22, MW-40, MW-41, MW-42 (DRO/SURFACTANT/FIELD)

- AT END OF EXTRACTION SAMPLE RW-4, RW-5, RW-6, EFFLUENT (DRO/SURFACTANT/FIELD)

1:00 SURFACE TENSION OF 1230 SAMPLES

MW-22 - PRESENT

MW-41 - PRESENT

MW-40 - PRESENT

MW-42 - PRESENT

1:30 RDA /SE OFFSITE



8:00-8:15 EBA AT PHASE TO PICK-UP COOLER/OUTFLOW

9:40 EBA ARRIVES

OP onsite / MDR onsite - SUSAN

IVRY onsite

- GAUGE 16 MW'S COMPLETE

- SYSTEM CHECK COMPLETE (3 of 4 DAB FILTERS HAVE SHEEN)

0930 - SAMPLES MW-13, MW-14, MW-46, MW-47 (DAB/SURFACTANT/FIELD) (SHEEN 47914)

0935 - SAMPLES RW-4, RW-5, RW-6 (DAB/SURFACTANT/FIELD)

0940 - SAMPLES MW-22, MW-40, MW-41, MW-42 (DAB/SURFACTANT/FIELD)

- PREP FOR EXTRACTION

9:45 SURFACE TENSION OF 0930 SAMPLES

MW-13 - ABSENT

MW-46 - ABSENT

MW-14 - ABSENT

MW-47 - ABSENT

10:00 SURFACE TENSION OF 0940 SAMPLES

MW-22 - PRESENT

MW-41 - PRESENT

MW-40 - PRESENT (SHEEN)

MW-42 - PRESENT (SHEEN)

10:10 SURFACE TENSION OF 0935 SAMPLES

RW-4 - PRESENT

RW-6 - ABSENT

RW-5 - ABSENT

ELF - ABSENT

10:10 START EXTRACTION OF MW-22, MW-40, MW-41, MW-42

SYSTEM ON RW-4 - 5.44

RW-5 - 11.69

RW-6 - 25.44

RW 21 - 23.29

RW 713 - 20.97

GPM MW-22 - 5.5

MW-41 - 4.0 GPM

MW-40 - 5.0

MW-42 - 1.0 GPM

10:40 VISUAL SYSTEM CHECK - NO PROBLEMS

10:50 SURFACE TENSION OF 1040 SAMPLES

MW-22 - PRESENT

MW-41 - PRESENT

MW-40 - PRESENT

MW-42 - PRESENT



10:55 SURFACE TENSION OF 1040 SAMPLES

RW-4 - PRESENT

RW-6 - ABSENT

MW-5 - PRESENT

MW-20 - PRESENT

11:00 COLLECT SAMPLES / VISUAL SYSTEM CHECK - NO PROBLEMS

11:20 SURFACE TENSION OF 1110 SAMPLES

MW-22 - PRESENT

MW-41 - PRESENT

MW-40 - PRESENT

MW-42 - PRESENT

11:40-11:50 SITE WALK W/ MARK FOR TOWN WATER & TOWN FIELD SUPPLY

11:50 SURFACE TENSION OF 1140 SAMPLES (PRESENT BUT LESS COMPARED TO 1110)

MW-22 - PRESENT

MW-41 - PRESENT

MW-40 - PRESENT

MW-42 - PRESENT

2:10 SURFACE TENSION OF 1140 SAMPLES

RW-4 - PRESENT

RW-6 - PRESENT

RW-5 - PRESENT

MW-20 - PRESENT

12:20 SURFACE TENSION OF 1210 SAMPLES (PRESENT BUT LESS COMPARED TO 1140)

MW-22 - PRESENT (SLIGHTLY) MW-41 - PRESENT

MW-40 - PRESENT (SLIGHTLY) MW-42 - PRESENT

12:50 SURFACE TENSION OF 1240 SAMPLES

MW-22 - PRESENT

MW-41 - PRESENT

MW-40 - PRESENT

MW-42 - PRESENT

1:05 LUKY DEPARTS SITE

1:15 SURFACE TENSION OF 1310 SAMPLES

MW-22 - PRESENT (MOSTLY)

MW-41 - PRESENT (MOSTLY)

MW-40 - ABSENT (MOSTLY)

MW-42 - ABSENT (MOSTLY)

1:20 MARK OFFSITE



2:00 SURFACE TENSION OF 1340 SAMPLES (SLIGHT IMPROVEMENTS FROM 1310)

MW-22 - ABSENT ~~PRESENT~~ MW-41 ABSENT ~~PRESENT~~

MW-40 - ABSENT ~~PRESENT~~ MW-42 ABSENT ~~PRESENT~~

2:10 SURFACE TENSION OF 1340 SAMPLES

RW-20 - ABSENT

RW-5 - ABSENT

RW-4 - ABSENT

RW-6 - ABSENT

3:10 STOP EXTRACTION

SAMPLING/GAUGING - POST EXTRACTION

86 - WRO - GAUGE 16 MW'S / SYSTEM OPM

88 - RMDM - GAUGE 16 MW'S / SYSTEM OPM (PER MDE REQUEST)

89/13 TWS/WRO - GAUGE 28 MW'S, SAMPLER 28 MW'S, SYSTEM OPM

3:20 SURFACE TENSION OF 1510 SAMPLES

MW-22 - ABSENT

MW-41 - ABSENT

MW-40 - ABSENT

MW-42 - ~~ABSENT~~ <sup>PRESENT</sup> (PRESENT) PRESENT

SURFACE TENSION OF 1510 SAMPLES

MW-13 -

MW-46 -

MW-14 -

MW-47 -

SURFACE TENSION OF 1510 SAMPLES

RW-20 -

RW-5 -

RW-4 -

RW-6 -

COLLECT TPH-DRO/SURFACTANTS - MW-22, MW-40, MW-41, MW-42

TPH-DRO/SURFACTANTS - MW-13, MW-14, MW-46, MW-47

TPH-DRO/SURFACTANTS - RW-20, RW-4, RW-5, RW-6, EFFLUENT

3:30 RESTART EXTRACTION MW-42

4:30 EBA DEPARTS

4:00 VISUAL INSPECTION MW-42 - PER BURNER

6:00-6:30 DELIVER SAMPLES TO

4:10 STOP EXTRACTION MW-42

PHASE

PLAN FOR TOMORROW

1) EXTRACT MW-42

2) USE MW-9



9:30 KAA ARRIVAL  
 BT onsite - GAUGING WELLS & PUMP FOR EXTRACTION

9:45 START EXTRACTION MW-42 - 1.0 GPM = 60 GPH } 360 GPH  
 START EXTRACTION MW-9 - 5.0 GPM = 300 GPH }

10:00 VISUAL INSPECTION MW-42 - BUBBLES

11:00 VISUAL INSPECTION MW-42 - BUBBLES  
 SYSTEM CHECK - NO BUBBLES  
 RW-20 - 22.54 GPM ; RW-3B - 20.82 ; MW-4 - 5.83 GPM ; RW-5 - 11.05, RW-6 - 25.24

11:50 SURFACE TENSION OF 1145 SAMPLE  
 MW-42 - ABSENT

10:00  
 12:00 SYSTEM CHECK - NO BUBBLES

12:20 SURFACE TENSION OF 1215 SAMPLE - SIGNIFICANT IMPROVEMENT FROM 1145 SAMPLE  
 MW-42 - ABSENT (MOSTLY)

12:50 SURFACE TENSION OF 1245 SAMPLES - SLIGHT IMPROVEMENT FROM 1215 SAMPLE  
 MW-42 - ABSENT (MOSTLY) MW-9 - ABSENT

1:00 SYSTEM CHECK - NO BUBBLES

1:20 SURFACE TENSION OF 1315 SAMPLES  
 MW-42 ABSENT MW-9 - ABSENT

1:50 SURFACE TENSION OF 1345 SAMPLES - NO CHANGE FROM 1315 SAMPLES  
 MW-42 ABSENT MW-9 - ABSENT

1:55 STOP EXTRACTION ACTIVITIES  
 START LIQUID LEVEL MEASUREMENTS

5:30 KAA/DK OFFSITE

5:00 KAA DROPS  
 SAMPLES AT PHASE

2:30 FINAL SAMPLING 1450 MW-19, MW-14, MW-46, MW-47  
 1430 RW-20, RW-4, RW-5, RW-6, EFFLUENT  
 1435 MW-22, MW-40, MW-41, MW-42  
 1500 EFFLUENT



**ATTACHMENT A – BrightFields Field Notes**

Location CRHC

Project / Client

Date 7/22/14

0930 - MC/RCA/Ken human on site for injections nearby  
 - MC/RCA for GWS after meeting  
 1230 - MC/RCA starts GWS at 16 wells associated with injections "Before" sample

TOTF

1430 - All set site

Location CRHC

Project / Client Sump 80; Rod. Williams

Date 7/22/14

0800 - MC/RCA/J. Thompson call site for GWS 16 wells associated w/ Injections -  
 1130  
 1100 - MC drops off. to start prep for injections  
 - RCA/J. Thompson samples the 16 wells.

- MC walked site w/ EBA + MBE @ MBE, requests & showed where all wells are located.

\* Notes - MW-3B - MBE asked that we attempt to remove the pump in well.

\* MBE asked that we get plw - in ahead of Mankin & well pad. Collectively was needed

Location \_\_\_\_\_

Project / Client \_\_\_\_\_

Date \_\_\_\_\_

MW1 - Need access currently was given on it.

- All wells that pads have not been completed need to be done. Test to perform w/ MDE, DDE, DEX-501. Spud down - MW-22 to 125' Recharge or more injections. Solution @ 120% DEX-501.

- 1300 - Injecting MW-40 + 42 @ 25 gpm

1305 - Injection @ 40 & 42 complete

- Setback of MW-22 + 41

1310 - Injecting MW 22 + 41

Note - MDE requested checking the pump that system for surfactant during the 30 min LL pounds

1400 - MW-22 injection complete

- MW-41 pump stopped

1405 - MW-41 pump working continued

1415 - MW-41 injection complete

Date \_\_\_\_\_

Location \_\_\_\_\_

Project / Client \_\_\_\_\_

Baker

Comment

Time

DTW

Well

Well	DTW	Time	Comment
MW40	38.11	12:00	Final
MW42	55.68	12:00	on 2/23 @ ~ 0900
MW10K	38.16		
MW43	37.44		
MW22	36.59		
MW46	31.04		
MW41	32.85		
MW47	30.72		
MW14	31.52		
MW13	31.82		
MW45	30.79		
MW35	28.62		
MW19	29.33		
MW20	29.17		
MW33	27.17		
MW34	27.37		

Location \_\_\_\_\_

Project / Client \_\_\_\_\_

Date \_\_\_\_\_

Well Surface Tension Depth Contract

Location \_\_\_\_\_

Project / Client \_\_\_\_\_

Date \_\_\_\_\_

During

Well	KL	Time	Contract
40	37.94	1422	
42	35.41	1430	
40R	37.96	1420	
43	37.25	1425	
22	36.33	1427	
46	30.82	1443	
41	32.44	1433	
47	30.63	1440	
14	31.30	1436	
13	31.97	1445	
45	30.66	1447	
35	28.87	1450	
19	24.21	1453	
20	29.05	1452	
33	27.00	1455	
34	27.21	1458	



Sample

- Bud requested samples RW-5 due to proximity to RW-47 every New Year's and tomorrow.

1430 - Sampled RW15 (Next to RW-41) @ 1430 for TPH/DRO, VOCs, Surfactants

1445 - Sampled RW-4 (Next to RW-40) @ 1445 for TPH/DRO, VOCs, Surfactants

1525 - Building system check & stability in w-trail

Surface denitrification samples - from 14, 47, 46, 13 tomorrow am.

1570 - Sampled RW 4 & 5 for TPH/DRO surfactants, VOC as per Bud

- No longer going to monitor the VOCs. 1630 - All off site

After

Well	LL	Time	Comment
40	38.03	1530	
42	35.49	1536	
10R	38.01	1531	
43	37.43	1522	
22	36.47	1535	
46	30.85	1540	
41	32.62	1537	
47	30.71	1542	
14	31.36	1541	
13	31.69	1543	
45	30.67	1744	
35	28.87	1540	
19	29.21	1548	
20	29.04	1500	
34	27.21	1550	
33	27.09	1552	
10R	<del>37.77</del>	1555	Redbank
41	38.01		

0810 - Mc/RCM/JCT on site for combined pilot test.  
 - Darryl Mealy on site. Upset at tank switches pressure, and a slight "detour".  
 Darryl Mealy  
 Unms  
 443-257-5486

Parent Company - The Chester River Hospital.

0930 - MDE requested surface tension sample from system in lab.

- JCT completing before round of U.S.

- RCM completed surface tension samples @ RW 14 47 46 + 13.

1000 - MC packed pump from RW 22 b/c no want to run pump via isolation. Will use grinder to isolate

1000 - System of sample for surface tension, as per MDE

1000 - System checked usually for surfactant / tension, none observed.  
 RCM Collecting RW 4 & 5 samples for TPH/SRO, VOC Surfactant, surface tension.  
 RW 4 - Time: 1000  
 RW 5 - Time: 1000

1041 - Bud indicated there are no surfactants in any of the samples RW-4, 5 or system in fluid.

- Bud requested surface tension from RW 40, 41, 42, 22 after pumps were installed also samples every 5 min from RW 40, 41, 42, 22 during extraction.

Location \_\_\_\_\_

Date \_\_\_\_\_

Project / Client \_\_\_\_\_

- MDE Requested Analytical  
 as backup for the field  
 surface decon screens  
 for MW 40, 41, 42, 42  
 and system influent

Time MW  
 Sample: 1050: 13  
 1045 46  
 1050 47  
 1045 47

For tomorrow

3/8 tubing -

Stamps -

Order place 3/8 tubing

Date \_\_\_\_\_

Location \_\_\_\_\_

Project / Client  
Surface Tension Samples (Pre-A11)

MDE  
 11:10 40  
 11:17 22  
 11:19 41  
 11:25 42

\* Shown noted in 40 & 42 prior  
 to extraction

11:30 - Collected TPH/DEO Surface Tension  
 surface tension from MW 40, 42,  
 40 22 prior to extraction.

- Samples collected via header.  
 All 15 min samples during  
 extraction collected via  
 tubing from the gumbles/leak  
 pumps.

12:09 - Start extraction of MW 42  
 12:15 - Stop MW 22, 40, 41  
 extraction

- All pumps ~ 1.5-2' off bottom  
 MW 42 @ 0.5 gpm  
 MW 41, 40, 22 @ 100 gpm  
 5-8 gpm







1515

Location \_\_\_\_\_  
Project / Client \_\_\_\_\_

Date \_\_\_\_\_

1515 - Chang is 2 of 7 bag filter  
is a partial DM for help  
w/ hydraulic control as per  
reports (E&B)

DF-4 20  
3 20  
DF-4 20  
3 20

Completed partial on blc surfactant still present.  
Pumps running continuously  
Not cycling  
Noticed sediment in DF 3+4 not seen before

1544 - MW-40  
Note

- Juv Sol concentration -  
bad appeared a 6% solution  
5 gal into 27 = 0.11%

1600 - Surface tension

MW 40 very good ~ 80 gpg  
41 good  
42 good ok  
22 poor NA

1615 - System dissolved - No surfactant visible no bubbles visible.

Date \_\_\_\_\_

Location \_\_\_\_\_  
Project / Client \_\_\_\_\_

1620 - Surface tension sample  
MW 40 Very good well over 90% recovery.  
41  
42  
22

- possible small amount in 42

Pumps shut down @ 1623

gallons 41 2480  
40 2480  
42 129  
22 2480

For this

- ① Sample for surface tension and system input
  - ② Surface tension from RW 45 G
  - ③ Pre filter Ls (16)
- 1700 - All off safe

# CRHC Pilot Test

7/30/14

Shutdown at 1623

	Pve	Time	LL	Dumy	TIME	LL	TIME
1	40	38.00	0927*	41.79	15:44	38.92	1624
2	42	35.55	0933*	37.05	15:48	34.67 36.71	1625 1628
3	10R	38.01	0925	38.71	15:42	38.92	1624
4	43	37.31	0929	38.52	15:45	38.80	1626
5	22	36.47	0931	40.40	15:47	38.02	1627
6	46	30.90	0943	31.79	15:54	32.20	1632
7	41	32.74	0935	36.09	15:50	34.53	1629
8	47	30.28	0937	32.36	15:53	32.62	1631
9	13	31.41	0941	32.54	15:56	32.81	1633
10	14	31.40	0939	39.98	15:51	34.20	1630
11	45	30.67	0945	31.13	15:58	31.20	1634
12	35	28.87	0947	29.17	15:59	29.28	1635
13	19	29.22	0951	29.67	16:00	29.83	1637
14	20	29.03	0949	29.70 29.67	16:01 16:00	29.86	1636
15	33	27.07	0953	27.28	16:01	27.35	1638
16	34	27.21	0955	27.45	16:02	27.53	1639

\* Sheen Observed

## Extraction

MW	LL	Time	LL	Time	LL	Time	LL	Time
40	40.86	1230	40.99	1246	41.00	1305		
41	34.86	1236	34.99	1250	35.05	1308		
42	36.19	1234	36.26	1250	36.30	1307		
22	39.46	1232	39.54	1248	39.56	1306		
40	41.02	1329						
41	35.11	1332						
42	36.20	1331						
22	39.56	1330						

Location CRUC Date 7/31/14

Project / Client Sweet 80's Lt. 2 weeks

- 0830 - McNamee/JCT on site, settling for injection.
- Full polyo H's (16)
- Clean hardware on site to use out tanks

Note - 12g sheer noted in ~~MW~~ and 40 same as per extraction yesterday

- 0930 - Spoke w/ Susan Bell - gave her updated piece
- 0937 - Sampling 13, 14, 46, 47 for surface tension. Bud said we did not need analytical for these in this round of sample, we will collect analy. trip tomorrow pre-pull on 13, 14, 46, 47

- Also sample RW 4, 5, 6 and system influent for surface tension analytical tomorrow subs on 13, 14, 46, 47

- RW 4, 5, 6, TUF @ 0942
- MW 13, 14, 46, 47 @ 0945

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

- System observation - No visible change in TUF. No tanks, not stopped, water is clear
- Still only injecting 275 gal
- PV well concentration is now 0.22% yesterday was 0.19%
- 1030 - McNamee discussed the possibility and purification of surfactant making it into the P/T system. James is not concerned if this happens as it may have yesterday.

1032 - Starting injection @ MW-40, 42. 275 gal each well @ 25 gpm. 0.22% concentration.

- Substrate absent from 13, 14, 46, 47 via surface tension.
- Minor amount shown noted in MW 14 surface tension sample



Location \_\_\_\_\_ Date \_\_\_\_\_  
 Project / Client \_\_\_\_\_

System operation info:

GW	Total
RW 20	22.04
3B	20.72
4	5.82
5	10.45
6	26.52
RW 22	0.74

10392150  
 10006869  
 01572887  
 07240546  
 23662850

RW 4, 5, 6 and system combined INF show no surfactants via surface tension samples.

1054 - RW 42 injection complete  
 1056 - RW 40 injection complete

→ 3370 gallons pumped out by Clean Waterbot

1105 - Injection MW 22 & 41

Location \_\_\_\_\_ Date \_\_\_\_\_  
 Project / Client \_\_\_\_\_

Post Injection Sample, Surface tension

- Every 1/2 hr 4Ls or visual system check
- When gw returns to stable:
- Surfact Injection for:
  - 13, 14, 46, 47 (for field & <sup>surfactant</sup> ~~surfactant~~)
  - RW 4, 5, 6, system cores, and
- All surfactant early field for RW 4, 5, 6, system cores, and as per James (HHA)
- Collect DRD + Surfactant from RW 4, 5, 6 - Hold @ lab
- 1120 - MW 41 injection complete
- 1135 - MW 22 injection complete
- 1142 - Visual system check - No foaming or visible surfactant, water clear.

Location \_\_\_\_\_ Date \_\_\_\_\_  
 Project / Client \_\_\_\_\_

System operation info:  
 @ 1042

GW	Total
RW 20	22.04
3B	20.72
4	5.82
5	10.45
6	26.52
RW 22	0.74

10392150  
 10006869  
 01572887  
 07240546  
 23662850

RW 4, 5, 6 and system combined INF show 40 surfactants via surface tension samples.

1054 - RW 42 injection complete  
 1056 - RW 40 injection complete

→ 3370 gallons pumped out by Clean Washbot

1105 - Injection MW 22 & 41

Location \_\_\_\_\_ Date \_\_\_\_\_  
 Project / Client \_\_\_\_\_

Post Injection Sample, Surface tension

- Every 1/2 hr 4Ls or visual system check
- When gw returns to stable:
- Surfact Injection for:
  - 13 14 46 47 (for field & <sup>surfactant</sup>)
  - RW 4, 5, 6, system cores, and
- All surfactant early field for RW 4, 5, 6, system cores, and as per James (HHA)
- Collect DRD + Surfactant from RW 4, 5, 6 - Hold @ lab
- 1120 - MW 41 injection complete
- 1135 - MW 22 injection complete
- 1142 - Visual system check - No foaming or visible surfactant, water clear.

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1417 - Samer (EBA) told me that the same of the surfactant samples sent to these yesterday sent on the airplane on their way to the secondary lab for surfactant analysis and the temp got above 5°C MC/Pures spoke w/ Bud, he said as long as the samples don't melt they are OK.

1230 - LLS, sampling RW 4, 5, 6  
Surfactant + DRO

1260 - Sampling RW 456  
Surfactant, DRO, surfactant tension

1305 - MW 13, 14, 46, 47 samples for surfactant + surfactant tension  
1315 - MW Surfactant tension analysis → DRO oil  
13 Not present

14  
46  
47

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1320 - ~~RW~~ RW Surfactant Present  
4  
5  
6  
- 1400 - System check, no visual surfactant  
1430 - Sampling ~~40, 41, 42~~ RW 4, 5, 6  
- MW 40, 41, 42, 22 for DRO surfactant tension  
Tomorrow

- LLS (16)  
- Sample - RW 456 + MW 40, 41, 42  
22 for DRO, Surfactant, surfactant tension,

- Sample during extraction every 30 min for DRO, Surfactant, surfactant tension.

~~After extraction~~ -  
Sample 13, 14, 46, 47 DRO Surfactant

- Full system check prior to extraction and after.

~~1522 All off~~



1411 - James recommended doing a full surface tension from the effluent of the system.  
 1420 - System effluent sample for surface tension

- James wants to wait to complete surfactant analysis until vent is over  
 1432 - Surfactant appears to be in effluent but a very small amount - Bud's assessment of surface tension, possibly result of index filter air flux containing surfactants - Bud's assessment

1430 - RW 4, 5, 6 - DRO, surfactant, surface tension  
 - MW 22, 40, 41, 42 - DRO, surfactant, surface tension

1440 - Surface tension analysis?  
 MW Surfactant Present  
 40 Surfactant Present  
 41 Surfactant Present  
 42 Surfactant Present  
 22 Surfactant Present

1522 - All off site

~~1600 - All off site~~

# CRHC Pilot Test

7/31/14

<u>PRE</u>			<u>During</u>	<u>After</u>	
<u>MW</u>	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>	
40	39.66	0910		39.66	1200
42	37.35	0913		37.16	<del>1150</del> 1155
10R	39.26	0912		39.26	1201
<del>43</del>	<del>39.04</del>	<del>0917</del>		38.97	1159
<del>22</del>	<del>38.94</del>	<del>0911</del>		38.29	1157
46	33.08	0919		33.03	1149
41	35.11	0914		34.85	1154
47	33.36	0917		33.22	1150
13	33.47	0920		33.47	1148
19	30.42	0924		30.42	1144
45	31.81	0921		31.81	1147
35	29.77	0922		29.77	1146
14	34.62	0916		34.53	1151
20	30.49	0923		30.49	1145
33	27.83	0925		27.83	1143
34	27.99	0926	27.99	1142	

## Injection

<u>MW</u>	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>
40	34.32	1043	39.46	1132				
41	35.01	1045	33.21	1130				
42	24.73	1043	37.05	1133				
22	38.12	1046	22.4	1131				
			21.48					



date =

project

page

Dundas

7/31/14

	LL	Time		
40	<del>37.66</del>	<del>1235</del>	39.66	1237
42	37.30	1240		
10R	39.27	1235		
43	39.02	1238		
22	38.39	1239		
46	33.05	1246		
41	35.07	1242		
47	<del>33.36</del>	<del>1245</del>		
13	33.47	1247		
19	30.46	1250		
45	31.81	1248		
35	29.80	1249		
14	34.60	1244		
20	30.49	1249		
33	27.88	1252		
34	28.02	1253		

task list:

0840 - MC/RCT JCT on site for 2nd full count. Starting 1st round at 11:00  
 0850 - System OPM Pre extraction

Well	GPM	Totaliser	*Secure fully
2D	22.47	10389545	in BF 142
3B	21.06	10013476	Modcrank in
4	5.67	61574846	279
5	11.24	07241140	
6	26.06	<del>2723673</del>	System

PSF  
 BF 1 20 Before After  
 2 20 6  
 3 18 4  
 4 18 4

\* No sufficient obsv'd - weather clear  
 \* Significant loss in m/cyl. Δ out 3 filter  
 \* Significant loss per unit - weather clear  
 \* Significant loss per unit - weather clear

- Noticed occurrence in All BF - Not unusual  
 - M1 + M2 - 0.0 PSI  
 0910 - Sampling MW 40, 41, 42, 22 for DRO, Surfactants, Surface Tension

0930 - Sampling RW 4, 5, 6 for sand DRO, Surfactants, Surface Tension

- Sampling MW 40, 41, 42, 22 every 30 mins during extraction.  
 - MW 40, 41, 42, 22 11:15 during extraction.

0950 - Shown noted in MW 40, 41, 42 22 via samples

1000 - Surface tension for 13, 14, 46, 47 field sensors

1010 MW 41, 42, 40, 22 Surface Tension  
 42 Present  
 40 Present  
 22 Mostly absent  
 41 Present

1018 - Extracting 40, 41, 42, 22 GPM  
 40 - 5 GPM  
 41 - 3.5  
 42 - 5  
 22 - 5.0

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1027 - Surface tension field station

MW  
13 Absent - No surfactant  
14  
46  
47

1160 - Surface Tension

MW  
40 More present  
41  
42  
22 Shanty progress

\* It is suspected RW6 may be robbers H<sub>2</sub>O from MW42

1050 - System check - No visible surfactant no bubbles water clear

- Samples MW 40, 41, 42, 22 DRO, surfactant, surface tension

1124 - Spoke w/ Susan Bull<sup>me</sup> via phone gave her update as to what nobly's activities

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1126 - ~~Surface Tension~~  
Strategic excavating next to RW-6, trap to locate fire hydrant line, fuzzy noise been here all month. Excavating now

1120 - 2nd Round 41, 42, 40, 22 DRO, surfactant, surface tension  
1130 - Ken hauling on site  
1150 - 3rd Round 41, 42, 40, 22 DRO, surfactant, surface tension.

120 - All 1/2 hr samples during excavation are going to be analyzed for DRO, & increase concentration changed from 0.11 to 0.22, analyzed to show DRO drop / curve

1220 - Surface tension 40 41, 42, 22  
40 surfactant present but reducing.  
41  
42  
22



Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1350 - 5 <sup>th</sup> Round extraction samples	
MW 40	Slightly present
41	
42	
22	
- Bud suggested running 22 & 42 for 30 mins after the 1350 sample	
1400 - Bud suggested purging 42 & 41 1420.	
1420 - 6 <sup>th</sup> Round extraction samples	
MW 40, 41, 42, 22	Surface tension
MW 40	Slightly present
41	
42	
22	

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1220 - 4 <sup>th</sup> Round sampling 40, 41, 42, 22	
DRO Surface tension	Surface tension
1220 - System Check ok. no visible bubbles surface tension	
1250 - Surface tension test	
MW 40	Mostly absent
41	
42	Slightly present
22	
1320 - Surface tension test	
MW 40	<del>absent</del> no surface tension
41	
42	slightly present
22	
<del>1340 -</del>	<del>Spot down pump extraction stop.</del>
	- All tests present



Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

7th Road

1450 Surface Tension DRO, Surface Tension

MW  
40 1100  
41 750  
42 300  
22 1500  
4050

1520 - Surface tension, Surface Tension

MW  
40 Almost not present  
41  
42  
22

- Bib and 1550 will be  
left pump and shut  
down then.

1550 - Stop extraction.

1551 - LLS (16)

- (4) 14, 13, 44, 47 DRO, Surface Tension
- (3) RW 45, 6 DRO, Surface Tension, Surface Tension
- Eff - Surface Tension, Surface Tension

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

Wendell

Sample - 13, 14, 46, 47 - DRO, Surface Tension,  
Surface Tension  
- RW 45, 6 - DRO, Surface Tension,  
Surface Tension, INF.

Post Extraction - System open

1625 -  
PF 1  
BE 2  
3  
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100

Well - GPM  
2D 22.56  
3B 20.68  
4 5.52  
5 11.14  
6 26.20  
82 OFF for Injections

Totalized  
10409153  
10022364  
61577230  
07248866  
23684647

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1670 - MW 22 DBD. Sur, Tar

40  
41  
42

1700 - RW 4, 5, 6

1710 - 13, 14, 46, 47

1745 - All off-site

~~Signature~~  
8/14/14

Location CRHC Date 8/4/14

Project / Client Summa 803 LT S. G. G. S.

0850 - ME/RM JCT of site for 3rd Round out

incentives  
- Clean Harbor on site to punch out 6500sq ft

0900 - JCT Comp/otas LLC  
- RCM sample 13, 14, 16, 47 RW 4, 5, 6, - DBD / Substrate, Surface from way.

0920 - No steel observed in 40, 41, 42, 22  
- Injection solution is @ 0.11%

0945 - 13, 14, 46, 47 Sample DBD, Substrate, Substrate tank  
- Skum noted in MW 47

0955 - Sample RW 4, 5, 6 DBD, Substrate, Substrate tank  
- No skum noted

0950 - MW 40 Injecting  
1005 - MW 42 Injecting

System Check - High BT pressure 112/50  
No visible substructure water clean

8/1/14 CRHC Pilot test LLs.

<u>Pre extraction</u>			<u>Daily</u>		<u>After</u>	
<u>MW</u>	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>TIME</u>		
1	40	0800	40.27	10:57	39.75	1648
7	42	0811	37.50	10:58	37.39	1651
3	10R	0858	39.51	13:22	39.35	1648
4	43	0940	34.29	1556	39.12	1649
5	22	0901	38.72	1554	38.51	1650
6	46	0930	33.22	1601	33.23	1655
7	41	0944	35.47	1557	35.22	1652
8	47	0931	33.60	1559	33.46	1652
9	13	0933	33.58	1603	33.55	1656
10	19	0936	30.48	1606	30.48	1700
11	45	0934	31.90	1602	30.87	1657
12	35	0935	29.82	1604	29.82	1658
13	14	0930	34.76	1558	34.71	1653
14	20	0935	30.55	1605	30.53	1659
15	33	0937	27.87	1607	27.87	1701
16	34	0938	28.00	1608	28.02	1702

<u>Daily</u>					
	<u>MW</u>	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>
	40	42.22	10:57	42.45	11:52
	41	36.76	11:01	37.15	11:55
	42	38.17	10:58	38.35	11:54
	22	42.03	10:58	41.90	11:53



Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1670 - MW 22 DBD. Sur, Tar

40  
41  
42

1700 - RW 4, 5, 6

1710 - 13, 14, 46, 47

1745 - All off-site

~~Signature~~  
8/14/14

Location CRHC Date 8/4/14

Project / Client Summa 803 LT S. Labs

0850 - MC/RM/JCT of site for 3rd Round out

incentives  
- Clean Harbor on site to punch out 6500 gal tanks

0900 - JCT computers, LLC  
- RCM samples 13, 14, 16, 47  
RW 4, 5, 6, - DBD / Surfactant, Surfactant from bag.

0920 - No sleep observed in 40, 41, 42, 22  
- Injection solution is @ 0.11%

0945 - 13, 14, 46, 47 Sample  
DBD, Surfactant, Surfactant tank

- Skum noted in MW 47  
6975 - Sample RW 4, 5, 6  
DBD, Surfactant, Surfactant tank

- No skum noted  
0950 - MW 40 Injecting  
1005 - MW 42 Injecting

System Check - High BT pressure 112.5 psi  
No visible surfactant water clean



1013 - Surface tension complete

13 Absent

44

46

47

RW

cl

5

6

SUF

1020 - MW 40 Injection Complete

275 gal O.I. 20

1031 - MW 42 Injection Complete

275 gal O.I. 20

1036 - MW 41 & 22 Injections

1100 Clean barrels off site

gallons pumped on 8/14 - 4,900

from MW 40, 41, 42, 22

dunnage

1101 - MW-41 Injection complete

1107 - MW-22 Injection complete

275 gal O.I. 20

11 MW 13, 14, 46, 47 - Surface tension

RW 41, 5, 6

1200 - MW 40, 41, 42, 22 - DRO, Surface tension

1200 - RW 41, 5, 6 Sample DRO Surface tension

1215 - MW 13, 14, 46, 47 - Surface tension

Tuesday

- LL 5 (16) EPT

- RW 41, 5, 6, 13, 14, 46, 47 DRO, surface tension

MW 40, 41, 42, 22 surface tension

- Full system check & Δ Cell Dk

Prior to & after extraction

- Sample 40, 41, 42, 22 every 1/2 hr. DRO surface tension

1230 - MW 13, 14, 46, 47, 22 DRO, Surface tension

40, 41, 42, 22 Surface tension

1100 - System check revealed no visible

SUI structure, no bubbles

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

Surface tension Analysis

1215 - RW	47	Absent
	5	
	6	
MW	13	Absent
	14	
	46	
	47	
	48	Present
	41	
	42	
	22	

1270 - Slight screen noted in MW 19 during 1215 samples

1230 - Strong screen noted in MW 47 during 1230 samples

1330 - All at site

*[Signature]*  
8/4/14

Location CRHC Date 8/5/14

Project / Client Sunny Lot EOS Levee, St. Charles

OBST-MC/ACM/JCT on site for final (?) pull extraction

- MDE on site
- ACM/JCT completed
- All sections of piers
- System closed.
- System cycling before

BF	17.5	4	3	5	10
	18	4	4	4	10
	18	4	4	4	10
	19	4	4	4	10

\* BF 3 Note: No sediment observed on 8/1 + 1/30  
 - Noticed slight screen in weather in boosery  
 BF2 - Slight screen  
 BF1 - Slight screen, Major BF

3  
4  
5  
10  
10  
10  
10



# CRHC Pilot Test

8/4/14

## Before

## During

## After

MW	LL	Time	LL	Time	LL	Time		
10R	38.79	0924	38.61	1100	38.71	1138		
40	38.93	0925	38.57	1101	38.87	1139		
41	34.09	0928	<del>33.30</del> 37.70	<del>1102</del> 1105	33.91	1143		
42	36.62	0927	<del>36.31</del> 26.21	<del>1103</del> 1104	36.51	1142		
43	Tanker truck parked on well		37.70	38.57	1101	1102	38.16	1140
22	37.61	0926	26.21	1103	37.51	1141		
46	32.16	0931	31.88	1108	31.89	1145		
47	32.17	0930	31.72	1107	31.86	1146		
13	32.77	0932	32.54	1109	32.59	1147		
14 <sup>33</sup>	<del>33.46</del> 33.46	0929	<del>32.24</del> 32.24	1106	<del>32.37</del> 32.37	1144		
45	31.53	0933	31.38	1110	31.43	1148		
35	29.66	0934	29.87	1111	29.61	1149		
20	30.03	0935	29.93	1112	29.94	1150		
19	30.21	0936	30.11	1113	30.11	1151		
33	27.88	0937	27.80	1114	27.81	1152		
34	27.99	0938	27.91	1115	27.92	1153		

## After

MW	LL	Time
10R	<del>38.71</del> 38.71	1223
40	38.91	1225
41	33.80	1230
42	36.51	1229
43	38.17	1227
22	37.29	1228
46	31.90	1211
47	31.96	1210
13	32.59	1222
14	33.62	1209
45	<del>30.01</del> 30.01	1213
35	29.63	1212
20	30.01	1213
19	30.19	1215
33	27.81	1218
34	27.91	1220

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

Surface tension Analysis

1215 - RW	47	Absent
	5	
	6	
MW	13	Absent
	14	
	46	
	47	
	48	Present
	41	
	42	
	22	

1270 - Slight screen noted in MW 19 during 1215 samples

1230 - Strong screen noted in MW 47 during 1230 samples

1330 - All at site

*[Signature]*  
8/4/14

Location CRHC Date 8/5/14

Project / Client Sunny Lot EOS Levee, St. Charles

OBST-MC/ACM/JCT on site for final (?) pull extraction

- MDE on site
- ACM/JCT completed
- All sections of piers

OBST - System closed.

- System cycling before

BF			
1	17.5	4	3 individual bags taken
2	18	4	Major feeding
3	18	4	submerged area
4	19	4	Minor feeding

\* BF 3 Note: No sediment observed on 8/1 + 1/30

W - Noticed slight screen on weather in boosery

BF2 - Slight screen  
BF1 - Slight screen, Major BF



	GA	Totalizer
RW 2D	23.29	10495724
3B	20.97	10100805
4	5.44	61599124
5	6.69	07290938
6	25.44	23788496
22	OFFLINE	
	PS1	

M1 0.0  
M2 0.0

Will A (3) myclox  
~~transmission~~ later today  
 cut off connection

No visible substation in system, no found, ventur clear

0930 - Sample 13 14 46 47  
 there's no ice in place  
 this is at 10 41, 42, 22  
 Sample

0935 - RW 4.5, 6 Sample  
 EFF

APP. 10/19  
 50%  
 50%  
 50%

TO DO

① order Bailers

② order Totalizer

③ price Mydex bottles

\* Spec noted in 40, 42

APP. 10/19  
 50%  
 50%

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

0940 Surtan tankin

MW

13 Absent

14

46

47

40 Present w/ sheen

41 Present

42 Present w/ sheen

22 Present

RW

4 Present

5 Absent

6 Absent

FAF Absent

1010 - Extracting MW 40, 41, 42, 22

GPA

5.0

4.0

1.0

5.5

add gallon per hr.

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1040 - Bud requested 8RO surtan tankin for RW 4.5, 6

b/c he suspects the RWs may be holding the surtans, etc.

RW 4.5, 6

1040 - System closed no visible gullion, no foam water clear

- Bud requests sampling during 1 hr. Intervals

- Since R.MW 47 + 191 have had. surt.

We are going to sample RW 20 since it is so special about it may be pulling product / surtans.

1040. RW 20 Sample 1040 Surtan tankin 20 present



1090	Surface tension / DRO
MW	
40	Present
41	↓
42	
22	
RW	
4	Present
5	Present
6	Absent
110	Surface tension / DRO
40	Present
41	↓
42	
22	
1140	Surface tension / DRO
RW	
4	Present
5	↓
6	↓
22	↓
MW	
40	Present
41	↓
42	↓
22	↓
Sample -	DRO
	Substrate

1210	Surface tension / DRO
40	Present
41	↓
42	
22	
1240	Sample - Surface tension / DRO
RW	
4	Present
5	↓
6	↓
22	↓
MW	
40	Present
41	
42	
22	
1306	Bad + RW by aft 2.5K
1310	Surface tension / DRO
40	Absent
41	↓
42	↓
22	↓

WT

100

Location \_\_\_\_\_

Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1340 Sample Surface tension / DRO  
41 Absent 4 Absent

42 8

40 6

22 20

1410 Sample Surface tension / DRO

- Not analyzed surface tension  
b/c running out of paper.

9:30 40, 41, 42, 22 show absent  
for surfactant.

1510 Sample N<sup>o</sup> 40, 41, 42, 22, 13, 14, 46, 47  
RWS 20, 4, 5, 6 for DRO,

Surfactant, surface tension  
and Effluent

- System OPM to be completed  
tomorrow after LL.

James (EBA) Wants to shut down  
off @ 5:00 b/c we have  
MUT volume requirements are

46 101

Date \_\_\_\_\_

Location \_\_\_\_\_

Project / Client \_\_\_\_\_

① Wechsler 8/6

- LLs (16)

- System O/M

② Fridant 8/8

- LLs (16)

- System O/M

~~Office / week for next 4 weeks~~

③ 8/12 - Sample 28, 46, 1, 0/M  
+ 8/13

→ Surface tension is absent in 40, 41, 42, 22

- We will sample 40, 41, 42, 22  
first to confirm surfactant  
fraction.

1510 - Shut down pump as per James (EBA)

1510 - surface tension

40 Absent

41 Absent

42 slightly present

22 Absent



1330 - ~~Started~~ restarted pumping MW 42 due to slight sorbent deviation.

- It is strange that MW 42 showed surface denaturation. The 2 placos samples were Absorb @ 1510

1600 - James wants to come back tomorrow and ~~put~~ pump from MW 42 + MW 9 next to 42 to arrive all surfactant is removed.

1600 - Surfactant still appears to be in MW 42.

1610 - James wants to pump tomorrow as above sketch down for today. Jeremy (EPA) has authorized additional funds rental for tomorrow. A additional pumping volumes associated w/ pump.

1600 - All off site

~~Handwritten scribbles and numbers 14, 5, 11~~

# CRHL Pilot Test

8/5/14

<u>MW</u>	<u>Before</u>		<u>After</u>	
	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>
10R	38.41	0845	39.50	1515
40	38.47	0846	39.92	1516
43	37.77	0847	39.26	1518
22	36.88	0848	38.67	1517
42	35.99	0849	37.51	1519
41	33.22	0850	35.45	1520
14	31.90	0851	34.81	1521
47	31.28	0852	33.59	1522
13	32.30	0854	33.59	1524
46	31.46	0853	33.30	1523
45	31.16	0855	31.95	1525
35	29.34	0856	29.89	1526
20	29.69	0857	30.60	1527
19	29.87	0858	30.57	1528
33	27.55	0859	27.93	1529
34	27.69	0900	28.06	1530

## Dumps

	<u>1040</u>	<u>1110</u>	<del>1140</del>	<u>1210</u>	<u>1410</u>
	<u>LL</u>	<u>MW</u>	<u>LL</u>		<del>1310</del>
10R		40	42.40	42.57	42.66
40		42	38.17	38.29	38.50
42		22	41.56	41.70	41.72
22		41	37.26	37.80	38.12
41					
47					
13					
46					
45					
35					
20					
19					
34					

1510



Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

Surface tension Analysis

1215 - RW	47	Absent
	5	
	6	
MW	13	Absent
	14	
	46	
	47	
	40	Present
	41	
	42	
	22	

1270 - Slight screen noted in MW 19 during 1215 samples

1230 - Strong screen noted in MW 47 during 1230 samples

1330 - All at site

*[Signature]*  
8/4/14

Location CRHC Date 8/5/14

Project / Client Sunny Lot EOS Levee, St. Charles

OBST-MC/ACM/JCT on site for final (?) pull extraction

- MDE on site
- ACM/JCT completed
- All sections of piers

OBST - System closed. - System cycling before

BF	17.5	4	3	Wind blowing from NW
	18	4	4	Major feeding below
	18	4	4	submerged pier
	19	4	4	Wind blowing from

\* BF 3 Note: No sediment observed on 8/1 + 7/30

W - Noticed slight screen on weather in boosery

BF2 - Slight screen BF1 - Slight screen, Major BF3

GM Totalizer

RW 2D	23.29	10495724
3B	20.97	10100805
4	5.44	61599124
5	6.69	07290938
6	25.44	23788496
22	OFFLINE	
	PS1	
M1	0.0	
M2	0.0	

Will A (3) myclox  
~~transmission~~ later today  
cut off connection

No visible substitution in  
system, no found, ventur  
clear

0930 - Sample 13 14 46, 47  
sherry notice in place 47  
this is sample 10 41, 42, 22  
Sample  
D.D. 4/14  
sample taken

0935 - RW 4.5, 6 Sample  
EFF

TO DO

- ① order Bailers
- ② order Totalizer
- ③ price Mydex bottles

\* Shea noted in 40, 42

4/14  
sample taken  
→



Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

0940 Surtan tankin

MW 13

Absent

14

46

47

Present w/ sheen

Present

42

Present w/ sheen

22

Present

Absent

Absent

Absent

RAW 4

5

6

FAF

1010 - Extracting MW 40, 41, 42, 22

GPA

5.0

4.0

1.0

5.5

add collect per hr.

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1040 - Bud requested 8RO surtan

teaser for RW 4.5, 6

b/c he suspects the RWs

may be hidden

surfactant, etc.

RW 4.5, 6

1040 - System closed no visible

surfactant, no foam water clear

- Bud requests sampling

during 1 hr. Intervals

- Since R.MW 47 + 191 have

had. surm.

We are going to sample

RW 20 since it is so special

think it may be pulling

product / surfactant.

1040. RW 20 Sample 1040

Surfactant teaser

20 present

1090	Surface tension / DRO
MW	
40	Present
41	↓
42	
22	
RW	
4	Present
5	Present
6	Absent
110	Surface tension / DRO
40	Present
41	↓
42	
22	
1140	Surface tension / DRO
RW	
4	Present
5	↓
6	↓
22	↓
MW	
40	Present
41	↓
42	↓
22	↓
Sample -	DRO
	Substrate

1210	Surface tension / DRO
40	Present
41	↓
42	
22	
1240	Sample - Surface tension / DRO
RW	
4	Present
5	↓
6	↓
22	↓
MW	
40	Present
41	
42	
22	
1306	Bad + RW by aft 2.5K
1310	Surface tension / DRO
40	Absent
41	↓
42	↓
22	↓



WT

100

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

1340 Sample Surface tension / DRO

41	Absent	4	Absent
42	8		
40	6		
22	20		

1410 Sample Surface tension / DRO

- Not analyzed surface tension  
 b/c running out of paper.  
 9:30 40, 41, 42, 22 show absent  
 for surfactant.

1510 Sample #40, 41, 42, 22, 13, 14, 46, 47

RWS 20, 4, 5, 6 for DRO,  
 Surfactant, surface tension  
 and Effluent

- System OPM to be completed  
 tomorrow after LL.

James (EBA) wants to shut pump  
 off @ 5:00 b/c we have  
 MLT volume requirements and

46 101

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

① Wechsler 8/6

- LLs (16)  
 - System O/M

② Fridant 8/8

- LLs (16)  
 - System O/M  
~~Order / week for next 4 weeks~~

③ 8/12 - Sample 28, 46, 1, 0/M  
 + 8/13

→ Surface tension is absent in 40, 41, 42, 22  
 - We will sample 40, 41, 42, 22  
 first to confirm surfactant  
 fraction.

1510 - Shutdown pump as per James (EBA)

1510 - surface tension  
 40 Absent  
 41 Absent  
 42 Slightly present  
 22 Absent

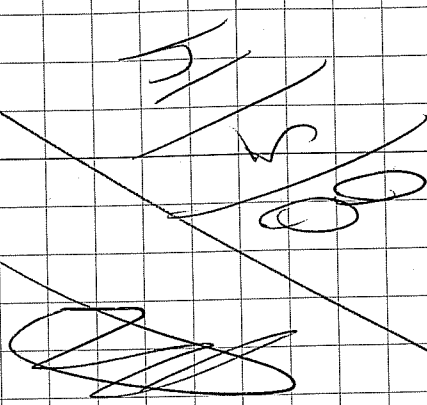
1330 - ~~Restarted~~ pumping MW 42 due to slight sorbent deviation.

- It is strange that MW 42 showed surface denaturation. The 2 plastic samples were Absorb @ 1510

1600 - James wants to come back tomorrow and ~~put~~ pump from MW 42 + MW 4 next to 42 to arrive all surfactant is removed. Surfactant still appears to be in MW 42.

1610 - James wants to pump tomorrow as above sketch down for today. Jeremy (EPA) has authorized additional funds rental for tomorrow. A additional pumping volumes associated w/ pump.

1640 - All off site





# CRHL Pilot Test

8/5/14

<u>MW</u>	<u>Before</u>		<u>After</u>	
	<u>LL</u>	<u>Time</u>	<u>LL</u>	<u>Time</u>
10R	38.41	0845	39.50	1515
40	38.47	0846	39.92	1516
43	37.77	0847	39.26	1518
22	36.88	0848	38.67	1517
42	35.99	0849	37.51	1519
41	33.22	0850	35.45	1520
14	31.90	0851	34.81	1521
47	31.28	0852	33.59	1522
13	32.30	0854	33.59	1524
46	31.46	0853	33.30	1523
45	31.16	0855	31.95	1525
35	29.34	0856	29.89	1526
20	29.69	0857	30.60	1527
19	29.87	0858	30.57	1528
33	27.55	0859	27.93	1529
34	27.69	0900	28.06	1530

## Dumps

	<u>1040</u>	<u>110</u>	<del>1140</del>	<u>1210</u>	<u>1410</u>
	<u>LL</u>	<u>MW</u>	<u>LL</u>		
10R		40	42.40	42.57	42.66
40		42	38.17	38.29	38.50
42		22	41.56	41.70	41.72
22		41	37.26	37.80	38.12
41					
47					
13					
46					
45					
35					
20					
19					
34					

1510

Location CRUC Date 8/6/14

Project / Client Sunny 80; U.S. Waters

0900 - MC/RCA on site to  
French pump MW 42 (cont MW 9)  
as per James (EPA)  
→ Get Myelox Model #  
Spec etc.

(2378) to for trailers

- No sleep noted during LL round (16)

To do today

- Us (16)
- Pump MW 42 & 9
- 6th
- Myelox Model # & filter info.
- Demo.

Flow meter repair - Task 05  
311.01.52

0930 - James (EPA) on site

Location \_\_\_\_\_ Date \_\_\_\_\_

Project / Client \_\_\_\_\_

0915 - Pumping extracting MW 42 & 9  
MW 9 - 5 ppm  
MW 42 - 1.0 ppm  
360 gal per hour

- Packing up for Demo

- Cleanly repairing MW-22 pump.  
- crack in pipe - make adapter  
good w/ pump.

Floods set @  
34" (2) at 44" (1)

Need - (3) 3/4" Female slip x 1/2" Adapter

1 M. - Pump maintenance / repairs  
MW-22 - Fast ~~off~~ Task 06  
- Remount pump for Injectors



1200	System 2/M		
	- System runs optimally, not exciting.		
	BF PSI		
	1	5	
	2	5.5	
	3	5	
	4	5	
	M1	0.0	
	M2	0.0	
		GPM	Testifier
	RW 2D	21.92	10581742
	3D	20.51	10134068
	4	5.86	61608462
	5	11.12	07308779
	6	25.11	23828992
	22	0.1/1.0	
	- 0.1M BAG Δ to be caught <sup>no next</sup> <del>proper</del> , tested.		
1145	- Surface tension MW 42		
	- Slightly present.		
	= Continuing to pump as per James		
1215	- Surface tension for MW 42 Absent (month)		
	- James (EPA) wants to keep pumping to make sure.		

1215	- Surface tension	
	MW 42 - Absent (month)	
	MW 9 - Totally absent	
1315	- Surface tension	
	MW 42 Absent	
	MW 9 Absent	
	James wants to pump <sup>weather to Mr.</sup> <del>weather to Mr.</del>	
	After run another surface tension to	
	double confirm the last absent	
1345	- Surface tension	
	MW 42 - Absent	
	MW 9 Absent	
	- James said we are good	
	and to shut down pump.	
	- Shutting down.	
1400	- Noticed product skum on	
	pump when pulled out of MW 9	



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53

Location

Date

Project / Client

1430 RW 4 5 6 2D Sampled  
 DRO Sorbent, surface tension

1435 MW 40, 41, 42, 22  
 DRO, Sorbent, surface tension

1450 MW 13 14 46, 47

DRO Sorbent, surface tension  
 Effluent Sample

\* Shown noted in MW 22 sample  
 Slight shown noted in MW 40  
 Shown noted in MW 42  
 Slight shown in MW 14  
 Slight shown in 46

Major Significant shown in 47, not recorded  
 1520 ALL OFFSITE

~~Signature~~  
 8/6/14

109  
54

Location

Date

Project / Client

CRHC  
 Sunny 80's Roberts S. Labs  
 8/7/14

1030 - @ office @ 7:00. Demanded  
 printer stored items for  
 DBS (BBA) (2) grounders pumps,  
 (2) sump pumps, (4) garden hoses,  
 (1) mixer.  
 2.0 hrs done

1030 - MC RCM on site to re-install  
 pump in MW-22 Replaced  
 PVC 3/4" Female slip x Poly thread  
 adaptor @ pump inlet that  
 was broken & then previously  
 off during removal.

- Pump sent in iron, out over night  
 to dealer. Unlabeled very well.  
 1145 - Pump repaired & re-installed.  
 - MC RCM complete system  
 8 PM

1200 - Noted small bubbles in  
 wet well after startup  
 MW-22

DF Bore to After  
 7 7 7 4  
 7 7 7 4

date

project

page

CRHC Pilot Test  
LLs

8/6/14

	LL	Time	LL	TIME	
1	10R	39.53	0921	39.59	1358
2	40	39.97	0922	40.00	1400
3	43	39.30	0923	39.39	1402
4	22	38.72	0924	38.81	1407
5	42	37.57	0930	37.75	1405
6	41	35.40	0925	35.55	1407
7	14	34.89	0928	34.95	1408
8	47	33.69	0929	33.81	1409
9	13	33.79	0932	33.82	1411
10	46	33.43	0931	33.46	1410
11	45	32.70	0933	32.75	1411
12	35	30.11	0934	30.17	1415
13	20	30.82	0935	30.87	1416
14	19	30.81	0936	30.87	1417
15	33	28.22	0937	28.21	1418
16	34	28.32	0938	28.35	1420
17	9	37.70	0938	37.90	1406

task list:

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53

Location

Date

Project / Client

1430 RW 4 5 6 2D Sampled  
 DRO Sorbent, surface tension

1435 MW 40, 41, 42, 22  
 DRO, Sorbent, surface tension

1450 MW 13 14 46, 47

DRO Sorbent, surface tension  
 Effluent Sample

\* Shown noted in MW 22 sample  
 Slight shown noted in MW 40  
 Shown noted in MW 42  
 Slight shown in MW 14  
 Slight shown in 46

Major Significant shown in 47, not recorded  
 1520 ALL OFFSITE

~~Signature~~  
 8/6/14

109  
54

Location

Date

Project / Client

CRHC  
 Sunny 80's Roberts S. Labs  
 8/7/14

1030 - @ office @ 7:00. Demanded  
 printer stored items for  
 DBS (BBA) (2) grounders pumps,  
 (2) sump pumps, (4) garden hose,  
 (1) mixer.  
 2.0 hrs done

1030 - MC RCM on site to re-install  
 pump in MW-22 Replaced  
 PVC 3/4" Female slip x pipe thread  
 adaptor @ pump inlet that  
 was broken & then previously  
 off during removal.

- Pump sent in iron, out over night  
 to dealer. Unpacked very well.  
 1145 - Pump repaired & re-installed.  
 - MC RCM complete system  
 8 PM

1200 - Noted small bubbles in  
 wet well after startup  
 MW-22

DF Basic to AFM  
 7 7 7 7  
 7 7 7 7





**ATTACHMENT B – Site Photos**

# Preparation of Ivey-sol<sup>®</sup> for Injection

For Injection 1 – 5-Gallons of Ivey-sol<sup>®</sup> solution was added to a tote containing 275 gallons of water. The contents of the tote was then homogenized via power mixer.





# Overview of Injection at MW-42

Injection of the Ivey-sol<sup>®</sup> solution was performed via submersible pump inserted into the bottom of the tote. The duration of the injection was approximately 25 minutes.



# Overview of Pilot Study Site

Pilot study was contained within the upper parking lot of the hospital. This view is from the east looking west.



# Overview of Pilot Study Site

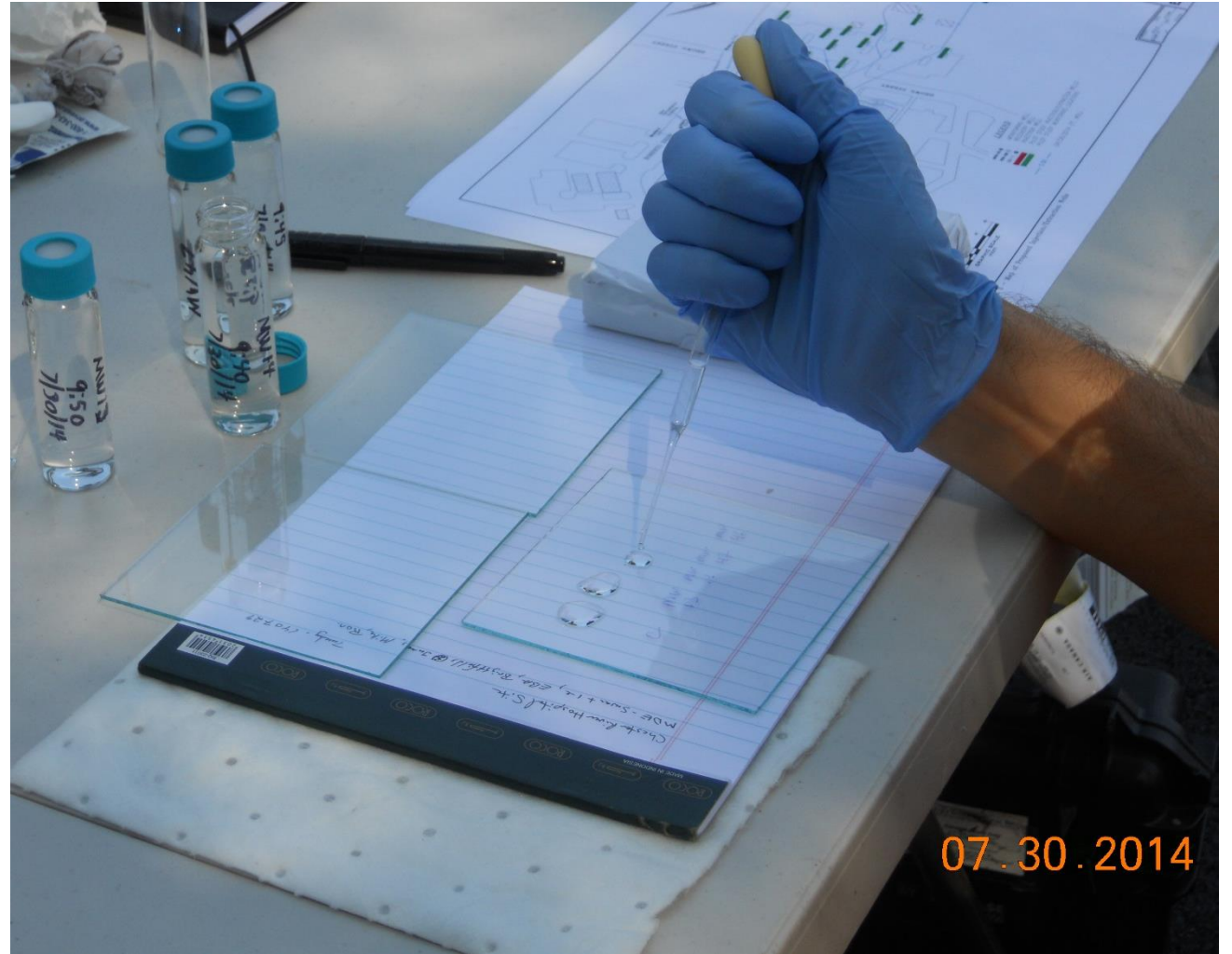
This view is from the south looking north.  
MW-41 is in the foreground.





# Surface Tension Field Test in Progress

Note: Dedicated pipets were utilized during  
each field test.



# Results of Surface Tension Field Test

**Top View – Note the irregular shape and non-cohesiveness of the droplets indicating general presence of surfactant.**



**Side View – Note the irregular shape and lack of height of droplets compared to the dime indicating general presence of surfactant.**



# Results of Surface Tension Field Test

**Top View – Note uniform cohesiveness and comparable size of water droplets to dime indicating general absence of surfactant.**



**Side View – Note uniform and comparable height of water droplets to dime indicating general absence of surfactant.**





# Results of Surface Tension Field Test

**Top View – Note droplets from MW-22 and MW-40 show uniform size and cohesiveness indicating the general absence of surfactant while MW-41 and MW-42 droplets are irregular shaped indicating the presence of surfactant.**



**Side View – Note droplets from MW-22 and MW-40 show uniform size and height compared to the dime indicating the general absence of surfactant while MW-41 and MW-42 droplets are relatively flat indicating the presence of surfactant.**



# Surface Tension Field Results

Note the irregular shape and non-cohesiveness of the droplets indicating the general presence of surfactant.



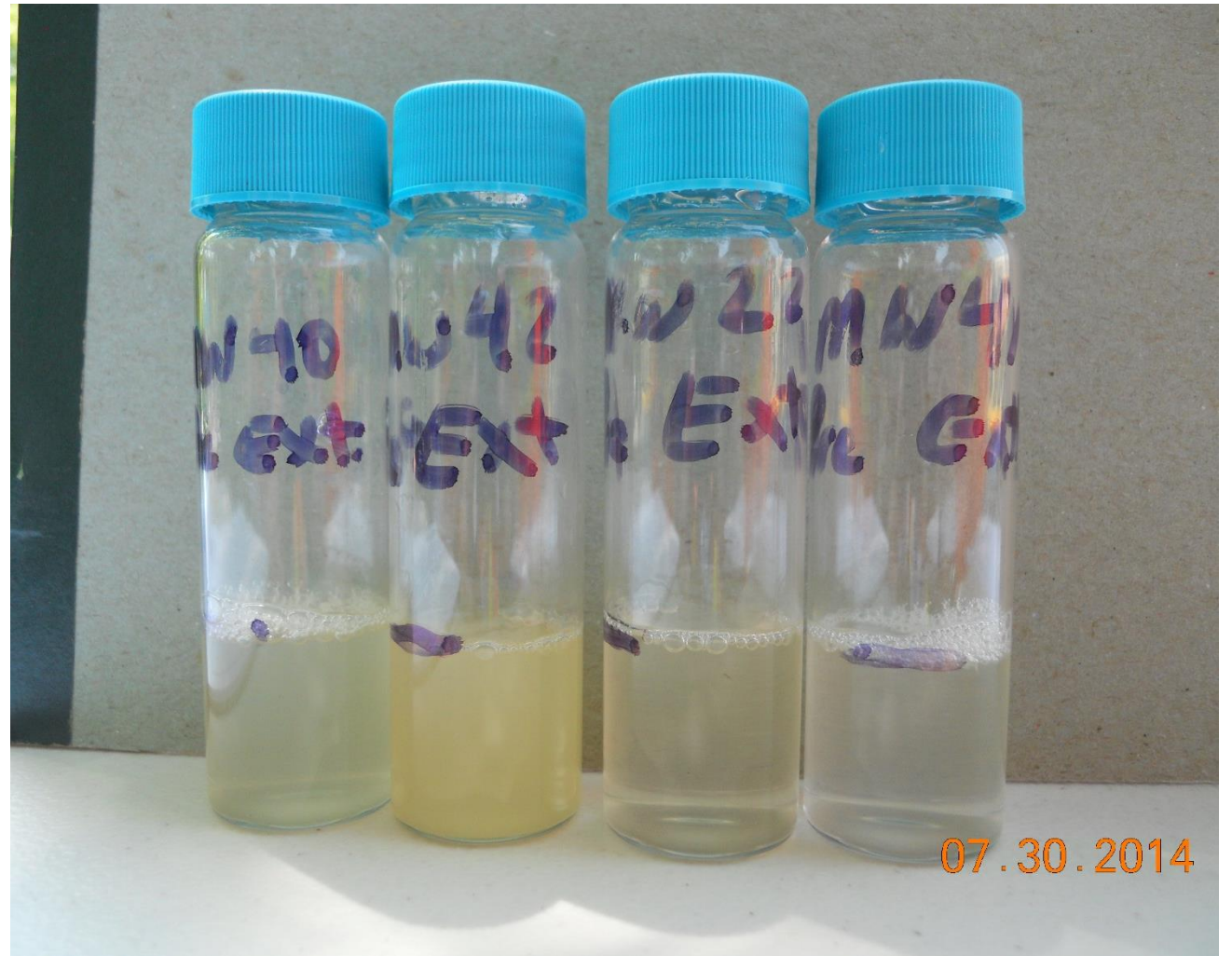
# Surface Agitation Field Test in Progress





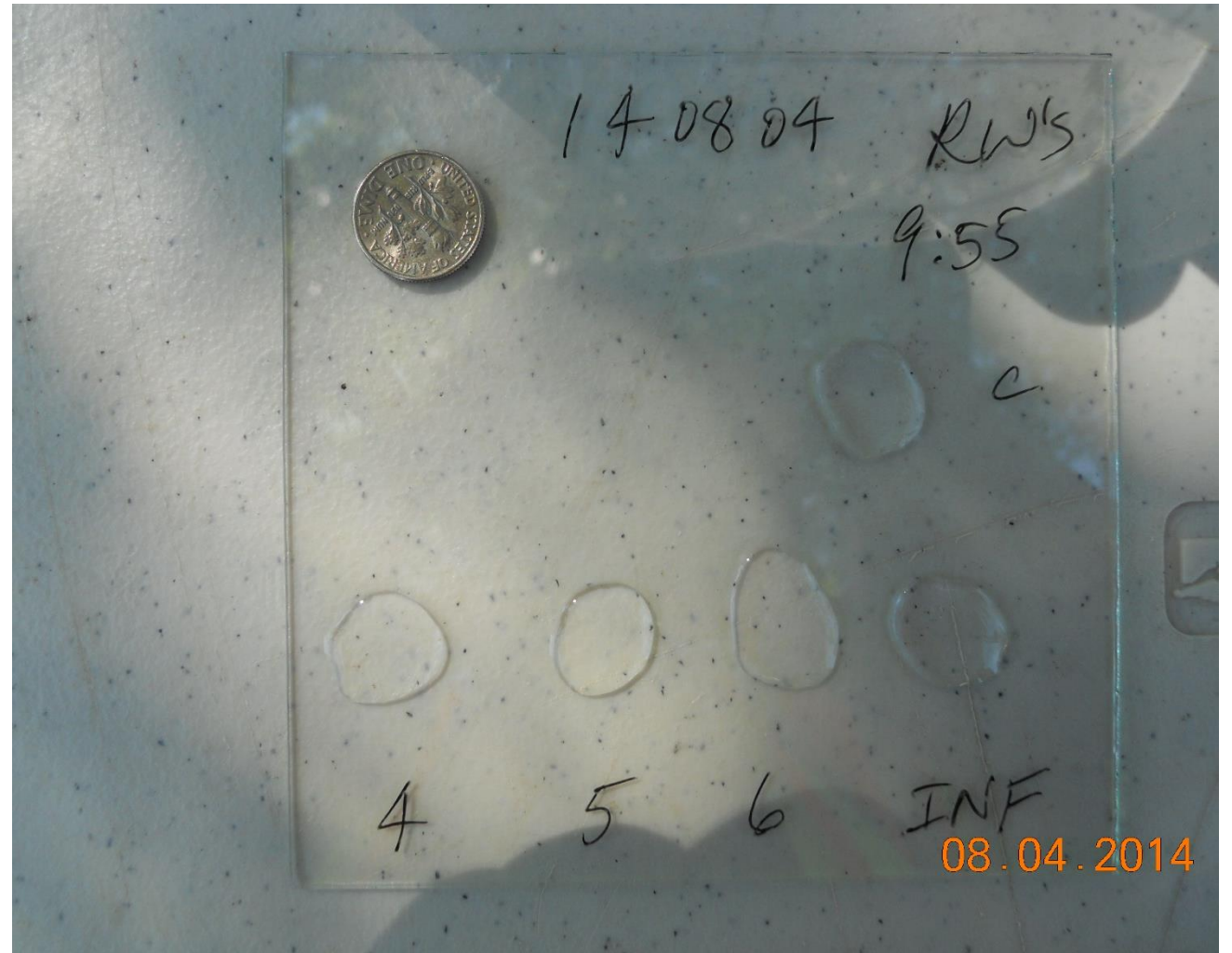
# Results of Surface Agitation Field Test

Note the presence of bubbles indicating the presence of surfactant



# Surface Tension Field Results

Results from RW-4, RW-5, RW-6, and Influent Tank showing absence of surfactant.



# Results of Surface Tension Field Test

Routine field test were performed on MW-13, MW-14, MW-46, and MW-47 (located in median of upper parking lot and Brown Street) to confirm the surfactant did not migrate outside the hydraulic controls of the site.





# Results of Surface Tension Field Test

Results showing MW-13, MW-14, MW-46, and MW-47 were absent of surfactant on 8-1-14.



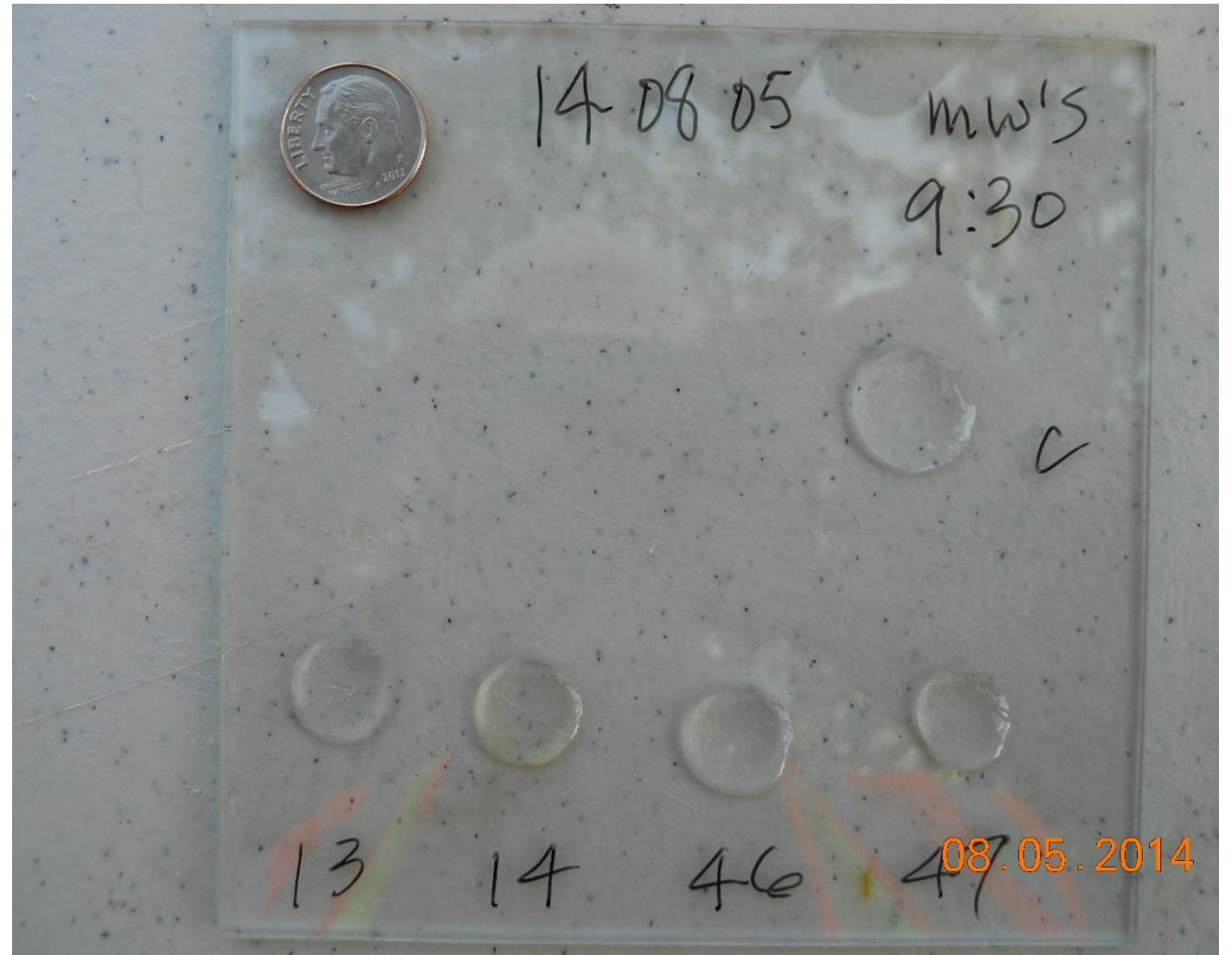
# Results of Surface Tension Field Test

Results showing MW-13, MW-14, MW-46, and MW-47 were absent of surfactant on 8-4-14.



# Results of Surface Tension Field Test

Results showing MW-13, MW-14, MW-46, and MW-47 were absent of surfactant on 8-5-14.





# Results of Surface Tension Field Test

Overview of the results indicating the absence of surfactant in the 1345 samples on 8-6-14. The results of 1315 samples collected 30 minutes prior also showed absence of surfactant. The confirmatory field results provided justification for ceasing extraction activities.



# Overview of Sample Collection

Samples from the extraction wells were collected from the discharge line that terminated near the top of the extraction tanks.





# Routine Visual Check of Influent Tank

Routine visual inspections were performed for the presence of bubbles or liquid phase hydrocarbons.





## Bio-fouling Observed on Primary Bag Filters

Routine system checks and monitoring of bag filter pressure gauges were performed throughout the Pilot Study. Presence of bio-fouling and sediment was observed on the primary bag filters that attributed to increased pressure readings.



# Bio-fouling Observed on the MyCelx<sup>®</sup> Filters

Routine system checks and monitoring of MyCelx<sup>®</sup> filter pressure gauges were performed throughout the Pilot Study. Presence of bio-fouling and iron-fouling was observed on the MyCelx<sup>®</sup> filters.



# Emptying of Extraction Tanks





# Overview of Extractions on MW-42 & MW-9

MW-9 is a 4-inch diameter well located adjacent to MW-42, a 2-inch diameter well, and was utilized to assist in removal of surfactant on 8-6-14.



**ATTACHMENT C – Revised Tables**

**VOLUME EXTRACTION SHEETS**



<b>Volume Extractions</b>					
<b>Extraction 1 (7-30-14)</b>					
	<b>Start</b>	<b>Stop</b>	<b>Total Time (min)</b>	<b>Extraction Rate (gpm)</b>	<b>Volume (gal)</b>
MW-22	12:10	16:30	260	5.0	1300
MW-40	12:10	16:30	260	5.0	1300
MW-41	12:10	16:30	260	3.5	910
MW-42	12:10	16:30	260	1.0	260
<b>Subtotal</b>					<b>3,770</b>
<b>Extraction 2 (8-1-14)</b>					
	<b>Start</b>	<b>Stop</b>	<b>Total Time (min)</b>	<b>Extraction Rate (gpm)</b>	<b>Volume (gal)</b>
MW-22	10:20	15:50	330	5.0	1650
MW-40	10:20	15:50	330	5.0	1650
MW-41	10:20	15:50	330	3.5	1155
MW-42	10:20	15:50	330	1.0	330
<b>Subtotal</b>					<b>4,785</b>
<b>Extraction 3 (8-5-14)</b>					
	<b>Start</b>	<b>Stop</b>	<b>Total Time (min)</b>	<b>Extraction Rate (gpm)</b>	<b>Volume (gal)</b>
MW-22	10:10	15:10	300	5.0	1500
MW-40	10:10	15:10	300	5.0	1500
MW-41	10:10	15:10	300	3.5	1050
MW-42	10:10	16:10	360	1.0	360
<b>Subtotal</b>					<b>4,410</b>
<b>Extraction 4 (8-6-14)</b>					
	<b>Start</b>	<b>Stop</b>	<b>Total Time (min)</b>	<b>Extraction Rate (gpm)</b>	<b>Volume (gal)</b>
MW-9	9:45	13:55	250	5.0	1250
MW-42	9:45	13:55	250	1.0	250
<b>Subtotal</b>					<b>1500</b>
<b>Total All Extractions</b>					<b>14,465</b>

**REVISED APPENDIX D – TABLE 1  
PILOT STUDY DATA SUMMARY DURING FIELD ACTIVITIES**

Appendix D - Table 1 - Pilot Study Data Summary During Field Activities  
 Chester River Hospital Center  
 100 Brown Street  
 Chestertown, MD 21620

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-9	6-Aug-14	9:30	46.10	NA	37.70	8.40	NA	NA	During Extraction 3
	6-Aug-14	12:45	46.10	NA	NA	NA	NA	Absent*	During Extraction 3
	6-Aug-14	13:15	46.10	NA	NA	NA	NA	Absent*	During Extraction 3
	6-Aug-14	13:45	46.10	NA	NA	NA	NA	Absent*	During Extraction 3
	6-Aug-14	14:06	46.10	NA	37.90	8.20	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-10R	29-Jul-14	9:00	48.70	NA	38.16	10.54	NA	NA	Pre-Injection 1
	29-Jul-14	12:00	48.70	NA	NA	NA	<0.1	1.57	Pre-Injection 1
	29-Jul-14	14:20	48.70	NA	37.96	10.74	NA	NA	During Injection 1
	29-Jul-14	15:31	48.70	NA	38.01	10.69	NA	NA	Post Injection 1
	29-Jul-14	15:55	48.70	NA	38.01	10.69	NA	NA	Post Injection 1
	30-Jul-14	9:25	48.70	NA	38.01	10.69	NA	NA	Pre-Extraction 1
	30-Jul-14	15:42	48.70	NA	38.71	9.99	NA	NA	During Extraction 1
	30-Jul-14	16:24	48.70	NA	38.92	9.78	NA	NA	Post Extraction 1
	31-Jul-14	9:12	48.70	NA	39.26	9.44	NA	NA	Pre-Injection 2
	31-Jul-14	12:01	48.70	NA	39.26	9.44	NA	NA	Post Injection 2
	31-Jul-14	12:35	48.70	NA	39.27	9.43	NA	NA	Post Injection 2
	1-Aug-14	8:58	48.70	NA	38.16	10.54	NA	NA	Pre-Extraction 2
	1-Aug-14	15:52	48.70	NA	39.51	9.19	NA	NA	During Extraction 2
	1-Aug-14	16:48	48.70	NA	39.35	9.35	NA	NA	Post Extraction 2
	4-Aug-14	9:24	48.70	NA	38.79	9.91	NA	NA	Pre-Injection 3
	4-Aug-14	11:00	48.70	NA	38.61	10.09	NA	NA	During Injection 3
	4-Aug-14	11:38	48.70	NA	38.71	9.99	NA	NA	Post Injection 3
	4-Aug-14	12:23	48.70	NA	38.71	9.99	NA	NA	Post Injection 3
	5-Aug-14	8:45	48.70	NA	38.41	10.29	NA	NA	Pre-Extraction 3
	5-Aug-14	15:15	48.70	NA	39.50	9.20	NA	NA	During Extraction 3
	6-Aug-14	9:21	48.70	NA	39.53	9.17	NA	NA	During Extraction 3
	6-Aug-14	13:58	48.70	NA	39.59	9.11	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence



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 Chestertown, MD 21620

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-13	29-Jul-14	9:00	41.70	NA	31.82	9.88	NA	NA	Pre-Injection 1
	29-Jul-14	11:35	41.70	NA	NA	NA	0.46	<1.40	Pre-Injection 1
	29-Jul-14	14:45	41.70	NA	31.47	10.23	NA	NA	During Injection 1
	29-Jul-14	15:43	41.70	NA	31.69	10.01	NA	NA	Post Injection 1
	30-Jul-14	9:41	41.70	NA	31.41	10.29	NA	NA	Pre-Extraction 1
	30-Jul-14	10:50	41.70	NA	NA	NA	NA	<1.40	Pre-Extraction 1
	30-Jul-14	15:56	41.70	NA	32.54	9.16	NA	NA	During Extraction 1
	30-Jul-14	16:33	41.70	NA	32.81	8.89	NA	NA	Post Extraction 1
	31-Jul-14	9:20	41.70	NA	33.47	8.23	NA	NA	Pre-Injection 2
	31-Jul-14	9:45	41.70	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	11:48	41.70	NA	33.47	8.23	NA	NA	Post Injection 2
	31-Jul-14	12:47	41.70	NA	33.47	8.23	NA	NA	Post Injection 2
	31-Jul-14	13:05	41.70	NA	NA	NA	NA	Absent*/<1.40	Post Injection 2
	1-Aug-14	9:33	41.70	NA	32.51	9.19	NA	NA	Pre-Extraction 2
	1-Aug-14	10:00	41.70	NA	NA	NA	NA	Absent*	During Extraction 2
	1-Aug-14	16:03	41.70	NA	33.58	8.12	NA	NA	During Extraction 2
	1-Aug-14	16:25	41.70	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	16:56	41.70	NA	33.55	8.15	NA	NA	Post Extraction 2
	1-Aug-14	17:10	41.70	NA	NA	NA	1.8	<1.40	Post Extraction 2
	4-Aug-14	9:32	41.70	NA	32.77	8.93	NA	NA	Pre-Injection 3
	4-Aug-14	9:45	41.70	NA	NA	NA	1.0	Absent*	Pre-Injection 3
	4-Aug-14	11:09	41.70	NA	32.54	9.16	NA	NA	Post Injection 3
	4-Aug-14	11:47	41.70	NA	32.59	9.11	NA	NA	Post Injection 3
	4-Aug-14	12:12	41.70	NA	32.59	9.11	NA	NA	Post Injection 3
	4-Aug-14	12:15	41.70	NA	NA	NA	NA	Absent*/<1.40	Post Injection 3
	5-Aug-14	8:54	41.70	NA	32.30	9.40	NA	NA	Pre-Extraction 3
	5-Aug-14	9:30	41.70	NA	NA	NA	0.22	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	15:24	41.70	NA	33.59	8.11	NA	NA	During Extraction 3
	6-Aug-14	9:32	41.70	NA	33.79	7.91	NA	NA	During Extraction 3
	6-Aug-14	14:11	41.70	NA	33.82	7.88	NA	NA	Post Extraction 3
	6-Aug-14	14:50	41.70	NA	NA	NA	0.75	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-14	29-Jul-14	9:00	41.38	NA	31.52	9.86	NA	NA	Pre-Injection 1
	29-Jul-14	11:10	41.38	NA	NA	NA	9.8	<1.40	Pre-Injection 1
	29-Jul-14	14:36	41.38	NA	31.30	10.08	NA	NA	During Injection 1
	29-Jul-14	15:47	41.38	NA	31.36	10.02	NA	NA	Post Injection 1
	30-Jul-14	9:39	41.38	NA	31.40	9.98	NA	NA	Pre-Extraction 1
	30-Jul-14	10:45	41.38	NA	NA	NA	NA	<1.40	Pre-Extraction 1
	30-Jul-14	15:51	41.38	NA	39.98	1.40	NA	NA	During Extraction 1
	30-Jul-14	16:30	41.38	NA	34.20	7.18	NA	NA	Post Extraction 1
	31-Jul-14	9:16	41.38	NA	34.62	6.76	NA	NA	Pre-Injection 2
	31-Jul-14	9:45	41.38	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	11:51	41.38	NA	34.53	6.85	NA	NA	Post Injection 2
	31-Jul-14	12:44	41.38	NA	34.60	6.78	NA	NA	Post Injection 2
	31-Jul-14	13:05	41.38	NA	NA	NA	NA	Absent*/<1.40	Post Injection 2
	1-Aug-14	9:30	41.38	NA	33.96	7.42	NA	NA	Pre-Extraction 2
	1-Aug-14	10:00	41.38	NA	NA	NA	NA	Absent*	During Extraction 2
	1-Aug-14	15:58	41.38	NA	34.76	6.62	NA	NA	During Extraction 2
	1-Aug-14	16:25	41.38	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	16:54	41.38	NA	34.71	6.67	NA	NA	Post Extraction 2
	1-Aug-14	17:10	41.38	NA	NA	NA	53	<1.40	Post Extraction 2
	4-Aug-14	9:29	41.38	NA	33.46	7.92	NA	NA	Pre-Injection 3
	4-Aug-14	9:45	41.38	NA	NA	NA	17	Absent*	Pre-Injection 3
	4-Aug-14	11:06	41.38	NA	33.24	8.14	NA	NA	Post Injection 3
	4-Aug-14	11:44	41.38	NA	33.37	8.01	NA	NA	Post Injection 3
	4-Aug-14	12:09	41.38	NA	33.62	7.76	NA	NA	Post Injection 3
	4-Aug-14	12:15	41.38	NA	NA	NA	NA	Absent*/<1.40	Post Injection 3
	5-Aug-14	8:51	41.38	NA	31.90	9.48	NA	NA	Pre-Extraction 3
	5-Aug-14	9:30	41.38	NA	NA	NA	4.4	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	12:15	41.38	NA	NA	NA	NA	NA	During Extraction 3/ Sheen
	5-Aug-14	15:21	41.38	NA	34.81	6.57	NA	NA	During Extraction 3
	6-Aug-14	9:28	41.38	NA	34.89	6.49	NA	NA	During Extraction 3
	6-Aug-14	14:08	41.38	NA	34.95	6.43	NA	NA	Post Extraction 3
	6-Aug-14	14:50	41.38	NA	NA	NA	34	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-19	29-Jul-14	9:00	38.85	NA	29.33	9.52	NA	NA	Pre-Injection 1
	29-Jul-14	12:15	38.85	NA	NA	NA	0.14	<1.40	Pre-Injection 1
	29-Jul-14	14:53	38.85	NA	29.21	9.64	NA	NA	During Injection 1
	29-Jul-14	15:48	38.85	NA	29.21	9.64	NA	NA	Post Injection 1
	30-Jul-14	9:51	38.85	NA	29.22	9.63	NA	NA	Pre-Extraction 1
	30-Jul-14	16:01	38.85	NA	29.70	9.15	NA	NA	During Extraction 1
	30-Jul-14	16:37	38.85	NA	29.83	9.02	NA	NA	Post Extraction 1
	31-Jul-14	9:24	38.85	NA	30.42	8.43	NA	NA	Pre-Injection 2
	31-Jul-14	11:44	38.85	NA	30.42	8.43	NA	NA	Post Injection 2
	31-Jul-14	12:50	38.85	NA	30.46	8.39	NA	NA	Post Injection 2
	1-Aug-14	9:36	38.85	NA	29.84	9.01	NA	NA	Pre-Extraction 2
	1-Aug-14	16:06	38.85	NA	30.48	8.37	NA	NA	During Extraction 2
	1-Aug-14	17:00	38.85	NA	30.48	8.37	NA	NA	Post Extraction 2
	4-Aug-14	9:36	38.85	NA	30.21	8.64	NA	NA	Pre-Injection 3
	4-Aug-14	11:13	38.85	NA	30.11	8.74	NA	NA	Post Injection 3
	4-Aug-14	11:51	38.85	NA	30.11	8.74	NA	NA	Post Injection 3
	4-Aug-14	12:15	38.85	NA	30.19	8.66	NA	NA	Post Injection 3
	5-Aug-14	8:58	38.85	NA	29.87	8.98	NA	NA	Pre-Extraction 3
	5-Aug-14	15:28	38.85	NA	30.57	8.28	NA	NA	During Extraction 3
	6-Aug-14	9:36	38.85	NA	30.81	8.04	NA	NA	During Extraction 3
	6-Aug-14	14:17	38.85	NA	30.87	7.98	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence



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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-20	29-Jul-14	9:00	38.72	NA	29.17	9.55	NA	NA	Pre-Injection 1
	29-Jul-14	12:45	38.72	NA	NA	NA	0.33	<1.40	Pre-Injection 1
	29-Jul-14	14:52	38.72	NA	29.05	9.67	NA	NA	During Injection 1
	29-Jul-14	15:49	38.72	NA	29.04	9.68	NA	NA	Post Injection 1
	30-Jul-14	9:49	38.72	NA	29.03	9.69	NA	NA	Pre-Extraction 1
	30-Jul-14	16:00	38.72	NA	29.67	9.05	NA	NA	During Extraction 1
	30-Jul-14	16:36	38.72	NA	29.86	8.86	NA	NA	Post Extraction 1
	31-Jul-14	9:23	38.72	NA	30.48	8.24	NA	NA	Pre-Injection 2
	31-Jul-14	11:45	38.72	NA	30.49	8.23	NA	NA	Post Injection 2
	31-Jul-14	12:49	38.72	NA	30.49	8.23	NA	NA	Post Injection 2
	1-Aug-14	9:35	38.72	NA	29.75	8.97	NA	NA	Pre-Extraction 2
	1-Aug-14	16:05	38.72	NA	30.55	8.17	NA	NA	During Extraction 2
	1-Aug-14	16:59	38.72	NA	30.53	8.19	NA	NA	Post Extraction 2
	4-Aug-14	9:35	38.72	NA	30.03	8.69	NA	NA	Pre-Injection 3
	4-Aug-14	11:12	38.72	NA	29.93	8.79	NA	NA	Post Injection 3
	4-Aug-14	11:50	38.72	NA	29.94	8.78	NA	NA	Post Injection 3
	4-Aug-14	12:13	38.72	NA	30.01	8.71	NA	NA	Post Injection 3
	5-Aug-14	8:57	38.72	NA	29.69	9.03	NA	NA	Pre-Extraction 3
	5-Aug-14	15:27	38.72	NA	30.60	8.12	NA	NA	During Extraction 3
	6-Aug-14	9:35	38.72	NA	30.82	7.90	NA	NA	During Extraction 3
	6-Aug-14	14:16	38.72	NA	30.87	7.85	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-22	29-Jul-14	9:00	47.04	NA	36.54	10.50	NA	NA	Pre-Injection 1
	29-Jul-14	11:45	47.04	NA	NA	NA	4.7	<1.40	Pre-Injection 1
	29-Jul-14	13:30	47.04	NA	NA	NA	NA	NA	<b>Commence Injection 1</b>
	29-Jul-14	14:27	47.04	NA	36.33	10.71	NA	NA	Post Injection 1
	29-Jul-14	15:35	47.04	NA	36.47	10.57	NA	NA	Post Injection 1
	30-Jul-14	9:31	47.04	NA	36.47	10.57	NA	NA	Pre-Extraction 1
	30-Jul-14	11:30	47.04	NA	NA	NA	20	Present*/218	Pre-Extraction 1
	30-Jul-14	12:10	47.04	NA	NA	NA	NA	NA	<b>Commence Extraction 1</b>
	30-Jul-14	12:30	47.04	NA	NA	NA	1.9	NA	During Extraction 1
	30-Jul-14	12:32	47.04	NA	39.96	7.08	NA	NA	During Extraction 1
	30-Jul-14	12:45	47.04	NA	NA	NA	1.9	NA	During Extraction 1
	30-Jul-14	12:48	47.04	NA	39.54	7.50	NA	NA	During Extraction 1
	30-Jul-14	13:06	47.04	NA	39.56	7.48	NA	NA	During Extraction 1
	30-Jul-14	13:20	47.04	NA	NA	NA	1.6	NA	During Extraction 1
	30-Jul-14	13:30	47.04	NA	39.56	7.48	NA	NA	During Extraction 1
	30-Jul-14	13:50	47.04	NA	NA	NA	1.1	NA	During Extraction 1
	30-Jul-14	14:20	47.04	NA	NA	NA	2.2	Present*	During Extraction 1
	30-Jul-14	14:50	47.04	NA	NA	NA	2.1	Present*	During Extraction 1
	30-Jul-14	15:20	47.04	NA	NA	NA	3.3	Present*	During Extraction 1
	30-Jul-14	15:47	47.04	NA	40.40	6.64	NA	NA	During Extraction 1
	30-Jul-14	15:50	47.04	NA	NA	NA	2.6	Present*	During Extraction 1
	30-Jul-14	16:20	47.04	NA	NA	NA	2.4	Absent*	During Extraction 1
	30-Jul-14	16:27	47.04	NA	38.02	9.02	NA	NA	Post Extraction 1
	31-Jul-14	9:11	47.04	NA	38.44	8.60	NA	NA	Pre-Injection 2
	31-Jul-14	10:46	47.04	NA	38.12	8.92	NA	NA	Pre-Injection 2
	31-Jul-14	11:05	47.04	NA	NA	NA	NA	NA	<b>Commence Injection 2</b>
	31-Jul-14	11:31	47.04	NA	21.48	25.56	NA	NA	During Injection 2/ Mounding
	31-Jul-14	11:57	47.04	NA	38.29	8.75	NA	NA	Post Injection 2
	31-Jul-14	12:39	47.04	NA	38.39	8.65	NA	NA	Post Injection 2
	31-Jul-14	14:30	47.04	NA	NA	NA	150	Present*	Post Injection 2
	1-Aug-14	9:01	47.04	NA	36.64	10.40	NA	NA	Pre-Extraction 2
	1-Aug-14	9:10	47.04	NA	NA	NA	25	Present*/170	Pre-Extraction 2/ Sheen
	1-Aug-14	10:20	47.04	NA	NA	NA	NA	NA	<b>Commence Extraction 2</b>
	1-Aug-14	10:50	47.04	NA	NA	NA	17	Present*	During Extraction 2
	1-Aug-14	10:58	47.04	NA	42.03	5.01	NA	NA	During Extraction 2
	1-Aug-14	11:20	47.04	NA	NA	NA	0.70	Present*	During Extraction 2
	1-Aug-14	11:50	47.04	NA	NA	NA	0.59	Present*	During Extraction 2
	1-Aug-14	11:53	47.04	NA	41.90	5.14	NA	NA	During Extraction 2
	1-Aug-14	12:20	47.04	NA	NA	NA	1.2	Present*	During Extraction 2
	1-Aug-14	12:50	47.04	NA	NA	NA	2.1	Present*	During Extraction 2
	1-Aug-14	13:20	47.04	NA	NA	NA	1.6	Present*	During Extraction 2
	1-Aug-14	13:50	47.04	NA	NA	NA	1.3	Present*	During Extraction 2
	1-Aug-14	14:20	47.04	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	14:50	47.04	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:20	47.04	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:50	47.04	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	15:54	47.04	NA	38.72	8.32	NA	NA	Post Extraction 2
	1-Aug-14	16:50	47.04	NA	38.51	8.53	NA	51.0	Post Extraction 2
	1-Aug-14	16:50	47.04	NA	NA	NA	89	NA	Post Extraction 2
	4-Aug-14	9:26	47.04	NA	37.61	9.43	NA	NA	Pre-Injection 3
	4-Aug-14	10:36	47.04	NA	NA	NA	NA	NA	<b>Commence Injection 3</b>
	4-Aug-14	11:03	47.04	NA	26.21	20.83	NA	NA	During Injection 3/ Mounding
	4-Aug-14	11:41	47.04	NA	37.51	9.53	NA	NA	Post Injection 3
	4-Aug-14	12:28	47.04	NA	37.29	9.75	NA	NA	Post Injection 3
	4-Aug-14	12:30	47.04	NA	NA	NA	2.0	Present*	Post Injection 3
	5-Aug-14	8:48	47.04	NA	36.88	10.16	NA	NA	Pre-Extraction 3
	5-Aug-14	9:40	47.04	NA	NA	NA	1.1	Present*	Pre-Extraction 3
	5-Aug-14	10:10	47.04	NA	NA	NA	NA	NA	<b>Commence Extraction 3</b>
	5-Aug-14	10:40	47.04	NA	NA	NA	0.34	Present*	During Extraction 3

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	5-Aug-14	11:10	47.04	NA	41.56	5.48	6.9	Present*	During Extraction 3
	5-Aug-14	11:40	47.04	NA	NA	NA	4.9	Present*	During Extraction 3
	5-Aug-14	12:10	47.04	NA	41.70	5.34	0.64	Present*	During Extraction 3
	5-Aug-14	12:40	47.04	NA	NA	NA	0.59	Present*	During Extraction 3
	5-Aug-14	13:10	47.04	NA	NA	NA	1.3	Present*	During Extraction 3
	5-Aug-14	13:40	47.04	NA	NA	NA	1.4	Absent*	During Extraction 3
	5-Aug-14	14:10	47.04	NA	41.72	5.32	NA	NA	During Extraction 3
	5-Aug-14	14:10	47.04	NA	NA	NA	1.1	NA	During Extraction 3
	5-Aug-14	14:40	47.04	NA	NA	NA	2.3	NA	During Extraction 3
	5-Aug-14	15:10	47.04	NA	NA	NA	NA	Absent*	During Extraction 3
	5-Aug-14	15:17	47.04	NA	38.67	8.37	NA	NA	During Extraction 3
	6-Aug-14	9:24	47.04	NA	38.72	8.32	NA	NA	During Extraction 3
	6-Aug-14	14:01	47.04	NA	38.81	8.23	NA	NA	Post Extraction 3
	6-Aug-14	14:35	47.04	NA	NA	NA	17	75.8	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence



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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-33	29-Jul-14	9:00	36.52	NA	27.17	9.35	NA	NA	Pre-Injection 1
	29-Jul-14	13:10	36.52	NA	NA	NA	<0.1	<1.40	Pre-Injection 1
	29-Jul-14	14:55	36.52	NA	27.08	9.44	NA	NA	During Injection 1
	29-Jul-14	15:52	36.52	NA	27.09	9.43	NA	NA	Post Injection 1
	30-Jul-14	9:53	36.52	NA	27.07	9.45	NA	NA	Pre-Extraction 1
	30-Jul-14	16:01	36.52	NA	27.28	9.24	NA	NA	During Extraction 1
	30-Jul-14	16:38	36.52	NA	27.35	9.17	NA	NA	Post Extraction 1
	31-Jul-14	9:25	36.52	NA	27.83	8.69	NA	NA	Pre-Injection 2
	31-Jul-14	11:43	36.52	NA	27.83	8.69	NA	NA	Post Injection 2
	31-Jul-14	12:52	36.52	NA	27.88	8.64	NA	NA	Post Injection 2
	1-Aug-14	9:37	36.52	NA	27.44	9.08	NA	NA	Pre-Extraction 2
	1-Aug-14	16:07	36.52	NA	27.87	8.65	NA	NA	During Extraction 2
	1-Aug-14	17:01	36.52	NA	27.87	8.65	NA	NA	Post Extraction 2
	4-Aug-14	9:37	36.52	NA	27.88	8.64	NA	NA	Pre-Injection 3
	4-Aug-14	11:14	36.52	NA	27.80	8.72	NA	NA	Post Injection 3
	4-Aug-14	11:52	36.52	NA	27.81	8.71	NA	NA	Post Injection 3
	4-Aug-14	12:18	36.52	NA	27.81	8.71	NA	NA	Post Injection 3
	5-Aug-14	8:59	36.52	NA	27.55	8.97	NA	NA	Pre-Extraction 3
	5-Aug-14	15:29	36.52	NA	27.93	8.59	NA	NA	During Extraction 3
	6-Aug-14	9:37	36.52	NA	28.22	8.30	NA	NA	During Extraction 3
	6-Aug-14	14:18	36.52	NA	28.21	8.31	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-34	29-Jul-14	9:00	36.64	NA	27.33	9.31	NA	NA	Pre-Injection 1
	29-Jul-14	13:05	36.64	NA	NA	NA	<0.1	<1.40	Pre-Injection 1
	29-Jul-14	14:58	36.64	NA	27.21	9.43	NA	NA	During Injection 1
	29-Jul-14	15:50	36.64	NA	27.21	9.43	NA	NA	Post Injection 1
	30-Jul-14	9:55	36.64	NA	27.21	9.43	NA	NA	Pre-Extraction 1
	30-Jul-14	16:02	36.64	NA	27.45	9.19	NA	NA	During Extraction 1
	30-Jul-14	16:39	36.64	NA	27.53	9.11	NA	NA	Post Extraction 1
	31-Jul-14	9:26	36.64	NA	27.99	8.65	NA	NA	Pre-Injection 2
	31-Jul-14	11:42	36.64	NA	27.99	8.65	NA	NA	Post Injection 2
	31-Jul-14	12:53	36.64	NA	28.02	8.62	NA	NA	Post Injection 2
	1-Aug-14	9:38	36.64	NA	27.61	9.03	NA	NA	Pre-Extraction 2
	1-Aug-14	16:08	36.64	NA	28.00	8.64	NA	NA	During Extraction 2
	1-Aug-14	17:02	36.64	NA	28.02	8.62	NA	NA	Post Extraction 2
	4-Aug-14	9:38	36.64	NA	27.99	8.65	NA	NA	Pre-Injection 3
	4-Aug-14	11:15	36.64	NA	27.91	8.73	NA	NA	Post Injection 3
	4-Aug-14	11:53	36.64	NA	27.92	8.72	NA	NA	Post Injection 3
	4-Aug-14	12:20	36.64	NA	27.91	8.73	NA	NA	Post Injection 3
	5-Aug-14	9:00	36.64	NA	27.69	8.95	NA	NA	Pre-Extraction 3
	5-Aug-14	15:30	36.64	NA	28.06	8.58	NA	NA	During Extraction 3
	6-Aug-14	9:38	36.64	NA	28.32	8.32	NA	NA	During Extraction 3
	6-Aug-14	14:20	36.64	NA	28.35	8.29	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-35	29-Jul-14	9:00	38.62	NA	28.62	10.00	NA	NA	Pre-Injection 1
	29-Jul-14	12:45	NA	NA	NA	NA	<0.1	<1.40	Pre-Injection 1
	29-Jul-14	13:00	NA	NA	NA	NA	NA	NA	<b>Commence Injection 1</b>
	29-Jul-14	14:50	38.62	NA	28.87	9.75	NA	NA	During Injection 1
	29-Jul-14	15:46	38.62	NA	28.87	9.75	NA	NA	Post Injection 1
	30-Jul-14	9:47	38.62	NA	28.87	9.75	NA	NA	Pre-Extraction 1
	30-Jul-14	15:59	38.62	NA	29.17	9.45	NA	NA	During Extraction 1
	30-Jul-14	16:35	38.62	NA	29.28	9.34	NA	NA	Post Extraction 1
	31-Jul-14	9:22	38.62	NA	29.77	8.85	NA	NA	Pre-Injection 2
	31-Jul-14	11:46	38.62	NA	29.77	8.85	NA	NA	Post Injection 2
	31-Jul-14	12:49	38.62	NA	29.80	8.82	NA	NA	Post Injection 2
	1-Aug-14	9:35	38.62	NA	29.31	9.31	NA	NA	Pre-Extraction 2
	1-Aug-14	16:04	38.62	NA	29.82	8.80	NA	NA	During Extraction 2
	1-Aug-14	16:58	38.62	NA	29.82	8.80	NA	NA	Post Extraction 2
	4-Aug-14	9:34	38.62	NA	29.66	8.96	NA	NA	Pre-Injection 3
	4-Aug-14	11:11	38.62	NA	29.87	8.75	NA	NA	Post Injection 3
	4-Aug-14	11:40	38.62	NA	29.61	9.01	NA	NA	Post Injection 3
	4-Aug-14	12:12	38.62	NA	29.63	8.99	NA	NA	Post Injection 3
	5-Aug-14	8:56	38.62	NA	29.34	9.28	NA	NA	Pre-Extraction 3
	5-Aug-14	15:26	38.62	NA	29.89	8.73	NA	NA	During Extraction 3
	6-Aug-14	9:34	38.62	NA	30.11	8.51	NA	NA	During Extraction 3
	6-Aug-14	14:15	38.62	NA	30.17	8.45	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-40	29-Jul-14	9:00	48.69	NA	38.11	10.58	NA	NA	Pre-Injection 1
	29-Jul-14	12:15	48.69	NA	NA	NA	15	<1.40	Pre-Injection 1
	29-Jul-14	13:00	48.69	NA	NA	NA	NA	NA	<b>Commence Injection 1</b>
	29-Jul-14	14:22	48.69	NA	37.94	10.75	NA	NA	Post Injection 1
	29-Jul-14	15:30	48.69	NA	38.03	10.66	NA	NA	Post Injection 1
	30-Jul-14	9:27	48.69	38.00	38.00	10.69	NA	NA	Pre-Extraction 1/ Sheen
	30-Jul-14	11:30	48.69	NA	NA	NA	1100	Present*/164	Pre-Extraction 1
	30-Jul-14	12:10	48.69	NA	NA	NA	NA	NA	<b>Commence Extraction 1</b>
	30-Jul-14	12:30	48.69	NA	NA	NA	1.8	NA	During Extraction 1
	30-Jul-14	12:30	48.69	NA	40.86	7.83	NA	NA	During Extraction 1
	30-Jul-14	12:45	48.69	NA	NA	NA	1.3	NA	During Extraction 1
	30-Jul-14	12:46	48.69	NA	40.99	7.70	NA	NA	During Extraction 1
	30-Jul-14	13:05	48.69	NA	41.00	7.69	NA	NA	During Extraction 1
	30-Jul-14	13:20	48.69	NA	NA	NA	1.8	NA	During Extraction 1
	30-Jul-14	13:29	48.69	NA	41.02	7.67	NA	NA	During Extraction 1
	30-Jul-14	13:50	48.69	NA	NA	NA	2.5	NA	During Extraction 1
	30-Jul-14	14:20	48.69	NA	NA	NA	1.8	Present*	During Extraction 1
	30-Jul-14	14:50	48.69	NA	NA	NA	2.6	Present*	During Extraction 1
	30-Jul-14	15:20	48.69	NA	NA	NA	1.7	Present*	During Extraction 1
	30-Jul-14	15:44	48.69	NA	41.79	6.90	NA	NA	During Extraction 1
	30-Jul-14	15:50	48.69	NA	NA	NA	1.5	Present*	During Extraction 1
	30-Jul-14	16:20	48.69	NA	NA	NA	1.5	Absent*	During Extraction 1
	30-Jul-14	16:25	48.69	NA	39.67	9.02	NA	NA	Post Extraction 1
	31-Jul-14	9:10	48.69	39.66	39.66	9.03	NA	NA	Pre-Injection 2/ Sheen
	31-Jul-14	10:32	48.69	NA	NA	NA	NA	NA	<b>Commence Injection 2</b>
	31-Jul-14	10:43	48.69	NA	34.32	14.37	NA	NA	During Injection 2/ Mounding
	31-Jul-14	11:32	48.69	NA	39.46	9.23	NA	NA	Post Injection 2
	31-Jul-14	12:00	48.69	NA	39.66	9.03	NA	NA	Post Injection 2
	31-Jul-14	12:37	48.69	NA	39.66	9.03	NA	NA	Post Injection 2
	31-Jul-14	14:30	48.69	NA	NA	NA	77	Present*	Post Injection 2
	1-Aug-14	9:00	48.69	NA	38.17	10.52	NA	NA	Pre-Extraction 2
	1-Aug-14	9:10	48.69	NA	NA	NA	26	Present*	Pre-Extraction 2/ Sheen
	1-Aug-14	10:20	48.69	NA	NA	NA	NA	NA	<b>Commence Extraction 2</b>
	1-Aug-14	10:50	48.69	NA	NA	NA	17	Present*	During Extraction 2
	1-Aug-14	10:57	48.69	NA	42.22	6.47	NA	NA	During Extraction 2
	1-Aug-14	11:20	48.69	NA	NA	NA	1	Present*	During Extraction 2
	1-Aug-14	11:50	48.69	NA	NA	NA	0.89	Present*	During Extraction 2
	1-Aug-14	11:52	48.69	NA	42.45	6.24	NA	NA	During Extraction 2
	1-Aug-14	12:20	48.69	NA	NA	NA	1.3	Present*	During Extraction 2
	1-Aug-14	12:50	48.69	NA	NA	NA	2.6	Present*	During Extraction 2
	1-Aug-14	13:20	48.69	NA	NA	NA	2.5	Present*	During Extraction 2
	1-Aug-14	13:50	48.69	NA	NA	NA	6.4	Present*	During Extraction 2
	1-Aug-14	14:20	48.69	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	14:50	48.69	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:20	48.69	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:50	48.69	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	15:53	48.69	NA	40.27	8.42	NA	NA	Post Extraction 2
	1-Aug-14	16:48	48.69	NA	39.75	8.94	NA	NA	Post Extraction 2
	1-Aug-14	16:50	48.69	NA	NA	NA	330	38.2	Post Extraction 2
	4-Aug-14	9:25	48.69	NA	38.93	9.76	NA	NA	Pre-Injection 3
	4-Aug-14	10:05	48.69	NA	NA	NA	NA	NA	<b>Commence Injection 3</b>
	4-Aug-14	11:01	48.69	NA	38.57	10.12	NA	NA	Post Injection 3
	4-Aug-14	11:39	48.69	NA	38.87	9.82	NA	NA	Post Injection 3
	4-Aug-14	12:25	48.69	NA	38.91	9.78	NA	NA	Post Injection 3
	4-Aug-14	12:30	48.69	NA	NA	NA	1	Present*	Post Injection 3
	5-Aug-14	8:46	48.69	NA	38.47	10.22	NA	NA	Pre-Extraction 3
	5-Aug-14	9:40	48.69	NA	NA	NA	1.7	Present*	Pre-Extraction 3
	5-Aug-14	10:10	48.69	NA	NA	NA	NA	NA	<b>Commence Extraction 3</b>
	5-Aug-14	10:40	48.69	NA	NA	NA	24	Present*	During Extraction 3



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	5-Aug-14	11:10	48.69	NA	42.40	6.29	8.9	Present*	During Extraction 3
	5-Aug-14	11:40	48.69	NA	NA	NA	6.4	Present*	During Extraction 3
	5-Aug-14	12:10	48.69	NA	42.57	6.12	1.1	Present*	During Extraction 3
	5-Aug-14	12:40	48.69	NA	NA	NA	0.99	Present*	During Extraction 3
	5-Aug-14	13:10	48.69	NA	NA	NA	1.8	Present*	During Extraction 3
	5-Aug-14	13:40	48.69	NA	NA	NA	2.8	Absent*	During Extraction 3
	5-Aug-14	14:10	48.69	NA	NA	NA	0.88	NA	During Extraction 3
	5-Aug-14	14:10	48.69	NA	42.66	6.03	NA	NA	During Extraction 3
	5-Aug-14	14:40	48.69	NA	NA	NA	4.9	NA	During Extraction 3
	5-Aug-14	15:10	48.69	NA	NA	NA	NA	Absent*	During Extraction 3
	5-Aug-14	15:16	48.69	NA	39.92	8.77	NA	NA	During Extraction 3
	6-Aug-14	9:22	48.69	NA	39.97	8.72	NA	NA	During Extraction 3
	6-Aug-14	14:00	48.69	NA	40.00	8.69	NA	NA	Post Extraction 3
	6-Aug-14	14:35	48.69	NA	NA	NA	97	50.8	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-41	29-Jul-14	9:00	42.92	NA	32.85	10.07	NA	NA	Pre-Injection 1
	29-Jul-14	12:40	42.92	NA	NA	NA	9.5	2.80	Pre-Injection 1
	29-Jul-14	13:30	42.92	NA	NA	NA	NA	NA	<b>Commence Injection 1</b>
	29-Jul-14	14:33	42.92	NA	32.44	10.48	NA	NA	Post Injection 1
	29-Jul-14	15:37	42.92	NA	32.62	10.30	NA	NA	Post Injection 1
	30-Jul-14	9:35	42.92	NA	32.74	10.18	NA	NA	Pre-Extraction 1
	30-Jul-14	11:30	42.92	NA	NA	NA	12	Present*/255	Pre-Extraction 1
	30-Jul-14	12:10	42.92	NA	NA	NA	NA	NA	<b>Commence Extraction 1</b>
	30-Jul-14	12:30	42.92	NA	NA	NA	4.5	NA	During Extraction 1
	30-Jul-14	12:36	42.92	NA	34.86	8.06	NA	NA	During Extraction 1
	30-Jul-14	12:45	42.92	NA	NA	NA	1.1	NA	During Extraction 1
	30-Jul-14	12:50	42.92	NA	34.99	7.93	NA	NA	During Extraction 1
	30-Jul-14	13:08	42.92	NA	35.05	7.87	NA	NA	During Extraction 1
	30-Jul-14	13:20	42.92	NA	NA	NA	1.5	NA	During Extraction 1
	30-Jul-14	13:32	42.92	NA	35.11	7.81	NA	NA	During Extraction 1
	30-Jul-14	13:50	42.92	NA	NA	NA	1.4	NA	During Extraction 1
	30-Jul-14	14:20	42.92	NA	NA	NA	2.0	Present*	During Extraction 1
	30-Jul-14	14:50	42.92	NA	NA	NA	2.7	Present*	During Extraction 1
	30-Jul-14	15:20	42.92	NA	NA	NA	1.6	Present*	During Extraction 1
	30-Jul-14	15:50	42.92	NA	36.09	6.83	NA	NA	During Extraction 1
	30-Jul-14	15:50	42.92	NA	NA	NA	2.3	Present*	During Extraction 1
	30-Jul-14	16:20	42.92	NA	NA	NA	2.9	Absent*	During Extraction 1
	30-Jul-14	16:29	42.92	NA	34.53	8.39	NA	NA	Post Extraction 1
	31-Jul-14	9:14	42.92	NA	35.11	7.81	NA	NA	Pre-Injection 2
	31-Jul-14	10:47	42.92	NA	35.01	7.91	NA	NA	Pre-Injection 2
	31-Jul-14	11:05	42.92	NA	NA	NA	NA	NA	<b>Commence Injection 2</b>
	31-Jul-14	11:30	42.92	NA	33.21	9.71	NA	NA	Post Injection 2
	31-Jul-14	11:54	42.92	NA	34.85	8.07	NA	NA	Post Injection 2
	31-Jul-14	12:42	42.92	NA	35.07	7.85	NA	NA	Post Injection 2
	31-Jul-14	14:30	42.92	NA	NA	NA	550	Present*	Post Injection 2
	1-Aug-14	9:10	42.92	NA	NA	NA	200	Present*/154	Pre-Extraction 2/ Sheen
	1-Aug-14	9:14	42.92	NA	33.29	9.63	NA	NA	Pre-Extraction 2
	1-Aug-14	10:20	42.92	NA	NA	NA	NA	NA	<b>Commence Extraction 2</b>
	1-Aug-14	10:50	42.92	NA	NA	NA	0.78	Present*	During Extraction 2
	1-Aug-14	11:01	42.92	NA	36.76	6.16	NA	NA	During Extraction 2
	1-Aug-14	11:20	42.92	NA	NA	NA	0.68	Present*	During Extraction 2
	1-Aug-14	11:50	42.92	NA	NA	NA	0.82	Present*	During Extraction 2
	1-Aug-14	11:55	42.92	NA	37.15	5.77	NA	NA	During Extraction 2
	1-Aug-14	12:20	42.92	NA	NA	NA	1.8	Present*	During Extraction 2
	1-Aug-14	12:50	42.92	NA	NA	NA	1.1	Present*	During Extraction 2
	1-Aug-14	13:20	42.92	NA	NA	NA	1.3	Present*	During Extraction 2
	1-Aug-14	13:50	42.92	NA	NA	NA	3.1	Present*	During Extraction 2
	1-Aug-14	14:20	42.92	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	14:50	42.92	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:20	42.92	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:50	42.92	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	15:57	42.92	NA	35.47	7.45	NA	NA	Post Extraction 2
	1-Aug-14	16:50	42.92	NA	NA	NA	100	68.5	Post Extraction 2
	1-Aug-14	16:52	42.92	NA	35.22	7.70	NA	NA	Post Extraction 2
	4-Aug-14	9:28	42.92	NA	34.09	8.83	NA	NA	Pre-Injection 3
	4-Aug-14	10:36	42.92	NA	NA	NA	NA	NA	<b>Commence Injection 3</b>
	4-Aug-14	11:05	42.92	NA	33.30	9.62	NA	NA	Post Injection 3
	4-Aug-14	11:43	42.92	NA	33.91	9.01	NA	NA	Post Injection 3
	4-Aug-14	12:30	42.92	NA	33.80	9.12	NA	NA	Post Injection 3
	4-Aug-14	12:30	42.92	NA	NA	NA	1.5	Present*	Post Injection 3
	5-Aug-14	8:50	42.92	NA	33.22	9.70	NA	NA	Pre-Extraction 3
	5-Aug-14	9:40	42.92	NA	NA	NA	0.56	Present*	Pre-Extraction 3
	5-Aug-14	10:10	42.92	NA	NA	NA	NA	NA	<b>Commence Extraction 3</b>
	5-Aug-14	10:40	42.92	NA	NA	NA	7.9	Present*	During Extraction 3

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	5-Aug-14	11:10	42.92	NA	NA	NA	NA	Present*	During Extraction 3
	5-Aug-14	11:40	42.92	NA	NA	NA	6.6	Present*	During Extraction 3
	5-Aug-14	12:10	42.92	NA	37.80	5.12	7.3	Present*	During Extraction 3
	5-Aug-14	12:40	42.92	NA	NA	NA	1.9	Present*	During Extraction 3
	5-Aug-14	13:10	42.92	NA	NA	NA	3.2	Present*	During Extraction 3
	5-Aug-14	13:40	42.92	NA	NA	NA	1.7	Absent*	During Extraction 3
	5-Aug-14	14:10	42.92	NA	38.12	4.80	NA	NA	During Extraction 3
	5-Aug-14	14:10	42.92	NA	NA	NA	0.81	NA	During Extraction 3
	5-Aug-14	14:40	42.92	NA	NA	NA	0.80	NA	During Extraction 3
	5-Aug-14	15:10	42.92	NA	NA	NA	NA	Absent*	During Extraction 3
	5-Aug-14	15:20	42.92	NA	35.45	7.47	NA	NA	During Extraction 3
	6-Aug-14	9:25	42.92	NA	35.40	7.52	NA	NA	During Extraction 3
	6-Aug-14	14:07	42.92	NA	35.55	7.37	NA	NA	Post Extraction 3
	6-Aug-14	14:35	42.92	NA	NA	NA	76	83.1	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence



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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-42	29-Jul-14	9:00	46.15	NA	35.68	10.47	NA	NA	Pre-Injection 1
	29-Jul-14	11:15	46.15	NA	NA	NA	96	<1.40	Pre-Injection 1
	29-Jul-14	13:00	46.15	NA	NA	NA	NA	NA	<b>Commence Injection 1</b>
	29-Jul-14	14:30	46.15	NA	35.41	10.74	NA	NA	Post Injection 1
	29-Jul-14	15:36	46.15	NA	35.49	10.66	NA	NA	Post Injection 1
	30-Jul-14	9:33	46.15	35.55	35.55	10.60	NA	NA	Pre-Extraction 1/ Sheen
	30-Jul-14	11:30	46.15	NA	NA	NA	910	Present*/127	Pre-Extraction 1
	30-Jul-14	12:10	46.15	NA	NA	NA	NA	NA	<b>Commence Extraction 1</b>
	30-Jul-14	12:30	46.15	NA	NA	NA	1.7	NA	During Extraction 1
	30-Jul-14	12:34	46.15	NA	36.19	9.96	NA	NA	During Extraction 1
	30-Jul-14	12:45	46.15	NA	NA	NA	1.5	NA	During Extraction 1
	30-Jul-14	12:50	46.15	NA	36.26	9.89	NA	NA	During Extraction 1
	30-Jul-14	13:07	46.15	NA	36.30	9.85	NA	NA	During Extraction 1
	30-Jul-14	13:20	46.15	NA	NA	NA	1.2	NA	During Extraction 1
	30-Jul-14	13:31	46.15	NA	36.30	9.85		NA	During Extraction 1
	30-Jul-14	13:50	46.15	NA	NA	NA	1.1	NA	During Extraction 1
	30-Jul-14	14:20	46.15	NA	NA	NA	1.3	Present*	During Extraction 1
	30-Jul-14	14:50	46.15	NA	NA	NA	1.9	Present*	During Extraction 1
	30-Jul-14	15:20	46.15	NA	NA	NA	0.83	Present*	During Extraction 1
	30-Jul-14	15:48	46.15	NA	37.05	9.10	NA	NA	During Extraction 1
	30-Jul-14	15:50	46.15	NA	NA	NA	1.7	Present*	During Extraction 1
	30-Jul-14	16:20	46.15	NA	NA	NA	0.17	Absent*	During Extraction 1
	30-Jul-14	16:28	46.15	NA	36.71	9.44	NA	NA	Post Extraction 1
	31-Jul-14	9:13	46.15	37.35	37.35	8.80	NA	NA	Pre-Injection 2/ Sheen
	31-Jul-14	10:32	46.15	NA	NA	NA	NA	NA	<b>Commence Injection 2</b>
	31-Jul-14	10:45	46.15	NA	24.73	21.42	NA	NA	During Injection 2/ Mounding
	31-Jul-14	11:33	46.15	NA	37.05	9.10	NA	NA	Post Injection 2
	31-Jul-14	11:55	46.15	NA	37.16	8.99	NA	NA	Post Injection 2
	31-Jul-14	12:40	46.15	NA	37.30	8.85	NA	NA	Post Injection 2
	31-Jul-14	14:30	46.15	NA	NA	NA	140	Present*	Post Injection 2
	1-Aug-14	9:10	46.15	NA	NA	NA	80	Present*/179	Pre-Extraction 2/ Sheen
	1-Aug-14	9:11	46.15	NA	35.91	10.24	NA	NA	Pre-Extraction 2
	1-Aug-14	10:20	46.15	NA	NA	NA	NA	NA	<b>Commence Extraction 2</b>
	1-Aug-14	10:50	46.15	NA	NA	NA	1.2	Present*	During Extraction 2
	1-Aug-14	11:00	46.15	NA	38.17	7.98	NA	NA	During Extraction 2
	1-Aug-14	11:20	46.15	NA	NA	NA	0.96	Present*	During Extraction 2
	1-Aug-14	11:50	46.15	NA	NA	NA	0.83	Present*	During Extraction 2
	1-Aug-14	11:54	46.15	NA	38.35	7.80	NA	NA	During Extraction 2
	1-Aug-14	12:20	46.15	NA	NA	NA	3.1	Present*	During Extraction 2
	1-Aug-14	12:50	46.15	NA	NA	NA	3.6	Present*	During Extraction 2
	1-Aug-14	13:20	46.15	NA	NA	NA	1.6	Present*	During Extraction 2
	1-Aug-14	13:50	46.15	NA	NA	NA	1.9	Present*	During Extraction 2
	1-Aug-14	14:20	46.15	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	14:50	46.15	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:20	46.15	NA	NA	NA	NA	Present*	During Extraction 2
	1-Aug-14	15:50	46.15	NA	NA	NA	NA	Absent*	During Extraction 2
	1-Aug-14	15:55	46.15	NA	37.50	8.65	NA	NA	During Extraction 2
	1-Aug-14	16:50	46.15	NA	NA	NA	71	90.8	Post Extraction 2
	1-Aug-14	16:51	46.15	NA	37.39	8.76	NA	NA	Post Extraction 2
	4-Aug-14	9:27	46.15	NA	36.62	9.53	NA	NA	Pre-Injection 3
	4-Aug-14	9:50	46.15	NA	NA	NA	NA	NA	<b>Commence Injection 3</b>
	4-Aug-14	11:04	46.15	NA	36.31	9.84	NA	NA	Post Injection 3
	4-Aug-14	11:42	46.15	NA	36.51	9.64	NA	NA	Post Injection 3
	4-Aug-14	12:29	46.15	NA	36.51	9.64	NA	NA	Post Injection 3
	4-Aug-14	12:30	46.15	NA	NA	NA	2.2	Present*	Post Injection 3
	5-Aug-14	8:47	46.15	NA	35.99	10.16	NA	NA	Pre-Extraction 3
	5-Aug-14	9:40	46.15	NA	NA	NA	2.4	Present*	Pre-Extraction 3
	5-Aug-14	10:10	46.15	NA	NA	NA	NA	NA	<b>Commence Extraction 3</b>
	5-Aug-14	10:40	46.15	NA	NA	NA	13	Present*	During Extraction 3

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	5-Aug-14	11:10	46.15	NA	38.17	7.98	1.1	Present*	During Extraction 3
	5-Aug-14	11:40	46.15	NA	NA	NA	4.0	Present*	During Extraction 3
	5-Aug-14	12:10	46.15	NA	38.29	7.86	0.81	Present*	During Extraction 3
	5-Aug-14	12:40	46.15	NA	NA	NA	1.9	Present*	During Extraction 3
	5-Aug-14	13:10	46.15	NA	NA	NA	1.8	Present*	During Extraction 3
	5-Aug-14	13:40	46.15	NA	NA	NA	2.1	Absent*	During Extraction 3
	5-Aug-14	14:10	46.15	NA	38.50	7.65	2.2	NA	During Extraction 3
	5-Aug-14	14:40	46.15	NA	NA		1.1	NA	During Extraction 3
	5-Aug-14	15:10	46.15	NA	NA	NA	NA	Present*	During Extraction 3
	5-Aug-14	15:19	46.15	NA	37.51	8.64	NA	NA	During Extraction 3
	6-Aug-14	9:30	46.15	NA	37.57	8.58	NA	NA	During Extraction 3
	6-Aug-14	11:45	46.15	NA	NA	NA	NA	Present*	During Extraction 3
	6-Aug-14	12:15	46.15	NA	NA	NA	NA	Present*	During Extraction 3
	6-Aug-14	12:45	46.15	NA	NA	NA	NA	Present*	During Extraction 3
	6-Aug-14	13:15	46.15	NA	NA	NA	NA	Absent*	During Extraction 3
	6-Aug-14	13:45	46.15	NA	NA	NA	NA	Absent*	During Extraction 3
	6-Aug-14	14:05	46.15	NA	37.75	8.40	NA	NA	Post Extraction 3
	6-Aug-14	14:35	46.15	NA	NA	NA	94	77.9	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Appendix D - Table 1 - Pilot Study Data Summary During Field Activities  
 Chester River Hospital Center  
 100 Brown Street  
 Chestertown, MD 21620

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-43	29-Jul-14	9:00	47.90	NA	37.44	10.46	NA	NA	Pre-Injection 1
	29-Jul-14	12:00	47.90	NA	NA	NA	14	<1.40	Pre-Injection 1
	29-Jul-14	14:25	47.90	NA	37.25	10.65	NA	NA	During Injection 1
	29-Jul-14	15:32	47.90	NA	37.31	10.59	NA	NA	Post Injection 1
	30-Jul-14	9:29	47.90	NA	37.31	10.59	NA	NA	Pre-Extraction 1
	30-Jul-14	15:45	47.90	NA	38.82	9.08	NA	NA	During Extraction 1
	30-Jul-14	16:26	47.90	NA	38.80	9.10	NA	NA	Post Extraction 1
	31-Jul-14	9:15	47.90	NA	39.04	8.86	NA	NA	Pre-Injection 2
	31-Jul-14	11:59	47.90	NA	38.97	8.93	NA	NA	Post Injection 2
	31-Jul-14	12:38	47.90	NA	39.02	8.88	NA	NA	Post Injection 2
	1-Aug-14	9:40	47.90	NA	38.36	9.54	NA	NA	Pre-Extraction 2
	1-Aug-14	15:56	47.90	NA	39.29	8.61	NA	NA	During Extraction 2
	1-Aug-14	16:49	47.90	NA	39.12	8.78	NA	NA	Post Extraction 2
	4-Aug-14	11:02	47.90	NA	37.70	10.20	NA	NA	During Injection 3
	4-Aug-14	11:40	47.90	NA	38.16	9.74	NA	NA	Post Injection 3
	4-Aug-14	12:27	47.90	NA	38.17	9.73	NA	NA	Post Injection 3
	5-Aug-14	8:47	47.90	NA	37.77	10.13	NA	NA	Pre-Extraction 3
	5-Aug-14	15:18	47.90	NA	39.26	8.64	NA	NA	During Extraction 3
	6-Aug-14	9:23	47.90	NA	39.30	8.60	NA	NA	During Extraction 3
	6-Aug-14	14:02	47.90	NA	39.39	8.51	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-45	29-Jul-14	9:00	40.70	NA	30.79	9.91	NA	NA	Pre-Injection 1
	29-Jul-14	10:50	40.70	NA	NA	NA	<0.1	<1.40	Pre-Injection 1
	29-Jul-14	14:47	40.70	NA	30.66	10.04	NA	NA	During Injection 1
	29-Jul-14	15:49	40.70	NA	30.67	10.03	NA	NA	Post Injection 1
	30-Jul-14	9:45	40.70	NA	30.67	10.03	NA	NA	Pre-Extraction 1
	30-Jul-14	15:58	40.70	NA	31.13	9.57	NA	NA	During Extraction 1
	30-Jul-14	16:34	40.70	NA	31.30	9.40	NA	NA	Post Extraction 1
	31-Jul-14	9:21	40.70	NA	31.81	8.89	NA	NA	Pre-Injection 2
	31-Jul-14	11:47	40.70	NA	31.81	8.89	NA	NA	Post Injection 2
	31-Jul-14	12:48	40.70	NA	31.81	8.89	NA	NA	Post Injection 2
	1-Aug-14	9:34	40.70	NA	31.17	9.53	NA	NA	Pre-Extraction 2
	1-Aug-14	16:02	40.70	NA	31.90	8.80	NA	NA	During Extraction 2
	1-Aug-14	16:57	40.70	NA	31.87	8.83	NA	NA	Post Extraction 2
	4-Aug-14	9:33	40.70	NA	31.53	9.17	NA	NA	Pre-Injection 3
	4-Aug-14	11:10	40.70	NA	31.38	9.32	NA	NA	Post Injection 3
	4-Aug-14	11:48	40.70	NA	31.43	9.27	NA	NA	Post Injection 3
	5-Aug-14	8:55	40.70	NA	31.16	9.54	NA	NA	Pre-Extraction 3
	5-Aug-14	15:25	40.70	NA	31.95	8.75	NA	NA	During Extraction 3
	6-Aug-14	9:32	40.70	NA	32.10	8.60	NA	NA	During Extraction 3
	6-Aug-14	14:11	40.70	NA	32.15	8.55	NA	NA	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence



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Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-46	29-Jul-14	9:00	40.89	NA	31.04	9.85	NA	NA	Pre-Injection 1
	29-Jul-14	10:55	40.89	NA	NA	NA	5.6	<1.40	Pre-Injection 1
	29-Jul-14	14:43	40.89	NA	30.82	10.07	NA	NA	During Injection 1
	29-Jul-14	15:40	40.89	NA	30.85	10.04	NA	NA	Post Injection 1
	30-Jul-14	9:43	40.89	NA	30.90	9.99	NA	NA	Pre-Extraction 1
	30-Jul-14	10:45	40.89	NA	NA	NA	NA	<1.40	Pre-Extraction 1
	30-Jul-14	15:54	40.89	NA	31.79	9.10	NA	NA	During Extraction 1
	30-Jul-14	16:32	40.89	NA	32.20	8.69	NA	NA	Post Extraction 1
	31-Jul-14	9:19	40.89	NA	33.08	7.81	NA	NA	Pre-Injection 2
	31-Jul-14	9:45	40.89	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	11:49	40.89	NA	33.03	7.86	NA	NA	Post Injection 2
	31-Jul-14	12:46	40.89	NA	33.05	7.84	NA	NA	Post Injection 2
	31-Jul-14	13:05	40.89	NA	NA	NA	NA	Absent*/<1.40	Post Injection 2
	1-Aug-14	9:32	40.89	NA	31.68	9.21	NA	NA	Pre-Extraction 2
	1-Aug-14	10:00	40.89	NA	NA	NA	NA	Absent*	During Extraction 2
	1-Aug-14	16:01	40.89	NA	33.22	7.67	NA	NA	During Extraction 2
	1-Aug-14	16:25	40.89	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	16:55	40.89	NA	33.23	7.66	NA	NA	Post Extraction 2
	1-Aug-14	17:10	40.89	NA	NA	NA	71	<1.40	Post Extraction 2
	4-Aug-14	9:31	40.89	NA	32.16	8.73	NA	NA	Pre-Injection 3
	4-Aug-14	9:45	40.89	NA	NA	NA	33	Absent*	Pre-Injection 3
	4-Aug-14	11:08	40.89	NA	31.88	9.01	NA	NA	Post Injection 3
	4-Aug-14	11:45	40.89	NA	31.89	9.00	NA	NA	Post Injection 3
	4-Aug-14	12:11	40.89	NA	31.90	8.99	NA	NA	Post Injection 3
	4-Aug-14	12:15	40.89	NA	NA	NA	NA	Absent*/<1.40	Post Injection 3
	5-Aug-14	8:53	40.89	NA	31.46	9.43	NA	NA	Pre-Extraction 3
	5-Aug-14	9:30	40.89	NA	NA	NA	3.6	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	15:23	40.89	NA	33.30	7.59	NA	NA	During Extraction 3
	6-Aug-14	9:31	40.89	NA	33.43	7.46	NA	NA	During Extraction 3
	6-Aug-14	14:10	40.89	NA	33.46	7.43	NA	NA	Post Extraction 3
	6-Aug-14	14:50	40.89	NA	NA	NA	23	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Appendix D - Table 1 - Pilot Study Data Summary During Field Activities  
 Chester River Hospital Center  
 100 Brown Street  
 Chestertown, MD 21620

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
MW-47	29-Jul-14	9:00	40.74	NA	30.92	9.82	NA	NA	Pre-Injection 1
	29-Jul-14	10:30	40.74	NA	NA	NA	530	<1.40	Pre-Injection 1
	29-Jul-14	14:40	40.74	NA	30.63	10.11	NA	NA	During Injection 1
	29-Jul-14	15:42	40.74	NA	30.71	10.03	NA	NA	Post Injection 1
	30-Jul-14	9:37	40.74	NA	30.78	9.96	NA	NA	Pre-Extraction 1
	30-Jul-14	10:50	40.74	NA	NA	NA	NA	<1.40	Pre-Extraction 1
	30-Jul-14	15:53	40.74	NA	32.36	8.38	NA	NA	During Extraction 1
	30-Jul-14	16:31	40.74	NA	32.62	8.12	NA	NA	Post Extraction 1
	31-Jul-14	9:17	40.74	NA	33.36	7.38	NA	NA	Pre-Injection 2
	31-Jul-14	9:45	40.74	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	11:50	40.74	NA	33.22	7.52	NA	NA	Post Injection 2
	31-Jul-14	12:45	40.74	NA	33.36	7.38	NA	NA	Post Injection 2
	31-Jul-14	13:05	40.74	NA	NA	NA	NA	Absent*/<1.40	Post Injection 2
	1-Aug-14	9:31	40.74	NA	32.16	8.58	NA	NA	Pre-Extraction 2
	1-Aug-14	10:00	40.74	NA	NA	NA	NA	Absent*	During Extraction 2
	1-Aug-14	15:59	40.74	NA	33.60	7.14	NA	NA	During Extraction 2
	1-Aug-14	16:25	40.74	NA	NA	NA	NA	Absent*	Post Extraction 2
	1-Aug-14	16:54	40.74	NA	33.46	7.28	NA	NA	Post Extraction 2
	1-Aug-14	17:10	40.74	NA	NA	NA	420	<1.40	Post Extraction 2
	4-Aug-14	9:30	40.74	NA	32.17	8.57	NA	NA	Pre-Injection 3
	4-Aug-14	9:45	40.74	NA	NA	NA	900	Absent*	Pre-Injection 3
	4-Aug-14	11:07	40.74	NA	31.72	9.02	NA	NA	Post Injection 3
	4-Aug-14	11:46	40.74	NA	31.86	8.88	NA	NA	Post Injection 3
	4-Aug-14	12:10	40.74	NA	31.96	8.78	NA	NA	Post Injection 3
	4-Aug-14	12:15	40.74	NA	NA	NA	NA	Absent*/<1.40	Post Injection 3
	5-Aug-14	8:52	40.74	NA	31.28	9.46	NA	NA	Pre-Extraction 3
	5-Aug-14	9:30	40.74	NA	NA	NA	90	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	15:22	40.74	NA	33.59	7.15	NA	NA	During Extraction 3
	6-Aug-14	9:29	40.74	NA	33.69	7.05	NA	NA	During Extraction 3
	6-Aug-14	14:09	40.74	NA	33.81	6.93	NA	NA	Post Extraction 3
	6-Aug-14	14:50	40.74	NA	NA	NA	670	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
RW-2D	5-Aug-14	10:40	40.54	NA	NA	NA	24	NA	During Extraction 3
	5-Aug-14	11:40	40.54	NA	NA	NA	0.48	Present*	During Extraction 3
	5-Aug-14	12:40	40.54	NA	NA	NA	0.59	NA	During Extraction 3
	5-Aug-14	13:40	40.54	NA	NA	NA	0.54	Absent*	During Extraction 3
	5-Aug-14	14:40	40.54	NA	NA	NA	0.28	NA	During Extraction 3
	6-Aug-14	14:30	40.54	NA	NA	NA	0.51	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Appendix D - Table 1 - Pilot Study Data Summary During Field Activities  
 Chester River Hospital Center  
 100 Brown Street  
 Chestertown, MD 21620

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
RW-4	29-Jul-14	14:45	48.15	NA	NA	NA	NA	Absent*	Post Injection 1
	29-Jul-14	15:30	48.15	NA	NA	NA	NA	Absent*	Post Injection 1
	30-Jul-14	10:00	48.15	NA	NA	NA	0.62	Absent*/<1.40	Pre-Extraction 1
	31-Jul-14	9:42	48.15	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	12:50	48.15	NA	NA	NA	0.36	Present*	Post Injection 2
	31-Jul-14	14:30	48.15	NA	NA	NA	NA	Absent*	Post Injection 2
	1-Aug-14	9:30	48.15	NA	NA	NA	0.37	Absent*/<1.40	Pre-Extraction 2
	1-Aug-14	17:00	48.15	NA	NA	NA	0.55	<1.40	Post Extraction 2
	4-Aug-14	9:55	48.15	NA	NA	NA	0.16	Absent*	During Injection 3
	4-Aug-14	12:00	48.15	NA	NA	NA	<0.1	Absent*	Post Injection 3
	5-Aug-14	9:35	48.15	NA	NA	NA	0.21	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	10:40	48.15	NA	NA	NA	0.88	NA	During Extraction 3
	5-Aug-14	11:40	48.15	NA	NA	NA	0.90	Present*	During Extraction 3
	5-Aug-14	12:40	48.15	NA	NA	NA	0.62	NA	During Extraction 3
	5-Aug-14	13:40	48.15	NA	NA	NA	0.71	Absent*	During Extraction 3
	5-Aug-14	14:40	48.15	NA	NA	NA	0.43	NA	During Extraction 3
	6-Aug-14	14:30	48.15	NA	NA	NA	0.51	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
RW-5	29-Jul-14	14:30	43.34	NA	NA	NA	NA	Absent*	Post Injection 1
	29-Jul-14	16:15	43.34	NA	NA	NA	NA	Absent*	Post Injection 1
	30-Jul-14	10:00	43.34	NA	NA	NA	5.0	Absent*/<1.40	Pre-Extraction 1
	31-Jul-14	9:42	43.34	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	12:50	43.34	NA	NA	NA	2.7	Present*	Post Injection 2
	31-Jul-14	14:30	43.34	NA	NA	NA	NA	Absent*	Post Injection 2
	1-Aug-14	9:30	43.34	NA	NA	NA	0.46	Absent*/<1.40	Pre-Extraction 2
	1-Aug-14	17:00	43.34	NA	NA	NA	10	<1.40	Post Extraction 2
	4-Aug-14	9:55	43.34	NA	NA	NA	0.17	Absent*	During Injection 3
	4-Aug-14	12:00	43.34	NA	NA	NA	<0.1	Absent*	Post Injection 3
	5-Aug-14	9:35	43.34	NA	NA	NA	0.25	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	10:40	43.34	NA	NA	NA	0.6	NA	During Extraction 3
	5-Aug-14	11:40	43.34	NA	NA	NA	0.25	Present*	During Extraction 3
	5-Aug-14	12:40	43.34	NA	NA	NA	0.65	NA	During Extraction 3
	5-Aug-14	13:40	43.34	NA	NA	NA	0.50	Absent*	During Extraction 3
	5-Aug-14	14:40	43.34	NA	NA	NA	0.24	NA	During Extraction 3
	6-Aug-14	14:30	43.34	NA	NA	NA	1.5	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence



Appendix D - Table 1 - Pilot Study Data Summary During Field Activities  
 Chester River Hospital Center  
 100 Brown Street  
 Chestertown, MD 21620

Well No.	Date	Time	Top of Casing Elevation (ft)	Depth to Product (ft)	Depth to Water (ft)	GW Elevation (ft)	TPH-DRO (mg/L)	Surfactant (mg/L)	Comments
RW-6	31-Jul-14	9:42	47.22	NA	NA	NA	NA	Absent*	Pre-Injection 2
	31-Jul-14	12:50	47.22	NA	NA	NA	0.23	Present*	Post Injection 2
	31-Jul-14	14:30	47.22	NA	NA	NA	NA	Absent*	Post Injection 2
	1-Aug-14	9:30	47.22	NA	NA	NA	0.30	Absent*/<1.40	Pre-Extraction 2
	1-Aug-14	17:00	47.22	NA	NA	NA	0.45	<1.40	Post Extraction 2
	4-Aug-14	9:55	47.22	NA	NA	NA	<0.1	Absent*	During Injection 3
	4-Aug-14	12:00	47.22	NA	NA	NA	<0.1	Absent*	Post Injection 3
	5-Aug-14	9:35	47.22	NA	NA	NA	6.2	Absent*/<1.40	Pre-Extraction 3
	5-Aug-14	10:40	47.22	NA	NA	NA	0.58	NA	During Extraction 3
	5-Aug-14	11:40	47.22	NA	NA	NA	0.29	Present*	During Extraction 3
	5-Aug-14	12:40	47.22	NA	NA	NA	0.50	NA	During Extraction 3
	5-Aug-14	13:40	47.22	NA	NA	NA	0.57	Absent*	During Extraction 3
	5-Aug-14	14:40	47.22	NA	NA	NA	0.36	NA	During Extraction 3
	6-Aug-14	14:30	47.22	NA	NA	NA	0.22	<1.40	Post Extraction 3

NA - Not Applicable

\* - Surface Tension Field Test for Presence/Absence

**ATTACHMENT D – MyCelx® Documentation**



**BrightFields, Inc.**  
Environmental Services

April 15, 2015

H&B Solutions, LLC  
37534 Oliver Dr.  
Selbyville, DE 19975

Attn: Mrs. Melissa Hall

**Re: Chester River Hospital Center (CRHC)  
MyCelx Filter Treatment System  
BrightFields Project No. 3111.01.52**

Dear Mrs. Hall:

As part of the Technical Team/CRHC response to the Maryland Department of the Environment (MDE) comment letter dated March 27, 2015, BrightFields has conducted the required evaluation of the MyCelx Filter Treatment System treatment capacity. In partial satisfaction of this request, we have reviewed the as-built drawing as prepared by Earth Data, Inc. provided by EBA Engineering, prepared a flow diagram which represents the existing unit process operations, and obtained a letter from the MyCelx company which addresses the systems overall capacity.

Based on a review of this information and our hands on experience with the equipment as the certified operator for the project, BrightFields believes the system is more than adequate to meet the needs outlined in the proposed 2015 Action Plan provided that the treatment system is enhanced with the backup units recommended by the MyCelx vendor.

Although it could be debated that the existing system has sufficient treatment capacity to meet the project needs associated with recovery of liberated TPH-DRO and treatment through the MyCelx Filter System while still meeting the MDE Discharge Permit limits, the add-on units will provide for a margin of safety that will deliver the level of performance assurance that MDE is seeking.



The as-built, existing flow diagram, proposed flow diagram (for the Proposed 2015 Action Plan) and vendor letter are included for your information and use. Should you require anything further in these regards please do not hesitate to contact me.

Sincerely,  
**BrightFields, Inc.**



**Kenneth L. Hannon, P.E.**  
**Engineering Program Manager**



Wednesday, April 15, 2015

MYCELX has been in close contact with Brightfields, Inc. and Ivey International Inc. with regards to the Chester River Hospital Center (CRHC) remediation system. We understand that in addition to the normal operations of the system for purposes of providing hydraulic control, as a result of the Pilot Study in 2014, the CRHC Technical Team proposes to also use the MYCELX filters for treating the extractions in their 2015 Action Plan. We have also been provided information from EBA Engineering and Ivey International regarding the expected hydraulic and treatment loading requirements expected to be associated with the 2015 Action Plan.

Currently the treatment system, which has been in operation for several years, employs a single stage of MYCELEX polishers to ensure that the influent hydrocarbons (TPH-DRO) are removed before effluent discharge to the Chester River (<5 mg/L), and has an operational flow capacity of 160 gpm.

With the upcoming application of Ivey-sol<sup>®</sup> surfactant to enhance the removal of the sorbed hydrocarbons, within several zones on-site, the influent hydrocarbon concentration is expected to increase to 1000 to 1200 ppm, as demonstrated during the pilot scale application in 2014. Although MYCELX believes the existing system as designed is adequate to meet these needs, MYCELX would recommend an additional stage of treatment (EB - Emulsion Breaker) polisher to the existing treatment system to ensure the influent hydrocarbon concentrations are safely reduced to the effluent discharge limit of less than 5 ml/L, when operated properly. More specifically, the new unit would be a safeguard against any breakthrough from the existing treatment process. The hydraulic and treatment capacity of the system to process contaminants would be more than doubled, allowing for an increase in the margin of safety during operation. The new system design would have a combined flow capacity of 320 gpm, which would meet and exceed the upcoming application requirements.

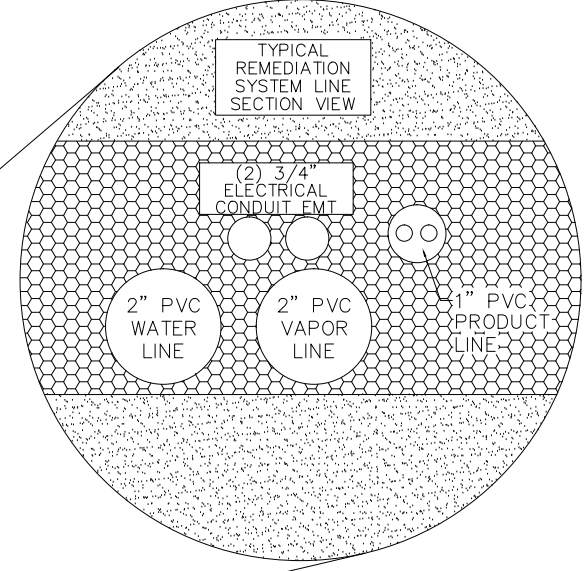
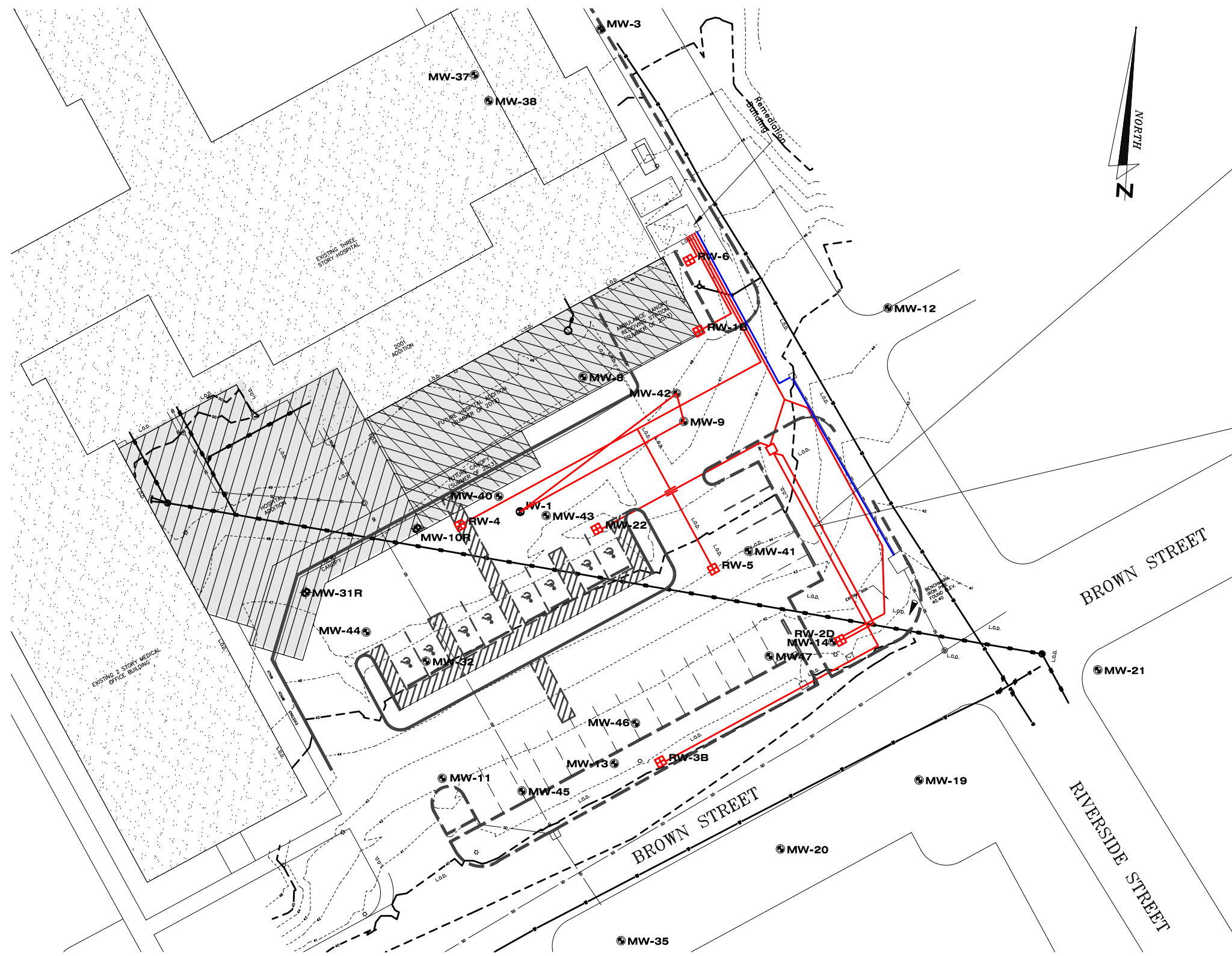
MYCELX does not anticipate any negative impacts to the operational efficiency of the proposed treatment system from the Ivey-sol<sup>®</sup> surfactant application based on the characteristics of the Ivey-sol<sup>®</sup> surfactant and information provided by the supplier, Ivey International Inc.

During the period of operation, MYCELX will remain in close contact with the local field team to ensure the system is working properly and fully support the important work at the CRHC site.

A handwritten signature in black ink, appearing to read "Lance Rodeman", is written over a light-colored rectangular background.

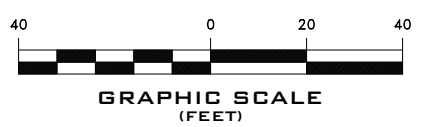
Lance Rodeman, Regional Manager of Technical Solutions, North America

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EXPLANATION

- ⊕ MW-9 MONITORING WELL
- ▣ RW-4 RECOVERY WELL
- JUNCTION BOX
- ⊕ IW-1 INJECTION WELL
- SYSTEM LINE
- DISCHARGE LINE



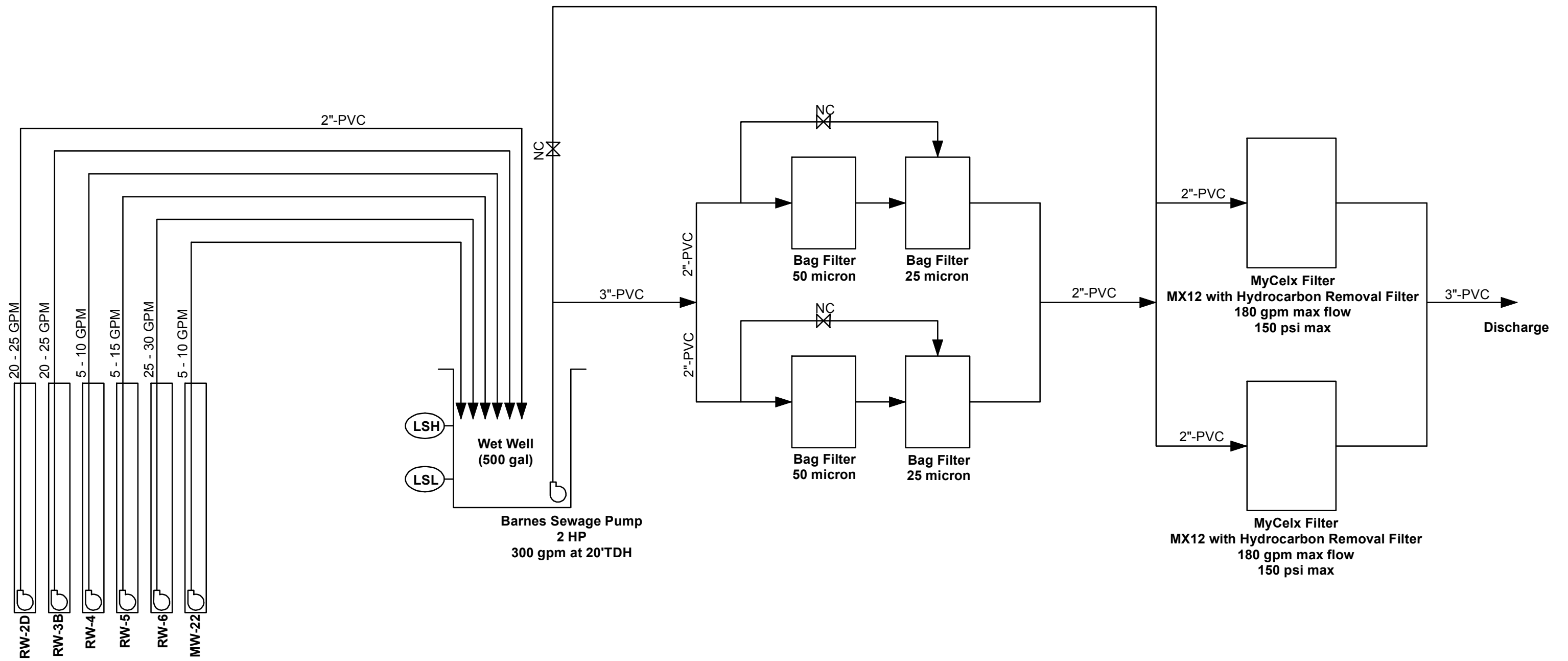
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A.BULLEN	AS SHOWN	COMPIATION.DWG	
DRAWN BY:	DATE:	PROJECT:	SURVEY BY:
T.COCHRAN	04/22/2013	2781	DMS, INC.



**FIGURE 1**  
 GROUNDWATER REMEDIATION SYSTEM  
 "AS-BUILT" PLAN VIEW  
**CHESTER RIVER HOSPITAL CENTER**  
 CHESTERTOWN, MARYLAND


**Earth Data**  
 INCORPORATED  
 GROUNDWATER & ENVIRONMENTAL  
 CONSULTANTS

131 COMET DRIVE  
 CENTREVILLE, MARYLAND 21617  
 TEL. 410.758.8160 / FAX 410.758.8168  
 www.earthdatainc.com



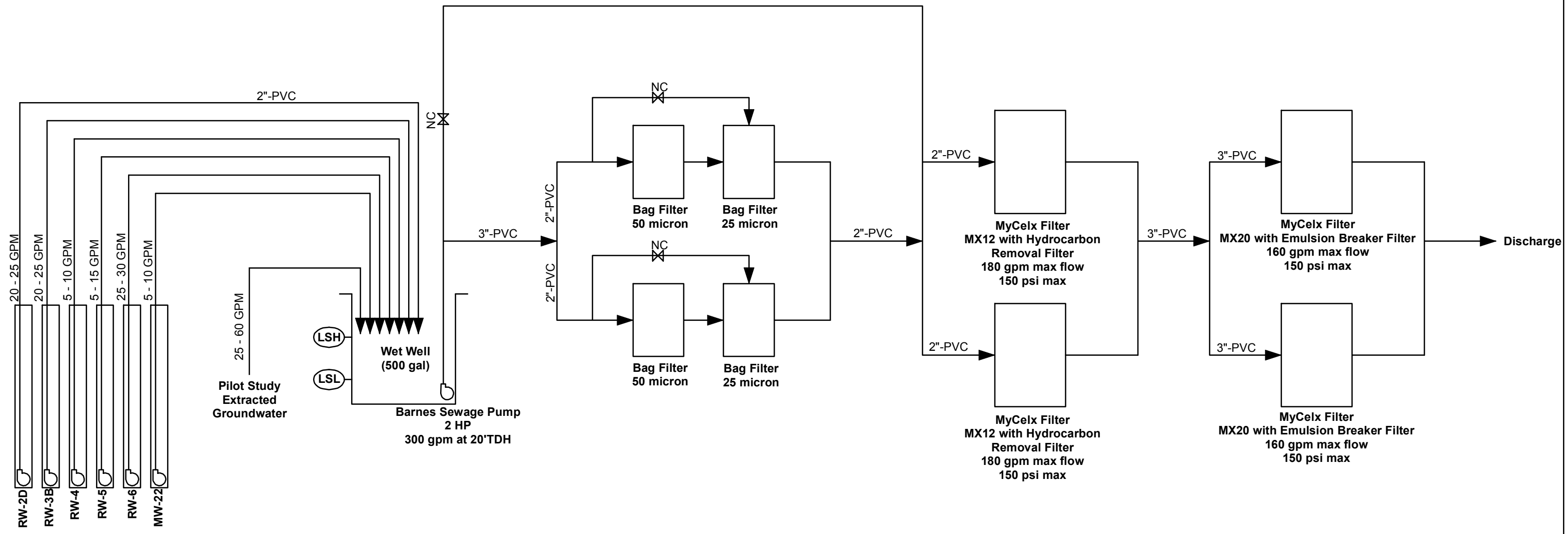


NC - Normally Closed  
 - Ball Valve  
 - Pump  
 LSH - Level Switch High  
 LSL - Level Switch Low


**BrightFields, Inc.**  
 Environmental Evaluation  
 Investigation, and Remediation  
 801 Industrial Street, Suite 1  
 Wilmington, Delaware 19801  
 302-656-9600  
 302-656-9700 fax

Groundwater Recovery and Treatment System  
 Existing Process Flow Diagram  
 Chester River Hospital Center  
 Chestertown, Maryland

	By	Date	File Name:
Drawn	KEP	4/15/2015	Fig1ExistingProcessDiagram.mxd
Checked	KLH	4/15/2015	Fig. No.
Project #	3111.01.52		Figure 1



NC - Normally Closed  
 X - Ball Valve  
 P - Pump  
 LSH - Level Switch High  
 LSL - Level Switch Low


**BrightFields, Inc.**  
 Environmental Evaluation  
 Investigation, and Remediation

801 Industrial Street, Suite 1  
 Wilmington, Delaware 19801

302-656-9600  
 302-656-9700 fax

Groundwater Recovery and Treatment System  
 Proposed Process Flow Diagram  
 Chester River Hospital Center  
 Chestertown, Maryland

	By	Date	File Name:
Drawn	KEP	4/15/2015	Fig1ProposedProcessDiagram.mxd
Checked	KLH	4/15/2015	Fig. No.
Project #	3111.01.52		Figure 1

**ATTACHMENT E – Data Summary Sheets**



Influent and Effluent Summary Table

Chester River Hospital Center  
100 Brown Street  
Chestertown, MD 21620

Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
MW-22	Mar-13	<1	<1	<1	<2	<2	<1	4.5	0.26	1.3	NS	DNA	DNA	DNA
	Jun-13	<1	<1	<1	<2	<2	<1	44	<0.1	<1	NS	DNA	DNA	DNA
	Jan-14	<1	<1	<1	<2	<2	<1	0.16	NS	1.3	NS	DNA	DNA	DNA
	Apr-14	<1	<1	<1	<2	<2	<1	0.19	NS	<1	NS	DNA	DNA	DNA
	Jul-14	<1	<1	<1	<2	<2	<1	0.25	<0.1	1.1	<1.4	564,668	12.6	DNA
	Aug-14	<1	<1	<1	<2	<2	<1	0.41	<0.1	2.0	<1.4	509,789	11.4	DNA
	Sep-14	<1	<1	<1	<2	<2	<1	0.35	<0.1	2.0	<2.34	378,464	8.8	DNA
	Oct-14	<1	<1	<1	<2	<2	<1	<0.1	<0.1	2.4	<1.4	313,630	7.1	DNA
	Nov-14	<1	<1	<1	<2	<2	<1	0.62	<0.1	2.8	<1.4	259,031	6.0	DNA
	Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	272,817	6.1	DNA
	Jan-15	<1	<1	<1	<2	<2	<1	0.19	<0.1	3.1	NS	92,899	2.1	DNA
	Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	141,190	3.5	DNA
	Mar-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	103,285	2.3	DNA

NS - Not Sampled, DNA - Data Not Available

Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
RW-2D	Mar-13	<1	<1	<1	<2	<2	<1	100	<0.1	<1	NS	DNA	DNA	DNA
	Jun-13	<1	<1	<1	<2	<2	<1	23	<0.1	<1	NS	DNA	DNA	DNA
	Jan-14	<1	<1	<1	<2	<2	<1	17	NS	<1	NS	DNA	DNA	DNA
	Apr-14	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	DNA	DNA	DNA
	Jul-14	<1	<1	<1	<2	<2	<1	0.33	NS	1.2	NS	300,202	6.7	DNA
	Aug-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	625,559	14.0	DNA
	Sep-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	597,193	13.8	DNA
	Oct-14	<1	<1	<1	<2	<2	<1	0.18	NS	3.6	NS	628,988	14.1	DNA
	Nov-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	593,991	13.7	DNA
	Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	795,736	17.8	DNA
	Jan-15	<1	<1	<1	<2	<2	<1	0.12	<0.1	2.8	NS	238,931	5.4	DNA
	Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	655,807	16.3	DNA
	Mar-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	626,556	14.0	DNA

NS - Not Sampled, DNA - Data Not Available

Influent and Effluent Summary Table

Chester River Hospital Center  
100 Brown Street  
Chestertown, MD 21620

Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
RW-3B	Mar-13	<1	<1	7.6	26.9	34.5	<1	1100	24	110	NS	DNA	DNA	DNA
	Jan-14	<1	<1	<1	<2	<2	<1	0.12	NS	<1	NS	DNA	DNA	DNA
	Apr-14	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	DNA	DNA	DNA
	Jul-14	<1	<1	<1	<2	<2	<1	0.22	NS	<1	NS	286,511	6.4	DNA
	Aug-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	565,154	12.7	DNA
	Sep-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	542,880	12.6	DNA
	Oct-14	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	551,726	12.4	DNA
	Nov-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	522,388	12.1	DNA
	Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	682,371	15.3	DNA
	Jan-15	<1	<1	<1	<2	<2	<1	0.18	<0.1	1.8	NS	313,786	7.0	DNA
	Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	631,122	15.7	DNA
	Mar-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	585,154	13.1	DNA

NS - Not Sampled, DNA - Data Not Available

Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
RW-4	Mar-13	<1	<1	<1	<2	<2	<1	1.7	<0.1	<1	NS	DNA	DNA	DNA
	Jun-13	<1	<1	<1	<2	<2	<1	0.54	<0.1	<1	NS	DNA	DNA	DNA
	Jan-14	<1	<1	<1	<2	<2	<1	0.14	NS	1.1	NS	DNA	DNA	DNA
	Apr-14	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	DNA	DNA	DNA
	Jul-14	<1	<1	<1	<2	<2	<1	0.16	NS	1.0	NS	86,687	1.9	DNA
	Aug-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	170,343	3.8	DNA
	Sep-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	159,485	3.7	DNA
	Oct-14	<1	<1	<1	<2	<2	<1	<0.1	NS	1.6	NS	165,499	3.7	DNA
	Nov-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	150,205	3.5	DNA
	Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	194,534	4.4	DNA
	Jan-15	<1	<1	<1	<2	<2	<1	0.16	<0.1	1.7	NS	86,360	1.9	DNA
	Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	175,756	4.4	DNA
	Mar-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	164,744	3.7	DNA

NS - Not Sampled, DNA - Data Not Available

Influent and Effluent Summary Table

Chester River Hospital Center  
 100 Brown Street  
 Chestertown, MD 21620

Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
RW-5	Mar-13	<1	<1	<1	<2	<2	<1	9.9	<0.1	<1	NS	DNA	DNA	DNA
	Jun-13	<1	<1	<1	<2	<2	<1	40	<0.1	<1	NS	DNA	DNA	DNA
	Jan-14	<1	<1	<1	<2	<2	<1	0.17	NS	1	NS	DNA	DNA	DNA
	Apr-14	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	DNA	DNA	DNA
	Jul-14	<1	<1	<1	<2	<2	<1	0.30	NS	<1	NS	148,556	3.3	DNA
	Aug-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	307,877	6.9	DNA
	Sep-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	294,638	6.8	DNA
	Oct-14	<1	<1	<1	<2	<2	<1	0.13	NS	<1	NS	290,280	6.5	DNA
	Nov-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	293,624	6.8	DNA
	Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	83,135	1.9	DNA
	Jan-15	<1	<1	<1	<2	<2	<1	0.12	<0.1	1.1	NS	167,122	3.7	DNA
	Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	360,401	8.9	DNA
	Mar-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	331,339	7.4	DNA

NS - Not Sampled, DNA - Data Not Available

Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
RW-6	Mar-13	<1	<1	<1	<2	<2	<1	0.53	<0.1	1.1	NS	DNA	DNA	DNA
	Jun-13	<1	<1	<1	<2	<2	<1	0.65	<0.1	<1	NS	DNA	DNA	DNA
	Apr-14	<1	<1	<1	<2	<2	<1	<0.1	NS	1.3	NS	DNA	DNA	DNA
	Jul-14	<1	<1	<1	<2	<2	<1	0.19	NS	1.1	NS	410,060	9.2	DNA
	Aug-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	752,284	16.9	DNA
	Sep-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	684,122	15.8	DNA
	Oct-14	<1	<1	<1	<2	<2	<1	<0.1	NS	3.3	NS	711,540	15.9	DNA
	Nov-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	651,277	15.1	DNA
	Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	841,188	18.8	DNA
	Jan-15	<1	<1	<1	<2	<2	<1	0.12	<0.1	2.0	NS	381,408	8.5	DNA
	Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	795,383	19.7	DNA
	Mar-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	727,646	16.3	DNA

NS - Not Sampled, DNA - Data Not Available



Influent and Effluent Summary Table

Chester River Hospital Center  
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Well No.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	MTBE (µg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	Naphthalene (µg/L)	Surfactant (mg/L)	Gallons Pumped	Flow Rates (gpm)	System Runtimes
Sys Eff	Jul-13	<1	<1	<1	<2	<2	<1	0.18	NS	1.4	NS	4,067,128	NA	NA
	Aug-13	<1	<1	<1	<2	<2	<1	0.2	NS	<1	NS	4,834,506	NA	NA
	Sep-13	<1	<1	<1	<2	<2	<1	0.18	NS	<1	NS	4,798,147	NA	NA
	Oct-13	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	4,188,557	NA	NA
	Nov-13	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	4,024,198	NA	NA
	Dec-13	<1	<1	<1	<2	<2	<1	0.1	NS	<1	NS	3,671,135	NA	NA
	Jan-14	<1	<1	<1	<2	<2	<1	0.17	NS	1.1	NS	3,796,547	NA	NA
	Feb-14	<1	<1	<1	<2	<2	<1	<0.1	NS	<1	NS	3,181,197	NA	NA
	Mar-14	<1	<1	<1	<2	<2	<1	0.13	NS	<1	NS	3,864,492	NA	NA
	Apr-14	<1	<1	<1	<2	<2	<1	<0.1	NS	1.1	NS	4,048,732	NA	NA
	May-14	<1	<1	<1	<2	<2	<1	<0.1	NS	1.0	NS	2,221,956	NA	NA
	Jun-14	<1	<1	<1	<2	<2	<1	NS	NS	1.6	NS	2,150,270	NA	NA
	Jul-14	<1	<1	<1	<2	<2	<1	0.29	NS	1.3	NS	1,800,061	NA	NA
	Aug-14	NS	NS	NS	NS	NS	NS	0.42	NS	NS	<1.4	2,942,687	NA	NA
	Sep-14	<1	<1	<1	<2	<2	<1	0.85	<0.1	1.3	NS	2,656,781	NA	NA
	Oct-14	<1	<1	<1	<2	<2	<1	0.18	NS	2.0	NS	2,664,664	NA	NA
	Nov-14	<1	<1	<1	<2	<2	<1	0.24	NS	1.3	NS	2,470,517	NA	NA
	Dec-14	<1	<1	<1	<2	<2	<1	0.32	<0.1	<1	NS	2,869,780	NA	NA
	Jan-15	<1	<1	<1	<2	<2	<1	0.2	<0.1	1.6	NS	1,280,505	NA	NA
	Feb-15	<1	<1	<1	<2	<2	<1	0.22	<0.1	<1	NS	2,759,660	NA	NA
	Mar-15	<1	<1	<1	<2	<2	<1	0.27	<0.1	1.1	NS	2,538,724	NA	NA

NS - Not Sampled, NA - Not Applicable, No Discharge Jan 1 thru Jun 13, 2013 per DMR