zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-9-13 Personnel: Brad Davis

Well ID: HMW-11

Air Temp: 88° F Water Quality Meter: YSI 556 MPS, s/n 06E2472

Weather: Clear Water Level Indicator: Solinst # 18

Pump #: 11287 Turbidity Meter: Lutron TU2016 # 34074

Drum: Comp. Poly ~~30gl~~ 6gal

Well TD: 65.68 ft. Well Size: 4" (2")

DTW (TOC): 46.48 ft. DTW (bgs): 45.13 ft.

LOC: 1.35 ft.

Date: 9-9-13 Well ID: HMW-11

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
46.52	1115	In.	25.50	31.95	20.57	4.86	7.75	91.8	9.54
46.53	1120	800	24.72	31.80	20.78	3.22	7.73	64.5	15.68
46.53	1126	1700	24.72	31.98	20.90	3.03	7.71	59.7	8.03
46.53	1131	2500	24.72	31.93	20.87	3.03	7.73	59.1	8.21
46.53	1136	3300	24.73	31.79	20.63	3.10	7.68	59.2	8.05
	Final = 46.53 ft.								

Sample Parameters

Temp: 24.73 ORP: 59.2

Cond: 31.79 Turbidity: 8.05

TDS: 20.63 ~~CO_2~~:

pH: 7.68 ~~Fe^{2+}~~:

Sample Date: 9-9-13 Time: 1140

ID: HLSF-0143-HMW-011-0913

Notes: Pump set @ 55', Start Purge @ 1107, 1st Water @ 1112, ml's ,
Recharge @ 15, Discharge @ 15, PSI @ 40,
TIME START @ 1107, TIME FINISH @ 1210, TOTAL TIME 1:03

Sampler Signature: Brady T. Davis

zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-9-13 Personnel: Brad Davis

Well ID: HMW-43

Air Temp: 92.°F Water Quality Meter: YSI 556MPS, s/n 06E 2472

Weather: P.Cloudy Water Level Indicator: Solinst # 18

Pump #: 11287 Turbidity Meter: Lutron TU2016 # 34074

Drum: Comp. Poly ~~30~~gl 6gal

Well TD: 65.47 ft. Well Size: (4") 2"

DTW (TOC): 46.40 ft. DTW (bgs): 43.97 ft.

LOC: 2.43 ft.

Date: 9-9-13 Well ID: HMW-43

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
46.46	1242	In.	26.50	12.30	7.775	6.37	7.47	61.6	1.38
46.51	1248	900	25.61	11.70	7.520	5.09	7.41	55.0	1.50
46.52	1253	1600	25.56	11.61	7.468	4.31	7.41	56.3	1.37
46.52	1258	2300	25.63	11.61	7.454	3.68	7.44	56.8	0.99
46.52	1303	3000	25.56	11.58	7.444	3.17	7.44	56.9	0.88
	Final =		46.52 ft.						

Sample Parameters

Temp: 25.56 ORP: 56.9

Cond: 11.58 Turbidity: 0.88

TDS: 7.444 ~~CO_2~~:

pH: 7.44 ~~Fe^{2+}~~:

Sample Date: 9-9-13 Time: 1305

ID: HLSF-0143-HMW-043-0913 + Field Duplicate HLSF-0143-HMW-043-0913

Notes: Pump set @ 58', Start Purge @ 1234, 1st Water @ 1239, ml's ,
Recharge @ 15 , Discharge @ 15 , PSI @ 35 - 30
TIME START @ 1234, TIME FINISH @ 1337, TOTAL TIME 1:03

Sampler Signature: Brad Davis

zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-10-13
Personnel: Brad Davis + George Esqueda, Rustin Baca
Well ID: HMW-38
Air Temp: 76°F
Water Quality Meter: YSI 556MPS, s/n 06E2472
Weather: overcast - rain
Water Level Indicator: Solinst # 18
Pump #: 11287
Turbidity Meter: Lutron TU2016 # 34074
Drum: Comp. Poly ~~30gl~~ 15gl.
Well TD: 63.73
Well Size: (4") 2"
DTW (TOC): 46.96 ft.
DTW (bgs): 44.58 ft.
LOC: 2.38 ft.

Date: 9-10-13
Well ID: HMW-38

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
47.04	1308	In.	22.90	20.04	13.57	12.21	7.90	63.6	1.51
47.06	1313	800	22.73	19.87	13.50	5.64	7.71	49.6	1.23
47.08	1318	1600	22.66	19.81	13.48	5.46	7.74	48.9	0.51
47.07	1323	2400	22.53	19.74	13.46	5.34	7.72	50.4	0.74
47.07	1328	3200	22.40	19.67	13.45	5.35	7.70	52.0	0.32
	Final = 47.07 ft.								

Sample Parameters

Temp: 22.40
ORP: 52.0
Cond: 19.67
Turbidity: 0.32
TDS: 13.45
~~CO_2~~:
pH: 7.70
~~Fe^{2+}~~:
Sample Date: 9-10-13
Time: 1330
ID: HLSF-0143-HMW-038-0913

Notes: Pump set @ 56', Start Purge @ 1259, 1st Water @ 1303 ml's 50,
Recharge @ 15, Discharge @ 15, PSI @ 40.30
TIME START @ 1259, TIME FINISH @ 1348, TOTAL TIME 0:49

Sampler Signature: Bradley T. Davis

zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-10-13
Well ID: HMW-40
Air Temp: 72°F
Weather: overcast - Rainer
Pump #: 11287
Drum: Comp. Poly 30gl
Well TD: 40.47
DTW (TOC): 18.77
LOC: 2.28

Personnel: Brad Davis + George Esqueda
Rustin Baca
Water Quality Meter: YSI556MPS, s/n 06E2472
Water Level Indicator: Solinst # 18
Turbidity Meter: Lutron TU2016 # 34074
Well Size: 4" 2"
DTW (bgs): 16.49 ft.

Date: 9-10-13
Well ID: HMW-40

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
18.94	1144	In.	22.25	24.14	16.56	5.48	7.88	87.4	2.44
19.14	1149	800	22.16	25.65	17.63	3.98	7.76	57.7	1.56
19.37	1154	1600	22.26	25.87	17.75	3.64	7.80	54.7	1.69
19.61	1200	2400	22.34	25.86	17.71	3.49	7.74	54.8	~~2.42~~ 1.15
19.77	1205	3200	22.41	25.83	17.66	3.46	7.74	55.7	1.10
	Final	= 20.54 ft.							

Sample Parameters

Temp: 22.41
Cond: 25.83
TDS: 17.66
pH: 7.74
Sample Date: 9-10-13

ORP: 55.7
Turbidity: 1.10
CO_2:
Fe^{2+}:
Time: 1207

ID: HLSF-0143-HMW-040-0913 ; HLSF-0143-HMW-040-0913-ms/msd

Notes: Pump set @ 33' ,Start Purge @ 1138 ,1st Water @ 1140 ml's 100 ,
Recharge @ ~~20~~ 15 ,Discharge @ ~~10~~ 15 ,PSI @ ~~18~~ 35 ,
TIME START @ 1138 ,TIME FINISH @ 1240 ,TOTAL TIME 1:02

Sampler Signature: [signature]

zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-10-13

Personnel: Brad Davis + George Esqueda
Rustin Baca

Well ID: HMW-41

Air Temp: 76°F

Water Quality Meter: YSI 556MPS, s/n 06E2472

Weather: Overcast

Water Level Indicator: Solinst # 18

Pump #: 11287

Turbidity Meter: Lutron TU2016 # 34074

Drum: Comp. Poly ~~30gl~~ 15 gallon

Well TD: 61.28 ft.

Well Size: (4") 2"

DTW (TOC): 44.81 ft.

DTW (bgs): 42.49 ft

LOC: 2.32 ft.

Date: 9-10-13

Well ID: HMW-41

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
45.03	1038	In.	22.44	31.06	21.23	6.89	7.72	111.7	1.63
45.15	1044	600	22.27	30.97	21.24	6.72	7.73	76.9	1.26
45.24	1049	1100	22.29	30.99	21.25	6.58	7.72	72.0	1.52
45.30	1054	1600	22.35	31.02	21.24	6.52	7.72	70.8	1.12
45.35	1059	2100	22.43	31.06	21.23	6.56	7.71	70.6	0.97
Finish =		45.35 ft.							

Sample Parameters

Temp: 22.43

ORP: 70.6

Cond: 31.06

Turbidity: 0.97

TDS: 21.23

~~CO_2~~:

pH: 7.71

~~Fe^{2+}~~:

Sample Date: 9-10-13

Time: 1100

ID: HLSF-0143-HMW-041-0313

Notes: Pump set @ 54', Start Purge @ 1027, 1st Water @ 1033, ml's 60,
Recharge @ 15, Discharge @ 15, PSI @ 30,
TIME START @ 1027, TIME FINISH @ 1130, TOTAL TIME 1:03

Sampler Signature: Brady T. Davis

zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-11-13 Personnel: Brad Davis + George Esqueda

Well ID: HMW-37

Air Temp: 71°F Water Quality Meter: YSI 556 MPS, s/n 06E2472

Weather: Overcast - rain Water Level Indicator: Solinst # 18

Pump #: 11287 Turbidity Meter: Lutron TU2016 # 34074

Drum: Comp. Poly ~~30~~gl 15 gal

Well TD: 45.17 ft. Well Size: (4") 2"

DTW (TOC): 42.39 ft. DTW (bgs): 39.89 ft.

LOC: 2.50 ft.

Date: 9-11-~~1~~13 Well ID: HMW-37

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
42.43	1020	In.	21.32	9.183	6.421	5.97	7.38	111.2	1.88
42.44	1025	700	21.35	9.166	6.404	5.76	7.38	83.3	1.56
42.44	1030	1500	21.38	9.148	6.388	5.72	7.28	76.9	1.07
42.44	1035	2300	21.42	9.136	6.375	5.72	7.27	75.3	1.28
42.42	1040	3100	21.41	9.119	6.363	5.76	7.27	74.7	0.46
	Final = 42.42 ft.								

Sample Parameters

Temp: 21.41 ORP: 74.7

Cond: 9.119 Turbidity: 0.46

TDS: 6.363 CO_2:

pH: 7.27 Fe^{2+}:

Sample Date: 9-11-13 Time: 1042

ID: HCSF-0143-HMW-037-0913

Notes: Pump set @ 44', Start Purge @ 1010, 1st Water @ 1016, ml's 900, 75
Recharge @ 15, Discharge @ 15, PSI @ 25,
TIME START @ 1010, TIME FINISH @ 1100, TOTAL TIME 0:50

Sampler Signature: [signature]

zia engineering & environmental consultants, llc

WELL SAMPLING FIELD LOG

Date: 9-11-13 Personnel: Brad Davis + George Esqueda

Well ID: HMW-39

Air Temp: 74°F Water Quality Meter: YSI 556 MPS, s/n 06E 2472

Weather: overcast Water Level Indicator: Solinst # 18

Pump #: 11287 Turbidity Meter: Lutron TU2016 # 34074

Drum: Comp. Poly ~~30gl~~ 15gal

Well TD: 64.92 ft. Well Size: (4") 2"

DTW (TOC): 46.49 DTW (bgs): 43.84 ft.

LOC: 2.65 ft.

Date: 9-11-13 Well ID: HMW-39

DTW TOC (ft)	TIME	VOL mL	TEMP °C	COND ms/cm	TDS g/l	DO mg/l	pH	ORP mV	TURB NTU
46.55	1128 (33)	In.	22.52	23.55	16.07	7.08	8.05	82.3	1.26
46.56	11:33	550	22.20	23.52	16.15	6.53	7.96	61.1	1.56
46.56	1138	1100	22.09	23.54	16.20	6.34	7.88	57.2	0.64
46.56	1143	1650	22.09	23.57	16.22	6.19	7.86	56.4	0.67
46.56	1148	2200	22.19	23.63	16.23	6.13	7.84	56.8	1.22
	Final = 46.56 ft.								

Sample Parameters

Temp: 22.19 ORP: 56.8

Cond: 23.63 Turbidity: 1.22

TDS: 16.23 CO_2:

pH: 7.84 Fe^{2+}:

Sample Date: 9-11-13 Time: 1150

ID: HLSF-0143-HMW-039-0913

Notes: Pump set @ 57' ,Start Purge @ 1115 ,1st Water @ 1119 ,ml's 60 ,
Recharge @ 15 ,Discharge @ 15 ,PSI @ 27 ,
TIME START @ 1115 ,TIME FINISH @ 1205 ,TOTAL TIME 0:50

Sampler Signature: [signature]

Task Improvement Process	
General	
TIP ID	
Observed Company	Zia Engineering
Observation Type	
TIP Form	
Task Observed	Containerizing purge water Poured from 5 gallon collection bucket to closed top DOT container.
Observee Name	George Esqueda
Observer Name	Brad Davis
Observation Date	9-11-13
Project Number	
Project Name	HELSTF Chromate Spill
Supervisor	Brad Davis
Equipment On Site	trailer, sampling equipment.
Pertinent Information	

Observations

Task	Correct	Questionable	Comments
H&S - Groundwater Sampling			
Equipment Care and Maintenance			
PPE worn according to HASP/JLA specifications and inspected before use	☐	☑	funnel used has leak
Spill kit, absorbent pads, or other materials available to contain spills. Storm drains or surface water drainage areas protected	☑	☐	used paper towels to clean minor purgewater spill in trailer
Required monitoring equipment calibrated and used	☑	☐	
Right tools for the job are identified, available, inspected and in good condition	☑	☑	need new funnel
Electrical systems: a) Grounded b) Lock out / tag out performed	☐	☐	N/A
Battery powered equipment properly connected and disconnected (connect positive then negative, disconnect negative then positive)	☐	☐	N/A
Corded portable power tool or other cord connected equipment is plugged into a GFCI whip and the GFCI whip is plugged directly into the power source (electrical outlet)	☐	☐	N/A
GFCI whip has been inspected and tested, and is appropriate size for the equipment	☐	☐	N/A
Battery posts protected from short circuit	☐	☐	N/A

Observations

Task	Correct	Questionable	Comments
Air monitoring equipment is on site, calibrated according to manufacturer instructions	☑	☐	N/A
STOP work authority used where appropriate	☑	☐	
Work Environment			
Exclusion zone set up properly with correct type and number of barricades, warning devices, delineators	☐	☐	N/A
Site specific traffic hazards addressed	☑	☐	
Well manhole/vault inspected for hazards	☑	☐	
Proper tools or equipment used to remove well manhole/vault covers	☐	☐	N/A
Standing water in well manholes/vaults adequately removed prior to opening well	☐	☐	N/A
Observee not directly over well equipped with water tight cap when removing cap	☑	☐	
Vapors in well allowed to ventilate after opening well	☑	☐	
Well headspace vapor concentration measured when required by HASP or work plan	☐	☐	N/A
Work areas and pathways designated and clear of trip/slip hazards; uneven surfaces addressed	☑	☐	
Work Procedures: Well Gauging/Purging/Sampling			
Knee pads used when kneeling for extended periods of time	☐	☐	N/A
Proper lifting/pushing/pulling techniques	☑	☐	
Correct body positioning (e.g., not bending at waist to gauge wells)	☑	☐	
Proper handling of sample bottles (for example, hand positioning, PPE, not over tightening lids and avoiding glass bottle contact with other objects)	☑	☐	
Dedicated bailers, disposable bailers or properly decontaminated sampling equipment placed in well, water level indicators and oil/water interface probes properly decontaminated	☑	☐	
Purge water containerized or disposed of per the HASP/JLA	☑	☐	
Purge water is containerized, observee is using the proper labeling and marking requirements as required by the project work plan and/or shipping determination	☑	☐	
DOT HazMat #1 trained person collecting samples	☐	☐	N/A
Work Procedures: Free Product Purg/Bail/Samp/Coll			
PPE as specified in HASP/JLA is donned	☑	☐	gloves
Ensured vehicles and structures adequately ventilated to minimize organic vapor levels	☐	☐	N/A

Observations

Task	Correct	Questionable	Comments
Free product is managed for shipment in accordance with the project shipping determination	☑	☐	
Purge water, product, decontamination rinsate water, and other wastes properly stored and secured; disposable equipment containerized or disposed of properly	☑	☐	
Work Procedures: End of Job			
All well caps/plugs and well/vault lids secure and locked	☑	☐	
Housekeeping/site left in proper condition and secured	☑	☐	
Materials of Trade (e.g., compressed gas cylinders, preservatives, calibration solutions) properly secured during transport	☑	☐	
Items stowed in vehicle properly	☑	☐	
Any additional safety issues identified?	☐	☐	No

TIP Summary

Enter the details of the TIP and follow-up discussion. Provide details on how any questionable items were resolved.

Discussion following the TIP led by	Brad Davis
Date of follow-up discussion	
Positive Comments	
Discussion Summary Completed	☑ Supervisor Led ☑ Peer to Peer ☐ ARCADIS Employee to Subcontractor
Summary of Questionable Items	Leaking funnel.

Action Items (Optional)

Assign appropriate action items based on the observations made. You can add more than one action item if needed.

Item No.	Action Item	Responsible Person	Due Date	Completed Date
1	Leaking funnel replaced on site w/ working funnel.	Brad Davis	9-11-13	9-11-13
2				
3				

Standard Review

Reviewed By	Position / Title	Completed Date

Standard Review		
Reviewed By	Position / Title	Completed Date

Quality Review		
Reviewed By	Position / Title	Completed Date

Field Validation and Verification Review		
Reviewed By	Position / Title	Completed Date