

**EXPANDED PFOS, PFOA, AND PFBS SITE INSPECTION REPORT  
EIELSON AFB AND MOOSE CREEK, ALASKA**

**APPENDIX E – FIELD DOCUMENTATION**

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**EXPANDED PFOS, PFOA, AND PFBS SITE INSPECTION REPORT  
EIELSON AFB AND MOOSE CREEK, ALASKA**

**Appendix E.3 – Field Logbooks**

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5/30/19 Mo Eielson PFOS/PFOA ST

6 Manning, Hoody <sup>8PM 5/30/19</sup> mostly clear, 64°F, Light smoke  
1005 onsite. HHS briefing Slips trips falls.

Buddy System M. Wilkinson is on call as needed

1030 Setup for low flow sampling.

1040 Issues with peristaltic pump. No flow.

1140 Call Sharon R. PM to discuss options.

Return tomorrow with pump or sample w/  
Baker.

1155 Sharon confirms return to site tomorrow  
with new pump.

1205 Leave site.

1615 On-site Setup

1616 Collect Field blank 19PS-FBPM-0530.

1625 Begin purging 19PS-AP-6078-0530 <sup>8PM 5/31/19</sup>

1647 Collect sample ~~19-AP-6078-0530~~ <sup>19PS-</sup> ~~19~~-MW99-0530 <sup>8PM 5/31/19</sup>  
2 jars for PFAS. Duplicate and extra volume for MS/MSD (4 jars).

1700 Leave site.

SPM



Project Eielson PFOS/PFOA SI Project No. 6321403  
Subject IDW Management/Disposal Sheet No. 1 of 1  
Drawing No. \_\_\_\_\_  
Computed by GPM Date 9/25/19 Checked by \_\_\_\_\_ Date \_\_\_\_\_

- EA: G. Manning, B. Leach Weather: Clear, 36°F
- 1145 Arrive at LF003. H+S meeting. Slips, trips & falls. Setup to discharge water from Cell #1 @ LF003.
- 1205 Begin discharge. Water clear, no silt/sediment. Pump 2 not operational, flow rate approximately 12 gpm.
- 1226 Consolidate drums (5 gal buckets) 002, 003, 004, 005, 006, 007, 008, 009, 015 & 016 into new 55 gal steel drum (#017). Note labels on 003 & 009 were mostly illegible. Load remaining drums for disposal at sites.
- 1319 Dispose of drum 001. Approximately 50 ft North of AP-6078 due to construction ongoing.
- 1346 Dispose of drum 004 at DSAP-13.
- 1349 Dispose of drum 013 at DSAP-10.
- 1354 Dispose of drums 012, 011, 010 at DSAP-11. Drums 011 & ~~010~~ 010 disposed at this location due to access issues.
- 1430 Conduct SWPPP inspection of landfill (LF003) stockpiles.
- 1520 Return to LF003. Demobilize.
- 1536 Leave Base.

JAM

Expanded PFOA / PFOS SI  
at Eielson AFB, Alaska

EA Project No.: 6321403  
2019 / 2020

Field Book #1

HIGH TECH MICRO PERFORATION

 TOP | FLIGHT

**STANDARDS**

**1 SUBJECT**

**COLLEGE RULE**

**70**

Sheets

10.5 in x 8 in / 26.7 cm x 20.3 cm



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Calibrated equip.  
day before 7/15/19  
@ 1530.

PFAS SI Abb WP / sampling  
Existing Wells

7/16/19  
N. Stoecklein  
(CEA Eng.)

①

- Weather: light/periodic rain, cloudy, ~60°F
- 0705 Arrive on base, Sundance personnel on base at gas station to meet at.
- 0708 Arrive at gas station. Talk about planned wells to sample and quickly head to those wells on South end of base.
- 0720 Arrive at MW-BKG-04. Unlock well to verify, well not labeled. Able to unlock. Travel to find MW-BKG-11 before splitting up / sampling.
- 0725 Located MW-BKG-11. Unload equipment for Sundance personnel. Discuss HAS topics of the day.
- HAS Topic: insect awareness and slips, trips and falls. N. Stoecklein and G. Garner in attendance. Concur we will be in touch via telephone. GG departs site. NS sets up on MW-BKG-11.
- 0745 Set up on MW-BKG-11. Gauge PWT and calculate intake position down hole. Please refer to the Low-Flow Groundwater Sampling & Stabilization Form for sampling details.
- 0820 All set up and cross check set up. Not able to get water to the surface for some reason. Keep trying to see what the issue is.
- 0855 Visit George to ~~see~~ talk over issues with getting water to the surface. I attempted using the truck battery in the event it was a power issue. Borrowed his extra battery and return to site.
- 0900 Try again to pump. Reattach connections.

2

7/16/19

NS

NOTE: Collect trip blank @ 0800 19PS-TB6W-0716.

0907

Get water to the surface, some organic matter in tubing, maybe it was plugged? Allow to pump for a bit to get turbidity out of flow through cell.

0915

Start purging MW-BK6-11.

NOTE:

Collect 19PS-FBAM-0716 for PFAS analysis.

0955 Collect 19-MW-BK6-11-0716. Collect MSMSD Volume.

1010

Collect sample. Clean site, George shows up as he's completed sampling his well. Move on to other wells.

1020

Arrive at MW-BK6-05. Notice outer casing is compromised. Take photo. Afterwards I opened the well and noticed the cap was off and it was full of water. Sticking my probe down hole ~1" before realizing bentonite has filled in the casing. The seal/casing is broke. Make note of it on field form and in field log book. Moved on to MW-BK6-12.

1100

Start gauging MW-BK6-12. Line casing with tubing and get s equipment set up. Can't seem to get water to the surface. Try multiple things but am unsure as to why water isn't pumping.

1152

Start purging MW-BK6-12. Refer to Low Flow Sampling form for details.

1242

Sample 19-MW-BK6-12-0716.

1305

Complete sampling and cleanup. Head

7/10/19

NS/GG

③

to LFO2 to well there. Will work together at this remote location due to wildlife. Upon arrival, gate/access to LFO2 locked. <sup>2</sup> and Tried to call # on sign/barricade with no luck. Moved on to North Boundary Wells 51MB4 and 51MB2B. First scout out 51MB2B. 51MB4. Had to walk down the pipeline road/locked access. Discovered 51MB4 frost jacket/unable to be sampled. Took photos and moved on to 51MB4.

1345 Arrived at 51MB4. Take photo and noticed cap <sup>not</sup> on casing w connected tubing. There was a hook also attached to the casing not allowing the well lid to secure to the casing. Pulled it up and it was a transducer <sup>to</sup> which contains Teflon. Take a photo and move to next well.

1400 Drive to background wells across the highway. Have to go on foot to locate MW-BK6-01.

1450 Finally locate MW-BK6-01. Set up on well. Refer to low flow sampling form for details

1510 Start purging MW-BK6-01.

1605 Sample MW <sup>at</sup> # 19-MW-BK6-01-0716.

1615 Cleaned up site, complete sampling.

Note: PFC Samples run by method 537 Mod. QSM 5.1 Table B-15. Primary sample includes 2-250 mL HDPE bottles w/ no preservative other than chilled.

End of Day.

18

(4)

Rain, Cloudy, 60°F

1 August 2019  
N. Strecklein

0805 Arrive on base. First step to complete dig permit process is Natural Resources. Then on, go to each entity to get signatures. Notes are as follows as signatures are received by base personnel:

NOTES:

- Staked 19PS-TW30 and 19PS-TW34 due to the potential of underground lines. Extra flagging is placed to find stake.
- Please call before digging those circled on permit, to include Base Opts (see more notes below).
- If possible drill 19PS-TW02 on the weekend as Red Flag starts 5-16 Aug. Call 377-3622 or 1861 24 hours before drilling REGARDLESS of day.
- Suggest hand digging 19PS-TW34 to 5' for absolute clearance.
- There are old/abandoned in place communication lines by 19PS-TW07-07 (across the highway).
- 10' Clearance ~~rule~~ rule for overhead lines.
- 19PS-TW30 need special access from POL to get to this location.
- Reference 203 for electrical when calling before digging and 19-061 for comms.
- M-F is general base operations if having to call ahead of time.

7/11/18

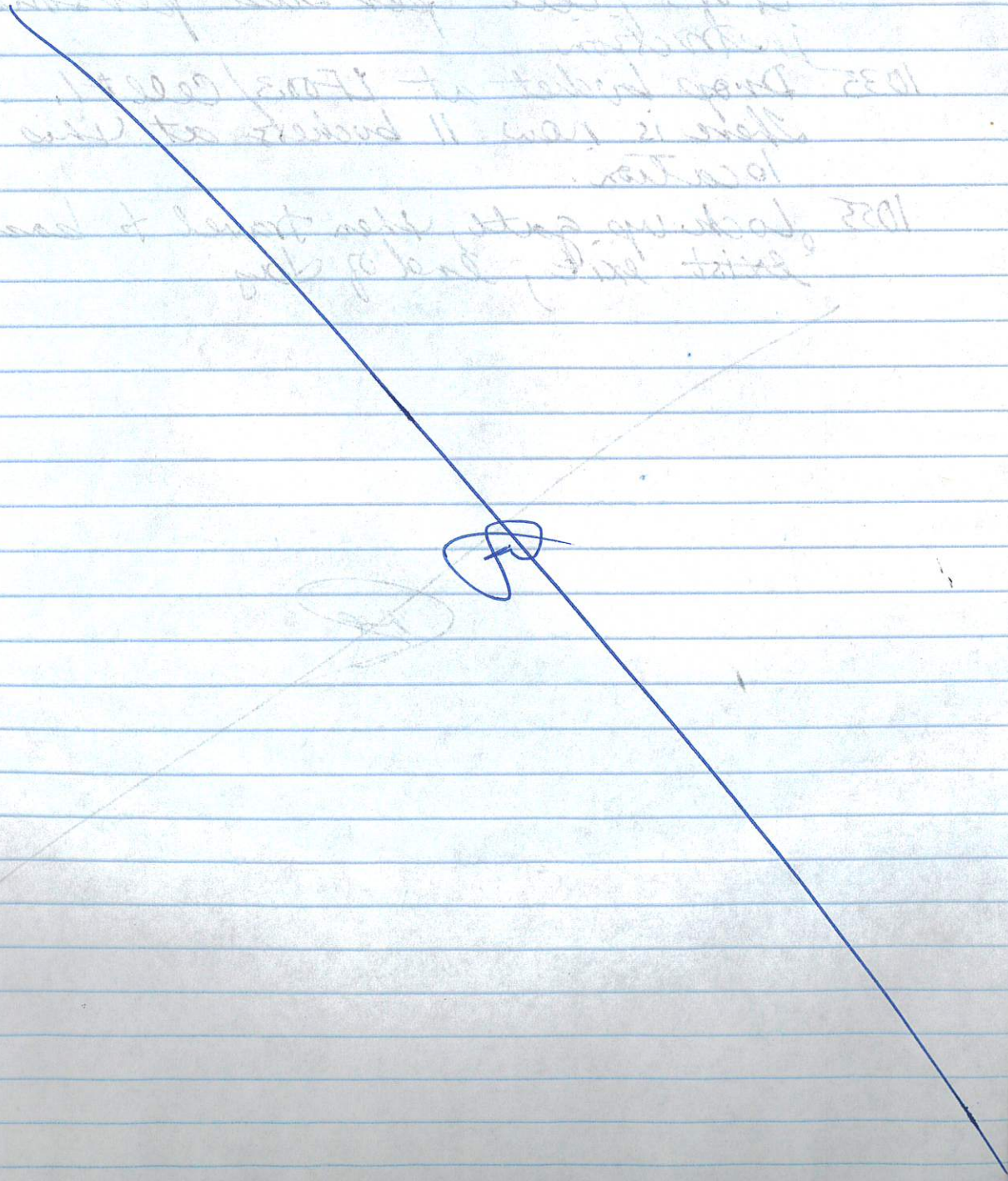
8/1/19  
NS

(5)

• CE would not sign due to lack of final / conditional approval of work plan.  
These are the two remaining signatures located in Civil Engineering Building.

1310 Depart to leave base.

1320 Off Base, end of day.



⑥ rain in area, cloudy 58°F

8/7/19

- 0935 Arrive at EAFB inspection point to get company vehicle inspected for access to base.
- 1000 Arrive on base. Stop at MW-BK6-12 to extract 5-gallon bucket adjacent to the well and move to LF003 / Cell #1 per base personnel instruction.
- 1035 Drop bucket at LF003 / Cell #1. There is now 11 buckets at this location.
- 1055 Lock up gate, then travel to base exist exit, end of day.



Cloudy w/ light rain, 60°F

8/9/19 (7)  
N. Stocklein

0915 Arrive at EAFB inspection point to get Company vehicle inspected prior to access.

0935 Access granted. Travel to locations where 5-gallon buckets are adjacent to wells as part of the existing well sampling effort last month. Base personnel ask EA/Surdance to consolidate all wastes at LF003/Cell#1. Personnel do so.

NOTE: Wells across base/highway extracted prior to accessing base as this was the first location where a bucket needed to be moved.

1025 All buckets (5, 5-gallon in total) for this exercise were moved to / staged at LF003/Cell#1. There are now 16 - 5 gallon buckets at the Cell#1 and 3 empty 55-gal. buckets. Take photo.

1035 Conclude tasks, make way to base exit.

1045 Exit base, end of day.

8) Cloudy w/ light snow 28°F AM  
ft cloudy, calm 35°F PM

10/22/19  
N. Stoecklein (EA)  
R. Westman (Sundance)

0900

Arrive on site. Geotek present.  
Conduct HAs meeting prior to setting  
up drilling operation. Will start  
at Well Cluster #2 for the  
beginning of this task.  
HAs meeting: N. Stoecklein, R. Westman,  
G. Rawson, J. Beckner in attendance.  
Topics: Proper PPE, cold weather awareness  
Geotek still setting up augers, getting  
equipment, staging on site. Sundance-  
EA on standby until drilling starts.

1020

Levi Bowman see L. with the Flood  
Channel Control stopped by to see  
what's going on, tell us about leaving  
equipment on site in the event of  
vandalism by the public; just checking  
in. He signed the daily log.

1130

Pioneer Wells on site to fill 2X 250 gal.  
(new) totes w/ Fox Well / PFA's Free  
Water usable for drilling operations.  
Personnel signs visitor's log. Geotek  
personnel, all, on site as well.

Equipment: chiller (PT8040 Geotek),  
fork lift (MC 135 C Model), semi-  
truck w/ large trailer to transport  
rig/equipment to site, two company  
vehicles.

1320

All needed equipment is staged at  
Well Cluster #2. Ryan All augers  
have been deconned before use.  
Ryan at site, will loose log soils.  
N. Stoecklein at staging area over -

10/22/19  
NS/RW

(9)

sleeping decon pad being built and  
the remainder of augers being decon-  
ned.

Note: Next IDW # 051

Augered down to ~63' bgs.

Water added to well: ~55 gals

IDW Drum #s associated w/ 19PS-MWOSA: 051-053  
Drum # 053 ~ 50% full of soil cuttings.

RW 10/22/19

1335

Begin drilling 19PS-MWOSA to 60 ft bgs.

1540

Reached TD @ about 62 ft bgs, set up  
for well construction. Attached a 4-inch PVC  
anchor to well cap.

1650

PVC is downhole begin to pull out Augers.

1710

Seal is in place, have to let sit for 1 hour.

NS writing

Will prep site for end of day at this  
point.

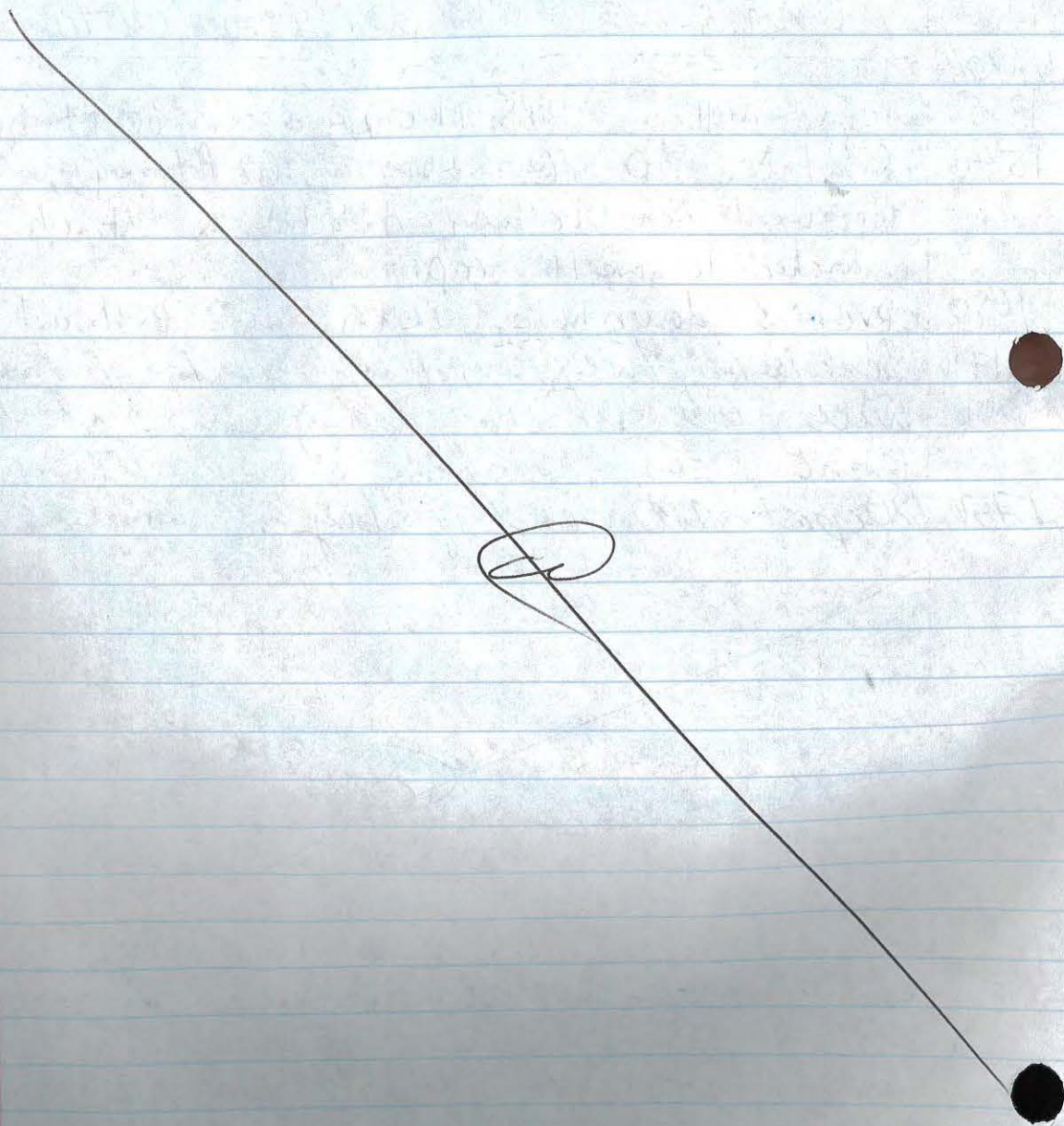
1750

Depart site, end of day.

(2)

10/22/19  
NS/RW

Note: Monitoring well MP5-MW02A  
got installed at 59' for total  
depth vs. 60' as proposed  
due to sluffing in of material from  
pump hole during well construction.  
This is a deviation from the work plan.



AM - cool, windy, 37°F  
PM - cool, 35°F, light wind

10/23/19  
N. Stoecklein  
R. Wortman

0900 - Arrive on site. Keotek onsite warming equipment up. Ryan (Sundance) also on site. Conduct HAs meeting. Topics: working on frozen surfaces and working near a road. All in attendance: N. Stoecklein, R. Wortman, A. Rawson, J. Bedener.

(due to frozen line)  
0940 - With some difficulties, Keotek starts the grouting process of 19PS - MWO2A.

1020 - Buret in place, drillers pull augers out, clean material up & into drums and begin to decon auger.

1130 - well complete w/ outer protective casing. Gauge well: DTW = 6.33' bTDC and TD = 61.55' bTDC; top of casing to ground = 29".

1300 - Decon complete on enough augers to start drilling second hole/well 19PS - MWO2B. Set up site to do so w/ cleaned augers and drums to containize IPW/soils at site.

1325 - Start drilling 19PS - MWO2B. Drums associated w/ this well will be logged/ noted in book at time of completion of well. Starting a #055 Note: Drum #057 was ~~leg~~ designated for the decon water from the auger decon.

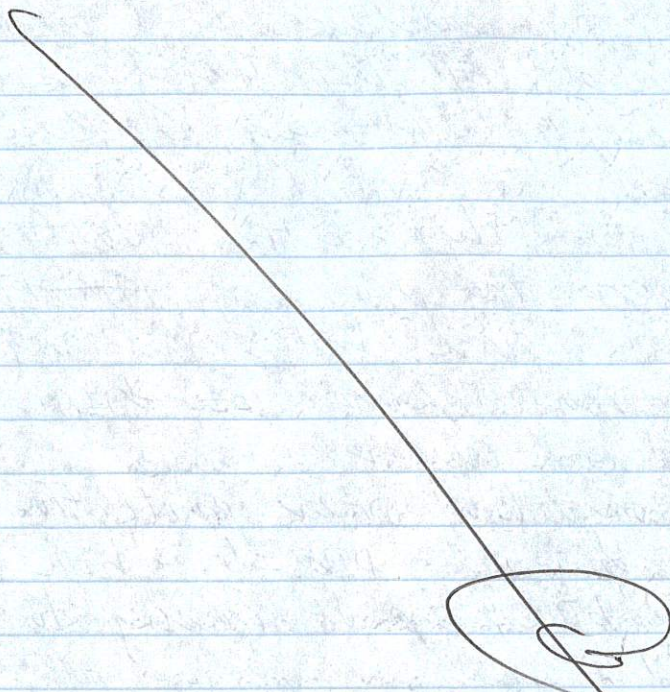
1600 - At 70' bgs on 19PS - MWO2B.

1645 - Reach 90' bgs. Start drumming all IPW into drums. Quite a bit to drum.

(12)

10/23/19  
NS/RW

1730 - Complete tasks for the day. Clean up site and depart. End of day.



AM - cloudy, cool, 29°F  
PM -

10/24/19  
NS/RW

- 0715 - Arrive on base, travel to FFTA to confirm accessible soil boring location proposed for SBO4 is already marked ~~at~~ from previous visit.
- 0730 - Arrive at FFTA. Walk to location and notice flag marked for this position.
- 0740 - Depart site, travel to base ~~base~~ exit.
- 0747 - Depart base, travel to well cluster site.
- 0805 - Arrive at Well Cluster #2, Geotek on site. Will conduct HHS meeting when all arrive. Geotek is warming equipment up.
- 0910 - RW with Sundance arrives on site. Go forward with conducting HHS meeting. Topics: Snapping hazards while developing a well (cords, etc.), proper lifting. G. Rawson, R. Wortman and N. Stuedlein in attendance. Will brief James Beckner (Geotek) once he arrives on site.
- 0922 - Julie Sharp Dahl called to get directions from base to our site. She and Mark are on their way to see the operation.
- 1030 - Julie and Scott Thorsell stopped by to check out Snapping operation.
- 1050 - Julie and Scott depart site. Set up to start development of 19PS-MWOZA.
- 1105 - Start development of 19PS-MWOZA. with surging.

Surging the low 5' of screen for 5 minutes, transitioning to the upper screen (5') for 5 minutes. Afterwards, pull the surge rod out, line the casing with the SS Monsoon Pump and tubing ( $3/8 \times 1/2$ " (OD)) to the screened interval. While pumping at a high rate, pulling fines out, and lowering/rising the pump w/ in the screen.

1300 - Having issues with voltage remaining constant w/ pump/control box. Pull the tubing / so pump out and do the surging of the screened interval again as noted in the beginning of the development process.

1338 - Resume pumping well. Water clears a bit but still very cloudy.

1430 - Voltage of controller fluctuating and reading not what is pumping out.

A trickle of water is coming out of the tubing. Call TTT to trouble shoot.

Already tried 3 portable batteries and how instrumentation is hooked to the car with no luck. TTT suggests it's a voltage issue and we can swap out instruments. <sup>Lowest</sup> Turbidity reading was 68.2 NTU. We pull off of development and resume pulling 19PS-MW02B. Will resume development in the morning.

1445 - Drilling resumes on 19PS-MW02B.

m

70, 71.

$$\begin{array}{r} 12 \\ 120 \\ 72 \\ \hline 58 \end{array}$$

$$\begin{array}{r} 58 \\ \times 1.2 \\ \hline 116 \\ 580 \\ \hline 696 \end{array}$$

$$\begin{array}{r} 12 \\ 10 \\ \hline 120 \end{array}$$

$$\begin{array}{r} 72 \\ 42 \\ \hline 114 \end{array}$$

10/24/19  
NS/RW

$$\begin{array}{r} 1200 \\ 1200 \\ \hline 2400 \\ 2400 \\ \hline 4800 \\ 4800 \\ \hline 9600 \\ 9600 \\ \hline 19200 \end{array}$$

1013 - Augers at depth, with an extra 5' to compensate for sluff material and the 12.5" Sto Sump.

1020 - Start dropping casing down hole.

1030 - Use water level meter and gauge  
TD  $\approx$  110.3'

1036 - start pulling augers out of 4re hole.

Pulled up to 100' with auger. Set seal

1047 - Pour pelt plug down hole to put seal in above screen. Note - when pulling augers out, material down hole (natural) sluffed in to  $\sim$  98' bgs.

1050 - Drum 1DW. A lot of 1DW.

1745 - All depart site.

Generated drums - 071.

Note: Drillers expressed concerns advancing further down hole w/ hollow stem augers.

Will talk to management tomorrow to devise / propose an alt. method for the 1100 & 210' holes still remaining to be drilled. End of day.

*P*

(16) AM - Snow, 30°F, Windy  
PM - pt cloudy, 31°F

10/25/19  
NS/KW/BL

0845 - Arrive on site. Scotek and Sundance personnel on site also. Conduct HAS Meeting: Slipping surfaces and proper hearing protection. All in attendance.

0915 - Scotek and EA/Sundance discuss alternative drilling methods for the 160' and 210' holes. Drillers suggest rotary (down hole) w/ wash casing as the method. ~~Scotek~~ Propose this to project managers and will construct a field change form to get approval for this method.

Following, Scotek continues w/ 19PS-MW02B, grouting the annulus.

Field personnel (EA/Sundance) decon equipment to prep for development of 19PS-MW02A after well construction of 19PS-MW02B is complete.

1030 - Ben Leach w/ EA arrives on site and gets briefed on HAS, signs respective forms.

1145 - Tiger out of hole, give clean augers of soils and drum. Afterwards, drillers make/clean space for us to continue development on 19PS-MW02A.

1300 - Start to set up and continue development of  $\phi$  on 19PS-MW02A.

1345 - Complete development of 19PS-MW02A. Drillers patch things up at the site and start preparing to move to

grout complete  
@ 1045  
←

10/25/19  
NS/KW

(17)

Other well cluster and decom auger  
in the process. Geotek also working  
on making equipment to Well  
Cluster #7 area to start drilling  
here next while the proposed  
field change form process gets  
approved for rotary wash w/  
Casing.

Note: By end of today, there's  
24 drums at Well Cluster #2 site.  
1710 - Depart site. End of day.

(12)

cloudy, 28°F - AM  
cloudy, 35°F - PM

10/26/19  
NS/RW

0740 Collect Equip. Blank 19PS-EB-1026

off ~~the~~ megamonsoon pump at  
warehouse @ 0740 in 2x 120 ml  
bottles using lab certified PFAS  
free water as matrix. Method 537  
0820 - Arrive on site. EA/Sundance  
present. Still waiting for Geotek.  
Conduct HAs meeting, will brief  
others upon arrival. Topics -  
penching points when drilling,  
Securing rings on drums for  
IDW. Set up to start developing  
19PS-MW02B. Geotek on site  
shortly after. Briefed on health  
and safety topics. EA/Sundance  
Sundance develop well and  
Geotek personnel decon augers.

1130 - Complete development of 19PS-MW02B.  
Decon equipment.

1200 - Take a quick lunch break at  
lawn yard where Geotek are  
deconning augers.

1240 - Get rig started and  
clear area where we will drill of  
small vegetation.

1345 - Drilling begins on / for 19PS-MW01A.  
Sampling of 19PS-MW02A set up begins.

1349 - Start purging 19PS-MW02A.

- 1430 Start Collect sample including MSM50  
for 19PS-MW02A-1026 for PFAS Method 537

1445 - Collect (at time of primary sample) <sup>2x120ml</sup> <sup>HDPE</sup> bottles  
19PS-MW02A 19PS-MW99-1026, Method 537 2x120 mL  
HDPE bottles.

AM. Lt. rain, 36+ e

10/26/19  
NS/REW

(19)

1455 - Complete sampling and clean up site at 19PS-MW02A.

1510 - Drillers achieve 63' bgs at 19PS-MW01A. Continue to construct well. Used ~25 gals down hole during drilling.

1600 - Well casing (and sump) in place, drillers start pulling augers out to above screen to set seal.

1615 - Seal in place on 19PS-MW01A. Drillers clean up site and down auger cuttings.

Forward, clean up yard prior to departure.

NOTE: Sundance left site @ 1600 to leave town / project.

1745 - Depart site, end of day.

(e)

(20)

AM - lt rain, 30° F  
PM - 40° F, cloudy

10/27/19  
NS

0815 - Arrive at Chena Flood Channel site to grab soil boring materials from site (table). Meet on site.

Conduct HHS meeting w/ Geotek and EA personnel: topic - Slippery surfaces after recent ~~sm~~ snow and heavy rainfall w/ freezing (near) temps. Geotek and EA mob to EAFB to get other rig to do soil sampling.

0900 - Geotek doesn't have to proper tools to sample soil borings. EA returns to flood channel site w/ Geotek personnel and they continue constructing 19PS-MW01A, 1000 - 19PS-MW01A construction complete. Geotek Secor augers before resuming on ~~the~~ 19PS-MW01B well drilling.

1150 - Collect 19PS-FBAM-1027 <sup>for Method 537</sup> prior to <sup>volume</sup> purging / sampling 19PS-MW02B. <sup>2X 120ml HDPE bottles</sup>

1200 - Set up to start purging 19PS-MW02B

1235 - Start purging 19PS-MW02B.

NOTE - Drillers at 55' bgs on 19PS-MW01B

@ 1345: They started augering down hole on this well at 1245.

~~1414 Complete~~

1400 Sample 19PS-MW02B-1027 for PFAS Method 537 w/ 2X 120ml bottles HDPE.

1430 Designate 19PS-MW99-1027 (dup to above sample) for PFAS method 537 w/ 2X 120ml bottles HDPE. Clean site.

1444 Clean site. Geotek equipped with needs to conduct soil borings, travel to base.

25  
30  
35

1445 Arrive on base and on site. Wait for Scotek as they have to go through inspection.

1447 - Meetek on site. Set up to drill on SB04 at FFTA.

1513 - Start drilling down at SB04.

1525 - Collect 19PS-FFTA-ENT-SB04-1 for PFAS method 537 in small HDPE cup x 2.

1530 - Dup to above as 19PS-FFTA-SB99-1027 for PFAS method 537 in small HDPE cup x 2.

1535 - Collect 19PS-FFTA-ENT-SB04-0.5 for PFAS method 537 in small HDPE cup x 2.

1547 - Depart site, off base, back to well cluster area. Drillers achieve 105' bgs.

Added ~ 700 gal of water

1700 - Collect 19PS-IDW001 in 2x120 ml HDPE bottles by method 537. This is a composite water sample from the upper decm area for Well Cluster #2 area/well drilled.

1730 - Collect 19PS-IDWS-MW02A in 2

HDPE jars - composite; Method 537 for PFAS

1800 - Collect 19PS-IDWS-MW02B in 2

HDPE jars - composite for PFAS Method 537

1830 - Collect 19PS-IDWS-MW01A in 2

HDPE jars - composite for PFAS Method 537.

NOTE: 1845 - End of day.

22

AM - 45°F, cloudy, H. breeze.  
PM - 39°F, cloudy

~~11/7~~  
11/7  
0950  
Jhu. 15

11/28/19  
NS/HP

093-090

0230

7 AM  
0900

Sample count:
top shelf 21
bottom shelf 16

0815 - Arrive on site to open gate for Meotek, Yagné on site. Conduct H&S meeting - topics: proper PPE and tripping hazards during drilling and well development, Meotek and EA (including H. Peterson) in attendance. Start getting up to develop 19PS-MW01A

0947 - start surging well, top of screened interval first then second portion for ~10 mins. Then set up to pump well. Refer to well dev. sheet for details.

1035 - Start pumping 19PS-MW01A.

1100 - Seal set on 19PS-MW01B.

1150 - Development of 19PS-MW01A complete.

Recon pump and clean up set. Drillers start to pump grout after setting seal set for 1 hour, started grouting @ 1200.

1325 - Drillers still completing well construction on 19PS-MW01B. Will start development on this well 24 hours after seal was in place @ 1100.

1442 - Pause new well 19PS-MW01B  
DTW = 4.84 TD: 113.42 w/ 2.92' stickup  
Drillers clean up site, start preparing to demob.

1045 - Depart site. End of day.

stickup  
35"

113720  
11342

4.

AM - Cloudy, 27°F  
PM - Cloudy, cool, 37°F

10/29/19  
NS/HP

23

0850 - Arrive on site, Scottek and EA present.  
Conduct HHS meeting. Topics: Proper lifting techniques, slips/trips/falls. Scottek and EA travel to EATFB to discuss locations where to stage 10W at landfill cell.

0950 - Arrive back at Flood Channel. Scottek works on loading 10W into ~~three~~ <sup>one</sup> air semi trailer while EA develops 19PS-MW02B.

1100 - EA starts surging screened interval of 19PS-MW02B, top of screen for 5 mins and the low screen for 5 mins.

1110 - Conclude surging. Set up pump/tubing to pump at least 3 well volumes from 19PS-MW02B. Refer to Well Development Record for details. Note - will pull out an additional 100 gals out as this water was added to the hole during drilling of well.

1132 - Start pumping 19PS-MW02B for development.

1300 - Complete development on 19PS-MW02B. Clean site of equipment and set up to sample 19PS-MW01A.

1320 - Start surging 19PS-MW01A for low flow/sampling

1340 - Collect 19PS-FBPM-1029 for PFAS method 537 in 2x 120mL HDPE bottles using lab grade PFAS free water

1450 - Collect 19PS-MW01A-1029 for PFAS method 537 in 6x 120mL HDPE (MSMSA) bottles.

1500 - Collected ~~19PS-MW01A~~ 19PS-MW99-1029

~~for primary~~ to primary above for PFAS →

285 - 1A  
90 - <sup>use</sup> <sub>water</sub>

(24)

10/29/19  
NS/HP

method 537 in 2x120mL HDPE bottles.

1510 - H. Peterem departs site. Clean site post sampling.

1518 - Site cleared of sample needs.

Scott working on concreting outer protective casings in place at well cluster #2 and conducting 10W management at well cluster #1.

50%  
well  
drum

1530 - Collect 19PS-10W03 from drum water from for well cluster #1 area for PFAS method 537 in 2x120mL HDPE bottles

1600 - Scott finalize well completions with installation of ~~outer~~ outer protective casings around well cluster #1 wells, pea gravel and concrete in place at both well cluster #1 and #2 area/wells.

1815 - Tasks completed, end of day.

⓪

AM - cloudy, 32°F, lt. rain  
PM - snow, lt wind, 33°F

10/30/19  
NS

(25)

0843 - Arrive on FAFB, travel to Landfill Cell #1. Will meet Geotek to oversee 10W drop in designated area within cell.

0903 - Geotek arrives. Conduct HAs meeting. TOPICS - being visible and careful around operating equipment loading/unloading heavy material. Geotek and EA in attendance. Geotek ~~un~~ unloads several pallets of 10W from Well Cluster 1 & 2 sites.

1000 - Complete transport of 10W into LF cell.

Will travel to Well Cluster #1 area.

1014 - Arrive at Well Cluster #1, Geotek on site shortly after. Stamp the well ID on those wells installed at Well

Cluster #1 area. Geotek ~~prepares~~ prepares to install bollards around 19PS - MW01A & B but careful to leave open area / space for those future wells to be installed adjacent to those already in place. Not bollards, at this time, were installed at Well Cluster #2 area. I have to wait till 1300 to start purge on 19PS - MW01B post (24 hr) development.

1300 - Set up to start purging 19PS - MW01B

1315 - Start purging 19PS - MW01B

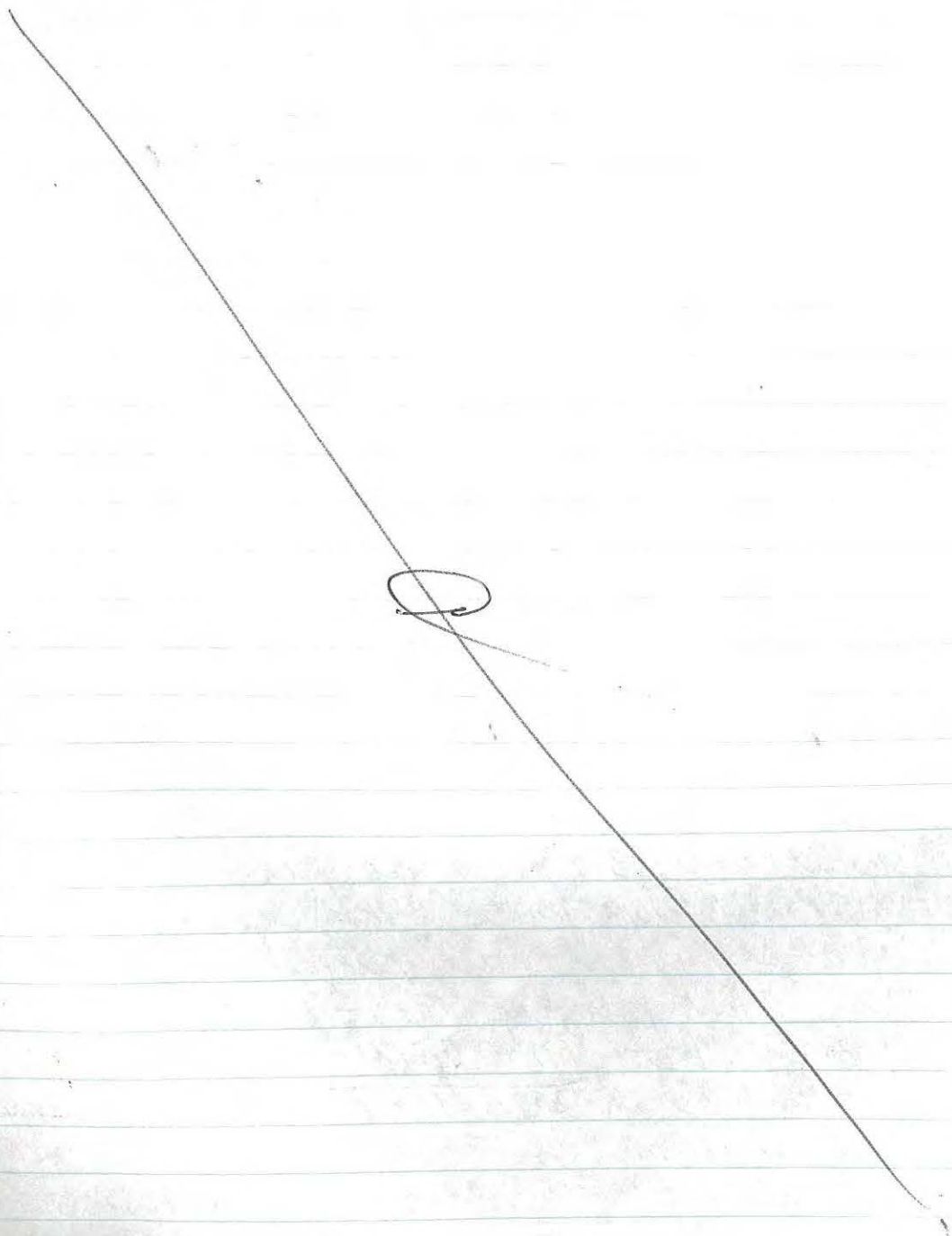
1330 - Collect 19PS - FBPM - 1030 for PFAS

method 537 in 2x120 mL HDPE filled w/ lab grade PFAS free water

1450 Collect 19PS - MW01B - 1030 for PFAS method 537 in 2x120 mL HDPE bottles

1500 Collect 19PS - MW99 - 1030 (primary abuse) for PFAS (537) 2x120 mL HDPE bottles

Clear/clean site of sample equipment,  
Geotek Clearing Well Cluster #1 site  
since the key was turned into the  
Flood Channel Project personnel.  
1530 - Depart site, end of day.



0900 Arrive at the USACE Flood Control project office to obtain a key to wells/gate. This is for a "check out" of the key while project execution occurs Summer 2020. Discuss locations of wells/ accessibility to wells w/ Levi.

After discussion, conduct health and safety meeting: topic - walking on slippery surfaces due to snow/ice/rain. Also awareness to COVID health and safety practices.

0920 Proceed to access wells

DSAP - 85 & 8D via Jordan Road.

Talk with Gilbert Manning about placement/location of wells. Able to find both. Large Masterkey lock (not able to be opened w/ key from USACE) on DSAP-8D. Open and gauge DSAP-85, no lock or well cap. Transducer not present.

15.29 bTOL DTW.

21.16 TD.

Recon water level meter (done prior to gauging initially) with Alconox & PFAS free lab supplied water, rinse PFAS free water & just PFAS free water (3 step rinse). Travel to DSAP-14.

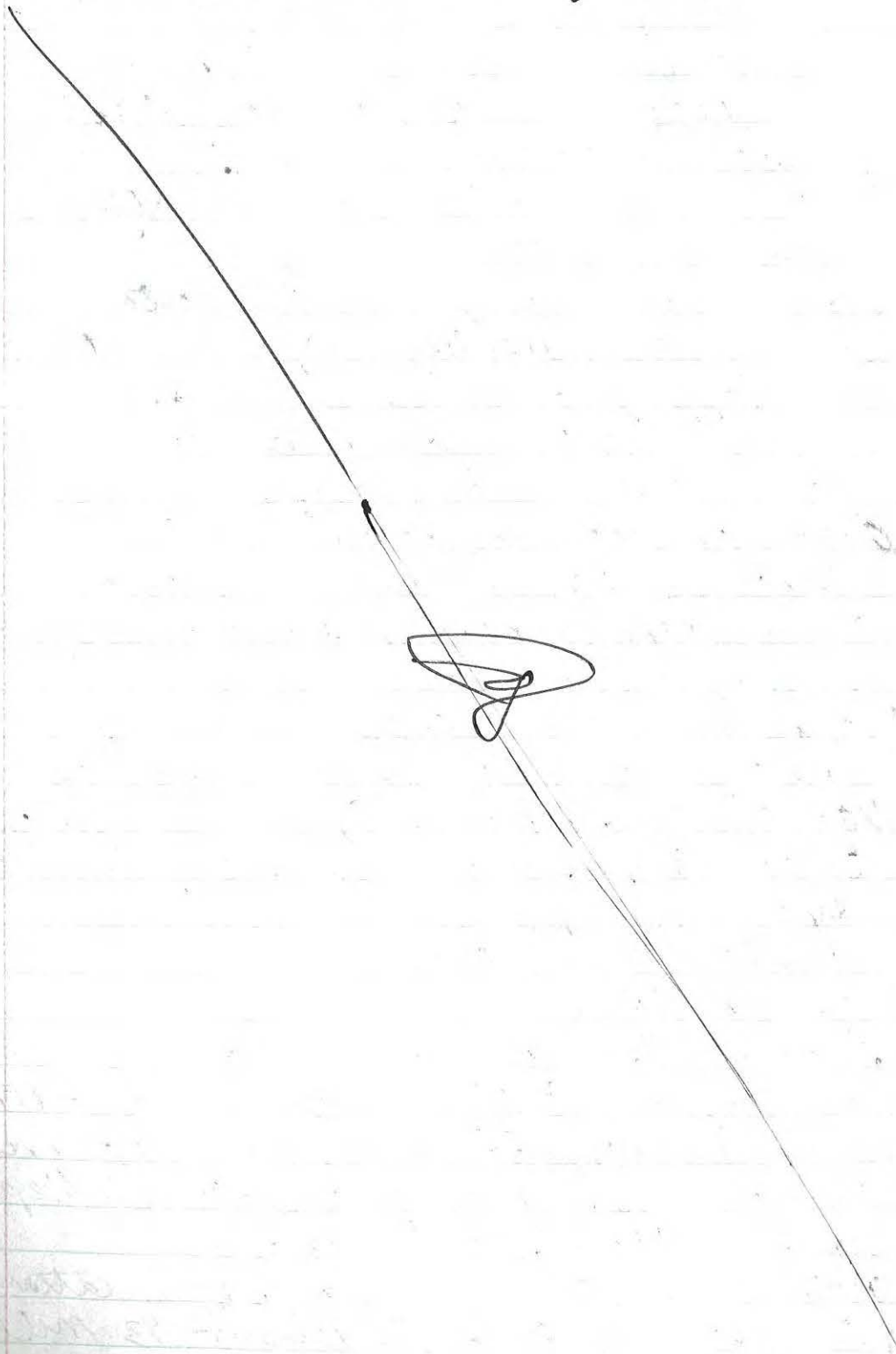
0942 Arrive at a safe parking location and walk to DSAP-14. About 1/3 mile walk each way. Gauge well:

13.34 bTOL DTW ; 21.77 TD.

28

4/13/2020  
NS

1040  
~~1015~~ depart site. End of day.



AM - light rain, 39°F, 10 mph wind

4/16/2020 (29)

N. Stoecklein  
B. Leach

Sample existing wells in the Flood Channel before Transducers are placed down hole. Before field work, calibrate all equipment on 4/15/2020.

0845 Arrive on <sup>site</sup> site to access DSAP-14. Load up sled & coolers with sample gear to haul to well. Conduct HAS meeting prior: wear masks when in ~~the~~ working together per COVID and slips, trips, falls due to slushy conditions. Start walking equipment to well.

0909 At well. Gauge and set up to sample. Refer to Low Flow Groundwater Sample & Stabilization form for details.

1005 Collected 20-FBAM-0416 for PFAS analysis method 534 in 2-250 mL HDPE bottles w/ lab supplied PFAS free water.

1052 Collect 20-DSAP-14-0416 into 6-250 mL HDPE bottles unpres. MSMSD volume per 534 method.

1200 Collect 20 PS-MW99-0416 dup to sample above.

104 Clean up site and haul stuff back to trucks.

1140 Arrive back at trucks, load equip and samples (placed on ice in cooler) and drive to other wells.

1205 Arrive and get set up on DSAP-85

1235 Start purging DSAP-85. Refer to Low-Flow Groundwater Sample and Stabilization form for detail.

4/10/2020  
NS/BL

1311 Sample 20 - DSAP - 85 - 0416 for  
PFAS 2 HDPE 250ml bottles no  
preservative method 537.

After sample collection, clean site and  
load equipment.

1340 Depart site. End of day.

NOTE: Well Integrity checklists were  
completed for each well sampled.

Cool, overcast 32°F AM  
Overcast, wind 43°F PM  
10 mph

4/30/2020  
N. Stoecklein  
B. Leach

0950 Arrive on base after accessing/  
going through vehicle check point.  
Travel to Former Fire Training area  
to meet coworker B. Leach.

1005 Arrive to location, B. Leach onsite.

Conduct HAZ meeting: walking on  
frozen surfaces; note each  
field personnel in separate vehicles  
and wearing masks per COVID /  
base requirements. B. Leach and  
N. Stoecklein in attendance.

1020 Proceed into marking step out  
points prior to obtaining dig permit  
signatures from base personnel

1040 Conclude markings, proceed to  
those entities where signatures are required.

1300 Complete what we can for dig  
permit. Still need fire, safety, security  
police, and approval officer for signatures.  
Will return 4 May to conclude.

Note: B. Leach obtained Natural Resources signature  
May 1 2020.

Calm, pt sunny 40°F AM.

4 May 2020  
N. Stocklen

0830 Arrive on base after going through vehicle inspection, wearing mask per COVID/base protocol.

Visit remaining locations to obtain dig permit signatures. Coordinate with base ops to get flight line training for those soil borings being installed adjacent to the Fire Station #1. Will attend flight line training tomorrow to cover this requirement.

1100 Depart base, end of day.

Clear, sunny 42°F AM

5 May 2020 (33)  
N. Stecklein

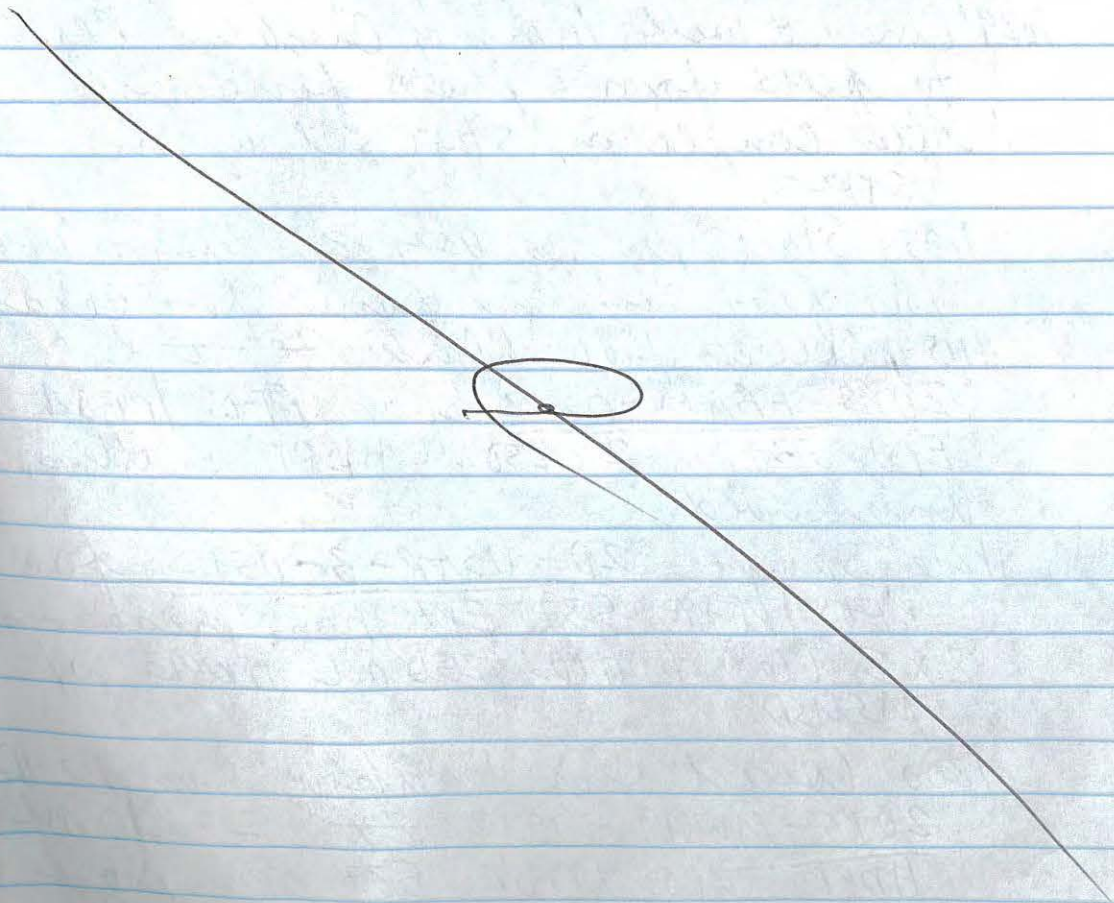
0940 Arrive on base after vehicle inspection.  
Wearing mask per COVID/Base protocol.  
Travel to base ops to obtain flightline  
training.

0950 Arrive at base ops.

NOTE: I have to return prior to  
loading soil bonnets to document  
the rental vehicle information on my  
flightline pass. Will do so when the  
time applies.

1020 ~~A~~ Head to base exit after  
conclusion of training.

1030 Depart base, end of day.



34

light, infrequent rain 50°F AM & PM

5/12/2020  
N. Stoecklein  
B. Leach

1115  
1126  
1200

0940 Arrive outside access gate to flood Channel. Waiting on B. Leach for<sup>Ⓢ</sup> with ATV to access wells.

1000 B. Leach arrives. Conduct HHS meeting. TOPIC: wildlife awareness, bears, moose, and wolves in area. Have an air horn to alarm upon arrival to site. N. Stoecklein & B. Leach in attendance. B. Leach & N. Stoecklein are both wearing masks per COVID. Load ATV with sample equipment. Travel to USAP-3.

1025 Arrive at ~~the~~ USAP-3. Alarm air horn several times before proceeding. Both personnel have bear spray as well.

1029 Conduct well Integrity Checklist. Refer to field form & photos for details. After completion, start set up on USAP-3.

1105 Start purging USAP-3. Refer to low flow sampling form for details.

1115 Collect field blank ~~20-05~~ 20PS-FBAM-0512 for PFOS/PFOA EPA 537 in 2x 250 mL HDPE bottles, unpreserved.

1126 Sample 20-USAP-3-0512 for PFOS/PFOA 537 EPA none preserved 2x3 (6) bottles 250 mL HDPE w/ MSMSD.

1200 Collect dup to above sample ID 20PS-MW99-0512 2x<sup>e</sup> 2-250 mL HDPE ~~PFOS/PFOA~~ 537 EPA none preserved.

5/12/2020

NS/BL

(35)

1155 Cleaned site, depart well. Travel to USAP-2.

NOTE: Take lunch break in open / flood channel to be safe / away from potential predators.

1225 Continue down power line to access / find USAP-2. Upon crossing a trail as noted by USACE Flood Channel personnel, field team attempts to locate well. Called USACE personnel and EA personnel whom both have been to well. Field team continues down trail. About another ~~1/4~~ 1/4 mile and team encounters deep water / marsh. It was too much to continue down / to access to well. Team turns around and abandons accessing well. Drive to vehicles and load equipment.  
1337 Depart site, end of day.

(36)

Clear, sunny, windy 45°F AM

14 May 2020

Same, w/wind gusts 61°F PM

N. Stoecklein

0755 Arrive on site, GeoTek personnel on site. Conduct HAs meeting. TOPICS: working on uneven surfaces; slips, trips, and falls. All personnel working with in 6' of one another must wear a mask per COVID. N. Stoecklein (EA), Glen Rawson (GeoTek), and Steven Simas (GeoTek) in attendance. EA and GeoTek assess Well Cluster #2 area.

This is where the drilling will start.

0923 Rolling Stone on site at Well Cluster #1 to drop gravel to build up site / well cluster area.

0930 Rolling Stone departs site.

GeoTek unloads equipment. Personnel work on Well Cluster #2 site area to level it out, create a more level work surface. All GeoTek personnel go into Fairbanks to pick up containers to house clean water and IDW. N. Stoecklein reached out to Pioneer Wells, will get Fox water delivered this afternoon once large AST arrives on site.

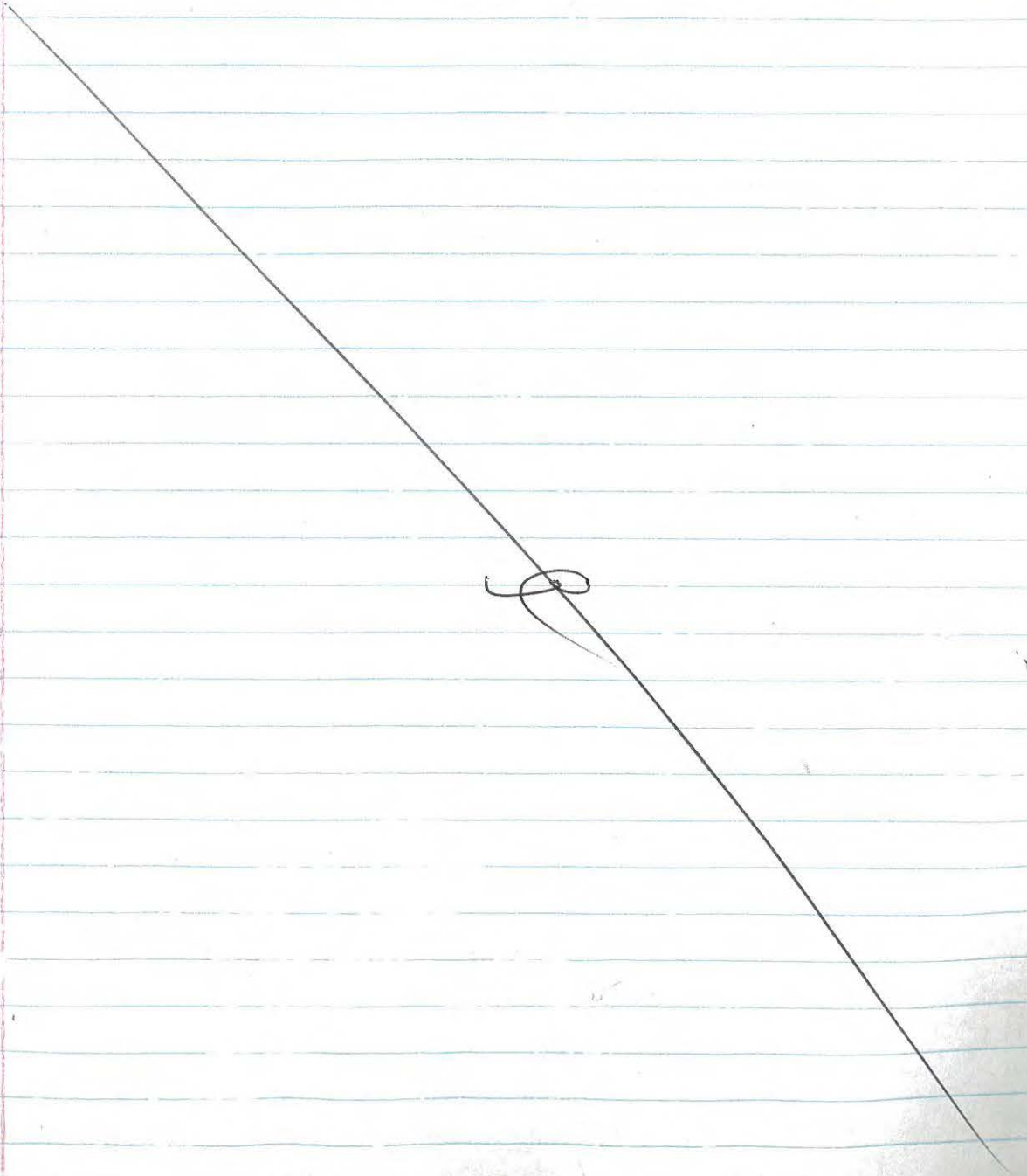
NOTE: Pioneer Wells will arrive for Fox water drop off first thing tomorrow morning.

GeoTek continue to set up site at Well Cluster #2, as well as purchase clean/new ASTs to store water used for drilling.

5/14/2020

37

1730 Well Cluster #2 site set up for  
drilling. EA & GeoTech depart site  
for the day. End of day.



0725 Arrive on site. Seotek present.  
Conduct HAS meeting. TOPICS: proper PPE  
and lifting techniques. N. Stoecklein,  
J. Kansen, & S. Simias present. Also,  
masks are donned when w/in 6' of  
personnel per covid.

0754 Start drilling of 20PS-MW02C  
(1100' ~~to~~ depth).

0807 ~~Foot~~ Pioneer Wells on site to  
drop Fox water into clean holding  
tanks for drilling use. At this time,  
water is not needed to drive  
Casing to depth.

0853 Pioneer wells off site. NOTE -  
Staff reviewed and signed APP/SHH  
once arrived on site. Personnel  
was also briefed on COVID rules at  
site.

0855 Pulling depth @ 45' bgs with  
~~outer~~ outer casing.

0925 Reached 70' bgs with outer  
Casing.

1014 Achieved 100' bgs. w/o using  
Cleanout yet. Continue driving to 105' bgs  
with outer casing. @ 145'

1253 Reached 150' bgs, then no  
advancement. Apply automatic hammer  
which is installed on the 8040 DT  
drill rig. This helps, with additional  
force, to hammer casing downhole.

1355 Hammer motor blew. Seotek  
transitions back to the rig to hammer

15 May 2020  
NS

(39)

Casing down to 155 (at this point).

Seems as though this worked, continue to drive down hole w/ rig.

1437 Outer casing at 1401 bgs. Drillers

have to pick up supplies at intities that are not open this weekend so we prep site for departure.

1515 Depart site, end of day.

*[Handwritten scribble]*

(40) Clear, wind, cool 34°F<sup>e</sup> AM  
3mph 44°F<sup>↑</sup>

16 May 2020  
N. Stoecklein

- 109 - 20PS-MW02C Soil ~~40%~~ 85% ~~Sample to for~~  
110 - 20PS-MW02C ~~Water~~ Drilling Water 95% ~~Soil~~  
111 - 20PS-MW02C Drilling Water  
112 - Soil

0725 Arrive on site. Seattle present. Conduct HAs meeting. TOPICS: Tripping hazards due to hoses while completing well & proper hearing protection while working ~~around~~ around drill rig. H.S. Discussion about wearing masks per COVID when within 6' of personnel had. N. Stoecklein, G. Rawson and S. Simas in attendance.

0841 Start the cleanout process of the well / inner area of casing.

0855 Start down 109 soil cuttings from 20PS-MW02C.

0911 Achieved cleanout to 90' bgs at this time. Continue w/ process. Already generated ~1000 gal of water from process & 1/4 drum (55 gal) worth of soils.

1018 Logging soils from hole from 120' - 210' from wells 20PS-MW02C and 20PS-MW02D (once well drilled)

In continuation from previous wells 20PS-MW02A & B.

Currently at ~2750 gal of water generated ~~too~~ with rotary wash on 20PS-MW02C. Still drilling.

1130 Achieve 165' bgs, over drilled to allow ~~for~~ space for installation.

Still cleaning out void. Used ~2800 gals during <sup>drilling</sup>

1140 Take lunch break. Allow any material to settle & will continue cleanout upon returning from lunch.

1210 Continue Clean out of hole 20PS-MW02C.

Once material from hole & subsides,  
Inner rod will be retracted from well.

1240 Inner rod being pulled from void.

Water generated  $\sim 4000$  gal during  
drilling. Used  $\sim 3400$  gals from  $\sim 3800$  of Clean water.

1255 Pull all inner casing. Seotek tag  
into hole - 1161.2' bgs. Anchor An

anchor will be installed to assist  
with fast jacking prior to casing  
being placed down hole. The outer  
casing may be pulled up a hair  
to achieve the 1160' bgs <sup>total</sup> depth of  
the well.

1337 Pioneer Wells arrives to top empty /  
Clean tanks of Fox water. Seotek  
inst<sup>e</sup> create. Creates an anchor for  
well. Drops 3700 gallons.

1350 Seotek starts placing well casing  
down hole.

1400 Casing down hole, 1161' bgs. Start well  
~~construction to seal.~~ pulling outer casing  
from position, 10' run.

1440 Benotomite seal is set on 20PS-MW02C.

Drillers continue to pull outer casing from  
position / out, just another 5' run.

Set up for grouting while seal sets (1 hour  
min.).

1557 Start grouting 20PS-MW02C.

1617 Complete grouting. Proceed to pull outer  
casing out.

1727 All of the casing removed.

42

10 May 2020  
NS

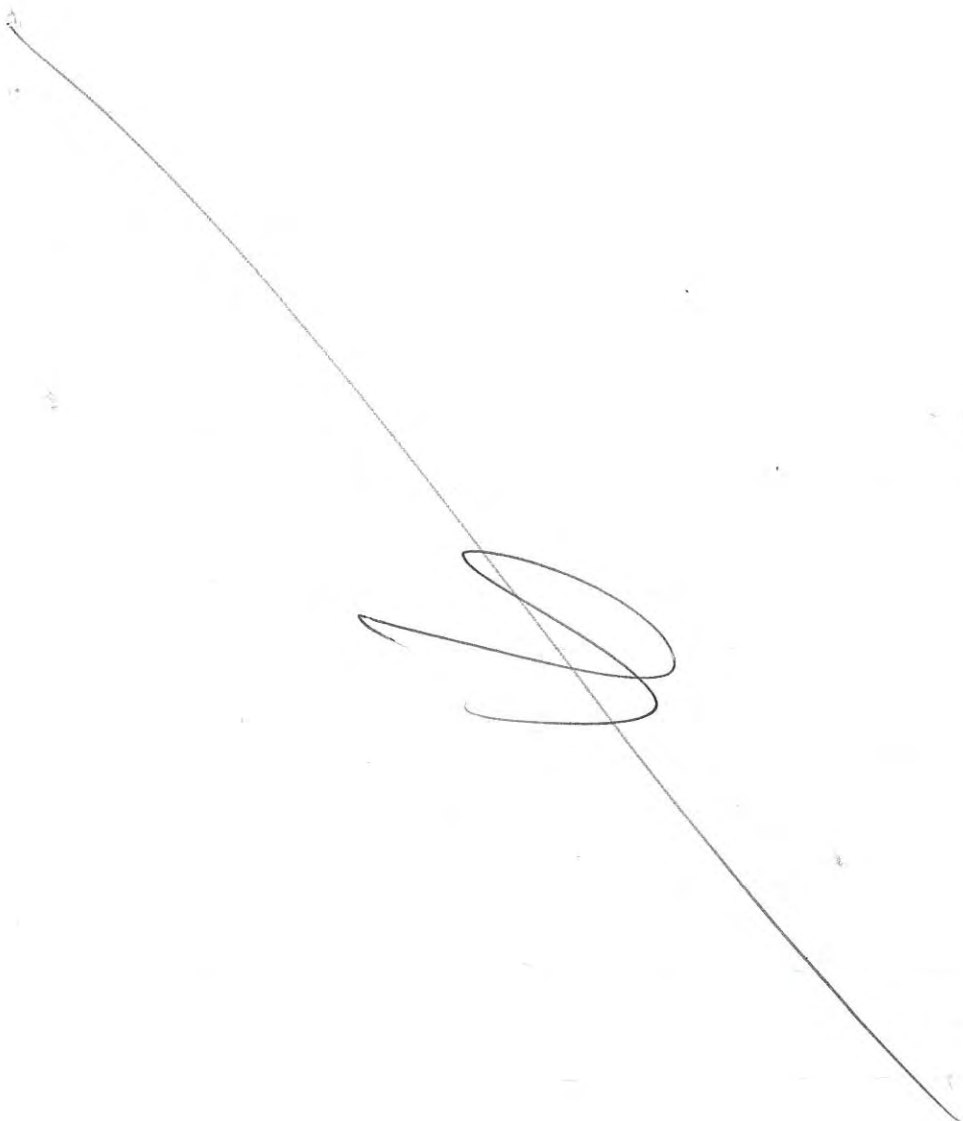
1730 ZAPS-MW02C -

Slide up 29"

DTW 4.35

TD 103.88

1755- Depart site, end of day.



windy, sunny, cool 38°F AM  
" " 53°F PM

17 May 2020  
N. Stoecklein

1800 - Depart site. Achieved 100' bgs w/ outer casing by end of the day.

0800 Arrive on site, Scottek present. Conduct HAZ meeting  
TOPICS: traffic awareness, working adjacent to a road used for recreation; pinch points while working with drums/lids & equipment. Also, renew the rules for wearing a mask while w/in 6' of others per COVID. N. Stoecklein, G. Rawson, and S. Seinas in attendance.

Prepare to sample 10W (water & soil) generated during installation of 20PS-MW02C.

0820 Collect ~~20PS-10WW~~<sup>20</sup> 20PS-10WW-MW02C for PFA3 EPA method 537 into 2x 250ML unpres. HDPE bottles, composite sample. Samples chilled in field till packed in cooler. W = water

0845 Collect 20PS-10WS-MW02C for PFA3 EPA method 537 into 2x 4oz. jars unpres. HDPE, Composite sample. S = soil

Drillers continue to prepare site <sup>to drive</sup> for casing, starting the installation of MW02D, also deconning equip that was used on MW02C. That which was extra (not used prior) will start the hole on MW02D.

1015 Start pounding casing for MW02D.

1200 Outer casing advanced to 70' bgs for MW02D.

1253 Not able to advance. Scottek replaces automatic drop hammer motor after the previous went bad the day before.

1500 After getting new motor installed, Scottek <sup>applies</sup> applies the automatic drop hammer. Advancement takes place momentarily when the device stopped working. Transition into rotary west of ~~inner~~ inside of outer casing.

0755 Arrive on site. Keotek is present. Conduct HAS meeting. TOPICS: proper hearing protection when working around heavy / loud equipment. Also, stay hydrated while conducting field work. Additional discussion on wearing masks in the field when w/in 6' of other personnel via COVID. N. Stredlein, G. Rawson, and S. Siemon in attendance.

0825 Keotek continues to drive casing for 20PS-MW02D. Gauge 20PS-MW02C  
PTW = 4.47' BTDC  
TD = 104.37' BTDC

0937 Achieved 125' bgs with outer casing.  
1134 Achieved 142' bgs. Not advancing. Setting up to conduct wash @ inner casing.

1253 Collect 20PS-1DWS-MW02D for PFAS EPA method 537 2x4oz jar unpres. for soil/composite chilled on ice.

1305 Collect 20PS-1DWW-MW02D for PFAS EPA method 537 2x250mL bottles unpres. for water/composite as it's stored in different containers rather than one container, chilled on ice.

1513 At 180' bgs w/ outer casing. Continue to drive to depth.

1543 Minor issue - rig overheated.

1607 Continue driving down casing. Note - lots of resistance with depth, taking a while to advance.

1700 Achieved 185' w/ outer casing. Not making advancement. Call it a day & will wash out / advance to 210' bgs tomorrow. End of day.



49°F, windy, sunny AM  
62°F, windy, ~~22~~ cloudy PM

19 May 2020  
N. Stoddelen  
H. Peterson

0731 Arrive on site. Meet present - Conduct HAS meeting. TOPICS: Staying hydrated while conducting field work, being visible while working around heavy equipment (drilling/Bobcat). N. Stoddelen, H. Peterson, G. Rawson, and S. Seimas in attendance. Also voice the need to wear a mask while working w/in 6' of personnel per COVID.

0815 Meet set up and start rotary wash ~~at~~  
at 160' bgs.

0855 Accomplish 185' w/inner/wash out rod, equivalent to the out casing depth. Then transition to beating casing to 210' bgs (ideally). EA field staff logged cuttings from hole from 160-185' bgs. Afterwards, EA secures ss mega monsoon pump and surge blade in prep for well development on 2044<sup>e</sup> 20PS - ~~190, 195~~ <sup>190, 195</sup> ~~210~~<sup>210</sup>

1037 Achieve <sup>195</sup> 200' bgs w/ outer casing; set up and wash out to 200' bgs.

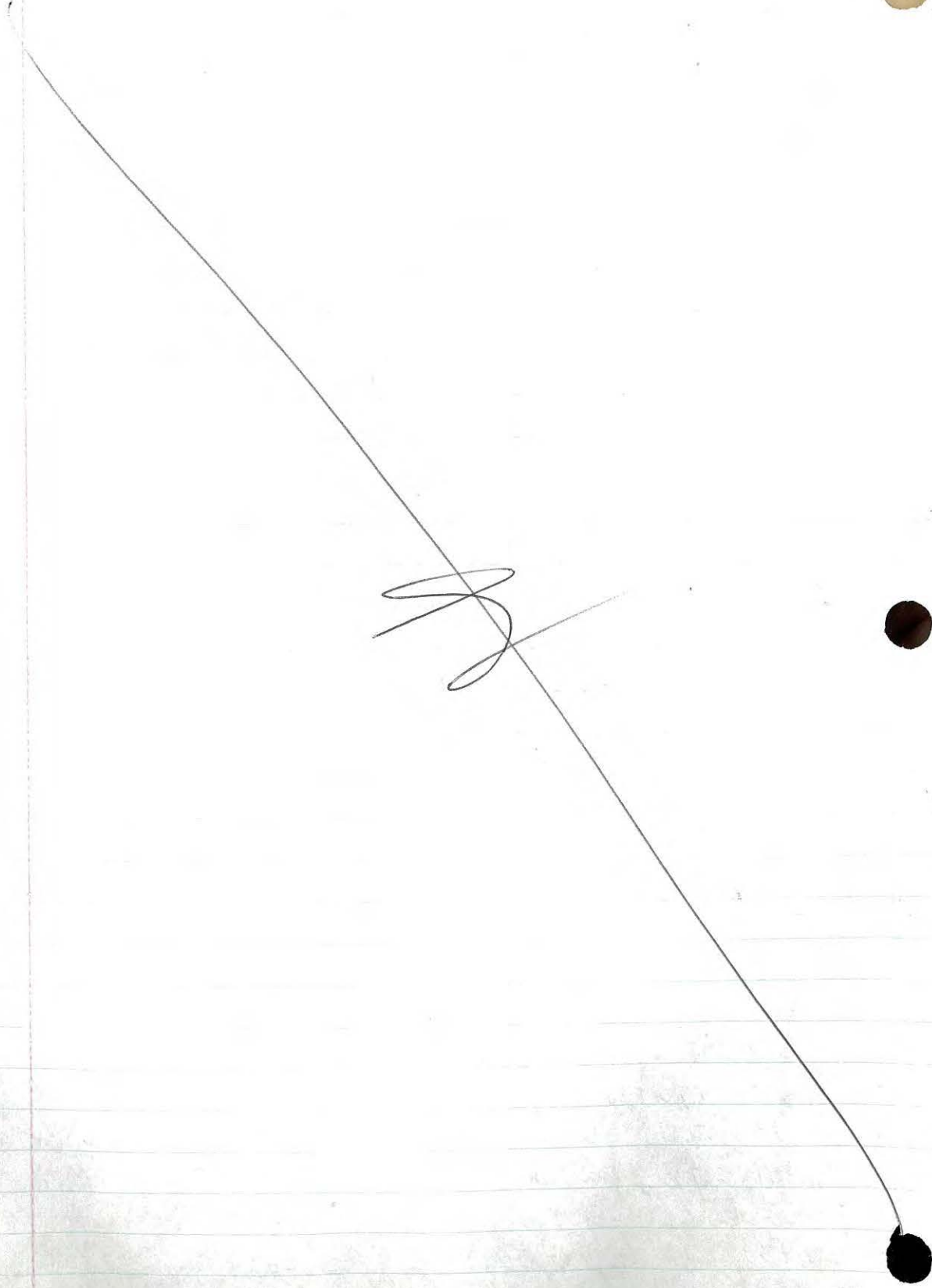
1307 Continue outer/inner casing wash out of hole. Not advancing quickly at all. Barely making 5' with outer casing then having to transition to inner/clean out of casing. May make it to depth (210' bgs) today. EA field team not developing until the washing of hole is complete due to health & safety concerns with pumps, hoses in the ~~the~~ work area.

1437 Still attempting to advance outer casing to 205' bgs.

1541 Apply automatic hammer after fixing it to achieve 205' bgs.

1730 Only drilled to ~203'. Lots of resistance. Report site, end of day.

46



Clear, calm, 44°F AM  
Sunny, warm, Clear 46°F AM

20 May 2020  
N. Stoecklein  
H. Peterson

0728 Arrive on site, Neotek present. Conduct HAS meeting.

TOPICS: Slips, trips, and falls; knowing hospital route in the event of an emergency. Discussion of wearing a mask if w/in 6' of personnel is required per COVID.

0755 Scotch continues to drive outer casing to 205' bgs w/ automatic drop hammer

116-  
18-20

0942 Achieved 205' bgs. Set up/start rotary wash out of casing. Will log respective soils / intervals where applicable.

0942

1017 Cleaned to 205' transition to outer casing drive.

#117  
well #20  
D

1034 Apply automatic drop hammer to drive casing. Very slow advancing at these depths.

NOTE: Calling off water delivery for the day as the team works towards drilling activities at Well Cluster #1 after 20' well installed at Well Cluster #2.

1152 FA team decides to prep for development of 20PS-MW02C.

1218 Start surging w/ surge block on top of screen (5') on 20PS-MW02C, then bottom of screened interval for 5 min. (surging)

1300 Set up pump & tubing, start pumping well

1340 Purged ~~200~~ 100 gals. Pulling (surging) of pump w/ in the screened interval to get silt out of screen is occurring.

Auto drop hammer is still applied at ~ 208.5' on last run of outer casing.

1503 Achieved 210' bgs w/ outer casing. Will now clean hole to 210' bgs.

\* 1500 Complete development of 20PS-MW02C.

1537 Duller's start pulling inner/outer rods/casing out.

5/20/2020  
N. Strockell  
H. Peterson

1609 Drillers Start lowering casing into the hole.

1427 An extra 15' of PVC casing is sticking out, something is catching it down hole not allowing it to reach ~~20'~~ 210' legs.

Drillers pull out well casing <sup>drive casing</sup> and use a larger tri-cone to clean out hole in hopes of getting whatever the casing is stuck on out.

1735 Drillers drive casing to 210' Dgs (again). Will use larger tri-cone to clean out tomorrow morning.

1745 Depart site, end of day.

Sunny, Cool, 51°F AM

5/21/2020

(49)

N. Stoecklein  
H. Peterson

2400  
+ 300  
2400  
+ 300  
2700

0715 Arrive on site. Geotek present. Conduct H&S meeting with all personnel. TOPICS: Wearing proper PPE, wildlife awareness. Deacius also had about 6' of wearing masks when w/in proximity of personnel per COVID. N. Stoecklein, G. Rawson, J. Beckner in attendance. Will brief H. Peterson when she arrives as she is purchasing supplies/calibrating equipment at this time.

0740 Geotek starts on 20PS-MW020. Goal is to clean out casing and run well casing back into hole to 210' bgs.

0900 Achieved clean out to 210' bgs. Pulling out rods and will lower well casing back in hole in hope it will set to TD.

0915 Gull casing in place.

0922 A hydraulic piece/line blew on the drill rig. Geotek personnel from other site coming to bring piece to replace faulty part. On Standby till then.

1053 Drillers Start pulling outer casing out of position.

1117 During drilling ~ 2700<sup>(2700)</sup> gals of water was generated (dirty); ~ 2800<sup>(2800)</sup> gals of clean water was used during drilling.

A = 100 gals, will be removed in addition to that calculated during development of 20PS-MW020.

1150 Seal is in place for 20PS-MW020.

1250 Drillers start grouting 20PS-MW020 and pull casing.

NOTE: H. Peterson arrived on site at 1000 and was briefed on ~~the~~ health & safety topics.

12.80

11.1

1431 Driller conclude pulling casing from depth.  
1445 Setup on 20PS-MW02C. Gauge well and calculate info onto low-flow sampling form.

1501 Start purging 20PS-MW02C.

1625 Collect 20PS-FBPM-0521 in 2x250mL HDPE unpres. bottles, used lab supplied PFA-free water for sample. EPA method 537 analyze for PFOs/PFA.

NOTE: At 1445 Driller demob from well Cluster #2, decon rods/casing, and well mob to well Cluster #1.

1641 Collect 20PS-MW02C-0521 (ex 250mL HDPE unpres bottles, MSMSO, EPA method 537 for PFOs/PFA.

1600<sup>collect</sup> Duplicate to 20PS-MW02C-0521 into 2x250mL HDPE bottles unpreserved for PFOs/PFA EPA method 537.

1745 Depart site. End of day.



pt cloudy, 52°F, calm AM  
cloudy, windy 65°F PM

5/22/2020 (51)  
N. Stoecklein  
H. Peterson

0722 Arrive on site, Geotek on site. Conduct HAS meeting. TOPICS: insect awareness - wear deet-free spray only; staying hydrated; wearing a mask when w/ in 6' of personnel per COVID. N. Stoecklein, D. Rawson, J. Beckner in attendance. Will brief H. Peterson upon arrival. Geotek continues to mob to well cluster #1

0801 Pioneer Wells on site to fill clean water (dedicated) tanks at Well Cluster #1 site.

0850 H. Peterson on site, briefed with HAS topics.

0910 Collect 20PS-FBAM-0522 for PFAS EPA method 537 in 2x250mL HDPE unpreserved bottles.

0915 Collect 20PS-EB-0522 off SS Pro - Mega Monsoon Pump for PFAS EPA method 537 in 2x250mL HDPE unpreserved bottles.

All samples placed on ice and water is from lab as PFAS-free water.

0923 Gauge 20PS-MW02D  
PTW - 4.43' BTDC.

TD - 212.80' BTDC

0940 Start driving outer casing on 20PS-MW01D.

1013 Achieved 40' bgs. Continue driving casing to depth.

1111 Achieved 80' bgs.

1120 Apply automatic drop hammer to drive 85' bgs, down

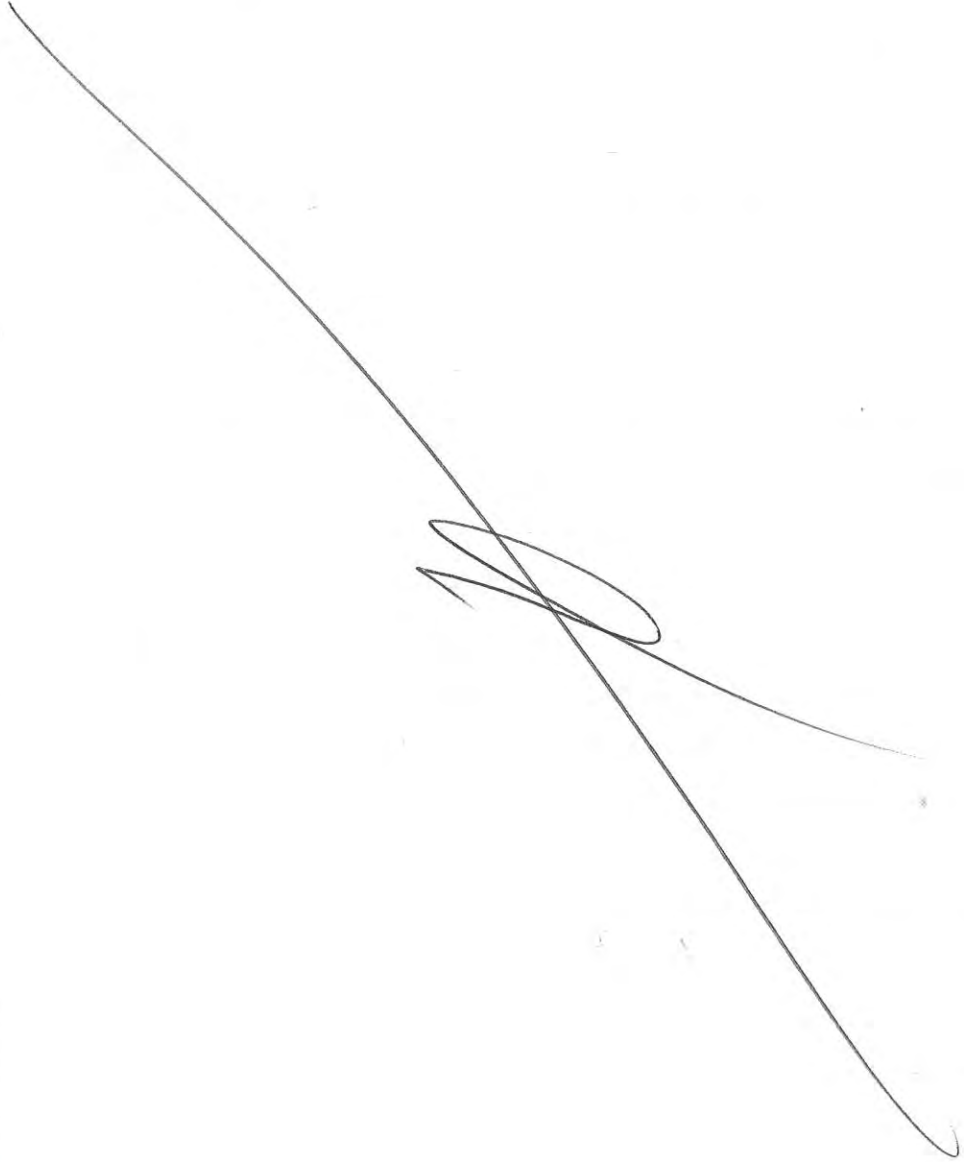
1100 Achieved 115' bgs. Continue w/automatic hammer to drill down to depth.

1700 Collect 20PS-10W004, decan water for well cluster #2

(2)

5/22/20  
N. Stocklein  
H. Peterson

Sample collected on previous page to be  
analyzed for PFAS 2 x 250 mL HDPE  
unpreserved bottles method 537 (EPA).  
1745 Conclude @ +27 125' bgs. Leave  
Site) end of day



Sunny, clear, <sup>light</sup> wind ~~5~~<sup>2</sup> AM 48°F  
Sunny, warm, windy 73°F

5/23/2020  
N. Stuedlein  
H. Peterson

(53)

0724 Arrive on site. Scotek present. Conduct HAS meeting  
TOPICS: be visible / insight when around operational  
heavy equipment; wash hands when doing hand to  
mouth activities. 6' distance or wear mask per COVID.

0823

0750 Geotek brings some gravel & clears the location  
of the well prior to starting development. Equip-  
ment / supplies around well ZOPS-MW020. Lay  
gravel into void spots and compact area.

0820  
lower  
surv. block.

0824  
top  
hub  
e  
0822  
e  
0823

0820 Scotek assists with surging (w/ surge rod),  
start with top half of screen for 5 minutes,  
then bottom half for 5 mins.

119  
2015  
55 gpd  
drilling  
2015-MW020  
dev  
H2O

0833 Complete surge. Set up w/ pump tubing

0910 Start pumping w/ alternate cycling  
of surging w/ pump; documentation on  
the well development record will detail the  
development process. Drillers at well #1  
driving casing for ZOPS-MW010 (210' bgs).

114-90%

1140 ZOPS-MW020 developed / complete. Clean  
up site, clean pump, etc.

1313 Complete clean up of site, took a  
20 min. lunch break in between the logs.  
Couldn't tell if 2<sup>nd</sup> tubing is touching bottom so  
that took a while to determine. Move back  
to well cluster #1 where drilling activities  
are occurring. Drillers have auto hammer  
"on" and are attempting 150' bgs - going  
quite slow.

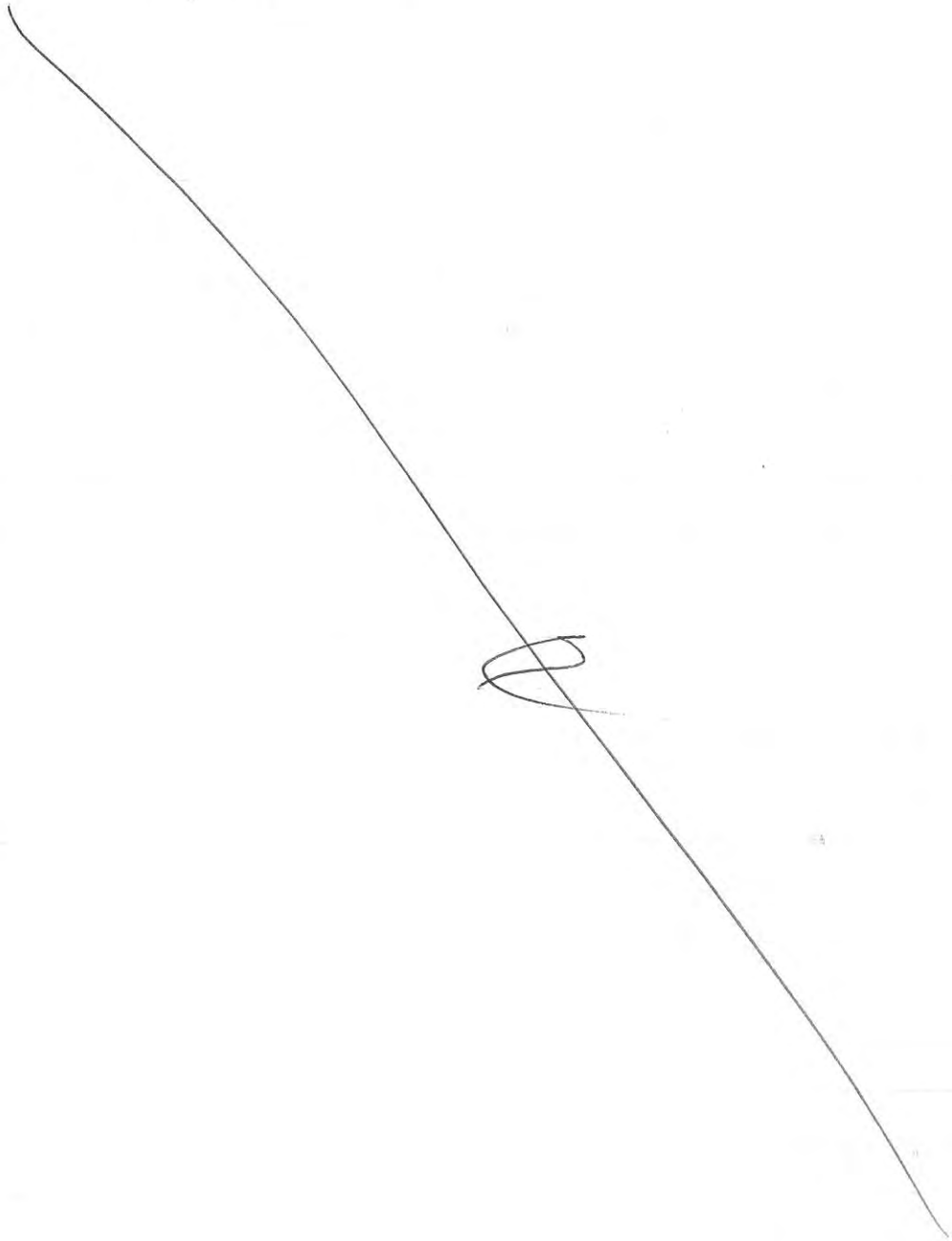
1433 Drillers are pre preparing to wash  
cuttings since advancement is minimum.

1500 Drillers start lowering rods into casing  
and clean out pipe to create "void".

1609 Clean to 150' bgs. Pull inner rod out.

5/23/2020  
N. Strecklein  
H. Peterson

1619 Start driving casing. 150-155 TGS.  
1727 Achieve 155' leg w/ casing. Cleaned to  
1732/150' leg. Clean up site.  
End of day.



Cloudy, lt. wind, 56°F AM  
lt rain, cloudy, 62°F PM

5/24/2020  
N. Stoecklein  
H. Peterson

0725 Arrive on site. Geotek present. Conduct HAS meeting. TOPICS: 3 points of contact when using ladder/step ladder; using stop work authority when an issue arises or weather is a factor. Wearing a mask when w/in 6' of other personnel required per COVID.

N. Stoecklein, G. Rawson, J. Beckner in attendance. Will brief H. Peterson when she arrives on site.

0736 Geotek starts driving casing 155-160' bgs.

0830 H. Peterson arrives and gets briefed on HAS.

0855 Collect 20PS-10WS-MW01D in 2 x 4oz HDPE <sup>up</sup> unpreserved jar for PFAS EPA method 537. Samples placed on ice.

0910 Collect 20PS-10WW-MW01D in 2 x 250 mL HDPE unpreserved bottle per PFAS EPA method 537. Samples placed on ice.

0917 Achieved 165' bgs. Continue w/ automatic drop hammer to 170' bgs.

1111 Achieve 170' bgs. Pumps set up and start wash out of outer casing. Field team heads to WC #2, 20PS-MW02D to set up on well in prep to <sup>purge</sup> sample.

1143 Pioneer Wells on site to drop water into designated tanks for drilling activities.

1155 Start purging 20PS-MW02D. Refer to the low-flow groundwater Sample & Stabilization form for details

1215 Collect 20PS-FBPM-0524 for PFAS EPA method 537 in 2 x 250 mL HDPE unpreserved bottles, filled w/ lab supplied PFAS-free water.

5/24/2020  
N. Stredlein  
H. Peterson

Samples placed on ice (PFAS free gel ice).

1410 Collect 20PS-MW02D in 2x 250ml for PFAS EPA method 537 unpreserved bottles, put on ice.

1400 Collect dup to above 20PS-MW99-0524 for PFAS EPA method 537 in 2x 250ml bottles, placed on ice. Decon water level meter & pick up site

1445 Complete Sampling and cleanup of well. Return to well cluster #1 area.

Pullenis achieved 180' bgs, using auto drop hammer, working to 185' bgs. Cleaned out hole to 170' bgs.

1715 Achieve 184' bgs, 170' bgs. End of day.



0747

cloudy, cool, 50°F AM  
cloudy windy 40°F PM  
477.8

5/26/2020 (57)  
N. Stoecklin  
H. Peterson  
S. Newman

0734 Arrive on site. Conduct HAS meeting. <sup>present.</sup> Neotek  
TOPICS: biological hazards (bugs) and  
knowing hospital route in case of an  
emergency. Also, wearing a mask when  
w/in 6' of other personnel required  
per COVID. G. Rawson, J. Beehner, ~~H. Peterson~~  
N. Stoecklin, S. Newman in attendance,  
will brief H. Peterson once she arrives  
on site. She's taking care of project  
tasks this morning.

0745 Neotek starts pounding casing  
then shortly thereafter starts washing  
out casing where they left off Sunday.  
Cleaned out to 190' bgs.

0845 Drillers add outer casing and drive  
to 190' ~~195' bgs~~.

1031 H. Peterson arrives on site. Gets  
briefed of HAS topics.

1054 Neotek starts cleaning out casing to 190' bgs.

1120 Neotek drives outer casing to 195' bgs.

~~1205 Add~~

1252 Neotek cleans inner w/ rotary wash to  
195' bgs.

1445 Neotek Achieve 200' bgs w/casing,  
start wash out.

@ 1523 1523 Start driving to 205' bgs w/outer  
casing.

1733 Stop rig. Accomplish 204' bgs. Clean up  
site.

1740 Depart site. End of day.

cloudy, cool, 44°F AM

27 May 2020  
N. Strocklein  
H. Peterson  
S. Newman

HP waiting

0705 Arrive on site, Geotek present. Will wait for team to show how to conduct HAS meeting.

0730 Conduct HAS meeting. TOPICS: slips, trips, falls and proper hydration. Wearing masks when w/in 6' of personnel per covid. N. Strocklein, H. Peterson, D. Lawson, J. Beckner, and S. Newman in attendance. Geotek advances casing to 205' bgs.

0823 Geotek starts cleaning hole.

0847 Start driving casing to 210' bgs (TD).

0934 Pioneerwells arrives to trap clean fox water into dedicated tanks for drill activities.

~~0950 Start driving casing~~

1018 Geotek starts cleaning out to 210' bgs.

1045 Geotek begins pulling <sup>inner</sup> rods from hole.

1115 All inner rods out of hole. Geotek sets up for well installation.

1117 PVC piping & slotted screen being installed down the hole.

HP waiting  
SN waiting

1122 All PVC piping installed. Well construction begins.

1200 Bentonite pellets applied, seal complete. Wait one hour to install remainder of filter pack

1310 Geotek begins setting up for pumping grout. Filling grout machine and installing Tremie pipe down hole.

1321 Begin applying the Quick-Grout down hole from 104.3' bgs.

1330 Complete well construction. Part of Tremie Pipe stuck in grout (between outer rod and well). 1-50lb

partly cloudy 59°F (PM)

27 May 2020

(59)

2500  
1200  
1200+ 2500  
3700

H. Peterson  
N. Stocklein  
S. Newman

continued...

bag of Quik-Crete applied during well construction - this is noted on MW Completion

Digram. - 3850 gals water used, ~3700 dirty Δ 150 gals lost down hole.

1400 Geotek pulling outer rods.

1445 Geotek finishes pulling <sup>one load of</sup> outer rods. Transferring to Decontamination area.

1540 Geotek finishes pulling up all outer rods.

1545 Cut top of riser down to 2.5' above ground surface.

DTW = 3.21' ft <sup>below</sup> ~~above~~ top of casing (btoc)

TD = 212.03' ft btoc.

Install lock on well 20PS - MW01D. Move on to set up rig at next (last) location: 20PS-MW01C.

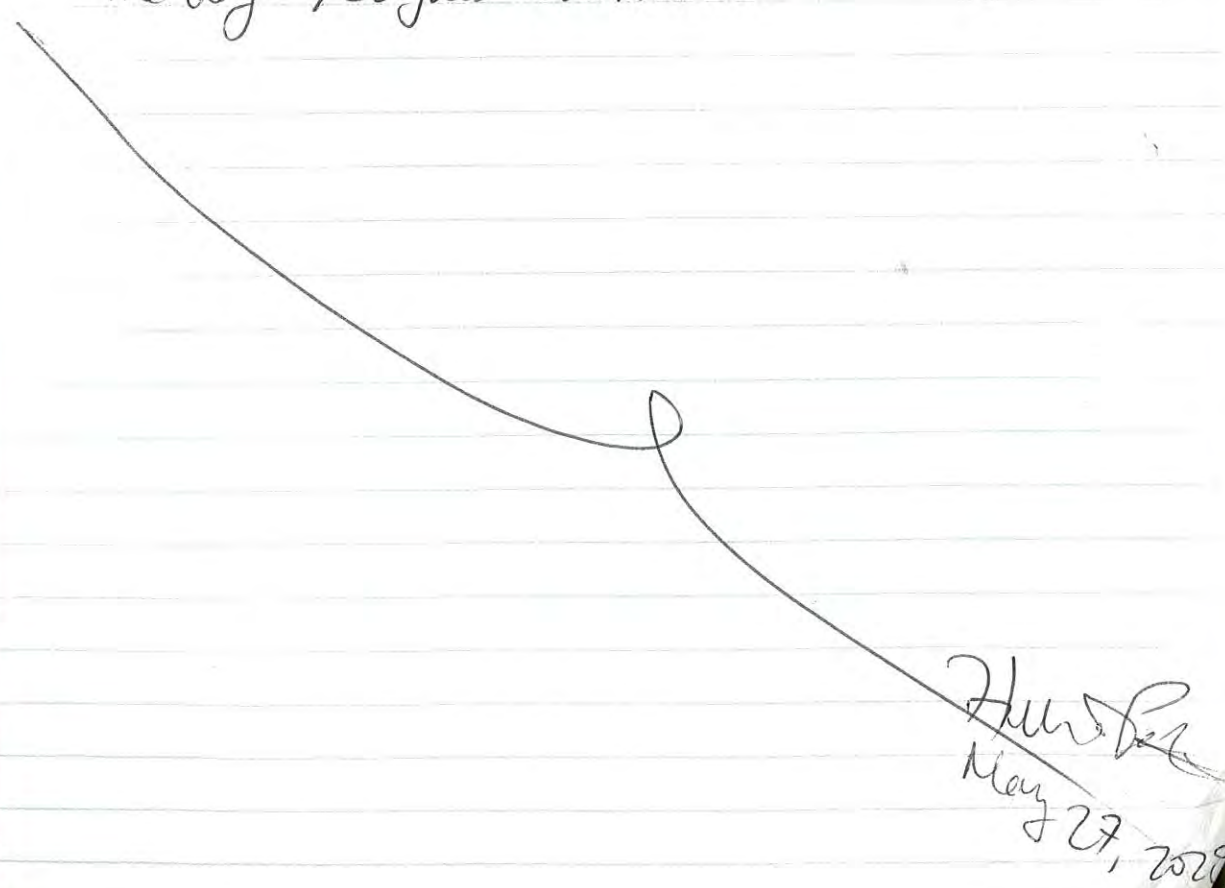
1620 Geotek begins driving outer casing at 20PS-MW01C.

1632 Geotek reaches 20' bgs with outer casing.

1730 Geotek reaches 90' bgs with outer casing. Done for the day. 150 gals down hole.

211.58

212.03



Hunter  
May 27, 2020

(60)

overcast, 45° F  
pt cloudy, 69° F, warm  
8 mph  
36%

28 May 2020  
H. Peterson  
N. Stecklein  
S. Newman

- 0730 Conduct Health & Safety meeting Sundance-  
EA and Geotek on topics of always  
wearing proper PPE (highvisibility vest,  
hard hat, hearing protection, safety glasses)  
and practicing proper lifting techniques.
- 0740 Geotek begins driving casing from 90'  
basat well 20PS-MW01C.
- 0850 Geotek reaches depth of 110' bgs with outer casing.
- 1225 Geotek driving casing to 140' bgs. <sup>N. Stecklein</sup> Field  
team got confirmation IDW pertaining  
to 20PS-MW02C and 20PS-MW02D was  
clean. Travel to well cluster #2 to  
pump clean water out of ASTs/totes.
- 1320 H. Peterson and S. Newman remain  
at WC#2 to pump water IDW  
out of tanks using trash pumps,  
hose, and leading water to the  
adjacent woods for minimal erosion,  
flooding at the site. This is in  
vicinity of origination points of each  
well.
- 1335 Start 150' bgs run. N. Stecklein at drilling  
Site (WC#1)
- 1530 H. Peterson and S. Newman back at WC#1.  
IDW water handling/disposal complete at  
WC#2.
- 1545 Geotek drilling casing to 160' bgs.
- 1627 <sup>N. Stecklein</sup> Achieve 160' bgs. Continue an additional  
foot.
- 1700 Achieve 161' w/ outer casing intentionally.
- 1715 Off site, end of day.

Sunny, clear<sup>e</sup> 54°F AM  
to Pt cloudy,  
Cloudy / windy 74°F PM

29 May 2020  
N. Stoecklein  
H. Peterson

(61)

0715 Arrive on site (N. Stoecklein), Geotek present. Wait for others to arrive prior to conducting HAS meeting.

0735 S. Newman arrives on site. Conduct HAS meeting. TOPICS: biological hazards - insects, hydration as the day is to be warm. Wearing a mask when w/in 6' per COVID.

Geotek - J. Bedener & T. Bedener, N. Stoecklein, and S. Newman in ~~at~~ attendance. I will brief H. Peterson when she arrives on site.

0747 Geotek starts the cleanout process of 20PS - ~~MWOIC~~ MWOIC

0917 H. Peterson arrives on site. Gets briefed on HAS topics. Geotek ~~st~~ down to 5' bgs w/ clean out. Starts retrieving inner rods from hole.

0957 Well casing in place. Construction of well then taking place. Other team setting up to start development of 20PS - MWOIC.

1005 Development team starts surge of well - top 5' of screen first, then lower 5' of screen second (5 mins each = 10 mins of surge of screen) w/ surge rod.

1015 Surge complete. Team decons equipment and gets up to start pumping well.

1040 Seal is in place on 20PS - MWOIC.

1115 Having issues w/ the pump seated. Were able to purge some water from the well but then nothing. Field team consults w/ TTT on how to use device and what's

needed to get it to work. Try their methods / direction and drop pump / tubing

147.3

161  
160.3

back down.

1214 Get some water then pump  
quits. Pull tubing/pump back up.  
Get SS Monsoon Pro mega rented  
(phone). The Grundfos rented did  
not work. Someone will run into town  
to pick up equipment. Development will  
resume at that time.

1240 Well is set/complete. 20PS-MW01C.  
Xeotek pulls outer casing up/out.

1340 Start the development process again,  
beginning w/ surging.

1350 Complete surge, set up to pump.

12 1412 Start purging 20PS-MW01D.

1437 Xeotek starts packing stuff up  
and working on completions at well #2.

NOTE: Approximately ~100 gal lost  
during install of 20PS-MW01C.

1710 Xeotek leaves site. EA/Sundance  
still on site developing.

1725 - Developed 20PS-MW01D. Clean up  
site.

1745 - Depart site end of day.

Sunny, 70°F AM  
77°F PM

30 May 2020 (63)  
H. Peterson  
S. Newman  
N. Stecklein

- 0945 H. Peterson onsite. S. Newman on site. Geotek (James Beckner) onsite. Geotek discharges clean water from two black tanks at Well cluster #1.
- 1015 Geotek (Tim Beckner) arrives back onsite with supplies for well completions at well clusters #1 and #2.
- 1030 H. Peterson & S. Newman perform decontamination procedures on SS Meg Monsoon pump pro and Water Level Meter in preparation for development of ZOPS - MWOIC today @ 1240.
- 1045 Set up all equipment needed for development at ZOPS - MWOIC.
- 1130 N. Stecklein arrives onsite after being on base this morning.
- 1245 Begin setting up for development.
- 1252 Lower surge block to depth and begin surging. Lower half of screen (155.3 - 160.3' bgs) for 5 minutes and surge top half of screen (150.3 - 153.3' bgs) for 5 minutes.
- 1320 Begin purging well ZOPS - MWOIC.
- 1330 Geotek driving into town to return some equipment / supplies.
- 1555 Development complete at ZOPS - MWOIC. Clean up and pack up.
- 1615 Done for day. Leave site.

June A  
30 May 2020

(64)

129

Partly cloudy 57°F

H. Peterson  
N. Steeklein  
S. Newman

60 cloudy, 68°F rain 2A 3.1'  
47% 10 mph 2B - 3.1'

31 May 2020

45 bottles  
50 lbs -  
68097/6  
12:00

0800 Sundance - EA personnel and Geotek on site. Brief of health and safety topics: wear bug spray (deet-free) to prevent bug bites and be aware of supplies/equipment in the vicinity of the sampling sites.

0815 Set up peristaltic pump to prepare for sampling at 20PS - MWOID.

MS writing

835 Start pumping 20PS - MWOID.

0838 Collect 20PS - IDWS - MWOIC for PFAS EPA method 537 into 2x 4oz bottles, unpreserved placed on ice (PFAS free). HDPE

0915 Collect 20PS - IDWW - MWOIC for PFAS EPA method 537 in 2x 250 mL bottles, unpreserved placed on ice (PFAS free).

Geotek working on well completions and demob from site.

1050 Collect 20PS - MWOID for PFAS EPA method 537 into 6x 250 mL HDPE unpreserved bottles & placed on PFAS free ice.

up

1200 Collect 20PS - MW99 - 0531 (dup to above) for PFAS EPA method 537 into 2x 250 mL bottles unpreserved & placed on PFAS-free ice.

1110 Collect 20PS - IDW05 from Decon Water per WCT#1 into 2x 250 mL HDPE unpreserved bottles for PFAS EPA method 537 and placed on PFAS free ice.

Sundance - EA continue to supervise Geotek while they demob and do well completions.

1450 Get dett + depth to water and

5/31/20  
NS/HP/SN

(65)

Set up in prep to sample <sup>20PS-</sup>20PM MWOIC.  
1555 Start purging 20PS-MWOIC. Refer to  
low flow groundwater sample and stabilization  
form for details

1600 Collect 20PS-FBPM-0531 for PFAS  
EPA method 537 into 2x250 mL HDPE unpress.  
bottles, placed on PFAS free gel ice.

1635 Sample 20PS-MWOIC for PFAS  
EPA method 537 into 2x250 mL HDPE  
unpressurized bottles, placed on PFAS free<sup>e</sup> free  
ice. Clean up site after sampling.

1650 Depart site end of day.

~~NS~~

(10)

Sunday, 50°F AM

2 Jun 2020  
N. Stockholm

0920 Arrive on site. Assess each area where work was being conducted & create a list of needs prior to demob. Waiting for Geotek's arrival to review tasks, conduct HAZ meeting, and have work ~~so~~ done/concluded.  
0949 Geotek on site. Conduct HAZ meeting with personnel. Topics - proper <sup>&</sup> lifting and slips, trips, falls. Also, when working w/in 6' of others, wear a mask per COVID.  
1215 Accomplish all tasks. Depart site.

lt rain, cool 50°F AM

3 June 2020  
N. Stoecklein  
J. Peterson.

(67)

0708 Arrive on ~~site~~<sup>base</sup>, drive to site (Fire Station #1 - FST1).

0730 Arrive at FST1. Geotek and Sundance personnel arrive shortly thereafter. Conduct HAS meeting. TOPIC: proper hearing protection and being visible around equipment/aircraft. N. Stoecklein, J. Person, S. Siemas, B. Foster in attendance. Also, wearing a mask while w/in 6' of other personnel per COVID.

0758 J. Price (escort/client) arrives on site and allows field staff into gate. Field staff set up as well as Geotek.

The following samples were collected into 2x4oz jar for PFAS EPA method 537 unpreserved HDPE, placed on PFAS-free ice once collected.

20PS-FST1-SB08-1 @ 0819 (80% recovery)

20PS-FST1-SB08-7.5 @ 0825 (90% " " )

20PS-FST1-SB09-1 @ 0829 (75% " " )

20PS-FST1-SB09-7.5 @ 0834 (90% " " )

20PS-FST1-SB99-0003 @ 0845 (dup to above)

20PS-FST1-SB10-1 @ 0840 (90% " " )

20PS-FST1-SB10-6 @ 0840 (85% " " )

20PS-FST1-SB11-1 @ 0847 (70% " " )

20PS-FST1-SB11-6 @ 0852 (90% " " )

20PS-FST1-SB12-1 @ 0858 (95% " " )

20PS-FST1-SB12-8 @ 0900 (85% " " )

20PS-FST1-SB13-1 @ 0907 (80% " " )

20PS-FST1-SB13-7.5 @ 0915 (50% " " )

20PS-FST1-SB14-1 @ 0920 (70% " " )

20PS-FST1-SB14-8 @ 0928 (90% " " )

(68)

149 ENT  
150 FST1

6/3/20  
NS/JP

20PS-EB-0003 off shoe @ 0950

1030 — 20PS-1DW06-0531 Secon during ENT SB

1030 — 20PS-1DW07-0003 " " from FST1

→ not noted in alt ~~file~~ field notebook, so documented here & will ship w/ these samples on 6/4/20. Construct Construct COCs,

update sample/1DW 10g.

1050 Depart site. End of day.

NOTE: J. Price departed site at 0940.



Cloudy, humid, 57°F

8 June 2020

N. Stoecklein

B. Leach

(29)

3.91

1020 Arrive at USAP-2. Conduct IHA meeting  
N. Stoecklein & B. Leach in attendance. TOPICS -  
biological and wildlife awareness.

1023 Conduct Well Integrity Checklist  
of well.

1028 Det sk set up on well. Gauge depth  
to water, total depth, calculate intake.  
Set up instruments to purge.

1055 Start purging USAP-2. Refer to the Low Flow  
Groundwater Sample & Stabilization form  
for details.

1113 Collect 20-USAP-2-0608 for  
PFAS method EPA 537 into 1x250mL  
HDPE unpreserved bottles and placed  
on PFAS free gel ice.

1200 Collect 20-MW99-0608 for  
PFAS method EPA 537 into 2x250mL  
HDPE unpreserved bottles and placed on  
PFAS free gel ice.

After collecting samples, clean up site.

1757 Depart site, end of day.

Partly Cloudy, 43°F, with Rain Showers.

9 Sept 2020  
D. Cookston  
T. Herman  
N. Robinson

- 0940 Leave for site
- 1020 Complete Daily Tailgate meeting.  
Drive down to location of 20PA-MW-17-0909
- 1112 Crew continues to load supplies for MW-17 and MW-16.
- 1133 Begin mob to MW-17 and MW-16.
- 1330 Arrive MW-16. Begin set up to drill and install well for MW-16. This well will be completed as a flush mount.  
Begin drilling MW-16 after deconning tooling.  
Check atmosphere with PID = 0.0 Breathing Zone LEL = 0.0%.
- 1350 Picture 001 with GPS, Facing NNE.  
Crew removing soil core from barrel.
- 1440 Set well screen and casing.  
Picture 002 with GPS Facing SE.
- 1451 Because of heaving sands, Screen is now set at 17 ft bgl.
- 1505 Mob out to MW-17.
- 1540 Arrive MW-17. Drillers have materials to pick up in Fairbanks. Plan to leave around 1600 hrs to make it back to Fairbanks.
- 1607 Drill crew departs site.  
Go to where Travis Herman and Noah Robinson are sampling. See if they need help.
- 1733 Travis and Noah have finished sampling. Depart site for office.
- 1810 Arrive office. Put equipment in warehouse.
- 1845 End of Day.

DAC  
9/9/2020

Dave Cookston

0202/6/9

Partly Cloudy, 37°F with chance of showers

10 September 2020  
D. Cookston

- 0707 Arrive warehouse. Load equipment and gear.
- 0740 Leave for site.
- 0837 Completed tailgate safety meeting. Leave for MW-17.
- 0845 Arrive MW-17. Crew is warming up rig.
- 0903 Begin drilling MW-17
- 0912 PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%
- 0914 Picture 001 - MW-17.  
View is looking SW while drilling.
- 0917 Picture 002 and 003  
View is WSW for Picture 002 - Set up to decon inner drive rod.  
View is SW for Picture 003 - Deconning inner drive rod.
- 0928 Begin setting MW-17  
Picture 004, View is SW. Installation well screen and casing.  
Bow set 20.75 ft bgl.  
TOC set at 3 ft digl.
- 0938 PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.8%  
Chip remaining borehole annulus from 4 ft bgl to surface
- 0949 Begin setting stick-up monuments  
Stablize inside stick-up monument with pea gravel.
- 1011 Finish setting concrete inside sonar tube.  
Pick up trash around area.  
Need to get pad locks. Development tomorrow.
- 1056 Rig arrive MW-15. Begin cleaning under brush for clear area for rig.
- 1108 All set. Deconning drill tooling.  
Picture 004. Decon tooling.
- 1112 Begin drilling MW-15
- 1115 Picture 005. Joint connection
- 1120 PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%
- 1137 Begin setting MW-15  
Bow setting at 20.5 ft bgl  
Natural filter gaved at 12 ft bgl.  
Dave Cookston

9/10/2020

(72) Partly Cloudy, 43°F  
with scattered showers

10 September 2020  
D. Cookston

- 1201 Used 1 bag Barriod Bentonite Hole Plug. Introduced approximately 15 gallons of water while drilling. Begin well head completion; This will be completed as a stick up. 2 Bags sackcrete
- 1237 Begin mobbing to MW-14.
- 1410 Arrive MW-14.
- 1438 Finished drilling MW-14. Begin setting well and casing. 2 - 5' Pre Packed Screens - 0.010 slot with 20/40 Filter Pack. 2 - 10' Blank Casings.
- 1505 Borehole heaved. Go get buckets of PFCs Free water to equalize head pressure. Resume redrill. MW-14.
- 1537 Set well and casing. Sand collapsed at 4' bgl. Back fill with 1/2 bag Hole Plug.
- 1555 Begin setting stick-up monument.
- 1605 Arrive back to parking lot.
- 1653 Tell crew that I going to locate next drill location while are gathering supplies.
- 1800 Finally arrives with rig. They have to get their other truck. I leave for office.
- 1823 Arrive office upload equipment.
- 1830 Get to office. Noah Robinson ask if I have seen emails from Eileen. I read emails and we have a meeting scheduled with Eileen at 0730 hrs. Discuss sample nomenclature with ~~HOAT~~ Noah. I think he has a better understanding of what is now needed.
- 2015 End of Day

David Cookston  
9/10/2020  
9/10/2020

Cloudy 30.34 in Hg  
41°F Lemph winds  
87% humid.

11-Sept. 2020  
T. Hermer

- 1033 Arrive at MW13 install location to meet w/ GeoTek Alaska.
- 1039 Setup GeoProbe on MW13 location.
- 1050 Drillers are deconing drill rods + equipment.
- 1052 Photo taken of decon setup (facing South)
- 1055 Conduct tailgate safety meeting with Dave C.
- 1100 Begin DPT drilling for MW13.
- 1119 Sand is heaving into drill casing. Add 15 gal PFCs free water to casing for head pressure.
- 1126 Prepare screen for installation
- 1130 Screen/casing have been placed into annulus. Pulling dry casing. Took photo facing southeast.
- 1140 Added sand to bring up to 8 feet bgs. Sand is completely covering + above filter/screen. Bottom of well set at 20 ft. bgs. Backfill w/ approx 1 bag bentonite plug (approx 8 ft. bgs to surface)
- 1150 Take GPS location of new well install MW13. using Garmin GPS unit.
- 1154 Dig pit around stickup monument for concrete pad.
- 1157 Fill remaining annulus with (backfill) TM. Fill stickup casing with pea gravel for stabilization.
- 1201 Install locking lid onto stickup monument. Place new combo lock onto lid (Combo is 4751)
- 1205 Mix concrete for stickup pad. Pour + smooth concrete pad. Take GPS photo of completed well MW13 (facing south w/ camera)
- 1208 Install of MW13 is complete. MOB back to MW16 to begin development process.
- 1237 Drill crew is making preparations for development procedures + organizing equipment.
- 1412 Arrive at MW16 for development process. See "New Well Development" field sheet.
- 1524 MW16 initial development complete. MOB to MW17 for development =>

11 Sept. 2020

T. Herman

11044 Arrive at MW17 + set up for purge development.

DTW = 3.7' from TOC

DTB = 24.1' from TOC

11049 Begin new well purge development for MW17 (See Well Development Record Form)

1809 Development Complete for ZOPS-MW17. Clean up site. Drive back to EA office Fairbanks.

1837 Arrive at office + unload trucks.

1909 meet in office to communicate field notes/records.

2004 Leave office, drive back to hotel

9-11-2020

9-11-2020

32°F, Partly Sunny, 0 mph Wind

12 September 2020

D. Cookston

0804 Leave for site

0825 Arrive site. Conduct Tailgate safety meeting.

0846 Break to go to well development set up at MW-15

0851 Arrive MW-15 SWL = 11.76' DTB = 23.79'

1018 Removed 10 well volumes. Development is complete.

Pack up and get ready to move to MW-13

1030 Leave MW-15 to go to MW-13.

1035 Arrive MW-13. Mark Wilkinson's to discuss MED. I need to talk to Gilbert. I told Mark that I had GPS camera's shipped up from the Lincoln Office. I told him that I was unsure if they had the date stamp.

1045 Set up to begin development, MW-13.

1055 Begin development of MW-13

1059 Photo 061, Well development set up at ~~MW-13~~ MW-13

View is looking South South West

1207 Finish well development

1216 Drive over to near MW-14.

1218 Arrive MW-14. Prep to carry everything to MW-14.

1315 Trek out MW-14.

1325 Arrive MW-14. SWL = 5.94

1500 Stop pumping at MW-14. Pack up and ready to move over to MW-18

1544 Place IDW labels on drums generated today for MW-13 MW-14 and MW-15.

1619 Leave for North Pole to meet up with crew.

1628 Arrive North Pole and Busby and Laurance.

1654 Crew arrives. Drive to staging area. Take Dave around to borehole locations.

1716 Leave for office.

1736 Arrive warehouse. Unload equipment.

1746 Go to office for paperwork.

1915 Finish paper work. End of Day

12 Sept 2020

D. Cookston

(76) Sunny, 35°F, No Wind

9/13/2020  
D. Cookston

- 0843 Go to ~~warehouse~~ warehouse to load equipment  
0854 Depart for site.  
0815 0913 Arrive site, Crew is not here, They went to town to use bathroom  
0930 Travis Herman arrives to get a drum for sampling.  
0934 Travis leave to return to their location.  
0936 Crew arrives back  
0940 Have tailgate safety meeting.  
0944 Crew starts mob equipment and supplies to MW-18 and MW-20.  
1025 Begin drilling MW-18  
1039 Finish drilling to depth on MW-18. Go get buckets of PFAS free water to equalize head pressure in boring, PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%  
Added 15 gallons of water to equalize head pressure.  
1047 Begin construction of MW-18.  
2 - 5'x2" pre pack screen with 20/40 filter pack,  
1 - 10'x2" Blank screen casing  
1 - 6'x2" Blank casing.  
Native sand collapsed at 11.17 ft bgl.  
1 Bg of Hole Put<sup>®</sup> Plug added to grout the well  
1103 Install protective steel stickup.  
Add pea gravel inside steel stickup.  
1105 Rig down, Prepare to finish steel stickup with concrete in sona tube.  
1 60 lb bag concrete mix.  
1116 Pick up and move to MW-20.  
1123 Set up rig for drilling.  
1138 Begin drilling MW-20.  
1145 PID while drilling = 0.1 ppm  
1157 Finished drilling MW-20.  
1214 Add 15 gallons of water to equalized head pressure.

Sunny, No Wind, 48°F  
Humidity 63%

9/13/2020 (77)  
Dave Cookston

- 1236 Begin setting MW-20.  
1 - 2" end cap  
2 - 5'x2" pre-packed screens, 0.010 Slot filter pack 20/40  
1 - 10'x2" blank casing  
1 - 6'x2" blank casing.  
Native material in borehole collapse at 4.6" bgl  
1/2 Bag Bentonite Chips.  
1249 Install protective steel stick-up. Set up to finish well.  
1.5 Bag Pea gravel inside steel stick up.  
1253 Rig down. Finish well pad.  
1 bags of Sack-crete.  
1303 Pack up and get ready to mob to MW-22  
1440 Move to MW-22.  
1458 Arrive location. Drive driller to location for scoping area before getting equipment in here.  
1533 Begin drilling MW-22  
1553 Finish drilling MW-22. Total depth of borehole @ 21 ft bgl.  
Add 15 gallons of PFAS free water to borehole to provide enough head pressure to set well.  
1555 Begin removal of inner drive rod,  
1557 Begin setting MW-22.  
2 - 5'x2" Pre-pack well screens. Slot size = 0.010"  
Filter Pack is 20/40  
2 - 10'x2" Blank Casing.  
Remove drive casing.  
1601 Cut well casing off at 3 ft agl.  
Natural formation collapsed 5.75 ft bgl.  
1.5 Bags 3/8 inch Hole Plug  
1 - J-plug.  
1616 Cease installation for day. Need materials to install stickup  
Leave site for office  
1646 Arrive warehouse. Unload equipment.

9/13/2020

1655

Arrive office. Begin daily paperwork.

*[A large diagonal line is drawn across the page, with the date 9/13/2020 written along it.]*

David A. Cookston

9/13/2020

9/14/2020

D. Cookston

Mostly Cloudy, 41°F  
Wind 3 mph, Humidity 85%

0832 Begin calibration

	Pre	Post
YSI 556		
% DO	100.9	100.6
pH 4.01	4.02	4.01
pH 7.00	7.01	7.00
pH 10.01	10.00	10.00
Spec Cond	1.613	1.413
ORP 240 mV	<del>239.9</del> <sup>m</sup>	240.0
	241.1	

YSI Pro Series

% DO	88.5	100.1
pH 4.01	3.75	3.74
pH 7.00	6.72	7.02
pH 10.01	9.85	10.01
Spec. Conductivity	1333	1413
ORP	239.9	240.0

4 Gas Meter	CO	4ppm	21
	H <sub>2</sub> S	0.0	1.1
	O <sub>2</sub>	20.9	20.9
	LEL	2%	5%

0928 Leave for site. Noah calls while enroute to drill location. Wants me to unlode gate going to MW-17 until they get a key.

0957 See Dalton Silvis, Park Ranger for Chena Flood Canal, is taking measurement. I asked if we could get another key for the sample crew. He told me to have them give him a call and he would make arrangements.

1012 Arrive site with GeoTek Alaska. They are ready and waiting  
Install

1-6<sup>th</sup> 5' x 6" steel protective casing.  
David A. Cookston

9/14/2020

Mostly Cloudy, 43°F  
Wind 3mph, Humidity 80%

(80)  
9/14/2020  
D. Cookston

- 1.5 Bags Pea Gravel.  
1 - 60lb Bag Sack-crete.
- 1044 Mob out of MW-22. Prepare to mob to MW-23  
1106 Mob to MW-23  
1110 Arrive MW-23. Set up to drill MW-23.  
1136 Begin drilling MW-23.  
1201 Down 11 ft. bgl. Hitting refusal because of silt.  
Call Nicole Stockbren to see if she has encountered this issue. Nicole says to call Mark Wilkinson or Colleen Rust.  
1206 Call Colleen Rust. I explain to her what we are encountering. We discuss the other wells that have been installed thus far. Colleen says the QAPP is what we will be held to for the wells. I explained that for the seasonal variation there may not be an adequate seal placed at surface to prevent contamination. Static WL in this area is 3-5 ft bgl. The QAPP want 3ft above the static. All other wells at this time a total of 8 wells have been set from approximately 10-20 ft bgl for the screen. At this time with a conference call with Colleen and John Consoletti is occurring to confer. John and Colleen understand now of what I'm doing to make an adequate seal at the surface. John recommends to set a 5 ft screen, and to complete according to QAPP. Told to get a water level and set the screen accordingly.  
1259 No water in borehole. I will send a text to Mark, Colleen and John.  
1306 Rig down and backfill hole with bentonite. Prep to move to RW-24.  
1321 Arrive RW-24. Unload equipment and get ready to install well.  
Drill and install a well,  
D. Cookston

9/14/2020

Mostly Cloudy, 52°F  
Humidity 62%, Wind 0 mph

(81)  
9/14/2020  
D. Cookston

- 1334 Begin drilling MW-24.  
1404 Drilled to 25 ft. bgl. Check Static WL = 13.53 ft bgl. Set well from 20-25 ft. bgl.  
1440 Drilled a total depth of 24 ft bgl. Initially set well screen from 10-20 ft bgl. Measured static WL = 4.52 ft bgl then it fell back to 6.32 ft bgl. Pulled screen up to 4.5-14.5 ft. bgl. Backfilled with sand to 3 ft. bgl and placed bentonite seal to surface.  
Begin construction of surface completion with steel stick-up monument.  
2 - 2" x 5' Pre-pack well screens 0.0105 slot 20/40 filter pack  
1 - 2" x 10' Blank casing.  
1 - 2" End Cap  
1 - 2" J-Plug  
2 - 50lb bags filler sand.  
1/2 - 50lb bag Hole Plug.  
1 - 6" x 5' steel casing with lockable lid.  
2 - 60lb bags sack-crete.  
No water was added in the construction of this well.
- 1454 Load equipment and mob to MW-25.  
1508 Mob to MW-25  
1514 Arrive MW-25. Unload equipment  
1531 Begin drilling MW-25.  
1548 Finished drilling MW-25. Total depth is approximately 21 ft bgl. Add 10 gallons of water to equalize head pressure.  
1602 SWL = 7.11 ft bgl, DBW = 20.91 ft bgl.  
1607 Set well from 4-14 ft bgl. Add sand filter to 3 ft bgl. Bentonite remainder to surface.  
1624 Begin surface completion  
2 - 5' x 2" Pre-pack screens 0.0105 slot with 20/40 filter pack  
1 - 10' x 2" Blank casing  
D. Cookston

9/14/2020

- 1- 2" inch end cap
- 1- 2 inch J-Plug.
- 1- 50lb bag 10/20 blotter sand.
- 25lbs Hole Plug.
- 1- 5 ft x 6" inch steel protective surface casing.
- 2- Bags Pea Gravel.
- 2- Bags 60lb sack crete.

1650

Leave to return to MW-23 to attempt a redrill.  
1700 Arrive back to MW-23. Talked to Colleen Rust. She says she hasn't spoke with Mark yet but thinks the attempt to redrill MW-23 is a good idea. Move out the offset distance of no more than 25 feet from the original location.

If appears the truck with trailer hauling rig may have gotten stuck pulling back out here.

1715

Drop off equipment. All set and ready for tomorrow

1722

Depart site for office. sample crew

1740

Arrive MW-13.

Doc  
9/14/2020

David A. Cookston

9/14/2020

0650

Go to warehouse. Load equipment and begin daily calibration.

0748

Leave for site.

0815

Arrive site. Waiting on drillers.

0821

Drillers arrive. Setup and warm up equipment to drill and install MW-23.

0835

Photo 1 View looking Setup on MW-23. View is SE w/decon.

Photo 2 PID, 4 Gas Meter w/LEL. View is SE

Photo 3 Drill rod rack. View is E

0836

Begin drilling MW-23.

0850

Static water is approximately at 12.5. Instruct driller to drill to 19.5 ft bgl and set screen from 9.5-19.5 ft bgl.

0853

Photo 4 Deconning and setting with drill casing. View Looking SE.

0858

Photo 5 Previous drill location where refusal was encountered with pin flag and new off set of 15 ft. View is East

0903

PID = 0.1, LEL = 0%, O<sub>2</sub> = 20.9%

0920

Finish drilling. Drilled to 19.5 ft. bgl. Add 10 gallons of water for head stabilization.

0921

Photo 6 - Removal of inner rod from drill rod. - View is East

0923

Photo 7 - Well casing, screen w/pre pack, end cap, and J-Plug.

0928

Photo 8 - Well installation. View is East

0938

Photo 9 - Pea gravel, Hole Plug, and protective steel stick-ups. View look SE.

0942

Photo 10 - Blotter sand, 10/20. View is NW

2- 5' x 2" Pre pack screens, 20/40.

1- 10' x 2" Blank casing.

1- End cap

1- J-Plug.

2- Bags Filter Sand 10/20

2<sup>pl</sup> Bags Hole Plug.

David A. Cookston

9/15/2020

52° F, Partly Cloudy

9/15/2020  
D. Cookston

(84)

- 0951 Photo 11 - Constructing flush mount installation - View SE
- Photo 12 - Sona tube and Flush mount - View E
- 0955 Photo 13 - Pouring pea gravel for flush mount - View SE
- 0957 Photo 14 - Set up to mix concrete - View is E
- Photo 15 - Back filling dirt around Sona tube for Flush Mount View is E.

1001 Photo 16 - Flush Mount surface completion finished. View look E.

MW-23<sup>PC</sup> MW-23 Coordinates

N 64° 43, 889'

W 147° 15, 119'

Elevation 612

MW-23 Refusal

N 64° 43, 888'

W 147° 15, 123'

1006 Crew pulls off while I get coordinated for well and initial refusal.

1104 Meet back up with drill crew. They are set up for development. Need to bring equipment down.

1123 Begin development MW-18

1228 Finish development MW-18

GPS Coordinates

N 64° 43, 211'

W 147° 17, 148'

1230 Move and setup MW-20.

1338 Photo 17 - Development equipment at MW-20 - View NW

1350 Finish development MW-20. Secure area. Place IDW label on drum.

GPS

N 64° 43, 227'

W 147° 17, 091'

124

When trying to leave, GeoTek Alaska got on the shoulder  
David A. Cookston 9/15/2020

59° F, Partly Sunny,  
Humidity 50%, Wind SE 4mph.

9/15/2020  
D. Cookston

(85)

of the dike road and has the front and back axel off on the shoulder. GeoTek Alaska is calling to get a wrecker out to pull them out.

1526 Photo 18 - Damage cause by truck sliding off edge of shoulder on levee. View is looking West.

1533 Leave for MW-22<sup>PC</sup>

1546 Arrive MW-22<sup>PC</sup> Set up equipment for development.

1716 Finished development of MW-22.

Pack up equipment,  
GPS - Coordinates

N 64° 43, 764'

W 147° 15, 906'

1733 Leave site for office

1752 Arrive warehouse. Unload equipment.

Date  
9/15/2020

David A. Cookston

9/15/2020

54°F, Wind 5 mph E  
Humidity 64%

(86)  
9/16/2020  
D. Cookston

- 1333 Leave for site  
1351 Arrive site. Pick up Travis Herman and have him show me the locations for drilling along the Richardson Hwy.  
1438 Arrive back. Crew is set up and ready. Have Dave with GTA that all drums need to be moved to staging area as per email from Mark Wilkinson  
1503 Began drilling MW-12.  
1507 Finish drilling with SP-16 to determine DTW.  
DTW = 5.91 ft bgl.  
Drill to 13 ft. Set screen from 3-13 ft bgl.  
PID while drill = 0.6 ppm, LEL = 0.0 O<sub>2</sub> = 20.9%  
1524 Begin setting well, MW-12.  
Add 10 gallons of water to stabilize head pressure.  
1526 Photo #1. Removal of inner rod to set casing. NE  
1527 Photo #2 Setting well. View is NE  
1544 Begin finish well with protective cover and concrete.  
1- 2 inch end cap  
1- 2" x 10' blank casing.  
2- 2" x 5' Prepack screens 0.010 Slot, 20/40 Filter Pack  
1- 2" J-Plug.  
25 lbs. Filter sand  
25 lbs Bentonite Hole Plug.  
1- 6" x 5' Steel casing.  
1- Aluminum Lockable Cap,  
1- Combo Pad lock.  
1554 Load equipment.  
1610 Move and set up MW-11. Had to move pin flag 5 ft into tree line. Pin flag is on top of utility.  
1626 Set up on MW-2<sup>DC</sup> MW-11.  
Photo #3 - View NNW Went into trees to get away from utility.  
David A. Cookston  
9/16/2020

56°F, Wind 3 mph E  
Humidity 64%

(87)  
9/16/2020  
D. Cookston

- 1631 Begin drill MW-11  
1632 Down 20 feet with SP-16 to check water level.  
Exposing screen.  
1644 SWL = approximately 4.1 feet bgl.  
Total depth of drilling will be 11.5 ft. bgl.  
Screen from 1.5-11.5 ft bgl. Blank casing to 3 ft ags.  
1657 Finished drilling to 11.5 ft bgl. Add 10 gallon water to equalizer head pressure.  
1658 Photo #4 Adding water to equalize head pressure view NW  
1705 Begin construction of MW-11.  
PID = 0.8 ppm LEL = 0% O<sub>2</sub> = 20.9%  
1- 2 inch end cap  
1- 2' inch x 4.5 feet blank casing.  
2- 2 inch x 5 feet prepack screens, 0.010 Slot  
20/40 filter pack in pre pack.  
1- 2 inch J-Plug.  
1- 6 inch x 5 foot steel protective cover.  
25 lbs 10/20 Filter Sand,  
25 lbs 3/8 inch Bentonite Hole Plug.  
1 Bag 60 lbs sack cret  
1 Bag Pea gravel  
1722 Complete protective steel covering.  
1737 Leave for office.  
1801 Arrive warehouse. Unload equipment.

David A. Cookston

9/16/2020

39°F, Wind ESE 3mph  
Humidity 93%

9/18/2020  
D. Cookston  
J. Parson

88

- 0650 Go to warehouse to load equipment and calibrate instruments.
- 0751 Hold tailgate safety meeting.
- 0801 Leave for Moose Creek Landring.
- 0825 Arrive Moose Creek Landring. Drillers to be onsite around 0900 hrs.
- 0908 Geotek Alaska arrives. Sudd is giving direction.
- 0937 Arrive MW-10. GTA needs to move 1 drum and will be here shortly.
- 1021 Crew arrive MW-10. Unload and set up.
- 1043 Begin drilling MW-10 with SP-16  
SWL = 6.2 ft bgl.  
Set screen from 3-13 ft bgl.  
PID = 0.0 ppm, LEL = 0.0, O<sub>2</sub> = 20.7%  
Add 10 gallons of water to equalize head pressure.
- 1110 Begin well construction.  
1- 2 inch end cap  
2- 2 inch x 5 feet prepacked screens, 0.010 Slot, 20/40 filter pack  
1- 2 inch x 6 ft Blank PVC riser.  
1- J-Plug.  
1/2 Bag Filter Pack 10/20 gradation.  
1/2 Bag Hole Plug.  
1- 6 inch x 5 ft. Steel casing, with lid.  
1- Bag Pea Gravel
- 1123 Finish well install.  
Set up to complete well with sona tube and concrete.
- 1139 Finished construction of MW-10, load equipment move to MW-9.
- 1141 Arrive MW-9. Waiting for crew to arrive.  
Begin unloading equipment. Move and set up.  
Decon SP-16 rod and screen.
- David A. Cookston  
9/18/2020

48°F Wind WSW 0mph  
73% humidity.

9/18/2020  
D. Cookston  
J. Parson

89

- 1201 Begin drilling with SP-16 rod and screen to determine SWL.
- 1207 SP-16 screen is exposed and obtaining SWL.  
SWL =  
Broke screen when trying to go back into original bore hole. They will have to offset approximately 1-2 feet.
- 1218 Begin drilling with SP-16 again.
- 1222 Screen is exposed.
- 1228 SWL = 9.5 ft. bgl. Set screen from 16.5-6.5 ft bgl.
- 1231 Begin drilling MW-9. Total drill depth of 16.5 ft. bgl.  
PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.7%
- 1246 Finish drilling to depth for MW-9. Add 10 gallons of water to equalize head pressure.
- 1300 Drive rod removed.  
1- 2 inch end cap  
2- 5 feet x 2 inch screen w/pre-pack. Slot 0.010 Filter pack 20/40  
1- 2 inch x 10 foot blank casing.  
1- 2 inch J-Plug.  
1 bag Colorado Filter Sand - 10/20  
1 bag Hole Plug.  
1- 6 inch x 5 foot - Steel protective cover  
1- bag pea gravel.
- 1309 Drill crew running to town to get some additional stick up supplies for next 2 wells.
- 1428 Crew is back from getting supplies.
- 1432 Begin final construction of well protection.
- 1435 Rig down.
- 1447 Begin mixing concrete.  
2- Bags sack-crete
- 1455 Arrive MW-8. Drillers should be coming shortly.
- 1500 Drillers arrive MW-8. Unload and set up.
- David A. Cookston  
9/18/2020

54°F Light Rain  
Wind WNW 9 mph  
Humidity 64%

9/18/2020  
D. Cookston  
J. Parson

1513 Set up. Crew is deconning SP-16 to determine SWL.

1517 Begin drilling with SP-16

1526 SWL = 6 ft. bgl

Drill to 13 ft bgl. Set screen 3-13 ft. 1 foot of blotter sand and 2 feet of bentonite.

1532 Begin drilling to 13 ft bgl.

1553 ~~1547~~ ~~1545~~ Begin construction of well MW-8

PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%

1 - 2" end cap

2 - 5' x 2" prepacked screens, 20/40 Filter Pack, 0.010 Slot

1 - 2" x 10' Blank casing

1 - 2" J-Plug.

Add 10 gallons water to equalize head pressures

1 - Filter Sand 10/20

1/2 - Hole Plug.

1 - 6" x 5' Steel Protective Casing

1 - Concrete (sack crete)

1 - bag Pea Gravel

1619 Rig down. Prep to complete surface completion

1627 Move to MW-7.

1630 Arrive MW-7. Crew is right behind. Unload equipment.

Move and set up.

1647 Begin drilling with SP-16 to determine SWL.

1657 SWL = 7.2. Drill to 14 ft bgl. Set screen from #1-12

4 - 14 ft bgl. 2 feet blotter sand 2 feet bentonite

1707 Finished drilling. Add 10 gallons for head pressure stabilization

1713 Begin setting well MW-7

1 - 2" end cap

2 - 2" x 5' Prepack Screens, 0.010 Slot, 20/40 Filter Pack

1 - 2" x 10' Blank Casing

Daniel V. Cookston

9/18/2020

9/18/2020  
D. Cookston  
J. Parson

1 - 2" J-Plug.

1 - Colorado Filter Sand 10/20

1/2 - Hole Plug.

1 - 6" x 5' Steel Protective cover

1 - Pea Gravel

1 - Sack crete.

1740 Leave for office.

1806 Arrive warehouse. Unload.

1810 Leave for Wedgewood

1824 Drop of Judd Parson.

Done  
9/18/2020

Daniel V. Cookston

9/18/2020

9/19/2020  
D. Cookston  
J. Parson

- 0659 Go to warehouse to load equipment and calibrate.
- 0739 Leave for Moose Creek Landing.
- 0801 Arrive Moose Creek Landing.
- 0810 Complete tailgate safety meeting.
- 0818 Leave for Eielson AFB.
- 0849 Plans have change. GTA crew member left his ID back home in Anchorage. We now going to drill MW-18, MW-19 and MW-20. Old MW-18 is now MW-31. Old MW-20 is now MW-31.
- 0913 Mob to MW-18. Set up to remove stick-up from old MW-18 and turn into flush mount.
- 0937 Photo #1. NW - Setting MW-31 (old MW-18) as flush mount.
- 0948 Judd Parson has talked with John Consoletti. SWL = 8.33 ft bgl. John said to split the difference. Screen is to be set at 4-14 ft. bgl. Then complete to surface as a flush mount.
- 0951 Begin drilling new MW-18.
- 0958 PID = 0.0 ppm LEL = 0.0 ppm O<sub>2</sub> = 20.9%
- 1000 Drilled to 14 ft bgl. Begin removal of inner rod but adding 10 gallons of water for head pressure stabilization.
- 1006 Begin setting well MW-18
  - 1- 2" end cap
  - 2- 2" x 5' pre pack screens, 0.010 Slot, 20/40 filter pack
  - 1- 2" x 10' blank casing
  - 1- 2" J-Plug
  - 1- Filter Sand 10/20
  - 1- 6" x 5' Steel Protective Casing
  - 1/2- Bentonite
  - 1- Pea Gravel
  - 1- Concrete

9/19/2020

D. Cookston  
J. Parson

9/19/2020  
D. Cookston  
J. Parson

- 1043 Removal of stick up for old MW-20 (now MW-31)
- 1046 Photo #2 of same above. View is West.
- 1103 Move and set up new MW-20.
- 1108 Begin drilling with SP-16 to determine SWL.
- 1119 SWL = 7.5 ft bgl. As per email from John Consoletti and DC on 9/18/2020 if static water is < 8 ft. set well screen from 3-13 ft. bgl.
- 1129 Add 10 gallons water for water stabilization
- 1140 Begin construction of MW-20
  - 1- 2" end cap
  - 2- 2" x 5' pre-packed screen, 0.010 Slot, 20/40 filter pack
  - 1- 2" x 10' blank casing.
  - 1- 2" J-Plug
  - 1/2- Colorado Filter sand to 1 ft bgl. 10/20 gradation
  - 1/2- Bentonite to surface.
  - 1- 6" x 5' Steel Protective Cover.
  - 1- bag Pea Gravel
  - 1- Concrete
- 1148 Finish surface completion for MW-20.
- 1226 Move and set up MW-19.
- 1231 Begin drilling with SP-16.
- 1241 SWL @ 7.0 ft bgl. Instruct driller to drill to 13 ft total depth. Set screen 3-13 ft. bgl. Filter sand to 2 ft. bgl and then rest to surface bentonite. This is as per email directive from John Consoletti with Sundance, date 9/16/2020. DC 9/18/2020.
- 1248 Add 10 gallons of water inside drill stem to equalize static head pressure.
- 1252 Begin construction of MW-19
  - 1- 2" end cap
  - 2- 2" x 5' pre-packed screens, 0.010 Slot, 20/40 Gradation

David A. Cookston  
9/19/2020

(94)

9/19/2020  
D. Cookston  
J. Parson

- 1- 2" x 10' Blank casing
- 1/2 - Filter Sand 10/20 gradation
- 1- 6" x 5 Steel protective cover
- 1 - Bentonite
- 1 - Pea Gravel
- 1 - Concrete

1305 Begin surface completion.

1317 Finish surface completion.

Ready to mob to MW-23.

1328 Arrive gate to go in to drill new MW-23. Currently waiting on drillers to arrive. They went to town to fuel trucks and equipment.

1418 Move and set up to drill new MW-18.

1438 Set up to begin drilling MW-18 with SP-16 to determine SWL = 1.5 ft bgl.

1440 Begin drilling new MW-23.

1448 Photo #3. View is SE, Set up to drill MW-23 with Geoprobe 8040 DT.

1458 Add 10 gallons of water to equalize head pressure  
PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%

1501 Photo #4 View is SE. Installation of MW-23.

- 1- 2" end cap
- 1- 2" x 5' prepacked screens, 0.010 slot, 20/40 Sand gradation
- 1- 2" x 10' blank casing.
- 1- 2" J-Plug.
- Filter Sand, 10/20 gradation
- 1- Flush mount.
- 1- Bentonite
- 1- Pea Gravel
- + DC.

516 Pull off H<sub>2</sub>O to mob to MW-15.

48 Arrive MW-15. Prepare to drill new MW-15  
D. Cookston 9/19/2020

(95)

9/19/2020  
D. Cookston  
J. Parson

1604 H<sub>2</sub>O SWL = 9.12 ft. bgl.

Set 5 ft. of screen as per directive of John Consoletti  
Screen from 5-10. 2 ft of blotter sand, 3 ft of bentonite.

1605 Begin drilling New MW-15.

1612 Add 10 gallons of water to equalize head pressure.

1618 Finish drilling new MW-15.

1- 2" end cap

1- 2" x 5' prepacked screen, 0.010 slot, 20/40 gradation

1- 2" x 10' blank casing

1- 2" J-Plug

1.5 - Colorado Filter Sand 10/20 gradation

0.5 - Bentonite.

1 - 6" x 5 Steel protective cover.

1 - Pea Gravel.

1633 Rig down. Complete surface completion.

1650 Leave for office.

1717 Arrive warehouse

1733 Go to office.

1800 End of day.

DAC  
9/19/2020

David J. Cookston

9/19/2020

37°F, Wind 3mph E,  
100% Humidity

(96)  
9/20/2020  
D. Cookston  
J. Parson

- 0847 Leave for Moose Creek Land  
0847 Arrive Moose Creek Land. Waiting for Drillers  
0852 GTA arrives. Give game plan for days work,  
0920 Arrive Eielson Security Force. Judd is going in to see  
if we can get someone to come unlock the gate  
to gain access to drill MW-3,  
0948 GTA arrives. Mob over to MW-3.  
1002 Judd Parson call base security operations to get them  
to come unlock gate.  
1005 Security Police arrive to unlock.  
1011 Move and set up MW-3  
1027 Photo #1. Setup to drill MW-3, View is SW.  
1028 Begin drilling with SP-16  
1036 SWL = 2.0 ft bgl. Instruct drillers to drill to  
13 ft. Construct well with screen 3-13 ft bgl.  
1 ft of sand to 2 ft. bgl. Finish to surface  
with Bentonite.  
1040 Begin drilling with dual core drilling system.  
1046 Finished drilling to 13 ft bgl. Pull inner rod. Add  
10 gallons of water prior to pulling rod.  
PID = 0.0 ppm LEL = 0.0 O<sub>2</sub> = 20.9%  
1050 Begin setting screen and casing for MW-3. Photo #2  
View is SW.  
1 - 2" end cap  
2 - 2" x 5' prepacked screens, 0.0105 lot 20/40 gradation  
1 - 2" x 10' blank casing.  
1 - 2" J-Plug  
1 - bag Colorado Filter Sand 10/20 gradation  
1 - bag Bentonite  
1 - 6" x 5' Steel protective cover  
1 - bag Pea Gravel  
1 - bag Concrete Mix

Daniel A. Cookston

9/20/2020

(97)  
50°F, Wind 1 mph N  
64% Humidity

9/20/2020  
D. Cookston  
J. Parson

- 1104 Rig down and move equipment. Crew is working on  
surface completion.  
1116 Finish surface completion. Load equipment to mob to  
MW-1.  
1119 Leave for MW-3. Waiting for SP to unlock gate.  
1142 Arrive MW-3. Unload equipment and prepare to drill.  
1342 Rig is up and running after getting into position  
the rig shut down. The crew has been working to  
get the rig started again, and now have it running.  
1351 Begin drilling with SP-16 to determine SWL.  
1357 SWL = 5.5 ft bgl. Set well screen 3-13 ft bgl.  
1 ft of sand 2 ft. of bentonite.  
1400 Begin drilling with dual core barrel.  
1411 Photo #3. View is W. Drilling of MW-1.  
1413 PID = 0.0 ppm LEL = 0% O<sub>2</sub> = 20.9%  
1416 Well Construction of MW-1, Photo #4, View is SW.  
1424 Finish drilling. Rig down. Complete surface completion.  
1435 Load equipment and prepare to head back over Moose Creek Landing  
to re-do MW-14.  
1457 Parking rig for day. GTA driller Dave is not feeling well.  
According to EA Covid-19 plan Dave is to go home.  
Go over to development crew.  
1503 Arrive staging area for drums. Update IDW tracking  
log.  
1523 Finish relabel of drums with drum ID. Leave for office.  
1541 Arrive warehouse Unload equipment.  
1556 Arrive office.  
1630 End of day

DAC  
9/20/2020

Daniel A. Cookston

9/20/2020

32°F, Wind, Wind NE 0mph  
Humidity 64%

9/21/2020  
D. Cookston  
J. Parson

- 0924 Leave for Moose Creek Landing.
  - 0947 Arrive Moose Creek Landing drum staging area  
Unload drums.
  - 0952 Leave for Moose Creek Landing and meeting GTA,
  - 0953 Arrive Moose Creek Landing. GTA on site. Unlock gate  
so they can get equipment. Begin mob for new MW-14.
  - 1052 Mob and set up  
SWL = 2.56 ft bgl.
  - 1100 Begin drilling new MW-14.  
Set screen 3-13 ft bgl. 2 ft DC 1 ft sand 2 ft bentonite  
While drilling PID = 0.0 LEL = 0% O<sub>2</sub> = 20.9%
  - 1123 Finish surface completion for new MW-14
  - 1130 Mob out of site to go drill new MW-13 next.
  - 1157 GTA arrive new MW-13, Mob and set
  - 1210 Measure SWL in old MW-13. SWL = 8.31 ft bgl.  
Judd to call to verify screen placement.  
Judd said that John Consoletti wants the MW-13  
screened from 5-10 ft bgl. with 2 ft. of  
filter sand and remainder to surface with bentonite
  - 1224 Begin drilling new MW-13.  
PID = 0.0 ppm LEL = 0.0% O<sub>2</sub> = 20.9%
  - 1230 Finish drilling to 10 ft bgl. Add 10 gallons  
of water for stabilization.
- 1- 2" end cap
  - 1- 2" x 5' ft pre-pack screen, 0.010 slot, 20/40 prepacked filter
  - 1- 2" x 10' ft blank casing
  - 1- 2" J-Plug.
  - 1- bag of Colorado Filter Pack, 10/20 gradation to 2 ft bgl
  - 1- bag of 3/8" Hole Plug Bentonite
  - 1- 6" x 5' Protective Steel Cover.
  - 1- bag pea gravel
  - 1- bag concrete mix.

Daniel A. Cookston

9/21/2020

46°F, Wind NE 0mph  
69% Humidity.

9/21/2020  
D. Cookston  
J. Parson

- 1300 Told GTA we are on stand-by awaiting further direction  
from Sundance.
- 1505 Meet up with Sundance. They are developing MW-12.
- 1606 Move to MW-11 for development.
- 1613 Arrive MW-11. Set up for development
- 1704 Placed IDW Labels onto drums MW-11 and MW-12  
Leave for office. Sundance to remain onsite to  
finish development of MW-11
- 1724 Arrive warehouse. Unload equipment
- 1735 Arrive office.

~~Dec  
9/21/2020~~

Daniel A. Cookston

9/21/2020

9/22/2020

D. Cookston  
T. Hermen  
N. Robinson

(100)

0117

PID calibration 592-911824

Zero Cal: 0.0 ppm

Span Cal: 100.0 ppm

PID calibration 592-91182

zero Cal: 0.0 ppm

Span Cal: 100 ppm

- 0852 Arrive drum staging area. Unload empty drums.
- 0908 Conduct Tailgate safety meeting.
- 0913 Discuss days activities with Judd Parson. We are going to split into 2 teams today for development. Team EA will develop the MW-18, MW-19, and MW-20. Then do MW-23 early afternoon. Team Sundance will develop MW-1, MW-3. Then sample MW-11 and MW-12 this afternoon.
- 0933 Arrive MW-18. Set up for development.
- 1038 Arrive MW-20. Set up for development.
- 1210 Arrive back from running to North Pole for batteries for YSI.
- 1238 Travis and Noah to go set up on MW-23. I'm to go get a drum and meet them back there.
- 1301 Arrive MW-23. Set up for development.
- 1425 Arrive MW-15. Set up for development.
- 1529 Finish updating IDW drum labels. Leave for office
- 1556 Arrive warehouse.
- 1614 Go to office.

*D.C.*  
9/22/2020

David A. Cookston

9/22/2020

43°F, Wind 1 mph NE  
Humidity 79%

(101)

9/23/2020  
D. Cookston  
J. Parson

- 0700 Arrive warehouse. Begin instrument calibration
- 0736 Tailgate safety meeting
- 0757 Leave for Arctic Fire and Safety
- 0812 Leave Arctic Fire and Safety for site.
- 0835 Arrive Moose Creek Landing.
- 0844 Completed tailgate safety meeting GTA. Mob to MW-16
- 0851 Arrive staging area for drums. Unload equipment and track into MW-16.
- 0947 Arrive new MW-16. Setup. Water at surface.
- 0951 Begin drilling new MW-16. Complete well with 10 feet of screen. Screen 3-13 feet. 2" DC 1 foot sand to 2 ft bgl., Bentonite to surface. PID=0.0 LEL=0% O<sub>2</sub>=20.9%
- 0957 Photo #1 Drilling of new MW-16. View NW
- 1003 Photo #2 Installation of new MW-16. View NW
  - 1- 2" end cap
  - 2- 2"x5' prepacked screen, 0.010 slot, 20/40 gradation
  - 1- 2"x10' blank casing
  - 1- 2" J-Plug
  - 1/2- 20/20 Colorado Filter Pack
  - 1/2- 3/8 inch chip Bentonite
  - 1- Flush Mount monument.
- 1037 Mob out to Mob to new MW-17.
- 1053 Arrive Cluster well #1.
- 1101 Begin mobbing to MW-17
- 1123 Arrive new MW-17. Load equipment and supplies.
- 1140 Rig up and drill.
- 1143 Begin drill MW-17
  - PID=0.0 ppm LEL=0.0% O<sub>2</sub>=20.2%
- 1146 Photo #3. View is N. Making connection while drilling.
- 1152 Add 10 gallons of water to equalize head pressure.

David A. Cookston

9/23/2020

9/23/2020  
D. Cockston  
J. Parson

- 1154 Begin construction of MW-17.  
1- 2" end cap  
2- 2"x5' prepack screens, 0.010 Slot, 20/20 Filter pack  
1- 2"x10' blank casing  
1- 2" J-Plug  
1/2- Colorado Filter Sand - 10/20 gradation  
1/2- 3/8" Bentonite  
1- 6"x5' Steel Protective Casing  
2- Concrete  
1- Pea Gravel  
Photo #4 View NE Construction of well MW-17
- 1248 Arrive MW-15. Need to redrill because the screen was set to shallow. GTA is mobilizing equipment.
- 1258 Begin pulling ~~old~~ MW-15 from ground in an attempt to install a deeper well.
- 1304 Photo #5 View SW. Extraction of well casing and screen from MW-15.
- 1307 Abandonment of borehole MW-15, ADEQ specify that there should be bentonite to DC from immediately above the static WL to the surface. Once the casing was removed the borehole collapsed and bentonite was added to the surface. There was approximately 3 ft bgl. of open borehole.
- 1320 Begin drilling MW-15
- 1333 Add 10 gallons of water to equalize head pressure.  
PID = 0.0 ppm    LEL = 0.0%    O<sub>2</sub> = 20.9%
- 1336 Begin construction of MW-15  
1- 2" end cap  
2- 2"x5' prepack screens, 0.010 Slot, 20/40 gradation  
1- 2"x10' blank casing  
1- 2" J-Plug  
1- Colorado Filter Sand - 10/20 gradation

Daniel J. Cockston 9/23/2020

52°F, Wind b mph N  
65% Humidity

9/23/2020  
D. Cockston  
J. Parson

- 1- 3/8 inch Bentonite  
1- 6"x5' Protective Steel cover  
1- Concrete  
1- Pea Gravel
- 1412 Mob to MW-13.
- 1442 Drillers arrive back from running to North Pole.
- 1451 Begin mking down to redrill MW-13.
- 1514 Begin drilling MW-13  
Abandon old MW-13 according to ADEQ guidelines  
Removed screen and casing. Hole collapsed at SWL  
add bentonite chips.
- 1526 Add 10 gallons of water for head pressure equalization.  
PID = 0.1    LEL = 0.0%    O<sub>2</sub> = 20.9%
- 1529 Begin well construction BQH @ 15 ft. bgl. Screen 5-15 ft.  
1- 2" end cap  
2- 2"x5' prepack screens, 0.010 Slot, 20/40 Gradation  
1- 2"x10' blank casing  
1- 2" J-Plug  
1- Colorado Filter Sand 10/20 gradation  
1/2- 3/8 inch Bentonite  
1- 6"x5' Protective Steel cover  
2- Concrete  
1- Pea Gravel.
- 1613 Crew bringing equipment back to Staging area for overnight.

Date  
9/23/2020

Daniel J. Cockston 9/23/2020

104  
9/24/2020  
D. Cookston

- 0826 Leave for Moose Creek Land.  
0850 Arrive Moose Creek Landing. Sundance team is on site  
GTA is enroute to leave. EA sample team should be on site  
in next half hour.  
0929 Arrive well cluster. Begin mobing to MW-16 to develop.

Date  
9/24/2020

David S. Cookston

9/24/2020

37°F, Showers  
95% Humidity, Wind Onph

105  
9/24/2020  
9/25/2020 - DC  
D. Cookston  
J. Parson  
G. Kornowski

- 0933 Arrive Moose Creek Landing. Sundance team is on site  
Waiting for EA sample team to arrive.  
0948 Decide to start mobing to MW-16.  
1003 Carry equipment out to MW-16.  
1130 Arrive MW-16. The well is under water. Sundance wants  
to remove J-Plug, but I suggest they call before the  
pull the J-Plug to get some direction. We are directed  
to cut a hole in the bottom of one of the buckets  
to create a dam. Then remove the water inside the bucket  
and near the well casing. The top of casing is approximately  
0.5 feet bgl. Static water is at ground surface. Sundance  
management instructs us to put pump into well and see  
if we are able to draw down the water in the well.  
Water in well only draw down approximately 0.5 ft.  
from top of casing and then when the pump is turned  
off recharges in 23 seconds. Sundance management says  
we are unable to develop or sample this well. Move  
on to next well.  
1323 Begin development of MW-17.  
1418 Finish development of MW-17. Move and set up next on  
MW-15.  
1536 Begin development of MW-15  
1706 Finish development of MW-15. Move and set up on MW-13.  
1735 Begin development of MW-13.  
1805 Finish development of MW-13.  
1837 Arrive warehouse  
1900 Leave office

Date  
9/25/2020

David S. Cookston

9/24/2020

Cloudy, lt precip, 20°F AM  
Cloudy 25°F PM

Oct 21, 2020 (100)  
Nicole Stoecklein

185-12

0815 Depart Fairbanks, travel to flood channel to meet US Ecology personnel.

0850 Arrive at Flood Channel, US Ecology on site. Conduct HHS meeting, have gentlemen sign APP/HASP. Bret Lang & Kaleb Hamilton (US Ecology).

Proper lifting techniques and slips, trips, and falls. All in attendance.

US Ecology starts loading drums w/in the flood channel on to their trucks to transport to EAT-B UF cell #1. Load 24 drums - 55 & 30 gals.

1010 Travel to base. US Ecology personnel have to go through inspection & retrieve their base passes prior to access.

1107 Arrive at cell #1. Drop drums on two pallet stacks.

1128 Depart. Travel back to base to continue picking up drums off base, then those on base, working our way back to Containment cell #1.

1528 Conclude pick up & drop off of drums into cell #1. Drum from existing well sampling w/ metals exceedances gets hauled off base. Travel to base exit.

1537 Depart base, end of day.

snow, sl. wind 29°F AM  
Calm, cloudy, sl windy, 31°F PM

10/27/20 (107)  
Nicole Stoecklein

0915 Arrive at visitor's center to gain access on base. Having to coordinate with CE to get personnel access daily (through the weekend).

0947 Access base. Scotek has to go through inspection.

1000 Arrive at proposed MWO. Conduct HHS meeting. Topics: slips trips & falls and wearing proper hearing protection while working near drill rig & aircraft.

A.C. Also, wearing a mask when w/in 6' of other personnel per COVID. N. Stoecklein (EA), J. Bedener, and J. Hough are in attendance. Scotek proceeds & gets equipment started, unloaded, and ready to drill.

1048 Drill rig in position, start drilling MWO. Drilling being used is a Scotek 8040 DT.

1149 Encounter groundwater at ~8.5 ft bgs. Will set well screen @ 5.5-15.5' bgs. Continue drilling to total depth.

1233 Achieved total depth with direct push and casing/screen in place to 15.5' bgs. Drillers will start constructing well.

1250 Logged water again, ~7.5 bgs, TD=15.5'. Screened @ 5.5-15.5' bgs.

\* 1335 Seal is set for 20PS-MWO. Scotek continues to construct well, flush mortar.

1410 Complete MWO (20PS-MWO). Drillers pack up equipment prior to moving to next position/well.

1439 Depart MWO. Travel to MWO2, assess

10/27/20 (108)  
NS

We access road just prior to driving  
Semi truck w/ trailer that Miller brought.  
1527 Arrive at MW02 with all  
equipment/personnel. Will get set up  
to ~~be~~ drill MW02. First, Miller's decom  
rods w/ Fox PFAS-free water &  
Alconox.

1600 Start drilling ZOPS-MW02.

1646 Well casing in place for ZOPS-MW02.

Depth to water ~ 4' bgs. Well failed  
to 14' bgs will tag when able. Actually,  
casing is not at depth because material  
came up through outer rod & casing not  
falling into place at depth.

1711 Miller had to pull out everything  
since the heave of material in the rods  
didn't allow the casing to be staged  
at depth.

~ 5 gallons of PFAS-free water was  
added to the hole for downhole pressure  
during drilling. Still working.

1749 Miller still working on trying to get  
casing to go to depth, round two is  
no looking better than original attempt.

1804 Well is set at ~ 12.80' bgs. Will  
gauge it when we return to position.

Liam cleans up site, decoms ~~any~~ rods,  
picks up rig, etc.

\* 1840 Seal set for ZOPS-MW02.

1850 Travel to base exit. Drill truck got stuck.

1952 Travel to base exit from Manchu Rd.

2004 Bill leaves, end of day.

10/28/20 (109)  
N. Stoecklein

19°F, cloudy, 1 mph, 85% humidity AM  
20°F, cloudy, 1 mph, 84% humidity PM

1025 Arrive at gate, waiting for Sestak to  
get through inspection point.

1045 Granted access, travel to rear vehicle  
gate to access ST049/MW05 to install  
well.

1107 Arrive at gate. Conduct HAs meeting  
while waiting on escort whom said he  
doesn't have the gate code for this  
particular gate/entry.

TOPICS: proper heavy protection while  
working by drill rig & flight line/aircraft;  
lagging due to cold temps. Also, wearing  
a mask while w/in 6' of others per COVID.  
N. Stoecklein, J. Dough, and J. Rechner  
in attendance, also J. Parson & B. Leach.

1127 Granted access. Travel to MW05,  
get situated. Note: adjacent well DTW = 8.05'  
bgs.

NOTE: Joe Price is present, noted as  
visitor on-site personnel, while acting as  
an escort.

1215 Start drilling MW05 (ZOPS-MW05).

1245 DTW tagged initially at ~ 6.3' bgs

1300 Well is in place for ZOPS-MW05. Once rod  
(outer) is pulled out, well construction will  
occur.

\* 1330 Seal is set for ZOPS-MW05. Monument  
put into place, followed by concrete. Lots of issues  
with freezing materials, equipment alike.

1448 Picking up gear, rig, etc.

1534 Depart MW05, travel to MW02.

1624 Arrive at MW02. Miller perform  
completion on well outer protective casing (concrete).

49 couldn't locate w/ GPS  
AP647 in gated fence  
area, not sure how to get to  
20M48 - AF Staff Sergeant / JBL direct have  
permission to access.

(110)

10/28/20  
NS

11058 Depart MWD 2, Travel to base exit.  
1705 Exit base, end of day.

(L)

AM: cold, calm, cloudy 4°F  
lt snow

10/31/20

113

N. Stecklein  
B. Leach

0941 Arrive on base, travel to MW04.

0955 Arrive at 20PS - MW04. Set<sup>e</sup> Conduct HAS meeting: buddy system & cold weather awareness. Also wearing a mask when w/in 6' of others per COVID. N. Stecklein & B. Leach in attendance. Team sets up to sample.

1028 Start purging 20PS - MW04, refer to the Low-Flow Groundwater Sample & Stabilization Form for details.

1100 Collect 20PS - FBAM - 1031 for PFAS per EPA 537 into 2x 250ml HDPE bottles, unpreserved.

1113 Collect 20PS - MW04 - 1031 for PFAS per EPA 537 into 2x 250ml HDPE bottles, unpreserved.

1130 Collect 20PS - MW99 - 1031 for PFAS per EPA 537 into 2x 250ml HDPE bottles, unpreserved. All samples placed on PFAS-free<sup>ice</sup> ice.

\* DNMT 215 20PS - MW04

1143 Conclude sampling, pack up gear.

1155 Depart MW04. Travel to LF003 to drop IDW.

1207 Depart LF003. 21 buckets per Phase 10/ recent effort. Travel to base exit.

1220 Depart base, end of day.

Eidsa PFOS SI

15 Oct 2019

23° clear<sup>DATE</sup>

~~Contract~~ Contract # W911KB-17-D-0018

Task # W911KB18 F0173

Personnel: George Garner, Becky M., Beth D., Ryan  
Steve. S.

Temporary Well Installation and Sampling

0700 Met at Visitor Center to get base passes

0730 Met with Drillers to discuss plans for the  
day. Drillers need to get water, well screens,  
etc.

1000 Met back with Drillers at Visitor Gate to  
have safety brief.

1016 Proceed to TW02 to begin site setup.

1040 Rig walkthrough with drillers. Safety stops  
covered.

1045 Begin drilling at TW02. 1.5" od, 0.625" ID rod.

1100 Complete install of TW02. TD = 25 ft depth to  
water, 14.61 ft below top of rod.

1130 Move rig to TW03

1135 Arrive at TW03. Set up on site.

1145 Begin drilling TW03.

1155 Complete drilling TW03. TD = 25.

1210 Move back to TW02 to pull rod.

1240 Complete sampling TW02. Pull rod.



Eidsen PFAS 3I

15 Oct 2019

DATE

- 1245 IDW Bucket #20 collected and labeled.
- 1255 Move drill rig to TW04 location. Sample team is sampling TW03 (Dup and MS/MSD).
- 1300 Begin rig set up on TW04.
- 1320 Complete TW04 drilling.
- 1400 Complete Removal of TW03. will screen.
- 1420 Begin sampling/purging TW04.
- 1422 IDW Drum 21 created for TW03. IDW Drum 22 created for TW04.
- 1425 Begin drilling TW05.
- 1428 Drive cap slipped, pull rod and restart TW05.
- 1445 Restart TW05 with new drive cap.
- 1500 Complete TW05. Begin purging and sampling.
- 1525 Pull rod at TW04.
- 1540 Proceed to TW07 for decon of screens and begin next hole.
- 1625 Proceed to TW05 to pull rod, after TW07 hole is drilled and ready to purge/sample.
- 1645 Complete sampling TW07. Move to TW08 and begin drilling.
- 1700 Complete drilling TW08. Begin purging and sampling.
- 1715 Pull TW07 rods.
- 1800 Complete TW08 and leave site.

20° Clear

16 Oct 2019

DATE

Eielson PFAS SI

Contract # W911KB-17-D-0018

Task # W911KB18F0173

Personnel: George G., Ryan B., Steve S., Beth D.,  
Becky H.

- 0800 Safety Brief @ TW09 parking area.
- 0815 Leave site to meet Alyeska Pipeline  
personnel, Nathan W. (907-460-1058)
- 0850 Meet Alyeska personnel to clear drill  
sites.
- 0940 Conclude drill site clearance. All sites  
ok'd by Alyeska. For all sites within  
the pipeline right-of-way: drip pans  
required and absorbent sheets to  
prevent spills. Lock all gates behind  
us and don't back toward pipeline.
- 1000 Complete TW09. Begin move to TW13.
- 1130 Move to TW14 to drill.
- 1215 Complete TW14.
- 1300 Begin Purging TW14.
- 1310 Move rig to TW15.
- 1330 Complete TW15. Sampling TW14.
- 1345 Check out key from USACE Flood  
Control Program.
- 1500 Complete Sampling TW15 and Pull rod →

Henry

Eidson PFAS SE

30° clear

16 Oct 2019

DATE

1500 at TW14. Proceed to TW06.

1515 Arrive at TW06.

1538 Complete TW06. Begin setup for purging and sampling.

1550 Arrive at TW15 to pull rod.

1610 Begin move to TW 16, 17.

1640 Begin purging and sampling TW17. Drillers return to TW06 to pull well.

1725 Arrive at TW 18 to drill well.

1930 Complete site activities for today.

g  
Henry

g  
Henry

20° clear

Eidsen PFAS SE

17 Oct 2019

DATE

Contract # W911KB-17-D-0018

Task # W911KB18 F0173

Personnel: George Garner, Nicole S., Dekey H.,  
Steven S., Ryan B.

0800 Arrive at Visitor center for Safety Brief

0830 Arrive at Entomology Building to flag sites  
and drill prep. Large frozen body of water  
surrounding stockpile. Questionable if we  
should drill and sample through contaminated  
water.

0930 Complete marking soil boring locations.

0935 Prep for soil sampling.

1000 Start drilling SB05

1029 Start drilling SB07. (Moved ~4 ft due to ice.)

1040 Sample SB07. Significant petroleum odor  
at 6 ft bgs and below. Sampled at  
0-1 ft bgs and 6-7 ft bgs. PID reading 18.1 ppm

1050 Begin drilling SB08. Sample at 0-1 and  
7-8.5 ft bgs. Pebbly at lower interval needed to  
expand sample interval to get volume. Strong  
petroleum odor. PID = 18.5 ppm

1100 Begin drilling SB09. PID = 103 ppm

1120 Begin drilling SB06. Sample 0-1 and 10-7 ft bgs.  
PID = 25 ppm

~~Handwritten scribble~~

17 Oct 2019 DATE

Eidson PFAS SE

Contract # W911KB-17-D-0018

Task # W911KB18F0123

- 1130 Complete sampling SB06.
- 1145 Begin drilling SB10.
- 1150 Sample interval of 0-1 and 6-7 ft bgs.  
Strong Petroleum odor, PID = 51 ppm
- 1200 Take on equipment blank sample from  
drill shoe.
- 1205 Complete Soil sampling, at Entomology BLDG.
- 1245 Drop IDW buckets at LF003. Drums 18-27.
- 1400 Arrive at TW16 for well install.
- 1415 Complete drilling TW16.
- 1500 Complete sampling TW16. Proceed to pull  
drill rod + screen.
- 1510 Load drill rig and move to TW19 on  
Chena Flood Control Project.
- 1535 Begin drilling at TW19.
- 1610 Complete sampling at TW19. MS/ALSD  
collected.
- 1630 Complete TW19. Go to TW20 to verify  
access.
- 1645 Leave site, End of Day.

*[Signature]*

28° Partly Cloudy

18 Oct 2019 DATE

Eidsen PFAS 3I

Contract # W911KB-17-D-0018

Task # W911KB18F0173

- 0800 Meet at Parking Area for Safety Brief.
- 0820 Move to Powerline to unload rig and begin sampling/drilling TW12, TW11, TW10.
- 0920 Drill TW12. Begin purging and sampling.
- 1000 Drill TW11.
- 1100 Drill TW10.
- 1130 Begin purging TW10. Sampling of TW12 and TW11 is complete. PPS-TW10-1018 sample time is 1145.
- 1245 Complete pulling well screens/rod from TW12, TW11, TW10. Leave site, Move to USACE Floodplain site TW20 and TW21. George went to check out Alyeska Key. Begin drilling TW20. Refusal @ 16' ft bgs. Stepped over and refusal again. (likely permafrost or bdrack). Significant water. 1425 sample time and duplicate samples
- 1641 COLLECTED FIELD BLANK
- 1658 COLLECTED EQUIPMENT BLANK
-

Eidsa PFAS ST

Continued →

1700 Attempted 2<sup>nd</sup> Peripump to get sample on TW 21. No water. Lithology appears to be great with permafrost at 23.5 ft. Unable to purge any water from well despite significant moisture. Called hole.

1515 Pack up and leave site for the day.

~~Henry~~

~~Henry~~

29° cloudy

Eidsa PFAS SE

19 Oct 2019

DATE

Contract # W911KB-17-D-0018

Task # W911KB18F0173

Personnel: George G, Becky H., Beth D, Steven S, Ryan B.

0800 Complete Safety Brief along pipeline at TW01. Discuss pipeline safety and bridge crossings. Warm up drill rig.

0830 Begin drilling at TW01.

0910 Complete drilling at TW01. Prep for move to TW22.

0920 Arrive at TW22. Begin drilling setup. Duck pads + spill prevention in use.

0935 Complete drilling TW22. Move to TW01 to pull rod.

0955 Pull rod at TW01. Move to TW23.

1005 Arrive at TW23 and setup to drill.

1015 Complete drilling TW23.

1045 Pull TW22. Alyeska pipeline stopped by at 1035 to make sure we were following protocol.

1050 Arrive at TW24 to begin drilling.

1110 Complete drilling TW24 to 25 ft bgs.

1127 Pull rod at TW23, Move to TW25.

1152 Arrive at TW25. Notify mining operators.



Eidsan PFAS SE

19 Oct 2019 DATE

- 1155 Begin drilling at TW 25.  
 1205 Complete drilling TW 25.  
 1255 Begin sampling TW 25.  
 1310 Begin drilling TW 26 along pipeline.  
 1330 Complete TW 26. Begin purging and sampling.  
 1415 Complete sampling TW 26.  
 1505 Complete pulling TW 25 + TW 26.  
 1515 Begin drilling TW 27.  
 1530 Move to TW 28. Begin drilling.  
 1545 Complete drilling.  
 1600 Pull TW 27.  
 1615 Move to TW 29 to begin drilling.  
 1645 Drill TW 30 after completion of TW 29.  
 1650 Begin sampling/purging of TW 30.  
 1700 Pull TW 30.  
 1715 Pull Begin sampling TW 29.  
 1800 Pull TW 29 after sampling.  
 1830 Leave site.

~~Hy~~

~~Hy~~

25° F, Cloudy

Erlson PFAS SI

20 Oct 2019

DATE

Contract # W911KB-17-D-0018

Task # W911KB18 F0173

Personnel: G. Garner, B. Davis, B. Hendricks, R. Beck

0800 Conduct Safety Brief at visitor parking.

0830 Meet at long term parking for team meeting.

0840 Move to TW35 site to begin drilling.

0850 Begin drilling TW35.

0915 Move to TW34 to begin drilling.

0930 Complete drilling of TW34. Move back to ~~TW33~~ to pull rod, TW33 to drill.

0940 Move to TW33 to install well.

0950 Sample crew moves to TW34 for purging and sampling.

1010 Move rig back to TW35 to pull well.

1025 TW35 well removed. Move to TW34 to remove well.

1045 Verify access route to TW32 due to construction detours.

1115 Move rig to TW32 to drill well.

1120 Drill TW32.

1225 Complete sampling at TW32. Remove well.



Eidsa PFAS SE

- 1230 Proceed to TW 31.
- 1245 Arrive at TW 31 to begin drilling.
- 1335 Complete sampling of TW 31.
- 1345 Rig loaded and drilling Temp Wells is complete.
- 1400 Leave site.

~~John~~

Eidson PFAS ST

21 Oct 2019

DATE

Contract # W911KB-17-D-0018

Task # W911KB18F0173

0800 Meet at EA office for sample prep.

0845 Move to base to get Ryan's I.D.

0930 Meet up with Ryan (Gootek).

1000 Access flightline area with Drill rig.

1025 Complete GPS locate of all soil borings.

SB01- SB06. Flagged with chartreuse pin flags. Having issues getting the ignition to work on the drill rig.

1100 Rig start issues continue.

1115 Decide to call it after 1 hr of trying to get rig to start.

1120 Get rig off of flightline.

1310 Receive word that rig is operational.

1345 Return to base.

1400 Return to flightline and remark GPS points.

1415 Begin drilling.

1550 Complete drilling sampling. Leave site.

1600 Leave Eidson to drop samples at EA sample fridge.

~~M x J~~

Eidson PFAS SI

18 May 2020

Contract # W911KB-17-D-0018

50's Clear

Task # W911KB18F0173

G. Garner, J. Parsons

Tasks for today: Dig Permit Processing, site marking,  
access verification.

0645 Secure Eidson Base Access Cards.

0700 Proceed to Chena Flood Control Project  
to secure access key.

0730 Return to Eidson to begin Dig Permit  
Processing.

0900. Secure signatures from Fire, DirtBoyz, Cable/  
Comms, Natural Resources, and Environmental.  
Liquid fuels will require site verification  
for TW39.

1000 Mr. Parsons attends the Eidson HAZWASTE  
training.

1045 Verify access to TW38 + TW37  
will require access through Vehicle  
Gate 40 (VG 40).

1115 Airfield operations notified us that  
the taxiway loop is currently  
closed to aircraft due to current  
construction. The PM will be  
required to secure a gate access

18 May 2020 Cont'd Eidsa PFA5 SE,

code to reach TW 36, 37, and 38.

1130 The HAZ Waste class is complete.

1200 Stake TW39. Obtain clearance from Liquid Fuels on Dig Permits DoD pipeline runs under edge of gravel road. Edge of woodline is acceptable location for TW. Gate code for TW39 is the same environmental gate code.

1430 Begin contacting 811 conflict contacts.

ATT Marlin Virgin 907-301-1571

GCI Matt Martinez 907-590-0692

Alyeska Nathan William 907-450-5406  
or 907-590-1058 (cell).

Alaska Directrad 907-378-3961

1555 Set meeting with AK Directional @ 0800 Wednesday to verify locations. And

ATT

1600 Offsite for the day. Proceed to pick up field vans.

AA

Eidsa PFA5 SE

19 May 2020

Contract # W911KB-17-D-0018 50's, Clear

Task # W911KBF0173

Personnel: G. Garner, J. Larson

Tasks: Stake TW locations.

0630 Leave FA office for flood control project area.

0715 Arrive at CFCP to begin staking locations. Begin at TW53. TW54 access is photographed. USAFE key opens gate under powerline for access to TW53.

0745 TW54 location inaccessible due to creek. TW53 location marked and photo taken.

0750 Access flood channel area via gate adjacent to Well Cluster. Begin marking TW locations.

0900 Complete staking of TW52, 60, 59, and 55. Photos taken of each.

1200 Return to CFCP to continue staking TW locations.

1315 Completed staking TW56, TW57, and TW58.

1400 Complete staking TW46, TW47, and TW48. Proceed to verify access to TW45.

→

145m PFAS SI

19 May 2020

Garner, J. Parson

- 500 Access to TW45 is okay but the location is too far above groundwater. Moose Creek is 50+ vertical feet below the site and impacted groundwater would not flow uphill and TW would not be deep enough. Photos taken of access and location.
- 510 Proceed to USAP-2 location to verify condition.
- 520 USAP-2 is in good condition and appears sampleable with no pressure transducer. Photographed.
- 530 Go to well cluster location to verify if sampling assistance is required.
- 555 Leave well cluster to return to Fairbanks.
- 1600 Leave site for the day.

19 May 2020

Henry Garner

Eielson PFAS

20 May 2020

Contract # W9UKB-17-D-0018

SOs Clear

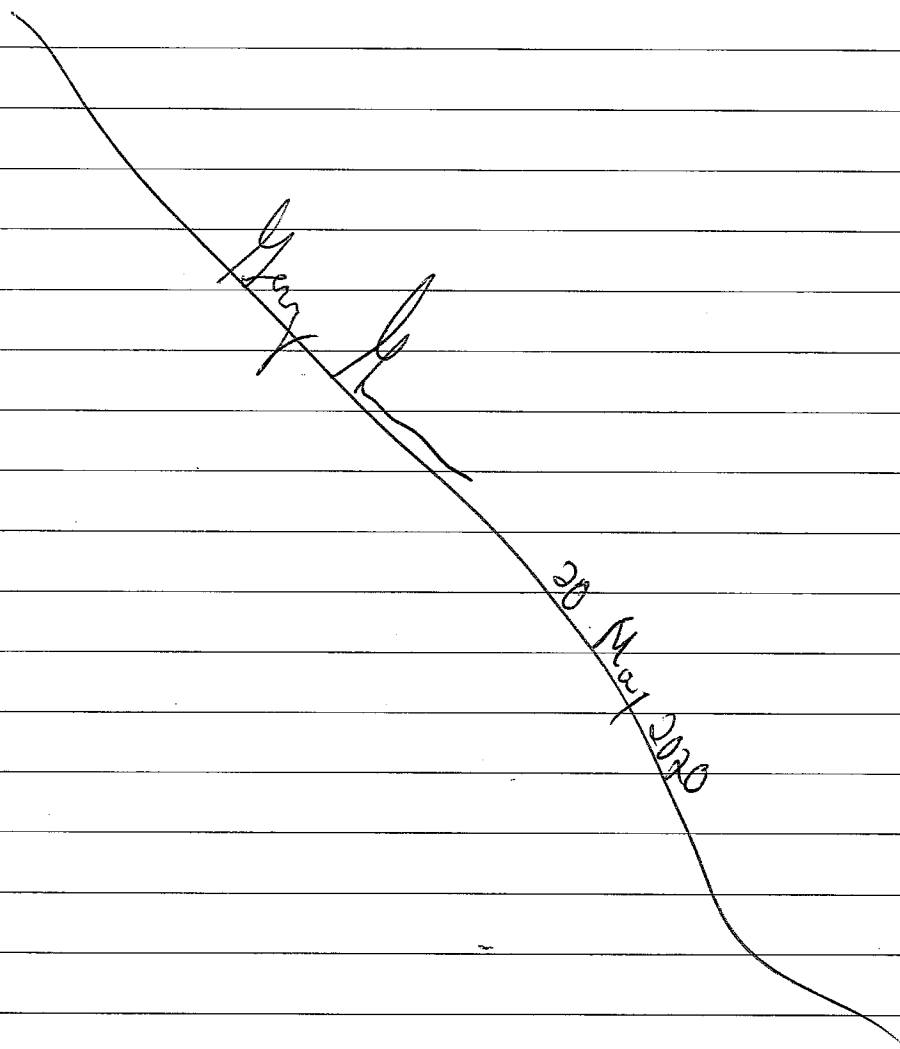
Task # W9UKB F0173

- 0630 Safety Brief and proceed to Moose Creek.
- 0700 Arrive at Piledriver Slough bridge to assess access to sediment sample locations.
- 0730 Access is difficult but doable on foot.
- 0735 Arrive at Chena Flood Control Access Road to meet utility personnel.
- 0745 Confirm TWSO location is 100ft from train tracks and clear of ROW.
- 0800 Meet with AK Directional to verify TW49. Given verbal ok and will receive an email.
- 0825 Proceed to verify TW44 and TW43.
- 0900 Access trail to TW44 and TW43 is under 6" to 1 ft of water and very soft. Multiple photos taken of trail conditions.
- 0925 Mark proposed replacement point for TW54 along access road. Approximately 200 yds W of powerline.

20 May 2020

- 0935 Proceed to Alyeska Pipeline to meet with representative and clear TW 47 and TW 48
- 1000 Meet with Alyeska Pipeline and receive clearance for all locations. He will send an email verifying clearance.
- 1010 Meet with GCI rep in field. Receives verbal clearance and will get an email for record.
- 1030 Mark TW 45 alternate point along USAP-2 Access road.
- 1100 Arrive at Manchu Gate. Combination lock with unknown combo.
- 1115 Mark adjusted TW 40 location. Original location was in dense swamp. Location adjusted to along roadway and out of standing water.
- 1145 stop by Eielson Environmental to see if anyone has combination to Manchu Road Gate.
- 1200 Leave site to prep samples in Fairbanks. →

- 1230 Arrive at EA warehouse to collect sample bottles and empty cooler for sample prep.
1240. Leave EA warehouse. Conclude field work for the day.



Eielson PFAS ST

21 May 2020

Contract # W911KB-17-D-0018

Task # W911KB 18 FO173

Personnel: G. Garner, J. Parson

745 Begin movement to Eielson AFB to finalize Dig Permit.

845 Receive final signature for Dig Permit.

900 Arrive at Base Operations to find out details for airfield drilling.

915 Arrange for J. Parsons to have airfield driver's training @ 0900 22 May 2020. He will act as driver escort for crew. Pick up radio prior to drilling from airfield ops between 0600 and 0700.

928 Verify Gate VG-39 M is usable for access to TW36. Watters Construction is operating construction project (EIE 382) in area.

930 Vehicle Gate VG40 M will be used for TW 37 and TW 38.

945 Proceed to TW42 location to verify access.

915 Verified access is not possible due to depth of Piledriver Slough.

930 Leave field for the day.

Henry H

EIELSON PFAS S1

22 MAY 2020

CONTRACT # W911KB-17-D-0018

TASK # W911KB 18 FO173

PERSONNEL: J. PARSON

0745 MOVE TO EIELSON AFB FOR FLIGHTLINE TRAINING AND FINALIZE GATE ACCESS TO TW 40.

0830 TALK TO SECURITY FORCES ABOUT GATE ACCESS FOR TW40 (MANCHU ROAD)

0900 FLIGHTLINE DRIVER TRAINING

0930 LEAVE EIELSON AFB

END OF FIELD WORK

~~22 MAY 2020~~

Eidson PFAS SE 26 May 2020  
Contract# W911KB-17-D-0018 50% Cloudy  
Task # W911KB 18 FO173  
Personnel: G. Garner, K. Copeland, J. Parson, S. Simas, B. Foster  
0630 Pick up equipment and calibration solutions from EA warehouse.  
0645 Proceed to Eidson for ID pickup.  
0700 Conduct Bear Spray safety training.  
0745 Conduct Safety Brief with Geotek Drillers S. Simas and Bryce, Foster.  
0800 Move to TW46 for setup and equipment calibration.  
PID: Serial# 19935 Mini RAE 3000.  
YSI: Serial# 046714 YSF Professional  
Turbidimeter: Serial# 041636 Hach 2100Q  
PID Calibration Zero Cal: 0.00 ppm  
100 ppm Cal: 100.00 ppm  
YSI and Turbidimeter cal see sheets.  
0915 Begin drilling TW46 to 15 ft.  
0930 Set screen from 15 to 11.3 ft bgs. Water level meter indicates water at 12.6 ft bgs.  
0945 Begin sampling setup.  
0950 Issues pumping well. Water levels appear to have dropped. Drillers are setting up

26 May 2020  
Continued → TW47 to set at 16 ft bgs.  
1015 Reset TW46 at 25 ft bgs to get local gw level. GW level at 15.8 ft below top of casing.  
Begin 1035 Have drillers reset TW47 at 18 ft bgs.  
1049 Begin purging TW46.  
1125 Collect 20PS-TW46-0526 and MS/MSO.  
1130 20PS-TW99-0526 collected at TW46.  
1135 Pack equipment and move to TW47.  
1225 Begin purging TW47. Drillers move to TW48 and set well at 19 ft bgs.  
1310 Sample TW47. 20PS-TW47-0526.  
1338 Move to TW48 to begin sampling and purging. Drillers move to TW48 to drill to 12' ft bgs.  
1345 Drillers pull TW47 after sampling.  
1408 Begin stabilization readings after purging TW48.  
1420 Sample TW48. 20PS-TW48-0526.  
Drillers move across HWY to drill TW49 along access road.  
1430 Drillers complete TW49.

Eielson PFAS SI

26 May 2020

Drilling & Sampling TW

Cloudy/60s

1445 Contact Joe Price to confirm Friday Escort. Escort confirmed and notified him that he has to request the gate code for the airfield and Manchu Road Gate.

1500 Move to TWS8 and begin purging. Drillers are pulling TW48.

1505 Drillers complete TW48 removal and move to TWS8 location.

1535 Complete purging and stabilization of TWS8. Sample 20PS-TWS8-0526

1540 Drillers pull TWS8 after sampling is complete. Move to TW49 for purging and sampling.

1615 Begin purging TW49.

1643 Sample 20PS-TW49-0526

1715 Get the Drum Labels starting at 124.

725 Leave site for the day.

Eielson PFAS SI

27 May 2020

Contract # W911KB-17-D-0018 50s Clear

Task # W911KB 18 FO173

Personnel: G. Garner, K. Copeland, J. Larson, S. Sines, B. Foster

0730 Conduct safety brief about wildlife and muddy conditions. Move to TWS0 to begin drilling.

0800 Begin drilling TWS0 to 15 ft bgs.

Calibration of PID is complete

Zero Cal: 0.0 ppm → within  
100 ppm Cal: 100.1 ppm tolerance

0810 TWS0 drilled to 15 ft bgs. Begin drill rig move to TWS3.

0815 Begin purge setup on TWS0. Move drill rig to TWS3 along power line.

0830 Begin drill rig setup on TWS3. Continue purging TWS0.

0850 Sample TWS0 20PS-TWS0-0527.

0856 Sample TWS0 Duplicate 20PS-TW~~99~~-0527

0900 Move to TWS3 to begin pump setup. Drillers move to pull TWS0.

0925 Drillers pull TWS0 and move to TWS7.

0940 Drillers set up on TWS7.

cont'd →

Eielson PFAS SI 27 May 2020

Drilling + Sampling TW 50, Cloudy

0950 Drillers drill TWS7 to 8 ft bgs.

0953 Sample TWS3 after pumping from 0922. FW depth was ~ 2.5 ft bgs.

Sample ID 20PS-TWS3-0527

1030 Setup on TWS7.

1033 Begin pumping TWS7.

1055 Sample TWS7. 20PS-TWS7-0527.

1100 Move to TWS6 and setup pumps.

1110 Drillers move to TWS7 to pull rod.

1115 Only 1 ft of water in TWS6. Will need to redrill to 12 ft.

1125 Drillers are drilling TWS1 to 12 ft to avoid issue at TWS1. Pipeline engineers on Moose Creek water line project mentioned a perched water table along portions of the pipeline route. Possible perched zone at TWS6, or TWS7.

1145 Redrill TWS6 to 12 ft bgs.

1202 Begin pumping TWS6.

1225 Continue pumping and purging. Flow rate reduced  $\frac{1}{4}$  L/min to match recharge.



Eielson PFAS SI 27 May 2020

Contract# W911KB-17-D-0018 60 Cloudy

Task# W911KB 18 FO173

Continue drilling and sampling temp wells.

1236 Sample TWS6. 20PS-TWS6-0527

1320 Purging TWS1.

1347 Sample TWS1 20PS-TWS1-0527

Note: 20PS-FBPM-0527 collected @ 1300.

~~Unable to collect the required volume with the peristaltic pump. G.P.~~

1400 Drillers drill TWS5 for sampling tomorrow morning. Conclude sampling for the day due to pump battery issues. Prep samples for shipment tomorrow.

1500 Conclude field work for the day.

27 May 2020

Eickson PFASSE 28 May 2020  
Contract # W911KB-17-D-0018 50% Cloudy  
Task # W911KB 18 FO173  
Personnel: G. Garner, Kayla Copeland, J. Pearson, S. Simas,  
B. Foster  
1700 Stop at EA warehouse to get PFAS  
free rinse water and ice.  
1730 Conduct safety brief. Cover wildlife, footing,  
and soft ground conditions.  
1750 Move to begin setup on TW55.  
1815 Setup on TW55.  
1835 Begin pumping TW55. Flow rate is  
between 0.4 and 0.5 L/min.  
1909 Sample TW55. ID 20PS-TW55-0528. MS/MSD  
1915 Duplicate collected 20PS-TW99-0528  
1930 Field blank collected. 20PS-FBAM-0528  
1950 Setup on TW59.  
2007 Begin purging TW59. Purge 3.5 before  
collecting stabilized readings.  
2033 Begin collecting stabilization readings after  
purging.  
2046. Sample TW59. 20PS-TW59-0528  
2050 Move to next point.  
2135 Begin setup on TW

Eickson PFAS ST 28 May 2020  
Contract # W911KB-17-D-0018  
Task # W911KB 18 FO173  
1215 Complete setup on TW60. Fedex  
received shipment of samples at 1040.  
1221 Begin purging TW60.  
1250 Sample TW60. 20PS-TW60-0528  
1257 Pull TW60 and move to TW52.  
1320 Setup on TW52 for pumping.  
1329 Begin purging TW52.  
~~1359~~ 1400 Sample TW52. Sample ID:  
20PS-~~5~~<sup>144</sup> 20PS-TW52-0528  
1405 Begin moving to road.  
1440 Complete moving IDW to vehicles.  
1445 Communicate with well cluster team.  
1500 Leave Flood Control Project for  
Eickson.  
1540 Drop IDW at LF003.  
1600 Meet drillers and proceed to  
TW41.  
1648 Start purging TW41. Well set at  
around 13 ft bgs. Very soft ground.  
1711 Begin taking readings for stabilization.

Eielson PFAS SI

28 May 2020

70 Clear

- 1715 Continue pumping.  
1720 Continue pumping and take sample  
20PS-TW41-0528  
1726 Complete sampling and begin  
well removal.  
1745 Complete well removal and leave  
site for the day.  
1830 Drop samples in EA warehouse (secure).

Sp  
J  
b

28 May 2020

Eielson PFAS ST

29 May 2020

Contract # W911KB-17-D-0018 625 Clear

Task # W911KB 18 FO173

Personnel: G. Garner, J. Larson, K. Copeland,

Task: Well Install and Sampling

0845 Pick up ice and sampling supplies from  
EA warehouse.

0630 Pick up 2 radios at Operations.  
Must notify operations when crossing  
approach lights. Keep radio on  
A2.

0645 Arrive at Vehicle Gate 40. Escort is  
en route to location.

0710 Get escort to TW37.

0715 Stake TW37. Communications  
confirmed all clear.

0745 Set TW37 at 17 ft bgs.

0820 Set TW38 at 14 ft bgs. Begin  
pumping TW37 at 0805.

0834 Begin collecting ~~at~~ stabilization readings.

0844 Collect TW37 sample and duplicate.

20PS-TW37-0529 ← 0844 Sample Time

20PS-TW49-0529. 0849 Sample Time

0900 Pull TW37. Setup on TW38. →

Eidson PFAS SE  
Contract # W911KB-17-D-0018  
Task # W911KB 18 FO173

29 May 2020

60s Clear

- 0912 Begin pumping TW38.  
0932 Begin stabilization readings.  
0938 Take sample at TW38.  
20 PS - TW38 - 0529.  
0948 Drillers pulled TW38 and filled hole to grade.  
1000 Move to Manchu Road.  
1010 Drop off radios at ~~TW~~ Ops.  
1025 Make it to Manchu Road Gate.  
1043 Arrive at TW40 on Manch Road  
1050 Begin drilling TW40.  
1052 Hit permafrost at 11.5 ft bgs, Try to set screen to catch any water that may be along upper limit of frozen soil.  
1055 Screen didn't extend. Redrilled to 11 ft and stopped at top of frozen soil.  
1122 Begin purging TW40.  
1147 Begin stabilization readings.  
1155 Sample TW40. 20PS-TW40-0529

Eidson PFAS SE  
29 May 2020  
70 clear

- 1220 Leave TW40 area. Drop Joe Price back at his vehicle.  
1232 Return to DLA Pipeline.  
1255 Arrive at TW39. Begin drilling.  
1315 Take Field Blank @ 1315.  
~~20PS-TW~~ 20PS-FB PM-0529  
1323 Begin pumping TW39.  
1354 Begin stabilization readings.  
1403 Sample 20PS-TW39-0529 at TW39.  
1413 Pack up gear and prepare to leave site.  
1435 Drive by Entomology SB site to verify boring locations.  
1458 Stake TW36 for new dig permit.  
1600 Pick up equipment from TTT.  
1630 End field work for the day.

Age

29 May 2020

Eielson PFAS SI

30 May 2020

Contract # W911KB-17-D-0018

70 clear

Task # W911 KB 18 FO173

0800 Complete safety brief and equipment calibrations.

0930 Pick up equipment from EA warehouse.

1000 Arrive at Entomolog BLDG site to pick up Trimble.

1030 Arrive at Pipeline Access route to make way to TW44 on TW43 for sampling attempt.

1100 Locate and begin attempt at hand drilling TW44.

1130 Permafrost encountered at 6 inches below surface. No progress with auger. Large shards of frozen silt break off when hammering in piezometer. Piezometer point bent when hammering. Several photos and videos taken. After 20 minutes of pounding with T-post driver the piezometer was approximately 14 inches into the soil. Piezometer was removed and photographed. TW44 location was abandoned.

Eielson PFAS SI

30 May 2020

70 clear

1200 Begin packing gear back out to the truck.

1300 Return to truck. Move down access road to next location TW43.

1332 Begin navigating to Fw 43.

1402 Reach TW43. Attempt to install well.

1404 Reach solid ice at less than 6" bgs. No penetration. Extensive tussocks and black spruce. TW43 abandoned.

1425 Return to truck. Leave site for the day.

1500 Drop equipment at EA warehouse.

George R

30 May 2020

Eidson PFAS SI

31 May 2020

Contract # W911KB-17-D-0018

70s clear

Task # W911KB 18 FO173

0700 Conduct Safety brief. Discuss wildlife, weather, and dangerous footing.

0800 Go to EA warehouse for ice and equipment.

0830 Pick up decom brushes and pipe for hand drive piezometers.

0930 Arrive at Moose Creek to make our way to TW45.

0945 Use raft for cargo transport along Moose Creek.

1000 Begin movement toward TW45.

1215 Arrive at TW45.

1230 Use auger to remove first 2 feet to allow for piezometer install. Drive piezometer to 7.3 ft bgs. Water is visible in well.

1235 Begin pumping well. Well goes dry within 10 seconds. Very slow recharge due to silt and minimal screen in piezometer. Peristaltic set at minimum pump rate ~ approximately 60 rpm.

Eidson PFAS SI

31 May 2020

80s Clear

1255 Continue pumping TW45. Pump rate is too slow to accurately get DO and temp readings.

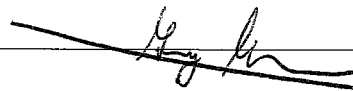
1302 Begin sampling TW45. Due to very low well volume and minimal recharge, sample was collected without achieving prescribed stabilization readings.

20PS-TW45-0531 was attempted but not successful. Flow rate maximum was set and achieved 20 ml in 20 min. Unable to sample due to estimated 4+ hr sample time to get lab required sample volume. Another well installation method or sample media may be more effective in this location.

1400 End field work for the day due to thunderstorms and lightning. Unable to install steel rod during thunderstorm.

1430 Return to EA warehouse to drop equipment and clean auger.

1500 End field work for the day.

  
31 May 2020



Expanded PFOA/PFOS SI  
Birdh Lake Surface Water,  
Sediment, and Soil Sampling

EA Engineering Project #: 6321403

Field Book #1

HIGH TECH MICRO PERFORATION

**1-SUBJECT**

**COLLEGE RULE**

100% Recycled - 40% Post-Consumer Fiber - Processed Chlorine Free

11 in x 8.5 in / 27.9 cm x 21.6 cm

**100** SHEETS

# Birch Lake Expanded PFOA/PFOS SI

L. Kenyon, K. Copeland

6/11/20

59°F, partly cloudy

Level D PPE

0800 Arrive at EA warehouse and load truck with field supplies.

0805 Calibrate P11 = 99.2 ppm

0830 Depart EA for Birch Lake.

0930 Arrive at Birch Lake. Meet w/ GeoTEK drillers in parking lot to discuss the day's plans.

1002 ACS utility locator arrives. Depart parking lot to flag the drilling locations for the day (BL-SB01 - BL-SB10)

1059 utility locator clears all drilling locations & departs site.

Drill rigs set up at SB03. Trimble File = BirchLakeSB2020

1115 safety tailgate meeting.

1132 Begin drilling at SB03.

1136 Collect ~~0.1~~<sup>1.0</sup> ft sample at SB03 - 1.0 ft bgs (20PS-BL-SB03-1)

1139 collect sample at SB03 - 5.75 ft bgs (20PS-BL-SB03-5.75)

1150 Depart SB03 location & head to SB09

1203 Set up drill rig at SB09.

1209 Collect sample at SB09 - 1 ft bgs (20PS-BL-SB09-1)

1227 collect sample at SB09 - 5 ft bgs (20PS-BL-SB09-5)

1230 Set up rig at SB10

1245 Collect sample at SB10 - 1 ft bgs (20PS-BL-SB10-1)

1253 Collect sample at SB10 - 5.5 ft bgs (20PS-BL-SB10-5.5)

Refusal at 12 ft bgs

1310 Collect first equipment blank from shoe of drill rig.

1325 set up drill rig at SB07

1339 Collect ~~first~~<sup>1st</sup> sample at SB07 - 1 ft bgs (20PS-BL-SB07-1)

1349 Collect sample at SB07 - 2.4 ft bgs (20PS-BL-SB07-2.4)

Refusal at 5 ft.

1420 Set up rig at SB04.

1430 Collect sample at SB04 - 0.25 ft bgs (20PS-BL-SB04-0.25)

1432 Collect sample at SB04 - 1 ft bgs (20PS-BL-SB04-1)

Refusal at 5 ft.

1438 Set up rig at SB05

1451 Collect sample at SB05 - 1 ft bgs (20PS-BL-SB04-1)

6/11/20

p. 1 of 2

LK

②

L. Wrayson, K. Copeland

6/1/20

Birch Lake Expanded PFAS/PFOs 51

1453 Collect sample at SB05 - 2 ft bgs (20PS-BL-SB05-2)

Refusal at 3 ft.

1454 collect field blank PM. (20PS-FBPM-0601)

1508 Set up rig at SB08.

1522 Collect sample at SB08 - 0.33 ft bgs (20PS-BL-SB08-0.33)

~~1527 collect duplicate at SB08 (20PS-BL-SB99-1.5-0.33)~~ UK 6/1/20

1531 collect sample at SB06 - 1 ft bgs (20PS-BL-SB06-1)

1533 Collect duplicate sample at SB06 1 ft bgs (20PS-BL-SB99-0601-1)

1539 Collect sample at SB06 - 6 ft bgs (20PS-BL-SB06-6)

1541 collect <sup>duplicate</sup> sample at SB06 6 ft bgs (20PS-BL-SB99-0601-6)

1546 Collect sample at SB08 - 0.75 ft bgs (20PS-BL-SB08-0.75)

1559 Pack up gear to head back to EA warehouse.

UK 6/1/20

1730 Arrive at EA warehouse to QC samples & prep

for the last two boreholes to be sampled tomorrow.

1800 End of day.

J. Wrayson

6/1/20

p. 2 of 2

UK

Birch Lake Expanded  
PFOA/PFOS S1

L. Kenyon, K. Copeland  
53°F, mostly sunny

6/2/20  
Level D PPE

- 0630 Arrive at EA office & prepare field gear for the day.
  - 0700 Depart EA office for Birch Lake
  - 0800 Arrive on site & conduct safety tailgate w/ L. Kenyon, K. Copeland, & GeoTek Drillers.
  - 0836 Set up drilling rig at SBO2.
  - 0844 Collect field blank (20PS-BL-FBAM0602)
  - 0900 Collect sample at SBO2 - 0.5 ft bgs (20PS-BL-SBO2-0.5) and MS/MSD.
  - 0902 Collect sample at SBO2 - 2 ft bgs (20PS-BL-SBO2-2) and MS/MSD.
  - 0923 Set up drilling at SBO1.
  - 0942 Collect sample at SBO1 - 1 ft bgs (20PS-BL-SBO1-1)
  - 0947 Collect duplicate sample at SBO1 - (20PS-BL-SB99-0602-1)
  - 0949 collect sample at SBO1 - 2 ft bgs (20PS-BL-SBO1-2)
  - 0954 Collect duplicate sample at SBO1 (20PS-BL-SB99-0602-2)
  - 1015 L. Kenyon stops inside recreation area to notify staff that Sundance - EA will be back on site on Friday to complete the surface water and sediment sampling when weather conditions are forecasted to be better. Drilling IDW is left on site and labeled. Currently located at the recreation building.
  - 1050 Depart Birch Lake.
  - 1203 Arrive at EA warehouse and unload supplies
  - 1221 Stephen from Sundance arrives at EA warehouse to help prep boat for sediment & surface water sampling to be performed TBD. Boat has been decontaminated and cleaned for appropriate use.
  - 1400 QC samples collected for shipment tomorrow.
  - 1900 End of day
- No deviations from the work plan.

(4)

6/5/20

Birch Lake Expanded PFOA/PFOS SI

L. Kenyon, L. Copeland, S. Newman  
56°F, Fog Sun, 5mph wind

0700 Arrive at EA warehouse. Prepare all equipment to use boat to collect surface water and sediment samples. Calibrate YSI and turbidimeter. Float plan is filled out.

0845 Depart EA to Birch Lake

1005 Arrive at Birch Lake. Check in with staff about boat launch & unload gear.

1030 Tailgate safety meeting.

1052 Collect field plank (20PS-BL-FBAM-0605)

1144 Launch boat

1158 Drop anchor at BLO1

1204 Arrive at BLO1; two photos taken from shore

~~1220 Parameters read from BLO1-0.5ft; begin pumping~~ SN 6/5/20

~~pH~~ SN 6/5/20

~~spec. con~~ SN 6/5/20

1220 Begin pumping

Parameters from BLO1-0.5ft

Temp: 17.5°C

Cond: 108 µS/cm

DO: 10.44 mg/L

pH: 7.77

ORP: 226.7 mV

Turb: 7.35 NTU

Parameters from BLO1-4.0 ft

Temp: 17.21°C

Cond: 104 µS/cm

DO: 9.86 mg/L

pH: 7.79

ORP: 205.9 mV

Turb: 84.85 NTU

6/5/20

p. 1 of 4

LK

L. Kenyon  
K. Copeland  
S. Newman

Birch Lake

6/5/20

(5)

1240 Parameters for BLO1-8.0 ft

Turb = 2.58 NTU

Temp: 16.78 °C

Cond: 103  $\mu$ S/cm

DO: 9.48 mg/L

pH: 7.79

ORP: 201.6 mV

1245 ZOPS-BLO1-SW-8; sample collected; MS/MSD taken

1249 ZOPS-BL99-SW-0605; sample collected (duplicate of SW-8)

1305 ZOPS-BLO1-SW-4; sample collected

1307 ZOPS-BLO1-SW-0.5; sample collected

1310 Prepare PONAR for sediment collection

SN 6/5/20

1315 ZOPS-BLO1-SD-0; ~~sample and MS/MSD collected~~ sample collected

~~1319 ZOPS-BL99-SD-0605; sample duplicate collected~~ SN 6/5/20

Sediment is very fine, and filters through the PONAR as it is raised from the water.

MS/MSD and duplicate samples will not be taken at this location.

1441 Collect BOWL equipment blank. ZOPS-BL-EB-BOWL-0605

1444 ZOPS-BL-EB-PON-0605; equipment blank (ponar) collected.

1458 Depart for BLO2.

1515 Drop anchor at BLO2.

1530 ZOPS-BLO2-SD-0; collect sediment primary sample.

1540 ZOPS-BL99-SD-0605; collect sediment duplicate sample.

Sediment is gritty and black. Covered in algae bulbs & pulled up a mussel.

1540 L. Kenyon calls in boat crew to shore. Thunderstorms are starting. Winds are shifting from 7mph to 15mph.

1557 Storm has passed and crew continues out on the water.

Set up at BLO3. Clear skies & 7mph.

1615 ZOPS-BLO3-SD-0; collect sediment sample and MS/MSD.

1648 Begin collecting measurements at 0.5 ft depth

YSI Parameters for BLO3-0.5 ft

6/5/20

p. 2 of 4

RLC

(6)

L. Kempan  
K. Copeland  
S. Newman

Birch Lake

6/5/20

Turb: 5.47 NTU

Temp: 17.59°C

Cond: 110 µS/cm

DO: 10.42 mg/L

pH: 7.87

ORP: 212.6 mV

1654 YSI Parameters for 4 ft depth at BLO3

Turb: <sup>at 615120</sup> ~~105~~ 38.13 NTU

Temp: 17.32°C

Cond: 105 µS/cm

DO: 9.98 mg/L

pH: 7.84

ORP: 214.4 mV

YSI Parameters for 8

1658 Turb: 3.54 NTU

Temp: 16.70°C

Cond: 104 µS/cm

DO: 9.62 mg/L

pH: 7.83

ORP: 214.3 mV

1700 20PS-BLO3-SW-8; collect & water sample

1704 20PS-BLO3-SW-4; collect sample.

1707 20PS-BLO3-SW-0.5; collect sample.

1714 Pulling up anchors at BLO3 and heading back to BLO2 to collect water samples.

1727 Anchor at BLO2.

1736 Begin collecting measurements at 0.5 ft depth

1741 YSI Parameters at BLO2 - 0.5 ft

Turb: 3.59 NTU

Temp: 17.36°C

Cond: 105 µS/cm

DO: 10.35 mg/L

pH: 7.84

ORP: 198.2 mV

6/5/20

Lk

L. Kenyon  
K. Capeland  
S. Newman

Birch Lake

6/5/20 (7)

1745 YSI Parameters at BLO2 - 4 ft

71°F, sun

Turb: 1.40 NTU  
Temp: 17.45°C  
Cond: 105  $\mu$ S/cm  
DO: 9.33 mg/L  
pH: 7.82  
ORP: 202.3 mV

1750 YSI Parameters at BLO2 - 8 ft

Turb: 10.62  
Temp: 16.35°C  
Cond: ~~123~~ 102  $\mu$ S/cm  
DO: 9.78 mg/L  
pH: 7.78  
ORP: 200.3 mV

1754 20 PS - BLO2 - SW - 8 ; collect sample.

1759 20 PS - BLO2 - SW - 4 ; collect sample.

1802 20 PS - BLO2 - SW - 0.5 ; collect sample.

1805 Depart BLO2 for shore.

1840 Return borrowed anchors from Birch Lake Rec Center and  
~~also~~ took a picture of location of 10W 5 gallon bucket.

1845 Depart Birch Lake for EA warehouse.

<sup>6/5/20</sup>  
19 2021 Arrive at EA warehouse. Unload supplies and store samples  
in fridge. Bump check YSI (pH=4.01) = 3.98

2030 End of day.

Robert Kenyon

Eidson PFAS SI 01 June 2020

Contract # W911KB-17-D-0018 60s Clear

Task # W911KB 18 FO173

Tasks: Dig Permit #TW42 and TW36.

0800 Proceed to Eidson for Dig Permit.

0851 Arrive on base to begin dig permit.

0915 Secure signatures for Electrical and Communications. Drilling won't be cleared until 10 June 2020.

0925 Environmental AF 103 POC

Justin Hogrefe 907-377-5289

justin.hogrefe.1@us.af.mil or  
Amanda Gallagher

256-665-3298 amanda.gallagher.5@us.af.mil

100 Complete all signatures on the dig permit for TW36 and TW42 minus Environmental. Complete Eidson PFAS field work for the day.

Eidson PFAS SI

02 June 2020

Contract # W911KB-17-D-0018

Task # W911KB 18 FO173

0700 Prep and QC chain of custody for shipment. Take photos of custody seals and contents.

0725 Proceed to FedEx.

0800 Ship samples to ELLE

Tracking # 393451832255

0815 Proceed to Eidson for stockpile transfers and soil boring locations.

~~ly~~

Eidson PFAS SI

27 June 2020

Contract # W911KB-17-D-0018

55° Clear

Task # W911KB 18 FO173

Tasks: Temp well install and sampling.

Personnel: J. Person, G. Garner, S. Simas, L. Everett.

0900 Meet at Contractor gate to conduct Safety Brief.

0915 Meet up and get set up on TW36.

0930 Begin drilling TW36.

1003 Begin purging TW36.

1040 Sample TW36: 20PS TW36-0627 + MS/MSD.

Duplicate 20PS TW99-0627

1100 Collect Field Blank 20PS-FBAM-0627

1120 Move to TW42 location outside of North Gate.

1133 Arrive at TW42 location to drill.

1150 Complete drilling TW42 to 15 ft bgs.

1153 Start purging TW42.

1222 Collect sample at TW42.

1240 Complete Geoprobe work for today.

1300 Check condition at crossing to get to TW location south of Moose Creek. Standing water in the woods and under the powerline where the TW location is proposed.

Eidson PFAS SI

27 June 2020

68° clear

1400 Drop all samples at the EA warehouse in the sample fridge.

1430 Complete field work for today.

*George H.*  
6/27/2020



Expanded IFOA/PFOs SI  
Eielson Air Force Base, AK  
Surface Water and Sediment  
Sampling

EA Engineering Project #: ~~6321403~~  
6321403

Field Book #1

HIGH TECH MICRO PERFORATION

**I-SUBJECT**

**COLLEGE RULE**

100% Recycled - 40% Post-Consumer Fiber - Processed Chlorine Free

11 in x 8.5 in / 27.9 cm x 21.6 cm

**100** SHEETS

Expanded PFOA/PFOS S1  
Eielson Air Force Base

①

L. Kenyon, K. Copeland  
52°F, showers

6/13/20

- 0645 Arrive at EA warehouse. Calibrate YSI and turbidimeter.  
0800 Safety Tailgate meeting  
0820 K. Copeland departs for FedEx to drop off Birch Lake Samples.  
L. Kenyon departs for Eielson AFB to meet K. Copeland @ Visitors Center.  
0900 Field team arrives at MPO2. Trimble File: \_\_\_\_\_  
1247 Having problems collecting sediment at MPO2 - too much vegetation at point location. Water is too deep to go further offshore & collect sample. Will need to come back another day with tools to collect sample.  
1255 collect surface water sample at MPO2 - 2 ft (20PS-MPO2-SW-2)  
1300 collect PM field blank (20PS-FBPM-0603).

MPO2 - YSI Parameters - some vegetation

Temp: 16.07°C DO: 14.23 mg/L Turbidity: 1.05 NTU  
pH: 8.68 ORP: 236.9 mV  
Sp. Cond: 203 µS/cm

1340 Collect surface water sample at MPO1 - 1 ft (20PS-MPO1-SW-1)

1345 Collect duplicate surface water sample (20PS-MP99-~~0603~~<sup>6/13/20-44</sup>-SW-0605)

MPO1 - YSI Parameters - some vegetation

Temp: 16.10 DO: 13.05 Turbidity: ~~2.3~~<sup>4.613</sup> 1.22 NTU  
pH: 8.06 ORP  
Sp. Cond: 205

1407 Arrive at SPO1.

<sup>6/13/20</sup> 1429 collect SW sample - 1 ft (20PS-SPO1-SW-1)

1432 collect SW sample - 5 ft (20PS-SPO1-SW-5)

1459 Arrive at SPO2. Debris encountered on shoreline.

1509 Collect SW sample - 1 ft (20PS-SPO2-SW-1)

SPO1 YSI Parameters - some vegetation

Temp: 16.87°C DO: 14.57 mg/L Turbidity: 0.43 NTU  
pH: 8.00 ORP: 201.3 mV

Sp. Cond: 220 µS/cm

6/13/20

p. 1 of 2

fle

②

L. Kenyon  
K. Copeland

Erlson AFB SW & Sed Sampling  
Expanded PFDA/PFOS SI

6/3/20

59°F  
Sunny

SPO2 - YSI Parameters - debris & some vegetation

Temp: 11.40°C

DO: 13.49 mg/L

pH: 7.79

ORP: 222.6 mV

Cond: 200 µS/cm

Turbidity: 4.34 NTU

1541 Arrive at MLO2

1603 Collect SW sample at MLO2 - 1 ft - (20PS-MLO2-SW-1)

1605 Collect SW sample at MLO2 - 3 ft (20PS-MLO2-SW-3)

MLO2 location does not get any deeper w/in sample location than 4 ft.

MLO2 - YSI Parameters - algae on surface of water, vegetation reaching out over water, mostly clear

Temp: 16.88°C

DO: ~~16.23~~ <sup>14.54</sup> mg/L

pH: 7.88

ORP: 94.9 mV

Cond: 227 µS/cm

Turbidity: 0.11 NTU

1642 Arrive at MLO1

1700 Collect SW sample at MLO1 - 1 ft (20PS-MLO1-SW-1)

MLO1 YSI Parameters - sample collected upstream of culvert flow. water mostly clear, submerged vegetation

Temp: 17.10°C

DO: 14.48 mg/L

pH: 8.04

ORP: 193.4 mV

Cond: 227 µS/cm

Turbidity: 1.32 NTU

\* Cobbles on bottom before steep dropoff. Sediment sample collection is going to be challenging (7 ft depth).

1718 Departing Site

1817 Arrive at EA. Unload supplies, QC samples, and bump check YSI. Bump (pH=4.00) = 3.97.

1900 End of day.

*Lucy*

L. Kenyon, K. Copeland Eielson APB SW § Sed Sampling  
59°F, overcast Expanded PFOA/PFOS SI

6/14/20

- 0:700 Arrive at EA warehouse. Calibrate YSI & turbidimeter.
  - 0823 Depart EA warehouse for Mullins Pit (MPO2).
  - 0944 Arrive at MPO2 to collect sediment samples.
  - 1001 Collect ~~AM field blank~~<sup>LC 6/14/20</sup> equipment blank off a metal auger. (~~20PS-EB-0604~~) (20PS-EB-AU-0604)
  - 1009 collect AM field blank (20PS-FBAM-0604)
  - 1015 collect sediment sample at MPO2 (20PS-MPO2-SD-0)
  - 1025 collect duplicate sediment sample (20PS-MP99-0604)
  - 1110 collect equipment blank of sediment stainless steel bowls (20PS-EB-BL-0604)
  - 1134 collect sediment sample at MPO1 (20PS-MPO1-SD-0).
  - 1240 ~~AM~~<sup>LC 6/14/20</sup> Several attempts were made to collect a sample at SPO1, however, the location ~~was~~<sup>LC 6/14/20</sup> had willows lining the entire shoreline, making any sediment sample collection impossible due to heavy root cover as well as other log debris. will note this in the Deviations to workplan.
  - 1257 Arrive at Moose Lake to collect sediment sample.
  - 1310 collect sediment sample at MLO2 (20PS-MLO2-SD-0)
  - 1338 Arrive at FCO3 to collect surface water & sediment.
  - 1350 collect surface water sample - 1 ft (20PS-FCO3-SW-1)
- Site Notes; Thick woods and very silty shoreline. water color is brown, turbidity high. Water depth at shoreline is 4 ft deep.

FCO3 YSI Parameters

Temp = 8.00°C      pH = 6.85  
 Sp. Cond = 80 µS/cm      ORP = 128.2 mV  
 DO = 14.68 mg/L      Turbidity = 120.2 NTU

- 1428 Arrive at FCO2.
  - 1450 collect surface water sample (1 ft) - (20PS-FCO2-SW-1) and MS/MSD.
  - 1455 collect sediment sample at FCO2 (20PS-FCO2-SD-0) and MS/MSD.
- Note: at 1355, sed sample for FCO3 was collected (20PS-FCO3-SD-0)
- 6/14/20      p. 1 of 2      *LC*

(4)

L. Kenyon  
R. Copeland  
6/6°F

Eielson AFB SW & Sed sampling  
Expanded PFOA/PFOS SI

6/14/20

FC02 YSI Parameters - site location on left side of bridge,  
water depth approx 4.5 ft. water color = brown, very turbid.  
Grassy on bank of creek.

Temp = 7.89°C

pH = 7.23

Sp. Cond = 75 µS/cm

ORP = 151.5 mV

DO = <sup>LC 6/14/20</sup> 14.27 mg/L

Turbidity = 84.83 NTU

1523 Arrive at FC01.

1542 Collect surface water sample at FC01 - 1 ft (20PS-FC01-SW-1)

1547 collect sediment sample at FC01 - (20PS-FC01-SD-0)

FC01 YSI Parameters - water depth at bank approx 4.5 ft,  
water color = brown, very turbid.

Temp = 8.01°C

pH = 7.31

Sp. Cond = 76 µS/cm

ORP = 177.3 mV

DO = 13.00

Turbidity = 162.9 NTU

1700 Arrive at EA warehouse & unload supplies.  
<sup>LC 6/14/20</sup>

Bump check YSI (4.01) = 4.03

1720 End of day.

*Glenney King*

6/14/20

P 2 of 2

LK

(5)

L. Kenyon, S. Newman  
~~K. Co~~ Eielson AFB SW & Sed Sampling  
60° F, sunny

6/6/20

0700 Arrive at EA warehouse. Calibrate YSI and Turbidimeter. Load supplies into truck.

0830 Depart EA warehouse for Bear Lake on Eielson AFB.

0925 Arrive at BRO2.

0958 YSI Parameters for BRO2; depth of Lake at point ~ 5ft.

Temp: 17.76 °C

Cond: 228  $\mu$ S/cm

DO: 10.05 mg/L

pH: 8.08

ORP: 84.3 mV

Turb: 1.86

1021 Picture taken at BRO2

1023 Sample collected along with MS/MSD at 1 ft depth

ID: 20PS-BRO2-SW-1

1028 Duplicate sample collected

ID: 20PS-BR99-~~0606~~<sup>6/6/20</sup> SW-0606

1030 Sample collected at BRO2 5ft depth

ID: 20PS-BRO2-SW-5

1045 Sediment sample collected at BRO2 with MS/MSP

ID: 20PS-BRO2-SD-0

1050 Duplicated sample collected at BRO2 ~~with~~ <sup>SN</sup> 6/6/20

ID: 20PS-BR99-~~SD~~<sup>0606</sup> SN  
6/6/20

1148 YSI Parameters for BRO1; depth of lake at point ~ 4.5 - 5.0 ft

Temp: 18.86 °C

Cond: 1  $\mu$ S/cm

DO: 11.21 mg/L

pH: 8.49

ORP: 195.0 mV

Turb: 0.35 NTU

1155 sample collected at BRO1 1 ft depth. ID: 20PS-BRO1-SW-1

6/6/20

p. 1 of 4

*SK*

(6)

L. Kenyon  
S. Newman

6/6/20

1249 L. Kenyon calls E. Mams and M. Wilkinson. Duplicates were not collected (surface water) on ~~6/3~~ <sup>6/6/20</sup> 6/4.

Proposed solution: call lab to see if we can split a sample bottle.

1251 Picture taken at MCO2.

1255 YSI Parameters taken at MCO2

Temp: 8.30°C

Cond: 78  $\mu\text{S}/\text{cm}$

DO: 15.60 mg/L

pH: 7.73

ORP: 199.4

Turb: 53.09

Samples collected; ID: ZOPS-MCO2-SW-1

1256 sediment sample collected; ZOPS-MCO2-SD-0

1315 Drive to MCO1. Thunderstorm rolls in and crew wants out storm in vehicle.

<sup>6/6/20</sup>

~~1406~~ Set up at MCO1.

1424 water sample collected at MCO1; ZOPS-MCO1-SW-1

YSI Parameters taken at MCO1 <sup>6/6/20</sup>

Temp: 9.15°C

pH: 7.48

Cond: 100  $\mu\text{S}/\text{cm}$

DO: 13.36 mg/L

ORP: 146.8 mV

<sup>1425</sup> Turb: 35.41 NTU

<sup>6/6/20</sup>

~~1535~~ sediment sample collected; ZOPS-MCO1-SD-0.

Depth to bottom approx. 4.5 ft. Extremely clayey, brown.

1438 Collect PM field blank; ZOPS-FBPM-0606

~~1541~~ YSI Par SW 6/6/20

1525 Arrive at ZPO1

1541 YSI parameters at ZPO1. Depth to bottom approx 3.5 ft.

Temp: 19.87°C

Turb: 0.81 NTU

Cond: 193  $\mu\text{S}/\text{cm}$

DO: 5.79 mg/L

pH: 7.32

ORP: 130.5 mV

6/6/20

P. 2 of 4

LK

1600 Attempt to collect sediment sample at ZPO1, however the pond floor is covered in thick, impenetrable vegetation. Reference provided photo for details.

1605 collect surface water sample; ZOPS-ZPO1-SW-1

1610 collect duplicate water sample; ZOPS-ZP99-~~SW-0606~~ <sup>SW-0606</sup> ~~UK 6/6/20~~

1612 collect surface water sample - 3 ft; ZOPS-ZPO1-SW-3

1636 Return to MCO1 to collect sediment duplicate.

1643 collect MCO1 sed duplicate; ZOPS-MC99-~~MLPO1~~ <sup>6/6/20 UK</sup> ~~SD-0606~~

1704 Arrive at ~~MCO1~~ <sup>MLPO1</sup> ~~UK 6/6/20~~. At sample location vicinity, a person was pulling their jet ski out of the lake.

1735 collect surface water sample - 1 ft; ZOPS-~~MCO1~~ <sup>MLPO1 6/6/20 UK</sup> -SW-1

1740 collect surface water sample - 5 ft; ZOPS-~~MCO1~~ <sup>MLPO1 6/6/20 UK</sup> -SW-5  
get YSI parameters for ~~MCO1~~ <sup>UK 6/6/20</sup> MLPO1

Temp: 16.62 °C

Cond: 170  $\mu\text{S}/\text{cm}$

DO: 12.57 mg/L

pH: 8.01

ORP: 204.1 mV

Turb: 4.15

1748 Sediment sample collection with an auger and ponar is unsuccessful as sample location is only gravel with minimal sand. ~~one sample~~ <sup>UK 6/6/20</sup>  
Only viable sediment to be collected is approx 3 feet from shoreline where sand has settled between two boulders, so sample was collected here. Refer to photograph for details.

1815 collect equipment blank from ponar; ZOPS-EB-0606.

1835 Arrive at ~~MCO2~~ <sup>MLPO2</sup> ~~UK 6/6/20~~

1838 YSI parameters at ~~MCO2~~ <sup>UK 6/6/20</sup> MLPO2.

Temp: 15.51

Cond: 165  $\mu\text{S}/\text{cm}$

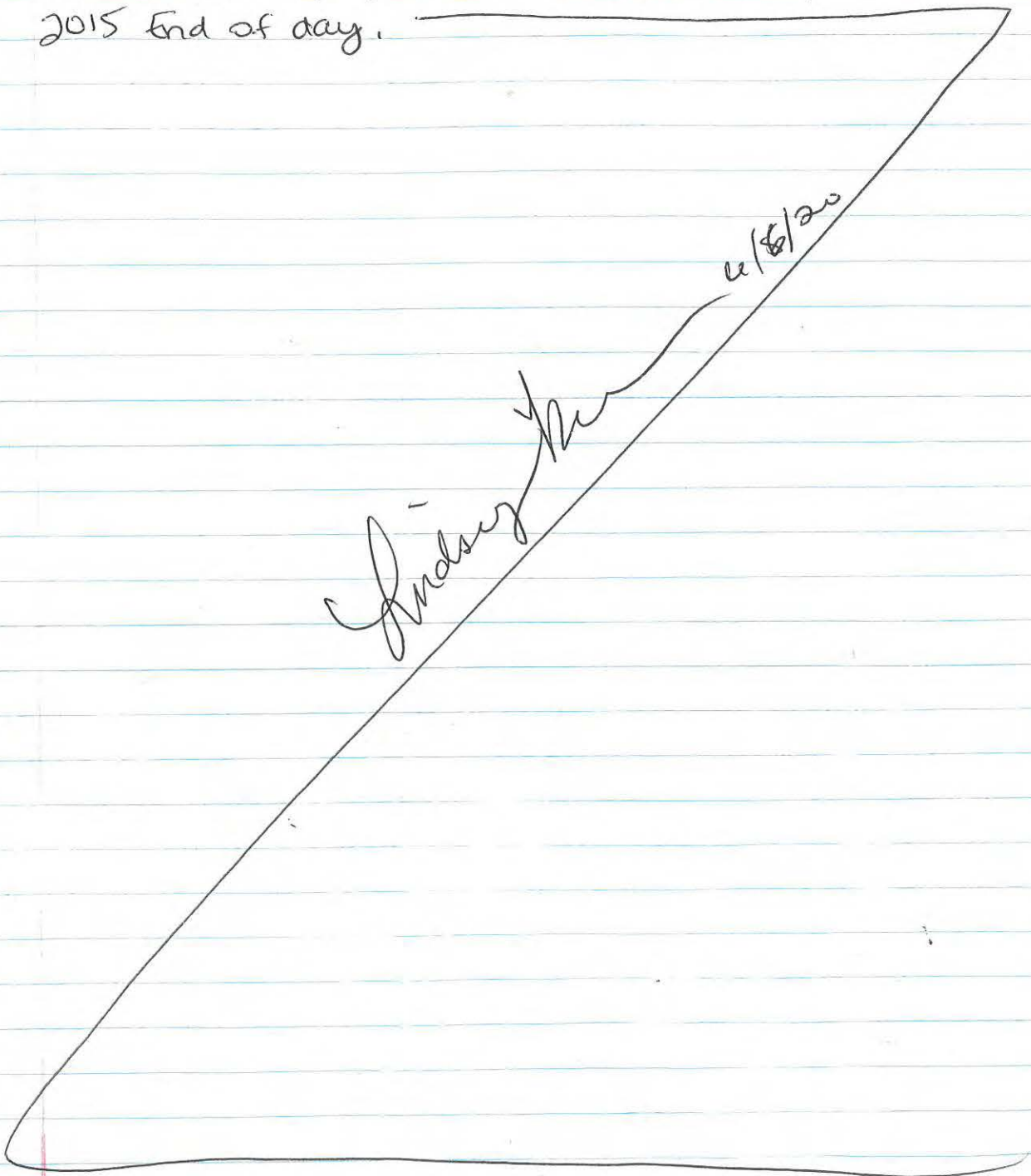
DO: 12.87 mg/L

pH: 8.06

ORP: 200.9 mV

Turb: 3.88 NTU

- 1848 collect sediment sample at <sup>MLPO2 W11120 W</sup> MCL02; 20PS-MCL02-SD-0.
- 1853 collect surface water sample - 1 ft; 20PS-MCL02-<sup>MLPO2</sup>SW-1
- 1855 collect surface water sample - 5 ft; 20PS-MCL02-<sup>MLPO2</sup>SW-5.
- 1900 Depart MCL02 for EA warehouse.
- 2005 Arrive at EA warehouse. Unload supplies; store  
 samples in fridge & bump check YSI (pH=4.01) = 4.02.  
 Turbidimeter (NTU=1000) = 988.2 NTU,
- 2015 End of day.



p. 4 of 4

(9)

Eielson AFB SW & SD sampling  
Expanded PFOs/PFA 51

L. Kenton, K. Copeland

6/7/20

55°F, sunny

0700 Arrive at EA warehouse. Create COC for Eielson sample shipment on 6/8/20. Load supplies, calibrate YSI and turbidimeter.

0915 Depart EA trailer for Tar Kettle Lake.

0942 Arrive at Tar Kettle Lake.

0956 Collect AM field blank; 20PS-FBAM-0607.

1011 Arrive at TK01. Depth to bottom at sample loc = ~4.5 ft

1029 YSI parameters for TK01 - very hard-bottomed lake, mossy, water = clear

Temp: 18.07°C

Turb: 1.38 NTU

Cond: 239  $\mu$ S/cm

DO: 12.55 mg/L

pH: 8.40

ORP: 206.2 mV

1032 collect TK01 surface water primary; 20PS-TK01-SW-1

1037 collect TK01 SW duplicate; 20PS-TK99-SW-0607

1052 Exposed (partially) drum approx 5 feet from shoreline of TK01, discovered. Reference photo.

1120 Arrive at TK02. Depth to bottom at GPS loc/sample loc = ~5 ft.

1124 YSI parameters for TK02 - Heavy algae, hard-bottomed and gravelly.

Temp: 17.58°C

Turb: 0.23 NTU

Cond: 251  $\mu$ S/cm

DO: 13.56 mg/L

pH: 8.29

ORP: 206.0 mV

1127 collect TK02 SW - 1 ft; 20PS-TK02-SW-1

1132 collect TK02 SW - 5 ft; 20PS-TK02-SW-5.

1143 collect TK02 SD; 20PS-TK02-SD-0.

1239 Arrive at SH01. Depth to bottom at GPS loc/sample loc = 3.5 ft.

1240 YSI parameters at SH01 - approx 6 inches - 1 ft of algae and then a gravelly hard bottom, logs & fallen trees present

Turb: 6.13

(10)

L. Kenya  
K. Copeland

6/7/20  
70°F

Temp: 18.41°C  
Cond: 182  $\mu$ S/cm  
DO: 16.13 mg/L  
pH: 8.86  
ORP 214.5 mV

1243 Collect SW sample at SH01 - 1 ft ; 20PS-SH01-SW-1.

1313 Arrive at SH02. Depth at sample loc = 3.5 ft

Yst. ~6 inches of algae, pebbly lake bottom

1315 YSI Parameters at SH02

Temp: 18.25°C      Turb: 1.05  
cond: 191  $\mu$ S/cm  
pH: 8.60  
ORP: 154.5  
DO: 15.40 mg/L

1333 Collect SW sample SH02 - 1 ft ; 20PS-SH02-SW-1

1336 Collect SW sample SH02 - 4 ft ; 20PS-SH02-SW-4

1340 Collect SD sample SH02 ; 20PS-SH02-SD-0

1345 Collect SD sample duplicate SH02 - 20PS-SH99-SD-0607

1405 Truck stuck in mud. Need to dig it out while Stephen  
from Sundance comes with a tow strap.

1521 Stephen arrives w/ a tow strap and we attempt to  
get the truck out.

1617 The truck wont budge. Drive back to EA warehouse  
to drop off samples in the fridge and grab a bag of  
sand as well as another vehicle to attempt to pull the  
truck out of the mud.

1833 Tow truck arrives.

1851 Truck is unstuck and field team heads back to EA  
warehouse to unload supplies and finish out the day.

1900 Bump check YSI (pH=4.01) = 3.86. End of day.

Audrey Key - 6/9/20

Eielson AFB SW & SD sampling  
Expanded PFOS/PFOA SI

(11)

L. Kenyon  
J. Parson

6/8/20  
55°F

0700 Arrive at EA warehouse. Calibrate YSI and Turbidimeter.  
update COCs for review before shipping samples.

0903 Depart EA for site.

0945 Arrive at <sup>6/8/20</sup> EA site. Unload trailer. Prep sample equipment and bottles for the day.

1117 Arrive at PS03. DEPTH AT SAMPLE LOCATION IS ~ 3 FT.

1128 YSI PARAMETERS AT PS03. OK ~~GOOD~~ 6-8-20

TEMP - 10.40 °C

TURB - 1.99 NTU

COND - 236  $\mu\text{S}/\text{cm}$

DO - 12.04 mg/L

PH - 7.87

ORP - 154.1

VEGETATED COVER ON STREAM BED  
MAIN CHANNEL OF SLOUGH ~ 1.5 FT

1132 PS03 SEDIMENT SAMPLE TAKEN 20PS-PS03-SD-0

1149 SEDIMENT SAMPLE DUP. TAKEN 20PS-PS99-SD-0608

1156 PS03 SURFACE WATER SAMPLED 20PS-PS03-SW-1

1208 WATER SAMPLE DUP TAKEN 20PS-PS99-SW-0608

1216 Depart PS03

1329 Arrive at PS02. We had to walk in on the opposite side of the slough for accessibility. Slough is approx 80 feet across (width) but too deep to cross to access the sample GPS point. Current GPS plotted point is 88 meters from where sample will be collected at this time.

1337 YSI Parameters at PS02 - Depth at sample location ~ 4 ft.

Temp - 12.16 °C

Cond - 249  $\mu\text{S}/\text{cm}$

DO - 17.32 mg/L

PH - 8.43

ORP - 148.7 mV

Turb - 0.50 NTU

6/8/20

p. 1 of 2

(18)

L. Kenyon  
J. Parson

6/8/20

1340 Collect SW sample at PSO2 and MS/MSD - 20PS-PSO2-SW-1

1410 Sediment sample decanted but still extremely watery.

An attempt was still made to collect it, however, it has a high percentage of organic matter in it as well. Depart PSO2.

1420 Collect PM field blank; 20PS-FBPM-0608.

1515 Pack up truck and ATV. Head back to EA warehouse to ship samples. Could not sample PSO1 due to active construction area. Will try to come back in the morning before work begins.

1755 Bump check YSI (pH=4.01) = 4.02. All samples that are being shipped tomorrow have been QC'd.

1900 End of day.

★ Note: sediment sample at PSO2 collected at 1401; 6/8/20

L. Kenyon  
6/8/20

6/8/20

P. 2 of 2

Eielson AFB SW & SD Sampling  
Expanded PFOA/PFOA SI

2  
11  
13

L. Kenyon, J. Parson  
55°F

6/9/20

0545 Arrive at warehouse. Calibrate YSI and turbidimeter.  
Load supplies into truck.

0623 Depart EA warehouse for PS01.

0645 Arrive at parking area for PS01. Obtained permission  
from construction crew to access the site.

0649 Collect AM field blank; JOPS-FBAM-0609.

0721 Arrive at PS01, closest accessible sample point is approx  
93 meters from the original plotted point. Currently  
located on other side of slough (NW - closer to  
highway). Banks are grassy with some trees. Slough  
bank is clayey and very soft. Cannot access with deeper water.

0725 YSI Parameters ~ 2ft below water surface

Temp = 9.46°C

Cond: 138  $\mu$ S/cm

DO: 12.06 mg/L

pH: 7.39

ORP: 154.2 mV

Turb: 60.09 NTU

0729 Collect primary sediment sample; JOPS-PS01-SD-0

0734 Collect dup sediment sample; JOPS-PS99-SD-0609

0736 Collect primary surface water sample; JOPS-PS01-SW-1

0740 Collect duplicate surface water sample; JOPS-PS99-SW-0609

0815 L. Kenyon to head back to EA warehouse to ship Birch Lake  
and first batch of Eielson samples. J. Parson to head to  
Eielson AFB for a meeting.

<sup>6/9/20</sup>  
~~0~~ 1145 L. Kenyon ships Birch Lake samples and first batch of Eielson  
samples. <sup>6/9/20</sup> G. Kornowski meets L. Kenyon at EA warehouse.

1150 L. Kenyon & G. Kornowski depart for Bathing Beauty Lake  
from EA. J. Parson departs Eielson AFB for Bathing Beauty  
Lake.

1215 All field staff arrive on site and prep equipment.

(14)

L. Whyan  
J. Parson  
G. Kornowski

Ereison Sw & sed sampling

6/9/20  
70°F

1234 Set up at BBO2.

Clear water, Gravel bottom, depth to bottom at sample location is roughly 4.5 ft. Plastic debris encountered at bottom

YSI parameters for BBO2

Temp 18.58°C  
Cond 260 µS/cm  
D.O. 11.2 mg/L  
pH 8.21  
ORP 247.5 mV  
Turb 1.22 nTu

1256 Collect sediment sample BBO2; 20PS-BBO2-SD-0

1306 Collect surface water sample BBO2; 20PS-BBO2-SW-1

1310 Collect surface water sample BBO2; 20PS-BBO2-SW-5

1331 Arrive at BB01

Clear water, gravel bottom covered by leaves, depth to bottom at sample location is roughly 4 ft.

YSI parameters for BB01

Temp 18.16°C  
Cond. 255 µS/cm  
D.O. 12.02 mg/L  
pH 8.21  
ORP 216.5 mV  
Turb 1.28 nTu

1335 Collect surface water sample BB01; 20PS-BB01-SW-1

1404 Set up at HLO2

Clear water, gravel bottom, depth to bottom at sample location roughly 4 ft., ~~Org~~ Organic matter layer on bottom, some fine particles

YSI parameters

Temp. 18.18°C  
Cond. 214 µS/cm  
D.O. 13.0 mg/L  
pH 8.37  
ORP 211.5 mV  
Turb. .54 nTu

6/9/20

P. 2053

Lee

L. Kenyon  
S. Parson  
G. Kernowski

# Erlson SW & Sed Sampling

70F

(15)  
(15)

6/9/20

- 1414 Collect sediment sample HLO2; 20PS - HLO2 - SD - 0
- 1432 Collect surface water sample HLO2; 20PS - HLO2 - SW - 1
- 1434 Collect surface water sample HLO2; 20PS - HLO2 - SW - 5
- 1504 Arrive at HLO1

Depth to bottom at sample location is roughly 5 ft.

Clear water, organic material on bottom, gravel bottom

YSI Parameters for HLO1

Temp	18.84°C
Cond.	212 µS/cm
D.O.	13.99 mg/L
pH	8.55
ORP	217
Turb.	12.63

1510 collect surface water sample HLO1; 20PS - HLO1 - SW - 1

1530 Severe thunderstorm rolling in, heading back to EA warehouse

1601 Arrive at EA warehouse. Unload supplies, bump check

YSI (pH=4.01) = 4.02. QC samples collected for shipment on Thursday morning.

1725 End of day.

*Handwritten signature*  
6/9/20

(14) Eielson SW & SD sampling

L. Keryon, J. Parson, G. Komawake  
48°F

6/10/20

0640 Arrive at EA Warehouse. Calibrate YSI and turbidimeter,  
load supplies

0715 safety tailgate meeting.

0804 Arrive at SC01

Clear water with a gravel bottom, some organic matter overlaying  
bottom. Depth to bottom at sample location is roughly 4 ft.

YSI Parameters

Temp. 18.07°C  
Cond. 237  $\mu\text{S}/\text{cm}$   
D.O. 12.38 mg/L  
pH 8.22  
ORP 221.0 mV  
Turb. 3.18 NTU

0818 Collect surface water sample SC01; 20PS-SC01-SW-1

0831 Arrive at SC02

Clear water, gravel bottom, lots of organic material on  
bottom. Plastic debris on bottom. Depth to bottom at sample  
location is roughly 4 ft.

YSI Parameters

Temp. 15.07°C  
Cond. 243  $\mu\text{S}/\text{cm}$   
D.O. 12.25 mg/L  
pH 7.84  
ORP 169.6 mV  
Turb. 0.76 NTU

0840 A+ Collect sediment sample SC02; 20PS-SC02-SD-0

0903 Collect surface water sample SC02; 20PS-SC02-SW-1

0905 Collect surface water sample SC02; 20PS-SC02-SW-4

0942 Arrive at GL01

Clear water, sandy bottom, located next to a picnic/park area.  
Depth to bottom at sample location is roughly 4.5 ft.

# Ereison SW & SD sampling

e (18)  
(17)

L. Kenyon  
J. Parson

G. Kornowstke

6/10/20

0951 YSI Parameters  
Temp. 17.48°C  
Cond. 246  $\mu\text{S}/\text{cm}$   
D.O. 14.10 mg/L  
pH 8.17  
ORP 254.6 mV  
Turb. 4.67 NTU

0955 ~~Sw~~ Collect surface water sample at GLO1; 20PS-GLO1-SW-1

1004 Arrive at GLO2

Clear water, aquatic plants on bottom, heavy algae, gravelly sand bottom  
New data point file on Trimble created; EA SED & SW 2020 GLO2  
Depth to bottom at sample location is roughly 4.5 ft.

1018 YSI Parameters  
Temp. 17.47°C  
Cond. 252  $\mu\text{S}/\text{cm}$   
D.O. 16.57 mg/L  
pH 8.09  
ORP 136.9 mV  
Turb. 0.96 NTU

1023 Collect surface water sample at GLO2; 20PS-GLO2-SW-1

1027 Collect surface water duplicate at GLO2; 20PS-GL99-SW-0610

1030 Collect surface water sample at GLO2; 20PS-GLO2-SW-5

1035 Collect sediment sample at GLO2; 20PS-GLO2-SD-0

1040 Collect sediment duplicate at GLO2; 20PS-GL99-SD-0610

1201 Collect Field Blank sample; 20PS-FBPM-0610

1205 Collect waste bucket characterization sample; 20PS-IDW-08

1215 Depart site for EA warehouse.

1300 Arrive at EA warehouse. QC samples, create COCs, and unload equipment.  
J. Parson & G. Kornowstke (sundance) depart for another project.

1710 Complete final project paperwork. End of day.

*Judsey Kenyon*



# CLASS SCHEDULE

NAME: \_\_\_\_\_ EMAIL ADDRESS: \_\_\_\_\_  
 SCHOOL: \_\_\_\_\_ GRADE: \_\_\_\_\_ CELL: \_\_\_\_\_

Period	From/To	Subject	Rm #	Instructor	Days

Period	From/To	Subject	Rm #	Instructor	Days

Period	From/To	Subject	Rm #	Instructor	Days

Period	From/To	Subject	Rm #	Instructor	Days

Eielson PFAS SI

9/2/2020

01243

Arrive CORP Office of the Chena Rec office.  
 Met with Justin Kerwin, Senior Park Ranger, and Dalton Silwis, Park Ranger.

Main concern is they want to monument stick-up in the Flood Plain. That is an active snow mobile area in winter and they want no obstacles in this area

2) May have to move some locations such as MW-18, MW-19, MW-20, MW-21, and MW-22 to tree line edges. They prefer that we cut no paths because this is the first year they have been able to keep 4-wheelers out. Would like to continue this trend.

3) Provided a key for access. We are to always lock the barriers coming and going.

4) Contact Justin or Dalton when we mark locations prior to flagging and calling Alaska 811.  
 Leave site.

1342

Benjamin Leach  
J. Person

17°F, Snowy, Foggy

10/28/2020

- 0700 Arrived at office, reviewed emails and confirmed field forms, drum labels, field sheets, etc.
- 0735 Met Judd Parson at warehouse, calibrated YSI and turbidity meter, recorded in daily calibration log sheet. Loaded up trucks to head to Eielson.
- 0749 Departed from the office to Eielson AFB.
- 0825 Arrived at CE Building on Eielson to meet with Joe Price to gain access to wells 49M01B, 20M14B, and AP-6417.
- 0851 Left for monitoring wells with Joe Price.
- 0943 waited for Joe Price at South Gate entrance, he went to get other contractors to let through same time, got access.
- 0957 Identified well AP-6147 via GPS coordinates with Trimble unit, got within 15 meters distance of well, AP-6147 Behind fence outside of F35 Hanger Area, trying to locate way behind fence. Decided to go to well 49M01B.
- 1023 Looked for Access to wells 20M14B and 49M01B, could not find roads from current location at F35 construction zone. Called Joe Price and asked for access to other south gate access point with combination code, Joe Price said he nor security forces knew <sup>BRC</sup> what the security code was.
- 1045 Went to south main pit road munitions gate to wait for access from munitions, Nicole and Geotech

3 Benjamin Leach  
J. Person

10/28/2020

- 1120 Joe Price arrived at South main pit road with access code to let myself and Judd Parsons, Nicole Stoecklein and Geotech into munitions area.
- 1135 went to area of monitoring well 49M01B and looked for monitoring well.
- 1155 Called Gilbert Manning asking for information of location of monitoring well. No photos available but found out it is a flush mount, 6-7" of snow currently on ground.
- 1216 Resumed search for 49M01B. Could not locate without metal detector.
- 1224 Left site of 49M01B to go meet with Joe Price to ask for escort to monitoring well 20M14B.
- 1231 Departed with Joe Price to gain access to 20M14B, was unable to gain access.
- 1255 Went to Xpress BX to get gas and lunch.
- 1321 Departed to new monitoring well MW06 to begin development.
- 1332 Arrived at MW06, contacted flight ops to let them know we would be developing the well. Set up and waited for 24 hour mark from well installation.
- 1524 Started development of MW06.
- 1625 finished development of MW06. Packed up and disconnected pump and water level meter, contacted flight ops to let them know we were done.

Benjamin Leach  
J. Pearson

10/28/2020

- 1714 Started development of MW02. \_\_\_\_\_  
1810 Concluded development of MW02, packed up, labeled drums,  
took pictures of monitoring well. \_\_\_\_\_  
1849 Left MW02, locked pipeline access gate. Headed  
for LF003. \_\_\_\_\_  
1915 Arrived at LF003 and dropped off drums 181, 182, 183,  
197, 18<sup>BRL</sup> 198, 200, and 201. \_\_\_\_\_  
1922 Left LF003 for Fairbanks, done at site for pay.

*Benjamin Leach*

5 Benjamin Leach  
J. Pearson

18°f, Snowy

10/29/2020

- 0700 Arrived at office/Warehouse, did ysi and  
turbidity calibrations, Packed up trucks.  
0735 Departed for Eielson AFB to meet Joe Price.  
0830 Arrived at Eielson at discussed meeting place to  
meet with Joe Price, waiting for Joe Price.  
0841 Joe Price arrived and let us in through gate,  
went to location of 49M01B to try to find well.  
0854 Began searching for well. \_\_\_\_\_  
0924 Searched Around GPS Coordinate and surrounding  
Area for 30 minutes, estimated 8-10" of snow,  
metal detector might have been affected by freezing  
temps, could not locate 49M01B well casing.  
Documented efforts with photos. \_\_\_\_\_  
0930 Judd parsons left get radio from flight ops to access  
two temp wells in the flight path, Benjamin Leach  
and Joe price stayed on site. \_\_\_\_\_  
1002 ~~Judd~~<sup>Joe</sup> Judd parsons Arrived back on site and started  
plotting points on the trumble, did get radio from flight ops.  
1012 Received Radio approval to go collect GPS coordinates from  
under the flightpath, proceeded to collect. \_\_\_\_\_  
1026 Finished gathering GPS coordinates and left flightpath,  
Judd took radio back to flight ops, Benjamin and Joe  
Price went to MW05 to begin development.  
1054 Judd returned from flight ops and we finished setting  
up for development of MW05. \_\_\_\_\_

5 Benjamin Leach  
J. Person

10/29/2020

- 1257 Left BX to head to MW06 to Begin well sampling.
- 1300 Arrived at MW06, Coiled Flight ops to let them know we would be sampling, setup for sampling.
- 1345 Started sampling MW06, Collected sample 20PS-MW06-1029 at 1453, Collected duplicate 20PS-MW99-1029 from MW06 as well. Collected field blank 20PS-FBPM-1029 at 1515.
- 1533 Packed up equipment at MW06 and let them <sup>BRU</sup> flight ops know that we finished.
- 1538 Headed to BX for gasoline. Proceeded to MW02.
- 1608 Arrived at MW02, set up for sampling.
- 1624 Started purging for sampling MW02.
- 1729 Parameters stabilized, sample 20PS-MW02-1029 collected at 1732. Broke down sampling equipment.
- 1757 Left site of MW02 heading towards LF003.
- 1809 Arrived at LF003, dropped off drums 202, 203, 204, 205, 206, 207, and 208.
- 1816 Left LF003 for Fairbanks, done for day.

*BRU*

6 Benjamin Leach  
J. Person

99F, Snowing

10/30/2020

- 0700 Arrived at office, updated COC, Prepped for Day, Departed for shop in Northpole to drop off Sundace truck.
- 0755 Dropped off Sundance truck, headed to Eielson to meet Joe Price at MW05.
- 0837 Arrived at Eielson, met with Joe and drove to MW05.
- 0844 Arrived at MW05, started ~~de~~ <sup>BRU</sup> setting up to sample well.
- 0912 Started purging MW05, took sample 20PS-MW05-1030 at 1007, took duplicate 20PS-MW99-1030 with sample time at 1200. Packed up.
- 1024 Left MW05 and concluded day with Joe Price as our escort.
- 1043 Arrived at MW04, started setting up for well development. Took Field blank on site at 1057. 20PS-FBAM-1030.
- 1058 Began well Development.
- 1148 Concluded well development and packed up truck. Left site for LF003.
- 1220 Arrived at LF003 and dropped off drums 209 & 214. Took Lunch Afterwards.
- 1301 Departed Eielson for Clena floodplane to attempt to sample MW16.
- 1340 opened floodplane gate and accessed MW016; took

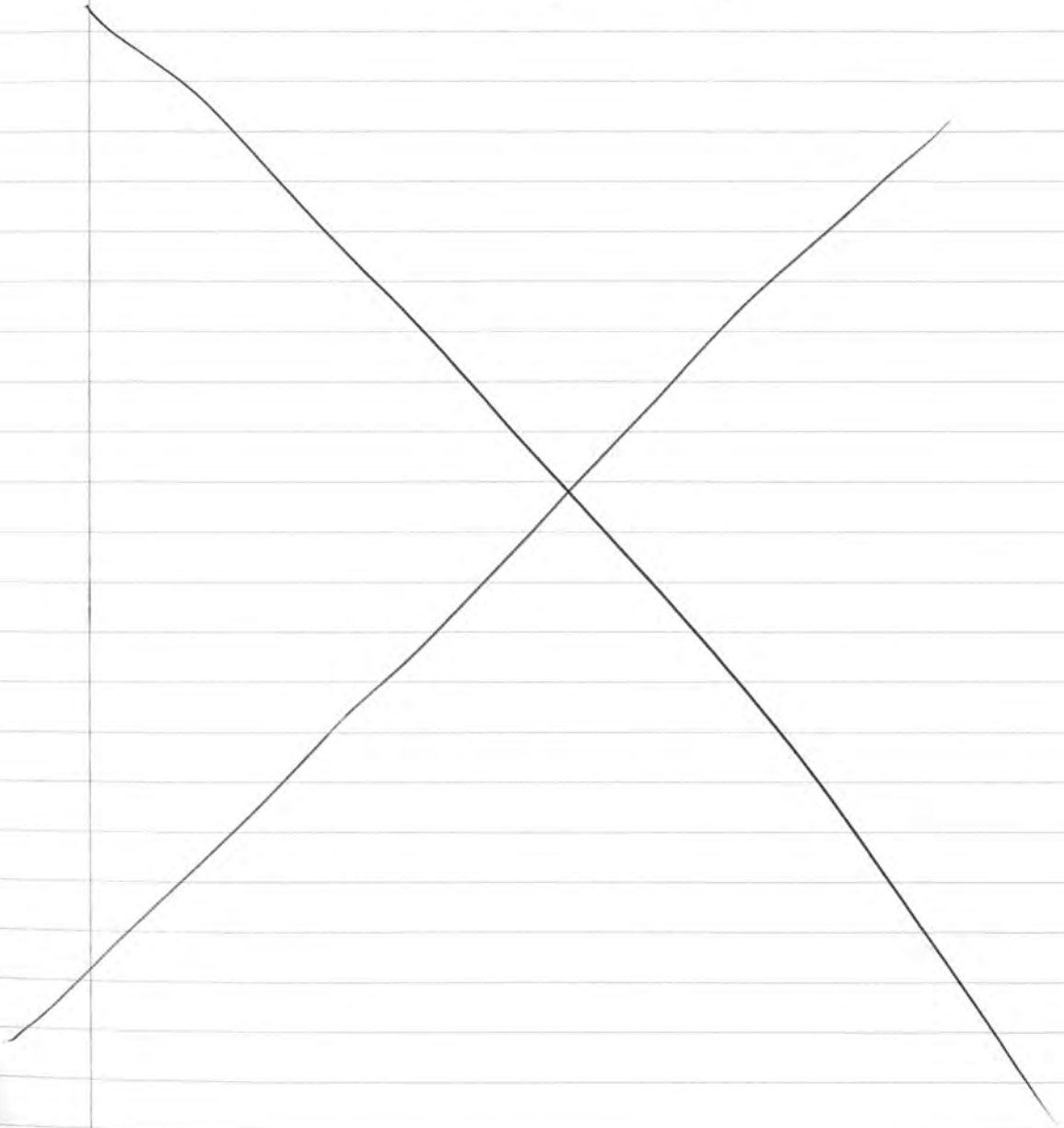
7 Benjamin Leach  
J. Pearson

8°F, Snowing

10/30/2020

1650 Took equipment blank 20PS-EB-1030  
at 1650 after deconing equipment at  
EA Warehouse. Ended day.

*Benjamin Leach*



Partly Cloudy, 43°F, with  
Rain Showers.

9 Sept 2020  
D. Coakston  
T. Herman  
N. Robinson

- 0940 Leave for site  
1020 Complete Daily Tailgate meeting.  
Drive down to location of 20FA-MW-17-0909  
1112 Crew continues to load supplies for MW-17 and MW-16.  
1133 Begin mob to MW-17 and MW-16.  
1330 Arrive MW-16. Begin set up to drill and install  
well for MW-16. This well will be completed  
as a flush mount.  
1350 Begin drilling MW-16 after deconing tooling.  
Check atmosphere with PID = 0.0 Breathing Zone  
LEL = 0.0%  
1350 Picture 001 with GPS. Facing NNE.  
Crew removing soil core from barrel.  
1440 Set well screen and casing.  
Picture 002 with GPS Facing SE.  
1451 Because of heaving sands, Screen is now set at  
17 ft bgl.  
1505 Mob out to MW-17.  
1540 Arrive MW-17. Drillers have materials to pick up in  
Fairbanks. Plan to leave around 1600 hrs to  
make it back to Fairbanks.  
1607 Drill crew departs site.  
Go to where Travis Herman and Noah Robinson  
are sampling. See if they need help.  
1733 Travis and Noah have finished sampling. Depart site  
for office.  
1810 Arrive office. Put equipment in warehouse.  
1845 End of Day.

DHC  
9/9/2020

Dave Coakston

9/9/2020

Partly Cloudy, 37°F  
with chance of showers

71 (77)  
10 September 2020  
D. Cookston

- 0707 Arrive warehouse. Load equipment and gear.  
0740 Leave for site.  
0837 Completed tailgate safety meeting. Leave for MW-17.  
0845 Arrive MW-17. Crew is warming up rig.  
0903 Begin drilling MW-17  
0912 PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%  
0914 Picture 001 - MW-17  
View is looking SW while drilling.  
0917 Picture 002 and 003  
View is WSW for Picture 002 - Set up to decon inner drive rod  
View is SW for Picture 003 - Deconning inner drive rod.  
0928 Begin ~~APC~~ setting MW-17  
Picture 004, View is SW. Installation well screen and casing.  
Bow set 20.75 ft bgl.  
TOC set at 3 ft digl.  
0938 PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.8%  
Chip remaining borehole annulars from 4 ft bgl to surface  
0949 Begin setting stick up monument  
Stabilize inside stick-up monument with pea gravel.  
1011 Finish setting concrete inside sonar tube.  
Pick up trash around area.  
Need to get pad locks. Development tomorrow.  
1056 Rig arrive MW-15. Begin cleaning under brush for  
clear area for rig.  
1108 All set. Deconning drill tooling.  
Picture 004. Decon tooling.  
1112 Begin drilling MW-15  
1115 Picture 005. Joint connection  
1120 PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%  
1137 Begin setting MW-15  
Bow setting at 20.5 ft bgl  
Natural filter gaged at 12 ft bgl.

Daniel J. Cookston  
10-9

9/10/2020

D. H. C. 1120 14

10 September 2020  
D. Coakley

Partly Cloudy, 43°F  
with scattered showers

- 0
- 1
- 1 1201 Used 1 bag Barriod Bentonite Hole Plug.  
Introduced approximately 15 gallons of water while drilling.
- 1 1237 Begin well head completion; This will be completed as a stick up.  
2 Bags sackcrete
- 1 1410 Begin mobbing to MW-14.  
Arrive MW-14.
- 1 1438 Finished drilling MW-14. Begin setting well and casing  
2 - 5' Pre Packed Screens - 0.010 slot with 20/40 Filter Pack  
2 - 10' Blank Casings.
- 1 1505 Borehole heaved. Go get buckets of PFCs Free water to equalize head pressure  
Resume redrill. MW-14.
- 1 1537 Set well and casing. Sand collapsed at 4' bgl. Back fill with 1/2 bag Hole Plug.
- 1 1555 Begin setting stick-up monument.
- 1 1605 Arrive back to parking lot.
- 1 1653 Tell crew that I going to locate next drill location while are gathering supplies.
- 1 1800 Finally arrives with rig. They have to get their other truck. I leave for office
- 1 1823 Arrive office upload equipment.
- 1 1830 Get to office. Noah Robinson ask if I have seen emails from Eileen. I read emails and we have a meeting scheduled with Eileen at 0730 hrs.
- 18 Discuss sample nomenclature with ~~NOAH~~<sup>NOAH</sup> Noah  
I think he has a better understanding of what is now needed.
- 2015 End of Day

DC  
9/10/2020

David Coakley

9/10/2020

Cloudy 30.34 in Hg  
41°F 16 mph wind,  
87% humid.

11-Sept. 2020  
T. Hemmer

(77)

- 1033 Arrive at MW13 install location to meet w/ GeoTek Alaska.
- 1039 Set up GeoProbe on MW13 location.
- 1050 Drillers are deconing drill rods + equipment.
- 1052 Photo taken of decon setup (facing South)
- 1055 Conduct tailgate safety meeting with Dave C.
- 1100 Begin DPT drilling for MW13.
- 1119 Sand is heaving into drill casing. Add 15 gal PFAS free water to casing for head pressure.
- 1120 Prepare screen for installation
- 1130 Screen/casing have been placed into annulus. Pulling dry casing. Took photo facing southeast.
- 1140 Added sand to bring up to 8 feet bgs. Sand is completely covering + above filter/screen. Bottom of well set at 20 ft. bgs. Backfill w/ approx 1 bag bentonite plug (approx 8 ft. bgs to surface)
- 1150 Take GPS location of new well install MW13, using Garmin GPS unit.
- 1154 Dig pit around stickup monument for concrete pad
- 1157 Fill remaining annulus with (backfill) TM Fill stickup casing with pea gravel for stabilization
- 1201 Install locking lid onto stickup monument. Place new combo lock onto lid (Combo is 4751)
- 1205 Mix concrete for stickup pad. Pour + smooth concrete pad. Take GPS photo of completed well MW13 (facing south w/ camera)
- 1208 Install of MW13 is complete. MOB back to MW16 to begin development process.
- 1237 Drill crew is making preparations for development procedures + organizing equipment
- 1412 Arrive at (MW16) for development process. See "New Well Development" field sheet
- 1524 MW16 initial development complete. MOB to MW17 for development =>

11 Sept. 2020

T. Herman

11644 Arrive at MW17 + set up for purge development.

DTW = 3.7' from TOC

DTB = 24.1' from TOC

11649 Begin new well purge development for MW17  
(See Well Development Record Form)

11809 Development complete for 20PS-MW17.  
Clean up site. Drive back to EA office  
Fairbanks.

11837 Arrive at office + unload trucks.

11909 meet in office to communicate field notes/records.

12004 Leave office, drive back to hotel

JH

9-11-2020

9-11-2020

JH

32°F, Partly Sunny, 0 mph Wind

12 September 2020

D. Cookston

- 0804 Leave for site
- 0825 Arrive site. Conduct Tailgate safety meeting
- 0846 Break to go to well development set up at MW-15
- 0851 Arrive MW-15 SWL = 11.76 DTB = 23.79'
- 1018 Removed 10 well volumes. Development is complete.  
Pack <sup>up</sup> and get ready to move to MW-13
- 1030 Leave MW-15 to go to MW-13.
- 1035 Arrive MW-13. Mark Wilkinson's to discuss M&O. I need to talk to Gilbert. I told Mark that I had GPS camera's shipped up from the Lincoln Office. I told him that I was unsure if they had the date stamp.
- 1045 ~~Stop~~ Set up to begin development, MW-13.
- 1055 Begin development of MW-13
- 1059 Photo 001, Well development set up at ~~MW-13~~ <sup>DE</sup> MW-13  
View is looking South South West
- 1207 Finish well development
- 1216 Drive <sup>off</sup> over to near MW-14.
- 1218 Arrive MW-14. Prep to carry everything to MW-14.
- 1315 Trek out MW-14.
- 1325 Arrive MW-14. SWL = 5.94
- 1500 Stop pumping at MW-14. Pack up and ready to move over to MW-18
- 1544 Place IDW labels on drums generated today for MW-13, MW-14 and MW-15.
- 1619 Leave for North Pole to meet up with crew.
- 1628 Arrive North Pole and Busby and Laurance.
- 1654 Crew arrives. Drive to staging area. Take Dave around to barehole locations.
- 1716 Leave for office.
- 1736 Arrive warehouse. Unload equipment.
- 1746 Go to office for paperwork.
- 1915 Finish paper work. End of Day  
D. Cookston

12 September 2020

(710)

Sunny, 35°F, No Wind

9/13/2020  
D. Cookston

- 0843 Go to ~~wake~~<sup>DC</sup> warehouse to load equipment.
- 0854 Depart for site.
- 08~~15~~<sup>DC</sup>0913 Arrive site, Crew is not here, They went to town to use bathroom.
- 0930 Travis Herman arrives to get a drum for sampling.
- 0934 Travis leave to return to their location.
- 0936 Crew arrives back.
- 0940 Have tailgate safety meeting.
- 0944 Crew starts mob equipment and supplies to MW-18 and MW-20.
- 1025 Begin drilling MW-18.
- 1039 Finish drilling to depth on MW-18. Go get buckets of PFAS free water to equalize head pressure in boring. PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%  
Added 15 gallons of water to equalize head pressure.
- 1047 Begin construction of MW-18.  
2 - 5'x2" pre pack screen with 20/40 filter pack,  
1 - 10'x2" Blank screen<sup>DC</sup> casing  
1 - 6'x2" Blank casing.  
Native sand collapsed at 11.17 ft bgl.  
1 Bg of Hole Put<sup>DC</sup> Plug added to grout the well!
- 1103 Install protective steel stickup.  
Add pea gravel inside steel stickup.
- 1105 Rig down, Prepare to finish steel stickup with concrete in sonotube.  
1 60 lb bag concrete mix.
- 1116 Pick up and move to MW-20.
- 1123 Set up rig for drilling.
- 1138 Begin drilling MW-20.
- 1145 PID while drilling = 0.1 ppm.
- 1157 Finished drilling MW-20.
- 1214 Add 15 gallons of water to equalized head pressure.

Sunny, No Wind, 48°F  
Humidity 63%

9/13/2020  
Dave Cookston

77

- 1236 Begin setting MW-20.  
1 - 2" end cap  
2 - 5'x2" pre-packed screens, 0.010 slot filter pack 20/40  
1 - 10'x2" blank casing  
1 - 6'x2" blank casing.  
Native material in borehole collapse at 4.6" bgl.  
1/2 Bag Bentonite Chips.
- 1249 Install protective steel stick-up. Set up to finish well.  
1.5 Bag Pea gravel inside steel stick up.
- 1253 Rig down. Finish well pad.  
1 bags of Sack-crete.
- 1303 Pack up and get ready to mob to MW-22
- 1440 Move to MW-22.
- 1458 Arrive location. Drive driller to location for scoping area before getting equipment in here.
- 1533 Begin drilling MW-22
- 1553 Finish drilling MW-22. Total depth of borehole @ 21 ft bgl.  
Add 15 gallons of PFAS free water to borehole to provide enough head pressure to set well.
- 1555 Begin removal of inner drive rod.
- 1557 Begin setting MW-22.  
2 - 5'x2" Pre-pack well screens. Slot size = 0.010"  
Filter Pack is 20/40  
2 - 10'x2" Blank Casing.  
Remove drive casing.
- 1601 Cut well casing off at 3 ft agl.  
Natural formation collapsed 5.75 ft bgl.  
1.5 Bags 3/8 inch Hole Plug  
1 - J-plug.
- 1616 Cease installation for day. Need materials to install stick up  
Leave site for office
- 1646 Arrive warehouse. Unload equipment.

(78)

9/13/2020

1655 Arrive office. Begin daily paperwork.

~~9/13/2020~~

David S. Anderson

2020/13/9

Mostly Cloudy, 41°F  
Wind 3 mph, Humidity 85%

(79)  
9/14/2020  
D. Cookston

0832 Begin calibration

YSI 556

% DO

pH 4.01

pH 7.00

pH 10.01

Spec Cond

ORP 240 mV

Pre

100.9

4.02

7.01

10.00

1.013

~~239.9~~<sup>m</sup>

241.1

Post

100.6

4.01

7.00

10.00

1.413

240.0

YSI Pro Series

% DO

pH 4.01

pH 7.00

pH 10.01

Spec. Conductivity

ORP

88.5

3.75

6.72

9.85

1333

239.9

100.1

3.74

7.02

10.01

1413

240.0

4 Gas Meter

CO

4 ppm

21

H<sub>2</sub>S

0.0

1.1

O<sub>2</sub>

20.9

20.9

LEL

2%

5%

0928 Leave for site, Noah calls white enroute to drill location, Wants me to unlock gate going to MW-17 until they get a key.

0957 See Dalton Silvis, Park Ranger for Chena Flood Canal, is taking measurement. I asked if we could get another key for the sample crew. He told me to have them give him a call and he would make arrangements.

1012 Arrive site with GeoTek Alaska. They are ready and waiting

Install

1-6" 5' x 6" steel protective casing.

David A. Cookston

9/14/2020

Mostly Cloudy 43°F  
Wind 3mph, Humidity 80%

(80)  
9/14/2020  
D. Cookston

- 1044 1.5 Bags Pea Gravel.  
1106 1 - 60lb Bag Sack crete.  
1110 Mob out of MW-22. Prepare to mob to MW-23  
1136 Mob to MW-23  
1201 Arrive MW-23. Set up to drill MW-23.  
Begin drilling MW-23.  
Down 11 ft. bgl. Hitting refusal because of silt.  
Call Nicole Stockbrein to see if she has encountered  
this issue. Nicole says to call Mark Wilkinson or  
Colleen Rust.  
1206 Call Colleen Rust. I explain to her what we are encountering.  
We discuss the other wells that have been installed thus  
far. Colleen says the QAPP is what we will be  
held to for the wells. I explained that for the seasonal  
variation there may not be an adequate seal placed  
at surface to prevent contamination. Static WL in  
this area is 3-5 ft bgl. The QAPP want 3ft above  
the static. All other wells at this time a total of  
8 wells have been set from approximately 10-20  
ft bgl for the screen. At this time with a conference  
call with Colleen and John Consoletti is occurring to  
confer. John and Colleen understand now of what I'm  
doing to make an adequate seal at the surface. John  
recommends to set a 5ft screen, and to complete  
according to QAPP. Told to get a water level  
and set the screen accordingly.  
1259 No water in borehole. I will send a text to Mark, Colleen  
and John.  
1306 Rig down and backfill hole with bentonite. Prep to move  
to RW-24.  
321 Arrive RW-24. Unload equipment and get ready to install  
and install a well.

9/14/2020

Mostly Cloudy, 52°F  
Humidity 62%, Wind 0 mph

(81)

9/14/2020  
D. Cockston

- 1334 Begin drilling MW-24.  
1404 Drilled to 25 ft. bgl. Check Static WL = 13.53 ft bgl  
Set well from ~~20~~ 10-20 ft. bgl.  
1440 Drilled a total depth of 24 ft bgl. Initially set well  
screen from 10-20 ft. bgl. Measured static WL = 4.52 ft bgl  
then it fell back to 6.32 ft. bgl. Pulled screen up  
to 4.5-14.5 ft. bgl. Backfilled with sand to 3 ft. bgl  
and placed bentonite seal to surface  
Begin construction of surface completion with steel  
stick-up monument.  
2 - 2" x 5' Pre-pack well screens 0.010 slot 20/40 filter pack  
1 - 2" x 10' Blank casing.  
1 - 2" End Cap  
1 - 2" J-Plug  
2 - 50 lb bags filler sand.  
1/2 - 50 lb bag Hole Plug,  
1 - 6" x 5' steel casing with lockable lid.  
2 - 60 lb bags sack-crete.  
No water was added in the construction of this well.
- 1454 Load equipment and mob to MW-25.  
1508 Mob to MW-25  
1514 Arrive MW-25. Unload equipment  
1531 Begin drilling MW-25.  
1548 Finished drilling MW-25. Total depth is approximately  
21 ft bgl. Add 10 gallons of water to equalize head  
pressure.  
1602 SWL = 7.11 ft bgl, DBW = 20.91 ft bgl.  
1607 Set well from 4-14 ft bgl. Add sand filter to 3 ft bgl.  
Bentonite remainder to surface.

1624 Begin surface completion

2 - 5' x 2" Pre-pack screens 0.010 slot with 20/40 filter pack

1 - 10' x 2" Blank casing

Daniel A. Cockston

9/14/2020

9/14/2020  
D. Coakley

- 1 - 2" inch end cap
- 1 - 2 inch J-Plug.
- 1 - 50lb bag 10/20 blotter sand.
- 25lbs Hole Plug.
- 1 - 5 ft x 6 inch steel protective surface casing.
- 2 - Bags Pea Gravel.
- 2 - Bags 60lb sack crete.

1650  
1700

Leave to return to MW-23 to attempt a redrill.  
 Arrive back to MW-23. Talked to Colleen Rust. She says she hasn't spoke with Mark yet but thinks the attempt to redrill MW-23 is a good idea. Move out the offset distance of no more than 25 feet from the original location.

1715  
1722  
1740

It appears the truck with trailer hauling rig may have gotten stuck pulling back out here.  
 Drop off equipment. All set and ready for tomorrow  
 Depart site for office. sample crew  
 Arrive MW-13.

DC  
9/14/2020

Partly Cloud, 46°F  
Wind 5mph ENE, 72% humidity

(83)

9/15/2020

D. Cookston

- 0650 Go to warehouse. Load equipment and begin daily calibration.
- 0748 Leave for site.
- 0815 Arrive site, Waiting on drillers.
- 0821 Drillers arrive. Setup and warm up equipment to drill and install MW-23.
- 0835 Photo 1 View looking Setup on MW-23, <sup>w/ decon,</sup> View is SE  
Photo 2 PID, 4 Gas Meter w/ LEL View is SE  
Photo 3 Drill rod rock View is E
- 0836 Begin drilling MW-23.
- 0850 Static water is approximately at 12.5. Instruct driller to drill to 19.5 ft bgl and set screen from 9.5-19.5 ft bgl.
- 0853 Photo 4 Deconning and setting with drill casing. View Looking SE.
- 0858 Photo 5 Previous drill location where refusal was encountered with pin flag and new off set of 15 ft. View is East.
- 0903 PID = 0.1, LEL = 0%, O<sub>2</sub> = 20.9%
- 0920 Finish drilling. Drilled to 19.5 ft. bgl. Add 10 gallons of water for head stabilization.
- 0921 Photo 6 - Removal of inner rod from drill rod. - View is East
- 0923 Photo 7 - Well casing, screen w/ pre pack, end cap, and J-Plug.
- 0928 Photo 8 - Well installation. View is East
- 0938 Photo 9 - Pea gravel, Hole Plug, and protective steel stick-ups. View look SE.
- 0942 Photo 10 - Blotter sand, 10/20. View is NW  
2 - 5' x 2" Pre pack screens, 20/40.  
1 - 10' x 2" Blank casing.  
1 - End cap  
1 - J-Plug.  
2 - Bags Filter Sand 10/20  
1 - 2<sup>PC</sup> Bags Hole Plug.  
D. Cookston

9/15/2020

52° F Partly Cloudy

9/15/2020  
D. Cookston

(84)

- 0951 Photo 11 - Constructing flush mount installation - View SE
- Photo 12 - Sonar tube and Flush mount - View E
- 0955 Photo 13 - Pouring pea gravel for flush mount - View SSE
- 0957 Photo 14 - Set up to mix concrete - View is E
- Photo 15 - Back filling dirt around Sonar tube for Flush Mount - View is E.

1001 Photo 16 - Flush Mount surface completion finished. View look E.

~~MW-23~~ MW-23 Coordinates

N 64° 43, 889'

W 147° 15, 119'

Elevation 612

MW-23 Refusal

N 64° 43, 888'

W 147° 15, 123'

16  
15

1006 Crew pulls off while I get coordinated for well and initial refusal.

1104 Meet back up with drill crew. They are set up for development. Need to bring equipment down.

1123 Begin development MW-18

1228 Finish development MW-18

GPS Coordinates

N 64, 43, 211'

W 147° 17, 148'

1230 Move and setup MW-20.

1338 Photo 17 - Development equipment at MW-20 - View NW

1350 Finish development MW-20. Secure area. Place IDW label on drum.

GPS

N 64° 43, 227'

W 147° 17, 091'

1424 When trying to leave, GooTek Alaska got on the shoulder  
D. Cookston  
9/15/2020

59° F, Partly Sunny,  
Humidity 50%, Wind SE 4 mph.

9/15/2020  
D. Coobston

of the dike road and has the front and back  
axel off on the shoulder. Geotek Alaska is calling  
to get a wrecker out to pull them out.

1526 Photo 18 - Damage cause by truck sliding off edge  
of shoulder on levee. View is looking West.

1533 Leave for MW-22<sup>DC</sup> 22

1546 Arrive MW-22<sup>DC</sup> Set up equipment for development.

1716 Finished development of MW-22.

Pack up equipment,  
GPS - Coordinates

N 64° 43.764'

W 147° 15.906'

1733 Leave site for office.

1752 Arrive warehouse. Unload equipment.

DC  
9/15/2020

David A. Coobston

9/15/2020

54°F, Wind 5mph E  
Humidity 64%.

(86)  
9/16/2020  
D. Cookston

- 1333 Leave for site
- 1351 Arrive site. Pick up Travis Herman and have him show me the locations for drilling along the Richardson Hwy.
- 1438 Arrive back. Crew is set up and ready. Have Dave with GTA that all drums need to be moved to staging area as per email from Mark Wilkinson
- 1503 Began drilling MW-12.
- 1507 Finish drilling with SP-16 to determine DTW.  
DTW = 5.91 ft bgl.  
Drill to 13 ft. Set screen from 3-13 ft bgl.  
PID while drill = 0.6 ppm, LEL = 0.0 O<sub>2</sub> = 20.9%
- 1524 Begin setting well, MW-12.  
Add 10 gallons of water to stabilize head pressure.
- 1526 Photo #1. Removal of inner rod to set casing. NE
- 1527 Photo #2 Setting well. View is NE
- 1544 Begin finish well with protective cover and concrete.  
1- 2 inch end cap  
1- 2"x10' blank casing.  
2- 2"x5' Prepack screens 0.010 Slot, 20/40 Filter Pack  
1- 2" J-Plug.  
25 lbs. filler sand  
25 lbs Bentonite Hole Plug.  
1- 6"x5' Steel casing.  
1- Aluminum Lockable Cap.  
1- Combo Pad lock.
- 1554 Load equipment.
- 1610 Move and set up MW-11. Had to move pin flag 5ft into tree line. Pin flag is on top of utility.
- 1626 Set up on MW-2<sup>DC</sup> MW-11.  
Photo #3 - View NNW Went into trees to get away from well.  
David A. Cookston  
9/16/2020

56°F Wind 3 mph E  
Humidity 64%

(87)  
9/16/2020  
D. Coakston

- 1631 Begin drill MW-11  
1632 Down 20 feet with SP-16 to check water level.  
Exposing screen.  
1644 SWL = approximately 4.1 feet bgl.  
Total depth of drilling will be 11.5 ft. bgl.  
Screen from 1.5 - 11.5 ft bgl. Blank casing to 3 ft ags.  
1657 Finished drilling to 11.5 ft bgl. Add 10 gallon water  
to equalizer head pressure.  
1658 Photo #4 Adding water to equalize head pressure (view NW)  
1705 Begin construction of MW-11.  
PID = 0.8 ppm LEL = 0% O<sub>2</sub> = 20.9%  
1- 2 inch end cap  
1- 2' inch x 4.5 feet blank casing.  
2- 2 inch x 5 feet pre pack screens, 0.010 Slot  
20/40 filter pack in pre pack.  
1- 2 inch J-Plug.  
1- 6 inch x 5 foot steel protective cover.  
25 lbs 10/20 Filter Sand,  
25 lbs 3/8 inch Bentonite Hole Plug.  
1 Bag 60 lbs sack creet  
1 Bag Pea gravel  
1722 Complete protective steel covering.  
1737 Leave for office.  
1801 Arrive warehouse. Unload equipment.

DCC

David Coakston

9/16/2020

39°F, Wind ESE 3mph  
Humidity 93%

(88)  
9/18/2020  
D. Coelston  
J. Parson

- 0656 Go to warehouse to load equipment and calibrate instruments.
- 0751 Hold tailgate safety meeting.
- 0801 Leave for Moose Creek Landing.
- 0825 Arrive Moose Creek Landing. Drillers to be onsite around 0900 hrs.
- 0908 Geotek Alaska arrives. Sudd is giving direction
- 0937 Arrive MW-10. GTA needs to move 1 drum and will be here shortly.
- 1021 Crew arrive MW-10. Unload and set up.
- 1043 Begin drilling MW-10 with SP-16  
SWL = 6.2 ft bgl.  
Set screen from 3-13 ft bgl.  
PID = 0.0 ppm, LEL = 0.0, O<sub>2</sub> = 20.7%  
Add 10 gallons of water to equalize head pressure
- 1110 Begin well construction.  
1 - 2 inch end cap  
2 - 2 inch x 5 feet prepacked screens, 0.010 Slot, 20/40 filter pack  
1 - 2 inch x 6 ft Blank PVC riser.  
1 - J-Plug.  
1/2 Bag Filter Pack 10/20 gradation.  
1/2 Bag Hole Plug.  
1 - 6 inch x 5 ft. Steel casing, with lid.  
1 - Bag Pea Gravel
- 1123 Finish well install.  
Set up to complete well with sona tube and concrete.
- 1139 Finished construction of MW-10, load equipment move to MW-9.
- 1141 Arrive MW-9. Waiting for crew to arrive.  
Begin unloading equipment. Move and set up.  
Decon SP-16 rod and screen.
- David A. Coelston  
9/18/2020

48°F Wind WSW 0mph  
73% humidity.

89

9/18/2020  
D. Cookston  
J. Parson

- 1201 Begin drilling with SP-16 rod and screen to determine SWL.
- 1207 SP-16 screen is exposed and obtaining SWL  
SWL =  
Broke screen when trying to go back into original bore hole. They will have to offset approximately 1-2 feet.
- 1218 Begin drilling with SP-16 again.
- 1222 Screen is exposed.
- 1228 SWL = 9.5 ft. bgl Set screen from 16.5 - 6.5 ft bgl.
- 1231 Begin drilling MW-9. Total drill depth of 16.5 ft. bgl.  
PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%
- 1246 Finish drilling to depth for MW-9. Add 10 gallons of water to equalize head pressure.
- 1300 Drive rod removed.  
1 - 2 inch end cap  
2 - 5 feet x 2 inch screen w/pre-pack. Slot 0.010 Filter pack 20/40  
1 - 2 inch x 10 foot blank casing.  
1 - 2 inch J-Plug.  
1 bag Colorado Filter Sand - 10/20  
1 bag Hole Plug.  
1 - 6 inch x 5 foot - Steel protective cover  
1 - bag pea gravel.
- 1309 Drill crew running to town to get some additional stick up supplies for next 2 wells.
- 1428 Crew is back from getting supplies.
- 1432 Begin final construction of well protection.
- 1435 Rig down.
- 1447 Begin mixing concrete.  
2 - Bags sack-crete
- 1455 Arrive MW-8. Drillers should be coming shortly.
- 1500 Drillers arrive MW-8. Unload and set up.  
D. Cookston  
9/18/2020

54°F Light Rain  
Wind WNW 9 mph  
Humidity 64%

9/18/2020  
D. Cookston  
J. Parson

1513 Set up. Crew is decommissioning SP-16 to determine SWL.

1517 Begin drilling with SP-16

1526 SWL = 6 ft. bgl

Drill to 13 ft bgl. Set screen 3-13 ft. 1 foot of blotter sand and 2 feet of bentonite.

1532 Begin drilling to 13 ft bgl.

~~1553 DC~~  
~~1547 DC~~  
1545 DC Begin construction of well MW-8

PID = 0.0, LEL = 0.0, O<sub>2</sub> = 20.9%

1 - 2" end cap

2 - 5' x 2" prepacked screens, 20/40 Filter Pack, 0.010 Slot

1 - 2" x 10' Blank casing

1 - 2" J-Plug.

Add 10 gallons water to equalize head pressures

1 - Filter Sand 10/20

1/2 - Hole Plug.

1 - 6" x 5' Steel Protective Casing

1 - Concrete (sack crete)

1 - bag Pea Gravel

1619 Rig down. Prep to complete surface completion

1627 Move to MW-7.

1630 Arrive MW-7. Crew is right behind. Unload equipment. Move and set up.

1647 Begin drilling with SP-16 to determine SWL.

1657 SWL = 7.2. Drill to 14 ft bgl. Set screen from ~~4-14~~ 4-14 ft bgl. 2 feet blotter sand 2 feet bentonite

1707 Finished drilling. Add 10 gallons for head pressure stabilization

1713 Begin setting well MW-7

1 - 2" end cap

2 - 2" x 5' Prepack Screens, 0.010 Slot, 20/40 Filter Pack

1 - 2" x 10' Blank Casing

Daniel V. Cookston  
Daniel V. Cookston

9/18/2020

9/18/2020  
D. Cookston  
J. Parson

9/18/20  
7:00 AM  
9:00 AM

- 1 - 2" J-Plug.
- 1 - Colorado Filter Sand 10/20
- 1/2 - Hole Plug.
- 1 - 6" x 5' Steel Protective cover
- 1 - Pea Gravel
- 1 - Sack crete.

- 1740 Leave for office.
- 1806 Arrive warehouse. Unload.
- 1810 Leave for Wedgewood
- 1824 Drop of Judd Parson.

Date  
9/18/2020

Dave & Cookston

9/18/2020

9/19/2020  
D. Cookston  
J. Parson

- 0659 Go to warehouse to load equipment and calibrate
- 0739 Leave for Moose Creek Landing.
- 0801 Arrive Moose Creek Landing
- 0810 Complete tailgate safety meeting.
- 0818 Leave for Eielson AFB.
- 0849 Plans have change. GTA crew member left his ID back home in Anchorage. We now going to drill MW-18, MW-19 and MW-20, old MW-18 is now MW-31. Old MW-20 is now MW-31.
- 0913 Mob to MW-18.  
Set up to remove stick-up from old MW-18 and turn into flush mount.
- 0937 Photo #1. NW - Setting MW-31 (old MW-18) as flush mount
- 0948 Judd Parson has talked with John Consoletti. SWL = 8.33 ft bgl. John said to split the difference, Screen is to be set at 4-14 ft, bgl. Then complete to surface as a flush mount.
- 0951 Begin drilling new MW-18.
- 0958 PID = 0.0 ppm LEL = 0.0 ppm O<sub>2</sub> = 20.9%
- 1000 Drilled to 14 ft bgl. Begin removal of inner rod but adding 10 gallons of water for head pressure stabilization.
- 1006 Begin setting well MW-18
  - 1 - 2" end cap
  - 2 - 2" x 5' prepack screens, 0.010 Slot, 20/40 filter pack
  - 1 - 2" x 10' blank casing
  - 1 - 2" J. Plug.
  - 1 - Filter Sand 10/20
  - 1 - 6" x 5' Steel Protective Casing
  - 1/2 - Bentonite
  - 1 - Pica Gravel.
  - 1 - Concrete

D. Cookston

(93)

9/19/2020  
D. Cogelston  
J. Parson

1043 Removal of stick up for old MW-20 (now MW-31)

1046 Photo #2 of same above. View is West.

1103 Move and set up new MW-20.

1108 Begin drilling with SP-16 to determine SWL.

1119 SWL = 7.5 ft bgl.

As per email from John Consolotti <sup>DC</sup> on 9/18/2020 if static water is  $< 8$  ft, set well screen from 3-13 ft. bgl.

1129 Add 10 gallons water for water stabilization

1140 Begin construction of MW-20

1 - 2" end cap

2 - 2" x 5' pre-packed screen, 0.010 Slot 20/40 filter pack

1 - 2" x 10' blank casing.

1 - 2" J-Plug

1/2 - Colorado Filter sand to 1 ft bgl. 10/20 gradation

1/2 - Bentonite to surface.

1 - 6" x 5 ft. Steel Protective Cover.

1 - bag Pea Gravel

1 - Concrete

1148 Finish surface completion for MW-20.

1226 Move and set up MW-19.

1231 Begin drilling with SP-16.

1241 SWL @ 7.0 ft bgl. Instruct driller to drill to 13 ft total depth. Set screen 3-13 ft. bgl. Filter sand to 2 ft. bgl and then rest to surface bentonite. This is as per email directive from John Consolotti with Sundance, date 9/16/2020 <sup>DC</sup> 9/18/2020.

1248 Add 10 gallons of water inside drill stem to equalize static head pressure.

1252 Begin construction of MW-19

1 - 2" end cap

2 - 2" x 5' pre-packed screens, 0.010 Slot, 20/40 Gradation  
Dawid A. Cogelston  
9/19/2020

9/19/2020  
D. Cookston  
J. Parson

- 0 1- 2" x 10' Blank casing.
- 0 1/2 - Filter Sand 10/20 gradation
- 08 1- 6" x 5 Steel protective cover
- 01 1 - Bentonite
- 08 1 - Pea Gravel
- 01 1 - Concrete
- 1305 Begin surface completion.
- 1317 Finish surface completion.
- Ready to mob to MW-23.
- 1328 Arrive gate to go in to drill new MW-23. Currently waiting on drillers to arrive. They went to town to fuel trucks and equipment.
- 1418 Move and set up to drill new MW-18.
- 1438 Set up to begin drilling MW-18 with SP-16 to determine SWL = 1.5 ft bgl.
- 1440 Begin drilling new MW-23.
- 1448 Photo #3. View is SE, Set up to drill MW-23 with Geoprobe 8040 DT.
- 1458 Add 10 gallons of water to equalize head pressure  
PID = 0.0 LEL = 0.0 O<sub>2</sub> = 20.9%
- 1501 Photo #4 View is SE. Installation of MW-23.  
1- 2" end cap  
1- 2" x 5' prepacked screens, 0.010 Slot, 20/40 Sand gradation  
1- 2" x 10' blank casing.  
1- 2" J-Plug.  
- Filter Sand, 10/20 gradation  
1- Flush mount,  
1- Bentonite  
1- Pea Gravel  
+ DC.
- 1516 Pull off the DC to mob to MW-15.
- 1548 Arrive MW-15. Prepare to drill new MW-15.

Carol A. Cookston  
D. Cookston

9/19/2020  
D. Cookston  
J. Parson

1604 HDL SWL = 9.12 ft. bgl.

Set 5 ft. of screen as per directive of John Consoletti  
Screen from 5-10. 2 ft of blotter sand, 3 ft of bentonite.

1605 Begin drilling New MW-15.

1612 Add 10 gallons of water to equalize head pressure.

1618 Finish drilling new MW-15.

1-2" end cap

1-2" x 5' pre packed screen, 0.010 slot, 20/40 gradation

1-2" x 10' blank casing

1-2" J-Plug

1.5 - Colorado Filter Sand 10/20 gradation

0.5 - Bentonite.

1 - 6" x 5' Steel protective cover.

1 - Pea Gravel.

1633 Rtg down. Complete surface completion.

1650 Leave for office.

1717 Arrive warehouse

1733 Go to office.

1800 End of day.

~~DLC  
9/19/2020~~

Daniel G. Cookston

9/19/2020

37°F, Wind 3mph E,  
100% Humidity.

9/20/2020  
D. Cookston  
J. Parson

- 0817 Leave for Moose Creek Land
- 0847 Arrive Moose Creek Land. Waiting for Drillers.
- 0852 GTA arrives. Give game plan for days work.
- 0920 Arrive Eielson Security Force. Judd is going in to see if we can get someone to come unlock the gate to gain access to drill MW-3.
- 0948 GTA arrives. Mob over to MW-3.
- 1002 Judd Parson call base security operations to get them to come unlock gate.
- 1005 Security Police arrive to unlock.
- 1011 Move and set up MW-3
- 1027 Photo #1. Setup to drill MW-3. View is SW.
- 1028 Begin drilling with SP-16
- 1036 SWL = 2.0 ft bgl. Instruct drillers to drill to 13 ft. Construct well with screen 3-13 ft bgl. 1 ft of sand to 2 ft. bgl. Finish to surface with Bentonite.
- 1040 Begin drilling with dual core drilling system.
- 1046 Finished drilling to 13 ft. bgl. Pull inner rod. Add 10 gallons of water prior to pulling rod.  
PID = 0.0 ppm LEL = 0.0 O<sub>2</sub> = 20.9%
- 1050 Begin setting screen and casing for MW-3. Photo #2  
View is SW
  - 1 - 2" end cap
  - 2 - 2" x 5' prepacked screens, 0.01051 of 20/40 gradation
  - 1 - 2" x 10' blank casing.
  - 1 - 2" J-Plug
  - 1 - bag Colorado Filter Sand 10/20 gradation
  - 1 - bag Bentonite
  - 1 - 6' x 5' Steel protective cover
  - 1 - bag Pea Gravel
  - 1 - bag Concrete Mix

Daniel A. Cookston

50°F Wind 1 mph N  
64% Humidity

(97)

9/20/2020  
D. Cookston  
J. Parson

- 1104 Rig down and move equipment. Crew is working on surface completion.
- 1116 Finish surface completion. Load equipment to mob to MW-1.
- 1119 Leave for MW-3. Waiting for SP to unlock gate.
- 1142 Arrive MW-3. Unload equipment and prepare to drill.
- 1342 Rig is up and running after getting into position the rig shut down. The crew has been working to get the rig started again, and now have it running.
- 1351 Begin drilling with SP-16 to determine SWL.
- 1357 SWL = 5.5 ft bgl. Set well screen 3-13 ft bgl.  
1 ft of sand 2 ft. of bentonite.
- 1400 Begin drilling with dual core barrel.
- 1411 Photo #3. View is W. Drilling of MW-1.
- 1413 PID = 0.0 ppm. LEL = 0% O<sub>2</sub> = 20.9%
- 1416 Well Construction of MW-1, Photo #4, View is SW.
- 1424 Finish drilling. Rig down. Complete surface completion.
- 1435 Load equipment and prepare to head back over Moore Creek Landing to re-do MW-14.
- 1457 Parking rig for day. GTA driller Dave is not feeling well. According to EA Covid-19 plan Dave is to go home. Go over to development crew.
- 1503 Arrive staging area for drums. Update IDW tracking log.
- 1523 Finish relabel of drums with drum ID. Leave for office.
- 1541 Arrive warehouse. Unload equipment.
- 1556 Arrive office.
- 1630 End of day

DAC  
9/20/2020

Daniel J. Cookston

9/20/2020

32°F, Wind, Wind NE 0 mph  
Humidity 64%

9/21/2020  
D. Cookston  
J. Parson

- (98)
- 0924 Leave for Moose Creek Landing.
- 0947 Arrive Moose Creek Landing drum staging area  
Unload drums.
- 0952 Leave for Moose Creek Landing and meeting GTA,  
0953 Arrive Moose Creek Landing. GTA on site. Unblock gate  
so they can get equipment. Begin mob for new MW-14.
- 1052 Mob and set up  
SWL = 2.56 ft bgl.
- 1100 Begin drilling new MW-14.  
Set screen 3-13 ft. bgl. 2 ft. <sup>DC</sup> 1 ft sand 2 ft bentonite  
While drilling PID = 0.0 LEL = 0% O<sub>2</sub> = 20.9%
- 1123 Finish surface completion for new MW-14.
- 1130 Mob out of site to go drill new MW-13 next.
- 1157 GTA arrive new MW-13, Mob and set
- 1210 Measure SWL in old MW-13. SWL = 8.31 ft bgl.  
Sudd to call to verify screen placement.  
Sudd said that John Consoletti wants the MW-13  
screened from 5-10 ft bgl. with 2 ft. of  
filter sand and remainder to surface with bentonite
- 1224 Begin drilling new MW-13.  
PID = 0.0 ppm LEL = 0.0% O<sub>2</sub> = 20.9%
- 1230 Finish drilling to 10 ft. bgl. Add 10 gallons  
of water for stabilization.
- 1- 2" end cap
  - 1- 2" x 5' ft pre-pack screen, 0.010 slot, 20/40 prepacked filter
  - 1- 2" x 10' ft blank casing
  - 1- 2" J-Plug.
  - 1- bag of Colorado Filter Pack, 10/20 gradation to 2 ft bgl
  - 1- bag of 3/8" Hole Plug Bentonite
  - 1- 6" x 5' Protective Steel Cover.
  - 1- bag pea gravel
  - 1- bag concrete mix.

David A. Cookston  
Randy A. ...

9/21/2020

46°F Wind NE 0mph  
69% Humidity.

(99)

9/21/2020  
D. Cuckston  
J. Parson

- 1300 Told GTA we are on stand-by awaiting further direction from Sundance.
- 1505 Meet up with Sundance. They are developing MW-12.
- 1606 Move to MW-11 for development.
- 1613 Arrive MW-11. Set up for development.
- 1704 Placed IDW Labels onto drums MW-11 and MW-12. Leave for office. Sundance to remain onsite to finish development of MW-11.
- 1729 Arrive warehouse. Unload equipment.
- 1735 Arrive office.

~~Dec  
9/21/2020~~

Dave J. Cuckston

9/21/2020

9/22/2020  
D. Cookston  
T. Hermann  
N. Robinson

100

0117 PID calibration 592-914824  
Zero Cal: 0.0 ppm  
Span Cal: 100.0 ppm  
PID calibration 592-901182  
zero Cal: 0.0 ppm  
Span Cal: 100.0 ppm

- 0852 Arrive drum staging area. Unload empty drums.  
0908 Conduct Tailgate safety meeting.  
0913 Discuss days activities with Judd Parson. We are going to split into 2 teams today for development. Team EA will develop the MW-18, MW-19, and MW-20. Then do MW-23 early afternoon. Team Sundance will develop MW-1, MW-3. Then sample MW-11 and MW-12 this afternoon.
- 0933 Arrive MW-18. Set up for development.  
1038 Arrive MW-20. Set up for development.  
1210 Arrive back from running to North Pole for batteries for YSI.  
1238 Travis and Noah to go set up <sup>up</sup> on MW-23. I'm to go get a drum and meet them back there.  
1301 Arrive MW-23. Set up for development.  
1425 Arrive MW-15. Set up for development.  
1529 Finish updating IDW drum labels. Leave for office  
1556 Arrive warehouse.  
1614 Go to office.

~~Date~~  
9/22/2020

David Cookston

9/22/2020

43° F, Wind 1 mph NE  
Humidity 79%

(101)

9/23/2020  
D. Cookston  
J. Parson

- 0700 Arrive warehouse. Begin instrument calibration
- 0736 Tailgate safety meeting
- 0757 Leave for Artic Fire and Safety
- 0812 Leave Artic Fire and Safety for site.
- 0835 Arrive Moose Creek Landing.
- 0844 Completed tailgate safety meeting GTA. Mob to MW-16
- 0851 Arrive staging area for drums. Unload equipment and track into MW-16.
- 0947 Arrive new MW-16. Setup. Water at surface.
- 0951 Begin drilling new MW-16.  
Complete well with 10 feet of screen. Screen 3-13 feet  
2<sup>DC</sup> 1 foot sand to 2 ft bgl., Bentonite to surface,  
PID = 0.0 LEL = 0% O<sub>2</sub> = 20.9%
- 0957 Photo #1 Drilling of new MW-16. View NW
- 0959 Add 5 gallons water to equalize head pressure.
- 1003 Photo #2 Installation of new MW-16. View NW
  - 1- 2" end cap
  - 2- 2" x 5' prepacked screen, 0.010 slot, 20/40 gradation
  - 1- 2" x 10' blank casing.
  - 1- 2" J-Plug.
  - 1/2 - 20/20 Colorado Filter Pack
  - 1/2 - 3/8 inch chip Bentonite
  - 1 - Flush Mount monument.
- 1037 Mob out to Mob to new MW-17.
- 1053 Arrive Cluster well #1.
- 1101 Begin mobbing to MW-17
- 1123 Arrive new MW-17. Load equipment and supplies.
- 1140 Rig up and drill.
- 1143 Begin drill MW-17
  - PID = 0.0 ppm LEL = 0.0% O<sub>2</sub> = 20.2%
- 1146 Photo #3. View is N. Making connection while drilling.
- 1152 Add 10 gallons of water to equalize head pressure.

*David J. Cookston*

9/23/2020

(102)

9/23/2020

D. Coakston  
J. Parson

1154

Begin construction of MW-17.

1- 2" end cap

2- 2" x 5' prepack screens, 0.010 Slot, 20/20 filter pack

1- 2" x 10' blank casing

1- 2" J-Plug

1/2- Colorado Filter Sand - 10/20 gradation

1/2- 3/8" Bentonite

1- 6" x 5' Steel Protective Casing

2- Concrete

1- Pea Gravel

Photo #4 View NE Construction of well MW-17

1248

Arrive MW-15. Need to redrill because the screen was set to shallow. GTA is mobilizing equipment.

1258

Begin pulling ~~old~~ MW-15 from ground in an attempt to install a deeper well.

1304

Photo #5 View SW. Extraction of well casing and screen from MW-15.

1307

Abandonment of borehole MW-15, ADRD specify that there should be bentonite to DC from immediately above the static WL to the surface. Once the casing was removed the borehole collapsed and bentonite was added to the surface. There was approximately 3 ft hgt of open borehole.

1320

Begin drilling MW-15

1333

Add 10 gallons of water to equalize head pressures.

PHD = 0.0 ppm      LEL = 0.0 %      O<sub>2</sub> = 20.9 %

1336

Begin construction of MW-15

1- 2" end cap

2- 2" x 5' prepack screens, 0.010 Slot, 20/40 gradation

1- 2" x 10' blank casing

1- 2" J-Plug

1- Colorado Filter Sand - 10/20 gradation

9/23/2020

52°F, Wind 6mph N  
65% Humidity

9/23/2020  
D. Cockston  
J. Parson

DC

- 1 - 3/8 inch Bentonite
- 1 - 6"x5' Protective Steel cover
- 1 - Concrete
- 1 - Pea Gravel

- 1412 Mob to MW-13.
- 1442 Drillers arrive back from running to North Pole.
- 1451 Begin mbbing down to redrill MW-13.
- 1514 Begin drilling MW-13  
Abandon old MW-13 according to ADEQ guidelines  
Removed screen and casing. Hole collapsed at SWL  
add bentonite chips.
- 1526 Add 10 gallons of water for head pressure equalization.  
PID = 0.1 LEL = 0.0% O<sub>2</sub> = 20.9%
- 1529 Begin well construction BOH @ 15 ft. bgl. Screen 5-15 ft.
  - 1 - 2" end cap
  - 2 - 2"x5' pre-pack screens, 0.010 Slot, 20/40 Gradation
  - 1 - 2" x 10' blank casing
  - 1 - 2" J-Plug
  - 1 - Colrad Filter Sand 10/20 gradation
  - 1/2 - 3/8 inch Bentonite
  - 1 - 6"x5' Protective Steel cover
  - 2 - Concrete
  - 1 - Pea Gravel.
- 1613 Crew bringing equipment back to Staging area for overnight

Date  
9/23/2020

David J. Cockston

9/23/2020

9/25/2020

104

9/24/2020  
D. Coekston

- 0826 Leave for Moose Creek Land.
- 0850 Arrive Moose Creek Landing. Sundance team is on site  
ETA is enroute to leave. EA sample team should be on site  
in next half hour.
- 0929 Arrive well cluster. Begin mobing to MW-16 to develop.

Date  
9/24/2020

David A. Coekston

9/24/2020

37°F, Showers  
95% Humidity, Wind On/Off

(105)  
9/24/2020  
~~9/25/2020~~ DC  
D. Cookston  
J. Parson  
G. Kornowski

- 0933 Arrive Moose Creek Landing. Sundance team is onsite. Waiting for EA sample team to arrive.
- 0948 Decide to start moving to MW-16.
- 1003 Carry equipment out to MW-16.
- 1130 Arrive MW-16. The well is under water. Sundance wants to remove J-Plug, but I suggest they call before they pull the J-Plug to get some direction. We are directed to cut a hole in the bottom of one of the buckets to create a dam. Then remove the water inside the bucket and near the well casing. The top of casing is approximately 0.5 feet bgl. Static water is at ground surface. Sundance management instructs us to put pump into well and see if we are able to draw down the water in the well. Water in well only draw down approximately 0.5 ft. from top of casing and then when the pump is turned off recharges in 23 seconds. Sundance management says we are unable to develop or sample this well. Move on to next well.
- 1323 Begin development of MW-17.
- 1418 Finish development of MW-17. Move and set up next on MW-15.
- 1536 Begin development of MW-15.
- 1706 Finish development of MW-15. Move and set up on MW-13.
- 1735 Begin development of MW-13.
- 1805 Finish development of MW-13.
- 1837 Arrive warehouse
- 1900 Leave office

Doc  
9/25/2020

David J. Cookston

9/24/2020

Expanded PFOA/PFOS SI  
at Eielson Air Force Base, AK

EA Project No.: 0321403  
2019/2020

Field Book # 2

HIGH TECH MICRO PERFORATION

 TOP|FLIGHT

**STANDARDS**

**1 SUBJECT**

**COLLEGE RULE**

**70**

**Sheets**

10.5 in x 8 in / 26.7 cm x 20.3 cm



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Made in USA

Fairbanks, AK

Geologist - Travis Herman  
Scientist - Noah Robinson

Eielson / Moose Creek Expanded S.I.  
Project # 6321403-0003

9 Sept 2020

**0740** Weather - 46°F, Cloudy, 91% humidity, 30.17 in Hg.

**0745** Calibrate PID unit.

Unit # 901182    0 cal = 0.0 ppm  
Span Cal = 100.0 ppm

Unit # 2 (unknown #)    0 cal = 0.0 ppm  
Span Cal = 100.0 ppm

**0757** Calibrate YSI Pro Plus. (Serial # 0581)

	Standard	Initial	After Calibration
D.O. %	N/A (100%)	<del>91.44</del> 98.3%	98.5%
Conductivity	1413 $\mu\text{S}/\text{cm}$	1257 $\mu\text{S}/\text{cm}$	1415 $\mu\text{S}/\text{cm}$
pH	10.01 pH	9.85	10.01
pH	4.01	4.19	4.01
pH	7.00	6.91	7.00
ORP	240 mV	263.5 mV	240 mV 239.8

**0817** YSI Pro Plus Calibration complete. (See Water Quality Meter Calibration Log)

Continue loading equipment into truck.

**0827** Calibrate Turbidity Meter (Micro TPW)

**0950** Leave Fairbanks EA office for Moose Creek site

**1015** Arrive at parking lot near pond / MW14. Meet with Geotek Alaska drill crew.

**1517** Arrive at Cluster ~~Mouse Creek~~ Cluster 2 to sample 20PS-MW02A (shallow) + 20PS-MW02B (deep)

2

~~JA~~

9 Sept. 2020

9 Sept. 2020

T. Herman

A, B, C, D.

(3)

20-PS-Well# - Shallow/Deep - date

1526 Open well 20PS-MW02A + take PID reading.

PID = 0

Measure DTW - 4.72 feet

Measure DTB - 61.67 feet

1532 Prepare for low flow purge + sample collection

1545 Begin low flow well purge. See "Low Flow Stabilization Form"

1640 Water parameters stabil. Collect sample.

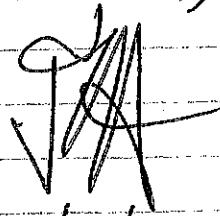
1650 Remove + decon. all equipment. Set up purge for Well 20PS-MW02B (deep)

1740 Well purge stabilization complete. Collect sample.

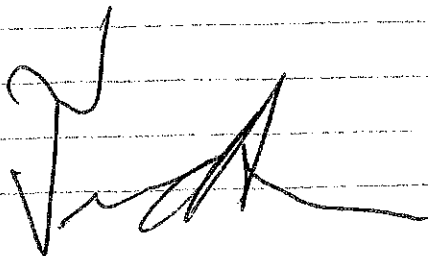
1740 Sampling complete. Clean up + drive back to Fairbanks EA office.

1833 Arrive at office in Fairbanks. Unload truck/equipment.

1904 Drive back to Wedgewood Hotel, Fairbanks

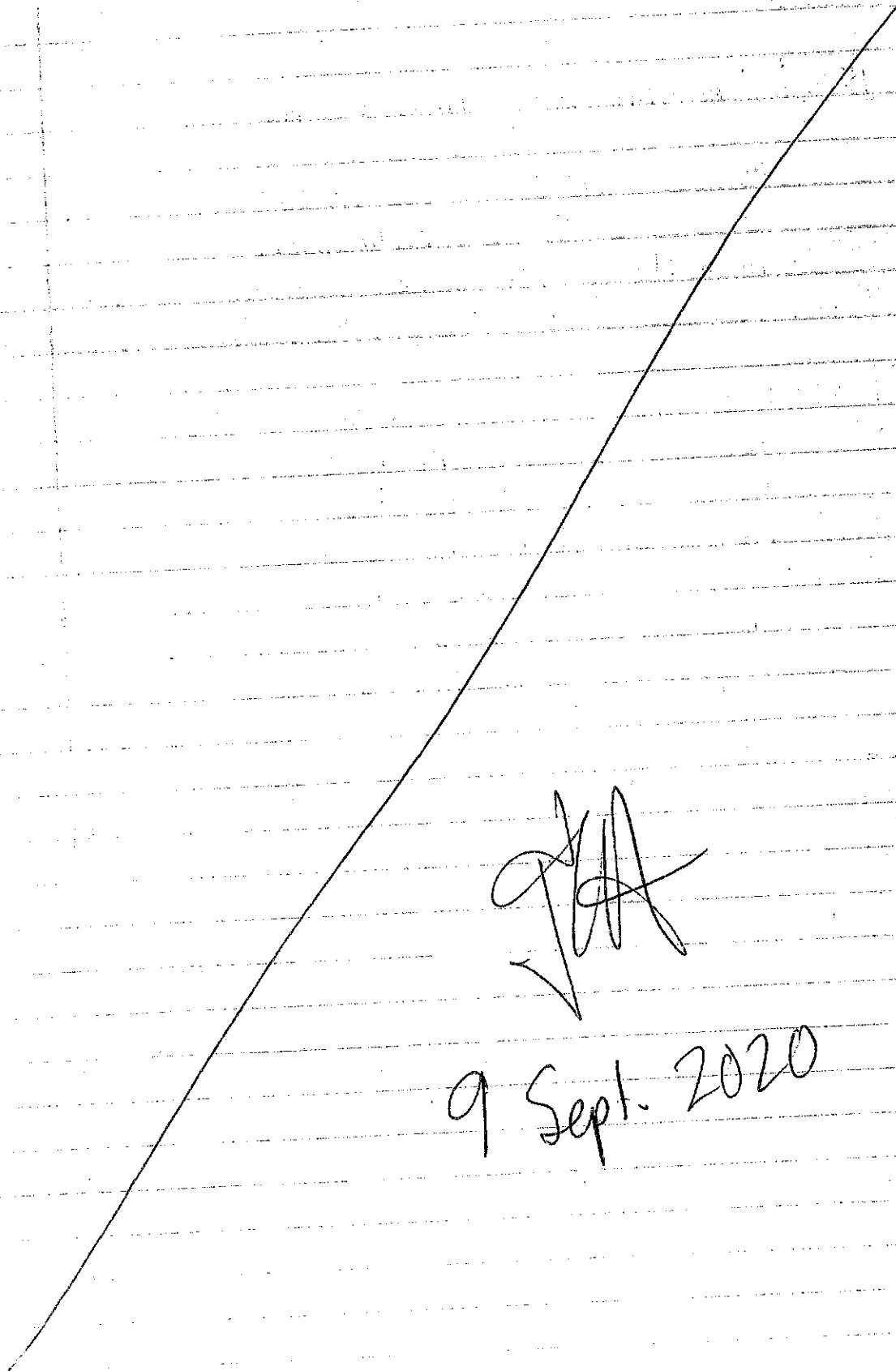


9/9/2020



9/9/2020

(4)



*[Handwritten signature]*

9 Sept. 2020

206335

T. Herman

5

9-10-2020

- 0700 Arrive at EA Fairbanks office
- 0715 Load equipment into trucks from garage.
- 0721 Calibrate YSI Pro Plus.

Parameter	Initial	Final
D.O. (trout) (trout) (10.34 mg/L)	10.33 mg/L	10.34 mg/L
Conduct. (1413 $\mu$ S/cm)	1385 $\mu$ S/cm	1413 $\mu$ S/cm
pH 7.00	7.14	7.00
pH 4.01	4.04	4.04
pH 10.01	10.04	10.01
ORP (240 mV)	<del>22</del> 242.7	240.0

0740 Leave for Moose Creek site.

0747 Arrive at Alaska Industrial Hardware to purchase replacement combination locks for existing wells.

0758 Stop at Fred Meyer to fuel white Dodge Ram EA vehicle.

0830 Attend on site safety tailgate meeting lead by Dave Cookston.

0840 Stop at 20PS-MW02B (deep) to measure DTB with longer water tape.

20PS-MW02B (deep) DTB = 113.98 ft.

0843 Drive to wells 20-DSAP-85 + 20-DSAP-8D to purge stabilize + sample

0857 Arrive at well location. Set up for purge stabilization.

0910 Open 20-DSAP-85 + measure with PID.

PID = 0.00

0912 Set up for low flow purge stabilization. Collect AM field blank.

(6)

~~9/10~~

10 Sept. 2020

T. Harmon

10 Sept. 2020

0913 Measure DTW for 20-DSAP-85

DTW = 13.23 ft.

DTB = 21.03 ft.

0925 Begin low flow purge (see purge stabilization sheet)

1040 Low flow purge stabilization complete. Collect sample, + DUP sample.

1043 Sample collection complete. Clean up equipment / load into truck.

1102 Leave 20-DSAP-85 well location. Drive to next sample location.

11200 Arrive at CS-01 surface water sample collection site.

~~1205~~ 1205 Collect surface water sample CS-01-09102020

1210 Arrive at surface water CS-02 sample location.

1225 Collect sample CS-02-09102020 (surface water)

1228 Sample collection complete. Drive to 19-USAP-1 well location.

1245 Arrive at 19-USAP-1 + attempt to open lock / well casing.

1248 Combsignet for locks did not work. Lock was cut off + removed to access well casing. Set up for purge stabilization.

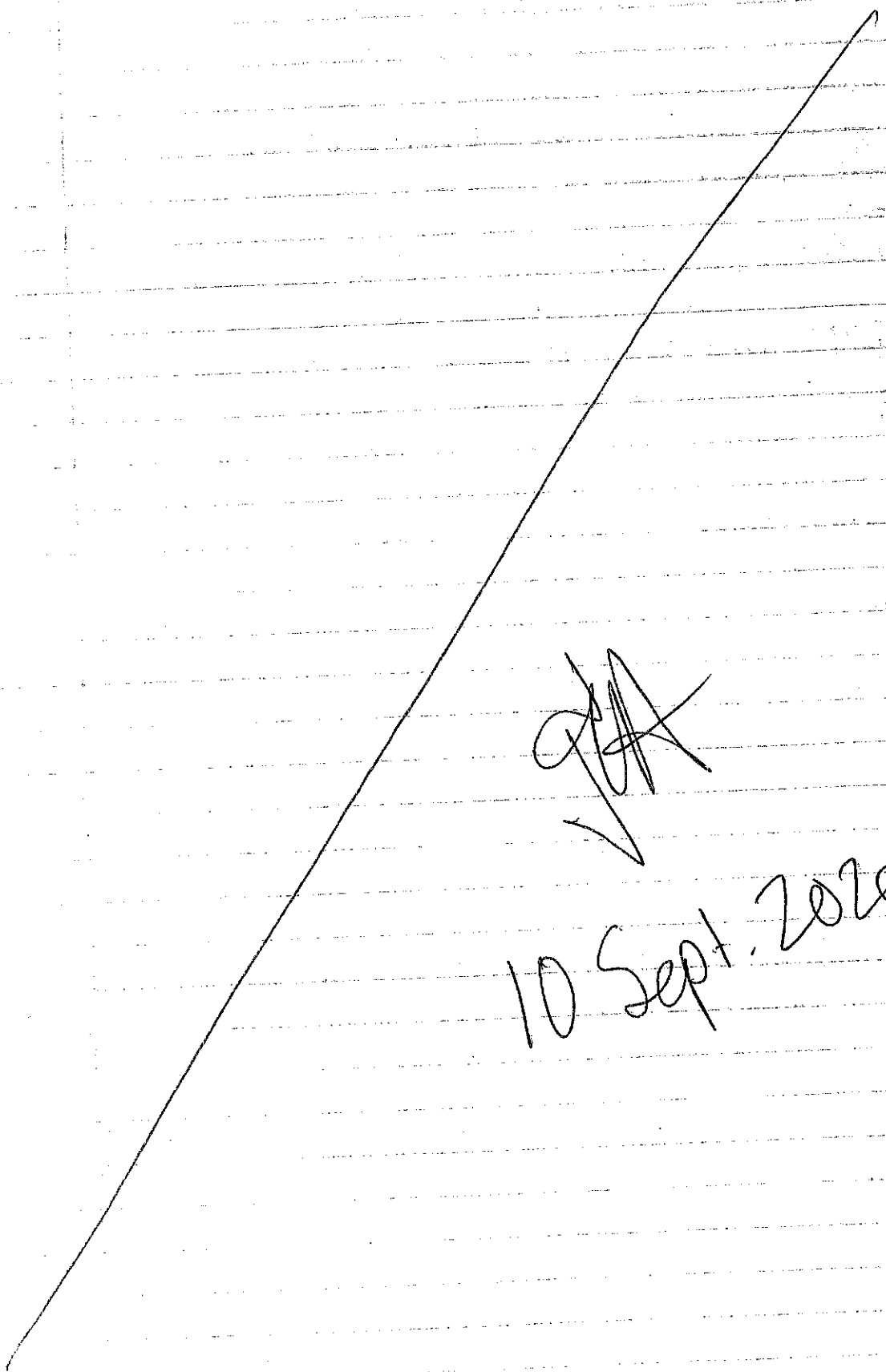
1257 Measure PID PID = 0.00 (no J-plug in place)

1259 Measure DTW = 18.10 ft. from TOC  
DTB = 29.79 from TOC

1310 Begin low flow purge stabilization (see purge form)

1400 Stabilization complete. Collect sample.

1402 Sample collection complete. Clean up site / load equipment. =>



~~PA~~

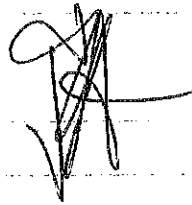
10 Sept. 2020

T. Hermer

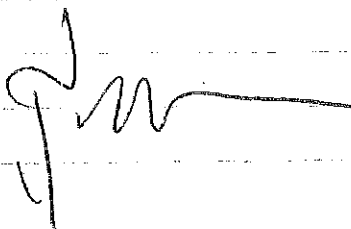
(9)

10 Sept. 2020

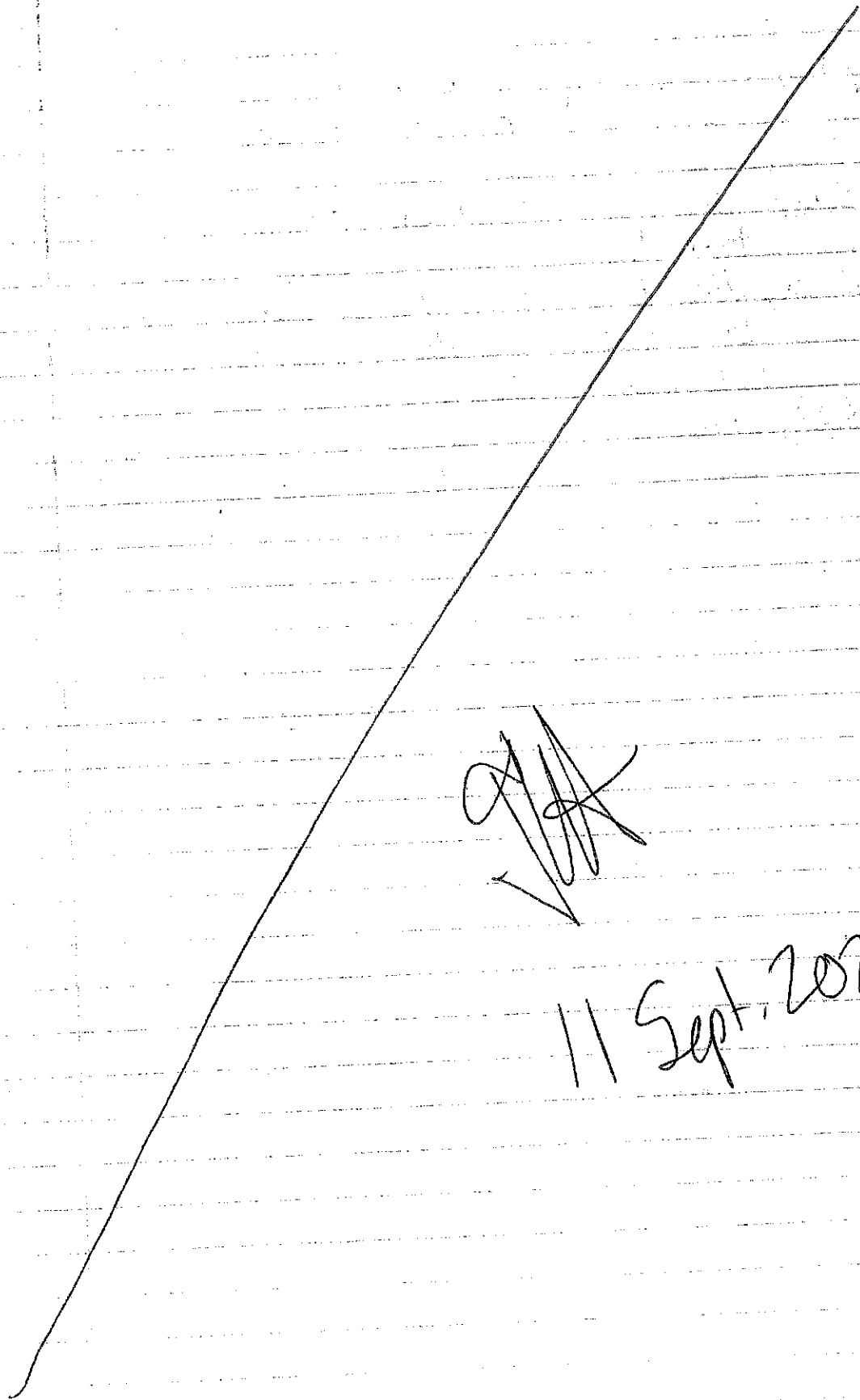
- 1415 Site cleanup complete. Drive back to 20-DSAP-8D to attempt to remove casing lock again.
- 1458 Arrive at 20-DSAP-8D location. Attempt to cut lock.
- 1503 Attempts with bolt cutter was unsuccessful. Drive back to EA shop to look for other lock removal tools.
- 1528 Arrive at EA office Fairbanks. Unload truck. Prepare COC & cooler for shipping.



9-10-2020



9-10-2020



~~XXXXXXXXXX~~

11 Sept. 2020

D. Cookston  
N. Robinson

(11)

0704

36°F, 92% humid, cloudy, 30.36 in Hg

9-11-2020

0710 Calibrate YSI Pro Plus

Standard	Initial	Final
D.O. % <del>122.7</del>	122.7	99.7%
Conductivity (1413 $\mu$ S/cm)	1370	1413
pH 10.04	9.51	10.02
pH 4.01	<del>4.00</del> 4.19	4.00
pH 7.00	7.20	7.01
ORP (240 mV)	222.8	<del>240</del> 241.8

1115 Arrive MW-02A. Set up to resample as a result of conference to fix sampling issues.

1131 Collect AM field Blank

1134 SWL = 4.89 ft. Begin purging.  
PID = 0.0

1149 Set up and Picture DOI of sampling at 20PS-MW02A-0911

1213 Collection of primary samples 20PS-MW02A-0911

1216 Collection of duplicate samples 20PS-MW99-0911

1219 Collection of MS samples 20PS-MW02A-0911MS

1222 Collection of MSD samples 20PS-MW02A-0911MSD

Picture 002 Collection of samples from 20PS-MW02-0911

View locking North

1226 DTB = 56.03 ft.

1227 Move and set up ADC on 20PS-MW02B

1231 DTW = 4.90 for well 20PS-MW02B.

1232 Begin purging well 20PS-MW02B-0911

1317 Collection of primary sample for 20PS-MW02B-0911

1334 Everything packed up. Take YSI and turbidity meter to Travis Herman.

1403 Arrive DSAP-8B. Cut off lock.

1411 Attempts to cut off shaft lock unsuccessful. Leave for TTT rentals.

Daniel A. Cookston

9/11/2020

1437  
~~1437~~  
1442

Arrive TTI to get YSI and Turbidity meter.  
Arrive warehouse to calibrate YSI and turbidity meter.

1440

Begin calibration of YSI

	Pre	Post
% DO	90.4	101.4
pH 4.01	4.03	4.01
pH 7.00	7.24	7.00
pH 10.01	9.84	9.98
Spec Cond.	1.413 <del>1.233</del>	1.247
ORP	240mV / 232mV	253.7
		232.0

1513

Leave to return <sup>C 20°F</sup> to site.

1555

Arrive back to DSAP-85. Set up to sample.

1603

PID = 0.0

1609

DTW = 13.25 ft. Begin purging well ZOPS-DASP-85

1654

Cease purging Set up to sample ZOPS-DASP-85-0911

1655

Begin sampling ZOPS-DASP-85-0911

1657

Stop purging and sampling.

1659

Total depth of well = 27.06

1711

Collect Equipment Blank.

1725

Leave to get trailer

1824

Depart site for office

1846

Arrive office. Unload equipment

1858

Go to office to complete paperwork.

2030

Finish paper work. End of Day.

Date  
9/11/2020

*David J. Carlson*

9/11/2020

11

37° F, 3mph wind, cloudy,  
89% humid, 30.29 in Hg.

T. Hemm  
9-12-2020

13

12 Sept. 2020

0701 Arrive at Fairbanks office, Organize team +  
paperwork. Load trucks with field equipment.

0731 Calibrate YSI 556.

<u>Standard</u>	<u>Initial</u>	<u>Final</u>
D.O. % (100%)	110.7	100.00
Conduct. (1413 $\mu$ S/cm)	1283	1414
ORP (240mV)	231.7	239.9
pH 10 (10.01)	9.58	10.01
pH 4 (4.01)	4.17	4.01
pH 7 (7.00)	7.03	7.00

0745 YSI 552e calibration complete.

0746 Calibrate YSI Pro Plus.

<u>Standard</u>	<u>Initial</u>	<u>Final</u>
D.O. % (100%)	104.2	100.00
Conduct. (1413 $\mu$ S/cm)	<del>1283</del> 1305	1413
pH 10 (10.01)	10.35	10.01
pH 4 (4.01)	4.03	4.01
pH 7 (7.00)	6.88	7.00
ORP (240 mV)	244	240

0758 Calibration of YSI Pro Plus complete.

0800 Leave office for floodplain work site (Moore Creek)

0827 Arrive at Rec Area park lot. Attend tailgate safety  
meeting.

0842 Safety meeting complete. Drive to USAP-1 well  
for sampling.

0853 Arrive at USAP-1 location. Set up for low flow  
purge stabilization.

0959 Stabilization is complete.

1002 Collect sample 20PS-USAP-1-0912 +  
DVP Sample 20PS-MW98-0912. (labeled DVP time 1413)

T. Henner

12 Sept. 2020

11008 Sampling complete. Clean up site / load equipment.  
Discard tools / water tape.

11020 Site Complete. Drive to pick up more bottles  
for sampling from the EA Fairbanks office.

11147 Arrive at CS-02 surface water  
sample location

11151 Collect initial water parameters before  
collecting sample.

YSI Pro Plus - temp: 7.8 °C  
D.O. mg/L: 8.22 mg/L  
ORP: 180.6 mV  
pH: 7.17  
Conduct.: 323.1 µS/cm  
Micro TPM Turbidity: 149.6 NTU



11150 Collect surface water sample 20PS-CS-02-0912.

11158 Sample collection complete.

11205 Drive to CS-01 sample location (surface water)

11211 Arrive at CS-01 sample location. Measure initial  
surface water parameters prior to collecting sample.

YSI Pro Plus - temp: 6.5 °C  
D.O.: 3.81 mg/L  
ORP: 179.0 mV  
pH: 6.93  
Conductivity: 332.7 µS/cm  
Micro TPW Turbidity: 49.72 NTU

11215 Collect samples 20PS-CS-01-0912  
and collect QC samples (~~one~~ field blank, DUP,

\*DUP sample time listed as 1427. MS/MSD)

11219 Complete sample collection DUP sample ID = 720PS-MW97-0112

T. Herman

(15)

12 Sept. 2020

- 1227 Collect PM field blank at CS-01 location.
- 1247 Sampling Complete. at CS-01 location. Drive to drillers to borrow angle grinder to cut lock
- 1311 Obtained angle grinder + generator. Drive to DSAP-8D.
- 1324 Arrive at DSAP-8D. Attempt to cut off lock with angle grinder. grinder.
- 1331 Lock has been removed. Set up equipment to purge + sample DSAP-8D.
- 1343 DTW = 13.25 ft. from TOC  
Begin low flow purge stabilization (see field sheet)
- 1448 Low flow purge stabilization completed. Prepare to collect sample.
- 1451 Collect sample 20PS-DSAP-8D-0912.
- 1454 Sample collection complete. Clean up site. Decom equipment used. Measure DTB.  
DTB from TOC = 66.39 ft.
- 1505 Leave sample site. Drive to drillers location to return angle grinder / generator.
- 1522 Returned equipment to drill crew. Drive back to EA office Fairbanks.
- 1552 Arrive at EA office. Unload samples / equipment.  
paperwork complete. Drive back to Wedgewood, Fairbanks.

*[Signature]*

9-12-2020

9-12-2020 *[Signature]*

36°F Omph wind  
30.3 inHg 90% humid.

T. Hermon  
9-13-2020

(16)

- 0745 Arrive at office
- 0759 Calibrate YSI Pro Plus

Standard	Initial	Final
Conductivity (1413 $\mu\text{S}/\text{cm}$ )	1527	1413
D.O. (100%)	105.3	100.0
pH 7.00	7.19	7.00
pH 10.01	10.22	10.01
pH 4.01	3.98	4.01
ORP (240mv)	254.4	240.0

0812 Calibration of YSI Pro Plus Complete

0813 Calibrate YSI S550  $\Rightarrow$

Standard	Initial	Final
D.O. % (100)	98.4	100.0
Conductivity (1413 $\mu\text{S}/\text{cm}$ )	1286	1413
pH 7.00	7.05	7.00
pH 10.01	10.07	10.01
pH 4.01	4.12	4.01
ORP (240mv)	238.9	240.0

0822 Calibration Complete, Leave for work site

0854 Arrive at MW01 A, Set up & begin low flow stabilization (see field sheet) PID = 0.0

1002 Collect AM field blank sample.

1053 Low flow stabilization complete.

10520 Collect Sample ZOPS - MW01A - 0913 with DUP ZOPS - MW96 - 0913 plus MS/MSD

1107 Sample Collection Complete. (DUP time is listed 1116)

1207 Set up at MW01B, Open well, PID = 0.0

Set up for low flow purge stabilization.

1211 Begin purge stabilization. (see field sheet)

1306 Stabilization Complete  $\Rightarrow$

T. Herman

9-13-2020

~~1308~~

1311

Collect sample 20PS-MW01B-0913

1313

Sample collection complete.

1315

Decon water tape / cutters, Clean up

+ prepare to Mob to MW16.

1425

Arrive at MW16. Remove flush mant lid.

Remove J-plug + test with PID,

PID = 0.0.

1430

Setup + prepare for low flow stabilization

1433

Begin low flow stabilization (see field sheet)

1538

Stabilization complete. Prepare to collect sample.

1601

Collect sample 20PS-MW16-0913. DTB from TOC = 17.05'

1603

Sample collection complete. Clean up site / decon equipment.

Walk back to truck.

1723

At office. Truck has been unloaded.

Complete paperwork

1845

Leave office, drive to hotel

JH

9-13-2020

JH 9-13-2020

43°F, 84% humid, 30.13 in Hg,  
wind 0 mph.

T. Kemmer  
9-14-2020

0702 Arrive at EA office Fairbanks.

0815 Prepare cooler for shipout  
tracking # 8083 60178 5516.

0900 Drop cooler at FedEx for ship out.  
Leave for field site.

1020 Arrive at MW17 location. Setup equipment +  
prepare for low flow stabilization + sampling.

1034 Open well. Measure gases.  
PID = 0.0

Measure DTW = 3.91 ft. from TOC.

1037 Begin low flow stabilization (see field sheet)

1037 Stabilization complete. Prepare to collect sample

1140 Collect 20PS-MW17-0914 + DUP 20PS-MW95-0914 (time = 1304) <sup>DUP</sup>

1143 Sample collection complete. (time listed = 1304)

1145 Measure total depth.

DTB - 23.95' from TOC

TOC to ground level = 3.35'

1149 Seal IDW drum; lock well casing. Clean  
up site.

1200 Finished at MW17 sample location. Drive to  
MW15 sample location.

1205 Arrive at MW15 sample location. Setup equipment.

TH 1222 Open well MW15. Measure gas w/ PID.

1257 Collect PM field blank. PID = 3.1 ppm

Set up for low flow stabilization + begin

1328 Stabilization complete. Prepare to collect sample  
20PS-MW15-0914.

1257 Collect PM field blank.

1331 Collect sample 20PS-MW15-0914

1334 Sample collection complete.

1335 Measure total depth.

MW15; DTB → 23.62 ft. from TOC

T. Hemman

(19)

9-14-2020

1343 Site cleanup + equipment decon complete. Drive to MW 14 well site location.

1347 Prepare gear to walk into MW 14 location.

1410 Arrive at MW 14 well location. Set up for low flow stabilization.

1412 Open well MW 14. Take PID reading  
PID = 0.0

1413 Measure DTW.

DTW = 6.30 from TOC.

1419 Begin low flow stabilization. (see field sheet)

1534 End low flow stabilization (stabilized) Prepare to collect sample.

1534 Collect sample ZOPS - MW 14 - 0914

1538 Complete sample collection. Measure DTB.

DTB from TOC = 23.66 ft.

1540 Decon equipment. Clean up site + walk back to truck.

1603 Finished at MW 14 location. Drive to get extra gate key from park ranger.

1638 Key was obtained from park ranger. Arrive at MW 13 sample location. Set up for low flow stabilization.

1645 Open well, measure gas with PID.  
PID = 0.5 ppm.

1647 Measure DTW from TOC

DTW = 11.12 ft. from TOC.

1659 Begin low flow stabilization for MW 13 (see field sheet)

1814 End low flow stabilization. Prepare to collect sample

1816 Collect sample ZOPS - MW 13 - 0914

1818 End sample collection

1819 Measure Total Depth

DTB from TOC = 22.03 ft.



T. Herman

14 Sept. 2020

(20)

1821 Decon equipment, Clean up site & load truck

1829 Site decon / cleanup / load complete. Drive back to EA office Fairbanks.

1853 Arrive at office. Unload truck.

1904 Meet in conference room for final paperwork / daily field report.

1957 Leave office for hotel

JAH

9-14-2020

JAH 9-14-2020

46°F, wind 3mph, 74% humid,  
29.93 in Hg, cloudy.

T. Herman (21)

15 Sept. 2020

- [0700] Arrive at office. Load cooler with previous days samples. Load truck with equipment.
- [0830] Drive / Drop off sample cooler at FedEx Ship center.
- [0847] Drive to JTT + pick up new bottle of Conductivity standard (1413  $\mu\text{S}/\text{cm}$ ).
- [0901] Attempt to pick up package for Dave C. at Fed Ex (3rd street). I.D. is required for pickup.
- [0914] Arrive back at EA office to coordinate drum pickups for IDW on base.
- [1003] Hook up trailer to Dodge Ram. Drive to Arctic Fire + Safety. Purchase / pick up 10 30 gallon size drums + 5 wood pallets. Haul on trailer back to office.
- [1034] Arrive at office. Attempt to get approval to stage empty drums off base at Cheema Rec. Area.
- [1200] Place drums in storage shop for now.
- [1500] Drive to Eielson base + obtain base passes.
- [1400] Base passes obtained. Enter through South entrance + attempt to locate existing wells for sampling.
- [1530] Drive back to EA office. Email Dave daily activities. Email Colleen Rust about well ID's not matching on base. Wait to hear back.
- [1629] Done at office. Drive to hotel.

JA

9-15-2020

9-15-2020

JA

22

46° F, rainy, 92% humid,  
wind 3 mph, 30.06 in Hg

T. Herman  
16 Sept. 2020

- 0807 Calibrate YSI, turb. meters, PID  
Drive to site, Safety meeting
- 0920 Meet w/ drillers & set up for  
New well development at MW23 location
- 0923 Began development (see field sheet)
- 1032 End well development
- 1050 Truck/equipment is loaded, Prepare  
to drive to MW24.
- 1111 Arrive at MW24. Set up for New well development
- 1129 Began purge development (see field sheet)
- 1204 Development of MW24 complete, Clean up & drive  
to MW25.
- 1221 Arrive at MW25 well location.  
Set up for purge development of new well.
- 1230 Began purge development of MW25 (see field sheet)
- 1310 End purge development DTW = 11.70 ft. @ start.
- 1322 Site is cleaned up, Lock placed on lid for MW25.  
~~Drive to MW18 location for sampling~~
- 1447 Finished locating next 4 drill locations  
with Dave. Sample collection to start  
tomorrow 9-17-2020.
- 1512 Drive back to EA Fairbanks & Alena  
Arrive back at office. Unload truck.

*[Signature]*

9-16-2020

*[Signature]* 9-16-2020

50°F, ENE 11mph, 65% humid,  
29.55 mHg, mostly cloudy.

T. Henman

(23)

17 Sept. 2020

0700 Arrive at EA Fairbanks office

0715 Calibrate Micro TPW turbidity meter

<u>Standard</u>	<u>Initial</u>	<u>Final</u>
1000 NTU	980.4	1000
10.0 NTU	10.0	10.0
0.02 NTU	0.02	0.02

0724 Calibrate YSI Pro Plus

<u>Standard</u>	<u>Initial</u>	<u>Final</u>
Conductivity (1433)	1524 $\mu$ S/cm	1413 $\mu$ S/cm
pH 7.00	7.26	7.00
pH 10.01	9.81	10.01
pH 4.01	4.43	4.01
ORP (240 mV)	225.2	239.8
D.O. (100%)	102.0	<del>100.0</del> 100.7

0735 Calibration complete  
Leave for field

0906 Arrive & set up at MW18.

0910 Open well. Measure gas with PID on MW18.  
PID = 0.0

Measure DTW.

DTW = 11.69 ft. from TOC.

0911 Begin low flow purge stabilization (see field sheet)

0917 Collect AM field blank

0920 Low flow purge stabilization complete. Prepare to collect sample.

0959 Collect sample 20PS-MW18-0917, MS/MSD, &  
DUP sample 20PS-MW94-0917

1007 Complete sample collection  
Measure DTB = 21.96 ft. from TOC

(24)

T. Herman

9-17-2020

11010 Decon equipment (water type) + clean up site. Move to MW 20 for stabilization/sampling.

11023 Open well ZOPS-MW20

PID = 0.0 ppm

DTW = 5.88 ft.

11032 Begin low flow purge stabilization (see field sheet) parameter stabilization complete. Prepare to sample.

11105 Collect sample ZOPS-MW20-0917.

11106 Sample collection completed.

11107 Measure DTB

DTB = 23.40 ft.

11118 Clean up site. Decon equipment. Done at MW20. Drive to MW23. MW22

11141 Arrive at MW22. Set up for stabilization + sampling. Open well.

PID = 0.0 ppm

DTW = 7.71

11155 Begin low flow stabilization

11245 Complete stabilization

11246 Collect sample ZOPS-MW22-0917.

11247 End Sample collection

Meas. DTB

DTB = 23.89 ft.

11250 Decon equipment, clean up site, load trucks

11256 Drill crew remaining drum + transport to staging area.

Drive to MW23.

11307 Arrive at MW23 location. Set up for purge/sampling. Open well. PID = 1.0 ppm DTW = 13.91

11321 Begin low flow purge stabilization for MW23 (see field sheet)

11406 Complete low flow stabilization. Prepare to sample.

11408 Collect sample ZOPS-MW23-0917

11411 Sample collection complete

Measure DTB = 19.12'

(25)

T. Herman

9-17-2020

1418 MW23 Site equipment is decontaminated. Drive to MW24 for purge + sampling.

1428 Arrive at 20PS-MW24 location. Open well, measure gas w/ PID.

PID = 0.0 ppm

Measure DTW

DTW = 12.63'

1439 Begin low flow purge stabilization

1519 Stabilization complete. Prepare to sample.

1520 Collect Sample 20PS-MW24-0917

1525 End sample collection

1525 Decon equipment. Clean up site 20PS-MW24. Drive to MW25.

1537 Arrive at 20PS-MW25. Set up for purge stabilization + sampling.

1539 Open well. Measure w/ PID.

PID = 0.0 ppm.

Measure DTW = 11.79 ft. from TOC.

1548 Begin low flow purge stabilization

1628 Complete stabilization, Prepare to sample.

1630 Collect sample 20PS-MW25-0917

1632 Complete sample collection

Total Depth from TOC = 16.71 ft.

1634 Decon equipment. Load truck / clean up site

1638 Drive to pick up trailer from drum staging area.

1710 IDW inventory has been updated at staging location.

Drive back to office in Fairbanks.

1740 Arrive at office. Unload equipment.

1750 Meet in conference room to wrap up DFR / paperwork.

1830 Drive back to Wedgewood hotel.

9-17-2020

9-17-2020

(26)

45°F, mostly cloudy, NW 5 mph,  
82% humid, 29.44 in Hg.

T. Herman  
9-18-2020

[0700] Arrive at office. Prepare to load truck, calibrate equipment.

[0709] Calibrate YSI Pro Plus + YSI 5500.

YSI Pro Plus-

Initial

Final

D.O. %  
Conductivity  
pH 7.0  
pH 10.01  
pH 4.01  
ORP

See field  
calibration sheets.

YSI 5500

D.O. %  
Conductivity  
pH 7.0  
pH 10.01  
pH 4.01  
ORP

[0800] All calibration complete. Truck is loaded.

Drive to TTT for supply pickup.

[0817] Filled fuel. Arrive at TTT rentals.

[0834] Picked up gloves, peristaltic pump, + tubing from TTT.

Drive to job site.

Drive to HCMW01 S/D

[0921] Arrive near HCMW01. Use Trimble to locate wells.

[1017] Well listed as DWL1A/Hemw01S

DTW = 10.04 ft. from TOC

DTB = 16.88 ft. from TOC



(27)

T. Herman

18 Sept. 2020

#2 Well listed as DWCLB/HCMW01-D,  
DTW = 10.18' from TOC      PID = 0.0  
DTB = 75.95' from TOC.

#3 Well listed as DWCLC /      PID = 0.0  
DTW = 10.65' from TOC  
DTB = 208.80' from TOC

1023 Prepare to sample wells #1 DWCLA/HCMW01-S  
+ #2 DWCLB/HCMW01-D.

1041 Begin purge of wells to stabilize.

1116 End/complete purge stabilization. Prepare to sample HCMW01-S

1118 Collect sample HCMW01-S

1120 ~~Collect sample HCMW01-D~~ Finish collection of HCMW01-S.

1131 Complete purge stabilization for HCMW01-D. Prepare to sample.

1133 ~~See~~ Collect sample HCMW01-D.

1135 Complete sampling. Decon equipment. Load equipment.

1145 Done. Drive to HCMW04-S + HCMW04-D.

Attempt to locate using Trimble coordinates.

1228 Arrive at HCMW04-S + HCMW04-D cluster.

Set up for Low Flow purge stabilization.

1231 Open both wells. Measure gases.

PID = 0.0 ppm for both wells.

Measure DTW + DTB for 3 wells in cluster.

left #1 HCMW04- DTW = 9.56'      DTB = 209.36'

#2 HCMW04- DTW = 9.98'      DTB = 75.48'

right #3 HCMW04- DTW = 9.98'      DTB = 16.84'

We will be sampling #2 + #3.

28

T. Hermon

18 Sept. 2020

- 1250 Begin Low Flow stabilization (see field sheets)
- 1301 Collect field blank for Wells HCMW04-S + HCMW04-D,
- 1322 End stabilization for HCMW04-S
- 1325 Collect sample #E 2OPS-HCMW04-S + DUP sample 2OPS-MW93-0918 (DUP time = 1514)
- 1328 End sample collection
- 1337 End purge stabilization for HCMW04-D.
- 1339 Collect sample 2OPS-HCMW04-D-0918.
- 1341 Sample collection complete. Decon equipment + clean up site + depart for next location.
- 1427 Arrive at location HCMW02-S + HCMW02-D.
- 1432 Open wells + measure gas w/ PID.

Road	left	⊕ #1	HCMW02WT → DTW = 9.26' DTB = 18.60'
		⊕ #2	HCMW02MD → DTW = 9.70' DTB = 75.52'
	right	⊕ #3	at HCMW02DP → DTW = 9.38' DTB = 204.18'

PID = 0.0ppm for all 3 wells.

We will be sampling HCMW02 wells #1 + #2 (shallowest + middle depth).

- 1450 Begin Low Flow purge stabilization on both wells
- 1529 End purge on HCMW02-S
- 1531 Collect sample 2OPS-HCMW02-S-0918
- 1544 End/complete stabilization parameters for 2OPS-HCMW02-D
- 1547 Collect sample 2OPS-HCMW02-D-0918
- 1550 Decon equipment / clean up site.
- 1601 Leave base. Drive back to TTT to pick up more HDPE tubing, then drive to office.
- 1627 Pick up additional tubing from TTT Environmental.
- 1633 Arrive at EA office Fairbanks. Unload truck.
- 1700 Leave office. Drive to hotel.

9-18-2020

JAH 9-18-2020

43°F, cloudy, 91% humidity,  
29.69 inHg, ENE 0 mph.

T. Herman  
19 Sept. 2020

(29)

0700 Arrive at office. Prepare to load truck.

0739 Truck is loaded. Calibration completed. Drive to  
Moose Creek morning team meet location.

0800 Arrive at Moose Creek Landing. Attend tailgate safety  
meeting.

0815 Safety meeting completed. Drive to first sample location  
on Eichen AFB.

0901 Arrive at wells HCMW05-S + HCMW05-D.

~~Road~~ Unload + set up equipment.

Open wells. Measure gases. Decon equipment between wells.

Shallow #1 DWCSA (from top) PID = 0.0 ppm DTW = 4.52' DTB = 13.98'

Deep #2 DWCS C | PID = 0.0 ppm DTW = 4.94' DTB = 208.98'

Medium #3 DWCS B ↓ PID = 0.0 ppm DTW = 4.10' DTB = 74.96'

\* We will be sampling the 2 shallower wells.

DWCSA + DWCSB.

0931 Setup for low flow purge stabilization on both shallow  
wells.

0937 Begin low flow purge on both wells.

~~End stabilization for HCMW05-S. Prepare to sample.~~

~~Collect sample 20PS-HCMW05-S-0919.~~

1001 Collect Am field blank.

1027 End stabilization for HCMW05-S. Prepare to sample

1029 Collect sample HCMW05-S-20PS-HCMW05-S-0919,  
with MS/MSD samples.

1035 Complete samples for 20PS-HCMW05-S.

1047 Complete purge for 20PS-HCMW05-D. Prepare to sample

1049 Collect sample 20PS-HCMW05-D-0919 and collect

DVP sample 20PS-MW92-0919. (time listed as 0814 for DVP)

1054 Sample collection for 20PS-HCMW05-D complete.

1055 Decon equipment / clean up site.

1106 Leave site. Drive to next sample location



(30)

T. Henman

19 Sept. 2020

1141 Arrive at Wells HCMW03-S + HCMW03-D.  
Open + measure gas with TP PID.

HCMW03-S : PID = 0.0 ppm  
DTW = 4.19' DTB = 13.20'

HCMW03-D : PID = 0.0 ppm  
DTW = 4.06' DTB = 72.08'

\* Measurements from TOC.

1159 Set up equipment for Low Flow Stabilization.

1207 Begin low flow purge stabilization for both shallow/deep wells.

1257 Stabilization complete for HCMW03-D (deep)

1301 Collect sample 20PS-HCMW03-D-0919

1303 Sample collection complete for HCMW03-D.

1307 Complete stabilization for HCMW03-S.

1311 Collect sample 20PS-HCMW03-S-0919

1313 Sample collection complete. Decon equipment.

Clean up site.

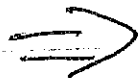
1324 Done at location. Drive to next sample location MW-4 on Eielson AFB.

1419 Arrived at Trimble coordinates for MW-4 location. Well not found. Searched large area surrounding coordinates for MW-4 stick up casing + also used metal detector to search for a flush manhole well. After approx 45+ minutes of 3 people searching area + perimeter visually + w/ metal detector well MW-4 has not been found.

Drive to next well location ~~ATM~~ 51MB4.

1451 Well 51MB4 was located + found to be extremely frost jacked. Well is severely damaged + unable to be sampled.

\* 2 Photos taken w/ GPS camera (#3916 + #3917)  
facing south when photo was taken.



19 Sept. 2020 (31)  
T. Herman

11453 Drive to on base IDW location to stage IDW drum from today.

11508 Arrive at on base staging area (currently flooded). Unload IDW drum from today's activities.

11530 Leave Eielson Air Force base and head to Moose Creek Landing for group meeting. Drive to ~~site~~ surface water sample location following.

11611 Arrive at CS-03 (relocated MU 21) for surface water sample collection.

11627 Take initial surface water parameters using YSI Pro Plus.

Temp - 8.4°C

DO mg/L - 7.80

Spec. Cond. - 244.1  $\mu$ s/cm

pH - 7.36

ORP - 137.1

11629 Collect surface water sample 20PS-CS-03-0919 + MS/MSD. Also collect DUP sample 20PS-MW91-0919 with DUP time listed as 1814.

11640 Take photos of surface water CS-03 collection location  
photo # 3915 facing SE  
photo # 3914 facing SW

11646 Drive back to EA Fairbanks Office

11715 Arrive at office. Unload samples to refrigerator. Unload truck equipment.

11733 Meet in office conference room to complete daily

11802 <sup>paperwork</sup> Leave office. Drive back to Wedgewood.

*T. Herman*  
19 Sept. 2020

*JHA*  
19 Sept. 2020

32

36°F, fog, NNE 5mph,  
100% humid, 29.82 in Hg.

T. Hennan

20 Sept. 2020

0700 Arrive at EA office Fairbanks

0711 Go to shop to calibrate YSI. (See calibration sheets)

0900 Pickup development pump at shop. Drive to MW-07 location for development.

0929 Arrive at MW07. Set up for new well development.

0945 Measure initial DTW + DTB prior to development  
PID = 2.6ppm DTW = 10.26' (from TDC)  
DTB = 17.44' (from TDC)

0959 Begin purge development for new development of MW07. (see field sheet)

1044 New development of MW07 complete. Decon equipment. Clean up site. Prepare to move to MW08 for development  
MW07-New DTB post development = 17.46 ft.

1057 Drive to MW08 location.

1102 Arrive at MW08. Set up equipment for New Well Development.

1106 Open well MW08. Measure gasses, DTW, + DTB, (from TDC)  
PID = 0.0 ppm  
DTW = 8.96'  
DTB = 16.45'

1117 <sup>71</sup> ~~1113~~ Begin New well development (see field sheet for MW08)

1202 New well development of MW08 complete. Decon equipment, clean up site, prepare to move to MW09 location  
DTB after development = 16.56 ft. from TDC.

1220 Site cleanup complete. Drive back to MW07 to stage IDW drum from MW08 development.

1227 IDW drums are staged at MW07 location. Drive to MW09 location for development.

1230 Arrive at MW09 location. Open well + measure  
PID = 6.4ppm DTW = 12.30 ft. DTB = 19.57 ft.

1246 Begin New well MW09 purge development.

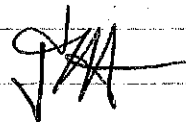


T. Hermin

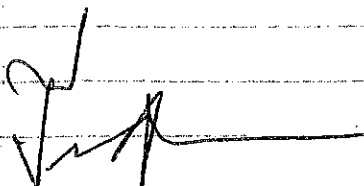
(33)

20 Sept. 2020

- 1331 Development Complete. Purged approx 18 well volumes. NTU's still slightly high but developed well past the 10 well volume maximum.
- 1333 Clean up site. Decon equipment / load equipment.
- 1340 Drive to Cheema Flood Plain to pick up empty drum for IDW from development.
- 1351 Arrive at MW10 w/ IDW drum. Set up for New well purge development of MW10. PID = 7.5 ppm DTW = 9.17 ft. DTB =
- 1401 Begin purge development for 20PS - MW10.
- 1449 Complete purge development for 20PS - MW10.
- 1450 Decon equipment. Clean up site.
- 1458 Finished at 20PS - MW10. Drive to IDW drum staging area to re-number IDW drum labels.
- 1504 Arrive at Cheema Floodplain IDW drum staging area. to make sure drums are labeled correctly with new MW ID's. matching IDW tracking log.
- 1522 IDW tracker updated. Drive back to office.
- 1551 Arrive at office. Unload truck. Finish paperwork in office.
- 1630 End of day



20 Sept. 2020



20 Sept. 2020

(34)

32°F, mostly cloudy,  
90% humid., ENE 3 mph, 29.63  
in Hg.

T. Herman  
21 Sept 2020

0700 Arrive at office. Complete paperwork for CoC's  
+ shipping.

0715 Mobilize to waste house to calibrate equipment and  
pack sample coolers

0923 G. Kofrowske & M. Robinson mobilize to MW07 while  
T. Herman brings coolers to FedEx to ship

0945 Arrive at 20PS-MW07-0921 and begin set up for  
low flow sampling

0955 Measure DTW, DTB & PID  
PID = 1.2 ppm DTW = 10.29' (From TOC)  
DTB = 17.44 ft.

1000 Begin purge at MW07

1054 End purge. Prepare to collect 20PS-MW07-0921,  
MS/MSD, + DUP sample 20PS-MW90-0921.

1058 Collect samples. DUP sample 20PS-MW90-0921  
now listed as 0713.

1108 Sample collection complete. Clean up site. Decon  
equipment. Move to MW08 location.

1125 Arrive at MW08 location. Set up for low flow  
purge stabilization. PID = 0.0 ppm DTW = 8.96'

1133 Begin purge stabilization.

\*photo 1141 Take photo #001 for today of P. purge/sampling  
setup at MW08. (camera photo #3918)  
Facing SSE at MW08 location.

1208 Complete low flow purge stabilization. Prepare to sample.

1210 Collect sample 20PS-MW08-0921.

1212 Complete sample collection  
DTB = 16.66 ft.

1217 Decon equipment. Clean up site / load truck.  
Move to MW09 location.

1231 Arrive at 20PS-MW09 location. Set up for purge sampling

T. Herman  
21 Sept. 2020

(35)

- 1227 Open well 20PS-MW09 (MW09)  
PID = 3.9 ppm  
DTW = 12.34 ft. from TOC DTB = 19.57' (from TOC)
- 1243 Begin low flow purge stabilization for 20PS-MW09 (see field sheet)
- 1247 Collect Field Blank 20PS-FBPM-0921
- 1338 Complete Low Flow purge stabilization.
- 1340 D. Cookston & Travis Herman offsite to file police report for stolen trailer
- 1342 Complete sample collection 20PS-MW09-0921  
DTB = 19.57' (from TOC)
- 1348 Decom equipment clean up site/load truck  
Move to MW10
- 1403 Arrive at 20PS-MW10 location, set up for purge/sampling
- 1407 open well 20PS-MW10  
PID = 2.2 ppm  
DTW = 9.16
- 1420 Begin low flow purge stabilization for 20PS-MW10.
- 1500 Complete stabilization. Prepare to sample.
- 1503 Collect sample 20PS-MW10-0921
- 1505 Complete sample collection  
DTB = 16.27 ft. from TOC
- 1507 Decom equipment. Clean up site/load truck.
- 1516 Leave site MW10. Drive back to Fairbanks.
- 1538 Arrive at TTT rentals to pick up Mega Monsoon pump  
& accessories to use for new well development.
- 1557 Arrive at office. Unload truck
- 1608 Collect Equipment Blank sample 20PS-EB-0921.
- 1627 Leave truck at office. Drive rental to purchase  
additional combo locks, nitrile gloves.
- 1647 Purchase 10 new combo locks from Lowe's. Drive back  
to Wedgewood.

T. Herman 21 Sept. 2020

T. Herman 21 Sept. 2020

(36)

32°F, mostly cloudy, 92% humid,  
29.6 in Hg, SSW 0 mph.

T. Herman

22 Sept. 2020

0700

Arrive at office. Move to shop & load truck  
after calibration is complete.

0747

Print out more well development forms.

0801

Drive to TTT for more development tubing.

0804

Pick up tubing from TTT. Drive to Arctic Fire + Safety  
for more drums.

0812

Arrive at Arctic Fire. Purchase 11 additional 55 gal  
drums for IDW.

0858

Arrive at Moose Creek Landing to unload new drums in  
staging area. Attend daily safety meeting.

0915

Drive to MW18 for development.

0933

Arrive at MW18. Set up equipment for development.

10939

Open new well MW18. Measure with PID.

PID = 3.6 ppm.

DTW = 10.24 ft from TOC

DTB = 16.97 ft. from TOC

0949

Begin purge development.

1019

Complete new well purge development for MW-18.

11022

Clean up site / Decan equipment. Move equipment  
to ~~MW18~~ MW20 location.

11038

Arrive at MW20 location. Set up equipment for  
New well purge development.

11043

Open new well MW20. Measure PID + DTW + DTB.

PID = 0.0 ppm

DTW = 9.46 ft.

DTB = 16.92'

11048

Begin new well development for MW20 (see field sheet)

1118

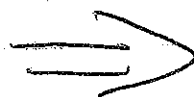
Complete well development.

1120

Decan equipment. Clean up site. Move to MW19.

1135

Arrive at 20PS-MW19. Set up for new well purge  
development.



T. Herman

(37)

22 Sept. 2020

1139 Open well 20PS-MW19. Measure gasses / DTW / DTB.

PID = 1.3 ppm

DTW = 9.31 ft. from TDC

DTB = 16.50 ft. from TDC.

1145 Begin purge development of 20PS-MW19 (new well)

1215 Complete new well development for 20PS-MW19.

1217 Decon equipment, Clean up site / load truck +  
prepare to move to 20PS-MW23.

1238 Leave 20PS-MW19 + drive to 20PS-MW23.

1302 Arrive at New well 20PS-MW23 location. Unload + set up  
for new well purge development.

1308 Open well MW23. Measure gasses, DTW, DTB.

PID = 0.0 ppm

DTW = 3.60 ft. (from TDC)

DTB = 12.80 ft. "

1313 Begin purge development of new well 20PS-MW23

1353 Development of MW23 complete. Decon equipment /  
load truck.

1403 Done at 20PS-MW23 location. Drive to new well  
20PS-MW15. Set up for purge development.

1425 Open 20PS-MW15. Measure gasses / DTW / DTB.

PID = 1.1 ppm

DTW = 12.77 ft. from TDC

DTB = 13.48

1430 Begin new well purge development. (see field sheet)

1438 Complete new well purge development. Development with  
Monsoon pump not possible due to very small water column.  
Well will be developed with peristaltic pump prior to sample  
collection.

1455 Drive back to EA office Fairbanks.

1524 Arrive at office. Unload truck / equipment

1600 End of day

9-22-2020

JAH

T. Herman

43°F, light showers, 78%,

N 9 mph, 29.35 in Hg.

23 Sept. 2020

T. Herman

(38)

0700 Arrive at office, Calibrate equipment. Load truck for sampling.

0755 Drive to FedEx Ship center to pick up coolers sent by Eileen.

0808 Received coolers from FedEx. Need to fuel truck. Drive to Cheema Flood Plain / Moose Creek.

0855 Arrive at Moose Creek MW12 location. Set up for low flow purge stabilization + sampling.

0900 Open well 20PS-MW12. Measure  $\text{Cl}^-$  PID + DTW.

PID = 0.0 ppm  
DTW = 8.61 ft from TOC

0907 Begin low flow purge stabilization (see field sheet)

~~Complete stabilization. Prepare to sample~~ TM 9:23

~~Collect sample 20PS-MW12-0923.~~

0914 Collect AM field blank sample 20PS-FBAM-0923<sub>3</sub>

0942 Complete low flow stabilization. Prepare to sample

0944 Collect sample 20PS-MW12-0923 +  
DUP 20PS-MW89-0923 (DUP time = 0800)

0948 Sample collection complete.

DTB = 16.19 ft. from TOC

0950 Decon. / clean up site MW12. Drive to 20PS-MW11 location.

0952 Arrive at 20PS-MW11 location. Set up for low flow purge stabilization followed by sample collection.

1003 Open well measure PID + DTW

PID = 1.3 ppm

DTW = 7.05 ft. from TOC

1008 Begin purge stabilization of 20PS-MW11.

1043 Complete stabilization. Prepare to sample.

1045 Collect sample 20PS-MW11-0923.

1047 Complete sample collection DTB = 14.67 ft

1050 Decon. Clean up site. Move to MW18.



T. Henman  
23 Sept. 2020

(39)

1112 Arrive c 20PS - MW18 location  
Set up for low flow purge stabilization followed by sample collection.

1120 Open well 20PS - MW18.  
PID = 1.1 ppm  
DTW = 10.22 ft. from TOC

1120 Begin low flow stabilization (see field sheet)

1200 Complete low flow stabilization. Prepare to sample.

1208 Collect sample 20PS - MW18 - 0923.

1210 Sample collection complete.  
DTB = 17.01 ft.

1212 Decom equipment. Clean up site. Move to 20PS - MW20. & set up for low flow purge stabilization.

1227 Open well 20PS - MW20.  
PID = 0.0 ppm  
DTW = 9.55 ft. from TOC

1231 Begin low flow stabilization (see field sheet)

1301 Complete stabilization. Prepare to sample. 20PS - MW20.

1302 Collect sample 20PS - MW20 - 0923.

1304 Sample collection complete. Measure DTB  
DTB = 16.90 ft. from TOC

1300 Clean up site, decom equipment. Drive to 20PS - MW19.

1310 Arrive at 20PS - MW19. Set up for Low Flow Purge Stabilization followed by sampling.

1323 Open well 20PS - MW19.  
PID = 0.0 ppm  
DTW = 9.38 ft. from TOC.

1327 Begin low flow purge stabilization (see field sheet)

1407 Complete purge stabilization. Prepare to sample.

1408 Collect sample 20PS - MW19 - 0923.

1410 Sample collection complete.  
DTB = 16.55 ft. from TOC



40

T. Herman

23 Sept. 2020

1412 Decon equipment, Clean up site, Move to 20PS-MW14 location.

1435 Arrive at Moose Creek Landing parking lot, Load equipment + walk back to 20PS-MW14 location.

1451 Open well 20PS-MW14.

PID = 0.0 ppm

DTW = 6.69 ft. from TOC

1454 Begin low flow purge stabilization

1544 Complete low flow stabilization, Prepare to sample.

1545 Collect sample 20PS-MW14-0923.

Sample collection complete, Measure DTB

DTB = 16.31 ft. from TOC

1547 Decon equipment, Clean up site, Walk back to parking lot to load truck.

1601 Truck is loaded, Drive to drum staking area to pour IDW from sampling into respective drums.

1622 Drive back to office in Fairbanks

1645 Arrive at office, Unload samples / truck.

1654 Complete daily paperwork updates in conference room

1730 End of day & leave office

JAH

23 Sept. 2020

JAH

9-23-2020

37°F, showers, 95% humid,  
0 mph, 29.3 in Hg

T. Herman  
24 Sept. 2020

(41)

0700 Arrive at office. Prepare boxes for sample cooler shipping today.

0830 Drop off cooler E-4 at FedEx Ship Center. Drive to TTT to return equipment.

0847 Arrive at TTT return 4 gas meter + periscope.

0859 Drive to Arctic Fire + purchase 1 additional 55 gal drum for IDW. Drive to Moose Creek Landing.

0940 Arrive at Moose Creek Landing. Obtain Base signature page from Galen.

1000 Conference call with project group / Colleen / Eileen.

1030 Drive to Eielson AFB.

1050 Arrive at well 20PS-MW01 on base. Set up for Low Flow purge stabilization / sampling.

1059 ~~Begin low flow~~ Open well MW01.  
PID = 0.0 ppm

DTW = 8.72 ft. from TOC

1101 Begin low flow purge stabilization of 20PS-MW01. (see field sheet)

1141 Complete stabilization. Prepare to sample.

1143 Collect samples 20PS-MW01-0924 with parent / MS / MSD  
Also collecting 8 DUP sample 20PS-MW88-0924 with DUP  
time listed as 0840.

1152 Sample collection complete.

DTB = 16.58 ft. from TOC

1155 Decon equipment. Clean up site / load equipment.  
Drive to next well 20PS-MW-2.

1209 Arrive at 20PS-MW-2. Set up for purge / sampling.

1213 Open well 20PS-MW-2.

PID = 0.0 ppm (no J-plug present)

DTB = 10.24 DTW = 4.59 ft. from TOC

1222 Begin Low Flow Purge Stabilization on 20PS-MW-02.

1225 Collect PM field blank sample 20PS-FBPM-0924.



42

T. Herman  
24 Sept. 2020

- 1257 Complete stabilization of MW-02. Prepare to sample
- 1259 Collect sample 20PS-MW-2-0924.
- 1301 Sample collection complete.
- 1302 Decon equipment. Clean up site / load truck.
- 1308 Done at 20PS-MW-2. Drive to on base well cluster HCMW02 to drop off final IDW drum.
- 1317 Drop of IDW drum at well cluster HCMW02.
- 1323 Drive to well 20PS-MW03. Must call base security contact for gate access to reach 20PS-MW03 location.
- 1430 Obtained gate access + arrived at 20PS-MW03 location. Set up for low flow stabilization + sampling.
- 1437 Open well 20PS-MW03.

PID = 0.0 ppm

DTW = 4.41 ft. from TOC

- 1441 Begin purge stabilization. (see field sheet)
- 1531 Complete stabilization of 20PS-MW03. Prepare to sample.
- 1533 Collect sample 20PS-MW03-0924.
- 1535 Complete sample collection.

DTB = 16.11 ft.

- 1539 Decon equipment. Clean up site. Drive off base to well 20PS-MW23 in Chem. Floodplain.
- 1607 Arrive at 20PS-MW23. Set up for purge stabilization followed by sampling.
- 1620 Open well 20PS-MW23.

PID = 0.0 ppm

DTW = 3.61 ft. from TOC

- 1622 Begin low flow purge stabilization
- 1707 Complete stabilization. Prepare to sample.
- 1709 Collect sample 20PS-MW23-0924.
- 1711 Sample collection complete. DTB = 12.73 ft. from TOC.



24 Sept. 2020

(43)

T. Herman

1720 Decon equipment. Clean up site. Close flush mant well cover. Drive to 20<sup>PS</sup> MW13 to assist with well development. Stop by drum staging area to pour out IDW water into respective drum.

1747 Arrive at 20<sup>PS</sup>-MW13 to assist w/ development of new well.

1815 Development complete. Dispose of IDW in drums. Drive back to office EA Fairbanks.

1845 Arrive at office. Unload samples + truck.

1900 Park truck. End of day

JAH

24 Sept. 2020

JAH

24 Sept. 2020

(44)

39°F, cloudy, 87% humid, NW Omph, 25 Sept. 2020  
29.42 in Hg.

T. Herman

1100 Arrive at EA office Fairbanks. Work on getting all paperwork / field sheets completed + scanned to the server.

1235 Go to EA warehouse + calibrate equipment.

1250 Calibration complete. Drive to TTT to return equipment. Then drive to Cheena Flood Plain for sampling.

1302 Drive to Cheena Floodplain to start at 20PS-MW17.

1343 Arrive at 20PS-MW17. Unload truck + carry equipment to well for low flow purge stabilization.

1403 Open well 20PS-MW17.

PID = 0.0 ppm

DTW = 3.99 ft. from TOC

1407 Begin low flow purge stabilization

1457 Complete stabilization. Prepare to sample.

1458 Collect sample 20PS-MW17-0925 + collect

DUP sample 20PS-MW87-0925 with time listed as "1110" for DUP collection.

1502 Sample collection complete. Measure total depth

DTB = 15.67 ft. from TOC.

1515 Collect PM field blank. Due to no morning sampling, a PM field blank was collected (per Eileen)

Decon equipment, clean up site. Load + prepare to move to MW15 for stabilization + sampling.

1530 Drive to Park Ranger office to return gate keys.

1547 Arrive at Moose Creek Park Ranger office. Leave key under mat as instructed by Park Ranger Justin.

Drive back to 20PS-MW13. Then 20PS-MW15.

1623 Arrive at 20PS-MW15. Set up for low flow purge stabilization followed by sampling.

1628 Open well. Measure gas + DTW, DTB

PID = 1.2 ppm

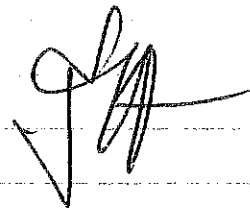
DTW = 12.00 ft. DTB = 18.41 ft.

T. Herman

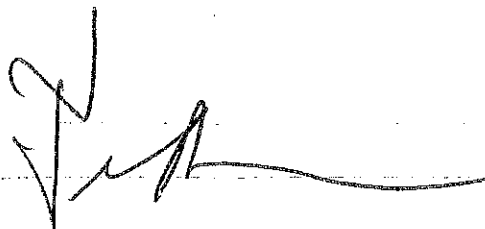
(45)

25 Sept. 2020

- 1632 Begin Low Flow purge stabilization
- 1807 Complete stabilization. Prepare to sample.
- 1808 Collect sample 20PS-MW15-0925.
- 1810 End sample collection.
- Decom equipment. Clean up site. Drive to 20PS-MW13.
- 1820 Arrive at 20PS-MW13. Set up for Low Flow Purge Stabilization.
- 1827 Open well 20PS-MW13. Measure gas / DTW.  
PID = 0.0 ppm  
DTW = 11.25 ft. from TWC
- 1830 Begin purge stabilization.
- 1915 Complete purge stabilization. Prepare to sample.
- 1916 Collect sample 20PS-MW13-0925.
- 1918 End sample collection. Measure DTB. 18.06 ft.  
DTB = 18.06
- 1919 Decom equipment. Clean up site. Drive back to Fairbanks office.
- 1922 Collect equipment blank sample 20PS-EB-0925
- 1939 TU
- 1953 Arrive at office. Unload samples + truck
- 2015 Park Truck. End of day



25 Sept. 2020



25 Sept. 2020

FAIRBANKS, AK

9-16-2020

EIELSON EXPANDED PFAS SI PHASE 4

CONTRACT # W911KB17-D-0018

TASK # W911KB18FO1F3

PERSONNEL: J. PARSON, GEORGE GARNER, GALEN KORNOWSKI,  
TRAVIS HERMAN, DAVID COORSTON.

0730 - ARRIVE AT EA WAREHOUSE TO MEET WITH FIELD TEAM

0800 - LOAD WELL COORDINATES ONTO TRIMBLE

0930 - ARRIVE AT CHENA FLOODPLAIN PROJECT

0945 - BEGIN FIELD AUDIT

1000 - LOCATE PLANNED MW23 LOCATION, TRAVIS HERMAN

PURGES MW23 AS DRILLED LOCATION. 240 M

1100 - MOVE TO MW24 TO PURGE AND FIND VARIANCE FROM  
PLANNED LOCATION TO DRILLED LOCATION. 24,448 M.

1130 - MOVE TO MW25 TO MEASURE LOCATION VARIANCE 32.25 M

1145 - MW13 → 75.667 M VARIANCE

1200 - MW14 → 53.95 M VARIANCE

1300 - MW15 → ~~53.82~~ 63.82 M VARIANCE

1400 - RELOCATED MW 9, 10, 11, AND 12 WITH GPS

1445 - MW16 → 333.17 M VARIANCE

1530 - MW17 → 185 M VARIANCE

1630 - MW18 → 26.685 M VARIANCE

1635 - MW20 → 42.645 M VARIANCE

1700 - ATTEMPT TO LOCATE MW 19 AND 21

↳ UNABLE TO FIND THEM

1745 - RETURN TO FAIRBANKS

1815 - END OF DAY

FAIRBANKS, AK

9-17-2020

EIELSON PFAS EXPANDED SJ PHASE 4

CONTRACT # W911KB17D0018

TASK # W911KB18F0173

PERSONNEL: J. PARSON, J.G. KORNOWSKI, N. ROBINSON, T. HERMAN,  
D. COCKSTON

- 0720 - ARRIVE AT EA WAREHOUSE TO CALIBRATE EQUIPMENT
  - 0800 - MEET WITH DRILLERS AT MOOSE CREEK LANDING
  - 0930 - CALL W/ USACE
  - 0900 - LOCATE MW21 PROPOSED LOCATION
  - 1100 - MW22 → 48.807 M VARIANCE
  - 1130 - HEAD TO EIELSON TO STAKE WELL LOCATIONS
  - 1330 - FINISH WELL LOCATIONS
  - 1400 - WORKED ON ALTERNATIVE PROJECT ON EIELSON
  - 1430 - SENT FURTHER WELL INFO TO ASX ALASKA PER 811 CALL
  - 1445 - CHECK ON DIG PERMIT STATUS WITH CABLE SHOP
  - 1520 - MEET AT MW24 FOR SAMPLING ~~STARTING AT 1520~~
  - 1540 - MOVE TO MW25 FOR SAMPLING
  - 1630 - RETURN TO FAIRBANKS
- END OF DAY

FAIRBANKS, AK

9-18-2020

EIELSON EXPANDED PFAS SI PHASE 4

CONTRACT #: W911KB17D00018

TASK #: W911KB18F0173

PERSONNEL: J. PARSON, J.G. KORNOWSKIE, N. ROBINSON,  
T. HERMAN, D. COCKSTON

0720 - ARRIVE AT EA WAREHOUSE TO MEET WITH  
FIELD TEAM.

0730 - SAFETY MEETING

0800 - PHONE MEETING WITH JOHN CONSOLANTI (COLLEEN RUST)

0830 - ARRIVE AT MOOSE CREEK LANDING

0840 - MEET WITH GEOTEK TO PLAN DRILLING FOR THE  
DAY, J.G. KORNOWSKIE, N. ROBINSON, T. HERMAN LEAVE TO SAMPLE.

0930 - ARRIVE @ MW10 LOCATION, WAIT FOR DRILLERS TO  
ARRIVE AFTER THEY COMPLETE MOVING REMAINING DRUMS  
WITH RAGE WATER TO DRUM STAGING AREA.

1043 - START DRILLING MW10 W/ SPI6 TO FIND GROUND  
WATER CONTACT. → 6.2 FT BGS SCREEN WILL  
BE SET FROM 3-13 FT BGS

1103 - ~~FINAL DEPTH REACHED, SCREEN IS~~ 10 GAL WATER  
ADDED TO EQUALIZE DOWNHOLE PRESSURE. FINAL  
DEPTH REACHED. 13.4 FT

1110 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2FT  
BGS, BENTONITE CHIPS FROM 0-2 FT BGS

1121 - MW10 COMPLETE, ADDING LOCKING CAP

1140 - MOVING TO MW04 TO DRILL

1155 - RIG ON MW09 LOCATION

1201 - START DRILLING MW09 W/ SPI6 TO FIND GROUNDWATER  
CONTACT → 9.5 FT BGS, SCREEN WILL BE SET FROM  
6.5-16.5 FT BGS

1246 - 10 GAL WATER ADDED TO EQUALIZE DOWNHOLE PRESSURE. FINAL  
DEPTH REACHED, 16.9 FT

1300 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 4.5 FT, BENTONITE  
TO SURFACE

1305 - MW04 COMPLETE, ~~BEGIN LEAVING RIG~~ EQUIPMENT JUST NEEDS  
PROTECTIVE 6 INCH CASING, GEOTEK HAS TO GRAB MORE  
BACK IN FAIRBANKS.

1310 - MOVE TO MW07 AND MW08 TO MEET WITH GC1  
REPRESENTATIVE TO CONFIRM FINAL UTILITY LOCATIONS.

1427 - GEOTEK RETURNS TO FINISH MW09

FAIRBANKS, AK

EIELSON EXPANDED PFAS SI PHASE 4

9-18-2020

1434 - PROTECTIVE CASING AND CAP INSTALLED ON MW09

1452 - HEAD TO MW08

1516 - START DRILLING MW08 W/ SPI6 TO FIND GROUNDWATER  
CONTACT → 6.0 FT BGS, SCREEN WILL BE SET  
FROM 3-13 FT BGS

1548 - 10 GAL WATER ADDED TO EQUALIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED → 13.4 FT BGS

1613 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2 FT,  
BENTONITE TO SURFACE.

1618 - MW08 COMPLETE

1630 - ARRIVE AT MW07

1648 - START DRILLING MW07 W/ SPI6 TO FIND GROUNDWATER  
CONTACT → 7.2 FT BGS, SCREEN WILL BE SET FROM  
4-14 FT BGS

1707 - 10 GAL WATER ADDED TO EQUALIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED → 14.4 FT BGS

1719 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2 FT,  
BENTONITE TO SURFACE

1730 - MW07 COMPLETE

1740 - RETURN TO FAIRBANKS  
END OF DAY

EIELSON EXPANDED PFAS SI PHASE 4

CONTRACT #: W911KB17D008

TASK #: W911KB18FC173

PERSONNEL: J. PARSON, D. COOKSTON, GEOTEK AK

- 0720 - MEET AT EA WAREHOUSE
- 0800 - MEET GEOTEK @ MOOSE CREEK LANDING
- 0820 - HEAD TO EIELSON
- 0925 - ARRIVE AT MW18 → MW31, TURN STICK UP INTO FLUSH MOUNT.
- 0937 - MW31. FLUSH MOUNT COMPLETE
- 0940 - START DRILLING MW8 → WATER @ 8.33 FT  
CALL JOHN CONSOLETTI TO CONFIRM, SCREEN WILL BE SET 4-14 FT
- 1000 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE PRESSURE. FINAL DEPTH REACHED → 14.4 FT BGS
- 1010 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2 FT, BENTONITE TO SURFACE.
- 1020 - MW18 COMPLETE
- 1030 - MOVE TO MW20/32 TO CONVERT TO FLUSH MOUNT
- 1052 - MW32. FLUSH MOUNT COMPLETE
- 1100 - MOVE TO NEW MW20 LOCATION
- 1110 - START DRILLING MW20 W/ SP16 → WATER @ 7.5 FT  
SCREEN 3-13 FT
- 1129 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED 13.4 FT
- 1143 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2 FT, BENTONITE TO SURFACE.
- 1148 - MW20 COMPLETE
- 1200 - MOVE RIG TO MW14 LOCATION
- 1215 - CONFIRM MW14 PLACEMENT ON THE PHONE W/ JOHN CONSOLETTI
- 1230 - START DRILLING MW14 W/ SP16 → WATER @ 7.0  
SCREEN WILL BE SET 3-13 FT
- 1249 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED → 13.4 FT
- 1300 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2 FT, BENTONITE TO SURFACE

FAIRBANKS, AK

9-19-2020

EIELSON EXPANDED PFAS SI, PHASE 4

1310 - MW14 COMPLETED

1315 - RAKE OUT RIG TRACKS ON LEVEE SIDES FOR USAGE

1325 - GEOTEK HEADS TO NORTH POLE FOR FUEL, WILL MEET AT MW33 LOCATION TO DRILL MW23.

1406 - GEOTEK ARRIVES AT MW33 LOCATION, PROCEED TO MW23 LOCATION

1430 - DRILL RIG ARRIVES AT MW23 LOCATION

1438 - START DRILLING MW23 w/ SPI6 → WATER @ 1.5 FT  
SCREEN WILL BE SET FROM 3 - 13 FT

1458 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED → 13.4 FT BGS

1506 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2FT,  
BENTONITE TO SURFACE

1515 - MW23 COMPLETE

1520 - STOP AT MW33 TO RECORD LOCATION

1548 - ARRIVE AT MW15/MW28 LOCATION

1604 - START DRILLING MW15 ~~w/ SPI6~~ → WATER @ 9.2 FT  
SCREEN 5-10 FT, 3 FT SAND, 2FT BENTONITE  
AS PER CALL WITH JOHN CONSOLETTI

1612 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED → 10.4 FT BGS

1628 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2FT,  
BENTONITE TO SURFACE

1633 - MW15 COMPLETE

1650 - RETURN TO MOOSE CREEK LANDING

1710 - RETURN TO FAIRBANKS  
END OF DAY

FAIRBANKS, AK

9-20-2020

EIELSON EXPANDED PFAS SI, PHASE 4

CONTRACT #: W911KB17DC018

TASK #: W911KB18FO173

PERSONNEL: J. PARSON, G. KURNOWSKIE, T. HERMAN, N. ROBINSON,

D. COOKSTON, GEOTEK AK

0745 - MEET FIELD TEAM AT EA

0845 - ARRIVE AT MOOSE CREEK LANDING TO MEET WITH GEOTEK

0900 - HEAD TO EIELSON AFB

0920 - SECURE MANCHU ROAD GATE ACCESS w/ SECURITY FORCES TO  
DRILL MW03

1005 - WAIT w/ GEOTEK AT MANCHU ROAD GATE FOR  
SECURITY FORCES

1010 - ARRIVE AT MW03 LOCATION

1025 - START DRILLING MW03 w/ SPI6 → WATER @ 2.0 FT  
SCREEN WILL BE SET FROM 3 - 13 FT

1046 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE PRESSURE  
FINAL DEPTH REACHED → 13.4 FT BGS

1058 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2FT,  
BENTONITE TO SURFACE.

1110 - MW03 COMPLETE

1120 - WAIT TO BE LET OUT OF MANCHU ROAD GATE BY  
EIELSON SECURITY FORCES

1142 - ARRIVE AT MW01 LOCATION, RIG WONT START

1250 - START DRILLING MW01 w/ SPI6 → WATER @ 5.5 FT  
SCREEN WILL BE SET FROM 3 - 13 FT

1409 - 10 GAL WATER ADDED TO EQUILIZE DOWNHOLE  
PRESSURE, FINAL DEPTH REACHED → 13.4 FT

1418 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2FT,  
BENTONITE TO SURFACE.

1430 - MW01 COMPLETE

1500 - RE-LABEL DRUMS w/ NEW WELL NUMBERS

1530 - RETURN TO FAIRBANKS  
END OF DAY

FAIRBANKS, AK

9-21-2020

EIELSON EXPANDED PFAS SI, PHASE 4

CONTRACT #: W911KB17D0018

TASK #: W911KB18F0173

PERSONNEL: J. PARSON, G. KORNOWSKE, T. HERMAN, N. ROBINSON,  
D. COOKSTON, GEOTEK AK

- 0725 - ARRIVE AT EA WAREHOUSE TO MEET WITH  
FIELD TEAM AND CALIBRATE EQUIPMENT
- 0735 - TALK TO GEOTEK AK, THEIR TRUCK IS BROKEN  
AND THEY ARE ATTEMPTING TO RENT A REPLACEMENT.  
WILL HEAD OUT INTO THE FIELD TO DRILL WHEN  
UPDATED THAT GEOTEK HAS A NEW TRUCK.
- 0925 - LEAVE EA WAREHOUSE TO MEET DRILLERS AT  
MOOSE CREEK LANDING
- 0950 - MEET DRILLERS AT MOOSE CREEK LANDING  
1 hr 50 min. GEOTEK NPT
- 1050 - DRILL RIG ARRIVES @ MW14 LOCATION
- 1059 - START DRILLING MW14 → WATER @ 2.6 FT  
WILL SCREEN FROM 3-13 FT
- 1110 - 10 GAL WATER ADDED TO EQUILIBRATE DOWNHOLE  
PRESSURE/SWABBING EFFECT. FINAL DEPTH 13.4 FT
- 1115 - 10/20 SANDPACK COMPLETIONS, SAND TO 2 FT,  
BENTONITE TO SURFACE
- 1125 - MW14 COMPLETE
- 1156 - ARRIVE AT MW13 LOCATION
- 1221 - START DRILLING MW13 → WATER @ 8.31  
WILL SCREEN 5-10 FT AS PER PHONE  
CALL WITH JOHN CONSOLETTI
- 1229 - 10 GAL WATER ADDED TO EQUILIBRATE DOWNHOLE  
PRESSURE/SWABBING EFFECT. FINAL DEPTH - 10.4 FT
- 1242 - 10/20 SANDPACK COMPLETIONS, SAND TO 2 FT,  
BENTONITE TO SURFACE
- 1258 - MW13 COMPLETE
- 1315 - MEET UP WITH G. KORNOWSKE AND N. ROBINSON  
TO DEVELOP MW09, T. HERMAN AND D. COOKSTON  
RETURN TO FAIRBANKS TO FILE A POLICE REPORT.
- 1403 - MOVE TO MW10 TO SAMPLE
- 1416 - START PURGING MW10
- 1430 - J. PARSON AND G. KORNOWSKE LEAVE TO  
DEVELOP MW12 AND MW11

pg 1 of 2

FAIRBANKS, AK

9-21-2020

EIELSON EXPANDED PFAS SI, PHASE 4

1430 - CONT. D. COOKSTON AND T. HERMAN RETURN

TO MW10 TO ASSIST N. ROBINSON WITH SAMPLING  
MW10.

- 1445 - START PURGING MW12 FOR DEVELOPMENT
- 1504 - START PURGING MW12
- 1554 - DEVELOPMENT COMPLETE FOR MW12
- 1605 - MOVE TO MW11
- 1610 - ARRIVE AT MW11
- 1641 - START PURGING MW11
- 1711 - DEVELOPMENT COMPLETE FOR MW11
- 1722 - RETURN TO FAIRBANKS  
END OF DAY

pg 2 of 2

FAIRBANKS, AK

9-22-2020

EIELSON EXPANDED PFAS SI, PHASE 4

CONTRACT #: W911KB17D0018

TASK #: W911KB18F0173

PERSONNEL: J. PARSON, G. KORNOWSKE, T. HERMAN,  
N. ROBINSON, D. COOKSTON, GEOTEK AK

0720 - ARRIVE AT EA WAREHOUSE TO MEET WITH FIELD  
TEAM AND CALIBRATE EQUIPMENT

0805 - PICK UP DRUMS AT ARCTIC FIRE + SAFETY

0845 - MEET GEOTEK AT MOOSE CREEK LANDING

0930 - ARRIVE AT MW01 TO DEVELOP

0944 - START PURGING MW01

1014 - DEVELOPMENT COMPLETE FOR MW01

1045 - ARRIVE AT MW03 TO DEVELOP

1059 - START PURGING MW03

1140 - DEVELOPMENT COMPLETE FOR MW03

1200 - LEAVE EIELSON AFB

1240 - ARRIVE AT MW14 FOR DEVELOPMENT

1252 - START PURGING MW14

1326 - DEVELOPMENT COMPLETE FOR MW14

1351 - ARRIVE AT MW13 FOR DEVELOPMENT

1405 - START PURGING MW13

1425 - DEVELOPMENT COMPLETE FOR MW13

1440 - HELP GEOTEK REMOVE DRUMS FROM CHENA FLOOD PLAIN

1540 - RETURN TO FAIRBANKS

END OF DAY

FAIRBANKS, AK

9-23-2020

EIELSON EXPANDED PFAS SI, PHASE 4

CONTRACT #: W911KB17D0018

TASK #: W911KB18F0173

PERSONNEL: J. PARSON, G. KORNOWSKE, T. HERMAN, N. ROBINSON,  
D. COOKSTON, GEOTEK AK

0725 - ARRIVE AT EA WAREHOUSE TO MEET WITH FIELD TEAM  
AND CALIBRATE EQUIPMENT

0825 - ARRIVE AT MOOSE CREEK LANDING TO MEET WITH  
GEOTEK

0855 - BEGIN WALKING RIG TO MW16 LOCATION

0925 - ARRIVE AT MW29 TO MAKE FLUSH MOUNT  
FLUSH TO GROUND SURFACE LEVEL

0946 - ARRIVE @ MW16 LOCATION

0951 - START DRILLING MW16 → WATER @ 0 FT  
WILL SCREEN FROM 3 - 13 FT

0958 - 5 GAL WATER ADDED TO MINIMIZE SWABBING  
EFFECT → FINAL DEPTH 13 FT

1012 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2  
FT, BENTONITE TO SURFACE, WELL IS FLUSH  
MOUNTED WITH GROUND SURFACE

1023 - MW16 COMPLETE

1137 - ARRIVE AT MW17 LOCATION

1143 - START DRILLING MW17 → WATER @ 1/2 FT BGS  
WILL SCREEN FROM 3-13 FT

1151 - 10 GAL WATER ADDED TO MINIMIZE SWABBING EFFECT  
FINAL DEPTH → 13 FT BGS

1201 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 2 FT,  
BENTONITE TO SURFACE

1216 - MW17 COMPLETE

1246 - ARRIVE AT MW15 LOCATION, MW15 WILL BE  
DECOMMISSIONED AND REDRILLED TO BE SCREENED  
FROM 5-15 FT BGS AS DIRECTED BY  
COLLEEN RUST

1258 - BEGIN PULLING MW15

1305 - MW15 DECOMMISSION COMPLETE, BENTONITE TO SURFACE

1319 - START DRILLING MW15 → WATER @ 9 FT BGS  
WELL WILL BE SCREENED 5-15 FT BGS

1331 - 10 GAL WATER ADDED TO MINIMIZE SWABBING EFFECT.  
FINAL DEPTH → 15 FT BGS

pg 1 of 2

pg 1 of 1

FAIRBANKS, AK

9-23-2020

EIELSON EXPANDED PFAS SI, PHASE 4

1347 - 10/20 SANDPACK COMPLETIONS BEGIN, SAND TO 3 FT,  
BENTONITE TO SURFACE

1405 MW15 COMPLETE

1441 - ARRIVE AT MW13 LOCATION. MW13 WILL BE  
DECOMMISSIONED AND RE-DRILLED IN THE  
SAME MANNER AS MW15.

1504 - BEGIN PULLING MW13

1513 - MW13 DECOMMISSION COMPLETE, BENTONITE TO SURFACE

1515 - START DRILLING MW13 → WATER @ 8.4 FT BGS  
WILL BE SCREENED 5-15 FT BGS

1526 - 10 GAL WATER ADDED TO MINIMIZE SWABBING EFFECT

1539 - 10/20 SANDPACK COMPLETIONS BEGIN. FINAL DEPTH  
OF 15 FT BGS. SAND TO 3 FT, BENTONITE  
TO SURFACE

1600 - MW13 COMPLETE

1615 - DRILLING COMPLETE FOR THE DAY, SAMPLING GROUP  
IS ALSO DONE.

1630 - RETURN TO FAIRBANKS  
END OF DAY

FAIRBANKS, AK

9-24-2020

EIELSON EXPANDED PFAS SI, PHASE 4

CONTRACT #: WY11KB17D0018

TASK #1: WY11KB18F0173

PERSONNEL: J. PARSON, G. KORCOWSKA, T. HERMAN, N. ROBINSON,  
D. COOKSTON

0900 - MEET UP WITH FIELD TEAM AT MOOSE CREEK LANDING

0930 - START MOVING EQUIPMENT TO MW16

~~0900~~  
1100 - ARRIVE AT MW16 W/ ALL DEVELOPMENT  
EQUIPMENT.

1130 - WELL IS UNABLE TO BE DEVELOPED AT THIS  
TIME WITH CURRENT WATER LEVELS  
AFTER REMOVING THE CAP FROM THE WELL  
WATER BEGAN TO SPILL OUT OF IT DUE  
TO THE TOP OF THE CASING BEING BELOW  
THE LEVEL OF THE WATER TABLE.  
USAGE MANDATED THAT MW16 BE A FLUSH  
MOUNT. WITH THE MONSOON PUMP TURNED  
UP TO A MAXIMUM OF 4 gpm, THE WELL  
WAS DRAWN DOWN APPROXIMATELY 1 FOOT.  
THE PUMP WAS THEN SHUT OFF AND THE  
WELL RETURNED TO SPILLING WATER OUT OVER  
THE TOP OF CASING IN 23 SECONDS.

1250 - ARRIVE AT MW17

1317 - START PURGING MW17

1418 - DEVELOPMENT COMPLETE FOR MW17

1505 - ARRIVE AT MW15

1523 - START PURGING MW15

1704 - DEVELOPMENT COMPLETE FOR MW15

1726 - ARRIVE AT MW13

1735 - START PURGING MW13

1805 - DEVELOPMENT COMPLETE FOR MW13

1826 - RETURN TO FAIRBANKS  
END OF DAY

46

clean, windy, warm 75°F PM

6/14/21  
N. Stoecklein

1240 Arrive on base, travel to LF003 where IDW is staged.

1247 Arrive at LF003. Conduct HAS meeting: TOPICS - pinch points & proper PPE. N. Stoecklein in attendance.

1251 Locate IDW/containers to flag which exceeded the criteria as noted in work plan and locate one drum containing soils to sample.

1310 Collect 2 IPS-IDWS-0614 for PFAS per QSM 5.1 Table B-15 into 2x 2oz HDPE unpreserved bottles/jars. Place samples in PFAS free gel ice.

1343 Depart LF03. Travel to Flood Channel to find wells needing completion/decommissioning. Find & flag MW-26 & MW-28 w/ writing noting to decommission. Others will have to wait. Travel back to Fairbanks to retrieve a key to Mandu gate at Alyeska pipeline so we can not clean IDW w/ base.

1500 End of day.

47

warm, sunny, calm 72°F AM  
hot, sunny 80°F PM

6/15/21  
N. Stoecklein

1001 Arrive on base, travel to meeting point and wait till US Ecology arrives.

1055 US Ecology on site. Conduct HAS meeting.

TOPICS: proper lifting, slips, trips, falls.

All EA & US Ecology staff onsite in attendance.

US Ecology staff review & sign APP/SSHA-HASP.

Proceed to LF003/Cell #1 to get clean material to transport back to point of generation

1545 Conclude dumping clean material at locations across the project area. Will return tomorrow to conclude tasks. End of day.

hot, smoky, pt cloudy 58°F AM  
hot, thunderstorms in area, humid 78°F PM

6/16/21  
N. Stocklein

(48)

0904 Arrive on base, travel to LF003.

0912 Arrive at LF003. US Ecology on site

Conduct HAS meeting. TOPICS: being visible to those operating equipment (ie fork lift) and proper hydration. All EA & US Ecology personnel in attendance. US Ecology proceeds to move material w/ in the landfill cell closer to entrance for ease of transferring from cell to truck. Today's focus is at the well clusters, soil & water, to dispose, spread at each respective location.

1712 Conclude movement, dumping, and spreading of all material for Well Cluster #2. Conclude day, will have to return for all material left.

Cool, calm, clear 48°F AM

6/18/2021  
N. Stocklein

(49)

0652 Arrive on base, travel to LF003.

0700 Arrive at LF003. US Ecology on site.

Conduct HAS meeting. TOPICS: proper hydration, slips, pinch points. All EA & US Ecology staff attended. US Ecology proceeds to load remainder of the clean material into box truck.

0853 Depart LF003, travel to respective locations to dispose clean material at point of generation.

1145 Conclude all IDW disposal (clean material).

End of day.

Expanded PFAS SI  
50s, cloudy, AM  
70s Partly Cloudy PM

21 June 2021 (50)  
G. Garner

- 0800 Arrive at Moose Creek Landing to meet drillers.  
0830 Drillers delayed trying to get a cement mixer.  
0955 Bryce with Geotek arrives onsite. Move to MW 23 and MW33 location to begin completion and decommissioning.  
1015 Locate MW33 and MW23, in flood control project area.  
1045 Begin completion of MW23 well pad.  
1100 Receive word that MW26 and MW28 will be decommissioned. Advised to remove these two last in case of further changes.  
1200 Geotek employees arrive on site with more supplies. Tanner (additional driller's helper) arrives to assist.  
1245 Complete MW23 pad.  
1300 Move to MW29 for completion of pad.  
1400 Geotek rig and driller (James) move to MW28 location for decommissioning.  
1455 Decommissioning of MW28 complete.  
1500 MW29 well pad complete.  
1540 Begin decommissioning MW33.  
1605 Complete decommissioning MW33.  
1629 Move to MW26 to begin decommissioning.  
1730 Complete decommissioning of MW26.  
End field work for the day.

*G. Garner*  
6/21/21

(51)

Expanded PFAS SI  
57° clear/Sunny AM  
80° clear/Sunny PM

22 June 2021  
G. Garner

- 0730 Arrive at Flood Control Access gate to prep for well decommissioning and completion. One completion remaining on site (MW16) and two well decommissions.  
0800 Conduct safety brief.  
0810 Move to MW31 and MW32 area for well decommissions.  
0840 Key provided will not open gate. Contact Justin Kerwin at USACE to secure access.  
1035 Access issue solved. Move rig to pull MW31 and MW32.  
1139 MW31 and MW32 decommissions complete. MW06 completion also finished.  
1200 Move to finish MW16 well pad.  
1330 Complete well pad (flush mount) at MW16. Water table at less than 8". All well pads complete and stamped with Well ID.  
1410 Leave site for the day.

*G. Garner*  
22 June 2021

Sunny, warm, smoky 73°F PM

7/13/21  
N. Stockell

52

1-55  
2-30  
3-45  
1-5

1242 Arrive on Base, travel to Hay Waste to meet  
US Ecology.

1257 Arrive at Hay Waste, wait for subcontractor  
arrival.

1307 US Ecology arrives. Conduct HAS meeting.

TOPICS: proper lifting & pinch points. All EA  
and US Ecology staff in attendance. Travel to  
L2003, Cell #1.

1315 Arrive at L2003, open gate and US Ecology  
drives in to extract dirty material.

1345 Complete loading of dirty equipment.  
One drum (#17) is in the back of EA  
vehicle, will transport to Flood Channel  
(clean) and drop at point of origination.

1403 Exit base, travel to Flood Channel.

Road closed, access point of generation.

1423 Drop material at location.

1435 Depart. End of day.