

Rite in the Rain
ALL-WEATHER WRITING PAPER



ALL-WEATHER
JOURNAL
FIELD BOOK

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Project Former Forbes Atlas Missile S-5 Site
Investigation and Well Installation
80447

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RiteintheRain.com

Tuesday

5-12-15 Forbes S-5

Weather: Clear, 60s, N wind 5-10 mph

Task: Soil & rock drilling for soil samples
& Monitoring well installation @ the
Forbes Atlas S-5 site East of Council
Grove, KS.

0630: Depart Wichita, KS. Purchase ice enroute.

0849: Onsite @ S-5 site.

- Meet w/ Alan Geyer w/ Avatar.
- Traut crew has dropped off the drill
rig & support truck & moved to Topeka,
KS to pick up rental skid loader.
- Tour site w/ A. Geyer & review site
safety documentation & work plan.

1100: J. Binder (BMD) onsite.

1330: Traut crew onsite.

- Steve Weisbrick
- Nate Stebbins
- Nathan Henderson
- Kyle Gracie
- Perform site safety orientation, complete
Orientation Forms, PTA, Weekly Toolbox Meeting,
Vehicle inspections, Daily Drill Rig Inspection,
Work area inspection, & reviewed AHA's.
- Tour site, discuss scope, schedule, &
site specific hazards.

J. Binder

A. Geyer

J. Bryant

Tuesday

5-12-15 Forbes S-5

- Fed Ex delivers filter pack sand:

Premier Silica - 20/40 silica sand

1515: Crew offsite to Council Grove to
purchase tokens for city water & fill
water truck.

- J. Binder offsite.

1630: 2 of the Traut crew returns w/ water
truck.

- Traut places cones near areas that
were identified during the tour as potential
fall hazards.

1700: Remaining 2 crew members return. Crew
begins setting up rig & equipment @ MW-01.

- J. Bryant & A. Geyer collect depth
measurements at select sediment/surface
water pits.

Location	WL*	ID*
SD-03	28.5'	43.0'
SD-08	RM	30.5' (235 to slope)
SD-09	18.5'	29.5'

* Depths are measured to top lip of surrounding
structure.

1845: Crew wrapping up for the day.

- 2 unknown vehicles approach the site,
then turn around at the entrance gate.

J. Binder

A. Geyer

J. Bryant

Tuesday
5-12-15

Forbes - S-5

A. Geyer
J. Bryant

- 1900: Secure main gate as well as cable gate at driveway entrance.
- Crew & BM10 & Avator offsite to Emporia, KS.


5-12-15

Wednesday
5-13-15

Forbes S-5 Atlas Site. J. Bryant

J. Binder
A. Geyer

Weather: Clear, 40s to 60s, SE wind 5-15 mph.
Task: - Soil & rock borings & monitoring well installation @ Forbes S-5 Atlas site E of Council Grove, KS.

Personnel: J. Bryant, BM10, A. Geyer (Avator), J. Binder

S. Whisnick, N. Henderson, N. Stebbins, & Ky Grutke (Trout)

0700: Depart Emporia, KS.

0730: Arrive onsite w/ A. Geyer & J. Binder.

0745: Trout crew onsite. Daily safety meeting & paperwork. Plan for the day. Breakfast ^{LET} & ^{PAID}.

0815: Chuck Williams, USACE Hydrogeologist, onsite.

- N. Henderson offsite to pick up drums from El Dorado, KS.

- Remaining crew members complete daily inspections & set up for the day.

0845: Trout begins drilling MW-01 w/ 7 1/8" OD (6" ID) bit & drill stem, Vesa-Sonic V100

- Limestone @ ~ 2.5' bgs.

- Trout switches to dual ^{CPW} tube double wall sample barrel @ 14' bgs: 4" inside 6" outer casing.

1045: Drilling pauses @ 30' bgs. Frac tank is being delivered.

Wednesday

5-13-15 Forbes S-S Atlas

J. Binder
A. Geyer
J. Bryant

- Trout reports approximately 500 gallons water has been lost so far. Drillers will begin using aquia-gel (Baroid) in their drilling fluid.

1130: Trout resumes drilling @ 30' bgs.

1145: N. Henderson (Trout) returns w/ 30 - 55 gal drums.

1147: Trout stops @ 40' bgs. Trout pulls the core (30-40'), moves water truck to Council Grove to get more water, breaks for lunch (@ ~1235)

1345: Trout returns to site & prepares to resume drilling.

1406: Trout resumes drilling @ 40' bgs.

1530: Chuck Williams offsite.

1600: J. Binder offsite.

1605: Trout stops @ 70' bgs.

- Check ~~at~~ core.

- Bottom of Three Mile Limestone is

~ 65.5' bgs.

- Prepare to set mw-01 to 65' bgs per USACE instructions (set well @ base of Three Mile).

Monitoring well details next page: ↓

wednesday

5-13-15 Forbes S-S Atlas

A. Geyer
J. Bryant

MW-01 Details: BHTD: 70' bgs; MWTD: 65' bgs.

- 2" dia Sch 40 PVC - Johnson

- Cap: Flat

- Screen: 0.010" Factory Totted

- Riser: 2" dia blank

Lengths

Cap: 0.35

Screen: 10.04

Riser: 10.00

10.00

10.00

10.00

10.00

10.00

Total: 70.39'

Cutoff: 2.64

Sticking: 2.15'

Backfill: Haliburton Baroid Bentonite chips

70-66' bgs, 1-50# bag

- Premier Silica 20/40 silica sand

66-65' bgs, 1-50# bag

Filter Pack: Premier Silica 20/40 Silica Sand

65-51', 7-50# bags

Bentonite Seal: PDS - Pel Plug Bentonite Pellets

51-47' bgs, 2-5 gal butts.

Wednesday

5-13-15

Forbes S-5 Atlas

A. Geyer

J. Bryant

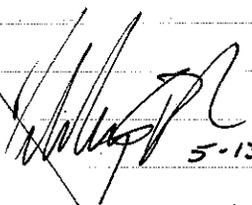
MW-01 Details Continued:

Grout: EZ seal - 4 - 50# bags, quick-grout - 7 - 50# bags
47' - 3' bgs

1745: Traut crew is staging equipment & supplies in preparation for 5-14 activities.
- Bentonite seal will set overnight & Traut will grout 5-14.

1900: Traut is finished for the day.

BM10, Avatar, & Traut offsite. Site secured.


5-13-15

Thursday

5-14-15

Forbes S-5 Atlas

A. Geyer

J. Bryant

Weather: Overcast, 50s to 70s, S wind 10-15 mph. Rain.

Task: Soil & rock borings, sediment & surface water sampling @ Forbes Atlas S-5 site E. of Council Grove, KS.

Personnel: J. Bryant (BM10)

A. Geyer (Avatar)

S. Weisbrich, N. Anderson } Traut

N. Stebbins, K. Grater

0700: Depart Emporia, KS.

0730: Arrive onsite w/ A. Geyer. Prepare safety paperwork & checklists for the day.

0800: Traut Drilling crew onsite.

- Conduct daily safety meeting & complete daily inspections.
- Traut evaluates ground conditions following overnight precipitation.
- Driving the rig & support trucks out of the MW-01 area may not be possible without getting stuck in mud. Access to the remaining drill sites will present a similar challenge.
- Traut is evaluating options for moving equipment to and from drill sites.

0920: Traut crew begins working on grouting MW-01 w/ High Solids Bentonite Grout.

Thursday
5-14-15

Forbes S-S Atlas

A. Geyer
J. Bryant

1020: Well is grouted (See page 8 for details).

- Traut is rigging down & preparing to construct the well pad.

1030: Traut notes to Council Grove to get supplies for pad construction.

- BMO & Avatar mob to SD-11 & 10 to collect surface sediment samples from sewage lagoons.
- Both sewage lagoons are saturated (SD-10 is under water completely).
- Will collect soil for ¹⁷ in jars for wet soil.

1105: Collect SD-11 ¹⁸ for VOC from 0-5' lgs. & Dup-1 ¹⁸ for VOC from 0-0.5' Dup-1-SB

1125: Collect SD-10 ¹⁸ & SD-10 ¹⁸ MS & SD-10 ¹⁸ MS for VOC from 0-0.5'.

1130: Traut crew returns & sets pro-top cover @ MW-01. Will wait to build pad until grout cures.

1230: Traut offsite for lunch.

- BMO & Avatar prepare to collect surface water samples @ sewage lagoons.

1240: Collect SW-10 & MS-SW-10 & MSD-SW-10 for VOCs.

Thursday

5-14-15

Forbes S-S Atlas

J. Bryant

1300: Collect SW-11 for VOCs.

1330: Traut returns from lunch. N. Henderson & K. Grathe depart for Topoka, KS to swap out rubber tired skid steer for a track mounted skid steer (better maneuverability in wet conditions).

- Remaining Traut crew preps for arrival of rental D-6 Bulldozer (enroute from Topoka).

1430: D-6 Bulldozer arrives. Traut crew & driver offload the dozer.

1445: Traut uses D-6 to pull support truck out of the MW-01 area.

1505: Traut uses D-6 to pull drill rig out of the MW-01 area.

1540: N. Henderson & K. Grathe return with skid loader.

- Traut will need to move the frac tank slightly to allow access to SB-06 (tank is parked too close to location to allow rig access).

- Bump test PID & LEL.

1600: Traut sets up @ SB-05.

1639: Traut begins drilling SB-05 w/ 4" bit & 4" double wall sampler

Thursday

5-14-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1700: Traut stops @ 9' bgs. Limestone encountered.

- Traut prepares to rig down, abandon SB-05 w/ 2 - 50* bags bentonite chips, and decon.

- Traut rigs up @ SB-06

1715: Collect SB05-0-1 for VOC & TOC.

1725: Collect SB-05-1.5-2.5 & Dup-1-SB for VOC & TOC.

1730: Traut begins drilling SB-06 w/ 4" dia bit & 4" dia double wall sampler.

1750: Traut stops @ 21' bgs.

- Traut rigs down, abandons SB-06 w/ 3 - 50* bags bentonite chips, & moves equipment to SB-03, and decons.

- Traut will pour well pad @ MW-01 & wrap up for the day.

1845: Collect SB-06-0-1 for VOC & TOC.

1855: Collect SB-06-1-2 for VOC & TOC.

1925: Traut checks WL @ MW01: 9.3' bgs.

1940: Secure site, depart site.

Friday

5-15-15

Forbes Atlas S-5

A. Geyer 18

J. Bryant

Weather: Overcast, light fog, SSE wind 5-10, rain in forecast for later.

Task: Soil & rock borings at the Forbes Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant - BMEI

A. Geyer - Avatar

S. Weisbrick, N. Stebbins, N. Henderson,

& K. Grathke - Traut Drilling.

0700: Meet w/ A. Geyer & prep samples for shipping.

0730: Depart Emporia, KS for site. A. Geyer departs for Fed Ex in Topeka, KS.

0800: Arrive onsite.

- Conduct daily safety meeting, complete daily safety documentation, complete inspections, calibrate/bump test PEO & LEL.

- Traut prepares to drill SB-02.

0906: Traut begins drilling SB-02 w/ 4" dia bit & 4" dia double wall sample barrel

0920: Collect SB-02^{SB}0-1 for VOC & TOC. 0-1' bgs

0940: Collect SB-02^{SB}2-3 for VOC & TOC. 2-3' bgs

0947: Drilling hard from 10-15'. Traut will switch to single wall 4" sampler & C" over drill casing.

- Rain moving in to the area

Friday
5-15-15

Forbes S-5

A. Geyer
J. Bryant

- 1010: A. Geyer onsite.
- 1035: Collect SB-02/SB-8-9 for UOC & TOC from 8-9' bgs
- 1045: Traut stops @ 30' bgs.
- Traut pulls casing, abandons boring w/ bentonite, rigs down, decons, & sets up @ SB-05 (Did not reach target depth per work plan yesterday, will re-drill today)
- 1145: Traut crew offsite to fill water truck & break for lunch
- 1150: Collect SB-02/SB-25-26 for UOC & TOC. Possible groundwater bearing zone (saturated) from 25-26' bgs
- 1315: Traut crew back onsite. Traut sets up @ SB-05R, offset from SB-05 by 1' SW.
- 1430: Traut begins drilling SB-05R w/ 4" dia bit & 4" dia double wall sampler.
- 1545: Hand drilling 9-15'. Traut begins using 6" overdrill casing & double wall system.
- 1545: Collect SB-05R/SB-12-13 for UOC & TOC from 12-13' bgs
- 1628: Traut stops @ 30' bgs.

Friday
5-15-15

Forbes S-5

A. Geyer
J. Bryant

- 1640: Collect SB-05/SB-20-21 for UOC & TOC from 20-21' bgs
- 1645: A. Geyer departs for Fed-Ex Topoka to ship samples.
- Traut crew backfills borehole w/ bentonite, rigs down, decons, & prepares to set up @ MW-06.
- 1730: Traut crew will need to trim branches off of two trees in the path of access to MW-06. This has been OK'd by the landowner & USACE.
- 1800: Traut begins moving equipment to MW-06.
- Collect WL measurement @ MW-01: 22.50' bgs
- 1845: Traut sets up drill rig @ MW-06.
- 1930: Finished for the day. Secure site & depart for Emporia, KS.

[Signature]
5-15-15

Saturday
5-16-15

Forbes Atlas S-5

A. Geyer
J. Bryant

Weather: Cloudy, 70s, S/SW wind 5-15 mph.

Task: Soil & rock borings & monitoring well installation @ Forbes Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant (BMEC)

A. Geyer (Avatar)

S. Weisbrich, N. Henderson, J. Traut
N. Stebbins, K. Grathke

0730: Depart Emporia.

0800: Onsite. Traut & Avatar arrive onsite.

- Conduct daily safety meeting, complete daily safety documentation, complete daily inspections, bump test PEO & LEL.

- Traut notes water truck to Council Grove to fill water & begins setting up for the day @ MW-06.

0900: Traut returns w/ water truck. Traut finishes set up @ MW-06.

0915: Traut begins drilling MW-06 with 4" dia bit & 4" dia sampler (10')

0925: Hard drilling @ 10' bgs. Traut switches to 4" dia double wall sampler & 6" dia overdrill casing.

0950: Traut adds Quick-Cret to drilling water to prevent water loss

Saturday
5-16-15

Forbes Atlas S-5

J. Bryant

1145: Traut stops @ 50' bgs. Base of Threemile Ls is 48.5' bgs.

- Traut reports fluid loss of ~300 gal up to 20' bgs, then no additional fluid loss.

- Traut breaks for lunch.

- Consult with Ed Lindgren regarding screen depth/length.

- There is 8' of Threemile Ls & work plan calls for 10' of screen.

- Ed Lindgren consults w/ Chuck Williams (USACE). Chuck authorizes 5' screen installed to base of Threemile Ls.

1240: Traut returns to site and prepares to install MW-06 to 48' bgs.

MW-06 Details: BH TD = 50' bgs, MW TD = 48' bgs

- 2" dia sch 40 pvc - Johnson

- Cap: Flat

- Screen: 0.010" Factory Slotted

- Riser: 2" dia blank pvc

Lengths:

Cap: 0.23'

Screen: 5.05'

Riser: 10.01, 10.00, 10.00, 10.00, 10.00

Total: 55.29', Cutoff: 3.79', Stick up: 2.75'

18

Saturday
5-16-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1315: Monitoring well pipe is installed. Traut begins placing the filter pack via tremie pipe.

Filter Pack: 20/40 - Premier Silica

From: 48' - 38' bgs

Used: 5 - 50* bags

* Note: Backfill: 50-48' bgs - Premier Silica 20/40
used 1 - 50* bag

1350: Traut begins placing bentonite seal.

Seal: PDS Pel Plug Bentonite Pellets

From: 38' - 35'

Used: 2 - 5 gal pails

1405: Traut ~~removes~~ ^{removes} the remaining 6" casing

- Traut has finished placing the bentonite seal. Seal needs to hydrate for 4 hours before grouting. 6" casing should not be removed before grouting.

- Traut begins working on placing soil cuttings & cores from borings in drums, performs maintenance on their shaker table, fills water truck, and cleans up drill site.

1440: Check WL @ MW-01: 29.57' bgs

Measure TD to TOC: 67.75' btoe

Stuckup = 2.15'

Actual TD bgs = 65.6' bgs

Saturday

5-16-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1410: Traut crew has finished various tasks.

Traut sets up to develop MW-01.

1WU: 5.9 gal

- Traut surges well with large block for 10min.

- Traut begins pumping w/ 12V submersible pump.

- Begin taking readings.

Time	amt	pH	Temp	Cond	Turb
1622	I	8.9	15.1	.32	00R

1625 Dry after ~6 gal.

- Allow well to recharge.

1645: Well has not recharged to static yet.

Thunderstorms moving in to the area & forecasted to continue for the remainder of the day.

1700: Secure site & depart for Emporia, KS.

[Signature]
5-16-15

20 Sunday

5-17-15

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: PC to Clear, 60s-80s, S wind
10-20 mph.

Task: Soil & rock drilling & Monitoring well installation
@ Forbes Atlas S-5 site E. of Council Grove, KS.

Personnel: J. Bryant (BMCB)

A. Geyer (Avatar)

S. Weisbrick, N. Stebbins } Trant

N. Henderson, K. Grathe } Drilling

0730: Depart Emporia, KS.

0800: Onsite. Avatar & Trant onsite.

- Daily safety meeting & documentation,
prep for day, bump test PID & LEL.

0830: Prepare to purge/develop MW-01 again.

WL: 53.75' btoe TO = 67.75' btoe

1 MW: 2.3 gal - Surge for 15 min.

0855: Begin purging w/ 12V submersible pump.

Time Amt pH Temp Cond Turb

0855 I 8.3 15.6 0.39 0.0R

0857 Dry after ~ 4 gal.

- hot well recharge.

0900: Trant sets up to grout MW-06D.

Grout: E-Z Seal 3 - 50# bags &

Quick-Grout .3 - 50# bags

From 35' - 3' bgs

0930: Grouting @ MW-06 is finished. Trant moves
equipment to MW-02.

Sunday

5-17-15

Forbes Atlas S-5

A. Geyer 21

J. Bryant

- Due to the muddy ground conditions from recent
rains, equipment (Drill rig, water truck, and
trailers) has to be pulled out with the bulldozer
onsite. Re-locating the equipment to MW-02
takes longer than normal as a result.

1130: Trant's equipment is set up @ MW-02.

1207: Trant begins drilling MW-02 w/ 4" dia
bit & 4" dia sampler (10')

1250: Trant pauses @ 15' bgs for lunch.

1330: Collect SW-09/Ses-09 for DOCs.

1355: Trant returns from lunch.

1422: Trant changed the o-ring on double
wall sampler & resumes drilling @ 15' bgs
w/ 4" dia double wall sampler and
6" dia overdrill casing.

- Driller reports ~ 300 gal fluid loss in 1st 20'

- Trant uses Quick-Grel & E-Z Seal for
remainder of boring.

- Driller reports an additional ⁵⁰150 gal
fluid loss 20-30' bgs.

1700: Trant stops @ 60' bgs. Threemile Ls.
(target unit) was encountered from 49.5'
to 55' bgs.

Trant will set well to 55' w/ 5"
screen.

- No additional fluid loss reported.

Sunday
5-17-15 Forbes Atlas S-5 J. Bryant

MW-020 Details: 2" dia Sch 40 PVC

Cap: Flat

Screen: 0.010" Factory slotted

Riser: Blank

Lengths:

Cap - 0.23'

Screen - 5.00'

Riser - 10.01'

10.00'

10.01'

10.00'

10.01'

3.29'

Backfill: Bentonite chips

60-58' bgs, Premier Silica

20/40 58-55' bgs, 1-50#

bag chips, 1-50# bag sand

Total: 58.95

Cutoff: 0.0

Stickup: 3.33

1800: Trant places filter pack via tremie pipe.

Filter pack: Premier Silica 20/40 silica

From 55' - 46' bgs

used 5 - 50# bags

Bentonite Seal: PDS PEL Plug Bentonite pellets

From 46' - 42' bgs

used 1.5 - 5 gal pails

1900: Check wt @ mw-01: 56.50' Ltoe

1912 - Purge mw-01 w/ 12 V submersible pump

after surging ~15 min.

Sunday
5-17-15 Forbes Atlas S-5 J. Bryant

Time	Event	pth	Temp	Load	Turb
1912	E	9.5	18.4	0.440	00R
1913	2	83	15.5	0.590	361

- Dry @ ~2 gal.

Finished for the day.

1925: Site secured. All affix'd.

J. Bryant
5-17-15

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Monday
5-18-15

Forbes Atlas S-5

A. Geyer
J. Bryant

Weather: Clear, 50s-70s, North wind
5-20 mph.

Task: Soil & rock drilling, sampling, &
Monitoring well installation @ Forbes
Atlas S-5 site E. of Council Grove, KS.

Personnel: J. Bryant (D.M.D.)

A. Geyer (Avatar)

S. Whiskrick, N. Henderson } Trant
N. Stebbins, K. Grathke } Drilling

0730: Depart Emporia, KS.

0800: Onsite, Trant & Avatar onsite.

- Daily safety meeting & documentation,
meal prep for day, bump test PED & LEL.

0830: Trant begins working on grouting MW-02.

Grout: E-Z Seal: 4-50# bags

Quick Grout: .3-50# bag

From 42'-3' bgs

- Collect WL measurement @ MW-01: 57.45' bgs
1 WW: 1.7 gal

- Purge MW-01 w/ 12 U. Submersible pump.

Time	Act	pH	Temp	Cond	Turb
0840	I	7.9	14.6	0.67	382

0843 Dry @ ~2 gal.

- Well goes dry & recharges enough to pump
after ~1 min. Then dry after 1-2 gal.

Monday
5-18-15

Forbes Atlas S-5

A. Geyer²⁵
J. Bryant

0900: Well not recharging as quickly. Stop pumping
for ~15 min.

0917: Resume pumping.

0918: Dry after <1 gal. Allow well to recharge
for the day.

* Note: Trant left to fill water truck prior to
grouting MW-02. Departed: 0845, Returned: 0915
- Trant began grouting well @ 0925.

1000: Trant has finished grouting MW-02. Trant
moves equipment to SB-03.

1115: Trant begins drilling SB-03 w/ 4" dia
single wall sampler & 4" dia bit.

1138: Trant begins using 6" dia overdrill casing.

1145: Collect SB-03/SB-03-0-1, ~~SB-03~~

SB-03/SB-03-0-1-M3, & SB-03/SB-03-0-1-MSB
for UOC & TOC from 0-1' bgs

1200: Trant stops @ 30' bgs

- Trant pulls casing, abandons borehole w/
bentonite chips, debris, & breaks for lunch.

1230: Collect SB-03/SB-03-3-4 for UOC &
TOC (saturated) from 3-4' bgs.

1240: Collect SB-03/SB-03-9-10 ^{for} ~~for~~
UOC & TOC from 9-10' bgs

1250: Collect SB-03/SB-03-11-12 &

Dup-2/SB for UOC & TOC from 11-12' bgs

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Monday
5-18-15

Forbes Atlas S-5

A. Geyer
J. Bryant

1300: Collect SB-03/SB-03-14-15 for
VOC & TOC from 14-15' bgs

1310: Collect SB-03/SB-03-18-19 for
VOC & TOC from 18-19' bgs

1435: Traut returns to site & sets up
@ SB-07.

1506: Traut begins drilling SB-07 w/
4" dia bit & 4" dia single wall
sampler

1520: Collect SB-07/SB-07-0-1 for
VOC & TOC from 0-1' bgs

1530: Collect SB-07/SB-07-3-4 for
VOC & TOC from 3-4' bgs

1535: Collect SB-07/SB-07-9-10 for
VOC & TOC from 9-10' bgs

- At 5' bgs, Traut begins using quicke
gel in drilling fluid.

- At 10' bgs, Traut begins installing 6"
dia casing.

- At 15' bgs, driller reports ~400 gal
fluid loss. Traut installs 8" dia casing
to 10' bgs

1630: Collect SB-07/SB-07-12-13 for VOC &
TOC from 12-13' bgs

Monday
5-18-15

Forbes Atlas S-5

A. Geyer 27
J. Bryant

1645: Collect SB-07/SB-07-26-27 for VOC
& TOC from 26-27' bgs.

1655: Collect SB-07/SB-07-28-29 for VOC
& TOC from 28-29' bgs

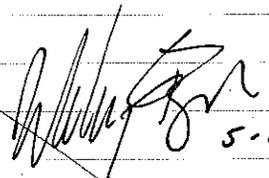
* Note: Traut stopped @ 30' bgs @ 1640.
- Traut pulls casing, backfills borehole w/
bentonite, decons, and sets up equipment
@ SB-01 for drilling on 5-19-15.

1735: J. Bryant offsite to ship samples via Fed
Ex in Wichita & pick up additional
sampling supplies @ Wichita office.

A. Geyer remains onsite w/ Traut while
Traut stages equipment & decons.

* Note from A. Geyer: Equipment staged &
all offsite @ 1900.

2000: Ship samples via Fed Ex Wichita.


5-18-15

Tuesday
5-19-15

Forbes Atlas S-5 J. Bryant

Weather: PC, 40s in AM to 60s later,
E/W/E wind 10-20 mph.

Task: Source drilling - soil & rock, soil
sampling & monitoring well installation @
Forbes Atlas S-5 site E of Council Grove.

Personnel: J. Bryant (BMD)
A. Geyer (Avatar)
S. Whitebrick, N. Anderson } Trout
N. Stebbins, K. Grotke } Drilling

0800: onsite. Trout & Avatar onsite/arrive
onsite.

- Daily safety meeting & documentation.
Plan for day. Pump test LEL & PFD.
- Trout prepares to drill ~~SB~~ SB-01

0825: Trout begins drilling SB-01 w/ 4" dia
single wall sampler & 4" dia bit.

0840: Collect SB-01/SB-01-0-1 &
Dup-3/SB for VOC & TOC from
0-1' bgs.

0850: Collect SB-01/SB-01-3-4 for VOC
& TOC from 3-4' bgs

0900: Collect SB-01/SB-01-8-9 for VOC &
TOC from 8-9' bgs

- Driller begins using quack gel & water with
4" dia double wall sampler & 6" dia casing
from 20-30'.

Tuesday

5-19-15 Forbes Atlas S-5 J. Bryant

0925: Trout stops @ ~25' bgs to repair a
trash pump.

0935: Trout resumes drilling @ ~25' bgs w/
6" dia casing.

- 0925: Collect SB-01/SB-01-11-12 for VOC &
TOC from 11-12' bgs

0935: Collect SB-01/SB-01-14-15 for VOC &
TOC from 14-15' bgs.

0945: Collect SB-01/SB-01-17-18 for VOC &
TOC from 17-18' bgs

0950: Trout has reached 30' bgs. Base of target
formation has not been found yet. Trout will
continue drilling.

- Trout installs 8" dia casing to 20' bgs to
seal off a path for fluid that is coming
to the surface under the mud tub.

0955: Collect SB-01/SB-01-23-24 (saturated)
for VOC & TOC from 23-24' bgs.

1000: Trout stops advancing 8" casing @ ~18' bgs.
Fluid is entering the annular space @ MW-020
~~where~~ above the depth that grout has
settled to.

- Best option is to top off grout @ MW-020
& let it cure before resuming drilling @ SB-01.
- Consult w/ Ed Lindgren (BMD). Ed OK's decision.

30 Tuesday

5-19-15

Forbes Atlas S-5

A. Geyer

J. Bryant

- Trout crew tops off grout @ MW-02D.

- Trout puts Q'lap on 8" casing & lowers mast.

- Trout loads equipment & secures all vehicles that will remain onsite (Drill rig, water truck, derrick, acid truck)

1130: Trout crew departs site for 5 day break.

1200: Collect WL @ MW-01: 61.35' btoe.

1220: Collect WL & TD @ MW-06D.

WL: 13.52' btoe; TD: 51.51' btoe

1 WV: 6.2 gal. - Surge well for 10-15 min.

- Purge w/ 12 V submersible pump.

Time	amt	pit	Temp	Lead	Truck
1232	I	8.6	16.0	0.300	00R

1235 Dry @ ~1 gal.

1239: Check WL: 39.09'

- Surge well

- Resume pumping

- Dry @ ~1 gal.

- Prepare to collect SD-09 w/ Ecmann style sampler.

1330: After 3 attempts, recovery is minimal.

- Consult w/ Ed Lindgren (BMCD).

- While waiting for response, sample SD/SW-01

- Decon sampler.

Tuesday

5-19-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1400: Collect SW-01/SW-01 for VOCs.

1410: Collect SD-01/SD-01 for VOCs. (Saturated)

1435: Collect SW-03/SW-03 for VOCs.

1445: Collect SW-08/SW-08 for VOCs.

1500: Collect SD-02/SD-02 for VOCs (Dry)

- No SW @ SW-02.

- Decon sampler.

- Attempt to collect SD-08.

1530 - During attempt, Ecmann sampler became entangled w/ pipes at base of pit. With some effort, sampler was retrieved.

No further attempt will be made to collect SD-08.

- Decon sampler.

- Attempt to collect SD-03.

1600: 1st attempt yielded no material.

2nd attempt yielded a 7' x 2" dia piece of PVC pipe.

- To avoid getting the sampler entangled in debris again, no further attempt will be made to collect SD-03. Decon sampler.

- Prep samples for shipping & complete COC.

1700: A. Geyer offsite to Fed Ex - Topoka, KS.

- Site secured, BMCD offsite.

 5/19/15

32 Tuesday

5-19-15

Forbes Atlas S-5

A. Greger

J. Bryant

* Late Entry: Collected equipment rinsate

blank **ERB-SD-051915/ERB-SD** for

UOCs @ 1645.

Fisher Chemical, Lot 152698-HPLC G-grade H₂O.

[Signature]
5-19-15

Wednesday

5-20-15

Forbes Atlas S-5

A. Greger³³

J. Bryant

Weather: overcast, 40s to 60s, N/NE wind 10-20 mph.

Task: Sediment & Surface water sampling

@ Forbes Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant (B.M.D.)

A. Greger (Avatar)

0745: Depart Emporia, KS. Purchase ice enroute.

0815: Onsite. Complete daily safety documentation.

- Scout well location MW-020 for accessibility for development.

- Due to recent rain, access w/ vehicle is not feasible @ MW-020.

Collect round of water levels.

well WL ('btoc)

MW-01 59.65'

MW-060 42.30'

MW-020 38.96'

- Focus on collecting surface water & sediment samples for now & allow area around MW-020 to dry out.

1000: Collect **SW-06/SW-06** & **Dup-1/SW** for UOCs.

1015: Collect **SW-07/SW-07** for UOCs.

1020: Collect **SW-05/SW-05** for UOCs.

1030: Collect **SW-04/SW-04** for UOCs.

84 Wednesday

5-20-15

Forbes Atlas S-5

A. Weyer

J. Bryant

1050: Collect SD-06/SD-06 for VOCs
(Saturated)

- Decon sampler.

1120: Collect SD-07/SD-07 for VOCs. Short
volume (1 of 2 4oz jars). Check with lab
to see if this is sufficient. (Saturated)

- Decon Sampler.

1150: Attempted to collect SD-05. 1st attempt
yielded a large rock, 2nd attempt yielded a
beverage can, and attempts 3 & 4 yielded
nothing. No further attempt will be
made to collect SD-05.

1200: Collect SD-04/SD-04 for VOCs
(saturated)

Decon Sampler.

1220: Collect ERB-^{SD-}052015/ERB-SD equipment
rinse blank from sediment sampler for
VOCs.

1300: Collect IDW-WW-052015/IDW-WW from
frac tank for VOCs

Complete chain of custody forms.

- Prepare to develop MW-020.

WL: 35.96' hloc ID: 58.52' hloc

1 MW 3.7 gal

- Purge e-nizon w/

after surging for ~15 min.

Wednesday

5-20-15

Forbes Atlas S-5

A. Weyer 85

J. Bryant

Time	Amnt	plt	Temp	Cond	Turb
1414	I	8.3	13.0	0.310	00R

1415 Dry @ ~3.5 gal.

- Stow development equipment & prepare to
depart the site.

1500: Depart site (secured). Stop in Council Grove
for more ice, pack samples, & seal coolers (2).

1800: Ship samples via Fed Ex Wichita.

[Signature]
5-20-15

36

Tuesday

5-26-15

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: Partly cloudy, 70s, SE wind 10-20 mph.

Task: Survey relative elevations of installed monitoring wells @ S-5 site E of Council Grove, KS.

Personnel: J. Bryant (BM'D)

A. Geyer (Avatar)

0830: Load coolers @ Wichita office.

Depart for Topeka, KS.

* Note: Detoured to Hutchinson on short notice for another project from 1030-1230.

1445: Pick up level, tripod, & rod @

United Rental in Topeka, KS.

1500: Depart for site.

1555: Arrive @ S-5 site. Check site conditions.

- Overall site condition is wet from recent rains.

- Inspect & set up level & tripod.

1630: A. Geyer w/ Avatar onsite.

- Select site benchmark - cemented manhole cover near missile bay.

- Begin survey of relative elevations @ wells

MW-01D, MW-02D, & MW-06D & collect

WL measurements. Diagram next page.

- Measurements are to measurement mark @ TOC.

Tuesday

5-26-15

Forbes Atlas S-5

A. Geyer

J. Bryant

Elevation Data Diagram

MW-01D

⊙ HI - 5.61'

• Level HI = 103.58'

MW-02D

⊙ HI - 5.74'

⊙ BM = 100'

• Level 2 HI2 = 101.69

MW-06D

⊙ HI2 - 10.82'

↑ N

* Not to scale

$$MW-01D = HI - 5.61' = 103.58' - 5.61' = 97.97'$$

$$MW-02D = HI - 5.74' = 103.58' - 5.74' = 97.84'$$

$$MW-06D = HI2 - 10.82' = 101.69' - 10.82' = 90.87'$$

WLS: MW-01D: 49.10' btoe

MW-02D: 44.77' btoe

MW-06D: 33.30' btoe

1815: Secure site. Depart for Topeka, KS.

JB 5-26-15

Wednesday
5-27-15 Forbes Atlas S-S A. Geyer
J. Bryant

Weather: Clear, 60s-80s, light variable wind.

Task: Soil & rock drilling w/ Sonic Rig,
Soil sampling, & Monitoring well installation
@ Forbes Atlas S-S site E. of Council
Cove, KS.

Personnel: J. Bryant (BM/D)
A. Geyer (Avatar)
S. Whisbrick, N. Stebbins } Trant
N. Henderson, K. Grathke } Drilling

0700: Depart Topeka, KS.

0755: Arrive onsite w/ Avatar.

Trant crew onsite.

- Conduct daily safety meeting, usually toolbox talk, discuss plan for the day.
- Calibrate LEL & PID.
- Crew begins setting up for the day.
 - Rig requires a few minor, routine maintenance items before starting work.

0900: Collect round of WLS.

Well	WL (ftloc)
MW-01D	48.74
MW-02D	42.41
MW-03D	32.38

- Trant checks grout @ MW-02D: 2' bgs.

Wednesday
5-27-15 Forbes Atlas S-S A. Geyer⁸⁹
J. Bryant

1035: Trant is ready to resume drilling BB-01/
MW-02D:

- 8" dia casing is @ 18' bgs - will remain @ 18'
- 6" dia casing is @ 27' bgs - Trant will advance 6" dia to 30' bgs.
- 4" dia sampler was advanced to 30' bgs.

1049: Trant begins/resumes drilling SB-01/MW-02S
w/ 6" dia casing @ 6" bit.

1055: Trant begins advancing 4" dia sampler from
30-40' bgs.

1103: Trant stops @ 40' bgs.

- Base of target limestone is @ 31' bgs.
- Trant prepares to set MW-02S to 31' bgs.

Well Details

BH TD: 40' bgs ; MW TD: 31' bgs

Backfill: Bentonite chips 32-40' bgs

- Halibuton 3/8" Hole Plug, 2.0 - 50# bags
- 20/40 Sand 31-32' bgs
- Premier Silica Sand, 1 - 50# bag

1140: Trant places filter pack via tremie pipe.

- Premier Silica, 20/40 Silica Sand
- 22' - 31' bgs

Used 5 - 50# bags

- Bentonite Seal - ADS Pel-Plug Bentonite Pellets
- 18-22' bgs, used 1.25 - 5 gal buckets

40 Wednesday

5-27-15

Forbes Atlas S-5

A. Geyer

J. Bryant

11:50: While one portion of Traut crew is installing MW-02S, other Traut personnel work on abandoning existing monitoring well
- WL: 15.00' bgs, TD = 21' bgs.

- Traut pulls protective cover. 2" well casing breaks off @ 6" bgs. Traut places a cover ~~of~~ over the well for now. Will grout when grouting MW-02S.

12:05: Filter pack & seal are installed @ MW-02S. Crew breaks for lunch. Seal needs to sit for 4 hrs before grouting.

13:05: Traut crew is back onsite. Crew works on re-staging equipment & drums.

14:50: Collect another round of WL measurements.

Well	WL ('bgs)
MW-01D	48.60
MW-02D	40.99
MW-06D	31.91

16:00: Traut grouts MW-50Z from 21' to 30' bgs. Used High Solids bentonite grout:
EZ seal: 0.5 - 50* bags
Quicks grout: 0.1 - 50* bags

Wednesday

5-27-15

Forbes Atlas S-5

A. Geyer

J. Bryant

16:05: Traut grouts MW-02S w/ tremie pipe.

Grout: EZ seal: 1.5 - 50* bags

Quicks Grout: 0.25 - 50* bags

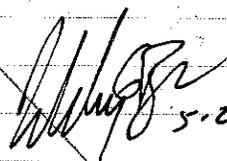
From 18' - 3' bgs

16:10: Traut pulls casing, drums, & moves equipment to SB04.

- Traut backdrags cuts in the MW-02 area w/ dozer.

17:00: Equipment staged. Crew wraps up for the day.

17:15: Site secured. Off-site.


5.27.15

42 Thursday

5-28-15

Forbes Atlas S-S

A. Geyer

J. Bryant

Weather: Cloudy, scattered showers & storms, 60s to 80s. E wind 5-10 mph.

Task: Soil & rock drilling (sonic), soil sampling, and monitoring well installation @ Forbes S-S Atlas site E of Council Grove, KS.

Personnel: J. Bryant (BMD)

A. Geyer (Avatar)

S. Weisbrick, N. Stebbins } Trout
N. Henderson, K. Grater } Drilling

0700: Depart Topeka, KS. Purchase ice enroute

0800: Arrive @ S-S site.

- Trout onsite, Avatar onsite.
- Conduct daily safety meeting, plan for day, complete daily safety documentation, calibrate/bump test PID & LEL
- Analytical results for the fluid in onsite frac tank are below RSK values. USACE has given permission to discharge fluid to ground surface at the site (applies only to fluid accumulated as of 5/20/15).
- Fluid generated on 5/27/15 is currently in a separate poly tank and will be transferred to the frac tank after it is emptied.
- USACE is waiting for approval from KDHE before we discharge.

Thursday

5-28-15

Forbes Atlas S-S

A. Geyer⁴³

J. Bryant

0840: Trout crew is setting up discharge line from frac tank to N end of the site (towards sewage lagoons).

- J. Bryant & A. Geyer collect round of WL measurements at installed wells.

Well

WL (ft) ~~FD-13~~

MW-01D 48.19

MW-02D 40.97

MW-02S 13.35' bgs (casing stick up will change)

MW-06D 30.92

0925: Trout begins discharging frac tank contents to sewage lagoons w/ trash pump & 2" dia hose.

- Approval received from KDHE.

1015: Discharge from frac tank is complete.

- Trout begins transferring contents of poly tank (MW-02S IDW) to frac tank (~1300 gal)

1030: Trout sets up to drill ~~MW~~ SB-04.

1047: Trout begins drilling SB-04 w/ 4" dia single wall sampler & 4" dia bit.

1115: Collect SB-04/SB04-0-1 for VOC & TOC from 0-1' bgs w/ bulk jars.

1120: ~~4"~~ 4" is @ 20' bgs. Trout begins advancing 6" to 20' bgs.

1125: Collect SB-04/SB-04-7-8 for VOC & TOC w/ 5035 nit from 7-8' bgs.

44 Thursday

5-28-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1141: Traut switches to 4" dia double wall sampler ahead of the 2" dia casing.
- Driller reports ~250 gal fluid loss in top 20'.

1150: Collect SB-04/SB-04-13-14 for VOC & TOC w/ 5035 nit from 13-14' bgs.

AND collect Dup-4/SB for VOC & TOC w/ 5035 nit from 13-14' bgs.

1224: Traut stops @ 40' bgs. Base of Schreyer Ls is 32' bgs. Traut will set the shallow monitoring well to 32' bgs.
- Traut breaks for lunch.

1225: Collect SB-04/SB-04-16-17 for VOC & TOC w/ 5035 nit from 16-17' bgs.

1235: Collect SB-04/SB-04-19-20 for VOC & TOC w/ 5035 nit from 19-20' bgs.

1250: Collect SB-04/SB-04-20-21 for VOC & TOC w/ 5035 nit from 20-21' bgs.

1315: A. Geyer offsite to purchase more ice for samples.

1335: Traut crew back onsite. Traut prepares to install monitoring well, designated MW-075.

1345: A. Geyer back onsite. Complete COC & prep samples for shipping.

Thursday

5-28-15

Forbes Atlas S-5

A. Geyer 46

J. Bryant

1400: Traut is installing MW-075 to 32' bgs.

Details: BH TD = 40' bgs; MW TD = 32' bgs.

Material: 2" dia sch 40 PVC

Cap: Point, Screen: 0.010" Factory slotted.

Manufacturer: Johnson

Lengths:

Cap: 0.24'

Screen: 5.00'

Riser: 10.00'

10.00'

10.00' + 0.12'

Total: 35.30', Cutoff: 0.0, Stickup: 2.8

- Backfill: Haliburton 3/8" bentonite chips

40' - 34' bgs, used 2 - 50# bags

Premier silica 20/40 grade silica sand

34' - 32' bgs. Used 1 - 50# bags

- Filter pack: Premier silica 20/40 grade silica sand

32' - 23' bgs, used 5 - 50# bags

- Seal: PDS Pel-Plug Bentonite pellets

23' - 19' bgs, used 1.5 - 5 gal buckets

1430: A. Geyer offsite w/ sealed cooler to ship samples via Fed Ex - Topena.

1440: Seal is in @ MW-075. Needs to hydrate for 4 hrs. Traut crew begins working on installing well pads, protective covers, & bollards at installed wells.

46 Thursday
5-28-15 Forbes Atlas S-S J. Bryant

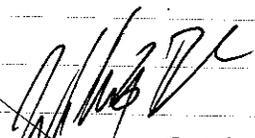
1520: Collect round of WLS.

Well	WL ('btoe)
MW-01D	48.07
MW-02D	40.98
MW-02S	13.62 ('bgs as TOC will change)
MW-06D	30.63

1800: Traut has dug well pads at MW-01D, MW-02D, MW-02S, & MW-06D, dug bollard holes at each well location, placed bollards at each well location, and poured well pad at MW-01D & cemented bollards in place.

- Crew wraps up for the day.

1830: Secure site. All offsite. Return to Topeka, KS.


5-28-15

Friday
5-29-15 Forbes Atlas S-S A. Geyer J. Bryant

Weather: Cloudy, 60s-70s, S wind 5-10 mph. Rain.

Task: Soil & rock drilling, soil sampling, & monitoring well installation @ Forbes Atlas S-S site E of Council Grove, KS.

Personnel: J. Bryant (BMEC)

A. Geyer (Avatar)

S. Whisbrice, N. Stebbins } Traut
N. Henderson, K. Gratke } Drilling

0630: Depart Topeka, KS. Purchase ice cream.

0730: Arrive onsite w/ Avatar.

- Prepare daily safety documentation & bump test PED & ZEL.

0750: Traut crew onsite.

- Daily safety meeting, complete daily safety documentation & inspections, discuss plan for the day.

0815: Traut begins work on grouting MW-07S.

Grout Holibuckon: EZ Seal: 2 - 50# bags

Quica Grout: 0.3 - 50# bags

From 19'-3' bgs

- Collect round of WLS

Well	WL ('btoe)
MW-01D	47.72
MW-02D	40.91
MW-02S	16.13
MW-06D	29.92

48
Friday
5-29-15

Forbes Atlas S-S

A. Geyer
J. Bryant

0830 Traut has finished grouting and is pulling casing & decanning.

- Chuck Williams w/ USACE onsite.

0855: Traut has removed casing & decanned, then rigged down.

- Traut begins work on moving equipment to SB-08 / MW-065. Wet muddy conditions make moving the equipment difficult.

1015: Ed Lindgren (BMID) onsite.

- Ed, Chuck, Jeff, & Alan discuss water level data, groundwater flow direction, & location of remaining monitoring wells.

1200: Traut crew has set up equipment @ ~~MW~~ SB-08 / MW-065.

- Crew breaks for lunch.

1300: Traut crew returns from lunch.

1320: Traut begins drilling SB-08 / MW-065 w/ 4" dia bit & 4" dia single wall sampler.

1340: Collect SB-08 / SB-08-0-1 for VOC & TOC w/ 5035 nit from 0-1' bgs

1350: Collect SB-08 / SB-08-4-5 for VOC & TOC w/ 5035 nit from 4-5' bgs

1400: Collect SB-08 / SB-08-8-9 for VOC & TOC w/ 5035 nit from 8-9' bgs.

Friday

5-29-15

Forbes Atlas S-S

A. Geyer
J. Bryant

1435: Traut stops @ 30' bgs.

- Base of schroyer Ls (target unit) is 21' bgs.

- Traut prepares to install well to 21' bgs.

1445: Ed Lindgren & Chuck Williams offsite.

1455: Collect SB-08 / SB-08-24-25 for VOC & TOC w/ 5035 nit from 24-25' bgs

1505: Traut installs MW-065 to 21' bgs.

Details: BHTD: 30' bgs, MW TD: 21' bgs

Material: 2" dia sch 40 PVC

Cap: Flat

Screen: 0.010" Factory slotted

Riser: Blank PVC

Manufacturer: Johnson

Lengths: Cap: 0.22

Screen: 5.00

Riser: 10.00, 10.00

Total: 25.22, Cutoff: 1.67

Stickup: 2.86

Backfill: Haliburton Bentonite Chips - 3/8"

30-23' bgs, 2.5-50# bags

Filter Pack: Premier Silica - 20/40 Silica Sand

23-12' bgs, 5-50# bags

Seal: PDS Pel-Plug Bentonite pellets

12'-8' bgs, 1.5-5 gal buckets

Bentonite: Haliburton 3/8" bentonite chips (Hydrated)

8'-3' bgs, 1.75-50# bags

50

Friday
5-29-15

Forbes Atlas 5-5

A. Geyer
J. Bryant

1520: A. Geyer offsite for fresh ice for samples.

1535: Well installation is complete. Trout pulls casing, decons, & moves equipment off the hole.

1600: A. Geyer back w/ ice.

- Pack samples, complete COC, seal & tape cooler.

1640: A. Geyer offsite to ship samples via Fed Ex Topoka.

- Trout crew is making equipment to

1800: Collect ERB-SB-052915/ERB-SB for VOC from sample barrel.

1830: Wrap up for the day.

Secure site. Depart for Topoka.


5-29-15

A. Geyer 51

Saturday
5-30-15

Forbes Atlas 5-5

J. Bryant

Weather: Overcast & 50s in AM, clearing & 70s later. WNW wind 10-20 mph.

Task: Sonic drilling (rock & soil) @ 5-5 site E of Council Grove, KS & monitoring well installation.

0700: Depart Topoka, KS.

0800: Arrive ~~at~~ ^{at} site.Trout crew onsite
S. Warrick, N. Stubbins
N. Henderson, K. Gratton

A. Geyer onsite. (A. Geyer)

- Daily safety meeting, safety documentation, bump test PEO & LEL. Trout sets up to drill MW-05D.

0840: Trout begins drilling MW-05D w/ Sonic - 4" dia bit & 4" dia single wall sampler.

0940: A. Geyer stakes adjusted well/boring locations that were identified yesterday during USICE - visit. (MW-03, MW-04, SB-09, SB-10).

1035: A. Geyer collects round of water level measurements at all installed wells.

Well	WL (ftoc)
MW-01D	47.47
MW-02D	40.82
MW-02S	16.05 (pre-development)
MW-06D	29.09
MW-06S	5.9 (pre-development)
MW-07S	18.02 (pre-development)

52 Saturday

5-30-15 Forbes Atlas 5-5

A. Geyer

J. Boyant

1125: Traut stops @ 40' bgs. Driller reports that the inner barrel of the double wall sample barrel has broken. Crew attempting to repair it. Unable to repair barrel. Crew swaps barrel

1145: Traut crew breaks for lunch. out w/ another on hand: (JB)

1245: Crew returns from lunch.

1258: Traut resumes drilling @ 40' bgs.

1450: Traut stops @ 70' bgs. Target unit (Threemile Ls) is observed from 55-61.5' bgs. Traut will set MW-05D to 61' w/ 5' screen.

MW-05D Well Details: BH TD = 70' bgs MW TD = 61' bgs

Material: 2" dia Sch 40 PUC, Manufacturer: Johnson

Cap: Point

Screen: 0.010" Factory slotted

Riser: Blank PUC

Lengths - Cap: 0.23

Screen: 5.00

Riser: 10.00

10.00

10.00

10.00

10.00

10.00

Total: 65.23'

Cutoff: .89, Strucap: 2.67

Saturday

5-30-15

Forbes Atlas 5-5

A. Geyer

J. Boyant

MW-05D Details Continued:

Backfill: Haliburton 3/8" bentonite chips

70-63' bgs, Used 2.25-50# bags

Filter Pack: Premier Silica, 20/40 grade Silica sand

63-52' bgs, used 5.5-50# bags

Seal 1 PDS Pel-Plug bentonite pellets

52-48' bgs, used 1.5-5 gal buckets

1640: A. Geyer & S. Whitebrick work on well development @ MW-02D, MW-02S, & MW-07S.

- Details on Well Development Form.

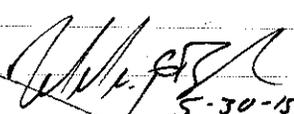
1700: Traut has placed seal @ MW-05D, the seal will hydrate overnight before grouting (min 4 hrs).

1730: MW-02D was purged dry after ~8 min.

MW-02S continues to recharge enough to pump, but not quickly enough to surge regularly. Will allow MW-02S to recharge and continue development on 5-31-15. Stop pumping after 30 min & ~50 gal.

- Traut develops MW-07S. Purged dry @ ~3 gal. Will let well recharge overnight.

1800: Secure site. All offsite. Return to Topex, K.S.


5-30-15

54 Sunday

5-31-15

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: Overcast, SOs in AM, PC & LGS later.

Light NE wind. E. intermittent light rain

Task: Sonic drilling - rock & soil and monitoring

well installation @ Forbes S-5 Atlas site

E of Council Grove, KS.

Personnel: J. Bryant (BOMD)

A. Geyer (Avatar)

S. Christrick, N. Stubbins, & Trant

M. Henderson, K. Gratta

0700: Depart Topeka, KS.

0800: Onsite. Trant crew & A. Geyer onsite.

- Daily safety meeting & safety documentation
and inspections. Plan for the day. Bump
test PED & LEL.

0830: Trant crew works on grouting MW-05A.

Grout: Haliburton EZ seal: 2-50# bags

" Quick Grout: 0.5-50# bag

From 48-3' bgs

0900: MW-05A is grouted. Trant has removed

2" casing.

- Trant rigs down, decons, & sets up
@ MW-04D

0951: Trant begins drilling MW-04D w/ sonic-

4" dia bit & 4" dia single wall sampler.

0957: Trant begins using 4" dia double wall sampler

& 6" bit & casing.

Sunday

5-31-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1020: A. Geyer collects a round of WL measurements

Well	WL
MW-01D	47.23
MW-02S	16.10
MW-02D	44.91
MW-05A	8.74 (pre-development)
MW-06S	8.16 (pre-development)
MW-06D	28.46
MW-07S	18.41

1100: A. Geyer & S. Christrick continue well
development. Details on well development forms.

1205: Trant stops @ 40' bgs.

A. Geyer & S. Christrick have concluded
development for now.

1215: Trant breaks for lunch.

1315: Trant returns from lunch.

1320: Trant resumes drilling MW-04D @ 40' bgs

1335: Trant stops @ 41' bgs to clean bit (plugged).

1350: Trant resumes drilling MW-04D @ 41' bgs.

1410: A. Geyer & S. Christrick resume well
development.

1540: Trant stops @ 70' bgs. Target unit (Threemile
ls) is 4' thick. Plan was to install 5 or 10'
well screen. Contact Ed Lindgren for guidance.

- Trant crew continues well development and works
on fixing/filling ruts across the site.

Sunday
5-31-15

Forbes Atlas S-5

A. Geyer
J. Bryant

1725: Receive word from Ed Lindgren to set MW-04D at 64' bgs, the base of the Threemile Ls. One foot of well screen will be in the overlying shale.

- Traut prepares to install the well.

1750: Traut installs the well to 64' bgs.

MW-04D Details: BH TD = 70' bgs Well TD = 64' bgs

Material: 2" dia Sch 40 PVC, Man: Johnson

Cap: Point

Screen: 0.010" Factory Slotted

Riser: PVC Blank

Lengths - Cap: 0.37'

Screen: 5.00'

Riser: 10.00', 10.00'

10.00', 10.00'

10.00', 10.00'

6.03'

Total: 71.40'

Cutoff: 3.95'

Stick up: 2.71'

Backfill: PDS Pel-Plug Bentonite Pellets

70-65' bgs, 2.5 - 5 gal buckets

Filter Pack: Premier silica, 20/40 Silica Sand

65-55' bgs, 6 - 50# bags

Seal: PDS Bentonite Pellets (Pel-Plug)

55-51' bgs, 1.5 - 5 gal buckets

Sunday

5-31-15

Forbes Atlas S-5

A. Geyer 57
J. Bryant

1900: Seal is in. Traut wraps up for the day.

Development notes:

MW-075: Purged dry x 2
8 gal total

MW-020: Purged dry x 2
8 gal total

MW-023: Purged 200 gal

MW-060: Purged dry x 1
4 gal total

MW-065: Purged dry x 1
6 gal total

1930: Site secured. AN offsite. Return to Topeka, KS.

W. G. R.
5-31-15

58 Monday

6-1-15

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: Partly cloudy, 60s-70s, light SE wind.

Task: Sonic drilling for soil & rock and monitoring well installation @ Forbes Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant (BM10)

A. Geyer (Avatar-1)

S. Weisbrica, N. Stebbins } Traut

N. Henderson, K. Gratke } Drilling

0700: Return survey equipment to United Rental in Topeka, KS.

0715: Depart for site.

0800: Onsite. Avatar onsite.

0815: Traut crew arrives onsite.

- Conduct daily safety meeting, complete daily safety documentation and inspections.
- Bump test PFD & LEL.
- K. Gratke takes water truck to Council Grove to fill water.
- Remainder of crew works on setting bumper posts at locations MW-07, MW-06, and MW-05.

0930: K. Gratke returns w/ water truck. Traut sets up to grout MW-04D.

Grout: Haliburton: EZ Seal: 3-50# bags

Quik Grout: 0.5-50# bags

From 51-3' bgs

Monday

6-1-15

Forbes Atlas S-5

A. Geyer

59

J. Bryant

1015: MW-04D is grouted. Traut pulls casing, decons, rigs down, and sets up @ MW-04S/SB-10.

1054: Traut begins drilling SB-10/MW-04S w/ 4" dia bit & 4" dia single wall sampler.

1120: Collect SB-10/SB-10-0-1 & Dup-5/SB for VOC & TOC w/ 5035 kit from 0-1' bgs

1135: Collect SB-10/SB-10-3-4 for VOC & TOC w/ 5035 kit from 3-4' bgs.

1145: Collect SB-10/SB-10-8-9, SB-10/SB-10-8-9-MS, SB-10/SB-10-8-9-MSD, and Dup-6/SB for VOC & TOC w/ bulk jars (saturated) from 8-9' bgs.

1215: Traut has advanced 4" to 20' bgs and 6" casing to 10' bgs. Grout level at MW-04D is seen rising.

- Crew will let grout @ MW-04D set up over lunch and resume drilling after. Crew breaks for lunch.

1220: Collect SB-10/SB-10-12-13 for VOC & TOC w/ 5035 kits from 12-13' bgs

1230: Collect SB-10/SB-10-18-19 for VOC & TOC w/ 5035 kit from 18-19' bgs

1310: Traut crew returns from lunch.

1314: Traut begins advancing 6" dia casing from 10-20' bgs

Monday

6-1-15

Forbes Atlas S-5

A. Geyer

J. Bryant

1323: Traut resumes drilling w/ 4" @ 30' bgs.

1400: N. Henderson (Traut) departs for Manhattan, KS to pick up additional well construction supplies.

1405: collect 5B-10/5B-10-21-22 for VOC & TOC w/ 5035 kit from 21-22' bgs

1418: Traut stops @ 40' bgs.

Base of Schroyer's is 34' bgs. Traut prepares to set the monitoring well MW-045 to 34' bgs.DetailsMaterial: 2" dia sch 40 PUC, Man: Johnson

Cap: Flat

Screen: 0.010" factory slotted

Riser: Blank

Lengths

Cap: 0.35'

Screen: 5.00

Riser: 10.00

10.01

10.01

10.00

Total: 45.37, Cutoff: 8.68, Sticamp: 2.75

Seal: PDS Pcl-Plug bentonite pellets

40-36' bgs, 1.5 - 5 gal buckets

Monday

6-1-15

Forbes Atlas S-5

A. Geyer

J. Bryant

Fitter Pack: Premier Silica, 20/40 silica sand

36-25' bgs, 5 - 50# bags

Seal: PDS Pcl-Plug bentonite pellets

25-21' bgs, 1.5 - 5 gal buckets

- Seal will hydrate for 4 hrs.

1435: A. Geyer offsite to purchase fresh ice for samples.

1510: Seal is in and will be allowed to hydrate 4 hrs before grouting.

1515: A. Geyer back w/ ice. Prep samples for shipping & complete COC.

1615: Samples ready to ship & cooler is sealed and taped. A. Geyer offsite to ship samples via Fed Ex - Topeka.

- Traut crew is working on placing bollards and digging well pads.

- N. Henderson returns from Manhattan, KS w/ additional well construction supplies (screen & bentonite).

1700: Traut crew is working on constructing well pads and cementing bollards at locations MW-050, MW-075, MW-060, MW-065, and dig well pads @ MW-020 & MW-025.

1800: Traut deconned 4" double wall sample barrel.

- Collect ERB-5B-060115/ERB-5B for VOCs from sample barrel.

Monday

6-1-15

Forbes Atlas S-5

A. Gaynor

J. Bryant

1915: Traut has finished well pad work.

Traut begins grouting MW-045.

Grout: Halibuton-

EZ Seal: 2 - 50# bags

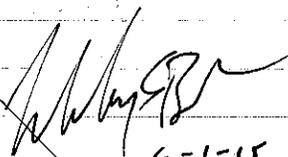
Quick Grout: 0.2 - 50# bag

21 - 3' bgs.

1925: Grouting is finished. Traut pulls 6" casing, decons it, rigs down, & moves off the hole.

- Traut sets up rig & equipment @ MW-030/SB-09.

2000: Site secured. All offsite. Depart for Topeka, KS.



6-1-15

Tuesday

6-2-15

Forbes Atlas S-5

A. Gaynor

J. Bryant

Weather: PC, 50s - 70s, NE wind 5-15 mph

Task: Sonic drilling - soil & rock sampling,

monitoring well installation & development

@ Forbes Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant (BMC0)

A. Gaynor (Avatar)

S. Whisbrick, N. Stubbins, J. Traut
N. Anderson, R. Grutke Drilling

0700: Depart Topeka, KS. Purchase ice enroute.

0800: Arrive onsite. Traut & Avatar onsite.

- Conduct daily safety briefing, complete daily safety documentation. Discuss plan for the day. Bump test PID & LEL.

- Traut prepares to drill @ SB-09/MW-030

0830: Traut begins drilling SB-09/MW-030

w/ sonic - 4" dia bit & 4" dia single wall sampler.

0900: Traut advances 6" dia bit & casing to 18' bgs & switches to 4" dia double wall sampler.

- Using air-act in drilling fluid.

0940: Some drilling fluid is escaping under the mud tub. Traut advances 8" casing to seal off 0-10' bgs.

* 0915: Collect SB-09/SB-09-0-1 for UVC & TOC w/ 5035 bit from 0-1' bgs.

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Tuesday

6-2-15

Forbes Atlas S-5

A. Geyer

J. Bryant

0925: Collect SB-09/SB-09-2-3 for VOC & TOC
w/ 5035 nit from 2-3' bgs

0935: Collect SB-09/SB-09-6-7 for VOC & TOC
w/ 5035 nit from 6-7' bgs.

0945: Collect SB-09/SB-09-12-13, SB-09/SB-09-12-B-MS
, and SB-09/SB-09-12-13-MSD for VOC & TOC
w/ 5035 nit from 12-13' bgs

1005: Collect SB-09/SB-09-15-16 for VOC & TOC
w/ 5035 nit from 15-16' bgs

1015: Collect SB-09/SB-09-17-18 for VOC & TOC
w/ 5035 nit from 17-18' bgs

1100: Charles Collect w/ USACE - Project FH
onsite to conduct QA & SH inspection.

1156: Trout stops @ 60' bgs. Base of
target unit (Thermite ls) is 54' bgs.

Trout will set well to 54' bgs following lunch
break. (B)

1225: Trout begins installing MW-03D to 54' bgs.

MW-03D Details: BH TD: 60' bgs, MW TD: 54' bgs

Material: 2" dia Sch 40 PVC, Men: Johnson

Cap: Flat, Screen: 0.010" Factory Slotted

Riser: Blank PVC

Lengths: Cap: 0.23', Screen: 5.06'

Riser: 10.00, 10.00, 10.00, 10.00, 10.00, 10.00

Total: 65.23', Cut-off: 7.1 + .95
8.05'

Tuesday

6-2-15

Forbes Atlas S-5

A. Geyer 65

J. Bryant

MW-03D Details continued

Backfill: Wyo-Ben 3/8" Bentonite Chips

60 - 56' bgs, used 1.25 - 50# bag

Filter Pack: Premier Silica, 20/40 Grade Silica Sand

56 - 45' bgs, used 5 - 50# bag

Seal: PDS Pel-Plug Bentonite Pellets

45 - 41' bgs, used 1.5 - 5 gal buckets

1300: Seal is in. Trout breaks for lunch.

1400: Trout returns to site. Crew works on
site maintenance.

1500: S & M & B.A meeting / inspection complete.

- Charles Collect offsite.

- Update Project Manager Ed Lindgren.

1520: A. Geyer offsite to purchase fresh ice for
samples.

- Trout crew working on digging well pads at
MW-04S & D & placing bollards at MW-04S & D
and pouring well pad and cementing bollards
at MW-02S & D.

1600: A. Geyer returns w/ ice. Prep samples
for shipping; complete COC, seal, and tape
cooler.

1650: A. Geyer offsite to ship samples via
Fed Ex - ~~atopaka~~.

1730: Well pad construction at MW-02S & D and
MW-04D is complete. Trout prepares to grant
MW-03D.

Tuesday
6-2-15

Forbes Atlas 5-5

J. Bryant

1735: Trant tremie grouts MW-03D.

Grout: Aaliburton EZ Seal: 3 - 50th bags

Quick Grout: 0.3 - 50th bags

41 - 3' bgs

1745: Trant pulls 6" & 8" casing, decons,
rigs down, & prepares to depart.

- Trant loads equipment. Additional grading/
repairing of cuts was also performed.

1920: Site secured. Trant offsite for scheduled
days off.

- Return to Topeka, KS.

J. Bryant
6-2-15

Wednesday
6-3-15

Forbes Atlas 5-5

J. Bryant

Weather: PC, 70s to 80s, SE wind 5-15 mph.

Task: Well development at Forbes Atlas 5-5
site E of Council Grove, KS.

Personnel: J. Bryant (BMID)

0800: Depart Topeka, KS.

0900: Onsite @ 5-5 site.

- Calibrate pH & Cond meters.

- Set up to develop MW-05

- Surge for ~15 min.

† Collect WL Measurements at all wells (prior to surging)

Well	T/D	WL ft	(† Measurements are 'bloc)
MW-010	68.44	46.65	
MW-025	34.43	16.30	
MW-020	58.63	43.14	
MW-030	NM	NM	(Pre-development)
MW-045	37.17	22.55	(Pre development)
MW-040	64.97 (muddy)	24.20	(Pre development)
MW-050	64.37	27.38	(Pre development)
MW-065	23.55	7.84	
MW-060	51.49	36.61	
MW-075	35.44	18.69	- Purged deg

1045: Finished @ MW-065. Decon pump

Surge MW-065 for ~15 min, & pump MW-060.

- Development details on well development forms.

1130: Finished @ MW-060, purged deg. Decon pump &
set up @ MW-050.

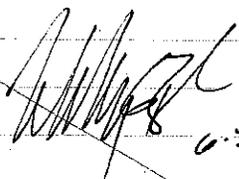
Wednesday

6-3-15

Forbes Atlas S-5

J. Bryant

- 1230: Surge MW-050 for ~15 min.
 1245: Pump MW-050 @ 2-3 gpm. Details on development form.
 1248: MW-050 dry @ ~7 gal. Decon pump & set up @ MW-040.
 1325: Surge MW-040 for ~15 min.
 1342: Pump MW-040 @ ~2-3 gpm.
 1345: MW-040 dry @ ~6 gal. Recheck TD: 66.55' btoe
 - Decon pump, set up @ MW-025.
 1415: Surge MW-025 for ~15 min.
 1432: Pump MW-025 @ ~1-2 gpm. Pause each 10 min to surge for ~5 min, then resume pumping.
 1530: Finished w/ MW-025 for today. Purged 52 gal. Decon pump & load equipment.
 1600: Secure site & depart for Wichita, KS.
 1800: Arrive in Wichita, KS.


6-3-15

Friday

6-5-15

Forbes Atlas S-5

J. Bryant

- Weather: PC, 70s, S wind 5-10 mph.
 Task: Continue well development @ Forbes Atlas S-5 site E of Council Grove, KS.
 Personnel: J. Bryant
 0800: Depart Wichita, KS.
 1020: Arrive onsite. Complete daily safety documentation & calibrate pH & cond & Turbidity meters.

- collect WL & TD measurements:

Well	WL (1' btoe)	TD (1' btoe)	
MW-010	46.42	68.44	
MW-025	15.99	34.43	
MW-020	41.45	58.63	
MW-030	40.94 ^{59.79}	58.29 ^{57.34}	Ⓟ 6-7-15
MW-045	24.12	37.18	
MW-040	53.54	65.52	(soft & muddy)
MW-050	54.30	64.38	
MW-065	7.95	23.55	
MW-060	38.04	51.49	
MW-075	18.44	35.44	

- 1115: Surge MW-045 for ~15 min.
 1139: Pump MW-045 @ ~2 gpm. Details on form.
 1140: MW-045 dry @ ~2 gal. Decon pump.
 1145: Surge MW-040 for ~15 min.
 1200: Pump MW-040 @ ~2 gpm. Details on form.

70 Friday

6-5-15

Forbes Atlas S-5

J. Bryant

1201: MW-040 purged dry @ ~2 gal.

- Decon pump.

- Recheck TD @ MW-040: 66.72' bloc

1240: Surge MW-050 for ~15 min.

1257: Pump MW-050 @ ~2 gpm. Details on form.

1258: MW-050 dry @ ~2 gal.

- Decon pump.

- Evaluate access to remaining well locations.

- Due to wet & muddy site conditions, vehicle access to MW-065/D & MW-025/D clusters is inadvisable w/out means of pulling out the vehicle if it becomes stuck.

- Stage purge water drum @ MW-030 & set up to develop.

1410: Surge MW-030 for ~15 min.

1435: Purge @ ~2 gpm. Details on form.

1437: MW-030 dry @ ~3 gal.

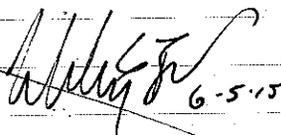
- Decon pump.

- Complete site drum inventory per PM.

1500: Load equipment & prepare to depart.

1520: Site secured. Return to Wichita, KS.

1730: Arrive in Wichita, KS.


6-5-15

Monday

6-8-15

Forbes Atlas S-5

J. Bryant

Weather: Clear, 80s-90s, WNW wind 5-10 mph.

Task: Well development @ Forbes Atlas

Missile Site S-5 E of Council Grove, KS.

0800: Load equipment & supplies in Wichita, KS.

0930: Depart Wichita, KS.

1130: Onsite. Evaluate site conditions: Dry, some small areas of standing water remain.

- Complete daily safety documentation & calibrate pH, Cond, & turbidity meters.

- Collect WL & TD measurements

Well	WL	TD
MW-01D	46.23	68.44
MW-02D	40.84	58.63
MW-02S	16.20	34.43
MW-03D	42.66 ^{41.71}	58.29 57.34 (R) 6-9-15
MW-04D	53.96	66.75 (muddy, soft)
MW-04B	24.24	37.18
MW-05D	54.16	64.38
MW-06D	31.92	51.49
MW-06S	7.61	23.55
MW-07S	18.58	35.44

1235: Set up @ MW-06S. Surge for ~15 min.

1250: Purge @ ~2 gpm. Details on form.

1252: MW-06S dry @ ~3 gal. Decon pump.

1320: Surge MW-05D for ~15 min.

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Monday

6-8-15

Forbes Atlas 5-5

J. Bryant

1344: Pump MW-050 @ ~2gpm. Details on form.

1345: MW-050 dry @ ~2gal. Decon pump.

1400: Surge MW-040 for ~15 min.

1421: Pump MW-040 @ ~2gpm. Details on form.

1422: MW-040 dry @ ~2gal. Decon pump.

1430: Surge MW-045 for ~15 min.

1445: Pump MW-045 @ ~2gpm. Details on form.

1446: MW-045 dry @ ~2gal. Decon pump.

1510: Surge MW-030 for ~15 min.

1528: Pump MW-030 @ ~2gpm. Details on form.

1529: MW-030 dry @ ~3gal. Decon pump.

1545: Surge MW-025 for ~15 min.

1610: Pump MW-025 @ 1-2gpm. Details on form.

2652: Stop pumping MW-025. All available drums are full. Removed ~33 gal today.

- Decon pump & load equipment.

1720: Depart site. Move to ~~at~~ ⁱⁿ Topoka, KS & secure lodging.

J. Bryant
6-8-15

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Tuesday

6-9-15

Forbes Atlas 5-5

J. Bryant

Weather: Clear, 70^s to 90^s, SW wind 5-10 mph.

Task: Monitoring well installation at Forbes Atlas Missile 5-5 site E of Council Grove, KS.

Personnel: J. Bryant (BM'D)

S. Weisbrich, N. Stubbins,

K. Gratua → Trant Drilling.

0700: Depart Topoka, KS.

0800: Arrive onsite. Calibrate PID & LEL.

0810: Trant crew arrives. Conduct daily safety briefing, weekly toolbox talk, complete inspections & documentation.

- Trant has brought a new eye wash station capable of delivering 0.4 gal for 15 min unassisted (required by USACE & pointed out during inspection on 6/2).

- Portable toilet will be arriving this morning required by USACE & pointed out ^{on 6/2} this ~~morning~~ (12)

- Trant empties purge water drums from locations MW-05, MW-050, MW-025, & MW-06 into frac tank.

- Trant sets up to drill MW-035.

0854: Trant begins drilling MW-035 w/ Sonic 4" dia bit & 4" dia single wall sampler

0926: Trant advances 6" dia casing to 18' bgs & switches to 4" dia double wall sampler 18-20' bgs.

74 Tuesday

6-9-15

Forbes Atlas S-S J. Bryant

0950: Trant stops @ 30' bgs. Base of target unit (Schroyer ls) is 27' bgs.
 - Trant will set well to 27' bgs w/ 5' screen.
 - Details on well diagram.

1015: Trant begins installing the well material.

- Material: 2" dia, Sch 40 PVC

Cap: Point

Screen: 0.010" Factory slotted PVC

Riser: Blank PVC

Man: Johnson

Lengths: Cap: 0.24

Screen: 5.00

Riser: 10.00

10.00

7.09

Total: 32.33

Cut off: 1.93

~~10.00~~ ^{trimmed} Stick up: 2.68

~~Backfill~~ Premier Silica - 2040 Silica sand

30-27' bgs, Used 1 - 50# bags

Filter Pack (trimmed): Premier Silica, 2040 Silica sand

30-18' bgs, Used 4 - 50# bags

Seal: PDS - Pel-Plug Bentonite pellets

18-14' bgs, Used 1.5 - 5 gal buckets

1038: Seal is in. Let seal hydrate 4 hrs.

Tuesday

6-9-15

Forbes Atlas S-S J. Bryant

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*Note: During the last run (25-30' bgs) the inner barrel of the 4" dia double wall sampler broke. No impact to the boring or core however.

1045: K. Grathke offsite to fill water truck, remainder of Trant crew stages drums & cleans up the worksite.

1100: Trant cuts an additional 0.95' off of the casing @ MW-03D. Make adjustments to WL & TD measurements from previous days.

1115: Trant breaks for lunch.

1215: Trant returns to the site.

- Trant sets up to develop MW-04S.

WL: 24.38' btoe

- Trant surges MW-04S for ~15 min.

1238: Trant pumps MW-04S @ ~2 gpm. Details on form.

1239: MW-04S dry @ ~2 gel. Decon pump.

1245: Trant surges MW-03D for ~15 min.

WL: 44.62' btoe

1300: Trant pumps MW-03D @ ~2 gpm. Details on form.

1301: MW-03D dry @ ~2.5 gel. Decon pump.

1307: Trant surges MW-02S for ~15 min.

WL: 16.28' bgs.

1320: Trant pumps MW-02S @ ~1.2 gpm. Details on form.

Tuesday
6-8-15 Forbes Atlas S-S J. Bryant

- During well development 2 crew members are also working on support truck maintenance items.

1435: Traut sets up to grout MW-035.

1440: Traut grouts MW-035

Grout: Halibuton - EZ Seal : 2.50# bags

Quick Grout: 0.2-50# bag

14-3' bgs

1450: Traut pulls & decons casing.

1500: Traut places liquid IDW (~700 gal) in free tank.

1510: Collect IDW-WW-060915 / IDW-WW for VOLS from free tank.

- Associated trip blank (prepared by ALS):

TB-042815-62/TB

- Traut working on: cleaning equipments, loading equipment, support truck maintenance, and filling in ruts/smoothing areas that were heavily trafficked

1700: Work complete for today. Secure site & move to Topeka, KS.

1820: Ship samples via Fed Ex Topeka.


6-9-15

Wednesday
6-10-15 Forbes Atlas S-S J. Bryant

Weather: Clear, 70s - 90s, WSW wind 10-15 mph

Task: Complete field work for investigation activities @ Forbes Atlas S-S site & at Council Grove, KS.

Personnel: J. Bryant (BMEB)

S. Weisbrich, A. Stebbins.

R. Gratke → Traut Drilling

0730: Depart Topeka, KS.

- Traut is picking up a transport trailer for the rental scud store (to return it)

0830: Onsite. Traut arrives onsite.

- Daily safety meeting & documentation, vehicle & work area inspections, bump test LEL.

0900: Complet. Hot Work permit & atmosphere check. Traut will weld/repair a worn chain mount that was observed during inspection of one of their transport trailers.

- Permit issued, atmosphere check is all o.k.

- Extinguisher and fire watch are at work site.

0920: Traut is also working on loading equipment and materials into the support truck.

1030: Traut begins work on constructing well pads and installing bollards @ MW-035/D.

- Hot work is complete.

78 Wednesday

6-10-15 Forbes Atlas S-S J. Bryant

1130: Traut breaks for lunch.

1230: Traut is back onsite.

- Traut works on staging drums in one area and has brought orange paint for the bollards and protective covers at each well location.
- Traut completes well pad construction & bollard installation at MW-035/A
- Traut continues work on cleaning & loading equipment.
- Approval has been received from USACE & ICDE to empty fluid from the frac tank to the old sewage lagoons at the North end of the site.

1600: K. Grutke offsite to return suid steer to United Rentals in Topeka.

D-6 Dozer is staged outside the entrance gate for pickup.

1630: Traut begins emptying the liquid EOW from the frac tank into the sewage lagoons.

1700: Collect a round of WL measurements.

Well	WL	TD
MW-010	46.20	68.44
MW-025	16.41	34.43

Wednesday

6-10-15 Forbes Atlas S-S J. Bryant

WLs continued

Well	WL (11loc)	TD (11loc)
MW-020	40.65	58.63
MW-035	17.47	30.42 (re-development)
MW-030	42.91	57.31
MW-045	24.52	37.18
MW-04B	55.57	46.75
MW-050	55.22	64.38
MW-065	7.93	23.55
MW-060	29.48	51.49
MW-075	18.80	35.44

1805: K. Grutke is back from Topeka. Frac tank pumping is complete (liquid removed).

- Crew begins painting bollards and protective well covers.

2000: Painting is finished for the day.

- Secure site & return to Topeka, KS.

6-10-15

Thursday
6-11-15 Forbes Atlas S-5 J. Bryant

Weather: Cloudy, intermittent rain, 70s-80s, SSE
wind 5-10 mph.

Task: Complete field activities for field investigation
at Forbes Atlas S-5 site E. of Council Grove,
KS.

Personnel: S. Weisbrich, N. Stebbins, R. Grathe (Trant)
J. Bryant (BM'D)

0300: Depart Topeka, KS.

0900: Arrive onsite. Trant onsite.

- Daily safety meeting & documentation, daily
vehicle and work area inspections.
- Calibrate pH, Cond, & Turb meters.
- Trant completes painting bollards at well
locations & loads the last of the
equipment & supplies.
- Prepare to develop MW-035.
WL: 17.51' btrc / WU: 2.1 gal.

1055: Trant surges MW-035 for 15 min.

1110: Trant pumps MW-035 @ ~2 gpm. Details on form.

1111: MW-035 dry @ 2 gal. Decon pump.

- Trant prepares to depart.

1140: Trant departs site.

1200: Collect sediment sample IDW-S-061015 / IDW-S

from the onsite frac tank for VOLs.

1215: Collect site restoration photos.

Thursday
6-11-15 Forbes Atlas S-5 J. Bryant

1230: Secure site. Depart for Wichita to
ship sample.

1045: Ship sample via Fed Ex.

J. Bryant
6-11-15

Friday
6-12-15 Forbes Atlas S-S J. Bryant

Weather: Cloudy, 60s-80s, NNE wind 5-10 mph.

Task: Oversight while Kaw Valley Engineering
surveys boring & surface sample locations.
Well development @ MW-035.

Personnel: J. Bryant (BMD)
Corey Heltzer (KUE)

0700: Depart Wichita, KS.

0900: Arrive onsite.

C. Heltzer arrives onsite. Conduct site
orientation, safety briefing, and AHA
review.

- KUE begins setting up equipment.
- Collect round of water level measurements.

Well	WL	TD
MW-01D	46.27	68.44
MW-02S	16.62	34.43
MW-02D	40.64	58.63
MW-03S	17.59	30.42
MW-03D	42.25	57.33
MW-04S	24.81	37.18
MW-04D	53.41	66.75
MW-05D	53.35	64.38
MW-06S	8.52	23.55
MW-06D	28.42	51.49
MW-07S	19.05	35.44

Friday
6-12-15 Forbes Atlas S-S J. Bryant

1030: Surveyor is set up & has located
control points. Surveyor begins collecting
data at boring locations, well locations,
and surface sample locations. For pits,
a location is selected at the rim of the
pit, ~~at~~ or for the locations in the
missile and maintenance bays, a location
is selected above them at ground surface.

1245: Survey work is complete. KUE prepares
to depart. Prepare to develop MW-035.

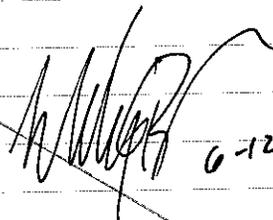
1300: KUE offsite. Surge MW-035 for
65 min.

1315: Purge MW-035 @ ~2 gpm. Details on forms

1316: MW-035 dry @ ~2 gal. Decon pump &
load equipment.

1340: Site secured. Return to Wichita.

1600: Arrive in Wichita.

 6-12-15

84 Wednesday

6-17-15 Forbes Atlas S-S J. Bryant

Weather: Mostly cloudy, 70s - 80s, SSW wind 5-10 mph.

Task: Complete well development at MW-035 and collect water level measurements @ Forbes Atlas S-S site E of Council Grove, KS.

0800: Depart Wichita, KS.

1015: Arrive onsite.

- Complete PTA & calibrate pH, cond, & Turbidity meters.

- Evaluate site conditions

- Site is somewhat damp, most areas are driveable. Grass is returning in some areas that were bare last week.

- Collect WL & TD measurements

Well	WL	TD
MW-01A	46.47	68.43
MW-02S	17.16	34.43
MW-02D	40.71	58.63
MW-03S	17.85	30.47
MW-03D	42.16	57.33
MW-04S	25.30	37.18
MW-04D	51.05	66.77
MW-05D	50.47	64.40
MW-06S	9.22	23.55
MW-06D	27.24	51.50
MW-07S	19.62	35.42

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Wednesday

6-17-15 Forbes Atlas S-S J. Bryant

1200: Set up to develop MW-035.

Surge for 15 min w/ 12V submersible pump.

1220: Pump @ 1-2 gpm. Details on form.

1221: MW-035 dry @ ~2 gal. Decon pump & load equipment.

1300: Secure site. Depart for Wichita, KS.

1530: Arrive in Wichita, KS. Complete & send daily report & WL info.


6-17-15

86

Monday

7-6-15

Forbes Atlas S-S

B. Rillstone

J. Bryant

Weather: Partly to mostly cloudy, 70s-80s, ssw wind
10-15 mph.

Task: Round 1 of groundwater GW sampling
at Forbes Atlas S-S site E of Council
Grove, KS.

0600: Depart Wichita, KS.

0800: Onsite @ Forbes Atlas site. Check/organize
equipment, prepare safety documentation,
and wait for arrival of Bryan Rillstone
w/ Avatar.

0815: Bryan Rillstone onsite. Conduct site orientation.
Complete daily safety documentation & briefing.
Prepare equipment for the day. Discuss
tasks & plan.

0950: Collect water level & total depth measurements.

Well	WL	TD	Misc
MW-01D	46.72	68.43	N/A
MW-02S	21.18	34.43	N/A
MW-02D	41.19	58.63	N/A
MW-03S	20.46	30.47	N/A
MW-03D	42.57	57.33	N/A
MW-04S	29.11	37.18	N/A
MW-04D	50.51	66.77	N/A
MW-05D	49.22	64.40	N/A
MW-06S	13.04	23.55	N/A

Monday

7-6-15

Forbes Atlas S-S

B. Rillstone 87

J. Bryant

Water levels continued:

Well	WL	TD	Misc
MW-06D	27.73	51.50	N/A
MW-07S	23.92	35.42	N/A

1030: Calibrate YSE for pH, Cond, ORP, & DO.

Calibrate Turbidity meter for turbidity
- Set up @ MW-06D.

1200: Begin purging MW-06D w/ ^{non-dedicated}
bladder pump @ 50-150 mL/min. Details on
sample form.

1235: Well is drawing down @ 50 mL/min. Consult
SOP for Low Recovery well sampling
procedure & attempt to contact PM for
approval. Leave message. Pause pumping.

1340: Consult w/ Ed Lindgren (PM). Plan for now
will be to continue pumping @ a low, steady
rate until parameters stabilize (provided that
water volume in well remains sufficient for
sampling).

1320 in Break for lunch.

1355: Ed Lindgren spoke w/ Chuck Williams (USACE
Hydrogeologist). Plan will remain as described
above (pump @ low rate until stable, if possible).

1422: Resume purging @ MW-06D. Details on
sample form.

88

Monday
7-6-15

Forbes Atlas S-5

B. Rillstone

J. Bryant

1540: Collect MW-06D-01 for VOCs, RSA 175, Anions, Alk, & Sulfide

1550: Heavy rain moves into the area. Wrap up & load equipment.

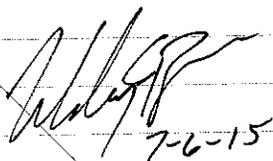
1600: Lightning in the area. Shelter in truck.

- Complete chain of custody form.

1700: Lightning has abated. Prep samples for shipping & finish loading equipment.

1730: Depart for Topeka, KS. Site secured.

1845: Ship samples via Fed Ex.



7-6-15

B. Rillstone 89

Tuesday
7-7-15

Forbes Atlas S-5

J. Bryant

Weather: Cloudy, 60s-70s, NE wind 5-15 mph.

Task: Round 1 of groundwater sampling at Forbes Atlas S-5 site.

Personnel: J. Bryant (SM/D)

B. Rillstone (Avatar)

0630: Depart Topeka, KS.

0730: Arrive onsite @ Forbes Atlas S-5 site.

- Brian Rillstone w/ Avatar onsite.

- Organize & calibrate equipment. YSI for Fecundity, pH, cond, ORP, & DO. Turbidity meter for turbidity.

0820: Chuck Williams w/ USACE onsite.

0840: Conduct daily safety meeting & complete daily safety documentation.

- Prepare to purge MW-035.

0937: Begin purging @ MW-035 @ 100 mL/min.

Details on sample form.

1030: Collect MW-035-01 & MW-035-11 for

VOC, RSA 175, Anions, Alk, & Sulfide

- Decon, set up @ MW-03D.

1127: Begin purging MW-03D @ 40 mL/min.

Details on sample form.

1200: Small group (3) of individuals arrive onsite to tour site. Chuck Williams explains to group that site is private property & they will need to depart. 1220: Group departs

90

Tuesday

7-7-15

Forbes Atlas S-5

B. Rillstone

J. Bryant

1305: Collect MW-03D-01 for VOC 8260, RSK 175,

1056 Anions, Alk, & Sulfide.

- Decon pump. Set up @ MW-075.

1349: Begin purging MW-075 @ 120 ml/min

Details on sample form.

1430: Chuck Williams departs the site.

1445: Collect MW-075-01 for VOC 8260, RSK 175,

9056 Anions, Alk, Sulfide

- Decon. Set up @ MW-05D.

1532: Begin purging MW-05D @ 40 ml/min.

Details on sample form.

1650: Collect MW-05D-01 for VOC 8260, RSK 175,

9056 Anions, Alk, Sulfide.

- Decon. Load equipment, finish coc, & prep samples for shipping.

1730: Secure site. Depart for Topoka, KS.

1845: Ship samples via Fed Ex.

[Signature]
7-7-15

Wednesday

7-8-15

Forbes Atlas S-5

B. Rillstone 01

J. Bryant

Weather: Cloudy, 60s-70s, NE wind 5-15 mph.

Task: Round 1 of groundwater sampling @

Forbes Atlas S-5 site.

Personnel: J. Bryant (BMID) & Bryan Rillstone (Avatar)

0630: Depart Topoka, KS.

0730: Arrive onsite. B. Rillstone arrives.

- Conduct daily safety meeting & complete PTA.

- Calibrate VSE for pH, cond, ORP, & DO.

- Calibrate turbidity meter for turbidity.

- Set up @ MW-025.

0835: Begin purging MW-025 @ 150 ml/min.

Details on sample form.

0935: Collect MW-025-01, MW-025-01-MS, &MW-025-01-MSD for VOC, RSK 175, 9056

Anions, Alk, & sulfide.

- Decon. Set up @ MW-02D.

1037: Begin purging MW-02D @ 50 ml/min.

Details on sample form.

1150: Collect MW-02D-01 & MW-02D-11 for

VOC, RSK 175, 9056 Anions, Alk, & Sulfide.

- Decon. Set up @ MW-06S.

1300: Begin purging MW-06S @ 100-140 ml/min.

Details on sample form.

92

Wednesday

7-8-15

Forbes Atlas S-5

B. Rillstone

J. Bryant

1350: Collect MW-045-01 for VOC 8260, 9056

Anions, RSK 175, ALN, & Sulfide.

- Decon. Set up @ MW-010.

1508: Begin purging MW-010 @ 40 mL/min.

Details on sample form.

1640: Collect MW-010-01 for VOC 8260, 9056

Anions, RSK 175, ALN, & Sulfide.

- Decon. Load equipment. Complete COC.

1720: Collect MW-010-01 / EB-01 equipment

rinse for VOC 8260, 9056 Anions, RSK 175,

ALN, & sulfide

1740: Site secured. Depart site for Topeka, KS.

1845: Ship samples via Fed Ex in Topeka.



7-8-15

Thursday

7-9-15

Forbes Atlas S-5

B. Rillstone 93

J. Bryant

Weather: Partly cloudy, 60s-70s, SE wind 5-10 mph.

Task: Round 1 at groundwater sampling @ Forbes

Atlas S-5 site.

Personnel: J. Bryant & B. Rillstone
(BMO) (Avatar)0630: Depart Topeka, KS. B. Rillstone remains
in Topeka to pick up extra CO₂ when
distributor opens @ 0800.0730: Onsite. Complete daily safety documentation,
calibrate YSE for pH, Cond, ORP, & DO and
Turbidity meter for turbidity, and set
up @ MW-045.0824: Begin purging MW-045 @ 35 mL/min.
Details on sample form.0940: Collect MW-045-01 for VOC 8260, RSK
175, 9056 Anions, ALN, Sulfide* Due to low recovery, MW-045 was sampled
after stabilization, but turbidity was not below
10 NTU (stable @ ~250 NTU)

- Decon. Set up @ MW-040

1042: Begin purging MW-040 @ 40 mL/min.
Details on sample form.1050: B. Rillstone (onsite @ 0900) begins collecting
soil & water & DW samples from onsite
drums.

Thursday

7-9-15

Forbes Atlas 3-5

B. Billstone

J. Bryant

FDW Sample Info:

Time

ID

1118

IDW-S-070915 / IDW-S-MW-01D

1128

IDW-S-070915 / IDW-S-MW05D

1139

IDW-S-070915 / IDW-S-SR07

1149

IDW-W-070915 / IDW-W-MW-02S

1205: Collect MW-04D-01 for VOC 8260,

RSK 175, 9056 Anions, Alk, & sulfide.

1215: B. Billstone departs the site.

1235: Sample collected. Decon & pack up
equipment.

1335: Collect MW-04D / ERB-GW-070915 for

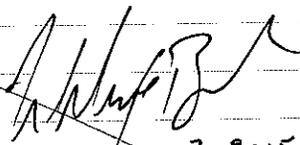
VOC 8260, RSK 175, 9056 Anions, Alk, & Sulfide.

1350: Collect IDW-S-070915 / IDW-S-SR-01 for

pH, flashpoint, & TCLP RCRA 8 metals, &
PCBs, & % Moisture.- Finish loading equipment. Complete chain
of custody forms.

1500: Secure site. Depart for Wichita, KS.

1730: Ship samples via FedEx Wichita.



7-9-15

104 Monday
9-21-15

Forkes S-5-80447

B. Rillstone
J. Bryant

Weather: Overcast, 60s-80s, S wind 5-15 mph.

Task: Round 2 of groundwater sampling at
Former Forkes Atlas S-5 site East of
Council Grove, KS.

Personnel: J. Bryant (BARD)

B. Rillstone (Avatar)

0630: Depart Wichita, KS. Purchase ice enroute.

0830: Arrive @ S-5 site.

Meet Bryan Rillstone.

- Complete daily safety form & review
safety topics.

- Prepare to collect water levels & TDS.

Well	WT	TD
MW-010	47.24	68.43
MW-025	24.95	34.43
MW-020	42.56	58.63
MW-035	23.62	30.47
MW-030	43.27	57.33
MW-045	31.76	37.18
MW-040	51.15	66.77
MW-050	50.26	64.40
MW-065	17.22	23.55
MW-060	29.46	51.50
MW-075	27.80	35.42

Monday

B. Rillstone 105

9-21-15

Forkes S-5-80447

J. Bryant

- Calibrate YSI for pH, conductivity, ORP, & DO.

- Calibrate Turbidity Meter for turbidity.

1200: Set up to purge MW-030. (@ 50 ml/min)

1209: Begin purging MW-030 with nondedicated
bladder pump. Details on sample form.

1340: Collect MW-030-02 for VOC 8260, 9056
Anions, RSK 175, AM, & Sulfide.

- Decon. Set up to purge MW-035.

1437: Begin purging MW-035 @ 50 ml/min.
Details on sample form.

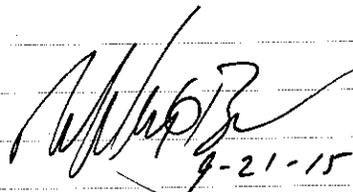
1550: Collect MW-035-02 & MW-035-12 for
VOC, 9056 Anions, RSK 175, AM, & Sulfide.

- Decon & load equipment. Complete chain of
Custody.

1650: Secure site & move to Topoka, KS.

1800: Purchase more ice & prep samples
for shipping.

1820: Ship samples via FedEx.
Move to hotel.


9-21-15

106 Tuesday

9-22-15

Forbes 5-5-80447

B. Rillstone

J. Bryant

Weather: Cloudy, 60s-80s, SW wind 5-15 mph.

Task: Round 2 of GW sampling @ Forbes
5-5 site E of Council Grove, KS.

Personnel: J. Bryant (BMD)

B. Rillstone (Avatar)

0700: Depart Topeka, KS. Purchase ice
enroute.

0805: Arrive onsite. Conduct safety meeting &
complete daily safety documentation.

- Calibrate VSE for pH, Cond, ORP, & DO.

- Calibrate Turbidity meter for turbidity.

- Set up to purge MW-075.

0903: Begin purging @ 50 mL/min. Details on sample
form.

1005: Collect MW-075-02 for VOC, 9056 Anions,
RSK 175, Alk, & Sulfide.

- Decon & set up @ MW-050.

1047: Begin purging @ 50 mL/min. Details on
Sample form.

1200: Collect MW-050-02 for VOC, 9056 Anions,
RSK 175, Alk, & Sulfide.

- Decon & set up @ MW-045.

1239: Begin purging @ 50 mL/min. Details on sample
form.

Tuesday

9-22-15

Forbes 5-5-80447

B. Rillstone

J. Bryant

1350: Collect MW-040-02 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

- Decon & set up @ MW-045.

1418: Begin purging @ 100 mL/min. Details on
sample form.

1525: Collect MW-045-02 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

- Decon & set up @ MW-065.

1557: Begin purging @ 120 mL/min. Details on
Sample form.

1650: Collect MW-065-02 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

- Decon & load equipment.

1715: Collect MW-065-02-ERB Equipment

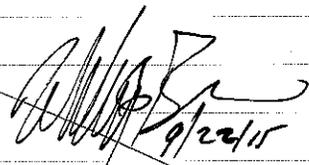
rinsate for VOC, Anions, RSK 175, Alk, & Sulfide.

- Load equipment.

- Depart for Topeka, KS. Site secured

1830: Purchase fresh ice & prep samples
for shipping.

1845: Ship samples via Fed Ex in Topeka.


9/22/15

Wednesday
9-23-15

Forbes S-5 80447

B. Killstone
J. Bryant

Weather: PL, 60s-80s, S wind 5-15 mph.

Task: Round 2 of GW sampling at Forbes

Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant (BM'D)

B. Killstone (Avatar)

0808: Depart Topeka, KS.

0715: Arrive onsite.

- Conduct daily safety meeting & complete daily safety documentation.

- Calibrate YSI for pH, Conductivity, ORP, & DO.

- Calibrate turbidity meter for turbidity.

- Set up to purge MW-060.

0757: Begin purging @ 40-50 ml/min. Details on sample form.

0900: Collect MW-060-02 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

- Decon & set up @ MW-010.

0936: Purge @ 50 ml/min. Details on sample form.

1055: Collect MW-010-02 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide

- Decon & set up @ MW-020.

1145: Begin purging @ 50 ml/min. Details on sample form.

1300: Collect MW-020-02 & MW-020-12 for

VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Wednesday

9-23-15

Forbes S-5

80447

B. Killstone¹⁰⁹
J. Bryant

* Bryan Killstone collects EDW samples as follows:

1240: Collected IDW-W-MW-025 for pH & flashpoint.1249: Collected IDW-W-MW-030/035 for pH & flashpoint.1252: Collected IDW-W-MW-025/020 for pH & flashpoint.

- Decon & set up @ MW-025.

1345: Purge @ 120 ml/min. Details on sample form.

1435: Collect MW-025-02 & MW-025-02-MS/MSD for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

- Decon equipment.

1515: Collect MW-025-02-ERB equipment vials for VOC 8260, 9056 Anions, RSK 175, Alk, & sulfide.

- Finish loading equipment. Wrap up for the day.

1545: Secure site. Depart for Wichita.

1800: Ship samples via Fed Ex in Wichita.


9-23-15

110 Monday 80447 B. Rillstone
12-14-15 Forbes Atlas S-5 J. Bryant

Weather: Cloudy, 30s, NW wind 15-30 mph.

Task: Round 3 of groundwater sampling at Forbes Atlas S-5 site East of Council Grove, KS.

Personnel: J. Bryant - BMID
B. Rillstone - Avatar

0615: Depart Wichita, KS.

0815: Arrive onsite. Complete daily safety documentation, prep equipment, & Calibrate YSI for pH, Cond, ORP, & DO and Turbidity meter for turbidity.

0945: Begin WL measurements.

Well	WL	TD
MW-01D	46.88	68.43
MW-02S	24.27	34.43
MW-02D	42.70	58.63
MW-03S	22.22	30.47
MW-03D	42.84	57.33
MW-04S	31.39	37.18
MW-04D	51.19	66.77
MW-05D	50.47	64.46
MW-06S	17.28	23.55
MW-06D	30.06	51.50
MW-07S	26.67	36.42

Monday 80447 B. Rillstone
12-14-15 Forbes Atlas S-5 J. Bryant

1030: Set up @ MW-03D.

- Begin purging w/ non-dedicated bladder pump @ 50 mL/min. Details on sample form.

1035: Greenfield Contractors onsite to pick up IDW drums.

Purge details - MW-03D:

Time	Am	pH	Temp	Cond	ORP	DO	Turb	WL
1050	E	6.47	11.41	1.349	-25.0	8.78	39.7	43.77
1055	.07	6.63	10.80	1.431	-44.5	1.42	32.3	44.51
1100	.14	6.63	10.34	1.421	-45.5	1.30	26.9	44.95
1105	.21	6.61	9.97	1.405	-43.6	1.15	23.8	45.24
1110	.28	6.55	9.91	1.397	-40.4	1.05	21.2	45.81
1115	.35	6.49	9.88	1.387	-34.6	0.99	18.3	46.13
1120	.42	6.45	9.80	1.375	-30.3	0.95	16.6	46.52
1125	.49	6.34	9.79	1.356	-22.3	0.92	14.4	46.92
1130	.56	6.20	9.92	1.307	-6.6	0.86	12.2	47.22
1135	.63	6.15	9.97	1.292	-1.1	0.85	11.0	47.72
1140	.70	6.08	10.02	1.266	6.6	0.84	11.4	47.95
1145	.77	6.04	10.03	1.253	11.4	0.83	11.7	48.29
1150	.84	6.01	9.99	1.232	16.2	0.83	11.3	48.65

1155: Collect MW-03D-03 for VOC 8260, 9056 Anions, RSM 175, Alu, & Sulfide.

Final WL = 50.59' bloc

-Decon & set up @ MW-03S.

*Note: Greenfield offsite with 19 of 28 drums @

1120.

112

80447

B. Lillstone

12-14-15

Forbes Atlas 5-5

J. Bryant

1230: Begin purging MW-035 @ 50 ml/min. Details
on sample form also.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1235	I	7.06	9.98	0.730	-23.1	8.6	173	22.50
1240	.07	7.06	10.89	0.735	-26.7	3.00	159	22.67
1245	.14	7.07	11.43	0.743	-29.1	1.30	105	22.73
1250	.21	7.05	11.67	0.742	-29.4	0.97	59.8	22.83
1255	.28	7.08	11.88	0.745	-25.8	0.85	32.4	22.85
1300	.35	6.97	11.99	0.748	-19.7	0.81	29.8	22.88
1305	.42	6.92	11.98	0.749	-16.3	0.78	20.9	22.89
1310	.49	6.89	12.14	0.750	-11.1	0.76	17.2	22.84
1315	.56	6.90	12.15	0.750	-11.1	0.71	13.6	22.87
1320	.63	6.91	12.23	0.751	-9.2	0.72	12.0	22.86
1325	.70	6.95	12.26	0.752	-11.2	0.68	8.37	22.88
1330	.77	6.94	12.29	0.749	-10.8	0.67	8.25	22.86
1335	.84	6.90	12.33	0.747	-9.0	0.66	8.04	22.87

1340: Collect MW-035-03 & MW-035-13 for

VOL 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

- Final WL = 23.50' b1oc.

- Decon & set up @ MW-075.

1415: Begin purging MW-075 @ 50 ml/min. Details
on sample form also.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1420	I	7.13	10.31	0.689	-86.3	5.79	143	27.15
1425	0.07	7.08	11.01	0.710	-85.1	2.36	147	27.27

80447

B. Lillstone 113

12-14-15

Forbes 5-5

J. Bryant

MW-075 Continued

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1430	.14	7.08	11.43	0.714	-75.1	1.27	83.3	27.45
1435	.21	7.06	11.53	0.715	-58.8	0.89	28.8	27.50
1440	.28	7.05	11.66	0.717	-49.4	0.76	14.9	27.57
1445	.35	7.05	11.63	0.717	-45.9	0.71	8.79	27.57
1450	.42	7.04	11.65	0.718	-40.6	0.63	6.14	27.59
1455	.49	7.03	11.68	0.720	-38.4	0.60	5.94	27.59
1500	.56	7.02	11.76	0.724	-35.2	0.56	5.89	27.59

1505: Collect MW-075-03 for VOL 8260, 9056

Anions, RSK 175, Alk, Sulfide.

- Final WL = 28.02' b1oc.

- Decon

1535: Collect MW-075-03-ERB for VOL 8260,

9056 Anions, RSK 175, Alk, & Sulfide

* Note: Greenfield returns @ 1500 to load

remaining 9 drums.

- Disposal facility closes @ 4600 (~1.5 hrs away),

so Greenfield will return 12-15 AM to pickup

remaining drums (staged on trailer).

- Greenfield offsite @ 1530.

1545: Load equipment & wrap up for the day.

Complete coc. Place EDW in drum.

1630: Secure site & robe to Topeka, KS.

- Re-ice samples & prep for shipping.

1745: Ship samples via Fed Ex. JB 12-14-15

114 Tuesday 80447 B. Killstone
12-15-15 Forbes Atlas S-5 J. Bryant

Weather: Overcast, Dense fog in AM, 40s, SE wind
20-30 mph.

Task: Round 3 of ground water sampling @
Forbes Atlas S-5 site East of Council Grove,
KS.

Personnel: J. Bryant (RMID)
B. Killstone (Avatar)

0630: Depart Topeka, KS.

0730: Arrive onsite.

- Calibrate YSI for pH, Cond, ORP, & DO
and Turbidity meter for turbidity.

- Set up equipment and set up @
MW-02D.

0835: Begin pumping MW-02D w/ non-dedicated pump
@ 50 mL/min. Details on sample form also.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0840	I	7.53	9.89	0.833	-16.3	12.55	14.9	44.04
0845	0.07	7.30	11.27	0.868	-41.5	1.22	8.34	45.09 45.09
0850	.14	7.31	11.20	0.866	-40.5	1.18	8.20	46.17
0855	.21	7.31	10.79	0.857	-40.3	1.18	8.15	47.05
0900	.28	7.29	10.75	0.852	-39.6	1.14	8.09	47.56

0905: Collect MW-02D-03 & MW-02D-13 for
VOL 8260, 9056 Anions, RSK 175, ALK, & Sulfide.

- Decon & set up @ MW-02S.

- Final WL = 50.88' bgs.

Tuesday 80447 B. Killstone
12-15-15 Forbes Atlas S-5 J. Bryant

0955: Begin pumping MW-02S w/ non-dedicated bladder
pump @ 150 mL/min. Details on sample form also.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1005	I	6.98	10.49	0.754	-20.6	7.24	4.74	24.57
1010	.2	6.39	11.48	0.763	3.9	1.38	3.02	24.55
1015	.4	6.20	11.88	0.771	19.4	1.04	1.59	24.63
1020	.6	6.14	12.04	0.779	26.4	0.87	1.46	24.57
1025	.8	6.09	12.14	0.784	32.3	0.76	1.50	24.57
1030	1.0	6.06	12.22	0.787	37.2	0.72	1.45	24.57
1035	1.2	6.03	12.32	0.792	40.9	0.70	1.43	24.57

1040: Collect MW-02S-03 & MW-02S-03MS/MSD
for VOL 8260, 9056 Anions, RSK 175, ALK,
& Sulfide.

- Final WL = 24.65' bgs

- Decon & set up @ MW-01D.

1130: Begin pumping MW-01D w/ non-dedicated bladder
pump @ 50 mL/min. Details on sample form also.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1135	I	6.43	12.71	1.641	-3.4	4.41	18.2	47.83
1140	.07	6.64	12.95	1.802	-31.1	1.54	19.4	48.09
1145	.14	6.68	12.97	1.806	-34.4	1.24	19.3	48.50
1150	.21	6.74	12.99	1.770	-38.6	0.94	19.0	49.26
1155	.28	6.78	13.06	1.735	-42.8	0.85	18.8	49.76
1200	.35	6.79	13.17	1.721	-45.9	0.78	18.6	50.20
1205	.42	6.79	13.15	1.710	-47.6	0.76	18.5	50.55

116 Tuesday 80447 B. Rillstone
12/15/15 Fochs Atlas S-5 J. Bryant

1210: Collect MW-010-03 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

- Final WL = 52.02' btoe.

- Decon, place IDW in drum. Set up @

MW-040.

1348: Begin purging MW-040 w/ non-dedicated bladder pump @ 50 ml/min. Details on sample form also.

Time	Am't	pH	Temp	Cond	ORP	DO	Turb	WL
1355	.5	6.56	15.37	1.587	-52.7	3.08	96.7	51.94
1400	.07	6.65	15.17	1.607	-65.2	1.72	116	52.92
1405	.14	6.66	15.08	1.608	-68.1	1.22	116	53.50
1410	.21	6.65	15.26	1.614	-67.5	1.08	117	53.80
1415	.28	6.64	15.45	1.614	-65.8	1.08	117	54.11
1420	.35	6.61	15.68	1.623	-60.8	1.04	96.4	54.43
1425	.42	6.58	15.86	1.626	-58.5	1.04	97.5	54.73
1430	.49	6.57	15.93	1.626	-56.2	1.02	92.9	54.96

1435: Collect MW-040-03 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

Final WL = 54.97' btoe

- Decon & set up @ MW-045.

1507: Begin purging MW-045 w/ non-dedicated bladder pump @ 100 ml/min. Details on sample form also.



Tuesday 80447 B. Rillstone¹¹⁷
12/15/15 Fochs Atlas S-5 J. Bryant

MW-045

Time	Am't	pH	Temp	Cond	ORP	DO	Turb	WL
1515	.1	7.13	15.47	1.214	-102.8	2.66	907	31.84
1520	.14	7.14	14.87	1.158	-107.5	1.25	00R	32.35
1525	.28	7.17	14.84	1.145	-109.2	1.13	00R	32.41
1530	.42	7.17	14.76	1.132	-107.4	0.90	977	32.63
1535	.56	7.17	14.81	1.117	-102.4	0.87	713	32.68
1540	.70	7.16	14.90	1.112	-98.4	0.86	479	32.73
1545	.84	7.15	14.93	1.078	-93.4	0.83	383	32.87
1550	.98	7.15	14.92	1.089	-91.2	0.78	277	32.99
1555	1.12	7.15	14.91	1.084	-90.9	0.79	268	33.07
1600	1.26	7.15	14.85	1.080	-90.9	0.75	259	33.20

1605: Collect MW-045-03 for VOC 8260, 9056

Anions, RSK 175, Alk, & Sulfide.

- Final WL = 33.72' btoe.

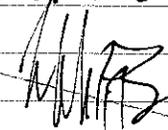
- Decon. Load equipment & samples. Place IDW in drum.

1650: Secure s-ba & probe to Topcon, 165.

- Refresh ice on samples & prep for shipping.

1810: Ship Samples via Fed Ex.

* Note: Greenfield crew arrives @ 0930 to pick up 9 drums & trailer. Crew returns @ 1230 to pick up skid loader.

 12/15/15

118 Wednesday 80447 B. Rillstone
12-16-15 Forbes Atlas S-5 J. Bryant

Weather: Clear 20s-30s, SW wind 15-30 mph.

Task: Round 3 of groundwater sampling @
Forbes S-5 Atlas site E of Council Grove, KS.

Personnel: J. Bryant (BAM10)
B. Rillstone (Avatar)

0700: Depart Topeka, KS.

0800: Arrive onsite.

- Set up equipment & calibrate YSI for
pH, Cond, ORP, & DO and Turbidity meter
for turbidity.

- Set up @ MW-05D.

0922: Begin purging MW-05D w/ non-dedicated
bladder pump @ 50 mL/min. Details on sample
form also.

Time	Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
0928	.1	6.47	6.65	1.499	-50.1	2.92	25.5	51.54
0933	.07	6.70	7.30	1.627	-72.8	1.90	12.4	52.19
0938	.14	6.76	6.67	1.609	-77.0	1.73	10.8	52.60
0943	.21	6.76	6.47	1.597	-75.9	1.54	7.85	53.04
0948	.28	6.75	6.46	1.579	-70.2	1.50	7.32	53.35
0953	.35	6.58	6.53	1.560	-62.2	1.34	7.39	53.72
0958	.42	6.45	6.74	1.524	-50.7	1.32	7.31	54.10
1003	.49	6.39	7.01	1.500	-43.1	1.28	7.25	54.49
1008	.56	6.37	7.12	1.483	-41.6	1.29	7.28	54.95

Wednesday 80447 B. Rillstone
12-16-15 Forbes Atlas S-5 J. Bryant

1010: Collect MW-05D-03 for VOC 8260, 9056
Anions, RSK 175, ALK, & Sulfide.

Final WL = 57.44' bloc

- Decon, place EDW in drum. Set up @
MW-06D.

1103: Begin purging MW-06D w/ non-dedicated bladder
pump @ 50 mL/min. Details on sample form also.

Time	Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
1113	.1	7.29	7.50	0.880	-78.9	6.00	20.3	30.69
1118	.07	7.21	7.28	0.876	-83.7	2.39	19.5	31.28
1123	.14	7.21	7.13	0.866	-86.1	1.92	17.4	31.58
1128	.21	7.22	7.15	0.864	-87.4	1.70	15.0	31.71
1133	.28	7.22	7.13	0.862	-87.5	1.52	12.6	31.94
1138	.35	7.21	7.34	0.866	-88.3	1.47	10.3	32.26
1143	.42	7.21	7.33	0.867	-90.2	1.33	8.34	32.83
1148	.49	7.20	7.31	0.867	-89.3	1.29	7.93	33.17
1153	.56	7.24	7.32	0.867	-90.4	1.30	7.84	33.55

1155: Collect MW-06D-03 for VOC 8260,
9056 Anions, RSK 175, ALK, & Sulfide.

- Final WL = 35.24' bloc

- Decon & set up @ MW-06S.

1242: Begin purging MW-06S w/ non-dedicated
bladder pump @ 110 mL/min. Details on
sample form also.

120 Wednesday 80447 B. Billstone
12-16-15 Fiches Atlas S-5 J. Bryant

MW-065

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1252	I	6.99	9.17	0.814	-28.1	4.88	39.8	16.26
1257	.15	7.00	10.63	0.856	-23.6	4.26	30.6	16.51
1302	.30	6.89	11.50	0.879	-16.4	3.82	23.1	16.73
1307	.45	6.87	11.73	0.883	-12.5	3.79	19.2	16.85
1312	.60	6.85	11.84	0.886	-8.6	3.73	16.8	16.98
1317	.75	6.80	11.92	0.888	-3.6	3.68	15.4	17.11
1322	.90	6.83	11.95	0.889	1.2	3.65	15.7	17.19

1325: Collect MW-065-03 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

- Final WL = 17.55' btoe

- Decon.

1355: Collect MW-065-03-ERB for VOC 8260,

9054 Anions, RSK 175, Alk, & Sulfide

- Load equipment & complete CDC form.

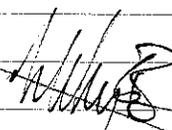
1445: Secure site. Move to Topock, KS.

- Re-ice samples, prep for shipping.

1600: Ship samples via Fed Ex.

1630: Return CO₂ to Matheson in N Topock.

- Move to Hotel.


12-16-15

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Wednesday
12-16-1580447
Forbes Atlas S-5B. Rillstone
J. Bryant

MW-065

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1252	I	6.99	9.17	0.814	-28.1	4.88	39.8	16.26
1257	.15	7.00	10.63	0.856	-23.6	4.26	30.6	16.51
1302	.30	6.89	11.50	0.879	-16.4	3.82	23.1	16.73
1307	.45	6.87	11.73	0.883	-12.5	3.79	19.2	16.85
1312	.60	6.85	11.84	0.886	-8.6	3.73	16.8	16.98
1317	.75	6.80	11.92	0.888	-3.6	3.68	15.4	17.11
1322	.90	6.83	11.95	0.889	1.2	3.65	15.7	17.19

1325: Collect MW-065-03 for VOC 8260,
9056 Anions, RSK 175, Alk, & Sulfide.

- Final WL = 17.55' bloc

- Decon.

1355: Collect MW-065-03-ERB for VOC 8260,
9056 Anions, RSK 175, Alk, & Sulfide

- Load equipment & complete CDC form.

1445: Secure site. Make to Topeka, KS.

- Re-ice samples, prep for shipping.

1600: Ship samples via Fed Ex.

1630: Return CO₂ to Matheson in N Topeka.

- Make to Hotel.

[Signature]
12-16-15

Monday

3-7-16

80447
Forbes Atlas S-5B. Rillstone
J. Bryant

Weather: Overcast, 60s-70s, S wind 15-25 mph.

Task: Round 4 of groundwater sampling at
Forbes Atlas S-5 site East of Council Grove, KS

Personnel: J. Bryant - BMD

B. Rillstone - Avatar

0630: Depart Wichita. Purchase ice &
DE water carante.

0900: Arrive onsite. Bryan Rillstone arrives
onsite.

- Safety meeting & documentation. Set up
equipment & prep for the day.

0945: Begin WL measurements.

Well	WL	TD
MW-010	45.70	68.43
MW-025	23.93	34.43
MW-020	40.87	58.63
MW-035	21.87	30.47
MW-030	41.08	57.33
MW-045	30.46	37.18
MW-040	49.96	66.77
MW-050	48.50	64.40
MW-065	13.45	23.55
MW-060	26.47	51.50
MW-075	26.62	35.42

1030: Calibrate YSE for pH, Cond, DO, & ORP. Calibrate
Turbidity meter.

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30447
3-7-16 Forbes S-5E. Rillstone
J. Bryant

1100: Set up @ MW-03D.

1110: Begin purging w/ non-dedicated bladder pump @ 50 mL/min. Details below @ on sample form.

Time	Amt	pH	Temp	Cond	ORP	DR	Turb	WL
1205	I	6.87	20.11	1.304	-67.6	9.80	50.1	41.79
1210	.07	6.86	19.58	1.324	-67.4	3.15	59.9	42.11
1215	.14	6.90	19.97	1.345	-68.6	2.50	57.6	42.41
1220	.21	6.92	20.52	1.368	-60.4	2.17	58.0	42.59
1225	.28	6.92	20.88	1.381	-61.6	2.05	54.2	42.74
1230	.35	6.93	21.18	1.392	-56.4	1.95	52.1	42.90
1235	.42	6.93	21.38	1.399	-60.6	1.87	47.7	43.23
1240	.49	6.93	21.49	1.401	-63.3	1.77	44.4	43.53
1245	.56	6.92	21.54	1.400	-63.3	1.67	36.6	43.87
1250	.63	6.90	21.51	1.396	-65.2	1.60	30.8	44.03
1255	.70	6.89	21.44	1.391	-72.4	1.51	28.3	44.35
1300	.77	6.88	21.69	1.396	-74.3	1.43	20.9	44.61
1305	.84	6.86	21.64	1.391	-77.8	1.38	27.3	44.90
1310	.91	6.84	21.22	1.376	-80.8	1.35	26.1	45.20

1315: Collect MW-03D-04 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.Fe⁺: 0.70 mg/L, Final WL: 46.85' btoe

- Decon & set up @ MW-03S.

1342: Begin purging MW-03S w/ non-dedicated bladder pump @ 50 mL/min. Details next page @ sample form. (3:00pm, 6 sec)

80447

3-7-16 Forbes S-5

B. Rillstone 123

J. Bryant

MW-03S

Time	Amt	pH	Temp	Cond	ORP	DR	Turb	WL
1358	I	7.12	20.60	0.645	-12.0	3.80	49.7	22.07
1403	.07	7.12	21.05	0.639	-6.7	2.98	46.9	21.95
1408	.14	7.11	21.48	0.638	-1.6	2.72	42.6	21.95
1413	.21	7.11	21.92	0.640	-3.7	2.62	43.5	21.95
1418	.28	7.10	21.66	0.633	-6.3	2.42	42.4	22.13
1423	.35	7.09	21.42	0.624	-8.0	2.12	40.9	22.16
1428	.42	7.07	21.09	0.617	-9.3	1.92	37.5	22.07
1433	.49	7.05	20.65	0.610	-9.8	1.75	33.0	22.09
1438	.56	7.03	20.38	0.603	-8.5	1.57	21.6	22.15
1443	.63	7.01	19.82	0.593	-7.2	1.49	16.2	22.15
1448	.70	6.98	19.38	0.586	-5.6	1.46	15.8	22.15
1453	.77	6.95	19.47	0.580	-2.3	1.41	15.4	22.15

1455: Collect MW-03S-04 & MW-03S-14 for

VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.0 mg/L Final WL: 22.31' btoe

- Decon.

1530: Collect MW-03S-04-ERB for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

- Place IDW in drum.

- Complete COC & prep samples for shipping.

1610: Depart site. Refresh ice & seal coolers in Turkey, KS

1730: Ship 1 cooler to ALS via FedEx.

- Move to hotel for the night.

3-7-16

124 Tuesday

3-8-16

80447

Forbes Atlas S-5

B. Rillstone

J. Bryant

Weather: PC, 50s-60s, S wind 10-25 mph.

Task: Round 4 of GW sampling @ Former Forbes Atlas S-5 site.

Personnel: J. Bryant - BMID

B. Rillstone - Avator

0630: Depart Topeka.

0730: Arrive onsite. Avator onsite.

- Safety meeting & documentation.

- Set up equipment for the day.

- Calibrate YSI & Turbidity meter.

0820: Set up @ MW-060.

0840: Begin purging MW-060 w/ non-dedicated bladder pump @ 50 mL/min. Details below & on sample form.

Time	amt	pH	Temp	Cond	ORP	DO	Turb	WL
0857	I	7.11	15.21	0.771	-77.4	10.92	22.4	26.80
0902	.07	6.89	15.11	0.779	-77.2	5.16	13.4	27.43
0907	.14	7.00	15.17	0.783	-86.2	3.57	9.82	27.68
0912	.21	7.10	15.42	0.788	-94.7	2.85	10.7	27.91
0917	.28	7.12	15.68	0.795	-102.6	2.46	7.25	28.29
0922	.35	7.13	15.82	0.798	-109.3	2.28	6.81	28.52
0927	.42	7.13	16.00	0.802	-114.2	2.12	5.79	28.82
0932	.49	7.14	16.13	0.805	-119.3	2.01	5.80	29.16
0937	.56	7.14	16.22	0.806	-122.2	1.99	5.61	29.40
0942	.63	7.13	16.22	0.807	-125.7	1.94	5.71	29.69

Tuesday

3-8-16

80447

Forbes Atlas S-5

B. Rillstone 25

J. Bryant

0945: Collect ~~non-dedicated~~ MW-060-04 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe + : 0.50 mg/L; Final WL: 31.35' btoe

- Decon & set up @ MW-065

1015: Begin purging MW-065 w/ non-dedicated bladder pump @ 110 mL/min. Details below & on form.

Time	amt	pH	Temp	Cond	ORP	DO	Turb	WL
1027	I	7.08	16.85	0.782	-21.7	24.00	83.1	13.91
1032	.15	6.93	16.91	0.716	-3.6	7.59	64.0	13.99
1037	.30	6.91	16.79	0.713	7.5	5.55	63.2	13.99
1042	.45	6.91	17.07	0.717	16.4	4.66	71.1	13.99
1047	.60	6.92	17.40	0.720	21.4	4.29	59.7	13.99
1052	.75	6.85	15.77	0.697	30.5	4.60	48.1	14.29
1057	.90	6.82	15.73	0.688	37.7	4.11	36.6	14.72
1102	1.05	6.79	15.19	0.685	44.1	3.86	25.7	14.97
1107	1.20	6.77	15.17	0.684	46.9	3.71	21.6	14.99
1112	1.35	6.77	15.10	0.683	48.9	3.68	20.8	15.08
1117	1.50	6.78	15.04	0.682	49.7	3.66	20.1	15.12

1120: Collect MW-065-04 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe + : 0 mg/L, Final WL: 15.42' btoe

- Decon & set up @ MW-040

1145: Begin purging MW-040 w/ non-dedicated bladder pump @ 50 mL/min. Details next page & field form.

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mw-04D Forbes S-5

B. Rillstone

J. Bryant

Time	Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
1208	I	6.58	16.62	1.184	-14.9	8.97	100	50.40
1213	.07	6.59	16.58	1.205	-19.7	5.82	97.4	50.60
1218	.14	6.58	16.59	1.220	-20.2	4.18	144	51.05
1223	.21	6.53	16.37	1.218	-17.3	3.76	147	51.19
1228	.28	6.49	16.18	1.213	-15.3	3.64	142	51.44
1233	.35	6.38	15.86	1.200	-9.0	3.23	122	51.83
1238	.42	6.31	15.68	1.194	-2.2	3.09	108	52.31
1243	.49	6.20	15.37	1.182	11.8	3.00	105	52.69
1248	.56	6.18	14.95	1.157	14.6	3.06	100	53.16
1253	.63	6.15	14.89	1.150	17.6	3.07	104	53.40

1255: Collect MW-04D-04 for VOC 8260, 9056 Anions, RSK 175, Aik, & Sulfide

Fe⁺: 0 mg/L; Final WL: 56.47

1320: Thunderstorm moves into the area. Shelter in truck

1340: Storm subsides. Intermittent rain.

-Decon & set up @ mw-04s.

1350: Begin purging mw-04s @ 50 ml/min w/ non-dedicated ladder pump. Details below & on sample form.

Time	Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
1418	I	6.98	13.51	0.691	-40.2	9.20	983	31.22
1423	.07	6.93	13.57	0.667	-50.0	4.54	00R	31.31
1428	.14	6.96	13.64	0.664	-51.3	3.78	00R	31.38

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80447

Forbes S-5

B. Rillstone

J. Bryant

mw-04s continued

Time	Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
1433	.21	6.98	13.73	0.663	-51.5	3.38	00R	31.46
1438	.28	6.99	13.84	0.665	-51.9	3.22	00R	31.50
1443	.35	7.00	13.91	0.667	-53.1	3.14	00R	31.54
1448	.42	7.00	13.94	0.669	-53.6	3.14	00R	31.57

1450: Collect MW-04S-04 for VOCs 8260, 9056

Anions, RSK 175, Aik, & Sulfide.

Fe⁺: 0.8 mg/L; Final WL: 32.04' btoe

1540: Finished sampling. Break down equipment.

-Decon.

1555: Collect MW-04S-04-ERB for VOC 8260,

9056 Anions, RSK 175, Aik, & Sulfide.

1600: Bo Rillstone offsite to take rental car to rental company to have a flat tire fixed. Upon arrival today, B. Rillstone noted that RP tire has a leak. Emergency donut was put on for the return trip to Topeka.

- Complete COL & prep samples for shipping.

1640: Depart site. Refresh ice & seal cooler[®] enroute to FedEx in Topeka.

1750: Ship 1 cooler to ALS Houston via FedEx - Topeka.

[Signature]
3-8-16

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3-9-16

80447
Forbes S-5

B. Rillstone
J. Bryant

Weather: PC, 40s-50s, S wind 5-15 mph.

Task: Round 4 of GW sampling @ Forbes Atlas
S-5 site.

Personnel: J. Bryant - BMID
B. Rillstone Avator

0630: Depart Topeka.

0730: Arrive onsite. B. Rillstone w/ Avator
onsite.

- Daily safety meeting & documentation.
- Sat up for the day. Calibrate YSI &
Turbidity meter.
- set up @ MW-075

0755: Begin purging w/ non-dedicated bladder
pump @ 50 ml/min. Details below & on sample
form.

Time	Am't	pH	Temp	Cond	ORP	DO	Turb	WL
0823	I	7.02	10.66	0.501	-42.7	11.76	00R	27.09
0828	.07	6.97	10.79	0.508	-46.3	6.55	418	26.99
0833	.14	6.95	10.54	0.504	-44.1	5.12	410	26.96
0838	.21	6.92	10.42	0.501	-40.1	4.36	360	26.98
0843	.28	6.90	10.47	0.501	-37.5	3.79	363	27.00
0848	.35	6.91	10.48	0.500	-36.9	3.48	331	26.99
0853	.42	6.91	10.51	0.501	-36.4	3.30	315	26.98
0858	.49	6.92	10.61	0.502	-35.5	3.11	306	27.01
0903	.56	6.92	10.66	0.502	-35.2	3.05	301	27.00

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Forbes S-5

B. Rillstone 129
J. Bryant

MW-075 Continued:

Time	Am't	pH	Temp	Cond	ORP	DO	Turb	WL
0908	.63	6.91	10.69	0.507	-34.1	2.98	285	27.00
0913	.70	6.91	10.75	0.507	-32.4	2.83	276	26.98
0918	.77	6.91	10.87	0.505	-30.2	2.81	278	26.99
0923	.84	6.91	10.89	0.505	-29.9	2.79	270	27.00

0925: Collect MW-075-04 for VOC 8260, 9056 Anions,
RSU 175, AIX, Sulfide

Fe⁺: 0.70 mg/L, Final WL: 27.01' bloc

- Decon. Sat up @ MW-050.

1000: Begin purging w/ non-dedicated bladder pump @
50 ml/min. Details on sample form & below.

Time	Am't	pH	Temp	Cond	ORP	DO	Turb	WL
1019	I	6.72	11.53	1.251	-37.0	13.60	641	48.97
1024	.07	6.80	11.80	1.366	-47.9	6.80	408	49.28
1029	.14	6.86	11.91	1.396	-53.6	5.19	305	49.58
1034	.21	6.93	12.04	1.422	-57.6	3.87	23.4	50.15
1039	.28	7.00	12.13	1.435	-63.6	3.17	20.3	50.38
1044	.35	7.01	12.16	1.438	-68.3	2.89	17.4	50.69
1049	.42	7.03	12.22	1.439	-71.7	2.59	17.1	50.91
1054	.49	7.05	12.34	1.442	-72.9	2.52	17.3	51.22
1059	.56	7.06	12.55	1.446	-74.7	2.50	17.0	51.54

1100: Collect MW-050-04 for VOC 8260, 9056
Anions, RSU 175, AIX, Sulfide

Fe⁺: 1.10 mg/L, Final WL: 53.19' bloc

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3-9-16 Forbes S-5 J. Bryant

1125: Decon & set up @ MW-010.

1150: Begin purging w/ non-dedicated bladder pump
@ 50 mL/min. Details below & on sample form.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1211	I	6.49	14.45	1.347	10.8	28.43	81.3	46.15
1216	.07	6.96	14.52	1.406	7.0	6.69	65.2	46.41
1221	.14	6.59	14.61	1.434	1.9	5.03	64.0	46.54
1226	.21	6.63	14.86	1.456	-0.9	3.89	62.5	46.73
1231	.28	6.67	15.10	1.470	-4.6	3.34	61.5	46.94
1236	.35	6.70	15.28	1.475	-7.7	3.08	60.3	47.12
1241	.42	6.74	15.20	1.468	-10.2	2.84	58.5	47.38
1246	.47	6.77	15.37	1.464	-12.5	2.57	53.4	47.57
1251	.56	6.79	15.42	1.451	-17.3	2.27	46.4	47.86
1254	.63	6.81	15.67	1.451	-22.0	2.12	44.6	48.05
1301	.70	6.82	15.86	1.453	-27.8	2.08	42.8	48.27
1306	.77	6.83	16.04	1.453	-30.5	2.06	41.6	48.44

1310: collect MW-010-04 for VOC 8260, 9056
Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 1.2 mg/L, Final WL: 49.55' btoe.

- Decon & set up @ MW-020

1344: Begin purging w/ non-dedicated bladder pump
@ 50 mL/min. Details below & on sample form.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1348	I	7.38	17.35	0.833	-13.2	17.70	146	41.71
1353	.07	7.27	17.61	0.796	-14.7	3.53	62.2	42.00

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MW-020 Continued

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1358	.14	7.28	18.04	0.799	-12.8	2.84	38.3	42.18
1403	.21	7.27	18.91	0.808	-11.5	2.36	28.5	42.18 ³⁷
1408	.28	7.27	19.01	0.810	-11.3	2.33	24.8	42.50
1413	.35	7.26	19.31	0.813	-9.1	2.21	18.0	42.62
1418	.42	7.25	18.87	0.804	-11.9	2.21	15.0	43.07
1423	.49	6.86	17.73	0.779	-6.2	1.92	10.5	43.59
1428	.56	6.62	17.52	0.775	15.0	1.55	8.15	44.17
1433	.63	6.54	17.64	0.776	19.7	1.51	7.75	44.45
1438	.70	6.52	17.86	0.787	23.6	1.48	7.60	44.62

1440: collect MW-020-04 & MW-020-14 for
VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.10 mg/L, Final WL: 47.43' btoe

- Decon & set up @ MW-025.

1515: Begin purging w/ non-dedicated bladder pump
@ 150 mL/min. Details below & on sample form.

Time	Amt	pH	Temp	Cond	ORP	DO	Turb	WL
1527	I	6.70	17.37	0.704	37.3	9.46	31.4	24.25
1532	.2	5.99	16.72	0.693	63.5	4.50	10.8	24.27
1537	.4	5.74	15.67	0.668	80.7	3.50	7.19	24.61
1542	.6	5.68	15.81	0.666	95.4	2.17	4.86	24.29
1547	.8	5.68	15.86	0.667	99.9	1.74	3.72	24.31
1552	1.0	5.65	15.94	0.665	106.4	1.69	3.54	24.29
1557	1.2	5.63	15.50	0.655	108.1	1.66	3.50	24.48

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3-9-16

80447
Forbes Atlas 5-5

B. Rillstone
J. Bryant

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1600: Collect MW-025-04 & MW-025-04 ml/msd

for VOC 8260, 9056 Anions, RSK 175, AIL, & Sulfide.

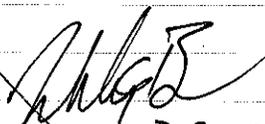
Fe⁺: 0.0 mg/L, Final WL: 24.81' b/c

- Decon. Stow equipment. Place FOW in drum.
- Complete COC & prep samples for shipping.

1640: Depart site. B. Rillstone to KC, J. Bryant to Wichita.

- Refresh ice & ~~seal~~ seal cooler ~~en route~~.

1900: Ship 1 cooler to ALS-Houston from
Fed Ex-Wichita.


3-9-16

132 Wed
3-9-16

80447
Forbes Atlas S-5

B. Rillstone
J. Bryant

1400: Collect MW-025-04 & MW-025-04 ml/MSD

for VOC 8260, 9056 Anions, RSK 175, Aik, & Sulfide.

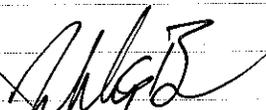
Fe²⁺: 0.0 mg/L, Final WL: 24.81' btoe

- Decon. Stow equipment. Place FOW in drum.
- Complete COC & prep samples for shipping.

1640: Depart site. B. Rillstone to KC, J. Bryant to Wichita.

- Refresh ice & ^{SP} seal cooler^{SP} enroute.

1900: Ship 1 cooler to ALS-Houston from Fed Ex-Wichita.


3-9-16

Tuesday
5-24-16

80447
Forbes Atlas S-5 J. Bryant

133

Weather: Overcast, chances for isolated T-storms.

60s-70s, W wind 5-10 mph.

Task: Additional monitoring well installation

① Former Forbes S-5 site east of Council Grove, KS.

Personnel: J. Bryant (BMCD)

Nate Stebbins, Nate Henderson, } Traut Wells,
& Paul Mooney Inc.

0600: Depart Wichita, KS.

0800: Arrive onsite. Await arrival of Traut crew.

- Complete daily safety documentation. Calibrate LEL & PFD.

0840: ^{SP} Traut crew arrives onsite. Conduct safety meeting & AHA review.

0920: Chuck Williams w/ US Army Corps of Engineers onsite. Review safety paperwork & complete visitor log.

- Traut crew is scouting proposed well locations.

0940: Scout proposed locations w/ Traut & C. Williams.

- Proposed location MW-105 will be inaccessible w/ heavy equipment (drill rig, water truck) due to terrain & trees without a significant change in scope. Chuck Williams advises that the well can be moved south out of the low, heavily vegetated area.

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Forbes Atlas S-5

J. Bryant

1030: Traut has offloaded & staged 19-55 gal drums

& staged equipment trailers. Traut notes to Council Grove to secure water for drilling.

- Discuss proposed well locations w/ C. Williams.

- C. Williams proposes the following changes:

- Move MW-10S south, to accessible terrain.

- Move MW-08S east ~90' to fill the role as a downgradient well.

- Move MW-11S south ~40' & west ~10-20' to accessible terrain (slope)

- Move MW-13S as far west as possible (within property boundary) to place it as far from plume as possible (~40' if possible).

1200: Discuss proposed changes w/ Walter McLendon

(BMD Project Manager). W. McLendon is in agreement.

- Speak w/ drillers, they are rounding up additional equipment & have secured water.

1300: Traut crew returns & begins set up @ MW-10S.

1424: Traut begins drilling MW-10S w/ 4" dia single wall sampler & bit, & 6" dia override casing.

1454: Chuck Williams departs.

1530: While advancing the 6" dia casing over the 4" dia drill string, ~~at~~ from 10-11' bgs →

Tuesday

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Forbes Atlas S-5

J. Bryant

- drilling mud begins returning ~~to~~ to the surface under the mud tub. Traut stops drilling & works on sealing the top 10' to prevent drilling mud from returning to the surface.

1555: Traut advances 6" to 20' bgs (4" is @ 20' bgs).

1630: Traut stops @ 25' bgs. Base of Scheyer

LS is 22' bgs. Traut prepares to install

MW-10S to 22' bgs. IDW = ~750 gal. Water loss = 0 gal

- Traut is also attempting to locate a trash pump rental, one of two on hand has quit working.

1745: Traut has pulled 4" & flushed borehole.

Traut installs MW-10S to 22' bgs.

- 2" dia, Sch 40 PUL. 0.020" Factory slotted screen, flat cap.

Lengths: Cap: 0.15', Screen: 5.00', Risar 20.10'

Total: 25.25', Stickup: 2.77', Cutoff: 0.48'

Filter Pack: Premier Silica 20/40 silica sand

25-14' bgs. Used 5 - 50# bags

Seal: Halliburton 3/8" Hole plug Bentonite chips

14-10' bgs. Used 1.5 - 50# bags

Slur-GROUT: * Above water table. Used Halliburton #18" Hole plug Bentonite. Hydrated in 1' lifts. 10-2' bgs. 3 - 50# bags

1815: Seal is in & will need to hydrate a minimum of 4 hrs. Wrap up for the day.

1840: Depart site. 1930: Arrive in Topeka, KS.

5-24-16

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5-25-16

Forbes Atlas S-5

J. Bryant

Weather: Cloudy in AM to PC later, 60-80s, SSE wind 5-15.

Task: Additional monitoring well installation @

Forbes Atlas S-5 site east of Council Grove, KS.

Personnel: J. Bryant (BME/D)

N. Stebbins, N. Henderson, P. ^{Moody} ~~Moody~~ (Traut Well)

0730: Depart Topeka, KS.

0830: Arrive onsite. Await arrival of Traut crew.

- Calibrate/Bump Test LCL & PID.
- Complete daily safety documentation.

0840: Traut crew arrives onsite.

- Daily safety meeting & PTA review.
- Crew begins working on moving equipment off of MW-105.

0900: Because the top of the bentonite seal @ MW-105 is above the water table, grout will not be necessary. Per the Warrinton/Quapp logs, top off well with bentonite chips, hydrated in 1' lifts from 10-2' bgs.

0930: N. Stebbins & P. Moody offsite to pick up rental trash pump. N. Henderson offsite to fill water truck.

1030: N. Henderson back w/ water truck & continues work on cleaning up the area @ MW-105.

1100: Portable toilet delivered by CatCans of Manhattan

Wednesday

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5-25-16

Forbes Atlas S-5

J. Bryant

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1400: Traut crew returns & begins setup for MW-115.

1500: Traut sets up drill rig @ MW-115.

Ground is too soft for the support/water truck so it will be set up on the road ~100' away, requiring more extensive set up than usual.

1634: Traut begins drilling MW-115 w/ 4" dia bit & sampler and 6" dia bit & override casing.
- Sonic/Mud Rotary

1645: Motor for the mud mixer is not working. Traut is working on repairing. Current depth = 10' bgs w/ 4".

1715: Motor is repaired. Traut resumes.

1815: Traut stops @ 30' bgs. Base of target formation is 22' bgs. Traut will install well to 22' bgs. IDW = 750 gal. Water lost = 0 gal

Details: MW-115, well TD = 22' bgs, BH TD = 30' bgs

Materials: 2" dia, Sch 40 PVC - Johnson. Cap: 15' lat (0.15'),

Screen: 0.020" Factory slotted PVC (50'), Riser: 20.11'

Backfill: Halliburton 3/8" bentonite chips, 30-23' bgs
used 2.5 - 50# bags

Filter Pack: Premier Silica, 20/40 silica sand,
23-14' bgs. Used 6 - 50# bags

Seal: Above water table so no grout. Halliburton 3/8" bentonite chips, 14-2' bgs. Used 2.5 - 50# bags
- Hydrated in 1' lifts.

Wednesday

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5-25-16

Forbes Atlas S-5

J. Bryant

1945: Well, filter pack, & seal are in. Crew begins wrapping up for the day, including moving rig & equipment off of the well site.

2030: Depart site.

2115: Arrive in Topeka, KS.

[Signature]
5-25-16

Thursday

80447

5-26-16

Forbes Atlas S-5

J. Bryant

Weather: Overcast, chance for storms later, 60s-80s, ^{SSC} wind S-15.

Task: Additional Monitoring Well Installation @ Forbes S-5 site in Lyon Co., KS.

Personnel: J. Bryant (BMC)

N. Stebbins, N. Henderson, & P. ^{Mookey} ~~Mooney~~ (Trant)

0700: Depart Topeka, KS.

0800: Arrive onsite.

- Trant Well onsite.

- Daily safety documentation & safety meeting.

- Calibrate PID & LEL

- Trant is attempting to locate a lined rolloff that was supposed to be delivered yesterday for use in containerizing drilling fluid.

- Trant evaluates ground conditions for access to the next drilling site.

0900: The path to MW-2S is accessible. However, in order to drill, Trant will need the lined rolloff to empty their IDW holding tank as it is full.

- The vendor indicated they would be delivering this morning, however the delivery time is unclear.

- Trant crew works on ~~the~~ readying equipment for when the rolloff arrives.

1030: Rolloff is delivered. Crew lines rolloff & pumps drilling fluid into the lined rolloff.

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5-26-14

Forbes Atlas 5-5

J. Bryant

1100: Drilling fluid IDW is in rolloff. A cover was not provided however, so Trant crew will need to get material to cover the rolloff in the event of rain (likely).

- Trant moves drill rig & equipment to MW-123 drill site.

1130: Trant offsite to get material for use as a cover for the liquid IDW roll off.

1250: Trant returns. Trant covers IDW roll off w/ tarp, supported by 2x4' planks & secured w/ rope.

1320: Trant sets up to begin drilling MW-123.

1340: Trant begins drilling MW-123 / SB-11 w/ 4" dia bit & sampler and 6" dia bit & override casing. Sonic - Mud rotary.

1410: Collect SB-11/SB-11-0-1, SB-11/SB-11-0-1-MS & SB-11/SB-11-0-1-MSB for VOC & TOC from 0-1' bgs

1425: Collect SB-11/SB-11-5-6 & Dup. 1 / SB for VOC & TOC from 5-6' bgs.

1440: Collect SB-11/SB-11-14-15 from 14-15' bgs for VOC & TOC.

* 1435: Trant stops @ 25' bgs. Base of schroyer is 24.6' bgs. Trant will set well to 25' bgs.

Thursday

80447

5-26-14

Forbes Atlas 5-5

J. Bryant

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1520: Screen, riser, & 10' of filter pack are installed. T-storm moves into the area.

- Work stops & personnel shelter in trucks while storm passes. Liquid IDW = 750 gal. No water loss.

1610: Storm has passed. Trant resumes well installation.

1630: Collect IDW-WW / IDW-WW-052616 from accumulated drilling water / fluid for VOCs

MW-123 Details

Borehole TD = 25' bgs. Well TD = 25' bgs

Material: 2" dia, Sch 40 PVC

Cap: Flat, Screen: 2" dia, 0.020" factory slotted

Lengths: Cap: 0.15', Screen: 10.00', Riser: 10.05' + 10.05'

Total: 30.25', Cutoff: 3.22', Stickup: 2.03'

Filter Pack: Premier Silica, 20/40 silica sand

25-12' bgs. Used: 8 - 50# bags

Seal: Above the water table, so no grout.

Halliburton 3/8" Bentonite chips

12-2' bgs. Used 4 - 50# bags

1640: Well installation is complete. Set up to begin development @ MW-123. Details on development form.

- Trant crew works on rigging down and getting equipment off of MW-123.

1656-1657: Well dry @ 2.5 gal (~1 WV)

- T. Storm in the area.

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5-26-16

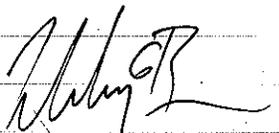
Forbes Atlas S-5

J. Bryant

1720: Crew is wrapped up, secure site
& depart for Wichita.

1940: Ship samples (1 cooler) to ALS via
Fed Ex - Wichita.

*Note: ~750 gal drilling water IDW generated @ MW-125.
- No water lost.


5-26-16

Wednesday

80447

6-1-16

Forbes Atlas S-5

J. Bryant

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Weather: Clear to PC, 60s-80s, West wind 5-15 mph.

Task: Monitoring well installation @ Forbes
S-5 site east of Council Grove, KS.

Personnel: J. Bryant - BMD

N. Stebbins, N. Henderson, P. ^{Mooney}Mooney - Traut

0630: Depart Wichita, KS.

0830: Arrive onsite. Traut crew onsite. Complete
daily safety documentation & conduct tailgate
safety meeting.

- Calibrated bump test PID & LEL.

- Traut begins setting up for the day.

- Permission has been granted from KANE &
USACE to discharge accumulated drilling water
to the sewage lagoons based on analytical
results (Non-detect). Traut discharges ~2,250
gal drilling water to sewage lagoons.

- Traut begins setting up equipment @ MW-135/
SB-12.

- While Traut sets up & moves to Council
Grove to fill water, collect WL measurements
@ MW-105, MW-115, & MW-125.

MW-105: 10.68' btoe, TD = 24.72' btoe

MW-115: 9.29' btoe, TD = 24.81' btoe

MW-125: 15.02' btoe, TD = 27.19' btoe

1100: Water is filled & Traut is finishing set up
@ MW-135.

Wednesday

6-1-16

80447

Forbes Atlas S-5

J. Bryant

1140: Trant begins drilling MW-135/SB-12 w/ 4" dia bit & single wall sampler & 6" dia bit & casing. Sonic/Mud rotary.

1220: Collect SB-12/SB-12-0-1 for VOC & TOC from 0-1' bgs.

1230: Collect SB-12/3-2-4 for VOC & TOC from 3-4' bgs.

1240: Collect SB-12/SB-12-6-7 for VOC & TOC from 6-7' bgs.

- Top of Schroyer is @ ~7' bgs.

1250: Trant stops at 20' bgs. Base of Schroyer Lm (target formation) is 18' bgs. Trant will set the well to 18' bgs w/ 10' screen from 8-18' bgs.

Details: Material: 2" dia, Sch 40 PVC, Cap:

Screen: 2" dia, 0.020" factory slotted PVC

Manufacturer: Johnson

Lengths: Cap: 0.22', Screen: 10.05', Riser: 10.06'

Total: 20.33', Cutoff: 57' stickup: 1.76'

Filter pack: Premier Silica 20/40 Silica Sand

20-5' bgs. Used 7-50# bags.

Seal: Halliburton 3/8" Bentonite chips - Hydrated

5-2' bgs. Used 1-50# bag

1340: Well is installed. Trant is working on cleaning up the work area and demobbing equipment from the area. Liquid IDW: ~750 gal. No water loss.

1420: Drill rig stuck in mud near MW-135 site.

Wednesday

6-1-16

80447

Forbes Atlas S-5

J. Bryant

1440: Trant crew breaks for lunch.

1600: Trant crew returns & begins work on well development & digging pads @ installed wells.

- Set up to develop MW-115. Details on development form.

- Surge pump in MW-115 for 10-15 min.

1617: Begin pumping.

1628: MW-115 dry @ ~2.5 gal. Decon pump

- Set up to develop MW-125.

- Surge pump for 10-15 min.

1637: Begin pumping.

1638: Well dry @ ~2 gal. Decon pump

- Set up to develop MW-105 (Round 2)

- Surge for 10-15 min.

1656: Begin pumping.

1657: MW-105 is dry @ ~2 gal. Decon pump.

- wrap up for the day.

1715: Depart site to meet Fed Ex deadline.

Trant will finish digging well pads, then wrap up & secure the site.

1830: Ship 1 cooler to ALS via Fed Ex - Topeka.

- Trant reports that they have finished for the day and have secured the site & departed.

J. Bryant 6-1-16

Thursday

6-2-16

80447

Forbes Atlas S-5

J. Bryant

Weather: Clear, 60s-80s, NNE wind 5-10 mph.

Task: Well installation @ Forbes Atlas S-5 site

East of Council Grove, KS.

Personnel: J. Bryant - BMD

N. Stebbins, N. Henderson, & P. Mooney - Trant

0700: Depart Topeka, KS.

0800: Arrive onsite. Trant crew onsite. Daily

safety documentation & meeting.

- Calibrate/bump test PED & LEL.

- Foley Cat Rental delivers a DGT Bulldozer.

- P. Mooney departs to pick up suid loader.

Remainder of crew works on pulling drill rig out of mud with the dozer.

0900: Rig is out. Trant begins moving rig & support truck/equipment to MW-095 drill site.

1038: Trant begins drilling MW-095 w/ 4" dia bit & single wall sampler and 6" dia bit & casing.

1100: P. Mooney returns with the suid loader. Trant stops drilling @ 10' bgs to offload suid loader.

1130: Loader is attached & offloaded. Crew breaks for lunch.

1250: Crew returns from lunch & resumes drilling MW-095.

1335: Trant stops at 25' bgs. Target formation is 16-23' bgs. Trant installs MW-095 to 23' bgs w/ 5' screen. Liquid IDW = ~750 gal. No water loss.

Thursday

80447

6-2-16

Forbes Atlas S-5

J. Bryant

MW-095 Details

Material: 2" dia, Sch 40 PVC

Cap: Flat, Screen: 0.020" Factory slotted PVC

- Johnson

(through)
② 0.14 + 10.04' + 10.06', Total: ^{25.51} 25.37', Suction: 2.51'

Filter pack: Premier Silica - 20/40 silica sand

25-14' bgs. Used 5-50# bags

Soil: Halliburton 3/8" Bentonite Chips (Hydrated)

14-2' bgs. Used -3-50# bags

1415: Well is installed. Trant crew works on demobbing equipment from MW-095 & setting up @ MW-085.

1500: Ballards and protective covers are delivered.

- Trant reports a flat tire on the support/water truck. Cause is unknown.

- While Trant moves equipment to MW-085, set up to develop installed wells.

1545: Set up @ MW-125. WL: 15.31' TD: 27.19' HOC

- Surge for 10-15 min.

1605: Pump @ ~2.3 gpm. Details on development for m.

1606: Well dry @ ~2 gal. Decon pump.

- Set up to develop MW-115. WL: 12.02' TD: 24.81'

- Surge for 10-15 min.

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Thurs

80447

6-2-16

Forbes Atlas 5-5

J. Bryant

1623: Begin pumping MW-115 @ 2-3 gpm.

1624: Well dry @ ~2 gal. Decon pump.

- Set up to purge MW-105. WL: 10.68', TO: 24.72'

- Surge for 10-15 min.

1649: Begin pumping MW-105 @ 2-3 gpm.

1650: Well dry @ ~2 gal. Decon pump.

- Well development complete for today.

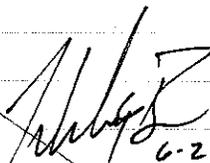
- Traut has staged the drill rig & support trailer at the MW-085 drill site.

1720: Traut is working on changing the flat tire on the water truck. A replacement is enroute from Topeka, KS.

1730: Depart site. Traut will complete tire change once the replacement arrives and secure / depart site.

1830: Arrive in Topeka, KS.

*Note: 1945: Traut reports they are finished & offsite.



6-2-16

Friday

80447

149

6-3-16

Forbes Atlas 5-5

J. Bryant

Weather: Clear, 60s - 80s, SSE wind 5 mph

Task: Monitoring well installation @ Forbes Atlas 5-5 site east of Council Grove in Lyon Co., KS.

Personnel: J. Bryant - BACW

N. Stebbins, N. Henderson, P. Mooney - Traut Well

0645: Depart Topeka, KS.

0745: Arrive onsite. Prepare daily safety documents, calibrate/bump test PFD & LCL, & await arrival of Traut crew.

0805: Traut crew onsite. Daily safety briefing.

Traut sets up for the day

0820: N. Henderson offsite to fill the water truck in Council Grove.

0915: N. Henderson returns w/ water truck. Traut continues set up @ MW-085.

0950: Traut begins drilling MW-085 w/ 4" dia bit & single wall sampler and 6" dia bit & casing.

1040: Traut stops @ 23' bgs. Base of Schroyer Ls is 19.5' bgs. Traut will set well to 20.0' bgs. Liquid LDW = 450 gal, Waterloss = 0.

Well Details: 2" dia, Sch 40 PVC - Johnson.

Flat bottom Cas: 0.22', 0.020" factory slotted PVC screen: 5.05'

Riser: 10.05' x 10.05', Total: 25.37', Cut off: 2.35',

Stickup: 3.03'

Friday
6-3-16

80447

Forbes Atlas S-5

J. Bryant

MW-085 Details Continued:

Filter pack: Premier Silica, 20/40. Silica sand
23-10' bgs. Used 6-50# bags.

Seal: Halliburton 3/8" Bentonite chips (hydrated)
10-2' bgs. Used 2-50# bags.

1115: Well is installed. Trant crew works on cleaning up drill site and moving equipment out of the area.

1150: Trant breaks to get lunch & cement for well pads in Council Grove.

1300: Trant returns w/ 2 pallets of cement mix.

- Trant resumes work on moving rig & equipment off of the MW-085 drill site.

- Trant is digging post holes for bollards w/ skid loader & auger attachment.

1405: Collect ~~IDW-125~~ IDW-125/IDW-125-060316

for VOCs from drilling water from wells MW-125, MW-075, & MW-085.

1430: Set up to resume/continue well development.

- Set up to develop MW-125. WL: 15.19' TD: 27.02'

- Surge for 10-15 min.

1450: Begin pumping MW-125 @ 2-3 gpm. Details on form.

1451: Well dry @ ~1.5 gal. Decon pump.

- Set up to purge MW-115. WL: 12.11' TD: 24.83'

- Surge for 10-15 min.

Friday

6-3-16

80447

Forbes Atlas S-5

J. Bryant

1524: Begin pumping MW-115 @ 2-3 gpm. Details on form.

1527: Well dry @ ~1.5 gal. Decon pump.

1600: Trant has finished augering all post holes for bollards and all bollards are in place.

- Trant has also nearly completed dressing up each of the work areas, smoothing ruts, leveling areas, etc.

- Dozer will be taken off rent today and picked up on Monday, 6/6/16.

- Trant continues site restoration & drum staging.

- Collect GPS coordinates at new wells.

1700: Depart site to main FedEx cutoff.

- Trant remains onsite to finish tasks.

1825: Ship 1 cooler to ALS - Fort Collins, CO via Fed Ex - Topoka.

*1815: Trant reports the area finished and offsite.

J. Bryant
6-3-16

Saturday

80447

6-4-16

Forbes Atlas S-5

J. Bryant

Weather: Clear, 60s-80s, W wind 5-10 mph.

Task: Well installation @ Forbes Atlas S-5 S.L. east of Council Grove in Lyon Co., KS.

Personnel: J. Bryant - E.M.D.

N. Stebbins, N. Henderson, & P. Mooney - Trant Well.

0645: Depart Topeka, KS.

0745: Arrive onsite. Complete daily safety documentation & await arrival of Trant.

0810: Trant crew arrives onsite. Conduct safety meeting & PTA review.

- Trant prepares to begin well pad installation & well development. (1 btoe)

0845: Set up to develop MW-135. WL: 7.10, TD: 19.71

- Surge for 15 min w/ 1.75" dia, 2.2' L, 120 submersible pump.

0909: Begin pumping @ 2-3 gpm. Details on form.

0910: Well dry @ 19.71' btoe. Monitor recovery.

0950: Water level has recovered to 8.54' btoe. Surge for 15 min.

1008: Begin pumping @ 2-3 gpm.

1009: Well dry @ 19.71' btoe. ~2 gal. Monitor recovery.

1100: Water level has recovered to 9.05' btoe.

Surge for 15 min.

1115: Surge @ 2-3 gpm.

Saturday

80447

6-4-16

Forbes Atlas S-5

J. Bryant

1116: Well dry @ 19.75' btoe, 2 gal.

- Purged dry 3 times. Development complete.
- Deion pump.

1150: Trant has placed forms @ all new wells and poured pads & cemented bollards @ MW-085 & MW-095.

- Trant breaks for lunch.

1250: Trant returns from lunch & resumes work on surface completions. (1 btoe)

- Set up to develop MW-095. WL: 12.72, TD: 25.51'

- Surge for 15 min.

1317: Begin pumping @ 2-3 gpm. Details on form.

1318: Well dry @ ~2 gal. Monitor recovery.

1345: Well has recovered to 12.90' btoe. Surge for 15 min.

1400: Begin pumping @ 2-3 gpm.

1401: Well dry @ 25.51' btoe, 1.5 gal. Monitor recovery.

1424: Well has recovered to 12.90' btoe. Surge for 15 min.

1440: Begin pumping @ 2-3 gpm.

Well: Well dry @ 25.51' btoe, 1.5 gal. Purged dry 3 times. Well is considered developed. Continue pumping dry, and allowing 2-3 min recovery, then purging again to further remove fines.

1600: Trant has finished well pad & bollard installation & is loading equipment.

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Saturday

80447

6-4-16

Forbes Atlas 5-5

J. Bryant

1700: Well development complete for today.

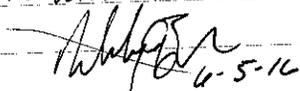
An additional 30 gals removed from MW-095 for a total of 35 gal.

- Trout is finishing loading equipment.

1730: Finished for the day. Secure site &

depart for Topeka, KS.

1815: Arrive in Topeka, KS.

~~6-5-16~~~~1120: Development finished @ MW-085.~~~~Conduct sweepstakes development @ MW-105,~~~~MW-115, MW-125, & MW-135.~~~~Surge/Purge dry, allow short recovery~~~~(screen) & repeat. Removing an additional 16-12 gal from each well.~~~~(Total 20.5 gal from MW-085).~~~~1500: Development complete. Inventory~~~~F&W Drums. Wrap up for the day.~~~~1510: Secure site & depart for Wichita, KS.~~~~1715: Arrive in Wichita, KS.~~~~ 6-5-16~~

Sunday

80447

6-5-16

Forbes Atlas 5-5

J. Bryant

Weather: Clear, 60s-80s, NE wind 5-15 mph

Task: Monitoring well installation @ Forbes 5-5 site in Lyon Co., KS.

Personnel: J. Bryant - BMLD

N. Stobbins, N. Henderson, P. Mooney - Trout Well.

0705: Depart for site

0815: Arrive onsite. Trout arrives. Daily safety meeting & documentation.

- Trout begins work on painting bollards & performing site restoration (smoothing cuts, etc.)

- Set up to develop MW-085. WL: 12.07' ^(bloc) TD: 23.03'

- Surge for 15 min.

0835: Begin pumping @ 2-3 ^{GPM} ~~min~~ ^{min}. Details on form

0836: Dry @ 1.5 gal. Monitor recovery.

0905: Well has recovered to 12.20' bloc. Surge for ~10 min.

0914: Pump @ 2-3 gpm.

0915: Dry @ 1.5 gal. Monitor recovery.

0945: Well has recovered to 12.22' bloc. Surge for ~10-15 min.

1000: Pump @ 2-3 gpm.

1001: Dry @ 1.5 gal. Well considered developed. Continue pumping w/ 2-3 min recovery between purges to further remove fines.

1020: Trout is finished for today. Trout departs site to begin mandatory (DOT) 24hr rest.

MEASUREMENT CONVERSIONS

U.S. to METRIC

inch x 2.54 = centimeter
 foot x 0.3048 = meter
 yards x 0.914 = meter
 mile x 1.609 = kilometer
 quart x 0.946 = liter
 gal'on x 3.785 = liter
 ounce x 28.349 = grams
 lbs x 0.454 = kg
 mpg x 0.245 = km/ltr
 mph x 1.609 = km/hr
 °F to °C (F - 32) x .555

METRIC to U.S.

centimeter x 0.394 = inch
 meter x 3.28 = foot
 meter x 1.094 = yards
 kilometer x 0.621 = mile
 liter x 1.057 = quarts
 liter x 0.264 = gallon
 grams x 0.035 = ounce
 kg x 2.205 = lbs
 km/ltr x 2.354 = mpg
 km/hr x 0.621 = mph
 °C to °F (C x 1.8) + 32

ENGLISH LINEAR MEASUREMENTS

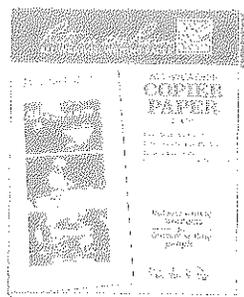
12 inches = 1 foot
 36 inches = 1 yard
 3 feet = 1 yard
 1,760 yards = 1 mile statute
 2,026.8 yards = 1 mile nautical
 5,280 feet = 1 mile statute
 6,060.4 feet = 1 mile nautical
 63,360 inches = 1 mile statute
 72,963 inches = 1 mile nautical

MAP SCALES—ENGLISH & METRIC

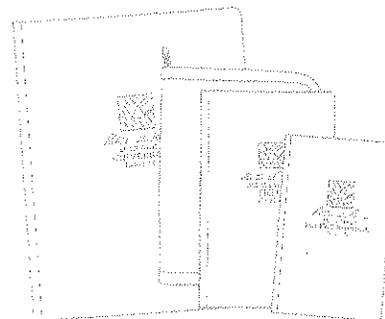
SCALE	1 INCH =	1 CENTIMETER =
1:10,000	833.33 feet 254 meters	328.1 feet 100 meters
1:25,000	2,083.3 feet 635 meters	820.2 feet 250 meters
1:50,000	4,166.7 feet 1,270 meters	1,640.4 feet 500 meters
1:63,360	5,280 feet 1,609.3 meters	2,078 feet 633.6 meters
1:100,000	8,333.3 feet 2,540 meters	3,280.8 feet 1,000 meters
1:250,000	20,833 feet 6,350 meters	8,202 feet 2,500 meters
1:500,000	41,667 feet 12,700 meters	16,404 feet 5,000 meters

Rite in the Rain 
 ALL-WEATHER WRITING PAPER

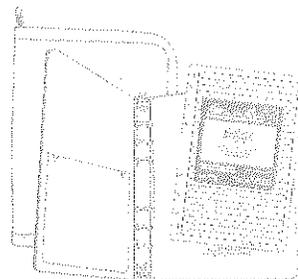
Outdoor writing products
 for Outdoor writing people



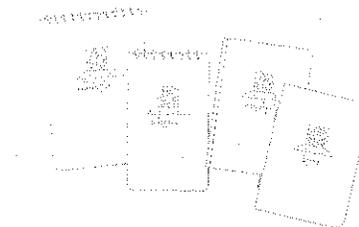
Copier & Ink-Jet Paper



Bound Books



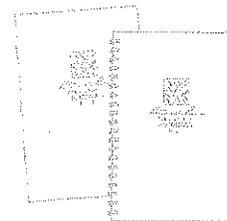
Loose Leaf
 with Ring Binder



Memo Books



All-Weather Pens



Notebooks

RiteintheRain.com

Monday 80447 B. Rillstone
6-27-16 Forbes Atlas S-5 J. Bryant

Weather: Clear, 70s-90s, SSE wind 5 mph.

Task: Artly GW sampling (Round 5) @
Forbes Atlas S-5 site east of Council Grove, KS.

Personnel: J. Bryant - B.M.C.D.
B. Rillstone - Avatar

0630: Depart Wichita, KS.

0840: Arrive onsite. Await arrival of
B. Rillstone (from Topeka after picking up
CO₂ @ Matheson).

- Organize equipment & complete PTA.

0910: B. Rillstone onsite. Safety meeting &
PTA/AMA review.

0950: Begin Water Level & TD measurements.

Well ID	WL	TD
MW-01D	45.85	68.39
MW-02S	21.93	34.42
MW-02D	41.24	56.63
MW-03S	20.94	30.47
MW-03D	42.03	57.32
MW-04S	29.49	37.17
MW-04D	49.63	66.57
MW-05D	48.27	64.37
MW-06S	17.67	23.57
MW-06D	26.65	51.51
MW-07S	24.69	35.31

Monday 80447 B. Rillstone
6-27-16 Forbes Atlas S-5 J. Bryant

Well ID	WL	TD
MW-08S	16.43	23.07
MW-09S	19.98	25.51
MW-10S	14.17	24.83
MW-11S	16.77	24.87
MW-12S	18.53	27.09
MW-13S	16.97	19.78

1100: WL & TD measurements complete. Set up
equipment, calibrate YSI for pH, Cond, ORP,
& DO. Calibrate Turbidity meter for turbidity.
- Set up @ MW-02D

* Purchase batteries for YSI in Council Grove before
calibration.

1255: Begin purging MW-02D w/ bladder pump
@ 2 cond. min.

Time	pH	Temp	Cond	ORP	DO	Turb	WL
7:22	7.72	23.28	0.706	165.2	8.04	29.8	41.74
7:12	7.12	22.78	0.655	55.5	2.37	22.7	42.47
6:57	6.57	24.56	0.668	22.2	1.95	22.4	43.46
6:55	6.55	27.29	0.706	-16.7	1.91	22.6	44.30
6:52	6.52	27.88	0.715	-22.1	1.91	22.8	44.89
6:50	6.50	27.89	0.715	-26.2	1.86	18.7	45.36
6:48	6.48	27.80	0.713	-20.0	1.82	16.9	45.75
6:46	6.46	27.93	0.713	-11.1	1.75	16.4	46.23
6:44	6.44	28.10	0.715	-16.6	1.70	16.5	46.62

1345: Collect MW-02D-05 & MW-02D-15 for UIC 8200.

9056 Anions, RSX 175, Alk & Sulfide

Monday
6-27-16
80447
Forbes Atlas 5-5
B. Rillstone
J. Bryant

MW-02D: Fct: 0.10 mg/L, Final WL = 50.39' btoe

- Decon & set up @ MW02S

1425: Begin purging MW-02S w/ bladder pump.

- Details on form. Purge @ 150 mL/min.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.50	28.26	0.779	98.5	12.11	13.7	22.27
0.2	5.63	26.57	0.737	105.0	3.54	7.49	22.25
0.4	5.31	25.21	0.719	114.6	3.31	5.17	22.30
0.6	4.93	25.77	0.723	120.7	2.52	3.82	22.29
0.8	6.20	19.70	0.631	145.7	2.32	3.65	22.34
1.0	6.20	20.40	0.637	152.9	1.93	3.10	22.41
1.2	6.20	21.54	0.643	157.2	1.48	3.07	22.40
1.4	6.20	22.97	0.675	121.0	1.39	3.05	22.39
1.6	6.20	23.43	0.685	112.1	1.32	2.90	22.37
1.8	6.20	23.70	0.690	111.7	1.29	2.94	22.35
2.0	6.20	23.50	0.689	117.4	1.27	2.91	22.31

1525: Collect MW-02S-05 & MW-02S-05 MS/MSD

for VOL 3240, 9056 Anions, RSU 175, & Aik & Sulfide.

Fct: 0.10 mg/L. Final WL: 22.65' btoe

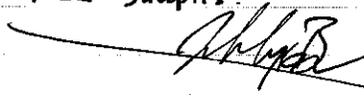
1600: Decon. Wrap up for the day. Complete COL.

1630: Site secured. Depart for Topeka.

- Refresh ice & seal cooler enroute to FedEx.

1750: Ship samples via FedEx - Topeka. Hold

VOLs & MEE samples.


6-27-16

Tuesday
6-28-16
80447
Forbes Atlas 5-5
B. Rillstone
J. Bryant

Weather: Cloudy in AM, clearing later, Rain in PM.

60s-80s, ESE wind 5-10 mph.

Task: Round 5 of groundwater sampling @ Forbes
5-5 site East of Council Grove, KS.

Personnel: J. Bryant - BMD & B. Rillstone - Avatar.

0630: Depart Topeka.

0730: Arrive onsite. Thunderstorm in the area.

- Calibrate YSI & Turbidity meter. Safety
meeting & PTA review.

0815: Storm has passed. Set up @ MW-03S.

0828: Begin purging MW-03S w/ bladder pump @
75 mL/min. Details on form.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.3	16.48	0.409	195.6	6.65	32.7	21.30
0.1	7.0	16.65	0.408	192.1	5.20	29.8	21.26
0.2	7.0	16.68	0.409	185.0	5.07	26.2	21.25
0.3	7.0	16.64	0.408	176.5	4.60	23.6	21.30
0.4	6.9	16.73	0.408	171.4	4.46	20.5	21.28
0.5	6.9	16.85	0.409	165.5	4.36	18.3	21.30
0.6	6.8	17.06	0.410	157.8	4.26	15.9	21.26
0.7	6.8	17.14	0.411	154.0	4.20	14.7	21.28
0.8	6.8	17.21	0.411	151.0	4.13	10.0	21.30
0.9	6.8	17.22	0.411	150.2	4.23	9.8	21.27
1.0	6.8	17.34	0.410	145.2	4.07	9.6	21.28

0930: Collect MW-03S-05 & MW-03S-15 for VOL
3240, 9056 Anions, RSU 175, Aik, & Sulfide.

Tuesday 80447 B. Rillstone
6-28-14 Forbes Atlas 5-5 J. Bryant

- Decon pump.

1000: Collect MW-035-052RB Rinse blank from
disconned pump.

* MW-035 Fe⁺: 0.10 mg/L. Final WL: 21.30' btoe
- Set up @ MW-03D

1015: Begin purging MW-03D w/ bladder pump @
50 mL/min. Details on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.7	19.75	1.033	-32.8	7.27	84.7	42.87
0.18	6.7	18.50	1.073	-58.8	2.36	74.6	43.35
0.36	6.8	19.99	1.118	-82.9	1.52	66.4	43.88
0.43	6.9	20.18	1.124	-89.1	1.41	55.6	44.20
0.50	6.9	20.20	1.120	-94.3	1.25	49.4	44.72
0.57	6.9	19.91	1.108	-101.9	1.13	41.8	45.01
0.64	6.9	19.90	1.105	-102.9	1.08	37.1	45.51
0.71	6.9	20.00	1.098	-106.1	1.01	24.6	46.03
0.78	6.9	20.26	1.094	-109.9	0.95	23.2	46.43
0.85	6.9	20.31	1.088	-112.4	0.97	22.8	46.80

1110: Collect MW-03D-05 for VOC 8260, 9056

Anions, RSU 175, Alk & Sulfide.

Fe⁺: 1.0 mg/L. Final WL: 48.41' btoe

- Decon pump & set up @ MW-01D.

1149: Begin purging MW-01D w/ bladder pump
@ 50 mL/min. Details next page &
sample form.

Tuesday 80447 B. Rillstone
6-28-14 Forbes Atlas 5-5 J. Bryant

MW-01D:

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.8	24.47	1.266	-69.7	6.71	68.0	46.58
.08	6.7	23.80	1.249	-72.4	2.80	56.0	47.16
.15	6.7	23.35	1.251	-68.6	2.13	49.4	47.61
.22	6.7	23.11	1.239	-66.7	1.86	41.6	48.10
.29	6.6	23.08	1.229	-60.0	1.62	35.7	48.61
.36	6.5	23.66	1.232	-71.3	1.48	31.0	48.87
.43	6.5	23.88	1.234	-74.9	1.47	28.5	49.16
.50	6.4	24.27	1.237	-77.0	1.42	25.6	49.72
.57	6.4	24.29	1.233	-75.6	1.30	23.5	50.26
.64	6.4	24.05	1.227	-75.7	1.27	22.9	50.44
.71	6.4	23.79	1.212	-70.1	1.28	22.5	51.00

1255: Collect MW-01D-05 for VOC 8260, 9056
Anions, RSU 175, Alk, & Sulfide.

Fe⁺: 1.2 mg/L. Final WL: 52.56' btoe

- Decon pump & set up @ MW-04D.

1339: Begin purging MW-04D w/ non-dedicated bladder
pump @ 50 mL/min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.6	22.57	1.052	-29.6	7.45	121	50.52
0.07	6.6	21.75	1.027	-22.4	2.63	111	51.27
0.14	6.6	22.29	1.039	-31.2	2.23	100	51.94
0.21	6.6	22.58	1.042	-37.2	1.99	86.9	52.45
0.28	6.6	22.59	1.039	-35.6	1.84	79.7	53.01

Tuesday 80447
6-28-16 Forbes Atlas 5-5

B. Rillstone
J. Bryant

MW-044 continued:

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.35	6.6	22.46	1.036	-36.9	1.69	73.4	53.65
0.42	6.6	22.65	1.033	-34.9	1.61	77.7	54.26
0.49	6.6	22.67	1.035	-36.2	1.60	75.4	54.85

1425: Collect MW-04D-05 for UOC 8260, 9056

Anions, RSU 175, Alk, & Sulfide.

Fe⁺: 0.50 mg/L, Final WL:

- Decon pump & set up @ MW-045.

1456: Begin purging MW-045 w/ bladder pump @ 50 ml/min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.07	7.2	24.06	0.588	-42.7	5.72	178	30.18
0.07	7.0	23.65	0.580	-39.5	3.89	167	30.47
0.14	7.1	23.55	0.576	-39.8	3.27	168	30.73
0.21	7.1	24.08	0.570	-36.2	3.74	126	31.03
0.28	7.1	24.55	0.571	-33.2	3.84	102	31.18
0.35	7.1	24.63	0.571	-29.4	3.89	99	31.29
0.42	7.1	24.82	0.572	-27.6	3.85	98	31.47

1540: Collect MW-04S-05 for UOC 8260, 9056

Anions, RSU 175, Alk, & Sulfide.

Fe⁺: 0.5 mg/L, Final WL: 32.11' btoe

- Decon pump.

- wrap up for the day & complete COC.

Tuesday 80447
6-28-16 Forbes Atlas 5-5

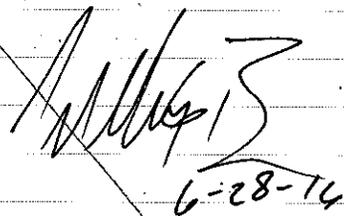
B. Rillstone
J. Bryant

1625: Site secured. Depart for ¹⁵Wichita,

Topeka, KS.

- Refurbish ice & seal cooler enroute to Fed Ex.

1740: Ship samples (1 cooler) to ALS via Fed Ex - Topeka, KS.



6-28-16

10 Wednesday 80447 B. Rillstone
6-29-16 Forbes Atlas S-5 J. Bryant

Weather: PC, 60s-80s,

Task: Round 5 of Groundwater Sampling @
Forbes Atlas S-5 site east of Council Grove, KS.

Personnel: J. Bryant - BMID
B. Rillstone - Avatar

0630: Depart Topeka. Purchase ice enroute.

0730: Onsite. B. Rillstone onsite.

- Daily safety. PTA review. Set up equipment
& prepare to begin sampling.

- Set up @ MW-095.

0835: Begin purging MW-095 w/ bladder pump @
80 mL/min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
J	7.5	21.57	0.550	137.3	6.62	26.0	15.41
.07	7.3	21.56	0.550	127.7	4.92	11.3	15.41
.14	7.3	21.62	0.554	123.2	4.11	9.38	15.47
.22	7.3	20.66	0.544	125.5	3.80	7.41	15.58
.32	7.2	19.82	0.533	135.9	3.24	8.57	15.63
.42	7.2	19.39	0.526	140.7	2.97	7.91	15.71
.52	7.2	19.31	0.525	139.9	2.96	7.84	15.70
.62	7.2	19.39	0.525	136.6	2.96	7.67	15.71
.72	7.2	19.65	0.528	133.1	2.84	7.54	15.71

0925: Collect MW-095-01 for VOC 8260, 9056

Anions, RSU 175, Alk, & Sulfide

- Decon pump & set up @ MW-085.

Wednesday 80447 B. Rillstone
6-29-16 Forbes Atlas S-5 J. Bryant

MW-095: Fe⁺: 0.0 mg/L, Final WL: 15.72' bfac

1006: Begin purging MW-085 w/ bladder pump
@ 90 mL/min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
J	7.3	24.20	0.576	102.0	8.62	34.2	16.77
.1	7.1	22.98	0.558	123.7	3.02	42.8	16.87
.2	7.1	22.80	0.555	121.3	2.45	35.9	16.95
.3	7.1	22.77	0.554	113.6	2.09	27.4	17.01
.4	7.1	21.84	0.542	113.6	2.03	24.2	17.09
.5	7.1	21.74	0.540	114.0	1.87	17.3	17.16
.6	7.1	21.57	0.538	111.5	1.75	14.2	17.25
.7	7.1	21.45	0.536	108.7	1.69	12.6	17.27
.8	7.1	21.51	0.536	107.8	1.69	13.4	17.35

1055: Collect MW-085-01 for VOC 8260, 9056

Anions, RSU 175, Alk, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 17.41' bfac

- Decon & set up @ MW-105.

1131: Begin purging MW-105 w/ bladder pump @
60 mL/min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
J	7.1	22.12	0.564	119.3	15.32	35.6	14.83
0.12	7.0	21.32	0.556	139.0	7.65	37.4	15.25
0.24	7.0	21.83	0.561	135.5	7.09	32.7	15.42
0.32	7.0	22.19	0.569	125.1	6.80	28.2	15.52
0.40	7.0	22.65	0.579	118.5	6.54	22.4	15.71

Wednesday 80447 B. Rillstone
6-29-16 Forbes Atlas 5-5 J. Bryant

MW-105 continued:

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.48	7.0	23.10	0.588	115.0	6.45	19.9	15.85
0.56	7.0	23.50	0.597	112.5	6.21	15.0	15.93
0.64	7.0	23.89	0.605	110.2	6.09	14.7	16.00
0.72	7.0	23.77	0.609	108.9	6.05	14.5	16.09

1220: Collect MW-105-01 for UOC 8260, 9056

Anions, RSU 175, Alk, & sulfide.

Fe⁺: 0.1 mg/L, Final WL: 16.58' b/lac.

- Decon pump & set up @ MW-115.

1311: Begin purging MW-115 w/ bladder pump

@ 50 mL/Min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.9	30.40	0.829	113.8	5.05	61.8	17.39
0.07	6.8	29.71	0.817	114.1	3.39	63.4	17.57
0.14	6.8	29.81	0.804	105.3	2.69	66.8	17.75
0.21	6.8	28.23	0.796	104.7	2.51	54.6	17.87
0.28	6.8	27.61	0.785	107.2	2.36	43.1	17.93
0.35	6.8	27.42	0.784	105.9	2.23	36.7	18.00
0.42	6.8	27.27	0.782	105.0	2.13	34.6	18.18
0.49	6.8	27.48	0.786	102.8	2.05	34.2	18.29

1355: Collect MW-115-01 for UOC 8260, 9056

Anions, RSU 175, Alk, & sulfide.

Fe⁺: 0.1 mg/L, Final WL: 18.39' b/lac

- Decon & set up @ MW-125.

Wednesday 80447 B. Rillstone
6-29-16 Forbes Atlas 5-5 J. Bryant

1450: Begin purging MW-125 w/ bladder pump
@ mL/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.0	27.39	1.044	114.9	7.00	102	18.84
.08	6.9	26.15	1.033	119.1	4.58	94.6	18.92
.16	6.9	26.07	1.034	115.0	3.69	80.2	19.06
.24	6.9	25.85	1.032	111.5	3.36	84.2	19.19
.32	6.9	25.75	1.026	110.7	3.18	84.8	19.27
.40	6.9	25.33	1.013	111.8	3.08	84.2	19.37
.48	6.9	25.39	1.011	111.6	3.01	80.3	19.42

1530: Collect MW-125-01 for UOC, 9056 Anions,
RSU 175, Alk, & sulfide.

Fe⁺: 0.1 mg/L, Final WL:

- Decon pumps wrap up for the day, complete
COC.

*Note: 1445: Kaw Valley Engineering onsite to
survey the 6 new wells.

1615: Kaw Valley off site.

1630: Depart for Topeka, KS. Site Secured.

- Refresh ice & seal cooler enroute to FedEx.

1745: Ship 1 cooler to ALS via FedEx - Topeka.


6-29-16

14 Thursday 80447 B. Rillstone
6-30-16 Forbes Atlas 5-5 J. Bryant

Weather: Cloudy, 60s-80s, NW wind 5-15 mph.

Task: Round 5 of groundwater sampling @
Forbes Atlas 5-5 site east of Council
Groove, KS.

Personnel: J. Bryant - BMD
B. Rillstone - Avatar

0630: Depart Topeka, KS. Purchase ice enroute.

0730: Arrive onsite.

B. Rillstone arrives onsite. Daily safety &
PTA review.

- Set up for the day. Calibrate YSI & turbidity
meter.

- Set up @ MW-135.

0915: Attempted to deploy pump @ MW-135. There
is a bulge deflection in the well casing @ 6' bgs
preventing the pump from fitting down the well.

- Source a smaller diameter pump available for
rent from Field Environmental in Olathe, KS.

- Consult J. Carter - BMIN & Lee Defersia - Avatar
and get approval for the rental. Sampling
Methodology will be the same (non-dedicated bladder
pump / low-Flow).

- Set up @ MW-05D.

0947: Begin purging MW-05D w/ bladder pump
@ 50 mL/min. Details next page & on form.

Thursday 80447 B. Rillstone
6-30-16 Forbes Atlas 5-5 J. Bryant

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.0	23.74	1.324	-53.3	6.94	69.6	49.35
.08	6.9	22.71	1.328	-56.5	3.05	25.3	49.77
.16	6.9	22.44	1.325	-58.4	2.21	22.6	50.27
.24	7.0	23.02	1.344	-60.7	1.90	19.2	50.73
.31	7.0	23.95	1.372	-69.7	1.93	19.3	51.10
.38	7.0	25.94	1.420	-66.8	1.98	19.6	51.35
.45	7.0	26.12	1.439	-67.3	1.93	19.3	51.63
.52	7.0	26.21	1.448	-70.2	1.91	19.4	51.91

1035: Collect MW-05D-05 for UOC 8200,
9056 Anions, ASK 175, ALK, & Sulfide.

Fe⁺: 1.5 mg/L, Final WL: 59.15' bto.

- Decou pump & set up @ MW-075.

* Note: B. Rillstone offsite to pick up rental pump
in Olathe, KS @ 0955.

1112: Begin purging MW-075 w/ bladder pump @
75 mL/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.3	27.02	0.568	84.9	6.31	401	25.37
0.1	7.3	24.43	0.514	90.8	4.58	375	25.41
0.2	7.2	23.53	0.498	93.6	3.93	347	25.41
0.3	7.2	23.11	0.490	93.0	3.50	310	25.46
0.4	7.1	23.34	0.491	87.6	2.46	266	25.46
0.5	7.2	23.46	0.492	80.5	3.13	212	25.47
0.6	7.1	23.26	0.490	79.1	2.82	173	25.47

15 Thursday 80447 B. R. Rillstone
6-30-16 Forbes Atlas S-5 J. Bryant

MW-075 Continued:

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
0.7	7.1	23.30	0.489	78.4	2.72	147	25.47
0.8	7.1	23.34	0.489	76.8	2.51	137	25.47
0.9	7.1	23.29	0.489	76.0	2.45	141	25.47
1.0	7.1	23.24	0.487	76.6	2.37	135	25.47

1215: Collect MW-075-05 for VOC 8260, 9056

Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.3 mg/L, Final WL: 25.50' btoe

- Decon pump & set up @ MW-060.

1252: Begin purging MW-060 w/ bladder pump @ 50 mL/min. Details on sample form & below.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.4	27.97	0.742	-42.0	6.13	92.4	27.30
.07	7.2	26.98	0.750	-56.8	2.97	64.6	27.90
.14	7.2	26.33	0.743	-65.6	2.14	37.1	28.30
.28	7.1	27.16	0.751	-81.2	1.72	34.4	28.84
.28	7.1	27.55	0.758	-82.7	1.63	30.8	29.29
.35	7.1	28.07	0.766	-90.8	1.54	24.1	29.67
.42	7.1	28.25	0.769	-90.5	1.56	21.0	30.06
.49	7.1	28.07	0.765	-85.3	1.60	20.4	30.56
.56	7.1	27.80	0.762	-88.9	1.62	20.0	31.09

1345: Collect MW-060-05 for VOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.60 mg/L, Final WL: 33.26' btoe

Thursday 80447 B. R. Rillstone 37
6-30-16 Forbes Atlas S-5 J. Bryant

- Decon pump & set up @ MW-135.

* Note: B. Rillstone returns w/ 0.85" dia bladder pump @ 1300.

1423: Begin purging MW-135 w/ bladder pump @ 40 mL/min. Details below & on form.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.5	27.23	0.633	99.9	7.81	19.1	11.30
.05	7.3	26.16	0.614	116.5	6.86	17.6	11.34
.10	7.3	25.82	0.603	121.0	6.44	12.3	11.36
.15	7.2	25.54	0.599	119.8	6.29	11.8	11.39
.20	7.2	25.30	0.595	118.1	6.17	10.9	11.42
.25	7.2	25.16	0.593	117.2	6.09	11.1	11.44

1510: Collect MW-135-01 for VOC 8260, 9056

Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.0 mg/L, Final WL: 11.67' btoe

- Decon pump & set up @ MW-060.

* Late Entries: Brian Rillstone collects IDW-W as follows:

1450: Collect IDW-W-MW-085-135A for VOC, pH, & flashpoint.

1510: Collect IDW-W-MW-085-135B for VOC, pH, & flashpoint.

1548: Begin purging MW-060 w/ bladder pump @ mL/min. Details below, & on form.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.1	26.16	0.600	119.8	6.74	70.1	13.47

18 Thursday 80447 B. Rillstone
6-30-16 Forbes Atlas S-5 J. Bryant

1600: Collect **MW-135-01ERS** rinsate blank from
0.85" dia bladder pump for VOC 8260, 9056 Anions,
RSK 175, ALK, & Sulfide

MW-065 (continued):

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
.08	7.0	23.96 26.16	0.576	127.1 119.8	5.24	62.4 70.1	13.58
.16	6.9	23.54 23.96	0.569	128.4 127.1	4.30	50.2 62.4	13.75
.24	6.9	23.81 27.54	0.569	122.8 128.4	4.10	34.2 50.2	13.81
.32	6.9	23.81	0.579	110.2 122.8	3.87	27.6 34.2	13.96
.40	6.9	24.99 24.62	0.585	103.0 110.2	3.75	23.2 27.6	14.02
.48	6.9	25.19 24.99	0.589	100.7	3.61	22.7 25.2	14.04
.56	6.9	25.21	0.589	101.2	3.52	22.4 22.7	14.06

1640: Collect MW-065-05 for VOCs 8260,
9056 Anions, RSK 175, ALK, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 14.40' btoe

- Decon pump & wrap up for the day.

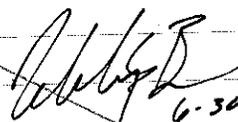
- Complete COL forms.

1710: Depart site for Topeka, KS.

- Seal cooler & refresh ice enroute to

FedEx.

1820: Ship 1 cooler to ALS via FedEx - Topeka.


6-30-16

Friday 7-1-16 80447 B. Rillstone¹⁸
~~6-30-16~~ Forbes Atlas S-5 J. Bryant

Weather: PC, 70s, N wind 5-15 mph.

Task: Complete EDW sampling @ Forbes
Atlas S-5 site.

Personnel: J. Bryant - BMID

B. Rillstone - Aquator

0715: Depart Topeka, KS.

0820: Arrive onsite. Prepare for sampling. Safety
review. PTA review.

- Consolidate 2 MW-115 drums. Now total
of 6 soil drums.

0900: Collect **IDW-5-MW-095** for
VOCs, pH, & Flashpoint

0905: Collect **IDW-5-MW-115** for VOCs, pH,
& Flashpoint

0910: Collect **IDW-5-MW-125** for pH &
Flashpoint.

0915: Collect **IDW-5-MW-085** for VOCs, pH,
& flashpoint.

0920: Collect **IDW-5-MW-135** for pH &
flashpoint. (Saturated-bulk prep)

0930: Collect **IDW-5-MW-105** for VOCs, pH,
& flashpoint. (Saturated, bulk prep)

1000: Wrapped up. Site secured. Depart site:
J. Bryant for Wichita & B. Rillstone for ISC.

1430: Ship cooler to ALS via FedEx - Wichita.


7-1-16

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Tuesday

7-12-16

Forbes S-5

J. Bryant

Weather: Cloudy, 70s-80s, SE wind 5-15 mph.

Task: Slug testing @ new monitoring wells @
Forbes Atlas S-5 site E of Council Grove, IA.

Personnel: J. Bryant (BMRD)

0700: Depart Wichita, KS.

0915: Arrive onsite. Prepare to begin slug
testing.- Set up @ MW-105. WL: 13.07' btoe
TD: 24.83' btoe

- Remove tubing & allow WL to stabilize.

0955: WL stable. Bail well down w/ disposable
bailer & monitor recovery w/ WL indicator.

Details on slug test form.

1000: Test start. Bailed 2.5 gal. Begin WL: 23.31' btoe.

1130: Test End. Final WL: 14.09' btoe (90%)

- Set up @ MW-095. WL: 14.38' btoe
TD: 25.54' btoe

- Remove tubing & allow WL to stabilize.

1135: WL stable. Bail well down w/ disposable
bailer & monitor recovery w/ WL indicator.

- Details on slug test form.

1140: Test start. Bailed 2.5 gal. Begin WL: 23.65' btoe

1200: Test end. Final WL: 14.65' btoe (within 90%)

- Set up @ MW-085. WL: 15.55' btoe

TD: 23.07' btoe

- Remove tubing & allow WL to stabilize.

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Tuesday

7-12-16

Forbes Atlas S-5

J. Bryant

1215: WL ^{MW-085} stable. Bail down well w/ disposable
bailer & monitor recovery w/ WL indicator.

- Details on slug test form.

1220: Test start. Begin WL: 21.25' btoe. Bailed 2.5 gal.

1435: Test end. Final WL: 16.07' btoe (within 90%)

- Set up @ MW-115. WL: 15.19' btoe
TD: 24.89' btoe

- Remove tubing & allow WL to stabilize.

1355: WL stable. Bail down w/ disposable ³⁰ bailer &
monitor recovery w/ WL indicator.

- Details on slug test form.

1400: Test start. Begin WL: 23.74' btoe. Bailed 2.5 gal.

1510: Test end. Final WL: 15.91' btoe (within 90%)

- Set up @ MW-125. WL: 17.79' btoe
TD: 27.09' btoe

- Remove tubing & allow WL to stabilize.

1520: WL stable. Bail down well w/ disposable bailer
& monitor recovery w/ WL indicator.

- Details on slug test form.

1525: Test start. Begin WL: 25.85' btoe. Bailed 2.5 gal.

1705: Test end. Final WL: 18.58' btoe (w/in 90%)

- Set up @ MW-135. WL: 9.94' btoe
TD: 19.78' btoe

- Remove tubing & allow WL to stabilize.

28 Tuesday
7-12-16

Forbes Atlas S-5

J. Bryant

1710: WL stable. Bail down well w/ disposable

bailer & monitor recovery w/ WL indicator

- Details on slug test form.

1715: Test start. Begin WL: 18.20' btoe. Bailed 3.5 gal.

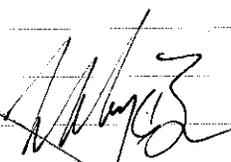
1915: Test End: Final WL: 10.89' btoe (88.5%)

- While finishing slug test @ MW-135, collect
a round of WL measurements @ other wells.

Time	well	wl ('btoe)
1800	MW-105	13.13
1810	MW-095	14.42
1820	MW-085	15.75
1825	MW-115	15.22
1830	MW-125	18.07

1920: Slug testing complete. Secure site &
depart for Wichita, KS.

2130: Arrive in Wichita, KS.


7-12-16

Monday

9-12-16

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: Clear to PC, 60s-80s, S wind 10-15 mph.

Task: Atty G-W sampling (Round 6) @ Forbes

Atlas S-5 site east of Council Grove, KS.

Personnel: J. Bryant - BM'D

A. Geyer - Avatar

0630: Depart Wichita.

0830: Onsite. A. Geyer onsite.

- Complete PTA & PTA review & AHA review.

- Organize equipment & prepare for day.

0900: Begin round of water levels.

Well ID	wl	TD
MW-01A	46.09	68.39
MW-025	22.91	34.42
MW-02D	41.89	58.63
MW-035	20.60	30.47
MW-03D	42.08	57.32
MW-045	29.34	37.17
MW-04D	49.98	66.57
MW-05D	48.57	64.37
MW-065	13.32	23.57
MW-06D	26.91	51.51
MW-075	25.46	35.31
MW-085	13.71	23.07
MW-095	14.69	25.54
MW-105	14.17	24.83
MW-115	18.11	24.87
MW-125	20.54	27.09
MW-135	11.19	19.78

Monday
9-12-16

Forbes Atlas S-5

A. Geyer
J. Bryant

1000: WL measurements complete. Set up & calibrate turbidity meter & YSI for pH, Cond, ORP, & DO.

1045: Set up @ MW-04D.

1059: Begin purging MW-04D @ 50 mL/min w/ non-dedicated bladder pump. Details below & on sample form.

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.88	19.20	1.302	-43.3	2.45	40.2	50.77
0.21	6.75	19.63	1.301	-60.6	1.36	41.0	51.92
0.28	6.92	20.92	1.338	-69.4	1.31	38.3	52.99
0.35	6.92	22.51	1.379	-69.7 -69.4	1.43	36.7	52.61
0.42	6.91	23.49	1.404	-76.2 -69.7	1.50	36.8	52.99
0.49	6.91	23.61	1.418	-77.1	1.42	36.7	53.35
0.56	6.91	23.74	1.428	-74.4	1.42	36.8	53.71

1135: Collect MW-04D-06 for VOC 8260, 9056
Anions, RSK175, Alk, & Sulfide.

Fat: 0.80 mg/L Final WL: 55.81' btoe

- Decon pump & set up @ MW-04S.

1220 - Lunch

1317: Begin purging MW-04S w/ non-dedicated bladder pump @ 50 mL/min. Details on sample form & below.

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.36	24.00	0.814	-97.1	6.56	00R	29.86

Monday

9-12-16

Forbes Atlas S-5

A. Geyer
J. Bryant

MW-04S continued:

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
0.07	7.18	24.64	0.765 0.844	-102.4	0.68	00R	30.19
0.14	7.20	26.88	0.796 0.765	-97.7	0.56	828	30.32
0.21	7.21	27.82	0.812	-95.0	0.63	714	30.46
0.28	7.21	28.03	0.815	-95.1	0.55	937	30.61
0.35	7.22	28.42	0.820	-93.5	0.57	00R	30.72
0.42	7.21	28.40	0.820	-89.8	0.62	00R	30.81

1400: Collect MW-04S-06 for VOC 8260, 9056
Anions, RSK175, Alk, & Sulfide.

Fat: 0.00 mg/L Final WL: 31.57' btoe

- Decon pump & set up @ MW-05D.

1444: Begin purging MW-05D w/ non-dedicated bladder pump @ 50 mL/min. Details on sample form & below.

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.19	24.32	2.003	-120.5	1.90	40.9	49.74
.09	7.14	24.53	1.995	-117.6	1.07	27.3	50.30
.18	7.15	25.31	2.031	-112.6 -112.6	1.19	24.8	50.66
.25	7.14	26.28	2.050	-110.0	1.06	24.9	50.89
.32	7.10	26.54	2.045	-102.2	1.12	22.6	51.30
.39	7.10	26.69	2.089	-104.1	1.08	23.4	51.57

1525: Collect MW-05D-06 for VOC 8260, 9056
Anions, RSK175, Alk & Sulfide

Fat: 0.70 mg/L Final WL: 53.77' btoe

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Monday

9-12-16

Forbes Atlas S-5

A. Geyer

J. Bryant

- Decon pump, pack up for the day, complete
 COC, & prep sampler for shipping.

1615: Site secured. Depart for Topeka, KS.

Re-ice samples & seal cooler enroute to
 FedEx.

1745: Ship 1 cooler to ALS-Houston via FedEx
 - Topeka.

[Signature]
 9-12-16

Tuesday

9-12-16

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: Cloudy, 70s-80s, calm

Task: Qtrly GW sampling (Round 6) @ Forbes

Atlas S-5 site east of Council Grove, KS.

Personnel: J. Bryant - BMD

A. Geyer - Avatar

0630: Depart Topeka, KS. Fuel & ice enroute.

0740: Arrive onsite. A. Geyer onsite.

- Daily safety & PTA review.

- Set up equipment & calibrate YSE &
 turbidity meter.

- Set up @ MW-010.

0830: Begin purging MW-010 @ 50 mL/min. Details
 on sample form & below.

Am't	pH	Temp	Cond	ORP	DO	Turb	ML
I	6.79	17.72	1.227	-67.3	21.04	199	46.55
0.07	6.71	17.47	1.273	-67.2	3.24	244	46.96
0.14	6.74	17.39	1.241	-74.5	1.87	236	47.42
0.21	6.68	17.36	1.270	-76.1	1.53	178	47.98
0.28	6.66	17.42	1.248	-76.3	1.43	190	48.32
0.35	6.60	17.50	1.242	-76.6	1.32	164	48.63
0.42	6.55	17.65	1.269	-77.2	1.21	139	49.08
0.49	6.52	17.83	1.301	-76.5	1.15	120	49.46
0.56	6.50	17.92	1.276	-81.2	1.11	95.7	49.91
0.63	6.48	17.92	1.270	-85.3	1.08	89.5	50.31
0.70	6.47	17.88	1.248	-81.3	1.09	87.4	50.74

28 Tuesday

9-13-16

Forbes Atlas 5-5

A. Geyer

J. Bryant

0930: Collect MW-010-0C for VOC 8260, 9056

Anions, RSK 175, Alk, & Sulfide.

- Decon pump & set up @ MW-095.

MW-010 Fe⁺: 1.40 mg/L, Final WL: 52.33' btoe1000: Begin purging MW-095 @ 60 mL/min.

Details on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.26	18.23	0.717	-19.1	30.96	29.1	14.01
0.08	7.16	18.04	0.670	-16.7	2.62	24.9	14.06
0.16	7.14	18.23	0.659	-11.1	2.13	18.2	14.01
0.24	7.11	18.40	0.654	-8.0	1.91	15.8	14.01
0.32	7.09	18.46	0.661	-4.7	1.84	15.1	14.01
0.40	7.08	18.48	0.654	-2.2	1.78	14.4	14.01
0.48	7.07	18.46	0.654	-0.4	1.75	14.0	14.01

1040: Collect MW-095-02 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.Fe⁺: 0.0 mg/L Final WL: 14.01' btoe

- Decon pump & set up @ MW-105.

1111: Begin purging MW-105 @ 60 mL/min. Details on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.03	18.54	0.662	24.7	4.47	53.1	14.57
0.08	6.96	18.21	0.660	27.1	2.76	41.7	14.81
0.16	6.93	18.34	0.660	27.3	2.44	39.6	15.0
0.24	6.24	18.54	0.667	24.9	2.26	34.6	15.13

Tuesday

9-13-16

Forbes Atlas 5-5

A. Geyer²⁹

J. Bryant

MW-105 Continued:

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.32	6.96	18.81	0.669	22.5	2.12	29.4	15.21
0.40	6.96	19.07	0.675	19.3	1.91	20.9	15.29
0.48	6.97	19.32	0.679	17.5	1.87	17.4	15.29
0.56	6.98	19.63	0.690	15.5	1.78	15.2	15.31
0.64	6.99	20.14	0.697	12.9	1.79	14.9	15.37
0.72	7.00	20.04	0.700	12.0	1.86	14.5	15.39

1205: Collect MW-105-02 for VOC 8260, 9056

Anions, RSK 175, Alk, & Sulfide.

~~Decon pump~~Fe⁺: 0.10 mg/L, Final WL: 15.63' btoe

- Decon pump.

1230: Collect MW-105-02ERB from bladder pump for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

- Set up @ MW-02D.

1303: Begin purging MW-02D @ 60 mL/min. Details below & on sample form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.54	24.67	0.805	-33.3	26.92	17.3	42.48
0.08	7.39	22.73	0.758	-28.8	2.83	11.0	42.96
0.16	7.37	23.17	0.772	-28.7	2.27	4.91	43.31
0.24	7.37	23.54	0.779	-20.5	2.18	4.45	43.64
0.32	7.37	23.74	0.785	-29.8	2.06	2.52	44.05

30 Tuesday

9-13-16

Forbes Atlas S-5

A. Geyer

J. Bryant

MW-020 (continued)

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
0.40	7.76	23.77	0.787	-28.4	1.92	2.68	44.32
0.48	7.37	24.25	0.778	-29.5	1.83	2.60	44.62
0.56	7.38	24.06	0.788	-30.4	1.85	2.65	45.10

1345: Collect MW-020-04 & MW-020-16 for

VOC 8260, 9056 Anions, RSK 175, AIX, & Sulfide.

Fc+: 0.0 mg/L ; Final WL: 48.51' btoe

- Decan pump & set up @ MW-085.

1402: Begin purging MW-085 @ 75 mL/min. Details

on sample form & below.

Ampt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.34	20.91	0.396	-8.3	28.01	26.4	12.36
0.1	7.09	19.84	0.375	3.8	1.87	31.9	12.54
0.2	7.01	19.62	0.362	8.9	1.47	39.9	12.62
0.3	7.03	19.55	0.358	7.9	1.24	43.7	12.70
0.4	7.05	19.43	0.349	6.1	1.14	42.8	12.70
0.5	7.05	19.38	0.348	7.0	1.05	37.5	12.75
0.6	7.04	19.38	0.351	6.9	1.01	37.6	12.77
0.7	7.07	19.29	0.349	6.9	1.00	38.2	12.79

1515: Collect MW-085-02 & MW-085-02ms/msa

for VOC 8260, 9056 Anions, RSK 175, AIX, & Sulfide.

Fc+: 0.0 mg/L ; Final WL: 12.86' btoe.

- Decan, complete COL, prep samples for shipping, & wrap up for the day.

Tuesday

9-13-16

Forbes Atlas S-5

A. Geyer

J. Bryant

1615: Site secured. Depart site. Re-ice

samples & seal cooler enroute to FedEx.

1745: Ship 1 cooler to ALS-Houston via

Fed Ex - Topeka, KS.

9-13-16

32 Wednesday

9-14-16

Forbes Atlas S-5

A. Geyer

J. Bryant

Weather: Cloudy, 60s-80s, S wind 5-10 mph.

Task: Atrly GW sampling (Round 1) @ Former Forbes Atlas S-5 site east of Council Grove, Mo.

Personnel: J. Bryant - BMD

A. Geyer - Avatar

0630: Depart Topeka

0740: onsite.

- Daily safety & P&A review

- Set up equipment & calibrate YSI &

Turbidity meter.

- Set up @ MW-30.

0825: Begin purging MW-030 @ 50 mL/min. Details on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.72	16.48	0.703	-39.7	7.31	22.6	42.61
0.07	6.50	16.33	0.737	-33.0	2.52	22.7	43.04
0.14	6.48	16.50	0.744	-29.9	2.15	23.6	43.35
0.21	6.39	16.77	0.793	-28.5	1.89	22.3	43.72
0.28	6.31	16.84	0.794	-27.9	1.79	21.0	44.06
0.35	6.24	16.91	0.798	-27.6	1.68	18.4	44.49
0.42	6.19	16.94	0.763	-22.4	1.61	18.9	44.76
0.49	6.14	16.99	0.758	-20.1	1.59	15.4	45.14
0.56	6.10	16.98	0.758	-17.0	1.86	12.7	45.45
0.63	6.06	16.97	0.748	-12.7	1.82	11.3	45.91
0.70	6.03	16.96	0.731	-9.9	1.79	10.7	46.19
0.77	6.01	16.90	0.724	-6.1	1.75	10.4	46.51

Wednesday

9-14-16

Forbes Atlas S-5

A. Geyer 33

J. Bryant

0930: Collect MW-030-06 for VOC 8260.

9056 Anions, RSK 175, AIK, & Sulfide.

Fe⁺: 0.60 mg/L, Final WL: 48.80' btoe

- Decon pump & set up @ MW-035.

1000: Begin purging MW-035 @ 75 mL/min. Details on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.97	17.67	0.479	-15.8	4.03	47.3	19.57
0.1	6.95	17.69	0.438	-4.0	3.03	42.4	19.55
0.2	6.80	17.54	0.415	5.8	2.74	31.6	19.69
0.3	6.61	17.06	0.403	15.3	2.47	24.1	19.71
0.4	6.43	16.77	0.396	25.9	2.22	15.1	19.75
0.5	6.30	16.76	0.380	36.2	2.10	11.6	19.75
0.6	6.35	17.17	0.396	34.3	2.06	9.21	19.75
0.7	6.32	17.51	0.400	37.7	2.01	8.44	19.75
0.8	6.31	17.76	0.409	40.3	1.99	8.21	19.74
0.9	6.31	18.00	0.411	41.6	1.94	8.07	19.74

1055: Collect MW-035-06 & MW-035-1C

for VOC 8260, 9056 Anions, RSK 175, AIK, & Sulfide.

Fe⁺: 0.0 mg/L, Final WL: 19.76' btoe

- Decon pump & set up @ MW-125.

1155: Begin purging MW-125 @ 60 mL/min. Details on sample form & below/next page.

34 Wednesday

9-14-16 Forbes Atlas 5-5

A. Geyer

J. Bryant

MW-125 Details.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.02	21.16	0.960	60.1	3.20	216	20.76
.08	6.98	21.13	1.182	56.3	2.18	202	20.86
.16	6.99	21.68	1.107	50.4	1.78	174	20.97
.24	7.00	21.90	1.211	46.4	1.70	178	21.04
.32	6.99	21.89	1.216	44.2	1.63	154	21.15
.40	6.98	21.60	1.225	42.3	1.62	151	21.24
.48	6.98	21.55	1.200	39.8 47.0	1.64	147	21.29

1215: Collect MW-125-02 for UOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

Fe²⁺: 0.10 mg/L, Final WL: 21.75' btoe

- Dicon pump & set up @ MW-075.

1305: Begin purging MW-075 @ 75 mL/min. Details on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.18	22.50	0.592	-10.0	6.67	106	24.64
0.1	7.10	21.46	0.524	-5.0	1.79	83.1	24.62
0.2	7.08	22.02	0.524	-2.8	1.58	77.2	24.59
0.3	7.07	22.36	0.521	0.9	1.41	55.7	24.59
0.4	7.06	22.34	0.515	2.2	1.33	46.7	24.59
0.5	7.06	22.30	0.510	1.5	1.27	38.9	24.56
0.6	7.04	22.28	0.504	1.0	1.21	32.7	24.54
0.7	7.05	22.67	0.513	0.8	1.22	28.4	24.55
0.8	7.06	22.87	0.514	0.6	1.17	26.8	24.55
0.9	7.06	22.91	0.511	1.3	1.19	26.5	24.55

Wednesday

9-14-16

Forbes Atlas 5-5

A. Geyer

J. Bryant

1400: Collect MW-075-06 for UOC 8260.

9056 Anions, RSK 175, Alk, & Sulfide.

Fe²⁺: 0.20 mg/L, Final WL: 24.68' btoe

- Dicon pump & set up @ MW-060.

1435: Begin pumping MW-060 @ 50 mL/min.

Details on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.31	23.52	0.944	-70.0 -60.0	3.60	24.4	27.16
0.07	7.24	21.91	0.921	-94.3 -84.1	1.91	14.8	27.69
0.14	7.21	22.59	0.932	-94.9 -84.0	1.46	11.6	28.06
0.21	7.21	23.36	0.952	-95.5	1.29	7.69	28.45
0.28	7.19	23.62	0.957	-94.9	1.24	8.14	28.81
0.35	7.17	23.51	0.956	-88.3	1.21	7.86	29.20

1510: Collect MW-060-06 for UOC 8260,

9056 Anions, RSK 175, Alk, & Sulfide.

Fe²⁺: 0.50 mg/L, Final WL: 31.09' btoe

- Dicon, complete COC, prep samples for shipping, & wrap up for the day.

1540: Site secured. Depart site. Re-ice

samples & seal cooler enroute to Fed-

Ex - Topeka, KS.

1655: Ship 1 cooler to ALS-Houston via

FedEx - Topeka.



9-14-16

36 Thursday

A. Geyer

9-15-16

Forbes Atlas S-5

J. Bryant

Weather: PC to Clear, 60s-80s, S wind 5-10 mph.

Task: Qrtly GW sampling (Round 6) @

Forbes Atlas S-5 site east of Council Grove.

Personnel: J. Bryant - BMD

A. Geyer - Avatar

0630: Depart site Tapera. Fuel & ice enroute.

0740: Arrive onsite. A. Geyer onsite.

- Daily Safety & PTA review.

- Set up for the day & calibrate YSE & Turbidity meter.

- Set up @ MW-06S.

0800: Bill w/ Greenfield onsite to pick up Soil & Water EDW drums. Safety briefing/PTA review.

- Bill loads 6 soil & 3 water EDW drums for transport to landfill.

0830: Greenfield offsite w/ drums.

0839: Begin pumping MW-06S @ 60 mL/min. Details on sample form & below.

Ant	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.07	19.10	0.703	-7.5	4.27	18.5	10.24
0.08	6.97	19.01	0.695	4.6	3.21	16.7	10.31
0.16	6.93	19.17	0.694	11.1	2.97	15.2	10.39
0.24	6.90	19.24	0.695	15.0	2.75	13.2	10.47
0.32	6.86	19.40	0.696	21.4	2.54	11.5	10.56

Thursday

A. Geyer

9-15-16

Forbes Atlas S-5

J. Bryant

MW-06S Continued:

Ant	pH	Temp	Cond	ORP	DO	Turb	WL
0.40	6.83	19.48	0.697	24.5	2.48	11.5	10.58
0.48	6.81	19.55	0.697	28.2	2.46	10.7	10.61

0920: Collect MW-06S-06 for VOC 8260, 9056

Anions, RSK 175, Aik, & Sulfide.

Fe: 0.10 mg/L, Final WL: 10.98' b/c

- Decon pump & set up @ MW-13S.

0957: Begin purging MW-13S w/ 0.85" dia bladder pump @ 60 mL/min. Details on sample form & below.

Ant	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.50	21.46	0.390	24.0	40.04	64.1	10.62
0.08	7.43	21.27	0.380	24.8	2.94	67.9	10.66
0.16	7.41	21.36	0.378	24.9	2.32	63.5	10.72
0.24	7.41	21.55	0.376	26.1	2.07	54.4	10.81
0.32	7.41	21.75	0.376	26.4	2.05	47.0	10.87
0.40	7.41	21.86	0.375	26.6	2.00	38.1	10.91
0.48	7.41	22.05	0.374	25.9	1.95	36.4	10.99
0.56	7.41	22.30	0.375	25.6	1.94	35.3	11.00

1045: Collect MW-13S-02 for VOC 8260, 9056Anions, RSK 175, Aik, & Sulfide. Fe: 0.0 mg/L
Final WL: 11.18' b/c

- Decon pump.

1115: Collect MW-13S-02ERB for VOC 8260, 9056

Anions, RSK 175, Aik, & Sulfide.

Thursday
9-15-16 Forbes Atlas S-5 A. Geyer
J. Bryant

- Set up @ MW-115.

1133: Begin purging MW-115 @ 50 ml/min.

Details below & on sample form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.02	23.51	0.929	350	4.11	43.7	16.50
0.07	6.91	22.72	0.945	39.4	2.64	52.8	16.63
0.14	6.90	22.30	0.953	38.2	2.06	58.7	16.79
0.21	6.90	22.24	0.957	35.9	1.74	45.8	16.94
0.28	6.90	22.64	0.969	33.5	1.58	37.9	17.02
0.35	6.91	23.15	0.986	32.0	1.49	31.1	17.06
0.42	6.91	23.91	1.007	29.7	1.42	26.4	17.11
0.49	6.91	24.08	1.032	27.9	1.38	24.8	17.18
0.56	6.90	24.21	1.039	27.7	1.38	24.5	17.21

1225: Collect MW-115-02 for VOC 8260,
9056 Anions, RSA 175, Alk, & Sulfide.

Fe⁺: 0.10 mg/L, Final WL: 17.62' btoe

* Note: Greenfield returns to pick up said
shur @ 1210. Greenfield departs site @
1225.

- Decon & set up @ MW-025.

1320: Begin purging MW-025 @ 250 ml/min. Details
on sample form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.90	20.95	0.839	-17.0	61.79	26.5	22.26
0.33	6.36	18.60	0.765	6.6	1.21	10.1	22.30

Thursday
9-15-16 Forbes Atlas S-5 A. Geyer
J. Bryant

MW-025 Continued:

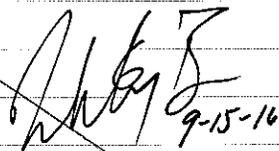
Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.66	6.16	17.95	0.728	22.7	0.90	2.74	22.40
0.99	6.06	17.62	0.712	36.5	0.93	2.04	22.40
1.32	6.03	18.08	0.715	40.3	0.67	1.56	22.40
1.65	5.99	18.19	0.711	48.2	0.55	1.66	22.40
1.98	5.94	17.99	0.699	55.2	0.55	1.50	22.40
2.31	5.94	17.87	0.693	56.9	0.55	1.55	22.40

1400: Collect MW-025-06 for VOC 8260,
9056 Anions, RSA 175, Alk, & Sulfide.

Fe⁺: 0.10 mg/L, Final WL: 22.05' btoe
- Decon, pack & load equipment, complete
COC, & prep samples for shipping.

1445: Depart site for Wichita, KS. Site recovered.
Re-ice samples & seal cooler enroute.

1730: Ship 1 cooler to ALS-Houston &
rental YSI & small dia bladder pump to
Field Environmental-KC via FedEx-Wichita.


9-15-16

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Monday

12-12-16

80447
Forbes Atlas S-5

B. Rillstone

J. Bryant

Weather: PL, 20's-40's,

Task: Atoly GW sampling (Round 7) @ Forbes
Atlas S-5 site E of Council Grove, KS.

Personnel: J. Bryant - BMID

B. Rillstone - Avatar

0645: Depart Wichita, KS.

0845: Arrive onsite. B. Rillstone w/ Avatar
onsite.- Safety ~~10:00~~ meeting. Set up for the day.- Collect round of water level & TD
measurements.

Well	WL	TD	Misc
MW-01D	45.95	68.39	-
MW-02S	24.60	34.42	-
MW-02D	41.28	58.63	-
MW-03S	22.31	30.47	-
MW-03D	41.71	57.32	-
MW-04S	31.29	37.17	-
MW-04D	49.98	66.57	-
MW-05D	48.40	64.37	-
MW-06S	16.45	23.57	-
MW-06D	27.05	51.51	-
MW-07S	27.50	35.31	-
MW-08S	13.55	23.07	-
MW-09S	16.13	25.54	-

Monday

12-12-16

80447
Forbes Atlas S-5

B. Rillstone

J. Bryant

Well

WL

TD

Misc

MW-10S	16.55	24.83	-
MW-11S	19.35	24.87	-
MW-12S	20.75	27.09	-
MW-13S	13.93	19.78	-

1015: WL measurements complete. Set up for
pumping & sampling. Calibrate YSE for pH,
Cond, ORP, & DO and turbidity meter.

1100: Set up @ MW-04D w/ low flow.

1110: Begin pumping @ 50 mL/min.

Time	Am't	pH	Temp	Cond	ORP	DO	WL
1119	I	7.57	6.97	1.340	-14.5	4.68	50.73
1124	0.07	8.28	5.93	1.313	-62.1	2.00	51.44
1129	0.14	8.61	5.42	1.270	-92.3	1.60	52.21
1134	0.21	8.68	5.62	1.273	-105.9	1.30	52.89
1139	0.28	8.67	6.01	1.281	-112.4	1.13	53.85
1144	0.35	8.60	6.05	1.293	-100.2	1.17	54.71
1149	0.42	8.62	6.21	1.338	-106.1	1.10	55.66

1150: Collect MW-04D-07 for DOC, Sulfide, 9056

Anions, RSK 175, Alk, & Sulfide.

Ft: 0.50 mg/L, Final WL: 57.94' bLoc

- Decon pump & set up @ MW-04S.

1222: Begin pumping MW-04S @ 50 mL/min.

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80447

B. Rillstone

12-12-16

Forbes Atlas 5-5

J. Bryant

MW-045

Time	Ampt	pH	Temp	Cond	ORP	DO	WL
1228	I	8.59	3.59	0.743	-67.7	1.19	31.59
1233	0.07	8.65	5.10	0.682	-72.3	2.85	31.99
1238	0.14	8.62	5.84	0.656	-72.3	2.21	32.29
1243	0.21	8.58	6.33	0.641	-69.7	1.07	32.43
1248	0.28	8.55	6.02	0.628	-64.0	1.84	32.52
1253	0.35	8.54	5.98	0.618	-59.9	1.84	32.81

1255: Collect MW-045-07 for VOC, 9056 Anions,
RSL 175, Alk, & Sulfide.

- Decon pump & set up @ MW-05D.

Fe⁺: 0.30 mg/L, Final WL: 32.94' btoe

1426: Begin pumping MW-05D @ 50 mL/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
1435	I	8.49	5.37	1.720	-92.6	10.43	48.84	267
1440	0.07	8.59	6.20	2.064	-81.5	3.30	49.41	462
1445	0.14	8.66	6.96	2.248	-88.5	1.65	50.09	208
1450	0.21	8.70	7.10	2.284	-96.4	1.44	50.56	111
1455	0.28	8.74	7.25	2.315	-102.5	1.28	51.08	67.5
1500	0.35	8.76	7.24	2.317	-106.9	1.20	51.97	46.1
1505	0.42	8.75	7.22	2.302	-105.4	1.16	52.07	23.9
1510	0.49	8.74	7.14	2.260	-104.0	1.10	52.67	20.5
1515	0.54	8.70	7.08	2.203	-100.1	1.12	53.12	19.4
1520	0.63	8.68	6.86	2.107	-94.2	1.11	53.00	19.0

1520: Collect MW-05D-07 for VOC, 9056 Anions,
RSL 175, Alk, & Sulfide.

Fe⁺: 0.30 mg/L, Final WL: 55.86' btoe

Monday

80447

B. Rillstone 43

12-12-16

Forbes Atlas 5-5

J. Bryant

1555: Collect MW-05D-07-ERB equipment

rinsate from decon pump for wci 9056

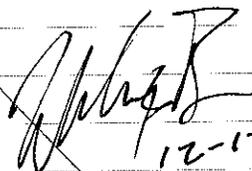
Anions, RSL 175, Alk, & Sulfide.

- Wrap up for the day, stow equipment, place
IDW in drum, complete COL, & secure site.

1630: Depart site for Topeka, KS

- Purchase ice & seal cooler enroute.

1800: Ship 1 cooler to ALS-Houston via
FedEx-Topeka.



12-12-16

44 Tuesday 80447 B. Rillstone
12-13-16 Forbes Atlas 5-5 J. Bryant

Weather: 16, 13-20s, S wind 15-20 mph.

Task: Atrly GW sampling @ Forbes 5-5 site.

Personnel: J. Bryant - BM'D

B. Rillstone - Avatar.

0715: Depart Topeka, KS.

0800: Arrive onsite, B. Rillstone onsite.

- Daily safety. Set up for day.
- Calibrate YSI & Turbidity meters.
- Set up @ MW-01A.

0855: Begin pumping MW-01D @ 50 mL/min.

Time	Am't	pH	Temp	Cond	ORP	DO	WL	Turb
1053	I	7.79	9.13	0.804	-22.3	10.50	46.42	81.4
1058	0.07	7.97	10.15	1.685	-37.5	5.07	46.86	52.9
1103	0.14	8.08	10.79	1.762	-47.4	3.74	47.17	55.4
1108	0.21	8.15	10.92	1.804	-54.0	2.51	47.45	41.8
1113	0.28	8.19	10.83	1.810	-57.7	2.14	47.78	33.5
1118	0.35	8.20	10.74	1.815	-54.2	1.73	48.09	32.2
1123	0.42	8.21	10.65	1.814	-56.2	1.58	48.45	31.4
1128	0.49	8.23	10.47	1.813	-57.3	1.37	48.83	31.7
1133	0.56	8.26	10.38	1.807	-61.4	1.27	49.01	30.8
1138	0.63	8.25	10.61	1.815	-60.8	1.28	49.34	31.2

1140: Collect MW-01D-07 for Vol, 9056 Anions, RSK
175, Alk, & sulfide.
Fi: 0.30 mg/L, Final WL: 50.90' btoe

Tuesday 80447 B. Rillstone
12-13-16 Forbes Atlas 5-5 J. Bryant

0945: Problems w/ tubing freezing. Had to pull pump & thaw. Also, Backpack controller not turning on. Possibly needs new batteries. Move to Council Grove for batteries.

1030: Arrive back onsite.

1050: Resume pumping. Tubing insulated from well head to truck. YSI & flow thru set up in truck.

1205: Set up @ MW-09S after decon.

1230: Begin pumping MW-09S @ 60 mL/min.

Time	Am't	pH	Temp	Cond	ORP	DO	WL	Turb
1243	I	8.37	8.99	0.699	-47.4	10.77	16.53	19.4
1248	0.08	8.30	10.10	0.780	-33.3	2.83	16.59	13.7
1253	0.14	8.19	10.58	0.779	-22.8	2.32	16.60	17.4
1258	0.24	8.12	10.37	0.771	-12.9	1.62	16.60	16.5
1303	0.32	8.10	10.29	0.766	-10.9	1.51	16.60	13.9
1308	0.40	8.08	10.08	0.760	-6.4	1.39	16.60	13.4
1313	0.48	8.06	10.02	0.758	-3.4	1.41	16.60	13.2

1315: Collect MW-09S-03 for Vol, 9056 Anions,
RSK: 175, Alk, & sulfide.

Fi: 0.10 mg/L, Final WL: 16.60' btoe
- Decon & set up @ MW-10S.

Tuesday
12-13-1680447
Forbes Atlas 5-5B. R. Illstone
J. Bryant

1355: Begin pumping MW-105 @ 60 mL/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
1400	I	8.19	8.19	0.629	-24.3	8.27	16.69	37.4
1405	1.08	7.99	8.65	0.725	-3.0	2.80	17.25	29.7
1410	0.14	7.90	8.61	0.733	8.5	1.91	17.48	29.2
1415	0.24	7.85	8.77	0.738	11.2	1.63	17.82	28.5
1420	0.32	7.83	8.93	0.742	11.6	1.38	17.91	22.1
1425	0.40	7.82	9.18	0.749	11.5	1.34	18.13	21.7
1430	0.48	7.82	9.24	0.752	13.1	1.34	18.33	20.6

1430: Collect MW-105-03 for UOC, 9056 Anions,
RSM 175, Alk, & Sulfide.Fe²⁺: 0.0 mg/L, Final WL: 18.80' btoe

- Decon & set up @ MW-020.

1509: Begin pumping MW-020 @ 60 mL/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
1515	I	8.19	6.54	0.754	-20.0	9.76	41.64	23.4
1520	0.08	8.01	6.82	0.768	-11.2	2.06	42.10	10.0
1525	0.16	7.74	6.62	0.767	-16.1	1.84	42.92	5.60
1530	0.24	7.44	6.28	0.762	17.0	1.59	43.51	5.25
1535	0.32	7.26	6.08	0.760	31.5	1.43	44.05	4.44
1540	0.40	7.15	6.03	0.759	34.0	1.34	44.47	4.34
1545	0.48	7.08	5.92	0.758	44.4	1.30	44.86	4.51
1550	0.56	7.06	5.90	0.757	46.2	1.24	45.56	4.46

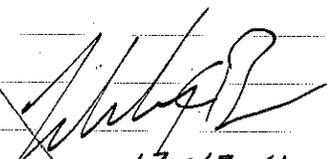
1550: Collect MW-020-07 & MW-020-17 for

UOC, 9056 Anions, RSM 175, Alk, & Sulfide.

Fe: 0.0 mg/L, Final WL: 48.26' btoe

Tuesday
12-13-1680447
Forbes Atlas 5-5B. R. Illstone
J. Bryant- Wrap up for the day, decon pump, show
equipment, place EDW in drum, complete
COC & secure site.

1645: Depart site.

- Refreshers & seal cooler enroute to
FedEx.1800: Ship 1 cooler to ALS-Houston via
FedEx-Topoka.


12-13-16

Wednesday 80447 D. Rillstone
12-14-14 Forbes Atlas S-5 J. Bryant

Weather: PC to Clear, 13-30s, N wind 5-10 mph
TOSU: Atrly groundwater sampling @ Forbes S-5
Site.

Personnel: J. Bryant - BOLD
B. Rillstone - Avatar

0630: Depart Topexa.

0730: Arrive onsite. B. Rillstone arrives.

- Daily safety. Set up for the day.
- Calibrate YSE & turbidity meters.
- Set up @ MW-085.

0855: Begin pumping MW-085 @ 75 mL/min.

Time	Ampl	pH	Temp	Cond	ORP	DO	WL	Turb
0903	I	6.79	11.32	0.784	40.2	4.05	14.21	84.6
0908	0.1	6.69	11.98	0.813	50.3	2.52	14.26	59.2
0913	0.2	6.63	11.57	0.812	52.6	2.12	14.31	57.6
0918	0.3	6.62	11.38	0.813	54.3	1.99	14.33	55.5
0923	0.4	6.61	11.23	0.815	54.4	1.90	14.38	49.7
0928	0.5	6.61	11.29	0.821	54.3	1.87	14.46	47.6
0933	0.6	6.61	11.31	0.816	54.1	1.82	14.50	44.8

0935: Collect MW-085-03 & MW-085-03-MS(MSA) for
VOC, 9056 Anions, ASK 175, Alk, & Sulfide. Fe⁺: 0.30 mg/L
Final WL: 15.13' btoe

- Bacon pump & set up @ MW-030.

1032: Begin pumping MW-030 @ 50 mL/min.

Wednesday 80447 B. Rillstone⁴⁹
12-14-14 Forbes Atlas S-5 J. Bryant

MW-030

Time	Ampl	pH	Temp	Cond	ORP	DO	WL	Turb
1037	I	7.81	7.85	0.938	-44.6	10.66	42.16	32.9
1042	0.07	7.79	10.51	1.667	-46.6	2.17	42.76	28.1
1047	0.14	7.58	10.74	1.722	-34.3	1.89	43.08	24.0
1052	0.21	7.43	10.65	1.730	-25.2	1.70	43.47	21.1
1057	0.28	7.32	10.42	1.724	-19.4	1.62	43.93	17.7
1102	0.35	7.23	9.92	1.702	-12.7	1.69	44.22	15.1
1107	0.42	7.18	9.83	1.693	-7.8	1.58	44.54	14.3
1112	0.49	7.13	9.72	1.684	-4.9	1.57	44.89	14.1

1115: Collect MW-030-07 for VOC, 9056 Anions, ASK 175,
Alk, & Sulfide.

Fe⁺: 0.30 mg/L, Final WL: 46.63' btoe

- Bacon pump & set up @ MW-030.

- During retrieval, the bladder pump separated
from purge tubing & remains downhole. Attempt
to retrieve pump w/ wire, then treble hooks
purchased in Council Grove.

1250: Pump retrieved - Set up @ MW-085.

1305: Begin pumping MW-030 @ 75 mL/min.

Time	Ampl	pH	Temp	Cond	ORP	DO	WL	Turb
1314	I	8.15	6.18	0.360	-25.5	11.59	22.67	24.3
1319	0.1	7.96	8.33	0.668	-3.8	2.65	22.74	21.8
1324	0.2	7.85	9.56	0.663	8.1	1.71	22.81	18.7
1329	0.3	7.77	10.03	0.659	17.2	1.64	22.81	14.7
1334	0.4	7.71	10.40	0.660	23.9	1.59	22.81	13.9
1339	0.5	7.70	10.43	0.664	26.5	1.54	22.81	14.1

Wednesday
12-14-1680447
Forbes Atlas S-5B. R. P. Stone
J. Bryant1340: Collect MW-035-07 for VOC, 9056 Anions,
RSU 175, Alk, & Sulfide.Fe²⁺: 0.0 mg/L, Final WL: 22.81' btoe

- Deion pump & set up @ MW-125.

1405: Begin pumping MW-125 @ 60 ml/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
1408	I	7.71	7.76	0.486	30.5	11.26	21.07	184
1413	0.08	7.55	9.93	1.125	30.1	2.63	21.26	182
1418	0.16	7.42	10.75	1.262	45.2	2.32	21.38	178
1423	0.24	7.31	10.94	1.318	51.4	2.38	21.52	169
1428	0.32	7.22	10.88	1.351	57.6	2.38	21.58	174
1433	0.40	7.14	10.81	1.357	61.5	2.40	21.63	171
1438	0.48	7.14	10.89	1.367	61.7	2.41	21.70	168

1440: Collect MW-075-03 for VOC, 9056 Anions,
RSU 175, Alk, & Sulfide.Fe²⁺: 0.10 mg/L, Final WL: 22.12' btoe

- Deion pump & set up @ MW-075.

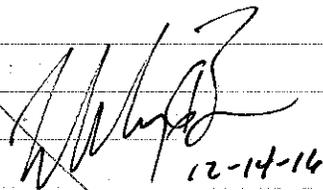
1512: Begin pumping MW-075 @ 75 ml/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
1519	I	7.98	7.69	0.378	-1.2	11.81	27.74	142
1524	0.1	8.00	9.66	0.677	-21.9	2.41	27.80	126
1529	0.2	7.96	10.43	0.676	-18.2	1.63	27.81	107
1534	0.3	7.91	10.91	0.675	-10.1	1.45	27.83	79.1
1539	0.4	7.84	11.04	0.668	0.0	1.37	27.84	61.3
1544	0.5	7.82	11.11	0.667	2.4	1.38	27.85	59.4

1549 0.6

Wednesday
12-14-1680447
Forbes Atlas S-5B. R. P. Stone 51
J. Bryant1550: Collect MW-075-07 for VOC, Anions 9056,
RSU 175, Alk, & Sulfide.Fe²⁺: 0.20 mg/L, Final WL: 27.85' btoe- Wrap up for the day. Deion pump & show
equipment, complete VOC, & secure site.

1620: Depart site.

- Refresh ice & seal cooler enroute to
Fed Ex.1730: Ship 1 cooler to ALS-Houston via FedEx
Topeka.


12-14-16

52 Thursday
12-15-16

80447
Forbes S-5

B. Rillstone
J. Bryant

Weather: Cloudy, 120s, N wind 5-10 mph

Task: Quality GW sampling @ Forbes Atlas S-5 site.

Personnel: J. Bryant - B.M.D.
B. Rillstone - Avatar

0630: Depart Topeka, KS.

0730: Arrive onsite. B. Rillstone onsite.

- Daily safety. Set up for the day.
- Calibrate YSI & Turbidity meter.
- Set up @ MW-060.

0815: Begin pumping MW-060 @ 50 ml/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
0817	I	8.75	8.70	0.868	-100.7	10.60	27.30	37.5
0822	0.08	8.49	10.36	0.952	-99.5	2.08	28.18	22.7
0827	0.14	8.23	10.62	0.983	-89.0	1.52	28.64	12.5
0832	0.24	7.97	10.71	0.992	-74.8	1.27	29.03	7.41
0837	0.38	7.77	10.77	1.001	-61.1	1.19	29.72	6.96
0842	0.55	7.63	10.96	1.009	-54.5	1.07	30.54	6.61
0847	0.42	7.59	10.82	1.008	-47.2	1.03	30.94	6.47
0852	0.49	7.55	10.84	1.009	-45.6	1.01	31.61	6.39

0855: Collect MW-060-07 for VOC, 9054 Anions,
AsH, 175, Alk, & Sulfide.

Fet: 0.30 mg/L, Final WL: 33.62' btoe

- Decon pump & set up @ MW-065

0922: Begin pumping MW-065 @ 60 ml/min.

Thursday
12-15-16
MW-065

80447
Forbes Atlas S-5

B. Rillstone
J. Bryant

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
0930	I	7.88	7.08	0.762	-27.2	6.57	16.83	14.7
0935	0.08	7.85	7.69	0.762	-21.0	3.49	17.02	11.3
0940	0.14	7.80	8.85	0.774	-11.2	2.72	17.11	11.4
0945	0.24	7.74	9.67	0.783	-2.2	2.42	17.17	11.9
0950	0.32	7.69	9.83	0.787	6.0	2.23	17.27	11.5
0955	0.40	7.65	9.88	0.786	10.3	2.17	17.30	11.0
1000	0.50	7.62	9.74	0.784	15.0	2.11	17.36	11.3

1000: Collect MW-065-07 for VOC 8260, 9054

Anions, RSH, 175, Alk, & Sulfide.

Fet: 0.10 mg/L, Final WL: 17.58' btoe

- Decon pump & set up @ MW-135.

- Difficulty w/ frozen tubing. Set up takes longer than normal.

1102: Begin pumping MW-135 w/ small diameter pump @ 60 ml/min.

Time	Ampt	pH	Temp	Cond	ORP	DO	WL	Turb
1107	I	7.99	10.65	0.650	16.7	5.44	14.31	61.4
1112	0.08	7.95	11.19	0.642	17.9	4.36	14.41	48.0
1117	0.16	7.93	10.79	0.641	19.3	3.80	14.42	47.0
1122	0.24	7.92	10.29	0.632	21.2	3.50	14.44	46.4
1127	0.32	7.91	10.00	0.629	21.5	3.42	14.48	45.8
1132	0.40	7.91	9.92	0.626	21.7	3.33	14.51	44.9

1135: Collect MW-135-03 for VOC, 9054 Anions, RSH, 175, Alk, & Sulfide.

Fet: 0.0 mg/L, Final WL: 14.71' btoe

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12-15-16

80447
Forbes Atlas 1-5

B. Rillstone
J. Bryant

- Decon pump & collect rinsate from small dia pump.

1205: Collect MW-135-03-ERB for VOL, 9056

Anions, RSK 175, Alk, & Sulfide.

- Set up @ MW-11s.

1218: Begin pumping MW-11s @ 50 ml/min.

Time	Amt	pH	Temp	Cond	ORP	DO	WL	Turb
1223	I	7.69	9.69	0.831	21.4	4.25	19.70	51.6
1228	0.07	7.60	10.66	0.892	23.8	2.60	19.80	44.7
1233	0.14	7.51	10.64	0.930	29.6	2.38	19.91	38.1
1238	0.21	7.40	10.11	0.938	37.5	2.33	19.98	30.7
1243	0.28	7.32	9.83	0.934	39.8	2.37	20.05	31.0
1248	0.35	7.25	9.87	0.939	44.4	2.33	20.12	30.6
1253	0.42	7.16	10.24	0.949	51.2	2.21	20.17	29.4
1258	0.49	7.13	10.50	0.957	54.0	2.14	20.26	29.7
1303	0.56	7.09	10.67	0.971	56.9	2.12	20.25	29.1

1305: Collect MW-11S-03 for VOL, 9056 Anions,

RSK 175, Alk, & Sulfide.

Fe⁺: 0.20 mg/L, Final WL: 20.64' btoe

- Decon pump & set up @ MW-02s.

1342: Begin pumping MW-02s @ 250 ml/min.

Time	Amt	pH	Temp	Cond	ORP	DO	WL	Turb
1349	F	7.31	10.88	0.924	33.9	4.60	24.82	16.7
1354	0.33	7.18	12.23	0.968	39.3	1.82	25.04	10.3
1359	0.66	7.02	13.18	0.981	51.4	1.05	25.29	6.42
1404	0.99	6.93	13.40	0.967	41.6	0.74	25.28	3.17

Thursday

80447

B. Rillstone⁸⁵
J. Bryant

12-15-16

MW-02s Continued
Forbes Atlas 5-5

Time	Amt	pH	Temp	Cond	ORP	DO	WL	Turb
1409	1.32	6.94	13.34	0.955	57.8	0.67	25.28	3.25
1414	1.65	6.90	13.42	0.945	64.4	0.59	25.28	5.10
1419	1.98	6.89	13.66	0.952	65.0	0.59	25.28	3.12

1420: Collect MW-02s-07 & MW-02s-17 for
VOL, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.0 mg/L, Final WL: 25.28' btoe

- Wrap up for the day. Decon & slow equipment,
place EDW in drum, complete CAC, & secure
site.

1505: Depart site for Wichita.

- Refresh ice & seal cooler enroute to
Fed Ex.

1730: Ship 1 cooler to ALS-Houston via
Fed Ex - Wichita.



12-15-16

56 Monday 80447 B. Rillstone
3-27-17 Forbes S-5 J. Bryant

Weather: Cloudy, 40s-60s, NW wind 10-15 mph.

Task: Quarterly GW sampling @ Forbes Atlas S-5 site.

Personnel: J. Bryant - BMID
B. Rillstone - Avatar

0715: Depart Wichita

0930: Arrive onsite. B. Rillstone onsite.

- Safety meeting, set up for the day.
- Collect round of water level & TD measurements.

Well	WL	TD
MW-010	45.07	68.47
MW-025	23.32	34.59
MW-020	40.86	58.58
MW-035	19.88	30.44
MW-030	40.93	57.32
MW-045	29.22	37.14
MW-040	49.11	66.58
MW-050	47.73	64.34
MW-065	11.42	23.53
MW-060	26.39	51.47
MW-075	25.90	35.37
MW-085	11.29	23.08
MW-095	13.32	25.55
MW-105	15.39	24.79

Monday 80447 B. Rillstone
3-27-17 Forbes S-5 J. Bryant

Well	WL	TD
MW-115	17.93	24.92
MW-125	21.27	27.12
MW-135	13.07	19.78

1130: Measurements complete. Set up to begin purging & sampling.

- Calibrate YSI for Cond, ORP, DO, & pH. Calibrate turbidity meter.

1245: During set up, the backup unit fell out of the truck & the pressure adjustment knob was broken off.

- Arrange for a rental controller unit to be picked up by BMID-RC personnel in RC & transported to a halfway point to the site.

1420: Meet S. Woodland (BMID-RC) in Ottawa, KS & pick up rental controller unit.

- Fill gas & return to site.

1545: Arrive onsite. Set up to purge MW-040.

1555: Begin purging @ 50 ml/min w/ bladder pump.
- Details below & on form.

Time	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.91	14.62	1.022	-60.3	11.52	80.8	50.36
0.16	6.99	13.98	1.011	-88.8	1.31	67.4	51.51
0.30	7.01	13.90	1.005	-89.1	1.08	50.8	52.12

58 Monday 80447 B. Rillstone
 3-27-17 Forbes S-5 J. Bryant
 MW-040 (Cont'd)
 Amt pH Temp Load ORP DO Turb WL
 0.37 7.00 13.76 0.997 -86.8 1.01 46.0 52.94
 0.44 6.98 13.64 0.991 -84.0 0.94 45.5 53.71
 0.51 6.97 13.62 0.989 -82.3 0.92 43.8 54.43
 1625: collect MW-040-08 for VOL, 9056 Anions,
 ASK 175, Alk, & Sulfide.

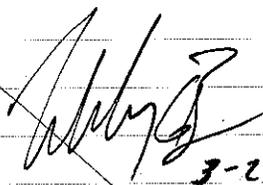
Fe⁺: 1.1 mg/L, Final WL: 56.71' btoe

- Decon pump, show equipment, prep sample
 for shipping, & complete COC.

1710: Secure site & depart for Topoka, KS.

1805: Ship sample to ALS via FedEx - Topoka
 (hold VOLs for shipping tomorrow).

1810: Move to hotel.


 3-27-17

Tuesday 80447 B. Rillstone 59
 3-28-17 Forbes S-5 J. Bryant
 Weather: Cloudy, 40s-50s, E wind 5-15 mph.
 Task: Quarterly GW sampling @ former Forbes
 S-5 Atlas site.
 Personnel: J. Bryant - BMD

B. Rillstone - Avatar

0615: Depart for site.

0715: Arrive onsite. B. Rillstone arrives.

- Set up for day. Calibrate YSE & turbidity
 meters. Safety meeting.

- Set up to purge MW-045 w/ non dedicated
 bladder pump. purge @ 50 ml/min.

Amt	pH	Temp	Load	ORP	DO	Turb	WL
I	7.29	13.49	0.493	-56.0	8.29	522	29.13
0.07	7.20	13.32	0.472	-62.4	3.27	479	29.52
0.14	7.19	13.35	0.461	-58.8	3.45	471	29.97
0.21	7.18	13.38	0.457	-55.9	3.63	463	30.28
0.28	7.19	13.40	0.453	-55.0	3.74	414	30.60
0.35	7.16	13.33	0.451	-54.5	3.48	388	30.84
0.42	7.16	13.32	0.450	-50.8	3.39	319	31.00
0.49	7.13	13.34	0.451	-53.9	3.34	309	31.14
0.56	7.13	13.14	0.450	-53.0	3.32	302	31.30

0840: collect MW-045-08 for VOL, 9056 Anions,
 ASK 175, Alk, & Sulfide.

Fe⁺: 0.40 mg/L, Final WL: 31.94' btoe

- Decon pump. Set up @ MW-050

00 Tuesday
3-28-17

80447
Forbes S-5

B. Rillstone
J. Bryant

0922: Begin purging MW-05D @ 50 ml/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.07	13.38	1.344	-78.9	7.10	103	48.19
0.07	7.16	13.26	1.615	-117.1	3.74	84.2	48.87
0.14	7.18	13.36	1.627	-116.4	4.14	67.6	49.51
0.21	7.21	13.62	1.660	-114.1	5.30	56.4	50.16
0.28	7.27	13.45	1.650	-110.1	5.83	57.1	51.02
0.35	7.21	13.33	1.625	-107.0	6.11	56.8	51.64
0.42	7.21	13.28	1.608	-105.7	6.06	56.3	52.12
0.49	7.22	13.31	1.584	-100.9	6.03	55.8	52.71

1005: Collect MW-05D-08 for UOL, 9056 Anions.

RSK 175, RSK 175, A1K, & Sulfide.

Fe⁺: 0.50 mg/L, Final WL: 54.83' bloc

- Decon pump.

- Calibrate DO again.

- Set up @ MW-010.

1040: Begin purging MW-010 @ 50 ml/min. Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.02	13.21	0.553	-45.5	9.73	33.6	45.26
0.07	6.92	13.12	1.209	-97.4	3.19	31.6	45.73
0.14	7.00	13.08	1.243	-101.8	3.80	37.9	46.28
0.21	7.06	13.06	1.265	-103.0	4.96	42.4	46.81
0.28	7.09	13.12	1.278	-100.5	5.55	^{37.3} 47.0	47.35



Tuesday
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80447

B. Rillstone
J. Bryant

MW-010 Continued
Forbes S-5

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.35	7.10	13.20	1.277	-97.7	5.75	34.8	47.83
0.42	7.10	13.30	1.275	-95.4	5.91	34.7	48.41
0.49	7.11	13.35	1.270	-93.5	5.94	36.3	48.90
0.56	7.11	13.34	1.265	-92.0	5.98	35.4	49.36

1125: Collect MW-010-08 for UOL, 8260, 9056

Anions, RSK 175, A1K, & Sulfide.

Fe⁺: 0.70 mg/L, Final WL: 50.89' bloc

- Decon pump. Set up @ MW-135.

1212: Begin purging MW-135 w/ small diameter bladder pump @ 60 ml/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.44	14.27	0.314	50.3	9.16	54.6	12.37
0.08	7.24	13.66	0.528	52.9	4.61	50.4	12.54
0.16	7.21	13.52	0.518	54.5	4.49	47.1	12.60
0.24	7.17	13.37	0.497	57.8	4.12	44.4	12.66
0.32	7.15	13.37	0.481	61.0	3.88	38.5	12.72
0.40	7.15	13.32	0.477	62.0	3.89	37.2	12.78
0.48	7.15	13.36	0.473	63.0	3.88	36.8	12.82

1300: Collect MW-135-04 for UOL, 8260, 9056

Anions, RSK 175, A1K, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 12.84' bloc

- Decon pump.

1330: Collect MW-135-04ERTB rinsate from small dia bladder pump for UOL, Anions, RSK 175, A1K, & sulfide.

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80447
Forbes S-5

B. Killstone
J. Bryant

- Set up @ MW-060.

1350: Begin purging MW-060 @ 50 ml/min. Details below & on form.

Ampt	pH	Temp	Lead	ORP	DO	Turb	WL
I	7.10	14.13	0.671	-100.8	7.27	47.4	26.61
0.07	7.08	14.28	0.715	-109.1	2.25	38.1	27.03
0.14	7.06	14.43	0.738	-108.6	1.78	33.6	27.48
0.21	7.02	14.48	0.747	-106.9	1.62	24.6	28.11
0.28	7.00	14.45	0.745	-108.1	1.75	21.4	28.64
0.35	6.93	14.40	0.742	-110.6	1.79	20.1	29.12
0.42	6.92	14.68	0.744	-107.6	1.84	20.4	29.78

1425: Collect MW-060-08 for VOC 8260, 9056

Anions, RSK 175, Aik, & Sulfide.

- Decon pump, set up @ MW-065.

Fe⁺: 0.8 mg/L, Final WL: 31.43' btoe.

1455: Begin purging MW-065 @ 40 ml/min. Details on form & below.

Ampt	pH	Temp	Lead	ORP	DO	Turb	WL
I	6.77	13.92	0.552	-12.5	4.73	44.6	8.82
0.08	6.96	13.85	0.549	-7.6	3.89	38.9	9.31
0.16	6.94	13.89	0.544	-1.0	3.29	35.6	9.42
0.24	6.94	13.98	0.544	3.3	3.30	33.7	9.58
0.32	6.96	14.02	0.544	6.6	3.30	32.2	9.60

1525: Collect MW-065-08 & MW-065-18 for

VOC, 9056 Anions, RSK 175, Aik, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 9.99' btoe

Tuesday
3-28-17

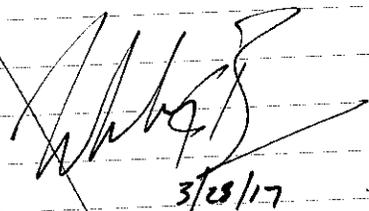
80447
Forbes S-5

B. Killstone
J. Bryant

- Decon & Stow equipment, prep samples for shipping, & complete COC.

1640: ~~At~~ Depart site. Refresh ice & seal coolers enroute to FedEx.

1815: Ship 2 coolers to ALS & small diameter pump to Field Environmental via FedEx - Topoka.



3/28/17

64 Wednesday 30447 B. Rillstone
3-29-17 Forbes S-5 J. Bryant

Weather: Overcast, rain, 40s-50s, E wind 5-15 mph.

Task: Quarterly GW sampling @ Forbes Atlas S-5 site.

Personnel: J. Bryant, B. Rillstone.

0700: Depart for site.

0800: Arrive onsite, B. Rillstone arrives onsite.

- Safety meeting. Set up for the day. Calibrate YSE & Turbidity meter.

- Move to MW-095.

0900: Begin purging MW-095 @ 60 mL/min. Details below & on form.

Time	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.76	11.81	0.243	122.6	10.69	34.7	11.77
0.08	7.31	11.60	0.467	117.1	4.94	28.6	12.23
0.14	7.32	11.53	0.471	120.9	5.12	23.3	12.27
0.24	7.32	11.40	0.470	117.1	5.71	18.1	12.32
0.32	7.36	11.31	0.470	119.4	6.38	16.2	12.36
0.40	7.35	11.22	0.471	122.0	6.75	16.6	12.40
0.48	7.34	11.21	0.473	121.8	6.73	17.0	12.45

0935: Collect MW-095-04 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.0 mg/L, Final WL: 12.00' btoe

- Decon pump. Set up @ MW-105.

1020: Begin purging MW-105 @ 40 mL/min.

Details next page & on form.

Wednesday 80447 B. Rillstone 65
3-29-17 Forbes S-5 J. Bryant

MW-105

Time	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.28	11.70	0.511	132.4	8.52	41.4	13.70
0.08	7.13	11.65	0.515	134.3	3.83	38.9	13.95
0.14	7.07	11.53	0.516	134.5	3.29	35.7	14.16
0.24	7.06	11.40	0.517	133.7	3.01	34.0	14.30
0.32	7.03	11.39	0.518	132.5	2.82	31.8	14.36
0.40	7.05	11.59	0.521	131.5	2.74	30.6	14.44
0.48	7.03	11.69	0.525	130.3	2.68	31.4	14.50

1055: Collect MW-105-04 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 14.47' btoe

- Decon pump & set up @ MW-020.

1137: Begin purging MW-020 @ 50 mL/min. Details below & on form.

Time	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.46	12.84	0.566	94.8	14.85	17.8	41.20
0.07	7.37	12.78	0.579	35.9	1.95	15.4	41.84
0.14	7.37	12.96	0.583	9.3	1.75	12.7	42.47
0.21	7.38	13.12	0.587	-3.9	1.98	10.2	42.91
0.28	7.38	13.26	0.589	-6.8	2.27	9.84	43.58
0.35	7.40	13.45	0.592	-6.5	2.83	9.31	44.10
0.42	7.40	13.54	0.593	-5.9	2.91	9.12	44.84
0.49	7.39	13.62	0.595	-2.0	2.95	8.98	45.43

1220: Collect MW-020-08 for VOC 8260, 9056 Anions, RSK 175, Alk, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 46.99' btoe

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Wednesday
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Forbes S-5B. Rillstone
J. Bryant

- Decan pump & set up @ MW-085

1315: Begin purging MW-085 @ 75 ml/min

- Details on form & below.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.76	14.32	0.387	74.8	16.96	141	10.40
0.1	7.42	13.45	0.321	69.6	1.97	94.7	10.87
0.2	7.33	13.37	0.291	60.8	1.50	71.3	11.21
0.3	7.30	13.32	0.278	53.5	1.35	54.4	11.61
0.4	7.28	13.36	0.272	44.8	1.32	48.2	11.75
0.5	7.30	13.49	0.267	30.8	1.26	41.4	11.88
0.6	7.29	13.50	0.267	30.6	1.26	33.7	11.97
0.7	7.31	13.59	0.267	25.1	1.28	31.4	12.04
0.8	7.31	13.74	0.268	22.9	1.27	30.8	12.10

1400: Collect MW-085-04 & MW-085-04 MS/MSO for

VOC 8260, Anions 9056, RSK 175, AIX, & Sulfide.

Fe⁺: 0.1 mg/L, Final WL: 12.34' bhc

- Decan pump & set up @ MW-030.

1510: Begin purging MW-030 @ 50 ml/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	6.87	16.74	0.887	0.8	10.09	75.4	40.54
0.07	6.77	15.99	1.282	-47.0	2.66	57.7	41.01
0.14	6.81	15.66	1.327	-63.7	1.54	54.6	42.28
0.21	6.77	15.65	1.341	-63.4	1.59	50.9	42.94
0.28	6.74	15.73	1.346	-59.5	1.83	42.0	43.33

Wednesday

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B. Rillstone 67

3-29-17

MW-080 continued Forbes S-5

J. Bryant

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
0.35	6.71	15.84	1.347	-56.2 39.2	1.70	39.7	43.81
0.42	6.68	15.89	1.345	-52.4	1.98	37.9 44.11	44.11
0.49	6.66	15.95	1.343	-50.0	1.97	38.4 44.45	44.45

1550: Collect MW-030-00 for VOC 8260, 9056

Anions, RSK 175, AIX, & Sulfide.

Fe⁺: 0.8 mg/L, Final WL: 45.19' bhc

- Decan pump.

1620: Collect MW-030-08ERB equipment rinseate from the bladder pump for VOC 8260, 9056 Anions, RSK 175, AIX, & Sulfide.

- Wrap up for the day.

1645: Depart site. Refresh ice & seal cooler enroute to FedEx.

1800: Ship 1 cooler to ALS-Houston via FedEx-Toronto.



3-29-17

68 Thursday 80447 B. Billstone
3-30-17 Forbes S-5 J. Bryant

Weather: overcast, intermittent rain, 40s-50s,

N wind 15-25 mph.

Task: Quarterly GW sampling @ Forbes S-5 site.

Personnel: J. Bryant - BM10 & B. Billstone - Avatar

0700: Depart for site.

0800: Arrive onsite. Daily safety, set up for the day, calibrate YSE & Turbidity meter.

- Set up @ MW-035.

0849: Begin purging MW-035 @ 75 ml/min. Details below & on form.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.32	10.80	0.612	142.8	9.92	32.7	17.87
0.1	6.98	11.39	0.565	126.3	2.97	29.5	17.98
0.2	6.98	11.47	0.511	128.5	2.02	21.6	18.05
0.3	6.99	11.43	0.549	121.0	1.58	17.9	17.83
0.4	6.99	11.17	0.542	121.4	1.95	14.0	17.91
0.5	6.93	11.27	0.536	122.8	1.50	13.5	17.98
0.6	6.97	11.52	0.539	118.6	1.42	12.8	18.04

0925: Collect MW-035-08 for VOCs 8240, 9056 Anions, RSK175, Alk, & Sulfide.

Fet: 0.1 mg/L, Final WL: 18.01' bloc

- Decon pump & set up @ MW-125.

0958: Begin purging MW-125 @ 60 ml/min. Details next page & on form.

Thursday 80447 B. Billstone 69
3-30-17 Forbes S-5 J. Bryant

MW-125

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.33	12.73	0.445	134.8	16.20	221	20.07
0.08	7.02	13.00	0.896	137.2	4.01	210	20.19
0.16	6.99	13.13	0.907	135.0	3.51	199	20.35
0.24	6.99	13.25	0.915	133.6	3.36	181	20.50
0.32	7.00	13.51	0.925	132.0	3.55	163	20.63
0.40	7.01	13.48	0.929	131.2	3.59	157	20.71
0.48	7.02	13.64	0.933	130.2	3.63	153	20.79

1035: Collect MW-125-04 for VOCs, 9056 Anions, RSK175, Alk, & Sulfide.

Fet: 0.10 mg/L, Final WL: 21.05' bloc.

- Decon pump & set up @ MW-075.

1111: Begin purging MW-075 @ 75 ml/min. Details below & on form.

Am't	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.35	14.52	0.538	82.9	8.52	247	20.31
0.1	7.10	13.85	0.524	5.4	2.34	219	20.34
0.2	7.03	13.56	0.490	-17.0	1.52	192	20.37
0.3	7.01	13.62	0.479	-14.2	1.32	166	20.39
0.4	7.00	13.39	0.474	-14.5	1.03	150	20.39
0.5	6.98	13.20	0.470	-15.2	0.93	138	20.39
0.6	6.97	12.95	0.466	-7.6	0.93	139	20.39

1150: Collect MW-075-08 for VOCs 8240, 9056 Anions, RSK175, Alk, & Sulfide.

Fet: 0.1 mg/L, Final WL: 20.31' bloc

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- Decon pump & set up @ MW-115.

1220: Begin purging MW-115 @ 50 ml/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.25	13.84	0.357	105.5	12.01	210	11.87
0.07	6.95	13.58	0.682	107.9	4.90	143	12.33
0.14	6.90	13.73	0.693	107.0	2.98	94.1	12.61
0.21	6.90	13.54	0.697	104.6	2.95	84.4	12.84
0.28	6.88	13.70	0.700	107.7	3.00	78.1	12.94
0.35	6.88	13.93	0.704	108.0	3.00	70.7	13.08
0.42	6.87	13.97	0.709	108.5	2.98	66.4	13.12
0.48	6.87	13.91	0.709	109.1	3.02	65.4	13.17

1300: Collect MW-115-04 for VOC 8260, 9056 Anions, RSK 175, AIX, & Sulfide.

Fet: 0.10 mg/L, Final WL: 13.46' bhc

- Decon pump & set up @ MW-025.

1334: Begin purging MW-025 @ 250 ml/min. Details below & on form.

Amt	pH	Temp	Cond	ORP	DO	Turb	WL
I	7.05	12.47	0.597	132.1	17.30	25.2	17.84
0.33	6.69	12.53	0.592	125.4	2.10	16.7	17.88
0.66	6.76	12.47	0.568	110.6	2.38	9.32	17.90
0.99	6.84	12.62	0.562	103.8	2.55	7.13	17.86
1.32 1.32	6.87	12.58	0.562	96.7	2.80	7.01	17.86
1.65	6.89	12.63	0.547	93.4	2.90	6.98	17.84
1.98	6.92	12.72	0.573	91.3	2.95	6.95	17.84

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1410: Collect MW-025-08 & MW-025-18 for VOC 8260, 9056 Anions, RSK 175, AIX, & Sulfide.

Fet: 0.0 mg/L, Final WL: 17.86' bhc

- Decon pump.

1440: Collect IDW-W-20170330 for VOC, ignitability, & pH.

- Load equipment, prep samples for shipping, & complete Col.

1520: Depart site. Site secured. Refresh ice & seal cooler enroute.

1800: Ship 1 cooler to ALS-Houston via FedEx-Wichita.


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