

Projects (continued)

3-23-2020 (Monday) 1
Joe G on site at
0900. MYC on site.
Richard - Congress
35 miles from Esomole
20 miles RT.
Meet 1 to 1:30 at
site

1000 Pulling vaults at
Barber Shop

1145 Back filling and tamping
back fill/dirt.

Back fill from behind

1300 CVS on way to Taos.
off site to pick up
concrete saw from G's

1315 Back • Manuel leaves
for Richard's Ranch
w/ 6 vaults.

Ed and Kris on site
1400 Clean water Buffalo
call G's to pick
up

1440 Water Buffalo off
site.

2

3-23-20

Drum/Container Inventory

SD

13 275 gallon totes (R-32
D2) partially full
see photo

4 275 gallon empty totes

1 1000 gallon - empty

12 55 gallon drums
Bore hole water; get
developed water

23 500 totes, empty
open top - mixed totes

1 500+ empty - buried

11 55 gallon empty 55
DOT

7 Plastic 55 gallon - empty

1 55 gallon 1/4 full

1 5 gallon (partial) soda wedge
3 hydraulic oil

3

3-23-2020

1515 Mannel back from
Richard's ranch on Road
to ranch off of
highway was too rough
and up hill for Mannel's
truck.

1320 Talk to Richard and
Mannel and Kris about
taking rest of vaults'
will do cuts more
and let Richard know

1320 ~~Do~~ JAG cold patch
asphalt on site.
Shovel into cut vaults.

1400 In the day drums and
transfer water through
GAC - 12 drums

1900 JAG
1800

off site

4 RMX

2-10-22 Thursday

WUABFFMWORK

"Data Gap Well"
ABQ, NM

"Book 2"

R. Sengeshush INTERA

Kevin Rogers Cascade

Jason Moore Cascade

Anthony Meers Cascade

Cliff Hillman Cascade

Dalton Longtine Cascade

Sonic Core

~ 600' mtg well

DTW ~ 460

Site Location?

Corner of Kathryn Blvd &

Indiana St, ABQ, NM

RM8

2-10-22 Thursday

From Book 1 p. 149

Wednesday Core

2-9-22 Time	Depth	Length	CS9
0931	417-427	10	417
1055	427-432	5	
1200	432-440	8	427
1442	440-442	2	437

Core Thursday 2-10-22

0833 442-445 3 437

0947 445-457 12

1125 457-467 10 447
467

Friday 2-11-22

0812 Core up 467-477 10 477

0943 Core up 477-487 10 487

1445 core up 487-492 5 497

1554 core up 492-500 8 487

6 RMS

2-10-22 Thursday

0755 Text from driller ✓

Leaving Peralta now
with egg & trailer.

Expecting roll off line this AM.

Hole @ 442 ABS

Expecting water @ ~460

0714 Cascade on site

0730 It's Mtg

✓ FUTURE

✓ Cascade egg 437 ✓

Trailer • 4 x 10 egg ✓

• 15 drill rods ✓

0737 Hot wire the box truck ✓

Start drill rig and fuel

RMS

2-10-22 Thursday

0803 Begin TOOTH ✓

Cut core yesterday at end of
day. Hope core will stay
in core barrel on trip out.

0810 Try to pop up the
drill string.

0811 Call w/ Joe T.

0830 End call ✓

0833 Core up 442-445 (3')

0840 T1H

RMS log sample. ✓

Call w/ Austin. He will
come @ 1000 unless I
advise otherwise.

0855 in hole, ready to core.

0922 Bump up, begin TOOTH

0927 Still trying to pull up ✓
Begin TOOTH.

8. RMS

2-10-22 Thursday

0947 Core up, 445 - 457 (12)
0957 Add CS9 $1 \times 10 = 447$

1010 AH on site.

RMS log core. Note strong
FeOx stain #455 - 457.
No gravel (1 pebble).

1030 Kelsey Bicknell, WA, on site

H&S for Austin & Kelsey

1100 TOOTH

1125 Core up* 457 - 467 - 10

Shelby Stimson on site
WA

Photo samples on table
372 - 467

* Saturated @ 458' bgs

RMS

2-10-22 Thursday

9

1149 Log core SW w/ gravel ✓

1220 Ready to bail sample.
Need to wait until Kelsey
gets back to sample.
Call x2. + text.

Will try to sample in the
hole, with the bailer. Should
work if the hole stays open.
If hole is not open, then will
need to drive CS9 and cleanout.

1251 Kelsey back. Shelby back
Ready to sample w/ bailer
Try to bail sample.
Can't feel wt of bailer
in well - too light.

Pull up - rope was around
bailer. Need to mark depth
on the rope.

1300 RMS w/ Austin made
depth on the bailer rope.

10 RMS

2-10-22 Thursday

1404 Add CS9 1x10
 1x10
 447 + 20 = 467

T1H, will clean out inside
 free casing, then let water
 come back in. ok.

1400 Austin off site, will
 come back to sample.

Robert Chavez AES
 505 450 8879

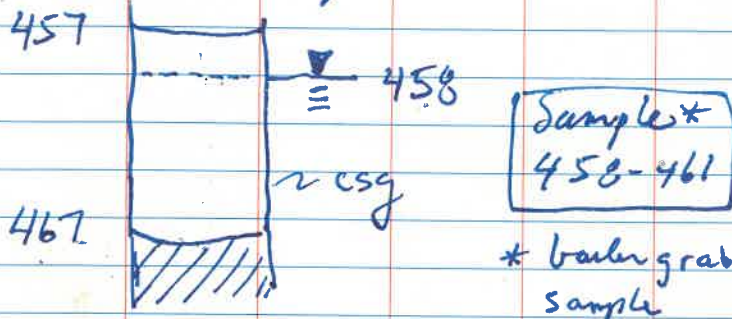
he will
 call Robert & start over,
 call someone at pre office
 to come line the rolloff.
 Seemed to not know about
 the plan to line this ARM.

1410 RMS take lunch
 Clean-out -
 T1H

11

RMC
 2-10-22 Thursday

1435 Call AH to come back
 Nearly T1OH. Will expect
 water to be in the CS9.
 1440 out of hole.



Note: no sample came up
 in the cleanout run, so
 hole was not cleaned out.

1450 Add T-flapper Bit
 on to core barrel and T1H!

1500 on bottom w/ flapper bit.
 1510 AES here to line
 rolloff. Wheel binds up,
 cannot open or close all
 the way. So request
 another rolloff.

1510 T1OH

12.

RMS

2-10-22

Thursday

Ryan Chavez - AES
 AES - call owner - get
 one that works, will check the yard.
 & Ernest - helper.

1532 cleanout success
 w/ flapper bit. ✓

Wait 10 min for water to
 come in.

1542 Attempt sample
 with plastic disposable bailer -
 no water.

1600 Try with Cascade
 standard steel bailer.

Decor bailer -

Collect sample - rain up -
 Oh, contains water but mud
 in bottom. Pour sample from
 top.

1615 2 x 40 ml VOA vials

1616 Kelsey Buchner off site.

1620 Austin off site w/ samples
 Coors, ice, etc.

13.

RMS

2-10-22

Thursday

1623 RMS call JT,
 will need to keep sample
 overnight - too late to deliver
 to Wall tonight -
 cannot accept samples after 1600,
 per Andy Freeman. Ok.

1627 text to Joe T.

1630 JIH

1640 Spring to 476

Core is cut, collect tomorrow

1700 Cascade off site

-
- ✓ • scene site
 - ✓ • Summary
 - ✓ • photo
 - ✓ • Text to AH
 - ✓ • Sync - success ✓

1716 RMS off site

14.

RMG
2-10-22 ThursdaySummary 2-10-22

- H & S mtg
- Core and log

End 467

Start 442

Total 25

- Groundwater @ 458' bgs
- Collect few sample from 458-467.

- Kelsey Bicknell and Shelby Stinson of Water Authority on site for sampling event.

- ~~Keep~~ sample.

Keep sample overnight, under chain-of-custody, and on ice. Deliver tomorrow to Hall Laboratory for 24 hr from around time analysis.

Tomorrow 2-11-22

Continue Coring and Logging

RMG
2-11-22clean 15
Friday 36°0600 To site
0620 on siteTo do

- Roll off repairing line
- water level meter - was supposed to be delivered yesterday - Maggie
- confirm sample at the lab.

Note: need to dump the hopper to continue

- Core cut yester to 477, but not brought to surface. Begin today with core 467-477 - confirm with driller.

0635 text update to Joe T.

0635 Cascade on site - early - for Friday.

16. RMS
2-11-22 Friday

0650 Text to AES owner,
Robert Chavez. ✓

0700 H & S Mtg.
in water bow
Kills, pedestrians

Duration sequencing - rolloff, etc

CSG	CS4	477. ✓	gap 24
		Core to 477.3	

0710 JT - see if Cascade will
fix the rolloff.
Ok. I will Ask. can
wt. fill we pull one core.

0713 email Maggie to
track package.

0715 Fuel the rig.
Start rig and box truck.

0733 ToodH with core 467-477
0750

0754 AES How.

RMS
2-11-22 Friday
20' jts
1111
1

17

Sledge hammer, Crowbar,
pipe wrench to free the lid...
WD-40
two wheels are stuck in the
track, south side.

0806 Talk w/ AES -
we need to be able to open
and close.

They will send a "service truck"
to repair the track 150

0811 We can ~~we~~ operate the lid. Ok.
AES - left without
lining the rolloff!

0812

Core up	467-477
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Note: Push ahead =
15' water + 30'
= 450 + 30 = 480

18

2-11-22 Friday

Csg 1 x 10' 477+10 =
487

Push Ahead Sample
with Driller.

Target is 488 ok

That is 10 more ft. from
where we are now. Ok.

- Max only 1 more csg x 10'.
- No Tagger!

ABS here to know the
roll off. Told them
the roller needs to be fixed -
we need to work it!

0832 T1H to next core
477-487

runs log core 467-477.

19

2-11-22 Friday

0855 T1H coring 477-487

Call w/ Austin
✓ Sample delivered
✓ Water level meter is
in Office ✓

Call w/ JT -

discuss all

- SS bailer w/ decon - ✓ ok
- Add water? Why?
- Push ahead - soon - ok
- Roll off - must be fixed,
but fixed now.
- Cascade needs csg - on
truck today from Phoenix.

0913 Coring now @ 477-487.
bumping up now.

0916 TOOTH with core to 487 (?)
Roll off is fixed.

Tell ABS that we need
the track and roller repaired
so we can operate the lid.

20

RMS
2-11-22 Friday

0943 Core up 477-487

Ready for push ahead.
Need to log sample after.
To do - log 477-487

1030 photos of push samplers
✓ Down sampler and bailer.
Check how it opens -
will open as it goes in
the hole.

Call JT re the sampler -
Kevin has a work around
with a bag - OK per JT.

1050 T/H w/ Sampler,
with bag and electrical
tape.
This is SOP for Cascade.
AH call Lee Dalton
This is SOP. ✓

1110 RMS log core 477-487 ✓

21

RMS
2-11-22 Friday

1111 Continue T/H w/
push ahead sampler.
will open at _____,
then bail with the
4 standard steel valves.

Depth 488, bottom of PA
Sampler.

Stick up 9.4'

lower WLM meter into
the well.

1130 WLM to bottom. No water
Ok, then open the sampler. 1 ft
Stick up 9.4 ft = 9 ft

1200 Cascade take lunch.

1235 Cascade back.

Text AES.
Collect push ahead water sample
w/ SS bailer.

1255 Sample collected ✓

Ann for do labels

486.5-488

22. ¹²⁰⁰ 2-11-22 Friday
"Push Ahead" Results ND - 2-11-22
Sample Name: 486.5-488 (#1)
WUABFFO L - PA (486.5-488)

1300 Dump the hoppers

1312 TOOH, with sampler.

1340 out of hole.
where is the sampler?
Lost in hole!

See last rod = 10' -
push ahead sampler is
not on the rods.

1345 run in hole w/ core
barrel, try to retrieve/push
down.

1354 Bulk samples to 480'. ✓

T114 as usual.

1400 Coring w/ chatter...
probably on the push ahead
sampler (?)

RMC 23
2-11-22 Friday

1400 Mark Kelly - WA
Water Resources Division Mgr.

1418 - see the part of the
sampler on the deck.
Only the point is down the
hole.

1420 TOOH

- core & log to 500
- depth $\frac{467}{33'}$
- deploy push ahead sampler
- Collect sample
- deliver sample to the lab
- Mark Kelly on site
WA Div. Mgr

1442 (cont) 3 rods pushed wet

24

RMS

2-11-22

Friday

1445 Core Up. 487-492

! Recovered the "fish"!

1500 Drive CS, 1x10' to 497 see P.

RMS log core 5' ✓

1455 Kevin wants to do another core run, to 501

↑ should be 487? see p. 16

RMS populates chip Tray to 490. ✓

1501 Log core, SW, no grab, ✓

1502 Call w/ Joe Tracy -
Ancient all. Ok. ✓

1554 Core Up 492-500

- 1619
- ✓ Summary of Syno
 - ✓ Photo
 - ✓ Test
- ✓ Some sites - rolloff is open over the Weekend. Ok

RMS

2-11-22

Friday

25

Summary 2-11-22

• H&S Mtg

• Core and Log

End 500

Start 467

Total 33 groundwater

• Push ahead sample

486.5-488 #1

• Collect sample and deliver to Hall for 24hr TAT

• Mark Kelly of WPA tea on site

• Part of sampler in hole but recovered in next core run.

Next Week Monday 2-14-22

• Continue Core and Log

• Obtain additional 7th CS.

• Push ahead next sample @ approx 516.5-518'

1622

RMS off site

26. ^{10ms} [♥] ^{Clear}
2-14-22 Monday 30°

0608 To Site

0628 On site

prep H&S.

- Text to Kevin Rogers
- 0642 Call from Kevin Rogers,
leaving the Peralta yard
now with the load of casing.
OK.

To do

- Clean up site
 - spill cleanup
 - trunk bags
 - roll off lid repair
 - core & log
 - Push ahead
- Target 516.5 - 518'

0705 Cascade Help on site
Dalton Longtime

27

^{7ms}
2-14-22 Monday

0710 Cascade on site
w/ casing

Kevin Rogers

Jason Moore

Dalton Longtime - new helper

0715 H&S Mtg

Cascade ✓

INTERIA ✓

0725 Text to Joe Tracy

0730 fuel the drill rig

0745 Text AES to repair roll off.

0748 Load casing into box truck.

See CS9 on trailer
15 x 10' x 7"

Observe loading CS into
box truck. Ob.

Discuss sampling w/ Kevin.
He will get to 507 on
next run; then run CS9,
then to sample depth @ 516 ±

CS9 now @ 487

28 RMS
2-14-22 Monday

0816 CS₂ is loaded,
move box truck back to rig.

0833 T/H

0850 Coring now.

0857 ~~Next~~ from Joe T.

Roll off will not be repaired,
will need to live with it. OK,
will remain open.

0903 Vibrig down slowly.

0910 Pull up.

0920 Still trying to pull up.

Pull 1 x 10' | ~~1 x 20'~~ ✓

~~1 x 20'~~ IIII

IIII

IIII

IIII

Core barrel IIII 24 x 20 Holy Rod #24
1 1 x 20

$$1 \times 10 = 10$$

$$24 \times 20 = 480$$

$$1 \times 20 = 20$$

$$\frac{510}{- 3} = 507$$

RMS
2-14-24 Monday

29

0955 Core up 500-507 7'

C
S
G Add CS₂ 1 x 10'
487 + 10' = 497 ✓

RMS log core
SP, fr-med gr.
no gravel!

sup. 24

and 16

✓
2-22-22

Talk w/ diller

Core to 516, then CS₂
to 507, then cleanout
run, to sample fresh
formation for Push Ahead.
Sand is creating a lot of
friction on the core barrel,
difficult to pull out. yes,
noticed that ~ 10 min
to pull up.

1015 Core logged. ✓

T/H

1039 Cut^{ing} core now. (or cleanout)

Call with Austin.

He will put up some
exercise bands to seal the bag

30 2-14-22 Monday

1045 Still cutting core.
Now trying to pull up -
very tight.
pulling up very slowly.
spinning, up, down, up,
still tight
1 x 10'

TOOH

1120 Last rod, vibe to
clean out into the hopper.
This is the "holy rod", with
holes to drain water.

1125 Core up - Clean out -
But... no material
in the core barrel - fell out
on trip.

Discuss w/ driller -
Main goal is the water
samples, so take time to clean
out, etc.

Hole caved 500-507, plus
slough from adding the
casing.

^{2mls}
2-14-22 Monday 31

Time	Depth	Length	CSS
0955	500-507	7	487
			497

Tuesday 2-15-22

1200	507-516	9	
1300	516-527	11	516
1711			

Wednesday 2-16-22 526

1110	Core up 527-537	10'	
1434	537-547	10'	

Thursday 2-17-22

1500	547-557	10'	536 546
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Friday 2-18-22

1034	557-567	10'	
1200	567-577	10'	577

Monday 2-21-22 567

1530	577-580	3'	
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32 2-14-22 Monday

Kevin try another bit
grind another bit
to keep sample in
core barrel

Flapper bit, to bail
out the collapsed formation.

1140 Flapper bit was
tight in the 7" csg, due
to some caving damage.

so grind down on the bit
where it was getting stuck.

Advice dubia that the
samples are the most important.

1145
7/1H

1200 in hole.

Vibing down w/ flapper bit.

1210 TOOTH

1230 Still TOOTH.

cut rod up - Holy Rod -
vibrate mud and water into hopper ✓
See if Flapper Bit retained
samples. Hopper getting full.

2-14-22 Monday

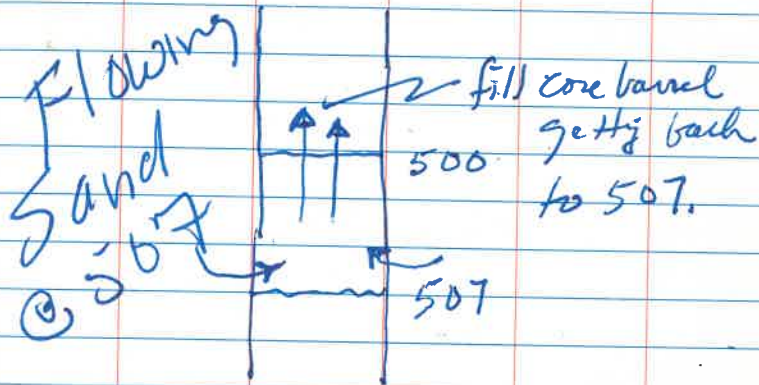
1240 Core barrel up for cleanout ✓
Full Core barrel cleanout into
the hopper ✓

1242 Add ^{Flapper} regular bit.

Talk w/ Kevin - may have
flowing sands because so
much came into the core barrel.
If so, it seeps more in when
the barrel is removed.

May need to put a head on
the hole to keep sands down.
Drum adding csg - yes, that
will be done too.

1249 Cascade take lunch.



3:4

2ms

2-14-22 Monday

1307 Cascade back but
eating lunch.1320 Angela says Patty and
Benie are missing.Kevin saw her this morning
heading west on street
south of Kathryn.

Anderson St.

Talks with her husband, Jim,
he will call Silver Alert police.

1330 TIT, see what depths.

1352 barrel on bottom....
high! 30ft of sand

507

- 30

477

inside the CS9.

CS9 @ 497

1355 Kevin call Cliff,
cleaned it out x 2.1403 Continue pushing down to
get back to 507.

2ms

35

2-14-22 Monday

1407 T00H

1420 Core barrel up. - clean out
~ dump ~ 10' of sand into
hopper. Hopper getting full.

1433 TIT.

1437 Call in Austin, will
drop off the cooler and bottle
kits.1500 Austin on site.
Cooler, Sample bottles, etc.

1526 Austin off site.

1523 Core barrel up -
dump "a lot" of sand.~~TIT~~

1528 dump the hopper!

Talk w/ driller. Cliff said to
move the holy rod up a joint.Was above the core barrel, was
spreading water and mud back
on top of the core barrel, creating
suction when the core barrel came up.
Now is clean to box of CS9 497.

36

RMS
2-14-22 Monday1530 Cliff Hillman onsite.
Talk w/ Cliff.Will make a long run to
517, then run 2 x 10' CSS,
Cleanout, T/H

1540 call w/ Joe T.

Request RMS line up
for helper for Tuesday, wed,
Thursday.

Better Lynda.

Call Brett Mayhew -

• Available any of the 3 days.
• Wednesday

Call Lynda Price

• Tuesday & Thursday
and

• Lynda Tuesday & Thursday

• Brett Wednesday

Call Brett Wednesday AM
for update.

37

RMS
2-14-22 Monday

1606 Still T/H

1611 Coring now, vibrating down.

1618 Still coring

1624 ~~begin to pull up~~

1636 now begin to pull up.

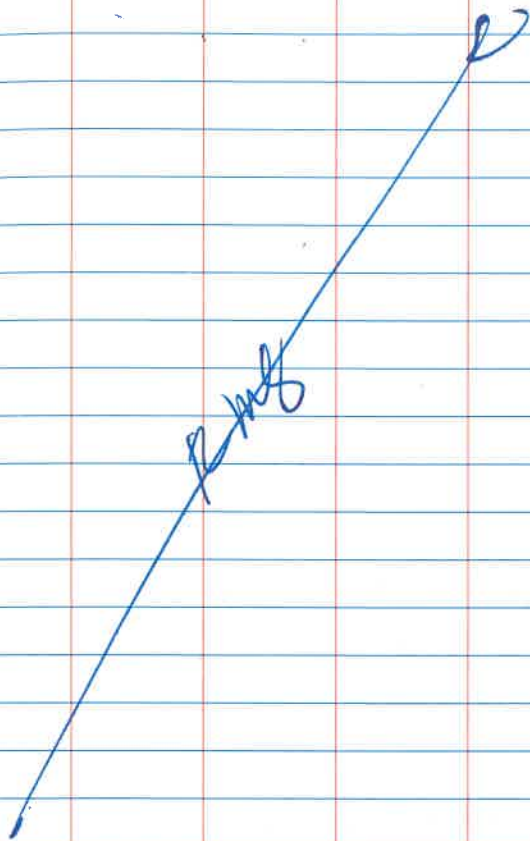
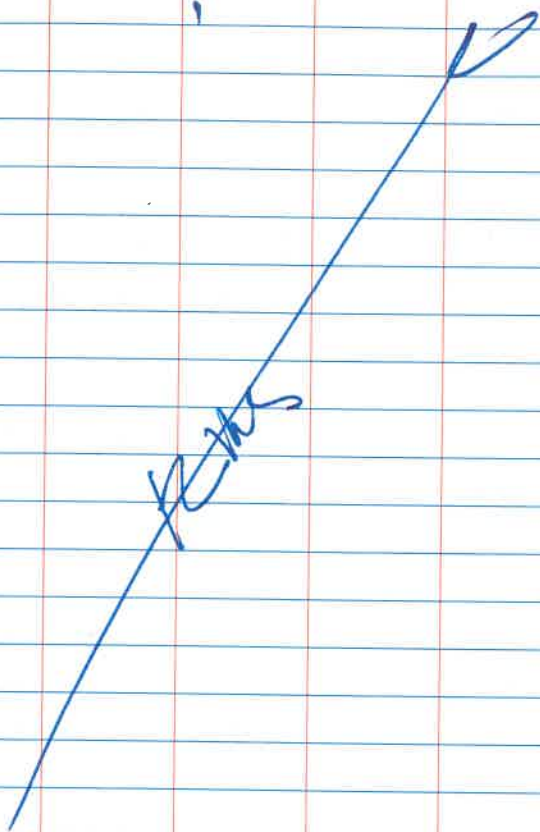
Pully extremely slowly.
Kinda stuck...1651 Cliff now on the controls.
Up about 10'.1658 1 x 20' ft out. - No
back down, up/down,
stuck again.Keep it spinning
"Sandlocked"?Aaron
neighbor

1703 Coming up again

Pipe is free. T/OH @ 805

Going over the 1700 ft in

limit but had to get pipe
unstuck. Can't stay stuck
overnight.1723 Tag hole - went to 517 -
but no sample to surface. One
band EMPTY!



40

RMS
2-14-22 MondayCliff says going to need
to add water.1730 472 35 ft
Tag 492 = 15' of FM.
above the TD this AM
② 507.1735 Text Joe T re
head of water in the hole
to clean out and progress the
hole.

1757 Cascade offsite

- ✓ Secure site
- ✓ Summary
- ✓ photo
- ✓ Text to RKB
- ✓ Sync plug success

1809 RMS offsite.

41

RMS
2-14-22 MondaySummary 2-14-22

• H & S Mtg

• Core and Log

End 507

Start 500

Total 7

• Advance CS to 497

• Attempt to continue

coring. Encounter
flowing sands as much
as 30 ft up the core
barrel and rods.• Attempt to clean out
to 507, but hole
continued to fill in
and fill core barrel
and casing.• Cleanout to 492, 472
+ 5 ft of sand in the
hole above the
35 507s continue

42 RMS

2-14-22 Monday

Summary - Continued

Tomorrow 2-15-22

- Evaluate drilling conditions with Water Authority and INTERA team.
- Consider options for overcoming flowing sands @ ~~500-507~~ 507.

RMS

2-15-22 Tuesday

43

0610 To Site

0630 on site

Talk w/ security company supervisor about food debris on the ground where security guard parks.

0637 Cascade on site prep H&S.

To do

- Flowing sands @ 500-507
- Need to discuss with J&T and WA.
- Need decision re adding a water head to advance the boring.
 - Where to obtain water.
 - Have at least 3 tanks on site.
- Contact Lynda re sampling if any today.

44

RMS

2-15-22 Tuesday

0645

See with logs 231, 206
SP near 500' in bed.

0650

Call w/ Joe Tracy.
discuss adding water
sampler stills discontinue
can make that argument
TO set casing

Priority -

Push ahead or advance
for hole, or both.

Where to get water

- meter
- hydrant

0715 Joe T on site

0730 H & S mfg - ✓

add discuss water. ✓
• bentonite grout ✓Cascade will get
water in tubes. Also, cog getting
tight!Joe will conduct Diana @ WPA
re water.

RMS

2-15-22 Tuesday

45

0800 Cascade moving full
tote of water to front of
drill rig to fill tank on rig.
Will transfer water with
pump.0821 Call w/ Joe T.
OK per Diana Agnew.She understands -
still wants push aheads, yes.✓ • Add water✓ • Continue push aheads.0829 Crew loading 2 totes
onto the trailer to go fill.Kevin and Cliff begin
T & H, will add water
to clean out hole.

0838 Call w/ Lynda Price, update

46 2-15-22 Tuesday

0945 - CS 1 x 10'
CSG 497 + 10 = 507

No ? pulling CS up? 1 x 10
Another 1 x 10
Another 1 x 10
Another 1 x 10

pull spin
pull up 20', rotate.

0918 T1H core barrel of rods.
to clean out and restore
hole to 507, and case
to 507.

0944 coring (26 min trip in)

0950 TOOTH (28 min) Trip out

1018 OOH. Last rod full of water.
Core barrel - water but no soil.
(10' section of core barrel)
Nothing in core barrel. EMPTY

1024 ~~F1H~~ Add CS 9 ✓

1042 T1H Core barrel & rods.

2ml
2-15-22 Tuesday 47

1051 Text to Kelsey Bicknell
with update.

1100 Coring now, clean out
advancing quickly and
reaming.

Adding water to the boring.
using the flapper bit for
the clean out

1124 Pulling up now Coring
(2.4 min)

TOOTH
1145 Hoist rod up - no water in rod
last rod up
sprayed w/ water and mud.
Cleanup crew.

Cleanout into the hopper -
a few feet of sand.

10' core - slough
1200 Collect sample CORB!
Core up 507-516

1205 Add CS 9 1 x 10'
T1H.

48

RMY
2-15-22 Tuesday1222 Log core 507-516 ✓
SW w/ gravel.T/H for another Cleanout?
1230 helpus back w/ water
of full to top.1236 Cleanout run.
Advise Kevin 516 is
depth for next PA sample.1240 in hole on bottom
cored for cleanout.

(55 to 516) ✓	= 52 × 10 = 520
Clean out, then PA sample.	4 = 516

Water use: 350 gal + 500 now

1255

1300 Call Lynch - here at 1400 ok

RMY

2-15-22 Tuesday

49

7" going = 2 gal/ft

$$2 \frac{\text{gal}}{\text{ft}} \times 500 \text{ ft} = 1000 \text{ gal}$$

1330 Core barrel up.

ready to deploy PA sampler.

1334 Laydown CB 1 x 10 ✓
Laydown CB 1 x 20 ✓

Rod 1 x 10'

Sampler onto rod.

1343 Sampler to go in; with bag.
3 x zip tie + spud bar.
plastic to tighten the
PA sampler closed.

T/H

Sample @ 516

RMS
50 2-15-22 Tuesday
1425 Kelsey Bucknell on site
1430 Confiner sampler is @ 516
and is dry inside. 520-4
1431 Pull up to open sampler = 516

Will want to 1245, then
bail sample.
Lower bailer, tag bottom, raise
1450 Sample Push Ahead

WUAKBFMWOL #2
2-16-22 Results ND
PA (516.5-518)

Decom the ss bailer ✓
1500 TOOH w/ sampler.

RMS call Crestech to get
a better WLM. Shainas
They do not have another
750' meter.

1510 Kelsey off site

Lynna off site to Hall.
to deliver samples.

1529 Sampler is up. (All of it).

RMS
2-15-22 Tuesday 51

1530 See photos of
Sampler with bag and
rubber strap, and
zip ties. Worked as expected.
Note, made up the tool
with plastic wedge to make
tight at bottom section.
Still was water-tight.

1531 TIT
CB 1 x 10'
1 x 10'
+ rods. Will try to cut a
core 516-526.

Clean PA sampler. Screen
is damaged. Kevan will order
another sampler.
We have 3 more
to do.



broken
screen
section

52. ^{RMS} 2-15-22 Tuesday

~~1222~~ log core 507-516

Note, next P/S sample
≈ 546-548'

1600

~~1600~~ Cliff Core. 516 →

Call on garnett Hanson Geotech.
He will ship another meter
debris Thursday, and
have a call with a tech
formation, OK.

1610 Call w/ Arden for update.

Cliff Holman, Cascade drilling
mgr, off site.

1630 Stuck in the hole!
Trying to pull up
vibrating and grinding, chattering

53

^{RMS} 2-15-22 Tuesday

1646 Text Joe T. that
we are possibly stuck in
the hole.

Trippy out now ... rods ...
Twisted off?

1657 call Joe T.

1711 Core up 516-527 ✓

1730 Cascade off site

RMS log core ✓

✓. Secure site

✓. Summary

✓. Photo

✓. Text to AH

✓. Sync photo

1749 RMS off site

Core summary
See p. 31

54 Rms
2-16-22 Wednesday

0605 To site
0625 on site

Todo

- ✓ call Jet West
- ✓ call Brett
- ✓ Fix WLM
- ✓ Next Push Ahead
546.5-548

✓ Tag TD

Wednesday

3hr core 527-546 2719' (#3)

2hr push ahead 546.5-548 ✓

4hr core 546-576

4hr

Thursday

3hr push ahead 576.5-578 (#4)

3hr core 578-605 27 ft

6hr TD @ 605 (#5) ↑?

Short dark greyish log? Push ahead (#5) 605

Rms

2-15-22 Tuesday

55

Summary 2-15-22

- H & S Mtg
- Core and Log
End 527
Stat 546.507
Total 20'
- Overcome flowing sand
- Push Ahead sample
@ 546.5-548 and
deliver to Hall
- Kelsey Bicknell onsite

Tomorrow 2-16-22

- Continue core & log
- Push ahead @
~ 546.5-548

56 RMS
2-16-22 Wednesday

0700 H&S -
✓ EASTSTONE
✓ Cascade

Discussion Schedule -
Perhaps Monday - OK.

0720
RMS call Jet West

Confirmed Monday - 10AM.
Tom Stutz

Call Brett Mayhew -
wait until after 0800

0735 Dump the hopper

0740 Room show RMS a
safety issue with the cable
for the "Monkey". Will
need to get parts and cut cable,
re-make the eyelet.
ACE OK.

RMS
2-16-22 Wednesday 57

0805 Better to have a
wire rope expert build
the cable and eyelet
as it is, so will do that.
OK.

0840 call from Kevin -
will take a half hour for
the vendor to make up the
wire rope and eyelet for
the "Monkey" cable.

58

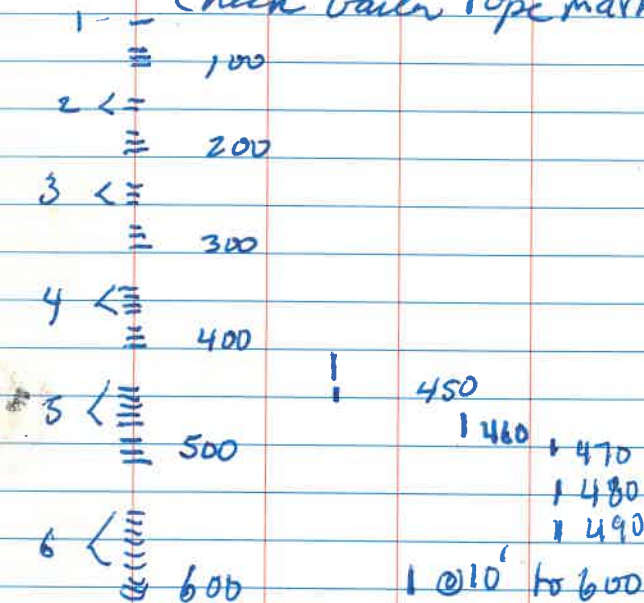
RMS

2-16-22 Wednesday

0857

- RMS check the WLM. Bolt is for holding the reel onto the frame, will not tighten but there are 3 other bolts.

Check bailer rope marks



0937. Kern back with cables.

59

2-16-22 Wednesday

0930 count pipe

11

14

$$\frac{25 \times 20 = 500}{1 \times 20 = 20}$$

$$520 - 4 = 516$$

$$516 - 4 = 512 \checkmark$$

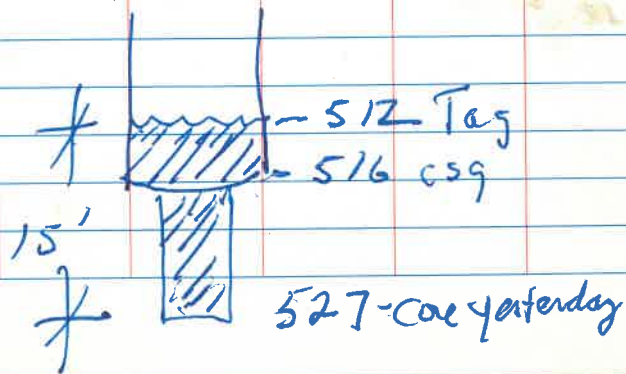
0940 RMS tag TD w/ Tagger

$$516 - 4 = 512 \checkmark$$

Yesterday TD was 527

$$\begin{array}{r} 527 \\ - 512 \\ \hline 15 \end{array}$$

= 15' of Fm in csg, line collapsed, needs to be cleared out, and water head added, csg added, to stay open. OR csg is at 516



60 ^{RMG} 2-16-20 Wednesday

1000 Add Csg 1 x 10'
 $516 + 10 = \underline{526}$

1010 T/H

1032 Cleaning out/coring now
1045 TOOTH

1100 Text update to Joe T. ✓
Call with Createch re
WLM. Will deliver another
one tomorrow, early delivery.

1110 Core up 527-537

Core and "clean out" in same
run. OK ✓

1122 Csg 1 x 10'

1138 $526 + 10 = \underline{536}$

Log core, Note FAS CLAY

⊙ 536-537 + ?

Cascade take lunch

^{RMG} 2-16-20 Wednesday 67

1200 call Brett Mayhew -
be here @ 1300 or before OK

1210 Cascade back from lunch.
T/H to cut next core.
 $537 - 546$

PA Sample @ 546

1238 Brett Mayhew here -

In hole, ready to core.

1250 core is cut.

Pull up tight. Add water.
Now pulls up smooth.
TOOTH

1 x 10'

Pull up a few feet, Add water!
1319 almost OOH.

1325 Core up NO! Empty
T/H with Flapper. ok!
Formation should be loose
enough to use flapper bit.

62 rms
2-16-26 Wednesday

Pending
PA Sample @ 546

550

26	25	x 20	500	520
	1	x 20	20	20
✓	1	x 10	10	10
			530	550
			- 5 =	- 5
				<u>545</u>

= 26 x 20 + 1 x 10 rods
1 x 20 CB

- Clean out to 546
- Core to 546
- Clean out again -
- Then PA sample.

1353 pushing core w/ flapper to 546

1400 Took expecting the core the fell out on last core run.

Windy; storm approaching

rms
2-16-26 Wednesday 63

1434 Core up to 546

537-547

Add csg?

1 x 10' 536 + 10 = 546

✓ rms log core very slow csg.
1537

Adding casing did not work. Need to pull out some casing to break it free, so conditioning the hole, moving the 7" csg up, then will drill out and re-install.

Looks unlikely to sample today, but this is necessary to continue to advance casing. OK confirm this with diller. No PA sample today.

1543 Brett Mayhew off site

1600 See email Joe T.

PA Sample 516.5 - 518 = ND

64 2-16-22 Wednesday

1623 Talk in Kerm -
got CSg down to 547
and is free to rotate.
Will flip in row and
clean out in the AM,
from PA sample.
Also, will have a mechanic
here in AM to fix the
box truck starter.

This is necessary because as
of now, crew has to hot wire
the box truck whenever
needed to start. Ok.

1630 T1H

1653 in hole, last joint,
push down to 547,
pull up in CSg for night.

1700

- Summary ✓
- Photo ✓
- Text to AH ✓
- Sync plog ✓
- Secure sites ✓

1723 (MINA off site)

1730 RM off site.

Rmg
2-16-22 Wednesday

65

Summary 2-16-22.

- H & S mtg
- Core and log
 - End 547
 - Start 527
 - Total 20
- ~~Condition the hole~~ Rmg
to unstick 7" CSg
and advance to 547
in preparation for
push ahead sample
tomorrow @ 547.5-549
- Results of 516.5-518 ND

Tomorrow 2-17-22

- Push ahead sample
547.5-518
- Continue coring and
logging to next
Push ahead @ 577.5-579

6.6

RMS Snowing 31°F
2-17-22 Thursday

0600 To site

0618 on site

Snowing hard, with
wind.Todo

- Trip out, dump/cleanout
- Push ahead 5465-5488
- Continue core/Log

0639 Cascade on site.

RMS advice we wait
until 0730 to see if the snow
stops. I don't want crew to
get soaked, ok.

0653 Text to Joe Tr, on hold
until at least 0730.

6.7

RMS
2-17-22 Thursday

• Call w/ Joe Tr

- Snow delay
- govt / vent route -
get cost difference - OK
- Cascade to show Δ\$
and Δ time

- P sample # 5 - could
be after geophones.

0730 Drivers with Kevin
up, unit work, prep for
slippery conditions.

• Use salt

• Fuel & warm up eq pt.

- M & S mtg - slick conditions, visibility

0739 Start drill rig and box truck
fuel drill rig

0747 Call Brett Mayhew to
come to site. OK

0800 To off

0815 Brett Mayhew here.

0840 off - not much
in the core barrel

68

RMS/
2-17-22 Thursday

- measure to datum - 4' below
- Tag TD $\frac{1}{2}$ jaw
- Rinse w/ PA Tool
- Tag TD in Tool w/ WLM
- confirm Dry
- De lift up to open tool
- wait 15 min
- Bail Sample
- collect sample

0849 Tag TD = 547 ✓
551 - 4' stick up
to bottom of jaw.

0901 T1H w/ Tool
0909 Brett to INTERIA
to get the other WLM -
just delivered.
Snowing hard!
Stop trip in until
Brett gets back, OK

0940 Brett back. Resume T1H

RMS/
2-17-22

Thursday

69

0955 in hole
WLM to confirm dry.
1000 WLM to 550. No water!
1007 confirm no water in
Sampler

Reel up the WLM.
1030 Bail Sample - DRY!
Check w/ WLM - dry at
bottom.

Drive sampler + 2' and side,
then pull up (again) to
expose screen.

Tag wet - only a few inches -
needs more time?

1122 551.05 WLM wt $\frac{1}{2}$ hr.

Cancel take time to wait
for water to fill into sampler

551.05

550.90

0.15 0.15'

1210 Pull WLM.

TO RMS
2-17-22 Thursday

Add rod, push down,
Lift up again.

1211 WLM into rod
1218 Tag water then
raise the tape 0, 5', wait
for sand, mean water
coming up.

1224 No change

Tag water in csg.
@ 312 ! ?
Water is very high
in the casing -

1240 FOOT to inspect
Sampler.

1310 inspect the sampler.
plugged by fines in the
formation. Clean sampler.
See water can go in, when
clean.

RMS call Joe J.

rome
2-17-22 Thursday

77

1330 Call w/ Joe J.
Core ahead 10 ft then
attempt PA sample again.
OK.

See photo of second sampler,
with very thin slots.

Cascade vgr Sharwin
will order another sampler.
Same as the first one.

1340 Brett off site.

1345 Duller trap in to
drill 10' / core 10' T1H

1411 on bottom 547 (2.6 mi)
Coring now.

1430 FOOT

1500 Core up 547-557

1510 Makeup push ahead sampler.
T1H w/ sampler, in
plantin sleeve, etc.

72

RMG

2-17-22 Thursday
1525 RMG call Austin.

Previous call w/ Austin.
Said he was exposed to C-19,
tested negative today.

Exposed on 2-13 - Super Bowl
party.

No symptoms, but consider
protocol for sampling, if any.

Call w/ Austin -
discuss sampling. ✓
discuss Covid ✓

Shawn Stenholty,
Cascade Mgr, here. ✓

Brought a new sampler!
1548 Make up the sampler
w/ plastic strips to hold
it closed.

Add plastic bag + 3 zip
ties and rubber band.

TOOH, make up sampler. T1H

1600 T1H

RMG

73

2-17-22 Thursday
1611 on bottom ✓ w/ sampler
to 557 +

Add 5' rod
stick up = 9'

Tag 2' water in sampler.
Assume is from 558' ok.

Open sampler.

wait 10 min, then bail

1634 - Shawn offsite.

PA 558.5-559

1646

Bailer into rods.

Target on line 559 + 9
= 568 ~ 570

1653 bailer up - NO WATER!

Tag water now.

545-6 =

1706 539 and rising, up ~ 30' from sample
leave overnight then
collect sample in the AM.

74

RMS
2-17-22 Thursday

1732 Cascade waiting for
mechanic to finish working on
your box truck

- ✓ Summary
- ✓ Photo
- ✓ Text to AH
- ✓ Sync plug - success!

1800 RMS off site.

~~1800 RMS off site.~~

75

RMS
2-17-22 Thursday

Summary 2-17-22

- Ft & S Mtg (short due to snow)
- Snow delay 1/2 hr
- Clean out to 547
- Attempt push Ahead sample @ 548.5 - 550. = #3
- Bail but no water in bails, twice
- Confirm no water with water level meter
- Pull sampler and observe plugged slots
- Core ahead to 557, Log
- Obtain new sampler from Cascade manager
- Deploy sampler to 558.5 - 560
- Tag water @ 539 = 21 ft and rising @ 1706.
- Leave overnight, sample in the AM.

Continued →

74 Rms

2-17-22

Thursday

2-17-22

Summary Cont'd

Tomorrow 2-18-22

- Sample Push Ahead #3
water @ 558.5-560
- Core and log to 577
- Collect Push Ahead #4
@ 578.5-580
- Drill/Core & Log
to Total Depth
@ ~605 @ 607
Rms
- Geophysical log
on Monday 2-21,
then push ahead sample
#5 @ 608.5-610

2-18-22

Friday

75

77

Clear
25°

- 0655 to site
- 0630 on site
- 0652 Curcade on site
- Prep H&S
- 0700 H&S mtg ✓

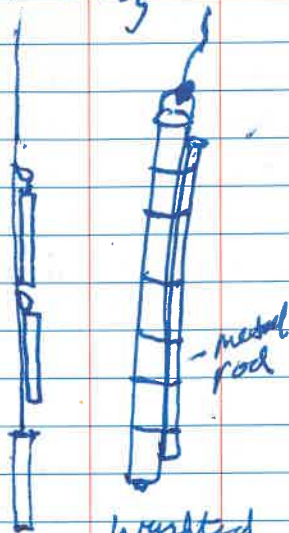
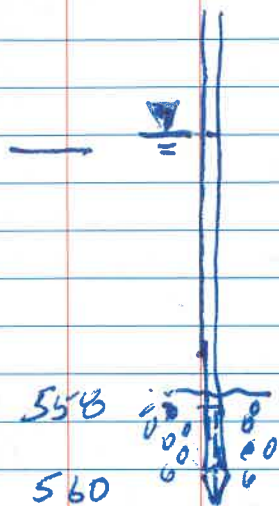
To do

- Update Jet West re Monday
- Tag water 460
- Calculate water column 558
Skidrup = 6' - 460
= 98'
- Bail Push ahead sample
with multiple bailers. 92
- Call Joe G re tap on
bailer bottom
- Core to ~~578~~ 577 (20')
- Push Ahead ~~558-555~~
578.5-580 #4
- Core to ~~605~~ 607
- Compile water added data

0730 rms check bailer rope
marks for depth - ok ✓ to 600

76 RMS
78 2-18-22

Friday



Weighted
plastic
bailer ✓

0800 Box truck mechanic here

0805 Sample collected ✓

0810 Call w/ Joe T. ✓

0830 Complete labels and
COC.

0840 Advancing casing

0855 call Joe T to
discuss leaving the sample overnight. ✓

Text Joe T to call me. ✓

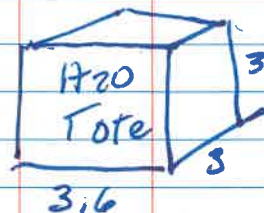
0900 TIT

RMS
2-18-22 Friday

77
79

0905 Call Jet West
update -
will confirm today
after 1:00 pm. ✓

Totes



$$3.6 \times 3 \times 3 = 32 \text{ ft}^3 \times 7.48 \frac{\text{gal}}{\text{ft}^3} \\ = 242 \text{ gal.}$$

0937 Corey Now. 557 →

$$240 \text{ gal} \times 4 \text{ totes} = 960 \text{ gal} \\ \sim 1000 \text{ gal}$$

$$? + \frac{1}{2} \text{ tote} \sim 1240 \text{ gal} \\ (\text{Approx.})$$

Note? Not all has been used
yet. ~ 400 not used

$$= 1000 - 400 = \\ 600 \text{ used}$$

78
80 2-18-22 Friday

467 - 557 on Table
photo ✓

1011 call JT again ✓.

0950 TOOTH with core ...?
for 557 → 567

1034 Core barrel up 557-567

Had 30' barrel
dump top 10' water to
hopper. Lay down 10' CB

1035

Call w/ JT ✓

Yes, have the sample
analyzed ✓

- set overnight ✓
- 2' water in sampler
before opening - PMS
from formation at
correct depth ✓

Call w/ Austin - how
will deliver sample to Hall ✓

2-18-22 Friday

79
81

1050 PMS log core

See cobbles! and clay!

1109 Austin Hanson here
for samples. GOC to ATT from
PMS. De lora to Hall.

1050

1100 TIM to cut next core

1110 cut core 567 →

1120 TOOTH

1200 Core up 567-577 10'

20' ahead of CS9

Divert plan w/ Kevin -

Tag hole - collapsed back
to CS9 @ 567 - ok ✓

• Run casing after lunch to ✓
 $567 + 10 = 577$ 577

Need to core to bottom of hole
OK ✓

• Then clean out to 577 for
PA @ 578.5 - 580 (#4)

• Continue core as time
permits

PMS advise Jet West to

Core Tuesday, Monday TD + PA
#5

80
80 2-18-22 ^{Jims} Friday
Note - Fm is loose
when not in CSG, so
collapsed below CSG after
removing core barrel.

1210 Cascade take lunch.

1210 Pms log core
see cobbles to 5" w/
pebbly sandstone with
vari-colored pebbles incl
gts, chert, pink, yellow, red.

1235 core logged 561-577 ✓

Lunch ✓

1253 Cascade bath.

Advance casing.
When CSG down, then
clean out, Dr to 577, then
PA #4.

1314
Populate chip tray to 570.
Populate bulk samples to 500

87
83
2-18-22 ^{Pms} Friday

1330 Dump hopper.
T1H Trip in to cleanout to 577
1346 Call Jet West -
Postpone until
Tuesday, 10AM - OK.
Email to Jet West ✓
1400 Call w/ Austin -
discuss sample #5, etc.
Today, must deliver before 5 a hold.
Outhouse service ✓
1425 Trying to TO.
1431 Bumping up.

TOOH

1 x 10 ?

580' =

Rods 28 x 20 = 560

CB 1 x 20 = 20

580

- 3

577

RMS
82 2-18-22 Friday
85

CSG @ 577

1520 Making up tool ✓
1532 Tool into wet hole.

TIH

at 6m

1600 Attempt to tag inside
sample.

WLM sticks, wood
go down the rods.

Add a wt to the
end of the WLM.

Add 3" long bolt, down.
Zip tie to probe.

Try again.

Stops about 200' -
obstruction in the rod?

1609 Stainless steel bailer
down the rod to
push out the obstruction
⊙ ~ 200'

Blockage @ ~ 200', heavy
SS bailer will not go down the
hole.

1624

RMS
2-18-22 Friday
83
85

1630 Call Joe T =
update. ✓

obstruction in the
rod or 2.14' logs!

1645 Sample bag in rod.

1700 Spinning CSG, pull up for
a weekend.

RMS do summary

✓ Summary

✓ Photo

✓ Text to AH

✓ Sync plog - success

1725 Call from JT -
noise complaint.

Need to shut down. ok. ✓

1740 Cascade off site.

1740 RMS off site.

84
86

2-18-22 ^{rim} Friday
Summary

Summary 2-18-22

- 1 1/2 S Mtg
- Collect Push ahead water sample #3
558.5 - 560
~~578.5 - 580~~
- Deliver sample to Hall
- Core and log
End 577
Start 557
Total 20
- Run CS9 to 577 and cleanout at 578.5 - 580
- Attempt Push Ahead sample #4. Sample bag in rod prevented sampling process, but bag was removed.
- Pull up and spin casing before weekend break.
- Water usage ~ 600 gal

2-18-22 ^{rim} Friday

85
87

Summary Contd.

Monday 2-21-22

- Advance CS9 back to 577
- Clean out to 577
- Deploy push ahead sampler @ ~~578.5 - 580~~ (H4)
580 - 581.5
- Collect sample #4 and deliver to lab.
- Core and log ahead to 607 TD
- Case to 607
- Collect Push Ahead #5 and deliver to lab
- Prep for Geophysical Logging on Tuesday, 2-22-22.

8688 RMY Cloudy/Clean
2-21-22 Monday 36°F

0605 To site

0625 On site

Prep H&S

0633 Cascade on site

~~578.5 - 580~~

580 - 581.5

To do

- Confirm well continuation with bentonite slurry
- Confirm PA #5 below screen and wait 24h for results
- Re focus on the job
- Advance CSS to 577
- Clean out
- Push ahead sample 580-581.5
- Continue core to TD
- @ 607
- Set West for tomorrow
- Minin - keep volume down

RMY 87
2-21-22 Monday 89

0650 H&S Mtg.
discuss plans.

0709 Start rig & box truck.

0715 Joe T here.

discuss sequencing

- can work just if is needed ✓
- Try to reach TD today
- PA sample #5 - results - need to do 2 well design for approval contingent on results.

0730 Advancing the casing back to 577.

0735 Joe T off site.

0750 RMs/text Shannon about the bentonite grout.

0758 Casing down to 567, add 1 x 10', continue. Add water to casing, vibrate down slowly.

0815 call wr Austin ~

0838 rig up again

0858 rig down - something?

0850 70M
2-21-22 Monday

0850 end call.

0853 Adding gear oil -
to the gear box.

Load whines, losing
power. Try to get
it back up to speed
and normal ops.

0858 Start up again.

Attempt to continue

advancing csg. 11.

0900 call from Enterprise -

yes, extend the truck
rental for at least 1 week
(7 days).

0906 vibing down slowly.

0910 2nd 10' csg won't
go in. Need to clean out -

so T1H to cleanout

TOOH, try to advance

csg again, down to ~ 530.0k.

Rig ok now, just low on
gear oil. ok.

70M
2-21-22 Monday

89
91

0921 T1H

0944 Stills T1H

1000 Still T1H

but casing Rods $27 \times 20 = 540$

down well Core $1 \times 20 = 20$

above TD; 560

50 Fm up in 10 10

Casing. 570

3 rods short of a trip,

means casing at ~ 60'

above previous TD, 577-60

= 517 ±, also

having trouble pulling up

Should add water.

1010 Add 10' and core

down, try to pull up.

1018 vibing down, pulling up.

1021 Stuck!

Try to pull up.

1021 pulling up now

pull off $1 \times 10'$

" " $1 \times 10'$

TOOH

1048 Pull last rod wet. Hoping
for a full core barrel.

90
92

20ms
3-21-22 Monday

1051 drain the upper 10'
of core barrel, lay down.
pull lower 20',
dump.

Used the Flapper bit
Very Full load!

1054

Makrup with other bit.

~~THT~~. 20' core barrel
(Not 30).

1056

Pull out core barrel,
rack it.

Will try to drive CS9
from 567-577.

Kevin has tooth aches,
taking pain meds.

1102 vibing down slowly.

1112 Not vibing down. Stop.

1120 resume - very slow
maximum vibs, no movement.

CS9 @ ~ 569 ±

This is the same place struck
before the cleanout.

2-21-22

Monday

97
98

1127 Trying to break

connect in w/ single jack
sledge hammer. Dalton.

almost "welded" shut tight
due to efforts to advance CS9.

Expect: rework the 10' CS9,

Tamp back in and clean
out again.

1129 - ok, 10' off.

Adding water! Yes ✓

1136 Still adding water - good.

Talk w/ Kevin. Cliff is
recommending pull a lot of CS9
and re-drill, but Kevin
thinks will just make it worse,
the FM cures immediately when
open.

Will try 1 more time with
more water column.

Suggest add water at max
drill depth. Also discuss
adding a heavier fluid, i.e. polymer
or drill mud.

97
9.4 2-21-22 Monday

1140 Call Joe T. re
issue. May need to add mud.
What product?

Call back @ ~ 1300. ok.

1152 Talk w/ Kevin.

Doesn't want to use a mud.
Should have started with
mud at the start.
Says we "just have to fight it".

1200 Try to break connection
to add the next 10'.
Sledg hammer. Ok. (ND)
Pulling up ^{CSG} vibs. very
tight. Trying to pull up & spin.

1206 Still trying to break the
connection. No, just trying to
connection is very hot, pull
let it cool. up

98
2-21-22 Monday

93
9.5

Talk w/ Kevin.
No mud (would be
Quick sub if used) = bentonite

Trying to pull up the lower
20' of CSG and start over.
Will need to pull up until
all CSG is free.

1236 Still trying to pull up.
CSG is VERY STUCK

1245 Up a few feet, rotating.

1250 Control console ~~to~~ levers
stopped working. "??"
Kevin staring at the
panel.

1252/own & spin "??"

1257 pushing down

94 ^{RMS} 2-21-22 Monday

Call w/ JT & JG.

What to do w/ Jet West ~

Coarder working the weekend:

Scenario -

TD Tomorrow -

max. drilling depth -

at rig limits. Yes. ~600,

~~not~~ deeper if hit from 60.

1330 end call.

Text to say if CSJ
down to 577.

1336 CSJ down a couple
of ft but then stopped,
as before.

1337 vibrating up a few feet
• RMS call Jet West -
not tomorrow, don't
know when.

1343 Call Micho - not tomorrow
and not sure when. Ok. Stay in
touch.

^{RMS} 2-21-22 Monday 95
1346 Talk with driller - 97
will clean out, then
advance CSJ to 577.

1400 T1H

27 min/ft

1427 Corrig now for cleanout
567-577.

(3 x 20' rods in the rack?)

1447 rotating and vibrating down
slowly.
Add water.

1455 T00H

1524 00H 30 min

Tag TD (Not yet)

1526 core barrel up.
Top 10' wet.

1530 Core! 577-580! 3'

Dump remainder to hopper -

Then try to advance CSJ
to 577.

96 2-21-22 Monday
98

1538 out of water
Advance csg to 577 well?
Note: Cleared out
to 580 (see 3' core).

1600 Jason back with
water.

RM's text photo and
note to J & J.

Csg was advanced about
to 570, then stuck.
Trying to pull out now,
stuck again. See
log for 570 w/ cobbles
to 5". stuck there.

RM's log core.

1607 Trying to vibrate up the
10' csg. STUCK.

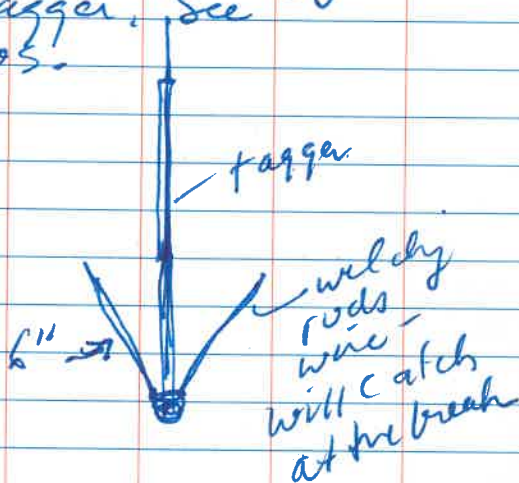
1616 Transferring water from lake
to tanks on rig.

2-21-22 Monday

97
99

1600 RM's log core.
SW w/ cobbles @ 579-580.

1623 talk w/ Kevin.
thinks csg might be broken.
Add welding rods onto
~~tagger?~~ casing joint
on tagger. See
photos.



48 RMS
100 2-21-22 Monday

1645 Call with J Tracy.

Set the well a higher?
another rig?

Talk in the AM - OK

1700 Need to shut down -
OK.

Still tagging to find the
possible break.

1710 discussion with
Kern re broken casing
and ways to get it out -

1720 Cascade off site
✓ Secure the site (windy)

✓

• Summary

✓ • Photo

✓ • Text to Austin

✓ • Sync p log

1737 RMS off site

RMS
2-21-22 Monday 99
101

Summary 2-21-22

- H & S Mtg
- Start with 7" csg @ 557
- Advance 7" csg to 567

- Attempt to Advance csg
to 577 but gets stuck
at ~ 570.
- Cancel geophysical logging
3 times
- Attempt 3 times,
including cleanout to 580,
but csg will not
advance past ~ 570.
and log
- Core 577-580 (as part
of cleanout during
attempts to advance csg)

Tomorrow 2-22-22

- Continue efforts to
get casing ~~unstuck~~ to
577 and assess options.

102 JRM/ 2-22-22! Tuesday, Clear 35°F

0545 to site
0600 on site

Enter PA Sample #3
on tablet and Sync

0615 558.5 - 560.0

Entered

Sync

Text to Austin ✓

0624

Prep H&S

0630 To do

- Talk with / meet with INTERA team for path forward options

- Driller testing how broken casing?

- Using a hooking device on end of tagger

JRM/ 2-22-22 Tuesday

103

- Propose videolog if Csg seems broken.
- Pull out broken csg - somehow?
- Casing up to water table, then back in with Quick Gel? but no guarantee to get past 570 wd to TD

- Adjust screen interval up to 547 - 567 ±

- Obtain a different drill rig and drill / PA sample from 460 (water table) to TD =

~~102~~ 104 JRM
2-22-22 Tuesday

0639 Cascade on site

0700 H & S Mtg ✓

0715 Call w/ Joe T.
discuss who to talk to
at Cascade.

RMS ask Keon -

Sharon - ok.

Text Joe - Sharon

Text Sharon to call Joe T.

RMS review Tech Memos
"Data Gap" is 520-570...

Csg is now @ 567 so could
complete well

542 - 562 + 5' slump

~~102~~ 103 JRM
2-22-22 Tuesday

703
105

0800 Call with Joe T & Joe G.
discuss Data Gap from
Tech Memos. Yes it is
per figure 4.

Would be good to get
sample deeper, below
the clay shown on Figure
4.

0832 end call

• Check hooking device
Spuds @ 560, catches
on something.

Try again, re doing the
fasting device.

0830

Driller and crew tagging
down hole with hooking
device.

0915 RMS check on deck -
tagging down hole, can't
feel bottom - this means
the tagger with hook is hung up

F04 100 rms
2-22-22

Tuesday

hung up somewhere up the hole and the line is going past the tagger down the hole, to tape length of 600', so not a valid tag.

0930 Pull tagger up and the tape is tangled in large knots. Kevin notes that the helpas lowered the line too fast, so, not sure if the hooking action is valid for broken casing or not.

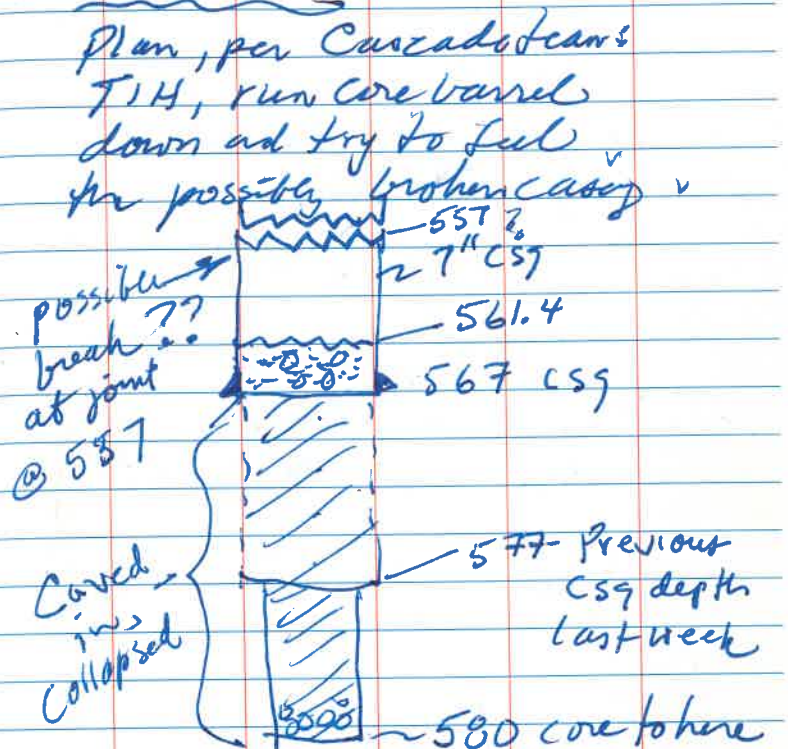
1000 Kevin on phone with Cascade.

1015 help bring up the tagger.

Tagged at 566.0
- 4.6 stick up
561.4 bgs

107 tag
2-22-22 Tuesday
Tag stickup
566 - 4.6 = 561.4

561.4' = TD (in csg or out csg?)



1023 - RMS not sure where the break is supposed to be - must be

108. ^{12:00 PM}
2-22-22 Tuesday

1030

7171

Flapper bit for cleanout
1056 in the hole - 26 min

Reaming up down,

1100

Fluid leak from the head(?)

Clean off with cloths.

Lower air spring seal.

Kevin call Cliff?

"Bad time to half to
replace it" KR

1107 Resume "Coring"
at depth - 557'

(561 was tag depth)

grinding and chattering -

• call w/ Austin - re-ream.

1115 Call w/ Joe Tw

call again w/ WA -

Cascade samp not broken -

^{12:00 PM}
2-22-22 Tuesday 107
109

What is Cascade doing?

Yes working now, etc.

WA wants the #4 and
#5 PA samples.

So when flow gets here,
need the plan to continue
to 600 ft.

1132 Coring again now -
(about 10 min break).

Chattering, vibrating down

1134 adding water to casing

1136 pulling up/down, up/down -
Stop for phone call (?)

1139 pull up:

- 10' rod

- 10' rod

1 x 20' rod o.o. continue
#00H

1205 last 20' wet to drain ✓

1207 Core barrel up ^{20'}(30') 2.8 min

Drum top 10 ft

dump 13.6 lb ✓

Tag the hole.

108110

Time

2-22-22 Tuesday

1213

Tag - add water

don't want hole to collapse
on the tagger.Note: inches vs 10th ft

$$572.1$$

$$- 3' 6'' \quad 3.5' (?)$$

(Cleanout ~~570 ft~~ 5.3
Core to a 573) \nearrow table

$$572.1 \text{ ft} \quad 572.1 \text{ - marking points}$$

$$3.5 \quad - 5.3$$

$$\hline 568.6 \quad [566.8] \quad 580.0$$

$$566.8 \quad \delta = 13.2$$

1227 Cascade take lunch.

$$(57 \times 10 = 570' \text{ csq.})$$

1300 Tilt

1317 core/cleanout

~ 566 ± ?

~ 1 x 10' rod

- 1 x 10' rod

T00H

Time

2-22-22 Tuesday

111 + 09

1345 Core up/cleanout - open face bit
full load to hopper - no cobbles
Core cleanout to 580 ✓ ?

$$\text{Tag} \quad 559.60$$

$$5.28 \quad 3' = 0.125'$$

$$\hline 554.36$$

Talk w/ Kevin -
now thinks csq not broken.

Time Tag

(We think csq = 567) ✓

Time	Core to	Tag bqs	Up
1213	573	6	566.8 1 ✓
1345	580	26	554.3 13 ✓
1550	575	10	565 ✓ 2 ✓
0755	580	14	566 1

#10 112 Rms Tuesday
2-22-22 Monday

1422 J1H

Keeping busy until
Ron Rodriguez arrives.

1446 Coring now 24 min

= Cleanout.

1449 Adding water.

Reaming, up/down

pushing down hard,

shaking the tower, grinding

vibrating down, no rotation.

tight pulling up.

1454 add water,
rotating up, water helps
up 10', push back down

1456 rotate up.

1457 + 10' rod

vibrating down, chatter,

sounds rocky! ~ 570?

very hard, loud

chatter

1501 Adding water

Rms 089 56.7 ✓

2-22-22 Tuesday

1502 release up with vibs
and rotation, up 10'

1504 Rotation

- 1 x 10' rod laydown

pull up, tight, release.

- 1 x 10' rod laydown

1505 JOOH

1530 = 2 x 10' hole rods?

1 x 20 wet - down

1531 core cleanout up floppy bit

VERY FULL LOAD

to hopper, see only sand

1539 575 cleanout/core

Tag 570 (Rms)

- 5

565 ✓

See p. 27 for casing
count on Monday 2-14.

1629 Text update to Joe J.

#113

114 RMS
2-22-22 Monday

1610 J1H
1630 Corrig/cleanout now (20 min)
1640 J00H

1707 240' in the hole.

Kevin thinks the break is above the bottom - so ~~they~~ need to f up out all the 7" CSG to find the break and what is left.

1716 Cascade off site
get phone # for Roger Rodriguez.

6928 451-6014

Joe Tracy 505 301-1134

- Secure site 240' in CSG
- Summary
- Photo of J00H to J1H
- No core log -
Synched sample interval this AM

TRAC
2-22-22 Tuesday 115 #3

Summary 2-22-22

- H & S mtg
- Cleaned out boring to 580
- Casing @ 567
- Tagged total depth @ 565

Tomorrow 2-23-22

- Rodger Rodriguez, Cascade Manager, will be onsite and available for discussion of path forward.

1730 RMS off site

44116 Rms Clear
2-23-22 Wednesday 20°F
windy

0605 to site
0625 on site
prep H&S

0635 Cascade on site

0655 H&S Mtg - wind/chill
Roger Rodriguez on site
Discuss plan to confirm
separation.

0726 Continue TOOH
from yesterday.
Wind chill is severe
water here is frozen.

0745 Joe Tracy on site.
Call w/ Austin ✓
0830 Joe T off site.

Cracked fitting on the
head. go to store for
replacement part. Ok.

117 H&S
2-23-22 Wednesday

0905 back with part
0920 repair ✓
0950 Roger try to find
the break with the hooking
device. Could not feel
a break.

1025
Redo the hook. Try
again to feel for a
break. Can NOT feel
a break in the casing.

Decide to try again
to advance the casing. ok.

1034 moving the 567 ft
back down, then
add.
back up to release.
Very tight
Surging the vibs

1046 Continue surging down.
pause - resume

1048 resume surging down

#118 ^{2PM} 2-23-22 Wednesday
~0800 ~~580~~ Cleanout

Tag 571.2
- 5.2

566.0 OK

See p.

1057 Cleanout continues
T1H

1118 in the hole, ready
to cleanout

1124 Cleanout coring,
adding water

1129 lift, then back down
for more cleanout

grinding/chattering down
access the zone ~ 570,
Caliber. 567-571, see log

1140 T OOH

^{2PM} 2-23-22 Wednesday #119

1155 call w/ JT
status ✓.
Text update when
trying to advance 7" csg.
WA likes the video log
idea if needed for
a major decision.

1204 OOH

Dump core barrel = FULL LOAD ✓

1208 Add sub for csg,
(Wind increasing)

Connect and pull up to release,
before adding next st.

Down/up, v. big, to release,
surging the v. big

1219 Still trying to release
to 567 before adding
to 547

1223 Still working to
release the casing before
adding. (15 min)
VERY TIGHT

1232 Still trying to release - stuck? ± 1'

118 + 20 rmy
2-23-22 Wednesday

1237 Add bucket of water,
continue surging to release
1239 still surging vibs

1244 bring in another
water tank to add to
tank on drill rig. ~ 250 gal

1245 Pause

1253 Resume

1300 Continuous surge-vibrating
to release casing string.

1320 Pause / break for lunch.

Talk w/ Roger & Kevin
continue trying to release
and raise the casing string,
must release before attempting
to add a joint.

Discussion of 6" tools.
1:12 1hr 12 min attempting
to release.

1330 Text update to Joe T.

1337 Kevin now operating to
try to lift csg.

12ms 121 #9
2-23-22 Wednesday

1341 Trying to raise, vibrating.

1345 "Bang" ?
stopped rig

Hydraulic fluid ^{water} change out
of the drilling head. ?

Was pumping water through
the head as trying to
release the casing.

1358 Resume - Roger

1405 Stopped. Kevin into
the back of the control panel -
engine area.

Roger to his truck.

1419 getting tools from
tool box on Cascade
truck.

1425 Kevin crawling under the
back of the control panel.

1440 Still working on repair.

1506 Dutton & 2 helpers.

1606 Still down for hose repair.
main head hydraulic hose

1630 getting the replacement hose -
1630

120 122
2-23-22 Wednesday

Schedule 80 P/C

OD ID
3.5" 2.86"

19, 27, 4, 29, 31, 30 FA 1.

$\Delta = 4"$ o Power + Vol ↓
o Power / Stream stop
or 3.5" of pressure growth

~1500

Call w/ Joe T -
what to do ~

Cascade:

- Plans
- Cost's Proposal

Any change, need approval - yes
Leave the holes

Risk?

Cost/Benefit for the
PA samples.

1437 Cascade back in house

2-23-22 Wednesday 123 121

VL + P - quick press

settings

Advanced

Side key

2-press

press + hold

side settings /

Slide sideways *

Settings

Adv

motion gesture

palm swipe

1700 Call w/ Joe T & Roger, RMS
discuss plans

• Continue efforts to free the
711 CS9

• Then decide up or down.

124 2008
2-23-22 Wednesday

1720 Cascade winterizing
then end for day.
Cold and windy now.

- ✓ Secure site
- ✓ Summary
- ✓ photo
- ✓ text to AH

1745 Crew still on deck,
testing the rig, but
not doing. Winterizing
the hoses with washer
fluid.

Talk w "Marcus" security
guard.

Talk w Kern ✓

1809 All off site ✓

125 2008
2-23-22 Wednesday

Summary 2-23-22

- H & S Mtg
- Roger Rodriguez, Cascade manager, on site
- Trip out core barrel and dump cleanout from yesterday
- Test for possible broken casing, conclude no evidence of broken casing
- Attempt to lift and ~~release~~ ^{spin} 7" casing currently @ 567, but casing will not lift. lift only 1 ft, then stuck.
- Roger assessing options on Cascade manager call.

Continued →

124/126 rmg
Wednesday 2-23-22

Summary 2-23-22 Cont'd

- Numerous updates to Joe Tracy
- Cascade repair ^{hose} fitting on front of drill head
- Replace
- Repair main hydraulic hose for drill head

Tomorrow 2-24-22

- Continue to efforts to release and lift casing from 567. Must be movable before trying to add casing to 577.
- Assess other options with Cascade, INTERA, and Water Authority teams.

rmg
2-24-22 Thursday Snow 28
21°F
0600 To site 127
0620 on site
prep H&S

To do

- Try to raise and spin casing
Csg @ 567
- Call @ 10 AM !!
- 0640 Cascade on site.

0700 H&S mtg -
icy conditions

Foggy, on roads,
wait until after fog burns off
to go for water.

0705 Start rig and box truck.
Warming up.

0710 Test sandstone @ 567-571 HCL \emptyset

0738 email to Maggie Scott
to get H&S forms.

react
ion

128
12/6 2-24-22 ^{12mg} Thursday

0738 Begin effort to
lift & spin casing.

0740

IMS test sandstone "cobbles"
from 567-571 with HCL.
There is no HCL reaction,
so cement is NOT CaCO₃.

"Cement is likely silica.
"Cobbles" look like calcite,
but is not.

Cobbles contain vari-colored
pebbles and "rip up clasts"
of fine sandstone.

Very hard cobbles in sample
with typical sand SW w,
gravel.

The sandstone "cobbles"
are likely chunks of a sandstone
layer that is fully winifed
at depth approx 567-571.

0746 Viding the casing - Kamm
Strong consistent vibs.

129
2-24-22 Thursday

Raise about 1 ft,
partial rotation,
then back down, then up.

0746 Roger on controls.
Surging, a few inches up,
then stops.

0800 Pump -

0800 Call on Joe T. - discuss

- CSG loose
- set well here
- try to drive the 7"
- 6" CSG

\$ for 6" CSG?

0815 Resume vibs, stops.
Mechanical Failure

Pin for main head cylinder
broken out - cannot operate.
Up the tower about 15',
need a man lift to repair.
Move box truck for
access. Cannot lower down
because all rods are in the ratchet

12/130 ~~130~~ RME
2-24-22 Thursday

0845 Completely shut down.
Text Joe Tracy.
photos of the part
that fell and the
"pin" that pushes out
of the tower into the
hoop. That is what
needs to be repaired.

0857 Cascade @ site to get manlift.
Check well 206 lith log
for "fine grained unit" at

AECOM Plank X-section
Shows fine grained @ 579.
There is NO fine-grained
unit logged by Show in
well 206 from 460-625.

So the fine grained shown on
the plank X-section is not
logged in 206.

Also, there is NO sandstone
logged, as in 567-571,
hard, conglomeratic ss in this horizon

RME 131 ~~129~~
2-24-22 Thursday

"Data Gap" 520-570

This well, logged to 580, no
fine grained unit at 579, as
shown on the X-section.

0925 email geological review
to Joe Tracy.

Talked w/ Kevin before he
left to get the manlift -
asked if the mechanical
strain on the rig of trying
to get the casing out is causing
the mechanical failure. He
said yes.

1000 Move box truck forward
to make way for the manlift.
Backing in the manlift.

DA, CSG unit
• 6" CSG for PA
• vs other rig \$

130 132 RMS
2-24-22 Thursday

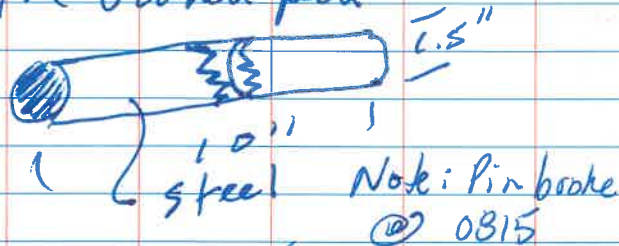
1020 Rig up in harness

Dalton Longtime is
trained and certified for
lift operation ✓
See photos of Dalton
on lift, accessing the broken
part on tower.

1040 Still working on lift.

RMS on call -

1130 Reyer show me
the broken pin



Cascade off site to get
replacement.

1230 Cascade back

133 131
2-24-22 Thursday

Phone call @ 1100 w/ WA & Int

1-415-655 0001

1100

Code 2 555 016 83

• Joe T 05

• Kelsey

• Dianne

• Shelby

• RMS J. G.

RMS summarize ✓

Diams - rig capacity limit
What is the solution?

JT - Bigger sonic rig

6"

rolling the dice

JT - explore options

Diams - unstick -
then what?

DA • 15g unstick #1 Do not repeat

• 6" tooling vs other rig

• Need bottom 2 water samples

1131 PA for 581+

132 134 RMS
2-24-22 Thursday

1200 Call w. Joe Tr.
renew 567-571 in log
for the hard sandstone.

1247 RMS review plog,
describe sandstone in more
detail but do not interpret.

1300 Roger says a couple of hours
to make the new pins.

Also, a few feet to push
ahead is OK, but 15' is too
far. The vibration could open the
sampler above the zone of
interest, and, pull back,
through that much formation
could break the sampler.

1313 Sync the log revisions.
Success

1420 Log is ready.
Text Joe Tracy.

RMS 135 133
2-24-22 Thursday

1511 Jason (helper) is getting
water at Cascade yard.

Call w. Joe T -

decision all, expect more breakage
by straining the rig.
1534 Roger is back with
the fabricated part.

See photo

1545 Dalton up the lift with
the part.

1619 - Call Lynda Price
for Hot Work Permit.

- Safe Place
- See Hot Work Permit form
- Fire blankets
- Shielding from flames

Text Joe Tr. Hot Work Permit

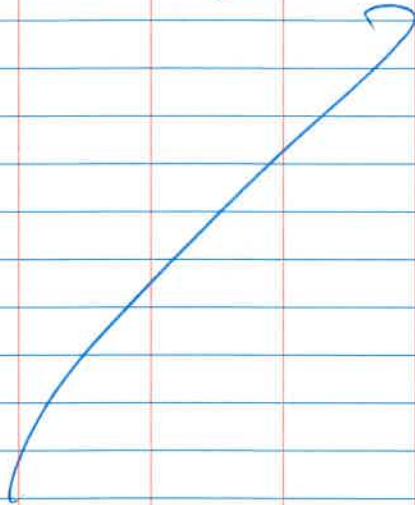
1700 Cascade off site.

1214 136 rms
2-24-22

Thursday

1719. Secure site - permission from
• Summary 804 for Box Truck
• photo to Austin ^{in front}
• Note that plog is _{of hour}
revised with detail
but not geologic
interpretation.
Suggest review by
Joe to before send to
client.

1720 rms off site



rms
2-24-22 Thursday

137 135

Summary 2-24-22

- 14 $\frac{1}{2}$ 5 meeting
- Continue efforts to release 7" CS5 from 567.
- Mechanical failure of the main head cylinder pin @ O815, located on tower
- Phone call mtg with WA $\frac{1}{2}$ Team
- Obtain rental manlift to remove broken part
- Take piece to shop for fabrication
- Determine that welding is required for repair. Contact professional welder for repair tomorrow, under Cascades and INTERA Hot Work Permit.

Continue →

138 7ms

2-24-22 Thursday

Summary Cont'd

Tomorrow 2-25-22

- Repair main head cylinder pin.
- Devise a plan for obtaining the next two push ahead water samples, in coordination with and approval from the Water Authority.

7ms
2-25-22

Friday

139 137

0605 To site

0620 on site

0630 Curcude on site.

Ducro plans. Kevin is not in the loop for the welder or other plans. That is Roger. Roger drove back to Phoenix yesterday.

0650 text update to Joe Tracy.

0700 Revision to p Log - delete Formation name.

Note also, weak cementation is not correct, should change to "no" but no entry choice of "no".

⁰
~~0830~~ Text update to Joe T, 7ms to get fuel.

Call w/ Joe T, discuss all, per text.

0856 7ms get fuel

0942 back to site

1308 140 ~~1200~~
2-25-22 Friday

Welder:

Mobile Weld SOS

0943 Outhouse serviced ✓

0951 Sync p Log to add
"no" cementation
Waiting for welder

1000 Welder is here - No-
was water delivery.

1003 Cascade crew adjust
position of the man lift.

1006 Welder here

1050 Francisco the welder
is up on the lift. w/ hammers.
Dalton operating the lift.
Do Hot Work Permit

1130 welding complete.

1135 call with Joe T.
discuss plans for next week
and budget

2-25-22 ^{PM} Friday 141 ~~139~~

1251 Cascade back,
will put hydraulic cylinder
back together, return
the lift, then done.

1320 Prep to reinstall
the pins and the hydraulic
cylinders.

1411 hooking up the lift to the
Cascade truck.

Back for box truck
back into the work area
and secure

1417 Cascade off site -

✓ Seams site

✓ Summary

✓ photo

✓ sync - revisions to
fire cementation and
check all log entrap

VM Resume @ 312

1430 PMS off site

8hr

• Call Jet West. Mid week, 6", 7", 8" CS

140 142 ^{RMF}
2-25-22 Friday

Summary 2-25-22

- Hot Work Permit
- Professional welder weld part for the hydraulic head cylinder pin.
- Complete new pin installation
- Return man lift to rental company.

Monday 2-28-22

- Obtain 6" CSG and tooling
- Advance 6" CSG and collect Push A head water sample

^{RMF} 2-28-22 Monday ^{KB Clear mid 141} 32°

0600 to site
0620 on site
prep H&S

0627 Cascade Casey on site

Brandon, from Peoria, AZ

CSG + 2 x 10 core barrels

Bits? at Peralta yard?

CSG 6" x 10' Traller + Truck-Saphoto

14 ✓ 14 ✓

7 ✓

21

21

35 x 10 = 350'

Core Barrel 2 x 10

+ 1 pump

0650 Drill crew on site.

0700 H&S mtg ✓

Division building the well -

back to Fire Portland Cement

0722 Call w Joe T.

- ✓ well construction - stay with the original plan.
- ✓ Wash over casing - what does that mean
- ✓ geophysical log 3 layers

144
2-28-22 Monday

0745 ✓ Text to Shawn
re the cement bentonite
grout.

✓ Email to Shawn re same
cc JT, JG.

0753 Call Shawn Steenmetz
re bentonite cement bentonite
grout. - left message.

To do

- DTW = 455 ✓ bgs
- Tag TD
- get ice

0830 460 - 5 = 455 DTW

0843 Begin vibrate for 7" casing
per direction of Shawn - Cascade
manager Kevin was told to
do this by Cascade mgmt, but
not to spend "too much" time on it.

145 ~~143~~
2-28-22 Monday

RMS advise driller
to not break anything
while attempting to dislodge
the 7".

Observe casing -
vibrating down of a few inches, slowly,
basically, not moving.

0909 End efforts w/ 7".
Begin 6" casing.

0915 Talk w/ driller about
proceed 350' now
getting additional casing from
the Peralta yard.

$$\begin{array}{r} 610 \\ - 350 \\ \hline 260 = 26 \times 10 \quad \text{Need } \underline{\underline{26}} \end{array}$$

1011 350' 6" casing in hole.
Run in now with core barrel
and rods - to cleanout. NO
Lay down the core barrel ✓
20 × 6" × 10 = 280' ✓
$$\begin{array}{r} 350 \\ 280 \\ \hline 630 \end{array} = 630' \text{ total}$$

~~144~~ 146 ^{TRM}
2-28-22 Monday
1020 Transfer CSg to other trailer.
1057 Transfer CSg from trailer
to box truck.

1139

✓ Text Joe re current
status.

1145

350 +
AOP Security
Logan 6-6
505 507 0379

discuss trash on street to
dumpster.

570

- 350

220 = 22 x 10

1209 core barrel into hole.
4" 5" (?) core

1212 Cascade take lunch.
CSg @ 577 ✓

1316 Coring now.

^{TRM}
2-28-22

147 ~~145~~
Monday

Drill Sample
CSg

Depth Push To PA Samp

580 582 - 583.5 (582-583.5)

606 608 - 609.5 Δ = 26'
(608-609.5)

1257 Trip in core barrel and
rods for cleanout to 580

1317 Coring now

1 x CB 1 x 20 = 20

Rods 28 x 20 = 560
580

rod 1 x 10 10
590

Stuck up = 10'
= 5' above table

-10
= 580

1319 Vibrate down. (Flapper Bit)
major chatter, but moving down

1321 add 10' rod.

vibrate down with major chatter.

1325 adding water to the CSg,
at least lift up and spin.

147
148 2-28-22 Monday

Cleaned out to 577.
will push ahead

577-580 → 582 = 5'

1328 TOOTH

1345 call w/ Joe T for update
to clients.

1356 core barrel up from 28
cleanup (32 min)
Full Load ✓ to hopper.

1400 Lay down the core barrel.

1410 Sampler down hole.

Csg @ 380 (dropped from 377).
T1H w/ sampler. see photo.

1435 Push sampler into Fm.
Vibrating down, chatter, on a rock?

1439 Need to change out the
gauge leaking hydraulic
fluid. Has on-hand ✓
This will cause a delay, sampler
may start to leak.
Sampler @ ~ 575, unless
numbers are off, per driller.

2-28-22 Monday 147
149

580

29 x 20 = 580

1 x 5 = 5

10

585 590

-10 stk = 55 stk

5 10

580 ✓

Push 2 ft =
582

Lower WLM into pod
from above over the blocks.

Expect T D Wt WLM
@ 580 + 10 = 590,
should be dry.

3" water @ 580 in sampler.

Screen @ 582 ✓

WLM = 590 - 10 = 580 ✓

Deson the boiler with
fresh demin water.

1515 Open sampler - ✓ wt 15 min

~~148~~ 150 rms
2-28-22 Monday

1510 Call Austin for status.

1530 bail sample.

1545 Sample up ✓
fill bottles

1550 Call Austin - on
his way w/ ice

✓ Labels

✓ CoCs

1600 TOOH

✓
583.5

✓ WUABFF MW 01 PA (582-583.5)

1615 Hand off sample to
Austin Harmon under
Chain of Custody.

RMS phone is dead xx!

1618 00H.

make up core barrel and T1H

1637 Change phone w/
Tallet charger 30%
call Joe T.

Text Joe T, sample collected

1645 Email to Jet West
for Wednesday?

1640 Core now.

rms
2-28-22 Monday 151 ~~149~~

1649 Kelly down w/ core barrel.
add water to release.
Core barrel tight.

1700 TOOH with core

✓ 723 core up 580-597 (17)
prelog the core - plug
Finish detail in AM.

1745 Cascade off site.

Call w/ Joe T.

Collect PA @ ~600 ±
in the 206 well zone,
below the new clay.

✓ below clay

✓ same zone as well 206

describe water in the PA ~ 4"
from sample zone. ok!

1813 ✓

~~1815~~ 1815 rms off site

152 2-28-22 Monday

1930 Continue p Log

and sync. photo

2000 Finished Test

① Complete log but add detail tomorrow.

② Check P/R Sample depths on COC. Text Austin to check.

Summary 2-28-22

- H & S Mtg
- Obtain 6" CSg, delivered from Cascade in Arizona.
- Run 6" CSg to 580 ft
- Collect Push Ahead water sample # 4 from 582-583.5 and deliver to Hall
- Core and Log 580-597

153 2-28-22 Monday

Time	Depth	Length	CSg
1723	580-597	17'	580 ✓

3-1-22	0936	597-600	3'
3-1-22	1507	600-610	10'

2-28-22 Summary Cont'd

Tomorrow 3-1-22

- Collect Push Ahead Sample From approximately 602-603.5, Correlating with screen interval in well 106206 on Kentucky St.
- Confirm Core and log 597-600
- Confirm geophysical logging for Wednesday

152 154 2mg
3-1-22 Tuesday Clear
mild
32° F

0600 To site

0620 on site

↓ prep H&S

KA FB well

106206 Sc: 593-608' (15' screen)

To do

- Confirm PA #5 depth
- Core & Log to PA to 600
- Reviso p Log
- Confirm geophysical logging
- Core to 600 (3')
- Collect PA #5 602-603.5

0643 Cascade on site

0750 Warming up rig -

0800 T1H

Text Joe T. call in
15 min.

Call w Joe - core to 610,
push csg to 610. yes

Discuss

2mg 155 #53
3-1-22 Tuesday

Question for Joe T.

• Core to 610 after PA #5?

Baroid

EZ Mud (polymer)

* Quick-tel - high yield bentonite
No-ellug - pellets

* Viscosity, fluid loss control,
gelling characteristics to
freshwater-based drilling
fluids.

Mix fine low solids drilling fluid
for general drilling applications -

154 156 RMS
3-1-22 Tuesday

- Preliminary thoughts on well design if all PA samples are NID ...

See "Data Gap" from Tech Memo, 520-570.

Review preliminary Draft lith Log - See SW w/ gravel from 540-560 =

below clay @ 537, above the sandstone @ 567.

Would seal across the clay @ 537.

0830 Continue/add to p Log from yesterday 580-597. See clay color and CaCO₃ cement sandstone gravel and quartzite gravel @ ~ 582.

Review p Log from "week" cementation to "no" cementation

0926 complete p Log reviews, Sync ^{success}

157 155 RMS
3-1-22 Tuesday

Call w/ JT cont'd -

Austin to sample roll off today.

RMS call AES re water management

0830 Core for cleanout now 580-597, Casey will follow down. Expect to get the 3' from 597-600 in this cleanout run. OK.

Advise driller to core to 610 after PA sample, and advise CSG to 610 for geophy logging. OK.

0906 finish cleanout core and 597-600.

TOOH

0906 [Log up 597-600]

Ready to prep for PA #5.

3-1-22 158

0950 Sampler into hole.
TTH to 600. csq @ 600

1010

All Henderson from Jet West
stepped by.

1018 add 5' rod.
vibe down w/ chatter

$$\begin{array}{r} 30 \times 20 = 600 \\ 1 \times 5 = 5 \\ \hline 605 \\ - 5 \\ \hline 600 \\ + 2 \\ \hline 602 \end{array}$$

1026
Sampler @ 602 - on hard surface*
Run in hole w/ WLM
to confirm dry in
Sampler. Note, 13.0' water @
1030

* Driller says sampler won't advance
past 602, doesn't want to
break it. Ok

3-1-22

159

1030 Bottom 598 - 5
on
OH 594 - 5

TD 605.3 - 5 = 600.3
DTW 593.3 - 5 = 587.3
13.0 Ft water with
Sampler "closed".

1038 Pull up ^{1.5'} 2' to open.
1040 Sampler open ^{5'}

Wait 20 min, then DTW,
1045 call Austin, will text
when we have samples.
Wait until TD before
collecting the roll-off sample.

1100 in hole WLM
stk = 6'

$$\begin{array}{r} 595.2 - 6 = 589.2 = \\ 602. \\ 589 \\ \hline 13' \end{array}$$

1160

1115 boiler into the rod.

Expect to go to ~ 610

1127 Sample up. 2 x 40 m VOA ✓

WUABFFMWDI-PA-

(601-602)

1138 Complete COC

1145 Complete COC and Labels.

1200 Note: Sampler Broke, in the

1147 Call Joe T. hole @ 601

1150 Austin deliver the Sample ✓

• 9 copysier SL 570-590

• w/EDB below 600 595-575

• get 7" down. 595+

CSG Diameter 6" 5 1/4" ID
6" OD

1221 Call Jet West
Mike Peterson.

No problem. More counts in spall
Neutron changes a bit.
call w/ 7 7/8" open hole.

Attenuation, Std cured hole log

30% attenuation ^{1 C Neutron source} 100-1000 Neutron
Gamma 30% CURVE TABLES Attenuation
Adjust the scale.

HOW TO USE CURVE TABLES

Table I. contains Tangents and External to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

Clay thickness **EXAMPLE** Spacing Neutron
Wanted a Curve with an Ext. of about 12 ft. Angle
of Intersection or I. P. = 23° 20' to the R. at Station
542+72. 20 cm
11"

Ext. in Tab. I opposite 23° 20' = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

Tan. in Tab. I opp. 23° 20' = 1183.1
1183.1 ÷ 10 = 118.31.

Correction for A. 23° 20' for a 10° Cur. = 0.16
118.31 + 0.16 = 118.47 = corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20' = 23.33° + 10 = 2.3333 = L. C.

2° 19 1/2' = def. for sta.	542	I. P. = sta.	542 + 72
4° 49 1/2' = " " "	+50	Tan. =	1 .18.47
7° 19 1/2' = " " "	543	B. C. = sta.	541 + 53.53
9° 49 1/2' = " " "	+50	L. C. =	2 .33.33
11° 40' = " " "	543 +	E. C. = Sta.	543 + 86.86
	86.86		

100 - 53.53 = 46.47 × 3' (def. for 1 ft. of 10° Cur.) = 139.41' =
2° 19 1/2' = def. for sta. 542.

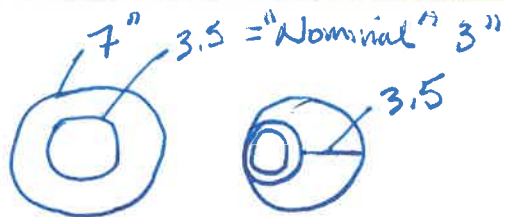
Def. for 50 ft. = 2° 30' for a 10° Curve.

Def. for 36.86 ft. = 1° 50 1/2' for a 10° Curve.

1233 Text to Jet West call w/ Mick P.
at Jet West.



Go To Book 3



Sierra Ladronas Fm
of Santa Fe Group

4.5 my Plio-Pleistocene

1500 ft thick

"axial fluvial"
ancestral Rio Grande

Schedule 80 PVC

OD 3.5"

ID 2.86

OSE 19.27.4.30 A1

4"

3" if pressure point
and centralized

Data Gap, per Tech Memo

520-570' bgs

3-1-22

Tuesday

See Book 2

1300

Call w Joe I - email to Diane

- geophones.
- pull the 6, advance the 7"

Diane all w1 Kevin -

- Can he push the 7" down? NO
- Cascade proposes build the well in for 6"
- PMS need Δ 4" borehole to CSg. ϕ if 3.500 to 6" = 2.5/2
Well 3 - 6 = 3/2 = 1.5 = 1.25"
- In any case must release 7"... annulus
- Change well dia to nominal 2" well.

Could build the well and seal,
that would allow wash over
to unstick the 7"

Sch 80 PVC 2" = 2.38"

6.00

2.38

3.62

4 3-1-22 RMS

"3"

Borehole 6.0

well 3.5

2.5/
2

1.25

Tuesday

"2"

6.00

2.38

3.62/
2 = 73

1.81

w p. grant & cent.

Considering 2 well depth options, per Diane Agnew, WA

• 570-590

• 595-615 (if EDB detected)
in PA #5

Call w/ Joe T.

• Geophysics - RMS recommendations

• JT will confirm w/ DA and call me ASAP.

• Pending EDB results from PA #5

if ND, then 570-590

∴ unstick the 7" and advance back to 595

if EDB, then 595-615,

∴ unstick the 7" and advance.

RMS
3-1-22

Tuesday

5

1400 Cory row 600-610.

Note, Cory over the push ahead sampler.

Csg has advanced w 5'

Chatter and rotate & vibrate

Stop -

1407 bolt that holds the jaw

of the table vibrated (?) out,

fell under the rig. Need to

replace. Looking for it now.

Chatter could be the sampler

or it could be a rock/gravel.

1416 Advancing down now.

Add 10' rod.

1420 down to 610. Driller felt

the sampler, but continued

to advance w/ the 4" core barrel.

Rotating slowly to pull up.

1430 TOOTH

Watch for sampler in

core barrel.

6 rmg
3-1-22 Tuesday

1440 Log core 597-600 ✓

Watch for samples
in core run
600 - 610.

1507 core up 600-610

Caught the fish ✓

1528 Call in JT,
discuss all
caught the fish

570-590
595-615

Hope to have back by 4
for the geophyris.

1540 email to Joe West -
still pending.

Cascade will advance the
6" CS9 to 607,

7 rmg
3-1-22 Tuesday

From Book 2 p. 151 6" CS9

Core 600

3-1-22 0956 597-600 3' 800

1507 600-610 10' + Sample

608

1545 Text from JT - Geophyris Yes

1550 Call Joe West.

Scheduled for 10 AM Tomorrow. ✓

1600 T.H. Cleaning out
ahead of advancing 6" CS9
to 607.

1615 Log core pLog 600-610.
Note fossiliferous limestone
clast. see photo.

1620 Text Sharwin we need
a plan to present to Joe T
and Chad Tomorrow.
We expect prelim. well design
by tomorrow afternoon.

1625 Bulk sample and Chip Tray to 600 ✓

B. RMY

3-1-22

Tuesday

1630 Cored? or cleaned out

TODH

1656 Core/cleanup (?)

CSG to 608

Prep for Geophysics.

1708 Tag hole - 602

= 6' in CSG

Will clean out in AM
before geophysics

1710 ✓ Secure site

✓ Summary

✓ Fax to Austin

✓ Sync plug

1730 Cascade off site,
RMS off site.

RMY Betty Pratt 100 yrs!

3-2-22

Wednesday

9

0605 to site

0625 on site

prep H₂S

To do

• call @ 0930

• clean out to 608

• geophysical logging Jet West

• add 601-602 PA # 5 to plug

Omnidirectional Density

Gamma Ray

Neutron

Caliper

0639 Cascade on site

0649 add PA # 5 to plug

and limestone @ 547.

✓ Sync success

0700 Discuss all w/ drill crew.

Still no official plan from
Cascade.

10

RMG

3-2-22 Wednesday

0713 Call w/ Joe T.

✓ geophysics - yes per DA

After geophy -

① pull for 6"

② Try to advance for 7"

• Cascade invoice
RMS review• Washover - need NMO/D
approval by DA

well 570-590 & 5' sump.

OR: 507" to 595

if E/D3 595-615 + 5
= more drilling

✓ Text to Kelsey Dickwell

0735 end call

RMG

3-1-22 Tuesday

11

Summary 3-1-22

- H & S mtg
- Core and log 597-600
- Collected push ahead sample #5 from 601-602 and delivered to HEAL
- Received results from push ahead sample #4 582-583.5, ND
- Cored and logged 600-610.
- Confirmed geophysical logging for tomorrow

Tomorrow 3-2-22:

Geophysical

• Log going to ~610

• Obtain results for push ahead sample #5

• Develop preliminary well design

12 RMS
3-2-22

Wednesday

0730 Tilt to cleanout

0751 begin cleanout

0800 add water and pull up.
TOOTH

0800 RMS review Cascade

daily time sheets for February
Text to Joe T.

✓ Dailys look correct.

✓ Can see other spreadsheet
on phone.

0837 Cleanup up -
full load ✓

Clean out to 608 @ CSG.

Est 2000 gal water
too far for the project
so far.

0850 Amy fin here to collect
soil samples. 457 - 610
Composite

13

webex
1-415655-0001

0930

- Diane Agnew
- Joe Tracy
- RMS
- Others

✓ 2553 485 8028 #

✓ 7997 4895 #

WA Requests:

- Extraction Wells - mud rotary NMED
- Trumbull Well
- DA will convey to NMED
570 - 590 + 5
- Try to move the 7" down -
with the 6" out, yes.

0950 end call

0951 Kelsey Buchnell, WA, on site
H&S Mtg for logging

14

3-2-22 rmy

Wednesday

1000 AI Henderson, Jet West

Density Tool

Source - spherical

Radioactive - all direction

125 mc

"4-Pi" Cesium 137

Neutron Source

1000mc Ammonium Beryllium source

• Done shop calibrations -
will provide to INTERIA

- Gamma Ray + Neutron + Caliper

Data @ 0.1' for env + well.

Repeat both tools

at 500' add water

400-500 in Plural

+ 1000s API in dry

10" Scale for resolution
to pick breaks.

1 hr / run x 2

15

3-2-22 rmy

Wednesday

other density tool ...

Compensated density

Tag 609 / 609 log.

1030 Rig up geophysical logging.
AI Henderson, Jet West.

1055 Deliver chip trays to
Kelsey Buhnell, WA. ✓

She will ask to take the
bulk samples when she
gets some buckets. OK. ✓

1046

1102 begin logging 25/min

Fluid @ 331 (from added water)

4-Pi Density

1138 End ^{4-pi} Density log - Rig down
Next tool

1157 Rig down - to
switch to another anchor point

1p RMS
3-2-22 Wednesday
1213 Rig back up onto
the winch cable. ✓
1234 Start Newton/Gamma/Calyx

Gamma 10-50
Newton 1000

1300 call w/ Joe T -
PA # 5 results ND
1315 Kelsey off site
1320 Review N/G/C log - all good.

Re-run the "4-pi" log - ✓

1345
Call w/ Joe T
draw text for work over

1416 //

Review logs w/ Joe T,
adjusting the scales and
resolution.

Wednesday: Al Henderson RMS 17
3-2-22 505 320-8865

? 333 4 pi in 7"?
between the 6" & 7"

300 bottom of 8"

567 → 7+6 → 6 ↓

4 pi reads like a Gamma

469 G?

1439 Finish logging, rig down

1502 RMS call Shawnin, Cascade
left message.

1502 RMS left message for
Shawnin.
Text Shawnin, can
we pull the 6".

1535 Cascade off site

Call w/ Austin - well design

Call w/ Joe T - 20'

Call w/ Austin ? Al - density

RMS - Sandstone 567-571

18 RMS
3-2-22 Wednesday

1645 Call w/ Austin
drawn well design

Call w/ JT,
Austin will email geophy
logs to client with
the daily summary ✓

- ✓ Seum site
- ✓ daily summary
- ✓ photo
- ✓ Text to Austin
- ✓ NO pLog sync

1730 RMS off site.



RMS 19
3-2-22 Wednesday

Summary 3-2-22

- H & S mtg
- Collect Roll off Samples
- Cleanout to 608
- Results Push Ahead #5 601-602 ND
- Geophysical logging
 - Omnidirectional density
 - Neutron
 - Gamma ray
 - Caliper
- Email logs to
Water Authority and
INTERA Team
- Begin discussion of
well design and deliver
preliminary design to
Water Authority via email
with daily summary.

continued



20 RMB

3-2-22

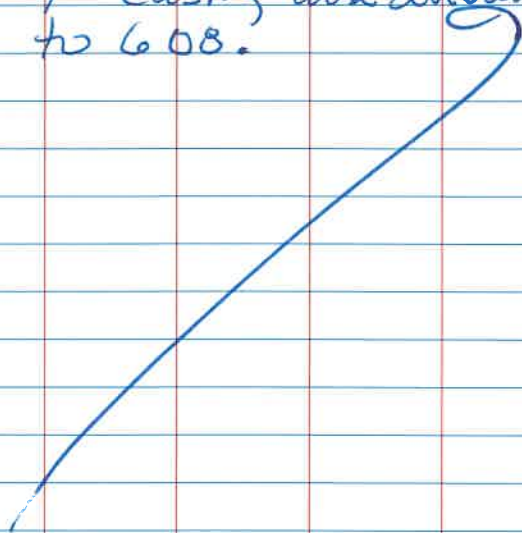
Wednesday

Summary Cont'd

Tomorrow 3-3-22

- Confirm path forward for release of 7" casing with all team members, Cascade, INTERA and Water Authority

- Objective is to release 7" casing and advance to 608.



RMB

3-3-22

Thursday

21

0630 To site
0650 on site

Crew expects to be here @ 0830.

Review lith log for specific clay intervals:

See core logs:
Add detail to lith log

- Caliche @ 563
- Separate sandstone piece to 568-569 ✓
- 569-570 clayey sand ✓
- 569-571 SP ✓

0805 Sync p log - success ✓

0808 Cascade here

11:5
0820 Safety Mtg and discuss well design

Begin to pull 6" now,
Chip up across for clay. Yes.

22

Rms

3-3-22 Thursday

Met w/ Kevin, could

Discuss wash over

RMS and Kevin agree

must set up circulation

system w/ shaker and

bean pump. yes

This is what we presented

to the WA.

Rms

23

3-3-22 Thursday

Boreshole	ft ³ /ft	gal/ft	ft/pail
6	0.20	1.5	2.5
7	0.20	1.5	
	0.35	2.6	

$$0.20 \text{ ft}^3/\text{ft}$$

$$1 \text{ ft}^3 = 5'$$

Pel Plug TR $\frac{3}{8}$ " pellets50 lb pail (84^{oz}/pail)

hydrate 2-3 hrs

What's Volume of 1 pail?

$$50 \text{ lbs} \approx 0.5 \text{ ft}^3$$

$$6" \text{ boring} = 0.2 \text{ ft}^3/\text{ft} = \boxed{2.5' \text{ pail}^6}$$

Specific Gravity bentonite

$$1.5 - 1.8 \text{ g/cm}^3 \text{ (Ave } 1.6 \text{)}^{\text{avg}}$$

$$453 \text{ g/lb} \times 50 \text{ lb} = 22,650 \text{ g}$$

$$1 \text{ ft}^3 = 28316 \text{ cm}^3$$

$$\text{cm}^3 =$$

JCMK
3-3-22Thursday
Wednesday

- 0912 Call w/ Joe T.
No word from Diana
• Pull the 6"
• Describe the washover w/ circ.
• Try to move the 7 off the
6" record.
• Need the circulator
• WA approves the washover,
including the circulator
system.

0934

- 0941 Begin to trip out 6" CSJ
0946 Tagging depth
adding chips to show the
595 clay

$$\begin{array}{r} 608 \\ - 590 \\ \hline 18\text{ft} \end{array} \quad \begin{array}{r} 608 \\ - 593 \\ \hline 15\text{ft} \end{array}$$

$$15\text{ft} \times \frac{1\text{ part}}{2.5\text{ft}} = 6\text{ parts to } 593'$$

3-3-22

1045

See Cascade pouring
bentonite pellets slowly
into CSJ to mine plug
before pulling up, seal off
the clay zone @ 594.5-595

See volume on Pel Plug bucket

hole dia	6
Vol ft ³ /ft	0.20
lbs 1 ft	16.14

1100 pulling 6" CSJ now.

1110 Call w/ Austin

- LAS file is corrupt
 - we don't see emails
 - of LAS & PDF corrected
 - RMS call Mich
- re all of this.

Call Mich Peterson

505 320-4980 Mich's cell

26 3-22 rms

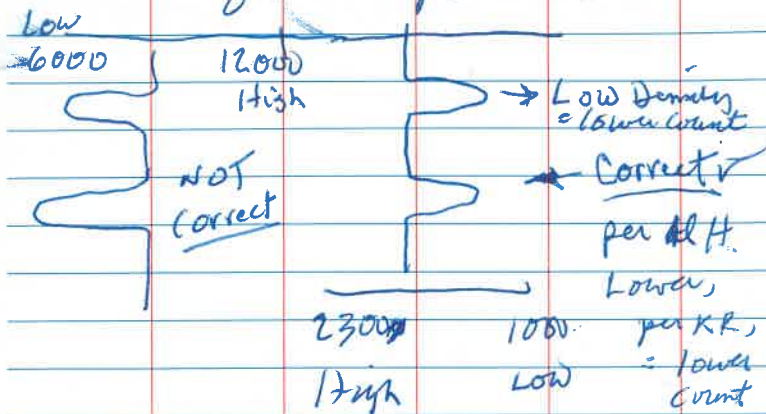
Thursday

Call Jet West

Mike - sawp call Al Henderson
and Mich Peterson.
Need the corrected log to be emailed

1155 Al H, 505 320-8865

Left message - to call me



Note: driller says joint is LOWER density, so ρ is correct.

Call Mich Peterson cell

505 320-4980

WCL ← for mich

Note book ←

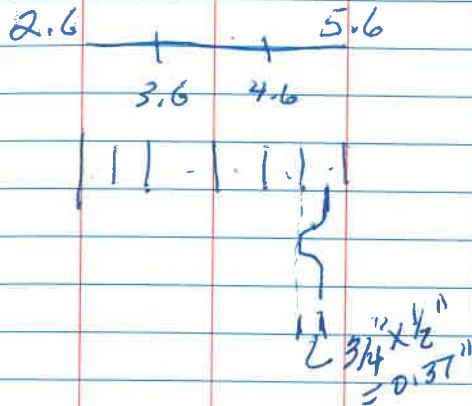
Excel

3-22 rms

Thursday

27

Caliper



1300 400' x 6" out and loaded on trailer.

Cascade take lunch.
will continue after lunch

1340 Cascade back from lunch

1343 talk w/ Kevin -
too risky to try
to push down the casing -
shit won't come back up.
To push down, will need
to add a joint, but if
goes down a little and gets stuck,
then can't remove the top joint

28

rmy

3-3-22 Thursday

1345 Suggest try to pull up
only - but we know
that won't work.
I agree.

Text Joe T for phone call.

1430 Continue pulling 6" CSG.

1435 Call AES
"Robert Chavez"
left message

505 661-1700

Call again -
Need water storage
discuss - he will check
and get back to me.

rmy

3-3-22

Thursday

29

Dentist → postponed to:
3:14 0800

1446 Out house service ✓

Call w/ Joe T -
Weekend? Not likely, too late.

Advise Joe that Cascade
driller thinks trying to
advance the 7" is futile
and risks damage to the rig.
And, if it did go down,
would still be stuck on
the way back up. We think
the shoe is damaged (as well).
Joe says OK, will think
about how to handle with
the W.A. Ok.

1500 6" out.
Now begin to lift/spin
the 8"

1520 8" not moving "|||

1537 " " "

30 12Mg
3-3-22 Thursday
REVIEW Book 2

Review attempts to release
the 7th CSG, in Book 2.

Start

^{MOON} 2-21-22 p. 87 ⁰⁷⁵⁸ VIBING down slowly to 567

p. 90 ¹¹²⁰ Maximum Vibe, no movement

p. 91 suggest adding drilling mud

p. 92 1206 trying to pull up

p. 93 ¹²³⁶ CSG is VERY STUCK

p. 95 clean out, again

p. 96 ¹⁶⁰⁰ trying to pull out, then
now stuck again.

p. 96 1607 STUCK

p. 97 1623 driller thinks

CSG might be broken.

Tues

2-22-22 ⁰⁸³²

p. 103 stuck, checked broken CSG
with a hooky device

p. 105 try to feel break w/ core barrel

p. 110 1449 Clearout

^{wind} 1457 loud chatter

2-23-22 p. 114 Rod gap Rod rigging on site

p. 115 1034 - 1048 surging the vibe

REVIEW Cont'd 31
3-3-22 Thursday

p. 117 clean out, full head w/

Fluorapatite

1208 - surging the vibe ↑↓ Roga

1223 " " "very tight"

1232 " still trying to move casing

1239 Still surging the vibe

p. 118/300 Continuous surge of

discuss 6" CSG. forget to TID

¹³⁴⁵ 1341 Review continue

p. 119 pumping water through the
head

1348 Resume (Roga)

1425 main hole control panel repair ✓

~~p. 122~~ 2-23-22 2-24-22

Wednesday Thursday ✓

p. 126 746 VIBING the casing - Roger

Strong, constant vibe

p. 127 raise about 1 ft

Roger - surging the vibe - a few inches up

0815 Mechanical Failure

p. 129 - mechanical strain on

the rig - caused the breakage

~~2-24-22~~ Friday =

p. 130 1020 ^{remove} repair pin threads, etc. (Friday)

2-25-22 Friday weld and repair pin

3-3-22 Thursday

1539 Talk w/ Kevin
Casing has moved about
5 inches, let rig cool down,
then continue

1540² call from Al Henderson
Jet West,
Request he email me
Corrected logs and LAS. etc.

1547 Resume Casing,
Strong vibs, down a few inches

1600 Rest the drill rig
Kevin on the phone,
probably w/ Fr. Cliff.

1612 Resume
Casing up about 3'! so
will continue to lift and
recover rotation, for the 8".

1630 helpers loading all
6" casg on trailer and truck.

3-3-22 Thursday 33

Summary 3-3-22

- H & S mtg
- Remove 608 ft of
6" casing
- Install $\frac{3}{4}$ inch time
release bentonite pellets
to 594 ft.
- Rig down geologic
logging station, deliver
Chip trays to Water
Authority (on 3-2-22)
- Transfer all 6" pipe to
trailer and take to Cascade
yard
- Lift 8" casing up 3 ft

Continued

34

3-3-22
Stuyvesant Im (Apt)

Rm 305 7:30 ✓

1350 Sunport Pl. SE

1 pep 87106

1 sausage 36.01

Central Area

505 262 1662

 Cont'd Summary 3-3-22
Tomorrow 3-4-22

- Prep for wash over to release 7" casing.
- Dispose all sonic core to roll off

 1720 Cascade off site

- ✓ Summary ✓ Secure site
- ✓ Photo/Text to Austin

 rms
 3-3-22

Thursday

35

 Call back from Robert
 was late

 275 gal / tote
 Can dispose as non hazardous

Solite scan - EDB

1530 RMS off site.

1

3930 rmy

3-4-22

Friday

0615 to site

0630 on site

prep H&S

Todo

- Well design
Steve Bernidge
- Notes transcription
- GR 5 unallowable for core
- Release 8"
- dispose core

0704 call from Kevin

- 8"
- Mud puppy } deliver over for weekend
- Flight @ 3:045
- Pick up all egg at on Monday
- dump sample bags

rmy

3-4-22

Friday

3735

0730 Pick up 5 unallowable

at INTERA office

Ludlum 192

Micro-R/hr

Back ground = 9 MR/hr

Depth

GR

312

10

Sandstone 567

314

10

8

318

9

320

8

see photo

325

9

340

9

370

9

380

9

405

8

435

8

red clay

452

8

457

8

FeOx stain

465

8

480

8

500

8

537

8

gray clay

563

8

caliche

567

8

SS/clayey sand

594.5

8

clay (red)

610

8

3638 RMS

3-4-22

Friday

0838

Call w/ Steve Berridge
re well design.

He is out.

Will email to

RMS

JT

JG

AA

Call w/ JT

• Crew fly out today

• Totes for development

Linda will sample
from the totes.

• Roll off - keep / swap -
swap out -

• Yes - swap /
2 samples

• Call Robert @ AFS

• mud puppy? Phoenix

• 8" CSG. deliver this weekend.

• Final for approval

3-4-22 RMS

Friday

3987

1000 Cascade on site

• pipe 8" dia, washed

• mud puppy - this weekend

• need 5' of end cap. for well

All for Monday.

1030 Dispose all sonic core
into the rolloff.

Rolloff is about one half full.

1130 Finished, core dump.

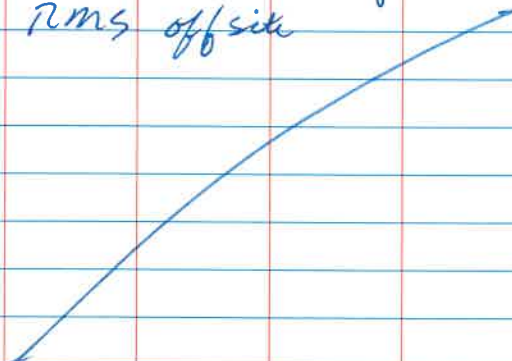
Cascade off site.

✓ Site seame

✓ Summary

✓ review w/ sense well diagram
for Steve Berridge

1150 RMS off site



3040 rms
3-4-22

Friday

Photo and email to
Steve Berridge of
Final Well Design

1130 Check figures

rms
3.4.22

Friday

4139

Summary 3-4-22

- H & S mtg
- Dispose all some core to the rolloff bin
- Finalize well design
- Gathering equipment for activities next week.
 - 8" casing to get down to ~ 570
 - Well materials - PVC screen and riser, sand, seal, cement and bentonite.

Monday 3-7-22

- Set up to release the 7" casing
- Wash over 7" casing with 8" casing

#42 Rms
3-7-22 Monday

No Work on site
Cascade could not get
back from Texas.

- Copy of well diagrams and lith log
- Calculate well materials.

3-8-22 Tuesday light
snow, 26°F

0620 To site

0640 On site

0642 Cascade on site

See trailer w/ 8" csq
and quik gel

0700 H & S mtg.

- Set up mud system
- quik gel with respirator
or dust mask

0710 Starting

Additional Cascade person
* Brendan - No -

Rodger Rodriguez -
working on the mud system

Rms
3-8-22 Tuesday

43#

To do

⊛ See p. 47

• Call Cascade

Larry Herron - for development

• Development = 5 x csq volume
+ all added waste.

1 csq volume ⊛ = Note DTW = 460'

$$V = \pi r^2 h \quad TD = \frac{605}{145}$$

$$D = 3" \quad r = 1.5" \times \frac{1 \text{ ft}}{12"}$$

$$= 0.125$$

$$r^2 = 0.0156 \text{ ft}^2$$

$$\times 3.141 = 0.049 \text{ ft}^2 \quad \checkmark = \frac{\times 145}{7 \text{ gal}}$$

$$\times 600 \text{ ft} = 29 \text{ ft}^3 \quad \checkmark$$

$$\times 7.48 = 220 \text{ gal}$$

"BV"

$$\times 5^1 = 1101 \text{ gal}$$

+ Est 3000 gal added

$$= \text{Total } \boxed{4000 \text{ gal}}$$

if 10 g/m

$$4000 \text{ gal} \times \frac{1 \text{ m}}{10 \text{ gal}} = 400 \text{ min}$$

$$400 \text{ min} \times \frac{1 \text{ hr}}{60} = 6.7 \text{ hr}$$

$$= 7 \text{ hrs. } (= 1 \text{ day})$$

4.2.21 ^{7mg}
3-8-22

Tuesday

Totes @ 350 g/tote

$$4000 \text{ gal} \times \frac{1 \text{ tote}}{350 \text{ gal}}$$

$$= 12 \text{ totes @ } 350$$

$$4000 / 250 = 16 \text{ totes}$$

if 5 gpm = 14 hr = 2 days

^{7mg}
3-8-22

Tuesday

45 #3

0730

call w/ Joe T

• call AES - swap out
for roll off - yes.

• call HEAL - Andy
re roll off results

• Weekend - get option
if needed.

Andy Freeman - Hall.

March 2 - ponding (3 weeks)

Feb ~15

Tomorrow - results.

will email me (+ JT, AH)

0730 • Mud system delinied
See on trailer.

Box truck frozen,
can't move yet.

4/10/22 RMB
3-8-22

Tuesday

Call Robert Chavez - AES
out, call

Doug Roshau
505 400-0843

Needs full data report
with COC - ok.

Generator? for

droschau@AESNM.com

water? - shouldn't be water!

0826

Call Joe Galemore ✓

✓ text

re air lifting

0845

Call w/ JG ✓

not do air lifting -
but will check and get
back to me.

RMB
3-8-22

Tuesday

see CS9 on trailer

CS9 22 x 10 x 8"

0910 Cascade setting up the
drilling fluid system
i.e. "mud puppy"

0930 Still setting up.

Note: neighbor in 304
needs access in front of house
to move item out of garage
into a rental truck.

So need to move the street
barrier and the forklift.

0930 Start to move the 8" CS9
in the hole - lift & spin.

0943 Surging the pipe to lift the 8".
Ploving up ✓

1017 setting up the mud system

1030 Text update to Joe T.

#48 RMS
3-8-24

Tuesday

Larry Heron - Cascade
Development mgr.

480 823-8037

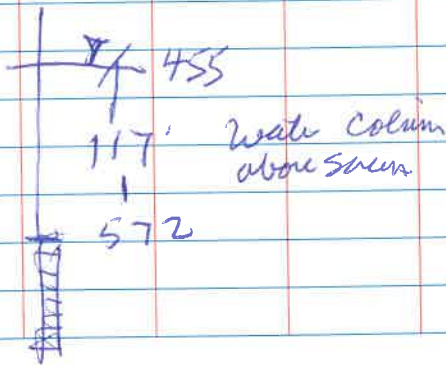
1048

Call w Joe T.

points for mtg.

- begin workover
and remove 7"
- City inspection
- Holding off at the
"yard" facility.

1130 Kevin to get fuel filter
for the mud system.
Cascade take lunch



RMS
3-8-24

572-592

Tuesday

49/19

See p. 41, see also SOP 8

1 Carry Volume: $h = \text{height of}$
TD 597 water column.
DTW 455 under static conditions
142 142' water column

$$0.367 \text{ g/ft} \times 142' = 52 \text{ gal}$$

$$\times 5 = 260 \text{ gal}$$

$$+ \text{ added water} \approx 2000 \text{ gal} \\ = 2260 \text{ gal}$$

1215 Ba

Call w Larry Heron

1.66" bailer

1/4 bail \approx gallons

"2.5" = \approx 3 4" well

20 ft bailer = 1 gal

200 gpd \approx 10 days

Top fill - yes

4850
3-8-22 Tuesday

1235 Take photos
of the mud system.
Pulling the 8" early
now.

1300 Cascade to get water
in 4 totes from hydrant
with meter.

1336 back w/ water

1340 Moving totes next to
rig to transfer water to the
tank on the rig.

1352 Mixing mud now in the
"Mud puppy" "Shaker"

1400

Begin washing down.
Spinning and 'reaming' smooth.

1417 Roger's truck in driveway
ask to move. ok.
Brendon is also here.

7 May
3-8-22 Tuesday

549

- 1430 AES Doug TC
on site.
- Discuss the roll off.
 - See water
 - See amount full
 - Note new roll off needs
to be lined and lid that
works.
 - Advise how to store
 - See card with contact
info
 - Profile
droshaw@aesnm.com
505 400 0843
 - Document for transfer of
manifest so INTERA can
sign.

1445 Talk w/ Roger.
Need to change seals on the
head so can pressure up.
Will keep to tal water and
to tal bag of Quick Gel.

50 rms
3-8-22 Tuesday

Text Joe T re
potential call from
Robert @ AES.

1521 Call w/ Joe T.
water in roll off.
decant the fluid.

a
Waste authorization form,
Diane sign, accompany
to AES to sign.

1 RMS got photos of water
in roll off.

• Dism development
with bails - Ok.

a Dism relieve RMS
for development. Ok.

1535 end call

1540 Photos of roll off

Resume Washover w/ 8" eq.

51 rms
3-8-22 Tuesday 53

Calculate Sand Pack Volume

$$V = 7'' - 3.5'' \quad 50 \text{ lb bag} = 0.5 \text{ ft}^3$$

$$7'' = 0.27 \text{ ft}^2$$

$$3.5'' = 0.066 \text{ ft}^2$$

$$\underline{0.20 \text{ ft}^2}$$

$$\times 25 \text{ ft} = 5.1 \text{ ft}^3$$

$$\times 0.5 \text{ ft}^3 / \text{bag}$$

$$5.1 \text{ ft}^3 \times \frac{1 \text{ bag}}{0.5 \text{ ft}^3} = \boxed{10.2 \text{ bags}}$$

$$V_{\text{annulus}} = V_{8''} - V_{3.5''}$$

$$8'' = 0.35 \text{ ft}^3 / \text{ft}$$

$$3.5'' = 0.066 \text{ ft}^3 / \text{ft}$$

$$V_{8-3.5} = 0.284 \text{ ft}^3 / \text{ft} \times 7.48 \frac{\text{gal}}{\text{ft}^3}$$

Seal Pel Plug

$$50 \text{ lb bucket} = 0.5 \text{ ft}^3$$

$$\frac{0.5 \text{ ft}^3}{\text{B}} \times \frac{0.284 \text{ ft}^3}{\text{ft}} =$$

$$\frac{1 \text{ ft}}{0.284 \text{ ft}^3} = 1.76 \frac{\text{ft}}{\text{B}}$$

RMG

53-8-22 Tuesday @ 809

1630 James McCree put log across driveway

1634 photo mud system
pump plugging up on rig
troubleshooting.

1718 Riggy down for
the day.

drain water lines.

1733 ✓ Secure site

✓ Summary

✓ Photo to Austin

1741 Cascade off site
RMG off site.

(10)

RMG

53
55
3-8-22 Tuesday

Summary 3-8-22

• 14 & 5 mtg

• Deliver 22 joints of 8" csq

• Deliver the drilling fluid
system ~~to rig~~

• Pull 30 ft of 8" casing
to ensure csq is free

• Set up ~~fluid~~ fluid system

• Begin washover to
release the 7" casing

• 8" casing to 305.

Tomorrow 3-9-22

• Continue washover to
free the 7" casing

• Remove and inspect 7"
casing, then advance 7"
to boring total depth ~ 610'

4450 TMS

3-9-22 Wednesday

0600 To site

0620 on site

prep H&S.

To do

- H & Mtg with everyone
- discuss neighborhood protocols w/ Cascade - i.e. driveway

• casing on street

• Swap rolloff

• Total water to date 3000

• TMS @ site @ 5 tonight

0636 Cascade on site ✓

0640

Impact job site ✓

0700 H & Mtg ✓

TMS

3-9-22 Wednesday

4450

0743 Rodger Rodriguez on site.

0805 Rigging up the mud system. Kevin needs to get fittings. OK

0900 Kevin back with fittings.

0910 Jason and Dalton into the dump rolloff to spread the soil and soak up the water. ✓
Text photo to Joe T.

0930 Still rigging up pump system for the washover.

0940 Check w/ driller -

got the wrong fitting - so had to go back to the store. The mud system is frozen so must thaw out.

0950 call from Doug - AES Crew to deliver tomorrow Swap Thursday @ 11AM. Generator out by 10:30am.

58 RMS
3-9-22 Wednesday
1000 Using propane torch
to thaw the mud system
pipes.

1008 Jason back with
fitting.

1013 Mud system operating
now.

1019 Helpers go to get
in water. 305

1024 1 x 10' x 3" 315

1036 1 x 10' V+R ~~325~~

1110 Talk w/ Kevin -
waiting for water to continue.

1125 505 Portalet Service ✓

1130 Back with water.

1141 adding bentonite to
mud system.

1148 1 x 10' 325

1206 1 x 10'
Roger on controls.

1249 1 x 10 (?) or more

RMS 5957
3-9-22 Wednesday

- Call w/ J & T.
- Progress w/ Warhona ~ 360
- Roll off swap tomorrow.
- RMS appointment @ 530 tonight
- Stay in touch.

1300 6 x 10' x 3" CSg
delivered.

+ 10 bags gnd gel

1318 Stop.

Shelley looking inside rig
engine compartment ...
Something broke?

Roger on the phone.

1336 Shut off mud s system.

CSg - pulled up 2 -

① 355

Kevin show me the mechanical -
thinks it is a pump, but
could also be gears in the
main engine. This is mega
mechanical.

580

Romy

3-9-22

Wednesday

1350 AES here to see
roll off, will be here
tomorrow to swap
helps in rolloff spreading
the soil.

Drillers are on the phone
to Cascade for help with
the mechanical problem.

Text Joe T. to call me.

Talk w/ Roger

- main hydraulic pump or
- gear box

Check with Cascade
for replacement pumps.

Could be here tomorrow, drillers
would replace.

If gearbox, then would
need to send the mechanic
for repair.

Down for some number of days.

1420 Cascade to get lunch.

Romy

3-9-22

Wednesday

59

Summary 3-9-22

- H & S pit
- Advance 8" casing
to 375', then pull up to 355'
- Mechanical problem
with drill rig operation.
Trouble shoot and
determine two possibilities
 - main hydraulic pump or
 - gear box
 Cascade is in contact with
their mechanic for repair
solutions.
- Expect to be down for
repair at least one day
but maybe more.



602

RMS

Wednesday 3-9-22

- 1240 ✓ summary
 ✓ photo and text to AH

1500

Equipment to drop off at office

- ✓ • Tablet
- ✓ • Drill kit
- ✓ • Tape measures x 2
- ✓ • Water level meter
- ✓ • Joe's table
- ✓ • Tool box
- ✓ • Chip tray (x1)

1533 back to site.

Brian Archuleta here for Safety Audit.

1600 Call w/ Joe T.

- discuss all
- mechanical
- roll off
- Safety

RMS

3-9-22 Wednesday

603

Summary, cont'dTomorrow 3-10-22

- Identify mechanical issue and obtain parts for repair.
- if pump - then driller can repair, if replacement pump can be obtained, (or rebuild)
- if gear box, then requires the Cascade mechanic to come to the site.

1630 See progress removing the pump. Kevin and helpers.

Discuss path forward.

This is "exploratory", will assess and rebuild the pump, then try. ok.

RMS off site.

(10)

6/26/04 RMS
3:10-22 Thursday Cloudy 38°F

0605 to site
0625 on site
prep H&S

0638 Cascade on site

0640 email Maggie Scott re WLM

To do

- Move CSS to box + truck
- Continue rig repair/pump
- get MEAL profile results
- Swap roll off @ 1100

0730

✓ Text update to Joe T.

0800 Call by Austin

- analytical results
- update the lith log - yes
- WLM strip
- Equipment chargeout - RMS add camera.

RMS
3:10-22 Thursday 65

email

• Call Andy Freeman Hall

0845 RMS to office
to give doc to Maggie ✓
Talk w/ Joe T.

0936 Back to site.

0935 Talk w/ Kevin
Flunk Box gear is
broken see photo.
Pumps are good. ✓

0950

Text photo of broken
gear to Joe T.

1030 ABS is here.

Deliver roll off and pickup
for full roll off.

New roll off is longer, but
we made it fit. Need to adjust
the fence.

1240 lining for roll off now.

6:45 PM RMS
3-10-22 Thursday

1140 Roll off is lined. ✓

See Mechanical ops
on deck. Need to remove
the large cast gear housing -
lift off with the forklift.
Will need total replacement.

1200 RMS off site. (5hr)

Summary 3-10-22

• H & S mtg

• Drill crew removing
damaged rig components:
Pump gears from
the "Funk Box"

Tomorrow 3-11-22

• Continue repairs if
parts available or wait
for parts.

RMS
3-15-22 Tuesday e265

Note: No site work Friday or
Monday,
0830 to site
0845 on site

call with Joe T.
design development -
RMS recommend stay w/
bailing, ok - not pumping.

Talk w/ Kevin -
he will call shop for
time the part will be
delivered.

Purvis Industries
Not in early delivery

0920 Expect delivery after 10 AM
Kevin will call me
extra way. ok.
Text update to Joe T.

0930 RMS off site.

1100 Back to site.
Kevin picking up the part.
1210 Part on site ✓

66.600

3-15-22

Tuesday

1315 Crew take lunch
1400 Discuss additional
repairs w/ Kevin.

• Hose

• pin weld - may need to
get welder back on lift.

• Make punch list.

• Avoid safety event.

• Discuss working at height
in a harness.

Bicknell, WA

1430 Text Kelsey - Bulk samples.

1519 Still working on
the repairs.

1530 Text update to Joe T.

1643 Start rig.

1740 See photo of crack
in the cradle for the
head cylinder pin. Needs
welder to fix & the lift.

Text to Joe T.

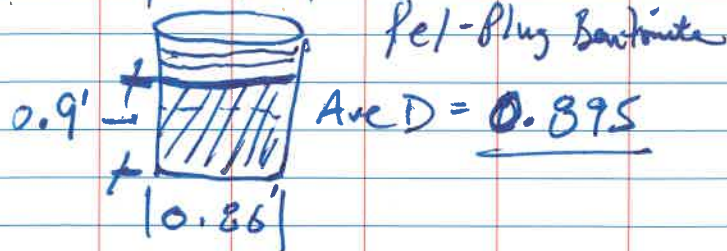
3-15-22

* 0.93'

RMC

Tuesday

69.7



$$V = \pi r^2 H$$

$$V = 0.56 \frac{\text{ft}^3}{\text{bucket}}$$

68-70 RMS
3-15-22 Tuesday

1816 Driscoll all in Revin.
Safety day tomorrow.
Must be welded completely
incl. on the back. Yes.

1620 Cascade off site
RMS off site.

7 hr ✓

716-9
RMS
3-15-22 Tuesday

Summary 3-15-22

- H & S mtg
- Picked up required parts to repair drill rig engine components
- "Funk Box"
- Pump gears (2)
- I installed all components and reconnected all hydraulic lines.
- Started and tested rig operation.
- Photographed cracked housing for the main hydraulic cylinder.

Tomorrow 3-16-22
"Safety Standdown Day"
• Weld to repair the housing for the pin of the main cylinder

72-72 RMS

3-16-22 Wednesday

0605 to site

0625 on site

0645 Cascade on site

0650 Prep H&S docs

0720 H&S Mtg.

Lift & welding today
This is a:

"Safety Stand Down Day"
under "Stop Work Authority",
per Kevin Rogers, Cascade. Ok.

0730 RMS to JAWA office
to drop off field gear not
in use.

Fuel for rental truck.

0845 back to site

0905 Update from Kevin.

Welder may not be available
until tomorrow. Know later today.

Trying to get a lift delivered
today so can prepare for the
welding.

RMS

3-16-22 Wednesday

73

1019 Update text
to Joe T.

1030 Call w/ Joe T.

Will the weld be safe?
Can't do a weld inspection -
depend on Cascade for it
to be safe.

RMS ask Kevin to make
sure the weld is done right.
RMS suggest Joe T communicate
with Cascade mgmt regarding
this safety issue and also
the delays of the project.
Kevin and crew are 100%,
but not getting enough
support.

1050

RMS off the clock

1430 Back to site

See and photo lift.

Text update to Joe T.
No welding schedule yet.

75 ^{70ms}
75 3-16-22 Wednesday

1530 Back in the lift,
up the tower.
Start up the rig.

Talk w/ Security Captain Logan.
Ask him to watch the lift
for rigs, will be parked
outside the gate. Ok.

1542
~~1442~~ Request Kevan text
me when the welding
is scheduled.
Will park the lift in the
yard and leave the box
frunk out on the street.

Text updates to Joe T.

1551
Text + Summary to Joe T.

1555 70ms off side.

70ms
5m

1610 Call w/ Kevan - welder
here at 90 forward to west
ground from 5th, & welds so pins go
in

75 ^{70ms}
75 3-16-22 Wednesday

Summary 3-16-22

- H & S mtg
- Obtain manlift
and inspect pin receptacle.
- Establish plan for
how and where to weld.

Tomorrow 3-17-22

- Employ professional
welder to repair the
pin receptacle per Cascade
specifications and
directions.

1640 Call w/ J.T.
Done all. ✓

7474 RMS

3-17-22

Thursday 43°F

Cloudy,
Showers

0600 To site

0615 on site.

see Geotech invoice

0635 Cascade on site.

call Geotech to check
number of days vs dates.

0705 H & S Mtg

- working at heights on lift
- grinding
- welding w/ hot work permit.

0731 Kevin on the lift to
grind the pin area on
the tower.

0736 Begin grinding.

0758 End grinding and lift down.

Charging grinder batteries.

0830 Kelsey Buhnell will
come to site to pick up
the bulk samples.

0836 Deliver bulk samples to
Kelsey Buhnell of Water Asset Mgmt
✓

RMS

3-17-22

Thursday

7775

0922 Kevin in lift w/
harness.

0934 Accessing the back of the
tower from the lift.

0941 Now in front.

0947. Down now.
wait for welder.

1015 Still waiting for welder.

1030 Ask Kevin to call
welder.

They expect to be here
in 15 minutes, etc.

1053 Welder is here.

Call

Geotech - don't charge for weekends

17 days 2/16 - 3/14

27

19 (OK)

(-2) = 17 ✓

Invoice Approved RMS ✓
see email to Accts Payable ✓

7:78 rms

3-17-22 Thursday

1130 Welding from the
lift up the tower. front
light sprinkle.

1200 Welding ^{back} ~~both~~ side now

(all w) Cliff Hillman on
the ground calculations.

1220 Welding is finished.
(50 min)

1240 welders off site:
Francisco Carrasco.

1243

Put the pin back in the hole.

Note: welder says weld
is full strength. Oh,
i.e. no waiting period
for full strength.

1311 Still trying to get the
pin back in and secure.

1320 Talk w) Kevin.

rms

3-17-22

Thursday

79.77

1320

Dalton is still trying
to get the ~~Scott~~ cotter pin back
into the head cylinder pins.
Has been up on the lift for
45 minutes trying.

RMS ask Kevin what
is going on. "It's a pain
in the A.I.I.I."

RMS - is the hole exposed?
"is the pin to big?"

1340 (all w) Joe T.
drain all.

1405 Talk w) Kevin.

Says cotter pin is in the
hole, just needs to be
bent to hold.

Dalton is tapping the pin.

1417 - Dalton coming down now. - No
Trying to hammer the pin
straight.

Kevin is grinding a part. Washer.

2680 rms
3-17-22

Thursday

1449 Coming down now,
grinding the washer fixed
the problem.

1520 Starting mud system.

1530 Take Jason to airport.

1600 Back to site.

Advancing 8" csg.

1709 Move casing from
pallets into box truck.
Continue csg to 420' ✓

1808

Summary to Austin ✓

1810 Cascade off site.

rms off site.

(1/2)

rms
3-17-22

8-179
Thursday

Summary 3-17-22

- H & S Mtg
- Plan for work at heights
and hot work
- Prepare hot works permit
- Kelsey Bicknell on site
to pick up bulk sampler
- Professional welder
weld front and back
of main cylinder pin
receptacle.
- Continue washover
with 8" casing to
release 7" casing
- 8" casing to 420'

Tomorrow 3-18-22

- Continue washover

~~0282~~ RMM
3-18-22 Friday Clear 35°F

0545 to site
0605 on site
H&S prep.

0705 H&S mtg -
• Workover with 8" CSG
to release 7" CSG,
• driving safety

Expecting Ron Cairn
from Cascade today.

CSG @ 420' yesterday.

0945 Trying to get
circulation in the mud
system.

1000 Not advancing casing -
issue with returns.
1010 Advancing now.

RMM
3-18-22 Friday 83°F

1100 Ron Cairn -
Ops Mgr, W. Texas

H&S mtg w/ Ron.

1116 Adding bentonite
Quick-Cel to the mud
system.

1137 Talk w/ Kevin
Says Ron says we need
a thicker mud.

1208 getting a mud additive
Soda ash NaOH , to NaHCO_3
raise the pH of the mud,
to improve the yield. "baking
Dalton went to get it at Soda"
a nearby vendor. ok.

1220 Text update to Joet.

1300 Dalton is back
with the materials.

1325 Spinning the CSG. Waiting
for returns in the mud shaker.

8284 RMS
3-18-22 Friday
1326 Tap CSG with hammer
to see if it is filling up
with fluid (as it should)

1343 Fluid to surface in
the shaker.

1410 Talk w/ Kevin.
Says he and Ron think the
shoe on the 8" CSG is
worn down so it won't cut.
Now will trip out all of the
8" CSG to replace the shoe.

1445 Talk w/ Ron.
Will trip the 8", change
the shoe, return to 440.

1530 Unload 8" CSG from
Box Truck, to stack on shed. 26
1611 Resume CSG trip.

1630 Jaw on table failed,
dropped 260' of 8" CSG
back into the hole, down 190'.
Repair jaw and trip back in.

RMS 8583
3-18-22 Friday

1510

Call w/ Joe T.
• OK to work to 6 tonight
@ # of down day

⊙ Change of conditions

• relief for next week.

1530 RMS summarize
down time. Text to Joe T.

3-7	10
3-9	5
3-10	10
3-11	10
3-14	10
3-15	10
3-16	10
3-17	8
	<hr/>
	73 hrs

8480 rms

3-18-22

Friday

22

10

32

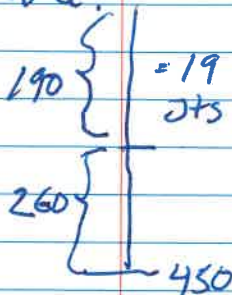
59

32

27

260' in the hole.

450
- 260
190



1630 repaired the lower
table jaw.

1700 Tripping back in
to catch the 8" fish
at 190 bgs.

1810 Ron says he is
back @ 260 and connected
190

to the "Fish".

2085
3-18-22

Friday

85
87

1800 ✓ Summary to JCT.

1815 Cascade off site.
RMS off site.



3-21-22 Monday

0605 To site

0625 on site

prep H&S

Call Security company to
move their vehicle. Ok.

505 897-1307

0700 H&S Mtg.

• Home Keeping

Ron Cain
Dalton Langston
Kevin Rojas
Jason Moore

8/600 rmg

3-21-22 Monday

See p. 05 to Start Monday.
0750 Begin casing
Connect with casing fish,
then trip out CSG
to check shoe.

Ron Cain on the controls.

0800 pulling up on the CSG.
Stuck.

This means he is connected
to the casing "fish".

Start mud system. This
should lube the CSG and
Release the 3".

0840 Tripping the 3" now,
released.

0850 Text updates to Joe T.

0855 Call w/ Joe T.

Someone will be here to
relieve me this afternoon
at about 2. Ok.

0905 Check with driller.

Confirm caught the fish. ✓

rmg

3-18-22 Friday

8987

Summary 3-18-22

- H & S meeting
 - Ron Cain, Cascade
drilling manager, on site
 - Continue 3" washover
procedure
 - Casing will not advance
past 450.
 - Pull casing to ^{inspect} check
and replace the shoe
 - Drop 260 ft of casing
back into hole when
table jaw failed.
 - Repair table jaw
 - Begin to trip back in
to connect to casing
in the hole @ 190 ft bgs.
 - Secure site for weekend
- Continued →

2870-12ms

3-18-22 Friday

Summary Contd.

Monday 3-21-22

- Continue trip in to connect with 8" casing at 190 ft bgs.
- Resume trip out to inspect and replace shoe.
- Trip back in to continue washover to release 7" csq at 567 ft bgs.

time

3-21-22 Monday

9189

see p. 85 to start Monday

0914 Rain starting.

0945 Repairing top table jaw.

1000 jaws changed out,
resume trip out 8" csq.

1030 csq to surface - no shoe
still 60' in hole!

Ron and Kevin discussing
the amount of csq in
the hole, confirm 60'

1042 Deciding what to do.

1046 Call from Brian -

he will be here between 12-1. ok

1106 Will try to move the 7" csq
Rain. Ron on the controls.

1116 7" coming up...

1120

1120 1x10 ✓

1x10 ✓

1140 Unloading the 8" to make
room for the 7" when tripped out. ✓

9292 JMG

3-21-22

Monday

1215 Still unloading.

60' of 8" csg in hole @
385-445 8" csg

Ron Cain - Cascade.

623 203-9967

1220 Talk w/ Ron -
wants to leave the 60' of
8" csg in the hole.
Would take days to get it
out. No charge to INTERACT.

Plan:

- Trip out all 7", check the
shoe, replace.
- Trip back in and to JD
@ 610.
- Build well per specs.

1225 Ron Cain off site.

1230 8" pipe is unloaded.

(40 min) blocking
driveway @ 809 hours with
the box truck.

1233 Box truck back to
rig.

3-21-22

Monday

93

1240 B. Archuleta arrive onsite
to relieve Rob S.

Discuss project drilling project,
current depths, and objectives.

1255 Rob S. off site.

Driller (Kevin) starting to
trip out 7" ~~csg~~ tooling

1335 Rain starting to pick up.

Note: Currently have removed
~33 sections of 7" drill ^{CRJing.} rods.

Crew continuing to trip out.

Note: Resident from #809
was upset when I arrived.
He currently comes out and
yells towards the drill rig
when the crew makes loud
noises (e.g. banging on rods
w/ sledge hammer to free joints).

9294

3/21/22

Data Gap Well

BA

1415 Successfully tripped out
all 7" casing and shoe.
Shoe doesn't look to bad.

Driller and PM (Cascade)
discuss strategies

Brian call Rob and give
him update.

1435 Plan is to change out the shoe,
trip back in w/ 7" tooling, and
drill down to planned TD. Rob
will let me know what that TD is.

1433 Change out shoe. Start tripping
back into the borehole.

Note: Helper tried tagging borehole
but the tagger kept sticking
to the side of the borehole.

1542 Continue tripping in. Currently
down to ~430'.

9

3/21/22

Data Gap Well

BA

Tripped down to 500'. Have to
load up additional casing.

1620 Resume tripping in borehole.

1630 SOS Portable Restrooms + Pumping
arrive onsite to service porta potty.

1632 Tripped down to ~570' bgs.
Begin drilling casing down to 600' bgs.
- Ron is drilling

1647 "SOS Porta" offsite.

Drilled casing (7") down
to 587' bgs.

Start tripping in sonic core
barrel and rods down through
casing. down to 587'

1720 Drilling with core barrel to
clean out muck in casing.
will attempt to drill down to
600' bgs

9295

BA

9496

3/21/22

Date Gap well

BA

1735 Drilled core barrel down to 577' - will pull core barrel and resume drilling tomorrow. Crew will set hopper in place tomorrow morning to catch cuttings.

1740 Ron (Cascade) offsite.

Note: Crew will bring well materials tomorrow.

1800 Finished securing site.

All offsite

Summary 3-21-22

H&S Mtg

- 8" csg to surface
- 60' still in hole
- 7" casing moving up.
- Trip out all 7" csg
- Trip in 7" with new shoe.
- 7" csg to 597'
- Core to 577'

3/21/22

BA

Tomorrow 3-22-22

- Drive csg and clean out to 597.
- Construct well

pmg

pmg

3-22-22

Tuesday

Wet 95°
Snow 97°
35°F

0545 To site

0605 on site

Have 20/40 ^{Finer} Need 10/20 ^{coarser} on 20 slot

0705 H&S Mtg. - Slippery today

Discuss plans.

Give well diagram to Kevin.

check re to 20/40 sand -
Specs call for 10/20 sand.

0723 Note. Car @ home
809 is gone, suggests irate
owner may be gone. Don't
know for sure.

0749 Discuss well design
with Ron Cain. All ok.
Suggests 3' stickup, not 8,
so casing joints will come out. Ok.

Will have the 10/20 sand, per
Spec.

0800 Call w/ Brian Archuleta re
work yesterday

998 RMS
3-22-22

Tuesday

0849 Rig is on "pause".

Call w/ JT -

Call JT @ 0945

Surface completion -
call the City.

Surface completion: Joe T. or other JJ?
RMS call Larry re development.

0900 Tripping into hole with
core barrel to cleanout.

Talk to Ron about development.

Suggest Waterira "pump",
like continuous bailing.
He will talk to Larry.

0918 RMS call AEs re 2 notes.
Will call me back. ✓

998 RMS
3-22-22

Tuesday

0930 Call from JT.

Need maybe to get the 60' of
~~80~~ 8" CSG.

Talk w/ Ron about fishing the
3". Use a "tap" on the
end of the 3", tap in, and
pull out. Est. 2 days,
includes having the tap made up.

0948 Call Joe T -
RMS text re fishing the 3".

Call w/ JT. describe all.
He now has call w/ WA.
Will advise re the 60' of 3".

1018 Coring for cleanout.

1031 Tripping out now Tooth

1045 Call w/ Joe T.

- Content of the steel
- geochem.

• move it up. • No computers or
re-drilling

9:10

Time
3-22-22

Tuesday

1050

Call w Joe T cont'd

CSG - not supposed to
come apart.

Redrill - no confidence.

• Steel composition ASAP
• move up the 6".

1100

Call Ron -

- get CSG composition - yes
- raise 20' ? NO

1146 coming to cleanout
to 597 or 607, will
check.

1151 Text + Robert Chavez
@ AES re 2 tanks, today.

1200 TOOTH

Time
3-22-22

Tuesday

101.29

597 + 2 589,

Cleared out to 585,
heard in to 570,

Added water, to hold down.

Level CSG to 597.

1246 Talk w/ Kevin -

"Normal Flight" -

Sand coming in to casing.

Will make up core barrel to 30 ft
and maybe use the auger bit,
continue to cleanout.

Cascade take lunch.

1324 Resume drilling / cleanout.

T.H.

100
102 RMS
3-22-22

Tuesday

email

Sec from Cascade

Casing Steel Composition

4140 A 519 joint

ST 52V A 513/5 mid body

DOM "drawn over mandrel"

1315

Text links to Joe T for
Steel composition.

1350 Kevin off site.
Ron on controls.

1405 Call w/ Joe T.

Bryan reviewing yre steel data.

Ship the tap here. Yes.

1420

Sand leaving back to STT.

Sec 8" tap on deck - don't
need to ship.

Text to Joe T.

Discuss w/ Ron. Would pull out the
7", TIA w 8" & Tap, then REDRILL

RMS
3-22-22

Tuesday

103/01

with the 7" / core back
to Total Well depth.

Note: Hydraulic hose leak
in engine box, helpers fix.

1430 Kevin back with a 4x6x8' board
to keep csg from falling.

1445 crew working on the hose leak.
RMS to EXTEA office to
check for WLM.

1515 Pickup 500ft WLM @ office.
Text from Ron.

Cascade crew off the rig due to
lightning strikes within 10 mi. OK.

1527 RMS back to site.

Crew in Box Truck.

monitoring lightning strikes on app.

Still within 1/2 mile.

Should wait until AM for
water level, to let added water
dissipate.

102 RMs
104 3-22-22

Tuesday

1550 Call Robert Chavez regarding the 2 totes, left message.

1554 Crew back on deck, repairing the hydraulic hose.

1600 Call w/ JT.

Need to get to TD today for discussion w/ Dianna.

1649 Talk w/ Kevin and Tom.

Goal to get cleanout and CS₇ down to 597. Goals.

In the hole now.

Cleanin' out. Major Chatter.

1712 Pulling upward - very tight

Adding water to help release.

1750 Call w/ Joe T.

WA decides to fish the 8" CS₇.
OK. Advise Cascade. OK.

1820 Cascade off site. =
RMs off site.

RMs

3-22-22

Tuesday

103.

105

Summary 3-22-22

- H & S Mtg
- CS₇ @ 587
- Cleanout to 587 but heaving sand to 577.
- Continue efforts to cleanout to 587 and core to 597 to advance CS₇ to 597, but fighting heaving sands.
- Repair leaking hydraulic line
- Safety shutdown due to hail and light easing
- Work until 6:00 PM to advance CS₇ to 597

Tomorrow 3-23-22

- Achieve a stable boring depth of ~ 600ft and construct well OR
- Pull all 7" CS₇ and attempt to retrieve 60' of 80 8" CS₇ @ 385-445

LOTTOP Rms
3-23-22

Snow
Wednesday 31°

0605 To site
get fuel
0625 on site

Count 8" csg on site

20

22 = 7"

9

6

57

0632 Cascade on site

prep H&S

Greg Smith?
arrives with

0718 Carl W Joe T. well materials

✓ No weekend work this week - OK

Pipe management -

Should not store on the street.

Will call Brian to come out.

• Inspect the csg threads ✓

• Stack the tap - that would
be a problem ✓ can't remove the 8".

• Caving the 8" hole, need to drill
out again - Kevin expects not to happen

Rms

3-23-22

Wednesday

107

0745 email to Maggie Smith
for 25 more safety forms.

0803 Transferring well materials
from transport trailer onto
Kevin's trailer, to make room
for the 8" some of the 8" onto
other trailer to take back to Peralta.

Kevin inspecting casing
threads.

79

22

41

= 410' x 0"

Need at least 39 to get to 390

0837 Begin pulling the 7" csg.

7" is tight in the hole.

Adjusting the "dog collar" in
the "cellar". Was sucking down
the hole.

Pulling and vibrating up, tight, surging

0856 Starting to come up.

106 Time
100 3-23-22 Wednesday

0900 AES here w/ Fotos. X2. ✓
0906 Ron Cain on site.

Craig Smith transporting csq
on trailer back to Peralta.

Ron spot as backing up
the trailer.

0947 ~~All 7" csq out of hole~~ ✓ ^{TIME} No
No! Still pulling 7" csq.

1000

observe csq removal

Time: 1:00 min / 10' ft.

~ 60 min to get all
7" out.

Started @ 0837 → 0937.
Should be nearly out w/
~~to~~ $59 \times 10 = 590$ ft.

1030 All 7" csq out. ✓
Unloading from box truck to
stack on street on dunnage.
Took ~ 2 hrs.

TIME
3-23-22 Wednesday 109

1153 Still unloading the 7" casing
1203 moving 8" into the box truck now.
1310 Cascade take lunch.

Joe T. says Brett can
come tomorrow and Friday.

1325 Make up the tap on the 8"
casing. Begin advance 8" to
retrieve the 60 ft at 385-445.
Expect to connect at ~ 385,
unless the fish went down further.
 $\sim 39 \times 10 = 390 - 5' \text{stk} = 385$
Tap = 1.5 ft
Text photo to Joe T.

$50 \text{ sec/ft} \times 10' \sim 1 \text{ min/ft.}$

→ Est 39 min

$1330 + \sim 40 \text{ min} = \underline{1410}$

1416 Tag the fish, Rotate.
Push down and rotate
Slightly. Now pull up, tight. Vibe.

108
110 3-23-22 Wednesday

Stop - to cool rig
1432 Talk w/ Ron.
Csg is stuck, latched
on to the 60 ft fish, but
now will not move back up.
Vibriand pulling, heats the
rig, so let cool down, then
try again. Will continue

1441 Start up again -
Kevin -

heavy vib. Surging 100%.
No movement.

1450 Still vibing, no movement.

1454 Text update to Joe T.

1455 Let rig cool down

1500 Call w/ Joe T.
update.

1530 Discuss w/ Kevin.

Suggest wash over with the 9".
Discuss w/ Ron - 9" washovers
I have 9" in Wadsworth Texas.
Could get it here.

109
3-23-22 Wednesday 111

1610 Discuss w/ Ron.

Shawn wants him to reverse
spin to dislodge the tap.

This is very risky, in that the
csg could separate at any
joint. There is now about 390 ft
into hole.

1. Reverse spin

2. Wash over with 9" csg.

1620 Text to Joe T with options
1 and 2.

1627 Try spin.

1635 Released - not sure where.

1645 Call w/ Joe T.

Need a proposal from
Cascade on how to
remove the fish. Ok, will
ask Ron.

1700 Tripping out 9" csg.

120112 RMS
3-23-22 Wednesday

1756 CSg up.
~~No tap on end.~~ NO
How much up?

Recovered 1 extra joint,
including the tap. ✓

0600 Discuss with Ron and
Kevin.

IXTERRA requests a
plan, cost, and schedule
to recover the 50 ft fish -
Ron will request that from
Shawn, or.

0650 Cascade off site.
0656 RMS off site.

RMS
3-23-22 Wednesday 113

Summary 3-23-22

- H&S Mtg
- Trip out all @ 7" CSg (590')
- Advance 8" CSg with
tap to connect with
60 ft of 8" CSg in hole
@ 445'-385' (the "fish")
- Connect to the fish
but cannot pull up.
- Disconnect from the fish
by reverse rotating.
- Trip out 8" CSg,
retrieves 1 extra joint and
the tap, so 50 ft in the hole.
- Request plan, cost and
schedule from Cascade to
recover the rest of the fish

42
114

RMJ

3-24-22 Thursday

0 615
0 645 To site
0 645 on site
call with Joe T.

Discuss all

• screw on with 8"

• If stuck, then work over
with 9".

Last night:

Shawn makes the valve was not
getting all the way to bottom of
the fish.

Think will now if screw on with
8". Then can release the fish. Try today
If not, then work up 9",
Start Monday.

0820 call w/ Joe T.

- ① 8" to connect. ok.
well over weekend.
- ② Work over - Monday.

RMJ
3-23-22

Wednesday

113
115

Summary, cont'd

Tomorrow, 3-24-22

- Recover tap from casing
joint by cutting it out.
- Wait for decision on
path forward.

~~~~~  
3-24-22 Thursday

call with Joe T & Shawn  
Cain.

- 8" + try to screw on with 8"
- 9", move it today.  
here today.

Note: Arrived on 3-25.

114  
116 3/24/22 <sup>BAM</sup> Thursday

0900 Rob S. offsite

0930 Freed the trap

1005 Tripping in the 8" to connect  
w/ 8" still in hole (50' left)  
@ 445-395'

1100 Made contact, vibered, no movement  
- Ron calling Shawn

1130 9" casing not going to  
arrive onsite ~~for~~  
wash-over w/ 9" will start  
tomorrow if casing shows up

1215 BM offsite while drillers  
clean and prep. Will return  
in afternoon

1445 BM onsite, drillers finished  
cleaning and offsite. No  
9" casing delivered yet.

3/24/22 <sup>BAM</sup> Thursday 117

Sunday

Thursday Today

\* Attempted to connect up  
8" casing w/ remaining 50'  
fish @ 445-395'.

\* Connected, vibered, but no  
movement from casing.

\* Plan is to use 9" casing  
to wash-over the 8" fish  
but waiting for 9" casing to  
arrive on site.

\* Drillers prepped site for  
9" and left for the day.

Friday

- 9" casing should arrive overnight.
- Will prep and start 9"  
wash-over to remove 8" fish.

116  
118

3/25/22 Friday BM

0745 Onsite, safety mtg w/  
Willars. 9" casing arriving  
later this morning ~10am  
check on weekend work

815 Approval to keep working  
over the weekend was granted.

1200 9" pipe onsite, loading  
pipe truck

1345 All prepped, starting washover  
w/ 9" casing. 47 pieces,  
of 10', 31 on the truck, 16 on the  
ground

1430 Start washover w/ 9"

1508 = 40' lost air

1545 = 50'

1552 = 60'

1603 = 70' jumped water

1645 = 80'

1655 90'

1705 100' refresh drilling  
fluid

3/25/22

117  
119

1710 Call w/ Joe T. update  
on progress + potential schedule

1745 110' casing Didn't add  
just pulled back to end the  
day. 100' casing

1750 Diagnosing small issue w/  
mud circ equip. one of the circs  
not working.

1815 BM onsite, drilling closing up

Summary: Friday

- Casing arrived ~ 12pm

- Started washover w/ 9" @  
1345

- Drilled ~ 100' w/ washover

Saturday/Sunday

- Finish washover to ~ 450'

- will start later morning ~ 9am Sat

11870 RMS  
3-26-22 Saturday

Clear  
mild

0810 to site  
0930 on site Ron Cain - Cascade  
Dalton on site, Dalton Longline. C  
0900 RMS - INTEREX  
Joe Tracy on site Mark Green  
hard out flies to house.  
Ron on site, fuel rig, met Joe T.  
1040 Joe T off site.

Casing to 130'.  
1015 get water.  
1030 resume  
1100 mud system acting up.  
1115 Ron calling for advice.  
1200 Ron back on rig.  
1225 Mud pump is leaking, so  
bring a replacement from  
Peralta. Need to pump more  
fluid into the hole. @ 150' now.  
Loading the rest of the 9"  
csg onto the box truck.  
1246 pipe onto box truck 30x10  
plus 150 in hole = 300  
= 450 total

RMS  
3-26-22 Saturday (2) 119

1300 Replacement pump onsite.  
Set up under rig to operate  
mud system.  
1340 Still down. Inspect the "Bean"  
pump  
1350 Helper getting fittings  
for the Bean pump, etc.  
Moving Box truck back into place.  
1400 Shutdown since 1100 (3 hrs)  
to replace mud pump.  
1420 Still waiting for the fittings  
to deploy Bean pump.  
1434 Ron to his truck - to make  
call - when <sup>are</sup> the fittings needed  
for the bean pump?  
(Assuming that is what he is  
doing) Check with Ron - yes.  
Still waiting for the parts.  
1440 RMS off the clock and off site.  
Ron will Text when resuming  
washover.  
1712 RMS back to site.  
1530 Text update to Joe T.  
1630 Call w/ Joe Tracy  
Duplex piston pumps.  
1725 Text Update to Joe T.

1702 Rms  
122 3-26-22 Saturday

1732 Mud system running  
but no casing advances.

Run off the deck and  
checking the mud system.

1747 Rig end for today

The dual piston pump is  
to large a capacity for the  
Sonic drill rig to operate.

The rig hydraulics push the  
pumps, but can't handle the  
new large pump.

So ... try to repair the  
other pump, the "Bean" pump  
that was leaking yesterday.

Mark is a pump expert.  
Disassemble the pump on the  
tortigate, grease, reassemble.

Run test.

1620

Rms call Joe T.

Rms  
3-26-22 Saturday 123  
1845 end call with Joe T.

1852 Start pump test.

Leaking from the gasket  
on the main pump housing.

Needs a gasket.

Can get at NAPA?

Has to be exactly right  
for this pump housing.

Need pump spec

1 hole products

Get from "GPS"

Take the from housing to  
the shop to get the  
one that works, on Monday.

Not Sunday

So off tomorrow, (off Sunday 3-27)

Expect to take time on Monday  
to get gasket so may not  
start site work until mid day.

122  
124 3-26-22 <sup>turns</sup> Saturday

1915 Still onsite,  
getting pumps ready to  
take to shop on Monday.

• Ask Ron if the Bean pump  
will operate with this  
rig hydraulic system. Yes.

• Ask him if the Bean pump  
has the capacity to execute  
for 9" washover. Yes.

1930 Turns off site.

Cascade off site.

1. ~~RMS~~

125 123  
RMS 3-26-22 Saturday

### Summary 3-26-22

• H<sup>1</sup> Meeting

• Rig up mud system.

• Advance 9" csg to 140'

• Hole open to 135'

• Pull up to 115' for  
shut down.

• Bean Pump for mud  
system leaking.

• Replace with double piston  
pump and try to operate  
mud system.

• Dual ~~pump~~ piston pump  
is too large a capacity  
to operate with the rig hydraulic  
system.

• Disassemble the first pump  
(Bean Pump) and rehab, then  
test. Still leaking.

• Needs a new gasket on the  
main housing.



124/126

<sup>remy</sup>  
3-26-22 Saturday

125  
127

Summary Cont'd

Tomorrow 3-27-22 (Sunday)

• off, ~~no~~ no sitework  
due to needing the gasket.  
Not available until Monday

Monday 3-28-22

• Take pump housing to  
shop to get correct gasket.

• Resume 9" washover.

12 <sup>1226</sup>/<sub>120</sub> 3-28-22 Monday

0845 onsite

Notepad w/ HASP to Dalton.

0945 DM onsite, new gaskets for hydraulic pump arriving soon

1015 Ra onsite w/ gaskets safety meeting.

1145 Rig running, static @ 150' Also Rob. S. onsite.

1205' Pulled out 30', now @ 120' mud feed line clogged.  
- swabs for mud pump are on their way, will arrive tonight or tomorrow

1315 Hydraulic swabs leaking too bad to circ the mud, shut down until new swabs arrive. Air freight from Pitts row.

<sup>129</sup>/<sub>124</sub> 3/28/22 Monday ~~127~~

1330 BM onsite, drills remain prepping for swab replacement possible this afternoon or early tomorrow morning

Summary

3/28

- Swabs in hyd pump leaking. waiting for parts to arrive.
- attempted removing a couple pieces of casing, did not help.

3/29

- New parts arrive early am, rebuild pump then wash over

12A 130 3/21/22 TB on Tuesday

0730 Onsite, safety mtg. cloudy,  
small chance T-storm.  
Rebuilding pump.

0815 Rig on, pump working. Add  
back the 30' we removed  
yesterday.

0850 Back @ 150' 9", slow

0900 160', bit rotation has small  
oscillation

0945 170'

0955 180' 1005 190'

1015 180 200' 1040 210' drilling  
speed ↑

1052 220'

1111 230'

1120 Rob S. onsite to check on  
status.

1130 240'

1205 250' slower drilling

1225 260'

1245 270'

3/21/22 Tuesday B4 29  
131

1300 280' wash-over w/ 9"

1315 290'

1327 300'

1340 310' 1400 320'

1409 330' 1430 340'

1448 350' 154 360'

1610 Made to depth ~~355'~~<sup>360'</sup>, pulled  
back to 320' ~~sticks~~ to  
keep from sticking

1645 Gory to make a fresh mud  
batch and refill on water.

1810 Attached 10' back, ready for  
tomorrow. 340' on Dollars &  
Gas offsite.

Summary: Tuesday

210' progress on wash-over @ 9"

Tomorrow:

270' to go on the far end, could  
start pulling inside casing sooner

1250 330<sup>2</sup> 330<sup>2</sup> <sup>8m</sup> Weed

0730 Onsite, safety mtg,  
training. Start of 330 on the  
string. Rob S. onsite.

~~810~~ 340'

815 345-353' Rob S. onsite

Daily plan: finish mudline to 450'  
then pull all casing 8" / 9" out of the  
hole before going back in w/ the 7"  
to prep for completion.

845 360', still very slow

910 370'

925 Tripping out the 9" casing,  
something broken or wrong at  
the bottom. Puller thinks casing  
was plugged w/ seal. could not  
get mud to circ.

330<sup>2</sup> <sup>8m</sup> Weed

~~131~~  
133

1050 All 9" at of hole. Tried  
to pull on 8" to see if it  
would come, still stuck

1130 Tripping back in w/ 9", looking  
at better filter options for mud  
circ.

1220 Back @ 360', Drilling

1305 370', D. Mud appears to be  
working better.

1325 380'

1355 390'

1440 400'

1510 410'

1540 420'

1625 430'

1700 440' but shortly after reamed

1705 Pulling out the 9" back 110'  
mud hydraulic pump needs to be  
rebuilt. Will rebuild tonight.

1800 3m offsite, drillers remain to  
rebuild pump.

132134 3/30/22 B<sup>m</sup> Wed

### Wed Summary:

- Wash-over drilling of 9" reached 435', pulled back ~330' w/ 11 sticks removed, + 33 in the hole.
- Hydraulic mud pump seals broken. Fixing tonight, over! first thing tomorrow.

### Tomorrow:

- Finish 5" to 450',
- pull 9" + 8" if possible start tripping in 5" to prep for well construction.

133

3/31/22

Data Gap well

135 22

BA

0720 B. Archuleta arrive onsite

### Cascade onsite

- Ron Cain
- Dalton Longtime
- Gary Woods
- Jesus

Crew is servicing mud pump.

Objective: to recover stuck 8" casing by washing over w/ 9".

current 8" depth = 445'  
stuck includes 50' of stuck 8" that driller has been able to thread into.  
9" wash over is at 425'.

0730

Tailgate Safety Discussion

- tripping in/out
- hoses + wet ground (S.T.F.)
- Line of fire hazards.

134-134,

3/31/22

Data Gap well BA

0915

Helpers got the pump working.  
Doesn't appear to be leaking.

0920

Start mixing mud.  
Prepare to lower 9" casing  
down to 425' and resume  
washing over 8".

1010

~405'  
9" @ 425', Start drilling  
down to 445'.

Note: Shawn Cain onsite.  
Helping Ron w/ odds &  
ends. May end up taking  
sound barriers needed for  
PNM project next week.  
Also, helping w/ drilling today.

1055

Rob Sensebush arrive onsite.

9" casing at 435'.

1121

Add 10' stick. Casing at 440'.

Note: Leak on top of drive head  
progressively getting worse.

137-135

3/31/22

Data Gap well BA

1140

@ 443'.

waiting for more water.

1151

Rob S. offsite

1210

Crew back with 4 Totes  
of water. Filled from hydrant.

Resume overwashing w/ 9"  
@ 443'. 2' to go.

1225

Washed over down to 445'.  
Begin tripping out 9" casing.

- Rob + I spoke with Ron.

Ron does not want to risk  
getting the 9" stuck by pulling  
the 8' first or by checking  
to see if the 8" is free.

1313

Joe T. called. Informed him  
of progress and of driller's strategies  
to trip the 9" casing first.

136 138

3/31/22

Data Gap well

BA

1333 Drill crew take lunch break.  
Currently 220' of 9" casing has  
been tripped out.

1348 Resume pulling out 9" casing.

1430 9" casing has been tripped  
out. Prepare to connect to  
8" casing and begin tripping  
out.

1434 8" casing appears to be free.  
Driller able to pull it up.  
Start tripping out 445' of 8"  
casing.

Pipe truck will be driven to  
driller's yard in Penita, NM.

Forklift will move around 8" casing  
as it is tripped out.

1500 Pipe truck offsite.  
↳ Gary + Jesus.

139 137

3/31/22

Data Gap well

BA

1530 Created a JSA for tripping  
out casing using a Forklift.

1535 Paused work and reviewed  
the JSA w/ the crew.

1540 Resume work.

1555 40<sup>th</sup> + 41<sup>st</sup> joints were  
very tightly threaded. This  
is the top of the previously  
stuck 50' of casing that they  
had threaded into at depth  
previously.

1605 Successfully pulled out all 450'  
of 8" casing including shoe/bit  
4

1718 Start tripping 7" casing  
down borehole.

1606 Tripped 7" casing down to 300' bgs.  
- Start buttoning up rig + site.

138 140

3/31/22

Data Gap well

BA

3/31 Summary

- Tailgate Safety meeting
- Washed over w/ 9" casing from 425' - 445'.
- Tripped all 445' of 9" casing
- Tripped out 445' of 8" casing including previously stuck shoe + 50' of casing.
- Tripped 7" casing down to 300' bgs.
- Will resume tripping in 7" casing tomorrow and drill down to TD.

1815

All offsite

BA

3/31/22

141 X32

4/1/22

Data Gap well

BA

0710 B. Archuleta arrive onsite.  
R. Sengbush onsite.  
Cascade onsite  
- Dalton, Gary + Jesus.

0715 Start tailgate safety meeting  
0720 Shawn Cain (Cascade onsite).

- 07 Objectives:
- stage 7" casing.
  - Continue tripping 7" casing down borehole. Currently @ 300'.
  - Drill and cleanout bottom of borehole to 600' bgs.
  - Prepare to start setting well.

Weather: rained earlier this morning.  
Cloudy w/ light sprinkles.  
Should clear later.

0735. Start staging + moving around casing.

0752 R. Sengbush offsite.



140 142

4/1/22

Data Gap Well

BA.

0757 Gary + Jesus offsite. Taking load of 8" casing back to Peralta.

0809 Ron Cain (Cascade) onsite.  
- discuss H/S topics w/ him.

0810 Start tripping 7" downhole.  
- @ 300'  
- Using forklift to hoist casing.  
↳ box truck still in Peralta.

0840 @ 450' bgs. Hit some material down borehole. Driller (Ron) turning/drilling to clear out borehole.

Will have to likely clean out/  
drill the rest of the 150' remaining  
Set up hopper and prepare  
rig + equipment for "drilling".

Rob S. back onsite  
↳ gave him update.

143 141

4/1/22

Data Gap Well

BA

0930 Rob offsite.

1010 Cascade Box Truck arrive back onsite. Gary + Jesus.

1015 Still staging and preparing equipment + materials for drilling.  
- 7" casing at 450' bgs.

1030 Shawn Cain offsite.

1045 Pipe truck, hopper, and all drilling equipment set up.

1047 Start drilling/cleaning out borehole. @ 447'

Gary offsite. Taking a trailer load of 8" casing back to Peralta.

Current onsite crew: Ron (driller), Dalton, + Jesus.

1117 Core rods down to 440  
- Drilling

HE 144

4/1/22

Data Gap Well

BA

1127 Drilled down to 455'.  
 ↳ Start tripping out core rods.

Drill/Core Runs

| <u>Time</u> | <u>From</u> | <u>To</u> | <u>Notes</u> |
|-------------|-------------|-----------|--------------|
| 1117        | 440         |           |              |
| 1127        |             |           |              |

BA

145 ~~143~~

4/1/22

Data Gap Well

BA

1205 Ron thinks borehole was just bridged. He sent core barrel to ~480. Going to attempt to trip/advance casing to TD or refusal.

~~1220~~ Lunch break.

1240 Shawn back onsite.  
 Drill crew resume ops.  
 - Going to attempt tripping 7" downhole.

1300 7" casing at 500' logs.  
 crew staging max 7"  
 casing into Box Truck.

1310 Resume tripping in 7".

1320 Gary back onsite.

7" casing @ 520' logs.  
 - Driller is tripping in core rods/barrel to clean out casing.

~~144~~ 146

4/1/22

Data Gap Well

BA

1413 End core/drilling run.  
Start tripping out core rods/barrel.

1506 Start tripping Core barrel back in.

Status: 7" casing at 520' bgs.  
Driller has drilled/reamed to  
the bottom of casing. Currently  
tripping core barrel back down  
and will drill/clean out borehole  
ahead of the casing.

1610 Cored down to 543'. Retrieval  
and emptied core barrel. 7" casing  
at 525'. Will be advanced  
down borehole. Prep. to advance  
casing.

1640 Advanced casing to 558' bgs.  
↳ core barrel will be tripped  
back in.

1740 Core barrel advanced to 563'.  
Tripping out now to empty.

147 ~~148~~

4/1/22

Data Gap Well

BA

1805 Gary + Jesus offsite

1810 Crew tripping in core barrel.  
- Barrel at 150' bgs.

- Stop work for day.
- Start buttoning up rig + site.

### 4/1/22 Summary

- Tripped 7" casing in borehole  
from 300' to 450' bgs.  
- Encountered slough/cave-in  
material @ 450'.
- Advanced core barrel/7" casing  
from 450' down 563'/558'.
- Core barrel is currently tripped  
down to 150' bgs.
- Crew will resume tripping in core  
rods tomorrow and resume drilling  
and advancing casing until 600' bgs.
- Will likely TD tomorrow and  
potentially start setting the  
well.

1825 All offsite.  
BA } 4/1/22

146.148 Jmg

4-2-22

Saturday

0700 To site

0720 On site

Cascade is here, warming up rig

Prep 145. ✓

0710 145 nitg ✓ Jesus Pacheco

To do

✓. CS9 @ 563 (?) seep. 145

✓. Advance CS9 @ cleanout to 600'

✓. Keep hole open to set well

3" short each joint.

0745 Mtg with Ronald Shawn.

Discuss well construction.

All 10' lengths are 3" short!

570 x 3"

Jmg

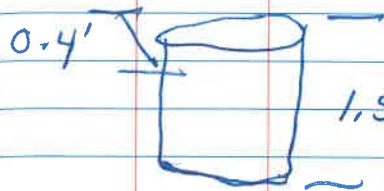
4-2-22

Saturday

149.147

0800 Trip in Hole to cleanout

Sand 50 lb bag



Gilliland Co

Industrial Sand

"10/20" Sie photo

1' x

$$1.5' \times 1' \times 0.4' = 0.6 \text{ ft}^3$$

bag

$$10' \text{ screen} = 9.8' \quad (-3'')$$

$$5' \text{ screen} = 4.8' \quad (-3'')$$

Note: Some casing length = 10'  
Some casing length = 9.8'!

0847 Dalton repairing something on the tower.

0900 Continue casing

0915 Call w/ Joe T.

discuss short joints ✓

black screen ✓

Go to Book 4.

Projects (continued) . . . . .

Data Gap Well

ABWUA. COO9. KAFB

2. 4-2-22

Saturday

Clear  
mild  
Warm

Continual from Book 3

Data Gap Well CS9@567

0920 TOOH

Trip out hole with  
Cleanout Core.

Goal is clean/open  
to 597 ft bgs.

See Data Gap Well  
design diagram. 3.5" sch 80  
PVC.

Set Well @ 597ft bgs

Note: 3.5" sch 80 PVC  
joints MAY be ~3" short.  
Need to measure each joint.  
Short joints = 9.8ft to  
Shoulder.

1000 TOOH

check core for cleanout

Volume:

2mg

4-2-22

Saturday

3

1003 Core barrel up

check top of 30ft core with  
shop vac. Check to see how  
full it is.

Some out of top 10' ~ 3-4ft (30')

Next 20 ft - full ✓

Cleaning out top of 20' (so full to 20')

Lay down <sup>10'</sup> Core barrel in box truck  
must think they won't need it  
Next 20' up.

Loosen pre flapper bit, remove  
flapper bit

Major sand core ~ 20' to hopper ✓

1017 Rack the core barrel.

1019 Advance CS9 w/ Vibe.

Strong vibe - slow - no movement

1023 now moving ~ 1 ft (-)

pulling up slowly. to be sure not  
stuck. Very tight.

1036 Pulled back up. Trip 1 joint  
back out. May need to cleanout again.

4

RMS

4-2-22

Saturday

1100 Add joint lachon  
and try to advance,  
did not clean out again.

CSG @ @ 577

1113 Cleanout to

T/H to cleanout

1146 Coring past the 577 CSG  
+ 201 coring slowly, very loud.

1213 Update from Shawn.

Hitting cobbles @ 579 so  
trip out and change the  
bit to open face. Flapper bit  
will not handle cobbles.

T/OH.

1246 Core barrel up.

1248 Lay down top 10' of 30'  
core barrel. Dump full load 20' to  
hopper.  
Change bit.

1250 Remove flapper bit, install  
open bit.

Hopper getting very full.

1253 T/H. Cleaned out to  
580, per RMS.

RMS

4-2-22

Saturday

5

Material Volumes

TR Bentonite Pellets 0.56 ft<sup>3</sup>/bucket  
RMS measured 0.56 ~ 0.5

Sand 10/20 50 lb bag 0.6 ft<sup>3</sup>/bag  
RMS measured 0.56 ~ 0.5 ft<sup>3</sup>/bag

$$V_{3.5" \text{ PVC}} = 0.066 \frac{\text{ft}^3}{\text{ft}}$$

$$V_{\text{Ann } 7} = 0.20 \frac{\text{ft}^3}{\text{ft}} \times 7.48 = 1.5 \frac{\text{gal}}{\text{ft}} \checkmark$$

$$0.44 \frac{\text{ft}^3}{\text{ft}} \times 7.48 = 2.79 \frac{\text{gal}}{\text{ft}} \checkmark$$

$$V_{\text{Ann } 9} = 0.30 \frac{\text{ft}^3}{\text{ft}} \times 7.48 = 2.26 \frac{\text{gal}}{\text{ft}} \checkmark$$

$$V_{9"} = 0.44$$

$$V_{2.5} - 0.066 = 0.37 \frac{\text{ft}^3}{\text{ft}} \times 7.48 \frac{\text{gal}}{\text{ft}^3}$$

$$V_{\text{Ann } 9-3.5} = 0.37 \frac{\text{ft}^3}{\text{ft}} = 2.79 \frac{\text{gal}}{\text{ft}} \checkmark$$

6. RM8  
4-2-22 Saturday

1315 Ready to core. Will  
try to cleanout / core to 600 ±.

1324 Core down quickly,  
we will see if the core stays  
in the barrel when they  
pull it up.

Core 580-600 vert case.

1350 700 ft

1415 tripping out, see

1420 call w/ Joe T. update -  
may build well today, have  
to work late. OK.

1430 core up. - full load w/ cobbles.  
Talk w/ Shawn - get through  
the cobbles.

1445 Try to down CS9 to \_\_\_\_\_

1445 Casing in, tight.  
Vibing down. @ 590 -  
Add 10'! vibing down 5'.  
Vibe up to keep loose,  
vibe down.

1455 Very tight

RM8 4-2-22 Saturday 7  
Material Volume cont'd

SAND 8-10 bags Actual  
136 bags  
Sand Pack 594-569 = 25 ft

$$V_{Ann 7} = \frac{0.20 \text{ ft}^3}{\text{ft}} \times 25 \text{ ft} = 5 \text{ ft}^3$$

$$1 \text{ bag} = 60 \text{ lbs} = 0.6 \text{ ft}^3$$

$$5 \text{ ft}^3 \times \frac{1 \text{ bag}}{0.6 \text{ ft}^3} = 8.3 \text{ bags}$$

$$\text{if } 0.5 \text{ ft}^3 \\ 5 \text{ ft}^3 \times \frac{1 \text{ bag}}{0.5} = 10 \text{ bags}$$

if 10 bags in 25 ft

$$\frac{25 \text{ ft}}{10 \text{ bags}} = 2.5 \frac{\text{ft}}{\text{bag}} (0.5 \text{ ft}^3)$$



B Rmby  
4-2-22 Saturday  
1508 Csg @ 597'

T114 for clean out to TD  
1524 Move the box truck.

Dump the hopper.

1536 Clean out core now.

1546 Core down. Pulling up  
fight.

1550 Lay down 10' rod.

Add sub for 7" csg.

Csg very tight.

Surging the pipe.

1553 7" csg completely

stuck @ 597, and core

barrel stuck @ 597'.

1604 Adding water to csg

at top, or inside rods.

Pulling rods now ... ? Easy.

TOOH

1622 Almost up.

1635 Core barrel up: 20'

Pull off flapper bit

~10' to hopper

Rmby 4-2-22 Saturday 9  
Material Volume Contd

SEAL

3.57-4 buckets

Bentonite Seal 1/4" TR

$$569 - 559 = \underline{10} \text{ ft}$$

$$V_{\text{annular}} = 0.20 \frac{\text{ft}^3}{\text{ft}}$$

$$0.20 \frac{\text{ft}^3}{\text{ft}} \times 10 \text{ ft} = 2 \text{ ft}^3$$

$$1 \text{ bucket pellets} = 0.56 \text{ ft}^3$$

$$2 \text{ ft}^3 \times \frac{1 \text{ bucket}}{0.56 \text{ ft}^3} = 3.57 \text{ buckets}$$

$$\text{if } 1 \text{ bucket} = 0.5 \text{ ft}^3$$

$$2 \text{ ft}^3 \times \frac{1 \text{ bucket}}{0.5 \text{ ft}^3} = 4 \text{ buckets}$$

$$\frac{10 \text{ ft}}{4 \text{ buckets}} = \frac{2.5 \text{ ft}}{\text{bucket}}$$

(@  $0.5 \frac{\text{ft}^3}{\text{b}}$ )

10 rms  
4-2-22 Saturday

1640

CSG @ 598-

went down 1 ft.

will pull it up to 597.

Driller disconnected core barrel  
on purpose, then reconnected...

Needs 1 more Cleanout  
to about 600', then  
load with water.

Cleaned out to 597.

Need to clean out to 600'

So 1 more run in. OK.

Call Joe T. / Text ✓

1717 All in, begin cleanout  
core to ~ 600'

1720 Core down water to hole  
to release core barrel to pull up.  
pull up easy. T.O.H.  
No - now core back down.

1724 Spinning @ \_\_\_\_\_ ~ 607?  
Spinning up slowly.  
Will need to break the 20' rods.

rms 4-2-22 Saturday 11

Material Volume Conda

|                        |                    |             |
|------------------------|--------------------|-------------|
| Lift 1 9"              | 337 gal            | 378         |
| <u>GROUT</u> Lift 2 9" | 418 gal            |             |
| Lift 3 9"              | 418                | Total 1173  |
| <u>Top of Seal</u>     | <u>Top 7" bore</u> | <u>1214</u> |
| 559                    | 450                | 109 ft      |

Top of

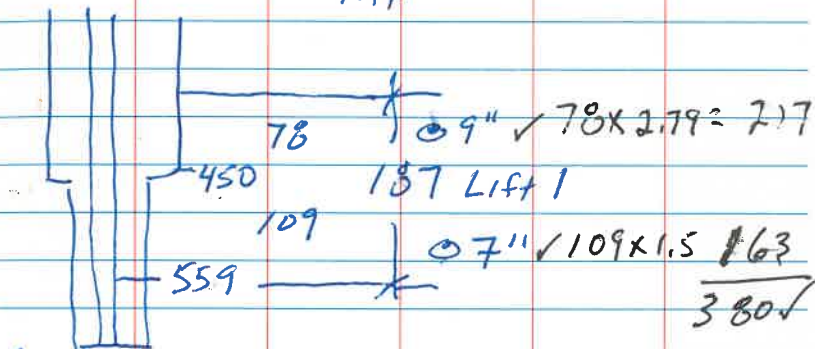
Total Grout ~ 560 ft = 3 lifts

Need 3 lifts

$$\frac{560 \text{ ft}}{3 \text{ lifts}} = \frac{x \text{ ft}}{1 \text{ lift}} \quad \text{"batch"}$$

~ 40 gal

$$x = \frac{187 \text{ ft}}{1 \text{ lift}}$$



Lift 1 7" = 1.5 gal/ft x 109 ft = 163.5 gal

Lift 2 9" = 2.24 gal/ft x 187 ft = 419 gal

Lift 3 9" = 2.24 gal/ft x 187 ft = 418 gal

Total 1214 gal

12

RMG

4-2-22

Saturday

1726 Pull up, then ream  
back down.

1728 Pulling up slowly, back down.

Per Shawn

Clean to 601 = 597 + 4' ...

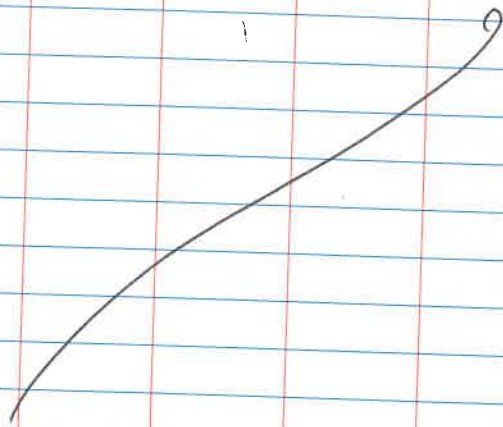
1730

Call w/ Joe T.

describe all. progress, per text.

He will advise Dianna

that we will go late tonight.

1756 Still tripping out the  
core barrel and breaking to 10 rods.

RMG

4-2-22

Saturday

13

1830 Core barrel out

1830 Check Tag, TD

604 - 5 = 599

27 x 10'

= 270

pump = 5

w/cap = 5.1 ft = 5 ft

32 x short 0.2 ft

= 6.4 ft

270

320

---

590

5

---

595

20

---

615

32 x 9.8

313.6

270.0

---

583.6

5

---

588.6

9.8

9.8

Screen = 2 x 9.8 608.2

---

- 597.0

11.2 stk

---

- 9.8

---

1.4 stk

14.

Rings

4-2-22

Saturday

$$33 \times 9.8$$

$$33 \times 0.2 = 6.6'$$

270

330

600

270

1914

$$1 \text{ Count } 33 \times 9.8 = 323.4$$

1915 Cascade rigging up to  
run the well in the hole.

1920 Begin well into hole.  
1 x 5'

1930 Screen into hole

2 x 9.8'

Now 27 x 10'

2030 Well is in, need to find  
a stronger hook to lower it to  
below the table for 1.4' stk.

15

Rings

4-2-22

Saturday

5'

9.8 SC

9.8 SC

$$27 \times 10 = 270.0 \text{ Rise}$$

$$33 \times 9.8 = 323.4$$

=

618

- 597

21 ft stk if 33 sts  
of short

if 32  
1632

- 9.8

11.2

- 9.8

1.4 stk.

2025 Call with Joe T,  
may be very late here -ok.  
Angela care by.

2046 Add 1 bucket pellets, tag  
tag 594 AS built 591.5' <sub>ring</sub>

16

RMG  
4-2-22 Saturday

2100 pellets to 591.5 ft

= 0.5 ft high, into screen,  
but will have to live with it.  
This won't ensure that we  
sealed past the clay layer  
at 594-594.5.

Now pull up 1 jkt csg  
and add 2 bags sand,  
will continue to add sand  
to 569 + 5.7 AS built  
569V RMG  
= 574.7 on tagger

2115 Add 2 bags sand.  
pulling 12' x 10' csg. ✓  
Slowly, loud!

Get 8-10 bags sand  
to 569.

2135 5 bags in well  
sand

17

RMG  
4-2-22 Saturday

Bump 5  
Screen 9.8  
Screen 9.8  
Riser 27 x 10 270  
Riser 32 x 9.8 313.6  
608.2  
- 597.0

11.2  
- 9.8 - 9.8  
1.45thk ← ✓  
= leave out 2 short joints

1 x 10' out @ 595

2200 Pulling csg

18. RMS  
4-2-22 Saturday

7203

CSG @ 565

and to 569 ✓

Very Dark

(13 bags)

AS built.  
569 ✓  
RMS

RMS Tag ✓

Add 4 buckets pellets

2213 Pull CSG 1x10'

to 555

AS built ✓  
556 RMS

Seep. 4 = 4 buckets  
for the 10' seal. ✓

Tag 551

will drop.

~ 555 OK

Pull CSG 1x10  
6 buckets.

CSG @ 545 at end of day.

RMS  
4-2-22 Saturday 19

2249 Cascade off site  
(16 hrs)

RMS off site.

Summary 4-2-22

- H&S mtg
  - Advance 7" CSG to 597 ft bgs
  - Clean out to 601 ft bgs
  - Install well to 597 ft per approved work plan and approved well design.
  - Install bottom seal, sand pack, and top seal.
  - CSG @ 545 ✓
- Tomorrow 4-3-22

- Install one lift of cement-bentonite grout per work plan.

20

Sunday

0941

Tag top of seal

556 ft bgs Rms

(571 - 5 = 556)

Rms

Rms

4-3-22

0930 To site

0945 on site

prep H&amp;S

To do

✓ Tag top of seal

• Set up to mix grout

• Mix and install grout 1 lift  
~ 200 ft

0900 Cascade on site

0910 H&amp;S mtg ✓

Ron not here yet.

0940 Tag top of bentonite  
Seal 556 ft bgs (Rms)

0954 Ron on site.

1000 Prepping for grout.

Cement and bentonite on pallet  
onto deck.

1130 on pause ...

Box truck back to deck.

21

Sunday

Clear  
Warm

22

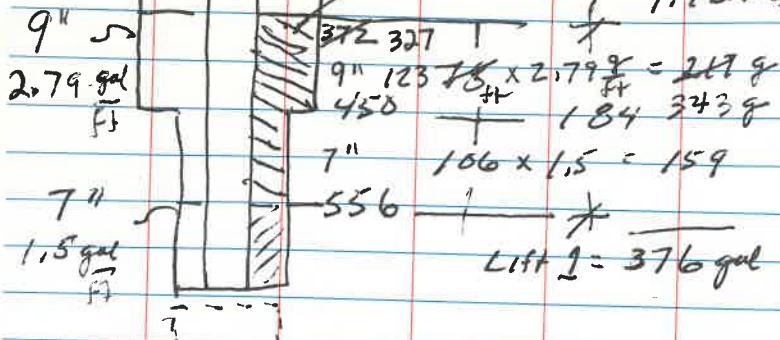
Rmy

4-3-22

Sunday

$$\begin{array}{r} 556 \\ - 327 \\ \hline 229 \end{array}$$

229 12 batches

 Lift 1 376 gal  
 = 9.4 batches

 Total Grout 556 ft / 3 = 184 ft  
 lift
1 batch grout  $\approx$  40 gal
$$376 \text{ gal} \times \frac{1 \text{ batch}}{40 \text{ gal}} = 9.4 \text{ batches}$$
 Lift 1  
 "ONE"

23

Rmy

4-3-22

Sunday

1247 Set up to start grouting.

1250 Begin Grout Lift # 1.

 \* 1.5" Tremie pipe staged  
 to pump grout.

 will remove CS9 as grout  
 fills the annulus. Grout will be staged  
 in buckets for each batch.

\* 1.25" Tremie sched 80 PVC

$$\begin{array}{r} 1306 \text{ Pulling CS9} \quad 545 \\ \text{Coming up easily.} \quad - 10 \\ \hline 535 \end{array}$$

1343 Tagging the hole.

Shawn

Ron

Dalton

Jesus

Cascade crew.

1400 Tremie into hole.

 1446 Pulling some tremie  
 now after a batch into hole.  
 Will pull more casing.

1516 pulling tremie 20 ft jts

1526 pulling casing

1540 Break/Pause - Ron on phone.



24 Rmy  
4-3-22 Sunday  
1450 • 4 batches in hole  
• CS9 @ 460 ✓

• 8 x 47 lb cement/batch

• 6 batches to go  
up to 8 today

• End @ 6:00 tonight -  
OK.

1600 Pulling casing.

1615 Tremie going back in hole.  
Note: need to pull all tremie  
before tripping out CS9. OK.

1623

Bring another pallette of  
Cement.

1715 Batch # 8 in the hole.

Discuss w/ Ron: 72 bags/pallette

Note: Lift # 1 will have been  
curing for 48 hrs by the time  
Lift # 3 is in. So, by that,  
development could start as soon  
as the dev. crew is available.

Rmy  
4-3-22 Sat/Sunday 25

1722 Call Joe T

• Development ASAP

• Leave fence up

• Development rig - to the motel?

1808 All tremie out of hole

Pull 3 x 10 CS9. ✓ @ 325  
12 batches ✓ 355

1815 Secure the well.

|           |     |
|-----------|-----|
| Cement    | 6ul |
| 72        | 5   |
| <u>24</u> |     |

96 bags Cement

1830 all off site

Talk w/ Shawn

Pressure of Cement GroutCement 14 lbs/gal  
Pressure

$$Wt \times .052 \times h$$

Example

$$14 \text{ lbs} \times 0.052 \times 500 \text{ ft}$$

$$= 364 \text{ psi}$$

~~Rock~~

 rmg  
 4-3-22

Sunday

Summary 4-3-22

- It is 5 mtg
- Prepare for grouting Lift #1
- Mix and install 12 batches of grout via 1.25 inch tremie pipe to approximately ~~355~~ 327 ft bgs. ✓
- 229 ft (7+9) 12 batches ~ 480 gal ✓
- Pull casing up to 325 ft bgs.

Tomorrow 4-4-22

Install Lift #2

28 RMS  
4-4-22

0615 To site

0630 on site

Monday

Clear

Strong wind

RMS on site. Site fence (south) is blown down and out house is tipped part way over.

0655 Call 505 - left message for service.

To do

- ✓ Tag Lift #1
- (Mount lift #2)
- Get update re development
- Arrange for roll off removal, maybe tomorrow.
- Tag well T & D - No- (well is capped).

0700 Cascade here  
RMS ad

0730 RMS off site to office  
for time sheet.

0822 Back to site.

RMS  
4-4-22 Monday 29

0804 Cascade moving totes, etc.  
Will get water

Disposing of casing boxes to truck  
See new helper on site.

327 Tag grant lift 1.

0840 Call w/ Joe T

- Mount lift 2 today
- Development ASAP -  
Joe will get OK from  
Dianne, to contradict  
work plan.
- Not working the weekend,  
neighbourhood needs a break.
- Joe T for surface completion

ASAP @ Shawn - development  
• Surface completion - call City  
and JT to supervise.

0854

Shawn call Larry re development.

30 12 mg  
4-4-22 Monday

0925 Lining up the full  
water totes with forklift  
0946 Pulling casing,  
tripping directly onto  
the forklift with  
lifting sling.

1012 Talk w/ Shawn. 500 gpd  
Development crew could  
start Thursday if they could  
work through the weekend.  
If not, could start Monday.  
Expect to take 6 days for 3000 gal.  
Text Joe T.

1056 all csq out of hole.

1110 Tag well TB  
From Table 601.5  
- 5.0  
596.5

From Top of PVC 597.4  
- ~ 1.0  
596.4

12 mg  
4-4-22 Monday 31

Bryant Jones -  
New helper -  
H & S mtg. ✓

601.5  
- 5.0  
596.5

597.4 Top of PVC.  
~ 1.0 Stick up.  
596.4

---

Grout Lift # 1  
12 batches - 556  
- 327  
229 ft ✓

229 ft = 19 ft / batch (7" + 9")  
12 batches

12 batch x  $\frac{40 \text{ gal}}{1 \text{ batch}} \approx 480 \text{ gal} \checkmark$

12 batches  
5210 / 3.1 1/2 ft = 175' 12.7 psi  
45 gal / b = 145 psi  
96 bags

RMG  
32 4-4-22 Monday

1130 Mixing grout now.  
Batch # 1

1230  
Call with Joe T

Will try to start d. this  
week - if Thursday  
before Easter.

7 AM - 6 PM  
Start Thursday  
Work through weekend.  
Thursday P.M.

Roll off - no more  
andy set.

Bait for 6 days - max

1300 Talk with Shawn.  
Call Larry re D.  
He will get back to us.  
Text Joe T, will confirm  
shortly when Larry confirms.

RMG  
4-4-22 Monday 33

1300 Grout Lift # 2 today

12 batches @ 45 gal / batch  
= 189 gal  
= 540 gal

$$\begin{array}{r} \text{Pressure} = 127 \text{ psi} \\ 14 \times 0.052 \times 175 \\ = 127 \text{ psi} \\ = < \underline{\underline{360}} \text{ rated } \checkmark \end{array}$$

Actual  $\frac{9}{2}$   
96 bags  
(3 x 12)  
 $\frac{540 \times 9}{189 \text{ ft}} = 2.85 \frac{9}{\text{ft}}$

per Johnson Screens website

$$\frac{2.79 \text{ ft}}{\text{ft}} \times 540 \text{ gal}$$

$$540 \text{ gal} \times \frac{1 \text{ ft}}{2.79 \text{ gal}} = 193 \text{ ft}$$

$$14 \times 0.052 \times 193 = 140 \text{ psi}$$

Safety Factor of 2 = 280

$$280 < 360 \checkmark$$

34 RMS  
4-4-22

Monday

Note: Formula for grout pressure:

$$\left[ \frac{\text{Wt lbs}}{\text{gal}} \times \text{Factor} \times h = \text{psi} \right]$$

$$\text{Factor} = \boxed{0.052} \text{ per}$$

Water Well Journal Feb 2 2021  
March 2, 2017  
Fred Plumley, Mike Price

1330 Finish Grout Lift #2.

Moving the rest of the 7" (5g)  
to the Trailer.

1400 To lunch w/ Cascade

1600 Back to site.  
Tag grout lift #2.

35  
Shawn 623 203-7716  
Cain 4-4-22 Monday

1601 RMS measure PVC  
stick up 0.9 ft

Shawn tag Grout Lift 2.

$$147 - 5 = \underline{\underline{137}} \text{ ft.}$$

$$\text{Rms } 143 - 5 = \underline{\underline{138}} \text{ } \checkmark \text{ rms}$$

695

|            |            |        |
|------------|------------|--------|
| Top Lift 1 | 327        | 229 ft |
| Top Lift 2 | <u>138</u> | 189 ft |
|            | 189 ft     |        |

1612 Cascade vacuum out  
water from the Roll off.

1630 Summary for today  
and text photo to Joe T.  
Text to remind of possible  
vault concrete and call city  
for inspection.

2/6 RMS  
4-4-22 Monday

Materials used Lift #2

- 96 bags Portland Cement
- 4 bags Quicks gel

1653 Cascade off site

1700 turns off site

RMS 10-2 = 8 hrs

RMS  
4-4-22 Monday

37

Summary 4-4-22

- H & S Mtg
- Install grout Lift #2, 540 gal of 189 ~~ft~~ <sup>ft</sup> ~~turns~~ <sup>RMS</sup> to 138 ft bgs
- Vacuum water out of rolloff bin, redistribute soil.
- Transport all casing off site.
- Begin site cleanup.

Tomorrow 4-5-22

- Install grout lift #3 from 138 ft bgs to GL - 3 ft.
- Possibly install surface completion vault.
- Remove rolloff from site (AES)

20 1200  
4-5-22

Tuesday  
Clear  
mild

0730 To site  
0750 on site  
prep H & S.

0755 call from AES - Douy  
Roll off @ 10 this AM sk

Douy 505 400 0843

0800 Cascade helper on site,  
start equipment.

NOTE: there are 6 sound  
panels on the site.

### To do

• Crout lift #3  
138 ft hgs to ground  
surface.

• Roll off removal @ ~ 10 AM

RMS  
4-5-22

39  
Tuesday

0830 Help clean up site  
and load equipment onto  
box truck.

Call w Joe T.  
Development is covered.  
RMS drop by, OK.

Request Shawn send invoice  
for what is in the contract,  
additional to be discussed after.  
For March + part April, devel:  
incl demob, etc.

City Approval ~ JT will call  
city now.

prep before pour.  
4" concrete.

0929 Cascade helper Santiago  
here to move sound barriers.



40

rmg  
4-5-22

Tuesday

Grout Lift #3 = 138 ft

$$2.79 \frac{\text{gal}}{\text{ft}} \times \boxed{138 \text{ ft}} = 385 \text{ gal}$$

$$\text{Actual } 138 - 69 = 69 \text{ ft}$$

$$\frac{1 \text{ batch}}{45 \text{ gal}} \times 385 \text{ gal} = 8.5 \text{ batches} \approx 9 \text{ batches}$$

$$\frac{8 \text{ bags}}{\text{batch}} \times 9 \text{ batches} = 72 \text{ bags}$$

~~$$385 \text{ ft} \times 2.79 \frac{\text{gal}}{\text{ft}} = 0$$~~

0945 City excavation inspector dropped by. Joseph Valdez.

I will call him this afternoon when the surface completion is prepped. Minimum 4" thick and 3000 psi cement.

Joseph Valdez, 505 319-6284

41

rmg  
4-5-22

Tuesday

1000 Moving objects around to access sound panels. Need to bring trailer, not truck that was brought. Set panels aside for later. Expecting AES soon to move the rolloff.

1015 AES here to pick up the rolloff. ✓

1030 Rolloff off site.

1045

6 sound panels stacked next to rig.

Proceed with Grout Lift #3.

1055 mixing grout now.

1140 6 batches in. May take more than 8 batches.

1230 Grout down 60'

Cascadia take lunch

42

Rmy

4-5-22

Tuesday

1245 Outhouse service ✓  
 1350 not back from lunch yet.

1404 Call Joe Valdez -  
 can come before 3 today - so  
 need to reschedule for tomorrow, OK  
 RMS call him in the morning  
 to schedule. OK.

1407 Begin grouting again.  
 Note: Box truck is gone  
 to Peralta to unload tooling, etc.  
 Sound panels are staged  
 for pickup to load onto trailer.

1412 Tag top of grout well  
 $597.4 - 1 = 596.4$  bgs  
 s+k.

Grout Top 73 BGS  
 69

Will add 3 more batches to  
 day, top off tomorrow?

43

Rmy

4-5-22

Tuesday

(3.1 gal / ft) per Shawn  
 = 100 ft

$$2.79 \frac{\text{gal}}{\text{ft}} \times 138 \text{ ft} = 385 \text{ gal}$$

$$1 \text{ batch} \times 385 \text{ gal} \approx 9 \text{ batches}$$

$$\frac{45 \text{ gal}}{45 \text{ gal}}$$

Out - 385 gal made 69 ft, not  
 138 ft, Formation is thirsty.  
 Grout about 1/2 ft/gal.

$$\times 2.79 = 145.58 \frac{\text{gal}}{\text{ft}}$$

So will need more grout to  
 finish the last ~ 70 ft.

$$5.6 \frac{\text{gal}}{\text{ft}} \times 70 \text{ ft} = 392 \text{ gal}$$

$$1 \text{ batch} \times 392 \text{ gal} = 8.7 \text{ batches!}$$

$$\frac{45 \text{ gal}}{45 \text{ gal}}$$

1427 Shawn wants to wait  
 until about 4 today to place  
 more grout, to let the deeper  
 part of the lift set up. OK. Will  
 it top it off tomorrow.

44

RMK  
4-5-22

Tuesday

1430 Call Joe T.

Text Joe T. to call me.

Cascade prepping to lower down  
the rig.1445  
1445 Call w/ Joe T.Update all. OK

1505 Cut off the PVC at GL.

Dig out around the well.

1520 Pull drill rig back to  
access well to dig out for  
Vault.1530 Pull rig back onto clean  
plastic sheet and place buckets  
under leaks.

1630 Call w/ Brett.

Discuss all re developments.  
See list on p. 49.1645 Cascade mixing grout,  
installing grout.RMK  
4-5-22

Tuesday

45

1645 Cascade other helper  
here loading eqpt onto trailer,  
generator, etc.

1700 Finished grouting. 3 more

2.4 ft bgs (down to 33 ft 4-6-22)  
down 9' overnight13 batches today!  
x 45 gal

Per Shawn: bare

Estimate 4000 gal total  
added to well during  
drilling and construction.This is into potentially the  
aquifer, not during washover  
mud above the water table.

Casing Volume Estimate.

DTW = 455 ft bgs

Well Total depth 596 = 141 Ft

Nom 3" Well 2.86 in ID

Sched 80.

→ Next page

46 Rms  
4-5-22

Tuesday

Casing Volume Nom 3" well  
ID = 2.86 in

Water Column 141 ft

$$V = \pi r^2 h$$

$$D = 2.86 \quad r = 1.43$$

$$1.43 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} = 0.12 \text{ ft}$$

$$r^2 = (0.12 \text{ ft})^2 = 0.014 \text{ ft}^2$$

$$\times 3.141 = 0.044 \text{ ft}^2$$

$$\times 141 \text{ ft} = 6.34 \text{ ft}^3$$

$$\times 7.48 \frac{\text{gal}}{\text{ft}^3} = \boxed{47.41 \text{ gal}}$$

Csg Vol

Round up to 50 gal

$$\times 5 (\text{per WP}) = 250 \text{ gal}$$

+ Added water ~ 4000 gal

Total to Develop 4250 gal

Rms  
4-5-22

Tuesday

47

Summary 4-5-22

- H & S mtg
- Take down 6 sound panels, stage on site
- AES subcontractor pick up roll off and transport off site
- Install Grout Lift #3  
138 ft to surface but borehole took more grout than expected so Grout to 70 ft bgs and wait four hours, then grout again to surface, let set overnight
- Box truck with tooling off site
- Tower down rig and move off well for access to prep for surface completion
- Arrange for City inspection tomorrow of vault installation
- Clean site.

Continued on next page →

48

4-5-22 Tuesday

Summary Cont'd

Tomorrow 4-6-22

- Obtain city inspection of surface completion preparation
- Construct surface completion per approved work plan
- Clean site and...
- Demob all off site
- Expect to start well development on Thursday, 4-7-22.

1725 All off site. 0700

pmsy (9hr)

Tomorrow

49

Rms  
4-5-22 Tuesday  
Contacts for Development

Larry Herron - Cascade  
480 823-8037

Doug Roshaw - AES - Totes  
505 400-~~0853~~ 0843

- SOP #8 Well Development - in WP
- Cascade to bring the Imhoff cone
- Need Water Quality Parameter meter
- See p. 15 of Work Plan
- Turbidity meter
- Well development forms
- Photo document
- Water Level Meter
- Forklift
- Forklift Key
- Cascade water tank? Volume?

50 RMB  
4-6-22

Wednesday  
Clear  
Cool

0600 To site  
0617 on site  
prep H&S.

To do Tag Wed TD

- As Built
  - Grout to surface
  - Call City - Joseph Valdez re surface completion
  - Install vault
  - Recut asphalt
  - Pick up Sound panels
  - Demol and clean site
  - Fork lift Key to Dev. Crew?
- Transition to Development
- HASP
  - Field Notebook
  - Maggie - Scan books
  - Exp Rpt
  - Rental Truck
  - Graph log to JT

RMB  
4-6-22 Wednesday 51

0701 Cascade helper Dalton on site.

0730 H&S mtg ✓

0815 Begin grout. ✓ top of lift 3  
currently @ 33 ft bgs, OK.

$$2.79 \text{ gal} \times 33 \text{ ft} = 92 \text{ gal}$$

$$\frac{1 \text{ batch}}{45 \text{ gal}} \times 92 \text{ gal} = 2 \text{ batches}$$

but, may take more, as yesterday,  
so maybe 4 batches.

0842 2.5 batches,  
1.5 ft bgs, expect  
to drop, from top off  
again.

Pause to let it set up, then  
top off.

0845 Text update to Joe T.  
0906 Mixing more grout now.

52 RMS  
4-6-22 Wednesday

Cement bags

13

8

104 Yesterday

16 Today. ✓

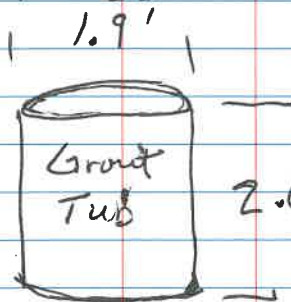
Note: Concrete for the  
Surface Completion  
is 4000 psi

0921 call City Inspector,  
Joe Valdez.

Expect ready early afternoon.  
RMS will call him again  
around noon.

0929 email to Maggie Scott  
re Scan field books 2 and  
3, 3 today.

RMS  
4-6-22 Wednesday 53



$$= 4.94 \text{ ft}^3$$
$$\times 7.48 \text{ gal}$$
$$\frac{\text{ft}^3}{\text{ft}^3}$$

36.95

~ 37 gal

0947 End grouting  
1000 RMS to office.

54

RMS  
4-6-22

Wednesday

1155 Still prepping the  
drill rig for demo.

1215 Shown Samp ready for  
inspection at 2 PM today.  
RMS call. Joe Valdez,  
arrange inspection @ 2. ok.  
Text Joe T re 2.

Call with Joe T,

- Grant solid ✓
- Air lift -  
Call Cascade  
re air lift.

1244 Call Larry Harron,  
Cascade development.  
Dev. crew has already left  
for the job, so does not  
have the air lift eqpt. But  
could get it in a few days.  
Could make a 5<sup>+</sup> gm from  
air lift.

RMS

4-6-22

Wednesday

55

1248 Back out the drill rig now.

1306 Recut square in asphalt  
at 30" x 30".  
Rental saw. ✓ Cut & dig out ✓

1325 Joe T on site.

1343 Tag well TD

296.4 TDF bgs  
+ 300.0  

---

596.4

15

1410 City Inspector Joe Valdez -  
Well prep is Approved ✓ see photos.  
1445 Joe T off site. Take HASP to Britt.  
1500 Pour concrete, 4000 psi ~  
4" inches thick ✓. see photos.

1600 Concrete has poured, vault  
installed. OK. see photo. Will park  
Forklift over the fresh concrete at  
well pad.



66

RMS

4-6-22

Wednesday

1620 Shawn Cain off site.

Dalton will close up site,  
park forklift over the well  
tonight.

1625 Summary to Joe T.

1630 RMS off site.

9 hrs

~~RMS~~

RMS

4-6-22

Wednesday

57

Summary 4-6-22

- H&S mtg
- Prepare surface completion  
for City inspection.
- Obtain approval from  
City inspector Joe Valdenya  
to pour the pad.
- ~~Pour the~~ Set the vault  
and pour the concrete pad.
- Demobilize rig from site.
- Secure the site
- Tomorrow 4-7-22
  - Begin well development.

58

4-7-22

Thursday

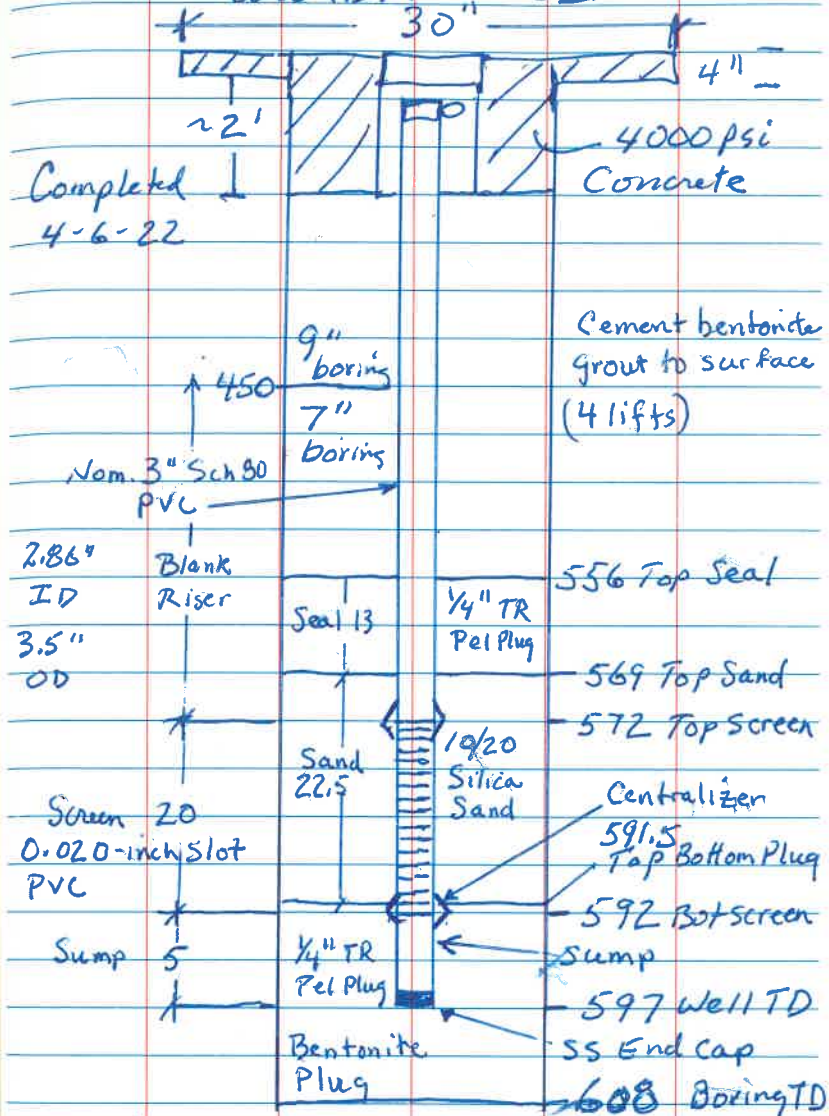
1400 ✓ Timu sheet ✓  
 ✓ Expense report \$150<sup>00</sup>  
 ✓ AS-built well diagram

R. Senggebusch, P.G.

59

As Built "Data Gap Well"

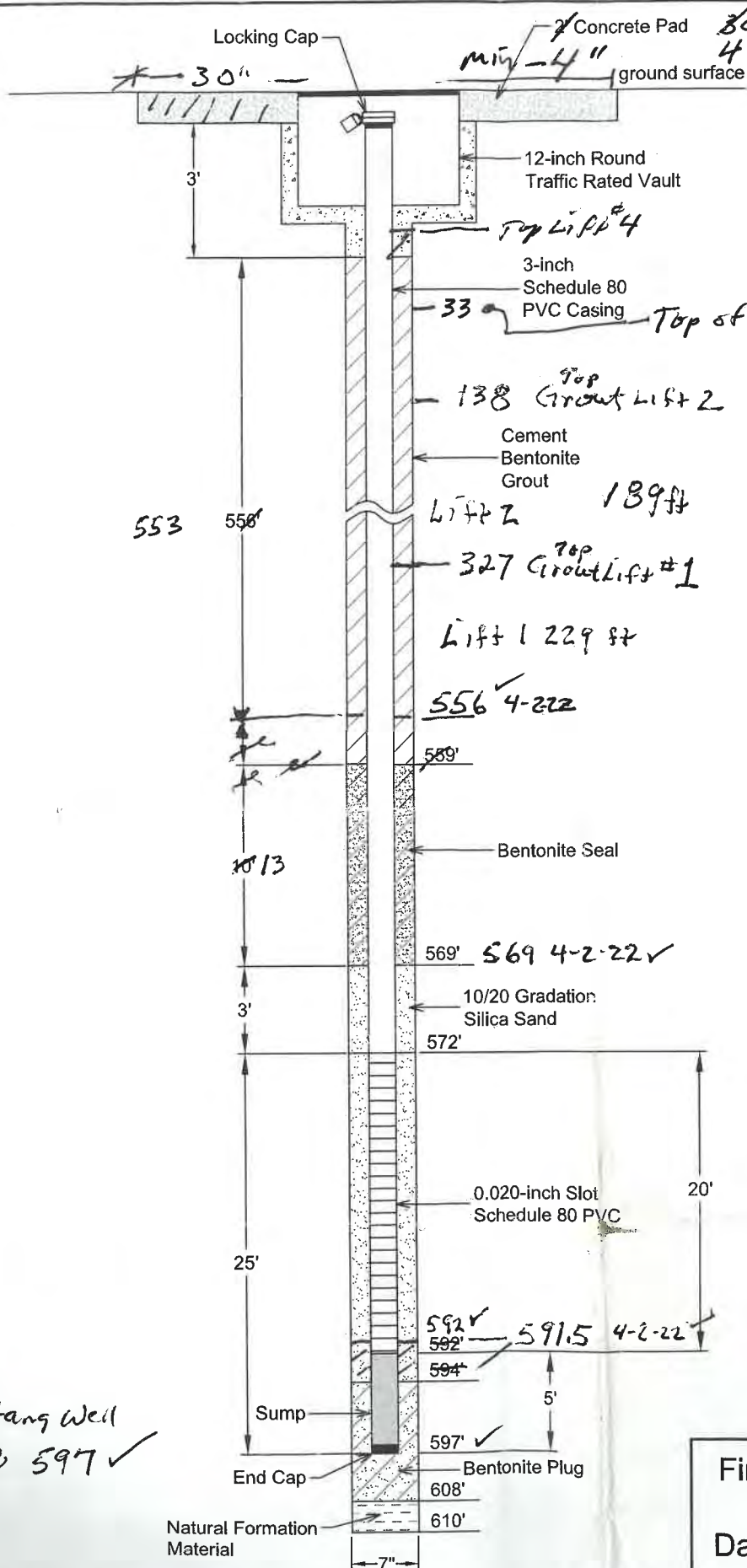
WUABFE MWOL



All depths below ground surface, ft  
 Not to scale

60

AS Built RNS 4-7-22



Stick up before  
Surface Completion  
= 0.9 ft (RNS)  
4.4.22

Hang Well  
@ 597 ✓

Final for Approval Well Design  
Water Authority  
Data Gap Well WUABFFMW01  
Albuquerque, NM  
03-04-22

Well TD approx. = 597' bgs  
Boring TD approx. = 610' bgs  
NOT TO SCALE

