

LEVEL BOOK

#101596

Mobile Drill
Log 23

6882

 **BEN MEADOWSSM**

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When the
Outdoors
is Your
Office.

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[illegible]

(Mud pump 8001 ^{M.S.} M.F.C.)

(miles out of book for the rig)

Departing Tallahassee @ 10:25 am
for Hernando Co.

Arrived @ CHASS. - 2:50 p.m.

Filling w/water while waiting for Bob.
ET./B.C.

Hit a rough patch at first, Bob wanted to go check in to the hotel & go shop for groceries, & I had to remind myself that if I were here with Ken he would want to make a couple runs.

After some disagreements we got started.

Run mud; got rotation Dept. beyond inner barrel, made a 5' Ft run full recovery. 1st 2" were substantially harder then softened 141'-146 (yellowish gray limestone)

146' - 151.10' something stone cutting down when starting but if I feed up & down it cuts fairly easy. Both samples were cut and (zero) zero was showing for mg mud pressure. full recovery is 5' ft. min. sample 146' - 151' (sample is a very pale orange lime stone, not very sure what formation)

6:15 pm. well we made two runs for full recovery. I'm happy with that. Every thing is working in good order with the rig and site so we are about to brake down and go to hotel and grocery store.

(3256.1 hrs. on mobile)

@ the Hotel By 7 pm.

Quality Inn \$65.00 per. night
Cortez & Commercial way

4/10/12

E.T. / B.C.

In the International @ 7:45 a.m.
8:15 a.m. on site, setup, make boxes,
check depth on well 152' ft. of NQ
~~152' ft. of NQ~~ inside NQ. "Perfect"

Starting back @ 151.10"

also we did a little maintenance, grease inner barrel & all fittings

151.10' → zero mud pressure, zero feed pressure, very easy to cut maybe some what ground 156.10'

151.10' - 156.10' (also very pale orange lime stone maybe ocala)

156.10' - 5' ft stick of NQ off, replace w/ 10' ft stick of NQ before starting this run.

Bob suggested that we use a little pencil. Because the lime stone was getting a little chippy. feed pressure & pump pressure are still showing zero. 161.10'

156.10' - 161.10' (very orange pale lime stone)

161.10' - pencil seems to work really well pressure still @ zero for mud & feed pressure. just maybe sign of very porous materials 166.10' (very pale orange lime stone)

166.10' ~ 171.10 1. ft lost

171.10' - 176.10' rotation pressure fluctuates from what Bob told me when the mud pressure and the pump pressure aren't registering you can go by the rotation pressure @ the beginning of this run we caught the last 1' ft. of the last run. This sample was also easy to cut very porous 171.10' - 176.10' (very pale orange lime stone)

176.10 - at a 1' ft. 1/2" sample got very soft, stopping to retrieve soft stuff.

177' ft 7" retrieved 1 1/2' of sample

176.10' - 177.7' (177.50?) } very pale orange lime stone
12 noon stopped for lunch. 12:15 p.m. making a water run. Back @ 1:15 p.m. Back to coring

(177.50?)

177.7' - 181' The first 2' were so soft the last 1 1/2' of the run was hard. The last 3' of the original run was harvested "full sample" (very pale orange lime stone)

181' - 186' zero pump & feed pressure / rotation pressure. I fluxed between 800 & 1200 still were able to harvest the full run of 5' 181' - 186' (white lime stone maybe

Suwannee?

186' - 190.5' core went from soft to hard, hard to soft. Bob suggested we should stop & pull sample. good call formation did change ~~186.5~~ 191' - 186' - 190.5' (white limestone)

190.5 - 191.5 sample harvested coring has been the same all day as far as pump & feed pressure (white lime stone)

197' ft NGR ~~197~~

191.5 - 195.5' coring was a little harder but seems like porous material also the last 1' was somewhat soft (formation did change in the top 6" of the last foot very pale orange 1/3)

195.5' - 197' 195.95' KMC sample is really really really hard pump pressure is up also @ 300 bit is not cutting. decided to pull inner barrel but inner barrel was jammed @ the bottom we only cut about 2" or 3" before it just set there and spinned so. We pulled

inner barrel was stuck.
so we intend to pull all NQ
in the A.M. / now I have to
take pictures of samples & do
discriptions.

hours on Mobile Rig

203' FT

3263.0

NQ

Laving site @ 6:05^{P.M.} at the hole
6:25 pm "next trip load EZ mud & 1"

ETI, B.C. Penetrol"

(4-11-12) 7:45 am. in Continental leaving
hotel, 1st to refill w/ water and
the to pull NQ, because of being plugged
off. Pulled casing, Inner barrel was
clogged, minimal clogging. Cleaned bit, put
casing barrel back together. 12 noon stopped
for lunch, Contemplating extending 3"
casing during lunch. Casing didn't want
to move @ first as down pressure &
up pressure continuously until rod
free then start rotation seems to
work pretty good. Added a 7th rod to
attach to 3', 3" rod to change
to a 5' FT 3" casing to start extending
casing. Rotation Pressure spiking @
1500 to 2000 psi, the clay layer from
60' to 100' must be playing in. ✓

suggestion from Ken is to add
penetrol and see if rotation pressure
goes to normal, if not, put NB
back in and continue coring. Now
I'm going to attempt to free the
casing to advance again. 1 hour
later we were still having the same
problem with the 3" casing. Started
installing NQ, down to 193' FT. The hole
need to be cleaned out once we reached
our depth. I started cleaning out, I knew
I had 7' FT. of cave in at the bottom
of the hole so when I was conditioning
the hole the rotation pressure spiked
just like the 3" casing did. I'm
having a lot of trouble keeping the rods
rotating & in starting to plug off again.
4:42 pm. / now we have to free the rods
& pull out of the hole again, we probably
won't today. But doesn't want to work past
5 pm. / well I.D.K.? I can't do anything
without his help. / Bob took the
controls and tried for 10 minutes or
so so still no rotation. We are
about to clean up and call it a day
a day of disappointment for me.
(Rig hours 3269.1)

5:45 pm. Filling water tank.

6:03 pm headed to hotel

6:30 pm @ hotel

E.T./B.C. 4-12-12

7:45 am. in truck, 8 am. on site

attempting to free rod's. Called Ken we may have to extend the 4" casing to free the 3" casing for advancement.

only 25' of 4" casing and only 75' of 3" casing. Which we don't have enough on site. ~~Ken~~ Advice was to measure inside

the NQ to see how much is open, I measured and I have 193' of NQ ~~can~~ in the hole and my tape measure reads

191'2 1/2" so I have 1' FT. 9 1/2" in of run up inside my NQ casing. Now we may

attempt to bang NQ out w/ Drill Hammer, 10:37 am. Banging w/ hammer for

30 min. NQ Rod moved up ~ 10" in., Now checking to see if banging forced up water ports. Called Ken, his advice

was to try again, because we are making progress. I measured inside the

NQ we are now @ 192' FT. 10" in. inside the casing so with 2" of bit and 2" of rod still clogged it puts us @ 4" of

of sediment inside our drill rod.

Back to banging w/ the ~~Hammer~~ Hammer. got NQ to lift another 2' FT.

Lunch 12 noon - 12:30 p.m.

back to Banging w/ hammer.

5' out, another 5' coming 1.5' up cable broke, replace clamps on cable.

Ken called @ 1:10 p.m. / back to using hammer, banged the next 5' of NQ out, rod's seemed to be free. So I

hooked to the top head, turned on my mud, mud pressure and rotation pressure were normal? we are free from plugging off. I called Ken

to see if he wanted to continue, and his advice was to trip all NQ out, secure the site and go scout next 2 jobs.

Because it's apparent that we will need to run 4" casing to continue.

so Bob and I tripped 185' of NQ out loaded it onto the water truck and are now securing the site.

It was rough going with him at the start, but I guess we both had to get use to different things that we are acustom to. But it worked.

out well I really appreciated his help this week, because sometimes criticism is good. ~~then~~ then going on to ~~start~~ scout next 2 sites.

(Big house 3275.1) leaving site @ 4 p.m. @ hotel 5 p.m.

7 am Loading bags into International preparing to go scouting w/ Bob.

8:15 p.m. Fueling Trucks. Site is close to Lando Lakes, so I took The 589 turnpike to Crystal River Hwy 98 exchange, due west to 19/98 arrived to the Warehouse @ 7:45 p.m. Ending MCG. on International 49453

SANDY

cell 362-229-3628

Tim WARD
x 4180

4-23-12 KC to Barva Rd - meet Bob. WATER RUN at chess.

RUN 4" CS to 107'

3" casing with cap has advanced 4"

will need to come up with a way to put on the cap or remove it
no lunch

End day ~ 7:30 p.m.

4-24-12 KC, BC 7:30 start. to have deposit for stuff to picking 3" CS to chess. for water

configure chain + hook + lift
3" CS - pull cap / clean tools
start advancing CS

SWEWMD Tiffany Harstman

4.25 L x 3.4 W x 3.6 H

4.25 L x ~~4.2~~ 4.2 W x 2.4 H

4.25 x 3.3 x 3.1' H

800 836-0797 x 2130

813-985-7481 x 2130

cell 813 262-4497

RE Ramp 27
SANDY



ADVANCE NEW CASING to ~ 169'
- borehole below casing is full of
cuttings - building up

will run NQ + core bbl in
step airlift cuttings

Run ^{158'} NQ to prep for airlift

Rig hours 3285 1/2 hr under
lock up / clamp

End day 7:00 pm

4-25-12 KC, BC 7:30 start
gas for small pumps, water run

setup airlift - clean hole out
to prev. core depth

start casing (note Eric's bit
depth off - not 197, should be
195.75 (only went 2-3"))

inner bbl plugging on casing
core bbl - set too long.
chg out -

195.75 ~ 197.75 pasty ls v slow
drilling w impreg bit
~ 197.75 - 201' VAR pasty + hard
lamin ls. slow drill
201-

pull NQ - go back w old TSD
bit (188') - INNER 66' in
IN INTERNATIONAL

rig hours 3294 1/2 hr lunch
End day 645 pm

4-26-12 KC, BC - 7:30 start
water run @ chert.
run remaining NQ into hole -
wash hole

201-206' con granular + much
moldic ls. poor to well ind.

206-211 - AS ABOVE

211- RESET rig level to crib up table
raised 6"

211-215.5' con ls, more granular and
partic than above - less moldic
porosity

8 bags Quick Grit
4 1/2 Bags Soda Ash
2 bags Quick Grit
5 bags Portland Cement
4 bags Port Gravel

3-5' NW 3"
1-2' HWT 4"
3-5' NW Reds

inner tube core catcher
inner tube retaining ring
1 1/4" camloc gaskets

1-10' HWT 4"
1-10' NW 3"
7-10' NP

215.5 - 220.5 ls, crm. + blk. or
mod ind. granular, pasty
~~220.5 -~~

water run

220.5 - 222' crm lt gy gran ls.

inner bbl plugged off. core catcher
broken + jammed

222 - 225.5' ls as above but w more
macro moldic porosity

225.5 - 230.5' hard lt bn + orange
ls, minor moldic porosity
diagonal fractures w iron
staining

230.5 - 235.5' lt bn granular

ls - mod ind top 2' then
hard micromoldic ls ~ 8"

followed by more soft granular
matl. - last 4" hard micromoldic

235.5 - 240.5' bn gran. ls. mod ind
organic laminar bbn flint

u soft

240.5 - 245.5' bn granular ls/dol.

var. harder / var por. organic
flakes + blebs

End coring for day
rig hours 3302

End day 7:10pm

no
cure

4-27-12 KC - BC ck out of
hospital - KC 7:30 start -
to SWFWMD Dist HQ - pu
pump core sampler - load/
stray down - return to H
arrn to H ~ 1:45 pm
end day 200 pm

5-14-12 KC, ET 10:45
leave whse w INAL + VAN w
wiggig equip.
to site - load water, 10 gal fuel
into rig
SWL ~ 76' b/s
release trapped possum in mud tub

245.5 - 250.5' gy bn poor to mod ind
lt. granular variably muddy
250.5 - 255.5 SAME - becoming more
porous + orange
255.5 - 260.5' lt bn + orange granular
ls. much more porous than
above ~ 4' heavier
260.5' TD

Rig hour 3304

End day 8:30 pm 1/2 hr lunch

5-15-12 KC, ET - 7:30 start.

MEET Andy S. @ Chasra gate
@ 8 AM - KC water run
others to site.

pull NQ to bot of 3" CSG -
airlift develop like

run logs in bot of hole (170-260.5)

- pull remaining NQ

pull 3" into 4" CSG - Atdp
airlift - no go - very well.

pull remaining 3"

run back w 160' NQ - airlift
~ 1 hr

Rig hour 3310

End day 7:00 pm

5-16-12 KC, ET, AS.

745 AM start

pull NQ, run geophysical
logs (107-175±

pull 4" CSG - hoist + head
would not budge if - used
hammer to get it started,
CSG smeared w clay - decide
not to run camera in open hole
upper section.

Andy ran gamma to ±240.

pump 5 bags quick grout
200 - lower 110' tremmie
hanging in hole.

Clay is squeezing in - had to
push tremmie thru it @ ~ 40-50

tape would only go to 39'
Rig hours 33.15
end day 650 pm
1/2 hr lunch

5-17-12 KC, ET 7:45 A. Start.

heel in with. In Rig + smearing
thru to site

pump 2 adull bags quik growt
pump 4 bags midland cut
top of growth @ 27' b/s

wash in 4 bags bentonite chips
to land surface

pickup / load up / camp

down to CHASSA.

return to TTH 8:30 pm
1/2 hr lunch

5-23-12 KC, AS. dep't. where 1500pm
ferry trip - CHASSA → COTY CREEK
pu INTL + trailer @ Chama.
Chinto hotel ~ 7:00 pm

5-24-12 KC, AS. 7:15 start -
to SERRANOVE site - meet Bob +
me - drop off laptop, sun shade,

+ safety lamps
to colt creek S.P. - met w mgr.
decide on drill sites
discuss poss instl. well
@ youth camp
discuss poss core spec for ed
display.
have dig + trailer @ Col. Cr.
return full in instl
arr for 5:20 pm

7-10-12 K.C. ET @ 10:15 leave
arrive for Colt Creek State Park
ARR 3:30 pm
select drill site - covered
up by flounders - to
lakehead ck in instl
END day 6:00 pm

7-11-12 K.C. ET 7:30 AM start
to colt ck, set up drill site

W# 19364

Cott Creek State Park Core

Lat $28^{\circ} 17' 03.1''$ *

Lon $82^{\circ} 02' 07.6''$

S29ada T 255 R 23E

Elev 95' lder

CD: Polk

Branchburg Quad

* lat/lon average of 806 readings
wpt 12 in CME GPS 3#

0 - 2.5' push spl - 0 - 21.5'
in fill then bn + gy sand
2.5 - 5.0' gray sand grady to
yellow + bn mottled clay
5.0 - 6.5' gray + bn mottled clay w
weathered ls (?)

BK-1 { 6.5 - 7.2' push spl - clay or above
then weathered ls - refusal

pump water, run 4" CSG into
rock ~ 7.25'

make short NQ core run to water
room for 3" CSG

7.25 - 8.5' clay + rubble ls, hard
rexl. ls

8.5-10.5' thin clay zone in ls then
lt gg, + yellowish mottled ls. thin
clay zone @ 6bm
10.5-15.5' ls drg thin grey clay. -
soft, washed, v poor recovery
End coring for day
Rig hours 3336
End day 7:30 pm

EX-2

7-12-12 KC, ET 6:45 start
check for pups then to site - site
maint

15.5-16.75' - Ext. shot - refusal. at
6bm - lt y. gg partly ls w org.
+ clay

16.75-18.2 ~18.2 lt y. ls gran. -
fossiliferous v - mottled med. to poor
cementation

18.2 - 20.2 poor cementation, crumbly
same lt y. ls

20.2 - ~21' same

~21 - 22.5' partly slightly grey partly
granular ls, poorly cemented, crumbly

22.5 - 25.5' same

2" suction hoses
Hand towels
GARDEN HOSES

BX-2

25.5 - 27 same

~ 27' - ~ 27.8 same

27.9' - ~ 29' same

~ 29' - 30.5' same

30.5' - 32.2' cream, vlt gy ls, granular
pasty, poor-mod ind.

32.2 - 35.5' cream ls, granular, moldic
poor to mod ind, foss.

35.5 - 40.5 same - less moldic
in botm 1/2

40.5 - 45.5' cream, vlt. grayish ls, gran.
pasty, poor to mod ind

45.5 - 50.5' ls, cream, vlt gy
granular, foss, var moldic poor to
mod ind.

50.5 - 55.5 same

55.5 - 60.5 cream - vlt. gy ls, gran
foss, var moldic, mod ind

60.5 - 65.5 top 2' or above thin
sharp color ch to mod grey.

~ 3' recovered

BX-3

BX-4

BX-5

BX-6

ON site

11 gunk gel
5 bags sack Ash
2 tape plug
20+ core boxes
gunk hole IV
Eg mud
penetrator

65.5-70.5 med gray ls, gran, foss,
rare mollic. Abd laps pow to
mod ind.

70.5-75.5 SAME

75.5-80.5 SAME

80.5-85.5 SAME

85.5-90.5 SAME

90.5-95.5 SAME - poorer ind.

some loss @ top - plugged

95.5-100.5 SAME - m ~ 3.5 REC

100.5-105.5 - SAME

END coring for day

Rig hours 3345

END day 6:20 PM

7-13-12 KL, ET 1:45 Start
Ch. off of motel. to site, mix mud
and take prep for adv. csg.
Adv. 3" csg to ~ 31.5'
cleanup / backup etc for return

Rig hours 3347

2 incoming calls fr 360-529-6902

NO ONE on other end

AMT LH 5:15 PM

6923

7-23-12

E.T., J.H.

Bath in @ 8 a.m., getting directions & loading last minute materials.

P/U WATER, Gatorade, thermasil @ WAL-MART.

Departure 10:43 a.m. / Fueled up

Fla. GA. Pkwy. 1/2 hour lunch arrived @ site 4:30 p.m. there was threatening weather approaching. 5:30 p.m. called it a day & headed for lodging. @ hotel 6:45 p.m.

WAL-MART

7-24-12

E.T. / J.H. 7:45 a.m. start

@ site 8:30 a.m. Started rig, filled water truck, mixed mud, checked rods to see if they were free. And they were. Ran fluids, tripped 108' of NR ~ 5' ftrs. (Forers) replaced w/ 100' ft of 10' wa rods. Tagged bottom of hole @ 105' ft. (☺). Started coring.

1053- 110.5 smooth cutting, good pressure
same LS

110.5-115.5 Lt grey LS some what
consolidated

11-12 BX-12
1155' 120.5' same

120.5' - 125.5' easy cutting except for the last 2' Ft. to 1 1/2' Ft. coring through something very hard Lt gry LS very well consolidated

125.5' 130.5' same, stopped to hook up desander, starting to make another run.

130.5' - 135.5' smooth cutting, the last 1' Ft. was very hard to cut. a lot of chatter from drill head. sample was poorly consolidated gry LS

135.5' 140.5' a lot of chatter from drill box, hard to cut, mud pressure between 50 & 100, last 2' Ft. mud pressure dropped to "0" then up to 25. still hard to cut same sample poorly consolidated Lt gry LS (139' Avon Park)

140.5' - 145.5' this sample cut a lot smoother, mud pressure low. same gry LS last 2 1/2' Ft. poorly consolidated & granular so far we have had a good day, so I will leave well enough alone. Picking up site & heading to the hotel. leaving site @ 5:55 pm

Rig No. 3353
@ hotel 6:30 p.m.

7-25-12 7:40 start

@ site 8:30 a.m. setup, ran water hoses. 1st run

145.5' - 150.5' same grey granular change @ 148' to a grey shelly ls

150.5' - 155.5' same

155.5' - 160.5' same, change @ 156.5' Avon Park Formation (no doubt about it) Avon Park ☺

160.5' - 165.5' same w/ micro fossils, some what intergraded / 164' ft. some organics

165.5' - 170.5' same

- weather delay -

170.5' - 175.5' same Avon Park

175.5' - 180.5' same

180.5' - 185.5' same

185.5' - 190.5' same

190.5' - 195.5' same

"SRRY ForGOT FRONT OF PAGE ONLY"

195.5' - 200.5' same

200.5' - 205.5' same

clean up site & head to hotel

RIC HOURS 3359

Leaving site @ 6:30 p.m.

@ hotel 7:10 p.m.

128' of NQ DRILL ROD LEFT TO USE

7-26-12 7:45 a.m. start

@ site 8:30 a.m.

205.5' - 205.75' the first run of the day. 1st 3" in. cut fine, now it's spinning on something hard. I may have to pull sample?

I'm going to give it a few more minutes to cut then if no penetration i'll pull it?

try again. pulled sample, A.P. 3" sample got jammed in inner barrel, restricting feed.

running back in. Avon Park

205.75' - 210.5' run is going smooth, that 3" sample was stopping penetration. the last 1 1/2 ft., started to get a lot of chatter out of top head. Avon Park

12 noon Lunch

12:30 p.m. Replacing sand line

2:16 p.m. sand line on, continuing to drill

BX-21

210.5' - 215.5' Same

215.5' - 220.5' Same

BX-22

220.5' - 225.5' Same

225.5' - 230.5' Same

230.5' - 235.5' Same

Rig hours 3364

close up site / leaving site @ 5:30 p.m.

@ hotel 6:05 p.m.

BX-23

7-21-12 7:30 A.M. - START

235.5' - 240.5' Same

240.5' - 245.5' Same, the last 5' ft.
was very hard to cut

BX-24

Secure site / leaving site @ 7:40 p.m.
Heading to Tallah 1:30

BX-25

244.5' - 245.5'

Rig hours 3366

* GATE LODGE
FOR DELIN'S
3690

- HACK SAW

- 15' AWS

- Bags (stop TOWEL)

- LUNCH

7-27-12

@ OFFICE 6:25 p.m.

SPRING CREEK well
PERZOMETER abandoned

7-31-12 KC, DP, STBD

BG-2 / W 201204882

break out blue of SCN,
tremmie CSG + SCN full of
portland - pull CSG +
SCN - tremmie portland
to land surface
1/2 bag portland

BG-01 / W 201204880

Attp. break out SCN, tremmie
CSG + SCN full of portland - pull
CSG + SCN - tremmie portland to
land surface

thunderstorm move in - wait
in truck

1/2 bag portland

7-31-12

B6-03 / W 201204881

pull csg + scw (winch)

frammie ~ $\frac{1}{3}$ bag portland to surface



W - 201204885

GS 09 -

break bottom out of scw. frammie

~ 1.5 bags portland to surface.

winch csg + scw out. top off

W ~ 0.25 bags portland

END @ 3:00 pm

RETN T4H

8-1-12 KC, STBD

check B6 01, 02, 03, GS-09 - all
full - abd. complete

GS, 06, 07 + 08

break bot of scw - frammie portland
to surface. pull well casing, top
off as necessary

GS 06 ~ $\frac{1}{2}$ bag portland

GS 07 ~ 1 bag

GS 08 ~ $\frac{1}{2}$ bag

8-8-12 KC, DP - to shell Point for
perimeter abd.

CONT W 201204885

ck GS OG, 7 + 8 - ok

GS 05 taken ~ 3/4 bag problem

GS 04 taken ~ 1/2 bag, problem

8-15-12 KC, SBD

Grout + pull ST 01, 02 + 05

ST 01 1 bag

ST 02 1/2

ST 05 1/2

E-Z MUD 5 gal.
PENETROL 5 gal.
Quick GEL 3 bgs
Soda ash $5\frac{1}{2}$ ~~bags~~ bags
Hole Plug 2 bgs
CORE BOX MATERIAL = 3 bxs
Need 1- Bullseye grease

8-13-12 LOFT W.A. ~ 10:30 a.m.
ET, in the field. Following G.R. down
to meet A.S. & B.C. @ Seranova to
deliver logging equipment. arrived @
4:45 p.m. @ Seranova TRACT. CLOSED
up site, headed for lodging.
Howard Johnson's, Port Richey, Fla.

W.T. 6.5' Ft.

8-14-12
6 A.M. Start, gathering bags, checking
out of the hotel. Spoke w/ B.C. &
G.R. for directions. leaving at
6:50 A.M. arrive on site @ 8 A.M.
Ran fluids to make sure there were
no sluff or cuttings in the NQ drill rods.
Rods moved freely, no blockage in drill
rods. A.S. set-up logging equipment,
started logging @ 9:20 A.M.
1st tool is the gamma log.
Bottom is 245.8' Ft. / Ran gamma,
Pulling 15' of NQ at a time, develop &
repeat process until well is developed &
NQ is out. Electrical Res. Probe was
run 2nd. its now late in the day.
Storms are approaching, heading for
lodging. lodging @ The Microtec Zephyr Hills

6 p.m. @ Hotel

(3370 hrs. on Mobile Rig)

8-15-12 6:30 start on site

@ 7:30 am. met w/ A.S. @ COLT
CREEK GATE.

(16801.7 mcs. on mobile)
8-14-12

7:45 a.m. Ranger Bryan (8-15-12)
in the gate. Cal. Probe 1st.
THE Idronaug Idronaught was run 2nd
Then the optical last, all were
successful throughout the well. (☺)

Bob, Guy, & I started grouting.
Bob demonstrated 1st - two batches
I pumped the 3rd batch. grouting
was successful. Tomorrow we will
top it off & demobilize. 6 p.m.
headed for lodging. @ Hotel
6:40 p.m.

(3373 RIG HRS.)

8-16-12

E.T., G.R. 7:30 am start
arrived at site, topped off well
w/ hole Plug. Cleaned grouter, cleaned
site broke down equipment. leaving
site @ 1 p.m. / took I-75 to Ocala
on to ^{Thax} 27, through Chiefland, Perry etc.
arrived @ office 6:45 p.m.

3374 RIG HRS.

~~3 bags~~

9th 25-12 KL, $\frac{1}{2}$ STD
to lower - cement thru shell
Point. for permeable abd.
Permit # W 201204886

Abandon ST 03, 04, 06, 07, 08+09
- knock out bit of SCW, remove
casing full of portland - jack
SCREEN + casing out of hole
top off grout to land surface

each hsk took $\sim \frac{1}{2}$ bag
portland cement.

LITTLE TALBOT ISLAND ST. PK.

W#

COUNTY

24K QUAD

LOCATION

S _____ T _____ R _____ Q _____

LATITUDE

30° 26.699'

LONGITUDE

81° 25.082'

ELEVATION

GR & DTP meet RC @ site ~ 2pm
check in @ ranger station

- get H₂O f/well near ranger station
- can get gate key for early / late site access
- restroom on site

- fresh H₂O hose on site for small needs
DO NOT fill truck @ site.

- * Get silt fencing to surround site; keeps gopher droppings out.
- * do not drive over drainfield *

Setup ASAs, push first 5'

0-2.5' gray to tan sand

2.5'-5' AS ABOVE

5-7.5' AS ABOVE, wet!

with wet clean sand i difficulty getting
auger sampler in, quit auging and
secure site. switch to NQ in morning

Bob- got silt fence.
rig hrs. 3398

12-18 on site @ 9:30 a.m.

BC went to lower @ silt fence
Getting water. BC put up silt fence.

starting to pull hollow stems
6'4 1/4" bottom of hollow stems
(wt. 5'9 1/2")

Rig is now set to drill (core)

NOTE: WATER IS REAL SULFERY: HARD TO MIX
~~FOR~~ MUD.

7.50' - installed 4" CASING TO 7.50'
(8' Ft. STOCK 4") - 4" @ 10'

INSTALL 3" CASING TO 7.5'

7.50' - 10' - difficulty retrieving sample
attach extended shoe, 2 - more attempts
cought 2" lt grey sand / change to extended
setting up slips, water diverter, 4" & NQ
Trouble today realigning the hole

Rig hrs. 3402

12-19-12 ET & BC meet @ 7 a.m.
leave hotel @ 7:30 a.m. arrive @ site
8:05 a.m.

(Reveal 2.5')

start @ 10'.

13' of wa w/reveal Bottom of NA is
@ 10.5'

10.5' - 10.75' we only went 4" as to
catch the sandy sample. We got
the 4" of travel: Sample is lt. gry
sand / coarse

10.75' - 11.25'. Same / slow cutting hard
to cut, to avoid washing sample away I
stopped. pulled sample

11.25' - 15.5' gradual cutting it wants
to cut slow so I let it. (sample same
lt gry e-sand) NOTE: low mud pressure
it almost stopped cutting, raise the pressure
a little and rig cuts fine.

15.5' - 18' 2.5' run cause of slow cutting.
Same lt gry sand. recovered all 2.5'
to gry dk sand @ 17.5'

18' - 20.5' minimal recovery, some
dk gry sand

20.5 - 21.75: 15" run to harvest sample
No recovery, About to pull NA
to extend 3" casing.

3" @ 21.50 ft. w/ 2.50' ft. of run up
inside the 3" casing. We are going to wash
out the 3" before installing NA to
continue coring / sand lock inner barrel, pulled
21.50 - washed 3" casing down to
22.5' adding a 2' p. of 3" casing to
seat the 3" casing, continuing to
wash.

wash sample collected @ 22.50: shell

3" casing @ 23.50', NA @ 23' washing 6" in.
out of 3" casing to begin coring.
We will catch the 6" in. wash out for
sample

23. - 23.5: Sluff in hole

23.5 - 25.5 - dk gry sand
last run of the day, secure site, heading
to hotel.

R14 HRS. 3409

NOTE: until we find out what the
PH is on the MAKE UP WATER

sandy conditions: 1 lb. Quick TROC LV
(2-16 bags)

2 lbs. NO SAG
(2-16 bags)

P/U 3-5 gal. CONTAINERS
OF DIESEL

12-20-12

BL & ET MEET B-KOM T-MAN
7:30 depart, arrive on site 8 a.m.

start conditioning hole to
prepare for coring

3-5 gal. DIESEL (~~gas~~ fueled rig)
TAGGED HOLE @ 25.5' ± 8" / 25.5' ^{more accurate}

25.50 - 28' grey lt grey sand w/
shell

after coring prior sample, we started
to plug off. also there was run up inside
the 3" casing.

we pulled off a 5' stick of NGA
to try & clear the 3" casing.

we are now attempting to clear the
3". 3" casing is sand locked w/
NGA.

8" casing is now locking w/ the 4" casing
big problems but we can handle it.

we pulled all 33' of NGA, all 30' of the
3", we are just going to restart
the hole w/ the 4" to see if we

DRAIN MOUND & FLUSH
CLEAN & Empty for
hard freeze

GET WATER SAMPLE

Can get a straighter hole. While advancing to 28' Ft.

short lunch break, unloaded
hotsy & Gyroter, took pics. of the site.

now advancing 4" casing.
4" casing is now down to 28'

WASH 3" CASING DOWN TO 28'

Secure site

RIG NRS. 3414

2:30 a.m. CHECK OUT, ARRIVE ON
site @ 8:45⁴⁵ a.m.

Circulate fluids, start sampling
started rig, let everything warm up.
temp in the 20°'s wind chill 28°

BC Repairing mud line, suction pump
looking hose/ET detached 3" tag bottom
installing N.A. to 26.5' Ft. to clear
hole & start casing to 28' to start coring
Tagged bottom @ 26.5' / 3" & 4"
38' w. 2' stick up.

This was seen
the afternoon but not think
This prep work will improve
one drilling conditions
for tomorrow

bolt Grouters to Trailer
bring steam cleaner back
Get make up water sample
drain main & Flush

mud is thin, no sag was noted
B.C. / Repairing pull string on mud line
28' - 30' : 2' Ft. Run / 1' Ft. sample
collected: grs sand w/ shell

Flush wa before, lowering inner
barrel sand locked again.

Spoke w/ Dave he suggested to
wash w/ 8" & catch even 2.5'

30' - 32.5' shell

32.5' - 35' shell

R14 Ws. 3418

1-8-2013 DEPART @ 10:40 A.M.
E.T. arrive @ site 3 p.m.

B.C. 11:50 a.m. got site ready.
start work 2:30 p.m.

March-Banner bit test 32 oz.

1 min 40 sec. (too thick)

35 sec. to 40 sec. should be ideal
cleaning hole to 35'

35' - ~~xx~~ Repairing King Swivel
Secured
Packed up site, looked

Rig
3418
22

For lodging. Hotel La Quinta Inn
& Suites, Jacksonville, Fla. Butler Blvd.
(South Side) @ Hotel 6:45 p.m.

Headed to Publix, For Groceries for wk.

Bay Meadows Rd. Back @ hotel 8:30 p.m.
End of Day.

1-9-2013

E.T., B.C. leaving hotel @ 7 a.m.

on site @ 8 a.m. E.T. / B.C. Fueling F-550

on site @ 8:35 a.m. From yesterday 3" casing

@ 35' / 38' of casing

(Bottom of hole) about to att. deploying NQ
to 35'

35' - 37.5' gray sand w/ shell
wash and clear hole

37.5' - 40' gray tan sand w/ some shell
wash & clear hole

40' - 42.5' same gray sand w/ shell
wash out & clear hole / Petroleum
ATTN. FILM

42.5' - 45.0' same w/ shell, same clays

@ 44.5' / about to pull NQ & extend
3" casing / casing set @ 42' / 42.5'

(1-5 ft. 3" lead w/ shoe & 4x10x3" casing)

28'x4"

Casing in / NR in start coring
45' - 47.5' ~~at~~ drk gray sand w/ clay &
shells washout NR before lowering inner
47.5' - 50' same barrel

About to secure site & head to
hotel Rig has. 3429

Today was rough, but we made progress.
A lot of work & a lot of thinking. @ hotel 6:30
p.m.

1-10-13 6:00 BE leaving hotel @ 7:00 a.m.
on site 7:45 a.m.

Warm-up, Flush hole

coring @ 50' - 55' coarse sand's gray w/
some shell 75% recovery (✓)

washing out, NO plugged off. Pull up 5' wash
~~back~~ back down to 55' add 5' red. Make
another run. adding Quick-Trol IV
~~SS~~ to aid in displacing the shells

55' - 60' same

about to pull NR to extend 3"

3" casing is @ 42.5' need to add 1x10x3"
& 1x5x3" this will put us @ 57.0'
on the 3" casing. drilled out with
2x3" casing to 57.5' pulled off the 2'
lower casing back to 57.5" w/ 2' reveal

Guy is bringing
Camera
permit

to do: 1-11-73
Repair sand line brake
Fill w/ water
Fill rig

15 gal. Diesel

order cable for sand line braking
system

60' - 62.5' but very easy, had to stop.
formation change ??? Drill head started down-
ward fast. @ 62' water is starting to
smell sultry maybe going to a salt water
pocket, mud is thinning down, added to mud
 $\frac{1}{2}$ bag Quick Gel, $\frac{1}{2}$ bag Quick TAD, $\frac{1}{2}$ No sag
62.5' - 65' - gray dk. gray clay sands w/
shell plugged off, pulled up 5' to free. wash
~~65' - 67.5'~~ out to start coring
wash out

65' - 67.5' same
wash out

67.5' - 70' same / pulled up 5'; washed
out for hole stability. will ck. in a.m.
on collapse. Securing site. 5:30 p.m. heading
to hotel 6:30 p.m. arrival
Rig hrs 3436

1-11-73 BC, ET / BC checking out
of hotel. left hotel @ 7 a.m.
on site @ 7:45 a.m. spoke w/ Dave
repair or patching brake on sand line.

Fueling rig w/ 15 gal. Diesel.

check to see if rods are free
tag bottoming tape.

70' - 72.5' ^{gray} clay sand w/ shell
pump out (Flush)

72.5' - 73.75' same

pump out (Flush)

73.75' - 75' gray sand w/ shell
pump out (Flush)

Tripping out NA 78' / to advance

Filling water track 1 hr $\frac{1}{2}$

They arrived @ 12:30 p.m. ^{BC} Traveling home

Extending 3" casing NOTE: before
we extended the casing we had a lot of
run-up in our NA rods, sand & shell,
after extending 3" / securing site
75' - heading for lodging

@ hotel 6pm.

R. log hrs.
3440

1-12-13

G.R. & E.T. / leave hotel @ 7:30 a.m.
headed for site.

@ site 8:15 a.m. warm up

Tag bottom 3" @ 78.5', starting to
lower NA to start coring

75' - 77 same w/ shell & some clay

77-77.50' same
attempting to take next sample
sand & shell are causing plug off.

leaving site @ 5:20 p.m.

@ hotel 6:15 p.m.

Rig hrs. 3446

1-13-13

GR. & E.T. leaving hotel @ 8:00 a.m.

Trip to lower & Napa to pick up
Antigee & misc. items

on site 10 a.m. attempting to wash
back down to 77.5'

77.5-80' gray tan sand w/shell
plugged off

-5', lift back up & wash clear &
wash back to 80' to start sampling

80'-85' dk gray clay w/shell

85'-90' dk gray clay w/some shell

90-91 same w/some rock fragments. F? ?

extended shot won't penetrate
so we are going back down w/
rock shoe, maybe into rock ???

91-95' - X 2" of rock, I may have
washed the end of run. 2" drag,
blocked sampling tube. Back to rock
shoe

95'-99' - hit something hard again,
~~and~~ pulling sample & switching back to
rock shoe / grey clay, 98.5' change
to rock

99'-100' rock !!! (☺)
cleaning up heading for
hotel / E.T., B.R. leaving
site @ 6:15 p.m.
@ hotel 6:45 p.m.

RIG #R6.3452

1-14-13

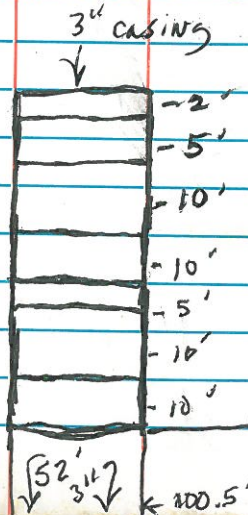
ET, BR back & leaving hotel
@ 7:00 a.m. on site 8:45 a.m.
warming up rig, preparing

Casing depth

4" casing	Rods	3" casing
True B.L.S.	↓	True B.L.S.
30-28		100.60 - 57.5
		10' - 70 - 67.5
		5' - 75 - 73.5
		10' - 85 - 83.5
		10' - 95 - 93.5
		5' - 100 - 98.5
		2' - 102 - 99.5

* do not forget to retrieve 2' on top of string before advancing again *

NEED SODA ASH
Quick GEL
EXTENDED SHOE



to pull NQ & advance
3" casing / running fluids
I want to see if we are
still in rock

100' - 105' Same / @ 101.5'
change to a softer rock dk
grey white in color

pulling NQ, Advancing 3"
casing

3" @ 73.5 / 81.5 - 75' True
needs to be set @ 99'. 99' - 73.5' = 25.5'
extension / correction added 27.5'
2' on top. 3" set @ 100.5'
cleaning equipment & securing site.
leaving site @ 1:22 p.m.

3454 Rig hrs

In Tally @ 4:58 p.m. doing
paper work & unloading

1-22-2013

ET @ whse 8 a.m.

leaving whse @ 11:30 a.m.

on rd. to site, Fuel 9824

Georgia Fla. Prky.

onsite @ 4 p.m. E.T. / B.C. onsite

@ 12:30 p.m.

Fill water truck, lower NQ

Tagged bottom @ 101.15'

102' x 3" = 6" to 1' Ft. stuff

lowered NQ to 98' left hanging

over night. Securing site. heading to

(Rig 3455) lodging. 8 p.m.

1-23-2013

ET, BC leaving hotel @ 7:30 a.m.

arriving on site @ 8 a.m.

warm up equipment start coring

lower NQ to 103' x NQ wash

brake, lower inner barrel

add 103' x NQ wash to 105'

105' - 107.5' - dk gray clay sands

107.5' - 110' same

110' - 115' same

115' - 117.5' same - change @ 115.5'
lt gry clay w/ sands & ?

117.5' - 120' same

120' - 122.5' sand stone ???

122.5' - 125' sandy clay
making 2 1/2' Ft. run till we find
125' something hard

125' - 127.5' same

using extended shal
127.5' - 128.5' got soft, stop run,
retrieve sample, same "very soft"

128.5' - 130' same sandy clay

130' - 132.75 drk gry clay

132.75' - 135' same

TAKE PICS. Braking system
Keep coring
NEXT TRIP ST. JOHNS MAY
LOG WELL.
GROUT NEXT TRIP

LIST: TRIMMER
CAMERA
TOWELS
W-D 40

RIG 3462 / Securing site, $\frac{1}{2}$ heading
to hotel ET/BC. Leaving site
5:40 p.m. @ hotel 6:30 p.m.

1-24-2013 ET, BC ~~to~~ Headed to
site 7 a.m. / Fuel station / on site
8:22 a.m. (MG, Rig 172659)
WARM UP

135' - 140' SAME

140' - ~~142~~ 142.5' sand

142.5' - 145' Same

145' - 147.5' real soft, putting through
last sample, change to extended shoe
plunged some of sample, clearing
well, will try to get sample
on next 2.5' ft. / 2" of dk gry
day.

147.5' - 150' 3' sample, maybe some
of last run. sample is same

Flush well before lowering inner
150' barrel. Excessive, particulates

150' - 155' Same / This time I washed
less after sampling while having inner barrel
155' in, and wash more before I
Lower inner barrel or core

155' - 160' Same - ha. Th. ?

it almost seems quicker washing
before sampling 1/5 after w/ inner barrel
in. We also have had full recovery
since.

160' - 165' Same

165' - 170' Same / change ~ 168'
mudstone

170' - 172.5' Same

172.5' - 175' Same

Securing site, heading for lodging 5:40pm
(13470 hrs) @ hotel 6:10pm.

NO sag
penetrol
3" casing



DEPARTMENT OF
ENVIRONMENTAL PROTECTION

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E-Mail: Kathleen.Kelso@dep.state.fl.us

1-25-2013

ET, BC IN TRUCK @ 7:00 a.m. / leaving hotel
7:15 on site B.A.M., warming engines up.

175' - 177.5' ~~177.5'~~ gry & clayey sands

177.5' - 180' same
water run

180' - 182.5' same / sand locked
Pull HQ, running 3" casing to 175'
Run 10' x 3" casing. securing
site 5:30 p.m. then headed
for lodging. @ 5:45 p.m. / @ hotel
6:15 p.m.

3476 Rig hrs.

126-2013

ET, BC LEAVING for site @ 7:00 a.m.
on site @ 7:45 a.m. / continuing to
advance 3" casing. @ 4:30 p.m. we were
@ our target depth for setting 3"
casing 175' x 3" casing. Casing depth
set @ 173.0' (BLS.) Below land surface
securing site & heading for lodging
3482 Rig hrs.

1-27-2013

BE ET leaving hotel @ 7:15, P/W water
Publix arriving on site @ 7:40 am
(@ 173')

Warming equip., tag through 3" casing,
lowering drill rod

stop @ 167' to wash 3" to
sampling depth (178' X NO) -
(188' X NO)

182.5' - 183' coarse sands, EX-shoe w/cut
lowered inner barrel & sands wouldn't
~~allow~~ allow us to seat inner barrel. ^{NOTE:}
changed to rock shoe (Quick TROL LV
~~was added~~ WAS added)

183' - 184.25' lt gry tan sands
w/ Phos.

184.25' - 185' same,

~~185.0' - 186.0'~~

185' - 187.5' gry sc

187.5' - 190' same

NOTE:

Mud was recycled all day, additives
were:

1/2 Bag Quick gel
2 lbs. Q-TROL LV
2 lbs. NO SAB / 1/2 gal. penitrol

Securing site & heading for
lodging 6pm

Rig hrs. 3488 / MLS. 17265.9

WATER TRUCK MLS. 54076

CH. DUALLY MLS. 130782.8

1-28-2013

7a.m. packing clothes, checking out
of hotel. leaving for site, arriving
@ 8:30 a.m.

warming equipment up.

Continuing to core

190' - 192.5' gry sandy clay w/
Phos.

wash out good b-y lowering m. bar.
192.5' - 195' Same

195' - 200' gry green sandy clay

200' - 205' mud stone dk gry

205' - 210' Same

About to wash equipment w/ HOTSy
DECON.

Secure site & head home.
leaving site @ 1:45 p.m. head-
ing for Tallahassee. B.C. ~~departed~~
@ office 5 p.m.

RIG #RS. 3492

2-4-2012

@ work 8:45 a.m. ET

Met w/ D.P. & B.C. on site 2:15 a.m.

D.P. & B.C. repaired brake unit.
fill water truck. Run fluid's & level
rig tag hole. before filling w.T.

210' - 213' Same

(12)

213' - 215' Same

Rig 3494 B.C. / E.T.

clean & secure site & head for
lodging 6:30 p.m.

2-5-2013 E.T. / B.C. 7 a.m.

arrive on site @ 7:45 a.m.

(11.2)

warm up equipment, start coring.

Fueled Rig 14.37?? Cal.

215' - 220' Same cutting smooth
Not many particulates, lower I.B. continue coring
220' - 225' Same

225' - 230' change @ beginning of run
caliche rock @ 226' change to
dk grey clayey sands

230' - 235' dk grey clay, much
harder

235' - 240' Same

240' - 245' dk grey dense clay
cut very slow, w/ low rotation press.
may be dolomite ???

245' - 250' Same, softer @ 246';
changing back @ ~ 247'

250' - 255' dk grey clay??. Dolomite???

Securing Site. and heading for
lodging Rig hrs. 3502 @ hotel
6:30 p.m.

2-8-13

E.T./B.C. in N.T. @ 7 a.m. (11.9)
leave hotel @ 7:15 a.m.

onsite 8:50 a.m., warm up equipment &
starting to core.

255'-~257' stop @ ~257' Ft., mud press.
& rotation pressure dropped. also lost a
little mud @ top of the hole Run.
dark grey clay / 256.75' change to
clay w/ coarse sands ??? clayish
med stone

257'-260' clayish med stone ???

We are now in a soft med stone
w/ sands. we are adding bentonite
to mud mixture

260'-265'- only 1' ft of recovery
sample fell back down through
NQ drill rod, 1' ft. OR sample
was balled.

Tripped 5' x NQ out, going back in w/
core barrel 138' x NQ / ACL 10' x NQ (138')
then NQR, finish out w/ 5' x NQ

Sesse is delivering 10' x NRQ = 260' FT
Got lost, we had to talk him
into $\frac{1}{2}$ through town. He arrived

@ 5 p.m., unloaded materials

10' x NRQ = FT. 200' FT

NRQ pin to NRQ BOX = 1

NRQ pin to NRQ BOX = 1

core boxes

wire line cable = 2 spools, not enough
line

secured site $\frac{1}{2}$ headed for hotel.

Departing site @ 6:30 p.m.

3507 Rig WS

2-7-2013 BC/ET 7 a.m. in work

truck arrive on site 7:45 a.m. (1)

continuing to lower NRQ & NRQ.

@ 138' change over from NRQ to NRQ

NRQ-PIN / NRQ BOX (+) plus 6" 138.5' FT.

Installed 200' FT x NRQ + 6" sub on

outer barrel. 1 x 6" NRQ PIN / NRQ BOX

~~1 x 6" NRQ~~ now adding NRQ down to

265' to continue coring.

1st we pushed from 261' - 264.5' to collect
~~265' - 266'~~ last sample from yesterday. Then

cored from 264.5' - 266'

260' - 265' x x x x

255'-2

266'- x x x

266'- 268.5' drk gry blk clay
Mud pressure between 200-300 psi
268.5'- 269.75' same

300psi a little more aggressive to grab
the core

269.75'- 271' same

* Pair delay

~~off~~ lightning delay

Securing site, heading for lodging
@ hotel 6:30 p.m.

Rig 3513

2-8-2013 ET, BC leaving hotel

7 A.M. on site 7:45 a.m.

(11.5)

warming equip. / began coring

271'- 273.5' same

273.5'- 276' same

276'- 281' same

Headed to pickup wire line

also p/u 14.3 gal. ~~fuel~~ Fuel
for the Rig & 5 gal. NON ETHANOL
for small engines.

Returned to site Fueled rig
continue coring.

281' - 283.5' same

still advancing @ 300-350 PSI

283.5' - 286' same

- pulled drill rods up 5' Ft. off
bottom & condition well over night.

Secure site & head to hotel

Rig hrs. 3517

2-9-2013 BC/ET leaving hotel

Team arrive on site @ 7:30 am

Warm up equip., began coring

(11.9)

286' - 288.75' same but softer

288.75' - 291' same

291' - 296' same

water run

296' - 297.25' same, change @
296.25 to drk gray clay w/ sand
fine sand, looks like soft Avon
Park

297.25' - 301' Avon Park ???

301' - 303.25' same, change @
303' ft. to a hard brn & beige limestone

303.25' - 303.50' same
sample very hard to cut w/ rock bit
lot of chatter from box,

303.50 - ~ 304 same
still hard to cut
may change to diamond increas bit
tomorrow, secure site & head
for lodging
3324 Rigs.

2-10-2013

leaving hotel @ 6:50 am,
arrive an. site @ 7:20 am
Replacing wire line,

(11.5)

Turned up the rpm's to get a faster rotation
it seemed to help.

~ 304' - 304.25' same

still in HARD ROCK

304.25' - 305.25' same

WATER RUN

Continuing to core

305.25' - 306 Dk grey clay w/
dol. stone ???

306' - 307' Lt grey rock

307' - 308' same w/ some clay's

308' - 311' olive / lt grey brn mud stone ???

Securing site & heading for lodging
Leaving @ 5:15 Rig 320
arrive @ hotel 6:05 p.m.

2-11-13

loading clothes & bags into work truck
@ 6:55 a.m. & check out leaving
hotel 7:20 a.m. arrive on site

8:05 a.m. / warm up equip.

Continuing to core

311' - 314.75' - grey brown mud stone
w/ organics, etc. This sample was very easy

Next Trip
Extended shoes
1-BUCKET of Bulls Eye

to cut. High Rotation pressure
w/ low mud pressure. Sample
changed @ 312.75' to a
carb. Sand Stone

314.75' - sand locked, sample was
real soft to cut. drop sample back
attempted to bail sample. And got
sand locked. Called Dave, he sugges-
ted to pull up 10' ft. & pump
mud. Attempt failed. pulled drill
Rig 3533

Rods up to 304' ft. / Rods are sitting
inside something hard. so walls
won't collapse on them. pressure wash
off, securing site, head to office
Fueling water truck 12:45 p.m.

2-18-13

leaving for L.I.S.P. @ work
8:45 a.m. load, leaving 1 a.m. @ 10:30
arrive @ 3:00 p.m. after stopping @ every
bridge between the Island & 295 South.
(3534) pulling NA & NAD drill rods
Securing site & heading for lodging.
@ 7 p.m.

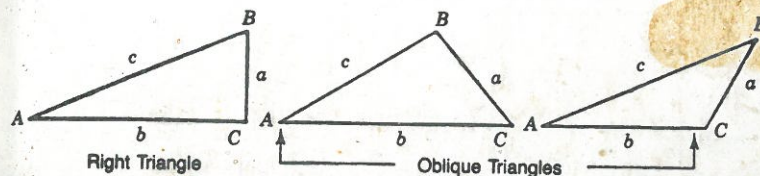
2-19-2013

B.C. & E.T. leaving hotel @ 7
Trip out 80' x NRQ.

Jesse
 WK. 520-2840
 Personal CELL. 443-9102

2" pipe
 hook
 hacksaw blades
 Elec tape

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

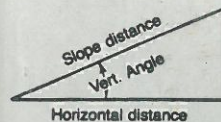
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\csc = \frac{c}{a}$

Given a, b	Required A, B, c	$\tan A = \frac{a}{b} = \cot B$, $c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B$, $b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90^\circ - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90^\circ - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90^\circ - A$, $a = c \sin A$, $b = c \cos A$

Solution of Oblique Triangles

Given A, B, a	Required b, c, C	$b = \frac{a \sin B}{\sin A}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180^\circ - C$, $\tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$ $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a + b + c}{2}$, $\sin \frac{1}{2} A = \sqrt{\frac{(s - b)(s - c)}{bc}}$ $\sin \frac{1}{2} B = \sqrt{\frac{(s - a)(s - c)}{ac}}$, $C = 180^\circ - (A + B)$
a, b, c	Area	$s = \frac{a + b + c}{2}$, $\text{area} = \sqrt{s(s - a)(s - b)(s - c)}$
A, b, c	Area	$\text{area} = \frac{bc \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ ft.
 Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. $\cosine 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft.

When the rise is known, the horizontal distance is approximately: - the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

