

NO. 1-18
80' FEEL

RNG. HOW
Kansas

ELEVATIONS
KB 3329
DF 3327
GL 3317

MEASUREMENTS ARE
ALL FROM KB

Log #1
1-11-2017

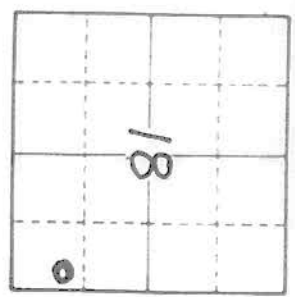
CASING RECORD
8 5/8" O.D. 1676 W 730 SX.

RES None

EL LOG A.O. RES. SP GR
Den. Neuf. R. Caliper
M. Sonic

400 TO TD
3400 TO TD
3400 TO TD
ROM 3400 TO TD
in H. Grievies

LOG SUBSEA



API# 15-187-21333

REMARKS EarthTech had an unmanned gas detection trailer on this well from 3400 feet to total depth

Thank you,
Edwin H. Grievies
Geologist

LITHOLOGY

- SANDSTONE
- LIMESTONE
- SHALE
- CHERT

- SLTSTONE
- DOLOMITE
- GRANITE WASH
- ANHY & GYP

CHROMATOGRAPH

HOT WIRE BY
TOTAL GAS VOLUME

- C1 = METHANE
- C2 = ETHANE
- C3 = PROPANE
- C4 = ISOBUTANE
- C5 = BUTANE
- C6 = ISOPENTANE
- C7 = PENTANE

WELL TIME SCALE

SAMPLE DESCRIPTION

GAS SCALE



grayish-tan totan; trs sub-chlk,
sub-sucro. to v. sucro. and
trs. pachstn; dul. yel. to sli. trs.
yel. fluor.; No Cut; abn. pr. fr.;
to qd. + trs. excel. micro-pp.
por. to interxn. por.

Lms. similar 3400-3444

3500

Lms. similar 3444-3478

Lms. similar 3400-3444

TRZP Check

Lms. lt. to med. gray + trs drk. gray.
sli. to extaly. shly. w/ trs grazing to
highly cz. ls. shs; crypto to trs
v. v. fn. xln; sub-chlk or shly;
trs sub-sucro. + pachstn;
trs. finely disseminated pyrite;
No fluor; No Cut; No vis por.

3600

Sh. v. drk. gray to black-carb
Lms. grayish-tan; crypto xln; pachstn
+ sub-lith. agg; dul. yel. fluor; No Cut
NO vis POR

Sh. lt. gray to lt. green; soft & mushy
when wet; silty IPIS

Lms. trs. wht. to cam.-chlk. and
cam. to lt. tan; crypto. to v. v. xln
sub-chlk, sub-sucro to v. sucro. +
pachstn; dul. yel. fluor; No Cut;
trs. poor micro-pp. por.
Lms. lt. gray to tan; crypto. to v. xln
trs. sub-chlk, sub-sucro + pachstn;
trs. w/ dul. vel. fluor.; No Cut; No vis por

Base Heebner
3635-306

Bik Sh 120

Toronto
3665-336

to highly calc. shs.; subchlk to shly
+ packstn.; No fluor.; No cut
No vis por.

Lansing Fin
3697 - 368

3700

G1

Interbedded lms. + scattered thin shs

1. Lms. lt. gray. to tan; shly. IP's;
crypto. to v.v. fn. xln.; trs. subchlk to
shly.; sub-sucro. + packstn.;
dul. yel. fluor. IP's. No cut
No vis por

2. Lms. sli. to abn. wht. to crim-chlk
+ grayish. tan to tan; crypto. to
v.v. fn. xln.; trs. subchlk, sub-sucro
to sucro. and packstn.; dul. lt. yel
to dul. yel. fluor.; No cut; No vis por

3. scattered trs shs. med to dk gray
sli. calc. to very calc.

3800

G1

Lms. hv. trs. to abn. wht. to crim-chlk
+ tan, grayish. IP's; crypto to v.v. fn. xln.;
sub-chlk; sub-sucro to trs. sucro.
+ packstn.; dul. yel. fluor. IP's; No cut
trs. to hv. trs. pr. to sli. trs. sr.
micro-pp. por. + pass. interxln. por
IP's

3900

No cut; v. zbn, pr., fr., gd. to
excel. oolitic por. + trs pr
to fr + slit asgd. micro-pd to
interxln. por; v. Quest. Perm.
POR Most parts

Lms. tan, grayish. IP's; crypto to
v.v. fn. xln.; sub-sucro + packstn;
dul. yel. fluor. IP's; No cut; No vis por

Lms. med. to dark gray, sl. to extly
shly. gradng. to highly calc. Shs;
crypto. to v.v. fn xln.; sub-chlk + shly
tas. sub-sucro + packstn; No fluor
No cut. No vis porosity

4000

Lms. lt. to med. gray, tanish IP's
crypto. to v.v. fn xln.; sub-chlk,
sub-sucro + packstn; dul. lt. yel
fluor. IP's; No cut; No vis por.

Lms. sl. trs. wht. to crm.-chlk + med.
gray; crypto. to v.v. fn. xln.; sub-sucro
to trs. sucro + packstn. dul. yel. fluor. IP's
No cut; No vis. por

4074-85 Lms. hvy trs. wht. to crm.-chlk
+ tan, grayish. IP's; crypto. to v.v. fn. xln.
v. to excel. oolitic for sl. oolitic IP's;
matrix sub-sucro to trs. sucro + packstn
dul. yel. fluor. No cut; zbn. pr. to fr
+ trs. gd. oolitic; pp + micro pp
por. Quest. Perm

4095-4093 Lms. med. to trs. dk gray
sl. to v. shly; crypto xln.; packstn;
No fluor; No cut No vis por

4100

4093-4126 Lms. v. to extly zbn wht. to
crm.-chlk + tan; crypto. to v.v. fn.
xln.; frly to v. oolitic for frly to v.
oolitic; matrix sub-sucro to trs
sucro. + packstn; dul. yel. fluor.;
zbn. pr. to fr oolitic + trs. pr. to fr.
interxln. por; over all Quest. Perm.
Lms. med. gray. to tan; crypto. to v.v. fn.
xln.; sub-sucro. + packstn; trs su/
dul. yel. fluor.; No cut; No vis por;

Lms. similar 4093-4126

Lms. hvy trs. wht. to crm.-chlk + tan to
tan; crypto to v.v. fn. xln.; oolitic
to hvy. tabs. sl. to taly. oolitic
matrix chlk, sub-chlk, sub-sucro and
packstn. dul. lt. yel. fluor. IP's
No cut; hvy. trs. pr to trs fr. tagd.
oolitic. Por. Quest. Perm

Trap check

Kansas City Fm
4093 - 764

WOB 35000
RPR 70
SPR 60
PP 1000

Tan; opaque

4200

Lms. v. to extan. 2bn. wht to cam-
chlk. + tan; crypto. to v. v. fn. xln.;
v. oolitic for sli. oolitic IP's;
matrix chlk. sub-chlk. sub-sucro. 2nd
pacstn. + pacstn.; trs w/ dul.
yel. fluor.; No cut; hv. trs
w/ pr. to fr. oolitic por
v. Quest. Perm

4214-4303 Lms. med. gray grding.
tan; crypto. to v. v. fn. xln.;
trs. sub-chlk, trs. sub-sucro. 2nd
pacstn.; trs w/ dul. yel. fluor.;
No cut; No Vis Por.

4300

Sh. med. to v. drk. gry.; sli. to
extly. calc. grding to extaly
shly. Lmsts

Lms. tan w/ trs H. gry.; crypto xln;
pacstn. to hv. trs. sub-lithogr.
v. dul. yel. fluor.; No Cut; No Vis. Por.

4389-4394 Lms. H. gry. to tan; crypto
to v. v. fn. xln.; fair to v. oolitic for
sli. oolitic IP's; matrix sub-chlk
sub-sucro. + pacstn.; dul. yel. to sli. trs
yel. fluor.; No Cut; hv. trs sparse
to fair oolitic por.; Quest. Perm

4400

Lms. grayish tan to tan; crypto to v. v. fn. xln.
trs. sub-chlk, trs. sub-sucro,
pacstn. + hv. trs. sub-lithogr.;
dul. H. yel. fluor. IP's; No Cut;
No Vis. Por.

BKG
4303-974

Marmaton
4321-992

NOVIS POR.

4466-77 Lms. grayish. tan to tan; crypto to v.v. fn. xln.; sub-sucro + packstn; dul. yel. fluor.; No Cut; NOVIS POR w/ trs. Chert. H. gray. opaque

← 4477-80 Lms. tan; v.v. fn. to fn. xln.; sub-sucro to sucro; trs. phantom oolites IP; dul. yel. fluor.; No Cut; abn. pr. totx + trs. mlc ap to interior of por w/ trs. Chert H. gray, opaque

Lms. similar 4466-4477

Sh. v. drk gray. to black-carb

Lms. grayish. tan to tan; crypto. to v.v. fn. xln.; trs. sub-chlk; sub-sucro + packstn; trs. dul. H. yel. fluor.; No Cut; No VIS POR w/ hvy. trs Chert H. gray; opaque

Interbedded Limestones and Shales

1. Lms. grayish. tan. to tan; crypto. to v.v. fn. xln.; sub-chlk; sub-sucro + packstn; dul. H. yel to dul. yel fluor.; No Cut; NOVIS POR

2. Lms. lt. med to drk gray-sli to extely. Shly. grading to v. calc. Shs.; crypto. to trs. v.v. fn. xln.; sub-chlk to shly; trs. sub-sucro + packstn; No fluor.; No Cut; No Vis. POR.

3. Sh. med. to v. drk. gray, sli to extely. calc. grading. to Shly. lumps.

Lms. tan; crypto. to v.v. fn. xln.; sub-chlk sub-sucro + packstn; dul. gln. yel to gln. yel. fluor.; w/ faint ring cuts No VIS POR.

Interbedded Limestones and Shales

1. trs. Lms. grayish. tan to tan; crypto

WOB 44000
RPM 72
SPM 60
PP 1000

1347 BITTRAD
4489

Trip 535-370

SCOTT
4489-1160

4500

Recycle 320

Recycle 240

537

Recycle 210

WOB 42000
RPM 75
SPM 1000

4600

C
C
C
C
C
C
C
C
C

3. Shs. med to v. drk. gray slt to
extly. calc. grading to extly
shly. Lmsts

WOB 38000
RPM 70
SPM 60
PP 1000

Blk Sh
434

Interbedded Lmst Shs similar 4654-4738
w/interbeds Shs. very drk. gry.
to black carb

6 4 5 3 2 1

Blk Sh
634

Rectals
724

4800

Interbedded Limestones and Shales
similar 4654-4738

WOB 40000
RPM 70
SPM 60
PP 1000

Blk Sh
874

Interbedded Limestones and Shales
similar 4654-4738 becoming
predominately interbedded
w/v. drk. gry to black-carb
shales

Blk Sh
854

Blk Sh
874

Blk Sh
904

4900

Interbedded Limestones and Shales
similar 4654-4738 w/abn
interbeds Shales v. drk. gry

Blk Sh
WOB 35000
RPM 70-75
SPM 54
PP 950

DST#1

Sample Morrow Fm
4987-1658

Sh. med. to v. drk gray, sil. to faly
calc. IP's

See Below

Some loose GIZ gas in sample
fr. formed; sub-ang to subrounded
frosted wht.

5000

Blush 664

4987-1658

GFS

Shout 544

Recycle 524

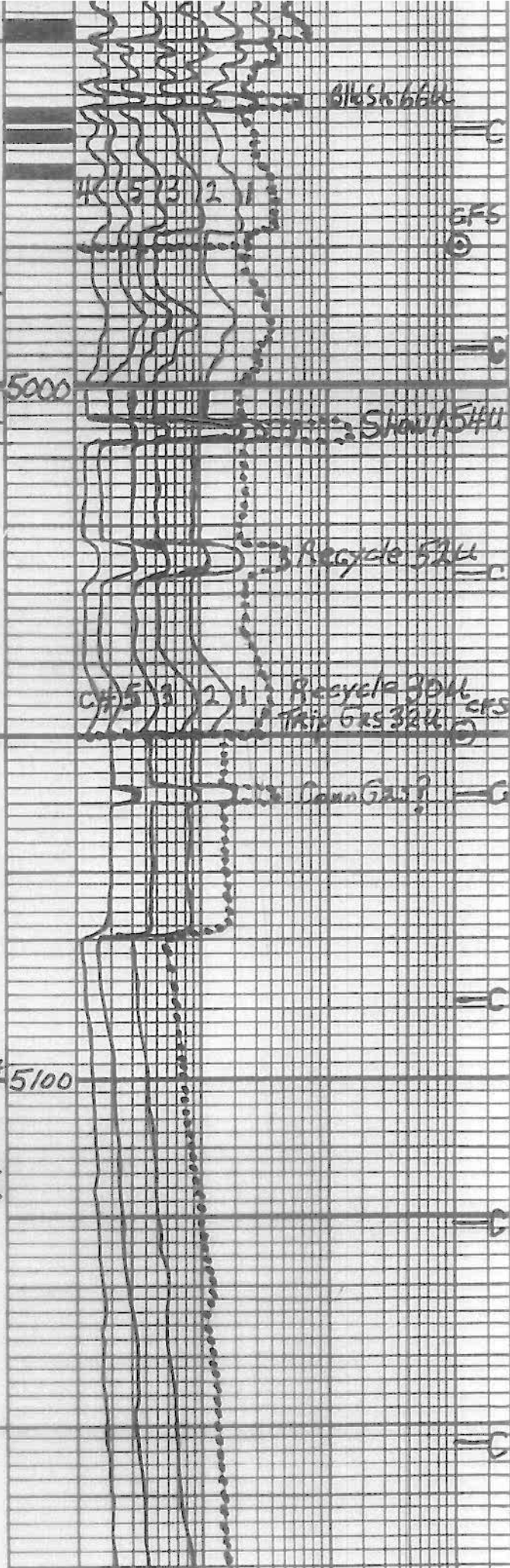
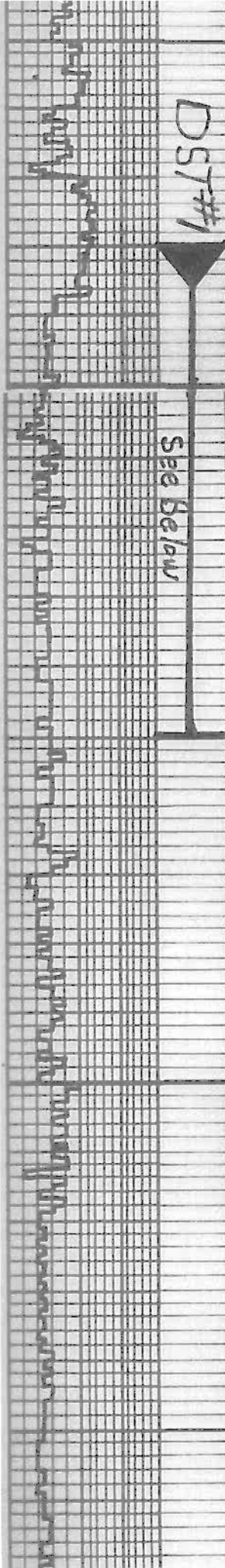
4987-1658

Recycle 304
Thin GFS 324

Can Gas?

Sh. med gray. soft w/ silky luster IP's
to firm + drk gray - splintery
w/ scattered trs. of lms. grays
to fms; crypto. to v.v. fr. xln;
palesth to sub-lithogr.; trs. less
dul yel. flodr. IP's; No Gut; No Vis for

5100



Sh. w/ incr. in Lmsts
Similar 5008-5224

Qtz Sdct. H. gray to tanish. H. gray; +
tas grayish tan; fn. med to coarse
gr. ang. w/ abn sub-ang, sub-rounded to
rounded; poly. sort. well cemented w/ silt
to v. fine. sd. trs. Lm grs. IP's; No fluor; No cut
No vis. por.; huylas to abn. loose Qtz grs
more Lm grs w/ depth; matrix
becomes Lmst IP's w/ depth

Sh. med. gray. soft to dark gray-splinter
w/ tas, sdst composed Lm. grs + Qtz grs
v. fn. to med. grs.; poly sorted, ang.

w/ sh. matrix; glauc. to chloritic
IP's; No fluor; No cut; No vis. por.

Interbedded limestones and sh.
1. Lms. H. gray to H. green; crypto. to v. fine
tas. sub-chlk, sub-sucro + packstn;
abn. v. silty; dul. H. yel. fluor IP's; No cut;
No vis. por.
2. Shs verigated grays, greens, reds
+ tas maroons

Reworked + or weathered St Genevieve.
Lms. crm to H. gray w/ tas H. green + tr pink
crypto. to v. fine. xln.; v. to extraly
micro-oolitic + sl. to poly Qtz sdcty -
v. v. fn. gr. - ang.; matrix tas chlk
tas sub-chlk, sub-sucro; dul. H.
yel. fluor.; No cut; No vis. por.

Lms. H. gray, tanish gray, to grayish. tan;
crypto. to v. v. fn. xln.; extraly micro-oolitic
+ sl. to poly Qtz sdcty - v. v. fn. gr. - ang.;
matrix tas sub-chlk sub-sucro.
+ trs. packstn; dul. H. yel. fluor.;
No cut; No vis. por.

5200

C3 2 1

Trap Check

5300

Trap Check

C2 1

Trap Check

Chester
5343-2014

St. Genevieve
5389-2060

Gas Line Froze Off

5400

Cryptoto v.v. fm. xln.; v. to extaly oolitic

Layered to lg + trs sm; matrix chlk, sub-chlk
sub-sucro to trs sucro; strong oil adn
w/ saltur overtones; scattered spid
bn. oil str. w/ dul. gl. in to gl. yel. fluor.
w/ faint to fr. streaming cants
scattered trs to sl. trs fr
micro-por. por; extra abn
loose oolites

5461-5521 Lms. grayish tan to tan;
crypto to v.v. fm. xln.; v. to extaly
oolitic (sm, med to lg) matrix sub-sucro
+ packstr.; dul. tr. yel. fluor.;
No cut; No vis por. w/ sl. trs. chert
tan to gray; opaque to transl

Note: Sample became 95 to 99%
MORROW Sh. Cavings 5520

Lms. similar 5461-5521 w/ some amount
of wht. to crm-chlk; w/ sl. trs chert
gray to tan; transl to opaque

5532-5547 Lms similar 5461-5521

5547-5553 Lms. lt. tan; crypto. to v.v. fm.
xln.; extaly. oolitic (med to lg trs sm)
matrix sub-sucro. to sucro and
trs. No matrix; trs w/ spid tan oil str.
dul. gl. an. yel. fluor.; w/ faint to fr
streaming cants; trs up to trs por to
micro-por + sl. trs w/ No Matrix

5553-70 Lms. tan, grayish. IP; crypto to v.v. fm.
extaly oolitic (sm, med to lg) matrix trs sub-chlk
sub-sucro + packstr.; dul. tr. yel. fluor.;
No cut; No vis por w/ trs chert; w/ tan to gray transl to opaque

Lms. tan; crypto to v.v. fm. xln.; extaly oolitic
(med to lg + trs. sm) matrix sub-chlk, sub-sucro
to trs. sucro. + trs packstr. sl. trs No Matrix
scattered trs dark tan spid oil str w/
dul. gl. an. yel. fluor. w/ faint streaming cants
trs w/ pr. to fr. + sl. trs g.d. por + micro-por
+ sl. trs in extaly oolitic por; huy trs
to abn. loose oolites

5451-2122

Show 32H

Trip Gas 620

EF5
B-C

5 3 2 1

5 3 2 1

5500

3 2 1

Show 22H

Trip Gas 14H

EF5
C

5 3 2 1

Show 16H

Show 9.6H

Trip Gas 72H

EF5
C

5600

WORTH 600
KING 70
SIN 54
PP 1100

see Below

DST #3

see Below

see Below

see Below

7 7/8" Bit Info
 #1 New Smith F121Y 1676 in 4489 out
 #2 New Smith F121Y 4489 TD

CIA Points:
 1. 4900 6. 5290 11. 5469
 2. 4980 7. 5311 12. 5560
 3. 5050 8. 5330 13. 5590
 4. 5250 9. 5350 14. TD
 5. 5270 10. 5370

Dev. Surv:
 1. 1110 1/4° 4. 4489 1/2° 7. TD
 2. 1676 3 3/4° 5. 5050 3/4°
 3. 1715 1° 6. 5469 1°

Daily Drilg. Progress:

1. 3400	10:07 PM	12-29-16
2. 3515	7:00 AM	12-30-16
3. 4004	7:00 AM	12-31-16
4. 4461	7:00 AM	1-1-17
5. 4673	7:00 AM	1-2-17
6. 5015	7:00 AM	1-3-17
7. 5050	7:00 AM	1-4-17
8. 5250	7:00 AM	1-5-17
9. 5432	7:00 AM	1-6-17
10. 5469	7:00 AM	1-7-17
11. 5560	7:00 AM	1-8-17
12. 5571	7:00 AM	1-9-17
13. 5590	7:00 AM	1-10-17
14.	7:00 AM	1-11-17

DST #1 MORROW 4980-5050
 ID weak surf. Blow Bit to 3/4"
 FD weak surface Blow
 Rec 40 ft Mud

IHP 2366# Max Temp 119°F
 IFF 19-25# in 30 min
 ISIP 44# in 60 min
 FFP 28-30# in 60 min
 FSIP 40# in 120 min
 FHP 2358#

DST #2 St. Louis "A" 5446-5469
 ID surface Blow built to BOB 27 min
 FD surface Blow Built to 3 1/2 inches
 Rec 220-ft MCW 45% mud 55% wtr
 Tool Samp 10% Mud 90% wtr
 chl 29000 ppm Pchl 1400 ppm
 Max Temp 134°
 IHP 2603#

IFF 21-55# in 30 min
 ISIP 1317# in 60 min
 FFP 68-105# in 60 min
 FSIP 1307# in 120 min
 FHP 2605#

DST #3 St. Louis "C" 5540-5560
 ID weak surf. blow built to 1/2" dia to surf blow
 FD No Blow
 Rec 5.6 ft Mud Tool Samp Mud

IFP 12-13ⁱⁿ 20 mm
 ISIP 27 # 260 min

FFP 13-14ⁱⁿ 30 min
 FSIP 157 # 120 min
 FHP 2624

DST #4 Lower St. Louis "C"
 5565-5590
 10 Surf. Blow Built To 9 1/2 inches
 FD Surf. Blow Built To 11 inches
 Rec 550 ft MGLW 352 M + 65 g wtr
 Tool Samp Plugged w/ Cuttings
 Chl 2200 ppm pit Chl 800 ppm
 Max Temp 142 °F

IHP 2609 #
 IFP 22-135ⁱⁿ 30 mm

ISIP 1192 260 min
 FFP 145-174ⁱⁿ 60 min
 FSIP 1190 # 120 min
 FHP 2624 #

Mud Info:

Date	12-29 10:30A	12-30 7:15A	12-31 11:40A	1-17 11:45A	1-2 11:45A	1-3 7:45A	1-4 12:10P	1-5 12:15P
Depth	3188	3570	4109	4489	4773	5050	5050	6290
Wt.	9.45	8.95	9.25	9.3	9.1	9.35	9.3	9.25
Vis	31	45	54	53	64	56	52	53
PV	3	14	16	17	17	17	16	15
YP	3	14	18	18	20	18	17	16
GS	3/4	13/43	18/47	17/50	18/55	17/48	17/53	18/47
WL	N/C	7.2	6.4	6.8	7.6	7.6	8.4	7.6
Cake	-	1/32	1/32	1/32	1/32	1/32	1/32	1/32
pH	7.0	11.0	11.5	9.5	10.5	9.0	8.5	10.5
Chl	3100	1100	1500	2100	1700	1000	1700	1050
Ca	Hy	20	20	20	60	40	40	20
LCM	4.0	3.0	4.5	6.0	4.5	14.0	11.0	11.0

Date	1-6 11:55A	1-7 10:45A	1-8 5:45P	1-9 8:50A	1-10 7:55A			
Depth	5469	5469	5560	5590	5592			
Wt.	9.1	9.1	9.3	9.05	9.05			
Vis	77	53	78	67	89			
PV	21	15	20	18	24			
YP	24	17	23	22	26			

Vis	31	45	54	53	64	56	52	53
PV	3	14	16	17	17	17	16	15
YP	3	14	18	18	20	18	17	16
GIS	3/4	13/43	18/47	17/50	18/55	17/48	17/53	16/47
WL	1/6	7.2	6.4	6.8	7.6	7.6	8.4	7.6
cake	-	1/32	1/32	1/32	1/32	1/32	1/32	1/32
pH	7.0	11.0	11.5	9.5	10.5	9.0	8.5	10.5
chl	3100	1100	1500	2100	1700	1000	1700	1050
Ca	Hy	20	20	20	60	40	40	20
LCM	4.0	3.0	4.5	6.0	4.5	14.0	11.0	11.0

Date	1-6 11:55A	1-7 10:45A	1-8 5:45P	1-9 8:50A	1-10 7:55A			
Depth	5469	5469	5560	5590	5592			
Wt.	9.1	9.1	9.3	9.05	9.05			
Vis	77	53	78	67	89			
PV	22	15	20	18	24			
YP	24	17	23	22	26			
GIS	19/61	16/45	20/59	19/62	23/68			
WL	6.8	7.6	7.6	7.6	7.6			
cake	1/32	1/32	1/32	1/32	1/32			
pH	9.5	9.0	10.0	9.5	9.5			
chl	1400	1100	800	800	1200			
Ca	60	20	40	60	20			
LCM	12.0	12.0	12.0	11.5	13.0			

OPERATOR Berexco LLC LOCATION 1060' FSL + 380' FEL
 LEASE Love NO. 1-18 SEC. 18 TWP. 30S RANG. 40W
 ELEVATION 3329 KB RTD 5700 COUNTY Stanton STATE Kansas