SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NE ¼ SW ¼ Sec 18 Twp 2N Rg 9E

County: Pennington

See inclosed Site Plan - PMW 03

Please mark well location with an "X"

North / W / E / 1 Mile

Well completion Date: 11/04/2014

Distance from nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.)

? 125 ft. from former underground Tank (identify source)

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test Holes
☐ Irrigation ☐ Industrial ☐ Institutional ☒ Monitoring well

METHOD OF DRILLING: 3¼" HSA

CASING DATA: ☐ Steel ☐ Plastic ☒ Other

If other describe: Sch 40 PVC

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
Sch 40 LB/FT	2 IN	10 FT	0.3 FT	7 7/8 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Portland II	2	9 4/6 Lb/gal	5 Ft	Surface Ft
		Lb/gal	Ft	Ft

Describe grouting procedure: Hand mixed and placed

SCREEN: ☐ Perforated pipe ☒ Manufactured

Diameter 2 Inches Length 10 Feet

Material: Sch 40 PVC

Slot Size 10 Set From 20 Feet to 10 Feet

Other information

WAS A PACKER OR SEAL USED? ☒ Yes ☐ No

If so, what material? Bentonite

Describe packer(s) and location: Bentonite Chips 8' to 5'

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

Lab sample sent to for water quality analysis ☒ No, Why Not? Monitoring well

Well Owner: Jens S. Christensen, P.E.

Business Name: Ellsworth Airforce Base

Address1: 28 CES/CEIEC

Address2: 2125 Scott Drive

City, State, Zip: Ellsworth AFB, SD 57706

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
See inclosed logs		

STATIC WATER LEVEL 19' FEET

If flowing: closed in pressure ____ PSI

GPM flow ____ through NA ____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate ____ GPM

Can well be completely shut in?

WELL TEST DATA:

☐ Pumped Describe: NA

☐ Bailed

☐ Other

Pumping Level Below Land Surface

____ Ft. After ____ Hrs. pumped ____ GPM

____ Ft. After ____ Hrs. pumped ____ GPM

If pump installed, pump rate: ____ GPM

REMARKS

RECEIVED
JAN 07 2015
WATER RIGHTS PROGRAM

This well was drilled under license # 617

And this report is true and accurate.

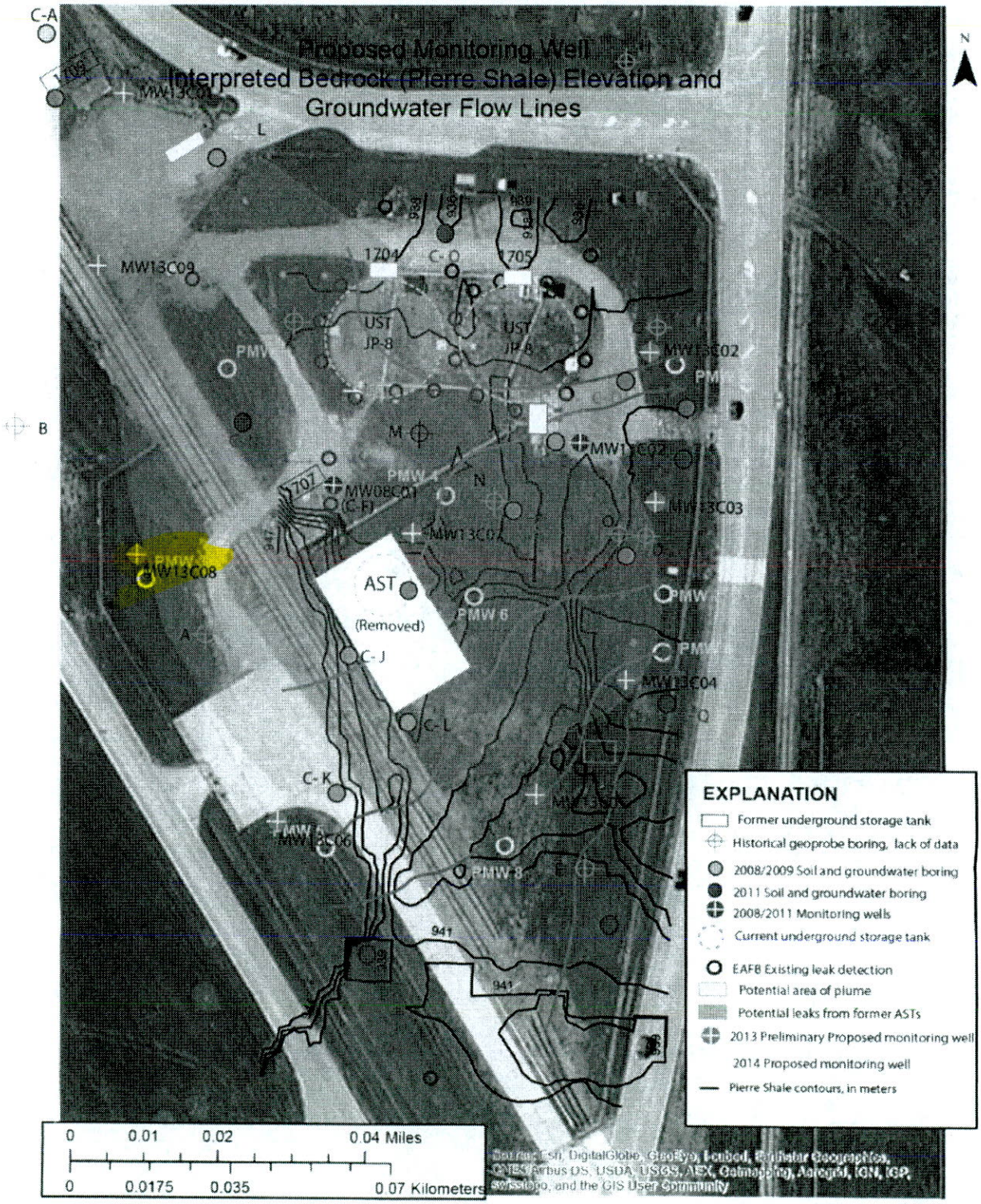
Drilling firm: American Technical Services

Signature of License Representative: [signature]

Signature of Well Owner or Equitable Property Holder: [signature]

Date 12/22/14

Please return White Copy to DENR Water Rights 523 E. Capitol Ave., Pierre SD 57501

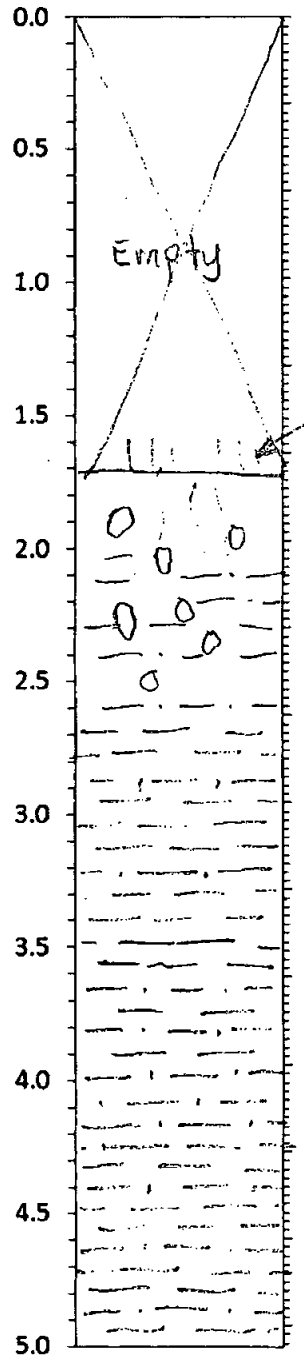

Proposed Monitoring Well
Interpreted Bedrock (Pierre Shale) Elevation and
Groundwater Flow Lines
N
C-A
B
L
MW13C09
1704
C-O
1705
UST
JP-8
UST
JP-8
PMW
MW13C02
PMW
M
MW13C02
N
1707
MW08C01
(C-F)
MW13C03
MW13C07
PMW
MW13C08
AST
(Removed)
PMW 6
PMW
A
C-J
PMW
MW13C04
Q
C-L
C-K
MW13C06
PMW 8
E
941
941
EXPLANATION
Former underground storage tank
Historical geoprobe boring, lack of data
2008/2009 Soil and groundwater boring
2011 Soil and groundwater boring
2008/2011 Monitoring wells
Current underground storage tank
EAFB Existing leak detection
Potential area of plume
Potential leaks from former ASTs
2013 Preliminary Proposed monitoring well
2014 Proposed monitoring well
Pierre Shale contours, in meters
0 0.01 0.02 0.04 Miles
0 0.0175 0.035 0.07 Kilometers
Sources: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW_03_0-5
Described by: John Stamm and David Bender

Date and Time: 11/4/2014 8:00 am
Core depth range: 0-5
Core recovery range: 1.7-5ft

PID (ppm) (feet) TOP (cm)



ft

Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB

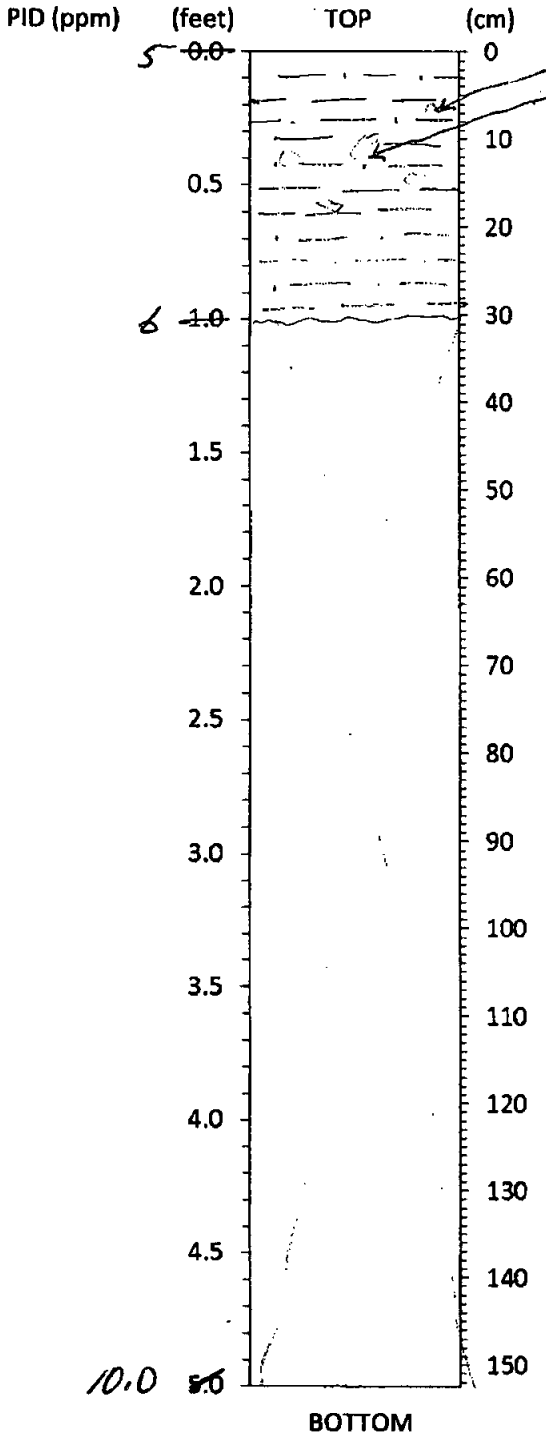
Core ID: MW_03_5-6.5

Described by: John Stamm and David Bender

Date and Time: 11/4/2014

Core depth range: 5-6.5

Core recovery range: 5-6.0



calcite flecks/streaks

yellowish brown silty clay with calcite coating or flecks (caliche? formation in soil?)

Driller said depth was 6.5 but recovery was 6.0

6.5-10 ft lost in hole (too gravelly)

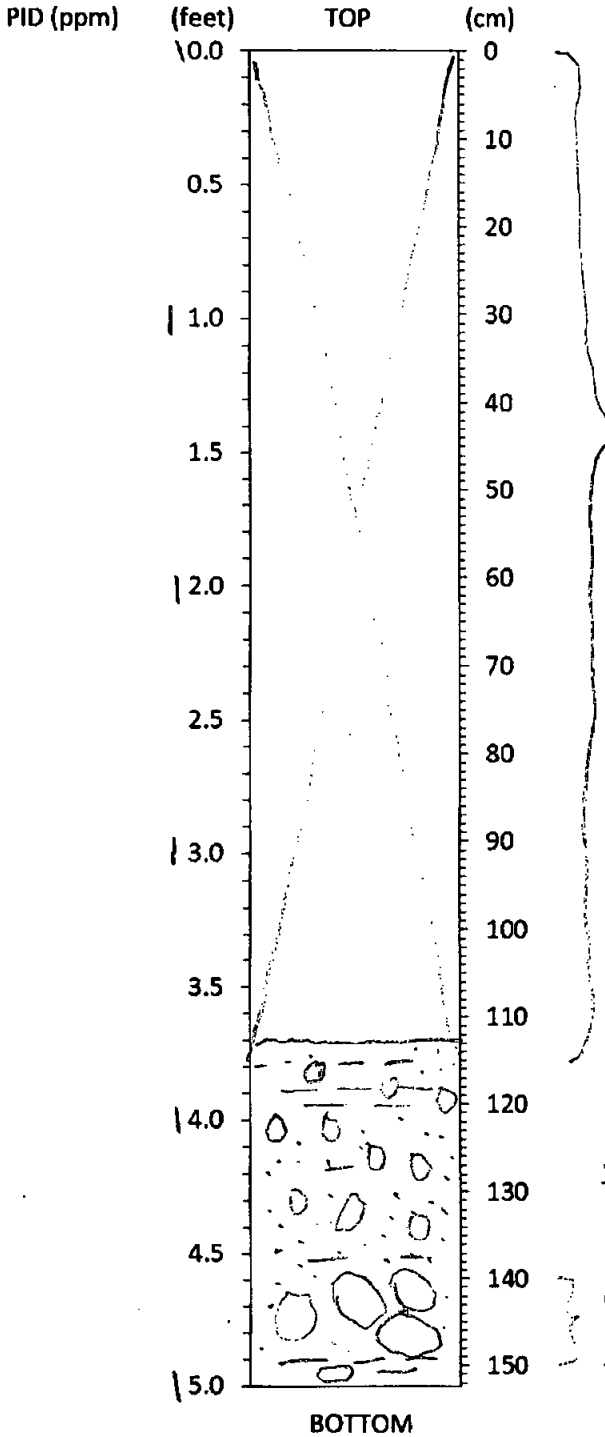
→ had to put bit on to drill thru cobbles

Photos: 94 shows cacite streaks, flecks

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Elsworth AFB
Core ID: MW3_10-15
Described by: John Stamm and David Bender

Date and Time: 11/4/2015
Core depth range: 10-15
Core recovery range: 13.7-15



Checked auger cutting for hydrocarbons. No detect

Material too fine for core to collect silty fine sand.

→ Gravelly to 10-13' according to driller. (6.5) actually from

Pebbly loamy sand, brown

larger pebbles ~1.5". Fractured from drilling, but otherwise subrounded to subangular

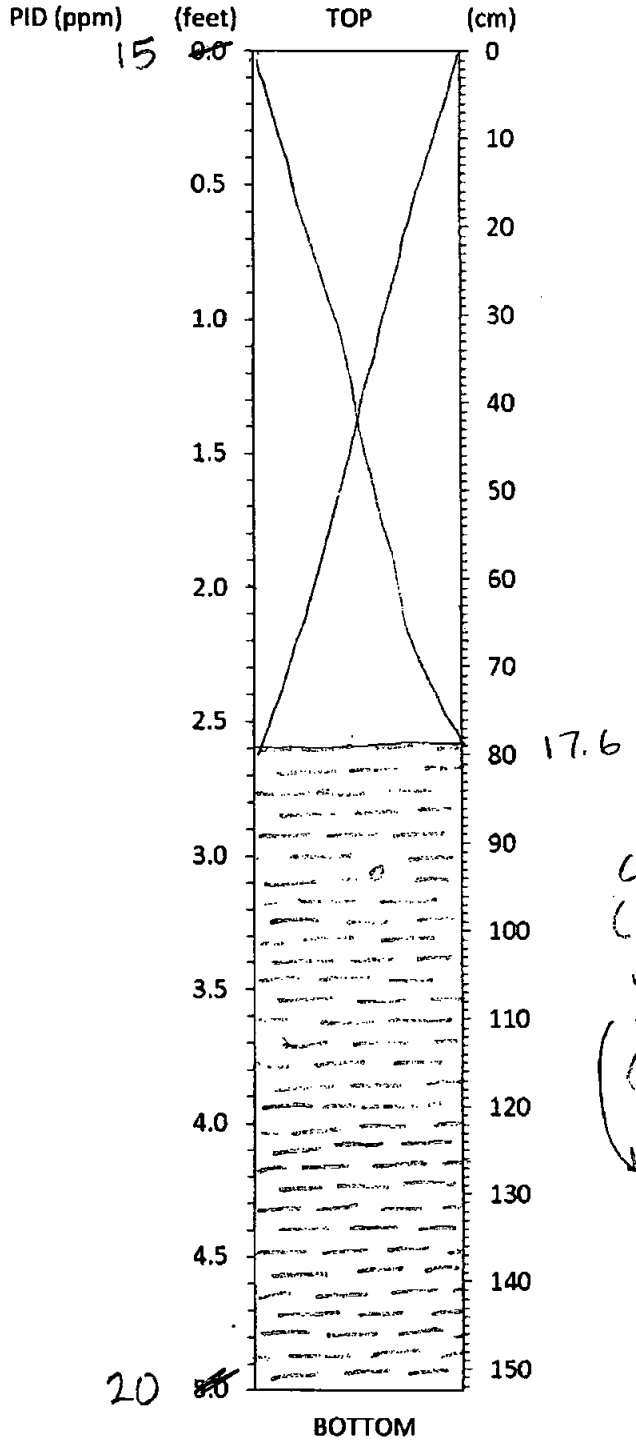
some white calcite coatings on clasts

Photos:

USGS Soil/WG Monitoring EAFB
NT00FGM0000

Site: Ellsworth AFB
Core ID: MW3_15-20
Described by: John Stamm and David Bender

Date and Time: 11/4/2014
Core depth range: 15-20
Core recovery range: 17.6-20



Greenish black clay (weathered Pierre Shale) with iron oxidation streaks throughout. Isolated pebbles (one observed)
photo 1202

Photos: See log.