

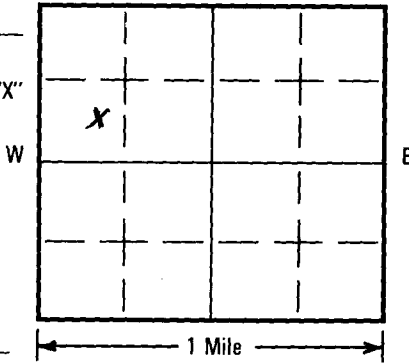
SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location SW 1/4 NW 1/4 Sec 8 Twp 2N Rg 9E

County Meade

Please mark well location with an "X"



Well Completion Date

5-22-03

Well Owner: United States Air Force

Business Name: Same

Address: Ellsworth A.F.B. S.D.

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Refer to attached Log		

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Unknown ft. from (identify source).

PROPOSED USE:

- Domestic/Stock
- Municipal
- Business
- Test Holes
- Irrigation
- Industrial
- Institutional
- Monitoring well

METHOD OF DRILLING:

8 1/4 HSA

CASING DATA:

- Steel
- Plastic
- Other

If other describe PVC

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2 IN	0 FT	14 FT	8 1/4 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
Neat Cement	2	lb./gal	5 ft	9 ft
Describe grouting procedure Neat Cement Grout from 5' to 9'				

SCREEN: Perforated pipe Manufactured

Diameter 2 IN Length 10 FEET
 Material Continuous Wrap PVC
 Slot Size 0.010 Set From 14 Feet to 24 Feet
 Other information

WAS A PACKER OR SEAL USED? YES NO

If so, what material? Bentonite Pellets
 Describe packer(s) and location? 9' to 11'

DISINFECTION: Was well disinfected upon completion?

YES, How: _____
 NO, Why Not? _____

Laboratory sent to for water quality analysis

STATIC WATER LEVEL

20' Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by Valve Reducers Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

- Pumped Describe: Unknown
 - Bailed
 - Other
- Pumping Level Below Land Surface
 _____ ft. After _____ Hrs. pumped _____ GPM
 _____ ft. After _____ Hrs. pumped _____ GPM
 If pump installed, pump rate _____ GPM

REMARKS

MW 03 B60501

This well was drilled under license # 678

And this report is true and accurate.

Drilling firm American Engineering Testing

Signature of License Representative: [Signature]

Signature of Well Owner or Equitable Property Holder: _____

Date: 7/23/03

7-28-03

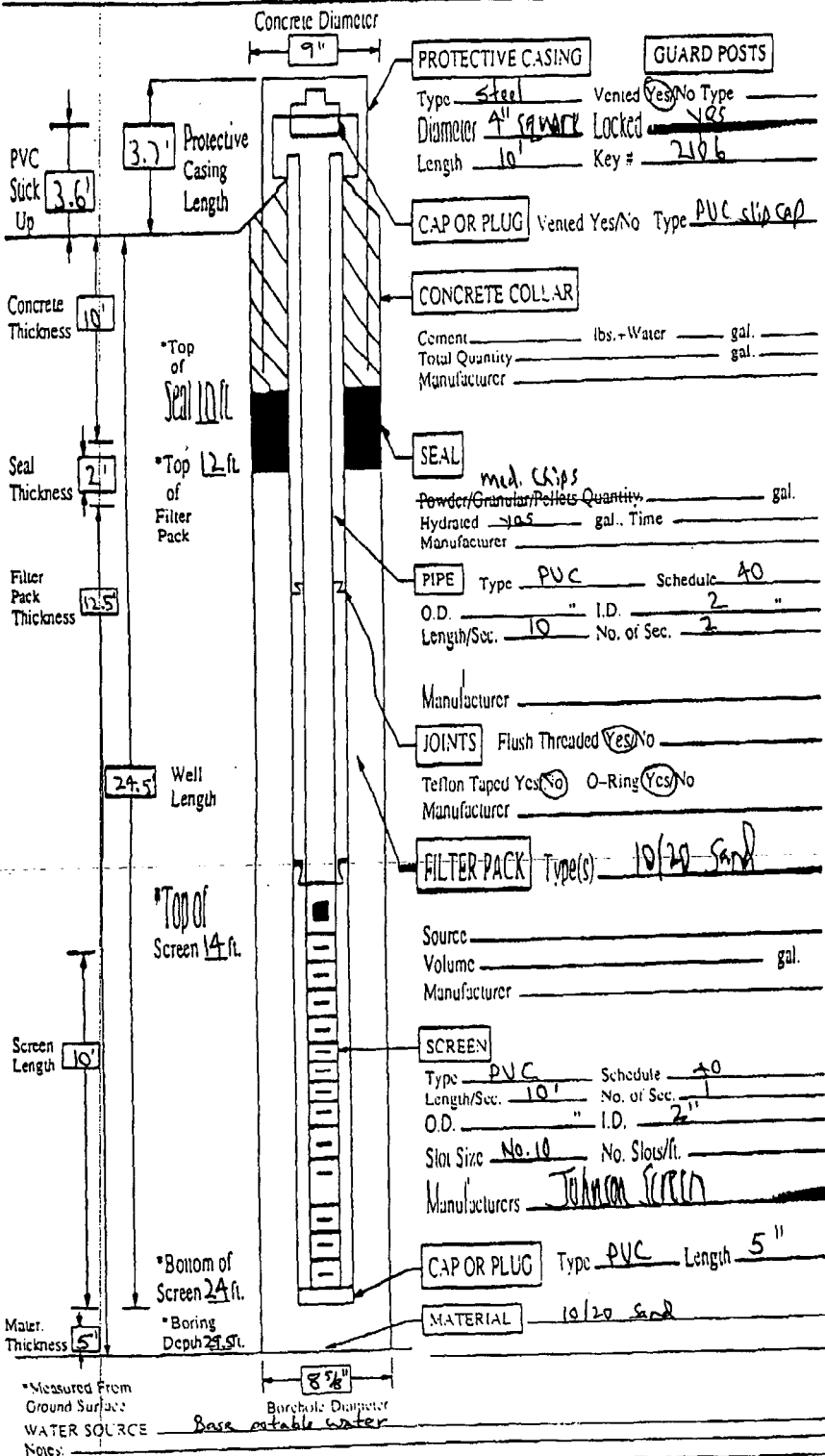


A CYCO INTERNATIONAL LTD COMPANY

Water Table Well
 Installation Diagram

Form 101

Site: Ellsworth AFB, BG05 Date: 5-22-03
 Inspected By: Joe Olegard Project No. 53039 Well No. MW03BG0501
 Driller/Contractor AET/Brent Thomas



*Measured From Ground Surface
 WATER SOURCE Base water
 Notes:

GEOTECHNICAL FIELD DATA SHEET

Object Number: 18-01247 Date: 5-22-03 Boring Number: MW03060501
 Object Location: EAFB Task area 18 Crew Chief: B. Thomas
 Boring Start Time: 10:15 Boring Completion Time: 12:15

BLOWS

Depth of Layer	Sample No. / Depth	Set	BLOWS		Total	Sampler Type	SOIL CLASSIFICATION
			1 st ½ FT	2 nd ½ FT			
0 to .4	1 / 0-5.0						Topsoil Fill Sandy Fat Clay, dark brown, moist, stiff (CH)
.4	2 / 5-10						Fat Clay with sand and gravel, gray + brown, moist, stiff (CH) (reworked)
	3 / 10-15						alternating layer of Fat with Sand to Sandy Fat Clay with Gravel ^{Shale}
18'	4 / 15-20						Clayey Gravel with sand, cobbles + boulders, rust + gray, moist to WUE
	5 / 20-25						U. dense (GP-60) Passive Natural
20'	1 /						sandy Gravel with cobbles & boulders, rusty brown, water bearing
	1 /						U. dense (GP-65)
28'	6 / 25-30						Weathered Shale - Fat clay, rust & gray, moist, U. SF. FF (CH)
	1 /						EOB 30'
	1 /						Well @ 24'
	1 /						10' screen sand to 11.0'
	1 /						Blnt to 9.0'

Method of Advancing Boring

Continuous Sampling From: 0 To: 29.5
 In. Flite Auger To: _____
4 1/4 In. Hollow Stem Auger To: 29.5
 With Drilling Mud From: _____ To: _____

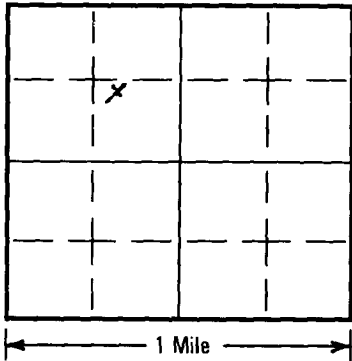
Water Level Checks After Completion of Boring

	Date	Time	Casing in Grnd	W.L. * "	Cave In
At Completion	5-22-03	12:15	29.5	22.5	—
1 st Recheck					
2 nd Recheck					

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location SE 1/4 NW 1/4 Sec 8 Twp 2N Rg 9E
 County Meade North



Please mark well location with an "X"

Well Completion Date

5-22-03

Well Owner: United States Air Force
 Business Name: Same
 Address: Ellsworth AFB. SD

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Refer to Attached Log</u>		

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? _____ ft. from UNKNOWN (identify source).

PROPOSED USE:

- Domestic/Stock Municipal Business Test Holes
 Irrigation Industrial Institutional Monitoring well

METHOD OF DRILLING:

8 1/4" HSA

CASING DATA:

- Steel Plastic Other

If other describe PVC

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
_____ LB/FT	<u>2</u> IN	<u>0</u> FT	<u>14</u> FT	<u>8 1/4</u> IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
_____	_____	_____ lb./gal	_____ ft.	_____ ft.
<u>Neat Cement</u>	<u>2</u>	_____ lb./gal	<u>5</u> ft.	<u>9</u> ft.

Describe grouting procedure Neat Cement Grout from 5' to 9'

SCREEN: Perforated pipe Manufactured

Diameter 2 IN Length 10 FEET

Material Continuous Wrap PVC

Slot Size 0.010 Set From 14 Feet to 24 Feet

Other information _____

WAS A PACKER OR SEAL USED? YES NO

If so, what material? Bentonite Pellets

Describe packer(s) and location? from 11 to 9'

DISINFECTION: Was well disinfected upon completion?

_____ YES, How: _____

NO, Why Not? _____

Laboratory sent to for water quality analysis _____

STATIC WATER LEVEL 17.0 Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by Valve Reducers Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

Pumped Describe: Unknown

Bailed _____

Other _____

Pumping Level Below Land Surface

_____ ft. After _____ Hrs. pumped _____ GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

MW03B60502

This well was drilled under license # 678

And this report is true and accurate.

Drilling firm American Engineering Testing

Signature of Licensee Representative: [Signature]

Signature of Well Owner or Equitable Property Holder: _____

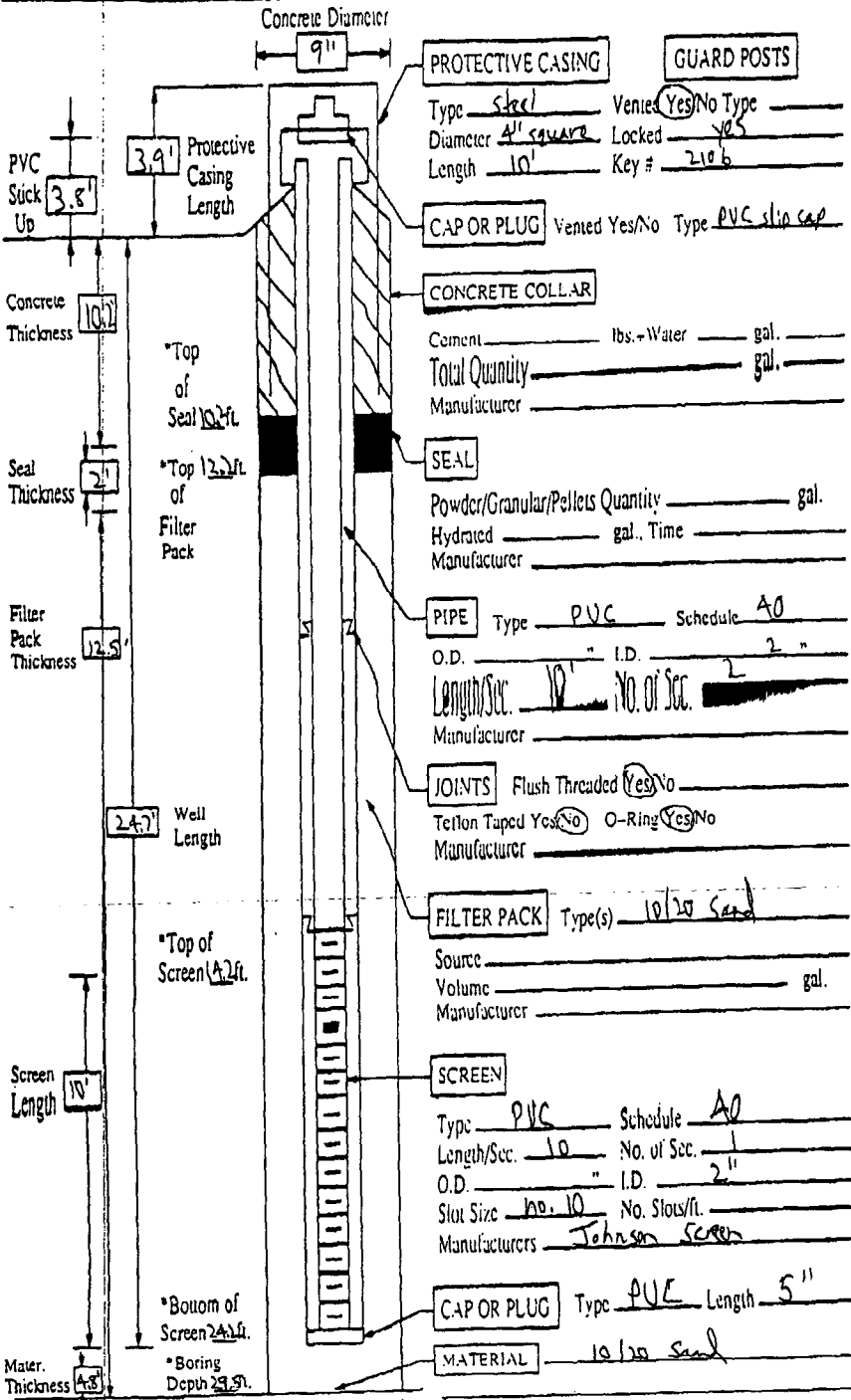
Date: 7/23/03

7-28-03



Water Table Well
 Installation Diagram

Site: Ellsworth AFB R655 Date: 5-22-03 Form 101
 Inspected By: Joe Odegaard Project No. 53039 Well No. MW03 R60502
 Driller/Contractor AET/Brent Thomas



PROTECTIVE CASING **GUARD POSTS**
 Type steel Vented Yes/No Type _____
 Diameter 4" square Locked YES
 Length 10' Key # 2106

CAP OR PLUG Vented Yes/No Type PVC slip cap

CONCRETE COLLAR
 Cement _____ lbs. + Water _____ gal. _____
 Total Quantity _____ gal. _____
 Manufacturer _____

SEAL
 Powder/Granular/Pellets Quantity _____ gal.
 Hydrated _____ gal. Time _____
 Manufacturer _____

PIPE Type PVC Schedule A0
 O.D. _____ " I.D. 2 "
 Length/Sec. 10' No. of Sec. 2
 Manufacturer _____

JOINTS Flush Threaded Yes/No _____
 Teflon Taped Yes/No No O-Ring Yes/No _____
 Manufacturer _____

FILTER PACK Type(s) 10/20 Sand
 Source _____
 Volume _____ gal.
 Manufacturer _____

SCREEN
 Type PVC Schedule A0
 Length/Sec. 10 No. of Sec. 1
 O.D. _____ " I.D. 2 "
 Slot Size no. 10 No. Slots/ft. _____
 Manufacturers Johnson Screen

CAP OR PLUG Type PVC Length 5"

MATERIAL 10/20 sand

*Measured From Ground Surface
 WATER SOURCE Base on table water
 Notes: _____

GEOTECHNICAL FIELD DATA SHEET

Object Number: 18-01247 Date: 5-22-03 Boring Number: MNO³B6050
 Object Location: EIA.FIS - TASK ORDER 18 Crew Chief: B. Thomas
 Boring Start Time: 14:20 Boring Completion Time: 16:20

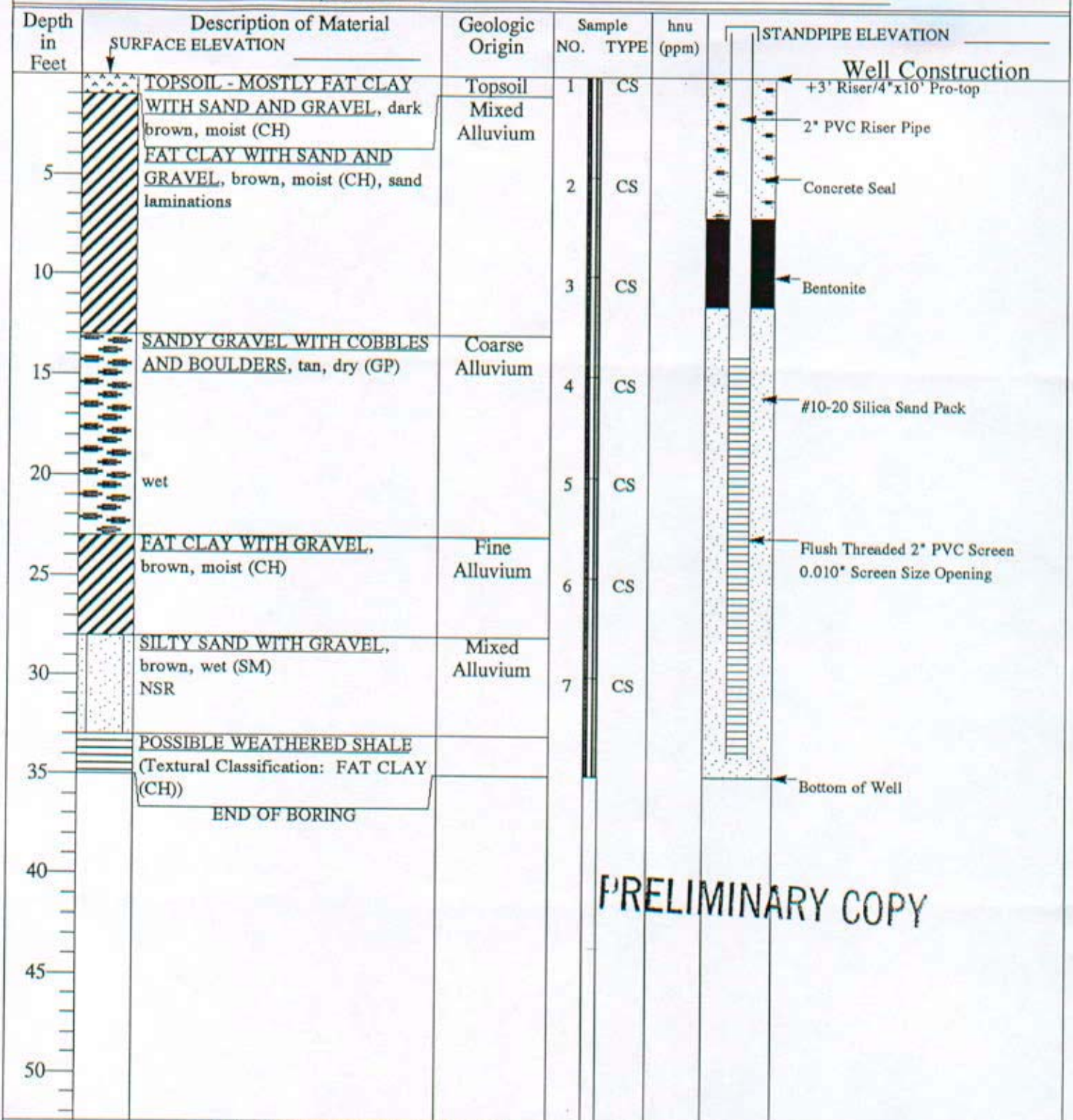
Depth of Layer	Sample No. / Depth	BLOWS				Sampler Type	SOIL CLASSIFICATION
		Set	1 st ½ FT	2 nd ½ FT	Total		
- .5'	1 / 0-4.5					conts	TOPSOIL - LEAN CLAY w/ wood TRACE GRAVEL ORGANICS (EL)
.5'	- /						Fat clay w/ sand trace gravel moist (CH)
3.0'	1 /						silty GRAVEL w/ sand BAW moist COBBLES (GW)
6.0'	2 / 4.5-9.5						SANDY FAT clay BAW trace GRAVEL moist (CO) poss (EL-CH)
17.0'	3 / 9.5-14.5						w CLAY IN GRAVEL SANDS
	4 / 14.5-19.5						SANDY GRAVEL w/ silt BAW WET @ 17.0' (GP)
	5 / 19.5-24.5						COBBLES & BOULDERS
29.0'	6 / 24.5-29.5						(SHALE) HIGHLY WEATHERED FAT CLAY WET to moist after rain (CH)
	1 /						FOB 29.5', Well @ 24'
	1 /						9 SAND to 11'
	1 /						Bent to 9' 10' Screen

Method of Advancing Boring	
Continuous Sampling From: <u>0</u> To: <u>29.5</u>	
<u>4 1/4</u> In. Flite Auger To: _____	
<u>4 1/4</u> In. Hollow Stem Auger To: <u>29.5</u>	
With Drilling Mud From: _____ To: _____	

Water Level Checks After Completion of Boring					
	Date	Time	Casing in Grnd	W.L. *	Cave In
At Completion	16:15	16:10	29.5	17.0'	—
1 st Recheck					
2 nd Recheck					

SOIL BORING AND MONITORING WELL LOG

JOB NO. 4209-7-05879 VERTICAL SCALE 1" = 7' BORING NO. BG0503 WELL NO. BG0503
 PROJECT Rust E & I Ellsworth AFB, South Dakota



PRELIMINARY COPY

WATER LEVEL MEASUREMENTS

START 4-23-97 COMPLETE 4-23-97

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	WATER LEVEL	WATER ELEVATION	METHOD
						4 1/4" H.S.A. to 35'

CREW CHIEF: **Benson**



AMERICAN
ENGINEERING
TESTING, INC.

CONSULTANTS
• GEOTECHNICAL
• MATERIALS
• ENVIRONMENTAL

July 23, 2003

Mr. Ken Buhler
Department of Environment and Natural Resources
Water Rights Division
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

Subject: South Dakota Water Well Completion Report
United States Air Force
Ellsworth AFB, South Dakota
AET No. 18-01247

Dear Mr. Buhler:

Enclosed please find the water well completion reports for groundwater monitoring wells MW03BG0501 and MW03BG0502 at the referenced site. The monitoring wells were completed under subcontract to Earth Tech E & I for the United States Air Force. If you have any questions or need any additional information please contact our office at (605) 388-0029.

Sincerely,

Byron L. Schulz, CPRR
Environmental Scientist
Project Manager

BLS/bls

Attachments

pc: Joe Odegaard, Earth Tech E & I

F:\wp8\Environmental\Correspondence\Earth Tech\18-01247 Completion Report.wpd

AN AFFIRMATIVE ACTION EMPLOYER

1745 Samco Road • Rapid City, SD 57702 • 605-388-0029 • Fax: 605-388-0064
St. Paul • Duluth • Mankato • Marshall • Pierre • Rapid City • Rochester • Sioux Falls • Wausau