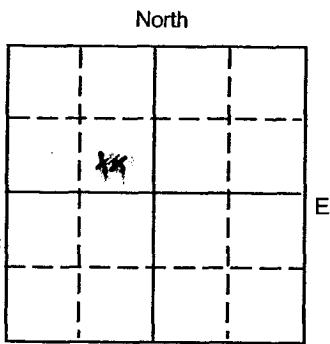


SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SE ¼ NW ¼ Sec 18 Twp 2N Rg 9E

County
PENNINGTON



KW101101
KW101102
Please mark well location with an "X"

Well Completion Date
5/19/10

Distance to 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:
4.25" I.D. Hollow Stem Auger

CASING DATA: Steel Plastic Other
If other describe Schedule 40 PVC

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	IN
	<u>2</u>	<u>±2.8</u>	<u>8</u>	<u>8.5</u>
	IN	FT	FT	IN
	IN	FT	FT	IN

GROUTING DATA:
Grout Type Cement No. of Sacks Grout Weight From To
Lb/gal Lb/gal 00 Ft 4' Ft
Lb/gal Lb/gal Ft Ft

Describe grouting procedure
Mixed and tremied with grout pump

SCREEN: Perforated pipe Manufactured
Diameter 2 Inches Length 10 Feet
Material Schedule 40 PVC
Slot Size 10 Set From 8 Feet to 18 Feet

Other information
16-30 Silica Sand From 6' to 19'

WAS A PACKER OR SEAL USED? Yes No
If so, what material? 3/8" Bentonite Pellets
Describe packer(s) and location
Hydrated Bentonite From 4' to 6'

DISINFECTION: Was well disinfected upon completion?
 Yes, How? Monitoring Well
 No, Why Not?

Lab sample sent to for water quality analysis

Well Owner: USAF
Business Name:
Address: 2103 SCOTT DRIVE
City, State, Zip: ELLSWORTH AFB, SD 57706

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>See attached Drilling Logs for SB101101 and SB101102</u>	<u>0</u>	<u>19'</u>

STATIC WATER LEVEL NH FEET
If flowing: closed in pressure N/A PSI
GPM flow through Inch pipe
Controlled by Valve Reducers Other
Reduced flow rate GPM

Can well be completely shut in? Well was completed with a 4" x 4" x 7' steel Protective Casing

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
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This well was drilled under license # 678
And this report is true and accurate.
Drilling firm: AMERICAN ENGINEERING TESTING, Inc.
Signature of License Representative:

Byron Schuly
Signature of Well Owner or Equitable Property Holder:
Paul E. Styles

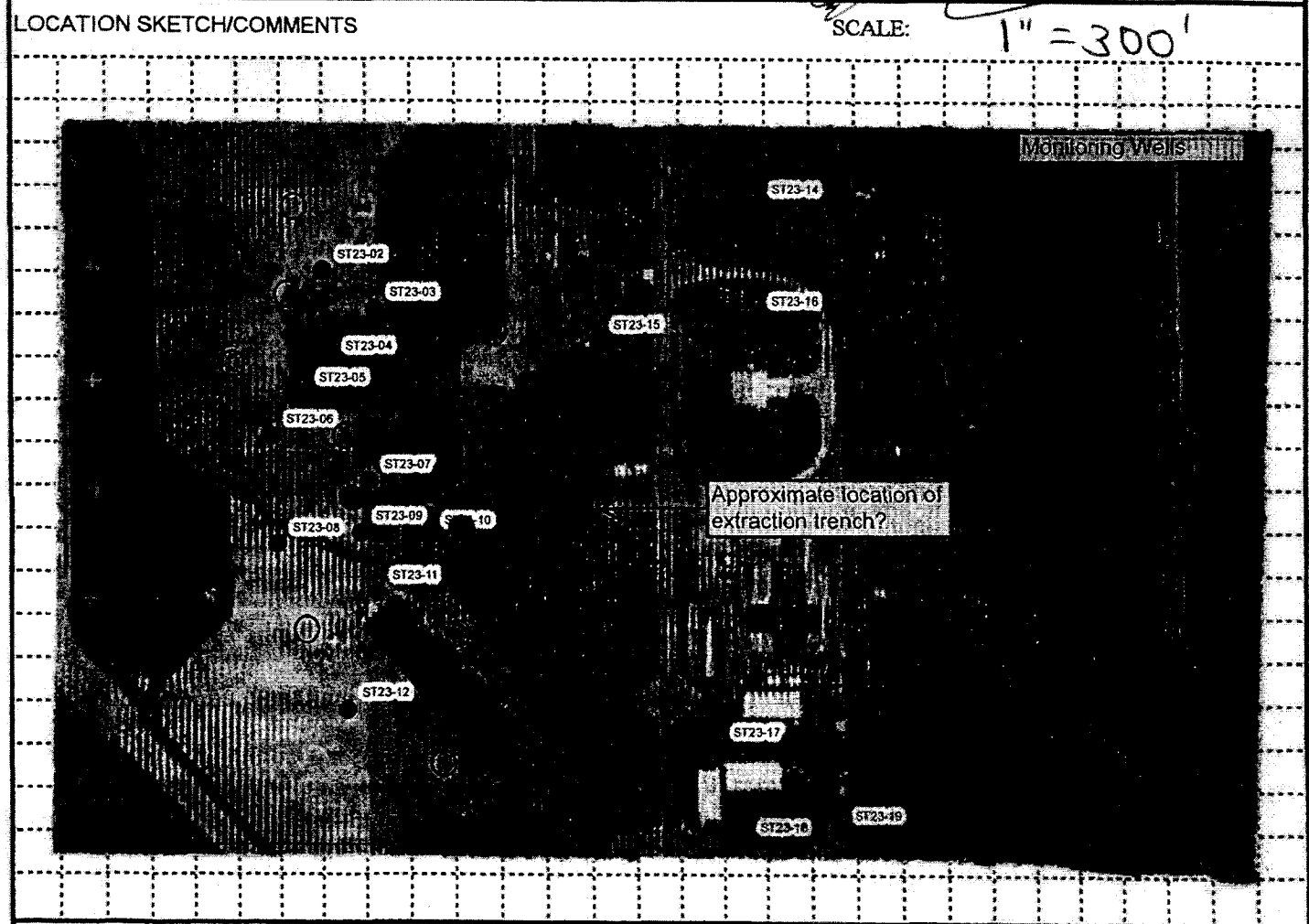
Date: 20 July 10

7-26-10

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DRILLING LOG		Ellsworth Air Force Base		WATER RIGHTS PROGRAM		HOLE NUMBER SB101101	
1. COMPANY NAME URS		2. DRILLING SUBCONTRACTOR AET		SHEET 1 OF 2		SHEETS 2	
3. PROJECT Ellsworth AFB / ACC 4-Base PBC				4. SITE NAME EAFB, SD			
5. NAME OF DRILLER Brent Thomas				6. MANUFACTURER'S DESIGNATION OF DRILL CME75			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		8.5" OD x 4.25" ID x 5' HSA 5' x 4" steel split spoon		8. HOLE LOCATION FRA-PH1		9. SURFACE ELEVATION 3177.32	
12. OVERBURDEN THICKNESS 18.5				15. DEPTH GROUNDWATER ENCOUNTERED 9.5'			
13. DEPTH DRILLED INTO ROCK 0.5				16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING 7.3' - 2 hr following drilling			
14. TOTAL DEPTH OF HOLE 19.0'				17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NA			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED		19. TOTAL NUMBER OF CORE BOXES	
20. SAMPLES FOR CHEMICAL ANALYSIS Soil		VOC BTEX/N		METALS		OTHER (SPECIFY) GRO/DRO	
22. DISPOSITION OF HOLE		BACKFILLED		MONITORING WELL 2" PVC Man		23. SIGNATURE OF INSPECTOR	



PROJECT Ellsworth AFB / ACC 4-Base PBC	HOLE SB101101
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JUL 22 2010

DRILLING LOG

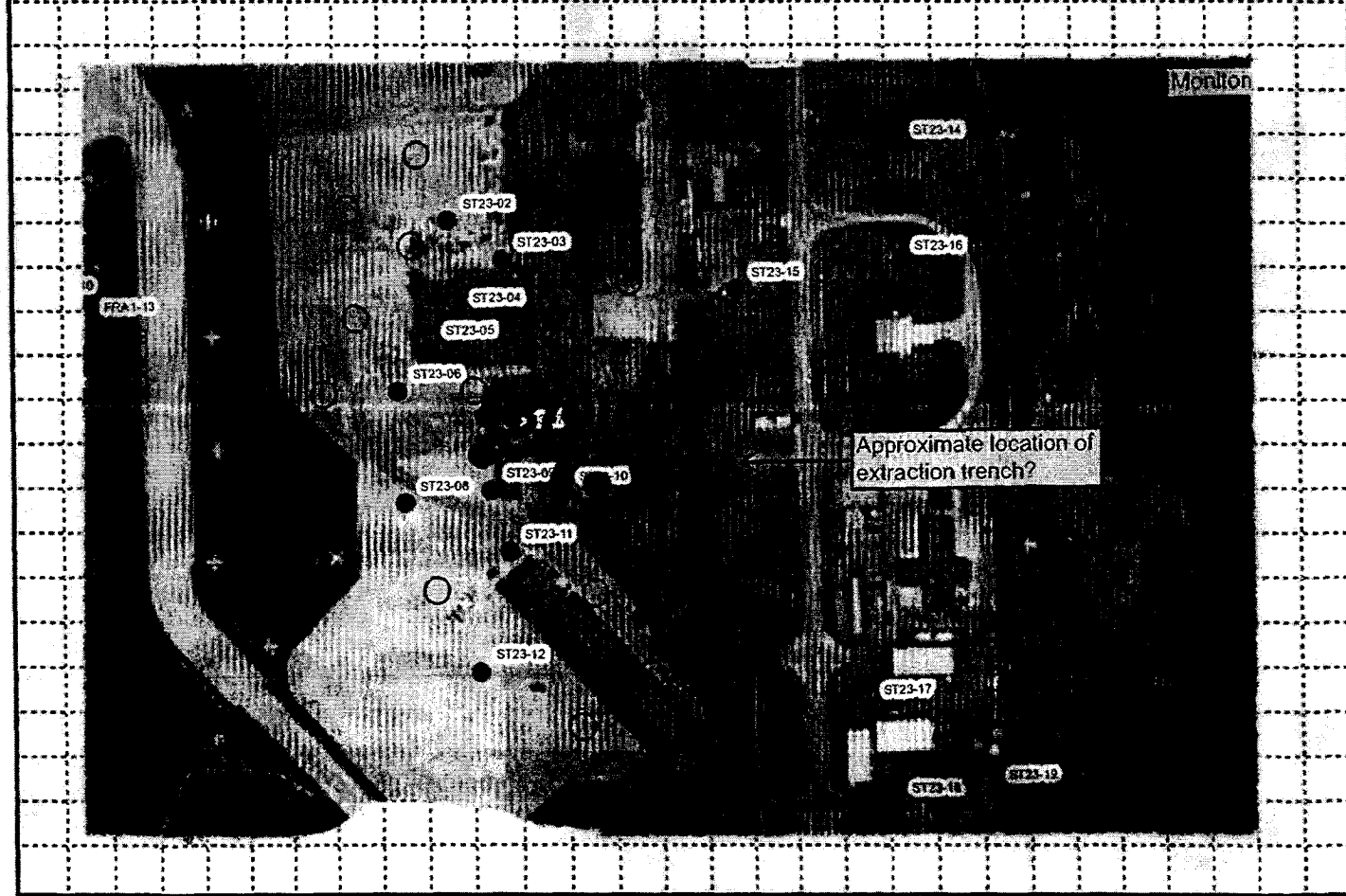
PROJECT Ellsworth AFB / ACC 4-Base PBC			INSPECTOR WATER RIGHTS PROGRAM				HOLE NO. SB101101
BLEV a.	DEPTH b.	DESCRIPTION OF MATERIALS c.	FIELD SCREENING RESULTS d.	GEOTECH SAMPLE OR CORE BOX NO. e.	ANALYTICAL SAMPLE NO. f.	BLOW COUNTS g.	REMARKS h.
	1	Gravelly surface clayey sandy gravel (G-C) loose, moist, brown, fill	SS=0ppm BZ=0ppm HS=129ppm				R=12/48 -driller reports gravel, cobbles to 2.5'
	2						
	3						
	4	silty clay (CL), soft, moist, brown	SS=0ppm HS=140ppm				R=24/60
	5	gravelly clay (CL) very stiff, moist, brown					
	6						
	7						
	8						
	9	clay (CL) med stiff, moist, brown					
	10	sand (SW), fine, dense, wet, black petrol staining	SS=139ppm HS=1886ppm		soil sample 9.5-10" SB101101-00-0510 8015B DRG, 8015B DRG G-R 0		R=54/60
	11	sand (SW) brown with no staining	SS=10ppm		8260 B B TEX / N		
	12	clay (CL) soft, moist, gray with reddish staining					
	13	sand (SW) med grain, dense, wet, reddish brown, < 1" thick					
	14	weathered shale (CH) very stiff, moist, gray with iron staining, blocky					R=64/64
	15		SS=0ppm HS=82ppm				
	16						
	17						
	18	shale (CH) very stiff, moist, gray with trace iron staining					
	19	End of boring.					

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DRILLING LOG		Ellsworth Air Force Base		WATER RIGHTS PROGRAM		HOLE NUMBER SB101102	
1. COMPANY NAME URS		2. DRILLING SUBCONTRACTOR AET		3. PROJECT Ellsworth AFB / ACC 4-Base PBC		4. SITE NAME EAFB, SD	
5. NAME OF DRILLER Brent Thomas		6. MANUFACTURER'S DESIGNATION OF DRILL CME 75		7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 8.5" x 4.25" x 5' HSA 4" x 5' split spoon		8. HOLE LOCATION FRA-PH1	
9. SURFACE ELEVATION 3179.54		10. DATE STARTED 5-18-10		11. DATE 5-18-10		12. OVERBURDEN THICKNESS 18.5'	
13. DEPTH DRILLED INTO ROCK 0.5'		14. TOTAL DEPTH OF HOLE 19'		15. DEPTH GROUNDWATER ENCOUNTERED ~10'		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING 8.4 18 hr following completion	
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NA		18. GEOTECHNICAL SAMPLES 0		19. TOTAL NUMBER OF CORE BOXES		20. SAMPLES FOR CHEMICAL ANALYSIS So: 1	
DISTURBED		UNDISTURBED		VOC BTEX/N		METALS GRO/DRO	
OTHER (SPECIFY)		OTHER (SPECIFY)		OTHER (SPECIFY)		21. TOTAL CORE RECOVERY %	
22. DISPOSITION OF HOLE BACKFILLED		MONITORING WELL 2" PVC MW		OTHER (SPECIFY)		23. SIGNATURE OF INSPECTOR	

LOCATION SKETCH/COMMENTS
SCALE: 1" = 300'



PROJECT Ellsworth AFB / ACC 4 Base PBC	HOLE SB101102
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DRILLING LOG

JUL 22 2010

HOLE NO. SB101102

PROJECT Ellsworth AFB / ACC 4-Base PBC

INSPECTOR *Civil Martin*

WATER RIGHTS PROGRAM

SHEET 2 OF 2 SHEETS

ELEV a.	DEPTH b.	DESCRIPTION OF MATERIALS c.	FIELD SCREENING RESULTS d.	GEOTECH SAMPLE OR CORE BOX NO. e.	ANALYTICAL SAMPLE NO. f.	BLOW COUNTS g.	REMARKS h.
	1	Grassy / gravelly surface gravelly clay (CL) med stiff, moist, brown, traces of asphalt, fill	SS = 0 ppm HS = 50 ppm				R = 36/48
	2	clay (CL) stiff, moist, olive brown					
	3						
	4	sandy gravel (GP) loose, moist, brown	SS = 0 ppm BS = 0 ppm HS = 8.3 ppm				R = 24/60
	5						
	6	gravelly clay (CL) st:st, moist, brown, low plastic					
	7						
	8						
	9						
	10	clayey, sandy gravel (GL) loose, fine to coarse grain, gray, wet					R = 36/60
	11						
	12		SS = 3 ppm HS = 674 ppm		soil sample SB101102-00-0510 8015 B D R0/G-R0 8260 B DTEX/N		
	13	weathered shale (CL) very stiff, dark gray and olive, moist, blocky					
	14	same as above					R = 60/60
	15						
	16		SS = 0 ppm HS = 129 ppm				
	17						
	18						
	19	shale (CH), very stiff, moist, brownish gray, trace iron staining					
		End of boring					

PROJECT Ellsworth AFB / ACC 4 Base PBC

HOLE NO. SB101102



AMERICAN
ENGINEERING
TESTING, INC.

CONSULTANTS
· GEOTECHNICAL
· MATERIALS
· ENVIRONMENTAL

July 20, 2010

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 Reports
United States Air Force
Ellsworth AFB, South Dakota
AET Project No. 18-03393

Dear Mr. Buhler:

Enclosed please find a water well completion report for groundwater monitoring wells MW101101 and MW101102 at the referenced site. The above work was completed under subcontract to URS Group, Inc. 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

encl: 1. South Dakota Water Well Completion Reports
2. URS Drilling Logs

pc: Jerry Styles - 28 CES/CEANR
Joe Odegaard - URS Group, Inc.

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