

CORRECTION(S) TO WATER WELL RECORD (Form WWC-5)
(to rectify lacking or incorrect information)

LOCATION OF WATER WELL: County: Johnson	Fraction ____ 1/4 ____ 1/4 <u>NE 1/4</u> <u>NW 1/4</u>	Section <u>18</u>	Township T <u>13</u> S	Range R <u>22</u> <input checked="" type="checkbox"/> E <input type="checkbox"/> W
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Owner: USACE c/o Burns & McDonnell MW 96-12D

Location was listed as:

Sec. _____ T _____ S R _____ E W

Fraction: _____

Location changed to:

Sec. _____ T _____ S R _____ E W

Fraction: _____

Other changes: Initial statements: HTW Drill Log Location: N 230302.4360 E 2849888.7793

Changed to: 38.927188342 -95.012369413

Comments: Converted State Plane 1501-Kansas North NAD 27 to Geographic Decimal Degrees NAD 83.

Verification method: Corpscon 6.0.1

initials: df date: 04/14/2014

Submitted by: Kansas Geological Survey, Data Resources Library, 1930 Constant Ave., Lawrence, KS 66047-3726
to: Kansas Dept of Health & Environment, Bureau of Water, 1000 SW Jackson, Suite 420, Topeka, KS 66612-1367.

HTW DRILLING LOG

HOLE NO.
96-12D

1. COMPANY NAME
BURNS & McDONNELL

2. DRILLING SUBCONTRACTOR
AQUADRILL

SHEET: 1
OF 6 SHEETS

3. PROJECT
94-800-4-020-01 USSFRFI

4. LOCATION
SUNFLOWER ARMY AMMUNITION PLANT

5. NAME OF DRILLER
Jay Joslyn, Rick Lown

6. MANUFACTURER'S DESIGNATION OF DRILL
MOBILE B-57 GUS PECH
BRAT 22R/SURFACE

7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT
4.25" HSA; 8 1/4" I.D. HSAs.
5 ft. Lasky Continuous
Sampler; 12" Chisel Point Bit.
Overdrilled with 8 9/16" HSA
with center bit
NGZ CORE BARREL
6" DR-CORES RETRIEVE WASH

8. HOLE LOCATION
N-230302-4360 E-284988.7793
CITS 1108

9. SURFACE ELEVATION
934.3

10. DATE STARTED
8-27-96

11. DATE COMPLETED
9-7-96

12. OVERBURDEN THICKNESS
19 7/16 ft.

15. DEPTH GROUNDWATER ENCOUNTERED
22.5' bgs DURING CORING
9/6/96

13. DEPTH DRILLED INTO ROCK
16 1/8 ft.

16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED
11.8' bgs 17 hrs AFTER CORING

14. TOTAL DEPTH OF HOLE
35.1 ft.

17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)
AFTER WELL COMPLETION 13.58' TOC 9/12/96

18. GEOTECHNICAL SAMPLES
1 DISTURBED X UNDISTURBED

19. TOTAL NUMBER OF CORE BOXES
2

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
1	X	TAL	SVOC	Explosives	PCB, PEST Cyanide SO4	100 %

22. DISPOSITION OF HOLE
Monitoring Well

BACKFILLED	MONITORING WELL	OTHER (SPECIFY)
	96-12D/96-10	

23. SIGNATURE OF INSPECTOR
Maureen E. Bailey

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	CLAY, trace roots (10%), very dark gray (2.5Y3/1), damp, medium consistency, low plasticity (CL) (TOPSOIL)	BH=0ppm BZ=0ppm S=0ppm		96-12D SR1 0-0.5ft 1615	1700	Began augering
	2		LEL=0% O2=20.5%	NA	NA	4.0 4.0	
	3	CLAY, some silt (20%), trace roots (1%), grayish brown (2.5Y5/2) to light yellowish brown (2.5Y6/1), damp, medium consistency, low to medium plasticity (CL) (TILL)	S=0ppm				
	4					1704	
	5	CLAY, some silt (20%), trace fine to medium sand (10%), light brownish gray (2.5Y6/2) to yellowish brown (10YR5/6), mottled, damp, medium consistency, low plasticity (CL) (TILL)	BH=0ppm BZ=0ppm S=0ppm	NA	NA	1708 Run 2 5.0 5.0	

HTW DRILLING LOG

HOLE NO.
96-12D
SHEET 2
OF 6 SHEETS

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
S. Bailey

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
	5	CLAY, some silt (20%), trace fine to medium sand (10%), light brownish gray (10YR 5/6), mottled, damp, medium consistency, low plasticity (CL) (TILL)	LEL = 0%	NA	NA	5.0 5.0	
	6		S = 0 ppm				
	7					1721	
	8		S = 0 ppm				
	9	CLAY, trace fine sand (10%) trace gravel, yellowish brown (10YR 5/6), mottled with black (10YR 2.5/1) speckles, damp, very stiff to hard consistency, low to medium plasticity (CL) (TILL)	Bt = 0 ppm	NA	NA	5.0 5.0	
	10		Bz = 0 ppm				
	11		S = 0 ppm				
	12		LEL = 0%				
	13		O ₂ = 20.5%			1726	
	14		S = 0 ppm				

HTW DRILLING LOG

HOLE NO.
96-12D

PROJECT
94-800-4-020-01 USSFRFI

INSPECTOR
S. Bailey H. Melanconce

SHEET 3
OF 6 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	
	14	CLAY, trace fine sand (10%), trace gravel (5%), yellowish brown (10YR 5/6) mottled with black (10YR 2.5/1) speckles, damp, very stiff to hard consistency, low to medium plasticity	Bit = 0ppm BZ = 0ppm S = 0ppm LEL = 0% O ₂ = 19.8%	NA	NA	0725	3-28-96 0725 resumed drilling 8-28-96 1505 TD = 1706 Blows (probably slightly in hole) WL = 45.6 Blows 1536 Begin overdrilling with 5 1/4" I.D. HSA2 1548 Refusal at 19.0' Blows 1645 Insert 21.2' total surface casing, PVC Sch 40, Minut (ex. 6" dia. Snickup = 2.3')	
	15		S = 0ppm			Run 4	5.0 5.0	1700 Finished grouting hole - 3 batches of grout: 13.94 lb bags of lanester Portland Cement, 14.5 lb (5%) Censcal Bentonite, 2 gal H ₂ O @ 1000 lbs. Tremied.
	16		CLAY, some fine to medium sand (15%), trace fine to medium gravel (10%), light yellowish olive brown (2.5Y 6/4), damp, hard consistency, low plasticity (CL) (TILL)			S = 0ppm	96-12D-054 (17-19 ft)	Physical Sample
	17	LIMESTONE, MEDIUM GRAY (NW) SLIGHTLY WEATHERED TO FRESH, MODERATELY STRONG, IRON OXIDE STAINING ALONG FRACTURES, TRACE (5%) VUGS 1/2 FILLED W/ SPARRY CALCITE, TRACE (1%) VERTICAL FRACTURES FILLED W/ CALCITE. MODERATELY FOSSILIFEROUS: RECRYSTALLIZED ALGAL FRAGMENTS & WHOLE PELYCPODS, CRINOID FRAGMENTS. (SOUTH BEND LIMESTONE)	BH = 0ppm BZ = 0ppm	NA	NA	0730	0730 Sampler refusal at 19.0 ft.	
	18		S = 0ppm			0735 0.0/85 0738	0738 Fracture Fracture	0738 Auger Refusal at 19.5 ft
	19	SANDSTONE, CALCAREOUS, SLIGHTLY WEATHERED WEAK, FINE TO VERY FINE GRAINED Q12 SAND WELL SORTED, SUB-ANGULAR, MOIST TO WET FRAGMENTED POSSIBLY REMAINS - ALGAL? MED DARK GRAY (5.5) (ROCK CLASS TABLE)	BH = 0.0 BZ = 0.0 S = 0.0 LEL = 0% O ₂ = 20.9	NA	NA	0740	0740 Drillers pulling auger 1100 lbs down pressure on auger refusal	
	20		Run 5 Box 1 7.0 7.0 (BEGAN @ 18.0' - 1.0' SLIGHT IN CASING)			0740 Fracture Fracture	0740 Drillers pulling auger 1100 lbs down pressure on auger refusal	
	21		Fracture Fracture			0740 Drillers pulling auger 1100 lbs down pressure on auger refusal		
	22	SANDSTONE, CALCAREOUS, SLIGHTLY WEATHERED WEAK, FINE TO VERY FINE GRAINED Q12 SAND WELL SORTED, SUB-ANGULAR, MOIST TO WET FRAGMENTED POSSIBLY REMAINS - ALGAL? MED DARK GRAY (5.5) (ROCK CLASS TABLE)	BH = 0.0 BZ = 0.0 S = 0.0 LEL = 0% O ₂ = 20.9	NA	NA	0740	0740 Drillers pulling auger 1100 lbs down pressure on auger refusal	
	23		Fracture Fracture			0740 Drillers pulling auger 1100 lbs down pressure on auger refusal		

HTW DRILLING LOG

HOLE NO.
96-12D

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
Stephen R. Hoffine

SHEET 4
OF 16 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
	23	0.05' CLAY SEAM					0.05' CLAY SEAM
	24	LIMESTONE, MEDIUM GRAY (N4) FRESH, MODERATELY STRONG, TRACE TO SOME (1-2%) FOSSILS: CRINOID FRAGMENTS, RECRYSTALLIZED PELECYPODS, MICROCRYSTALLINE MATRIX (ROCK LAKE SHALE)	BH=0.0 BZ=0.0 S=0.0 LEL=0%				EROSIVE CONTACT SHALE PARTING FRACTURE
	25	SANDSTONE, MED DARK GRAY (N0) FRESH, WET, CALCAREOUS, FINE TO VF GRAINED, 5% QTZ, 30% FOSSIL FRAGMENTS, 20% CLAY, (ROCK LAKE SHALE) SHALE, CALCAREOUS, DARK GREENISH GRAY (5G44), MOIST TO WET, VERY WEAK, FRESH, ABUNDANT (>50%) SMALL SHALE CLASTS (1/8"), SOME (20%) SILT VERY THINLY LAMINATED TRACE TO SOME COARSE SAND/FINE GRAVEL (10%) INCREASES W/DEPTH (ROCK LAKE SHALE)	Q ₁ =20.9				1645 1650 RESUME CORING FRACTURE
	26						FRACTURE FRACTURE VERTICAL FRACTURE FRACTURE FRACTURE
	27		BH=0.0 BZ=0.0 S=0.0				HORIZONTAL & VERTICAL FRACTURES
	28	LIMESTONE, ARGILLACEOUS, GREENISH GRAY (5G41) WET, MODERATELY STRONG, MODERATELY TO SLIGHTLY WEATHERED, HIGHLY FRACTURED, SOME (25%) CLAY IN FRACTURES, SOME VERTICAL FRACTURES FILLED W/ SPARRY CALCITE TRACE TO SOME SILT (10-20%) LIMESTONE, VERY LIGHT GRAY (N7) MASSIVE TO THICKLY BEDDED, FRESH, SOME (10-15%) CLAY SEAMS/PARTINGS MICROCRYSTALLINE MATRIX W/ SOME (20-30%) FOSSILS: CRINOID S, PELECYPODS, RECRYSTALLIZED FOSSIL FRAGMENTS, FUSILINIDS CONCENTRATED AT CLAY SEAMS/PARTINGS TRACE TO SOME (10%) SPARRY CALCITE IN MATRIX. TRACE (1%) ORGANIC MATTER (STONER LIMESTONE)	LEL=0% Q ₂ =20.9	NA	NA	RUN 6 BOX 2 10.8 10.8	HIGHLY FRACTURED HORIZONTAL & VERTICAL UPPER 0.5' SANDER L...
	29						CLAY SEAM
	30						CLAY SEAM
	31		BH=0.0 BZ=0.0 S=0.0 Q ₂ =20.9 LEL=0%				CLAY SEAM

HTW DRILLING LOG

HOLE NO.
96-12D

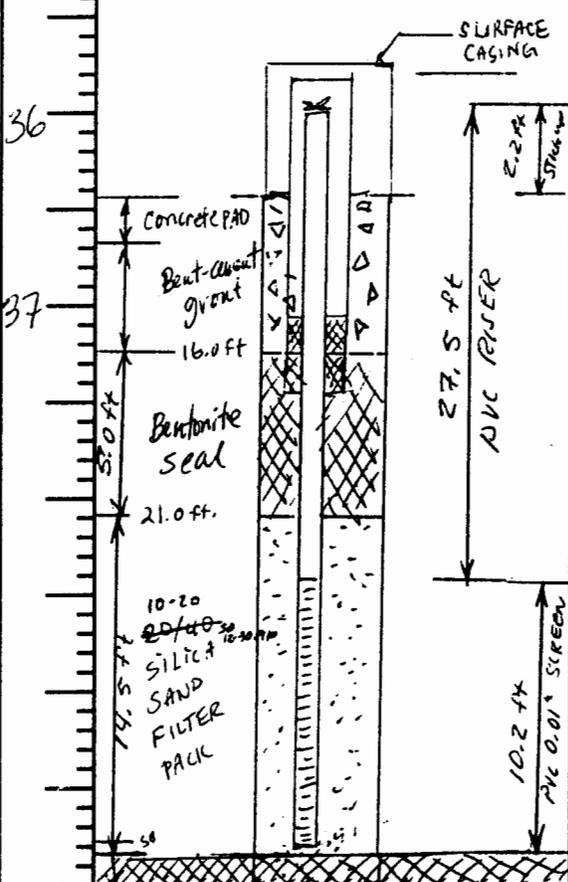
PROJECT
94-800-4-020-01 USSFRFI

INSPECTOR
[Signature]

SHEET 45
OF 56 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
	32	LIMESTONE, VERY LIGHT GRAY (N7) MASSIVE TO THICKLY BEDDED, FRESH SOME (10-15%) CLAY SEAMS/PARTINGS MICROCRYSTALLINE MATRIX, w/ SOME (20-30%) FOSSILS: CRINOIDS, PELECYPODS, RECRYSTALLIZED FOSSIL FRAGMENTS, FUSULINIDS CONCENTRATED @ CLAY SEAMS & PARTINGS TRACE TO SOME (10%) SPARRY CALCITE IN MATRIX TRACE (1%) ORGANIC MATTER.					CLAY SEAM CLAY SEAM + ^{SH} FRACTURE
	33		B ₁₀ = 0.0 B ₂₀ = 0.0 S = 0.0 L _{EL} = 0.2 O ₂ = 21.0	NA	NA		CLAY SEAM + FRACTURE CLAY SEAM + FRACTURE CLAY SEAM + FRACTURE HORIZONTAL FRACTURE
	34	(STONEWELL LIMESTONE)					CLAY SEAM HORIZONTAL FRACTURE CLAY SEAM HORIZONTAL FRACTURE
	35						CLAY SEAM 1715

NOT TO SCALE



BOTTOM OF HOLE 35.5 ft
after reaming
Bottom of well = 35.5 ft.

BOTTOM OF HOLE
9/6/96 @ 1715
35.1'
9-7-96
1003 Began reaming
with 6 5/8" 2-cone
button bit on
GUS PECH BRAT
22R.
1045 Cease reaming
Borehole depth
is 35.5 ft. NO
water lost.
1053 Installed
10.0 ft of 2" diam
Sch 40, PVC, 0.01"
slotted screen
with 0.2" and
cap (threaded),
and 30.0 ft
of PVC RISER.
Centralizer
at 24.5 ft bgs.
15.0 ft
1057 Began
TREMIE SAND
16-20
16-20 grade,
Silica sand
filter pack,
Northern grade,
TREMIED 14.5
ft. sand to
21.0 ft bgs.
1123 Cut off
2.58 ft of
PVC RISER

HTW DRILLING LOG

HOLE NO.
96-12D

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
SUZANNE BAILEY

SHEET 6
OF 62 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
	1126						Began swaging filter pack with surge block
	1136						End surge.
	1140						Lunch
	1232						FILTER PACK SETTLED TO 20.5, added more sand to 21.0 ft. Four bags of sand used altogether.
	1249						Added more sand
	1450						Bailed Hole - Plug bentonite chips to 16.0 ft bgs (5.0 ft thick)
	9-17-96						Bailed well and reamed.
	1014						Grouted with bentonite slurry grout to 2.5 ft bgs. Wyb-bell Aquagel with 14 gallons potable water.