CORRECTION(S) TO WATER WELL RECORD (Form WWC-5)

(to rectify lacking or incorrect information)

LOCATION OF WATER WELL: County: Johnson	Fraction: ¼ NC ¼ SE ¼ SW ¼	Section: 31	Township: T 13 S	Range: R 22 ☒E ☐W

Owner: USACE c/o Burns & McDonnell

Location was listed as:	**Location changed to:**
Sec. _____ **T** _____ **S** **R** _____ ☐E ☐W	**Sec.** _____ **T** _____ **S** **R** _____ ☐E ☐W
Fraction: _____ _____ _____ _____	**Fraction:** _____ _____ _____ _____

Other changes: Initial statements: HTW Drill Log Location: N 210373, 1576 E 2550496, 7055

Changed to: 38.072443548 -95, 012544138

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.

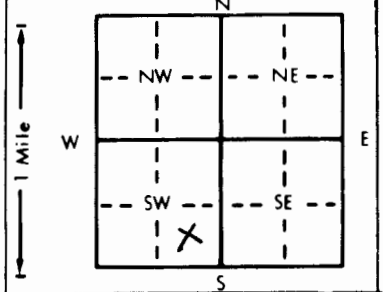
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Johnson | Fraction: NE ¼ SE ¼ SW ¼ | Section Number: 31 | Township Number: T 13 S | Range Number: R 22 (E)W

Distance and direction from nearest town or city street address of well if located within city? Well # 96-23D at Sunflower AAP near DeSoto KS

2 WATER WELL OWNER: USACE % Burns & McDonnell
RR#, St. Address, Box # : 9400 Ward Parkway
City, State, ZIP Code : Kansas City MO 64114
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 29 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 19 ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 10 in. to 12.9 ft., and 6 in. to 30 ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering (10) Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes (No); If yes, mo/day/yr sample was submitted Water Well Disinfected? Yes (No)

5 TYPE OF BLANK CASING USED: 1 Steel (2) PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 6 in. to 12.9* ft., Dia 2 in. to +30" to 18 ft., Dia in. to ft.
Casing height above land surface 30 in., weight lbs./ft. Wall thickness or gauge No. Sch 40
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile (7) PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot (3) Mill slot 2 Louvered shutter 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 18.8 ft. to 28.8 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 15 ft. to 30 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 0 ft. to 12.9 ft., From 0 ft. to 15 ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well (16) Other (specify below) Ammunition plant
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS

* Surface casing waiver approved by Don Taylor of KDHE on 9/6/96 at 1300 hr.

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 9/9/96 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 570 This Water Well Record was completed on (mo/day/yr) 11/27/96 under the business name of AQUADRILL, INC. by (signature) Jeff Jolyn

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

HTW DRILLING LOG

HOLE NO. 96-230

1. COMPANY NAME: BURNS & McDONNELL	2. DRILLING SUBCONTRACTOR: AQUADRILL	SHEET 1 OF SHEETS
3. PROJECT: 94-800-4-020-01 USSFRFI	4. LOCATION: SUNFLOWER ARMY AMMUNITION PLANT	
5. NAME OF DRILLER: Jeff Joslyn	6. MANUFACTURER'S DESIGNATION OF DRILL: Gus Pech - Brat 22B	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: 8¼" I.D. Hollow Stem Augers; Blade & Chisel bit; Kelly bit; NQ2 CORE BARREL; 6" Tricon rotary bit	8. HOLE LOCATION: N - 210373.1576 E - 2850496.7055	
	9. SURFACE ELEVATION: 936.7	
	10. DATE STARTED: 8-30-96	11. DATE COMPLETED: 9/9/96
12. OVERBURDEN THICKNESS: 12.5 ft	15. DEPTH GROUNDWATER ENCOUNTERED: Setting surf. casing (on 10-3-96), 8-30-96/0900 - while reaming - 12.4 BGS.	
13. DEPTH DRILLED INTO ROCK: 11.3	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE: 30.0' (Reamed to 30.0 to allow well installation)	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): 11.10' TOC; POST-Development; 10-3-96 @ 1247	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
Collected from 96-235	N/A	N/A	2

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
Collected from 96-235	N/A	N/A	N/A	N/A	N/A	100%

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
Monitoring Well	NA	96-230 X 96-14	NA	

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
	0	CLAY and SILT, black (10YR 2/1) [TOPSOIL]				0820	0820 Begin drilling with 8¼" I.D. HSAs logging from cuttings.
	1	SILT and Clay, dark grayish brown (10YR 4/2)	Bit=0ppm B2=0ppm LEL=0% O_2=20.8%	N/A	N/A	N/A	
	2						
	3						
	4						
	5					0823	0823 End Run

HTW DRILLING LOG

HOLE NO. 96-230

PROJECT 94-800-4-020-01 USSFRFI

INSPECTOR

SHEET 2 OF 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
	5	SILT and CLAY, dark grayish brown (10YR 4/2) [TILL]				0836	
	6						
	7	SILT and CLAY, ~~brown~~ dml 8-30-96 some fine-grained sand brown (7.5YR 4/3) [TILL]	BH=0ppm B2=0ppm LEL=0% O_2=20.8%	N/A	N/A	N/A	
	8						
	9						
	10	CLAY and SILT, trace fine- to medium-grained sand, yellowish brown (10YR 5/6), limonite nodules					
	11						
	12						
	12.5	LIMESTONE, white (N9) to medium light gray (N6).					0845 Reached bedrock at 12.5 ft BGS.
	13						0852 Reached TD approx 13.5 ft bgs.
	14	SEE PAGE 4 FOR ROCK CORING DESCRIPTION.					

HTW DRILLING LOG

HOLE NO. 96-230

PROJECT 94-800-4-020-01 USSFRFI

INSPECTOR

SHEET 3 OF 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
							0900 WL=13.4ft BGS TD=12.9ft BGS 0903 Casing is Monoflex PVC Schedule 40, flush-threaded, 6" I.D.; 14.9ft. Stickup=2.0ft 0930 Start mixing batch1 grout: 3-94lb bags of Lonestar (TYPE I) Portland cement, 14.5lb of Benseal bentonite, 21gal H2O. (5% bentonite, 7gal H2O/bag) 0936 Placing 1st batch grout. 0938 Mixing batch 2 same as 1. 0946 Placing batch 2. 0955 Checking casing for plumbness. Note: augers pulled before grout pumped.

HTW DRILLING LOG

HOLE NO. 96-281

PROJECT 94-800-4-020-01 USSFRFI

INSPECTOR [illegible]

SHEET OF 4 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
	12						
							9/5/96 @ 0826 BEGIN CORING ~0.6' GRUT IN CASING
	13						
		SANDSTONE, MOTTLED LIGHT BROWN (5YR 6/4) TO LIGHT GREY (N7), MODERATELY WEATHERED MODERATELY STRONG, FINE TO VF GRAINED, QTZ CALCAREOUS, BROWN COLOR DUE TO IRON OXIDE WEATHERING, TRACE TO SOME (1-40%) SMALL SHALE CLASTS, TRACE (1%) ORGANIC & MANGANESE MOD - WELL SORTED, SUBROUNDED, SOME (15%) SILT/CLAY. WET [ROCK LAKE SHALE]					FRACTURE
	14						FRACTURE FRACTURE
		SHALE, GRADES FROM: BLACK (N1) TO GREENISH GRAY (5G 6/1) TO DARK YELLOWISH ORANGE (10YR 6/6) HIGHLY TO EXTREMELY WEATHERED, WEAK TO VERY WEAK CALCAREOUS, TRACE TO SOME (1-30%) SHALE CLASTS, VERY THINLY LAMINATED WET [ROCK LAKE SHALE]					FRACTURE
							FRACTURE
	15						FRACTURE
							FRACTURE
						RUN BOX 1	
	16	LIMESTONE, LIGHT GREY (N7), SLIGHTLY WEATHERED TO FRESH; MICROCRYSTALLINE MATRIX, SOME (20-30%) CLAY & CLAY SEAMS, SOME (30-40%) FOSSILS & FRAGMENTS: BRYOZOA, BIVALVES, BRACHIOPODS, RECRYSTALLIZED ALGAE, CRINOIDS, FUSILINIDS (CONCENTRATED AT CLAY SEAMS), TRACE TO SOME (5-10%) HEALED VERTICAL FRACTURES, TRACE (5%) SPARRY CALCITE IN MATRIX TRACE (5%) CLAY & SPAR FILLED VUGS/FRACTURES NEAR TOP OF UNIT, INCREASE FOSSIL CONTENT W/INC. DEPTH				6.6 / 6.6	
							FRACTURE
	17						FRACTURE/CLAY SEAM
							FRACTURE
	18						FRACTURE
							FRACTURE/CLAY SEAM
		(STONER LIMESTONE)					FRACTURE/STYLOLITE
							STYLOLITE
							FRACTURE/CLAY SEAM
	19						
							FRACTURE 0842 END RUN
							0852 RESUME CORING
	20						
							FRACTURE
						RUN BOX 2 10.0 / 10.0	
	21						FRACTURE CLAY PARTING

HTW DRILLING LOG

HOLE NO. 96-22D

PROJECT 94-800-4-020-01 USSFRFI

INSPECTOR [signature]

SHEET OF 5 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
	22	SAME AS PREVIOUS [STONER LIMESTONE]					- CLAY SEAM - CLAY SEAM
	23						- CLAY SEAM - FRACTURE
							- CLAY SEAM - CLAY SEAM
	24						- CLAY SEAM
						RUN	
	25					BOX 2	
						10.0 / 10.0	- FRACTURE
							- FRACTURE
	26						- FRACTURE/CLAY SEAM
	27						- CLAY SEAM
							- CLAY SEAM
							- FRACTURE
							- FRACTURE
	28						
							~~TORQUE~~ SN
	29						
							0915 END RUN @ 29.8'
	30	BOTTOM OF HOLE 30.0' bgs					9/9/96 0850 Begin reaming with 6" ~~Bottom~~ Tricone bit. 0940 @ 30.0' Bgs
	31						

MRK FORM JUN 89 55-2

PROJECT 94-800-4-020-01 USSFRFI

HOLE NO. -

HTW DRILLING LOG

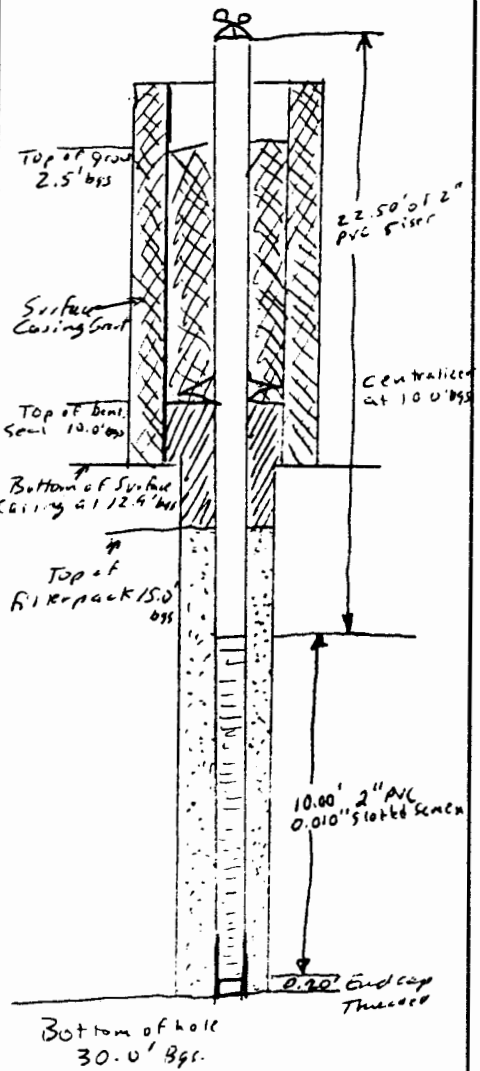
HOLE NO. 96-23D

PROJECT 94-800-4-020-01 USSFRFI

INSPECTOR

SHEET 6 OF 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



0942 set casing in boring

0.20' Endcap (threaded)

10.00' PVC 0.010" 2" slotted screen

25.00' PVC riser 2" (5.0' stickup)

1 S.S. Centralizer at 10.0' Bgs

0950 Begin tremmieing sand Northern Gravel Co. size #.

0958 Filterpack @ 15.0' bgs. Stop begin surging filter pack.

1008 End surging Filterpack at 15.2' Add more filter pack to 15.0' bgs.

1011 Begin adding bentonite.

1020 Bentonite chips to 10.0' bgs.

lost 10 gallons H_2O during drilling & well installation

cut off 2.50' - stickup is 2.50'.

9-11-96

1920 Grouted to just below ground surface with bentonite slurry grout.