

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

LOCATION OF WATER WELL: County: Johnson	Fraction ____ ¼ <u>NE</u> ¼ <u>NE</u> ¼ <u>NW</u> ¼	Section ____ <u>7</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

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 235221.6674 E 2350279.6531

Changed to: 38.940652209 - 95.010425524

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

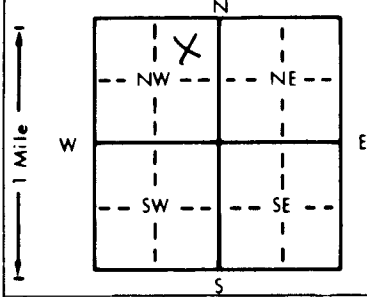
Submitted by: Kansas Geological Survey, Data Resources Library, 1930 Constant Ave., Lawrence, KS 66047-3726
to: Kansas Dept of Health & Environment, Bureau of Water, 1000 SW Jackson, Suite 420, Topeka, KS 66612-1367.

1 LOCATION OF WATER WELL: County: Johnson Fraction: 10 1/4 NE 1/4 NW 1/4 Section Number: 7 Township Number: T 13 S Range Number: R 22 **EMK**

Distance and direction from nearest town or city street address of well if located within city?
Well # 96-90 at Sunflower AAP near DeSoto KS

2 WATER WELL OWNER: USACE 90 Burns & McDonnell
 RR#, St. Address, Box #: 9400 Ward Parkway Board of Agriculture, Division of Water Resources
 City, State, ZIP Code: Kansas City MO 64114 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. 29 ft. 2. _____ ft. 3. _____ ft.
 WELL'S STATIC WATER LEVEL: 29 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 16.2 ft., and 6 in. to 32 ft.
 WELL WATER TO BE USED AS:
 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
 2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
 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 3 RMP (SR) 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued _____ Clamped _____
2 PVC 4 ABS 7 Fiberglass 9 Other (specify below) Welded _____
 Blank casing diameter: 6 in. to 16.2* ft., Dia: 2 in. to 30" to 22 ft., Dia _____ in. to _____ ft.
 Casing height above land surface: 30 in., weight _____ lbs./ft. Wall thickness or gauge No. 3ch 40

TYPE OF SCREEN OR PERFORATION MATERIAL:
 1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 10 Asbestos-cement
 2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
 SCREEN OR PERFORATION OPENINGS ARE:
 1 Continuous slot 3 Mill slot 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
 2 Louvered shutter 4 Key punched 6 Wire wrapped 9 Drilled holes
 7 Torch cut 10 Other (specify) _____

SCREEN-PERFORATED INTERVALS: From 22 ft. to 28.9 ft., From _____ ft. to _____ ft.
 From _____ ft. to _____ ft., From _____ ft. to _____ ft.
 GRAVEL PACK INTERVALS: From 18 ft. to 32 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 16.2 ft., From 0 ft. to 18 ft., From _____ ft. to _____ ft.
 What is the nearest source of possible contamination:
 1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
 2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
 3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 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 Dan 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) 9/10/96 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 Jorgin

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

HTW DRILLING LOG

HOLE NO.
96-9D

1. COMPANY NAME **BURNS & McDONNELL** 2. DRILLING SUBCONTRACTOR **AQUADRILL** SHEET 1 OF 7 SHEETS

3. PROJECT **94-800-4-020-01 USSFRFI** 4. LOCATION **SUNFLOWER ARMY AMMUNITION PLANT**

5. NAME OF DRILLER **Jeff Joslyn** *RICK Foreman DANNY moore* 6. MANUFACTURER'S DESIGNATION OF DRILL **Gus Peck - Bratt 22R**

7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT
5' x 8 1/4" I.D. Holms Steam Augers
6" TRI CONE ROTARY WASH
NQZ CORE BARREL

8. HOLE LOCATION **N-235221.6674 E-2850279.6531**

9. SURFACE ELEVATION **930.8**

10. DATE STARTED **9-05-96** 11. DATE COMPLETED **9-10-96**

12. OVERBURDEN THICKNESS **15.0'** 15. DEPTH GROUNDWATER ENCOUNTERED **Not encountered (from 9S)**

13. DEPTH DRILLED INTO ROCK **17.0'** 16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED **9-10-96 WL = 7.30' Below TOP**

14. TOTAL DEPTH OF HOLE **32.0'** 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) **9-12-96 WL = 26.90 ft below TOP**

18. GEOTECHNICAL SAMPLES *See 9S 96-9S* DISTURBED **NA** UNDISTURBED **NA** 19. TOTAL NUMBER OF CORE BOXES **2**

20. SAMPLES FOR CHEMICAL ANALYSIS

VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY 93.5 %
NA	NA	NA	NA	NA	

22. DISPOSITION OF HOLE **MONITORING WELL** BACKFILLED MONITORING WELL OTHER (SPECIFY) 23. SIGNATURE OF INSPECTOR *M. Melara*

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	SILT with clay, trace fine sand, reddish brown (2.5 yr 3%) [TILL]	1005 B ₂ = 0ppm L ₆₁ = 0.9% C = 0ppm O ₂ = 20.8%	NA	NA	1005	1005 Begin drilling with 5' x 8 1/4" I.D. HSA's. logging from cuttings.
	1						
	2						
	3						
	4	SILT with clay, trace fine sand, brown (10 yr 5/3).	1008 B ₁₁ = 0ppm				
	5					1008	

HTW DRILLING LOG

HOLE NO.
96-90
SHEET **2**
OF 7 SHEETS

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
Y. M. ...

ELEV. <small>a</small>	DEPTH <small>b</small>	DESCRIPTION OF MATERIALS <small>c</small>	FIELD SCREENING RESULTS <small>d</small>	GEOTECH SAMPLE OR CORE BOX NO. <small>e</small>	ANALYTICAL SAMPLE NO. <small>f</small>	BLOW COUNTS <small>g</small>	REMARKS <small>h</small>
	5	Silt, with clay, trace fine sand, brown (10 YR 5/3) [TILL] (ML)	1020 B ₂ = 0ppm w _L = 0% O ₂ = 20.8%	NA	NA	1020	
	6						
	7						
	8	SILT, some clay, trace fine sand, brown (10 YR 4/3), limonite nodules (ML) [TILL]					
	9	Becoming yellowish brown (10 YR 5/6) (from 8.5 - 9.4 ft)					
	10	CLAY, with sand (fine-grained) yellowish brown (10 YR 5/6) (CL) [TILL]					
	11						
	12						
	13						
	14						

HTW DRILLING LOG

HOLE NO.
96-9D

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
J. Melissa Ince

SHEET 3
OF 7 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, with fine-grained sand, yellowish brown (10425/6) (CL) [FILL]	See Previous page	NA	NA	NA	
	15	LIMESTONE	1035 Bit-0ppm B2=0ppm L21=0%	NA	NA	1029 1040	1041 hit limestone at 15.0 ft BGS. Note: no cuttings avail.
	16		C=0ppm P2=20.8%			1045	1345 Insert casing: PRC schedule 40, Monoflex, 6" dia., flush-threaded, 19.5' total length. 3.7' stand-off. Mixing grout- 3-94 lb bags of Lonestar Portland cement, 14.5 lb Benseal bentonite (5%), 21 gal H ₂ O (7/bag) Tremie pipe in hole. 14.30 tremied 3 batches grout total in hole.

HTW DRILLING LOG

HOLE NO.
96-9D

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
Suzanne Bailey

SHEET 4
OF 7 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	
	4	GROUT					9-9-96	
							1628	1628 Began coring at 4.5 ft. bgs
	5						Run 1	Mobile B57 wireline NQ2 core barrel
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
						NET Boxed	10.4 ----- 10.4	

HTW DRILLING LOG

HOLE NO.
96-9D

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
Suzanne E. Bailey

SHEET 5
OF 7 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
	13	GRUNT					
	14				NOT BOXED	Run 1	
	15					1640 1441 59	
	16				Box 1 (14.97 - 24.9 ft)	Run 2	
	17	LIMESTONE, dark yellowish orange (10YR 6/6), becomes pale yellowish brown at (10YR 6/2) at 17.2 ft., moderately weathered, moderately strong, medium to thin bedded, bedding is wavy, fossiliferous, fusulinids throughout, fusulinids concentrated at or near shale partings at fractures, also brachiopod and pelecypod shells, many clay-filled, sparry calcite in a micro-crystalline matrix, many fossils filled with sparry calcite, argillaceous at fractures, dendrites on fractured and hammered fracture surfaces (STONER Limestone Ubr.)			Fractures	4.6 5.0 5.0	Bottom of surface casing at 16.2 ft. logs. limonite-filled logs at 17-17.2
	18		SB	SB	SD	1656 SD	1656 Retrieved core from 15-17.9 ft., partial run
	19				Healed fracture Fractures		Healed fracture calcite filled at 18.2 - 18.7 ft.
	20					10 1705 SD	end Run 2
	21				BOX 1 Fractures	1715 Run 3	shale parting 20.5-20.6
	22					11.3 12.0	

HTW DRILLING LOG

HOLE NO.
96-9D

PROJECT
94-800-4-020-01 USSRFI

INSPECTOR
Suzanne Bailey

SHEET 6
OF 7 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	<p>LIMESTONE, dark yellow- ish orange (10YR6/6), becomes pale yellowish brown (10YR6/2) at 17.2 ft, mod- erately weathered, moderately strong, medium to thin bedded, wavy bedded, fossiliferous: Fusilinids throughout, fusulinids concentrated at or near shale partings, also Crinoid pieces, small brachiopod and pelecypod shells, many clay-filled, many fossils filled with sparry calcite; Limestone is composed of sparry calcite in a microcrystalline matrix, ar gillaceous at fractures; dendrite on natural and hammer fracture surfaces.</p> <p>(Stoner Limestone Mbr.)</p>			<p>173</p> <p>FRactURES</p> <p>Box 1</p> <p>Box 2</p> <p>24.9 to 32.0ft</p> <p>FRactURES</p>	<p>Run</p> <p>3</p> <p>3</p> <p>11.8_{ss}</p> <p>12.0</p>	<p>Vertical fracture 22.2-22.4</p> <p>SHALE PARTING 23.8-24.0 ft</p> <p>1739 Retrieved core, partial Run at 24.9ft</p> <p>1744 Resumed coring</p>	
	23							
	24							
	25							
	26							
	27							
	28							
	29		<p>SHALE, dark gray (N3) to black (N1), fresh, very weak, fissile, trace mica,</p> <p>(Eudora Shale Mbr.)</p>					
	30							
	31							

HTW DRILLING LOG

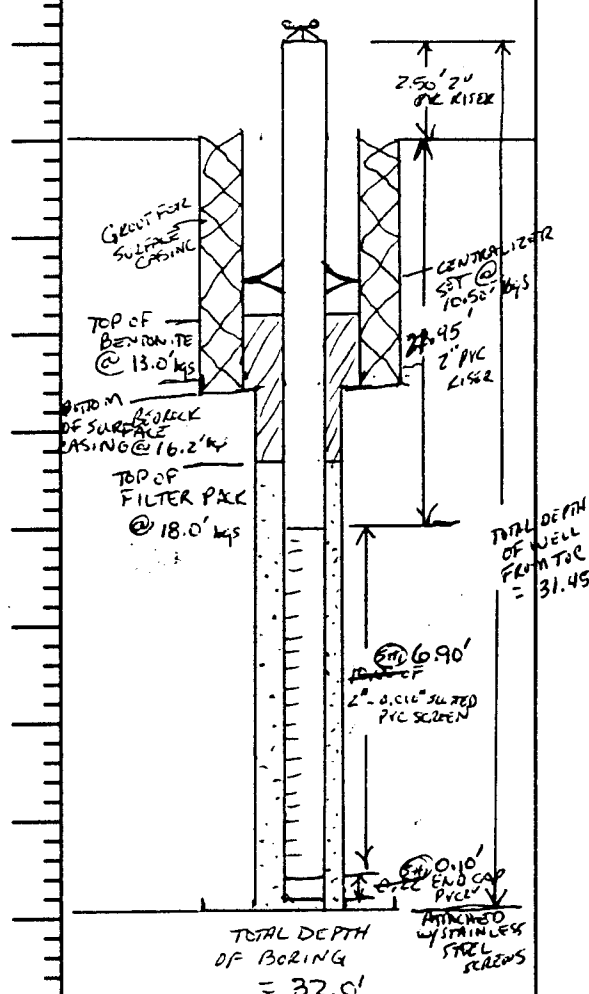
HOLE NO. 96-9D

PROJECT 94-800-4-020-01 USSRFI

INSPECTOR *Suzanne Bailey*

SHEET 7 OF 7 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
	31	SHALE, dark gray (N3) to black (N1), fresh, very weak, fissile, trace mica (Eudora shale str.)			Box 2 (24.9 to 32.0 ft)	Run 3 11.3 12.0 1815	end Run 2-3
	32				BOTTOM OF HOLE		at 32.0 ft
							<p>9/10/96 1245 BEGIN REAMING BORING 1/6" TR-CONE ROLLER B.T. 1247 ADD DRILL STEM 1310 @ 32.0' INTO SHALE - SPEAK W/ COOLTY - DON WANT TO SET SCREEN IN THIS SHALE - WILL SET ONLY ~ 7.0' SCREEN</p> <p>1400 SET CASING IN 96-9D 0.10' SUPCAP ATTACHED w/ STAINLESS STEEL SCREENS 6.0" 2" PVC 0.10" SLITTED SCREEN</p> <p>25.00' 2" PVC RISER @ 10.50' bgs 1405 BEGIN ADDING FILTER PACK - NEEDMAN GRAVEL CO. 1412 FILTER PACK @ 17.5' bgs 1414 BEGIN SURGING 1424 END SURGING TOP FILTER PACK @ 18.0' bgs @ 100 lb BAGS 1425 ADD BENTONITE CHIPS 1428 END ADDING BENTONITE CHIPS 1 BAG 50 lb TOP BENTONITE @ 13.0' bgs 1435 DRILLERS CUT OFF RISER TO 2.50' ABOVE GROUND SURFACE 1436 PLACE J PLUG & LOCK</p> <p>9-17-96 1139 Encased with Clybeil Aquagel bentonite slurry to 42.5 ft bgs. (mixture 1.50 lb bag bentonite with 14 g all net 100 lb water)</p>



NOT TO SCALE