

WATER WELL RECORD Form WWC-5

Division of Water Resources App. No.

MW-14D

Original Record Correction Change in Well Use

Well ID

1 LOCATION OF WATER WELL: County: Ottawa	Fraction NW ¼ SW ¼ NE ¼ ¼	Section Number 16	Township Number T 11 S	Range Number R 2 <input type="checkbox"/> E <input checked="" type="checkbox"/> W
2 WELL OWNER: Last Name: US Army Corp of Engineers Business: US Army Corp of Engineers Address: 601 E 12th Street Address: City: Kansas City State: MO ZIP: 64106		Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: <input type="checkbox"/>		
3 LOCATE WELL WITH "X" IN SECTION BOX: N W E S -----1 mile-----	4 DEPTH OF COMPLETED WELL: 105.0 ft. Depth(s) Groundwater Encountered: 1) Not Enc. ft. 2) ft. 3) ft., or 4) <input type="checkbox"/> Dry Well WELL'S STATIC WATER LEVEL: ft. <input type="checkbox"/> below land surface, measured on (mo-day-yr)..... <input type="checkbox"/> above land surface, measured on (mo-day-yr)..... Pump test data: Well water was ft. after hours pumping gpm Well water was ft. after hours pumping gpm Estimated Yield: gpm Bore Hole Diameter: 8 in. to 105 ft. and in. to ft.		5 Latitude: 39.0994227° N(decimal degrees) Longitude: -97.5466891° E(decimal degrees) Horizontal Datum: <input type="checkbox"/> WGS 84 <input checked="" type="checkbox"/> NAD 83 <input type="checkbox"/> NAD 27 Source for Latitude/Longitude: <input type="checkbox"/> GPS (unit make/model:) (WAAS enabled? <input type="checkbox"/> Yes <input type="checkbox"/> No) <input checked="" type="checkbox"/> Land Survey <input type="checkbox"/> Topographic Map <input type="checkbox"/> Online Mapper:	
	6 Elevation: 1365.2ft. <input checked="" type="checkbox"/> Ground Level <input type="checkbox"/> TOC Source: <input checked="" type="checkbox"/> Land Survey <input type="checkbox"/> GPS <input type="checkbox"/> Topographic Map <input type="checkbox"/> Other			

7 WELL WATER TO BE USED AS:

1. Domestic: <input type="checkbox"/> Household <input type="checkbox"/> Lawn & Garden <input type="checkbox"/> Livestock	5. <input type="checkbox"/> Public Water Supply: well ID 6. <input type="checkbox"/> Dewatering: how many wells? 7. <input type="checkbox"/> Aquifer Recharge: well ID 8. <input checked="" type="checkbox"/> Monitoring: well ID MW-14D	10. <input type="checkbox"/> Oil Field Water Supply: lease 11. Test Hole: well ID <input type="checkbox"/> Cased <input type="checkbox"/> Uncased <input type="checkbox"/> Geotechnical
2. <input type="checkbox"/> Irrigation	9. Environmental Remediation: well ID <input type="checkbox"/> Air Sparge <input type="checkbox"/> Soil Vapor Extraction <input type="checkbox"/> Recovery <input type="checkbox"/> Injection	12. Geothermal: how many bores? a) Closed Loop <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical b) Open Loop <input type="checkbox"/> Surface Discharge <input type="checkbox"/> Inj. of Water
3. <input type="checkbox"/> Feedlot	4. <input type="checkbox"/> Industrial	13. <input type="checkbox"/> Other (specify):

Was a chemical/bacteriological sample submitted to KDHE? Yes No If yes, date sample was submitted:

Water well disinfected? Yes No

8 TYPE OF CASING USED: Steel PVC Other CASING JOINTS: Glued Clamped Welded Threaded
Casing diameter **2** in. to **83** ft., Diameter in. to ft., Diameter in. to ft.
Casing height above land surface **33.6** in. Weight lbs./ft. Wall thickness or gauge No. **Sched. 80**.....

TYPE OF SCREEN OR PERFORATION MATERIAL:
 Steel Stainless Steel Fiberglass PVC Other (Specify)
 Brass Galvanized Steel Concrete tile None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
 Continuous Slot Mill Slot Gauze Wrapped Torch Cut Drilled Holes Other (Specify)
 Louvered Shutter Key Punched Wire Wrapped Saw Cut None (Open Hole)

SCREEN-PERFORATED INTERVALS: From **103.0** ft. to **83.0** ft., From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From **103.3** ft. to **70.1** ft., From ft. to ft., From ft. to ft.

9 GROUT MATERIAL: Neat cement Cement grout Bentonite Other **Bentonite Seal 65.3' - 70.1'**
Grout Intervals: From **65.3** ft. to **0** ft., From ft. to ft., From ft. to ft.

Nearest source of possible contamination:
 Septic Tank Lateral Lines Pit Privy Livestock Pens Insecticide Storage
 Sewer Lines Cess Pool Sewage Lagoon Fuel Storage Abandoned Water Well
 Watertight Sewer Lines Seepage Pit Feedyard Fertilizer Storage Oil Well/Gas Well
 Other (Specify) **Missile Silo**.....
Direction from well? **East**..... Distance from well? **600**..... ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0.0	48.0	Sand			
48.0	50.0	Fat Clay			
50.0	95.0	Sand			
95.0	103.0	Sandstone			
103.0	105.0	Shale			
					Notes:

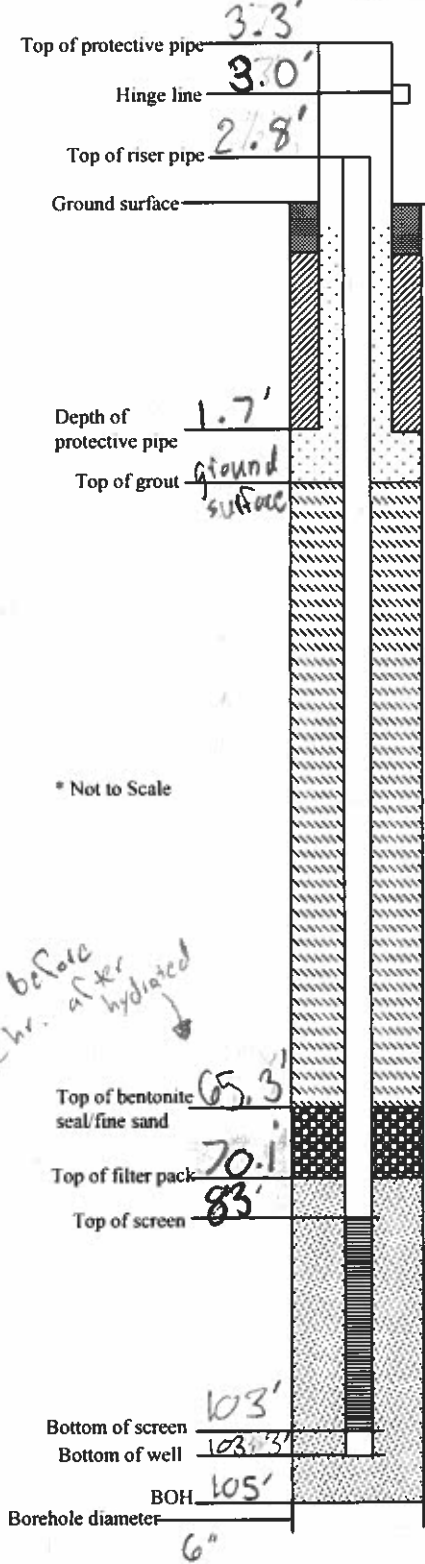
11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was constructed, reconstructed, or plugged under my jurisdiction and was completed on (mo-day-year) **8/2/2023**..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. This Water Well Record was completed on (mo-day-year) **3/26/2024**..... under the business name of Signature

MONITORING WELL INSTALLATION FORM

Project Schilling S-1
 Boring Number MW-140

Well Number MW-140
 Date Installed 08/02/2023

Type of riser pipe & diameter 2 in diameter, Schedule 80 pvc
 Type of screen & slot size Schedule 80 pvc, 0.010" slot size



Measurements:

Length of riser pipe 106.35' 03/19/24 JG
 Length of screen 20' based on filter pack
 Length of end blank N/A
 Total length of well installation 103.3'
 Bottom depth of borehole 105'
 Length of riser pipe stickup above ground surface 2.8'

Centralizers:

Total number of centralizers 3
 Depth(s) of centralizer(s) BGS _____

Protective Pipe:

Date set 08/03/2023
 Size and type of protective pipe 5', 4" x 4"
 Number of weep holes drilled in protective pipe _____

Well Pad:

Dimensions of well pad 2' x 2' x 4"
 Number and size of protective posts around well 2, 3 in dia

Filter Pack:

Type and grain size of filter pack material 20/40 sand

Grout Mix(es):

Type of grout mix and locations used in the well installation

Amount and type of grout materials used for each mix

Other:

Portland: limestone cement type 1 and 5% bentonite gel
 Bentonite (specify type): _____
 Water: 12 gal H₂O 2 bags cement

1. Material used to fill annular space between borehole and protective pipe Sand
2. Material used to fill void between protective pipe and well riser pipe Sand

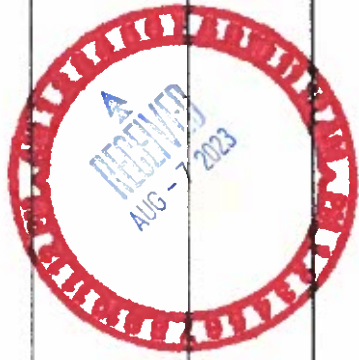
13 bags of 50lb Gillibrand industrial sand
 H₂O: 30 gals

HTW DRILLING LOG

HOLE NO.
MW-14 D

1. COMPANY NAME USACE-EDE-H		2. DRILLING SUBCONTRACTOR USACE EDG-G		SHEET 1 OF 18 SHEETS			
3. PROJECT Schilling S-1			4. LOCATION Bennington, KS				
5. NAME OF DRILLER Lane Wisdom / Josh Devaul			6. MANUFACTURER'S DESIGNATION OF DRILL Nielach D-90 ATV				
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		6" flushwall surface casing		8. HOLE LOCATION 39.099443° N, -97.546733° E			
		8" auger		9. SURFACE ELEVATION 1346'			
		5 7/8" bit		10. DATE STARTED 8/01/23		11. DATE COMPLETED 8/02/23	
		Fine strainer					
12. OVERBURDEN THICKNESS 103'			15. DEPTH GROUNDWATER ENCOUNTERED not encountered				
13. DEPTH DRILLED INTO ROCK 2'			16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED N/A				
14. TOTAL DEPTH OF HOLE 105'			17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) N/A				
18. GEOTECHNICAL SAMPLES		DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES			
20. SAMPLES FOR CHEMICAL ANALYSIS		VOC	METALS	OTHER (SPECIFY) cement gel with soda ash to adjust pH to help bentonite dissolve in water	OTHER (SPECIFY) to help bentonite dissolve in water		
21. TOTAL CORE RECOVERY %							
22. DISPOSITION OF HOLE		BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR Sierra Orndoff Sierra Orndoff		

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	SAND, ORANGE, DRY LOOSE, well sorted, fine-grained (SP)		No aug sample	NA	NA	Auger - 1 4 1/4" hollow stem auger (HSA) w/ red logged from cuttings
	1						
	2						
	3						
	4						Auger - 2 4 1/4" HSA logged from cuttings



HTW DRILLING LOG (CONT.)

HOLE NO
MW-140

PROJECT **Schilling S-1**

INSPECTOR **Siera O'Neil Sara O'Neil**

SHEET 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. i	BLOW COUNTS g	REMARKS h
	5	SAA SAND, ORANGE, DRY LOOSE Well sorted, fine-grained (SP)		NS	NA	NA	Auger - 2 cont... 4 1/4" HSA
	6						
	7						
	8.0	SAND, GRAYISH ORANGE Well sorted, fine-grained SP					
	9						
	10						
	11			NS			Drive - 11 5 7/8" tricone mud rotary bit
	12						
	13.5						
	14						

HTW DRILLING LOG (CONT.)

HOLE NO.
MW-140
SHEET 3
OF 13 SHEETS

PROJECT Schilling S-1

INSPECTOR Sierra Omdoff Sierra Omdoff

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
	14.0	SAA SAND, GRAYISH ORANGE well sorted, finegrained (SP)		NS	NA	NA	Drive-1 Cont. 5 7/8" tricone 150
	15						Drive-2 5 7/8" tricone Cuttings collected from drilling mud
	16						
	17						
	18						
	19						
	20						20.0
	21			NS			Drive-3 5 7/8" tricone Cuttings collected from drilling mud
	22						
	23						

HTW DRILLING LOG (CONT.)

HOLE NO.
MW-140

PROJECT
Schilling S-1

INSPECTOR
Sierra Orndorff Sierra Orndorff

SHEET 4
OF 13 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	SAA SAND, GRAYISH ORANGE Well sorted, fine-grained (SP)		Core box Sierra Orndorff			Drive - 3 Cont. 5 7/8" tricone mud
	25.0			NS	NA	NA	25.0 Drive - 4 5 7/8" tricone Cuttings collected from drilling mud
	30.0			NS			30.0 Drive - 5 5 7/8" tricone Cuttings collected from drilling mud

HTW DRILLING LOG (CONT.)

HOLE NO
MW-140

PROJECT Schilling S-1

INSPECTOR Sierra Orndoff Sierra Orndoff

SHEET 5
OF 13 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	SAND S&A GRAYISH ORANGE well sorted, fine-grained SP					Drive-5 cont. 5 7/8" tricone
	33						
	34						
	35						35
	36			NS	NA	NA	Drive-6 5 7/8" tricone Cuttings collected from drilling mud
	37						
	38						
	39						
	40			NS			40 Drive-7 5 7/8" tricone

HTW DRILLING LOG (CONT.)

HOLE NO
MW-14D

PROJECT Schilling S-1

INSPECTOR Sierra Oradoff Sierra Oradoff

SHEET OF 13 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
	41	SAA SAND GRAYISH ORANGE (SP)		NS	NA	NA	Drive - 7 cont. 5 7/8" tricone
	42						
	43						
	44						
	45	45.0 SAND GRAYISH ORANGE TO ORANGE Trace fine gravel (SW)					45.0 Drive - 8' 5 7/8" tricone Cuttings collected from drilling mud rotary jump & slow down
	46						
	47			NS	NA	NA	
	48	48.0 Fat Clay Highly plastic (CH) GRAY (stuck to bottom of bit, this depth noted b/c sand slurry would've sloughed it off if higher depth.)					Fat clay highly plastic
	49						
	50						

HTW DRILLING LOG (CONT.)

HOLE NO.
MW-140

PROJECT Schilling S-1

INSPECTOR Sierra Orndoff Sierra Orndoff

SHEET 7
OF 13 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. j	BLOW COUNTS g	REMARKS h
	50.0	SAND, GRAYISH ORANGE Well sorted, fine grained SP					Drive - 9 5 7/8" tri-cone Cuttings collected from drilling mud
	51						52' hard spot
	52						
	53						
	54						
	55						55
	56						Drive - 10 5 7/8" tri-cone Cuttings collected from drilling mud
	57			NS	NA	NA	57' auger jump
	58						
	59						

HTW DRILLING LOG (CONT.)

HOLE NO
MW-14D

PROJECT **Schilling S-1**

INSPECTOR **Sierra Orndoff Sierra Orndoff**

SHEET **8**
OF **13** 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	
	59	<p>SAA SAND, GRAYISH ORANGE well sorted, fine-grained SP</p>					<p>Drive-10 Cont. 5 7/8" tricone 60</p>	
	60						<p>Drive-11 5 7/8" tricone Cuttings collected from drilling mud</p>	
	61				NS	NA	NA	
	62							
	63							
	64							
	65							65
	66				NS	NA	NA	<p>Drive-12 5 7/8" tricone Cuttings collected from drilling mud</p>
	67							
	68							

HTW DRILLING LOG (CONT.)

HOLE NO.
MW-140

PROJECT
Schilling S-1

INSPECTOR
Sierra Orndoff Jenna Orndoff

SHEET 9
OF 18 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
	68	SAA SAND, GRAYISH ORANGE well sorted, fine-grained SP					Drive - 12 cont 5 7/8" tricone
	69						70
	70						Drive - 13 5 7/8" tricone Cuttings collected from drilling mud
	71			NS	NA	NA	
	72						
	73						
	74						
	75						75
	76			NS	NA	NA	Drive - 14 5 7/8" tricone Cuttings collected from drilling
	77						hard layer (maybe thin sandstone layer)

HTW DRILLING LOG (CONT.)

HOLE NO.
MW-14D

PROJECT
Schilling S-1

INSPECTOR
S:elia orndorff Sierra Crockett

SHEET 10
OF 13 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
	77	SAA SAND, GRAYISH ORANGE well sorted, fine-grained (SP)					Drive-14 Cont. 5 7/8" tricone
	76						
	79						
	80						80
	81			NS	NA	NA	Drive-15 5 7/8" tricone Cuttings collected from drilling mud
	82						
	83						
	84						
	85	85.0 SAND with few SANDSTONE; formation change ↑ white, poorly cemented ORANGE, well sorted, fine-grained		NS			85
	86						Drive-16 5 7/8" tricone

HTW DRILLING LOG (CONT.)

HOLE NO
MW-140

PROJECT Schilling S-1

INSPECTOR Sierra Orndoff Sierra Orndoff

SHEET 11
OF 13 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
	86	SAA SAND with few SANDSTONE cuttings ↑ white that resemble rock		NS	NA	NA	Drive-16 Cont. 5 7/8" tricone
	87	ORANGE well sorted, fine-grained					
	88						
	89						
	90						90 Drive-17 5 7/8" tricone cuttings collected from drilling mud
	91						
	92			NS	NA	NA	
	93						
	94						

HTW DRILLING LOG (CONT.)

HOLE NO.
MW-140

PROJECT
Schilling S-1

INSPECTOR
Sierra Orosco Sara Orosco

SHEET 12
OF 13 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
	95	SANDSTONE PALE TAN, CRYSTALLINE TO COARSELY CRYSTALLINE (SS)	NS	NS	NA	NA	Drive - 18" 5 7/8" tri-cone cuttings collected from drilling mud
	96						drill slowed down
	97						
	98						
	99						
	100						100
	101			NS	NA	NA	Drive - 19" 5 7/8" tri-cone cuttings collected from drilling mud
	102						
	103	103.0 SHALE DARK BLuish GRAY (SH)					
	104						

HTW DRILLING LOG (CONT.)

HOLE NO
140

PROJECT
Schilling S-1

INSPECTOR
Sierra Orndoff Gene Orndoff

SHEET 13
OF 13 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
	104	SAA SHALE (SH) Dark Bluish Gray 105.0 (logged from cuttings)		NS	NA	NA	Drive - 19 Cont 5 7/8" tricone
	105	B.O.H = 105' Set monitoring well MW-140					BOH No Refusal reached target depth

Time	Temp. (°F)	pH	S. C. ($\mu\text{S}/\text{cm}$)	Turbidity (NTU)	Remarks	1410	
10:00	65.12	7.15	235	75.5	gray, cloudy,		
10:15	65.02	7.27	237	43.5	mostly clear		
10:18	END					mostly clear	