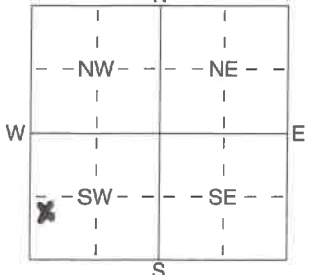


DG4

1 LOCATION OF WATER WELL: Fraction NW 1/4 SW 1/4 SW 1/4 Section Number 20 Township Number T 13 S Range Number R 22 E/W
 County: Johnson

Distance and direction from nearest town or city street address of well if located within city?
Sunflower Army Ammunition Plant southwest of De Soto

2 WATER WELL OWNER: KOCH SULFUR PRODUCTS
 RR#, St. Address, Box #: 4111 E. 37th Street North Board of Agriculture, Division of Water Resources
 City, State, ZIP Code: Wichita, KS 67220 Application Number:

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

 4 DEPTH OF COMPLETED WELL 155.9 ft. ELEVATION:
 Depth(s) Groundwater Encountered 1 ft. 2 ft. 3 ft.
 WELL'S STATIC WATER LEVEL 67.62 ft. below land surface measured on mo/day/yr 5-14-04
 Pump test data: Well water was ft. after hours pumping gpm
 Est. Yield gpm: Well water was ft. after hours pumping gpm
 WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
 2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well
 Was a chemical/bacteriological sample submitted to Department? Yes No X; 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 6 Asbestos-Cement 9 Other (specify below) Welded
 Threaded ✓
 Blank casing diameter 2 in. to 149.0 ft. Dia in. to ft. Dia in. to ft.
 Casing height above land surface 32 in., weight lbs./ft. Wall thickness or gauge No. Sch 40
 TYPE OF SCREEN OR PERFORATION MATERIAL:
 1 Steel 3 Stainless Steel 5 Fiberglass 7 PVC 10 Asbestos-Cement
 2 Brass 4 Galvanized Steel 6 Concrete tile 8 RMP (SR) 11 Other (Specify)
 9 ABS 12 None used (open hole)
 SCREEN OR PERFORATION OPENINGS ARE:
 1 Continuous slot 3 Mill slot 010 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) ft.
 SCREEN-PERFORATED INTERVALS: From 144.0 ft. to 155.9 ft. From ft. to ft.
 From ft. to ft. From ft. to ft.
 GRAVEL PACK INTERVALS: From 142 ft. to 155.9 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 15 ft. to 136 ft. From 136 ft. to 142 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)
Water runoff
 Direction from well? North How many feet? 15

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
			0	15	Cement pad
			15	136	Neat cement
			136	142	Bentonite chips
			142	155.9	10/20 Sand

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) 4/21/04 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 2665 This Water Well Record was completed on (mo/day/yr) 5/13/04 under the business name of Datt Well Environmental by (signature) Steve Egan

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, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of \$5.00 for each constructed well.

MONITORING WELL CONSTRUCTION

Project:	Koch - DeSoto, Kansas	Well Number:	DG-4
Location:	Sunflower Army Ammunition Plant, South Acid Area	Site Location:	West Side of South Acid Area
Client:	Koch Industries	Installation Date:	4/21/04
Subcontractor:	Pratt Well Drilling	Northing:	
Driller:	Mac McCaskey	Easting:	
Shaw Field Representative:	Rick Ellis	NAD:	NGVD:

Protective Cover Elevation (ft):

Top of Casing Elv. (ft):	
Top of Casing Stickup (ft):	2.67 ft. (32")
Land Surface Elv. (ft):	

Approximate Diameter of Borehole (in): 6 1/2"

Well Casing Diameter (in): 2 in.

(Depth to water not quantified. None seen during drilling. But water could be heard seeping into well before grouting)

Depth to Water (ft):		
During Drilling:	Near Surface	▽
Date:		
Post Development:	67.62 ft TOC	
Date:	5/14/04	

Top of Bentonite Seal (ft): 136 ft.

Top of Filler Pack (ft): 142 ft.

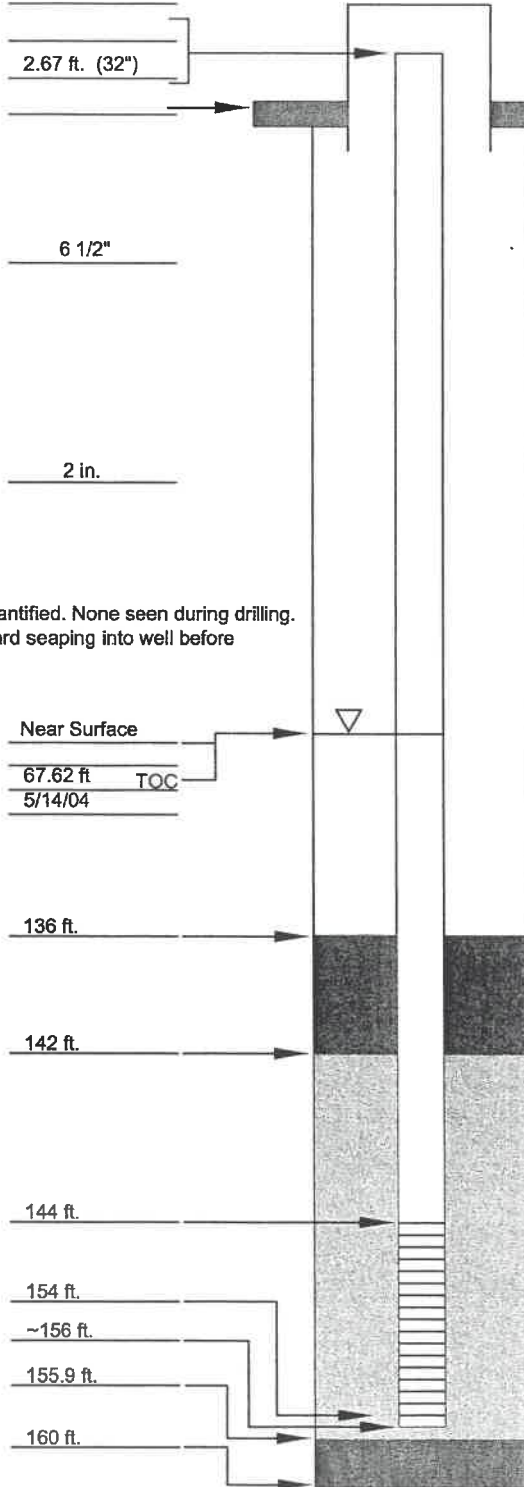
Top of Screen Interval (ft): 144 ft.

Bottom of Screen Interval (ft): 154 ft.

Bottom of Well (ft): ~156 ft.

Bottom of Filler Pack (ft): 155.9 ft.

Bottom of Borehole (ft): 160 ft.



Protective Casing:	
Type:	Steel
Dimensions (in):	4" x 4"
Length (ft):	5 ft.
Guard Post:	None

Ground Seal (Surface Pad):	
Dimensions:	2' x 2'
Type:	Concrete

Annular Space Seal:	
Type:	Bentonite-Cement Grout
Installation:	Gravity <u>Tremie</u> Pumped
	5 Bags Monarch Standard Type I Portland 1/2 Bags Quik-GROUT Bentonite 40 Gallons Water
Bentonite Seal:	

Manufacturer:	Baroid
Type:	Pellets <u>Holeplug</u> Slurry
Installation:	6-in lifts One Section <u>Gravity</u> Tremie Pumped
Hydration time (hrs):	Self Hydration (>2hrs) (Water in Hole)

Filler Pack Material:	
Manufacturer:	Oglebay-Norton
Product Name:	Colorado Silica Sand
Size:	10/20
Volume Added (ft ³):	6 Bags (~3ft ³)
Installation:	<u>Gravity</u> Tremie

Well Casing:	
Manufacturer:	Eagle (Titan Industries)
Type:	Sch. 40 PVC
Diameter (in):	2"

Well Screening Casing:	
Manufacturer:	Eagle (Titan Industries)
Type:	Sch. 40 PVC
Slot Size (in):	0.010 % Open 2.37
Slot Type:	Continuous <u>Factory slot</u> wrap

Sump/ End Cap:	~3"
Backfill Material:	Fallback (0.1 ft)



Fall Back

NOT TO SCALE



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas	
BORING NUMBER:	DG-4	COORDINATES:	DATE: 4/20/04	
ELEVATION:		GWL: Depth ^{67.62 ft} _{Broc}	Date 5/14/04	DATE STARTED: 4/20/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth	Date	DATE COMPLETED: 4/21/04
DRILLING METHODS:	Air Rotary w/ 6 1/4" Tricone Bit			PAGE: 1 OF 7

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
0	Topsoil, brown w/ grass @ surface	Started drilling at 13:45
1		
2		Water blew out crawdad hole
3		
4		Possible shale encountered, soft
5	Brown ,silty clay, plastic, moist,occasional piece of shale or limestone	
6		
7		
8		
9		
10		Water @ approx 10ft Below grade
11		
12		
13		14:15 rig started to overheat & lost antifreeze shut rig down
14	Limestone @ 13.5ft., gray, silty	
15		14:55 rig started back up
16	Shale,very soft,gray	
17		
18		
19		
20		
21	Limestone, gray, silty, hard	
22		
23		More shale @ approx. 23ft To 24ft
24		
25	Brachiopod fossil @ approx. 25ft	

Drilling Contractor: Pratt Well Service
 Drilling Equipment: Failing SD300 w/air
 Driller: Mac McCaskey

Note:

- 1) This is a reinstatement of an abandoned well
- 2) Well located NW of South acid Area and East of the road.



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas	
BORING NUMBER:	DG-4	COORDINATES:	DATE: 4/20/04	
ELEVATION:		GWL: Depth	67.62 ft BROC	Date 5/14/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth	Date	DATE COMPLETED: 4/21/04
DRILLING METHODS:	Air Rotary w/ Tricone Bit			PAGE: 2 OF 7

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
25 — 26 — 27 — 28 — 29 — 30 — 31 — 32 — 33 — 34 — 35 — 36 — 37 — 38 — 39 — 40 — 41 — 42 — 43 — 44 — 45 — 46 — 47 — 48 — 49 — 50 —	— Brachiopod fossil @ approx. 25ft — Alternating limestone & shale, gray — Limestone & shale, gray, moist (see note) — Limestone, white, hard — Shale, alternating w/ some limestone, gray, soft	15:45 reached 30ft BG Some moist, balled gray clay, cuttings came up. 14:07 @ 40ft BG (rock chips approx. 1/8" dia., smaller taken before) 16:15 @47ft BG

Note:

1) this is a reinstallation of an abandoned well

Drilling Contractor: Pratt Well Service
 Drilling Equipment: Failing SD300 w/air
 Driller: Mac McCaskey



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas	
BORING NUMBER:	DG-4	COORDINATES:	DATE:	4/20/04
ELEVATION:		GWL: Depth	67.62 ft BROC	Date 5/14/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth	Date	DATE COMPLETED: 4/21/04
DRILLING METHODS:	Air Rotary w/ Tricone Bit		PAGE:	3 OF 7

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
50		
51		
52		Ended day @ 52ft BG
53		
54		Began drilling on 4/21/04 @ 08:45. Reamed hole from yestrday, which was only 6 1/4" dia. w/ 6 1/2" hammer bit.
55		
56		
57	Cuttings mostly powder but very light- interpreted to be limestone	
58		
59		
60	Predom, limestone; light gray	61ft @ 09:19
61		
62		
63		
64		
65		
66		
67		
68		
69		
70	Shale, gray	70ft @ 09:23
71		
72		
73		
74		
75	Predom. limestone; cuttings larger, approx. 3/8" dia.	75ft @ 09:25

Note:

1) this is a reinstatement of an abandoned well

Drilling Contractor: Pratt Well Service
 Drilling Equipment: Failing SD300 w/air
 Driller: Mac McCaskey



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas	
BORING NUMBER:	DG-4	COORDINATES:	DATE: 4/21/04	
ELEVATION:		GWL: Depth	67.62 ft BROC	Date 5/14/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth	DATE COMPLETED: 4/21/04	
DRILLING METHODS:	Air Hammer w/ 6 1/2" Bit		PAGE: 4 OF 7	

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
75	Predom. limestone; cuttings larger (approx. 3/8" dia.)	75ft @ 09:25
76		
77		
78		
79		
80	Limestone, as above, gray	80ft @ 09:28
81		
82		
83		
84		
85	Limestone, gray, cuttings still larger (approx. 1/2" dia.)	Took approx. 8 min. break @ 09:30 - 09:38
86		
87		
88		
89		
90	Limestone, light gray	90ft @ 09:45
91		
92		
93		
94		
95	Limestone, light gray, micritic, homogeneous, unweathered, some small (approx. 1/16" dia.) calcite crystals, dry	
96		
97		
98		
99		
100	Limestone, light gray, micritic, homogeneous, unweathered, some small (approx. 1/16" dia.) calcite crystals, dry	100ft @ 09:50, reamed hole, drillers began to use 1/2 half face respiration because of dust from drilling

Note:

1) this is a reinstallation of an abandoned well

Drilling Contractor: Pratt Well Service
 Drilling Equipment: Failing SD300 w/ air
 Driller: Mac McCaskey



Shaw® SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER: 103353	PROJECT NAME: KOCH INDUSTRIES DeSoto, Kansas		
BORING NUMBER: DG-4	COORDINATES:	DATE: 4/21/04	
ELEVATION:	GWL: Depth ^{67.62 ft} BROC Date 5/14/04	DATE STARTED: 4/20/04	
ENGINEER/GEOLOGIST: Rick Ellis	Depth	Date	DATE COMPLETED: 4/21/04
DRILLING METHODS: Air Hammer w/ 6 1/2" Bit	PAGE: 5 OF 7		

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
100	Limestone, light gray, micritic, homogeneous, unweathered, some small (approx. 1/16" dia.) calcite crystals, dry	100ft @ 09:50, reamed hole, drillers began to use 1/2 half face respiration because of dust from drilling
101		
102		
103		
104		
105		
106		
107		
108		
109		
110		
111		
112		
113		
114		
115	Limestone, light gray, micritic, homogeneous, unweathered, some small (approx. 1/16" dia.) calcite crystals, dry	
116	Limestone, occasional shaley, stringers / beds, light to dark gray	
117		
118		
119		
120		
121		
122	Limestone w/ some shale layers, gray, dry	
123		
124		
125		
		120ft @ 10:07 Started drilling @ 10:26
		125ft @ 10:28

Note:

1) This is a reinstallation of an abandoned well

Drilling Contractor: Pratt Well Service
Drilling Equipment: Failing SD300 w/ air
Driller: Mac McCaskey



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER: 103353	PROJECT NAME: KOCH INDUSTRIES DeSoto, Kansas		
BORING NUMBER: DG-4	COORDINATES:	DATE: 4/21/04	
ELEVATION:	GWL: Depth ^{67.62 ft} BROCC	Date 5/14/04	DATE STARTED: 4/20/04
ENGINEER/GEOLOGIST: Rick Ellis	Depth	Date	DATE COMPLETED: 4/21/04
DRILLING METHODS: Air Hammer w/ 6 1/2" Bit	PAGE: 6 OF 7		

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
125	Limestone w/ some shale layers, gray ,dry	Started drilling @ 10:26 125 ft @ 10:28 on 4/21/04
126		
127		
128		
129		
130	As above but more shale	130ft @ 10:30
131		
132		
133		
134		
135	Shale, gray to dark gray, friable, dry	135ft @ 10:32
136		
137		
138		
139		
140	Shale, as above	140ft @ 10:34
141		
142		
143		
144		
145	Shale, as above	
146		
147		
148		
149		
150	Shale, gray to dark gray, friable, dry	150ft @ 10:44

Note:

1) this is a reinstallation of an abandoned well

Drilling Contractor: Pratt Well Service
 Drilling Equipment: Failing SD300 w/ air
 Driller: Mac McCaskey



Shaw® SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER: 103353	PROJECT NAME: KOCH INDUSTRIES DeSoto, Kansas		
BORING NUMBER: DG-4	COORDINATES:	DATE: 4/21/04	
ELEVATION:	GWL: Depth ^{67.62 ft} BROC	Date 5/14/04	DATE STARTED: 4/20/04
ENGINEER/GEOLOGIST: Rick Ellis	Depth	Date	DATE COMPLETED: 4/21/04
DRILLING METHODS: Air Hammer w/ 6 1/2" Bit	PAGE: 7 OF 7		

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
150	Shale, gray to dark gray, friable, dry	150 ft @ 10:44
151		
152		
153		
154		
155	Limestone, light gray to gray, few chips mostly powder, dry	155 ft @ 10:48 Decided to drill to 160ft for a "rat hole"
156		
157		
158		
159		
160	TD = 160ft	Holeplug seal: 138ft - 143ft Sand pack: 143ft - 156ft 9in Screen: 145ft - 155ft Fall back into rat hole from 156ft, 9in to 160ft

Drilling Contractor: Pratt Well Service
 Drilling Equipment: Failing SD300 w/ air
 Driller: Mac McCaskey

Note:
 1) this a reinstallation of an abandoned well