

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answer. 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-3
Location:	Sunflower Army Ammunition Plant, South Acid Area	Site Location:	SW of Former Koch Facility
Client:	Koch Industries	Installation Date:	4/28/04 & 4/29/04
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):

Land Surface Elv. (ft):

Approximate Diameter of Borehole (in):

10 3/4" to ~21' / 6 1/2" ~21' TO 99'

Well Casing Diameter (in):

2 in

Depth to Water (ft):

During Drilling:

Date:

Post Development:

Date:

~20 ft. During First Attempt
(in Abandoned hole)

4/27/04

99.72 ft *TQC

5/07/04

* Well is "dry"

Top of Bentonite Seal (ft):

80 ft

Top of Filler Pack (ft):

85 ft

Top of Screen Interval (ft):

86.9 ft

Bottom of Screen Interval (ft):

96.9 ft

Bottom of Well (ft):

97.4 ft

Bottom of Filler Pack (ft):

98.8 ft

Bottom of Borehole (ft):

99 ft.

Protective Casing:

Type:

Steel

Dimensions (in):

2" x 2"

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

Tremie

Pumped

10 Bags Monarch Standard Type I Portland
1 Bags Quik-Grout Bentonite
60 Gallons Water

Bentonite Seal:

Manufacturer:

Baroid

Type:

Pellets

Holeplug

Slurry

Installation:

6-in lifts

2 Bags

One Section

Gravity

Tremie

Pumped

Hydration time (hrs):

4

Filler Pack Material:

Manufacturer:

Oglebay-Norton

Product Name:

Colorado Silica

Size:

10/20

Volume Added (ft³):

~3.4 ft³, 6 Bags

Installation:

Gravity

Tremie

Well Casing:

Manufacturer:

EMI, Manhattan, KS.

Type:

Sch. 40 PVC

Diameter (in):

2"

Well Screening Casing:

Manufacturer:

EMI, Manhattan, KS.

Type:

Sch. 40 PVC

Slot Size (in):

0.010 % Open

Slot Type:

Continuous

Factory slot

Cone

wrap

Sump/End Cap

0.5'

Backfill Material:

Fall Back (0.2')

Note that this was the 2nd attempt.

Grout was in the screened interval of first attempt, so it was abandoned. It was ~ 15' to the North.



NOT TO SCALE



BORING LOGS

SHAW Environmental, Inc.

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas
BORING NUMBER:	DG-3	COORDINATES:	DATE: 4/28/04
ELEVATION:		GWL: Depth 99.72 ft BTOC (dry) Date 5/07/04	DATE STARTED: 4/28/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth Date	DATE COMPLETED: 4/29/04
DRILLING METHODS:	Air Rotary for Upper 21ft. & Air Hammer in Bedrock (10 1/2" for Surface) & (6 1/2" for Rock)		PAGE: 1 OF 4

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
0 1 — 2 — 3 — 4 — 5 6 — 7 — 8 — 9 — 10 11 — 12 — 13 — 14 — 15 16 — 17 — 18 — 19 — 20 21 — 22 — 23 — 24 — 25	Silty clay w/sand & gravel, top soil & fill, fill consists of some bricks & occasional sulfur chunks, slightly moist Clay, some silt & sand, plastic very dark gray brown to black (organic) w/some brown layering, plastic, moist Sandy clay, some silt, light brown, slightly moist to moist, non-plastic Sandy clay, some silt, brown, slightly moist to moist Shale bedrock @ approx. 21ft. (continued remainder of borehole w/air hammer bit. See rock log)	Started at 10:40 on 4/28/04 Rig down at 11:10, air not working properly Began again at 12:00 pm No Odor PID =0.0 ppm in breathing zone Note: Put 8" casing from approx. 2ft BG to approx. 18.5ft BG (below grade) to prevent clays from plugging borehole. About 4ft of the 20ft PVC pipe broke at surface in the process.

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

Note:

- 1) On 4/28/04 we had to reinstall DG-3 because grout was in the well. We redrilled to 21ft., set 8" surface casing to 18.5ft., continued drilling to TD on 4/29/04
- 2) A borehole was drilled, installed, then abandoned approx. 15ft N-NW of current hole.



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas
BORING NUMBER:	DG-3	COORDINATES:	DATE: 4/27/04 (orig. hole)
ELEVATION:		GWL: Depth ^{99.72ft} BTOC (dry) Date 5/07/04	DATE STARTED: 4/28/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth Date	DATE COMPLETED: 4/29/04
DRILLING METHODS:	Air Hammer w/ 6 1/2" for Rock		PAGE: 2 OF 4

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 —	Shale , gray, dry; dry to slightly moist (From 21ft To 27ft) Shale, gray w/ some limestone, slightly moist Limestone & shale, gray, moist (see note) Shaley limestone, gray, slightly moist to dry Shale, trace limestone, gray, dry Limestone, gray, hard (large angular cuttings)	Rocks described using cuttings collected every 5ft. Some moist, balled gray clay cuttings came up. Cuttings mostly powder

Note:

1) On 4/28/04 we had to reinstall DG-3 because grout was in the well. We redrilled to 21ft, set 8" surface casing to 18.5ft., continued drilling To TD on 4/29/04.

2) Times & depths are for original hole. I did not collect cuttings for second hole, so these are from 4/27/04.

Drilling Contractor: Pratt Well ServiceDrilling Equipment: Failing SD300 w/airDriller: Mac McCaskey



SHAW Environmental, Inc.

BORING LOGS

PROJECT NUMBER:	103353	PROJECT NAME:	KOCH INDUSTRIES DeSoto, Kansas	
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ELEVATION:		GWL: Depth ^{99.72ft} BTOC (dry)	Date	5/07/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth	Date	DATE COMPLETED: 4/29/04
DRILLING METHODS:	Air Hammer w/ 6 1/2" for Rock			PAGE: 3 OF 4

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
50	Limestone, gray, hard (large angular cuttings)	
51		
52		
53		
54		
55	Limestone, light gray, dry	
56		
57		
58		
59		
60	Limestone, gray & brown, dry, trace "micro" fossils	
61		
62		
63		
64		
65	Silty limestone, gray to dark gray, dry	
66		
67		
68		
69		
70	Limestone, light gray, dry	
71		
72		
73		
74		
75	Limestone, light brownish gray, dry	

Note:

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ELEVATION:		GWL: Depth ^{99.72ft} BTOC (dry) Date 5/07/04	DATE STARTED: 4/28/04
ENGINEER/GEOLOGIST:	Rick Ellis	Depth Date	DATE COMPLETED: 4/29/04
DRILLING METHODS:	Air Hammer w/ 6 1/2" for Rock		PAGE: 4 OF 4

DEPTH (FT)	LITHOLOGIC DESCRIPTION	REMARKS
75 —	Limestone, light brownish gray, dry	
76 —		
77 —		
78 —		
79 —		
80 —	Limestone & shale, gray, dry	
81 —		
82 —		
83 —		
84 —		
85 —	Shale, gray to dark gray, dry	
86 —		
87 —		
88 —		
89 —		
90 —	Limestone & some shale, gray, dry	Cuttings mostly powder
91 —		
92 —		
93 —		
94 —		
95 —	Limestone, trace shale, fossiliferous (shell hash), gray to brownish gray, dry	
96 —		
97 —		
98 —		
99 —	Limestone trace shale, gray, dry (original hole TD=100ft) TD=99ft.	TD for 2nd hole @ 11:30 on 4/29/04

Note:

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