LOG OF BORING WS31

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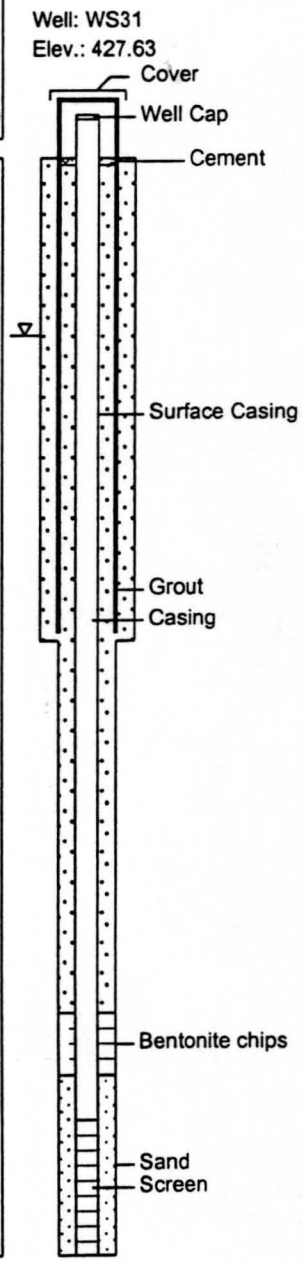
Combustion Engineering
Missouri State Route P
Hematite, Missouri

Logged By: Kerry L. Nikolaisen, RG

Date Started	: 10/12/98
Date Completed	: 10/13/98
Hole Diameter	: 8 1/4"
Drilling Method	: Air Rotary
Driller	: REDI
Sampling Method	: Cuttings

Water Levels
▼ During Drilling
▽ After Completion (prior to development)

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Samples	% Rec-overy	PID (ppm)	Net CPM (0.5 min)
0	CL		SILTY CLAY, moderate yellowish-brown.				
5							
10							
15							
20							
25	GP		GRAVEL, clayey, silty, sandy. Poorly-graded, saturated, rounded and subangular.				
30	DO		DOLOMITE, tan gray				
35			loss of water				
40							
45			cherty gray				
50							
55							
60							
65			light gray, hard				
70			tan, shaly				
75			cherty beige				
80			coarse				
85			Boring terminated @ 81.3 feet bgs				



Well Construction Information

WELL CONSTRUCTION
Date Compl: 10/13/98
Hole Diam. : 8 1/4 in.
Drill. Method Air Rotary

WELL CASING
Material : PVC
Diameter : 2 in.
Joints : threaded

WELL SCREEN
Material : PVC
Diameter : 2 in.
Joints : threaded
Opening : .010 slot

NOTES
(PP) Pocket Penetrometer

(CPM) Counts per minute

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Westinghouse Electric Company
Hematite Facility

Well Inspection Report

Well Number:	Date Installed:	Project Number:
WS-32	9/30/1998	SAHEM00136
Coordinates (MO State Plane NAD83): Northing/Easting		**Elevation (TOC):**
Not Available	Not Available	436.11
Total Depth (feet BTOC):	**Riser Height (feet above grade):**	**Water Level (feet BTOC):**
38.78	2.91	24.64
Well Construction Material:	**Well Casing Diameter (inches):**	**Screen Length (feet):**
PVC	2	5.0
Hydrostratigraphic Zone:	**Inspected By:**	**Date Inspected:**
DSCC/Unconsolidated	R. Tubbs	8/19/2004

Visual Observations:

- Well condition noted as good
- Protective outer casing constructed of 4 inch square steel – rusted
- Well pad construction – 2 ft X 2 ft concrete
- Three guard posts in place
- Water-tight cap in place with dedicated bailer
- Well needs numbering/labeling
- Rehabilitation not required

LOG OF BORING WS32

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Combustion Engineering
Missouri State Route P
Hematite, Missouri

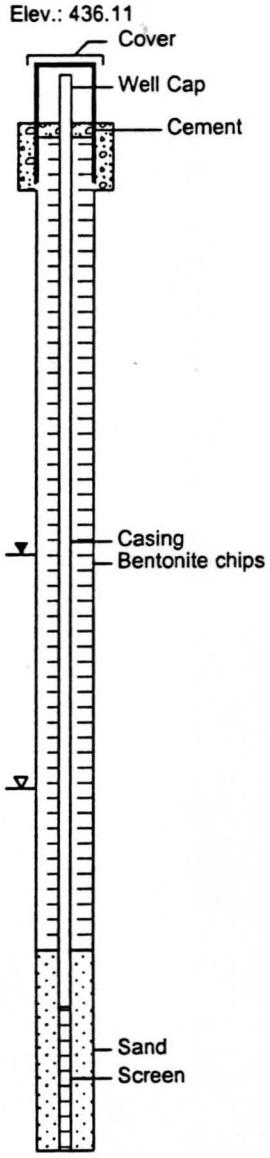
Logged By: Kerry L. Nikolaisen, RG

Date Started	: 09/28/98
Date Completed	: 09/30/98
Hole Diameter	: 8 5/8"
Drilling Method	: Hollow Stem Auger
Driller	: REDI
Sampling Method	: 5' Split-Spoon Sampler

Water Levels
▼ During Drilling
▽ After Completion (prior to development)

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Samples	% Rec-overy	PID (ppm)	Net CPM (0.5 min)
0			SILT,SILTY-CLAY, friable, moist dark yellow brown. More clay and finer w/ depth. Limonite staining and gray mottles.	1	90	0.0	50
5			moist to wet, alternating layers of soft to slightly firm, slightly plastic. Black mottles and limonite staining apparent.	2	95	0.0	18
10				3	95	0.0	38
15	ML/CL		saturated, pale yellow/ brown, soft.	4	95	0.0	24
20			olive gray/ brown, slightly firm, slightly plastic, w/limonite staining.	5	95	0.0	8
25			sandy lens				
			saturated, olive/ gray, very soft, sticky, slightly plastic.	6	90	0.1	12
30	CL/SM		SILTY, SANDY CLAYEY/SILTY, CLAYEY SAND, saturated alternating layers.	7	90	7.8	2
35	SP/GP		SAND/SANDY GRAVEL, chert and dolomite fragments, rounded to subangular.	8	2	0.0	
40			AUGER REFUSAL @ 35.8 feet bgs				

Well: WS32
Elev.: 436.11



Well Construction Information

WELL CONSTRUCTION

Date Compl.	9/30/98
Hole Diam.	8 5/8 in.
Drill. Method	HSA

WELL CASING

Material	: PVC
Diameter	: 2in.
Joints	: threaded

WELL SCREEN

Material	: PVC
Diameter	: 2 in.
Joints	: threaded
Opening	: .010 slot

NOTES

(PP) Pocket Penetrometer

(CPM) Counts per minute

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Westinghouse Electric Company
Hematite Facility

Well Inspection Report

Well Number:	Date Installed:	Project Number:
WS-34	9/21/1998	SAHEM00136
Coordinates (MO State Plane NAD83): Northing/Easting		**Elevation (TOC):**
Not Available	Not Available	436.96
Total Depth (feet BTOC):	**Riser Height (feet above grade):**	**Water Level (feet BTOC):**
37.80	2.75	25.40
Well Construction Material:	**Well Casing Diameter (inches):**	**Screen Length (feet):**
PVC	2	10.0
Hydrostratigraphic Zone:	**Inspected By:**	**Date Inspected:**
DSCC/Unconsolidated	R. Tubbs	8/10/2004

Visual Observations:

- Well condition noted as good
- Protective outer casing constructed of 4 inch square steel - rusted
- Well pad construction – 2 ft X 2 ft concrete
- Six guard posts in place
- Water-tight cap in place with dedicated bailer
- Well needs numbering/labeling
- Rehabilitation not required

LOG OF BORING WS-34

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Combustion Engineering
Missouri State Route P
Hematite, Missouri

Logged By: Kerry L. Nikolaisen, RG

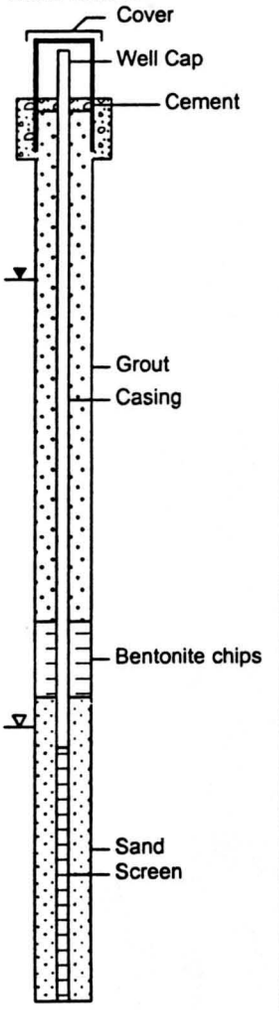
Date Started	: 09/21/98
Date Completed	: 09/21/98
Hole Diameter	: 8 5/8"
Drilling Method	: Hollow Stem Auger
Driller	: REDI
Sampling Method	: 5' Split-Spoon Sampler

Water Levels
▼ During Drilling
▽ After Completion (prior to development)

Depth in Feet	USCS	DESCRIPTION	Samples	% Recovery	PID (ppm)	Net CPM (0.5 min)
0	ML	SILT/CLAYEY-SILT, moist moderate brown. Firm but friable. fragipan, gray, brown/light brown. Trace angular dolomite fragments. More clay w/ depth.	1	80	0.0	35
			2	80	0.4	32
5	ML/CL	CLAYEY-SILT/SILTY CLAY, moist to wet, slightly firm to firm, moderate yellow brown, black mottles. Becomes wetter and softer w/depth.	3	96	0.0	39
			4	96	0.0	21
10		saturated, very soft.	5	80	0.0	28
15		gray, finer	6	96	0.4	22
		firm	7	96	0.3	34
20	CH	CLAY, fat, plastic, very firm/stiff. Gray/brown to light gray/blue, limonite staining and black mottles increase w/depth (PP 2.0-2.5).	8	100	0.3	38
25	CL	CLAY, sandy, silty. Wet to saturated, medium, gray, becoming more silty w/ depth, firm to slightly firm and softer w/ depth (PP 1.0).	9	50	0.2	29
30	ML	SANDY-SILT, saturated, very soft, medium-gray.	10	50	0.5	13
35	SP/GP	SANDY SILT/SANDY GRAVEL, poorly graded gravel, fine to coarse dolomite/chert fragments. Rounded-sub-angular-loose.	11	16	0.0	19
40						
45						

AUGER REFUSAL @ 35.6 feet bgs

Well: WS-34
Elev.: 436.96



Well Construction Information

WELL CONSTRUCTION
Date Compl: 9/21/98
Hole Diam. : 8 5/8 in.
Drill. Method HSA

WELL CASING
Material : PVC
Diameter : 2 in.
Joints : threaded

WELL SCREEN
Material : PVC
Diameter : 2 in.
Joints : threaded
Opening : .010 slot

NOTES
(PP) Pocket Penetrometer

(CPM) Counts per minute

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