

A-A'

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Geraghty & Miller, Inc.

WELL LOG

Well No.: H-42

Date Completed: 2/22/80

Project: Stauffer Chemical Company

Location: Henderson, Nevada

Description

Depth Below  
Land Surface  
(feet)

Sand, silty to clayey, grayish-brown very fine to very coarse (poorly sorted) and gravel, pebbles, cobbles and boulders rounded to subangular; also with layers of caliche and caliche-cemented sand and gravel.

0 - 44

Note: caliche layer 42.5-44; organic odor in mud at 41'

Clay, silty, to silt, clayey, light brown with traces of sand and gravel in matrix also with occasional thin layers of sand reworked caliche, and caliche (Muddy Creek Formation).

44 - 55

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Geraghty & Miller, Inc.

WELL LOG

Well No.: H-42

Date Completed: 2-22-80

Project: Stauffer Chemical Company

Location: Henderson, Nevada

Split Spoon Samples

Description

Depth Below  
Land Surface  
(feet)

30-31-32 blows/6"  
light brown clayey silt; organic odor

44.0 - 45.1

light brown clayey silt, with occasional  
caliche gravel; slight organic odor  
55.0-56.1; no organic odor 56.1-56.5

55.0 - 56.5

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Geraghty & Miller, Inc.

WELL LOG

Well No.: H-46

Date Completed: 3/29/80

Project: Stauffer Chemical Company

Location: Henderson, Nevada

Description

Depth Below  
Land Surface  
(feet)

Sand, silty to clayey, grayish-brown very fine to very coarse (poorly sorted and gravel, pebbles, cobbles and boulders rounded to subangular; also with layers of caliche and caliche-cemented sand and gravel.  
Note: organic odor in cuttings at 41'

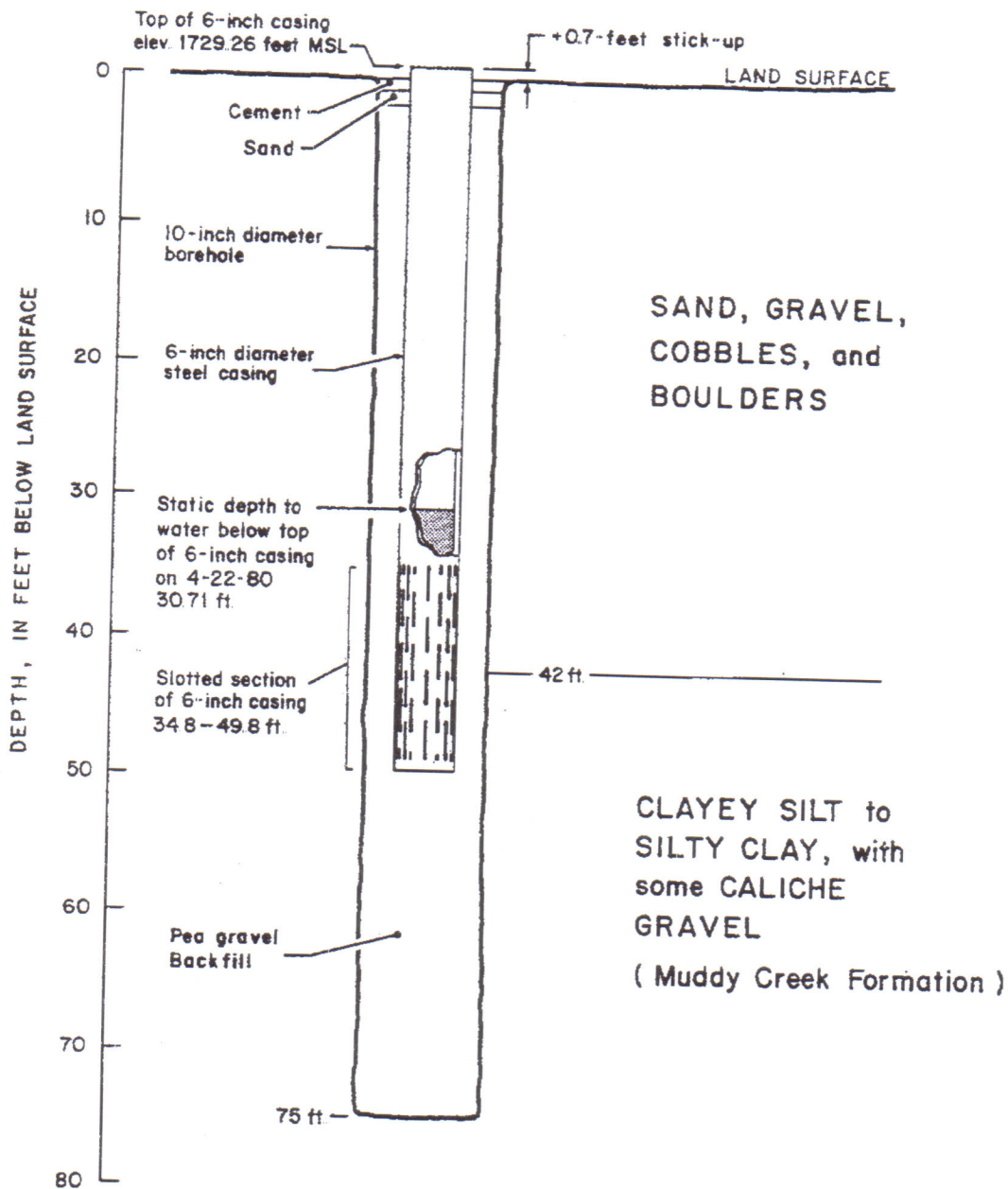
0 - 42

Clay, silty, to silt, clayey, light brown with traces of sand and gravel in matrix also with occasional thin layers of sand reworked caliche, and caliche (Muddy Creek Formation)

42 - 51



# WELL H-19



TITLE

## CONSTRUCTION DETAILS AND STRATIGRAPHY OF MONITOR WELL H-19

PREPARED FOR

STAUFFER CHEMICAL COMPANY  
Henderson Nevada

Geraghty  
& Miller, Inc.

COMPILED BY

M. WARFEL

PREPARED BY

PROJECT NO.

JOHN ISBISTER

SCALE  
SHOWN

DATE

JULY 1980

FIGURE No.



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Geraghty & Miller, Inc.

WELL LOG

Well No.: H-43

Date Completed: 2/27/80

Project: Stauffer Chemical Company

Location: Henderson, Nevada

Description

Depth Below  
Land Surface  
(feet)

Sand, silty to clayey, grayish-brown very fine to very coarse (poorly sorted and gravel, pebbles, cobbles and boulders rounded to subangular; also with layers of caliche and caliche-cemented sand and gravel

0 - 45.5

Note: caliche layer 43'-45'; organic odor in mud at 45'

Clay, silty, to silt, clayey, light brown with traces of sand and gravel in matrix also with occasional thin layers of sand reworked caliche, and caliche (Muddy Creek Formation)

45.5 - 55

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Geraghty & Miller, Inc.

WELL LOG

Well No.: H-43

Date Completed: 2/27/80

Project: Stauffer Chemical Company

Location: Henderson, Nevada

Split Spoon Samples

Description

Depth Below  
Land Surface  
(feet)

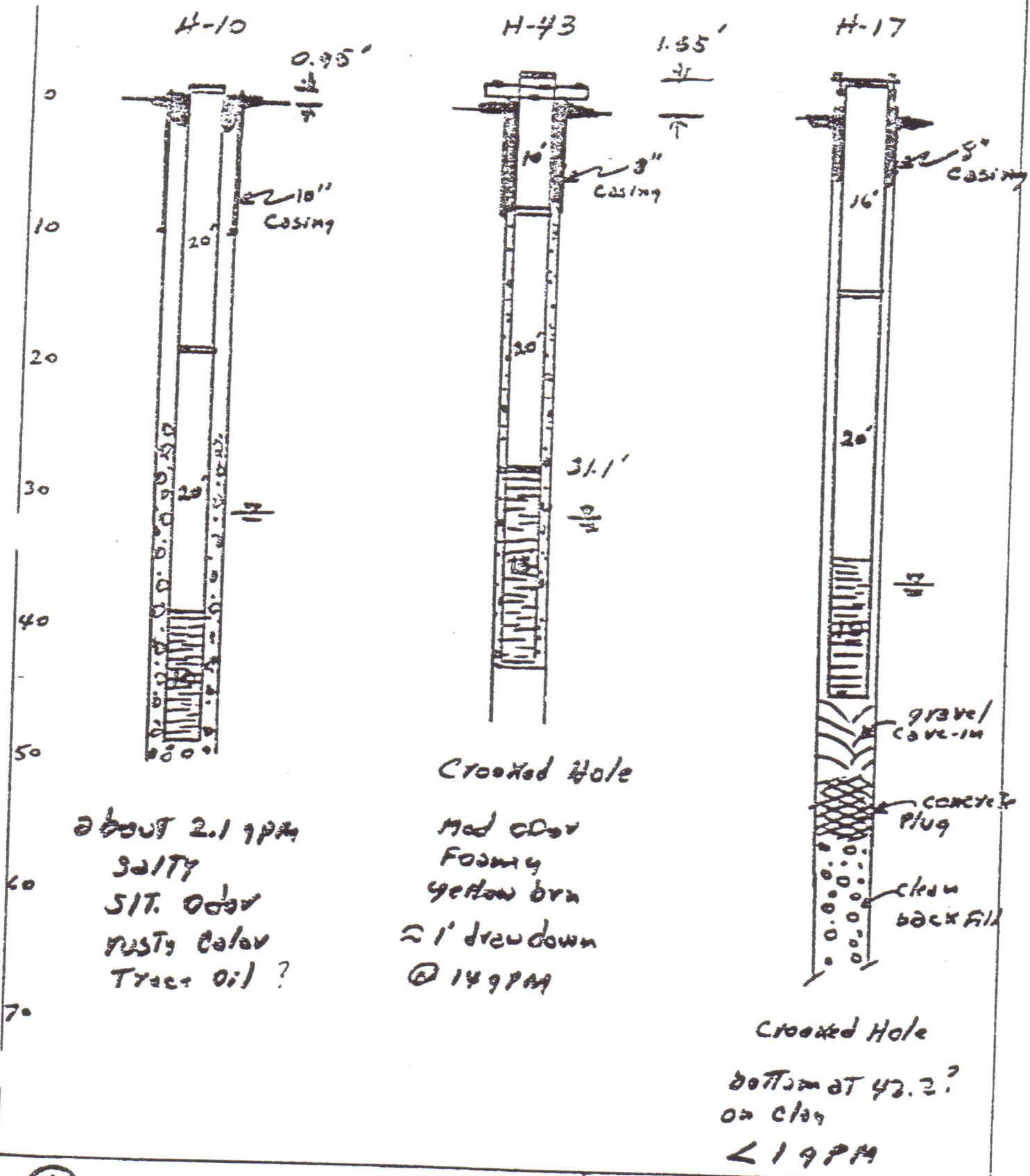
10-10-12 blows/6"  
light brown silty clay, with occasional  
caliche fragments; organic odor

46.0 - 47.3

7-8-9 blows/6"  
light brown silty clay to clayey silt, with  
occasional caliche fragments; thin layer  
of reworked caliche at 55.0'; no organic  
odor

55.0 - 56.6







# Log of Boring No. BW-5B

## BMI Landfill CAMU Investigation

### Henderson, Nevada



Drilling Method: Rotary Sonic  
 Drilling Equipment: GEFCO  
 Drilling Contractor: Water Development Corporation  
 Driller: Mike Wilkerson

Northing: 26721183.830  
 Easting: 825065.410  
 TOC Elevation (ft. msl): 1729.209  
 Borehole Total Depth: 200 ft bgs  
 Borehole Diameter: 7 5/8" O.D. Casing / 7 7/8" O.D. Bit  
 Well ID: GW-AA-BW-05A  
 Depth to Water (ft. bgs): 40 ft bgs

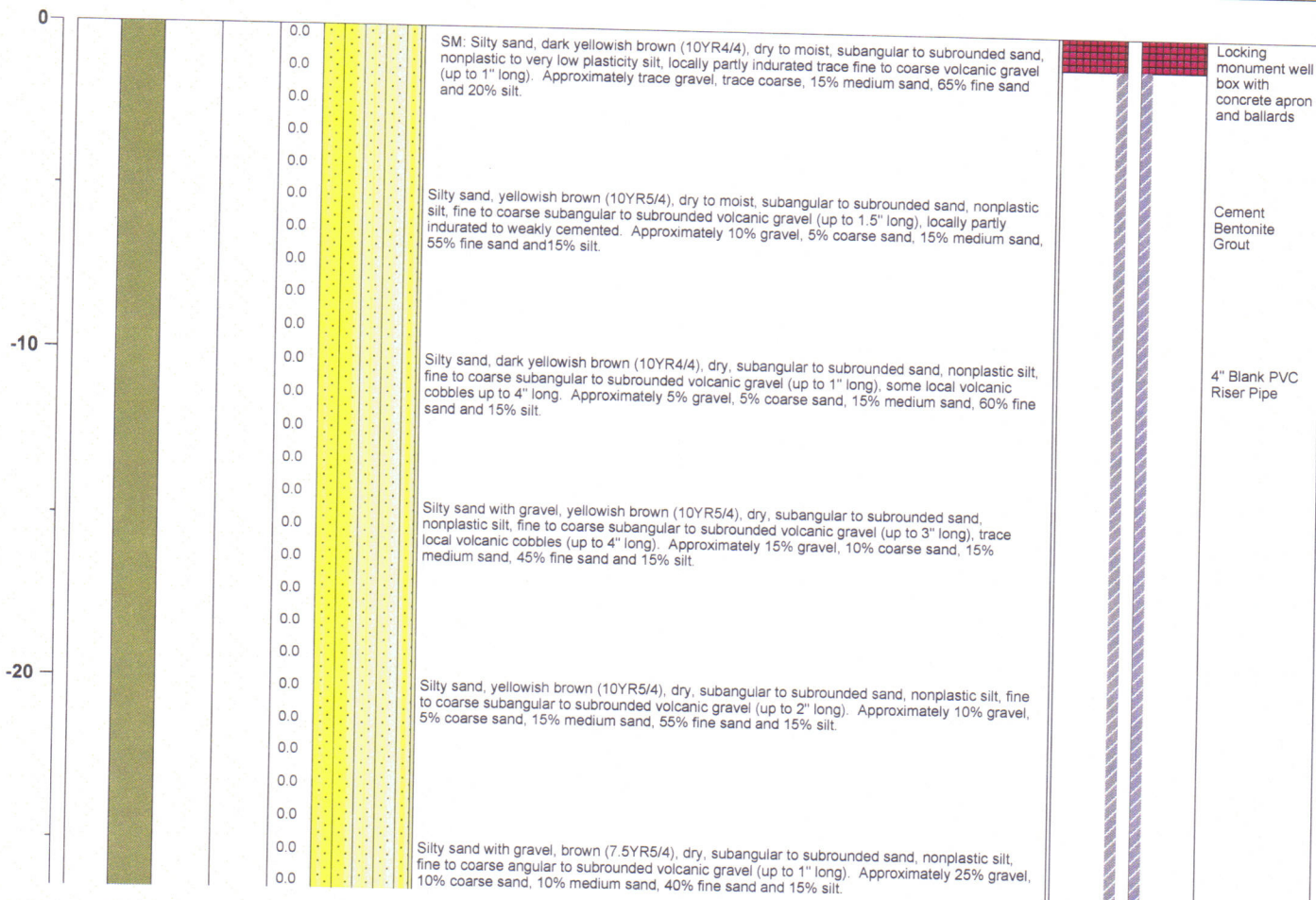
Sample Type: N/A  
 Sample Interval Continuous

Logged By: A. Norris  
 Date Started: 03/9/05  
 Date Completed: 03/11/05

**Monitoring Well Construction**

Type of Surface Seal:	Bentonite-Grout	Screen Slot Size:	0.010 in
Blank Casing Type/Size:	4" Sch 80 PVC	Top of Screen (ft. bgs):	34 ft bgs
Screen Type/Size:	4" Sch 80 PVC	Bottom of Screen (ft. bgs):	64 ft bgs
Transition Sand Type:	N/A	Type of Sand Pack:	#2/12

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
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Project No. 1881263.020101

Log of Boring: BW-5B

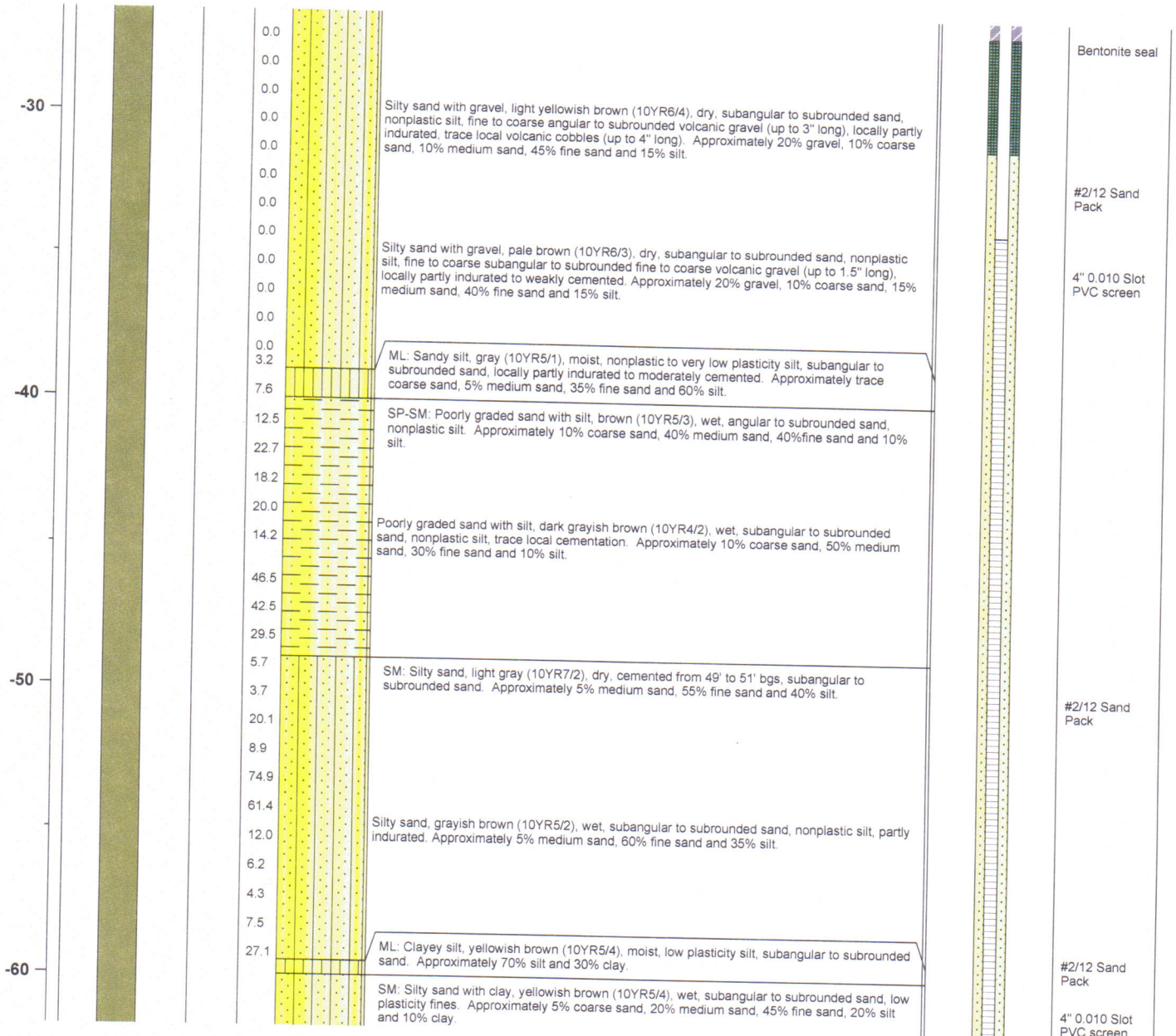


**BMI Landfill CAMU Investigation**  
**Henderson, Nevada**



**Log of Boring No. BW-5B**

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
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Project No. 1881263.020101

Log of Boring: BW-5B



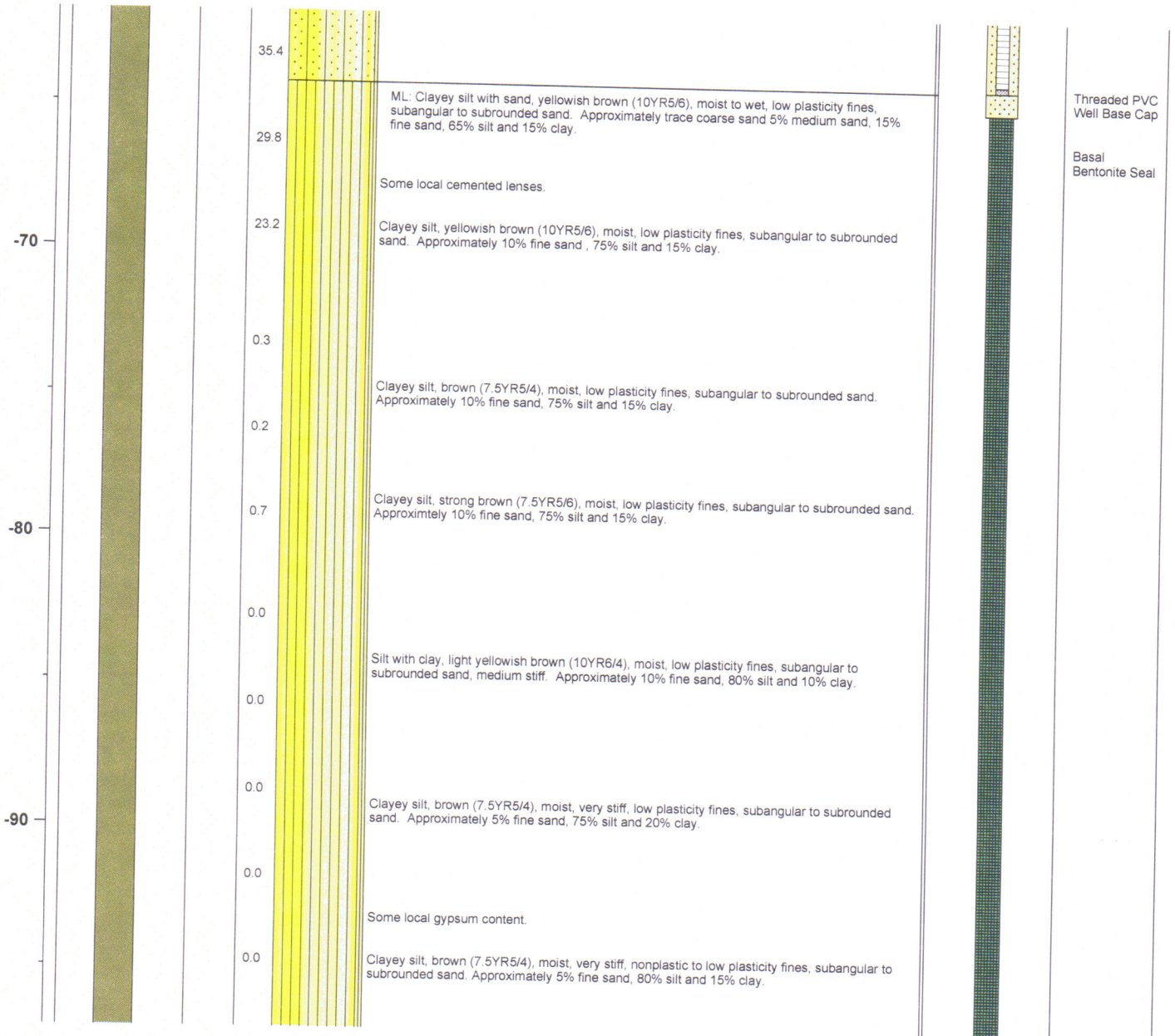


**BMI Landfill CAMU Investigation**  
**Henderson, Nevada**



**Log of Boring No. BW-5B**

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
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Project No. 1881263.020101

Log of Boring: BW-5B



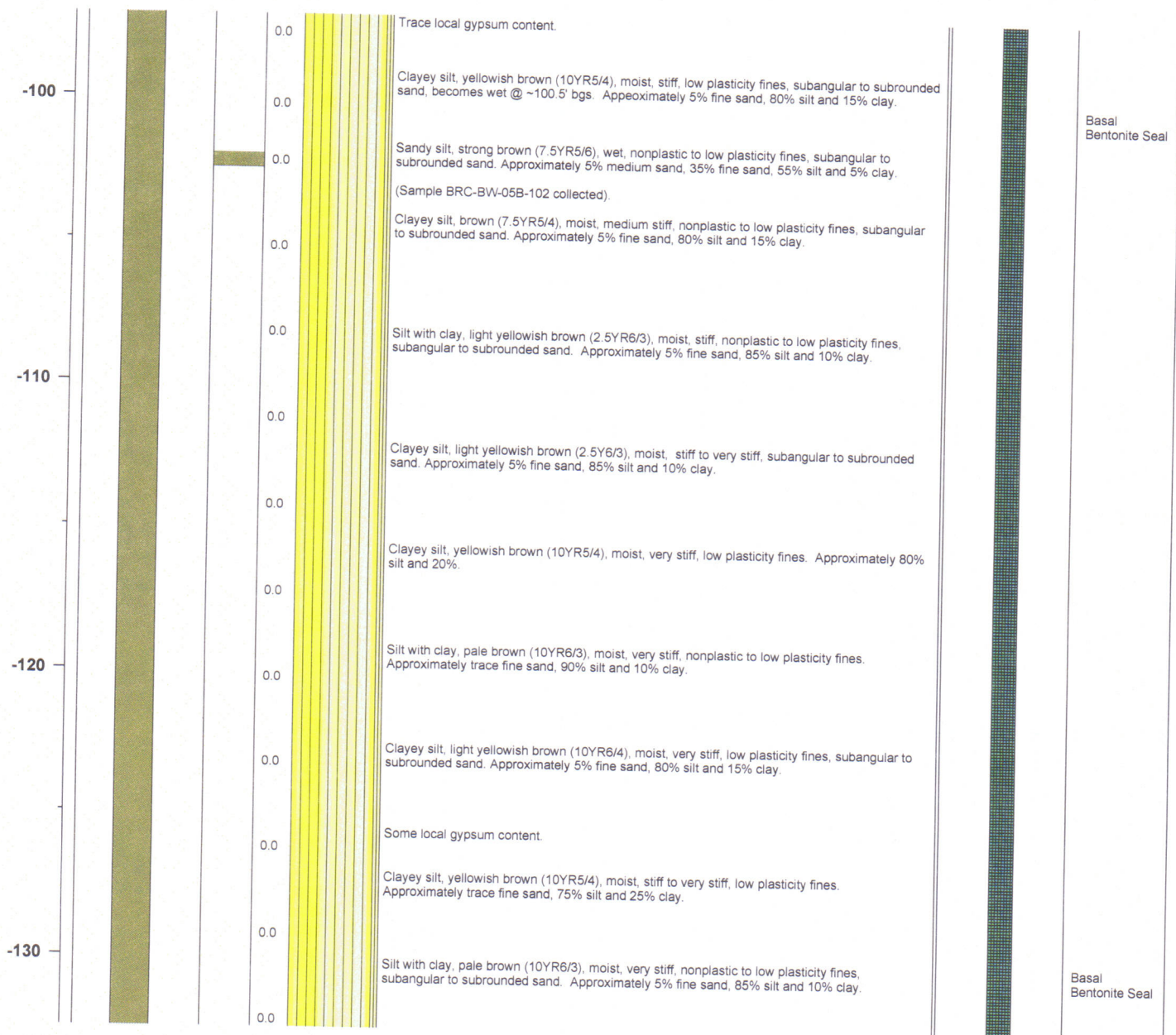


**BMI Landfill CAMU Investigation**  
**Henderson, Nevada**



**Log of Boring No. BW-5B**

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
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Project No. 1881263.020101

Log of Boring: BW-5B



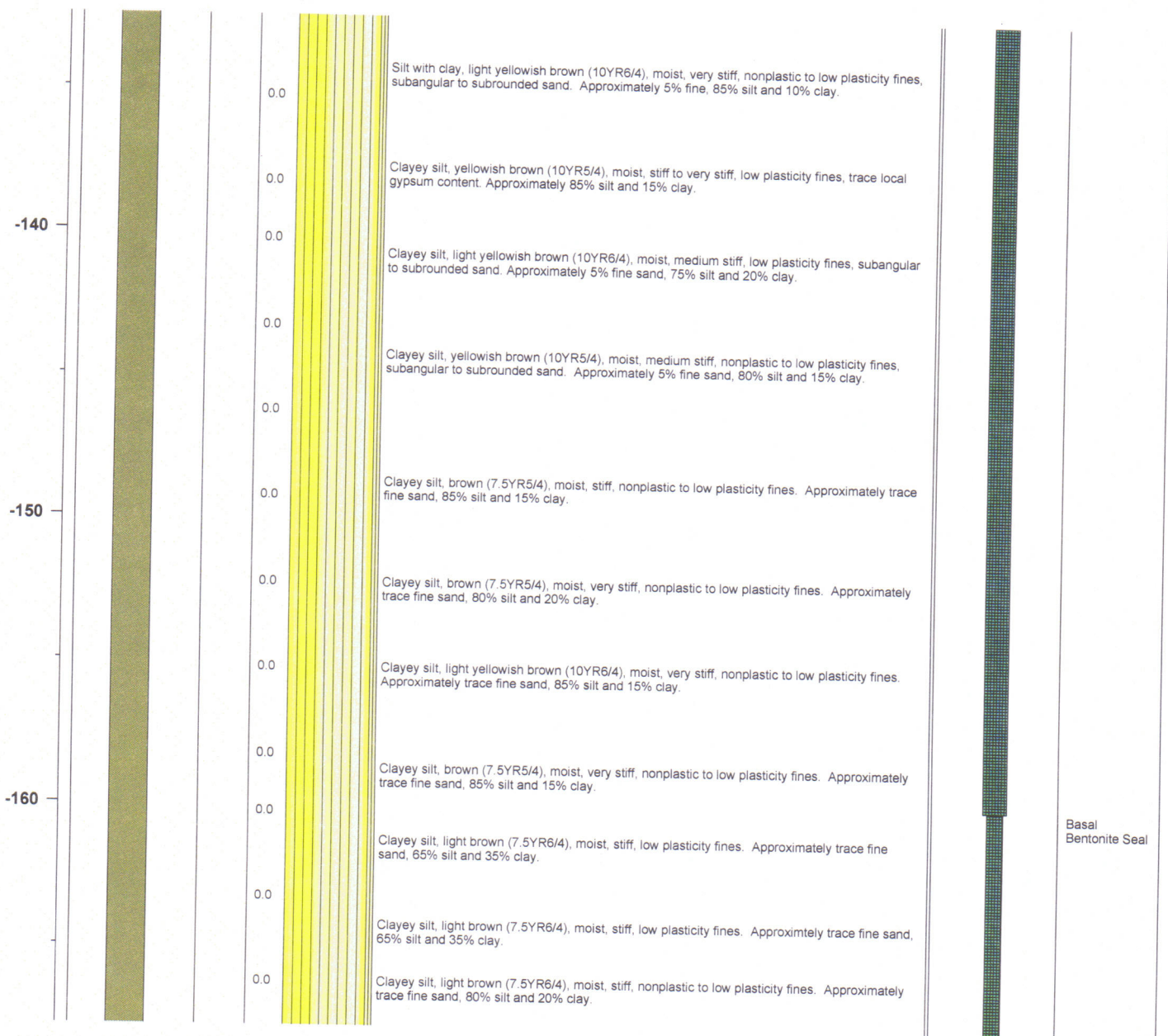
# BMI Landfill CAMU Investigation

Henderson, Nevada



## Log of Boring No. BW-5B

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
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Project No. 1881263.020101

Log of Boring: BW-5B





**BMI Landfill CAMU Investigation**  
**Henderson, Nevada**



**Log of Boring No. BW-5B**

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
-170							Clayey silt, light brown (7.5YR6/4), moist, stiff, nonplastic to low plasticity fines, subangular to subrounded sand. Approximately 5% fine sand, 75% silt and 20% clay.	
							Clayey silt, light yellowish brown (10YR6/4), moist, very stiff, nonplastic to low plasticity fines. Approximately trace fine sand, 85% silt and 15% clay.	
							Clayey silt, light brown (7.5YR6/4), moist, stiff, nonplastic to low plasticity fines, trace local gypsum content. Approximately trace fine sand, 80% silt and 20% clay.	
-180							Clayey silt, light brown (7.5YR6/4), moist, very stiff, nonplastic to low plasticity fines. Approximately trace fine sand, 75% silt and 25% clay.	
							Clayey silt, brown (7.5YR5/4), moist, very stiff, nonplastic to low plasticity fines. Approximately trace fine sand, 85% silt and 15% clay.	
							Clayey silt, light brown (7.5YR6/4), moist, stiff, very low to low plasticity fines. Approximately 80% silt and 20% clay.	
-190							Clayey silt, light brown (7.5YR6/4), moist, stiff, low plasticity fines. Approximately 65% silt and 35% clay.	
							Clayey silt, brown (7.5YR5/4), moist, stiff to very stiff, nonplastic to low plasticity fines. Approximately trace fine sand, 80% silt and 20% clay.	
							Clayey silt, light brown (10YR6/4), moist, very stiff, nonplastic to low plasticity fines. Approximately trace fine sand, 85% silt and 15% clay.	
-200							Bottom of hole @ 200' bgs.	Basal Bentonite Seal

Project No. 1881263.020101



Log of Boring: BW-5B



BEGUN 1 / 82 FINISHED 6/8/82 LOGGED BY CAN

BEGUN 6/82 FINISHED 6/8/82

ELEV. 1730.68 TOTAL DEPTH 410' DRILLED BY Converse, Webb, Davis Drilling HOLE MC-

ELEV. 1730.68 TOTAL DEPTH 40'

NO	LOCATION
along Stauffer - test M <sub>6</sub>	fines, coarse between 1000.0 - 210

Drilled w/ Mayhew 1000 - attempted to sample - fell in - ended, near bottom well 214

FOOTAGE		THICK- NESS	RECOV- ERY	LITHOLOGY	REMARKS
FROM	TO				
0	20			sand & gravel - fine sand to silt, 1/2" to 1 1/2" gravel, becomes more moist @ 7' then noncemented caliche @ 17 1/2'	
20	35			sand & gravel - brown to tan sand, less silty, more moist partially cemented caliche @ 25-30' also contains uncoated gravel	odor @ 21'
35				Muddy Creek Fm : clay - tan in top 1' reddish brown below	
				water level 6/8/82 : 30.3'	
				Water level 7/8/82 30.2	

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Geraghty & Miller, Inc.

WELL LOG

Well No.: H-23

Date Completed: 1/31/80

Project: Stauffer Chemical Company

Location: Henderson, Nevada

Description

Depth Below  
Land Surface  
(feet)

Sand, silty to clayey, grayish-brown very fine to very coarse (poorly sorted), and gravel, pebbles, cobbles and boulders, rounded to subangular; also with layers of caliche and caliche-cemented sand and gravel

0 - 42½

Notes: layers of cemented sand and gravel 27'-29', 31'-34', 40'-41'; organic odor in mud at 37'

Clay, silty, to silt, clayey, light brown with traces of sand and gravel in matrix; also, with occasional thin layers of sand, reworked caliche, and caliche (Muddy Creek Formation)

42½ - 101

Notes: thin layers of white silt and clay (reworked caliche) at 54'-55', 87', 96'.







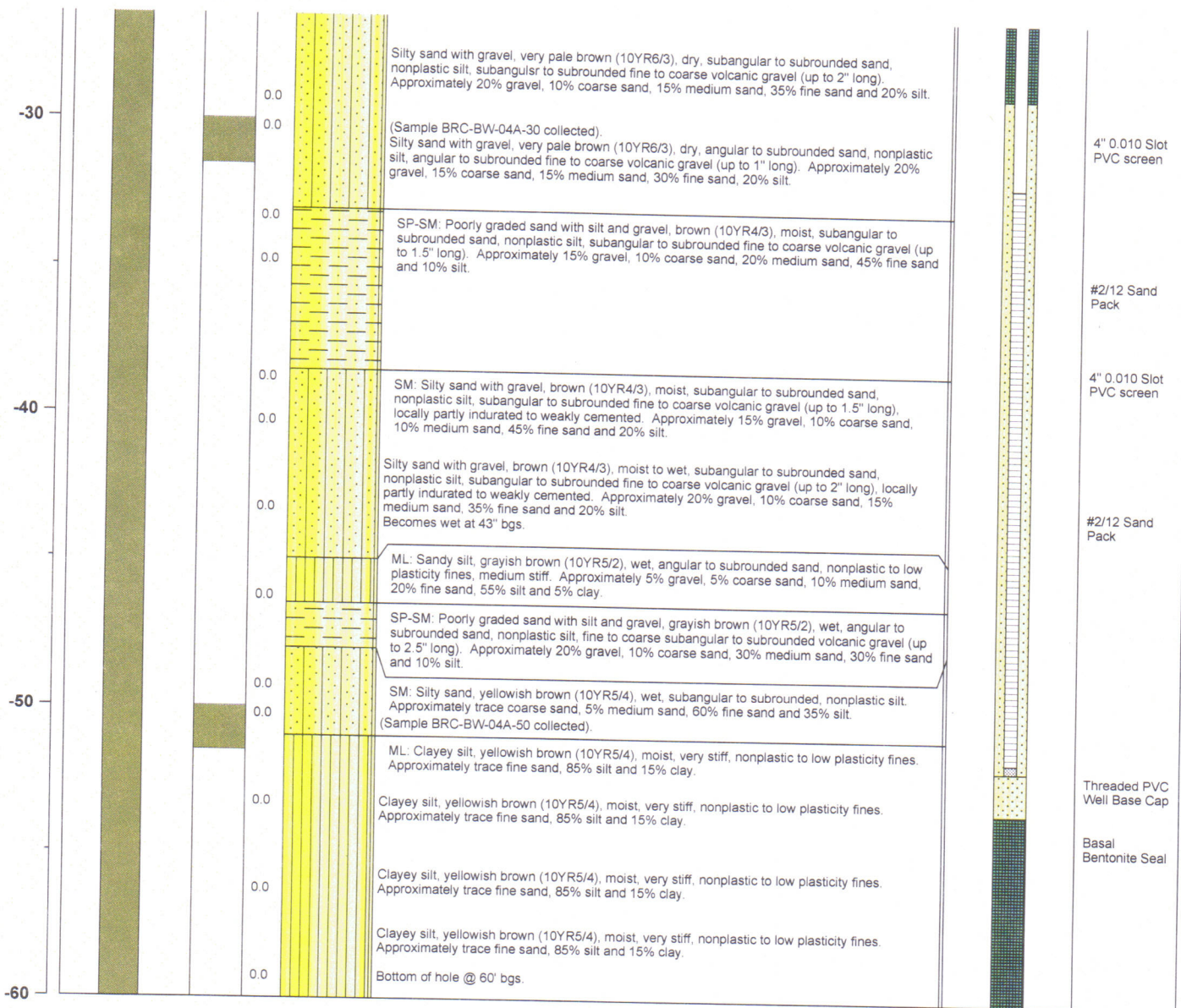
# BMI Landfill CAMU Investigation

Henderson, Nevada



## Log of Boring No. BW-4A

Depth Elevation (MSLD)	Sample Type	Sample Interval	Sample Recovery (feet)	Sample Retained for Analysis	PID	Lithology	Soil Description	Well Construction
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Project No. 1881263.020101

Log of Boring: BW-4A



WELL CONSTRUCTION DETAILS

WELL H-28

Depth: 51 feet

Borehole Diameter: 10 inches

Casing Diameter and Type: 6" steel I.D.

Casing Length: 51.7 feet

Top of Casing Elevation: 1730.33

Screened Interval: 37.4 to 50.5 feet, 6" factory slotted steel well screen

Gravel Pack Interval: 28 to 51.7 feet

Seal Interval: 0-28 feet: cement

Date Completed: 12-18-80

Data from Geraghty and Miller, Inc., 1980.

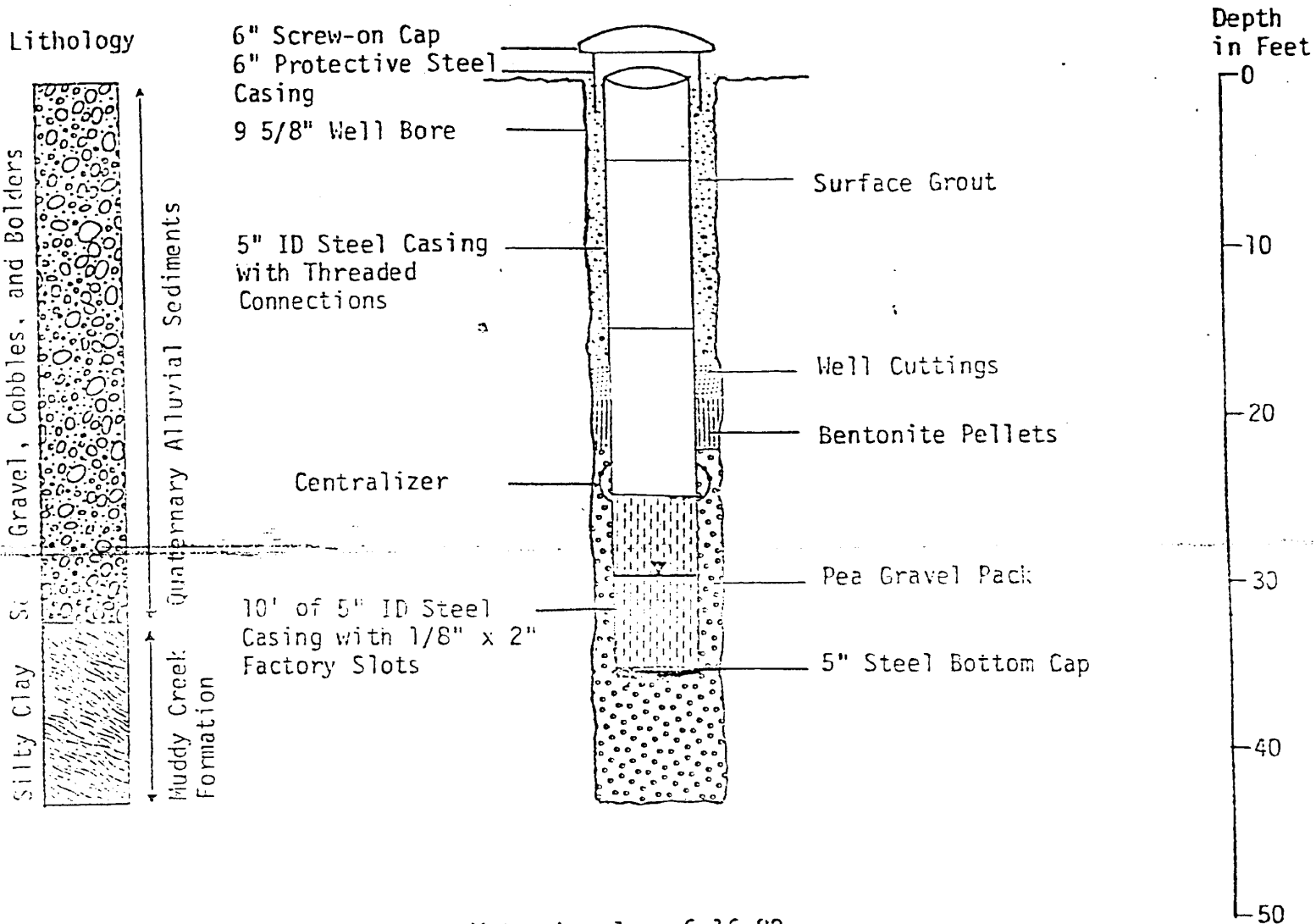
MONITOR WELL INVENTORY  
KERR-McGEE HENDERSON FACILITY

PAGE 5

MONITOR WELL NUMBER	REFERENCE CASING ELEV., MSL	GROUND ELEV., MSL	*CASING STICKUP FT.	*DRILLED WELL DEPTH FT.	**MEASURED WELL DEPTH FT, 6/85 TOC	*SCREENED INTERVAL, FT	CASING TYPE AND SIZE IN.	DATE WELL DRILLED	*DEPTH TO TOP OF MUDDY CREEK FT	ELEV. OF MUDDY CREEK MSL	*DEPTH TO GW FT. 6/85	WATER-TABLE ELEVATION MSL, 6/85	SATURATED AQUIFER THICKNESS FT, 6/85	CHROMIUM CONCENT. mg/l 6/85	GW COND. umhos/cm <sup>2</sup> 6/85	**DEPTH TO WATER, FT TOC, 6/85
H-57	1721.67	1720.17	1.50	---	---	---	5" steel	---	---	---	---	1688.8	---	---	---	---
H-58	1691.86	1689.56	2.30	---	59.34	---	"	---	56.0	1633.6	32.6	1657.0	23.4	<0.1	---	34.87
MC-1	1730.12	1728.92	1.20	---	43.87	---	2" PVC	---	35.0	1693.9	32.1	1696.9	3.0	---	---	33.25
MC-2	---	1727.0	---	---	---	---	"	---	33.0	1694.0	---	---	---	---	---	---
MC-3	1724.41	1723.81	0.60	---	---	---	"	---	40.0	1683.8	32.6	1691.2	7.4	---	---	33.19
MC-4	---	1718.0	---	---	---	---	"	---	40.0	1678.0	---	---	---	---	---	---
MC-5	1714.45	1713.4	1.05	---	---	---	"	---	36.0	1677.4	26.8	1686.6	9.2	---	---	27.85
MC-6	1710.68	1710.0	0.68	---	---	---	"	---	38.0	1672.0	25.3	1684.7	12.7	---	---	25.98
MC-9	1714.46	1713.6	0.86	---	---	---	"	---	50.0	1663.6	26.4	1687.2	23.6	---	---	27.26
MC-11	1667.2	1662.9	4.30	---	---	---	"	---	10.5	1652.4	4.7	1658.2	5.8	---	---	9.0
MC-15	---	1680.3	---	---	---	---	"	---	59.0	1621.3	---	---	---	---	---	---
MC-16	---	1684.1	---	---	---	---	"	---	48.0	1636.1	---	---	---	---	---	---
MC-17	---	1711.3	---	---	---	---	"	---	61.5	1649.8	---	---	---	---	---	---
MC-18	---	1698.1	---	---	---	---	"	---	57.5	1640.6	---	---	---	---	---	---
MC-19	---	1695.1	---	---	---	---	"	---	42.0	1653.1	---	---	---	---	---	---
MC-20	---	1689.7	---	---	---	---	"	---	29.0	1658.7	---	---	---	---	---	---
MC-26	1716.81	1715.2	1.61	---	---	---	"	---	31.0	1684.2	28.2	1686.8	2.6	---	---	30.01
MC-27	1719.90	1718.4	1.50	---	---	---	"	---	45.0	1673.4	31.0	1687.4	14.0	---	---	32.5
MC-28	1720.50	1719.0	1.50	---	---	---	"	---	49.0	1670.0	31.5	1687.5	17.5	---	---	33.0
MC-29	1722.02	1720.53	1.49	---	49.64	---	"	---	49.0	1671.5	30.5	1690.0	18.5	---	---	32.00
MC-30	1724.13	1722.18	1.95	---	44.46	---	"	---	45.0	1677.2	32.0	1690.2	13.0	---	49.000	33.92
MC-31	1724.53	1723.05	1.53	---	38.66	---	"	---	41.0	1682.0	32.7	1690.4	8.4	---	---	34.18
MC-32	1725.87	1724.77	1.10	---	33.28	---	"	---	33.5	1691.2	31.4	1693.4	2.2	---	10.000	32.47
MC-40	1720.28	1718.86	1.42	---	51.49	---	"	---	51.0	1667.8	30.0	1688.9	21.1	---	---	31.39



K-M Chemical Corporation  
Henderson, Nevada Facility  
Well No. M-6



Water Level on 6-16-82

31' 4"

Measured from Top of Protective Casing

MCRR-McGEE CHEMICAL CORPORATION

Henderson Facility

RCRA Monitor Well No. M-6  
Well Construction and Completion Table

Date Started	June 2, 1982
Date Completed	June 3, 1982 (except for surface grout)
Location	NW corner of landfill
Elevation from Top of Well Cover	1729.17'
Drilling Method	Rotary rig
Drilling Fluid	Revert
Depth to Muddy Creek	32'
Total Depth of Well	43'
Borehole Diameter	.9 5/8"
Well Casing Diameter/Type	5" ID/threaded steel pipe
Well Casing Interval	34' to surface
Perforated Interval	35' - 25'
Perforation Type/ Size /Open Area	Factory slot/ 1/8" x 2" / 4 in <sup>2</sup> per .10'
Casing Above Ground (Well Cover)	Approx. 15"
Gravel Pack Interval	43' -22'
Type of Gravel	1/8" - 3/8" pea gravel
Surface Seal Interval	15' to surface
Completion:	0 -15.0' grout 15.0'-18.0' well cuttings 18.0'-22.0' bentonite pellets 22.0'-43.0' gravel pack
Comments: Open hole with gravel from 43.0' to 35.0'.  Steel well cover with cap cemented in place on 6-16-82.	



Lithology Log  
for Henderson  
Well No. M-6

Depth in Feet

Lithology Description

0-29.0

**GM** Silty gravel and sand; slightly cemented  
from 12' - 13'

29.0-32.0

**SM** Silty sand and gravel with gypsum

32.0-32.5

**CL** Brown silty clay

32.5-34.0

**SM** Silty sand and gravel

34.0-38.0

**CL** Brown silty clay

38.0-43.0

**CL** Brown clay with sand and gravel

Top of Muddy Creek at 32 feet

✓ = INCLUDED IN  
CAMU X-SECTIONS

TABLE 3.3

Well Completion and Water Level Information for  
Wells Installed at the BMI and Henderson Areas

A-A'

WELL	TOTAL DEPTH	SCREENED OR OPEN HOLE INTERVAL	DEPTH TO WATER AND YEAR MEASURED				DEPTH OF MUDDY CREEK FORMATION
			1971	1980	1982	1983	
H-1	91		46.3	Abd.			47
H-2	96	56-96		52.9			50
H-3	100	20-100	50.8	Abd.			55
H-4	77	20-77	45.9	Abd.			55
H-5	200		47.9				50
H-6	135	127-133		41.3			50
H-7	100	20-100		51.75			49
H-8	110	20-110	51.7				55
H-9	105	20-105	50.8				55
H-10	55 old	10-55		32			40
	50 new	39-49			31.3		
H-11	116 old	10-116		89			102
	105 new	95-105			88.5		
H-12	55	10-55		21	22.8		22
H-13	88	10-88		54			38
H-14	55	10-55		23			24
H-15	101	34-101		44			55
H-16	55	10-55		26			28
H-17	101 old	20-101		37			46
	50 new	39-49			37		
H-18	61	41-61		36	36.8		50
H-19	75 old	47-75		33			42
	50 new	35-50			34		
H-20	101	29-101		38	39		41
H-21	101 old	32-101		30			45.5
	55 new	40-55			31.2		
H-22	231	20-231					44
H-23	101 old	32-101		32			42.5
	50 new	30-50			35.6		
H-24	228	221-228		0 -Flowing-	0		38
H-25	102 old	25-102		22			24
	39 new	29-39			22.5		
H-26	25	19-25					
H-27	231	19-231					
H-28	51	38-51		30	31.7		45
H-29	102	26-102		26	28		44.5
H-30	102	37-102		42	40		16
H-31	Not Drilled	-	-	-	-	-	37

\* All depths are in feet below ground surface



A-A'

Table 1  
Tabulation of Data  
from Monitoring and Exploration Wells  
at Henderson, Nevada

Well Number	Casing Elev.	Surface Elev.	Depth to Muddy Creek Fm.	Elev. of top of Muddy Creek Fm.	Water Level Elev. Dec. 1982	Water Level Distance from Top of Muddy Creek Fm.
H-1		1794				
H-2	1302.11	1801	50	1751		
H-3		1786	55	1731		
H-4		1790	55	1735		
H-5		1792	49	1743		
H-6		1793	50	1743		
H-7	1788.91	1789?	49	1740	1737.61	-2
H-8	1789.39	1789	55	1734		
H-9	1786.79	1786	55	1731		
H-10*	1704.01	1703.1	40	1663	1672.53	10
H-11*	1866.47	1865.1	102	1763	1778.35	15
H-12	1710.00	1709.2	22	1687	1688.87	2
H-13	1819.47	1818.8	38	1781	1766.24	-15
H-14	1711.94	1711.0	24	1687	1688.82	2
H-15	1772.20	1771.1	55	1716	1725.73	10
H-16	1713.88	1713.3	28	1685	1689.18	4
H-17*	1707.35	1704.6	46	1656	1670.33	14
H-18	1729.80	1728.6	51	1678	1692.53	14
H-19	1729.26	1728.6	42	1687	1695.46	8
H-20	1732.17	1731.9	41	1691	1693.35	2
H-21	1729.45	1728.4	45.5	1683	1697.57	15
H-22#			44			
H-23	1730.6	1729.5	42.5	1687	1695.02	8
H-24**	1706.63		38		Flowing	
H-25*	1711.08	1710	24	1686	1688.36	
H-26	Not drilled					
H-27#	1729.8	1729?	45	1684?		
H-28	1730.33	1729.1	44.5	1685	1698.18	13
H-29	1717.33	1717.3	23	1694	1689.79	-4
H-30	1740.42	1739.6	37	1703	1698.88	-4
H-31	Not drilled					
H-32	1736.48	1735.9	38	1698	1696.66	-1
H-33	1733.91	1732.6	37	1696	1695.52	0
H-34	1728.49	1727.0	44	1683		
H-35+	1706.65	1705.2	35	1670		

# Corehole without well completion  
+ Second zone monitor  
\* Reworked configuration of well

from the original well. This may have contributed to the low yield of the original well H-17. Well yields will be discussed further in another section.

In September 1981, subsequent to the well upgrading, it was discovered that wells H-10 and 17 had been vandalized by filling the casings with wood, rocks, cable, and metal scraps. This resulted in the redrilling of wells H-10 and 17 with new screened 5" wells as described earlier. Table 1 presents the new well configurations.

In summary, eight new permanent 5" screened wells were installed; three were upgraded by the installation of screens and casings, and two temporary 2" PVC wells were installed during the 1981 drilling program. Additionally, wells outside of the plant area have been securely capped in order to prevent vandalism.

Table 1. Characteristics of New and Upgraded Wells

<u>Well No.</u>	<u>Depth, ft.</u>	<u>Casing Diameter, in.</u>	<u>Casing Depth, ft.</u>	<u>Screened Interval, ft.</u>
<del>H-10</del> 10	49	5	39	39-49
11	105	8 5	11 95	- 95-105
17	49	5	39	39-49
25	39	8 5	26 29	- 29-39
36	39	5	29	29-39
<u>H-43</u>	44	8 5	9 29	- 29-44
48	43	5	33	33-43
49	38	5	28	28-38
50	43	5	33	33-43
51	42	5	32	32-42
52	28	5	18	18-28

H-43



Geraghty &amp; Miller, Inc.

## Monitoring Well Construction Data

Stauffer Chemical Company/Henderson, Nevada

Well No.	Date Started	Date Completed	Hole Diam.	Total Depth	Casing Diam.	Casing Length	Completion	TOT above GS	TOT Elevation	Contractor/rig
H-10	10-10-79	10-15-79	10"	55'	10" (c)	11.0'	open hole, 10' - 55'	0.8'	1705.75'	M/CT
H-11	10-15-79	10-18-79	8"	116'	10" (c)	11.3'	open hole, 10' - 116'	1.2'	1866.25'	M/CT
H-12	10-17-79	10-20-79	10"	55'	10" (c)	10.6'	open hole, 10' - 55'	0.8'	1710.00'	M/CT
H-13	10-22-79	10-26-79	8"	88'	10" (c)	10.5'	open hole, 10' - 55'	0.7'	1819.47'	M/CT
H-14	10-24-79	10-25-79	10"	55'	10" (c)	10.5'	open hole, 10' - 55'	0.9'	1711.94'	M/CT
H-15	10-30-79	11- 6-79	8"	44'	10" (c)	10.5'	abandoned & backfilled	-	-	M/CT
H-15	12- 5-79	12- 6-79	9"	65'	10" (c) 8" (c)	10.0' 34.2'	pilot hole	-	-	A/AR
H-15	2- 4-80	2- 4-80	8"	101'	as above		open hole, 34' - 101'	1.1'	1772.20'	G/MR
H-16	10-31-79	11- 3-79	10"	55'	10" (c)	10.5'	open hole, 10' - 55'	0.6'	1713.88'	M/CT
H-17	11- 5-79	11- 9-79	10"	35'	10" (c)	10.5'	abandoned	-	-	M/CT
H-17	11-16-79	11-16-79	9"	35'	8" (c)	30.7'	pilot hole	-	-	A/AR
H-17	2- 7-80	2- 7-80	8"	101'	as above		open hole, 30' - 101'	0.9'	1709.43'	G/MR
H-18	11-13-79	11-13-79	12"	45'	10" (h)	13.5'	pilot hole	-	-	A/AR
H-18	11-14-79	11-16-79	8"	55'	as above		abandoned & backfilled	-	-	M/CT
H-18	2-18-80	2-26-80	10"	61'	6"	61.3'	torch slots, 41' - 61'; gravel backfill from 0' - 61'; cement cap	1.2'	1729.80	G/MR
H-19	11-13-79	11-13-79	12"	45'	10" (h)	29.6'	pilot hole	-	-	A/AR
H-19	11-26-79	11-30-79	10"	75'	10"	47.9'	drive casing behind hole	-	-	A/CT

## Monitoring Well Construction Data

Stauffer Chemical Company/Henderson, Nevada

Well No.	Date Started	Date Completed	Hole Diam.	Total Depth	Casing Diam.	Casing Length	Completion	TOC above GS	TOC Elevation	Contractor rig
H-19	2-19-80	2-20-80	-	-	6"	50.5'	gravel backfill 49.8'-75'; 10" pulled; torch slots 34.8' - 49.8'; gravel to surface; cement cap	0.7'	1729.26	A/CT
H-20	11-14-79	11-14-79	12"	45'	10" (h)	29.3'	pilot hole	-	-	A/AR
H-20	1-24-80	1-25-80	8"	101'	as	above	open hole, 29'-101'; cement plug at surface	0.3'	1732.17	G/MR
H-21	11-15-79	11-15-79	9"	40'	8" (h)	32.6'	pilot hole	-	-	A/AR
H-21	1-28-80	1-30-80	8"	101'	as	above	open hole, 32'-101'	-	-	G/MR
H-21	2-20-80	2-21-80	-	-	6"	56.0'	gravel backfill, 55'-101'; 8" not pulled; torch slots 40'-50'; sand & gravel cave-in to 38'; open annulus; cement plug at surface	1.1'	1729.45'	A/CT
H-22	11-15-79	11-15-79	12"	25'	10" (h)	21.1'	pilot hole	-	-	A/AR
H-22	2-29-80	3-6-80	5"	231'	as	above	test hole with core samples; open hole 20'-231'; cement plug at surface	-	-	G/MR
H-23	11-16-79	11-16-79	9"	25'	8" (h)	24.2'	pilot hole	-	-	A/AR
H-23	1-30-80	1-31-80	8"	101'	as	above	open hole, 23' - 101'	-	-	G/MR

## Monitoring Well Construction Data

Stauffer Chemical Company/Henderson, Nevada

3.

Well No.	Date Started	Date Completed	Hole Diam.	Total Depth	Casing Diam.	Casing Length	Completion	TOT above GS	TOT Elevation	Contractor rig
H-23	2-22-80	2-26-80	6"	80' (drill) out dog leg	6"	51.4'	gravel backfill 50'-80'; 8" not pulled; torch slots 30.3'-50.3'; gravel to 25'; sand to 22'; cement to surface.	1.1	1730.60'	A/CT
H-24	11-17-79	11-17-79	12"	35'	10" (h)	25.2'	pilot hole	-	-	A/AR
H-24	11-19-79	12-6-79	10"	225'	6"	221.3'	sand backfill 220'-225'; pressure cemented 0'-75'; plug fails; cement inside 6"	-	-	M/CT
H-24	1-3-80	1-4-80	5"	228'	as	above	drill out cement; open hole 220'-228'	1.4	1706.63	G/MR
H-25	11-17-79	11-17-79	9"	25'	8" (h)	25.7'	pilot hole	-	-	A/AR
H-25	1-10-80	1-12-80	8"	102'	as	above	open hole, 25'-102'; cement plug at surface	0.9'	1710.77	G/MR
H-26	11-19-79	11-19-79	12"	25'	10" (h)	19.0'	pilot hole; adjacent to Well H-25; abandoned	-	-	A/AR
H-27	11-19-79	11-19-79	12"	25'	10" (h)	19.0'	pilot hole	-	-	A/AR
H-27	3-11-80	3-13-80	5"	231'	as	above	test hole with core samples; open hole 19'-231'; cement plug at surface	-	-	G/MR
H-28	11-19-79	11-19-79	9"	25'	8" (h)	25.7'	pilot hole	-	-	A/AR
H-28	12-3-79	12-12-79	8"	60'	8"	65.0'	drive casing behind hole	-	-	A/CT



TABLE 3.3 (Cont'd)

WELL	TOTAL DEPTH	SCREENED OR OPEN HOLE INTERVAL	DEPTH TO WATER AND YEAR MEASURED				DEPTH OF MUDDY CREEK FORMATION
			1971	1980	1982	1983	
H-32	101	37-101		39	40		38
H-33	101	36-101		38	38.4		37
H-34	44	41-44					44
H-35	94	91-94					35
H-36	44 old	41-44		26			38
	39 new	29-39			28.4		
H-37	50.5	25-50					25
H-38	55	16-55		34	34.5		25
H-39	75	15-75		45	46.1		43
H-40	75	55-75		49	51		40.5
H-41	75	65-75		46	50		54
H-42	55	8-555		33	36		44
H-43	55 old	9-55		30			45.5
	44 new	29-44			32.9		
H-44	231	6-231					49
H-45	Not Drilled	-	-	-	-	-	-
H-46	51	36-51					42
H-47	152	142-152			41.7		52
H-48	43	33-43			32		59
H-49	38	28-38			32		48
H-50	43	33-431			35		40
H-51	42	32-42			34		57.5
H-52	28	18-28			18		18
H-53					26		42
H-54					31		51
H-55					44		43
H-56					30.8		
LG-9	91	85-90		5.5			
LG-10	42			8.6			
LG-11	39	0-39		18.4			
LG-13	250	241-243		38.9			
LG-15	25	23-25		3			
LG-16	47	43-40		3			
LG-17	90	80-82		15.2			
LG-19	70			0-Flowing			
LG-20	20			5.6			
LG-21	40	37-39		29.1			
LG-25	24			11.4			
LG-26	100	87-90		11.7			
LG-27	62	57-62		14			
LG-30	30	27-29		6			
LG-32	155	147-155	35	49.7			54
LG-32R	90	80-90		Nov 79 50			52

Table 1 - continued

Well Number	Casing Elev.	Surface Elev.	Depth to Muddy Creek Fm.	Elev. of Top of Muddy Creek Fm.	Water Level Elev. Dec. 1982	Water Level Distance from Top of Muddy Creek Fm.
H-36*	1716.20	1715.4	38	1677	1687.36	11
H-37	1712.32	1710.7	25	1685		
H-38	1772.69	1771.7	25	1746	1738.25	-8
H-39	1770.32	1770.7	43	1728	1724.20	-4
H-40	1770.31	1769.0	40.5	1729	1719.30	-10
H-41	1774.92	1773.7	54	1720	1724.12	4
H-42	1729.09	1728.2	55	1684	1693.82	10
H-43*	1729.82	1728.2	45.5	1683	1696.89	14
H-44#			49.5			
H-45	Not drilled					
H-46	1730.03	1728.8	42	1687		
H-47+	1770.54		54		1729.47	
H-48	1682.79	1680.3	59	1621	1650.88	30
H-49	1685.38	1684.1	48	1636	1653.77	18
H-50	1700.48	1699.1	40	1659	1665.96	7
H-51	1699.00	1698.1	57.5	1641	1664.92	24
H-52	1727.71	1726.3	18	1708	1709.68	2
H-53	1713.87	1712.9	42	1672	1688.06	16
H-54	1722.30	1719.8	51	1671	1690.53	20
H-55	1749.05	1748.0	43	1706	1705.43	-1

# Corehole without well completion

+ Second zone monitor

\* Reworked configuration of well

## Monitoring Well Construction Data

Stauffer Chemical Company/Henderson, Nevada

Well No.	Date Started	Date Completed	Hole Diam.	Total Depth	Casing Diam.	Casing Length	Completion	TOC above GS	TOC Elevation	Contractor/rig
H-41	4-3-80	4-16-80	6"	75'	6"	57.0'	drive casing; bottom 10.0' torch slotted	1.2'	1774.92'	A/CT
H-42	2-22-80	2-22-80	10"	55'	8" (h)	8.5'	open hole, 7.5' - 55';	0.9'	1729.09'	G/MR
H-43	2-27-80	2-28-80	10"	55'	8"	9.4'	open hole, 8.5' - 55'; cement plug at surface	0.8'	1728.95'	G/MR
H-44	3-17-80	3-19-80	5"	231'	-	-	test hole with core samples; open hole	-	-	G/MR
H-45	3-19-80	-	5"	40; 45'	-	-	abandoned after 2 attempts due to lost circulation	-	-	G/MR
H-46	3-25-80	3-29-80	5"	51'	1 1/4" PVC	52.2'	drill-perforated pipe 36'-51' gravel to 30'; cuttings to 1; cement to surface	1.2'	1730.03'	G/MR
H-47	5-13-80	5-13-80	12"	39'	10" (c)	40.0'	pilot hole	-	-	A/FA
H-47	5-15-80	6-18-80	8"	120'	6" (c)	120.0'	annulus pressure cemented by Halliburton	-	-	A/CT
LG032R	2-22-80	2-22-80	6"	152'	4" (h)	152.4'	bottom 10.0' torch/	1.75	-	A/FA
LG032R	4-17-80	5-6-80	10"	70'	10" (c)	16.0'	pilot hole slotted	-	-	A/CT
					6" (c)	72.5'	annulus cemented from bottom	1.5'	-	A/CT
			6"	90'	4" (h)	92.5'	torch slot bottom 10.0'	1.9'	1770.75'	
LG033	5-8-80	5-9-80	6"	35'-60'	6"		existing 6" casing	0.8'	-	A/CT
	(existing well deepened)		-	-	4" (h)	63.4'	torch slot bottom 10.0'	2.6	1770.06	

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