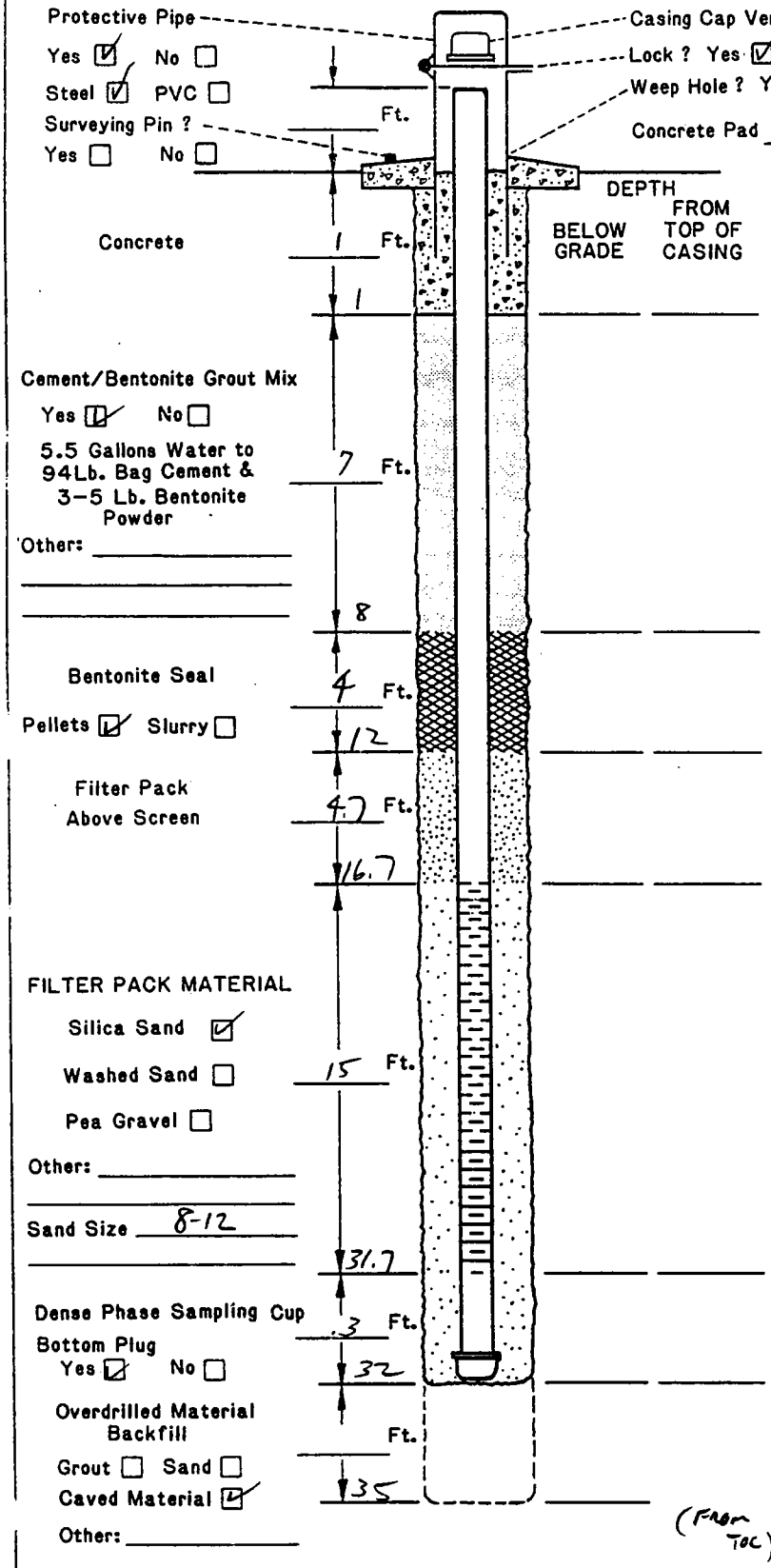
APPENDIX C

Monitoring Well Construction and Well Purging and Sampling Logs

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
MONITORING WELL INSTALLATION DIAGRAM



DRILLING INFORMATION:

1. Borehole Diameter= 8 Inches.
2. Were Drilling Additives Used ? Yes ☐ No ☑
   Revert ☐ Bentonite ☐ Water ☐
   Solid Auger ☐ Hollow Stem Auger ☑
3. Was Outer Steel Casing Used ? Yes ☐ No ☑
   Depth= _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casing: PVC ☑ Galvanized ☐ Teflon ☐
   Stainless ☐ Other _____
2. Type of Casing Joints: Screw-Couple ☑ Glue-Couple ☐ Other _____
3. Type of Well Screen: PVC ☑ Galvanized ☐
   Stainless ☐ Teflon ☐ Other _____
4. Diameter of Casing and Well Screen:
   Casing 2 Inches, Screen 2 Inches.
5. Slot Size of Screen: .020
6. Type of Screen Perforation: Factory Slotted ☑
   Hacksaw ☐ Drilled ☐ Other _____
7. Installed Protector Pipe w/Lock: Yes ☑ No ☐

WELL DEVELOPMENT INFORMATION:

1. How was Well Developed ? Bailing ☐ Pumping ☑
   Air Surging (Air or Nitrogen) ☐ Other _____
2. Time Spent on Well Development ?
   10 / 1 Minutes/Hours
3. Approximate Water Volume Removed ? 75 Gallons
4. Water Clarity Before Development ? Clear ☐
   Turbid ☐ Opaque ☑
5. Water Clarity After Development ? Clear ☑
   Turbid ☐ Opaque ☐
6. Did Water have Odor ? Yes ☐ No ☑
   If Yes, Describe _____
7. Did Water have any Color ? Yes ☐ No ☑
   If Yes , Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling 18' Ft. Date 3/23/98

Before Development _____ Ft. Date _____

After Development 20.01' Ft. Date 3/25/98

Driller/Firm LEE ROBERTSON / WEBER DRLG. Drill Rig Type B-61 Date Installed 3/23/98

Drill Crew L. ROBERTSON / B. JOHNSON Well No. PC-2 Kerr-McGee Hydrologist T. REED

SOIL BORING LOG KM-6655-B

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division	KMC SUBSIDIARY: KMCLLC	LOCATION: Henderson, NV	BORING NUMBER: PC-2

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS	BLOWS PER 6"	PID (ppm)	SOIL SAMPLE NO.	TYPE	DEPTH	REC.	REMARKS OR FIELD OBSERVATIONS
0	SAND/SILTY SAND w/ ABD GRAVEL; LT. TAN-BROWN; WELL-GRADED; DRY									
5	GRAVEL @ 6-7'									
10	SAND AS ABOVE		SM-GM							
	GRAVEL @ 14-15'									
15										
18'	- - - - - - -		▽							
20	SAND AS ABOVE; SATURATED									
25										GROUNDWATER SAMPLE TAKEN @ 30'
30										14 ppm PERCHLORATE
31				3, 12, 27		1	X	30 – 31.5	1.4'	
	SILTY CLAY; REDDISH-BROWN GRADING INTO LT. GRAY-GREEN MUDDY CREEK		CL							
35	TD 35'									

EXPLANATION

- ▼ Water Table (24 Hour)
- ▽ Water Table (Time of Boring)
- PID Photoionization Detector (ppm)
- NO. Identifies Sample by Number
- TYPE Sample Collection Method

SPLIT-BARREL · AUGER · ROCK CORE · THIN-WALLED TUBE · CONTINUOUS SAMPLER · NO RECOVERY

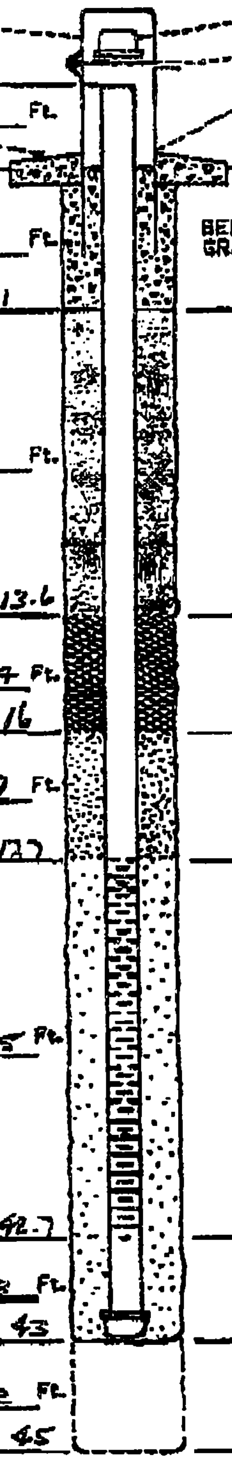
DEPTH Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY · DEBRIS FILL · SILT · HIGH ORGANIC (PEAT) · SAND · SANDY CLAY · GRAVEL · CLAYEY SAND · SILTY CLAY · CLAYEY SILT

DATE DRILLED	3/23/98
PAGE	1 of 1
DRILLING METHOD	HSA
DRILLED BY	Layson Drilling
LOGGED BY	T. Reed
EXISTING GRADE ELEVATION (FT MSL)	
LOCATION OR GRID COORDINATES	

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe — Yes ☑ No ☐ — Steel ☑ PVC ☐

Surveying Pin ? ____ Ft. — Yes ☐ No ☐

Concrete ____ Ft. — 1

Cement/Bentonite Grout Mix — Yes ☑ No ☐ — 5.5 Gallons Water to 94Lb. Bag Cement & 3-5 Lb. Bentonite Powder — 12.6 Ft.

Other: ____

13.6

Bentonite Seal — 2.4 Ft. — Pellets ☑ Slurry ☐

16

Filter Pack Above Screen — 1.7 Ft.

17.7

FILTER PACK MATERIAL
- Silica Sand ☑
- Washed Sand ☐
- Pea Gravel ☐
- Other: ____
- Sand Size 8-12

25 Ft.

42.7

Dense Phase Sampling Cup Bottom Plug — Yes ☐ No ☐ — .3 Ft.

43

Overdrilled Material Backfill — Grout ☐ Sand ☐ Caved Material ☑ — Other: ____ — 2 Ft.

45

Casing Cap Vent ? Yes ☐ No ☐

Lock ? Yes ☐ No ☐

Weep Hole ? Yes ☐ No ☐

Concrete Pad ____ Ft. x ____ Ft. x ____ Inches

DRILLING INFORMATION:

1. Borehole Diameter= 8 Inches.
2. Were Drilling Additives Used ? Yes ☐ No ☑
   Revert ☐ Bentonite ☐ Water ☐
   Solid Auger ☐ Hollow Stem Auger ☑
3. Was Outer Steel Casing Used ? Yes ☐ No ☑
   Depth= ____ to ____ Feet.
4. Borehole Diameter for Outer Casing ____ Inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casing: PVC ☑ Galvanized ☐ Teflon ☐ Stainless ☐ Other ____
2. Type of Casing Joints: Screw-Couple ☑ Glue-Couple ☐ Other ____
3. Type of Well Screen: PVC ☑ Galvanized ☐ Stainless ☐ Teflon ☐ Other ____
4. Diameter of Casing and Well Screen:
   Casing 2 Inches, Screen 2 Inches.
5. Slot Size of Screen: .020
6. Type of Screen Perforation: Factory Slotted ☑ Hacksaw ☐ Drilled ☐ Other ____
7. Installed Protector Pipe w/Lock: Yes ☐ No ☐

WELL DEVELOPMENT INFORMATION:

1. How was Well Developed ? Bailing ☐ Pumping ☑ Air Surging (Air or Nitrogen) ☐ Other ____
2. Time Spent on Well Development ?
   45 / ____ Minutes/Hours
3. Approximate Water Volume Removed ? 50 Gallons
4. Water Clarity Before Development ? Clear ☐ Turbid ☐ Opaque ☑
5. Water Clarity After Development ? Clear ☐ Turbid ☑ Opaque ☐
6. Did Water have Odor ? Yes ☐ No ☑
   If Yes, Describe ____
7. Did Water have any Color ? Yes ☐ No ☑
   If Yes - Describe ____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling 22' Ft. Date 3/24

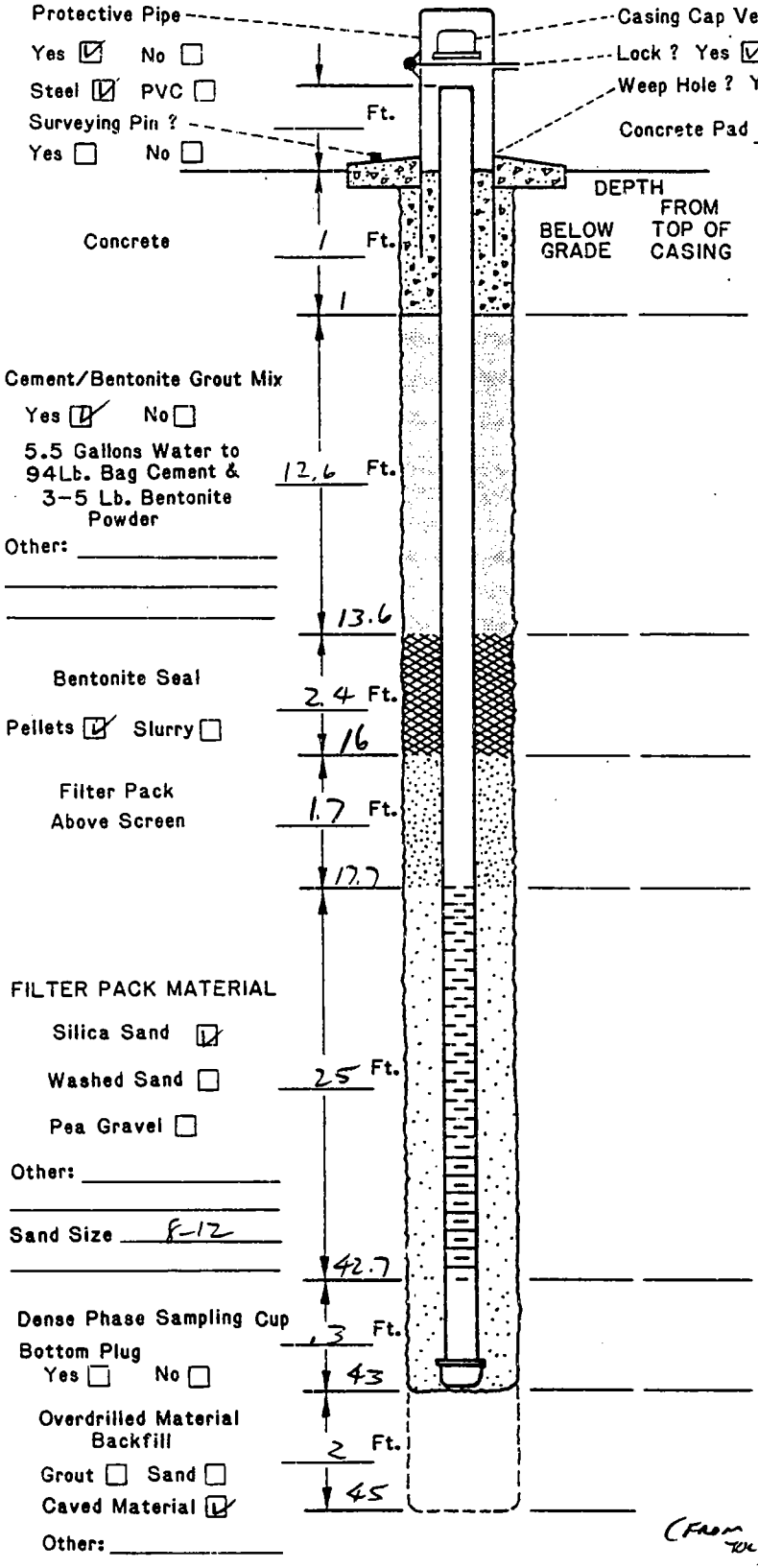
Before Development ____ Ft. Date ____

After Development 23.65 Ft. Date 3/25

Driller/Firm C. Robertson / Western Drlg. Drill Rig Type Mobile B-61 Date Installed 3/24/99

Drill Crew Robertson / Johnson / Rivera Well No. PC-4 Kerr-McGee Hydrologist T. Reed

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
MONITORING WELL INSTALLATION DIAGRAM



DRILLING INFORMATION:

1. Borehole Diameter= 8 Inches.
2. Were Drilling Additives Used ? Yes ☐ No ☑
   Revert ☐ Bentonite ☐ Water ☐
   Solid Auger ☐ Hollow Stem Auger ☑
3. Was Outer Steel Casing Used ? Yes ☐ No ☑
   Depth= _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casing: PVC ☑ Galvanized ☐ Teflon ☐
   Stainless ☐ Other _____
2. Type of Casing Joints: Screw-Couple ☑ Glue-Couple ☐ Other _____
3. Type of Well Screen: PVC ☑ Galvanized ☐
   Stainless ☐ Teflon ☐ Other _____
4. Diameter of Casing and Well Screen:
   Casing 2 Inches, Screen 2 Inches.
5. Slot Size of Screen: .020
6. Type of Screen Perforation: Factory Slotted ☑
   Hacksaw ☐ Drilled ☐ Other _____
7. Installed Protector Pipe w/Lock: Yes ☐ No ☐

WELL DEVELOPMENT INFORMATION:

1. How was Well Developed ? Bailing ☐ Pumping ☑
   Air Surging (Air or Nitrogen) ☐ Other _____
2. Time Spent on Well Development ?
   45 / _____ Minutes/Hours
3. Approximate Water Volume Removed ? 50 Gallons
4. Water Clarity Before Development ? Clear ☐
   Turbid ☐ Opaque ☑
5. Water Clarity After Development ? Clear ☐
   Turbid ☑ Opaque ☐
6. Did Water have Odor ? Yes ☐ No ☑
   If Yes, Describe _____
7. Did Water have any Color ? Yes ☐ No ☑
   If Yes , Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling 22' Ft. Date 3/24/98

Before Development _____ Ft. Date _____

After Development 23.65' Ft. Date 3/25/98 (FROM TOC)

Driller/Firm L. ROBERTSON / WEBBER DRLG. Drill Rig Type MOBILE B-61 Date Installed 3/24/98

Drill Crew ROBERTSON / JOHNSON / RIVERA Well No. PC-4 Kerr-McGee Hydrologist T. REED

SOIL BORING LOG KM-6855-B

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division	KM SUBSIDIARY KMCLLC	LOCATION HENDERSON, NV	BORING NUMBER PC-4

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER 6"	PID (ppm)	SOIL SAMPLE NO.	SOIL SAMPLE TYPE	SOIL SAMPLE DEPTH	SOIL SAMPLE REC.	REMARKS OR FIELD OBSERVATIONS
0	FILL: SAND AND GRAVEL W/ IMPORTMENT DEBRIS									
5	SAND / SILTY SAND; GRAVEL CONTENT TO BE; WT. TAN GRAVEL; DRY TO SL. MOIST; WELL-GRADED									
10	GRAVEL @ 11-13.5'									
15	SAND AS ABOVE		SM-GM							
20										
22	— — — — — —		▽							
25	GRAVEL @ 25-27'									
30	SAND AS ABOVE; WET-SATURATED		SM-GM							
35	GRAVEL @ 38-40'									
40										

EXPLANATION

- ▼ Water Table (24 Hour)
- ▽ Water Table (Time of Boring)
- PID Photoionization Detection (ppm)
- NO. Identifies Sample by Number
- TYPE Sample Collection Method
  - SPLIT BARREL
  - AUGER
  - ROCK CORE
  - THIN-WALLED TUBE
  - CONTINUOUS SAMPLER
  - NO RECOVERY
- DEPTH Depth Top and Bottom of Sample
- REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

- CLAY
- SILT
- SAND
- GRAVEL
- SILTY CLAY
- CLAYEY SILT
- DEBRIS FILL
- HIGHLY ORGANIC (PEAT)
- SANDY CLAY
- CLAYEY SAND
- ____
- ____

DATE DRILLED: 3/24/98 PAGE: 1 of 2

DRILLING METHOD: HSA

DRILLED BY: WEAVER DRILLING

LOGGED BY: TREAD

ELEVATION OR GRADE ELEVATION (FT ABOVE MSL):

LOCATION OR GRID COORDINATES:

SOIL BORING LOG KM-2055-B

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division	KM SUBSIDIARY: KM CLLC	LOCATION: HENDERSON, NV	BORING NUMBER: PC-4 (cont.)

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER 6"	PID (ppm)	SOIL SAMPLE NO.	TYPE	DEPTH	REC.	REMARKS OR FIELD OBSERVATIONS
40 – 42.5	GRAVEL @ 41.5-42.5'		SM-GM							GROUNDWATER SAMPLE TAKEN @ 42' 13 PPM PERCHLORATE
42.5 – 45	SILTY CLAY; LT. GRAY-GREEN; HI. PLASTIC MUDDY CREEK		CL							
45				34 / 32		1	X	45 – 46.5	1.4'	
	TD 45'									

EXPLANATION

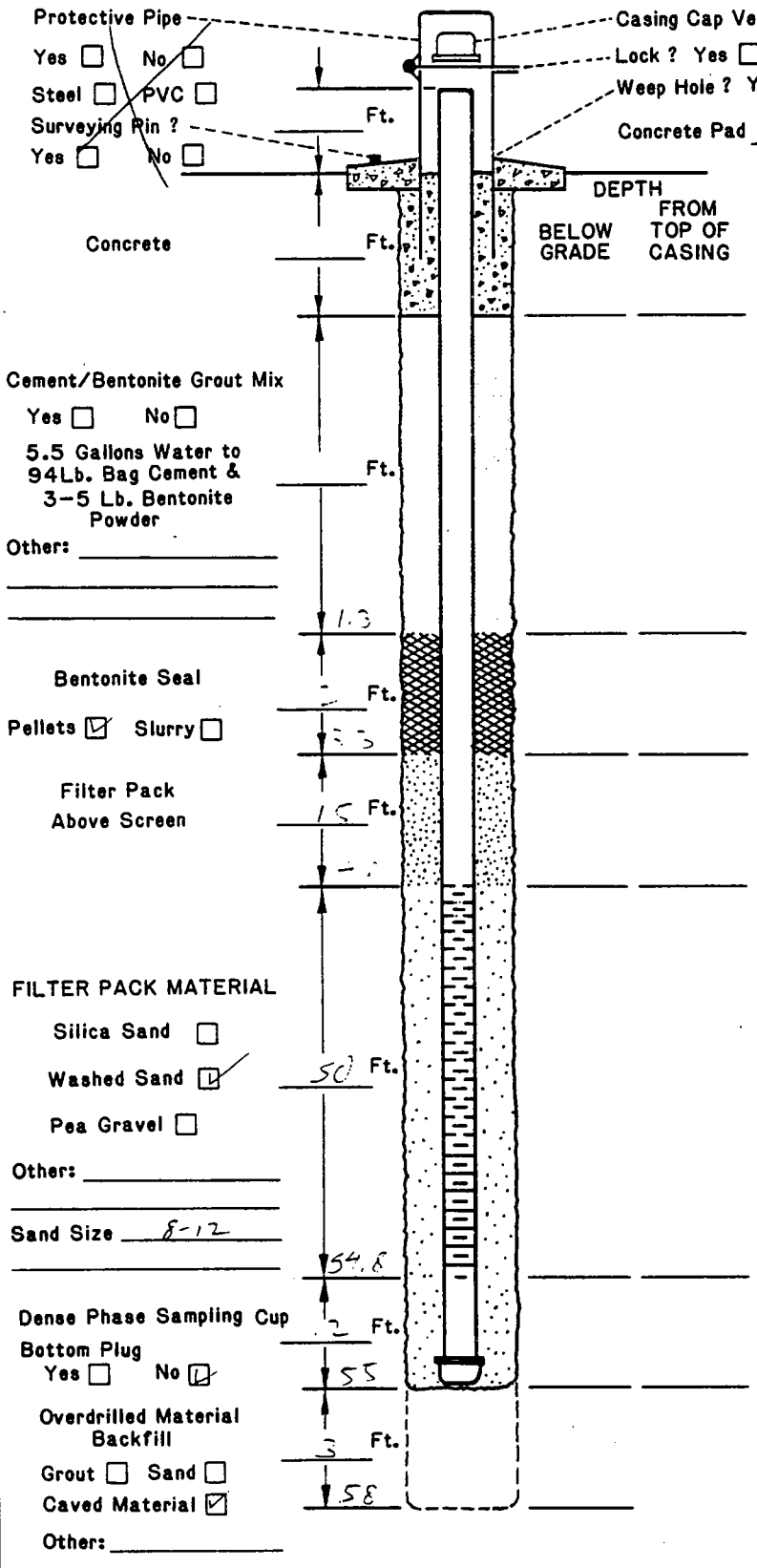
- Water Table (24 Hour)
- Water Table (Time of Boring)
- PID Photoionization Detection (ppm)
- NO. Identifies Sample by Number
- TYPE Sample Collection Method
- SPLIT-BARREL; AUGER; ROCK CORE; THIN-WALLED TUBE; CONTINUOUS SAMPLER; NO RECOVERY
- DEPTH Depth Top and Bottom of Sample
- REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND: CLAY; SILT; SAND; GRAVEL; SILTY CLAY; CLAYEY SILT; DEBRIS FILL; HIGH ORGANIC (Peat); SANDY CLAY; CLAYEY SAND

DATE DRILLED: 3/26/98	PAGE: 2 of 2
DRILLING METHOD: HSA	
DRILLED BY: LAYNE DRILLING	
LOGGED BY: T. REED	
EXISTING GRADE ELEVATION (FT AMSL):	
LOCATION ON GRID COORDINATES:	

FLUSH mount

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
MONITORING WELL INSTALLATION DIAGRAM



DRILLING INFORMATION:

1. Borehole Diameter= 8 Inches.
2. Were Drilling Additives Used ? Yes ☐ No ☑
   Revert ☐ Bentonite ☐ Water ☐
   Solid Auger ☐ Hollow Stem Auger ☑
3. Was Outer Steel Casing Used ? Yes ☐ No ☑
   Depth= _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casing: PVC ☑ Galvanized ☐ Teflon ☐
   Stainless ☐ Other _____
2. Type of Casing Joints: Screw-Couple ☑ Glue-Couple ☐ Other _____
3. Type of Well Screen: PVC ☑ Galvanized ☐
   Stainless ☐ Teflon ☐ Other _____
4. Diameter of Casing and Well Screen:
   Casing 2 Inches, Screen 2 Inches.
5. Slot Size of Screen: 0.020
6. Type of Screen Perforation: Factory Slotted ☑
   Hacksaw ☐ Drilled ☐ Other _____
7. Installed Protector Pipe w/Lock: Yes ☐ No ☑

WELL DEVELOPMENT INFORMATION:

1. How was Well Developed ? Bailing ☐ Pumping ☑
   Air Surging (Air or Nitrogen) ☐ Other _____
2. Time Spent on Well Development ?
   _____ / 1 Minutes/Hours
3. Approximate Water Volume Removed ? ~100 Gallons
4. Water Clarity Before Development ? Clear ☐
   Turbid ☐ Opaque ☑
5. Water Clarity After Development ? Clear ☐
   Turbid ☑ Opaque ☐
6. Did Water have Odor ? Yes ☐ No ☑
   If Yes, Describe _____
7. Did Water have any Color ? Yes ☐ No ☑
   If Yes , Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling 7 Ft. Date 5/21/98

Before Development _____ Ft. Date _____

After Development 7.93' Ft. Date 6/15/98

Driller/Firm ROBERTSON / WASSE DRLG Drill Rig Type B-61 HDX Date Installed 5/21/98

Drill Crew L. ROBERTSON / M. ROBERSON Well No. PC-56 Kerr-McGee Hydrologist T REED

SOIL BORING LOG KM-5655-B

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division	KM SUBSIDIARY KMCLLC	LOCATION HENDERSON, NV	BORING NUMBER PC-56

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER 6"	PID (ppm)	SOIL SAMPLE NO.	SOIL SAMPLE TYPE	SOIL SAMPLE DEPTH	SOIL SAMPLE REC.	REMARKS OR FIELD OBSERVATIONS
0	BERM MATERIAL: SAND W/ GRAVEL									
2	SAND W/ SILT AND OCC. GRAVEL; MED. TAN-BROWN; SLI. MOIST		SM							
5	GRAVEL @ 5-6'									
7	▽									
10										
15										
20	GRAVEL ZONE @ 20-23		GM							
25										
30	SAND AS ABOVE; RESEMBLES COFFEE GROUNDS WHEN FINES ARE RINSED OUT		SM							
35										

EXPLANATION

- ▼ Water Table (24 Hour)
- ▽ Water Table (Time of Boring)
- PID Photoionization Detection (ppm)
- NO. Identifies Sample by Number
- TYPE Sample Collection Method

SPLIT-BARREL | AUGER | ROCK CORE | THIN-WALLED TUBE | CONTINUOUS SAMPLER | NO RECOVERY

DEPTH Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY | SILT | SAND | GRAVEL | SILTY CLAY | CLAYEY SILT | DEBRIS FILL | HIGHLY ORGANIC (PEAT) | SANDY CLAY | CLAYEY SAND | _____ | _____

DATE DRILLED	PAGE
5/20/98	1 of 2

DRILLING METHOD: HSA

DRILLED BY: WEBER DRLG.

LOGGED BY: T. REED

EXISTING GRADE ELEVATION (FT. AMSL):

LOCATION OR GRID COORDINATES:

SOIL BORING LOG KM-5655-B

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division	KM SUBSIDIARY KMCLLC	LOCATION HENDERSON, NV	BORING NUMBER PC-56

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER 6"	PID (ppm)	SOIL SAMPLE NO.	SOIL SAMPLE TYPE	SOIL SAMPLE DEPTH	SOIL SAMPLE REC.	REMARKS OR FIELD OBSERVATIONS
40	GRAVEL ZONE @ 40-43'		GM							
45			SM							
50										
54										
55	CLAYEY SILT - SILTY CLAY; LT. TAN-ORIGE; SLI. PLASTIC MUDDY CREEK		CL-ML			1	X	55 - 56.5	1.5'	
58	TD 58'									

EXPLANATION

- ▼ Water Table (24 Hour)
- ▽ Water Table (Time of Boring)
- PID Photoionization Detection (ppm)
- NO. Identifies Sample by Number
- TYPE Sample Collection Method
- SPLIT-BARREL
- AUGER
- ROCK CORE
- THIN-WALLED TUBE
- CONTINUOUS SAMPLER
- NO RECOVERY
- DEPTH Depth Top and Bottom of Sample
- REC. Actual Length of Recovered Sample in Feet

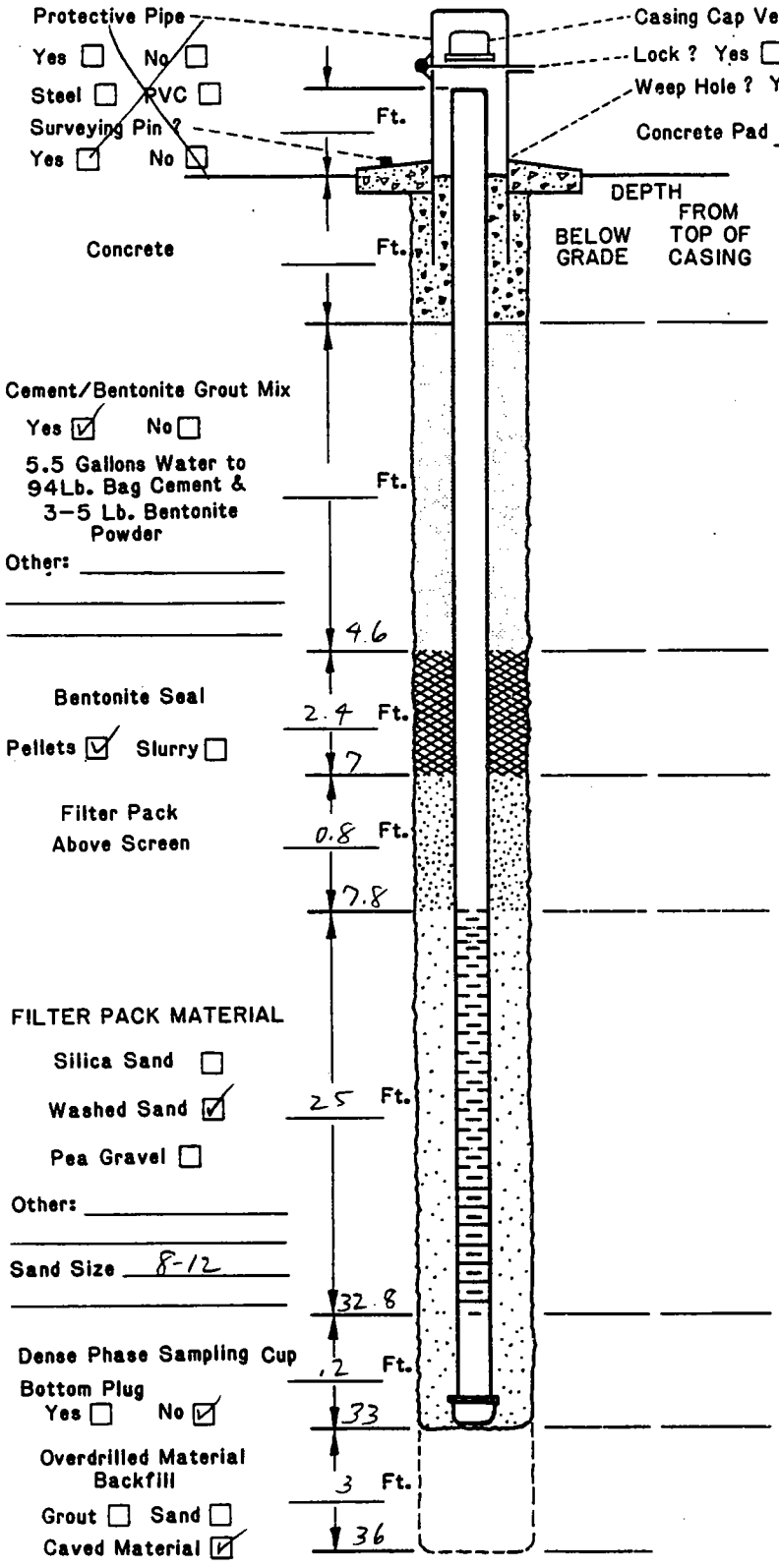
GRAPHIC LOG LEGEND

- CLAY
- SILT
- SAND
- GRAVEL
- SILTY CLAY
- CLAYEY SILT
- DEBRIS FILL
- HIGHLY ORGANIC (PEAT)
- SANDY CLAY
- CLAYEY SAND
- _____
- _____

DATE DRILLED	PAGE
5/20/98	2 of 2
DRILLING METHOD: HSA	
DRILLED BY: WEBER DRLG.	
LOGGED BY: T. REED	
EXISTING GRADE ELEVATION (FT AMSL)	
LOCATION OR GRID COORDINATES	

KERR-McGEE CORPORATION
HYDROLOGY DEPARTMENT
MONITORING WELL INSTALLATION DIAGRAM

FLUSH MOUNT



Casing Cap Vent ? Yes ☐ No ☐

Lock ? Yes ☐ No ☐

Weep Hole ? Yes ☐ No ☐

Concrete Pad _____ Ft. x _____ Ft. x _____ Inches

DEPTH FROM TOP OF CASING | DEPTH BELOW GRADE

DRILLING INFORMATION:

1. Borehole Diameter= 8 Inches.
2. Were Drilling Additives Used ? Yes ☐ No ☑
   Revert ☐ Bentonite ☐ Water ☐
   Solid Auger ☐ Hollow Stem Auger ☑
3. Was Outer Steel Casing Used ? Yes ☐ No ☑
   Depth= _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casing: PVC ☑ Galvanized ☐ Teflon ☐
   Stainless ☐ Other _____
2. Type of Casing Joints: Screw-Couple ☑ Glue-Couple ☐ Other _____
3. Type of Well Screen: PVC ☑ Galvanized ☐
   Stainless ☐ Teflon ☐ Other _____
4. Diameter of Casing and Well Screen:
   Casing 2 Inches, Screen 2 Inches.
5. Slot Size of Screen: .020
6. Type of Screen Perforation: Factory Slotted ☑
   Hacksaw ☐ Drilled ☐ Other _____
7. Installed Protector Pipe w/Lock: Yes ☐ No ☑

WELL DEVELOPMENT INFORMATION:

1. How was Well Developed ? Bailing ☐ Pumping ☑
   Air Surging (Air or Nitrogen) ☐ Other _____
2. Time Spent on Well Development ?
   45 / 0 Minutes/Hours
3. Approximate Water Volume Removed ? 80 Gallons
4. Water Clarity Before Development ? Clear ☐
   Turbid ☐ Opaque ☑
5. Water Clarity After Development ? Clear ☑
   Turbid ☐ Opaque ☐
6. Did Water have Oder ? Yes ☐ No ☑
   If Yes, Describe _____
7. Did Water have any Color ? Yes ☐ No ☑
   If Yes , Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling 13 Ft. Date 5/21/98

Before Development _____ Ft. Date _____

After Development 8.00 Ft. Date 6/15/98

Driller/Firm ROBERTSON / WESTERN DRLG. Drill Rig Type B-61 HDX Date Installed 5/21/98

Drill Crew L. ROBERTSON / M. ROBERSON Well No. PC-58 Kerr-McGee Hydrologist T REED

SOIL BORING LOG KM-5655-B

KERR-McGEE CORPORATION Hydrology Dept. - S&EA Division	KM SUBSIDIARY KMCLLC	LOCATION HENDERSON, NV	BORING NUMBER PC-58

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER 6"	PID (ppm)	SOIL SAMPLE NO.	SOIL SAMPLE TYPE	SOIL SAMPLE DEPTH	SOIL SAMPLE REC.	REMARKS OR FIELD OBSERVATIONS
0	BERM: SAND W/ GRAVEL									
2.5	SAND W/ SILT; MED. BROWN; SLI. MOIST; OCC. GRAVEL		SM							
5										
10	GRAVEL ZONE @ 10-14'		GM							
13	— — — — — —		▽							
15										
20			SM							
25	GRAVEL ZONE @ 26-28'		GM							
30										
34	SILTY CLAY - CLAYEY SILT; GREENISH-WHITE		CL-ML			1	X	35 36.5	1.5'	
35	V. SLI. PLASTIC; MOOSY CRACK									
36	TD 36'									

EXPLANATION

- ▼ Water Table (24 Hour)
- ▽ Water Table (Time of Boring)
- PID Photoionization Detection (ppm)
- NO. Identifies Sample by Number
- TYPE Sample Collection Method

SPLIT-BARREL; AUGER; ROCK CORE; THIN-WALLED TUBE; CONTINUOUS SAMPLER; NO RECOVERY

DEPTH Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY; SILT; SAND; GRAVEL; SILTY CLAY; CLAYEY SILT; DEBRIS FILL; HIGHLY ORGANIC (PEAT); SANDY CLAY; CLAYEY SAND; _____; _____

DATE DRILLED	PAGE
5/21/98	1 of 1

DRILLING METHOD: HSA

DRILLED BY: WEBER DRLG.

LOGGED BY: T. REED

EXISTING GRADE ELEVATION (FT. AMSL):

LOCATION OR GRID COORDINATES: ~500' EAST OF PC-56

DATE COMPLETED: 8/25/99
LOCATION: See Figure ...

BORING NO. WELLB2-3

ELEVATION:
** HAMMER WEIGHT: 140 lbs.

Northing - 483045
Easting - 674771

elevation MSL / DEPTH IN FEET	Well Construction Materials	Well Symbol	Soil Symbol	SOIL DESCRIPTION	WATER LEVEL
1598 0	Well Head with Locking Well Cover			SILTY SAND (SM) - with gravel, brown	
1593 5	Native soil drill cutting well backfill				
				WELL GRADED, SILTY SAND (SW-SM) - light brown	
1588 10				SILTY SAND (SM) - light brown	
	Bentonite seal 10' to 13'				
1583 15	Top of sand pack @ 13' Below Grade			- some fine gravel	
	Top of screen @ 15' Below Grade				
1578 20				CLAYEY SAND (SC) - with gravel, brown	
				SILTY CLAY (CL) - brown	
1573 25					
1568 30					
1563 35	continuous sand pack			- brown to gray-green	
1558 40				- gray-green to white	
1553 45					
1548 50				- white with gray-green lenses	
1543 55				- white	
1538 60	Well bottom cap			- white with gray-green lenses	
				Bottom at 61.5 feet.	

NOTES: Ground water encountered at 19 feet during drilling. Ground water measured at 18 feet on 8/25/99. Groundwater measured at 16.4 feet on 9/28/99.

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

APPROV:

BY:

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NO. 31-128126

PROJECT: Henderson Water Reclamation Facility, Phase 2B, Site#2

TYPICAL WELL CONSTRUCTION DETAIL

PLATE
A-18

DATE DRILLED: 8/24/99
LOCATION: See Figure 2

BORING NO. B2- 8

ELEVATION: 1601 Ft.
** HAMMER WEIGHT: 140 lb.

Northing - 482674
Easting - 674699

ELEV. MSL / DEPTH IN FEET	FIELD MOISTURE (%)	DRY DENSITY (pcf)	LAB TESTS *	BLOWS/ INCHES **	SAMPLER +	SYMBOL	SOIL DESCRIPTION	MOISTURE	CONSIST.
1601 / 0							**SILTY SAND (SM)** - with gravel, light brown	slightly moist	dense
									very dense
1596 / 5	8			24/6 35/6 47/6				moist	
1591 / 10	10			50/5					
1586 / 15	24		Ch	10/6 10/6 16/6			- trace clay **POORLY GRADED SILTY SAND (SP-SM)** - trace gravel, brown	moist to very moist	dense
							- trace clay	very moist to wet	
1581 / 20	38	75		17/6 23/6 26/6			**SILTY CLAY (CL)** - brown	wet	very stiff
1576 / 25							**SILTY CLAY (CH)** - highly plastic, light brown		

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE WITH TIME. DATA PRESENTED ARE A SIMPLIFICATION

* LAB TESTS: NR=No Recovery, C=Consolidation, A=Atterberg, Ch=Chemical test, S=Direct Shear, G=Grain-Size, E=Expansion, Sol=Solubility, Res=Resistivity, R=R-Value, ASTM D1557=Compaction test

+SAMPLER TYPE: Drive Sample 2.625" I.D. | Shelby Tube | Bulk | Ca. S.S. Sample 1.925" I. D. | SPT Sample 1.375" I.D.

NOTES: Ground water encountered at 22 feet during drilling. Groundwater measured at 19 feet on 9/28/99.

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NO. 31-128126

PROJECT: Henderson Water Reclamation Facility, Phase 1B Expansion, Site#2

BORING LOG AND TEST SUMMARY

PLATE
A-6a

BY:
APPROV:
ALVB W8126 1/26/00

DATE DRILLED: 8/24/99

LOCATION: See Figure 2

BORING NO. B2- 8

ELEVATION: 1601 Ft.

** HAMMER WEIGHT: 140 lb.

Northing - 482674
Easting - 674699

ELEV. MSL / DEPTH IN FEET	FIELD MOISTURE (%)	DRY DENSITY (pcf)	LAB TESTS *	BLOWS/ INCHES **	SAMPLER +	SYMBOL	SOIL DESCRIPTION	MOISTURE	CONSIST.
1576 / 25	64			7/6 10/6 12/6			**SILTY CLAY (CH)** - cont.	wet	very stiff
1571 / 30	37	78	G,A	13/6 22/6 29/6					
1566 / 35				8/6 11/6 16/6			**CLAYEY SILT (MH)** - highly plastic, light grey to green		
1561 / 40	90	45		14/6 21/6 31/6					very stiff to hard
1556 / 45				8/6 11/6 18/6					very stiff
1551 / 50							**CLAYEY SILT (ML)** - gray to green		

* LAB TESTS: NR=No Recovery, C=Consolidation, A=Atterberg, Ch=Chemical test, S=Direct Shear, G=Grain-Size, E=Expansion, Sol=Solubility, Res=Resistivity, R=R-Value, ASTM D1557=Compaction test

+SAMPLER TYPE: Drive Sample 2.625" I.D. | Shelby Tube | Bulk | Ca. S.S. Sample 1.925" I. D. | SPT Sample 1.375" I.D.

NOTES: Ground water encountered at 22 feet during drilling. Groundwater measured at 19 feet on 9/28/99.

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE WITH TIME. DATA PRESENTED ARE A SIMPLIFICATION

BY: ALVB W8126 1/26/00 APPROV:

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NO. 31-128126

PROJECT: Henderson Water Reclamation Facility, Phase 1B Expansion, Site#2

BORING LOG AND TEST SUMMARY

PLATE A-6b

DATE DRILLED: 8/24/99

LOCATION: See Figure 2

BORING NO. B2- 8

ELEVATION: 1601 Ft.

** HAMMER WEIGHT: 140 lb.

Northing - 482674
Easting - 674699

ELEV. MSL / DEPTH IN FEET	FIELD MOISTURE (%)	DRY DENSITY (pcf)	LAB TESTS *	BLOWS/ INCHES **	SAMPLER +	SYMBOL	SOIL DESCRIPTION	MOISTURE	CONSIST.
1551 50	56	59	C	5/6 8/6 11/6			CLAYEY SILT (ML) - cont.	wet	stiff to very stiff
1546 55			G,A	4/6 8/6 16/6			- white with gray-green lenses		
1541 60	57	59		4/6 8/6 10/6			- white		

Bottom at 61.5 feet.

'ON AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER
HIS LOCATION WITH TIME. DATA PRESENTED ARE A SIMPLIFICAT

THIS SUMMARY APPLIES ONLY AT THIS LO
AT OTHER LOCATIONS AND MAY CHANGE

LVB W8126 1/26/00

APPROV:

BY:

* LAB TESTS: NR=No Recovery, C=Consolidation, A=Atterberg, Ch=Chemical test, S=Direct Shear, G=Grain-Size, E=Expansion, Sol=Solubility, Res=Resistivity, R=R-Value, ASTM D1557=Compaction test

+SAMPLER TYPE: Drive Sample 2.625" I.D. | Shelby Tube | Bulk | Ca. S.S. Sample 1.925" I. D. | SPT Sample 1.375" I.D.

NOTES: Ground water encountered at 22 feet during drilling. Groundwater measured at 19 feet on 9/28/99.

KLEINFELDER

GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NO. 31-128126

PROJECT: Henderson Water Reclamation Facility, Phase 1B Expansion, Site#2

BORING LOG AND TEST SUMMARY

PLATE

A-6c

DATE DRILLED: 8/18/99
LOCATION: See Figure 2

BORING NO. B2-11

ELEVATION: 1602 Ft.
HAMMER WEIGHT: 140 lb.

Northing - 482802
Easting - 675486

ELEV. MSL / DEPTH IN FEET	FIELD MOISTURE (%)	DRY DENSITY (pcf)	LAB TESTS *	BLOWS/ INCHES **	SAMPLER +	SYMBOL	SOIL DESCRIPTION	MOISTURE	CONSIST.
1602 / 0							**SILTY SAND** - some gravel, brown	slightly moist	dense
									very dense
1597 / 5	8	99	Ch	17/6 19/6 21/6					
								moist	dense
1592 / 10	6		S	12/6 14/6 15/6					
			Res				**POORLY GRADED SILTY SAND (SP-SM)** - trace gravel, brown	moist to very moist	
1587 / 15	13	113		31/6 30/6 41/6					very dense
								very moist to wet ▽ wet	
1582 / 20	38			9/6 16/6 34/6					
							SILTY CLAY (CL) - gray to dark brown		very stiff to hard
1577 / 25									

* LAB TESTS: NR=No Recovery, C=Consolidation, A=Atterberg, Ch=Chemical test, S=Direct Shear, G=Grain-Size, E=Expansion, Sol=Solubility, Res=Resistivity, R=R-Value, ASTM D1557=Compaction test

+SAMPLER TYPE: Drive Sample 2.625" I.D. | Shelby Tube | Bulk | Ca. S.S. Sample 1.925" I. D. | SPT Sample 1.375" I.D.

NOTES: Ground water encountered at 18 feet during drilling.

TION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER
THIS LOCATION WITH TIME. DATA PRESENTED ARE A SIMPLIFICA

THIS SUMMARY APPLIES ONLY AT THIS L
AT OTHER LOCATIONS AND MAY CHANGE

KALVB W8126 1/26/00
APPROV:
BY:

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NO. 31-128126

PROJECT: Henderson Water Reclamation Facility, Phase 1B Expansion, Site#2

BORING LOG AND TEST SUMMARY

PLATE
A-9a

Well Purging and Sampling Log

Background Information

Well Identification B2-8	Project Name Henderson, NV
Well Permit Number _____	Project Number 01-2131F
Well Lock # _____	Sampling Date/Time 05/22/01, 17:15
Sampler(s) Doug Errett (ENVIRON)	Weather Conditions Hot, 100°F, clear

Well Information

Well Materials	Well Locked	Well Diameter	WL Equipment	Integrity
X PVC	☐ Y	☐ 2 Inch	X Conductivity Probe	☐ Casing
☐ _____	X N	X 4-inch	☐ _____	X Concrete (cracked)

Before Purging

PID Reading Downhole (ppm):	0.8 – 1.0
PID Background (ppm)	same
Reference Point Marked on Well?	No; use N side of well casing
Total Depth of Well from Top of Inner Casing (TD) (ft)	57.6
Depth to Water (DTW) (ft)	21.12
Casing Diameter (CD) (in)	4
Water Volume in Well (gal) = (TD-DTW)$(CD)^2(0.041)$	23.9
Free Product Thickness (if applicable) (ft)	N/A

pH 6.94	Specific Conductivity (uS/cm) 7,257
DO (mg/L) 3.83	Turbidity (NTU)
Temp (°C) 24.07	ORP 75.8

Well Purging and Sampling Log

Purging Data

Purge Start Time 17:38 Purge Method Submersible Pump

Time	Purge Vol. (Gal)	pH	T (°C)	SpC (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
17:50	15	6.94	24.07	7,257	3.83	75.8	Clear
18:04	30	7.21	24.07	7,227	3.55	41.5	Clear
18:17	45	7.32	23.87	7,204	3.28	34.4	Clear
18:30	60	7.35	23.90	7,189	3.28	45.5	Clear
18:45	75	7.40	24.01	7,188	3.31	46.8	Clear

Sampling Data

Sample Collection Time 19:00 Sample Designation B28-GW01

Depth to Water (ft) ~ 35 Sampling Method Pump; bailer for VOCs

Sample Container(s) See analyte list Preservative See analyte list

Analysis See analyte list Ferrous Iron Reading 0.0 mg/L

pH 7.40 DO (mg/L) 3.31

Temp (°C) 24.01 ORP 46.8

Specific Conductivity (uS/cm) 7,188 Turbidity (NTU) Clear

Notes: Analyte List, Containers, and Preservatives
SVOC/BNA (1 Liter Amber); Organophosphate Pesticides (1LA); Organics (other) (1LA); Dioxins (1LA); PCBs (1LA); Organochlorate Pesticides (1LA); VOCs (2x40 ml w/ HCl); Gamma (1L poly w/ HNO_3); ICP/ICPMS/Hg (1L poly w/ HNO3); Wet Chemistry (1L poly); Total Cyanide (250 ml poly w/ NaOH); Perchlorate (250 ml poly); Other Rad Paramters (4L poly cube w/ HNO_3).

Well Purging and Sampling Log

Background Information

Well Identification B2-14	Project Name Henderson, NV
Well Permit Number _____	Project Number 01-2131F
Well Lock # _____	Sampling Date/Time 05/22/01, 16:50
Sampler(s) Sarah Libeau (ENVIRON)	Weather Conditions Hot, 100°F, clear

Well Information

Well Materials	Well Locked	Well Diameter	WL Equipment	Integrity
X PVC	**X** Y	☐ 2 Inch	**X** Conductivity Probe	☐ Casing
☐ _____	☐ N	**X** 4 Inch	☐ _____	**X** Concrete (cracked)

Before Purging

PID Reading Downhole (ppm):	0.3 – 0.5
PID Background (ppm)	same
Reference Point Marked on Well?	No; use N side of well casing
Total Depth of Well from Top of Inner Casing (TD) (ft)	59.0
Depth to Water (DTW) (ft)	17.30
Casing Diameter (CD) (in)	4
Water Volume in Well (gal) = $(TD-DTW)(CD)^2(0.041)$	27.4
Free Product Thickness (if applicable) (ft)	N/A

pH 7.29	Specific Conductivity (uS/cm) 8,212
DO (mg/L) 1.14	Turbidity (NTU) Not measured (clear)
Temp (°C) 23.22	ORP 158.6

Well Purging and Sampling Log

Purging Data

Purge Start Time 17:00 Purge Method Submersible Pump

Time	Purge Vol. (Gal)	pH	T (°C)	SpC (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
17:00	5	7.29	23.22	8,212	1.14	158.6	Clear
17:20	40	7.39	23.18	8,222	1.19	161.5	Clear
17:35	85	7.45	22.79	8,196	2.18	165.9	Clear

Sampling Data

Sample Collection Time 17:45	Sample Designation B-14
Depth to Water (ft) 41.0	Sampling Method Pump; bailer for VOCs
Sample Container(s) See analyte list	Preservative See analyte list
Analysis See analyte list	Ferrous Iron Reading 0.0 mg/L
pH 7.45	DO (mg/L) 2.18
Temp (°C) 22.79	ORP 165.9
Specific Conductivity (uS/cm) 8,196	Turbidity (NTU) Clear

Notes: Analyte List, Containers, and Preservatives
SVOC/BNA (1 Liter Amber); Organophosphate Pesticides (1LA); Organics (other) (1LA); Dioxins (1LA); PCBs (1LA); Organochlorate Pesticides (1LA); VOCs (2x40 ml w/ HCl); Gamma (1L poly w/ HNO_3); ICP/ICPMS/Hg (1L poly w/ HNO3); Wet Chemistry (1L poly); Total Cyanide (250 ml poly w/ NaOH); Perchlorate (250 ml poly); Other Rad Paramters (4L poly cube w/ HNO_3).

Well Purging and Sampling Log

Background Information

Well Identification PC-2	Project Name Henderson, NV
Well Permit Number _____	Project Number 01-2131F
Well Lock # _____	Sampling Date/Time 05/23/01, 09:25
Sampler(s) Sarah Libeau (ENVIRON)	Weather Conditions Hot, 103°F, clear

Well Information

Well Materials	Well Locked	Well Diameter	WL Equipment	Integrity
X PVC	☐ Y	X 2 Inch	X Conductivity Probe	☐ Casing
☐ _____	X N	☐ _____	☐ _____	X Concrete

Before Purging

PID Reading Downhole (ppm):	0.3 – 0.5
PID Background (ppm)	same
Reference Point Marked on Well?	No; use N side of well casing
Total Depth of Well from Top of Inner Casing (TD) (ft)	33.6
Depth to Water (DTW) (ft)	19.30
Casing Diameter (CD) (in)	2
Water Volume in Well (gal) = $(TD-DTW)(CD)^2(0.041)$	2.4
Free Product Thickness (if applicable) (ft)	N/A

pH 7.46	Specific Conductivity (uS/cm) 7,529
DO (mg/L) 3.23	Turbidity (NTU) Not measured
Temp (°C) 23.25	ORP 147.0

Well Purging and Sampling Log

Purging Data

Purge Start Time 09:30 Purge Method Dedicated Bailer

Time	Purge Vol. (Gal)	pH	T (°C)	SpC (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
09:37	1	7.46	23.25	7,529	3.23	147	Brown
09:49	3	7.44	22.80	7,718	3.37	160.8	Clearing
10:01	5	7.43	22.67	7,709	3.31	159.5	Clear
10:22	8	7.42	22.66	7,697	3.45	161.5	Clear

Sampling Data

Sample Collection Time 10:25	Sample Designation PC-2
Depth to Water (ft) 23.1	Sampling Method Dedicated bailer
Sample Container(s) See analyte list	Preservative See analyte list
Analysis See analyte list	Ferrous Iron Reading 0.0 mg/L
pH 7.42	DO (mg/L) 3.45
Temp (°C) 22.66	ORP 161.5
Specific Conductivity (uS/cm) 7,697	Turbidity (NTU) Clear

Notes: Analyte List, Containers, and Preservatives
SVOC/BNA (1 Liter Amber); Organophosphate Pesticides (1LA); Organics (other) (1LA); Dioxins (1LA); PCBs (1LA); Organochlorate Pesticides (1LA); VOCs (2x40 ml w/ HCl); Gamma (1L poly w/ HNO_3); ICP/ICPMS/Hg (1L poly w/ HNO3); Wet Chemistry (1L poly); Total Cyanide (250 ml poly w/ NaOH); Perchlorate (250 ml poly); Other Rad Paramters (4L poly cube w/ HNO_3).

Well Purging and Sampling Log

Background Information

Well Identification PC-4	Project Name Henderson, NV
Well Permit Number _____	Project Number 01-2131F
Well Lock # _____	Sampling Date/Time 05/23/01, 09:50
Sampler(s) Doug Errett (ENVIRON)	Weather Conditions Hot, 100°F, clear

Well Information

Well Materials	Well Locked	Well Diameter	WL Equipment	Integrity
X PVC	☐ Y	X 2 Inch	X Conductivity Probe	☐ Casing
☐ _____	X N	☐ _____	☐ _____	X Concrete (cracked)

Before Purging

PID Reading Downhole (ppm):	0.3 – 0.5
PID Background (ppm)	same
Reference Point Marked on Well?	No; use N side of well casing
Total Depth of Well from Top of Inner Casing (TD) (ft)	44.1
Depth to Water (DTW) (ft)	24.19
Casing Diameter (CD) (in)	2
Water Volume in Well (gal) = (TD-DTW)(CD)^2(0.041)	3.3
Free Product Thickness (if applicable) (ft)	N/A

pH 7.2	Specific Conductivity (uS/cm) 9,370
DO (mg/L) 9.1	Turbidity (NTU) 260
Temp (°C) 23.90	ORP 59

Well Purging and Sampling Log

Purging Data

Purge Start Time 17:00 Purge Method Submersible Pump

Time	Purge Vol. (Gal)	pH	T (°C)	SpC (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
10:15	5	7.2	23.90	9,370	9.1	59	260
10:23	9	7.3	23.48	9,400	6.0	59	94
10:30	12	7.4	23.40	9,430	5.4	60	65

Sampling Data

Sample Collection Time 10:40	Sample Designation PC4-GW01
Depth to Water (ft) 24.29	Sampling Method Pump; bailer for VOCs
Sample Container(s) See analyte list	Preservative See analyte list
Analysis See analyte list	Ferrous Iron Reading 0.0 mg/L
pH 7.4	DO (mg/L) 5.4
Temp (°C) 23.40	ORP 60
Specific Conductivity (uS/cm) 9,430	Turbidity (NTU) 65

Notes: Analyte List, Containers, and Preservatives
SVOC/BNA (1 Liter Amber); Organophosphate Pesticides (1LA); Organics (other) (1LA); Dioxins (1LA); PCBs (1LA); Organochlorate Pesticides (1LA); VOCs (2x40 ml w/ HCl); Gamma (1L poly w/ HNO_3); ICP/ICPMS/Hg (1L poly w/ HNO3); Wet Chemistry (1L poly); Total Cyanide (250 ml poly w/ NaOH); Perchlorate (250 ml poly); Other Rad Paramters (4L poly cube w/ HNO_3).

Well Purging and Sampling Log

Background Information

Well Identification PC-56	Project Name Henderson, NV
Well Permit Number _____	Project Number 01-2131F
Well Lock # _____	Sampling Date/Time 05/23/01, 12:22
Sampler(s) Doug Errett (ENVIRON)	Weather Conditions Hot, 103°F, clear

Well Information

Well Materials	Well Locked	Well Diameter	WL Equipment	Integrity
X PVC	☐ Y	**X** 2 Inch	**X** Conductivity Probe	☐ Casing
☐ _____	**X** N	☐ _____	☐ _____	**X** Concrete

Before Purging

PID Reading Downhole (ppm):	0.3 – 0.5
PID Background (ppm)	same
Reference Point Marked on Well?	No; use N side of well casing
Total Depth of Well from Top of Inner Casing (TD) (ft)	54.7
Depth to Water (DTW) (ft)	5.95
Casing Diameter (CD) (in)	2
Water Volume in Well (gal) = (TD-DTW)$(CD)^2(0.041)$	8.0
Free Product Thickness (if applicable) (ft)	N/A

pH 7.1 Specific Conductivity (uS/cm) 11,300

DO (mg/L) 13.5 Turbidity (NTU) 75

Temp (°C) 23.12 ORP 216

Well Purging and Sampling Log

Purging Data

Purge Start Time 12:42 Purge Method Submersible Pump

Time	Purge Vol. (Gal)	pH	T (°C)	SpC (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
12:46	5	7.1	23.12	11.3	13.5	216	75
12:53	10	7.1	23.27	11.3	6.5	148	81
13:08	20	7.1	23.14	11.5	3.5	109	88
13:16	25	7.1	23.24	11.6	3.5	109	82

Sampling Data

Sample Collection Time 13:30	Sample Designation PC56-GW01
Depth to Water (ft) 6.41	Sampling Method Pump; bailer for VOCs
Sample Container(s) See analyte list	Preservative See analyte list
Analysis See analyte list	Ferrous Iron Reading 0.0 mg/L
pH 7.10	DO (mg/L) 3.5
Temp (°C) 23.24	ORP 109
Specific Conductivity (uS/cm) 11,600	Turbidity (NTU) 82

Notes: Analyte List, Containers, and Preservatives
SVOC/BNA (1 Liter Amber); Organophosphate Pesticides (1LA); Organics (other) (1LA); Dioxins (1LA); PCBs (1LA); Organochlorate Pesticides (1LA); VOCs (2x40 ml w/ HCl); Gamma (1L poly w/ HNO_3); ICP/ICPMS/Hg (1L poly w/ HNO3); Wet Chemistry (1L poly); Total Cyanide (250 ml poly w/ NaOH); Perchlorate (250 ml poly); Other Rad Paramters (4L poly cube w/ HNO_3).

Well Purging and Sampling Log

Background Information

Well Identification PC-58	Project Name Henderson, NV
Well Permit Number _____	Project Number 01-2131F
Well Lock # _____	Sampling Date/Time 05/23/01, 12:20
Sampler(s) Sarah Libeau (ENVIRON)	Weather Conditions Hot, 103°F, clear

Well Information

Well Materials	Well Locked	Well Diameter	WL Equipment	Integrity
X PVC	☐ Y	X 2 Inch	X Conductivity Probe	☐ Casing
☐ _____	X N	☐ _____	☐ _____	X Concrete

Before Purging

PID Reading Downhole (ppm):	0.3 – 0.5
PID Background (ppm)	same
Reference Point Marked on Well?	No; use N side of well casing
Total Depth of Well from Top of Inner Casing (TD) (ft)	31
Depth to Water (DTW) (ft)	6.6
Casing Diameter (CD) (in)	2
Water Volume in Well (gal) = (TD-DTW)(CD)^2(0.041)	4.0
Free Product Thickness (if applicable) (ft)	N/A

pH 7.24	Specific Conductivity (uS/cm) 8,590
DO (mg/L) 1.74	Turbidity (NTU) Not measured
Temp (°C) 24.92	ORP 8.4

Well Purging and Sampling Log

Purging Data

Purge Start Time 12:30 Purge Method Dedicated Bailer

Time	Purge Vol. (Gal)	pH	T (°C)	SpC (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
12:35	1	7.24	24.92	8,590	1.74	8.4	Brown
12:43	3	7.22	26.94	8,680	0.98	98.8	Clearing
12:56	6	7.34	27.49	8,541	1.42	115.4	Clearing
13:09	9	7.22	27.72	8,527	1.40	87.6	Clear
13:23	12	7.26	24.40	8,546	1.32	98.5	Clear

Sampling Data

Sample Collection Time 13:25	Sample Designation PC-58
Depth to Water (ft) 23.1	Sampling Method Dedicated bailer
Sample Container(s) See analyte list	Preservative See analyte list
Analysis See analyte list	Ferrous Iron Reading 0.0 mg/L
pH 7.26	DO (mg/L) 1.32
Temp (°C) 24.40	ORP 98.5
Specific Conductivity (uS/cm) 8,546	Turbidity (NTU) Clear

Notes: Analyte List, Containers, and Preservatives
SVOC/BNA (1 Liter Amber); Organophosphate Pesticides (1LA); Organics (other) (1LA); Dioxins (1LA); PCBs (1LA); Organochlorate Pesticides (1LA); VOCs (2x40 ml w/ HCl); Gamma (1L poly w/ HNO_3); ICP/ICPMS/Hg (1L poly w/ HNO3); Wet Chemistry (1L poly); Total Cyanide (250 ml poly w/ NaOH); Perchlorate (250 ml poly); Other Rad Paramters (4L poly cube w/ HNO_3).