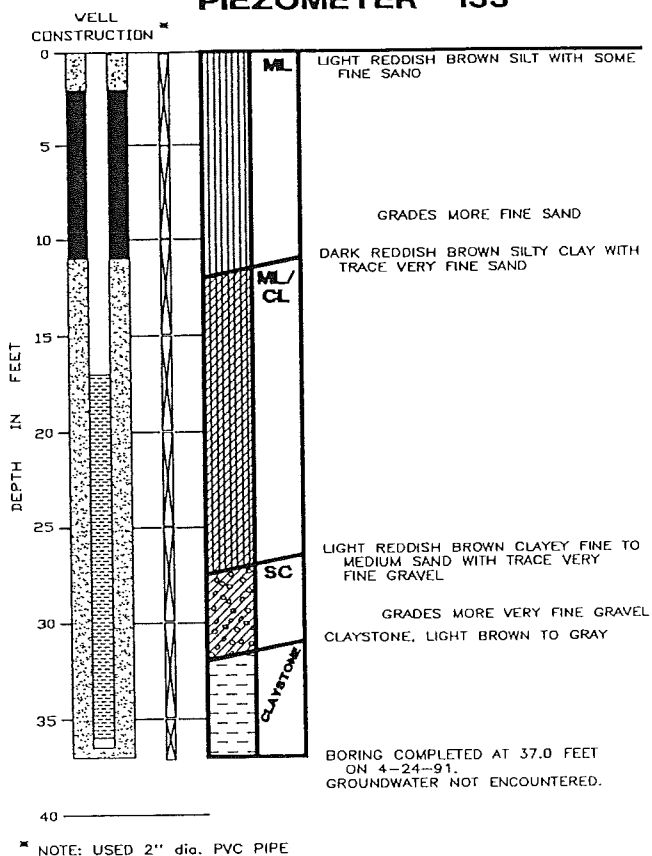
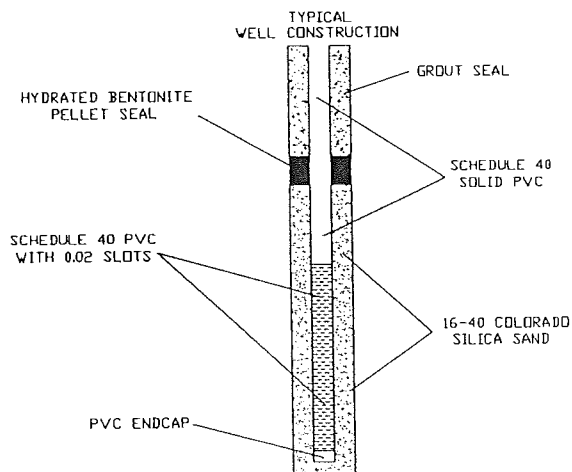
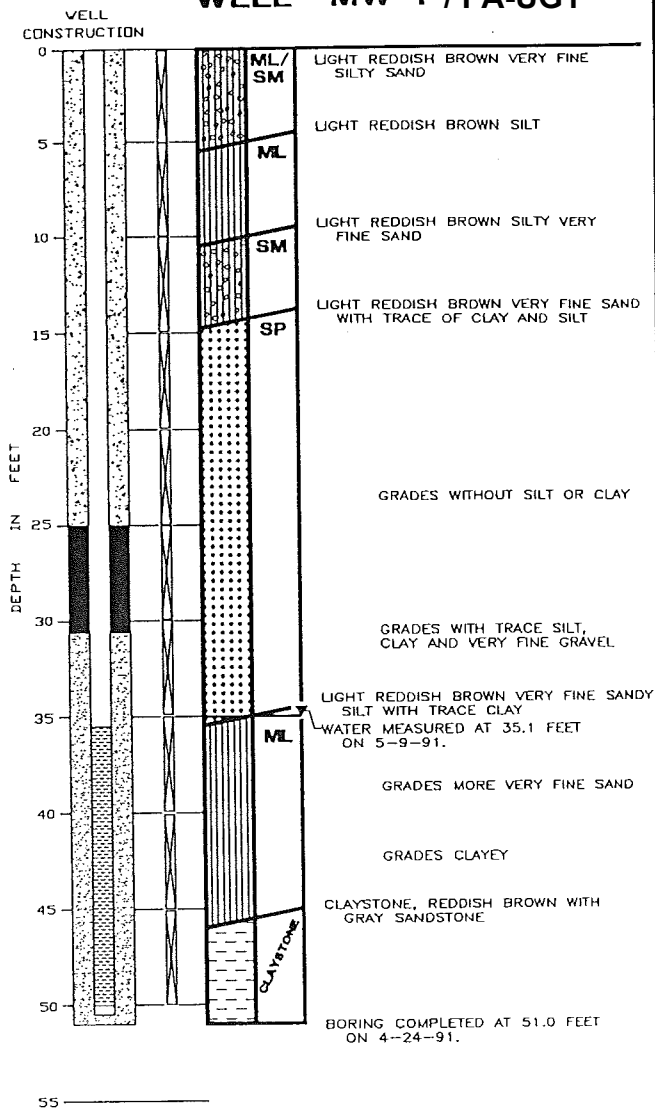


FILE 13826-024-031 (CDGT024_1) BY DATE CHECKED BY DATE

PIEZOMETER 133



WELL MW-1 / FA-UG1



KEY

☒ DEPTH AT WHICH DISTURBED SAMPLE WAS EXTRACTED

LOG OF BORINGS



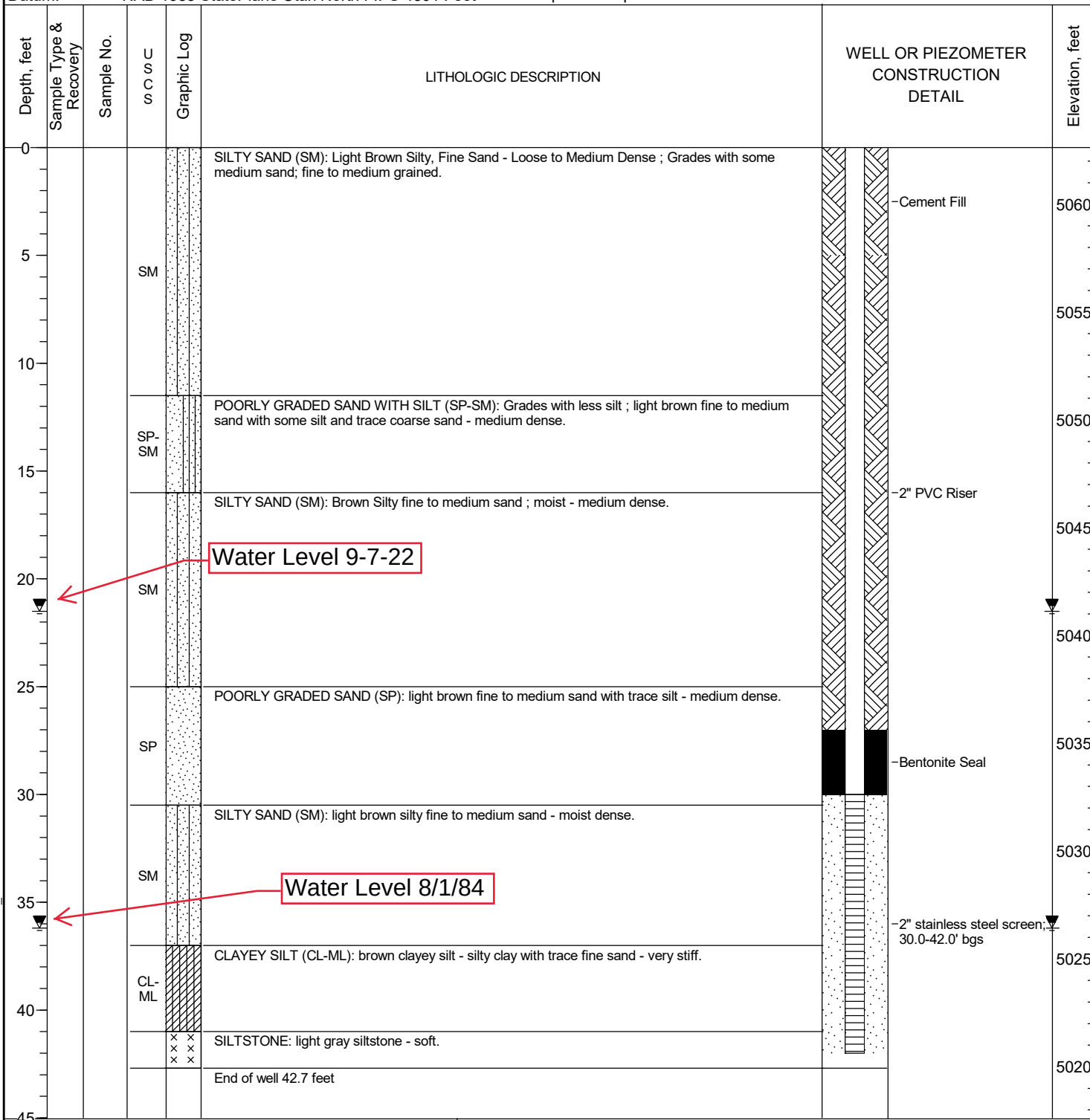
Barr Engineering Co.
170 South Main Street Suite 500
Salt Lake City, UT 84101
Telephone: 801-333-8400

LOG OF WELL FA-UG2

Associated Boring #: PZ-11

SHEET 1 OF 1

Project: Deseret Power
Project No.: 44241001
Location: Bonanza, UT
Coordinates: N 2,260,250.0 ft E 3,204,770.0 ft
Datum: NAD 1983 StatePlane Utah North FIPS 4301 Feet
Surface Elevation: 5062.6 ft
Drilling Method: Cable Tool
Sampling Method: Unknown
Completion Depth: 42.7 ft



Date Boring Started: 8/1/84
Date Boring Completed: 8/8/84
Logged By: Dames & Moore
Drilling Contractor: Harvey's Sales and Service
Drill Rig: Unknown

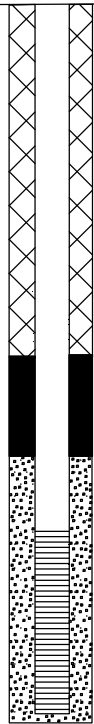
Remarks: Surface Elevation, Depth, Lithology, Driller Information from Dames and Moore (1992)
Groundwater Elevation on 08/01/1984: 5,026.43 ft amsl
Groundwater Elevation on 09/07/2022: 5,041.09 ft amsl
Length and Placement of Well Screen estimated from Video Logs
Well Construction Information Inferred based on available data
Additional data may have been collected in the field which is not included on this log.

M:\GINT\PROJECTS\44241001 DESERET POWER\DESERET_FA-UG2.GPJ BARR\LIBRARY\GLB ENVIRO LOG BARR TEMPLATE.GDT

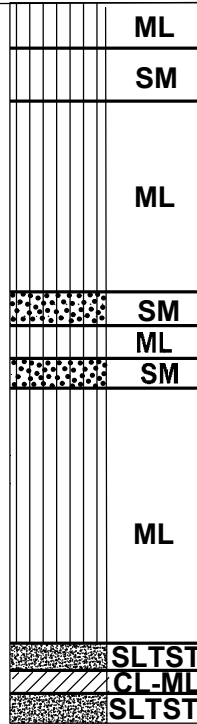
DEPTH (IN FEET)

0
—
10
—
20
—
30
—
40
—
50

**WELL
CONSTRUCTION**



**UNIFIED SOIL
CLASSIFICATION
SYSTEM**



GEOLOGIC LOG

PALE REDDISH-BROWN SILT, DRY, LOOSE (FILL)
PALE REDDISH-BROWN VERY FINE SILTY SAND, DRY, LOOSE
PALE REDDISH-BROWN SILT, DRY, LOOSE
LIGHT GRAY VERY FINE SILTY SAND, DRY, LOOSE
PALE REDDISH BROWN SILT, DRY, LOOSE
LIGHT GRAY VERY FINE SILTY SAND, DRY, LOOSE
LIGHT BROWN SILT, DRY, HARD
GRADES WITH A TRACE OF CLAY, MOIST
LIGHT GREENISH GRAY VERY FINE SANDY SILTSTONE, DRY
LIGHT BROWN SILTY CLAY, DRY
MOTTLED MAROON TO GREENISH GRAY SLITSTONE

WATER LEVEL- DRY ON 05/12/2016 THROUGH 05/20/2016

SURVEY DATUM

Point	Northing	Easting	Elevation
FA-DG1	652012.5	622600	5063.48

BORING COMPLETED TO 37.5 FT ON 05/11/16
WELL COMPLETED ON 5/11/16



**COAL COMBUSTION RESIDUALS WELL INSTALLATION
BONANZA POWER PLANT**

TITLE

**GEOLOGIC LOG AND
SCHEMATIC DIAGRAM OF
WELL FA-DG1**

SIZE	CAGE CODE	DWG NO	REV
A			1
DATE: 06/06/2016	SCALE	SHEET	FIGURE 3

DEPTH (IN FEET)

0

10

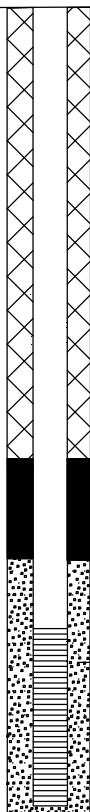
20

30

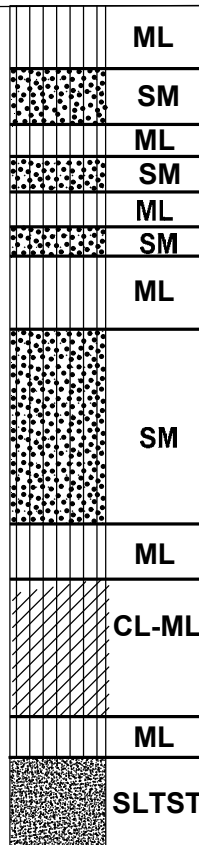
40

50

WELL
CONSTRUCTION



UNIFIED SOIL
CLASSIFICATION
SYSTEM



GEOLOGIC LOG

LIGHT BROWN SILT, TRACE OF VERY FINE SAND, DRY

LIGHT BROWN VERY SILTY, VERY FINE SAND, LOOSE, DRY

LIGHT BROWN SILT, TRACE OF VERY FINE SAND, , HARD, DRY

LIGHT BROWN SILTY VERY FINE SAND, LOOSE, DRY

LIGHT BROWN SILT, HARD, DRY

LIGHT BROWN SILTY VERY FINE SAND, LOOSE, DRY

LIGHT BROWN SILT, HARD, DRY

LIGHT BROWN SILTY FINE SAND, LOOSE, DRY

GRADES WITH TRACE FINE GRAVEL, SUBROUNDED, LOOSE, DRY

MEDIUM BROWN SILT, MOIST

MEDIUM BROWN SILTY CLAY, MOIST

GRADES WET

MEDIUM BROWN SILT WITH CLASTS OF LIGHT GREENISH GRAY SILTSTONE

SILTSTONE, LIGHT GREENISH GRAY, HARD, DRY

WATER LEVEL- DRY ON COMPLETION BUT LEVELS
ROSE TO 34.11 ON 05/20/2016

SURVEY DATUM

Point	Northing	Easting	Elevation
FA-DG2	651300	622600	5056.55

BORING COMPLETED TO 42 FT ON 05/11/16
WELL COMPLETED ON 5/11/16



COAL COMBUSTION RESIDUALS WELL INSTALLATION
BONANZA POWER PLANT

TITLE

GEOLOGIC LOG AND
SCHEMATIC DIAGRAM OF
WELL FA-DG2

SIZE	CAGE CODE	DWG NO	REV
A			1
DATE: 06/13/2016	SCALE	SHEET	FIGURE 4

DEPTH (IN FEET)

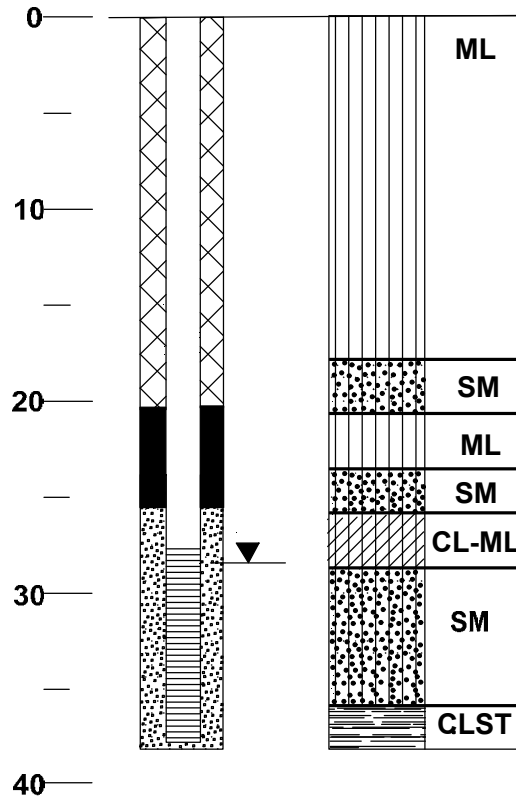
WELL
CONSTRUCTION

UNIFIED SOIL
CLASSIFICATION
SYSTEM

GEOLOGIC LOG

SURVEY DATUM

Point	Northing	Easting	Elevation
FA-DG3	651150.5	622401.68	5055.02



LIGHT BROWN TO TAN SILT, DRY, LOOSE

GRADES SLIGHTLY STIFFER, DRY

GRADES WITH TRACE OF VERYFINE SAND, LOOSE, DRY

LIGHT BROWN TO TAN VERY FINE SILT, LOOSE, DRY

LIGHT BROWN TO TAN SILT WITH TRACE OF VERY FINE SILTY SAND LAYERS

LIGHT BROWN VERY SILTY FINE SAND, LOOSE, MOIST

MEDIUM BROWN SILTY CLAY, STIFF, MOIST

PALE REDDISH BROWN VERY FINE SILTY SAND, WET

MOTTLED GREENISH GRAY CLAYSTONE

WATER LEVEL - 28.23 ON 05/19/2016

BORING COMPLETED TO 37.5 FT ON 05/13/16
WELL COMPLETED ON 5/13/16



COAL COMBUSTION RESIDUALS WELL INSTALLATION
BONANZA POWER PLANT

TITLE

GEOLOGIC LOG AND
SCHEMATIC DIAGRAM OF
WELL FA-DG3

SIZE	CAGE CODE	DWG NO	REV
A			1
SCALE		SHEET	FIGURE 5

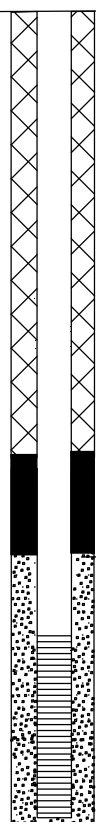
DRAWN BY J.S.BROWN P.G.

DATE: 06/13/2016

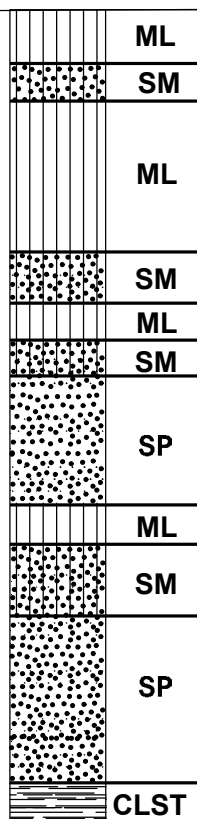
DEPTH (IN FEET)

0
10
20
30
40

WELL CONSTRUCTION



UNIFIED SOIL CLASSIFICATION SYSTEM



GEOLOGIC LOG

LIGHT BROWN TO TAN SILT, DRY, LOOSE
 LIGHT BROWN VERY FINE SILTY SAND, LOOSE, DRY
 LIGHT BROWN SILT, LOOSE, DRY
 GRADES SLIGHTLY STIFFER, DRY
 LIGHT BROWN TO TAN VERY FINE SILT, LOOSE, DRY
 LIGHT BROWN SILT, LOOSE, DRY
 LIGHT BROWN SILTY FINE SAND WITH TRACE ROUNDED GRAVEL
 PALE REDDISH BROWN FINE SAND, LOOSE, MOIST
 PALE REDDISH BROWN VERY FINE SANDY SILT, WET
 PALE REDDISH BROWN VERY SILTY VERY FINE SAND, WET
 PALE REDDISH BROWN FINE SAND, WET
 GRADES WITH STRINGERS OF FINE GRAVEL, WET, LOOSE
 LIGHT TO MEDIUM GRAY CLAYSTONE

SURVEY DATUM

Point	Northing	Easting	Elevation
FA-DG4	651150.3	622251.61	5055.67

WATER LEVEL - 28.97 ON 05/20/2016

BORING COMPLETED TO 37.5 FT ON 05/13/16
 WELL COMPLETED ON 5/13/16



COAL COMBUSTION RESIDUALS WELL INSTALLATION BONANZA POWER PLANT

TITLE

GEOLOGIC LOG AND SCHEMATIC DIAGRAM OF WELL FA-DG4

SIZE	CAGE CODE	DWG NO	REV
A			1

DATE: 06/13/2016

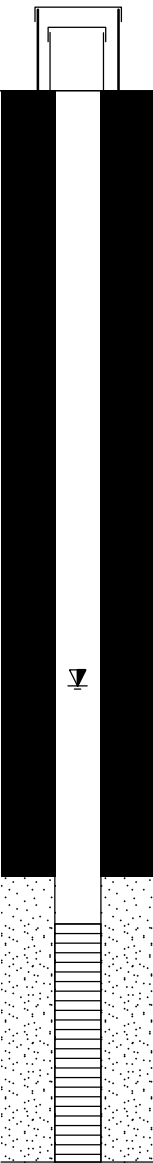
SCALE	SHEET
	FIGURE 6



Barr Engineering Co.
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

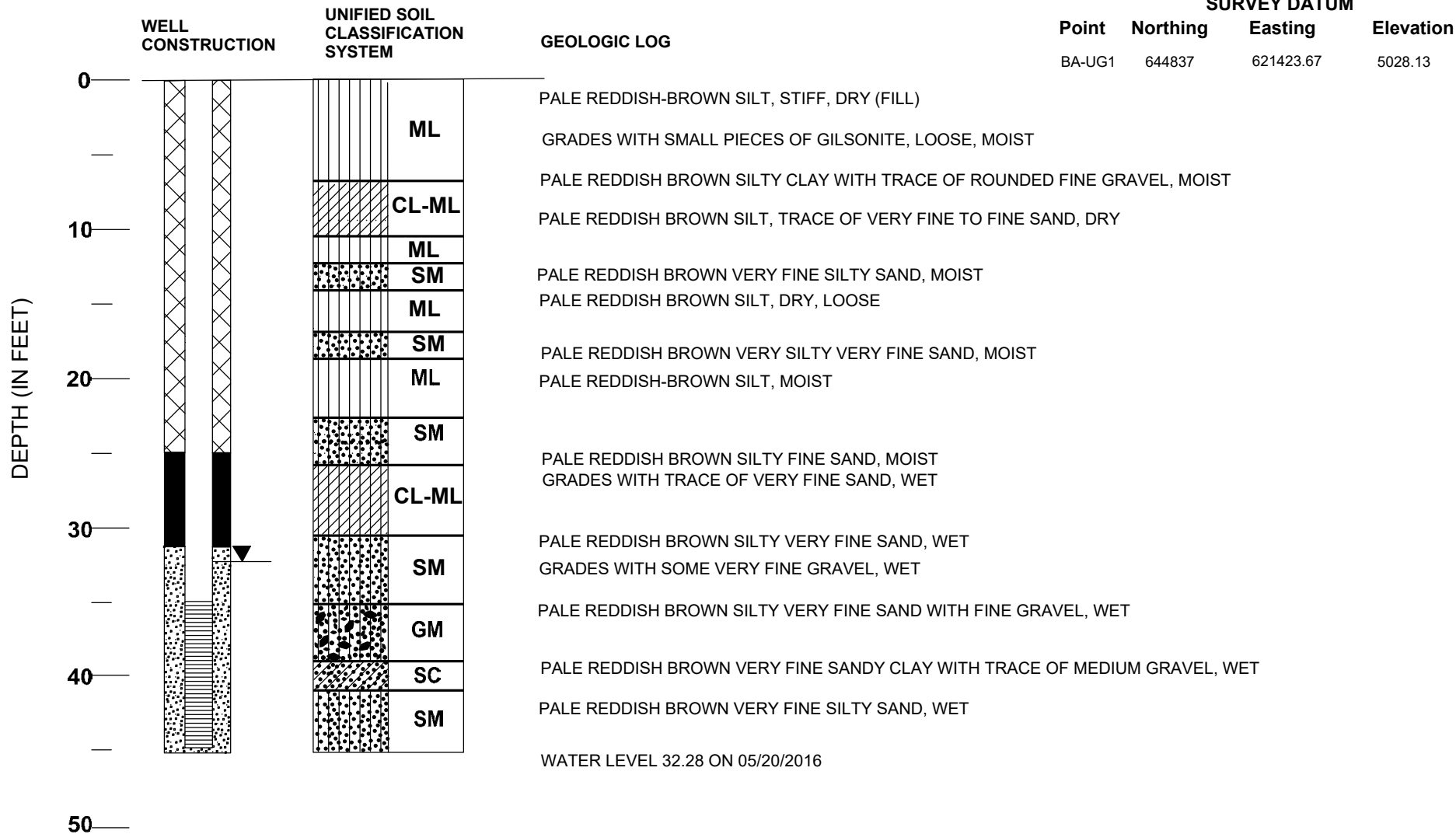
LOG OF BORING PZ-212/ Well FA-DG5 Construction

Sheet 1 of 1

Project: Deseret Power		Location: Deseret Power Bonanza Plant			Client: Deseret Power			
Barr Project Number: 44241001.07		Surface Elevation: 5053.29 ft			Top of Casing Elevation: 5056.24			
STRATA		DEPTH, ft	SYMBOL	WELL OR PIEZOMETER CONSTRUCTION DETAILS	DEPTH, ft	ELEVATION, ft	CONSTRUCTION DETAILS FOR MONITORING WELL	
DESCRIPTION								
		0			-3.40 -2.95	TPC TRC	5056.69 5056.24	PROTECTIVE CASING Diameter: 6" Type: Steel Interval: -3.4 - 4 ft
POORLY-GRADED SAND (SP): fine grained; tan; dry to moist.		5			0.0	GS	5053.29	RISER CASING Diameter: 2" Type: Schedule 80 PVC Interval: -2.95 - 35 ft
5048.3 ft								GROUT Type: Bentonite Chips Interval: 2 - 33 ft
SANDY SILT (ML): tan; dry to moist.								SEAL Type: Bentonite Chips Interval: 2 - 33 ft
								SANDPACK Type: Silica Sand Interval: 33 - 45 ft
								SCREEN Diameter: 2" Type: Schedule 80 PVC Interval: 35 - 45 ft
5029.3 ft		25						Remarks: Monitoring Well FA-DG5
POORLY-GRADED SAND (SP): coarse grained; tan; wet.								
5025.3 ft								
POORLY-GRADED SAND (SP): medium grained; tan; wet; trace small gravel.		30						
5023.8 ft								
POORLY-GRADED SAND (SP): coarse grained; tan; wet.					33.0	BS	5020.3	
5021.3 ft								
FAT CLAY (CH): tan; wet; high plasticity.		35						
5020.3 ft								
SILTY SAND (SM): fine to medium grained; tan; wet.		40						
5015.3 ft								
WELL-GRADED SAND (SW): fine to coarse grained; tan; wet; loose.								
5009.3 ft								
SANDY SILT (ML): tan; wet; medium dense.		45			45.0	FP	5008.3	
5008.3 ft								
Bottom of Boring at 45.0 feet								

Completion Depth: 45.0 ft		LEGEND				WATER LEVELS(ft)	
Date Started: 12/14/21			FILTER PACK	TPC	TOP OF PROTECTIVE CASING		
Date Completed: 12/14/21			BENTONITE	TRC	TOP OF RISER CASING		
Logged By: CJ			CEMENT GROUT	BPC	BASE PROTECTIVE CASING		
Drilling Contractor: Cascade			CUTTINGS / BACKFILL	GS	GROUND SURFACE		
Drilling Method: Mini-Sonic				BS	BENTONITE SEAL		
Datum:				FP	FILTER PACK		
Coordinates: Lat: 40.099164° Long: -109.280914°				TSC	TOP OF SCREEN		
				BSC	BOTTOM OF SCREEN		
				TD	TOTAL DEPTH		
						At Time of Drilling	25.0

The stratification lines represent approximate boundaries. The transition may be gradual.

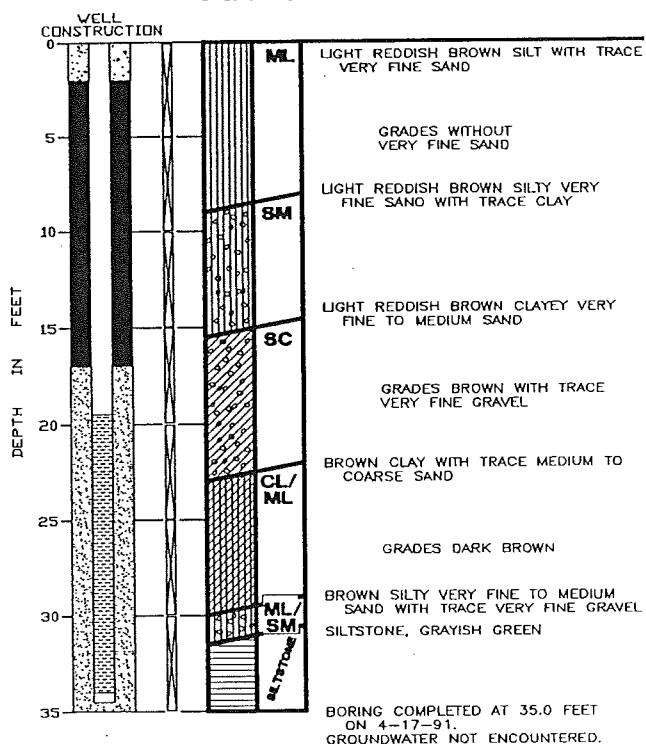


BORING COMPLETED TO 45 FT ON 05/10/16
WELL COMPLETED ON 5/10/16

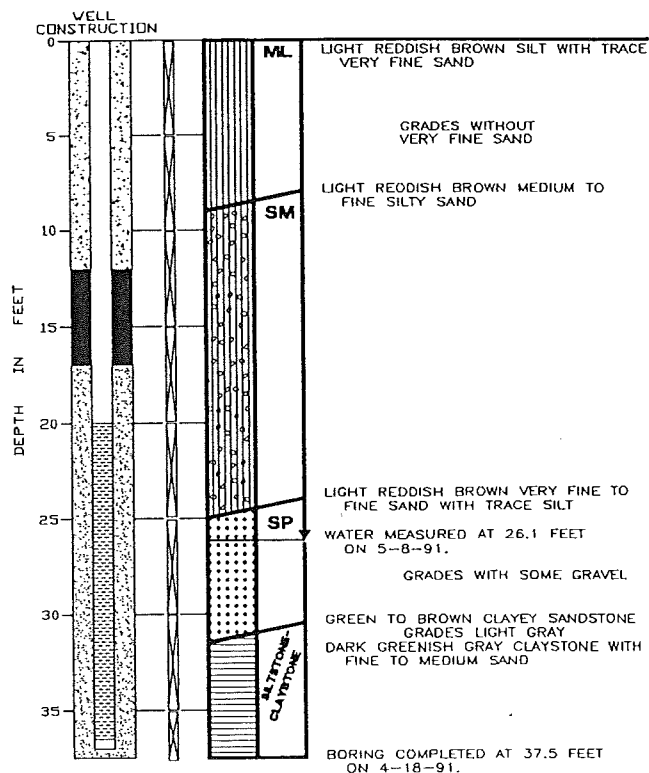


					COAL COMBUSTION RESIDUALS WELL INSTALLATION BONANZA POWER PLANT			
					TITLE GEOLOGIC LOG AND SCHEMATIC DIAGRAM OF WELL BA-UG1			
DRAWN BY J.S.BROWN P.G.					SIZE A	CAGE CODE	DWG NO	REV 1
DATE: 06/06/2016					SCALE		SHEET	FIGURE 7

PIEZOMETER 132

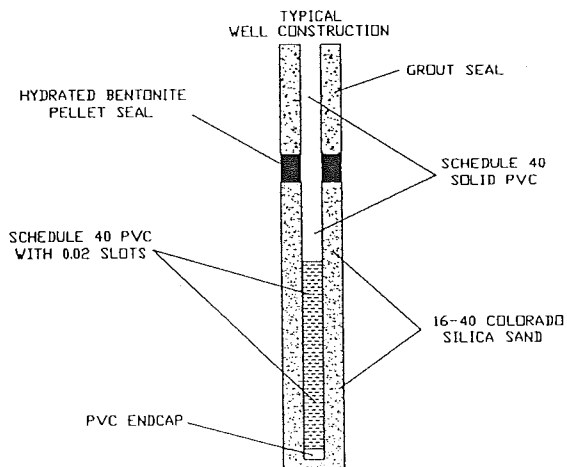


WELL MW-4 / BA-DG1



KEY

☒ DEPTH AT WHICH DISTURBED SAMPLE WAS EXTRACTED

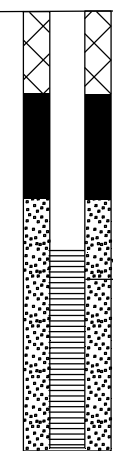


LOG OF BORINGS

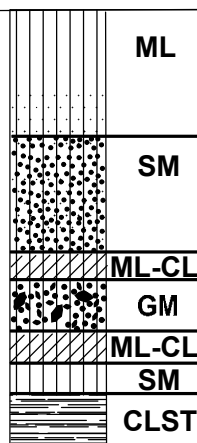
DEPTH (IN FEET)

0
10
20
30

**WELL
CONSTRUCTION**



**UNIFIED SOIL
CLASSIFICATION
SYSTEM**



GEOLOGIC LOG

PALE REDDISH-BROWN SILT, DRY, LOOSE

PALE REDDISH BROWN SILTY VERY FINE SAND

GRADES WET
PALE REDDISH BROWN SILTY CLAY

PALE REDDISH BROWN SILTY MEDIUM SANDY VERY FINE GRAVEL

PALE REDDISH BROWN SILTY CLAY, MOIST
PALE REDDISH BROWN SILTY FINE SAND, WET

MEDIUM GREENISH GRAY SILTSTONE AND CLAYSTONE

SURVEY DATUM

Point	Northing	Easting	Elevation
BA-DG2	642359.96	621487.4	5002.65

WATER LEVEL 13.9 ON 05/17/2016

BORING COMPLETED TO 22.5 FT ON 05/11/16
WELL COMPLETED ON 5/11/16



**COAL COMBUSTION RESIDUALS WELL INSTALLATION
BONANZA POWER PLANT**

TITLE

**GEOLOGIC LOG AND
SCHEMATIC DIAGRAM OF
WELL BA-DG2**

SIZE A	CAGE CODE	DWG NO	REV 1
SCALE		SHEET	FIGURE 8

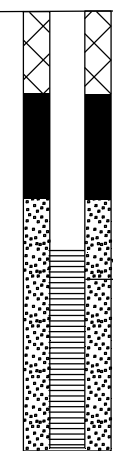
DRAWN BY J.S.BROWN P.G.

DATE: 06/09/2016

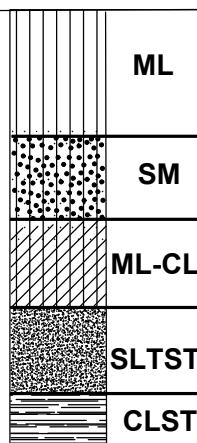
DEPTH (IN FEET)

0
10
20
30

**WELL
CONSTRUCTION**



**UNIFIED SOIL
CLASSIFICATION
SYSTEM**



GEOLOGIC LOG

PALE REDDISH-BROWN SILT, DRY, LOOSE

GRADES MOIST WITH TRACE OF CLAY

PALE REDDISH BROWN SILTY VERY FINE SAND WITH TRACE VERY FINE GRAVEL, MOIST

GRADES WET

PALE REDDISH BROWN SILTY CLAY, WET

GRADES VERY STIFF

MEDIUM GREENISH GRAY FINE SANDY SILTSTONE

MEDIUM GREENISH GRAY SILTSTONE AND CLAYSTONE

SURVEY DATUM

Point	Northing	Easting	Elevation
BA-DG3	642360.01	621874.9	5002.61

BORING COMPLETED TO 23 FT ON 05/9/16
WELL COMPLETED ON 5/10/16

WATER LEVEL 13.95 ON 05/12/2016



**COAL COMBUSTION RESIDUALS WELL INSTALLATION
BONANZA POWER PLANT**

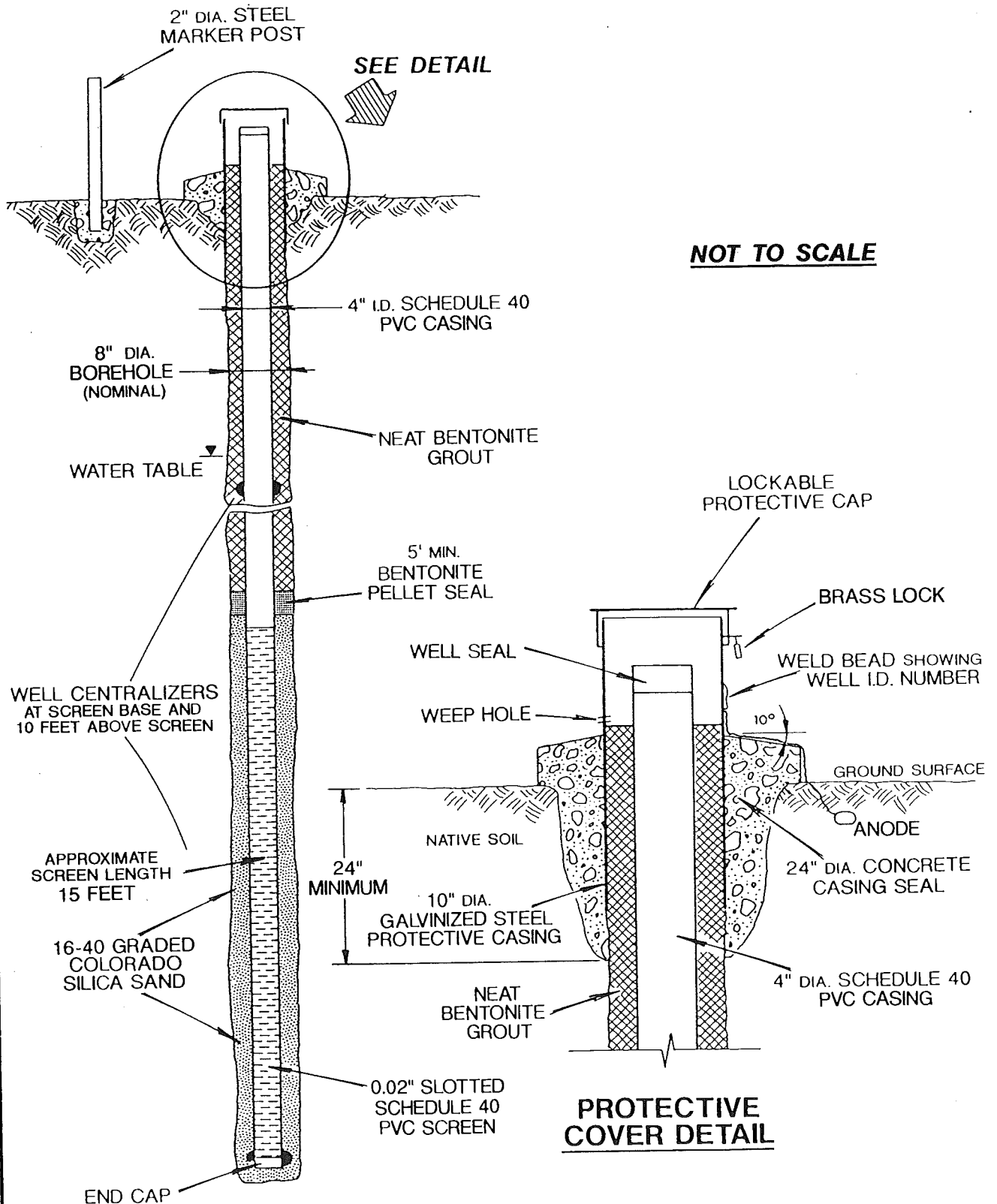
TITLE

**GEOLOGIC LOG AND
SCHEMATIC DIAGRAM OF
WELL BA-DG3**

SIZE	CAGE CODE	DWG NO	REV
A			1
SCALE		SHEET	FIGURE 9

DRAWN BY J.S.BROWN P.G.

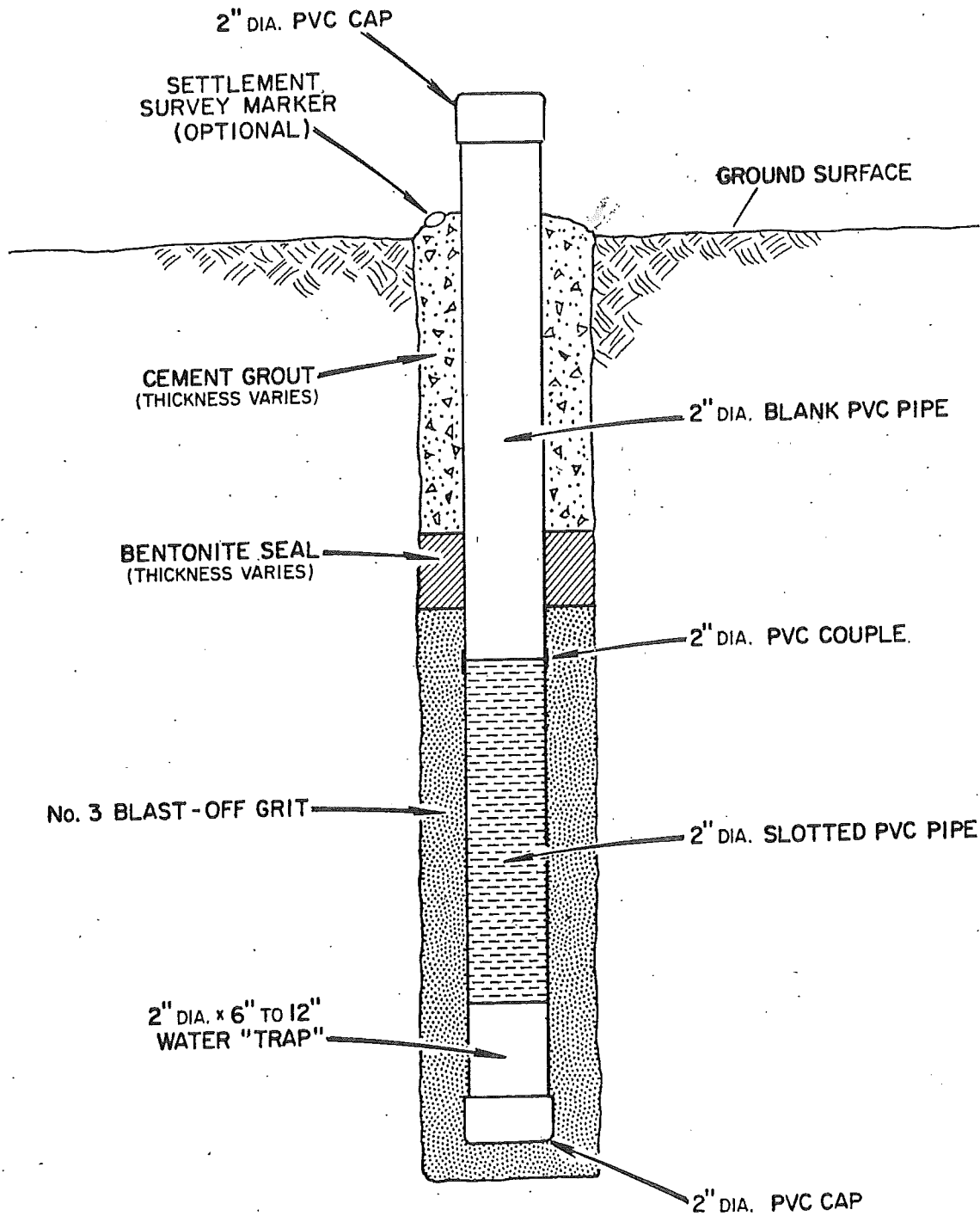
DATE: 06/09/2016



MONITOR WELL CONSTRUCTION*

* WELLS CAN BE EQUIPPED WITH DEDICATED SUBMERSIBLE SAMPLING PUMPS

Dames & Moore



TYPICAL PIEZOMETER DETAIL

Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal

Well Name FA DG 1
Driller Daniel Dodge
Helper Josh Mathews
Date Installed 5-11-16

Type of Well:

- ☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
4 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 18.2 ft.

F. Fine Sand Top _____ ft.

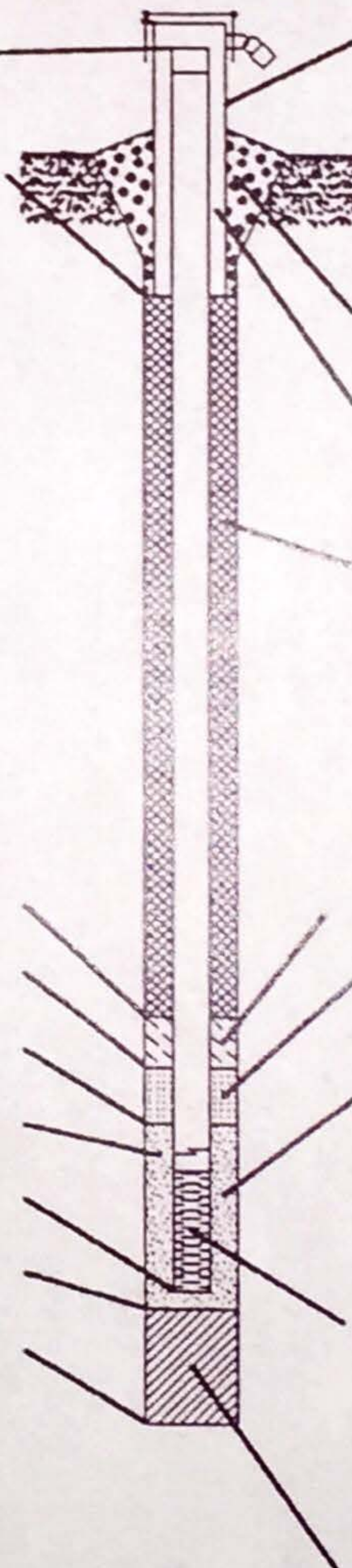
G. Filter Pack Top 23.4 ft.

H. Screen Joint Top 27.5 ft.

I. Well Bottom 37.5 ft.

J. Filter Pack Bottom 37.5 ft.

K. Borehole Bottom 37.5 ft.



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length 5 ft.
c. Material ☒ Steel
☐ Other _____
d. Bumper Post _____ qty
_____ 3" _____ 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
☐ Other _____

4. Material between Casing and Protop:
☒ Bentonite
☒ Other Concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
☐ Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

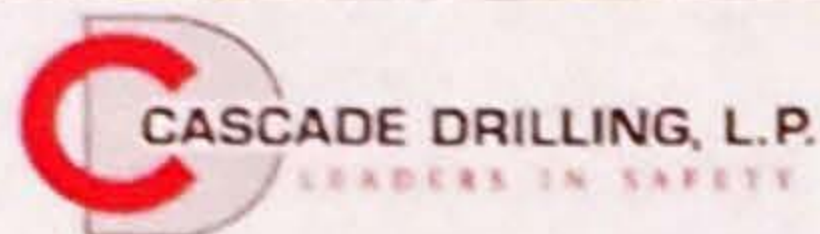
6. Bentonite Seal:
☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
☐ Other _____



Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal UT

Well Name FA DA - 2
Driller Daniel Dodge
Helper Josh Matthews
Date Installed 5-11-16

Type of Well:

☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
4 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 22.6 ft.

F. Fine Sand Top _____ ft.

G. Filter Pack Top 27.7 ft.

H. Screen Joint Top 32 ft.

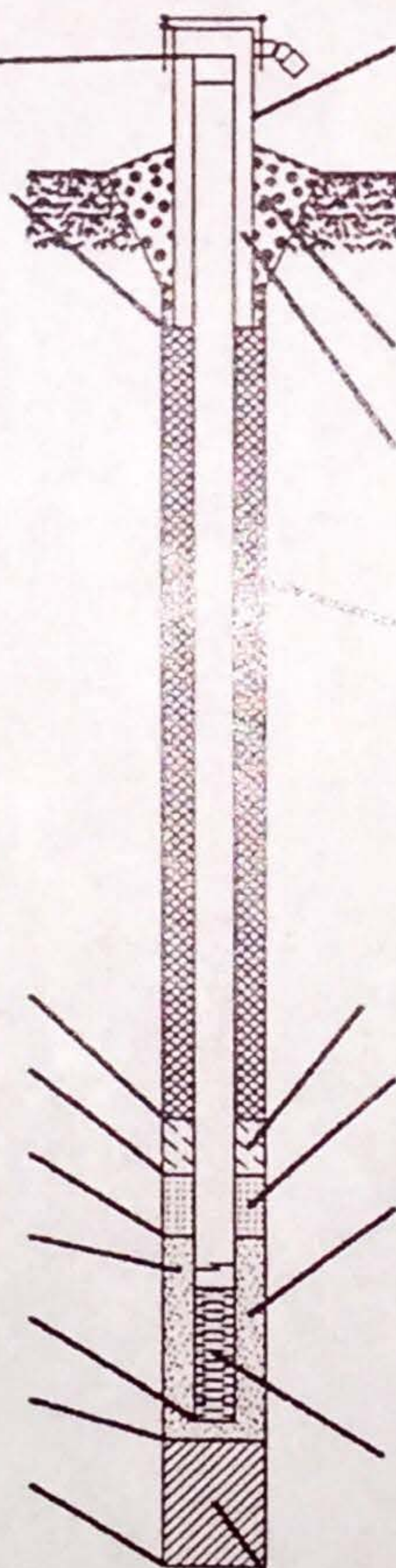
I. Well Bottom 42 ft.

J. Filter Pack Bottom 42 ft.

K. Borehole Bottom 42 ft.



7773 W. Seldon Lane
Peoria, AZ 85345
623-935-0124



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length 5 ft.
c. Material ☒ Steel
☐ Other _____
d. Bumper Post _____ qty
_____ 3" _____ 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
☐ Other _____

4. Material between Casing and Protop:
☒ Bentonite
☒ Other Concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
☐ Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

6. Bentonite Seal:
☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
☐ Other _____



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal UT

Well Name FA DG - 3
Driller Daniel Dodge
Helper Josh Mathews
Date Installed 5-13-16

Type of Well:

☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
4 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 18.1 ft.

F. Fine Sand Top 18.1 ft.

G. Filter Pack Top 23.4 ft.

H. Screen Joint Top 27.5 ft.

I. Well Bottom 37.5 ft.

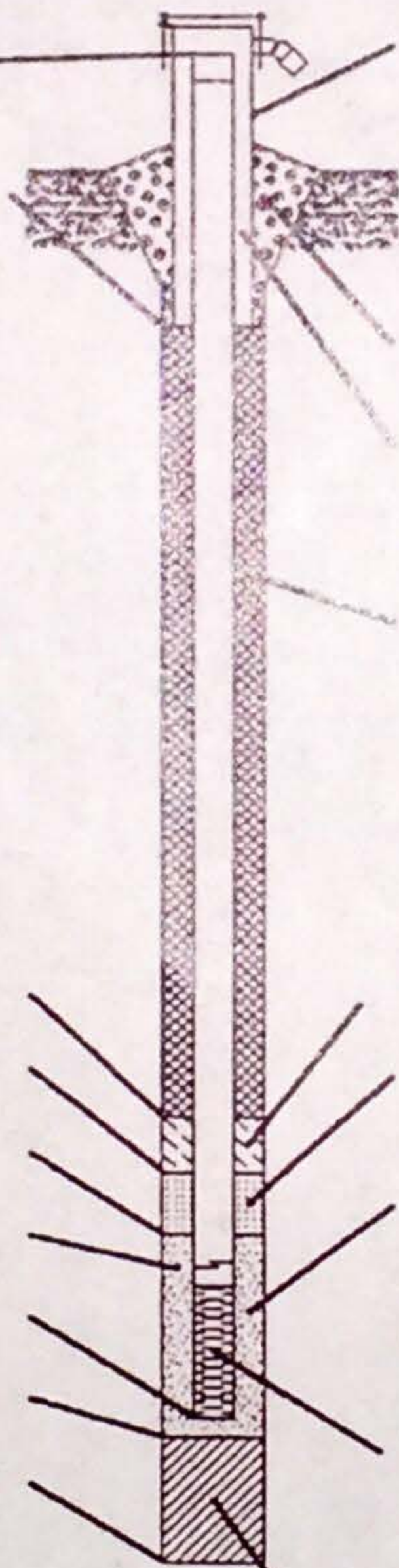
J. Filter Pack Bottom 37.5 ft.

K. Borehole Bottom 37.5 ft.



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

7773 W. Seldon Lane
Peoria, AZ 85345
623-935-0124



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length 5 ft.
c. Material ☒ Steel
☐ Other _____
d. Bumper Post _____ qty
_____ 3" _____ 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
☐ Other _____

4. Material between Casing and Protap:
☒ Bentonite
☒ Other concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
☐ Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

6. Bentonite Seal:
☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
☐ Other _____



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal, UT

Well Name FA DG - 4
Driller Daniel Dodge
Helper Josh Mathews
Date Installed 5-12-16

Type of Well:

☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
4 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 22.9 ft.

F. Fine Sand Top _____ ft.

G. Filter Pack Top 27.8 ft.

H. Screen Joint Top 32.5 ft.

I. Well Bottom 42.5 ft.

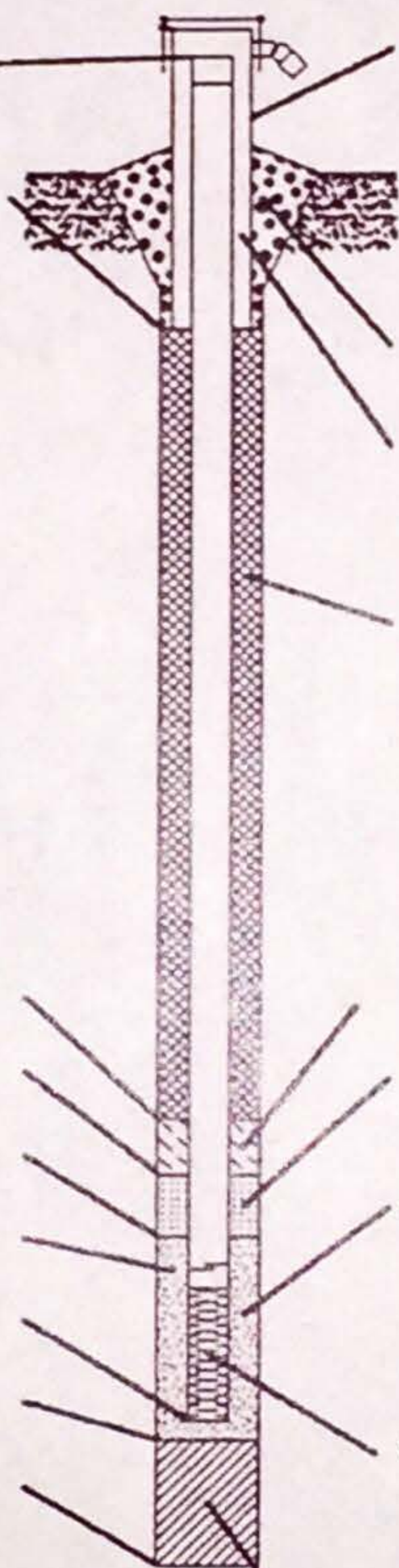
J. Filter Pack Bottom 42.5 ft.

K. Borehole Bottom 42.5 ft.



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

7773 W. Seldon Lane
Peoria, AZ 85345
623-935-0124



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length 5 ft.
c. Material ☒ Steel
☐ Other _____
d. Bumper Post _____ qty
_____ 3" _____ 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
☐ Other _____

4. Material between Casing and Protap:
☒ Bentonite
☒ Other Concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
☐ Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

5. Bentonite Seal:
☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
☐ Other _____



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal, UT

Well Name BA UG - 1
Driller Daniel Dodge
Helper Josh Mathews
Date Installed 5-10-16

Type of Well:

☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
4 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 26 ft.

F. Fine Sand Top _____ ft.

G. Filter Pack Top 31.2 ft.

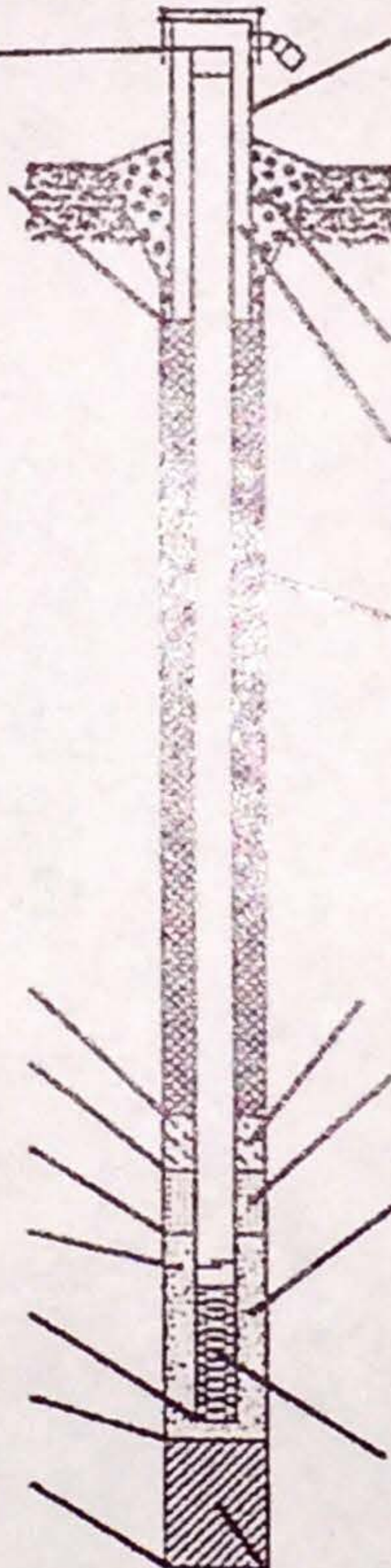
H. Screen Joint Top 35 ft.

I. Well Bottom 45 ft.

J. Filter Pack Bottom 45 ft.

K. Borehole Bottom 45 ft.

Cascade Drilling LP



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length 5 ft.
c. Material ☒ Steel
☐ Other _____
d. Bumper Post _____ qty
_____ 3" _____ 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
☐ Other _____

4. Material between Casing and Protop:
☒ Bentonite
☒ Other concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
☐ Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

6. Bentonite Seal: ☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
☐ Other _____



Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal, UT

Well Name BA DG 2
Driller Daniel Dodge
Helper Josh Mathews
Date Installed 5-9-16

Type of Well:

☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
6 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 4.5 ft.

F. Fine Sand Top _____ ft.

G. Filter Pack Top 9.8 ft.

H. Screen Joint Top 12 ft.

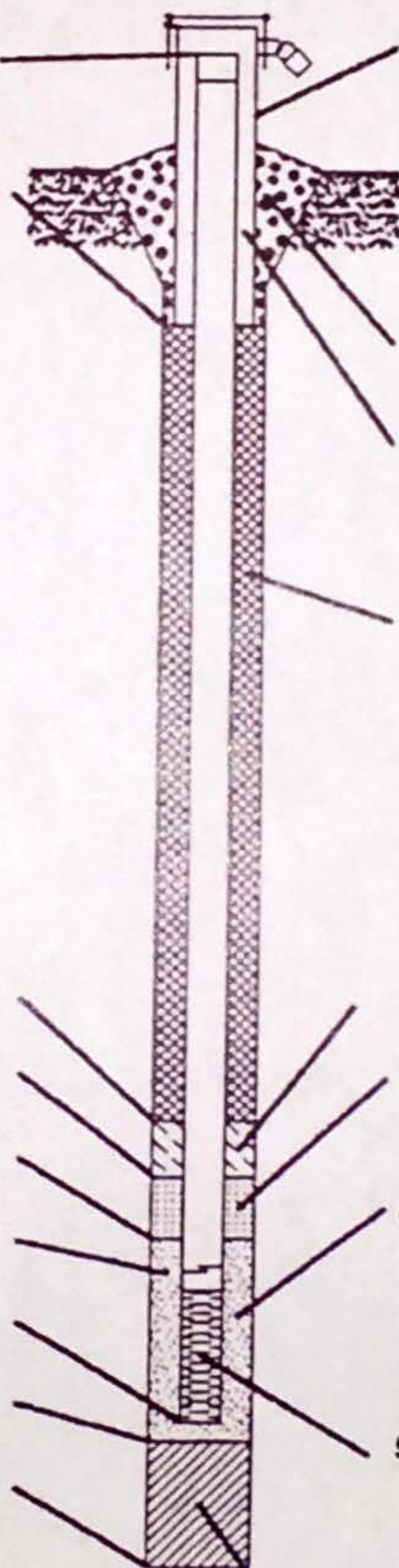
I. Well Bottom 22.5 ft.

J. Filter Pack Bottom 22.5 ft.

K. Borehole Bottom 22.5 ft.



7773 W. Seldon Lane
Peoria, AZ 85345
623-935-0124



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length 5 ft.
c. Material ☒ Steel
☐ Other _____
d. Bumper Post _____ qty
_____ 3" _____ 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
☐ Other _____

4. Material between Casing and Prototop:
☒ Bentonite
☒ Other concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
☐ Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

6. Bentonite Seal:
☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
☐ Other _____



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

Well Construction Report

Job Name Deseret Power
Job Number 2065
Location Vernal, UT

Well Name BA Dn 3
Driller Daniel Dodge
Helper Josh Mathews
Date Installed 5-10-16

Type of Well:

☐ Water Table Observation
☐ Piezometer
☐ Other _____

A. Height of Well Casing above ground
2.5 ft.

B. Diameter of Well Casing
6 in.

C. Surface Seal Bottom
2 ft.

D. Well Casing: Flush Threaded PVC
☒ Schedule 40
☐ Schedule 80
☐ Other _____

E. Bentonite Seal Top 4.5 ft.

F. Fine Sand Top _____ ft.

G. Filter Pack Top 9.6 ft.

H. Screen Joint Top 12.5 ft.

I. Well Bottom 23 ft.

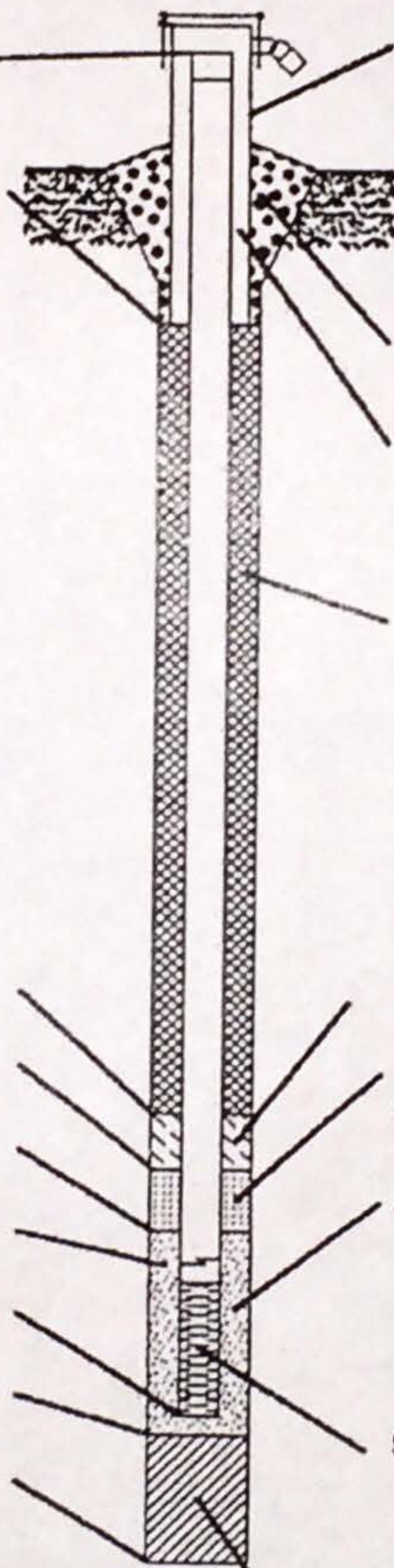
J. Filter Pack Bottom 23 ft.

K. Borehole Bottom 23 ft.



CASCADE DRILLING, L.P.
LEADERS IN SAFETY

7773 W. Seldon Lane
Peoria, AZ 85345
623-935-0124



1. Locking Cap? ☒ Yes ☐ No

2. Protective Cover: a. Inside diam. 12 in.
b. Length _____ ft.
c. Material _____
Steel
Other _____
d. Bumper Post _____ qty
3" 4"

3. Surface Seal: ☐ Bentonite
☒ Concrete
Other _____

4. Material between Casing and Protop:
☒ Bentonite
☒ Other Concrete

5. Annular Space Seal:
☐ Granular Bentonite
☒ Bentonite Slurry
☐ Cement-Bentonite Grout
Other _____

How Installed:
☐ Gravity
☒ Tremie Pumped

6. Bentonite Seal:
☐ Granules
☒ Pellets

7. Type of Fine Sand: _____

8. Type of Filter Pack: 20x40

9. Screen Material:
Type: ☒ Factory Cut
☐ Continuous Slot
Slot Size: 0.010 in.
Length: 10 ft.

10. Backfill Material: (Below filter pack)
☒ None
Other _____

LOG OF BORING

BA-DG4

SHEET 1 OF 2

BARR

Barr Engineering Co.
170 South Main Street Suite 500
Salt Lake City, UT 84101
Telephone: 801-333-8400

Project: Deseret Power
Project No.: 44241001
Location: Vernal, UT
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Sonic
Sampling Method:
Completion Depth: 25.0 ft

P:\SALT LAKE CITY\44 UT\24\44241001 DESERET POWER BONANZA PLANT\WORKFILES\FIELD NOTES\2023 DRILLING\44241001 DESERET JAN 2023 DRILLING.GPJ BARR\LIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Depth, feet	Sample Type & Recovery	Sample No.	SSCSU	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0					SILTY SAND (ML): very fine to fine grained; brown/red; dry; loose; last 6" is slightly cemented.	
2.5			ML			
5.0			ML		SILTY SAND (ML): very fine to fine grained; brown/red; dry; loose; first 5-6" is slightly cemented.	
7.5			SM		SILTY SAND (SM): fine grained; brown/red; dry; few subrounded to subangular gravels 0.5-1" gravels; last 5" is a silty very fine grained sand.	
10.0			ML		SILTY SAND (ML): fine grained; brown/red; dry to moist; last 5.5" is moist.	
12.5			SM		SANDY SILT TO SILTY SAND (SM): fine to medium grained; brown/red; moist.	
15.0			CL-ML		SILTY CLAY (CL-ML): very fine to fine with trace medium grained; brown/red; saturated; first 2" is gray/brown fine to medium sand.	
17.5			CL-ML		SILTY CLAY (CL-ML): very fine to fine grained; brown/gray; saturated.	
20.0						

Date Boring Started: 2/2/23 3:45 pm
Date Boring Completed: 2/2/23 5:30 pm
Logged By: CLM2
Drilling Contractor: Cascade
Drill Rig: Mini Sonic

Remarks:

Additional data may have been collected in the field which is not included on this log.



Barr Engineering Co.
170 South Main Street Suite 500
Salt Lake City, UT 84101
Telephone: 801-333-8400

LOG OF BORING

BA-DG4
SHEET 2 OF 2

Project: Deseret Power
Project No.: 44241001
Location: Vernal, UT
Coordinates:
Datum:
Surface Elevation:
Drilling Method: Sonic
Sampling Method:
Completion Depth: 25.0 ft

P:\SALT LAKE CITY\44 UT\24\44241001 DESERET POWER BONANZA PLANT\WORKFILES\FIELD NOTES\2023 DRILLING\44241001 DESERET JAN 2023 DRILLING.GPJ BARR\LIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Depth, feet	Sample Type & Recovery	Sample No.	SSC	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
20.0				xxxxx	SANDY SILTSTONE. Moderate; gray/green/brown; moderately weathered; fine-grained.	
22.5				xxxxx		
25.0				xxxxx	End of boring 25.0 feet	
27.5						
30.0						
32.5						
35.0						
37.5						
40.0						

Date Boring Started: 2/2/23 3:45 pm Date Boring Completed: 2/2/23 5:30 pm Logged By: CLM2 Drilling Contractor: Cascade Drill Rig: Mini Sonic	Remarks: Additional data may have been collected in the field which is not included on this log.
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Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

AS BUILT WELL RECORD

WELL NAME: BA-DG4

UNIQUE WELL No.:

Project: Deseret Power
Project No: 44241001
Location: Deseret Power, Vernal, UT
Coordinates:
Coordinate System:

Surface Elevation:
Drilling Method: Mini-sonic
Drilling Fluid:
Borehole Diameter: 2"
Fluid Added:
Volume of Drilling:

Pro Top
Type:
Diameter:
Depth Set:

Riser
Material:
Diameter:
Length:

Grout
Material:
Grouting Method:
Bottom Depth:

Seal
Material: Bentonite Chips
Bottom Depth: 13'

Screen
Material: Schedule 80 2" PVC
Slot Size: 0.010"
Length: 5' section
Interval: 15-20'

Filter
Material: Silica sand (20-25')
Size: 20/40

Top of Screen: 15'
Bottom of Screen: 20'
Well Depth: 25"

Date: 02/03/23
Time: 8:00 am
Field Staff: Christy Miller
Drilling Contractor: Cascade
Drill Rig: Mini-sonic
Weather:

Remarks: Well was either completed or abandoned based on CRR requirements the following week without Barr oversight in field.

Suggested screen placement was from 15-25', but drillers only had 5' of screen remaining.