Appendix A

Groundwater Monitoring Well Logs

Appendix A

Groundwater Monitoring Well Logs

The following pages include the lithology and construction details for Radioactive Waste Management Complex groundwater monitoring wells.

Additional information can be found in the following wells:

- Wells M1S, M3S, M4D, M6S, M7S, and M10S contain the vertical correction
- Wells OW-2 and A11A31 contain well modifications
- Wells M11S, M12S, M13S, M15S, M16S, and M17S contain natural gamma ray logs
- Wells M11S, M12S, M13S, and M14S contain neutron logs
- Wells M11S, M12S, M13S, and M14S contain gamma-gamma logs
- Wells M11S, M12S, M13S, M15S, M16S, and M17S contain caliper logs
- Wells M15S and M16S contain video logs.

The notation in the lower right corner of the individual video logs of Wells M15S and M16S indicates the well depth in feet.

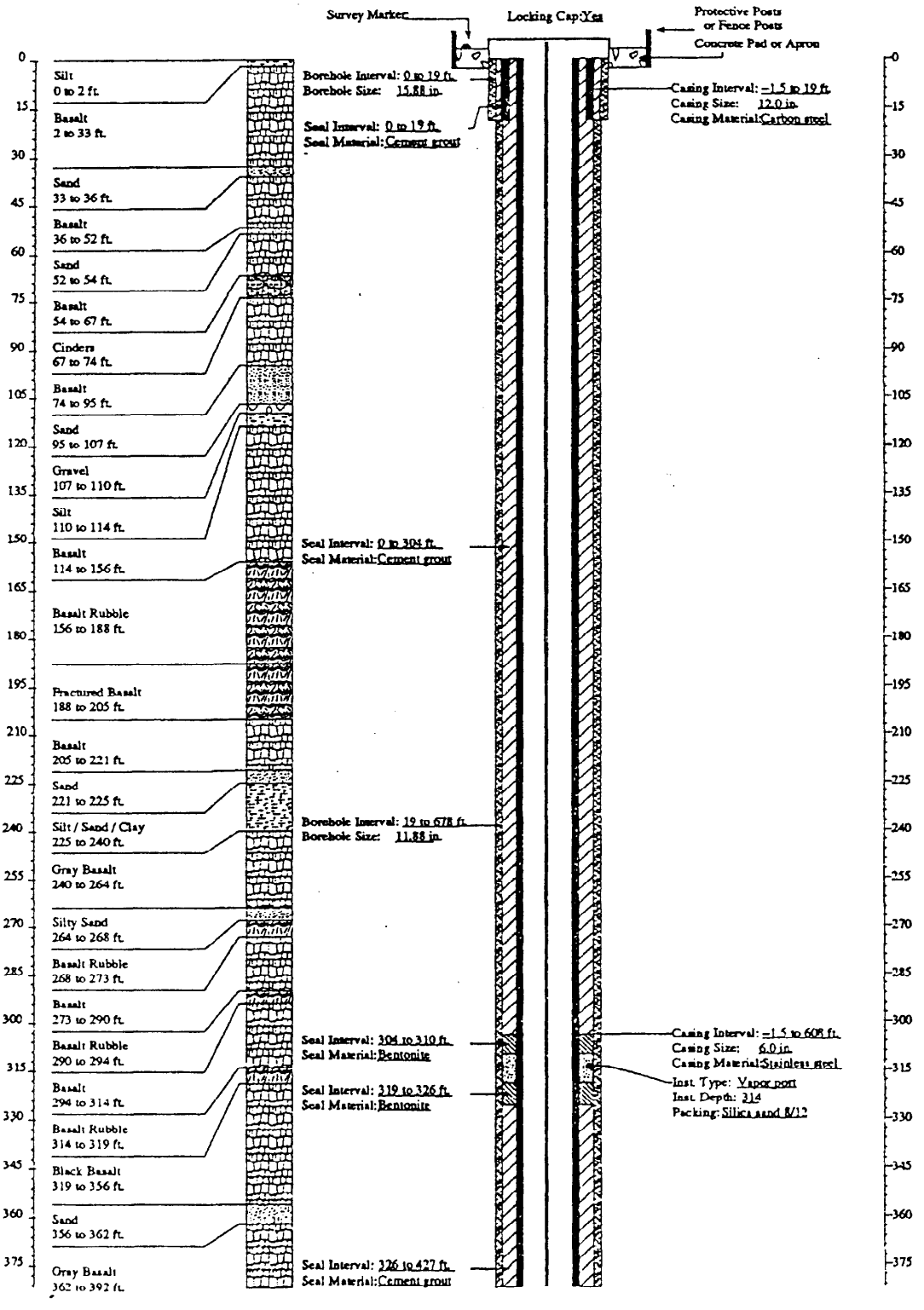
WellName: M1SA

Facility: RWMC
Well Type: Observation
Well Status: Active
Year Drilled: 1992
Total Depth: 678

Easting: 420914.22
Northing: 668968.24
Longitude: 1130311.8542
Latitude: 432955.96829
Completion Depth: 672

Driller: PC Exploration
Geologist: S.Smith,K.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5014.58

03/15/1994
Water Level: 585.79
Water Level Date: 11/30/92
Water Level Access: Hole



WellName: M1SA

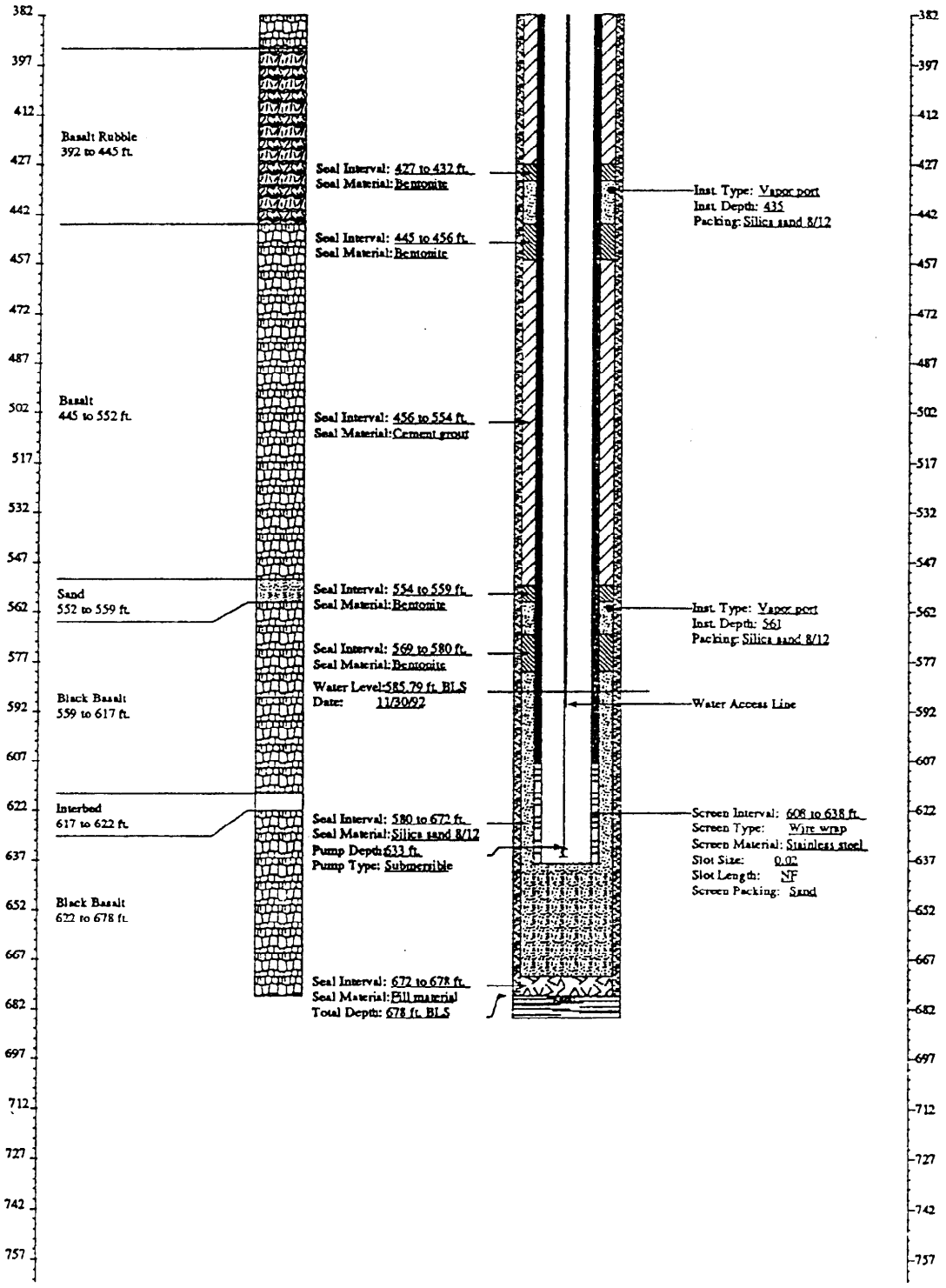
03/15/1994

Facility: RWMC
Well Type: Observation
Well Status: Active
Year Drilled: 1992
Total Depth: 678

Easting: 420914.22
Northing: 668968.24
Longitude: 1130311.8542
Latitude: 432955.96829
Completion Depth: 672

Driller: PC Exploration
Geologist: S.Smith,K.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5014.58

Water Level: 585.79
Water Level Date: 11/30/92
Water Level Access: Hole

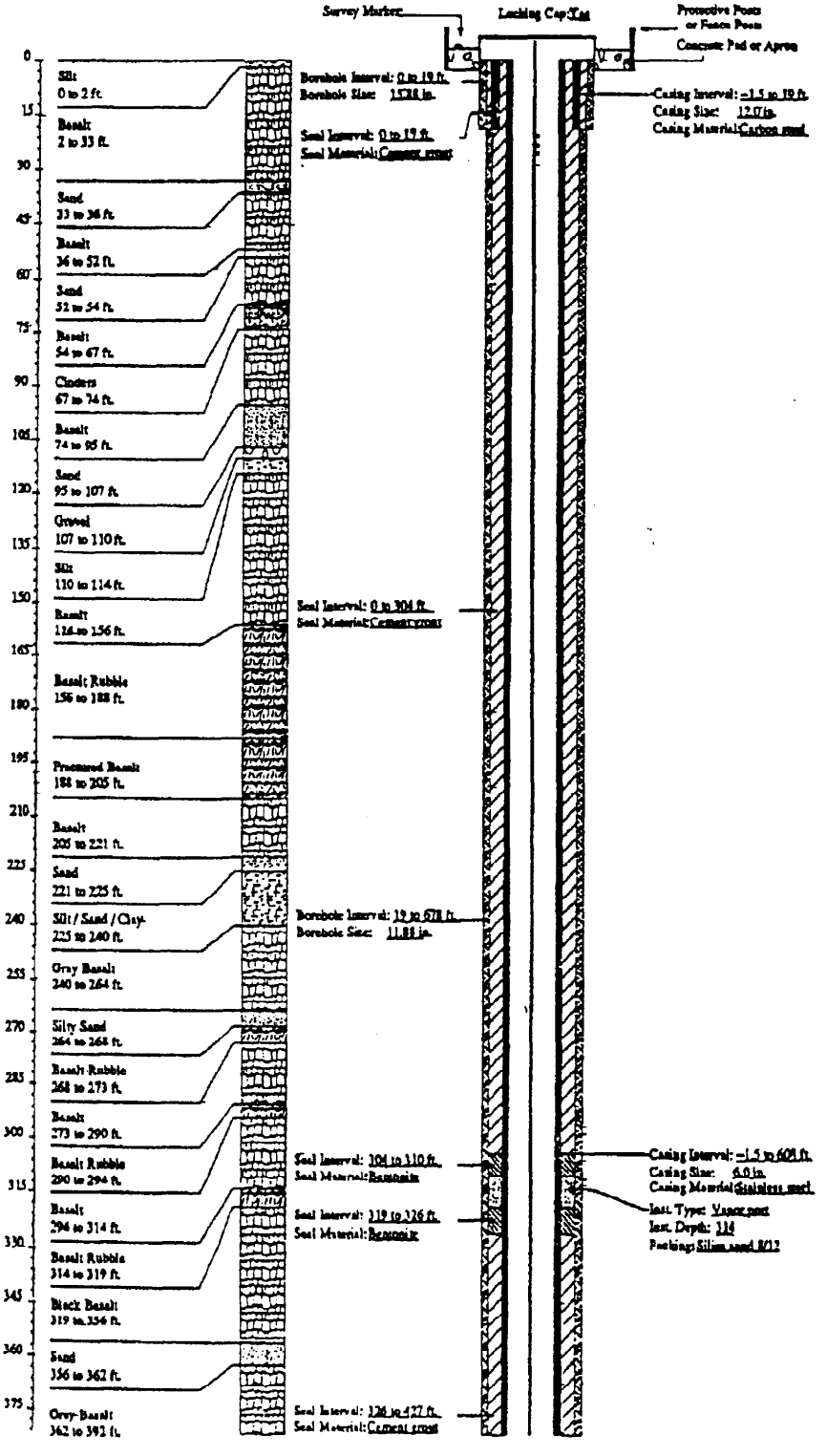


WellName: M1SA
Facility: RWMC
Well Type: Observation
Well Status: Active
Year Drilled: 1992
Total Depth: 678

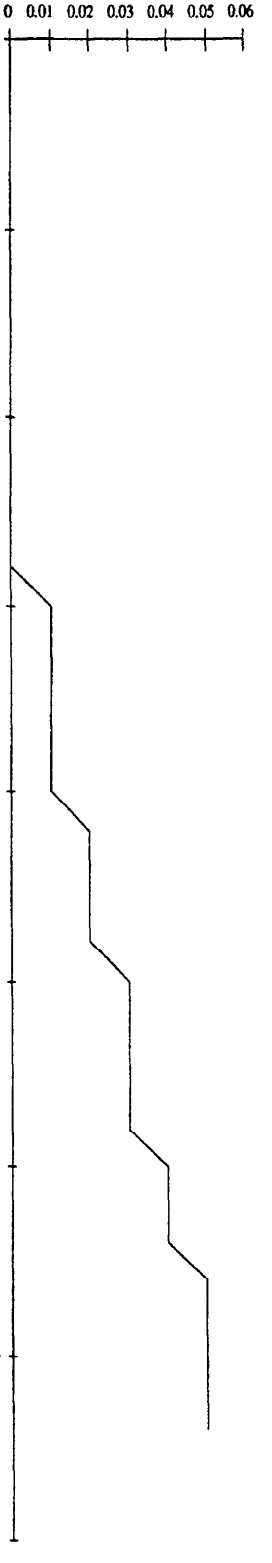
Easting: 420914.22
Northing: 664968.24
Longitude: 113011.8542
Latitude: 432933.9829
Completion Depth: 672

Driller: PC Exploration
Geologist: S.Smith,E.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5014.58

03/15/1994
Water Level: 5157.79
Water Level Date: 11/30/92
Water Level Account: Hole



Verticle Correction (feet)



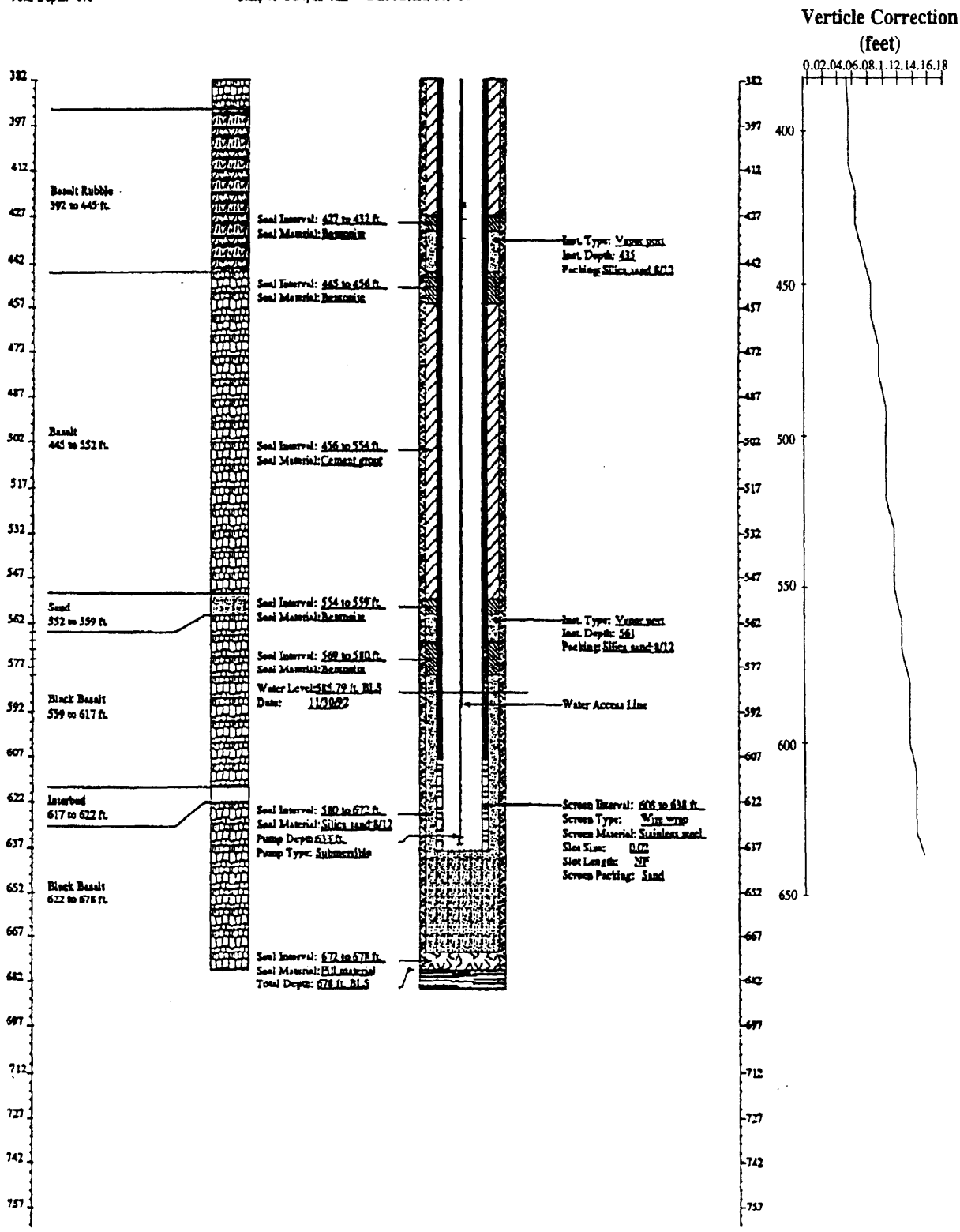
Page 1 of 2

WellName: M1SA
Facility: RWMC
Well Type: Observation
Well Status: Active
Year Drilled: 1992
Total Depth: 678

Easting: 420914.22
Northing: 664968.34
Longitude: 113031 1.8543
Latitude: 432955.96829
Completion Depth: 672

Driller: FC Exploration
Geologist: S.Smith,R.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5014.58

03/15/1994
Water Level: 585.79
Water Level Date: 11/30/92
Water Level Access: Hole



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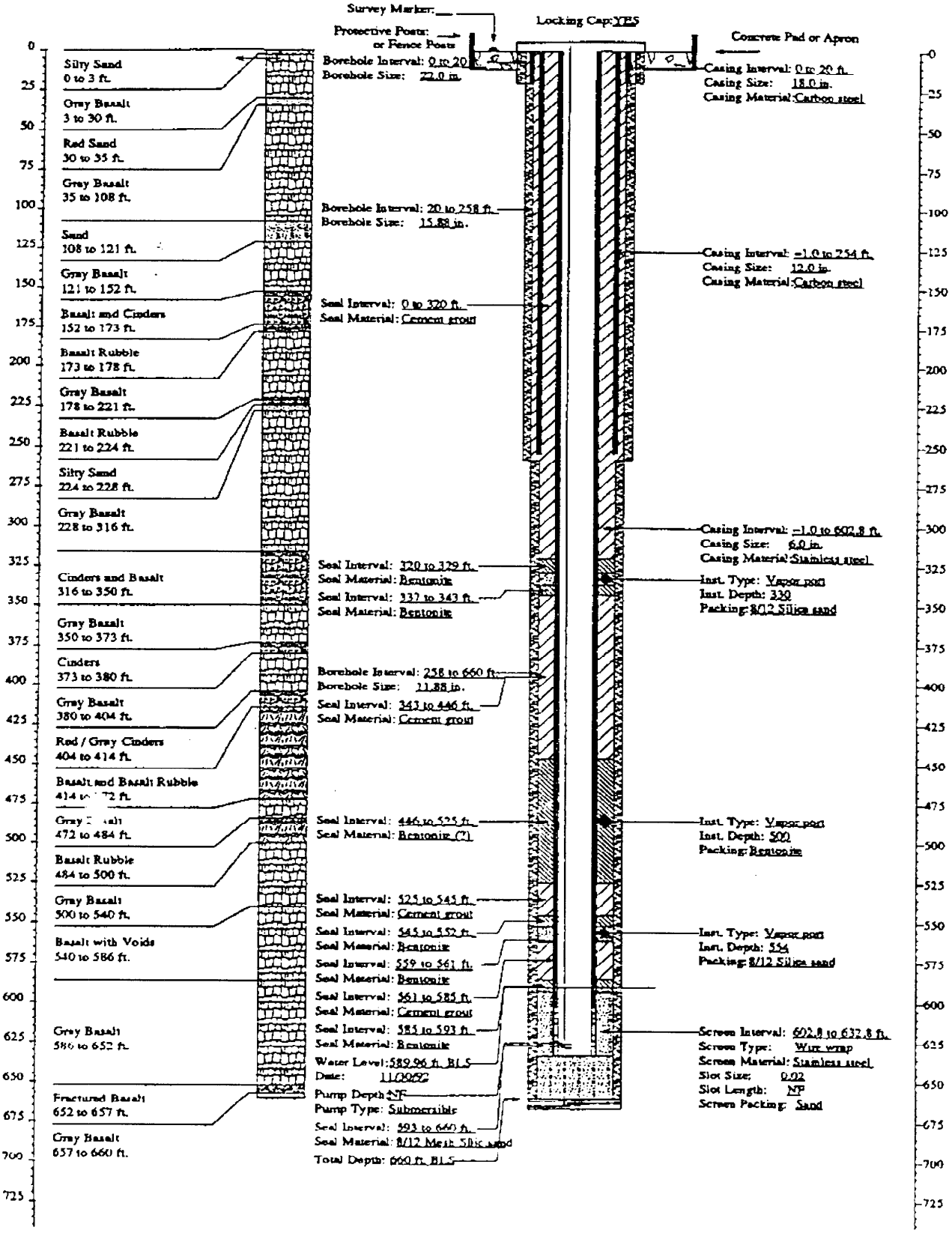
WellName: M3S

Facility: RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 660

Easting: 265701.61
Northing: 670166.44
Longitude: 1130218
Latitude: 433008
Completion Depth: 660

Driller: PC Exploration
Geologist: D.Richmond,S.Pickett
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5016.16

08/07/1993
Water Level: 589.96
Water Level Date: 11/30/92
Water Level Access: NF

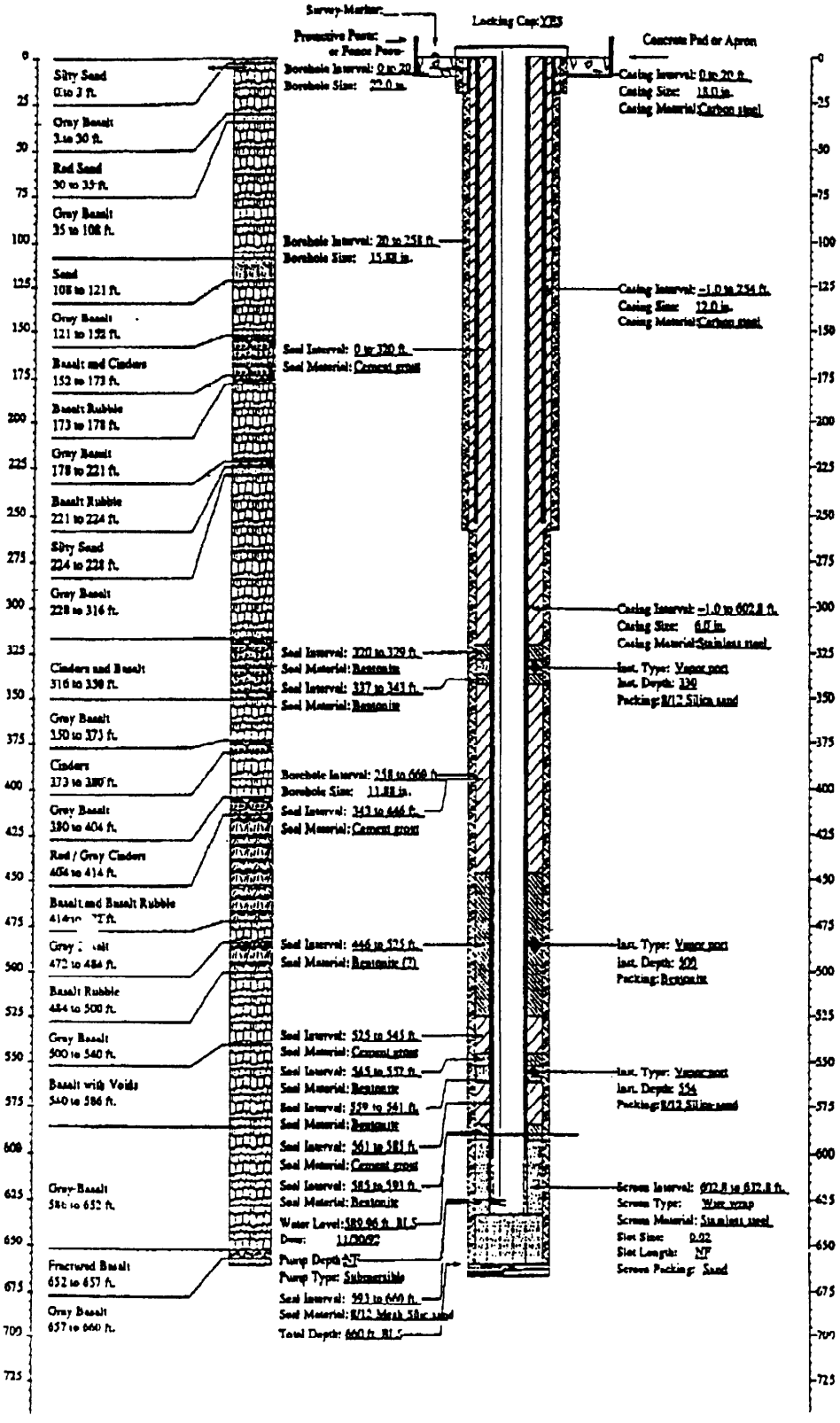


WellName: M3S
Facility: RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 660

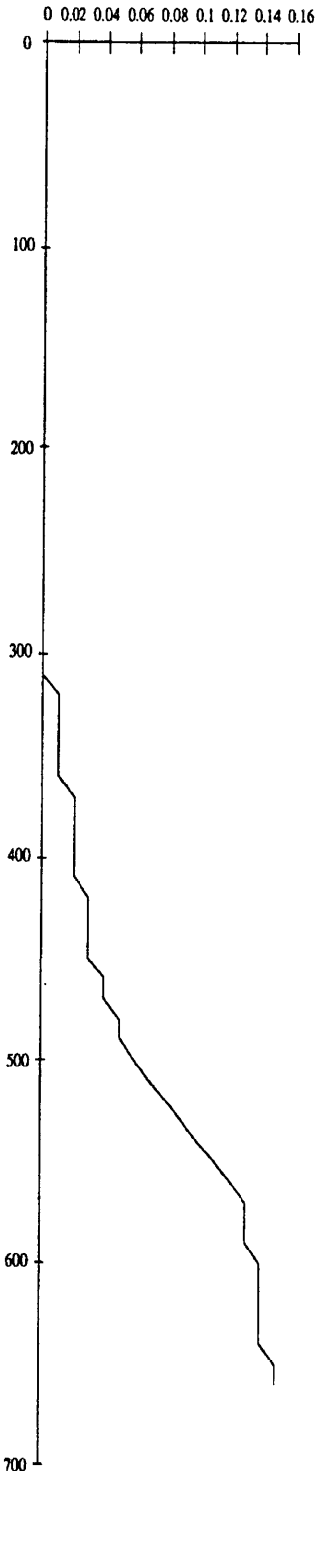
Easting: 268701.61
Northing: 670166.44
Longitude: 113021 ft
Latitude: 433008
Completion Depth: 660

Driller: FC Exploration
Geologist: D.Richmond,S.Pickett
Drilling Method: Airrotary
Drilling Fluid: NF
Land Surface: 5016.16

08/07/1993
Water Level: 589.96
Water Level Date: 11/30/92
Water Level Accuracy: NF



Verticle Correction (feet)



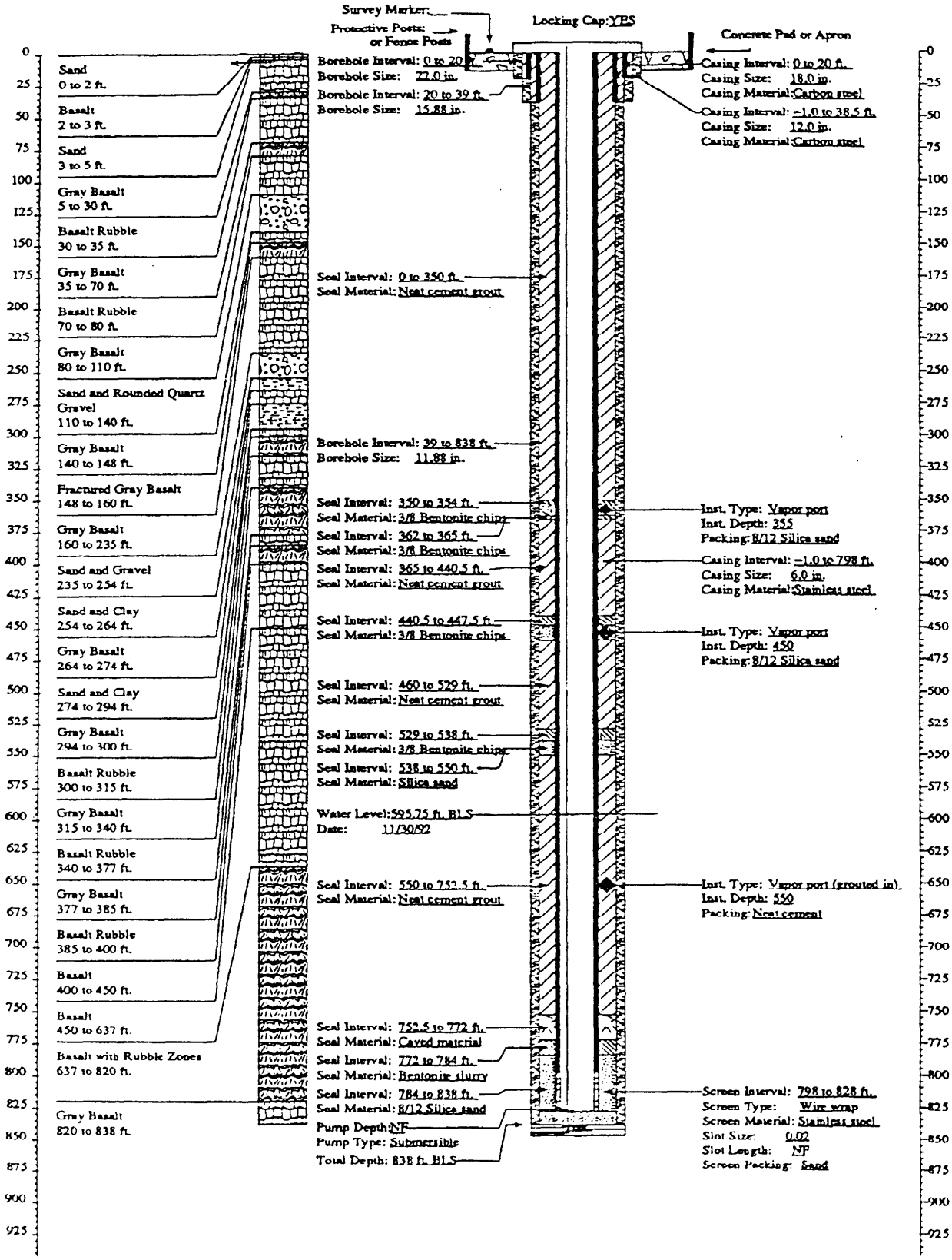
WellName: M4D

Facility: RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 838

Easting: 265512.05
Northing: 667254.68
Longitude: 1130301
Latitude: 432939
Completion Depth: 838

Driller: PC Exploration
Geologist: A.Zdmak, D.Richland
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5022.63

08/07/1993
Water Level: 595.75
Water Level Date: 11/30/92
Water Level Access: NF

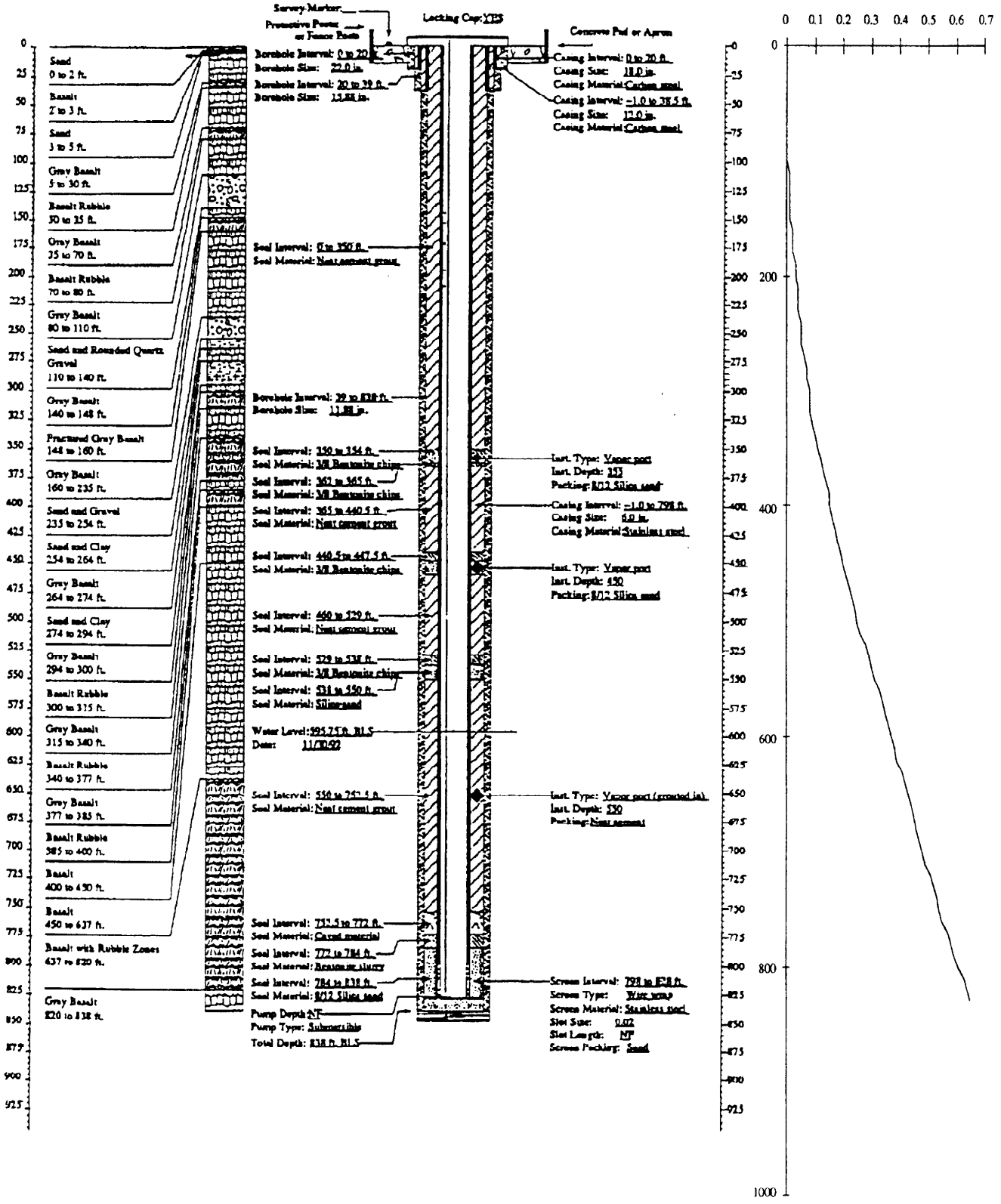


WellName: M4D
Facility: RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 838

Easting: 345512.05
Northing: 667254.08
Longitude: 1130301
Latitude: 432939
Completion Depth: 838

Driller: PC Explorations
Geologist: A.Zdenek, D.Richland
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5022.63

08/07/1993
Water Level: 595.75
Water Level Date: 11/30/92
Water Level Accuracy: NF



WellName: M6S

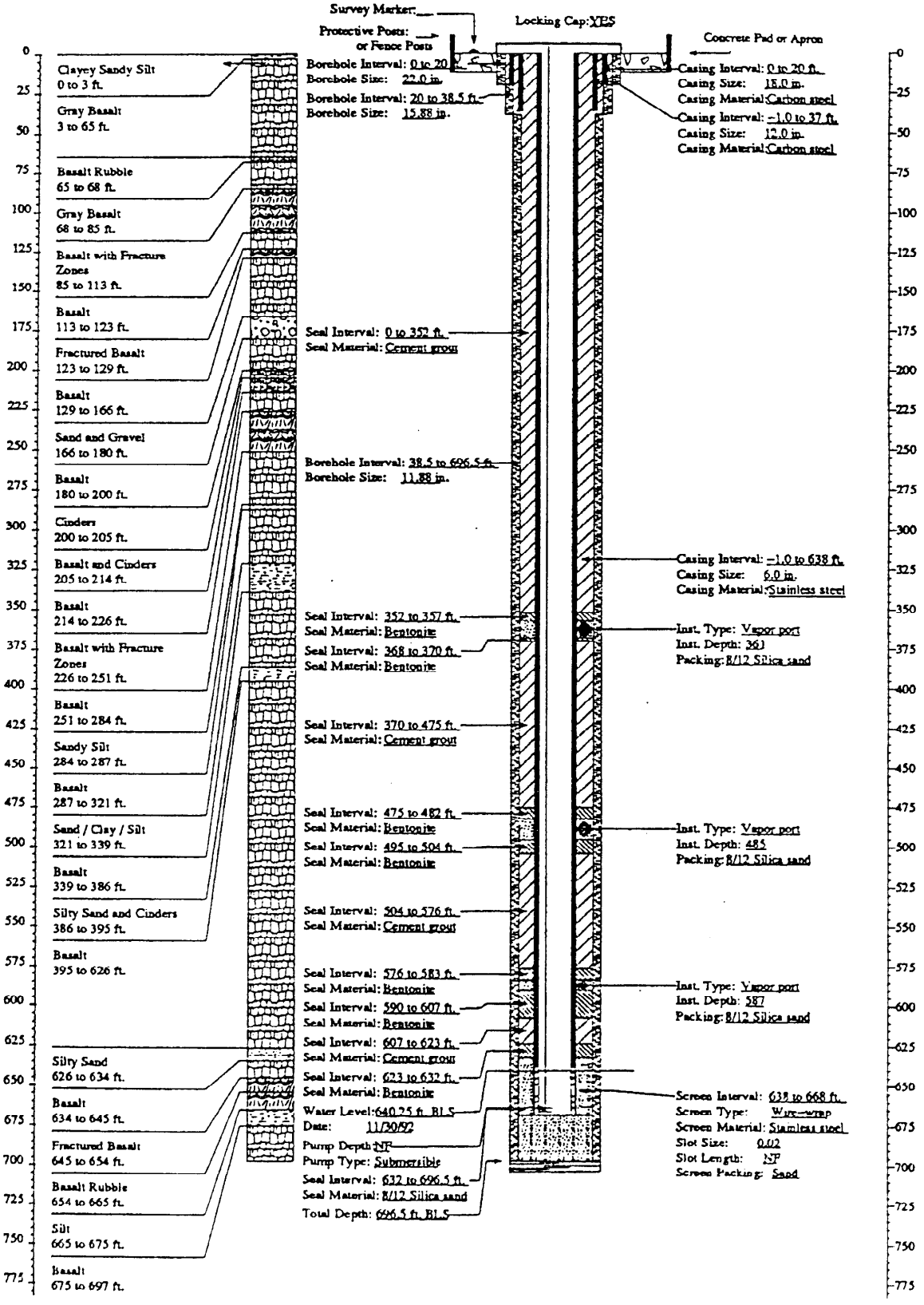
08/07/1993

Facility: RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 696.5

Easting: 270723.51
Northing: 666380.73
Longitude: 1130150
Latitude: 432931
Completion Depth: 696.5

Driller: PC Exploration
Geologist: S.Smith,K.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5065.76

Water Level: 640.25
Water Level Date: 11/30/92
Water Level Access: NF

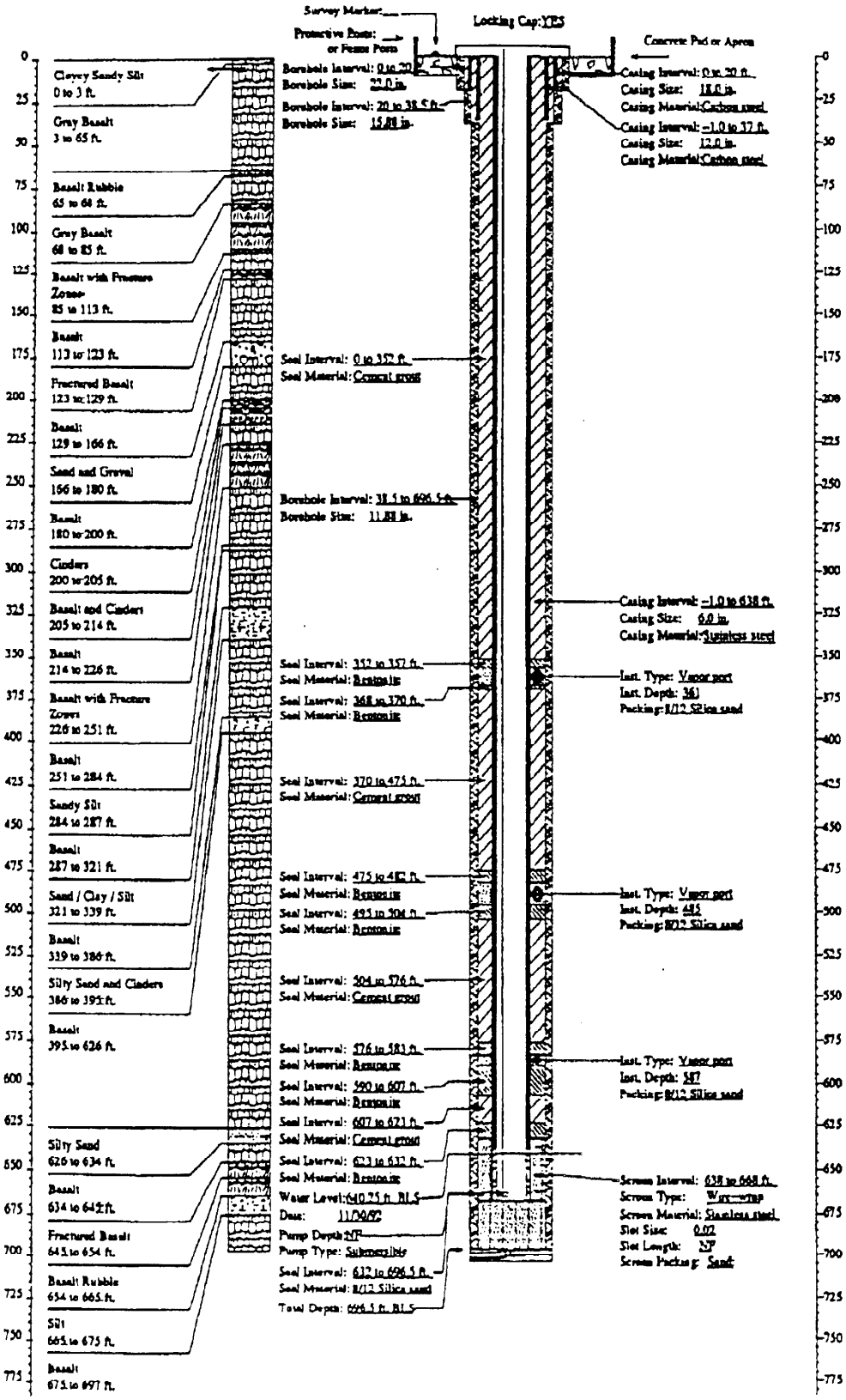


WellName: M6S
Facility: RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 696.5

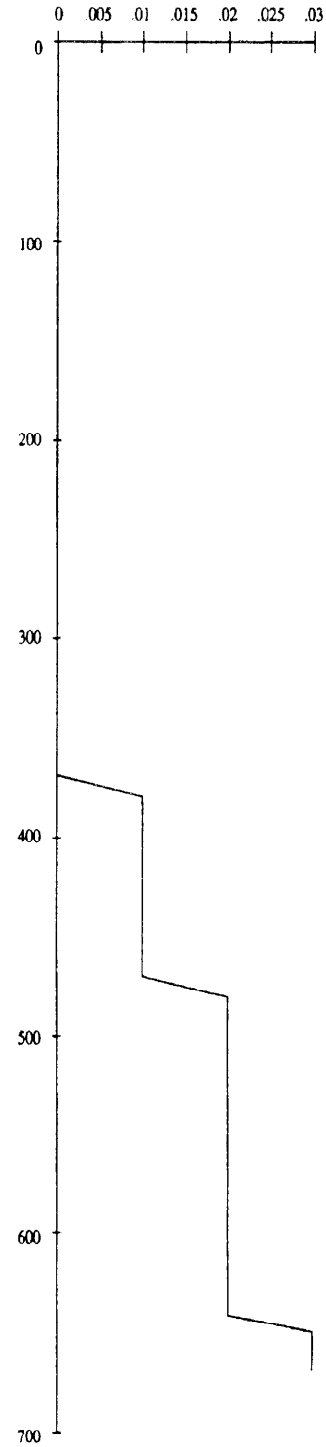
Easting: 270723.51
Northing: 666380.73
Longitude: 1130150
Latitude: 432931
Completion Depth: 696.5

Driller: PC Exploration
Geologist: S.Smith, K.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5065.76

08/07/1993
Water Level: 640.25
Water Level Date: 11/30/92
Water Level Accuracy: NF



Verticle Correction (feet)



WellName: M7S

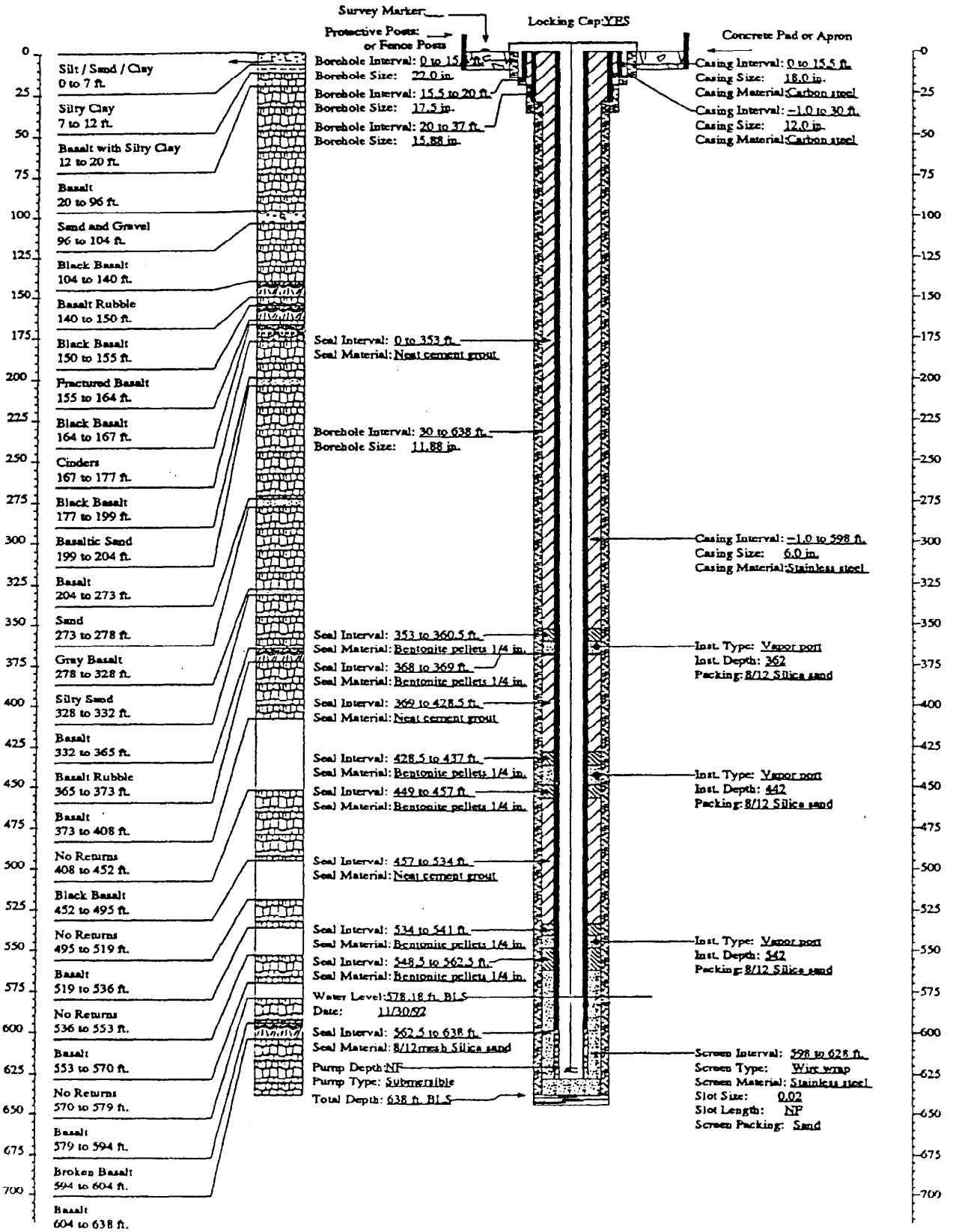
08/07/1993

Facility RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 638

Easting: 270922.29
Northing: 671588.51
Longitude: 1130148
Latitude: 433023
Completion Depth: 638

Driller: PC Exploration
Geologist: S.Smith,K.Manchester
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5004.85

Water Level: 578.18
Water Level Date: 11/30/92
Water Level Access: NF

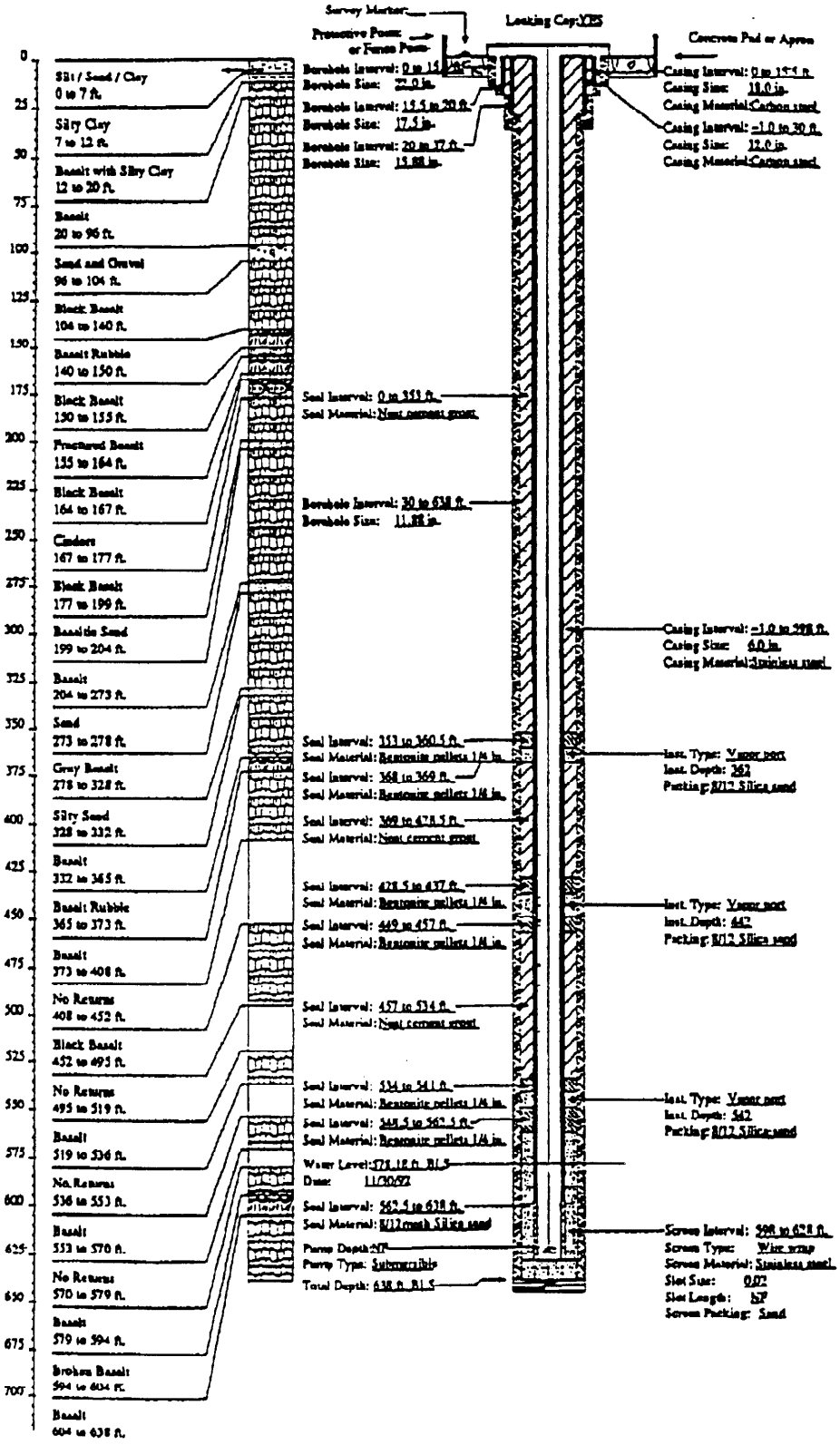


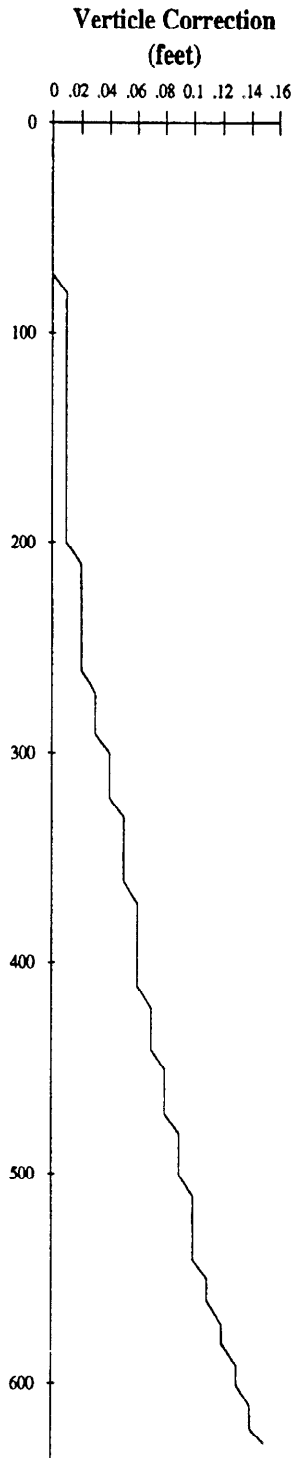
WellName: M7S
Facility RWMC
Well Type: Observation Well
Well Status: Active
Year Drilled: 1992
Total Depth: 638

Easting: 270922.29
Northing: 671588.51
Longitude: 1130148
Latitude: 433023
Completion Depth: 638

Driller: PC Exploration
Geologist: S.Smith,K.Moneheser
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5004.85

08/07/1993
Water Level: 578.18
Water Level Date: 11/30/92
Water Level Accuracy: NF





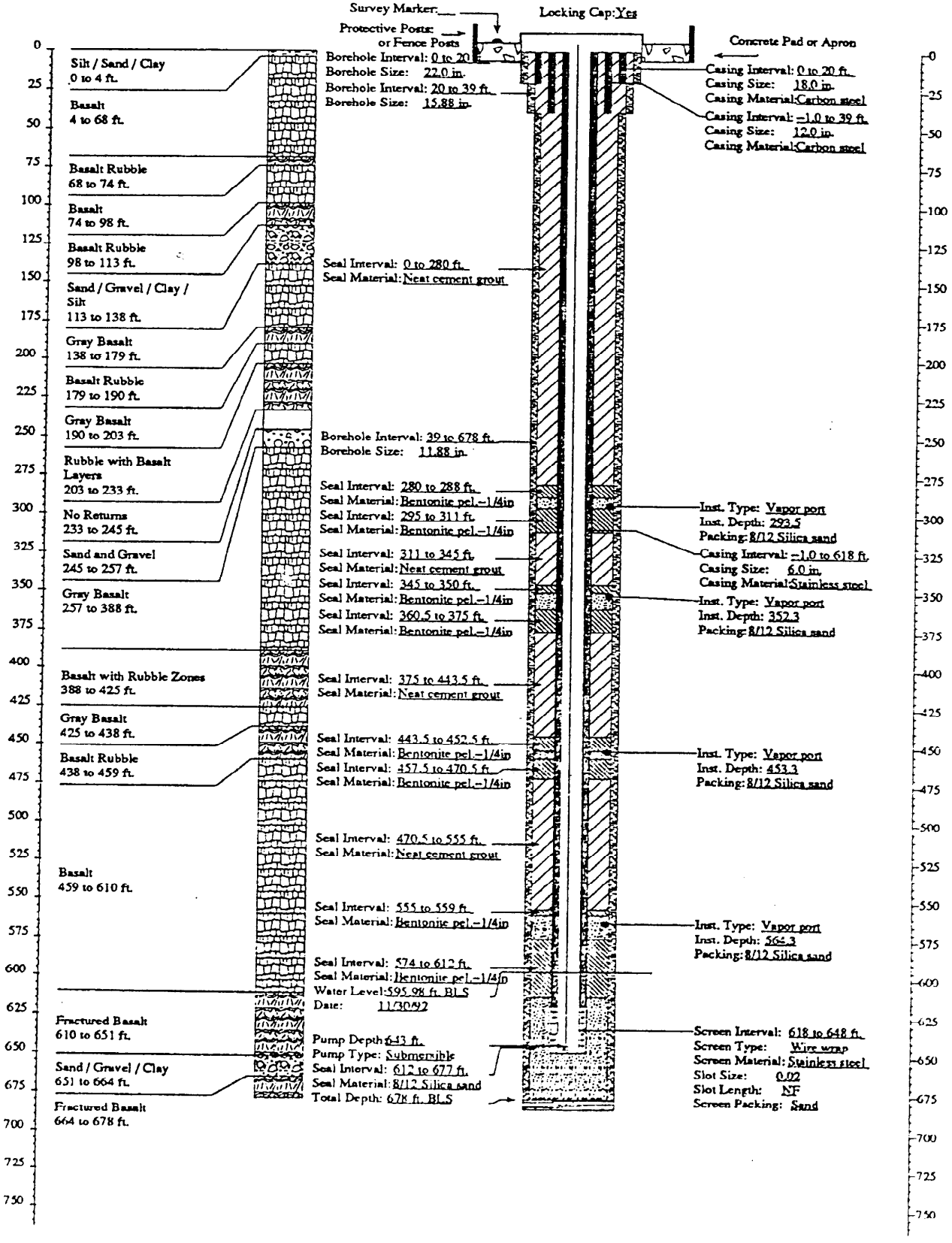
WellName: M10S

Facility: RWMC
Well Type: Observation
Well Status: Active
Year Drilled: 1992
Total Depth: 678

Easting: 422833.68
Northing: 668203.48
Longitude: 1130245.7048
Latitude: 432948.61689
Completion Depth: 678

Driller: PC Exploration
Geologist: S.Pickett/L.McCloskey
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5025.11

03/01/1994
Water Level: 595.98
Water Level Date: 11/30/92
Water Level Access: NF



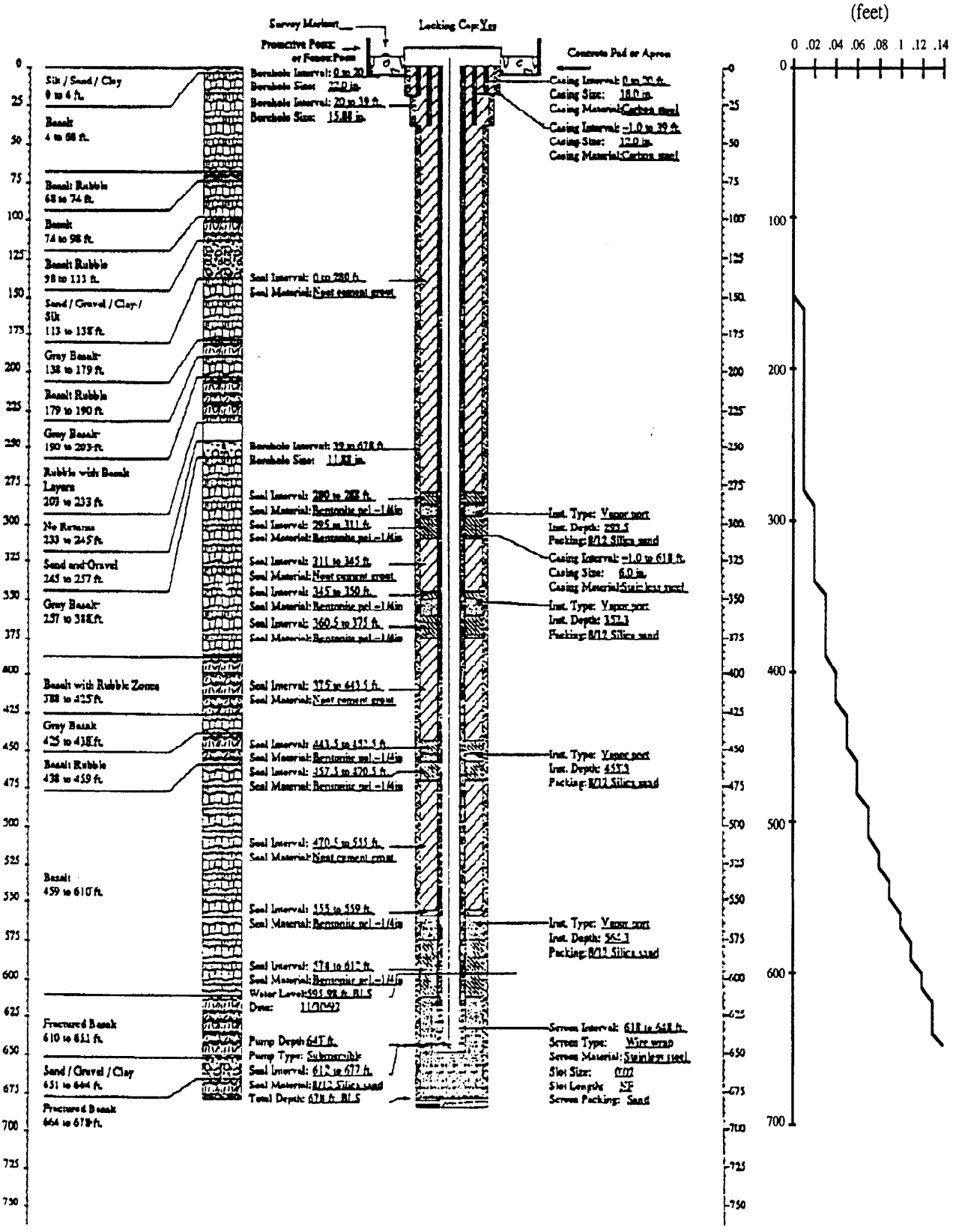
WellName: M10S

Facility: RWMC
Well Type: Observation
Well Status: Active
Year Drilled: 1992
Total Depth: 678

Easting: 422833.68
Northing: 664203.68
Longitude: 1130245.7048
Latitude: 432948.61689
Completion Depth: 678

Driller: PC Exploration
Geologist: S.Pickett/L.McCleaty
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 5023.11

03/01/1994
Water Level: 595.98
Water Level Date: 11/30/92
Water Level Accuracy: NF



√RWMC-085-A-083
(RWMC-MON-A-066)

Well Modification Log

WELL NAME RWMC OW-2 (brass plate in pad) START DATE 9-25-00 END DATE 9-25-00

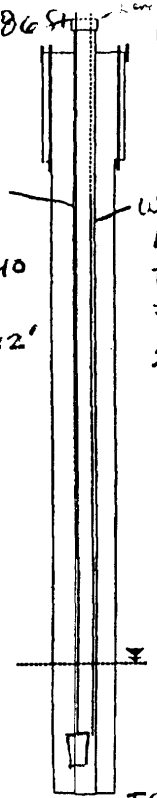
PROJECT NAME Well maint. Repair, Replacement INSTALLATION TEAM DYNATEC

Reason for modification: Ground Water Monitoring
Installed new pump

Is this a pump replacement? [ ] yes [X] no If yes was pump returned to original depth? [ ] yes [ ] no Elevation of brass cap? _____

Are measurements from top of casing or land surface? TOP OF CASING Stick up of well casing? / Landing plate 1.86 ft ALS

S.U. 1.86 ft



Use diagram explain modification

Well CASING
6 IN. (ID) CARBON STEEL
~ 603 ft bls

Discharge LINE
1.25 IN. SS.
TP 304 Sch 40
X @ 21.3
30 secs. + 2.62'
641.62 ft

WATER ACCESS
1.00 IN S.S.
TP 304 Sch 40
X @ 21.12
29 secs.
612.48 ft

619 ft (bls)
(9-14-00)

T.O. 985' (bls)
open hole 603 - 985'

Pump Modification

Type	Ground water
Manufacturer	Grundfos
Model #	10S 30-34
Top of pump	639.76 ft (bls)
Bottom of pump	644.36 ft (bls)
Inlet depth	
Horse power	3
Flow rate	Avg 9 gpm/hr
Head	
Volts, Amps, Kw	230V 9.5A 2.2KW
Phase	3Ø
pump length	4.6 ft
Material	Stainless steel

Discharge Line Modification

Type	304
Material	STAINLESS STEEL
Diameter	1.25 IN
weep hole (1/8 in)	@ 21 ft
total length	641.62 ft

-1.86 ft

Water Level Access Line Modification

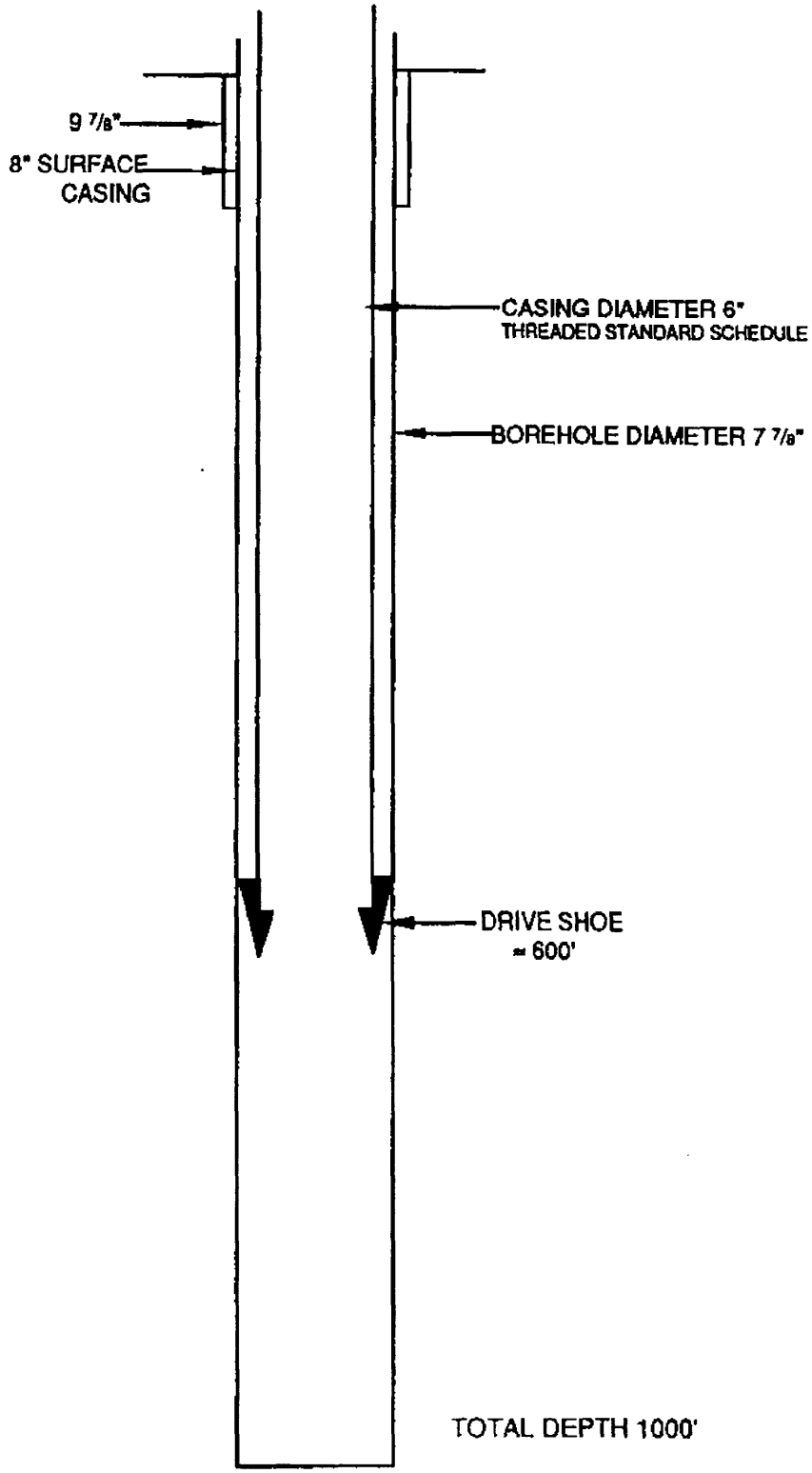
Type	304
Material	STAINLESS STEEL
Depth	610.62 ft (bls)

-1.86

Comments: Note: 8 AWG W/10 GRND SUBMERSIBLE CABLE 600V

Signature and date: _____

OW-2


9 7/8"
8" SURFACE CASING
CASING DIAMETER 6"
THREADED STANDARD SCHEDULE
BOREHOLE DIAMETER 7 7/8"
DRIVE SHOE
≈ 600'
TOTAL DEPTH 1000'

RWMC-MON-A-013 **Well Modification Log**

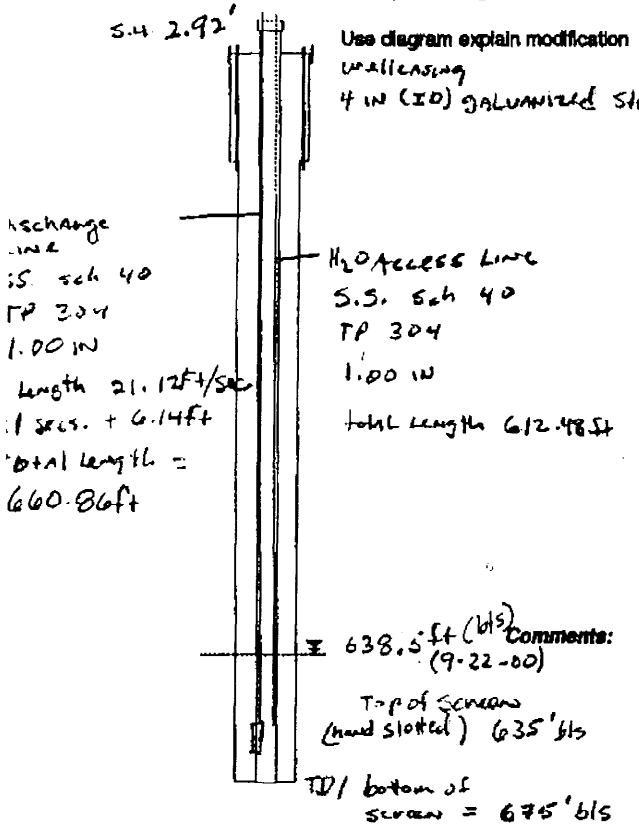
WELL NAME RWMC A11A31 START DATE 9-22-00 END DATE 9-25-00

PROJECT NAME Well Maint., Repair, Replacement INSTALLATION TEAM Dynatec

Reason for modification: Ground water monitoring
Installed new pump

Is this a pump replacement? ☐ yes ☒ no If yes was pump returned to original depth? ☐ yes ☐ no Elevation of brass cap? ____

Are measurements from top of casing or land surface? TOP of CASING Stick up of well casing? /Landing plate 2.92' ALS



Pump Modification

Type	SSQ 10C -450
Manufacturer	Grundfos
Model #	A P1 0017
Top of pump	657.94' (bls)
Bottom of pump	661.22' (bls)
Inlet depth	659.44' (bls)
Horse power	1 C
Flow rate	
Head	
Volts, Amps, Kw	230V 11.1A 2.0KW
Phase	1 Ø
pump length	3.28 ft

Discharge Line Modification

Type	304
Material	Stainless Steel
Diameter	1.00 IN. / Sch 40
total length	660.86 ft
weep hole (¼) @	21 ft

Water Level Access Line Modification

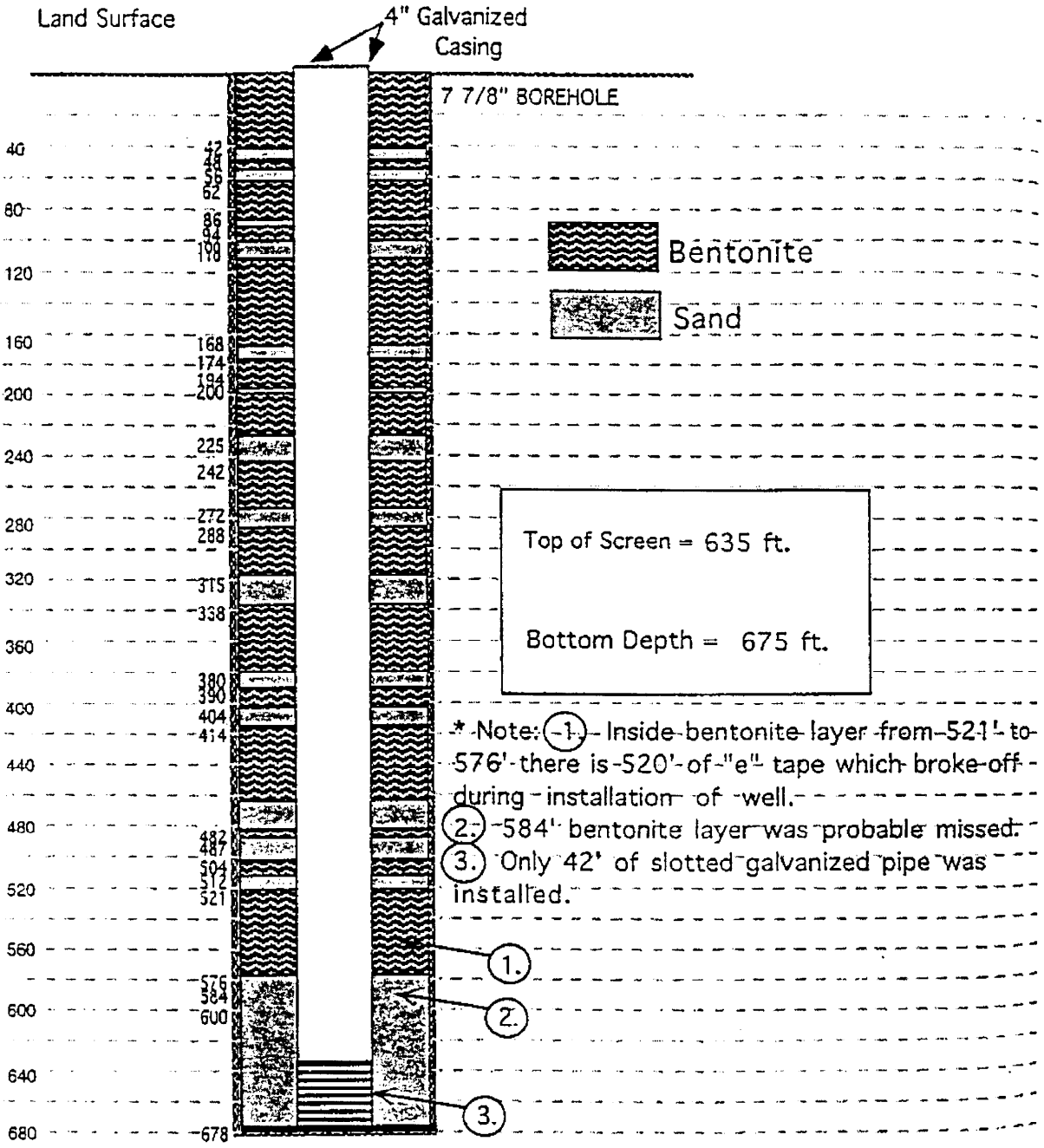
Type	304
Material	Stainless Steel
Depth	609.56 (bls)

Comments: Note: 8 AWG (2 wires) 600V submersible cable

Signature and date: 9-25-00 [signature]

RWMC - MON - A - 013 ; RF 179 ;)

WELL COMPLETION DIAGRAM: WELL # A11A31 - MA Date 11/18/93

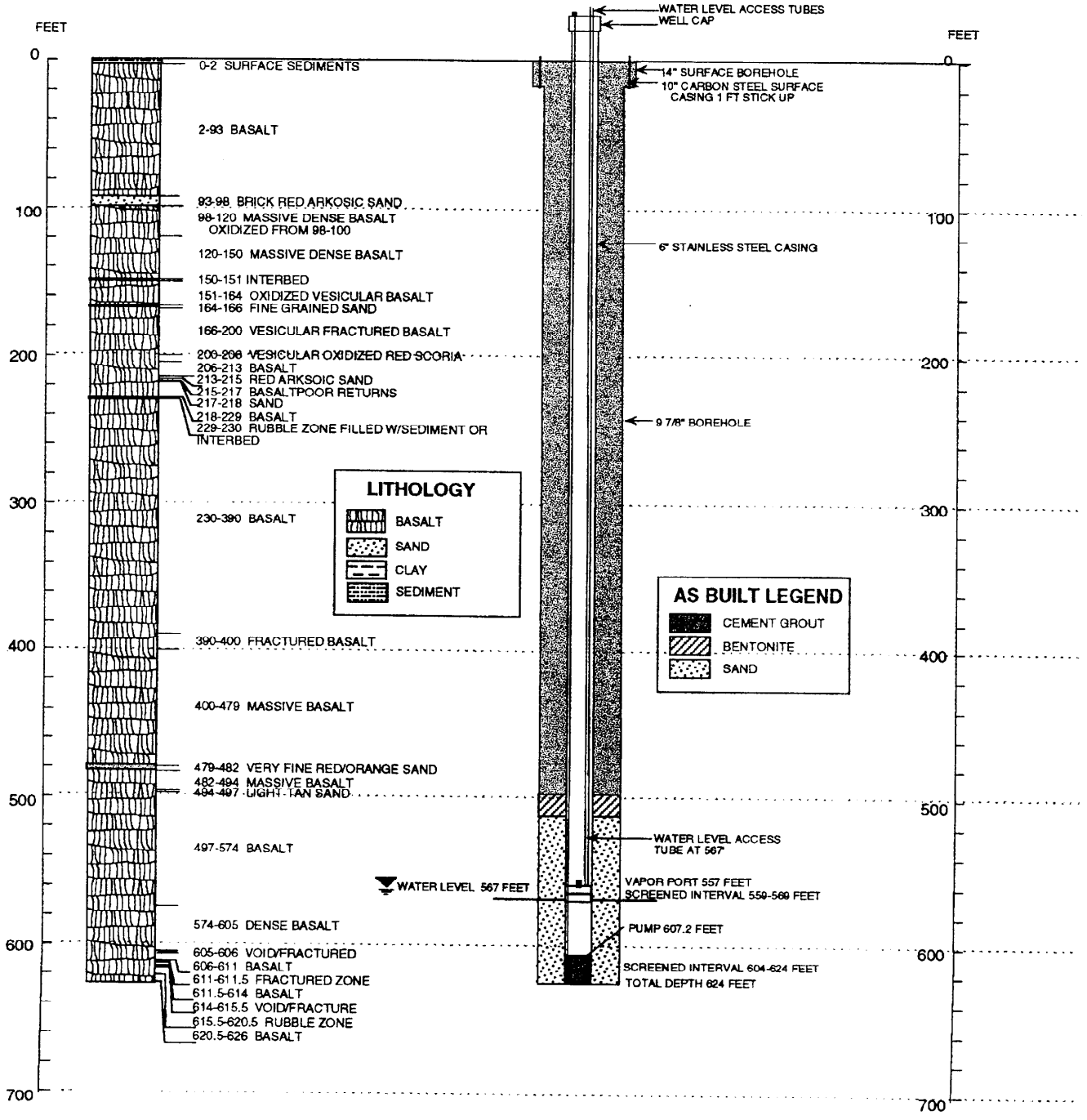


WELL NAME: **M11S(South-MON-A-001)**
Facility: RWMC
Well Type: Monitoring
Well Status: Active
Year Drilled: 1998
Total Depth: 624
Completion Depth: 624

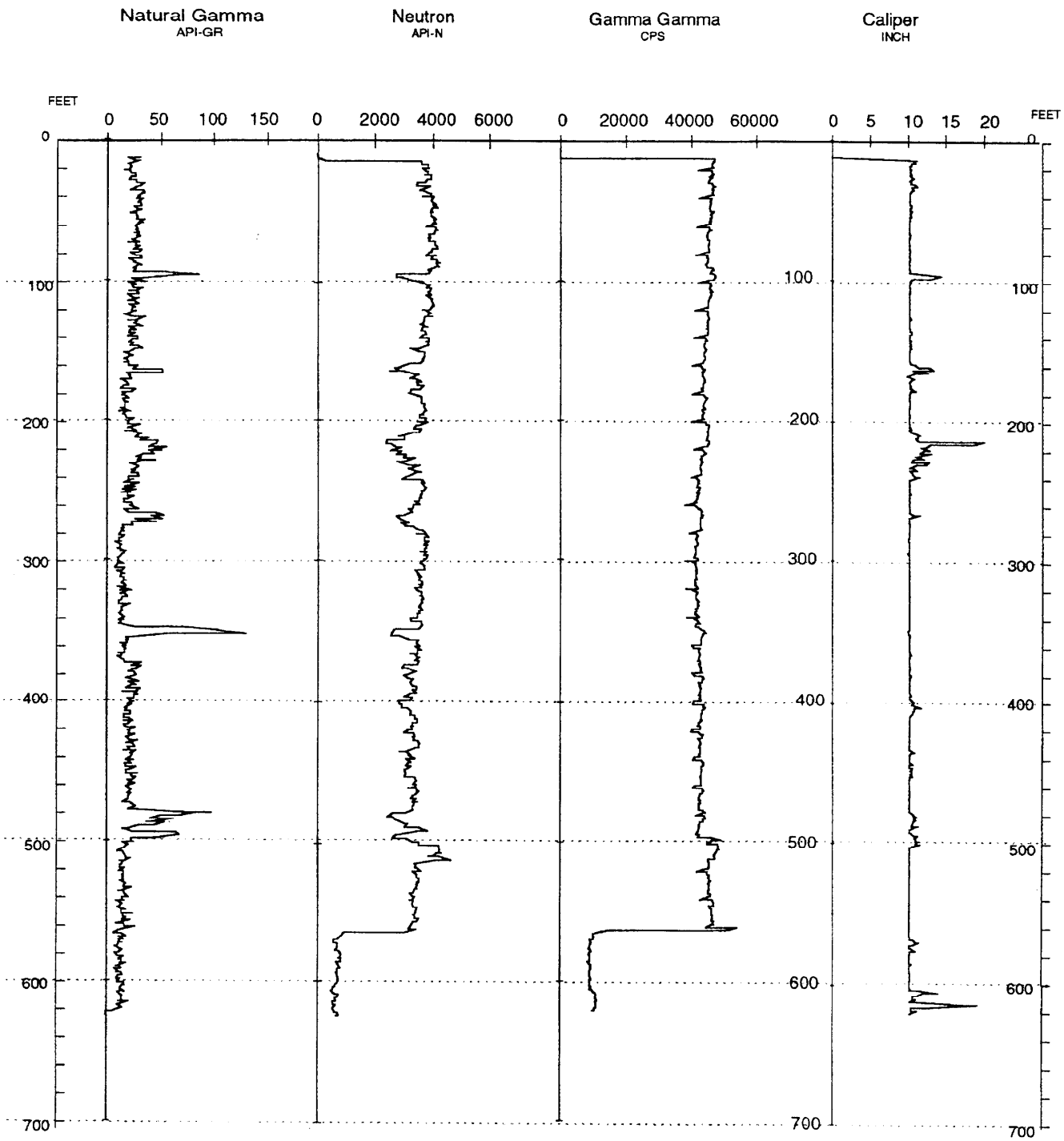
Easting: 274247.382 (27)
Northing: 675132.008 (27)
Longitude:
Latitude:

Driller: Tonto
Geologist: Burgess/Hersley
Drill Method: Air Rotary
Drill Fluid: Air
Elevation: 4994.19 (BC) 4995.63 (MP)

Date: 7/9/98
Water Level: 567'
Water Level Date: 6/4/98
Water Level Access: 1" Galvanized Pipe



M11S(South-MON-A-001)

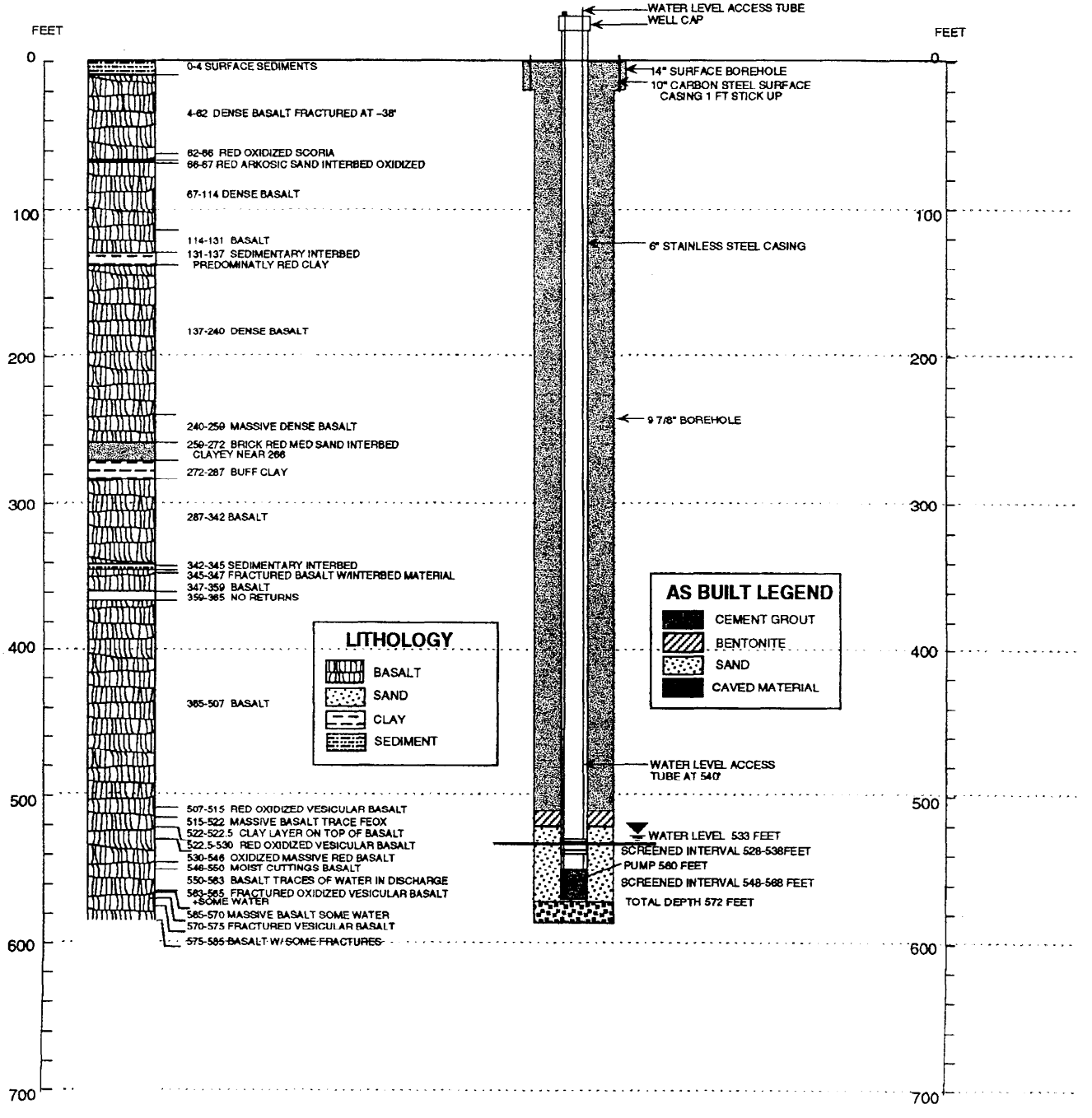


WELL NAME: **M12S(South-MON-A-002)**
Facility: RWMC
Well Type: Monitoring
Well Status: Active
Year Drilled: 1998
Total Depth: 585.5
Completion Depth: 572

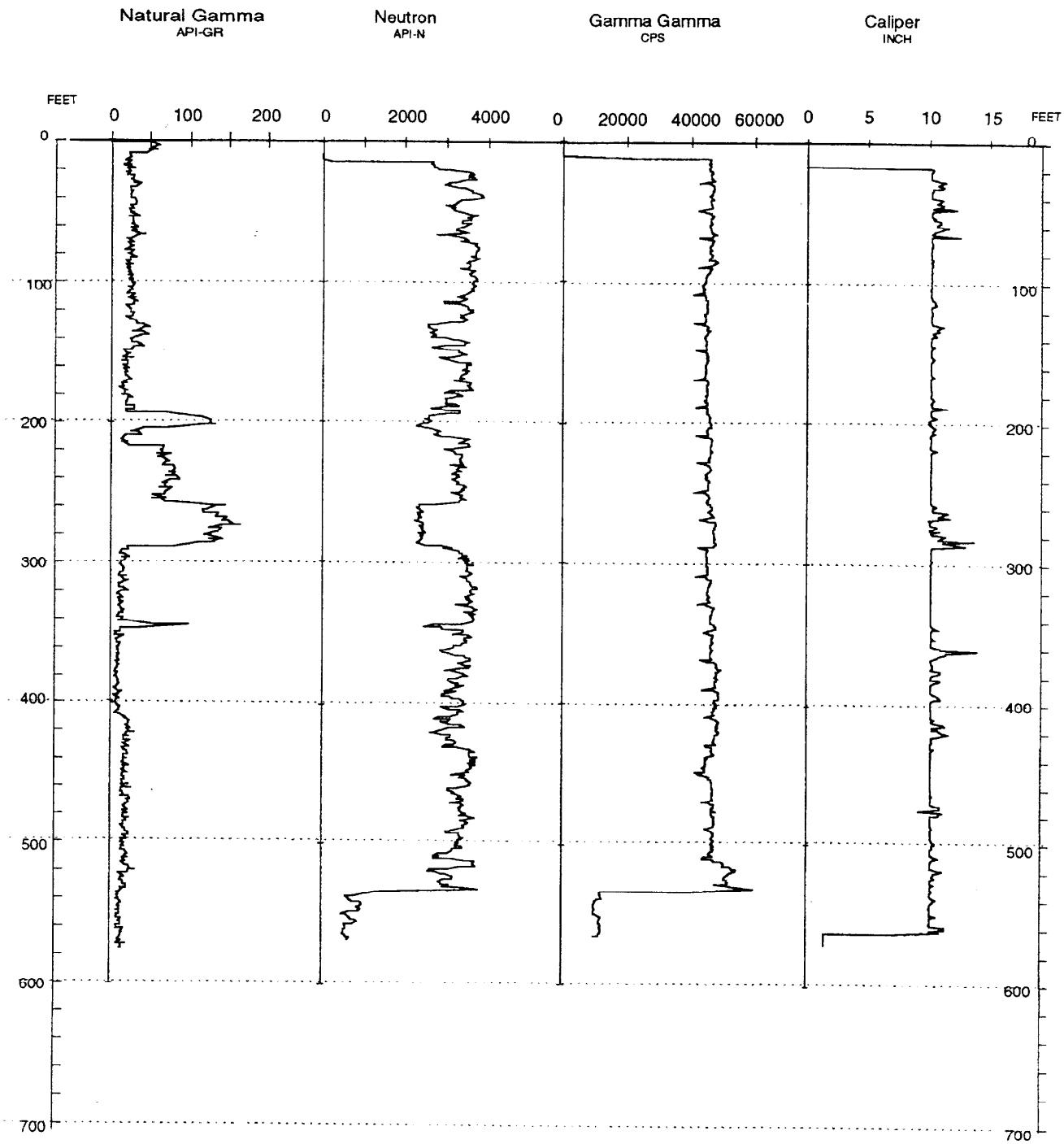
Easting: 280877.379 (27)
Northing: 677144.786 (27)
Longitude:
Latitude:

Driller: Tonto
Geologist: Burgess/Hersley
Drill Method: Air Rotary
Drill Fluid: Air
Elevation: 4975.23 (BC) 4977.03 (MP)

Date: 7/9/98
Water Level: 533'
Water Level Date: 5/31/98
Water Level Access: 1" Galvanized Pipe



M12S(South-MON-A-002)

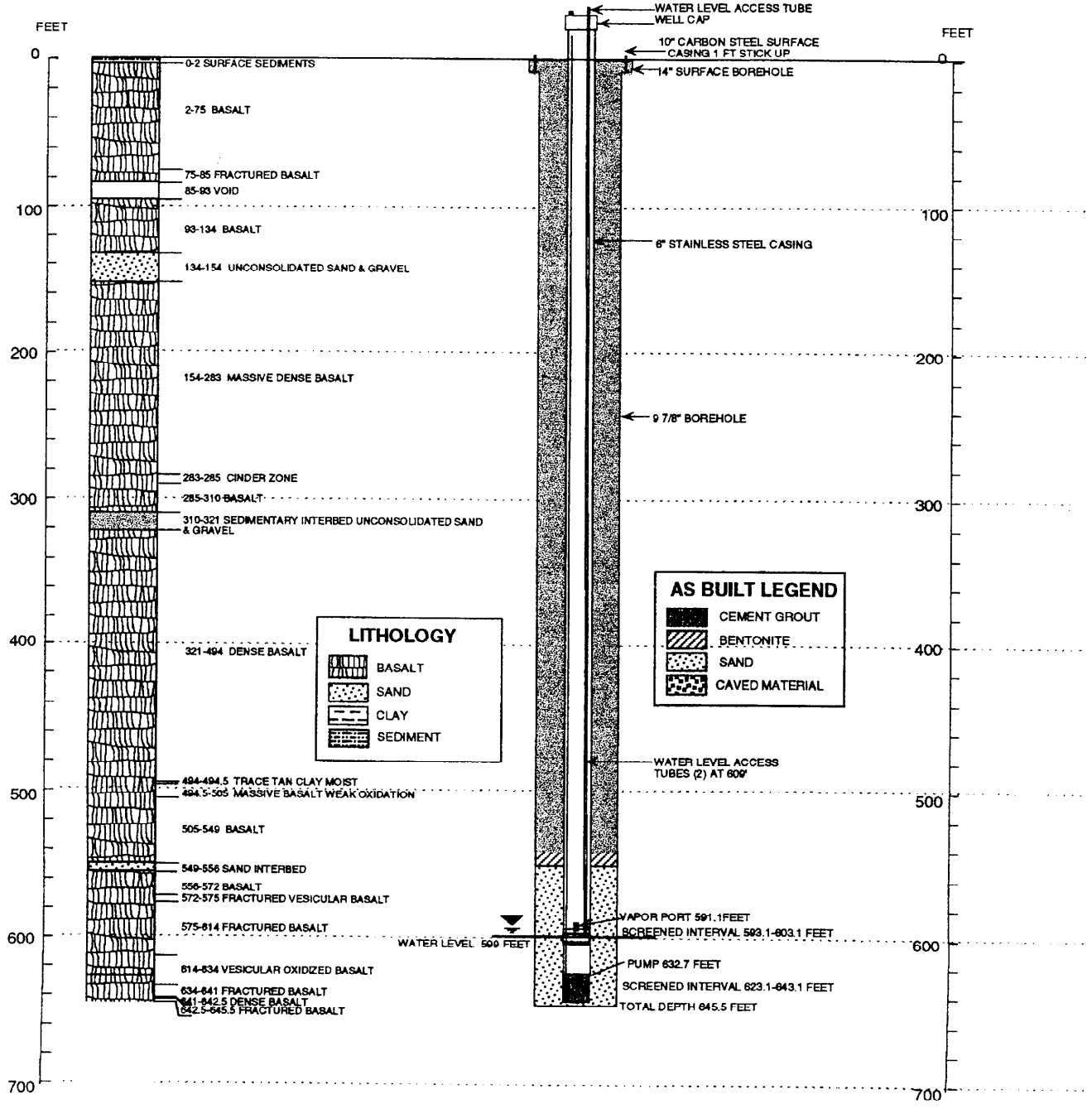


WELL NAME: **M13S(South-MON-A-003)**
Facility: RWMC
Well Type: Monitoring
Well Status: Active
Year Drilled: 1998
Total Depth: 645.5
Completion Depth: 643.1

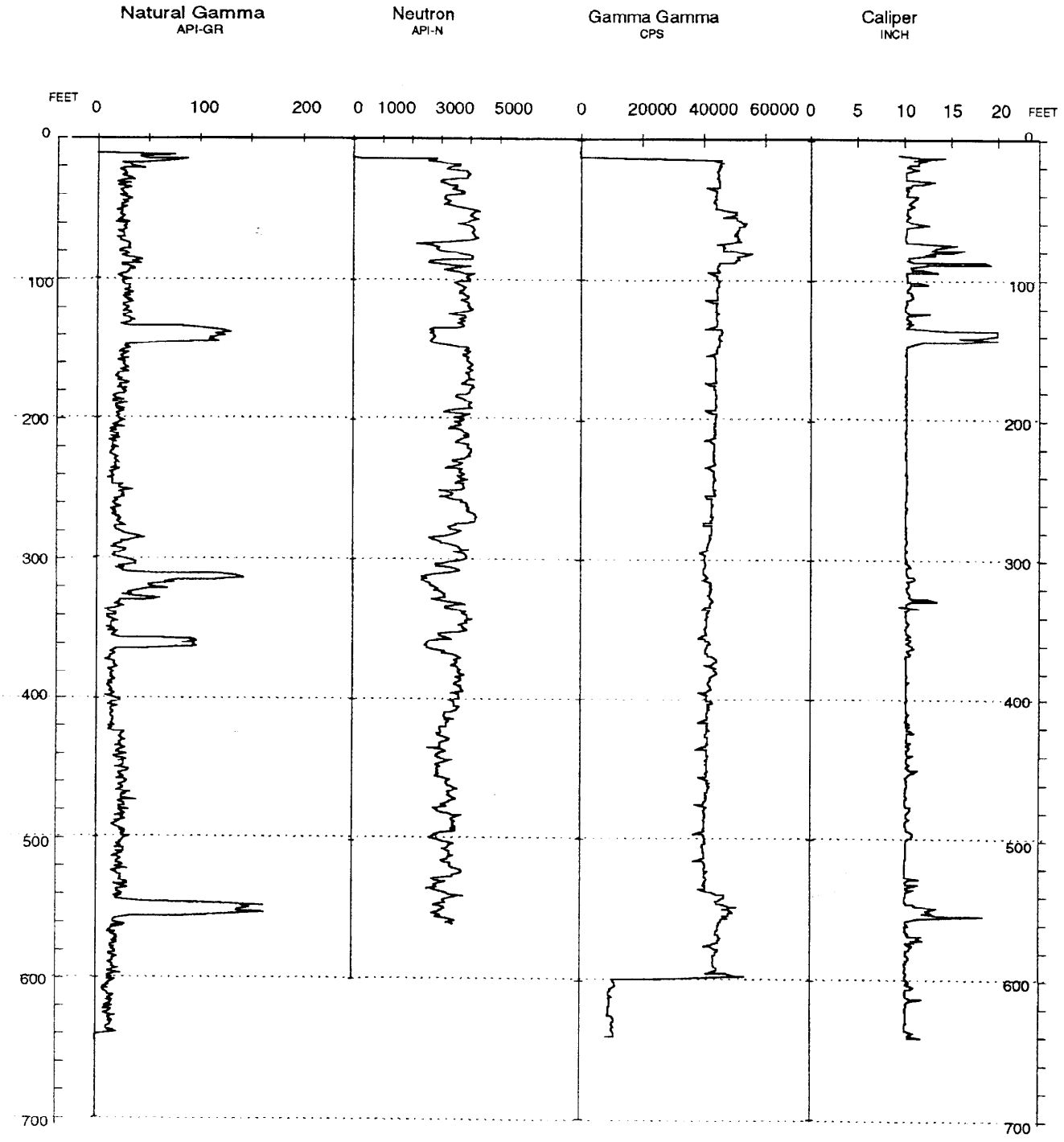
Easting: 276944.776 (27)
Northing: 672953.048 (27)
Longitude:
Latitude:

Driller: Tonto
Geologist: Burgess/Hersley
Drill Method: Air Rotary
Drill Fluid: Air
Elevation: 5026.85 (BC) 5028.62 (MP)

Date: 7/14/98
Water Level: 599'
Water Level Date: 6/11/98
Water Level Access: 1" Galvanized Pipe



M13S(South-MON-A-003)

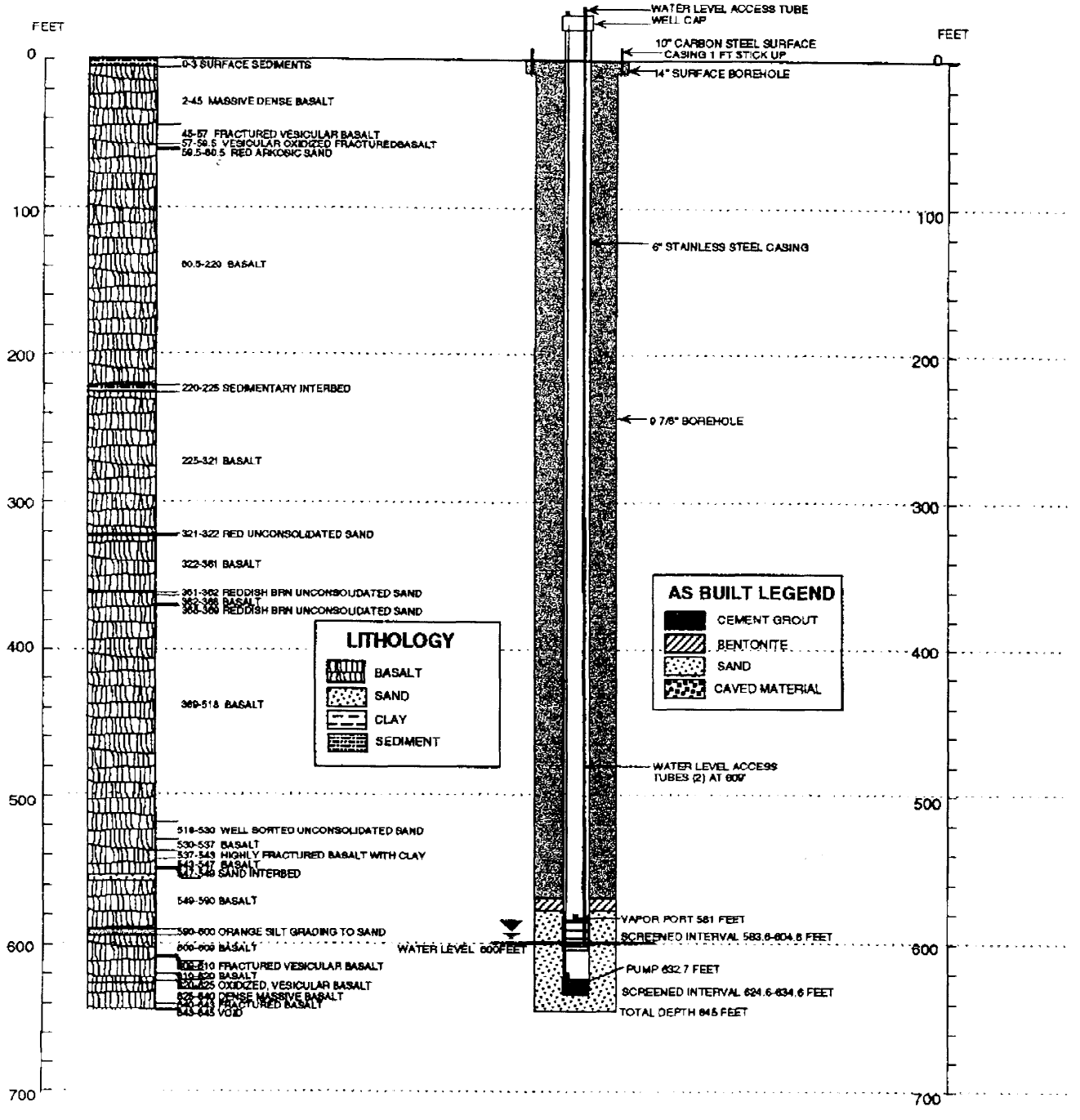


WELL NAME: **M14S(South-MON-A-004)**
Facility: RWMC
Well Type: Monitoring
Well Status: Active
Year Drilled: 1998
Total Depth: 645
Completion Depth: 645

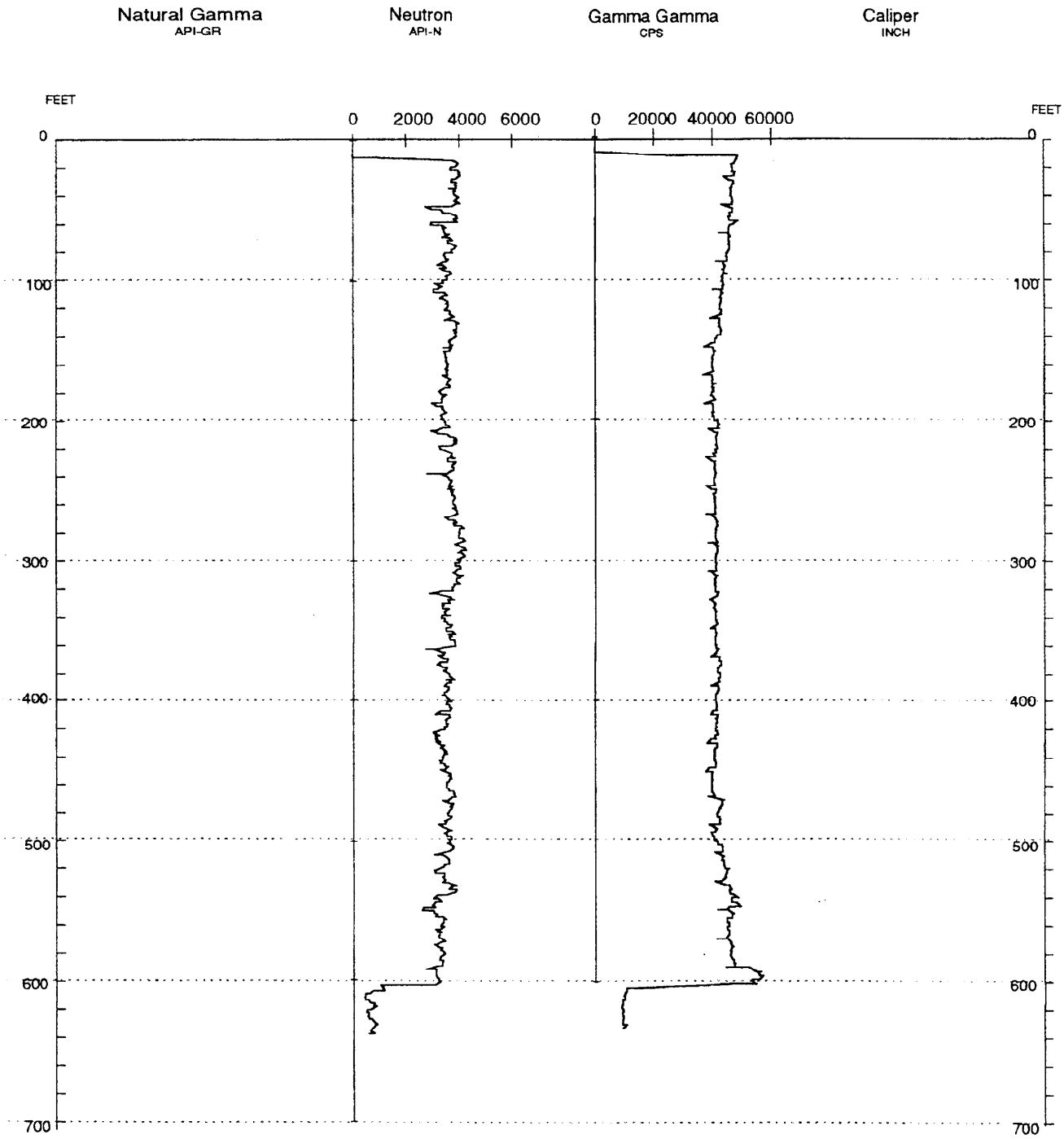
Easting: 266412.654 (27)
Northing: 674610.462 (27)
Longitude:
Latitude:

Driller: Tonto
Geologist: Burgess/Hersley
Drill Method: Air Rotary
Drill Fluid: Air
Elevation: 5032.46 (BC) 5035.22 (MP)

Date: 7/14/98
Water Level: 600'
Water Level Date: 6/13/98
Water Level Access: 1" Galvanized Pipe



M14S(South-MON-A-004)



Well name: M15S

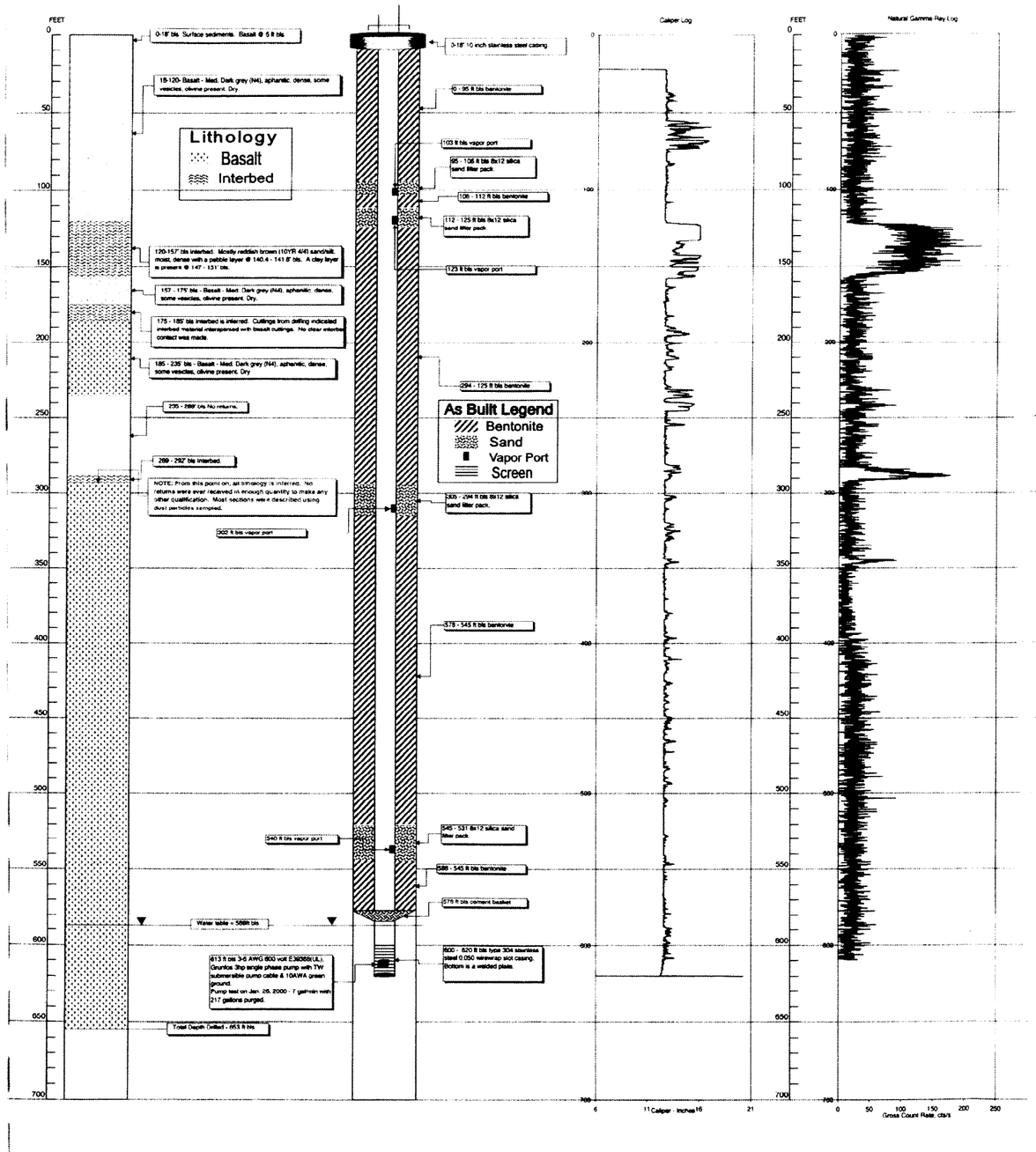
Well Name: SOUTH-MON-A-09
Facility: RWMC Outside fence
Well Type: Monitoring
Well Status: Active
Year Drilled: 1999
Total Depth: 653 ft bls

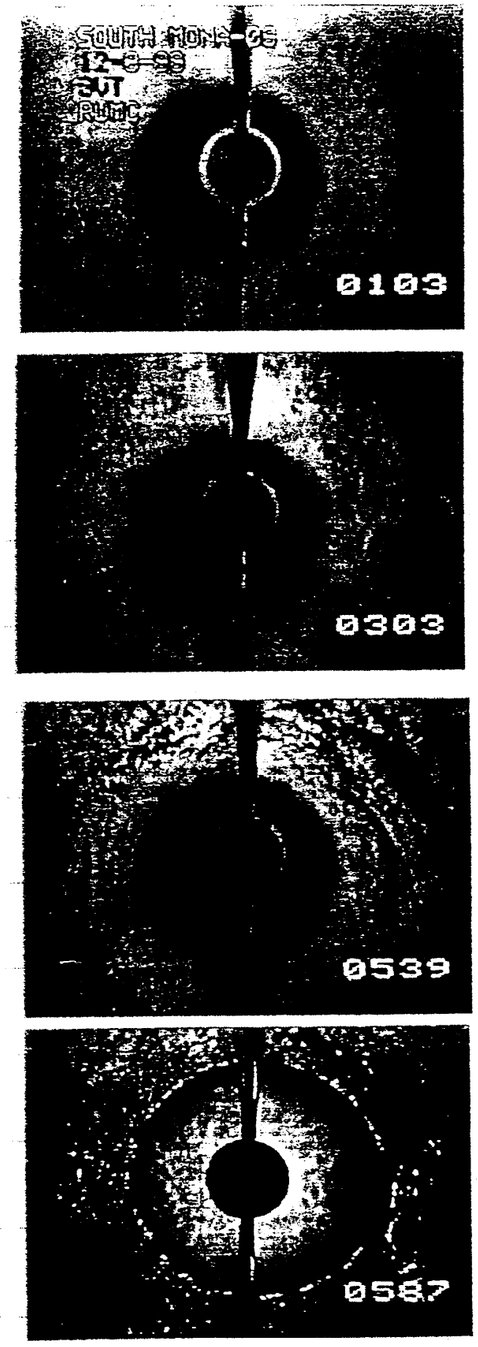
Easting: 271200.00
Northing: 668200.00

Completion Depth: 620 ft bls

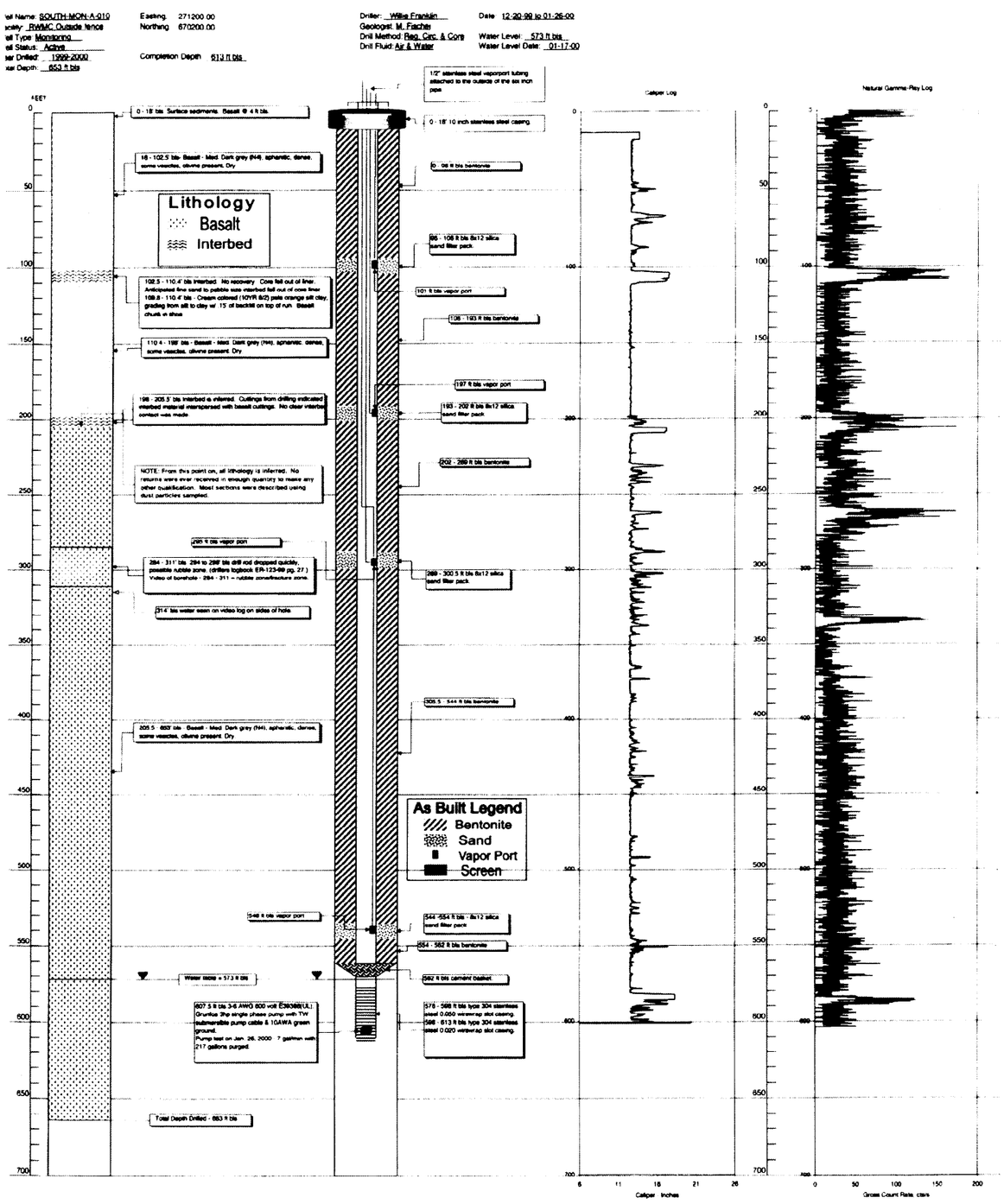
Driller: Willie Franklin
Geologist: G. Studley, S. Settle, M. Fische
Drill Method: Rag. Circ. & Core
Drill Fluid: Air & Water

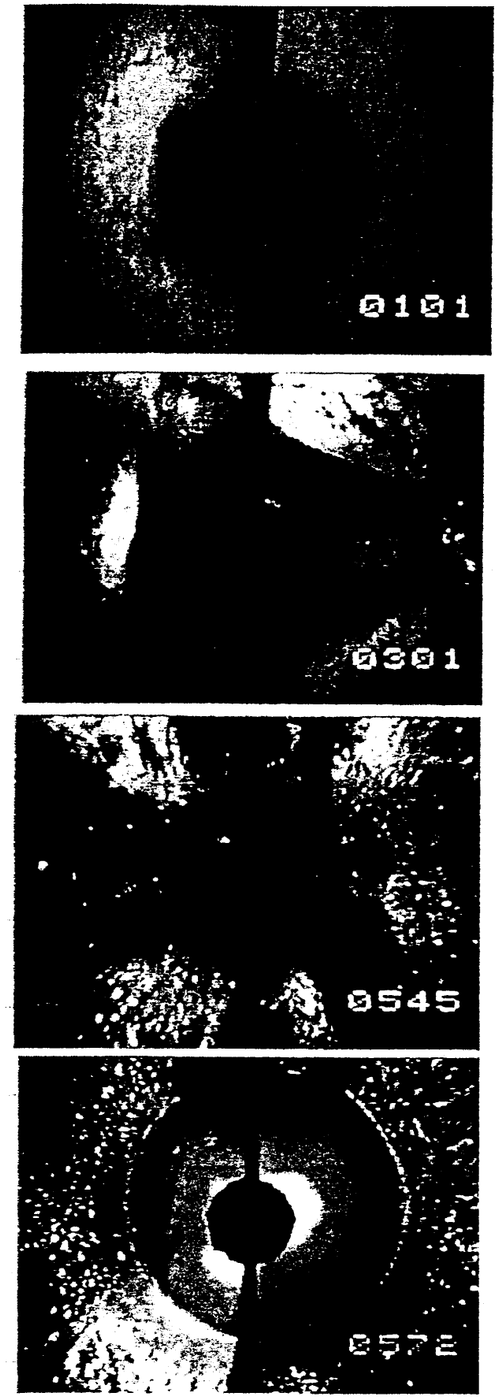
Date: 11-5-99
Water Level: 588 ft bls
Water Level Date: 12-13-99





Well name: M16S





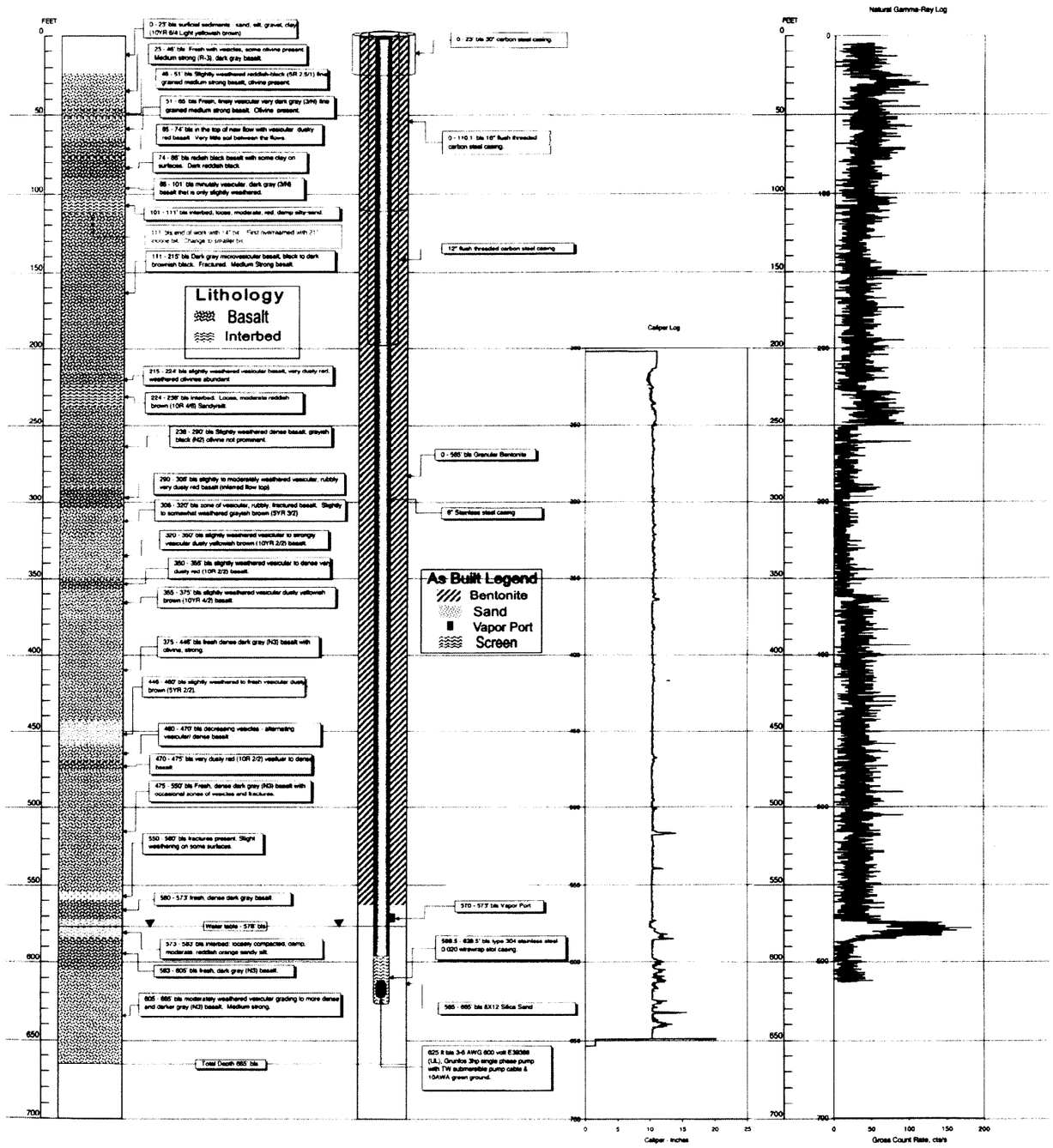
Well Name: RWMC-SCI-V-162 I-5-AQU
Facility: RWMC Inside SDA
Well Type: Monitoring
Well Status: Active
Year Drilled: 1999 - 2000
Total Depth: 665 feet bls

Easting: 423135.426
Northing: 669341.092

Completion Depth: 628.5 ft bls

Driller: Scott Dervara
Geologist: J. Martineau, J. Casper
Drill Method: Reverse Circ.
Drill Fluid: Air

Date: Oct 21 to Dec. 22, 1999
Water Level: 578 feet bls
Water Level Date: 01-10-00

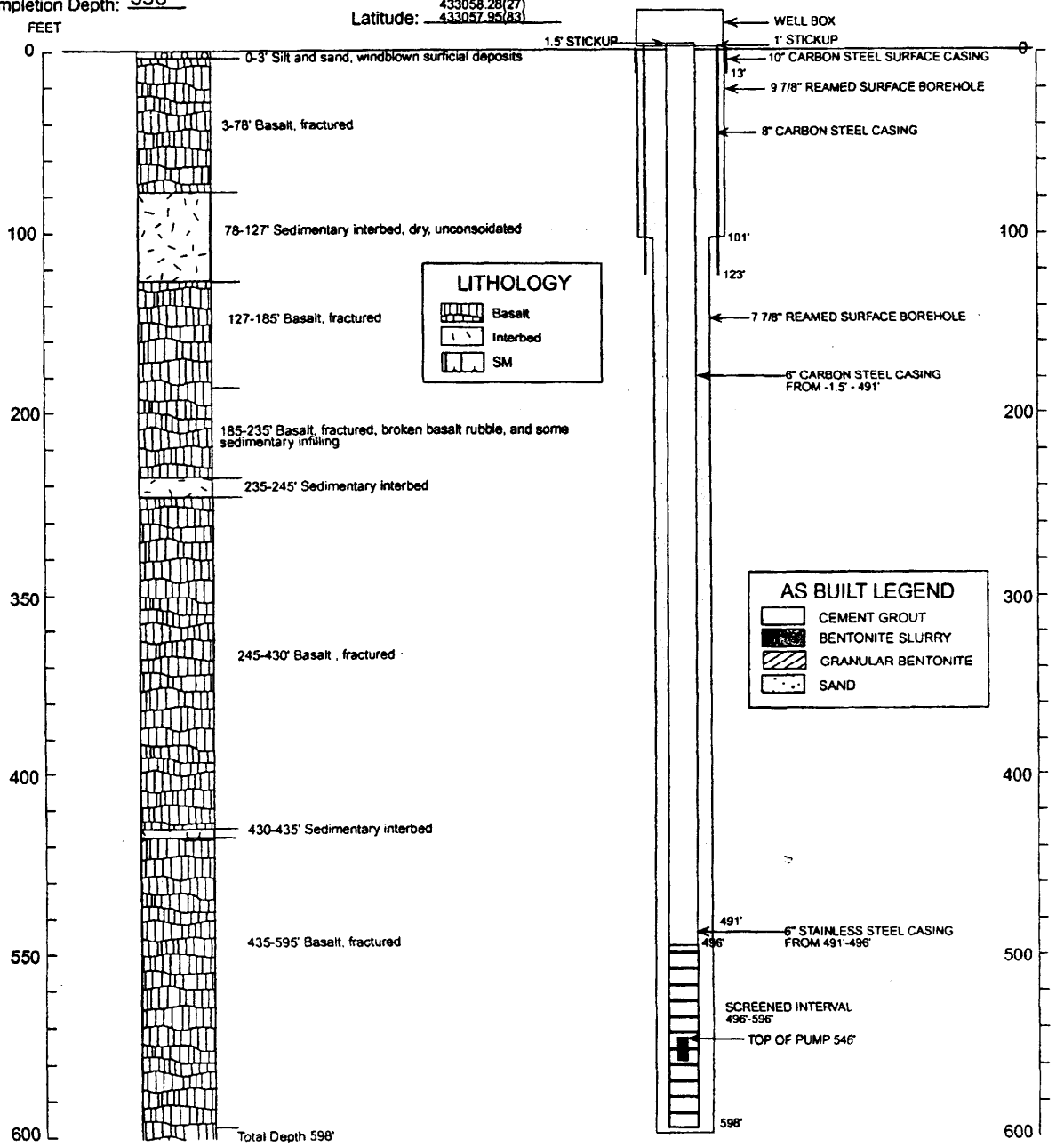


Well name: M17S

WELL NAME: USGS-OBS-A-127 (USGS-127)
Facility: South
Well Type: Monitoring
Well Status: Active
Year Drilled: 2000
Total Depth: 598'
Start Date:
End Date: 10/2000
Completion Depth: 596'

Brass Cap
Easting: 290582.99(27) 446535.17(83)
Northing: 675006.40(27) 674985.17(83)
Longitude: 1125722.06(27) 1125725.04(83)
Latitude: 433058.27(27) 433057.94(83)

Measuring Point
Easting: 290584.10(27) 446536.27(83)
Northing: 675009.24(27) 674986.01(83)
Longitude: 1125722.04(27) 1125725.03(83)
Latitude: 433058.28(27) 433057.95(83)

Driller: USGS
Geologist: USGS
Drill Method: Air rotary
Drill Fluid:
Land Surface: 4956.44(29)BC 4959.88(88)BC 4958.01(29)MP 4961.45(88)MP

Todays Date: 2-22-01
Water Level: 504'
Water Level Date: 10/15/2000
Water Level Access: n/a