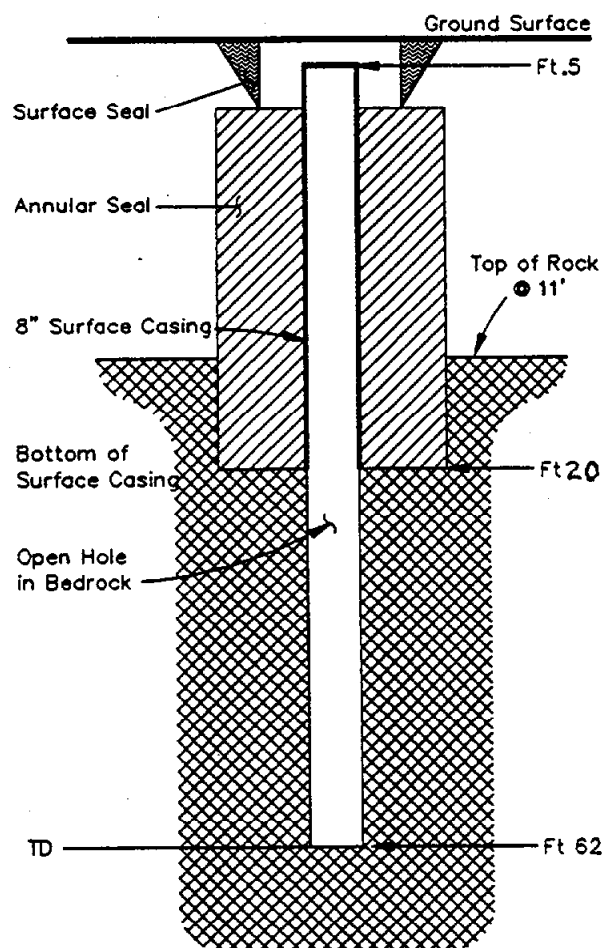


**Appendix AB**  
**Well Construction Diagrams**  
**(Focused Investigation)**



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJ022948.ST.PT  
 Well Number BRTW-1 Field Observers P. van Noort  
 Elev. (top of well casing) 54.44 Surface Elev. 54.91  
 Water Level Elev. / Date 45.07 1/3/94 Start Date 9-30-93  
 Drilling Contractor Kendrick Drilling, Inc. Finish Date 10-01-93  
 Drilling Method Air Rotary



Not To Scale

\* Depths Below Ground Surface

### Well Construction Materials

Borehole Dia.(s) 12 Inches to 10 Ft Bgs  
 Inches to x Ft Bgs  
 Inches to x Ft Bgs  
 Casing (Surface) Type Steel Dia. 8"  
 Coupling Type N/A  
 Screen Type N/A Diameter N/A  
 Slot Size N/A Screen Length N/A  
 Top Cap Type N/A  
 End Cap/Plug Type N/A  
 Centralizer Type N/A  
 Centralizer Location(s) N/A  
 Filter Pack Type N/A  
 Gradation N/A

### Seal(s)

Bentonite N/A  
 Annular Cement Grout  
 Surface N/A  
 Backfill N/A

### Flush Mount Design •

Type Steel Diameter 12"  
 Length Below (G.S.) 1.0'

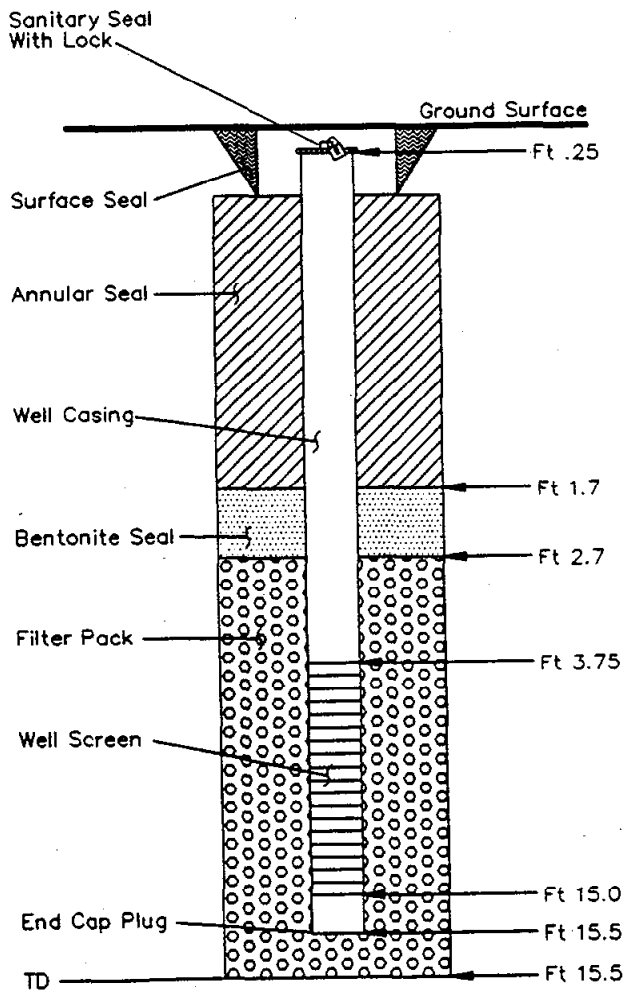
### Well Development

Date 10-01-93  
 Method Airlift  
 Comments 30 gpm, clear



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJC22948.ST.PT  
 Well Number 0BTW-1 Field Observers P. van Noort  
 Elev. (top of well casing) 54.54 Surface Elev. 54.93  
 Water Level Elev. / Date 47.82 1/3/94 Start Date 10-4-93  
 Drilling Contractor Kendrick Drilling, Inc. Finish Date 10-4-93  
 Drilling Method Air Rotary - within 10" casing



### Well Construction Materials

Borehole Dia.(s) 10 Inches to 15.5 Ft Bgs  
 Inches to x Ft Bgs  
 Inches to x Ft Bgs  
 Casing Type PVC Diameter 6  
 Coupling Type Threaded  
 Screen Type PVC CONTINUOUS WIRE ROUND Diameter 6  
 Slot Size .010 \*\* Screen Length 12  
 Top Cap Type Expandable  
 End Cap/Plug Type Slip-on  
 Centralizer Type N/A  
 Centralizer Location(s) N/A  
 Filter Pack Type #1 Morie  
 Gradation N/A

### Seal(s)

Bentonite Pellets - Benseal  
 Annular Cement Grout  
 Surface Sacrete  
 Backfill N/A

### Flush Mount Design •

Type Steel Diameter 12"  
 Length Below (G.S.) 1.0'

### Well Development

Date 10-04-93  
 Method Airlift  
 Comments Turbid, low recovery

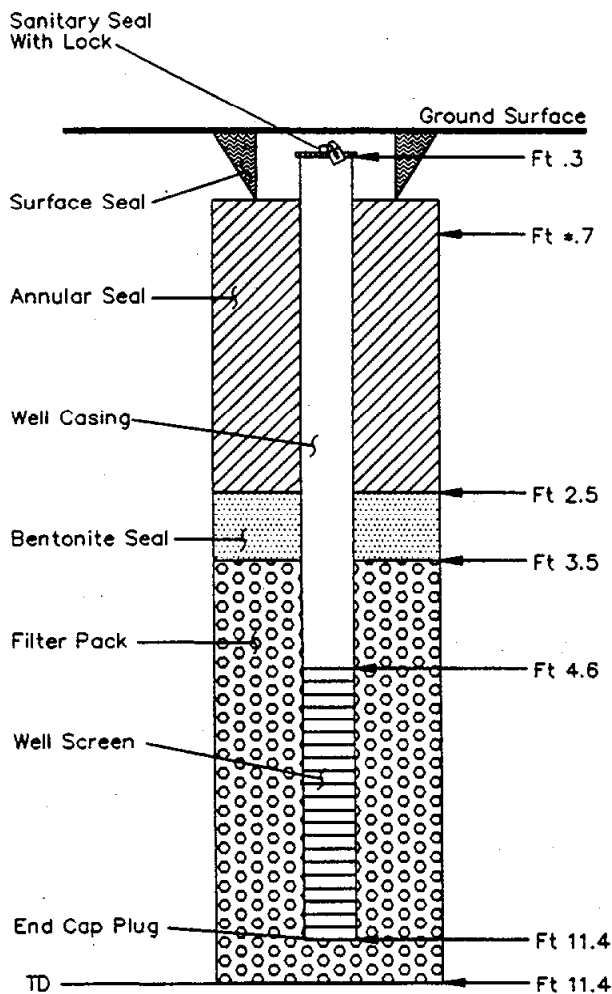
Not To Scale

\* Depths Below Ground Surface  
 \* (wire wrapped)



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJ022948.ST.PT  
Well Number PT-1S Field Observers P. van Noort  
Elev. (top of well casing) 55.02 Surface Elev. 55.31  
Water Level Elev. / Date 48.72 1/3/94 Start Date 9-21-93  
Drilling Contractor Kendrick Drilling, Inc. Finish Date 9-21-93  
Drilling Method Air Rotary - Rollerbit



Not To Scale

\* Depths Below Ground Surface

### Well Construction Materials

Borehole Dia.(s) 10 Inches to 11.4 Ft Bgs  
Inches to x Ft Bgs  
Inches to x Ft Bgs  
Casing Type PVC Diameter 2"  
Coupling Type Threaded  
Screen Type PVC Diameter 2"  
Slot Size .010 Screen Length 10  
Top Cap Type Locking Expandable  
End Cap/Plug Type Slip-on  
Centralizer Type N/A  
Centralizer Location(s) N/A  
Filter Pack Type #1 Morie  
Gradation N/A

### Seal(s)

Bentonite Pellets  
Annular Cement Grout  
Surface Sacrete  
Backfill N/A

### Flush Mount Design •

Type Steel Diameter 10"  
Length Below (G.S.) 1.0'

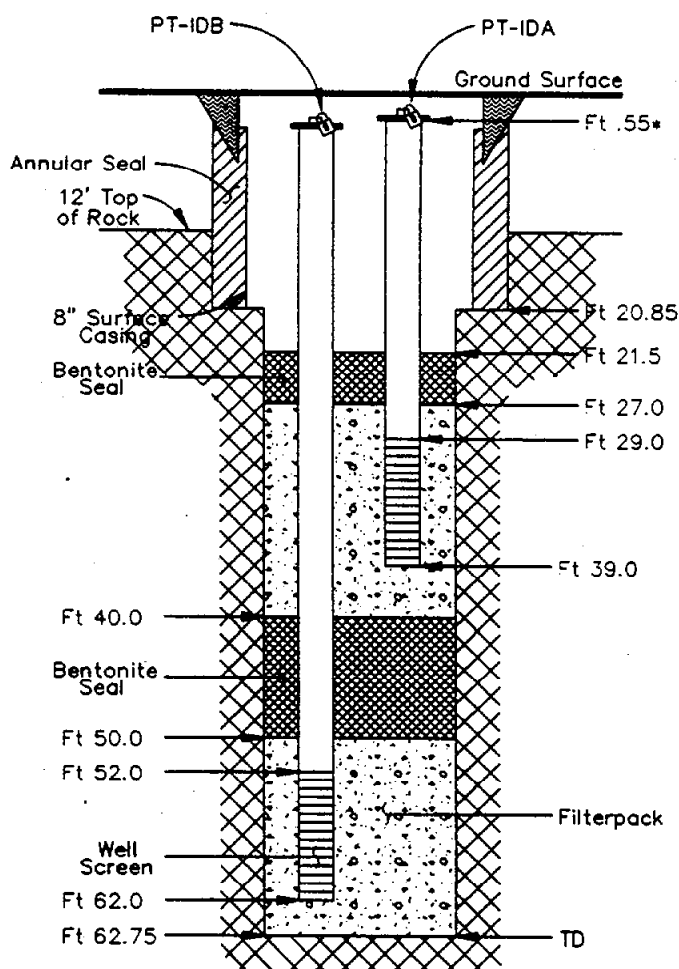
### Well Development

Date 9-22-93  
Method Bail & Surge  
Comments 10.5 gallons removed (Total)  
dry after 3 gallons, very turbid



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stegan Company Project Number NJ022948.ST.PT  
 Well Number PT-IDA, PT-IDB Field Observers L. Vogel  
 Elev. (top of well casing) PT-IDA - 54.82  
PT-IDB - 54.74 Surface Elev. 55.33  
 Water Level Elev. / Date PT-IDA - 46.10 1/3/94  
PT-IDB - 45.81 1/3/94 Start Date 9-28-93  
 Drilling Contractor Kenarick Drilling Inc. Finish Date 10-14-93  
 Drilling Method Air Rotary



### Well Construction Materials

Borehole Dia.(s) 12 Inches to 20.85 Ft Bgs  
8 Inches to 62.75 Ft Bgs  
       Inches to x Ft Bgs  
 Casing (Surface) Type PVC Dia. 2"  
 Coupling Type Threaded  
 Screen Type PVC Diameter 2"  
 Slot Size .010 Screen Length 10'  
 Top Cap Type Locking Expandable  
 End Cap/Plug Type Threaded  
 Centralizer Type N/A  
 Centralizer Location(s) N/A  
 Filter Pack Type #1 Morie  
 Gradation N/A

### Seal(s)

Bentonite Hole Plug  
 Annular Cement Grout  
 Surface Sacrete  
 Backfill N/A

### Flush Mount Design •

Type Steel Diameter 12"  
 Length Below (G.S.) 1.0'

### Well Development

Date 10-19-93  
 Method Pump & Surge  
 Comments Clear

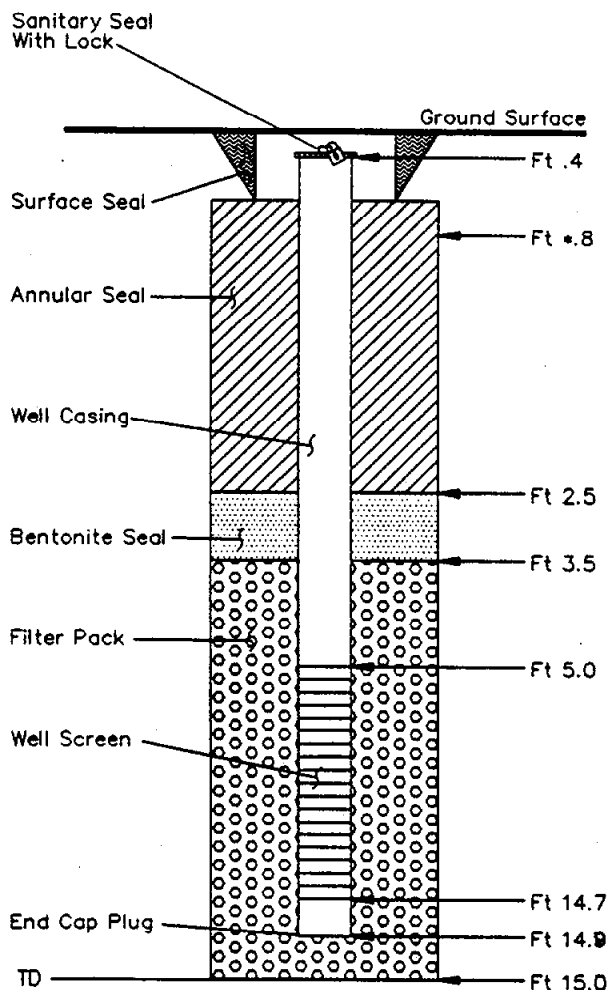
Not To Scale

\* Depths Below Ground Surface



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJO22948.ST.PT  
Well Number PT-2S Field Observers P. van Noort  
Elev. (top of well casing) 54.37 Surface Elev. 54.70  
Water Level Elev. / Date 50.10 1/3/94 Start Date 9-21-93  
Drilling Contractor Kendrick Drilling, Inc. Finish Date 9-21-93  
Drilling Method Air Rotary - Rollerbit



Not To Scale

\* Depths Below Ground Surface

### Well Construction Materials

Borehole Dia.(s) 6 Inches to 15 Ft Bgs  
Inches to x Ft Bgs  
Inches to x Ft Bgs  
Casing Type PVC Diameter 2"  
Coupling Type Threaded  
Screen Type PVC Diameter 2"  
Slot Size .010 Screen Length 10  
Top Cap Type Locking Expandable  
End Cap/Plug Type Threaded  
Centralizer Type N/A  
Centralizer Location(s) N/A  
Filter Pack Type #1 Morie  
Gradation N/A

### Seal(s)

Bentonite Pellets  
Annular Cement Grout  
Surface Sacrete  
Backfill N/A

### Flush Mount Design •

Type Steel Diameter 10"  
Length Below (G.S.) 1.0'

### Well Development

Date 9-22-93  
Method Bail & Surge  
Comments 18 gallons total removed,  
dry after 8 gallons, turbid, frothy



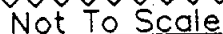
## Well Construction Materials

Casing (Surface) Type PVC Dia. 2"  
Coupling Type Threaded  
Screen Type PVC Diameter 2"  
Slot Size .010 Screen Length 7'  
Top Cap Type Locking Expandable  
End Cap/Plug Type Threaded  
Centralizer Type N/A  
Centralizer Location(s) N/A  
Filter Pack Type #1 Morie  
Gradation N/A

Bentonite	Bentonite Hole Plug
Annular	Cement Grout
Surface	Sacrete
Backfill	N/A

Type Steel Diameter 12"  
Length Below (G.S.) 1.0'

Date 10-19-93  
Method Pump & Surge  
Comments Clear

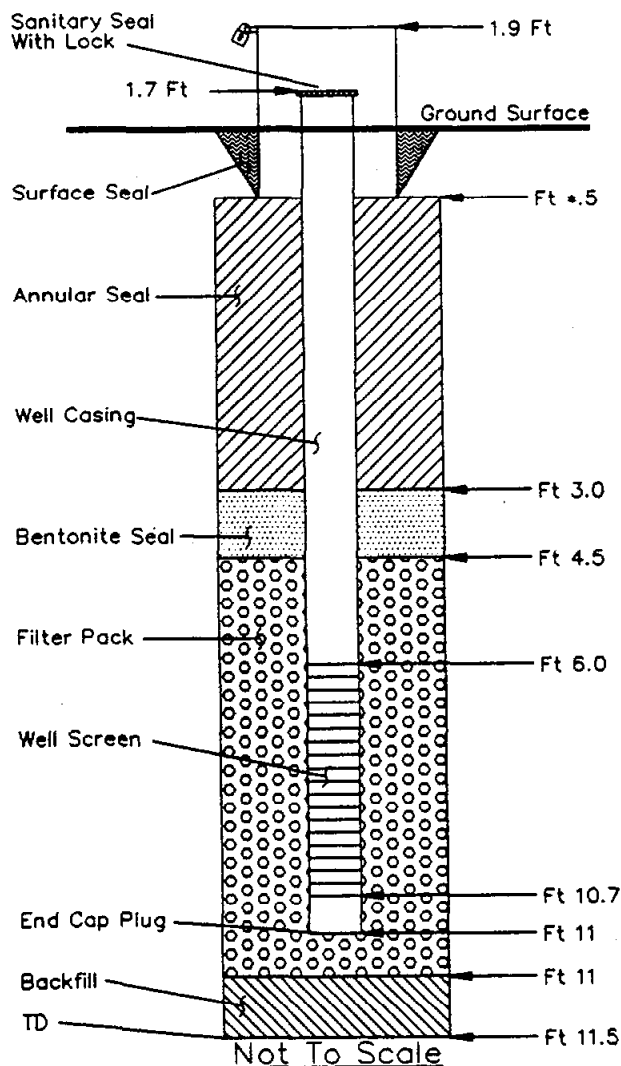


\* Depths Below Ground Surface



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJ022948.ST.B2  
 Well Number OBMW-18 Field Observers P. van Noort  
 Elev. (top of well casing) 64.67 Surface Elev. 62.95  
 Water Level Elev. / Date Not Available Start Date 9-22-93  
 Drilling Contractor Kendrick Drilling, Inc. Finish Date 9-22-93  
 Drilling Method HSA



\* Depths Below Ground Surface

### Well Construction Materials

Borehole Dia.(s) 8 Inches to 11 Ft Bgs  
3 Inches to 11.5 Ft Bgs  
 Inches to x Ft Bgs  
 Casing Type SS-316 Diameter 2" ID  
 Coupling Type Threaded  
 Screen Type ss-304 Diameter 2" ID  
 Slot Size .010 Screen Length 5'  
 Top Cap Type N/A  
 End Cap/Plug Type Threaded SS  
 Centralizer Type N/A  
 Centralizer Location(s) N/A  
 Filter Pack Type #1 Morie  
 Gradation N/A

### Seal(s)

Bentonite Pellets  
 Annular Cement Grout  
 Surface Sacrete  
 Backfill N/A

### Protective Casing •

Type Steel Diameter 4"  
 Length Above(G.S.) 1.91  
 Below(G.S.) 3.09

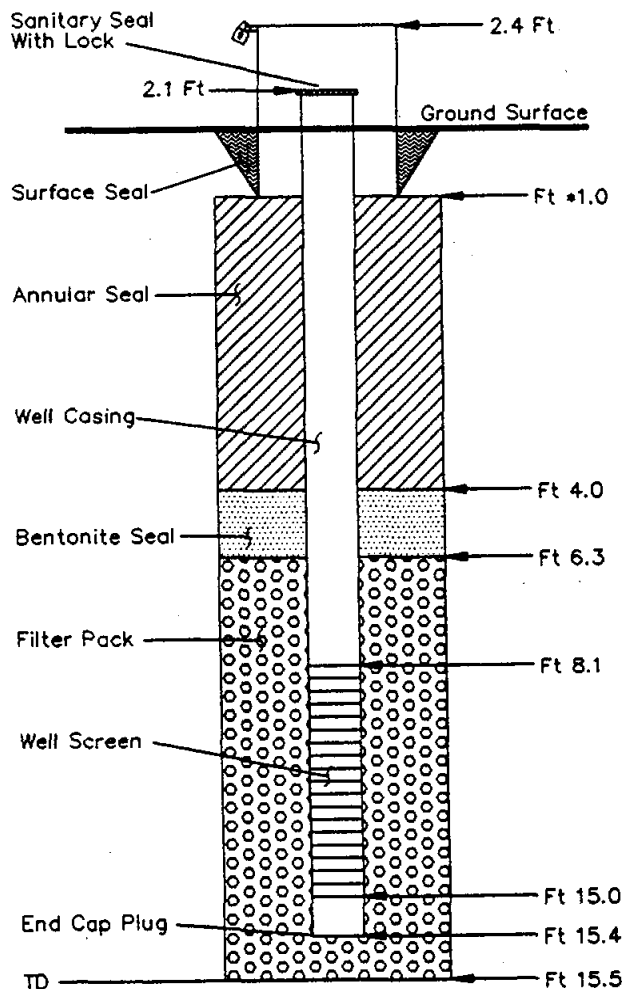
### Well Development

Date 9-22-93  
 Method Surge and Bail  
 Comments Dry after 5 gallons,  
15 gallons removed total, v. turbid.



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJ022948.ST.B2  
Well Number OBMW-19 Field Observers P. van Noort  
Elev. (top of well casing) 58.93 Surface Elev. 56.83  
Water Level Elev. / Date 48.05 1/3/94 Start Date 9-20-93  
Drilling Contractor Kendrick Drilling, Inc. Finish Date 9-20-93  
Drilling Method HSA



### Well Construction Materials

Borehole Dia.(s) 6 Inches to 15.5 Ft Bgs  
Inches to x Ft Bgs  
Inches to x Ft Bgs  
Casing Type SS-316 Diameter 2  
Coupling Type Threaded  
Screen Type SS-306 Diameter 2  
Slot Size .010 Screen Length 7.5  
Top Cap Type N/A  
End Cap/Plug Type Threaded  
Centralizer Type N/A  
Centralizer Location(s) N/A  
Filter Pack Type #1 Morie  
Gradation N/A

### Seal(s)

Bentonite Pellets  
Annular Cement Grout  
Surface Sacrete  
Backfill N/A

### Protective Casing •

Type Steel Diameter 4  
Length Above(G.S.) 2.41  
Below(G.S.) 2.59

### Well Development

Date 9-22-93  
Method Surge and Bail  
Comments 15 gallons pumped, dry after  
5 gallons, turbid, odor

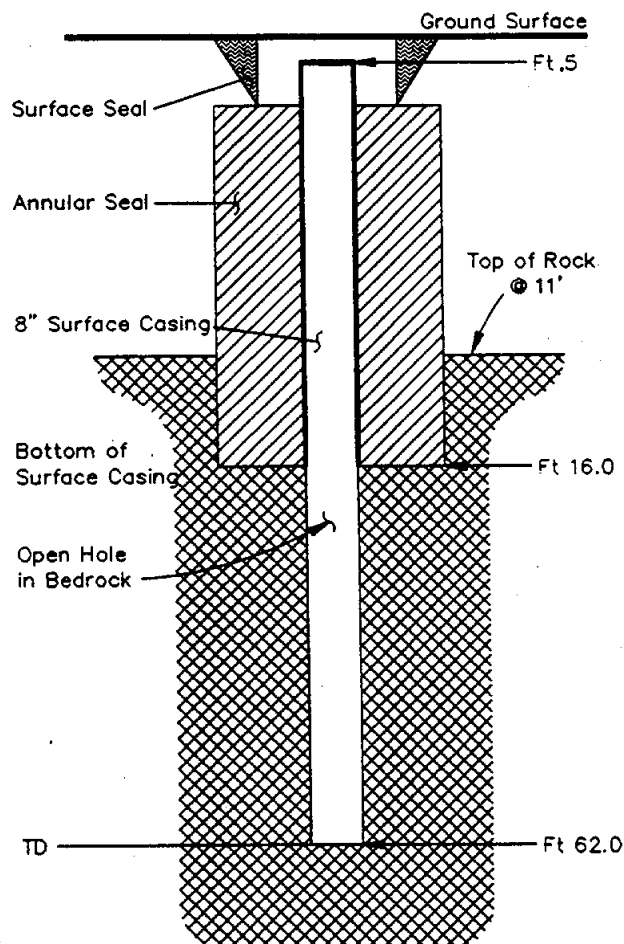
Not To Scale

\* Depths Below Ground Surface



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stegan Company Project Number NJ022948.ST.PT  
Well Number BRTW-2 Field Observers P. van Noort  
Elev. (top of well casing) 47.94 Surface Elev. 48.46  
Water Level Elev. / Date Not Available Start Date 10-7-93  
Drilling Contractor Kendrick Drilling, Inc. Finish Date 10-13-93  
Drilling Method Air Rotary



Not To Scale

\* Depths Below Ground Surface

### Well Construction Materials

Borehole Dia.(s) 12 Inches to 16 Ft Bgs  
8 Inches to 62 Ft Bgs  
Inches to x Ft Bgs  
Casing (Surface) Type PVC Dia. 6  
Coupling Type N/A  
Screen Type N/A Diameter N/A  
Slot Size N/A Screen Length N/A  
Top Cap Type N/A  
End Cap/Plug Type N/A  
Centralizer Type N/A  
Centralizer Location(s) N/A  
Filter Pack Type N/A  
Gradation N/A

### Seal(s)

Bentonite N/A  
Annular Cement Grout  
Surface   
Backfill

### Flush Mount Design •

Type Steel Diameter 12"  
Length Below (G.S.) 1.0'

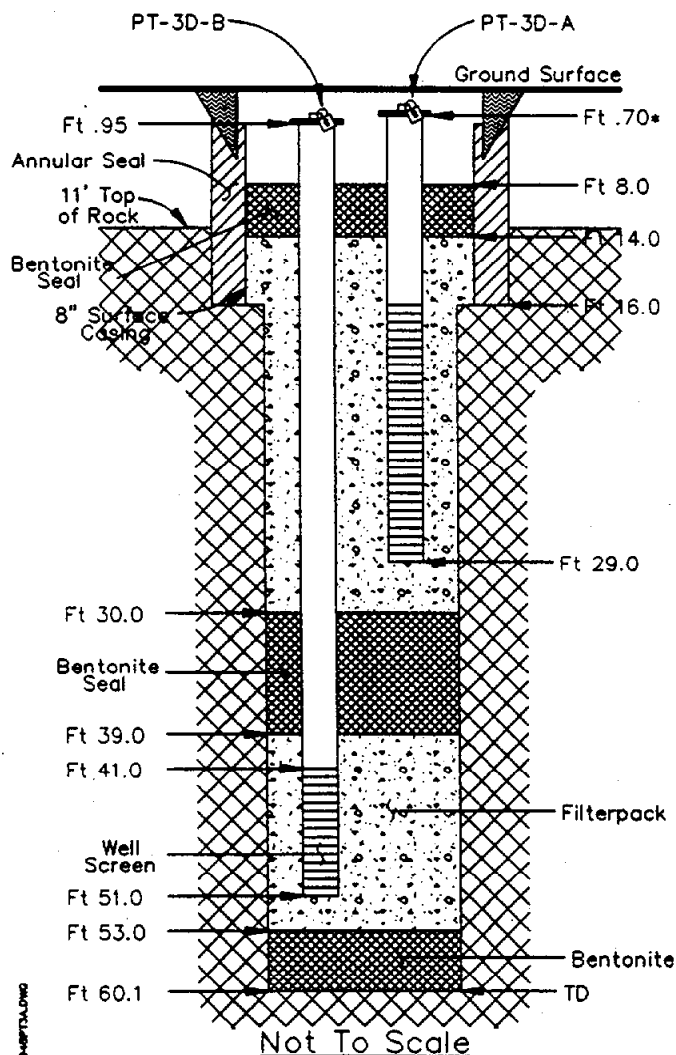
### Well Development

Date 10-13-93  
Method Airlift  
Comments Clear, 20 gpm



## MONITORING WELL RECORD DRAWING & CONSTRUCTION LOG

Project Name Stepan Company Project Number NJ022948.ST.PT  
Well Number PT-3DA, PT-3DB Field Observers P. van Noort/L. Vogel  
Elev. (top of well casing) PT-3DA - 48.37  
PT-3DB - 49.07 Surface Elev. 49.06  
Water Level Elev. / Date Not Available Start Date 10-06-93  
Drilling Contractor Kendrick Drilling, Inc. Finish Date 10-14-93  
Drilling Method Air Rotary



\* Depths Below Ground Surface

### Well Construction Materials

Borehole Dia.(s) 12 Inches to 16 Ft Bgs  
8 Inches to 60 Ft Bgs  
Inches to x Ft Bgs  
Casing (Surface) Type PVC Dia. 2  
Coupling Type Threaded  
Screen Type PVC Diameter 2  
Slot Size .010 Screen Length 13  
Top Cap Type Locking Expandable  
End Cap/Plug Type Threaded PVC  
Centralizer Type PVC (3)  
Centralizer Location(s) N/A  
Filter Pack Type #1 Morie  
Gradation N/A

### Seal(s)

Bentonite Bentonite Hole Plug  
Annular Cement Grout  
Surface Sacrete  
Backfill N/A

### Flush Mount Design •

Type Steel Diameter 12"  
Length Below (G.S.) 1.0'

### Well Development

Date 11/30/93  
Method Surge & Pump  
Comments Pumped Clear