APPENDIX B
WELL COMPLETION AND WELLHEAD PROTECTION DIAGRAMS
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Figure B1
Well Completion Diagram for Well NC-EWDP-10S

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Well Completion Diagram
NC-EWDP-10S

Date: 9/20/02  Geologist: JSW/SL
Scale: none  Drawn by: KJG

NOTE: OD = outside diameter
Figure B2
Wellhead Protection Diagram for Well NC-EWDP-10S

NOTE: PVC = polyvinyl chloride
Well Completion Diagram for Well NC-EWDP-10P

EXPLANATION

- Unsaturated Zone Air Piezometer
  1 in. x 2 ft slotted ABS tubing with 1/4 in. polyethylene tubing to surface

- Bentonite Grout, 3/8 in. hydrated chips

- Bentonite Grout, 3/8 in. hydrated chips with Silica Sand (8/12 Mesh) (~3:2 by weight)

- Bentonite Grout, 3/8 in. hydrated chips with Silica Sand (8/12 Mesh) (~1:1 by weight)

- Bentonite Grout, 3/8 in. hydrated chips with Silica Sand (8/12 Mesh) (~2:1 by weight)

- Granular Bentonite (8 Mesh)

- Well Screen Sand (8/12 Mesh)

- Screened Well Casing; 0.02 in. slots 7.8 in. /ft open area

Notes: Indicated water level is approximate open hole water level at end of drilling.

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Well Completion Diagram
NC-EWDP-10P

Date: 9/20/02  Geologist: JSW/HJA
Scale: none  Drawn by: KJG

NOTES: OD = outside diameter; ABS = acrylonitrile butadiene styrene

Figure B3
Well Completion Diagram for Well NC-EWDP-10P
Figure B4
Wellhead Protection Diagram for Well NC-EWDP-10P

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Wellhead Protection Diagram
NC-EWDP-10P

Date: 6/7/02  Geologist: JSW
Scale: none  Drawn by: KIG

NOTE:  OD = outside diameter
Figure B5
Well Completion Diagram for Well NC-EWDP-18P

NOTES: OD = outside diameter; PVC = polyvinyl chloride

Ground Level
7 7/8 in. Nominal Borehole
(0 ft - 41.0 ft)

10 in. Nominal Borehole
(0 ft - 41.0 ft)

2 in. Sch. 80 PVC Well Casing

Bentonite Grout (1/4 in.
release chips)

Well Screen Sand (8/12 Mesh)

EXPLANATION
- Concrete Mix
- Cement Grout
- Bentonite Grout (3/8 in.
hydrated chips)
- Caved Material
- Bentonite Grout (1/4 in. time release chips)
- Uppermost Sand (60 Mesh)
- Well Screen Sand (8/12 Mesh)
- Well Screen (0.02 in. slots,
7.0 in.²/ft open area)

Note: Indicated water level is approximate open hole water level at end of drilling.

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Well Completion Diagram
NC-EWDP-18P

Date: 9/17/02
Geologist: SL
Scale: none
Drawn by: KJG
EWDP-18P Wellhead Protection Detail

2 in. Sch. 80 PVC Well Casing
6 in. OD Steel Protective Casing

PLAN

ELEVATION

Concrete Slab

6 in. OD steel protective casing with locking well cap

Original Ground Level

NOTES: OD = outside diameter; PVC = polyvinyl chloride

Figure B6
Wellhead Protection Diagram for Well NC-EWDP-18P
Figure B7
Well Completion Diagram for Well NC-EWDP-19IM1

NOTE: OD = outside diameter

**EXPLANATION**
- Concrete Mix
- Bentonite Grout (~30% solids)
- Silica Sand (10/16 Mesh) / Well Screen Sand (6/9 Mesh) / Transition Sand (16 Mesh)
- Uppermost Sand (60 Mesh)
- Screened Well Casing (42 in./ft open area)

**NOTE:**
1. Screens are perforated casing with stainless steel wire wrap.
2. Indicated water level is approximate stabilized composite water level in developed well casing.

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Well Completion Diagram
NC-EWDP-19IM1

Date: 09/03/02
Geologist JSW/WJS
Scale: none
Drawn by: KJG
Figure B8
Wellhead Protection Diagram for Well NC-EWDP-19IM1

NOTE: TOC = top of casing; PVC = polyvinyl chloride
Nye County Drilling, Geologic Sampling and Testing, Logging, and Well Completion Report for the Early Warning Drilling Program Phase III Boreholes

Figure B9
Well Completion Diagram for Well NC-EWDP-19IM2

NOTE: OD = outside diameter
**EWDP-19IM2 Wellhead Protection Detail**

**PLAN**
- 7" Steel Well Casing
- Concrete Slab

**ELEVATION**
- 7" steel well casing with locking well cap
- 0.33' Original Ground Level
- 1.93'

**Note:** Stick-up from original ground level to top of steel well casing = 1.96'

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**Figure B10**
Wellhead Protection Diagram for Well NC-EWDP-19IM2
Figure B11
Well Completion Diagram for Well NC-EWDP-22S

NOTE: OD = outside diameter
NOTE: PVC = polyvinyl chloride

**Figure B12**
Wellhead Protection Diagram for Well NC-EWDP-22S
NOTES: OD = outside diameter; ABS = acrylonitrile butadiene styrene; PVC = polyvinyl chloride

Figure B13
Well Completion Diagram for Well NC-EWDP-22PA

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Well Completion Diagram
NC-EWDP-22PA

Date: 9/20/02  Geologist: KDD
Scale: none  Drawn by: KJG

Ground Level
10 in. OD nominal borehole
(0 ft - 368 ft)

for surface completion detail see Wellhead Protection Diagram
8 5/8 in. OD Protective Steel Casing
(0 ft - 6.5 ft)

2 in. Sch. 80 PVC Well Casing

6.5 ft
50.4 ft

150.3 ft

EXPLANATION
Unsaturated Zone Air Piezometer:
1 in. x 2 ft slotted ABS tubing with
1/4 in. polyethylene tubing to surface
Bentonite Grout:
3/8 in. hydrated chips
Bentonite Grout; 3/8 in. hydrated
chips with Silica Sand (8/12 Mesh)
Silica Sand (8/12 Mesh)
Granular Bentonite (8 Mesh)
Well Screen Sand (8/12 Mesh)
Well Screen: 0.02 in. slots,
9.5 in./ft open area

Note: Indicated water level is
approximate open hole water level
at end of drilling.

Note: Indicated water level is
approximate open hole water level
at end of drilling.
Figure B14
Wellhead Protection Diagram for Well NC-EWDP-22PA

NOTES: OD = outside diameter; PVC = polyvinyl chloride
Nye County Drilling, Geologic Sampling and Testing, Logging, and Well Completion Report for the Early Warning Drilling Program Phase III Boreholes

Figure B15
Well Completion Diagram for Well NC-EWDP-22PB

Ground Level

14 1/2 in. Nominal Borehole
(0.0 ft - 22.4 ft)

2 1/2 in. Sch. 80 PVC Well Casing

EXPLANATION

- 10 3/4 in. OD Protective Steel Casing
  (0 ft - 15.1 ft)
- 2 in. Sch. 80 PVC Well Casing
- 8 1/2 in. Nominal Borehole
  (22.4 ft - 1199.7 ft)
- 8 1/2 in. Irrigation Screen
- Silica Sand (8/12 Mesh) /
  Bentonite Grout (30% solids)
- Bentonite Grout (30% solids)
- Uppermost Sand (50-70 Mesh)
- Well Screen: 0.02 in. slots,
  7.1 in² / ft open area
- Well Screen Sand (8/12 Mesh)
- Wellhead Protection Diagram

Note: Indicated water level is
approximate open hole water
level at end of drilling.

Nye County, Nevada
Nuclear Waste Repository Project Office
Early Warning Drilling Program
Well Completion Diagram
NC-EWDP-22PB

Date: 9/20/02
Geologist: JSW
Scale: none
Drawn by: KJG

NOTE: OD = outside diameter
**EWDP-22PB Wellhead Protection Detail**

- **10 3/4 in. OD Steel Protective Casing**
- **Concrete Slab**
- **2 in. Sch. 80 PVC Well Casing**

**NOTES:**

- OD = outside diameter; PVC = polyvinyl chloride

**Figure B16**

Wellhead Protection Diagram for Well NC-EWDP-22PB
NOTES: OD = outside diameter; PVC = polyvinyl chloride

Figure B17
Well Completion Diagram for Well NC-EWDP-23P
Figure B18
Wellhead Protection Diagram for Well NC-EWDP-23P

NOTES: OD = outside diameter; PVC = polyvinyl chloride