TRANSMITTAL

ERM/GOLDER ASSOCIATES LOS ALAMOS PROJECT TEAM

TA-00 Los Alamos Canyon Alluvial Wells

To: Terri Davis/NMED **Via:** **Hand Carried**

From: Cyndy Kruger

Date: February 14, 1995

Regarding: OU 1098 DRAFT WELL CONSTRUCTION LOGS

ITEM	TITLE	NUMBER	SHIPMENT
Copy	Draft Well Construction Logs LAO-0.3, LAO-0.6, LAO-0.8, LAO-0.91, LAOI-1.1	1 each	Attached

COMMENTS: **Per Request by Pat Longmire**

cc: PROJECT FILE 19325

LANL G/M/TR 95

ERM/GOLDER ASSOCIATES Los Alamos Project T

6771

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form

Well ID: LAO-0.3

Site Work Plan LA-UR-92-3825

Technical Area 41

Inclusive Sample Identifier:

Operable Unit 1098

_____ to _____

Signature _____ Date _____

Owner LANL ER Program

Installer Stewart Bros. Drilling

Installation Date 27-May-94

Filter Pack Length (ft) 11.4 - 4.5

Well Type Classification M

Formation of Completion (US/RC)) Alluvial Sediments

Well Completion Method S

Zone of Completion Screen 10.9'- 5.9'

Casing Elevation (ft MSL) 6970.25 (Measuring Pt)

Open/Screen Depth (FTFD)* 10.9' - 5.9'

Casing Depth (ft) 5.9 - +2.43

Open/Screen Length (ft) 5

Casing Diameter (in.) 4

Open/Screen Area (in^2/ft) _____

Seal End Depth (FTFD) 4.5 - 2.0

Flow Relationship D

Screen Material 0.010-slot Sch 40 PVC

Cap Material FI

Riser Material Sch 40 PVC

Cap Type LC

WELL TYPE CLASSIFICATIONS

M - Monitor Well
P - Production Well
T - Test Well
O - Other (specify) _____

FLOW RELATIONSHIP

U - Upgradient
D - Downgradient
C - Cross Gradient
O - Onsite
N - Not known
B - Background

CAP TYPE

LC - Locking
SL - Slip-on
TR - Threaded
NO - None
SC - Screw-on
OT - Other (specify) _____

DRAFT

WELL COMPLETION METHODS

C- Porous Concrete
F - Gravel Pack
H - Horizontal Galley
O - Open End
P - Perforated/Slotted
S - Screen
T - Sand Front
W - Walled
X - Open
O - Other (specify) _____

CAP MATERIALS

CT - Concrete
CR - Copper
FI - Fiberglass
GI - Galvanized Iron
WI - Wrought Iron
SS - Stainless Steel
OM - Other Material
TE - Teflon
PV - PVC
RK - Rock or Stone
ST - Steel
TI - Tile
CS - Costed Steel
WD - Wood
NO - None
OT - Other (specify)

ZONES OF CONCERN

A - Artesian
C - Confined
H - Acquitard
G - Aquiclude
M - Multisystem
S - Semi-confined
U - Unconsolidated

* FTFD = feet from datum.

Location: Northing 1774511.64 Easting 1624799.01 NMSPC NAD 83

Ground Surface Elevation = 6967.82'; Brass Disk = 6968.13'

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form (continued)

Well ID: LAO-0.3

Site Work Plan LA-UR-92-3825

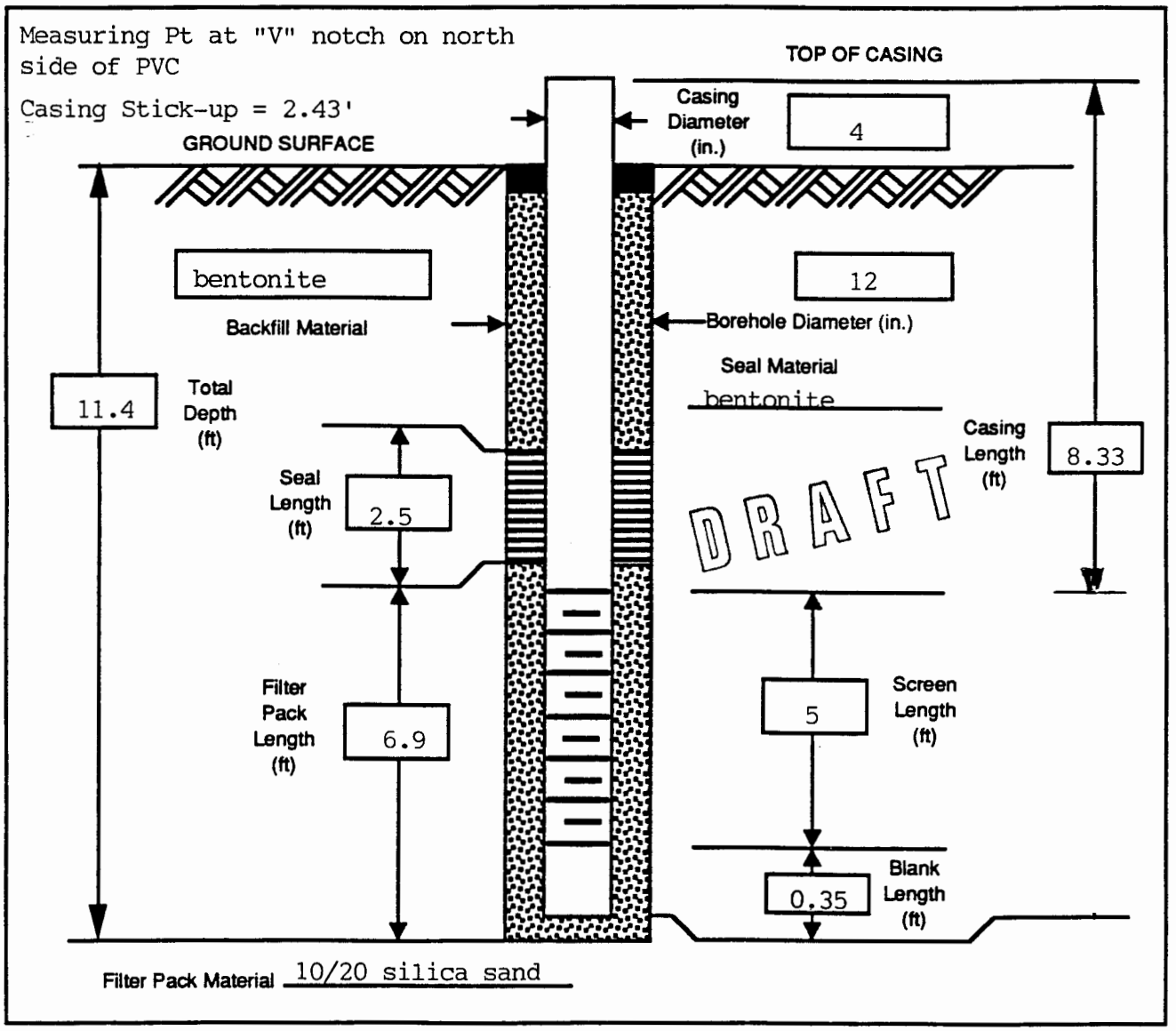
Technical Area 41

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____



Comments Surface Completion: 5'x8" steel protective casing seated in top of bentonite; 2.25x2.25'x0.5' pad form set approx 1" into ground. Quickrete poured into annular space and into form; survey marker placed in NE corner of pad; bentonite chips poured into Pro casing annular space to 1" below top of pad; pea gravel poured into Pro casing annular space to 3" below top of PVC; weep hole drilled into steel casing 3" above pad

Los Alamos National Laboratory Environmental Restoration
Monitor Well Construction Field Data Log

Sheet 1 of 1

Well ID: LAO-0.3

Site Work Plan LA-UR-92-3825

Technical Area 41

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____

BOREHOLE SUMMARY

BIT TYPE	HOLE DIAMETER (in.)	END[1] DEPTH (ft)	FLUID TYPE
HSA	12	12	none

CASING SUMMARY

CASING TYPE	DESCRIPTION	DIAM. (in.)	END[2] DEPTH (ft)
P	5' steel	8	2 - +3
Riser	Schedule 40 PVC	4	5.9-+2.43
S	0.010-slot Sch 40 PVC	4	10.9-5.9
End Cap	Sch 40 PVC	4	11.25

P - Protective S - Screen O - Open N - None

[1] Depth from Ground Surface [2] Depth from Toe of Casing

WELL CONSTRUCTION

TYPE[1] CODE	DESCRIPTION	END[1] DEPTH (ft)
F	10/20 Silica Sand	11.4-4.5
S	Bentonite Chips	4.5-2.0

B - Backfill S - Seal F - Filter Pack [1] Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START DATE	START TIME	END TIME
DRILLING	27-May-94	0853	0907
CASING	27-May-94	0913	0918
FILTER PACK	27-May-94	0920	0945
SEAL	27-May-94	0947	0953
BACKFILL	None		
DEVELOPMENT	1-Jun-94	0828	1001
OTHER			

DRAFT

WELL DEVELOPMENT

Water Level 8.05' BMP; WD = 13.7' BMP

Initial: T=9.6 C, pH=6.63, SC=315umhos/cm,muddy

@70 gals T=10.3 C,pH=6.52, SC=313umhos/cm, turbi

@150gals T=10.2 C,pH=6.53, SC=317umhos/cm,CLEAR

COMMENTS: stainless steel bailer used for initial 50 gallons; switched to GrundFos Pump to complete development; increased temp due to 300' GrundFos hose

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form

Well ID: LAO-0.6

Site Work Plan LA-UR-92-3825

Technical Area 41

Inclusive Sample Identifier:

Operable Unit 1098

_____ to _____

Signature _____ Date _____

Owner LANL ER Program

Installer Stewart Bros. Drilling

Installation Date 6-May-94

Filter Pack Length (ft) 13.6 - 5.6

Well Type Classification M

Formation of Completion (US/RC)) Alluvial Sediments

Well Completion Method S

Zone of Completion Screen 13.0 - 8.0

Casing Elevation (ft MSL) 6912.88 (Measuring Pt)

Open/Screen Depth (FTFD)* 13.0 - 8.0

Casing Depth (ft) 8.0 - +2.54

Open/Screen Length (ft) 5

Casing Diameter (in.) 4

Open/Screen Area (in^2/ft) _____

Seal End Depth (FTFD) 5.6 - 2.0

Flow Relationship D

Screen Material 0.010 slot Sch 40 PVC

Cap Material FI

Riser Material Sch 40 PVC

Cap Type LC

WELL TYPE CLASSIFICATIONS

M - Monitor Well
P - Production Well
T - Test Well
O - Other (specify) _____

DRAFT

FLOW RELATIONSHIP

U - Upgradient
D - Downgradient
C - Cross Gradient
O - Onsite
N - Not known
B - Background

CAP TYPE

LC - Locking
SL - Slip-on
TR - Threaded
NO - None
SC - Screw-on
OT - Other (specify) _____

WELL COMPLETION METHODS

C- Porous Concrete
F - Gravel Pack
H - Horizontal Galley
O - Open End
P - Perforated/Slotted
S - Screen
T - Sand Front
W - Walled
X - Open
O - Other (specify) _____

CAP MATERIALS

CT - Concrete
CR - Copper
FI - Fiberglass
GI - Galvanized Iron
WI - Wrought Iron
SS - Stainless Steel
OM - Other Material
TE - Teflon
PV - PVC
RK - Rock or Stone
ST - Steel
TI - Tile
CS - Costed Steel
WD - Wood
NO - None
OT - Other (specify) _____

ZONES OF CONCERN

A - Artesian
C - Confined
H - Acquitard
G - Aquiclude
M - Multisystem
S - Semi-confined
U - Unconsolidated

* FTFD = feet from datum.

Location: Northing 1774332.90 Easting 1626748.11 NMSPC NAD 83

SOP 5.01, R0:3-5-92

Ground Surface Elev. = 6910.34 Brass Disk Elev. = 6910.74

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form (continued)

WELL ID: LAO-0.6

Site Work Plan LA-UR-92-3825

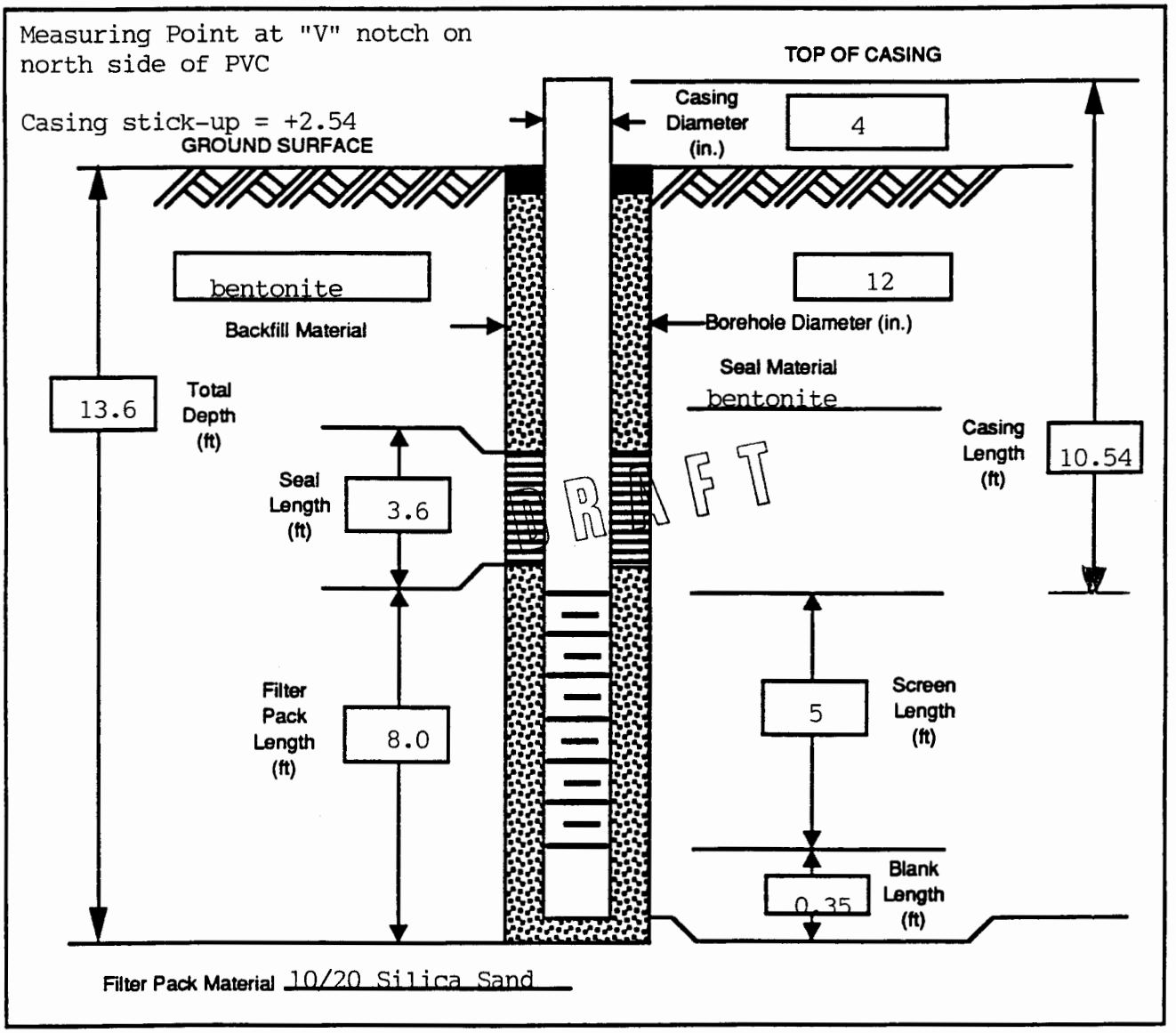
Technical Area 41

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____



Comments Surface Completion: 5'x8" steel protective casing seated in top of bentonite; 2.25x2.25'x0.5' pad form set approx 1" into ground; Quikrete poured into borehole/pro casing annular space and into form; brass survey marker placed in NE corner of pad; bentonite chips poured into pro casing/PVC annular space to 1" below top of pad; pea gravel poured into pro casing/PVC annular space to 3" below top of PVC; weep hole drilled into steel casing 3" above top of pad

Los Alamos National Laboratory Environmental Restoration
Monitor Well Construction Field Data Log

Sheet 1 of 1

WELL ID: LAO-0.6

Site Work Plan LA-UR-92-3825

Technical Area 41

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____

BOREHOLE SUMMARY

BIT TYPE	HOLE DIAMETER (in.)	END[1] DEPTH (ft)	FLUID TYPE
HSA	12	13.6	none

DRAFT

CASING SUMMARY

CASING TYPE	DESCRIPTION	DIAM. (in.)	END[2] DEPTH (ft)
P	5' steel	8	2-+3
Riser	Schedule 40 PVC	4	8.0-+2.54
S	0.010slot Sch 40 PVC	4	13 - 8
End Cap	Sch 40 PVC	4	13.35

P - Protective S - Screen O - Open N - None

[1] Depth from Ground Surface [2] Depth from Toe of Casing

WELL CONSTRUCTION

TYPE[1] CODE	DESCRIPTION	END[1] DEPTH (ft)
F	10/20 Silica Sand	13.6-5.6
S	Bentonite Chips	5.6-2.0

B - Backfill S - Seal F - Filter Pack [1] Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START DATE	START TIME	END TIME
DRILLING	6-May-94	1550	1615
CASING	6-May-94	1620	1627
FILTER PACK	6-May-94	1627	1657
SEAL	6-May-94	1657	1710
BACKFILL	N/A		
DEVELOPMENT	23-May-94	1135	1448
OTHER			

WELL DEVELOPMENT

Water Level=7.13'BMP; WD = 15.8' BMP

Initial: T=10.9 C,pH=6.90, SC=558umhos/cm,muddy

@75 gals T=19.8 C, pH=6.69, SC=539umhos/cm, clea

@125 gals T=13.4 C,pH=6.63, SC=532umhos/cm,CLEAR

COMMENTS: Bailed initial 30 gallons; switch to Grundfos Pump for remaining 95 gallons; High temp due to purge water traveling thru 300' of hose during heat of day.

SOP 5.01, R0:3-5-92

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form

WELL ID: LAO-0.8

Site Work Plan LA-UR-92-3825

Technical Area 2

Inclusive Sample Identifier:

Operable Unit 1098

_____ to _____

Signature _____ Date _____

Owner LANL ER Program

Installer Stewart Bros. Drilling

Installation Date 11-May-94

Filter Pack Length (ft) 13 - 5.6

Well Type Classification M

Formation of Completion (US/RC)) Alluvial Sediments

Well Completion Method S

Zone of Completion Screen12.5 - 7.5'BGS

Casing Elevation (ft MSL) 6889.71 (Measuring Pt)

Open/Screen Depth (FTFD)* 12.5 - 7.5

Casing Depth (ft) 7.5 - +2.67

Open/Screen Length (ft) 5

Casing Diameter (in.) 4

Open/Screen Area (in^2/ft) _____

Seal End Depth (FTFD) 5.6 - 2.0

Flow Relationship D

Screen Material 0.010-slot Sch 40 PVC

Cap Material FI

Riser Material Sch 40 PVC

Cap Type LC

WELL TYPE CLASSIFICATIONS

M - Monitor Well
P - Production Well
T - Test Well
O - Other (specify) _____

DRAFT

FLOW RELATIONSHIP

U - Upgradient
D - Downgradient
C - Cross Gradient
O - Onsite
N - Not known
B - Background

CAP TYPE

LC - Locking
SL - Slip-on
TR - Threaded
NO - None
SC - Screw-on
OT - Other (specify) _____

WELL COMPLETION METHODS

C- Porous Concrete
F - Gravel Pack
H - Horizontal Galley
O - Open End
P - Perforated/Slotted
S - Screen
T - Sand Front
W - Walled
X - Open
O - Other (specify) _____

CAP MATERIALS

CT - Concrete
CR - Copper
FI - Fiberglass
GI - Galvanized Iron
WI - Wrought Iron
SS - Stainless Steel
OM - Other Material
TE - Teflon
PV - PVC
RK - Rock or Stone
ST - Steel
TI - Tile
CS - Costed Steel
WD - Wood
NO - None
OT - Other (specify) _____

ZONES OF CONCERN

A - Artesian
C - Confined
H - Acquitard
G - Aquiclude
M - Multisystem
S - Semi-confined
U - Unconsolidated

* FTFD = feet from datum.

Location: Northing 1774274.66 Easting 1627699.74 NMSPC NAD 83

SOP 5.01, R0:3-5-92

Ground Surface Elev. 6887.04'; Brass Survey Marker Elev. 6887.58'

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form (continued)

Well ID: LAO-0.8

Site Work Plan LA-UR-92-3825

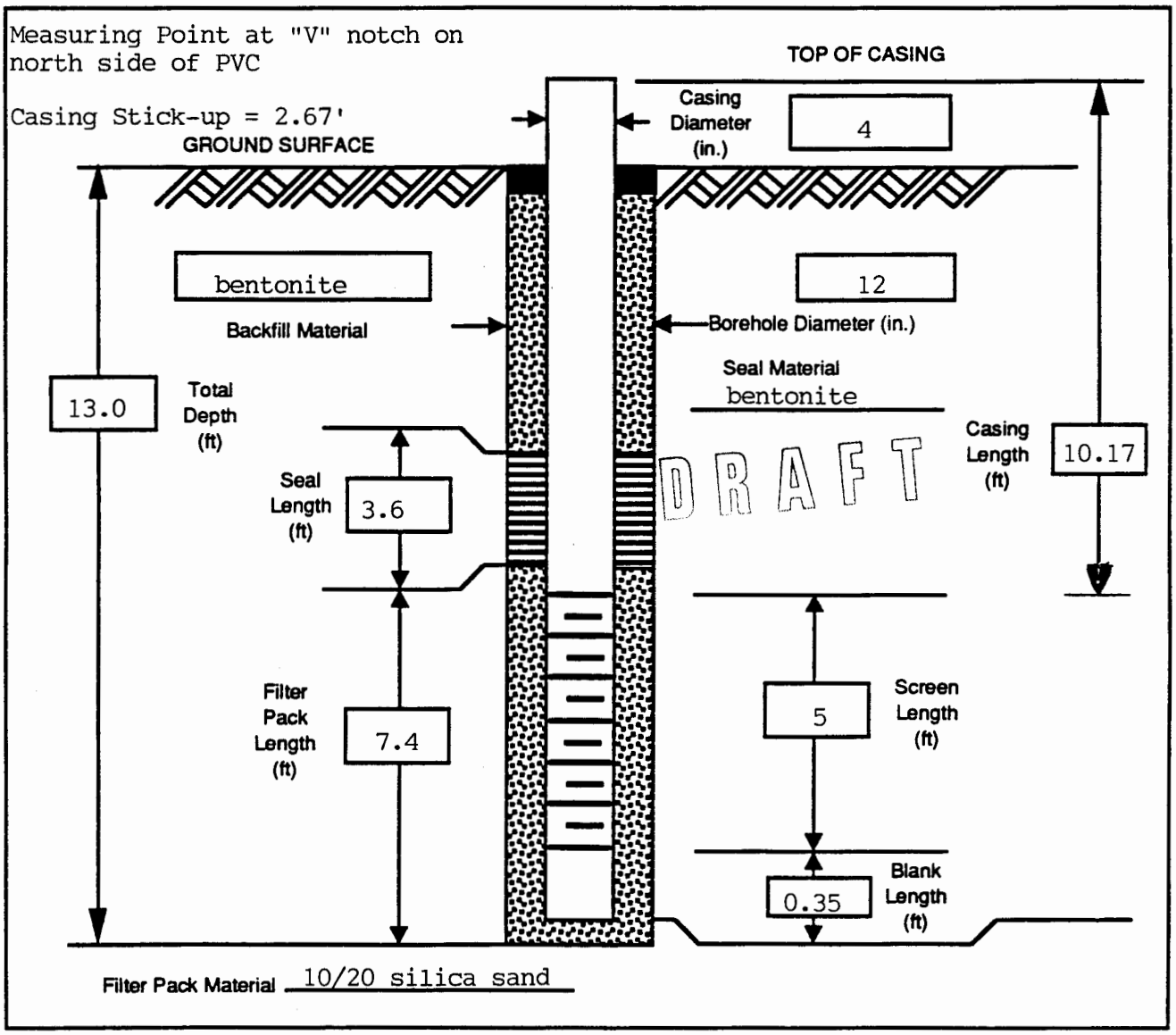
Technical Area 2

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____



Comments Surface Completion: 5'x8" steel protective casing seated in top of bentonite; 2.25'x2.25'x0.5' pad form set approx 1" into ground; Quickrete poured into borehole/pro casing annular space and into form; brass survey marker set in NE corner of pad; bentonite chips poured into pro casing/PVC annular space to 1" below top of pad; pea gravel poured into pro casing/PVC annular space to 3" below top of PVC; weep hole drilled into steel casing 3" above top of pad

Los Alamos National Laboratory Environmental Restoration
Monitor Well Construction Field Data Log

Sheet 1 of 1

WELL ID: LAO-0.8

Site Work Plan LA-UR-92-3825

Technical Area 2

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____

BOREHOLE SUMMARY

BIT TYPE	HOLE DIAMETER (in.)	END[1] DEPTH (ft)	FLUID TYPE
HSA	12	13.5	none

DRAFT

CASING SUMMARY

CASING TYPE	DESCRIPTION	DIAM. (in.)	END[2] DEPTH (ft)
P	5' steel	8	2-+3
Riser	Sch 40 PVC	4	7.5
S	0.010-slot Sch40	PVC 4	12.5
End Cap	Sch 40 PVC	4	12.85

P - Protective S - Screen O - Open N - None

[1] Depth from Ground Surface [2] Depth from Toe of Casing

WELL CONSTRUCTION

TYPE[1] CODE	DESCRIPTION	END[1] DEPTH (ft)
F	10/20 silica sand	13.0 - 5.6
S	Bentonite Chips	5.6- 2.0

B - Backfill S - Seal F - Filter Pack [1] Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START DATE	START TIME	END TIME
DRILLING	11-May-94	1000	1015
CASING	11-May-94	1015	1042
FILTER PACK	11-May-94	1047	1123
SEAL	11-May-94	1123	1148
BACKFILL	N/A		
DEVELOPMENT	24-May-94	0845	1630
	2-Jun-94	0840	1155
OTHER			

WELL DEVELOPMENT

Water Level=12.92' BMP; WD=15.5' BMP

Bailed 50 gals 24-May; Easily bailed dry - slow recovery; Used peristaltic pump @ 0.2 gpm to continuously remove water 2-Jun.

COMMENTS: 2-Jun-94 after 50 gallons (24-MAY)

WL=13.85'BMP; T=11.8 C,pH=7.10,SC=262umhos/cm

@22 gals(72 gals) T=11.8 C,pH=7.00,SC=252 umhos/

water CLEAR;total removed = 72 gallons.

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form

Well ID: LAO-0.91

Site Work Plan LA-UR-92-3825

Technical Area 2

Inclusive Sample Identifier: _____ to _____

Operable Unit 1098

Signature _____ Date _____

Owner LANL ER Program

Installer Stewart Bros. Drilling

Installation Date 13-May-94

Filter Pack Length (ft) 15.0 - 7.0

Well Type Classification M

Formation of Completion (US/RC)) Alluvial Sediments

Well Completion Method S

Zone of Completion Screen 14.5 - 9.5' BGS

Casing Elevation (ft MSL) 6864.79 (Measuring Pt)

Open/Screen Depth (FTFD)* 14.5 - 9.5' BGS

Casing Depth (ft) 9.5 - +3.63

Open/Screen Length (ft) 5

Casing Diameter (in.) 4

Open/Screen Area (in^2/ft) _____

Seal End Depth (FTFD) 7.0-1.5

Flow Relationship D

Screen Material 10/20 silica sand

Cap Material FI

Riser Material Schedule 40 PVC

Cap Type LC

WELL TYPE CLASSIFICATIONS

M - Monitor Well
P - Production Well
T - Test Well
O - Other (specify) _____

FLOW RELATIONSHIP

U - Upgradient
D - Downgradient
C - Cross Gradient
O - Onsite
N - Not known
B - Background

CAP TYPE

LC - Locking
SL - Slip-on
TR - Threaded
NO - None
SC - Screw-on
OT - Other (specify) _____

DRAFT

WELL COMPLETION METHODS

C- Porous Concrete
F - Gravel Pack
H - Horizontal Galley
O - Open End
P - Perforated/Slotted
S - Screen
T - Sand Front
W - Walled
X - Open
O - Other (specify) _____

CAP MATERIALS

CT - Concrete
CR - Copper
FI - Fiberglass
GI - Galvanized Iron
WI - Wrought Iron
SS - Stainless Steel
OM - Other Material
TE - Teflon
PV - PVC
RK - Rock or Stone
ST - Steel
TI - Tile
CS - Costed Steel
WD - Wood
NO - None
OT - Other (specify) _____

ZONES OF CONCERN

A - Artesian
C - Confined
H - Acquitard
G - Aquiclude
M - Multisystem
S - Semi-confined
U - Unconsolidated

* FTFD = feet from datum.

Location: Northing 1774207.01 Easting 1628654.28 NMSPC NAD 83

SOP 5.01, R03-5-92

Ground Surface Elev.=6861.16' Brass Survey Marker Elev.=6861.74'

Los Alamos National Laboratory Environmental Restoration
Well Completion Information Form (continued)

Well ID: LAO-0.91

Site Work Plan LA-UR-92-3825

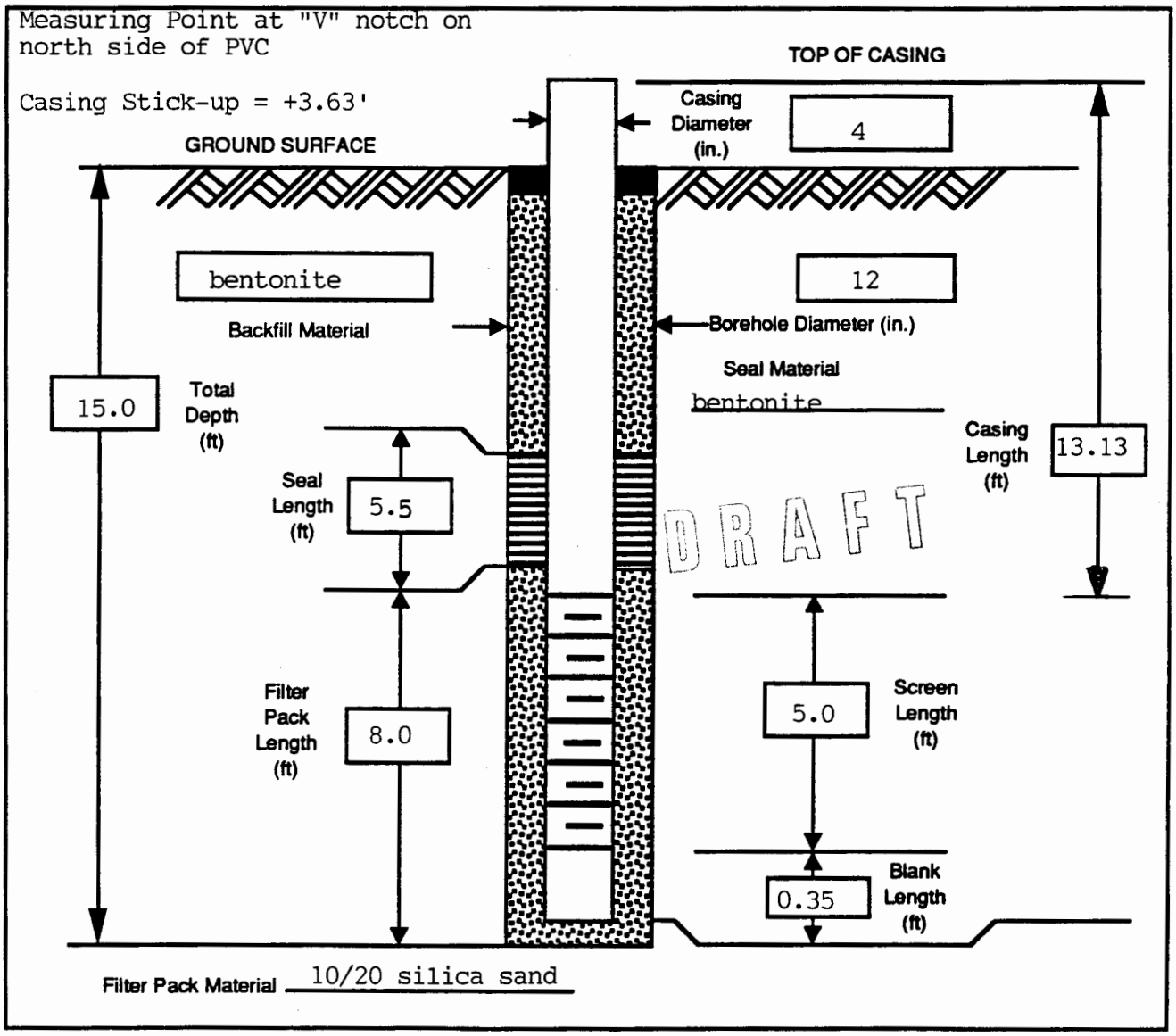
Technical Area 2

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____



Comments Surface Completion: 5'x8" steel protective casing seated in top of bentonite; 2.25'x2.25'x0.5' pad form set approx 1" into ground; Quikcrete poured into borehole/ pro casing annular space and into form; brass survey marker set in NE corner of pad; bentonite chips poured into pro casing/PVC annular space to 1" below top of pad; pea gravel poured into pro casing/PVC annular space to 3" below top of PVC; weep hole drilled into steel casing 3" above top of pad

Los Alamos National Laboratory Environmental Restoration
Monitor Well Construction Field Data Log

Sheet 1 of 1

Well ID: LAO-0.91

Site Work Plan LA-UR-92-3825

Technical Area 2

Inclusive Sample Identifiers

Operable Unit 1098

_____ to _____

Signature _____ Date _____

BOREHOLE SUMMARY

BIT TYPE	HOLE DIAMETER (in.)	END[1] DEPTH (ft)	FLUID TYPE
HSA	12	15.5	none

DRAFT

CASING SUMMARY

CASING TYPE	DESCRIPTION	DIAM. (in.)	END[2] DEPTH (ft)
P	5' steel	8	1.5 - +3.5
Riser	Sch 40 PVC	4	9.5- +3.63
S	0.010slot Sch 40 PVC	4	14.5- 9.5
En Cap	Sch 40 PVC	4	14.85

P - Protective S - Screen O - Open N - None

[1] Depth from Ground Surface [2] Depth from Toe of Casing

WELL CONSTRUCTION

TYPE[1] CODE	DESCRIPTION	END[1] DEPTH (ft)
F	10/20 silica sand	15.0- 7.0
S	bentonite chips	7.0- 1.5

B - Backfill S - Seal F - Filter Pack [1] Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START DATE	START TIME	END TIME
DRILLING	12-May-94	0914	0935
CASING	12-May-94	0935	0948
FILTER PACK	12-May-94	0948	1009
SEAL	12-May-94	1009	1023
BACKFILL	N/A		
DEVELOPMENT	1-Jun-94	1348	1505
OTHER			

WELL DEVELOPMENT

Water Level 8.72'BMP, WD=18.4'BMP

Initial T=12.2 C,pH=7.08,SC=276umhos/cm,muddy

@60 gals T=13.6 C,pH=6.94,SC=273, turbid

@140 gals,T=13.5 C,pH=6.98,SC=274 umhos/cm, CLEA

COMMENTS: Bailed 35 gallons using stainless steel bailer; switched to GrundFos pump to remove additional 110 gallons;increased Temp due to purge water traveling thru 300' of hose

SOP 5.01, R0.3-5-92

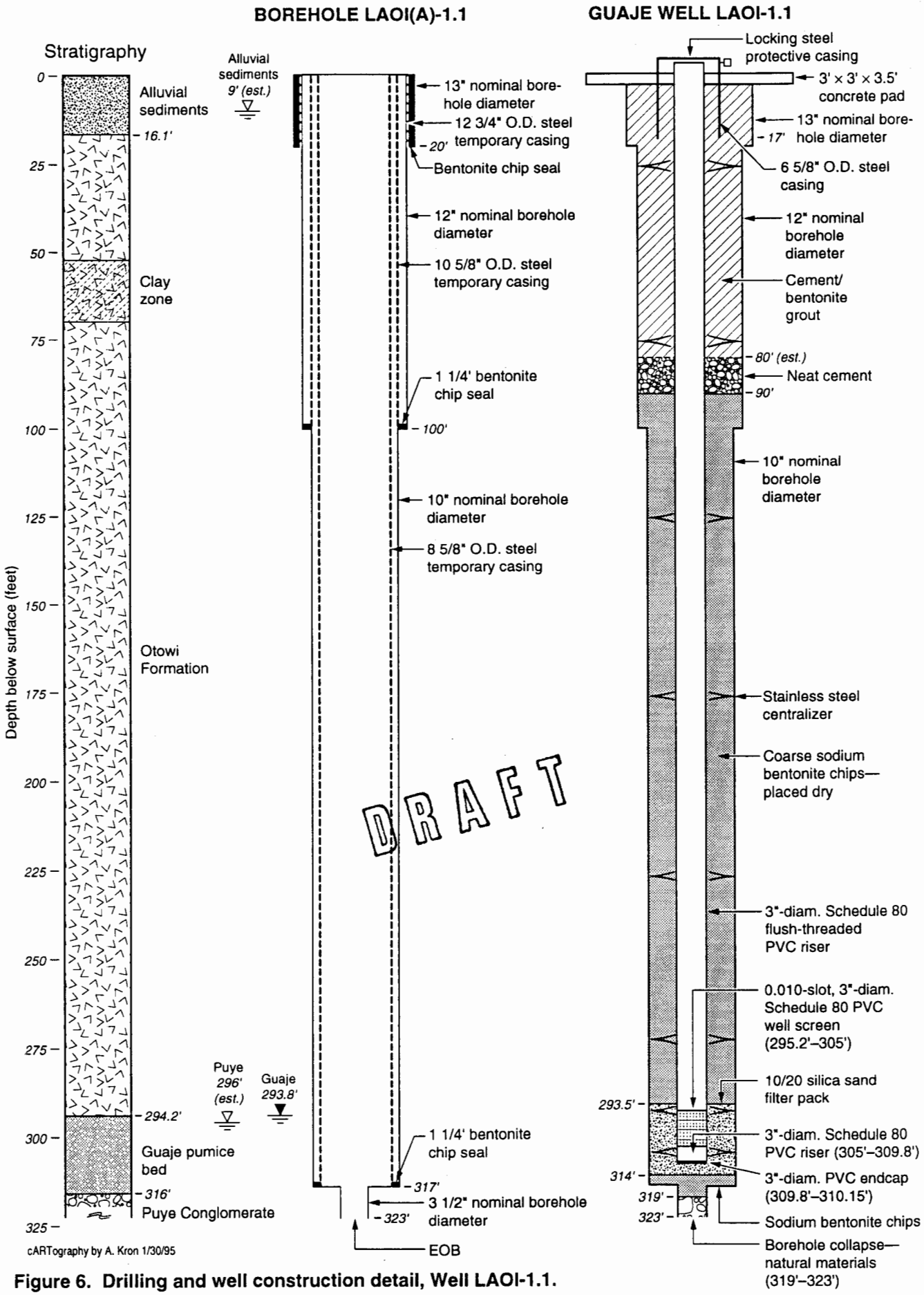


Figure 6. Drilling and well construction detail, Well LAOI-1.1.

SURV-TEK, Inc.
Consulting Surveyors
5643 Paradise Blvd. N.W. Albuquerque, New Mexico 87114
Phone: 505-897-3366 Fax: 505-897-3377

MONITOR WELL LOCATIONS, LOS ALAMOS CANYON

STATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
LAOI-I.I 02-1074	1773930.13	1629430.15	6834.60	Conc.Plug
LAOI-I.I 02-1075	1773924.51	1629427.38	6835.20	Br. Disc
	1773923.16	1629426.92	6837.94	Top PVC
			6834.80	Ground

GENERAL NOTES

1. Elevations were derived from LANL BC "828" having an elevation of 6884.77 feet, M.S.L.

2. Northing and Easting coordinates are New Mexico State Plane Grid, Central Zone, NAD 83, and are based on LANL Monument "A0305", having New Mexico State Plane Coordinates, Central Zone of X= 1,619,034.078 and Y=1,774,608.688 as provided by LANL Central Point.

3. Elevations of the PVC were taken on the North side of the pipe.