APPENDIX B
Boring Logs and Well Construction

ECOVA Corporation

Well Installation Log

Well Number MW-5A

Client Army Corps of Engineers | Drilling Company Fogle Pump & Supply | Date Drilled 4-30-90

Site Air Natl. Guard (Task 7) | Boring Method Air Rotary | Coordinates 240023.4591 N

Job Number 801126 | Borehole Depth 96 Feet | 2452092.2401 E

Field Geologist R.W. Goodfellow | Water Depth 36 Feet | Casing Elevation 2390.45

Sheet 1 of 2

General: 50 feet of 6" steel casing, pressure grout.

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	Sample Description	Graphic Log
5				2			SAND (SM) – Fine– to coarse–grained, brown, loose, basalt fragments.	
10							SAND (SM) – Fine– to coarse–grained, dark brown, loose, minor gravel, some wood fragments, damp	
15							WEATHERED BASALT – Gray to brown, dry, loose	
20								
25							SAND (SM) – Fine– to coarse–grained, brown, damp	
30							CLAY WITH SILTY AND SAND (CL) – Brown, semi–plastic, damp.	
35							▽ Static water level at 36 feet.	
40							WEATHERED BASALT – Black, mixed with brown clay, dry. Water yielding zone at 40 feet. WEATHERED BASALT – Black, water.	
45								
50				1				

801126-A-MW5A

* Background = 2 ppm

ECOVA Corporation

Well Installation Log

Well Number MW-5A
Date Drilled 4-30-90
Coordinates 240023.4591 N
2452092.2401 E
Casing Elevation 2390.45
Sheet 2 of 2

Client Army Corps of Engineers
Site Air Natl. Guard (Task 7)
Job Number 801126
Field Geologist R.W. Goodfellow

Drilling Company Fogle Pump & Supply
Boring Method Air Rotary
Borehole Depth 96 Feet
Water Depth 36 Feet

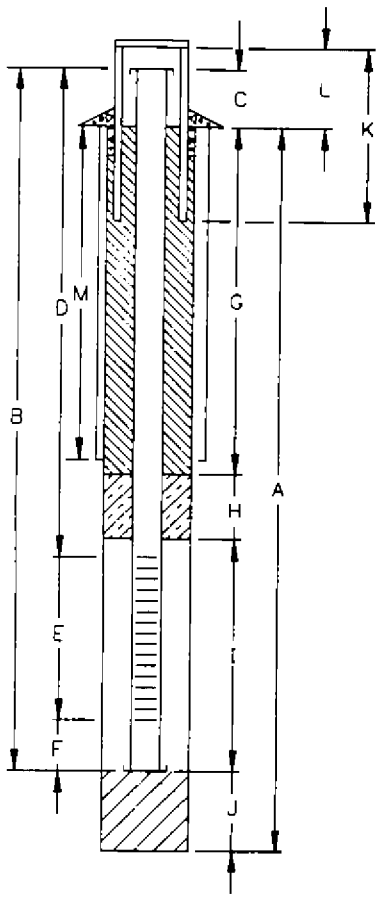
General: **50 feet** of 6" steel casing, pressure grout.

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	Sample Description	Graphic Log
55							WEATHERED BASALT – Orange and black cuttings. water yielding zone at 57 feet.	
60								
65								
70								
75							WEATHERED BASALT	
80								
85							BASALT – Fresh, minor orange cuttings, ~ 30 gpm	
90								
95							Bottom of Hole - 96 Feet	
100								

801126-A-MW5A

* Background = 2 ppm

WELL COMPLETION MW-5A



TOP OF CASING ELEVATION 2390.45'

A BORING DEPTH 96 FT.
BORING DIAMETER 6 IN.

B WELL DEPTH 96 FT

C WELL STICKUP 0 FT.

D BLANK INTERVAL 84 FT.
BLANK DIAMETER 2 IN.

E SCREEN INTERVAL 81-91' FT.
SCREEN DIAMETER 2 IN.
TYPE/SLOT SIZE 0.01

F SEDIMENT TRAP 3 FT.

G ANNULAR SEAL 69 FT.
MATERIAL: GROUT

H BENTONITE SEAL 5 FT.

I SANDPACK 19 FT.
TYPE/SIZE: 20/40

J BOTOM SEAL/PACK 2 FT.
MATERIAL: SAND

K WELL COVER 0 FT.

L STICKUP 0 FT.

M CONDUCTOR CASING 5' FT.

NOT TO SCALE

DRILLING TIMES:
START 0745 4/30/90 FINISH 1207 4/30/90
STANDBY or DOWN TIME:

METHOD OF DECON. PRIOR TO DRILLING:

DEVELOPMENT

METHOD OF DEVELOPMENT: DISPLACEMENT PUMPING

PUMP TIME 0830 TIME 1230 DATE 5/29/90

PUMPED 4 BARRELS IN 4 HOURS

TURBIDITY AFTER DEVELOPMENT:
X CLEAR ____ MOD TURBID
____ SL. TURBID ____ TURBID

ODOR IN WATER ?

WATER DISCHARGED TO:
____ GROUND SURFACE ____ STORAGE TANK
____ STORM SEWERS ____ TANK TRUCK
4 DRUMS

DEPTH OF WATER AFTER DEVELOPMENT: 30.5

MATERIALS USED

4 1/2 SACKS of 20/40 SAND
8 SACKS of PORTLAND CEMENT
____ SACKS of PREMIX CONCRETE
____ GALLONS of GROUT USED
____ GROUT COMPOSITION #6 BENTONITE
1 SACKS of BENTONITE PELLETS
____ BUCKETS of BENTONITE PELLETS
____ YARDS CEMENT - SAND USED
4 CENTRALIZERS at 18, 46, 74, AND 92 FEET BGS

WELL COVER USED:
____ Above Grade
X At Grade
____ Other
X Lockable

ECOVA Corporation

Well Installation Log

Well Number MW-5B
Date Drilled 5-2-90
Client Army Corps of Engineers
Drilling Company Fogle Pump & Supply
Coordinates 240023.3014 N
Site Air Natl Guard (Task 7)
Boring Method Air Rotary
2452104.0267 E
Job Number 801126
Borehole Depth 60 Feet
Casing Elevation 2390.48
Field Geologist R.W. Goodfellow
Water Depth 26 Feet
Sheet 1 of 2

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	General: Sample Description	Graphic Log
5							SAND (SM) – Fine– to coarse–grained, minor basalt pebbles, loose.	
10							SAND WITH GRAVEL (SM) – Fine– to coarse–grained, gravel is composed of basalt chips, brown, loose	
15								
20								
25							SILTY CLAY (CL) – Brown, semi–plastic, damp ▽ Static water level at 26 feet	
30								
35							BASALT – Fresh, damp.	
40								
45							WEATHERED BASALT.	
50								

801126-A-MW5B

* Background = 2 ppm

ECOVA Corporation

Well Installation Log

Client: Army Corps of Engineers
Site: Air Natl. Guard (Task 7)
Job Number: 801126
Field Geologist: R.W. Goodfellow

Drilling Company: Fogle Pump & Supply
Boring Method: Air Rotary
Borehole Depth: 60 Feet
Water Depth: 26 Feet

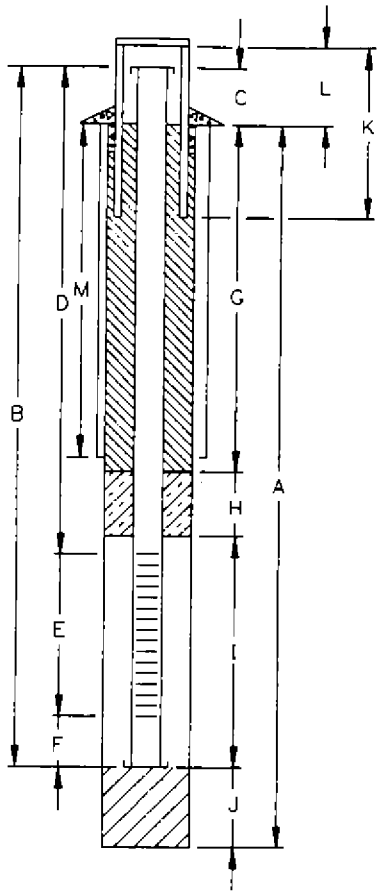
Well Number: MW-5B
Date Drilled: 5-2-90
Coordinates: 240023.3014 N
2452104.0267 E
Casing Elevation: 2390.48
Sheet 2 of 2

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	General: Sample Description	Graphic Log
55							WEATHERED BASALT – To bottom of hole.	
							Water yielding zone at ~30 gpm	
60							Bottom of Hole – 60 Feet	
65								
70								
75								
80								
85								
90								
95								
100								

801126-A-MW5B

* Background = 2 ppm

WELL COMPLETION MW-5B



TOP OF CASING ELEVATION 2390.48'

A BORING DEPTH 60 FT.
BORING DIAMETER 6 IN.

B WELL DEPTH 60 FT.

C WELL STICKUP 0 FT.

D BLANK INTERVAL 26 FT.
BLANK DIAMETER 2 IN.

E SCREEN INTERVAL 23-43' FT.
SCREEN DIAMETER 2 IN.
TYPE/SLOT SIZE 0.01

F SEDIMENT TRAP 14 FT.

G ANNULAR SEAL 14 FT.
MATERIAL: GROUT

H. BENTONITE SEAL 3 FT.

I SANDPACK 40 FT.
TYPE/SIZE: 20/40

J BOTOM SEAL/PACK 3 FT.
MATERIAL: SAND

K WELL COVER 0 FT.

L STICKUP 0 FT.

M CONDUCTOR CASING ____ FT.

NOT TO SCALE

DRILLING TIMES:
START 1340 5/2/90 FINISH 5/2/90
STANDBY or DOWN TIME:

METHOD OF DECON PRIOR TO DRILLING.

DEVELOPMENT

METHOD OF DEVELOPMENT

PUMP TIME 0730 TO 1230 DATE 5/25/90

TURBIDITY AFTER DEVELOPMENT:
____ CLEAR ____ MOD TURBID
X SL. TURBID ____ TURBID

ODOR IN WATER ?

WATER DISCHARGED TO:
____ GROUND SURFACE ____ STORAGE TANK
____ STORM SEWERS ____ TANK TRUCK
4 DRUMS

DEPTH OF WATER AFTER DEVELOPMENT 29'

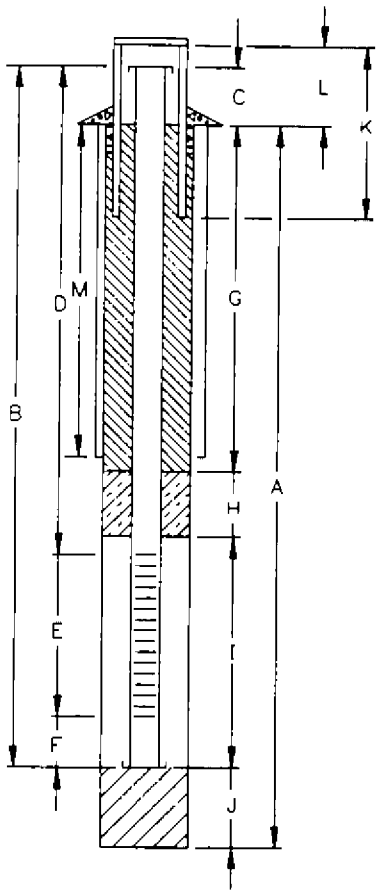
MATERIALS USED

4 1/2 SACKS of 20/40 SAND
6 SACKS of PORTLAND CEMENT
____ SACKS of PREMIX CONCRETE
____ GALLONS of GROUT USED
____ GROUT COMPOSITION #6 BENTONITE
1 1/2 SACKS of BENTONITE PELLETS
____ BUCKETS of BENTONITE PELLETS
____ YARDS CEMENT - SAND USED
2 CENTRALIZERS at TOP AND BOTTOM SCREEN BGS

WELL COVER USED:
____ Above Grade
X At Grade
____ Other
X Lockable

801126-A-MW5BW

WELL COMPLETION MW-7B



TOP OF CASING ELEVATION 2380.08'

A BORING DEPTH 43 FT.
BORING DIAMETER 6 IN.

B WELL DEPTH 35 FT.

C WELL STICKUP 0 FT.

D BLANK INTERVAL 14 FT.
BLANK DIAMETER 2 IN.

E SCREEN INTERVAL 7.5-27.5 FT.
SCREEN DIAMETER 2 IN.
TYPE/SLOT SIZE 0.01

F SEDIMENT TRAP 2 FT.

G ANNULAR SEAL 0 FT.
MATERIAL: ____

H BENTONITE SEAL 3 FT.

I SANDPACK 23'6" FT.
TYPE/SIZE: 20/40

J BOTOM SEAL/PACK 1'6" FT.
MATERIAL: SAND

K WELL COVER 0 FT.

L STICKUP 0 FT.

M CONDUCTOR CASING ____ FT.

NOT TO SCALE

DRILLING TIMES:

START 1100 4/18/90 FINISH 1530 4/18/90

STANDBY or DOWN TIME:

DRILLING SLOW DUE TO CLAY ENCOUNTERED IN BORING.
CLAY PLUGGED UP DELIVERY PIPE TO CYCLONE.

METHOD OF DECON. PRIOR TO DRILLING:

DEVELOPMENT

METHOD OF DEVELOPMENT:

PUMP TIME 1100 TO 1500 DATE 5/23/90

TURBIDITY AFTER DEVELOPMENT:

____ CLEAR ____ MOD. TURBID
____ SL. TURBID __X__ TURBID

ODOR IN WATER ?

WATER DISCHARGED TO:

____ GROUND SURFACE ____ STORAGE TANK
____ STORM SEWERS ____ TANK TRUCK
__X__ DRUMS

DEPTH OF WATER AFTER DEVELOPMENT 18.0

MATERIALS USED

__7__ SACKS of 20/40 SAND
____ SACKS of ____
____ SACKS of PREMIX CONCRETE
____ GALLONS of GROUT USED
____ GROUT COMPOSITION ____
__1__ SACK of BENTONITE PELLETS
____ BUCKETS of BENTONITE PELLETS
____ YARDS CEMENT - SAND USED
__2__ CENTRALIZERS at TOP AND BOTTOM OF SCREEN BGS

WELL COVER USED:

____ Above Grade
__X__ At Grade
____ Other
__X__ Lockable

ECOVA Corporation

Well Installation Log

Well Number MW-7B

Client Army Corps of Engineers | Drilling Company Fogle Pump & Supply | Date Drilled 4-18-90

Site Air Natl. Guard (Task 7) | Boring Method Air Rotary | Coordinates 240763.7185 N, 2452205.5566 E

Job Number 801126 | Borehole Depth 43 Feet | Casing Elevation 2380.08

Field Geologist K. May | Water Depth 18.0 Feet | Sheet 1 of 1

General: 24 feet of 6" steel casing.

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	Sample Description	Graphic Log
5				1.0			SAND WITH GRAVEL (SM) – Medium– to coarse–grained, brown, minor black basalt chips, loose	
10							At 6 feet encountered boulder, pulled 8 feet of casing and set 20 foot length.	
15							SAND, SILT, AND GRAVEL (BASALT) – Loose, trace amount of gravel with granitic(?) composition	
20				20			▽ Static water level at 18 feet. SAND (SM) – Coarse–grained, dark gray, loose, wet, petroleum odor.	
25				15			WEATHERED BASALT(?) – Reddish brown, more water. Reddish brown, moist	
30							BASALT.	
35								
40								
45							Bottom of Hole – 43 Feet	
50								

801126-A-MW7B

* Background = 1.0 ppm

ECOVA Corporation

Well Installation Log

Well Number MW-8A
Date Drilled 4/26/90 4/27/90
Client Army Corps of Engineers
Drilling Company Fogle Pump & Supply
Coordinates 240632.6323 N
Site Air Natl Guard (Task 7)
Boring Method Air Rotary
2452389.1722 E
Job Number 801126
Borehole Depth 86 Feet
Casing Elevation 2378.73
Field Geologist R.W. Goodfellow
Water Depth 19 Feet
Sheet 1 of 2

General: 48 feet of 6" casing

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	Sample Description	Graphic Log
5							SAND (SM) – Fine– to coarse–grained, brown, loose, minor basalt fragments, dry	
10								
15							SILTY CLAY (ML) – Brown, loose, with coarse basalt sand.	
20							▽ Static water level at 19 feet Same as above	
25							BASALT – Moderately fresh, dry.	
30								
35							Same as above, damp.	
40								
45							BASALT – Wet.	
50				0.0				

801126-A-MW8A

* Background = 5.0 ppm

ECOVA Corporation

Well Installation Log

Client: Army Corps of Engineers
Site: Air Natl Guard (Task 7)
Job Number: 801126
Field Geologist: R.W. Goodfellow

Drilling Company: Fogle Pump & Supply
Boring Method: Air Rotary
Borehole Depth: 86 Feet
Water Depth: 19 Feet

Well Number: MW-8A
Date Drilled: 4/26/90 - 4/27/90
Coordinates: 240632.6323 N, 2452389.1722 E
Casing Elevation: 2378.73
Sheet: 2 of 2

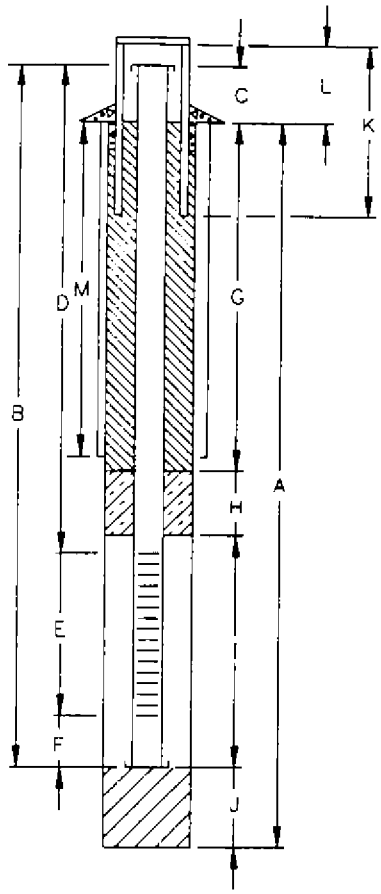
General: 48 feet of 6" casing

Depth (Feet)	Blow Counts	Sample No	Recover	Organic* Vapor (ppm)	% LEL	% O_2	Sample Description	Graphic Log
55							Water yielding zone at 57 feet.	
60								
65							BASALT – Fresh, water flow ~ 50 gpm	
70								
75							BASALT – Minor orange mottling, water flow ~50 gpm	
80							Same as above	
85							Bottom of Hole – 86 Feet	
90								
95								
100								

801126-A-MWBA

* Background = _____ppm

WELL COMPLETION MW-8A



TOP OF CASING ELEVATION 2378.73'

A	BORING DEPTH	86	FT.
	BORING DIAMETER	6	IN.
B	WELL DEPTH	85'6"	FT.
C	WELL STICKUP	0	FT.
D	BLANK INTERVAL	70	FT.
	BLANK DIAMETER	2	IN.
E	SCREEN INTERVAL	66.5-76.5	FT.
	SCREEN DIAMETER	2	IN.
	TYPE/SLOT SIZE	0.01	
F	SEDIMENT TRAP	5	FT.
G	ANNULAR SEAL	54	FT.
	MATERIAL:	GROUT	
H	BENTONITE SEAL	5'6"	FT.
I	SANDPACK	22'6"	FT.
	TYPE/SIZE:	20/40	
J	BOTOM SEAL/PACK	3'	FT.
	MATERIAL	SAND	
K	WELL COVER		FT
L	STICKUP	0	FT.
M	CONDUCTOR CASING	48	FT.

NOT TO SCALE

DRILLING TIMES:

START 1440 4/25/90 FINISH 1025 4/27/90

STANDBY or DOWN TIME:

METHOD OF DECON PRIOR TO DRILLING:

DEVELOPMENT

METHOD OF DEVELOPMENT

PUMP TIME 0800 TO 1200 DATE 5/24/90

PUMPED 6 BARRELS IN 4 HOURS.

TURBIDITY AFTER DEVELOPMENT:	X	CLEAR		MOD. TURBID
		SL. TURBID		TURBID

ODOR IN WATER ?

WATER DISCHARGED TO:		GROUND SURFACE		STORAGE TANK
		STORM SEWERS		TANK TRUCK
	X	DRUMS		

DEPTH OF WATER AFTER DEVELOPMENT: 20.0'

MATERIALS USED

4	SACKS of 20/40	SAND
8	SACKS of PORTLAND CEMENT	
	SACKS of PREMIX CONCRETE	
	GALLONS of GROUT USED	
	GROUT COMPOSITION #6 BENTONITE	
1	SACKS of BENTONITE PELLETS	
	BUCKETS of BENTONITE PELLETS	
	YARDS CEMENT - SAND USED	
4	CENTRALIZERS EVERY 25'	BGS

WELL COVER USED:

	Above Grade
X	At Grade
	Other
X	Lockable

801126-A-MW3AW

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: SPOKANE AIRPORT BURN PIT
WELL INDENTIFICATION NO. MW13 A
DRILLING METHOD: 4¼" HOLLOW STEM AUGER & AIR ROTARY
DRILLER: WILL HAYES (2035)
FIRM: RUEN DRILLING, INC (RUEN CDI 1750)
SIGNATURE:
CONSULTING FIRM: LANDAU ASSOCIATES INC.
REPRESENTATIVE: DEB SUNNELL

County
LOCATION: T 24N, R 42E, SEC. 6 ¼ NE ¼ NE
DISTANCE: (W) 112 FT. FROM N/S SECTION LINE
(S) 450 FT. FROM E/W SECTION LINE
DATUM: USGS monument 250' SOUTH OF RUNWAY
WATER LEVEL ELEVATION: (23') 2,357.1'
INSTALLED: 12/18/92
DEVELOPED: 12/22/92

AS-BUILT	WELL DATA		FORMATION DESCRIPTION
see attached sheet		GM	Dark brown silty to sandy GRAVEL (med. dense, moist)
		SW	Dark brown gravelly medium to very coarse SAND (loose, moist)
		GM	Dark brown silty sandy GRAVEL (loose, moist)
		ML	Medium brown fine sandy SILT with trace charcoal and leaves (very stiff, damp)
		BASALT TO 42'	Weathered Basalt with small angular pebbles mixed with clay

5 10 15 20 25 30 35

End of HOLE 42'

RECEIVED
JAN 20 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

Will Ruen

RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SPOKANE AIRPORT BURNPIT
Project No.: 207001.33
Well(s) No.: MW 13A
Drilling Co.: RUEN DRILLING INC
Installation Start Date: 12/18/92 Hour: 1000
Installation Finish Date: 12/22/92 Hour: 1000 monumental
Well Type: [X] Single [ ] Nested [ ] Clustered

WATER DISCHARGE MONITORING

Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____

EQUIPMENT USED

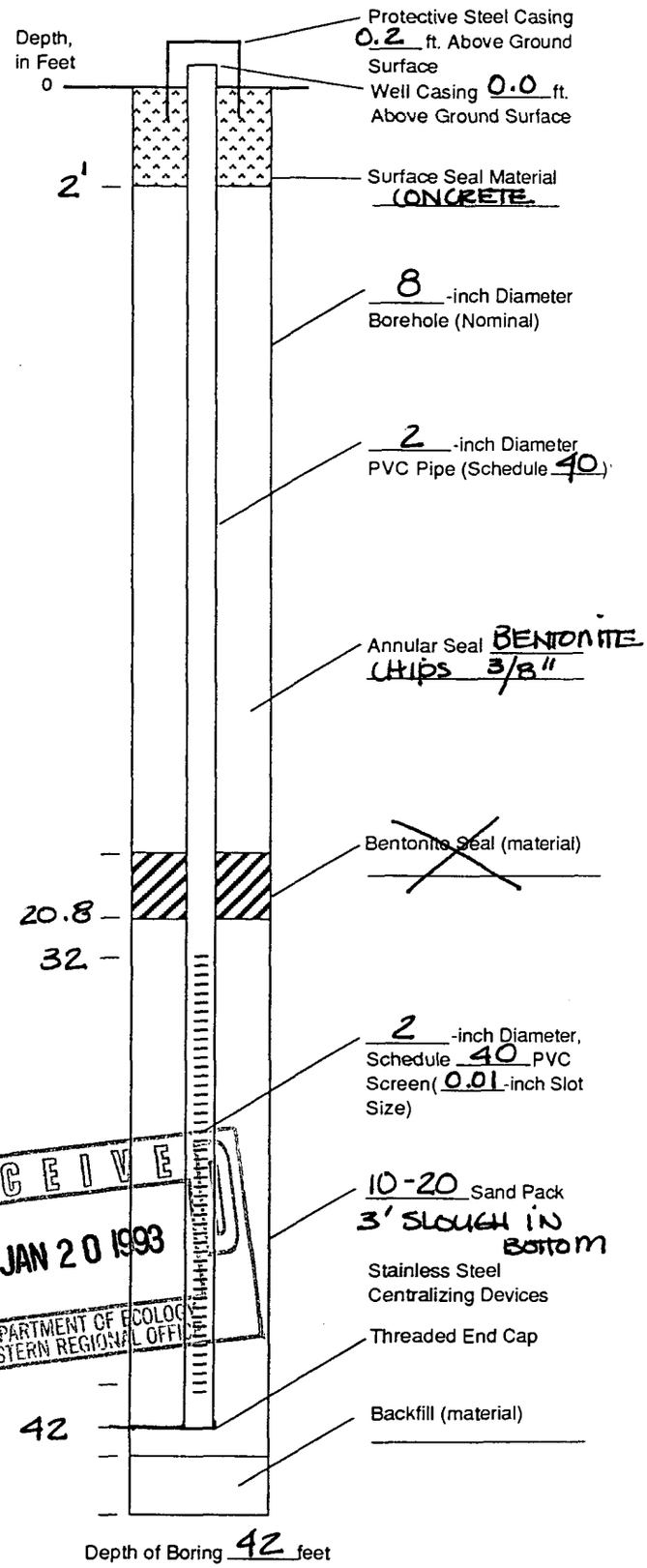
[X] Hollow Stem Auger 4 1/4"
[ ] Cable Tool
[ ] Air Rotary
[ ] Other _____

MATERIALS USED

2 Sacks of 10-20 Sand
_____ Sacks of _____ Concrete/Cement
3 Sacks of _____ Grout Mix Used
17 Sacks of ~~Powdered~~ Bentonite CHIPS
_____ Pounds of Bentonite Pellets/Chips
40 Feet of _____ Inch PVC Blank Casing
10 Feet of _____ Inch PVC Slotted Screen

DEVELOPMENT

Method of Development: BAILER 1 1/2" SS
Begin Date: 12/21/92 Time: 0800 BAIL 25 GALLONS
Finish Date: 12/22/92 Time: 1330 (≈ 10 GALLONS)
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: 35 (Gallons)
Description of Turbidity at End of Development: [ ] Clear [X] Slightly Cloudy [ ] Mod. Turbid [ ] Very Cloudy
Odor of Water: NONE
Water Discharged To: GROUND
Depth to Water After Development: 23.0 (Feet)



Depth of Boring 42 feet

3/91

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: SPOKANE AIRPORT BURNPIT
WELL INDENTIFICATION NO. MW13B
DRILLING METHOD: 4¼" HOLLOW STEM AUGER
DRILLER: WILL HAYES (2035)
FIRM: RUEN DRILLING (RUENCDI175QM)
SIGNATURE:
CONSULTING FIRM: LANDAU ASSOCIATES INC.
REPRESENTATIVE: DEB SUNNELL

County
LOCATION: T 24 N, R 42 E, SEC. 6 ¼ NE ¼ NE ¼
DISTANCE: (W) 112 FT. FROM N/S SECTION LINE
(S) 450 FT. FROM E/W SECTION LINE
DATUM: USGS MONUMENT 250' SOUTH OF RUNWAY
WATER LEVEL ELEVATION: (14.7) 2,366.7'
INSTALLED: [illegible]92 12/17/92
DEVELOPED: 12/21/92

AS-BUILT	WELL DATA		FORMATION DESCRIPTION	
see attached sheet		GM	DARK brown silty to sandy GRAVEL (med. dense, moist)	5.0
		SW	Dark brown Gravelly medium to very coarse SAND (loose, moist)	10.0
		GM	Dark brown silty sandy GRAVEL (loose, moist)	15.0
		ML	Medium brown fine sandy SILT w/ trace charcoal and leaves (very stiff, damp)	20.0
			END OF HOLE 20 FT.	
				25.0
				30.0
				35.0

RECEIVED
JAN 20 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

Will Hayes
RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SPOKANE AIRPORT BURNPIT
Project No.: 207001.33
Well(s) No.: MW 13 B
Drilling Co.: RUEN DRILLING INC.
Installation Start Date: 12/17/92 Hour: _____
Installation Finish Date: 12/22/92 Hour: _____
Well Type: ☒ Single ☐ Nested ☐ Clustered

WATER DISCHARGE MONITORING

Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____

EQUIPMENT USED

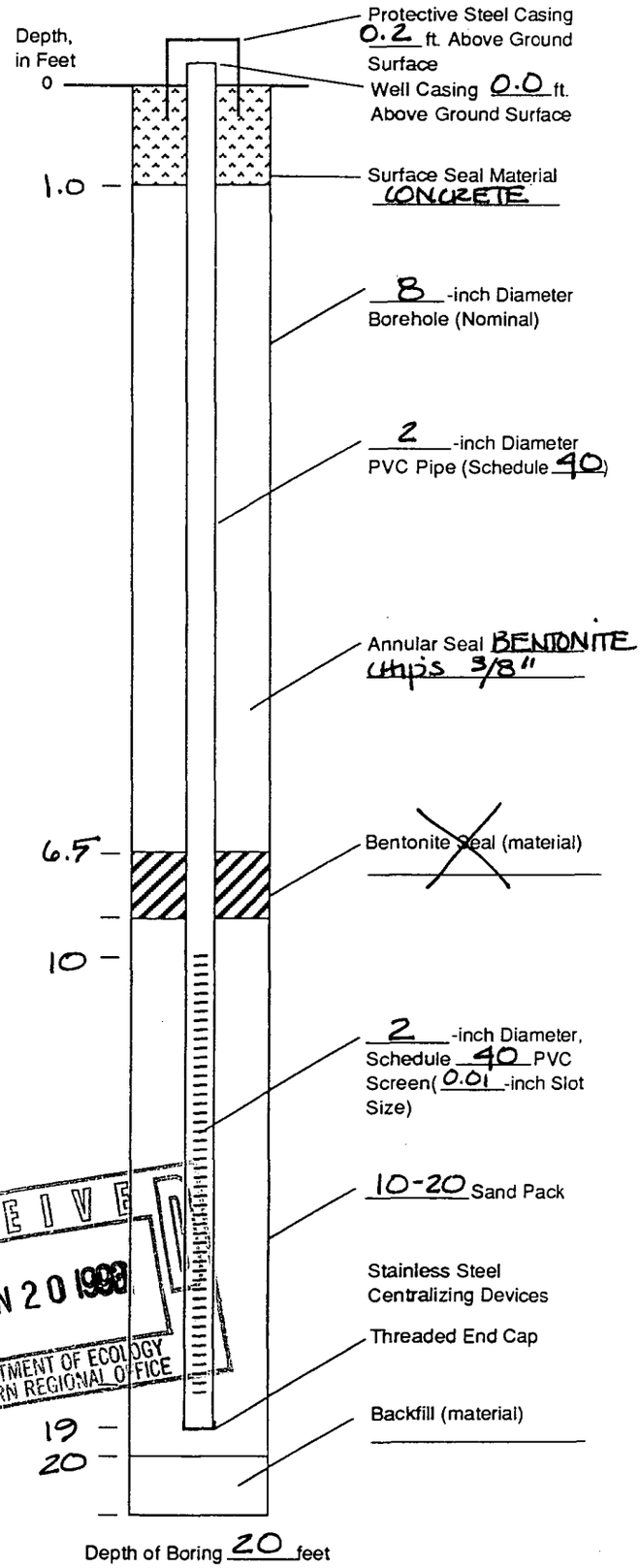
☐ Hollow Stem Auger
☐ Cable Tool
☐ Air Rotary
☐ Other _____

MATERIALS USED

4.5 Sacks of 10-20 Sand
2 Sacks of _____ Concrete/Cement
_____ Sacks of _____ Grout Mix Used
2 Sacks of ~~Powdered~~ Bentonite CHIPS
_____ Pounds of Bentonite Pellets/Chips
10 Feet of _____ Inch PVC Blank Casing
10 Feet of _____ Inch PVC Slotted Screen

DEVELOPMENT

Method of Development: HONDA PUMP
Begin Date: 12/18/92 Time: PURGE 25 GALL
Finish Date: 12/21/92 Time: PURGE 10 GAL.
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: 35 (Gallons)
Description of Turbidity at End of Development: ☐ Clear ☒ Slightly Cloudy ☐ Mod. Turbid ☐ Very Cloudy
Odor of Water: NONE
Water Discharged To: GROUND
Depth to Water After Development: 14.7 (Feet)



Depth of Boring 20 feet

3/91

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: SPOKANE AIRPORT BURNPIT
WELL INDENTIFICATION NO. MW14A
DRILLING METHOD: 4¼" HOLLOW STEM AUGER & AIR ROTARY
DRILLER: WILL HAYES (2035)
FIRM: RUEN DRILLING (RUENCDI175PM)
SIGNATURE:
CONSULTING FIRM: LANDAU ASSOCIATES INC.
REPRESENTATIVE: DEB SUNNELL

County
LOCATION: T 24 N, R 42E, SEC. 6 ¼ NE ¼ NE
DISTANCE: (W) 165 FT. FROM N/S SECTION LINE
(S) 555 FT. FROM E/W SECTION LINE
DATUM: USGS MONUMENT 250' SOUTH OF RUNWAY
WATER LEVEL ELEVATION: N/A
INSTALLED: 12/22/92
DEVELOPED: NOT YET

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
See attached sheet	SW	Brown to Grey silty and fine to coarse SAND with trace Gravel (loose, moist)
	CL	Red-brown CLAY with trace Gravel (stiff, wet)
	SW	Dark Grey medium to coarse SAND with Gravel (medium dense, wet)
	CL	Brown CLAY with trace Gravels to brown sandy CLAY with silt and trace Organics (stiff, wet)
	CL/ML	Light brown sandy silty CLAY to clayey Sandy SILT (stiff, moist)
	BASALT	

5 10 15 20 25 30 35

END OF HOLE 35'

RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

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SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SAS - BURN PIT
Project No.: 207001.33
Well(s) No.: MW 14A
Drilling Co.: BUEN DRILLING INC.
Installation Start Date: 12/22/92 Hour: 1000
Installation Finish Date: 12/22/92 Hour: 1330
Well Type: ☒ Single ☐ Nested ☐ Clustered

WATER DISCHARGE MONITORING

Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____

EQUIPMENT USED

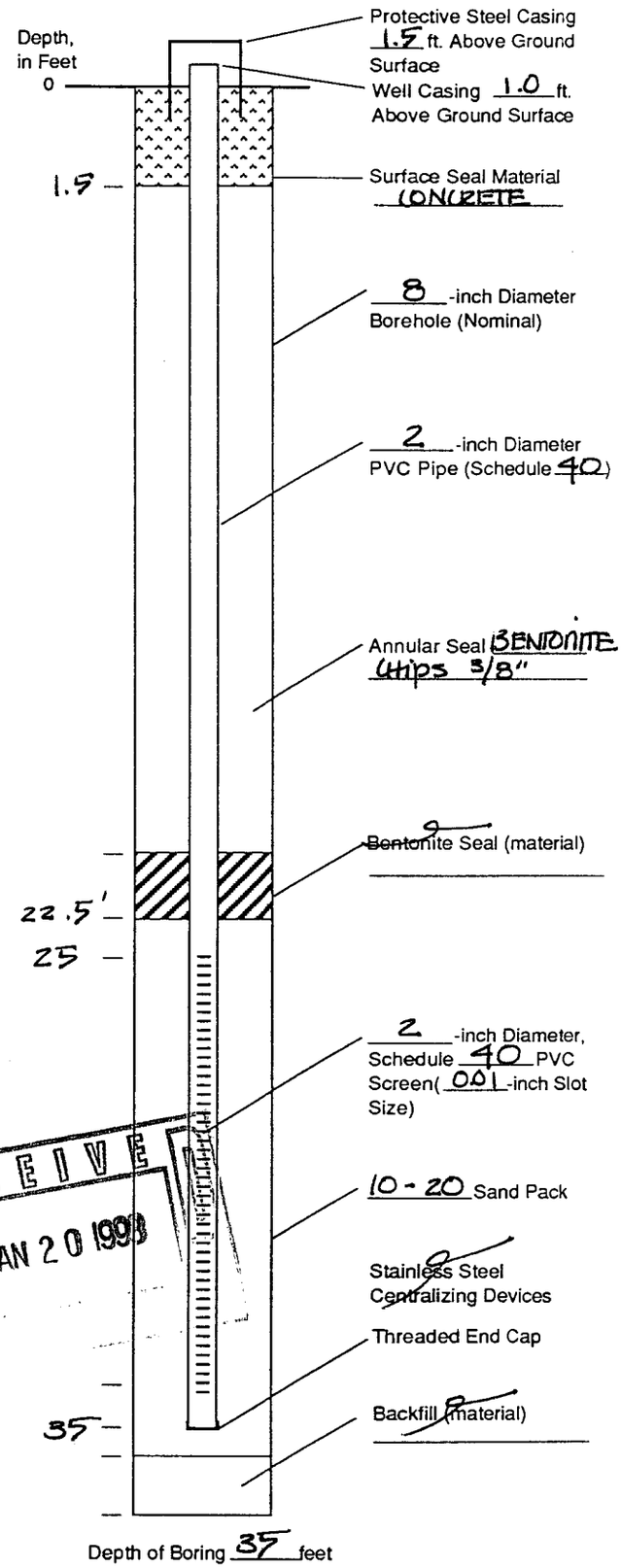
☒ Hollow Stem Auger 4¼"
☐ Cable Tool
☐ Air Rotary
☐ Other _____

MATERIALS USED

45 Sacks of 10 - 20 Sand
2 Sacks of _____ Concrete/Cement
_____ Sacks of _____ Grout Mix Used
9 Sacks of ~~Powdered~~ Bentonite Chips
_____ Pounds of Bentonite Pellets/Chips
25 Feet of 2" Inch PVC Blank Casing
10 Feet of 2" Inch PVC Slotted Screen

DEVELOPMENT

Method of Development:
Begin Date: Time:
Finish Date: Time:
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: Gallons
Description of Turbidity at End of Development: ☐ Clear ☐ Slightly Cloudy ☐ Mod. Turbid ☐ Very Cloudy
Odor of Water: NONE
Water Discharged To:
Depth to Water After Development: Feet



Depth of Boring 35 feet

3/91

RESOURCE PROTECTION WELL REPORT

START CARD NO. 57709

PROJECT NAME: SPOKANE AIRPORT BURNPIT
WELL INDENTIFICATION NO. MW 14B
DRILLING METHOD: 9¼" HOLLOW STEM AUGER
DRILLER: WILL HAYES (2035)
FIRM: RUEN DRILLING (RUENCDI 175QM)
SIGNATURE:
CONSULTING FIRM: LANDAU ASSOCIATES INC.
REPRESENTATIVE: DEB SCHNELL

County
LOCATION: T 24N, R 42E, SEC. 6 ¼ NE ¼ NE
DISTANCE: (W) 165 FT. FROM N/S SECTION LINE
(S) 555 FT. FROM E/W SECTION LINE
DATUM: USGS MONUMENT 250' SOUTH OF RUNWAY
WATER LEVEL ELEVATION: (18.5) 2,362.9
INSTALLED: 12|21|92
DEVELOPED: 12|22|92

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
see attached sheet	SW	Brown to grey silty and fine to coarse SAND with trace gravel (loose moist)
CL		Red-brown CLAY with trace Gravel (stiff, wet)
SW		Dark Grey medium to coarse SAND with Gravel (medium dense, wet)
CL		Brown CLAY with trace Gravels to brown sandy CLAY with silt and trace organics (stiff, wet)

END OF HOLE 20.5'

5 10 15 20 25 30 35

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Will Ruen

RUEN DRILLING, INC.
BOX 267
CLARK FORK, ID 83811
(208) 266-1151

SCALE: 1"= 5'

PAGE 1 OF 2

ECY 050-12

LANDAU ASSOCIATES, INC.
Edmonds, WA (206) 778-0907 FAX (206) 778-6409

As-built Well Completion Form

Project: SAS - BURNPIT
Project No.: 207001.33
Well(s) No.: MW14B
Drilling Co.: RUEN DRILLING INC.
Installation Start Date: 12/21/92 Hour: 1515
Installation Finish Date: 12/21/92 Hour: 1015
Well Type: ☒ Single ☐ Nested ☐ Clustered
120 monument

WATER DISCHARGE MONITORING

Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____
Date: _____ Time: _____ PID(ppm) _____

EQUIPMENT USED

☐ Hollow Stem Auger
☐ Cable Tool
☐ Air Rotary
☐ Other _____

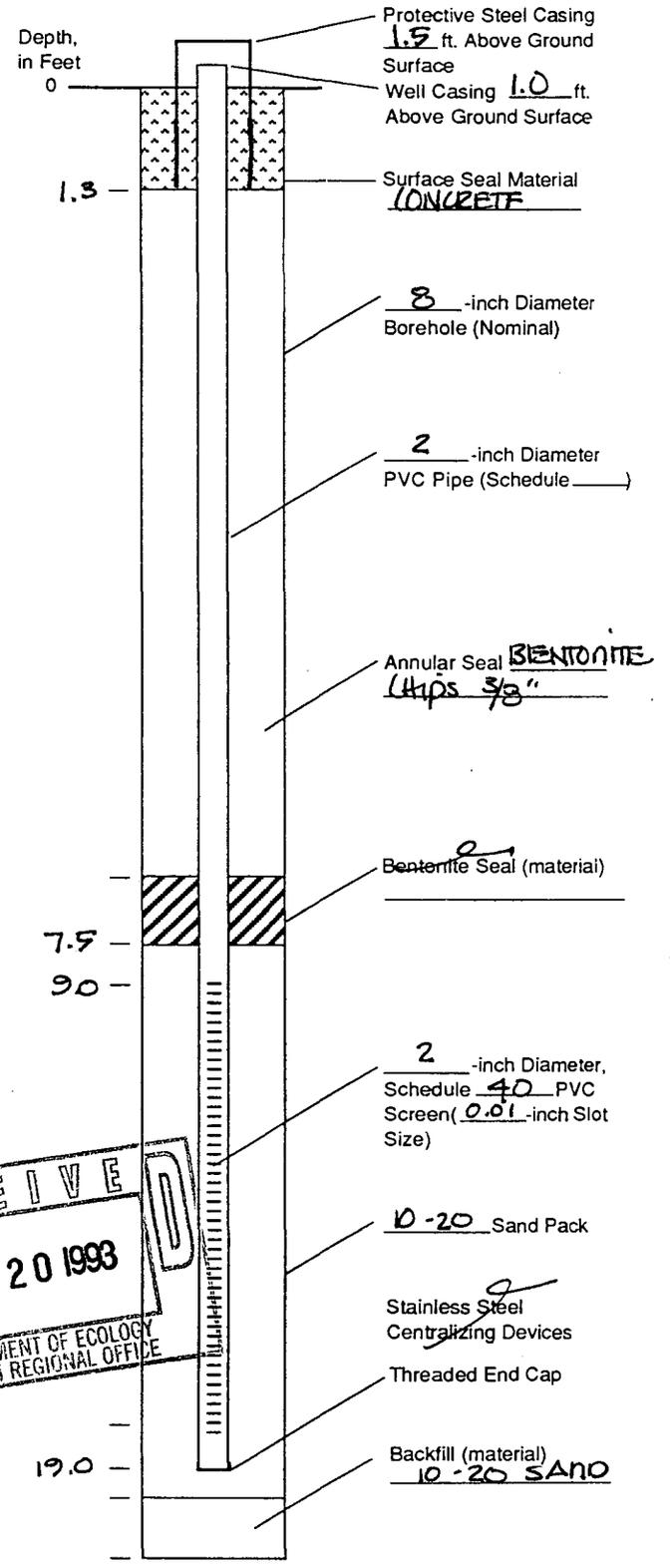
MATERIALS USED

15 Sacks of 10 - 20 Sand
2 Sacks of _____ Concrete/Cement
_____ Sacks of _____ Grout Mix Used
3 Sacks of Powdered Bentonite CHIPS
_____ Pounds of Bentonite Pellets/Chips
10 Feet of 2 Inch PVC Blank Casing
10 Feet of 2 Inch PVC Slotted Screen

DEVELOPMENT

Method of Development: BAILER 1½" SS
Begin Date: 12/22/92 Time: 20 GALS SLIGHT SLTY
Finish Date: Time:
Yield: Time From: To: Date:
Estimate of Total Water Removed During Development: 20 (Gallons)
Description of Turbidity at End of Development: ☐ Clear ☒ Slightly Cloudy ☐ Mod. Turbid ☐ Very Cloudy
Odor of Water: NONE
Water Discharged To: GROUND
Depth to Water After Development: 18.49 TOP PVC (Feet)

3/91



Depth of Boring 20.5 feet

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EASTERN REGIONAL OFFICE

					SES Project Number: 0270-001	Spokane International Airports, New Wells PFOA-PFOS Assessment	Boring Number: MW-18 Well Tag: BKP-261
					Equipment Type/ model #: Mobile G-2400		Location NAD 83 47.619878 N, -117.517124 W
					Auger type/diameter: 8-inch Hollow Stem		
					Contractor: Geologic Drill, LLC		
					Sampling method: 2-inch SPT		Sheet 1 of 1
					Hammer Weight: 140 Lbs		Above-Grade Monument
					Free Fall: 30"		
Blow Counts	Recovery %	Depth in Feet	Graphic Log	Soil Graph/ USCS	Location of Boring: South of W. Electric Avenue.		Time 1300
					Surface conditions/ Topsoil Depth: Grass-covered.		
							Date 7/30/18
					Material Description		
		0		GM	Brown silty Gravel with sand. Loose, Dry. With organics.		
		1					
		2					
		3					
		4					
3-7-9	60%	5		GM	Grey- brown silty GRAVEL with sand, Loose, Dry.		
		6					
		7					
		8					
		9					
10-12-15	70%	10		SP	Grey- brown SAND, Loose, Wet.	Becomes weathered Basalt	
		11		Rx	Weathered Basalt. Refusal at 13.0 feet bgs.		
		12					
		13					
		14					
		15					
		16					
		17					
		18					
		19			Completed well depth is 12.0- feet bgs.		
		20			Well constructed with 5-feet of 20-slot screen.		
		21			Boring Completed at 13.0-feet BGS. Groundwater encountered at 10.0 feet bgs.		

Project: SIA Land Application Study Area
Project Location: Spokane International Airport
Project Number: 36310160

Log of Boring MW-8

Sheet 1 of 1

Date(s) Drilled	11/29/12	Logged By	JEL	Checked By	GDP
Drilling Method	Air Rotaty	Drilling Contractor	H2O Well Drilling	Total Depth of Borehole	25 feet bgs
Drill Rig Type	Star 30k-DH	Drill Bit Size/Type	6 in. Tubex	Ground Surface Elevation	2370.7 feet bgs
Groundwater Level	2360.75 feet	Sampling Method	Cuttings	Hammer Data	NA
Borehole Backfill	NA	Location	Northing 246693.59, Easting 2447195.34		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
2370	0							ML	Dark grayish brown (10 YR 4/2) SILT Grading more gravel (SM) with depth (moist)		
2365	5										
2360	10							SM/GM	Grayish brown (10 YR 5/2) silty/sandy GRAVEL, broken gravel, some cobbles (slightly moist) 13.0 ft ▼		
2355	15							CL	Yellowish brown (10 YR 5/4) CLAY with small basalt gravel (moist)		
2350	20								Gray (10 YR 5/1) BASALT, broken, oxidized, calcium carbonate seams, fractured and weathered, groundwater Grading more competent with depth, groundwater in drill cuttings, groundwater stabilized at 10.5 ft.		Groundwater below clay in fractured/weathered basalt
2345	25								Boring completed to 25' bgs.		
	30										

URS

RESOURCE PROTECTION WELL REPORT

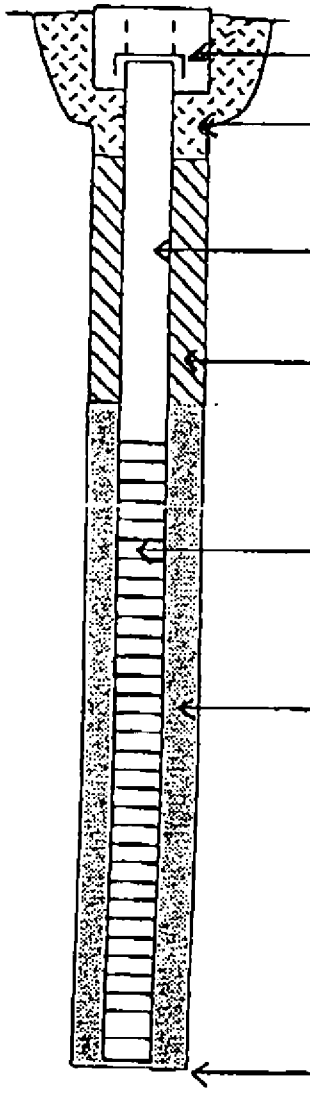
START CARD NO. R06492

PROJECT NAME: ANG - Spokane
WELL IDENTIFICATION NO. ACQ 745 MW-9
DRILLING METHOD: HSA
DRILLER: RODNEY LaBROSSE
FIRM: Cascade Drilling, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: ERM WEST
REPRESENTATIVE: MIKE ARNOLD

COUNTY: SPOKANE
LOCATION: NW¼ NW¼ Sec 5 Twn 24N R 42E
STREET ADDRESS OF WELL: 1 mi. West of Electric Ave & Geiger Ave
WATER LEVEL ELEVATION: 7
GROUND SURFACE ELEVATION: N/A
INSTALLED: 11-23-96
DEVELOPED: YES

6558

AS-BUILT | WELL DATA | FORMATION DESCRIPTION



WELL COVER
CONCRETE SURFACE SEAL DEPTH = 1/ft
PVC BLANK 2 "x 7'
Portland Slurry TO 1
BACKFILL ft.
TYPE: Bent Chips TO 3
PVC SCREEN 2 "x 10'
SLOT SIZE: 010
GRAVEL PACK TO 5 ft.
MATERIAL: 2/12
WELL DEPTH 17' "
↕ Sand
18.5

0 - 3 ft.
Brown silts

3 - 18.5 ft.
sandy silts & gravels w/ some cobbles

- ft.

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SCALE: 1" = _____ PAGE _____ OF _____

ECY 060-12 (Rev. 11/09)

Project: SIA Land Application Study Area
Project Location: Spokane International Airport
Project Number: 36310160

Log of Boring MW-10

Sheet 1 of 1

Date(s) Drilled	11/28/12	Logged By	JEL	Checked By	GDP
Drilling Method	Air Rotaty	Drilling Contractor	H2O Well Drilling	Total Depth of Borehole	25 feet bgs
Drill Rig Type	Star 30k-DH	Drill Bit Size/Type	6 in. Tubex	Ground Surface Elevation	2359.2 feet bgs
Groundwater Level	2351.13 feet	Sampling Method	Cuttings	Hammer Data	NA
Borehole Backfill	NA	Location	Northing 247338.63, Easting 2450941.31		

Elevation, feet	Downhole Depth, feet	SAMPLES: Type Number	SAMPLES: Blows/ 6in.	SAMPLES: Recovery (%)	SAMPLES: PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
	0						ML	Brown (10 YR 5/3) SILT with few angular to subangular basalt gravel (dry to slightly moist)		
2355	5									
2350	10							10.5 ft ▼		
								Gray (10 YR 5/1) BASALT, fractured and weathered (moderately moist)		
2345	15									
								Grading (10 YR 6/1) to (10 YR 3/1) dependent on dry to wet with yellowish brown (10 YR 3/1) clay in fractures (wet)		
2340	20									
2335	25							Boring completed to 25' bgs.		
2330	30									

ENV2 WITH WELL T:\ONEWORLD\36310160 SIA LAND APPLICATION STUDY AREA\36310160LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 1/4/13

URS

PROJECT: SIA Land Application Site Monitoring Well Installation	CASCADE EARTH SCIENCES A Valmont Industries Company	PROJECT NUMBER: 2014230009	MONITORING WELL NUMBER: MW-11 PAGE: 1 OF 1
BORING LOCATION: N246527.94 E2449283.08		LOGGED BY: BJK CHECKED BY: DRW	PERMIT NO. BIO-784
DRILLED BY: Fogle Pump and Supply		START DATE: 8/21/2014	COMPLETION DATE: 8/23/2014
DRILLING EQUIPMENT: Sandvik T25KW Air Roatary		SAMPLING EQUIPMENT: Cuttings	

WELL CONSTRUCTION DATA (MEASURED FROM TOP OF CASING)

TOTAL DEPTH: 19'	WELL DEPTH: 19'	BOREHOLE DIA.(IN): 6"	CASING MATERIAL AND DIA. (IN): 2" Schedule 40 PVC	CASING STICK-UP +/-: +2.79'

FILTER PACK INT. 7'-19' SIZE: 10/20 CSSI
SANITARY SEAL INT. 3'-7' TYPE: 3/8" Bentonite chips
GROUT INT. None TYPE: None

SURFACE SEAL INT: 0-3' TYPE: Concrete
WELL SCREEN INT: 9'-19' SLOT SIZE (IN): 0.020
WATER LEVEL/DATE (MEASURED BELOW T.O.C.) H2O @ 9.3' BGS - 8/21/14 @ 0830

GROUND SURFACE ELEV. (FT MSL): 2367.8
TOP OF CASING ELEV. (FT MSL): 2370.59
COMMENT:

GROUP SYMBOL	INTERVAL (FT. B.G.S.)	DESCRIPTION OF LITHOLOGY	DEPTH (FT. B.G.S.)	WELL GRAPHIC	SAMPLE BLOW COUNT	SAMPLE RECOVERY	SAMPLE TYPE	SAMPLE NUMBER	REMARKS (DRILLING CONDITIONS, PID READINGS, ETC.)
			0						Ground surface
ML	5'	**SANDY SILT:** Brown (2.5Y 3/3), dry, sand-silt mix, no gravels.	2	CEMENT					Start at 0740
			4						
			6	3/8" BENTONITE CHIPS					
			8						
			10						Final water level = 9.3' BGS.
SP	10'	**SAND AND GRAVEL:** Brown (2.5Y 4/2), damp, poorly graded sand with gravel.	12	10/20 CSSI SAND					Encountered water at 13' BGS.
			14						
SM	15'	**SILTY SAND:** Brown (10Y 2/2), with yellow pockets (10YR 8/8), damp/wet, silty sand with gravels.	16						Driller feel different layer at 15' BGS.
Basalt	17'-20'	**BASALT:** Brown, wet, fractured basalt.	18						Basalt at 17' BGS.
		Total Depth = 20'	20						Terminate drilling at 20' End at 0746
			22						When 6" casing was removed borehole collapsed a little. 2" schedule 40 pvc casing set to depth of 19' BGS.
			24						
			26						
			28						

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE INFORMATION PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

Surveyed data, except for T.O.C. and ground surface elevation, is accurate to +/- 0.5 feet.

S:\[Working Drafting]\2014230009 Spokane Airport\DWGs\2014230009 MW-11 LOG.dwg 11/6/2014 RKB

CASCADE EARTH SCIENCES
A Valmont Industries Company

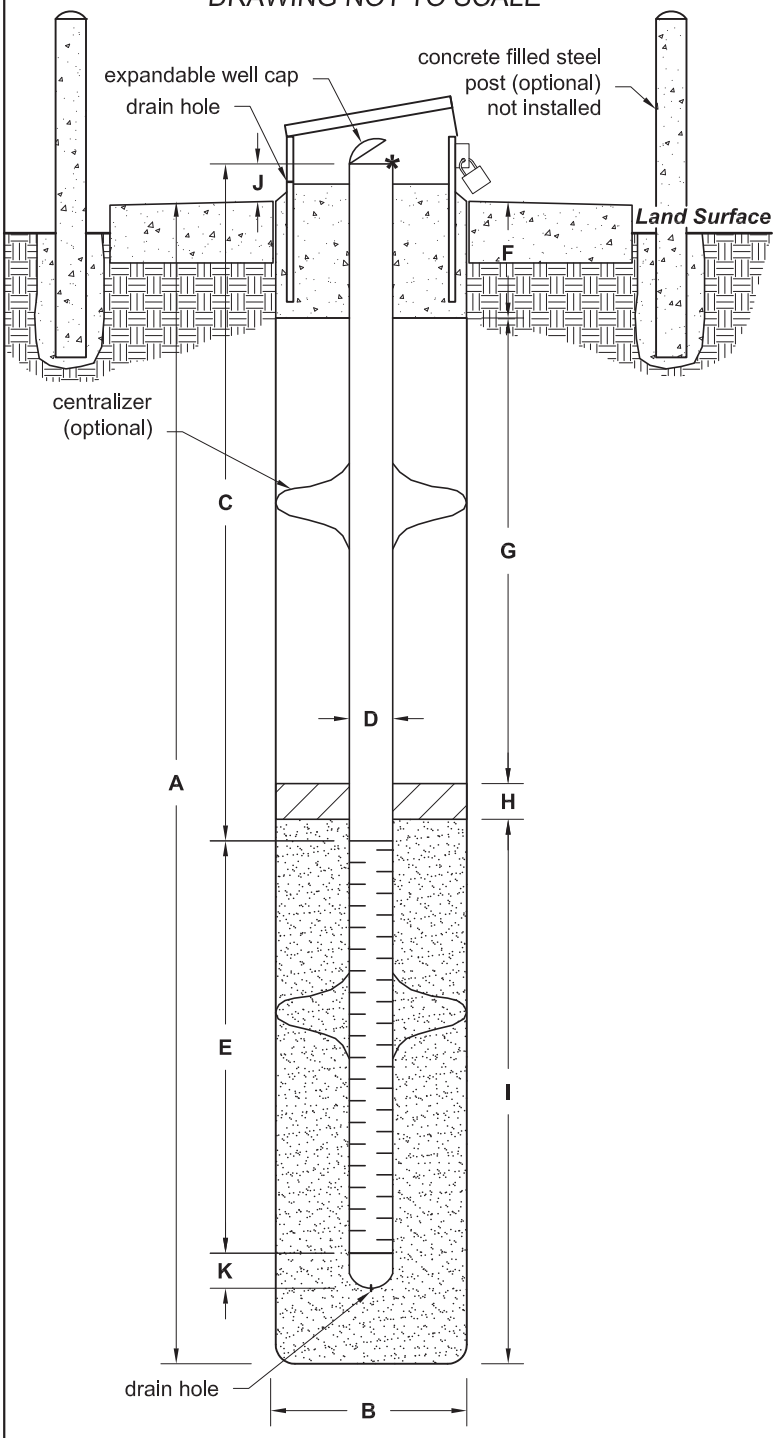
MONITORING WELL CONSTRUCTION DETAILS

PROJECT NAME: SIA Land Application Site Monitoring Well Installation
PROJECT NUMBER: 2014230009
DATE INSTALLED: 8/21/2014
WELL PERMIT NO.: BIO-784
LOCATION: N246527.94, E2449283.08 (Washington State Plane North)
NOTES:

BORING/WELL NO.: MW-11
TOP OF CASING ELEV. AT MARK: 2370.59
GROUND SURFACE ELEV.: 2367.8
DATUM: NAVD88

WELL SCHEMATIC

DRAWING NOT TO SCALE



NOTE: Depths and intervals are measured from ground surface.

BORING INFORMATION

A. Total Depth: 19 ft.
B. Borehole Diameter: 6 in.
Drilling method: Sandvik T25KW Air Rotary

WELL CONSTRUCTION

C. Total Casing length: 21.79 ft.
Material: Schedule 40 PVC
D. Well Casing Diameter (I.D.): 2 in.
E. Well Screen
Screen length: 10 ft.
Screen interval from: 9 ft. to 19 ft.
Slot size: 0.020 in.
F. Surface Seal from: 0 ft. to 3 ft.
Seal materials: Concrete
G. Grout from: - ft. to - ft.
Grout material: -
H. Bentonite Sanitary Seal from: 3 ft. to 9 ft.
Seal materials: 3/8" Bentonite Chips
I. Filter Pack from: 7 ft. to 19 ft.
Pack material: 10/20 CSSI sand
J. Well Casing height (above grade): 2.79 ft.
K. Well Sump length: 0 ft.
Well tail piece length: 3 in.
Centralizers located at: 9 ft.

NOTES: -

S:\[Working Drafting]\2014230009 Spokane Airport\DWGs\2014230009 MW-11 LOG.dwg 11/6/2014 RKB

PROJECT: SIA Land Application Site Monitoring Well Installation	CASCADE EARTH SCIENCES A Valmont Industries Company	PROJECT NUMBER: 2014230009	MONITORING WELL NUMBER: MW-12 PAGE: 1 OF 1
BORING LOCATION: N249177.19 E2450041.46		LOGGED BY: BJK CHECKED BY: DRW	PERMIT NO. BIO-785
DRILLED BY: Fogle Pump and Supply		START DATE: 8/21/2014	COMPLETION DATE: 8/23/2014
DRILLING EQUIPMENT: Sandvik T25KW Air Roatary		SAMPLING EQUIPMENT: Cuttings	

WELL CONSTRUCTION DATA (MEASURED FROM TOP OF CASING)

TOTAL DEPTH: 26'	WELL DEPTH: 26'	BOREHOLE DIA.(IN): 6"	CASING MATERIAL AND DIA. (IN): 2" Schedule 40 PVC	CASING STICK-UP +/-: +2.65'

FILTER PACK INT. 5'-26' SIZE: 10/20 CSSI
SANITARY SEAL INT. 3'-5' TYPE: 3/8" Bentonite chips
GROUT INT. None TYPE: None

SURFACE SEAL INT: 0-3' TYPE: Concrete
WELL SCREEN INT: 6'-26' SLOT SIZE (IN): 0.020
WATER LEVEL/DATE (MEASURED BELOW T.O.C.) h2o @ 11.15' BGS - 8/21/14 @ 1120; h2o @ 10.7' BGS - 8/21/14 @ 1200

GROUND SURFACE ELEV. (FT MSL): 2349.8
TOP OF CASING ELEV. (FT MSL): 2352.45
COMMENT:

GROUP SYMBOL	INTERVAL (FT. B.G.S.)	DESCRIPTION OF LITHOLOGY	DEPTH (FT. B.G.S.)	WELL GRAPHIC	SAMPLE BLOW COUNT	SAMPLE RECOVERY	SAMPLE TYPE	SAMPLE NUMBER	REMARKS (DRILLING CONDITIONS, PID READINGS, ETC.)
			0						Ground surface
									Start at 0740
GW	5'	**SANDY GRAVEL:** Brown, dry, well graded sands and gravels with fine silt.	2	4" CEMENT					
			4	3/8" BENTONITE CHIPS					
			6						
			8						
	10'	**SANDY GRAVEL:** Brown, dry, well graded sands and gravels with fine silt.	10	10/20 CSSI SAND					Final water level = 10.7' BGS
			12						
	13'-17'	**BOULDER**	14						Basalt at 13' BGS. Pause drilling at 0917 to cut 6" casing so driller can advance head. Drilling resumed at 0933.
			16						
ML	17'	**SANDY SILT:** Brown (2.5Y 3/3), with orange (10YR 5/8), and gray (Gley1 4/10GY) lenses and gravels, damp, sandy silt.	18						
	20'	**SANDY SILT:** Brown, wet, sandy silt with gravels.	20						Encountered water at 20' BGS.
			22						
Basalt	23'	**BASALT:** wet, fractured basalt.	24						Basalt at 23' BGS.
		Total Depth = 26'	26						Terminate drilling at 26' End at 0945
			28						

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE INFORMATION PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

Surveyed data, except for T.O.C. and ground surface elevation, is accurate to +/- 0.5 feet.

S:\[Working Drafting]\2014230009 Spokane Airport\DWGs\2014230009 MW-12 LOG.dwg 11/6/2014 RKB

CASCADE EARTH SCIENCES
A Valmont Industries Company

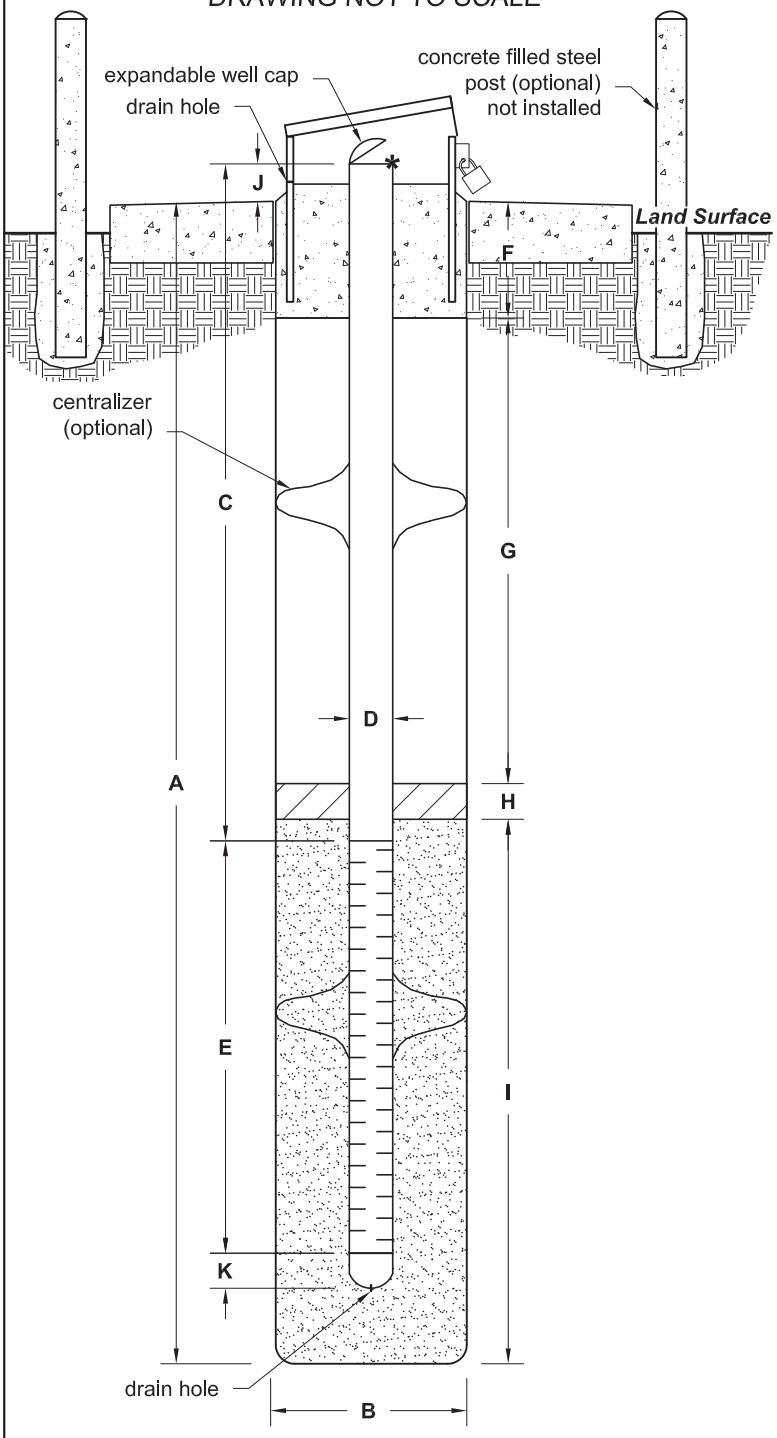
MONITORING WELL CONSTRUCTION DETAILS

PROJECT NAME: SIA Land Application Site Monitoring Well Installation
PROJECT NUMBER: 2014230009
DATE INSTALLED: 8/21/2014
WELL PERMIT NO.: BIO-785
LOCATION: N249177.19, E2450041.46 (Washington State Plane North)
NOTES:

BORING/WELL NO.: MW-12
TOP OF CASING ELEV. AT MARK: 2352.45
GROUND SURFACE ELEV.: 2349.8
DATUM: NAVD88

WELL SCHEMATIC

DRAWING NOT TO SCALE



NOTE: Depths and intervals are measured from ground surface.

BORING INFORMATION

A. Total Depth: 26 ft.
B. Borehole Diameter: 6 in.
Drilling method: Sandvik T25KW Air Rotary

WELL CONSTRUCTION

C. Total Casing length: 28.65 ft.
Material: Schedule 40 PVC
D. Well Casing Diameter (I.D.): 2 in.
E. Well Screen
Screen length: 20 ft.
Screen interval from: 6 ft. to 26 ft.
Slot size: 0.020 in.
F. Surface Seal from: 0 ft. to 3 ft.
Seal materials: Concrete
G. Grout from: - ft. to - ft.
Grout material: -
H. Bentonite Sanitary Seal from: 3 ft. to 5 ft.
Seal materials: 3/8" Bentonite Chips
I. Filter Pack from: 5 ft. to 26 ft.
Pack material: 10/20 CSSI sand
J. Well Casing height (above grade): 2.65 ft.
K. Well Sump length: 0 ft.
Well tail piece length: 3 in.
Centralizers located at: 11 and 21 ft.

NOTES: -

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ECOVA Corporation

Well Installation Log

Well Number MW-1A

Client Army Corps of Engineers | Drilling Company Fogle Pump & Supply | Date Drilled 5-10-90

Site SP Site (Task 6) | Boring Method Air Rotary | Coordinates 246670.5625 N, 2460128.4101 E

Job Number 801126 | Borehole Depth 83 Feet | Casing Elevation 2319.00'

Field Geologist R.M. Weber | Water Depth 13 Feet | Sheet 1 of 2

General: 50 feet 6" steel casing, pressure grout.

Depth (Feet)	Blow Counts	Sample No.	Recover	Organic* Vapor (ppm)	% LEL	% O_2	Sample Description	Graphic Log
5							SILTY SAND (SM) – Fine– to coarse–grained sand, brown, with black basalt cuttings, damp.	
10							BASALT – Fresh, light gray, dry.	
15							Basalt – Fresh, dark gray, dry. Hard drilling. ▽ Static water level at 13 Feet. BASALT – Alternating light and dark gray, dry.	
20								
25							Dry, hard drilling.	
30							BASALT – Gray, with white and orange fragments, easier drilling, damp.	
35							WEATHERED BASALT – Same as above with minor clay, sand, and gravel.	
40							Water yielding zone at 40 feet.	
45							BASALT – Fractured, weathered, orange and white fragments, some clays, sand and gravel. BASALT – Dark gray.	
50				3				

801126-A-MW1A

* Background = 0 ppm