**A Field Test Facility for Monitoring
Water/Radionuclide Transport
Through Partially Saturated
Geologic Media: Design,
Construction, and Preliminary
Description**

Appendix I - Engineering Drawings

November 1979

Prepared for the U.S. Department of Energy
under Contract EY-76-C-06-1830

Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute

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A FIELD TEST FACILITY FOR MONITORING WATER/RADIONUCLIDE
TRANSPORT THROUGH PARTIALLY SATURATED GEOLOGIC MEDIA:
DESIGN, CONSTRUCTION, AND PRELIMINARY DESCRIPTION

APPENDIX I - ENGINEERING DRAWINGS

S. J. Phillips
A. C. Campbell
M. D. Campbell(a)
G. W. Gee
H. H. Hooper
K. O. Schwarzmiller

November 1979

Prepared for the U.S. Department of Energy
Under Contract EY-76-C-06-1830

Pacific Northwest Laboratory
Richland, Washington 99352

(a) Formerly with PNL, presently an agronomic consultant.

- GENERAL NOTES**
- 1.0 **GENERAL**
- 1.1 ALL MATERIALS AND EQUIPMENT SHALL BE AS SPECIFIED OR APPROVED EQUAL.
- 2.0 **SITE WORK**
- 2.1 EXCAVATE RESEARCH AREA TO REMOVE TRASH AND TOP SOIL FROM 120'-0" X 120'-0" AREA AND STOCK PILE FOR BACK FILL OUTSIDE CAISSONS.
- 2.2 EXCAVATE, MIX THOROUGHLY AND STOCK PILE 175 CUBIC YARD OF BEST SAND (MOST UNIFORM, THOROUGHLY MIXED) AVOIDING ALL GRAVEL (8'-0" DEPTH ESTIMATE) COVER TO ELIMINATE MOISTURE STOCK PILE REMAINING SAND MATERIAL IN SEPARATE PILE.
- 2.3 EXCAVATE GRAVEL TO A FLAT NATURAL BOTTOM AT 25'-6" DEPTH AS SHOWN ON DRAWINGS. STOCK PILE FOR BACKFILL (ESTIMATED 2500 CUBIC YARDS.)

ABBREVIATIONS	
CL	CENTER LINE
EL	ELEVATION
EXST	EXISTING
FFTF	FAST FLUX TEST FACILITY
REF	REFERENCE
SH	SHEET
WPPS	WASHINGTON PUBLIC POWER SUPPLY

KEY PLAN
NO SCALE

DECLINATION DIAGRAM

S J PHILLIPS PROJECT MANAGER		H-3-41657 0 ACCESS CAISSON		BY DATE	FOR	BY DATE	FOR	REV	DESCRIPTION	REV
M D CAMPBELL PROJECT ENGINEER		H-3-41658 0 LYSIMETER PAD & DETS		DATE	DATE	DATE	DATE	DATE	DATE	DATE
G M GEE PROJECT ENGINEER		H-3-41659 0 CAISSON ARRANGEMENT		DATE	DATE	DATE	DATE	DATE	DATE	DATE
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WASTE - GEOLOGICAL MEDIA INTERACTIONS SECTION		NEXT USED ON		DRAWING STATUS		DRAWING STATUS		DRAWING STATUS		DRAWING STATUS

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**RADIONUCLIDE
TRANSPORT
EXPERIMENTAL SET-UP
EXCAVATION PLAN**

300 GENERAL 10110, 0111

H-3-41654 111

① CAISSON ACCESS PORTS
SCALE 1 1/2" = 1'-0"

② SCALE 3/4" = 1'-0"

③ SCALE 3/4" = 1'-0"

ABBREVIATIONS	
#	AT
CLR	CLEAR
DET	DETAIL
EA	EACH
EL	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
GALV	GALVANIZED
ID	INSIDE DIAMETER
INV	INVERT
L	LONG
OC	ON CENTER
PVC	POLYVINYL CHLORIDE
REF	REFERENCE
SCHED	SCHEDULE
THK	THICK
TYP	TYPICAL
UNC	UNIFIED NATIONAL COARSE

GENERAL NOTES

1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 POUNDS PER SQUARE INCH.
2. CONCRETE SHALL BE SCAFFOLD AND WOOD FLOI FINISHED TO INSURE COMPLETE SEAL AROUND CAISSONS.
3. REINFORCING STEEL SHALL BE ASTM A615 GRADE 40 DEFORMED BARS.
4. SEALANT SHALL BE SILICONE BATHROOM TYPE SEALANT "SEALASTIC" OR EQUAL.
5. BACKFILL MATERIAL AND COMPACTION SHALL BE AS DIRECTED BY CUSTOMER.
6. SEE H-3-41654 FOR KEY PLAN.

B-B
SCALE 3/8" = 1'-0"

EL 0'-0" (REF)

PROVIDE 1'-0" OF SAND BACKFILL ALL AROUND

EL -1'-10" 4"

EL -25'-6"

D-D
SCALE 3/8" = 1'-0"

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H-3-41659	0	EXCAVATION PLAN

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H-3-41659	0	EXCAVATION PLAN

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WEIGHING LYSIMETER PAD
SCALE 1"=1'-0"

ABBREVIATIONS	
#	AT
HEX	HEXAGON
OC	ON CENTER
SCHED	SCHEDULE
UNC	UNIFIED NATIONAL COARSE

GENERAL NOTES

- CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 POUNDS PER SQUARE INCH.
- REINFORCING STEEL SHALL BE ASTM A615 GRADE 40 DEFORMED BARS.
- PIPE AND FITTINGS SHALL BE GALVANIZED STEEL, ASTM A409.
- SEE H-3-41654 FOR KEY PLAN.

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M. D. CAMPBELL PROJECT ENGINEER
G. W. GEE PROJECT ENGINEER

WATER LAND RESOURCES DEPARTMENT,
WASTE - GEOLOGICAL MEDIA INTERACTIONS SECTION

SCALE $\frac{3}{4}" = 1'-0"$

NOTE
FRAME SHALL BE ALL WELDED CONSTRUCTION

GENERAL NOTES

1. ALL MATERIALS SHALL BE AS SPECIFIED OR APPROVED EQUAL.
2. ALL BEAMS, CHANNEL, ANGLES, PLATES AND BARS SHALL BE ASTM A36.
3. SEALANT SHALL BE SILICONE BATHROOM TYPE SEALANT "SEALASTIC" OR EQUAL.
4. SEE W-3-A1654 FOR KEY PLAN.

ABBREVIATIONS

#	AT
DJA	DIAMETER
HEX	HEXAGON
ID	INSIDE DIAMETER
MAX	MAXIMUM
MIN	MINIMUM
OC	ON CENTER
RAD	RADIUS
REF	REFERENCE
REQD	REQUIRED
TYP	TYPICAL
UNC	UNITED NATIONAL COAST

WELDING FABRICATION REQUIREMENT

1. HULLING STRONG(S)	☒ HPS-220-W	☒ HPS-220-W	☒ HPS-240-W
2. WELD PROCESS	☒ AWS	☒ AWS	☒ AWS
3. PERFORMANCE SPEC	☒ ASTM SEC 1	☒ ASTM 1	☒ HPS-240-W
4. PERFORMANCE CERT	☒ ASTM SEC 1	☒ ASTM 1	☒ HPS-210-W
5. MATERIAL SPEC	☒ ASTM SEC 4	☒ HPS-220-W 3-(X)	☒ HPS-220-W
6. VISUAL (V)	☒ HPS-220-W	☒ HPS-220-W	☒ HPS-220-W
7. POTENTIAT (PT)	☒ HPS-220-W	☒ HPS-220-W	☒ HPS-220-W
8. MAGNETIC PART (MT)	☒ ASTM SEC 1	☒ ASTM SEC 1	☒ ASTM SEC 1
9. ULTRASONIC (UT)	☒ ASTM SEC 1	☒ ASTM SEC 1	☒ ASTM SEC 1
10. RADIOGRAPHIC (RT)	☒ ASTM SEC 1	☒ ASTM SEC 1	☒ ASTM SEC 1

☒ OTHER TESTS **F. VISUAL - HPS-220-W - TYPE 1**

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G W GEE		PROJECT ENGINEER	H-341658		0	EXCAVATION PLAN	DATE: 01/28/80		BY: [Signature]	REV: 1	DESCRIPTION: ACCESS CAISSON	NO. 31
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① UPPER HATCH COVER
SCALE 1 1/2" = 1'-0"

② LOWER HATCH COVER
SCALE 1 1/2" = 1'-0"

③ LADDER
SCALE 3/4" = 1'-0"

④
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⑤
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