

## **Appendix 2.5DD Boring Logs, Monitoring Well Logs, Piezometer Logs, and Test Pit Logs**

This appendix contains geotechnical boring logs that are the basis for discussion in [Section 2.5](#). The logs are of soil and rock borings and represent a record of subsurface conditions at the Fermi 3 site.

### Log Terminology and Symbols

See ASTM D2487 & D2488 for details on standard practice for description and identification of soils.

#### General

Date Started	- Date boring was started
Date Finished	- Date boring was completed to depth
SPT	- Split Spoon Sample / Standard Penetration Test
TW	- Thin Wall Sample
CA	- California Sample
S	- Sonic Sample
GP	- Geoprobe Sample
NSF	- National Sanitation Foundation
PP	- Pocket Penetrometer Readings
TV	- Torvane Readings
NQ	- Wireline Diamond Core Drill Bit Size
HQ	- Wireline Diamond Core Drill Bit Size
PQ	- Wireline Diamond Core Drill Bit Size
N Value	- Number of blows to drive a standard split spoon sampler 12 inches with a 140-pound weight falling 30 inches
RQD Recovery	- A modified core run recovery in which all pieces of sound core over 4 inches in length are summed
RQD	- The RQD Recovery expressed as a percentage of the total length of the core run
-----	- Approximate or gradational material change in classification column
@	- At
w/	- With
&	- And
WOR	- Weight of rods

WOH	- Weight of hammer
ID	- Inside diameter
OD	- Outside diameter
NR	- Not Recorded
Indurated	- Rock hardened by heat, pressure, or cementation
Healed	- Rock cemented by mineral precipitation, can be either induration or filling of fractures
Poorly Indurated	- Rock that is not hardened into solid rock
Broken	- Rock that is fractured and not recemented, sandy/gravelly in recovered core

#### Weathering

Fresh	- Rock shows no dissolution, loss of strength, or other effects due to weathering (unweathered rock).
Slightly Weathered	- Rock is slightly discolored with a slightly lower strength than unweathered rock.
Moderately Weathered	- Rock is considerably discolored with a slightly lower strength than unweathered rock.
Highly Weathered	- Rock is discolored and weakened so intensely that 2-inch diameter rock cores can be broken readily by hand. Wet strength is usually much lower than dry strength.








#### Bedding

Laminated	- Less than 0.02 feet (0.25 inch)
Thin Bedded	- 0.21 to 0.5 feet (2.5 to 6 inches) in rock
Medium Bedded	- 0.5 to 1.0 foot (6 to 12 inches) in rock
Thick Bedded	- 1.0 to 2.0 feet (12 to 24 inches) in rock
Massive	- Greater than 2.0 feet (24 inches) in rock
Parting	- Less than 0.021 feet (less than 0.25 inch) in rock
Band(ed)	- 0.021 to 0.21 feet (0.25 to 2.5 inches) in rock
Intermingled	- Two lithologies or material types that are mixed in a non-layered manner
Convuluted	- Bedding that is wavy
Contorted	- Bedding that is wavy and/or twisted
Nodule	- Small rounded mass or lump of a mineral within a sedimentary sequence

Discontinuity

- |                                       |   |
|---------------------------------------|---|
| Angle in degrees                      | - Represents the angle in degrees measured from a plane perpendicular to the longitudinal axis of the sample  |
| J, V, B                               | - Represents the type of the discontinuity [J = Joint, V = Vein, B = Bedding]   |
| W, MW, N, VN, T                       | - Represents the aperture of the discontinuity [W = Wide (0.5 to 2.0 inches), MW = Moderately Wide (0.1 to 0.5 inches), N = Narrow (0.05 to 0.1 inches), VN = Very Narrow (<0.05 inches), T = Tight (0 inches)]   |
| Cl, Ca, Ch, Fe, Gy, H, No, Qz, Sd, UK | - Represents the type of infilling in the discontinuity [Cl = Clay, Ca = Calcite, Ch = Chlorite, Fe = Iron Oxide, Gy = Gypsum/Talc, H = Healed, No = None, Qz = Quartz, Sd = Sand, UK = Unknown]  |
| Su, Sp, Pa, Fi, No                    | - Represents the amount of infilling in the discontinuity [Su = Surface Stain, Sp = Spotty, Pa = Partially Filled, Fi = Filled, No = None]  |
| WA, PI, St, Ir                        | - Represents the planarity of the discontinuity [WA = Wavy, PI = Planar, St = Stepped, Ir = Irregular]  |
| Slk, S, SR, R, VR                     | - Represents the roughness of the surface of the discontinuity [Slk = Slickensided (surface has smooth, glassy finish with visual evidence of striations), S = Smooth (surface appears and feels smooth to the touch), SR = Slightly Rough (asperities on the discontinuity surfaces are distinguishable and can be felt), R = Rough (some ridges and side-angle steps are evident; asperities are clearly visible, and discontinuity surface feels very abrasive), VR = Very Rough (near-vertical steps and ridges occur on the discontinuity surface)]  |
| Solutioned                            | - A chemical weathering process in which soluble minerals have been dissolved along a discontinuity. The fracture surface has rounded mineral particles and can be pitted. The rock surface may have a porous appearance. The walls of the fracture no longer match. The surface is discolored and may have evidence of water movement such as small rounded channels and grooves. The fracture surface and the rock mass are discolored and the degree of discoloration decreases away from the fracture. The discolored rock mass is softer than the fresh rock mass. The fracture opening may have clay infilling. |

Symbols Legend

- |   |                              |
|---|------------------------------|
|  | Sonic Sampler                |
|  | Bulk/Discrete sample         |
|  | Standard penetration test    |
|  | Undisturbed thin walled tube |
|  | Rock core                    |
|  | Geoprobe                     |
|  | California sampler           |

The appendix contains the following logs:

Boring Logs

MW-381D  
MW-381S  
MW-383D  
MW-383S  
MW-384D  
MW-384S  
MW-386D  
MW-386S  
MW-387D  
MW-387S  
MW-388S  
MW-390S  
MW-391D  
MW-391S  
MW-391Sa  
MW-393D  
MW-393S  
MW-395D  
MW-395S  
P-382S  
P-385D  
P-385S  
P-389S  
P-392S  
P-396S  
P-397S  
P-398D  
P-398S  
P-399D  
P-399P  
CB-C1  
CB-C2  
CB-C3  
CB-C4  
CB-C5  
CST-AB1  
CT-E1  
EB/TSC-C2  
EB/TSC-E3  
FO-E1  
FWS/ACB-C1  
FWS/ACB-C1a  
HM-E1  
PS-E1

RB-C1  
RB-C2  
RB-C3  
RB-C4  
RB-C4a  
RB-C5  
RB-C6  
RB-C7  
RB-C8  
RB-C9  
RB-C10  
RB-C11  
RB-C12  
RW-C1  
RW-C2  
RW-C3  
RW-C4  
TB-C1  
TB-C2  
TB-C3  
TB-C4  
TB-C5  
TB-C6  
WT-E1

Monitoring Wells Logs

MW-381D  
MW-381S  
MW-383D  
MW-383S  
MW-384D  
MW-384S  
MW-386D  
MW-386S  
MW-387D  
MW-387S  
MW-388S  
MW-390S  
MW-391D  
MW-391S  
MW-393D  
MW-393S  
MW-395D  
MW-395S

Piezometers Logs

P-382S  
P-385D  
P-385S  
P-389S  
P-392S  
P-396S  
P-397S  
P-398D  
P-398S  
P-399D  
CB-C5  
EB/TSC-C2

Test Pit Logs

TP-1