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| PROJECT NUMBER 170039 | BORING NUMBER MW-113 |
| SOIL BORING LOG | |

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| PROJECT : EBT Treatability Study | LOCATION : Memphis Depot |
| ELEVATION : | DRILLING CONTRACTOR : Boart Longyear |
| DRILLING METHOD AND EQUIPMENT USED : Rotasonic rig (4 inch sample casing / 6 inch outer casing) | |
| WATER LEVELS : | START : 04/17/2002 END: 04/17/2002 LOGGER : David Nelson |

| DEPTH BELOW SURFACE (FT) | | | | STANDARD | SOIL DESCRIPTION | COMMENTS |
|--------------------------|---------------|-----|--------|-----------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| | INTERVAL (FT) | | #/TYPE | PENETRATION | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY. | DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. |
| | RECOVERY (%) | | | TEST | | |
| | | | | RESULTS | | |
| | | | | 6"-6"-6" (N) | | Corrected FID (ppm): (Soil headspace) |
| | | 100 | | | Clay, brown, massive, very stiff, dry | 5.0 |
| 5 | | | | | Silty Clay, brown, stiff, organic material, damp | 5.0 |
| 10 | | 100 | | | Silty Clay, brown, stiff, damp | 0.0 |
| 15 | | | | | | 0.0 |
| 20 | | 100 | | | Sandy Clay, fine to coarse grained sand soft | 0.0 |
| 25 | | | | | Sandy Clay, brown to reddish brown, very stiff, damp | 0.0 |
| 30 | | 100 | | | Sandy, Silty Clay, reddish brown, with gray and yellow mottles, stiff fine to medium grained, | 0.0 |
| 35 | | | | | Same as above, becomes red | 0.0 |
| | | | | | Sand, gray to yellowish brown | |
| | | | | | Clay, brown, stiff, organic material | |



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|--------------------------|---------------|-------------------|--|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | | | STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY. | COMMENTS | |
| | RECOVERY (%) | #/TYPE | | | | DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. | Corrected FID (ppm): |
| | | | | | | | |
| | | | | | | | |
| 40 | 100 | | | | Sand (@37 ft), reddish brown, fine grained Sand, yellowish brown to tan, fine grained | 0.0 | |
| 45 | | | | | Sand, brown to reddish/yellowish brown, fine to medium grained, dry to moist, soft to loose | 0.0 | |
| 50 | 100 | | | | Sand, brown to yellowish brown, fine to medium grained, soft, gravel (<1 inch diam) Sand, yellowish brown to buff, fine grained, gravel (15%) Clayey Sand, orange brown, stiff, some gravel | 16.2 | |
| 55 | | | | | Gravelly Sand, gray/buff/brown, gravel (<1inch diam), subangular, soft, some thin clay lenses Gravelly Sand, brown/gray/buff/yellowish brown, fine grained, gravel (<1inch diam) subangular to subrounded @ 56 feet bgs, 3 inch zone of gravel | 0.0 | |
| 60 | 100 | | | | Sand, yellowish brown, fine to coarse grained, soft | 0.0 | |
| 65 | | | | | Sand, yellowish brown, fine grained, soft | 0.0 | |
| 70 | 100 | | | | Same as above, Sand | 0.0 | |



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| RECOVERY (%) | | | | TEST | | |
| #/TYPE | | | | RESULTS | | |
| | | | | 6"-6"-6"-6" (N) | | Corrected FID (ppm): |
| 75 | | | | | | |
| | | | | | Clay, yellowish brown | |
| | | | | | Sand, yellowish brown, fine grained, soft | 0.0 |
| 80 | | 100 | | | | |
| | | | | | Sand, brown/grayish brown, fine to medium grained, cobbles (<30%), 2 inches diam. | 0.0 |
| | | | | | | |
| 85 | | | | | Sand, grey/brown, fine grained, pebbles (3%), soft | 0.0 |
| | | | | | | |
| 90 | | 100 | | | Gravelly Sand, brown to grayish brown, medium grained, soft, dry | 0.0 |
| | | | | | | |
| 95 | | | | | Sand, brown to grayish brown, fine to medium grained, soft, wet | |
| | | | | | Same as above, some clay | Watertable @ approximately 96 feet bgs |
| 100 | | 100 | | | Gravelly Sand, tan, wet | |
| | | | | | Silty, Sandy Clay, orange brown to reddish brown, stiff, mottler | |
| 105 | | | | | Silty, Sandy Clay, orange brown to grey to light reddish brown, wet | |
| | | | | | | |
| 110 | | 100 | | | Clay, grey green, massive | |



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| RECOVERY (%) | | | | TEST | | |
| #/TYPE | | | | RESULTS 6"-6"-6"-6" (N) | | |
| 115 | | | | | Same as above, Clay | |
| | | | | | Boring Terminated @ 115 feet bgs | |
| 120 | | | | | | |
| | | | | | | |
| 125 | | | | | | |
| | | | | | | |
| 130 | | | | | | |
| | | | | | | |
| 135 | | | | | | |
| | | | | | | |
| 140 | | | | | | |
| | | | | | | |