

BOREHOLE NO.: MW-197A TOTAL DEPTH: 186 ft.

#### **PROJECT INFORMATION**

PROJECT: DDMT - Main Installation Remedial Action

PROJECT NO.: 3202-016

SITE LOCATION: MI

PROJECT MANAGER: T. Holmes FIELD STAFF: E. Van Schaik

BOREHOLE STARTED: 8/3/2006 8:00:00 AM BOREHOLE FINISHED: 8/4/2006 8:00:00 AM

#### **DRILLING INFORMATION**

DRILLING CO.: Prosonic DRILLER: A. Marshall

DRILLING METHOD/RIG: Sonic BOREHOLE DIAMETER: 6-in.

GROUND SURFACE ELEVATION: 291.54 (ft, msl) WATER DEPTH/ DATE: 92.96 ft.toc - 8/14/06

**BOREHOLE USE: Monitoring Well** 

NOTES: Measured well depth was 177.4 feet beet below top of casing (177.7 bgs) on 12/12/06. Field notes state well set at 176 feet bgs.

Soil Well Well Depth **Soil Description** Symbol Completion Description CL Clay - reddish brown (5YR 4/4) low plasticity, crumbly, dry 10 **Grouted Annulus** Clay - reddish brown (5YR 4/4) low to medium plasticity, very fine grained sand, dry 20 Clay - yellowish red (5YR 5/6) low plasticity with gray and brown mottling, dry 30

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Danill	Soil Call Bassintian		Well Well	
Depth	Symbol	Soil Description	Completion	Description
_		CL Clay - yellowish red (5YR 5/6) low plasticity, fine to medium gravel, sub rounded, dry		
-		SC Clayey sand - reddish yellow (7.5YR 6/8) very fine grained, trace of fine gravel, dry		
40-		SW Clayey gravelly sand - strong brown (7.5YR 5/6) very fine to fine grained, fine to medium gravel, sub angular to sub rounded, dry		
- 1: - 1: - 1: - 1: - 1: - 1:		SW Gravelly sand - reddish yellow (7.5YR 6/8) fine to medium gravel A/A, dry		
50-		SP Sand - reddish yellow (7.5YR 6/8) fine grained, dry		
-\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		SW Gravelly sand - reddish yellow (7.5YR 7/6) fine grained, fine to medium gravel, sub angular, dry		
]; - :		SW Sand - reddish yellow (7.5YR 7/6) medium grained sand, dry		
60-		SP Sand - reddish yellow (7.5YR 7/8) medium grained sand, dry		

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Depth	Soil Symbol	Soil Description	Well Completion	Well Description
- - -		SW Sand - strong brown (7.5YR 7/8) fine to medium gravel, dry		
- - - - 70-		SW Gravelly sand - strong brown (10YR 5/8) medium grained, fine to medium gravel, sub angular to sub rounded, dry		
- - -		SP Sand - yellow (10YR 7/8) very fine to fine grained, dry  SP		
- - 80-		Sand - reddish yellow (7.5YR 7/8) very fine grained, dry  SP Sand - reddish yellow (7.5YR 6/8) A/A, dry  SP		
- - -		Sand - pink (7.5YR 8/4) very fine grained, dry		
90-	od By: WTP	Sand - brownish yellow (10YR 6/6) very fine grained, dry		

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Depth	Soil Symbol	Soil Description	Well Completion	Well Description
-		<b>SW</b> Gravelly sand - yellow (10YR 7/6) fine grained, fine to medium gravel, A/A, dry	92.96	
-		SW Gravelly sand - yellow (7.5YR 6/6) medium grained , moist		
100-		SW Gravelly sand - brownish yellow (10YR 6/6) medium grained, fine to medium gravel, moist		
-		SP Sand - yellow (10YR 7/6) fine to medium grained, moist		
- - -		SP Gravelly sand - yellow (10YR 7/6) very fine grained, moist		
110-		SW Gravelly sand - yellow (10YR 7/6) fine to medium grained with fine to medium gravel, sub angular to sub rounded, moist		
120-	ad By: WTP			

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Depth	Soil Symbol	Soil Description	Well Completion	Well Description
-1:		SW Gravelly sand - yellow (10YR 7/6) medium grained, fine to coarse gravel (up to cobble size), moist		
- 1: - 1: - 1: - 1: - 1: - 1:		SW Gravelly sand - yellow (10YR 7/6) fine to medium grained, fine to medium gravel, moist		
130-		SW Gravelly sand - yellow (10YR 7/6) very fine to fine grained, fine gravel, moist		
140-		SW Gravelly sand - yellow (10YR 7/6) very fine to fine grained, fine to medium gravel, A/A, moist  SW Gravelly sand - yellow (10YR 7/6) very fine to fine grained, fine gravel, sub angular to sub rounded, moist		
150-		SP Sand - yellow (10YR 7/6) very fine grained, moist  SP Gravel - yellow (10YR 7/6) fine grained to very fine grained sand, moist		

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# FIELD BOREHOLE LOG

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SW Gravelly sand - yellow (10YR 7/6) fine to medium grained, very fine to fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained, fine gravel, A/A, moist  SC Gravelly sand - gray (10YR 6/8) moist CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry	Depth	Soil Symbol	Soil Description	Well Completion	Well Description
Gravelly sand - yellow (10YR 7/6) medium grained, fine gravel 153 - 156-ft., moist  SW Gravelly sand - yellow (10YR 7/6) very fine grained, fine to medium gravel, sub angular to sub rounded, moist  SP Gravel - very pale brown (10YR 7/4) very fine grained, moist  SP Sand - very pale brown (10YR 7/4) very fine grained, moist  GW Sand - yellow (10YR 7/6) fine to medium grained, very fine grained, service fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained, fine gravel, A/A, moist  CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfill  Bentonite Backfill	-		Gravel - yellow (10YR 7/6) fine grained to		Bentonite Plug
Gravelly sand - yellow (10YR 7/6) very fine grained, fine to medium gravel, sub angular to sub rounded, moist  SP Gravel - very pale brown (10YR 7/4) very fine grained, moist  SP Sand - very pale brown (10YR 7/4) very fine grained, moist  GW Sand - yellow (10YR 7/6) fine to medium grained, very fine to fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained sand, moist  SC Gravelly sand - yellow (10YR 7/6) fine grained sand, moist  CL Clay - brownish yellow (10YR 6/8) moist CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfil	-		Gravelly sand - yellow (10YR 7/6) medium		
SP Gravel - very pale brown (10YR 7/4) very fine grained, moist  SP Sand - very pale brown (10YR 7/4) very fine grained, moist  GW Sand - yellow (10YR 7/6) fine to medium grained, very fine to fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained, fine gravel, A/A, moist  SC Gravelly sand - gray (10YR 6/8) moist CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfil	-		Gravelly sand - yellow (10YR 7/6) very fine grained, fine to medium gravel, sub angular		
Sand - yellow (10YR 7/6) fine to medium grained, very fine to fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained, fine gravel, A/A, moist  SC Gravelly sand - gray (10YR 6/8) moist CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfil	160-		Gravel - very pale brown (10YR 7/4) very fine		
Sand - yellow (10YR 7/6) fine to medium grained, very fine to fine grained sand, moist  SW Gravelly sand - yellow (10YR 7/6) fine grained, fine gravel, A/A, moist  SC Gravelly sand - gray (10YR 6/8) moist CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfil	-		Sand - very pale brown (10YR 7/4) very fine		Sand Pack
Gravelly sand - yellow (10YR 7/6) fine grained, fine gravel, A/A, moist  SC Gravelly sand - gray (10YR 6/8) moist CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfil	- 170-		<b>GW</b> Sand - yellow (10YR 7/6) fine to medium		Screened Interval
Gravelly sand - gray (10YR 6/8) moist  CL Clay - brownish yellow (10YR 6/8) medium plasticity, trace of very fine sand, dry  Bentonite Backfil	-		Gravelly sand - yellow (10YR 7/6) fine		
Bentonite Backfil	-		Gravelly sand - gray (10YR 6/8) moist  CL  Clay - brownish yellow (10YR 6/8) medium		
Created By: WTR			placement, made of very fine stand, dry		Bentonite Backfill



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Depth	Soil Symbol	Soil Description	Well Completion	Well Description
-		CL Sandy clay - gray (10YR 5/1) very fine grained sand, medium plasticity, dry  CL Clay - reddish brown (10YR 5/1) low plasticity (stiff),		
2		End of Log	NGEZ-NGEZ-NG	
190-				
200-				
-				
210-				

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