Drilling Driller's Drilling I	Compar Name: Method:	h: 11/3/2011 hy: Stevens I Dan Hunter : Geoprobe od: Direct Pu	Drilling	/3/2011	Northing: 4972984.9689 Easting: 484232.1812 Drilled Depth (feet bgs): 28 Surface Elevation: NA Descriptions By: KAH	Well/Boring ID: AMW-19 Client: Ford Motor Company Location: Saint Paul, MN			
DEPTH (bgs)	Recovery (in)	DIA	USCS Code	Geologic Column	Stratigraphic Description	Well Construction			
- 0 -	20	0.1	SP		(0.0 - 6.8) POORLY GRADED SAND, v. fine to coa medium, little v. coarse sand to v. large pebbles, tr to subangular, well sorted, loose to medium dense moist; silty v. fine to fine sand layer 6.42-6.83 ft, br	. organics, round , dry to slightly			
- 5 -	48	0.1/0.1	SP		(6.8 - 8.0) POORLY GRADED SAND, very fine to t medium, round, well sorted, loose to medium dens brown (10YR 5/3)		 Surface plug - Portland Cement Casing - Black Carbon Steel 		
- 	48	0.1/0.1	SP		(8.0 - 10.7) POORLY GRADED SAND, fine to very medium, little granules to large pebbles, trace orga subangular, well sorted, loose to medium dense, d moist, silty very fine to fine sand layer 10.42 -10.67 4/3)	nics, round to ry to slightly	- Annular Seal - Medium Bentonite Chips		
-			SP SP		(10.7 - 12.0) POORLY GRADED SAND, very fine t trace medium, round, well sorted, loose to medium moist, brown (10YR 5/3), dark brown partings from (12.0 - 16.0) POORLY GRADED SAND, fine to very	dense, slightly 9 ft to 9.42 ft			
		RCAI Vater · Environn			Remarks: bgs: below ground surface NA: Not applicable/not available v: very Coordinates given in UTM Zone 15N				

Date Start/Finish: 11/3/2011 / 11/3/2011 Drilling Company: Stevens Drilling Driller's Name: Dan Hunter Drilling Method: Geoprobe Sampling Method: Direct Push					Northing: 4972984.9689 Easting: 484232.1812 Drilled Depth (feet bgs): 28 Surface Elevation: NA Descriptions By: KAH	Client: Ford M	Well/Boring ID: AMW-19 Client: Ford Motor Company Location: Saint Paul, MN			
DEPTH (bgs)	Recovery (in)	Qid	USCS Code	Geologic Column	Stratigraphic Description	n Well Construction				
- 	45	0.1/0.1			oarse, little granule to large pebbles, trace very large pebbles, ound to subangular, well sorted, loose, dry to slightly moist, rellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4)					
-	48	0.4	SP		(16.0 - 20.0) POORLY GRADED SAND, fine to medium, little very coarse, trace granule to me sorted, medium dense, slightly moist, dark yell 4/4)	dium pebbles, well	Filter Pack - Red Flint #15			
	27		SP		(20.0 - 28.0) POORLY GRADED SAND, coars granules, little small to large pebbles, tr. silt to subangular, well sorted, loose, wet, olive brown very coarse sand seams between 21-26 ft, dar	fine sand, round to n (2.5Y 4/3); fine to	Screen - Sch 40 PVC .01" Slot			
- 	32									
		RCAI			Remarks: bgs: below ground surface NA: Not applicable/not available v: very Coordinates given in UTM Zone 15N					
Project #: I	DE0004	40.0001			Date: 3/4/2013 Created/edited by: Kyle Hulbert Page:					

Drilling (Driller's Drilling N	Compan Name: Vethod:	n: 11/3/2011 ny: Stevens I Dan Hunter Geoprobe nd: Direct Pu	Drilling	/3/2011	Northing: 4972935.2694 Easting: 484235.7607 Drilled Depth (feet bgs): 28 Surface Elevation: NA Descriptions By: KAH	Well/Boring ID: AMW-20 Client: Ford Motor Company Location: Saint Paul, MN			
DEPTH (bgs)	Recovery (in)	DId	USCS Code	Geologic Column	Stratigraphic Description	Well Construction			
- 0 -	25	1.9	SP		(0.0 - 2.0) POORLY GRADED SAND, silt, very fir little to trace organics, round, well sorted, loose, s dry, grayish brown (2.5Y 5/2) (2.0 - 10.0) WELL GRADED SAND WITH GRAVI very coarse, mostly coarse, little granules to sma medium to large pebbles, trace silt/organics, rour poorly sorted, loose, dry, light yellowish brown (2.	lightly moist to EL, very fine to I pebbles, trace d to subangular,			
5	28	0.1/0.1					 Surface plug - Portland Cement Casing - Black Carbon Steel 		
10	46	0.0/0.0	SP		(10.0 - 11.5) POORLY GRADED SAND, very fine round, well sorted, medium dense, slightly moist, brown (2.5Y 6/3) (11.5 - 12.0) SILTY SAND, very fine to fine sand, organics/clay, medium stiff, slightly moist	light yellowish			
		RCAI	sw DIS		(12.0 - 13.8) WELL GRADED SAND WITH GRAV Remarks: bgs: below ground surface NA: Not applicable/not available v: very Coordinates given in UTM Zone 15N	/EL, very fine to	Annular Seal - Medium Bentonite		

Date Start/Finish: 11/3/2011 / 11/3/2011 Drilling Company: Stevens Drilling Driller's Name: Dan Hunter Drilling Method: Geoprobe Sampling Method: Direct Push					Northing: 4972935.2694 Easting: 484235.7607 Drilled Depth (feet bgs): 28 Surface Elevation: NA Descriptions By: KAH	Well/Boring ID: AMW-20 Client: Ford Motor Company Location: Saint Paul, MN		
DEPTH (bgs)	Recovery (in)	DIA	USCS Code	Geologic Column	Stratigraphic Description		Well Construction	
15	43	0.0/0.0	SP		very coarse, mostly coarse, little granules to small medium to large pebbles, trace silt/organics, roum poorly sorted, loose, slightly moist, light yellowish (13.8 - 15.2) POORLY GRADED SAND, very fine round, well sorted, medium dense, slightly moist, brown (2.5Y 6/3) (15.2 - 16.0) SANDY SILT, little clay, trace organia moist, no to low plasticity, no dilatency, very fine t at 15.3 ft, trace silt, medium dense, slightly moist,	Chips		
-	43	0.1/0.1	SW SP ML SP		(2.5Y 3/3) (16.0 - 17.1) WELL GRADED SAND WITH GRAV very coarse, mostly coarse, little granules to smal medium to large pebbles, trace silt/organics, roun poorly sorted, loose, slightly moist, light yellowish (17.1 - 18.5) POORLY GRADED SAND, very fine round, well sorted, medium dense, slightly moist, brown (2.5Y 6/3) (18.5 - 19.4) SANDY SILT, little clay, trace organic	EL, very fine to pebbles, trace d to subangular, brown (2.5Y 6/4) to fine, trace silt, ight yellowish cs, dense, slightly	Filter Pack - Red	
20 - -	24		SW		 moist, no to low plasticity, no dilatency, very fine to seam, dense, slightly moist, very dark brown (10Y) (19.4 - 20.0) POORLY GRADED SAND, fine to comedium, little very coarse, trace granules, round to well sorted, loose, slightly moist (20.0 - 21.7) WELL GRADED SAND WITH GRAV sand to granules, mostly medium to coarse sand, pebble, trace medium pebbles/silt, round to subar sorted, medium dense, wet (21.7 - 24.0) POORLY GRADED SAND, fine to comedium, little very coarse to granules, trace small reverse to granules, trace small r	R 2/2) arse, mostly o subangular, EL, very fine little small gular, poorly arse, mostly	Flint #15 Screen - Sch 40 PVC .01" Slot	
- 	21		SW		round to subround, well sorted, loose, wet (24.0 - 28.0) WELL GRADED SAND WITH GRAV sand to granules, mostly coarse to granules, little medium pebbles, trace large pebbles and silt; rou dense, wet	small pebbles to		
					Remarks: bgs: below ground surface NA: Not applicable/not available v: very Coordinates given in UTM Zone 15N			

Project Ford TCAP		Project No.	DE000440,	000 Page	1	of 1	
Site LocationSt Paul, M	N			Date	ululu		
Site/Well No. Amv - (ĩ(Replicate No.	-	Code I	No.		
Weather Synap 57	Us	Sampling Time:	Begin 1125	End	1155	<u>ST</u> 1145	
Evacuation Data		E	eld Paramete	rs			
Measuring Point	ТОС	Co	olor	brown			
MP Elevation (ft)	707.84	00	dor	pore	7		
Land Surface Elevation (ft)	705,60	Ap	opearance	furlia	(
Sounded Well Depth (ft bm	p) 26.55	pH	┤ (s.u.)	aller	Capita	7.14	
Depth to Water (ft bmp)	20.39	Co	onductivity (mS/cm)	jo	1.22		
Water-Level Elevation (ft)	687.21	7.	(µmhos/cm)	· · · · ·	1		
Water Column in Well (ft)	6.16	Tu	urbidity (NTU)	MA	1000 +		
Casing Diameter/Type	2" Block Carbon	steel Te	emperature (°C) <u>10.77</u>			
Gallons in Well	0.9856	Di	ssolved Oxyge	en (mg/L)	11.96)	
Gallons Pumped/Bailed Prior to Sampling	3× 5× 2.9568 4.929	8	RP (mV)	-13			
Sample Pump Intake Setting (ft bmp)	N. A .		ampling Metho emarks	odYSI 55	56		
Purge Time	begin 1115 end 112	5	-				
Pumping Rate (gpm)	N.A.						
Evacuation Method	bailer						
Constituents Sampled	Container	Description	Num	ber	Preservative		
VOCS	40 m	LVOA	00	a 3	HCI	Ū.	
PAtts		omber		2	None		
TAL Metalr, Disso		onl plastic		<u>i</u>	HN02		
DRO		awber		2	Hei		
GRO	+-t/ts	yon W	A -	2	HU		
Sampling Personnel	WEETNIK ICH						
Well Casing							
Gal./Ft. 1-¼" = 0.06 1-½" = 0.09		= 0.37 4" = 0.6 " = 0.50 6" = 1.4					
bmp below measuring point °C Degrees Celsius ft feet gpm Gallons per minute mg/L Miligrams per liter	ml mililiter mS/cm Milisiemens msl mean sea- N/A Not Applica NR Not Record NM Not Measu	evel able led	PVC I s.u. S umhos/cm I	Nephelometric T Polyvinyl chloride Standard units Micromhos per c Volatile Organic	entimeter		

Project Ford TCAP		Project No.	DE000440.	. Ooo Pag	e <u>1</u>	_of <u>1</u>	
Site Location St Paul, M	N			Dat	Date 11/11/11		
Site/Well No. <u>AMw - 1</u>	0	Replicate No.	DUP-01	Coc	le No.	-	
Weather Svory, 5	ზ <u>ა</u>	Sampling Time	e: Begin <u>121</u>	<u>lo</u> End	1245	ST 1230	
Evacuation Data			Field Paramet	ers			
Measuring Point	тос		Color	brown	١		
MP Elevation (ft)	710.02		Odor	/	None		
Land Surface Elevation (ft)	707.58		Appearance	tub	d		
Sounded Well Depth (ft br	ip) 25.73		pH (s.u.)	- 7.	00		
Depth to Water (ft bmp)	22.60		Conductivity (mS/cm)	1.	49		
Water-Level Elevation (ft)	687.42		(µmhos/cm	1) 🥏	~		
Water Column in Well (ft)	3.33		Turbidity (NTU))	999		
Casing Diameter/Type	2" Black Carb	on steel	Temperature (°	°C) [′	2.60		
Gallons in Well	0:5323		Dissolved Oxy	gen (mg/L)	1183		
Gallons Pumped/Bailed Prior to Sampling	3x Sx 1.5984 2.66	u	ORP (mV)	13	7		
	113134 6160		Sampling Meth	nod <u>YSI</u>	556	dine_	
Sample Pump Intake Setting (ft bmp)	N.A.		Remarks			1	
Purge Time	begin 1150 end 17	220					
Pumping Rate (gpm)	N.A.						
Evacuation Method	Beiler						
Constituents Sampled	Container	Description	Nur	nber	Preservative		
vocs	40	we von		3	HCI		
DRO		auber		2	HCI		
GRO	40	m von		2	HU		
PAHS	1~1	- onber		2	Non		
TAL metals disso	ived soo	und plastic		1	HNO,		
Sampling Personnel	MOTINK KH	1			2		
Well Casing							
Gal./Ft. 1-¼" = 0.06 1-½" = 0.09			0.65 1.47				
bmp below measuring point °C Degrees Celsius ft feet gpm Gallons per minute mg/L Miligrams per liter		able ded	NTU PVC s.u. umhos/cm VOC	Polyvinyl chlo Standard unit Micromhos po	S		

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Project Ford TCAP	Project No.	DE000440.0002		<u>1</u>	of <u>1</u>
Site Location St. Paul, MN			Date	<u></u>	
Site/Well No. Anwi-19	Replicate No.	-	Code		
Weather <u>Sum, 10/200</u>	Sampling Time:	Begin <u>1155</u>	End	(150	57-1225
Evacuation Data	Fi	ield Parameters			
Measuring Point TOC	Co	olor	hown	turbid	
MP Elevation (ft) 707.84		dor	decon		
Land Surface Elevation (ft) 705.60	Ap	ppearance	Artic	(Weng)	
Sounded Well Depth (ft bmp) 24.74	pł	H (s.u.)	6.72	• 3	
Depth to Water (ft bmp) 20,32	Co	onductivity (mS/cm)	1.22		
Water-Level Elevation (ft) 687.52		(µmhos/cm)			
Water Column in Well (ft)	Τι	urbidity (NTU)	946		
Casing Diameter/Type 2" Steel (Li	ack carbon) To	emperature (°C)	2.12		
Gallons in Well 1.0172	Di	issolved Oxygen (I	ng/L) 2.0	00	
Gallons Pumped/Bailed 5% 5% Prior to Sampling 3.08 \$.136		RP (mV)	72		
Sample Pump Intake Setting (ft bmp) N.A.		ampling Method emarks	Horiba	10-52	
Purge Time begin <u>1140</u> end <u>11</u>	55				
Pumping Rate (gpm)		-			
Evacuation Method			_		
Constituents Sampled Container	Description	Number		Preservative	
PAH1-liter a	mber	2		None	
VOC 40mL V	OA	3		HCI	
DRO 1-liter a	mber	2		HCI	
GRO 40mL V	OA	2		HCI	
TAL Metals (Dissolved) 14	The Source	_ 1		HNO3	
Sampling Personnel KH	29				
Well Casing Volumes Gal./Ft. 1-1/4" = 0.06 2" = 0.16 3"	= 0.37 4" = 0.6	65			
	2'' = 0.50 $6'' = 1.4$				
bmpbelow measuring pointmlmililiter°CDegrees CelsiusmS/cmMilisiemenftfeetmslmean sea-gpmGallons per minuteN/ANot Applicmg/LMiligrams per literNRNot RecordNMNot Measure	level able ded	PVC Poly s.u. Stan umhos/cm Micro	vinyl chlorid dard units omhos per c		

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Project Ford TCAP		Project No. DE000440.0002		0002 Page			
Site LocationSt. Paul, MM	N			Date	1/17/12		
Site/Well No. Anw-20	2	Replicate No.	DUP-02	Code N	No.		
Weather Sunny 10	1201	Sampling Time:	Begin <u>1345</u>	End	1430	<u>ST</u> 1415	
Evacuation Data		Fi	eld Paramete	ers			
Measuring Point	ГОС	C	olor	brown	_		
MP Elevation (ft)	710.02	0	dor		None		
Land Surface Elevation (ft)	707.58	A	ppearance	turbld			
Sounded Well Depth (ft bmp) 26.93	pł	⊣ (s.u.)	6.84			
Depth to Water (ft bmp) _	22.54	C	onductivity (mS/cm)	10.07	1,24		
Water-Level Elevation (ft)	687.48		(µmhos/cm)		-		
Water Column in Well (ft)	4.39	Ti	urbidity (NTU)	1000 +			
Casing Diameter/Type	2" steel	(black corbon) To	emperature (°(C)	9 44 6	257	
Gallons in Well	0,7024		issolved Oxyg	en (mg/L)	2.31		
Gallons Pumped/Bailed Prior to Sampling	3× 5× 2.10 3.517	2	RP (mV)	- AL	63		
Sample Pump Intake		Sampling Method		od <u>Horiba</u>	U-52		
Setting (ft bmp)	N.A.	R	emarks				
Purge Time t	pegin 1335 end 134	45					
Pumping Rate (gpm)	NA						
Evacuation Method	boiling		3 				
Constituents Sampled	Container	Description	Num	ıber	Preservative		
РАН	1-liter a	mber	2		None		
VOC	40mL V	OA	3		HCI		
DRO	1-liter a	mber	2		HCI		
GRO	40mL V	'OA	2		HCI		
TAL Metals (Dissolved)	1-iller a	mber 500 ~L	1		HNO3		
Sampling Personnel	КН						
Well Casing V		- 0.27 4" - 0.4	25				
Gal./Ft. 1-¼" = 0.06 1-½" = 0.09		= 0.37 4" = 0.6 2'' = 0.50 6" = 1.4					
bmp below measuring point °C Degrees Celsius ft feet gpm Gallons per minute mg/L Miligrams per liter	ml mililiter mS/cm Milisiemen msl mean sea- N/A Not Applic NR Not Record NM Not Measu	able ded	PVC s.u. umhos/cm	Nephelometric T Polyvinyl chloride Standard units Micromhos per c Volatile Organic	entimeter		