# MEMORANDUM



File - Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson)						
York Facility Remediation Trust Fund						
Rodney G. Myers/Emily M. Wade (SAIC)						
February 10, 2011						
Demolition of the Thermal Fume Oxidizer (TFO), Groundwater Treatment System						
Sharon Fisher (Harley-Davidson), Ralph Golia (AMO Environmental Decisions), Nicki Fatherly (USACE, Baltimore District)						

The purpose of this memorandum is to summarize the demolition of the TFO. An illustration of the TFO before it was demolished is shown on Figure 1, below.



Figure 1. Photo of Thermal Fume Oxidizer before demolition (arrows show direction of off-gas flow).

#### SUMMARY

Abandonment and removal/salvage of the TFO (and associated Lower Flammability Limit (LFL) monitoring equipment) was recommended, due to deterioration and resultant airflow restriction found in the heat exchanger unit; uncertainty regarding the long term reliability of other TFO components; and the high cost of heat exchanger replacement. The TFO was in operation since 1994 (for over 15 years) and has exceeded its life expectancy. Replacement was not recommended, due to availability of the existing granular-activated carbon (GAC) for off-gas VOC treatment.

### **DEMOLITION OF THE TFO**

Prior to the demolition activities, SAIC removed all monitoring and electrical equipment and secured the control panel from all electrical sources. Wiring was pulled from the active TFO components to the TFO control panel and disconnected. SAIC will attempt to return the Lower Flammability Limit (LFL) meter for refund or resale. Unused portions of compressed hydrogen cylinders were returned to the manufacturer.

SAIC subcontracted with Stewart & Tate, Inc. to remove the remaining TFO and LFL equipment (with the exception of the moisture knock-out tank, blower and associated control panel). York Waste Disposal was used for transportation and disposal of non-salvageable construction/demolition waste and refractory material, using existing Harley-Davidson waste profiles. Consolidated Scrap Resources (CSR) was contacted and scheduled for salvage of metallic scrap from the TFO to include carbon steel, stainless steel, aluminum, and insulated copper wiring. CSR provided individual roll-off containers for salvage/credit of each type of scrap metal.

The demolition activities began on September 28, 2010. Stewart & Tate (S&T) disassembled, removed, and segregated metal for salvage/scrap or for disposal of all TFO and LFL components. The existing moisture knock-out tank and TFO blower were retained, in the event that future or additional off-gas scrubbing is required for the GWTS. The LFL utilities and compressed gas supply pad (block wall and fencing) was removed and disposed as construction/demolition waste. Photographs of the demolition process are included in Appendix A. Items segregated for salvage (via Consolidated Scrap Resources [CSR]) included exterior aluminum sheeting, stainless steel (from the heat exchanger); carbon steel (from structures, pipe, etc); and wiring. Items for disposal included all refractory, fire brick and insulation; non-metalic ductwork; and miscellaneous construction debris (block, etc). Stewart & Tate completed the demolition work on October 29, 2010.

CSR issued a salvage credit settlement directly to the Trust Fund for the amount of \$20,470.78 in accordance with current salvage rates and net weights shipped of each salvage material. The credit settlement for the salvaged material is included in Appendix B. The York waste invoice for disposal of the refractory, insulation, and other construction/demolition debris (two loads) totaled \$666.16, which is included in Appendix C.

### COMPLETION OF TFO ABANDONMENT

Following demolition, Stewart & Tate restored the surrounding area and installed a guardrail along the east side of the former TFO pad. All wall penetrations were sealed. SAIC completed the removal and securing of the electrical control panel components, and exterior conduit connections. Wiring and control capacity was retained for the moisture knock-out tank pump and monitoring sensor; and for the

TFO blower. The exterior disconnect switch for the TFO blower was secured in the off position with a pad lock and lock-out tag. The former waste air valve actuator was disconnected, and secured in the closed position with a manual valve. In addition, the discharge opening to the former TFO blower was sealed with a PVC cap.

All off-gas treatment for the groundwater treatment system (GWTS) is now facilitated solely via the GAC unit for VOC treatment. A chemical sequestering agent injection system was added to address scale buildup on the PTA packing, and should help to eliminate the need for any future acid washing of the PTA. Figure 2 illustrates the current groundwater treatment system flow diagram and schematic.



#### GROUNDWATER AND SVE TREATMENT SYSTEM SCHEMATIC



# APPENDIX A Photographs



TFO before demolition.



S&T removing the bolts in the flexible joint.



Crane used to lift stacks.



TFO western stack lying on the ground looking at the refractory bricks.



TFO burner on left side of stack and insulation can be seen on the right side of the stack.



TFO recuperator rods are being removed for scrap. The near side is carbon steel and the far side is stainless steel. These corroded rods restricted air flow through the TFO.



The bottom of the recuperator where the air passed from the carbon steel to the stainless steel rods.



Looking east inside the recuperator once the rods were removed.



View of the east stack of the TFO (effluent side) being lifted off.



TFO looking east. Both stacks, the recuperator, and the platform was removed.



The eastern stack is on the ground for demolition.



Looking east at the TFO pad after the TFO and hydrogen storage area were removed.



Looking northeast at the TFO pad after the TFO was removed.

## APPENDIX B CSR Settlement Credit Statement

SETTLEMENT



PO BOX 389 YORK, PA 17405

Accoun	t: YORK102 YORK FACIL C/O RALPH	-ITY REMED TRUST F GOLIA/AMO ENVIROI						11/10/2010
	P O BOX 410	0						
	DANBORO	PA	18916					Page 1 of 1
Invoice #	Recv Date	Description		Comment	Reference	Net	Price / UM	Amount
37507	10/01/2010	UNPREPARED STEE	EL/SHEA		37507	7,980	200.00 / GT	712.50
1207685	10/07/2010	UNPREPARED STEE	EL/SHEA		1207685	8,020	200.00 / GT	716.07
1208726	10/08/2010	18/8 PREPARED SS	SOLIDS		1208726	10,180	0.90 / LB	9,162.00
1208726	10/08/2010	18/8 UNPREPARED	SS SOLI		1208726	8,040	0.85 / LB	6,834.00
1208870	10/08/2010	UNPREPARED STEE	EL/SHEA		1208870	7,140	200.00 / GT	637.50
1209894	10/11/2010	UNPREPARED STEE	EL/SHEA		1209894	6,360	200.00 / GT	567.86
1210520	10/12/2010	UNPREPARED STEE	EL/SHEA		1210520	6,720	200.00 / GT	600.00
1211644	10/13/2010	UNPREPARED STEE	EL/SHEA		1211644	6,280	200.00 / GT	560.71
1211644	10/13/2010	UNPREPARED STEE	EL/SHEA		1211644	3,300	200.00 / GT	294.64
1215085	10/14/2010	LOW GRADE INSUL	ATED CC		1215085	17	0.90 / LB	15.30
1215085	10/14/2010	18/8 PREPARED SS	SOLIDS		1215085	67	0.90 / LB	60.30
1215085	10/14/2010	PAINTED ALUMINUM	I SIDING		1215085	516	0.60 / LB	309.60
					Totals	64,620		20,470.48

Check #: 224335

saction	Туре	Tran-D	ate	Comment					Amoun
			Refer	to enclosed st	atement for	additional payr	nent detail.		
				5. <sup>1</sup> a - 3	1. J. S. 1.	. :	•		
Vendor: YOF	RK102		ORK F	ACILITY REM	ED TRUST	FUND		Amount:	20,470,4
	HIS DOCUME	NT CONTAIN:	SULTRAVIC	DLET FIBERS, A CHEMI	CAL VOID STAIN F	FEATURE, BLEFD THRU	MICH NUMBERS A	ND A WATERMARK OF	THE BACK
SR	ÀÌ					HA	MAT BAN RRISBURG, PENN	K NSYLVANIA	313
nsolidated S	crap Re	sources,	Inc.						
YORK,	PA 17405-0	5. BOX 389 389				CHECK #	DA 11/10/20	TE **********	AMOUNT
							11110/20		20,470.40
		PΔ	YEXA	TI V**********	*****20 470			ENTS	
	_	17			20,470	DOLLANG	110 .40 CI	LINIO	9 - E. I
PAY TO 1	THE ORDI	ER OF				Ċ.	2 SONACTIDAT	TED SCRAP RESOURC	ES, INC.
YORK FACILITY REMED TRUST FUND					ZIT				
P O BOX	410	AVAMO		JN .		;	lin	reh d	hue .
DANBOR	RO, PA 1	8916					VOID A	FTER 180 DAYS	3
		• 2 2 4 3	35"	03130	29554	884	16752#P		

Check Date: 11/10/2010

CONSOLIDATED SCRAP RESOURCES, INC.

## **APPENDIX C York Waste Invoice**

	WALTE DIEDOSAL	1							
	ST REPUBLIC	BENHAM AN SAIC COMPANY	Invoice Page 1 of 2						
	3730 Sandhurst Drive York, PA 17406								
	Account Summary	Current Invoice Charges							
	Account Summary	Benham/Harley Davidson Bldg #41 (L1) PO SUBK#450MR00188							
	Invoice Date October 31, 2010	1 - Rolloff (30 Yd) On Call Service (S1) Construction/Demolition Debris							
	Invoice Number 0611-000443928 Previous Balance \$0.00 Payments/Adjustments \$0.00	Date         Description         Reference         Quantity           10/27         Disposal/Recycling         10/478         3.7900	Unit Price Amount Tons \$181.92						
	Unpaid Balance \$0.00 Current Invoice Charges \$666.16	Receipt Number 30940 . 10/27 Basic Service Ju/Jm 1.0000 Receipt Number 30940	\$95.00 \$95.00						
		1 - Rolioff (30 Yd) On Call Service (S2) Special Waste							
	Pay This Amount	Date Description Reference Quantity	Unit Price Amount						
	\$666.16	10/27 Disposal/Recycling 104578 6.1300 Receipt Number 30941	Tons \$294.24						
	Due By: 11/20/10	10/27 Basic Service Ju/Jm 1.0000 Receipt Number 30941	\$95.00 \$95.00						
	Contact Information	Current Involce Charges	\$666.16						
	Customer Service (717) 845-155								
	Customer Service (800) 210-967								
	Important Information	UFALLS AN 88							
	FOR YOUR CONVENIENCE TWO ALTERNATIVE	450 ME Dave	OK. OI						
	METHODS TO PAY: WWW.DISPOSAL.COM OR PAY BY PHONE @ 877-892-9729 BOTH METHOD	Parla	1 athyor						
	HAVE NO FROCESSING FEE	11/8/10 1	most &						
			11/8/10						
			1						
		TAURRENT	en E DI YE						
	To pay on-line or sign up for convenient auto pay, go to:	666.16 0.00 0.00	0.00						
	A division of BEPLIBLIC SERVICES	A disclop of Electronic SA     Visit our websits, www.disposal.com to make your payment electronically							
	Visit us at www.disposal.com	<ul> <li>Please see reverse side for terms and conditions</li> </ul>							
1									
	WASTE DISPOSAL	Please Return This Portion Pay This Amount	\$666.16						
	STREPUBLIC	With Payment Invoice Date	October 31, 2010						
	3730 Sandhurst Drive	Invoice Number Payment Due Date	0611-000443928 November 20, 2010						
Ŕ	York, PA 17405								
	Return Service Requested 003215-000001-003215 2067810 2240	T03 S 3							
	BENHAM AN SAIC CO	IPANY Make Checks Payable To:							
	SUBK#450MR00188		mhhaldabhalalada OSAL #611						
	HARRISBURG PA 171	2-2739 PO BOX 9001099							
		LOUISVILLE, KY 40	290-1099						

3061101051670000004439280000666160000666161