

03-Dec-2018

Tim Sullivan U.S. Steel - Gary Works 1 North Broadway Mail Station 70 Gary, IN 46402

Re: USS-Midwest Foaming Response

Work Order: 18111844

Dear Tim,

ALS Environmental received 1 sample on 30-Nov-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Amanda Grzybowski Electronically approved by: Amanda Grzybowski

Amanda Grzybowski Project Manager

Environmental 💭

Report of Laboratory Analysis

Certificate No: IN: C-MI-08

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

www.alsglobal.com

Client:	U.S. Steel - Gary Works	
Project:	USS-Midwest Foaming Response	Work Order Sample Summary
Work Order:	18111844	work order Sumple Summary

Lab Samp ID Client Sample ID	<u>Matrix</u>	Tag Number	Collection Date	Date Received	<u>Hold</u>
18111844-01 Outfall 004 with Foaming	Aqueous		11/29/2018 12:35	11/30/2018 08:30	

Date: 03-Dec-18

Date: 03-Dec-18

Client:	U.S. Steel - Gary Works
Project:	USS-Midwest Foaming Response
Work Order:	18111844

Case Narrative

Batch R250367, Method GCFID_8015_W, Sample 18111844-01B: No diesel range organic compounds apparent in sample chromatograph.

Client:	U.S. Steel - Gary Works	
Project:	USS-Midwest Foaming Response	V
Sample ID:	Outfall 004 with Foaming	
Collection Date:	11/29/2018 12:35 PM	

Work Order: 18111844 Lab ID: 18111844-01 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ORGANIC COMPOUNDS BY GC-FID BatchID: R250367		S	W8015M				Analyst: RP
Fingerprint	Complete		0		mg/L	1	11/30/2018
ANIONIC SURFACTANTS AS MBAS BatchID: R250292		A	5540C-11				Analyst: JSH
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	11/30/2018 10:00
OIL AND GREASE BatchID: R250344		E	1664A				Analyst: BTG
Oil and Grease	2.5	J	0.97	5.0	mg/L	1	11/30/2018 10:30

Data Path : C:\msdchem\1\data\181130DR\ Data File : 30NOV26.d Signal(s) : FID1A.ch Acq On : 30 Nov 2018 3:48 pm Operator : RJP Sample : 18111844-01B Misc : FINGERPRINT ALS Vial : 20 Sample Multiplier: 1 Integration File: EVEA.e Quant Time: Nov 30 17:37:55 2018 Ouant Method : C:\msdchem\1\methods\ALLF180910M.M Quant Title : QLast Update : Tue Sep 11 11:51:22 2018 Response via : Initial Calibration Integrator: ChemStation Volume Inj. : Signal Phase : Signal Info : R.T. Response Conc Units Compound System Monitoring Compounds 0.000 0 N.D. ug/mL 0.000 0 N.D. ug/mL 0.000 0 N.D. ug/mL 0.000 0 N.D. ug/mL Recovery = 0.00% 1) S Nitrobenzene-d5 2) S 2-Fluorobipehenyl 2) S 2-Fluorobipehenyl 3) S 2,4,6-Tribromophenol 4) S 4-Terphenyl-d14 Spiked Amount 50.000 Target Compounds 0 N.D. ug/mL 0 N.D. ug/mL 0 N.D. ug/mL 0 N.D. ug/mL

 5) H
 DRO (C10-C20)

 6) H
 ORO (C20-C34)

 7) H
 DRO (C10-C28)

 8) H
 ORO (C28-C40)

 0.000 0.000 0.000 0.000 9) H ORO (C20-C40) N.D. ug/mL 0.000 0 10) H ORO (C28-C35) 0.000 0 N.D. uq/mL
 0
 N.D.
 ug/mL

 0
 N.D.
 ug/mL
 11) H ERO (C10-C36) 0.000 0.000 0.000 0.000 12) H ERO (C8-C36) 13) H DRO (C9-C20) 14) H ERO (C8-C40) 15) H DIESEL (IOWA) 16) H OIL (IOWA) 0.000 0.000 _____

(f)=RT Delta > 1/2 Window

(m)=manual int.

```
Data Path : C:\msdchem\1\data\181130DR\
Data File : 30NOV26.d
Signal(s) : FID1A.ch
         : 30 Nov 2018
Acq On
                            3:48 pm
Operator : RJP
Sample : 18111844-01B
Misc
          : FINGERPRINT
ALS Vial : 20
                  Sample Multiplier: 1
Integration File: EVEA.e
Quant Time: Nov 30 17:37:55 2018
Quant Method : C:\msdchem\1\methods\ALLF180910M.M
Quant Title
             :
QLast Update : Tue Sep 11 11:51:22 2018
Response via : Initial Calibration
Integrator: ChemStation
```

Volume Inj. : Signal Phase : Signal Info :



Client:	U.S. Steel - Gary Works	OUALIFIERS
Project:	USS-Midwest Foaming Response	A CDONVMS LINITS
WorkOrder:	18111844	ACKON IMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
а	Analyte is non-accredited
В	Analyte detected in the associated Method Blank above the Reporting Limit
Е	Value above quantitation range
Н	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
0	Sample amount is > 4 times amount spiked
Р	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
Х	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.
<u>Acronym</u>	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)

MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
А	APHA Standard Methods
D	ASTM

Method Detection Limit

Method Blank

E EPA

MBLK

MDL

SW SW-846 Update III

Units Reported Description

mg MBAS/L Milligrams Methylene Blue Active Substances per Liter

mg/L Milligrams per Liter

Client:U.S. Steel - Gary WorksWork Order:18111844Project:USS-Midwest Foaming Response

QC BATCH REPORT

Batch ID: R250292	Instrument ID WET	CHEM		Method	d: A5540	C-1 1	1					
MBLK	Sample ID: MBLK-R250	292				ι	Jnits: mg l	MBAS/L	Ana	lysis Date:	11/30/2018	10:00 AM
Client ID:		Run ID:	WETCH	IEM_18113	OC	Se	eqNo: 541(909	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants	as MBAS	U	0.40									
LCS	Sample ID: LCS-R25029	2				ι	Jnits: mg l	MBAS/L	Ana	lysis Date:	11/30/2018	10:00 AM
Client ID:		Run ID	WETCH	IEM_18113	OC	Se	eqNo: 541(906	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants	as MBAS	0.4	0.40	0.5		0	80	75-125		0		
DUP	Sample ID: 18111815-01	IB DUP				ι	Jnits: mg I	MBAS/L	Ana	lysis Date:	11/30/2018	10:00 AM
Client ID:		Run ID	WETCH	IEM_18113	OC	Se	eqNo: 541(0911	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants	as MBAS	U	0.40	0		0	0	0-0	(0.1	0 25	
The following sam	ples were analyzed in this	batch:	18 01	A								

Client:U.S. Steel - Gary WorksWork Order:18111844Project:USS-Midwest Foaming Response

QC BATCH REPORT

Batch ID: R250344	Instrument ID O&G			Method	E1664	Α							
MBLK	Sample ID: MBLK-R2503	44				ι	Jnits: mg/L			Analys	sis Date:	11/30/2018	10:30 AM
Client ID:		Run ID: 0	&G_18	31130A		Se	eqNo: 5411	745	Prep Dat	e:		DF: 1	
Analyte	F	Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD I Valu	Ref Ie	%RPD	RPD Limit	Qual
Oil and Grease		2	5.0										J
LCS	Sample ID: LCS-R250344	4				ι	Jnits: mg/L			Analys	sis Date:	11/30/2018	10:30 AM
Client ID:		Run ID: 0	&G_18	31130A		Se	eqNo: 5411	743	Prep Dat	e:		DF: 1	
Analyte	ਸ	Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD I Valu	Ref Ie	%RPD	RPD Limit	Qual
Oil and Grease		35.4	5.0	40		0	88.5	78-114		0			
MS	Sample ID: 18111576-010	CMS				ι	Jnits: mg/L			Analys	sis Date:	11/30/2018	10:30 AM
Client ID:		Run ID: 0	&G_18	31130A		Se	eqNo: 5411	703	Prep Dat	e:		DF: 1	
Analyte	Я	Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD I Valu	Ref Ie	%RPD	RPD Limit	Qual
Oil and Grease	:	39.88	5.0	40	1.12	24	96.9	78-114		0	I		
DUP	Sample ID: 18111576-020	C DUP				ι	Jnits: mg/L			Analys	sis Date:	11/30/2018	10:30 AM
Client ID:		Run ID: 0	&G_18	31130A		Se	eqNo: 5411	706	Prep Dat	e:		DF: 1	
Analyte	Я	Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD I Valu	Ref ie	%RPD	RPD Limit	Qual
Oil and Grease		U	5.0	0		0	0	0-0	().2105		0 18	
The following samp	les were analyzed in this	batch:	18 01	111844- A									

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Work Order			Project Numb	ğ		
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(ALS) Environmental	Ņ	l	coc ID: 29	108			
			ALS Project Man	lager:	ALS	Work Order #: {	8111844
Customer Informatio	u.		Project Information		Parameter/Me	thod Request for Ai	nalysis
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Fax		Fax		-			
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Note: 1. Any changes must be made in writing	e-nesus e-neau	O-Na2003 O-N	warrsou, /-Orner 8-4-0 9-5 writted to ALS Environmental	- SUI			· · ·

Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 The Chain of Custody is a legal document. All information must be completed accurately.

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Sample Receipt Checklist

Client Name: USS-GARY		Date/Time Received: <u>30-Nov-18 00:00</u>				
Work Order: 18111844		Received b	y: <u>I</u>	<u>)S</u>		
Checklist completed by June Shaw 3	30-Nov-18 Date	Reviewed by:	Amanda G eSignature	Irzybowsk	ki 30-Nov-1 Date	18
Matrices: Aqueous Carrier name: ALSHN					I	
Shipping container/cooler in good condition?	Yes 🗸	No	Not Preser	ıt 🗌		
Custody seals intact on shipping container/cooler?	Yes	No 🗌	Not Preser	nt 🗸		
Custody seals intact on sample bottles?	Yes	No 🗌	Not Preser	it 🔽		
Chain of custody present?	Yes 🗸	No 🗌				
Chain of custody signed when relinquished and received?	Yes 🔽	No 🗌				
Chain of custody agrees with sample labels?	Yes 🗸	No 🗌				
Samples in proper container/bottle?	Yes 🗸	No 🗌				
Sample containers intact?	Yes 🗸	No 🗌				
Sufficient sample volume for indicated test?	Yes 🗸	No 🗌				
All samples received within holding time?	Yes 🗸	No 🗌				
Container/Temp Blank temperature in compliance?	Yes 🗸	No 🗌				
Sample(s) received on ice? Temperature(s)/Thermometer(s):	Yes ✔ <u>4.0/4.0 c</u>	No 🗌	SR2]	
Cooler(s)/Kit(s):]	
Date/Time sample(s) sent to storage:	11/30/201	11/30/2018 8:37:29 AM				
Water - VOA vials have zero headspace?	Yes	No	No VOA vials s	ubmitted		
Water - pH acceptable upon receipt?	Yes	No 🗌	N/A			
pH adjusted? pH adjusted by:	Yes _	No 🗌	N/A]	

Login Notes:

Client Contacted:	Date Contacted:	Person Contacted:
Contacted By:	Regarding:	
Comments:		
CorrectiveAction:		
		SI