



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,

A handwritten signature in black ink that reads "Amanda Grzybowski".

Electronically approved by: Amanda Grzybowski

Amanda Grzybowski  
Project Manager

### Report of Laboratory Analysis

Certificate No: IN: C-MI-08

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Environmental ALS Environmental logo icon consisting of a stylized green and blue shape.

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

**Work Order Sample Summary**

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

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

**Case Narrative**

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Batch R250367, Method GCFID\_8015\_W, Sample 18111844-01B: No diesel range organic compounds apparent in sample chromatograph.

# ALS Group, USA

Date: 03-Dec-18

**Client:** U.S. Steel - Gary Works  
**Project:** USS-Midwest Foaming Response  
**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
<b>ORGANIC COMPOUNDS BY GC-FID</b>			<b>SW8015M</b>				Analyst: <b>RP</b>
BatchID: <a href="#">R250367</a>							
Fingerprint	Complete		0		mg/L	1	11/30/2018
<b>ANIONIC SURFACTANTS AS MBAS</b>			<b>A5540C-11</b>				Analyst: <b>JSH</b>
BatchID: <a href="#">R250292</a>							
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	11/30/2018 10:00
<b>OIL AND GREASE</b>			<b>E1664A</b>				Analyst: <b>BTG</b>
BatchID: <a href="#">R250344</a>							
Oil and Grease	2.5	J	0.97	5.0	mg/L	1	11/30/2018 10:30

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

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  
 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 :

Compound	R.T.	Response	Conc	Units
-----				
System Monitoring Compounds				
1) S Nitrobenzene-d5	0.000	0	N.D.	ug/mL
2) S 2-Fluorobiphenyl	0.000	0	N.D.	ug/mL
3) S 2,4,6-Tribromophenol	0.000	0	N.D.	ug/mL
4) S 4-Terphenyl-d14	0.000	0	N.D.	ug/mL
Spiked Amount 50.000		Recovery =	0.00%	
Target Compounds				
5) H DRO (C10-C20)	0.000	0	N.D.	ug/mL
6) H ORO (C20-C34)	0.000	0	N.D.	ug/mL
7) H DRO (C10-C28)	0.000	0	N.D.	ug/mL
8) H ORO (C28-C40)	0.000	0	N.D.	ug/mL
9) H ORO (C20-C40)	0.000	0	N.D.	ug/mL
10) H ORO (C28-C35)	0.000	0	N.D.	ug/mL
11) H ERO (C10-C36)	0.000	0	N.D.	ug/mL
12) H ERO (C8-C36)	0.000	0	N.D.	ug/mL
13) H DRO (C9-C20)	0.000	0	N.D.	ug/mL
14) H ERO (C8-C40)	0.000	0	N.D.	ug/mL
15) H DIESEL (IOWA)	0.000	0	N.D.	ug/mL
16) H OIL (IOWA)	0.000	0	N.D.	ug/mL
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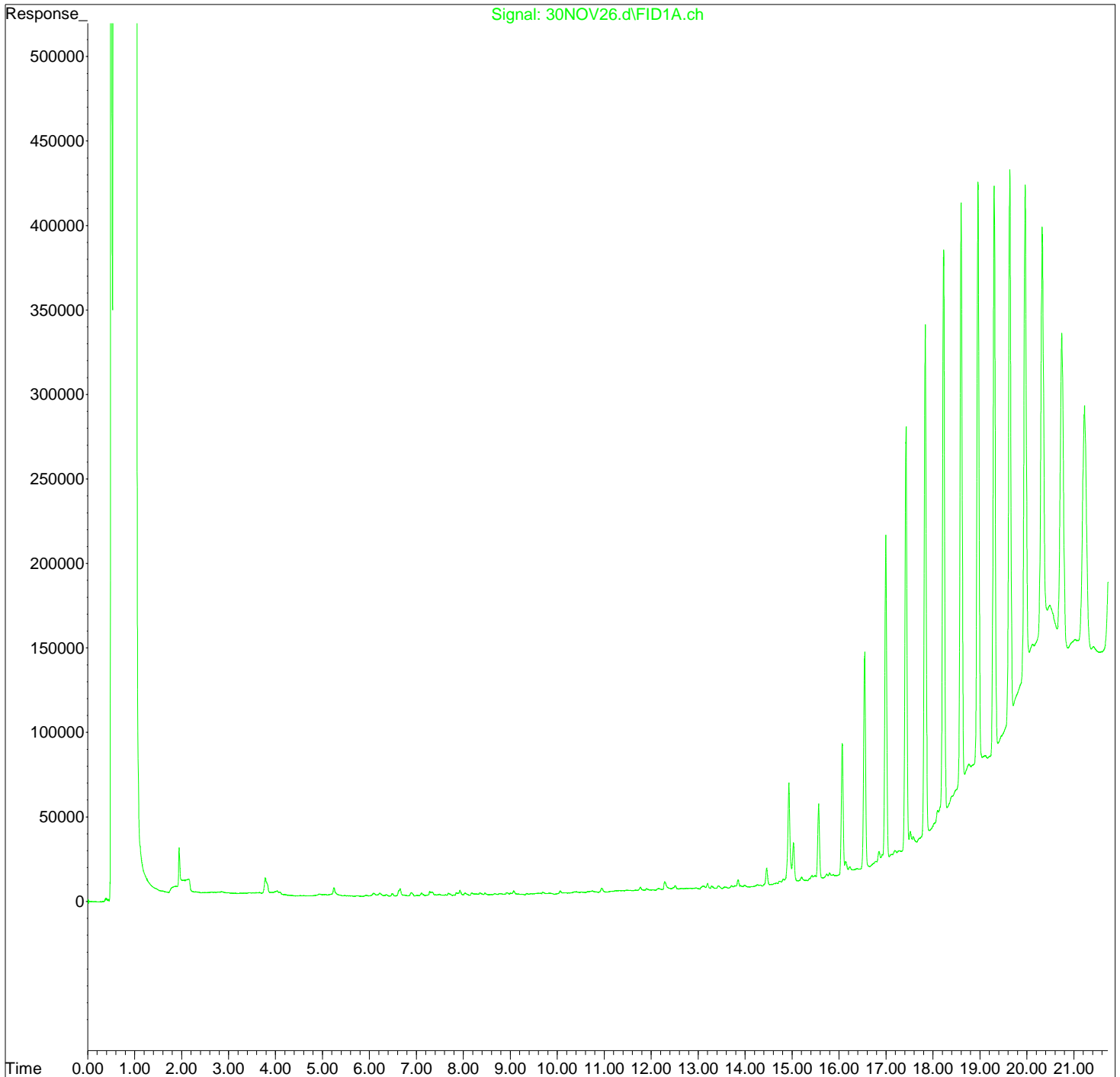
(f)=RT Delta > 1/2 Window

(m)=manual int.

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  
 Quant Method : C:\msdchem\1\methods\ALLF180910M.M  
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 Integrator: ChemStation

Volume Inj. :  
 Signal Phase :  
 Signal Info :



**Client:** U.S. Steel - Gary Works  
**Project:** USS-Midwest Foaming Response  
**WorkOrder:** 18111844

**QUALIFIERS,  
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	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
O	Sample amount is > 4 times amount spiked
P	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
X	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>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg MBAS/L	Milligrams Methylene Blue Active Substances per Liter
mg/L	Milligrams per Liter

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

**QC BATCH REPORT**

Batch ID: **R250292** Instrument ID **WETCHEM** Method: **A5540C-11**

<b>MBLK</b>	Sample ID: <b>MBLK-R250292</b>				Units: <b>mg MBAS/L</b>			Analysis Date: <b>11/30/2018 10:00 AM</b>		
Client ID:	Run ID: <b>WETCHEM_181130C</b>				SeqNo: <b>5410909</b>		Prep Date:		DF: <b>1</b>	
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

<b>LCS</b>	Sample ID: <b>LCS-R250292</b>				Units: <b>mg MBAS/L</b>			Analysis Date: <b>11/30/2018 10:00 AM</b>		
Client ID:	Run ID: <b>WETCHEM_181130C</b>				SeqNo: <b>5410906</b>		Prep Date:		DF: <b>1</b>	
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

<b>DUP</b>	Sample ID: <b>18111815-01B DUP</b>				Units: <b>mg MBAS/L</b>			Analysis Date: <b>11/30/2018 10:00 AM</b>		
Client ID:	Run ID: <b>WETCHEM_181130C</b>				SeqNo: <b>5410911</b>		Prep Date:		DF: <b>1</b>	
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 samples were analyzed in this batch:

18111844-01A
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Client: U.S. Steel - Gary Works  
 Work Order: 18111844  
 Project: USS-Midwest Foaming Response

# QC BATCH REPORT

Batch ID: **R250344** Instrument ID **O&G** Method: **E1664A**

MBLK		Sample ID: <b>MBLK-R250344</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/30/2018 10:30 AM</b>			
Client ID:		Run ID: <b>O&amp;G_181130A</b>				SeqNo: <b>5411745</b>		Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Oil and Grease	2	5.0								J	

LCS		Sample ID: <b>LCS-R250344</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/30/2018 10:30 AM</b>			
Client ID:		Run ID: <b>O&amp;G_181130A</b>				SeqNo: <b>5411743</b>		Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Oil and Grease	35.4	5.0	40	0	88.5	78-114	0				

MS		Sample ID: <b>18111576-01C MS</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/30/2018 10:30 AM</b>			
Client ID:		Run ID: <b>O&amp;G_181130A</b>				SeqNo: <b>5411703</b>		Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Oil and Grease	39.88	5.0	40	1.124	96.9	78-114	0				

DUP		Sample ID: <b>18111576-02C DUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>11/30/2018 10:30 AM</b>			
Client ID:		Run ID: <b>O&amp;G_181130A</b>				SeqNo: <b>5411706</b>		Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Oil and Grease	U	5.0	0	0	0	0-0	0.2105	0	18		

The following samples were analyzed in this batch:

18111844-01A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Sample Receipt Checklist

Client Name: USS-GARY

Date/Time Received: 30-Nov-18 00:00

Work Order: 18111844

Received by: DS

Checklist completed by Diane Shaw 30-Nov-18  
eSignature Date

Reviewed by: Amanda Przybowski 30-Nov-18  
eSignature Date

Matrices: Aqueous

Carrier name: ALSHN

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

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? Yes  No

Temperature(s)/Thermometer(s): 4.0/4.0 c SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 11/30/2018 8:37:29 AM

Water - VOA vials have zero headspace? Yes  No  No VOA vials submitted

Water - pH acceptable upon receipt? Yes  No  N/A

pH adjusted? Yes  No  N/A

pH adjusted by:

Login Notes:

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Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: