Williams Petroleum Services, LLC
One Williams Center
P.O. Box 3483
Tulsa, OK 74101-3483
918/573-2600

April 6, 2016

Mr. Kenneth Herstowski, P.E.
Environmental Protection Agency, Region 7
AWMD/WRAP/MIRP
11201 Renner Boulevard
Lenexa, Kansas 66219

Re: Quarterly Update – 1st Quarter 2016
Former Augusta Refinery (FAR) RCRA Facility Investigation (RFI)
Williams Petroleum Services (WPS), LLC
Augusta, Kansas – KSD007235138

Dear Mr. Herstowski:

This letter is offered as the report of investigation activities at the Former Augusta Refinery (FAR) in accordance with Section X, "Reporting," of the Administrative Order on Consent dated October 24, 2003, Docket No. RCRA-07-2004-0009. This report addresses activities occurring during the period of January 1 through March 31, 2016.

Description of Activities

- Downloaded transducer data and collected water levels as part of the continued Water Balance evaluation through the ongoing monitoring of water level data per the September 11, 2013 scope of work.
- In accordance with the August 26, 2015 LNAPL Corrective Measures Study (CMS) Work Plan Addendum, completed routine manual and passive light non-aqueous phase liquid (LNAPL) recovery efforts for the continued evaluation of LNAPL removal efficacy.
- On January 20, 2016 had a meeting with the United States Environmental Protection Agency (USEPA) and Kansas Department of Health and Environment (KDHE) to discuss the RCRA FIRST process for the FAR.
- On February 23, 2016 had a meeting with USEPA and KDHE to review the RCRA Facility Investigation (RFI) documents and establish action items to facilitate completion of the RFI.
- On March 7, 2016 had a site meeting with KDHE at the FAR to tour the site. During the site visit, KDHE collected a seep sample at the formerly sampled location noted as TMP-04SW for volatile organic compound (VOC) analysis.
- For interim measures implementation at the Walnut River Area of Interest (AOI), completed implementing the construction phase of the Walnut River Interim Corrective Measures Work

Plan. Commenced Post-Construction activities by performing monthly LNAPL gauging/recovery at newly installed LNAPL wells and monthly site inspection.

Summary of All Findings

- Data collection for the LNAPL CMS Work Plan Addendum is an on-going process being performed over time to include seasonal factors in overall evaluation. Final data for the evaluation will be provided in the CMS for the FAR.
- Final data collected for the Water Balance CMS Work Plan scope will be presented in the CMS for the FAR.
- On March 7, 2016, KDHE collected a seep sample at the formerly sampled location noted as TMP-04SW for VOC analysis. The laboratory report for this sample is attached. Detected concentrations are consistent with historic data from monitor well DG-10D located approximately 300 feet west of this seep location.

Summaries of All EPA Approved Changes

- From the February 23, 2016 meeting with USEPA and KDHE to review the RFI documents, the following action items were established with agreement from both USEPA and KDHE to facilitate completion of the RFI:
    - CB&I would gather and submit a full package of well logs to both USEPA and KDHE.
    - It was proposed that one bedrock well would be installed at P-16D. Any further bedrock or deep well installation decisions would be made following collection of data from this well. CB&I would prepare a SAP (like prior work) to present the plans for installation of this well.
    - CB&I would develop a memorandum regarding further clarification of the perchloroethylene (PCE) distribution at the site. If any additional sampling was appropriate, plans would be documented in the memorandum. KDHE would also check the state dry cleaner database for potential sites in Augusta;
    - CB&I would check into historic databases for analysis of 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB).
    - It was acknowledged that total petroleum hydrocarbon (TPH) analysis might be useful as an indicator in further corrective actions at the site, but that Williams had reservations about it becoming a new regulated issue that was not risk-based.

Summaries of All Contacts

- On January 8, 2016, WPS submitted the 4th quarter 2015 update to the EPA.
- On January 20, 2016 had a meeting with USEPA and KDHE to discuss the RCRA FIRST process for the FAR.

- On February 23, 2016 had a meeting with USEPA and KDHE to review the RFI documents and establish action items to facilitate completion of the RFI.
- On March 7, 2016 had a site meeting with KDHE at the FAR to tour the site.

Summaries of Problems Encountered

None.

Actions to Rectify Problems

None.

Changes in Key Project Entities

- Mr. Lee Andrews has assumed the role of Project Manager for WPS. John Carey will continue to support the project through transition.

Projected Work for the Next Reporting Period

The following activities will be performed or initiated during the next reporting period:

- Work with USEPA to complete technical review of the RFI documents for the FAR.
- Submit responses to the RFI Meeting Action items including:
  - A full package of well logs in electronic form.
  - A SAP to present the plans for installation of the bedrock well adjacent to P-16D.
  - Further clarification of the PCE distribution at the site.
  - Historic database output for analysis of 1,2-DCA and EDB.
- Continue work on the LNAPL monitoring evaluation for the CMS.
- Continue work on the water balance evaluation for the CMS.
- Continue work on the SWMU-16 evaluation for the CMS.
- For interim measures implementation at the Walnut River AOI, continue post-construction activities by performing monthly LNAPL gauging/recovery at newly installed LNAPL wells and monthly site inspection.

Other Relevant Documentation

None

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to evaluate the information submitted. I certify that the information contained in or accompanying this submittal is true, accurate, and complete. As to those identified portion(s) of this submittal for which I cannot personally verify the accuracy, I certify that this submittal and all attachments were prepared in accordance with the procedures designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for

submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please provide all written correspondence regarding this Quarterly Update directly to Mr. Lee Andrews, with Williams Petroleum Services, LLC. If you have any questions, do not hesitate to contact Mr. Andrews at (918) 573-6912.

Sincerely,
Williams Petroleum Services, LLC

Mark A. Gebbia
Director, Environmental Services COE

c: Lee Andrews, Williams Petroleum Services, LLC
John Carey, III, Williams Petroleum Services, LLC
David Way, CB&I Environmental & Infrastructure, Inc.

ALS Environmental

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March 14, 2016

Phil Osborn
CB&I - Wichita
7330 W 33rd St. North
Suite 106
Wichita, KS 67205

Work Order: **HS16030436**

Laboratory Results for: **Former Augusta Refinery Site 149093**

Dear Phil,

ALS Environmental received 1 sample(s) on Mar 09, 2016 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Sonia West

Generated By: Jumoke.Lawal
Sonia West
Project Manager

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
Work Order: HS16030436

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS16030436-01	Seep Sample	Water		07-Mar-2016 13:00	09-Mar-2016 10:05	☐

Client: CB&I - Wichita **CASE NARRATIVE**
Project: Former Augusta Refinery Site 149093
Work Order: HS16030436

GCMS Volatiles by Method SW8260

Batch ID: R270721

Sample ID: **Seep Sample (HS16030436-01)**
- Lowest practical dilution due to matrix.

Sample ID: **HS16030441-01MS**
- MS and MSD are for an unrelated sample.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
Sample ID: Seep Sample
Collection Date: 07-Mar-2016 13:00

ANALYTICAL REPORT
WorkOrder:HS16030436
Lab ID:HS16030436-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TCL VOLATILES - SW8260C	**Method:SW8260**						Analyst: AKP
1,1,1-Trichloroethane	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
1,1,2,2-Tetrachloroethane	U		2.5	5.0	ug/L	5	11-Mar-2016 15:36
1,1,2-Trichlor-1,2,2-trifluoroethane	U		5.0	5.0	ug/L	5	11-Mar-2016 15:36
1,1,2-Trichloroethane	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
1,1-Dichloroethane	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
1,1-Dichloroethene	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
1,2,4-Trichlorobenzene	U		2.5	5.0	ug/L	5	11-Mar-2016 15:36
1,2-Dibromo-3-chloropropane	U		5.0	5.0	ug/L	5	11-Mar-2016 15:36
1,2-Dibromoethane	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
1,2-Dichlorobenzene	U		2.5	5.0	ug/L	5	11-Mar-2016 15:36
1,2-Dichloroethane	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
1,2-Dichloropropane	U		2.5	5.0	ug/L	5	11-Mar-2016 15:36
1,3-Dichlorobenzene	U		2.0	5.0	ug/L	5	11-Mar-2016 15:36
1,4-Dichlorobenzene	U		2.0	5.0	ug/L	5	11-Mar-2016 15:36
2-Butanone	U		2.5	10	ug/L	5	11-Mar-2016 15:36
2-Hexanone	U		5.0	10	ug/L	5	11-Mar-2016 15:36
4-Methyl-2-pentanone	U		3.5	10	ug/L	5	11-Mar-2016 15:36
Acetone	U		10	10	ug/L	5	11-Mar-2016 15:36
Benzene	**240**		**1.0**	**5.0**	**ug/L**	5	11-Mar-2016 15:36
Bromodichloromethane	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
Bromoform	U		2.0	5.0	ug/L	5	11-Mar-2016 15:36
Bromomethane	U		2.0	5.0	ug/L	5	11-Mar-2016 15:36
Carbon disulfide	U		3.0	10	ug/L	5	11-Mar-2016 15:36
Carbon tetrachloride	U		2.5	5.0	ug/L	5	11-Mar-2016 15:36
Chlorobenzene	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Chloroethane	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Chloroform	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
Chloromethane	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
cis-1,2-Dichloroethene	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
cis-1,3-Dichloropropene	U		0.50	5.0	ug/L	5	11-Mar-2016 15:36
Cyclohexane	**150**		**1.5**	**5.0**	**ug/L**	5	11-Mar-2016 15:36
Dibromochloromethane	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Dichlorodifluoromethane	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Dichloromethane	U		2.5	50	ug/L	5	11-Mar-2016 15:36
Ethylbenzene	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Isopropylbenzene	**11**		**1.5**	**5.0**	**ug/L**	5	11-Mar-2016 15:36
m,p-Xylene	**3.7**	**J**	**2.5**	**10**	**ug/L**	5	11-Mar-2016 15:36
Methyl acetate	U		5.0	5.0	ug/L	5	11-Mar-2016 15:36
Methyl tert-butyl ether	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
Sample ID: Seep Sample
Collection Date: 07-Mar-2016 13:00

ANALYTICAL REPORT
WorkOrder:HS16030436
Lab ID:HS16030436-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TCL VOLATILES - SW8260C		**Method:SW8260**					Analyst: AKP
Methylcyclohexane	**85**		**1.5**	**5.0**	**ug/L**	5	11-Mar-2016 15:36
o-Xylene	**2.0**	J	**1.5**	**5.0**	**ug/L**	5	11-Mar-2016 15:36
Styrene	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Tetrachloroethene	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Toluene	**5.4**		**1.0**	**5.0**	**ug/L**	5	11-Mar-2016 15:36
trans-1,2-Dichloroethene	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
trans-1,3-Dichloropropene	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
Trichloroethene	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
Trichlorofluoromethane	U		1.5	5.0	ug/L	5	11-Mar-2016 15:36
Vinyl chloride	U		1.0	5.0	ug/L	5	11-Mar-2016 15:36
Xylenes, Total	**5.6**	J	**2.5**	**15**	**ug/L**	5	11-Mar-2016 15:36
Surr: 1,2-Dichloroethane-d4	*91.7*			*70-125*	*%REC*	*5*	*11-Mar-2016 15:36*
Surr: 4-Bromofluorobenzene	*92.9*			*72-125*	*%REC*	*5*	*11-Mar-2016 15:36*
Surr: Dibromofluoromethane	*93.2*			*71-125*	*%REC*	*5*	*11-Mar-2016 15:36*
Surr: Toluene-d8	*95.7*			*75-125*	*%REC*	*5*	*11-Mar-2016 15:36*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R270721	**Test Name :** TCL VOLATILES - SW8260C			**Matrix:** Water		
HS16030436-01	Seep Sample	07 Mar 2016 13:00			11 Mar 2016 15:36	5

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument:** VOA6 **Method:** SW8260

MBLK Sample ID: **VBLKW-160311** Units: **ug/L** Analysis Date: **11-Mar-2016 10:18**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611482** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichlor-1,2,2-trifluoroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	2.0								
2-Hexanone	U	2.0								
4-Methyl-2-pentanone	U	2.0								
Acetone	U	2.0								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	2.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Dichloromethane	U	2.0								

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument:** VOA6 **Method:** SW8260

MBLK Sample ID: **VBLKW-160311** Units: **ug/L** Analysis Date: **11-Mar-2016 10:18**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611482** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	1.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
o-Xylene	U	1.0								
Styrene	U	1.0								
Tetrachloroethene	U	1.0								
Toluene	U	1.0								
trans-1,2-Dichloroethene	U	1.0								
trans-1,3-Dichloropropene	U	1.0								
Trichloroethene	U	1.0								
Trichlorofluoromethane	U	1.0								
Vinyl chloride	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	*46.65*	*1.0*	*50*	*0*	*93.3*	*71 - 125*				
Surr: 4-Bromofluorobenzene	*46.13*	*1.0*	*50*	*0*	*92.3*	*70 - 125*				
Surr: Dibromofluoromethane	*47.32*	*1.0*	*50*	*0*	*94.6*	*74 - 125*				
Surr: Toluene-d8	*46.62*	*1.0*	*50*	*0*	*93.2*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-160311** Units: **ug/L** Analysis Date: **11-Mar-2016 09:06**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611516** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.69	1.0	50	0	91.4	75 - 130				
1,1,2,2-Tetrachloroethane	43.94	1.0	50	0	87.9	74 - 123				
1,1,2-Trichlor-1,2,2-trifluoroethane	47.47	1.0	50	0	94.9	70 - 130				
1,1,2-Trichloroethane	43.11	1.0	50	0	86.2	80 - 120				
1,1-Dichloroethane	44.83	1.0	50	0	89.7	76 - 120				
1,1-Dichloroethene	45.11	1.0	50	0	90.2	75 - 130				
1,2,4-Trichlorobenzene	48.31	1.0	50	0	96.6	75 - 126				
1,2-Dibromo-3-chloropropane	47.9	1.0	50	0	95.8	65 - 125				
1,2-Dibromoethane	46.95	1.0	50	0	93.9	80 - 121				
1,2-Dichlorobenzene	43.63	1.0	50	0	87.3	80 - 120				
1,2-Dichloroethane	43.32	1.0	50	0	86.6	76 - 120				
1,2-Dichloropropane	45	1.0	50	0	90.0	80 - 120				
1,3-Dichlorobenzene	44.36	1.0	50	0	88.7	80 - 120				
1,4-Dichlorobenzene	43.61	1.0	50	0	87.2	80 - 120				
2-Butanone	90.65	2.0	100	0	90.6	60 - 140				
2-Hexanone	86.8	2.0	100	0	86.8	60 - 131				
4-Methyl-2-pentanone	84.88	2.0	100	0	84.9	60 - 135				
Acetone	99.99	2.0	100	0	100.0	60 - 140				
Benzene	45.87	1.0	50	0	91.7	75 - 122				
Bromodichloromethane	45.35	1.0	50	0	90.7	75 - 125				
Bromoform	49.18	1.0	50	0	98.4	70 - 130				
Bromomethane	38.26	1.0	50	0	76.5	60 - 140				
Carbon disulfide	92.6	2.0	100	0	92.6	70 - 130				
Carbon tetrachloride	49.06	1.0	50	0	98.1	75 - 125				
Chlorobenzene	43.58	1.0	50	0	87.2	80 - 120				
Chloroethane	44.77	1.0	50	0	89.5	70 - 130				
Chloroform	43.73	1.0	50	0	87.5	70 - 130				
Chloromethane	44.04	1.0	50	0	88.1	65 - 130				
cis-1,2-Dichloroethene	45.21	1.0	50	0	90.4	75 - 125				
cis-1,3-Dichloropropene	47.82	1.0	50	0	95.6	79 - 125				
Cyclohexane	48.3	1.0	50	0	96.6	70 - 130				
Dibromochloromethane	45.55	1.0	50	0	91.1	70 - 130				
Dichlorodifluoromethane	46.89	1.0	50	0	93.8	60 - 140				
Dichloromethane	49.3	2.0	50	0	98.6	65 - 133				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-160311** Units: **ug/L** Analysis Date: **11-Mar-2016 09:06**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611516** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Ethylbenzene	44.46	1.0	50	0	88.9	80 - 120				
Isopropylbenzene	44.61	1.0	50	0	89.2	75 - 130				
m,p-Xylene	88.92	2.0	100	0	88.9	80 - 120				
Methyl acetate	45.74	1.0	50	0	91.5	76 - 122				
Methyl tert-butyl ether	45.64	1.0	50	0	91.3	70 - 130				
Methylcyclohexane	53.65	1.0	50	0	107	70 - 126				
o-Xylene	43.83	1.0	50	0	87.7	80 - 120				
Styrene	44.97	1.0	50	0	89.9	78 - 122				
Tetrachloroethene	45.19	1.0	50	0	90.4	75 - 130				
Toluene	43.61	1.0	50	0	87.2	75 - 121				
trans-1,2-Dichloroethene	46.57	1.0	50	0	93.1	75 - 125				
trans-1,3-Dichloropropene	47.41	1.0	50	0	94.8	76 - 125				
Trichloroethene	47.52	1.0	50	0	95.0	71 - 125				
Trichlorofluoromethane	44.54	1.0	50	0	89.1	67 - 132				
Vinyl chloride	44.56	1.0	50	0	89.1	70 - 135				
Xylenes, Total	132.7	3.0	150	0	88.5	79 - 124				
Surr: 1,2-Dichloroethane-d4	*45.86*	*1.0*	*50*	*0*	*91.7*	*71 - 125*				
Surr: 4-Bromofluorobenzene	*47.56*	*1.0*	*50*	*0*	*95.1*	*70 - 125*				
Surr: Dibromofluoromethane	*48.11*	*1.0*	*50*	*0*	*96.2*	*74 - 125*				
Surr: Toluene-d8	*47.03*	*1.0*	*50*	*0*	*94.1*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS16030441-01MS** Units: **ug/L** Analysis Date: **11-Mar-2016 13:44**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611487** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	40.96	1.0	50	0	81.9	75 - 130				
1,1,2,2-Tetrachloroethane	39.32	1.0	50	0	78.6	74 - 123				
1,1,2-Trichlor-1,2,2-trifluoroethane	41.74	1.0	50	0	83.5	70 - 130				
1,1,2-Trichloroethane	39.76	1.0	50	0	79.5	80 - 120				S
1,1-Dichloroethane	40.91	1.0	50	0	81.8	76 - 120				
1,1-Dichloroethene	40.13	1.0	50	0	80.3	75 - 130				
1,2,4-Trichlorobenzene	41.71	1.0	50	0.1678	83.1	75 - 126				
1,2-Dibromo-3-chloropropane	42.42	1.0	50	0	84.8	65 - 125				
1,2-Dibromoethane	43.56	1.0	50	0	87.1	80 - 121				
1,2-Dichlorobenzene	40.03	1.0	50	0	80.1	80 - 120				
1,2-Dichloroethane	41.32	1.0	50	0	82.6	76 - 120				
1,2-Dichloropropane	41.2	1.0	50	0	82.4	80 - 120				
1,3-Dichlorobenzene	40.12	1.0	50	0	80.2	80 - 120				
1,4-Dichlorobenzene	39.11	1.0	50	0	78.2	80 - 120				S
2-Butanone	77.76	2.0	100	0	77.8	60 - 140				
2-Hexanone	79.57	2.0	100	0	79.6	60 - 131				
4-Methyl-2-pentanone	78.58	2.0	100	0	78.6	60 - 135				
Acetone	85.98	2.0	100	0	86.0	60 - 140				
Benzene	43.79	1.0	50	2.736	82.1	75 - 122				
Bromodichloromethane	41.32	1.0	50	0	82.6	75 - 125				
Bromoform	43.43	1.0	50	0	86.9	70 - 130				
Bromomethane	33.79	1.0	50	0	67.6	60 - 140				
Carbon disulfide	82.86	2.0	100	0	82.9	70 - 130				
Carbon tetrachloride	43.77	1.0	50	0	87.5	79 - 120				
Chlorobenzene	39.82	1.0	50	0	79.6	80 - 120				S
Chloroethane	40.52	1.0	50	0	81.0	70 - 130				
Chloroform	40.04	1.0	50	0	80.1	70 - 130				
Chloromethane	39.72	1.0	50	0	79.4	65 - 130				
cis-1,2-Dichloroethene	41.39	1.0	50	0	82.8	75 - 125				
cis-1,3-Dichloropropene	42.95	1.0	50	0	85.9	79 - 125				
Cyclohexane	43.82	1.0	50	0	87.6	70 - 130				
Dibromochloromethane	42.22	1.0	50	0	84.4	70 - 130				
Dichlorodifluoromethane	40.98	1.0	50	0	82.0	60 - 140				
Dichloromethane	45.39	2.0	50	0	90.8	65 - 133				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS16030441-01MS** Units: **ug/L** Analysis Date: **11-Mar-2016 13:44**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611487** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	41.18	1.0	50	0.6407	81.1	80 - 120				
Isopropylbenzene	40.39	1.0	50	0	80.8	75 - 130				
m,p-Xylene	82.63	2.0	100	2.522	80.1	80 - 120				
Methyl acetate	39.89	1.0	50	0	79.8	76 - 122				
Methyl tert-butyl ether	42.52	1.0	50	0	85.0	70 - 130				
Methylcyclohexane	48.48	1.0	50	2.232	92.5	70 - 126				
o-Xylene	49.17	1.0	50	9.91	78.5	80 - 120				S
Styrene	41.3	1.0	50	0.3108	82.0	78 - 122				
Tetrachloroethene	40.36	1.0	50	0	80.7	75 - 130				
Toluene	71.39	1.0	50	34.48	73.8	75 - 121				S
trans-1,2-Dichloroethene	41.37	1.0	50	0	82.7	75 - 125				
trans-1,3-Dichloropropene	43.2	1.0	50	0	86.4	76 - 125				
Trichloroethene	41.9	1.0	50	0	83.8	71 - 125				
Trichlorofluoromethane	39.2	1.0	50	0	78.4	67 - 132				
Vinyl chloride	39.6	1.0	50	0	79.2	70 - 135				
Xylenes, Total	131.8	3.0	150	12.43	79.6	80 - 124				S
Surr: 1,2-Dichloroethane-d4	*46.39*	*1.0*	*50*	*0*	*92.8*	*71 - 125*				
Surr: 4-Bromofluorobenzene	*48.16*	*1.0*	*50*	*0*	*96.3*	*70 - 125*				
Surr: Dibromofluoromethane	*48.47*	*1.0*	*50*	*0*	*96.9*	*74 - 125*				
Surr: Toluene-d8	*47.65*	*1.0*	*50*	*0*	*95.3*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument:** VOA6 **Method:** SW8260

MSD Sample ID: **HS16030441-01MSD** Units: **ug/L** Analysis Date: **11-Mar-2016 14:08**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611488** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1-Trichloroethane	39.47	1.0	50	0	78.9	75 - 130	40.96	3.7	20	
1,1,2,2-Tetrachloroethane	40.48	1.0	50	0	81.0	74 - 123	39.32	2.92	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	41.07	1.0	50	0	82.1	70 - 130	41.74	1.63	20	
1,1,2-Trichloroethane	39.53	1.0	50	0	79.1	80 - 120	39.76	0.583	20	S
1,1-Dichloroethane	39.83	1.0	50	0	79.7	76 - 120	40.91	2.67	20	
1,1-Dichloroethene	39.16	1.0	50	0	78.3	75 - 130	40.13	2.44	20	
1,2,4-Trichlorobenzene	42.05	1.0	50	0.1678	83.8	75 - 126	41.71	0.812	20	
1,2-Dibromo-3-chloropropane	45.02	1.0	50	0	90.0	65 - 125	42.42	5.93	20	
1,2-Dibromoethane	42.95	1.0	50	0	85.9	80 - 121	43.56	1.4	20	
1,2-Dichlorobenzene	40.05	1.0	50	0	80.1	80 - 120	40.03	0.0574	20	
1,2-Dichloroethane	39.31	1.0	50	0	78.6	76 - 120	41.32	4.98	20	
1,2-Dichloropropane	40.78	1.0	50	0	81.6	80 - 120	41.2	1.01	20	
1,3-Dichlorobenzene	39.87	1.0	50	0	79.7	80 - 120	40.12	0.634	20	S
1,4-Dichlorobenzene	38.76	1.0	50	0	77.5	80 - 120	39.11	0.912	20	S
2-Butanone	79.39	2.0	100	0	79.4	60 - 140	77.76	2.08	20	
2-Hexanone	83.76	2.0	100	0	83.8	60 - 131	79.57	5.13	20	
4-Methyl-2-pentanone	81.92	2.0	100	0	81.9	60 - 135	78.58	4.17	20	
Acetone	91.17	2.0	100	0	91.2	60 - 140	85.98	5.85	20	
Benzene	43	1.0	50	2.736	80.5	75 - 122	43.79	1.82	20	
Bromodichloromethane	40.49	1.0	50	0	81.0	75 - 125	41.32	2.02	20	
Bromoform	44.08	1.0	50	0	88.2	70 - 130	43.43	1.48	20	
Bromomethane	34.73	1.0	50	0	69.5	60 - 140	33.79	2.74	20	
Carbon disulfide	80.82	2.0	100	0	80.8	70 - 130	82.86	2.49	20	
Carbon tetrachloride	42.91	1.0	50	0	85.8	75 - 125	43.77	1.97	20	
Chlorobenzene	39.35	1.0	50	0	78.7	80 - 120	39.82	1.2	20	S
Chloroethane	39.46	1.0	50	0	78.9	70 - 130	40.52	2.65	20	
Chloroform	39.41	1.0	50	0	78.8	70 - 130	40.04	1.58	20	
Chloromethane	38.81	1.0	50	0	77.6	65 - 130	39.72	2.34	20	
cis-1,2-Dichloroethene	40.79	1.0	50	0	81.6	75 - 125	41.39	1.46	20	
cis-1,3-Dichloropropene	42.75	1.0	50	0	85.5	79 - 125	42.95	0.464	20	
Cyclohexane	42.56	1.0	50	0	85.1	70 - 130	43.82	2.93	20	
Dibromochloromethane	41.83	1.0	50	0	83.7	70 - 130	42.22	0.915	20	
Dichlorodifluoromethane	39.47	1.0	50	0	78.9	60 - 140	40.98	3.77	20	
Dichloromethane	45.03	2.0	50	0	90.1	65 - 133	45.39	0.794	20	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QC BATCH REPORT

Batch ID: R270721 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS16030441-01MSD** Units: **ug/L** Analysis Date: **11-Mar-2016 14:08**
Client ID: Run ID: **VOA6_270721** SeqNo: **3611488** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Ethylbenzene	40.23	1.0	50	0.6407	79.2	80 - 120	41.18	2.34	20	S
Isopropylbenzene	39.64	1.0	50	0	79.3	75 - 130	40.39	1.86	20	
m,p-Xylene	81.62	2.0	100	2.522	79.1	80 - 120	82.63	1.23	20	S
Methyl acetate	42.59	1.0	50	0	85.2	76 - 122	39.89	6.54	20	
Methyl tert-butyl ether	42.85	1.0	50	0	85.7	70 - 130	42.52	0.769	20	
Methylcyclohexane	47.64	1.0	50	2.232	90.8	70 - 126	48.48	1.74	20	
o-Xylene	48.25	1.0	50	9.91	76.7	80 - 120	49.17	1.89	20	S
Styrene	40.6	1.0	50	0.3108	80.6	78 - 122	41.3	1.71	20	
Tetrachloroethene	39.45	1.0	50	0	78.9	75 - 130	40.36	2.29	20	
Toluene	69.38	1.0	50	34.48	69.8	75 - 121	71.39	2.85	20	S
trans-1,2-Dichloroethene	40.56	1.0	50	0	81.1	75 - 125	41.37	1.99	20	
trans-1,3-Dichloropropene	42.56	1.0	50	0	85.1	76 - 125	43.2	1.5	20	
Trichloroethene	41.2	1.0	50	0	82.4	71 - 125	41.9	1.67	20	
Trichlorofluoromethane	38	1.0	50	0	76.0	67 - 132	39.2	3.11	20	
Vinyl chloride	38.98	1.0	50	0	78.0	70 - 135	39.6	1.59	20	
Xylenes, Total	129.9	3.0	150	12.43	78.3	80 - 124	131.8	1.48	20	S
Surr: 1,2-Dichloroethane-d4	*45.54*	*1.0*	*50*	*0*	*91.1*	*71 - 125*	*46.39*	*1.84*	*20*	
Surr: 4-Bromofluorobenzene	*47.26*	*1.0*	*50*	*0*	*94.5*	*70 - 125*	*48.16*	*1.88*	*20*	
Surr: Dibromofluoromethane	*47.12*	*1.0*	*50*	*0*	*94.2*	*74 - 125*	*48.47*	*2.82*	*20*	
Surr: Toluene-d8	*46.69*	*1.0*	*50*	*0*	*93.4*	*75 - 125*	*47.65*	*2.04*	*20*	

The following samples were anayzed in this batch: HS16030436-01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
WorkOrder: HS16030436

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
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/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
UG/L	Micrograms per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	15-024-0	27-Mar-2016
California	2919	31-Jul-2016
Illinois	003622	09-May-2016
Kentucky	KY 2015-2016	30-Apr-2016
Louisiana	03087 2015/2016	30-Jun-2016
North Carolina	624 - 2016	31-Dec-2016
North Dakota	R-193 2015-2016	30-Apr-2016
Oklahoma	2015-047	31-Aug-2016
Texas	T104704231-15-15	30-Apr-2016

Client: CB&I - Wichita
Project: Former Augusta Refinery Site 149093
Work Order: HS16030436

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS16030436-01	Seep Sample	Login	3/10/2016 11:20:31 AM	BHH	VW-3

Sample Receipt Checklist

Client Name: CBI-Wichita
Work Order: HS16030436

Date/Time Received: **09-Mar-2016 10:05**
Received by: **JBA**

Checklist completed by: *Baudelio Hernandez* 10-Mar-2016
eSignature | Date

Reviewed by: *Sonia West* 14-Mar-2016
eSignature | Date

Matrices: **Water**

Carrier name: **FedEx**

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 ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.9c / 5.5c u/c	IR#4	
Cooler(s)/Kit(s):	White		
Date/Time sample(s) sent to storage:	03/10/2016 11:25		
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:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:

ALS Laboratory Group
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Chain of Custody Form

HS16030436

CB&I - Wichita
William FAR 149093

Page ____ of ____

ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	Williams FAR	A	8260 full list
Work Order	HS15030823	Project Number	149093	B	
Company Name	CB&I	Bill To Company		C	
Send Report To	Phil Osborn	Invoice Attn		D	
Address	7330 W 33rd St North Suite 106	Address		E	
				F	
City/State/Zip	Wichita KS 67205	City/State/Zip		G	
Phone	316-220-8025	Phone		H	
Fax		Fax		I	
e-Mail Address	Phil.Osborn@CBI.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Seep Sample	3-7-16	1300	W	HCl	1	1										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Phil Osborn [signature]

Shipment Method: Fed exp.

Required Turnaround Time: (Check Box) ☐ Other ____ ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

Relinquished by: [signature]	Date: 3-8-16	Time:	Received by: —	Notes:	
Relinquished by: —	Date:	Time:	Received by (Laboratory): JBA 3/9/16 10:05	Cooler ID	Cooler Temp
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	White	4.6 / 4.9

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other ______

Preservative Key: 1-HCl 2-HNO$_3$ 3-H$_2$SO$_4$ 4-NaOH 5-Na$_2$S$_2$O$_3$ 6-NaHSO$_4$ 7-Other 8-4°C 9-5035

IR#4 CF0.6

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.
2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

White MAR 0 9 2016

SM 03/09/16

3-8-16 White

SM 03/09/16

White

3-8-16

White

FedEx Express

WED - 09 MAR 10:30A

TRK# 0201 7758 2701 0945

PRIORITY OVERNIGHT

AB SGRA

77099 TX-US IAH