



Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 3, 2016

Cynthia Trout
Department of the Army
Director of Public Works
2012 Liggett Avenue, Box 339500 M/S-17
Joint Base Lewis McChord, WA 98433

**RE: Client Project: Solo Point WWTP NPDES Quarterly
ARI Job Nos. BDK7_{lu}**

Dear Cynthia:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and the final data for the project referenced above. Analytical Resources, Inc. (ARI) accepted six samples in good condition on July 14, 2016. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for Total Metals, Cyanide, Phenol, PBDE, NWTPH-Gx and NWTPH-Dx, as requested. The Low Level Mercury was reported under ARI SDG BDM6.

The TPHD surrogate recovery for Influent Grab 1 dilution is out of control low.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Respectfully,
ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Amanda Volgardsen".

Amanda Volgardsen
-for-
Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com
www.arilabs.com

eFile: BDK7

Enclosures

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **BDK7**
 Joint Base Lewis-McChord Phone: _____
 Cynthia Trout 253-966-1768 Raul Nino 253-477-2806
 Client Project Name: Solo Point WWTP NPDES Quarterly
 Client Project #: _____



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)

Turn-around Requested: Standard
 Date: _____
 Page: 1 of 1
 No. of Coolers: _____
 Cooler Temps: 5.7

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested					Notes/Comments		
					3004L Total Cyanide	3004AH Phenol	3003B NWT/PH-GX	3003F NWT/PH-DX	3005AB Low Level Mercury		3005M Metals	5003C PDBE Congeners
Influent Composite	7/14/16	1145	W	1					X			*Metals - As, Cd, Cr, Cu, Mo, Ni, Pb, Se, Ag, Zn
Influent Grab 1		1630	W	8	X	X	X			X		Use TO-39 for 3005M sample, all others use TO-38 - LR
Influent Grab 2		1645	W	2	X	X						
Effluent Composite		1155	W	1					X			
Effluent Grab 1		1650	W	8	X	X	X			X		
Effluent Grab 2	7/14/16	1710	W	2	X	X						

Nothing Approved Below this Line

Comments/Special Instructions	Received by:		Relinquished by:	
	(Signature)	Printed Name:	(Signature)	Printed Name:
	<i>[Signature]</i>	Raul J. Nino	<i>[Signature]</i>	Joslyn Meyer
		Company: <i>Norson</i>		Company: _____
	Date & Time: 7/14/16 1830		Date & Time: 7-14-16 1830	

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or any other agreement between ARI and the Client.

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Cooler Receipt Form

ARI Client: JBLM

Project Name: Solo Party WWTP NPAES Quarterly

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: BDK7

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.7

Time: _____

Temp Gun ID#: D005276

Cooler Accepted by: JM Date: 7-14-16 Time: 1830

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

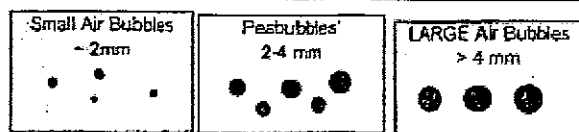
Samples Logged by: TR Date: 7-18-16 Time: 1006

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



- Small → "sm" (< 2 mm)
- Peabubbles → "pb" (2 to < 4 mm)
- Large → "lg" (4 to < 6 mm)
- Headspace → "hs" (> 6 mm)



ARI Job No: **BDK7**
PC: Kelly
VTSR: 07/14/16

Inquiry Number: NONE
Analysis Requested: 07/18/16
Contact: Trout, Cynthia
Client: Joint Base Lewis McChord
Logged by: TR
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: #
Project: Solo Point WWTP NPDES Quarterly
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN	WAD	NH3	COD	FOG	MET	PHEN	PHOS	TKN	NO23	TOC	S2	TPHD	BT	Fe2+	DMET DOC	FLT	FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
16-10711 BDK7A	Influent Composite	>12	>12	<2	<2	<2	TOT pass	<2	<2	<2	<2	<2	>9	<2	<2	<2								
16-10712 BDK7B	Effluent Composite						TOT pass																	
16-10713 BDK7C	Influent Grab 1	pass					pass																	
16-10714 BDK7D	Effluent Grab 1	pass					pass																	
16-10715 BDK7E	Influent Grab 2	pass					pass																	
16-10716 BDK7F	Effluent Grab 2	pass					pass																	

BDK7 : 555664

Checked By TR Date 7-18-16

Sample ID Cross Reference Report



ARI Job No: BDK7
Client: Joint Base Lewis McChord
Project Event: N/A
Project Name: Solo Point WWTP NPDES Quarterly

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. Influent Composite	BDK7A	16-10711	Water	07/14/16 11:45	07/14/16 18:30
2. Effluent Composite	BDK7B	16-10712	Water	07/14/16 11:55	07/14/16 18:30
3. Influent Grab 1	BDK7C	16-10713	Water	07/14/16 16:30	07/14/16 18:30
4. Effluent Grab 1	BDK7D	16-10714	Water	07/14/16 16:50	07/14/16 18:30
5. Influent Grab 2	BDK7E	16-10715	Water	07/14/16 16:45	07/14/16 18:30
6. Effluent Grab 2	BDK7F	16-10716	Water	07/14/16 17:10	07/14/16 18:30



Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but \geq the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.



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- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**



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Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Page 1 of 1

Sample ID: Influent Grab 1

SAMPLE

Lab Sample ID: BDK7C

LIMS ID: 16-10713

Matrix: Water

Data Release Authorized: *B*

Reported: 07/27/16

QC Report No: BDK7-Joint Base Lewis McChord

Project: Solo Point WWTP NPDES Quarterly

#

Date Sampled: 07/14/16

Date Received: 07/14/16

Instrument/Analyst: NT2/LH

Date Analyzed: 07/23/16 13:45

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.10	0.12		GRO

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	104%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Page 1 of 1

Sample ID: Effluent Grab 1
SAMPLE

Lab Sample ID: BDK7D

LIMS ID: 16-10714

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 07/27/16

QC Report No: BDK7-Joint Base Lewis McChord

Project: Solo Point WWTP NPDES Quarterly
#

Date Sampled: 07/14/16

Date Received: 07/14/16

Instrument/Analyst: NT2/LH

Date Analyzed: 07/23/16 14:06

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.10	< 0.10	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.0%
Bromofluorobenzene	98.2%

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: BDK7-Joint Base Lewis McChord
 Project: Solo Point WWTP NPDES Quarterly
 #

ARI ID	Client ID	FV	DCE	TOL	BFB	DCB	TOT OUT
MB-072316A	Method Blank	10	NA	97.6%	96.6%	NA	0
LCS-072316A	Lab Control	10	NA	97.6%	98.4%	NA	0
LCSD-072316A	Lab Control Dup	10	NA	97.0%	100%	NA	0
BDK7C	Influent Grab 1	10	NA	98.8%	104%	NA	0
BDK7D	Effluent Grab 1	10	NA	97.0%	98.2%	NA	0

LCS/MB LIMITS

QC LIMITS

SW8260C

(DCE) = d4-1,2-Dichloroethane	(80-129)	(80-129)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
 Log Number Range: 16-10713 to 16-10714

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Sample ID: LCS-072316A

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LAB CONTROL SAMPLE

Lab Sample ID: LCS-072316A

QC Report No: BDK7-Joint Base Lewis McChord

LIMS ID: 16-10713

Project: Solo Point WWTP NPDES Quarterly

Matrix: Water

#

Data Release Authorized: *B*

Date Sampled: NA

Reported: 07/27/16

Date Received: NA

Instrument/Analyst LCS: NT2/LH

Sample Amount LCS: 10.0 mL

LCSD: NT2/LH

LCSD: 10.0 mL

Date Analyzed LCS: 07/23/16 10:21

Purge Volume LCS: 10.0 mL

LCSD: 07/23/16 10:42

LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	0.90	1.00	90.0%	0.82	1.00	82.0%	9.3%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	97.6%	97.0%
Bromofluorobenzene	98.4%	100%



ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Sample ID: MB-072316A

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Lab Sample ID: MB-072316A

LIMS ID: 16-10713

Matrix: Water

Data Release Authorized: *B*

Reported: 07/27/16

QC Report No: BDK7-Joint Base Lewis McChord

Project: Solo Point WWTP NPDES Quarterly

#

Date Sampled: NA

Date Received: NA

Instrument/Analyst: NT2/LH

Date Analyzed: 07/23/16 11:43

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.10	< 0.10	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.6%
Bromofluorobenzene	96.6%



ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS

NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 1

QC Report No: BDK7-Joint Base Lewis McChord
Project: Solo Point WWTP NPDES Quarterly
#

Matrix: Water

Date Received: 07/14/16

Data Release Authorized: *B*
Reported: 08/01/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-072116	Method Blank	07/21/16	07/29/16	1.00	Diesel Range	0.10	< 0.10 U
16-10713	HC ID: ---		FID4A	1.0	Motor Oil Range o-Terphenyl	0.20	< 0.20 U 94.0%
BDK7C	Influent Grab 1	07/21/16	07/29/16	1.00	Diesel Range	0.10	20 E
16-10713	HC ID: DRO/RRO		FID4A	1.0	Motor Oil Range o-Terphenyl	0.20	8.6 55.5%
BDK7C DL	Influent Grab 1	07/21/16	07/29/16	1.00	Diesel Range	1.0	18
16-10713	HC ID: DRO/RRO		FID4A	10	Motor Oil Range o-Terphenyl	2.0	8.9 49.6%
BDK7D	Effluent Grab 1	07/21/16	07/29/16	1.00	Diesel Range	0.10	0.41
16-10714	HC ID: DRO/RRO		FID4A	1.0	Motor Oil Range o-Terphenyl	0.20	1.1 58.9%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BDK7-Joint Base Lewis McChord
Project: Solo Point WWTP NPDES Quarterly
#

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-072116	94.0%	0
LCS-072116	91.0%	0
Influent Grab 1	55.5%	0
Influent Grab 1 DL	49.6%*	1
Effluent Grab 1	58.9%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl


(50-150)

(50-150)

Prep Method: SW3510C
Log Number Range: 16-10713 to 16-10714

ORGANICS ANALYSIS DATA SHEET
 NWTPHD by GC/FID
 Page 1 of 1

Sample ID: LCS-072116
 LAB CONTROL

Lab Sample ID: LCS-072116
 LIMS ID: 16-10713
 Matrix: Water
 Data Release Authorized: 
 Reported: 08/01/16

QC Report No: BDK7-Joint Base Lewis McChord
 Project: Solo Point WWTP NPDES Quarterly
 #
 Date Sampled: NA
 Date Received: NA

Date Extracted: 07/21/16
 Date Analyzed: 07/29/16 13:32
 Instrument/Analyst: FID4A/ML

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL
 Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.28	3.00	76.0%

TPHD Surrogate Recovery

o-Terphenyl	91.0%
-------------	-------

Results reported in mg/L

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 07/14/16

ARI Job: BDK7
Project: Solo Point WWTP NPDES Quarterly #

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
16-10713-072116MB1	Method Blank	500 mL	1.00 mL	07/21/16
16-10713-072116LCS1	Lab Control	500 mL	1.00 mL	07/21/16
16-10713-BDK7C	Influent Grab 1	500 mL	1.00 mL	07/21/16
16-10714-BDK7D	Effluent Grab 1	500 mL	1.00 mL	07/21/16



INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: Influent Composite
SAMPLE

Lab Sample ID: BDK7A
LIMS ID: 16-10711
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 07/29/16

QC Report No: BDK7-Joint Base Lewis McChord
Project: Solo Point WWTP NPDES Quarterly

Date Sampled: 07/14/16
Date Received: 07/14/16

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	07/19/16	200.8	07/28/16	7440-38-2	Arsenic	0.2	1.2	
200.8	07/19/16	200.8	07/28/16	7440-43-9	Cadmium	0.1	0.3	
200.8	07/19/16	200.8	07/28/16	7440-47-3	Chromium	0.5	1.3	
200.8	07/19/16	200.8	07/28/16	7440-50-8	Copper	0.5	63.0	
200.8	07/19/16	200.8	07/28/16	7439-92-1	Lead	0.1	1.3	
200.8	07/19/16	200.8	07/28/16	7439-98-7	Molybdenum	0.2	1.1	
200.8	07/19/16	200.8	07/28/16	7440-02-0	Nickel	0.5	2.2	
200.8	07/19/16	200.8	07/28/16	7782-49-2	Selenium	0.5	0.5	U
200.8	07/19/16	200.8	07/28/16	7440-22-4	Silver	0.2	0.2	U
200.8	07/19/16	200.8	07/28/16	7440-66-6	Zinc	4	97	


U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: Effluent Composite
SAMPLE

Lab Sample ID: BDK7B
LIMS ID: 16-10712
Matrix: Water
Data Release Authorized: 
Reported: 07/29/16

QC Report No: BDK7-Joint Base Lewis McChord
Project: Solo Point WWTP NPDES Quarterly

Date Sampled: 07/14/16
Date Received: 07/14/16

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	07/19/16	200.8	07/28/16	7440-38-2	Arsenic	0.2	1.0	
200.8	07/19/16	200.8	07/28/16	7440-43-9	Cadmium	0.1	0.1	U
200.8	07/19/16	200.8	07/28/16	7440-47-3	Chromium	0.5	0.6	
200.8	07/19/16	200.8	07/28/16	7440-50-8	Copper	0.5	30.8	
200.8	07/19/16	200.8	07/28/16	7439-92-1	Lead	0.1	0.4	
200.8	07/19/16	200.8	07/28/16	7439-98-7	Molybdenum	0.2	0.7	
200.8	07/19/16	200.8	07/28/16	7440-02-0	Nickel	0.5	1.8	
200.8	07/19/16	200.8	07/28/16	7782-49-2	Selenium	0.5	0.5	U
200.8	07/19/16	200.8	07/28/16	7440-22-4	Silver	0.2	0.2	U
200.8	07/19/16	200.8	07/28/16	7440-66-6	Zinc	4	45	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: BDK7MB

LIMS ID: 16-10712

Matrix: Water

Data Release Authorized: *EF*

Reported: 07/29/16

QC Report No: BDK7-Joint Base Lewis McChord

Project: Solo Point WWTP NPDES Quarterly

#

Date Sampled: NA

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	µg/L	Q
200.8	07/19/16	200.8	07/28/16	7440-38-2	Arsenic	0.2	0.2	U
200.8	07/19/16	200.8	07/28/16	7440-43-9	Cadmium	0.1	0.1	U
200.8	07/19/16	200.8	07/28/16	7440-47-3	Chromium	0.5	0.5	U
200.8	07/19/16	200.8	07/28/16	7440-50-8	Copper	0.5	0.5	U
200.8	07/19/16	200.8	07/28/16	7439-92-1	Lead	0.1	0.1	U
200.8	07/19/16	200.8	07/28/16	7439-98-7	Molybdenum	0.2	0.2	U
200.8	07/19/16	200.8	07/28/16	7440-02-0	Nickel	0.5	0.5	U
200.8	07/19/16	200.8	07/28/16	7782-49-2	Selenium	0.5	0.5	U
200.8	07/19/16	200.8	07/28/16	7440-22-4	Silver	0.2	0.2	U
200.8	07/19/16	200.8	07/28/16	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


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Sample ID: LAB CONTROL

Lab Sample ID: BDK7LCS

LIMS ID: 16-10712

Matrix: Water

Data Release Authorized: 

Reported: 07/29/16

QC Report No: BDK7-Joint Base Lewis McChord

Project: Solo Point WWTP NPDES Quarterly

#

Date Sampled: NA

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	24.4	25.0	97.6%	
Cadmium	200.8	25.6	25.0	102%	
Chromium	200.8	25.4	25.0	102%	
Copper	200.8	26.5	25.0	106%	
Lead	200.8	28.3	25.0	113%	
Molybdenum	200.8	24.5	25.0	98.0%	
Nickel	200.8	25.8	25.0	103%	
Selenium	200.8	77.3	80.0	96.6%	
Silver	200.8	27.0	25.0	108%	
Zinc	200.8	81	80	101%	

Reported in µg/L

N-Control limit not met

Control Limits: 80-120%

ORGANICS ANALYSIS DATA SHEET
PBDE by GC/ECD Method SW8082
Extraction Method: SW3510C
 Page 1 of 1

Sample ID: Influent Grab 1
SAMPLE

Lab Sample ID: BDK7C
 LIMS ID: 16-10713
 Matrix: Water
 Data Release Authorized: *MDG*
 Reported: 08/04/16

QC Report No: BDK7-Joint Base Lewis McChord
 Project: Solo Point WWTP NPDES Quarterly
 #
 Date Sampled: 07/14/16
 Date Received: 07/14/16

Date Extracted: 07/21/16
 Date Analyzed: 07/29/16 04:11
 Instrument/Analyst: ECD9/JGR
 GPC Cleanup: No
 Silica Gel: Yes
 Acid Cleanup: No

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL
 Dilution Factor: 1.00
 Sulfur Cleanup: Yes

CAS Number	Analyte	LOQ	Result
5436-43-1	PBDE-47	0.010	< 0.010 U
189084-64-8	PBDE-100	0.010	< 0.010 U
60348-60-9	PBDE-99	0.010	0.024 P
207122-15-4	PBDE-154	0.010	< 0.010 U
68631-49-2	PBDE-153	0.010	< 0.010 U
41318-75-6	PBDE-28	0.010	< 0.010 U
189084-61-5	PBDE-66	0.010	< 0.010 U
1163-19-5	PBDE-209	0.050	< 0.050 U
2050-47-7	PBDE-15	0.010	< 0.010 U
189084-66-0	PBDE-119	0.010	< 0.010 U
147217-78-5	PBDE-33	0.010	< 0.010 U
446254-22-4	PBDE-46	0.010	< 0.010 U
189084-63-7	PBDE-75	0.010	< 0.010 U
35854-94-5	PBDE-155	0.010	< 0.010 U

Reported in µg/l (ppb)

PBDE Surrogate Recovery

2,2',3,3',4,4',5,6-Octachlorob 69.0%

ORGANICS ANALYSIS DATA SHEET
PBDE by GC/ECD Method SW8082
Extraction Method: SW3510C
 Page 1 of 1

Sample ID: Effluent Grab 1
SAMPLE

Lab Sample ID: BDK7D
 LIMS ID: 16-10714
 Matrix: Water
 Data Release Authorized: *AB*
 Reported: 08/03/16

QC Report No: BDK7-Joint Base Lewis McChord
 Project: Solo Point WWTP NPDES Quarterly
 #
 Date Sampled: 07/14/16
 Date Received: 07/14/16

Date Extracted: 07/21/16
 Date Analyzed: 07/29/16 04:42
 Instrument/Analyst: ECD9/JGR
 GPC Cleanup: No
 Silica Gel: Yes
 Acid Cleanup: No

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL
 Dilution Factor: 1.00
 Sulfur Cleanup: Yes

CAS Number	Analyte	LOQ	Result
5436-43-1	PBDE-47	0.010	< 0.010 U
189084-64-8	PBDE-100	0.010	< 0.010 U
60348-60-9	PBDE-99	0.010	< 0.010 U
207122-15-4	PBDE-154	0.010	< 0.010 U
68631-49-2	PBDE-153	0.010	< 0.010 U
41318-75-6	PBDE-28	0.010	< 0.010 U
189084-61-5	PBDE-66	0.010	< 0.010 U
1163-19-5	PBDE-209	0.050	< 0.050 U
2050-47-7	PBDE-15	0.010	< 0.010 U
189084-66-0	PBDE-119	0.010	< 0.010 U
147217-78-5	PBDE-33	0.010	< 0.010 U
446254-22-4	PBDE-46	0.010	< 0.010 U
189084-63-7	PBDE-75	0.010	< 0.010 U
35854-94-5	PBDE-155	0.010	< 0.010 U

Reported in µg/l (ppb)

PBDE Surrogate Recovery

2,2',3,3',4,4',5,6-Octachlorob 63.8%

SW8082/PBDE SOIL/SOLID SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BDK7-Joint Base Lewis McChord
Project: Solo Point WWTP NPDES Quarterly
#

<u>Client ID</u>	<u>PCB-195</u>	<u>TOT OUT</u>
MB-072116	80.2%	0
LCS-072116	70.6%	0
Influent Grab 1	69.0%	0
Effluent Grab 1	63.8%	0

LCS/MB LIMITS QC LIMITS

(PCB-195) = 2,2',3,3',4,4',5,6-Octachlor (30-160) (30-160)

Prep Method: SW3510C
Log Number Range: 16-10713 to 16-10714

ORGANICS ANALYSIS DATA SHEET
PBDE by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: LCS-072116
LCS/LCSD

Lab Sample ID: LCS-072116
 LIMS ID: 16-10713
 Matrix: Water
 Data Release Authorized: *[Signature]*
 Reported: 08/03/16

QC Report No: BDK7-Joint Base Lewis McChord
 Project: Solo Point WWTP NPDES Quarterly
 #
 Date Sampled: NA
 Date Received: NA

Date Extracted LCS/LCSD: 07/21/16
 Date Analyzed LCS: 07/29/16 00:36
 Instrument/Analyst LCS: ECD9/JGR
 GPC Cleanup: No
 Acid Cleanup: No
 Sulfur Cleanup: Yes

Sample Amount LCS: 500 mL
 Final Extract Volume LCS: 1.0 mL
 Dilution Factor LCS: 1.00
 Silica Gel: Yes
 Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
PBDE-209	0.286 P	0.250	114%
PBDE-28	0.074	0.100	74.0%
PBDE-47	0.071	0.100	71.0%
PBDE-66	0.073	0.100	73.0%
PBDE-99	0.092	0.100	92.0%
PBDE-100	0.075	0.100	75.0%
PBDE-153	0.072	0.100	72.0%
PBDE-154	0.077	0.100	77.0%

PBDE Surrogate Recovery

2,2',3,3',4,4',5,6-Octach 70.6%

Results reported in µg/l (ppb)
 RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET
PBDE by GC/ECD Method SW8082
Extraction Method: SW3510C
 Page 1 of 1

Sample ID: MB-072116
METHOD BLANK

Lab Sample ID: MB-072116
 LIMS ID: 16-10713
 Matrix: Water
 Data Release Authorized: *B*
 Reported: 08/03/16

QC Report No: BDK7-Joint Base Lewis McChord
 Project: Solo Point WWTP NPDES Quarterly
 #
 Date Sampled: NA
 Date Received: NA

Date Extracted: 07/21/16
 Date Analyzed: 07/29/16 00:06
 Instrument/Analyst: ECD9/JGR
 GPC Cleanup: No
 Silica Gel: Yes
 Acid Cleanup: No

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL
 Dilution Factor: 1.00
 Sulfur Cleanup: Yes

CAS Number	Analyte	LOQ	Result
5436-43-1	PBDE-47	0.010	< 0.010 U
189084-64-8	PBDE-100	0.010	< 0.010 U
60348-60-9	PBDE-99	0.010	< 0.010 U
207122-15-4	PBDE-154	0.010	< 0.010 U
68631-49-2	PBDE-153	0.010	< 0.010 U
41318-75-6	PBDE-28	0.010	< 0.010 U
189084-61-5	PBDE-66	0.010	< 0.010 U
1163-19-5	PBDE-209	0.050	< 0.050 U
2050-47-7	PBDE-15	0.010	< 0.010 U
189084-66-0	PBDE-119	0.010	< 0.010 U
147217-78-5	PBDE-33	0.010	< 0.010 U
446254-22-4	PBDE-46	0.010	< 0.010 U
189084-63-7	PBDE-75	0.010	< 0.010 U
35854-94-5	PBDE-155	0.010	< 0.010 U

Reported in µg/l (ppb)

PBDE Surrogate Recovery

2,2',3,3',4,4',5,6-Octachlorob 80.2%

SAMPLE RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: W
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: 07/14/16
Date Received: 07/14/16

Client ID: Influent Grab 1
ARI ID: 16-10713 BDK7C

Analyte	Date Batch	Method	Units	RL	Sample
Total Cyanide	07/21/16 072116#1	EPA 335.4	mg/L	0.005	< 0.005 U
Phenols	07/19/16 071916#1	EPA 420.1	mg/L	0.04	0.23

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: w
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: 07/14/16
Date Received: 07/14/16

Client ID: Effluent Grab 1
ARI ID: 16-10714 BDK7D

Analyte	Date Batch	Method	Units	RL	Sample
Total Cyanide	07/21/16 072116#1	EPA 335.4	mg/L	0.005	0.013
Phenols	07/19/16 071916#1	EPA 420.1	mg/L	0.04	< 0.04 U

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: *w*
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: 07/14/16
Date Received: 07/14/16

Client ID: Influent Grab 2
ARI ID: 16-10715 BDK7E

Analyte	Date Batch	Method	Units	RL	Sample
Total Cyanide	07/21/16 072116#1	EPA 335.4	mg/L	0.005	< 0.005 U
Phenols	07/19/16 071916#1	EPA 420.1	mg/L	0.04	0.08

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: *W*
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: 07/14/16
Date Received: 07/14/16

Client ID: Effluent Grab 2
ARI ID: 16-10716 BDK7F

Analyte	Date Batch	Method	Units	RL	Sample
Total Cyanide	07/21/16 072116#1	EPA 335.4	mg/L	0.005	0.006
Phenols	07/19/16 071916#1	EPA 420.1	mg/L	0.04	< 0.04 U

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: *W*
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Total Cyanide	EPA 335.4	07/21/16	mg/L	< 0.005 U	
Phenols	EPA 420.1	07/19/16	mg/L	< 0.04 U	

STANDARD REFERENCE RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized:
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Total Cyanide ERA 030314	EPA 335.4	07/21/16	mg/L	0.132	0.150	88.0%
Phenols ERA #160814	EPA 420.1	07/19/16	mg/L	0.51	0.50	102.0%

REPLICATE RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: ✓
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: 07/14/16
Date Received: 07/14/16

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: BDK7C	Client ID: Influent Grab 1					
Total Cyanide	EPA 335.4	07/21/16	mg/L	< 0.005	< 0.005	NA

MS/MSD RESULTS-CONVENTIONALS
BDK7-Joint Base Lewis McChord



Matrix: Water
Data Release Authorized: *W*
Reported: 07/25/16

Project: Solo Point WWTP NPDES Quarte
Event: NA
Date Sampled: 07/14/16
Date Received: 07/14/16

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: BDK7C Client ID: Influent Grab 1							
Total Cyanide	EPA 335.4	07/21/16	mg/L	< 0.005	0.126	0.150	84.0%