ILIAMNA TANK FARM ADDITIONAL GROUNDWATER CHARACTERIZATION REPORT ADDENDUM

ILIAMNA, ALASKA

ADEC File Number: 2560.38.012 ADEC Hazard ID Number: 25528

January 31, 2012

Prepared for:

Crowley Maritime Corporation

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Prepared by:



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Drad Contries

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Iliamna, Alaska

Location:		TW	'P-1		TWP-2		TW	'P-3	TW	P-4
Sample ID (11-ILM-):	Groundwater Cleanup	101-SB	102-SB	103-SB	104-SB (dup of 103-SB)	105-SB	106-SB	107-SB	110-SB	111-SB
Depth (bgs):	Level ⁽¹⁾	3.5 - 4.0	4.5	6.5	6.5	5.5	6.0	4.5	5.0	2.0 - 2.5
Sample Date:		6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011
ADEC Fuels (AK101, AK10	2, AK103; mg/k	(g)								
Gasoline Range Organics	300	1.3 J	23	240	85	140	110	ND (4.6)	<u>360</u>	ND (3.4)
Diesel Range Organics	250	22 J	<u>370</u>	<u>460</u>	220	1500	240	2.4	<u>1300</u>	1.9 J
Residual Range Organics	10,000	ND (120)	ND (110)	17	9.6 J	68 J	ND (110)	6.2	ND (110)	3.6 J
BTEX (8260B; mg/kg)										
Benzene	0.025	ND (0.047)	ND (0.044)	ND (0.060)	ND (0.046)	<u>0.27</u>	ND (0.038)	ND (0.046)	ND (0.060)	ND (0.034)
Toluene	6.5	ND (0.23)	ND (0.22)	<u>12</u>	<u>12</u>	2.4	0.12	ND (0.23)	ND (0.30)	ND (0.17)
Ethylbenzene	6.9	ND (0.047)	ND (0.044)	0.27	0.11	1.2	0.027	ND (0.046)	0.021 J	ND (0.034)
Total Xylenes	63	ND (0.14)	ND (0.13)	1.2	0.37	7.4	0.065	ND (0.14)	ND (0.18)	ND (0.10)
PAH (8270-SIM; mg/kg)										
Anthracene	3,000	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Acenapthene	180	-	0.0051 J	0.12	0.063	-	0.0078	-	0.11	-
Acenapthylene	220	-	ND (0.0068)	0.048 J	0.022	-	0.0016 J	-	0.071	-
Benzo (a) anthracene	3,000	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	0.0017 J	-
Benzo (a) pyrene	1,400	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Benzo (b) fluoranthene	1,000	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	0.0014 J	-
Benzo (g,h,i) perylene	3.6	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Benzo (k) fluoranthene	360	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Chrysene	4.9	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Dibenz (a,h) anthracene	49	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Fluoranthene	0.49	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	0.0018 J	-
Fluorene	4.9	-	0.0043 J	0.14	0.10	-	0.0051 J	-	0.080	-
Indo (1,2,3-cd) pyrene	0.49	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	ND (0.0066)	-
Napthalene	1,400	-	0.015	1.5	0.74	-	0.020	-	0.25	-
Phenanthrene	6.2	-	ND (0.0068)	0.025	0.036	-	ND (0.0069)	-	0.0230	-
Pyrene	6.1	-	ND (0.0068)	ND (0.0095)	ND (0.0082)	-	ND (0.0069)	-	0.0023 J	-
1-Methylnapthalene	20	-	ND (0.0068)	4.4	2.9	-	0.014	-	0.43	-
2-Methylnapthalene	180	-	ND (0.0068)	7.5	4.9	-	0.012	-	0.50	-
2-Chloronapthalene	120	-	ND (0.0068)	ND (0.24)	ND (0.41)	-	ND (0.0069)	-	ND (0.13)	-
Total Solids (2540; %)	-	84	88	63	73	67	87	86	90	82

TABLE 6 Soil Analytical Results Summary June 2011 Iliamna Tank Farm Additional Groundwater Characterization Report Crowley Maritime Corporation

Iliamna, Alaska

Location:		SB-5/1	TWP-5		SB-6/TWP-	6	SB-7/I	MW-5	SB-8/	MW-6	Trip B	lanks
Sample ID (11-ILM-):	Groundwater Cleanup	108-SB	109-SB	114-SB	115-SB	116-SB (dup of 115-SB)	112-SB	113-SB	117-SB	118-SB	201-TB	Trip Blank
Depth (bgs):	Level ⁽¹⁾	5.0	3.0	6.0	7.5 - 8.0	7.5 - 8.0	2.0 - 2.5	5.0 - 6.0	4.5	6.0		
Sample Date:		6/15/2011	6/15/2011	6/17/2011	6/17/2011	6/17/2011	6/16/2011	6/16/2011	6/17/2011	6/17/2011	6/15/2011	6/16/2011
ADEC Fuels (AK101, AK10	2, AK103; mg/k											
Gasoline Range Organics	300	<u>480</u>	1.7 J	ND (3.7)	ND (5.7)	ND (3.6)	ND (7.9)	ND (2.3)	ND (2.8)	ND (2.8)	-	-
Diesel Range Organics	250	<u>250</u>	1.7 J	ND (22) J	ND (23)	ND (21)	6.3 J	1.2 J	ND (22) J	ND (22)	-	-
Residual Range Organics	10,000	ND (110)	ND (120)	ND (110)	ND (110)	ND (110)	28 J	ND (100)	ND (110)	ND (110)	-	-
BTEX (8260B; mg/kg)												
Benzene	0.025	ND (0.036)	ND (0.044)	ND (0.037)	ND (0.057)	ND (0.036)	ND (0.079)	ND (0.023)	ND (0.028)	ND (0.028)	ND (0.001)	ND (0.001)
Toluene	6.5	1.7	ND (0.22)	0.041 J	0.27 J	0.17 J	ND (0.018)	ND (0.12)	ND (0.14)	ND (0.014)	ND (0.005)	ND (0.005)
Ethylbenzene	6.9	0.020 J	ND (0.044)	ND (0.037)	ND (0.057)	ND (0.036)	ND (0.079)	ND (0.023)	ND (0.028)	ND (0.028)	ND (0.001)	ND (0.001)
Total Xylenes	63	0.031 J	ND (0.13)	ND (0.11)	ND (0.17)	ND (0.11)	ND (0.24)	ND (0.070)	ND (0.085)	ND (0.084)	ND (0.003)	ND (0.003)
PAH (8270-SIM; mg/kg)												
Anthracene	3,000	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Acenapthene	180	0.017	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Acenapthylene	220	0.0070	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Benzo (a) anthracene	3,000	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Benzo (a) pyrene	1,400	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Benzo (b) fluoranthene	1,000	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Benzo (g,h,i) perylene	3.6	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Benzo (k) fluoranthene	360	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Chrysene	4.9	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Dibenz (a,h) anthracene	49	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Fluoranthene	0.49	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Fluorene	4.9	0.022	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Indo (1,2,3-cd) pyrene	0.49	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Napthalene	1,400	0.019	-	-	ND (0.0068)	ND (0.0064)	0.0018 J	ND (0.0063)	-	ND (0.0065)	-	-
Phenanthrene	6.2	0.0050 J	-	-	ND (0.0068)	0.00087 J	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
Pyrene	6.1	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
1-Methylnapthalene	20	0.15	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
2-Methylnapthalene	180	0.071	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088)	ND (0.0063)	-	ND (0.0065)	-	-
2-Chloronapthalene	120	ND (0.0065)	-	-	ND (0.0068)	ND (0.0064)	ND (0.0088) J	ND (0.0063)	-	ND (0.0065)	-	-
Total Solids (2540; %)	-	92	87	90	88	94	68	96	90	93		

Note: Results above ADEC cleanup values are underlined & bolded.

(1) 18 AAC 75.345, Table C (mg/L)

Key:

-- = Not analyzed

ADEC = Alaska Department of Environmental Conservation

bgs = Below ground surface

BTEX = Benzene, toluene, ethylbenzene, and total xylenes

J = Estimated Value. Analyte detected at less than the RDL and greater than or equal to the MDL.

JD = Estimated Value. Primary and duplicate RDP above recommended value.

MDL = Method detection limit

mg/L = Milligrams per liter

B = analyte was detected in the trip blank; but at a concentration less than 5/10X the concentration detected in the associated blank.

MW = Monitoring well

ND = Analyte not detected above the RDL.

RDL = Reported detection limit; same value as limit of quantitization (LOQ)

and practical quantitization limit (PQL).

E = Reported value greater than the upper calibration limit. Acutal value is known to be greater than upper calibration limit.

APPENDIX

APPENDIX A

Chain of Custody Forms with Sample/Cooler Receipt Forms

	Company Name/Address:			Billing Inform	nation [.]									
•	OASIS Environme	ntal -		and g intern						nalvsis/C	Container/F	Preservative		Chain of Custody
	Anchorage, AK			Accounts	s Payable				740			C0/4		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
	825 W. 8th Ave.			825 W. 8	Bth Ave.			9	α	5 5				100
	Anchorage.AK 99501			Anchora	ge,AK 995()1		ন	pi	3 G				
								ŝ		źŻ			L-A-B S-C	
	Report to: D. FRANK		E	mail to: 0.1	Frankle	Dasiser	Niro	2	811				12065 Le	banon Road
	Project Description: ILIAMNA	. 1.	· ·	City/Sate Collected	2(2) Dasie	Senviro	<u>. Con</u>	05		G-			Phone: (80	L IN 37122 20) 767-5859
• . I	Phone: (907) 350-4897	Client Project	#:	ESC Ke	ev:			$-\overline{\mathbf{Y}}$	0	20	_		Phone: (61 Fax: (61	5) 758-5858
·	FAX: (907) 258-4033	465.01	1 Ph4					A	¥	-)			1 0 A. (01	2)720229
	Collected by: (print) MPIKE DKoCH	Site/Facility ID)#:	P.O.#:				24	5	100				
	Collected by (signature):	Rush? (La	b MUST Be	Notified)	Date Resu	Its Needed:		9	2	S	_			
. \ Ir	Denne Francisco Participation of the second	Sa	ame Day ext Day		Email?		No.	Å	ÅC A	$\overline{\sigma}$.			Cocode OASISA	AK (lab use only)
P.	acked on Ice NY	Tw	/o Day	50%	FAX?	No Ves	of	14	19	10			TTILL8 F	356320
	Sample ID	Comp/Grah	ree Day Matrix*			1	Cntr	Ro 8	Щ Ц	_0			Shipped Via: Fee	JEX
Ī	1-1LM-101-5B	Grain	< <u>2</u>	Depth	Date	Time	+	<u>Ģ</u>	60	0	_		Remarks/Contaminant	Sample # (lab only)
Ī	1-1LM-102-5B	Grab	 		061511	0924	3	×	Х	X	_			L 52169901
	1-1LM-103-5B	Grah	<u></u>		06/15/11	0430	3	X	×	X	_			5
	1-1LM-104-5B	Grab	<u> </u>		06 15 II	1110	3	X	X	X	_			03
1	1-1LM-105-5B	Grab	 <r< td=""><td></td><td>04/15/11</td><td>1200</td><td>2</td><td>X</td><td>×</td><td><u>×</u></td><td>_</td><td></td><td></td><td>ay</td></r<>		04/15/11	1200	2	X	×	<u>×</u>	_			ay
1	1-1LM-106-5B	Gino	<u></u> SR		or hel	1230	3	×	×	X				05
	1-1LM-107-58	Grab	<u></u>		06/19/1	1330	2	X	$\boldsymbol{\times}$	×	_	_		36
	1-1LM-108-5B	Grah	<u>_36</u> <r< td=""><td></td><td>06/15/11</td><td>1350</td><td>3</td><td>×</td><td>×</td><td>×</td><td>_</td><td></td><td></td><td>ා</td></r<>		06/15/11	1350	3	×	×	×	_			ා
1	1-1LM-108-58-	Grah	< <u>8</u>		06115/11	1614	3	X	×	<u>×</u>				-08
	*Matrix: SS - Soil/Solid GW - Ground				06/15/11	1620	5	X	<	×			~3s	
	Remarks: And LaCo		astevvater Di	W - Drinking	Water OT - C	Other						pH	Temj	0
Rel	inquished by: (Signature)		·	4875	5511 0	758						Flow	Othe	r
M	Nelessk Pike	Date:		Receive	ed by (Signati	ure)	te			Samples	s returned v	^{∕ia:} □UPS	Condition:	(lab use only)
Reli	inquished by: (Signature)	Date:	Time:	Receive	d by: (Signati)()/()/// /(e)			ئے۔۔۔۔					
Reli	inquished by: (Signature)	- Kainsa	K 1000	<u>'</u>						3,10		34	CoC Seals Intact J	r <u> </u>
		Date.	rime:	Receive	ed for lab by:	(Signature)				Date:	, Т	ime:	pH Checked:	NCF:
					pe_					$(\varphi, 1)$		0900		

Company Name/Address:			Billing Inform											
OASIS Environme	ental -			hallon:				Ar	nalvsis	Cont	ainer/	Preservative		Chain of Custody
OASIS Environme Anchorage, AK 825 W. 8th Ave. Anchorage.AK 99501 Report to: D. FRANK Project Description: TUAMNA Phone: (907) 350-4897 FAX: (907) 258-4033 Collected by: (print) MPKe D KCCH Collected by (signature): Mellos Pittos	Client Project #: UG5-D11 Site/Facility ID#: Rush? (Lab 	Рћ. Ц МUST Ве Г рау Day в Day	Account: 825 W. 8 Anchora Collected ESC Ke P.O.#: Notified) . 200% . 100% . 50%	Date Result FAX?	D1 Sisenvin AK Ilts Needed: NoXYes No_Yes	No.	XIOI / VO260 BTEX COML	2102/103/PAH SIM 402	260 BTEX TRIP BLANK	IC SUREN ZOZ-NOPRES	ainer/	Preservative	L-A-B 5-C 12065 Le Mt Julie Phone: (8 Phone: (6 Fax: (6 CoCode OASISA Template/Prelogin T1/L48 Pe	Chain of Custody Page 2 of 3 Chain of Custody Page 2 of 3 Chain of Custody Chain of Custody
	Comp/Grab	Matrix*	Depth	Date	Time		A	¥	2	NO			Remarks/Contaminant	Sample # (lab only)
11-1LM-104-50	Grab	SB		06/15/11	1700	3	X	Х		X	-			
11-1LM-110-513	Grab	SB		06/15/11	1700	3	X	X		X				C 34011 S
11-1LIVI-111-5B	Grab	SB		06/15/11	1700	3	X	V		x				-10
11-1LM-201- TB		W		DULISI	0800	$\frac{J}{1}$		~	$\overline{\mathbf{v}}$					-[]
					0000				\sim					51-
										_				
							-							
*Matrix: SS - Soil/Solid GW - Ground	lwater WW - Wast	eWater DW	/ - Drinking	Water OT - C	 Dther									
Remarks: COC 20f2												рн	Tem	р
Relinquished by: (Signature)	Date:	Time							_			Flow	Othe	r
MPihe	06/16/11	0800	Receive	d by: (Signati	Ire)				Sampl X Fedi	es retu Ex □	rned v Courie	^{ia:} □UPS r□	Condition:	(lab use only)
(Signature)	Date:	Time:	Receive	d by: (Signatu	Ke)									
elinquished by: (Signature)	- 2011/2016	1000			- 1				reinp: 2	1.	В		CoC Seals Intact	$Y N = \frac{1}{NA}$
	Date:	Time:	Receive	d for lab by:	Signature)				Date:	1~	Ti	me:	pH Checked	NCE
			<u>IC.J</u>	700					6.1	7.11		0900	Pri Gilouneu.	
			Ű											

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r 521699	520	lsed: Yes □ No □ None □	No No								D		
S S S S S S S S S S S S S S S S S S S	Chris Jou BHA Jou Signapre	/ Was sufficient ice u eanuts Other	Yes	7			7						
L-A-B S-C-I-E-N Cooler Receipt For	Client: OA STSAAK Cooler Received On: 6-17-11 By:	Temperature of cooler when opened: 3.1. Degrees Celsius What kind of packing material was used? Bubblewrap P	Were custody seals on outside of cooler and intact?	Were custody papers properly filled out (ink, signed, etc.)?	Did you sign the custody papers in the appropriate place?	Did all bottles arrive in good condition?	Were all bottle labels complete? (#, date, signed, pres, etc)?	Did all bottle labels and tags agree with custody papers?	Were correct bottles used for the analyses requested?	Was sufficient amount of sample sent in each bottle?	Were correct preservatives used?	If applicable, was an observable VOA headspace present?	Non Conformance Generated: (See attached NCF if yes)

Tuesday, June 21, 2011 9:24 AM Jarred Willis From: Sent:

Reporting To:

Please scan this e-mail behind the COC of L521699 from *OASISAAK*. Subject: L521699 - *OASISAAK* - scan e-mail behind COC

Thanks, Jarred From: Melissa Pike [mailto:missyanne81@gmail.com] Sent: Friday, June 17, 2011 2:05 PM Subject: Samples arriving today To: Jarred Willis

Jarred.

Please email to confirm you recieve this msg. Cell phone is pretty sketchy out here.

and we will need GRO and BTEX run on them. I appologize for not including the two extra vials Today you will be recieving 2 coolers from Ilianna. The water samples only have 3-VOA vials for BTEX. I hope you can still run the samples.

Additionally, the soil sample COC is incorrect.

GRO/BTEX, DRO/RRO & PAH 11-ILM-102-SB 11-ILM-103-SB 11-ILM-104-SB 11-ILM-106-SB 11-ILM-108-SB 11-ILM-110-SB

GRO/BTEX, DRO/RRO 11-ILM-101-SB 11-ILM-105-SB 11-ILM-107-SB 11-ILM-109-SB 11-ILM-111-SB Also there's two coolers arriving tomorrow (Sat). These are all water samples.

907-317-6587 Melissa Pike THanks,

Torse of the second sec	Login No. : <u>Login No. : Login No. : Login No. : Logid Mater</u> Date: <u>(o. 17 - 1/)</u> Evaluated by: <u>Chris Jones</u> Client: <u>OASISAAK</u>	Non-Conformance (check applicable items) Parameter(s) past holding time Login Clarification Needed Improper temperature Chain of custody is incomplete Improper container type Chain of Custody is missing (see below) Improper preservation Broken container: sufficient sample Container lid not intact Nolume remains for analysis requested (See below) 	If no COC: Received by I mutificient packing material around container Date:Time: I mutificient packing material inside cooler Temp:Cont. RecpH I mproper handling by carrier (FedEx / UPS / Courter = Fedex E UPS cSWA c Other C Sample was frozen Tracking # Sample was frozen Tracking # D tracking # D S. S (W2O)	Login Instructions: TSR Initials: JW Client informed by call / email / fax / voice mail date: 6/21 time: 700 Client contact: Ban Frank - 135 on 6/20 - Somple Should not be listed Client mistake

Company Name/Address:		E	Billing Informa	ation:		· · · · ·	-	Ana	lvsis/C	Contain	er/Pre	servative			Chain of Cus	tody
OASIS Environmen	tal -										P S	110			Page of	1
Anchorage, AK			Accounts	Payable				È	S.	1. 1	911					-
825 W. 8th Ave.			825 VV. 81	in Ave.					0	1				T be	ICC	
Anchorage.AK 99501			Anchorag	e,AK 9950	1			tC	5-1	-	0				SC	
e water fail to be a fail	a filler e							1-	3	. 구	Ţ		•	L-A-B S-C	-I.E.N.C.E.S	
Report to: Dan Frank		Ę	mail to:	Com	000 0	:n	1	the	7	5	2			12065 Lei Mt. Juliei	banon Road I, TN 37122	
Project Description: Iliamna Addn'	t GW A	Non itoring	City/Sate	Irannal	AIC			1-9	7-1	1 A	Blai			Phone: (80 Phone: (61	0) 767-5859 5) 758-5858	
Phone: (907) 350-4897	Client Project	#: /	ESC Ke	y:			J	An	V	5	4			Fax: (61	5) 758-5859	
FAX: (907) 258-4033	465-011	Phase 4	1				H.	Ľ	EL	10	~	and .		E015		
Collected by: (print) Dense Koch	Site/Facility I)#:	P.O.#:				m	_	+	X.	$\mathbf{\dot{x}}$		1			000000000000
Collected by (signature):	Rush? (La	ab MUST Be	Notified)	Date Resu	lts Needed:	1	-	Μ	PA A	11	<u>–</u>		Ce		AK (labuse o	nlv)
Serv Creat	S	ame Day	200%		N. K.	No.	5	110	0	0	Σ		Te	emplate/Prelogin	[]	21
mmediately Packed on Ice N (Y)	T\T	wo Day		FAX?	No <u>√</u> Yes No_Yes	of	101	10:2	537	260	260		SI		200 Day 1	151
Sample ID	Comp/Grab	Matrix*	Depth	Date	Time		A K	AK	2	<u>></u> %	2		Rem	narks/Contaminant	Sample # (lab o	
11-ILM-201-GW	+ OK	GW)		GUSLI	1815	7	X	X	$\frac{1}{X}$	X		-			1 5218	37.
11-ILM-202-GW		GW		6/15/11	2030	1-1	Ý	V	X	V		-		<u>, , , , , , , , , , , , , , , , , , , </u>		$\frac{1}{2}$
TT:D Blank 11-ILM-202-TB	<u> </u>			6/15/11	0%20	1				<u>``</u> x						3
											`					_
												-				
				-	. .											T T
												_			2507	
*Matrix: SS - Soil/Solid GW - Ground	water WW-V	VasteWater	DW - Drinking	gWater OT -	Other	<u> </u>	48	75	55	197	69	pŀ	-I	Ten	ıp	
Remarks:												Fl	ow	Oth	er	
eiinquished by: (Signature)	Date:	Time:		ved by: (Signa	ature)		2-1	-	Samp E Fec	les retu IEx 🔲	irned vi Couriei	^{ia:} □ UPS r □	(Condition:	(lab use only)	V
elinquished by: (Signature)	Date:	Time:	Receiv	ved by: (Signa	nture)				Temp	a	В	ottles Rec	eived:	C Seals Intact		
alinguished hur (Construction of the construction of the construct	- Wik	2016 1000		und far lab be		(γ	\mathcal{I}	110			13		Joo Jeans illiadi	_ 1 N NA	•
einquished by: (Signature)	Date:	Time:	l recei	veo for lab by	(Sigpenure)	1			Date		Ti	me [.]		H Checked	NCE.	

S · C · I · E · N · C · E · S ╡ T L·A·B

Cooler Receipt Form

28812:57 Cooler Received On: 4/12/11 and Opened On: 4/18/11 By: Tray Punlay Client: **DASTSANK**

Olegy Child

lfficient ice used: Yes 🗆 No 🗆	Other None	:
ius/ Was su	Peanuts	
Degrees Cels	Bubblewrap	
Temperature of cooler when opened: $\overline{\mathcal{Z}, \mathcal{O}}$	What kind of packing material was used?	

Were custody seals on outside of cooler and intact?	Yes	0 N	N/N D
Were custody papers properly filled out (ink, signed, etc.)?	đ		
Did you sign the custody papers in the appropriate place?	ß		
Did all bottles arrive in good condition?	ार्ट		
Were all bottle labels complete? (#, date, signed, pres, etc)?	À		
Did all bottle labels and tags agree with custody papers?	Þ		
Were correct bottles used for the analyses requested?	٦		
Was sufficient amount of sample sent in each bottle?	هر		
Were correct preservatives used?	7		
If applicable, was an observable VOA headspace present?		F	
Non Conformance Generated: <i>(See attached NCF if yes)</i>		7	

Company Name/Address:		В	illing Inform	ation:				Ana	alvsis/	Contai	ner/P	reservative		Chain of Qualent
OASIS Environmen	ital -							a					-	
Anchorage, AK			Accounts	Payable				V V						, ,
825 W. 8th Ave.			825 W. 8	th Ave.				1 V)		¥		má T	
Anchorage.AK 99501			Anchorag	ie,AK 9950	1		-	4 44	de la		4J			ISC
Report to: D. Frank		Em	ail to: d, f	rank@	Oasiseo	Vin	F	5 V	LAN		(L)		12065 L Mt. Juli	ebanon Road et, TN 37122
Project Description: ILAMNA GW CH	ARACT		City/Sate Collected	liAm	14 04	~	Ì,	l q	E		Ñ		Phone: (I	300) 767-5859
Phone: (907) 350-4897	Client Project	#:	ESC Ke	y:	UT AN	<u></u>	- Å	A -	40		F		Phone: (6 Fax: (6	515) 758-5858 515) 758-5859
FAX: (907) 258-4033	465-0	11						7-	,	T	×		F014	~ ·
Collected by: (print) D, KOCH	Site/Facility ID)#:	P.O.#;				- E		凶	FA	Ш	1. 1.		
Collected by (signature):	Rush? (La	ab MUST Be I	Notified)	Date Resu	Its Needed:	T	$\overleftarrow{\nabla}$	0	81		157			
Jame Jean	Sa	ame Day	200%			No.		12		F I	0		CoCode OASIS	AAK (lab use only)
Immediately Packed on Ice N Y	Tv	vo Day nree Day	. 50%	Email? FAX? <u>X</u>	N ø<u>∼</u>` rés No_Yes	of	V IO	< 102	3260	82	270		T713637	P356319
Sample ID	Comp/Grab	Matrix*	Depth	Date	Time		X	A	\leq	S.	>		Remarks/Contaminant	Sample # (lab only)
11-1LM-205-GW		Gw		Dedualu	11.20	9	X	γ	X	$\overline{\mathbf{v}}$	-	·		
11-1LM-206-GW		(+11)		Delitati	1830	q	X	X	$\frac{1}{\lambda}$	\mathbf{r}				C 301009
11-11M-204-TB		•		Delibli	1800	1		\sim	\sim		x –			
				oepert.	000									
· · · · · · · · · · · · · · · · · · ·														
												_		
*Matrix: CC Call/Callel Otto C			<u></u>										•	
Remarks:	water WW - W	/asteWater D	N - Drinking	Water OT -	Other		873	43	433	37	61	pH _	Te	mp
Relinguished by: (Signature)									_			Flow_	Otl	her
Our Commence	Date:	1 Time:	Receive	ed by: (Signat	ture)				Samp	les retu	Irned V		Condition:	(lab use only)
Relinquished by: (Signature)	Date:	Time:	Receive	d by: (Signat	MU									\mathcal{Y}
null Som	_ Roipe	517 1130	<u> </u>	le by: (oighui		\wedge	-		iemp <	24			CoC Seals Intact	
centralistica pà: (Signature)	Date:	Time:	Receiv	ed for lab by:	(Signature)		\int		Date:	<u> </u>	T	Time:	pH Checked:	NCF:
					U por	M	1		6-	18-11		0900	22	

S · C · I · E · N · C · E · S

Cooler Receipt Form

1521884 Cooler Received On: $\frac{6}{3}$, $\frac{1}{3}$ and Opened On: $\frac{6}{3}$, $\frac{3}{3}$, $\frac{1}{3}$ By:-Client: DASTSAAK

Tray Duvlap

5 (Signature)

Temperature of cooler when opened: $\overline{\mathcal{3.4}}$	Degrees Celsi	ius/ Was suf	ficient ice	used: Yes	
What kind of packing material was used?	Bubblewrap	Peanuts	Other	None	
	Ø				
			Yes	NO N	N /A

	Yes	No	N/A
Were custody seals on outside of cooler and intact?			A
Were custody papers properly filled out (ink, signed, etc.)?	Þ		
Did you sign the custody papers in the appropriate place?	لحر		
Did all bottles arrive in good condition?	Ľ		
Were all bottle labels complete? (#, date, signed, pres, etc)?	٦		
Did all bottle labels and tags agree with custody papers?	Ì		
Were correct bottles used for the analyses requested?	7		
Was sufficient amount of sample sent in each bottle?	Ì		
Were correct preservatives used?			
If applicable, was an observable VOA headspace present?		E	
Non Conformance Generated: <i>(See attached NCF if yes)</i>			

Company Name/Address:	4]		Billing Inform	ation:			-	Ana	lvsis/	Cont	ainer/F	Preservative		Chain of Custody Page / of /
Anchorage, AK	tal -		Accounts	Payable				101	0 HC	FC			D111	~ + +
825 W. 8th Ave. Anchorage.AK 99501			Anchoraç		Add F	mL Am	Amber	31ank						
Report to: D. FRANK			Email to: d .f	VANK@	Dasisen	VIN.	er	2	40		1		12065 Let Mt. Juliet	anon Road TN 37122
Project Description: ILIANNA TA	NKFAR	n Grw	City/Sate Collected	LUAMA	JA		ह	a K K	M	04	F		Phone: (80 Phone: (61	0) 767-5859 5) 758-5858
Phone: (907) 350-4897 FAX: (907) 258-4033	Client Project	:#: つい	ESC Ke	ey:			mbe	117	5	X	X		rax: (or	o) /58-5859
Collected by: (print) DKOCH	Site/Facility I	D#:	P.O.#:				IL A	03	PAI	E	Ë			
Collected by (signature): Demon Plann Immediately Packed on Ice' No(Y)	Rush? (L S N	ab MUST E Same Day Iext Day wo Day	3e Notified) 200% 100% 50%	Date Resu Email? FAX? X	lts Needed: No_Yres No_Yes	No. of	ciol Hon	02 AKI	8270	8260 E	3260 3		CoCode OASISA Template/Prelogin T-713637	AK (lab use only)
Sample ID	Comp/Grab	Matrix*	25% Depth	Date	Time	Cntrs	Åk	AKI	3	>	2		Remarks/Contaminant	レビズ Sample # (lab only)
11-1LM-203-GW		Gu)	06/16/11	1150	9	X	X	X	X				1 52 8860
11-1LM-204-GW 11-1LM-202-TB 203 mg/10/11		GU)	06/16/11	1600 0800	9	×	X	×	×	×			ంగ - చి
								_						
*Matrix: SS - Soil/Solid GW - Ground Remarks:	water WW -	WasteWater	DW - Drinkin	g Water OT -	Other				a	~ ,		pH _	Tem	
Relinquished by: (Signature)	Date		e: Recei	ved by: (Signa	ture)				Sam XFe	ples f edEx	eturne Cou	/ <u>31/ 1/999</u> d via: □ UPS irier □	Condition:	(lab use only)
Rélinquished bý: (Signature)	Date:	Tim 25(7 113	e: Recei	ved by: (Signa	ture)				Tem	3,4	f	Bottles Receive	d: CoC Seals Intact	Y_N_NA
Relinquished by: (Signature)	Date:	Tim	e: Rece	ived for lab by	: (Signature)	ie/	ηĹ		Date	: 18-	11	Time: 9:60	pH Checked:	NCF:

S · C · I · E · N · C · E · S I

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Cooler Receipt Form

15 21886 Cooler Received On: $\frac{6/12}{11}$ and Opened On: $\frac{6}{12}\frac{12}{11}$ By: Derrick West Client: ORSTSAAK

E UNIN (Signature)

_ Degrees Celsius/ Was sufficient ice used: Yes \square No \square

Temperature of cooler when opened: $\frac{3, y}{2, y}$

What kind of packing material was used?

What kind of packing material was used? Bubblewrap	Peanuts	Other	None	
Were custody seals on outside of cooler and intact?		Yes	No No	N/A
Were custody papers properly filled out (ink, signed, etc.)?		Þ		
Did you sign the custody papers in the appropriate place?		म		
Did all bottles arrive in good condition?		Ŷ		
Were all bottle labels complete? (#, date, signed, pres, etc)?		Ð		
Did all bottle labels and tags agree with custody papers?		ß		
Were correct bottles used for the analyses requested?		À		
Was sufficient amount of sample sent in each bottle?		à		
Were correct preservatives used?		ß		
If applicable, was an observable VOA headspace present?			म	
Non Conformance Generated: (See attached NCF if yes)			Þ	

	<u></u>	Billing	Information:				Analy	/sis/Container/Pr	eservative		······································	Chain of Custody
DASIS Enviro		F	tccount	5							MAT	
825 W8th A	ve		Payay	ble							AK C	SC
Anch AK 99	501	Report to	Reporto: D. Frank								LIAIE SIC 12065 Leba	∾e,∿ ⊂∙e∘s anon Boad
		Email to:	frank@	OASIS		2	.				Mt. Juket.	IN 37122
Project Description: ILIAMNA (πu	Cit Co	ty/Sate offected	envi	in	<u></u>					Phone (800 Phone (615)) 767-5859)) 758-5858
Phone: C FAX:	Client Project #: 465-0	[]	ESC Key:			AK	2				Fax: (615) 758-5859
Collected by: MPIKE	Site/Facility ID#:		P.O.#:			×	22					
Collected by (signature):	Rush? (Lab Sam	MUST Be Noti e Day	ified) Date Resi	ults Needed:	No.	Ē	a				CoCode	(lab use only)
Innediately Packed on Ice N	Next	: Day	00% Email? 50% FAX?	of	2018	Щ Х				Template/Prelogin T 71637	P356319	
Sample ID (Comp/Grab	Matrix* (Depth Date	Time	Cntrs	2	\mathbb{Z}				Remarks/Contaminant	Sample # (lab only)
11-1LM-209-GW E	mb - (Ges 🖸 -	- 6/20/11	1540	5	X	×					1522701-01
11-1LM-212-GW (mb -	GW	- 6/21/11	1430	5	X	<u>×</u>					ી
11-10H-215-CW			- 6/21/1	1500	5	<u>×</u>	<u>×</u>			+		50
	.	-		-						+		
	•	•										
	<u> </u>	-										
		_									· · · · · · · · · · · · · · · · · · ·	
	<u> </u>	•										
*Matrix: SS - Soil/Solid GW - Ground	dwater WW-W	VasteWater DI	W - Drinking Water	OT - Other		-				pH	Ter	тр
Remarks:										Flow_	Od	1er
Frein purshed py: (Signature)	62211		Received by: (Sign	ature)				Samples return	ed via: 🛛 U purier 🛛 🗌	IPS	Condition:	(lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Sign	ature)				Temp:	Bottles F	Received	CoC Seals Intact:	NNA
Relinquished by: (Signature)	Date:	Time:	Received for lab	by: (Signatur	e)			Date:	Time:		pH Checked:	NCF:

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00			Bi	ling Informa	ation:				Anal	ysis/Contair	ner/Preser	vative	-	Chain of Custody
DASISENVIN BYEWSHA				Acc	$\frac{1}{2}$	15			0				X F	Page y of 1
Anch AK 9	950	1	Rep	D. Fr	2AN Ma	be K	NIC		5/ 826				L-A-B S C 12065 Le Mt Julie	banon Road L TN 37122
oject iscription: <u>IUAMNA</u> ione: X:	Client Proje	ect #: -01		City/Sate Collected ESC Ke	y:			. ~	AK101	N N			Phone: (80 Phone: (61 Fax: (61	00) 767-5859 (5) 758-5858 (5) 758-5859 -
Ilected by: MPUCF Ilected by (signature): Implicated Packed on Ice N (Y)	Site/Facility	Lab M Same Next D Two D Three	UST Be M Day ay Day	P.O.#: Notified) 200% 100% 50% 25%	Date Rest Email?	Ilts Needed: No_Yes	No.	EX 826C	20 BTEX	Ro RRo			CoCode Template/Prelogin	(lab use only)
Sample 1D	Comp/Grat	, न <i>G</i>	Matrix*	Depth	Date	Time	-7	X	X	A x			Remarks/Contaminant	Sample # (lab only)
1-1LM-214-Gw 1-1LM-TB-620-2	Ganto		い マ マ	1	62011	1600	7	X X	x	X				0,00,00 05 04
- 12M-208-0W	anub		₩ • • •		(120/11	1200	5	X						্র
		-	•											
*Matrix: SS-Soil/Solid GW-Grou Remarks:	ndwater W	W - Wa	steWater	DW - Drin	king Water	DT - Other	<u> </u>					pH	Te	
nguisher by: (Signature)	Dat Cot	22/11		C Receiv	ed by: (Signa	ature)				Samples re	turned via		Condition:	(lab use only)
Induisinen när (Signature)	Dat	e:	Time:	Receiv	ed by: (Signa	ature)				Temp: *(Bo	ttles Receiv	ed: CoC Seals Intact:	YNNA

Received for lab by: (Signature) Date: Time:

Relinquished by: (Signature)

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Date: 6/23/11

pH Checked:

NCF:

Time: 0900

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Mais Follo			Billir	ng Informa	ation:			d	Analysis/Co	ntainer/Pre	servative			Chain of Cus
UPSIS EINIPOP	imen	a	A	cci	unts [Black	Xe_	1 Z						Page <u>1</u> of
Amn AK "	7950	1	ſ	Asis			_	1A					- Mar -	N
			l g	251	NOH	Ave		ō						
			Repor		h Al	<		Σ					LANE S.C.	·HEIN CHE
			Email	Jan	han	K		\triangleleft					Mt. Juliet	мпол ноас . TN 37122
Project 1110mala	C1.		-10	. TR.	nual	Dasisg	NIR	p. CO	$m \mid$				Phone (an	61 767.5450
Phone: TOT ON ALLENT				FSC Ka				~					Phone (61	5) 758-5858
FAX: 401-264-4441	465	-011		LOU NE	y.			àb					Fax: (61	5) 758-5859
Collected by: M. Pike	Site/Facility	ID#:		P.O.#:			Ċ	18					F101	
Collected by (signature):	Rush? (Lab MI	JST Be No	otified)	Date Resu	lts Needed:	19	ET	-				CoCode	(lab use o
MIPike		Same [Next Da	Day ay	200% 100%	Email?	No_Yes	No.	Þ.∔₿					Template/Prelogin	
Innuediately Packed on Ice N Y		Two Da Three E	ay Dav	.50% .25%	FAX?	No_Yes	of (,		-				T71637	7356319
Sample ID	Comp/Grab	Λ	Aatrix*	Depth	Date	Time	10	H					Remarks/Contaminant	Sample # (lab.o
11-1LM-208-GW	Grap	G	υЦ		620/11	1200	12	X						4522701
11-14M-211-GW	Gnb)	HAL C			62111	1130	82	X					MS/MSD	
T TUNI- 215- GW	Grap	j (J			621/11	1500	2	X						-
	-	j											<u>_</u>	
	-]	•						- - -					
	-		•										·····	
	-		·									 		
	-]	+											
*Matrix SS-Soil/Solid GW-Grou	ndwater WM	- Was	teWater D	W - Drin	king Water (OT - Other					_	pH	Ter	-Lmp
Remarks:								49	15 551	1 969	1	Flow	, * Od	her
Relinquished by: (Signature)	Date	alı	Time:	Receiv	red by: (Signa	iture)			Sample			PS	Condition:	(lab use only)
Relinquished by: (Signature)	Date	:	Time:	Receiv	ed by: (Signa	iture)			Temp:		Bottles R	eceiver	d:	J AZ
				1			\cap		1 7	7	1	0	CoC Seals Intact:	V _{YN}

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		lace		sed: Yey 🗠 🛛	None	No D										
v v		, Wal	ion.	icient ice us	Other	Yes A	·\$	×.	. X	X	Ĭ	×	×	J.		*
Ш. О Z	rm	Kevin	<u>Ilanne</u> (Signature)	ls/ Was suff	Peanuts											
	Cooler Receipt Fo	Client: <u>O4 5'S FAUIRO</u> Cooler Received On: <u>623//1</u> and Opened On: 22///1 By		Temperature of cooler when opened: 7.2% Degrees Celsi	What kind of packing material was used? Bubblewrap	Were custody seals on outside of cooler and intact?	Were custody papers properly filled out (ink, signed, etc.)?	Did you sign the custody papers in the appropriate place?	Did all bottles arrive in good condition?	Were all bottle labels complete? (#, date, signed, pres, etc)?	Did all bottle labels and tags agree with custody papers?	Were correct bottles used for the analyses requested?	Was sufficient amount of sample sent in each bottle?	Were correct preservatives used?	If applicable, was an observable VOA headspace present?	Non Conformance Generated: (See attached NCF if yes)

B063

								7					L52272	23
OASTS Fruit	CADM S.M	da Billi	ng Information:		.		Analys	sis/Con	ainer/Pre	servative			Chain of Custody Page <u>1</u> of <u>1</u>	
Anchorage A	K	1 8	facounts 125 W. 8	Payabl	£ 2.	MaOHK/r	- 2	UH I	h i - Gw			WF	SC	
825 W. 8th Ave. Anchorage AK 99.	50	Repo D Email	an Fran	AK 9950 K) 	RO CONIANDI	, , , , , , , , , , , , , , , , , , ,		10-10-1-		1	A-E S C	HE N CHENS Non Boad IN 37122	
Project Description: Iliamna		U.	City/Sate Collected	FTS EN VIT	0.197	TEX	Am	X OIV				Phone (800 Phone (615	1767-5859 1758-5858	
Phone (907) 264-4441 FAX: / 907) 264-4441	HIC ALL PL		ESC Key:			0			2		,	Fax: (615)	1758-5859	
Collected by: Dealer Kach	Site/Facility ID	**%€ #:	P.O.#;			260	H		X		L	SUITS	······	
Collected by (signature):	Rush? (La	b MUST Be N	lotified) Date Ro	sults Needed:	1	118	203	φ	Ž I		c	CoCode	(lab use only)	
Danim IIIm	Sa Ne Tw	me Day ext Day vo Day	.200% .100% Email? .50% FAX?	_NoXYes No Yes	No.	101	1001	200	1097			emplate/Prelogin	Y3563M	
Sample ID	Comp/Grab	Matrix*	Depth Date	Time	Cntrs	AΚ	¥.	× ×	2		Rei	marks/Contaminant	Sample # (lab only)	1
11-ILM -210-GW	Gray -	GW -	(dad 11	18:30	6	X	X	X			10	BTEX/GRU both	ebroke	0
11-ILM-620-TB	- -	•	6/20/11	0800	l	1		Х			Tr	o Blank	. 1] ° ~
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		-			Ľ							1		
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	▼	-		-		1			-					1
	Ţ				+	<u> </u>								1
Mintrine SS ShillShill City C						1			<u> </u>	<u>_</u>				1
Remarks:	DK 6[22]"	wastewater	DW - Drinking Wate	r 01 - Other_						pr. Fl	1 0W	I en	er	-
Relinquished by: (Signature)	Date:	Time:	Received by: (Si	gnature)				Sample	s returne x⊡Cot	d via:□UPS µrier □		Condition:	(lab use only)	7
Relinquished by: (Signature)	Date:	Time:	Received by: (Si	gnature)				Temp:-	Դ (Bottles Rec	eived:	CoC Seals Intact:	YNN	A
Relinquished by: (Signature)	Date:	Time:	Received for la	La la	re)	·		Date:	2311	Time: 090	0	pH Checked:	NCF:	-
44	675	5511	96.77	• ••		,						•	· · · · · · · · · · · · · · · · · · ·	

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_ Degrees Celsius/ Was sufficient ice used: Yes □ No □ None No \Box J. A. Ile Other Yes h Σ S C N (Signature) Ш Peanuts U · Z Cooler Receipt Form Cooler Received On: 6.23.1 and Opened On: 6.23-1 By:-Were all bottle labels complete? (#, date, signed, pres, etc)? Were custody papers properly filled out (ink, signed, etc.)? Bubblewrap Did you sign the custody papers in the appropriate place? If applicable, was an observable VOA headspace present? Did all bottle labels and tags agree with custody papers? Were correct bottles used for the analyses requested? Was sufficient amount of sample sent in each bottle? Were custody seals on outside of cooler and intact? ს ი Temperature of cooler when opened: $\overline{2J}$ What kind of packing material was used? Did all bottles arrive in good condition? Ш .∀. Were correct preservatives used? Non Conformance Generated: (See attached NCF if yes) 6 45 15 Client:_

APPENDIX B

ESC Lab Report Case Narratives



Quality Control Summary

SDG: L521699 For: OASIS Environmental - Anchorage, AK Project: ILiamna June 29, 2011

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met.

Total Solids by Method 2540G

Laboratory Control Sample

Samples L521699-05, -06, -03, -02, -01, and -04 were analyzed in analytical batch WG541966. The laboratory control sample associated with these samples was within the laboratory control limits.

Samples L521699-09, -11, -07, -08, and -10 were analyzed in analytical batch WG542186. The laboratory control sample associated with these samples was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG541966 sample duplicate analysis was performed on sample L521699-06. The relative percent differences were within the method limits.

For analytical batch WG542186 sample duplicate analysis was performed on sample L521699-11. The relative percent differences were within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Method AK101

Laboratory Control Sample

Samples L521699-06, -11, -10, -07, -09, -03, and -08 were analyzed in analytical batch WG541271. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Samples L521699-01, -04, -02, and -05 were analyzed in analytical batch WG541871. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG541271 matrix spike/matrix spike duplicate analysis was performed on sample L521719-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

For analytical batch WG541871 matrix spike/matrix spike duplicate analysis was performed on sample L520816-04. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Volatile Organic Compounds by Method 8260B

Laboratory Control Sample

Sample L521699-12 was analyzed in analytical batch WG541261. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.



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Quality Control Summary

SDG: L521699

For: OASIS Environmental - Anchorage, AK Project: ILiamna June 29, 2011

Samples L521699-04, -06, -09, -01, -07, -08, -10, -03, -05, -11, and -02 were analyzed in analytical batch WG541470. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Samples L521699-02 and 04 were analyzed in analytical batch WG541775. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG541261 matrix spike/matrix spike duplicate analysis was performed on sample L521710-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

For analytical batch WG541470 matrix spike/matrix spike duplicate analysis was performed on sample L521699-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

For analytical batch WG541775 matrix spike/matrix spike duplicate analysis was performed on sample L521409-06. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Semi-volatile Organic Compounds by Method 8270C-SIM

Laboratory Control Sample

Sample L521699-03 was analyzed in analytical batch WG541783. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Sample L521699-04 was analyzed in analytical batch WG542040. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Samples L521699-02, -06, and -08 were analyzed in analytical batch WG542124. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Sample L521699-10 was analyzed in analytical batch WG542637. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG541783 matrix spike/matrix spike duplicate analysis was performed on sample L521981-01. The matrix spike recoveries were below laboratory control limits for Benzo(g,h,i)perylene, Dibenz(a,h)anthracene, and Indeno(1,2,3-cd)pyrene. The spike recoveries for the remaining target compounds were within limits. The relative percent difference exceeded laboratory limits for Benzo(g,h,i)perylene.

For analytical batch WG542040 matrix spike/matrix spike duplicate analysis was performed on sample L521862-06. The matrix spike recoveries were above laboratory control limits for 2-Methylnaphthalene. The matrix spike recoveries were below laboratory control limits for Dibenz(a,h)anthracene. The spike recoveries for the remaining target compounds were within limits. The relative percent difference was within laboratory limits for all compounds.

For analytical batch WG542124 matrix spike/matrix spike duplicate analysis was performed on sample L522123-07. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.



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Quality Control Summary SDG: L521699

For: OASIS Environmental - Anchorage, AK Project: ILiamna June 29, 2011

For analytical batch WG542637 matrix spike/matrix spike duplicate analysis was performed on sample L522159-01. The matrix spike recoveries were within laboratory control limits for all target analytes. The relative percent difference exceeded laboratory limits for 2-Chloronaphthalene.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

AK102 / AK103

Laboratory Control Sample

Samples L521699-03, -05, -07, -09, -10, -01, -06, -02, -04, -08, and -11 were analyzed in analytical batch WG542035. The laboratory control sample associated with these samples was above method limits control.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG542035 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nancy F. Winters ESC Representative ESC Lab Sciences



Quality Control Summary

12065 Lebanon Rd Mt. Juliet, TN 37122 (615) 758-5858 (800) 767-5859 Fax (615) 758-5859 Tax I.D 62-0814289 Est. 1970

SDG: L522725

For: OASIS Environmental - Anchorage, AK Project: Iliamna July 07, 2011

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met.

Total Solids by Method 2540G

Laboratory Control Sample

Samples L522725-01 and 02 were analyzed in analytical batch WG543073. The laboratory control sample associated with these samples was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG543073 sample duplicate analysis was performed on sample L522725-02. The relative percent differences were within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Method AK101

Laboratory Control Sample

Samples L522725-01 and 02 were analyzed in analytical batch WG542618. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG542618 matrix spike/matrix spike duplicate analysis was performed on sample L522825-02. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Volatile Organic Compounds by Method 8260B

Laboratory Control Sample

Samples L522725-02 and 01 were analyzed in analytical batch WG542580. The laboratory control sample associated with these samples was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG542580 matrix spike/matrix spike duplicate analysis was performed on sample L522759-02. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.



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Quality Control Summary

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SDG: L522725

For: OASIS Environmental - Anchorage, AK Project: Iliamna July 07, 2011

AK103 RRO C10-C36 by Method 8015

Laboratory Control Sample

Samples L522725-01 and 02 were analyzed in analytical batch WG543140. The laboratory control sample associated with these samples was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG543140, matrix spike/matrix spike duplicate analysis was performed on sample L523166-05. The spike recoveries were below the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nancy F. Winters ESC Representative ESC Lab Sciences



Quality Control Summary SDG: L523731



For: OASIS Environmental - Anchorage, AK Project: Iliamna GW July 06, 2011

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met when the samples were received.

AK103 RRO C10-C36 by Method 8015

Laboratory Control Sample

Samples L523731-02, -03, -04, -05, -01, and -06 were analyzed in analytical batch WG543680. The laboratory control sample associated with these samples was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG543680 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nancy F. Winters ESC Representative ESC Lab Sciences