	DOCKET NO. CP17000	Doc No: USAKE-PT-SRREG-00-
	RESOURCE REPORT NO. 13 LNG	000006-000
Alaska LNG	APPENDICES	APRIL 14, 2017
PROJECT	PART 12 OF 19	REVISION: 0
	Public	

Part 12 of 19 of Appendices for Resource Report No. 13 LNG



APPENDIX 2-B

**DAILY LINE LOGS** 



													Fugro						Tug	RO
											SEA	FLOC	OR MAPPING J	OBL	oc				<b>V</b>	$\approx$
ver 7.22	.2015-A	Alaska)	reservation areas				THE WAY	JCS							2504A2550 .					
CONTRACTOR			25-May-2019				145	1		CLIENT:			AK LNG							
	SPECT		2		chorage			,	OB DESC		_		Seafloor Mapp	ing						
	NAV. SY		23.00007123		lypack AV. DIVI	DE DV	1		AREA &	BLOCK: R/V:	_		LNG Sites Westerly							
		DAY#:	Day: 1	000000-2592	FIX DIST			No.	of SURVE		-	232	577.80 Kilometers							-
C			0.00 N/A		URVEY				GINAL JO		-	77,800.0								-
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GEOP	HYSICA	L EQUI	PMENT EQUIP#	-	989		PERS	ONNEL O	NBOARD			do m	PERSO	NNEL	ONSHORE	SE SE	WE	ATHER REPO	RT	
			OS MV # 602273			Capta			Ryan B	raget		1	Offshore Site Manage		Jim Grant	Time		ea State	Wind Speed	Dir.
Diff. GP	S System	- Trimbl	le AG130 #603512				el Crew:	9	n/a	i		1	Ass't Off, Site Manage	er:	Ecdie Stutts	Wx - 0600:		n/a	n/a	n/a
	MBES -					Party C			Kelly P				Data Manager:		Chuck Chamberlain	Wx - 1200:		ly, light rain	light aires	
	S - Edg					dro. Su			David \				Data Processor:		Garret Mitchell	Wx - 1800:	cloud	ly, light rain	light aires	
	Mag S						al Tech.: ey Crew:		Richie Car n/a			-	Data Processor: Data Processor:	-	Lance Woods n/a	Wx - 2400:	(Diaco o	Hull In ct 1		
	Sample				_		sentative:		n/a n/a			1	Additional Proc.:		n/a n/a	HSE Reporting	(Place an	The second secon	c, with brief des	criptior
	Sample				Cilen	it Repre	sentative.		11/8			1	Client Representativ	е:	Ron Eckhardt	Toolbox:	Yes J	HA - nob activ		_
Cras	Campie	7 7 611	75511									1	One it i to presentati	0.	Troit Estinator	Shift Change:		THE HOD GOLL	11100	
												1				Safety:		satisfications, Training Inc	truction for the local Forklift for Ed	de Stutts
												]				Pre/Post Job:				
TII	ME	ÓP				LINE	E INFORM	IATION			_				DET41 ED 0					
FROM	TO	CODE	LINENUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1			DETAILED S	URVEY INFORMAT	ION			
0700	1900	MD										Mobiliz	ration in Anchorage							
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			Fugro	
		S	EAFLOOR MAPPING JOBLOG	
PROSPECT / SITE: NAV. SYSTEM:	26-May-2015 Tue Julian Day: 146 Anchorage Hypack 23.00007123 Day: 2	JOB DESCRIPTION: AREA & BLOCK: RV: No. of SURVEY LINES:	AK LNG Seafloor Mapping LNG Sites Westerly 232 577.80 Kilometers 0.0% Complete	

GEOPHYSICAL EQUIPMENT	EQUIPA
Navigation System - POS MV	# 602273
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag - SeaSpy	# 403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	5

	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a
1	

L ONSHORE
Jim Grant
Ecdie Stutts
Chuck Chamberlain
Garret Mitchell
Lance Woods
n/a
n/a
Ron Eckhardt
Gilbert Suarez

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a		
Wx - 1200:		cloudy,	light	var.
Wx - 1800:		sunny	light	var.
Wx - 2400:				
HSE OFFICER:		Kell	Power	
	4			
Toolbox:	×	JHA- nob act		
	×			
Toolbox:	x		ivities	

WEATHER REPORT

TIN	ИΕ	ÓP				LINE	INFORM	MATION		 	
FROM	то	CODE	LINE NUMBER	HEADING.	BSP	ESP			SSS Fish (m)	DNP	
0700	1900	MD									RA
1900											
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DETAIL	FD S	SURVEY	INFORM	ATION

V Westerly Mobilization In Anchorage

## Confidential **LNG Facilities** Marine Geophysical Survey Report



05AL-FG-GRZZZ-90-002015-010 Rev.0 15-Jun-2016	Alaska LNG	
Fugro Seafloor Mapping Jo	PBLOG	

232

JOB DAY #:	Da	y: 3
CRP TO STERN:	0.00	N/A
EOPHYSICAL EQUIP	MENT	EQUID#
lavigation System - Po		
iff. GPS System - Trimble		
MBES - R2Sonic	2	# 603633
SSS - Edgetech 42	200	#403274
Mag - SeaSpy		#403113
USBL - IXSEA GA	PS	# 151

FUGRO JOB #: 23.00007123

PROSPECT / SITE: 27-May-2015 Wed Julian Day: 147
Anchorage

Hypack

ver 7.22.2015-A (Alaska)

NAV. SYSTEM:

Grab Sampler - Day Grab Grab Sampler - Van Veen

TIME OP

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

LINE INFORMATION

CLIENT: JOB DESCRIPTION:

No. of SURVEY LINES:

AREA & BLOCK:

R/V:

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt
Senior Hydrographer:	Gilbert Suarez

AK LNG Seafloor Mapping

LNG Sites

Westerly

577.80 Kilometers 0.0% Complete

	1	WEATHER REP	ORT	
Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	
Wx - 1200:		sunny	light	var.
Wx - 1800:		sunny	light	var.
Wx - 2400:				
SE Reporting (I	Place		ox, with brief desc y Power	cripti
Toolbox:	×	JHA- nob act		
Shift Change:				
Safety:				
Pre/Post Job:				

_			MICH	- HAL CICIA	Files				OP		
1	DNP	SSS Fish (m)	Mag (m)	Fath (m)	ESP	BSP	HEADING.	LINE NUMBER	CODE	TO	FROM
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lobing RV Westerly in Anchorage	·	

**DETAILED SURVEY INFORMATION** 





### **F**UGRO SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska) DATE: 28-May-2015 Thu Julian Day: 148 PROSPECT / SITE: Anchorage NAV. SYSTEM: Hypack FUGRO JOB #: 23.00007123 JOB DAY #: Day: 4
CRP TO STERN: 0.00 N/A

CLIENT: JOB DESCRIPTION: AK LNG Seafloor Mapping AREA & BLOCK: LNG Sites Westerly R/V: 232 577.80 Kilometers No. of SURVEY LINES: 0.0% Complete

WEATHER REPORT

Wind Speed Dir.

Sea State

GEOPHYSICAL EQUIPMENT EQUIP# Navigation System - POS MV # 502273 Diff. GPS System - Trimble AG130 #503512 MBES - R2Sonic # 603633 SSS - Edgetech 4200 #403274 Mag - SeaSpy #403113 USBL - IXSEA GAPS # 151 Grab Sampler - Day Grab Grab Sampler - Van Veen

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

Offshore Site Manager: Ass't Off. Site Manager:	Jim Grant Ecdie Stutts
Ass't Off, Site Manager:	Erdie Stutts
	Frais Sinis
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt

Wx - 1200:		in port	light	var.
Wx - 1800:		in port	light	var.
Wx - 2400:		11030/32		
ISE Reporting (I	Place	an "x" in the bo	x, with brief de	scriptio
HSE OFFICER:		Kelly	Power	
Toolbox:	×	JHA- nob activ	ities	
Shift Change:				
Safety:	x	vesselorientat	on for Cody Gib	son
Pre/Post Job:			-	

TIN	ME	OP								LINE INFORMATION		DP LINE INFORMATION		LINE INFORMATION			Г
FROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP			SSS Fish (m)		DNP	1					
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#### **DETAILED SURVEY INFORMATION**

Time

Wx - 0600:

Mobilization of RV Westerly in Anchorage





### **F**UGRO SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska) DATE: 29-May-2015 Fri Julian Day: 149 PROSPECT / SITE: Anchorage NAV. SYSTEM: Hypack FUGROI JOB #: 23.00007123 JOB DAY #: Day: 5
CRP TO STERN: 0.00 N/A

CLIENT: JOB DESCRIPTION: AK LNG Seafloor Mapping AREA & BLOCK: LNG Sites Westerly R/V: 232 577.80 Kilometers No. of SURVEY LINES: 0.0% Complete

WEATHER REPORT

Wind Speed Dir.

Sea State

GEOPHYSICAL EQUIPMENT EQUIP# Navigation System - POS MV # 502273 Diff. GPS System - Trimble AG130 #503512 MBES - R2Sonic # 603633 SSS - Edgetech 4200 #403274 Mag - SeaSpy #403113 USBL - IXSEA GAPS # 151 Grab Sampler - Day Grab Grab Sampler - Van Veen

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt

Wx - 0600:		n/a			
Wx - 1200:		calm	ligl	nt	var
Wx - 1800:		0.3m	10-1	ökts	SW
Wx - 2400:		***************************************			
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SE Reporting (F	Place			ef des	cripti
ISE OFFICER:		Kelly	Power	ef des	cripti
	Place		Power	ef des	scripti
HSE OFFICER: Toolbox:		Kelly	Power	ef des	scription

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FROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP			SSS Fish (m)		DNP	1
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#### **DETAILED SURVEY INFORMATION**

Time

Mobilization of RV Westerly in Anchorage



			Fugro	
		S	EAFLOOR MAPPING JOBLOG	
ver 7.22.2015-A (Alaska)				
DATE:	30-May-2015 Sat Julian Day: 150	CLIENT:	AK LNG	
PROSPECT / SITE:	Anchorage	JOB DESCRIPTION:	Seafloor Mapping	
NAV. SYSTEM:	Hypack	AREA & BLOCK:	LNG Sites	
FUGRO JOB #:	23.00007123	R/V:	Westerly	
JOB DAY #:	Day: 6	No. of SURVEY LINES:	232 577.80 Kilometers	
CRP TO STERN:	0.00 N/A		0.0% Complete	

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	# 602273
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag - SeaSpy	#403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	/

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

L ONSHORE
Jim Grant
Ecdie Stutts
Chuck Chamberlain
Garret Mitchell
Lance Woods
n/a
n/a
Ron Eckhardt
Gilbert Suarez

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a		
Wx - 1200:		Calm	light	var SW
Wx - 1800:		0.3m	10	
Wx - 2400:		10000000		
	-			
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Toolbox: Shift Change:	×		AND DESCRIPTION OF THE PARTY OF	
Toolbox:	×		AND DESCRIPTION OF THE PARTY OF	

WEATHER REPORT

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DETAIL	ED	SURVEY	INFORM	ATION

Reposition Vessel from Anchorage to Kenai



			Fugre	<b>o</b>			
		S	EAFLOOR MAPP	ING JOBLOG			
ver 7.22.2015-A (Alaska)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					$\overline{}$
DATE:	31-May-2015 Sun Julian Day: 151	CLIENT:		AK LNG			
PROSPECT / SITE:	Anchorage	JOB DESCRIPTION:	Seaf	loor Mapping			
NAV. SYSTEM:	Hypack	AREA & BLOCK:	L	NG Sites		·	
FUGRO JOB #:	23.00007123	R/V:		Westerly			
JOB DAY #:	Day: 7	No. of SURVEY LINES:	232 577.80	Kilometers			
CRP TO STERN:	0.00 N/A	_	0.0%	Complete			

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	#602273
Diff. GPS System - Trimble AG130	#603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	#403274
Mag SeaSpy	#403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

IEL ONBOARD
Ryan Braget
n/a
Kelly Power
David Wise
Richie Carmichael
n/a
n/a

L ONSHORE
Jim Grant
Ecdie Stutts
Chuck Chamberlain
Garret Mitchell
Lance Woods
n/a
n/a
Ron Eckhardt
Gilbert Suarez

	Sea State	wina Speea	DIT.
	n/a		
	n/a	light	var
	n/a	light	var
	7,135714		
Place			cripti
X			
		n/a n/a n/a Place an "x" in the b Kell	n/a n/a light n/a light Place an "x" in the box, with brief desc

WEATHER REPORT

TIME		OP				·						
FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	D	NP	
0700	1100	MD								14	M	lob vessel in Kenai
1100	1200	MD	7									perational Readiness inspection
1200	1400	MD									N	lob vessel in Kenai
1400	1500	MD									C	Operational Meeting
1500	1900	MD			Ĵ						N	flob vessel in Kenai
1900			9									
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#### DETAILED SURVEY INFORMATION





## FUGRO SEAFLOOR MAPPING JOBLOG

Ver 7.22.2015-A (Alaska)

DATE:
PROSPECT / SITE:
NAV. SYSTEM:
FUGROI JOB #:
JOB DAY #:
CRP TO STERN:

DATE:
O1-Jun-2015 Mon Julian Day: 152
Anchorage
Hypack
Hypack

Day: 8
CRP TO STERN:
0.00 N/A

WEATHER REPORT

Wind Speed Dir.

Sea State

Time

Wx - 0600:

Pre/Post Job:

PERSONNEL ONBOARD								
Captain:	Ryan Braget							
Other Vessel Crew:	n/a							
Party Chief:	Kelly Power							
Hydro. Surveyor:	David Wise							
Geophysical Tech.:	Richie Carmichael							
Other Survey Crew:	n/a							
Client Representative:	n/a							

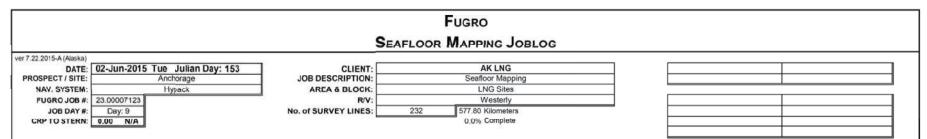
LINE INFORMATION

PERSONNEL	NAME OF TAXABLE PARTY.
Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt
Senior Hydrographer:	Gilbert Suarez
,	

Wx - 1200:		0.7m	10-15 kts	SW					
Wx - 1800:		1.5m - 2.0m	15-20 kts	SW					
Wx - 2400:									
SE Reporting (	Place	an "x" in the bo	x, with brief des	criptie					
HSE OFFICER:	Kelly Power								
Toolbox:	X	JHA Review MAR-	TRA- 001,006,011,01	2,013,01					
Shift Change:									
Safety:	Yes		TO THE REPORT OF THE ART OF THE PERSON OF						

TI	ME	OP		33	15	LINE	= INFORM	IATION				DETAILED SURVEY INFORMATION	
FROM	ТО	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION	
										72	_	Arrive on vessel	
	0730						1			1		Vessel Oreintation for Client Rep	
0730			Ü .									JHA-Toolbox Talk	
	0905										$\overline{}$	Transit To Boulder Pt. for MBES Patchtest	
0905											_	Arrive at Patchtest Site	
0920										3-		MOB DRILL	
0930												JHA-Toolbox Talk	
0940			5									MBESeployed	
0950		CAL								\ <u></u>		Conduct a SVP	
1025		CAL										HDG FOR LINE	
1033	1210	CAL	i i		1							Start MBES Calibration	
1210	1240	CAL			2							End MRES Calibration	
1240	1305	CAL								( )		MBES Performance Test	
1305		CAL										Conduct SVP for Performance test	
1310			9		4					U		Deploy USBL Transducer	
1320												Deploy Sidsecan and Magnetometer	
1400		CAL										Collect Sidescan and magnetometer data over known bottom feature in 2 directions	
1545	1600		j.		į.							Recover towfish	
1600	1610				į,							Recover MBES Tranducer	
1610	1830				,							Transit to Fueling Jetty	
1830	1850	CAL	ii s									Fueling Complete	
1850	1855				4					1		Arrive at Cannery Dock	
1855	1900	CAL	2		-							Depart Vessel	
1900			2										
					100					100			





Navigation System - POS MV Diff. GPS System - Trimble AG130 MBES - R2Sonic SSS - Edgetech 4200	EQUIP
MBES - R2Sonic	# 602273
The second secon	# 603512
SSS - Edgetech 4200	# 603633
	# 403274
Mag SeaSpy	#403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt
Senior Hydrographer:	Gilbert Suarez

	V	VEATHER REP	ORT						
Time		Sea State	Wind Speed	Dir.					
Wx - 0600:		n/a							
Wx - 1200:		n/a	10-15kts	S					
Wx - 1800:		n/a	10-15kts	S					
Wx - 2400:		310011							
SE Reporting	(Place	an "x" in the b	ox, with brief desc	riptio					
HSE OFFICER:	Kelly Power								
Toolbox:	Yes	JHA-Diploying/Recovering Survey							
Shift Change:			•						
Safety:	Yes	Installed Eyev	wash Bottles on Ves	sel					
Pre/Post Job:			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						

WEATHER REPORT

TIME		OP				LINE					
FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DI	NP
0700	0750	ow									Crew on vessel securing equipment,
0750	0755	SM									JHA-Toolbox talk
0755	0825	IT	ii ii		Ĭ.					12.	Depart Jetty
0825	0900	ws									Decision made to return to port due poor weather for
0900	1900	ws									At Cannery Dock
1900										5-	Waiting on Weather
$\rightarrow$											_
$\rightarrow$											_
$\rightarrow$											_
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DETAIL	ED	SURVEY	INFORM	ATION

orecast combined with lowtidewhich would prevent vessel to return to dock during poor weather



	Fugro
SEAFLOOR	MAPPING JOBLOG

DATE:	03-Jun-2015	Wed	Julian Day: 154
ROSPECT / SITE:			horage
NAV. SYSTEM:		H	ypack
FLIGRO JOB #	23 00007123		

WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	# 60227
Diff, GPS System - Trimble AG130	# 503512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag SeaSpy	# 403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

JOB DAY #: Day: 10

CRP TO STERN: 0.00 N/A

Captain:	NEL ONBOARD Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

PERSONNEL ONSHORE					
Offshore Site Manager:	Jim Grant				
Ass't Off. Site Manager:	Ecdie Stutts				
Data Manager.	Chuck Chamberlain				
Data Processor:	Garret Mitchell				
Data Processor:	Lance Woods				
Data Processor:	n/a				
Additional Proc.:	n/a				
Client Representative:	Ron Eckhardt				
Senior Hydrographer:	Gilbert Suarez				

Time		Sea State	Wind Speed	Dir.
Wx - 0600:				
Wx - 1200:		0.3m	Light	Var
Wx - 1800:		0.3m	Light	Var
Wx - 2400:				
SE Reporting (	Place	an "x" in the b	ox, with brief desc	ripti
HSE OFFICER:		Kell	y Power	
Toolbox:	X	JHA-SurveyO	perations	
Shift Change:				
Safety:	X	HOC Card for	a safe observation	
Pre/Post Job:				

TIN	ME	OP	d d		2 79	LINE	INFORM	- 0		DETAILED SURVEY INFORMATION		
FROM	TO		LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SORVET INFORMATION
	0700	ow	gi a								3	On board vessel
0700	0710	SM	Si .									JHA-Toolbox talk
0710	0800	IT	Î								Ĭ.	Transit to site
	0945	ow									1	Deploy MBES, Conduct SVP, Deploy USBL pole, Test USVP, Deploy sidescan and mag towfish
0945	1049	ow										Transit back to survey site as vessel drifted from site while deploying and testing equipment
	1109	OL	TM01_040	015.0°	100	140		50.0	40.0			
	1113	LT										
1113	1124	OL	TM01_047	195.0°	100	140		26.0	16.0			
1124	1128	LT	2									
1128	1146	OL	TM01_041	015.0°	102	142		42.0	32.0			
1146	1155	LT										The state of the s
1155	1206	OL	TM01_48	195.0°	100	140		25.0	15.0			Changed MBES frequency from 400 to 380 to avoid interference from SS
1206	1212	LT										
1212	1230	OL	TM01_042	015.0°	100	141		36.0	26.0		2	
1230	1239	LT										
1239	1254	OL	TM01_049	195.0°	100	141		26.0	16.0			
1254	1259	LT										Conducted a USVP while online
1259	1314	OL	TM01_043	015.0°	100	142		37.0	27.0			
1314	1321	LT	Į									
1321	1324	OL	TM01_036	195.0°	100	107		27.0	17.0			
1324	1338	LT	1									Extended line turn to allow MV Excel to pass thru area
1338	1351	OL	TM01_044	015.0°	100	141		35.0	25.0		Ž.	
1351	1357	LT	2									
1357	1414	OL	TM01_050	195.0°	100	143	22.0	44.0	34.0			
1414	1419	LT										
1419	1432	OL	TM01_45	015.0°	100	142	23.0	30.0	20.0		2	Conducted a USVP while online
1432	1438	LT								J.		
1438	1451	OL	TM01_51	195.0°	100	141	23.0	55.0	45.0	//		
1451	1506	LT										
1506	1517	OL	TM01_46	015.0°	100	141	25.0	26.0	16.0			
1517	1526	LT										
1526	1536	OL	TM01_37	195.0°	142	158	27.0	66.0	56.0			
1536	1549	LT										



												Fugro
											SEA	FLOOR MAPPING JOBLOG
ver 7.22	.2015-A											
	SPECT		03-Jun-2015				154	-	IOD DECC	CLIENT:		AK LNG
	NAV. SY				ehorage ypack			1	JOB DESC	BLOCK:		Seafloor Mapping  LNG Sites
			23.00007123	m	ypaon			-	rii ceri c	R/V:		Westerly
100		DAY#:		]				No	. of SURVE	Y LINES:		232 577.80 Kilometers
C	RP TO S	TERN:	0.00 N/A	Į.								6.0% Complete
FROM	ME TO	OP CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)		ecc Fish (m)	1	DNP	DETAILED SURVEY INFORMATION
1549	1558	OL	TM01_39	015.0°	100	136	28.0	32.0	SSS Fish (m) 22.0		DNP	
1558	1609	LT	_		100	100	20.0	02.0	22.0			
1609	1625	OL	TM01_38	195.0°	100	126	28.0	74.0	64.0			
1625 1637	1637 1647	LT OL	TM01_52	015.0°	100	140	28.0	26.0	16.0			
1647	1655	LT				.,.						
1655	1717	OL	TM01_59	195.0°	100	141	27.0	68.0	58.0		5	Conducted a USVP while online
1717 1720	1720 1731	LT OL	TM01_53	015.0°	142	183	28.0	30.0	20.0			
1731	1745	ow	111101_00	010.0	142	100	20.0	50.0	20.0			Recover Survey Equipment
1745	1840	IT									2	Transit to Cannery Dock
1840					1						2	
$\vdash$												
$\vdash$						-		_				
$\vdash$						<del>                                     </del>						
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Alaska Live	
Fugro	
SEAFLOOR MAPPING JOBLOG	

DATE:	04-Jun-2015	Thu Julian Day: 155					
PROSPECT / SITE:	Anchorage						
NAV. SYSTEM:	Hypack						
FUGRO JOB #:	23.00007123						
JOB DAY #:	Day: 11						
CRP TO STERN:	0.00 N/A						

CLIENT:		AK LNG				
JOB DESCRIPTION:		Seafloor Mapping	,			
AREA & BLOCK:	LNG Sites					
R/V:		Westerly				
o. of SURVEY LINES:	232	577.80 Kilometers				
		6.0% Complete				

WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	# 60227
Diff. GPS System - Trimble AG130	# 60351
MBES - R2Sonic	# 60363
SSS - Edgetech 4200	# 40327
Mag SeaSpy	# 40311
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K

PERSONNEL ONBOARD			
Captain:	Ryan Braget		
Other Vessel Crew:	n/a		
Party Chief:	Kelly Power		
Hydro. Surveyor:	David Wise		
Geophysical Tech.:	Richie Carmichael		
Other Survey Crew:	n/a		
Client Representative:	n/a		

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt
Senior Hydrographer:	Gilbert Suarez

Time		Sea State	Wind Speed	Dir.
Wx - 0600:				
Wx - 1200:		1.5-2.0m	15-20kts	NNE
Wx - 1800:		1.5-2.0m	10-15kts	NE
Wx - 2400:				
SE Reporting (	Place	an "x" in the b	ox, with brief des	criptio
HSE OFFICER:		Kelly	Power	
HSE OFFICER: Toolbox:	X	JHA- telbox to		
	X			
Toolbox:	x	JHA-telbox te		g noticed

TI	ME	OP		LINE INFORMATION						600	Г	
FROM	ТО	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	١
0630	0800	ws										ď
0800	0830	ws					1				1	10
0830	1830	ws										1۷
1830			9									1
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#### DETAILED SURVEY INFORMATION

Onboard vessel, Jl IA, Small craft advisory in effect, Sea state forecasted to be outside survey limits Conducted leadline of MBES at Cannery Dock

Waiting on Weather at Cannery Dock



## FUGRO SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska)

DATE: 05-Jun-2015 Fri Julian Day: 156

PROSPECT / SITE: Anchorage

NAV. SYSTEM: Hypack

FURRO JOB #: 23.00007123

-

WEATHER REPORT

1500 1505 LT

JOB DAY #: Day: 12

CRP TO STERN: 0.00 N/A

PERSONN	NEL ONBOARD	
Captain:	Ryan Braget	
Other Vessel Crew:	n/a	
Party Chief:	Kelly Power	
Hydro. Surveyor:	David Wise	
Geophysical Tech.:	Richie Carmichael	
Other Survey Crew:	n/a	
Client Representative:	n/a	
		-

PERSONNEL		
Offshore Site Manager:	Jim Grant	
Ass't Off. Site Manager:	Ecdie Stutts	
Data Manager.	Chuck Chamberlain	
Data Processor:	Garret Mitchell	
Data Processor:	Lance Woods	
Data Processor:	n/a	
Additional Proc.:	n/a	
Client Representative:	Ron Eckhardt	
Senior Hydrographer:	Gilbert Suarez	
and the second s		

Time	Sea State		Wind Speed	Dir.
Wx - 0600:		n/a		
Wx - 1200:		0.3m	5kts	Var.
Wx - 1800:		0.7m	10kts	S
Wx - 2400:				
	Place		ox, with brief des	criptic
HSE OFFICER:		Kell	y Power	
Toolbox:	X	JHA-Survey C	perations	
Shift Change:				
Safety:				
Pre/Post Job:				

TII	ME	OP		LINE INFORMATION							Γ	
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	ı
0645	0700	ow										C
0700	0710	SM	in a									J
0710	0740	IT										c
0740	0800	IT										V
0800	0815	IT	Ĩ									A
0815	0825	ow										N
0925	0000	ow	0									L
0900	0920	ow			2							c
0920	0925	ow	2									ŀ
0925	1005	E00										lr
1005	1030	E00			ĺ							U
1030	1033	LT										
1033	1043	OL	TM01_060	195.0°	100	140	23.0	29.0	19.0			N
1043	1130	E00										F
1130	1142	LT										H
1142	1205	OL	TM01_054	015,0°	100	141	24.0					
1205	1209	LT										ı
1209	1222	OL	TM01_061	195.0°	100	141	22.0	28.0	17.0			C
1222	1229	LT										
1229	1254	OL	TM01_055	015.0°	100	141	22.0	55.0	45.0			ı
1254	1258	LT										
1258	1309	OL	TM01_062	195.0°	100	140	23.0	26.0	16.0			
1309	1317	LT	1									ı
1317	1337	OL	TM01_056	015.0"	100	141	22.0	41.0	31.0			ı
1337	1343	LT										ı
1343	1358	OL	TM01_063	195.0°	100	140	20.0	26.0	16.0			ı
1358	1407	LT										
1407	1422	OL	TM01_057	015.0°	100	141	23.0	45.0	35.0			ı
1422	1428	LT										
1428	1443	OL	TM01_064	195.0°	100	140	21.0	26.0	16.0			
1443	1447	LT										
1447	1500	OL	TM01_058	015.0°	100	141	24.0	33.0	23.0			

	INFORM	

Onboard vessel, prep for sailing

JHA-Toolbox talk

Depart dock

Vessel slowed as to allow vessel captain to switch to a diffferent fuel filter on Port Engine

Arrive at Site LNG -01

MBES, USBL Pole deployed

USVP

Deploy SS/Mag Towfish

Heading for line, NO SBES as PWR Supply not working

Investigate striping in SS record, Switch Transponder beacons, UsbI beacons not working

Unable to get layback from cable counter into Hypack

Mag depth was not set during deployment

Recover fish to zero mag

Heading for line

Conduct SVP while online



			Fugro	
		SEA	AFLOOR MAPPING JOBLOG	
ver 7.22.2015-A (Alaska) DATE:	05-Jun-2015 Fri Julian Day: 156	CLIENT:	AK LNG	
NAV. SYSTEM:	Anctorage Hypack	AREA & BLOCK:	Seafloor Mapping LNG Sites	
FUGRO JOB #: JOB DAY #: CRP TO STERN:	Day: 12	No. of SURVEY LINES:	232   577.80 Kilometers 11.7% Complete	
CRP TO STERN:	0.00 N/A	ATION		

	ME	OP					INFORM					DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETALES SOLVET INTO MINATION
1505	1521	OL	TM01_065	195.0°	100	141	22.0	36.0	26.0			
1521	1527	LT	7									
1527	1542	OL	TM01_065	015.0°	100	141	23.0	30.0	20.0			
	1600							1				
1600	1620	OL	TM01_034	195.0°	100	142	24.0	45.0	35.0			
1620	1626	LT										
1626	1638	OL	TM01_066	015.0°	100	141	26.0	32.0	22.0			
1638	1644	LT			,	. , ,	20.0					
1644	1708	OL	TM01_033	195.0°	100	141	26.0	51.0	41.0			
1708	1712	LT					20.0					
	1722		TM01_067	015.0°	100	140	27.0	32.0	22.0			
1722	1730	OW	111101_001	0.10.0	100	140	21.0	02.0	22.0			Recover SS/Mag
	1740								_			Hdg for MBES Yaw lines
1740	1747	CAL	i i									Start running cal lines
1747	1800	OW	54								-	Start tunning of an ines Recovery MBES/USBL POLE
1800	1910	IT	2								_	Transit to dock
1910			-								-	ETMENT TO MOVE
1910												
$\vdash$										<del>                                     </del>		
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Time

Wx - 0600:

and a service from the control of th	
	SEAFLOOR MAPPING JOBLO
	Fugro

ver 7.22.2015-A (Alaska)

DATE:
PROSPECT / SITE:
NAY. SYSTEM:
FUGRO JOB #:
JOB DAY #:
DB DAY #:
DB DAY #:
DB DAY #:
CRP TO STERN:
0.00
N/A

CLIENT:		AK LNG					
JOB DESCRIPTION:	Seafloor Mapping						
AREA & BLOCK:							
R/V:							
No. of SURVEY LINES:	232	577.80 Kilometers					
		11.7% Complete					

WEATHER REPORT

Wind Speed Dir.

Sea State

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Garret Mitchell
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt
Senior Hydrographer:	Gilbert Suarez

Wx - 1200:		n/a	Light	Var.			
Wx - 1800:		na/	Light	Var.			
Wx - 2400:		77555					
ISE Reporting (	Place	an "x" in the b	ox, with brief de	scriptie			
HSE OFFICER:	Kelly Power						
Toolbox:	×	JHA- Refueling	g Vessel				
Shift Change:							
Safety:	х	Casileistip Slety Training to	r Jim Grant, Kelly Power, Ryan Brag	et, Ross Schland			
Pre/Post Job:			The Deliver of the Section of the Se				

TIME		DP LINE INFORMATION								
FROM	TO	CODE	LINE NUMBER	HEADING.	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP
0700	0900	ow								
0900	1500	SM								
1500	1600	ow								
1600	1900	ow	7							8
1900										7

DETAIL	FD	SURVEY	INFORMA	MOITA

Fatigue Day
Safety Leadership Training at Cannery Lodge For Jim Grant, Kelly Power, Ryan Braget
Refuel Vessel
At Cannery Lodge Dock



	Fugro							
	SEAFLOOR MAPPING JOBLOG							
ver 7.22.2015-A (Alaska)								
DATE:	07-Jun-2015 Sun Julian Day: 158	CLIENT:	AK LNG					
PROSPECT / SITE:		JOB DESCRIPTION:	Seafloor Mapping					
NAV. SYSTEM:	Hypack	AREA & BLOCK:	LNG Sites	-				
FUGRO JOB #:	23.00007123	R/V:	Westerly					
JOB DAY #:	Day: 14	No. of SURVEY LINES:	232 577.80 Kilometers					
CRP TO STERN:	0.00 N/A	_	11.7% Complete					
	-			[				

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	# 602273
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag - SeaSpy	# 403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	4

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	n/a

PERSONNEL ONSHORE				
Jim Grant				
Ecdie Stutts				
Chuck Chamberlain				
Garret Mitchell				
Lance Woods				
n/a				
n/a				
Ron Eckhardt				
Gilbert Suarez				

Time		Sea State	Wind Speed	Dir
Wx - 0600:		n/a		
Wx - 1200:		n/a	5kts	SW
Wx - 1800:		n/a	10-15kts	SW
Wx - 2400:				
SE Reporting (	Place	an "x" in the b	ox, with brief desc	cripti
ISE OFFICER:		Kell	Power	
THE RESERVE OF THE PARTY OF THE	×	Kell	y Power nt Installation	
ISE OFFICER:		Kell		- Land
HSE OFFICER:		Kell		

TI	ME	OP	LINE INFORMATION							Γ		
FROM	ТО	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1
0700	1000	ow										ſ
1000	1200	ow										h
1200	1900	ow	j j									1
1900			9									1
												1
			-									1
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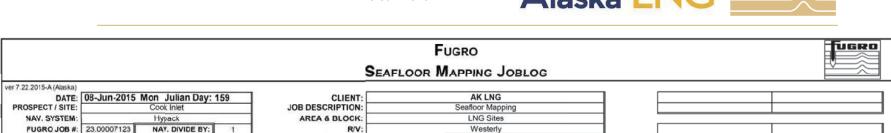
DETAIL ED	SURVEY INFORMATION	
DETAILED	SURVET INFURMATION	

Fatigue Day Install 12v pwr supply in Equipment rack Fatigue Day

232

577,800.00





577.80 Kilometers

11.7% Complete

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	# 60227
Diff. GPS System - Trimble AG130	#603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag - SeaSpy	# 40311
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K

TIME OP

JOB DAY #: Day: 15

CRP TO STERN: 0.00 N/A

NAV. FIX DISTANCE:

SURVEY UNITS: Meters

NAUTICAL MILE: 6080.0

50

LINE INFORMATION

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

No. of SURVEY LINES:

ORIGINAL JOB TOTAL:

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Marta Krynytzky
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a
Senior Hydrographer	Gitert Suarez

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		cloudy	10kts	WSW
Wx - 1800:		cloudy	10kts	SW
Wx - 2400:		n/a	n/a	n/a
	Place		ox, with brief des	criptic
ISE OFFICER:		Kell	y Power	
Toolbox:	Yes	-	y Power int Installation/testi	ng
Toolbox:	Yes	-		ng
THE RESERVE AND PARTY OF THE PERSON NAMED IN	Yes	-		ng

	***	OP				-1141	- mai Oisia	1011		600	4
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	
0045	0055	E101					-				0
0655	0920	E101									A
0920	1430	E101	i i								V
1430	1450	E101									M
1450	1545	E101									S
1545	1845	E101									P
1845											
			is .								
											1

Onboard Vessel, JI IA-To-

AML Serial connector rete

Vessel Port Engine Part A

Mag winch slip rings cabl

SS/Mag Towfish tested th

Port Engine repaired

Proc.:	n/a	HSE OFFICER:		Kelly Power	
sentative;	n/a	Toolbox:	Yes	JHA-Equipment Installation/testing	
		Shift Change:			
ographer	Gitert Suarez	Safety:			
		Pre/Post Job:			7
	,			•	_
	DETAIL ED 01	IDVENTURE ODIA ATT			
	DETAILED SU	JRVEY INFORMATION	JN		
oolbox talk, Ves	sel at dock waiting on Fort Er	ngine Oil Cooler replace	ment p	part	
	minating Mag Winch Cable				
Arrives					
ole end and wet	end terminated				
	nch cable test ok, wet end po	atted to			
in rough way mil	itor cable test on, wet end po	nied to			



			Fugro						
	SEAFLOOR MAPPING JOBLOG								
ver 7.22.2015-A (Alaska)									
DATE:	09-Jun-2015 Tue Julian Day: 160	CLIENT:	AK LNG						
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:	Seafloor Mapping						
NAV. SYSTEM:	Hypack	AREA & BLOCK:	LNG Sites						
FUGRO JOB #:	23.00007123	R/V:	Westerly						
JOB DAY #:	Day: 16	No. of SURVEY LINES:	232 577.80 Kilometers						
CRP TO STERN:	0.00 N/A	_	11.7% Complete						

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	# 602273
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag - SeaSpy	#403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	×
	,

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

LINE INFORMATION

Offshore Site Manager:	Jim Grant			
Ass't Off. Site Manager:	Ecdie Stutts			
Data Manager:	Chuck Chamberlain			
Data Processor:	Maria Krynytzky			
Data Processor:	Lance Woods			
Data Processor:	n/a			
Additional Proc.:	n/a			
Client Representative:	n/a			
Senior Hydrographer	Gitert Suarez			

Time		Sea State	Wind Speed	Dir.		
Wx - 0600:		n/a	n/a	na/		
Wx - 1200:		4'-6'	25kts	NE		
Wx - 1800:		4'-6'	15-20kts	NE		
Wx - 2400:		n/a	n/a	n/a		
HSE OFFICER:	Place		ox, with brief desc y Power	ripu		
Toolbox:	×		nt Installation Testi	ing		
Shift Change:						
Safety:	X	Weekly Safety	Meeting			
Pre/Post Job:			-			

WEATHER REPORT

	***	OP			Si.	-1141	- mai Ordin	IN TOTAL		55
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP
0700	0845	ws								
0845	0900	ws								1
0900	1000	ws								
1000	1030	ws								
1030	1900	ws			Ĵ					
1900										

#### DETAILED SURVEY INFORMATION

Weekly Safety meeting JHA-Toolbox talk on vessel Depart dock Return to dock

Fest magnetometer towfish, reterminate small jumper cable between SS fish and Mag fish



	Fugro
SEAFLOOR	MAPPING JOBLOG

ver 7.22.2015-A (Alaska)

DATE: 10-Jun-2015 Wed Julian Day: 161

PROSPECT / SiTE: Cook Inlot

NAV. SYSTEM: Hypack

FUGRO JOB #: 23.00007123

JOB DAY #: Day: 17

WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	# 602273
Diff. GPS System - Trimble AG130	# 503512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 403274
Mag SeaSpy	# 403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

1457 1506 OW

CRP TO STERN: 0.00 N/A

	$\overline{}$
Ryan Braget	
n/a	
Kelly Power	
David Wise	
Richie Carmichael	$\neg$
n/a	
Ron Eckhardt	
	Kelly Power David Wise Richie Carmichael n/a

PERSONNEL ONSHORE						
Jim Grant						
Ecdie Stutts						
Chuck Chamberlain						
Maria Krynytzky						
Lance Woods						
n/a						
n/a						
n/a						
Gitert Suarez						

Time		Sea State	Wind Speed	Dir.				
Wx - 0600:		n/a	n/a	n/a				
Wx - 1200:		0.3m	5kts	N				
Wx - 1800:		0.5m	10kts	SW				
Wx - 2400:		n/a	n/a	n/a				
HSE OFFICER:	(Place		ox, with brief des y Power	criptio				
Toolbox:	X	JHA-SurveyOperations						
Shift Change:	None		•					
Safety:	X Medical Emergency Drill							
Pre/Post Job:	N/A							

TII	ME	OP	LINE INFORMATION								DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
0630	0700	ow	u -								Capt on veesel doing prestart checks
0700	0715	SM									JHA- Survey operations
0715	0855	IT			0						Transit to LNG-01 Site, Vessel transited at slower speed due to fuel filter issues
0855	0910	ow									Arrive on site
0910	0955	ow									Deployed USBL pole, R2Sonic MBES
0955	1005	ow									Deployed SS/Mag
1005	1010	LT								-	Hdg for line
1010	1036	OL	TM_032	195.0°	100	141	26.0	35.0	25.0		Online, with SS/MAG/MBES/SBES, Magnetometer not supplying a correct depth value
1036	1041	LT									Recover fish layback in order to try to get layback position into Sonarwhiz
1041	1054	OL	TM_068	015.0°	100	141	27.0	31.0	21.0		Using USBL on this fine as we are running with current and layback distance is short ~20m
1054	1102	LT									STONE A 19-18-9 A 198-0
1102	1122	OL	TM_031	195.0°	100	141	26.0	55.0	45.0		Using layback distance for SS
1122	1126	LT	<u> </u>								10 to 10 00 00 00 00 00 00 00 00 00 00 00 00
1126	1140	OL	TM_069	015.0°	100	141	27.0	32.0	22.0		Using usbl distance for SS
1140	1145	LT									
1145	1201	OL	TM_030	195.0°	100	141	26.0	60.0	50.0		Using layback distance for SS
1201	1207	LT									
1207	1223	OL	TM_70	015.0°	100	141	27.0	32.0	22.0	γ	Using usbl distance for SS
1223	1228	LT									
1228	1245	OL	TM_029	195.0°	100	141	26.0	46.0	36.0		Using layback distance for SS
1245	1251	LT			_						
1251	1310	OL	TM_035	015.0°	100	141	27.0	34.0	24.0		Using usbl distance for SS
1310	1318	LT								_	
1318	1332	OL	TM_021	195.0°	100	141	25.0	41.0	31.0		Using layback distance for SS
1332	1336	LT	711 000	045.55	400			05.0		_	. 10 10 10 10 10 10 10 10 10 10 10 10 10
1336	1355	OL	TM_028	015.0°	100	141	26.0	35.0	25.0	-	Using usbl distance for SS
1355	1400	LT	711 000	105.55	400		010	010	050	_	
1400	1414	OL	TM_020	195.0°	100	141	24.0	34.0	25.0		Using layback distance SS, but on this line USBL did come in and was recorded in Hypack
1414	1418	LT			100					_	
1418	1436	OL	TM_027	015.0°	100	141	26.0	48.0	38.0		Using layback distance for SS, Current changed
1436	1442	LT	TM 046	405.00	100	444	24.0	00.0	100		Union with distance for CC
1442	1457	OL	TM_019	195.0°	100	141	24.0	26.0	16.0	1	Using usbl distance for SS

Change fuel filter on Port Engine

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	Fugro												
	SEAFLOOR MAPPING JOBLOG												
ver 7.2	ver 7.22.2015-A (Alaska)												
10000								1		CLIENT:		AK LNG	
PR	SPECT	/ SITE:		Co	ok Inlet	-			OB DESC	RIPTION:		Seafloor Mapping	
	NAV. SY	STEM:		Н	ypack			1	AREA 8	BLOCK:		LNG Sites	
	<b>FUGRO</b>	JOB #:	23.00007123					50		R/V:	7	Westerly	
		DAY#:		1				No.	of SURVE	Y LINES:		232 577.80 Kilometers	
	RP TO 9	TERN:	0.00 N/A	J								18.9% Complete	
-	ME		T.			LIMI	E INFORM	IATION					
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)		SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION	
1506		LT	and the state of	-		201	T dut (III)	wag (m)	CCC / Idir (III)		Ditt		
1521	1546	OL	TM_026	015.0	100	141	25.0	50.0	40.0		7	Using layback distance for SS	
1546		LT				1	2010						
1550	1601	OL	TM_018	195.0°	100	141	23.0	26.0	16.0			Using usbl distance for SS	
1601	1609	LT	U						1,5,5		9	The state of the s	
1609	1630	OL	TM_025	015.0°	100	141	25.0	50.0	40.0			Using layback distance for SS	
1630 1633	1633	LT											
1633	1645	OL	TM_017	195.0°	100	141	22.0	26.0	16.0			Using usbl distance for SS	
1645	1652	LT										to a terminal and a second and a	
1652		OL	TM_024	015.0°	100	141	23.0	50.0	40.0			Using layback distance for SS	
1712	1716	LT	TM 046	40E 08	400	_	20.0	00.0	40.0			Union while distance for CC	
1716		OL	TM_016	195.0°	100		22.0	26.0	16.0			Using usbl distance for SS Recover survey equipment	
1728			3 /			-					2	Transit to Dock, Vessel slowed to change fuel filter on Stbd Engine	
1743 1755		IT IT				_						VesseLSpd 8.5 kts	
1940			2 3									At Cannery Dock	
1340	+	_	-			_						A Calliery Dock	
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Time

Wx - 0600:



### FUGRO SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska) DATE: 11-Jun-2015 Thu Julian Day: 162 PROSPECT / SITE: Cook Inlet NAV. SYSTEM: Hypack FUGRO JOB #: 23.00007123 JOB DAY #: Day: 18

CLIENT: AK LNG JOB DESCRIPTION: Seafloor Mapping AREA & BLOCK: LNG Sites Westerly R/V: 232 No. of SURVEY LINES: 577.80 Kilometers 18.9% Complete

WEATHER REPORT

Wind Speed Dir.

n/a

Sea State

n/a

GEOPHYSICAL EQUIPMENT EQUIP# Navigation System - POS MV #502273 Diff. GPS System - Trimble AG130 #503512 MBES - R2Sonic # 603633 SSS - Edgetech 4200 #403274 Mag. - SeaSpy #403113 USBL - IXSEA GAPS # 151 Grab Sampler - Day Grab Grab Sampler - Van Veen

CRP TO STERN: 0.00 N/A

	IEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

A	
Ass't Off. Site Manager:	Ecdie Stutts
Data Manager:	Chuck Chamberlain
Data Processor:	Maria Krynytzky
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Wx - 1200:		n/a	15-20kts	SW	
Wx - 1800:		n/a	20kts	SW	
Wx - 2400:		n/a	n/a	n/a	
SE Reporting	Place	an "x" in the be	ox, with brief des	cripti	
HSE OFFICER:		Kelly	Power		
Toolbox:	X	JHA-Survey O	perationa		
Shift Change:	N/A				
Safety:	X	1 HOC Card, U	nsafe Condition, R	ectifie	
Pre/Post Job:	N/A				

TI	ME	OP	LINE INFORMATION						255	Г		
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1
0040	0700	ow										C
0700	0715	SM										JI
0715	0729	IT			ĵ.							D
0729	0757	IT.										V
0757	0815	ws			Ĉ.							V
0815	0850	ws										W
0850	0920	IT										R
0920	1010	ws										V
1010	1300	ws										1v
1300	1630	WS										T
1630	1840	WS										T
1840												1
												1
												1
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												1
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DETAIL	ED	SURVEY	INFORM	ATION

Capt on vessel IHA-Toolbox talk Depart Dock

essel touched bottom, no damage, tide indicates 1.6' ft, it was in bend just off Kenai City dock

lessel turned around towards Kenai as tide is low

Vaiting on tide, at mooring in Kenai River Mouth Resume transit to LNG-01 Survey Site

essel returning to port, Seas 4-5', Marginally at best, Forecast calls for increasing seas and winds, Logged SBES while transiting to dock thru chann /essel alongside Cannery Dock, Created a spare cable for for SS to Mag

est and log some USBL data, documented the MBES leadline check, mustang floater inventory equipment inventory

est mag system, switch out soft tow lead from mag to SS fish, installed fins onto spare SS



## FUGRO SEAFLOOR MAPPING JOBLOG

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WEATHER REPORT

CRP TO STERN: 0.00 N/A

Other Vessel Crew: n/a Party Chief: Kelly Power Hydro, Surveyor: David Wise Geophysical Tech.: Richie Carmichael Other Survey Crew: n/a Client Representative: Ron Eckhardt	Ryan Braget	
Hydro. Surveyor: David Wise Geophysical Tech.: Richie Carmichael Other Survey Crew: n/a	n/a	
Geophysical Tech.: Richie Carmichael Other Survey Crew: n/a	Kelly Power	
Other Survey Crew: n/a	David Wise	
	Richie Carmichael	
Client Degreeontative: Pon Eckhardt	n/a	
Ciletti Representative.	Ron Eckhardt	
Giletit Representative.		n/a Kelly Power David Wise Richie Carmichael n/a

PERSONNEL ONSHORE							
Jim Grant							
Ecdie Stutts							
Chuck Chamberlain							
Mana Krynytzky							
Lance Woods							
n/a							
n/a							
n/a							
Gibert Suarez							

Time		Sea State	Wind Speed Dir.				
Wx - 0600:	1	n/a	n/a	n/a			
Wx - 1200;		1.0m	light	var			
Wx - 1800:		0.3	light	var			
Wx - 2400:		n/a	n/a	n/a			
ISE Reporting	(Place	an "x" in the b	ox, with brief desc	criptio			
HSE OFFICER:		Kell	y Power	·			
Toolbox:	X	JHA-Toolbox					
Shift Change:	N/A						
Safety:	None		•				
Pre/Post Job:	None						

TII	ME	OP	LINE INFORMATION			DETAILED SURVEY INFORMATION					
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SORVET INFORMATION
0600		ow	u — =		3 3	10					Capt On vessel doing prestart checks
0630		SM									JHA-Toolbox talk
0640	0740	IT									Arrive on site
0740	0820	OW									Deploy USBL Pole, macapool, Conduct SVP, Launch SS/Mag towfish
0820	0829	LT									
0829	0842	OL	TM_058	195.0°	100	140	21.0	26.0	16.0		MBES/SS/MAG/SBES, SS record shows tugging from cable, Using USBL ,Seas are 2-3'
0842	0847	LT									
0847	0903	OL	TM_023	015.0°	100	139	23.0	40.0	30.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback, turned offline near EOL to log
0903	0909	LT									
0909	0923	OL	TM_014	195.0°	100	139	20.0	30.0	20.0		MBES/SS/MAG/SBES, SS record shows tugging from cable, Using USBL, there is lot of debris(floating togs) on line
0923	0928	LT									AND CONTROL OF THE PROPERTY OF
0928	0942	OL	TM_022	015.0°	100	139	23.0	40.0	30.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback, Avoiding Debris in water while online
0942	0953	LT	U								
0953	1009	OL	TM_007	195.0°	100	139	22.0	32.0	22.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback, Avoiding Debris in water while online
1009	1013	LT									
1013	1027	OL	TM_013	015,0°	100	139	23.0	32.0	22.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback, Lot of debris in water
1027	1033	LT									ANNEARING ANNA ANNA ANNA ANNA ANNA ANNA ANNA A
1033	1055	OL	TM_006	195.0°	100	140	23.0	36.0	26.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1055	1059	LT	U								The American Conference of the
1059	-		TM_012	015.0°	100	139	23.0	25.0	15.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback, Conducted USVP
1110	-	LT									
1118	1145	OL	TM_005	195.0°	100	140	25.0	37.0	27.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1145	1149	LT	2								AND CONTROL OF THE PROPERTY OF
1149	1200	OL	TM_011	015.0°	100	140	25.0	25.0	15.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1200	1210	ow									SS Fish lost power
1210	1214	ow			_	-				 	SS/Mag towfish on deck
1214	1224	OW									Fish ck, Did rub test, ok redeployed
1224	1247	ow									Sail back to line
1247	microsite propriet	OL	TM_004	195.0°	100	141	26.0	51.0	41.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1309	1312	LT									
1312	1325	OL	TM_010	015.0°	100	140	26.0	28.0	18.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1325	1332	LT									Jet prop sucked some debris up but it passed ok
1332	1355	OL	TM_003	195.0°	100	140	27.0	36.0	26.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,



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Alaska LNG 🐸	$\sim$
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### **F**ugro SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska) DATE: 12-Jun-2015 Fri Julian Day: 163 PROSPECT / SITE: Cook Inlet NAV. SYSTEM: Hypack FUGROI JOB #: 23.00007123 JOB DAY #: Day: 19
CRP TO STERN: 0.00 N/A

CLIENT: JOB DESCRIPTION: AK LNG Seafloor Mapping LNG Sites AREA & BLOCK: Westerly R/V: No. of SURVEY LINES: 232 577.80 Kilometers 25.5% Complete

TIN	ΛE	E OP LINE INFORMATION			DETAILED CUDIES WESTERNAME						
FROM		CODE	LINE NUMBER HEADING BSP ESP Fath (m) Mag (m) SSS Fish (m) DNP							1.0	DETAILED SURVEY INFORMATION
-			LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		NP .
1355	1359	LT									
1359	1412		TM_009	015.0"	100	139	26.0	26.0	16.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback, Conduct USVP
1412	1425	LT									2001/2000/2004/2004/2004/2000 11 10 2004/20 ABSZZAW (2001 8. 2017/2004 )
1425 1436	1436	OL	TM_002	195.0°	100	123	27.0	50.0	40.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1436	1442	LT									
1442	1443	OL	TM_001	195.0°	100	104	27.0	50.0	40.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1443	1447	LT									
1447	1503	OL	TM 008	015.0°	100	140	25.0	37.0	27.0		MBES/SS/MAG/SBES, Motion affecting MBES data, Using Layback,
1447 1503	1514	LT									
1514	1528	OLC	TM_034A	195.0°	100	142	26.0	49.0	39.0		Reshoot for mag. but all systems recorded
1528	1532	LT			100	1.42	20.0	40.0	55.0		
1532		OLC	TM_033A	015.0°	100		27.0	50.0	40.0		Reshoot for mag, but all systems recorded
1545	1600		000/1	3,0.0	100	-	27.0	00.0	40.0		Retrieve Survey Gear
1600	1700	IT	9 A	$\vdash$					$\vdash$	2	Trail to Port
1700	1800			$\vdash$					$\vdash$		At Cannery dock, Equipment list, Measure jetty length to determine if fuel hose from truck can reach vessel
	1000	UVV		$\vdash$							The Califiery Good, Equipment list, Measure Jetty rength to determine it lider hose from truck carried in vesser
1800	_			$\vdash$					-		_
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## Fugro Seafloor Mapping Joblog

1324 1335 OLC TM\_067A 015.0° 100 140 26.0

6,900.00 Meters Added

WEATHER REPORT

CRP TO STERN: 0.00 N/A

PERSON	NEL ONBOARD	
Captain:	Ryan Braget	
Other Vessel Crew:	n/a	$\neg$
Party Chief:	Kelly Power	$\neg$
Hydro. Surveyor:	David Wise	
Geophysical Tech.:	Richie Carmichael	
Other Survey Crew:	n/a	$\neg$
Client Representative:	Ron Eckhardt	
1		$\exists$
		$\neg$

30.0

20.0

Offshore Site Manager:	Jim Grant
Ass't Off, Site Manager:	Ecdie Stutts
Data Manager.	Chuck Chamberlain
Data Processor:	Cody Brinson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a
Senior Hydrographer	Gibert Suarez

Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish

Time		Sea State	Wind Speed	Dir.		
Wx - 0600:		n/a	n/a n/a			
Wx - 1200:		0.3m	10kts	SW		
Wx - 1800:		n/a	10kts	SW		
Wx - 2400:		n/a	n/a	n/a n/a		
ISE Reporting (	Place	THE RESERVE THE PERSON NAMED IN COLUMN	ox, with brief desc y Power	cription		
Toolbox:	X	JHA-Toolbox	A. C.			
Shift Change:	N/A					
Safety:	Yes	HOC-Suggeston for fuel con	spany to make a fuel hose extension for nozzle			
Pre/Post Job:	N/A					

			-								
TII	ME	OP	et e			LINE	INFORM	IATION	S	300	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	Di	IP DETAILED SORVET INFORMATION
0630	0650	OLC	1			10			1		Capt on boat doing prestart checks
0650	0700	OLC	lai j							1	JHA-Toolbox talk
0700	0725	OLC			2					)	Depart jetty
0725	0805	OLC									Switch fuel filter on engine, vessel speed has slowed enroute to site
0805	0840	OLC									arrive at site, deploy Survey equipment
0840	0850	OLC									Winds are light and seas 0.3m
0850	0903	OLC	TM_054A	195.0°	100	141	20.0	25.0	15.0		Collecting SS/MAC/MBES/SBES on a Mag rechoot line using USBL to track SS fish
0903	0909	OLC			2						Line Turn
0909	0928	OLC	TM_61A	015.0°	100	141	23.0	39.0	29.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using Layback to track SS fish
0928	0934	OLC									Line Tum
0934	0950	OLC	TM_055A	195.0°	100	141	21.0	22.0	12.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using USBL to track SS fish
0950	0954	OLC								i i	Line Turn
0954	1009	OLC	TM_062A	015.0°	100	141	24.0	36.0	26.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1009	1013	OLC									Line Turn
1013	1026	OLC	TM_56A	195.0°	100	141	21.0	26.0	16.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using USBL to track SS fish
1026	1030	OLC									Line Turn
1030	1043	OLC	TM_63A	015.0°	100	141	24.0	38.0	28.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1043	1049	OLC									Line Turn
1049	1104	OLC	TM_57A	195.0°	100	141	23.0	38.0	28.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1104	1108	OLC								V:	Line Turn
1108	1118	OLC	TM_64A	015.0°	100	141	25.0	39.0	29.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1118	1123	OLC									Line Turn
1123	1143	OLC	TM_058A	195.0°	100	142	24.0	37.0	27.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish, Conducted Usvp
1143	1147	OLC									Line Turn
1147	1159	OLC	TM_065A	015.0°	100	141	25.0	26.0	16.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1159	1205	OLC			-					i i	Line Turn
1205	1221	OLC	TM_059A	195.0°	100	127	24.0	42.0	32.0	D	IP Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish, abort line to avoid a passing ship
1221	1239	OLC									Line Turn to maintain a vessel port to port passing
1239	1250	OLC	TM_066A	015.0°	100	140	27.0	26.0	16.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1250	1255	OLC	0		2						Line Turn
1255	1320	OLC	TM_059B	195.0°	100	142	25.0	50.0	40.0		Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1320	1324	OLC	77.2				1				Line Turn



												Fugro
											SEA	FLOOR MAPPING JOBLOG
ver 7.22	.2015-A							,				
200	SPECT	DATE:	13-Jun-201		Julia ok Inlet		164	-	JOB DESC	CLIENT:		AK LNG Seafloor Mapping
7.5500.000	NAV. SY				ypack			1		BLOCK:	_	LNG Sites
			23.00007123		ypaon			1	AILLA	R/V:		Westerly
		DAY#:		1				No	of SURVE			232 584.70 Kilometers
C	RP TO	TERN:	0.00 N/A	]								31.6% Complete
												6,900,00 Meters Added
TII	ME	OP				LINE	INFORM	IATION				DETAILED CURVEY WERDWATEN
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1335	1340	OLC										Line Turn
1340 1405	1405 1410	OLC	TM_060A	195.0°	100	142	26.0	55.0	45.0			Collecting SS/MAG/MBES/SBES on a Mag reshoot fine using tayback to track SS fish
1410	1418	AM	TM_MBESINFILL03	096.0°	100	119	29.0	41.0	31.0			MBINFILL LINE Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1418	1422	LT			100	110	20.0	71.0	01.0			
1422	1434	AM	TM_MBESINFILL02	021.0°	100	143	28.0	29.0	19.0			MBINFILL LINE Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1434 1440	1440 1446	LT AM	TM_MBESINFILL01	274.00	100	117	28.0	60.0	50.0			MBINFILL LINE Collecting SS/MAG/MBES/SBES on a Mag reshoot line using layback to track SS fish
1446	1451	LT	/ III_IIIDEOIII IEEE	214.0	100	1.17	20.0	00.0	30.0			WIDIN' IEE EINE CONSCIUNG SONIACIMIDES SEES ON A Wag TESTOOL THE USING 18 YOUR ON THE CONTROL OF
1451	1510	AM	TM01_RT01	031.0°	100	159	26.0	27.0	17.0			Tieline between LNG-01 and LNG-02. MBES/SBES/SS/Mag. Conducted Usvp
1510	1525	OW										Recover Survey Equipment
1525 1625	1625 1645	SM				_						Transit To Cannery Dock to Refuel At Cannery Dock, Review Refuel MAR-TRA-013 with crew and fuel truck crew
1645	1710	OW	0 5								2	At Galling Duck, neview neder ware-1 (A-0.15 with crew and identified drew Refuel Vessel
1710	1720	ow	61									Reposition Vessel to outer side of dock
1720	1830	ow			-							Change out fuel filters on vessel,
1830	_											
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			Fugro								
	SEAFLOOR MAPPING JOBLOG										
ver 7.22.2015-A (Alaska)											
DATE:	14-Jun-2015 Sun Julian Day: 165	CLIENT:	AK LNG								
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:	Seafloor Mapping								
NAV. SYSTEM:	Hypack	AREA & BLOCK:	LNG Sites								
FUGRO JOB #:	23.00007123	R/V:	Westerly								
JOB DAY #:	Day: 21	No. of SURVEY LINES:	232 584.70 Kilometers								
CRP TO STERN:	0.00 N/A		31.6% Complete								
			6,900.00 Meters Added								

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	# 60227
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 40327
Mag - SeaSpy	#40311
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	,

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

PERSONNE	L ONSHORE
Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a
Senior Hydrographer	n/a

Time		Sea State	Wind Speed	Dir.		
Wx - 0600:		n/a	n/a n/a			
Wx - 1200:		0.3m	5kts var 5kts var			
Wx - 1800:		n/a				
Wx - 2400:		n/a	n/a	n/a		
HSE OFFICER:		Kelly	Power			
	45		Kelly Power			
Toolbox:	×	JHA-Toolbox				
Shift Change:	N/A					
Shift Change: Safety:	N/A X	1 HOC (ard, Uns	afe condition that was	rectified		

WEATHER REPORT

TIM	IE	OP				LINE	INFORM	IATION	v		DETAILED SURVEY INFORMATION	
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION	
		ow									Prestart checks, morning ops meeting	
		SM									JHA-Toolbox talk	
0710		IT	ii l								Depart Dock	
	0825										MBES/USBL DEPLOYED, AML SVP conducted	
0825	1030	E53									Sidescan Decklead is not working. Had to cut BNC connector off and recrimp ne BNC connector on	
1030	1123	E53									Sidescan/Mag deployed on secondary winch	
		E53			$\rightarrow$						Recovered USBL/MBES, Reterminating SS cable and spare mag winch cable	
	1220	E53			$\rightarrow$						Transit to dock	
		E53									Arrive at Dock	
1245	1500	E53									Reterminate SS cable	
1500	1830	E53									Reterminated secondary winch cable	
1830	_				-							
$\rightarrow$	$\longrightarrow$			$\longrightarrow$								
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												Fugro						
											SEA	FLOOR MAPPING JOB	LOG					
ver 7.22	2015-A		45 him 204	C 11.	I. E.	- D	400	1				AKTNO						
PRO	PROSPECT / SITE: 15-Jun-2015 Mon Julian Day: 166 Cook Inlet				166	1	IOR DESC	CLIENT:	_	AK LNG Seafloor Mapping								
NAV. SYSTEM: Hypack			JOB DESCRIPTION: AREA & BLOCK:				LNG Sites											
918	UGRO	THE STATE OF	23.00007123	-011	ypaon			ā.	7,1,2,7,1	R/V:	_	Westerly						
		DAY#:	Day: 22	1				No	of SURVI			232 584.70 Kilometers						
C	RPTOS	TERN:	0.00 N/A	1								34.8% Complete						
												6,900.00 Meters Added						
GEOPI	HYSICAL	L EQUII	PMENT EQUIP	a	910		PERS	SONNEL O	NBOARD			PERSONNI	EL ONSHORE		W	EATHER REP	ORT	
Naviga	tion Sys	tem - P	OS MV # 50227	3		Capta	in:		Ryan B	Braget		Offshore Site Manager:	Jim Grant	Time		Sea State	Wind Speed	Dir.
Diff. GP	S System	- Trimbl	e AG130 #60351	2	Oth	er Vesse	el Crew:	7	n/a	a		Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:		n/a	n/a	n/a
	MBES - I			3		Party Cl			Kelly P			Data Manager:	Chuck Chamberlain	Wx - 1200:		0.3m	5kts	var
	S - Edge					dro. Sur			David '			Data Processor:	Cody Gibson	Wx - 1800:		n/a	10-15kts	NW
	Mag - 9					physica			Richie Car			Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
	BL - IXS			-			y Crew:		n/a			Data Processor:	n/a	SOURCE TO PROPERTY OF THE PARTY	(Place a		x, with brief de	cription
	Sample			-	Clien	t Repres	sentative:		Ron Ec	khardt		Additional Proc.:	n/a	HSE OFFICER:	**		Power	
Grab	Sample	r - Van	veen	-	-							Client Representative:	n/a	Toolbox:	X N/A	JHA-Toolbox		
_				-								Senior Hydrographer	n/a	Shift Change:		Spill Response	D-111	
$\vdash$			_	1	-							Serilor Hydrographer	Illa	Safety:	None	Spill Response	e Driii	
				=									<u> </u>					
FROM	ME TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)		SSS Fish (m	ol .	DNP		DETAILED SU	IRVEY INFORMATION	ON			
0630	0700	ow				-	1 401 (117)	11119 (111)			-	Ops Meetting						
0700	0730	ow										Test SS termination at dock. OK						
0730	0825	IT	0. U									Depart Cannery Dock						
0825	0855	ow										Arrive at LNG-02, Deploy Equipment	, Conduct AML SVP					
0855	0905	LT																
0905	1004	OL	TM02_001	026.0°	100	197	20.0	32.0	22.0		2	Collecting MBES/SS/MAG/SBES, At	SP 124 STAYED STBD OF LINE	AND RAISED FISH TO	O ENSI	JRE FISH AVOI	DED ASL CURR	NT METER
1004	1009	LT																
1009	1037	OL	TM02_007	206.0°	100	195	17.0	20.0	10.0	1		Collecting MBES/SS/MAG/SBES, Sh		ence on mbes not sure	if it is fi	rom SS or shall	ow water related	
	4044					1.2.5			1.0.0		-				A Company			
1037	1044	LT	TM02 002	026.09			10.0					as vessel went into deeper water mb			2010/00/BB2010			
1044	1125	LT OL	TM02_002	026.0°			19.0	30.0	20.0			as vessel went into deeper water mb Collecting MBES/SS/MAG/SBES			7.V. (10.1827.)			
1044 1125	1125 1129	OL LT			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES	es interference on outer beam le					
1044 1125 1129	1125 1129 1204	LT OL LT	TM02_002	026.0°	100		19.0					Collecting MBES/SS/MAG/SBES  Collecting MBES/SS/MAG/SBES, Co.	es interference on outer beam le					
1044 1125 1129 1204	1125 1129 1204 1220	LT OL LT OL OW			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MBES/SS/MAG/SBES, Co.  Recovered survey equipment	es interference on outer beam le					
1044 1125 1129	1125 1129 1204	LT OL LT			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MBES/SS/MAG/SBES, Co.	es interference on outer beam le					
1044 1125 1129 1204 1220	1125 1129 1204 1220 1305	LT OL LT OI OW IT			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MRES/SS/MAG/SRES, Co.  Recovered survey equipment  Transit to Cannery Dock	es interference on outer beam le nductd Lisve	ssened		Grab sampler s	ecured into Fram	a.
1044 1125 1129 1204 1220 1305	1125 1129 1204 1220 1305 1430	LT OL LT OI OW IT MD			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MRES/SS/MAG/SRES, Co. Recovered survey equipment Transit to Cannery Dock demob usbl pole	es interference on outer beam le	ssened	wood.			
1044 1125 1129 1204 1220 1305 1430	1125 1129 1204 1220 1305 1430 1530	LT OL LT OU OW IT MD			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MBES/SS/MAG/SBES, Co. Recovered survey equipment Transit to Cannery Dock demob usbl pole Install "Day" Grab Sampler on stern of	es interference on outer beam les inductif Lisur of vessel. Plywood secure to dec e, Test grab sampler operation v	ssened  k. Frame secure to ply while alongside the doc	wood.			
1044 1125 1129 1204 1220 1305 1430 1530	1125 1129 1204 1220 1305 1430 1530	LT OL LT OL OW IT MD MD			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES Collecting MBES/SS/MAG/SBES, Co. Recovered survey equipment Transit to Cannery Dock demob usbl pole Install "Day" Grab Sampler on stern of Review MRA-TRA-OO3 Grab Sampler	es interference on outer beam le nductd Lisur of vessel. Plywood secure to dec e, Test grab sampler operation v grage, Conducted a Spill Respon	ssened  k. Frame secure to ply while alongside the doc	wood.			
1044 1125 1129 1204 1220 1305 1430 1530 1630	1125 1129 1204 1220 1305 1430 1530 1630 1730	LT OL LT OW IT MD MD MD			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MBES/SS/MAG/SBES, Collecting MBES/SS/MAG/SBES/SS/MAG/SBES/M	es interference on outer beam le nductd Lisur of vessel. Plywood secure to dec e, Test grab sampler operation v grage, Conducted a Spill Respon	ssened  k. Frame secure to ply while alongside the doc	wood.			
1044 1125 1129 1204 1220 1305 1430 1530 1630 1730	1125 1129 1204 1220 1305 1430 1530 1630 1730	LT OL LT OW IT MD MD MD			100	197		30.0	20.0			Collecting MBES/SS/MAG/SBES  Collecting MBES/SS/MAG/SBES, Collecting MBES/SS/MAG/SBES/SS/MAG/SBES/M	es interference on outer beam le nductd Lisur of vessel. Plywood secure to dec e, Test grab sampler operation v grage, Conducted a Spill Respon	ssened  k. Frame secure to ply while alongside the doc	wood.			



## Fugro Seafloor Mapping Joblog

34.8% Complete 6,900.00 Meters Added

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	# 60227
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	# 40327
Mag SeaSpy	# 40311
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech:	Richie Carmichael
Other Survey Crew:	Kristin Reardon
Client Representative:	Ron Eckhardt

Jim Grant
Chadle Hall
Charlie Hall
Chuck Chamberlain
Cody Gibson
Lance Woods
n/a
n/a
n/a
Author
n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		0.3m	5kts	var.
Wx - 1800:		n/a	10kts	N
Wx - 2400:		n/a	n/a	n/a
SF Reporting	(Place	an "x" in the b	ox, with brief desc	rinti
				- i pti
HSE OFFICER:	×	Kelly	Power Review MRA-TRA-	
HSE OFFICER:		Kelly	Power	
HSE OFFICER: Toolbox:	×	Kelly JHA-Toolbox,	Power	003

TI	ME	OP				LINE	INFORM	INFORMATION				DETAILED SURVEY INFORMATION		
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	0	ONP			
	0700											Morning Ops Meeting		
0700	0730									1		Sampling Procedure briefing at CPC		
0730			Ü .									Bring Sampling supplies onto vessel, JHA-Toolbox, Vessel orientation for CH2M HILL Repesentative, Review MRA-TRA-003		
	0850											Depart Cannery Dock		
0850										j.		Grab Sample TM03_01A		
0910												Grab Sample TM03_01B		
0920			j i		,						_	Grab Sample D4SS01_01A		
0954			5									Grab Sample D6SS01_01A		
1016		coc								1		Grab Sample D6SS01_01B		
1022			2									Grab Sample D5SS01_01A		
1028		coc			1							Grab Sample D5SS01_01B		
1033		coc			1.							Grah Sample D5SS01_01C		
1039										1		Grab Sample D1SS01_01A		
1058		coc										Grab Sample D1SS01_01B		
1105			3									Grab Sample D2SS01_01A		
1115		coc										Grab Sample D2SS01_01B		
1120												Grab Sample D3SS01_01A		
1125												Grab Sample D3SS01_01B		
1130												TM03_02A		
1146												Media Day Sail Past		
1250												Transit to Cannery Dock		
1315			1									Waiting on tide to enter Keni River		
1325	_		10		1						_	Arrive at Cannery Dock		
1350	1415		ii l									Grab Sampler Demobed		
1415											_	Usbl Transducer installed		
1445	1500	ow										SS and Mag deck test thru primary winch		
1500			85 6		es.							Test SS/Mag thru secondary winch		
1715			w 2		165							Re-Fueling delayed until tomorrow as fuel company could not access fuel from supplier and has to go to Anchorage to get fuel		
1720	1830	ow	2 1									Captain did maintenance on vessel, survey crew cid general maintenance and housekeeping of survey spaces		
1830			SC II		V-									
					1									



	Fugro												
	SEAFLOOR MAPPING JOBLOG												
ver 7.22.2015-A (Alaska)													
DATE:	17-Jun-2015 Wed Julian Day: 168	CLIENT:	AK LNG										
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:	Seafloor Mapping										
NAV. SYSTEM:	Hypack	AREA & BLOCK:	LNG Sites										
FUGRO JOB #:	23.00007123	R/V:	Westerly										
JOB DAY #:	Day: 24	No. of SURVEY LINES:	232 584.70 Kilometers										
CRP TO STERN:	0.00 N/A		42.7% Complete										

6,900.00 Meters Added

PERSONN	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro, Surveyor:	David Wise
Geophysical Tech:	Richie Carmichael
Other Survey Crew:	Kristin Reardon
Client Representative:	Ron Eckhardt

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a
Client Representative:	n/a
Senior Hydrographer	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		0.3m	light	var.
Wx - 1800:		n/a	10kts	N
Wx - 2400:		n/a	n/a	n/a
HSE OFFICER:	Place		ox, with brief desc y Power	ripu
Toolbox:	×	JHA-Toolbox		
Shift Change:	N/A			
Safety:	х	1 HDC Suggetton for a doll	y cart to aid moving equipment to/from	vessel
Pre/Post Job:				

WEATHER REPORT

OW	LINE NUMBER	<b>HEADING</b>	pen	con	3700010-000000				DETAILED SURVEY INFORMATION		
			10-01	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP			
SM									Morning Ops meeting		
Oilli									Weekly safety meeting		
IT	i i								Transit to LNG-02 Survey Site		
ow									Survey equipment deployed, Conducted an AML Svp		
LT											
OL	TM02_009	206.0°	100	193	20.0	22.0	12.0	3	MBES/SBES/SS/MAG data collection, USBL Pole lowered "Z" to 4.825m wrt Gaps Antenna inorder to try to improve tracking		
-	Ų.										
OL	TM02_003	026.0°	100	197	22.0	41.0	31.0		MBES/SBES/SS/MAG data collection, USBL tracking but sporadic. Believe tracking affected by noise(90dbB) at transciever from vessel propulsion		
	TM02_10	206.0°	100	193	18.0	22.0	12.0		MBES/SBES/SS/MAG data collection, USBL tracking is good. UsbI head noise(76dB) at transciever from vessel propulsion		
_	TM02_004	026.0°	100	196	20.0	38.0	28.0		MRES/SRES/SSIMAG data collection, USRL tracking is poor. Usbl head noise(90dB) at transciever from vessel propulsion, Possible mag hit sp103		
									mag hit sp115, sp126, sp132		
	TM02_011	206.0°	100	192	18.0	19.0	9.0		MBES/SBES/SSIMAG data collection, USBL tracking is good. UsbI head noise(76dB) at transciever from vessel propulsion		
_	y .										
	TM02_005	026.0°	100	195	19.0	30.0	20.0		MBES/SBES/SS/MAG data collection, USBL tracking is poor. Usbl head noise(92dB) at transciever from vessel propulsion, conducted a Usvp		
_											
	TM02_012	206.0°	100	193	9.0	26.0	16.0		MBES/SBES/SS/MAG data collection, USBL tracking is good. UsbI head noise(70dB) at transciever from vessel propulsion,		
	TM02_006	026.0°	100	195	21.0	31.0	21.0		MBES/SBES/SS/MAG data collection, USBL tracking is good. UsbI head noise(81dB) at transciever from vassel propulsion,		
	i								Extended long term to allow vessel to pass		
	TM02_36	206.0°	100	181	17.0	23.0	13.0		MBES/SBES/SS/MAG data collection, USBL tracking is fair. UsbI head noise(89dB) at transciever		
	TM02_029	026.0°	100	184	23.0	29.0	19.0		MBES/SBES/SS/MAG data collection, USBL tracking is good. UsbI head noise(75dB) at transciever		
			$\rightarrow$						Recover Survey Equipment		
									At Dock upriver from Canery dock to get water		
									At Cannery Dock		
ow									Refuel Vessel at Cannery Dock		
	2								1		
									1		
$\vdash$			$\longrightarrow$						1		
		$\sqcup$							1		
	OW LT	IT OW LT OL TM02_009 LT OL TM02_003 LT OL TM02_10 LT OL TM02_10 LT OL TM02_011 LT OL TM02_011 LT OL TM02_011 LT OL TM02_015 LT OL TM02_005 LT OL TM02_006 LT OL TM02_006 LT OL TM02_006 LT OL TM02_008 LT OL TM02_009 OW IT OW	IT OW LT OL TM02_009 206.0° LT OL TM02_100 206.0° LT OL TM02_10 206.0° LT OI TM02_10 206.0° LT OI TM02_011 206.0° LT OL TM02_011 206.0° LT OL TM02_015 026.0° LT OL TM02_016 026.0° LT OL TM02_016 026.0° LT OL TM02_017 206.0° LT OL TM02_018 206.0° LT OL TM02_018 206.0° LT OL TM02_018 206.0° LT OL TM02_018 026.0° LT OL TM02_018 026.0° LT OL TM02_018 026.0° LT OL TM02_029 026.0° UT OW	IT	IT	IT OW LT OW LT OL TM02_009 206.0° 100 193 20.0 LT OL TM02_003 026.0° 100 197 22.0 LT OL TM02_10 206.0° 100 193 18.0 LT OI TM02_104 026.0° 100 193 18.0 LT OI TM02_011 206.0° 100 192 18.0 LT OL TM02_011 206.0° 100 192 18.0 LT OL TM02_012 206.0° 100 195 19.0 LT OL TM02_012 206.0° 100 193 9.0 LT OL TM02_006 026.0° 100 195 21.0 LT OL TM02_006 026.0° 100 195 21.0 LT OL TM02_007 100 195 21.0 LT OL TM02_008 026.0° 100 184 23.0 OW IT OW	IT	IT	IT		



# 15-Jun-2016 Alaska LNG

## FUGRO SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska)

DATE: PROSPECT / SITE: Cook Inlet Hypack

FUGRO JOB #: Day: 25

CRP TO STERN: 0.00 N/A

CLIENT:		AK LNG				
JOB DESCRIPTION:		Seafloor Mapping				
AREA & BLOCK:	LNG Sites Westerly					
R/V:						
o of SURVEY LINES:	232	584.70 Kilometers				

49.5% Complete 6,900.00 Meters Added

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	# 60227
Diff. GPS System - Trimble AG130	# 60351
MBES - R2Sonic	# 60363
SSS - Edgetech 4200	# 40327
Mag SeaSpy	# 40311
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K

	IEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	John Valikonis
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt
1	

ONSHORE
Jim Grant
Charlie Hall
Chuck Chamberlain
Cody Gibson
Lance Woods
n/a
n/a
n/a
- Contract and a cont
n/a

Taken Control	WEATHER REP	A CONTRACTOR OF THE PARTY OF TH	The Co. In
Time	Sea State	Wind Speed	Dir
Wx - 0600:	n/a	n/a	n/a
Wx - 1200:	0.3m	5kts	SW
Wx - 1800:	0.3m	5-10kts	SW
Wx - 2400:	n/a	n/a	n/a

ISE Reporting	(Place	an "x" in the box, with brief description				
HSE OFFICER:	Kelly Power					
Toolbox:	×	JHA-Teolbox				
Shift Change:	N/A					
Safety:	X	Vessel orentaion for Capt John, review MAR-TRA-012				
Pre/Post Job:	None					

TI	ME	ÓP				LINE	INFORM	MATION	10. — — — — — — — — — — — — — — — — — — —		DETAILED CURVEY INCORMATION
FROM	ТО	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
0630	0700	ow									Morning Opa Meeting
0700	0730	ow								1	Vessel Orientation for Replacement Captain
0730	0810	IT									Depart Dock
0810	0840	ow									Survey Equipment deployed
0840	0850	LT									<b>1</b>
0850	0920	OL	TM02_020	226.0°	100	187	21.0	23.0	13.0	5-	MBES/SBES/SS/MAG, USBL Tracking ok
0920	0928	LT									
0928	1028	OL	TM02_013	026.0°	100	191	23.0	42.0	32.0		MBES/SBES/SS/MAG, USBL Tracking ok
1028		LT									Extended line turn to adjust connection (cable near potting area was repositioned) on SS towfish,
-	1116		TM02_21	226.0°	100	188	18.0	20.0	10.0		MBES/SBES/SS/MAG, USBL Tracking ok
1116		LT									- CONTRACTOR SANCTOR AND CONTRACTOR CONTRACT
1127	1224	OL	TM02_014	026.0°	100	191	21.0	34.0	24.0		MRES/SRES/SS/MAG, USRL Tracking is fair
1224	1232	LT						27.6.26			
1232	1300	OL	TM02_022	226.0°	100	187	16.0	18.0	8.0		MBES/SBES/SS/MAG, USBL Tracking is good
1300	1310	LT	T1400 045	026.0°	400	404	010	00.0	000		HINDSONDERSON AND LIGHT THE REST OF THE RE
1310	1345	OL	TM02_015	026.0	100	191	21.0	32.0	22.0	-	MBES/SBES/SS/MAG, USBL Tracking is fair, MBES gain set at 10 SS cable fault
1345	1350	E55		-		_					
1350	1430	E55 LT	-)	-						-	recover SS/Mag to switch to secondary winch towfish deployed
1430	1535	OL	TM02 023	226.0°	100	187	17.0	20.0	10.0		MBES/SBES/SS/MAG, USBL Tracking is fair, MBES gain set at 6, Using secondary Stbd winch and block
1535	1549	LT	11002_023	220.0	100	107	17.0	20.0	10.0		WIDES/SDES/SS/WAS, USBL Tracking is fall, WIDES gall set at 0, Using securidary Sibu winch and block
1549	1614	OL	TM02 016	026.0°	100	191	24.0	26.0	16.0		MDES/SDES/SS/MAG, USBL Tracking is fair, MDES gain set at 6, Using secondary S/bd winch and block
1614	1623	LT	11102_010	020.0	100	101	2.4.0	20.0	10.0		Reterminated primary cable at slip rings
1623	1719	OL	TM02 024	226.0°	100	186	20.0	29.0	19.0		MBES/SBES/SS/MAG, USBL Tracking is fair, MBES gain set at 6, Using secondary Stbd winch and block
1719	1735	ow			1.00		20.0	20.0	10.0		Recover Survey Equipment
1735	1825	IT									At Cannery Dock
1825	1830	ow									Tested SS/Mag through primary winch Ok31
1830											1 (18) P (18) 1 (18) P
			E							1	1
											1
											1
		_									7





# Fugro Seafloor Mapping Joblog

ver 7.22.2015-A (Alaska)

DATE:
PROSPECT / SITE:
NAY. SYSTEM:
FUGRO JOB #:
JOB DAY #:
DBy: 26
CRP TO STERN:
0.00 N/A

6,900.00 Meters Added

PERSONN	NEL ONBOARD	
Captain:	Ryan Braget	
Other Vessel Crew:	John Valikonis	
Party Chief:	Kelly Power	
Hydro. Surveyor:	David Wise	
Geophysical Tech.:	Richie Carmichael	
Other Survey Crew:	n/a	
Client Representative:	Ron Eckhardt	

Offshore Site Manager:	Jim Grant
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a
Client Representative:	n/a
Senior Hydrographer	n/a

Time		EATHER REP	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		n/a	15-20kts	SW
Wx - 1800:		n/a	15-20kts	SW
Wx - 2400:		n/a	n/a	n/a
SE Reporting	(Place a	an "x" in the b	ox, with brief desc	rinti
HSE OFFICER:		Kelly		
HSE OFFICER: Toolbox:	×	Kelly JHA-Toolbox	Power	
THE RESERVE AND PARTY OF THE PARTY OF	X N/A			
Toolbox:	100000			

		LINE INFORMATION						OP	ΛE	TII	
DN		SSS Fish (m)	Mag (m)	Fath (m)	ESP	BSP	HEADING.	LINE NUMBER	CODE	то	FROM
	.4							2	ow	0035	0630
									ow	0700	0635
						Ĭ.			IT	0725	0700
									ws	0755	0725
								50 55	WS	1830	0755
								9 .1			1830

#### **DETAILED SURVEY INFORMATION**

Morning Ops meeting Captain changing engine filters Depart Cannery Dock

winds 15kts, Sea conditions are 5-6°, wow, vessel returning to dock, Forecast is poor for the day.

Alongside Cannery Dock W.O.W, Conducted vessel maintenance



			Fugro	
		SEA	FLOOR MAPPING JOBLOG	
PROSPECT / SITE: NAV. SYSTEM:	20-Jun-2015 Sat Julian Day: 171  Cook Inlet  Hypack  23.00007123  Day: 27  0.00 N/A	CLIENT: JOB DESCRIPTION: AREA & BLOCK: RV: No. of SURVEY LINES:	AK LNG Seafloor Mapping LNG Sites Westerly 232   594.70 Kilometers 49.5% Complete 6,900.00 Meters Added	
GEOPHYSICAL EQUIP	MENT EQUIP# PER	SONNEL ONBOARD	PERSONNEL ONSHORE	WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	# 602273
Diff. GPS System - Trimble AG130	# 603512
MBES - R2Sonic	# 603633
SSS - Edgetech 4200	#403274
Mag - SeaSpy	#403113
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K.

PERSON	NEL ONBOARD
Captain:	Ryan Braget
Other Vessel Crew:	John Valikonis
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

L ONSHORE
Jim Grant
Charlie Hall
Chuck Chamberlain
Cody Gibson
Lance Woods
n/a
n/a
n/a
n/a
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Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		n/a	5kts	S
Wx - 1800:		n/a	5kts	S
Wx - 2400:		n/a	n/a	n/a
HSE OFFICER:	(r race		ox, with brief desc Power	ripue
Toolbox:	No	Keil	Power	
Shift Change:	N/A			
Safety:	No			
Pre/Post Job:	No			

TIN	1E	OP	LINE INFORMATION									
ROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP			SSS Fish (m)		DNP	1
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				Fugro					
		SE	AFLOC	R MAPPING JOBL	.oc				
	n Julian Day: 172 Cook Inlet Hypack	CLIENT: JOB DESCRIPTION: AREA & BLOCK: RV: No. of SURVEY LINES:	232	AK LNG Seafloor Mapping LNG Sites Westerly  584.70 Kilometers 49.5% Complete 6,900.00 Meters Added					
EOPHYSICAL EQUIPMENT EQUIP#	The second secon	NNEL ONBOARD		PERSONNEL			WEATHER REP	Contract of the second of the	n:
avigation System - POS MV #602273 f. GPS System - Trimble AG130 #603512	Captain: Other Vessel Crew:	Ryan Braget  John Valkonis	_	Offshore Site Manager: Ass't Off. Site Manager:	Charlie Hall Maria Krynytzky	Time Wx - 0600:	Sea State n/a	Wind Speed	n/a

GEOPHYSICAL EQUIPMENT	EQUIP#	
Navigation System - POS MV	#602273	C
Diff. GPS System - Trimble AG130	#603512	Other \
MBES - R2Sonic	# 603633	Par
SSS - Edgetech 4200	#403274	Hydro
Mag - SeaSpy	#403113	Geoph
USBL - IXSEA GAPS	# 151	Other S
Grab Sampler - Day Grab		Client R
Grab Sampler - Van Veen		12
		-

Ryan Braget John Valikonis Kelly Power
Kelly Power
D 1.1.1441
David Wise
Richie Carmichael
n/a
Ron Eckhardt

Offshore Site Manager:	Charlie Hall
Ass't Off. Site Manager:	Maria Krynytzky
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a
Senior Hydrographer	n/a

Time		Sea State	Wind Speed	Dir
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		n/a	5kts	SW
Wx - 1800:		n/a	10kts	SW
Wx - 2400:		n/a	n/a	n/a
SE Reporting	(Place a		ox, with brief desc	ripti
	(Place a		ox, with brief desc y Power	ripti
HSE OFFICER:				ripti
HSE OFFICER: Toolbox:	No			cripti

TI	ME	ÖP				LINE	INFORM	IATION			Г
FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP			SSS Fish (m)	DNP	1
0700	1900	ow									Fa
1900		100								î	
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#### DETAILED SURVEY INFORMATION

atigue Day



Time

## FUGRO SEAFLOOR MAPPING JOBLOG

 Ver 7.22.2015-A (Alaska)

 DATE:
 22-Jun-2015 Mon Julian Day: 173

 PROSPECT / SITE:
 Cook Inlet

 NAV. SYSTEM:
 Hypack

NAV. SYSTEM: Hypack
FUGRO JOB #: 23.00007123 NAV. DIVIDE BY: 1
JOB DAY #: Day: 29
CRP TO STERN: 0.00 N/A SURVEY UNITS: Meters
NAUTICAL MILE: 6080.0

CLIENT:	AK LNG						
JOB DESCRIPTION:	Seafloor Mapping						
AREA & BLOCK:	LNG Sites						
R/V:	Westerly						
No. of SURVEY LINES:	232	584.70 Kilometers					
ORIGINAL JOB TOTAL:	577,800.00	56.8% Complete					
ACADA DATE COMP. AND THE PERSON		6 000 00 Motors Added					

WEATHER REPORT

Wind Speed Dir.

Sea State

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag - SeaSpy	
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

Captain: Ryan Braget							
Other Vessel Crew:	John Valikonis						
Party Chief:	Kelly Power						
Hydro. Surveyor:	David Wise						
Geophysical Tech.:	Richie Carmichael						
Other Survey Crew:	n/a						
Client Representative:	Ron Eckhardt						

Offshore Site Manager: Charlie H							
Ass't Off. Site Manager:	Marta Krynytzky						
Data Manager:	Chuck Chamberlain						
Data Processor:	Cody Gibson						
Data Processor	Lance Woods						
Data Processor:	n/a						
Additional Proc.:	n/a						
Client Representative:	n/a						

Wx - 0600:		n/a	n/a n/		
Wx - 1200:		0.3m	5kts	SSW	
Wx - 1800:		n/a	5kts	SW	
Wx - 2400:		n/a	n/a	n/a	
			x, with brief de		
ISE OFFICER:		Kelly	Power		
	×			- Linear	
HSE OFFICER: Toolbox:		Kelly JHA-Toolbox			

TI	ME	OP	LINE INFORMATION			DETAILED SURVEY INFORMATION						
FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
0630	0700	ow										Morning Ops meeting, Vessel checks
0700	0810	IT					1					Transit to survey site, There are fishing vessels in the survey area deploying fishing gear
0810	0845	ow	ii i									deployed survey equipment,AML SVP did not work
0845	0858	ow										vessel had to cirice back around and setup on another line to avoid GillNet fishing vessel and its fishing net
0858	0931	OL	TM02_018	026.0°	100	190	25.0	28.0	18.0			MBES/SBES/SS/MAG
0931	0939	LT										and the second control of the second
0939	1014	OL	TM02_025	206.0°	100	186	20.0	31.0	21.0			MBES/SBES/SS/MAG
1014	1019	LT	5									
1019	1054	OL	TM02_017	026.0°	100	190	22.0	40.0	30.0			MBES/SBES/SS/MAG
1054	1102	LT										
1102	1139	OL	TM02_026	206.0°	100	185	19.0	22.0	12.0			MBES/SBES/SS/MAG, Went offline 23m at SP 127 and came back online at 128 to avoid vessel setting a drift net
1139	1144	LT	4									Mag hit at SP 167
1144	1228	OL	TM02_019	026.0°	100	188	24.0	36.0	26.0			MBES/SBES/SS/MAG
1228	1235	LT										
1235	1300	OL	TM02_034	206.09	100	181	17.0	20.0	10.0			MBES/SBES/SS/MAG, CHANGED MBES FROM 380 TO 360KHZ
1300	1307	LT										
1307	1352	OL	TM02_027	026.0°	100	185	21.0	37.0	27.0			MBES/SBES/SS/MAG
1352	1401	LT										
1401	1425	OL	TM02_035	206.0°	100	181	16.0	20.0	10.0			MBES/SBES/SS/MAG
1425	1430	LT										
1430	1509	OL	TM02_028	026.0°	100	185	20.0	35.0	25.0	1		MBES/SBES/SS/MAG, Went offline at SP 121 avoid debris in water and at SP147
1509	1514	LT					-					
1514	1543	OL	TM02_037	206.0°	100	180	15.0	18.0	8.0			MBES/SBES/SS/MAG
1543	1600	ow	i I									Recover Survey Equipment
1600	1615	IT										Conduct a Loss of Steering Drill while transiting
1615	1705	IT									_	At Cannery Dock
1705	1800	ow	8									Refuel Vessel
1800	1830	ow	v .									Change out fuel filters on vessel
1830			2									
$\square$		$\Box$										



											Fugro						
									SEA	FLOO	R MAPPING JOBL	.oc					
ver 7.22.2015-A (Alaska)			-5 -2.5		BOLL ST.	29.			ac.								
	23-Jun-201			n Day:	174	1		CLIENT:			AK LNG						
PROSPECT / SITE:			ok Iniet				JOB DESC				Seafloor Mapping						
NAV. SYSTEM:		H	ypack			1	AREA 6	BLOCK:	-		LNG Sites						
FUGRO JOB #:	23.00007123							R/V:			Westerly						
JOB DAY #:	Day: 30	į.				No	. of SURVE	Y LINES:		232	584.70 Kilometers						
CRP TO STERN:	0.00 N/A	ļ									56.8% Complete						
											6,900.00 Meters Added						
EOPHYSICAL EQUIPM	MENT EQUIP#				PERS	SONNEL O	NBOARD			dh we	PERSONNEL	ONSHORE		W	EATHER REPO	ORT	
avigation System - PO				Capta			John Va	konis		1 [	Offshore Site Manager:	Charlie Hall	Time		Sea State	Wind Speed	Dir
ff. GPS System - Trimble			Othe	er Vess	el Crew:	-	n/a	ı		1 1	Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:		n/a	n/a	n/a
MBES - R2Sonic				Party C	hief:		Kelly P	ower		1 1	Data Manager:	Chuck Chamberlain	Wx - 1200:		1.2m	15kts	SW
SSS - Edgetech 420	0	1	Hy	dro. Su	rveyor:		David \	Nise		1 1	Data Processor:	Cody Gibson	Wx - 1800:		n/a	15kts	SW
Mag - SeaSpy			Geo	physica	al Tech.:		Richie Car	michael		1 [	Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
USBL - IXSEA GAP	S		Othe	er Surve	ey Crew:		n/a	t .		1 [	Data Processor:	n/a	ISE Reporting (	Place a	an "x" in the bo	x, with brief des	cripti
Grab Sampler - Day G	rab		Client	t Repre	sentative:		Ron Eck	hardt		1 [	Additional Proc.:	n/a	HSE OFFICER:		Kelly	Power	
Grab Sampler - Van V	een		-							1 [	Client Representative:	n/a	Toolbox:	×	JHA-Toolbox		
										1 7			Shift Change:				
										] [			Safety:				
										j [			Pre/Post Job:				
TIME OP					E INFORM				60			DETAILED SU	IRVEY INFORMATIO	N			
	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP				THE PROPERTY OF THE PARTY OF TH				
0630 0700 OW											Ops meeting and weely safety	y meeting					
										Vessel o							

			LINENUMBER	HEADING.	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	
0630	0700	ow								H		Morning Ops meeting and weely safety meeting
0700	0720	ow										Vessel checks
0720	0840	IT	ii I		Ĺ							Depart Cannery Dock, Arrive at LNG-02, weather conditions very marginal 3-4ft, will transit to LNG-03
0840	0920	11	1									Arrive at LNG-03
0920	1005	ow										scout LNG-03 area and take fixes on Setnet fishery bouys
1005	1010	OW OW										Deploy MBES and conduct a AML SVP
1010	1035	OW										Check MBES data quality, it is poor, recover equipment
1035	1215	IT										Transit back to dock
	1245		-									Test MBES at dock, OK
1245	1830	ws										At Cannery Dock, Waiting On Weather
1830												
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				Fugro			
		Sı	EAFLOOR	MAPPING JOBLOG			
ver 7.22.2015-A (Alaska)	_						
DATE:	24-Jun-2015 Wed Julian Day: 175	CLIENT:		AK LNG			
PROSPECT / SITE:		JOB DESCRIPTION:		Seafloor Mapping	$\neg$		
NAV. SYSTEM:	Hypack	AREA & BLOCK:		LNG Sites			
FUGRO JOB #:	23.00007123	R/V:		Westerly			
JOB DAY #:	Day: 31	No. of SURVEY LINES:	232	584.70 Kilometers			
CRP TO STERN:				63.3% Complete			
				6 900 00 Neters Added			

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag - SeaSpy	
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	6

Captain:	John Valikonis
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

Offshore Site Manager:	Charlie Hall
Ass't Off. Site Manager:	Marta Krynytzky
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		0.3m	5-10kts	SW
Wx - 1800:		0.3m	5kts	SW
Wx - 2400:		n/a	n/a	n/a
HSE OFFICER:		Kell	y Power	
		-	y Power	
Toolbox:	×	JHA-Toolbox		
Shift Change:	N/A			
Safety:	Yes	Review MAR-	TRA-009 &013	
Pre/Post Job:	No			

WEATHER REPORT

TI	ME	OP			5	LINE	INFORM	MATION			DETAILED SURVEY INFORMATION		
FROM	ТО	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION		
0630	0700	ow									Morning Opa meeting		
0700	0805	IT								1	Depart Cannery Dock for LNG-02		
0805	0825	ow									Survey gear deployed and AML Syp conducted		
0825	0841	LT		1							3937		
0841	0908	OL	TM02_030	026.0°	100	184	24.0	29.0	19.0		MBES/SBES/SS/MAG, Seas 1-2', Steered around debris field		
0908	0917	LT											
0917	0959	OL	TM02_038	226.0°	100	180	19.0	27.0	17.0		MBES/SBES/SS/MAG, Seas 1-2'		
0959	1004	LT									0.0000000000000000000000000000000000000		
1004	1033	OL	TM02_031	026.0°	100	183	25.0	26.0	16.0		MBES/SBES/SS/MAG, Seas 1-2'		
1033	1040	LT											
1040	1119	OL	TM02_039	226.0°	100	178	19.0	29.0	19.0		MBES/SBES/SS/MAG, Had an error message on SS fish, may indicate a termination problem is developing. At SP 174 lost comms to SS FISH. Sus		
1119	1126	ow	Į.								SS/MAG on deck		
1126	1159	E55			Ï.						Switch over to Stbd secondary winch		
1159	1201	LT			Ţ.						- 35		
1201	1237	OL	TM02_032	026.0°	100	183	24.0	25.0	15.0		MBES/SBE/SS/MAG		
1237	1243	LT	2										
1243	1312	OL	TM02_040	206.0°	100	171	19.0	22.0	12.0		MBES/SBE/SS/MAG, Conducted Usvp		
1312	1316	LT	0										
1316		OL	TM02_033	026.0°	100	182	24.0	28.0	18.0		MBES/SBES/SS/MAG		
1351	1408	LT											
1408	1424	OL	TM02_045	206.0°	100	140	18.0	19.0	9.0	¥	MBES/SBES/SS/MAG		
	1427												
1427	1458	OL	TM02_041	026.0°	100	165	22.0	30.0	20.0	î	MBES/SBES/SS/MAG		
1458		LT							1	1	750 C 100 C		
1506	1517	OL	TM02_046	226.0°	100	133	18.0	18.0	8.0		MBES/SBES/SS/MAG		
1517	1519	LT											
1519	1546	OL	TM02_042	026.0°	100	159	21.0	27.0	17.0	5	MBES/SBES/SS/MAG		
1546	1605	ow	1/		G.						Recover Survey Gear,		
1605	1655	IT	2				1				Transit to Cannery Dock		
1655	1740	ow	35		4					7.	Re-Fuel vessel		
1740	1830	ow	10		6						Terminate SS Cable		
1830													
											1		



	Fugro
SEAFLOOR	MAPPING JOBLOG

ver 7.22.2015-A (Alaska) DATE: 25-Jun-2015 Thu Julian Day: 176 PROSPECT / SITE: Cook Inlet NAV. SYSTEM: Hypack FUGRO JOB #: 23.00007123 JOB DAY #: Day: 32

AK LNG CLIENT: JOB DESCRIPTION: Seafloor Mapping AREA & BLOCK: LNG Sites Westerly R/V: No. of SURVEY LINES: 232 584.70 Kilometers 65.1% Complete

6,900.00 Meters Added

GEOPHYSICAL EQUIPMENT EQUIP# Navigation System - POS MV Diff. GPS System - Trimble AG130 MBES - R2Sonic SSS - Edgetech 4200 Mag. - SeaSpy USBL - IXSEA GAPS Grab Sampler - Day Grab Grab Sampler - Van Veen

CRP TO STERN: 0.00 N/A

	IEL ONBOARD	
Captain:	John Valikonis	
Other Vessel Crew:	n/a	
Party Chief:	Kelly Power	
Hydro. Surveyor:	David Wise	
Geophysical Tech.:	Richie Carmichael	
Other Survey Crew:	n/a	
Client Representative:	Ron Eckhardt	
1		

Offshore Site Manager:	Charlie Hall
Ass't Off. Site Manager:	Marta Krynytzky
Data Manager.	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

	v	VEATHER REP	ORT	
Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	n/a	n/a
Wx - 1200:		0.3m	5kts	var
Wx - 1800:		0.3m	10kts	S
Wx - 2400:		n/a	n/a	n/a
SE Reporting	Place	an "x" in the b	ox, with brief desc	criptio
HSE OFFICER:		Kell	y Power	
Toolbox:	X	JHA-Toolbox		
Shift Change:	N/A			
Safety:	X	Review MAR-TRA	A-009 TransducerDeploy	yment
Pre/Post Job:	No			

TIP	ME	OP				LINE	INFORM	MATION	is ny	897	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
0630	0715	ow	1 P			1					Morning ops meeting, pre start checks
0715	0810										Transit to LNG-02
0810	0835	OW									Survey gear deployed, AML SVP Conducted
0835	0849	LT									MATERIAL PROPERTY OF THE PROPE
0849	0900	OL	TM02_047	206.0°	100	127	18.0	22.0	12.0		MBES/SBES/SS/MAG, SEAS 0.3m, Winds Light and Var
0900	0904	LT									
0904	0023	OL	TM02_043	026.0°	100	152	23.0	22.0	12.0		MBES/SBES/SS/MAG
0923	0940	LT			2					à la	
0940	0949	OL	TM02_048	206.0°	100	120	19.0	25.0	15.0		MBES/SBES/SS/MAG
0949	0956	LT									
0956	1003	OL	TM02_049	206.0°	100	114	20.0	25.0	15.0		MBES/SBES/SS/MAG
1003	1009	LT							1	3	
1009	1013		TM02_050	206.0°	100	108	20.0	25.0	15.0		MBES/SBES/SS/MAG
1013	1017	LT									
1017	1030	OL	TM02_044	026.0°	100	145	23.0	25.0	15.0		MBES/SBES/SS/MAG, Mag Hit at SP 113
1030	1044	LT									
1044	1048	IF	TM02_016_Infill	206.0"	100	111	22.0	32.0	22.0		MBES/SBES/SS/MAG, MBES Infili rerun line due to Hypack JD rollover
1048	1104	LT									
1104	1108		TM02_039A	206.0"	170	170	24.0	33.0	23.0		MBES/SBES/SS/MAG, SS/Mag rerun on the southern 400m end of line SP170 to SP178
1108		LT									Conducted Usvp
1124	1154	OLC	TM02_005A	026.0°	100	100	25.0	24.0	14.0	-	MBES/SBES/SS/MAG, MBES rerun for complete line due to an issue with PosMV on original line run
1154	1210										I
1210	1244	IF	TM02_MBINFILL	198.0°	100	183	20.0	24.0	14.0	-	MBES/SBES/SS/MAG, MBES infill line
1244	1300	OW				_					Recover Gear
1300	1318	IT									Transit to Site 3/4
1318	1335	E101	2 2								Stopped to change filter in Stbd ME
1335	1410	IT									TRANSIT to Site 3/4
1410	1510										Scouting
1510	1530	_									deploy
1530	1535										Recover SS/MAG as there is a cyclic signal in mag data
1535	1555										Test mag could not find issue with cabling
1555	1603	LT									
1603	1608	OL	TM34_001	339.0°	100	109	31.0	44.0	34.0		MBES/SBES/SS/MAG, Mag data has small cyclic artifact in it



	Fugro											
											SEA	FLOOR MAPPING JOBLOG
1000000		DATE:	25-Jun-201	5 Thu	Julia	n Day:	176	]		CLIENT:		AK LNG
	SPECT				ok Inlet				JOB DESC			Seafloor Mapping
	NAV. SY	STEM:		н	ypack			<u>I</u>	AREA 8	BLOCK:		LNG Sites
			23.00007123	1						R/V:	-	Westerly
100		DAY #:		1				No	. of SURVE	Y LINES:		232 584.70 Kilometers
	RP TO 9	TERN:	0.00 N/A	Į.								65.1% Complete
ı												6,900.00 Meters Added
	ME	OP		I			EINFORM		I was a second			DETAILED SURVEY INFORMATION
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	
1608	1613	LT										
1813	1618	OL	TM34_002	159.0°	100	113	34.0	30.0	20.0			MBES/SBES/SS/MAG. Mag data has a small cyclic artifact in it
1618	1624	LT										I
1624	1632	OL	TM34_003	339.0°	100	119	32.0	57.0	47.0			MBES/SEES/SS/MAG. Mag data has a small cyclic artifact in it
1632		OW		_	-	_					-	Recover equipment, Conduct a Usyp
1655 1805	1805 1830	OW		-		_						Transit to Cannery Dock
1805	1830	OW		-	6							Test termination on primary SS Cable and install Yale grip
1030	-	-	-	-	_	_					-	1
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				Fugro		
		Sı	EAFLOOR	MAPPING JOBLOG		
ver 7.22.2015-A (Alaska)						
	26-Jun-2015 Fri Julian Day: 177	CLIENT:		AK LNG		
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:		Seafloor Mapping		
NAV. SYSTEM:	Hypack	AREA & BLOCK:		LNG Sites		,
FUGROI JOB #:	23.00007123	R/V:		Westerly		
JOB DAY #:	Day: 33	No. of SURVEY LINES:	232	584.70 Kilometers	_	
CRP TO STERN:	0.00 N/A			65.1% Complete		
				6,900.00 Meters Added		

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag - SeaSpy	
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

Other Vessel Crew: n/a Party Chief: Kelly Power Hydro. Surveyor: David Wise Geophysical Tech: Richie Carmichael Other Survey Crew: n/a		NEL ONBOARD
Party Chief: Kelly Power Hydro. Surveyor: David Wise Geophysical Tech.: Richie Carmichael Other Survey Crew: n/a	Captain:	John Valikonis
Hydro. Surveyor: David Wise Geophysical Tech.: Richie Carmichael Other Survey Crew: n/a	Other Vessel Crew:	n/a
Geophysical Tech.: Richie Carmichael Other Survey Crew: n/a	Party Chief:	Kelly Power
Other Survey Crew: n/a	Hydro. Surveyor:	David Wise
	Geophysical Tech.:	Richie Carmichael
Client Penresentative: Pon Eckhardt	Other Survey Crew:	n/a
	Client Representative:	Ron Eckhardt

Offshore Site Manager:	Charlie Hall
Ass't Off. Site Manager:	Marta Krynytzky
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.	
Wx - 0600:		n/a	n/a	n/a	
Wx - 1200:		1.0m	15kts	SSW	
Wx - 1800:		n/a	15kts	SSW	
Wx - 2400:		n/a	n/a	n/a	
	riuce	ur x m ure b	ox, with brief des	criptic	
	rideo			criptic	
HSE OFFICER:	×		Power	criptic	
HSE OFFICER:		Kelly		criput	
HSE OFFICER: Toolbox:		Kelly JHA-T∘olbox			

WEATHER REPORT

TI	ME	ÓP	1			LINE	INFORM	ATION	,		DETAILED CURVEY INFORMATION
FROM	ТО	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
0630	0710	ow	2								Morning ops meeting, pre start checks
0710	0830	IT									Depart Cannery Dock for LNG34
0830			j i								MBES Deployed
	0915										Standing by while tanker Overseas Boston and her assisting tug leaves dock
	0925										Conducted AML SVP
0925	0945	ow									Deploy SS/MAG and USBL
	1028		V.								Transit to SOL of Line TM34_004
1028		OLC	TM34_004	159.0°	100	100	30.0	44.0	34.0		MBES/SBES/SS/MAG, Seas are a 3'-4' choppy, data quality poor, aborted line
1043		ow									Recover Survey Equipment
1105											Transit to Cannery Dock
1240											Refuel Vessel
1420	1830	ws	1	-							Waiting on Weather at Dock
1830		_			-						
				-	-						
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## **F**ugro SEAFLOOR MAPPING JOBLOG

ver 7.22.2015-A (Alaska) DATE: 27-Jun-2015 Sat Julian Day: 178 PROSPECT / SITE: Cook Inlet NAV. SYSTEM: Hypack FUGRO JOB #: 23.00007123

AK LNG CLIENT: JOB DESCRIPTION: Seafloor Mapping AREA & BLOCK: LNG Sites R/V: Westerly No. of SURVEY LINES: 232 584.95 Kilometers

72.3% Complete 8,750.00 Meters Added 1,600.00 Meters Deleted

GEOPHYSICAL EQUIPMENT EQUIP# Navigation System - POS MV Diff. GPS System - Trimble AG130 MBES - R2Sonic SSS - Edgetech 4200 Mag. - SeaSpy USBL - IXSEA GAPS Grab Sampler - Day Grab Grab Sampler - Van Veen

JOB DAY #: Day: 34 CRP TO STERN: 0.00 N/A

Captain: Other Vessel Crew:	John Valikonis
Other Massel Crown	
Other vesser Crew.	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Ron Eckhardt

LINE INFORMATION

Offshore Site Manager:	Charlie Hall				
Ass't Off, Site Manager:	Marta Krynytzky				
Data Manager.	Chuck Chamberlain				
Data Processor:	Cody Gibson				
Data Processor:	Lance Woods				
Data Processor:	n/a				
Additional Proc.:	n/a				
Client Representative:	n/a				

	v	VEATHER REPO	ORT			
Time		Sea State	Wind Speed	Dir.		
Wx - 0600:		n/a	n/a	n/a		
Wx - 1200:		0.3m	10kts	NE		
Wx - 1800:		0.5m	10kts	E		
Wx - 2400:		n/a	n/a	n/a		
ISE Reporting (	Place	an "x" in the bo	x, with brief desc	cripti		
HSE OFFICER:		Kelly Power				
Toolbox:	Х	JHA-Toolbox				
Shift Change:	N/A					
Safety:	Х	Review MAR-TAR-012	Towfish Deployment/Reco	very		

TII	ME	OP			e2 2	LINE	INFORM	MATION	S ov	- 297	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
0630	0705	ow	1 5								Morning Ops meeting, Pre-start checks
0705	0820	IT	1								Transit to LNG-34
0820	0850	OW	3								Deploy survey gear
0850	0854	LT									
0854	0909	OL	TM34_004A	159.0°	100	135	28.0	34.0	24.0		MBES/SBES/SS/MAG, Seas 0.2m, Winds Light
0909	0918	LT									STATE OF THE STATE
0019	0939	OL	TM34_005	330.0°	100	148	31.0	37.0	27.0		MBES/SBES/SS/MAG
0938	0950	LT	9		2					0	
0950	1021	OL	TM34_006	159.0°	100	169	38.0	56.0	46.0		MBES/SBES/SS/MAG
1021	1026	LT				1				3	
1026	1054	OL	TM34_007	339.0°	100	178	33.0	30.0	20.0		MBES/SBES/SS/MAG
1054	1108	LT									on an experience of the second
1108	1158	OL	TM34_008	159.0°	100	178	41.0	78.0	68.0		MBES/SBES/SS/MAG
1158	1202	LT	S //							,.	
1202	1222	OL	TM34_009	339.0°	100	178	32.0	32.0	22.0		MBES/SBES/SS/MAG
1222	1239	LT									
1239	1340	OL	TM34_010	159.0"	100	178	43.0	82.0	72.0		MBES/SBES/SS/MAG, Going against current only making 1.5kts
1340	1345	LT									
1345	1412	OL	TM34_011	339.0"	100	178	30.0	28.0	18.0		MBES/SBES/SS/MAG
1412	1419	LT									
1419	1458	OL	TM34_012	159.0°	100	178	45.0	83.0	73.0		MBES/SBES/SS/MAG
1458	1502	LT									
1502	1538	OL	TM34_013	339.0°	100	178	25.0	23.0	13.0		MBES/SBES/SS/MAG
1538	1542	LT									- Control of the Cont
1542	1608	OL	TM34_014	159.0°	100	158	46.0	71.0	61.0		MBES/SBES/SS/MAG. Ended line early to avoid setnet fishing gear
1608	1612	LT									
1612	1643	OL	TM34_015	339.0°	160	218	15.0	18.0	8.0		MBES/SBES/SS/MAG, Ended line early to avoid setnet fishing gear
1643	1700	ow									Recover survey Equipment
1700	1830	IT									Transit to Cannery Dock
1830											
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											e	Fugro floor Mapping Joblog
											<b>J</b> EA	FLOOR WIAPPING JOBLOG
ver 7.2	2015-A		07 1 004	F 0-4	1	. D	470	1			_	AK LNG
200	SPECT	DATE:	27-Jun-201		Julia:		178		OB DESC	CLIENT:		AK LNG Seafloor Mapping
	NAV. SY				lypack					BLOCK:		LNG Sites
	FLIGRO	IOR #	23.00007123		lypack			1	AREA O	R/V:	_	Westerly
	IOR	DAY#:	Day: 34	1				No	of SURVE			232 584.95 Kilometers
C			0.00 N/A	1				140	OISORVE	i Lines.		72.3% Complete
				4								8,750.00 Meters Added
												1,600,00 Meters Deleted
	ME	OP					E INFORM					DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	_	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	The Address of Control
		AM	TM34_004A		133	135						Added mileage for run in/out
$\overline{}$		AM	TM34_005	_	145	148						Added mileage for run in/out
		AM	TM34_006		165	169						Added mileage for run in/out
_		AM	TM34_007	-	174	178						Added mileage for run in/out
_		AM	TM34_008	-	174	178						Added mileage for run in/out
		AM	TM34_009		174	178 178		_				Added mileage for run in/out
		AM	TM34_010 TM34_011	-	174	178						Added mileage for run in/out Added mileage for run in/out
		AM	TM34_012		174	178						Added mileage for run in/out
_		AM	TM34_012	<del>                                     </del>	174	178	_	-				Added mileage for run in/out
	-	DM	TM34_014	1	158	174						Deleted mileage for SetNet fishing gear
		DM	TM34_015		158	174						Deleted mileage for SetNet fishing gear
		-	7									
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# Confidential



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											SEA	FLOC	OR MAPPING JOBL	.OG					
ver 7.22	2015-A		00 1 00			-		1											
200	SPECT		28-Jun-20		ook Inlet		179	1	JOB DESC	CLIENT:	_		AK LNG Seafloor Mapping						
1.500.000	NAV. SY				Hypack			1		BLOCK:			LNG Sites						
			23.0000712		Typuon			1	AILLA	R/V:			Westerly						
		DAY#:	Day: 35	1				No	of SURVE			232	587.35 Kilometers						
c	RP TO S	TERN:	0.00 N/A	1									77.1% Complete						
													11,150.00 Meters Added						
				71.1									1,600.00 Meters Deleted						
			PMENT EQUI		_	Conto		SONNEL O	John Va	likania		1	PERSONNEL		1	v	VEATHER REPO	TOTAL CONTRACTOR	Di-
			OS MV	-	Oth	Capta	el Crew:	_	John va n/a				Offshore Site Manager: Ass't Off, Site Manager:	Charlie Hall Marta Krynytzky	Time Wx - 0600:		Sea State	Wind Speed	n/a
7777777	MBES -		St 1975 - 1975	-		Party C			Kelly P			1	Data Manager,	Chuck Chamberlain	Wx - 1200:		n/a 0.5m	n/a 10-15kts	E E
	S - Edg		_	1		ydro. Su			David \			1	Data Processor:	Cody Gibson	Wx - 1800:		n/a	10-15kts	ENE
<u> </u>	Mag			1		ophysica			Richie Car			1	Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	na/
US	BL - IX			_	Oth	ner Surve	ey Crew:		n/a	3		1	Data Processor:	n/a	ISE Reporting (	Place		x, with brief des	cription
Grab	Sample	r - Day	Grab		Clier	nt Repre	sentative:		Ron Ec	khardt		1	Additional Proc.:	n/a	HSE OFFICER:		Kelly	Power	
Grab	Sample	er - Van	Veen	_								1	Client Representative:	n/a	Toolbox:	X	JHA-Toolbox T	alk	
				_											Shift Change:	N/A			
				_											Safety:	X	Review MAR-T	RA-006 and 013	
_												J			Pre/Post Job:	No	1		
TII	ME	OP				LINI	E INFORM	TATION											
FROM	TO	CODE	LINE NUMBE	R HEADIN	G BSP	ESP	_	Mag (m)	SSS Fish (m)		DNP				SURVEY INFORMATION	ON			
0630	0705	ow	2	1	1	1	1						g Ops meeting, pre-start checks	S					
0705	0820	IT	1	+-	-	-						- ALT TO 100 C	to TM05						
0820 0855	0855	OW		-	-	-						Deploy	Survey Equipment						
0909	0909	OL	TM05 056	211.0	° 100	156	26.0	25.0	15.0		-	MRES	SBES/SS/MAG Seas 0.3M, Wir	rde 10kte E Man Hit at SD 10	9 Near charted Pineline				
0927	0934	LT	114100_000	211.0	100	130	20.0	25.0	15.0			IVIDEO.	ODEO/OOM/AO OEBS O.SIVI, VVII	ids Tokis E. Wag Filt at OF Th	5 Near Chartee Fipeline				
0034	1003	OL	TM05_062	031.0	0 100	152	10.0	27.0	17.0			MBES/	SBES/SS/MAG Seas 0.3M,						
1003	1009	LT			7						ii.								
1009	1036	OL	TM05_055	211.0	° 100	156	26.0	30.0	20.0			MBES/	SBES/SS/MAG Seas 0.3M, Cor	nducted Usvp					
1036	1042	LT	T1105 001																
1042	1103	OL	TM05_061	031.0	° 100	153	18.0	22.0	12.0			MBES/	SBES/SS/MAG Seas 0.3M						
1103	1110 1156	LT OL	TM05_054	211.0	° 100	157	22.0	23.0	13.0	_		MRES/	SBES/SS/MAG Seas 0.5M, The	ere is floatsom in the water					
1156	1201	LT	11005_004	211.0	100	107	22.0	20.0	13.0			WIDES	OBEO/OS/WAO Geas 0.5W, The	ire is noatsom in the water.					
1201	1219	OL	TM05 060	031.0	° 100	153	20.0	21.0	11.0			MBES/	SBES/SS/MAG Seas 0.5M						
1219	1231	LT			1.00	1.00	20.0	2	1,110										
1231	1318	OL	TM05_053	211.0	100	157	25.0	33.0	23.0			MBES/	SBES/SS/MAG Seas 0.75M						
1318	1322	LT		J.															
1322	1340	OL	TM05_059	031.0	° 100	154	22.0	23.0	13.0			MBES/	SBES/SS/MAG Seas 0.75-1.0M	I, WINDS 10-15KTS ENE					
1340	1358	LT	T1 40 F 0 F 0			4.00													
1358	1437	OL	TM05_052	211.0	100	158	23.0	33.0	23.0			WRES!	SBES/SS/MAG Seas 0.75-1.0M	1, WINDS 10-15K IS ENE					
1437	1440 1500	LT	TM05 058	031.0	° 100	154	23.0	22.0	12.0			MBES	SBES/SS/MAG Seas 0.75-1.0M	WINDS 10-15KTS ENE					
1500	1520	OW	111100_000	551.0	100	1.04	25.0	22.0	12.0				er survey gear	, THOS IS TORTO ENC					
1520	1640	IT	7	+	+	1							nery Dock						
1640	1830	ow			1	1							Vessel						
1830												1	\$1556955050.0						
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											SEA	FLOOR MAPPING JOBLOG
ver 7.22	.2015-A		00 1 004		1		470	1			_	AK LNG
200	SPECT		28-Jun-201		Julia ok Inlet		179	-	OB DESC	CLIENT:	_	AK LNG Soafloor Mapping
	NAV. SY				lypack			1		BLOCK:		Seamon Mapping LNG Sites
1 1	FUGRO	JOB #:	23.00007123	<u> </u>	ypack			1	AILLA	R/V:		Westerly
		DAY#:	Day: 35	1				No	of SURVE			232 587.35 Kilometers
C			0.00 N/A	1							-	77.1% Complete
				-								11,150.00 Meters Added
												1,600.00 Meters Deleted
FROM	ME TO	CODE	LINE NUMBER	LEADING	BSP	ESP	E INFORM	Mag (m)	eee Eich (m)		DNP	DETAILED SURVEY INFORMATION
FROM	10	AM	TM05_056	HEADING	156	160	Fath (m)	Mag (m)	555 FISH (M)		DNP	Added Mileage for run in/out
_	-	AM	TM05_062	-	152	156	<del>                                     </del>	_				Added Mileage for run in/out
	-	AM	TM05_055		156	161						Added Mileage for run in/out
		AM	TM05 061		153	158						Added Mileage for run in/out
		AM	TM05_054		157	162						Added Mileage for run in/out
		AM	TM05_060		153	158						Added Mileage for run in/out
	4 4	AM	TM05_053		157	162						Added Mileage for run in/out
		AM	TM05_059		154	159						Added Mileage for run in/out
		AM	TM05_052		158	164						Added Mileage for run in/out
		AM	TM05_058		154	158						Added Mileage for run in/out
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ver 7.22	2015-A									SEEC LIE	_									
			29-Jun-201				180	1		CLIENT:			AK LNG							
7.577.2552	SPECT				ok Inlet			1	JOB DESC	BLOCK:	_		Seafloor Mapping LNG Sites	5						
			23.00007123		lypack			1	AREA	R/V:			Westerly							
	C. 722 [01]	DAY #:	Day: 36	1				No	of SURVE		_	232	589.35 Kilometers							-
C			0.00 N/A	1				,,,,,	. 01 001111	Litteo.			82.3% Complete							
				=									13,150.00 Meters Added	1						
													1,600.00 Meters Delete							
			PMENT EQUIP	-	_			ONNEL O				,		IEL ONSHORE	_			VEATHER RE		
-	<b>PERSONAL PROPERTY</b>	_	OS MV	4		Capta			John Va			Į.	Offshore Site Manager:	Charlie Hall	_	Time		Sea State	Wind Speed	The same of the sa
Diff, GP	S Systen ABES -			4		er Vess Party C	el Crew:		n/a Kelly P				Ass't Off. Site Manager:	Marta Krynytzky	_	Wx - 0600: Wx - 1200;		n/a	n/a	n/a
	S - Edg			-	_	dro. Su			David \			ł	Data Manager: Data Processor:	Chuck Chamberlain Cody Gibson	HL S	Wx - 1200:		0.5m 0.3m	10kts 5kts	NE
	Mag			1			al Tech.:	_	Richie Car				Data Processor:	Lance Woods	_	Wx - 2400:		n/a	n/a	NE n/a
	BL - IXS			1		-	ey Crew:	-	Katie Ca	1111011010		1	Data Processor:	n/a	_		Place		box, with brief des	1
	Sample			1			sentative:		Ron Eci			1	Additional Proc.:	n/a	-	HSE OFFICER:	riace		elly Power	Cription
	Sample			1	- Oilei	n ropro	0011100101		11011 20	0,000		1	Client Representative:	n/a		Toolbox:	X	JHA-Toolbo		
				1								1		1.000	<u> </u>	Shift Change:	N/A			
				1								1				Safety:	X	Review TIA-009,	Katie Conrad received Vessel (	Drientation
				]								]				Pre/Post Job:	No			
		-																		
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	_	SSS Fish (m)		DNP	1		DETAILE	D SURVE	Y INFORMATION	NC			
0630	0715	ow	şi.								-	Mornin	g Ops meeting, Pre start che	cks						
0715	0850	IT	54									Transit	to TM05							
0850	0920	OW				_						Deploy	Survey Equipment							
0920	0938	LT		1	-	-						000000000		VIII.						
0938	0956	OL	TM05_052	211.0°	100	158	18.0	20.0	10.0			MBES	SBESISSIMAG, seas 0.3m, v	winds 5-10kts						
1003	1003	LT	TM05_057	031.0°	100	156	17.0	22.0	12.0				SBESISSIMAG, There is sein	and a still to the same account	2	la ara involvad				
1039	1044	LT	TM05_067	037.0	700	756	17.0	22.0	12.0			WARES	SBESISSIMAG, There is seen	amic activity in our survey ar	ea. 3 vesse	is are involved.				
1044	1107	OL	TM05 050	211.0°	100	159	18.0	20.0	10.0			MRES	SBES\SS\MAG							
1107	1124	LT	111100_000	211.0	100	100	10.0	20.0	10.0				ed line turn to move away fro	m debris in water as there is	s large are w	ith floatsom in t	ne wate	er		
1124	1156	OL	TM05 016	031.0°	100	174	18.0	20.0	10.0			- 1.5.0	SBESISSIMAG, At SP 140 w							
1156	1203	LT										Extend	ed line turn to move away fro	m debris in water as there is	s large are w	ith floatsom in t	he wate	er and anothe	r vesseL in the area	
1203	1257	OL	TM05_023	211.0°	100	176	27.0	41.0	31.0			MBES!	SBESISSIMAG, Vessel back	into floatsom are at SP 120	, Exited debi	ris field at SP 13	5			
1257	1304	LT										Extend	ed line turn to move to west s	side of site to avoid floatsom	in the water					
1304	1324	OL	TM05_010	031.0°	100	162	24.0	22.0	12.0			MBES!	SBESISSIMAG , Current pus	shing vessel, little steeragew	vay.vessel cr	abbing downline				
1324	1337	LT				-							000000000000000000000000000000000000000				rven ma	915000000		
1337	1448	OL	TM05_019	211.0	100	176	29.0	50.0	40.0		-		SBES\SS\MAG, Went offline				bouy/r	ope on the		
1448	1455	OL.	TM05_011A	021.00	100	100	27.0	20.0	10.0			0.50777700000	V stopped logging at EOL ac				have a	high amb an	ale et times en line	tuo sumant
1455 1519	1519 1530	LT	TIVIUS_UTTA	031.0	100	166	27.0	29.0	19.0			INIDES	SBESISSIMAG, Vessel went	omine at SOL due to currer	it but regaine	ed it. Vessi does	Have a	i nign crab ar	igie at times on line o	ue current
1530	1632	OL	TM05 021	211.0°	100	177	32.0	42.0	32.0			MBES	SBESISSIMAG, Hypack rollo	over at 16:00.						
1632	1650	ow	111100_021		100	1	02.0	72.0	02.0				ery Survey Equipment							
1650	1830	IT											To Cannery Dock							
1830												1	o communication necessaries n							
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ver 7.22	2015-A (									-0-50-05		
			29-Jun-2015	5 Mon	Juliar	n Day:	180		JOB DESC	CLIENT:		AK LNG
	SPECT				ok Inlet ypack			1		BLOCK:		Soafloor Mapping LNG Sites
	UGRO!		23.00007123		pack			1	AREM O	R/V:		Westerly
		DAY#:	Day: 36	1				No	of SURVE			232 589.35 Kilometers
C	RP TO S	TERN:	0.00 N/A	]								82.3% Complete
												13,150.00 Meters Added
TII	ИE	OP	F			LIME	E INFORM	IATION				1,600.00 Meters Deleted
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
		AM	TM05_052		158	161						Added milage for Run in/out
		AM	TM05_057		155	159					1	Added milage for Run in/out
		AM	TM05_050		159	165						Added milage for Run in/out
	_	AM AM	TM05_016 TM05_023	$\vdash$	174 176	178 181			$\vdash$	:	-	Added milage for Run in/out Added milage for Run in/out
		AM	TM05_010		162	164						Added milage for Run in/out
		AM	TM05 019		176	180						Added milage for Run in/out
		AM	TM05_011		166	171						Added milage for Run in/out
		AM	TM05_21		177	184			$\vdash$			Added milage for Run in/out
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ver 7.22	.2015-A	Alaska)		Section 2 and															
and the second		DATE:	30-Jun-201				181	]		CLIENT:			AK LNG						
1,577,557	SPECT				ok Inlet				OB DESC				Seafloor Mapping						
	VAV. SY				ypack			<u>l</u>	AREA 8	BLOCK:			LNG Sites						
1	CONTRACTOR OF THE PARTY OF THE	STATE OF STA	23.00007123	1				200		R/V:		222	Westerly						
		DAY#:	Day: 37	ł				No.	of SURVE	Y LINES:		232	601.60 Kilometers 84.1% Complete						
C	RPTOS	IERN:	0.00 N/A	J									15,000.00 Meters Added		-				
													1,600.00 Meters Deleted						
GEOPI	IVSICA	L EQUI	PMENT EQUIP				PERS	SONNEL O	NBOARD				PERSONNEL	ONSHORE		v	EATHER REPOR	RT	
Naviga				1		Capta			John Val	ikonis		1	Offshore Site Manager:	Charlie Hall	Time		Sea State	Wind Speed	Dir.
			e AG130	1	Oth		el Crew:		n/a				Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:		n/a	n/a	n/a
	MBES -			1		Party C			Kelly P			1	Data Manager,	Chuck Chamberlain	Wx - 1200:		0.3m	10kts	SW
SS	S - Edg	etech 4	200	1	Hy	dro. Su	rveyor:		Katie Co	onrad		1	Data Processor:	Cody Gibson	Wx - 1800:		n/a	10kts	SW
	Mag	SeaSpy		1	Geo	ophysica	al Tech.:		Richie Car	michael		1	Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
	BL - IX			1			ey Crew:		n/a			1	Data Processor:	n/a	ISE Reporting	Place	an "x" in the box	, with brief des	cription
Grab	Sample	er - Day	Grab		Clien	nt Repre	sentative:		Ron Eck	chardt			Additional Proc.:	n/a	HSE OFFICER:		Kelly P	ower	
Grab	Sample	er - Van	Veen	1				]					Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
				-											Shift Change:	N/A			
				-											Safety:	X	Review MAR-TR	A-012 and 013	
												J			Pre/Post Job:	No			
TII	ME	OP	Ī			LINE	E INFORM	ATION											
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP				RVEY INFORMATION	ON			
0630	0730	OW		-	_	_							ng ops meeting, weekly safety m	eeting					
0730	0855	ow		-	-	-					_		t to Survey site TM05						
0855	0945	LT	*****										y Equipment deployed, Conducti						
0945	1056	OL	TM05_012	031.0°	100	170	24.0	42.0	32.0			MBES/	/SBES/SS/MAG, Seas 0.3m, Wi	inds 5kts SW					
1056	1120	OL	TM05 005	211.0°	100	143	21.0	20.0	10.0			MOCC	/SBES/SS/MAG, Seas 0.3m, Wi	ado Eldo CW. Thorougo como	dahela an tha contar hou	l not no	much as unctords		
1120	1130	LT	11005_005	211.0	100	143	21.0	20.0	10.0				g buoys surfaced at end of line C		debris on the water bu	thotas	much as yesterue	iy	
1130	1205	OL	TM05_013	031.0°	100	171	22.0	37.0	27.0				/SBES/SS/MAG, Sonarwhiz cras		cted Usyp. Can feel o	uns fro	m Gun boat.		
1205	1211	LT	111100_010		100	1	EE.O	01.0	2110					ones prise to start of miles contact	olou delpi dalliloong				
1211	1234	OL	TM05 006	211.0°	100	147	26.0	47.0	37.0			MBES/	/SBES/SS/MAG, There was deb	oris on the line.					
1234	1241	LT	_																
1241	1250	OL	TM05_001	031.0°	100	128	24.0	34.0	24.0			MBES/	/SBES/SS/MAG, There was deb	oris on the line and to go around	some at SP120				
1250	1258	LT																	
1258	1422	OL	TM05_007	211.0°	100	151	27.0	45.0	35.0			MBES/	/SBES/SS/MAG, Conducted a U	Jsvp, only the down portion of ca	ast was logged but it is	a good	cast, Naking 1.5	kts against curr	ent
1422	1427	LT	5																
1427	1438	OL	TM05_002	031.0°	100	131	26.0	28.0	18.0			MBES/	/SBES/SS/MAG, Vessel crabbin	ig downline 30deg from line hdg	i e				
1438	1444	LT			1.00	100							721223110223111000						
1444	1526	OL	TM05_03	211.0°	100	135	31.0	66.0	56.0				/SBES/SS/MAG,						
1526	1540	OW		-	↓	-							er Survey Equipment						
1540 1552	1552 1700	IT		-		<del>                                     </del>					-		t to Cannery Dock	and colleges at 4pm(0000LITC)					
1700	1830	OW		+		-							ind restart POSMV for leap seco	and rollover at 4pm (00000 TC)					
1830	1030	OW										Fuel V	69961						
,000												1							
		-		<b>T</b>								1							
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											SEA	FUGRO FLOOR MAPPING JOBLOG
	SPECT	DATE:	30-Jun-201	Co	Julian ok Inlet ypack	n Day:	181	,	OB DESC	CLIENT:	JEA	AK LNG Seafleor Mapping LNG Sites
,	JOB	JOB #: DAY #:	23.00007123 Day: 37 0.00 N/A		ypası			No.	of SURVE	R/V:		Westerly 232 601.60 Kilometers 84.1% Complete 15,000.00 Meters Added 1,600.00 Meters Deleted
TI		OP					INFORM				12. 1	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	_	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DEFALLS SUIVE INFORMATION
		AM	TM05_012 TM05_005		170	173						
	_	AM AM	TM05_003		143 171	147			-			1
		AM	TM05_016		147	152			_			1
		AM	TM05_001		128	133						1
		AM	TM05_007		151	155						
		AM	TM05_002 TM05_003		131	136						
	_	AM	11005_003		135	140						1
		_										1
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											SEA	FLOC	OR MAPPING JOBL	.oc					
ver 7.22	.2015-A		01-Jul-201	5 Wad	lulia	n Day	192	1		CLIENT:			AK LNG						
PRO	SPECT		01-301-20		ook Inlet		102	1	JOB DESC				Seafloor Mapping						-
,	AV. SY	STEM:		1	lypack			1		BLOCK:			LNG Sites						,
1		JOB #:	23.0000712	3				-		R/V:			Westerly						
5.00		DAY#:	Day: 38					No	of SURVE	Y LINES:		232	601.60 Kilometers						
C	RPTOS	TERN:	0.00 N/A										84.5% Complete						
													15,000.00 Meters Added 1,600.00 Meters Deleted						
GEORI	IVSICA	LEQUI	PMENT EQUIP				PER	SONNEL O	NROARD				PERSONNEL	ONSHORE		w	EATHER REPO	)PT	
Naviga				Ť		Capta		T T	John Va	likonis		1	Offshore Site Manager:	Charlie Hall	Time		Sea State	Wind Speed	Dir
Diff. GP				1	Oth		el Crew:		n/a				Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:		n/a	n/a	n/a
1	MBES -	R2Soni	С			Party C	hief:		Kelly P	ower			Data Manager:	Chuck Chamberlain	Wx - 1200:		0.5m	5-10kts	SW
		etech 4				ydro. Su			Katie Co				Data Processor:	Cody Gibson	Wx - 1800:		n/a	10kts	SW
		SeaSpy		4			al Tech.:		Richie Car				Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
		SEA GA		4			ey Crew:		n/a				Data Processor:	n/a		(Place a	THE RESERVE AND PERSONS ASSESSED.	x, with brief des	cription
		er - Day er - Van		-	Clier	nt Repre	sentative:		Ron Eck	chardt			Additional Proc.: Client Representative:	n/a n/a	HSE OFFICER:	×	JHA-Toolbox	Power	
Grab	oumpi	er - van	veen	-									Client Representative:	ng 1	Shift Change:	_^	JIIA-100IDOX		
$\vdash$				-											Safety:	x	Fire drill and m	eview MAR-TRA-0	05
				1											Pre/Post Job:		r ne din and n	WICH IIIAIC-110A-C	00
														<u> </u>					
	ME	OP				-	E INFORM		·			ě		DETAILED SU	JRVEY INFORMATION	ON			
FROM 0630	TO 0700	CODE	LINE NUMBER	HEADIN	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	Massis	g Ops meeting, Vessel pre-star	F-14-14-		7.07			
0700	0730	IT		+	+	_							Cannery Dock for Site TM05	CHECKS					
0730	0745	IT		+	+	_							slowed speed to change out fur	el filter					
0745	0800	SM			1								Dnii, Fire dnii						
0800	0835	IT																	
0835	0905	OW									5	Survey	Gear deploy and an AML SVP	Conducted					
0905	0917	LT		-													Para Laboratoria		
0917	1013	OL	TM05_014	031.0	100	150	21.0	47.0	37.0	_	_		SBES/SS/MAG, Seas 0.3m Wir					in inhant and base	
1013 1150	1150 1155	E65 LT		-	+	+							ered towfish and set cable corre uld not be freed.	ectly on the primary winch. Duni	ng re-deployment nowe	ever cab	ne jumpad snea	ve wheel and bec	ame wedged
1155	1156	ow	TM05 022	211.0	100	105	22.0	27.0	17.0		DNP	STREET	ne due to loss of comms to side	escan fish					
1156	1225	F65	111100_022		100	100	EE.O	27.0	17.0		Ditt		ation on fish failed, recover sun		aciliate repairs to cable	2			
1225	1410	E65										transit	to dock						
1410	1830	E65	J.								Į.	Re-terr	minated the secondary winch ca	ble, and replaced sheave block	k on primary winch.				
1830				+	-	-													
				+-	-	-													
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No. of Contract		DATE:	02-Jul-201				183	]		CLIENT:			AK L								
1,577,257	SPECT				ok Inlet				OB DESC				Seafloor N								
	VAV. SY				lypack			]	AREA 8	BLOCK:			LNG S								
			23.00007123	4				200		R/V:	_	244	West								
_		DAY #:	Day: 39	-				NO	of SURVE	T LINES:		214	601.05 Kilon 89.2% Com								
"	KP IUS	HERIN:	0.00 N/A	_									16,950.00 Mete			1					_
													4,100.00 Mete								
GEOP	HYSICA	L EQUI	PMENT EQUIP		- N		PER	SONNEL O	NBOARD						ONSHORE		v	VEATHER I	REPORT		
Naviga	tion Sys	stem - F	OS MV	1		Capta	ain:		John Val	ikonis		]	Offshore Site Ma	anager:	Charlie Hall	Time		Sea State		Wind Speed	Dir.
			e AG130	1	Oth	er Vess	el Crew:		n/a	ı		1	Ass't Off, Site Ma	anager:	Marta Krynytzky	Wx - 0600:		n/a		n/a	n/a
-	MBES -	_		1		Party C			Kelly P			1	Data Manag		Chuck Chamberlain	Wx - 1200:		0.3m		5kts	S
	S - Edg			4		rdro. Su			Katie Co			[	Data Process		Cody Gibson	Wx - 1800:		0.3m	_	5kts	S
	Mag			4			al Tech.:		Richie Car			Į	Data Process		Lance Woods	Wx - 2400:		n/a		n/a	na/
	BL - IX			-			ey Crew:	-	n/a			1	Data Process		n/a	ISE Reporting	Place				cription
	Sample			-	Cher	it repre	sentative:	-	Ron Eck	marut			Additional Pr		n/a	HSE OFFICER:	~		Kelly Pov	wer	
Grab	Sample	er - van	veen	1	-							1	Client Represer	tative.	n/a	Toolbox: Shift Change:	X	JHA-Tool	DOX TAIK		
$\vdash$				1								1				Safety:	х	Review M	AR TRA	012	-
				1								1				Pre/Post Job:		IXCVICT III	AIX-IIIA-	012	-
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	ME	OP	c.				E INFORM				037				DETAILED SU	RVEY INFORMATION	)N				
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP						***				
0630	0715	OW		-		_	-					A STATE OF THE STA	g Ops Meeting, pre-	start checks	3						
0715	0825	OW	-	+		-		_					to TM05	CVD Con	duetod						
0825 0915	0915	LT		+	-	_						Survey	Gear deployed, AM	L SVP CON	ducied						
0937	1026	OL	TM05 004	031.0°	100	139	24.0	42.0	32.0			MRES	SPESISSIMAG GOIL	no anainst	4kts of current, Sea 0.3m, Winds	Skts S Dehris field a	SP12	4			
1026	1037	LT	11110_004	100110	1.00	100	21.0	12.0	02.0				DECOIDO III IO, OOI	g agamet	and of during dear olding tring	Juliu O, Debito lielo B					
1037	1050	OL	TM05_009	211.0°	100	154	25.0	27.0	17.0			MBES	SBESISSIMAG, Goil	ng with 4kts	of current, Did not do 100m ru	nout due to unknown b	ouye i	n water			
1050	1056	LT			2						17										
1056	1057	LT	22									MBES	SBES\SS\MAG, Goir	ng against 4	4kts of current, Conducted Usvp	, At SP 150 entered a	debris	field			
1057	1211	OL	TM05_015	031.0°		173	18.0	26.0	16.0												
1211	1228	OL	TM05_009	211.0°	100	158	27.0	25.0	15.0			MBES	SBES\SS\MAG, Goir	ng with 2kts	of current, Conducted Usvp, D	id not do 100m runout	due to	unknown b	ouys in w	ater	
1228	1235	LT	TABLE DATA	1024.09	100	470	40.0	20.0	40.0		-	L	PDE POPULAR PAR	or all # Harles in hear	d dame and SD407 and analysis	d at CO400 Dissayer	akill ta		. b	ia data trans I	ine TMOE D
1235	1312	OL LT	TM05_014A	031.0	100	172	19.0	28.0	18.0		-	INIDES	SEESISSIVIAG, SOII	arvvniz snu	it down and SP107 and restarted	dat SP 106, Discover	Sun iog	gging and w	e nave ui	is data from L	ine rivio5_0
1312	1355	OL	TM05_017	211.0°	100	175	26.0	25.0	15.0		-	MRES	SEESISSIMAG ALS	D 104 Paie	ed towfish as vessel passed Un	known cluster of of 3 h	OU INC.	on/near line	TM05 01	18	
1355	1359	LT	11005_017	211.0	100	175	20.0	20.0	15.0						south of last fixed position. AT s				11005_01	.0,	
1359	1422	OL	TM05_024	031.0	100	175	10.0	12.0	6.0		1		SBESISSIMAG.	0 10 20 7111	vessi er taet mee promonin i i e	e i i i alean ale to leman	3411114	501			
1422	1432	LT										1									
1432	1634	OL	TM05_020	211.0°	100	175	29.0	41.0	31.0			MBES	SBE\SS\MAG, Only	making 0.5k	kts to a 1kt against current, Vess	sel is having trouble m	aintain	ing hdg and	speed. L	Usvp conduct	ed.
1634	1650	OW									V.	Recov	er survey equipment								
1650	1805	IT		_								0.53000000	t to dock								
1805	1830	ow	3	1								Backu	o data, create a line f	or the Nav	system						
1830				-	-						-	1									
	_	_	-	+-	-							1									
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ver 7.22	.2015-A	(Alaska)			-							
		DATE:	02-Jul-2015	Thu	Juliar	n Day:	183	1		CLIENT:		AK LNG
	SPECT				ok Inlet			1 13	JOB DESC			Seafloor Mapping
	NAV. SY		20 00007400		ypack			1	AREA 8	BLOCK:		LNG Sites
3	FUGRO	JOB #: DAY #:	23.00007123					No	. of SURVE	R/V:		Westerly 214 [601.05 Kilometers
			Day: 39 0.00 N/A	ł				NO.	OTSURVE	T LINES:		89.2% Complete
	KF IU 3	TERIS.	0.00 N/A	8								16,950,00 Meters Added
												4,100.00 Meters Deleted
	ME	OP				LINE	E INFORM					DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	_	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	The desirable constitution of constitution of the first production of the firs
		AM	TM05_004		139	144			$\square$			Added mileage for run in/out
	_	AM	TM05_006 TM05_015		154	157	-		$\vdash$			Added mileage for run infout
	-	AM AM	TM05_015	$\vdash$	173 158	179 161	-		_			Added mileage for run in/out Added mileage for run in/out
		AM	TM05_009	$\vdash$	172	177			$\vdash$			Added mileage for run in/out
		AM	TM05_017		177	179						Added mileage for run in/out
		AM	TM05 024		175	181						Added mileage for run in/out
		AM	TM05_020		175	184						Added mileage for run in/out
		DM	TM05_014		100	150						Deleted mileage for TM05_014 as the line was re-ran completely today
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ver 7.22	2015-A (		03-Jul-201	e Est	Lilla	n Dave	40.4	1			=	AK LNG	
PRO	SPECT	DATE:	03-Jul-201		ok nlet	n Day:	184		JOB DESCI	CLIENT:	_	Seafloor Mapping	
	IAV. SY				ypack					BLOCK:	_	Callot mapping  LNG Sites	
		JOB #:	23.00007123					9		RA:		Westerly	
	JOB	DAY#:	Day: 40	1				No	of SURVE	Y LINES:		214 602.75 Kilometers	
CI	RP TO S	TERN:	0.00 N/A	]								93.4% Complete	
i i												18,650.00 Meters Added	
oron							252	CONTINUE O	NDOADD			4,100,00 Meters Deleted	_
		stem - P	OS MV	1		Capta		SONNEL O	John Vali	konis		PERSONNEL ONSHORE WEATHER REPORT Offshore Site Manager: Charlie Hall Time Sea \$tate Wind \$peed Dir.	
Diff. GP				1	Oth		el Crew:		n/a			Ass't Off. Site Manager: Marta Krynytzky Wx - 0600: n/a n/a n/a n/a	
		R2Soni	270.0300.0000	1		Party C			Kelly Po	wer		Data Manager: Chuck Chamberlain Wx - 1200: 0.1m Light Var.	
SS	S - Edg	etech 4	200	]	Ну	/dro. Su	rveyor:		Katie Co	nrad		Data Processor: Cody Gibson Wx - 1800: n/a Light Var.	
		SeaSpy		1			al Tech.:		Richie Carr			Data Processor:         Lance Woods         Wx - 2400:         n/a         n/a         n/a	
_		SEA GA	-	1			ey Crew:		n/a			Data Processor: n/a HSE Reporting (Place an "x" in the box, with brief description	
		er - Day	0.000000	Į	Clien	it Repre	sentative:		Ron Eck	nardt	_	Additional Proc.: n/a HSE OFFICER: Kelly Power	
Grab	Sample	er - Van	veen	4			-					Client Representative: n/a Toolbox: X JHA-Toolbox Shift Change:	
$\vdash$				1	$\vdash$							Safety: X Review MAR-TRA-010 & 013	
$\vdash$				1								Pre/Post Job:	
				4									
TIP		OP			_		EINFORM					DETAILED SURVEY INFORMATION	
FROM	TO 0705	OW	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	tii.	DNP	Morning Ops Meeting, Vessel pre-start checks	
0630 0705	0820	IT								3		Transit to Site	
0820	0850	OW										Deploy Survey gear, Conducted AML SVP	
0850	0855	LT								3			
0855	1059	OL	TM05_025	031.0°	100	175	16.0	18.0	8.0			MBES/SBES/SS/MAG Seas: 0.1m Winds: Light, Going against Currentof ~4 kts, Vessel speed 0.5kts-1kt	
1059	1105	LT											
1105	1121	OL	TM05_032	211.0	100	170	20.0	21.0	11.0			MBES/SDES/SS:MAC Seas: 0.1m Winds: Light,	
1121	1130 1244	LT OL	TM05 026	031.0°	100	474	11.0	10.0	8.0			MBES/SBES/SS/MAG Seas: 0.1m Winds: Light, Conducted Usyp and cast was not good	
1244	1244	LT	11005_020	031.0	100	174	11.0	18.0	8.0			INDES/SDES/SS/WAG Seas. U. IIII VVIIIus. Light, Conducted Usyp and cast was not good	
1248	1308	OL	TM05_033	211.0°	100	170	19.0	22.0	12.0			MBES/SBES/SS/MAG Seas: 0.1m Winds; Light, Conducted Usvp, down cast only but is valid	
1308	1314	LT					1110		1				
1314	1359	OL	TM05_027	031.0°	100	174	5.0	20.0	10.0			MBES/SBES/SS/MAG Seas: 0.1m Winds; Light, Sowed vessel at SP 146 to SAE gun boat to pass	
1359	1404	LT		_								4	
1404	1434	OL LT	TM05_034	211.0°	100	169	19.0	23.0	13.0			MBES/SBES/SS/MAG Seas: 0.1m Winds: Light,	
1434	1438	OL	TM05 028	031.0°	100	173	6.0	22.0	12.0	7		MBES/SBES/SS/MAG Seas: 0.1m Winds: Light,	
1458	1515	OW	111100_020	001.0	100	175	0.0	22.0	12.0	D 5		Recover Survey Gear	
1515	1630	IT										Transit to Dock	
1630	1830	OW										Refuel Vessel	
1830													
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											SEA	FLOOR MAPPING JOBLOG
ver 7.22	2.2015-A (	(Alaska) DATE:	03-Jul-201	5 Fri	Julia	n Dav	184	1		CLIENT:		AK LNG
PRO	SPECT		00-041-2011		ok nlet		104		JOB DESC		_	Seafloor Mapping
	NAV. SY				ypack					BLOCK:		LNG Sites
1	FUGRO	JOB #:								R/V:		Westerly
1 .		DAY#:	Day: 40					No	. of SURVE	Y LINES:		214 602.75 Kilometers
٥	RP TO S	STERN:	0.00 N/A									93,4% Complete
1												18,650,00 Meters Added
	ME	OP			_	LIM	E INFORM	IATION				4,100,00 Meters Deleted
FROM		CODE	LINE NUMBER	HEADING	ESP	ESP		Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
-		AM	TM05_025		175	178						Added mileage for run in/out
		AM	TM05_032		170	176						Added mileage for run in/out
		AM	TM05_026		174	179						Added mileage for run in/out
		AM	TM05_033		170	174				_	_	Added mileage for run in/out
$\vdash$		AM	TM05_027 TM05_034	-	174	179 175			100	-		Added mileage for run in/out Added mileage for run in/out
$\vdash$	_	AM	TM05_034 TM05_028		173	178	_	_		-		Added mileage for run in/out
$\vdash$		Am	11/105_020		1/3	170		-			_	Acade Tilleage of Tall lived.
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											SEA	FLO	OR MAPPING JOBL	oc				
PRO	SPECT	DATE:	04-Jul-201	Co	ook Inlet		185	]	JOB DESC				AK LNG Seafloor Mapping					
			23.00007123 Day: 41		lypack			<u>]</u> No	of SURVE	BLOCK: R/V:		214	LNG Sites Westerly 602.75 Kilometers					
C			0.00 N/A	1				140	. 01 00.00	. r Lineo.		2.14	93.4% Complete 18,650.00 Meters Added					
													4,100.00 Meters Deleted	ANALIONE				
			PMENT EQUIP	1		Capta		SONNEL O	John Va	Ekonie		1	PERSONNEL Offshore Site Manager:	Charlie Hall	Time	WEATHER REP Sea State	Wind Speed	Die
			e AG130	1	Oth		el Crew:		n/a				Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:	n/a	n/a	n/a
	MBES -			1		Party C			Kelly P				Data Manager:	Chuck Chamberlain	Wx - 1200:	n/a	n/a	n/a
	S - Edg			1		ydro. Su			Katie Co				Data Processor:	Cody Gibson	Wx - 1800:	n/a	n/a	n/a
	Mag -			1	Geo	ophysica	al Tech.:		Richie Car			1	Data Processor:	Lance Woods	Wx - 2400:	n/a	n/a	n/a
	BL - IXS			1			ey Crew:		n/a			Į.	Data Processor:	n/a		(Place an "x" in the b	ox, with brief des	cription
	Sample			1	Clien	t Repre	sentative:		Ron Eck	hardt			Additional Proc.:	n/a	HSE OFFICER:	Kell	y Power	
Grab	Sample	er - Van	Veen	4	-								Client Representative:	n/a	Toolbox:			
<u> </u>				-									<u> </u>		Shift Change:			
$\vdash$			-	1	-							ļ.			Safety: Pre/Post Job:			
			-											J	FIEFOST SOD.			
TI	ME	ÓP			20	LIN	E INFORM	MATION	n	,				DETAIL ED SU	RVEY INFORMATION	ON		
1830	1830	ow									//s	Rest D	ay					
				-	-	-												
	$\vdash$			-	-	-						1						
					+							1						



											c		FUGRO OR MAPPING JOBL					
ver 7.22	.2015-A (	Alaska)									SEA	FLO	OR IMAPPING JOBE	.06				
3333355		DATE:	05-Jul-201				186	]		CLIENT:			AK LNG					
0.000000	SPECT				ok Inlet				JOB DESC				Seafloor Mapping					
	NAV. SY		23.00007123		lypack			1	AREA &	BLOCK:	-		LNG Sites Westerly					
l '		DAY#:	Day: 42	1				No	of SURVE		-	214	602.75 Kilometers					-
C			0.00 N/A	1									93.4% Complete					
													18,650.00 Meters Added					
CEOR	IVEICA	FOU	PMENT EQUIP	_	_		DED	SONNEL O	MBOARD				4,100.00 Meters Deleted PERSONNEL	ONSHORE		WEATHER REF	OPT	
			OS MV	ī		Capta		SONNEL O	John Va	ikonis		1	Offshore Site Manager:	Charlie Hall	Time	Sea State	Wind Speed	Dir
Diff. GP	S System	- Trimbl	e AG130	1	Oth		el Crew:		n/a	ı		1	Ass't Off, Site Manager:	Marta Krynytzky	Wx - 0600:	n/a	n/a	n/a
	MBES -			1		Party C			Kelly P			1	Data Manager:	Chuck Chamberlain	Wx - 1200:	n/a	n/a	n/a
	S - Edg			-		ydro. Su			Katie Co Richie Car				Data Processor:	Cody Gibson Lance Woods	Wx - 1800: Wx - 2400:	n/a	n/a	n/a
	Mag - S			ſ			al Tech.: ey Crew:		n/a				Data Processor: Data Processor:	n/a		n/a (Place an "x" in the b	n/a	n/a
	Sample			1	_		sentative:		Ron Eck			1	Additional Proc.:	n/a	HSE OFFICER:		y Power	- Inputor
	Sample			1	-							1	Client Representative:	n/a	Toolbox:			
			-	4											Shift Change:			
				-	-							-	-		Safety: Pre/Post Job:			
												J		J	Freirost Job.			
TI	ME	ÓP		2.	-	LIN	E INFORM	MATION	<i>10</i>					DETAIL ED SUE	RVEY INFORMATI	ON		
FROM	ТО	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		9977/16	DETAILED 301	VET INFORMATI			
1830	1830	ow		+	-	$\leftarrow$	-		-			Rest D	ay					
1830				+	_	_						ł						
				+	$\vdash$	$\vdash$						1						
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											SEA	FLO	OR MAPPING JOBL	.OG					
ver 7.22	.2015-A					_		1											
	SPECT	DATE:	06-Jul-201	5 Mon	Julia	n Day:	187	4	OB DESC	CLIENT:	_		AK LNG						
1.000	NAV. SY				lypack			1		BLOCK:	_		LNG Sites						
	FUGRO		23.00007123			IDE BY:	1	1	AREA	R/V:			Westerly						
		DAY #:	Day: 43	-		TANCE:		No.	of SURVE			214	594.60 Kilometers						
C	RP TO S		0.00 N/A			UNITS:			GINAL JO			77,800.	00 95.2% Complete						
				N	AUTICA	L MILE:	6080.0	J			,		20,900.00 Meters Added						
													4,100.00 Meters Deleted						
			PMENT EQUIP	<u>"</u>	_	Conto		SONNEL O	John Val	likonio		1	PERSONNEL		<b>-</b>	v	EATHER REF	ATOMORNA NAMED OF	Di-
			OS MV	-1	Oth	Capta	el Crew:	_	John Val	1000000		1	Offshore Site Manager: Ass't Off. Site Manager:	Charlie Hall Marla Krynytzky	Time Wx - 0600:		Sea State	Wind Speed	n/a
	MBES -		CO. C.	-		Party C			Kelly P			1	Data Manager:	Chuck Chamberlain	Wx - 1200:		n/a 0.1m	n/a Light	Var.
	S - Edg			1		ydro. Su			Katie Co			1	Data Processor:	Cody Gibson	Wx - 1800:		0.1m	Light	Var.
	Mag			1		ophysica			Richie Car	michael		1	Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
US	BL - IX	SEA GA	PS	1	Oth	er Surve	ey Crew:		n/a	3		1	Data Processor:	n/a	ISE Reporting (	Place	an "x" in the b	ox, with brief de	cription
	Sample				Clier	nt Repre	sentative:		Ron Eck	khardt			Additional Proc.:	n/a	HSE OFFICER:		Kell	y Power	
Grab	Sample	er - Van	Veen	1									Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
<u> </u>				-	<u> </u>							-			Shift Change:	-	1		-
<u> </u>			-	-	<u> </u>							-			Safety:	X	Review MAR-	TRA-012	
												J			Pre/Post Job:		1		
TIF	ИE	OP		-1-		LINE	E INFORM	MATION			2912	Т			ID. (E.V. (LIEGDALATIC				
FROM	TO	CODE	LINE NUMBER	HEADIN	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1		DE TAILED SU	JRVEY INFORMATIO	М			
0630	0700	OW	μ									A CONTRACTOR	g Ops meeting, Vessel Pre-star	rt checks					
0700	0810	IT		1								- CONTROL	t to TM-05	Auronomissi Marches					
0810	0845	OW	1			_						Deploy	ed Survey Gear and Comducte	ed an AML SVP					
0845	0848 0918	OL.	TM05 035	211.0		252	25.0	43.0	33.0	-		LADEC.	/SBES/SS/MAG Seas:0.1m Win	de l'est le martife est conten	Man data bud it is bullet		4.41	la and analist	
0848	0918	LT	11005_035	211.0	179	252	25.0	43.0	33.0	_		4	led line turn to get Mag data stri		wag data but it is being	recon	ded in sonarwi	iz and sealink	
0918	1010	OL	TM05_020	031.0	100	172	17.0	20.0	10.0				/SBES/SS/MAG	ng into riypack					
1019	1023	LT		1	100	1	17.0	20.0	10.0			1							
1023	1047	OL	TM05_036	211.0	100	168	23.0	24.0	14.0			MBES/	/SBES/SS/MAG, Conducted u-st	vp at 1035,Cast was not good,	Conducted a 2nd one a	t 1045	and cast was v	alid	
1047	1054	LT									\$	1							
1054	1211	OL	TM05_030	031.0	100	172	15.0	19.0	9.0			MBES/	/SBES/SS/MAG,						
1211	1214	LT												sorter reduct over					
1214	1230	OL	TM05_031	211.0	100	171	24.0	24.0	14.0		_	MBES	/SBES/SS/MAG, Seas; 0.1m Wi	inds: Light,					
1230 1244	1244 1430	LT OL	TM05 022A	034.0	100	177	8.0	23.0	13.0			MDEC	PPERIORIMAC Com. Ditm W.	inde: Light Conducted House					
1430	1437	LT	110105_0224	031.0	100	1//	0.0	23.0	13.0			IVIDEO	/SBES/SS/MAG, Seas; 0.1m Wi	inas, Light, Conducted Osvp					
1437	1455	OL	TM05 037	211.0	100	167	17.0	20.0	10.0	_		MBES	/SBES/SS/MAG, Seas; 0.1m Wi	inds: Light					
1455	1501	LT			100	1.07		20.0	10.0		1								
1501	1551	OL	TM05_043	031.0	100	164	11.0	15.0	5.0			MBES	/SBES/SS/MAG, Seas; 0.1m Wi	inds: Light, Conducted u-SVP a	t 1530 downcast only				
1551	1555	LT										1							
1555	1622	OL	TM05_038	211.0	100	167	9.0	28.0	18.0			MBES	/SBES/SS/MAG, Seas; 0.1m Wi	inds: Light,					
1622	1625	LT	T1 105 5	004.5	100	100	44.0	400				Lunga	(CDEC)(COALA C						
1625	1647	OL	TM05_044	031.0	100	163	11.0	16.0	6.0			4	/SBES/SS/MAG, Seas; 0.1m Wil	inas: Light,					
1647 1700	1700 1810	OW	6	+	-	-		-		-			er Survey Gear t to Dock						
1810	1830	OW		+	+	_						ransit	TO DOCK						
1830	1000			+	+	$\vdash$						1							
.500				+								1							
												1							
												]							



												Fugro
											SEA	FLOOR MAPPING JOBLOG
PRO	NAV. SY FUGRO JOB	DATE: / SITE: STEM: JOB #: DAY #: TERN:	23.00007123 Day: 43 0.00 N/A	H NAV. F S	lypack AY. DIVI FIX DIST URVEY	IDE BY: TANCE: UNITS: L MILE:	1 50 Meters	No ORI	JOB DESC AREA & . of SURVE	CLIENT: RIPTION: BLOCK: R/V: EY LINES:		AK LNG  0  LNG Sites  Westerly  214
FROM		OP	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
		AM AM	TM05_034 TM05_029 TM05_036	211.0° 031.0° 211.0°	172	252 178 172						Added mileage for run in/out Added mileage for run in/out Added mileage for run in/out
		AM AM AM	TM05_030 TM05_031 TM05_022A TM05_037	031.0° 211.0° 031.0°	172 171 177							Added mileage for run in/out
		AM AM	TM05_043 TM05_038 TM05_044	031.0° 211.0°	164 167	169 173 168						Added mileage for run in/out
			Site TM01		001	686						Deleted 34.3 km from Line Km shot total
<u> </u>				-	<del></del>	<del></del>						



												Euges						
												Fugro						
											SEA	FLOOR MAPPING JOBL	.OG					
ver 7.2	2015-A		07 1 204	F T	Luffe	n Dave	400	1				AK LNG						
PRO	SPECT	DATE:	07-Jul-201	5 Tue	Julia	n Day:	188	1	JOB DESC	CLIENT:	<u> </u>	AK LNG						-
7.5747.222	NAV. SY			Н	lypack			1		BLOCK:		LNG Sites						
			23.00007123					<del>1</del> 0.		R/V:		Westerly						
- 2		DAY #:	Day: 44	1				No	. of SURVE	Y LINES:		214 596.65 Kilometers						
C	RP TO S	TERN:	0.00 N/A	J								99.9% Complete 22.950.00 Meters Added		-				
												4,100.00 Meters Deleted						
GEOP	HYSICA	L EQUI	PMENT EQUIPA		253		PER	SONNEL O	NBOARD			PERSONNEL	ONSHORE			WEATHER REPO	RT	
			OS MV	]		Capta			John Val	ikonis		Offshore Site Manager:	Charlie Hall	Time		Sea State	Wind Speed	Dir.
	S System			1			el Crew:		n/a			Ass't Off. Site Manager;	Maria Krynytzky	Wx - 0600:		n/a	n/a	n/a
	MBES -			ł		Party C		-	Kelly P			Data Manager: Data Processor:	Chuck Chamberlain	Wx - 1200: Wx - 1800:		0.5m	10kts	ESE
- 50	S - Edg Mag			ł		dro. Su	al Tech.:	-	Richie Car			Data Processor:	Cody Gibson Lance Woods	Wx - 2400:	_	1.0m n/a	15kts n/a	SW n/a
US	BL - IX			1			ey Crew:	1	n/a			Data Processor:	n/a		(Place	e an "x" in the bo		
Grab	Sample	er - Day	Grab	1			sentative:		Ron Eck	hardt		Additional Proc.:	n/a	HSE OFFICER:		Kelly	The same of the sa	
Grab	Sample	er - Van	Veen	1		ateria de la constanta de la c						Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
				-								l		Shift Change:			7201 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	
			-	-				-						Safety: Pre/Post Job:	X	WeeklySafety Me	eting, Review MAR	TRA-001
				J.									J	Pre/Post Job:				
TI	ME	OP				LIN	E INFORM	NOITAN	C	×	297		DETAILED SUE	VEY INFORMATI	ON			
FROM	ТО	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP			VET INFORMATI	ON			
0630 0735	0735	OW		-								Morning Ops meeting, Weekly Safety	Meeting,					
0850	0850 0920	OW		-		-		+				Transit to site TM05 Deploy Survey equipment and Conduc	t an AMI SVP					
0920	0924	LT		+								Deploy ourvey equipment and conduct	Call Aire SVI					
0924	0959	OL	TM05_045	211.0°	100	162	25.0	39.0	29.0		Ĭ.	MBES/SBES/SS/MAG Seas; 0.3m W	inds: 10 WSW					
0959	1003	LT																
1003	1031	OL	TM05_039	031.00	100	166	10.0	21.0	11.0			MBES/SBES/SS/MAG Seas; 0.3m W.	inds: 10 WSW					
1031	1037 1105	LT OL	TM05 046	211.0°	100	162	24.0	25.0	15.0			MBES/SBES/SS/MAG Seas; 0.4m W	inde: 10 ESE					
1105	1109	LT	11005_040	211.0	100	102	24.0	25.0	15.0			WBE3/3BE3/33/WAG 3685, 0.4111 W	illos. 10 ESE					
1109	1142	OL	TM05_040	031.0°	100	166	16.0	20.0	10.0			MBES/SBES/SS/MAG Seas; 0.4m Wi	inds: 10 ESE, Conducted usvp at	11:15				
1142	1146	LT																
1146	1206	OL	TM05_047	211.0°	100	161	22.0	22.0	12.0			MBES/SBES/SS/MAG Seas; 0.4m W	inds: 10 ESE, At SP 130 Turned	off vessel sounder as	s it wa	s interferring with S	SS record	
1206 1212	1212 1405	LT OL	TM05 041	031.0°	100	165	16.0	18.0	8.0			MBES/SBES/SS/MAG Seas; 0.6m W	inde: 10 ESE At SD 130 entered	into dobrio field. Con	adviota	d House of 12:15		
1405	1411	LT	11005_041	031.0	100	100	16.0	10.0	0.0			INDES/SBES/SS/INIAG Seas, U.OIII WI	inds. 10 ESE, At SP 120 entered	into debris field, Cor	luucie	d USVP at 15.15		
1411	1429	OL	TM05_046	211.0*	100	161	19.0	19.0	9.0			MBES/SBES/SS/MAG Seas; 0.7m W	inds 10kts S, SS record shows e	vidence of tugging b	ut data	still good		
1429	1435	LT												WANT OF STREET				
1435	1547	OL	TM05_042	031.0°	100	164	13.0	16.0	6.0			MBES/SBES/SS/MAG Seas; 0.7m W	inds 10kts 5, Slow vessel at SP1	02 due to noise on M	IBES,	SS record shows s	ome thermocline	s at SP105
1547	1552	LT	TMOE 047	244.00	400	404	47.0	47.0	7.0			Conducted a USVP at 15:30	- 4 - 404 - 2 - Coop are about	d effection data and	Et.			
1552 1614	1614 1630	OL	TM05_047	211.0°	100	161	17.0	17.0	7.0			MBES/SBES/SS/MAG Seas; 0.7m W Recover survey gear	inus rokts 5, Seas are Gloppy ar	iu anecung data qau	iiity			
1630	1805	IT				_						Transit to Cannery Dock						
1805	1830	ow																
1830																		
				-	-	-		-			-							
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											<b>S</b> EA	LOOR MAPPING JOBLOG	
ver 7.22	2015-A	(Alaska)	07-Jul-201	5 Tue	Iulia	n Day	188	1		CLIENT:		AK LNG	
PRO	SPECT		07-541-201	- 140	D	Day	100	1 .	JOB DESC			0	
	NAV. SY	STEM:		_ H	ypack			]	AREA 8	BLOCK:		LNG Sites	
			23.00007123	1				200		R/V:		Westerly	
		DAY#:	Day: 44 0.00 N/A	ł				No	. of SURVE	EY LINES:		214 596.65 Kilometers 99.9% Complete	
	RPIOS	HERN:	0.00 N/A	8								22,950.00 Meters Added	
												4,100.00 Meters Deleted	
	ME	OP					E INFORM					DET	ALED SURVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		
$\vdash$		_		-		<u> </u>	-	_					
			T1405 045	044.00	100	400							
$\vdash$		AM AM	TM05_045 TM05_039			166 172	-	_		-			
		AM	TM05_039			166							
		AM	TM05_040	031.0°	166	170							
		AM	TM05_047			165							
$\vdash$		AM	TM05_041 TM05_048			170	-						
$\vdash$		AM	TM05_048			166 169							
		AM	TM05_047	211.0°	161	165							
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ver 7.22.			08-Jul-20	I Mod	lulia	n Dave	100	1		CLIENT:		AK LNG
ppn	SPECT		00-301-20		TM05	ii Day.	103	1	JOB DESC			Hydrographic Survey
	JAV. SY				lypack			1		BLOCK:	$\vdash$	LNG Sites
			23.0000712		ураск			ä	AREA	R/V:	$\vdash$	Westerly
		DAY #:	Day: 45					No	of SURVE		$\vdash$	214 596.65 Kilometers
C			0.00 N/A	-				140	. OI JUNVI	LI LINEO.	_	99.9% Complete
C	tr IU s	I ERIN.	0.00 N/A									22,950.00 Meters Added
												4,100.00 Meters Deleted
CEOR	IVOIO A		PMENT EQUI				DEDG	SONNEL O	UDOADD			
			OS MV	"	_	Capta		JONNEL O	John Va	likonie		
			e AG130		Oth			-				
			E CONTRACTOR OF THE PARTY OF TH				sel Crew:		Doug B			Ass't Off. Site Manager: Marta Krynytzky Wx - 0600: n/a n/a n/a
		R2Soni				Party C			Kelly P			Data Manager: Chuck Chamberlain Wx - 1200: 1 to 12 10kt SSN
		etech 4		4		/dro. Su			Katie C			Data Processor: Cody Gibson Wx - 1800: 1 10kt SSV
		SeaSpy		4			al Tech.:		Richie Car			Data Processor: Lance Woods Wx - 2400: n/a n/a n/a
		SEA GA					ey Crew:		n/s			Data Processor: n/a SE Reporting (Place an "x" in the box, with brief descript
		er - Day		_	Clien	t Repre	sentative:		n/a	3		Additional Proc.: n/a HSE OFFICER: Kelly Power
Grab	Sample	er - Van	Veen	_								Client Representative: Ron Eckhardt Toolbox: X JHA / Toolbox
			1	_								Snift Change:
				╝								Safety: X VesselInduction, Reviewed MAR-TRA-01
												Pre/Post Job:
TIN	ΛE	OP				LIN	E INFORM					DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBE	R HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DNP DETAILED SOLVET IN ORMATION
0630	0725	ow			T.						2	Morning ops meeting. Dockside checks.
0725	0840	IT										Transit to TM05
0840	0935	ow										On site. Deploy survey equipment and conduct AML SVP.
0935	0940	LT			1							
0940	1000	ow	85								1	3 to 4 foot seas affecting data quality. Retrieve gear.
1000	1135	WS										Transit back to dock.
1135	1530	ws	2									
1530	1610	ws	2									Fueling toolbox talk. Fuel vessel.
1610	1830	ws			1							
1830											-	
				$\overline{}$	-	-					-	$\neg$
				$\top$	-	-					-	
					-	-					-	$\neg$
				_	-						-	$\neg$
					-						_	$\neg$
				+	-	-					-	$\dashv$
		_		+-	$\vdash$	_				_	$\vdash$	$\dashv$
				+		<del>                                     </del>						$\dashv$
				+-	+	-	_			_	+	$\dashv$
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PRO	SPECT NAV. SI FUGRO JOB RP TO S	DATE: / SITE: /STEM: JOB #: DAY #: STERN:	23.00007123 Day: 45 0.00 N/A	Н	<b>Julia</b> D lypack			No.	JOB DESC AREA &	BLOCK:		AK LNG  0  LNG Sites  Westerly  214
	ME TO	OP	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION



ver 7.22		DATE:	09-Jul-201			ın Day:	190	]		CLIENT:		AK LNG
	SPECT				TM05				JOB DESC			Hydrographic Survey
2	IAV. SY		00 00007400		lypack			4	AREA	R BLOCK:		LNG Sites Westerly
,	UGRO	DAY #:	23.00007123 Day: 46	4				No	. of SURVE			214 596.85 Kilometers
			0.00 N/A	-				NO	. OI SURVI	LINES.		100.6% Complete
"	IF IU 3	I ERN.	0.00 N/A	1								23,150,00 Meters Added
												4.100.00 Neters Deleted
GEOP	YSICA	FOUL	PMENT EQUIP				PER	SONNEL C	NBOARD			PERSONNEL ONSHORE WEATHER REPORT
	ion Sys			ī		Capta		T	John Va	likonis		Offshore Site Manager: Charlie Hall Time Sea State Wind Speed Dir.
Diff. GPS	System	- Trimbi	e AG130	1	Oth	er Vess	el Crew:		n/a	3		Ass't Off, Site Manager: Marta Krynytzky Wx - 0600;
N.	BES -	R2Son	С	1		Party C	hief:		Doug B	owlus		Data Manager: Chuck Chamberlain Wx - 1200: 1 to 12 10-15 kts SSW
SS	- Edg	etech 4	200	1	Hy	ydro. Su	rveyor:		Katie C	onrad		Data Processor: Cody Gibson Wx - 1800: 0.5 5-10 kts SSW
	Mag S	SeaSpy		1	Geo	ophysica	al Tech.:		Richie Car	rmichael		Data Processor: Lance Woods Wx - 2400:
	BL - IXS			]			ey Crew:		n/s			Data Processor: n/a SE Reporting (Place an "x" in the box, with brief description
Grab	Sample	r - Day	Grab		Clien	t Repres	sentative:		Ron Ecl	khardt		Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab	Sample	r - Van	Veen		1							Client Representative: n/a Toolbox: X JHA-T+olbox
			1	1								Snirt Change:
				1								Safety: X Reviewed MAR-TRA-009
												Pre/Post Job:
TI		OP		_	-	_	INFORM					DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	
0630	0720	ow		-	-			_				Morning ops meeting, Dockside checks.
0720	0850	IT		-	-	-		_	-		_	Transit to TM05.
0850	0935	ow		+	-	-		-	-			On site. Deploy equipment and conduct AML SVP,TRA-009
0935	1001	OW	TM05 020A	031.0°	100	181	20.0	22.0	12.0	-		MBES/SBES/SS/MAG_Re-run. Seas; 1.0m Winds; 12kt SSW. Vessel speed on line increased due to tital current.
	1001		11VIU5_020A	031.0	100	181	20.0	22.0	12.0	-	0	SSS data quality degraded with 210 degree heading. Switch to Multibeam infill lines.
1001	1036	OW	TM05_INFILL_00	210.0	100	112	22.0	32.0	22.0	_		SSS data quanty degraded with 210 degree residenty. Switch to Middledan minimines. MDES/SDES/SS/MAG Infill. Seas; 1.0m Winds: 12kt SSW.
1044	1112	LT	111100_111110_00	210.0	100	112	22.0	52.0	22.0			The Constitution of the Co
1112	1137	OL	TM05 018	031.0*	100	180	25.0	20.0	10.0		_	MBES/SBES/SS/MAG Seas; 0.8m Winds: 13kt SSW, 1125 MVP taken.
1137	1152	LT	11005_010	031.0	100	100	20.0	20.0	10.0	_		SSS data quality still degraded with 210 degree heading. Run multibeam re-run line.
1152	1242	ow	TM05 035A	210 0°	100	174	25.0	28.0	18.0			MBES/SBES/SS/MAG Re-run. Seas; 0.8m Wirds: 12kt SSW. Data quality marginal.
1242	1251	LT		10.0.0	100	1	20.0		10.0			
1251	1322	ow	TM05_019A	031.0°	100	181	23.0	22.0	12.0			MBES/SBES/SS/MAG Re-run. Seas; 1.0m Wirds; 9.9kt SSW.
1322	1358	LT										Data quality is not acceptable heading 210 degrees. 1345 MVP Taken.
1358	1409	ow	TM05_INFILL_00	007.0°	100	121	28.0	43.0	33.0			MBES/SBES/SS/MAG Infill. Seas; 0.5m Winds. 8kt SSW.
1409	1417	LT	-									
1417	1458	ow	TM05_INFILL_00	5 031.0°	100	134	25.0	33.0	23.0			MBES/SBES/SS/MAG Infiill. Seas; 0.5m Winds: 7kt SSW.
1458	1519	LT										
1519	1559	ow	TM05_040A	001.0°	100	128	14.0	17.0	7.0			MBES/SBES/SE/MAC Re-run, Seas; 0.5m Wirds; 9kt SSW, 15:45 MVP Taken.
1559	1608	LT							_			Break line for UTC roll-over.
1608	1642	ow	TM05_049A_000	031.0°	100	139		-				MBES/SBES/SS/MAG Re-run (CONT). Seas; 0.5m Winds: 7kt SSW.
1642	1700	OW		1		_						Recover survey gear
1700	1815	IT		-	-	<del></del>						Transit to dock.
1815	1830	OW		-	-	-		-	-			1
1830			2	-	-	-		-	-			1
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ver 7.22	2.2015-A (	Alaska)											_		
796500		DATE:	09-Jul-2015	5 Thu	Julia	n Day:	190			CLIENT:		AK LNG			_
PRO	SPECT	/ SITE:			TM05				OB DESC	RIPTION:		Hydrographic Survey	1		
	NAV. SY		23.00007123		lypack			J.	AREA 8	BLOCK:	_	LNG Sites Westerly	-		_
110	IOR	DAY #:	Day: 46	1				No	of SURVE		<u> </u>	214 596.85 Kilometers			$\dashv$
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~		, Little	0.00 1472	ı								23,150.00 Meters Added			$\dashv$
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	ME	OP					E INFORM			-		DETA	II ED SURV	EY INFORMATION	
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	5217	CED CONT	ETHORNATION	
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		AM	TM05_18	031.0°	176	180									
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ver 7.22.2015-A (Alaska)

DATE:	10-Jul-201	5 Fri Julian Day:	191
PROSPECT / SITE:		PL001	
NAV. SYSTEM:		Hypack	
FUGRO JOB #:	23.00007123	NAV. DIVIDE BY:	1
JOB DAY #:	Day: 1	NAV. FK DISTANCE:	50
CRP TO STERN:	0.00 N/A	SURVEY UNITS:	Meters
		NAUTICAL MILE:	6080.0

CLIENT:		AK LNG	
JOB DESCRIPTION:		Seafloor Mapping	
AREA & BLOCK:		Pipeline	
R/V:		Westerly	
No. of SURVEY LINES:	484	610.60 Kilometers	
RIGINAL JOB TOTAL:	606,000.00	2.7% Complete	
_		4,600.00 Meters Added	

GEOPHYSICAL EQUIPMENT	EQUIP
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag SeaSpy	
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

Captain:	John Valikonis
Other Vessel Crew:	n/a
Party Chief:	Doug Bowlus
Hydro. Surveyor:	Katie Conrad
Geophysical Tech.:	Richie Carmichael
Other Survey Crew	n/a
Client Representative:	Ron Eckhardt

Offshore Site Manager:	Charlie Hall
Ass't Off. Site Manager:	Marta Krynytzky
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lanve Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

	١	<b>VEATHER REP</b>	ORT		
Time		Sea State	Wind Speed	DIr.	
Wx - 0600:		n/a	n/a	n/a	
Wx - 1200:		0.2	< 5kts	SW	
Wx - 1800:		0.2	5 kts	SW	
Wx - 2400:		n/a	n/a	n/a	
SE Reporting (F	Place	an "x" in the b	ox, with brief des	cripti	
HSE OFFICER:		Doug	Bowlus		
Toolbox:	×	JHA-Toolbox	Talk		
Shift Change:					
Safety:	Х	Review MAR-	TRA-010		
Pre/Post Job:					

TIN	ME	OP	LINE INFORMATION						DETAILED SURVEY INFORMATION		
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVET INFORMATION
	0730	ow									Morning meeting. Vessel pre-start checks. JHA Toolbox.
	0805	WS									Waiting on tide to rise.
	0930	IT									Transit to PL001.
	0955	ow									Deploy survey gear
0955	1020	ow									Troubleshooting multibeam interference.
1020	1042	LT									
1042	1102	OL	PL01_001	210.0	100	110	21.0	22.0	12.0		MDES/SDES/SS/MAG Seas; 0.2m Winds: 4kt SW.
1102	1106	LT									and representational and an activation of the second
	1110	OL	PL01_007	030.0°	100	111	25.0	25.0	15.0		MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt SW.
1110	1117	LT									
1117	1127	OL	PL01_002	210.0°	100	110	22.0	28.0	18.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt SW.
1127	1130	LT									
1130	1134	OL	PL01_005	030.0°	100	111	25.0	24.0	14.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt SSW.
1134	1143	LT									
1143	1152	OL	PL01_003	210.0°	100	110	23.0	29.0	19.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt SW. 11:45 MVP Taken.
1152	1154	LT									
1154	1159	OL	PL01_006	030.0°	100	111	25.0	26.0	16.0		MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt SW.
1159	1204	LT									
1204	1211	OL	PL01_004	210.0°	100	110	24.0	31.0	21.0		MBES/SBES/SS/MAC Seas; 0.2m Winde: 3kt SW.
1211	1215	LT									
1215	1219	OL	PL01_008	030.0°	100	110	26.0	30.0	20.0		MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt SW.
1219	1225	LT									
1225	1233	OL	PL01_012	210.0°	100	110	24.0	29.0	19.0		MBES/SBES/SS/MAG Seas; 0.2m Winds; 4kt W.
1233	1239	LT									
1239	1244	OL	PL01_009	030.0°	100	111	26.0	26.0	16.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt WSW.
1244	1251	LT									20 CO
1251	1255	OL	PL01_013	210.0°	100	110	24.0	31.0	21.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt WSW.
1255	1300	LT					1				
1300	1305	OL	PL01_010	030.0"	100	111	26.0	26.0	16.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.
1305	1311	LT									NOT THE THE PROPERTY OF THE PR
1311	1319	OL	PL01_014	210.0°	100	111	25.0	31.0	21.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt WSW.
	1324	LT									
1324	1330	OL	PL01_011	030.0°	100	110	26.0	27.0	17.0		MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt WSW.





PRO	SPECT NAV. SY FUGRO	DATE: / SITE: STEM: JOB #: DAY #:	23.00007123 Day: 1 0.00 N/A	NAV. I	ypack AV. DIVI FIX DIST	IDE BY:	,					AK LNG Seafloor Mapping Pipeline Westerly  484   610.60 Kilometers 2.7% Complete 4,600.00 Meters Added
	ME	OP					INFORM					DETAILED SURVEY INFORMATION
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INTO CHIATON
1330	1336	LT	DI 04 045	240.00	400	440	05.0	20.0	20.0			MDEC/DEC/CRECAMAC Coopy & Zery Winder Alth WCW
1336 1342	1342 1348	OL LT	PL01_015	210.0°	100	110	25.0	32.0	22.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt WSW.
1348	1353	OL	PL01_020	030.0°	100	111	26.0	30.0	20.0			MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt WSW. 1350 MVP Taken.
1353	1358	LT										
1358	1404	OL	PL01_016	210.0°	100	109	25.0	30.0	20.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt WSW.
1404	1408	LT							10.0			
1408	1414	OL LT	PL01_021	030.0*	100	111	27.0	29.0	19.0	_	-	MBES/SBES/SS/MAG Seas, 0.2m Winds: 5kt WSW.
1419	1425	OL	PL01_017	210.0°	100	109	26.0	29.0	19.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 5kt WSW.
1425	1429	LT		210.0	100	100	20.0	20.0	10.0			
1429	1435	OL	PL01_022	030.0*	100	111	28.0	32.0	22.0			MBES/SBES/SS/MAG Seas, 0.2m Winds. 4kt WSW.
1435	1440	LT										
1440	1446	OL	PL01_018	210.0°	100	110	26.0	26.0	16.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt WSW.
1446	1451 1458	OL.	PL01 023	030.0°	100	110	27.0	35.0	25.0	_		MBES/SBES/SS/MAG Seas; 0.2m Winds; 4kt SW.
1451	1502	LT	PL01_023	030.0	100	110	27.0	35.0	25.0			NIDES/SES/SENING Seas, 0.2111 VVIIIds. 4kt S/V.
1502	1507	OL	PL01_019	210.0°	100	110	27.0	29.0	19.0			MBES/SBES/SS/MAG Seas; 0.2m Winds; 4kt S/V.
1507	1520	ow										Recovery survey gear.
1520	1700	IT										Transit to dock for fueling, 1550: Received call informing that fuel truck will arrive at 1830.
1700	1810	OS				_						Standby for fuel truck
1810 1850	1850	ow	-		-	-						Fueling toolbox. Fuel Vessel.
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70/222		DATE:	10-Jul-201	5 Fri	Julia	n Day:	191	1		CLIENT:		AK LNG	
	SPECT								JOB DESC			Seafloor Mapping	
	NAV. SY		23.00007123		lypack	DE DV.	1	1	AREA	BLOCK: R/V:		Pipeline Westerly	
		DAY #:	Day: 1			IDE BY:	50	No	of SURVE		<u> </u>	484 610.60 Kilometers	
C			0.00 N/A			UNITS:	Meters		GINAL JO		6	606,000.00 2.7% Complete	
"			0.00	4		L MILE:	6080.0	1	011111111111111111111111111111111111111			4,600.00 Meters Added	
				1330	000-1110000			-					
	ME	OP			Loos		EINFORM		T		Loup	DETAILED SURVEY INFORMATION	
FROM	TO	AM	PL01 001	210.0°	_	114	Fain (m)	iviag (m)	SSS Fish (m)	1	DNP	Added mileage for run in/out	_
$\vdash$		AM	PL01_007	030.0°	_	115	_		_	-		Added mileage for run in/out	_
		AM	PL01_002	210.0°		114						Added mileage for run in/out	
		AM	PL01_005	030.0°	111	115						Added mileage for run in/out	
		AM	PL01_003	210.0°	110	114						Added mileage for run in/out	
		AM	PL01_006	030.0°		115						Added mileage for run in/out	
		AM	PL01_004	210.0°	110	114						Added mileage for run in/out	
_		AM	PL01_008	030.0*	110	114	-		1			Added mileage for run invout	
_		AM	PL01_012 PL01_009	210.0*	110	114	_		-			Added mileage for run in/out	
		AM AM	PL01_009	030.0° 210.0°	111	115 114				-		Added mileage for run in/out Added mileage for run in/out	_
_	_	AM	PL01 010	030.0"	111	115	_	_	<del>                                     </del>		1	Added mileage for run in/out	_
		AM	PL01_014	210.0°	111	115						Added mileage for run in/out	_
		AM	PL01_011	030.0°		114						Added mileage for run in/out	
		AM	PL01_015	210.0°	110	114						Added mileage for run in/out	
		AM	PL01_020	030.0°	111	115						Added mileage for run in/out	
		AM	PL01_016	210.0"		113	-	-		_		Added mileage for run in/out	
-	-	AM	PL01_021 PL01_017	030.0°		115	-		_		-	Added mileage for run in/out	
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		AM	PL01_018	210.0°	110	114						Added mileage for run in/out	
		AM	PL01 023	030.0"		114						Added mileage for run in/out	
		AM	PL01_019	210.0°		114						Added mileage for run in/out	
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er 7.22.2015		aska) ATE:	11-Jul-201	5 Sat	Julia	n Day:	192	1		CLIENT:		AK LNG
PROSPE	CT/S	SITE:			TM05			1 8	JOB DESC			Hydrographic Survey
NAV. SYSTEM: Hypack AREA & BLOC								]	AREA			LNG Sites
		A50 (485.1)	23.00007123	1				11820		R/V:	_	Westerly
	OB DA	A 2 CO 10 CO	Day: 47	1				No	of SURVI	EY LINES:		214 596.85 Kilometers
CRP T	O STE	ERN:	0.00 N/A	J								100.6% Complete
												23,150.00 Meters Added
FORUNG	041.1	501115	MENT SAUG				DED	CONNELC	WEGARE			4,100.00 Meters Deleted
vigation			MENT EQUIP	7	_	Capta		SONNEL C	John Va	likonis		PERSONNEL ONSHORE WEATHER REPORT Offshore Site Manager: Charlie Hall Time Sea State Wind Speed Dir.
f. GPS Sys				1	Oth		el Crew:	+	n/a			
the second second		2Sonic	The second secon	-		Party C		-	Doug B			
SSS - E				#		dro. Su			Katie C			Data Manager:   Chuck Chamberlain   Wx - 1200:   0.5   5 kts   S
		aSpy	.00	1			Tech.:	-	Richie Ca			Data Processor: Lance Woods Wx - 2400: n/a n/a n/a
USBL -			De l	-			ay Crew	-	n/s			Data Processor: n/a SE Reporting (Place an "x" in the box, with brief description
Grab San				1			sentative:	1	Ron Ecl			Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab Sam		_		1	Cilcii	ricpro	SCHILLIANO.	_	TOILE	Kilai at		Client Representative: n/a Toolbox: X JHA-T+olbox
JIAD JAII	ibiei -	- vaii	Veeli	1	$\vdash$			+				Shift Change:
				1	$\vdash$			_				Safety: X Reviewed MAR-TRA-012
				1	$\vdash$			_				Pre/Post Job:
				J	_							Preirost Jou.
TIME	$\overline{}$	OP				LINE	INFORM	MATION				
ROM TO		ODE	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)	I	DNP	DETAILED SURVEY INFORMATION
0545 060	00	ow			<del>                                     </del>		(117)	1 1 1 1 1 1 1				Morning ops meeting. Dockside checks,
600 070		IT			1	-		-				Transit to TM05
700 073	-	ow			1	-						On site. Deploy multibeam and conduct AML SVP.
720 073		LT				t						
724 073		ow	TMD5_INFILL_007	027.0°	100	116	19.0	N/A	N/A	1		MBES/SBES Only Infill. Seas; 0.5m Winds: 3 k: S. (MB Pwr indicator went Grey once during line)
738 074	19	LT										Disconnected multibeam wetmate cable connection (slight gap visible), wiped contacts, applied silicons saray then re-plugged connector.
749 073	59	ow	TM05_INFILL_00	212.0	100	118	23.0	N/A	N/A			MDES/SDES Only Infill. Seas; 0.5m Winds; 3 k; S.
759 080	02	LT										
802 08	16	ow	TM05_INFILL_008	031.0"	100	127	27.0	N/A	N/A			MBES/SBES Only Infill. Seas; 0.5m Winds; 3 k: S.
816 082	22	LT					1					Rigged a line to the MB cable to take weight off of the cable connection.
822 082	29	ow	TM05_INFILL_003	032.0°	100	122	24.0	N/A	N/A			MBES/SBES Only Infill. Seas; 0.5m Winds: 4 k: SSW.
829 083	35	LT			-							
835 084	11	ow	TM05_INFILL_009	216.0°	100	119	14.0	N/A	N/A			MBES/SBES Only Infill. Seas; 0.5m Winds: 7 kt SW.
841 084	48	LT						1				
848 09	_		TM05_INFILL_001	031.0	100	154	13.0	N/A	N/A			MBES/SBES Only Infill. Seas; 0.5m Winds: 4 k: SW.
911 09		LT										
919 095	_	ow	TM05_35B	211.0°	100	172	20.0	N/A	N/A			MBES/SBES Only Re-run. Seas; 0.3m Winds: 2 kt S. 0922 MVP Taken.
953 10	10 (	ow										Deploy USBL, SSS and Magnetometer.
010 10	_	LT					7					
018 104		ow	TM05_18A	031.0°	100	180	17.0	18.0	8.0			MBES/SBES/SSS/MAG Re-run. Seas; 0.3m Winds: 4kt S.
042 105	55	ow			1							Retrieve gear.
055	$\perp$	$\Box$			Γ							Begin transit to PL01. End of this DPR Log, switching to Pipeline DPR.
	$\perp$											
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PRO	SPECT	(Alaska) DATE: // SITE:	11-Jul-201	Julia TM05 Iypack	ın Day:	: 192	CLIENT:  JOB DESCRIPTION:  AREA & BLOCK:				AK LNG Hydrographic Survey LNG Sites		
c	JOB RP TO	JOB #: DAY #: STERN:	23.00007123 Day: 47 0.00 N/A						of SURVE	R/V:	-	Westerly 214	
	ME	OP	LINE NUMBER	THEATUNE	gen	LINI	EINFORM	IATION	Torre tien (m)		LONG	DETAILED	SURVEY INFORMATION
FROM	10	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	-	DNP		
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Martical Column   Martical C			•												_
Martical Column   Martical C															
PROPERTY   STEE	ver 7.22										construction of the second				
Purpose   Purp	200			11-Jul-201			n Day:	192	-	OR DESC					
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Age				23 00007123	_	ураск			3	AREA			restant account of the contract of the contrac	<del> </del>	
PRESONEL ONBORD   PRESONEL O					1				No	of SURVI				-	
Personnel Obsolute	C	RP TO S	TERN:	0.00 N/A	1								4.7% Complete		
Mary													7,800.00 Meters Added		
Mary	GEOP	IYSICA	L EQUI	PMENT EQUIP	,			PERS	SONNEL C	NBOARD	(		PERSONNEL ONSHORE	WEATHER REPORT	
Mag S					1		Capta		1		likonis				eed Dir.
SSS - Egyperich 4200   Mag - Sas 95		-			]	Oth	er Vess	el Crew:							N/A
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Client Representative   Name					1										description
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Probability   10   10   10   10   10   10   10   1					]										
Final   10   10   10   10   10   10   10   1	711	AE .					2 352	E INFORM	*ATION					3 4	
		_		LINE NUMBER	HEADING	BSP	-	_		SSS Fish (m)	1	DNP	DET	AILED SURVEY INFORMATION	
1145   1145	1055	1120											DPR Log Transistion) Transit to PL01 from TM05 area.	Start on PL01 midway through day)	
1145   1200   1206   17						-								all control of the day and the	
1206   1270															
1206   1219   OL   PL01_024   110 or   100   110   26.0   34.0   24.0     MBES/SBES/SSMAG Seas; 0.2m Winds: 4kt SW.   1210 MVP Taken (Upcast only, sensor wrapped around SSS cable).						-	_	_					Finish deploying equipment. SSS Leakage warning at en	i of deployment.	
1222   1226   1232   LT				DI 01 024	240.00	100	110	26.0	34.0	24.0		-	MRES/SRES/SS/MAG Sees: 0.3m Winde: 4bt SW 1210	MVP Taken (Lincast only, sensor wrapped around SSS cable)	
1222   1228   OL   PL01_028   030.0°   100   111   27.0   29.0   19.0				PL01_024	210.0	100	110	20.0	34.0	24.0			VIDEO/ODEO/OO/MAG Seas, U.ZIII WIIIUS, 4NI SIV. 1210	mor Taken (opcasi only, sensor mapped alouid 555 cable).	
1232   1244   1248   LT   1249   LT   1249   LT   1249   1252   QL   PL01   Q29   030.0°   100   110   27.0   27.0   17.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W. (~30 degree crab angle, max flood current)				PL01_028	030.0°	100	111	27.0	29.0	19.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt SW.		
1244   1248   LT	1226	1232	LT					-1							
1282   1257   127		THE REAL PROPERTY.	_	PL01_025	210.0°	100	110	27.0	39.0	29.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt SW.		
1252   1257   LT			-											CONTRACTOR OF CONTRACTOR CONTRACT	
1257   1308   OL   PL01_026   210.0°   100   110   28.0   37.0   27.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.				PL01 029	030.0°	100	110	27.0	27.0	17.0			MBES/SBES/SS/MAG Seas; 0.2m Winds; 2kt W. (~30 d	gree crab angle, max flood current)	
1311   1316   OL   PL01_030   030.0*   100   111   28.0   28.0   18.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.     1321   1333   OL   PL01_027   21.0*   100   109   29.0   38.0   28.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.     1338   1343   OL   PL01_035   030.0*   100   113   27.0   26.0   16.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.     1343   1349   LT				DI 01 026	240.00	100	110	20.0	27.0	27.0			MRES/SRES/SS/MAG Sees: 0.3m Winds: 2kt W		
1316   OL   PL01_030   030.0°   100   111   28.0   28.0   18.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.     1321   1333   OL   PL01_027   210.0°   100   109   29.0   38.0   28.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.     1333   1343   OL   PL01_035   030.0°   100   113   27.0   26.0   16.0   MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.     1343   1349   LT				PL01_026	210.0	100	110	20.0	37.0	27.0		_	VIDEO/ODEO/OO/IVIAG Seas, U.ZIII WIIUS. ZKI VI.		
1316   1321   LT		-		PL01 030	030.0°	100	111	28.0	28.0	18.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.		
1338 1349 LT															
1338 1343 OL PL01_035 030.0° 100 113 27.0 26.0 16.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.  1349 1403 OL PL01_032 210.0° 100 111 27.0 30.0 20.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W. 1350 MVP Taken.  1403 1407 LT MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W. 1350 MVP Taken.  1407 1413 OL PL01_036 030.0° 100 114 27.0 26.0 16.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.  1413 1421 LT MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.  1421 1428 OL PL01_030 262.0° 100 109 29.0 36.0 26.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.  1428 1431 LT MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.  1438 1444 LT MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NV.  1448 1452 OL PL01_033 210.0° 100 115 27.0 27.0 17.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NV.  1456 1504 OL PL01_038 030.0° 100 116 27.0 27.0 17.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NV.	1321	1333		PL01_027	210.0°	100	109	29.0	38.0	28.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.		
1349 1403 OL PL01_032 210.0° 100 111 27.0 30.0 20.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W. 1350 MVP Taken.  1403 1407 LT		-													
1403   1403   1407   LT				PL01_035	030.0°	100	113	27.0	26.0	16.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 2kt W.		
1403       1407       LT				DI 04 022	240.00	400	444	27.0	20.0	20.0			MDEPIPDEPIPPMAN Cook Com Minds This W., 4250	N/D Teken	
1407         1413         OL         PL01_036         030.0°         100         114         27.0         26.0         16.0         MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.           1421         1428         OL         PL01_030         26.0°         100         109         29.0         36.0         26.0         MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.           1421         1428         1431         LT         Image: Control of the control of				PL01_032	210.0*	100	1111	27.0	30.0	20.0			VIDEO/ODEO/ODINIAG DEAS, U.ZIII VVINGS: ZKI W. 1350 I	IVF I dAGII.	
1413       1421       LT       LT       MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.         1421       1428       OL       PL01_030       262.0°       100       109       29.0       36.0       26.0       MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.         1428       1431       LT       C       C       C       C       C       C       C       MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NV.         1438       1444       LT       C <t< td=""><td></td><td></td><td></td><td>PL01_036</td><td>030.0*</td><td>100</td><td>114</td><td>27.0</td><td>26.0</td><td>16.0</td><td></td><td></td><td>MBES/SBES/SS/MAG Seas: 0.2m Winds: 3kt W</td><td></td><td></td></t<>				PL01_036	030.0*	100	114	27.0	26.0	16.0			MBES/SBES/SS/MAG Seas: 0.2m Winds: 3kt W		
1421         1428         OL         PL01_030         26.0°         100         109         29.0         36.0         26.0         MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.           1428         1431         LT  .	-			1 201_000	000.0	.50		27.0	20.0				the many sections of the transfer of the section of		
1431         1438         OL         PL01_037         030.0°         100         115         27.0         27.0         17.0         MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NW.           1438         1444         LT <td< td=""><td></td><td>-</td><td></td><td>PL01_030</td><td>262.0°</td><td>100</td><td>109</td><td>29.0</td><td>36.0</td><td>26.0</td><td></td><td></td><td>MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.</td><td></td><td></td></td<>		-		PL01_030	262.0°	100	109	29.0	36.0	26.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt W.		
1438         1444         LT         Image: Control of the co	1428	1431	LT									0			
1444         1452         OL         PL01_033         210.0°         100         110         28.0         34.0         24.0         MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NW.           1452         1456         LT <td< td=""><td>THE RESIDENCE AND</td><td></td><td></td><td>PL01_037</td><td>030.0*</td><td>100</td><td>115</td><td>27.0</td><td>27.0</td><td>17.0</td><td></td><td></td><td>MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NW.</td><td></td><td></td></td<>	THE RESIDENCE AND			PL01_037	030.0*	100	115	27.0	27.0	17.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NW.		
1452         1456         LT         Image: Control of the co		1001/01/01/01													
1456 1504 OL PL01_038 030.0* 100 116 27.0 27.0 17.0 MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NW.				PL01_033	210.0°	100	110	28.0	34.0	24.0			MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt NW.		
				DI 04 029	020.00	100	116	27.0	27.0	17.0			MRES/SRES/SS/MAG Space O 2m Winder 2th NA		
	1504	1510	LT	FLU1_030	030.0	100	110	27.0	27.0	17.0			VIDEO/ODEO/ODIVINO DEAS, U.ZIII VVIIIUS. DKL IVV.		



		_										
ver 7.22	2.2015-A (	Alaska)										
	DATE: 11-Jul-2015 Sat Julian Day: 192 CLIENT:					]				AK LNG		
	PROSPECT / SITE: PL001 JOB DESCRIPTION: NAV. SYSTEM: Hypack AREA & BLOCK:									Seafloor Mapping		
			02 00007402		ypack			J.	AREA 8	BLOCK:	_	Pipeline Westerly
110		DAY #:	23.00007123 Day: 2	1				No	of SURVE			484 613.80 Kilometers
c			0.00 N/A	1				140				4.7% Complete
				1								7,800.00 Meters Added
	ME	OP		_			E INFORM		_	-		DETAILED SURVEY INFORMATION
FROM 4640	1516		PL01_034		_	111	Fath (m)				DNP	MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt NW.
1516	1521	OL LT	PL01_034	210.0	100	111	26.0	36.0	26.0			MDEG/GDEG/GG/MAG GEGS, U.Z.III YYRIUS, SKI NYV.
1521	1528	OL	PL01_039	030.0°	100	117	27.0	39.0	29.0			MBES/SBES/SS/MAG Seas; 0.2m Winds; 3kt NW.
1528	1545	ow										Retrieve survey gear.
1545	1725	IT										Transit back to dock
1725	1745	ow		-	_	-						Secure vessel.
1745		_		-	_	-	_					
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1314-00			11-Jul-2015 Sat Julian Day: 192					CLIENT:				AK LNG	
		/ SITE:	PL001					JOB DESCRIPTION:			Seafloor Mapping		
NAV. SYSTEM:			Hypack					)	AREA & BLOCK:			Pipeline	
FUGRO JOB #:							-		R/V:		Westerly		
JOB DAY #:							No	No. of SURVEY LINES:			484 613.80 Kilometers		
CRP TO STERN:			0.00 N/A								4.7% Complete		
1												7,800.00 Meters Added	
	ME	OP				INFORM					DETAILED SURVEY INFORMATION		
FROM	TO	CODE	LINE NUMBER			ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		
		AM	PL01_024	210.0°		114						Added mileage for run in/out	
		AM	PL01_028	030.0°		115				ļ.,		Added mileage for run in/out	
		AM	PL01_025	210.0°		114						Added mileage for run in/out	
		AM	PL01_029	030.0°	110	114						Added mileage for run in/out	
		AM	PL01_026	210.0°	110	114						Added mileage for run in/out	
		AM	PL01_030	030.0°	111	115						Added mileage for run in/out	
		AM	PL01_027	210.0°	109	113						Added mileage for run in/out	
		AM	PL01_035	030.0	113	117						Added mileage for run in/out	
		AM	PL01_032	210.0*	111	115						Added mileage for run in/out	
		AM	PL01_036	030.0°	114	118						Added mileage for run in/out	
		AM	PL01 030	262.0°		113						Added mileage for run in/out	
		AM	PL01_037	030.0*	115	119						Added mileage for run in/out	
		AM	PL01_033	210.0°	110	114						Added mileage for run in/out	
		AM	PL01_038	030.0°		120						Added mileage for run in/out	
		AM	PL01_034	210.0°	111	115						Added mileage for run in/out	
		AM	PL01 039	030.0°		121						Added mileage for run in/out	
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7017.22.20		DATE:	12-Jul-201	5 Sun	Julia	n Day:	193	1		CLIENT:		AK LNG
PROSE	PECT	SITE:	1		1/ PL0	02		1 .	JOB DESC	RIPTION:		Seafloor Mapping
		STEM:			ypack			]	AREA	R BLOCK:		Pipeline
		JOB #:		4				1440		R/V:		Westerly
		DAY #:	Day: 3	4				No	. of SURV	EY LINES:		484 615.20 Kilometers
CRP	108	TERN:	0.00 N/A									8.4% Complete 9,200.00 Meters Added
												9,2000 Meters Added
GEOPHY	SICA	EQUI	PMENT EQUIP	n			PERS	SONNEL C	NBOARD			PERSONNEL ONSHORE WEATHER REPORT
Navigatio				]		Capta			John Va			Offshore Site Manager: Charlie Hall Time Sea State Wind Speed Dir.
Diff. GPS S			The state of the s	1			el Crew:		n/a			Ass't Off, Site Manager: Maria Krynytzky Wx - 0600: N/A N/A N/A
		R2Son		#		Party C			Doug B			Data Manager: Chuck Chamberlain Wx - 1200: 0.2 1 kts S
		etech 4		-		/dro. Su			Katie C			Data Processor:
		SeaSpy SEA GA				ophysica	ey Crew	-	Richie Ca			Data Processor: Larve Woods Wx - 2400: N/A N/A N/A N/A  Data Processor: n/a SE Reporting (Place an "x" in the box, with brief description
Grab Sa				-			sentative:	_	Ron Ec			Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab Sa				1	Olicii	ricpic	SCHILLIA C.		TOTILO	Kilaiat		Client Representative: n/a Toolbox: X JHA-Teolbox
0.00	ampie		100	1								Shift Change:
				1								Safety: X MAR-TRA-013, MAR-TRA-014
				1								Pre/Post Job:
TIME		OP	LINE NUMBER	_	BSP	_	INFORM		1	1	DNP	DETAILED SURVEY INFORMATION
	TO 0630	ow	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	1	DNP	Dockside checks. Slightly early start due to river tide.
	0800	IT		1	_							Transit to PL001 work area.
	0835	ow		1	_	-					1	Review TRA. Deploy survey gear
	0847	LT		1		-						
	0913	OL	PL01_041	210.0°	100	183	25.0	24.0	14.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 1kt S.
0913 0	0918	LT										A STATE OF THE STA
	3940	OL	PL01_040	030.0	100	123	23.0	28.0	18.0			MDES/SDES/SS/MAG Seas; 0.2m Winds: 4kt SSW.
	0945	LT										
	1032	OL	PL01_045	030.0°	100	164	22.0	23.0	13.0		-	MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt SSW. 10:05 MVP Taken.
	1037	LT	PL01 042	210.0°	400	179	24.0	14.0	24.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt SSW, 10:47 Wake from another vessel.
	1121	OL LT	PL01_042	210.0	100	1/9	24.0	14.0	24.0	-		INDEO/SDES/SO/WING Seas, U.ZIII WINGS. 4Kt SSW. 10.47 Wake Hoff allother vessel.
	1126 1153	OL	PL01_044	030.0°	100	172	22.0	22.0	12.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt WNW. 11:45 MVP Taken. (Vessel Sounder off)
	1157	LT		1,000.0	1.00		ELE:O	and the same of	12.0	<b>†</b>		
	1342	OL	PL01_043	210.0°	100	176	25.0	33.0	23.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt N.V.
1342 1	1422	ow	-									Transit to PL002. 13:50 MVP Taken (PL001 site)
1422 1	1433	OL	PL02_215	039.0°	100	133	22.0	23.0	13.0			MBES/SBES/SS/MAG Seas; 0.2m Winds: 6kt N/V. 14:25 MVP Taken (PL002 site).
	1450	ow	8									Retrieve survey equipment.
	1645	IT		_			-					Transit to dock.
	1730	OW		-		<u> </u>						Fuel Vessel
	1815	ow		-		-					_	Routine Vessel Maintenance
1815	_	-		1		-			+	+	+	-1
	-		-	+		$\vdash$		_	_	<del>                                     </del>	$\vdash$	4
	-			+		$\vdash$		<u> </u>	<u> </u>	<del>                                     </del>	$\vdash$	1
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		_										Aldona Li 10
ver 7.22.	.2015-A (	(Alaska)	12-Jul-2015	. C	lulia	n Dave	402	1		CLIENT	_	AK LNG
PPO	SPECT	/ SITE:	12-Jul-2013	Sun	PLD01	n Day	193	1	JOB DESC	CLIENT:	-	Seafloor Mapping
		STEM			ypack			1		BLOCK:		Pipeline
F	UGRO	JOB #:	23.00007123					2		R/V:		Westerly
	JOB	DAY #:	Day: 3					No	of SURVE	Y LINES:		484 615.20 Kilometers
CF	RP TO S	STERN:	0.00 N/A	J								8.4% Complete 9,200.00 Meters Added
												8,200.00 Materia Added
TIN		OP					E INFORM			470	y2 .	DETAILED SURVEY INFORMATION
FROM	TO		LINE NUMBER			ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	WASHING TO THE PROPERTY OF THE
		AM AM	PL01_041 PL01_040	210.0° 030.0°	183 123	187 127	-			,	-	Added mileage for run in/out Added mileage for run in/out
		AM	PL01_045	030.0°		168						Added mileage for run in/out
		AM	PL01_042	210.0°		183						Added mileage for run in/out
		AM	PL01_44	030.0°	172	176						Added mileage for run in/out
		AM	PL01_043	210.0°	176	180						Added mileage for run in/out
$\vdash$	_	AM	PL02_215	039.0°	133	137	-					Added mileage for run in/out
Н						$\vdash$	_					
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PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN:  TIME OP	12-Jul-2015 Sun Julian Day: 193   PL001   Hypack   23,00007123   E Day: 3   Day: 3   PL001   PL001	JOB DESCRIPTION:  AREA & BLOCK:  RIV:  No. of SURVEY LINES:	AK LNG Seafloor Mapping Pipeline
DATE: PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN: TIME OP	12-Jul-2015 Sun Julian Day: 193   PL001   Hypack   23,00007123   E Day: 3   Day: 3   PL001   PL001	JOB DESCRIPTION:  AREA & BLOCK:  R/V:	Seafloor Mapping
DATE: PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN: TIME OP	12-Jul-2015 Sun Julian Day: 193   PL001   Hypack   23,00007123   E Day: 3   Day: 3   PL001   PL001	JOB DESCRIPTION:  AREA & BLOCK:  R/V:	Seafloor Mapping
PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN:  TIME OP	PL001 Hypack 23,00007123 Day: 3	JOB DESCRIPTION:  AREA & BLOCK:  R/V:	Seafloor Mapping Pipeline
FUGRO JOB #:     JOB DAY #:     CRP TO STERN:  TIME    OP	23.00007123 b: Day: 3	R/V:	Pipeline
JOB DAY #: CRP TO STERN:	t: Day: 3		
CRP TO STERN:	1: 0.00 N/A	NO. OF SURVEY LINES: 1	Westerly 484   615.20 Kilometers
TIME OP FROM TO CODE			8.4% Complete
TIME OP FROM TO CODE			9,200.00 Meters Added
FROM TO CODE	LINE INFORM	MATION	
	LINE NUMBER HEADING BSP ESP FAIT (M)	Mag (m) SSS Fish (m) DNP	DETAILED SURVEY INFORMATION
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ver 7.22.2015-A (A	Alaska)						_				
	DATE:	13-Jul-201			n Day:	194	]		CLIENT:		AK LNG
PROSPECT				PL002			100		CRIPTION:		Seafloor Mapping
NAV. SY		23.00007123		lypack			4	AREA	& BLOCK: R/V:	-	Pipeline Westerly
	DAY #:	Day: 4	1				No	of SURV	EY LINES:	$\vdash$	484 616.80 Kilometers
		0.00 N/A	1							_	10.8% Complete
			-								10,800,00 Meters Added
GEOPHYSICAL	L EQUI	PMENT EQUIP	9			PER	SONNEL C	NBOARD	i e		PERSONNEL ONSHORE WEATHER REPORT
Navigation Sys	tem - P	OS MV	1		Capta			John Va			Offshore Site Manager: Charile Hall Time Sea State Wind Speed Dir.
Diff. GPS System		Contract Con	]	Oth	er Vess	el Crew:		n/			Ass't Off. Site Manager: Maria Krynytzky Wx - 0600: N/A N/A N/A N/A
MBES - I			]		Party C			Doug E			Data Manager: Chuck Chamberlain Wx - 1200: 1 5-10 kts N
SSS - Edge			-		rdro. Su			Katie C			Data Processor: Cody Gibson Wx - 1800: 1 - 1.2 10-15 kts W
Mag 8			-			al Tech.: ey Crew:	-	Richie Ca			Data Processor: Lance Woods Wx - 2400: N/A N/A N/A N/A  Data Processor: n/a SE Reporting (Place an "x" in the box, with brief description
Grab Sample			1			sentative:	1	Ron Ec			Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab Sample			1	0.11011		00111011101			TO TOTAL		Client Representative: n/a Toolbox: X JHA-Toolbox
o.us campio		1	1								Snirt Change:
			1								Safety: X MAR-TRA-015, Loss of Power Drill, Abandon Ship Drill
											Pre/Post Job:
TIME	OP	г —			LINE	E INFORM	MATION			_	
FROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m	)	DNP	P DETAILED SURVEY INFORMATION
0630 0700	ow									7	Morning Ops meeting. Dockside checks.
0700 0910	IT			_							Transit to PL02. Loss of Power drill (discussion). Morning toolbox talk.
0910 0940	ow		-	-	_			-			Review MAR-TRA-015. Take AML SVP. Deploy survey gear
0940 0943 0943 0954	OL.	PL02 210	219.0°	100	133	19.0	20.0	10.0	+		MBES/SBES/SS/MAG Seas; 1m Winds: 6kt NE. Noise in MB and Mag likely caused by current.
0954 1004	LT	7 202_210	218.0	100	100	13.0	20.0	10.0	-		The Color of the C
1004 1044	OL	PL02_214	039.0	100	132	18.0	20.0	10.0			MDES/SDES/SS/MAG Seas; 1m Winds: 7kt NE.
1044 1048	LT	1									
1048 1057	OL	PL02_211	219.0°	100	133	19.0	22.0	12.0			MBES/SBES/SS/MAG Seas; 1m Winds: 12kt NE.
1057 1103	LT								-		
1103 1156	OL	PL02_213	039.0°	100	133	18.0	19.0	9.0	-		MBES/SBES/SS/MAG Seas; 0.8m Winds: 11kt NE. 11:20 MVP Taken.
1156 1203 1203 1218	OL	PL02_208	219.0°	100	133	17.0	20.0	10.0	+		MBES/SBES/SS/MAG Seas; 0.5m Winds; 10kt NE.
1218 1223	LT	1 202_200	2.13.0	100	100	17.0	20.0	10.0	_		The Color of the C
1223 1240	OL	PL02_212	039.0*	100	131	18.0	17.0	7.0	$\overline{}$		MBES/SBES/SS/MAG Soas; 0.8m Winds; 11kt NE. MB data quality degraded.
1240 1247	LT										
1247 1331	OL	PL02_207	219.0°	100	132	19.0	20.0	10.0			MBES/SBES/SS/MAG Seas; 0.8m Winds: 12kt NE. MB data quality degraded.
1331 1335	LT										
1335 1345 1345 1400	OL	PL02_209	039.0°	100	100	20.0	19.0	9.0	-	-	MBES/SBES/SS/MAC Seas; 1m Winds; 12kt NE. MB and SSS data quality degraded. 13:40 MVP Taken
1345 1400 1400 1600	IT		-	-	-		-	-	-		Recover survey gear due to increasing weather.  Transit back to dock.
1600 1830	WS		+		_		_	_	+	-	Secure vessel. Weather Standby.
1830			-					1		$\vdash$	<b>1</b>
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ver 7 22	2.2015-A (	Alaeka)										
VGI 7.22	2015-1	DATE:	13-Jul-2015	Mon	Julia	n Dav:	194	1		CLIENT:		AK LNG
PRO	SPECT	/ SITE:		PL00	1/ PL0	02		1 .	JOB DESC			Seafloor Mapping
	NAV. SY				ypack			1	AREA 8	BLOCK:		Pipeline
			23.00007123					•		R/V:		Westerly
		DAY #:						No.	of SURVE	Y LINES:	_	484 616.80 Kilometers
C	RP TO S	TERN:	0.00 N/A	]								10.8% Complete
1												10,800,00 Meters Added
-	145					1.160	T INITODA	ATION			_	
	ME TO	OP	LINE NUMBER	THEADING	l aco	ESP	E INFORM	Mag	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
FROM	1.0	AM	PL02_210	219.0°	133	137	raur (III)	iviay (III)	000 1 (11)			Added mileage for run in/out
		AM	PL02_214	039.0°			1					Added mileage for run in/out
		AM	PL02_211	219.0°		137						Added mileage for run in/out
		AM	PL02_213	039.0°		137		1				Added mileage for run in/out
		AM	PL02_208	219.0°	133	137						Added mileage for run in/out
		AM	PL02_212	039.0°	131	135						Added mileage for run in/out
		AM	PL02_207	219.0°	132	136						Added mileage for run in/out
		AM	PL02_209	039.0°	133	137						Added mileage for run in/out
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er 7.22.2015-A							1				
	DATE:	14-Jul-201			n Day:	195	4	100 050	CLIENT:		AK LNG
PROSPECT				PL002				JOB DESC	RIPTION:	_	Seafloor Mapping
NAV. S		00 00007400		lypack			4	AREA :	R/V:		Pipeline Westerly
FUGRO	DAY #:		4				No	of SURVI		_	484 618.40 Kilometers
		Day: 5	1				NO	. OI SUKVI	ET LINES:		13.1% Complete
CRP TO	SIERN:	0.00 N/A	1								13.1% Complete 12,400.00 Meters Added
											12,400.00 Meters Added
EOPHYSICA	L EQU	PMENT EQUIP	9			PERS	SONNEL C	NBOARD			PERSONNEL ONSHORE WEATHER REPORT
avigation Sy			T		Capta			Ryan E			Offshore Site Manager: Charlie Hall Time Sea State Wind Speed Dir.
ff. GPS System	n - Trimb	le AG130	1	Oth	er Vess	el Crew:		n/a	а		Ass't Off. Site Manager: Maria Krynytzky Wx - 0600: N/A N/A N/A
MBES -	R2Son	ic	1		Party C	hief:		Doug B	lowlus		Data Manager: Chuck Chamberlain Wx - 1200: 0.2 < 5kts SW
SSS - Edg			Í		dro. Su			Katie C			Data Processor: Cody Gibson Wx - 1800: N/A 5kts NW
Mag	SeaSp	/	1			al Tech.:		Richie Ca	rmichael		Data Processor: Lance Woods Wx - 2400: N/A N/A N/A
USBL - IX			1			ey Crew		n/:			Data Processor: n/a SE Reporting (Place an "x" in the box, with brief description
Grab Sampl	er - Day	Grab	1	Clien	t Repre	sentative:		n/a	a		Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab Sampl	er - Var	Veen	1								Client Representative: Ron Eckhardt Toolbox: X Weekly Safety Meeting, JHA-Toolbox
			1								Snift Change:
			1								Safety: X MAR-TRA-005, Weekly Safety Meeting
			1								Pre/Post Job:
TIME	OP				_	INFORM					DETAILED SURVEY INFORMATION
ROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	)	DNP	P
630 0740					_						Morning Ops Meeting. Weekly Safety Meeting. Dockside checks.
740 0920			-	-	<u> </u>						Transit to PL002
920 0945			1	↓	├				$\vdash$		Review MAR-TRA-005. Take AML SVP. Deploy survey gear
945 0955	LT							10.0			<b>-</b>
955 1028		PL02_206	039.0°	100	132	19.0	23.0	13.0			MBES/SSS/MAG Seas; 0.2m Winds: 1kt SW. Single beam not recorded. MB noisy, likely due to high currents.
028 1032	LT			100	100	47.0		10.0		_	<b>-</b>
032 1042		PL02_203	219.0	100	132	17.0	20.0	10.0	_		MDES/SSS/MAG Seas; 0.2m Winds: 3kt NW. Single beam not recorded. MD noisy.
042 1050	LT	DI 02 20E	000.00	100	400	40.0	20.0	40.0	-		MDECICES/SCIMAC Cons. 0.0m Window 21th NW. MD points.
050 1121 1121 1126		PL02_205	039.0°	100	133	18.0	20.0	10.0	-		MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt NW. MB noisy.
-		PL02 202	240.00	100	133	17.0	18.0	8.0	_		MDECICECIONAC Consi fi 2m Window Ald W. MD policy
126 1136	_	PL02_202	219.0°	100	100	17.0	10.0	0.0	_	_	MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt W. MB noisy.
1136 1144 1144 1218	OL	PL02 204	039.0°	100	132	18.0	20.0	10.0	+		MBES/SBES/SS/MAG Seas; 0.2m Winds: 3kt WSW. MB still noisy with little current. 11:47 MVP Taken.
1218 1235		1 LUZ_204	0.860	100	132	10.0	20.0	10.0	+		Troubleshooting MBES noise. Problem appears to be in cable from sensor head to deck lead connection
235 1240			+	+	-	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	1		Troubleshooming interest house. Fromein appears to be in coole from serious read to deck read confidence
240 1254	OL	PL02 199	219.0°	100	133	16.0	17.0	7.0			MBES/SBES/SS/MAG Seas; 0.2m Winds; 2kt NV. MB noisy.
1254 1259	LT	. LOL_100	210.0	100	100	10.0	17.0	7.0		-	The state of the s
259 1314	OL	PL02_201	039.0°	100	133	17.0	21.0	11.0	<del>                                     </del>		MBES/SBES/SS/MAG Seas; 0.2m Winds: 4kt N.V. MB noisy. 13:07 MVP Taken
1314 1321	LT	. 202_201	030,0	100	100	17.0	21.0	11.0	<del>                                     </del>		
321 1348	OL	PL02 197	219.0°	100	132	19.0	21.0	11.0	$\vdash$		MBES/SBES/SS/MAG Seas; 0.2m Winds: 5kt N.V. MB noisy,
1348 1400	-	1 242_107	2,0.0	1.00	.02	.5.0	21.0				Recover survey gear.
400 1535		1		+	_						Transit back to dock.
535 1700											Vessel Maintenance (oil change).
1700 1740	ow									2	Fuel Vessel
740 1830			-						$\vdash$		Continue vessel maintenance (oil change).
830	1		t —	<b>†</b>						_	1
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200	COFOT	DATE:	14-Jul-2015			n Day:	195		OB DESC	CLIENT:	_	AK LNG
		/ SITE:			LDO2 lypack				VDE DESC	BLOCK:		Seafloor Mapping Pipeline
			23.00007123		урасх			g	Anea .	R/V:		Westerly
		DAY #:						No.	of SURVE			484 618.40 Kilometers
C	RP TO S	STERN:	0.00 N/A									13.1% Complete
												12,400.00 Meters Added
TI	ИE	OP				LINI	E INFORM	MATION			_	
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)	ī	DNP	DETAILED SURVEY INFORMATION
		AM	PL02_206	039.0°		136						Added mileage for run in/out
		AM	PL02_203	219.0°		136						Added mileage for run in/out
		AM	PL02_205	039.0°		137						Added mileage for run in/out
$\vdash$		AM AM	PL02_202 PL02_204	219.0° 039.0°	133	137 136	-	_				Added mileage for run in/out Added mileage for run in/out
		AM	PL02_199	219.0°	133	137						Added mileage for run in/out
		AM	PL02_201	039.0°	133	137						Added mileage for run in/out
		AM	PL02_197	219.0*	132	136						Added mileage for run in/out
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7422		DATE:	15-Jul-2015			n Day:	196	4		CLIENT:	_	AK LNG						
	SPECT				PL002					CRIPTION:		Seafloor Mapping						
	NAV. SY		00.00007400		lypack			J)	AREA	& BLOCK:	_	Pipeline						
,	FUGRO			4				W.	- 6 011016	R/V:	<u> </u>	Westerly						
		DAY #:	Day: 6	-				NO	. of SURV	EY LINES:		484 620.00 Kilometers						
C	RP TO S	TERN:	0.00 N/A									15.4% Complete						
												14,000.00 Meters Added						
GEOP	HYSICA	L EQUI	PMENT EQUIP	a			PERS	SONNEL C	NBOARD	i i		PERSONNEL ONS	SHORE		w	EATHER REP	PORT	
	tion Sys			1	ſ	Capta		T	Ryan E			Offshore Site Manager:	Charlie Hall	Time		Sea State	Wind Speed	Dir.
			e AG130	1	Oth		el Crew:	1	n/a				Marta Krynytzky	Wx - 0600:		N/A	N/A	N/A
	MBES -		And the second second	1		Party C			Doug B				Chuck Chamberlain	Wx - 1200:		0.5	10 - 15 kts	S
	S - Edg			Ť.		dro. Su		1	Katie C			Data Processor:	Cody Gibson	Wx - 1800:		0.3	4 kts	NW
	Mag			1			al Tech.:		Richie Ca			Data Processor:	Lance Woods	Wx - 2400:		N/A	N/A	N/A
	BL - IX			1			ey Crew	<del>                                     </del>	n/			Data Processor:	n/a		Place a		ox, with brief de	
Grab	Sample	r - Day	Grab	1			sentative:		Ron Ec	khardt		Additional Proc.:	n/a	HSE OFFICER:			Bowlus	
	Sample			1								Client Representative:	n/a	Toolbox:	×	JHA-Teolbox		-
0.00				1	-									Shift Change:				
				1	$\overline{}$									Safety:	х	MAR-TRA-006		
				1								1		Pre/Post Job:				
				-1												-		
TII	ME	OP	Г			LINE	INFORM	MOITA					DETAIL ED CLIE	VEV INCODUATE	ON.			
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	)	DNP	1	DETAILED SUN	VEY INFORMATION	JN			
0630	0710	ow			T							Morning Ops Meeeting. Dockside Checks.						
0710	0735	E00										Test Multibeam at the Dock with new cabling	g. Full swath, roll data sho	wing up in MB displa	y. Data	looks ok.		
0735	1020	IT										Transit to PL002. Slow transit due to high (6	6 to 7kt) ebb current. Max	vessel speed 10 to 1	8 knots			
1020	1055	ow										Deploy multibeam. Take AML SVP. Deploy	y towfish (AML comms is	sues, had to restart r	nav com	puter)		
1055	1100	LT									Ĭ.	]						
1100	1146	OL	PL02_200	039.0°	100	132	18.0	20.0	10.0			MBES/SBES/SS/MAG Seas; 0.5m Winds: 5	5kt SSW. Vessel: 1kt, 870	rpm [Note: MBES he	ad rem	oved yesterda	y. New patch test	t required)
1140	1150	LT					1				1	]						
1150	1201	OL	PL02_196	219.0°	100	133	17.0	19.0	9.0			MBES/SBES/SS/MAG Seas; 0.5m Winds: 5	5kt SSW. Vessel: 5.9kt, 67	0 rpm (6.5kt @ 870	rpm)			
1201	1209	LT																
1209	1252	OL	PL02_198	039.0°	100	132	17.0	18.0	8.0			MBES/SBES/SS/MAG Seas; 0.5m Winds: 4	4kt SW. Vessel: 1.2kt, 740	rpm. 12:27 MVP Ta	ken.			
1252	1259	LT		1							J							
1259	1311	OL	PL02 193	219.0*	100	132	17.0	18.0	8.0			MBES/SBES/SS/MAG Seas: 0.3m Winds: 3	3kt W. Vessel: 5.3 kt, 740 i	rpm.				
1311	1319	LT	1															
1319	1342	OL	PL02_195	039.0°	100	133	19.0	18.0	8.0			MBES/SBES/SS/MAG Seas; 0.3m Winds: 4	4kt WNW. Vessel: 2.2 kt,	660 rpm.				
1342	1349	LT																
1349	1413	OL	PL02_192	219.0°	100	133	18.0	20.0	10.0	-		MBES/SBES/SS/MAG Seas: 0.3m Winds: 4	4kt NW. Vessel: 3.1 kt, 74	0 rpm.				
1413	1422	LT			-													
1422	1434	OL	PL02_194	039.0°	100	132	20.0	20.0	10.0			MBES/SBES/SS/MAG Seas; 0.3m Winds: 4	4kt N.W. Vessel: 4.8 kt, 64	0 rpm. 14:27 MVP T	aken.			
1404	1450	LT													water and			
1450	1526	OL	PL02_189	219.0°	100	132	21.0	26.0	16.0	1		MBES/SBES/SS/MAG Seas; 0.3m Winds: 4	4kt N.W. Vessel: 1.6 kt, 88	0 rpm (beginning of	ine). 2.	1kt, 1050 rpm	(end of line)	
1526	1540	ow										Recover survey gear.			S			
1540	1730	IT		-								Transit back to dock. Transit faster than in			d curren	nt (predicted 6	.9kt).	
1730	1830	ow		-								Secure Vessel. Locate spare equipment in	warehouse. Reviewed da	ta with processors.				
1830				-	-							ł						
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Vei 7.22	2015-A (	DATE:	15-Jul-2015	Wed	Julia	n Dav:	: 196	1		CLIENT:		AK LNG
PRO	SPECT	/ SITE:	10 00. 20 10	F	PL002		100	1 .	JOB DESC			Seafloor Mapping
	NAV. SY				lypack			1		BLOCK:		Pipeline
1	FUGRO	JOB #:	23.00007123					4		R/V:		Westerly
		DAY #:	Day: 6	]				No.	of SURVE	Y LINES:		484 620.00 Kilometers
C	RP TO S	TERN:	0.00 N/A	]								15.4% Complete
												14,000.00 Meters Added
		_					=	****				
FROM	ME TO	OP	LINE NUMBER	Leanne	Loca		E INFORM		Terre con con		DNP	DETAILED SURVEY INFORMATION
FROM	10	AM	PL02_200	039.0°			Fath (m)	Mag (m)	555 FISh (m)	<del></del>		Added mileage for run in/out
	_	AM	PL02_200 PL02_196	210.00	133		+	-	_	-	-	Added mileage for run in/out
		AM	PL02_198	039.0°							-	Added milege for run in/out
		AM	PL02_193			136	$\overline{}$	-				Added mileage for run in/out
$\vdash$		AM	PL02_195				_	+-				Added mileage for run in/out
		AM	PL02_192	219.0°		137						Added mileage for run in/out
		AM	PL02_194	039.0°	132	136						Added mileage for run in/out
		AM	PL02_189	219.0*	132	136						27
			<u> </u>									
<u> </u>				-	<del></del>	—	-	-		<del></del>	_	
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ver 7.22	.2015-A (	Alaska)  DATE:	16-Jul-201	5 Thu	Julia	n Dav	197	1		CLIENT:		AK LNG						
PRO	SPECT		10-501-201		LD02	ii Day.	131	1 .	JOB DESC			Seafloor Mapping				-		
	NAV. SY			Н	ypack			1	AREA	& BLOCK:		Pipeline						
3	FUGRO		Martana at 1 mm						- 4 011014	R/V:		Westerly						
_		DAY #:	0.00 N/A	1				NO	. of SURV	EY LINES:		484 621.80 Kilometers 17.2% Complete						
"	KF IOS	I ERN.	0.00 N/A	1								15,800.00 Meters Added						
												Wester that a fit to be to a very proper production of the service in						
			PMENT EQUIP	7	_	Conto	17. 467.44	SONNEL O		Imaget	-	PERSONNEL O		71		WEATHER REP	The state of the s	. Die
	S System		OS MV	1	Oth	Capta er Vess	el Crew:		Ryan E		$\dashv$	Offshore Site Manager: Ass't Off, Site Manager:	Charile Hall Marta Krynytzky	Wx - 0600:	1	Sea State N/A	Wind Speed	N/A
	MBES -			1		Party C			Doug E			Data Manager:	Chuck Chamberlain	Wx - 1200:		1	7 kts	E
SS	S - Edg	etech 4	200	1		dro. Su			Katie C			Data Processor:	Cody Gibson	Wx - 1800:		N/A	N/A	N/A
	Mag :			1		ophysica			David	7.1.1.4.4		Data Processor:	Lance Woods	Wx - 2400:		N/A	N/A	N/A
	BL - IXS			-			ey Crew		Richie Ca		_	Data Processor:	n/a				ox, with brief de	scriptio
	Sample			1	Cilen	Repres	sentative:	_	Ron Ec	knardt	-	Additional Proc.: Client Representative:	n/a n/a	HSE OFFICER Toolbox	_	JHA-Teolbox	Bowlus	-
Grab	Gampie	i - vai	Veen	1	_						$\neg$	Cheft Representative.	11/4	Shift Change		JIIA-TVOIDOX		$\overline{}$
				1										Safety	_	MAR-TRA-009	MAR-TRA-013	
				]										Pre/Post Job	:			
TI	ME	OP	_			LINE	INFORM	TATION					Submiscostimulinostis Sana		sancial acc			
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m		DNP		DETAILED SU	JRVEY INFORMAT	TION			
0630	0720	ow										lorning ops meeting. Dockside checks.	f.					
0720	0849	IT								-		ransit to Boulder Point patch test area.						
0849	0910	OW LT			-	_						eploy multibeam. Take AML SVP.						
0914	0914		PT_JD197_001A	040.0°	100	123	18.0	N/A	N/A	1	М	IBES Seas; 1.2m Winds: 12kt E. Vesse	el: 3.5 kt. 1230 rpm.					
0928	0929	LT			1.41		10.0		1									
0929	0935		FT_JD197_0010	220.0	100	144	18.0	N/A	N/A		M	IDES Seas; 1.3m Winds; 12kt E. Vesse	at: 5.2 kt, G00 rpm.					
0935	0937	LT	DT 10407 0004		400	100	47.0	N//A	1	-	<u> —</u> І.,	IDEC C 4 2 Winds 4014 E. V	L 2 5 L 4000					
0937 0948	0948 1000	OW	PT_JD197_002A	040.0	100	166	17.0	N/A	N/A	<del>                                     </del>		BES Seas; 1.3m Winds: 12kt E. Vesse etrieve equipment due to weather cond		multiheam whiting or	ut:			
1000	1031	IT										ransit to PL002 to check sea conditions	그러워 하다 아이를 살아가면 하게 되었다. 얼마나를 하네요.	manager mining of				
1031	1115	ow										onditions at PL002 workable. Deploy of		clonger than usual du	ue to ne	w crew training.		
1115	1148	OL	PL02_191	039.0°	100	133	21.0	23.0	13.0		М	BES/SBES/SS/MAG Seas; 0.5m Wind	ls: 7kt E Vessel: 2 kt, 1080	) rpm. 11:20 MVP Ta	ken.			
1148	1156	LT	PL02_188	219.0*	100	133	19.0	20.0	10.0	-	<b>—</b> і.,	IDEC(CDEC(CCMA) C C C C- Wild	- 014 F V 0 0 14 70	0				
1156	1213	OL LT	PLU2_188	219.0	100	133	19.0	20.0	10.0		——™	BES/SBES/SS/MAG Seas; 0.8m Wind	6: 9Kt E. V6686I: 6.0 Kt, 79	O IPM				
1213	1243	OL	PL02_190	039.0°	100	132	19.0	21.0	11.0		М	IBES/SBES/SS/MAG Seas; 1.0m Wind	ls: 7kt E Vessel: 2.4 kt, 10	090 rpm				
1243	1248	LT																
1248	1252	OL	PL02_185	219.0°	100	112	18.0	19.0	9.0	$\perp$	м	IBES/SBES/SS/MAC Scas; 1.2m Wind	le: 8kt E Vessel: 5.9 kt, 78	30 rpm				
1252 1259	1259 1328	LT OL	PL02_187	039.0°	100	133	19.0	19.0	9.0	+	—,,,	IBES/SBES/SS/MAG Seas; 1.2m Wind	le 8M ENE Veccel: 2 0 M	1090 rom Stringe in	255 4	ata 15ki wind a	seasured on book	deck
1328	1331	LT	1 LVZ_107	0.55.0	100	100	18.0	10.0	3.0	1	— "	DEGRADE GOTTING Seas, 1.211 WING	. ON LITE. V600G. 2.0 KL	root ipin. oniping ii	1 000 U	ata, Toki Willia II	iodadied dii bdCr	doon.
1331	1336	OL	PL02_186	219.0°	100	117	15.0	19.0	9.0		М	BES/SBES/SS/MAG Seas; 1.2m Wind	s: 7 kt NE. Vessel: 6.6 kt,	960 rpm				
1336	1342	LT					1				-							
1342	1350	OL	PL02_184	052.0°	100	110	18.0	19.0	9.0	-	M	IBES/SBES/SS/MAG Seas; 1.2m Wind	s: 7 kt NE. Vessel: 2.0 kt,	1020 rpm. New line	direction	(52 deg has m	arginal SSS data	quality.
1350	1352 1357	LT OL	PL02_182	232.0*	100	111	18.0	19.0	9.0	<del>                                     </del>	—  <sub>M</sub>	IBES/SBES/SS/MAG Seas; 1.5m Wind	s: 11 kt NF Voccol: 49 bi	820 rpm Data qual	lity bette	r line hesding /2	32 den)	
1357	1405	LT	1 2 102	202.0	,50		10.0	13.0	3.0	+	_	ransit to top of line very rough.		quin Data qual	y Delle		5597-	
1405	1409	OL	PL02_183	232.0"	100	111	18.0	19.0	9.0			IBES/SBES/SS/MAG Seas; 1.5m Wind	ls: 11 kt NE. Vessel: 5 kt, 9	30 rpm				
1409	1430	ow										ea state becoming unfavorable for gear	r recovery. Recover gear.					
1430 1610	1610 1650	OW		-						-	_	ransit back to dock.						
1010	1000	OW		1	I:	I	I	I	I	1 1	V.	essel fueling toolbox. Fuel vessel.						

Weather Standby.



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ver 7.22			16-Jul-2015	Thu	Lulia	n Dave	407	1		CLIENT:		AK LNG
200		/ SITE:	10-301-2013		LOO2	II Day.	197	1	JOB DESC		-	Seafloor Mapping
		STEM:			ypack					BLOCK:	<u> </u>	Pipeline
			23.00007123		ураск			ű	AREA	R/V:	_	Westerly
110		DAY #:		1				No	of SURVE		$\vdash$	484 621.80 Kilometers
			0.00 N/A	1				NO	. OI SURVE	I LINES.	_	17.2% Complete
"	RP 10	SIERN:	0.00 N/A	Ŋ								15,800.00 Meters Added
												Species many Access
TI	ME	OP				LIN	E INFORM	ATION				
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)	T	DNP	DETAILED SURVEY INFORMATION
1830		AM	PL02 191	039.0°	133	137						Added mileage for run in/out
1		AM	PL02_188	219.0°	133	137						Added mileage for run in/out
		AM	PL02_190	039.0°		136						Added mileage for run in/out
		AM	PL02_185	219.0°	112	116						Added mileage for run in/out
		AM	PL02_187	039.0°	133	137						Added mileage for run in/out
		AM	PL02_186	219.0°	117	121						Added mileage for run in/out
		AM	PL02_184	052.0°	110	114						Added mileage for run in/out
		AM	PL02_182	232.0*	111	115						Added mileage for run in/out
		AM	PL02_183	232.0°	111	115						Added mileage for run in/out
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, nn/		DATE:	17-Jul-201			n Day:	198		JOB DESC	CLIENT:		AK LNG	
	SPECT NAV. SY				PL002 lypack					BLOCK:	_	Seafloor Mapping Pipeline	
			23.00007123		ураск			J.	AILLA	R/V:		Westerly	
		DAY #:	Day: 8	1				No	o. of SURV	EY LINES:		484 621.80 Kilometers	
C	RP TO S	STERN:	0.00 N/A	]								17.2% Complete	
												15,800,00 Meters Added	
GEOP	IVSICA	L FOU	PMENT EQUIP	,			PERS	ONNEL O	NROARD			PERSONNEL ONSHORE WEATHER REPORT	
	tion Sys			Ī	_	Capta		I I	Ryan B	raget		Offshore Site Manager: Charlie Hall Time Sea State Wind Spee	d Dir.
	S System			1	Oth		el Crew:		n/a			Ass't Off. Site Manager: Maria Krynytzky Wx - 0600: N/A N/A	N/A
	MBES -			1		Party C	hief:		Doug B	owius		Data Manager: Cnuck Chamberlain Wx - 1200: 1 to 2 28 kts	S
	S - Edg	_				rdro. Su		1	Katie C			Data Processor: Cody Gibson Wx - 1800: N/A N/A	N/A
	Mag S BL - IXS			1			al Tech.: ey Crew:	11	David 1			Data Processor: Lance Woods Wx - 2400: N/A N/A  Data Processor: n/a HSE Reporting (Place an "x" in the box, with brief de	N/A
	Sample			1			sentative:		Ron Eci			Data Processor: n/a HSE Reporting (Place an "x" in the box, with brief de Additional Proc.: n/a HSE OFFICER: Doug Bowlus	escription
	Sample	-		1	Clien	it ixebie	Schlauve.	-	KOHEG	vialut		Client Representative: n/a Toolbox: X JHA-Toolbox	
				1								Shift Change:	
												Safety: X Weather Discussion	:
												Pre/Post Job:	- 1
	ME	OP				LIM	E INFORM	ATION				The conditional of reaction — An extrativity there are to substitute the	
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION	
0630	0710	ow				00.50	()					Merning opa meeting. Wx report from Westward Wind: winds >25kts, >3ft seas. Dockside checks	
0710	0735	IT					-1				7	Transit to Cook Inlet to check weather. Forecast predicts unfavorable weather for small craft (small craft advisory in effect).	
0735	0810	IT										Conditions at mouth of inlet >3ft seas, numerous white caps with spray. Wind >25kts. Conditions not suitable for survey. Head for doc	ck.
0810 1830	1830	WS		-								Arrive at dock. Secure vessel. Weather Standby.	
1030	-	_		-									
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ver 7,22	2.2015-A (A		18-Jul-201	E Sat	Iulia	n Dave	100	n		CLIENT:			AK LNG					
	OSPECT		10-301-201		PL002	in Day.	199	1	JOB DESC		_		Seafloor Mapping					
PRO	NAV. SY		-							& BLOCK:	_							
			23.00007123		lypack			JJ	ARCA	R/V:	_		Pipeline					
1				4				7693	-4CHDV		_	101	Westerly					
		DAY #:		-				NO	o. of SURVI	ET LINES:		484	621.80 Kilometers					
1 3	RPIOS	SIERN:	0.00 N/A	1									17.2% Complete 15,800.00 Meters Added					
ı													15,800.00 Meters Added					
CEOR	LIVEICA		PMENT EQUIP	-			DED	SONNEL O	NDOADD				PERSONNEL	ONGHORE		WEATHER REF	ODT	
	ation Sys			<b>"</b>	_	Capta		I	Ryan B	raget		1	Offshore Site Manager:	Charlie Hall	Time	Sea State		Die
-	S System		The second secon		Oth		el Crew:	_	n/a			1	Ass't Off. Site Manager:		Time Wx - 0600:	100 C	Wind Speed	-
	MBES -			-				-				Į.		Maria Krynytzky Chuck Chamberlain	Wx - 1200;	N/A	N/A	N/A
	SS - Edg					Party C		-	Doug Be			1	Data Manager: Data Processor:	Cody Gibson	Wx - 1800:	N/A	N/A	N/A
F 35						dro. Su			Katie Co				Data Processor:		A CONTRACT OF THE PARTY OF THE	N/A N/A	N/A N/A	N/A N/A
110	Mag			-	CH	or Sucre	al Tech.: ey Crew:	1	David \				Data Processor:	Lance Woods n/a	Wx - 2400:	(Place an "x" in the b		
								_						- Hinter				ription
	Sample			4	Clien	it Kepre	sentative:		Ron Eck	chardt		Į.	Additional Proc.:	n/a	HSE OFFICER:	Dou	Bowlus	
Gran	Sample	er - van	veen		$\vdash$			_				ł	Client Representative:	n/a	Toolbox:			
⊢					$\vdash$							1			Shift Change:			
⊢				4	<b>├</b>							l .			Safety:			
$\vdash$												J.			Pre/Post Job:			
<del></del> -	ME					1.150	E INFORM	ATION				_						
_	то	OP CODE	LINE NUMBER	I commence		ESP	_		000 50 100			ł		DETAILED SU	<b>RVEY INFORMATI</b>	ON		
FROM 0630	1830	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	555 Fish (m)		DNP	F 41		In pure to their their total	1177.5cm27 = 11796.2cm 11.74111110.1	20100		
1830	1030	-		+	<del></del>	-						Fatigue	ody.					
1030	-	-		-	-	_					_	ł						
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			19-Jul-201	5 Sun	Julia	n Day:	200	1		CLIENT:			AK LNG					
	SPECT				PL002			]	JOB DESC				Seafloor Mapping					
	NAV. SY				lypack				AREA 8	& BLOCK:			Pipeline					
1			23.00007123	3				2440		R/V:			Westerly					
		DAY #:		-				No	o. of SURV	EY LINES:		484	621.80 Kilometers					
	RP TO S	HERN:	0.00 N/A										17.2% Complete 15,800.00 Meters Added		1			
													10,000.00 Metera Added					
GEOP	IYSICA	L EQUI	PMENT EQUIP	*			PERS	SONNEL O	NBOARD			97 1	PERSONNE	L ONSHORE		WEATHER REP	ORT	
Naviga	tion Sys	stem - F	OS MV	1		Capta	ain:		Ryan B	raget		1	Offshore Site Manager:	Charlie Hall	Time	Sea State	Wind Speed	Dir.
			le AG130	1			el Crew:		n/a			1	Ass't Off. Site Manager.	Maria Krynytzky	Wx - 0600;	N/A	N/A	N/A
	MBES -			7		Party C			Doug B			1	Data Manager:	Chuck Chamberlain	Wx - 1200:	N/A	N/A	N/A
	S - Edg			4		dro. Su			Katie Co			1	Data Processor:	Cody Gibson	Wx - 1800:	N/A	N/A	N/A
	Mag			1			al Tech.:		David 1				Data Processor:	Lance Woods	Wx - 2400:	N/A	N/A	N/A
	BL - IX			4			ey Crew:		n/a			4	Data Processor:	n/a		Place an "x" in the b		ription)
	Sample			4	Clien	t Repre	sentative:		Ron Ecl	khardt		1	Additional Proc.:	n/a	HSE OFFICER:	Doug	Bowlus	
Grab	Sample	er - Van	Veen	-1	⊢			1				-	Client Representative:	n/a	Toolbox:	_		
⊢—			-	-	⊢—							-			Shift Change:			
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					_							_			Frem out dob.	100		
TII	ME	OP				LIN	E INFORM	IATION	_			T						
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1		DETAILED SU	RVEY INFORMATION	4		
0630	1830	_		-	-							Fatigue	day.					
1830		_		+	-	_						4						
				+	—							1						
		_		+	-							4						
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		20-Jul-201			n Day:	201	1	IOD DECC	CLIENT:	_	AK LNG	_						
PROSPECT				PL002				JOB DESC	BLOCK:	_	Seafloor Mapping	_						
		23.00007123		ypack			4	AREA	R/V:	_	Pipeline Westerly	$\dashv$						
100000	DAY #:	Day: 11	1				No	of SURVI		├	484 627.80 Kilometers			—	<del>-  </del>			
		0.00 N/A	1				140	. OI JUKVI	LINEO.	_	22.3% Complete							
		0.00 1474	4								21,800.00 Meters Added							
GEOPHYSICA	L EQUI	PMENT EQUIP	,	***		PERS	SONNEL C	NBOARD			PERSONNEL ONSHORE			٧	WEATHER F	REPORT		
Navigation Sys			]		Capta			Ryan B	raget		Offshore Site Manager: Charlle F		Time		Sea State	V	vina Speed	Dir.
Diff. GPS System						el Crew:		n/a			Ass't Off. Site Manager: Marta Kryn		Wx - 0600:		N/A		N/A	N/A
MBES -			Į.	ļ	Party C			Doug B			Data Manager: Chuck Cham	0.0000000000000000000000000000000000000	Wx - 1200:		0.5		6 kts	NW
SSS - Edge			-		/dro. Su			Katie C			Data Processor: Cody Gib		Wx - 1800:		0.3	-	5 - 10 kts	W
Mag S			4	_	ophysica			David			Data Processor: Lance Wo	ods	Wx - 2400:		N/A		N/A	N/A
USBL - IXS			-			ey Crew		n/s			Data Processor: n/a		SE Reporting (	Place				scriptio
Grab Sample			-	Cilen	t Repres	sentative:	_	Ron Ecl	chardt		Additional Proc.: n/a		HSE OFFICER:			oug Bow	ius	
Grab Sample	er - van	veen	-								Client Representative: n/a		Toolbox:	X	JHA-Toolb	юх		
			1	$\vdash$									Snift Change: Safety:	~	MAR-TRA-	005		
			┨	<u> </u>							<del>                                   </del>		Pre/Post Job:	Х	MAR-IRA-	-005		-
			4										Tren out oob.					
TIME	OP	Γ			LINE	INFORM	TATION				25	TAIL ED CUD	VEY INFORMATION	ON				
FROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		I AILED SUR	VET INFORMATIO	JN				
0630 0705	ow										Morning ops meeting. Dockside checks.							
0705 0830	IT			_							Transit to PL002.							
0830 0855	ow			1							Review MAR-TRA-005. Take AML SVP. Deploy surve	y gear						
0855 0902	LT														72,000			
0902 0907	OL	PL02_181	052.0°	100	113	25.0	24.0	14.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N. Ves	sel: 4.5kt, 730	rpm. SBES not runi	ning un	ntil shot foin	t 108.		
0907 0911	LT			100	110			10.0		-	MDEO/ODEO/OOO/MAO O O E W/ ELA W							
0911 0919	OL	PL02_170	232.0"	100	116	23.0	26.0	16.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N. Ves	sel: 4kt, 1050	rpm.					
0919 0922 0922 0928	LT OL	PL02 180	052.0°	100	114	25.0	30.0	20.0	_	_	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N. Ves	col: 4 7kt 950	rnm					
0928 0933	LT	FL02_100	032.0	100	114	25.0	30.0	20.0		_	IVIDEO/ODEO/OOO/IVIAO OEAS, 0.5III VVIIIUS. SKI IV. VES	Sei. 4.7Kt, 000	ipiii.					
0933 0940	OL	PL02 177	232.0°	100	118	25.0	28.0	18.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt N.							
0940 0944	LT	1 202_177	202.0	100	110	20.0	20.0	10.0			indeproduction of the control of the							
0944 0950	OL	PL02_179	052.0°	100	115	25.0	29.0	19.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt N. Ves	sel: 4.3kt, 940	rpm.					
0950 0954	LT																	
0954 1000	OL	PL02_174	232.0*	100	118	23.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt N. Ves	sel: 5.2 kt, 940	rpm.					
1000 1004	LT	-																
1004 1014	OL	PL02_176	052.0°	100	118	25.0	27.0	17.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt NNE. \	/essel: 3.6 kt, 9	960 rpm.					
1014 1017	LT																	
1017 1022	OL	PL02_173	202.0°	100	119	23.0	27.0	17.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt NNE. \	/essel: 6.3 kt, 0	40 rpm.					
1022 1027	LT																	
1027 1040	OL	PL02_175	052.0°	100	117	24.0	27.0	17.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt NNE. \	/essel: 2.8 kt, 9	60 rpm. 10:36 MVP	Taker	n.			
1040 1043	LT	DI 00 470		100	446	00.0	05.0	45.0			MREC/CREC/CCC/MAC Cook A Cook Winds Tid Mile	F714 07	· · · · · · · · · · · · · · · · · · ·					
1043 1049	OL	PL02_170	232.0°	100	118	23.0	25.0	15.0		-	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 7kt NW. V	essel: 5.7 Kt, 67	u rpm.					
1049 1055	LT	DI 00 170	050.00	100	440	22.0	07.0	47.0	_		MREC/CREC/CCC/MAC Copp. 0.2m Winds. 714 MM. V	2000l: 2.1 kt 40	110 com					
1055 1112 1112 1114	OL LT	PL02_172	052.0°	100	119	23.0	27.0	17.0	-	_	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 7kt NW. V	essei. 2.1 Kt, 10	To Ipili.					
1112 1114	OL	PL02_169	232.0°	100	119	22.0	26.0	16.0	<del>                                     </del>		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 7kt NW. V	essel: 6.5 kt 71	0 rnm					
1119 1126	LT	17202_109	232.0	100	119	22.0	20.0	10.0			INDESTS DESTS SONING SEAS, 0.3111 WINGS. /KC NVV. V	65561. U.S KL, 7 I	o ipili.					
1126 1142	OL	PL02_171	052.0"	100	118	22.0	27.0	17.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 7kt NW. V	essel: 2.2 kt 11	70 rpm.					
1142 1145	LT		- JA. J	,,,,,	1.10	22.0	27.0				The state of the s							
1145 1150	OI	PL02 166	232 0°	100	117	20.0	23.0	13.0			MBES/SBES/SSS/MAG Seas: 0.3m Winds: 6kt NW. V	essel: 6.8 kt. 73	0 rpm.					

MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt NW. Vessel: 1.8 kt, 1220 rpm.



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ver 7.22	2.2015-A (	DATE:	20-Jul-2015	Mon	Julia	n Dav:	201	1		CLIENT:	AK LNG
PRO	SPECT		20 001 2010		PL002		201	1 .	JOB DESC		Seafloor Mapping
	NAV. SY	STEM:		Н	ypack			1	AREA S	BLOCK:	Pipeline
			23.00007123					14400		R/V:	Westerly
١.		DAY #:	Day: 11	1				No	of SURVE	Y LINES:	484 627.80 Kilometers
١ ،	RP TO S	TERN:	0.00 N/A	J							22.3% Complete 21,800.00 Meters Added
											11,0000 maters 20000
	ME	OP				LINE	E INFORM	MATION			DETAILED SURVEY INFORMATION
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	Di	NP DETAILED SURVEY INFORMATION
1216	1218	LT	DI 00 105	200.00	400	440	47.0	40.0	0.0		ARTS (SRES) AND Secret 0.3m Window 21d MW. Veccel 6.3 ld 600 mm
1218 1224	1224 1230	OL LT	PL02_165	232.0°	100	118	17.0	18.0	8.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 2kt NW. Vessel: 6.3 kt, 600 rpm.
1230	1254	OL	PL02_167	052.0°	100	118	20.0	23.0	13.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt NW. Vessel: 2 kt, 1060 rpm. 12:33 MVP Taken (down cast only).
1254	1257	LT									
1257	1303	OL	PL02_162	232.0°	100	118	18.0	19.0	9.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt NW. Vessel: 6 kt, 600 rpm.
1303	1309	LT			_						
1309	1337	OL LT	PL02_104	052.0*	100	119	19.0	21.0	11.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt W, Vessel, 1,4 kt, 670 rpm.
1337	1347	OL	PL02 161	232.0°	100	119	17.0	18.0	8.0	<u> </u>	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt W, Vessel: 5.7 kt, 600 rpm.
1347	1352	LT	1 202_101	202.0	100	110	17.0	10.0	0.0		mbed-bed-bed-bed-bed-bed-bed-bed-bed-bed-
1352	1417	OL	PL02_163	052.0°	100	118	16.0	20.0	10.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt W. Vessel: 1.8 kt, 860 rpm.
1417	1423	LT									
1423	1430 1435	OL LT	PL02_158	232.0°	100	118	14.0	16.0	6.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 4kt NW. Vessel: 5.2 kt, 600 rpm.
1430 1435	1448	OL	PL02 162	052.0°	100	119	15.0	19.0	9.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 3kt NW, Vessel; 2.6 kt, 940 rpm. 14;37 MVP Taken.
1448	1452	LT	1 202_102	002.0	100	110	10.0	10.0	0.0		mbeloses and established the state of the st
1452	1500	OL	PL02_157	232.0°	100	119	12.0	15.0	5.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 10kl W. Vessel: 4.8 kl, 600 rpm. Getting too shallow for beacon.
1500	1504	LT									
1504	1516	OL	PL02_159	052.0	100	118	14.0	17.0	7.0		MDES/SDES/GSS/MAG Seas; 0.2m Winds: 10ki W. Vessel: 2.0 kt, 090 pm.
1516 1521	1521 1528	OL.	PL02 154	232.0°	100	118	10.0	15.0	5.0	<del></del>	MBES/SBES/SSS/MAG Seas; 0.2m Winds: 9kt W. Vessel: 5 kt, 700 rpm.
1528	1532	LT	1 202_104	202.0	100	110	10.0	10.0	0.0	<del>                                     </del>	INDECODES OF THE CONTROL OF THE CONT
1532	1541	OL	PL02_156	052.0°	100	119	13.0	16.0	6.0		MBES/SBES/SSS/MAG Seas; 0.2m Winds: 7kt W. Vessel: 4 kt, 1050 rpm.
1541	1545	LT									
1545	1552	OL	PL02_153	232.0°	100	119	11.0	16.0	6.0		MBES/SBES/SSS/MAG Seas; 0.2m Winds: 7kt W. Vessel: 5.3 kt,820 rpm.
1552	1603	LT OL	PL02_155	052.0*	100	118	14.0	16.0	6.0		Longer line turn to avoid UTC rollover.  MBES/SBES/SSS/MAG Seas; 0.2m Winds: 7kt W. Vessel: 4.2 kt, 900 rpm.
1612	1615	LT	1.505_100	302.0	100	110	14.0	10.0	0.0		INDECTIONS TO COMP, S.EM PINGO, FACTA, 4000D. 4.2 AL AVOIDIN.
1615	1623	OL	PL02_150	232.0°	100	118	10.0	16.0	6.0		MBES/SBES/SSS/MAG Seas; 0.2m Winds: 6kt W. Vessel: 4.8 kt, 880 rpm.
1623	1635	ow									Retrieve gear.
1635	1800	IT									Transit to dock.
1800	1830	ow				-					Secure vessel.
1830	-	_				$\vdash$				<del></del>	$\dashv$
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Ver 7.22	.2015-A		20-Jul-2015	Mon	Julia	n Day:	201	1		CLIENT:		AK LNG
PRO	SPECT	/ SITE:	20 001 2010		PL002	Duy.	201	1 .	JOB DESC			Seafloor Mapping
		STEM:			lypack			1		BLOCK:		Pipeline
1	FUGRO	JOB #:	23.00007123					4		R/V:		Westerly
		DAY #:		1				No.	of SURVE	EY LINES:		484 627.80 Kilometers
C	RP TO	STERN:	0.00 N/A	1								22.3% Complete
				_								21,800.00 Meters Added
	ME	OP		_			E INFORM			-		DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER			ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	P1
		AM	PL02_181	052.0°		117					_	Added mileage for run in/out
		AM	PL02_178	232.0°		120						Added mileage for run in/out
		AM	PL02_180	052.0°		118	-	_	-	_		Added mileage for run in/out
$\vdash$		AM	PL02_177	232.0°		122	-					Added mileage for run in/out
_	_	AM	PL02_179	052.0°		110	-	_	_			Added mileage for run in/out
		AM	PL02_174	232.0°	118	122		-		-	_	Added mileage for run in/out
		AM	PL02_176	052.0°	118	122	_			-		Added mileage for run in/out
$\vdash$		AM	PL02_173	232.0*	119	123	-		-		_	Added mileage for run in/out
$\vdash$		AM	PL02_175	052.0*	117	121	-	_	-	-		Added mileage for run in/out
-		AM AM	PL02_170 PL02_172	232.0° 052.0°	118	122	-					Added mileage for run in/out Added mileage for run in/out
_		AM	PL02_172	232.0"		123	-	_		$\vdash$		Added mileage for run in/out
_		AM	PL02_103	052.0°	118	122	_			1		Added mileage for run in/out
-	_	AM	PL02_171	232.0°	117	121		_	_		-	Added mileage for run in/out
		AM	PL02_168	052.0*		123						Added mileage for run in/out
		AM	PL02_165	232.0°		122	1	_		$\vdash$	_	Added mileage for run in/out
		AM	PL02_167	052.0		122	_					Added mileage for run in/out
		AM	PL02_162	232.0°		122	†	Ì	1			Added mileage for run in/out
		AM	PL02 164	052.0°		123						Added mileage for run in/out
$\vdash$		AM	PL02 101	232.0		123	<del>                                     </del>	_				Added mileage for run in/out
		AM	PL02_163	052.0°	_	122						Added mileage for run in/out
		AM	PL02 158	232.0"		122				$\vdash$		Added mileage for run in/out
		AM	PL02_162	052.0°		123						Added mileage for run in/out
		AM	PL02 157	232.0°	119	123						Added mileage for run in/out
		AM	PL02 159	052.0*		122						Added mileage for run in/out
		AM	PL02_154	232.0°	118	122	10					Added mileage for run in/out
		AM	PL02_156	052.0°	119	123						Added mileage for run in/out
		AM	PL02_153	232.0*	119	123						Added mileage for run in/out
		AM	PL02_155	052.0°		122						Added mileage for run in/out
		AM	PL02_150	232.0°	118	122						Added mileage for run in/out
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ver 7.22.2015-A (Alaska) **AK LNG** DATE: 21-Jul-2015 Tue Julian Day: 202 CLIENT Seafloor Mapping JOB DESCRIPTION: PROSPECT / SITE: PL002 NAV SYSTEM Hypack APEA & BLOCK Pipeline R/V: Westerly FUGRO JOB #: 23.00007123 JOB DAY #: Day: 12 No. of SURVEY LINES: 484 630.20 Kilometers CRP TO STERN: 0.00 N/A 24.3% Complete 24,200.00 Meters Added PERSONNEL ONBOARD PERSONNEL ONSHORE WEATHER REPORT GEOPHYSICAL EQUIPMENT EQUIP# Offshore Site Manager: Ryan Braget Charlie Hall Navigation System - POS MV Captain: Time Sea State Wind Speed Dir. Diff. GPS System - Trimble AG130 Other Vessel Crew: n/a Ass't Off. Site Manager: Marta Krynytzky Wx - 0600: N/A N/A N/A MBES - R2Sonic Party Chief: Doug Bowlus Chuck Chamberlain Wx - 1200: Data Manager: 0.5 4 kts SW SSS - Edgetech 4200 Katie Conrad Data Processor: Cody Gibson Wx - 1800: Hydro. Surveyor: 0.3 8 kts SSW Mag. - SeaSpy Data Processor: Lance Woods Wx - 2400: N/A N/A Geophysical Tech.: David Wise N/A USBL - IXSEA GAPS Other Survey Crew: n/a Data Processor: n/a SE Reporting (Place an "x" in the box, with brief description Grab Sampler - Day Grab Client Representative: Ron Eckhardt Additional Proc.: HSE OFFICER Grab Sampler - Van Veen Client Representative: n/a Toolbox: × JHA-Toolbox Shift Change: Medical Emergency Drill, MAR-TRA-007 Safety: Pre/Post Job: LINE INFORMATION TIME **DETAILED SURVEY INFORMATION** CODE LINE NUMBER HEADING BSP Fath (m) Mag (m) SSS Fish (m DNP TO ESP 0630 0750 ow Morning ops meeting. Weekly safety meeting. FPI vessel audit. Dockside Checks. Morning toolbox. Conducted medical emergency vessel safety drill. Transit to patch test area. 0750 0905 IT Review MAR-TRA-007. Take AML SVP. Deploy multibeam. 0905 0925 ow 0925 0930 LT 0930 0939 CAL PT\_JD202\_001A 220.0° 20.0 N/A N/A MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 3kt SW. Vessel: 3.4 kt, 790 rpm. 0939 0941 LT 0941 0947 CAL T\_JD202\_002A 040.0 20.0 N/A N/A MDES/SDES (Patch Test Line) Seas; 0.3m Winds; 3kt SW. Vessel: 6kt, 1000 rpm. 0947 0948 LT 0948 0953 CAL PT JD202 002B 220.0° 20.0 N/A N/A MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 3kt SW. Vessel: 6kt, 1190 rpm. 0953 0957 LT PT\_JD202\_001C 040.0° N/A 0957 1006 CAL 20.0 N/A MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 4kt SW. Vessel: 3.8kt, 690 rpm. 1006 1009 LT PT JD202 001D 220 0° 19.0 N/A N/A MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 2kt SW. Vessel: 3.5 kt, 660 rpm. 1009 1018 CAL 1018 1020 LT PT\_JD202\_002C 040.0\* MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 2kt SW. Vessel: 3 kt, 900 rpm. 1020 1029 CAL 19.0 N/A N/A 1029 1031 LT PT\_JD202\_002D 220.0° 1031 1038 CAL 20.0 N/A N/A MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 2kt S. Vessel: 4 kt, 600 rpm. 1038 1041 LT PT\_JD202\_001B 040.0° MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 2kt 6. Vessel: 3.5 kt, 1100 rpm. 1041 1050 CAL 19.0 N/A N/A 1050 1052 LT 1052 1056 CAL PT\_JD202\_003C 220.0° MBES/SBES (Patch Test Line) Seas; 0.3m Winds: 4kt S. Vessel: 4 kt, 600 rpm. 20.0 N/A N/A 1056 1100 LT MBES/SBES (Patch Test Line) Seas; 0.3m Winds; 5kt SSW, Vessel; 3.3 kt, 1200 rpm. Yaw lines may need re-run at lower current. 1100 1107 CAL T\_JD202\_003D\_040.0" 20.0 N/A N/A 1107 1115 ow Recover Multibeam. Measured 10kt winds on back deck. 1115 1130 IT Transit to PL002. 1130 1150 ow Deploy survey gear. (Navigation computer had to be restarted) 1150 1206 LT PL02\_130 052.0\* MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt SW. Vessel: 1.5 kt, 1030 rpm. Noisy outer beams on Mulibeam (NOB). 12:15 MVP Taken. 1229 OL 21.0 13.0 1206 100 119 23.0 1232 LT 1238 OL PL02\_127 232.0° 100 119 18.0 20.0 10.0 MBES/SBES/SSS/MAG Seas; 0.7m Winds: 3kt 5. Vessel: 6.0 kt, 600 rpm. NOB 1232 1238 1243 LT 1243 1316 OL PL02 129 052.0° 100 118 20.0 20.0 10.0 MBES/SBES/SSS/MAG Seas; 0.7m Winds: 4kt SW. Vessel: 1.5 kt, 950 rpm. NOB

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DD/	SPECT		21-Jul-201		Julia PLD02	n Day:	202	1	JOB DESC	CLIENT:	AK LNG Seafloor Mapping
	NAV. SV		<b>—</b>		ypack			1		R BLOCK:	Pipeline
			23.00007123	_	7			a .		R/V:	Westerly
	JOB	DAY #:	Day: 12	1				No	of SURVE	EY LINES:	484 630.20 Kilometers
0	RP TO	TERN:	0.00 N/A	J						7.	24.3% Complete
											24,200.00 Meters Added
TI	ME	OP	I			LINE	INFORM	MATION			
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DI	DETAILED SURVEY INFORMATION
1318	1324	OL	PL02_126	232.0°	100	118	16.0	20.0	10.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt SW. Vessel; 6 kt, 670 rpm. NOB
1324 1330	1330 1351	LT OL	PL02_128	052.0°	100	119	18.0	20.0	10.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 2kt S, Vessel; 2.2 kt, 930 rpm, NOB
1351	1353	LT	1 202_120	032.0	100	110	10.0	20.0	10.0		mbediabeliacounina acas, c.dii Winda. 2n. g. Yesser, 2.2 nr, 300 pin. Nob
1353	1350	OL	PL02_123	232.0°	100	118	15.0	20.0	10.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 2kt SW. Vessel: 6.3 kt, 800 rpm. NOB
1359	1404	LT									
1404	1420	OL	PL02_125	052.0°	100	118	16.0	20.0	10.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 3kt S. Vessel: 2.5 kt, 960 rpm. NOB 14:06 MVP Taken.
1420	1422 1428	OL.	PL02_122	232.0°	100	118	14.0	17.0	7.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt SSW. Vessel: 6 kt, 750 rpm. NOB
1428	1433	LT	1 202_122	202.0	100	110	14.0	17.0	7.0	-	instance and a second with a s
1433	1445	OL	PL02_124	052.0°	100	119	14.0	17.0	7.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt SSW. Vessel: 3 kt, 1040 rpm. NOB, Tide = ~1m.
1445	1448	LT									<b>_</b>
1448	1455	OL	PL02_120	232.0°	100	118	13.0	17.0	7.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 8kt SSW. Vessel: 4.7 kt, 600 rpm. NOB, Tide = ~0.8m.
1455 1459	1459 1511	LT OL	PL02_121	052.0°	100	118	12.0	17.0	7.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 8kt SSW. Vessel: 3 kt, 1030 rpm. NOB
1511	1515	LT	1 202_121	002.0	100	110	12.0	17.0	7.0		
1515	1520	OL	PL02_119	232.0°	100	119	12.0	17.0	7.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 8kt SSW. Vessel: 5.5 kt, 680 rpm, NOB
1520	1533	OW									Retrieve gear.
1533 1650	1650 1745	OW		-		-					Transit back to dock.  Fuel Vessel. Delays due to dock construction.
1745	1830	ow									Secure vessel.
1830											
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			21-Jul-201			n Day:	202	1	100 DECC	CLIENT:	_	AK LNG
	SPECT				LOO2 ypack			1 .	JOB DESC	BLOCK:	_	Seafloor Mapping Pipeline
1.4			23.00007123		ypack			1	AREA	R/V:		Westerly
		DAY #:	Day: 12	1				No.	of SURVE			484 630.20 Kilometers
CF	RP TO S	TERN:	0.00 N/A	]								24.3% Complete
												24,200.00 Meters Added
TIN	ic 1		г			LIM	E INFORM	MATION			_	
FROM		OP	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m)	1	DNP	DETAILED SURVEY INFORMATION
		AM	PL02_130	052.0°	119	123						Added mileage for run in/out
		AM	PL02_127	232.0°	119	123						Added mileage for run in/out
$\vdash$		AM	PL02_129	052.0°		122						Added mileage for run in/out
$\vdash$	_	AM	PL02_126 PL02_128	232.0°	118	122		_				Added mileage for run in/out Added mileage for run in/out
$\vdash$	-	AM	PL02_128	052.0° 232.0°	118	123 122		_				Added mileage for run in/out  Added mileage for run in/out
$\vdash$		AM	PL02_125	052.0°	118	122						Added mileage for run in/out
		AM	PL02_122			122						Added mileage for run in/out
		AM	PL02_124		119	123						Added mileage for run in/out
		AM	PL02_120		118	122						Added mileage for run in/out
$\vdash$	$\rightarrow$	AM	PL02_121 PL02_119			122 123	-	_			-	Added mileage for run in/out Added mileage for run in/out
$\vdash$	$\neg$	MIVI	FL02_119	232.0	119	123						Added fillings for full livour
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13124		DATE:	22-Jul-201		and the latest designation of	n Day:	203	1		CLIENT:			AK LNG					
PR	SPECT				PL002	(50.00)			JOB DESC				Seafloor Mapping					
	NAV. SY			_	ypack			J.	AREA	R BLOCK:			Pipeline					
			23.0000712	3				No	of CUDY	R/V:	<u> </u>	484	Westerly					
Ι,		DAY #:	Day: 13 0.00 N/A	-				NO	. OI SUKV	EY LINES:	_	404	636.60 Kilometers 29.6% Complete					
١ ١	KP IU S	I ERN	0.00 N/A										30,600.00 Meters Added					
GEOF	HYSICA	L EQUI	PMENT EQUIP	n			PERS	SONNEL C	NBOARD				PERSONNEL	ONSHORE		WEATHER REPO	RT	
Navig	ation Sys	tem - P	OS MV		L	Capta	ain:		Ryan E	raget			Offshore Site Manager:	Charlie Hall	Time	Sea State	Wind Speed	Dir.
	S System						el Crew:		n/				Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:	N/A	N/A	N/A
_	MBES -			1	ļ	Party C			Doug B				Data Manager:	Chuck Chamberlain	Wx - 1200:	0.5	2 kts	W
SS	S - Edg			4		rdro. Su		_	Katie C	The state of the s			Data Processor:	Cody Gibson	Wx - 1800:	0.5	8 kts	NE
- 11	Mag			4			al Tech.:		David				Data Processor:	Lance Woods	Wx - 2400:	N/A	N/A	N/A
	Sample			-			sentative:	-	Ron Ec		_		Data Processor: Additional Proc.:	n/a		(Place an "x" in the box	, with brief de	scriptio
-	Sample			-	Cilett	rkehre	senialive.		Roll Ec	Kilaiut			Client Representative:	n/a n/a	HSE OFFICER			
Gran	Sample	ı - valı	Veeli		_							- 5	Client Representative.	IVa	Shift Change			
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				_														
Т	ME	OP				LIN	E INFORM	MATION						DETAILED S	SURVEY INFORMAT	TION		
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	)	DNP							
0630	0710	ow		-	_							CA CALCARA	g ops meeting. Installed line co	onditioner on SSS UPS. Doc	kside checks.			
0710	0835	IT		+	_	-			-			100771112221	t to PL002	VP Dodou suprov good				
0835	0900	OW LT										Review	v MAR-TRA-009. Take AML S	VP. Deploy survey gear				
0902	0913	OL	PL02 088	232.0°	100	118	14.0	16.0	6.0	-	-	MRES/	/SBES/SSS/MAG Seas; 0.1m V	Ninds: 8kt SW Vessel: 3 kt	860 rom Tide = 5.3m	3 5kt flood NOR		
0913	0915	LT	FE02_000	232.0	100	110	14.0	10.0	0.0	+		WIDEO	ODEO/OOO/WAO Ocas, o. IIII v	villas. Okt GVV. Vesset, S kt,	ooc ipin. Tide = 5.5ii	, s.ski ilood. Neb		
0915	0922	OL	PL02_090	052.0*	100	119	10.0	10.0	0.0			MBES/	/SBES/SSS/MAG Seas; 0.1m V	Winds: 8kt SW, Vessel: 5.2 k	t, 790 rpm. Tide = 5.3	im, 0.2kt flood. 5NOB		
0922	0926	LT																
0926	0936	OL	PL02_087	232.0°	100	119	15.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.1m V	Winds: 9kt SW. Tide = 5.4m,	3kt flood. SNOB			
0936	0939	LT																
0939	0946	OL	PL02_089	052.0°	100	118	15.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.1m \	Winds: 10ki SSW. Vessel: 4.	7 kt, 840 rpm. Tide =	5.4m, 2.6kt flood SNOB		
0946	0952	LT				-			-									
0952	1002	OL	PL02_082	232.0°	100	118	14.0	19.0	9.0	-		MBES/	/SBES/SSS/MAG Seas; 0.1m \	Winds: 11k! SW. Vessel: 3.5	kt, 840 rpm. Tide = 5.	4m, 2.4kt flood.		
1002	1006	OL.	PL02_086	052.0*	100	119	14.0	19.0	9.0	-		MDEC	/SBES/SSS/MAG Seas; 0.1m \	Wada: 10b; C Vascal: 4 E bt	920 com Tido = E 4c	n 2 Old flood		
1014	1018	LT	PL02_086	052.0	100	179	14.0	19.0	9.0			WEST	SBESISSSIMAG SBBS, U. IIII V	rvinas: Toki S. Vesser. 4.5 kt	, 830 rpm. Tide - 5.41	n, 2.0xt nood.		
1018	1027	OL	PL02_081	232.0°	100	119	14.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.1m V	Winds: 7kt SSE Vessel: 4 kt	840 rpm Tide = 5.3c	n 1 6kt flood		
1027	1032	LT	, 202_00.	LOLIG	100	110	14.0	10.0	0.0				0020,000,111,10,000,01,111,11	The ober 1000s 4 ht	, 0 10 1pm. 11d0 0.0.	ii, rioni nood.		
1032	1040	OL	PL02_085	052.0°	100	118	15.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.1m V	Winds: 7kt SSE, Vessel: 4 kt.	840 rpm. Tide = 5.2r	n, 1.2kt flood.		
1040	1044	LT													MAINELINE STORE-WEIGH			
1044	1052	OL	PL02 080	232.0°	123	141	15.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.3m s	swell. Winds: 6kt S. Tide = 5.	1m, 0.8kt flood.			
1052	1056	LT																
1056	1106	OL	PL02_084	052.0°	100	119	14.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.3m s	swell. Winds: 8kt S. Vessel: 3	3.8 kt, 840 rpm. Tide =	5.0m, Slack tide. 10:58 l	MVP Taken	
1106	1109	LT										pagindayan						
1109	1117	OL	PL02_079	232.0°	100	118	14.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.3m s	swell. Winds: 8kt SW. Vessel	l: 4.6 kt, 800 rpm. Tide	e = 4.8m, Slack tde.		
1117	1122	LT	B) 40 455															
1122	1134	OL	PL02_083	052.0°	100	118	14.0	19.0	9.0			MBES/	/SBES/SSS/MAG Seas; 0.3m s	swell. Winds: 3kt WSW. Vest	sel: 2.6 kt, 800 rpm. T	ide = 4.7m, 0.6k1ebb.		
1134	1140	LT	DI 00 071	000.11	100	445	45.0	40.0	0.0	_		MDEC	ICDEC/CCC/MAC Cook A Cook	well Winds # 14044 1	4 0 ls 000	Ide - 4 Fm + 6 Nachh		
1140	1146	OL LT	PL02_074	232.0"	100	115	15.0	19.0	9.0	_		IVIDES/	/SBES/SSS/MAG Seas; 0.3m s	well, Willus, JKI W JW, Vest	oci. 4.0 kt, oou rpm. 1	ide - 4.5m, 1.5klebb.		
1151	1205	OL	PL02 078	052.0°	100	119	17.0	21.0	11.0			MBES/	/SBES/SSS/MAG Seas; 0.5m s	swell, Winds; 3kt WSW. Vess	sel: 2.6 kt. 930 rpm. T	ide = 4.3m, 1.7kt ebb.		
1101	1200	~-		002.0	100	110	11.10	2110	1110						mil and think i			

MBES/SBES/SSS/MAG Seas; 0.5m swell. Winds: 2kt W. Vessel: 5.6 kt, 750 rpm. Tide = 4m, 2.6kt ebb.



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ver 7.22	.2015-A (	Alaska)										
		DATE:	22-Jul-2015	Wed	Julia	n Day:	203			CLIENT:		AK LNG
PRO	SPECT	/ SITE:		F	PL002			1	JOB DESC	RIPTION:		Seafloor Mapping
1 3	NAV. SY	STEM		Н	ypack			1	AREA S	BLOCK:		Pipeline
1	UGRO.	JOB #:	23.00007123					-		R/V:		Westerly
	JOB	DAY #:	Day: 13	]				No	. of SURVE	EY LINES:		484 636.60 Kilometers
C	RP TO S	TERN:	0.00 N/A	]							7	29.6% Complete
												30,600,00 Meters Added
												<u> </u>
	ΛE	OP	TIME NUMBER	Leanne	Loca	100111111	EINFORM		Teer con con		LOND	DETAILED SURVEY INFORMATION
FROM			LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	1	DNP	
1213	1219	LT	DI 02 077	050.00	100	440	10.0	24.0	110	-	-	MDES/SDES/SSS/MAC Social Servicual Window Net S. Vaccali 3.9 ld 4090 room. Tido = 2.0m, 2.0ld obs
1219 1233	1233 1235	OL LT	PL02_077	052.0°	100	118	18.0	21.0	11.0			MBES/SBES/SSS/MAG Seas; 0.5m swell. Winds; 0kt S. Vessel: 2.8 kt, 1080 rpm. Tide = 3.9m, 2.9kt ebb.
1235	1240	OL	PL02 072	232.0°	100	117	17.0	21.0	11.0			MBES/SBES/SSS/MAG Seas; 0.5m swell. Winds; 1kt WSW, Vessel; 6.6 kt, 860 rpm. Tide = 3.5m, 3.8kt ebb.
1240	1240	LT	1 LUZ_0/2	232.0	100	117	17.0	21.0	11.0			The State of
1247	1305	OL	PL02_076	052.0°	100	119	17.0	19.0	9.0		1	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 1kt WSW. Vessel: 2.3 kt, 1030 rpm. Tide = 3.4m, 3.9kt ebb. 12:52 MVP Taken.
1305	1309	LT				-						
1309	1314	OL	PL02_071	232.0*	100	117	16.0	19.0	9.0		_	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt W, Vessel; 5.9 kt, 750 rpm. Tide = 3.0m, 4.7kt ebb.
1314	1321	LT									14	
1321	1337	OL	PL02_075	052.0°	100	116	15.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 1kt W. Vessel: 2.4 kt, 980 rpm. Tide = 2.8m, 4.8kt ebb.
1337	1341	LT										And Andrew Court Court and Court Cou
1341	1346	OL	PL02_066	232.0"	100	116	16.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 3kt NW. Vessel: 5.9 kt, 610 rpm. Tide = 2.4m, 5.0kt ebb.
1346	1351	LT									5	
1351	1405	OL	PL02_070	052.0°	100	117	16.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 2kt NW. Vessel: 2.5 kt, 940 rpm. Tide = 2.2m, 5.0kt ebb.
1405	1408	LT									-	
1408	1414	OL	PL02_065	232.0°	100	117	15.0	19.0	9.0		-	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 3kt N, Vessel; 5.8 kt, 810 rpm. Tide = 2m, 4.8kt ebb.
1414	1419	LT	DI 00 000		400	440	15.0	10.0			-	ADDECICED CONTROL OF THE WAR CONTROL OF THE CONTROL
1419	1432	OL	PL02_069	052.0°	100	116	15.0	19.0	9.0	-	+	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 6kt NW. Vessel: 2.8 kt, 940 rpm. Tide = 1.8m, 4.7kt ebb.
1432	1434	LT OL	PL02 007	232.0"	100	117	14.0	19.0	9.0	-	+	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 8kt N. Vessel: 0.0 kt, 020 rpm. Tide = 1.0m, 4.4kt ebb.
1440	1442	LT	1 202_007	232.0	100	117	14.0	15.0	9.0		+	INDECROBES/COS/INVC Ceds, C.OIII WINDS, SKI N. YESSEI, C.O. K., CZOTPIII. TIGE - T.OIII, Y-AK COS.
1442	1454	OL	PL02 068	052.0°	100	116	15.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 8kt N. Vessel: 3.0 kt, 1050 rpm. Tide = 1.5m, 4.2kt ebb. 14:49 MVP Taken.
1454	1502	LT	. LUL_UUU	302.0	100	110	10.0	10.0	0.0			Table See See See See See See See See See S
1502	1516	OL	PL02 095	052.0°	100	118	12.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds; 8kt N. Vessel; 2.4 kt, 940 rpm, Tide = 1.4m, 3.8kt ebb. PO\$ M/V Drop Out @ SP 113
1516	1541	E00			100	1,13	120.0	10.0	0.0			Delay start of next line so POS Logging file can be ended after delayed heave allotted time, POS restart and init time.
1541	1545	LT										
1545	1551	OL	PL02_091	232.0°	100	119	12.0	17.0	7.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds; 5kt NE. Vessel; 5.1 kt, 800 rpm. Tide = 1.0m, 2.6kt ebb.
1551	1556	LT										
1556	1606	OL	PL02_096	052.0°	100	121	10.0	17.0	7.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 10kt NE. Vessel: 3.1 kt, 960 rpm. Tide = 1.0m, 2.3kt ebb.
1606	1608	LT					17					
1608	1615	OL	PL02_092	232.0°	100	118	11.0	17.0	7.0		,	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 10kl NE. Vessel: 5.4 kt, 800 rpm. Tide = 1.0m, 1.9kt ebb.
1615	1619	LT										1
1619	1629	OL	PL02_097	052.0°	100	118	11.0	17.0	7.0		-	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 8kt NE. Vessel: 3.5 kt, 930 rpm. Tide = 1.0m, 1.7kt ebb.
1629	1631	LT	EH 02 002	200.00	400	110	10.0	47.0	7.0			MISSISSISSISSIMAC Sanar O Sin Window Sid NE Vicence E 2 id 970 cmm. Tide = 4 0m 4 2 id obb.
1631	1638	OL	PL02_093	232.0"	100	119	10.0	17.0	7.0		-	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 8kt NE. Vessel: 5.2 kt, 870 rpm. Tide = 1.0m, 1.3kt ebb.
1638 1650	1650 1810	IT						-	1			Retrieve gear. Transit back to dock,
1810	1830	OW	<del>                                     </del>	+								Indias data to dock. Secure Vessel.
1830	,000	0.11		<del>                                     </del>								1



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7.00.0045.4										_	
er 7.22.2015-A	DATE:	22-Jul-2015	Wed	Julia	n Day:	203	1		CLIENT:	—	AK LNG
PROSPECT				PL002		200	1	JOB DESC			Seafloor Mapping
	SYSTEM			lypack			1	AREA S	R BLOCK:		Pipeline
FUGRO	O JOB #:	23.00007123					4		R/V:		Westerly
JOF	B DAY #:	Day: 13					No	of SURVE	Y LINES:		484 636.60 Kilometers
CRP TO	STERN:	0.00 N/A	]						-		29.6% Complete
											30,600,00 Meters Added
	_						******				
TIME ROM TO	OP	LINE NUMBER	LIEATUNG	l see	ESP	E INFORM	MATION Mag (m)	Torre tien (m)	J	DNP	DETAILED SURVEY INFORMATION
NOW 10	AM	PL02 088	232.0°		122	raui (iii)	iviay (III)	300 FISH (III)	<del></del>	JNF	Added mileage for run in/out
-	AM	PL02_000	052.0°		123	+	-	$\vdash$	-	-	Added mileage for run in/out
	AM	PL02_090	232.0°		123	_	_	$\vdash$		$\rightarrow$	Added mileage for run in/out
-	AM	PL02_089	052.0°		122	_	_	$\vdash$	$\vdash$		Added mileage for run in/out
-	AM	PL02_003	232.0°		122	_	$\vdash$	$\vdash$			Added mileage for run in/out
	AM	PL02_086	052.0°		123		$\vdash$			$\neg$	Added mileage for run in/out
$\neg$	AM	PL02_081	232.0°		123		-	$\vdash$		$\neg$	Added mileage for run in/out
_	AM	PL02_085	052.0	_	122	1	1	<del>                                     </del>		$\neg$	Added mileage for run in/out
	AM	PL02_080	232.0°		145					$\neg$	Added mileage for run in/out
	AM	PL02_084	052.0°		123						Added mileage for run in/out
	AM	PL02_079	232.0°	118	122						Added mileage for run in/out
	AM	PL02_083	052.0"		122						Added mileage for run in/out
	AM	PL02_074	232.0°		119					_	Added mileage for run in/out
	AM	PL02_078	052.0°		123						Added mileage for run in/out
	AM	PL02_073	052.0*		121				$\perp$		Added mileage for run in/out
	AM	PL02_077	052.0°		122				$\vdash$		Added mileage for run in/out
	AM	PL02_072	232.0"		121	-	-	<u> </u>	-		Added mileage for run in/out
-	AM	PL02_076	052.0°		123	-			-		Added mileage for run in/out
-	AM	PL02_071 PL02_075	232.0°		121	-	+	-	-		Added mileage for run in/out
-	AM AM	PL02_075	052.0° 232.0°		120	$\leftarrow$	$\leftarrow$	+	<del>     </del>	-	Added mileage for run in/out Added mileage for run in/out
_	AM	PL02_066 PL02_070	052.0"		120	<del>                                     </del>	+	<del>                                     </del>	$\vdash$	_	Added mileage for run in/out  Added mileage for run in/out
-	AM	PL02_070	232.0		121	+	$\vdash$	<del>                                     </del>	<del></del>	$\dashv$	Added mileage for run in/out
	AM	PL02_009	052.0°	_	120	+	+	$\vdash$		$\dashv$	Added mileage for run in/out
+	AM	PL02_003	232.0*		121	_	<del></del>	$\vdash$		$\dashv$	Added mileage for run in/out
	AM	PL02_068	052.0°		120		-	$\vdash$		$\neg$	Added mileage for run in/out
$\neg$	AM	PL02_095	052.0°		122			$\vdash$		$\neg$	Added mileage for run in/out
	AM	PL02_001	232.0"		123						Added mileage for run in/out
	AM	PL02_096	052.0"	_	125						Added mileage for run in/out
	AM	PL02_092	232.0°		122						Added mileage for run in/out
	AM	PL02_097	052.0°	118	122						Added mileage for run in/out
11 12	AM	PL02_000	202.0°	119	123						Added mileage for run in/out
		1									
					$\Box$						]
			igsquare	$oxed{igspace}$	$\perp$				$\vdash$		1
$-\!\!\!\!-\!\!\!\!\!-$			$\vdash$	—	—			<u> </u>	$\vdash$		
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ver 7,22,	2015-A (	Alaska)						26				
		DATE:	23-Jul-201	5 Thu	Julia	n Day:	204		(	CLIENT: [		AK LNG
PRO	SPECT	/ SITE:			L002				JOB DESCR			Seafloor Mapping
	VAV. ST				ypack				AREA & I			Pipeline
			23.00007123	1						R/V:		Westerly
1949		DAY #:	Day: 14	4				No	. of SURVEY	LINES:		484 640.30 Kilometers
CF	RPTOS	TERN:	0.00 N/A	]								32,9% Complete 34,300,00 Meters Added
1												34,500,00 Meters Added
GEORE	IVSICA	FOIII	PMENT EQUIP				PER	SONNEL O	NROARD			PERSONNEL ONSHORE WEATHER REPORT
Navigat				'n		Capta			Ryan Bra	aet		Offshore Site Manager: Charlie Hall Time Sea State Wind Speed Dir.
Diff. GPS				1	Oth		el Crew:		n/a	9		Ass't Off, Site Manager: Marta Krynytzky Wx • 0600: N/A N/A N/A N/A
N	MBES -	R2Soni	С	1		Party C			Doug Boy	vlus		Data Manager: Chuck Chamberlain Wx - 1200: 0.3 2 kts WNW
SSS	S - Edg	etech 4	200	1	Ну	dro. Su	rveyor:		Katie Con	rad		Data Processor: Cody Gibson Wx - 1800: 1.0 10-15 kts SW
	Mag	SeaSpy		1	Geo	physica	al Tech.:		David Wi	ise		Data Processor: Lance Woods Wx - 2400: N/A N/A N/A
		SEA GA					ey Crew:	i c	n/a			Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
, -, -, -, -, -, -, -, -, -, -, -, -, -,		er - Day			Clien	t Repre	sentative:		Ron Eckh	ardt		Additional Proc.: n/a HSE OFFICER:
Grab	Sample	er - Van	Veen									Client Representative: n/a Toolbox: X JHA-Toolbox
				4								Shift Change:
<b>└</b>				4								Safety: X MAR-TRA-010, MAR-TRA-013
_				1								Pre/Post Job:
TIN	45					1.151	E INFORM	ATION			_	
FROM	TO	OP	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Eigh (m)		DNP	DETAILED SURVEY INFORMATION
	0705	ow	Enter Homesty	The State of	DVI	201	rauriting	mag (m)	coo ran (m)		Ditti	Morning Ops Meeting. Dockside checks,
	0815	E101									_	Vessel issue discovered during dockside checks. Pick up required part at the store and fix the issue.
	0940	IT										Transit to PL002
	1005	ow								$\neg$		Review MAR-TRA-010. Take AML SVP (AML SVP not providing valid data - abort cast). Deploy survey gear.
1005	1020	ow										Navigation computer restart. Take MVP to make up for invalid AML SVP cast.
1020	1025	LT					10	c	10			The state of the s
1025	1000	OL	PL02_060	202.00	100	114	11.0	19.0	9.0			MBES/SBES/SSS/MAC Seas; 0.2m Winds: 5kt NW. Vessel: 4 kt, 060 rpm. Tide = 5.1m, 2.7kt flood.
1033	1036	LT										
1036	1042	OL	PL02_063	052.0°	100	115	9.0	16.0	6.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt NW. Vessel: 5.0 kt, 860 rpm. Tide = 5.1m, 2.5kt flood.
1042	1046	LT										4
1046	1053	OL	PL02_061	232.0°	100	116	13.0	17.0	7.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt NW. Vessel: 4.2 kt, 980 rpm. Tide = 5.0m, 2.3kt flood.
1053	1058	LT	PL02 064	050.00	400	447	400	400	00			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 4kt NW. Vessel: 4.4 kt, 850 rpm. Tide = 5.0m, 2.0kt flood.
1058 1105	1105	OL LT	FL02_004	052.0°	100	117	10.0	16.0	6.0	-	_	MDE0/3DE0/300/MAG 3eas, 0.211 VVIII.us. 4Kt 144V. Vessel, 4.4 Kt, 300 tpm. Tide = 3.011, 2.0Kt 1100d.
1112	1119	OL	PL02_062	232.0°	100	115	14.0	19.0	9.0	_		MBES/SBES/SSS/MAG Seas; 0.2m Winds: 3kt NW. Vessel: 4.3 kt, 930 rpm. Tide = 4.9m, 1.8kt flood.
1119	1125	LT	T LUZ_UUZ	232.0	100	713	144.0	12.0				1
1125	1129	OL	PL02 059	049.0°	100	110	9.0	15.0	5.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds; 3kt NW. Vessel: 4.4 kt, 870 rpm. Tide = 4.8m, 1.3kt flood.
1129	1133	LT			17.0	110		14.4	0.0	$\neg$		
1133	1138	OL	PL02_058	229.0°	100	115	110	15.0	50			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 3kt NW. Vessel: 4.6 kt, 920 rpm. Tide = 4.8m, 1.1kt flood.
1138	1149	LT										1
1149	1150	OL	PL02_057	049.0°	100	115	9.0	15.0	5.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 2kt WNW. Vessel: 4.4 kt, 930 rpm. Tide = 4.7m, 0.8kt flood.
1150	1153	LT					Š.	Ę	å å			3
1153	1159	OL	PL02_056	229.0°	100	116	11.0	15.0	5.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 2kt WNW. Vessel: 4.4 kt, 920 rpm. Tide = 4.6m, 0.4kt flood.
1159	1205	LT										
1205	1213	OL	PL02_55	049.0°	100	116	10.0	15.0	5.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 2kt WNW. Vessel: 3.8 kt, 910 rpm. Tide = 4.5m, 0.2 kt flood,
1213	1217	LT										4
1217	1223	OL	PL02_54	229.0°	100	117	9,0	15.0	5.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 2kt WNW. Vessel: 5.2 kt, 760 rpm. Tide = 4.4m, slack tide.
1223	1226	LT	DI 00 E2	045.00	440	440	40.0	45.0	50	$\rightarrow$	_	MDECICDES/SCS/MAC Sono: 0.3m Winds: 214 S/N Vennal: 2.214 020 see: Tide = 4.20m 0.014 abb 45/20 M/D Teles
1226	1236	OL	PL02_53	049.0°	100	116	10.0	15.0	5.0	$\rightarrow$		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 3kt SW. Vessel: 3.2 kt, 920 rpm. Tide = 4.22m, 0.8kt ebb. 12:30 MVP Taken.
1236 1238	1238	OL.	PL02_52	229.0°	100	117	8.0	15.0	5.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 3kt S/V. Vessel: 4.5 kt, 680 rpm. Tide = 4m, 1.2kt ebb.
1244	1244	LT	FLU2_02	229.0	100	117	0.0	15.0	5.0	-		MDEGGDEGGGGGMG Gees, V.SIII VVIIUS, SKLGYY, VESSEL 4.5 KLGOV I JIII. TIDE - 4III, 1.2KLEUU.
1244	1258	CI	PI 02 51	049.00	100	116	80	15.0	50	$\rightarrow$		MBES/SBES/SSCIMAC Sase: A Son Winds: 6th SW Vascal: 9.7 bt 900 com. Tida = 4m + 6th abb



		_										
												Fugro
											SEA	AFLOOR MAPPING JOBLOG
ver 7.22	.2015-A (		02 1-1 204	Th	Lulia	n Dave	204	,		O. 15115	_	AVIAVO
PRO	SPECT	DATE:	23-Jul-2015		LOC2	n Day:	204		JOB DESC	CLIENT:	—	AK LNG Seafloor Mapping
22000000	NAV. ST				ypack			١.		BLOCK:	-	Pipeline Pipeline
	FUGRO		23.00007123	-				ı .		R/V:		Westerly
	JOB	DAY #:	Day: 14	]				No.	of SURVE	Y LINES:		484 640.30 Kilometers
С	RPTOS	TERN:	0.00 N/A	]							i.	32.9% Complete
												34,300.00 Meters Added
TII	ME	OP		26 0		LINE	E INFORM	IATION				DETAILED SURVEY INFORMATION
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1258	1309	LT			222						_	
1309 1321	1321	OL LT	PL02_098	052.0°	100	119	15.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 6kt S.V. Vessel; 3 kt, 960 rpm. Tide = 3.6m, 2.6kt ebb. 13:16MVP Taken (deeper water).
1325	1331	OL	PL02 094	232.0°	100	117	15.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 6kt SW. Vessel: 5.3 kt, 730 rpm. Tide = 3.5m, 3.1kt ebb.
1331	1337	LT	,	202.0	100		10.0	10.0	0.0			
1337	1349	OL	PL02_099	052.0°	100	118	13.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 7kt S/V. Vessel: 2.9 kt, 1030 rpm. Tide = 3.4m, 3.3kt ebb.
1349	1352	LT										
1352	1358	OW	PL02_95A	232.0"	100	123	14.0	19.0	9.0		-	Re-Run) MBES/SBES/SSS/MAG Seas; 0.3m Winds: 7kt SW. Vessel: 5.5 kt, 750 rpm. Tide = 3.1m, 3.9kt ebb.
1358 1408	1408	OL	PL02_104	052.0°	100	119	12.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt S.W. Vessel; 2.8 kt, 1100 rpm. Tide = 2.9m, 4.2kt ebb.
1420	1424	LT	1 202_104	052.0	100	119	12.0	18.0	9,0	1		NIDEO/ODE/NIDO DESS, C.SIII YYING. SK SIV. Y8886. 2.0 KL 1100 Ipili. 1106 - 2.311, 4.2Kt 600.
1424	1431	OL	PL02_100	232.0°	100	117	14.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.7m Winds: 8kt S.W. Vessel: 5.1 kt, 700 rpm. Tide = 2.6m, 4.5kt ebb.
1431	1438	LT										20 July 20 Jul
1438	1451	OL	PL02_105	052.0°	100	117	11.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.7m Winds: 8kt SW. Vessel: 2.6 kt, 1050 rpm. Tide = 2.4m, 4.5kt ebb.
1451	1454	LT	PL02 101	222.00	100	440	140	10.0	0.0		-	MBES/SBES/SSS/MAG Seas; 0.7m Winds: 8kt S/V. Vessel: 4.5 kt, 640 rpm. Tide = 2.3m, 4.4kt ebb.
1454	1502 1508	OL LT	FE02_101	232.0°	100	119	14.0	19.0	9.0		1	NIDES/DES/GGGMAG Seas, U. TII. WIIIds. DR. SYL. Yessel. 4.5 R., 646 I Jill. Tide - 2.5III, 4-4R 660.
1508	1520	OL	PL02_106	052.0°	100	118	12.0	18.0	8.0			MBES/SBES/SSS/MAG Seas; 0.7m Winds: 8kt S.N. Vessel: 2.8 kt, 1000 rpm. Tide = 2.1m, 4.3kt ebb.
1520	1523	LT										The state of the s
1523	1501	OL	PL02_102	202.0°	100	117	13.0	18.0	0.0			MBES/SBES/SSS/MAC Seas; 1.0m Winds: 8kt SW. Vessel: 5 kt, 010 rpm. Tide = 1.0m, 4.0kt abb. Some stripping in SSS.
1531 1545	1545 1705	OW		-	_							Recover Survey gear. Transit back to dock.
1705	1800	OW										Vessel Fueling TRA. Fuel Vessel.
1800	1830	ow										Secure vessel.
1830												
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ver 7,22,20		DATE:	23-Jul-2015	Thu	Julia	n Dav	204	1		CLIENT:	_	AK LNG
PROS			20-041-2010		2L002	ii Duy.	204	١.	JOB DESC		_	Seafloor Mapping
200000000000000000000000000000000000000	AV. SY	52 CO 1 15 40 (5 A)			lypack					BLOCK:		Pipeline Pipeline
FU	JGRO .	JOB #:	23.00007123					9		R/V:		Westerly
1000	JOB I	DAY #:	Day: 14	1				No	of SURVE	Y LINES:		484 640.30 Kilometers
CRE	PTOS	TERN:	0.00 N/A									32.9% Complete
				-								34,300.00 Meters Added
~~~		75-00-0					- W-6-01				_	
FROM	TO	OP	LINE NUMBER	Luzanino	BSP		Fath (m)		ece Esh (m)		DNP	DETAILED SURVEY INFORMATION
PROM	10	AM	PL02 060	232.0°		118	raur (III)	way (III)	ass risti (m)		DINE	Added mileage for run in/out
-	$\dashv$	AM	PL02_000	052.0°			1		_		_	Added mileage for run in/out
	$\neg$	AM	PL02_061	232.0°								Added mileage for run in/out
		AM	PL02_064	052.0°		121						Added mileage for run in/out
		AM	PL02_062	232.0°								Added mileage for run in/out
		AM	PL02_059	049.0°	110	112						Added mileage for run in/out
		AM	PL02_058	229.0°								Added mileage for run in/out
		AM	PL02_057	049.0"								Added mileage for run invout
		AM	PL02_056	229.0°								Added mileage for run in/out
		AM	PL02_55	049.0°		118						Added mileage for run in/out
	_	AM	PL02_54	229.0°		119	_					Added mileage for run in/out
$\vdash$	$\rightarrow$	AM	PL02_53 PL02_52	049.0° 229.0°			-		_			Added mileage for run in/out Added mileage for run in/out
$\vdash$	$\rightarrow$	AM	PL02_52	049.0°			-				_	Added mileage for run in/out
	-	AM	PL02_01	052.0°								Added mileage for run in/out
	$\neg$	AM	PL02 094	232.0°		121						Added mileage for run in/out
	$\neg$	AM	PL02_099	052.0°								Added mileage for run in/out
		AM	PL02_104	052.0°								Added mileage for run in/out
		AM	PL02_100	232.0°	117	121		4				Added mileage for run in/out
		AM	PL02_106	052.0°		121						Added mileage for run in/out
		AM	PL02_101	232.0°								Added mileage for run in/out
	_	AM	PL02_106	052.0°								Added mileage for run in/out
-	$\rightarrow$	AM	PL02_102	232.0°	117	121						Added mileage for run invout
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ver 7,22,2015-A (Alaska) 24-Jul-2015 Fri Julian Day: 205 AK LNG CLIENT: DATE: JOB DESCRIPTION: Seafloor Mapping PROSPECT / SITE: PL002 NAV. SYSTEM: Hypack AREA & BLOCK Pipeline FUGRO JOB #: 23.00007123 NAV. DIVIDE BY: Westerly 1 Day: 15 NAV. FIX DISTANCE: 50 No. of SURVEY LINES: 484 645.50 Kilometers JOB DAY #: 606,000.00 CRPTO STERN: 0.00 N/A SURVEY UNITS: Meters ORIGINAL JOB TOTAL: 38.0% Complete 39,500.00 Meters Added NAUTCAL MILE: 6080.0 WEATHER REPORT GEOPHYSICAL EQUIPMENT EQUIP# PERSONNEL ONBOARD PERSONNEL ONSHORE Navigation System - POS MV Captain: Ryan Braget Offshore Site Manager: Charlie Hall Time Sea State Wind Speed Dir. Diff. GPS System - Trimble AG130 Other Vessel Crew: n/a Ass't Off. Site Manager: Marta Krynytzky Wx - 0600: N/A N/A N/A MBES - R2Sonic Party Chief: Data Manager: Chuck Chamberlain Doug Bowlus Wx - 1200: 0.2 5 kts S SSS - Edgetech 4200 Hydro. Surveyor: Katie Conrad Data Processor: Cody Gibson Wx - 1800: SSW 0.5 4 kts Wx - 2400: Mag. - SeaSpy Geophysical Tech.: David Wise Data Processor: Lance Woods N/A N/A N/A USBL - IXSEA GAPS Other Survey Crew: n/a Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description Grab Sampler - Day Grab Client Representative: Ron Eckhardt Additional Proc.: n/a HSE OFFICER: Doug Bowlus Grab Sampler - Van Veen Client Representative: n/a Toolbox: X JHA-Toolbox Shift Change: Safety: MAR-TRA-011 Pre/Post Job: LINE INFORMATION TIME **DETAILED SURVEY INFORMATION** CODE LINE NUMBER HEADING BSP DNP FROM SSS Fish (m. TO ESP Fath (m) Mag (m) Morning Ops Meeting. Dockside checks. ow 0630 0710 0710 0840 IT Transit to Survey Site Review MAR-TRA-011. Take AML SVP. Deploy survey gear. Multiple issues during deployment. SSS troubleshooting. Nav restart. 0840 0940 OW 0940 0944 LT PL02 103 0944 0953 OL 232.0° 100 119 13.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 7kt S Vessel: 3.6 kt, 1070 rpm. Tide = 3.9m, 3.5kt flood. 0953 0957 LT MBES/SBES/SSS/MAC Seas; 0.2m Winds: 7kt S. Vessel: 5.2 kt, 710 rpm. Tide = 3.0m, 3.5kt flood. 0957 1004 OL PL02\_111 052.0° 100 117 13.0 18.0 0.0 1004 1008 LT 1008 OL PL02 107 232.0° 13.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt SW. Vessel: 3.8 kt, 1010 rpm. Tide = 4.2m, 3.5kt flood. 1018 100 118 1018 1021 LT 1021 1029 OL PL02 112 052.0° 100 118 14.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 7kt S Tide = 4.3m, 3.4kt flood. 1029 1033 LT 1033 1043 OL PL02 108 232.0° 100 118 15.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 6kt S Vessel: 3.4 kt, 1000 rpm. Tide = 4.4m, 3.4kt flood. 1043 1046 LT PL02\_113 13.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 6kt S Vessel: 5.2 kt, 780 rpm. Tide = 4.5m, 3.3kt flood. 10:48 MVP Taken. 1046 1053 OL 052.0° 100 118 1053 1058 LT PL02 109 OL 15.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds; 6kt S. Vessel; 3.1 kt, 900 rpm. Tide = 4.6m, 3.2kt flood. 1058 1109 232.0° 100 119 1109 1112 LT 1112 1121 OI PL02\_114 052.0° 100 119 150 18.0 80 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt S. Vessel: 4 kt, 600 rpm. Tide = 4.6m, 3.0kt flood. 1121 1126 LT 1126 1137 OL PL02 110 232.0° 100 117 15.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt S. Vessel: 3.1 kt, 890 rpm. Tide = 4.7m, 2.8kt flood. 1137 1141 LT PL02 117 15.0 18.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds; 4kt S Vessel; 5.2 kt, 760 rpm, Tide = 4,7m, 2.6kt flood, 1141 1148 OL 052.0" 100 118 8.0 1148 1152 LT 1152 1201 OL PL02 115 232.0° 100 119 16.0 18.0 8.0 MBES/SBES/SSS/MAG Seas; 0.2m Winds; 5kt S Vessel; 3.8 kt, 960 rpm. Tide = 4.7m, 2.4kt flood. 1201 1218 LT PL02 050 15.0 5.0 MBES/SBES/SSS/MAG Vessel: 4 kt,850 rpm. Tide = 4.6m,1.7 kt flood. 1218 1225 OL 100 117 6.0 229.0° 1225 1229 LT 1229 1235 OL PL02 049 049.0° 100 115 9.0 15.0 5.0 MBES/SBES/SSS/MAG Vessel: 4.2 kt, 870 rpm. Tide = 4.5m, 1.5kt flood. 1235 1239 LT 1239 1245 OL PL02 048 229.0° 100 117 7.0 15.0 5.0 MBES/SBES/SSS/MAG Vessel: 4.7 kt, 990 rpm. Tide = 4.48m, 1.2kt flood. MVP delayed in order to keep watch while in shallow area. 1245 1249 LT

MBES/SBES/SSS/MAG Vessel: 4.5 kt, 970 rpm, Tide = 4.4m, 0.9kt flood.

1249

1256

OL

PL02 047 049.0

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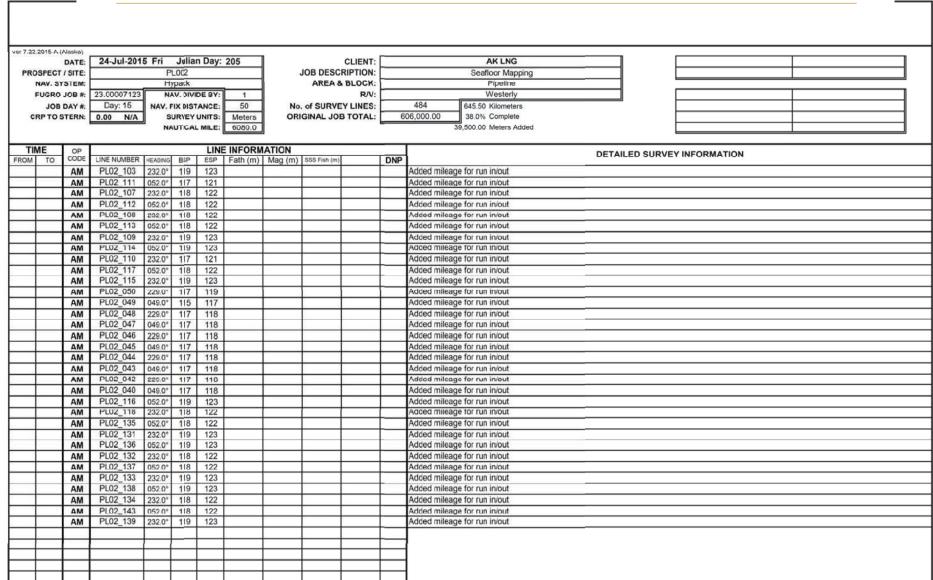
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ver 7,22,201		ATE:	24-Jul-201	5 Fri	Julia	n Dav:	205	1		CLIENT:	_	AKLNG
PROSE		0.7753053	21001201		L002	. Duy.	200	١.	JOB DESC		-	Seafloor Mapping
NA	v. 575	TEM:		Н	ypack				AREA 8	BLOCK:		Pípeline
12000	GRO JO	anima (C	23.00007123		AV. DIVI		1			R/V:	_	Westerly
	JOB DA	225.317.11	Day: 15	11/11/03/03/20	FIX DIST	ANCE:	50 Meters	1,000	of SURVE			484 645.50 Kilometers 06,000.00 38.0% Complete
- CKI	1031	Livie.	0.00 N/A	1		MILE:	6080.0	J OK	GIIVAL 30	D TOTAL		35,500.00 Meters Added
						19		9				
FROM		OP CODE	LINE NUMBER	Lumanaio	I non		INFORM		ece Fab (m)	1	DNP	DETAILED SURVEY INFORMATION
		LT	LINE NOWBER	HEADING	BoP	ESP	Fath (III)	Mag (m)	555 Fish (m)		DNP	
	_	OL	PL02 046	229.0°	100	117	9.0	15.0	5.0			MBES/SBES/SSS/MAG Vessel: 5 kt, 880 rpm. Tide = 4.3m, 0.6kt flood.
1304 1		LT	DI 00 01-									
		OL LT	PL02_045	049.0°	100	117	8.0	15.0	5.0	3		MBES/SBES/SSS/MAG Vessel: 3.8 kt, 950 rpm. Tide = 4.3m, Slack Tide.
	_	OL	PL02 044	229.0°	100	117	9.0	15.0	5.0		+	MBES/SBES/SSS/MAG Vessel: 6.2 kt, 1100 rpm. Tide = 4.2m, Slack Tide.
	_	LT	# Tu Tu Tu									
		OL	PL02_043	049.0"	100	117	8.0	15.0	5.0			MBES/SBES/SSS/MAG Vessel: 4.0 kt, 1090 rpm. Tide = 4.1m, Slack Tide.
		LT	DI 02 042	220.00	400	447	0.0	45.0	50		-	MDES/SDES/MAC Voscal: E.S. kt. 000 spp. Tide = 4.0m, 0.8 kt. obb.
	100000000	OL LT	PL02_042	229.0°	100	117	9.0	15.0	5.0			MBES/SBES/SSS/MAG Vessel: 5.6 kt, 900 rpm. Tide = 4.0m, 0.8 kt ebb.  Skip line 041, to see if we can still maintain coverage
		OL	PL02_040	049.0°	100	117	8.0	15.0	5.0		1	MBES/SBES/SSS/MAG Vessel: 3.9 kt, 1000 rpm. Tide = 3.9m, 1.2kt ebb.
		LT										
		OL	PL02_116	052.0°	100	119	15.0	19.0	9.0		-	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW. Vessel: 3.8 kt, 1080 rpm. Tide = 3.6m, 2.3kt ebb. 14:15 MVP Taken.
		LT OL	PL02 118	232.0°	100	118	16.0	19.0	9.0		1	MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt S.V. Vessel; 4.8 kt, 690 rpm, Tide = 3.4m, 2.8kt ebb.
	_	LT		200.0	170	110	10.0	10.0	0.0			
		OL	PL02_135	052.0"	100	118	19.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 6kt SSW. Vessel: 2.9 kt, 1080 rpm. Tide = 3.3m, 3.1kt ebb.
		LT OL	PL02_131	202.0°	100	119	19.0	25.0	15.0		-	MBES/SBES/SSS/MAC Seas; 0.5m Winds; 0kt SW, Vessel; 5.9 kt, 800 rpm. Tide = 3.0m, 3.7kt ebb.
		LT	P202_131	202.0	100	119	19.0	25.0	15.0			MBES/SBES/SBS/MAC Seas, U.Shi Yarida: Unt Siv. Yesusi: 6.5 nt, 300 tpm. Tide - 5.0m, 5.7nt sub.
		OL	PL02_136	052.0°	100	119	19.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 9kt SW. Vessel: 2.6 kt, 1100 rpm. Tide = 2.9m, 2.9kt ebb.
		LT									1_	
		OL LT	PL02_132	232.0°	100	118	17.0	25.0	15.0		-	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt SW. Vessel: 6 kt, 780 rpm. Tide = 2.8m, 4.0kt ebb.
		OL	PL02_137	052.0°	100	118	19.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds; 3kt S. Vessel; 2.7 kt, 1130 rpm, Tide = 2.7m, 4.0kt ebb.
1545 1	549	LT					4					
		OL	PL02_133	232.0°	100	119	17.0	21.0	11.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 3kt S Vessel: 5.6 kt, 680 rpm. Tide = 2.5m, 4.0kt ebb.
		LT OL	PL02 138	052.0°	100	119	18.0	25.0	15.0		+-	Longer line turn to avoid UTC rollover.  MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt SSW. Vessel: 2.7 kt, 1100 rpm. Tide = 2.4m, 3.8kt ebb. 15:05 MVP Taken.
-	-	LT	7 606 100	UUEU	100	110	10.0	20.0	10.0		1	See of see the see of
1618 1	624	OL	PL02_134	232.0°	100	118	17.0	210	11.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt S. Vessel: 5.5 kt, 720 rpm. Tide = 2.2m, 3.6kt ebb.
		LT	DI 00 440	055.5	410	440	40.0	05.0	45.0			NDECCORECCENANC Const. O Em Window Ald C. Vignosi, D.D.Id. 4000 pp Tida - 0.0 - 0.0 Id. abb
		OL	PL02_143	052.0"	100	118	18.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt S. Vessel: 3.8 kt, 1280 rpm. Tide = 2.2m, 3.3kt ebb.
	_	OL	PL02_139	232.0°	100	119	16.0	21.0	11.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 4kt SSW. Vessel: 6.2 kt, 920 rpm. Tide = 2.0m, 3.2kt ebb.
		ow										Recover gear.
		OW										Transit to dock. Secure vessel.
1830	030	UVV										COOMIN TOURDS
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ver 7.22	.2015-A (A										_								
		DATE:	25-Jul-201			n Day:	206			CLIENT:		AK LNG							
PRO	SPECT	/ SITE:		F	PL002				JOB DESC	RIPTION:	7	Seafloor Mapping							
1 1	NAV. SY	STEM:		Н	lypack				AREA 8	BLOCK:		Pipeline							
1	FUGRO	JOB #:	23.00007123							R/V:		Westerly							
1	JOB	DAY #:	Day: 16	1				No.	of SURVE	Y LINES:		484 645.50 Kilometers							
C			0.00 N/A	1							h	38.0% Complete							
												39,500.00 Meters Added							
1																			
GEOP	HYSICA	L EQUI	PMENT EQUIP	,			PERS	ONNEL O	NBOARD		_	PERSONNEL C	DNSHORE		WE	ATHER REPOR	т		
	tion Sys			T		Capta			Ryan B	raget		Offshore Site Manager:	Charlie Hall	Time		ea State	Wind Speed	Dir.	
	S System			-	Oth		el Crew:		n/a			Ass't Off, Site Manager:	Marta Krynytzky	Wx - 0600:	-	N/A	N/A	N/A	
	MBES -			-		Party C			Doug B			Data Manager:	Chuck Chamberlain	Wx - 1200:	ne to 1	1.3 (forecast)	10 kts	WSW	
	S - Edg			-		ydro. Su			Katie C			Data Processor:	Cody Gibson						
				-										Wx - 1800:	0.0 10	1.3 (forecast)	17 kts	SW	
	Mag IXS			1			al Tech.:		David \			Data Processor:	Lance Woods	Wx - 2400:	/Discourse	N/A	N/A	N/A	
				-			ey Crew:		n/a			Data Processor:	n/a		(Place an	"x" in the box,		cription	
	Sample			4	Clen	t Repre	sentative:		Ron Eck	knardt		Additional Proc.:	n/a	HSE OFFICER:		Doug Bo			
Grab	Sample	er - Van	Veen	4	Ь—							Client Representative:	n/a	Toolbox:	X J	HA-Morning Mee	ting		
				1										Shift Change:					
				1										Safety:	X M	IAR-TRA-013			
				J										Pre/Post Job:	- 2				
	ME	OP				LIN	E INFORM					l	DETAILED SUI	RVEY INFORMAT	ON				
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		52,7,11225 00.		• • • • • • • • • • • • • • • • • • • •				
0630	0700	ow		_	_							Morning ops meeting.							
0700	1630	E101							1	2		Vessel repair.							
1630	1715	ow										Review MAR-TRA-013. Fuel Vessel.							
1715	1830	E101										Vessel repair.							
1830												1							
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ver 7,22,2	015-A (A	Vaska)						26									
.0072220000		DATE:	26-Jul-201	5 Sun	Julia	n Day:	207	]		CLIENT:		AK LNG					
PROS	SPECT	SITE:		F	PL002	-			JOB DESC			Seafloor Mapping					
	AV. SY			$\overline{}$	lypack				AREA 8	BLOCK:		Pipeline					
F		JOB #:	23.00007123					-		R/V:	-	Westerly					
Transaction 1		DAY #:	Day: 17	4				No	. of SURVE	Y LINES:		484 648.65 Kilometers					
CR	PTOS	TERN:	0.00 N/A									42.1% Complete 42,650.00 Meters Added					——
1												42,650.00 Meters Added					
GEODH	VSICA	FOIII	PMENT EQUIP				PER	SONNEL O	NROARD			PERSONNEL	ONSHORE		WEATHER REPO	RT	
Navigat				ī		Capta			Ryan Br	raget		Offshore Site Manager:	Charlie Hall	Time	Sea State	Wind Speed	Dir.
Diff. GPS				1	Oth	er Vess	el Crew:		n/a			Ass't Off, Site Manager:	Marta Krynytzky	Wx - 0600:	N/A	N/A	N/A
M	BES -	R2Soni	С	1		Party C	hief:		Doug Bo	owlus		Data Manager:	Chuck Chamberlain	Wx - 1200:	0.5	16 kts	SSW
SSS	- Edge	etech 4	200	]	Ну	dro. Su	rveyor:		Katie Co	onrad		Data Processor:	Cody Gibson	Wx - 1800:	1.0	17 kts	SW
		SeaSpy					al Tech.:		David V			Data Processor:	Lance Woods	Wx - 2400:	N/A	N/A	N/A
		SEA GA					ey Crew:	-	n/a			Data Processor:	n/a		ice an "x" in the box		cription
		r - Day		4	Clien	t Repre	sentative:		Ron Eck	hardt		Additional Proc.:	n/a	HSE OFFICER:	Doug E	Bowlus	
Grab 8	Sample	r - Van	Veen	4								Client Representative:	n/a	A. C.	X JHA-Toolbox		
⊢—				-										Shift Change:			
⊢				-	⊢—										X MAR-TRA-012		
				1	_									Pre/Post Job:			
TIM	E	OP				LIN	E INFORM	IATION			_						
FROM	то	CODE	LINE NUMBER	HEADING	B\$P	ESP	_	Mag (m)	SSS Fish (m)		DNP		DETAILED SU	RVEY INFORMATION			
0630	0720	ow										Morning ops meeting. Dockside check	s.				
0720	0910	IT										Transit to PL002					
	0950	OW										Review MAR-TRA-012. Take AML SV	P. Deploy survey gear. Nav re	estart. Wait for POS to lo	g 10min of data.		
	0954	LT		-	-			12.7			_			222 200 201			
	1001	OL	PL02_144	052.0"	100	119	17.0	17,0	7.0			MBES/SBES/SSS/MAG Seas; 0.6m W	inds: 15kt SSW. Vessel: 5.5 kt.	, 780 rpm. Tide = 2.1m, 1	.7kt flood.		
	1006	LT	PL02 140	202.00	410	110	450	40.0			_	MBES/SBES/SSS/MAC Seas; 0.6m W		200 Tid 2.4 2	Old 8		
	1023	LT	PE02_140	202.0	100	110	15.0	19.0	9.0			MBZGrobzorosormino sedo, v.em W	mas: rokt 5514, Vedser: 2.7 kt	ooo rpm. ride - 2. rm, 2	.one nood.		
	1029	OL	PL02 145	052.0°	100	118	17.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.6m. V	essel: 5.8 kt. 760 rpm. Tide = 2	4m 2.5kt flood. (No und	ates from Nikiski Win	d Station)	
	1034	LT	1 202_110	OUL.U	100	110	17.0	10.0	0.0				and the state of t		atoo nonninada rra	or Granding	
	1051	OL	PL02 141	232.0°	100	119	15.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.6m. V	ressel: 2.2 kt, 930 rpm. Tide = 2	2.5m, 2.8kt flood.			
1051	1053	LT										an de Calendra de Servicio de la Mariera de la Calendra de Calendra de La Calendra de La Calendra de La Calendra La					
1053	1059	OL	PL02_146	052.0°	100	119	18.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.6m, V	essel: 6.0 kt, 770 rpm. Tide = 2	2.7m, 3.1kt flood.			
	1105	LT					4					en in communication and a second communication of the communication of t					
	1119	OL	PL02_142	232.0°	100	118	160	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.6m. V	'essel: 2.5 kt, 990 rpm. Tide = 2	2.9m, 3.3kt flood.			
	1122	LT	DI 00 110				170				_			4 0.014.04 44.05.1	0 (D T-1		
	1128	OL	PL02_149	052.0°	100	118	17.0	19.0	9.0		_	MBES/SBES/SSS/MAG Seas; 0.5m. V	'essel: 6.0 ft, 740 rpm. 1 ide = 3	3.1m, 3.6kt flood. 11:25 h	AVP Taken.		
	1135	LT	PL02_147	232.0°	100	119	16.0	19.0	90			MBES/SBES/SSS/MAG Seas: 0.5m. V	Second: 2 let 1050 spm Tido = 3	2m 2 Old flood			
	1149	LT	PLU2_147	232.0*	100	119	16.0	19.0	90			IMBES/SBES/SSS/MAG Seas; U.SHL V	esser 3 kt, 1050 fpm. Tide = 3.	.om, o.okt 11000.			
	1156	OL	PL02_151	052.0°	100	118	17.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.5m. V	essel: 5.5 kt 680 rpm Tide = 3	5m, 3.9kt flood			
	1201	LT	1 202_101	002.0	190	1110	17.0	10.0	0.0			11020,0020,000,111,100,000,010,111,1	ood in the man of the man of	ioni, olone nood:			
_	1214	OL	PL02_148	232.0"	100	118	17.0	19.0	9.0		_	MBES/SBES/SSS/MAG Seas; 0.5m W	inds: 16kt SSW. Vessel: 2.7 kt,	1010 rpm. Tide = 3.6m,	4.0kt flood.		
1214	1216	LT							î.								
	1223	OL	PL02_152	052.0°	100	118	18.0	19.0	9.0			MBES/SBES/SSS/MAG Seas; 0.5m W	inds: 15kt SSW. Vessel: 5.5 kt,	740 rpm. Tide = 3.9m, 4	.2kt flood.		
	1235	OW										Retrieve SSS and MAG in preparation	for inshore work during high cur	rent conditions.			
	1312	IT										Transit to inshore lines of PL02					
	1320	OL	PL02_038	229.0°	100	118	9.0	N/A	N/A		_	MBES/SBES Seas; 0.3m Winds: 17kt \$	SW. Vessel; 4.0 kt, 880 rpm. Ti	de = 4.5 m, 4.0kt flood.			
	1321	LT	DI 00 000		411	4			100			MDEC/CDEC Communication	DIM Massack Ed. 1 Too. To	d- 45 - 55 - 5			
	1326	OL	PL02_036	049.0°	100	117	7.0	N/A	N/A		_	MBES/SBES Seas; 0.3m Winds: 17kt \$	Svv. vessel: 5.1 kt, 790 rpm. Ti	de = 4.5 m, 3.9kt flood.			
	1328	LT	PL02 034	229.0°	100	117	9.0	N/A	NI/A			MBES/SBES Seas; 0.3m Winds: 17kt 5	SW Vessel: 4.2 bt 010 rem Ti	de = 4.6 m 3.9kt flood			
	1335	OL	PLU2_034	229.0	100	117	9.0	N/A	N/A			WIDES/SOES Seas, U.SIII WINGS: 1/Kt s	5vv. vessel 4.2 kt, 910 rpm. 11	ue - 4.0 III, 3.0Kt 11000.			



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												Fugro
											SEA	AFLOOR MAPPING JOBLOG
ver 7,22	2015 A (	Alaska) DATE:	26-Jul-2015	Sun	Julia	n Dav	207	1		CLIENT:	_	AKLNG
PRO	SPECT		20-501-2010		L002	ii Day.	207	1 .	JOB DESC		_	Seafloor Mapping
	NAV. ST	STEM:		Н	ypack					BLOCK:		Pipeline
	FUGRO							·	- 6 0 11 15 14 15	R/V:	-	Westerly
c		DAY #:	Day: 17	ł				No	of SURVE	Y LINES:	_	484 648.65 Kilometers 42.1% Complete
ľ			0.00 1474	Ŋ								42,650.00 Meters Added
-		77-591					- 1115051				_	
FROM	ME TO	OP CODE	LINE NUMBER	HEADING	BSP	ESP	E INFORM		SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1336	1341	OL	PL02_032	049.0°	100	117	6.0	N/A	N/A			MBES/SBES Seas; 0.3m Tide = 4.6 m, 3.7kt flood.
1341	1344	LT	DI 00 001									J.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1344	1351	OL LT	PL02_031	229.0°	100	117	9.0	N/A	N/A		├	MBES/SBES Seas; 0.3m Tide = 4.6 m, 3.6kt flood.
1352	1358	OL	PL02_030	040.0°	100	117	6.0	N/A	N/A		1	MBES/SBES Seas; 0.3m Tide = 4.7 m, 3.4kt flood.
1358	1359	LT										
1359	1407	OL	PL02_029	229.0°	100	117	9.0	N/A	N/A			MBES/SBES Seas; 0.3m Tide = 4.7 m, 3.2kt flood.
1407	1408	OL	PL02_028	049.0°	100	117	6.0	N/A	N/A		<del>                                     </del>	MBES/SBES Seas; 0.3m Tide = 4.7 m, 3.0kt flood.
1413	1414	LT	1 202_020	0.10.0	170		0.0	1303	1473			
1414	1422	OL	PL02_027	229.0°	100	117	9.0	N/A	N/A			MBES/SBES Seas; 0.3m Tide = 4.7 m, 2.8kt flood. No run-out due to foul area on nautical chart.
1422	1423	OL.	PL02 026	049.0°	119	135	6.0	N/A	N/A	-		MBES/SBES Seas; 0.3m Tide = 4.7 m, 2.5kt flood. No run-in due to foul area on nautical chart.
1428	1430	LT	1-02_020	049.0	119	133	0.0	IN/A	IN/A			mb20-0623 Geas, V.Sii Tide - 4.7 III, 2.5kt IIOOL. NOTAIPII dae to lodi alea offinada diant.
1430	1436	OL	PL02_025	229.0°	100	117	8.0	N/A	N/A			MBES/SBES Seas; 0.3m Tide = 4.7 m, 2.3kt flood. No run-out due to foul area on nautical chart.
1436	1441	LT	D) 00 00/				-			1		Performed a preliminary sweep of foul area in South West corner of work area. Depths < 3.0m observed in 30m swath.
1441	1447	OL	PL02_024	049.0°	119	135	5.0	N/A	N/A			MBES/SBES Seas: 0.3m Tide = 4.7 m. 1.9kt flood. No run-in due to foul area on nautical chart.  14:50 SVP Taken with AML.
1458	1504	OL	PL02_023	229.0°	100	116	7.0	N/A	N/A			MBES Seas; 0.3m Tide = 4.6 m, 1.3kt flood. Line ended early due to foul area on nautical chart.
1504	1505	LT										
1505 1512	1512 1514	OL LT	PL02_022	049.0°	100	115	5.0	N/A	N/A			MBES Seas; 0.3m Tide = 4.6 m, 1.0kt flood. Started part way up line due to foul area on nautical chart.
1514	1519	OL	PL02_021	229.0°	100	114	7.0	N/A	N/A		_	MBES Seas; 0.3m Tide = 4.5 m, 0.7kt flood. Line ended early due to foul area on nautical chart.
1519	1520	LT										
1520	1527	OL	PL02_020	049.0°	100	114	4.5	N/A	N/A			MBES Seas; 0.3m Tide = 4.5 m, Slack Tide. Started part way up the line due to shallow water.
1527 1528	1528 1532	LT OL	PL02 019	229.0°	100	110	6.0	N/A	N/A		$\vdash$	MBES Seas; 0.5m Tide = 4.4 m, Slack Tide, Line ended early due to shallow water.
1532	1538	LT	1 202_010	220.0	170	110	0.0	ISIA	14/1			Water too shallow to continue surveying inshore.
1538	1545	OL	PL02_033	115.0°	100	113	9.0	N/A	N/A			MBES Seas; 0.5m Tide = 4.4 m, Slack Tide.
1545 1555	1555 1750	OW		$\vdash$		-						Retrieve gear.  Transit back to dock.
1750	1830	ow										Secure vessel.
1830												
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ver 7.22.2015-A	(Alaska)	v				-				
. 00 70000 00 00 00 00 00 00	DATE:	26-Jul-2015	Sun Juli	an Day:	207	1		CLIENT:		AK LNG
PROSPEC	T / SITE:		PL002			1 .	JOB DESC	RIPTION:		Seafloor Mapping
NAV. S	SYSTEM:		Hypack			1	AREA 8	BLOCK:		Pipeline
FUGRO	0 JOB #:	23.00007123				2		R/V:		Westerly
JOE	B DAY #:	Day: 17	1			No	o of SURVE	EY LINES:		484 648.65 Kilometers
CRPTO	STERN:	0.00 N/A	1						_	42.1% Complete
11/2/2012/11/29/00			2							42,650.00 Meters Added
	E OP LINE INFORMATION									AS A SA SA A SA SA SA SA SA SA SA SA SA
TIME	OP			LIN	E INFORM	IATION				DETAILED CURVEY INFORMATION
FROM TO	CODE	LINE NUMBER	HEADING BSP	ESP			SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
	AM	PL02 144	052.0° 119	123						Added mileage for run in/out
	AM	PL02 140	232.0° 118	122			1			Added mileage for run in/out
	AM	PL02_145	052.0° 118	122						Added mileage for run in/out
	AM	PL02_141	232.0° 119	123						Added mileage for run in/out
	AM	PL02_146	052.0° 119	123	i i	i.	ė.	è .	-	Added mileage for run in/out
	AM	PL02_142	232.0° 118	122						Added mileage for run in/out
	AM	PL02_149	052.0° 118	122						Added mileage for run in/out
	AM	PL02_147	232.0° 119	123				3		Added mileage for run in/out
	AM	PL02_151	052.0° 118	122						Added mileage for run in/out
	AM	PL02 148	232.0° 118	122						Added mileage for run in/out
	AM	PL02 152	052.0° 118	122						Added mileage for run in/out
	AM	PL02_038	229.0° 118	119						Added mlieage for run in/out
	AM	PL02_036	049.0° 117	118						Added mileage for run in/out
	AM	PL02 034	229.0° 117	118						Added mileage for run in/out
	AM	PL02 032	049.0° 117							Added mileage for run in/out

			1 202	WANTED.	110	120					
		AM	PL02_146	052.0°	119	123	ė.	è	è	è	-
		AM	PL02_142	232.0°	118	122					
		AM	PL02_149	052.0°	118	122					
		AM	PL02_147	232.0"	119	123		3	3		
		AM	PL02_151	052.0°	118	122					
		AM	PL02_148	232.0°	118	122					
		AM	PL02_152	052.0°	118	122					
		AM	PL02_038	229.0°	118	119				1	
		AM	PL02_036	049.0°	117	118					
		AM	PL02_034	229.0°	117	118					
		AM	PL02_032	049.0°	117	118					
		AM	PL02_031	229.0°	117	118					
		AM	PL02_030	049.0°	117	118					
	0	AM	PL02_029	229.0°	117	118					
		AM	PL02_028	049.0°	117	118					
		AM	PL02_027	220.0°	117	118					
		AM	PL02_026	049.0°	135	136					
Ů.		AM	PL02_025	229.0°	117	118					
		AM	PL02_024	049.0"	135	136					
		AM	PL02_023	229,0°	116	117					
		AM	PL02_022	049.0°	115	116					
		AM	PL02_021	229.0°	114	115					
		AM	PL02_020	049.0°	114	115	-				
		AM	PL02_019	229.0°	110	111					
		AM	PL02_033	115.0°	113	115					
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ver 7,22,2015-A (		27-Jul-201	5 Mon	Iulia	n Dav	200	П		CLIENT:	_	AK LNG
PROSPECT	DATE:	27-501-201		1 / PLO		200	1 .	JOB DESC		—	Seafloor Mapping
NAV. ST				lypack	00		1		BLOCK:	_	Pipeline Pipeline
FUGRO	JOB #:	23.0000712		-felt-			4		R/V:		Westerly
JOB	DAY #:	Day: 18	1				No	. of SURVE	Y LINES:		484 649.65 Kilometers
CRPTO	STERN:	0.00 N/A									47.3% Complete
			_								43,650.00 Meters Added
GEOPHYSICA			#		0		SONNEL O				PERSONNEL ONSHORE WEATHER REPORT
Navigation System Diff. GPS System			-	246	Capta		-	Ryan B			Offshore Site Manager: Marta Krynytzky Time Sea State Wind Speed Dir.  Ass't Off. Site Manager: Charle Hall Wx - 0600: N/A N/A N/A
MBES -		15.100.000.000	-		Party C	el Crew:	-	n/a Doug B			Ass't Off. Site Manager:   Charle Hall   Wx - 0600: N/A N/A N/A N/A
SSS - Edo			-∦		dro. Su			Katie Co			Data Processor: Cody Gibson Wx - 1200: 0.3 5 kts W  Data Processor: Cody Gibson Wx - 1800: 0.3 4 kts W
Mag		_	1			al Tech.:		David \			Data Processor: Lance Woods Wx - 2400: N/A N/A N/A N/A N/A
USBL - IX			1			ey Crew:		n/a			Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
Grab Sample			1			sentative:		Ron Eck			Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab Sample			1								Client Representative: n/a Toolbox; X JHA-Toolbox
			1								Shift Change:
			1								Safety: X MAR-TRA-014
											Pre/Post Job:
TIME	OP				LINE	E INFORM	MATION			_	DETAILED SURVEY INFORMATION
FROM TO	CODE	LINE NUMBER	HEADING	B\$P	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	E-11 1-11 1-11 1-11 1-11 1-11 1-11 1-11
0630 0705	ow		1		- 4					-	Morning ops meeting. Dockside checks.  Transit to PL001
0705 0825 0825 0900	OW		+							-	Review MAR-TRA-014. Take AML SVP. Deploy survey gear. One SSS channel not coming into discover SSS computer full restart.
0900 0925	EOO		+	_							Troubleshoot SSS. Starboard LF channel of SSS appears to not be transmitting. Rub test ok. no pulse visible on starboard when in water.
0925 0930	LT		+	-							Houseshoot God. Claborate E. Claborate II. Claborate III. Clab test on the pulse visible of standard when in water.
0930 0958	ow	PL01_INFILL_0	1 030.0°	100	167	23.0	29.0	19.0			(INFILL) MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt SW. Vessel; 3.6 kt, 1040 rpm, Tide = 1.1m, 1.2ktebb.
0950 1000	LT										Waiting for tug to page.
1008 1057	OL	PL03_004	030.0°	100	234	23.0	30.0	20.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 3kt S/V. Vessel: 4 kt, 980 rpm. Tide = 1.2m, Slack tide. 10:23 MVP Taken.
1057 1103	LT										1
1103 1228	OL	PL03_002	210.0°	100	233	35.0	52.0	42.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 3kt SW. Vessel: 4 kt, 910 rpm. Tide = 1.8m, 2.2kt flood. 12:2: MVP Taken.
1228 1232	LT					,	,	,	,	,	
1232 1309	OL	PL03_005	030.0°	100	234	25.0	28.0	18.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt W. Vessel: 5.4 kt, 670 rpm. Tide = 3.2m, 4.4kt flood.
1309 1316	LT	DI 00 001	-	410	200	07.0	70.0		-	-	-
1316 1428 1428 1431	OL LT	PL03_001	210.0°	100	233	37.0	70.0	60.0		-	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt W. Vessel: 2 kt, 1270 rpm. Tide = 3.9m, 4.8kt flood. 14:25 MVP Taken.
1431 1506	OL	PL03 003	030.0°	100	233	28.0	44.0	34.0		-	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 4kt W. Vessel; 6.2 kt, 870 rpm. Tide = 4.9m, 4.3kt flood, POS dropout.
1506 1507	OW	FL03_003	030.0	100	233	20.0	44.0	34.0		+	SSS dropped out at end of line.
1507 1520	ow										Retrieve gear.
1520 1650	IT		+								Transit back to dock. Call received that fuel truck is unable to make it until 18:30. Vessel safety drill (spill response) on transit in.
1650 1705	ow		1								Take on fresh water and rinse vessel.
1705 1830	ow										Secure vessel. Troubleshoot SSS, change out cable sheave. Survey crew stayed to re-terminate SSS we:-end and slip ring.
1830	-		1								1
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200/	OSPECT		27-Jul-2015	Mon	1 / PLO	n Day:	208	1	JOB DESC	CLIENT:	_	AK LNG Seafloor Mapping
	NAV. 51				iypack	03				BLOCK:	-	Pipeline
			23.00007123		ypuvk			J.	AILLA	R/V:	_	Westerly
		DAY #:		1				No	of SURVE		-	484 649.65 Kilometers
			0.00 N/A	1				1000				47.3% Complete
				1								43,650.00 Meters Added
			-									
TI	ME	OP CODE		1	T ===	LIN	E INFORM	IATION	I	·		DETAILED SURVEY INFORMATION
FROM	ТО	AM	PL03 004			238	Fath (m)	Mag (m)	SSS Fish (m)		DNP	Added mileage for run in/out
-		AM	PL03_004			237						Added mileage for run in/out
$\vdash$		AM	PL03_005			238						Added mileage for run in/out Added mileage for run in/out
		AM	PL03_001	210.0°		237						Added mileage for run in/out
		AM	PL03_003			237						Added mileage for run in/out
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The second of th	DATE:	28-Jul-201	-			209			CLIENT:		AKLNG
PROSPECT			1115113939335	1 / PLO	03			JOB DESC			Seafloor Mapping
NAV. SY				lypack			J	AREA 8	BLOCK:		Pipeline
FUGROI		23.00007123	1				w	- ( 0)   D) (	R/V:		Westerly
	DAY #:	Day: 19	-				No.	. of SURVE	A LINES: [		484 651.25 Kilometers 50.7% Complete
CRPTOS	I EKN;	0.00 N/A									50.7% Omprete 45.250.00 Meters Added
GEOPHYSICA							SONNEL O				PERSONNEL ONSHORE WEATHER REPORT
Navigation Sys				205	Capta			Ryan B			Offshore Site Manager: Marta Krynytzky Time Sea State Wind Speed Dir.
Diff. GPS System		25,000,000,000	-	_		el Crew:	_	n/a			Ass't Off. Site Manager: Charle Hall Wx - 0600: N/A N/A N/A
MBES - SSS - Edge			ď		Party C dro. Su			Doug B Katie Co		_	Data Manager: Chuck Chamberlain   Wx - 1200: 0.2 3 kts NW
Mag S			1	_		al Tech.:		David \			Data Processor:   Lance Woods   Wx - 1600:   0,2   2 kts   WNW
USBL - IXS			1			ey Crew:		n/a			Data Processor: n/a ISE Reporting (Place on "x" in the box, with brief description
Grab Sample			1			sentative:		Ron Eck			Additional Proc.: n/a HSE OFFICER: Doug Bowlus
Grab Sample			1		торго						Client Representative: n/a Toolbox: X Toolbox
- Crass Campio			1								Shift Change:
			1								Safety: X Weekly Safey Meeting, Collecting Water In a bucket TRA, MAR-TRA-013
			]								Pre/Post Job:
			73	ž.			manuscim.				
FROM TO	OP CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
0645 0800	ow					7 207 (117)					Morning ops meeting. Safety meeting. Dockside checks.
0800 0845	OW										Vessel fueling TRA. No JHA forms available to sign. Fuel vessel.
0845 1045	WS										Waiting on tide. In the mean time, performed in water at dock testing of SSS with new termination.
1045 1230	IT		-	<u> </u>							Transit to PL004
1230 1310	ow		-	_	_						Review Collecting Water in a Bucket TRA. Take AML SVP. Deploy survey gear.
1310 1325 1325 1353	LT	PL04_004	024.0°	100	217	22.0	30.0	20.0	$\vdash$		MBES/SBES/SSS/MAC Seas; 0.2m Winds: 3kt N.W. Vessel: 6 kt, 900 rpm. Tide = 3.4m, 5.2kt flood.
1325 1353 1353 1407	LT	1-204_004	024.0	100	217	22.0	30.0	20.0			MIDEO ODE O
1407 1415	OL	PL04 011	024.0°	100	134	25.0	37.0	27.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds; 3kt NW.
1415 1424	LT		02.4.0	100	104	20.0	01.0	27.0			7
1424 1445	OL	PL04_009	204.0°	100	135	29.0	55.0	45.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 4kt NW. Vessel: 3.2 kt,1200 rpm. Tide = 4.4m, 5.5kt flood.
1445 1449	LT										
1449 1458	OL	PL04_010	024.0°	100	133	28.0	37.0	27.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt NW, Vessel: 6 kt, 840rpm. Tide = 4.9m, 5.3kt flood.
1458 1505	LT					1					
1505 1528	OL	PL04_008	204.0°	100	141	28.0	55.0	45.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 3kt NW. Vessel: 3.5 kt, 1240 rpm. Tide = 5.4m, 5.2kt flood. 1515 MVP Taken.
1528 1534	LT	DI 0 1 0 10			100						- LINES (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (1995) (
1534 1543	OL	PL04_012	024.0°	100	133	29.0	41.0	31.0	$\vdash$		MBES/SBES/SSS/MAG Seas; 0.2m Winds: 3kt WNW. Vessel: 7 kt, 880 rpm. Tide = 5.3m, 4.6kt flood.
1543 1548 1548 1607	LT OL	PL04_013	204 0°	100	135	30.0	00.0	50.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 3kt WNW. Vessel: 2.7 kt, 1230 rpm. Tide = 5.4m, 4.2kt flood.
1548 1607 1607 1611	LT	PL04_013	204.0"	100	135	30.0	60.0	50.0			MBES/SBES/SSS/MAG Seas; U.ZITI WITIGS: SKI WINW. Vessei: 2.7 KI, 1230 Fpm. Tide = 5.4m, 4.2kt flood.
1611 1650	OL	PL04_003	204.0°	100	206	28.0	55.0	45.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds: 2kt WNW. Vessel: 4.2 kt, 1260 rpm. Tide = 5.5m, 3.3kt flood. 16:45 MVP Taken.
1650 1700	OW	1 204_000	204.0	100	200	20.0	33.0	45.0			Retrieve equipment.
1700 1845	IT										Transit back to dock.
1845											1
											1
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$\vdash \vdash \vdash$											4



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												Fugro
											SEA	AFLOOR MAPPING JOBLOG
ver 7,22	2015-A (	Alaska)	28-Jul-201	T.v.o	Lulia	n Dave	200	1		CLIENT	_	AK LNG
DD/	SPECT		28-Jul-201		1 / PL00		209	1	JOB DESC	CLIENT:	<del></del>	Seafloor Mapping
					ypack	00				BLOCK:	<del> </del>	Pipeline Pipeline
	NAV. SYSTEM:		23.00007123		/ Paint			9	7.11.12.11	R/V:	$\vdash$	Westerly
1 23		DAY #:	Day: 19	1				No	of SURVE			484 651.25 Kilometers
C	RPTOS	STERN:	0.00 N/A	1								50.7% Complete
1				_								45,250.00 Meters Added
							F. IV. F. O. D. IV				_	T
FROM	ME TO	OP CODE	LINE NUMBER	THEADING	BSP	ESP	E INFORM		SSS Fish (m)	ì	DNP	DETAILED SURVEY INFORMATION
1110111	10	AM	PL04 004	024.0°	213	217	raus (m)	may (m)	GOO TISH (III)		Divi	Added mileage for run in/out
-		AM	PL04_011				1					Added mileage for run in/out
		AM	PL04_009	204.0°	135	139						Added mileage for run in/out
		AM	PL04_010	024.0°	133	137						Added mileage for run in/out
		AM	PL04_008	204.0°	141	145						Added mileage for run in/out
	_	AM	PL04_012 PL04_013	024.0°	133	137	-	_			-	Added mileage for run in/out
		AM	PL04_013 PL04_003	204.0° 204.0°	135 206	139 210		_	-			Added mileage for run in/out Added mileage for run in/out
		7.00	1 201_000	204.0	2.00	2.10					1	<b>-</b>
					$\vdash$						1	1
												1
												]
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## Fugro Seafloor Mapping Joblog

Ver 7.22.2015-A (Aleska)

DATE:

PROSPECT / SITE:

NAV. SYSTEM:

FUGRO JOB #:

JOB DAY #:

Day: 20

CRP TO STERN:

0.00 N/A

47,400.00 Meters Added

GEOPHYSICAL EQUIPMENT	
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag SeaSpy	
USBL - IXSEA GAPS	1
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

OFORUMAICAL FOUNDMENT ----

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Doug Bowlus
Hydro. Surveyor:	Katie Conrad
Geophysical Tech.:	David Wise
Other Survey Crew:	n/a
Client Representative:	n/a

Offshore Site Manager:	Marta Krynytzky
Ass't Off. Site Manager:	Charle Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.;	n/a
Client Representative:	Ron Eckhardt

Time	Sea State	Wind Speed	Dir.
Wx - 0600:	N/A	N/A	N/A
Wx - 1200:	0.2	6 kts	S
Wx - 1800:	0.2	11 kts	SW
Wx - 2400:	N/A	N/A	N/A

ISE Reporting (	Place	en "x" in the box, with brief description
HSE OFFICER:		Doug Bowlus
Toolbox:	X	Toolbex
Shift Change:		
Safety:	Х	MAR-TRA-015, MAR-TRA-013
Pre/Post Job:		

TII	ME	OP				LIN	INFORM	ATION		
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP
0630	0720	ow								
0720	0855	IT								
0855	0930	OW								
0930	0956	LT								
0956	1104	OL	PL04_005	024.0°	100	221	24.0	30.0	20.0	
1104	1109	LT								
1109	1144	OL	PL04_006	204.00	100	230	23.0	30.0	20.0	
1144	1154	LT								
1154	1229	OL	PL04_001	024.0°	100	187	18.0	28.0	18.0	
1229	1233	LT								
1233	1302	OL	PL04_002	204.0*	100	172	19.0	27.0	17.0	
1302	1332	E00								
1332	1358	OL	PL04_002A	204.0°	119	143	25.0	36.0	26.0	
1358	1413	LT								
1413	1448	OL	PL04_007	024.0°	100	236	22.0	30.0	20.0	
1448	1459	LT								
1459	1507	OL	PL04_016	024.0°	100	133	29.0	35.0	25.0	
1507	1530	OW								
1530	1720	IT								
1720	1750	ow								
1750	1830	ow								
1830										
		$\vdash$		$\vdash$						
				$\vdash$						
				$\vdash$						
				$\vdash$						
		$\vdash$		$\vdash$						_

Morning ops meeting. Dockside checks.

Transit to PL004

Review MRA-TRA-015. Take AML SVP. Deploy gear.

MBES/SBES/SSS/MAG Seas; 0.2m Winds: 6kt S Vessel: 3 kt, 1170 rpm. Tide = 0.5m, 3.7kt ebb.

MBES/SBES/SSS/MAC Seas; 0.2m Winds: (issue with weather station) Vessel: 6.4 kt, 900 rpm. Tide = 0.1m, 1.4kt ebb. 11:25 MVP Taken.

MBES/SBES/SSS/MAG Seas; 0.2m Winds: (weather station not providing data) Vessel: 3.8 kt, 1040 rpm. Tide = 0.32m, 0.5kt flood.

MBES/SBES/SSS/MAG Seas; 0.2m Winds: 6kt S. Vessel: 4.2 kt, 980 rpm. Tide = 1.3m, 3.5kt flood.

Navigation PC crashed (Blue screen).

MBES/SBES/SSS/MAG Seas; 0.2m Winds: 6kt S Vessel: 3.2 kt, 1170 rpm. Tide = 2.6m, 5.1kt flood, 13:43 MVP Taken.

MBES/SBES/SSS/MAG Seas; 0.2m Winds: (weather station not providing data) Vessel: 6.0 kt, 880 rpm. Tde = 3.5m, 5.8kt flood.

MBES/SBES/SSS/MAG Seas; 0.2m Winds: (weather station not providing data) Vessel: 7.3 kt, 800 rpm. Tde = 4.6m, 6.1kt flood. Retrieve gear.

Transit back to dock.

Arrive at dock. Fuel Vessel.

Secure vessel.





#### **F**ugro SEAFLOOR MAPPING JOBLOG ver 7.22.2015-A (Alaska) 29-Jul-2015 Wed Julian Day: 210 CLIENT: AK LNG DATE: PL001 / PL003 JOB DESCRIPTION: PROSPECT / SITE: Seafloor Mapping Hypack Pipeline NAV. SYSTEM: AREA & BLOCK: Westerly FUGRO JOB #: 23.00007123 R/V: JOB DAY #: Day: 20 No. of SURVEY LINES: 653.40 Kilometers CRPTO STERN: 0.00 N/A 55.5% Complete 47,400.00 Meters Added LINE INFORMATION TIME OP **DETAILED SURVEY INFORMATION** DNP FROM TO LINE NUMBER HEADING BSP ESP Fath (m) Mag (m) SSS Fish (m AM PL04 005 024.0° 221 225 Added mileage for run in/out AM PL04\_006 | 204.0° | 230 | 234 Added mileage for run in/out AM PL04 001 024.0° 187 191 Added mileage for run in/out PL04\_002A 204.0° Added mileage for run in due to line restart AM 100 119 PL04\_002A 204.0° Added mileage for run in (002)/out (002A) AM 143 147 AM PL04 007 024.0° 236 240 Added mileage for run in/out AM PL04 016 133 137 Added mileage for run in/out 024.0°





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											SEA	FLOOR MAPPING JOBL	og					
ver 7.22	2.2015-A (A		30-Jul-2015	Thu	Iulia	n Dave	244	1		OLIENT:	_	AK LNG						
PRO	DSPECT	DATE:	30-301-2013		N/A	п Бау.	211	l .	JOB DESC	CLIENT:		Seafloor Mapping						
	NAV. SY				ypack					BLOCK:		Pipeline						
	FUGRO.	JOB #:	23.00007123					4		R/V:		Westerly						
		DAY #:	Day: 21					No	. of SURVE	Y LINES:		484 653.40 Kilometers						
C	RPTOS	TERN:	0.00 N/A	J								55.5% Complete 47,400.00 Meters Added						
												47,400.00 Meters Added						
GEOP	HYSICA	L EQUI	PMENT EQUIP				PERS	ONNEL O	NBOARD			PERSONNEL	ONSHORE		W	EATHER REPO	RT	
Naviga	ation Sys	tem - P	OS MV			Capta			Ryan B	raget		Offshore Site Manager:	Marta Krynytzky	Time	5	Sea State	Wind Speed	Dir.
	S System						el Crew;		n/a			Ass't Off, Site Manager:	Charle Hall	Wx - 0600:		N/A	N/A	N/A
	MBES -			1		Party C			Doug B			Data Manager:	Chuck Chamberlain	Wx - 1200:		N/A	6 kts	SW
	S - Edg			ł		dro. Su	rveyor:		Katie C			Data Processor:  Data Processor:	Cody Gibson Lance Woods	Wx - 1800: Wx - 2400:		N/A N/A	7 kts	SW N/A
	SBL - IXS						ey Crew:		n/a			Data Processor:	n/a	ISE Reporting	Place a			
	Sample			1			sentative:		Ron Eck			Additional Proc.:	n/a	HSE OFFICER:	1 1000 0		Bowlus	- Company
Grab	Sample	er - Van	Veen	]								Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
														Shift Change:		-		
														Safety:	х	MAR-TRA-005		
-														Pre/Post Job:		6).		
TI	ME	OP				LIN	INFORM	ATION										
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m)		DNP		DETAILED SU	RVEY INFORMATION	ON			
0630		ow										Morning Ops Meeting.						
0710	1830	ow								1		Arrive at vessel. Vessel maintainance	and LIDAR mobilization.					
1830	$\vdash$	-				ı												
_	$\vdash$					_					_							
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l .																		
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			Fugro						
	SEAFLOOR MAPPING JOBLOG								
ver 7.22.2015-A (Alaska)									
DATE:	31-Jul-2015 Fri Julian Day: 212	CLIENT:	AK LNG						
PROSPECT / SITE:		JOB DESCRIPTION:	Seafloor Mapping						
NAV. SYSTEM:	Hypack	AREA & BLOCK:	Pipeline						
FUGROI JOB #:	23.00007123	R/V:	Westerly						
JOB DAY#:	Day: 22	No. of SURVEY LINES:	484 653.40 Kilometers						
CRP TO STERN:	0.00 N/A		55.5% Complete						
			47,400.00 Meters Added						

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	8
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag - SeaSpy	
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K

	EL ONBOARD	_
Captain:	Ryan Braget	
Other Vessel Crew:	n/a	
Party Chief:	Kelly Power	
Hydro. Surveyor:	Cody Gibson	
Geophysical Tech.:	Lance Woods	
Other Survey Crew:	n/a	
Client Representative:	n/a	

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charle Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Katie Conrad
Data Processor	David Wise
Data Processor:	Doug Bowlus
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt

Time		Sea State	Wind Speed	Dir.	
Wx - 0600:		na	na	na	
Wx - 1200:		0.3	5-10	SW	
Wx - 1800:		0.3	Light	Var	
Wx - 2400:		na	na	na	
HSE OFFICER:		Kelly	y Power		
Toolbox:	×	JHA-Toolbox			
Shift Change:	N/A		•		
Safety:	~	10.1		201450	
Juiety.	X	Lance and Cody	received a vessel orien	tation	

WEATHER REPORT

TIN	ME	ÓP	<u> </u>			LINE	INFORM	IATION	v. —			DETAILED CUDIEV INFORMATION
FROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
							- harden					Morning Ops meeting, Lidar test at dock
0750	0758	ow										Vessel induction
0758		ow										POS MV GAMS calibration
0800												Lidar test at dock
												Depart for Tyonek Shoreline
1015		ow										Running a test line while waiting for low tide
1033	1100		<u></u>									Waiting for low tide
1100											4	Start Lidar survey of Tyonek Shoreline, Vessel Spd:2.0kts, Depth -3.0m, hdg 20deg
1118												Stop Lidar Survey, Adjust lidar software settings to account for change in shoreline
			<u>,                                      </u>									Resume Lidar Survey, spd 2.7kts, depth ~2.5m, rdg
		ow	1									Stop survey to adjust settings
1124	1310	ow									1	Resume lidar survey
1310	1328											Move back to cove area
1328	1355											Resume lidar survey in Ladd Cove
1355			3 3									Transit to Cannery Lodge Dook
1610	1830	ow	2 2									Review collected Lidar Data
1830				$\vdash$								
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	Fugro										
SEAFLOOR MAPPING JOBLOG											
ver 7.22.2015-A (Alaska)											
DATE:	01-Aug-2015 Sat Julian Day: 213	CLIENT:		AK LNG							
PROSPECT / SITE:	N/A	JOB DESCRIPTION:		Seafloor Mapping							
NAV. SYSTEM:	Hypack	AREA & BLOCK:		Pipeline				3			
FUGRO JOB #:	23.00007123	R/V:		Westerly							
JOB DAY #:	Day: 23	No. of SURVEY LINES:	484	653.40 Kilometers							
CRP TO STERN:	0.00 N/A			55.5% Complete							
				47,400.00 Meters Added							

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag - SeaSpy	j' l
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	Cody Gibson
Geophysical Tech.:	Lance Woods
Other Survey Crew:	n/a
Client Representative:	n/a

LINE INFORMATION

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charle Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Katie Conrad
Data Processor	David Wise
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		na	na	na
Wx - 1200:		0.3	light	Var.
Wx - 1800:		0.3	light	Var.
Wx - 2400:		na	na	na
SE Reporting	(Place	an "x" in the b	ox, with brief desc	criptic
HSE OFFICER:		Kelly	y Power	
Toolbox:	×	JHA-Toolbox		
Shift Change:	N/A			
Safety:	×	Review MRA-	TRA 011 and 013	
Pre(Post Job)				

WEATHER REPORT

TIN	ME	OP	N				INFORM		(a = -0	-		DETAILED SURVEY INFORMATION			
FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION			
	0900											Morning Ops Meeting,			
	0925						1					Startup and intialize Lidar software			
0925			ő I									Depart Dock			
1035												Conducted a test with Lidar, no data aquired as boat to far from shore			
1040	1050											Transit to Jumbo Rock Area			
1050	1138 1216	ow									_	Waiting on low tide			
1138												Start. Lidar survey at Boulder Pt at north end hdg south			
1216	1226	ow										aground, no damage, stop survey, circle back around to and move further offshore			
1226	1305	ow	i i									Resume Lidar Survey			
1305												Transit to Cannery Dock			
												Lidar Survey of TM34 area			
	1505		Ĭ									Transit to Dock			
1505												Review Lidar Data			
1700	1830	ow										Refuel Vessel			
1830															
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		$\sqcup$													
		$\Box$													
		$\sqcup$													
		$\Box$													
		$\Box$													



											SEA	EI OC	FUGRO OR MAPPING JOB	n oc								
er 7.22	.2015-A (		00 4 004	F. Cum	Lutia	- D	044	1				FLOC	AK LNG	LOG								
DDC	SPECT		02-Aug-201		N/A	n Day:	214		JOB DESC	CLIENT:			Seafloor Mapping			$\vdash$						
	AV. SY		l .		ypack			,		BLOCK:	-		Pipeline									
	UGRO		23.00007123		ypack			1	AILA	R/V:	-		Westerly									
		DAY#:	Day: 24	1				No	of SURVE			484	653.40 Kilometers									
C			0.00 N/A	1							-		55.5% Complete									
				=0									47,400.00 Meters Added									
													0500011111		-							
			PMENT EQUIP	1		Capta		ONNEL O	Ryan B	ranet		1	Offshore Site Manager:	EL ONSHORE	a Krynytzky		Time		EATHER R			Di-
# GP	S System	- Trimbl	le AG130	1	Oth		el Crew:		n/a				Ass't Off. Site Manager:		arle Hall	T W	Vx - 0600:		Sea State n/a		Wind Speed n/a	n/a
	MBES -			1		Party C			Kelly Po				Data Manager:		Chamberlain		Vx - 1200:		n/a n/a		n/a n/a	n/a n/a
	S - Edg			1		dro. Su			Katie Co				Data Processor:		dy Gibson		Vx - 1800:		n/a	$\rightarrow$	n/a	n/a
	Mag -			1			al Tech.:		Dave V	****			Data Processor:		ce Woods		Vx - 2400:		n/a		n/a	n/a
	BL - IXS			]			ey Crew:		n/a				Data Processor:		n/a			Place a		e box, w	vith brief des	cripti
	Sample			]	Clien	t Repre	sentative:		Ron Eck	hardt			Additional Proc.:		n/a		E OFFICER:			elly Pov		
Grab	Sample	er - Van	Veen	]									Client Representative:		n/a		Toolbox:	N/A			ASSESSED	
				1											- 3	Sh	hift Change:	N/A				
				]									<u>į</u>				Safety:	N/A				
																Pr	re/Post Job:	N/A				
630	1830	ow		-	-					24	DNP	Fatigue	e mangement Day									_
	1650											Fatigue	e mangement Day									
	1650											Fatigue	e mangement Day									
	1050											Fatigue	e mangement Day									
	1050											Fatigue	e mangement Day									
830	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									
	1000											Fatigue	e mangement Day									



					Fugro					
			SE	AFLOOR	MAPPING JOBLE	oc				
ver 7.22.2015-A (Alaska)										
DATE:	03-Aug-2015 Mon	Julian Day: 215	CLIENT:		AK LNG					
PROSPECT / SITE:	N	/A	JOB DESCRIPTION:		Seafloor Mapping					
NAV. SYSTEM:	Hy	pack	AREA & BLOCK:		Pipeline					_
FUGRO JOB #:	23.00007123		R/V:		Westerly					
JOB DAY #:	Day: 25		No. of SURVEY LINES:	484	653.40 Kilometers					$\neg$
CRP TO STERN:					55.5% Complete					
	9.				47,400.00 Meters Added					
GEOPHYSICAL EQU	IPMENT EQUIP#	PER	SONNEL ONBOARD		PERSONNEL	ONSHORE		WEATHER REP	ORT	
Navigation System - I	POS MV	Captain:	Ryan Braget		Offshore Site Manager:	Marta Krynytzky	Time	Sea State	Wind Speed D	Jir.

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	8
Diff. GPS System - Trimble AG130	
MBES - R2Sonic	
SSS - Edgetech 4200	
Mag SeaSpy	
USBL - IXSEA GAPS	
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K

TIME OP

	L ONBOARD	
Captain:	Ryan Braget	
Other Vessel Crew:	n/a	
Party Chief:	Kelly Power	
Hydro. Surveyor:	Katie Conrad	
Geophysical Tech.:	Dave Wise	
Other Survey Crew:	n/a	
Client Representative:	n/a	

LINE INFORMATION

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charle Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Ron Eckhardt

Time		Sea State	Wind Speed	Dir.			
Wx - 0600:		n/a	n/a	n/a			
Wx - 1200:		n/a	Light				
Wx - 1800:		n/a	Light	Var			
Wx - 2400:		n/a	n/a	n/a			
HSE OFFICER:			Power				
HSE OFFICER: Toolbox:	×	JHA-Toolbox	Power				
	X N/A		y Power				
Toolbox:			010000000000000000000000000000000000000				

TI	ME	OP	N	335			INFORM		10	04.6		DETAILED SURVEY INFORMATION
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	)	DNP	2465 GPT 01 (MM2) 1/455 GPT 01 (
	0700	MD										Morning Ops Meeting
	0810			1							1	Start Lidar system
	0818											Depart dock
	0824											Start Lidar Test on Cannery Lodge Shoreline
	0830	MD										
0830	0838 0842	MD			5						3	2nd Lidar test on Cannery Lodge Shoreline
0838	0842	MD										At Cannery Dock
0842		MD									,	Demob Lidar Laser Scanner System
1830					1							



												Fugro
											SEA	AFLOOR MAPPING JOBLOG
ver 7.22	2015-A (	Alaska)										
		DATE:	04-Aug-20	15 Tue		n Day:	216	1		CLIENT:		AK LNG
7.5577.3557.3	SPECT			L	N/A. lypack			1	JOB DESC	BLOCK:		Seafloor Mapping Pipeline
			23.00007123		iypack			1	AREA	R/V:		ripetine Westerly
		DAY #:	Day: 26	1				No	of SURVE	the property of the second of the		484 656.40 Kilometers
CF	RP TO S	TERN:	0.00 N/A	1								58.6% Complete
												50,400.00 Meters Added
GEOPH	YSICA	L EQUI	PMENT EQUIP				PERS	ONNEL O	NBOARD			PERSONNEL ONSHORE WEATHER REPORT
Naviga				1		Capta			Ryan B	raget		Offshore Site Manager: Maria Krynytzky Time Sea State Wind Speed Dir.
Diff, GP	System	- Trimb	e AG130	1	Oth	er Vess	el Crew:		n/a			Ass't Off. Site Manager: Charle Hall Wx - 0600: n/a n/a n/a
		R2Soni		7	_	Party C			Kelly P			Data Manager: Chuck Chamberlain Wx - 1200: 0.3m 5kts SW
		etech 4		4		rdro. Su			Katie Co			Data Processor: Cody Gibson Wx - 1800: 0.3m 5kts SW
		SeaSpy SEA GA		-			al Tech.:		Dave V Richie Car			Data Processor: Lance Woods Wx - 2400: n/a n/a n/a n/a  Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
		er - Day		-			ey Crew:		Kent Sin			Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description Additional Proc.: n/a HSE OFFICER: Kelly Power
		er - Van		1	Olici	trepre	Scinauve.		Nont Oil	ipavii		Client Representative: Ro Eckhardt Toolbox: X JHA-Toolbox
Orab	oumpre	7 7 011	70011	1								Shift Change:
				1								Safety: X Weekly subty meeting plus client rep received a vessel orientation
												Pre/Post Job:
TIN	AE.	OP				LIME	E INFORM	IATION				
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	_	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
0630	0730	ow	и —									Morning Ops meeting, Weekly Safety meeting
0730	0750	OW										Vessel pre start checks, Vessel Orientation for new Client Rep
0750	0930	OW										Depart Dock for Site PL04
0930 1015	1015	LT		+	-	-	_	_	_		_	SS/MAG, USBL, MBES deployed and a AML SVP conducted  Heading for line
1015	1033	OL	PL04 014	204.0°	100	137	31.0	47.0	37.0		_	MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt S/V. Vessel: 4.5 kt, Tide = 5.5m, 0.4kt slack.
1033	1041	LT		251.5	100	101	01.0	471.0	07.0			
1041	1055	OL	PL04_017	024.0°	100	137	32.0	57.0	47.0		9	MBES/SBES/SSS/MAG Seas; 0.2m Winds: 5kt SW. Vessel: 4.2 kt, Tide = 5.0m, 0.9kt EBB.
1055	1101	LT	22									
1101	1113	OL	PL04_015	204.0°	100	137	32.0	37.0	27.0		1	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW. Vessel: 4.7 kt, Tide = 4.5m, 1.6kt EBB.
1113	1122	LT OL	PL04_018	024.0°	100	137	31.0	57.0	47.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt SW, Vessel; 3.5 kt, Tide = 3.9m, 2.3kt EBB.
1141	1201	LT	FL04_010	024.0	100	137	31.0	57.0	47.0		-	WIDES/SDES/SSS/WING Seas, U.SIII WIIIUS, SKLSYV, Vessal, S.S.K., Tiue – S.SIII, Z.SKLEDB.
1201	1211	OL	PL04 022	204.0°	100	137	41.0	40.0	30.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW, Vessel: 5.0 kt. Tide = 2.8m, 3.6kt EBB.
1211	1224	LT										
1224	1258	OL	PL04_019	024.0°	100	138	31.0	47.0	37.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt S/V. Vessel: 1.7 kt, Tide = 2.1m, 4.1kt EBB.
1258	1314	LT		-								
1314	1324	OL	PL04_023	204.0°	100	137	40.0	37.0	27.0	-	7	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW. Vessel; 6.3 kt, Tide = 0.9m, 4.4kt EBB.
1324	1336	OL	PL04 020	024.0°	100	137	30.0	53.0	43.0		7)	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW. Vessel: 2.0 kt, Tide = 0.3m, 4.3kt EBB.
1407	1428	LT	1 204_020	02.1.0	100	101	50.0	55.0	40.0			The control of the co
1428	1438	OL	PL04_024	204.0°	100	137	38.0	33.0	23.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW, Vessel: 5.5 kt, Tide = -0.4m, 3.4kt EBB.
1438	1446	LT										
1446	1512	OL	PL04_021	024.0°	100	138	40.0	51.0	41.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt SW. Vessel: 2.0 kt, Tide = -0.5m, 3.0kt EBB.
1512	1530	ow		+-	-							Recover SS/MAG, MBES
1530 1700	1700 1830	OW		1								Transit to Cannery Dock Refuel Vessel
1830	1030	OW		_								Tremer vesser
		1	7									



										SEA	FUGRO		
NAV. S FUGRO JOE CRP TO	DATE: / SITE: /STEM: JOB #: DAY #: STERN:	23.00007123 Day: 26	H	NA			] No	AREA 8	CLIENT: RIPTION: BLOCK: R/V:		AK LNG Seafloor Mapping Pipeline Westerly 484  656.40 Kilometers 58.6% Complete 50,400.00 Meters Added		
			Leinin	Loop						DND	DETA	<b>NLED SURVEY</b>	INFORMATION
м то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP			TOTAL TOTAL STREET
	AM	PI 04 014		121	137								
	AM AM	PL04_017 PL04_015 PL04_018		131 131 131	137 137 137								
	AM AM	PL04_019 PL04_023		132 131	138 137								
	AM AM	PL04_024 PL04_021		131	137								
-	NAV. S' FUGRO JOB	ROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN:  TIME OP CODE  AM	DATE: 04-Aug-201 ROSPECT / SITE: NAV SYSTEM: 23.00007123 JOB DAY #: Day: 26 CRP TO STERN: 0.00 N/A  TIME OP LINE NUMBER  AM PL04_014 AM PL04_017 AM PL04_015 AM PL04_019 AM PL04_022 AM PL04_024	DATE:	DATE: 04-Aug-2015 Tue Julia ROSPECT / SITE: N/A Hypack FUGRO JOB #: 23,00007123 JOB DAY #: 0.00 N/A  TIME OP CODE LINE NUMBER HEADING BSP  LINE NUMBER HEADING BSP  AM PL04_014 131 AM PL04_017 131 AM PL04_015 131 AM PL04_015 131 AM PL04_019 132 AM PL04_019 132 AM PL04_022 131 AM PL04_020 131	DATE: 04-Aug-2015 Tue Julian Day: N/A  Hypack  FUGRO JOB #: 23,00007123  JOB DAY #: 0.00 N/A  TIME OP LINE NUMBER HEADING BSP ESP  LINE NUMBER HEADING BSP ESP  LINE NUMBER HEADING BSP ESP  AM PL04_014 131 137  AM PL04_017 131 137  AM PL04_015 131 137  AM PL04_018 131 137  AM PL04_019 132 138  AM PL04_022 131 137  AM PL04_020 131 137	DATE:   04-Aug-2015 Tue   Julian Day: 216	DATE:   04-Aug-2015 Tue	DATE:   04-Aug-2015 Tue   Julian Day: 216   N/A   JOB DESC	DATE:   D4-Aug-2015 Tue   Julian Day: 216   CLIENT:   NA   JOB DESCRIPTION:   AREA & BLOCK:   ROSPECT / SITE:   NA   SURVEY LINES:   NO. of SURVEY LINES:   No	DATE   O4-Aug-2015 Tue   Julian Day: 216   CLIENT:   NA   JOB DESCRIPTION:   AREA & BLOCK:   SURVEY LINES:   SUBJECT / SITE:   NA   AREA & BLOCK:   SURVEY LINES:   SUBJECT / SITE:   NA   AREA & BLOCK:   SURVEY LINES:   SUBJECT / SITE:   NA   SUBJECT / SITE:   SUBJECT / SUBJECT / SITE:   SUBJECT / SUBJEC	Color   Colo	DATE   DATE



										_	Fugro						
										SEA	FLOOR MAPPING JOB	LOG					
ver 7.22.2015-A (Alasi		OF A 2041	18/44	Lucia	. Dave	047	1				*****						
PROSPECT / SIT		05-Aug-2019		Juliai NA	Day:	21/	1	JOB DESC	CLIENT:		AK LNG Seafloor Mapping						
NAV. SYSTE	-			pack			1		BLOCK:		Pipeline						
		23.00007123		paon			1	AITE T	R/V:		Westerly						
JOB DAY	_	Day: 27	1				No	of SURVE	EY LINES:		484 659.70 Kilometers						
CRP TO STER	RN:	0.00 N/A									60.2% Complete						
											53,700.00 Meters Added						
GEOPHYSICAL EC	OUID	MENT				DEDS	ONNEL O	NECARD			DEDSONIA	EL ONSHORE		10/	EATHER REI	OODT	
Navigation System			1		Capta		JANEL O	Ryan B	raget		Offshore Site Manager:	Maria Krynytzky	Time	1700	Sea State	Wind Spe	ed Dir.
Diff. GPS System - Tr	-	Transfer and the second		Othe		el Crew:		n/a	-		Ass't Off, Site Manager:	Charle Hall	Wx - 0600:		n/a	n/a	n/a
MBES - R2S					Party Cl			Kelly P			Data Manager.	Chuck Chamberlain	Wx - 1200:		0.3m	10kts	S
SSS - Edgetec	ch 420	00			dro. Sur			David \			Data Processor:	Cody Gibson	Wx - 1800:		0.3m	10kts	S
Mag Seas	Spy	1 2	1 1	Geo	physica	I Tech.:		Richie Car	michael		Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
USBL - IXSEA					_	ey Crew:		n/a			Data Processor:	n/a	ISE Reporting	Place a	an "x" in the l	oox, with brief	description
Grab Sampler - [			1 1	Clien	Repre:	sentative:		Ron Eck	khardt		Additional Proc.:	n/a	HSE OFFICER:			ly Power	
Grab Sampler - \	Van V	/een									Client Representative:	Kent Simpson	Toolbox:	X	JHA-Toolbox	8	
													Shift Change:				
											l,		Safety:	X	MOB Crill, Re	eview MRA-TRA	012
				-									Pre/Post Job:				
TIME O	OP				LINE	INFORM	IATION					DETAIL ED CU	DVEV INCODMATIO				
FROM TO CO	DDE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		DETAILED SU	RVEY INFORMATION	אכ			
0630 0700 <b>O</b>											Morning Ops meeting						
	w																
	IT							1	1 1		Depart Cannery Dock for PL04						
0812 0814 CA 0814 0925 IT							1										
											PosMV Gams Calibration						
0025   0030   O	IT										PosMV Gams Calibration Resume transit to PL04						
	w										PosMV Gams Calibration Resume transit to PL04 On site						
0930 0935 0	w										PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill						
0930 0935 O	w										PosMV Gams Calibration Resume transit to PL04 On site	ation to original Gams Cal as there	e was an motition artifac	ct in the	· MBES data		
0930 0935 O1 0935 1005 O1 1005 1026 L	w	PL04_025	204.0*	100	131	43.0	81.0	71.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment			ct in the	· MBES data		
0930 0935 ON 0935 1005 ON 1005 1026 L 1026 1040 O	W W W	PL04_025	204.0*	100	131	43.0	81.0	71.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra			ct in the	MBES data		
0930 0935 00 0935 1005 00 1005 1026 L 1026 1040 0 1040 1049 L 1049 1105 0	OW OW LT OL	PL04_025 PL04_028	204.0°	100	131	43.0	81.0	71.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra	Winds, 10kt S. Vessel, 4.0 kt, Tide	e = 6.0m, 0.1kt slack.	ct in the	MBES data		
0930 0935 00 0935 1005 00 1005 1026 L 1026 1040 0 1040 1049 L 1049 1105 0 1105 1110 L	OW OW DW DW DLT DL LT DL LT DL LT	PL04_028	024.0°	100	131	37.0	44.0	34.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra MBES/SBES/SSS/MAG Seas, 0.3m MBES/SBES/SSS/MAG Seas; 0.3m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb	ct in the	· MBES data		
0930 0935 00 0935 1005 00 1005 1026 L 1026 1040 0 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 0	DW D										PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra M6ES/S6ES/SSS/MAG Seas, 0.3m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb	at in the	· MBES data		
0930 0935 01 0935 1005 01 1005 1026 L 1026 1040 0 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 0 1123 1131 L	DW D	PL04_028 PL04_026	024.0° 204.0°	100	131	37.0 42.0	44.0 72.0	34.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra MBES/SBES/SSS/MAG Seas, 0.3m MBES/SBES/SSS/MAG Seas; 0.3m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb	ct in the	· MBES data		
0930 0935 01 0935 1005 01 1005 1026 1026 1020 1040 0 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 1131 L 1131 1145 0	OW OW OW LT OL LT	PL04_028	024.0°	100	131	37.0	44.0	34.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra MBES/SBES/SSS/MAG Seas, 0.3m MBES/SBES/SSS/MAG Seas; 0.3m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb	ct in the	MBES data		
0930 0935 01 0935 1005 01 1005 1026 L 1026 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 0 1123 1131 L 1131 1145 0	OW OW DW LT DL LT	PL04_028 PL04_026 PL04_029	024.0° 204.0° 024.0°	100	131	37.0 42.0 37.0	72.0 68.0	34.0 62.0 58.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb	ct in the	MBES data		
0930 0935 01 0935 1005 01 1005 1026 L 1026 1040 1049 L 1040 1049 1105 0 1105 1110 L 1110 1123 0 1123 1131 L 1131 1145 1 1153 1203 0	DW DW LT DL	PL04_028 PL04_026	024.0° 204.0°	100	131	37.0 42.0	44.0 72.0	34.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra MBES/SBES/SSS/MAG Seas, 0.3m MBES/SBES/SSS/MAG Seas; 0.3m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb	ct in the	MBES data		
0930 0935 01 0935 1005 01 1005 1026 L 1026 1040 0 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 0 1123 1131 L 1131 1145 0 1153 1203 0 1203 1214 L	OW OW DW LT DL LT	PL04_028 PL04_026 PL04_029	024.0° 204.0° 024.0°	100	131	37.0 42.0 37.0	72.0 68.0	34.0 62.0 58.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb e = 4.3m, 2.2kt Ebb				
0930 0935 01 0935 1005 01 1005 1026 1026 1026 1040 0 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 1131 L 1131 1145 0 1145 1153 L 1153 1203 1204 L 1203 1214 L 1214 1229 0	DW DW LT DL	PL04_028 PL04_026 PL04_029 PL04_027	024.0° 204.0° 024.0° 204.0°	100 100 100	131 132 131	37.0 42.0 37.0 42.0	72.0 68.0 72.0	34.0 62.0 58.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra MBES/SBES/SSS/MAG Seas, 0.3m MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb e = 4.3m, 2.2kt Ebb				
0930 0935 01 0935 1005 01 1005 1026 1020 1020 1040 0 1040 1049 11 1049 1105 0 1105 1110 11 1110 1123 1131 11 1131 1145 0 1145 1153 12 1153 1203 0 1203 1214 11 1214 1229 0 1229 1234 11	DW D	PL04_028 PL04_026 PL04_029 PL04_027	024.0° 204.0° 024.0° 204.0°	100 100 100	131 132 131	37.0 42.0 37.0 42.0	72.0 68.0 72.0	34.0 62.0 58.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra MBES/SBES/SSS/MAG Seas, 0.3m MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb e = 4.3m, 2.2kt Ebb e = 3.8m, 2.6kt Ebb, Co				
0930 0935 01 0935 1005 01 1005 1026 L 1026 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 0 1123 1131 L 1131 1145 0 1145 1153 L 1153 1203 0 1203 1214 L 1214 1229 0 1229 1234 L 1234 1239 0 1239 1248 L	DOLLT  LT  LT  LT  LT  LT  LT  LT  LT  LT	PL04_028 PL04_026 PL04_029 PL04_027 PL04_030 PL04_033	024.0° 204.0° 024.0° 204.0° 204.0°	100 100 100 100 100	131 132 131 131 127	37.0 42.0 37.0 42.0 36.0	72.0 68.0 72.0	34.0 62.0 58.0 62.0 67.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb e = 4.3m, 2.2kt Ebb e = 3.8m, 2.6kt Ebb, Co				
0930 0935 ОТ 0935 1005 ОТ 1005 1026 Гоно 1026 Гоно 1040 1049 Г 1049 1105 ОТ 1105 1110 Г 11123 1131 Г 1131 1145 ОТ 1145 1153 Г 1203 1214 Г 1214 1229 ОТ 1234 1239 1248 Г 1234 1239 СТ 1239 1248 Г 1248 1306 ОТ	DOLLT  LT  LT  LT  LT  LT  LT  LT  LT  LT	PL04_028 PL04_026 PL04_029 PL04_027 PL04_030	024.0° 204.0° 024.0° 204.0°	100 100 100 100	131 132 131 131	37.0 42.0 37.0 42.0 36.0	72.0 68.0 72.0	34.0 62.0 58.0 62.0 67.0			PosMV Gams Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Gams calibra MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide Winds: 10kt S. Vessel: 5.3 kt, Tide Winds: 10kt S. Vessel: 5.3 kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb e = 4.3m, 2.2kt Ebb e = 3.8m, 2.6kt Ebb, Cd e = 3.4m, 2.9kt Ebb				
0930 0935 01 0935 1005 01 1005 1026 1026 1026 1040 0 1040 1049 L 1049 1105 0 1105 1110 L 1110 1123 1131 L 1131 1145 0 1145 1153 L 1153 1203 1214 L 1214 1229 0 1229 1234 L 1234 1239 0 1239 1248 L 1248 1306 0 1306 1311 L	DOLLT  LT  LT  LT  LT  LT  LT  LT  LT  LT	PL04_028 PL04_026 PL04_029 PL04_027 PL04_030 PL04_033	024.0° 204.0° 024.0° 204.0° 204.0°	100 100 100 100 100	131 132 131 131 127	37.0 42.0 37.0 42.0 36.0 42.0	72.0 68.0 72.0 77.0 53.0	34.0 62.0 58.0 62.0 67.0			PosMV Garns Calibration Resume transit to PL04 On site Man Over Board Drill Deploy survey equipment Had to change PosMV Garns calibra MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.3m MBES/SBES/SSS/MAG Seas; 0.4m	Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.0 kt, Tide Winds: 10kt S. Vessel: 4.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide Winds: 10kt S. Vessel: 5.4 kt, Tide Winds: 10kt S. Vessel: 5.3 kt, Tide Winds: 10kt S. Vessel: 5.3 kt, Tide Winds: 10kt S. Vessel: 5.7kt, Tide	e = 6.0m, 0.1kt slack. e = 5.7m, 0.4kt Ebb e = 5.3m, 1.0kt Ebb e = 4.9m, 1.6kt Ebb e = 4.3m, 2.2kt Ebb e = 3.8m, 2.6kt Ebb, Co e = 3.4m, 2.9kt Ebb				

MBES/SBES/SSS/MAG Seas; 0.3m Winds: 10kt S. Vessel: 1.7kt, Tide = 2.0m, 2.9kt Ebb

MBES/SBES/SSS/MAG Seas; 0.3m Winds: 10kt S. Vessel: 5.9kt, Tide = 1.6m, 2.7kt Ebb

MBES/SBES/SSS/MAG Seas; 0.3m Winds: 10kt S. Vessel: 5.8kt, Tide = 0.6m, 2.3kt Ebb

PL04\_032 024.0° 100 118 36.0

100 204

105

35.0

37.0

PL04\_035 204.0° 100

PL03\_Infill1 215.0°

1325 1347 OL

1502 1511 LT

1347 1353

1353 1355

1355 1431

1431 1502

LT

OL

LT

IF

80.0

38.0

32.0

70.0

28.0

22.0



	Fugro											
	SEAFLOOR MAPPING JOBLOG											
ver 7.22								e e				
		DATE:	05-Aug-2015	5 Wed	Julia	n Day:	217			CLIENT:		AK LNG
PRO	SPECT	/ SITE:			NA		_	. 9	OB DESC	RIPTION:	Ţ	Seafloor Mapping
	AV. SY	STEM:		Н	lypack				AREA 8	BLOCK:		Pipeline
F	UGRO	JOB #:	23.00007123							R/V:		Westerly
		DAY #:	Day: 27	1				No	of SURVE	Y LINES:		484 659.70 Kilometers
C			0.00 N/A	1				,,,,		Lineo.		60.2% Complete
C	r IO3	TERIN.	U.UU N/A	8								53,700.00 Meters Added
												55,700.00 Meters Aduled
TIN	1E	OP				LIN	E INFORM	IATION				DETAILED CHOVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1511	1548	IF	PL03_Infill2	035.0°	100	167	25.0	48.0	38.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 10kt S. Vessel: 2.2kt, Tide = 0.2m, 1.7kt Ebb, Conducted Usvp
1548	1605	ow										Recover Survey Gear
12.00	77											

TU	ME	OP				LINE	INFORM	ATION			
FROM		CODE	LINE NUMBER	HEADING	BSP		Fath (m)		SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
1511	1548	IF	PL03_Infill2	035.0°	100	167	25.0	48.0	38.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 10kt \$. Vessel: 2.2kt, Tide = 0.2m, 1.7kt Ebb, Conducted Usvp
1548	1605	ow									Recover Survey Gear
1605		IT	i j							9	Transit to dock
1730	1830	ow								v	At Cannery Dock
1830											
	·		s:								
			2								
$\vdash$		$\perp$									
$\vdash$		AM	PL04_025	$\vdash$	131						
		AM	PL04_028		131	137					
	-	AM	PL04_026		132						
		AM AM	PL04_029 PL04_027		131			-			
		AM	PL04_027		127						
-		AM	PL04_033		114						
		AM	PL04_031		124	130			-		
		AM	PL04_034		111						
		AM	PL04_032		118	124					
		AM	PL04_035		105						
					,						
			2								
$\Box$		$\Box$									
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$\vdash$	$\vdash$			$\vdash$							
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												Fugro							
										SEA	FLOO	R MAPPING JOBL	.OG						
ver 7.22.2015-A	(Alaska)								SERVICE .	_									
	DATE	06-Aug-201	15 Thu		n Day:	218	1		CLIENT:			AK LNG							
PROSPECT				N/A			1	JOB DESC	BLOCK:	_		Seafloor Mapping Pipeline							
NAV. S		23.00007123		lypack			J	AREA	R/V:			Westerly							
	DAY#		4				No	of SURVE		_	484	662.50 Kilometers							-
2000 to 1000000		0.00 N/A	1					. 01 001111	. i Liiteo.		101	62.6% Complete							
- 17			-									56,500.00 Meters Added							
				_								TO MICHESPEANWING RACOUSE							
Navigation Sy		IPMENT EQUIP	'n	r—	Capta		SONNEL O	Ryan B	raget		1 1	PERSONNEL Offshore Site Manager:	Maria Krynytzky	Time		WEATHER Sea State		Wind Speed	Die
Diff. GPS Syste	Name and Address of the Owner, where	AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUM	-1	Oth		el Crew:	_	n/a			1 1	Ass't Off, Site Manager:	Charle Hall	Wx - 0600:	_	n/a	е	n/a	n/a
MBES -			1		Party C			Kelly P			1 1	Data Manager.	Chuck Chamberlain	Wx - 1200;	_	0.3m		10kts	SW
SSS - Edd	_		1		dro. Su			David \			1 1	Data Processor:	Cody Gibson	Wx - 1800:		0.3m		10kts	SW
Mag	SeaSp	y	1	Geo	ophysica	al Tech.:		Richie Car	michael		1 1	Data Processor:	Lance Woods	Wx - 2400:		n/a		n/a	n/a
USBL - IX	SEA G	APS	1	Oth	er Surve	ey Crew:		n/a	1		1 1	Data Processor:	n/a	ISE Reporting	(Plac	ce an "x" in	the box,	with brief des	criptior
Grab Sampl	er - Day	y Grab	]	Clien	t Repre	sentative:		Kent Sin	npson		1 [	Additional Proc.:	n/a	HSE OFFICER:		310	Kelly P		
Grab Sampl	er - Var	n Veen	]								] [	Client Representative:	Ron Eckhardt	Toolbox:	Х	JHA-Too	olbox		
			4											Shift Change:					
			-								1 1			Safety:	X	Review	MAR-TRA	V's 012 and 013	
											J			Pre/Post Job:					
TIME	OP	L	-1-		LINE	INFORM	MATION			7917			257411 52 41	IDVEV (1) E O D I I I E					
FROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1		DETAILED SU	JRVEY INFORMAT	ON				
0630 0725	ow	9 ti								-	The second second	Ops Meeting. Vessel pre-start	t checks						
0725 0852	IT		1		_						1,000,000,000,000	dock for PL05	(AAT)						
0852 0930		-										Survey Gear, Conduct AML SV							
0930 0945 0945 1000	OL	PL05 002	030.0°	100	147	38.0	40.0	30.0		-			60 56 153 W 151 09 390, Required: 10kt S. Vessel: 5.8 kt. Tid						
1000 1013	LT	PL05_002	030.0	100	14/	38.0	40.0	30.0			MBESIS	SBES/SSS/WAG Seas; U.4m W	inds: Tokt S. Vessel: 5.8 kt, Tid	e = 5.8m, 2.3KI F1000					
1013 1035		PL05_001	210.0°	100	126	41.0	30.0	70.0			MBES/S	SBES/SSS/MAG Seas: 0.4m W	finds: 10kt S. Vossel: 2.1 kt. Tid	lo = 6.0m, 2.3kt Flood					
1035 1044	LT										holometros e								
1044 1100	OL	PL05_008	210.0°	100	119	46.0	80.0	70.0			MBES/S	SBES/SSS/MAG Seas; 0.4m W	finds: 10kt S. Vessel: 2.0 kt, Tid	le = 5.9m, 1.8kt Flood					
1100 1131	LT										Extende	ed line to maintain 1NM cpa from	ını heavy lift vessel Svenja						
1131 1142		PL05_014	030.0°	100	135	26.0	31.0	21.0			MBES/S	SBES/SSS/MAG Seas; 0.3m W	finds: 10kt S. Vessel: 5.0 kt, Tid	le = 5.5m, 1.0kt Flood					
1142 1147	LT			100	405	07.0	40.0				<u> </u>								
1147 1158 1158 1204		PL05_015	210.0°	100	125	27.0	40.0	30.0	-	-	MRESIS	SBES/SSS/MAG Seas; 0.3m vv	finds: 10kt SW. Vessel: 5.0 kt, 1	1 ide = 5.3m, 0.6kt Floo	oa, Co	onducted Us	vp		
1158 1204 1204 1211	OL	PL05 016	030.0°	100	114	27.0	32.0	22.0		_	MDES	EDESISSSIMAG Soon: A 3m W	/inds: 10kt SW. Vessel: 4.0 kt. 7	Tido = 5 0m A 3kt Eloc	ed.				
1211 1234	LT	P 205_010	000.0	100	114	27.0	32.0	22.0				ed line turn to survey lines in PL		1106 - 3.011, 0.3611101	ru				
1234 1245		PL06_007	030.0*	100	125	35.0	60.0	50.0					rinds: 10kt SW. Vessel: 4.0 kt, 7	Tide = 4.5m, 0.4kt Slad	k				
1245 1250				1.00															
1250 1256	OL	PL06_004	210.0°	100	114	43.0	56.0	46.0			MBES/S	SBES/SSS/MAG Seas; 0.3m W	finds: 10kt SW. Vessel: 4.5 kt, 7	Tide = 4.2m, 0.9kt Ebb					
1256 1321	LT									/.			ward to pass across or line pat						
1321 1333		PL06_006	030.0°	119	139	37.0	61.0	51.0			MBES/S	SBES/SSS/MAG Seas; 0.3m W	/inds: 7.0kt SW. Vessel: 3.0 kt,	Tide = 3.5m, 1.9kt Eb	)				
1333 1338		DI 00 000	040.00	100	140		70.0			7				T-1					
1338 1342		PL06_003	210.0°	100	110	44.0	70.0	60.0			MBES/S	BES/SSS/MAG Seas; 0.4m W	finds: 10.0kt SW. Vessel: 6.0 kt	, ride = 3.1m, 2.3kt El	OD				
1342 1349 1349 1403	OL	PL06_005	030.0°	100	117	38.0	71.0	61.0			MREGE	DECISSIMAC Coop 0 4- 144	/inds: 10.0kt SW. Vessel: 3.0 kt	Tide = 3 0m 2 6t4 F	h				
1403 1412		PLU6_005	030.0	100	11/	38.0	71.0	61.0			WIDES/S	DEG/GGG/WAG Seas; U.4M W	ilius. 10.0k. Sw. Vessei. 3.0 Kt	, ride = 3.0m, 2.0Kl El	,,,				
1412 1415		PL06_002	210.0°	100	107	43.0	49.0	39.0			MBES/S	SBES/SSS/MAG Seas: 0.5m W	/inds: 10.0kt SW. Vessel: 6.0 kt	. Tide = 2.5m. 3.1kt FI	b				
1415 1425		1 230_002	2.70.0	1,00	100	10.0	40.0	55.0			1		10.0m 017, 100001, 0.0 Kt	, 2.Jiii, 0, INCL					
1425 1432		PL06_001	030.0°	100	104	40.0	80.0	70.0			MBES/S	BES/SSS/MAG Seas; 0.5m W	/inds: 10.0kt SW. Vessel: 3.0 kt	t, Tide = 2.2m, 3.3kt El	b, Co	onducted Ls	vp		
1432 1453																			
1453 1500		PL06_008	210.0	100	125	41.0	50.0	40.0					finds: 10.0kt SW. Vessel: 6.0 kt	, Tide = 1.0m, 3.5kt El	ь				
1500 1705	IT										Transit 1	to Cannery Dock							

Fuel Vessel

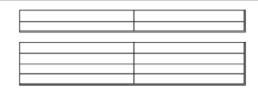
1705 1830 OW



	Fugro Seafloor Mapping Joblog													
PRO	DATE:   O6-Aug-2015 Thu   Julian Day: 218								JOB DESC AREA &	CLIENT: RIPTION: BLOCK: R/V:		AK LNG Seafleor Mapping Pipeline Westerly 484 662.50 Kilometers 62.6% Complete 56,500.00 Meters Added		
				T					I construction of the construction			DETA	ILED SURVEY INFORMATION	
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP			
1830				1										
⊢	_	_		-	-	_					_			
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⊢		_		-	-	-					_			
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$\vdash$				_										
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$\vdash$		AM	PL05_002	_	147	151				-				
		AM	PL05_001		126	130								
		AM	PL05_008		119	123								
		AM	PL05_014	1	135	139								
		AM	PL05_015		125	129								
		AM	PL05_016		114	118								
		AM	PL06_007		125	120								
		AM	PL06_004	7	114	118								
		AM	PL06_006		139	143								
		AM	PL06_003		110	114								
		AM	PL06_005		117	121								
		AM	PL06_002		107	111								
		AM	PL06_001		104	108								
<u> </u>		AM	PL06_008	-	125	129								
<u> </u>		- 7		-		_					_			
<u> </u>		_		-	-	_								
$\vdash$		_		_	-			-	-					
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$\vdash$				_	<del>                                     </del>									
				_										
				_										



## FUGRO SEAFLOOR MAPPING JOBLOG



GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	BGR503512
MBES - R2Sonic	80400000
SSS - Edgetech 4200	# 38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

1248 1252 LT

	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager.	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

	V	VEATHER REP	ORT				
Time		Sea State	Wind Speed	Dir.			
Wx - 0600:		n/a	n/a	n/a			
Wx - 1200;		0.1m	light	Var.			
Wx - 1800:		0.3m	10kts	S			
Wx - 2400:		n/a	n/a	n/a			
ISE Reporting	Place	an "x" in the b	ox, with brief desc	criptic			
HSE OFFICER:		Kell	y Power				
Toolbox:	X	JHA-Toolbox					
Shift Change:	n/a						
Safety:	X	X Review MAR-TRA-009					
Pre/Post Job:	n/a						

- L	TIN	/IE	OP	e e			LINE	INFORM	IATION	5		97 -	DETAILED SURVEY INFORMATION
[	FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SORVET INFORMATION
-[	0630		ow	1				1				3 3	Morning Ops Meeting
- 1		0900	IT		_								Depart Cannery Dock for Block PL06
- 1	_	0925	IT										Arrive at PLO6 but do not have new latest Bouy locations so will move to Block PL08 and start survey there
ļ	_	0950	ow										Surveyed Equipment deployed at PL08, AML SVP conducted, good cast
Ţ	0950	1001	LT										
ļ	1001	1010	OL	PL08_138	212.0°	100	117	14.0	18.0	8.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 3.8 kt, Tide = 3.4m, 3.4kt Flood (North Foreland TideStation)
1		1015	LT										
-	_	1021	OL	PL08_134	032.0°	100	115	17.0	18.0	8.0		9	MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 4.8 kt, Tide = 3.7m, 3.4kt Flood
1	1021	1028	LT										
ŀ	_	1038	OL	PL08_139	212.0°	100	117	14.0	18.0	8.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vesset: 3.4 kt, Tide = 3.8m, 3.3kt Flood
- 1	1038	1042	LT										
1		1048	OL	PL08_135	032.0°	100	115	16.0	18.0	8.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 4.3 kt, Tide = 4.2m, 3.2kt Flood
ŀ		1055	LT	BI 00 440	040.00			10.0				-	Language 1 and 1 a
ŀ		1103	OL	PL08_140	212.0°	100	117	13.0	18.0	8.0		,	MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 3.7 kt, Tide = 4.5m, 3.0kt Flood
1		1108	LT	DI 80 100	032.0°	400	445	45.0	100	0.0		_	MARKAGE COCCAMA C. CARA O A. W. A. SIA
ł		1115	OL LT	PL08_136	032.0	100	115	15.0	18.0	8.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt S/V. Vessel: 4.6 kt, Tide = 4.7m, 2.9kt Flood
ł	1115	1128	OL	PL08 141	212.0°	100	116	12.0	18.0	8.0		-	MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt SW. Vessel; 3.9 kt, Tide = 4.9m, 2.7kt Flood
ŀ	1128		LT	FL00_141	212.0	100	110	12.0	10.0	0.0	<del> </del>	-	MIDES/3DES/3DS/MAG Seas, U. III WIIIus. SK 577. Yessel, 3.5 K, Tide = 4.5II, 2.7K Flood
ł	1132		OL	PL08 137	032 0°	100	115	15.0	18.0	8.0		7	MBES/SBES/SSS/MAG Seas: 0.1m Winds: 5kt SW. Vessel: 3.9 kt. Tide = 5.0m, 2.6kt Flood
ŀ	1139		LT	1 200_107	002.0	100	113	10.0	10.0	0.0			mbeddebiddomwo deb, c. iii wiids. dwdw. yessel, c.o xl, ride - d.dii, e.okr rodd
ł		1150	OL	PL08 142	212.0°	100	113	12.0	18.0	8.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel; 3.9 kt, Tide = 5.2m, 2.5kt Flood
ı		1156	LT	1 200_142	212.0	100	110	12.0	10.0	0.0		-	metalogical and action of the control of the contro
1		1203	OL	PL08 129	032.0°	100	114	21.0	22.0	12.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt SW, Vessel; 4.0 kt, Tide = 5.2m, 2.3kt Flood, Conducted USVP
ı		1207	LT										
Ì	1207	1215	OL	PL08_133	212.0°	100	115	20.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt S/V. Vessel: 4.0 kt, Tide = 5.3m, 2.2kt Flood
Ì	1215	1219	LT										
Ī	1219	1227	OL	PL08_128	032.0°	100	114	22.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt S/N. Vessel: 3.8 kt, Tide = 5.4m, 2.0kt Flood
Ī	1227	1232	LT			i.	- 2	1					9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
[	1232	1238	OL	PL08_132	212.0°	100	115	22.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 4.3 kt, Tide = 5.4m, 1.9kt Flood
I	1238	1241	LT								,		
- [	1241	1248	OL	PL08_127	032.0°	100	114	23.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 4.2 kt, Tide = 5.4m, 1.7kt Flood



#### **Fugro** SEAFLOOR MAPPING JOBLOG ver 7.22.2015-A (Alaska DATE: 07-Aug-2015 Fri Julian Day: 219 CLIENT: AK LNG PROSPECT / SITE: Cook Inlet JOB DESCRIPTION: Seafloor Mapping NAV. SYSTEM: AREA & BLOCK: PL06 Hypack FUGRO JOB #: 23.00007123 NAY, DIVIDE BY: R/V Westerly 484 JOB DAY #: Day: 29 NAV. FIX DISTANCE: 50 No. of SURVEY LINES: 668.30 Kilometers SURVEY UNITS: Meters 606.000.00 CRP TO STERN: 0.00 N/A ORIGINAL JOB TOTAL: 66.2% Complete NAUTICAL MILE: 6080.0 62,300,00 Meters Added TIME LINE INFORMATION OP **DETAILED SURVEY INFORMATION** FROM TO CODE LINE NUMBER HEADING BSP ESP Fath (m) Mag (m) SSS Fish (m DNP 1252 1258 PL08 131 212.0° 100 115 23.0 32.0 22.0 MBES/SBES/SSS/MAG Seas: 0.1m Winds: 5kt SW, Vessel: 4.7 kt, Tide = 5.4m, 1.4kt Flood OL 1258 1302 LT PL08 126 032.0° 100 114 34.0 28.0 18.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt SW. Vessel: 4.4 kt, Tide = 5.3m, 1.2kt Flood 1302 1309 OL 1309 1313 LT 30.0 20.0 PL08\_130 212.0° 24.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt WSW. Vessel; 4.4 kt, Tide = 5.3m, 0.9kt Flood 1313 1319 OL 100 115 1319 1326 LT 1334 PL08\_121 032.0° 115 26.0 26.0 16.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW. Vessel: 3.6 kt, Tide = 5.3m, 0.5kt Flood 1326 OL 100 1334 1337 LT 23.0 27.0 17.0 PL08 125 212.0° 100 115 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW, Vessel: 4.7 kt, Tide = 5.2m, 0.1kt Flood 1337 1344 OL 1344 1348 LT 1348 1356 PL08 120 032.0° 100 115 26.0 32.0 22.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW. Vessel: 3.8 kt, Tide = 5.1m, 0.2kt Ebb OL 1356 1359 LT PL08 124 212.0° 28.0 18.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt WSW, Vessel; 4.5 kt, Tide = 5.0m, 0.5kt Ebb 1359 1406 OL 100 114 24.0 1406 1411 LT 1422 OL PL08\_119 032.0° 100 116 25.0 30.0 20.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW. Vessel: 3.2 kt, Tide = 4.8m, 0.9kt Ebb 1422 1425 LT PL08\_123 212.0° 1425 1430 OL 100 114 24.0 28.0 18.0 MBES/SBES/SSS/MAG Seas: 0.1m Winds: 5kt WSW. Vessel: 5.0 kt. Tide = 4.7m, 1.3kt Fbb 1430 1434 LT 1434 1445 OL PL08\_118 032.0° 100 115 25.0 30.0 20.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW. Vessel: 2.8 kt, Tide = 4.5m, 1.4kt Ebb, Conducted a JSVP 1445 1449 LT MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW. Vessel: 5.4 kt, Tide = 4.4m, 1.7kt Ebb 1448 PL08\_122 212.0° 27.0 1454 OL 100 115 24.0 17.0 1454 1501 LT 1501 1512 OL PL08\_114 032.0° 100 116 26.0 33.0 23.0 MBES/SBES/SSS/MAG Seas, 0.1m Winds, 5kt WSW, Vessel; 2.8 kt, Tide = 4.2m, 2.2kt Ebb 1512 1515 LT 1515 1520 OL PL08\_117 212.0° 100 115 27.0 30.0 20.0 MBES/SBES/SSS/MAG Seas: 0.1m Winds: 5kt WSW, Vessel: 5.3 kt, Tide = 4.0m, 2.5kt Ebb 1520 1525 LT 1525 1537 OL PL08\_113 117 26.0 35.0 25.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt WSW, Vessel; 2.9 kt, Tide = 3,8m, 2,7kt Ebb 1537 1539 LT 1539 1545 OL PL08\_116 212.0° 100 116 27.0 28.0 18.0 MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt WSW. Vessel: 5.3 kt, Tide = 3.5m,3.0kt Ebb 1545 1600 ow 1800 IT Transit To Dock, Vessel made good speed on the way back to dock took 2.25hrs this morning vs 2.0 hrs this evening. 1600 1830 ow 1800 Secure vessel 1830



												Fugro
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	****	ar or or									<b>J</b> EA	FLOOR MAPPING JOBLOG
ver 7.22	2015-A (	DATE:	07-Aug-201	5 Fri	Julia	n Dav:	219	1		CLIENT:		AK LNG
PRO	SPECT				oc Inlet		-11		JOB DESC			Seafloor Mapping
	NAV. SY				lypack				AREA &	BLOCK:		PL06
	FUGRO		23.00007123 Day: 29	Comment and	AY. DIVI		50		-f CUDV	R/V:	-	Westerly 484 668.30 Kilometers
c		DAY#:	0.00 N/A		FIX DIST				of SURVE		-	06.000.00 66.2% Complete
					AUTICAL			1				62,300.00 Meters Added
-	TIME						E INFORM	ATION				
FROM	***************************************	CODE					SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION		
			35-901-351-3-311			-	1 301 (111)	wag (m)			2.11	
		AM	PL08_138	212.0"		121						Added mileage for Run in/out
		AM	PL08_134	032.0°	115	119						Added mileage for Run in/out
		AM	PL08_139 PL08_135	212.0° 032.0°	117	121			-			Added mileage for Run in/out Added mileage for Run in/out
_		AM	PL08_133	212.0°	117	121	_		-		-	Added mileage for Run in/out
		AM	PL08_136	032.0°	115	119						Added mileage for Run in/out
		AM	PL08_141	212.0°	116	120						Added mileage for Run in/out
		AM	PL08_137	032.0°		119						Added mileage for Run in/out
		AM	PL08_142	212.0°		117	-					Added mileage for Run in/out
		AM	PL08_129 PL08_133	032.0° 212.0°		118						Added mileage for Run in/out Added mileage for Run in/out
		AM	PL08_128	032.0°		118						Added mileage for Run in/out
	9	AM	PL08_132	212.0°	115	119					3	Added mileage for Run in/out
		AM	PL08_127	032.0°		118						Added mileage for Run in/out
		AM	PL08_131 PL08_126	212.0° 032.0°		119	-		-			Added mileage for Run in/out
_	-	AM	PL08_126 PL08_130	212.0°		119	1		_		1	Added mileage for Run in/out Added mileage for Run in/out
		AM	PL08_121	032.0°		119			†			Added mileage for Run in/out
		AM	PL08_125	212.0°	115	110						Addod mileage for Run in/out
		AM	PL08_120	032.0°	115	119						Added mileage for Run in/out
_		AM	PL08_124	212.0°	114	118				-		Added mileage for Run in/out
_		AM	PL08_119 PL08_123	032.0° 212.0°	116	120						Added mileage for Run in/out Added mileage for Run in/out
		AM	PL08 118	032.0°	115	119						Added mileage for Run in/out
		AM	PL08_122	212.0°	115	119						Added mileage for Run in/out
		AM	PL08_114	032.0°	116	120						Added mileage for Run in/out
		AM	PL08_117 PL08_113	212.0° 032.0°	115	119						Added mileage for Run in/out
		AM	PL06_116	212.0	117	121			$\vdash$	1		Added mileage for Run in/out Added mileage for Run in/out
			1 200_110	E TELO	110	120						The state of the s
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			Fugro										
SEAFLOOR MAPPING JOBLOG													
PROSPECT / SITE: NAV. SYSTEM:	Hypack 23.00007123 Day: 30	CLIENT: JOB DESCRIPTION: AREA & BLOCK: RIV: No. of SURVEY LINES:	AK LNG Seafloor Mapping PL06 Westerly 484 668.30 Kilometers 66.2% Complete 62,300.00 Meters Added										
GEOPHYSICAL EQUI	IPMENT EQUIP#	PERSONNEL ONBOARD	PERSONNEL ONSHORE	WEATHER REPORT									

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BCR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	K

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

	10.75	a production of a comme	0111						
Time		Sea State	Wind Speed	Dir.					
Wx - 0600:		n/a	n/a	n/a					
Wx - 1200:		1.0m-1.5m	15-20kts	SW					
Wx - 1800:		n/a	10-15kts						
Wx - 2400:		n/a	n/a	n/a					
	(Place		ox, with brief desc	riptio					
HSE OFFICER:		Kelly	Kelly Power						
Toolbox:	×	JHA-Toolbox	Talk						
Shift Change:	N/A								
Safety:	X	Review MAR-	TRA-013 Refuelling	Vesse					
Pre/Post Job:	N/A								

	ME	OP	V— — —				INFORM			20	42	DETAILED SURVEY INFORMATION
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	
0630			7									Moming Ops meeting
	0720											Waiting on tide to rise to depart thru Kenai River
	0805		Ü.									Depart Cannery Dock
	0905											Returning to dock due to poor weather conditions. Seas 3'-5', winds 10-15 kts S
	0915											At commercial dock to take on water and hose down vessel decks
	0920	WS										At Cannery Dock
0920												Survey Equipment Maintenance
1040	1200	WS	15									Refuel vessel
1200	1830	ws										Scheduled maintenance on vessel engines conducted
1830			1									
			7									
$\vdash$				$\vdash$								
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											SEA	FLO	OR MAPPING JOBL	.OG							
ver 7.22	.2015-A							-		Series Victoria	_										
		DATE:	09-Aug-20				221	1		CLIENT:			AK LNG								
PROSPECT / SITE: Cook Inlet NAV. SYSTEM: Hypack				-	JOB DESC		-		Seafloor Mapping PL06												
	NAV. SYSTEM: Hypack FUGRO JOB #: 23.00007123						AREA & BLOCK: R/V:					Westerly									
JOB DAY #: Day: 31								No	of SURVI		-	484	669.30 Kilometers						_		
c			0.00 N/A	1				140	. OI SUKVI	LI LINES.		404	68.8% Complete								
				_									63,300.00 Meters Added								
annia management	natural letter makes	-	PMENT EQUIP		_			SONNEL O	NBOARD			_	PERSONNEL	ONSHORE	rii.	WEATHER REPORT					
			OS MV BORBOOS	73		Capta			Ryan B			l	Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed			
			le AG130 BORBOOS	12			el Crew:		n/a				Ass't Off, Site Manager;	Charlie Hall	Wx - 0600:		n/a	n/a	n/a		
		R2Son		33		Party C			Kelly P			ļ	Data Manager:	Chuck Chamberlain	Wx - 1200;		0.3m	10kts	S		
				_		/dro. Su		-	David 1			Į	Data Processor:	Cody Gibson	Wx - 1800:		1.0m	10-15kts	S		
Mag SeaSpy USBL - IXSEA GAPS						al Tech.: ey Crew:	-	Richie Car				Data Processor: Data Processor:	Lance Woods	Wx - 2400:	/DI===	n/a	n/a	n/a			
			4			sentative:	-	Kent Sir			1	Additional Proc.:	n/a n/a		(Place	THE RESERVE THE PERSON NAMED IN COLUMN 2 IS NOT THE OWNER.	x, with brief des	criptior			
Grab Sampler - Day Grab Grab Sampler - Van Veen		-	Cher	it repre	sentative.	-	Nei It Sii	libsott		1	Client Representative:	n/a	HSE OFFICER: Toolbox:	х	JHA-Toolbox	Power					
Grab	Grab Sampier - van veen		Veeli	1	-			1				1	Client Representative.	nia	Shift Change:	N/A	JHA-100IDOX				
				1								1			Safety:	X	Review MAR-TI	20.005			
										]			Pre/Post Job:	N/A	I TOTAL MIPALCE	01-000					
	-		/ Sex																		
FROM	ME TO	OP	LINE NUMBER	HEADING	BSP	ESP	E INFORM	Mag (m)	SSS Fish (m)	1	DNP	ł		DETAILED SU	JRVEY INFORMATI	ON					
0630	0700	ow			-		i dar (iii)	mag (m)			-	Mornin	g Ops meeting								
0700	0835	ws	6	1							1	Waiting	g on tide to rise to depart Kenai	River							
0835	0922	IT			2						Ĭ	Depart	Cannery Dock								
0922	1035	IT									1		to Site slower than normal as tie								
1035	1105	ow									Ĭ	Survey	Equipment deployed, AML SVF	P conducted							
1105	1109	LT																			
1100	1130	OL	PL05_009	030.0	100	168	33.0	32.0	23.0			MBES	SBES/SSS/MAG Seas; 0.1m W	linds: 5kt S. Vessel: 5.0 kt, Tide	e = 2.8m, 1.8kt Flood (I	East For	eland TideStatio	n)			
1130	1141	LT	DI OF O40	240.00	100	407	20.0	20.0	20.0	_		LADEC	ICDEC/CCC/MAC C 0.2 M	linda. Eld C. Vannali 2.2 ld. Tid.	- 0 Fm 0 4l4 Flood //		aland Tide Otatio	- )			
1141	1226 1236	OL LT	PL05_010	210.0	100	167	23.0	32.0	22.0	-		MBES	/SBES/SSS/MAG Seas; 0.2m W	inds: 5kt S. Vessel: 2.2 kt, 11de	e = 3.5m, 2.1kt Flood (1	ast For	eland i deStatio	n)			
1236	1326	OL	PL05 003	210.0	100	162	31.0	51.0	41.0		-	MRES	/SBES/SSS/MAG Seas; 0.3m W	inds:10kt S. Vessel: 2.2 kt. Tid	e = 4.5m 2.6kt Flood (	Fast Fo	reland TideStatio	n)			
1326	1331	LT	1 200_000	2.0.0	100	102	01.0	01.0	41.0		-	1	0520,000,000,000,000,000,000	mas. ront c. voscon z.z n., ric	- 4.011, 2.011 1 1000 (	Luotio	Tolaria macciano	,			
1331	1406	OL	PL05_007	030.0	100	203	39.0	42.0	32.0			MBES	SBES/SSS/MAG Seas; 0.4m W	inds: 10kt S. Vessel: 5.2 kt, Tid	e = 5.1m, 2.6kt Flood (	East Fo	reland TideStatio	in), Vessel crabbi	ng 15deg		
1406	1420	LT										1									
1420	1442	OL	PL05_013	210.0	100	144	27.0	46.0	36.0				SBES/SSS/MAG Seas; 0.5m W								
1442	1500	OW			, '						3	1	r survey Equipment as wind a sea	as inceasing. Small craft warning	g for lower inlet another	line woul	d take 11r to com	plete. Prudent to	depart area no		
1500	1710	IT	į.	ĭ	1							At Can	nery Dock								
1710	1830	ow		4	-							Į.									
1830		_		-	-	_					-										
⊢—		-		+-	-	-		_			-	ł									
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											SEA	FLOOR MAPPING JOBLOG
TO A POSSESS		DATE:	09-Aug-201	5 Sun	Julia	n Day:	221	]		CLIENT:		AK LNG
	SPECT				ok Inlet			4	JOB DESC			Seafloor Mapping
1 3	NAV. SY	STEM:	00 00007400	т н	lypack			J	AREA 8	BLOCK:	_	PL06
3		DAY #:	23.00007123 Day: 31	1				No	of SURVE	R/V:	-	Westerly 484 [669.30 Kilometers
			0.00 N/A	ł				NO	. OI SURVE	I LINES:		404 003.30 Nilinterers 68.8% Complete
"		TI EIKIN.	U.OU NA	al .								63,300.00 Meters Added
TII	ME	OP				LINE	E INFORM	MATION				
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
												1
$\vdash$		_		-		-	-	-				1
$\vdash$		_		-	-	-	_				-	1
$\vdash$		_		_	_	-	_	_			_	1
$\vdash$				_		<del>                                     </del>		_			_	1
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				-		-		_			-	4
$\vdash$				-		<del>                                     </del>		_			-	4
$\vdash$	-			$\vdash$		-	_	_	_		_	1
		AM	PL05_009	030.0°	168	172						Added mileage for Run in/out
		AM	PL05_010			171						Added mileage for Run in/out
		AM	PL05_003		162	166						Added mileage for Run in/out
		AM	PL05_007	030.0°	203	207						Added mileage for Run in/out
		AM	PL05_013	210.0°	144	148						Added mileage for Run in/out
				-			-	-				1
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				Fugro		_
		SE	AFLOOR	MAPPING JOBLOG		
ver 7.22.2015-A (Alaska)  DATE: PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN:	Hypack 23.00007123 Day: 32	CLIENT: JOB DESCRIPTION: AREA & BLOCK: R/V: No. of SURVEY LINES:	484	AK LNG Seafloor Mapping Pipeline Westerly 669.30 Kilometers 68.8% Complete 63,300.00 Meters Added		
GEOPHYSICAL EQUI	PMENT FOUR#	ERSONNEL ONBOARD		PERSONNEL ONSHORE	WFATH	ER REPORT

<b>GEOPHYSICAL EQUIPMENT</b>	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BCR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag - SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	1
	× 1

Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		n/a	20-25kts	S
Wx - 1200:		n/a	15kts	S
Wx - 1800:		n/a	10-15kts	E
Wx - 2400:		n/a	n/a	n/a
SE Reporting HSE OFFICER:	(Place	The state of the s	ox, with brief desc y Power	riptio
Toolbox:	None			
Shift Change:	N/A			

TI	ME	OP				LIN	E INFORM	MATION	77.	 ca .	Г
FROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP			SSS Fish (m)	DNP	1
0000	0030	ws									Mo
0630	0631	ws									w
0631	1100	ws									w
1100	1200	ws								-	vv
1200	1800	ws			Ĉ						w
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#### DETAILED SLIDVEY INCORMATION

Safety: No Pre/Post Job: N/A

DETAILED SURVEY INFORMATION
Morning Ops Meeting
Weather conditions are poor, 20-25kts with seas at 6'
Wind still 20kts from the south, Given transit time to and from site vessel will not sail to Survey Site today winds are 15kts from the South
Vaiting on weather





#### **F**UGRO SEAFLOOR MAPPING JOBLOG ver 7.22.2015-A (Alaska) DATE: 11-Aug-2015 Tue Julian Day: 223 / SITE: Cook Inlet CLIENT: JOB DESCRIPTION: AK LNG PROSPECT / SITE: Seafloor Mapping NAV. SYSTEM: AREA & BLOCK: Pipeline Hypack FUGROI JOB #: 23.00007123 Westerly R/V: JOB DAY #: Day: 33 CRP TO STERN: 0.00 N/A No. of SURVEY LINES: 484 669.30 Kilometers 68.8% Complete 63,300.00 Meters Added

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	BGR60227
Diff. GPS System - Trimble AG130	BGR60351
MBES - R2Sonic	BGR60363
SSS - Edgetech 4200	# 38719
Mag - SeaSpy	133804
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson
	W. C.

LINE INFORMATION

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.	
Wx - 0600:		n/a	n/a n/a		
Wx - 1200:		n/a	10kts	N	
Wx - 1800:		n/a	10kts		
Wx - 2400:		n/a	n/a	n/a	
HSE OFFICER:		Kelly	Power		
Toolbox:	×	JHA-Toolbox			
Shift Change:	N/A				
Safety:	X	Weekly Safety Meeti	ng, Fugro "I"power presentation		
Pre/Post Job:	N/A				

WEATHER REPORT

TII	ME	OP				LINE	= INFORM	IATION			
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	L
0630	0730	ow								4	٧
0730	1830	E103	1	-			1				١
1830					1						١
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#### **DETAILED SURVEY INFORMATION**

Weekly safety meeting

Vessel conducted maintanance on Stbd Main Engine



												Fugro
											SEA	AFLOOR MAPPING JOBLOG
ver 7.22	2015-A									2000		
	SPECT	DATE:	12-Aug-20		Julia ook Inlet		224	1	JOB DESC	CLIENT:	_	AK LNG Seafloor Mapping
1000000	IAV. SY				Hypack			1		BLOCK:		Pipeline
			23.0000712		Typoon			4	AILLA C	R/V:		Westerly
530		DAY#:	Day: 34	_				No	of SURVE	Y LINES:		484 671.10 Kilometers
C	RP TO S	TERN:	0.00 N/									72.5% Complete 65,100,00 Neters Added
												55, 100,00 Meters Added
			PMENT EQUI	P#	10			SONNEL O				PERSONNEL ONSHORE WEATHER REPORT
-			OS MV sonsox	273		Capta			Ryan B			Offshore Site Manager: Maria Krynytzky Time Sea State Wind Speed Dir.
CHANGE COURT			e AG130 sonso	012			el Crew:		n/a			Ass't Off. Site Manager: Charlie Hall Wx - 0600: n/a n/a n/a
		R2Soni etech 4		10		Party C		-	Kelly P			Data Manager.   Chuck Chamberlain   Wx - 1200: 0.2m   5kts N
		SeaSpy		_			al Tech.:		Richie Car			Data Processor: Lance Woods Wx - 2400: n/a n/a n/a
		SEA GA		-			ey Crew:		n/a	11110011000		Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
Grab	Sample	er - Day	Grab	1			sentative:		Kent Sin			Additional Proc.: n/a HSE OFFICER: Kelly Power
Grab	Sample	er - Van	Veen	_								Client Representative: n/a Toolbox: X JHA-Teolbox
				4								Shift Change:
				-								Safety: X SS/Mag obstruction on botton drill, Review MAR-TRA-013
				_								Pre/Post Job:
TIN		OP		25		LIN	E INFORM				207	DETAILED SURVEY INFORMATION
FROM	TO 0700	OW	LINE NUMBE	R HEADIN	G BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	P State of the Control of the Contro
0630 0700	0700	OW	G	+-	1							Morning Ops meeting  Vessel pre-start checks
0715	0740	IT		1								Depart Cannery Dock for PL05 Site
0740	0745	IT	-		1							At mouth of River
0745	0850	IT		1								Main inlet to site PL05
0850	0920	ow		-	-	_						Survey Gear deployed
0920	0942 1044	OL	PL05 006	030.0	° 100	192	36.0	78.0	68.0			MBES/SBES/SSS/MAG Seas; 0.2m Winds; 5kt SN. Vessel; 2.0 kt, Tide = 0.5m, 2.8kt Ebb (East Foreland TideStation)
1044	1044	LT	PL05_000	030.0	100	192	36.0	76.0	00.0			MDES/SDES/SSS/MO Seas, 0.211 VVIIIUS; SKL S/Y. Vessel, 2.0 kl, Tide = 0.5111, 2.6kt EUD (East Potelatio Indestation)
1049	1116	OL	PL05_005	210.0	100	181	19.0	23.0	13.0			MBES/SBES/SBS/MAG Seas, 0.1m Winds, 5kt W, Vessel; 5.5 kt, Tide = -0.1m, 1.3kt Ebb , Vessel crabbing downline
1116	1124	LT		1								Conducted drill where a large obstruction was on bottom and evasive was taken to ensure SS/MAG fish did not hit it
1124	1201	OL	PL05_004	030.0	° 100	172	33.0	58.0	48.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt W. Vessel: 2.7 kt, Tide = 0.0m, 0.3kt Ebb
1201	1208	LT	DI 05 040	030.0	0 100	455	45.0	20.0	100		-	MECONFERENCE AND Service And Window Flank W. Verschild A. H. Tide and Francisco Constituted a USVD
1208 1228	1228 1235	OL LT	PL05_012	030.0	° 100	155	15.0	26.0	16.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt NW. Vessel: 4.4 kt, Tide = 0.5m, 0.5kt Ebb, Conducted a USVP
1235	1320	OL	PL05 011	210.0	° 100	165	23.0	23.0	13.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds; 5kt NW, Vessel; 4.0 kt, Tide = 0.9m, 0.4kt Flood
1320	1338	LT			1							Extended line to head to PL07 and survey in that block area as PL05 is complete
1338	1352	OL	PL07_004	030.0	° 100	143	22.0	23.0	13.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt NW. Vessel: 5.3 kt, Tide = 2.4m, 1.9kt Flood
1352	1402	LT										
1402	1434	OL LT	PL07_003	210.0	100	132	24.0	35.0	25.0		·	MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt W. Vessel: 2.2 kt, Tide = 3.0m, 2.4kt Flood
1441	1447	OL	PL07 002	030.0	° 100	122	26.0	24.0	14.0		-	MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt W, Vessel: 6.9 kt, Tide = 4.0m, 3.1kt Flood
1447	1501	LT	1 207_002	300.0	100	122	20.0	24.0	14.0			Conducted USVP
1501	1512	OL	PL07_001	210.0	100	115	26.0	47.0	37.0			MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt W, Vessel; 2.0 kt, Tide = 4.6m, 3.3kt Flood
1512	1523	ow										Recover Survey equipment
1523	1710	IT	2	1	-	-	-					Transit to Cannery Dock
1710 1830	1830	ow	-	-	+		-					Refuel Vessel
1030		_	7	1								1
												7



												Fugro	
											SEA	AFLOOR MAPPING JOBLOG	
PR	JOB CRP TO	DATE: / SITE: /STEM: JOB #: DAY #: STERN:	23.00007123 Day: 34 0.00 N/A	Co H	Julia ok Inlet lypack			] No	AREA &	CLIENT: RIPTION: & BLOCK: R/V:		AK LNG Seafleor Mapping Pipeline Westerly  484 671.10 Kilometers 72.5% Complete 65,100.00 Meters Added	
FROM	IME TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)		SSS Fish (m)	1	DNP	DETAILED SURVEY INFORMATION	
FROM		AM AM AM AM AM	PL05_006 PL05_005 PL05_004 PL05_012 PL05_011 PL07_003 PL07_002 PL07_001	030.0° 210.0° 030.0° 210.0° 030.0° 210.0° 030.0°	192 181 172 155 165 143 132	196 185 176 159 169 147 136 126	Fath (m)	Mag (m)	SSS Fish (m)		DNP	Added Mileage for run in/out	



MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt NW. Vessel:2.5 kt, Tide = 3.3m, 2.6kt Flood ( East Foreland Tide Station)

MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt NW. Vessel:5.5 kt, Tide = 4.0m, 3.0kt Flood (East Foreland Tide Station)

MBES/SBES/SSS/MAG Seas; 0.1m Winds: 5kt NW. Vessel:5.5 kt, Tide = 4.5m, 3.3kt Flood (East Foreland Tide Station)

											_		Fugro	2.27					
	rancor -										SEA	FLO0	R MAPPING JOBL	.OG					
ver 7.22.2015-	A (Alaska) DATE:	13.0	a-201	5 The	Iulia	n Day:	225	1		CLIENT:			AK LNG						
PROSPEC		13-AU	y-201:		ok Inlet	ii Day.	225	1	OB DESC		_		Seafloor Mapping						-
	SYSTEM:				ypack			1		BLOCK:			Pipeline						
	O JOB #:	23.000	07123		/ Postorie			4	,,,,,,,,,,	R/V:			Westerly						
	B DAY #:			1				No	of SURVE			484	672.90 Kilometers						
CRP TO	STERN	0.00	N/A	1									74.9% Complete						
													66,900.00 Meters Added						
EOPHYSIC	AL EQU	IPMENT	EQUIP#		0		PERS	SONNEL O	NBOARD			91. 93	PERSONNEL	ONSHORE	2011	v	EATHER REPO	ORT	
avigation S	ystem - F	POS MV	BOR602273			Capta	in:		Ryan Br	raget		] [	Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
iff, GPS Syste			BGR603612		_	er Vesse			n/a			] [	Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		n/a	n/a	n/a
	- R2Son		BOLISONS			Party Cl			Kelly Po			1 [	Data Manager,	Chuck Chamberlain	Wx - 1200;		0.1m	Okts	NW
SSS - Ed			# 38719			dro. Sur			David V				Data Processor:	Cody Gibson	Wx - 1800:		0.2m	5kts	NW
	- SeaSp		13380A			physica			Richie Can			4 1	Data Processor:	Lance Woods	Wx - 2400:	(8.1	n/a	n/a	n/a
USBL - I			# 151			er Surve			n/a			4 1	Data Processor:	n/a		(Place		x, with brief des	cription
Grab Samp			_		Clien	t Repres	sentative:	-	Kent Sin	ipson		4 1	Additional Proc.:	n/a	HSE OFFICER:			Power	_
Grab Samp	oler - var	i veen										1	Client Representative:	n/a	Toolbox:	X N/A	JHA-Toolbox		
												d r			Shift Change: Safety:	X	Review MAR-T	'DA 006	
												1 1			Pre/Post Job:		Review MAR-1	KA-006	-
												- L			Trer ost sou.	14/2	•		
TIME	OP						INFORM				20			DETAILED S	URVEY INFORMATI	ON			
ROM TO	CODE	LINE NU	JMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP					(200)			
0700 0710	_				7	-							Ops meeting						
700 0710		+						_				-10000000000000000000000000000000000000	Pre-Start Checks to PL04						
905 0915		+			-								MBES, Conduct AML SVP, goo	od caet					
915 0925		1			-							Беркбу	INDES, CONGUCTANIC SVF. 900	AI Cast					
925 0958		PLO4 IN	NFILL1	024.0°	100	156	21.0	na	na			MBES.5	SBES only , infill line						
068 1130		_		-		100	20		7.16			Move to							
130 1140	_											Deploy	Towfish						
140 1210	LT																		
210 1228		PL06	011	030.0	100	126	33.0	66.0	56.0			-	BES/SSS/MAG Seas, 0.1m Wi	inds. 0kt NW. Vessel. 2.0 kt, 7	Γide = -0.1m, 1.7kt Ebb	(East F	oreland Tide St	ation)	
229 1236	_											7000000	ted a USVP						
236 1244		PL06_	A800	210.0°	100	124	38.0	37.0	27.0			MBES/S	SBES/SSS/MAG Seas; 0.1m W	inds: 0kt NW. Vessel: 6.0 kt, 7	Fide = 0.2m, 0.9kt Ebb (	East Fo	oreland Tide Sta	ition)	
244 1253		DICC	240	000.00							-								
253 1306		PL06	_012	030.0°	100	126	35.0	77.0	67.0			MBES/S	SBES/SSS/MAG Seas; 0.1m W	inds: Okt NW, Vessel:3.8 kt, T	ide = 0.5m, 0.3kt Ebb (	East Fo	oreland Tide Stat	tion)	
306 1312		DLCC	000	210.00	400	400	20.0	24.0	54.0			MDEC#	CEECICECIMA C Coos: C 4- W	Ender Okt NIAI Managina City T	ido = 0.0m 0.3M Florid	/ East F	araland Tid- C	ation\	
312 132	_	PL06	_009	210,0°	100	123	39.0	61.0	51.0			WIBES/S	SBES/SSS/MAG Seas; 0.1m W	ings, okt ivvv. vessei:3,8 kt, 1	ide – 0.8m, 0.3kt Flood	( East F	-oreland ride St	auori)	
321 1327 327 1337	_	PL06	013	030.0°	100	129	35.0	65.0	55.0			MRESS	SBESISSIMAG Sage: 0.1m M	inde: Olt NM Vappal 4 4 T	ide = 1 2m 0 6kt Flood	/ East 5	Foreland Tide St	ation)	
337 1344		FL00	013	0.00.0	100	128	35.0	05.0	55.0			WIDES/S	SBES/SSS/MAG Seas; 0.1m W	IIIUS. UKL INVV. VESSEL.4.4 KL, I	1.2111, U.OKI F1000	/ East F	oreignu ride St	auori)	
344 1355		PL06	010	210.0°	100	125	41.0	69.0	59.0			MBES/S	SBES/SSS/MAG Seas; 0.1m W	inds: Okt NW. Vessel:4.2 kt T	ide = 1.6m. 1.2kt Flood	(East F	oreland Tide St	ation)	
355 1404	_	, 250		210.0	100	120	71.0	00.0	00.0			1	Jacobson No Couc, V. IIII W	meet and there recover the Mil. I	na nom, nem nood	( Luci )	J. C. G. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
404 1422		PL06	016	030.0°	100	157	36.0	48.0	38.0			MBES/S	SBES/SSS/MAG Seas: 0.1m W	inds: 5kt NW. Vessel:5.1 kt. T	ide = 2.1m. 1.8kt Flood	(East F	Foreland Tide St	ation)	
1422 1443		1	_4.44									1				· marks			

Recover survey equipment

Transit to Cannery Dock

Secure vessel

PL06\_014 | 210.0° | 100 | 131

PL06\_015 030.0° 100 136

PL06\_024 030.0° 100 170

39.0

37.0

29.0

81.0

37.0

29.0

71.0

27.0

19.0

1443 1504 OL

1510 1521 OL

LT

LT

OL

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1504 1510

1521 1528

1528 1547

1547 1600

1810 1830

1600 1810 IT

1830



										_	Fugro
										SEA	AFLOOR MAPPING JOBLOG
AV. SY UGRO	DATE: SITE: STEM: JOB #: DAY #:	23.00007123 Day: 35	Co H	ok Inlet		225	1	AREA 8	CLIENT: RIPTION: BLOCK: R/V:		AK LNG Seaftcor Mapping Pipeline Westerly 484
											66,900.00 Meters Added
	OP	1005 110050	Leanus	Loop						DND	DETAILED SURVEY INFORMATION
то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	
	AM AM AM AM AM AM AM	PL06_012 PL06_009 PL06_013 PL06_010 PL06_016 PL06_014 PL06_015	030.0° 210.0° 030.0° 210.0° 030.0° 210.0°	124 126 123 129 125 157 131 136	130 128 130 127 133 129 161 135 140 174						Added Mileage for Run in/out  Do not include as it was previousily ran Added Mileage for Run in/out
2	IAV. SY UGRO JOB RP TO S	AM	DATE: 13-Aug-201  SPECT / SITE: 14AV. SYSTEM: 23.00007123  JOB DAY #: Day: 35  RP TO STERN: 0.00 N/A  AM PL06_011  PL06_012  AM PL06_012  AM PL06_013  AM PL06_014  AM PL06_014  AM PL06_015	DATE: 13-Aug-2015 Thu SPECT / SITE: Co IAV. SYSTEM: H IQRO JOB #: 23.00007123  JOB DAY #: Day: 35  RP TO STERN: 0.00 N/A  AM PL06_011 030.0° PL06_008A 210.0° AM PL06_012 030.0° AM PL06_013 030.0° AM PL06_010 210.0° AM PL06_010 30.0° AM PL06_010 210.0° AM PL06_010 30.0°	DATE: 13-Aug-2015 Thu Julia Cook Inlot Inl	DATE: 13-Aug-2015 Thu Julian Day: Cook Inlot Hypack Hypack UGRO JOB #: 23,00007123 Day: 35 Da	DATE: 13-Aug-2015 Thu Julian Day: 225   Cook Inlot	DATE: 13-Aug-2015 Thu Julian Day: 225   Cook Inlot	DATE: Cook Inlot	13-Aug-2015 Thu	AM



													Fugro						
											SEA	FLOC	R MAPPING JOBL	.OG					
ver 7.22	2015-A	Alaska) DATE:	14-Aug-20	15 EH	Iulia	n Dave	226	1		CLIENT:			AK LNG						
PRO	SPECT		14-Aug-20		oc Inlet		. 220	1 .	JOB DESC				Seafloor Mapping						
10000000	NAV. SY				lypack			1		BLOCK:			Pipeline						
F	UGROI	JOB #:	23.0000712					t.		R/V:			Westerly						
590		DAY#:	Day: 36	1				No	of SURVE	Y LINES:		484	673.30 Kilometers						
C	RP TO S	TERN:	0.00 N/A	_									76.7% Complete						
													67,300.00 Meters Added						
			PMENT EQUIP		AN			SONNEL O					PERSONNEL	ONSHORE	1	v	VEATHER RE	PORT	
			OS MV BORBOS	73		Capta	111111111111111111111111111111111111111		John Va	1000000			Offshore Site Manager:	Marla Krynytzky	Time		Sea State	Wind Spee	
			e AG130 Bonson	12			el Crew:		n/a				Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		n/a	n/a	n/a
	MBES -	_		22		Party C			Kelly P				Data Manager:	Chuck Chamberlain	Wx - 1200;		0.6m	5-10kts	SW
	S - Edg Mag S			_			irveyor: al Tech.:		Richie Car				Data Processor:	Cody Gibson Lance Woods	Wx - 1800: Wx - 2400:		n/a n/a	10kts n/a	SW n/a
	BL - IX			-			ey Crew:	<u> </u>	n/a			1	Data Processor:	n/a		Place		box, with brief d	
	Sample			1			sentative:		Kent Sin			1 1	Additional Proc.:	n/a	HSE OFFICER:	iuco		ly Power	CSCTIPATO
	Sample			1	-				1.0111.011			1 1	Client Representative:	n/a	Toolbox:	X	JHA-Toolbo		
															Shift Change:				
															Safety:	X	Review MAR-TI	RA-013, 1 HOC card f	or a safe act
_												ļ			Pre/Post Job:				
TII	ME	OP				LINE	E INFORM	MATION											
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	_		SSS Fish (m)		DNP			DETAILED SU	RVEY INFORMATION	ON			
0630	0700	ow	il .										g Ops meeting						
0700	0905	IT	S .	+		-							Cannery Dock for PL06						
0905	0930	ow		+	-	-	_						survey Equipment, Conduct an						
0930 0942	0942 1147	OL.	PL06 017	030.0°	100	211	37.0	81.0	71.0		7		t is very strong today, expected SBES/SSS/MAG Seas; 0.6m W			/ North	Foreland Tide	Station) Conduc	ted usun online
1147	1203	LT	PLUG_017	030.0	100	211	37.0	01.0	71.0			IVIDE3/	SES/SSS/WAG Seas, U.UIII VV	illos. Tokt Svv. Vessel. 1.9 kt, 1	ide = 4.011, 3.0kt EDD	( IVOID	roleiais Tide	Station), Conduc	ned dsvp offille
1203	1236	OL	PL06_019	210.0°	100	220	27.0	28.0	18.0			MBES/S	SBES/SSS/MAG Seas; 0.6m W	inds: 10kt SW. Vossel: 6.6 kt, 7	ido = 0.2m, 4.2kt Ebb	( North	Foreland Tide	Station)	
1236	1245	LT	4	ļ.	7						ii .	1							
1245	1300	OW	23										er survey equipment						
1300	1500	IT		1		-							to Dock						
1500	1640	ow		+	-	-	-					Fuel Ve	essel d Vessel						
1640 1830	1830	OW		+	-	-	_					Secure	d Vessel						
1000				1		-						1							
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												Fugro
											SEA	FLOOR MAPPING JOBLOG
PRO	JOB	DATE: / SITE: /STEM: JOB #: DAY #:	23.00007123 Day: 36 0.00 N/A	Н	Julia ok Inlet ypack	n Day:	226	]	AREA &	CLIENT: RIPTION: BLOCK: R/V:		## AK LNG   Seafloor Mapping
	ME	OP					E INFORM			Es .	100	DETAILED SURVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SORVET INFORMATION
		AM AM	PL06_017 PL06_018			215 224						Added Mileage for Run in/out Added Mileage for Run in/out



				Fugro	
		S	AFLOOR	MAPPING JOBLOG	
ver 7.22.2015-A (Alaska) DATE: PROSPECT / SITE: NAV. SYSTEM:	Cook Inlet Hypack	JOB DESCRIPTION: AREA & BLOCK:		AK LNG Seafloor Mapping Pipelline	
FUGRO JOB #: JOB DAY #: CRP TO STERN:	Day: 37	R/V: No. of SURVEY LINES:	484	Westerly 673.30 Kilometers 76.7% Complete 67,300.00 Meters Added	

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BGR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	X

Captain:	John Valikonis
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.			
Wx - 0600:		n/a	n/a				
Wx - 1200:		n/a	n/a	n/a			
Wx - 1800:		n/a	n/a	n/a			
Wx - 2400:		n/a	n/a	n/a			
HSE OFFICER:	i idoc c		ox, with brief desc y Power	- III			
Toolbox:	No	Kelly	Power				
The second second second							
Shift Change:	N/A						
0.4.							
Safety:	No						

TIN	ME	ÖP				LINE	E INFORM	MATION		 	Г
FROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)		SSS Fish (m)	DNP	
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#### **DETAILED SURVEY INFORMATION**

atigue Management Day, No operations





#### **F**UGRO SEAFLOOR MAPPING JOBLOG ver 7.22.2015-A (Alaska) DATE: 16-Aug-2015 Sun Julian Day: 228 CLIENT: JOB DESCRIPTION: AK LNG PROSPECT / SITE: Seafloor Mapping Cook Inlet NAV. SYSTEM: AREA & BLOCK: Pipeline FUGRO JOB #: 23.00007123 Westerly R/V: JOB DAY #: Day: 38 CRP TO STERN: 0.00 N/A No. of SURVEY LINES: 484 673.30 Kilometers 76.7% Complete 67,300.00 Meters Added WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR60227
Diff. GPS System - Trimble AG130	BGR(60351)
MBES - R2Sonic	BOR60363
SSS - Edgetech 4200	#38719
Mag SeaSpy	133804
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	×

OP

NEL ONBOARD
John Valikonis
n/a
Kelly Power
David Wise
Richie Carmichael
n/a
Kent Simpson

LINE INFORMATION

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

	WEATHER RELOID											
Time		Sea State	Wind Speed	Dir.								
Wx - 0600:		n/a	n/a	n/a								
Wx - 1200:		n/a	n/a	n/a								
Wx - 1800:		n/a	n/a	n/a								
Wx - 2400:		n/a	n/a	n/a								
SE Reporting	(Place	an "x" in the b	ox, with brief desc	ripti								
HSE OFFICER:		Kelly	Power									
Toolbox:	No											
Shift Change:	N/A											
Safety:	No											
Pre/Post Job:	No											

FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	
0630	1830	ow									Fatigue N
1830										ì	
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DETAILED SURVEY INFORMATION
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Fatigue Management Day



										SEA	Fugro Afloor Mapping Joblog
FUGRO	DATE: YSTEM: JOB #: DAY #:	23.000071: Day: 39	23	n Julia ook Inlet Hypack		: 229	1	JOB DESC! AREA &	CLIENT: RIPTION: BLOCK: R/V:		## AK LNG   Seafloor Mapping
CEOPHYSIC	N FOU	DMENT sou		_		DED	SONNEL C	NEOVED			PERSONNEL ONSHORE WEATHER REPORT
Navigation Sy			2273		Capta		JOHNEL	John Vali	ikonis		Offshore Site Manager: Maria Krynytzky Time Sea State Wind Speed Dir.
Diff. GPS Syste			3612	Oth		el Crew:		Ezrah Sch	raven		Ass't Off, Site Manager: Charlie Hall Wx - 0600: n/a n/a n/a
MBES	R2Son	ic some	9933		Party C	Chief:		Kelly Po	ower		Data Manager: Chuck Chamberlain Wx - 1200: 0.6m 10kts NE
SSS - Ed	getech 4	200 # 38	19	H	ydro. St	ırveyor:		David V	Vise		Data Processor: Cody Gibson Wx - 1800: 1.0m 10-15kts NE
Mag	SeaSpy	/ 1338	0A	Ge	ophysic	al Tech.:		Richie Carr	michael		Data Processor: Lance Woods Wx - 2400: n/a n/a n/a
USBL - IX			51			ey Crew:		n/a			Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
Grab Samp			_	Clier	nt Repre	esentative:		n/a			Additional Proc.: n/a HSE OFFICER: Kelly Power
Grab Samp	ler - Var	Veen									Client Representative: Kent Simpson Toolbox: X JHA-Toolbox
			┥ .								Shift Change: N/A
			┥ .								Safety: X Vessel ofentation for Ezzah, Review TRA-MAR-012
											Pre/Post Job: No
TIME	OP	T .			LIN	E INFORM	MATION				
FROM TO	CODE	LINE NUMBE	R HEADIN	ig BSP	ESP	_		SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
0630 0700	ow				1	T dur (III)	wag (m)	Too Chan (m)		D.111	Morning Ops Meeting
0700 0720		Si .		1	_						Vessel pre-start checks, vessel orientation for Ezrah
0720 0925	IT	-									Depart Cannery Dock for survey sites
0925 0935	ow										Deploy MBES, Conduct AML SVP
0935 0945		Ĩ.									00 5 7 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0945 0947		Sandwave_Tes	101 209.0	° 100	108		n/a	n/a			MBES/SBES only line
0047 1010	-					-					POS MV lost differential, POS MV was roset
1010 1013	_	sandwave_Tes	102 029.0	100	109	-	n/a	n/a			MBES/SBES only line
1013 1022		-		100	400	-	-1-	-1-			MPFO/OPFO colo libro
1022 1023 1023 1030		Sarxiwave_tes	103 209,0	100	109	+	n/a	n/a			MBES/SBES only line
1030 1030	-	Sandwave_tes	104 209.0	100	108	+	n/a	n/a			MBES/SBES only line
1030 1033		Sairiwave_tes	209.0	100	100	_	11/4	11/d			Recover MBES, Transit to PL06
1100 1120			_	+	_	_	_	+			Survey equipment deployed
1120 1131	LT			+	$\vdash$			+			Current very strong and expected to peak at 4.5kls arounf 1pm
1131 1405		PL06_019	030.0	° 100	215	36.0	68.0	58.0			MBES/SBES/SSS/MAG Seas; 0.6m W/inds: 10kt NE. Vessel: 1.5 kt, Tide = 3.8m, 3.5kt Ebb ( North Foreland Tide Station), Conducted USVP
1405 1411	LT										
1411 1439	OL	PL06_020	210.0	100	210	25.0	27.0	17.0			MBES/SBES/SSS/MAG Seas; 0.6m Winds: 10kt NE. Vessel: 6.8 kt, Tide = 0.2m, 3.4kt Ebb ( North Foreland Tide Station),
1439 1446									ji		
1446 1502		PL06_02	030.0	100	118	32.0	47.0	37.0		DNP	
1502 1520			-	-	-	_	_				Seas and winds increased while online. Aborted line due to weather. Recover survey equipment
1520 1745 1745 1830			1	+	-	-	-				Transit to Cannery Dock Alongside Dock
1830	WS		+	+	+	_	_	+			Annifold Dock
1000	1	- Pr	+	+	+	<del>                                     </del>	<del>                                     </del>	+ -		<u> </u>	1
	+		+	+	+						1
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												Fugro	
											SEA	FLOOR MAPPING JOBLOG	
in etses	SPECT	DATE:	17-Aug-201	5 Mon	Julia ok Inlet	n Day:	229		JOB DESC	CLIENT:		AK LNG Seafloor Mapping	
	NAV. SY	STEM:		Н	ypack					BLOCK:		Pipeline	
	FUGRO	JOB #:	23.00007123	1				TA		R/V:	-	Westerly	
		DAY#:	Day: 39 0.00 N/A	1				No	. of SURVE	Y LINES:		484 673.70 Kilometers 78.3% Complete	
		JI LIKIN.	U.UU INIA	B								67,700.00 Meters Added	
							E INIEGO	471011					
FROM	ME TO	CODE	LINE NUMBER	HEADING	BSP	ESP	E INFORM		SSS Fish (m)		DNP	DETAILED SURVEY INFOR	MATION
7.710					501	201	1 dur (m)	wag (m)	CCC T IST (III)		Divi		
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		AM	PL06_019									Added mileage for Run in/out	
		AM	PL06_020									Added mileage for Run in/out	
$\vdash$		-	PL06_021	030.0	118	120	-		_			Added mileage for Run in/out	
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											SEA	FLOOR	MAPPING JOBL	.OG					
ver 7.22	2015-A	100						1		esse um									
	SPECT	DATE:	18-Aug-2	015 I	Cook In		: 230	4	JOB DESC	CLIENT:			AK LNG Seafloor Mapping						
7.550.000	NAV. SY				Hypac	-		1		BLOCK:	_		Pipeline						
			23.000071	23	пурас	`		1	AREA	R/V:			Westerly						
		DAY #:	Day: 40					No	of SURVE			484	674.30 Kilometers						
C			0.00 N										80.5% Complete						
													68,300.00 Meters Added						
																		_	
-	natural letter market	-	OS MV some	1P#	_	Cap		SONNEL O	John Val	ikonie			PERSONNEL Offshore Site Manager:	THE PERSON NAMED IN COLUMN NAM	<b>—</b>	10	WEATHER REPOR		Di-
			e AG130 sons	2273	-		sel Crew:	+	n/a			l –	Ass't Off. Site Manager:	Marta Krynytzky Charlie Hall	Time Wx - 0600:	1	Sea State	Wind Speed	Dir.
	MBES -			20030	1	Party		_	Kelly P			l ⊢	Data Manager.	Chuck Chamberlain	Wx - 1200:		0.6m	10kts	S
	S - Edg	_		719			urveyor:		David \			l –	Data Processor:	Cody Gibson	Wx - 1800:		1.0m	15kts	w
	Mag						cal Tech.:		Richie Car			1 -	Data Processor:	Lance Woods	Wx - 2400:	_	n/a	n/a	n/a
	BL - IX						vey Crew:	1	n/a			1 -	Data Processor:	n/a			an "x" in the box		
	Sample						esentative:		Kent Sin			1	Additional Proc.:	n/a	HSE OFFICE		Kelly P		
Grab	Sample	er - Van	Veen	_						a rate at		1	Client Representative:	n/a	Toolbo	-	JHS-Toolbox		
															Shift Chang	: N/A			
															Safet	: Yes	Fire Drll Exercise	Review MAR	TRA-013
															Pre/Post Jo	n: No			
	ИE					- 118	E INFORM	AATION											
FROM	TO	OP	LINE NUMBI	R HEA	DING BSI	_	-	Mag (m)	SSS Fish (m)		DNP	1		DETAILE	SURVEY INFORMA	TION			
0630	0730	ow	J									Morning C	ps meeting						
0730	0800	OW	6										afety Meeting, vessel visit by						
0800	1000	IT	2										annery Dock for Survey Site P						
1000	1025	OW		4	_							Deploy Si	irvey Equipment, Conducted	AML SVP					
1025	1033	LT																	
1033	1105	OL	PL06_021	A 210	0.0° 10	204	29.0	33.0	23.0			MBES/SB	ES/SSS/MAG Seas; 0.6m W	inds: 10kt SW. Vessel: 4.7	kt, Tide = 5.8m, 0.4kt El	b (Norti	h Foreland Tide Sta	tion)	
1105	1110	OL	PL06 02	2 030	0.0° 10	198	35.0	75.0	65.0			MDEGICO	ES/SSS/MAG Seas; 0.6m W	Inde: 40kt C Vacant: 2.4 k	Tido = E 1 m 1 7kt Ehh	/ North E	eroland Tida Ctatio		
1213	1217	LT	PL00_02	2 030	0.0 10	190	35.0	75.0	65.0			INDESISE	ES/SSS/IVIAG Seas, 0.0111 VV	mos. Tukt 5. Vessel, 5.4 k	, ride = 5.1m, 1.7kt Ebb	( NOTHER	oleiand lide Static	in)	
1217	1220	OW	PL06 02	3 210	0.0° 10	122	31.0	29.0	19.0		DNP	MBE3/3B	E3/333/MAG Seas, 0.6111 W	inds. 10kt S. Vessel, 6.0 k	. Tide = 3.5m. 3.5kt Ebb	( North F	Foreland Tide Statio	m) Line aborte	
1220	1240	LT				1							ne due to strong current, sea			Carried House		.,	
1240	1401	OL	PL06 023	A 030	0.0* 10	191	32.0	65.0	55.0		-		ES/SSS/MAG Seas; 0.6m W					n), Conducted	Usvp
1401	1415	OW											survey equipment						
1415	1509	IT										Transit to	TM05						
1509	1521	OW	ā										BES and conduct USVP						
1521	1522	OW	Boulder_test	01 214	4.0° 10	107	21.0	na	na			MBES On	ly test/infill line						
1522	1525	LT		_		_													
1525	1527	ow	boulder_test	02 03	4.0° 10	106	22.0	na	na				y test/infill line						
1527	1535 1545	OW		-	_		_	1	_			Recover I Fire Drill	MBES						
1535 1545	1650	IT		_	_	+-	+	_				At dock.							
1650	1930	OW	2	_	-	_		_				ti i de la companya d	eling completed						
1930	1930	OW	4		-	_	1					vesser rue	anny completed						
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											S	Fugro Floor Mapping Joblog	
P	JOB CRP TO	DATE: / SITE: YSTEM: JOB #: DAY #: STERN:	23.00007123 Day: 40 0.00 N/A	Н	Julia ox Inlet lypack			] No	AREA &	CLIENT: RIPTION: BLOCK: R/V:		AK LNG  Soafloor Mapping Pipeline Westerly  484	
FRO	TIME M TO	OP CODE	LINE NUMBER	HEADING	pep		Fath (m)		eee Eich (m)	1	DNP	DETAILED SURVEY INFORMATION	ON .
		AM	PL06_021A	210.00	204							Added mileage for Run in/out	
		AM	PL06_022 PL06_023 PL06_023A	030.0° 210.0°	198	202 000						Added mileage for Run in/out Do not use Added mileage for Run in/out	



	-																	
												Fugro						
										SEA	FLOO	R MAPPING JOBL	.OG					
rer 7.22.2015-A (Alask		2047	187-4	Luffe	n Dave	224	1					AKTHO						
PROSPECT / SIT		ug-2015		ok Inlet	n Day:	231	1	JOB DESC	CLIENT:	-		AK LNG Seafloor Mapping						
NAV. SYSTE	_			ypack			1		BLOCK:			Pipeline						
FUGRO JOB		0007123		ypaon			1	AILLA	R/V:			Westerly						
JOB DAY		ay: 41					No	of SURVE			484	675.30 Kilometers						
CRP TO STER												83.6% Complete						
			7.									69,300.00 Meters Added						
EOPHYSICAL EG	UIPMEN	T EQUIP#		-80		PERS	SONNEL O	NBOARD			au ug	PERSONNEI	ONSHORE		W	EATHER REPO	RT	
avigation System	- POS M	V 80R602273			Capta	in:		John Val	ikonis		] [	Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
ff, GPS System - Tri		30 BGR603812				el Crew:		n/a			] [	Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:		n/a	n/a	n/a
MBES - R2S		80460000			Party C			Kelly P			] [	Data Manager:	Chuck Chamberlain	Wx - 1200;		0.3m	5kts	E
SSS - Edgetech		# 38719			dro. Su			David \			Į [	Data Processor:	Cody Gibson	Wx - 1800:		n/a	5kts	E
Mag SeaS		13380A				al Tech.:		Richie Car			1 [	Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
USBL - IXSEA		# 151				ey Crew:		n/a			1 -	Data Processor:	n/a		Place		x, with brief des	criptic
Grab Sampler - D		+		Clien	Repre	sentative:		Kent Sin	ipson		1	Additional Proc.:	n/a	HSE OFFICER:	**		Power	
Grab Sampler - V	an veen			-								Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
		+	1	$\vdash$							1 г			Shift Change:	N/A X	Daview MAD T	240 1 200 40	
		+		$\vdash$							<del>∥</del> . ⊦			Safety: Pre/Post Job:	None	Review MAR-11	RA-006 and 013	
	253		1								J			Preseded.	None			
	TO CODE LINE NUMBER HEADING BSP ESP						MATION			DND			DETAILED SU	RVEY INFORMATION	ON			
10.11		NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	Morning	ops Meeting	U. 1967 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
700 0710 OV					_							rt checks						
710 0820 IT												Cannery Dock for PL07						
820 0835 <b>OV</b>		The state of the s		-								Deploy MBES, conduct AML	SVP					
835 0840 OV	N										1							
840 0842 <b>OV</b>	N boulde	r_test_01b	034.0°	100	106						MBES o	only line						
842 0845 LT											1							
845 0847 <b>OV</b>		r_test_01c	214.0°	100	106					,	MBES o							
847 0856 <b>OV</b>												RECOVERED						
856 1005 IT											Transit t							
005 1028 <b>OV</b>											BOTH STREET, SOLE	Survey Equipment			1900d n		2.3.3	
028 1114 OI		07_011	210.0°	100	239	33.0	52.0	42.0					finds: 10kt NW. Vessel: 4.5 kt, T	ide = 6.0m, 0.8kt Floo	d ( Nort	h Foreland Tide	Station)	
114 1119 LT		07 010	030.00	100	100	25.0	25.0	25.0		-		TAT 1035 AT SP 116	lade: Ett NAL Vessel: 2 Ct. T.	do = 5 2m 0.7kt Fbb	Conduc	tod a 110\/D		
119 1213 OI	_	07_010	030.0°	100	168	25.0	35.0	25.0			MBES/S	DED/000/MAG Seas; 0.3m W	finds: 5kt NW, Vessel: 2.6 kt, Ti	de = 5.3m, 0.7kt Ebb,	Londuc	ted a USVP		
213 1221 L1 221 1238 OI		07 009	210.0°	100	166	23.0	25.0	15.0			MRES/S	SRES/SSS/MAG Seas: 0.3m M	finds; 5kt E Vessel; 6.0 kt. Tide	= 4 1m 2 4kt Ehh				
1238 1246 LT		vi_000	210,0	100	100	20.0	20.0	10.0			WIDES/S	POLOGOGINA GOGS, V.SIII VV	HIGH OUT F ADDOCT O'N KE' LIGG	- 7. IIII, 6.7NI CVD				
1246 1406 OI		07 008	030.0°	100	168	25.0	34.0	24.0			MBES/S	SBES/SSS/MAG Seas: 0.3m W	inds: 5kt E Vessel: 2.0 kt, Tide	= 3.6m. 3.1kt Ebb				
406 1411 LT			500.5	100	100	20.0	94.0	64.0				irrent of 4.1kts at 1406	Tooon Ele M, Hee	5.5/m 5/m 650				
411 1429 OI		07 007	210.0°	100	167	21.0	20.0	10.0					inds: 5kt NE. Vessel: 5.7 kt, Tid	e = 1.8m, 4.0kt Ebb. V	essel c	rabbing downline	e,Conducted Usv	p
429 1445 OV											- 100 HO 100 CO	Equipment recovered	CONTRACTOR IN CO	sara letimaco Marculata Ofici	0285599	ASC 4 (1901 SIG 1974 - CHESTO MAN		700
445 1630 IT												to dock to refuel vessel						
630 1730 <b>OV</b>	N	· ·											patteries in USVP, check over S	S fish cables, fins				
730 1830 <b>OV</b>	N										Fuel ves	ssel						
830	100										]							
	- 1 - 2										1							
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Fugro Seafloor Mapping Joblog												
PRO	NAV. SY FUGRO JOB RP TO S	DATE: / SITE: /STEM: JOB #: DAY #: STERN:	Hypack 23.00007123 Day: 41 0.00 N/A					CLIENT: JOB DESCRIPTION: AREA & BLOCK: RIV: No. of SURVEY LINES:				## AK LNG   Seafloor Mapping   Pipeline
		CODE	LINE NUMBER HEADING BSP ESP Fath (m)				Mag (m)   SSS Fish (m)   DNP				DETAILED SURVEY INFORMATION	
FROM		AM AM AM AM	PL07_011 PL07_010 PL07_009 PL07_009	210.0° 030.0°	239 168 166 168		Fath (m)	Mag (m)	SSS Fish (m)			Added mileage for Run in/out



											Fugro						
										SEA	FUGRO FLOOR <b>M</b> APPING <b>J</b> OBI	00					
er 7.22.2015-A	Alestes									JEA	FLOOR INTAPPING JOBI	-06					
er 7.22.2015-A		20-Aug-20	15 Thu	Julia	n Dav:	232	1		CLIENT:		AK LNG						
PROSPECT		zo-Aug-zo		ook Inlet	. Day.	202	1 .	OB DESC			Seafloor Mapping						
NAV. SY	STEM:		H	lypack			1	AREA 8	BLOCK:		Pipeline				•		
<b>FUGRO</b>	JOB #:	23.0000712	3				50		R/V:	-:	Westerly						
JOB	DAY #:	Day: 42	]				No	of SURVE	Y LINES:		484 676.70 Kilometers						
CRP TO 9	TERN:	0.00 N/A	_								88.4% Complete						
											70,700.00 Meters Added						
FORHVSICA	LEQUI	PMENT EQUIP	_	_		PERS	ONNEL O	NROARD			PERSONNE	LONSHORE		v	EATHER REPO	ORT	
avigation Sys			73		Capta			John Val	ikonis		Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
ff. GPS System			12	Oth		el Crew:		n/a			Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		n/a	n/a	n/a
MBES -	_		33		Party C	hief:		Kelly Po	ower		Data Manager.	Chuck Chamberlain	Wx - 1200:		0.3m	5kts	NE
SSS - Edg			_		dro. Su			David \			Data Processor:	Cody Gibson	Wx - 1800:		0.3m	5kts	N
Mag						al Tech.:		Richie Car			Data Processor:	Lance Woods	Wx - 2400:		n/a	n/a	n/a
USBL - IX	_		4			ey Crew:		n/a			Data Processor:	n/a		Place		x, with brief des	cription
Grab Sample			-	Clien	t Repre	sentative:		Kent Sin	npson		Additional Proc.:	n/a	HSE OFFICER:			Power	
Grab Sample	er - Van	Veen	1	-							Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
			-								l		Shift Change:				
			┨								l		Safety: Pre/Post Job:	X	Review MAR-T	RA-006	
		-	_										PrerPost Job.				
TIME	OP		25	20	LINE	INFORM	IATION		v	<i>09</i>		DETAIL ED CL	RVEY INFORMATION	SAL.			
ROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		DETAILED SU	RVET INFORMATIC	М			
630 0700	OW	11									Morning Ops meeting						
700 0710	ow	23	-								Vessel Pre-start checks						
710 0930	IT										Depart Cannery Dock for PL07						
930 0940	OW E196		+	-	_						Deploy Survey mbes, AML SVP						
940 0955 955 1005	OW	-	+	-							2nd AML svp Deploy SS/MAG						
1005 1011	LT		+	-	_					_	Deploy SS/MAG						
1011 1102	OL	PL07_012	030.0°	100	230	28.0	34.0	24.0			MBES/SBES/SSS/MAG Seas; 0.3m W	linds: 5kt N Vessel: 4.6 kt Tide	= 5.7m 1.6kt Flood / N	orth F	oreland Tide Sta	ation)	
102 1103	LT	1 201_012		100	200	20.0	04.0	24.0			I VIOLEGICOLOGIANA CI COLOGI, V. SIII VI	71103. OK 14. V C3301. 4.0 KL, 1100	- 0.7111, 1.0xt 1 100d ( 1	torur r	or diding ride on	10011)	
103 1155	OL	PL07_013	210.0°	100	217	35.0	41.0	31.0			MBES/SBES/SSS/MAG Seas, 0.3111 W	rinus, 5kt N. Vessel, 3.8 kt, Tide	- 5.1m, 0.5kt Flood ( N	vorth F	oreland Tide Sta	ation)	
155 1202	LT	-									Mag Hit at SP172						
202 1254	OL	PL07_014	030.0°	100	209	23.0	34.0	24.0		Ĭ.	MBES/SBES/SSS/MAG Seas; 0.3m W	/inds: 5kt NE. Vessel: 3.8 kt, Tid	e = 4.9m, 0.7kt Ebb ( N	North F	oreland Tide Sta	ation)	
254 1303	LT										Extended line turn to allow vessel with	a tow to pass thru PL07 site are	ea				
303 1332	OL	PL07_015	210.0°	100	198	32.0	31.0	21.0			MBES/SBES/SSS/MAG Seas; 0.3m W	/inds: 5kt NE. Vessel: 5.5 kt, Tid	le = 3.9m, 2.2kt Ebb ( N	North F	oreland Tide Sta	ation)	
1332 1352	LT	5	5								Mag Hit at SP171, 179						
1352 1506	OL	PL07_016	030.0°	100	166	25.0	35.0	25.0		_	MBES/SBES/SSS/MAG Seas; 0.3m W	/inds; 10kt NW, Vessel; 1.5 kt, 1	ide = 3.0m, 3.2kt Ebb	(North	Foreland Tide S	Station)	
1506 1525	LT	DI 07 C17	210.0	400	4.07	20.0	20.6	40.0			MDESIGNESISSEMAC S	finds: Eld N. Vennel, C.O T	- 4.6m 2.2M Ehr 141	with F	estand Tela Cuat		
1525 1542	OL	PL07_017	210.0	100	167	29.0	29.0	19.0			MBES/SBES/SSS/MAG Seas; 0.3m W	vinds: okt N. Vessei; 6.0 kt, Tide	= 1.6m, 3.3kt EDD ( No	nin For	eland I de Stati	on)	
1542 1555 1555 1616	OL.	PL07 006	210.0	100	166	30.0	29.0	19.0			Mag hit at SP 125 MBES/SBES/SSS/MAG Seas; 0.3m W	linds: 5kt N Vessel: 6 0 bt Tide	= 1.6m 3.3kt Ehb / No	vth Eo	reland Tde Stati	on)	
1616 1630	ow	/-L0/_000	210.0	100	100	30.0	25.0	19.0			Recover survey equipment	rinds, ont iv. vessel, o.o kt, Tide	- 1.011, 0.5K EDD ( NC	an roi	elana i de Stati	011)	
630 1815	IT		1								Transit to Cannery Dock						
815	"	2	1			1					Transition to Gallinoi y Good						
		7									1						
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											8-4	Fugro AFLOOR MAPPING JOBLOG
PRO	NAV. SY FUGRO JOB RP TO S	DATE: / SITE: /STEM: JOB #: DAY #: STERN:	20-Aug-201 23.00007123 Day: 42 0.00 N/A	Co H	Julia Julia Jypack			] No	JOB DESC AREA &	CLIENT: RIPTION: BLOCK: R/V:		### AK LNG   Seafloor Mapping
FROM	ME TO	CODE	LINE NUMBER	HEADING	BSP	ESP	E INFORM		SSS Fish (m)	1	DNP	DETAILED SURVEY INFORMATION
		AM AM AM AM AM	PL07_012 PL07_013 PL07_014 PL07_015 PL07_016 PL07_017	210.0° 030.0° 210.0° 030.0° 210.0°	217 209 198 166 167	221 213 202 170 171						Added mileage for Run in/out
		AM	PL07_006	210.0*	166	170						- - - - -
												• • •



## Fugro Seafloor Mapping Joblog

er 7.22.2015-A (Alaska)												
DATE:	21-Aug-20	15 Fri Julian Day:	233									
PROSPECT / SITE:												
NAV. SYSTEM:	Hypack											
FUGRO JOB #:	23.00007123	NAY. DIVIDE BY:	1									
JOB DAY #:	Day: 43	NAV. FIX DISTANCE:	50									
CRP TO STERN:	0.00 N/A	SURVEY UNITS:	Meters									
- 17		NAUTICAL MILE	60900									

1248 1254 OL PL08\_104 212.0° 100 118 24.0 29.0 19.0

GEOPHYSICAL EQUIPMENT	EQUIPA
Navigation System - POS MV	BGR60227
Diff, GPS System - Trimble AG130	BGR60351
MBES - R2Sonic	BOLLONOON
SSS - Edgetech 4200	# 38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
1	

Captain:	John Valikonis
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

LINE INFORMATION

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager.	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

MBES/SBES/SSS/MAG Seas; 0.8m Winds; 10kt NE. Vessel:2.9kt, Tide = 4.5m, 0.5kt Ebb ( North Foreland Tide Station)

		NEATHER REP	ORT			
Time		Sea State	Wind Speed	Dir.		
Wx - 0600:		n/a	n/a	n/a		
Wx - 1200;		0.6m	5kts	NW		
Wx - 1800:		n/a	5kts	nw		
Wx - 2400:		n/a	n/a r			
SE Reporting	(Place	an "x" in the b	ox, with brief des	cripti		
HSE OFFICER:		Kell	y Power			
Toolbox: Shift Change:	Х	JHA-Teolbox				
Safety:	X	Review MAR-	TRA-013			
Pre/Post Job:						

111	VIE.	OP	c c		0 7	LINE	INFORM	IATION		29	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVET INFORMATION
0630	0700	ow	31								Morning Ops Meeting
0700	0710	ow	54								Pre-Start Checks
0710	0855	IT									Depart Cannery dock for PL07
0855	0935	IT									Conditions aare marginal at PL07.transit to Site PL08
0935	0955	ow									Deploy survey equipment
0955	1001	LT	J								
1001	1008	OL	PL08_115	032.0°	100	117	26.0	26.0	16.0		MBES/SBES/SSS/MAC Seas; 0.5m Winds: 5kt N.V. Vessel: 5.0 kt, Tide = 5.0m, 2.4kt Flood ( North Foreland Tide Station)
1008	1013	LT								0	
1013	1021	OL	PL08_109	212.0°	100	117	27.0	44.0	34.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt NW. Vessel: 4.1 kt, Tide = 5.0m, 2.1kt Flood ( North Foreland Tide Station), Conducted usvp
1021	1025	LT									
1025	1031	OL	PL08_112	032.0°	100	116	27.0	27.0	17.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt NW. Vessel:5.0 kt, Tide = 5.1m, 1.9kt Flood ( North Foreland Tide Station)
1031	1034	LT								1	
1034	1044	OL	PL08_108	212.0°	100	117	27.0	38.0	28.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt NW. Vessel:3.7 kt, Tide = 5.2m, 1.7kt Flood ( North Foreland Tide Station)
1044	1046	LT									
1046	1055	OL	PL08_111	032.0°	100	117	28.0	27.0	17.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N.W. Vessel:4.0 kt, Tide = 5.2m, 1.5kt Flood ( North Foreland Tide Station)
1055	1059	LT			100						
1059	1108	OL	PL08_107	212.0*	100	117	27.0	36.0	26.0		MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N.W. Vessel:3.7 kt, Tide = 5.2m, 1.3kt Flood ( North Foreland Tide Station)
1108	1111	LT	BL 00 440	000.00	400	447		20.0	100	_	
1111		OL	PL08_110	032.0"	100	117	29.0	28.0	18.0	_	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N.W. Vessel:3.9 kt, Tide = 5.2m, 1.1kt Flood ( North Foreland Tide Station)
1121		LT	PL08 106	212.0°	400	117	00.0	36.0	20.0		ADEC/CPEC/CSC/AAC Coop. A Sp. Window Std NAV Vogsalo Cold Tide of Sp. Cold Flood ( North Foreland Tide Station)
1123	1132	OL	PL08_106	212.0	100	11/	26.0	36.0	26.0	_	MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt N.W. Vessel:3.9 kt, Tide = 5.2m, 0.9kt Flood ( North Foreland Tide Station)
1132	1137 1146	LT	PL08 102	032.0°	100	117				-	MBES/SBES/SSS/MAG Seas: 0.6m Winds: 5kt NW. Vessel:3.8 kt, Tide = 5.1m, 0.8kt Flood (North Forelant Tide Station)
1146	1150	LT	FE00_102	002.0	100	117					WIDES/SES/SSS/WIGS Seas, V. SIII VVIII d.S. SKL NVV. Vessel, S. S. K., Tide = 3, Till, V. SKL Flood (Notifi Fulledly Tide Station)
1150	1157	ow	PL08 105	212.0°	100	117	26.0	30.0	20.0		MBES/SBES/SSS/MAG Seas: 0.6m Winds: 5kt NW. Vessel:4.4kt. Tide = 5.0m. 0.5kt Flood ( North Forelant Tide Station), No Sidescan data recorde
1157	1203	LT	FE00_100	212.0	100	117	20.0	30.0	20.0		INDES/SES/SS/IVAG Seas. U.SIII VVIIIds. SKI IVV. VESSEL4.4KI, Tide = 3.0III. U.SKI FIDDA ( NOTIFI FORBIIK TIDE SIGNOTI), NO Sidescan data recorde
1203	1213	OL	PL08 101	032.0°	100	118	29.0	36.0	26.0		MBES/SBES/SSS/MAG Seas: 0.8m Winds: 5kt NW. Vessel:3.7kt, Tide = 5.0m. 0.3kt Flood ( North Foreland Tide Station)
1213	1218	LT	P LUO_IOI	002.0	100	110	23.0	30.0	20.0		Long period swell causing tugging on SS fish butdata is still good
1218	1226	OL	PL08 105A	212.0°	100	117	25.0	30.0	20.0		MBES/SBES/SS/MAG Seas; 0.8m Winds: 5kt NW. Vessel:4.4kt, Tide = 4.9m, 0.0kt Slack ( North Foreland Tide Station)
1226	1232	LT					23.0	2010			
1232	1244	OL	PL08 100	032.0°	100	117	30.0	34.0	24.0	_	MBES/SBES/SSS/MAG Seas: 0.8m Winds; 5kt NE, Vessel:2.9kt, Tide = 4.8m, 0.9kt Ebb ( North Foreland Tide Station)
1244	1248						33.0				,
-				-	_						■ PERSONAL STREET,



												Fugro
											SEA	FLOOR MAPPING JOBLOG
ver 7.2	2.2015-A		04.1		1. 0		000	1		esse us		
2004	SPECT	DATE:	21-Aug-201	5 Fri	Julia	n Day:	233		OB DESC	CLIENT:	_	AK LNG Seafloor Mapping
7.5577.3557	NAV. SY			Н	ypack			1		BLOCK:	_	Pipeline
			23.00007123			DE BY:	1	1	riteri	R/V:		Westerly
	JOB	DAY#:	Day: 43			TANCE:	50		of SURVE			484 680.30 Kilometers
C	RP TO 9	TERN:	0.00 N/A			UNITS:	Meters	ORI	GINAL JO	B TOTAL:	6	06,000.00 90.8% Complete
				NA	UTICAL	L MILE:	6080.0	Į.				74,300.00 Meters Added
TI	ME	OP			_	LINI	EINFORM	ATION				
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1254	1303	LT										
1303	1312	OL	PL08_099	032.0°	100	118	30.0	41.0	31.0			MBES/SBES/S9S/MAG Seas, 0.6m Winds: 10kt NE. Vessel 2.9kt, Tide = 4.4m, 0.9kt Ebb ( North Foreland Tide Station)
1312	1322	LT OL	PL08_103	212.0°	100	117	23.0	26.0	16.0	-		MBES/SBES/SSS/MAG Seas; 0.8m Winds: 10kt NE. Vessel:5.9kt, Tide = 4.1m, 1.3kt Ebb ( North Foreland Tide Station)
1329	1335	LT	FL06_103	212.0	100	11/	23.0	20.0	10.0			MIDES/SDES/SSWMO Seas, V.OIII WIIIUS. TUKI NE. VESSEIS/SM, TILIE - 4. IIII, T.SKI EDD ( NOIII) FORIAITI TILIE STATUOTI
1335	1347	OL	PL08_098	032.0°	100	116	29.0	41.0	31.0			MBES/SBES/SSS/MAG Seas; 0.8m Winds; 10kt NE. Vessel; 2.9kt, Tide = 4.0m, 1.3kt Ebb ( North Foreland Tide Station)
1347	1350	LT										
1350	1356	OL	PL08_094	212.0°	100	117	22.0	23.0	13.0		_	MBES/SBES/SSS/MAG Seas; 0.8m Winds: 10kt NE. Vessel:5.9kt, Tide = 3.7m, 1.9kt Ebb (North Foreland Tide Station)
1356	1400	OL	PL08 097	032.0°	100	117	28.0	46.0	36.0		-	MBES/SBES/SSS/MAG Seas: 0.8m Winds: 10kt NE. Vessel 5.9kt. Tide = 3.6m. 2.1kt Ebb ( North Foreland Tide Station)
1400	1425	OW	PLU6_U97	032.0	1 100	11/	28.U	46.U	36.0		_	Recover survey equipment
1425	1525	IT										Transit to TM05
1525	1533	OW	3									Deploy mbes
1533	1535	ow	BoulderTest01D	034.0°	100	106	22.0	na	na			MBES only test line
1535	1538	OW	BOulderTest01E	214.0°	100	106						MBES only test line
1538	1540	OW	Boulder Lesto IE	214.0	100	106	-	na	na			Recover MBES
1550	1650	IT										Transit to Cannery Dock
1650	1845	ow										Fuel Vessel
1945												
<u> </u>						-					$\vdash$	4
$\vdash$											$\vdash$	1
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$\vdash$						-					-	1
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											SEA	Fugro
PRO	SPECT IAV. SY FUGRO JOB	DATE: STEM: JOB #: DAY #:	21-Aug-201 23.00007123 Day: 43 0.00 N/A	H NAV. F S	ypack AY, DIVI FIX DIST URVEY	DE BY:	1 50 Meters	No.	OR DESC AREA & of SURVE	CLIENT: RIPTION: BLOCK: R/V: EY LINES:		AK LNG  Soafloor Mapping  Pipeline  Westerly  484
FROM	/E	OP CODE	LINE NUMBER	Topico Associa	L	LINE	INFORM	ATION Mag (m)	ESCHOLLER WORLD	1	DNP	DETAILED SURVEY INFORMATION
		AM AM AM AM AM	PL08_100 PL08_115 PL08_109 PL08_112 PL08_108 PL08_111	212.0° 032.0°	117 117 117 116 117 117	121 121 121 120 120 121						Added milage for Run in/out
		AM AM AM OW AM	PL08_107 PL08_110 PL08_106 PL08_102 PL08_105 PL08_101 PL08_105A	212.0° 032.0° 212.0° 032.0° 212.0° 032.0° 212.0°	117 117 117 117 117 118 117	121 121 121 121 121 121 122 121						Added milage for Run in/out
		AM AM AM AM AM	PL08 104 PL08 099 PL08 103 PL08 098 PL08 094 PL08 007	032.0*	118 118 117 116 117	122 122 121 120 121 121						Added milage for Run in/out



											Fugro
										SEA	AFLOOR MAPPING JOBLOG
or 7.22.2015-A (Alaski		-Aug-201	E Cat	lulia	n Dave	221	1		CLIENT:		AK LNG
PROSPECT / SIT		-Aug-201		ok Inlet		234	1	JOB DESC		_	Seafloor Mapping
NAV. SYSTEM				ypack			1		BLOCK:		Pipeline
FUGRO JOB		00007123					TA:		R/V:	-	Westerly
JOB DAY		Day: 44					No	. of SURVE	Y LINES:		484 680.50 Kilometers 91,2% Complete
CRP TO STER	N: 0.0	JU N/A									74,500.00 Neters Added
OPHYSICAL EQ				_			SONNEL O				PERSONNEL ONSHORE WEATHER REPORT
wigation System	AND DESCRIPTION OF THE PERSON NAMED IN	NAME OF TAXABLE PARTY.			Capta			John Val			Offshore Site Manager: Maria Krynytzky Time Sea State Wind Speed Dir.
I. GPS System - Tria MBES - R2St		130 BOR603612			er Vess Party C	el Crew:		n/a Kelly Pe			Ass't Off. Site Manager; Charlie Hall Wx - 0600: na na na na Data Manager; Chuck Chamberlain Wx - 1200: 1,0m 15kts NW
SSS - Edgetech		# 38719			dro. Su			David \			Data Processor: Ccdy Gibson Wx - 1800: na 15kts NW
Mag SeaS		13380A		_	physica			Richie Car			Data Processor: Lance Woods Wx - 2400: na na na
USBL - IXSEA	GAPS	# 151		Oth	er Surve	ey Crew:		n/a	1		Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
Grab Sampler - D				Clien	t Repre	sentative:		Kent Sin	npson		Additional Proc.: n/a HSE OFFICER: Kelly Power
Grab Sampler - V	an Veer	n									Client Representative: n/a Toolbox: X JHA-Toolbox
		+		<u> </u>							Shift Change:
		+-		<del></del>							Safety: X Review MAR-TRA-009, 1 HOC card for a safe act Pre/Post Job:
											[ rierosidou.)
TIME OF						INFORM				207	DETAILED SURVEY INFORMATION
ROM TO COD		E NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	
630 0700 <b>OV</b> 700 0715 <b>OV</b>				-							Morning ops meeting Pre-start checks
715 0840 IT		-			_					_	Depart Cannery Dock for survey site
840 0858 <b>OV</b>				-							Deploy MRES, Conduct usvp
858 0901 <b>OV</b>		IderTest1F		100	105		NA	NA		Ĭ	MBES only test line
901 0904 <b>OV</b>		IderTest1G		100	105		NA	NA			MBES only test line
904 0906 OV	_		214.0°	100	105		NA	NA			MBES only teet line
906 0909 <b>OV</b>				100	105		NA	NA			MBES only test line
909 0912 <b>OV</b>	-	ulderYaw3	214.0°	100	105		NA	NA			MBES only test line  Recover MBES
920 1030 IT											Transit to PL07
030 1045 <b>OV</b>	v										Deploy survey equipment
045 1051 LT	_										
051 1110 <b>O</b> L		L07_005	030.0°	100	154	25.0	25.0	15.0			MBES/SBES/SSS/MAG Seas; 0.6m Winds: 5kt NW. Vessel: 4.8 kt, Tide = 4.5m, 2.1kt Flood ( North Forelard Tide Station)
110 1115 OV											Conduct USVP
115 1135 IT 135 1150 OV				-	_						Transit to PL08  Recover survey equipment, seas and winds have increased to 1.0m 15kts are forecasted to further increase to 1.5m 20kts
150 1225 IT										_	Slowed speed to Change air filter on Sibd Main Engine
225 1250 IT	_			-							Stbd engine may have a faulty turbo
250 1535 IT		1								6	Transiting to port on 1 engine
535 1615 WS											Fueled Vessel
615 1830 WS	S									7	Repairs to Stbd Main Engine
830	+										-1
-	_										1
+	+										1
											1
	$\neg$						1				1



	FUGRO																
											SEA	FLOOR MAPPING JOBLOG					
in a tissue	2.2015-A	DATE:	22-Aug-201	5 Sat	Julia	n Day:	234	1		CLIENT:		AK LNG					
	SPECT				D lypack			1 3	JOB DESC	BLOCK:		Seafloor Mapping Pipeline					
	NAV. SY	JOR #	23.00007123		lypack			J	AREA	R/V:		Westerly					
	JOB	DAY#:	Day: 44	1				No	of SURVE	Y LINES:		484 680.50 Kilometers					
C	RP TO	STERN	0.00 N/A	1								91.2% Complete					
				_								74,500.00 Meters Added					
-	ME					1.180	E INFORM	AATION									
FROM		CODE	LINE NUMBER	HEADING	BSP		Fath (m)		SSS Fish (m)		DNP	DETAIL	LED SURVEY INFORMATION				
					-		T dur (m)	mag (m)	55555555		- D.III						
							7										
<u> </u>		_		-	_	-											
$\vdash$		-		_		_											
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<u> </u>				-		-											
$\vdash$				_													
		AM	PL07_005	030.0°	154	158						Added mileage for run in/out					
<u> </u>		_		-	-	-											
$\vdash$		$\vdash$		+	_	_											
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$\vdash$	_	-		+	-	-											
<u> </u>				-													



		_		Fugro	
		SE	AFLOOR	MAPPING JOBLOG	
ver 7.22.2015-A (Alaska)  DATE: PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN:	Нураск 23.00007123 Day: 45	JOB DESCRIPTION: AREA & BLOCK: R/V: No. of SURVEY LINES:	484	AK LNG Seafloor Mapping Pipeline Westerly 680.50 Kilometers 91.2% Complete 74,500.00 Meters Added	
GEOPHYSICAL EQUI	PMENT FOUR# PE	RSONNEL ONBOARD		PERSONNEL ONSHORE	WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR60227
Diff. GPS System - Trimble AG130	BGR(60351)
MBES - R2Sonic	BOR60363
SSS - Edgetech 4200	#38719
Mag SeaSpy	133804
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	×

Captain:	John Valikonis
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		na	na	na
Wx - 1200:	-	na	10kts	NW
Wx - 1800:		na	10kts	NW
Wx - 2400:		na	na	na
HSE OFFICER:	(Place		ox, with brief desc y Power	criptio
Toolbox:	×	JHA-Toolbox		
Shift Change:	N/A			
Safety:	×	Review MAR-	TRA-002	
Pre/Post Job:	No			

TII	ME	OP		10-		LINI	E INFORM	IATION	No	63
FROM	TO	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP
0630	0700	E103								
0700	1630	E103	1	-						1
1630	1830	E103	j i		Ü					
1830			7							k -

### DETAILED SURVEY INFORMATION

Morning Ops meeting

Vessel maintance/repair. Stbd Main Engine exhaust expansion pipe segment being replaced

Exhaust expansion installed but a broken bolt remains.



													Fugro					
											SEA	FLOC	R MAPPING JOBL	oc				
ver 7.22	2.2015-A (		24 Aug	-2015 N	lan luli	on Day	. 226	7		CLIENT:			AK LNG					
PRC	SPECT		24-Aug	-2015 IV	Cook Inie		. 236	1	JOB DESC				Seafloor Mapping					
	NAV. SY		-		Hypack	777		1 '		& BLOCK:	-	Pipeline						
	FUGRO.	CHIPPINE	23.0000	7122	riypack			1	ANLA	R/V:			Westerly					
		DAY#:						Ma	of SURV		7	484	680.50 Kilometers					
r			0.00					NO	. OI SUKVI	ET LINES.		404	91.2% Complete					
•	KF 103	I EKIN.	0.00	NA									74,500.00 Meters Added					
													W. Alberta Chinashina and Chin					
			PMENT					SONNEL O	A STATE OF THE PARTY OF THE PAR			1 19	PERSONNEL		1220 X0VII.	WEATHER REP	(C) (L) (C)	1124
			OS MV			Capt	-	-	John Va				Offshore Site Manager:	Maria Krynytzky	Time	Sea State	Wind Speed	T
			B AG130		0		sel Crew:	1	n/a				Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:	na	na	na
	MBES -			IGR603633		Party C			Kelly P				Data Manager:	Chuck Chamberlain	Wx - 1200:	na	10kts	N
	S-Edg			#38719		Hydro. St			David				Data Processor:	Cody Gibson	Wx - 1800:	na	10kts	N
	Mag - SeaSpy 13380A Geophysical Tech.:					Richie Ca	rmichael			Data Processor:	Lance Woods	Wx - 2400:	na	na	na			
US	SBL - IXS	SEA GA	PS	# 151	0	ther Surv	ey Crew:		n/a	a			Data Processor:	n/a	ISE Reporting (P	lace an "x" in the b	ox, with brief des	criptio
Grab	Sample	er - Day	Grab		Clie	ent Repre	esentative:		Kent Sir	mpson			Additional Proc.:	n/a	HSE OFFICER:	Kelly	Power	
Grab	Sample	er - Van	Veen					1				l i	Client Representative:	n/a	Toolbox:	X JHA-Toolbox		
					1							Ι.			Shift Change:	N/A		
				_								1 1			Safety:	X Review MAR-	RA-002	
			$\overline{}$	_								1 1				NO I	101.002	
								*				, ,						
TI	ME	OP				LIN	E INFORM	MATION	.,						D. E. C. D. E. C. D. L. A. T. C.			
ROM														DETAILED SU	IRVEY INFORMATIO			
-		CODE	LINE NU	MBER HE	DING BSF			Mag (m)	SSS Fish (m	)	DNP			2464.647 34142.42 23 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	TATELY HAT OTTHIS TOTAL	<u> </u>		
0630	0700	CODE E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m	)	DNP		ops meeting					
0630		CODE	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m	)	DNP		g ops meeting nence/Repair of Stbd Main Engir	ne Exhaust expansion joint		<u> </u>		
700	0700	CODE E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m	)	DNP		ence/Repair of Stbd Main Engir	ne Exhaust expansion joint	TOTAL THE OTTER TOTAL			
700	0700 1300	E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m	)	DNP	Maintar Depart	ence/Repair of Stbd Main Engir	. 10 1989				
0630 0700 1300 1325	0700 1300 1325	E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m	)	DNP	Maintar Depart Vessel	nence/Repair of Stbd Main Engir dock	. 10 1989				
0630 0700 1300 1325 1350	0700 1300 1325 1350	E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m	)	DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get	. 10 1989				
0630 0700 1300 1325 1350 1430	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989				
0630 0700 1300 1325 1350 1430	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		·		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989				
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		··		
0630 0700 1300 1325 1350 1430 1830	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u>.                                      </u>		
0630 0700 1300 1325 1350 1430	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HEA	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		·		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HE	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350 1430	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HE	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		
0630 0700 1300 1325 1350	0700 1300 1325 1350 1430	E103 E103 E103 E103 E103	LINE NU	MBER HE	DING BSF			Mag (m)	SSS Fish (m		DNP	Maintar Depart Vessel Return	nence/Repair of Stbd Main Engir dock having speed issue, cannot get to Dock	. 10 1989		<u> </u>		



											Sea	FUGRO	og				
ver 7.2	2.2015-A	(Alaska)										LOOK MAIT ING CODE					
33335			25-Aug-201	5 Tue	Juliar	n Day:	237	l .		CLIENT:		AK LNG					
PR	OSPECT		3		ok Inlet				JOB DESC	RIPTION:		Seafloor Mapping					
	NAV. SY	STEM:		Н	ypack			AREA & BLOCK: Pipel									
1	FUGRO	JOB #:	23.00007123					57		R/V:		Westerly					
		DAY#:	Day: 47	1				No.	. of SURVE	EY LINES:		484 680.50 Kilometers					
	CRP TO S	TERN:	0.00 N/A	J								91.2% Complete 74,500.00 Meters Added					
GEOP	HYSICA	L EQUII	PMENT EQUIP				PERS	SONNEL O	NBOARD			PERSONNEL	ONSHORE		WEATHER REP	ORT	
			OS MV BGR860227	1		Capta			John Va	lkonis		Offshore Site Manager:	Maria Krynytzky	Time	Sea State	Wind Speed	Dir.
	PS System			1	Othe	er Vess	el Crew:	1	n/a	а		Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:	n/a	n/a	n/a
	MBES -	R2Soni	C BGR60363		- 1	Party C	hief:		Kelly P	ower		Data Manager:	Chuck Chamberlain	Wx - 1200:	0.6m	5-10kts	S
S	SSS - Edgetech 4200 #38719					dro. Su			David \			Data Processor:	Cody Gibson	Wx - 1800:	0.8m	10kts	S
	Mag -			1	Geo	physica	al Tech.:		Richie Car	rmichael		Data Processor:	Lance Woods	Wx - 2400:	n/a	n/a	n/a
	SBL - IXS			Į			ey Crew:		n/a			Data Processor:	n/a	ISE Reporting (F	Place an "x" in the b	ox, with brief des	cription
_	b Sample	-			Client	Repre	sentative:		Kent Sin	mpson		Additional Proc.:	n/a	HSE OFFICER:		Power	
Gral	b Sample	er - Van	Veen	1	-							Client Representative:	n/a	Toolbox:	X JHA-Toolbox		
															N/A		
			-		-									Safety:	X Review MAR-TRA-007	Conducted a loss of property	ulsion drill
														Pre/Post Job:			
Т	IME	OP			0	LINE	E INFORM	IATION	10 -		60		DETAILED SI	JRVEY INFORMATIO	. N		
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	)	DNP			JAVET INFORMATIO	in		
0630		ow							_			Morning Ops meeting, WeEKLY Safety	meeting				
0730	_	OW								_		Depart Cannery Dock	opropropies (275) (F. 10. 19. 17. 17.				
0800		E103	2	_					$\vdash$			Port engine shutdown, possible air lock					
0835	_	_	-	_			$\vdash$		-			Port engine restarted Heading to river	mouth to to a sea that				
	_										_	Con trial engains transiting book up the	river				
				_								Sea trial ongoing transiting back up the	river				
1000		E103										Atdock		at call RV Norman O by	VHF and phone Calle	ed RV My by phone	
1000	1020	E103 E103										At dock Loss of Propulsion Drill, Locate tow brid	dle, discuss anchor deploymen	nt, call RV Norman O by	VHF and phone, Calle	ed RV My by phone	e
1000 1020	1020 1100	E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, o	dle, discuss anchor deploymen	nt, call RV Norman O by	VHF and phone, Calle	ed RV My by phone	e
1000	1020 1100 1140	E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails	dle, discuss anchor deploymen change fue filers			ed RV My by phone	e
1000 1020 1100	1020 1100 1140 1200	E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, o Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagr	dle, discuss anchor deployment change fue filers nosed that the intercoolers are	dirty and need to be clea	aned	ed RV My by phone	e
1000 1020 1100 1140	1020 1100 1140 1200 1210	E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails	dle, discuss anchor deploymen change fue filers nosed that the intercoolers are ed to 10kts expect that sea cond	dirty and need to be cleaditions on survey site are	aned e 0.6m	ed RV My by phone	e
1000 1020 1100 1140 1200	1020 1100 1140 1200 1210 1600	E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, o Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagn Returning to dock, winds have increase	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ngine intercoolers removed to be	dirty and need to be cle ditions on survey site are	aned e 0.6m e garage	NS 18013	
1000 1020 1100 1140 1200 1210	1020 1100 1140 1200 1210 1600 1605	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, o Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagr Returning to dock, winds have increase At dock, Vessel Repairs/maintance. En	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605	1020 1100 1140 1200 1210 1600 1605 1800 1801	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagr Returning to dock, winds have increase At dock, Vassel Repairs/maintance Fr Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605 1800	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605 1800	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605 1800	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605 1800	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605 1800	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition
1000 1020 1100 1140 1200 1210 1600 1605 1800	1020 1100 1140 1200 1210 1600 1605 1800 1801 1830	E103 E103 E103 E103 E103 E103 E103 E103										At dock Loss of Propulsion Drill, Locate tow brid Mechanic assessing Engine problem, of Depart Cannery Dock for sea trails Sea trials complete, mechanic has diagir Returning to dock, winds have increase At dock, Vessel Repairs/maintance Fr Wind readings from NOAA weather sta Wind readings from NOAA weather sta	dle, discuss anchor deploymen thange fue filers nosed that the intercoolers are ad to 10kts expect that sea con- ogine intercoolers removed to be tion indicate wind steady at 10	dirty and need to be cleaditions on survey site are the cleaned at mechanical likts form S, expected sea	aned e 0.6m s garage a conditions al 0.6 to 0	).8m, marginal sun	vey condition



												Fugro
											SEA	FLOOR MAPPING JOBLOG
	SPECT	DATE:	26-Aug-201		Julia ok Inlet		238	]	IOD DESC	CLIENT:		AK LNG Seafloor Mapping
2007	NAV. SY				ypack			1		& BLOCK:	-	Pipeline Pipeline
		JOB #:	23.00007123	0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			R/V:				Westerly
	JOB	DAY#:	Day: 48	1				No	of SURV	EY LINES:		484 680.50 Kilometers
C	RP TO S	TERN:	0.00 N/A	J								91.2% Complete 74,500.00 Meters Added
GEOP	IYSICA	L EQUI	PMENT EQUIP		-0		PERS	SONNEL O	NBOARD			PERSONNEL ONSHORE WEATHER REPORT
			OS MV BGR60227			Capta			John Va			Offshore Site Manager: Maria Krynytzky Time Sea State Wind Speed Dir.
			B AG130 BCR603512				el Crew:		n/			Ass't Off, Site Manager: Charlie Hall Wx - 0600: 2.0m 2.5kts SW
		R2Soni				Party C			Kelly F			Data Manager: Chuck Chamberlain Wx - 1200: 2.5m 35-40kts SSW
		etech 4		1		/dro. Su			David			Data Processor: Cody Gibson Wx - 1800: 2.5m 30-35kts SSW
		SeaSpy		1		ophysica			Richie Ca			Data Processor: Lance Woods Wx - 2400: na na na
		SEA GA er - Day		1			ey Crew:		Kent Si			Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description Additional Proc.: n/a HSE OFFICER: Kelly Power
_		er - Van		1	Ciler	it Repre	sentative.		Kent Si	mpson		Additional Proc.: n/a HSE OFFICER: Kelly Power  Client Representative: n/a Toolbox: X JHA-Toolbox
Ordio	Campi	or + carr	700	1	1							Shift Change: N/A
				1								Safety: X Review MAR-TRA-007 with Westerly and My Maria crews
				]								Pre/Post Job: No
TI	ME	ÓP				LINE	E INFORM	MATION	,			DETAILED CURVEY INCODIATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	1)	DNP	
0630	0031	WS WS		$\leftarrow$	<del></del>	-	-	_		-		Winds 25kts SSW, Expected seas 2.0m, Small vessel advisory in effect Morning Ops
0701	0800	WS				_				+	_	Winds at 0800 were 25-30kts SSW, Expected seas 2.0m, Small vessel advisory in effect
0800	0930	ws	ti e			-						Stod intercooler installed
0930	1000	ws										Winds at 1000 were 35-40kts from the SSW, Expected seas are over 2.0m
1000	1130	ws										Install port intercooler
1130	1135	ws										Departed dock for sea trial
1135	1200	WS										Winds 35ktsSSW gusting to 42kts, expected seas are above 2.5m
1200	1205	WS			-							Sea trial concucted, vessel came up on plane and to full speed 26kts. Mechanic and Captain satisfied with repairs to engines.
1205	1220	WS		_		-				-	-	At Cannery Dock
1220	1345	WS WS				-						Review MAR-TRA-007 with Westerly and My Maria crews, Westerly captain and My Marie Capt discussed communications, rigging of tow brid Winds 35xts SSW gusting to 38kts, expected seas are above 2.5m
1400	1600	WS	+									учных элек элем давшу и зокіх, ехрестно княк яте япоме или
1600	1601	WS										Winds 35kts SSW gusting to 38kts, expected seas are above 2.5m
1601	1800	ws										1
1800	1801	WS										Winds 30ts SSW gusting to 35kts, expected seas are above 2.5m
1801	1830	WS			1							
1830												1
			1			-					-	4
						-					+	4
							+	4				
		_		_	_	-					-	4



Shift Change: N/A

					Fugro					
					FUGRO					
			S	AFLOO	R MAPPING JOBL	.oc				
ver 7.22.2015-A (Alaska)			LEUKTE P							
		hu Julian Day: 239	CLIENT:		AK LNG					
PROSPECT / SITE:		Cook Inlet	JOB DESCRIPTION:		Seafloor Mapping					
NAV. SYSTEM:		Hypack	AREA & BLOCK:		Pipeline					
FUGRO JOB #	23.00007123		R/V:		Westerly					
JOB DAY #:	: Day: 49		No. of SURVEY LINES:	484	680.50 Kilometers	•				
CRP TO STERN:					91.2% Complete					$\neg$
					74,500.00 Meters Added					
					11,000.00 11101010 111000					
<b>GEOPHYSICAL EQU</b>	IPMENT EQUIP#	PERSO	ONNEL ONBOARD	50 69	PERSONNEI	ONSHORE		WEATHER REP	ORT	
Navigation System - I	POS MV 8GR602273	Captain:	John Valikonis		Offshore Site Manager:	Maria Krynytzky	Time	Sea State	Wind Speed	Dir.
Diff. GPS System - Trimb		Other Vessel Crew:	n/a		Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:	2.0m	20kts	SW
				_ +	The second secon					

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602271
Diff. GPS System - Trimble AG130	BGR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag - SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	× -

PERSON	NEL ONBOARD
Captain:	John Valikonis
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		2.0m	20kts	SW
Wx - 1200:		2.0m	15-20kts	NW
Wx - 1800:		2.0m	30kts	NW
Wx - 2400:		na	na	na
ISE Reporting	Place	an "x" in the b	ox, with brief desc	criptie
HSE OFFICER:		Kelly	Power	
Toolbox:	No			

				_								- Chint Stranger (Chi
												Safety: No
												Pre/Post Job: No
TI	ME	OP		- 20			LINE	E INFORM	MATION	10-5	 2	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMB	ER HE	ADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETALED SURVEY INFORMATION
0030	0031	ws										Winds 20kts from the SW,Small vessel Advisory in affect for Survey areas, Forecast has winds increasing to 30kts thru the de
0631	0730	ws										Morning Ops Meeting
0730	0800	WS	i i		$\neg$							1
0800	0801	ws	ĺ.									Winds 15-20kts NW, Sea Expected near 2.0m in survey areas
0801	1000	ws										
1000	1001	ws										Winds 15-20kts NW, Seas Expected near 2.0m in survey areas
1001	1159	ws										35.
1159	1200	ws	15									Winds 20kts WNW, Seas Expected near 2.0m in survey areas
1200	1359	ws										1
1359	1400	ws										Winds 20kts W. Seas Expected near 2.0m in survey areas
1400	1559	WS	7									
1559	1600	ws										Winds 25kts W, Seas Expected near 2.0m in survey areas
1600	1759	WS	32									25 254
1759	1800	ws	4	1.								Winds 30kts NW, Seas Expected near 2.0m in survey areas
1800	1830	ws	9									

1000   1051   WS	0801	1000	WS						
1159   1200   WS   WS   WS   WS   WINK, Seas Expected near 2.0m in survey areas   1200   1359   WS   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1400   1559   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1600   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1600   1759   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1600   1759   WS   WINK   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WINK   Seas Expected near 2.0m in survey areas   1800   1830   WS   WS   WS   WS   WS   WS   WS   W	1000	1001	ws						Winds 15-20kts NW, Seas Expected near 2.0m in survey areas
1200   1359   WS	1001	1159	WS		,				State of the state
1400   1559   WS		1200							Winds 20kts WNW, Seas Expected near 2.0m in survey areas
1400   1559   WS	1200	1359	WS		i.				
1400   1559   WS	1359	1400	WS						Winds 20kts W. Seas Expected near 2.0m in survey areas
1600         1759         WS           1759         1800         WS           1800         1830         WS   Winds 30kts NW, Seas Expected near 2.0m in survey areas	1400	1559	WS						
1759 1800 WS Winds 30kts NW, Seas Expected near 2.0m in survey areas								ij	Winds 25kts W, Seas Expected near 2.0m in survey areas
1800 1830 WS									
1800 1830 WS									Winds 30kts NW, Seas Expected near 2.0m in survey areas
	1800	1830	ws	9					
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er 7.22.2015-A (Alaska)				-					CENTRAL I									
DATE: PROSPECT / SITE:	28-AL	ug-201		Julia:		240		JOB DESC	CLIENT:			AK LNG Seafloor Mapping						
NAV. SYSTEM:	-			ypack			1 '		BLOCK:	-		Pipeline						
FUGROI JOB #:	23.000	07123	- 11)	ypack			1	ANLA	R/V:			Westerly						
JOB DAY #:		: 50					No	of SURVE		-	484	680.50 Kilometers						
CRP TO STERN:												91.2% Complete						
		9										74,500.00 Meters Added						
EOPHYSICAL EQU	PMENT	EQUIP#	8 8	0		PERS	SONNEL O	NBOARD			2) [0]	PERSONNEL	ONSHORE	<u> </u>	WEAT	HER REPOR	RT	
avigation System - F					Capta			Ryan B	traget			Offshore Site Manager:	Maria Krynytzky	Time	Sea	State	Wind Speed	
iff, GPS System - Trimb						el Crew:		n/a			1 [	Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:	1.5		15-20kts	NE
MBES - R2Son		BGR603633			Party C			Kelly P			1 1	Data Manager:	Chuck Chamberlain	Wx - 1200:		5m	15kts	NE
SSS - Edgetech 4		#38719			dro. Su			David \			4 }	Data Processor:	Cody Gibson	Wx - 1800:	1.5		15kts	NE
Mag SeaSp USBL - IXSEA G		13380A # 151			ophysica	el Tech.: ey Crew:		Richie Car			1 }	Data Processor: Data Processor:	Lance Woods n/a	Wx - 2400: ISE Reporting		a "In the base	na th bullet de	na
Grab Sampler - Day		# 151				sentative:	1	Kent Sin			1 1	Additional Proc.:	n/a n/a	HSE OFFICER:	(Place an "X	Kelly P	Actual Control of the	scripti
Grab Sampler - Var		-		Clien	t Repre	sentative.		Nent Sir	npson		1 1	Client Representative:	n/a	Toolbox:	No	Kelly P	ower	
orab campion van	7 0011			1							1 '	One in the presentative.	1100	Shift Change:	N/A			
											1 r			Safety:	No			
											1 1			Pre/Post Job:	No			
TIME OP				Company of		INFORM		I SECURITION TO SECURITION	1	T	-		DETAILED S	URVEY INFORMATI	ON			
ROM TO CODE 1630 0700 WS	LINE N	UMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	)	DNP	Morning	ops meeting			707			
700 0759 WS		-		-	_		_					)5 was observing seas up to 1.5	5m at there current location					
759 0800 <b>WS</b>												15-20kts ENE, Seas expected to						
0800 0959 WS																		
959 1000 WS											Winds 1	15-20kts NE, Seas expected to	be 1.5m in survey area					
1000 1159 WS										-	1		Market Transfer					
1159 1200 <b>WS</b>				,							Winds '	15-20kts NE, Seas expected to	be 1.5m in survey area					
200 1359 <b>WS</b>																		
1359 1400 WS											Winds 1	15kts NE, Seas expected to be	1.5m in survey area					
1400 1559 WS	2			-						-	Minds	IOlds C. Coop amosted to be 4	Om in augustu acco					
1559 1600 WS									-		vvinas	10kts S, Seas expected to be 1.	om in survey area					
1830 VS				-							1							
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												SEA	FLOC	OR MAPPING JOB	LOG					
er 7.2	2015-A	(Alaska) DATE:	20.Au	n-201	S Sat	Iulia	n Day:	241	1		CLIENT:			AK LNG						
PRO	SPECT		23-AU	y-201	Coo	ok Injet	ii Day.	241	١.	JOB DESC				Seafloor Mapping						
	NAV. SY			- 25		ypack					BLOCK:			Pipeline						
	FUGRO	JOB #:	23.0000	07123							R/V:			Westerly						
	JOB	DAY#:	Day:	51					No	of SURVE	Y LINES:		484	680.50 Kilometers						
C	RPTOS	TERN:	0.00	N/A										91.2% Complete						
														74,500.00 Meters Added						
EOP	HYSICA	L EQUI	PMENT	EQUIP#	7 8	0		PERS	ONNEL O	NBOARD			89 189	PERSONN	EL ONSHORE	90	W	EATHER REF	PORT	
			OS MV	BGR802273			Capta	in:		Ryan B	raget			Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Di
				BCR603512				el Crew:	9	n/a				Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:		na	na	na
	MBES -			9GR603633			Party Cl			Kelly Po				Data Manager:	Chuck Chamberlain	Wx - 1200:		na	na	na
SS	S - Edg			# 38719			dro. Sur			David \				Data Processor:	Cody Gibson	Wx - 1800:		na	na	na
1.11	Mag -			13380A			physica			Richie Car				Data Processor	Lance Woods	Wx - 2400:	(D)	na	na	na
	BL - IXS			# 151				y Crew:		n/a				Data Processor:	n/a	•	(Place a		ox, with brief des	cript
	Sample			-		Clien	Repres	sentative:		Kent Sin	npson			Additional Proc.: Client Representative:	n/a n/a	HSE OFFICER: Toolbox:	No	Kell	y Power	
Grat	Sample	er - van	veen	-		4								Client Representative:	na	Shift Change:	N/A			
																onint Change.	INIM			
									l				1 1			Safety	No			
			_	-												Safety: Pre/Post Job:	No No			
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_	ME	OP CODE	Luces					INFORM		laus er volk		Laur			DETAILED S		No			
ROM	то	CODE	LINE NU	MBER	HEADING	BSP	LINE		Mag (m)	SSS Fish (m)		DNP	Fetigue	ue Magnement Day, No suprey		Pre/Post Job:	No			
ROM 630	_		LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 630	то	CODE	LINE NU	IMBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	re Mangement Day, No survey		Pre/Post Job:	No			
ROM 630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	re Mangement Day, No survey		Pre/Post Job:	No			
ROM 1630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	ie Mangement Day, No survey		Pre/Post Job:	No			
ROM	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 1630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 1630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 1630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 1630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fieh (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM	то	CODE	LINE NU	IIIIBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 1630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	re Mangement Day, No survey		Pre/Post Job:	No			
ROM 0630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
TI FROM 0630 1830	то	CODE	LINE NU	INBER	HEADING.	BSP				SSS Fish (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			
ROM 0630	то	CODE	LINE NU	MBER	HEADING	BSP				SSS Fieh (m)		DNP	Fatigue	e Mangement Day, No survey		Pre/Post Job:	No			



											c		FUGRO						
ver 7 22	.2015-A (	(Alaska)									SEA	FLO	OR IVIAPPING JOBI	-oc					
10.7.22			30-Aug-2	2015 St	un Juli	an Day	: 242	1		CLIENT:			AK LNG						
PRO	SPECT		oo rag		Cook Inie			1	JOB DESC				Seafloor Mapping				-		
•	AV. SY	STEM:		285	Hypack			1	AREA 6	BLOCK:			Pipeline						
F	UGRO	JOB #:	23.00007	123				-		R/V:	Dr.		Westerly						
	JOB	DAY#:	Day: 52	2				No	of SURVE	Y LINES:	î.	484	680.50 Kilometers						
CH	RPTOS	TERN:	0.00 N	/A									91.2% Complete						
													74,500.00 Meters Added						
GEOPH	IYSICA	L EQUI	PMENT EQ	UIP#	950		PER	SONNEL O	NBOARD			\$) II	PERSONNE	LONSHORE		W	EATHER REP	ORT	
Naviga	tion Sys	stem - P	OS MV BGR	602273		Capt	ain:		Ryan B	raget			Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
Diff. GPS	S System	n - Trimbl	le AG130 non		Ot		sel Crew:		n/a			1	Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:		na	na	na
٨	MBES -	R2Soni	ic non	603633		Party (	Chief:		Kelly P	ower			Data Manager:	Chuck Chamberlain	Wx - 1200:		na	na	na
SS	S - Edg	etech 4	200 #3	8719	1	lydro. S	urveyor:		David \	Nise			Data Processor:	Cody Gibson	Wx - 1800:		na	na	na
	Mag -			AORE	G	eophysic	al Tech.:		Richie Car	michael		1	Data Processor:	Lance Woods	Wx - 2400:		na	na	na
US	BL - IXS	SEA GA	APS #	151	Ot	her Sur	rey Crew:		n/a	i .			Data Processor:	n/a	ISE Reporting	(Place a	n "x" in the b	ox, with brief des	criptior
Grab	Sample	er - Day	Grab		Clie	ent Repr	esentative:		Kent Sin	npson			Additional Proc.:	n/a	HSE OFFICER:		Kelly	Power	
Grab	Sample	er - Van	Veen		1							l	Client Representative:	n/a	Toolbox:	No			
					14										Shift Change:	N/A			
					-										Safety:	No			
															Pre/Post Job:	No			
TIN	ИE	ÓP				LIN	E INFOR	MATION	,,					DETAIL ED CI	IDVEY INCODMAN				
FROM	ТО	CODE	LINE NUME	BER HEAD	DING BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP			DETAILED SU	JRVEY INFORMATI	ION			
0630	1830	ow										Fatigu	e Mangement Day, No survey o	perations conducted			,		
1830		- 1									1								
												l							
												l							
												l							
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## Confidential



					Fugro					
			SE	AFLOO	R MAPPING JOBL	.oc				
ver 7.22.2015-A (Alaska)										
DATE:	: 31-Aug-2015	Mon Julian Day: 243	CLIENT:		AK LNG					
PROSPECT / SITE:	:	Cook Inlet	JOB DESCRIPTION:		Seafloor Mapping					
NAV. SYSTEM:	;	Hypack	AREA & BLOCK:		Pipeline					
FUGRO JOB #	23.00007123		R/V:		Westerly					
JOB DAY #	: Day: 53		No. of SURVEY LINES:	484	680.50 Kilometers					
CRP TO STERN:					91.2% Complete					
					74,500.00 Meters Added					
					ALM REGISTER METERS FOR STATE					
GEOPHYSICAL EQU	JIPMENT EQUIP#	PERS	ONNEL ONBOARD	30 (6	PERSONNEL	ONSHORE		WEATHER REP	ORT	
Navigation System - I	POS MV 8GR602273	Captain:	Ryan Braget		Offshore Site Manager:	Maria Krynytzky	Time	Sea State	Wind Speed	Dir.
Diff. GPS System - Trimb	ble AG130 scaecos12	Other Vessel Crew:	n/a	7 1	Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:	1.2-1.5m	20kts	NE
MBES - R2Son	nic BOREO3633	Party Chief:	Kelly Power	7 1	Data Manager:	Chuck Chamberlain	Wx - 1200:	1.5m	20-25kts	N
000 = 1 1 1	1000	11 1 0	De datable -		D 1 D	0.1.01	101 4000		15.001	4.7

GEOPH'I SICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BCR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag - SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	× -

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson
<del></del>	

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

14 X - 0000.		1.2-1.011	ZUNIS	INE
Wx - 1200:		1.5m	20-25kts	N
Wx - 1800:		1.5m	15-20kts	N
Wx - 2400:		na	na	na
SE Reporting	(Place	an "x" in the bo	x, with brief des	criptio
HSE OFFICER:		Kelly	Power	
Toolbox:	×	JHA-Toolbox		
Shift Change:	N/A			
Safety:	×	Abandon Sip Drill, Revie	w MAR-TRA-007, 1 HOC for	suggestion
Pre/Post Job:	No			
I TON OUT OOD.	140			

TIN	ME	OP	LINE INFORMATION  LINE NUMBER HEADING BSP ESP Fath (m) Mag (m) SSS Fish (m) DNP			DETAILED SUBVEY INCODMATION						
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
0630	0730	ws										Morning Ops Meeting, Small Vessel Advisory issed for Survey Area Today
0730	0731	WS					1					Contacted MV Q105 who informed that Winds are 20kts and seas were 4-5' in East Forelands area
	0745	WS										Vessel Pre-start checks
	0815											Depart Cannery dock to conduct POSMV GAMS calibration at Kenai river mouth
	0820	WS	- 0									Seas 1.0m just outside Kenai River Entrance, return to dock
0820	0825	WS										POSMV GAMS Calibration
0825	0900		Ų.									At Cannery Dock
0900	0915											
0915	0930	WS										Abandon Ship Drill
0930	1000	WS										
1000	1001	WS										Winds 20kts N, Seas of 1.5m are expected in survey area, Small Vessel Advisory still in effect
	1045			$\vdash$								Tide at Kenai River 1.0m and falling, vessel unable to transit out at that level
1045	1159	WS										
1159	1200	WS										Winds 20-25kts N, Seas of 1.5m are expected in Survey Area
1200	1400	WS	3	$\overline{}$								Winds 20 25kts N, Seas of 1.5m are expected in Survey Area
1400	1445											Tide Level at Kenai 1.0m and rising
1445	1559	WS										
1559	1600	WS									_	Winds 15-20kts N, Seas of 1.5m are expected in Survey Area
1600	1800	WS		$\vdash$	_					$\longrightarrow$		Winds 15-20kts N, Seas of 1.5m are expected in Survey Area
1800	1830	WS		$\vdash$								
1830			2									
	_				_	_				$\vdash$		
-		_		$\vdash$	_							
-		_		$\vdash$		_				$\overline{}$		
-		_		$\vdash$								
-		-		$\vdash$		_						
		_		$\vdash$								
$\vdash$		$\vdash$		$\vdash$						$\vdash$		
$\vdash$		$\vdash$		$\vdash$								
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											Fugro
										SEA	AFLOOR MAPPING JOBLOG
ver 7.22.2015-A (Alask			Common .	- 10							
DAT		01-Sep-201				244	]		CLIENT:		AK LNG
PROSPECT / SIT	-			ok Inlet			1 8	JOB DESC			Seafloor Mapping
NAV. SYSTE		00 00007100	Н	ypack			J	AREA 8	& BLOCK:		Pipeline
	-	23.00007123					No	of CLIDVI	R/V:	-	Westerly 484 680.50 Kilometers
JOB DAY CRP TO STER	-	Day: 54					NO	of SURVE	ET LINES:		464 Bod.50 Kindleters 91.2% Complete
CKF TO STER	L. F	0.00 N/A									74 500.00 Neters Added
GEOPHYSICAL EG	QUIP	MENT EQUIP#		8		PERS	SONNEL O	NBOARD			PERSONNEL ONSHORE WEATHER REPORT
GEOPHYSICAL EQUIPMENT         EQUIP#         PERSONNEL ONBOARD           Navigation System - POS MV         Romeozers         Captain:         Ryan Braget											Offshore Site Manager: Marta Krynytzky Time Sea State Wind Speed Dir.
Diff, GPS System - Tri				el Crew:		n/a			Ass't Off. Site Manager: Charlie Hall Wx - 0600: 1.5m 20kts N		
MBES - R2S	_				Party C			Kelly P			Data Manager: Chuck Chamberlain Wx - 1200: 0.5m 10kts N
SSS - Edgetech					dro. Su	-		David \			Data Processor: Cody Gibson Wx - 1800: 0.5m-1.0m 10-15kts W
Mag SeaS		13380A			physica			Richie Car			Data Processor; Lance Woods Wx - 2400: na na na
USBL - IXSEA GAPS # 151 Other Survey Crew: n/a Grab Sampler - Day Grab Client Representative: Kent Sin							-				Data Processor: n/a ISE Reporting (Place an "x" in the box, with brief description
Grab Sampler - V				Chen	t repre	sentative;	-	Nent Sir	npson		Additional Proc.: n/a HSE OFFICER: Kelly Power  Client Representative: n/a Toolbox: X JHA-Toolbox
Grab Sampler - v	van v	veen		-			1				Shift Change: N/A
			1								Safety: X Weekly Sifety Meeting, Review MAR-TRA's 012 and 013
											Pre/Post Job: No
							•				
TIME OF					LINE	INFORM	NOITAN	C-	00	(2)	DETAILED SURVEY INFORMATION
FROM TO COL	_	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	)	DNP	P
0630 0700 <b>OV</b>		1		1							Morning Ops meetting
0700 0730 <b>OV</b>	_										Weekly Safety meeting
0730 0735 W											Called and spoke with PC on Q105, who informed that it is still waiting on weather, Seas 1.5m Winds 15kts, Will delay Westerly departure until
0735 0930 WS					_						<b>⊣</b> o
0930 0945 OV					_						On vessel, Depart Cannery Dock
1050 1100 OV					_				_		Conditions at patchteet area are 0.5m 1.0m, will transit to PL07 and run infill line then return to patch teet area allowing for seas to subside
1100 1120 IT	_										Transit to PL07
1120 1130 IT	_										<b>1</b>
1130 1220 IT	_										At infill line for PL07
1220 1240 OV	w										MBES Deployed.Conducted usvp
1240 1309 LT	Т										Current very strong 5.5kts Ebb, noise from vessel working hard is overpowering MBES, will run line from North to South
1309 1312 IF		PL07_INFILL	225.0°	100	108	27.0	NA	NA			MBES Only infill line
1312 1320 OV											Recover MBES
1320 1345 IT					_					-	Transit to Boulder PT
1345 1400 OV		DT V	047.00	,	_	40.0			-		Deploy MBES and conduct Usvp
1400 1402 CA 1402 1403 LT	_	PT_YawA	047.0°	-	_	13.8	NA	NA			Patch Test line
1402 1403 LT	_	PT Yaw2A	227.0°	-	_	13.6	NA	NA	-		-
1404 1406 LT		FI_Iaw2A	227.0	-		15.0	INA	INA	_		
1406 1408 CA	_	PT_Yaw2C	047.0°			13.8	NA	NA		$\vdash$	┪
1408 1410 LT	_					10.0	1.11	1.0.1			<b>1</b>
1410 1411 CA		PT_CenterA	227.0°			13.0	NA	NA			
1411 1412 LT	Т										
1412 1414 CA	_	PT_CenterB	047.0°			13.1	NA	NA			
1414 1418 L1											<b>_</b>
1418 1419 CA		PT_CenterC	227.0°			13.1	NA	NA			MBES Auto Gates and Vessel Sounder turned off on this line and lines after it
1419 1420 L1	_	DT 0	0.47.55		-	10.0			-		-
1420 1421 CA	_	PT_CenterD	047.0°			13.3	NA	NA	-		-
1421 1424 LT		PT Yaw1A	227.0°			13.2	NA	NA	-	-	-
1424 1425 CA	_	r i_iawiA	221.0	-		13.2	INA	INA	<del>                                     </del>		<b>-</b>
1420 1420 L	• 1		1				1	1	1	1	

1426 1428 CAL PT\_Yaw2B 047.0°



_												
												Fugro
											_	
											SEA	FLOOR MAPPING JOBLOG
ver 7.22	.2015-A	(Alaska)	04 0 004	r T	1			1			_	14110
200	SPECT		01-Sep-201	5 Tue	ok Inlet	n Day:	244	-	JOB DESC	CLIENT:	_	AK LNG Soafloor Mapping
	NAV. SY				ypack			1		BLOCK:		Pipeline
	FUGRO	JOB #:	23.00007123		71.000			•		R/V:		Westerly
100		DAY#:		1				No	. of SURVE	Y LINES:		484 680.50 Kilometers
C	RP TO 9	TERN:	0.00 N/A	Į								91.2% Complete 74,500.00 Meters Added
												74,500.00 Meter's Added
TII	ME	OP	d			LINE	INFORM	IATION	· · · · · ·		m ·	DETAILED SURVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1428	1429	LT										
1429 1430	1430 1431	CAL	PT_Yaw2C	227.0"			12.8	NA	NA		_	4
1431	1433		PT_Yaw2A0001	047.0°			13.9	NA	NA			1
1433	1434	LT	i i_ianziaaci	0.411.0			10.0	103	103			1
1434	1435		PT_Yaw2B0001	227.0°			13.3	NA	NA			
1435	1437	LT	DT V000004	047.00	-		40.0	***				4
1437 1438	1438	LT	PT_Yaw2C0001	047.0			13.8	NA	NA			4
1440	1441		PT_CenterA0001	227.0°			13.5	NA	NA			1
1441	1442	LT										1
1442	1444		PT_CenterB0001	047.0°		-	13.2	NA	NA			
1444 1445	1445	LT	DT 0120000	227.00			40.0	NIA	NIA.		-	Sanat 6 945
1445	1446 1455	OW	PT_Center2C0001	221.0			13.8	NA	NA		7	Speed 6.2kts Recover MBES
1455	1600	IT										Transit to Dock
1600	1630	ow	17		1							Vessel Maintanence
1630	1830	ow										Refuel vessel
1830				_								4
												1
												1
												4
												1
												1
												1
$\vdash$												1
												1
												1
												4
												1
												1
												1
												1
												1
												1
												1



			Fugro	
		S	AFLOOR MAPPING JOBLOG	
ver 7.22.2015-A (Alaska)  DATE: PROSPECT / SITE: NAV. SYSTEM: FUGRO JOB #: JOB DAY #: CRP TO STERN:	02-Sep-2015 Wed Julian Day: 245  Cook Inlot  Hypack  23,00007123  Day: 55	CLIENT:  JOB DESCRIPTION:  AREA & BLOCK:  R/V:  No. of SURVEY LINES:	AK LNG Seafleer Mapping Pipeline Westerly 484 685.05 Kilometers 93.8% Complete 79,050.00 Neters Added	

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff, GPS System - Trimble AG130	BGR603512
MBES - R2Sonic	BOUGONGY
SSS - Edgetech 4200	# 38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

1404 1408 LT

Captain:	Ryan Braget	
	Ryali blaget	
Other Vessel Crew:	n/a	
Party Chief:	Kelly Power	
Hydro. Surveyor:	David Wise	
Geophysical Tech.:	Richie Carmichael	
Other Survey Crew:	n/a	
Client Representative:	n/a	
	III.WAANA	
T		

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager.	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	Kent Simpson

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		0.3m	5kts	E
Wx - 1200;		0.3m	5kts	E
Wx - 1800:		0.5m	5kts	N
Wx - 2400:		na	na	na
SE Reporting	(Place	an "x" in the b	ox, with brief desc	cripti
HSE OFFICER:		Kell	y Power	~~~
	X	JHA-Toolbox		
Toolbox:	^	JUM-1001DOY		
Toolbox: Shift Change:	N/A	JIIA-100IDOX	2	
	2000	Review MAR-	TRA-012	

TII	ME	OP			50 T	LINE	INFORM	IATION		4 20	DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DN	P DETAILED SURVET INFORMATION
0630	0700	ow	1			10				- 3	Morning Ops Meeting
0700	0730		E-i						-	1/2	Pre-Start checks, Weather was cold this morning, Captain flashed up and check heating system at the dock
0730	0920	IT								Ĭ.	Depart Cannery Dock
0920	0950	OW									Deployed Survey Equipment
0950	0952	LT		1						Ĭ	A CONTROL OF THE CONT
0952	0959	OL	PL08_093	212.0°	100	116	25.0	34.0	24.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 4.0 kt. Tide = 7.4m, 1.7kt Flood (North Foreland Tide Station)
0050	1002										
1002	1009		PL08_096	032.0°	100	116	29.0	39.0	29.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 4.8 kt, Tide = 7.3m, 1.4kt Flood
1009	1013	LT									
1013	1019		PL08_092	212.0°	100	117	25.0	30.0	20.0		MBES/3BES/3SS/MAG Seas, 0.3m Winds, 5kt E. Vessel: 4.3 kt, Tide = 7.2m, 0.9kt Flood
1019	1024	LT									
1024	1033	OL	PL08_095	032.0°	100	117	28.0	41.0	31.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 4.0 kt, Tide = 7.0m, 0.6kt Flood
1033	1037	LT									
1037	1042	OL	PL08_088	212.0°	100	116	23.0	31.0	21.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel; 5.3kt, Tide = 6.8m, 0.2kt Ebb
1042	1047	LT									
1047	1058		PL08_091	032.0°	100	117	26.0	32.0	22.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E Vessel: 3.0kt, Tide = 6.8m, 0.6kt Ebb
1058	1102										
1102	1108	OL	PL08_087	212.0°	100	115	23.0	24.0	14.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 5.0kt, Tide = 6.3m, 1.2kt Ebb
1108	1114				100					U U	Reset Delorme
1114			PL08_090	032.0"	100	115	25.0	31.0	21.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 1.8kt, Tide = 6.0m,1.6kt Ebb
1131	1135		5: 44 454		100			212			
1135	1140	OL	PL08_086	212.0°	100	115	25.0	24.0	14.0	7	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E Vessel: 6.0kt, Tide = 5.5m,2.4kt Ebb
1140	1153	LT	DI 00 000	000.00			212	21.0	212		
1153	1219		PL08_089	032.0°	100	116	24.0	31.0	21.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 1.0kt, Tide = 4.9m,3.1kt Ebb
1219	1225	LT	DI 00 000	040.00	100	440	04.0	24.0	440		
1225	1229	OL	PL08_082	212.0°	100	116	24.0	24.0	14.0		MBES/SBES/SAMAG Seas; 0.3m Winds: 5kt E Vessel: 7.5kt, Tide = 3.9m,4.1kt Ebb
1229	1241	LT	DI 00 005	000 00	100	440	00.0	00.0	10.0		
1241	1311	OL	PL08_085	032.0°	100	116	22.0	29.0	19.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 1.2kt, Tide = 3.4m,4.5kt Ebb
1311	1316	-	DI 00 001	040.00	100	444	24.0	22.0	12.0		NDEC/CDEC/CCCAAAC Coop, 0.0m Windo, 51t F. Voogel, 7.0t Tido v. 0.2m 5.0t Fib
1316	1320	OL	PL08_081	212.0°	100	114	24.0	23.0	13.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 7.8kt, Tide = 2.3m,5.0kt Ebb
1320	1335	LT	DI 00 004	032.0°	400	445	22.0	20.0	100		AND FOR CORPORATION CO. C.
1335	1404	OL	PL08_084	032.0	100	115	22.0	29.0	19.0		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 0.7kt, Tide = 1.7m,5.2kt Ebb (max Current)



												Fugro
											e	FLOOR MAPPING JOBLOG
ves 7.2	2.2015-A	Alacka									<b>S</b> EP	FLOOR MAPPING JOBLOG
Ver 7.2.	2.2015-A		02-Sep-2015	Wed	Julia	n Day:	245	1		CLIENT:		AK LNG
1,577,732	OSPECT / SITE: Cook Inlet JOB DESCRIPTION											Seafloor Mapping
	NAV. SY		22 00007422	Н Н	ypack			J	AREA 8	BLOCK:	<u> </u>	Pipeline
		DAY#:	23.00007123 Day: 55					No	of SURVE	R/V:	-	Westerly 484 [685.05 Kilometers
C			0.00 N/A	1				,,,,,	. 01 001112	. Lineo.		93.8% Complete
												79,050.00 Meters Added
TI	ME	OP				LINE	E INFORM	IATION				
FROM	*1000000	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)		SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1408	1412	OL	PL08_080	212.0°	100	115	22.0	21.0	11.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 7.2kt, Tide = 0.8m,5.0kt Ebb
1412	1421	LT	DI 00 002	032.0°	100	110	22.0	20.0	22.0			ANDERSON AND COMPANY OF WINDOWS HAVE VIGORED A DAY THAT A DAY A THAT HAVE CONTRICTED HEND
1421	1426	OL LT	PL08_083	032.0	100	116	22.0	32.0	22.0		-	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessei: 2.2kt, Tide = 0.5m, 4.7kt Ebb, CONDUCTED USVP
1441	1445	OL	PL08_076	212.0"	100	115	25.0	23.0	13.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt E. Vessel: 6.8kt, Tide = 0.2m,4.3kt Ebb
1445	1451	LT										and Australia Control (Australia
1451	1505	OL	PL08_079	032.0°	100	115	23.0	33.0	23.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 2.0kt, Tide = 0.0m,4.0kt Ebb
1505 1509	1509 1514	OL.	PL08 075	212.0°	100	114	23.0	23.0	13.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt E. Vessel; 5.8kt, Tide = -0.2m,3.5kt Ebb
1514	1520	LT	1 200_070	212.0	100	114	20.0	20.0	10.0			INDECIDED GOOD IN COURT WINDS, ON E YOURS, COM, THE COURT OF THE COURT
1520	1532	OL	PL08_078	032.0°	100	114	25.0	35.0	25.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 5.8kt, Tide = -0.3m,3.3kt Ebb
1532 1535	1535 1540	LT OL	PL08_074	212.0°	100	114	23.0	24.0	14.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt E. Vessel; 6,0kt, Tide = -0,4m,2,9kt Ebb
1540	1544	LT	PL00_0/4	212.0	100	114	23.0	24.0	14.0		2	MIDEO/ODEO/OSOMMAG Seas, U.SHI VVIIIUS, SKI E. VESSGI, U.UKI, TIUEU.HIII,Z.SKI EUU
1544	1552	OL	PL08_077	032.0°	100	115	23.0	37.0	27.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessei: 3.0kt, Tide = -0.4m,2.7kt Ebb
1552	1554	LT										
1554 1559	1559 1615	OL	PL08_073	212.0°	100	113	23.0	22.0	12.0		-	MBES/SBES/SSS/MAG Seas: 0.3m Winds: 5kt E. Vessei: 6.8kt, Tide = -0.4m, 2.4kt Ebb Recover survey Equipment
1615	1805	IT				_		_				Transit to dock
1805	1830	ow										Secure veces
1830					-							
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											SEA	EAFLOOR MAPPING JOBLOG	
ver 7.22	.2015-A	(Alaska)											
in the second		DATE:	02-Sep-2015				245	1		CLIENT:		AK LNG	
	SPECT				k Inlet			] .	OB DESC			Seafloor Mapping	
	NAV. SY			Hy	pack			<u>J</u>	AREA 8	BLOCK:		Pipeline	
3			23.00007123						-4 CHDVE	R/V:	-	Westerly	
_		DAY#:	Day: 55 0.00 N/A					NO	of SURVE	T LINES:		484 685.05 Kilometers 93.8% Complete	
	KP IUS	HERN:	U.UU N/A	8								79,050.00 Meters Added	
	ME	OP		30		LINE	INFORM					DETAILED SURVEY INFORMATION	_
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	P. Statement and the statement	
		AM	PL08_093		116	120		1				Added milage for Run in/out	
		AM	PL08_096	$\vdash$	116	120						Added milage for Run in/out	
	_	AM	PL08_092 PL08_095	$\vdash$	117	121			_			Added milage for Run in/out	
		AM	PL08_088		116	120			_				
		AM	PL08 091		117	120						_	
		AM	PL08_087		115	119							
		AM	PL08_090		115	119							
		AM	PL08_086		115	119							
		AM	PL08_089 PL08_082		116	120						-	
_		AM	PL08_085	$\vdash$	116 116	120 120		_				$\dashv$	
		AM	PL08_081		114	118						_	
		AM	PL08_084		115	119						_	
		AM	PL08_080		115	119							
		AM	PL08_083		116	120							
_		AM	PL08_076		115	119						$\dashv$	
_		AM AM	PL08_079 PL08_075		115	119		-	_			-	
-		AM	PL08_078		114	118							
		AM	PL08 074		114	118						7	
		AM	PL08_077		115	119							
		AM	PL08_073		113	117							
												_	
_												-	
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			Fugro		
		;	SEAFLOOR MAPPING JOBLOG		
ver 7.22.2015-A (Alaska)					
DATE:	03-Sep-2015 Thu Julian Day: 246	CLIENT:	AK LNG		
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:	Seafloor Mapping		
NAV. SYSTEM:	Hypack	AREA & BLOCK:	Pipeline		
FUGRO JOB #:	23.00007123	R/V:	Westerly	$\neg$	

688.05 Kilometers

95.2% Complete 82,050.00 Meters Added

484

1239 1250 OL PL08\_060 032.0° 100 112 30.0 72.0 62.0

JOB DAY #: Day: 56

CRP TO STERN: 0.00 N/A

Other Vessel Crew: n/a Party Chief: Kelly Power Hydro. Surveyor: David Wise Geophysical Tech.: Richie Carmichael	Captain:	Ryan Braget	
Hydro. Surveyor: David Wise Geophysical Tech.: Richie Carmichael	Other Vessel Crew:	n/a	
Geophysical Tech.: Richie Carmichael	Party Chief:	Kelly Power	
	Hydro. Surveyor:	David Wise	
	Geophysical Tech.:	Richie Carmichael	
Other Survey Crew: n/a	Other Survey Crew:	n/a	
Client Representative: Kent Simpson	Client Representative:	Kent Simpson	

No. of SURVEY LINES:

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager.	Lance Woods
Data Processor:	Cody Gibson
Data Processor:	na
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	na

MBES/SBES/SSS/MAG Seas; 1.0m Winds: 10kt NE. Vessel: 2.3kt, Tide = 4.8m, 2.7kt Ebb

	V	VEATHER REP	ORT	
Time		Sea State	Wind Speed	Dir.
Wx - 0600:		na	na	na
Wx - 1200:		0.7m	10kts	NE
Wx - 1800:		1.3m	15kts	NE
Wx - 2400:		na	na	na
ISE Reporting (	Place	an "x" in the b	ox, with brief desc	criptic
HSE OFFICER:		Kelly	Power	
Toolbox:	X	JHA-Toolbox		
Shift Change:	No	2		
Safety:	No		•	
Pre/Post Job:	No	V .		

TI	ME	OP				LINE	INFORM	MATION	Es :	O4 (2)	DETAILED SURVEY INFORMATION					
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION				
	0710	ow	1		3	15					-	Morning Ops Meeting				
0710	0725	ow	13									Vessel PreStart Checks				
0725	0915	IT	S 1							Ť		Depart Cannery Dock				
0915	0930	ow			-							MBES Deployed				
0930	1000	E65										Switched to Secondary Winch as wet splice on primary winch cable failed				
1000	1009	LT														
1000	1016	OL	DF08_066	212.0°	100	113	30.0	65.0	55.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 4.0 kt, Tide = 6.9m, 2.5kt Flood ( North Foreland Tide Station)				
1016	1021	LT								0						
1021	1027	OL	PL08_072	032.0°	100	113	30.0	39.0	29.0			MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 4.5 kt, Tide = 6.9m, 2.2kt Flood				
1027	1035	LT	E1 00 000	0.10.00						-						
1035	1041	OL	PL08_068	212.0°	100	114	29.0	69.0	59.0	$\longrightarrow$		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 4.2 kt, Tide = 6.9m, 1.7kt Flood				
1041	1046	LT	DI 00 074	022.09	400	440	20.0	40.0	20.0	$\overline{}$		AND CONTROL OF CONTROL				
1046	1051	OL	PL08_071	032.0°	100	113	30.0	49.0	39.0	<del>                                     </del>	_	MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 5.0 kt, Tide = 6.8m, 1.4kt Flood				
1051	1056	LT	DI 00 007	040.00	400	440	20.0	00.0	50.0	<del>                                     </del>		MPS/OPSOOR AND OPEN AND AND AND AND AND AND AND AND AND AN				
1056	1101	OL	PL08_067	212.0°	100	113	28.0	66.0	56.0	-		MBES/SBES/SSS/MAG Seas; 0.3m Winds: 5kt E. Vessel: 5.2 kt, Tide = 6.7m, 1.0kt Flood				
1101	1105	LT	PL08_070	032.0*	100	113	30.0	50.0	40.0	-	_	MBES/SBES/SSS/MAG Seas; 0.3m Winds; 5kt E. Vessel; 4,3 kt, Tide = 6,6m, 0.7kt Flood				
1105	1112	OL LT	PL06_070	032.0	100	113	30.0	30.0	40.0	<del> </del>		WIDES/SES/SSS/WAS Seds, 0.311 VVIIIds. Skt E. Vessel, 4.3 kt, Tide - 0.011, 0.7kt Plood				
	1122	OL	PL08 063	212.0"	100	112	28.0	64.0	54.0	+	_	MBES/SBES/SSS/MAG Seas; 0.5m Winds; 5kt E. Vessel; 6,0kt, Tide = 6,4m, 0,1kt Flood				
	1128	LT	FL00_003	212.0	100	112	20.0	04.0	34.0	_	-	WIDES/SES/SES/WAS Sees, 0.5III VVIIIds. Ski E. Vessel, 0.5ki, 11de - 0.4III, 0.1ki F100d				
	1136	OL	PL08 066	032.0°	100	113	29.0	56.0	46.0	1		MBES/SBES/SSS/MAG Seas; 0.5m Winds; 5kt E Vessel; 3.9kt, Tide = 6.3m, 0.2kt Ebb				
	1139	LT	1 200_000	002.0	100	110	20.0	30.0	40.0		_	MULDIGUESIGOSIANO GOSSO, S.SII YYIIGE, ON E. YOSSO, S.SII, 1100 - G.SII, S.EN EDV				
	1143	OL	PL08 062	212.0°	100	113	28.0	40.0	30.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds; 5kt E Vessel; 5.4kt, Tide = 6.1m, 0.6kt Ebb				
	1149	LT								1						
	1157	OL	PL08 065	032.0°	100	113	29.0	59.0	49.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 5kt NE, Vessel; 3.3kt, Tide = 5.9m, 0.9kt Ebb				
1157	1201	LT														
1201	1205	OL	PL08 061	212.0°	100	111	28.0	38.0	28.0			MBES/SBES/SSS/MAG Seas; 0.5m Winds: 10ktNE. Vessel: 5.8kt, Tide = 5.6m, 1.4kt Ebb				
1205	1212	LT										BID BANKEN AND TO THE TO THE ARCHITECTURE TO THE BANKETS OF THE BA				
1212	1221	OL	PL08_064	032.0°	100	112	29.0	59.0	49.0			MBES/SBES/SSS/MAG Seas; 0.7m Winds; 10kt NE. Vessel; 3.0kt, Tide = 5.4m, 1.8kt Ebb				
1221	1227	LT														
1227	1231	OL	PL08_057	212.0°	100	112	30.0	38.0	28.0			MBES/SBES/SSS/MAG Seas; 0.7m Winds: 10kt NE. Vessel: 5.8kt, Tide = 5.2m, 2.3kt Ebb				
1231	1239	LT			1											



											SEA	Fugro Floor Mapping Joblog
N F	SPECT NAV. SY FUGRO JOB	DATE: / SITE: /STEM: JOB #: DAY #:	23.00007123	Co H	Julia ok Inlet ypack		246	1	JOB DESC AREA 8	CLIENT: RIPTION: BLOCK: R/V;		### AK LNG   Seafloor Mapping
TIM	ИE	OP	d			LINE	E INFORM	IATION	S			DETAILED SURVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1250	1255	LT	DI 00 050	040.00	400		04.0	07.0	07.0			MBES/SBES/SSS/MAG Seas, 1.0-1.2m Winds; 10kt NE. Vessel: 2.3kt, Tide = 4.4m, 3.2kt Ebb
1255 1259	1259 1317	OL	PL08_056	212.0°	100	111	31.0	37.0	27.0			Recover survey equipment, Seas have increased to 1.0m -1.2m as forecasted, large swell
1317	1430	IT			_							Transit to dock
1430	1545	WS			7							Waiting on tide to enter river
1545	1610	IT			1							At Cannery Dock
1610	1730	WS WS			2							Reterminate Sidescan cable while waiting for MyMaria to finish her repairs and move from our fueling berth
1730 1830	1830	WS	_		-							Unable to fuel as another vessel is at dock is undergoing repairs with welding operations. Will fuel in the morning as welding was not completed by
1000		-										
$\vdash$		<u> </u>										
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		AM	PL08_069	113.0°	113	117						Added milage for run in/out
		AM	PL08_072		113	117						Added milage for run in/out
		AM	PL08_068 PL08_071		114	118	-	_	-			Added milage for run in/out Added milage for run in/out
		AM	PL08_071		113	117	_		1			Added milage for run in/out
		AM	PL08 070		113	117		7				Added milage for run in/out
		AM	PL08_063		112	116					1	Added milage for run in/out
		AM	PL08_066	ļ.,	113	117					1	Added milage for run in/out
		AM	PL08_062		113	117						Added milage for run in/out
		AM	PL08_065		113	117						Added milage for run in/out
		AM	PL08_061 PL08_064		111	115 116	<del></del>	<u> </u>	$\vdash$			Added milage for run in/out Added milage for run in/out
$\vdash$		AM	PL08_057		112	116	1					Added milage for run in/out
		AM	PL08_060		112	116		Ĭ.				Added milage for run in/out
		AM	PL08_056		111	115				77		Added milage for run in/out
	-											
		_										
$\vdash \vdash$		-										



														Fugro						
												SEA	FLOC	R MAPPING JOBL	.OG					
ver 7.22	2.2015-A	(Alaska)									40.50									
		DATE:	04-Sep-	201				247	1		CLIENT:			AK LNG						
	SPECT					ok Inlet				JOB DESC		_		Seafloor Mapping						
	NAV. SY		00 00007	00.1		ypack			4	AREA 8	BLOCK:	<u> </u>		Pipeline						
	FUGRO		23.00007	-			DE BY:	1	200		R/V:	<u> </u>	404	Westerly						——
		DAY#:	Day: 57				ANCE:	50 Meters		of SURVE		<u></u>	484	688.65 Kilometers 88.6% Complete						
C	RP TO 9	I EKN:	0.00 N	/A			UNITS:		l or	GINAL JO	B IOTAL:		0.000,000	82.650.00 Meters Added		1				
					14.4	LIIOAL	- WILL.	0000,0	J.					02,000.00 Meters Added						
GEOP	HYSICA	L EQUI	PMENT EQ	JIP#		0.0		PER	ONNEL O	NBOARD			-0.0	PERSONNEL	ONSHORE	w.e.	·V	EATHER REF	PORT	
	ation Sys			102273			Capta			Ryan B	raget		1	Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
			e AG130 non	000012		Othe	er Vess	el Crew:		n/a			1	Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		n/a	n/a	n/a
	MBES -	R2Soni	C sore	00000			Party C	hief:		Kelly P	ower		1 1	Data Manager.	Lance Woods	Wx - 1200;		1.0m	10kts	NE
SS	S - Edg	etech 4	200 #3	3719	[	Ну	rdro. Su	rveyor:		David \	Wise		1	Data Processor:	Cody Gibson	Wx - 1800:	ĵ	0.3m	5kts	NE
	Mag	SeaSpy	133	80A		Geo	physica	al Tech.:		Richie Car	rmichael		]	Data Processor:	n/a	Wx - 2400:		n/a	n/a	n/a
US	BL - IX	SEA GA	PS #	151	[	Oth	er Surve	ey Crew:		n/a	3		] ]	Data Processor:	n/a	ISE Reporting	(Place	an "x" in the b	oox, with brief des	cription
_	Sample			_	- 1	Clien	t Repre	sentative:		Kent Sin	npson			Additional Proc.:	n/a	HSE OFFICER:		Kell	ly Power	
Grab	Sample	er - Van	Veen	_	- 1									Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		
				_									┨ .			Shift Change:	N/A			
				_									4 1			Safety:	X	ReviewMAR-TI	RA-013, 1 HOC card s	ubmitted
					્રા								_			Pre/Post Job:	No			
TI	ME	OP					LINE	INFORM	MATION				_							
FROM	то	CODE	LINE NUME	ER I	HEADING	BSP		_	Mag (m)	SSS Fish (m)	1	DNP	1		DETAILED S	URVEY INFORMATI	ON			
0630	0700	ow						i dui (iii)	wag (m)	Too man (m)		- Ditti	Morning	Ops Meeting, Vessel Prestart	checks					
0700	0800	ow	4	$\neg$		7							Refuel							
0800	0805	ow	4	$\neg$									Called	MV Q105 who reported good w	eather/sea conditions in Cook	inlet south of the Forela	ands			
0805	0820	ow												pre-start checks. Captain had to						
0820	1040	IT		- 1								Ĭ	Depart	Cannery Dock						
1040	1205	WS											At PLOS	3, Waiting on weather, Seas are	1.0m, winds 10-15kts, whited	caps are present				
1205	1235	ow												survey equipment						
1235	1305	E65		_									Switch	to Port SS winch as problem wi	th Stbd winch cable( no comm	nunication to towfish)				
1305	1315	LT										2	1							
1315	1322	ow	PL08_03	9	032.0	100	113	39.0	57.0	47.0			-	SBES/SSS/MAG Seas;1.0m Wir		Control to the control of the contro	North F	oreland Tide S	tation) Line aborted	due to jetson
1322	1334	LT												ed line turn to move away from a						
1334	1357	OL	PL08_04	0	212.0*	100	177	30.0	30.0	20.0			MBES/	SBES/SSS/MAG Seas;1.0m Win	nds: 10kt NE. Vessel: 5.5 kt, 1	ride = 4.6m,2.4kt Ebb				
1357	1403	LT	DI OS O	7	032.0°	100	47E	22.0	E4.0	44.0		-	MADES	CDECIDEDIMAC Consid On Mi	ada 10kt NE Vassal 2.2kt 3	Fide = 4.0m 2.2kt Fbb				
1403	1522	OL LT	PL08_03	11	032.0	100	175	32.0	54.0	44.0			INBESI	SBES/SSS/MAG Seas; 1.0m Wi	ilds. Tokt NE. Vessei, 2.3 kt,	ilde - 4.0m,3.2kt EDD				
1522 1532	1532 1553	OL	PL08 04	1	212.0°	100	179	28.0	28.0	18.0			MRES	SBES/SSS/MAG Seas;0.5m Wi	nde: 10kt NE Vaccal: E 9 Lt 1	Fide = 2.2m 4.0kt Ehh	ioceol o	rabbina dowali	ne due to etrope cu	rrent nuching
1553	1605	OW	LEVO_0		414.0	100	119	20.0	20.0	10.0		+		spes/sss/wag seas,0.5m wil er survey equipment	ing ing ine vesser 5.0 Kt	1100 - 2.2111,4.VKI EDD, 1	cosei C	appling Jownii	ne due to strong ct	arent positing
1605	1745	IT		_		-								to Cannery Dock						
1745	1830	ow	74	-		-								inated port SS cable but a prob	lem still lies in the slin rings	Will reuire some more t	roubles	hooting and re-	nairs	
1830	1000			_								1	1.3000111	mates por ee cable ou a prob	and the state on the same things.	The round dome more		moning and re-	pon o.	
				$\neg$									1							
				$\dashv$									1							
													1							
													1							



											SFA	Fugro Floor Mapping Joblog
PRO	SPECT NAV. SY FUGRO JOB RP TO S	V. SYSTEM: Hypack  GRO JOB #: 23.00007123 NAY. DIVIDE BY: 1 JOB DAY #: Day: 57 TO STERN: 0.00 N/A SURVEY LINITS: Meters. NAUTICAL MILE: 6080.0					No ORI	JOB DESC	CLIENT: RIPTION: BLOCK: R/V:		## AK LNG   Soafloor Mapping	
	ME	OP										DETAILED SURVEY INFORMATION
FROM	то			HEADING			Fath (m)	Mag (m)	SSS Fish (m)		DNP	to a common constant or constant of the consta
_		AM	PL08_040 PL08_037		177	181						Added milage for run in/out Added milage for run in/out
	_	AM	PL08_037		179	183						Added milage for run in/out
		-Aill	1 200_011		001	1144						Deleted milage for extra shotpoints recorded by Hypack
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										e	FUGRO FLOOR MAPPING JOBLOG		
ver 7.22.2015-A (/	Alackal									<b>S</b> EA	-LOOR WAPPING JOBLOG		
	DATE:	05-Sep-201	5 Sat	Julia	n Dav:	248	1		CLIENT:		AK LNG		
PROSPECT	makin mean	05-56P-201		ok Inlet	Day.	240	1 .	JOB DESCR			Seafloor Mapping		-
NAV. SYS	STEM:		Н	ypack			1		BLOCK:		Pipeline		, , , , , , , , , , , , , , , , , , ,
FUGRO.		23.00007123		J. P. Service			4		R/V:		Westerly		
JOB I	DAY #:	Day: 58	1				No	of SURVE	Y LINES:		484 712.00 Kilometers		
CRP TO S	TERN:	0.00 N/A	1								88.9% Complete		
	11111		-								106,000.00 Meters Added		
EOPHYSICAL	EQUI	MENT EQUIPA				PERS	SONNEL O	NBOARD			PERSONNEL ONSHORE WEATHER RE	PORT	
Navigation Sys			1		Capta			Ryan Bra	aget		Offshore Site Manager: Maria Krynytzky Time Sea State	Wind Speed	Dir.
oiff, GPS System	-	THE RESERVE AND ADDRESS OF THE PERSON NAMED IN		Othe	er Vess	el Crew:		n/a			Ass't Off, Site Manager: Charlie Hall Wx - 0600: na	na	na
MBES - I	R2Sonic	G BOUNDOON	1		Party C			Kelly Po	wer		Data Manager: Lance Woods Wx - 1200: 0.3m	light	Var.
SSS - Edge	etech 42	200 # 38719		Ну	dro. Su	rveyor:		David W	Vise		Data Processor: Cody Gibson Wx - 1800: 0.3m	light	Var.
Mag 9	SeaSpy	13380A	1	Geo	physica	al Tech.:		Richie Carn	nichael		Data Processor: n/a Wx - 2400: na	na	na
USBL - IXS	SEA GA	PS # 151	]	Othe	er Surve	ey Crew:		n/a			Data Processor: n/a ISE Reporting (Place an "x" in the	ox, with brief desc	cription
Grab Sample	r - Day	Grab		Clien	t Repre	sentative:		Kent Sim	pson		Additional Proc.: n/a HSE OFFICER: Kel	y Power	
Grab Sample	r - Van	Veen	1								Client Representative: n/a Toolbox: X JHA-Toolbox		
											Shift Change: N/A		
												TRA-009 and 013	
											Pre/Post Job: No		
TIME	OP				LINE	INFORM	ATION						
FROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP	_	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION		
0630 0700	ow	ш :									Morning ops meeting		
0700 0705	ow										MV Q105 reports good weather conditions in the inlet		
0705 0720	ow			i i							Pre-start checks		
0720 0915	IT										Depart Cannery dock for Shorty Creek borehole locations		
0915 1010	ow										Deploy Survey equipment, remove mag from SS for shallow water work at SC Borehole location		
1010 1016	LT									-			
1016 1010	AM LT	BHL_006	205.0°	100	108	5.5	NA	5.0			ShortyCreeek borehole survey, MBES/SBES/SSS Seas; 0.3m Winds: 5k t Var. Vessel: 3.0 kt, Tide = 4.9m, 1.9kt Eb	b ( North Foreland 1	Tide Statio
1019 1022 1022 1024	AM	BHL 094	025.0°	100	110	5.6	NA	5.0		1	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.0 kt, Tide = 4.3m,( North Foreland Tide Station)		
1024 1024	LT	BHL_094	025.0	100	110	0.0	INA	5.0		-	INDES/SDES/SSS Seas,0.3111 Willias, Sk t Val., Vessel, 3.0 kt, Tide = 4.311,(Nottil Foreland Tide Station)		
1028 1031	AM	BHL 091	205.0°	100	109	5.2	NA	5.0			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.0 kt, Tide = 4.5m,		
1031 1034	LT	DITE_001	200.0	100	100	0.2	1,1,7,5	0.0			mbediobediood odd, a.d. Tillad, at that, though a.d. tt, that a grant,		
1034 1036	AM	BHL_088	025.0°	100	107	5.4	NA	5.0			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5 kt, Tide = 4.6m,		
1036 1039	LT												
1039 1042	AM	BHL_085	205.0°	100	108	5.2	NA	5.0			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.3 kt, Tide = 4.7m,		
1042 1045	LT												
1045 1046	AM	BHL_082	025.0*	100	108	5.4	NA	5.0			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5 kt, Tide = 4.8m,		
1046 1050	LT	,									Recover SS as topsides lost comms to fish		
1050 1052	AM	BHL_079	205.0°	100	107	5.3	NA	5.0			MBES/SBES/SSS Seas;0.3m Winds; 5k t Var, Vessel: 3.5 kt, Tide = 4.9m,		
1052 1100	LT												
1100 1103	AM	BHL_099	025.0°	100	108	5.3	NA	NA			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.7 kt, Tide = 5.0m,		
1103   1104	LT	DIN 400	205.00	400	400		NIA.				MDEC/CDEC/CCC Coasia Com Window St. A. Von Monach 2 C. lid. Tido = 5 Com		
	AM	BHL_102	205.0°	100	108	5.4	NA	NA		-	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.8 kt, Tide = 5.0m,		
1104 1107													
1104 1107 1107 1109	LT	DUI 105	025.00	100	100	5.2	NIA	NA			MDEC/CDEC/CSS Seas-0 3m Winds; 5k + Var Vascal; 4.7 kt Tida = 5.1m		
1104 1107		BHL_105	025.0°	100	108	5.2	NA	NA			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.7 kt, Tide = 5.1m,		

MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5 kt, Tide = 5.2m,

MBES/SBES/SSS Seas, 0.3m Winds: 5k t Var. Vessel: 3.9 kt, Tide = 5.2m,

MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5 kt, Tide = 5.3m,

1115 1117 LT

1117 1119 AM

LT

AM

LT 1127 1129 AM

1119 1121

1121 1123

1123 1127

BHL\_110 025.0° 100

BHL\_112 205.0° 100

BHL\_114 025.0° 100 108

5.0

4.5

4.9

108

108

NA

NA

NA

NA

NA

NA



			Fugro												
	SEAFLOOR MAPPING JOBLOG														
ver 7.22.2015-A (Alaska)															
DATE:	05-Sep-2015 Sat Julian Day: 248	CLIENT:	AK LNG												
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:	Seafloor Mapping												
NAV. SYSTEM:	Hypack	AREA & BLOCK:	Pipeline	] '											
FUGRO JOB #:	23.00007123	R/V:	Westerly	]											
JOB DAY #:	Day: 58	No. of SURVEY LINES:	484 712.00 Kilometers	-											
CRP TO STERN:	0.00 N/A	_	88.9% Complete												
			106,000.00 Meters Added												

TIN	ΛE	OP					INFORM	_			DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DEFALES SOLVET IN SKILLAROV
1129	1130	LT									STATE OF THE STATE
1130	1132	AM	BHL_116	205.0"	100	107	4.6	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessei: 4.1 kt, Tide = 5.3m,
1132	1133	LT								0	
1133	1135	AM	BHL_118	025.0°	100	107	4.7	NA	NA	6	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5 kt, Tide = 5.3m,
1135		LT					9				
1137		AM	BHL_120	205.0°	100	107	4.2	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5 kt, Tide = 5.4m,
1140	1142	LT									
1142	1144	AM	BHL_122	025.0°	100	108	4.4	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.1 kt, Tide = 5.4m,
1144	1145	LT									ANALYST CONTROL OF THE CONTROL OF TH
1145	-	AM	BHL_170	205.0°	100	107	3.8	NA	NA		MBES/SBES/SSS Seas:0.3m Winds: 5k t Var. Vessel: 4.14kt, Tide = 5.5m.
1148	1149	LT									1
	1151	AM	BHL_171	025.0°	100	108	4.1	NA	NA NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.14kt, Tide = 5.5m,
1151	1153	LT	s								
1153	1155	AM	BHL_172	205.0°	100	108	3.7	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.14kt, Tide = 5.5m,
1155	1156	LT									Note that the second process of the second s
1156	1158	AM	BHL_173	025.0°	100	107	3.9	NA	NA		MBES/SBES/SSS Seas:0.3m Winds: 5k t Var. Vessel: 3.9kt, Tide = 5.5m,
1158	1200	LT									AND
1200	1202	AM	BHL_174	205.0°	100	107	3.6	NA	NA NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.2kt, Tide = 5.5m,
1202	1204	LT									
1204	1205	AM	BHL_175	025.0°	100	107	3.6	NA	NA NA		MBES/SBES/SSS Seac;0.3m Winde: 5k t Var. Veccel: 4.2kt, Tide = 5.5m,
1205	1206	LT								-	
1206	1208	AM	BHL_176	205.0°	100	107	3.7	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.0kt, Tide = 5.5m,
1208	1209	LT									
1209	1211	AM	BHL_177	025.0°	100	106	3.7	NA	NA NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.2kt, Tide = 5.5m,
1211	1213	LT									
1213	1215	AM	BHL_178	205.0°	100	106	3.4	NA	NA NA	_	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.8kt, Tide = 5.5m,
1215	1216	LT								-	
1216	1218	AM	BHL_179	025.0°	100	105	3.5	NA	NA .		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.4kt, Tide = 5.5m,
1218	1219	LT			100					_	
1219	1220	AM	BHL_180	205.0*	100	106	3.2	NA	NA	_	MBES/SBES/SSS Seas,0.3m Winds: 5k t Var. Vessel: 4.6kt, Tide = 5.5m,
1220	1222	LT	DI II 40:	205.01	100				L		
1222	1225	AM	BHL_181	025.0°	100	104	3.5	NA	NA NA		MBES/SBESiSSS Seas;0.3m Winds; 5k t Var. Vessel: 3.9kt, Tide = 5.5m,
1225	1226	LT	DIII 400	005.00	400	405	0.0	NIA.	NA -	_	LINESCORES COMPANY OF THE STATE
1226	1227	AM	BHL_182	205.0°	100	105	3.3	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5kt, Tide = 5.5m,
1227	1228	LT	DUI 100	005.00	100	101	2.4	NIA	NIA		MDES/SDES/SSS SagriA 2m Windo: Els & Ver Vessel; 4 Els Tido = E Em
1228	1229	-	BHL_183	025.0°	100	104	3.1	NA	NA .	_	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.5kt, Tide = 5.5m,
1229	1230	LT	DIII 401	205.05	100	405	0.0	A14	111		MDEC/DDEC/DDEC/DDEC/DDEC/DDEC/DDEC/DDEC/
1230	1231	AM	BHL_184	205.0°	100	105	3.0	NA	NA .		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.6kt, Tide = 5.5m,
1231	1235	ow	DUI AGO	200.00	100	100	0.2	NIA	NA		Move to VP borehole locations
1235		AM	BHL_038	208.0°	100	108	9.3	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.4kt, Tide = 5.5m,
1238	1242	LT	BHL 068	028.0°	100	4.45	5.2	NIA	NA	_	MBES/SBES/SSS Seas 0.3m Winds; 5k t Var. Vessel: 4.4kt, Tide = 5.5m,
1242	1246	AM	BHL_008	V20.U	108	115	5.2	NA	NA	_	MIDEO/ODEO/OGO GUAS,M.SIII YYHIUS; DK L VAII. V VESSEI, 4,4KI, 1 IUE = 3.5III,
1246	1248	LT	BHL 075	208.0°	110	124	4.2	NA	NA	_	MBES/SBES/SS Seas.0.3m Winds; 5k t Var. Vessel: 4.4kt. Tide = 5.5m,
1248	1249	AM	DHL_0/5	200.0	110	124	4.2	INA	INA		INDECODE COS CESSOS TYPINGS ON LYGIS VESSES 4.4NL, TIME - 0.0HI,
1249	1250	LT	BUI 077	028 0°	100	107	3.3	NΙΔ	NA NA		MDES/SDES/SSS Sage/0 3m Winder 5k t Vor. Vossel: 4 4kt Tida = 5 5m
1250	1253	AM	BHL_077	V20.0	100	107	3.3	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.4kt, Tide = 5.5m,



			Fugro			
		Si	AFLOOR MAPPING JOBLOG			
ver 7.22.2015-A (Alaska)						
DATE:	05-Sep-2015 Sat Julian Day: 248	CLIENT:	AK LNG	$\neg$		$\neg$
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:	Seafloor Mapping	$\neg$		$\Box$
NAV. SYSTEM:	Hypack	AREA & BLOCK:	Pipeline			_
FUGRO JOB #:		R/V:	Westerly			$\neg$
JOB DAY #:	Day: 58	No. of SURVEY LINES:	484 712.00 Kilometers			ヿ
CRP TO STERN:	0.00 N/A		88.9% Complete			$\neg$
			106,000,00 Meters Added			$\neg$

CRPTOSTER	K.N.	U.UU N/A								106,000.00 Meters Added	
										A CONSIDER CONTRACTOR	-
	OP ODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)		SSS Fish (m)	DNP	DETAILED SURVE	Y INFORMATION
1253 1255 L			-	001	201	r dur (m)	wag (III)	CCC / IGIT (III)	Ditt		
	M	BHL_076	208.0*	100	108	3.9	NA	NA	1	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.4kt, Tide = 5.5m,	
1257 1258 L	T										
	M	BHL_074	028.0°	109	117	4.0	NA	NA	7.	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.4kt, Tide = 5.5m,	
1301 1302 L	$\overline{}$	DI II 070	200.00	400	100					WEST CONTROL OF THE STATE OF TH	
	M	BHL_073	208.0°	100	108	4.4	NA	NA NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessei: 5.0kt, Tide = 5.4m,	
1304   1306   L' 1306   1309   Al	M	BHL 072	028.00	100	107	4.5	NA	NA		MBES/SBES/SSS Seas;0,3m Winds; 5k t Var. Vessel; 4.4kt. Tide = 5.4m.	
THE RESIDENCE OF THE PARTY OF T	T	DIIL_0/2	020.0	100	107	4.5	INA	INO.	_	MDED/ODED/000 0003,0.0111 Willias. 3k ( Val., Vessel, 4.4k), Tide = 0.411,	
	M	BHL 071	208.0°	100	108	4.7	NA	NA	_	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.4kt, Tide = 5.4m.	
1312 1314 L	_	23.12_0.1	-	100			103				
1314 1317 AI	M	BHL_070	028.0°	100	108	4.7	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 4.8kt, Tide = 5.4m,	
1317 1322 L	_				1				5		
	-	3HL_069_001	208.0°	100	107	4.9	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 5.8kt, Tide = 5.3m,	
1323 1324 L	-	B									
1324   1327   AI	_	BHL_068	028.0°	100	107	5.0	NA	NA NA		MBES/SBES/SSS Seas:0.3m Winds: 5k t Var. Vessel: 3.2kt, Tide = 5.3m,	
1327 1329 L 1329 1330 Al	M	BHL 067	208.0°	100	108	5.2	NA	NA NA	-	MBES/SBES/SSS Seas:0.3m Winds: 5k t Var. Vessel: 3.2kt, Tide = 5.3m,	
	T	BHL_007	200.0	100	100	5.2	INA	INA	_	IVIDES/SDES/SSS Seas,0.3III VVIIIUS: Sk t Val. Vessel: 3.2kt, 110e = 5.3III,	
	M	BHL 066	029.0°	100	107	5.3	NA	NA		MBES/SBES/SSS Seas;0.3m Winds; 5k t Var. Vessel; 3.2kt, Tide = 5.2m.	
1336 1337 L	_	5.1.2_000	0.00.0	100	101	0.0	1.0.1				
1337 1338 AI	M	BHL_065	208.0°	100	108	5.4	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.2kt, Tide = 5.2m,	
1338 1340 L	т.										
1340 1343 AI	M	BHL_064	028.0°	100	107	5.6	NA	NA	-	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.2kt, Tide = 5.2m,	
1343 1347 L	_										
	M	BHL_045	208.0°	108	115	5.7	NA	NA	_	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 5.9kt, Tide = 5.1m,	
1348   1350   L' 1350   1354   Al	_	BHL 046	028.0°	100	100	0.0	NIA	N/A	-	MBES/SBES/SSS Seas:0.3m Winds; 5k t Var. Vessel; 3.0kt. Tide = 5.0m.	
	T	BHL_040	020.0	100	108	6.0	NA	NA	_	INDES/SDES/SSS Seas, U.SIII WIIIds. Sk ( Val., Vessel, S.Okt, Tide = 5.011),	
	M	BHL 046	206.0*	100	108	6.0	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 3.0kt, Tide = 5.0m,	
	T			100	100	0.0		74.1			
1358 1402 AI	м	BHL_050	028.0°	109	117	6.4	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 2.8kt, Tide = 4.9m,	
1402 1403 L	T										
	M	BHL_052	208.0°	100	108	6.0	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 2.9kt, Tide = 4.9m,	
	T.										
AND DESCRIPTION OF THE PERSON NAMED IN COLUMN	M	BHL_054	028.0°	100	107	6.5	NA	NA .	_	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 2.8kt, Tide = 4.8m,	
	_T	DUI OEC	200.00	100	100	6.2	NA	NA NA		MBES/SBES/SSS Seas;0.3m Winds; 5k t Var. Vessel; 5.8kt, Tide = 4.8m,	
1411 1412 AI 1412 1414 L	T	BHL_056	208.0°	100	108	6.2	INA	INA		INDEG/GDEG/GGG Geds, U.SHI WINGS. DK t Val. Vessel: D.OKt, Tide = 4.8M,	
	M	BHL_058	028.0°	100	108	6.7	NA	NA NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 2.7kt, Tide = 4.8m,	
	т					0	,			1000	
	M	BHL_060	208.0°	100	108	6.3	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 5.9kt, Tide = 4.7m,	
1420 1422 L	т										
	M	BHL_062	028.0°	100	107	6.7	NA	NA	0	MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 5.9kt, Tide = 4.6m,	
The second secon	т_				165					CONTROL DESCRIPTION OF THE STREET, SEE SEE STREET, SEE	
1427 1428 AI	M	BHL_063	208.0°	100	108	6.4	NA	NA		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel: 5.9kt, Tide = 4.6m,	



												Fugro
											e	
											<b>S</b> EA	FLOOR MAPPING JOBLOG
ver 7.22	.2015-A	DATE:	05-Sep-201	5 Sat	Iulia	n Dav	248	1		CLIENT:		AK LNG
980	SPECT		03-3ep-201		ok Inlet		240	1	OB DESC		_	Seafloor Mapping
	NAV. SY				ypack			1 '		BLOCK:		Pipeline
			23.00007123		ypaon			1	ritter (	R/V:		Westerly
		DAY#:	Day: 58	1				No	of SURVE			484 712.00 Kilometers
C			0.00 N/A	1							-	88.9% Complete
				-								106,000.00 Meters Added
	ME	CODE	LINE NUMBER	Levens	Laca		INFORM		I 000 F 1 4 4 1		200	DETAILED SURVEY INFORMATION
FROM	TO 1430	LT	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
1428	1434	AM	BHL_043	028.0*	100	107	8.0	NA	NA			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessei: 5.9kt, Tide = 4.5m,
1434	1435	LT	DITE	0.20.0	100	101	0.0	107	107			
1435	1437	AM	BHL_041	208.0°	100	107	8.2	NA	NA			MBES/SBES/SSS Seas;0.3m Winds: 5k t Var, Vessel: 5.9kt, Tide = 4.5m,
1437	1438	LT							11			
1438	1442	AM	BHL_039	028.0°	100	106	8.3	NA	NA			MBES/SBES/SSS Seas:0.3m Winds: 5k t Var. Vessel: 2.5kt, Tide = 4.4m,
1442	1443	LT				-						
1443	1444	AM	BHL_036	208.0°	100	107	8.1	NA	NA	1		MBES/SBES/SSS Seas;0.3m Winds: 5k t Var. Vessel; 2.5kt, Tide = 4.4m,
1444	1505	OW										Recover Survey equipment
1505	1645	IT										Transit to Cannery dock
1645	1800	OW										Fuel Vessel
1800	1830	OW	et e		2	_						Vessel maintance, reterminate SS cable
1830		- 1			is a	_						4
$\vdash$												1
												1
												1
												1
												4
						-						4
$\vdash$		<b>—</b>					<del>                                     </del>			<del>                                     </del>		1
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												1



										_	Fugro						
	and the same									SEA	FLOOR MAPPING JOBLO	OG					
r 7.22.2015-A (	DATE:	06-Sep-2	115 Su	n Julia	n Dav	249	1		CLIENT:		AK LNG						
PROSPECT		00-5ер-2		Cook Inle		243	1 .	JOB DESCR		_	Seafloor Mapping						
NAV. SY	STEM:			Hypack			1	AREA &	BLOCK:		Pipeline						
<b>FUGRO</b>	JOB #:	23.000071	23				īki 		R/V:	-	Westerly						
	DAY#:	Day: 59	_				No	. of SURVE	Y LINES:	1	484 724.25 Kilometers						
CRP TO S	TERN:	0.00 N/	Δ								89.1% Complete						
											118,250.00 Meters Added						
OPHYSICA	L EQUI	PMENT cau	P#	40		PER	SONNEL O	NBOARD			PERSONNEL	ONSHORE	100	W	EATHER REP	ORT	
vigation Sys			2273		Capta			Ryan Bra	aget		Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
GPS System		2-100 C - 100 C   10 C	3012	Oth		el Crew:		n/a			Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		na	na	na
MBES -			2633		Party C			Kelly Po			Data Manager.	Lance Woods	Wx - 1200;		0.3m	5kts	5W
SSS - Edg			_		ydro. Su			David W			Data Processor:	Cody Gibson	Wx - 1800:		0.3m	5kts	SW
Mag S USBL - IXS					ophysica		-	Richie Carn	nichael		Data Processor:	n/a	Wx - 2400:	(DInn)	na	na	na
rab Sample			01			ey Crew:	-	n/a	0000		Data Processor: Additional Proc.:	n/a n/a		(Place a		x, with brief des	criptio
rab Sample				Cile	nt repre	Scillauve.		Kent Sim	pauli		Client Representative:	n/a	HSE OFFICER: Toolbox:	X	JHA-Toolbox	Power	
nab Sample	ı - vaii	Veen	-1								Cheft Representative.	Illa	Shift Change:	N/A	JHA-100IDOX		
			_										Safety:	X	Review TRA-M	AR-002	
			╛										Pre/Post Job:	No			
		-															
TIME OM TO	OP	LINE NUMBI	n Leann	non los	ESP	E INFORM		000 Fire ()		DNP		DETAILED S	URVEY INFORMATION	ON			
30 0715	OW	LINE NUMBE	IK NEADI	40 BSP	ESP	Fath (m)	Mag (m)	SSS FISH (M)		DNP	Morning ops meeting						
15 0915		Si		+	1						Creating MBES tiff image for nav, crew i	members checkout of lodge t	for today				
15 0930	OW			2	T						Vessel prestart checks, Contacted MV C			Inlet			
30 1106	IT			1							Depart Cannery Dock						
06 1127	OW										Deploy MBES, conduct usvp						
127 1132	AM	BHL_162	229.0	0° 100	113	5.7	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var	r. Vessel: 4.0 kt, Tide = 4.9m.	(East Foreland Tide St	tation)			
132 1133	LT	DI II 40	0407	20 400	400	4.0											
133 1136 136 1137	AM LT	BHL_124	049.0	0° 100	126	4.2	NA	NA									
137 1142	AM	BHL_125	229.0	0° 127	139	5.2	NA	NA									
142 1145	LT	Ditt_12		127	100	0.2	14/3	103									
145 1149	AM	BHL_126	029.0	0° 140	152	4.6	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var	r. Vessel: 4.7 kt, Tide = 5.1m.	( East Foreland Tide St	tation)			
149 1150	LT																
150 1155	AM	BHL_129	229.0	)° 153	165	5.6	NA	NA		2							
155 1156	LT	DI ::		100	1						LIDEOUSEO O		vecoverous estate				
156 1200	AM	BHL_130	049.	0° 166	177	3.0	NA	NA		_	MBES/SBES Seas; 0.3m Winds: 5k t Var	r, Vessel: 4.4 kt, Tide = 5.2m	( East Foreland Tide S	tation)			
200 1201 201 1206	AM	BHL_13	229.	0° 178	190	5.5	NA	NA		_	MBES/SBES Seas;0.3m Winds: 5k t Var	Veccel: 4 Okt Tide = 5 2m	/ East Foreland Tide Co	tation			
206 1207	LT	DHL_13	223.	1/0	190	5.5	INA	INA		-	MIDEO/ODEO OCAS,O.OH WINDS. OK I VAI	. vessel. 4.0 Kt, 1100 = 3.211	A cast roleiand fide S	tation)			
207 1209	AM	BHL 132	049.0	)° 191	201	3.0	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var	r. Vessel: 4.0 kt. Tide = 5.2m	( East Foreland Tide Si	tation)			
209 1210	LT			1.57	1							Williamskoffi Heskitelikusta (Santuk		W.((TS#)			
210 1214	AM	BHL_133	229.0	0° 202	212	5.3	NA	NA		2	MBES/SBES Seas; 0.3m Winds: 5k t Var	r. Vessel: 4.0 kt, Tide = 5.2m.	( East Foreland Tide St	tation)			
1216	LT																
16 1219	AM	BHL_138	049.0	)° 213	223	3.0	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Var	r. Vessel: 4.0 kt, Tide = 5.2m	( East Foreland Tide St	tation)			
19 1220	LT	DI "	000	20 00:	001						MOTOROPEO O CO	. V	/F/F				
20 1224	AM	BHL_136	229.	0° 224	234	5.2	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var	r. Vessel: 4.0 kt, Tide = 5.2m.	( East Foreland Tide S	tation)			
24 1226	LT AM	BHL 13	040	0° 235	245	3.0	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Vai	Vacanti 2 Okt Tida - 5 2-	/ Fact Faceland Tide Co	tation)			
226 1230	AM	BHL 13	049.	235	245	3.0	INA	I NA			INDES/SEES SHAS; U.SM VVINGS: 5k t Val	. vessel: 3.9 Kt, 1100 = 5.2m.	( East Foreigno 11de S	tation)			

MBES/SBES Seas; 0.3m Winds: 5k t Var. Vessel: 3.9 kt, Tide = 5.2m, (East Foreland Tide Station)

MBES/SBES Seas; 0.3m Winds: 5k t Var. Vessel: 3.9 kt, Tide = 5.3m, (East Foreland Tide Station) Passed a Setnet bouy on vessel port

1230 1231 LT

1241 1242 LT

AM

LT

AM

1231 1235

1235 1236

1236 1241

BHL\_138 | 229.0° | 246

BHL\_139 049.0° 257

256

267

5.0

3.0

NA

NA

NA

NA



												Fugro
											_	
											SEA	FLOOR MAPPING JOBLOG
ver 7.22.	2015-A		06-Sep-201	E C.m	Lulia	n Dave	240	1		OLIENT		AK LNG
PROS	PECT	DATE:	06-Sep-201		ok Inlet		249		OB DESC	CLIENT:	_	Seafloor Mapping
	AV. SY				lypack			1		BLOCK:		Pipeline
F		JOB #:	23.00007123					TA 200.0		R/V:	-	Westerly
0.0		DAY#:	Day: 59	1				No	of SURVE	Y LINES:		484 724.25 Kilometers 89.1% Complete
CR	PIOS	HERN:	0.00 N/A	Į.								89,1% Compared 118,250,00 Meters Added
												A tacknool or play on the sea.
TIN		OP					EINFORM					DETAILED SURVEY INFORMATION
FROM 1242	TO 1246	CODE	BHL 140	229.0°	268	277	Fath (m) 4.9	Mag (m) NA	SSS Fish (m) NA		DNP	MBES/SBES Seas; 0.3m Winds: 5k t Var. Vessel: 3.9 kt, Tide = 5.3m, (East Foreland Tide Station)
1246	1247	LT	DHL_140	225.0	200	211	4.5	INA	INA			MIDEO/SDEO Seas, 0.5III VVIIIds. Sk t Val., Vessel, 3.5 kt, Tide = 3.5III.( EastFoleidild Tide Station)
1247	1251	AM	BHL_141	049.0°	278	287	2.9	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Var. Vessel: 3.9 kt, Tide = 5.3m,( East Foreland Tide Station)
1251	1252	LT	DI II 440	000.00		000	4.0					
1252 1255	1255 1256	LT	BHL_143	229.0°	288	296	4.8	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Var. Vessel; 3.9 kt, Tide = 5.3m,( East Foreland Tide Station)
1256	1258	AM	BHL_160	341.0°	297	298	3.0	NA	NA			Running line perpendicular to lines to maximize coverage at slack current on east side of grid
1258	1259	LT	1							,		
1259	1301	AM	BHL_163	161.0°	299	301	5.2	NA	NA			
1301	1302	AM	BHL_164	341.0°	302	303	3.0	NA	NA		-	MBES/SBES Seas;0.3m Winds: 5k t Var. Vessel: 3.9 kt, Tide = 5.2m,( East Foreland Tide Station)
1303	1305	LT	DITE_104	041.0	302	303	3.0	INA	INA			mbed-obed-obed-obed-obed-obed-obed-obed-o
1305	1306	AM	BHL_165	161.0°	304	305	4.7	NA	NA		ļ.	MBES/SBES Seas;0.3m Winds; 5k t Var. Vessel; 3.9 kt, Tide = 5.2m,( East Foreland Tide Station)
1306	1307	LT	DUI 400	244.00	200	200	0.0	N14	NIA.			
1307	1309 1310	AM LT	BHL_166	341.0°	306	309	3.0	NA	NA			4
1310	1317	AM	BHL_168	161.0°	310	319	4.6	NA	NA			MBES/SRES Seas:0.3m Winds: 5k t Var. Vessel: 2.5 kt. Tide = 5.2m.( Fast Foreland Tide Station)
1317	1318	LT										A STATE OF THE STA
1318	1323	AM	BHL_145	341.0°	320	329	4.4	NA	NA			MBES/SBES Seas: 0.3m Winds: 5k t Var. Vessel: 2.5 kt, Tide = 5.2m,( East Foreland Tide Station)
1323	1324	AM	BHL_147	161.0°	330	338	4.9	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Var. Vessel: 2.5 kt, Tide = 5.1m,( East Foreland Tide Station)
1331	1332	LT	5115_111				7.0	101	10.1			,
1332	1336	AM	BHL_148	341.0°	339	347	4.4	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Var. Vessel: 2.5 kt, Tide = 5.1m,( East Foreland Tide Station)
1336	1337	LT	DIII 440	101.00	0.40	0.57						MARCONEC Company Window Stat Van Versch O. Et al. Tida of Stat / Foot Seastered Tida (Cartino)
1337	1344	AM OW	BHL_149	161.0°	348	357	3.9	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var. Vessel: 2.5 kt, Tide = 5.1m, (East Foreland Tide Station) Recover MBES, conduct usvp
1400	1520	IT		1								Transit to Cannery Dock
1520	1830	MD	5									Demob USBL transducer and mobilize grab sampler on the stern of the vessel
1830					,							
			2 0									
$\vdash$		_									-	



												Fugro						
										SEA	FLO	OR MAPPING JOBL	.OG					
ver 7.22.2015-A (	(Alaska)																	
	DATE:	07-Sep-20				250	1		CLIENT:			AK LNG						
PROSPECT				ook Inlet				OB DESC				Seafloor Mapping						
NAV. SY		00 0000741		Hypack			J	AREA 8	BLOCK:			Pipeline						
	DAY #:	23.0000712	.3				Ma	of CUDVE	R/V:	_	484	Westerly 729.40 Kilometers						
DOMESTIC OF STREET		0.00 N/	-				NO	of SURVE	T LINES:		404	89.2% Complete				-		
CRPTOS	HERN:	U.UU NII	_									123,400.00 Neters Added		1				
												1891,000100		1				
GEOPHYSICA	L EQUI	PMENT EQUI	P#	251		PERS	SONNEL O	NBOARD			2	PERSONNEL	ONSHORE	-127	٧	EATHER REP	ORT	
Navigation Sys	stem - F	OS MV BORBO	273		Capta	ain:		Ryan Bı	raget		]	Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
Diff, GPS System			012	Oth		el Crew:		n/a			1	Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:	0	na	na	na
MBES -			633		Party C			Kelly Po			1	Data Manager.	Lance Woods	Wx - 1200;		0.3m	light	var
SSS - Edg			_		ydro. Su			David \				Data Processor:	Cody Gibson	Wx - 1800:		na	light	W
Mag						al Tech.:		Richie Car			Į	Data Processor:	n/a	Wx - 2400:		na	na	na
USBL - IXS			51			ey Crew:		n/a			Į.	Data Processor:	n/a		(Place		x, with brief des	cription
Grab Sample			-	Clier	nt Repre	sentative:		Kent Sin	npson		l	Additional Proc.:	n/a	HSE OFFICER:			Power	
Grab Sample	er - Van	Veen	-	-								Client Representative:	n/a	Toolbox:	X	JHA-Toolbox		-
				<u> </u>							ł			Shift Change:	N/A		account noncor a socionistic store	
				<b>—</b>			_				1			Safety:	X	Review MAR-TRA-	003 & 013, 1 HOC for a	safe act
											J			Pre/Post Job:	No			
TIME	OP	T .			LINE	EINFORM	MATION											
FROM TO	CODE	LINE NUMBE	R HEADIN	G BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	1		DETAILED	SURVEY INFORMATI	ON			
0630 0745	ws	S.L.	7								Waiting	g on tides at dock, could not dep	part earlier due to darkness					
0745 0840	ws										Review	grab sampler procedure, opera	ational test of grab sampler	at the dock, test ok				
0840 1010	IT			ĺ.							Transit	to Grab sample location on ite I	PL02, Called MV Q105 who	reported favorable sea co	nditions	s in Cook Inlet		
1010 1028	co			1								01 Grab Sample, First attempt n		3				
1028 1041	co		1									2 Grab sample , First attempt w						
1041 1053	co											3 Grab sample , First attempt w						
1053 1110	co		-	-	-						THE STATE OF THE	4 Grab cample , First attempt w						
1110 1132	co	-	-	-	-							4 Grab sample , First attempt w						
1132 1143	co		+-	+	-							3 Grab sample , First attempt w						
1143 1155	CO	(A)		-	-							2 Grab sample , First attempt w						
1155 1210 1210 1225	ow		+-	+	-		_			_		11 Grab Sample, First attempt w	as good, rocks					
1210 1225 1225 1234	LT		-	+	<del>-</del>	_	-				Deploy	MBES, conduct USVP						
1234 1240	AM	BHL 002	247.0	° 358	365		NA	NA			MRES	SBES Seas; 0.3m Winds; 5k t V	ar Vessel 2 6kt Tide = 4.8	m / Fast Foreland Tide S	tation)			
1240 1241	LT	DITE_002	247.0	330	303		INA	INA			MOLO	ODEO OCAS, O. SIII VVIII OS. OK L VI	ar. 765561, 2.0 Kt, 1106 - 4.0	ili, Castroleialia Tide S	teuony			
1241 1242	AM	BHL 001	067.0	° 366	372		NA	NA			MBES	SBES Seas; 0.3m Winds: 5k t V	ar. Vessel: 2.6 kt. Tide = 4.8	m.( East Foreland Tide S	tation)			
1242 1243	LT		1/55070	1			1	1.0.1										
1243 1246	AM	BHL 003	247.0	372	380		NA	NA			1							
1246 1247	LT			_							1							
1247 1249	AM	BHL_004	067.0	° 381	387	5.4	NA	NA			1							
1249 1250	LT							1			]							
1250 1254	AM	BHL_005	247.0	° 388	395	4.8	NA	NA			]							
1254 1256	LT	2									1							
1256 1258	AM	BHL_006	067.0	° 396	403	5.9	NA	NA			1							
1258 1259	LT										1							
1259 1302	AM	BHL_007	247.0	° 404	410	4.4	NA	NA			-							
1302 1303	LT	B111 555	0.07		111						1							
1303 1306	AM	BHL_008	067.0	° 411	418	4.8	NA	NA		_	ł							
1306 1307	LT	DIII 600	0.17.0		400	10	114	114			1							

1311 1313 LT

1316 1317 LT

AM

1313 1316

BHL\_010 067.0° 427

434

5.0

NA

NA



												Fugro
											SEA	FLOOR MAPPING JOBLOG
ver 7.22	.2015-A		07.0004					1				
200	SPECT		07-Sep-2015		Julia ok Inlet		250	-	JOB DESC	CLIENT:	_	AK LNG Seafloor Mapping
	NAV. SY				ypack			1		BLOCK:		Sourcer warping Pipeline
			23.00007123		27.00.00			4		R/V:		Westerly
105		DAY#:	Day: 60	l				No	. of SURVE	Y LINES:		484 729.40 Kilometers
C	RP TO S	TERN:	0.00 N/A	Į								89.2% Complete 123,400,00 Meters Added
												120,400.00 Initials Added
	ME	OP					INFORM	*				DETAILED SURVEY INFORMATION
FROM	-	CODE	LINE NUMBER	-	_	ESP	Fath (m)		SSS Fish (m)		DNP	Dischering and the property of
1317	1319	AM LT	BHL_011	247.0°	435	442	3.4	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var. Vessel: 2.6 kt, Tide = 5.2m, (East Foreland Tide Station)
1320	1323	AM	BHL_012	067.0°	443	450	4.9	NA	NA			MBES/SBES Seas; 0.3m Winds: 5k t Var. Vessel: 2.6 kt, Tide = 5.2m, (East Foreland Tide Station)
1323	1324	LT								:		
1324	1327	AM	BHL_013	247.0°	451	458		NA	NA			
1327 1329	1329 1332	LT AM	BHL 014	067.0°	459	466	4.6	NA	NA			MBES/SBES Seas;0.3m Winds: 5k t Var. Vessel; 2.6 kt, Tide = 5.2m,( East Foreland Tide Station)
1332	1333	LT	DINE_014	301.0	400	400	4.0	14/3	-103			The Country of the Co
1333	1337	AM	BHL_015	247.0°	467	474	2.8	NA	NA	,		MBES/SBES Seas; 0.3m Winds: 5k t Var, Vessel: 2.6 kt, Tide = 5.2m, (East Foreland Tide Station)
1337	1351	ow										Recover MBES and conduct usyn
1351 1433	1433 1500	CO										PL05-01 Grab Sample, First attempt was good, rocks PL05-02 Grab Sample, First attempt was no good, 2nd attempt rocks
1500	1510	OW	3 /									Secure grab sampler
1510	1645	IT										Transit to dock
1645 1830	1830	ow										
1000	_	-			-							
$\vdash$												
$\vdash$												
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$\vdash$									<del>                                     </del>			

## Confidential



				Fugro		
		Sı	EAFLOOR	MAPPING JOBLOG		
ver 7.22.2015-A (Alaska) DATE: PROSPECT / SITE: NAV. SYSTEM:		CLIENT: JOB DESCRIPTION: AREA & BLOCK:		AK LNG Seafloor Mapping Pipeline		
FUGROI JOB #: JOB DAY #: CRP TO STERN:	Day: 61	R/V: No. of SURVEY LINES:	484	Westerly 729.40 Kilometers 89.2% Complete 123,400.00 Meters Added		

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	BGR60227
Diff. GPS System - Trimble AG130	BGR(60351)
MBES - R2Sonic	BOR60363
SSS - Edgetech 4200	#38719
Mag - SeaSpy	133804
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-

Captain: Other Vessel Crew:	Ryan Braget
Other Vessel Crew	
Cuidi vessei Cievi.	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson
1	

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Lance Woods
Data Processor:	Cody Gibson
Data Processor:	Katie Conrad
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		na	na	na
Wx - 1200:		0.3m	5kts	N
Wx - 1800:		0.3m	5-10kts	N
Wx - 2400:		na	na	na
HSE OFFICER:		Kell	y Power	
		-	y Power	
Toolbox:	×	JHA-Toolbox		
Shift Change:	N/A			
Safety:	X	Loss of steering D	rill, Review MAR-TRA-003	s and 01
Pre/Post Job:	No			

WEATHER REPORT

TIM	ME	OP	ll			LINE	INFORM	IATION	v	ye e	0.00	DETAILED SUBVEY INFORMATION
FROM	то	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
0630	0045	ow	2									Morning Ops meeting
0645	0655	ow									Ĭ.	Pre-start checks
0655		IT	j I									Depart Cannery dock
	0945											PL06-03, first attempt was a misfire, 2nd attempt was good, rocks
0945												PL07-04, first attempt was good, rocks
0955	1010											PL07-03, first attempt was good, rocks
1010	1020											PL06-02, first attempt was good, rocks
1020	1030	co										PL06-01, first attempt was good, rocks
1030	1045	co										PL07-02, first attempt was good, rocks
1045	1100	OW										Loss of Steering Drill
1100	1110	co		$\sqcup$								PL07-01, first attempt was good, rocks
1110												PL04-01, first attempt was good, rocks
1120												PL03-01, first attempt was good , rocks
1150	1320											Transit to Cannery Dock
1320	1730	MD	3									Demob Grab sampler equipment, Mobilize USBL system and sidescan
1730	1830	ow	-									Refuel Vessel
1830		_										
		_	-									
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												Fugro						
										SEA	FLOC	OR MAPPING JOBL	.00					
r 7.22.2015-A		no San 2	115 WA	t Iulia	n Dave	252	1		CLIENT:			AK LNG						
DATE:   09-Sep-2015   Wed   Julian Day: 252		ا ا	OB DESC				Seafloor Mapping											
		AREA & BLOCK:					Pipeline											
FUGRO	JOB #:	23.000071	23				4		R/V:			Westerly						
	DAY#:	Day: 62					No.	of SURVE	Y LINES:		484	729.40 Kilometers						
CRP TO	STERN:	0.00 N	A									89.2% Complete 123,400.00 Meters Added						
												123,400.00 Meters Added						
OPHYSIC	AL EQUI	PMENT EQU	P#	7.0		PERS	SONNEL OF	IBOARD			2) [0	PERSONNEL	ONSHORE	25	W	EATHER REP	ORT	
		OS MV BGRA			Capta			Ryan Bi	raget			Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
		e AG130 none				el Crew:		n/a			-	Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		na	na	na
	- R2Soni			_	Party C			Kelly Po			-	Data Manager:	Lance Woods	Wx - 1200:		0.3	5kts	ENE
SSS - Ed	SeaSpy				dro. Su	rveyor:		David V Richie Can			-	Data Processor:	Cody Gibson Katie Conrad	Wx - 1800:		1.2m	15kts	N na
USBL - IX			_			ey Crew:	1	n/a			1	Data Processor:	n/a		Diaco		ox, with brief des	
rab Samp			-	-		sentative:		Kent Sin			1	Additional Proc.:	n/a	HSE OFFICER:	riace		Power	cription
rab Samp			-1		Порто			7101110111			1	Client Representative:	n/a	Toolbox:	×	JHA-Toolbox	1 0 11 01	
				1							1		AP-924	Shift Change:	No			
											]			Safety:	х	Review MAR-	RA-009	
						_					J			Pre/Post Job:	No	1		
TIME	I OP				LIME	INFORM	MATION				_							
OM TO	CODE	LINE NUMB	R HEADIN	a BSP	ESP	_	Mag (m)	SSS Fish (m)		DNP	1		DETAILED S	URVEY INFORMATION	NC			
0700	ow										Mornin	g Ops meeting, Spoke to MV Q	105 who infromed me that we	ather conditions were go	od in th	e infet south of	the Forelands	
00 0830	E66										Sidesc	an fish has an issue and Discov	er software unable to commu	nicate with SS fish				
0 0915		Ö	T)	1								eshooting the SS fish with Edge						
15 0930			_	+						_		SS fish with a test cable bypas	sing the cable on the winch, d	ecklead and slip rings, s	ame re	sult was seen.	Fish is alive but no	comms
30 1330 30 1340			-	-						-	Depart	eshooting the SS						
30 1340 40 1359			_	+								survey of Kenai river nearr the (	Cannery Lodge					
9 1400			+	+								10-15kts NNE, Expected seas i		d seas coming from Nort	herly di	rection, his cre	ates large swell in	our surv
00 1459	_		_	1								survey of Kenai river nearr the C	[[[[[[]]]]]] [[[[]]]][[[]][[]][[]][[][[]					
59 1500											Winds	10-15kts NNE, Expected seas i	n survey area 1.0m					
00 1530			1	1							Trouble	eshooting SS towfish						
30 1559												SERVICE CONTRACTOR	102					
59 1600			_	+								15kts NNE, Expected seas in si						
00 1630		2	+	+							Called	Q105 who informed that she is	at the dock at ASRC, reported	that the external siesmi	c opera	itors have depa	ted their survey ar	rea whic
			+	+							Winds	15kts NE, Expected seas in sur	vev are 1.2m					
	I WS		_	+	_		$\overline{}$		_	_		Totto ITE, Expedica dead in dai	roy are right.					
59 1800			- 1	1	ı	l .	1 1		l									
59 1800 00 1830			+	+							1							
9 1800 0 1830		0																
9 1800 0 1830																		
59 1800 00 1830																		
59 1800 00 1830																		
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59 1800 00 1830																		
59 1800																		



Time

				Fugro			
		S	EAFLOOR	MAPPING JOBLOG			
ver 7.22.2015-A (Alaska)							
DATE:	10-Sep-2015 Thu Julian Day: 253	CLIENT:		AK LNG			
PROSPECT / SITE:		JOB DESCRIPTION:		Seafloor Mapping			
NAV. SYSTEM:	Hypack	AREA & BLOCK:		Pipeline			
FUGRO JOB #:	23.00007123	R/V:		Westerly			
JOB DAY #:	Day: 63	No. of SURVEY LINES:	484	729.40 Kilometers	_		
CRP TO STERN:	0.00 N/A	_		89.2% Complete			
				123,400.00 Meters Added			

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BCR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	× -

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Lance Woods
Data Processor:	Cody Gibson
Data Processor:	Katie Conrad
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Wx - 0600:		1.5m	15-20kts E				
Wx - 1200:		1.5m	20kts S				
Wx - 1800:		1.0m	10kts	S			
Wx - 2400:		na	na	na			
ISE OFFICER:		Kell	y Power				
Toolbox:	×	JHA-Toolbox					
Shift Change:	N/A						
Safety:	X Review MAR-TRA -002						
Pre/Post Job:	No						

WEATHER REPORT

Wind Speed Dir.

Sea State

TIN	TIME OP					LINE	INFORM	ATION	v. — — — — — — — — — — — — — — — — — — —	 	DETAILED SUBVEY INFORMATION			
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION			
0630	0031	ws	2 2								Winds were 15-20kts thru night, Forecast calling for 20kts of wind throught the day with 1.3m seas.			
0631	0730	WS					1			î .	Weekly safety meeting at the Fugro operating office in Nikiski			
0730	0759	ws	i i								Brought detail survey map for Lidar to Nikiski Fire station for the Lidar work happening at the beach near Boulder Pt and Suneva Lake			
0759	0800	ws								1	Winds 210.15kts SE, Expected seas of 1.5m in survey area			
0800	0959	WS									Ships Husbandry, clean up of vessel workstations and spaces			
	1000	WS									Winds 15kts SE, Expected seas of 1.5m in survey area			
	1159		l L								Prepare not working sidescan fish in shipping crates for delivery to manufacturer for repair.			
	1200	WS									Winds 20kts S, Expected seas of 1.5m in survey area			
	1250	WS									Q105 reports 20-25kts of wind, she is moving close to ASRC to avoid winds			
	1359	WS	2								Secure grab sample cradle onto mounting with nuts/bolts			
	1400	WS									Winds 20kts S, Expected seas of 1.5m in survey area			
	1559	ws									Vessel maintenace comppleted, changed oil in both main engins			
	1600	WS									Winds 10kts S, Expected seas of 1.0m in survey area			
	1759	WS									Demobed USBL system and mobilized grab sampler equipment.			
	1830	ws	9 3								Winds 10-15kto SE, Expected seas of 1.0m in survey area			
1830			v											
				$\longrightarrow$										
$\rightarrow$														



												e	F1 61	Fugro						
7 70 00		Inches										<b>SEA</b>	FLO	R MAPPING JOBL	.06					
ver 7.22.20		DATE:	11-Sep	2015	Fri	Iulia	n Day	254	1		CLIENT:			AK LNG						
PROSP			тт-оср	2010		ok Inlet		204	1	JOB DESC				Seafloor Mapping						-
	V. SYS	2000				pack			1		& BLOCK:			Pipeline			'			
FUC	GROI J	OB #:	23.00007	123		1,500,500					R/V:			Westerly						
	JOB D	AY #:	Day: 6	4					No	of SURV	EY LINES:	1	484	729.40 Kilometers						
CRP	TOST	ERN:	0.00	I/A										89.2% Complete						
														123,400.00 Meters Added						
GEOPHY	SICAL	EQUIF	MENT E	UIP#				PERS	SONNEL C	NBOARD				PERSONNEL	ONSHORE		v	VEATHER REPO	ORT	
Navigatio	distantaments.	annual relative lanes		602273	1		Capta			Ryan B	raget		1	Offshore Site Manager:	Maria Krynytzky	Time	1/1/2	Sea State	Wind Speed	Dir.
Diff. GPS S	-	-		000012		Othe		el Crew:		n/a			1	Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		na	5kts	E
HOUSE STATE		R2Sonic		000000			Party C			Kelly P			1	Data Manager:	Lance Woods	Wx - 1200:		0.3m	10kts	N
SSS -	- Edge	tech 42	200 #3	8719	1	Ну	dro. Su	rveyor:		David	Wise		1	Data Processor:	Cody Gibson	Wx - 1800:		0.3m	10kts	S
Ma	ag S	eaSpy	13	380A		Geo	ophysica	al Tech.:		Richie Ca	rmichael		1	Data Processor:	Katie Conrad	Wx - 2400:		na	na	na
USBL	L - IXS	EA GA	PS #	151		Oth	er Surve	ey Crew:		n/a	а		1	Data Processor:	n/a	ISE Reporting (	Place	an "x" in the bo	x, with brief des	cription
Grab Sa	ampler	- Day	Grab			Clien	t Repre	sentative:		Kent Sir	mpson		Additional Proc.: n/a			HSE OFFICER:		Kelly	Power	
Grab Sa	ampler	- Van	Veen	_	1					100000000000	and the Control of th		Client Representative: n/a			Toolbox:	X	JHA-Toolbox	10000000	
										Shift Change:	N/A									
				$\neg$						Safety:	X	Review MAR-T	RA-003, 2 HOC car	ds						
													]			Pre/Post Job:	No			
TIME	- 1	100					1 1517	LINEODA	ATION				_							
FROM		OP	LINE NUM	BER I	HEADING	BSP	ESP	Fath (m)	_	SSS Fish (m	AI .	DNP	1		DETAILED S	URVEY INFORMATION	NC			
	700	ow	21112110111	-		DOI	201	1 dui (iii)	wag (m)	OGO T IGIT (III	1	Ditt	Mornin	g Ops Meeting						
0700 0	715	ow	S											irt checks						
0715 0	920	IT											Depart	Cannery Dock for survey area						
0920 0	0945	CO		T)									PL02-7	A. Good sample, full sample, sa	ample					
0945 0	955	CO	-	- 1								Ĭ.	PL02-6	A, Good sample, 1/8 sample, 2	rocks					
0955 1	1008	co	j										PL02-5	A, Good sample, 1/8 sample, s	and					
	1025	co										io.	PL02 8	A, Good Sample, full eample, e	and					
1025 1	1037	CO				2							PL02-9	A, Good Sample, 1/4 sample, r	ocks					
1037 1	1050	co	25										PL02-1	0A,Good Sample, 1/8 sample,	3 rocks					
1050 1	1105	co											PL02-1	1A,Good Sample, 1/4 sample,n	ocks					
1105 1	1115	ow	(a)	100								Ú	Stop to	assess possible thunderstorm,	the dark douds are moing no	orth up the inlet, no coor	cem y	ret, no adverse w	veather statement	in a effect
1115 1	1125	CO										li .	PL04-0	2A, Good Sample, rock, 1/8 sar	mple					
	1145	CO												3A, Good Sample, mud, 1/4 san						
	1200	co											PL04-0	4A, Good sample, rocks, full sa	mple					
	1225	CO	5											4A, Good sample, rocks, 1/2 sa	ample					
	1230	OW												8A, No sample						
1230 1	1245	CO	3			y							PL07-0	8B, Good sample, rock, 1/2 sam	ple					
-	1255	CO	5										PL07-0	7A, Good Sample, rocks, 1/2 sa	ample					
1255 1	1300	OW	1										PL07-0	6A, No Sample						
1300 1	1305	СО										/.	PL07-0	6B, No Sample						
1305 1	1318	CO	9			-					T		PL07-5	A, Good sample, rocks, 1/4 san	nple					

PL05-5A, Good Sample, rocks, 1/8 sample

PL05-4B, Good sample, rocks, 1/8 sample

PL05-3A, Good sample, rocks, 1/8 sample

PL03-5A, Good sample, rock, 1/8 sample

PL03-4A, Good Sample, rocks, 1/2 sample

PL03-3A, Good Sample, rocks, 1/2 sample

PL03-2A, Good sample, rock, 1/8 sample

PL01-5A, Good sample, rocks, 1/8 sample

Offload grab samples to CPC office

PL05-4A, No sample

Transit to Dock

Fueled vessel

1318 1330

1330 1338

1338 | 1348

1348 1355

1355 1408

1408 1420

1420 1430

1430 1439

1439 1500

1500 1625

1625 1710

1710 1830

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	Fugro Seafloor Mapping Joblog											
ver 7.22	.2015-A	(Alaska)			1.0	_		1			SEA	
			11-Sep-201	5 Fri	Julia	n Day:	254			CLIENT:		AK LNG
	SPECT			Ce	oc Inlet				JOB DESC			Seafloor Mapping
1 2	NAV. SY	STEM:		Н	lypack			<u>I</u>	AREA 8	BLOCK:		Pipeline
1			23.00007123	-				200		R/V:		Westerly
122	JOB	DAY#:	Day: 64	ł				No	of SURVE	Y LINES:		484 729.40 Kilometers 89.2% Complete
C	RP TO S	TERN:	0.00 N/A	J.								89.2% Complete 123,400.00 Meters Added
TII	45					LIKU	E INFORM	ATION				
FROM		OP CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1830	10		EITE TOMBER	1.00	DOI	LOF	raur (III)	wag (III)	00071811(11)		Divi	
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											SEA	FLOOR MAR	PING JOBL	.oc					
er 7.22.2	2015-A (									CENTINE.									
nnoc		DATE:	12-Sep-201	5 Sat	Julia	n Day:	255	-	JOB DESC	CLIENT:			AK LNG						
	AV. SY		-		ok Iniet ypack			- 1		& BLOCK:		51	eafloor Mapping Pipeline	3					
		JOB #:	23.00007123		ураск			1	ANLA	R/V:	-		Westerly						
		DAY#:	Day: 65	1				No	of SURVI			484 729	40 Kilometers						
CR			0.00 N/A	1							-	89.	2% Complete						
												123,400	.00 Meters Added						
			PMENT EQUIP		210		PER	SONNEL O	NBOARD			9 99	PERSONNEL	ONSHORE	=64	WEA.	THER REPO	ORT	
avigati	ion Sys	stem - P	OS MV BGR850227	3		Capta			Ryan B	Braget			Site Manager:	Maria Krynytzky	Time	Sea	State	Wind Speed	Dir.
			e AG130 BGR60351	2			el Crew:		n/a				Site Manager:	Charlie Hall	Wx - 0600:		na	na	na
		R2Soni		2		Party C		-	Kelly P				Manager:	Lance Woods	Wx - 1200:		na	na	na
		etech 4 SeaSny				ydro. Su	rveyor: al Tech.:	-	David 1				Processor:	Cody Gibson Katie Conrad	Wx - 1800:		na	na na	na
		SEA GA		ľ			ey Crew:		n/a		-		Processor:	n/a				x, with brief des	
				1					Kent Sir				tional Proc.:	n/a	HSE OFFICER:	(Flace all	The second second second	Power	criptic
	rab Sampler - Day Grab Client Representative: Kent Sin			прооп	_		tepresentative:	n/a	Toolbox:	No	Relig	rower							
				1											Shift Change:	No			
				1											Safety:	No			
				]											Pre/Post Job:	No			
TIM	IE	ÓP				LINE	E INFORM	MATION			-60			DETAILED	SURVEY INFORMATI	ON	_		
ROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m	)	DNP			STATE OF THE PROPERTY OF THE P	SURVET INFORMALI	UN			
	1830	ow		-	_	-	-	_				Fatigue mangemen	t day, no survey op	erations conducted					
1830				-		-				_	-								
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$\neg$	$\neg$																		
$\rightarrow$						—					-								
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Ver 7.22.2015-A (Alaska)  DATE: PROSPECT / SITE: Cook Inlet JOB DESCRIPTION: Seafloor Mapping  NAV. SYSTEM: Hypack AREA & BLOCK: Pipeline  FUGRO JOB #: 23.00007123 RY: Westerly	
DATE:   13-Sep-2015 Sun Julian Day: 256   CLIENT:   AK LNG	
NAV. SYSTEM: Hypack AREA & BLOCK: Pipeline	
JOB DAY #: Day: 66 CRP TO STERN: 0.00 N/A  No. of SURVEY LINES: 484 729.40 Kilometers 89.2% Complete	
123,400.00 Meters Added	
OPHYSICAL EQUIPMENT EQUIP# PERSONNEL ONBOARD PERSONNEL ONSHORE WEATHER REPORT	
rigation System - POS MV	Speed
GPS System - Trimble AG130   Marketing   Other Vessel Crew: n/a Ass't Off, Site Manager: Charlie Hall   Wx - 0600: na	a

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BGR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag - SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	-
	× 1

Captain:	
	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Lance Woods
Data Processor:	Cody Gibson
Data Processor:	Katie Conrad
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.				
Wx - 0600:		na	na					
Wx - 1200:		na	na	na				
Wx - 1800:		na	na	na				
Wx - 2400:		na	na	na				
HSE OFFICER:	(r race		ox, with brief desc y Power	при				
Toolbox:	No	Keil	y Power					
Shift Change:	N/A							
Safety:	No							

TIN	ΝE	OP				LINE	E INFORM	IATION	n. — — — — — — — — — — — — — — — — — — —	 A.S.	Г
FROM	ТО	CODE	LINE NUMBER	<b>HEADING</b>	BSP	ESP			SSS Fish (m)	DNP	1
0630	1830	ow									re
1830											1
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											1
											1
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DETAIL	FD SI	IRVEY	INFORM	ATION

Fatigue mangement day



	Fugro										
SEAFLOOR MAPPING JOBLOG											
ver 7.22.2015-A (Alaska)											
DATE:	14-Sep-2015 Mon Julian Day: 257	CLIENT:		AK LNG							
PROSPECT / SITE:	Cook Inlet	JOB DESCRIPTION:		Seafloor Mapping							
NAV. SYSTEM:	Hypack	AREA & BLOCK:		Pipeline				,			
FUGRO JOB #:	23.00007123	R/V:		Westerly							
JOB DAY #:	Day: 67	No. of SURVEY LINES:	484	729.40 Kilometers							
CRP TO STERN:	0.00 N/A			89.2% Complete							
				123,400.00 Meters Added							

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BGR602273
Diff. GPS System - Trimble AG130	BCR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	#38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	
	× -

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.:	Richie Carmichael
Other Survey Crew:	n/a
Client Representative:	Kent Simpson

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager:	Lance Woods
Data Processor:	Cody Gibson
Data Processor:	Katie Conrad
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time	/100	VEATHER REP	Wind Speed	Dir.
Wx - 0600:		3.0m	25-30kts	SSW
Wx - 1200:		1.5m	10-15kts	SSE
Wx - 1800:		1.0m	10kts	S
Wx - 2400:		na	na	na
SE Reporting	(Place		ox, with brief des y Power	criptio
Toolbox:	×	JHA-Toolbox		
1 OOLOOA.				
Shift Change:	N/A			
	N/A X	Reviev MAR-	TRA-003	

TIN	ME	OP		33	5 - 2	LINE	INFORM	IATION		 500	DETAILED SURVEY INFORMATION
FROM	ТО	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
0630		ws	9								Weather, Winds 25-30kts, Expected Seas 3.0m, Smal Craft Advisory in effect for Survey Area
0631	0700	WS								î .	Morning Ops Meeting
0700	0800	WS	S I		ji.						Winds 20-25kts SW, Expected seas 2.0-3.0m
0800	0810	ws									MV Q105 informs that they are down on weather and recording winds of 15-20kts:
0810	0959	WS									5 13811
0959	1000	WS									Winds 10-15kts SSE, Expected seas are 1.5m
1000	1045	WS									Low tide in vessel will not be able sail out of River until it reaches 4' and sea conditions improve
1045	1159	WS									Sidescan fish #1 being transported by vehicle from Anchorage,
1159	1200	ws									Winds 10-15kts SSE, Expected seas are 1.5m
1200	1330	WS	j								Sidescan fish #2 has arrived at Fugro Operating center in Nikiski
1330	1500	WS									Demoblize grab sampler and mobilize USBL System
1500	1700	WS			ii W						Retrieved SS fish #2 from Nikiski, tested it on vessel including a rub test, test OK
1700	1730	WS									SS fish #1 arrive at Cannery lodge
1730	1900	WS									Test SS fish #1 on vessel including a rub test. Test OK except for a configuration issue in which mag data is not being transferred to Mag software
1900	1930	WS	9		i.						Install SS fish #2 on vessel, Sidescan system ready for deployment
1930											
											]
											]



													Fugro						
											SEA	FLOC	R MAPPING JOBL	OG					
ver 7.2	.2015-A	Alaska)																	
in the		DATE:	15-Sep-20	15 Tue	Julia	n Day:	258	1		CLIENT:			AK LNG						
PRO	SPECT	SITE:		Co	ok Inlet			] .	OB DESC	RIPTION:			Seafloor Mapping						
	NAV. SY				lypack			]	AREA 8	BLOCK:			Pipeline						
			23.0000712	3						R/V:			Westerly						
100		DAY #:	Day: 68	4				No	of SURVE	Y LINES:		484	731.25 Kilometers						
C	RP TO S	TERN:	0.00 N/A										90.1% Complete						
													125,250.00 Meters Added						
oron	IVCIO 1		PMENT EQUIP	10	_		DED	SONNEL O	NECABO				PERSONNEL	ONGLIODE		10	EATHER REPO	NDT.	
and desired and desired	_	-	OS MV BORBOS	73		Capta		ONNELO	Ryan B	ranet		1 1	Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
			e AG130 sonsox	12	Oth		el Crew:		n/a				Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		0.6m	5kts	E
	MBES -			22		Party C			Kelly P				Data Manager.	Lance Woods	Wx - 1200;		0.6m	10kts	N
	S - Edg			19	_	dro. Su			David \			1	Data Processor:	Cody Gibson	Wx - 1800:		0.6m	10kts	NE
<u> </u>	Mag			_		physica			Richie Car			1 1	Data Processor:	Katie Conrad	Wx - 2400:		na	na	na
US	BL - IX			1			ey Crew:		n/a			1	Data Processor:	n/a		Place a		x, with brief des	
Grab	Sample	er - Day	Grab	1			sentative:		Kent Sin	npson			Additional Proc.:	n/a	HSE OFFICER:			Power	
Grab	Sample	er - Van	Veen	1									Client Representative:	n/a	Toolbox:	X	JHA-Toolbox	1,0,1101	
				1											Shift Change:	N/A			
				1								1 1			Safety:	X	MOB Dill, Review	w MAR-TRA-012 an	1 013
															Pre/Post Job:	No			
	ME	OP	LINE NUMBER	Lesania	Loop		INFORM							DETAILED SI	URVEY INFORMATION	N			
FROM	TO	OW	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	A A coming							
0630 0715	0715 0730	OW	Si .	+	_								g ops meeting, Weekly safety me rt checks, vessel took on some v						
0730	0820	IT	T <sub>e</sub>	+									Cannery Dock	vater					
0820	0840	ow		+	<u> </u>								t FGSI SS FISH, test ok						
0840	1045	IT	-7	1							7	•	to PL08, Vessel speed slow due	e to currents and because ves	ssel heavy with fuel liet in	mpellor	s may be worn	fown due to silt in	water
1045	1050	ow		1	1								V Gams calibration	e to darrens and bedades ver	out theat y was reading for a	прелог	a may be morn	JOHN GOO TO SHE III	World
1050	1100	ow			t							100000000000000000000000000000000000000	fish now has mag working after	updating password in fish so	ftware				
1100	1115	ow	.,									Deploy	ed USBL and MBES, vessel drift	ted away from site in strong co	urrent, moving closer be	fore de	ploying SS/Mag		
1115	1125	ow										Conduc	et usvp	A CONTRACTOR OF THE CONTRACTOR					
1125	1145	OW										SS/Mag	fish deployed						
1145	1216	LT																	
1216	1244	OL	PL08_059A	032.0*	100	112	28.0	41.0	31.0			MBES/	SBES/SS/Mag Seas;0.6m Winds	s: 10kt N. Vessel: 0.7kt, Tide =	= 2.1m, 4.4kt Ebb ( Norti	Forela	and Tide Station	)	
1244	1257	LT			[					ų.									
1257	1301	OL	PL08_055	212.0°	100	113	28.0	27.0	17.0			MBES/	SBES/SS/Mag Seas;0.6m Winds	s: 10kt N. Vessel: 7.3kt, Tide :	= 1.2m, 4.1kt Ebb, Vess	el crab	bing downline 3	0deg	
1301	1314	LT												CONTRACTOR OF THE STATE OF THE	The second second second				
1314	1328	OL	PL08_058	032.0°	100	112	28.0	46.0	36.0			MBES/	SBES/SS/Mag Seas;0.6m Winds	s; okt NE, Vessel; 1.2kt, Tide	= 1.2m, 3.9kt Ebb,				
1328	1336	LT	DI OR OF 1	214.00	400		20.0	20.6	40.0			MADERA	PPECIPENTAL CARROLL WILLIAM	a Flabic Vaccol C Flat Tide	- 0.0 2.EM.Fhb. Vons		hime decoding 4	Edon	
1336	1340	OL	PL08_051	214.0°	100	117	28.0	28.0	18.0			MBES	SBES/SS/Mag Seas;0.6m Winds	s. okt NE. vessel b.okt, lide	= 0.6m, 3.5kt EDD, Vess	sei crab	bing downline i	odeg	
1340	1353	OL	PL08 054	034.0	100	114	30.0	47.0	37.0			MRES	SBES/SS/Mag Seas;0.6m Winds	er Ekt NE Vaccal: 2 1kt Tida	= 0.4m 3.3kt Ebb Cond	ductor	HEND		
1404	1408	LT	PL00_054	034.0	100	1 14	30,0	47.0	37.0		-	WIDEON	SEES/SS/Way Seas, S.O.II WIII US	5, JAL 11C, VESSEI, 2, IAI, 11UE	- 0.4111, 3.5Kt EDD, COH	ucteu	usvp		
1408	1414	OL	PL08 050	214.0°	100	117	27.0	27.0	17.0			MRES	SBES/SS/Mag Seas;0.6m Winds	s Flet NE Vessel 5 8kt Tide	= 0.3m 3.0kt Ehh Vass	el crahi	hina downline 1	Sdea	
1414	1422	LT	- L00_050	2.14.0	100	11/	27.0	27.0	17.0			WIDES	SULUISSIMAY Seas, V.VIII WIIIUS	J. UNI ITE. VESSEI, J.ONI, TIGE	- v.oiii, o.oki cou, vess	u uab	oning downlinde is	wea	
1422	1430	OL	PL08_053	034.0°	100	113	29.0	49.0	39.0			MBES/	SBES/SS/Mag Seas;0.6m Winds	s: 5kt NE. Vessel: 3.0kt. Tide	= 0.3m, 2.7kt Ebb.				
1430	1434	LT			1							1		The state of the s	,				
1434	1440	OL	PL08_049	214.0°	100	118	27.0	27.0	17.0			MBES/	SBES/SS/Mag Seas;0.6m Winds	s: 5kt NE. Vessel: 6.0kt, Tide	= 0.3m, 2.4kt Ebb,				
1440	1446	LT										1	W(2) W						
1446	1454	OL	PL08_052	034.0°	100	116	29.0	44.0	34.0		1	MBES/	SBES/SS/Mag Seas;0.6m Winds	s: 5kt NE. Vessel: 6.0kt, Tide	= 0.4m, 2.1kt Ebb,				
1454	1510	ow	:	1								Recove	r survey equipment						
1510	1515	ow	11								0	Man O	ver Board drill, Excellent drill, ma	an recovered in 1min30sec					
AEAE	4745	CHAL	55					1				Trancit	to dool:						

Refuel Vessel

1715 1830 OW



											8-4	Fugro floor Mapping Joblog
PRO	NAV. SY FUGRO JOB RP TO S	DATE: / SITE: STEM: JOB #: DAY #: STERN:	23,00007123 Day: 68 0.00 N/A	Co H	Julia ook Inlet lypack			] No	JOB DESC AREA &	CLIENT: RIPTION: BLOCK: R/V:		AK LNG  Soafloor Mapping  Pipeline  Westerly  484 731.25 Kilometers  90.1% Complete  125,250.00 Meters Added
	ME	CODE	LINE NUMBER	HEADING	nen		E INFORM		ece Fish (m)	1	DND	DETAILED SURVEY INFORMATION
FROM		AM AM AM AM AM AM	PL08_059A PL08_059A PL08_055 PL08_051 PL08_054 PL08_052 PL08_052	HEADING	112 113 112 117 114 117 118 116	ESP 116			SSS Fish (m)		DNP	Added milage for run in/out



													Fugro							
											SEA	FLOC	OR MAPPING JOE	BLOG						
ver 7.22.20			40 0 00	45 14/	1 1		0.50	1					******							
PROSP		=130 n m-01	16-Sep-20		ook Inlet		259	1 .	JOB DESC	CLIENT:			AK LNG Seafloor Mapping	: :						
	V. SYS				lypack			1		BLOCK:			Pipeline							
		OB#:	23.0000712		Typaon			1	ritter (	R/V:			Westerly							
		AY#:	Day: 69	7				No	of SURVE	Y LINES:		484	737.75 Kilometers							
CRP	TO ST	TERN:	0.00 N/A	1									92.8% Complete							
													131,750.00 Meters Added	1						
GEOPHYS	SICAL	EQUII	MENT EQUI		#KI		PERS	SONNEL O	NBOARD			2. 0	PERSONN	IEL ONSHORE	- 57/		v	EATHER REP	ORT	
Navigation	n Syst	em - P	OS MV BORBOS	273		Capta	ain:		Ryan B	raget		1 [	Offshore Site Manager:	Maria Krynytzky		Time		Sea State	Wind Speed	Dir.
Diff, GPS S	1			012	-		el Crew:		n/a				Ass't Off. Site Manager:	Charlie Hall		Wx - 0600:		0.6m	5kts	NE
		R2Soni		933		Party C			Kelly P				Data Manager.	Lance Woods		Wx - 1200;		0.3m	5-10kts	NNW
		tech 4		_		ydro. Su			David \				Data Processor:	Cody Gibson		Wx - 1800:		0.3m	5kts	N
		eaSpy EA GA		_			al Tech.:	-	Richie Car	111111111111111111111111111111111111111			Data Processor:	Katie Conrad		Wx - 2400:	DI-	na	na na	na
Grab Sa				1			ey Crew:		n/a				Data Processor:	n/a	_		Place		ox, with brief de	scription
Grab Sa				-	Cilei	it repre	Sentauve.	-	Kent Sin	iibaoii		1	Additional Proc.: Client Representative:	n/a n/a		HSE OFFICER:	~	JHA-Toolbox	Power	
Grab Sa	inpiei	- van	Veeli	1	-							1	Cherit Representative.	Tita		Shift Change:	X N/A	JHA-100IDOX		
				┨								l r				Safety:	X	Reiew MAR-TI	PA_013	-
				┨								l- ∣			_	Pre/Post Job:	No	Keiew WIAK-11	NA-013	-
												g E								
FROM 1		OP	LINE NUMBE	D HEADIN	BSP	ESP	E INFORM		SSS Fish (m)		DNP			DETAI	LED SURV	EY INFORMATION	N			
		ow	Elite Hollide	TO OH	001	LOI	I dui (III)	iviay (III)	OGO Flan (III)		DIN	Morning	g ops meeting							
	730	OW	Si .										pre start checks							
		ow									i i	Depart	Cannery Dock							
1005 10	023	OW										Deploy	survey equipment							
	025	LT																		
	034	OL	PL08_045	214.0	100	128	30.0	38.0	28.0			MBES/S	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessel: 5.8kt	Tide = 5.7n	n, 1.1kt Ebb ( North	Forela	nd TideStation)	)	
	042	LT	DI 00 040	004.0	100	404	07.0		040		ie .		00500011 0 00 11		T			01/10		
	055	OL LT	PL08_048	034.0	100	121	27.0	44.0	34.0			MBESIS	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessei: 3.0kt	Tide = 5.3n	n, 1.6kt EDD, Condu	cted U	SVP		
	057 106	OL	PL08_044	214.0	100	131	34.0	24.0	29.0	_	-	MBES	SBES/SS/May Seas,0.3m W	Times 5kt N. Vessel: 5.9kt	Tide = 5.00	n 2 1kt Ebb				
	115	LT	1 200_011	271.0	100	101	04.0	24.0	20.0			mbeor.	obeorooming oddo,o.om 11	mas. on 11. 1 dose. o.on,	1100 0.01	ii, z. m. coo				
	131	OL	PL08 047	034.0	100	122	24.0	50.0	40.0		1	MBES/S	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessel: 2.5kt.	Tide = 4.6n	n. 2.6kt Ebb				
	136	LT	_																	
1136 1	146	OL	PL08_043	214.0	100	140	29.0	36.0	26.0			MBES/S	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessel: 5.7kt,	Tide = 4.1n	n, 3.2kt Ebb				
	210	LT																		
	239	OL	PL08_046	034.0	100	123	24.0	35.0	25.0		_	MBES/S	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessel; 1.1kt	Tide = 3.2n	n, 3.9kt Ebb, Mag hi	t on ch	arted wellhead		
	244	LT	DI 00 C10	0.44	100	1				1										
	300	OL	PL08_042	214.0	100	162	28.0	29.0	19.0			MBES/S	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessel: 7.1kt,	Tide = 2.4n	n, 4.3kt Ebb, Vessel	crabb	ing downline 20	deg	
	312 421	LT OL	PL0_039	034.0	100	177	30.0	57.0	46.0			MRES	SBES/SS/Mag Seas;0.3m W	linde: Fkt N. Vaccal: 1 944	Tide = 1.94	n 4 3kt Ebb Condu	cted II	SVP		
	424	LT	FLU_039	034,0	100	177	30,0	37.0	40.0			WIDEOK	GULG/GG/Way Geas,U.SITI W	11143, UKI 11, VSSSEI, 1.OKI,	1100 - 1.01	ii, 7.5kt Ebb, Colldu	oled U	OVE		
	444	OL	PL08 038	214.0	100	175	28.0	29.0	19.0			MBES/S	SBES/SS/Mag Seas;0.3m W	inds: 5kt N. Vessel: 1 8kt	Tide = 0.7n	n. 2.9kt Ebb				
	650	IT	. 200_000	2.7.0	100	1,,5	20.0	20.0	10.0				to Cannery Dock	miner one in Francis Front	3.71	.,				
	720	ow										1								
	830	ow	1								)	Fuel Ve	essel							
1830												l								
	[											l								
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_											<b>J</b> EA	FLOOR IVIAPPING JOBLOG		
ver 7.2	2.2015-A		16-Sep-201	E Mad	Lulia	n Dave	250	1		CLIENT:		AK LNG	1	
200	CDECT	DATE:	16-Sep-201		ok Inlet		259	1 .	JOB DESC		-	Seafloor Mapping	-	
		STEM:			lypack			1 '		BLOCK:		Pipeline	1	
			23.00007123		iypack			1	ARLA	R/V:		Westerly	1	
		DAY #:	Day: 69	1				No	of SURVE			484 737.75 Kilometers	ı	
C			0.00 N/A	1				140	. OI SORVE	LINEO.		92.8% Complete		
				4								131,750.00 Meters Added		
	ME	OP					E INFORM		:	i.	grs - 1	DETAI	I ED SLIDVE	YINFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	DETA	LED SURVE	TINFORMATION
		_												
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⊢—		-		-	-						-			
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_		AM	PL08_045	+	128	132						Added milage for run in/out		
_		AM	PL08_048	1	121	125	_		_			Added milage for run in/out		
		AM	PL08_044		131	135						Added milage for run in/out		
		AM	PL08_047	1	122	126						Added milage for run in/out		
		AM	PL08_043		140	144						Added milage for run in/out		
		AM	PL08_046		123	127						Added milage for run in/out		
		AM	PL08_042		162	064					ľ.	Added milage for run in/out		
		AM	PL08_039		177	181						Added milage for run in/out		
		AM	PL08_038		175	179						Added milage for run in/out		
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											Fugro						
										SEA	FLOOR MAPPING JOB	LOG					
er 7.22.2015-	A (Alaska)  DATE:	17-Sep-20	5 Thu	Iulia	n Dave	260	1		CLIENT:		AK LNG						
PROSPEC		17-3ep-20		ook Injet		200	Ι.	OB DESC			Seafloor Mapping						
	SYSTEM:			lypack			1		BLOCK:		Pipeline						
FUGR	O JOB #:	23.00007123					-		R/V:		Westerly						
JO	B DAY #:	Day: 70	1				No	of SURVE	Y LINES:		484 737.75 Kilometers						
CRP TO	STERN:	0.00 N/A	]								92.8% Complete						
											131,750.00 Meters Added						
		PMENT EQUIP		10			SONNEL O	NBOARD			PERSONNE	L ONSHORE		w	EATHER REP	ORT	
		OS MV BGREGOS			Capta	Name and Address of the Owner, when the Owner, which the Owner, whi		Ryan B	raget		Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	
		e AG130 scaecos				el Crew:		n/a			Ass't Off. Site Manager:	Charlie Hall	Wx - 0600:		0.5m	5kts	NE
	- R2Son		-4	_	Party Cl			Kelly Po			Data Manager:	Lance Woods	Wx - 1200:		1.5m	10-15kts	NE
	dgetech 4				dro. Sur			David V Richie Can			Data Processor:	Cody Gibson	Wx - 1800:		1.5m	15-20kts	W
	- SeaSpy XSEA GA		-1			ey Crew:	1	Richie Can n/a		-	Data Processor:	Katie Conrad	Wx - 2400:	Diane	na "u" is the ba	na ox, with brief des	na
rab Samp			1	_		sentative:		na			Additional Proc.:	n/a	HSE OFFICER:	Place a			cripti
Grab Samp			1	Ciletti	Repres	seniauve.		IId			Client Representative:	Kent Simpson	Toolbox:	×	JHA-Toolbox	Power	
oras carry	pioi van	70011	1	-							One in Proposition 170.	Troncomposit	Shift Change:	N/A	OTHE TYOIDOX		
			1										Safety:	X	Review MAR-T	RA-012	
			1										Pre/Post Job:	No			
	_																
TIME TO	CODE	LINE NUMBER	HEADING	BSP	ESP	E INFORM	Mag (m)	SSS Fish (m)		DNP		DETAILED SU	JRVEY INFORMATION	NC			
30 0700	o ow										Morning Ops meeting						
00 0730	0 OW										Prestart checks						
730 0900		Ö									Depart Cannery Dock						
000 090			-	$\vdash$	-						Seas are 1.2m to 1.5m, Vessel slowe						
001 1030	-		-	$\vdash$	$\vdash$				<del>                                     </del>		Transit to Cannery Dock, Unable to s			a 1000	exclusion zone	e into the survey ar	rea
030 1200			_	1	-												
					1 1				-		Reterminate high strength rope line for		attachment device				
			1								Reterminate high strength rope line fr Winds 10-15kts NE, Expected seas a		attachment device				
201 1300	0 WS										Winds 10-15kts NE, Expected seas a	at survey site 1.5m	attachment device				
201 1300 300 1301	0 WS 1 WS										Winds 10-15kts NE, Expected seas a  Tide level below level for traniting out	at survey site 1.5m t Kenai River					
201 1300 300 1301 301 1359	0 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas a	at survey site 1.5m t Kenai River bottled water, toliet paper, misc					
201 1300 300 1301 301 1359 359 1400	0 WS 1 WS 9 WS 0 WS										Winds 10-15kts NE, Expected seas a Tide level below level for traniting out Acquired general supplies for vessel,	at survey site 1.5m t Kenai River bottled water, toliet paper, misc					
201 1300 300 1301 301 1359 359 1400	0 WS 1 WS 9 WS 0 WS 9 WS										Winds 10-15kts NE, Expected seas a Tide level below level for traniting out Acquired general supplies for vessel,	at survey site 1.5m t Kenai River bottled water, toliet paper, misc at survey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS										Winds 10-15kts NE, Expected seas a Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas a Tide level high enough to allow travel	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m  out of the river					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas a	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m  out of the river					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600 600 1601	0 WS 9 WS 0 WS 9 WS 0 WS 9 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600 600 1601 601 1759	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas a Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas a Tide level high enough to allow travel	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 3301 1359 359 1400 400 1459 459 1500 500 1600 500 1601 501 1759 759 1800 1830 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 130 301 1359 359 1400 400 1459 459 1500 600 160 600 160 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600 600 1601 601 1759	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600 600 1601 601 1759 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600 600 1601 601 1759 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 500 1600 600 1601 601 1759 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, misc at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 130 301 1359 359 1400 400 1459 459 1500 600 160 600 160 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, miso at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 1301 301 1359 359 1400 400 1459 459 1500 600 1600 600 1601 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, miso at survey site 1.5m out of the river at eurvey site 1.5m					
201 1300 300 130 301 1359 359 1400 400 1459 459 1500 600 160 600 160 759 1800 800 1830	0 WS 1 WS 9 WS 0 WS 9 WS 0 WS 1 WS 1 WS 1 WS 1 WS 9 WS										Winds 10-15kts NE, Expected seas at Tide level below level for traniting out Acquired general supplies for vessel, Winds 10-15kts NE, Expected seas at Tide level high enough to allow travel Winds 10-15kts NNE, Expected seas	at survey site 1.5m  t Kenai River bottled water, toliet paper, miso at survey site 1.5m out of the river at eurvey site 1.5m					



## FUGRO SEAFLOOR MAPPING JOBLOG

Ver 7.22.2015-A (Alaska)

DATE:

PROSPECT / SITE:

NAV. SYSTEM:

FUGRO JOB #:

JOB DAY #:

CRP TO STERN:

Day: 71

NAV. FIX DISTANCE:

SURVEY UNITS:

NAUTICAL MILE:

6080.0

WEATHER REPORT

GEOPHYSICAL EQUIPMENT	EQUIP#
Navigation System - POS MV	BOR602273
Diff. GPS System - Trimble AG130	BGR603512
MBES - R2Sonic	BOMBOSS
SSS - Edgetech 4200	# 38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

	IEL ONBOARD	
Captain:	Ryan Braget	
Other Vessel Crew:	n/a	
Party Chief:	Kelly Power	
Hydro. Surveyor:	David Wise	
Geophysical Tech.:	Richie Carmichael	
Other Survey Crew:	n/a	
Client Representative:	Kent Simpson	
		_

Offshore Site Manager:	Maria Krynytzky
Ass't Off. Site Manager:	Charlie Hall
Data Manager.	Chuck Chamberlain
Data Processor:	Cody Gibson
Data Processor:	Lance Woods
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

Time		Sea State	Wind Speed	Dir.
Wx - 0600:		0.5m	10kts	N
Wx - 1200;		0.5m	10kts	N
Wx - 1800:		0.3m	5kts	N
Wx - 2400:		na	na	na
SE Reporting (	(Place	THE RESERVE THE PERSON NAMED IN COLUMN	ox, with brief des	criptio
Toolbox:	X	JHA-Toolbox		
Shift Change:	N/A			
Safety:	X	Review MAR-	TRA-009 & 013	
Pre/Post Job:	No			

TIN	ME	OP			, ,	LINE	INFORM	ATION		-		DETAILED SURVEY INFORMATION
FROM	TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	BETALEB SOLVET IN SKIIIATION
	0700	ow	şi.		1	10						Morning Ops meeting
	0715											Pre-Start checks
0715		IT										Depart Cannery Dock
0915	0935	ow										Deploy Survey Equipment
0935	0940	LT										
0940	1008	OL	PL08_036	034.0°	100	176	35.0	35.0	25.0			MBES/SBES/SS/Mag Seas;0.5m Winds: 10kt N. Vessel: 4.7kt, Tide = 6.0m, 1.7kt Flood ( North Foreland Tide Station)
1009	1014	LT								0.		
1014	1043	OL	PL08_035	214.0°	100	175	32.0	53.0	43.0			MBES/SBES/SSS/Mag Seas;0.5m Winds: 10kt N. Vessel: 4.4kt, Tide = 5.9m, 1.1kt Flood, Conducted USVP
1043	1046	LT										
1046	1056	OL	PL08_034	034.0°	100	123	34.0	47.0	37.0			MBES/SBES/SS/May Seas,0.5m Winds. 10kt N. Vessel. 4.9kt, Tide - 5.6m, 0.5kt Flood
1056	1101	LT										AND THE PROPERTY OF THE PROPER
1101	1122	OL	PL08_033	034.0°	100	149	32.0	50.0	40.0			MBES/SBES/SS/Mag Seas;0.5m Winds: 10kt N. Vessel: 4.3kt, Tide = 5.8m, 0.1kt Slackwater
	1126	LT										
1126	1137	OL	PL08_029	214.0°	100	143	31.0	46.0	36.0			MBES/SBES/SS/Mag Seas;0.5m Winds: 10kt N. Vessel: 6.4kt, Tide = 5.3m, 0.5kt Ebb, Large log floating past to the North near SOL
1137	1142	LT										
1142	1206	OL	PL08_032	034.0°	100	147	32.0	50.0	40.0			MBES/SBES/SS/Mag Seas;0.5m Winds: 10kt N. Vessel: 3.3kt, Tide = 5.1m, 0.9kt Ebb
1206	1210	LT										AND
1210	1221	OL	PL08_028	214.0°	100	142	30.0	45.0	35.0			MBES/SBES/SS/Mag Seas;0.5m Winds: 10kt N. Vessel: 6.6kt, Tide = 4.6m, 1.6kt Ebb
1221	1226	LT	B1 66 664		100				10.0			
1226		OL	PL08_031	034.0"	100	147	31.0	50.0	40.0	-		MBES/SBES/SS/Mag Seas;0.5m Winds: 10kt N. Vessel: 2.8kt, Tide = 4.3m, 2.1kt Ebb, Conducted USVP
1257	1300	LT										
1300	1310	OL	PL08_027	214.0°	100	140	31.0	36.0	26.0	7.		MBES/SBES/SS/Mag Seas;0.3m Winds: 5kt N. Vessel: 7.0kt, Tide = 3.7m, 2.8kt Ebb
1310	1321	LT								_	_	
1321	1400	OL	PL08_030	034.0°	100	144	29.0	43.0	33.0			MBES/SBES/SS/Mag Seas;0.3m Winds: 5kt N. Vessel: 1.8kt, Tide = 3.3m, 3.2kt Ebb
1400	1405	LT										
1405	1414	OL	PL08_023	214.0°	100	132	31.0	32.0	22.0			MBES/SBES/SS/Mag Seas;0.3m Winds: 5t N. Vessel: 7.2kt, Tide = 2.5m, 3.7kt Ebb
1414	1421	LT				7.00						
1421	1453	OL	PL08_026	034.0°	100	138	25.0	38.0	28.0			MBES/SBES/SS/Mag Seas:0.3m Winds: 5t N. Vessel: 1.9kt, Tide = 2.3m, 3.7kt Ebb, Conducted USVP
1453	1457	LT	DI 00 000	044.00	100						_	
1457	1507	OL	PL08_022	214.0°	100	133	30.0	33.0	23.0			MBES/SBES/SS/Mag Seas;0.3m Winds: 5t N. Vessel: 6.2kt, Tide = 1.8m, 3.3kt Ebb,
1507	1520	ow										Recover Survey Equipment
1520	1700	IT										Transit to Cannery Dock
1700	1730	ow										Secure vessel



												Fugro
											SEA	FLOOR MAPPING JOBLOG
ver 7.22	2.2015-A		18-Sep-201	E Ed	Iulia	n Dave	204	1		CLIENT:	_	AK LNG
200	SPECT	DATE:	18-Sep-201	15 FII	Julia	п рау:	261	1	JOB DESC		_	Seafloor Mapping
7.577.252	NAV. SY			ш	ypack			1		BLOCK:		Pipeline Pipeline
	FUGRO		23.00007123	N.	ypack	DE BY:	1	1	AREA	R/V:		ripenire Westerly
		DAY #:	Day: 71			TANCE:		No.	of SURVE			484 740,35 Kilometers
			0.00 N/A			UNITS:			GINAL JO		6	06,000,00 96.8% Complete
1	KF 103	TERN.	U.UU N/A			MILE:		1 000	GINAL JO	D TOTAL.		134,350.00 Meters Added
l .							0000.0	1				
TI	ME	OP				LINE	INFORM	MATION				DETAILED SURVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	2014 (HINNA CONSTANT OF CONS
1730	1830	ow										Refueled vessel
1630						1	1	-			7	0.000
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⊢	_	_		-	<u> </u>	-	_				-	
_	-	AM	PL08 036	+	176	180	_				-	Added milage for run in/out
-	-	AM	PL08_035	-	175	179	_	<del></del>	-	_		Added milage for run in/out
-		AM	PL08_033	1	123	127						Added milage for run in/out
_		AM	PL08_033	+	149	153		$\leftarrow$	_	_		Added milage for run invout
		AM	PL08_029	_	143	147						Added milage for run in/out
		AM	PL08 032	_	147	151		17	1			Added milage for run in/out
		AM	PL08_028		142	146						Added milage for run in/out
		AM	PL08_031		147	151						Added milage for run in/out
		AM	PL08 027		140	144						Added milage for run in/out
		AM	PL08_030		144	148						Added milage for run in/out
		AM	PL08_023		132	136						Added milage for run in/out
		AM	PL08_026		138	142						Added milage for run in/out
		AM	PL08_022		133	137					0	Added milage for run in/out
<u> </u>											-	
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												Fugro						
											SEA	LOOR MAPPING JOBL	.OG					
er 7.22.2015-A		19-Sep-2	045	0-4	LuCa	- Dave	200	1				AK LNG						
PROSPECT	DATE:	19-Sep-2	:015		ok Inlet	n Day:	262	1	JOB DESC	CLIENT:	_	Seafloor Mapping						
	YSTEM:				pack			1		& BLOCK:		Pipeline						
	JOB #:	23.000071	23	,	, ask			4		R/V:		Westerly						
JOE	B DAY #:	Day: 72						No	of SURVI	EY LINES:	1	484 745.15 Kilometers						
CRP TO	STERN:	0.00 N	Δ									100.3% Complete						
												139,150.00 Meters Added						
EOPHYSIC	AL EQUI	PMENT EQ	HP#				PERS	SONNEL O	NBOARD			PERSONNEL	ONSHORE		V	VEATHER REPO	RT	
avigation S	ystem - F	OS MV BORE	02279	[		Capta	in:		Ryan B	raget		Offshore Site Manager:	Maria Krynytzky	Time		Sea State	Wind Speed	Dir.
		le AG130 sons	03612	[	_		el Crew:		n/a			Ass't Off, Site Manager:	Charlie Hall	Wx - 0600:		0.5m	10kts	N
	- R2Son		03033	1		Party Cl			Kelly P			Data Manager:	Chuck Chamberlain	Wx - 1200:		0.5m	5kts	N
SSS - Ed	-		-	-		dro. Sur		_	David 1			Data Processor:	Cody Gibson	Wx - 1800:		0.3m	5kts	N
USBL - IX	SeaSpy		80A 51	- 1		physica er Surve		-	Richie Car			Data Processor: Data Processor:	Lance Woods n/a	Wx - 2400:	Diaca	na an "v" is the her	na x, with brief des	na
Grab Samp			<del></del>	ŀ			sentative:		Kent Sir			Additional Proc.:	n/a	HSE OFFICER:	riace		Power	criptio
Grab Samp			-1	ł	Olluli	ricpic	Juliauvu.		North Oil	прачи		Client Representative:	n/a	Toolbox:	Х	JHA-Toolbox	rowei	
oras camp			_	Ì	_							Onorie representative:		Shift Change:	N/A	C.u. T.O.DON		
			$\neg$	Ī										Safety:	X	Review MAR-TRA	4-012, 1 HOC for sa	afe act
				[										Pre/Post Job:	No			
TIME	OP	Ī				LINE	INFORM	MATION										
ROM TO	CODE	LINE NUMB	ER H	EADING	BSP				SSS Fish (m)	)	DNP		DETAILED SU	IRVEY INFORMATION	ON			
630 0700	ow	91										Morning Ops meeting						
700 0720		54										Pre-start checks						
720 0940			_									Depart Cannery Dock for PL08						
940 0955 955 1001	OW		-	$\rightarrow$	_					-		Deploy survey equipment						
955 1001 001 1012		PL08 02	F /	034.0°	100	138	28.0	41.0	31.0			MBES/SBES/SS/Mag Seas;0.5m Wind	le-Skt N. Vennel: E Okt Tido - E	Am 1 Old Flood / North	h Enrol	and Tide Station)		
012 1017		PLU6_02	-1	334.0	100	130	20.0	41.0	31.0			WIDEG/ODEG/OG/Way Geas, V.SIII WING	10.0K.14. VOSSEI, D.SKI, 1108 = 5	I. skt Flood ( Norti	roiei	and ride Station)		
017 1029		PL08_02	1 2	214.0°	100	130	32.0	60.0	50.0		2	MBES/SBES/SS/Mag Seas;0.5m Wind	ds:5kt N. Vessel: 4.5kt, Tide = 5	.5m, 1.6kt Flood, Cond	ucted (	JSVP		
029 1033												overther that the track that devel ≠0.00 million to the 10 ft. 1000.						
033 1047		PL08_02	4 (	034.0°	100	135	28.0	25.0	25.0			MBES/SBES/SS/Mag Seas,0.5m Wind	ls:5kt N. Vessel: 4.9kt, Tide = 5	.5m, 1.3kt Flood,				
047 1052		-	_											2 12.12				
052 1059		PL08_01	7 2	214.0°	100	122	28.0	52.0	42.0	-		MBES/SBES/SS/Mag Seas;0.5m Wind	s:5kt N. Vessel: 5.4kt, Tide = 5	.5m, 1.0kt Flood,				
059 1103 103 1114	_	PL08 02	0 /	034.0°	100	128	29.0	33.0	23.0	-	-	MBES/SBES/SS/Mag Seas;0.5m Wind	le: Ekt N. Vannel: 4 9kt Tida = E	5m 0 9H Flood				
114 1118		FL00_02	<u> </u>	7.04.0	100	120	29.0	33.0	23.0	-	-	MIDLO/ODEO/OO/May Seas, v. 3111 WING	15.5K. 14. VESSEI, 4.0KI, 1100 = 5	.om, v.okt Plood,				
118 1124		PL08 01	6 2	214.0°	100	121	27.0	53.0	43.0			MBES/SBES/SS/Mag Seas;0.5m Wind	ds:5kt N. Vessel: 6.4kt. Tide = 5	.4m, 0.6kt Flood.				
		7	-					1	1			A THE STREET STREET STREET	The state of the s	A SOLIT AND AND A SOLIT AND A				
124   1127		PL08_01	3 (	034.0°	100	116	29.0	51.0	41.0		7.	MBES/SBES/SS/Mag Seas;0.5m Wind	s:5kt N. Vessel: 5.7kt, Tide = 5	i.3m, 0.4kt Flood,				
	OL			-				1										
127 1133 133 1137	LT										_							
127 1133 133 1137 137 1147	LT	PL08_14	3 2	291.0°	100	138	33.0	53.0	43.0			MBES/SBES/SS/Mag Seas;0.5m Wind	ds:5kt N. Vessel: 6.4kt, Tide = 5	i.3m, 0.2kt Flood,Runni	ng tielii	ne at close to slad	ckwater	
1127 1133 1133 1137	LT OL LT	PL08_14		291.0° 214.0°	100	138	33.0	53.0 47.0	43.0			MBES/SBES/SS/Mag Seas;0.5m Wind MBES/SBES/SS/Mag Seas;0.5m Wind		AXII 97 AMBAN A KESINGSENING	ng tielir	ne at close to siad	ckwater	

MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel: 4.0kt, Tide = 4.8m, 0.7kt Ebb, Conducted usvp

MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel: 6.0kt, Tide = 4.6m, 0.9kt Ebb,

MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel: 3.40kt, Tide = 4.5m, 1.2kt Ebb,

MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel: 6.9kt, Tide = 4.3m, 1.5kt Ebb,

MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel: 3.4kt, Tide = 4.1m, 1.8kt Ebb,

PL08\_015 | 034.0° | 100 | 120

PL08\_018 214.0° 100 126

PL08\_014 034.0° 100 116

PL08\_010 214.0° 100

PL08\_012 034.0° 100

27.0

28.0

27.0

33.0

29.0

120

116

48.0

34.0

42.0

56.0

51.0

38.0

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1221 1230 OL

1233 1241 OL

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1230 1233

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1246 1255

1255 1259

1304 1310

1310 1320

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1259



												Fugro
											SEA	FLOOR MAPPING JOBLOG
ver 7.22	2015-A	Alaska)				476				54555		
		DATE:	19-Sep-201		Julia ok Inlet		262	1	JOB DESC	CLIENT:		AK LNG
7.573.2523	SPECT				ypack			1 '		BLOCK:	_	Soaficor Mapping Pipeline
		JOB #:	23.00007123		ypaon			1	AILLA	R/V:		Westerly
	JOB	DAY#:	Day: 72	1				No	of SURVE	Y LINES:		484 745.15 Kilometers
C	RP TO S	TERN:	0.00 N/A	J								100.3% Complete 139,150.00 Meters Added
												159,100.00 Meters Added
	ΛE	OP		T			EINFORM	-	I			DETAILED SURVEY INFORMATION
FROM	TO	CODE	PL08 009	HEADING 214.0°	100	ESP	Fath (m) 33.0	Mag (m) 48.0	38.0		DNP	MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel; 6.9kt, Tide = 4.0m, 2.0kt Ebb,
1322	1328	LT	PL00_009	214.0	100	121	33.0	46,0	36.0		-	NIDED/SDES/SD/Mag Seas, U.SITI VVIIIUS: SKI N. VESSel: 0.5KI, Tide = +.UITI, Z.UKI E.DD,
1335	1348	OL	PL08_011	034.0°	100	118	29.0	48.0	38.0			MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel:2.7kt, Tide = 3.7m, 2.3kt Ebb,
1348	1351 1359	OL	PL08_007	214.0°	100	125	31.0	32.0	22.0		-	MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel:5.5kt, Tide = 3.5m, 2.6kt Ebb,
1351 1359	1404	LT	PL00_007	214.0	100	125	31.0	32.0	22.0			MIDED/SEEGISHINGS Seas,U.SHI YIIIUS.SALN. Vessel.S.SAL, Title = 3.5HI, 2.0ALEDJ,
1404	1421	OL	PL08_008	034.0°	100	124	29.0	51.0	41.0			MBES/SBES/SS/Mag Seas;0,3m Winds;5kt N. Vessel;2.6kt, Tide = 3.4m, 2.8kt Ebb,
1421	1423	OL.	PL08 006	214.0°	100	123	30.0	30.0	20.0		-	MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel;6,6kt, Tide = 3.1m, 3,0kt Ebb,
1429	1435	LT	PLU6_006	214.0	100	123	30.0	30.0	20.0			MIDED/SDES/SD/Mag Seas,0.3II VVIIIds.SALN. Vessel,0,6KI, Title = 3.1III, 3.0KI EDD,
1435	1447	OL	PL08_004	034.0°	100	115	27.0	50.0	40.0		2	MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel:2.3kt, Tide = 2.9m, 3.2kt Ebb,
1447 1451	1451 1457	LT OL	PL08_005	214.0°	100	119	29.0	29.0	19.0			MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel:6.5kt, Tide = 2.7m, 3.3kt Ebb, Conducted USVP
1457	1503	LT	1 200_000	214.0	100	110	20.0	20.0	13.0			mbebrobe of our mag ocas, o.o.m Winds. on N. Vessol. o.o.n., This - 2.1 m., o.o.n. Ebb, oor ducted of over
1503	1509	OL	PL08_003	034.0°	100	113	29.0	45.0	35.0			MBES/SBES/SS/Mag Seas;0.3m Winds:5kt N. Vessel:2.8kt, Tide = 2.6m, 3.3kt Ebb,
1509	1512 1514	OL	PL08_001	214.0°	100	106	28.0	34.0	24.0			MBES/SBES/SS/Mag Seas:0.3m Winds:5kt N. Vessel:6.3kt. Tide = 2.5m. 3.3kt Ebb.
1514	1517	LT										
1517	1523	0L ow	PL08_002	034.0°	100	108	27.0	42.0	32.0			MBES/SBES/SS:Mag Seas;0.3m Winds:5kt N. Vessel:2.9kt, Tide = 2.4m, 3.2kt Ebb, Recover Survey Equipment
1540	1725	IT										Transit to Cannery Dock
1725	1830	ow										Vessel deferred planned maintenance. Change water pump in Port ME
1830					2						3	
$\vdash$					-							
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											SEA	LOOR MAPPING JOBLOG	
ver 7.22	.2015-A	(Alaska)				414				54-56			
140.00			19-Sep-201				262	1		CLIENT:		AK LNG	
	SPECT NAV. SY				ok Inlet			1	JOB DESC	BLOCK:		Seafloor Mapping Pipeline	
	HAV. ST	JOR #	23.00007123	l H	ypack			1	AREA	R/V:		Westerly	
	JOB	DAY #:	Day: 72	1				No	of SURVE		_	484 745.15 Kilometers	
C			0.00 N/A	1					. 01 001112	. I Liiteo.		100.3% Complete	
												139,150.00 Meters Added	
	NE	OP	LINE NUMBER	Leanne	nen		INFORM		COC Fish (m)		DND	DETA	NLED SURVEY INFORMATION
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	S.A.(4999)	CONTRACTOR
_	_	AM	PL08_025		138	142	_	_				Added milage for run in/out	
		AM	PL08_021		130	134							
		AM	PL08_024		135	139							
_		AM	PL08_017		122	126							
		AM	PL08_020		128	132							
		AM	PL08_016		121	125							
_	_	AM	PL08_013		116	120	_	-	-				
_		AM	PL08_143 PL08_019		138 126	142		-	-				
	_	AM	PL08_015		120	124		1					
		AM	PL08_018		126	130							
	, ,	AM	PL08_014		116	120							
		AM	PL08_010		120	124							
		AM	PL08_012		116	120							
		AM	PL08_009		121	125							
_	-	AM	PL08_011 PL08_007		118	122	-	-	-				
-	-	AM	PL08_007	-	124	128	_	_	_				
		AM	PL08_006		110	123		1					
		AM	PL08_004		115	119							
		AM	PL08_005		119	123							
$\overline{}$		AM	PL08_003	-	113	117							
		AM	PL08_001 PL08_002	$\vdash$	106	110	_		-				
$\vdash$	-	AM	PL08_002	$\vdash$	108	112	_	-					
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												Sea	FLO	PUGRO OR MAPPING JOBL	oc					
ver 7.22			Tan 0						,		SERVED IN									
BBO	SPECT		20-Sep	-2015		ok Injet	n Day:	263	-	JOB DESC	CLIENT:	_		AK LNG Seafloor Mapping						
10000	IAV. SY		-			ypack			1 '		BLOCK:	_		Pipeline						
		JOB #:	23.0000	7123		ypaca			1	AILLA	R/V:			Westerly						
		DAY#:	Day:						No	of SURVE		_	484	745.15 Kilometers						
CI	RPTOS	TERN:	0.00											100.3% Complete						
														139,150.00 Meters Added						
GEOPH	IYSICA	L EQUI	PMENT E	QUIP#	8 1	(0)		PERS	SONNEL O	NBOARD			20 18	PERSONNEL	ONSHORE	9	WEA	THER REPO	RT	
			OS MV				Capta			Ryan B	raget			Offshore Site Manager:	Jim Grant	Time	Sea	a State	Wind Speed	Dir.
			e AG130 m					el Crew:		n/a				Ass't Off, Site Manager:	Maria Krynytzky	Wx - 0600:		na	na	na
		R2Soni		08603633			Party C		-	Kelly P			-	Data Manager:	Lance Woods	Wx - 1200:		1.0m	10kts	N
		etech 4		38719 3380A			dro. Su			David \			1	Data Processor:	Cody Gibson Katie Conrad	Wx - 1800:		5-1.0m	10kts	N
		SeaSpy SEA GA		151 ±				al Tech.: ey Crew:	1	Richie Car			1	Data Processor:	Katie Conrad n/a			na 'v" is the boy	na , with brief des	na
		er - Day		101		_	_	sentative:	1	Kent Sin			1	Additional Proc.:	n/a	HSE OFFICER:	(Place an	Kelly F		criptior
		er - Van		$\neg$		Clien	Repre	sentative,	<del>                                     </del>	Kent Sin	npson		1	Client Representative:	n/a	Toolbox:	х Јн	IA-Teolbox	ower	_
	Campio		10011	$\neg$		4							1	S. S	A 100 A	Shift Change:	N/A			
				$\neg$									1			Safety:		eviev MAR-TR	A-013	_
													1			Pre/Post Job:	No			
FROM	/E	CODE	LINE NUM	ioen I	.=	BSP	ESP	EINFORM	Mag (m)			DNP	ł		DETAILED S	URVEY INFORMATI	ON			
0630	0700	ow	LINE NON	IBER	PEADING	BSP	ESP	Fath (m)	Mag (m)	SSS FISH (M)		DNP	Momin	g Ops meeting						
0700	0715	ow												art checks						
0715	0900	IT	i i										Transit	1						
0900	1030	ws		- 1									Seas n	ear 1.0m, vesse) turned around	and heading back south					
1030	1140	WS		- 1										near TM34 area but high tide ha	as peaked, transit to port					
1140	1230	WS		_										maintenance						
1230	1330 1830	WS		-								_	14033107070	vessel				and a second of	VO III amateur	
1330 1830	1830	WS		$\rightarrow$									Captai	n changed out air filters on main	engines, deaned spare filters	s, conducted visual inspi	ection of en	igine exhaust s	systems, all OK	
1030				$\overline{}$									ł							
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											SEA	FLOO	R MAPPING JOB	LOG						
ver 7.22	2015-A					4.00														
10.000			21-Sep-20				264	1		CLIENT:			AK LNG							
7.550.3500	SPECT				ook Inlet			1	JOB DESC				Seafloor Mapping Pipeline							
	IAV. SY		23.0000712		lypack			1	AREA	BLOCK: R/V:			Westerly							
		DAY#:		4				No	of SURVE			484	745.15 Kilometers		$\vdash$					-
C			0.00 N/A	1				140	. OI SUKVE	LINES.		404	100.3% Complete							-
				_									139,150.00 Meters Added							
			PMENT EQUIP	"	_			ONNEL O						L ONSHORE				EATHER RE		7 - 0.0000
			OS MV sonson	73		Capta			Ryan B				Offshore Site Manager:	Jim Grant		Time		Sea State	Wind Speed	
			le AG130 Bonsos	12			el Crew:		n/a			1	Ass't Off. Site Manager:	Maria Krynytzky		Wx - 0600:		0.5m	10kts	N
	ABES -			33		Party C			Kelly P			1	Data Manager:	Lance Woods		Wx - 1200:		0.3m	10kts	N
	S - Edg			_		ydro. Su	al Tech.:		Richie Car			1 -	Data Processor:	Cody Gibson		Wx - 1800: Wx - 2400:		0.3m	5kts	N
	Mag BL - IX			-		-	ey Crew:	-	n/a	17/1/07/10/07		{ }	Data Processor:	Katie Conrad n/a			Diaco	na na "v" in the	box, with brief de	na
	Sample			Η .			sentative:		Kent Sin			1 1	Additional Proc.:	n/a		SE OFFICER:	riace		ly Power	scription
	Sample			-	Cilci	ititepie	Scinauve.		North Offi	iipavii		1 1	Client Representative:	n/a		Toolbox:	X	JHA-Toolbo		
- Orac	Cumpi	7 7 011	70011	1				İ				'	One it i topicoomativo.	1100		Shift Change:	N/A	DIA-TOOLEO.	•	
$\overline{}$				1								1 r			<b>-</b>	Safety:	X	Review MAR-RA-0	09, Medical Emergency Drill	1 HOC
				1								1 1			F	Pre/Post Job:	No		or, meaners among anoly arm	
			Sex.																	
	ИE	OP			1		EINFORM		1					DETAILE	D SURVEY I	INFORMATIO	ON			
FROM 0700	TO 0745	OW	LINE NUMBER	HEADIN	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP	Maraina	Ops Meeting	11.000 htt.150bb1 ht.0			1000001			
0745	0800	OW	68	+	-	-			_		7		t Checks							
0800	1020	IT	-			+			_		-	Transit								
1020	1037	ow		+	1	-							survey equipment							
1037	1044	LT	-	1	1								ou. roy oddipinoni							
1044	1048	IF	PLOS_INFILL	1 032.0	100	114	32.0	30.0	20.0			MBES/S	SBES/SS/Mag Seas;0.5m Wir	nds: 10kt N. Vessel: 6.0kt,	Tide = 4.9m, 1.	7kt Flood (No	rth Fore	eland Tide Sta	ation)	
1048	1052	LT									de .									
1052	1100	ow	PL08_058A	212.0	100	117	29.0	59.0	49.0			MBES/S	SBES/SS/Mag Seas;0.5m Wir	nds: 10kt N. Vessel: 3.1kt,	Tide = $5.0m$ , 1.	.6kt Flood				
1100	1104	LT																		
1104	1106	ow	PL08_059A	032.0	100	116	31.0	31.0	21.0				SBES/SS/May Seas,0.5m Wir		Tide = 5.0m, 1.	4kt Flood				
1108	1125	ow		-	-	-							r survey equipment, Conduct							
1125	1200	IT	-	-	-	-			_			Transit	to TM34, switched to LNG DF	PR						
1200		_		+	-	-			_			1								
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											e	Fugro
ver 7.2	2.2015-A	(Alaska)									SEA	FLOOR MAPPING JOBLOG
produces:		DATE:	21-Sep-2015	Mon	Julia	n Day:	264	1		CLIENT:		AK LNG
	SPECT			Co	ok Inlet				OB DESC			Seaffoor Mapping
	NAV. SY		23.00007123	<del></del>	lypack			J	AREA 8	BLOCK: R/V:		Pipeline Westerly
		DAY #:						No	of SURVE	Y LINES:		484 745.15 Kilometers
C			0.00 N/A	1							-	100.3% Complete
												139,150,00 Meters Added
TI	ME	OP				LINE	E INFORM	IATION				
FROM		CODE	LINE NUMBER	HEADING	BSP	ESP			SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
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									S	EA	LOOR MAPPING JOBI	LOG					
ver 7.22.2015-A (A		04 0 004		Luffe		001	1				AVINO						
PROSPECT/	=130 n m-10	21-Sep-201		Julia IG Site	п Бау:	264	1	CI JOB DESCRIP	JENT:		AK LNG Hydrographic Survey						
NAV. SYS	200			lypack			1	AREA & BI			LNG Sites						
FUGRO J	MARKET STATES	23.00007123		ypaon			1	ALLER G D	R/V:		Westerly						
JOB D	AY #:	Day: 48	1				No	of SURVEY I	INES:		215 607.25 Kilometers						
CRP TO ST	ERN:	0.00 N/A	1								98.9% Complete						
											23,150.00 Meters Added						
											4,100.00 Meters Deleted						
		OS MIL	'n	_	Conto		SONNEL O				PERSONNE	WOLDSTON CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CO	_		ATHER REPO		
vigation System	Mark Sandard	e AG130 BORBOOSS	3	Oth	Capta	el Crew:		Ryan Brage n/a	-		Offshore Site Manager: Ass't Off. Site Manager:	Jim Grant Maria Krynytzky	Time Wx - 0600:	Se	ea State	Wind Speed	The real Property lies
MBES - R			-		Party C			n/a Kelly Powe	r		Data Manager:	Lance Woods	Wx - 1200;		na 0.5m	na 10kts	na N
SSS - Edge					dro. Su			David Wis			Data Processor:	Cody Gibson	Wx - 1800:		0.3m	5kts	N
Mag S			-	_	physica			Richie Carmic			Data Processor:	Katie Conrad	Wx - 2400:		na	na	na
USBL - IXS			1			ey Crew:		n/a			Data Processor:	n/a		(Place an		k, with brief des	
rab Sampler	- Day	Grab	1	Clien	t Repre	sentative:		Kent Simps	on		Additional Proc.:	n/a	HSE OFFICER:		Kelly I		
Grab Sampler	- Van	Veen	1						ONE D		Client Representative:	n/a	Toolbox:	X J	HA-Toolbox		
			1										Shift Change:	N/A			
			1										Safety:		eview MAR-RA-009, M	Medical Emergency Drill, 1	1 HOC
			J										Pre/Post Job:	No			
TIME I	OP				LINE	INFORM	MATION										
	CODE	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m)	L	DNP		DETAILED SU	JRVEY INFORMATI	ON			
200 1242	IT			-		1 441 (111)	mag (m)				Transit to TM34						
	ow	T .	//						12		Deploy MBES and conduct USVP						
252 1256	OL	TM34_016	159.0°	100	145	45.0	NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	. Vessel: 6.3kt, Tide = 4.6m, 1.6	6kt Flood ( Nikiski Tide	Station), C	Contacted Tank	ker 3 times and no	ever got
256 1308	LT																
308 1324	OL	TM34_017	339.0°	146	192		NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	<ol> <li>Vessel: 4.5kt, Tide = 4.5m, 0.8</li> </ol>	Bkt Flood				
324 1325	LT		150.00														
325 1339	OL LT	TM34_018	150.0°	100	140	35.0	NA	NA.	_		MBES/SBES Seas; 0.3m Winde: 5kt N	l. Vessel: 6.1kt, Tide = 1.3m, 0.	3kt Flood				
340 1344	OL	TM34 019	339.0°	150	162		NA	NA NA	_		MBES/SBES Seas:0.3m Winds: 5kt N	Vessel: 6 1ht Tide = 4 2m 1	1kt Ebb				
344 1345	LT	110154_019	000.0	150	102		INA	INA	_		IVIDES/SDES Seas, V.SIII VVIIIda. SKI IV	. Vessel. 0.1Ki, 11de - 4.2iii, 1.	IKI EDD				
	OL	TM34 020	159.0°	163	175	8.3	NA	NA			MBES/SBES Seas:0.3m Winds: 5kt N	. Vessel: 6.1kt, Tide = 4.1m, 1.2	2kt Ebb				
	LT	_			-												
349 1353	OL	TM34_021	359.0°	176	188	6.8	NA	NA			MBES/SBES Seas;0.3m Winds: 5kt N	. Vessel: 6.1kt, Tide = 4.1m, 1.3	3kt Ebb				
353 1355	LT								Į.								
		TM34_016_01	159.0°	100	110	11.2	NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	. Vessel: 5.71kt, Tide = 4.1m, 1	.5kt Ebb				
358 1359	LT																
		TM34_021_00	359.0	111	157		NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	i. Vessel: 5.71kt, Tide = 4.0m, 1	.5kt Ebb				
15 1416	LT	TH24 000 00	150.00	100	110	00.0											
416 1427 427 1428	LT	TM34_020_00	159.0	100	140	32.0	NA	NA	_		MBES/SBES Seas; 0.3m Winds: 5kt N	i. vessei: 4.8kt, 1 ide = 3.8m, 1.9	PKI EDD				
		TM34_019_00	359.0	100	129	9.0	NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	. Vessel: 4.8kt. Tide = 3.7m. 21	2kt Ebb				
138 1439	LT		000.0	100	120	0.0	11/1	.10/1			mode obco oddo, o om 11 mas. on 14	Toods Tiving True - 3.7111, 2.2	MITTER STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF TH				
		TM34_018_00	159.0°	100	137	26.0	NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	l. Vessel: 4.8kt, Tide = 3.6m, 2.4	4kt Ebb				
150 1505	LT											ner en europe en en en en en en en en en en en en en	econoria econorial filiali				
		TM34_016_002	359.0°	138	144		NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N	ĺ.					
509 1510	LT																
1519	OL	TM34_017	159.0°	145	171	8.0	NA	NA			MBES/SBES Seas; 0.3m Winds: 5kt N						
519 1520	LT																

MBES/SBES Seas; 0.3m Winds: 5kt N.

MBES/SBES Seas; 0.3m Winds: 5kt N.

MBES/SBES Seas;0.3m Winds: 5kt N. Vessel: 3.9kt, Tide = 3.0m, 2.2kt Ebb

1520 1531 OLC TM34\_018\_002 359.0° 172

TM34\_019 | 159.0°

1541 1552 OLC TM34\_020-002 359.0° 226 252

LT

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1531 1532

1532 1540

1540 1541

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199 225

NA

NA

NA



												Fugro
											SEA	FLOOR MAPPING JOBLOG
Mark Street		DATE:	21-Sep-201			n Day:	264	1		CLIENT:		AK LNG
	SPECT				TMO5 lypack		-		OB DESC	BLOCK:		Hydrographic Survey  LNG Sites
			23.00007123		ypack			1	ANLA	R/V:		Westerly
		DAY#		1				No.	of SURVE		1	215 607.25 Kilometers
C	RP TO 9	STERN:	0.00 N/A	Į.								98.9% Complete
												23,150.00 Meters Added
TII	ME	OP			_	LINE	INFORM	IATION				4,100.00 Meters Deleted
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP		Mag (m)	SSS Fish (m)		DNP	DETAILED SURVEY INFORMATION
1552	1553	LT										
1553	1559	OLC	TM34_021_002	159.0°	254	279	5.8	NA	NA			MBES/SBES Seas;0.3m Winds: 5kt N. Vessel: 3.9kt, Tide = 2.9m, 2.3kt Ebb
1559 1600	1600	OL	TM34_022	359.0°	280	306	8.5	NA	NA		12	MBES/SBES Seas;0.3m Winds: 5kt N. Vessel: 3.9kt, Tide = 2.8m, 2.3kt Ebb
1611	1612	LT	110134_022	303.0	200	300	0.0	INA	INA			INDEC/ODEC COG, O. OH TY HIGG. ON IV. YOSGE, C. OAN, THE - Z. OH, Z. ON EDU
1612	1619	OLC	TM34_022_001	159.0°	307	333	4.2	NA	NA			MBES/SBES Seas;0.3m Winds: 5kt N. Vessel: 3.9kt, Tide = 2.7m, 2.4kt Ebb
1619	1620	LT										
1620	1629		TM34_22_002	359.0°	334	360	6.7	NA	NA			MBES/SBES Seas;0.3m Winds: 5kt N. Vessel: 4.5kt, Tide = 2.7m, 2.4kt Ebb
1629 1630	1630 1637	OLC	TM34 016 003	150.0°	361	386	7.0	NA	NA			MBES/SBES Seas:0.3m Winds: 5kt N. Vessel: 4.6kt. Tide = 2.6m. 2.4kt Ebb
1637	1638	LT	111154 010 000	105.0	301	300	7.0	INA	INA			NIDEGIGES Seasonally virtus, and N. Vesset W.M. True = 2.011, 2.4M EDU
1638	1646	OLC	TM34_015_001	359.0°	387	407	14.0	NA	NA		j	MBES/SBES Seas;0.3m Winds; 5kt N. Vessel; 4,3kt, Tide = 2.6m, 2.4kt Ebb
1646	1647	LT	3 /									
1647 1650	1650 1750	OLC	TM34_014_001	159.0°	408	421	13.0	NA	NA		_	MBES/SBES Seas; 0.3m Winds: 5kt N. Vessel: 6.5kt, Tide = 2.5m, 2.4kt Ebb Transit to Cannery Dock
1750	1810	ow					_					Medical Emergency Drill at the Dock , review ERP and discuss
1810	1900	ow										interest Entragency State and County Entragency State and County State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State State S
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ver 7.22.2015-A							,		SESSE							
PROSPECT	DATE:	22-Sep-201		Julia IG Site	n Day:	265	-	JOB DESC	CLIENT:	_	AK LNG Hydrographic Survey					
NAV. SY		-		ypack			1		BLOCK:	<u> </u>	LNG Sites					
FUGRO		23.00007123	<u> </u>	ypack			4	ANLA	R/V:	<b>—</b>	Westerly					
	DAY#:	Day: 49	1				No	of SURVE			215 607.25 Kilometers					
		0.00 N/A	1								98.9% Complete					
			-6								23,150.00 Meters Added					
											4,100.00 Meters Deleted			· ·		J
GEOPHYSICA	L EQUIP	PMENT EQUIP	la la	10		PER	SONNEL O	NBOARD			PERSONNEL	ONSHORE		WEATHER REP	ORT	
Navigation Sy	stem - P	OS MV BGR60227	1		Capta	in:		Ryan B	raget		Offshore Site Manager:	Jim Grant	Time	Sea State	Wind Speed	Dir.
Diff, GPS System	n - Trimble	AG130 BORGOSS12	1	Oth	er Vess	el Crew:		n/a	3		Ass't Off. Site Manager:	Maria Krynytzky	Wx - 0600:	0.5m	10kts	NE
MBES -	R2Sonic				Party C	hief:		Kelly P	ower		Data Manager:	Lance Woods	Wx - 1200:	1.0m	20kts	NNE
SSS - Edg	etech 42	200 #38719		Hy	/dro. Su	rveyor:		David \	Wise		Data Processor:	Cody Gibson	Wx - 1800:	1.0m	20kts	NNE
	SeaSpy	133804	1	_	ophysica			Richie Car	rmichael		Data Processor:	Katie Conrad	Wx - 2400:	na	na	na
USBL - IX	SEA GA	PS # 151		Oth	er Surve	ey Crew:		n/a	9		Data Processor:	n/a	ISE Reporting (P	lace an "x" in the b	ox, with brief des	cription
Grab Sample				Clien	t Repre	sentative:		Kent Sin	npson		Additional Proc.:	n/a	HSE OFFICER:		Power	
Grab Sample	er - Van	Veen	1	-							Client Representative:	n/a	Toolbox:	X JHA-Toolbox		
													Shift Change:	N/A		
													Safety:		Meeting, Review MAR-	TRA-013
													Pre/Post Job:	No		
TIME	ÓP				LINE	INFORM	NOITAN	10	ye.e.	//A		DETAIL ED SI	URVEY INFORMATIO			
FROM TO	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	)	DNP		DETAILED S	UNVET INFORMATIO	•		
0700 0800	ws	2									Moming Ops meeting, weekly safety m		small craft advisory in ef	fect for Cook niet and	d Survey Area	
0800 0801	WS										Q105 reports Winds 15-20kts, seas 0.6					
0801 0900	ws										Q105 reports Winds 15-20kts, seas 0.6					
0900 1000	ws		-								Winds 15kts NNE, Expected Seas of 0	.6m-1.0m IN survey area				
1000 1001	ws															
1001 1150	WS	<u> </u>	-	-	-						Review SS data with client rep in CPC		Notice to the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the se	17 1 PM		
1150 1200			-	-	-		_				Start MBES Survey Kenai River Chann	1. T. M. M. M. B. M.	Seismic vessels moored if	Kenai Riverwaiting	on weather	
1200 1201	WS		-	_	-						Winds 15-20kts NNE, Expected Seas	기가를 맞게 되었다면 하는 아이들이 되었다. 그런 그런 그런 사람이 되었다는데 그런 아이는				
1201 1230	WS WS	-	-	-	-		_				At Kenai River Mouth, Winds 15-20kts,	, whitecaps with choppy seas v	with 1.0m seas, Contacted	1 Q105 but they are to	anisting to Homer	to crew cha
1220 1240	I CVV I		-	1	-		_				Stop survey of first KRM survey line	Diver Channel with multibare				
					1	I					Start 2nd MBES Survey Line of Kenai F	kiver Channel with multibeam				
1240 1241	WS		_		_						Ford 2nd line					
1240 1241 1241 1321	WS WS										End 2nd line Start KDM30 MRES line in river					
1240 1241 1241 1321 1321 1322	WS WS WS										Start KRM39 MBES line in river					
1240 1241 1241 1321	WS WS															

1200	1201	WS						Winds 15-20kts NNE, Expected Seas of 0.6m-1.0m in survey area
1201	1230	WS					Y	At Kenai River Mouth, Winds 15-20kts, whitecaps with choppy seas with 1.0m seas, Contacted Q105 but they are tranisting to Homer to crew chang
1230	1240	ws						Stop survey of first KRM survey line
1240	1241	ws						Start 2nd MBES Survey Line of Kenai River Channel with multibeam
1241	1321	ws						End 2nd line
1321	1322	WS						Start KRM39 MBES line in river
1322	1327	ws						End KRM39
1327		ws	9					Start KRM39
1328	1335	WS	-					End KRM38
1335	1341	ws						Start KRM35
1341	1342	WS						End KRM35
1342	1350	ws					62	Start KRM42
1350	1358	ws						End KRM42
1358	1400	ws						Start KRM34
1400	1401	ws						Winds 20kts NNE, Expected Geas of 1.0m in survey area
1401	1403	WS	10 10 1	12				KRM33
1403	1424	ws						KRM32
1424	1445	ws						At Cannery Dock
1445	1500	ws						and the control of the depth of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the
1500	1610	ws	52 (2)				,	Refuel vessel
1610	1759	ws						
1759	1800	WS	2 1					Winds 20kts NNE, Expected seas are 1.0m
1800	1900	ws	8 jit	7.			72	
1900								
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														Fugro						
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ver 7.22.2							_				020000000									
			23-Sep-20	)15 V			Day:	266	ł	100 050	CLIENT:			AK LNG						
	SPECT	/SITE:			LNG				ł	JOB DESC	& BLOCK:			Hydrographic Survey LNG Sites						
			23.0000712	23	пур	Dack			J.	AREA	R/V:			Westerly						
1.5		DAY#:	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon						N	o. of SURV			215	607.25 Kilometers						-
C			0.00 N/											98.9% Complete						
			S:											23,150.00 Meters Added						
														4,100.00 Meters Deleted						
and in section with the section will	***********	and the local division in which the local division is not a second	PMENT EQU	IP#					SONNEL O	THE RESIDENCE PROPERTY AND ADDRESS.	***************************************			THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAME	L ONSHORE		٧	VEATHER REP		795550
			OS MV BGRB0	2273			Capta			Ryan B				Offshore Site Manager:	Jim Grant	Time		Sea State	Wind Speed	Dir.
			le AG130 scress		_	100000		el Crew:		n/a				Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:		0.6m	10-15kts	NE
		R2Soni		_	-		Party C			Kelly P				Data Manager:	Lance Woods	Wx - 1200:	_	1.6n	15-20kts	NE
		etech 4 SeaSpy			-		dro. Su	al Tech.:		David \	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			Data Processor:	Cody Gibson Katie Conrad	Wx - 1800: Wx - 2400:		1.0m na	10-15kts na	ENE na
		SEA GA						ey Crew:		n/a				Data Processor:	n/a		(Place		ox, with brief desc	
		er - Day		-	- 1			sentative:		Kent Sin			1 1	Additional Proc.:	n/a	HSE OFFICER:	(r iace		/ Power	ription
		er - Van		$\dashv$	-	Onone	порго	GOTTLOW VO.		Horit On	прост			Client Representative:	n/a	Toolbox:	x	JHA-Toolbox	71 01101	
													1 '			Shift Change:	N/A			
													1 [			Safety:	X	Review MAR-T	'RA-009	
																Pre/Post Job:	No			7.
FROM	TO	OP CODE	LINE NUMBE	R HE	ADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP			DETAILED	SURVEY INFORMATION	N			
0700	0730	ow											Morning	Ops Meeting						
0730	0830	ws									100		Waiting	on tide in Kenia River,						
	0845	WS																		
	0846	WS		$\perp$	_									O reports fair conditions at AS	SCR location,					
	0900	OW		+	-	$\rightarrow$								checks						
	0915 1030	OW		-	_									Cannery dock						
0915 1030	1155	WS		+	-	$\rightarrow$							Transit t	to TM34 to Cannery Dock						
1155	1200	WS	-	+	+	$\rightarrow$					-			Dianned Maintenace, Chango	ut namen, and cocondary fro	l filters on both main argin	00			
1200	1201	WS		+		$\neg$								6m Winds 20kts NE	,					
1201	1359	WS			$\neg$	$\neg$							(S1777) (10							
1359	1400	ws											Seas 1.	5m Winds 15-20kts NE						
1400	1759	WS																		
1759	1800	WS											Winds 1	10-15kts ENE. Exepected seas	of 1.0m					
1800	1900	ws		_	_															
1900				-	- 1	$\rightarrow$							l							
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										;	SEA	FLOOR MAPPING JOBL	.OG					
ver 7.22	2015-A		F					,										
			24-Sep-20			in Day:	267	-		CLIENT:		AK LNG						
11,410,00	SPECT				NGSite	1			JOB DESCI			Hydrographic Survey						
	NAV. 31			_	typack			J	AREA &	BLOCK:		LNG Sites						
1 8	FUGRO			3						R/V:		Westerly				-		
79		DAY #:		4				No	o. of SURVE	Y LINES:		215 607.25 Kilometers						
l °	RP TO	STERN:	0.00 N/A									101.8% Complete		-		-		
1												23,150.00 Meters Added				_		
							-					4,100.00 Meters Deleted						
			PMENT EQUIP		_	0		SONNEL O				PERSONNEI		1	,	WEATHER R		Di-
			POS MV BGR6022		-	Capta	CONTRACTOR OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE		Ryan Br			Offshore Site Manager:	Jim Grant	Time		Sea State	Wind Speed	
			le AG130 BGR6035	<b>⊣</b>	Oth		el Crew:	-	n/a			Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600		na	na	na
	MBES -			-	1	Party C			Kelly Po			Data Manager:	Lance Woods		_	0.5m	10kts	N
58	S - Edg	all the same of the same of	-	-	_	ydro. Su	-	-	David V			Data Processor:	Cody Gibson	Wx - 180		0.3m	5kts	N
	Mag					ophysica		_	Richie Car			Data Processor:	Katie Conrad	Wx - 240		na	na	na
-	BL - IX			4	_		ey Crew:	-	n/a			Data Processor:	n/a		-		e box, with brief des	cription
	Sample			4	Ciler	it Repre	sentative;		Kent Sim	pson		Additional Proc.:	n/a	HSE OFFIC			elly Power	
Grab	Sample	er - Var	Veen	-	-			_				Client Representative:	n/a	Toolb	2000	JHA-Toolbe	ox	
$\vdash$														Shift Chan			D TD4 444	
⊢					-			-						Saf		Review MA	R-TRA-012	
$\vdash$														Pre/Post 3	ab: No			
TI	ME	OP				LIN	EINFORM	MATION					7050978B 1585		020.250			
FROM	то	CODE	LINE NUMBER	HEADIN	G BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)		DNP		DETAILED	SURVEY INFORM	ATION			
0700	1000	ws				1						Waiting on tides in Kenai River						
1000	1200	E103				100			1		9	Vessel port engine would not start due	to cold causing fuel to gel ar	nd cause an airlock in	fuel system	n		
1200	1310	IT		1								Depart Cannery Dock						
1310	1325	ow										Surevy Equipment deployed						
1325	1330	LT																
1330	1336	ow	TM34_003A	039.0	° 100	125	29.0	30.0	20.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel: 6.0kt, T	ide = 5.0m, 2.8kt Floo	d (E.Fore	land Tide Stat	tion),	
1336	1342	LT																
1342	1348	ow	TM34_002A	219.0	° 100	114	34.0	76.0	66.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel: 3,3kt, T	ide = 5.2m, 2.8kt Floo	d			
1348	1952	LT																
1352	1354	ow	TM34_001	039.0	° 100	109	33.0	34.0	24.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel:6.1kt, Ti	de = 5.3m, 2.8kt Floor	i			
1354	1413	LT																
1413	1429	OLC	TM34_018_00	3 219.0	° 100	121	41.0	78.0	68.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel:1.5kt, Ti	de = 5.5m, 2.8kt Floor	d, Broke lin	ne early to avo	id set net fishing bou	ys/line/clump w
1429	1436	LT										Conducted USVP at 1439						
1436	1450	OLC	TM34_019_00	3 219.0	° 122	148	38.0	76.0	66.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel:3.0kt, Ti	de = 5.8m, 2.8kt Floor	d, Broke lin	ne early to avo	id set net fishing bou	ys/line/clump w
1450	1453	LT									5							
1453	1459	OLC	TM34_020_00	3 039.0	° 100	100	127.0	18.0	8.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel:6.0kt, Ti	de = 5.8m, 2.8kt Floor	1.			
1459	1501	LT																
1501	1506	OLC	TM34_021_00	3 219.0	° 100	112	30.0	57.0	47.0			MBES/SBES/SS/MAG Seas:0.3m Wind	ds: 5-10kt N. Vessel:3.0kt. Ti	de = 5.9m. 2.8kt Floor	d. Broke lin	ne early as it w	vas to shallow for SS	fish
1506	1511	LT																
1511	1515	OL	TM34_023	039.0	° 100	110	22.0	38.0	28.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N, Vessel:3.7kt, Ti	de = 5.9m, 2.4kt Floor	d, Broke lin	ne early to as i	t was to shallow for S	S fish
1515	1519	LT																
1519	1521	OL	TM34_025	039.0	° 100	107	17.0	22.0	12.0			MBES/SBES/SS/MAG Seas;0.3m Wind	ds: 5-10kt N. Vessel:3.7kt, Ti	de = 5.9m, 2.2kt Floor	I, Broke lin	ne early to as i	t was to shallow for S	S fish
1521	1531	ow										End SS/Mag operations due to shalow	water and setnet fishing bou	ys/lin/clump weight				
1531	1549	OLC	TM34_23_00	1 039.0	° 100	149	20.0	NA	NA			MBES/SBES Seas; 0.3m Winds: 5-10kl	N. Vessel 3.7kt, Tide = 5.9n	n, 2.0kt Flood				

MBES/SBES Seas: 0.3m Winds: 5-10kt N. Vessel:3.4kt, Tide = 5.8m, 1.6kt Flood

MBES/SBES Seas;0.3m Winds: 5-10kt N. Vessel:3.4kt, Tide = 5.7m, 1.5kt Flood

MBES/SBES Seas;0.3m Winds: 5-10kt N. Vessel:3.4kt, Tide = 5.5m, 1.0kt Flood

MBES/SBES Seas;0.3m Winds: 5-10kt N. Vessel:3.4kt, Tide = 5.5m, 1.0kt Flood

1549 1550 LT

1555 1600 LT

1621 1622 LT

1630 1632 LT

1622 1630

1550 1555 OLC TM34\_016\_004 219.0°

1600 1621 OLC TM34\_25\_001 039.0°

OL

TM34\_027 219.0°

1632 1634 IF TM34\_INFILL02 039.0° 100 106 14.0

150 154

100 150

151 177

8.0

12.0

4.0

NA

NA

NA

NA

NA

NA

NA

NA





## FUGRO SEAFLOOR MAPPING JOBLOG

Ver 7.22.2015-A (Alaska)

DATE:

PROSPECT / SITE:

NAY. 3Y3TEM:

FUGRO JOR #:

JOB DAY #:

Day: 51

DAY: 23.00007123

Day: 51

CRP TO STERN: 0.00 N/A

101.8% Complete 23,150.00 Meters Added 4.100.00 Meters Deleted

TIN	ME .	OP				LINE	INFORM	IATION			DETAILED CONTENTS OF
FROM	то	CODE	LINE NUMBER			ESP			SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION
	1647		TM34_027_001	219.0°	100	115	4.6	NA	NA		MBES/SBES Seas; 0.3m Winds: 5-10kt N. Vessel: 5.6kt, Tide = 5.5m, 0.6kt Flood
1647	1649		_								
Annual Science of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of the Party of	-		TM34_029	039.0°	100	116	3.5	NA	NA		MBES/SBES Seas; 0.3m Winds: 5-10kt N. Vessel 5.4kt, Tide = 5.2m, 0.2kt Slack
	1706										
	1717		TM34_024	039.0*	100	157	6.5	NA	NA		MBES/SBES Seas;0.3m Winds: 5-10kt N. Vessel3.5kt, Tide = 5.0m, 0.3kt Slack
	1725		TM34_026	210.00	150	185	4.5	NA	NA	-	MBES/SBES Seas; 0.3m Winds; 5-10kt N. Vessel 5.4kt, Tide =4.8m, 0.7kt Ebb
	1726		110134_020	219.0	100	100	4.0	INA	I NA	7	INDEE/S Seas, U.SITI VVIIIUS, 5-10kt N., Vessei S-4kt, Tide -4-011, U./ kt 200
	1734		TM34_028	039.0°	186	208	3.3	NA	NA		MBES/SBES Seas;0.3m Winds: 5-10kt N. Vessel:5.4kt, Tide =4.8m, 0.7kt Ebb
	1737	LT	111101_020	0000	100	200	0.0	1111	1,01		
1737	1738	OL	TM34_030	039.0°	209	215	9.0	NA	NA		MBES/SBES Seas;0.3m Winds: 5-10kt N. Vessel:5.4kt, Tide =4.5m, 1.4kt Ebb
1738	1845	IT									Transit to Dock
	1900	OW									Secure vessel
1900											
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										SE	AFLO	OR MAPPING JOBLO	G					
ver 7.22.2015-A (/	(Alaska)								need and and									
	DATE:	25-Sep-2			n Day:	268	Į.	3612J-1616	CLIENT:			AK LNG						
PROSPECT				NG Site			Į.		CRIPTION:			Hydrographic Survey						
(A) (A) (A) (A) (A) (A) (A) (A) (A) (A)	SYSTEM:	00 000074		Hypack			Į.	AREA	& BLOCK:	-		LNG Sites Westerly						
100000000000000000000000000000000000000		23.000071	3					o. of SURV	R/V:		215	607.25 Kilometers						
	B DAY #:	Day: 52 0.00 N/	$\exists$				N	o. of SURV	ET LINES:		215	101.8% Complete						
CRP 10	SIERN:	0.00 N/										23,150.00 Meters Added				_		
												4,100.00 Meters Deleted						
GEOPHYSICA	AL EQUI	MENT EQU	P#	2010		PER	SONNEL O	NBOARD				PERSONNEL	ONSHORE	-01	WEAT	HER REPORT	i .	
Navigation Sy			The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa		Capta		T	Ryan B	raget		1	Offshore Site Manager:	Jim Grant	Time	Sea S	State	Wind Speed	Dir.
Diff. GPS System			1612	Oth	er Vess	el Crew:		n/a			1	Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:	na		na	na
	- R2Soni		1633		Party C	nief:		Kelly P	ower		1 1	Data Manager:	Lance Woods	Wx - 1200:	2,0	)m	30kts	SSW
SSS - Edg	getech 42	200 # 38	19	H	ydro. Su	rveyor:		David \	Wise		1	Data Processor:	Cody Gibson	Wx - 1800:	2.0	)m	20kts	SSW
	- SeaSpy		0A	Ge	ophysica	al Tech.:		Richie Car	rmichael		1	Data Processor:	Katie Conrad	Wx - 2400:	na		na	na
USBL - IX			51			ey Crew:		n/a				Data Processor:	n/a	HSE Reporting	(Place an "x'			cription)
Grab Sampl				Clier	t Repre	sentative:		Kent Sin	mpson			Additional Proc.:	n/a	HSE OFFICER:		Kelly Po	wer	
Grab Sampl	ler - Van	Veen	4	_							1	Client Representative:	n/a	Toolbox:		-Toolbox		
			-	-							4 .			Shift Change:	N/A			
			-	<u> </u>							-			Safety:	X Revi	ew MAR-TRA-	-002	
				_							J			Pre/Post Job:	NO			
	_																	
I TIME	OP	ľ			LINE	F INFORM	IATION											
FROM TO	OP CODE	LINE NUMBE	R HEADIN	G BSP	LINE	Fath (m)		SSS Fish (m)		DNP			DETAILED	SURVEY INFORMATIO	N			
	CODE	LINE NUMBE	R HEADIN	G BSP			Mag (m)	SSS Fish (m)		DNP	Fatigue	a Mangement	DETAILED	SURVEY INFORMATIO	N			
FROM TO	OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	10-10-10-10-10-10-10-10-10-10-10-10-10-1	e Mangement re USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov				N			
FROM TO 0700 1400 1400 1530	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N .			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R HEADIN	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			
FROM TO 0700 1400 1400 1530 1530 1900	OW OW	LINE NUMBE	R	G BSP				SSS Fish (m)		DNP	Remov	e USBL pole and SS fish, install g			N			



				Fugro		_
		S	EAFLOOR	MAPPING JOBLOG		
ver 7.22.2015-A (Alaska)						
DATE:	26-Sep-2015 Sat Julian Day: 269	CLIENT:		AK LNG		
PROSPECT / SITE:	LNG Site	JOB DESCRIPTION:		Hydrographic Survey		
NAV. SYSTEM:	Hypack	AREA & BLOCK:		LNG Sites	•	,
FUGRO JOB #:	23.00007123	R/V:		Westerly		
JOB DAY #:	Day: 53	No. of SURVEY LINES:	215	607.25 Kilometers		
CRP TO STERN:	0.00 N/A	4 T SA ARM TANKS TO THE WAS A THE TANK OF THE PROPERTY OF THE		101.8% Complete		
374-2540 - 9-31-254-94-25-34-W-1-1-				23,150.00 Meters Added		
				4 100 00 Meters Deleted	VI.	 

GEOPHYSICAL EQUIPMENT	EQUIP #
Navigation System - POS MV	
Diff. GPS System - Trimble AG130	BGR603512
MBES - R2Sonic	BGR603633
SSS - Edgetech 4200	# 38719
Mag SeaSpy	13380A
USBL - IXSEA GAPS	# 151
Grab Sampler - Day Grab	
Grab Sampler - Van Veen	

Captain:	Ryan Braget
Other Vessel Crew:	n/a
Party Chief:	Kelly Power
Hydro. Surveyor:	David Wise
Geophysical Tech.;	Richie Carmichael
Other Survey Crew:	Seth Jones(CH2MHILL)
Client Representative:	Kent Simpson

Offshore Site Manager:	Jim Grant
Ass't Off, Site Manager:	Marta Krynytzky
Data Manager:	Lance Woods
Data Processor:	Cody Gibson
Data Processor:	Katie Conrad
Data Processor:	n/a
Additional Proc.:	n/a
Client Representative:	n/a

	v	VEATHER REP	ORI	
Time		Sea State	Wind Speed	Dir.
Wx - 0600:		na	na	na
Wx - 1200:		0.5m	10-15kts	NE
Wx - 1800:		1.0m	10-15kts	ENE
Wx - 2400:		na	na	na
SE Reporting	Place	an "x" n the b	ox, with brief des	criptio
HSE OFFICER:		Kell	y Power	
Toolbox:	X	JHA-Toolbox		
Shift Change:	N/A			
Safety:	X	Seth Jone received a ve	essel oreintation. Review MAR-TRA	-003 and 013
Dec/Doct John	No			

TII	TIME OP					LINE	INFORM	ATION						
FROM	то	CODE	LINE NUMBER	HEADING	BSP	ESP	Fath (m)	Mag (m)	SSS Fish (m)	DNP	DETAILED SURVEY INFORMATION			
0700	0725	ow									Morning Ope mooting			
0725	0735	ow		5 5	-					ė i	estart checks			
0735	0840	IT									part Cannery Dock			
0840	0910	co									SS01-34-01A			
0910	0915	ow									SS01-34-01B for CH2MHILL			
0915	0925	ow									D2SS01-34-01A for CH2MHILL			
0925	0930	co									D2SS01-34-01B			
0930	0940	ow									D3SS01-38-01A for CH2MHILL			
0940	0959	co								Į.	D36601-38-01B			
0959	1055	ow									D5SS01-10-01A for CH2MHILL did give us rocks for our sample			
1055	1056	E116									Grab sample rope snagged in block, completed JHA and recovered grab sample safely and with a sample			
1056	1058	CO	į.		<u> </u>						D5SS01-34-01B			
1058	1137	co									D4SS01-06-01A			
1137	1145	OW									D4SS01-06-01B, for CH2MHILL			
1145	1205	CO									TM34-04A, Good sample 1 large rock			
1205	1305	ow									Move TM02 location			
1305	1315	CO									TM02-01A, Good sample			
1315	1340	CO									TM02-03A. Good sample			
1340	1355	co									TM02_02A, Good sample			
1355	1417	co									TM01-02A, Good Sample			
1417	1510										Sea swell 1.0-1.3m, having a lot of difficulty controlling winch rope spooling on winch, plus grab sampler is swinging once out of the water			
1510	1530	ws												
1530	1630	ws									Refuel Vessel			
1630	1900	ws									1.0m Sea swell, not suitiable conditions for grab sampling			
1900														
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ver 7.22.2015-A (Alaska)  DATE: 27-Sep-2015 Sun Julian Day: 270 CLIENT:						AK LNG												
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laviga	ation Sys	stem - P	OS MV BGRB	12271		Capta	ain:		Ryan B	raget		Offshore Site Manager:	Jim Grant	Time	S	ea State	Wind Speed	Dir
			e AG130 BGRB		Ott		sel Crew;		n/a			Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:		na	na	na
	MBES -					Party C			Kelly P			Data Manager:	Lance Woods	Wx - 1200:		na	na	na
SS	S - Edg					lydro. Su			David \			Data Processor:	Cody Gibson	Wx - 1800:		na	na	na
111		SeaSpy					al Tech.:	-	Richie Car			Data Processor:	Katie Conrad	Wx - 2400:	(DI	na	na na	na
	SBL - IX			51			ey Crew:	5	eth Jones(C			Data Processor:	n/a		(Place ar		x, with brief desc	riptio
	Sample				Clie	nt Kepre	esentative:	+	Kent Sir	npson		Additional Proc.:	n/a n/a	HSE OFFICER: Toolbox:	No	Kelly	Power	
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			e AG130 screens				el Crew:		n/a	3		Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:			000	
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Naviga	tion Sys	tem - P	OS MV BGRB022	ra		Capta	ain:		Ryan B	raget		Offshore Site Manager:	Jim Grant	Time	Se	ea State	Wind Speed	Dir.
			e AG130 ecresos				el Crew:		n/a	1		Ass't Off. Site Manager:	Marta Krynytzky	Wx - 0600:				
	MBES -					Party C						Data Manager:	Lance Woods	Wx - 1200:				
SS	S - Edg			- 11		ydro. Su			David \			Data Processor:	Cody Gibson	Wx - 1800:				
177		SeaSpy					al Tech.:		Richie Car	michael		Data Processor:	Katie Conrad	Wx - 2400:				
	BL - IX		1000000				ey Crew:	-				Data Processor:	n/a		(Place an		x, with brief desc	ription)
	Sample			4	Clier	nt Repre	sentative:					Additional Proc.:	n/a	HSE OFFICER:	1.		narmichael	
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# APPENDIX 2-C BASE STATION OPUS SOLUTIONS/REPORTS



### **Base Station: Fat Alberts**

Preliminary

NAD83(NSRS 2007) NAD83(NSRS 2007) Alaska Zone 4

(EPOCH:2002.0000)

Latitude (N): 61° 08′ 57.47758″

Longitude (W): 151° 03′ 55.74864"

Ellipsoid Ht: 36.924m
Orthometric Ht: 32.131m
GEOID Model: GEOID06

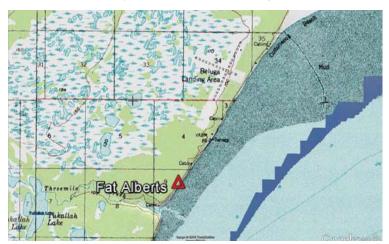
Northing: 2613517.204 Usft

Easting: 1452187.184 USft

NAD83(NSRS 2007) UTM zone 5

Northing: 6780957.067m Easting: 604127.814m

The coordinates are relative to the Antenna Reference Point (ARP). The coordinates were computed with OPUS Projects software using 24 hours of GPS data (no GLONASS).



Google Earth Imagery–Beluga Area USGS Map



Close-up of Location



Base station from below



Looking South



## **Base Station: Integrity Roof**

**Preliminary** 

NAD83(NSRS 2007) NAD83(NSRS 2007) Alaska Zone 4

(EPOCH:2002.0000)

Latitude (N): 60° 31′ 15.25649″

Longitude (W): 151° 15′ 28.51201"

Ellipsoid Ht: 22.911m Orthometric Ht: 17.566m

GEOID Model: GEOID06

·

Northing: 2384449.90USft

Easting: 1413790.49usft

NAD83(NSRS 2007) UTM zone 5

Northing: 6710691.187m Easting: 595629.997m

The coordinates are relative to the Antenna Reference Point (ARP). The coordinates were computed with OPUS Projects software using 24 hours of GPS data (no GLONASS).





Base station from below



Face View—Close-up of Location



Looking South



# APPENDIX 2-D GRAB (BOTTOM) SAMPLE DESCRIPTIONS

## **SEA BED SAMPLE Sample Descriptions**

#### Confidential LNG Facilities Marine Geophysical Survey Report USAL-FG-GRZZZ-90-002015-010 Rev.0 15-Jun-2016



### **BOTTOM SAMPLE LOG**

Sample Number	Northing Easting (ft.)	Water Depth (ft.) at Time of Acquisition	Date Acquired (Local Date)	Rough Estimation of Sample Volume (gal)	Description
TM01_02A	2363646.507, 1365864.77	96.8	Sept. 26, 2015	0.25	Black (N1.75) to Greenish Gay (5G6/1) well rounded coarse gravel.
TM02_01A	2380876.214, 1380382.597	68.4	Sept. 26, 2015	0.5	Black to gray to olive gray (5Y4/1) to dark gray (N3) well rounded well graded fine to coarse gravel with coarse to fine sand and grey (G) clay
TM02_02A	2373845.37, 1372110.411	85.8	Sept. 26, 2015	0.25	Olive gray (5G6/1) to dark grey (N3) poorly sorted, coarse to fine gravel with one dark gray (N3) rounded cobble with a few sand granules.
TM02-03A	2374296.269, 1376115.145	83.5	Sept. 26, 2015	< 0.15	Rocks (2): 1. Gray (N5) to greenish grey (5G6/1) well rounded coarse gravel (2 x 1.5 x 1.5 in). 2. Gray (N5) well rounded coarse gravel (2.3 x 1.5 x 1 in).
TM03-01	2437702.698, 1388856.261	109.6	June 16, 2015	< 0.15	Dark greenish gray (5Y 3/2), well rounded aphanitic basalt (?) COBBLE, 12cm x 8cm x 7cm. with small (1cm) patches of encrusting calcareous bryozoan (?).
TM03-01B	2437917.537, 1388866.567	111.2	June 16, 2015	< 0.15	Grey (5Y 5/1), poorly sorted, very coarse to fine PEBBLES with a few granules.
TM03-02A	2417301.615, 1390922.795	74.5	June 16, 2015	0.3	Gray (5Y 5/1) to dark gray (5Y 4/1), very poorly sorted, very coarse to very fine pebble GRAVEL with very coarse to very fine SAND.
TM34_04A	2445915.346, 1388943.643	59.1	Sept. 26, 2015	0.25	One gray (N5) well rounded cobble (9 x 6 x 4.5 in).
D1SS01_01B	2434160.6, 1395130.315	n/a	June 16, 2015	n/a	CH2MHill Sample
D1SS01-34-01A	2436092.015, 1392160.195	46.6	Sept. 26, 2015	< 0.15	Grey (N5) clay with one light gray (N7) well rounded coarse sand granule (1 x 0.3 x 0.5 in), one black (N1.75) well rounded fine gravel granule (1.5 x 1.3 x 1.6 in), and one brown (10YR6/3) rounded (2.6 x 2.5 x 1.7 in) cobble.
D1SS01-34-01B	2436117.94, 1392297.45	42.0	Sept. 26, 2015	n/a	CH2MHill Sample

## **SEA BED SAMPLE Sample Descriptions**



D2SS01_01B	2438612.766, 1392045.545	n/a	June 16, 2015	n/a	CH2MHill Sample
D2SS01-34-01A	2436309.859, 1392716.73	32.0	Sept. 26, 2015	n/a	CH2MHill Sample
D2SS01-34-01B	2436238.404, 1392637.677	35.7	Sept. 26, 2015	< 0.25	Black to gray to olive gray (5Y4/1) to greenish gray (5G6/1) to brown (10YR6/3) well rounded well graded fine to coarse gravel with trace of sand and clay with two cobbles. 1. Brown (10YR3/3) to white (W) well rounded (4 x 2.8 x 2.5 in) cobble. 2. Gray (N5) rounded (2.6 x 2 x 3 in) cobble.
D3SS01_01B	2438892.175, 1391932.337	n/a	June 16, 2015	n/a	CH2MHill Sample
D3SS01-38-01A	2435710.995, 1392581.096	33.8	Sept. 26, 2015	n/a	CH2MHill Sample
D3SS01-38-01B	2435731.863, 1392600.348	35.8	Sept. 26, 2015	< 0.25	Rocks (14): three olive gray (5Y4/1) well rounded to rounded coarse gravel, three olive gray (5Y4/1) to brown (10YR6/3) well rounded to angular coarse gravel, four dark grey (N3) well rounded to angular coarse to fine gravel, three brown (10Y6/3) to black (N1.75) well rounded fine gravel, and one olive gray (5Y4/1) angular cobble.
D4SS01_01A	2435990.398, 1392092.46	n/a	June 16, 2015	n/a	CH2MHill Sample
D4SS01-06-01A	2434159.598, 1395146.927	11.8	Sept. 26, 2015	0.25	Dark gray (N3) to olive gray (OY4/1) well rounded coarse gravels with trace of medium sand and two cobbles: 1. Dark gray (N3) well rounded cobble, 2. Dark gray angular cobble.
D4SS01-06-01B	2434187.986, 1395152.593	11.4	Sept. 26, 2015	n/a	CH2MHill Sample
D5SS01_01C	2435699.655, 1392539.438	n/a	June 16, 2015	n/a	CH2MHill Sample
D5SS01-10-01B (in line log as D5SS01-34-01B)	2438682.266, 1392070.928	28.7	Sept. 26, 2015	0.25	Olive gray (5Y4/4) to dark gray (N3) to greenish gray (5Y6/1) to dark brown (10YR3/3) to brown (10YR6/3) well rounded well graded coarse to fine gravel with two cobbles. 1. Dark bown (10YR3/3 to tan (10YR6/8) to red (5YR4/6) well rounded (3.5 x 3 x 3 in) cobble. 2. Olive gray (5Y4/1) well rounded (5 x 3.5 x 4 in) cobble.
D6SS01_01B	2436047.344, 1392668.37	n/a	June 16, 2015	n/a	CH2MHill Sample



### **BOTTOM SAMPLE LOG**

Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 2275 Water Depth: 29.5m.

Northing: 6703693.36m, Easting: 581330.17m. (UTM, Zone 5N)

**SAMPLE NUMBER: TM01\_02A** 



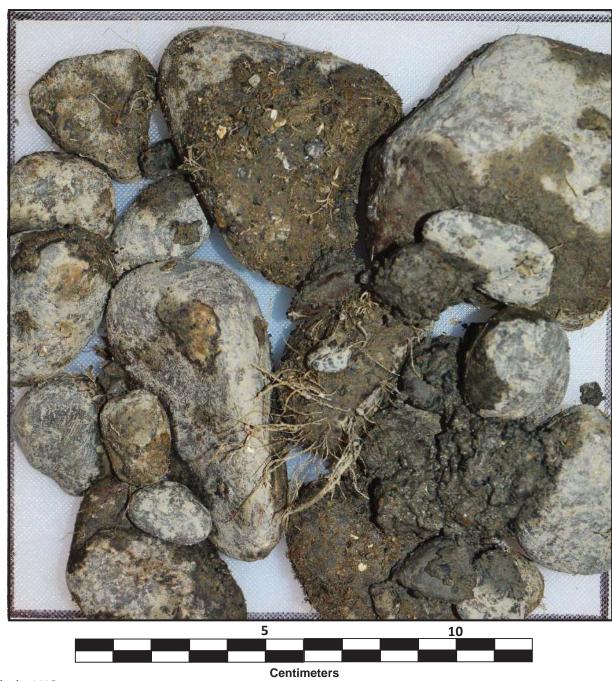
Alaska LNG Proj. No. 23-00007123



Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 2108 Water Depth: 20.84 m.

Northing: 6709139.49m, Easting: 585510.16m. (UTM, Zone 5N)

SAMPLE NUMBER: TM02\_01A

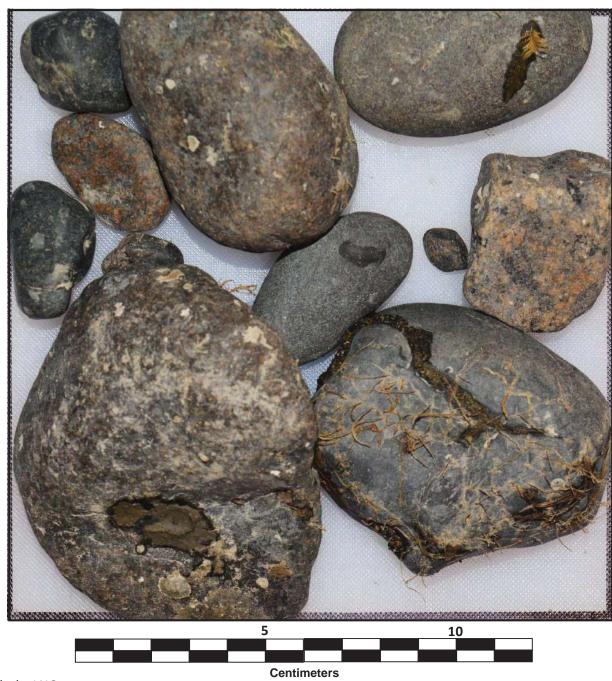




Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 2152 Water Depth: 26.16 m.

Northing: 6706884.5m, Easting: 583089.75m. (UTM, Zone 5N)

SAMPLE NUMBER: TM02\_02A





## **BOTTOM SAMPLE LOG**

Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 2136 Water Depth: 25.46 m.

Northing: 6707077.34m, Easting: 584302.51m. (UTM, Zone 5N)

#### **SAMPLE NUMBER: TM02-03A**





Vessel: **R/V Westerly** Date: **06/16/2015** Time (UTC): **17:08** Water Depth: **33.4m** 

Northing: <u>6726555.06m</u>, Easting: <u>587299.96m</u>. (UTM, Zone 5N)

**SAMPLE NUMBER: TM03-01** 





Vessel: **R/V Westerly** Date: **06/16/2015** Time (UTC): **17:20** Water Depth: **33.9m** 

Northing: <u>6726620.60m</u>, Easting: <u>587300.11m</u> (UTM, Zone 5N)

**SAMPLE NUMBER: TM03-01b** 





Vessel: R/V Westerly Date: 06/16/2015 Time (UTC): 19:46 Water Depth: 22.7m

Northing: <u>6720373.72m</u>, Easting: <u>588212.61m</u>. (UTM, Zone 5N)

**SAMPLE NUMBER: TM03-02** 

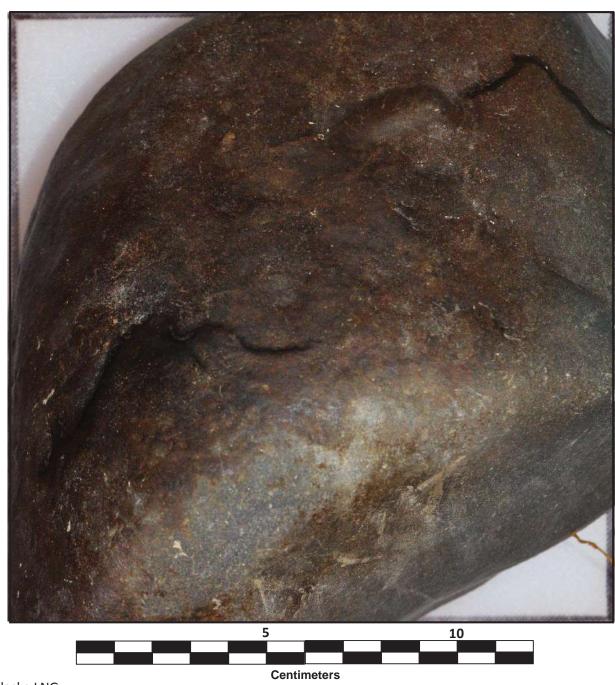




Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 2002 Water Depth: 18m.

Northing: 6729056.19m, Easting: 587212.35m. (UTM, Zone 5N)

SAMPLE NUMBER: TM34\_04A





## **BOTTOM SAMPLE LOG**

Vessel: R/V Westerly Date: 09/26/2015 Time (UTC):1651 Water Depth: 14.2m.

Northing: 6726110.71m, Easting: 588328.07m. (UTM, Zone 5N)

SAMPLE NUMBER: D1SS01-34-01A

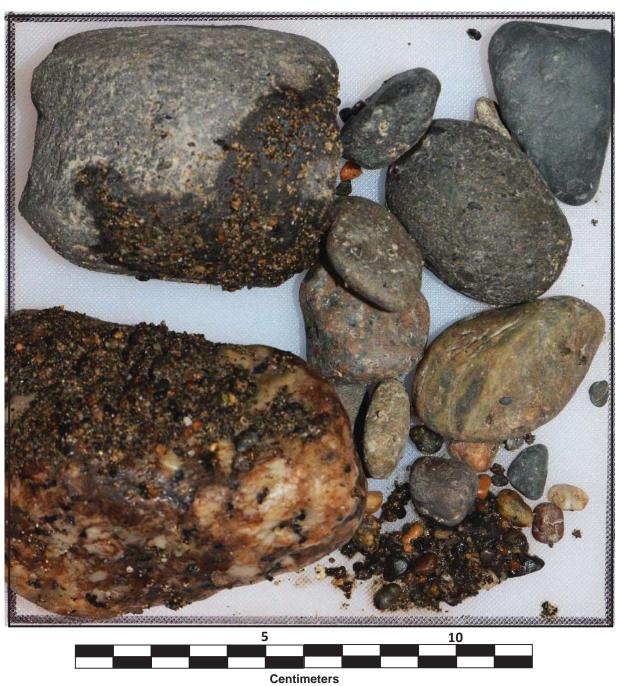




Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 1726 Water Depth: 10.89 m.

Northing: 6726161.91m, Easting: 588471.38m. (UTM, Zone 5N)

SAMPLE NUMBER: D2SS01-34-01B





Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 1744 Water Depth: 10.92m.

Northing: 6726007.2m, Easting: 588467.06m. (UTM, Zone 5N)

SAMPLE NUMBER: D3SS01-38-01B

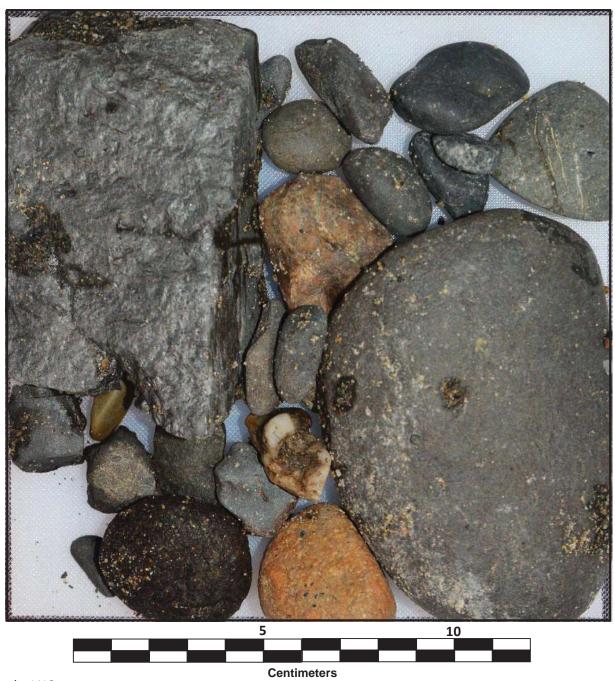




Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 1937 Water Depth: 3.6m.

Northing: 6725564.01m, Easting: 589264.1m. (UTM, Zone 5N)

SAMPLE NUMBER: D4SS01-06-01A



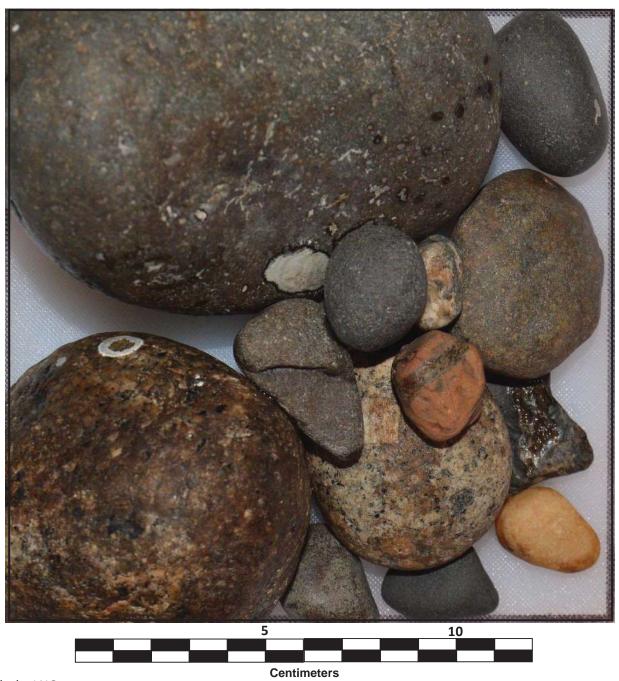


## **BOTTOM SAMPLE LOG**

Vessel: R/V Westerly Date: 09/26/2015 Time (UTC): 1800 Water Depth: 8.74m.

Northing: 6726897.94m, Easting: 588264.88m. (UTM, Zone 5N)

SAMPLE NUMBER: D5ISS01-10-01B





#### **APPENDIX 2-E**

**EQUIPMENT SPECIFICATIONS EQUIPMENT DESCRIPTIONS** 



## **R/V Westerly**



## **Specifications and Equipment**

Year Built 2011

**GRT NRT** 

Call Sign WDF7918

Hull Number US-IAR38CATK011

Hailing Port: Gulfport, MS

Length Overall 50'

Width 15.5'

Depth 1.5'

Top Speed 32 Knots, Cruising 25 Knots

## **Machinery**

Main Engines: 2 Cummins QSC 8.3 Diesel Engines, 500 HP Each

ZF 305 Gears

Hamilton 322 Jet Propulsion Units

Onan 9KW Marine Diesel Generator Set



## **R/V Westerly**

## **Navigation**

Garmin GPSmap 5212, Fully integrated GPS, Chartplotter, Radar, and Depth Sounder. It is also XM Capable With full Nexrad Weather Radar Overlay and Predicted Tides

Simrad AP 28 Autopilot

2 Icom IC-M504 Marine VHF Radios

Spotlight

Tankage

580 gallons Diesel

30 gallons Fresh Water

20 gallon Holding Tank

## **Survey Equipment**

22"x39" Moon Pool with Hydraulic Gantry

Aluminum Hydraulic Spool Winch with Slip Ring and 200' of Armored Data Cable

Hydraulic A-Frame with Pullmaster PL-2 Planetary Winch

Hull Mounted Odom 200 KHz Single Beam Transducer

**Shock Mounted Computer Rack** 

Air Conditioned Survey Acquisition Station

## **Safety Equipment**

**EPIRB** 

6 Coast Guard Approved Type 2 Life Preservers

2 Fire Extinguishers

Life Sling

**Flares** 

First Aid Kit

## Galley

2 Burner Stove Top

Microwave

Refrigerator





#### ROBUST POSITION AND ORIENTATION SOLUTIONS FOR MARINE MAPPING

Applanix Position and Orientation Systems for Marine Vessels (POS MV) are engineered to support water science data collection operations, particularly those where accurate, uninterrupted, and robust solutions are needed for direct georeferencing and mapping. Professionals involved in surf zone and coastal area mapping, harbor lane surveys, environmental assessments, channel inspection and dredging assessment, offshore resource exploration, erosion mapping, maritime and coastal waterway infrastructure inventory mapping depend on POS MV solutions.

Employing state-of-the-art high precision gyros which are tightly coupled to supporting GPS, the POS MV provides continuous and accurate position and orientation data logging for vessel and sensor guidance. Reliable POS MV output is produced in severe sea conditions, during periods of blocked or intermittent GPS, in areas where GPS reception is compromised by multipath effects, or at times when position drift must be reduced and faster signal reacquisition is essential.

POS MV delivers a full six degree-of-freedom position and orientation solution measuring location, velocity, attitude, and heave plus acceleration and angular rate vectors. Applanix marine solutions are able to affix position and orientation data accurately under the most demanding conditions, regardless of vessel dynamics, 200 times each second, making direct georeferencing and motion compensation for maritime remote sensing operations a productive and practical option.

#### PERFORMANCE SUMMARY - POS MV Accuracy

POS MV 320	DGPS	RTK	GPS Outage	
Position	0.5 - 2 m <sup>1</sup>	0.02 - 0.10 m <sup>1</sup>	<2.5 m for 30 s outages, <6 m for 60 s outages	
Roll & Pitch	0.020°	0.010°	0.020°	
True Heading	0.020° with 2 m baseline 0.010° with 4 m baseline	-	Drift less than 1° per hour (negligible for outages <60 s)	
Heave	5 cm or 5%²	5 cm or 5% <sup>2</sup>	5 cm or 5% <sup>2</sup>	
POS MV WaveMaster	DGPS	RTK	GPS Outage	
Position	0.5 - 2 m <sup>1</sup>	0.02 - 0.10 m <sup>1</sup>	<3 m for 30 s outages, <10 m for 60 s outages	
Roll & Pitch	0.030°	0.020°	0.040°	
True Heading	0.030° with 2 m baseline	-	Drift less than 2° per hour	
Heave	5 cm or 5% <sup>2</sup>	5 cm or 5% <sup>2</sup>	5 cm or 5% <sup>2</sup>	
POS MV Elite	DGPS	RTK	GPS Outage	
Position	0.5 - 2 m <sup>1</sup>	0.02 - 0.10 m <sup>1</sup>	<1.5 m for 60 s outages DGPS, <0.5 m for 60 s outage RTK	
Roll & Pitch	0.005°	0.005°	0.005°	
True Heading	0.025°	0.025°	Drift less than 0.1° per hour (negligible for outages <60 s)	
Heave	3.5 cm or 3.5% <sup>2</sup>	3.5 cm or 3.5% <sup>2</sup>	3.5 cm or 3.5% <sup>2</sup>	

<sup>&</sup>lt;sup>1</sup> One Sigma, depending on quality of differential corrections

<sup>&</sup>lt;sup>2</sup> Whichever is greater, for periods of 20 seconds or less





#### SYSTEM SPECIFICATIONS

COMPONENT	DIMENSIONS	WEIGHT	TEMPERATURE	HUMIDITY	POWER
PCS-1	L = 432mm, W = 89mm, H = 356mm	5 lb	0 °C to +55 °C	10 - 80% RH	110/230 Vac, 50/60 Hz, auto-switching 80 W
PCS-2	L = 281mm, W = 165mm, H = 90mm	3 lb	-20 °C to +60 °C	5 - 90% RH	24 Vdc, 50 W (peak)

#### HOUSING AND ADAPTOR PLATES

COMPONENT	DIMENSIONS	IP RATING
Waterproof Housing	L = 209mm, H = 181mm	IP68
Adaptor Plate	L = 135mm, W = 142mm, H = 19mm	IP68

#### **INERTIAL MEASUREMENT UNIT (IMU)**

TYPE	DIMENSIONS	WEIGHT	TEMPERATURE	ORIGIN
IMU-1	L = 165mm, W = 162mm, H = 162mm	4.5 lb	-40 °C to +70 °C	US
IMU-2	L = 204mm, W = 204mm, H = 168mm	3.5 lb	-40 °C to +60 °C	US
IMU-3	L = 160mm, W = 160mm, H = 102mm	3.6 lb	-40 °C to +60 °C	US

#### **GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)**

COMPONENT	DIMENSIONS	WEIGHT	TEMPERATURE	HUMIDITY
PS Antenna	L = 187mm, W = 53mm	0.5 lb	-40 °C to +70 °C	0-100% RH

1. ETHERNET INPUT OUTPUT

Ethernet (100 base-T)

Parameters Time tag, status, position, attitude, heave,

 $velocity, track \, and \, speed, \, dynamics, \, performance \,$ 

metrics, raw IMU data, raw GPS data.
Low rate (1 Hz) UDP protocol output

Control Port TCP/IP input for system commands
Primary Port Real-time (up to 200 Hz) UDP protocol output
Secondary Port Buffered TCP/IP protocol output for data logging

to external device

2. SERIAL RS232 INPUT OUTPUT

5 COM Ports User assignable to: NMEA output (0-5), Binary

output (0-5), Auxiliary GPS input (0-2), Base GPS

correction input (0-2)

3. NMEA ASCII OUTPUT

Parameters NMEA Standard ASCII messages:

Position (\$INGGA), Heading (\$INHDT), Track and Speed (\$INVTG), Statistics (\$INGST), Attitude (\$PASHR, \$PRDID), Time and Date (\$INZDA,

\$UTC).

Rate Up to 50 Hz (user selectable)

Configuration Output selections and rate individually

configurable on each assigned com port.

4. HIGH RATE ATTITUDE OUTPUT

Parameters User selectable binary messages: attitude,

heading, speed.

Rate Up to 100 Hz (user selectable)
Configuration Output selections and rate individually

configurable on each assigned com port.

5. AUXILIARY GPS INPUTS

Parameter NMEA Standard ASCII messages: \$GPGGA,

\$GPGST, \$GPGSA, \$GPGSV.
Uses Aux input with best quality.

Rate 1 Hz

6. BASE GPS CORRECTION INPUTS

Parameter RTCM 1, 9, 18, 19, CMR and CMR+ input formats accepted. Combined with raw GPS

observables in tightly-coupled navigation solution.

Rate 1 Hz

6. DIGITAL I/O

1PPS 1 pulse-per-second Time Sync output, normally

high, active low pulse

Event Input (2) Time mark of external events. TTL pulses >

1 msec width, rising or falling edge, max rate 200 Hz.

#### 7. USER SUPPLIED EQUIPMENT

- PC for POS Controller (Required for configuration):

Pentium 90 processor (minimum), 16 MB RAM, 1 MB free disk space, Ethernet adapter (RJ45 100 base T), Windows 98/2000/NT/XP

- PC for POSPac Post-processing Software: Pentium III 800Mhz or equivalent (minimum), 256 MB RAM, 400 MB free disk space, USB Port

(For Security Key), Windows 2000/XP

Headquarters: 85 Leek Crescent Richmond Hill, ON Canada L4B 3B3 T 905.709.4600 F 905.709.6027 UK: Forester's House, Old Racecourse Oswestry UK SY10 7PW T 44 1691 659359 F 44 1691 659299 Texas: 17461 Village Green Drive, Houston TX USA 77040 T 713.896.9900 F 713.896.9919 www.applanix.com









#### FOURTH-GENERATION USBL ACOUSTIC POSITIONING SYSTEM

The iXBlue fourth-generation pre-calibrated GAPS combines high performance ultra-short baseline (USBL) and a fiberoptic inertial navigation system (INS) in the same housing to provide accurate position of any subsea object, in diverse and challenging environments. Its performance ranges from extremely shallow water to deep sea. Its compact and allin-one design allows both portable and permanent installations. One of GAPS key new features is support of dynamic positioning (DP).

#### **FEATURES**

- Integrates USBL, high-grade INS, real-time positioning and GPS
- Position accuracy: 0.06% x slant range
- Advanced signal processing and 3D acoustic antenna for range and accuracy performance
- Powerful dynamic positioning (DP) mode (L/USBL/INS)

#### BENEFITS

- Cost- and time-saving deployment: flexible, portable, pre-calibrated, rapid, and simple
- Robust performance in very shallow water (10 m depth) to long range (> 4000 m depth)
- Deployment options, from surface buoy, side pole, moon pool or hull mounted
- Universal utilization

- APPLICATIONS Offshore, AUV and ROV navigation Underwater survey and inspection Drilling
  - Dynamic positioning (DP) Structure placement Pipeline and cable deployment
  - Diver tracking Seismic Ocean science Defense Renewable energy industries





#### PERFORMANCE

Subsea positioning

Position accuracy (CEP50) 0.06% of the slant range  $^{[1]}$ 

Nominal range 4 000 m (2)

Antenna coverage 200 deg hemispherical

**Surface positioning** 

Heading accuracy 0.01 deg x secant latitude

Roll / pitch accuracy 0.01 deg

#### **COMPATIBLE TRANSPONDERS AND SENSORS**

iXBlue mini transponders OCEANO MT8 x 2, OCEANO MT9 x 2, OCEANO MTA x 2 iXBlue midi transponders OCEANO ETA62 and releasable OCEANO RTA62

Third party wide band transponders Optional

iXBlue inertial-acoustic solution integration PHINS, ROVINS, RAMSES

#### **OPERATING / ENVIRONMENT / MECHANICAL**

Power supply / consumption 24 – 36 VDC or 110 – 230 VAC / 50 W Weight in air / water 15 kg / -7 kg (positive buoyancy)

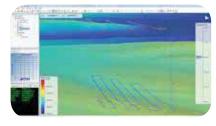
Dimensions (Ø x H) 295 mm x 638 mm Array depth rating 20 m (100 m survival)

Operating / storage temperature -5°C to 35°C / -40°C to 70°C

#### INTERFACES

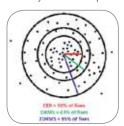
Control command Input / output

#### Protocols



1 signal to noise ratio > 40 dB, in vertical conditions 2 noise level < 65 dB / VHz @ 1 m ref  $\mu$ Pa

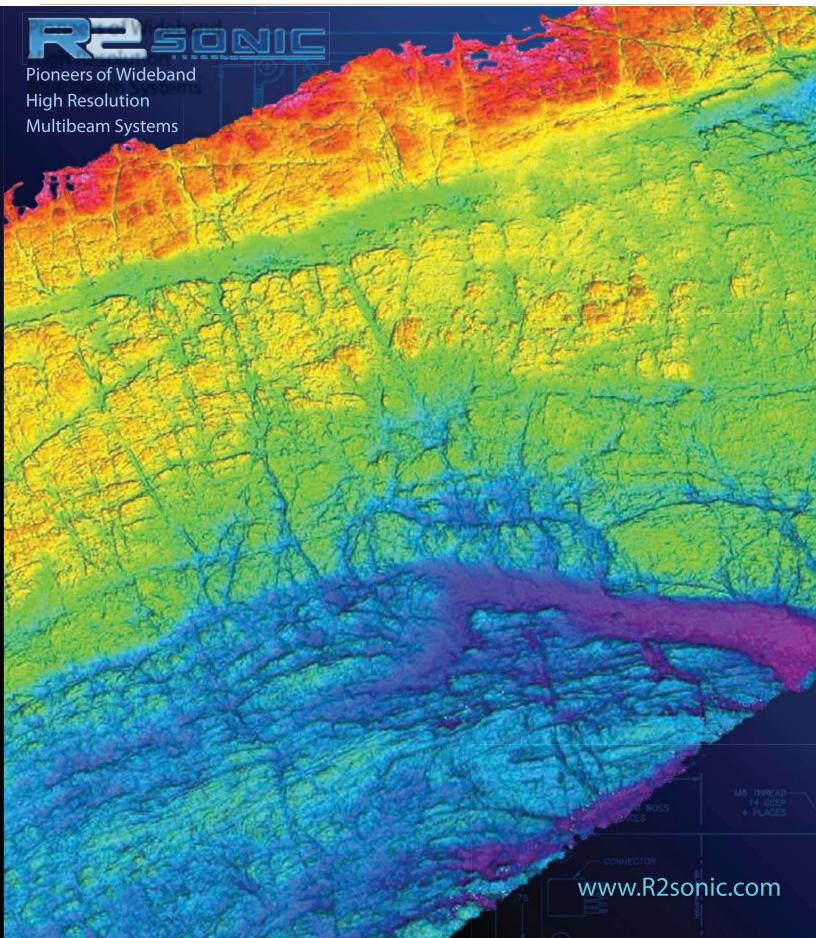
Standard iXBlue web-based user interface Quad RS232 / RS422 / Ethernet Trigger I/O pulse port and PPS / Sync ports Library of NMEA protocols (standard telegrams for all DPs)















## **Company Profile**

R2Sonic was founded in February 2006 by three veteran underwater acoustical engineers; Jens R. Steenstrup, Mark Chun and Kirk Hobart; with the mission to utilize their experience to bring high quality, leading edge underwater acoustic products to the private and public sectors, with focus on customer needs.

R2Sonic founders and personnel bring over 30 years of market driven quality engineering design and manufacturing experience, utilizing "best practice" design and manufacturing process.

R2Sonic brings pioneering values to the industry. With the launch of the innovative Sonic 2026, 2024, 2022 and 2020 Broadband / Wideband Multibeam Systems, R2Sonic has redefined the Multibeam market with unparalleled performance with unique system features and application growth capabilities.



#### **Facilities**

The R2Sonic Headquarters are conveniently located 10 minutes from Austin city center, 10 minutes from Lake Travis and 15 minutes from the International airport, in the high technology corridor. The facilities are well equipped with modern instrumentation and software tools necessary for the efficient modeling, development and test of underwater acoustical equipment.







### **Systems Overview**

The Sonic Broadband / Wideband Multibeam Echo Sounders represent the latest in advanced underwater acoustic technology.

The Sonic Broadband / Wideband Multibeam Echo Sounders are the world's first true wideband high resolution shallow water multibeam echo sounders. With proven results and unmatched performance, R2Sonic systems produce reliable and remarkably clean data with maximum user flexibility.

The unprecedented 60 kHz signal bandwidth offers twice the resolution of other commercial sonar in both data accuracy and imagery.

With over 20x selectable operating frequencies to choose from within the 200 to 400 kHz band, the user is not limited by two or three operating frequencies and thus can trade off resolution and range and effectively control interference from other active acoustic systems.

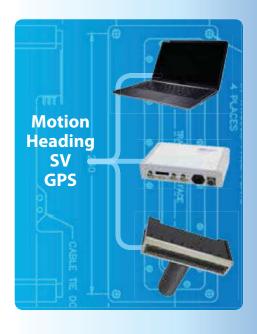
In addition to selectable operating frequencies, Sonic systems provide variable swath coverage selections from 10° to 160° on the fly, in real-time and across all frequencies from 200 to 400 kHz. The operator may also rotate the sector to precise location either port or starboard side of the vessel on the fly, in real-time.

When a narrow sector is selected, all soundings are concentrated within the swath for increased resolution over small scale bottom features. Wide swath sectors are typically used for general mapping or when surveying vertical surfaces such as quays, breakwaters, dams, pilings or bridge abutments as the increased opening angles eliminate need to rotate the sonar head.

Equidistant beam spacing, roll stabilization, dual / quad density modes, saturation monitor and a unique automated range, gate and slope tracking functions are incorporated for Sonic systems, increasing system overall efficiency.

Advanced optional functions including Ultra-High Resolution 700 kHz for Sonic 2024 and 2022, providing unprecedented narrow beam widths, 100 kHz operation for Sonic 2026 with max range setting to 1200m, TruePix™ Backscatter output, Raw Water Column and Switchable Forward Looking Sonar output are also provided.

R2Sonic systems are supplied in depth ratings of 100m, or optional 4000m or 6000m for ROV/AUV operations.

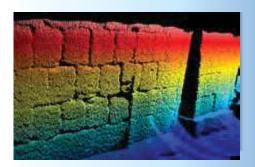




30°-45° coverage, for increased resolution over bottom features



Quad density for efficient beam distribution in smaller bin sizes



160° coverage, for mapping high up vertical surfaces









Sonic 2024



Sonic 2022



Sonic 2020



Sonar Interface Module (SIM)

### **Components**

Sonic Wideband Multibeam systems represent new modern design and architecture, unencumbered by legacy designs.

The heavy, bulky and power consuming topside electronic components that characterize old multibeam echo sounder technology have been eliminated.

The sonar consists of three major components: a compact projector, a receiver and a small dry side Sonar Interface Module (SIM). The extremely low power draw of 75W (2026), 50W (2024), 35W (2022) and 20W (2020) makes it possible to operate the systems on vessel battery power.

Unlike other commercial shallow water multibeam echo sounder systems, sonar processing is embedded in the receiver, dramatically increasing system efficiency and simplicity in integration

Third party auxiliary sensors are connected to the Sonar Interface Module (SIM). The sonar data is tagged with GPS time. The compact size, low weight, low power consumption and elimination of separate topside processors make Sonic Wideband Multibeam systems very well suited for small survey vessel or ROV/AUV operations.

R2Sonic Wideband Multibeam Systems were specifically designed for use on AUV's, with its low power consumption, and elimination of the topside processor for more compact size and weight. AUV integration requires only an interface board the size of a PC/104, Ethernet ports, and the provision of isolated 48V DC power.

## **Operation**

The sonar operation is controlled from a graphical user interface (GUI) on a PC or laptop, which is typically equipped with navigation, data collection and storage application software. The operator sets the sonar parameters in the sonar control window, while depth, imagery and other sensor data are captured and displayed by the application software. Commands are transmitted through an Ethernet interface to the Sonar Interface Module (SIM). The SIM supplies power to the sonar heads, synchronizes, time tags sensor data, and relays data to the application workstation and commands to the sonar head.

The receiver head decodes the sonar commands, triggers the transmit pulse, receives, amplifies, beamforms, bottom detects, packages and transmits the data through the SIM via Ethernet to the control PC.





The Sonic Series Wideband Multibeam Echo Sounders represent the latest in advanced modern system design and architecture, providing unprecedented system versatility, productivity and performance.

The Sonic system sonar processing is embedded at point of reception inside the sonar receiver, dramatically increasing efficiency and simplicity in integration. The streamlined architecture provides unmatched system modularity, whereby current hardware components are interchangeable and new hardware, firmware and options are easily upgradeable from the field.



The Sonic 2024 and Sonic 2022 can be upgraded to provide extremely narrow beam widths at 700 kHz operation. The narrow beam widths at 700 kHz make this option invaluable for detail offshore site surveys such as pipeline inspections, cable laying operations, archeological wreck surveys or other micro bathymetry applications. When UHR 700kHz is selected, the beam width is  $0.3^{\circ} \times 0.6^{\circ}$  (2024) and  $0.6^{\circ} \times 0.6^{\circ}$  (2022), providing unprecedented small bottom footprints.

The Ultra High Resolution option is embedded in UHR capable projectors and can be easily enabled from the field with option purchase.

### **TruePix™ Backscatter**

TruePix<sup>™</sup> is a process that is independent from the bottom detection, and like Digital Side scan, can be used in data editing to determine whether the data points are outliers or real. Unlike Snippets, TruePix<sup>™</sup> assembles the imagery record with one sample per range bin per side, so file sizes are smaller and there is no overlapping data pieces to be merged and reduced into a single record, producing uniform quality data.

TruePix<sup>™</sup> outputs angles associated with each imagery point in contrast to Snippets that only report the angle of the center point of each snippet. This increases the number of angular measurements by an order of magnitude or more. In addition, TruePix<sup>™</sup> provides highly compact water column imagery which can be used to map targets in the water column and to assist in least depth determinations.

TruePix™ option is embedded in all R2Sonic systems and can be easily enabled from the field with option purchase.





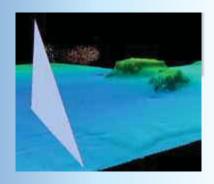








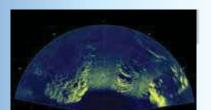




#### **Raw Water Column Data**

Raw beam formed water column data output provides increased functionality for Sonic Wideband Multibeam Echo Sounders with the ability to collect simultaneous and co-registered bathymetry, backscatter and water column backscatter data for variety of applications including pelagic fisheries habitat mapping, methane seep investigation and more.

The raw display image is available as part of the operator interface and optional software may be provided for logging as well as 2D and 3D data analysis. Raw Water Column option is embedded in all R2Sonic Systems and can be easily enabled from the field with option purchase.



## **Switchable Forward Looking Sonar**

The Switchable Forward Looking Sonar (FLS) Imaging Option is available for all R2Sonic Wideband Multibeam Echo Sounders.

When enabled, the option allows the user to easily switch from operating the Sonic system in a bathymetric mode to a forward looking imaging mode which can either project a wide 20°, or narrow vertical beam. In imaging mode the operator will see a plan view ahead of the sonar in real time. Switchable Forward Looking Sonar option is embedded in FLS capable projectors and can be easily enabled from the field with option purchase.



## **Integrated Inertial Navigation System (I2NS)**

The Inertial Navigation System (INS) integrates seamlessly with the Sonic MBES enabling the user to obtain the most accurate and robust motion compensation solution for hydrographic surveying encompassing vessel latitude, longitude, altitude, heave, pitch, roll and heading.

All processing and interfaces are integrated into the Sonar Interface Module (SIM) with connections for dual GNSS antennas and the small waterproof Inertial Measurement Unit (IMU). The GNSS antennas track all available GPS,GLONASS, Galileo and Geostationary satellites, including support for Fugro Marinestar GPS and GNSS services.



## **Main Advantages**

- Roll / Pitch Accuracy to 0.02°
- Heading Accuracy to 0.03° with 2m antenna baseline
- Heave Accuracy to 2cm or 2%
- Centimetric Positioning with Inertially Aided RTK
- High Immunity to GNSS Outages
- Small, lightweight IMU in waterproof housing
- Seamlessly integrated with Sonic MBES
- Affordable price





## **Immersion Depth Rating**

Sonic Wideband Multibeam Echo Sounders are 100m immersion depth rated as standard. 4000m and 6000m immersion depth rated options for ROV/AUV applications are available. For 4000m and 6000m rated systems, extensive pressure testing is performed and supplied with pass rating certificate to ensure performance to specified depth. Systems are typically pressure tested at time of order, but can also be upgraded at any time with return of unit to R2Sonic facility.

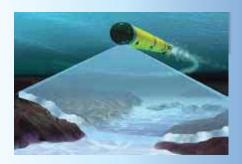


Basic mounting hardware is supplied as standard with each system. A lightweight and easy to assemble mounting bracket and fairing is supplied as an option for all systems. Dual head mounting brackets are also supplied. The Sonic mount bracket & fairing is designed to reduce cavitation around the receiver array and includes protection for the system. Mount brackets include circular zinc anodes which can be replaced over time. A built-in delrin bracket for a sound velocity probe is included which secures the probe in ideal position for water flow over sensor. All cables including the receiver, transmit projector and sound velocity probe are conveniently fitted either inside the flange for protection or outside of flange.

## **Antifouling Coating Protection**

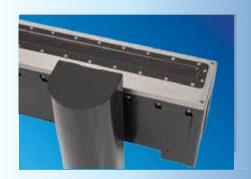
Barnacle build up is a bane to many customers who incorporate high value acoustic sensors to vessel hull. In some environments build up can be severe, blocking the active sensor components effecting performance and requiring expensive dry docking and labor hours to clean.

R2Sonic offers a unique non-ablative, non-toxic, antifouling coating protection option for Sonic Wideband Multibeam Systems. Antifouling is traditionally an opaque primer applied on the sensors during sensor installation process. These traditional antifouling primers may be toxic and degrade over time, requiring reapplication. The optional antifouling coating protection offered for Sonic Wideband Multibeam Systems is clear, with non-stick, non-toxic properties and designed to last over life of the sensor without degradation to system performance. The coating is applied to the array face and active elements during manufacturing in a controlled process, ensuring professional application and quality assurance.















Frequency	200 to 400kHz Optional 100kHz Over 20 Frequency selections User selectable in real-time	200 to 400kHz Optional 700kHz Over 20 Frequency selections User selectable in real-time	200 to 400kHz Optional 700kHz Over 20 Frequency selections User selectable in real-time	200 to 400kHz Over 20 Frequency selections User selectable in real-time
Bandwidth	Up to 60kHz	Up to 60kHz	Up to 60kHz	Up to 60kHz
Beamwidth	0.5°x 0.5° at 400kHz 1°x 1° at 200kHz 2°x 2° at 100kHz (Optional)	0.3°x 0.6° at 700kHz (Optional) 0.5°x 1° at 400kHz 1°x 2° at 200kHz	0.6°x 0.6° at 700kHz (Optional) 1°x 1° at 400kHz 2°x 2° at 200kHz	2°x 2° at 400kHz 4°x 4° at 200kHz
Swath Sector	10° to 160° All frequency selections User selectable in real-time	10° to 160° All frequency selections User selectable in real-time	10° to 160° All frequency selections User selectable in real-time	10° to 130° All frequency selections User selectable in real-time
Sounding Depth*	600m+	400m+	400m+	75m+
Ping Rate	Up to 60 Hz	Up to 60 Hz	Up to 60 Hz	Up to 60 Hz
Range Resolution	Down to 1.25cm	Down to 1.25cm	Down to 1.25cm	Down to 1.25cm
Pulse Lengths	15µsec-2ms	15µsec-1ms	15µsec-1ms	15µsec-1ms
Number of Soundings (Normal, Dual, Quad)	256 / 512 / 1024	256 / 512 / 1024	256 / 512 / 1024	256 / 512 / 1024
Operating Modes	Normal, Dual, Quad	Normal, Dual, Quad	Normal, Dual, Quad	Normal, Dual, Quad
Near-field Focusing	Yes	Yes	Yes	Yes
Equiangular or Equidistant Beams	Yes	Yes	Yes	Yes
Roll stabilization	Yes	Yes	Yes	Yes
Pitch stabilization	Yes	No	No	Yes
Automated Operation	Yes	Yes	Yes	Yes
Saturation Monitor	Yes	Yes	Yes	Yes
Depth Rating	100m Optional 4000m**, 6000m**	100m Optional 4000m**, 6000m**	100m Optional 4000m**, 6000m**	100m Optional 4000m**
Operating Temp	-10°C to 50° C	-10°C to 50° C	-10°C to 50° C	-10°C to 50° C
Storage Temp	-30°C to 55° C	-30°C to 55° C	-30°C to 55° C	-30°C to 55° C
Mains	90-260 VAC, 45-65Hz	90-260 VAC, 45-65Hz	90-260 VAC, 45-65Hz	90-260 VAC, 45-65Hz
Power Consumption	75W avg.	50W avg.	35W avg.	20W avg.
Uplink/Downlink	10/100/1000Base-T Ethernet	10/100/1000Base-T Ethernet	10/100/1000Base-T Ethernet	10/100/1000Base-T Ethernet
Deck Cable Length	15m, optional 25m, 50m	15m, optional 25m, 50m	15m, optional 25m, 50m	15m, optional 25m, 50m
Receiver Dim (LWD)	480 x 109 x 190mm	480 x 109 x 190mm	276 x 109 x 190mm	140 x 161 x 133.5mm
Receiver Mass (Air)	12.9 kg	12.9 kg	7.7 kg	4.4 kg
Projector Dim (LWD)	480 x 109 x 196mm	273 x 108 x 86mm	273 x 108 x 86mm	N/A
Projector Mass (Air)	13.4 kg	3.3 kg	3.3 kg	N/A
SIM (LWD)	280 x 170 x 60mm	280 x 170 x 60mm	280 x 170 x 60mm	280 x 170 x 60mm
SIM Mass	2.4 kg	2.4 kg	2.4 kg	2.4 kg

## **Sonar Options**

- Snippets & TruePix™ Backscatter Imagery
- Raw Water Column Data
- · Switchable Forward Looking Sonar
- Ultra High Resolution (UHR) 700 kHz (2024,2022)
- 100 kHz Frequency (2026)
- 4000m & 6000m Immersion Depth Rating
- Integrated Inertial Navigation System (I2NS)
- Mounting Hardware & Assemblies
- · Antifouling Coating Protection

- \*Depending on environmental conditions
- \*\*Range setting limited to 200m at immersion depths >100m
- \*\*Optional no range limiter at immersion depths > 100m

## **Corporate Office**

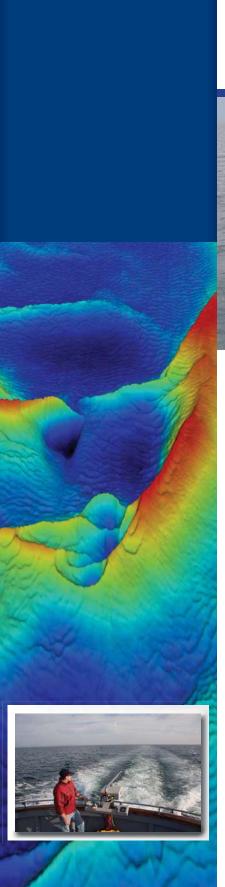
R2Sonic, LLC 5307 Industrial Oaks Blvd, Suite 120

Austin, TX 78735

Tel. +1-512-891-0000 Email: r2sales@r2sonic.com

Website: www.r2sonic.com





## **UNDERWAYSV**

#### SOUND VELOCITY PROFILING FROM A MOVING VESSEL



#### SOUND VELOCITY PROFILES FROM A MOVING VESSEL

The Oceanscience UnderwaySV offers vertical sound velocity (SV) profiles in minutes, without ever having to stop the survey vessel. The latest Valeport digital sound velocity measurement technology is combined with the innovative Oceanscience underway sensor deployment system to generate a revolutionary new tool for hydrographic surveying. Easy to use, portable, compact and affordable, the UnderwaySV saves survey time and promotes a better understanding of sound speed variability for optimum survey results.

#### VALEPORT FREEFALL SOUND VELOCITY PROFILER

The Valeport-designed sound velocity profiler is tethered to the UnderwaySV winch mounted on the survey vessel by up to 2km of high strength line. The profiler is simply released from the winch and falls through the water column at up to 5m/s until the target depth is reached. The winch is then engaged to recover the probe without any change in vessel speed throughout the deployment procedure. Upon recovery, profiles are downloaded using a Bluetooth link and the profiler is ready for re-deployment.

#### **DEEP WATER PROFILING OPTION**

For sound speed profiles deeper than 350-450m, the UnderwaySV system can be expanded to include the tail spool rewinder. The rewinder pre-loads line from the main winch onto a special tail spool attached to the profiler. Upon deployment, line spools off the tail as the profiler drops, with casts down to 700m possible at a survey speed of 8kts.

#### MAXIMIZE BATHYMETRIC SURVEY DATA QUALITY

The UnderwaySV is ideal for surveys where fluctuations in temperature or freshwater intrusion may create highly complex sound speed patterns. The rapid profiling afforded by the UnderwaySV minimizes downtime and costs to quantify these sound velocity features.

#### **USE NO EXPENDABLE COMPONENTS**

Operating costs for the UnderwaySV are minimal. The system requires little maintenence and the profiler returns to the ship after every cast, leaving no trace in the environment.

WWW.OCEANSCIENCE.COM

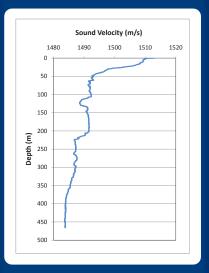


UNDERWAYSV









EXAMPLE PROFILE: 470M CAST CONDUCTED AT 10KTS



### **UNDERWAYSV COMPONENTS**

#### **MAIN WINCH**

The UnderwaySV winch features a large capacity reel with a high-torque DC drive unit and motorized levelwind, for fast and safe probe deployment and retrieval. The reel holds up to 2000m of high strength line for maximum profiling flexibility. The main winch not only pays out line during deployment as the probe drops through the water column, but is rotated to provide line for re-spooling onto the probe tail using the rewinder for deep profiling. A compact 1500 W power supply (110/220 VAC, 50/60 Hz input) provides power to all system components.

#### REWINDER (FOR DEEP WATER PROFILING)

The microprocessor controlled UnderwaySV tail spool rewinder precisely loads the profiler tail spool with high strength line, typically 350 to 550m of line is added from the main winch for each deployment. The unit may be programmed for different profile depths and is automated for guick turnaround.

#### VALEPORT "RAPIDSV" PROBE SYSTEM

The Valeport RapidSV free fall sound velocity profiler is robust enough to handle underway deployment and highly accurate, to offer the best possible SV data for sound speed corrections. The profiler falls at up to 5m/s, but a sampling rate of 32Hz assures a fine vertical resolution in sound speed data. The transducer is mounted in a hydrodynamic nose section to ensure excellent water flow, and electronics are housed in a 2000m rated titanium casing. A Bluetooth module allows fast and easy data recovery as soon as the probe is out of the water.

#### **CONFIGURATION OPTIONS**

For shallow water profiling, the UnderwaySV main winch and RapidSV probe system (A) will be a cost-effective solution for underway deployments. For deep water surveys, with profiling depths of over 1000m while underway, opt for the full specification UnderwaySV including the main winch, tail spool rewinder and RapidSV profiler (B).

	Vessel Speed			
	0kts	4kts	8kts	10kts
A. Shallow Survey	650m	350m	250m	200m
B. Deep Survey	1100m	700m	600m	550m

#### **CONTACT INFORMATION**

The Oceanscience Group 4129 Avenida de la Plata Oceanside, CA 92056

Phone (760) 754-2400 Fax (760) 754-2485 info@oceanscience.com









## rapidSV Profile

The Valeport rapidSV profiler has been developed for the fast collection of Sound Velocity Profiles, without compromising the quality of the data.

The world's most accurate Sound Velocity sensor with virtually instantaneous response time, data acquisition rates of up to 32Hz housed in a low drag housing result in the highest quality profiles at drop rates over 5 m/s

#### **Specifications**

The rapidSV Profiler is fitted with Valeport's digital time of flight sound velocity sensor, strain gauge pressure transducer and optional PRT temperature sensor.

#### **Sound Velocity**

1375 - 1900m/s Range: Resolution: 0.001m/s ±0.02m/s Accuracy:

#### **Pressure**

Range: 200 Bar Resolution: 0.001% range ±0.05% range Accuracy: **Temperature (Optional)** -5°C to +35°C Range: 0.001°C Resolution: Accuracy: ±0.01°C





#### **Data Acquisition**

Sample Rate dependent on configuration

Rate	SV+P	SVP+T	Depth Resolution
16Hz	•	•	~40cm
32Hz	•		~20cm

The optional temperature sensor gives valuable information about the physical structure of the ocean with the trade off of reducing the maximum data acquisition rate to 16 Hz.

#### **Communications**

Integral Bluetooth for configuration & data recovery

The rapidSV Profiler is fitted with a solid state non-volatile Flash memory, capable of storing over 10 million lines of data.

#### **Electrical**

**Battery** 1 x C cell, 1.5v alkaline or 3.6v lithium **Battery Life** approx 25 hours operation (alkaline) approx 80 hours operation (lithium)

#### **Physical**

**Materials** Titanium housing, Aluminium-Bronze nosepiece,

polycarbonate & composite sensor components

**Depth Rating** 2000m

**Instrument Size** Sensor Body Ø50mm x Length 515mm

Weight ~3kg (in air)

#### Software

System is supplied with DataLog Express Windows based PC software, for instrument setup, data extraction and display.

DataLog Express is licence free

#### Ordering

0660021 rapidSV Profiler in titanium housing, DataLog Express

software, manual and transit case.

0660022 rapidSV Profiler with Temperature in titanium

housing, DataLog Express software, manual and

transit case.

Datasheet Reference: rapidSV version 2A, Feb 2011

# Alaska LNG



# Sound Velocity Smart Sensor

The SV Smart Sensor is a low cost instrument designed to measure sound velocity in water. This highly adaptive sensor is ideal for integration into existing data collection platforms or OEM equipment. Connect it directly to a PC or combine it with an AML Smart View hand-held display and hand hauled profiles can be conducted in real-time. Its small size, extremely fast response time and high sampling rate make the sensor ideal for fast profiles or tow speeds.

Each sensor has internal calibration coefficients and outputs real-time data to allow a "plug and play" environment. The optional addressable features provide for daisy chaining with other sensors allowing the user to create their own

system. **Sensor** 

· Proprietary "Time of Flight" technology

• 1400 to 1550 m/s measuring range

• ±0.050 m/s accuracy

• 0.015 m/s resolution

145 µs response time

Temperature compensated

#### **Electrical**

35 samples per second maximum

R\$-232 A\$CII communications

· Optional RS-485 or TTL

Autobaud rates from 2,400 to 38,400 baud

#### **Power**

30 mA sampling current

External 8 – 16 Vdc (12 Vdc nominal)

 Optional power configurations available upon request

#### Mechanical

• Weight: 515 grams (1.14 pounds) in air

177 grams (0.4 pounds) in water

Dimensions: § 45.7 mm (1.80") Ø x 315 mm (12.40")

Construction Type 316 stainless steel sensor and
reflector plate. INIVAR rods and aceta

reflector plate, INVAR rods and acetal

housing rated to 500 meters.

Optional: Type 316 stainless steel housing

rated to 4,500 meters.

Optional: Titanium housing rated to

10,000 meters.

Connector: IMPULSE Miniature Wet Pluggable™ Series

Optional connector configurations

available.

• Environment: Operating: -20°C to 50°C

Storage: -40°C to 60°C

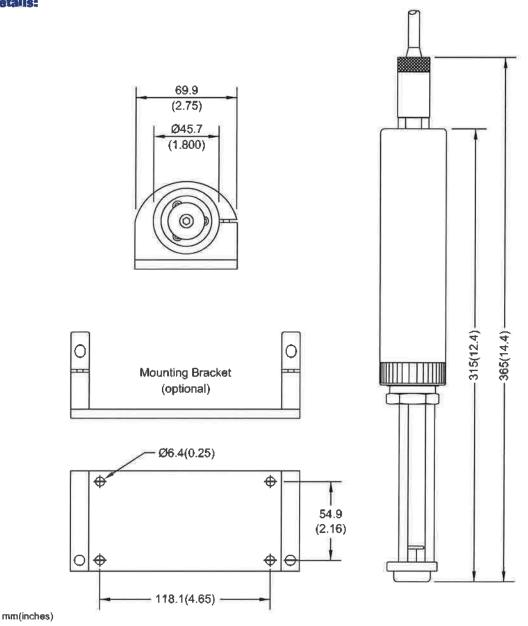








Smart Talk Data Logging Software is included at no charge with every sensor. **Mechanical Details:** 





## *Instrumentation* Innovation

**Head Office** 2071 Malaview Avenue Sidney, B.C. Canada V8L 5X6 Phone: 250 656 0771 Fax: 250 655 3655 1 800 663 8721 (Canada & USA) info@AppliedMicrosystems.com





# ► ECHOTRAC<sup>TM</sup> CV-100



## DIGITAL SURVEY ECHO SOUNDER

- Ethernet port for Control and Output plus 4 serial ports
- ▶ Frequency AgileTransceiver
- ➤ Small Size, rugged construction, waterproof (IP-67 protection)
- 9 to 32 VDC Power (< 15 watts)</li>









# ECHOTRAC CV-100

Move into the digital age with echo sounders from Teledyne Odom Hydrographic. If your survey does not require traditional paper records, then forget about piles of hard copy-the CV-100 has eliminated all that in favor of digital imaging on a PC-based data acquisition system.

With the same technology as the popular Echotrac CV and Echotrac MKIII, including Ethernet communications, Teledyne Odom's CV-100 single frequency is ready to make your transition to the convenience of all-digital systems painless and worry-free.

#### GENERAL SPECIFICATIONS

#### Tx/Rx Frequency

(Frequency agile in 2 bands (specify band at time of order)

- · High: 100 kHz 750 kHz (manual tuning in 1 kHz steps)
- Low: 10 kHz 50 kHz (manual tuning in 1 kHz steps) variable Receiver bandwidth

#### Resolution

• 0.01 M, 0.1 ft.

#### Accuracy

(Corrected for sound velocity)

- 200 kHz 0.01 m +/- 0.1% depth
- 33 kHz 0.10 m +/- 0.1% depth

#### **Output Power**

- Up to 300 watts RMS
- < 1 watt minimum</p>

#### **Ping Rate**

• Up to 20 Hz in shallow water (10 m) range

#### **Depth Range**

• From <30 cm to 600 m (depending on frequency and transducer selected)

#### **Input Power Requirement**

• 9-32 V DC < 15 watts

#### Weight

• 5 kg (11 lbs)

#### **Dimensions**

• 28 cm W (11 in) x 23 cm H (9 in) x 11.5 cm (4.5 in) D

#### Mounting

· Desktop or bulkhead mount (fixing hardware included)

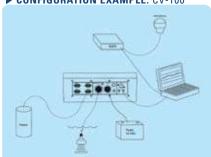
#### Ports/Interface:

- · Ethernet (LAN) plus
- 4 x RS232 or 3 x 232 and 1 x RS422
- · Inputs from external computer, motion sensor, sound velocity
- · Outputs to external computer or remote display
- Output string: Odom Echotrac SBT, NMEA DBS, NMEA DBT, DESO 25
- Heave Input –TSS1 or "Sounder Sentence"
- · Echotrac Control SW Simple Windows compatible graphical user interface
- Storage of full ping to seabed data in DSO format with e-Chart (Easily compressed or converted to .XTF for additiona processing)

#### FEATURES

- Multiple TVG (time varied gain) curves (10, 20, 30, and 40 log)
- Auto gain control
- **DSP** digitizer with manual filter control
- Manual or auto scale changes (phasing)
- Calibration menu with controls for transducer draft and index plus sound velocity and bar depth controls
- Waterproof (IP67)
- Help menus
- Flash memory upgradeable
- **Auto Gain and Auto Power Modes** for minimal operator input
- SILAS compatible output

#### ► CONFIGURATION EXAMPLE: CV-100





A Teledyne Technologies Company

► See our entire product line at: odomhydrographic.com









#### **I** FEATURES

- Optional Multi-Pulse (MP) technology for high speed surveys
- · Crisp, high resolution CHIRP images
- Multiple dual simultaneous frequency sets to choose from
- Choice of stainless steel or lightweight aluminum towfish
- Easily integrates to other 3rd party sensors
- Meets IHO & NOAA Survey Specifications

### **APPLICATIONS**

- Cable & Pipeline Surveys
- · Geological/Geophysical Surveys
- Mine Countermeasures (MCM)
- Geohazard Surveys
- Channel Clearance
- · Search and Recovery
- Archeological Surveys





The 4200 Series is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.

One of the unique features of the 4200 is the optional Multi-Pulse (MP) technology, which places two sound pulses in the water rather than one pulse like conventional side scan sonar systems. This allows the 4200 to be towed at speeds of up to 10 knots while still maintaining 100% bottom coverage. In addition, the MP technology will provide twice the resolution when operating at normal tow speeds, thus allowing for better target detection and classification ability. The addition of the optional MP technology provides the operator with two modes of operation; either High Defi nition Mode (HDM) or High Speed Mode (HSM). This software-selectable mode of operation provides the operator the ability to select the best configuration for the specific job type.

A 4200 system comes with a choice of a dual simultaneous frequency towfi sh available in either a stainless steel or lightweight aluminum housing depending on operational requirements. Customers can also choose between a rack mount or portable topside processor or a digital link to interface to 3rd party topsides and software.







## KEY SPECIFICATIONS

SONAR SPECIFICATIONS	STANDARD	WITH OPTIONAL MP TECHNOLOGY		
Frequency	Choice of either 100/400, 300/600 or 300/900 kHz dual simultaneous			
Operating Range (meters/side)	100 kHz: 500m, 300 kHz: 230m, 400 kHz: 150m, 600 kHz: 120m, 900 kHz: 75m			
Horizontal Beam Width:	100 kHz: 1.5°, 300 kHz: 0.5°, 400 kHz: 0.4° 600 kHz: 0.26°, 900 kHz: 0.2°	4°, In High Speed Mode: 100 kHz: 1.26°, 300 kHz: 0.54°, 400 kHz: 0.4°, 600 kHz: 0.34°, 900 kHz: 0.3°  In High Definition Mode: 100 kHz: 0.64°, 300 kHz: 0.28°, 400 kHz: 0.3°, 600 kHz: 0.26°, 900 kHz: 0.2°		
Resolution Along Track	100 kHz: 5 m @ 200 m 300 kHz: 1.3 m @ 150 m 400 kHz: 0.6 m @ 100 m 600 kHz: 0.45 m @ 100 m 900 kHz: 18 cm @ 50 m	High Definition Mode:  100 kHz: 2.5m @ 200m 300 kHz: 1.0m @ 200m 400 kHz: 0.5m @ 100m 600 kHz: 0.45m @ 100m 900 kHz: 18 cm @ 50m HIgh Speed Mode:  100 kHz: 4.4m @ 200m 300 kHz: 1.9m @ 200m 400 kHz: 0.7m @ 100m 600 kHz: 0.6m @ 100m 900 kHz: 26 cm @ 50m		
Resolution Across Track	100 kHz: 8 cm, 300 kHz: 3 cm,	400 kHz: 2 cm, 600 kHz: 1.5 cm, 900 kHz: 1 cm		
Vertical Beam Width		50°		
Depression Angle		Tilted down 20°		
TOWFISH	STAINLESS STEEL	ALUMINUM		
Diameter	11.4 cm (4.5 inches)			
Length	12	5.6 cm (49.5 inches)		
Weight in Air/Saltwater	48 / 36 kg (105 / 80 pounds)	30 / 18 kg ( 66 / 40 pounds)		
Depth Rating (Max)	2,000m	500m		
Standard Sensors	Н	leading, pitch & roll		
Optional Sensor Port	(1) Serial – RS 2320	C, 9600 Baud, Bi-directional & 27 VDC		
Options		d USBL Acoustic Tracking System, Built-in Responder Nose, r Loss Pinger and Custom Sensors		
TOPSIDE PROCESSOR	4200-P	4200 701-DL INTERFACE		
Hardware	Portable splash-proof case 1	9" rack mount computer 📱 19" rack mount interface		
Display & Interface	Splash-proof laptop	21" flat panel monitor, Customer-supplied keyboard & trackball		
Power Input	20-36 VDC or 115/230 VAC	115/230 VAC 115/230 VAC		
Operating System	Windows© XP Pro			
File Format	Native JSF or XTF			
Output	Ethernet			
TOW CABLE	I			
	Coaxial Kevlar or double	-armored up to 6,000m, winches available		





### A SeaSPY Magnetometer System consists of:

### SeaSPY Magnetometer

### • Overhauser Sensor

Omnidirectional sensor that does not contain any consumable parts.

### • Electronics Module

Contains all of the driving electronics and Larmour counter.

#### • Leak Detector

Let's you know if even a drop of water penetrates the towfish.

### • Lead Weights

4 internal lead weights increase the weight of the towfish and prevent it from rotating while being towed. You can adjust the weight in the field by adding or removing weights.

### • Depths Available

1000m (1500psi), 3000m (5000psi), 6000m (9000psi)

#### Tow Cable

The cable is made up of one twisted pair of conductors, a Vectran strength member, water block and yellow polyurethane jacket. Length determined by customer.

### **Isolation Transceiver**

Provides the complete interface between the PC and the mag. It provides two-way digital communication along the same conductors that power the mag. It also conditions the mag's power supply.

Dims: 11 x 6 x 3 cm (4 x 2 x 1") Weight: 130g (0.28 lbs)

### Power Supply

Accepts any AC line 48V power, from 100-240VAC and 50/60Hz to provide conditioned and clean 24V DC power. Dims: 11x 6 x 3.5cm (4 x 2 x 1") Weight: 165g (0.36 lbs)

### **Battery Clip Cable**

Use this cable instead of the power supply. The mag's total power consumption is only 3W. A single 12V car battery can power it for days.

### RS232 Cable

Connects the mag and PC.

### **BOB**

Data acquisition and visualization software.

### Reusable Aluminum Shipping Case

Holds all accessories listed above.

### **Options**

- Pressure Sensor
- Altimeter
- Transponder
- Side Scan Integration
- Deck Cable
- Tow Cable Termination Kit
- FreeWheel Wireless Cable Spool

## **Specifications**

Operatin<mark>a Z</mark>ones

Absolute Accuracy
Sensor Sensitivity
Counter Sensitivity
Resolution
Dead Zone
Heading Error
Temperature Drift
Power Consumption
Timebase stability
Range
Gradient Tolerance
Sampling Range
External Trigger
Communications
Power Supply

### **Towfish**

Towfish Length
Towfish Diameter
Towfish Weight in Air
Towfish Weight in Water

**Operating Temperature** 

**Temperature Sensor** 

### **Tow Cable**

Conductors
Strength Member
Breaking Strength
Outer Diameter
Bending Diameter
Weight in Air
Weight in Water
Outer Jacket
Cable Termination

### **Floatation Cable**

Strength Member Max Working Load Outer Diameter Bending Diameter Weight in Air Weight in Water Outer Jacket Cable Termination

**Conductors** 

NO RESTRICTIONS

SeaSPY will perform exactly according to spec throughout the entire range. 0.1nT

0.01nT 0.001nT 0.001nT NONE NONE NONE

1W standby, 3W maximum 1ppm, -45°C to +60°C 18,000nT to 120,000nT Over 10,000nT/m 4Hz - 0.1Hz By RS-232 RS-232, 9600bps 9V-30V or 100-240 VAC -45°C to +60°C

-45°C to +60°C, 0.1 step

124 cm (49 inches) 12.7 cm (5 inches) 16kg (35 lbs) 2kg (4.4 lbs)

Twisted pair
Vectran
2,500 kg (5,500 lbs)
1 cm (0.4 inches)
16.5 cm (6.5 inches)
125 g/m (84 lb/1000 ft)
44 g/m (29.5 lb/1000 ft)
Yellow Polyurethane
Field Replaceable

Vectran 2,500 kg (5,500 lbs) 1.9 cm (0.74 inches) 25 cm (10 inches) 125 g/m (0.084 lbs/ft)

**Twisted pair** 

-20 g/m (0.03 lbs/ft)
Orange Polyurethane
Field Replaceable

"We have now completed the first full Antarctic season using our SeaSPY magnetometer and can report that we are delighted with its performance.

It has proved to be very robust and trouble free in operation and has delivered consistently good data. There is no doubt that we chose the right instrument."

Peter Morris British Antarctic Survey

**Marine Magnetics** 

info@marinemagnetics.com | marinemagnetics.com

+1 905 479 9727



KC Denmark - KC Day grab

Page 1 of 3



### KC Day grab (modified Smith and MacIntyre grab)





12.300 Day Grab

12.300 Day Grab

### Application:

The Day Grab is highly suitable for taking well defined samples from hard as well as soft sediments.

### Weight:

The operational weight between 55 and 165 kg (exclusive the sediment sample) demands winch operation. You can mount a maximum of 22 pcs lead weights, 5 kg each. Standard delivery includes 4 pcs of weights.

### General:

The main frame, grab and releaser are manufactured from AISI 316 stainless steel with an electro polished surface.

### Safety:

The Day Grab is equipped with a security clip to avoid an unintended release of the grab causing injury.

### Lids:

On top of the grab are mounted 4 pcs of lids, (120 x 120 mm each) so you can take out some sample without emptying the grab.

### Sample volume:

Approx. 15 litres of sediment.

### Sample area:

1000 cm<sup>2</sup>



KC Denmark - KC Day grab

Page 2 of 3

### Function:

The Day Grab is lowered into the sea, and the automatic releaser is activated when the grab hits the bottom and the sample will be taken.

### Dimensions:

70 x 70 x 70 cm.

### Weight:

Exclusive lead weights: 55 kg

Standard delivery. 75 kg inclusive 4 lead weights Maximum weight: (22 pcs of weights): 165 kg

### Shipping details: Standard delivery:

1 pc pallet 120 x 80 x 96 cm, gross weight 173 kg

### Manual:

Can be found here. Right click, "save settings as" (PDF file, 401 kb).



The Day Grab has 2 identical weight stations, each side is capable of holding 7 pcs weights and an additional mounting of vertical weights. (2 x 4 pcs).



80.407 Lead weight - 5 kg



The security lock must be kept locked until the Day Grab is outside the rail of the ship



KC Denmark - KC Day grab

Page 3 of 3

Description	Ordering No.		
of 1000 cm <sup>2</sup> an	A complete Day grab consisting of 1 pc rack with 1 pc grab of 1000 cm <sup>2</sup> and 4 pcs lead weights, each 5 kg. Sample volume: 15 litres. Total weight of 75 kg.		
Accessories			
Lead weight, 5 time to keep th placed weight s Maximum mour pcs).	80.407		
Shipping weig			
L x B x H:	120 x 80 x 96 cm. Gross weight (inclusive 4 lead weights) 173 kg incl. pallet.		



Last rev. of this page: November 2<sup>nd</sup> 2009



## **ILRIS**

### **Key Features**

- 10 kHz repetition rate
- High precision mode
- · Rapid survey method
- Extended range mode

### **Benefits**

- · Fast data collection
- Improved accuracy
- Reduced processing time
- Long range scanning

### **Summary Specification Sheet**



Optech's ILRIS Terrestrial Laser Scanner is a fully portable, laser-based ranging and imaging system for the commercial survey, engineering, mining and industrial markets. A compact and highly integrated instrument with digital image capture and sophisticated software tools, ILRIS is an industry-leading solution that addresses the needs of commercial users.











## RIS Terrestrial Laser Scann

Parameter	ILRIS-3D	ILRIS-3D-ER	ILRIS-HD	ILRIS-HD-ER	ILRIS-LR
Range 80% reflectivity	1200 m	1700 m	1250 m	1800 m	3000 m
Range 10% reflectivity	400 m	650 m	400 m	650 m	1330 m
Minimum range		1	3	3 m	
Laser repetition rate (peak and effective PRF) <sup>1</sup>	2500 to	3500 Hz	10,0	00 Hz	10,000 Hz
Efficiency (effective PRF/peak PRF)			10	00%	
Raw range accuracy <sup>2,3</sup>			7 mm	@ 100 m	
Raw range accuracy (averaged) <sup>3,4</sup>	r	n/a	4 mm	@ 100 m	4 mm @ 100 m
Raw angular accuracy			8 mm @ 10	00 m (80 μrad)	
Scanner Performance					
Field of view		40° x 40° (-20° t	hrough 90°, -90	° through 20° wit	h 3 <sub>6</sub> D option)
Minimum step size⁵	0.001146	° (20 µrad)	0.000745	° (13 µrad)	0.001146° (20 μrad)
Maximum density (point-to-point spacing)	2 cm @	1000 m	1.3 cm	@ 1000 m	2 cm @ 1000 m
Rotational speed			0.001 t	o 20°/sec	
Rotational step size (minimum)			0.001146	s° (20 μrad)	
Beam diameter (1/e²)	22 mm	@ 100 m	19 mm	@ 100 m	27 mm @ 100 m
Beam divergence	0.009740°	(170 µrad)	0.008594	° (150 µrad)	0.014324° (250 μrad)
Laser wavelength	153	5 nm	153	35 nm	1064 nm
Laser class <sup>6,7</sup>	1 01	r 1M	1 o	r 1M	3
Integrated camera			3.	1 MP	
Physical and Environmental					
Size (L x W x H)	320 x 320	0 x 220 mm	320 x 320	0 x 240 mm	320 x 320 x 240 mm
Weight	1.	3 kg	14	kg	14 kg
Operating temperature			0 to	+40°C	
Storage temperature			-20°C t	o +50°C	
Relative humidity			0 – 95% n	on-condensing	
Power consumption			75	5 W	
Battery operation (standard battery pack, hot-swappable)			5 hours	operation	
Data storage			Removab	le USB drive	
Optional Configuration					
3 <sub>6</sub> D			Automated pa	an/tilt base (7 kg)	
MC	Motio	n compensation	option: Enables	GPS timestampii	ng (from INS system)
Standard Accessories					
Scanner control software for Windows and Windo	w CE-based cor	mputers Data	extraction softw	vare to generate u	user-selectable file formats
Automated alignment software		2.0-G	B USB memory	drive	
User manuals			ersal AC voltage		
Interconnect power/battery cables	Rugged carrying case				
Optional Accessories					
Manual pan/tilt base		GPS/	external camera	a mounting kit	
PDA, UMPC, Notebook PCs			ries and charge		
Backpack			weather jacket		

1 PRF is pulse repetition frequency.
2 All ranges quoted are with ER Mode enabled.
3 All accuracies are 1 sigma, as performed under Optech test conditions. Details available on request.
4 Average of 4 shots minimum.
5 Independent fully-selectable vertical and horizontal step size selection.
6 Laser class in accordance with IEC 60825-1 and US FDA 21 CFR 1040.
7 ILRIS-LR laser Class 3 when viewing between 0-114 m. Class 1M when viewing at ranges greater than 114 m.

Data output to a variety of user-selectable formats and XYZ coordinates, including return intensity and digital photograph.

User interface: PDA, UMPC, tablet or notebook via wired/wireless connection (802.11b/g).

Digital imaging: Internal 3.1-Megapixel camera with calibration file for creating true color RBG point clouds.

Display: On-board 6.5" XVGA color LCD panel for image, system status, and data display.





# APPENDIX 2-F SOUND VELOCITY PROFILES





WATER COLUMN VELOCITY PROFILE DATA			
COOK INLE	T NIKISI	KI, ALASKA	
Date/Surface Velocity	Time		
2015-152	10:12	60:47:18	-151:15:21
1474.73			
2015-152	10:21	60:47:04	-151:15:33
1476.43			
2015-152	21:09	60:48:03	-151:16:37
1473.59			
2015-154	0:58	60:27:44	-151:31:04
1473.6			
2015-154	9:11	60:24:28	-151:32:08
1474.28	47.00	60.24.20	454 00 07
2015-154	17:20	60:24:29	-151:32:07
1473.37	20.44	60.27.44	151.20.20
2015-154 1475.43	20:41	60:27:44	-151:30:29
2015-154	22:24	60.27.14	-151:30:34
1473.72	22.24	00.27.14	-131.30.34
2015-156	16:53	60.28.34	-151:28:40
1475.4	10.55	00.20.54	131.20.40
2015-156	20:13	60:27:32	-151:31:18
1474.18	20.13	00127132	101.01.10
2015-157	23:10	60:27:40	-151:31:27
1474.56			
2015-161	15:24	60:28:14	-151:32:25
1476.21			
2015-161	20:33	60:27:38	-151:32:08
1476.7			
2015-161	22:49	60:27:27	-151:32:50
1480.85			
2015-162	0:58	60:27:13	-151:32:41
1476.07			
2015-163	19:02	60:27:16	-151:33:21
1488.61			
2015-164	19:30	60:27:30	-151:31:09
1486.48	06.55	00.55.5	4=4
2015-164	22:59	60:28:22	-151:30:06
1482	16.40	60.30.50	454.20.04
2015-166	16:40	60:28:53	-151:30:04
1478.27	10.51	60.20.57	151,20,00
2015-166	19:51	60:29:57	-151:29:06
1483.44 2015-168	16:18	60:31:11	-151:27:29
1480.1	10.18	00.31.11	-131.27.29
1480.1			





2015-168		20:16	60:29:27	-151:29:50
	1490.02			
2015-168		23:20	60:29:18	-151:28:30
	1484.08			
2015-169		16:30	60:29:52	-151:28:42
	1480.74			
2015-169		21:03	60:28:45	-151:29:31
	1485.2			
2015-170		1:30	60:29:52	-151:28:42
	1480.66			
2015-176		16:21	60:30:18	-151:26:18
	1486.35			
2015-176		19:19	60:28:54	-151:30:04
	1488.55			
2015-177		0:49	60:40:04	-151:23:56
	1493.44			
2015-178		16:30	60:41:03	-151:24:34
	1485.4			
2015-178		20:47	60:42:03	-151:24:55
	1491.14			
2015-179		0:57	60:41:46	-151:25:15
	1486.74			
2015-179		17:59	60:44:04	-151:25:44
	1488.89			
2015-181		17:07	60:44:31	-151:25:42
	1483.91			
2015-180		18:49	60:44:08	-151:26:25
	1485.66			
2015-180		20:37	60:43:40	-151:28:47
	1489.8			
2015-180		23:06	60:43:54	-151:29:16
	1485.45			
2015-181		17:29	60:42:44	-151:30:19
	1483.21			
2015-181		19:40	60:43:29	-151:29:40
	1485.63			
2015-183		16:59	60:43:36	-151:29:57
	1486.02			
2015-184		16:36	60:43:35	0:00:00
	1486.95			
2015-187		16:26	60:45:02	0:00:00
	1487.51			
2015-187		18:41	60:43:29	-151:28:10
1	1490.24			





	1488.24			
2015-188	1400.24	17:07	60.44.40	-151:26:21
2013-100	1487.67	17.07	00.44.40	-131.20.21
2015-188	1407.07	19:14	60.42.17	-151:28:11
2013-100	1400.00	19.14	00.45.17	-131.20.11
2045 400	1490.98	24.40	CO: 42: 40	454.27.25
2015-188	1407.00	21:18	60:43:49	-151:27:25
2045 400	1487.89	10.24	60.42.50	454 20 44
2015-190	1100.16	19:24	60:43:58	-151:28:44
	1492.16			
2015-190		21:44	60:43:52	-151:29:59
	1490.16			
2015-190		23:43	60:43:28	-151:27:21
	1491.37			
2015-191		15:40	60:47:48	-151:14:54
	1489.38			
2015-191		21:50	60:48:26	-151:15:47
	1490.59			
2015-192		15:15	60:42:58	-151:27:07
	1487.85			
2015-192		17:22	60:44:30	-151:26:55
	1490.75			
2015-192		21:52	60:49:05	-151:15:47
	1491.79			
2015-193		18:04	60:50:24	-151:15:08
	1490.56			
2015-193		19:44	60:50:46	-151:14:35
	1493.15			
2015-193		21:50	60:50:07	-151:14:01
	1492.77			
2015-193		22:27	60:52:50	-151:05:25
	1487.36			
2015-194		17:22	60:53:06	-151:04:44
	1486.51			
2015-194		19:21	60:52:32	-151:05:52
	1489.22		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
2015-194	03.22	21:40	60:52:28	-151:05:45
	1489.01		22.02.20	
2015-195	55.61	17:32	60:52:21	-151:06:04
	1486.81	17.52	55.52.21	101.00.04
2015-195	1-00.01	19:47	60:51:47	-151:06:43
	1488.62	13.77	55.51.77	131.00.73
2015-195	1-100.02	21:07	60:51:52	-151:06:25
2013-133	1492.96	21.07	00.31.32	131.00.23
2015-196	1432.30	18:36	60:51:43	-151:07:12
2013-130	1/107 2/	10.30	00.31.43	-131.07.12
	1487.34			





2015-196		20:28	60:51:33	-151:06:48
1	492.23			
2015-196		22:28	60:51:24	-151:06:52
1	493.69			
2015-197		17:07	60:47:03	-151:15:39
1	489.35			
2015-197		19:20	60:50:55	-151:07:33
1	490.13			
2015-197		21:08	60:50:44	-151:07:40
	489.14			
2015-201		16:42	60:50:36	-151:07:38
	489.93			
2015-201		18:36	60:50:44	-151:07:25
	492.91			
2015-201		22:37	60:50:10	-151:08:19
	489.45			
2015-202		17:20	60:47:42	-151:14:07
	490.69			
2015-202	100.00	20:16	60:49:29	-151:08:51
	490.69	22.07	60.40.4	171 00 10
2015-202	1 101 1	22:07	60:49:15	-151:09:16
2045 204	1491.1	40.24	60.40.04	454 40 04
2015-204	404.20	18:21	60:48:01	-151:10:01
	494.38	20.20	CO: 47:22	454.40.54
2015-204	402.00	20:30	60:47:32	-151:10:51
	492.89	21:17	60.40.41	-151:09:34
2015-204	402 E0	21.17	60:48:41	-151:09:34
2015-204	493.59	23:27	60:48:43	-151:09:40
	492.92	25.27	00.46.43	-131.09.40
2015-205	432.32	17:00	60.48.60	-151:08:48
	489.56	17.00	00.48.00	-131.00.40
2015-205	-105.30	18:48	60:48:58	-151:09:29
2013 203	1491.6	10.70	33.40.36	131.03.23
2015-205	1131.0	22:15	60:49:02	-151:09:28
	497.63	22,13	00113102	131.03.20
2015-206	.5.103	0:06	60:49:35	-151:08:56
	493.66	2.00	35.75.55	
2015-207		17:26	60:49:53	-151:09:19
	488.89			- 351-3
2015-207		19:25	60:49:56	-151:08:26
	491.46			
2015-207		22:52	60:47:16	-151:10:51
	491.28			
2015-208		16:40	60:49:47	-151:16:12
				·





	1488.7			
2015-208		18:24	60:52:17	-151:12:39
	1490.75			
2015-208		20:22	60:51:28	-151:13:31
	1492.15			
2015-208		22:24	60:51:28	-151:13:27
	1488.77			
2015-209		20:56	60:52:60	-151:04:56
	1485.41			
2015-209		23:12	60:52:60	-151:04:56
	1496.76			
2015-210		0:44	60:53:23	-151:04:46
	1491.72			
2015-210		17:14	60:52:22	-151:07:07
	1488.4			
2015-210		19:26	60:54:18	-151:04:04
	1484.85			
2015-210		21:43	60:53:39	-151:04:25
	1485.71			
2015-216		20:05	60:57:10	-151:02:22
	1493.48			
2015-216		22:49	60:56:42	-151:02:47
	1488.39			
2015-217		17:56	60:58:10	-151:00:28
	1489.94			
2015-217		20:17	60:57:43	-151:02:26
	1491.09			
2015-217		23:15	60:52:20	-151:12:20
	1492.24			
2015-219		17:11	60:54:34	-151:08:48
	1489.88			
2015-218		19:52	60:57:15	-151:06:49
	1491.08			
2015-218		22:36	60:58:33	-151:01:46
	1488.59			
2015-219		17:40	61:06:38	-151:02:36
	1483.32			
2015-219		20:21	61:06:16	-151:02:31
	1492.87			
2015-219		22:37	61:05:58	-151:02:08
	1496.84			
2015-221		18:49	60:54:56	-151:09:35
	1489.18			
2015-221		20:43	60:55:31	-151:08:11
	1494.48			





2015-225		17:06	60:54:15	-151:10:52
	1490.73			
2015-224		20:16	60:56:41	-151:07:20
	1489.57			
2015-224		22:53	60:57:58	-151:05:34
	1489.56			
2015-225		17:10	60:52:16	-151:06:31
	1491.45			
2015-225		20:22	60:58:55	-151:01:48
	1486.2			
2015-225		22:28	61:00:12	-151:00:21
	1486.19			
2015-226		17:11	60:58:60	-151:02:59
	1490.3			
2015-226		19:09	61:00:48	-150:59:52
	1488.1			
2015-229		17:32	60:56:57	-151:06:50
	1490.37			
2015-229		20:40	61:00:20	-151:00:37
	1488.28		02:00:20	
2015-229	1100120	22:55	60.59.41	-151:01:37
2013 223	1485.67	22.55	00.55.41	131.01.37
2015-230	1403.07	18:13	61:02:46	-150:57:41
2013 230	1489.82	10.13	01.02.40	130.37.41
2015-230	1405.02	20:50	61:00:03	-151:01:18
2013-230	1493.24	20.30	01.00.03	-131.01.10
2015-231	1433.24	16:48	60.42.40	-151:28:37
2013-231	1494.24	10.48	00.43.40	-131.20.37
2015-231	1434.24	19:52	60.50.24	-151:04:20
2015-251	1490.52	19.52	00.59.54	-131.04.20
2015-231	1490.52	22,10	60.50.20	151,05,15
2015-231	1 400 00	22:18	60:58:39	-151:05:15
2045 222	1490.88	17.52	CO.FO.F1	151.04.40
2015-232	1400.73	17:52	60:58:51	-151:04:40
2045 202	1489.72	20.00	60 50 40	454.04.40
2015-232	4 400 00	20:09	60:59:49	-151:04:19
2017 202	1490.93	20.16	64.64.46	4-4-04-0-
2015-232	4 4 5 5 5	23:16	61:01:46	-151:01:37
	1486.96			
2015-233		18:16	61:05:51	-151:01:34
	1487.2			
2015-233		20:21	61:05:47	-151:01:20
	1488.62			
2015-234		16:53	60:43:59	-151:28:01
	1493.8			
2015-234		19:14	60:59:06	-151:04:36





Г	1400.73			
2045 244	1489.72	20.20	60 50 40	454.05.00
2015-244	4.406.40	20:38	60:58:43	-151:05:29
	1486.42			
2015-244		21:55	60:47:13	-151:15:11
	1482.96			
2015-245		17:37	61:05:27	-151:01:02
	1484.88			
2015-245		20:01	61:05:06	-151:01:01
	1482.94			
2015-245		22:24	61:04:51	-151:00:52
	1488.92			
2015-246		18:47	61:04:30	-151:00:24
	1485.67			
2015-246		20:42	61:04:08	-151:00:01
	1487.67			
2015-247		21:36	61:03:34	-150:59:13
	1487.15			
2015-247		23:34	61:03:33	-150:59:21
	1483.62		02.00.00	
2015-248	1403.02	17:58	61:07:52	-151:04:01
2013 240	1470.73	17.50	01.07.32	131.04.01
2015-248	14/0./3	22:54	61:06:07	-151:05:07
2013-248	1475.86	22.34	01.00.07	-131.03.07
2015 240	14/5.60	10.17	CO. 47. 4C	151.10.27
2015-249	1405 53	19:17	60:47:46	-151:10:37
2045 240	1485.52	24.54	60.47.20	454.40.57
2015-249	4.407.00	21:51	60:47:28	-151:10:57
2017 272	1487.08	21.15	60.47.07	1=1 1= 10
2015-250	4 40 = 00	21:46	60:47:05	-151:15:18
	1487.88			
2015-258		19:18	61:03:26	-151:01:14
	1480.57			
2015-258		21:56	61:03:54	-150:59:54
	1478.38			
2015-259		18:48	61:03:42	-150:59:42
	1482.47			
2015-259		21:15	61:02:02	-151:01:28
	1481			
2015-261		18:17	61:03:24	-150:59:04
	1482.02			
2015-261		20:30	61:02:33	-151:00:05
	1480.28			
2015-261		22:30	61:02:38	-150:59:33
	1476.62			
2015-262		18:20	61:02:57	-150:58:39
	1480.66		52.02.07	
	1-00.00			





2015-262	20:23	61:02:32	-150:58:45
1480.57			
2015-262	22:38	61:01:57	-150:58:43
1479.54			
2015-264	19:22	61:04:27	-150:59:11
1475.51			
2015-264	20:50	60:42:30	-151:25:02
1483.84			
2015-264	22:55	60:41:01	-151:24:11
1484.45			
2015-265	0:53	60:40:19	-151:23:50
1483.6			
2015-265	20:05	60:32:37	-151:13:39
1445.63			
2015-265	20:22	60:32:54	-151:15:48
1475.99			
2015-265	20:46	60:32:37	-151:18:11
1480.9			
2015-265	21:06	60:33:06	-151:14:50
1461.73			
2015-265	21:31	60:32:37	-151:13:34
1442.59			
2015-265	21:51	60:32:31	-151:13:59
1448.24			
2015-265	22:09	60:32:35	-151:13:52
1446.36			
2015-267	22:38	60:42:11	-151:24:41
1481.39			
2015-268	0:56	60:40:59	-151:24:03
1481.26			



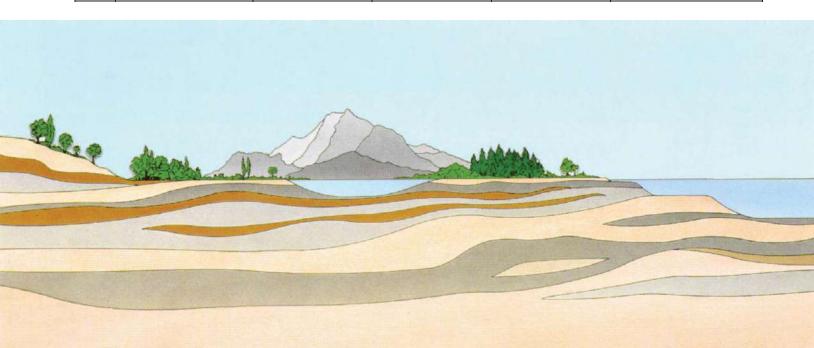
# APPENDIX 2-G WESTERLY CALIBRATION REPORT



## R/V WESTERLY CALIBRATION REPORT 2015 MARINE SEAFLOOR MAPPING SURVEY

PRE-FEED LEVEL FIELD EXPLORATION PROGRAM ALASKA LNG PROJECT NIKISKI, ALASKA

0	Issued as Draft	MIK	JBG		December 4, 2015
Rev	Description	Prepared	Checked	Approved	Date





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### 1. SCOPE AND PURPOSE

Various quality control (QC) products are necessary to verify that each of the seafloor survey systems (MBES, side scan, and magnetometer) are preforming to meet the standards and expectations of this type of survey. This report is intended to document the procedures and results of all instrument calibrations, performance and functionality tests.



### 2. SURVEY INSTRUMENTATION

A suite of seabed survey instrumentation was mobilized aboard the R/V Westerly between 25 May and 30 May 2015 in Anchorage, AK. The vessel then transited to Kenai, AK where mobilization was completed. The instrumentation comprised both navigation/positioning and sea bed survey systems. These systems include:

- Positioning / Navigation Applanix POS MV
- Side scan sonar Edgetech 4200
- Magnetometer SeaSPY
- Multibeam Sounder R2Sonic 2024
- Single Beam Sounder Edgetech Odom CV-100
- Positioning Applanix POS/MV
- USBL Global Acoustic Positioning System (GAPS)
- Sound Velocity Profiler Ocean Science Underway SVP system



### 3. MULTIBEAM SOUNDER

A comprehensive patch test was first carried out on 1 June 2015 to calibrate the different components of the multibeam bathymetry system in accordance with manufacturer & industry standards. This calibration procedure measures the angular mounting components of the correction sensors (roll, pitch, and yaw) as errors in these measurements can lead to an inaccurate survey data. The calibration test is a data collection and processing procedure to calibrate these angles along with position system latency.

Date of Data	Purpose	CARIS Results			
Acquisition		Latency	Pitch (Degrees)	Roll (Degrees)	Yaw (Degrees)
June 1, 2015	Initial post-mobilization calibration	0.00	-0.50	0.40	-0.25
July 11, 2015	Refined post-mobilization calibration	0.00	-0.50	0.40	-0.25
July 15, 2015	The multibeam head had to be removed to replace a failed deck lead jumper cable.	0.00	0.10	0.27	0.00
Sept. 1, 2015	Power cycle issues with the POS MV resulted in installing the spare POS topside and IMU.	0.00	0.00	0.15	-0.10

### 3.1 PATCH TEST.

The patch test is performed when a new installation of an inertial measurement unit (IMU) and/or multibeam transducer is carried out, or if either are moved. The patch test involves collecting data over certain types of bottom terrain, and processing of the data using MB-Max or Caris software. Four elements of the patch test are a positioning latency test, a pitch test, a roll test and a yaw test. The patch test involves two steps: the measurement of all relative sensor offsets which is carried out at time of sensor installation and a field sensor alignment.

Survey lines in water depths ranging from 12 to 20 meters were run in the vicinity of Boulder Point for the patch test and are shown in figure 3-1 below.

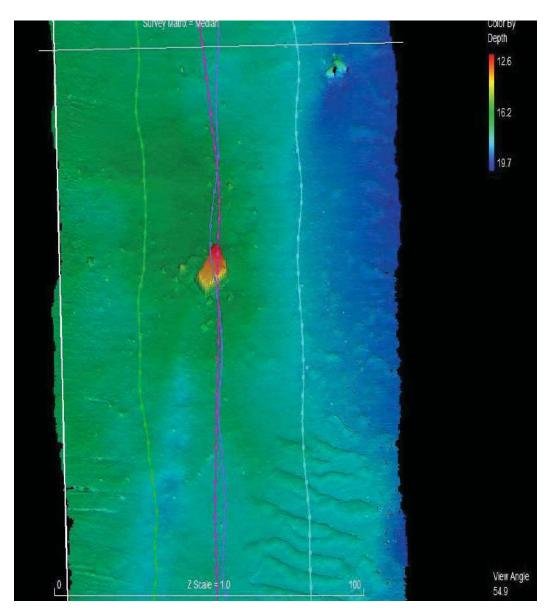


Figure 3-1. Survey lines run for the Patch Test.



### 3.1.1 Position Latency

The Latency calibration is typically carried out over a steep slope or feature on the seafloor. A survey line is created perpendicular (Figure 3-2) to the slope and run at least two times in the same direction. The first line surveyed at survey speed and then surveyed again in the same direction but at half the survey speed. No latency was found in the system and these results are shown in figure 3-3.

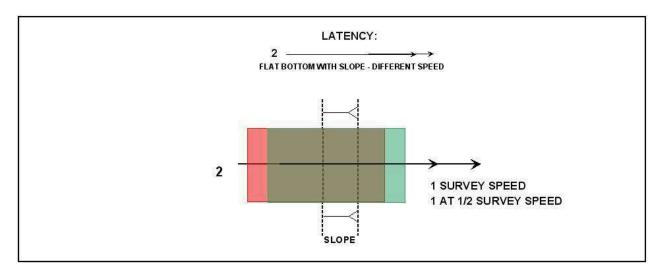


Figure 3-2 Survey line layout for the latency test.



Figure 3-3. September 1, 2015 example: zero latency was determined.





### 3.1.2 Pitch Test

The pitch calibration is typically carried out over a steep slope or feature on the seafloor. A survey line is created perpendicular to the slope and run four times in a reciprocal direction and at a typical survey speed taking care to pass over the same exact part of the slope. Having four survey datasets will provide at least three pitch misalignment values where the average of the three will be the final value.



Figure 3-4. September 1, 2015 example: pre pitch with no bias.

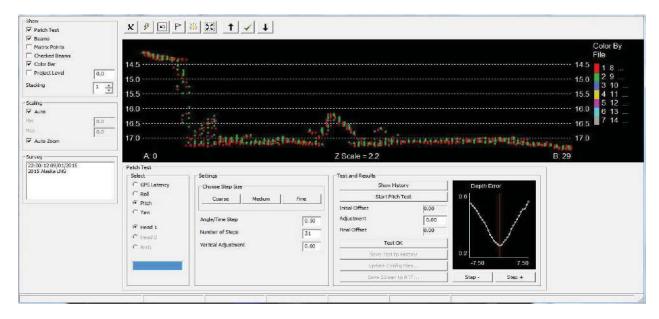


Figure 3-5. September 1, 2015 example: post pitch remains at no bias.





### 3.1.3 Roll Test

The roll calibration is typically carried out over a flat bottom area. A survey line is created over this terrain and run four times in a reciprocal direction and at typical survey speed. The length of survey line should be around 200m. Having four survey datasets will provide at least three roll misalignment values where the average of the three will be the final value.

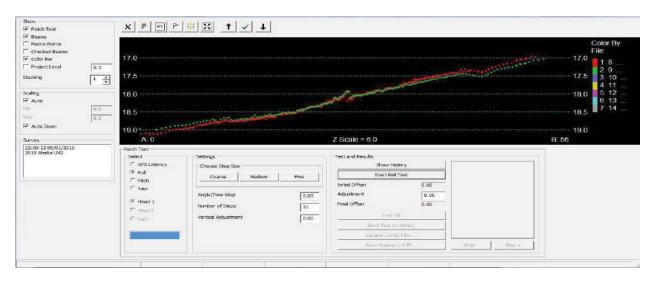


Figure 3-6. September 1, 2015 example: pre-roll with no bias.

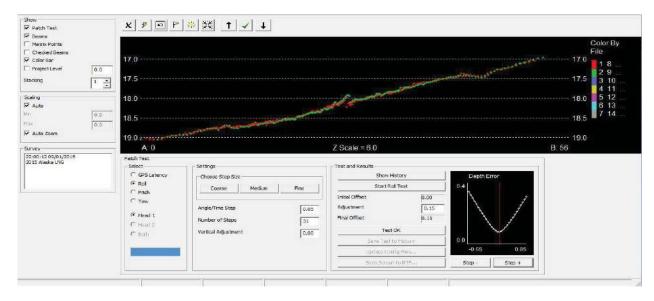


Figure 3-7. September 1, 2015 example: post roll showing a roll bias of 0.15 applied.



### 3.1.4 Yaw Test

The yaw calibration is typically carried out over a steep slope or feature on the seafloor. Two parallel survey lines are created perpendicular to the slope and run three times in the same direction and at typical survey speed taking care to pass over the same exact part of the slope. Having three survey datasets will provide three yaw misalignment values where the average of the three will be the final value.

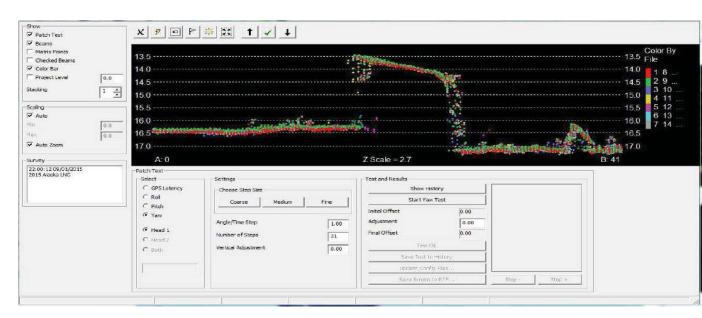


Figure 3-8. September 1, 2015 example: pre-yaw with no bias

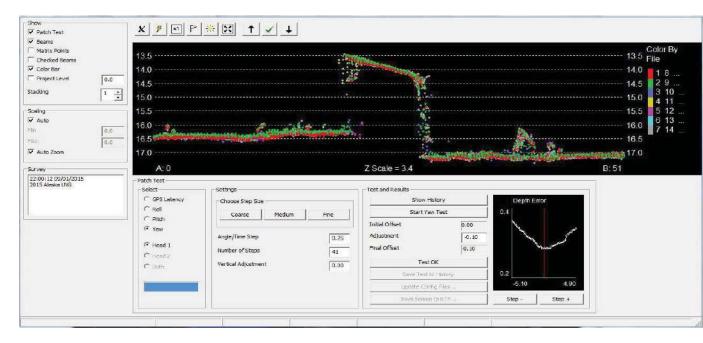


Figure 3-9. September 1, 2015 example: post yaw showing a roll bias of -0.10 applied.



### 3.2 PERFORMANCE TEST.

A performance test was carried out to evaluate the quality and confidence of the multibeam data being collected. Two sets of seven parallel lines perpendicular to each other are surveyed utilizing a 90° swath to create a reference surface, and two perpendicular lines (check lines) using full swath (160°) are surveyed through the center of the reference area. Running the beam angle test, the check lines are compared to the reference surface and estimates of depth accuracy of the multibeam system at different angle limits are obtained (Figure 3-10). The resultant accuracy is used to determine the swath to utilize for data acquisition in order to meet survey specifications. From the results obtained by performing a multi-beam survey using a POS/MV inertial navigation system and an R2Sonics sonar head, we can meet IHO order 1A standards by limiting our survey swath to 65°.

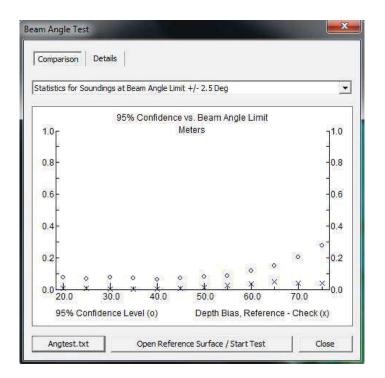


Figure 3-10 Beam Angle Test plot.

+/- Beam Angle Limit	Max Outlier	Mean Diff	Std Dev	95% Confi	dence
20	0.77	-0.01	0.04	0.07	¥
25	0.31	-0.01	0.03	0.07	₩
30	0.33	-0.00	0.04	0.07	₩
35	0.48	0.00	0.04	0.07	₩
40	0.37	0.00	0.03	0.06	₩
45	0.50	0.01	0.04	0.07	¥
50	0.25	0.01	0.04	0.08	¥
55	0.29	0.02	0.04	0.09	¥
60	0.36	0.04	0.06	0.12	WW
65	0.45	0.05	0.08	0.15	**
70	0.33	0.04	0.10	0.20	***
75	0.40	0.04	0.14	0.28	***

Table 3-1. Beam Angle Test Comparison Table.



### 3.3 POSITIONING AND DEPTH QC TEST

An isolated large prominent seabed feature located near Boulder Point (Figure 3-12) at 60° 47.289'N - 151° 15.038'W was used in a confirmation check for comparison between 2014 data with 2015 data (Figure 3-13).

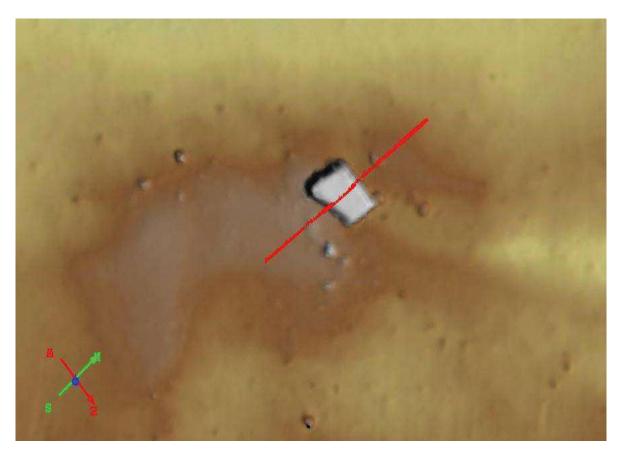


Figure 3-12. Isolated sea bed feature in the Boulder Point area.

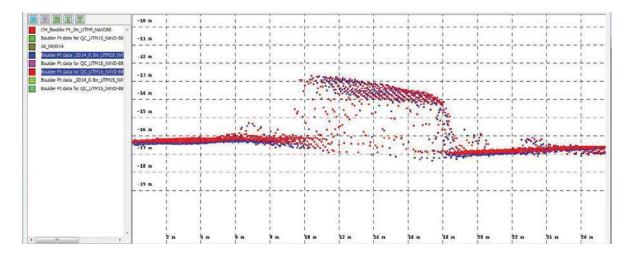


Figure 3-13. Cross section comparison of 2014 data (blue) and 2015 data (red).



### 3.4 DELAYED HEAVE.

The vertical position of the antenna can be monitored with respect to the ellipsoid. The high pass filtered version of this signal represents the heave at the antenna (Figure 3-14). This signal, or delayed heave, was logged in a POS MV digital file and applied during data processing. Heave measurements are averaged over five minutes, and when applied to the data in post-processing (Figure 3-15), solves for any real time heave inaccuracies.

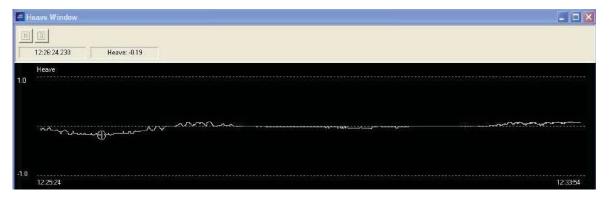


Figure 3-14. Real-time heave.

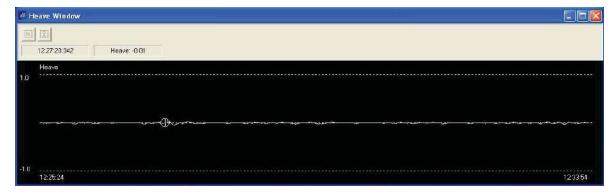


Figure 3-15. Delayed heave applied.

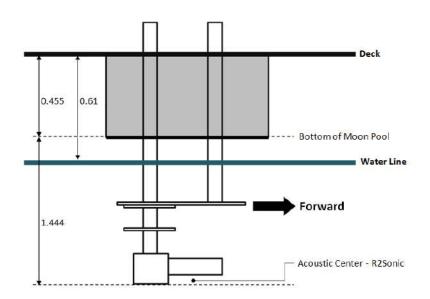
### 3.5 LEAD LINE CALIBRATION

On June 4, 2015, a lead line calibration of the R2Sonic 2024 multibeam echosounder was conducted at the floating dock while the R/V Westerly was moored. The calibration involved recording the multibeam soundings during the test and taking a physical lead line reading to the water line on the port and starboard sides of the vessel amidships. The average value of both sets of soundings was then used to determine the draft with respect to the acoustic center of the multibeam array and the accuracy of the recorded soundings of the multibeam.

All measurements for the draft of the multibeam were taken to the nearest millimeter (mm) or 1/10 inch and are referenced to the water line of the vessel (as averaged from the draft marks on port/starboard amidships). The lead line test was conducted with a cloth tape with a 10 lb weight secured to the end. The



tape is calibrated such that the 3 foot mark on the tape corresponds to a 1 foot depth measurement including the weight. (all measurements taken with this apparatus must be adjusted by -2 feet to account for this).



Draft with respect to Acoustic Center R2Sonic

 $D_{R2S} = (1.444 \text{ m} + 0.455 \text{ m}) - 0.61 \text{ m}$ 

 $D_{R2S} = 1.289 \text{ m}$ 

Recorded soundings and average value

Start of test: 4.62 m With D<sub>R2S</sub>: 5.909 m End of test: 4.56 m With D<sub>R2S</sub>: 5.849 m Average depth including D<sub>R2S</sub>: 5.879 m

Difference between AvgR2Sonic and AvgLead Line

5.879 m - 5.865 m = 0.014 m

Lead Line

Starboard: 21'2" - 2' = 19'2"

(19\*0.304) + (2\*0.0254)

= 5.776 m + 0.0508 m

= 5.8268m

Port: 21.5"-2=19.5"

= 5.903 m

Average depth for lead line: 5.8649 m

Based on the calculated difference of 0.014 m, it has been determined that the soundings recorded using the R2Sonic 2024 multibeam during the lead line test are consistent, accurate and within acceptable variances for the purposes of this project.



### 4. SIDE SCAN SONAR SYSTEM

A confidence check of the Edgetech 4200 side scan sonar system was conducted at the start of the survey. The check was comprised a visual review of the sonar imagery at the outer limits of the range scales being used. Observed sonar targets along these outer edges of the record confirmed that the system was adequately portraying both smaller subtle and larger more obvious targets (Figure 4-1). Each sonar channel (i.e., port and starboard) were checked to verify proper system tuning and operation.

Functionality checks were periodically performed prior to towfish deployment. This check procedure is completed with the sonar towfish on deck and the system powered up. A manual rub of the port and starboard transducers produces dark streaks across the record for each of the appropriate channels. An auditory check of the towfish transducers confirms that the system is transmitting.

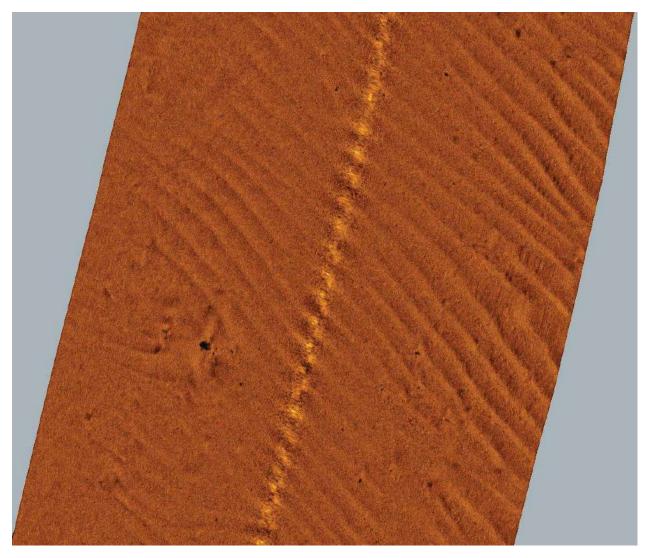


Figure 4-1. Large sand waves and smaller ripple marks are seen across the entire swath.



### 5. MAGNETOMETER

A functionality test was completed as a Quality Control/Quality Assurance measure for the magnetometer system. A survey line was run normal to the Cook Inlet Gas Gathering (CIGG) pipeline bundle at survey speed. The crossing produced a significant magnetic signature typical of a pipeline bundle as seen in figure 5-1 below. The recorded magnetic anomaly plotted directly over the known location of the pipeline bundle.

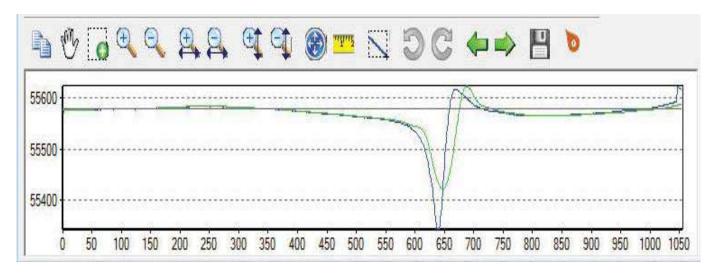


Figure 5-1. Magnetic anomaly record over the Cook Inlet Gas Gathering bundle.



### 6. LIDAR / LASER SCANNER CALIBRATION

In order to parse scan data with precision, the parser needs to know where ILRIS 3D sensors are located and how they are oriented in relation to the IMU (Figure 6-1 and 6-2). Such relative position and orientation information is known as lever arm measurements (X, Y, and Z) (Table 6-1) and bore sight angle measurements (roll, pitch, and heading) (Table 6-2). Prior to data acquisition, lever arm and bore sight angle measurement with respect to the IMU was done in order to geo-reference the scanned data. The lever arm measurements are the distances (X, Y, and Z) from the ILRIS reference point to the IMU (Table 8-7). The bore sight angle measurement was determined by a calibration performed in static mode to accurately determine the roll, pitch, and heading offsets in relation to the IMU.

The scanner and IMU are mounted on a single platform that was temporarily mounted on the Westerly then subsequently temporarily mounted to the Utility Task Vehicle (UTV). Due to the utilization of this common plate, the offsets between the scanner and the scanner's IMU are identical for each acquisition vehicle.

ILRIS LiDAR Scanner System was mobilized onboard R/V Westerly on July 30, 2015, data acquisition at Tyonek was carried out on July 31, 2105 during low tide period (1200-1500). Data acquisition for Boulder Point area was achieved by mounting the ILRIS LiDAR scanner onboard a Utility Task Vehicle on September 09, data acquisition took place on September 10-12, 2015.

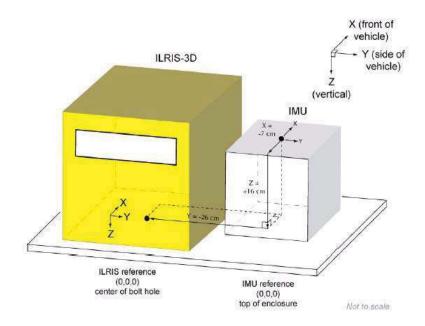
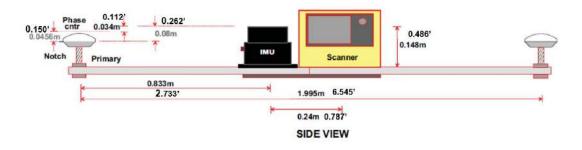
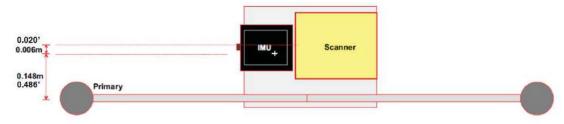


Figure 6-1 ILRIS Lever Arm Measurements







**TOP VIEW** 

Figure 6-2 ILRIS Lever Arm Offsets.

Offsets	Х	Υ	Z
IMU Frame Reference frame	0	0	0
Reference to Primary GPS Lever Arm (ft.)	2.733	-0.486	-0.112
Reference to Primary GPS Lever Arm (m)	0.840	-0.140	-0.014

**Table 6-1 POS MV Lever Arms** 

Offsets	Roll	Pitch	Heading
Reference to IMU	0	0	0
ILRIS lever arm	-0.423°	-0.10°	-90.85°

**Table 6-2 ILRIS Lever Arms** 





Figure 6-3. LiDAR laser scanner mounted on a UTV (left) and on the R/V Westerly (right).



### 7. VESSEL OFFSETS

The R/V Westerly, a 15m catamaran, was employed as the survey platform for the seafloor mapping campaign. The Westerly was equipped with a surface positioning system, side scan sonar, a magnetometer, multibeam and single beam sounders, a grab sampler and an underway sound velocimeter to accomplish the survey objectives.

The relevant vessel offsets for the R/V Westerly were accurately measured and recorded on a vessel offset diagram (Figure 7-1) with all offsets relative to the Inertial Measurement Unit (IMU). All measurements were verified by two personnel. If any changes are made to the offsets, these changes will be noted on a new diagram along with a date and time of the change.

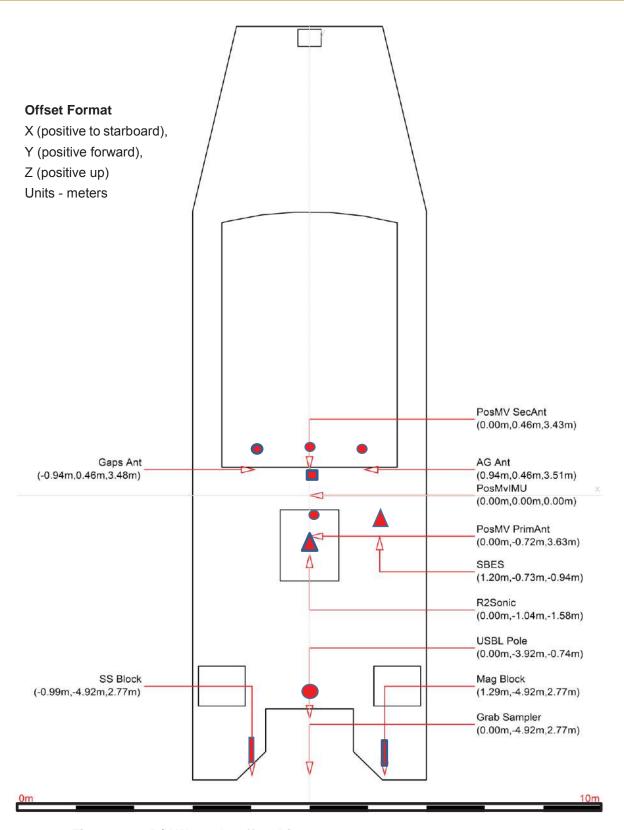


Figure 7-1. R/V Westerly Offset Diagram.



APPENDIX G
CHARTS