

GSI AREA TEKPIKOUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 460 OF _____
 LINE/LOOP NO. 717 TYPE SURVEY _____ CLIENT HUSKY OIL DATE 21 BY 4 MO 80 YR
 SURVEYOR D. MELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL					ELEVATION		L/R OR D/I	HORIZONTAL RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS	
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST					ROD
			SLOPE 	HORIZ 										
1		ELEVATION TAKEOFF FROM	SP 103	94	TBM	80026					1			
2											2			
3	Δ	80026	0		90°	-5.1159					3	TA SET UP @ 80026		
4	✓										4	ELEV. 529.89		
5	⊙	103				5.0	5.0	5.0			5			
6	S	94	7920		90 00 34	22.0					6			
7	S	95	7040		89 54 10	22.0					7			
8	S	96	6160		89 51 00	11.4					8			
9	S	97	5280		89 46 18	11.4					9			
10	S	98	4400		89 56 22	11.4					10			
11	S	99	3520		90 36 03	11.4					11			
12	S	100	2640		91 31 43	11.4					12			
13	S	101	1760		91 52 50	26.4					13			
14	S	102	880		91 24 51	22.0					14			
15	S	104	880		91 16 52	11.4					15			
16	S	105	1760		91 28 28	11.4					16			
17	S	106	2640		90 01 57	11.4					17			

WORKED BY Don K Melander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊕ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

GSI AREA TXPIKPUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 460 OF _____
 LINE/LOOP NO. 714 TYPE SURVEY _____ CLIENT NOCKY OIL DATE 21 DY 4 MO 80 YR
 SURVEYOR D. MELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE					HORIZ	INST				
1	⊙	107	3520		90 10 36	11.4	37"		508.77			1		
2	✓				269 49 21							2		
3												3		
4	Δ	107	4400		87 37 50	11.4	45"		491.4			4		
5	✓				270 22 20							5		
6	⊗	112				5.0						6		
7	S	108	3520		90 01 30	11.4			478.7			7		
8	S	109	2640		90 32 12	11.4						8		
9	S	110	1760		91 42 53	11.4						9		
10	S	111	880		92 15 03	11.4						10		
11	S	113	1760 880		89 42 02	11.4						11		
12	S	114	2640 1760		89 49 50	11.4						12		
13	S	115	3520 2640		89 01 44	11.4						13		
14	S	116	4400 3520		88 32 43	11.4						14		
15	S	117	52 4400		88 18 07	11.4						15		
16	⊙	118	5280		88 16 41	15.0	49"		635.33			16		
17	✓				271 43 03							17		

WORKED BY D. Melander CHECKED BY 1ST _____ 2ND _____

SYMBOLS

Δ = BACKSIGHT

⊗ = INSTRUMENT SET-UP

SS = SIDESHOT

⊙ = FORESIGHT

GSI AREA IKPIKAK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 461 OF _____
 LINE/LOOP NO. 7H TYPE SURVEY _____ CLIENT MUSKY OIL DATE _____ BY _____ MO _____ YR _____
 SURVEYOR D. HELAND INSTRUMENT DESC/SERIAL NO. _____ CREW NO. _____

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		LINE	REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION				LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST				
1												1		
2	Δ	118	3025			90 29 21	10.0	19					2	
3	✓					269 35 44							3	
4	⊗	121+385											4	
5	S	119	2145			91 25 30	11.4						5	
6	S	120	1265			91 41 04	22.0						6	
7	S	121	385			90 49 32	11.4						7	
8	S	122	495			89 09 53	11.4						8	
9	S	123	1375			90 25 45	11.4						9	
10	S	124	2255			88 55 35	11.4						10	
11	S	125	3135			88 41 28	11.4						11	
12	⊗	125+495	3630			88 48 16	15.0	16			727.55		12	
13	✓					271 11 45							13	
14													14	
15	Δ	125+495	1540			89 36 47	15.0	43					15	
16	✓					270 23 21							16	
17	⊗	127+275					5.0						17	

WORKED BY _____ CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊗ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

GSI AREA IKPIKPUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 462 OF _____
 LINE/LOOP NO. 74 TYPE SURVEY _____ CLIENT NUKY OIL DATE 23 DY 4 MO 80 YR
 SURVEYOR D. HELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		LINE	REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION				L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST				
1	Δ	126	1155		89 30 47	11.4						1		
2	Δ	127	275		87 26 56	11.4						2		
3	Δ	128	605		92 22 37	11.4						3		
4	Δ	129	1485		92 46 40	11.4						4		
5	Δ	130	2355		91 48 34	15.0						5		
6	Δ	131	3245		90 21 54	11.4						6		
7	Δ	132	4125		89 52 26	11.4						7		
8	Δ	133	5005		89 36 28	11.4						8		
9	⊙	134	5885		89 29 08	15.0	28 59		770.88			9		
10	✓				270 31 10							10		
11												11		
12	Δ	134	390		90 27 55	5.0	48					12		
13	✓				269 32 19							13		
14	Δ	134+385				5.0						14		
15	⊙	80024	565		88 54 15	5.0	12		789.85			15	ELEV = 782.58	
16	✓				271 05 50							16		
17												17		

WORKED BY D. K. Helander CHECKED BY 1ST _____ 2ND _____
 SYMBOLS Δ = BACKSIGHT ⊠ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

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GSI AREA IKPIKPUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 464 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT MUSKY OIL DATE 23 DY 9 MO 80 YR
 SURVEYOR D. HELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS HORIZ					INST	ROD		
1											1	
2	Δ	139	4550		88 11 12	11.4						2
3	✓				271 49 09							3
4	X	144 + 158 147				5.0						4
5	S	140	3670		88 02 28	11.4						5
6	S	141	2790		88 28 10	11.4						6
7	S	142	1910		90 53 37	5.0						7
8	S	143	1030		93 32 25	5.0			507.8			8
9	S	144	150		95 09 18	4.0						9
10	S	145	730		91 21 32	11.4						10
11	⊙	146	1610		89 48 59	11.4			569.59			11
12	✓				270 10 08							12
13												13
14	Δ	146	1760		92 29 26	11.4						14
15	✓				267 30 57							15
16	X	148				5.0						16
17	S	147	880		93 10 40	11.4						17

WORKED BY Don K Helander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊕ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA IKPIKPOK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 463 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT HUSKY OIL DATE 23 DY 9 MO 80 YR
 SURVEYOR D. HELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		L/R OR DJI	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			SLOPE 	HORIZ 										
1												1		
2	Δ	80024	1480		89 01 28	10.0						2	ELEV = 782.58	
3	✓				270 58 31							3		
4	⊗	136				5.0						4		
5	S	135	880		89 07 09	11.4						5		
6	S	137	830		90 49 30	11.4						6		
7	⊙	138	1760		91 13 40	11.4						7		
8	⊙	139	2640		91 00 48	11.4 ⁴⁸				709.39		8		
9	✓				268 59 12							9		
10												10		
11	Δ	139										11		
12	✓											12		
13	⊗											13		
14												14		
15												15		
16												16		
17												17		

WORKED BY D. Helander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊗ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA IKPIKAK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 965 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT NUSKT OIL DATE 27 BY 4 MO 80 YR
 SURVEYOR D. Helander INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		LINE	REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION				L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST				
1	S	149	880		88 14 18	11.4						1		
2	⊙	150	1760		88 19 06	13.0			697.53			2		
3	✓				271 40 35							3		
4												4		
5	Δ	150	2640		90 59 54	11.4						5		
6	✓				269 00 02							6		
7	⊙	153				5.0						7		
8	S	151	1760		91 01 08	11.4						8		
9	S	152	880		90 33 11	11.4						9		
10	S	154	880		89 52 34	11.4						10		
11	S	155	1760		89 33 04	11.4						11		
12	S	156	2640		88 50 44	11.4						12		
13	S	157	3520		87 51 32	11.4						13		
14	⊙	158	4400		87 43 09	11.4			719.00			14		
15	✓				272 17 00							15		
16												16		
17												17		

WORKED BY Don & Helander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊕ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

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GSI AREA IKPIKPUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 966 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT HUSKY OIL DATE 24 BY 4 MO 00 YR
 SURVEYOR D. HALANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			SLOPE	HORIZ										
		<input type="checkbox"/> FEET <input type="checkbox"/> METERS												
1												1		
2	Δ	158	495		90 36 56	11.4	36					2		
3	✓				269 23 44							3		
4	⊗	158+495										4		
5	⊙	80023	158B		89 22 45	15.0	30		938.02			5	ELEV = 939.94	
6	✓				270 37 39							6		
7												7		
8												8		
9												9		
10												10		
11												11		
12												12		
13												13		
14												14		
15												15		
16												16		
17												17		

WORKED BY D. Halander CHECKED BY 1ST _____ 2ND _____
 SYMBOLS Δ = BACKSIGHT ⊗ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA IKPIKUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 467 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT RUSKY OIL DATE 29 BY 9 MO 80 YR
 SURVEYOR D NELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					FEET METERS	INST			
			<input type="checkbox"/> FEET <input type="checkbox"/> METERS										
1												1	
2	Δ	80023	1720		89 31 66	5.0	2037					2	LEV. = 939.94
3	✓				270 29 03							3	
4	Δ	1581715605				5.0						4	
5	S	159	765 275		92 20 20	11.4						5	
6	S	160	1155		93 45 35	11.4						6	
7	⊙	161	2035		93 37 45	11.4	51'			790.17		7	
8	✓				266 22 03							8	
9												9	
10	Δ	161	3520		88 37 24	11.4	25					10	
11	✓				271 22 34							11	
12	Δ	165				5.0						12	
13	S	162	2840		88 58 06	11.4						13	
14	S	163	1760		89 04 52	11.4						14	
15	S	164	880		88 58 50	11.4						15	
16	S	166	880		89 25 10	11.4						16	
17	S	167	1760		89 59 15	11.4						17	

WORKED BY Don K. Nelander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊠ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

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GSI AREA ZKPIKPOK River STATE/COUNTY ALASKA BOOK NO. _____ PAGE 468 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT NUSKY OIL DATE 27 DY 9 MO 80 YR
 SURVEYOR D. MELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL			REMARKS			
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			L/R OR DI	RIGHT TURNED HORIZONTAL ANGLE	LINE
				SLOPE	HORIZ					INST	ROD				
1	S	168	2640		89 52 35	15.0							1		
2	S	169	3520		89 38 00	11.4							2		
3	S	170	4900		89 16 31	11.4							3		
4	⊙	171	5280		89 06 40	11.4			787.88				4		
5	✓				270 53 22								5		
6													6		
7	Δ	171	8635		89 23 14	11.4							7		
8	✓				270 32 08								8		
9	Δ	180+715				5.0							9		
10	S	172	7755		89 21 15	11.4							10		
11	S	173	6875		89 24 24	11.4							11		
12	S	174	5995		89 30 25	11.4							12		
13	S	175	5115		89 38 13	11.4							13		
14	S	176	4235		89 48 56	11.4							14		
15	S	177	3355		90 09 10	11.4							15		
16	S	178	2475		90 56 31	11.4							16		
17	S	179	1595		91 34 44	11.4							17		

WORKED BY Don K Melander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊕ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA ZKPIKPOK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 469 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT WEEKY OIL DATE 23 BY 4 MO 80 YR
 SURVEYOR D. HELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1102

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL							HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		LR OR DR		RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					FEET	METERS			
1	✓	180	715		91 45 00	11.4						1	
2	✓	181	165		88 43 20	11.4						2	
3	✓	182	1045		89 08 23	11.4						3	
4	✓	183	1925		89 24 54	11.4						4	
5	⊙	183+275	2200		89 30 48	15.0			708.68			5	
6	✓				270 29 09							6	
7												7	
8	Δ	183+275	1760		89 22 55	15.0						8	
9	✓				270 37 00							9	
10	⊙	185+275				5.0						10	
11	✓	184	1155		89 20 10	11.4						11	
12	✓	185	275		87 27 13	11.4						12	
13	✓	186	605		92 58 44	11.4						13	
14	✓	187	1485		92 06 06	11.4						14	
15	✓	188	2365		92 08 44	11.4						15	
16	✓	189	3245		91 29 50	11.4						16	
17												17	

WORKED BY D. Helander CHECKED BY 1ST _____ 2ND _____
 SYMBOLS Δ = BACKSIGHT ⊙ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

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GSI AREA IKPIKPOK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 470 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT MUSKY OIL DATE 23 BY P MO 00 YR _____
 SURVEYOR D. MELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1102

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> ⚓ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		L/R OR D/I	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			SLOPE 	HORIZ 										
1	S	190	4125		91 02 52	11.4						1		
2	S	191	5005		90 45 33	11.4						2		
3	S	192	5885		90 35 40	11.4						3		
4	⊙	193	6765		90 16 30	11.4				662.02		4		
5	✓				269 43 48	11.4						5		
6												6		
7	Δ	193	880		90 10 32	11.4						7		
8	✓				269 49 24							8		
9	X	194	472							671.21		9	ELEV. = 669.72	
10	⊙	80021	172		89 58 05	5.0						10		
11	✓				270 02 06							11		
12												12		
13												13		
14												14		
15												15		
16												16		
17												17		

WORKED BY Don K Melander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⚓ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA IKPIKAK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 471 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT HUSKY OIL DATE 29 DY 9 MO 86 YR
 SURVEYOR D. HELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			RIGHT TURNED HORIZONTAL ANGLE	
			SLOPE	HORIZ					INST	ROD			
1													
2	Δ	20021	3600		89 49 23	2.0	15					2	REVI: 669.72
3	✓				270 10 53							3	
4	⊗	198				5.0						4	
5	S	196 195	1760 2640		89 49 10	11.4						5	
6	S	197 196	880 1760		87 51 31	11.4						6	
7	S	198 197	880		89 31 40	11.4						7	
8	S	199	880		91 12 12	11.4						8	
9	S	200	1760		91 29 08	11.4						9	
10	S	201	2640		89 15 26	15.0						10	
11	⊙	202	3520		88 25 44	11.4	43			745.58		11	
12	✓	203	4400		271 34 18							12	
13												13	
14	Δ	202	4400		91 44 21	11.4	08					14	
15	✓				268 16 05							15	
16	⊗	207				5.0						16	
17	S	203	3520		91 29 08	11.4						17	

WORKED BY D. K. Helander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊗ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

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GSI AREA ZIKPAK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 472 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT HUSKY OIL DATE 24 BY 8 MO 86 YR
 SURVEYOR D. HELAND INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		LR OR DR	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			SLOPE	HORIZ										
		<input type="checkbox"/> FEET <input type="checkbox"/> METERS	<input type="checkbox"/> SLOPE 	<input type="checkbox"/> HORIZ 	<input type="checkbox"/> VERT ANGLE 	<input type="checkbox"/> ROD RDG 	<input type="checkbox"/> ELEV DIFF 							
1	✓	204	2640		93 19 04	11.4						1		
2	✓	205	1760		93 53 11	11.4						2		
3	✓	206	880		94 09 11	11.4						3		
4	✓	208	880		85 02 03	11.4						4	S=209=1760-803041	
5	⊙	209+385	1760 2145		84 56 52	11.4	57		1067.58 1032.45			6		
6	✓				295 02 58	44						6		
7												7		
8	Δ	209	880 495		90 32 33	11.4	36					8		
9	✓				269 27 20							9		
10	⊙	210				5.0						10		
11	⊙	80020	1590		89 56 04	2.0	55 57					11	ELEV. = 1082.8	
12	✓				270 04 10							12		
13	⊙	211	880		90 33 51	11.4	55		1063.90			13		
14	✓				269 26 00							14		
15												15		
16	Δ	211	1760		88 22 33	11.4	29					16		
17	✓				271 87 35							17		

WORKED BY D. K. Heland CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊙ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

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GSI AREA ZKPIKPUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 473 OF _____
 LINE/LOOP NO. VI TYPE SURVEY _____ CLIENT ALASKA OIL DATE 29 DY 4 MO 80 YR
 SURVEYOR S. HELANDO INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input checked="" type="checkbox"/> T <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL							HORIZONTAL		REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR DJ		RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD			
1	T	213				5.0						1	
2	S	212	880		88 08 11	11.4						2	
3	S	214	880		92 08 22	11.4						3	
4	S	215	1760		92 19 32	22.0						4	
5	S	216	2640		92 31 06	22.0						5	
6	S	217	3520		92 32 15	22.0						6	
7	S	218	4400		92 29 12	21.4						7	
8	⊙	219	5280		92 08 15	11.4	20			816.99		8	
9	✓				267 51 39							9	
10												10	
11	Δ	219	6435		89 04 29	11.4	19					11	
12	✓				270 55 50							12	
13	T	226+275				5.0						13	
14	S	220	5555		89 11 01	11.4						14	
15	S	221	4675		89 22 03	11.4						15	
16	S	222	3795		89 20 35	22.0						16	
17	S	223	2915		89 17 03	22.0						17	

WORKED BY Dont Helando CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT T = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA TRAPIKPUK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 474 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT ALASKA OIL DATE 24 DAY 4 MO 80 YR
 SURVEYOR D. MELANDER INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1184

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		L/R OR DI	RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
			<input type="checkbox"/> FEET <input type="checkbox"/> METERS 											
1	S	224	2035		89 16 18	11.4						1		
2	S	225	1155		89 10 52	11.4						2		
3	S	226	275		88 22 52	11.4						3		
4	S	227	605		91 32 11	11.4						4		
5	S	228	1485		91 40 46	11.4						5		
6	S	229	2365		91 04 12	11.4						6		
7	S	230	3245		91 00 09	11.4						7		
8	G	231	4125		90 58 28	11.4	35		641.92			8		
9	✓				269 01 27							9		
10												10		
11	Δ	231	4675		88 45 13	11.4	06					11		
12	✓				271 15 02							12		
13	*	236+228				5.0						13		
14	S	232	3795		88 52 51	11.4						14		
15	S	233	2915		89 08 12	11.4						15		
16	S	234	2035		89 31 01	11.4						16		
17	S	235	1155		89 39 35	11.4						17		

WORKED BY D. Melander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA AKA UMIAT STATE/COUNTY ALASKA BOOK NO. _____ PAGE 475 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT MUSKY OIL DATE 21 DY 4 MO 80 YR
 SURVEYOR D. Helander INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL			REMARKS	
			DISTANCE		VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION		L/R OR D/E		RIGHT TURNED HORIZONTAL ANGLE
			SLOPE	HORIZ					INST	ROD			
1	S	236	275		88 49 38	11.4						1	
2	S	237	605		90 16 21	11.4						2	
3	S	238	1485		90 37 24	11.4						3	
4	S	239	2365		90 03 30	11.4						4	
5	S	240	3245		89 44 00	11.4						5	
6	S	241	4125		89 23 02	11.4						6	
7	S	242	5005		89 27 31	11.4						7	
8	⊙	242+385	5390		89 29 52	15.0			584.17			8	
9	✓				270 30 32							9	
10												10	
11	Δ	242+385	4015		88 27 23	15.0						11	
12	✓				271 32 51							12	
13	⊙	247				5.0						13	
14	S	247	3520		88 28 43	11.4						14	
15	S	244	2640		88 38 51	11.4						15	
16	S	245	1260		89 14 48	11.4						16	
17	S	246	880		89 01 32	11.4						17	

WORKED BY Don K Helander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT ⊕ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA TKPIKPOK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 476 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT Husky OIL DATE 27 DY 4 MO 80 YR.
 SURVEYOR D. Helander INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						HORIZONTAL		REMARKS		
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	ELEVATION			LR OR DR	RIGHT TURNED HORIZONTAL ANGLE
				SLOPE					HORIZ	INST			
1	Δ	248	880		90 44 34	11.4						1	
2	Δ	249	1760		91 08 12	11.4						2	
3	Δ	250	2648		90 58 04	15.0						3	
4	⊙	251	3520		88 44 58	11.4	55		556.28			4	
5	✓				271 15 07							5	
6												6	
7	Δ	251	1760		89 41 57	11.4	45					7	
8	✓				270 18 27							8	
9	Δ	252				5.0						9	
10	Δ	252	880		91 21 45	11.4						10	
11	Δ	254	880		91 30 45	26.4						11	
12	⊙	254+495	1375		91 11 05	11.4	05		518.98			12	
13	✓				268 48 55							13	
14												14	
15	Δ	254+495	385		88 09 45	11.4	47					15	
16	✓				271 50 11							16	
17	Δ	255				5.0						17	

WORKED BY D. Helander CHECKED BY 1ST _____ 2ND _____

SYMBOLS Δ = BACKSIGHT Δ = INSTRUMENT SET-UP SS = SIDESHOT ⊙ = FORESIGHT

HORIZONTAL AND VERTICAL SURVEY NOTES

GSI AREA IKPIKOPK RIVER STATE/COUNTY ALASKA BOOK NO. _____ PAGE 477 OF _____
 LINE/LOOP NO. 711 TYPE SURVEY _____ CLIENT MUSKEY OIL DATE 24 BY 4 MO 08 YR
 SURVEYOR D. Melandri INSTRUMENT DESC/SERIAL NO. _____ CREW NO. 1182

LINE	<input type="checkbox"/> Δ <input type="checkbox"/> SS <input type="checkbox"/> ⊙	STATION	VERTICAL						ELEVATION		LR OR DR	HORIZONTAL RIGHT TURNED HORIZONTAL ANGLE	LINE	REMARKS
			DISTANCE	<input type="checkbox"/> FEET <input type="checkbox"/> METERS	VERTICAL ANGLE OBS.	ROD RDG OR HI	ELEV DIFF	FINAL ELEVATION DIFF	INST	ROD				
				SLOPE 										
1	s	256	880		92 28 05	11.4						1		
2	s	257	1760		91 56 50	11.4						2		
3	s	258	2690		91 31 43	11.4						3		
4	s	259	3520		91 09 59	11.4						4		
5	s	260	4400		90 55 21	11.4						5		
6	s	261	5280		90 49 44	11.4						6		
7	s	262	6160		90 49 25	4.0						7		
8	s	263	7040		90 44 42	4.0						8		
9	s	264	7920		90 41 35	4.0						9		
10	s	265	8800		90 38 37	4.0						10		
11	s	266	9680		90 33 24	4.0						11		
12	s	267	10560		90 29 08	4.0						12		
13	⊙	80018	2880		91 24 09	10.0						13		
14	✓				268 35 43							14		
15												15		
16												16		
17												17		

WORKED BY Don K Melandri CHECKED BY 1ST _____ 2ND _____

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