

4662

U. S. COAST & GEODETIC SURVEY
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DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. PATTON, Director

State: ALASKA

DESCRIPTIVE REPORT

Topographic
~~Hydrographic~~

Sheet No. **E** 4662

LOCALITY

KODIAK ISLAND

S. E. ~~OUTSIDE~~ COAST OF

SITKALIDAK ISLAND

19.31

CHIEF OF PARTY

F. B. T. SIEMS, Comdr. U. S. C. & G. S.

DESCRIPTIVE REPORT
TO ACCOMPANY
TOPOGRAPHIC FIELD SHEET "E"

STEAMER SURVEYOR

F.B.T.SIEMS, COM'D'G.

Scale 1:20,000

4662

GENERAL DESCRIPTION:

From Black Point to Ocean Bay the coast-line is a rocky bluff that rises gradually from a wide grassy shelf to a ridge paralleling the beach. There are numerous rocks inshore and a heavy kelp bed parallels the coast extending from a quarter to a half mile off shore.

Ocean Bay is an indentation on the south coast of Sitkalidak Island one and a half miles deep and three and a half miles long. It has a wide white sand beach that bares from one to two hundred meters at low tide. There are several ridges terminating in the bay between which deep draws extend inland. In from the middle of the bay a lagoon extends inland within a mile of Port Hobron. Low ground separates the two.

From the eastern side of Ocean Bay to the eastern limits of the sheet the coast line is rugged having high bluffs and rapidly rising ground beyond except in two small bays. Kelp beds extend offshore and there are numerous rocks inshore.

In the westerly of the two small bays only a low gravel bar separates the ocean from MacDonald Lagoon. The easterly bay has a protected entrance to a shoal lagoon. A sand beach extends a mile to the southwest from a rocky peninsula that projects into the bay. This peninsula forms the protection for the entrance to the lagoon.

BLACK POINT:

The bluffs at Black Point are not as dark or as high as the bluffs at the point midway between Black Point and Ocean Bay. It is not as prominent a landmark as Puffin Island to the northwestward.

The low shelf extends the furthest out at the point midway between Black Point and Ocean Bay. There is a pinnacle rock having an elevation of 15 feet that lies at the outer end of a reef extending 300 meters out from this point.

CONTROL:

The triangulation stations, Cliff, Frank, Roost, Hump, Tar, Verde, Flor Surf, Fly, Ocean, Sigma, Fish, Negra, Tufts, Post, Azul, Wes, Ellis, Wed, Zeta, Delta, Speck, Mound, Fin, and Wedge were used for control on this sheet.

Between triangulation stations Cliff and Roost control was obtained by running a theodolite traverse.

SURVEYING METHODS:

Standard plane table methods were used in executing this sheet. Traverses

were run between numerous control points. Rocks were located by plane table cuts and points for elevations were determined in the same way. Elevations were computed using the hypsograph.

SPECIAL SURVEYING METHODS:

A theodolite traverse between triangulation stations Cliff and Roost was executed in the following manner: The theodolite was set up at the initial station (Cliff) and a stake was set up at the first traverse station. An offset stake was set up at right angles to the foresight. The distance between the set-up and off-set stakes was measured with a steel tape. The difference in elevation of the two stakes was determined by raising a pole above the lower and sighting the horizon from the top of the higher. The angle from the first traverse station to triangulation station Puffin was measured to determine the azimuth of the foresight and the horizon was closed. The theodolite was then moved to the first traverse station and the process was repeated sighting on the initial station to determine the azimuth. At this and succeeding traverse stations the angle between the offset stake and setup stakes was measured to determine the distance. The position of the last traverse station #23 and triangulation station Roost were the same point. The traverse was computed and then plotted by plane coordinates and the two positions varied by 76 meters. (see page 94-95 Association of Field Engineer's Bulletin, December 1931)

The results of the traverse were plotted by plane coordinates with the zero at triangulation station Cliff. True north was used as one axis thru triangulation station Cliff and a line drawn at right angles to it was used as the other axis. A plane grid was drawn on the topographic sheet and the stations plotted by latitude and departure.

Computations of this traverse forms part of this report and are attached hereto.

In the easterly lagoon the shoreline was determined by sextant fixes and plotted on the sheet.

FORM LINES:

Cuts were taken with the plane-table to locate points for elevations. The vertical angles were measured from two different set-ups and the mean of the elevations obtained plotted on the sheet.

NEW NAMES:

Ocean Bay -- name in use by fishermen and local inhabitants.

COMPARISON WITH OLD SURVEYS:

The old survey on the outside coast of Sitkalidak Island was reconnaissance in nature and very inaccurate. Black Point as shown on the chart is $1\frac{1}{4}$ miles too far East and $\frac{1}{2}$ mile too far north. The indentations are also erroneously shown on Chart 8502.

MAGNETIC MERIDIAN:

A magnetic meridian was determined at triangulation station Sigma using the declination and a variation of 24 degrees was obtained.

PLANE TABLE POSITIONS:

	<u>Lat.</u>	<u>D.M.</u>	<u>Long.</u>	<u>D.P.</u>	<u>Elev.</u>
Pinnacle Rock (In small cove at Black Point)	56-59	817	153-19	20	50'
Pinnacle Rock (Off point East of Black Point)	57-00	234	153-14	32	15'
Pinnacle Rock (Off of entrance to Ocean Bay near triangulation station Roost)	57-03	453	153-12	525	20'
Pinnacle Rock (At West of entrance to bay out from MacDonald Lagoon)	57-05	1235	153-05	816	67'

STATISTICS:

Miles of shoreline ----- 39.5

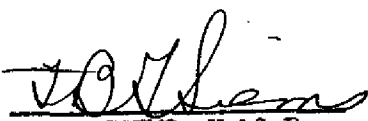
Miles of shoreline, lakes and rivers----- 1.0

Sq. Statute miles of topography.----- 25.0

Respectfully submitted,

sgd. A.C. Thorson.
A.C. Thorson, Jr. H.&G.E.
U.S.C. & G.S.S. SURVEYOR

Approved and Forwarded:


F.B.T. SIEMS, H.&G.E.
Chief of Party, C.&G.S.

* COMPUTATION

(Az - Cliff to Puffin 114°-38'-04")

Station	Measured Offset m	Diff. Elev. ft.	Horizon. Offset m	A log	Distance L	B log tan	A-B log Linear Distance	
A Cliff	15	0.0	15.0000	1.176 09	2- 44 48	8.681 02	2.495 07	312.7
(Half) 1/2	30	1.5	29.9965	1.477 07	2 50 53	8.696 78	2.780 29	603.0
1	20	0.0	20.0000	1.301 03	1 18 56	8.361 06	2.939 97	870.9
2	20	0.0	20.0000	1.301 03	2 31 28	8.644 32	2.656 71	453.6
3	30	2.5	29.9904	1.476 98	2 45 20	8.682 42	2.794 56	623.0
4	30	0.5	29.9997	1.477 11	2 43 10	8.676 68	2.800 43	631.6
5	30	0.0	30.0000	1.477 12	3 32 54	8.792 46	2.684 66	483.7
6	30	0.0	30.0000	1.477 12	4 33 05	8.900 94	2.576 18	376.9
7	30	2.0	29.9938	1.477 03	8 13 10	9.159 71	2.317 32	207.6
8	30	2.0	29.9938	1.477 03	4 26 32	8.890 35	2.586 68	386.0
9	30	0.0	30.0000	1.477 12	3 56 56	8.839 04	2.638 08	434.6
10	30	0.0	30.0000	1.477 12	4 14 50	8.870 78	2.606 34	404.0
11	30	0.0	30.0000	1.477 12	8 19 58	9.165 74	2.311 38	204.8
12	30	3.1	29.9849	1.476 91	9 37 22	9.229 29	2.247 62	176.9
13	25	0.0	25.0000	1.397 94	4 27 23	8.891 74	2.506 20	320.8
14	30	0.0	30.0000	1.477 12	6 04 00	9.026 45	2.450 67	282.3
15	30	2.2	29.9925	1.477 01	5 53 28	9.013 61	2.463 40	290.7
16	25	0.0	25.0000	1.397 94	3 51 20	8.828 62	2.569 32	371.0
17	30	0.0	30.0000	1.477 12	4 16 10	8.873 05	2.604 07	401.9
18	30	1.6	29.9960	1.477 06	4 40 57	8.913 32	2.563 74	366.2
19	30	3.85	29.9771	1.476 79	4 37 57	8.908 64	2.568 15	370.0
20	30	7.4	29.9150	1.475 89	4 06 35	8.856 44	2.619 45	416.3
21	30	0.0	30.0000	1.477 12	1 57 53	8.535 35	2.941 77	874.5
22	30	2.3m	29.9170	1.475 92	1 40 15	8.464 93	3.010 99	1025.6
Δ Roost 23								1038.6
(9 to land)	30	6.2	29.9404	1.476 25	3 21 05	8.767 60	2.708 65	511.3

OF THEODOLITE TRAVERSE USING

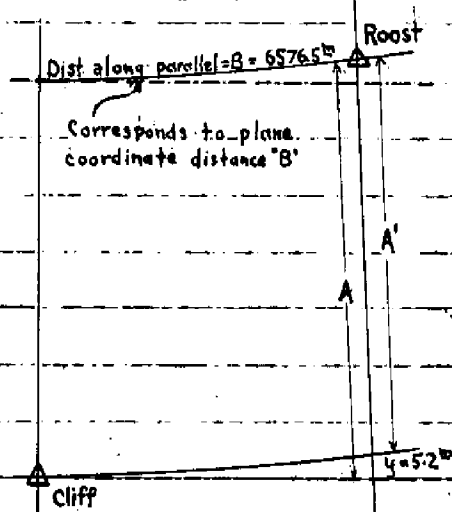
$\times \frac{1}{2}$ to Puffin ° 1 & Cliff Diff. Az.	Δ Cliff to $\frac{1}{2}$ + $\frac{1}{2}$ to 1, etc. °	C Log Sin	$[(A-B)+C]$ ^{log} Diff Dep	D Log Cos	$[(A-B)+D]$ ^{Log} Diff Lat
* 136 21 45	* 114 38 04	9.95856		9.619 96	
136 21 45	280 59 49	-9.97566	2.470 73	-9.512 71	2.007 78
$\frac{1}{2}$ 189 25 34	241 34 15	-9.944 19	2.724 48	-9.677 67	2.457 96
1 180 49 40	240 44 35	-9.940 73	2.880 70	-9.689 07	2.629 04
2 148 49 13	271 55 22	-9.999 76	2.656 47	+8.525 72	1.182 43
3 203 07 10	248 48 12	-9.969 58	2.764 14	-9.558 19	2.352 75
4 180 56 00	247 52 12	-9.966 77	2.767 20	-9.576 01	2.376 44
5 181 55 50	245 56 22	-9.960 52	2.645 18	-9.610 34	2.295 00
6 170 11 00	255 45 22	-9.986 44	2.562 62	-9.391 02	1.967 20
7 187 50 27	247 54 55	-9.966 91	2.284 23	-9.575 16	1.892 48
8 191 05 50	236 49 05	-9.922 69	2.509 37	-9.738 23	2.324 91
9 192 18 47	224 30 18	-9.845 70	2.483 78	-9.853 20	2.491 28
10 192 37 10	211 53 08	-9.722 82	2.329 16	-9.928 96	2.535 30
11 187 48 10	204 07 58	-9.611 57	1.922 95	-9.960 28	2.271 66
12 169 21 43	214 46 15	-9.756 10	2.003 72	-9.914 58	2.162 20
13 176 19 20	218 26 55	-9.793 66	2.299 86	-9.893 85	2.400 05
14 177 25 47	221 01 08	-9.817 11	2.267 78	-9.877 66	2.328 33
15 170 48 35	230 12 33	-9.885 58	2.348 98	-9.806 17	2.269 57
16 185 37 58	224 34 35	-9.846 25	2.415 57	-9.852 67	2.421 99
17 198 25 00	206 09 35	-9.644 32	2.248 39	-9.953 07	2.557 14
18 166 00 05	220 09 30	-9.809 49	2.373 23	-9.883 24	2.446 98
19 209 53 47	190 15 43	-9.250 78	1.818 93	-9.993 00	2.561 15
20 155 02 45	215 12 58	-9.760 92	2.380 37	-9.912 21	2.531 66
21 217 14 50	177 58 08	+8.549 52	1.491 29	-9.999 73	2.941 50
22 170 26 23	168 24 31	+9.303 05	2.314 04	-9.99 105	3.002 04
Az 9 to 10	224 30 18				
X 10 to Lard	103 18 52				
Az 9 to Lard	327 49 10	-9.726 39	2.435 04	+9.927 56	2.636 21

OFFSETS

Coordinates

Dep. Meters	Lat. Meters	Sta.	Dep.	Lat.
		Δ Cliff	0.000	0.00
295.62	101.81	1/2	295.6	101.8
530.25	287.05	1	825.9	388.9
759.80	425.64	2	1585.7	814.5
453.39	-15.22	3	2039.1	799.3
580.95	225.29	4	2620.0	1024.6
585.06	237.92	5	3205.1	1262.5
441.76	197.24	6	3646.8	1459.7
365.28	92.73	7	4012.1	1552.5
192.41	78.07	8	4204.5	1630.5
323.12	211.31	9	4527.6	1841.8
304.64	309.94	10	4832.3	2151.8
213.38	343.00	11	5045.7	2494.8
83.74	186.92	12	5129.4	2681.7
100.86	145.28	13	5230.3	2827.0
199.47	251.22	14	5429.7	3078.2
185.26	212.98	15	5615.0	3291.2
223.35	186.03	16	5838.3	3477.2
260.36	264.23	17	6098.7	3741.4
177.18	360.69	18	6275.9	4102.1
236.17	279.89	19	6512.0	4382.0
65.91	364.04	20	6578.0	4746.1
240.09	340.14	21	6818.05	5086.2
-31.00	873.98	22	6787.05	5960.2
-206.08	1004.70	23	6580.97	6964.88
			6576.5	6958.9
			45	6.0

CHECK



A' = Difference in latitude (Geographic)

A = Plane latitude difference

A = A' + y (from Polyconic Projection Tables)

y (from Polyconic Table) = 5.2 meters

	Latitude	Longitude
Δ Cliff	56° 59' 28.96"	153° 19' 04.06"
Δ Roost	57° 03' 13.75"	153° 12' 33.97"
A	03° 44.79'	8° 06' 30.09"
	5568.1	5057.7
	1361.2	1011.5
	21.6	505.8
	2.8	1.5
A	6953.7 meters	B = 6576.5 meters
y	5.2 "	
A+y	6958.9 "	

Error of closure = $\sqrt{(45)^2 + (6.0)^2}$
= 76 meters.

+272.30 - 432.71 Land 4799.9 1409.1

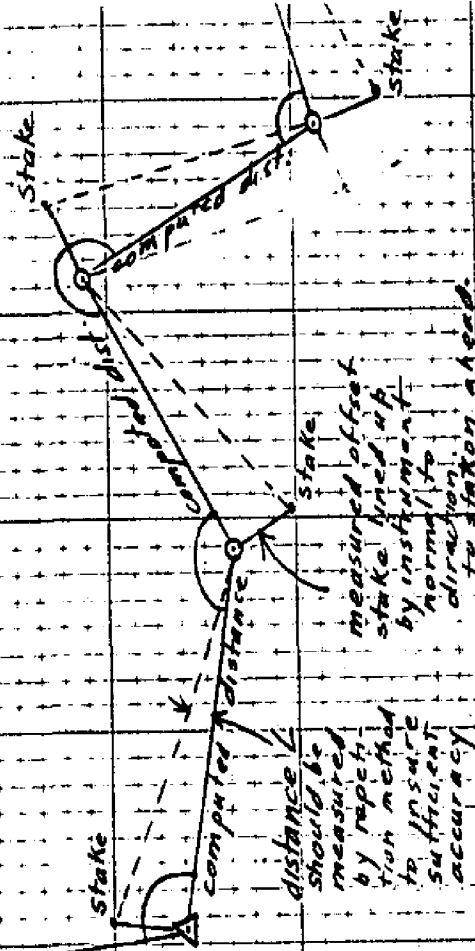
Computed JBU

copy c 813
4200

[illegible][illegible][illegible][illegible][illegible][illegible]

DIAGRAM OF TRAVERSE

see page 95 - Assoc. Field Engrs. Bulletin
and Descriptive Report Topo sheet E



* of Chief of Party
Intention was to measure distance
angle with greater degree of accuracy
namely to measure the angle 3D &
3R by repetition instead of single
pointings as below.

Station #8	#9	00	00	55	58
(30 m) N	#7	191	05	45	48.50
	30 m	190	18	58	58.00
West 2-bushes	#9	19		00	58
Station 9	#10	00	00	55	58
(30 m) S	#8	192	18	45	50.4
	30 m	196	45	20	22.19
Even page	#10	00	00	10	08
Station 10	#11	00	00	55	58
(30 m) N	30 m	188	40	10	12.14
	#9	192	37	05	08.10
Even page	#11	00	00	55	58
Station 11	#12	00	00	55	58
(30 m) N	#10	187	45	10	12
	30 m	191	59	55	58
Even page	#12	00	00	05	02
Station 12	#12	00	00	55	58
(30 m) N	#10	187	45	10	12
	30 m	192	00	00	02
Even page	#12	00	00	00	02
Station 13	#13	00	00	55	58
(30 m) N	#11	187	45	10	12
	30 m	192	00	00	02
Even page	#13	00	00	00	02
Station 14	#14	00	00	55	58
(30 m) N	#12	187	45	10	12
	30 m	192	00	00	02
Even page	#14	00	00	00	02
Station 15	#15	00	00	55	58
(30 m) N	#13	187	45	10	12
	30 m	192	00	00	02
Even page	#15	00	00	00	02
Station 16	#16	00	00	55	58
(30 m) N	#14	187	45	10	12
	30 m	192	00	00	02
Even page	#16	00	00	00	02
Station 17	#17	00	00	55	58
(30 m) N	#15	187	45	10	12
	30 m	192	00	00	02
Even page	#17	00	00	00	02
Station 18	#18	00	00	55	58
(30 m) N	#16	187	45	10	12
	30 m	192	00	00	02
Even page	#18	00	00	00	02
Station 19	#19	00	00	55	58
(30 m) N	#17	187	45	10	12
	30 m	192	00	00	02
Even page	#19	00	00	00	02
Station 20	#20	00	00	55	58
(30 m) N	#18	187	45	10	12
	30 m	192	00	00	02
Even page	#20	00	00	00	02
Station 21	#21	00	00	55	58
(30 m) N	#19	187	45	10	12
	30 m	192	00	00	02
Even page	#21	00	00	00	02
Station 22	#22	00	00	55	58
(30 m) N	#20	187	45	10	12
	30 m	192	00	00	02
Even page	#22	00	00	00	02
Station 23	#23	00	00	55	58
(30 m) N	#21	187	45	10	12
	30 m	192	00	00	02
Even page	#23	00	00	00	02
Station 24	#24	00	00	55	58
(30 m) N	#22	187	45	10	12
	30 m	192	00	00	02
Even page	#24	00	00	00	02
Station 25	#25	00	00	55	58
(30 m) N	#23	187	45	10	12
	30 m	192	00	00	02
Even page	#25	00	00	00	02
Station 26	#26				

Six 3/11/2016

Station 00 = 0.00
 Interpolated = 15m (2)

Blade
 2/10/2016
 Puffin = 1
 130 0.9
 10 15
 00 55
 1 - Puffin = 00 00 00 55

Station # 1
 #2 00 00 00 55
 Cliff 184 0.2 10 45
 (15m) 185 0.0 10 75
 Puffin 223 0.2 45 45
 #2 0.5 0.0

See page 17
 Station # 2
 (15' lower than 1)

Int 20m (5)
 #3 00 00 00 55
 20m 147 30 10 15
 #1 148 49 05 10
 #3 00 00 55 50

147-30-20-25
 148-49-05-10
 149-00-00-55
 150-00-00-50

Station # 3
 15' higher than 2

Int 30m (5)
 #4 00 00 00 55
 20m 200 15 40 45
 #2 203 07 05 15 10 10

Station # 4
 30m Station 2' lower
 (2.5)

5

7/20/15

Wht 30 N 30m

~~V13: better than 5
ground level
effect of 5' lower~~

ground level
offset 0.5' lower

top of 0.6' covered

Station 5-46

net 30 m 30 m #6

Leavel pg

talon 6 #7

$$f(30m) \approx 30m$$

Even Days

Section 7 #8

30 min	30 min
--------	--------

about 20' higher

—Z

Station 12	# 13	00	00	00	55	58
	# 11	169	21	30	35	32
(30 N)	30 m	177	41	30	40	41
	# 13			45	40	30
Offset Peg 3,1 ft						✓

Station 13	# 12	00	00	00	55	58
	# 12	176	19	15	20	18
(25 m N)	30 m	185	56	35	45	42
	# 14			00	50	58
Pegs even						✓

Station 14	# 15	00	00	00	55	58
	# 13	177	25	40	50	47
(30 m N)	25 m	181	53	05	10	08
	# 15	00	00	00	55	58
Pegs even						✓

Station 15	# 16	00	00	00	55	58
	# 14	170	48	15	25	20
(30 m N)	30 m	176	52	15	25	35
	# 16			35	30	32
Offset 22' high						✓

Station 16	# 17	00	00	00	55	58
	# 16	185	37	45	55	50
(25 m N)	30 m	191	31	15	20	18
	# 17			45	45	45
Pegs level						✓

Station	Time	Temp	Wind	Clouds	Pressure	Humidity	Visibility	Remarks
17	00	00	00	00	00	00	00	154.0
	16	19.8	2.4	5	5	5	5	154.0
	25m	20.2	16	15	20	20	20	154.0
	4	19	25	25	25	25	25	154.0

Eastern page	11	11
Western page	11	11

	#	00	60	58
Dta 18	19	00	00	58
(1)	17	00	60	05
		55		58
				51

100m	200m	400m	800m	1600m	3200m	6400m	12800m	25600m	51200m	102400m	204800m	409600m	819200m	1638400m	3276800m	6553600m	13107200m	26214400m	52428800m	104857600m	209715200m	419430400m	838860800m	1677721600m	3355443200m	6710886400m	13421772800m	26843545600m	53687091200m	107374182400m	214748364800m	429496729600m	858993459200m	1717986918400m	3435973836800m	6871947673600m	13743895347200m	27487790694400m	54975581388800m	109951162777600m	219902325555200m	439804651110400m	879609302220800m	1759218604441600m	3518437208883200m	7036874417766400m	14073748835532800m	28147497671065600m	56294995342131200m	112589990684262400m	225179981368524800m	450359962737049600m	900719925474099200m	1801439850948198400m	3602879701896396800m	7205759403792793600m	14411518807585587200m	28823037615171174400m	57646075230342348800m	115292150460684697600m	230584300921369395200m	461168601842738790400m	922337203685477580800m	1844674407370955161600m	3689348814741910323200m	7378697629483820646400m	14757395258967641292800m	29514790517935282585600m	59029581035870565171200m	118059162071741130342400m	236118324143482260684800m	472236648286964521369600m	944473296573929042739200m	1888946593147858085478400m	3777893186295716170956800m	7555786372591432341913600m	15111572745182864683827200m	30223145490365729367654400m	60446290980731458735308800m	120892581961462917470617600m	241785163922925834941235200m	483570327845851669882470400m	967140655691703339764940800m	1934281311383406679529881600m	3868562622766813359059763200m	7737125245533626718119526400m	15474250491067253436239052800m	30948500982134506872478105600m	61897001964269013744956211200m	123794003928538027489912422400m	247588007857076054979824844800m	495176015714152109959649689600m	990352031428304219919299379200m	1980704062856608439838598758400m	3961408125713216879677197516800m	7922816251426433759354395033600m	15845632502852867518708790067200m	31691265005705735037417580134400m	63382530011411470074835160268800m	126765060022822940149670320537600m	253530120045645880299340641075200m	507060240091291760598681282150400m	1014120480182583521197362564300800m	2028240960365167042394725128601600m	4056481920730334084789450257203200m	8112963841460668169578900514406400m	16225927682921336339157801028812800m	32451855365842672678315602057625600m	64903710731685345356631204115251200m	129807421463370690713262408230502400m	259614842926741381426524816461004800m	519229685853482762853049632922009600m	1038459371706965525706099265844019200m	2076918743413931051412198531688038400m	4153837486827862102824397063376076800m	8307674973655724205648794126752153600m	16615349947311448411297588253504307200m	33230699894622896822595176507008614400m	66461399789245793645190353014017228800m	132922799578491587290380706028034457600m	265845599156983174580761412056068915200m	531691198313966349161522824112137830400m	1063382396627932698323045648224275660800m	2126764793255865396646091296448551321600m	4253529586511730793292182592897102643200m	8507059173023461586584365185794205286400m	17014118346046923173168730371588410572800m	34028236692093846346337460743176821145600m	68056473384187692692674921486353642291200m	136112946768375385385349842972707284582400m	272225893536750770770699685945414569164800m	544451787073501541541399371890829138329600m	1088903574147003083082798743781658276659200m	2177807148294006166165597487563316553318400m	4355614296588012332331194975126633106636800m	8711228593176024664662389
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Station	Time	Lat	Long	Alt	Temp	Wind	Clouds	Remarks
Sta 19	# 20	00	00	00	55	58		
	# 19	209	53	40	50	45		
(30m N)	20m	214	54	40	45	42		
	# 20			00	55	58		

offset 3.85 higher

[illegible]

(30 m N)				
#	19	15.5	0.2	4.5
				4.5
30 m		15.9	4.0	4.5
#	21			0.5
				0.0
				0.2

OFFSET	-7.4	ft high	✓
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A vertical rectangular sheet of white paper featuring a light gray grid pattern. The grid consists of small squares formed by thin horizontal and vertical lines. There are approximately 20 columns and 30 rows of squares across the page.

(E)

Station	Time	Temp	Wind	Clouds	Pressure	Humidity	Visibility	Remarks
17	00	00	00	00	00	00	00	154.0
	16	19.8	2.4	5	5	5	5	154.0
	25m	20.2	16	15	20	20	20	154.0
	4	19	25	25	25	25	25	154.0

Eastern page	11	11
Western page	11	11

[illegible]

100m	200m	400m	800m	1600m	3200m	6400m	12800m	25600m	51200m	102400m	204800m	409600m	819200m	1638400m	3276800m	6553600m	13107200m	26214400m	52428800m	104857600m	209715200m	419430400m	838860800m	1677721600m	3355443200m	6710886400m	13421772800m	26843545600m	53687091200m	107374182400m	214748364800m	429496729600m	858993459200m	1717986918400m	3435973836800m	6871947673600m	13743895347200m	27487790694400m	54975581388800m	109951162777600m	219902325555200m	439804651110400m	879609302220800m	1759218604441600m	3518437208883200m	7036874417766400m	14073748835532800m	28147497671065600m	56294995342131200m	112589990684262400m	225179981368524800m	450359962737049600m	900719925474099200m	1801439850948198400m	3602879701896396800m	7205759403792793600m	14411518807585587200m	28823037615171174400m	57646075230342348800m	115292150460684697600m	230584300921369395200m	461168601842738790400m	922337203685477580800m	1844674407370955161600m	3689348814741910323200m	7378697629483820646400m	14757395258967641292800m	29514790517935282585600m	59029581035870565171200m	118059162071741130342400m	236118324143482260684800m	472236648286964521369600m	944473296573929042739200m	1888946593147858085478400m	3777893186295716170956800m	7555786372591432341913600m	15111572745182864683827200m	30223145490365729367654400m	60446290980731458735308800m	120892581961462917470617600m	241785163922925834941235200m	483570327845851669882470400m	967140655691703339764940800m	1934281311383406679529881600m	3868562622766813359059763200m	7737125245533626718119526400m	15474250491067253436239052800m	30948500982134506872478105600m	61897001964269013744956211200m	123794003928538027489912422400m	247588007857076054979824844800m	495176015714152109959649689600m	990352031428304219919299379200m	1980704062856608439838598758400m	3961408125713216879677197516800m	7922816251426433759354395033600m	15845632502852867518708790067200m	31691265005705735037417580134400m	63382530011411470074835160268800m	126765060022822940149670320537600m	253530120045645880299340641075200m	507060240091291760598681282150400m	1014120480182583521197362564300800m	2028240960365167042394725128601600m	4056481920730334084789450257203200m	8112963841460668169578900514406400m	16225927682921336339157801028812800m	32451855365842672678315602057625600m	64903710731685345356631204115251200m	129807421463370690713262408230502400m	259614842926741381426524816461004800m	519229685853482762853049632922009600m	1038459371706965525706099265844019200m	2076918743413931051412198531688038400m	4153837486827862102824397063376076800m	8307674973655724205648794126752153600m	16615349947311448411297588253504307200m	33230699894622896822595176507008614400m	66461399789245793645190353014017228800m	132922799578491587290380706028034457600m	265845599156983174580761412056068915200m	531691198313966349161522824112137830400m	1063382396627932698323045648224275660800m	2126764793255865396646091296448551321600m	4253529586511730793292182592897102643200m	8507059173023461586584365185794205286400m	17014118346046923173168730371588410572800m	34028236692093846346337460743176821145600m	68056473384187692692674921486353642291200m	136112946768375385385349842972707284582400m	272225893536750770770699685945414569164800m	544451787073501541541399371890829138329600m	1088903574147003083082798743781658276659200m	2177807148294006166165597487563316553318400m	4355614296588012332331194975126633106636800m	8711228593176024664662389
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Station	Time	Lat	Long	Alt	Temp	Wind	Clouds	Remarks
Sta 19	# 20	00	00	00	55	58		
	# 19	209	53	40	50	45		
(30m N)	20m	214	54	40	45	42		
	# 20			00	55	58		

offset 3.85 higher

[illegible]

(30 m N)	#	19	15.5	0.2	4.5	4.5	73
	30 m		15.9	40	40	4.5	47
	#	21			0.5	0.0	0.2

OFFSET - 7.4 ft high	✓
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[illegible]

(E)

01/18

OFFICE 15M(V)

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42

△ Puffin

EVERETT

Case 1:11-cv-00001-UNA Document 1-1 Filed 01/11/12 Page 1 of 1

OFFICE 1304(S)

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