4711

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R.S.PATTON, *Director*

State: S.W.ALASKA

DESCRIPTIVE REPORT

Topographic / ~~*Hydrographic*~~ *Sheet No.* E 4711

LOCALITY

TRINITY ISLANDS

SOUTH COAST OF SITKINAK ISLAND

19 32

CHIEF OF PARTY

F.B.T.SIEMS, H.&G.E.

U. S. GOVERNMENT PRINTING OFFICE: 1931

DESCRIPTIVE REPORT

TO ACCOMPANY

TOPOGRAPHIC FIELD SHEET NUMBER "E"

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

INSTRUCTIONS DATED APRIL 22, 1932.

4711

GENERAL DESCRIPTION:

Sitkinak Island is divided by a lagoon having a shoal narrow entrance on the north shore and one on the south coast of the Island. The latter is shown on this sheet. On the west side of the lagoon a comparatively high ridge extends in a southerly direction across the entire Island with low land between the ridge and lagoon. While on the east side of the lagoon there are numerous hills with intervening low valleys. The ridge on the west side of the laggon and the hills on the east side of the lagoon rise abruptly where they border on the shore and have numerous shale slides and loose rock. Due to this formation it is practically impossible to obtain a steady foothold on any part of the bluffs.

Coal deposits are known to exist on Sitkinak Island. Stratas of coal have been seen along the bluffs on the east and west side of Sitkinak Lagoon.

Fronting the low land a sand and gravel beach extends from near the western limits of the sheet to the entrance to the lagoon. From there eastward to signal MOR and from signal PIN eastward the entire beach is fringed with boulders. Foul ground and an extensive field of heavy kelp lie adjacent to this shoreline. A sandy beach extends between signals MOR to PIN. The sea is generally breaking over this extensive foul ground. The kelp is thicker outside of the shoal inshore areas. At the eastern part of the entrance to Sitkinak Lagoon or what may be considered as its approach there are a number of reefs which bare at MLLW with numerous scattered rocks, so that the entrance is restricted to a skiff at low water on a calm day. There are strong tidal currents at the entrance.

It can safely be said that the entire inshore area from Sitkinak Lagoon eastward is very foul, with but few favorable landing places and these only in the best kind of weather. Probably the best landing places to be found along the shoreline covered by this sheet are in the bight between signals POI and HARD and along the stretch of sandy beach between the entrance to Sitkinak Lagoon and signal UNDER.

SITKINAK LAGOON:

At normal high waters passage can be made through the middle part of Sitkinak Lagoon with a small boat. There is a very narrow channel here of only about 2 feet of depth at normal high water. The bottom of the lagoon consists of fine loose sand and marsh. Due to the bottom characteristic and from general appearances the channel probably shifts. On account of the shallow depths it was not considered important to determine the location of the entire length of channel in the lagoon. It may have some advantages as an air base.

SURVEY METHODS:

The triangulation scheme covering Sitkinak Island includes a series of mountain stations (CONE, TIP, FAIR, PYRAMID, OCEAN VIEW, and EQUINOX) along the south coast, but in the main invisible from the shore on account of steep slopes and inaccessible for planetable connection. Eastward of Sitkinak Lagoon along the south shore no two of these stations are visible for establishing an intersection station. The mountain stations, however, are visible some distance offshore, permitting three point fixes and sextant "cuts" to shore stations.

Key stations ENT, WALL, POI, HARD and BIG were located by sextant cuts from three point fixes based on triangulation stations. Reduction to the horizontal for differencies in elevation of stations were made for inclined angles. The resulting data was carefully plotted on hydrographic sheet No. 21, which underwent no preceptible distortion. The projection construction and plotting of triangulation stations was also done with the utmost care. The sheet was well seasoned and of heavy linen backed paper (Weil #10)

In each case the intersection of at least four sextant cuts were perfect leaving no doubt as to the accuracy of the positions of the key stations as plotted on sheet 21. (H.5231)

The key stations were then used for three point fixes from which sextant cuts were taken to intermediate stations; their locations were plotted on Sheet 21 also resulting in excellent intersections. These numerous sextant determinations were considered expedient in view of the poor accessibility of the coast in general and the bold character of the shore. Theodolite cuts from triangulation stations TIP and SEND were used to supplement the sextant cuts to stations, Record of observations will be found indexed on P.2 Vol. 1 of Sounding Record for Sheet #21.

The key and intermediate stations as located on Sheet 21 were carefully transferred to the topographic sheet. Traverses by plane table were run between the key stations accepted as fixed, checking on the intermediate stations along the traverses.

The survey in the vicinity of Sitkinak Lagoon and the coast westward of the entrance to the lagoon, is controlled by direct traverse connection to - or occupation of - triangulation stations SEND, NOX, ABE, and UNDER (see next paragraph). In addition the mountain stations FAIR, TIP and DOME were used with the others to obtain three point fixes and in resecting.

As triangulation station TIP at the top of a cliff was inaccessible for direct traverse connection with plane table; a fourth order triangulation station UNDER at the foot of the cliff was established for this purpose and to form the western terminus of season's topography. Signal UNDER was located by occupying TIP, SEND and UNDER with a theodolite. At TIP an eccentric station was necessary near the edge of the cliff in order to see UNDER and this line of sight is only about 33 degrees from the vertical. TIP and the eccentric station at TIP were not visible from UNDER but an approximate check was obtained by measuring the angles between SEND and PYRAMID at UNDER. Station UNDER was marked with a hydrographic station mark and is shown on the topographic sheet as a topographic station being a triangulation station of only fourth order accuracy. The station is described under recoverable plane table positions. Observations and computations for the location of

UNDER are attached to this report. The traverse run by plane table and stadia from SEND to UNDER checked without error in distance or azimuth.

STATISTICS:

Shoreline ---------- 16.5 statute miles.

REMARKS:

Due to general adverse weather conditions experienced during the time spent by the party in this locality (see season's report) the survey on this sheet is incomplete. Approximately three miles of shoreline along the S.E. Coast of Sitkinak Island from signal MID to the junction on insert on Sheet No.4660 is unsurveyed.

Elevation data of the land along the entire coast are incomplete. Elevations only were obtained of the prominent peaks and hills by sextant cuts and otherwise and their location marked on the sheet by a red dot with the elevation in feet adjacent to the dot.

Signal FAR is identical to Signal FARE on Field Sheet No.41. This change being made to avoid duplications as there is a triangulation station named FAR on Tugidak Island.

NEW NAMES:

Sitkinak Lagoon. Referred to as such by the party of 1930.

PLANE TABLE POSITIONS

OBJECT & DESCRIPTION	LAT.	D.M.	LONG.	D.P.	HEIGHT
UNDER - Is on a large conglomerate rock at the base of the ridge on the west side of Sitkinak Lagoon about 1/4 mile southwest from stream west of Sitkinak Lagoon. This station was marked by a hydrographic station mark.	56-29	1337	154-13	191	10 feet above high water
ENT - Is on a sharp point of the rocky bluff on the east side to the entrance to the lagoon.	56-30	337	154-08	510	

Respectfully submitted,

Approved and forwarded,

Chester J. Beyma

Chester J. Beyma, Aid
U.S.C. & G.Survey.

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

APPROVAL NOTE OF CHIEF OF PARTY

The sheet as far as completed is approved.

A tracing on translucent celluloid surfaced to take pencil marks and adaptable for plane table use was made of section of Sheet No.21 (rather than from distorted topographic sheet) embracing the unsurveyed shore line between signals MID 1931 and FOOT 1930. Intermediate stations determined by sextant as plotted on Sheet No. 21 (see Descriptive Report) were also traced. It is recommended that the tracing be used to run plane table traverse using MID, BIG, GIB, FOOT, or ROCK as fixed positions. It is further recommended that form lines be plotted on duplicate of Sheet No. 21 mentioned in descriptive report for Sheet No. 21. (H.5231)

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

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 382

REDUCTION TO CENTER

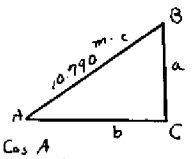
Eccentric Station: **UNDER**

$d =$ **10.5391**

Log $d =$ **1.02282**

Colog sin $1'' =$ 5.3 1 4 4 3

Sum = **6.33725**



b = c Cos A
Log c = 1.033021
Log Cos A = 9.989803
Log b = 1.022825 = 10.5391.

STATIONS	a ° ′	Log sin a	Log s	Log $\frac{\sin a}{s}$	Logarithm of Reduction in Seconds	Reduction = a ″
Center	00 00					
TIP (Ecc)	1 38	8.45489	2.4365	6.0184	2.3557	227"
SEND	119 58	9.93768	3.5129	6.4248	2.7621	578"
PYRAMID	134 08	9.85596	4.0195	5.8365	2.1738	149"

11-684

The required reduction to center is, in seconds, $c = \frac{d \sin a}{s \sin 1''}$, in which d is the distance from the eccentric station to the true station, and s is the length in meters of the line between the true stations involved, and, therefore, log s is taken directly from the computation of triangle sides. a is the direction of the distant station involved, reckoned in a clockwise direction as usual, but referred to the direction from the eccentric to the true station, or center, taken as zero. This definition of a is true for the case in which the object pointed upon is eccentric, as well as for the case in which the instrument is eccentric.

Carry a to minutes only and all logarithms to five decimal places only. Do not in any case carry the derived reductions to more than two decimal places. There is no advantage in carrying them to more decimal places than the directions to which they are to be applied are carried on Form 24 A.

The preceding paragraph fixed the maximum number of decimal places to be used. In some cases a smaller number may be used as indicated in the following table:

IF LOGARITHM OF SHORTEST LINE CONCERNED IS MORE THAN—	AND d IS LESS THAN VALUE STATED BELOW IN METERS—			
	USE LOGARITHMS TO FOUR DECIMAL PLACES AND a TO MINUTES		USE LOGARITHMS TO THREE DECIMAL PLACES AND a TO DEGREES	
	Primary Triangulation	Secondary or Tertiary Triangulation	Primary Triangulation	Secondary or Tertiary Triangulation
2.5	----------	0.6	----------	0.02
3.0	----------	2	----------	0.06
3.5	0.6	6	0.02	0.2
4.0	2	20	0.06	0.6
4.5	6	----------	0.2	2
5.0	20	----------	0.6	6

REDUCTIONS FOR AN ECCENTRIC INSTRUMENT.

If the instrument is eccentric the first column of this form should contain the names of the stations observed from that eccentric position of the instrument.

The values in the fifth column are derived by subtracting those in the fourth column from those in the third. The values in the fourth column may need to be derived by successive approximations from the triangle side computations if the eccentric reductions are large. The values in the sixth column are obtained from those in the fifth by adding log $\frac{d}{\sin 1''}$ derived as indicated in the heading of the form, if d is expressed in meters. If d is expressed in feet, to the other two logarithms add also 9.48402 to convert to meters. To obtain a direction as shown on Form 24 A, subtract the reduction c for the station which is the initial on Form 24 A from the reduction c for the required direction and apply the difference to the observed direction. Similarly, the correction to any angle is the difference of the reductions on this form to the two directions involved in that angle.

REDUCTIONS FOR AN ECCENTRIC OBJECT OBSERVED.

If the object observed is eccentric the heading "Eccentric Station ——" should be changed to "Eccentric Observed Object at Station ——," the first column should contain the names of the stations from which this eccentric object was observed, and in each case a is the direction from the eccentric object to the distant station involved, reckoned in a clockwise direction as usual, but referred to the direction from the eccentric object to the true station, or center, taken as zero. (No distinction need be made between the direction from the eccentric object to the distant station and the direction from the true station to the distant station except when the eccentric reduction is more than one minute.) The remainder of the computation on this form is made in the manner indicated above with reference to an eccentric instrument. The reductions to directions are, however, to be applied to observed directions, at the stations named in the first column, to the eccentric object at the station named in the heading. The directions to which these reductions are to be applied are therefore found in various of the lists of directions on Form 24 A, not all in one list as is the case when the instrument is eccentric.

Compare the following example with that given on Form 24 A.

REDUCTION TO CENTER.

Eccentric Station: Chase.

$d = 10.987$ meters.

Log d = 1.04088
Colog sin 1″ = 5.31443
Sum 6.35531

STATIONS	a ° ′	Log sin a	Log s	Log $\frac{\sin a}{s}$	Logarithms of Reduction in Seconds	Reduction $= c$ ″
Center	0 00					
Central	224 27	9.84528	4.40254	5.44274	1.79805	− 62.81
Little River	242 47	9.94904	4.51928	5.42976	1.78507	− 60.96
Lyons, salt works	249 02	9.97025	4.30616	5.66409	2.01940	−104.57
Bossing	179 18	8.08696	4.49198	3.59498	9.95029	+ 0.89

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 382

REDUCTION TO CENTER

Eccentric Station: TIP

$d =$ 3.380

Log $d =$ 0.52892
Colog sin 1″ = 5.31443
Sum = 5.84335

STATIONS	a ° ′	Log sin a	Log s	Log $\frac{\sin a}{s}$	Logarithm of Reduction in Seconds	Reduction $= c$ n
Center	00 00					
SEND	135 26	9.8462	3.5311	6.3151	2.1585	144"
PYRAMID	146 33	9.7413	4.0273	5.7140	1.5574	36"
UNDER	192 50	9.3466	2.4365	6.9101	2.7535	-568"

11-684

The required reduction to center is, in seconds, $c = \frac{d \sin a}{s \sin 1''}$, in which d is the distance from the eccentric station to the true station, and s is the length in meters of the line between the true stations involved, and, therefore, log s is taken directly from the computation of triangle sides. a is the direction of the distant station involved, reckoned in a clockwise direction as usual, but referred to the direction from the eccentric to the true station, or center, taken as zero. This definition of a is true for the case in which the object pointed upon is eccentric, as well as for the case in which the instrument is eccentric.

Carry a to minutes only and all logarithms to five decimal places only. Do not in any case carry the derived reductions to more than two decimal places. There is no advantage in carrying them to more decimal places than the directions to which they are to be applied are carried on Form 24 A.

The preceding paragraph fixed the maximum number of decimal places to be used. In some cases a smaller number may be used as indicated in the following table:

IF LOGARITHM OF SHORTEST LINE CONCERNED IS MORE THAN—	AND d IS LESS THAN VALUE STATED BELOW IN METERS—			
	USE LOGARITHMS TO FOUR DECIMAL PLACES AND a TO MINUTES		USE LOGARITHMS TO THREE DECIMAL PLACES AND a TO DEGREES	
	Primary Triangulation	Secondary or Tertiary Triangulation	Primary Triangulation	Secondary or Tertiary Triangulation
2.5	----------	0.6	----------	0.02
3.0	----------	2	----------	0.06
3.5	0.6	6	0.02	0.2
4.0	2	20	0.06	0.6
4.5	6	----------	0.2	2
5.0	20	----------	0.6	6

REDUCTIONS FOR AN ECCENTRIC INSTRUMENT.

If the instrument is eccentric the first column of this form should contain the names of the stations observed from that eccentric position of the instrument.

The values in the fifth column are derived by subtracting those in the fourth column from those in the third. The values in the fourth column may need to be derived by successive approximations from the triangle side computations if the eccentric reductions are large. The values in the sixth column are obtained from those in the fifth by adding log $\frac{d}{\sin 1''}$ derived as indicated in the heading of the form, if d is expressed in meters. If d is expressed in feet, to the other two logarithms add also 0.48402 to convert to meters. To obtain a direction as shown on Form 24 A, subtract the reduction c for the station which is the initial on Form 24 A from the reduction c for the required direction and apply the difference to the observed direction. Similarly, the correction to any angle is the difference of the reductions on this form to the two directions involved in that angle.

REDUCTIONS FOR AN ECCENTRIC OBJECT OBSERVED.

If the object observed is eccentric the heading "Eccentric Station ——" should be changed to "Eccentric Observed Object at Station ——," the first column should contain the names of the stations from which this eccentric object was observed, and in each case a is the direction from the eccentric object to the distant station involved, reckoned in a clockwise direction as usual, but referred to the direction from the eccentric object to the true station, or center, taken as zero. (No distinction need be made between the direction from the eccentric object to the distant station and the direction from the true station to the distant station except when the eccentric reduction is more than one *minute*.) The *remainder* of the computation on this form is made in the manner indicated above with reference to an eccentric instrument. The reductions to directions are, however, to be applied to observed directions, at the stations named in the first column, to the eccentric object at the station named in the heading. The directions to which these reductions are to be applied are therefore found in various of the lists of directions on Form 24 A, not all in one list as is the case when the instrument is eccentric.

Compare the following example with that given on Form 24 A.

REDUCTION TO CENTER.

Eccentric Station: Chase.

$d = 10.987$ meters.

Log d = 1.04088
Colog sin 1″ = 5.31443
Sum 6.35531

STATIONS	a ° ′	Log sin a	Log s	Log $\frac{\sin a}{s}$	Logarithms of Reduction in Seconds	Reduction $= c$ ″
Center	0 00					
Central	224 27	9.84528	4.40254	5.44274	1.79805	− 62.81
Little River	242 47	9.94904	4.51928	5.42976	1.78507	− 60.96
Lyons, salt works	249 02	9.97025	4.30616	5.66409	2.01940	−104.57
Bossing	179 18	8.08696	4.49198	3.59498	9.95029	+ 0.89

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 24A
Ed. Aug., 1929

LIST OF DIRECTIONS

Station UNDER *State* S.W.Alaska

Chief of party F.B.T.Siems *Date* 5/6/32 *Computed by* C.J.B.

Observer G.M.M. *Instrument* Berger 7" #291 *Checked by* G.M.M.

OBSERVED STATION	Observed direction	Eccentric reduction	Direction corrected for eccentricity	Sea level reduction*	Corrected direction with zero initial*	Adjusted direction*
	° ′ ″	′ ″	′ ″	″	″	′ ″
Pyramid	00 00 00	02 29	02 29			
Under	225 52 05					
Send	345 49 35	09 38	59 13			

*The last three columns to the right are for office use and should be left blank in the field.

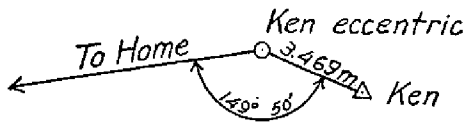
11—9503

Station: Ken | *State:* Maryland

Chief of party: C. V. H. | *Date:* 1917 | *Computed by:* O. P. S.

Observer: C. V. H. | *Instrument:* No. 168 | *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Direction corrected for eccentricity	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	′ ″	″	″	′ ″
Chevy	0 00 00.00	− 7.31	59 52.69			
Tank west of △ Dulce	29 03 37.0	−1 09.8	02 27.2			
Ken (center), 3.469 meters	176 42					
Forest Glen standpipe	313 24 53.0	+3 01.2	27 54.2	(These	three colu	mns are for
Home	326 31 30.21	+ 31.93	32 02.14	office use	only.)	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7	17 26.5			
Reno	357 28 48.63	− 1.16	28 47.47			
Reference mark, 16.32 m	358 31 20					



This form, with the first four columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00′ 00.″ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 24A
Ed. Aug., 1929

LIST OF DIRECTIONS

Station TIP (Ecc) *State* S.W.Alaska

Chief of party F.B.T.Siems *Date* 5/26/32 *Computed by* C.J.B.

Observer G.M.M. *Instrument* Berger 7" #291 *Checked by* G.M.M.

OBSERVED STATION	Observed direction	Eccentric reduction	Direction corrected for eccentricity	Sea level reduction*	Corrected direction with zero initial*	Adjusted direction*
	° ′ ″	′ ″	′ ″	″	″	′ ″
Pyramid	00 00 00	00 36	00 36			
Under	46 26 43	09 28	17 15			
Tip	213 26 55					
Sand	348 53 08	02 24	55 32			
Note:- The angle of depression from TIP (Ecc) to UNDER is approximately 33°						

*The last three columns to the right are for office use and should be left blank in the field.

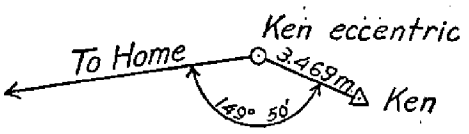
11—9503

Station: Ken | *State:* Maryland

Chief of party: C. V. H. | *Date:* 1917 | *Computed by:* O. P. S.

Observer: C. V. H. | *Instrument:* No. 168 | *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Direction corrected for eccentricity	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	′ ″	″	″	′ ″
Chevy	0 00 00.00	− 7.31	59 52.69			
Tank west of △ Dulce	29 03 37.0	−1 09.8	02 27.2			
Ken (center), 3.469 meters	176 42					
Forest Glen standpipe	313 24 53.0	+3 01.2	27 54.2	(These	three colu	mns are for
Home	326 31 30.21	+ 31.93	32 02.14	office use	only.)	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7	17 26.5			
Reno	357 28 48.63	− 1.16	28 47.47			
Reference mark, 16.32 m	358 31 20					



This form, with the first four columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00′ 00.″ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

COMPUTATION OF TRIANGLES

11—0121

State: S.W.Alaska

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3 Tip - Send						3.531071
	1 Under	(118°35' 18")					0.056466
	2 Tip	57°21' 43"					9.925361
	3 Send	04°02' 59"					8.848941
	1-3 Under - Send						3.512898
	1-2 " Tip						2.436478
	2-3 Tip - Pyramid						4.027326
	1 Under	132° 38'34" **					0.133363
	2 Tip	46° 15' 39"					9.858835
	3 Pyramid	(01° 05' 47")					8.281816
	1-3 Under - Pyramid						4.019524
	1-2 " Tip						2.442505
	2-3	** Angle obtained from triangle No.1 and observed angle SEND to PYRAMID.					
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

			°	′	″
α	2 Tip	to 3 Send	249	28	00
2d ∠		&	+57	21	43
α	2 Tip	to 1 Under	306	49	43
Δα				-	11
			180	00	00.0
α′	1 Under	to 2 Tip	126	49	54
	First Angle of Triangle		118	35	18

			°	′	″
α	3 Send	to 2 Tip	69	30	35
3d ∠		&	- 04	02	59
α	3 Send	to 1 Under	65	27	36
Δα			-	02	24
			180	00	00.0
α′	1 Under	to 3 Send	245	25	12

	°	′	″			°	′	″
φ	56	29	48.52	2 Tip	λ	154	13	23.96
Δφ		-	5.29		Δλ		-	12.78
φ′	56	29	43.23	1 Under	λ′	154	13	11.18

	°	′	″			°	′	″
φ	56	30	27.00	3 Send	λ	154	10	17.98
Δφ		-	43.77		Δλ		02	53.20
φ′	56	29	43.23	1 Under	λ′	154	13	11.18

	Logarithms	Values in seconds
s	2.436478	1337
Cos α	9.777734	(519)
B	8.509603	
h	0.723815	1st term ″ 5.294
s^2	4.872956	
$\sin^2\alpha$	9.806650	
C	1.58201	
	6.261616	2d term +
h^3		
D		
		3d term +
		−Δφ 5.294

½(φ+φ′)	° 56	′ 29	″ 46	
		Logarithms		Values in seconds
s		2.436478		191
Sin α		9.903325		(835)
A′		8.508702		
Sec φ′		0.258056		
Δλ		1.106561		″ -12.78
$\sin\frac{1}{2}(\phi+\phi')$		9.921087		
−Δα		1.027648		10.66

	Logarithms	Values in seconds
s	3.512898	
Cos α	9.618392	
B	8.509602	
h	1.640892	1st term ″ 43.74
s^2	7.025796	
$\sin^2\alpha$	9.917770	
C	1.58222	
	8.525786	2d term + .03
h^3		
D		
		3d term +
		−Δφ 43.77

½(φ+φ′)	° 56	′ 30	″ 05	
		Logarithms		Values in seconds
s		3.512898		
Sin α		9.958885		
A′		8.508702		
Sec φ′		0.258056		
Δλ		2.238541		″ 173.195
$\sin\frac{1}{2}(\phi+\phi')$		9.921114		
−Δα		2.159655		144.43

11—0362 U. S. GOVERNMENT PRINTING OFFICE: 1929

REVIEW OF TOPOGRAPHIC SHEET No. 4711

Title (Par.56) South Coast of Sitkinak I. Kodiak I. Alaska

Chief of Party F.B.J. Sieus Surveyed by O.J. Beyma Inked by O.J. Beyma

Ship Surveyor Instructions dated Apr. 22, 1932 Surveyed in 1932

1. The survey and preparation for it conform to the requirements of the Topographic Manual (Pars. 7, 8, 9, 13, 16). ✓

2. The character and scope of the survey satisfy the specific instructions. ✓ Sheet incomplete due to close of season and adverse weather conditions.

3. The control and closures of traverses were adequate. (Par. 12, 29.) ✓

4. The amount of vertical control that the Manual specifies for ~~-contours-~~formlines- was accomplished. (Par. 18, 19, 20, 21, 22, 23.) as stated in the descriptive report the elevation data along the entire coast are incomplete.

5. The delineation of ~~-contours-~~formlines- is satisfactory. (Par. 49,50.) none on sheet, to be added in future surveys

6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.)

7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ✓

8. The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41.) Rock awash symbol used for bare rocks in several cases where legend shows rocks bare at HHW. Both legend and symbol were changed to conform to regular usage.

9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.) no previous surveys in this vicinity.

10. The span, draw and clearance of bridges are shown. (Par. 16c.)

11. Locations and elevations of summits are given. (Par. 19, 51.) ✓

Form 250
Ed. July, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

_____, *Director.*

State: _____

OBSERVATIONS

OF

HORIZONTAL ANGLES

LOCALITY

INSTRUMENT

192

CHIEF OF PARTY

_____ *Vols.* *Vol.* _____

GOVERNMENT PRINTING OFFICE 11—727

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: STATE:

OBSERVER:

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′	

Do not write in this margin

ANGLES

ISLAND OR COUNTY:

DATE:

INSTRUMENT:

	A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND B ° ′ ″	REMARKS

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Hudson (Eccentric) STATE: Alaska

OBSERVER: G. M. Marchand

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° '
A Pyramid	9:30		0	00 00
to		D	1	227 28
			3	322 27
A Tip (Ecc)		D	6	284 54
		R	6	359 53
A Pyramid		D	1	00 00
		R	1	180 00
(Pen-tail) Hudson		D	1	225 51
		R	1	45 52
Pyramid		D	1	00 00
		R	1	180 00

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak Island DATE: 5/6/32

INSTRUMENT: Berger 7" No. 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
00	10	05		Dist. to Under = 10.790 =
				clear - Sunshine
40				Focusing screw on
10	10			telescope very tight
50	00			Unable to get it
50	40			to function without
				putting much force
				on screw.
00		00		
00			0 0 0	
40		40		✓
30		30	225-52-05	Dist. - Axis of
				Telescope to "Under"
00		00		= 10,790 =
00		00	—	Vert. ∠ = 12° 22'

Do not write in this margin

✓ CJB

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Under (Ecc) STATE: Alaska

OBSERVER: G.M.M.

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′	
Pyramid	10:00	-	0	00 00	
to		D	1	227 29	
		D	3	322 27	
Δ Tip (Ecc) - Conclude this + - dist + direction not measured		R	3	359 57	
Δ Tip (Ecc) -		D	0	00 00	
to		D	1	118 20	
		D	3	355 00	
Δ Send		R	3	00 04	
Δ Send		D	0	00 00	
to			1	14 10	
		D	3	42 30	
Pyramid		R	3	00 00	

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 291 - 7"

11—707

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
00	10	05 ✓		Dist to Under = 10.790 =
				(Inclined from axis of
10				telescope) - Vert ∠ = 12°22'
30	40	35 ✓	227 29 10.0	
40	50	45 ✓	56.6 ✓	227-29-33.3 ✓ +12.3 45.6 ✓
			33.3 ✓	Focusing screw always "frozen"
				Great discrepancy between
00	05	02.5 ✓		elevations of Under (Ecc)
				+ Δ Tip (Ecc) - Under is
20				at sea level whereas Tip
50	60	55 ✓	118 20 17.5	is about 650 ft high &
00	10	05 ✓	18 56.6 ✓	118-19-37.0 ✓ +12.3 49.3 ✓
			19 37.0 ✓	It's only 300 meters
				(approx) from "Under"
00	05	02.5 ✓		
20				
50	50	50 ✓	14 10 15.8 ✓	14 - 10 - 12.9 ✓
20	20	20 ✓	10.0 ✓	+12.2 25.1
			12.9 ✓	
			Comp ✓	✓ cpc.

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Tip (Ecc.) STATE: Alaska

OBSERVER: G.M.A.

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° '	
	P.M.				
Pyramid	12:30		0	00	00
			1		
to		D	1	46	27
		D	3	139	21
Under		R	3	00	02
Under			0	00	00
to			1	302	26
		D	3	187	18
Spud		R	3	359	58
Spud			0	00	00
to			1	11	06
		D	3	33	20
Pyramid		R	3	00	00

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak — DATE: 5/6/32

INSTRUMENT: 7" # 291

11 787

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "			REMARKS
						Note: Tip (E end) is not the point sighted upon from "Under".
00	05	02.5				Very windy -
						clear
00						See notes on page 3
00	00	00	46	26	59.2	line Tip -
00	00	00			20.0	46-26-39.6
					39.6	+ 3.8
						43.4
00	10	05				
30						
30	30	30	302	26	08.3	
45	50	47.5			34.1	302-26-21.2
					21.2	+ 3.8
						25.0
00	00	00				
50						
30	30	30	11	06	50.0	
10	15	12.5			45.8	11-06-47.9
						+ 3.7
						51.6

Comp [illegible] cdb

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Tip (Ecc.) STATE: Alaska

OBSERVER: G.M.M.

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′
Pyramid		D		00 00
		R		180 00
Δ Tip		D		213 27
		R		33 26
Pyramid		D		00 00
		R		180 00

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 7" Berger 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
00				Dist. = 3.380 = (Tip Ecc. - Tip)
00				
30		30 ✓		
20		20 ✓	213-26-55 ✓	
00				Overlooked measuring the distance & azimuth to point sighted upon from "Under". However this is not necessary as "Under" may be computed by concluding the angle Tip-Sand.
00				

Do not write in this margin

✓ C&GS

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

Cuts

HORIZONTAL

STATION: Tip 1930 STATE: Alaska

OBSERVER: G. M. M.

11-727

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REF'S	ANGLE ° '
A Pyramid		D		00 00
		R		180 00
W.W. (Ent)		D		01 10
		R		181 10
W.W (Nan)		D		02 33
		R		182 33
W.W (Nel)		D		05 48
		R		185 48
W.W (Can)		D		07 47
		R		187 47
W.W (Gull)		D		08 00
		R		188 01
W.W (Bud) Tide		D		08 39
		R		188 39

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ′ ″	REMARKS
00	00			
00	00	00	00 00 00	
00				
20		10 ✓	01 10 10 ✓	
30				
40		35 ✓	02 33 35 ✓	
50				
50		50 ✓	05 48 50 ✓	
10				
30		20 ✓	07 47 20 ✓	
40		✓		
10		00-55	08 00 55 ✓	
20				
30		25 ✓	08 39 25 ✓	
		(over)		✓ C 703

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Tip, 1930 STATE: Alaska

OBSERVER: G.M.M.

11 727

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′
W.W. (Pop) above H.W. line		D		09 19
		R		189 19
W.W (Way) ?		D		09 56
		R		189 56
W.W. (Poi)		D		11 00
		R		191 00
Black Square-Topped rock		D		187 18
		R		07 18
Mt. Peak to rt of Dome		D		302 19
		R		122 19
W.W. on log.		D		346 03
		R		166 03
Banner (Bo) west of Sand		D		346-41
		R		166-41

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 7" Berger 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
10				
20		15 ✓	09 19 15 ✓	
30				
40		35 ✓	09 56 35 ✓	
20				
40		30 ✓	11 00 30 ✓	
30				This appears to be
40		35 ✓	187 18 35 ✓	a rock on a sand
				spit between Tipotenz
30				
50		40 ✓	302 19 40 ✓	
			57 40 20	57 8 2
10				
50		30 ✓	346 03 30 ✓	
			13 [illegible] [illegible]	
40				
50		45 ✓	346 41 45 ✓	
			13 18 15	
	(over)			✓ 283

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Tip, 1930 STATE: Alaska

OBSERVER: [illegible]

11-727

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′
W. W. (Hill		D	1	07 - 41
		R	1	187 41
Pyramid		D		00 00
		R		180 00

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/2/3

INSTRUMENT: 7" 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
10				
10		10 ✓	07 41 10 ✓	
50				
10		00 ✓	00 00 00 ✓	

Do not write in this margin

These cuts are transferred to Volume 4 Sheet 2-1 Page 42 + 43 C.G.S.

C.G.S.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Sand, 1930 STATE: Alaska

OBSERVER: [illegible]

11 797

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′
Pyramid	Am 3:45	D	0	00 00
to			1	159 46
			3	119 18
~~East~~ Under		D	6	238 36
		R	6	00 00
Under		D	0	00
to			1	04 03
			3	12 08
TIP			6	24 17
			6	40 00
TIP		D	0	00 00
to			1	196 11
			3	228 33
Pyramid		D	6	97 06
		R	6	00 00

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 7" - 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
00	00	00 ✓		Focusing screen of
				Telescope almost
00				"frozen".
15	10			
00	00	00 ✓	159 46 00.0 ✓	159 - 45 - 55.8 ✓
50	50	50 ✓	45 51.7 ✓	+01.4 ✓
			55.8 ✓	57.2 ✓
00	00	00 ✓		
10				
55				
45	45	45 ✓	04 - 02 57.5 ✓	04 02 57.3 ✓
00	05	02.5 ✓	57.1 ✓	+01.3 ✓
			57.3 ✓	58.6 ✓
00	00	00		
00				
15	10			
20	15	17.5 ✓	196 11 02.9 ✓	196 11 02.9 ✓
00	00	00 ✓		+01.3 ✓
				04.2 ✓

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

Curtis

HORIZONTAL

STATION: Seud 1930 STATE:

OBSERVER: Zeman

11—727

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° ′
Pyramid		D	0	00 00
		R		180 00
W.W (Ent)		D	1	18 15
		R	1	198 15
W.W. - large I.C.		D	1	19 57
		R	1	199 57
W.W. (Hol)		D	1	20 47
		R	1	200 47
W.W. near point (Fad)		D	1	158 33
		R	1	338 32
W.W. (Bak)		D	1	159 25
		R	1	339 25
W.W. - (Low)		D	1	161 20
		R	1	341 20

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 7" – 291

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ′ ″	REMARKS
00				
00		00	00 00 00	
10				
10		10 ✓	18 15 10 ✓	
30				
30		30 ✓	19 51 30 ✓	
15				
10		12 ✓	20 47 12 ✓	
10				
45		32-57 ✓	158-32 57 ✓	
15				
10		12 ✓	159 25 12 ✓	
20				
00		10 ✓	161 20 10 ✓	
(over)				– cgs

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: Sand STATE: Alaska

OBSERVER: [illegible]

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S	ANGLE ° '
Hill - Signal on hill		D	1	164 35
		R	1	344 34
Banner - first sig west of Land		D	1	170 38
		R	1	350 38
Mt. Peak to rt. of Dome		D	1	275 41
		R	1	95 41
Pyramid		D		00 °
		R		180 °

Do not write in this margin

ANGLES

ISLAND OR COUNTY: Sitkinak DATE: 5/6/32

INSTRUMENT: 7" - 291

11—727

A "	B "	MEAN OF VERNIERS	ANGLE MEAN D AND R ° ' "	REMARKS
10			✓	
45		34·57"	164 34 57	✓
50				
40		45 ✓	170 38 45	✓
30				
30		30 ✓	275 41 30	✓
00				
00		✓	00 00 00	✓

Do not write in this margin

These cuts are transferred to Volume 4 Sheet 21 Pages 41 & 42 ogs.

ogs

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 250

HORIZONTAL

STATION: STATE:

OBSERVER:

OBJECTS OBSERVED	TIME h. m.	TEL. D OR R	REP'S.	ANGLE ° ′	

Do not write in this margin

12. ~~The tree line was shown on mountains.~~ (Par. 16g.)

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.) ✓

14. ~~The descriptive report also contains additional information required in aero-topography relative to type of photographs, method of compilation and type of ground control.~~

15. The descriptions of plane table stations and references to shore line were not accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMs and DPs, 68.) Two stations are listed in the Descriptive Report.

16. No list of landmarks for charts was furnished on Form 567. (Par. 16d, e, 60.)

17. The magnetic meridian was shown ~~and declinations was checked.~~ (Par. 17, 52.) ✓

18. The geographic datum of the sheet is Valdez and the reference station is correctly noted. ✓ (Par. 34.)

19. Junctions with contemporary surveys are ~~adequate.~~ incomplete

20. Geographic names are shown on the sheet and are covered by the descriptive report. (Par. 64, 66k.) ✓

21. The quality of the drafting is good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) ✓

22. ~~No~~ Additional surveying is recommended. Shoreline to be extended eastward to junction with T4660. Determine additional elevations and draw form-lines. A celluloid tracing and a duplicate projection of H 5231 were left on the surveyor for this purpose. See Des. Report of T 4711 and H 5231

23. The Chief of Party inspected and approved the sheet and the Descriptive Report ✓ after review by

24. Rev...

Reviewed in office by N. F. Christman April 25, 1933.

Inspected: E. G. Hess

Examined and approved

L. C. Colbert.

Chief, Section of Field Records and Div. of Charts

G. Finde

F. S. Borden

Chief, Section of Field Work

Chief, Division of Hydrography and Topography

Chief, Division of Charts

(NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual.)

Form 537a

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

REG. NO. 4711

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field Letter E

REGISTER NO. 4711

State S.W. ALASKA

General locality ~~Trinity Islands~~ Kodiak I.

Locality ~~Sitkinak Island~~ South Coast of Sitkinak I.

Scale 1:20000 Date of survey June - August, 1932

Vessel U.S.C. & G.S.S. SURVEYOR

Chief of Party F.B.T.Siems

Surveyed by Chester J. Beyma

Inked by Chester J. Beyma

Heights in feet above MLLW to ground ~~[illegible]~~

~~[illegible]~~

Instructions dated April 22-nd, 1932

Remarks: Approximately three miles of shoreline along the S.E. Coast of Sitkinak Island is unsurveyed. Form lines along the entire coast of Sitkinak Island are incomplete.

U. S. GOVERNMENT PRINTING OFFICE: 1938