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Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. AR-4747 Office No. H-7609

LOCALITY

State ALASKA

General locality ARCTIC COAST

Locality PEARD BAY AND VICINITY

194 7

CHIEF OF PARTY

R. W. WOODWORTH, LT. COMDR.

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DATE FEB 3 1948

B-1870-1 (1)

**DECLASSIFIED BY NOAA  
PURSUANT TO DOC SYSTEMATIC REVIEW  
GUIDELINES AS DESCRIBED IN SECTION  
3.3(a), EXECUTIVE ORDER 12356.**

FEB 3 1948

Form 537  
(Ed. June 1946)

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

H-7609

HYDROGRAPHIC TITLE SHEET

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

REGISTER No. H-7609

Field No. AR-4747

State ALASKA ✓

General locality ARCTIC COAST ✓

Locality PEARD BAY AND VICINITY ✓

Scale 1:40,000 Date of survey July 2 - Sept. 14, 1947 ✓

Instructions dated 27 January 1947 ✓

Vessel Shore Party

Chief of party R. W. Woodworth, Lt. Comdr.

Surveyed by R. W. Woodworth, H. G. Connerly, J. C. Boyer & D. A. Jones

Soundings taken by fathometer, graphic recorder, hand lead, wire and pole ✓

Fathograms scaled by H. G. C., J. O. B. & D. A. J.

Fathograms checked by H. G. C., J. O. B., E. E. S. & C. W. O. M.

Protracted by C. A. J. Pauw

Soundings penciled by C. A. J. Pauw

Soundings in fathoms feet at MLLW ✓

REMARKS: Smooth sheet and plotting by

Seattle Processing Office

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SHEET H-7609 (AR-4747)

PEARL BAY AND VICINITY

ARCTIC COAST OF ALASKA, 1947

Scale: 1/40,000

Chief of Party: R. W. Woodworth, Lt. Comdr.

INSTRUCTION:

Project 320. Instructions dated 27 January 1947.

SURVEY LIMITS AND DATES:

This survey joins H-7608<sup>(1947)</sup> on the east, H-7606<sup>(1947)</sup> on the north and H-7607<sup>(1947)</sup> on the northwest. Soundings began July 2 and was finished Sept. 14, 1947.

VESSELS AND EQUIPMENT:

Launches 3, 4, and 5 were used on the work. Soundings were made with the 808, NK6 and NK7 fathometer as well as with the sounding pole.

TIDES:

A portable automatic gage was set up inside the spit a mile east of the north entrance to Pearl Bay at Lat. 70 49 plus 1668 M. Long. 158 28 plus 431 M. It was built on a tripod in the bay. It was disturbed a couple of times during the season by storms and ice. A staff was maintained at the camp on the spit a mile and three quarters south of the automatic gage at Lat. 70 48 plus 318 M. Long. 158 27<sup>(level)</sup> plus 588 M. It was read continuously during all hydrography. Check lines were run to this staff almost daily, and always after a storm or a visitation by ice.

BOTTOM:

The area in general has gradual depth changes, but in narrow channels and along some sand spits and bars there are very sharp changes in the depths. This was very suddenly brought to the attention of the hydrographer once in the deep channel to Pearl Bay, where the bow of the launch went aground while the fathometer was still recording 31 feet. The sand and mud stand in very steep slopes and apparently is permanently frozen except for a very thin layer. It seems that the bottom is only moved where there is a current or when there is gouging by ice.

In a number of cases along the shore the bottom samples had as many as three distinct kinds of bottom indicating that it was deposited by the

melting of the ice and was dropped in small bits. This was also true inside the bay but to a less extent.

REFRACTION:

When ice is in the area very abnormal refraction can be expected at any time. At all times whether there is ice in the area or not a large amount of refraction can be expected. When traveling, an object may be close enough to see under normal conditions, but will not be seen until the observer gets a good bit closer. At other times the object can be seen at a much greater distance than under ordinary conditions.

CURRENT:

Except in strong northeast winds there is a current flowing northeast along the shore. There have been no regular current observations but by carefully comparing the length of a 10 minute run in both directions on several different days, during the hydrography, it was estimated that the current was 1 to 2 knots. Apparently it does not change but very little except with the wind. No observations were made during strong winds as the speed of the launch depended very much on the condition of the sea.

This current flowing northeast past Pt. Franklin forms a big eddy circulating in a clockwise direction in the bight east of Pt. Franklin. The eddy extends about 20 miles to the northeastward of Pt. Franklin and extends 5 or 6 miles off shore.

The shoal off Pt. Franklin has sharp ridges and grooves from 5 to 8 feet deep on almost its whole area. This is almost certainly caused by ice gouging. After the break up and while ice is grounded on the shoal it deposits material that it has picked up elsewhere. It is not known what the final effect will be.

H-7606 (1947)  
H-7607 (1947)

KUGURUA BAY:

There are several spellings of this name which are various interpretations of the native pronunciation. It is rendered Kuguruk and Kugura. Kugurua seems best to me. The last syllable is accented very hard. The bay at the western end of Peard Bay goes by this name.

There is a long bar projecting nearly three miles NNW of the eastern entrance point to Kugurua Bay. The outer point of this bar is not exposed at low tide, but is too shoal to sound with the launch. The inner part near Sta. Luis goes bare at low tide. There is a channel around the north end of the bar, starting at Lat. 70 51.6 Long. 159 08.5 Thence it runs about a mile southwest approaching the western shore of Peard Bay; thence SSEward along the shore about two miles to the narrows in the entrance to Kugurua Bay through 7 feet at MLLW. Four and a half to five feet can be carried over the bar into the channel 1,000 meters NNW of Tri. Sta. Luis, and this is the easiest way to enter. At low water the current runs 2 to 2½ knots in the narrows but the current slackens as the tide rises and the channel widens. The mud bottom in all parts of Kugurua Bay affords good holding ground for anchored boats. Kugurua River was not investigated but the launch at one time during a gale ran up the river for thirty minutes to find shelter.

H-7607 (1947)

The area east of Kugurua Bay which appears on the photographs as a bay was not sounded because it was too shoal for a launch to enter.

Respectfully Submitted,

H. G. CONERLY  
Lieut., C. & G. Survey

H-7609

AR-4747

Peard Bay

Seattle Processing Office Notes

PROJECTION:

Hand made on Whatman paper, scale 1/40,000. Both latitude and longitude lines were spaced at two minutes. Which makes about 3 centimeters for the longitude. It is suggested that a spacing of four minutes in latitude and longitude be considered as permissible spacing on 1/40,000 scale, and two minutes on 1/20,000 scale when the distance between meridian lines does not exceed 8 centimeters--say north of lat. 65.

Manual pg 667

Datum is USCGS Astro. September 1945 (Barrow Datum)

CONTROL:

The triangulation was established by Woodworth 1947. There are no plane table stations. The hydrographic signals are from sextant, transit and theodolite angles recorded ~~the~~ five horizontal angles and horizontal direction books, which accompany the records. As soon as the signals were established on the four Arctic smooth sheets, a careful tracing was made of each for use of the photogrammetric division. They were sent to Washington 1 December 1947 whence they were sent to Portland 9 December 1947.

See Hydro Control Index attached. p 13

SHORELINES:

The shoreline for the Arctic sheets is not yet available (1/26/48). The shoreline from the boat sheet was put on the smooth sheet in light pencil lines. It is presumed to be sketched from the photographs.

From Trimetrogon compilation by Geological Survey

will be applied when available See Review part

DANGERS:

None appear on this sheet. The bottom of Peard Bay and Kugurua Bay are very regular and smooth. The entrance to Kugurua Bay is narrow and has currents up to 2 1/2 knots strength as already discussed.

DISCREPANCIES:

LATITUDE	LONGITUDE	POSITION	
70 50	159 02	116L	red)
49.25	158 55.5	122L	red)
49	158 53.2	124L	red)
48.6	158.50	127L	red)

This line is deeper than the crossed lines on k, n, and j days green. Deeper than crossed lines.

Adjusted by by correcting index 6812310r.

Edgar E. Smith  
Edgar E. Smith  
Cartographic Engineer

## Fathometer Corrections.

### Echo Corrections.

The velocity corrections were prepared by Mr. Garber from temperature and salinity observations. His fathometer report accompanies the records to Washington, a copy of the pertinent part of his report is attached hereto.

### Bar tests and <sup>Phase</sup> scale corrections.

All bar tests for each hydrographic sheet were tabulated in pencil, the work of each launch being segregated. The principal use made of this tabulation was to test the reasonableness of the corrections made from temperature and salinity curves. The tabulation showed very close agreement between A scale and B scale readings on the 800 fathograms. The differences were pretty well balanced by differences with an opposite sign. <sup>PHASE</sup> No corrections were applied to the B scale readings of any launch. For launches 4 and 5, the fathogram readings at the points where shifts were made between B and C scales or between C and D were tabulated. They are not sufficiently good, and not numerous enough to give an accurate mean. After examination of the differences and the quality of the profiles the scale or phase corrections on the next sheet were accepted. The pencilled tabulation of the bar tests accompanies the report.

See H-7606 Desc. Report

### Index corrections.

All fathograms were examined for index corrections taking note of bar checks and initial lines. On profiles of launch 5 in particular the initial line was frequently cut out, even during bar checks. The gain was often varied when the <sup>initial line</sup> gain did not show, and whole days soundings were found without the initial line showing. On launch 4 the bar line was in error until the test on August 15, after which it was corrected. Up to this time the bar tests for six feet were 5.7 ft. deep. Corrections on account of phase or scale errors and corrections for bar line length when they occurred were combined in one figure with corrections to the initial line.

THIS LINE  
CHECKED ON H-7606  
SEE VERIFIED REPORT

### NK6 Fathometer.

This fathometer, a Blunworth, was borrowed from the Navy. This particular machine is not suitable for surveying. The vertical scale is too small for readings of the accuracy prescribed in our manual in depths under ten fathoms. The horizontal scale is too small. Wave action is not separated into waves which can be appraised. Waves make a fuzzy, indefinite line. The speed does not remain constant. There is no speed indicator. The field party recommends that when soundings with this machine disagree with soundings with the 800 fathometer that the depths with the 800 be accepted. The differences were known to the field party but they were not able to control the speed of the NK-6. In plotting the smooth sheet no such corrections have been applied in the Processing Office.

The notes on this page apply to all the Arctic Sheets of 1947.

FATHOMETER CORRECTIONS  
C.S. PROJECT NO. CS-320 ARCTIC COAST OF ALASKA  
R.W. Woodworth Chief of Party  
July September, 1947

General

Due to lack of time, the members of the Arctic Field Party were unable to compute and furnish fathometer corrections for the 1947 hydrographic work. These corrections were computed by Lt. Comdr. H.F. Garbar of the Northwestern District Office in conjunction with the Seattle Processing Office. The reducers were entered and checked by the Seattle Processing Office.

Equipment Used

A total of four launches, nos. 2, 3, 4 and 5 were used in the hydrographic work. These were equipped with portable depth recorders which were shifted among the various launches as occasion demanded. Two S08-A, nos. 555 and 735, one MK. 7, no. 345 and one Bludworth type fathometer<sup>3345</sup> were used for sounding. Pole soundings were taken in very shoal depths.

Determination of Corrections

An abstract of all bar checks was drawn up for study. Due to rough water, the bar checks at depths greater than one or two fathoms were irregular, so that it was not feasible to obtain corrections by straight bar check comparison even though the water was comparatively shoal. Accordingly it was decided to break down the corrections into velocity and index components.

Phase corrections were indeterminate. Generally the bar depths on the "A" and "B" scales read the same, with occasional "A" scale readings both greater and less than the "B" scale. No information was available between the "B" and "C" scale readings. Accordingly no phase corrections were applied.

Velocity Corrections

All temperature and salinity observations were plotted on graph paper and a mean curve drawn for the season. As only one value was obtained for depths greater than 60 ft., it was necessary to draw a single curve for the season to have the deeper water corrections throughout the work.

Velocity corrections were determined in accordance with the procedure outlined in paragraph 5615 of the Hydrographic Manual.



Index Corrections

Index corrections presented quite a problem. The initial settings on each fathometer varied greatly from day to day so that no mean value could be worked out. Consequently, each fathogram was examined independently, and an index correction applied to make the soundings agree with the bar checks at 6 or 12 feet. The initial setting on the fathogram was carefully watched, and any variation during the day was applied to the index correction. The erroneous lengths of the lines supporting the bars were taken into account in computing the true bar depths.

After applying velocity, index, and bar line corrections, the fathometer soundings agreed within reasonable limits to the bar depths.

Conclusion

When time permits, it is more feasible for the hydrographic parties to determine the fathometer corrections rather than the Processing Offices. The hydrographer is more familiar with the peculiarities of a particular instrument, and field conditions in general.

Respectfully submitted,

*Harry F. Garber*  
Harry F. Garber  
Lt. Comdr. USCGS

**VELOCITY CORRECTIONS**  
**ARCTIC SHORE PARTY PROJECT GS-320**  
**Season of 1947**

R.W. Woodworth Chief of Party

to apply to

Hydrographic Sheets, Field Nos. Arc-2147, 2247, 4547, 4647 and 4747.

Corrections entered to 0.5 ft.		Corrections entered to 0.2 ft.	
Depth ft.	Correction ft.	Depth ft.	Correction ft.
2 - 11.5	0.0	2 - 4.5	0.0
12 - 33.5	-0.5	4.6 - 14	-0.2
34 - 54.5	-1.0	14.1 - 22.7	-0.4
55 - 71.5	-1.5	22.8 - 31.7	-0.6
72 - 86.5	-2.0	31.8 - 40.4	-0.8
87 - 99.5	-2.5	40.5 - 48.4	-1.0
100 - 112	-3.0	48.5 - 56.0	-1.2
112.5 - 124.5	-3.5	56.1 - 63.0	-1.4
125 - 136.5	-4.0		
137 - 147.5	-4.5		
148 - 159	-5.0		
159.5 - 170.5	-5.5		
171 - 181.5	-6.0		
182 - 192.5	-6.5		
193 - 203.5	-7.0		
204 - 214.5	-7.5		
215 - 225.5	-8.0		
226 - 236.5	-8.5		

RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

Ship or party Arctic Shore Party Project R. W. Woodworth Chief of party. August, 19 47  
Locality \_\_\_\_\_ Survey No. \_\_\_\_\_

Date	Time	Latitude and longitude	Depth fathoms	TEMP. AT DEPTH		SPECIFIC GRAVITY		AT TEMP.		Salinity	Velocity at temp. M./Sec.	CORRECTIONS			Therm. No.	Hydro. No.	Remarks (weather, bottom, etc.)	
				Obs.	Cor.	Obs.	Cor.	Obs.	Cor.			Sal.	Pres.	Velocity (theoretical) M./Sec.				
19 <u>47</u>	<u>150</u> mer.																	
	<u>h.</u>																	
	<u>m.</u>																	
20 AUG	13 00	70-58.3	0	7.0	5.7	1.0232		10.0		30.5							7-1627	
		159-41.6	30	5.7														
			48	5.2		1.0239		6.8		30.6								
25 AUG	13 00	70-53.75	0	8.3		1.0230		8.5		29.8								
		158-44.6	18	7.0		1.0230		9.0		29.9								
27 AUG	13 50	70-51.3	1	6.8		1.0229		8.1		29.7								R-Sal. per hr. Foggy the 27 8
		158-41.3	118	7.4		1.0229		8.0		29.7								
<del>EXCESSIVE</del>																		
27 AUG	15 00	70-52.1	0	8.0		1.0220		8.0		29.5								
		158-37.2	20	7.0		1.0226		8.3		29.4								
28 AUG	12 10	70-54.8	0	7.5		1.0231		8.0		29.9								
		157-47.8	50	7.5		1.0230		7.8		29.7								
29 AUG	14 30	70-49.0	5	5.8		1.0230		5.9		29.8								Overcast snow NW 3
		159-05.4																
1 Sep	12 45	70-48.0	6	5.6		1.0192		6.8		25.0								The 27 9 and head
		159-05.5																

\* If depth recorded is bottom indicate thus: 965 B  
† Express in parts /1000. If by titration indicate thus: 34.15 †

RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

SHEET No. 2

Ship or party **Arctic Shore Party** **R. W. Woodworth**, Chief of party. **September**, 19 **47**  
Locality **Arctic Coast of Alaska** Project **CS 580** Survey No. \_\_\_\_\_

Date	Time	Latitude and longitude	Depth feet	TEMP. AT DEPTH		SPECIFIC GRAVITY		AT TEMP.		† Salinity	Velocity at temp. M./Sec.	CORRECTIONS		Velocity (theoretical) M./Sec.	Therm. No.	Hydro. No.	Remarks (weather, bottom, etc.)
				Obs. °C	Cor. °C	Obs. °C	Cor. °C	Sal.	Pres.								
1 Sep	09 22	70-49.3	6	5.9		1.0230		6.0		29.5							Lt gy N
		158-34.2	12	5.9		1.0230		6.0		29.5							
			18	5.9		1.0235		5.9		29.9							
2 Sep	12 25	70-49.0	7	5.6		1.0198		6.2		25.5							fine gy S & N
		159-09.5															
2 Sep	15 00	71-01.6	1	5.8		1.0235		7.3		30.1							calm, foggy
		157-19.1	198	5.8		1.0232		7.2		29.9							fine gy S
4 Sep	08 55	70-50.0	6	5.7		1.0230		5.7		29.5							fine S and
		158-35.0	14	5.7		1.0230		5.6		29.5							gy N
4 Sep	10 30	71-13.4	1	6.6		1.0232		6.6		29.8							Rain and fog
		156-59.0	12	6.6		1.0232		6.5		29.8							K. 5 ml. per
			30	6.7		1.0232		6.4		29.8							hr. gy Cl and
																	fine S
5 Sep	16 35	70-49.4	6	5.6		1.0229		5.6		29.4							gy N and fine S
		158-36.2	14	5.6		1.0231		5.6		29.6							

\* If depth recorded is bottom indicate thus: 965 B  
† Express in parts /1000. If by titration indicate thus: 34.15 T

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RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

Ship or party Arctic Shore Party R. W. Woodworth, Chief of party. September, 19 47  
Locality Arctic Coast of Alaska Project CS 320 Survey No. \_\_\_\_\_

Date	Time	Latitude and Longitude	Depth Feet	TEMP. AT DEPTH		SPECIFIC GRAVITY		AT TEMP.		Salinity	Velocity at temp. M./Sec.	CORRECTIONS			Therm. No.	Hydro. No.	Remarks (weather, bottom, etc.)
				Obs.	Cor.	Obs.	Cor.	Obs.	Cor.			Sal.	Pres.	Velocity (theoretical) M./Sec.			
19 <b>47</b>	<b>150</b> m.																
<b>8 Sep</b>	<b>12 30</b>	<b>70-50.3</b>	<b>0</b>	<b>3.8</b>		<b>1.0208</b>		<b>4.1</b>		<b>26.6</b>							
		<b>159-02.6</b>	<b>14</b>	<b>4.0</b>		<b>1.0210</b>		<b>4.4</b>		<b>26.8</b>							
<b>8 Sep</b>	<b>12 45</b>	<b>70-14.5</b>	<b>0</b>	<b>4.5</b>		<b>1.0230</b>		<b>4.6</b>		<b>29.4</b>							
		<b>157-10.3</b>	<b>12</b>	<b>4.4</b>													
			<b>60</b>	<b>0.0</b>													
			<b>150</b>	<b>-1.1</b>		<b>1.0233</b>		<b>5.0</b>		<b>29.8</b>							
<b>158 Sep</b>	<b>12 00</b>	<b>70-55.8</b>	<b>0</b>	<b>2.6</b>		<b>1.0240</b>		<b>3.6</b>		<b>30.5</b>							
		<b>158-24.3</b>	<b>60</b>	<b>2.6</b>		<b>1.0244</b>		<b>4.0</b>		<b>31.1</b>							
<b>8 Sep</b>	<b>12 50</b>	<b>70-52.0</b>	<b>0</b>	<b>4.9</b>		<b>1.0239</b>		<b>4.7</b>		<b>30.5</b>							
		<b>157-49.3</b>															

Overcast, NE  
10ml. per hr.

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\* If depth recorded is bottom indicate thus: 965 B  
† Express in parts/1000. If by titration indicate thus: 34.15 T

Arctic Surveys

HYDRO-CONTROL INDEX

(Listing all location data other than triangulation)

1947

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## HYDRO-CONTROL INDEX

Signal Name	----- Location Data -----			Remarks
	Date 1947	Vol./Page	Pos./Cuts	
Abe	27 Aug.	HA#5--3	1 cut.	From <del>PEARL NO. BASE.</del> Bag.
	" "	" --22	1 cut.	" PEARL NO. BASE.
	" "	" --31	1 cut.	" PEARL SO. BASE.
	" "	Sdg#3--66	2 3-pt. fixes.	From Lch#4/Sheet 2147.
Bag	27 Aug.	HA#5--3	3-pt. fix.	
	" "	" --22	1 cut.	From PEARL NO. BASE.
	" "	" --31	1 cut.	" PEARL SO. BASE.
	" "	Sdg#3--66	2 cuts.	From Lch#4/Sheet 2147.
Boo	14 Aug.	HA#5--5	3-pt. fix.	
	" "	" --8	1 cut.	From 'Dub'.
	15 "	" --35	1 cut.	" 'Up'.
	18 "	" --25	1 cut.	" 'Pit'.
Cabin	17 July	HA#2--3,4,5	Ecc. dir/dist.	From KYLE.
	17 June	HA#5--17	Ecc. dir.	" KYLE.
Cat	17 June	HA#5--26	3-pt. fix.	
	5 July	HA#1--1	1 cut.	From PEARL SO. BASE.
	18 July	HA#2--11,12,13	1 cut.	" ICE.
	" "	" --15	3-pt. fix	
Dan	3 Aug.	HA#3--33	3-pt. fix.	
	" "	" --35,36	1 cut.	From GEORGE.
Dar	26 July	HA#5--12	1 cut.	From FOUL.
	27 "	" --29,30	Ecc. dir/dist.	From SEAHORSE.
Dog	18 June	HA#5--7	3-pt. fix.	
	17 July	HA#2--1,2	1 cut.	From FOX.
	" "	" --3,4	1 cut.	" KYLE.
	18 "	" --8,9	3-pt. fix.	
" "	" --11,12,13	1 cut.	From ICE.	
Dub	1 Aug.	HA#5--8	3-pt. fix.	
	" "	" --10	1 cut.	From FLINT.
	14 "	" --8	3-pt. fix.	
Duk	5 Aug.	HA#5--9	3-pt. fix.	
	6 July	HA#1--3,4	1 cut.	From POINT.
	" "	" --6	3-pt. fix.	
	7 "	" --7,8	1 cut.	From BIGHT.
Flo	4 Aug.	HA#3--44,45	3-pt. fix.	

Foul	26 July	HA#5--12	3-pt. fix.	
	27 "	" --29	1 cut.	From SEAHORSE.
	2 Aug.	" --4	1 cut.	" BIGHT.
	5 "	" --32	1 cut.	" SPIT.
	18 "	" --32	1 cut.	" SPIT.
Freeze Az.	9 Aug.	HA#4--36	3-pt. fix.	
	" "	" --38	1 cut.	From HELP.
Gab	18 June	HA#5--13	3-pt. fix.	
	5 July	HA#1--1,2	1 cut.	From FEARD SO. BASE.
	6 "	" --3,4	1 cut.	" POINT.
	19 "	HA#2--19	3-pt. fix.	
	23 "	HA#5--34	1 cut.	From TOM.
	5 Aug.	" --9	1 cut.	" Duk.
Gus	7 July	HA#1--7,8	1 cut.	From BIGHT.
	" "	" --10	3-pt. fix.	
	" "	" --11	1 cut.	From FOG.
Keg	28 July	HA#5--15	3-pt. fix.	
	29 "	" --23	1 cut.	From ORVILLE.
	31 "	" --10	1 cut.	" FLINT.
	" "	" --19	1 cut.	" LUMP.
	1 Aug.	" --33	1 cut.	" 'Tip'.
Knoll	22 April	HA#5--16	1 angle.	At 'Knoll'.
	9 May	" --14	1 cut.	From ICE.
	13 "	" --36	1 cut.	" FOX.
	15 "	" --28	1 cut.	" RISE.
	18 "	" --14	1 cut.	" ICE.
	17 July	HA#2--1,2	1 cut.	" FOX.
	" "	" --3,4	1 cut.	" KYLE.
	18 "	" --7	3-pt. fix.	
	" "	" --11,12,13	1 cut.	From ICE.
Lin	3 Aug.	HA#3--38,39	3-pt. fix.	
	4 "	" --41,42	1 cut.	From EBB.
Lip	23 May	HA#5--18	3-pt. fix.	
	" "	" --11	1 cut.	From FOG.
	12 July	HA#1--22	3-pt. fix.	
	31 "	Sdg#1--15	3-pt. fix.	By Lch#3/Sheet 4747.
	14 Aug.	" --23	1 cut.	From Lch#4/Sheet 4747.
	25 "	" --51,53	1 cut each.	" " / " .
Memorial (Rogers)	8 Aug.	HA#4--29	1 angle.	At 'Rogers Memorial'.
	" "	" --30	1 cut.	From ROGERS.
	2 Sept.	Sdg#1--48	1 cut.	" Lch#4/Sheet 4547.
	" "	" --72	1 cut.	" " / " .
	12 "	Sdg#2--30	1 cut.	" " / " .



Mul	31 July	HA#5--19,20	Ecc. dir/dist.	From LUMP.
Ned	17 June	HA#5--21	Ecc. dir/dist.	From ICE.
Nek	9 July	HA#1--13	3-pt. fix.	
	10 "	" --15	1 cut.	From KUGURUK.
	11 "	" --18	1 cut.	" DOWN.
	12 "	" --20	1 cut.	" WEIR.
	1 Aug.	HA#5--8	1 cut.	" 'Dub'.
	14 "	" --5	1 cut.	" 'Boo'.
	" "	" --8	1 cut.	" 'Dub'.
	18 "	" --25	1 cut.	" 'Pit'.
Nit	30 July	HA#3--14,15	3-pt. fix.	
	31 "	" --17,18,19	1 cut.	From HOPE.
Ore	8 Aug.	HA#4--32	3-pt. fix.	
	9 "	" --34	1 cut.	From FREEZE.
	25 "	Sdg#1--22	1 cut.	" Lch#4/Sheet 4547.
	" "	" --25	1 cut.	" " / " .
Our	29 July	HA#5--23	1 cut.	From ORVILLE.
	27 "	" --24	3-pt. fix.	
	31 "	" --10	1 cut.	From FLINT.
Pal	26 July	HA#3--6,7	3-pt. fix.	
	27 "	" --10,11	1 cut.	From HERBERT.
	25 Aug.	Sdg#1--61	1 cut.	" Lch#4/Sheet 4647.
Fit	18 Aug.	HA#5--25	3-pt. fix.	
Pole	23 July	HA#5--26	3-pt. fix.	
	" "	" --27	1 cut.	From 'Ran'.
	26 "	" --12	1 cut.	" 'Foul'.
	27 "	" --29	1 cut.	" SEAHORSE.
	5 Aug.	HA#5--32	1 cut.	" SPIT.
Ran	23 July	HA#5--26	1 cut.	From 'Pole'.
	" "	" --27	3-pt. fix.	
	27 "	" --29	1 cut.	From SEAHORSE.
	5 Aug.	" --32	1 cut.	" SPIT.
	18 "	" --32	1 cut.	" SPIT.
	27 "	" --3	1 cut.	" 'Bag'.
	" "	" --22	1 cut.	" HEARD NO. BASE.
	" "	" --31	1 cut.	" HEARD SO. BASE.
	26 "	" --12	1 cut.	" 'Foul'.
Rat	9 Aug.	HA#4--41	3-pt. fix.	
	10 "	" --44	1 cut.	From EXTRA.
Run	7 Aug.	HA#4--24	3-pt. fix.	
	" "	" --26	1 cut.	From WILL.

Saw	1 Aug.	Sdg#2--11	3-pt. fix.	From Lch#2/Sheet 2147.
	2 "	HA#5--4	1 cut.	" BIGHT.
	" "	" --11	1 cut.	" FOG.
	5 "	" --32	1 cut.	" SPIT.
	18 "	" --32	1 cut.	" SPIT.
Skull Az.	1 Aug.	HA#3--27,28	3-pt. fix.	
	3 "	" --30,31	1 cut.	From HIGH.
Suk	31 July	HA#3--21,22	3-pt. fix.	
	1 Aug.	" --24,25	1 cut.	From SKULL.
Ter (Shelter Az.)	7 Aug.	HA#4--21	3-pt. fix.	
	25 "	Sdg#1--42	1 cut.	From Lch#4/Sheet 4647.
	" "	" --44	1 cut.	" " / " .
Tip	1 Aug.	HA#5--33	3-pt. fix.	
Tom	23 July	HA#5--26	1 cut.	From 'Pole'.
	" "	" --27	1 cut.	" 'Ran'.
	" "	" --34	3-pt. fix.	
	26 "	" --12	1 cut.	From 'Foul'.
	27 "	" --29	1 cut.	" SEAHORSE.
	1 Aug.	Sdg#2--11	3-pt. fix.	" Lch#2/Sheet 2147.
	2 "	HA#5--4	1 cut.	" BIGHT.
	" "	" --11	1 cut.	" FOG.
	18 "	" --32	1 cut.	" SPIT.
	27 "	" --3	1 cut.	" 'Bag'.
Up	" "	" --31	1 cut.	" PEARD SO. BASE.
	23 May	HA#5--35	3-pt. fix.	
	1 Aug.	" --8	1 cut.	From 'Dub'.
	" "	" --10	1 cut.	" FLINT.
	15 "	" --35	3-pt. fix.	

NOTES : 1) 'HA' signifies a horizontal-angle record. All hydrographic control other than triangulation is contained in 5 such volumes. It consists of 3-point fixes and cuts obtained by transit and by sextant.

Filed 25  
 52548  
 945  
 JHS  
 7606-9  
 1947  
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Comp. by -- RWW  
 ✓ " --  
 Copy ✓ JHC

30 Sept 47

Page 18

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
NORTHWESTERN DISTRICT HEADQUARTERS  
400 INSURANCE BUILDING  
SEATTLE 4, WASHINGTON

REFER TO FILE:

16 Oct 47

To : Director  
Coast & Geodetic Survey  
Washington, D.C.

Subject : Arctic airphoto-control.

Reference : Your 1 October letter 711-rs.

1. All arctic airphoto-control data was completed, at Peard Bay, on 30 September, except as noted in paragraph 3<sup>2</sup> following. Over 80% of all shoreline stations (both trig and hydro) were satisfactorily identified and pricked on the 9-lens prints.

2. Airphoto-control sketches/directions/distances are contained in field sketchbooks and horizontal-angle records. These can be forwarded without further field processing, if necessary. However, it would be desirable for this party to combine and check this data. This work will require approximately four days after records are received in Seattle.

3. The 9-lens prints, and all other field records, were delivered to Wien Airlines, at Barrow Base, on 8 October, for airfreight to Seattle. None have been received to date. These shipments are now being followed up thru Comdr. Patterson and the Northern Airlines. The former has just advised, by radio, that this airline will ship out of Fairbanks as soon as weather permits. The Seattle office of Northern Airlines will also check with their Fairbanks office today in an endeavor to expedite delivery.

4. Pricked 9-lens prints will be forwarded by express to the Washington Office as soon as received in Seattle. Unless otherwise advised airphoto sketch/direction/distance data will be field-edited here before forwarding.

Ralph W. Woodworth  
Chief, Arctic project

cc : Seattle Processing Office

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

POST-OFFICE ADDRESS:

400 Insurance Building  
Seattle, Washington.

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

27 October 1947

To : Chief, Division of Photogrammetry  
Coast & Geodetic Survey  
Washington, D.C.

Subject : Arctic airphoto-control.

Reference : My 16 October letter to the Director.

1. Pricked 9-lens arctic prints were forwarded to the Washington Office, by express out of Seattle, on 21 October 1947.

2. Processing has been started this date on airphoto-control sketch/direction/distance data. This will be forwarded to the Washington Office shortly.

3. The original copy of GEL (No. C-601815), for the shipment noted in paragraph 1, was surrendered to the carrier. A memo copy of same is enclosed herewith.

4. There is also enclosed a copy of the Photo-Control Abstract listing all 1947 arctic PC stations and plotting information on same.

Ralph W. Woodworth  
Chief, Arctic project, C&GS

cc : Seattle Processing Office

STATISTICS

H 7609  
AR 4747

Day	1947 Date	Vol.	Positions	Stat. Miles	Launch
a	Aug. 8	1	54	17	5
b	13	1	40	16.5	5
c	21	1	44	10.9	5
d	Jul 22	2	54	19.2	5
e	Aug 28	2	24	8.3	5
f	Sept 1	2	12	5.9	5
g	2	2	26	10.4	5
h	3	2	15	8.	5
j	4	2	24	9.2	5
k	8	2	7	3.0	5
l	11	2			
		3	138	48.	5
m	12	3	21	9.8	5
n	15	3	38	14.8	5
p		3	12		5
a	Jul 25	4	10	4.4	4
b	Aug 14	4	49	15.1	4
c	22	4	108	17.5	4
d	25	4	20	5.8	4
e	29	4	20	6.2	4
f	Sept 2	4			
		5	19	6.5	4
g	3	5	18	6.	4
h	4	5	24	6.3	4
j	8	5	23	6.7	4
k	12	5	39	11.0	4
l	14	5	19	6.2	4

H 7609 Statistics continued.

Day	Date	Vol.	Pos.	Stat.Mi.	Launch			
	1947							
a	Jul 2	6	13	2.0	2			
b	31	6	107	21.8	2			
c	Aug.25	6	97	20.9	3			
d	26	6	42	9.2	3			
e	27	6	58	14.7	3			
f	28	6	27	4.7	3			
g	29	6						
		7	104	24.3	3			
h	30	7	155	35.4	3			
j	Sept 1	7						
		8	162	40.2	3			
k	2	8						
		9	231	56.8	3			
l	3	9	63	13.3	3			
m	4	9	173	33.9	3			
n	8	10	129	25.7	3			
p	12	10	37	8.0	3			
	Totals		2256	540.4				
		Vertical Casts		49				

H-7609

AR-4747

Geographic Names

Arctic Ocean

Peard Bay

Point Franklin

Kugurua Bay

Kugurua River - see p. 2 of D.R.

Seahorse Islands (The native name for the low sand bars extending about 3 Mi. SE of Pt. Franklin)

Atanik

(A deserted native village. Near  $\Delta$  Nanok at the west end of the sheet - See Photographs - The place name continues in use)



H-7609

AR-4747

TIDAL NOTE:

Peard Bay

Portable Automatic Gage

Latitude 70 49.9

Longitude 158 28.7

Peard Bay Staff

Latitude 70 48.5

Longitude 158 27.3

The automatic gage was set up inside the spit a mile east of the entrance to Peard Bay. It was disturbed once or twice during the season by storms and ice.

The staff was maintained at the camp on the spit a mile and three quarters south of the automatic gage. It was read continuously during all hydrography. Check levels were run to this staff almost daily and always after a storm or visitation by ice.

Hourly heights were furnished by the Washington office. The staff reading of MLLW was 4.1 feet. The values so obtained were plotted in curves from which tide reducers were taken.

Hurn

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

24 February 1948

Division of Charts: H. W. MURRAY

Plane of reference approved in  
10 volumes of sounding records for

HYDROGRAPHIC SHEET 7609

Locality - Peard Bay, Arctic Coast, Alaska

Chief of Party: R. W. Woodworth in 1947  
Plane of reference is mean lower low water, reading  
4.1 ft. on tide staff at Peard Bay (North Side)  
4.9 ft. below B. M. 1 (1947)

Height of mean high water above plane of reference is .6 ft.

Condition of records satisfactory except as noted below:

*E. C. McKay*  
*Section*  
Chief, ~~Division of Tides and Currents.~~

GEOGRAPHIC NAMES

Survey No.

**H7609**

Name on Survey

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K
Alaska			(for title)						1
Arctic Ocean			"	"					2
Point Franklin									3
Seahorse Islands									4
Peard Bay									5
Kugurua Bay									6
Kugurua River									7
Atanik			(deserted village: still used as a place name)						8
(Arctic Ocean)									9
Chukchi Sea								US Army	10
			Names underlined in red are approved 2/18/48		L. Heck				11
									12
									13
Peard Bay			(location of tide staff)						14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7609

Records accompanying survey:

Boat sheets 2.....; sounding vols. 10.....; wire drag vols. 0.....;
bomb vols. 0.....; graphic recorder rolls 3 env.;
special reports, etc. ....
.....

The following statistics will be submitted with the cartographer's report on the sheet:

Table with 3 columns: Description, Quantity, and Time. Rows include: Number of positions on sheet (2256), Number of positions checked (40), Number of positions revised (5), Number of soundings revised (refers to depth only) (7), Number of soundings erroneously spaced (5), Number of signals erroneously plotted or transferred (0), Topographic details (Time 0), Junctions (Time 5), Verification of soundings from graphic record (Time 9).

Verification by Herbert W. Burgoyne... Total time 91.. Date 4/2/48.

Reviewed by J. Jordan... Time 16 hr. Date 5/6/48.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7609

FIELD NO. AR-4747

Alaska, Arctic Coast, Peard Bay and Vicinity  
Surveyed in July to September, 1947      Scale 1:40,000  
Project No. CS-320

Soundings:

808 Fathometer  
NK-6 Fathometer  
Pole

Control:

Sextant fixes on shore signals

Chief of Party - R. W. Woodworth  
Surveyed by - R. W. Woodworth, H. G. Connerly, J. C.  
                  Boyer and D. A. Jones  
Protracted by - C. A. J. Pauw  
Soundings plotted by - C. A. J. Pauw  
Verified and inked by - H. W. Burgoyne  
Reviewed by - G. F. Jordan, May 6, 1948  
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline is from air photographic manuscripts of 1948, numbers T-9003, T-9007, T-9008, T-9009 and T-9010.

The hydrographic signals originate with the present and contemporary surveys.

2. Bottom Configuration and Depth Curves

This survey covers an area of generally smooth bottom except in the channel areas and on sand spits discussed on page 1 of the Descriptive Report.

Except for the low-water line the depth curves are complete and adequate.

3. Sounding Line Crossings

The soundings at crossings are in good agreement.

4. Adjoining Surveys

The junctions with H-7607 (1947) and H-7606 (1947) on the north, and H-7608 (1947) on the east will be considered when these surveys are reviewed.

5. Comparison with Prior Surveys

There are no prior surveys in this area.

6. Comparison with Chart 9400 (Print date of 12/1/47)

a. Hydrography

Only two soundings are charted in the area of the present survey. These inshore soundings have been charted for more than 35 years and probably originate with reconnaissance sources. Considering the small scale of the chart, a close comparison with these soundings has no practical value.

b. Aids to Navigation

No floating aids to navigation are charted in this area. The buoy at lat.  $70^{\circ} 50.9'$ , long.  $158^{\circ} 39.6'$ , on the present survey is believed to be a survey buoy.

7. Condition of the Survey

- a. The Descriptive Report and sounding records are complete and comprehensive.
- b. The smooth plotting was well done.
- c. As noted in the Descriptive Report, page 5, the NK-6 Fathometer used on part of this survey is not suitable for surveying.
- d. A 6-ft. pole sounding at lat.  $70^{\circ} 47.65'$ , long.  $159^{\circ} 17.50'$ , was rejected. Before reduction, this sounding was  $7\frac{1}{2}$  ft. and fell between 12- and 11-ft. soundings on line. It is considered that the recorder misunderstood the pole reading,  $7\frac{1}{2}$  for  $11\frac{1}{2}$ . The  $11\frac{1}{2}$ -ft. sounding reduces to 10-ft. and falls in a smooth bottom area.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This is a basic survey and no additional field work is recommended.

Examined and approved:

*I. E. Rittenburg*  
For I. E. Rittenburg  
Chief, Nautical Chart Branch

*Casper M. Durgin*  
Casper M. Durgin  
Chief, Division of Charts

*K. G. Crosby*  
K. G. Crosby  
Chief, Section of Hydrography

*C. K. Green*  
C. K. Green  
Chief, Division of Coastal Surveys

LAYOUT OF SHEETS  
PROJECT CS-320

# POINT BARROW, ALASKA

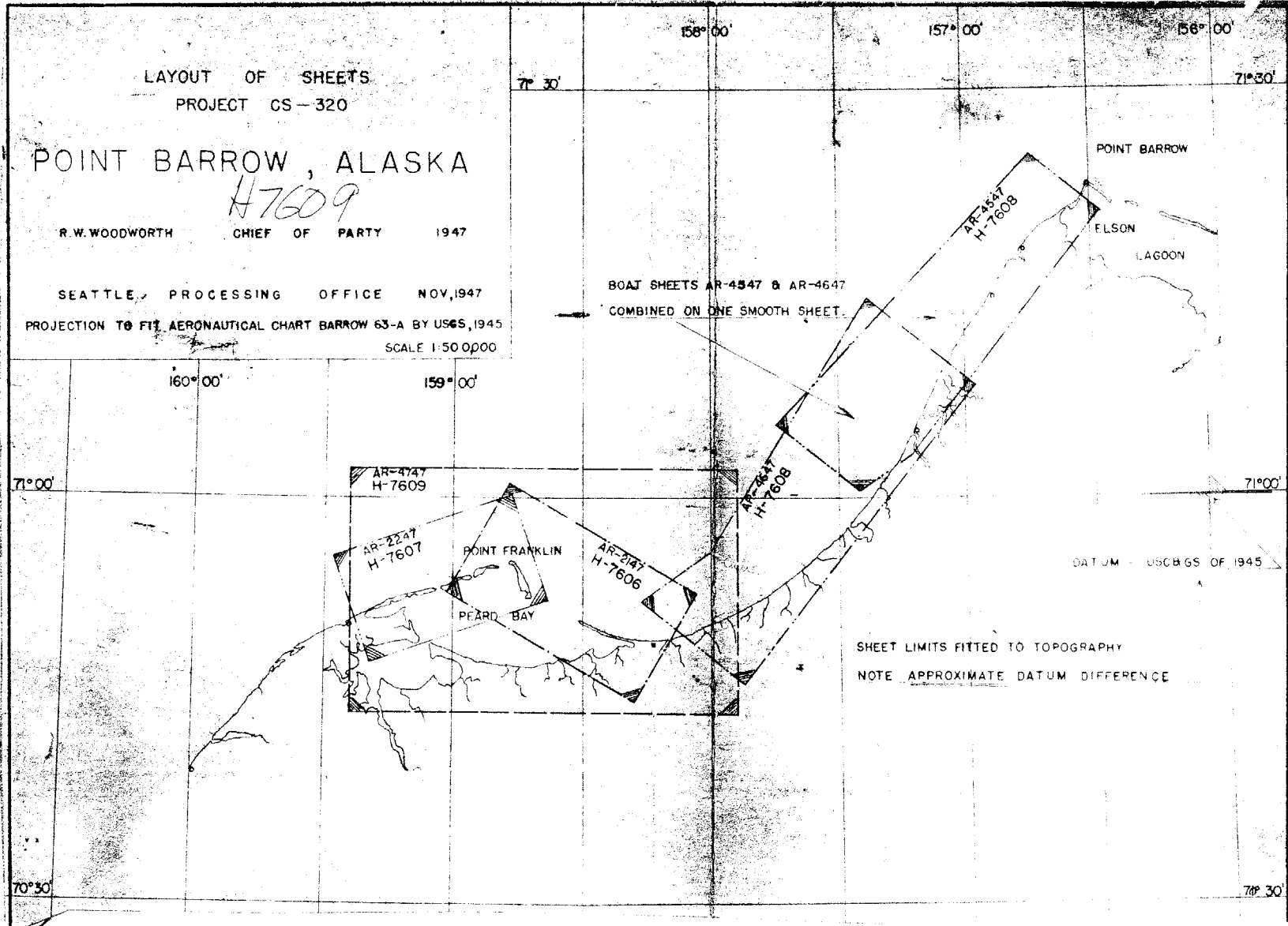
*H7609*

R.W. WOODWORTH CHIEF OF PARTY 1947

SEATTLE PROCESSING OFFICE NOV, 1947

PROJECTION TO FIT AERONAUTICAL CHART BARROW 63-A BY USGS, 1945  
SCALE 1:500,000

BOAJ SHEETS AR-4547 & AR-4647  
COMBINED ON ONE SMOOTH SHEET.



DATUM - USCGS OF 1945

SHEET LIMITS FITTED TO TOPOGRAPHY  
NOTE APPROXIMATE DATUM DIFFERENCE



# NAUTICAL CHARTS BRANCH

SURVEY NO. H7609

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
6/28/48	9400	H. F. Stegman	<del>Before</del> After Verification and Review applied hydro. three preliminary charts of the area - now classified confidential.
7/49	9400	Risegair	<del>Before</del> After Verification and Review confidential.
?	Arctic No. 281	?	Inspected after review for changes 1/4/50 HTE <del>Before</del> <del>After</del> Verification and Review
12-14-51	9462	R.K. de Lander	<del>Before</del> After Verification and Review
12-16-51	9463	R.K. de Lander	<del>Before</del> After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.