

H10610

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic

Field No. RA-10-08-95

Registry No. H-10610

LOCALITY

State Alaska

General Locality .. Cook Inlet

Sublocality Port Nikiski & Vicinity

1995

CHIEF OF PARTY
CAPT D.R. Seidel

LIBRARY & ARCHIVES

DATE May 14, 1996

H-10610

HYDROGRAPHIC TITLE SHEET

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

FIELD NO.

RA-10-8-95

State Alaska

General locality Cook Inlet

Locality Port Nikiski and Vicinity

Scale 1:10,000 Date of survey May 25 - July 20, 1995

Instructions dated April 11, 1995 Project No. OPR-P329-RA

Vessel RA-3(2123), RA-4(2124), RA-5(2125), RA-6(2126), RA-8-(2128), RA-9(2129)

Chief of party CAPT Dean R. Seidel, NOAA

Surveyed by LT D.Haines, LT M.Larsen, LT J.Verlaque, ENS S.Smith, ENS S.Maenner, ENS J.Becker,

ENS N.Bennett, ENS E.Christensen, CST F.Paranada, SST J.Fleischmann,

ST J.Jacobson, Side Scan Sonar, DSF-6000N, EG&G Model 260

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: B. Mihailov

~~Processed by~~ Automated plot by HP Design Jet 650C

Verification by I. Almacen, E. Domingo

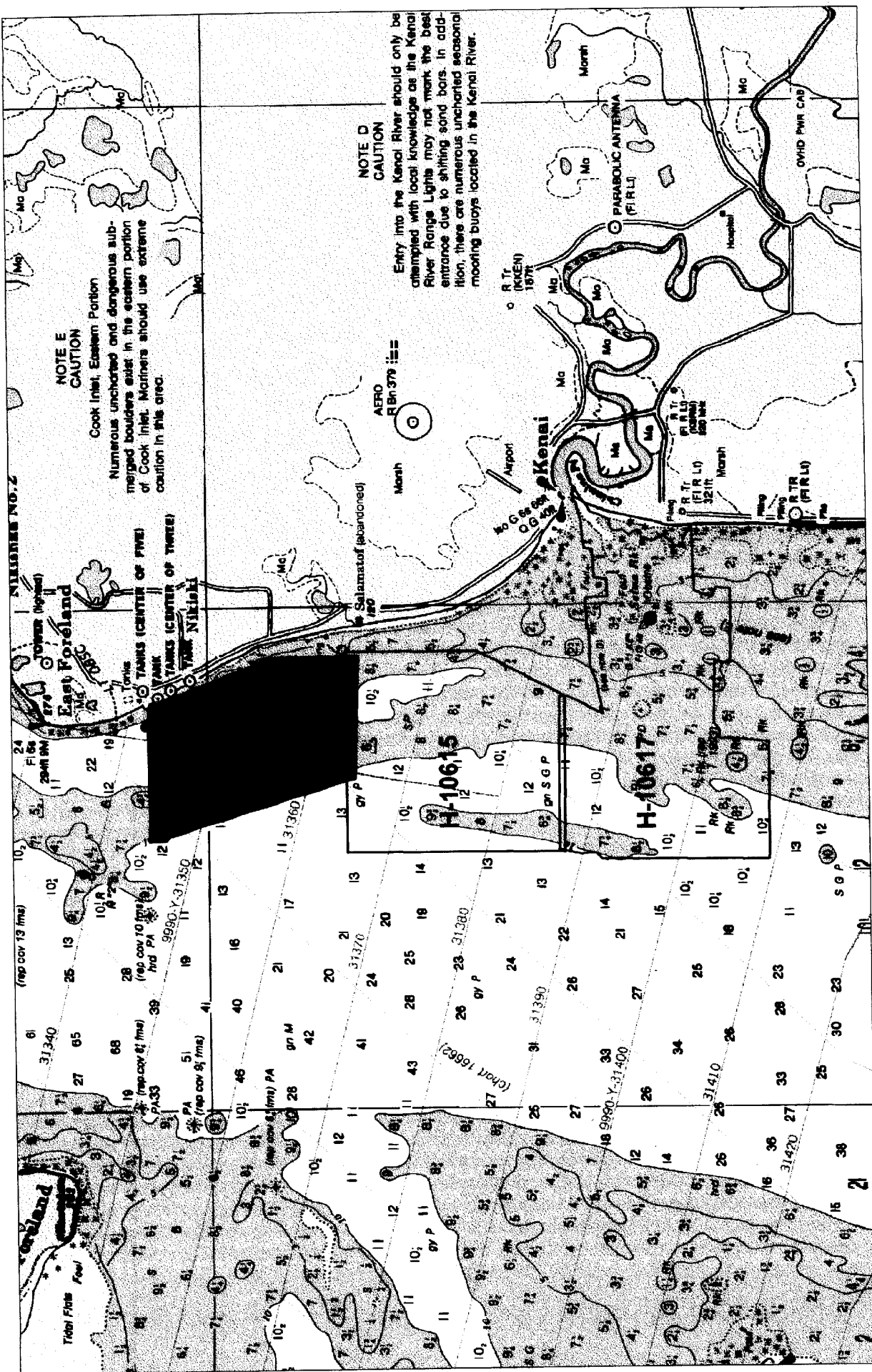
Soundings in fathoms and tenths
~~feet~~ at MLW MLLW

REMARKS: All times in UTC, revisions and marginal notes in black were
generated during office processing. All separates are filed with
the hydrographic data, as a result page numbering may be interrupted
or non-sequential.

All depths listed in this report are referenced to mean lower low
water unless otherwise noted.

Surf / MLLW 6/5/96 MCR

MAY 14 1996



NOTE E
CAUTION

Cook Inlet, Eastern Portion
Numerous uncharted and dangerous submerged boulders exist in the eastern portion of Cook Inlet. Mariners should use extreme caution in this area.

NILKISH NO. 2
Tower (Morse)
East Foreland
TANKS (CENTER OF FIVE)
TANK
TANKS (CENTER OF THREE)
TANK NILKISH

NOTE D
CAUTION

Entry into the Kenai River should only be attempted with local knowledge as the Kenai River Range Lights may not mark the best entrance due to shifting sand bars. In addition, there are numerous uncharted seasonal mooring buoys located in the Kenai River.

AERO
R. T. (KNEH)
1977

Salamatof (abandoned)
780

H-10615

H-10617

PARABOLIC ANTENNA (FIRL)

R. T. (KNEH) 1977

PARABOLIC ANTENNA (FIRL)

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

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R. T. (KNEH) 1977

R. T. (KNEH) 1977

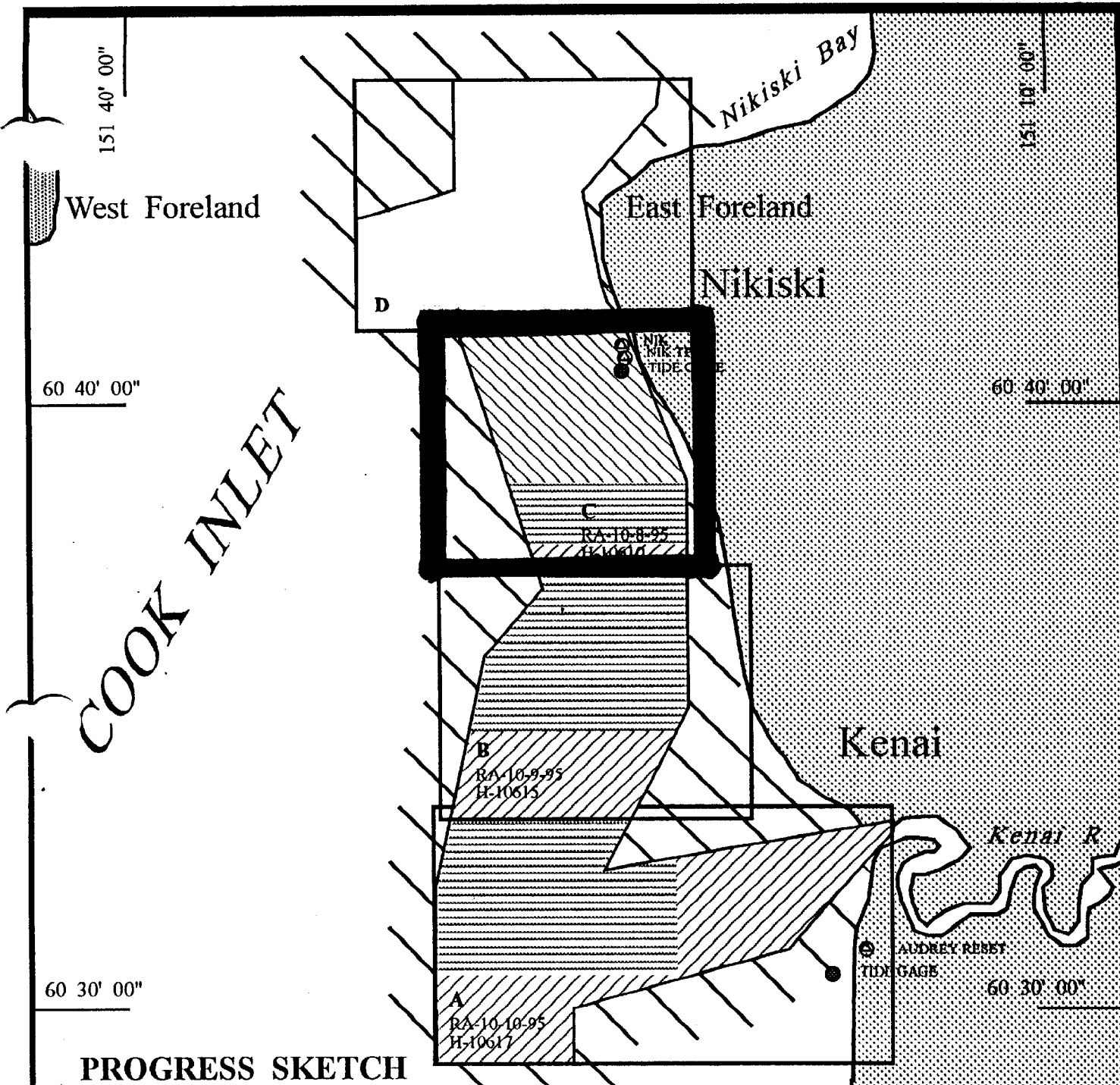
R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977

R. T. (KNEH) 1977



PROGRESS SKETCH
OPR-P329-RA
HYDROGRAPHIC SURVEY
APPROACHES TO NIKISKI, ALASKA

MAY 22 - JULY 27, 1995

NOAA SHIP RAINIER
D. R. SEIDEL, CAPT, NOAA
COMMANDING

SCALE OF CHART 16662
1:100,000

| MAY JUN JUL | | | |
|-------------|-------|--------|-------------------------------|
| 9.0 | 21.6 | 10.8 | SQ. NM. SOUNDINGS |
| 26.7 | 703.1 | 1022.0 | LN.M. SOUNDINGS |
| 12.7 | 22.7 | 6.0 | SQ. NM SIDE SCAN SONAR |
| 248.5 | 675.5 | 1.3 | LN.M. SIDE SCAN SONAR |
| 0 | 66 | 93 | BOTTOM SAMPLES (GRAB) |
| 3 | 2 | 2 | ELECTRONIC CONTROL STATIONS |
| 2 | 3 | 3 | CTD CASTS |
| 2 | 2 | 2 | TIDE GAGES |
| 3 | 3 | 4 | GEO. CONTROL STATIONS EST/REC |
| 0 | 0 | 11 | AWOIS ITEMS INVESTIGATED |
| | | | AREA SURVEYED |

Descriptive Report to Accompany Hydrographic Survey H-10610

Field Number RA-10-8-95

Scale 1:10,000

May-July 1995

NOAA Ship RAINIER

Chief of Party: Captain Dean R. Seidel, NOAA

A. PROJECT ✓

This basic hydrographic survey was completed in the vicinity of Port Nikiski, Alaska, as specified by Project Instructions OPR-P329-RA dated April 11, 1995.

Survey H-10610 corresponds to "sheet C" as defined in the Project Instructions.

This survey will provide contemporary hydrographic survey data to develop a corridor for the navigable approaches to the Port of Nikiski. Requests for hydrographic surveys and updated charts have been received from the United States Coast Guard (USCG), Southwest Alaska Pilot's Association and the Alaska Department of Transportation.

B. AREA SURVEYED ✓ See Eval Rpt, section B

The survey area covers Port Nikiski and vicinity on the eastern shore of Cook Inlet. The survey's eastern limit is bounded by the shore. The western limit is bounded by a line headed 342° True from 151°26.8'W, 60°37.2' N and 151°29.4' W, 60°41.2' N. The survey's northern limit is bounded by 60°41.2' N. The southern limit is bounded by 60°37.2' N.

C. SURVEY VESSELS ✓

Data were acquired by four survey launches and two skiffs as noted below:

| <u>Vessel</u> | <u>EDP #</u> | <u>Operation</u> |
|---------------|--------------|---|
| RA-3 | 2123 | Side Scan Sonar Hydrography Sound Velocity Casts |
| RA-4 | 2124 | Shoreline Verification Hydrography Sound Velocity Casts |

| | | |
|------|------|--|
| RA-5 | 2125 | Side Scan Sonar Hydrography Bottom Samples Sound Velocity Casts |
| RA-6 | 2126 | Side Scan Sonar Hydrography Shoreline Verification |
| RA-8 | 2128 | Bottom Samples |
| RA-9 | 2129 | Hydrography |

D. AUTOMATED DATA ACQUISITION AND PROCESSING ✓

Data were acquired and processed on vessels 2123-2126 using HDAPS programs. A complete listing is included in Appendix VI. *

Bottom sample data acquired on 2128 were entered manually into the HDAPS program.

Data were acquired on vessel 2129 using HYPACK for Windows version 5.2.

Post processing was conducted using the HDAPS HP system. HYPACK files were translated to a PC-DAS format using a Visual Basic program HYPMENU provided by N/CG24. The files were then loaded into HDAPS and processed in the same manner as HDAPS data.

In addition, the following batch routine, GPSINIT.BAT(5/19/94), was used to initialize the Ashtech GPS receiver.

Velocity corrections were determined using:

| <u>Program Name</u> | <u>Version</u> | <u>Date Installed</u> |
|---------------------|----------------|-----------------------|
| VELOCITY | 2.11 | 5 Mar 1995 |

Problems

None

* Filed with hydrographic records.

E. SONAR EQUIPMENT ✓

Side scan sonar (SSS) operations were conducted using an EG&G Model 260 image-corrected SSS recorder and a Model 272-T single frequency towfish. RA-3 and RA-5 were equipped with a thermal recorder and RA-6 was equipped with a multi-stylus recorder. Serial numbers of the equipment used is located on the raw master printouts.*

The SSS towfish was configured with a 20° beam depression, the normal setting, which yields the best beam correction. The 100 kHz frequency was used throughout this survey. The 100 m range scale was used solely for this survey. The towfish was deployed exclusively from the stern of the launch.

Standard line spacing used was 160 m for 100 m RS (Side Scan Sonar Manual Sec 2.1.3.2). In order to get optimal coverage, several lines were run parallel to the face of the piers on the eastern side of the sheet. Overlap of SSS coverage was checked online using the real-time plot and the edited swath plot was employed to identify holidays.

Two hundred percent SSS coverage was achieved as required in the project instructions by conducting two separate 100% coverages wherein the vessel track lines during the second coverage split the distance between the tracklines of the first coverage (SSS Manual Sec. 1.2.2).

Confidence checks were also possible during SSS operations due to numerous rocks, obstructions and bottom features. The SSS traces were scanned for data quality and contacts.

In conjunction with Pacific Hydrographic ^{Branch} ~~Section~~ and Hydrographic Surveys ^{Division} ~~Branch~~, RAINIER developed the following selection criteria. Contacts were selected and entered into the contact table if an object had a connecting shadow and the shadow indicated a significant height above the bottom. Contacts with heights less than 10% of the corrected depth were labeled not significant and marked NS to show that it had been addressed. The corrected depth was listed on line on the margins of the sonargrams. The most significant contact was selected for each 300m x 200m area, which was every six selected soundings when using the 100m range scale. In some cases, when two large contacts were within 300m of each other, they were both selected. Any contact within 10 to 15m of the track, unless obviously significant, was not selected due to the exaggeration of the height of the contact. These contacts showed up on the echosounder or on the second 100% coverage of the area and were addressed. Contacts that were labeled as significant were entered into the contact tables in the HDAPS programs.

The contact tables were run through the "Sifter Program." The sifter program determines the significance of contacts based upon the surrounding selected sounding data. There are two parameters for which the hydrographer must enter values, the grid radius and the threshold depth. The grid radius determines the area that the estimated contact height will

* Filed with the hydrographic data.

be compared against and the threshold depth is the controlling depth of the navigable area. Captain Eliassen, a Southwest Alaska Pilots Association representative, stated that presently the maximum draft of the vessels transiting the survey area is 40ft (12.2m) and that in the future the maximum may be as great as 50ft (15.2m). RAINIER used 20m as the threshold depth and a 100m grid radius.

According to the "Sifter Program," a contact is considered resolved if it meets one of the following criteria:

- 1) The contact is less 1m high in less than 20m of water.
- 2) The contact is less than 10% of the depth in depths greater than 20m.
- 3) The top depth is deeper than the threshold depth. The top depth is determined by subtracting the contact height from the base depth.
- 4) The top depth is within 0.7m of any selected sounding already collected within the grid radius.
- 5) The fake height of the contact must be greater than or equal to 70% of the computed contact height.

Each unresolved contact was then developed by intensive echo sounder investigation using 2-10m line spacing and in some cases drift searching. Once the developments were completed the contact tables were re-sifted using the 18m as the threshold depth. Contacts that were determined not to be resolved were further developed. This process was continued until all contacts were fully developed or resolved.

In many cases, extensive scouring occurred around boulders resulted in an exaggerated contact heights. This was obvious on the echograms showing a spike in a hole. To account for the total height the deep depth was inserted next to the high point on the echogram. In some cases the "Sifter Program" listed developed contacts as not yet being resolved. In these cases, the contacts were again investigated ensuring that echo sounder lines were run both in an east-west and north-south direction and that the least depth in the area was found.

In areas where side scan sonar revealed ridges, the most significant contacts were chosen and developed. In addition 25m line spacing was run over the area to get better coverage of the area and to define any items which required further investigation.

Each contact remaining unresolved was examined individually and slated either for further development or manual designation as resolved based on one or more of the following reasons:

- 1) 100% coverage of the contact area by echosounder investigation in both directions.
- 2) Ambiguous sonargram.
- 3) Contact significantly distorted by small offset from towfish.
- 4) Un-recorded deep inserts would make another of the sifter criteria true. For instance,

if height of the contact plus the depth of the adjacent scour was greater than 70% of the contact height.

The hydrographer considers no contacts unresolved by the above criteria with the exception of the one listed below.

A contact was identified during both the one hundred percent and two hundred percent side scan sonar. The contact's characteristics are indicative of a man made feature. During the first one hundred percent coverage, contact 5734.68 was identified as 8.0m high but was thought to be exaggerated because of its close proximity to the track. During the second hundred percent coverage, the same feature was identified as contact 5912.57. The shadow of contact 5912.57 extended beyond the 100m swath and the height was determined to be at least 3.2m. The contact was developed with three east-west lines (positions 4606-4610). The least depth determined was 24.3m (position 4606.2) on DN 163. This development showed a 2.5m hit. After examination of the echogram it was determined that the contact needed further development. The top height determined for 5734.68 was 18.6m and for 5912.57 was 23.3m. Both top depths are deeper than the threshold depth, consequently they were determined to be resolved by the sifter program. As a result the contacts did not appear on the contact plot. Development lines 4606-4610 did not cover contact 5734.68 (8 meter height). Because of uncertainty as to whether the eight meter contact height plus contact 5734.68 has been shown on the smooth sheet as a 10.3m depth (height/depth approximate). Tables for contact/development correlation are located in "Separates to be Included with Survey Data, section VI." *

Problems ✓

Apparent holidays were caused by both necking (towfish dropping below eight percent) and by GPS flyers. Since the GPS flyers only lasted momentarily the tracklines were left as is and the data were not smoothed. In both cases the hydrographer does not believe that the quality of the data was affected. Data analyzed during office processing revealed no significant problems.

The side scan sonar equipment ran without problems on Sheet C.

F. SOUNDING EQUIPMENT ✓

The Raytheon DSF-6000N, used in vessels 2123-2126, is a dual frequency (100 kHz, 24 kHz), paper trace echo sounder. Serial numbers are included on the headers of the daily Raw Master Printouts* All DSF-6000N soundings were acquired using the High + Low, high frequency digitized setting or the low frequency digitized setting, depending on water depth. Vessel 2129 used the Innerspace 448, serial number 300, a single frequency thermal depth sounder recorder.

* Filed with the hydrographic data.

Problems ✓

No problems which affect survey data were encountered. *Concur*

G. CORRECTIONS TO ECHO SOUNDINGS ✓

Correctors for the velocity of sound through water were determined from the casts listed below.

| <u>Velocity Table #</u> | <u>Cast#</u> | <u>DN</u> | <u>Cast Position</u> | <u>Deepest Depth (m)</u> | <u>Applicable DN</u> |
|-------------------------|--------------|-----------|-----------------------------|--------------------------|----------------------|
| 1 | 1 | 146 | 60° 39.5' N 151° 24.5' W | 49.8 | 145-152 |
| 2 | 2 | 161 | 60° 40.8' N 151° 25.1' W | 50.0 | 157-166 |
| 4 | 4 | 178 | 60° 40.4' N 151° 25.2' W | 40.5 | 170-180 |
| 5 | 5 | 194 | 60° 40.8' N 151° 25.1' W | 47.7 | 184-194 |
| 6 | 6 | 200 | 60° 40.2' N 151° 25.2' W | 59.8 | 196-202 |

The sound velocity casts were acquired with SBE SEACAT Profiler (S/N 811), calibrated 03/31/95. Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) No. 69. Due the large tidal range, the data from the cast had manually extrapolated beyond the program VELOCITY's normal limits to meet all depths in the survey area. The cast were all linear and thus were easy to extrapolate. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV, Sounding Equipment Calibrations and Corrections". * *Extrapolation of velocity cast data appears to contain no significant problems.*

Static Draft ✓

A transducer depth was determined using FPM Fig 2.2 for vessels 2123-2126 and 2129 in the spring of 1995. These values were entered into the offset tables for each vessel.

* Filed with the hydrographic data.

Settlement and Squat ✓

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.3, and are included with project data for OPR-P329-RA. The data for 2123-2126 and 2129 was collected in Shilshole Bay, Washington in the Spring of 1995.

Offset Tables ✓

Offset tables contain offsets for the GPS antenna, as well as static draft measurements, and settlement and squat data. Offset tables 3-9 correspond to the number of the vessel. The offset tables were compiled with new measurements in the spring of 1995 and are contained in the "Separates to be Included with Survey Data" ~~X~~ Offset and layback were applied for 2129 for hydrography; corrections were applied on-line based on CMG. Horizontal corrections were not applied for the HDAPS launches. Offset table 8 (for 2128) contains all zeros and was used for manually entered bottom sample data.

Heave ✓

The launches are not equipped with heave, pitch and roll sensors.

Bar Check ✓

Bar check lines were calibrated by RAINIER personnel during the winter inport 1994-1995. Calibration forms are included with project and data for OPR-P329-RA. Bar checks were performed weekly and served as a functional check of the DSF-6000N.

Tide Correctors ✓

The operating tide station at Seldovia, Alaska (945-5500) served as the control station for datum determination at all subordinate stations.

Predicted tides for the project were provided on diskette for HDAPS by N/CG241 for the Nikiski, Alaska reference station (945-5760).

Tidal correctors that were applied to the predicted tides at Nikiski, as listed in the section, 5.9. Zoning, in the project instructions for this sheet are:

| | <u>Time Correction</u> | <u>Range Ratio</u> | <u>Zone</u> |
|--------------------|------------------------|--------------------|-------------|
| East of 151°27.0'W | 0:00 | x 1.00 | IV |
| West of 151°27.0'W | 0:00 | x 0.98 | III |

Portions of this survey fall in the tide Zones III and IV. Due to the constraints of the plotter, sheet C was divided at longitude 151°26.0'W. Depths collected to the east of

* Filed with the hydrographic data

longitude 151°26.0'W were reduced using the corrections for Zone IV and depths to the west of longitude 151°26.0'W were reduced using corrections for Zone III.

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report. *

RAINIER personnel installed 8200 digital gages at Nikiski, Alaska (945-5760) on May 22, 1995 and Chinulna Point (945-5735) on May 27, 1995. The staff was connected to five benchmarks at both stations during opening and closing level runs. Opening levels completed May 22, 1995 at Nikiski and on May 28, 1995 at Chinulna Point. On June 17, 1995, the staff at Chinulna Point was found to be broken at the two meter mark, which was the portion above the top of the boulder and the staff stop was gone. It was determined that the staff was probably busted by the debris carried by the strong currents. Since the remainder of the staff was secured directly to the rock face and it was inevitable that the top of the staff would again be broken, the staff was not replaced and a new staff stop was installed at the 1.3m mark on June 18, 1995. The new staff stop was leveled to bench mark 5735A. Both tide gages ran without problems during data acquisition. Closing levels were conducted at Nikiski on July 20, 1995 and at Chinulna Point on July 21, 1995. Both stations were removed on July 21, 1995.

The station descriptions, field tide records, field tide notes and data (Appendix V) have been forwarded to N/OES212 in accordance with HSG 50 and FPM 4.3. A request for approved tides was forwarded to N/OES2 in accordance with FPM 4.2.3. Tide notes dated January 30, 1996 is attached.

H. CONTROL STATIONS See Eval Rpt, section H.

A listing of the geodetic stations used to control this survey is included in Appendix III of this report. The horizontal datum for this project is NAD83.

DGPS stations were installed on existing stations NIK and AUDRY RESET. A temporary station, NIK TP, was established to replace station NIK. Station NIK is located on the Kenai Pipeline Co. Wharf, and station AUDRY RESET is located on a bluff south of the Kenai River. Station NIK TP is on the south portion of the Kenai Pipeline Co. Wharf and was established to replace station NIK which is one meter from a bollard that the tankers use when docking.

These stations were recovered in accordance with methods stated in Section 5.2.4 of the FPM. For further information see the "Summer 1995 Horizontal Control Report".

I. HYDROGRAPHIC POSITION CONTROL ✓ See Eval Rpt, section I

All soundings and features were positioned using differential GPS. Serial numbers for Ashtech GPS equipment are annotated on the data printouts.*

Ashtech GPS

Method of Position Control

VHF differential shore stations were established at stations NIK and AUDRY RESET. The difference between the computed locations and station's published positions were recorded by the MONITOR 3.0 program on a PC. Unfortunately, only part of the data was recovered from the PC, both of the SUMMARY.SUM files and the scatterplot for station AUDRY RESET. The scatterplot for station NIK was not recovered. Consequently, MONITOR 3.0 was rerun for station NIK, but the data was accidentally deleted. *Survey data appears consistent throughout the sheet limits.*

The data lost was considered to be primarily graphical representations of the SUMMARY.SUM files; thus, upon further examination of the SUMMARY.SUM files for stations NIK and AUDRY RESET, it was determined not to rerun the MONITOR 3.0. Station NIK had no bad GGA records or outliers, while station AUDRY RESET had no bad GGA records and only 16 outliers.

When establishing station NIK TP on DN 145, the baseline between NIK and AUDRY RESET did not close. Investigating the problem revealed NGS's position for station AUDRY RESET was given in NAD 92. This caused a difference in position of 2.87 meters. Initially, station AUDRY RESET was not used for surveying, only for system checks which were within tolerance. When the position was converted to NAD 83 the baseline closed. The problem was corrected on DN152. *Correct*

A temporary VHF differential shore station was established at station NIK TP. ASHTECH MXII geodetic receivers were set up over existing stations NIK, AUDRY RESET, and temporary station NIK TP. A single GPS observation was made by collecting data simultaneously over a 2 hour period. The position was recorded by the MONITOR 3.0 program on a PC. Data from a 24-hour period was recorded and examined for signs of multi-path signal reflection, which was not evident. Scatterplot results are included in the "Project related data for OPR-P329-RA".

Six privately maintained pier lights^{*} were positioned using conventional static GPS positioning methods. For further information see the "Summer 1995 Horizontal Control Report". ** Lights mark the Kenel, Phillips and Collier Piers.*

A portable differential GPS positioning system was used to position six charted tanks and two charted buildings on the shoreline of sheet C. The system consisted of a hand-held MAGELLAN GPS receiver configured for differential GPS. *Four tanks currently charted as landmarks were the only features shown on the smooth sheet.*

Calibrations & Systems Check Methods ✓

System checks were performed in accordance with Section 3.4.4 of the FPM. Two launches observed their positions from two independent DGPS base stations. The results were transferred to forms which are included in the project data for OPR-P329-RA. An abstract of the system checks is included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data" ✕

Problems ✓

None

J. SHORELINE ✓

There are no photogrammetric source data for this project. Shoreline for field sheets was transferred from enlargements of Chart 16662 (1:100,000, 3rd Ed., 1993). These data are shown in brown for orientation purposes only and are so annotated.

Method of Shoreline Verification

Shoreline verification was conducted near predicted mean lower low water in accordance with FPM 7.1. Shoreline verification was accomplished by taking detached positions (DPs), as explained later in this section.

DPs taken during shoreline verification were recorded on the master printouts and on the DP forms.

Detailed 1:10,000 "Bottom Sample and Detached Position Plots" are provided showing all DPs and notes relating to each feature. The information from these plots was transferred to a final field plot where possible. Where such information would interfere with the legibility of the final plot the appropriate cartographic symbol has been transferred, but height and position number information remains on the plot, which serves as an overlay (FPM 6.1.2.5). New features are depicted in black. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. *Heights shown on the smooth sheet are reduced for approved tides and are shown in feet.*

Charted Features

The three piers of Nikiski were identified and the positions verified by taking detached positions with the launch. The charted ^{features} were identified except as noted below:

on 1:10,000 Inset
A rock and an obstruction are charted in the vicinity of position at latitude 60° 40' 56.0" N, longitude 151° 23' 43.1" W were not found. These features are listed as AWOIS item 52198. The area was visually investigated at low water (tide -0.2m) on DN 190 for a half

of an hour. The depths in the vicinity were approximately two meters and the water visibility less than 0.3m. The search radius was 300m. The hydrographer also spoke with local fisherman Carl Wagoneer, who has been setting his nets in the reported area for many years. He stated that there were no obstructions. Any obstruction under 10,000lbs that they have found in the past they have removed. He has also split apart any boulders on the beach that might be a danger to his fishing boats. The hydrographer recommends removing the rock and obstruction. - CONCUR, refer to p. 17 of this report for additional information on AWOIS item 52198.

A charted submerged obstruction in the vicinity of latitude 60° 41' 00.0" N, longitude 151° 23' 54.0" W. This feature is listed as AWOIS item 52199. Its source is unknown; it first appeared on the chart in 1977. The feature was investigated using a drift search and discussing with local fisherman and pier master. A drift search was conducted (Position 6759-6763) in the vicinity of the reported position. Depths ranging from 7.1m-9.2m were found. There was no indication of an obstruction rising 8ft (2.4m) off the sea floor. Local fisherman Carl Wagoneer sets nets in the reported area. After years of fishing inside the piers, from the rig tenders dock south to the Unocal pier, he stated that there were no obstructions. Any obstruction under 10,000lbs that they have found in the past they have removed. He has also split apart any boulders on the beach that might a danger to his fishing boats. Tesoro employee Paul Somora, stated that he was unaware of any dead men inside the pier. He did say that there was a large piece of zinc used for cathodic protection inside the pier, but did not have an exact position for the zinc. Further investigation was not possible due to the large density of fishing nets. The hydrographer recommends removing the submerged obstruction from the chart. CONCUR

A pile is charted in the vicinity of latitude 60° 40' 16.2" N, longitude 151° 2³ 37.2" W. This feature originated from survey H-9619 (1:20,000, 1976). Two hundred percent coverage was completed using side scan sonar. The area was developed using 10 meter line spacing. There were no indication of a pile during the investigation. The Collier pier master stated that the pile was not there. He stated that so many ships have used the pier that it would be impossible for it to still be there. The hydrographer recommends removing the pile from the chart. - CONCUR

K. CROSSLINES ✓

Crosslines are within 0.4 meter agreement with mainscheme hydrography. Crosslines totaled 22.9 nautical miles, representing 11.5% of the total mainscheme hydrography.

L. JUNCTIONS ✓ See Evaluation Report, section L.

This survey junctions with survey H-10615 (1:10,000, 1995) at the southern limit. Soundings were found to be in general agreement. The final comparisons will be made at Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS *See Evaluation Report, section M.*

Charted soundings originated from the following USC&GS prior surveys: H-8617 WD (1:20,000, 1961), H-8618 (1:20,000, 1961), H-9074 (1:5,000, 1969), H-9619~~X~~ (1:20,000, 1976) and H-9621 (1:20,000 1976).

Due to higher density of sounding data, many least depths were found to be shoaler and several new features were located. Preliminary comparisons revealed a few prior least depths which were slightly shoaler than the current survey. These cases are individually discussed in section O, Comparison With The Chart. Final comparisons will be done at PHS.

N. ITEM INVESTIGATIONS ✓

There were five AWOIS investigations for survey H-10610.

AWOIS ITEM 52191 ✓

1. Area of Investigation

State: Alaska
Locality: Port Nikiski and Vicinity
Reported Latitude: 60° 37' 31.0" N
Reported Longitude: 151° 26' 15.1" W
Datum: NAD 83
Depth: 37ft (11.2m)
Feature: Obstruction (shoal)

2. Description of Source Item

During wire drag survey H-8617 WD (1961), a depth of 35ft (10.6m) was cleared but hung at an obstruction at 37ft (11.2m) charted as a shoal cleared to 5m 5ft. Survey H-9619 (1976) showed a depth of 7.8-8.6fm. The shoaler sounding from H-8617 WD was carried forward with a subsidence of 0.2fm applied for the 1964 earthquake.

3. Survey Requirements

Verify or disprove, determine least depth and position using echo sounder, side scan sonar or dive investigation.

4. Method of Investigation

Two hundred percent coverage of the area was completed using side scan sonar. The area was developed with an echosounder using 10m line spacing. Areas of the development

that showed indication shoaler depths were further developed using 5m line spacing.

5. Results of Investigation

Date: DN 149
Time (UT): 22:20:05
Measured Depth: 16.0m
Predicted tide corrector: -4.0m
Draft 0.5
Sound Velocity -0.2m
Corrected Least Depth: 12.3m (6fm 4ft)

Position Number 3294.2
Latitude 60° 37' 33.8" N
Longitude 151° 26' 04.4" W
Datum: NAD 83

The least depth of 12.3m (6fm 4ft) was determined with an echo sounder.

6. Comparison with Prior Surveys

Prior survey H-8617 WD (1:20,000, 1961) shows a wire drag cleared a depth of 35ft and hung on 37ft.

Prior survey H-9619 (1:20,000, 1976) shows a depths ranging from 7.8fm to 8.5fm.

7. Comparison with the Chart and Charting Recommendations

The obstruction is charted as a shoal cleared to 5fm 5ft on NOS chart 16662, 3rd edition, July 10, 1993, 1:100,000, NAD 83.

Recommendation

Delete the 5fm 5ft (10.6m) sounding at latitude 60° 37' 31.0" N, longitude 151° 26' 15.1" W. Chart a 6fm 4ft (12.3m) sounding at latitude 60° 37' 33.8" N, longitude 151° 26' 04.4" W. *With the application of approved tides, chart a 6fm 3ft sounding at latitude 60/37/33.8 N longitude 151/26/04.4W*

This item was not reported as a danger to navigation.

not in CRIT

AWOIS ITEM 52192 ✓

1. Area of Investigation

State: Alaska
Locality: Port Nikiski and Vicinity
Reported Latitude: 60° 38' 20.2" N
Reported Longitude: 151° 22' 42.8" W
Datum: NAD 83
Depth: 38ft (11.5m) (cfm 2ft+)
Feature: Obstruction (Shoal)

2. Description of Source Item

During wire drag survey H-8617 WD (1961), a depth of 29ft (8.8m) was cleared but hung at an obstruction at 38ft (11.5m). Survey H-9619 (1976) showed a depths of 6.9-9.8fm. The shoaler sounding from H-8617 WD was carried forward with a subsidence of 0.2fm applied for the 1964 earthquake.

3. Survey Requirements

Verify or disprove, determine least depth and position using echo sounder, side scan sonar or dive investigation.

4. Method of Investigation

Two hundred percent coverage of the area was completed using side scan sonar. The area was developed with an echosounder using 10m line spacing. Areas of the development that indicated shoaler depths were further developed using 5m line spacing.

5. Results of Investigation

Date: DN 187
Time (UT): 23:31:43
Measured Depth: 13.1m
Predicted tide corrector: -2.7m
Draft corrector: +0.6m
Sound Velocity Corrector: -0.2m
Corrected Least Depth: 10.8m (5fm 5ft) - with smooth tides applied = 6.2fms.

Position Number: 2966.7
Latitude: 60° 38' 20.6" N
Longitude: 151° 22' 34.9" W
Datum: NAD 83

The least depth of 10.8m (35.4ft, 5fm 5ft) was determined with an echo sounder approximately 120m east of the reported position.

6. Comparison with Prior Surveys

Prior survey H-8617 WD (1:20,000, 1961) shows a wire drag cleared a depth of 29ft and hung on 38ft.

Prior survey H-9619 (1:20,000, 1976) shows a depths ranging from 6.9fm to 9.8fm.

7. Comparison with the Chart and Charting Recommendations

The obstruction is charted as a shoal cleared to 5fm on NOS chart 16662, 3rd edition, July 10, 1993, 1:100,000, NAD 83.

Recommendation

Delete the 5fm sounding at latitude 60° 38' 21.4" N, longitude 151° 22' 34.5" W. Chart a 5fm 5ft (10.8m) sounding at latitude 60° 38' 20.6" N, longitude 151° 22' 34.9" W. With the application of smooth tides, chart a 6fm 1 foot sounding at latitude 60/38/20.6N longitude 151/22/34.9W.

This item was not reported as a danger to navigation.

AWOIS ITEM 52193 ✓

not in CRIT

1. Area of Investigation

State: Alaska
Locality: Port Nikiski and Vicinity
Reported Latitude: 60° 38' 21.4" N
Reported Longitude: 151° 22' 34.5" W
Datum: NAD 83
Depth: 5fm (9.1m)
Feature: Obstruction

2. Description of Source Item

During wire drag survey H-8617 WD (1961), an obstruction was hung at a depth of 29ft (8.8m). Survey H-9619 (1976) showed a depths of 6.4-6.9fm. The shoaler sounding from H-8617 WD was carried forward with a subsidence of 0.2fm applied for the 1964 earthquake.

3. Survey Requirements

Verify or disprove, determine least depth and position using echo sounder, side scan sonar or dive investigation.

4. Method of Investigation

Two hundred percent coverage of the area was completed using side scan sonar. The area was further developed with an echosounder using 10m line spacing over a 200 meter radius. Areas of the development that indicated shoaler depths were further developed using 5m line spacing.

5. Results of Investigation

Date: DN 187
Time (UT): 23:31:43
Measured Depth: 13.1m
Predicted tide corrector: -2.7m
Draft corrector: +0.6m
Sound Velocity Corrector: -0.2m
Corrected Least Depth: 10.8m

Position Number: 2966.7
Latitude: 60° 38' 20.6" N
Longitude: 151° 22' 34.9" W
Datum: NAD 83

The least depth of 10.8m (35.4ft, 5.9fm) was determined with an echo sounder.

6. Comparison with Prior Surveys

Prior survey H-8617 WD (1:20,000, 1961) shows a wire drag hung at a depth of 29ft.
Prior survey H-9619 (1:20,000, 1976) shows a depths ranging from 6.4fm to 6.9fm.

7. Comparison with the Chart and Charting Recommendations

The obstruction is charted as a shoal cleared to 5fm on NOS chart 16662, 3rd edition, July 10, 1993, 1:100,000, NAD 83.

Recommendation

Delete the 5fm sounding at latitude 60° 38' 21.4" N, longitude 151° 22' 34.5" W. Chart a 6.5fm (10.8m) sounding at latitude 60° 38' 20.6" N, longitude 151° 22' 34.9" W. This AWOIS is in the same general area as AWOIS item 52192. Chart 6fm 1 foot sounding at position recommended for AWOIS 52192. Based on approved tides.



This item was not reported as a danger to navigation.

AWOIS ITEM 52198 ✓

1. Area of Investigation

State: Alaska
Locality: Port Nikiski and Vicinity
Reported Latitude: 60° 40' 56.0" N
Reported Longitude: 151° 23' 43.1" W
Datum: NAD 83
Depth 1: uncovers 5ft at MLLW
Feature 1: Obstruction, concrete slab (8x8x8)
Depth 2: uncovers 1 ft at MLLW
Feature 2: Obstruction, rock awash

2. Description of Source Item

Collier and Chemical Corporation submitted a letter and drawing stating that there are four dead men (concrete slabs) used for anchoring mooring buoys. Survey H-9619 shows a concrete slab (uncovers 5ft MLLW) and a rock (uncovers 1ft at MLLW) in vicinity.

3. Survey Requirements

Verify or disprove, determine least depth and position using echo sounder, visual inspection or dive investigation.

4. Method of Investigation

Visual investigation. Discussed with local fisherman, Carl Wagoneer.

5. Results of Investigation

Visual Search

Date: DN 190
Time (UT): 1700
Predicted tide corrector: -0.2
Search Radius: 300m

During the visual search at low water, neither the concrete slab nor the rock were located.

Local fisherman Carl Wagoneer sets nets in the reported area. After years of fishing inside the piers, from the rig tenders dock south to the Unocal pier, he stated that there were no obstructions. Any obstruction under 10,000lbs that they have found in the past they have

removed. He has also split apart any boulders on the beach that might a danger to his fishing boats.

A pipe that is used by the fisherman to secure their netting gear is in the approximate vicinity. A detached position was taken from the closest position possible. The is pipe set on the beach and does not present a danger to navigation. **Concur**

6. Comparison with Prior Surveys

Prior survey H-9619 (1:20,000, 1976) shows an obstruction that uncovers 5ft above MLLW and rock that uncovers at 1ft above MLLW.

7. Comparison with the Chart and Charting Recommendations

The obstruction is charted on NOS chart 16662, Inset 1:50,000, 3rd Edition, July 10, 1993, 1:100,000, NAD 83.

Recommendation

Delete the obstruction charted at latitude 60° 40' 56.0" N, longitude 151° 22' 43.1" W. **Concur,**
delete Obstr (5) PA from chart.
This item was not reported as a danger to navigation.

(23'
see p. 2 of
this report
not in CRIT.
on inset.

AWOIS ITEM 52199 ✓

1. Area of Investigation

State: Alaska
Locality: Port Nikiski and Vicinity
Reported Latitude: 60° 41' 00.0" N
Reported Longitude: 151° 23' 54.00" W
Datum: NAD 83
Depth: Submerged
Feature: Obstruction

2. Description of Source Item

Unknown source. First appeared on chart the 1977 edition of the chart 16660. Position scaled from chart 16662. Survey H-9074 showed depths 3.8-5fm (6.7-9.1m) in the vicinity.

3. Survey Requirements

Search about charted feature after talking to the pier master.

4. Method of Investigation

Visual investigation and drift search with echo sounder. Discussed with local fisherman, Carl Wagoneer, and Tersoro Fuel Company Employee, Paul Somora, who ran the Kenai Pipeline (KPL) pier.

5. Results of Investigation

Visual Search

Date: DN 190
Time (UT): 1700
Predicted tide corrector: -0.2m
Search Radius: 300m

Drift Search

Date: DN 190
Time (UT): 20:40:04
Measured Depth: 10.3m
Predicted tide corrector: -3.6m
Draft corrector: +0.6m
Sound Velocity Corrector: -0.2m
Corrected Least Depth: 7.1m

Position Number: 6761.2
Latitude: 60° 40' 60.0" N
Longitude: 151° 23' 54.0" W
Datum: NAD 83
Search Radius: 100m
Datum: NAD 83

A drift search was conducted (position number 6759-6763) in the vicinity of the reported position. Depths ranging from 7.1m-9.2m were found. There was no indication of an obstruction rising 8ft (2.4m) off the sea floor.

Local fisherman Carl Wagoneer sets nets in the reported area. After years of fishing inside the piers, from the rig tenders dock south to the Unocal pier, he stated that there were no obstructions. Any obstruction under 10,000lbs that they have found in the past they have removed. He has also split apart any boulders on the beach that might a danger to his fishing boats.

Tesoro employee Paul Somora, stated that he was unaware of any dead men inside the pier. He did say that there was a large piece of zinc used for cathodic protection inside the pier, but did not have an exact position for the zinc. We were unable to investigate any further due to the large density of fishing nets.

6. Comparison with Prior Surveys

Prior survey H-9074 (1:5,000, 1969) shows a sounding of 3.8-5.0fm in the vicinity.

7. Comparison with the Chart and Charting Recommendations

The obstruction is charted on NOS chart 16662, Inset 1:50,000, 3rd edition, July 10, 1993, NAD 83.

Recommendation

Delete the obstruction charted at latitude $60^{\circ} 41' 00.0''$ N, longitude $151^{\circ} 23' 54.0''$ W. *Concur, delete subm obstrs from chart.* *not in OPIT,*

This item was not reported as a danger to navigation.

O. COMPARISON WITH THE CHART *See Eval Rpt, Section O.*

This survey was compared to NOS chart 16662, 3rd edition, July 10, 1993, 1:100,000, (NAD83). Charted soundings were found to be in general agreement. Due to higher density of sounding data, many least depths were found to be shoaler and several new features were located.

In three cases, the charted depth is shoaler than the depth found. In the vicinity of latitude $60^{\circ} 40' 39''$ N, longitude $151^{\circ} 27' 30''$ W, a 2fm 2ft (4.2m) depth is charted. During survey H-10610, two hundred percent coverage of the area was completed using side scan sonar. The area was further developed with an echosounder using 5m line spacing. On DN 200, position number 3150+5, the least depth found was 3fm 1ft (5.8m).

The hydrographer recommends deleting the 2fm 2ft at latitude $60^{\circ} 40' 39''$ N, longitude $151^{\circ} 27' 30''$ W, and charting a 3fm 1ft sounding at latitude $60^{\circ} 40' 45.5''$ N, longitude $151^{\circ} 27' 30.7''$ W. *Concur, with smooth tides applied chart 3fm 2ft (3.4fm) sounding at surveyed position.*

In the vicinity of latitude $60^{\circ} 38' 21.4''$ N, longitude $151^{\circ} 22' 34.5''$ W, a shoal is charted which was cleared by wire drag at 5fm (see AWOIS 52193). The least depth found was 5fm 5ft (10.8m). The hydrographer recommends deleting the 5fm sounding at latitude $60^{\circ} 38' 21.4''$ N, longitude $151^{\circ} 22' 34.5''$ W and charting a 5fm 5ft (10.8m) sounding at latitude $60^{\circ} 38' 20.6''$ N, longitude $151^{\circ} 22' 34.9''$ W. *Concur, refer to the item investigation for AWOIS 52193 on page 15 of this report, for least depth.*

In the vicinity of latitude $60^{\circ} 37' 31.0''$ N, longitude $151^{\circ} 26' 15.1''$ W, a 5fm 5ft (10.6m) sounding is charted (see AWOIS item 52191). The least depth found was 6fm 4ft (12.3m). The hydrographer recommends deleting the 5fm 5ft (10.6m) sounding at latitude $60^{\circ} 37' 31.0''$ N, longitude $151^{\circ} 26' 15.1''$ W and charting a 6fm 4ft (12.3m) sounding at latitude $60^{\circ} 37' 33.8''$ N, longitude $151^{\circ} 26' 04.4''$ W. *Concur, refer to the item investigation for AWOIS 52191 for least depth, on page 12 of this report.*

*The above are all
true cases.*

Non-sounding charted features are discussed in Section J, Shoreline. Final comparisons to be made at PHS.

Dangers to Navigation ✓

Nineteen dangers to navigation within the limits of H-10610 were reported to the Seventeenth Coast Guard District, August 9, 1995. Copies of the correspondence can be found in Appendix I of this report. *Eleven additional dangers were discovered and reported during office processing. Copies of these reports are attached.*

P. ADEQUACY OF SURVEY ✓

Survey H-10610 is complete and adequate to supersede charted depths and features in their common areas. *Concur*

Q. AIDS TO NAVIGATION ✓

There were fourteen aids to navigation on H-10610. Six red pier lights, two on each pier, were positioned to third order accuracy with GPS on DN 187 and DN 196. Six charted tanks and two charted buildings were positioned with a hand-held MAGELLAN GPS unit configured for differential GPS by walking up the charted features and taking detached positions. All positions agreed within 0.01' of the positions scaled from NOS chart 16662 (3rd ed, July 10, 1993). A summary is *attached to this report* provided in Appendix VI. Detailed information is contained in the "Summer 1995 Horizontal Control Report for OPR-P329-RA." ** Only Four Charted tanks shown as land marks have been graphically portrayed on the smooth sheet.*

R. STATISTICS ✓

| | |
|-----------------------------|------------------------|
| # Selected Soundings | 94599 34723 |
| NM Hydrography | 673.9 |
| Velocity Casts | 5 |
| Detached Positions | 37 |
| Bottom Samples | 40 |
| Tide Stations | 2 |
| NM ² Hydrography | 11.4 |

S. MISCELLANEOUS ✓

Bottom samples were collected in accordance with Project Instructions and in accordance with Sections 1.6.3 and 4.7.1 of the Hydrographic Manual.

Strong tidal currents were observed (maximum 8 knots). Currents flood generally north and ebb south. Current predictions are available within the sheet limits. Maximum and minimum currents were observed to be stronger and up to a half of an hour behind what was predicted. *Strong tidal currents are noted on Chart 16662 and should be retained.*

No unusual magnetic variations were noted.

T. RECOMMENDATIONS ✓

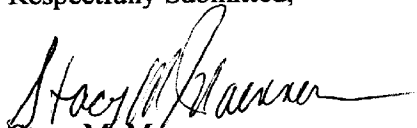
None

U. REFERRAL TO REPORTS ✓


The following supplemental reports contain additional information relevant to this survey:

| <u>Title</u> | <u>Date Sent</u> | <u>Office</u> |
|---|------------------|---------------|
| Summer 1995 Horizontal Control Report for OPR-P329-RA | August 1995 | N/CG245 |
| Summer 1995 Coast Pilot Report for OPR-P329-RA | August 1995 | N/CG245 |
| Summer 1995 Secchi Disk | June 1995 | N/CG211 |
| Project related data for OPR-P329-RA | Incremental | N/CG245 |

Respectfully Submitted,


Stacy M. Maenner
Ensign, NOAA

Approved and Forwarded,


Dean R. Seidel
Captain, NOAA
Commanding Officer

Section Q: Descriptive Report Insert ✓

Name of Aid: Most Northern Light on the KPL Main Pier Face *Kenai Pipe Line Company North Light*

Light List #: N/A

Method of Positioning: 3rd Order

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 41' 04.8" | 151° 24' 00.0" |
| Survey* Pos. | 60° 41' 05.6" | 151° 24' 00.2" |

Difference between Survey/Charted position: 25 m 174 deg T

* Surveyed position is from Audry Reset

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Tesoro Private (Y)

Frequency of Maintenance:

Purpose: Delimits the main pier face. Note: A catwalks/extends to the north of the light.

Section Q: Descriptive Report Insert ✓

Name of Aid: Most Southern Light on the KPL Main Pier Face *Kenei Pipe Line Company South Light*

Light List #: N/A

Method of Positioning: 3rd Order

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 53.3" | 151° 23' 52.2" |
| Survey* Pos. | 60° 40' 52.8" | 151° 23' 53.4" |

Difference between Survey/Charted position: 24m 226 deg T

* Surveyed position is from Audry Reset

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Tesoro Private (Y)

Frequency of Maintenance:

Purpose: Delimits the main pier face. Note: A catwalks extends to the south of the light.

Section Q: Descriptive Report Insert ✓

Name of Aid: Most Northern Light on the Phillips Main Pier Face *Phillips LNG North Light*

Light List #: N/A

Method of Positioning: 3rd Order

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 43.8" | 151° 23' 51.0" |
| Survey* Pos. | 60° 40' 44.3" | 151° 23' 50.9" |

Difference between Survey/Charted position: 16 m 186 deg T

* Surveyed position is from Audry Reset

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Phillips Private (Y)

Frequency of Maintenance:

Purpose: Delimits the main pier face. Note: A catwalks extends to the north of the light.

Section Q: Descriptive Report Insert ✓

Name of Aid: Most Southern Light on
the Phillips Main Pier
Face

Phillips LNG South Light

Light List #: N/A

Method of Positioning: 3rd Order

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 34.2" | 151° 23' 44.4" |
| Survey* Pos. | 60° 40' 34.5" | 151° 23' 44.1" |

Difference between Survey/Charted position: 10 m 210 deg T

* Surveyed position is from Audry Reset

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Phillips Private (Y)

Frequency of Maintenance:

Purpose: Delimits the main pier face. Note: A catwalks extends to the south of the light.

Section Q: Descriptive Report Insert ✓

Name of Aid: Most Northern Light on the Collier Main Pier Face Collier Pier North Light

Light List #: N/A

Method of Positioning: 3rd Order

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 19.8" | 151° 23' 33.6" |
| Survey* Pos. | 60° 40' 21.8" | 151° 23' 34.4" |

Difference between Survey/Charted position: 63 m 169 deg T

* Surveyed position is from Audry Reset

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Unocal Private (Y)

Frequency of Maintenance:

Purpose: Delimits the main pier face. Note: A catwalks extends to the northern of the light.

Section Q: Descriptive Report Insert ✓

Name of Aid: Most Southern Light on the Collier Main Pier Face Collier Pier South Light

Light List #: N/A

Method of Positioning: 3rd Order

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 12.6" | 151° 23' 27.0" |
| Survey* Pos. | 60° 40' 11.5" | 151° 23' 24.6" |

Difference between Survey/Charted position: 49 m 312 deg T

* Surveyed position is from Audry Reset

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Unocal Private (Y)

Frequency of Maintenance:

Purpose: Delimits the main pier face. Note: A catwalks extends to the south of the light.

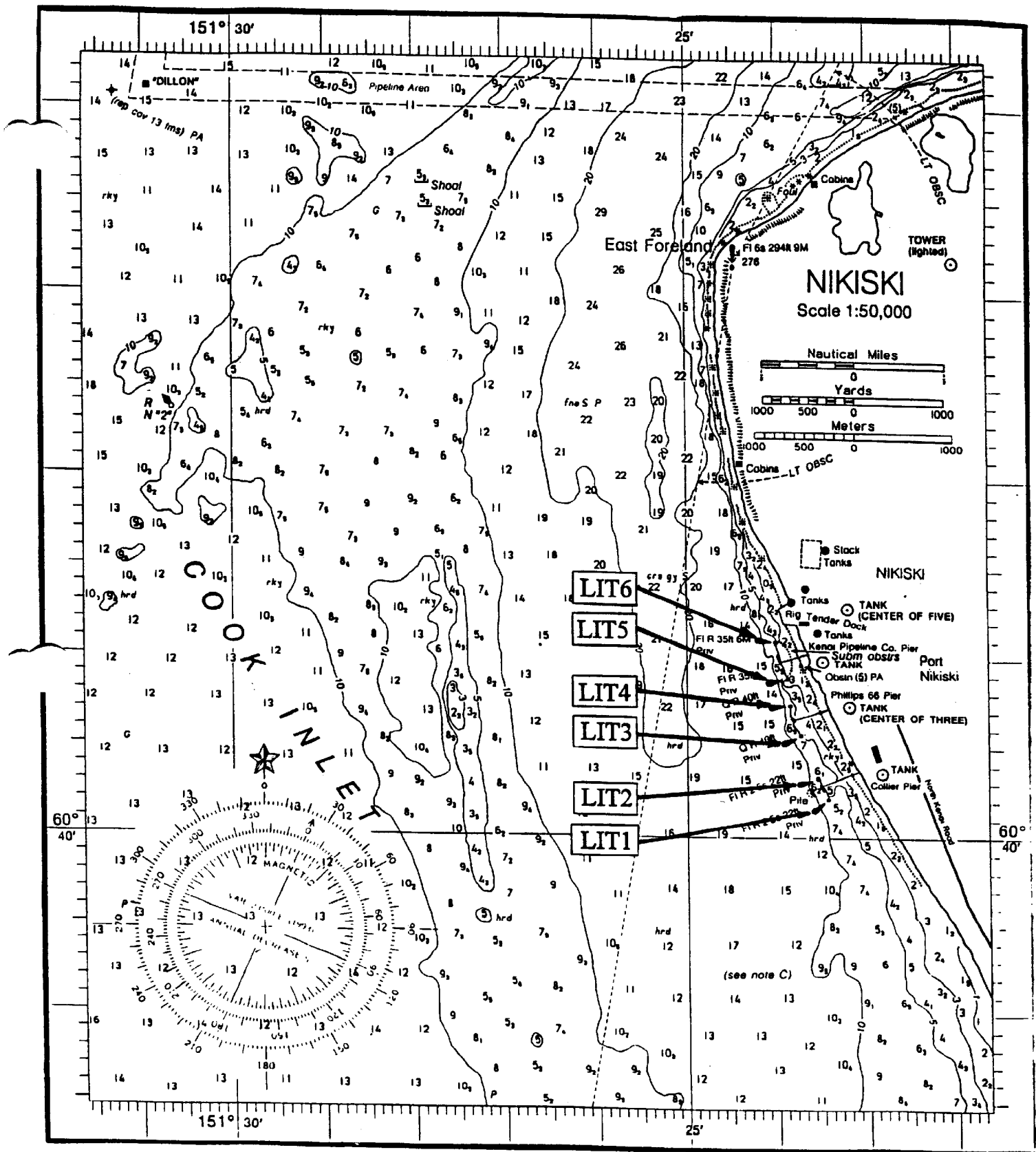


Fig. 2:

Section Q: Descriptive Report Insert ✓

Name of Aid: Tank 1 (See attached Figure 3 from the 1995 Horizontal Control Report)

Shown as landmark on the smooth sheet.

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 21.6" | 151° 22' 51.6" |
| Survey Pos. | 60° 40' 20.0" | 151° 22' 49.0" |

Difference between Survey/Charted position: 63 m 321 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Unocal Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert ✓

Name of Aid: Tank 2 (See attached Figure 3 from the 1995 Horizontal Control Report)
shown as landmark on the smooth sheet.

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 43.8" | 151° 23' 12.0" |
| Survey Pos. | 60° 40' 44.0" | 151° 23' 11.0" |

Difference between Survey/Charted position: 16 m 248 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Phillips Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert ✓

Name of Aid: Tank 3 (See attached Figure 3 from the 1995 Horizontal Control Report)

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|--|
| Charted Pos. | 60° 40' 58.8" | 151° 23' 29.4" |
| Survey Pos. | 60° 40' 59.0" | 151° 23' 29.0" ^{29.0"} |

Difference between Survey/Charted position: 298 m 91 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Tesoro Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert ✓

Name of Aid: Tank 4 (See attached Figure 3 from the 1995 Horizontal Control Report)

Tank 4 was not shown on the smooth sheet. This feature is not charted as a landmark.

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 41' 09.0" | 151° 23' 33.0" |
| Survey Pos. | 60° 41' 03.0" | 151° 23' 31.0" |

Difference between Survey/Charted position: 188 m 351 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Tesoro Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert

Name of Aid: Tank 5 (See attached Figure 3 from the 1995 Horizontal Control Report)
Tank 5 was not shown on the smooth sheet. This feature is not charted as a landmark.

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 41' 19.2" | 151° 23' 49.2" |
| Survey Pos. | 60° 41' 18.0" | 151° 23' 50.0" |

Difference between Survey/Charted position: 39 m 18 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert ✓

Name of Aid: Tank 6 (See attached Figure 3 from the 1995 Horizontal Control Report)
Shown as landmark on the smooth sheet

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 41' 16.8" | 151° 23' 12.0" |
| Survey Pos. | 60° 41' 17.0" | 151° 23' 11.0" |

Difference between Survey/Charted position: 16 m 248 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Tesoro Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert

Name of Aid: Building 1 (See attached Figure 3 from the 1995 Horizontal Control Report)

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 40' 28.2" | 151° 22' 54.0" |
| Survey Pos. | 60° 40' 29.0" | 151° 23' 02.0" |

Difference between Survey/Charted position: 124 m 102 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Unocal Private (Y)

Frequency of Maintenance:

Purpose:

Section Q: Descriptive Report Insert ✓

Name of Aid: Building 2 (See attached Figure 3 from the 1995 Horizontal Control Report)

Light List #: N/A

Method of Positioning: Differential GPS

Positioning Info

| | Latitude N | Longitude W |
|--------------|---------------|----------------|
| Charted Pos. | 60° 41' 12.0" | 151° 23' 42.0" |
| Survey Pos. | 60° 41' 11.0" | 151° 23' 40.0" |

Difference between Survey/Charted position: 43 m 316 deg T

Characteristics

Do Characteristics Match Light List? (y/n)

If NO, what are the characteristics? Red Pier Light

New/Uncharted Aids (if info is known or easily obtained)

Date Established:

Maintained By: Tesoro Private (Y)

Frequency of Maintenance:

Purpose:

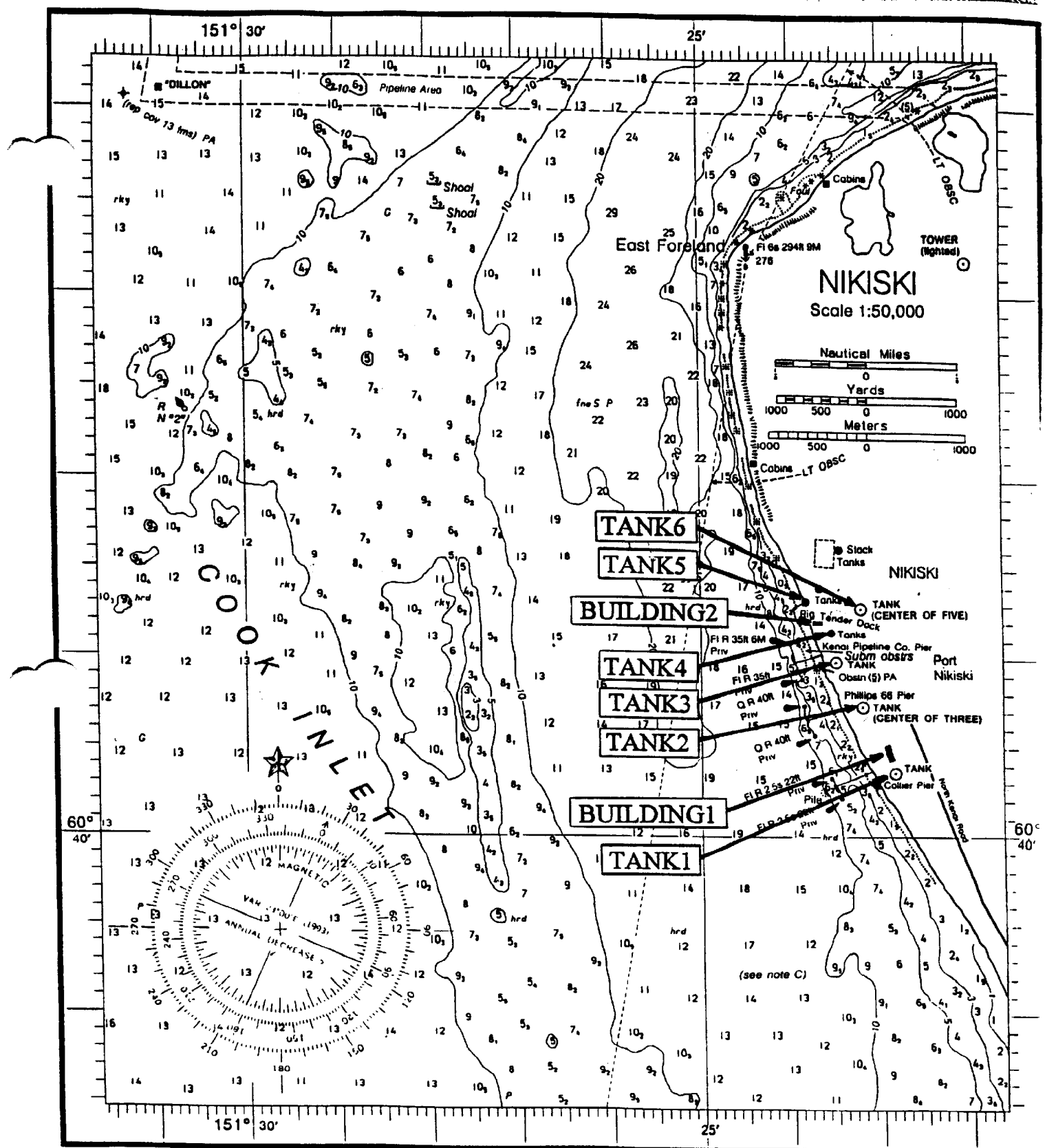


Fig. 3:

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

Replaces C&GS Form 567

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

ORIGINATING ACTIVITY

TO BE CHARTED
 TO BE REVISITED
 TO BE DELETED

REPORTING UNIT
(Field Party, Ship or Office)
NOAA Ship RAINIER

STATE
Alaska

LOCALITY
Cook Inlet

DATE
11-Aug-95

The following objects HAVE HAVE NOT been inspected from seaward to determine their value as landmarks.

(See reverse for responsible personnel)

OPR PROJECT NO. OPR-P329-RA

JOB NUMBER H-10610

SURVEY NUMBER NAD 83

DATE

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

OFFICE

FIELD

CHARTS AFFECTED

| CHARTING NAME | DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses) | LATITUDE | | LONGITUDE | | METHOD AND DATE OF LOCATION (See instructions on reverse side) | OFFICE | FIELD | CHARTS AFFECTED |
|---------------|--|----------|-------------------|-----------|------------------|---|--------|-------|-----------------|
| | | ° ' " | D.M. Meters | ° ' " | D.P. Meters | | | | |
| | Most northern red light on the Collier pier (owned by Unocal) | 60 40 | 21.792 674.51 | 151 23 | 34.391 522.33 | F-GPS-L 6-Jul-95 | | | 16662 16660 |
| | Most southern red light on the Collier pier (owned by Unocal) | 60 40 | 11.522 356.63 | 151 23 | 24.597 373.58 | F-GPS-L 6-Jul-95 | | | 16662 16660 |
| | Most northern red light on the Phillips pier | 60 40 | 44.314 1371.61 | 151 23 | 50.875 772.69 | F-GPS-L 15-Jun-95 | | | 16662 16660 |
| | Most southern red light on the Phillips pier | 60 40 | 34.473 1067.01 | 151 23 | 44.069 669.32 | F-GPS-L 15-Jun-95 | | | 16662 16660 |
| | Most northern red light on the KPL pier | 60 41 | 5.592 173.08 | 151 24 | 0.179 2.72 | F-GPS-L 15-Jun-95 | | | 16662 16660 |
| | Most southern red light on the KPL pier | 60 40 | 53.344 1651.10 | 151 23 | 52.233 793.31 | F-GPS-L 6-Jul-95 | | | 16662 16660 |

| RESPONSIBLE PERSONNEL | | ORIGINATOR | |
|---|---|---|---|
| TYPE OF ACTION | NAME | | |
| OBJECTS INSPECTED FROM SEAWARD | CAPT D. R. Seidel | <input type="checkbox"/> PHOTO FIELD PARTY | <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY |
| | | <input type="checkbox"/> GEODETIC PARTY | <input type="checkbox"/> OTHER |
| POSITIONS DETERMINED AND/OR VERIFIED | CAPT D. R. Seidel | FIELD ACTIVITY REPRESENTATIVE | |
| FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW | | OFFICE ACTIVITY REPRESENTATIVE | <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE |
| INSTRUCTIONS FOR ENTRIES UNDER "METHOD AND DATE OF LOCATION" (Consult Photogrammetric Instructions No. 64) | | | |
| OFFICE 1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E (C) 6042 8 - 12 - 75 | FIELD (Cont.) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P - 8 - V 8 - 12 - 75 74L (C) 2982 | II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter "Triang. Rec." with date of recovery. EXAMPLE: Triang. Rec. 8 - 12 - 75 | III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter "V-Vis." and date. EXAMPLE: V-Vis. 8 - 12 - 75 |
| FIELD 1. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F - 2 - 6 - L 8 - 12 - 75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. | **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods. | | |

NOAA FORM 76-40 (8-74)

SUPERSEDES NOAA FORM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

U. S. GPO : 1975-0-665-080/1155



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767
NOAA Ship RAINIER

August 8, 1995

**ADVANCE
INFORMATION**

Commander
Seventeenth Coast Guard District
Post Office Box 3-5000
Juneau, Alaska 99802

Dear Sir:

During the processing of hydrographic surveys H-10610 and H-10615 in Cook Inlet, 45 additional dangers to navigation have been discovered. These dangers affect the following charts:

| <u>Chart</u> | <u>Edition/Date</u> | <u>Datum</u> |
|--------------|---------------------|--------------|
| 16660 | 26th Ed., Jan 22/94 | NAD83 |
| 16662 | 3rd Ed., Jul 10/93 | NAD83 |

It is recommended that these additional dangers to navigation be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6835.

Sincerely,

Dean R. Seidel
Captain, NOAA
Commanding Officer
NOAA Ship RAINIER

Enclosure

cc: DMA/HTC
PMC
N/CG221
Capt Eliassen, SWAPA



Hydrographic Survey Registry Number: H-10610

Survey Title: State: Alaska
Locality: Cook Inlet
Sublocality: Port Nikiski and Vicinity

Project Number: OPR-P329-RA

Survey Date: May-July, 1995

**ADVANCE
INFORMATION**

Features are reduced to Mean Lower Low Water using predicted tides.

Affected Nautical Charts:

| <u>Chart</u> | <u>Edition/Date</u> | <u>Datum</u> |
|--------------|---------------------|--------------|
| 16660 | 26th Ed., Jan 22/94 | NAD83 |
| 16662 | 3rd Ed., Jul 10/93 | NAD83 |

| <u>Item</u> | <u>Danger</u> | <u>Depth</u> | <u>Latitude</u> | <u>Longitude</u> | | |
|-------------|---------------|--------------|-----------------|------------------|---------|-----|
| A. | SOUNDING | 4FM 5FT | 60/39/30.9N | 151/27/13.7W | 6165+0 | 9° |
| B. | SOUNDING | 4FM 5FT | 60/39/04.9N | 151/27/12.1W | 6632+2 | 9° |
| C. | SOUNDING | 4FM 2FT | 60/38/55.4N | 151/27/00.7W | 68397+4 | 8' |
| D. | SOUNDING | 4FM 4FT | 60/38/40.7N | 151/26/34.7W | 6731+2 | 8' |
| E. | SOUNDING | 7FM 1FT | 60/38/36.9N | 151/27/06.5W | 35044+2 | 13' |
| F. | SOUNDING | 7FM 3FT | 60/38/33.2N | 151/27/34.8W | 68252+1 | 14° |
| G. | SOUNDING | 5FM 1FT | 60/41/08.7N | 151/24/06.7W | 3545+3 | 9' |
| H. | SOUNDING | 5FM 1FT | 60/39/16.2 N | 151/22/45.0 W | 1799+1 | 9° |
| I. | SOUNDING | 8FM 5FT | 60/38/39.3 N | 151/25/45.0 W | 1942+4 | 16' |
| J. | SOUNDING | 7FM | 60/38/41.1 N | 151/22/41.6 W | 2856+2 | 13' |
| K. | SOUNDING | 8FM | 60/38/30.0 N | 151/25/12.1 W | 5377+3 | 14' |
| L. | SOUNDING | 8FM | 60/38/23.9 N | 151/24/00.4 W | 30026+3 | 14' |
| M. | SOUNDING | 7FM | 60/38/01.9 N | 151/24/53.9 W | 5186+2 | 13' |
| N. | SOUNDING | 7FM | 60/38/06.9 N | 151/22/43.5 W | 5421+5 | 13' |
| O. | SOUNDING | 7FM | 60/37/31.6 N | 151/25/22.5 W | 4074+2 | 13' |
| P. | SOUNDING | 7FM 4FT | 60/37/24.3 N | 151/24/39.2 W | 2306+2 | 14' |
| Q. | SOUNDING | 7FM 4FT | 60/37/20.0 N | 151/22/32.7 W | 2591+3 | 14' |
| R. | SOUNDING | 6FM 5FT | 60/37/20.7 N | 151/25/24.3 W | 3996+2 | 12' |
| S. | SOUNDING | 6FM 5FT | 60/38/19.9 N | 151/27/08.4 W | 8207+0 | 12' |

in crit.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
Seattle, Washington 98115-0070

August 22, 1995

**ADVANCE
INFORMATION**

Commander
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK 99802

Dear Sir:

Twelve additional dangers to navigation have been identified by Pacific Hydrographic Branch regarding Project OPR-P329-RA (NOAA Ship RAINIER, July, 1995) within the limits of hydrographic survey H-10610. These dangers affect the following charts:

| <u>Chart</u> | <u>Edition/Date</u> | <u>Scale</u> | <u>Datum</u> |
|--------------|-----------------------|--------------|--------------|
| 16660 | 26th Ed./Jan 22, 1994 | 1:194,154 | NAD83 |
| 16662 | 3rd Ed./Jul 10, 1993 | 1:100,000 | NAD83 |

The attached information is provided for publication in the Local Notice to Mariners. A copy of chart 16662 showing the area in which the dangers exist is also attached.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6853.

Sincerely,

Kathryn Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Enclosures

cc: DMAHTC
N/CS261
PMC



**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: H-10610

Survey Title: State: Alaska
Locality: Cook Inlet
Sublocality: Port Nikiski and Vicinity

Project Number: OPR-P329-RA-95

Survey Date: May 25 - July 20, 1995

Features are reduced to Mean Lower Low Water using predicted tides.

Charts Affected: 16660 26th Edition/January 22, 1994 1:194,154 NAD83
16662 3rd Edition/July 10, 1993 1:100,000 NAD83

| <u>ITEM</u> | <u>DANGER</u> | <u>DEPTH</u> | <u>LATITUDE(N)</u> | <u>LONGITUDE(W)</u> |
|-------------|---------------|--------------|--------------------|---------------------|
| A. | Sounding | 6 fms 4 ft | 60°40'52.6" | 151°28'32.7" |
| B. | Sounding | 7 fms 3 ft | 60°40'25.9" | 151°28'24.7" |
| C. | Sounding | 6 fms 0 ft | 60°38'48.8" | 151°27'22.6" |
| D. | Sounding | 7 fms 0 ft | 60°38'19.9" | 151°27'08.3" |
| E. | Sounding | 7 fms 5 ft | 60°37'50.7" | 151°26'39.3" |
| F. | Sounding | 7 fms 1 ft | 60°38'45.1" | 151°22'52.1" |
| G. | Sounding | 8 fms 0 ft | 60°39'29.8" | 151°23'23.2" |
| H. | Sounding | 7 fms 0 ft | 60°37'27.2" | 151°25'47.3" |
| I. | Sounding | 6 fms 4 ft | 60°37'17.9" | 151°25'16.4" |
| J. | Sounding | 7 fms 5 ft | 60°37'39.3" | 151°24'40.0" |
| K. | Sounding | 7 fms 3 ft | 60°37'40.8" | 151°24'59.1" |
| L. | Sounding | 7 fms 4 ft | 60°37'10.2" | 151°28'08.2" |

IM CRIT

22

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6853.

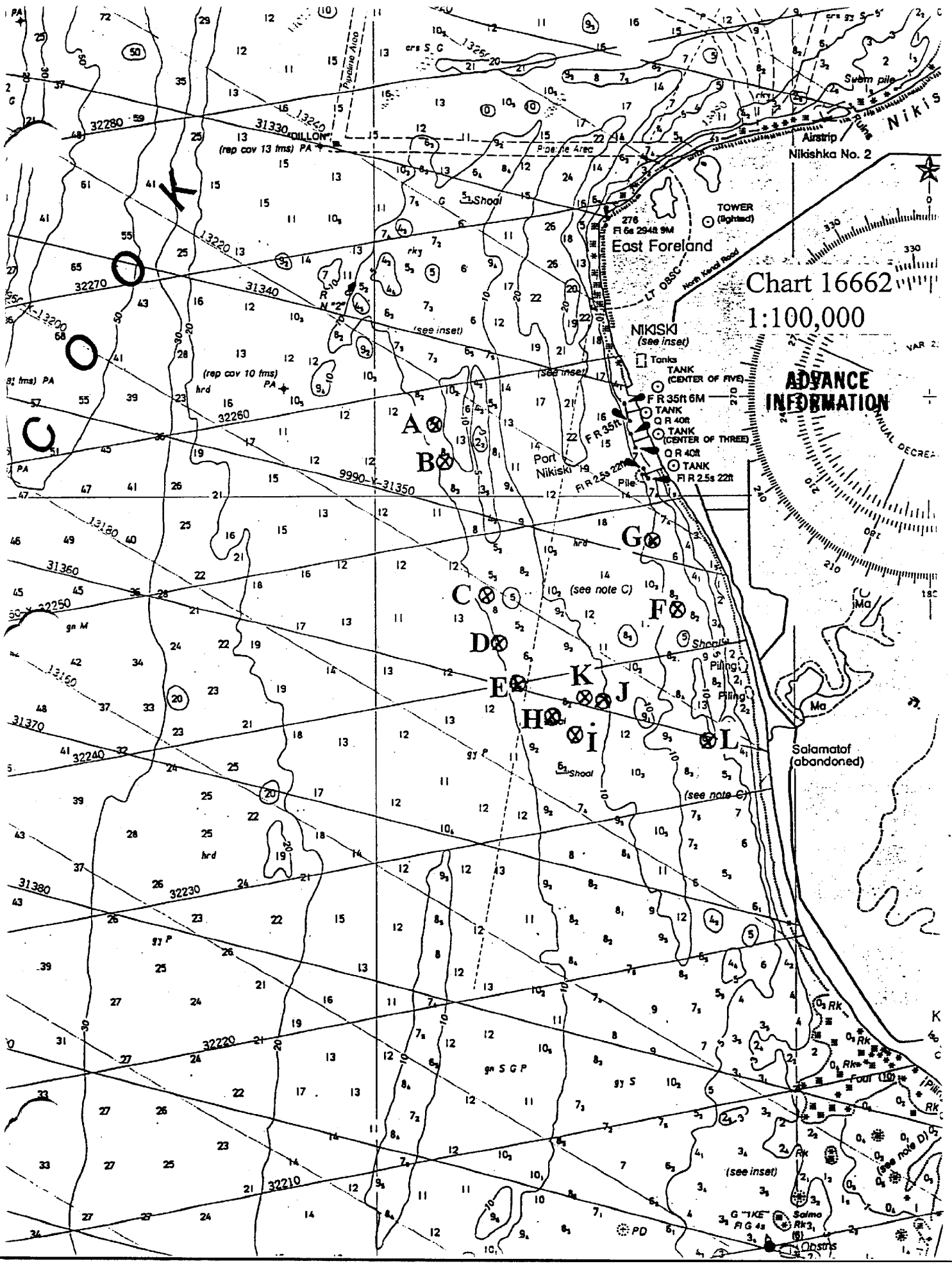


Chart 16662
1:100,000

ADVANCE INFORMATION

Salamatof (abandoned)

NIKISKI
 (see inset)

- TANK (CENTER OF FIVE)
- FR 35ft 6M
- TANK
- OR 40R
- TANK (CENTER OF THREE)
- OR 40R
- TANK
- FR 25s 22R

Nikishka No. 2

East Foreland

Port Nikiski

(see note C)

(see inset)

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF COAST SURVEY
Pacific Hydrographic Branch
Seattle, Washington 98115-0070

April 19, 1996

Commander
Seventeenth Coast Guard District
Post Office Box 3-5000
Juneau, Alaska 99802

Dear Sir:

During the office processing of hydrographic survey H-10610 in Cook inlet, an error in a previously reported danger to navigation has been discovered. This danger affects the following charts:

| <u>Chart</u> | <u>Edition/Date</u> | <u>Datum</u> |
|--------------|---------------------|--------------|
| 16660 | 26th Ed., 1/22/94 | NAD83 |
| 16662 | 3rd Ed., 7/10/93 | NAD83 |

It is recommended that this change in position be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6853.

Sincerely,

Kathryn A. Timmons

Kathryn A. Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Enclosure

cc: DMA/HTC
PMC
RAINIER
N/CG261



Hydrographic Survey Registry Number: H-10610

Survey Title: State: Alaska
 Locality: Cook Inlet
 Sublocality: Port Nikiski and Vicinity

Project Number: OPR-P329-RA

Survey Date: May-July 1995

Features are reduced to Mean Lower Low Water using predicted tides.

Affected Nautical Charts:

| <u>Chart</u> | <u>Edition/Date</u> | <u>Datum</u> |
|--------------|---------------------|--------------|
| 16660 | 26th Ed., 1/22/94 | NAD83 |
| 16662 | 3rd Ed., 7/10/93 | NAD83 |

| <u>Danger to Navigation</u> | | <u>Latitude (N)</u> | <u>Longitude (W)</u> |
|-----------------------------|-----------|---------------------|----------------------|
| Shoal, 7 fms 4 ft | incorrect | 60/37/10.2 | 151/28/08.2 |
| | correct | 60/37/10.2 | 151/22/08.2 |

Questions concerning this report should be directed to the Pacific Hydrographic Branch at (206) 526-6853.

APPROVAL SHEET

for

H-10610
RA-10-8-95

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.



Dean R. Seidel
Captain, NOAA
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

ORIGINAL

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: January 30, 1996

HYDROGRAPHIC BRANCH: Pacific

HYDROGRAPHIC PROJECT: OPR P329-RA

HYDROGRAPHIC SHEET: H-10610 (amended)

LOCALITY: Port Nikiski and Vicinity, Cook Inlet, Alaska

TIME PERIOD: May 25 - July 20, 1995

TIDE STATION USED: 945-5760 Nikiski, Alaska
Lat. $60^{\circ} 41.0'N$ Lon. $151^{\circ} 23.8'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.91 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 19.63 ft.

REMARKS: RECOMMENDED ZONING

1. In Cook Inlet, south of $60^{\circ} 43.0'N$, north of $60^{\circ} 37.5'N$, and east of $151^{\circ} 34.0'W$, and west of $151^{\circ} 27.0'W$, times are direct, and apply a X0.98 range ratio to heights using Nikiski, Ak. (945-5760).
2. In Cook Inlet, south of $60^{\circ} 37.5'N$, north of $60^{\circ} 32.0'N$, and east of $151^{\circ} 34.0'W$, and west of $151^{\circ} 27.0'W$, apply a -15 minute time correction, and a X0.98 range ratio to heights using Nikiski, Ak. (945-5760).
3. In Cook Inlet, south of $60^{\circ} 43.0'N$, north of $60^{\circ} 37.5'N$, and east of $151^{\circ} 27.0'W$, times and heights are direct using Nikiski, Ak. (945-5760).



page 2 of 2 for H-10610

4. In Cook Inlet, south of $60^{\circ} 37.5'N$, north of $60^{\circ} 32.0'N$, and east of $151^{\circ} 27.0'W$, apply a -15 minute correction to times and heights are direct using Nikiski, Ak. (945-5760).

- Notes:**
1. Hourly heights are tabulated in Greenwich Mean Time.
 2. This version of tide note H-10610 supersedes the original tide note of December 8, 1995, and the amended notes of December 14, 1994, and January 24, 1996.



CHIEF, DATUMS SECTION

H-10610

GEOGRAPHIC NAMES

| Name on Survey | A ON CHART NO. 16662 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 (title) | X | | X | | | | | | | |
| COOK INLET | X | | X | | | | | | | | 2 |
| NIKISKI | X | | X | | | | | | | | 3 |
| PORT NIKISKI | X | | X | | | | | | | | 4 |
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Approved

Chris Colby
Chief Geographer

MAR 20 1996

HYDROGRAPHIC SURVEY STATISTICS

H-10610

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

| RECORD DESCRIPTION | | AMOUNT | RECORD DESCRIPTION | | AMOUNT |
|--------------------|-------------------|----------------------|------------------------------------|-----------|-----------------------------|
| SMOOTH SHEET | | 1 | SMOOTH OVERLAYS: POS., ARC, EXCESS | | |
| DESCRIPTIVE REPORT | | 1 | FIELD SHEETS AND OTHER OVERLAYS | | |
| DESCRIP-TION | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR-GRAMS | PRINTOUTS | ABSTRACTS: SOURCE DOCUMENTS |
| ACCORDION FILES | 4 | | | | |
| ENVELOPES | | | | | |
| VOLUMES | | | | | |
| CAHIERS | | | | | |
| BOXES | | | | | |

| | | | | | |
|-----------------------------------|--|--|--|--|--|
| SHORELINE DATA | | | | | |
| SHORELINE MAPS (List): | | | | | |
| PHOTOBATHYMETRIC MAPS (List): | | | | | |
| NOTES TO THE HYDROGRAPHER (List): | | | | | |
| SPECIAL REPORTS (List): | | | | | |
| NAUTICAL CHARTS (List): | | | | | |

OFFICE PROCESSING ACTIVITIES

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

| PROCESSING ACTIVITY | AMOUNTS | | |
|--|--------------|------------|--------|
| | VERIFICATION | EVALUATION | TOTALS |
| POSITIONS ON SHEET | | | |
| POSITIONS REVISED | | | |
| SOUNDINGS REVISED | | | |
| CONTROL STATIONS REVISED | | | |
| | TIME-HOURS | | |
| | VERIFICATION | EVALUATION | TOTALS |
| PRE-PROCESSING EXAMINATION | | | |
| VERIFICATION OF CONTROL | | | |
| VERIFICATION OF POSITIONS | | | |
| VERIFICATION OF SOUNDINGS | | | |
| VERIFICATION OF JUNCTIONS | | | |
| APPLICATION OF PHOTOBATHYMETRY | | | |
| SHORELINE APPLICATION/VERIFICATION | | | |
| COMPILATION OF SMOOTH SHEET | 117 | | 117 |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | | | |
| EVALUATION OF SIDE SCAN SONAR RECORDS | | | |
| EVALUATION OF WIRE DRAGS AND SWEEPS | | | |
| EVALUATION REPORT | | 31 | 31 |
| GEOGRAPHIC NAMES | | | |
| OTHER: | | | |
| *USE OTHER SIDE OF FORM FOR REMARKS | | | |
| TOTALS | 117 | 31 | 148 |

| | | |
|--|---------------------------|------------------------|
| Pre-processing Examination by LT P. Haines | Beginning Date 8/16/95 | Ending Date 8/16/95 |
| Verification of Field Data by E. Domingo, I. Almacen | Time (Hours) 117 | Ending Date 3/29/96 |
| Verification Check by B. Olmstead | Time (Hours) 3 | Ending Date 4/16/96 |
| Evaluation and Analysis by B. Mihailov | Time (Hours) 31.0 | Ending Date 4/12/96 |
| Inspection by B.A. Olmstead | Time (Hours) 10.0 | Ending Date 4/19/96 |

EVALUATION REPORT

H-10610

A. PROJECT

Project information is discussed in the hydrographer's report.

B. AREA SURVEYED

This survey was conducted along the eastern coast of Cook Inlet and covers Port Nikiski and vicinity. The specific survey limits are adequately described in the hydrographer's report. The bottom is made up of sand, gravel and pebble. Depths range from 2.7 to 23 fathoms.

C. SURVEY VESSELS

Survey vessel information is found in the hydrographer's report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data were processed using the same Hydrographic Data Acquisition/Processing System (HDAPS) software used by the hydrographer, the Hydrographic Processing System (HPS) and AutoCad, Version 12.

At the time of the survey certification the format for transmission of digital data had not been formally approved. In the interim, digital data for this survey exists in the standard HPS format which is a database format using the .dbf extension. In addition, the sounding plot, created with .dbf (extension) and enhanced using the AutoCad system, is filed both in the AutoCad drawing format, i.e., .dwg (extension); and in the more universally recognized graphics transfer format, .dxf (extension). Copies of these files will be retained at PHS until data transfer protocols are developed and improved.

The drawing files necessarily contain information which is not part of the HPS data set such as geographic names text, line-type data, and minor symbolization. In addition, those soundings deleted from the drawing for clarity purposes, remain unrevised in the HPS digital files to preserve the integrity of the original hydrographic data set. Cartographic codes used to describe the digital data are those authorized by the Hydrographic Survey Guideline No. 75.

The field sheet parameters have been revised to center the hydrography on the office plot. Data is plotted using a Modified Transverse Mercator projection and are depicted on a single sheet.

E. SONAR EQUIPMENT

Side scan sonar was used on survey H-10610. The side scan sonar equipment, the method of operation and the application of the "Sifter" program used in the determination and disposition of significant sonar contacts are adequately discussed in the hydrographer's report.

F. SOUNDING EQUIPMENT

Sounding equipment is discussed in the hydrographer's report.

G. CORRECTIONS TO SOUNDINGS

The sounding data have been reduced to Mean Lower Low Water (MLLW). The reducers include corrections for actual tide, dynamic draft, and sound velocity. These reducers have been reviewed and are consistent with present NOS specifications. Actual tide reduction is derived from Nikiski, Alaska, gage (945-5760). Refer to the tide note attached to this report concerning recommended tidal zoning.

H. CONTROL STATIONS

Sections H and I of the hydrographer's descriptive report contain adequate discussions of horizontal control and the hydrographic positioning. The positions of horizontal control stations used during hydrographic operations are field and published values based on NAD 83. The geographic positions of all survey data are also based on NAD 83. The AutoCAD generated smooth sheet is annotated with an NAD27 adjustment tick based on values determined with NGS program NADCON

Data based on NAD 27 may be referenced to this survey by applying the following corrections:

Latitude: -2.038 seconds (-63.067 meters)

Longitude: 8.062 seconds (122.484 meters)

The year of establishment of the control stations shown on the smooth sheet originates with the horizontal control record and the hydrographer's signal list.

I. HYDROGRAPHIC POSITION CONTROL

Differential GPS (DGPS) was used to control this survey. There are a few positions where the maximum allowable horizontal dilution of precision (HDOP) limits of 3.75 have been exceeded during this survey. A review of the data, however, shows that the positioning of soundings located by these fixes is consistent with the surrounding information and is considered acceptable. None of these survey positions are used to locate dangers to navigation. Daily DGPS performance checks were conducted in the field and found adequate.

J. SHORELINE

There are no photogrammetric shoreline source data for this survey. The shoreline depicted on the smooth sheet originates from a 1:10,000 enlargement of chart 16662 (3rd Edition/1993, 1:100,000 scale) and shown in brown for orientation purposes only.

K. CROSSLINES

Crosslines are discussed in the hydrographer's report.

L. JUNCTIONS

Survey H-10610 junctions with the following survey.

| <u>Survey</u> | <u>Year</u> | <u>Scale</u> | <u>Area</u> |
|---------------|-------------|--------------|-------------|
| H-10615 | 1995 | 1:10,000 | South |

The junctions with surveys H-10615 is complete and the soundings are in satisfactory agreement. There are no contemporary surveys to the north and west of this survey.

M. COMPARISON WITH PRIOR SURVEYS

H-8617WD (1961) 1:20,000
H-8618 (1961) 1:20,000
H-9074 (1969) 1:5,000
H-9619 (1976) 1:20,000
H-9621 (1976) 1:20,000

Prior survey H-8617WD (1961) is the source for a 5 fathom 5 foot shoal (AWOIS item 52191) charted at latitude 60/37/31.0N, longitude 151/26/15.1W and a 5 fathom shoal (AWOIS items 52192 and 52193) charted at latitude 60/38/21.4N, longitude 151/22/34.5W. These items were adequately addressed and disposed of in the hydrographer's report.

Prior survey H-8618 (1961), H-9074, H9619 (1976) and H-9621 (1976) cover the entire survey area. Comparison with these prior surveys reveal a pattern of slight shoaling since 1961. The present survey data is consistently 0.5 to 1 fathom shoaler with several additional shoaler depths found then indicated on the prior work.

H-10610 is adequate to supersede the prior surveys within the common area.

N. ITEM INVESTIGATIONS

AWOIS items 52191, 50192, 50193, 51198 and 52199 were assigned and investigated during this survey. These items have been adequately discussed and disposed of in the hydrographer's report.

O. COMPARISON WITH CHART

Survey H-10610 was compared with the following chart.

| <u>Chart</u> | <u>Edition</u> | <u>Date</u> | <u>Scale</u> | <u>Datum</u> |
|--------------|----------------|--------------|--------------|--------------|
| 16662 | 3rd | July 10,1993 | 1:100,000 | NAD83 |

a. Hydrography

Charted hydrography originates with the previously mentioned prior surveys and requires no further discussion.

Survey H-10610 is adequate to supersede charted hydrography within the common area of coverage.

b. Dangers to Navigation

The hydrographer reported nineteen shoal depths as dangers to navigation. Eleven additional shoal depths were discovered as dangers to navigation during office processing. These dangers were reported to the local United States Coast Guard District, DMAHTC and N/CS261. Copies of these reports are attached.

P. ADEQUACY OF SURVEY

Except as noted below, hydrography on survey H-10610 is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

The investigation of side scan sonar contact 5734.68 at latitude 60/39/14N, longitude 151/24/49W was not adequately investigated by echo sounder development. An estimated

depth of 10.2 fathoms was scaled from the side scan sonar records and has been shown on the smooth sheet. This depth and associated positioning are considered approximate.

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No.3, the Hydrographic Survey Guidelines, and the Field Procedure Manual, April 1994 Edition.

Survey H-10610 adequately complies with the project instructions.

Q. AIDS TO NAVIGATION

There are six fixed aids to navigation located within the survey area. These private aids were located by detached positions. These positions agree well with the charted position and serve their intended purposes.

There are no floating aids to navigation located within the survey area.

There are four tanks of landmark value located within the survey area. These landmarks were located by detached positions and agree well with the charted positions and should be retained as charted.

R. STATISTICS

Statistics are itemized in the hydrographer's report.

S. MISCELLANEOUS

No additional miscellaneous items were noted during office processing.

T. RECOMMENDATIONS

This is a good hydrographic survey, no additional work is required.

U. REFERRAL TO REPORTS

Referral to reports is discussed in the hydrographer's report.


Bob Mihailov
Cartographer

APPROVAL SHEET
H-10610

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Bruce A. Olmstead Date: 4/19/96
Bruce A. Olmstead
Senior Cartographer, Cartographic Section
Pacific Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Kathy Timmons Date: 4/23/96
Kathy Timmons
Commander, NOAA
Chief, Pacific Hydrographic Branch

Final Approval

Approved:

Andrew A. Armstrong III Date: 6/12/96
Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10610

| INSTRUCTIONS | | | |
|---|---------|---------------|--|
| A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. | | | |
| 1. Letter all information. | | | |
| 2. In "Remarks" column cross out words that do not apply. | | | |
| 3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review. | | | |
| CHART | DATE | CARTOGRAPHER | REMARKS |
| 16662 | 4/23/96 | B. Michael | Full Part Before After Marine Center Approval Signed Via Drawing No. Full application of soundings and features from smooth sheet |
| 16663 | 7-8-97 | William Hagen | Full Part Before After Marine Center Approval Signed Via Drawing No. #5 Full Application of Soundings and features Thru Smooth Sheet BP158444 (H-DWG) |
| 16013 | 8-6-97 | William Hagen | Full Part Before After Marine Center Approval Signed Via Drawing No. #30 Full Application Thru Smooth Sheet BP158444 (H-DWG) |
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