9666

Diag. Cht. No. 5202

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey HYDROGRAPHIC

Field No. RA-5-3-76

Office No. H-9666

LOCALITY

State CALIFORNIA

General Locality SANTA BARBARA CHANNEL

Locality PORT HUENEME AND CHANNEL ISLANDS HARBOR

1976

CHIEF OF PARTY
J.P. RANDALL

LIBRARY & ARCHIVES

DATE JANUARY 24, 1978

☆U.S. GOV. PRINTING OFFICE: 1976—669-441

5

applied 5-24-78-RQS

9666

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-9666

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-5-3-76

State California

General locality ~~Southern California~~ Santa Barbara Channel

Locality Port Hueneme and Channel Islands Harbor

Scale 1:5,000 Date of survey 11 Nov - 5 Dec 1976
9 Dec 76

Instructions dated 22 July 76, 27 Sept 76, & Project No. OPR-411-RA-76
Ship Rainier launches

Vessel RA-3 (2123), RA-5 (2125)

Chief of party CAPT James P. Randall

Surveyed by ENS Davis (team leader), Lt Kleinschmidt, Ltjg. Peterson

Soundings taken by echo sounder, ~~[illegible]~~ Ross Fathometers Model 5000, S/N's 1070 & 1071

Graphic record scaled by Ship's Personnel & Ross Digitizer

Graphic record checked by Ship's Personnel

Positions verified
~~[illegible]~~ by Isagani A. Almacen Automated plot by PMC Xynetics Plotter
Soundings
Verification by Isagani A. Almacen

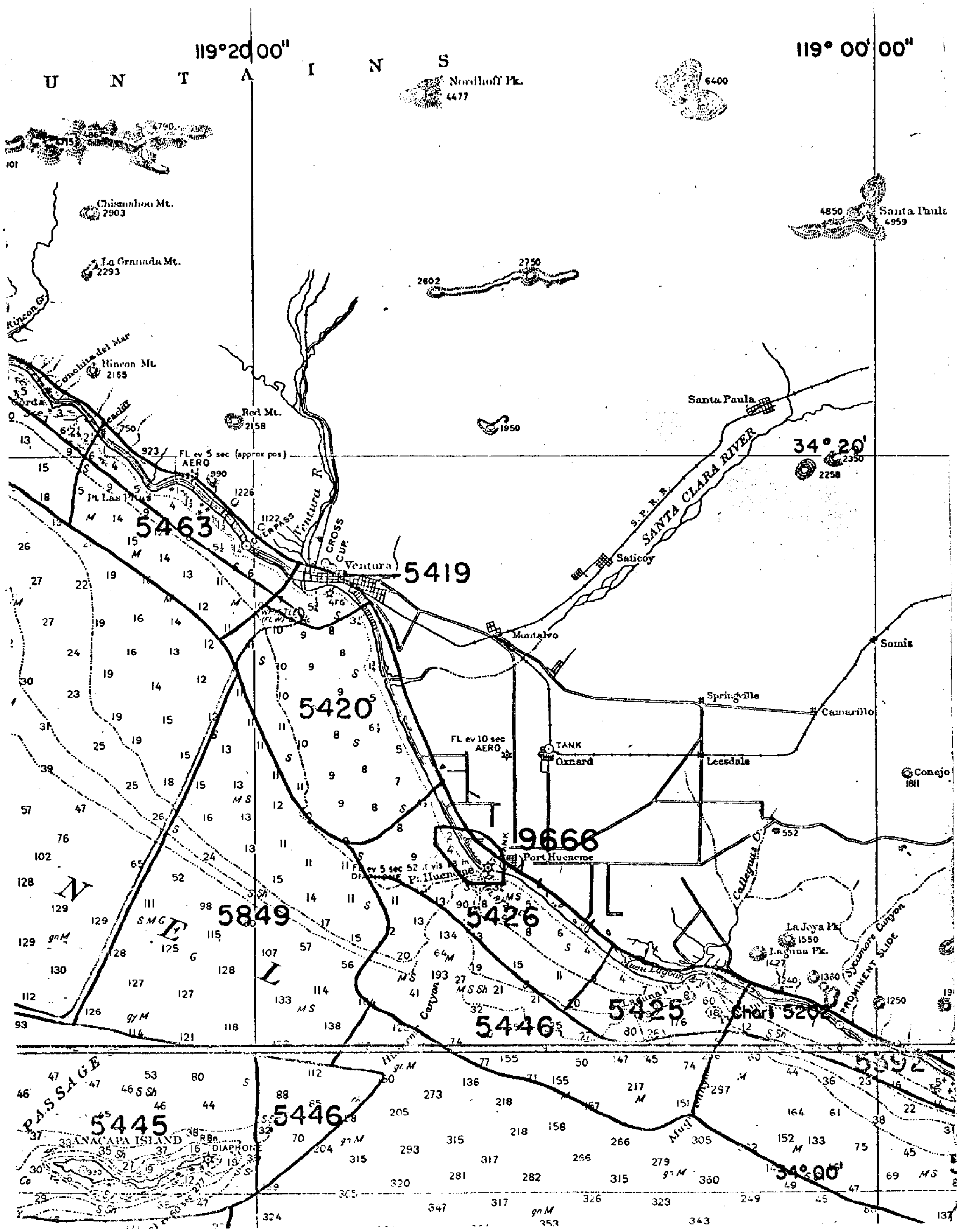
Soundings in ~~[illegible]~~ feet at ~~[illegible]~~ MLLW

REMARKS: All records were kept on GMT. This survey is complete and adequate for charting.

Applied to stds 5/11/78

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6



119°20'00"
119° 00' 00"
U N T A I N S
Nordhoff Pk.
4477
6400
2903
2293
Rincon Mt.
2165
Red Mt.
2158
1950
2602
2750
Santa Paula
4850
4959
34° 20'
2258
S. P. R. R.
SANTA CLARA RIVER
Saticoy
Ventura R.
FL ev 5 sec (approx pos)
AERO
Ventura
5419
5463
Montalvo
Springville
Camarillo
Somis
FL ev 10 sec
AERO
TANK
Oxnard
Leesdale
Conejo
1811
5420
9666
Port Hueneme
552
5849
5426
La Joya Pk.
1550
PROMINENT SLIDE
5425
5446
Chart 5202
5392
PASSAGE
5445
5446
ANACAPA ISLAND
DIAPHONE
34° 00'

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEY

RA-5-3-76

H-9666

PORT HUENEME AND

CHANNEL ISLANDS HARBOR, CALIFORNIA

Scale 1:5,000

1976

NOAA Ship RAINIER

CAPT. James P. Randall

Commanding

A. PROJECT

This survey was accomplished in accordance with project instructions OPR-411-RA-76, Southern California Coast, dated July 22, 1976; change No. 1 (Sept. 27, 1976); change No. 2 (Dec. 9, 1976).

B. AREA SURVEYED

This survey is of Channel Islands Harbor and Port Hueneme, and includes a small portion of the off shore waters between these two harbors. This area is twenty-eight nautical miles southeast of Santa Barbara, California and is generally described by the insert of Chart 18725. Specifically, the eastern limit was formed by the shoreline. The southern limit extended westward from shore at Lat. 34° 08' 27" N to Lon. 119° 13' 15" W. The western limit extended from this point along a line 326°T to Lat. 34° 09' 30" N. The west limit then continued northward along Lon. 119° 14' 09" W. The northern limit was at Lat. 34° 10' 33" N (inshore) and Lat. 34° 09' 50" N (offshore) as required by change No. 2 (Dec. 9, 1976). Hydrography on this survey began on November 10, 1976 and concluded on December 5, 1976.

C. SOUNDING VESSELS

The sounding vessels for this survey were the RAINIER's two aluminum launches, numbers 2123 and 2125. Both were equipped with a hydrolog system and Digital's PDP8/e mini-computer for use with Teledyne Digital Sextants and Ross Model 5000 Fineline Fathometer.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDERS

Echo soundings for this survey were taken exclusively by Ross Model 5000 Fineline Fathometers. Launch 2123 operated with fathometer serial number 1071 and launch 2125 operated with fathometer serial number 1070 for the entire project. This sounding equipment was used in areas that ranged in depth from minus one foot to two hundred eighty-three feet, averaging between ten and forty feet. A preliminary transducer correction (TRA) of 2.0 feet was determined for both vessels by measuring the vertical distance from the waterline to the transducer. This preliminary TRA was used on all corrector tapes for the purpose of shipboard smooth plotting. The final TRA values are indicated on the TC/TI tapes.

Fathometers were monitored continuously during operations to keep the initial value at zero. The method of phase calibration specified in PMC OPORDER for the Ross Model 5000 Fineline Fathometer was used during this survey.

The fathograms were scanned during and after hydrography, and the analog trace was compared with the digitized value. When scanning showed

that the digitized value was undoubtedly in error and when inserting peak/deep soundings, the depth was determined from the analog trace and corrected for any systematic analog-to-digital differences. In areas of heavy swell, depths were determined by taking the value of the top one-third of the analog wave trace.

Whenever possible, bar checks were made twice daily. This was not always possible, due to wind and sea conditions. The final velocity curves and TRA corrections were not complete at time of smooth plotting, thus preliminary velocity curves and TRA corrections were used when performing the shipboard smooth plot. See Correction to Echo Sounding Report, OPR-411-RA-76 for further information on velocity corrections. No adjustments for settlement and squat were applied to soundings since corrections were negligable. For more complete documentation on settlement and squat corrections see Correction to Echo Sounding Report, OPR-411-RA-76.

E. HYDROGRAPHIC SHEETS

The modified Transverse Mercator Projection and all soundings were plotted by RAINIER personnel using the PDP8e Complot system aboard. Equipment included PDP8/e computers serial numbers 00995, 01015, and 01011; and Complot Plotters, Model DP-3, serial numbers 5848-18, 5445-7, and 4670-4.

Rough plots were made daily, and final plot was performed as the work progressed. The smooth field sheet was begun on November 21, 1976 and completed on December 17, 1976. No discernable distortion was detected in the mylar smooth field sheet. Preliminary velocity correctors were applied to all fathometer soundings on the smooth field sheet. All data was transferred to PMC for verification.

F. CONTROL STATIONS

Third order, class one survey methods and photogrammetry were utilized to establish station control. Existing triangulation stations were utilized to establish and supplement this control. The North American 1927 Datum was the basis for Horizontal control. Station names, brief descriptions, dates of establishment, and quad location information are contained on the signal list in the separates following the text.

All "200" series stations were geodetically located. These stations were used for visual control and include existing triangulation stations and new stations established by third order procedures.

All "300" series stations were located photogrammetrically. These stations were used for visual control.

The "400" series stations are hydrographic signals located by three-point fixes using "200" and "300" series stations.

Many fixed aids to navigation were located initially by "photo-pick" methods. These fixed aids were located again geodetically later during survey operations. Due to the requirement for rapid processing of field data the smooth sheet was plotted using "photo-picked" geographic positions. The following "300" series signals have been updated on the final signal tape and utilize the more accurate geodetic positons for Marine Center processing:

SIGNAL #	DESCRIPTION	GEODETIC POSITION	PHOTO-PICKED POSITION
300	Point Hueneme West Jetty Light #3	34° 08' 38.236"N 119° 12' 55.094"W	34° 08' 38.001"N 119° 12' 55.131"W
301	Point Hueneme East Jetty Light #4	34° 08' 34.970"N 119° 12' 39.498"W	34° 08' 34.941"N 119° 12' 39.493"W
303	Point Hueneme Channel Light #5	34° 08' 44.416"N 119° 12' 41.589"W	34° 08' 44.418"N 119° 12' 41.664"W
304	Point Hueneme Channel Light #6	34° 08' 42.705"N 119° 12' 37.086"W	34° 08' 42.727"N 119° 12' 37.758"W
314	Point Hueneme Range Front Light	34° 09' 07.775"N 119° 12' 17.390"W	34° 09' 07.766"N 119° 12' 17.456"W
330	Abandoned USCG Twr	34° 08' 42.534"N 119° 12' 30.153"W	34° 08' 42.578"N 119° 12' 30.139"W
334	Channel Is Harbor Breakwater North Light	34° 09' 34.907"N 119° 13' 59.973"W	34° 09' 34.889"N 119° 14' 00.000"W
335	Channel Is Harbor Breakwater South Light Number 1	34° 09' 16.202"N 119° 13' 45.677"W	34° 09' 16.248"N 119° 13' 45.716"W
336	Channel Is Harbor South Jetty Light Number 2	34° 09' 21.675"N 119° 13' 35.275"W	34° 09' 21.681"N 119° 13' 35.258"W
337	Channel Is Harbor North Jetty Light Number 3	34° 09' 26.056"N 119° 13' 38.643"W	34° 09' 26.038"N 119° 13' 38.654"W
345	Channel Is Harbor South Jetty Light Number 4	34° 09' 28.782"N 119° 13' 23.922"W	34° 09' 29.033"N 119° 13' 24.024"W
374	Channel Is Harbor North Jetty Light Number 5	34° 09' 32.199"N 119° 13' 26.648"W	34° 09' 32.223"N 119° 13' 26.709"W

For more complete documentation on computations used and for descriptions of the stations see Horizontal Control Report OPR-411-RA-76 and Field Edit Report OPR-411-RA-76.

G. HYDROGRAPHIC POSITION CONTROL

All positions on this survey were controlled by visual means, positions being determined by three-point sextant fixes.

All positions taken used Teledyne digital sextants (left angle, S/N TG-0319; right angle, S/N TG-0302 for RA-3, and left angle S/N TG-0322; right angle S/N TG-0323 for RA-5). The index correction was checked frequently and noted on the raw data printout. Corrections were checked by zeroing the sextants and annotating the digital readouts in half minutes. This was done at the end of each line whenever possible (proximity to shore, breakers, or rocks precluded making this check for reasons of safety). Whenever an error of more than 1.5 minutes was noted, the sextants were re-zeroed. Sextants were also re-zeroed whenever there was a change in anglemen.

Visual signals used for this survey included triangulation intersection stations, photo-picked signals, and hydro signals cut in by sextant fix as stated in section F of this report.

H. SHORELINE

Shoreline was transferred from the field-edited T-sheet manuscript TP-00778. All shoreline and topographic detail on the boatsheet was verified by field edit. Field edit is complete on this sheet; some minor changes in details, mainly in Channel Island Harbor due to dredging and construction, were necessary. Verified shoreline features are shown on the smooth boatsheet in black ink, changes in red ink. For further information, refer to the Field Edit Report OPR-411-RA-76.

I. CROSSLINES

Approximately 4.5 nautical miles of crosslines were run on this sheet. This was equal to 6.2 percent of the mainscheme mileage. This percentage of crosslines appears low due to the close spacing within the harbors. In the relatively flat or gently sloping bottom areas of the inner harbor 87 percent of all crossings agree within one foot. The remaining crossings have a maximum discrepancy of 3 feet with the exception of the soundings at Fix #3961 and Fix #3883. The apparent ten foot discrepancy between these two soundings is the result of the steep slope formed by the breakwater.

In areas of irregular bottom characteristics such as the entrance of Port Hueneme Harbor, 77 percent of the crossings agreed within five

feet. The maximum apparent discrepancy was 88 feet along the Port Hueneme Canyon wall (located at Fix #3003 and the fifth sounding out of Fix #3119). It is not felt that this is indicative of a poor survey because as stated in the Hydrographic Manual Section 4.3.6, areas of extremely irregular submarine relief "are of little value for checking purposes because large vertical differences occur across small horizontal distances."

J. JUNCTIONS

There were no junctions with contemporary surveys.

K. COMPARISON WITH PRIOR SURVEYS

Comparison with prior survey H-5426, May-Sept. 1933, 1:10,000 shows major man-made developments in the area. At the time of this Prior survey Channel Islands Harbor and Port Hueneme Harbor were not in existence. Thus, the entrance and shoreline have changed extensively. Waters approximately 500 meters offshore have not changed drastically, having a maximum disagreement of 5 feet at Lat. 34° 08' 37"N, Lon. 119° 12' 22"W.

Presurvey Review Item Investigations:

1. PSR Item #3, visible wreck, charted at Lat. 34° 08' 39.4"N, Lon. 119° 12' 55.8"W has now been covered with fill. The West Jetty has been widened to form a breakwater and beach over the wreck. It is recommended that the wreck symbol be deleted from the chart. Note: The PSR letter provided to RAINIER gives PSR Item #3 an incorrect charted position (Lat. 34° 08.38'N, Lon. 119° 12.93'W). See photo #5 in separates following text.

2. PSR Item #6, shoaling was reported in the vicinity of Lat. 34° 09.55'N, Lon. 119° 13.42'W. This shoaling actually occurs 75 meters south of this position, in the vicinity of Lat. 34° 09' 31.7"N, Lon. 119° 13' 26.0"W. This shoal extends approximately 20 meters southeast from the breakwater. To indicate this shoal area, a locally maintained white spare bouy, having "shoal" in orange letters, is located at Lat. 34° 09' 31.7"N, Lon. 119° 13' 26.0"W. Shoaling was also noted mid-way along the north jetty of Channel Islands Harbor, in the vicinity of Lat. 34° 09' 29"N, Lon. 119° 13' 31"W. This shoal extended along the breakwater for approximately 35 meters. This shoaling should be indicated on the chart. The following least depths were found in these two areas of shoaling:

POSITION #	LAT.	LON.	TIDE REDUCED DEPTH (FEET)
66 sec after # 4058	34° 09' 31"N	119° 13' 26"W	4.0
# 4067	34° 09' 29"N	119° 13' 32"W	2.8
9 sec after # 4067	34° 09' 30"N	119° 13' 31"W	2.8 added

It is recommended that these least depths be used for charting.

Due to the nature of this survey, 40 meter spacing was used outside harbors and 20 meter spacing was used inside harbors. Further development was required only in the case of PSR Item #6.

L. COMPARISON WITH THE CHART

Comparison of the present survey with Chart 18725 (formerly C&GS Chart 5120), 1:10,000, 14th edition, November 1975 showed only minor changes. A discrepancy noted in Port Hueneme was a 1° skew of the present survey grid relative to the chart grid. If the chart grid and skew are taken into account, fixed aids to navigation and pier faces in the Port Hueneme area do not overlay. This discrepancy is felt to be the result of the unstable chart paper, the approximate charted positions of aids to navigation, the errors in prior surveys, or distortion while using the K&E comparator.

Depth comparisons made by adjusting surveyed shoreline to charted shoreline showed in the vicinity of Lat. 34° 08' 40"N, Lon. 119° 12' 20"W, that the charted 6 foot and 12 foot curves now approximate the 12 foot and 18 foot curves respectively. The 18 foot curve has moved 75 meters to the northwest in the area of Lat. 34° 08' 40"N, Lon. 119° 13' 05"W. Near Channel Island Harbor, in the vicinity of Lat. 34° 09' 45"N, Lon. 119° 13' 55"W, the 12 foot and 18 foot curves have moved 70 meters northeast. The largest change in soundings in flat homogenous bottom was 7 feet at Lat. 34° 09' 33"N, Lon. 119°14' 02"W. The charted depths for Channel Islands Harbor differed by 5 feet in the entrance and 2.5 feet in the harbor basin. These differences in depth are believed to be due to past dredging operations. The present survey soundings are recommended for charting.

Channel Islands Harbor Light #5 was found to be mischarted. Its geodetic position is Lat. 34° 09' 32.198"N, Lon. 119° 13' 26.650"W, and should be so charted. ← Pos are on chart.

Shoal investigations were carried out in the vicinity of Lat. 34° 09' - 32"N, Lon. 119° 13' 24"W. A 4 foot shoal was found in this area. See section K, PSR Item # 6, of this report for further information.

A number of obstructions were found during a dive investigation along the faces of the piers in Port Hueneme. For detailed informationson these obstructions see the dive investigation report in the separates following the text.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede prior surveys for charting. All fathograms were scanned and checked for peaks and deeps. Appropriate changes were made to the original records where necessary.

N. AIDS TO NAVIGATION

All Coast Guard aids to navigation were found to be adequately positioned to fulfill their intended purpose. All fixed aids to navigation were located by third order, class one, geodetic surveying methods. The following positions for fixed aids were compared to the Light List and these updated positions are recommended for charting:

ITEM	UPDATED POSITION
Channel Is Harbor Breakwater South Light 1	34° 09' 16.2" N 119° 13' 45.7" W
Channel Is Harbor Breakwater North Light	34° 09' 34.9" N 119° 14' 00.0" W
Channel Is Harbor North Jetty Light 3	34° 09' 26.1" N 119° 13' 38.6" W
Channel Is Harbor North Jetty Light 5	34° 09' 32.2" N 119° 13' 26.6" W
Point Hueneme Range Rear Light	34° 09' 16.4" N 119° 12' 09.5" W
Point Hueneme West Jetty Light 3	34° 08' 38.2" N 119° 12' 55.1" W
Point Hueneme Channel Light 6	34° 08' 42.7" N 119° 12' 37.1" W

The vertical clearances of bridges in Channel Islands Harbor and the cable in Port Hueneme are as follows:

BRIDGE/CABLE	JULIAN DAY	OBSERVED HEIGHT	TIME (GMT)	Vert Cl. at MHW
East Fork Channel Island Harbor at 34° 10' 30"N, 119° 13' 20"W	337	7.5 ft	1900	4 ft
West Fork Channel Island Harbor (Minimum clearance at 34° 10' 30"N, 119° 13' 35"W)	337	32.2 ft	1928	28 ft
Cable: Port Hueneme (From Port Hueneme Light "6" to shore, 34° 08' 42"N, 119° 12' 38"W)	336	22.2 ft	1940	

A locally maintained white spare bouy exists at Lat. 34° 09' 31.6"N, Lon. 119° 13' 26.0"W to mark shoal area (see section K, PSR Item #6, of this report for further details on bouy). The entrance bouy for Port Hueneme, though outside the limits of this survey, was located by sextant fix at Lat. 34° 08' 15.1"N, Lon. 119° 12' 56.7"W and is adequately positioned to serve its intended purpose. For position data on this buoy and for the Geodetic Position computation of this buoy see supporting data in the separates following the text.

O. STATISTICS

This survey contains 60.1 nautical miles of soundings, covering 1.5 square nautical miles. This data was obtained by the following launches:

VESSEL	NAUTICAL MILES	POSITIONS
RA-3 (2123)	59.7	1098
RA-5 (2125)	0.4	45

P. MISCELLANEOUS

A dive investigation was made in Port Hueneme to locate obstruction along pier faces. Some noteworthy obstructions were found; for positions and descriptions see dive investigation report in separates following text. For further information of search procedures see the separates following text. Development in Channel Islands Harbor has extended many small channels beyond the limits of the chart inset and these harbor channels are likely to be extended even further. It is not recommended that these new channels be surveyed nor charted by NOS.

A submerged cable in Port Hueneme was located by RA-3. Positions 3481 and 3482 designate one end of cable and positions 3483 and 3484 indicate the other end of cable. The charting of this submerged cable is recommended.

Chart Cable Area per JMD 5/30/78

Q. RECOMMENDATIONS

This survey is considered complete and adequate for charting. There are no recommendations other than those previously mentioned.

R. DATA PROCESSING PROCEDURES

Data acquisition and processing were accomplished per instructions in the Provisional Hydrographic Manual and the PMC OPORDER. Soundings and position data were obtained by Hydrolog System utilizing digital sextants with the real-time computer program RK 175. One sounding volume was used for manually recording field edit data and the Port Hueneme Entrance bouy. Program RK 300 was used to calculate positions using data from this sounding volume.

For each master tape there is a corresponding corrector tape which includes the vessel's TRA, corrections for erroneous signal numbers, and all depth corrections (missed depths, peaks, deeps, corrections to mean out swell, etc.). The present Hydroplot system software is not capable of rejecting fix information, thus many of the master tapes, generated by the on-line real time system, had to be edited to remove busted fixes and rejected data. Corrections to signal numbers or angles were incorporated in the edited master tapes; however, all sounding corrections were retained on corrector tapes.

Preliminary transducer depths (TRA) of 2.0 feet for RA-3 (2123) and for RA-5 (2125) were used on all daily corrector tapes, this value having been determined by actual measurement. Final TRA corrections were computed from bar check data and appears on TC/TI tapes. Final velocity tables were constructed from Nansen Cast data. Preliminary velocity tables were used for the plotting of the smooth boat sheet. See section D of this report for further information on corrections to echo soundings.

Other programs used for this sheet were:

PDP8/e Program	Name	Version
RK 171	Visual Hydrolog Loader	9/17/74
RK 176	RK 175 Restart	5/01/74
RK 201	Grid, Signal and Lattice Plot	7/12/75
RK 212	Visual Station Table Load	4/01/74
RK 215	Visual Non-Real Time Plot	8/16/74
RK 300	Utility Computations	2/10/76
RK 407	Geodetic Inverse/Direct	10/23/75
RK 409	Geodetic Utility Package	9/05/73
RK 410	Geodetic Three Point Fix	8/23/73
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	6/25/74
AM 602	Elinore	5/21/75

WANG Program	Version
Long Line Geodetic Position	700-1
Long Line Traverse	700-2
Intersection	700-PF-022

S. REFERENCES TO REPORTS

Corrections to Echo Soundings, OPR-411-RA-76

Field Edit Report, OPR-411-RA-76

Horizontal Control Report, OPR-411-RA-76

Coast Pilot Report, OPR-411-RA-76

Field tide reduction of soundings for H-9666 Channel Islands Harbor and Port Hueneme was based on station number 463, Port Hueneme, of the Tide Tables. Reduction of soundings on H-9667 near Point Mugu was based on station number 461, Mugu Lagoon Entrance (Ocean), of the Tide Tables. Both stations used Los Angeles (Outer Harbor) #941-0660 as the reference station. These predicted tides were converted to GMT tide correctors with PDP8/E computer using Program AM 500, PREDICTED TIDE GENERATOR, version 10 November, 1972. Except for 2-10 November for the Port Hueneme gage (941-1065), all tide observations were done on GMT (000°W).

Four stations were established to monitor the tide within the OPR-411 project limits:

Station	Location	Operation Dates
T-1, Mugu Lagoon Entrance (Ocean) 941-1015	Lat. 34° 06.0' N Lon. 119° 06.0' W	16 Nov - 20 Dec 1976 34 days
T-2, Port Hueneme 941-1065	Lat. 34° 08.87'N Lon. 119° 12.47'W	2 Nov - 6 Dec 1976 34 days
T-3, Channel Islands Harbor 941-1081	Lat. 34° 09.68'N Lon. 119° 13.28'W	18 Nov - 16 Dec 1976 28 days
T-4, Middle Channel 941-1095	Lat. 34° 10.55'N Lon. 119° 13.58'W	2 Dec - 6 Dec 1976 5 days

T-1, Mugu Lagoon Entrance (Ocean), 941-1015

T-1 was a F and P ADR tide gage S/N 7403A3402M18. It is recommended that this gage be used to control all offshore hydrography for this project. This gage lost approximately 1 minute per day and may have double-punched on a few occasions; specifically, between: 30 Nov. and 1 Dec., 2 & 3 Dec., and 10 & 13 Dec. On 21 November the float cable was broken and had to be spliced. The staff to gage relationship undoubtedly changed slightly at this time. The gage was set to read 10 feet higher than the staff.

Levels were run to five (5) bench marks. Installation levels were run on 16 November and removal levels were run on 3 December 1976. Comparison between installation and removal levels indicate a difference of 0.020 ft. between the rod stop and BM A. It is believed that the staff did NOT move. The rod stop that was used during removal levels was not the same as that used during installation levels. The installation rod stop had been destroyed.

T-2, Port Hueneme, 941-1065

T-2 was a F and P ADR tide gage S/N 7304A1380M19. It is recommended that this gage be used to control hydrography in Port Hueneme.

On or after 7 November the gage started running slow (up to 35 min. per day), so the timer was replaced. The problem persisted so the entire gage was replaced with S/N 7403A3402M2 on 11 November. There were no other problems with this gage.

Levels were run to five (5) bench marks. Installation levels were run on 17 November and removal levels on 3-4 December, 1976. The gage was set to read the same as the staff.

T-3, Channel Islands Harbor, 941-1081

T-3 was a F and P ADR tide gage S/N 2R6406A5853M7. It is recommended that this gage be used to control hydrography in Channel Islands Harbor. The gage ran without problems until 17 December, 1976 when the float cable was found off the drum. It is believed that the gage was struck hard by a boat or by someone on the seawall.

Levels were run to five (5) bench marks. Installation levels were run on 19 November and removal levels on 4 December, 1976. The gage was set to read 10 feet higher than the staff.

T-4, Middle Channel, 941-1095

T-4 was a Bristol, 0-10 ft. bubbler tide gage S/N 64 A 11027. This gage operated without problems. It is recommended that this gage be used to control hydrography in the northern channels of Channel Islands Harbor (see zoning section of this report).

Levels were run to three (3) recoverable points. Installation levels were run on 1 December and removal levels on 4 December, 1976. Comparison of installation and removal levels indicate a difference in the elevation of 1.05 ft. It is believed that 1.0 ft. of that was due to a duplicated incorrect instrument observation at close range and was not due to movement of the staff. Since the staff was removed immediately upon closure of removal levels without comparison to installation levels, it cannot be determined which levels are incorrect. 0.0 ft. on the gage equalled 0.16 on the staff.

Comparison Among Gages

Since four (4) of the five (5) gages used were ADR gages, no detailed

comparison of gage records was performed. There was, however, a question regarding tidal zoning within the Channel Islands Harbor. As a result, a comparison was done between the Channel Islands Harbor ADR Record (941-1081) and the Middle Channel marigram (941-1095). It was found that, although the tidal heights varied only by 0.1 ft. or less, the times of high and low tides differed by as much as 20 minutes; indicating that zoning is advisable.

Recommended Zoning

Unless Rockville Smooth Tides display significantly different comparison information to the above field interpretation, it is recommended that:

1. T-1, Mugu Lagoon Entrance (Ocean), 941-1015 be used to control all offshore hydrography for OPR-411, 1976.

2. T-2, Port Hueneme, 941-1065 be used to control all hydrography in Port Hueneme.

3. T-3, Channel Islands Harbor, 941-1081 be used to control hydrography in the southern part of Channel Islands Harbor as far north as 34° 10.04' N.

4. T-4, Middle Channel, 941-1095 be used to control hydrography in Channel Islands Harbor north of 34° 10.04' N.

GEOGRAPHIC NAMES

Survey No.

H-9666

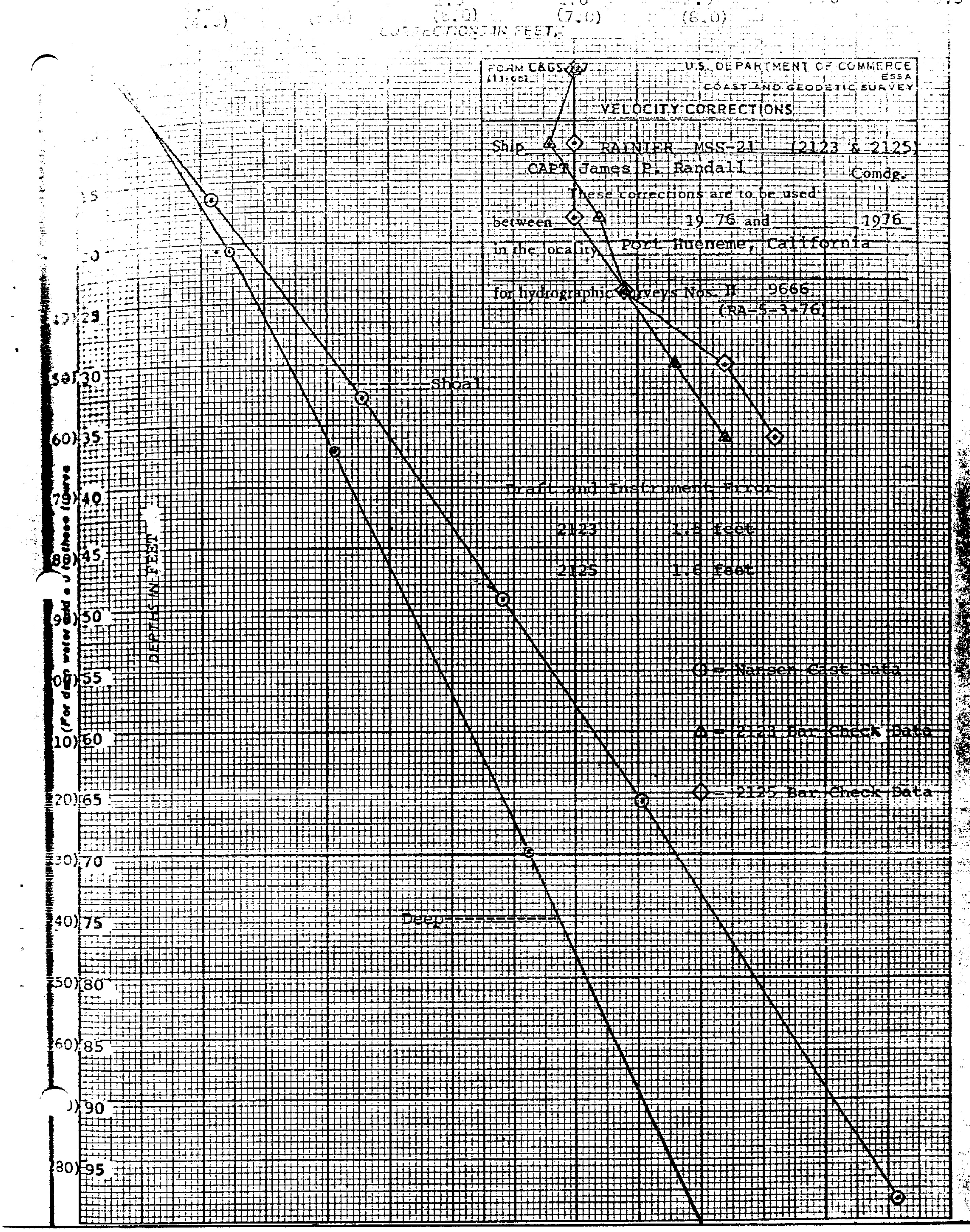
Name on Survey	On Chart No. A	On previous survey No. B	On U.S. quadrangle sheets C	From local information D	On local maps E	P.O. Guide or Map F	Rand McNally Atlas G	U.S. Light List H	T-sheet K	
CHANNEL ISLANDS HARBOR	18725									1
HOLLYWOOD BEACH									X	2
HOLLYWOOD BY THE SEA									X	3
OXNARD BEACH									X	4
POINT HUENEME	18725									5
PORT HUENEME	18725								X X	6
SANTA BARBARA CHANNEL	18725									7
SILVER STRAND									X	8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

APPROVED

Chas. E. Harrington

STAFF GEOGRAPHER C3x8

29 MARCH 1978



1.5 (6.0)
2.0 (7.0)
2.5 (8.0)
3.5
CORRECTIONS IN FEET
FORM C&GS-717
U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY
VELOCITY CORRECTIONS
Ship RAINIER MSS-21 (2123 & 2125)
CAPT James P. Randall Comdg.
These corrections are to be used
between 19 76 and 1976
in the locality Port Hueneme, California
for hydrographic Surveys Nos. H - 9666
(RA-5-3-76)
Shoal
Draft and Instrument Error
2123 1.8 feet
2125 1.6 feet
= Nansen Cast Data
= 2123 Bar Check Data
= 2125 Bar Check Data
Deep
DEPTHS IN FEET
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95

VELOCITY CORRECTOR TAPE LISTING
RA-5-3-76 (H-9666)

LAUNCH - 2125 (RA-5)
SCALE - FEET
TABLE NO. 1

```
000032 0 0000 0001 000 212500 009666
000058 0 0001
000084 0 0002
000110 0 0003
000136 0 0004
000161 0 0005
000188 0 0006
000215 0 0007
000240 0 0008
000267 0 0009
000292 0 0010
000319 0 0011
000346 0 0012
000375 0 0013
000414 0 0014
000432 0 0015
000460 0 0016
000489 0 0017
000517 0 0018
000545 0 0019
000573 0 0020
000601 0 0021
000629 0 0022
000660 0 0023
000691 0 0024
000722 0 0025
000753 0 0026
000784 0 0027
000815 0 0028
000846 0 0029
000877 0 0030
000910 0 0031
000943 0 0032
000977 0 0033
001011 0 0034
001044 0 0035
```

```
001081  0  0036
001113  0  0037
001147  0  0038
001181  0  0039
001231  0  0040
001300  0  0042
001378  0  0044
001457  0  0046
001533  0  0048
001610  0  0050
001691  0  0052
001775  0  0054
001857  0  0056
001940  0  0058
002020  0  0060
002100  0  0062
002182  0  0064
002265  0  0066
002352  0  0068
002437  0  0070
002525  0  0072
002611  0  0074
002699  0  0076
002785  0  0078
002872  0  0080
999999  0  0082
```

VELOCITY CORRECTOR TAPE LISTING
RA-5-3-76 (H-9666)

LAUNCH - 2124 (RA-4)
SCALE - FEET
TABLE NO. 3
DIVING INVESTIGATION ONLY

```
000010 0 0000 0000 000 212400 009666
999999 0 0000
```

VELOCITY CORRECTOR TAPE LISTING
RA-5-3-76 (H-9666)

LAUNCH - 2123 (RA-3)
SCALE - FEET
TABLE NO. 1

```
000032 0 0000 0001 000 212300 009666
000058 0 0001
000084 0 0002
000110 0 0003
000136 0 0004
000161 0 0005
000188 0 0006
000215 0 0007
000240 0 0008
000267 0 0009
000292 0 0010
000319 0 0011
000346 0 0012
000375 0 0013
000414 0 0014
000432 0 0015
000460 0 0016
000489 0 0017
000517 0 0018
000545 0 0019
000573 0 0020
000601 0 0021
000629 0 0022
000660 0 0023
000691 0 0024
000722 0 0025
000753 0 0026
000784 0 0027
000815 0 0028
000846 0 0029
000877 0 0030
000910 0 0031
000943 0 0032
000977 0 0033
001011 0 0034
001044 0 0035
001081 0 0036
001113 0 0037
001147 0 0038
```

```
001181  0  0039
001231  0  0040
001300  0  0042
001378  0  0044
001457  0  0046
001533  0  0048
001610  0  0050
001691  0  0052
001775  0  0054
001857  0  0056
001940  0  0058
002020  0  0060
002100  0  0062
002182  0  0064
002265  0  0066
002352  0  0068
002437  0  0070
002525  0  0072
002611  0  0074
002699  0  0076
002785  0  0078
002872  0  0080
999999  0  0082
```

MASTER STATION LIST

RA-5-3-76
(H-9666)

OPR-411 SOUTHERN CALIFORNIA COAST VER 3/77

```
200 1  34 08 42574 119 12 32584  139 0000 000000
/POINT HUENEME LIGHTHOUSE 1948 1965        341192

201 1  34 09 08341 119 11 33712  139 0000 000000
/PORT HUENEME MUNICIPAL WATER TANK          341192 (1039)

202 1  34 09 54919 119 12 08822  139 0000 000000
/PORT HUENEME NCBC WATER TANK #374          341192 (1039)

203 1  34 09 30260 119 12 28588  139 0000 000000
/PORT HUENEME NCBC WATER TANK #431          341192 (1038)

205 4  34 12 23155 119 15 01278  139 0000 000000
/SO CAL EDISON CO MANDALAY GENERATING STA STACK  341192

206 4  34 07 46581 119 10 02336  139 0000 000000
/ORMOND BEACH SCE EAST STACK                341192

207 4  34 07 47422 119 10 03517  139 0000 000000
/ORMOND BEACH SCE WEST STACK                341192

300 4  34 08 38236 119 12 55094  243 0000 000000
POINT PORT HUENEME WEST JETTY LIGHT #3        TP-00778

301 1  34 08 34970 119 12 39498  243 0000 000000
/POINT PORT HUENEME EAST JETTY LIGHT #4       TP-00778

303 1  34 08 44416 119 12 41589  243 0000 000000
/POINT PORT HUENEME CHANNEL LIGHT #5          TP-00778

304 1  34 08 42705 119 12 37086  243 0000 000000
/POINT PORT HUENEME CHANNEL LIGHT #6          TP-00778

305 1  34 08 45084 119 12 43013  243 0000 000000
/PORT HUENEME SMALL BUILDING                  TP-00778

306 1  34 08 50281 119 12 36704  243 0000 000000
/PORT HUENEME ENTRANCE PIER                   TP-00778

307 3  34 08 55191 119 12 32920  243 0000 000000
/BOAT BASIN                                   TP-00778

308 1  34 08 58884 119 12 34517  243 0000 000000
/LIGHT POLE A                                 TP-00778
```

```
309 1  34 09 02174 119 12 34715  243 0000 000000
/LIGHT POLE B                                TP-00778

310 1  34 09 07841 119 12 35589  243 0000 000000
/PORT HUENEME TOWER                          TP-00778

311 1  34 09 12459 119 12 24520  243 0000 000000
/PORT HUENEME LIGHT POLE #1                  TP-00778

312 1  34 09 07429 119 12 24616  243 0000 000000
/PORT HUENEME LIGHT POLE #2                  TP-00778

313 1  34 09 07619 119 12 20650  243 0000 000000
/PORT HUENEME LIGHT POLE #3                  TP-00778

314 1  34 09 07775 119 12 17390  243 0000 000000
/POINT HUENEME PANGE FRONT LIGHT             TP-00778

315 1  34 09 02903 119 12 17090  243 0000 000000
/PORT HUENEME LIGHT POLE #5                  TP-00778

316 1  34 08 59923 119 12 17115  243 0000 000000
/PORT HUENEME LIGHT POLE #6                  TP-00778

317 1  34 08 57288 119 12 17154  243 0000 000000
/PORT HUENEME LIGHT POLE #7                  TP-00778

318 1  34 08 57343 119 12 13199  243 0000 000000
/EAST CORNER WAREHOUSE                       TP-00778

319 0  34 08 55582 119 12 11413  243 0000 000000
/PORT HUENEME SHACK LIGHT                    TP-00778

320 1  34 08 55438 119 12 05896  243 0000 000000
/STRUCTURAL STEEL PLATFORM (SW CORNER)       TP-00778

321 1  34 08 54627 119 12 02057  243 0000 000000
/POWER POLE                                  TP-00778

322 4  34 08 53603 119 12 03750  243 0000 000000
/PORT HUENEME PIER ROW #1                    TP-00778

323 4  34 08 53073 119 12 04877  243 0000 000000
/PORT HUENEME PIER ROW #2                    TP-00778

324 1  34 08 52122 119 12 05648  243 0000 000000
/PORT HUENEME PIER ROW #3                    TP-00778

325 6  34 08 51618 119 12 06830  243 0000 000000
/PORT HUENEME PIER ROW #4                    TP-00778

326 1  34 08 50162 119 12 12649  243 0000 000000
/EAST WAREHOUSE, EAST APEX                   TP-00778
```

```
327 1  34 08 50178 119 12 18304  243 0000 000000
/WEST WAREHOUSE, EAST APEX                TP-00778

328 1  34 08 49881 119 12 26597  243 0000 000000
/THE ENTRANCE LIGHT POLE                  TP-00778

329 4  34 08 48460 119 12 31168  243 0000 000000
/SMALL PIER, EAST SIDE OF ENTRANCE        TP-00778

330 1  34 08 42534 119 12 30153  243 0000 000000
ABANDONED USCG TWR                        TP-00778

331 1  34 08 44699 119 12 19261  243 0000 000000
/NCEL HALYARD FLAGPOLE                    TP-00778

332 1  34 08 41362 119 12 07906  243 0000 000000
/NCEL FENCE CORNER                        TP-00778

333 1  34 08 41659 119 12 01833  243 0000 000000
/SOUTH BEACH BUILDING PEAK (EAST OF SIGNAL 332) TP-00778

334 1  34 09 34907 119 13 59973  243 0000 000000
/CHANNEL IS HARBOR BREAKWATER NORTH LIGHT      TP-00778

335 1  34 09 16202 119 13 45677  243 0000 000000
/CHANNEL IS HARBOR BREAKWATER SOUTH LIGHT #1   TP-00778

336 4  34 09 21675 119 13 35275  243 0000 000000
/CHANNEL IS HARBOR SOUTH JETTY LIGHT #2 TP-00778

337 1  34 09 26056 119 13 38643  243 0000 000000
/CHANNEL IS HARBOR NORTH JETTY LIGHT #3 TP-00778

338 1  34 08 21966 119 11 42261  243 0000 000000
/PORT HUENEME FISHING PIER                TP-00778

339 1  34 08 40488 119 11 51612  243 0000 000000
/PORT HUENEME CONDOMINIUM (CORNER)        TP-00778

340 1  34 08 56956 119 12 57009  243 0000 000000
/PORT HUENEME GREEN OUTHOUSE DOOR         TP-00778

341 1  34 09 13182 119 12 56352  243 0000 000000
/TALL STRUCTURAL TOWER                    TP-00778

342 1  34 09 13858 119 13 09902  243 0000 000000
/BEACH HOUSE CHIMNEY                      TP-00778

343 1  34 09 21985 119 13 18076  243 0000 000000
/PINK BEACH HOUSE APEX                    TP-00778

344 1  34 08 49332 119 12 06803  243 0000 000000
/JIM'S LIGHT POLE                         TP-00778

345 7  34 09 28782 119 13 23922  243 0000 000000
/CHANNEL IS HARBOR SOUTH JETTY LIGHT #4 TP-00778
```

```
346 7  34 09 35825 119 13 18855  243 0000 000000
/CONCERT BULKHEAD #1                        TP-00778

347 4  34 09 40712 119 13 18742  243 0000 000000
/TIP OF COAST GUARD BULKHEAD                TP-00778

348 4  34 09 47145 119 13 18035  243 0000 000000
/NORTH OF THE 1/4 DECK                      TP-00778

349 4  34 09 56526 119 13 18182  243 0000 000000
/YACHT SALES SW CORNER APEX                 TP-00778

350 4  34 10 00332 119 13 18752  243 0000 000000
/BASE OF GRAY CRANE                         TP-00778

351 4  34 10 04379 119 13 16608  243 0000 000000
/NORTH APEX OF CHANNEL ISLAND WAREHOUSE TP-00778

353 3  34 10 28955 119 13 22576  243 0000 000000
/CHANNEL ISLAND POST #1                     TP-00778

354 3  34 10 25221 119 13 22639  243 0000 000000
/CHANNEL ISLAND PIER POST #2 (GREEN STRIP) TP-00778

355 3  34 10 21301 119 13 22689  243 0000 000000
/CHANNEL ISLAND PIER POST #3                TP-00778

356 3  34 10 17606 119 13 22767  243 0000 000000
/CHANNEL ISLAND PIER POST #4 (GREEN STRIP) TP-00778

357 3  34 10 12631 119 13 22822  243 0000 000000
/CHANNEL ISLAND PIER POST #5                TP-00778

358 3  34 10 08952 119 13 22922  243 0000 000000
/CHANNEL ISLAND PIER POST #6                TP-00778

359 1  34 10 03873 119 13 25536  243 0000 000000
/THE APEX OF THE LOBSTER TRAP               TP-00778

360 4  34 10 02526 119 13 30556  243 0000 000000
/CHANNEL ISLAND PIER POST #7                TP-00778

361 4  34 10 04521 119 13 30709  243 0000 000000
/CHANNEL ISLAND PALM TREE #1                TP-00778

362 4  34 10 07300 119 13 32104  243 0000 000000
/CHANNEL ISLAND PALM TREE #2                TP-00778

363 4  34 10 08951 119 13 32830  243 0000 000000
/CHANNEL ISLAND PALM TREE #3                TP-00778

364 2  34 10 11690 119 13 35183  243 0000 000000
/CHANNEL ISLAND POST #8                     TP-00778
```

```
365 7  34 10 17173 119 13 35489  243 0000 000000
/CHANNEL ISLAND PIER POST #8                TP-00778

366 4  34 10 18654 119 13 31241  243 0000 000000
/SOUTH APARTMENT, NORTH STAIRWELL CORNER TP-00778

367 4  34 10 22094 119 13 30144  243 0000 000000
/SHINGLED PAGODA                            TP-00778

368 4  34 10 25668 119 13 31193  243 0000 000000
/NORTH APARTMENT, SOUTH STAIRWELL CORNER TP-00778

369 4  34 10 27972 119 13 31540  243 0000 000000
/YE OL' DRAIN PIPE                          TP-00778

370 4  34 10 18485 119 13 49902  243 0000 000000
/THE OCTAGON TOWER                          TP-00778

371 5  34 09 54519 119 13 29811  243 0000 000000
/THE WHALES TAIL'S NORTH DOLPHIN            TP-00778

372 6  34 09 46210 119 13 28454  243 0000 000000
/CHANNEL ISLAND FLAGPOLE #1                 TP-00778

373 4  34 09 40017 119 13 26307  243 0000 000000
/WHITE PAGODA HOUSE                         TP-00778

374 4  34 09 32199 119 13 26648  243 0000 000000
/CHANNEL IS HARBOR NORTH JETTY LIGHT #5 TP-00778

375 4  34 09 26383 119 13 26474  243 0000 000000
/SILVER STRAND BEACH HOUSE                  TP-00778

376 4  34 09 48112 119 13 39046  243 0000 000000
/THE BEAUTIFUL BEACH BALCONY                TP-00778

377 4  34 10 05635 119 13 37289  243 0000 000000
/CHANNEL ISLAND PALM TREE #4                TP-00778

400 4  34 10 18956 119 13 18284  252 0000 000000
/HYDRO SIGNAL #0

401 4  34 10 22150 119 13 20289  252 0000 000000
/HYDRO SIGNAL #1

402 4  34 10 26116 119 13 19782  252 0000 000000
/HYDRO SIGNAL #2

403 4  34 10 30104 119 13 20036  252 0000 000000
/HYDRO SIGNAL #3
```

NOTE: STATIONS 000-207, 300-377, 400-403 WERE USED FOR VISUAL CALIBRATIONS. signals

46

NOAA FORM 76-40 (8-74)

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

Replaces C&GS Form 567.

NONFLOATING AIDS ~~OR LANDMARKS~~ FOR CHARTS

ORIGINATING ACTIVITY
- ☐ HYDROGRAPHIC PARTY
- ☐ GEODETIC PARTY
- ☒ PHOTO FIELD PARTY
- ☐ COMPILATION ACTIVITY
- ☐ FINAL REVIEWER
- ☐ QUALITY CONTROL & REVIEW GRP.
- ☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA SHIP RAINIER PMC. SEATTLE	CALIFORNIA	PORT HUENEME E CHANNEL ISLANDS HARBOR	MAR. 1977

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-411-RA-76	CM-7404	TP-00578	N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	POINT HUENEME LIGHT (POINT HUENEME LIGHTHOUSE, 1948) PORT	34 08	42.574 1311.8	119 12	32.584 834.8	74LC(I) 1663 31 MAR 74	F-2-6-L NOV-DEC 76	5120 ✓ 5202
LIGHT	~~POINT~~ HUENEME EAST JETTY LIGHT 4 POSITION UPDATED	34 08	34.970 —	119 12	39.498 —	〃 〃	〃 〃	〃 〃
LIGHT	PORT HUENEME RANGE FRONT LIGHT POSITION UPDATED	34 09	7.775 —	119 12	17.390 —	〃 〃	〃 〃	〃 〃
LIGHT	PORT HUENEME RANGE REAR LIGHT PORT POSITION UPDATED	34 09	16.443 —	119 12	9.512 —	〃 〃	〃 〃	〃 〃
LIGHT	~~POINT~~ HUENEME WEST JETTY LIGHT 3 PORT POSITION UPDATED	34 08	38.236 —	119 12	55.094 —	〃 〃	〃 〃	〃 〃
LIGHT	~~POINT~~ HUENEME CHANNEL LIGHT 5 PORT POSITION UPDATED	34 08	44.416 —	119 12	41.589 —	〃 〃	〃 〃	〃 INSET 〃
LIGHT	~~POINT~~ HUENEME CHANNEL LIGHT 6 POSITION UPDATED	34 08	42.705 —	119 12	37.086 —	〃 〃	〃 〃	〃 INSET 〃
LIGHT	CHANNEL ISLANDS HARBOR BREAKWATER SOUTH LIGHT 1 POSITION UPDATED	34 09	16.202 —	119 13	45.677 —	74LC(I) 1668 31 MAR 74	〃 〃	〃 〃 INSET
LIGHT	CHANNEL ISLANDS HARBOR BREAKWATER NORTH LIGHT POSITION UPDATED	34 09	34.907 —	119 13	59.973 —	〃 〃	〃 〃	〃 〃 INSET
LIGHT	CHANNEL ISLANDS HARBOR SOUTH JETTY LIGHT 2 POSITION UPDATED	34 09	2 75 —	119 13	35.275 —	〃 〃	〃 〃	〃 〃

47

NOAA FORM 76-40
(6-74)

Replaces C&GS Form 567.

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

~~NONFLOATING AIDS OR~~ LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- ☐ HYDROGRAPHIC PARTY
- ☐ GEODETIC PARTY
- ☐ PHOTO FIELD PARTY
- ☐ COMPILATION ACTIVITY
- ☐ FINAL REVIEWER
- ☒ QUALITY CONTROL & REVIEW GRP.
- ☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): NOAA SHIP RAINIER PMC, SEATTLE

STATE: CALIFORNIA

LOCALITY: PORT HUENEME & CHANNEL ISLANDS HARBOR

DATE: MAR. 1977

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

OPR PROJECT NO.: OPR-411-RA-76

JOB NUMBER: CM-7404

SURVEY NUMBER: TP-00778

DATUM: N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
TANK	PORT HUENEME MUNICIPAL WATER TANK, 1960	34 09	8.341 257.0	119 11	33.717 863.6	74L(CI) 1662 31MAR74	V-VIS NOV. 1976	5120 Rev. Pcs 5202
TANK	PORT HUENEME NCBC WATER TANK #431	34 09	30.260 –	119 12	28.588 –	〃 〃	〃 〃	〃 〃 ✓
TANK	PORT HUENEME NCBC WATER TANK #374	34 09	54.919 –	119 12	8.822 –	〃 〃	F-3-6-L NOV. 1976	〃 〃 ✓
TOWER	PORT HUENEME MONITORING TOWER FOR U.S.S. NORTON SOUND	34 09	7.841 –	119 12	35.588 –	〃 〃	P-L-F-V 74L(CI)1663, 1865, 1662	〃 〃 ✓
TOWER	PORT HUENEME SKELETON TOWER	34 09	13.182 –	119 12	56.352 –	〃 〃	P-L-F-V 74L(CI), 1668, 1866, 1878	〃 〃 ✓

48

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS ~~OR LANDMARKS~~ FOR CHARTS

ORIGINATING ACTIVITY
- ☐ HYDROGRAPHIC PARTY
- ☐ GEODETIC PARTY
- ☒ PHOTO FIELD PARTY
- ☐ COMPILATION ACTIVITY
- ☐ FINAL REVIEWER
- ☐ QUALITY CONTROL & REVIEW GRP.
- ☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): NOAA SHIP RAINIER, PMC, SEATTLE

STATE: CALIFORNIA

LOCALITY: PORT HUENEME & CHANNEL ISLANDS HARBOR

DATE: MAR. 1977

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

OPR PROJECT NO.: OPR-411-RA-76

JOB NUMBER: CM-7404

SURVEY NUMBER: TP-00778

DATUM: N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	″ D.M. Meters	POSITION LONGITUDE ° ′	″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	CHANNEL ISLANDS HARBOR SOUTH JETTY LIGHT 4 POSITION UPDATED	34 09	28.782 —	119 13	23.922 —	74LC(I) 1668 31MAR,74	F-2-6-L NOV-DEC. 1976	5120 ✓ 5202
LIGHT	CHANNEL ISLANDS HARBOR NORTH JETTY LIGHT 3 POSITION UPDATED	34 09	26.056 —	119 13	38.643	" "	" "	" "
LIGHT	CHANNEL ISLANDS HARBOR NORTH JETTY LIGHT 5 POSITION UPDATED	34 09	32.199 -	119 13	26.648 —	" "	" "	" "

DIVING INVESTIGATION

PORT HUENEME

OPR-411

In order to locate possible ship hazards in Port Hueneme harbor, RAINIER divers searched the harbor bottom along the faces of all the piers in the harbor.

Diving was conducted by: LTjg John C. Osborn
ENS Stanton M. Ramsey, Divemaster
3AE George F. Finger

The divers started this investigation at Lat. 34° 08' 47" N., Lon. 119° 12' 32" W. and worked counterclockwise around Port Hueneme, finishing at Lat. 34° 08' 50" N., Lon. 119° 12' 37" W. Wharves A & B were not investigated.

As noteworthy obstructions were found a description of the obstruction was recorded, measurements of and to the obstruction were taken and recorded, and the pier face was marked.

After diving operations were completed, a field editor returned to the pier marks to obtain fix information. With the exception of fixes numbered 23 - 25, all fixes were taken by the field editor standing on the pier. Fixes 23 - 25 were taken from the stern of a small boat at the location of the obstruction.

Since the fix positions were determined after the divers had located the obstructions and since the field editor did not obtain his positions in the same order as the divers had conducted their search, the sounding volume gives the appearance that the positions are not in chronological order. The times recorded in the sounding volume are the times that the divers made their depth or height above bottom measurements, not the times that the numbered fixes were determined.

For all original fixes, descriptions, and sketches, refer to Field Edit Sounding Volume #1. A copy of this volume is submitted with the hydrographic data.

The following obstructions were located by divers and are listed in the order in which they were found:

1. Fix number 22: A 14 in. diameter piling lying at an angle away from wharf #2. The higher end is 15 ft. from the face of the pier and 20 ft. above the bottom.

2. Fix numbers 23 - 25: 12 in. diameter pilings in ruins submerged 1 ft. located 20 ft. ESE of the wood retaining wall at Wharf "C".

3. Fix number 29: 2 in. diameter pipe 20 ft. east of the face of the pier and projecting 10 ft. off the bottom.

4. Fix number 30: 10 in. diameter piling with its base 25 ft. east of wharf #4 and projecting toward the pier. It projects 10 ft. above the bottom.

5. Fix number 28: 10 in. diameter piling 15 ft. from the face of wharf #4 projecting 8 to 10 ft. away from the pier and 5 ft. above the bottom at its higher end.

6. Fix number 26 & 27: Pilings standing vertically 10 ft. off the bottom. Not of navigational interest because they are covered by a floating pier.

It is recommended that items numbered 22 through 28 be charted as shown on the smooth field sheet. Items need not be charted.

It is recommended that items 26 & 27 need not be charted since they are under a floating pier. Items noted on smooth sheet.

A copy of this Diving Investigation was sent to LCDR R.K. Harmuth, Port Services Officer, Port Hueneme, for his information. LCDR Harmuth was requested to notify the Director, PMC, if he removes any of the obstructions.

APPROVAL SHEET

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY

H-9666
RA-5-3-76

In producing this sheet, standard procedures were observed in accordance with the Provisional Hydrographic Manual, PMC OPORDER, and the Instruction Manual for Automated Hydrographic Surveys. The data was examined daily during the execution of the survey. The boat sheet and the accompanying records have been examined and are complete and adequate for charting purposes and are approved.

James P. Randall

JAMES P. RANDALL
CAPTAIN, NOAA

June 21, 1977

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center: Attn: CPM32

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): Middle Channel, Port Hueneme, Channel Islands Harbor

Period: November 5 - December 5, 1976

HYDROGRAPHIC SHEET: H-9666

OPR: 411

Locality: Southern California

Plane of reference (mean lower low water): 2.6 ft. - Middle Channel
6.00 ft. Channel Is. Harbor - 11.05 ft. - Port Hueneme

Height of Mean High Water above Plane of Reference is
4.6 ft.

Remarks: Recommended zoning:

1) In Port Hueneme and offshore zone direct on Port Hueneme.

2) In Channel Islands Harbor north of 34°10.04' zone direct on Middle Channel.

3) In Channel Islands Harbor south of 34°10.04' zone direct on Channel Islands Harbor.

Chief, Tides Branch

RECEIVED

AUG 29 1977

PACIFIC MARINE CENTER

CPM38
329

NAVAL CONSTRUCTION BATTALION CENTER
PORT HUENEME, CALIFORNIA 93043

IN REPLY REFER TO:
70:RKH:mkk

SERIAL 3817

23 AUG 77

From: Commanding Officer, Naval Construction Battalion Center, Port Hueneme, CA 93043
To: Director, Pacific Marine Center, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1801 Fairview Avenue East, Seattle, WA 98102

CPM1X1
Copy to: CPM3
CPM 221

Subj: Port Hueneme Obstructions and Modifications

Ref: (a) CO NOAA Ship RAINIER S221 ltr of 18 Mar 1977

1. Enclosure (1) to reference (a), entitled "Diving Investigation Port Hueneme OPR-411," listed a number of potential ship hazards located by RAINIER divers during the harbor survey. All listed obstructions have been removed or verified no longer present by the EOD Team Divers, PMTC, Point Mugu.

2. Of interest was a large rock discovered by Oxnard Harbor District Divers located 50 feet east of the western end of wharf #1 and about 30 feet north of the wharf. The rock was apparently a left-over from the construction of the new wharf in 1972. It projected about 2.5-3 feet above the bottom. This rock was removed by the Navy. Not on chart

3. The Oxnard Harbor District has completed construction of two utility wharves located midway between the eastern end of the harbor and the eastern end of wharf #2.

4. The old eastern channel marker, flashing red, was removed and replaced with a new marker. The new marker is also of the same characteristics, built on pilings and located 10 feet to seaward of the original.

5. The dolphins located between and to either side of the LST ramps located at the north end of the harbor will be removed prior to the end of the calendar year.

R. K. HARMUTH
By direction

NAVEXOS-CBC-10460/1 (REV. 5-68)

NOAA FORM 77-27
(9-72)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9666

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET with PNO & 2-excess overlays	1	BOAT SHEETS	4 parts 2
DESCRIPTIVE REPORT	1	OVERLAYS (preliminary)	3

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES			1-smooth &			1-misc.reports
CAHIERS	1-with printouts & misc.data					
VOLUMES						
BOXES						

T-SHEET PRINTS (List) Class I Shoreline Manuscript TP-00778 ← not included at registration 1-Tide plot

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS: PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1454
POSITIONS CHECKED		1454		
POSITIONS REVISED		20		
DEPTH SOUNDINGS REVISED		228		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
Verification of Control	3	8		
Verification of Positions		86		
Verification of Soundings		131		
Smooth Sheet Compilation		119		
ALL OTHER WORK		4		
TOTALS	3	348	HIT = 13	

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY James S. Green	4-7-77	4-7-77
VERIFICATION BY Isagani A. Almacen	4-27-77	11-23-77
REVIEW BY		

Cartographic 4 hrs 5/1/78

Quality Control: G. Myers 3/29/78 35 hrs. Passed RHC

APPROVAL SHEET

FOR

SURVEY H- 9666

A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 16 Oct 1973

Signed: [signature]

Title: Chief, Verification Branch

Reg. No. H-9666

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE_____ TIME REQ'D_____ INITIALS_____

REMARKS:

Reg. No. _____

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE_____ TIME REQ'D._____ INITIALS_____

REMARKS:

H-9666

Information for Future Presurvey Reviews

Extensive changes in the area of the present survey are unnatural. There are no items to be considered for future investigations.

Position Index		Bottom Change	Use	Resurvey
Lat.	Long.	Index	Index	Cycle
340	1192	1	2*	50 years*

* The use factor "2" based on a listing dated February 16, 1972, is in conflict with information provided by the 1976 Coast Pilot for this area. The existence of small-craft facilities at Channel Islands Harbor containing over 1,000 piers and the location of a commercial terminal for deep-draft cargo vessels and oil company support vessels at Port Hueneme indicate more traffic transits this area than is attributed to a factor of "2."

PACIFIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO: H-9666 FIELD NO: RA-5-3-76

California, Santa Barbara Channel, Port Hueneme and Channel Islands Harbor

SURVEYED: 1Ø November - 5 December 1976

SCALE: 1:5,ØØØ PROJECT NO: OPR-411

SOUNDING: Ross Fineline Fathometer CONTROL: Visual

Chief of Party.....CAPT J.P. Randall
Surveyed by.....ENS Davis, LT Kleinschmidt, LTJG Peterson
Automated plot by.....PMC Xynetics Plotter
Verified by.....Isagani A. Almacen
November 23, 1977

I. INTRODUCTION

This is a basic hydrographic survey of Channel Islands Harbor and Port Hueneme including its entrances and an offshore portion of the area between the two harbors.

Hydrography was accomplished by NOAA Ship RAINIER from the period 1Ø November thru 5 December 1976.

Three-point visual fixes, using Teledyne digital sextant, were utilized to control hydrography on this survey.

II. CONTROL AND SHORELINE

Visual control used on this survey consisted of triangulation intersection stations, photogrammetrically located stations, and hydro signals located by three-point sextant fixes. The source of control is adequately described in Section F of the Descriptive Report.

Shoreline detail information was obtained from unreviewed Class I manuscript TP-ØØ778, except for the approximate limit of breakers which was plotted from the boat sheet. Shoreline manuscript TP-00777 was not available to complete the Mean High Water Line in the vicinity of Middle Channel Tide Gage.
The date of photography was March and April 1974 and field edit was November 1976.

III. HYDROGRAPHY

Crossline soundings were generally in good agreement throughout the survey. However, crossline descrepancies could be mistakenly noted in areas of irregular submarine relief, particularly the entrance to Port Hueneme Harbor, along the northern edge of Hueneme Canyon wall. In this case, it was actually caused by the abrupt changes in depths across short horizontal distances in this specific portion of the survey.

Development of bottom configuration is considered adequate except for the delineation of inshore areas along the coast where the presence of breakers precluded its development.

The depth curves, except in areas mentioned above, were adequately delineated and inked ~~in~~ on the smooth sheet.

IV. CONDITION OF SURVEY

The automated plotting of smooth sheet, accompanying overlays, hydrographic records, reports and field procedures are adequate and conform to the requirements stated in the hydrographic manual.

V. JUNCTIONS

There were no junctions with contemporary surveys. H-9725 (RA-20-1-77) joins the three sides of this sheet but is not available for comparison.

VI. COMPARISON WITH PRIOR SURVEYS

Comparison has been made with 1933 survey H-5426 (1:10,000). It should be noted that at the time of prior survey, Port Hueneme and Channel Islands harbors were not in existence. The present survey shows considerable development in the area. The shoreline and entrance to Port Hueneme has changed extensively, while no significant changes in depths were noted in the offshore portion of the survey.

The following Pre-Survey Review Items were covered on this survey:

A. PSR Item #3: The charted wreck at Lat. 34°08'39.4"N, Long. 119°12'55.8"W which is the remains of the 467-foot hull of "La Jenelle" has already been covered with fill. The site was transformed into a public recreational area and is now being maintained by the County of Ventura. It is, therefore, recommended that the wreck symbol be deleted from the chart of the area. Deleted

B. PSR Item #6: The shoaling reported in the vicinity of Lat. 34°09.55'N, Long. 119°13.42'W was investigated in the field. A 3-foot shoal sounding was found in the

immediate location of the buoy, which was adequately described on Section K of the Descriptive Report. However, another shoaling was noted approximately 2Ø M. off the southern edge and extending along Channel Islands Harbor North Jetty. I concur with ship's recommendation that this other shoaling be also indicated on the chart. See quality control critique.

The current survey is considered adequate to supersede the prior survey of 1933 for areas of common coverage.

VII. COMPARISON WITH CHART

A. Comparison with Chart 18725 (512Ø), 1:5Ø,ØØØ (Inset - 1:1Ø,ØØØ), 14th Edition, November 1975, shows some significant changes inside the harbors and its approaches. Aside from those previously mentioned on the preceeding section. The following other changes have been noted:

1) The present depth of Channel Islands Harbor was found to be deeper than the charted controlling depths by about 5 feet in the entrance and 2.5 feet in the harbor basin. See quality control critique

2) The depths at the entrance as well as inside Port Hueneme Harbor on this survey have been noted to be approximately 1 to 3 feet deeper than the charted depth. The charted soundings inside the harbor was believed to have originated from a prior Corps of Enginaers survey. See quality control critique

The above changes in bottom configuration is due primarily to subsequent dredging within the harbor area.

A letter dated 23 August 1977, containing information regarding the condition of potential navigational hazards listed on the Diving Investigation Report, was sent by the Commanding Officer, Naval Construction Battalion Center, Port Hueneme in response to the ship's letter of 18 March 1977. All listed obstructions inside the harbor have been removed or verified no longer present. The letter also includes information regarding modifications that has been undertaken in the area. (Refer to attached copy of reply to the Director, Pacific Marine Center)

The position of the charted bell buoy located off Point Hueneme was checked although it is outside the limit of the survey, but the description of the buoy appearing on the chart was not verified in the field. It was plotted on the smooth sheet with its description based on the latest chart of the area and Light List information.

Charted bridge and overhead cable clearances have been checked in the field and are adequately described on Section N of the Descriptive Report. See Desc. Rep., pg. 8

No information concerning the charted mile range marker at Lat. 34°10.33'N, Long. 119°14.00'W has been included in the Ship's Report. from CL 630/66 These marks should be retained on the chart.

The three dolphins charted at approximately Lat. 34°09'11"N, Long. 119°12'33"W were not confirmed by the field. A subsequent phone call dated Jan 5, 1978 verified that these dolphins still exist although they are soon to be removed. The verifier recommends that these three features be retained for charting. from U.S. Navy condition survey of April, 1949 (BP 45551)

B. Aids to Navigation

All positions of existing navigational aids in the area were checked either by third-order triangulation method or by three-point sextant fixes.

The charted aids to navigation agree with the present survey and adequately serve the purpose. However, the updated positions of fixed aids noted on Section N of the ship's report are being recommended for charting.

A discrepancy exists between the Class I manuscript and the NOAA Form 76-40 for four non-floating aids to navigation in Port Hueneme. The 1976 Light List was used to rectify this error.

The two range markers as plotted on the smooth sheet near Port Hueneme, are the 1974 Light List locations dated 1940-55 maintained by the U. S. Navy. It should be noted that the 1976 Light List contains new Coast Guard range markers established in 1974 which are presently not in use.

This survey is adequate to supersede charted hydrography within the common area, except as noted on Verifier Report and Quality Control Report.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey complies with Project Instructions.

IX. ADDITIONAL FIELD WORK

This is a good basic hydrographic survey and no additional field work is necessary. However, because of the continuing expansion and developments in this particular area, changes to its topographic configuration and bottom characteristics could be expected in the future. For purposes of updating the chart of the area, it is recommended that regular contact be maintained with the Corps of Engineers, County of Ventura and other private companies involved in its development.

Respectfully submitted,

Isagani A. Almacen
Cartographic Technician
November 23, 1977

Examined and approved,

James S. Green
Chief, Verification Branch

ADMINISTRATIVE APPROVAL

H-9666

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common area of prior surveys.

E. A. Taylor

Eugene A. Taylor, RADM
Director
Pacific Marine Center

11 Jan. 1978
Date

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey, Pacific Marine Center,
1801 Fairview Ave. E., Seattle, WA 98102

9 January 1978

TO: Eugene A. Taylor
Director, Pacific Marine Center

FROM: Glen R. Schaefer
Chief, Processing Division

SUBJECT: PMC Hydrographic Survey Inspection Team Report -- H-9666

This survey is a basic survey of Port Hueneme and Channel Islands Harbor, southern California. This survey was conducted by NOAA Ship RAINIER in 1976 in accordance with Project Instructions OPR-411-RA-76, dated 22 July 1976 and Changes No. 1, dated 27 September 1976 and No. 2,dated 9 December 1976.

As noted in the Descriptive Report, the eastern smooth field sheet was plotted by the ship using signal coordinates determined photogrammetrically. The western smooth field sheet and the smooth sounding sheet were plotted using signal coordinates determined by geodetic survey methods. Consequently, differences appear between sheets. In this instance, these differences do not affect the adequacy of the survey.

The inspection team finds H-9666 to be an excellent basic survey adequate to supersede common areas of prior surveys and charted hydrography.

Glen R. Schaefer

J.C. Albright

James W. Steensland

Stanley H. Otsubo

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C352/GKM

March 29, 1978

TO: A. J. Patrick
Chief, Marine Surveys Division

FROM: G. K. Myers
Chief, Quality Control Branch

SUBJECT: Quality Control Report for H-9666 (1976), California, Santa Barbara Channel, Port Hueneme and Channel Islands Harbor

A quality control inspection of H-9666 has been accomplished to evaluate the adequacy and accuracy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, transfer of topographic information, decisions and actions by the verifier, and cartographic presentation of data.

The adequacy of a junction with H-9725 (1977) on the south and west will be evaluated during the quality control of that survey.

Shoreline detail was transferred from a copy of unreviewed Class I photogrammetric manuscript TP-00777 (1974-76) provided by the Pacific Marine Center during quality evaluation.

In general, the present survey was found to conform to National Ocean Survey standards and requirements except as discussed in the Verifier's Report, the HIT Report, and as follows:

1. The Verifier's Report should have included a statement to the effect that the 36-foot curve was added to better delineate the bottom configuration.

2. Shoaling in the immediate vicinities of latitude 34°09.53', longitude 119°13.43' and latitude 34°09.5', longitude 119°13.5' considered in the Verifier's Report can be represented by charting present depths in these areas.

3. The statement in the Verifier's Report pertaining to controlling depths should be revised accordingly.

a. In the charted controlling depth area in the upper portion of Channel Islands Harbor present depths are not in conflict with the charted

controlling depth note--9 1/2 FEET MAY 1967--from a Corps of Engineers surveys of 1967 (Bp-77818) except for a 7-foot sounding located at latitude 34°10.07', longitude 119°13.68' on the present survey.

b. In the charted depth area in the lower portion of Channel Islands Harbor present depths are as much as 1 foot shoaler than the charted controlling depth note--20 FEET MAY 1967--from a 1967 Corps of Engineers survey (Bp-77818).

c. Present depths are not in conflict with the charted controlling depth note--13 FEET APR 1973 (however, APR should be FEB)--from a 1973 Corps of Engineers survey (Bp-85921) at the entrance in Channel Islands Harbor.

4. Present survey depths are much deeper than soundings shown on the chart in the Federal Project area at Channel Islands Harbor. The charted soundings originate with a 1967 Corps of Engineers survey (Bp-77818). Inasmuch as these large differences reveal evidences of subsequent dredging in the area, it is recommended that present depths supersede the charted hydrography in the common area.

5. The foul areas charted in the immediate vicinities of latitude 34°09.64', longitude 119°13.28' and latitude 34°09.58', longitude 119°13.3' from 1969 air photographs were not mentioned by the hydrographer; however, the present topographic survey indicates the bottom in these areas to be covered by sand. The foul area notations originate with an office interpretation of photographs and are superseded by the present survey information.

6. The ruins charted in the immediate vicinities of latitude 34°09.21', longitude 119°12.56' and latitude 34°09.2', longitude 119°12.58' from 1965 air photography were not proved or disproved on the present survey and should be retained on the chart.

cc:
C351

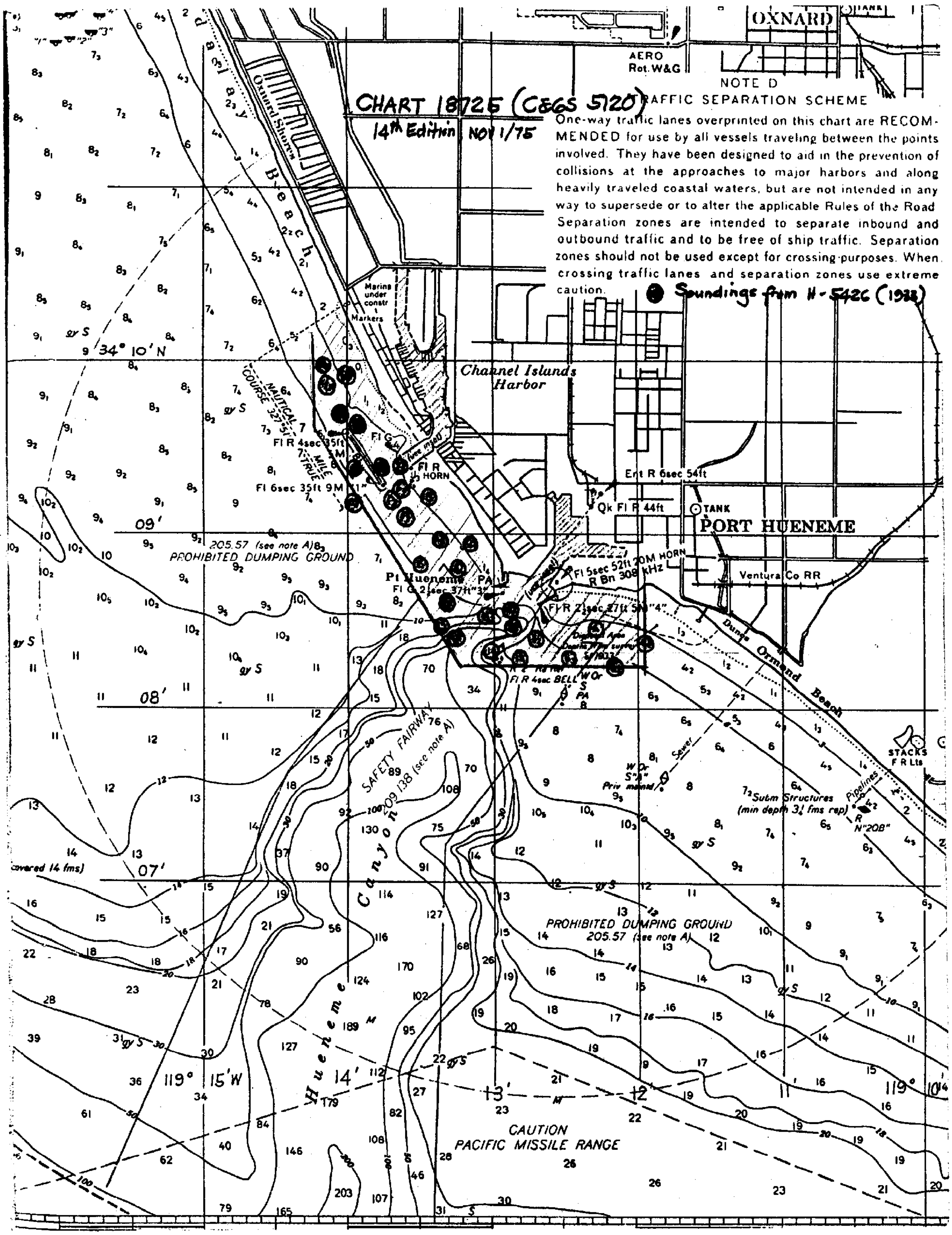


CHART 18725 (C&GS 5120)
14th Edition NOV 1/75
OXNARD
AERO
Rot. W&G
NOTE D
TRAFFIC SEPARATION SCHEME
One-way traffic lanes overprinted on this chart are RECOMMENDED for use by all vessels traveling between the points involved. They have been designed to aid in the prevention of collisions at the approaches to major harbors and along heavily traveled coastal waters, but are not intended in any way to supersede or to alter the applicable Rules of the Road. Separation zones are intended to separate inbound and outbound traffic and to be free of ship traffic. Separation zones should not be used except for crossing purposes. When crossing traffic lanes and separation zones use extreme caution.
Soundings from H-5426 (1933)
Oxnard Shores
Beach
34° 10′N
Channel Islands Harbor
Marina under constr
Markers
NAUTICAL MILE COURSE 327°51′ TRUE
Fl R 4sec 35ft 5M
Fl 6sec 35ft 9M
Fl R
HORN
Ent R 6sec 54ft
Qk Fl R 44ft
TANK
PORT HUENEME
205.57 (see note A)
PROHIBITED DUMPING GROUND
Pt Hueneme
Fl G 2sec 37ft "3"
Fl 5sec 52ft 20M HORN
R Bn 308 kHz
Ventura Co RR
Fl R 2sec 27ft 5M "4"
Fl R 4sec BELL
Ormond Beach
09′
08′
07′
SAFETY FAIRWAY (see note A)
09.138
Hueneme Canyon
Sewer
Priv maintd
Subm Structures (min depth 3½ fms rep)
Pipelines
N "20B"
STACKS F R Lts
PROHIBITED DUMPING GROUND
205.57 (see note A)
119° 15′W
14′
13′
12′
11′
119° 10′
CAUTION
PACIFIC MISSILE RANGE

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 9666

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
18725	5-23-78	Ray Spence	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 17
INSET 18725	12-16-81	Peter Shumar	Full P~~art Before~~ After Verification Review Inspection Signed Via
			Drawing No. 19
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63