9584

Diag. Cht. No. LS-3

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. LA-10-1-75

Office No. H-9584

LOCALITY

State ..... Ohio

General Locality ..... Lake Erie (South Shore)

Locality ..... Vicinity of Madison-on-the-Lake

1975

CHIEF OF PARTY
T. D. Kuchciak

LIBRARY & ARCHIVES

DATE ..... August 4, 1978

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

9584

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-9584

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.

LA 10-1-75 (F.S. 12)

State Ohio

General locality ~~South Shore~~ Lake Erie (South Shore)

Locality ~~8 miles East of Fairport to 5 miles West of Geneva-on-the-Lake, Ohio~~ Vicinity of Madison-on-the-Lake 18475 22175

Scale 1: 10,000 Date of survey July 3 to August 9, 1975

Instructions dated June 1, 1975 Project No. OPR-300-LA-75

Vessel NOAA-NOS Launch LAIDLY (1264) and Survey Boat (1638)

Chief of party T. D. Kuchciak

Surveyed by T. D. Kuchciak

Soundings taken by ~~echo sounder~~, ~~hand lead~~, ~~pole~~ Digital Echo Sounder

Graphic record scaled by LSC Hydrographic Section Personnel

Graphic record checked by LSC Hydrographic Section Personnel

Protracted by N/A Automated plot by ~~LSC DP-3 Complot Plotter~~ Calcomp 618 AMC

Verification by J Scott Bradford July 05, 1978

Soundings in ~~fathoms~~ (feet) at ~~MLW~~ ~~MLLW~~ LWD for Lake Erie is 568.6 feet IGLD (1955)

REMARKS: All times are Greenwich Mean Time, unless otherwise noted as EST. Bottom samples will be taken during the start of the 1976 field operations, for this survey.

Applied to stock 10/26/78

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

☆ U.S. GPO: 1974-0-768-081/1207

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✓= Misc. items filed in the cahier with the field records

Descriptive Report

To Accompany

Registry Number: H-9584

Hydrographic Section

Chief of Party: T. D. Kuchciak

Scale 1:10,000 (1975)

A. PROJECT

Project OPR-300-LA-75 (8 miles east of Fairport to Conneaut, Ohio) is a combined total of three surveys. The survey described herein is the first of three surveys, and was accomplished in accordance with Project Instructions, OPR-300-LA-75, dated June 1, 1975.

B. AREA SURVEYED

The survey was made in the inshore waters along the south shore of Lake Erie, extending from 8 miles east of Fairport to 5 miles west of Geneva-on-the-Lake, Ohio. The inshore area surveyed extends from within the six foot depth contour to beyond the forty-eight foot contour and is bounded by Longitudes 81° 08.4' and 81° 00.0'.

The survey of the nearshore or shallow water area, was started by Survey Boat (1638) on July 15, 1975 and was completed on August 5, 1975. The survey of the deeper water area was started by the Launch LAIDLY (1264) on July 3, 1975 and was completed on August 9, 1975.

C. SOUNDING VESSELS

Del Norte

The NOAA Launch LAIDLY (1264) was used exclusively in the deeper water areas of this survey and was controlled by Range-Range SHF electronic positioning. Regular or deeper sounding operations performed by the LAIDLY involved position numbers 5243 thru 6420.

The portion of this survey in the near shore region, considered to be the most hazardeous operating area, was accomplished by Survey Boat (1638). Position numbers 5001 thru 6044 were logged by this survey boat. Survey Boat (1638) was controlled exclusively by Range-Azimuth positioning with, ranging data obtained from a SHF electronic positioning system and azimuthal data from theodolite observations.

D. SOUNDING EQUIPMENT

Sounding equipment used aboard the Launch LAIDLY (1264), included the Raytheon 723-D Digital Depth Recorder, SN 2928 during the entire period of this survey. Survey Boat (1638) was equally equipped with a Raytheon 723-D Digital Depth Recorder, SN 2042 during the entire period of this survey.

During the period of this survey, fathometer operators made periodic checks to assure that proper initial (0 foot) was maintained. Also stylus arm length, and A-F scale comparisons were made.

CORRECTIONS TO ECHO SOUNDINGS

1. Velocity correctors were derived from the direct comparison log, Column P, Corr. (C-N) for both survey vessels, during the period of this survey.

2. Deviations of the initial draft setting 0-foot were noted on the fathograms during the scanning and were taken into account when the sounding records were emendated.

3. Fathometer instrument error was determined from the Direct Comparison Log, Column Q, Instrument Error (J-P). Instrument error was applied to the records during scanning of the digital and analog records. Corrections to the master tapes were applied via the corrector tapes.

4. Direct Comparison of the Analog Records and Digital readings against true bar depths were made only under ideal conditions, and at intervals of once or twice a day, and at random locations throughout the work area. A static draft correction of 2.5 feet was determined for Launch LAIDLY (1264) and a static draft of 1.5 feet was determined for Survey Boat (1638). Static draft corrections for both vessels were accomplished by conventionally approved methods.

5. Settlement and squat test were made on both vessels assigned to this survey on June 27, 1975. The test were conducted inside Fairport Harbor. The project depth of 25 feet was more than adequate for the tests and the harbor breakwalls provided adequate protection from lake swells. The test procedures were in accordance with recommendations in Section 4.9.4 of the provisional Hydrographic Manual. A Zeiss leveling instrument was set-up on one of the inside concrete harbor piers and sightings were taken on a level rod held vertically and perpendicular to the transducer, and traveling at the respective speeds.

Deviations of the initial draft setting from the 0 foot line of the Raytheon 723-D Recorders used exclusively in this survey was primarily due to the misalignment of the recorders paper and stoppage take-up reels. All deviations from the initial draft setting were taken into account and adjustments applied during scanning operations for both vessels.

Fathograms were scanned in the field by assigned Hydrographic Section personnel. When an excessive number of changes were apparent to the logged raw digital

the records were scanned by experienced personnel. All graphic records obtained during the period of this survey were scanned a second time, all fathograms were subjected to a third random check scan. See Hydrographic Report

Transducer corrections (TR4), which are defined as the sum of corrections for water level stage, draft, initial error, and settlement and squat were calculated in units of feet. Corrections for settlement and squat and instrument error are on all the TC/TI tapes. A settlement and squat abstract for both survey launches are shown below with accompanying graphs. (See Page)

LAIDLY (Launch 1264)

Squat Test, June 27, 1975

	RPM	Level Rod Reading, Ft.	Corrections, Ft.	Tra-Feet	
Idle Speed	0	5.82	0.0	2.5	Draft
	550	5.84	+0.02	2.5	
	750	5.90	+0.08	2.6	
	1000	5.99	+0.17	2.7	
	1200	6.11	+0.29	2.8	
	1400	6.10	+0.28	2.8	
	1600	6.00	+0.18	2.7	
	1800	5.82	0.00	2.5	
	2000	5.58	-0.24	2.3	
	2200	5.30	-0.52	2.0	

Survey Boat (1638)

Squat Test, June 27, 1975

	RPM	Level Rod Reading, Ft.	Corrections, Ft.	Tra-Feet	
Idle Speed	0	6.46	+0.02	1.5	Draft
	500	6.46	+0.02	1.5	
	700	6.44	+0.04	1.5	
	900	6.46	+0.10	1.6	
	1100	6.55	+0.10	1.6	
	1300	6.52	+0.13	1.7	
	1500	6.49	+0.18	1.7	
	1700	6.51	+0.23	1.7	
	1900	6.53	+0.32	1.8	
	2100	6.52	+0.39	1.9	
	2300	6.49	+0.41	1.9	
	2500	6.45	+0.49	2.0	

E. HYDROGRAPHIC SHEETS

DCU tapes containing depth and ranging data were generated by the data logger on board Survey Boat (1638). These data were plotted off line, using the HYDROPLOT System located in the field office trailer after DCU (raw) tapes were merged with Azimuth tapes producing Range-Azimuth Master Tapes. Corrector tapes, Velocity tapes and Signal tapes were generated by personnel of the Hydrographic Section.

Raw data master tapes from the S/V Laidly were generated and data plotted on the boat sheet in real-time using the on board HYDROPLOT System. Edited Master and Corrector tapes, Velocity tapes, and TC/TI tapes were logged/ generated by personnel of the LSC Hydrographic Section (CLS 112) and forwarded to the Processing Division (CAM 3), Atlantic Marine Center, for subsequent smooth plotting. Final verification of the smooth plot will be accomplished by the Verification Branch (CAM 31), AMC.

F. CONTROL STATIONS

Monumented Second and Third-Order Horizontal Control stations used in this survey and listed on the survey sheet are: (023) Evergreen, (025) Allen, (024) Perry Park, (026) Hubbard, (027) Chadwick and (127) Chad X (3rd Order) was set by the Hydrographic Section personnel.

The Horizontal Control used for this field survey was established to specifications set by the National Geodetic Survey and in compliance with the Hydrographic Manual. All Horizontal Control used for this survey is attached (see signal tape listing.)

G. HYDROGRAPHIC POSITION CONTROL

A Del Norte SHF electronic positioning system was used in the Range-Range positioning mode to control limits of the survey for the launch LAIDLY (1264) during hydrographic data acquisition on sheet LA 10-2-75.

Survey Boat (1638) utilized Del Norte Range-Azimuth positioning procedures and a DCU (Digital Control Unit) for logging input data. This boat operated in shallow water inside the "banana" area inherent in normal Range-Range positioning. For maximum utilization of the electronic positioning system, this boat operated in a time sharing mode with the S/V LAIDLY.

HYDROGRAPHIC POSITION CONTROL, LAUNCH LAIDLY

(1264) Range/Range Mode

Julian Day 184

Range 1 : "A" @ (025) ALLEN — Time GMT - 170703 - 182824
Range 2 : "B" @ (023) EVERGREEN — Positions No. - 5243 - 5297

Day 199

Range 1 : "B" @ (023) EVERGREEN — Time GMT - 162632 - 201242
Range 2 : "D" @ (024) PERRY PARK — Positions No. - 5298 - 5422

Day 207

Range 1 : "B" @ (023) EVERGREEN — Time GMT - 191114 - 210646
Range 2 : "A" @ (024) PERRY PARK — Positions No. - 5423 - 5473

Second Set-up

Range 1 : "B" @ (025) ALLEN — Time GMT - 213016 - 222310
Range 2 : "D" @ (023) EVERGREEN — Positions No. - 5474 - 5510

Day 209

Range 1 : "D" @ (025) ALLEN — Time GMT - 173857 - 205842
Range 2 : "B" @ (023) EVERGREEN — Positions No. - 5511 - 5640

Day 217

Range 1 : "B" @ (025) ALLEN — Time GMT - 190923 - 220642
Range 2 : "D" @ (023) EVERGREEN — Positions No. - 5641 - 220642

Day 219

Range 1 : "D" @ (026) HUBBARD — Time GMT - 151728 - 210223
Range 2 : "B" @ (025) ALLEN — Positions No. - 5787 - 6011

Second Set-up

Range 1 : "B" @ (027) CHADWICK — Time GMT - 225218 - 005351
Range 2 : "D" @ (026) HUBBARD — Positions No. - 6012 - 6083

Day 220

Range 1 ; "B" @ (027) CHADWICK — Time GMT - 192116 - 235546
Range 2 : "D" @ (026) HUBBARD — Positions No. - 6084 - 6285

Day 221

Range 1 : "B" @ (027) CHADWICK — Time GMT - 154134 - 185413
Range 2 : "D" @ (026) HUBBARD — Positions No. - 6286 - 6420

HYDROGRAPHIC POSITION CONTROL, SURVEY BOAT

(1638) Range/Azimuth Mode

Julian Day 196

Range	1	:	"B"	@	(023)	EVERGREEN	Time GMT	154100 - 221800
Azimuth		:	Transit	@	(023)	EVERGREEN	Positions No. -	5001 - 5244

Day 197

Range	1	:	"A"	@	(025)	ALLEN	Time GMT -	155900 - 203500
Azimuth		:	Transit	@	(025)	ALLEN	Positions No. -	5245 - 5418

Day 203

First Set-UP

Range	1	:	"A"	@	(035)	ALLEN	Time GMT -	155504 - 175840
Azimuth		:	Transit	@	(029)	ALLEN	Positions No. -	5419 - 5514

Day 204

Range	1	:	"D"	@	(026)	HUBBARD	Time GMT -	162000 - 202400
Azimuth		:	Transit	@	(026)	HUBBARD	Positions No. -	5515 - 5663

Day 211

Range	1	:	"D"	@	(026)	HUBBARD	Time GMT -	180000 - 235502
Azimuth		:	Transit	@	(026)	HUBBARD	Positions No. -	5664 - 5809

Day 217

Range	1	:	"C"	@	(127)	CHAD X	Time GMT -	135300 - 203100
Azimuth		:	Transit	@	(127)	CHAD X	Positions No. -	5813 - 6044

DEL NORTE SHF ELECTRONIC POSITIONING SYSTEM

The following is a comprehensive list of hydrographic, electronic control, HYDROPLOT System and associated scientific oceanographic equipment used in the collection and support of data acquisition for this survey.

The below listed equipment was on-board the survey Launch LAIDLY (1264) during the entire period of this survey.

T/R Master Transponder with Omni 360 x 30 Antenna	SN 246
DMU Trisponder 202A with Time/Share (Operating; Frequency 9300-9475 MHz)	SN 192
Parallel Buffer, 200-IPLA with HYDROPLOT Interface	SN 127

HYDROPLOT System

DEC HYDROPLOT Controller	SN 76005941-0700004
DEC Computer PDP8-E with 12K-Memory	SN PR0308130
DEC High Speed Reader-Punch	SN 0211123
Left-Right Steering Indicator	SN None
Teletype ASR 33 No. 1	SN 465065
Teletype ASR 33 No. 2	SN 465202
Complot DP 3/5 Plotter	SN 5279-1

SOUNDING SYSTEM

Raytheon 723-D, Digital Depth Recorder	SN 2928
SHIPEK, Sediment Sampler (12v w/set dial in/ft.)	SN 0001

The following is a comprehensive list of equipment on board support Survey Boat (1638) during the entire period of this survey.

Del Norte SHF Electronic Positioning System

T/R Master Transponder with Omni 360 x 30 Antenna (Operating Frequency 9300-9475 MHz)	SN 273A
DMU Trisponder 202A Base 2	SN 173
Parallel Buffer 200-IPLA with DCU Interface	SN 124
DCU HIFIX Type T10251	SN A 101
Remote Display, Model 244	SN 103
Teletype ASR 33	SN 500144

SOUNDING SYSTEM

Raytheon 723-D, Digital Depth Recorder SN 2042

SUPPORT EQUIPMENT

The below listed Del Norte remote transponders (electronic control) equipment used and which is comprised of the following Remote T/R were used by both Launch LAIDLY (1264) and Survey Boat (1638) during the entire period of this survey.

Remote Transponder	"A"	SN 174	Antenna, Directional	SN 150
Remote Transponder	"B"	SN 244	Antenna, Directional	SN 204
Remote Transponder	"C"	SN 256	Antenna, Directional	SN 162
Remote Transponder	"D"	SN 264	Antenna, Directional	SN 171

The four Directional Antennas 87^{o} x 5^{o} were marked A, B, C and D they were invariably used with corresponding Remote Transponders.

The following listed equipment was used as back-up and to process Range/Range and Range/Azimuth data, off line plots while in the field and office and during the entire period of this survey, and to support other projects as directed by Surveys Branch LSC (CLS 11).

DEC Computer PDP8-E 12 K Memory			SN PRO309104	
DEC High Speed, Reader-Punch			SN 040214005	
Teletype ASR 33			SN 458267	
Teletype ASR 33			SN 436575	
Complot DP 3/5 Plotter			SN 5848-19	
DCU HIFIX, Type T 10251			SN A 107	
Logger, Cartographic			SN 203944	
T/R Master Transponder		SN 620	Antenna, Omni	SN 412
Remote Transponder	"C"	SN 667	Antenna, Sector	SN 011
DMU Trisponder 202A		SN 298		
Teletype ASR 33		SN 453287		
Teletype ASR 33		SN 500218		

Calibration for Launch (1264) and Survey Boat (1638)

Remote transponders with directional antennas along with a transit were set over 2nd and 3rd order hydrographic control stations. Calibration of the Del Norte SHF electronic positioning system was accomplished within the work area of this survey by using 2nd and 3rd order hydro control network as calibration points.

Calibration was accomplished by the use of two or more transits set up over 2nd and 3rd order control stations. On a given command from the survey launch via communications, true azimuth cuts or intersection were made on the Master T/R transponder aboard the launch. All azimuths were relayed back to the launch for input into the PDP8/-E system using RK 562, calibration program. Four sets of calibrations were taken and the meaned correctors were entered into the HYDROPLOT Controller and logged before starting hydrographic operations.

At the end of the day, four more sets of calibrations were taken and meaned. The means of the two series of calibrations usually checked to within ± 2 meters. All series of calibrations from the same control network were meaned and the means were applied to the corrector tapes.

Calibration of the Del Norte SHF, electronic positioning system on board Survey Boat (1638) was accomplished within the work area of this survey by using 2nd and 3rd order control stations as calibration points.

Frequent calibrations were accomplished by physically placing T/R over hydrographic control stations and monitoring values (over a measured base line) and recording same in the hydrographic log (Form 275). Also at convenience so as to not interrupt other vessel hydrographic operations, perform true azimuth transit cuts on Master T/R transponder or S/B 1638. Final comparisons were made and corrections applied and meaned. The means of all calibrations were usually ± 1 meter for this survey, and this method.

There were no equipment changes during the period of this survey, and no repairs or other work was done which would have had any affect on calibration values.

Performance of the Del Norte SHF electronic positioning system listed and used for this survey was excellent. Other than replacement of a potentiometer in DMU Trisponder 202A SN 298 (back-up), no other equipment malfunction were experienced during this survey.

The small deviations in calibration meaned values were small and probably reflected short term changes in atmospheric conditions during the period of this survey.

H. SHORELINE See Verifier's Report

Due to extensive beach erosion along the south shore of Lake Erie, it is intended to photogrammetrically update the shoreline depiction in the near future. Shoreline will not be used on this survey.

Insufficient horizontal control at this time prohibits the use of the existing aerial photography (NOS May 20, 1974) for plotting the planimetric detail including the shoreline on survey LA 10-1-75. This detail will be compiled by the photogrammetry unit when adequate control is available.

See Recommendations

Area of Photography	Year Flown	Year Compiled
Ashtabula Harbor, Ohio	1974	1975
Vermillion to Fairport Harbor, Ohio	1975	(1976)
Fairport Harbor, Ohio to Dunkirk, New York	(1978)	(1979)
Dunkirk, New York to Niagara, New York	(1979)	(1980)

(Scheduled)

I. CROSSLINES

Crosslines run through the main scheme hydrography for this survey were adequate and there are no major discrepancies. Approximately 6% of the hydrographic data collected on sheet LA 10-1-75 resulted from crosslines. The crossline agreementwas very good and in most instances checked. However, some of the inshore outer lines that overlap the offshore hydro checked to within 2 feet. This is attributed to the irregular lake bottom in this area.

J. JUNCTIONS

Junction with H-9538 (LA 10-4-74) was fair. In most instances depths checked within 1-foot. Contour junction with H-9538 was poor. This was attributable to the Hydrographic Section not having H-9538 available, (this survey sheet was sent to CAM 3 for Verification and Final Processing) so that the necessary contour junction between sheets could be made properly.

Junction with H-9585 (LA 10-2-75) was very good and soundings agreed within one foot.

K. COMPARISON WITH PRIOR SURVEYS

Prior surveys in the area of LA 10-1-75 are:

Field Sheet No.	1-1862, 1-1864,	1948
Field Sheet No.	1-1815	1942

The 1975 survey sounding line interval is 100 meters on LA 10-1-75. The 1937 offshore line spacing is 800 meters and the 1948 surveys have a sounding line interval of 175-250 meters.

The much greater density of sounding coverage in 1975 provides a more complete development of depth contour curves than do the prior surveys. A comparison of plotted depths in areas of common coverage shows that approximately 75% of the prior survey depths differ from the 1975 survey by no more than 0-3 feet. It was found that shoaler depths on the prior surveys did not check depths on the final boat sheet. This is attributable to the sandy characteristic of the lake bottom in this area which is continually shifting. SEE VERIFIER'S REPORT

L. COMPARISON WITH THE CHART See Verifier's Report

The 1975 survey for H-9584 LA 10-1-75 was of a greater density of sounding coverage and provides a more complex development of depth contour curves than that of prior surveys. In addition a comparison of plotted depth in the area covered by this survey reveals that approximately 75% of prior surveyed depths differ from the 1975 survey by no more than 0.0 to 2.0 feet.

M. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supersede prior surveys for charting.
* SEE VERIFIER'S REPORT (SECTION 8 & 9)

N. AIDS TO NAVIGATION

Within the limits of this survey there are no Coast Guard approved aids to navigation.

O. STATISTICS

Launch LAIDLY (1264)

Total number of offshore positions (RR)	:	1177
Statute miles of sounding lines	:	232
Statute miles of crosslines		51
Square statute miles of sounding	:	20
Number of bottom samples	:	none

Survey Boat (1638)

Total number of inshore positions (RA)	:	1043
Statute miles of sounding Lines	:	63

Statute miles of crosslines : 19

Square statute miles of sounding: 8.0

Number of bottom samples : none

P. MISCELLANEOUS

No bottom samples were taken due to the termination of the 1975 field operations. Bottom samples will be taken in May, 1976 during hydrographic operations scheduled for Lake Erie.

Q. RECOMMENDATIONS See verifier's Report

It is recommended that the survey LA 10-1-75 be considered complete and adequate and that this data shall supersede prior surveys in the area. It is recommended that shore line be obtained as soon as possible by conventional photogrammetric methods.

R. AUTOMATED DATA PROCESSING

At the termination of the 1975 field season, all on/off line equipment was removed from the LAIDLY (1264) and the field office trailer and moved to an assigned office area. All data for this survey was compiled by personnel of the Hydrographic Section (CLS 112) in the LSC headquarters offices.

Below is a complete list of all programs used to process this survey, H-9585 LA 10-2-75.

Program Name	Number	Version Rate
Range-Range, Real Time	RK 111	8/07/74
Grid Lattice Plot	AM 201	11/10/72
Grid Signal and Lattice Plot	RK 201	2/19/75
Visual Station Plot	AM 202	none
Range-Range Non Real Time	RK 211	8/16/74
Range-Azimuth Pos. & Sndg. Plot	RK 216	2/14/75
Visual Station Table Marker	AM 301	8/12/74
Geodetic Inverse	AM 407	none
Geodetic Inverse, Direct Pos. Comp.	RK 407	8/15/74
Direct Geodetic Computation	AM 408	none
Geodetic Utility Package	RK 409	9/05/73
*H/R Geodetic Calibration	RK 561	2/19/75
Elinore, Line Editor	AM 602	3/10/72
Tape Duplicator	RK 606	8/22/74
Binary Tape Duplicator	RK 610	9/19/73
Unscrambler	RK 337	8/08/74
Range-Azimuth Non-Read Time Plot	RK 216	2/05/76

*H/R means HYPERBOLIC / RANGE-RANGE

5. References to Reports NONE

NOAA 58 11

DIGITAL INSTRUMENT CORRECTION

Vessel No 1264
F.S. No 12

Scale 1:10,000
Type of Survey RA/RB East of Fairport, Har

True Depth	Day No 199	Day No 207	Day No 216	Day No 220	Day No	Day No	Day No	Day No
5.0 ft.	–	–	–	–				
10.0 ft.	+0.1	0.0	+0.1	0.0				
15.0 ft.	+0.2	+0.1	+0.2	+0.1				
20.0 ft.	+0.3	+0.2	+0.3	+0.3				
25.0 ft.	+0.4	+0.3	+0.5	+0.5				
30.0 ft.	+0.5	+0.5	+0.5	+0.3				
35.0 ft.	+0.6	+0.5	+0.7	+0.4				
40.0 ft.	+0.7	+0.7	+0.7	+0.3				
45.0 ft.								
50.0 ft.								

True Depth	Day No	Day No	Day No	Day No	Day No	Day No	Day No	Day No
5.0 ft.								
10.0 ft.								
15.0 ft.								
20.0 ft.								
25.0 ft.								
30.0 ft.								
35.0 ft.								
40.0 ft.								
45.0 ft.								
50.0 ft.								

Means	5.0 ft.	10.0 ft.	15.0 ft.	20.0 ft.	25.0 ft.	30.0 ft.	35.0 ft.	40.0 ft.	45.0
		+0.1	+0.2	+0.3	+0.4	+0.5	+0.6	+0.7	
		0.0	+0.1	+0.2	+0.3	+0.5	+0.5	+0.7	
		+0.1	+0.2	+0.3	+0.5	+0.5	+0.7	+0.7	
		0.0	+0.1	+0.3	+0.5	+0.3	+0.4	+0.3	
Σ=		+0.2	+0.6	+1.1	+1.7	+1.8	+2.2	2.4	
Mean=		0.0 ✓	+0.2 ✓	+0.3 ✓	+0.4 ✓	+0.4 ✓	+0.6 ✓	+06 ✓	

Computed by: RZ
checked by: RB

MOAA 60 11

DIGITAL INSTRUMENT CORRECTION

Vessel No 1264
F.S. No 12

Scale 1:10,000
Type of Survey Rg/Rg East + off
Fairpoint, Hard

True Depth	Day No 181	Day No 182	Day No 183	Day No	Day No	Day No	Day No	Day No	
5.0 ft.									
10.0 ft.	+0.1	-0.1	-0.1						
15.0 ft.	0.0	-0.1	+0.1						
20.0 ft.	+0.1	-0.1	+0.1						
25.0 ft.	+0.1	0.0	+0.1						
30.0 ft.	+0.1	-0.1	+0.1						
35.0 ft.	+0.1	-0.1	+0.1						
40.0 ft.	+0.1	— —	+0.1						
45.0 ft.									
50.0 ft.									

True Depth	Day No	Day No	Day No	Day No	Day No	Day No	Day No	Day No	
5.0 ft.									
10.0 ft.									
15.0 ft.									
20.0 ft.									
25.0 ft.									
30.0 ft.									
35.0 ft.									
40.0 ft.									
45.0 ft.									
50.0 ft.									

Means	5.0 ft.	10.0 ft.	15.0 ft.	20.0 ft.	25.0 ft.	30.0 ft.	35.0 ft.	40.0 ft.	45.0
		+0.1	0.0	+0.1	+0.1	+0.1	+0.1	+0.1	
		-0.1	-0.1	-0.1	0.0	-0.1	-0.1	— —	
		-0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	
Σ		-0.1	0.0	+0.1	+0.2	+0.1	+0.1	+0.2	
Mean		0.0 ✓	0.0 ✓	0.0 ✓	+0.1 ✓	0.0 ✓	0.0 ✓	+0.1	

Computed by:
Checked by:

TC/TI GRAPHIC OBSERVATIONS S/B 1264 (LAIDLY)

N = Digital Instrument Mean + Draft

P + N = True Depth (Ft.)

P = Digital Instrument Corrector

BAR CHECK DATA

TRUE DEPTH	P	N
5	-	-
10	0.0	10.0
15	0.0	15.0
20	0.0	20.0
25	+0.1	24.9
30	0.0	30.0
35	0.0	35.0
40	+0.1	39.9

VELOCITY ABSTRACT 1 (184 Day)

DEPTH	CORRECTION (Scaled Off Graph)
0.0 - 9999	0.0

TRUE DEPTH	P	N
5	-	-
10	0.0	10.0
15	+0.2	14.8
20	+0.3	19.7
25	+0.4	24.6
30	+0.4	29.6
35	+0.6	34.4
40	+0.6	39.4

VELOCITY ABSTRACT 2 (199,207, 216,220 Days)

DEPTH	CORRECTION (Scaled off graph)
0.0 - 2.4	-0.2
2.5 - 12.1	0.0
12.2 - 21.8	+0.2
21.9 - 31.5	+0.4
31.6 - 41.2	+0.6
41.3 - 9999	+0.8

VELOCITY TABLE 1 LA10-1-75 (FS - 12)

```
000050 0 0000 001 000 126400 009584
999999 0 0000
```

VELOCITY TABLE 2 LA10-1-75 (FS - 12)

```
000024 1 0002 002 000 126400 009584
000121 0 0000
000218 0 0002
000315 0 0004
000412 0 0006
999999 0 0008
```

\+ TC/TI TAPE TABLE 1

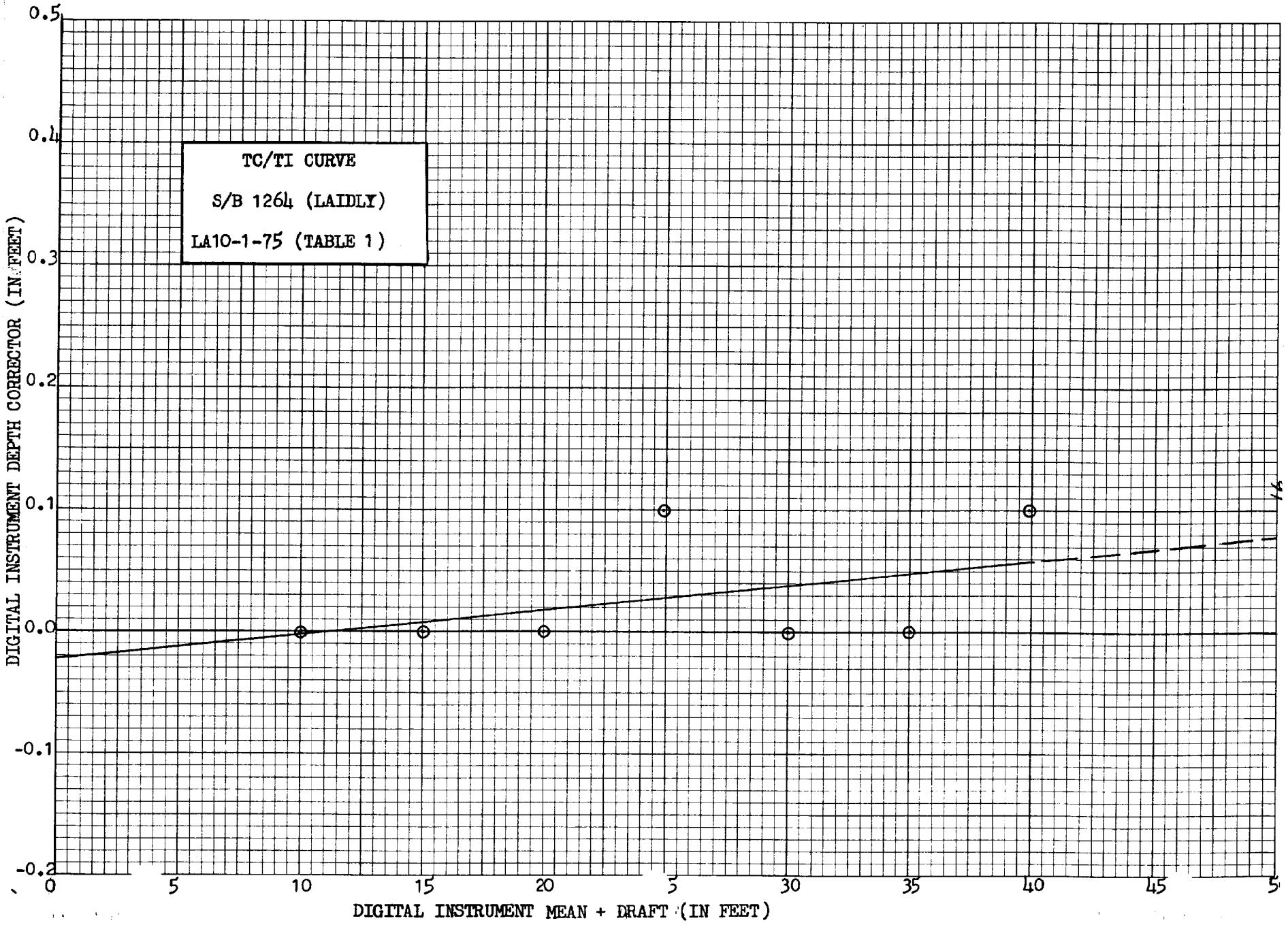
```
170703 0 0000 0001 184 1264 001975
```

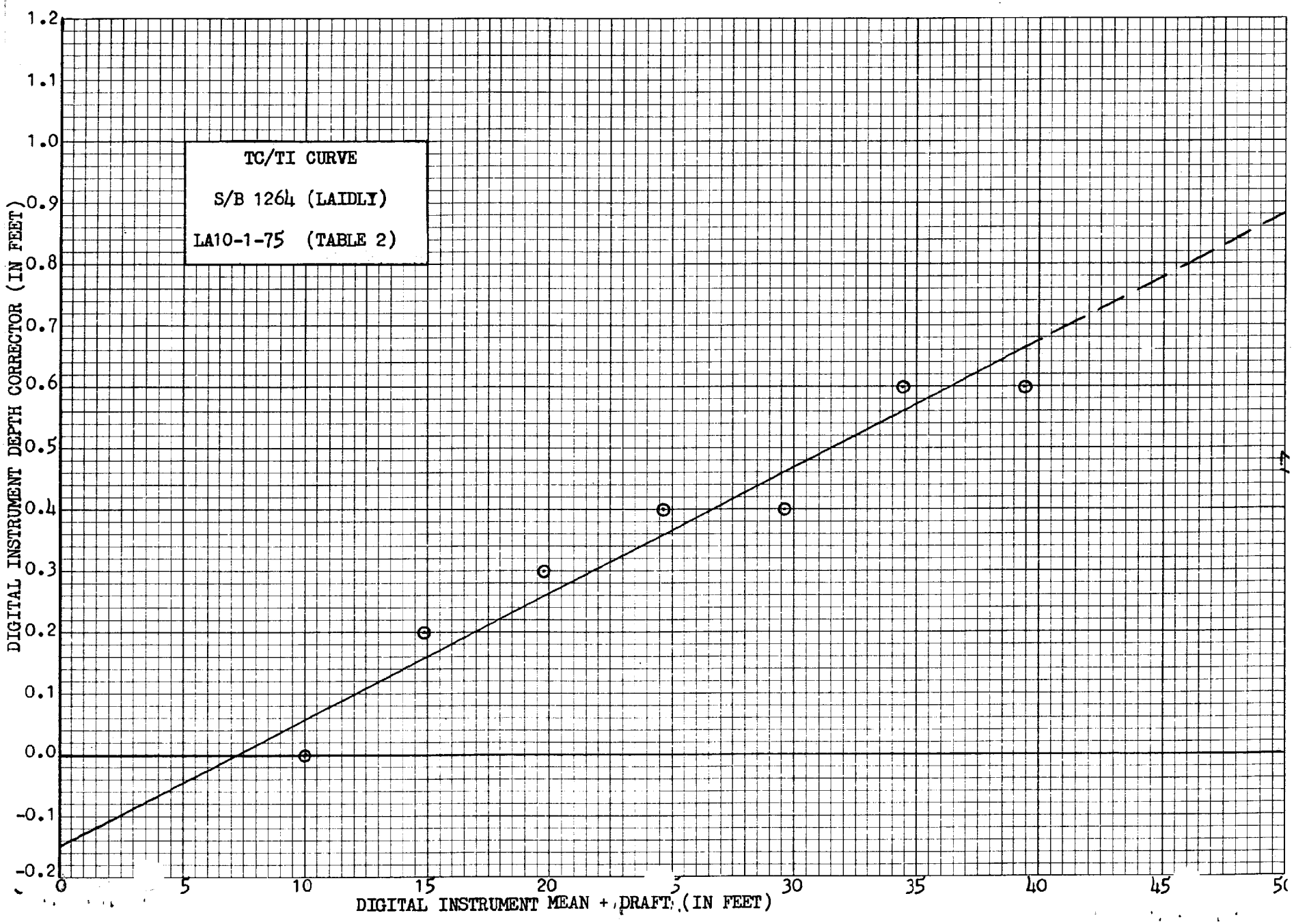
\+ TC/TI TAPE TABLE 2

```
162632 0 0000 0002 199 1264 001975
```

*All measurements and corrections are in feet.

\+ Both listings are on the same tape.


TC/TI CURVE
S/B 1264 (LAIDLY)
LA10-1-75 (TABLE 1)
DIGITAL INSTRUMENT DEPTH CORRECTOR (IN FEET)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
0
5
10
15
20
25
30
35
40
45
50
DIGITAL INSTRUMENT MEAN + DRAFT (IN FEET)


TC/TI CURVE
S/B 1264 (LAIDLY)
LA10-1-75 (TABLE 2)
DIGITAL INSTRUMENT DEPTH CORRECTOR (IN FEET)
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
0
5
10
15
20
30
35
40
45
DIGITAL INSTRUMENT MEAN + DRAFT (IN FEET)

VESSEL No 1638 Scale: 1: 10,000

FIELD No (13) LA 10-2-75 and LA 10-1-75 (12) Type of Survey Rge/Az East of Fairport Hbr, Ohio

True Depth	Day No 193	Day No 195	Day No 196	Day No 197	Day No 203	Day No 204
5.0 ft	- 0.4	+ 0.1	- 0.1	- 0.1	- 0.1	- 0.1
10.0 ft	- 0.1	+ 0.0	- 0.1	0.0	+ 0.1	+ 0.1
15.0 ft	0.0	+ 0.1	- 0.1	0.0	+ 0.1	+ 0.1
20.0 ft	+ 0.1	+ 0.1	+ 0.1	+ 0.1	+ 0.3	+ 0.2
25.0 ft	+ 0.2	+ 0.3	+ 0.1	+ 0.3	+ 0.3	+ 0.3
30.0 ft	+ 0.3		+ 0.3	+ 0.3	+ 0.5	
35.0 ft	+ 0.3		+ 0.3	+ 0.4		

True Depth	Day No 211	Day No 230-231
5.0 ft	- 0.1	- 0.1
10.0 ft	+ 0.1	+ 0.1
15.0 ft	+ 0.1	+ 0.1
20.0 ft	+ 0.1	+ 0.2
25.0 ft	+ 0.2	+ 0.3
30.0 ft	+ 0.3	+ 0.4
35.0 ft	+ 0.3	

Means	5.0 ft	10.0 ft	15.0 ft	20.0 ft	25.0 ft	30.0 ft
	- 0.4	- 0.1	0.0	+ 0.1	+ 0.2	+ 0.3
	+ 0.1	0.0	+ 0.1	+ 0.1	+ 0.3	
	- 0.1	- 0.1	- 0.1	+ 0.1	+ 0.1	+ 0.3
	- 0.1	0.0	0.0	+ 0.1	+ 0.3	+ 0.3
	- 0.1	+ 0.1	+ 0.1	+ 0.3	+ 0.3	+ 0.5
	- 0.1	+ 0.1	+ 0.1	+ 0.2	+ 0.3	
	- 0.1	+ 0.1	+ 0.1	+ 0.1	+ 0.2	+ 0.3
	- 0.1	+ 0.1	+ 0.1	+ 0.2	+ 0.3	+ 0.4
Σ =	- 0.9	+ 0.2	+ 0.4	+ 1.2	+ 2.0	+ 2.1
MEAN=	- 0.1	0.0		0.0	+ 0.2	+ 0.4

Means	35.0 ft
	+ 0.3
	+ 0.3
	+ 0.4
	+ 0.3
Σ =	+ 1.3
MEANS=	+ 0.3

Computed by: [signature]
Checked by: [signature]

TRA CORRECTION/TABLE INDICATOR (TC/TI) GRAPHIC OBSERVATIONS S/B 1638

N = Digital Instrument Mean + Draft

P + N = True Depth (Ft.)

P = Digital Instrument Corrector

BAR CHECK DATA

TRUE DEPTH	P	N
5	-0.1	5.1
10	0.0	10.0
15	0.0	15.0
20	+0.2	19.8
25	+0.2	24.8
30	+0.4	29.6
35	+0.3	34.7

VELOCITY ABSTRACT 1(Scaled off graph)

DEPTH (N)	CORRECTION
0.0 - 5.9	-0.2
6.0 - 17.6	0.0
17.7 - 29.3	+0.2
29.4 - 40.8	+0.4
40.9 - 9999	+0.6

VELOCITY TABLE 1LA-10-1-75 (FS-12) (193,195,196,197,203,204,211 Days)

Depth	+	Corr	Tab	Units	B#	Reg#
000059	T	0002	001	000	163800	009584
000176	0	0000				
000293	0	0002				
000408	0	0004				
999999	0	0006				

* VELOCITY TABLE 2LA-10-2-75 (FS-13) (211,230Days)

000059	1	0002	001	000	163800	009585
000176	0	0000				
000293	0	0002				
000408	0	0004				
999999	0	0006				

\+ TC/TI TAPE (TABLE 1)

Time	Ft	TRA	Table	1st Day	B#	YR.
154100	0	0000	0001	196	1638	001975

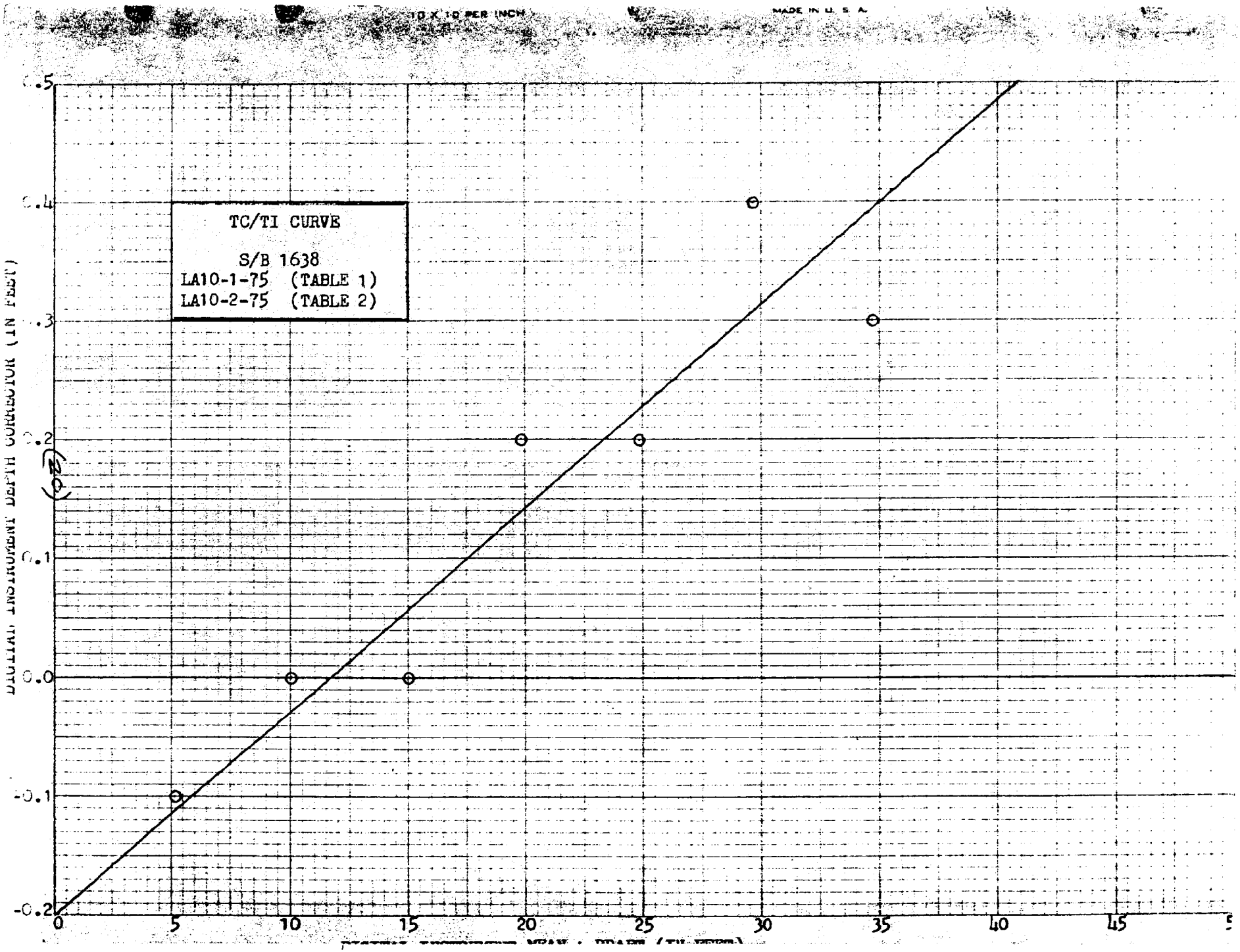
\+ TC/TI TAPE(TABLE 2)

233702	0	0000	0002	211	1638	001975

*Registry No. differs from Table 1

+Both listings are on the same tape.

All measurements and corrections are in feet.


10 X 10 PER INCH
MADE IN U. S. A.
TC/TI CURVE
S/B 1638
LA10-1-75 (TABLE 1)
LA10-2-75 (TABLE 2)
(Eq)
.5
.4
.3
.2
.1
0.0
-0.1
-0.2
0
5
10
15
20
25
30
35
40
45

WATER LEVEL NOTE

All water level reductions for this survey are based on hourly scaled water level elevations obtained from recorder located at Fairport, Ohio, taken and applied to the correction tapes. All times are EST based on hourly means, apply +5 hours to get GMT. The Water Levels Branch, LSC provided the monthly print-outs.

LOCATION OF WATER LEVEL GAGE

The Stevens gage was located at the U. S. Coast Guard Station, Fairport Harbor, Ohio.

LOCATION	PERIOD
Lat. 41° 45' 36"	117 Days
Long. 81° 16' 52"	June 5 thru Sept 30, 1975

On June 5, 1975, replaced State of Ohio Stevens automatic gage with LSC/Hydro Section spring driven recorder (SN 39740-64). Zero Electric Tape Reference Gage was, also installed on June 5, 1975. Common levels determined elevation of ZETG to be 578.901 feet (IGLD, 1955).

Note: The Ashtabula Gage was used on August 5, 1975 (217 Day) at the junction with LA 10-2-75 from position numbers 5813 - 5818 and 135640 - 140204

5984 - 6044.
184748 - 201842.

This junction is the cut-off limit between Water Levels determined from Fairport Harbor gage and Ashtabula Gage.

WATER LEVELS, STAGE, TRA Correctors

July 3, 1975 (184) Day - Fairport Gage

Launch, LAIDLY (1264)

EST	GMT	Lake Erie Elevation	LW Datum		Stage, Ft.
120000	170000	572.72	568.6	=	4.12
130000	180000	572.74	568.6	=	4.14
					8.26 TOTAL
					- 4.13 =MEAN= 4.1 STAGE

11-72

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

GEOGRAPHIC NAMES

H-9584

LA 10-1-75

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
Madison-on-the-Lake	LS 34									1
Redbird	LS 34									2
Arcola Creek	LS 34									3
DRIFTWOOD										4
Note: No changes or additions										5
LAKE ERIE										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
						APPROVED				16
						Chas. E. Harrington				17
						CHIEF GEOGRAPHER - C3x8				18
						24 Aug 1978				19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

* U.S. G.P.O. 1972-769-565/516 REG.#6

OPR 300 LA 75

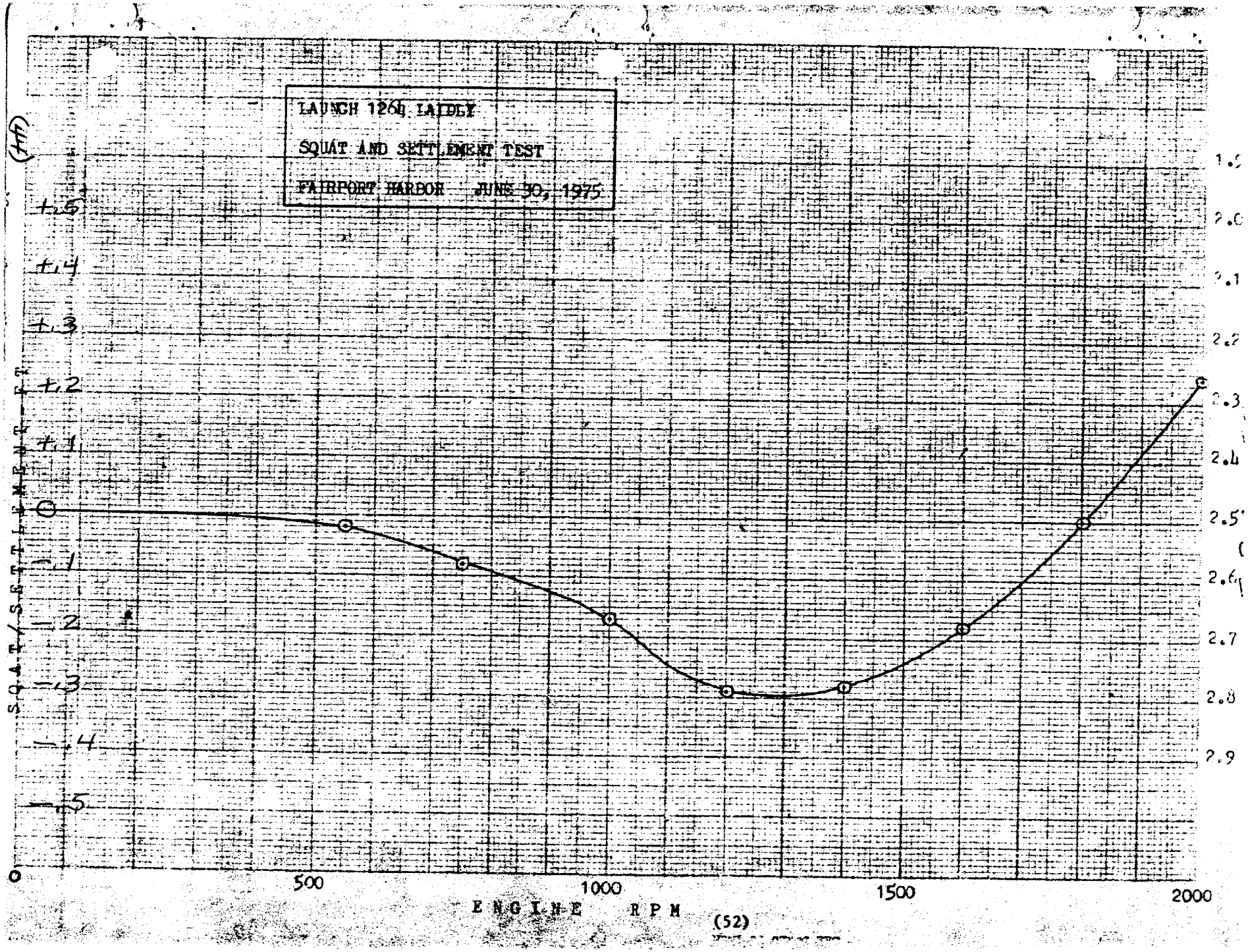
SOUNDING CORRECTION ABSTRACT

VESSEL LAIDLY (1264)

FIELD NO. LA 10-1-75

REGISTRY NO. H- 9584

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(Note: TRA Corr. is the algebraic sum of these columns) Draft Corr.	Instrument Error Corr.	STAGE → Corr.	~~STS Corr.~~	TRA Corr. ft/fms	Remarks
181	140000	143000	1	+ 2.5		0	~~no~~	~~HYDRO~~	No Hydro
182	162000	170000	1	+ 2.5		0	~~no~~	~~HYDRO~~	No Hydro
183	163000	174500	1	+ 2.5		0	- 4.1	- 1.6	Used ~~for~~ 184 Day
199	095000	101000	2	+ 2.5		0	- 4.0	- 1.5	
207	234500	240000	2	+ 2.5		0	- 3.9	- 1.4	
216	0552	231841	2	+ 2.5		0	- 4.0	- 1.5	Used ~~for~~ 217 Day
220	182000	184500	2	+ 2.5		0	- 3.8	- 1.3	


LAUNCH 126 LAIDLY
SQUAT AND SETTLEMENT TEST
FAIRPORT HARBOR JUNE 30, 1975
(FT)
+.5
+.4
+.3
+.2
+.1
0
-.1
-.2
-.3
-.4
-.5
SQUAT/SETTLEMENT-FT
500
1000
1500
2000
ENGINE RPM
(52)
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9

OPR 300 LA 75

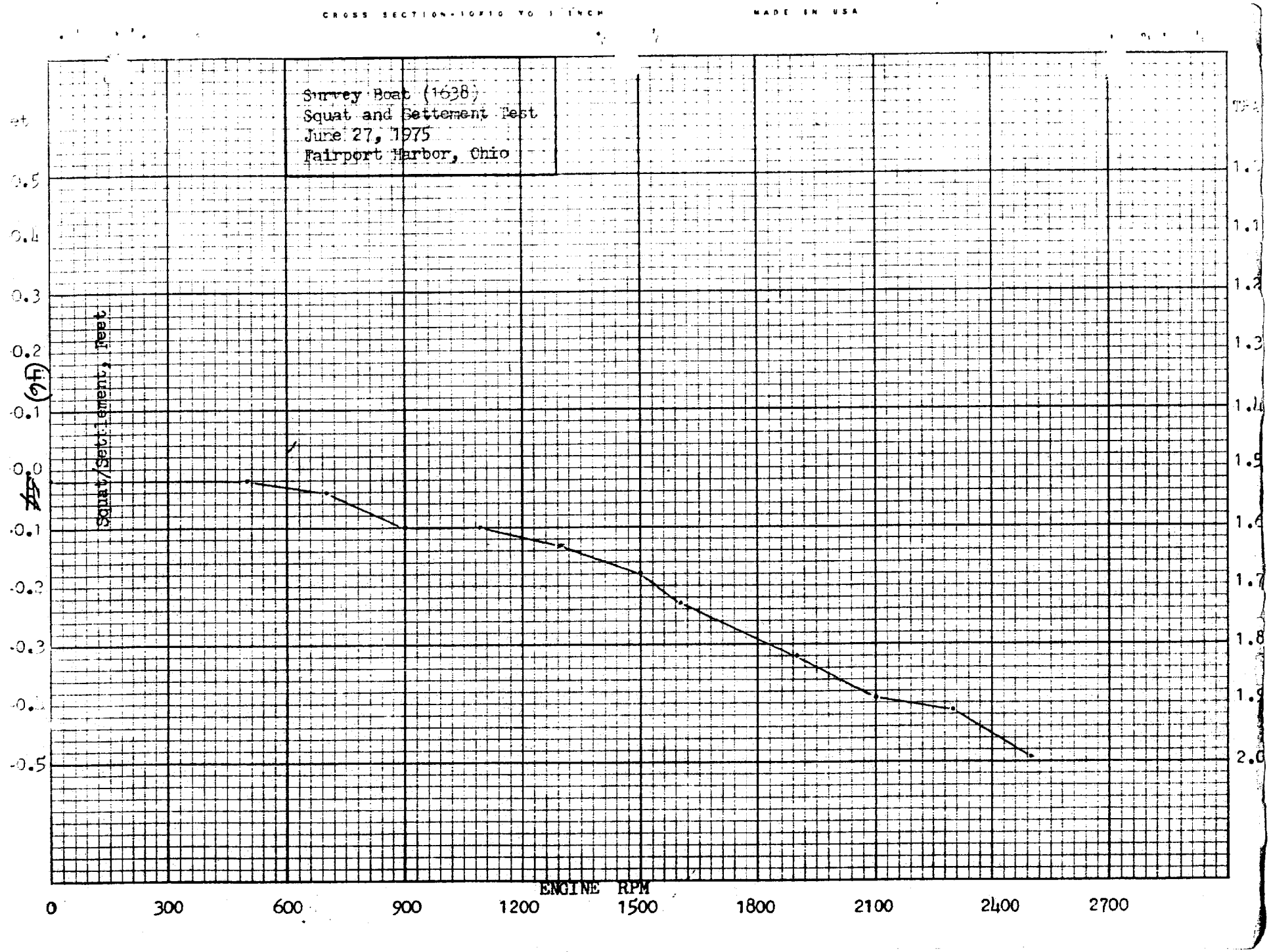
SOUNDING CORRECTION ABSTRACT

VESSEL Survey Boat (1638)

FIELD NO. LA 10-1-75

REGISTRY NO. H- 9584

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(Note: TRA Corr. is the algebraic sum of these columns) Draft Corr.	Instrument Error Corr.	Initial Corr.	Stage Corr.	TRA Corr. ft/fms	Remarks
193	132000	134500	1	+ 1.8		0	No	HYDRO	
195	131000	133000	1	+ 1.8		0	No	HYDRO	
196	145400	152100	1	+ 1.8		0		- 2.2	
197	150000	152300	1	+ 1.8		0		- 2.2	
203	135200	140230	1	+ 1.8		0		- 2.2	
204	153000	160000	1	+ 1.8		0		- 2.2	
211	155400	161200	1	+ 1.8		0		- 1.9	



ELECTRONIC CORRECTOR ABSTRACT, FOR LAUNCH LAIDLY (1264) RANGE-RANGE

TIME	DAY	PATTERN 1	PATTERN 2
163000	184	+ 00001 (025)	- 00002 (023)
130000	199	00000 (023)	- 00001 (024)
180000	207	-00001 (023)	- 00010 (024)
180000	207	-00005 (025)	- 00001 (023)
164000	209	-00006 (025)	- 00007 (023)
165000	211 (No Hydro)	-00004 (025)	+ 00001 (023)
220000	217	-00001 (025)	- 00005 (023)
220000	219	00000 (026)	- 00002 (025)
220000	219	-00007 (027)	00000 (026)
184700	220	-00002 (027)	+ 00002 (026)
144500	221	-00003 (027)	+ 00001 (026)

ELECTRONIC CORRECTOR ABSTRACT, FOR SURVEY BOAT (1638) RANGE-AZIMUTH

TIME	DAY	PATTERN 1	
223000	196	+ 00002 (023)	R/A
152000	197	+ 00001 (025)	R/A
145000	203	+ 00002 (025)	R/A
152700	204	+ 00000 (026)	R/A
161400	211	- 00001 (026)	R/A

6. List of Stations

The following is a complete list of hydrographic control stations used for this survey H-9584 LA 10-1-75, numerical code, and including Latitudes and Longitudes, station names, as listed in calibration reports.

STATION NO.	LATITUDE	LONGITUDE	STATION NAME	CARTO CODE
024	41 47 46.493	081 09 47.030	PERRY PARK	250
023	41 49 02.314	081 06 44.825	EVERGREEN	250
025	41 49 52.243	081 04 13.007	ALLEN	250
026	41 50 19.727	081 02 49.665	HUBBARD	250
027	41 51 10.120	081 00 12.534	CHADWICK	250
127	41 51 11.509	081 00 09.716	CHAD X	~~250~~ 139 on SS

7. Abstract of Positions

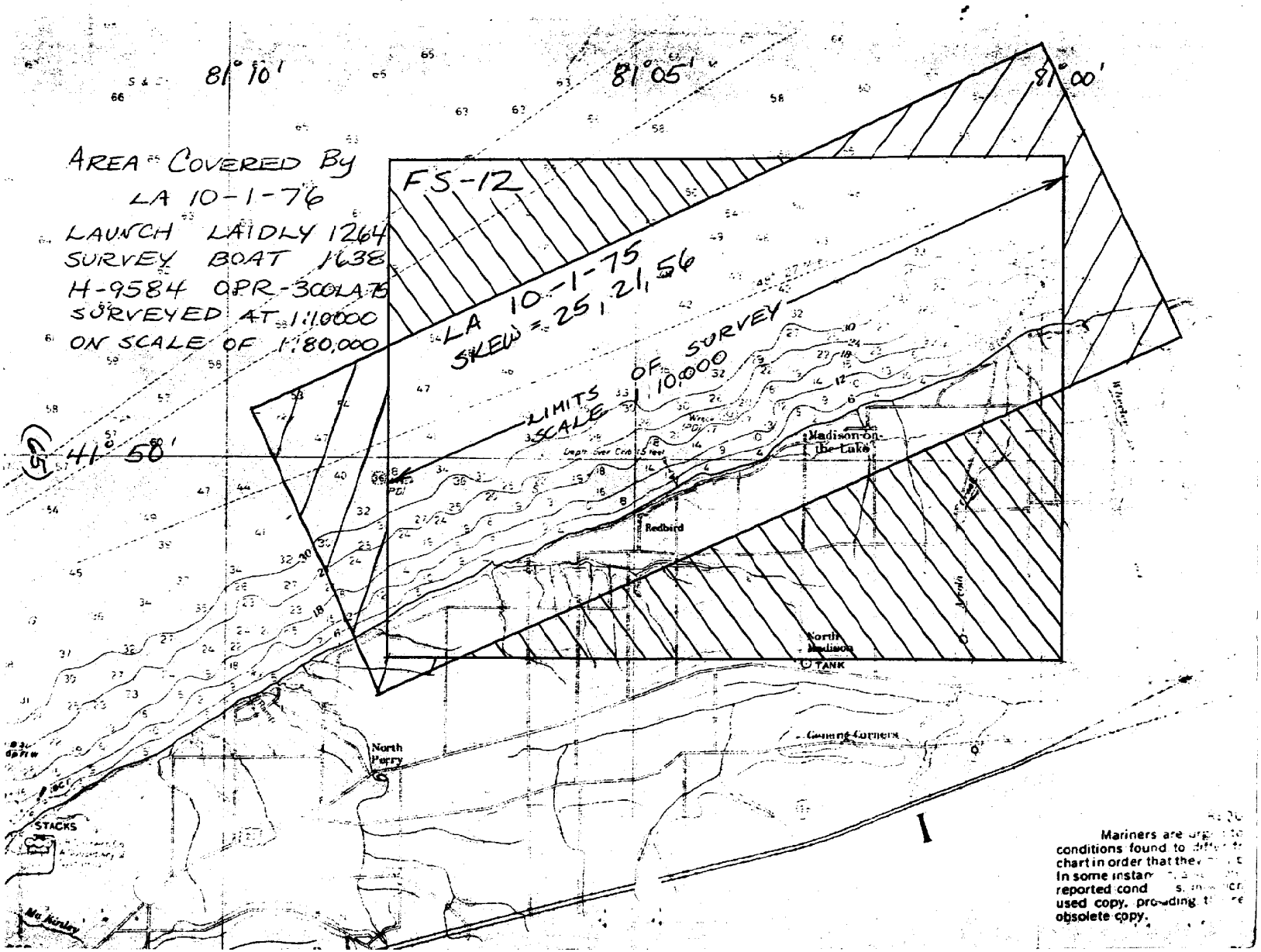
Enclosed in this report.

8. Bottom Samples

No bottom samples taken due to termination of 1975 field operations. Bottom samples will be taken in May, 1976 during the Hydrographic field season. BOTTOM SAMPLES RECEIVED BY AMC 7-19-76. SEE NEXT PAGE.

9. Landmarks for Charting

Within the coastal reach of hydrographic survey H-9584, no suitable navigation landmarks, other than those currently charted, were observed.


81° 10'
81° 05'
81° 00'
41° 50'
AREA COVERED BY
LA 10-1-76
LAUNCH LAIDLY 1264
SURVEY BOAT 1638
H-9584 OPR-300LA76
SURVEYED AT 1:10000
ON SCALE OF 1:80,000
FS-12
LA 10-1-75
SKEW = 25, 21, 56
LIMITS OF SURVEY
SCALE 1:10,000
Madison-on-the-Lake
Redbird
North Madison
TANK
North Perry
STACKS
Mentor Harbor
Fairport Harbor
Mariners are urged to
conditions found to differ
chart in order that they
In some instances
reported conditions
used copy, providing
obsolete copy.

The acquisition of hydrographic data represented on LA-10-1-75 was entirely accomplished under my supervision in the field. The Descriptive Report was prepared by Mr. Jerome M. Nahas.

About 20% of the subsequent data processing accomplished at the Lake Survey Center was also supervised by me. The remaining 80% of the data processing was accomplished by the Hydrographic Section personnel under the direct supervision of Mr. Jerome M. Nahas.

The hydrographic survey is considered to be complete and adequate to supersede previous surveys in the same area.

Approved and Forwarded,

For Jerome M. Nahas

Teddy D. Kuchciak
Chief, Hydrographic Section

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

WATER LEVEL NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: CAM -3

Hourly heights are approved for

Water Level Station Used: See Remarks

Period: July 3, 1975 to August 9, 1975

HYDROGRAPHIC SHEET: H-9584

OPR- 300

Locality: Lake Erie

Plane of reference: Low Water Datum (IGLD 1955 : 568.6 Feet)

Remarks:

Fairport, Ohio (906-3053)
Ashtabula, Ohio (906-3048)

Philip C. Marris 7-19-78
Chief, Water Level Section

Dan M. Spellman
Chief, Tides & Water Levels Branch

NOAA FORM 77-27 (5-77) | U. S. DEPARTMENT OF COMMERCE NOAA | HYDROGRAPHIC SURVEY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-9584

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	2
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	2

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1					1-MISC. DATA
CAHIERS			1 with fathos.			
VOLUMES	1					
BOXES						

T-SHEET PRINTS (List)

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	TOTALS
POSITIONS ON SHEET			2220
POSITIONS CHECKED	251		
POSITIONS REVISED		7	
SOUNDINGS REVISED		165	
SOUNDINGS ERRONEOUSLY SPACED		11	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME – HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	12		
VERIFICATION OF CONTROL		5	
VERIFICATION OF POSITIONS		73	
VERIFICATION OF SOUNDINGS		60	
COMPILATION OF SMOOTH SHEET		10	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		1	
COMPARISON WITH PRIOR SURVEYS & CHARTS		5	
VERIFIER'S REPORT		5	
OTHER		5	
TOTALS	12	164	176

Pre-Verification by: R. Hill, D. Mason, R. Roberson, M. Holloway	Beginning Date: 06/01/76	Ending Date: 05/19/78
Verification by: J. S. Bradford	Beginning Date: 06/01/78	Ending Date: 06/08/78
Verification Check by: G. F. Trefethen	Time (Hours): 2	Date: 06/09/78
Marine Center Inspection by: Hydrographic Inspection Team (AMC)	Time (Hours): 16	Date: 06/10/78
Quality Control Inspection by: K. W. Wellman	Time (Hours): 26	Date: 8-24-78
Requirements Evaluation by: DJ HM	Time (Hours): 1	Date: 10/12/78

Contracts 5 hr 9/26/78

REGISTRY NO. _____

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 REQUIRED_____ INITIALS_____

REMARKS:

REGISTRY NO. H-9584

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 REQUIRED_____ INITIALS_____

REMARKS:

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9584 FIELD NO. LA-10-1-75

Vicinity of Madison-on-the Lake, South Shore Lake Erie, Ohio

SURVEYED: July 3 through August 9, 1975

SCALE: 1:10,000 PROJECT NO.: OPR-300

SOUNDINGS: Raytheon DE-723D CONTROL: Del-Norte (Range-Range and Range-Azimuth)

Chief of Party ..... T. D. Kuchciak
Surveyed by ..... T. D. Kuchciak
Automated Plot by ..... CALCOMP-618 Plotter (AMC)
Verified and Inked by ..... J. S. Bradford
July 6, 1978

1. Introduction

a. No unusual problems were encountered during verification.

b. The red changes in the Descriptive Report were made by the verifier. The projection parameter has been revised and inserted in the Descriptive Report.

2. Control and Shoreline

a. The control is adequately described in Sections F and G of the Descriptive Report.

b. Shoreline was transferred, in brown, to the smooth sheet from an enlargement of Chart 14825. Shoreline manuscripts were not available at the time of verification; see letter of April 21, 1977 appended to this report.

3. Hydrography

a. Depths at crossings ~~were~~ are within one- to two-foot agreement and are considered adequate.

b. The standard depth curves are adequately delineated. The 24-foot supplemental curve was added in order to conform with Chart 14825.

c. The hydrography was run at 100-meter line spacing throughout the survey, except at latitude 41° 51', longitude 81° 01'. In several instances it would have been beneficial

to reduce the spacing to 50 meters to adequately delineate certain features, as required under Section 1.4.1 of the Hydrographic Manual.

The zero-foot curve for H-9584 was not obtained. It is conceivable that launch 1638 could have obtained a zero-foot curve considering the -3.8 water level correction and only 1.8 ~~MRA.~~ draft.

4. Condition of Survey

The sounding records, smooth sheet and accompanying overlays, hydrographic records, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual, with the following exceptions:

a. Fathogram scanning was considered to be of very poor quality. Sea action and peaks and deeps were ignored throughout the survey.

b. The sounding volumes were used primarily as a launch log. The intended use of the sounding volumes is stated under Section 4.8 of the Hydrographic Manual.

c. Duplicated position numbers for days 211 and 217, (launch 1638) ~~these~~ are shown on smooth position overlay in red. (See Q.C. Report-item 3)

5. Junctions

An adequate junction was effected with the following contemporary surveys:

H-9585 (1975) 1:10,000 to the east
H-9538 (1974) 1:10,000 to the west (Not available during Q.C. inspection)

No other contemporary survey joins H-9584.

6. Comparison With Prior Surveys

(See Q.C. Report - item 4)
1-1862 (1948) 1:10,000
1-1864 (1948) 1:10,000 ← 1-1865 (1948) 1:2,400
1-1815 (1942) 1:80,000

These surveys, taken together, cover the common area of the present survey. A comparison of the present survey with the prior surveys reveals good agreement. The prior survey soundings are one to four feet shoaler, with occasional depths one to two feet deeper than the present survey and this is attributed to

the differences in survey methods and natural changes in the bottom configuration.
(See Q.C. Report-item 5)
The present survey is adequate to supersede the above prior surveys within the common areas.

7. Comparison With Chart 14825 (18th Edition, December 7, 1974)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and reported charted features.

Two features appear on Chart 14825, (1) "Depth over crib 15 feet" latitude 41° 50.0', longitude 81° 04.65' (2) "Wreck PD 10 feet" latitude 41° 50.4', longitude 81° 03.90', of which neither were investigated by the hydrographer. (See Q.C. Report-item 6)

The present survey shows the depths in the areas of the cribs to be in agreement; however, the average depth in the area of the wreck is 20 feet. A more thorough investigation would be necessary before recommending that this feature be deleted from the chart. Retain wreck and cribs as presently charted.

The present survey is adequate to supersede the charted hydrography within the common area, except as noted above.

b. Aids to Navigation

There are no aids to navigation within the survey area.

8. Compliance With Instructions

The field season for this sheet, H-9584, was based upon Project Instructions OPR-300-LA-75; however, a letter from the Associate Director, Marine Surveys and Maps, C3, states these project instructions be superseded by OPR-300-LA-76. Bottom samples, therefore, were taken during the 1976 season. Under Section 4.8 of this letter the hydrographer was required to investigate any submerged wrecks and obstructions encountered; and a report of the findings be forwarded to the Ninth Coast Guard Headquarters. Apparently this was also ignored. Not considered to have been ignored if letter is dated subsequent to the field work.

9. Additional Field Work

This is an adequate basic survey. Additional field work is not recommended. At a future date convenient with plans and operations the wreck, PD in latitude 41° 50' 24", longitude 81° 04' 50" should be investigated to determine its position and least depth.

APPROVAL SHEET
FOR
SURVEY H-9584

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 printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ 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: 7/11/78

Signed: Harry L. Smith

Title: Chief, Verification Branch

Inspection Report
H-9584

Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.

Examined and Approved:
Hydrographic Inspection Team
Date:

Robert A. Trauschke, CDR, NOAA
Chief, Processing Division

Charles H. Nixon, CAPT, NOAA
Chief, Operations Division

R. D. Sanocki
Technical Assistant
Processing Division

for C. Douglas Mason, LT, NOAA
Chief, Electronic Data
Processing Branch

Harry R. Smith
Team Leader
Verification Branch

Approved/Forwarded

Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center

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

C352/KWW

August 24, 1978

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

THRU: Chief, Quality Control Branch

FROM: K. W. Wellman
Quality Evaluator

SUBJECT: Quality Control Report for H-9584 (1975), Ohio, Lake Erie (South Shore), Vicinity of Madison-on-the-Lake

A quality control inspection of H-9584 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, junctions, shoreline transfer, verifier's decisions and actions, and cartographic presentation of data.

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 formal Water Level Note was not included in the Descriptive Report during verification. It was therefore necessary to request the Water Level Approval Note during quality control inspection. (See section 6.6(5) of the Hydrographic Manual - Fourth Edition.)

2. The marked chart used during verification was not forwarded with the survey records. (See section 8-3 of the Hydrographic Manual - Fourth Edition.)

3. Section 4-c of the Verifier's Report is supplemented by the following:

In referring to the final printouts, due care should be exercised to assure that the correct positions are referenced.

4. Reference section 6 of the Verifier's Report:

In the comparison with prior surveys one prior survey (1-1865) was omitted during verification. It was added to the list of prior surveys in the

referenced section and a comparison with the present survey was accomplished during quality control inspection. Further, the prior surveys are customarily listed chronologically. This practice was not followed in the referenced section of the Verifier's Report.

5. Reference section 7-a of the Verifier's Report:

The charted 10 ft. submerged Wreck PD originates with prior survey 1-1864 (1948). Since this wreck is not discredited by the present survey, it should have been carried forward to supplement the present survey during verification.

Section 6 of the Verifier's Report is supplemented by the following:

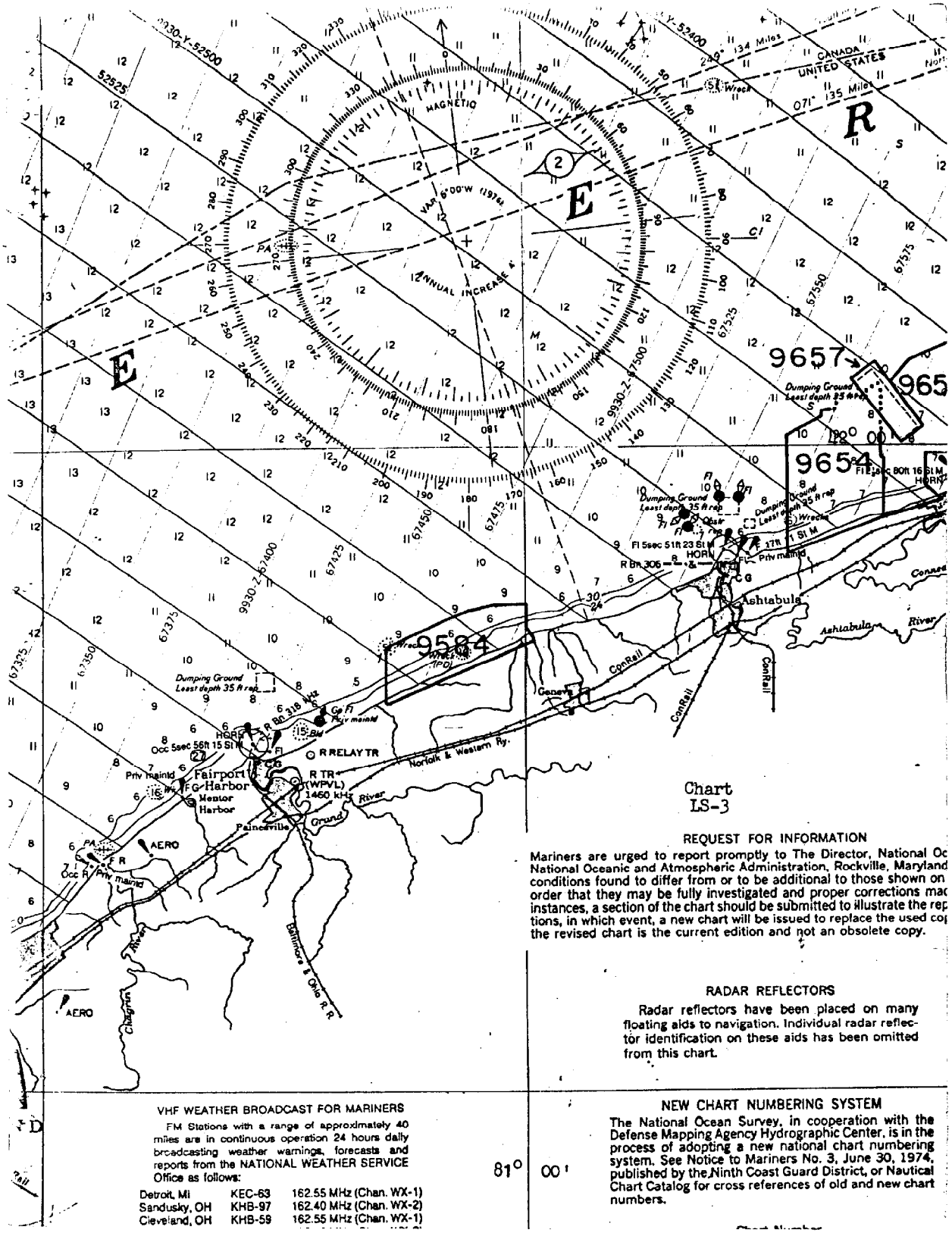
The 10 ft. submerged wreck PD originating with prior survey 1-1864, in the vicinity of latitude 41°50.40', longitude 81°03.85', is not disproved by the present survey and has been carried forward to supplement the present survey.

6. Section 7-a of the Verifier's Report is supplemented by the following:

A third charted feature is the crib at a depth of 9 feet in the vicinity of latitude 41°51.04', longitude 81°00.60'. This crib was ~~also~~ not investigated by the hydrographer.

7. Geographic names should have been lettered "lightly in pencil" on the smooth sheet during verification. They were added to the smooth sheet during quality control inspection. (See section 7.3.12.3 of the Hydrographic Manual - Fourth Edition.)

cc:
C35
C351



REQUEST FOR INFORMATION

Mariners are urged to report promptly to The Director, National Oc National Oceanic and Atmospheric Administration, Rockville, Maryland conditions found to differ from or to be additional to those shown on order that they may be fully investigated and proper corrections mac instances, a section of the chart should be submitted to illustrate the rep tions, in which event, a new chart will be issued to replace the used co the revised chart is the current edition and not an obsolete copy.

RADAR REFLECTORS

Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

VHF WEATHER BROADCAST FOR MARINERS

FM Stations with a range of approximately 40 miles are in continuous operation 24 hours daily broadcasting weather warnings, forecasts and reports from the NATIONAL WEATHER SERVICE Office as follows:

Detroit, MI	KEC-63	162.55 MHz (Chan. WX-1)
Sandusky, OH	KHB-97	162.40 MHz (Chan. WX-2)
Cleveland, OH	KHB-59	162.55 MHz (Chan. WX-1)

81° 00'

NEW CHART NUMBERING SYSTEM

The National Ocean Survey, in cooperation with the Defense Mapping Agency Hydrographic Center, is in the process of adopting a new national chart numbering system. See Notice to Mariners No. 3, June 30, 1974, published by the Ninth Coast Guard District, or Nautical Chart Catalog for cross references of old and new chart numbers.

(3-25-63) NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9584

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
14820	11-30-78	E. Clark	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 3 EXAM FOR CRITICAL CORR NONE APPLIED
14825	1-23-80	Ralph Rose	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 2 Applied survey in full.
14820	12-21-81	B. Stannard	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 5 applied thru chart 14825.
~~14820M~~	~~4-12-82~~	~~Regina B. Moore~~	~~Full Part Before After Verification Review Inspection Signed Via~~
			~~Drawing No. 5 Applied (1) and (5) data (2) others~~
14828	11-7-79	R Rose	Full Part Before After Verification Review Inspection Signed Via
			Drawing No. New chart
14820M	4-14-82	Regina B. Moore	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 5 Applied in full thru #14828M
			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
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975. USCOMM-DC 8558-P63