8644

Diag. Cht. Nos. 1266-2 & 1267-2.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No ECFP-10-12-6 Hice No. H-86 Ц

LOCALITY

State

Alabama

General locality Mississippi Sound

Locality Pertersville Bay

19 61 562

CHIEF OF PARTY

S. L. Hollis, Jr.

LIBRARY & ARCHIVES

DATE ...

March 12, 1965

USCOMM-DC 37022-P66

644

HYDROGRAPHIC INSTRUCTIONS - The Hydrographic Shee filled in as completely as possible, when	t should be accompanied by this form,	H-8644 FIELD NO. E.C.F.P. 10-12-61
	- •	
State ALABAMA		
General locality MTSSTSSTPPT	•	
Locality RAYOU IA DATES A		19 19
Scale 1:10,000	Date of surv	vep Aug. 61 to 1 Feb. 62
Instructions dated 18 Sept 1959	9 & 11 Apr. 1961 Project No.	OPR. 410
VesselLaunch C.S. 183, Lai	mch G.S.1177, Skiff 75	58, 14: Aluminum Skiff#l
Chief of party LCDR Steven	L. Hollis, Jr.	
Surveyed by Lt. ig L. Brown .	Lt.jg.J.B.Allen,Mr. G.I	F.Trefethen, Mr.R.A.Lewis
Soundings taken by echo sounder, ha		•
Graphic record scaled by Party	•	
		•
Graphic record checked by Party		
Protracted by Party		
Soundings penciled by Ha	erry R. Smith	· · · · · · · · · · · · · · · · · · ·
Soundings in Arthurs feet a	t MLW XXXX	-

USCOMM-DC 8272-P62

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SURVEY H-8644 (FIELD No. ECFP 10-12-61) Project OPR-410

SCALE: 1:10,000 EAST COAST FIELD PARTY

CHIEF OF PARTY: LCDR. STEVEN L. HOLLIS, JR.

A. PROJECT

Work on project OPR-410 was done in accordance with Instructions 22/MEK, ECFP, dated Sept. 18, 1959, and supplemental Instructions 211/MMY ECFP, dated April 11, 1961.

B. AREA SURVEYED

The area covered by this survey is Portersville Bay and the channel to Bayou La Batre, Alabama, in the Mississippi Sound.

The limits of Hydrography are from Lat. 30°20'00" to Lat. 30°24'30" and from Long. 88°10'00" to Long. 88°18'30".

Prior survey of this area is Register No. 4020 dated 1917 and 1918, Scale 1:40,000.

This survey makes junction with contemporary survey
H-8643 (ECFP 10-11-61) Scale 1:10,000 on the South and H-8648
(20-2-61) scale 1:20,000 on the West and Southwest.

This survey began on Aug. 9,1961 and was completed Feb.1, 1962.

C. SOUNDING VESSELS

D. SOUNDING EQUIPMENT

Fathometer Type 808J, Numbers 154 and 113s were used on Skiff 758.

A wooden sounding pole was used in depths of less than $2\frac{1}{2}$ feet and when Fathometers malfunctioned.

Skiff #1 used a sounding pole.

On Launch C.S.1177 a Depth Recorder Type EDO 255c Nos, 15 and 16 were used. Recorders utilized a static inverter for power source.

Launch C.S.183 used Depth Recorder Type EDO 255c Numbers 15 and 17. A static inverter for power source.

For the days Fathometers and Depth Recorders were used see Stamp No. 33 (sounding apparatus) and appropriate notes in sounding volume.

Echo sounding corrections were obtained by Bar Check and/or simultaneous comparisons.

E. SMOOTH SHEET

The Smooth Sheet projection was made in the Washington Office with a projection ruling machine.

The Smooth Sheet has been partially plotted by Party Personnel.

F. CONTROL

Horizontal control was obtained by Standard Visual Three Point Fix methods as described in the Hydrographic Manual.

Photo-Hydro signals were located on Advance Manuscripts T-10755, T-10756, T-10757, T-10746, T-10747.

See Appendix C of this report for a complete list of control stations and the quality and source of control.

G. SHORELINE

Shoreline was transferred from Blueline Prints of

Advance Manuscripts which are listed in section F of this
report. 7-10942 of 1967 was examined during review, and covers west foul River of this survey.

No noticeable change in shoreline was observed.

H. CROSSLINES

Crosslines were run in excess of 5%. Crosslines are within one foot and are considered good.

I. JUNCTIONS

Junctions made with contemporary survey listed in Section B of this report are satisfactory and the depth curves can be adequately drawn.

It has been noted in the Descriptive Report for Sheet H-8643 (10-11-61) that the 3 foot depth curves at Lat.30°20'07" Long. 88°13'32" on Sheet H-8644 do not make a good junction with this sheet. This depth curve can be drawn at this junction by the use of $\frac{1}{2}$ foot sounding. $\frac{1}{2}$'s used where applicable.

J. COMPARISONS WITH PRIOR SURVEY

There are no pre-survey items within the limits of this survey.

Comparison with prior survey Register No. 4020 (1917-1918), Scale 1:40,000 show a generally good agreement with this survey.

A dredged channel into Bayou La Batre is the only noticeable change.

K. COMPARISON WITH THE CHART

A comparison with chart No. 874 3rd. edition dated March 27, 1961 Scale 1:40,000 shows good agreement between the chart and this survey, except for a 3 foot sounding on the chart at 07 Lat. 30°22'18" and Long. 88°15'15". This 3 foot sounding is a 4 foot sounding on the boat sheet. In turn this will change the 3 foot depth curve in this area.

Area 4'ow smooth sheet present depths adequate

L. ADEQUACY OF SURVEY

This survey is complete and is considered adequate to supercede prior surveys.

M. AIDS TO NAVIGATION

The landmarks for charts and fixed aids to navigation report was previously submitted by Photo Party 720.

A comparison was made with the chart and Light List.

All aids to navigation adequately serve the purposes for which they were established.

N. STATISTICS

VESSEL	МО.	OF POSITIONS	NAUT. MILES OF SOUNDING LINES
	-		
SKIFF #758 SKIFF #1 LAUNCH C.S.183		1421 225 79	189.1 31.1 11.0
LAUNCH C.S.1177		20 1745	3.6 234.8

Total area of this survey, 15.1 square Nautical miles.

Two tide stations were used for control of this survey.

One gage was located in Bayou La Batre, Ala. The other gage
was at Fort Gaines, Ala.

For plane of reference of tide staffs and the location of these gages, See Appendix A, Tidal Note of the Report.

There were no current of magnetic stations within the limits of this survey.

There were 30 bottom samples obtained on this survey.

M. MISCELLANEOUS

A silt area has been detected and so noted in the sounding volumes in the Bayou La Batre Channel. This silt area is along the banks of the channel. The reason for the silt could be due to the fact the channel had just been dredged before the Hydro was run, and the silt had not had a chance to settle. The apparent thickness of silt in about 2 or 3 feet.

The silt was detected on "a" day, Launch C.S.183 positions 1 to 2 "a", 4 to 5 "a" and on pos. 7 "a" dated Nov. 7, 1961. And on "b" day Launch C.S.183 Pos. 7 tp 9 "b" dated Nov. 27, 1961.

Wormal silt bottom except on 1-2N(red) where fluff is apparent

APPENDIX A TIDAL NOTES

GAGE LOCATION:

FORT GAINES, DAULPHIN ISLAND ALABAMA
Lat. 30°15'00"
Long. 88°04'05"

Long. 88004105"

GAGE TYPE:

Portable Automatic

STAFF:

Mean Low Water corresponds to 0.7 feet on the staff.

90th.

TIME MERIDIAN:

Fort Gaines Tide Gage was used from Aug. 9, 1961 thru Sept.5,

1961. This Gage was used for all areas of this survey with

no time or height corrections.

GAGE LOCATION:

BAYOU LA BATRE, ALABAMA Lat. 30°22'03"

Long. 88016 95×

GAGE TYPE:

Portable Automatic

STAFF:

Mean Low Water corresponds to 0.4 feet on the staff.

TIME MERIDIAN:

90th.

BAYOU IA BATRE Tide Gage was used from Sept21, 1961 thru Feb.1, 1962 This Gage was used for all areas of this survey with no time or height corrections.

APPENDIX B ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS

FATHOMETER DEPTH (Ft.)		CORRECTIONS (Ft.)
"a"	SKIFF 758 ,"b","c","d"days	
0.0 to 6.7		0.0
6.8 and deeper		-0.2
	"e" day	
4.3 to 5.0		+0.2
5.1 and deeper		0.0
	"f" day	
Sounding Pole all day.		
	"g" day	
0.0 to 0.5		0.0
0.6 to 2.5		+0.2
2.6 to 7.5	•	+0.4
7.6 to 11.5		+0.6
11]	h" "j" days	
Sounding Pole both days	•	
	"k" day	
+0.4 correction all dep	ths.	
	"l" day	

Sounding Pole all day.

"m" day

0.0 all depths to Pos. 114 "m".

+0.8 all depths from Pos. 115 "m" to end of days.

Appendix B cont.

FATHOMETER	DEPTH	(Ft.)
------------	-------	------	---

CORRECTION (Ft.)

"n" day

+0.6 correction all depths.

"p" day

+0.4 correction all depths.

"q" day

2.6 to 3.3			0.0
		÷	+0.2
4.8 to 11.2	•		+0.4
11.3 to 12.4 and deeper			+0.2
	"r" day		
2.6 to 3.6		•	+0.6
3.7 to 5.2			+0.8
5.3 to 12.0	(+1.0
	"s" day		

"t" day

+0.2 correction all depths

"u" "v" days

Sounding Pole all days.

"w" day

0.0 to 4.0 0.0 4.1 and deeper +0.2

APPENDIX B cont.

FATHOMETER DEPTH (Ft.)		COR	RECTION (Ft.)
Sk	(IFF 758		
1	'x'' day		
0.0 to 6.4			+0.4
6.5 and deeper			+0.2
SK	CIFF #1		
"a"	"b" days		
Sounding Pole all day.			
LAU	NCH C.S.183		
"a" "	b" "c" days		
0.0 correction all depths.			
LAU	NCH C.S.1177		
	"a" day	•	
0.0 to 6.0			-0.8
6.1 to 12.0			-1.0
12.1 to 18.0			-1.2
	"b" day		

0.0 correction all depths.

APPENDIX C LIST OF SIGNALS

TRIANGULATION STATIONS

BAT----Bayou La Batre Lt. 2, 1958

DER-----Murder 2, 1958

DIN-----Bayou Coden Leading Lt., 1958

EAR-----Bayou La Batre Range Rear Lt. 1958

FRO-----Bayou La Batre Range Front Lt. 1958

LEO-----Mcleod, 1935

MAR MARSH, 1958

YOU-----Bayou La Batre Lt. 6, 1958

TOPOGRAPHIC STATION

SIGN (d) 1958

PHOTO-HYDRO SIGNALS

T-10746	T-10747	T-10755	T-10756	T-10757
ABE	HAG	ADD	BEA	OAK
BAY	LXH 4/ G	LAD	COD	ROT
CAB	NIX	MAR	CON	SIP
DAY	NUL		FIN	USE
OAT	ORA		JAR	WAD
\mathtt{PLY}	PAD		NIG	ZAG
RAD	QUO		OFF	
SAD	RAM		OLD	
SOP	REV	•	ROY	
SUE	SET	••	WOO	
TAX	SKY	•	YET	
VIA	TOY	•	ZIG	
YES	VIM			
	Z00			

HYDROGRAPHIC SIGNALS

WAN-----Volume 7 Page 32

APPENDIX D

APPROVAL SHEET TO ACCOMPANY HYDROGRAPHIC SHEET H-8644 (ECFP 10-12-61) Project OPR-410

The records, corrections and all field and office work was supervised by Lcdr. Steven L. Hollis, Jr.

The descriptive report was written by Guy F. Trefethen.

The report and records for this survey are complete and adequate to the best of my knowledge.

Approved and forwarded,

LT. Harold E. McCall

C.&G.S.

Officer-in-charge

NORFOLK HYDROGRAPHIC PROCESSING BRANCH ADDENDUM To Accompany

HYDROGRAPHIC SURVEY H-8644 (ECFP 10-12-61)

GENERAL

The smooth sheet for this survey was prepared and approximately 65% of the position plotting was accomplished by field party personnel.

Soundings are in good agreement at crossings and depth curves follow normal patterns, although fractional units were needed in some instances to eliminate irregularaties.

Soundings between positions 26 and 28s, Skiff 758, were not smooth plotted as much of the bottom profile was cut out by what appears to be side echoes from the steep sides of the dredged channel.

Respectfully submitted,

Hugh L. Proffitt Cartographer

Norfolk, Va. March 8, 1965

TIDE NOTE FOR HYDROGRAPHIC SHEET

6/9/65

Nautical Chart Division: R. H. Carstens

Plane of reference approved in 11 volumes of sounding records for

HYDROGRAPHIC SHEET 8644

Locality: Mississippi Sound, Alabama

Chief of Party: S. L. Hollis, Jr.

Plane of reference is mean low water

Tide Station Used (Form C&GS-681):

Fort Gaines, Alabama Bayou La Batre, Alabama

Height of Mean High Water above Plane of Reference is as follows:

Fort Gaines 1.1 ft. Bayou La Batre 1.5 ft.

Remarks

Chief, Tides and Currents Branch

USCOMM-DC 6680-P64

GEOGRAPHIC NAMES Survey No. H-8644

P.O. Guide of Hesp Name on Survey É Bayon Coden 2 Fowl River Ba 5 8 Mississippi Sound 10 Portersville Bzg 11 Sans Souci Beach 12 West Fowl River 13 14 15 Bayon Copeland 16 17 18 19 20 21 22 23 24 25 26 27

FORM C&GS-946 (REV. 3-1-64) (PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS HYDROGRAPHIC SURVEY NO. 8644

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

RECOR	D DESCRIPTION		АМО	UNT		RECORD DESC	RIPTION	AMOUNT
SMOOTH SHEET				1 BOAT SHEETS		1		
DESCRIPTIVE RE	EPORT		1		OVERL	AYS		
DESCRIPTION	DEPTH RECORDS	HORIZ.		PRINT	routs	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES								
CAHIERS	1							
VOLUMES	11							
BOXES						272(2) 20	(~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	

T-SHEET PRINTS (List) 10746,10747,10755,10756,10757(2),10765,10766,10770(2)

SPECIAL REPORTS (List)

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

	AMOUNTS			
PROCESSING ACTIVITY	PRE- VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1714
POSITIONS CHECKED		275	10	
POSITIONS REVISED		None	0	
DEPTH SOUNDINGS REVISED		25	0	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		None	0	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		None	0	
		TIME (MAN	IHOURS)	
TOPOGRAPHIC DETAILS		0	2	
JUNCTIONS		1 hr	1	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		Hohrs	/	
SPECIAL ADJUSTMENTS		None	0	
ALL OTHER WORK		203 hrs	14	
TOTALS		244 hrs	88	
PRE-VERIFICATION BY	!	BEGINNINGDATE		GDATE
Moris m. Tarlor		BEGINNING DATE JULY 5, 19	· ·	G DATE
REVIEW BY George a Konemorah		BEGINNING DATE		- 1 /965 G DATE

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8644	FIELD NO. ECFP 10-12-61			
Alabama, Mississippi Sound, Portersville Bay				
SURVEYED: August 9, 1961 through F	ebruary 1, 1962			
SCALE: 1:10,000	PROJECT NO.: OPR-410			
SOUNDINGS: EDO Depth Recorder, 808 Fathometer, and Sounding Pole	CONTROL: Sextant angles on shore signals			
Chief of Party	R. A. Lewis			
Reviewed by	G. A. Kozemczak			

..... Date: 1/13/69

1. Description of Area

The survey covers the area of Portersville Bay and the channel to Bayou La Batre, Alabama, in the Mississippi Sound. In the eastern portion of the survey West Fowl River flows into Fowl River Bay. Except for the dredged channel into Bayou La Batre the bottom is largely flat or gently sloping.

Inspected by R. H. Carstens

The depths range from 1 to 4 feet in the eastern area of the survey and from 1 to 11 feet in the western area. The bottom is mostly soft grey mud with a few scattered areas of hard sand.

2. Control and Shoreline

The source of control is given in the Descriptive Report. The shoreline originates with reviewed photogrammetric manuscripts T-10746, T-10747, T-10755, T-10756, T-10757, and T-10942 of 1957-62.

3. Hydrography

- A. Depths at crossings are in good agreement.
- B. In areas of flat bottom, every other sounding was inked to implement verification.
- C. The usual depth curves were adequately delineated. A three foot depth curve has been added to more adequately delineate shoal areas.
- D. The development of the bottom configuration and the investigation of least depths are considered adequate.

4. Condition of Survey

The field work, sounding records, smooth plotting, and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual.

5. <u>Junctions</u>

Adequate junctions were effected with H-8643 (1961-62) to the south, and H-8648 (1961-62) to the west.

6. <u>Comparison With Prior Surveys</u>

H-329	(1852)	1:20,000
H-4020	(1917-18)	1:40,000

These prior surveys cover the area of the present survey. Comparison of prior and present surveys reveals no noteworthy change, except that the entrance channel to Bayou La Batre was dredged subsequent to the date of these prior surveys. Spoil banks now exist about 400 meters west of the channel. The larger-scale present survey is adequate to supersede the prior surveys in the common area.

7. Comparison With Chart 874-SC (4th Ed., Corr. thru N.M. 41, October 12, 1968

A. Hydrography

Most of the charted hydrography originates with the previously discussed surveys which require no further consideration, supplemented by the partial application of depths from the boat sheet and verified smooth sheet of the present survey. Only minor differences are noted between the present survey and charted depths.

Attention is called to the following:

- 1. The sunken wreck PA charted in lat. 30°20.0', long. 88°16.5' originates with N.M. 37 (1966) subsequent to the present survey and should be retained on the chart.
- 2. <u>Bulkhead</u>--at lat. 30°23.02', long. 88°16.2' the constructed bulkhead and dredging has been charted from the Corps of Engineers information and reported in Chart Letter 713 "B" of 1967.

The present survey is adequate to supersede the charted hydrography within the common area.

B. Controlling Depth

The charted controlling depths of Bayou La Batre Channel and Bayou Coden are based on data furnished by the U.S. Corps of Engineers for March 1968, subsequent to the date of the present survey information.

C. Aids to Navigation

The aids to navigation located on the present survey are in agreement with the chart with the following exceptions:

1. Black Daybeacon "1" charted at lat. 30°22.35', long. 88°16.70', was established subsequent to the date of the present survey and reported in H.O. Notice to Mariners 34 of 1968.

- 2. Bayou La Batre Lt. "2", 1958 located on the present survey at lat. 30°21.02', long. 88°17.07', was renumbered "6", subsequent to the date of the present survey and reported in H.O. Notice to Mariners 15 of 1967.
- 3. Red Daybeacon "10" charted at lat. 30°21.7', long. 88°16.75', originated from Notice to Mariners No. 23 of 1956 as Daybeacon "4". The present survey locates Channel Marker "4" by sextant angle fixes and plots approximately 630 yards S.W. of the charted position. Subsequent to the date of this chart comparison, this aid has been discontinued and structure removed and reported in the Notice to Mariners 5 of 1969.
- 4. Bayou La Batre Lt. "6", 1958 located on the present survey at lat. 30°22.28', long. 88°16.54' was renumbered "14" subsequent to the date of the present survey and reported in the H.O. Notice to Mariners 15 of 1967.
- 5. Black Daybeacon "7" located on the present survey at lat. 30°22.8', long. 88°16.36' and used as a signal (BAY) was changed to a Light "15" and reported in the H.O. Notice to Mariners 15 of 1967.
- 6. Red Daybeacon "8" located on the present survey at lat. 30°22.9', long. 88°16.3' was renumbered "16" subsequent to the date of the present survey and reported in H.O. Notice to Mariners 15 of 1967.
- 7. Bayou La Batre Daybeacons numbers 11, 12, 13, 14, 15, 16, 17, and 18 have been discontinued subsequent to the date of the present survey and reported in the H.O. Notice to Mariners 15 of 1967.
- 8. <u>Light</u> charted at lat. 30°24.18', long. 88°15.34' was established subsequent to the date of the present survey and reported in the H.O. Notice to Mariners 43 of 1966.

The aids to navigation as presently charted adequately mark the features intended.

8. Compliance With Instructions

The survey adequately complies with the Project Instructions.

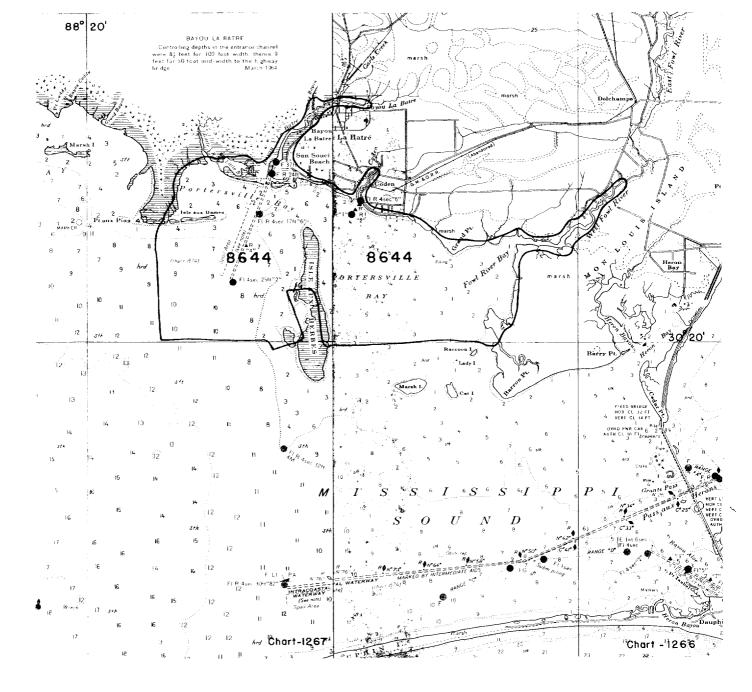
9. Additional Field Work

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

Examined and Approved:

Chief Marine Chart Division Associate Director

Hydrography and Oceanography



NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H=86444

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 Revi

CHART	DATE	CARTOGRAPHER	REMARKS
874	6/28/65	John R Win	Pull Part Before After Verification Review Inspection Signed Via
			Drawing No. 18 Critical corrections only
1266	4/28/65	John RWei	Pull Part Before Asser Verification Review Inspection Signed Via
	7-7-	0	Drawing No. 31 Critical corrections only
	16-19-65	Heheadon Padk	Full Part Before After Verification Review Inspection Signed Via
			Drawing No. 30 Critical Corrections thru Mit. 874 18
874 SC	10/8/69	Hele 900	Full Per Before After Verification Review Inspection Signed Via
	• /		Drawing Ne. 5 - Consider and administration of Samille - 8/18/69
	10/cha	1100 Q 70	Full Before After Verification Review Inspection Signed Via
	10/10/01	HOS CAMPA	Drawing No 5 - Consider a pled
	, ,	10 0 · 0	Full Was Before After Verification Review Inspection Signed Via
1266	10/8/69	Helen Lumb	Drawing No. 35. Consider Age 19 applied
			before "Camille - 8/18/69."
1267	10/8/69	Helendumb	Full Drawing No. 37. Compared Review Inspection Signed Via
			Intere Camille - 8/8/69
- 872-SC	4/25/70	A. E hundberg	Full Part Before After Verification Review Inspection Signed Via
		,	Drawing No. Consider fully apple. after " Camille"
-874-sc	4/28/70	D.E. Lyndburg	Full Part Befere After Verification Review Inspection Signed Via
300 22.5	Two sag	2 Returned	Drawing No. 6 (onsider fully appl after Camille ". Some soons on chart fall on perceiled soons on smooth state, these were not changed to correspond to a position of a latter soon soon to a position of a latter soon soon so make soon.
48016.61	3 //	068327 Holmer /2/2	To ted San. but considered to be as good as interested.
. 1266	6/2/70	A.E. Lundberg	Full Part Before After Verification Review Inspection Signed Via Drawing No. 36 Consider fully 2006 after Camille' thru
			Cht 874-50 Dwg 6
1267	196/70	C5. Forher	Full appd After Verification Review Inspection Sign
			Via Drawing No. 38. Consider Fully appd after
			"Camille" thru charts 874-50 Dwg #6 and char