Feeder PB

CESAM-OP-OM (1110-2-1150a) 3 March 1989

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Fourth Management and Technical Committees Meeting, National Demonstration Project Feeder and Stable Berms, Mobile Harbor, Alabama

1. The Mobile District will host the next berm committee meeting scheduled for 13 and 14 March 1989. Attached for your information and review are an itinerary and agenda for the up-coming meeting and a Memorandum For Record (MFR) for the third committee meeting. The first item on the agenda includes opportunity for comment and approval of the MFR.

2. If there are any other comments or questions please contact me at (205) 690-2570.

PAUL BRADLEY
Civil Engineer, P.E.
CESAM-OP-OM

DISTRIBUTION:

Mr. Hugh McClellan (CESAMPD-E)
Mr. Dewayne Imsand (CESAM-PD-EC)
Mr. Charles Calhoun (CEWES-CV-A)
Mr. Tom Richardson (CEWES-CD)
Ms. Joan Pope (CEWES-CD-S)
Mr. Ed Hands (CEWES-CD-S)
Mr. Dave Mathis (CECW-DE)
Mr. Joe Wilson (CECW-DE)
Mr. Jim Kelly (CESAD-CO-O)
Mr. Neil McLellan (CEWES-CD-S)

Feeder Berm Mobile Harbor 89'
Brady PB

ITINERARY

BERM COMMITTEE MEETING
AND FIELD TRIP
13-14 MARCH 1989

Monday	1130 (CST)	Lunch, Captain's Table
	1300	Berm Meeting, MDO
	1700	Adjourn
Tuesday	0830	Berm Meeting, MDO
	1100	Board Crew Boat to Dredge Chicago
	1130	Arrive Dredge Chicago (lunch on board)
	1330	Depart Dredge Chicago
	1400	Arrive Dock
	1415	Adjourn

ATTENDEES:

Mr. Pat Langan CESAMOP-OM
Mr. Paul Bradley CESAMOP-OM
Mr. Hugh McClellan CESAMPD-E
Mr. Dewayne Imsand CESAMPD-EC
Mr. Charles Calhoun CEWES-CV-A
Mr. Tom Richardson CEWES-CD
Ms. Joan Pope CEWES-CD-S
Mr. Ed Hands CEWES-CD-S
Mr. Dave Mathis CECW-DE
Mr. Joe Wilson CECW-DE
Mr. Jim Kelly CESAD-CO-O

AGENDA

MANAGEMENT AND TECHNICAL COMMITTEES MEETING
FEEDER AND STABLE BERMS
MOBILE HARBOR, ALABAMA

13-14 MARCH 1989

I.	OPENING	LANGAN
II.	FEEDER BERM	
	A. Approval of MFR for Third Meeting	All
	B. Results of Sept/Oct./Dec. Surveys	CERC
	C. Feeder Berm First Report	All
	D. Future Monitoring Recommendations	CERC
	E. Future Monitoring	All
III.	STABLE BERM	
	A. Status of Bay Dredging	SAM
	B. Test Section Monitoring	CERC/SAM
IV.	GENERAL	
	A. Publications/Presentations	CERC/SAM
	B. Briefings	CECW-D

DRAFT

CESAMOP-OM 22 FEBRUARY 1989

Memorandum For Record

Subject: Third Management and Technical Committees Meeting, National Demonstration Project Feeder and Stable Berms, Mobile Harbor, Alabama

1. PURPOSE: The third meeting of the Berm Management and Technical Committees was held on 1 and 2 December 1988 at CESADCO Atlanta, Georgia. Members of Mobile District, CESAD, CERC, and OCE met to discuss the status of activities for the feeder and stable berms. An agenda for the meeting is shown on Attachment 1 and an attendees are listed on Attachment 2. Mr. Langan summarized the main issues to be addressed at the meeting as:

a. Should the Feeder Berm monitoring be continued?

b. What is the status of Feeder Berm monitoring and what do we do with the interim report?

c. How shall we interpret the Feeder Berm results and what can we conclude about moving future disposal operations closer to the channel?

d. Can we apply the Feeder Berm results to other projects in the Mobile District?

e. Need to establish a plan for distributing the rest of the Stable Berm material (i.e., when do we close the gap to the test section?).

f. What are our publication and technology transfer plans.

2. FEEDER BERM: Status of the Feeder Berm interim report was the first item of discussion. Members of CERC indicated the report is almost ready for distribution to the Management Committee. There was some discussion about the title of the report, review process, and report content. The term "interim" will be dropped and the report will discuss project purpose, berm design and construction, monitoring activities, lessons learned, and preliminary discussions of data results. The draft report will be finalized by SAM and CERC, and then distributed for concurrent review by the management committee. Subsequent to the meeting it was decided the first report will be titled " CONSTRUCTION OF THE SAND ISLAND NEARSHORE BERM AND PRELIMINARY ASSESSMENT OF THE FIRST YEARS MONITORING". A second report will be prepared to discuss the overall two year monitoring and conclusions. The committee emphasized the need for overall monitoring results to include a discussion of the application to other disposal operations.

Ms. Joan Pope and Mr. Tom Richardson next discussed the status of the Feeder Berm monitoring and provided hand out information contained in Attachment 3. Ms. Pope indicated the Feeder Berm exhibited some additional small loss of elevation and possibly some retreat or scour of the southern end as of the August 1988 survey. The thirteenth survey, September 1988, was the next survey and would reflect the effects of Hurricanes Beryl, Florence, and Gilbert which occurred in August and September 1988. These are the only major storms that have had influence at the berm location since initiation of the monitoring program. As noted by Mr. Richardson, Gilbert was a major event, inducing long period storm waves over several days. Very preliminary results of the thirteenth survey, shown by Mr. Bradley, suggest some changes to the berm as a

result of these storms including the apparent presence of sand waves on the outer side of the berm. These "sand waves" might be an artifact of the computer contour smoothing so side scan sonar will be used to help interpret the results. The committee felt the storms were the event sequence we were looking for and the analysis of the thirteenth survey will be critical in interpreting the Feeder Berm's response. Results of this survey will be discussed at the next berm meeting.

Mr. Bradley discussed monitoring costs to date as shown on Attachment 4. Total funds allocated to the Feeder Berm monitoring from FY 87 thruogh FY 89 equaled $1,185,000. Actual expenditures, as shown on Attachment 4, are currently projected to be approximately $1,079,000 for the monitoring period. As such, the monitoring program is expected to be completed below projected costs even though unforseen additional costs were incurred by added tide gages and slight modifications to monitoring elements. These additional costs were offset by eliminating monitoring surveys in some of the calm weather months. This proved to be a prudent approach to stay within budget and maintain a quality monitoring program.

Future Feeder Berm monitoring was the next topic of discussion. Mr. Langan indicated that it was the Districts intentions to continue to observe the Feeder Berm with limited bathymetric surveys, perhaps two or three surveys per year including potential post-storm surveys if a major event occurs. CERC is interested in installing a telemeter oceanographic measurement system and continue some additional research on the berm using DRP funds. Due to the many problems encountered with the buoyed current meters, CERC is investigating the possibility of installing the new instrumentation package on a piling supported platform. They are investigating the cost of such a mounting system. Unless the thirteenth survey analysis suggests the need for additional detailed work, the official OCE sponsored two year program will conclude with a final survey in December 1988 followed by a final report in August 1989. Mr. Dave Mathis asked that the final report include information on what it costs to build a berm-like feature and that the end product include generic guidance on how to apply the Mobile results to the selection of future disposal sites.

3. STABLE BERM: Mr. Bradley summarized the status of the Mobile Harbor deepening and Stable Berm construction being conducted with the mechanical dredge Chicago and two 6,000 cubic yard dump scows. Channel deepening began in February 1988 and the berm test section was completed in August 1988. The total quantity of material placed in the test section was about 4.5 million cubic yards. As of December 1988 the overall deepening contract was about 31 percent complete. The contractor is now disposing from the western end of the berm working toward the test section on the eastern end. Expected completion date is June 1990.

Mr. Imsand and Ms. Pope discussed the results of the berm monitoring to date, and provided hand out information contained in Attachment 5. As of December 1988 two post-construction monitoring surveys were to be completed with quarterly surveys to follow there after. The test section berm is larger than predicted due to better build up of material than expected. The average side slopes of the test berm are 1:50 on the

the north and west faces and 1:120 on the south and east faces. Preliminary review of the August 1988 bathymetry, side scan sonar, and sediment profiling camera results suggest that the test berm is actually located about 500 feet north and as much as 1000 feet west of the proposed dump zone. In addition there appears to be some dredged material distributed on the bottom southwest of the designated dump zone. This is not expected to significantly affect the monitoring program. Sediment profiling camera sites will need to be extended outside of the test berm along line U1, W1, Y1, Y0 to detect the boundary of the dredged material skirt.

SAM and CERC will monitor progress of the disposal operation and determine how and when the rest of the Stable Berm will be tied into the test section. This will entail monitoring the contractor's dredging quantities relative to disposal area capacity in order to properly manage the disposal operation. Ms. Pope suggested that SAM compile and provide CERC with dredging progress reports so that all parties will be kept up-to-date on the dredging quantity vs site capacity issue. SAM concurred and will provide these reports. SAM will also provide CERC with preliminary survey results to reduce time lags in coordination.

4. CONCLUSIONS: Mr. Mathis mentioned that a scoping meeting was scheduled in December to discuss the agendas for the next three EAB meetings. He suggested the berms could be proposed as an agenda topic. It would not be included at the next EAB meeting scheduled for March 1989. Publications scheduled include a presentation by Mr. Bradley and Mr. Hands at Coastal Zone 89 in July 1989 and a presentation by Mr. Imsand and Mr. Mclellan in May 1989 at WODCON XII on the Stable Berm. Additionally, a representative of ASCE has contacted Mr. Bradley about preparing an article for publication in the ASCE national news letter.

The next committee meeting is tentatively scheduled for March 1989 in Mobile, Alabama. The meeting will include a visit on the dredge Chicago. Topics for discussion at the meeting include a.) results of the September, October, and December Feeder Berm surveys, b.) review of the first Feeder Berm report, c.) future monitoring for the Feeder Berm, and d.) status of the Mobile Harbor deepening and Stable Berm monitoring.

PAUL BRADLEY, P.E.
Civil Engineer, CESAM-OP-OM

AGENDA

MANAGEMENT AND TECHNICAL COMMITTEES MEETING
FEEDER AND STABLE BERMS
MOBILE HARBOR ALABAMA

1-2 DECEMBER 1988

I. OPENING	Langan
II. FEEDER BERM	
A. Status of Monitoring	
1. Interim Report	CERC
2. Monitoring Results	CERC/Bradley
3. Funding Status	Bradley
B. Future Monitoring	
1. Instrumentation Package	CERC
2. Other Monitoring	All
III. STABLE BERM	
A. Status of Bay Dredging	Bradley
B. Test Section Monitoring	Imsand/CERC
C. Status Reports	Imsand/CERC
IV. GENERAL	
A. Publications/Presentations	CERC/MDO
B. OCE Briefings	CECW-D

ATTACHMENT 1

1-2 Dec 88

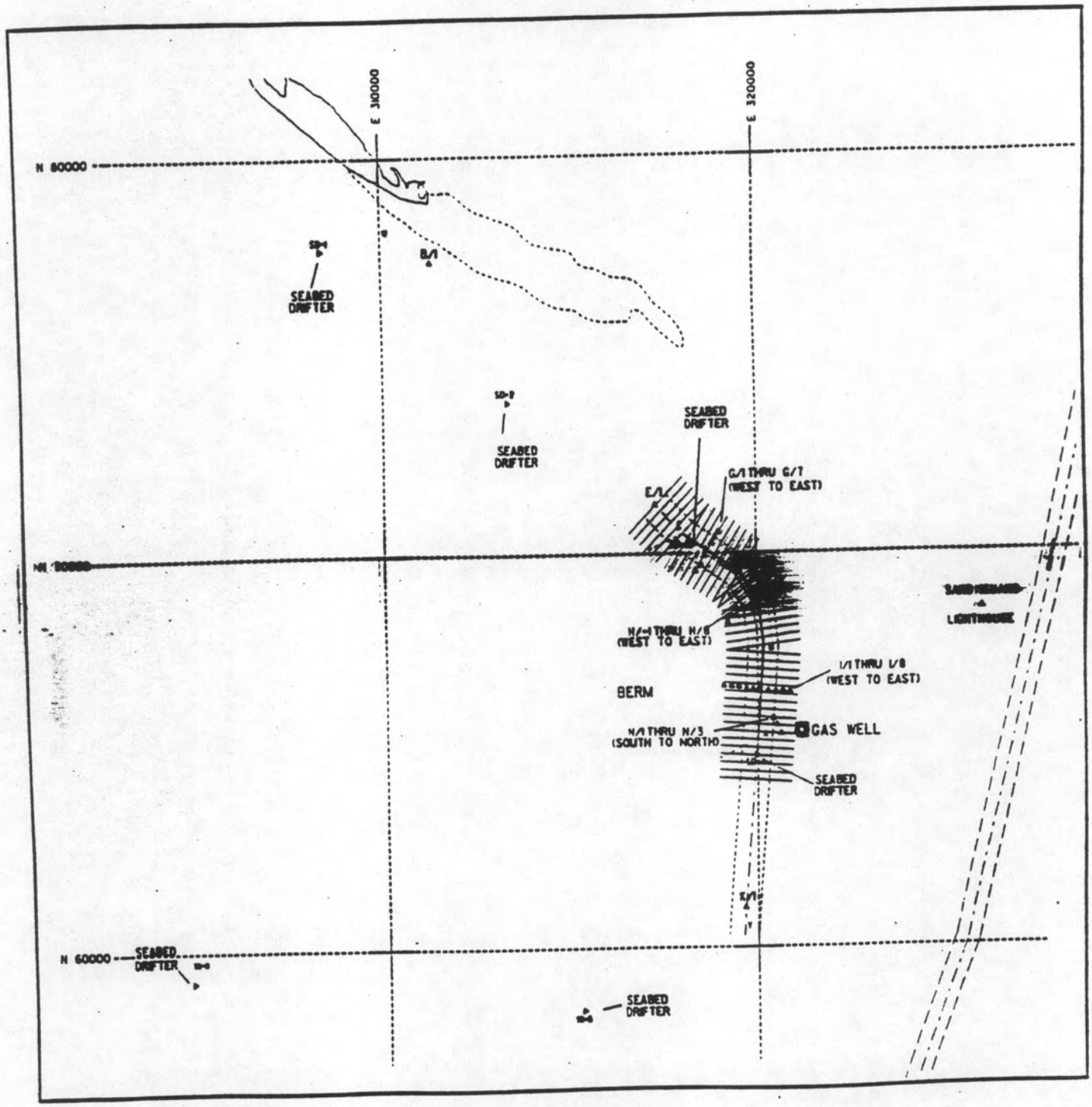
Management and Technical Committee Meeting
Feeder & Stable Berms – Mobile Harbor

NAME	Organization	Phone
Jim Kelly	CESAD-CO-O	(404) 331-2778
Hugh McClellan	CESAM-PD-E	(205) 694-4101
DEWAYNE IMSAND	CESAM-PD-EC	(205) 694-3858
Paul Bradley	CESAM-OP-ON	(205) 690-2670
David Mathis	CECW-DE	202-272-8843
PAT LANGAN	CESAM-CV-CM	205/694-3751
CHAS. CALHOUN	CEWES-CV-A	601/634-2001
Joan Pope	CEWES-CD-S	601/634-3034
Tom Richardson	CEWES-CD	(601) 634-2019

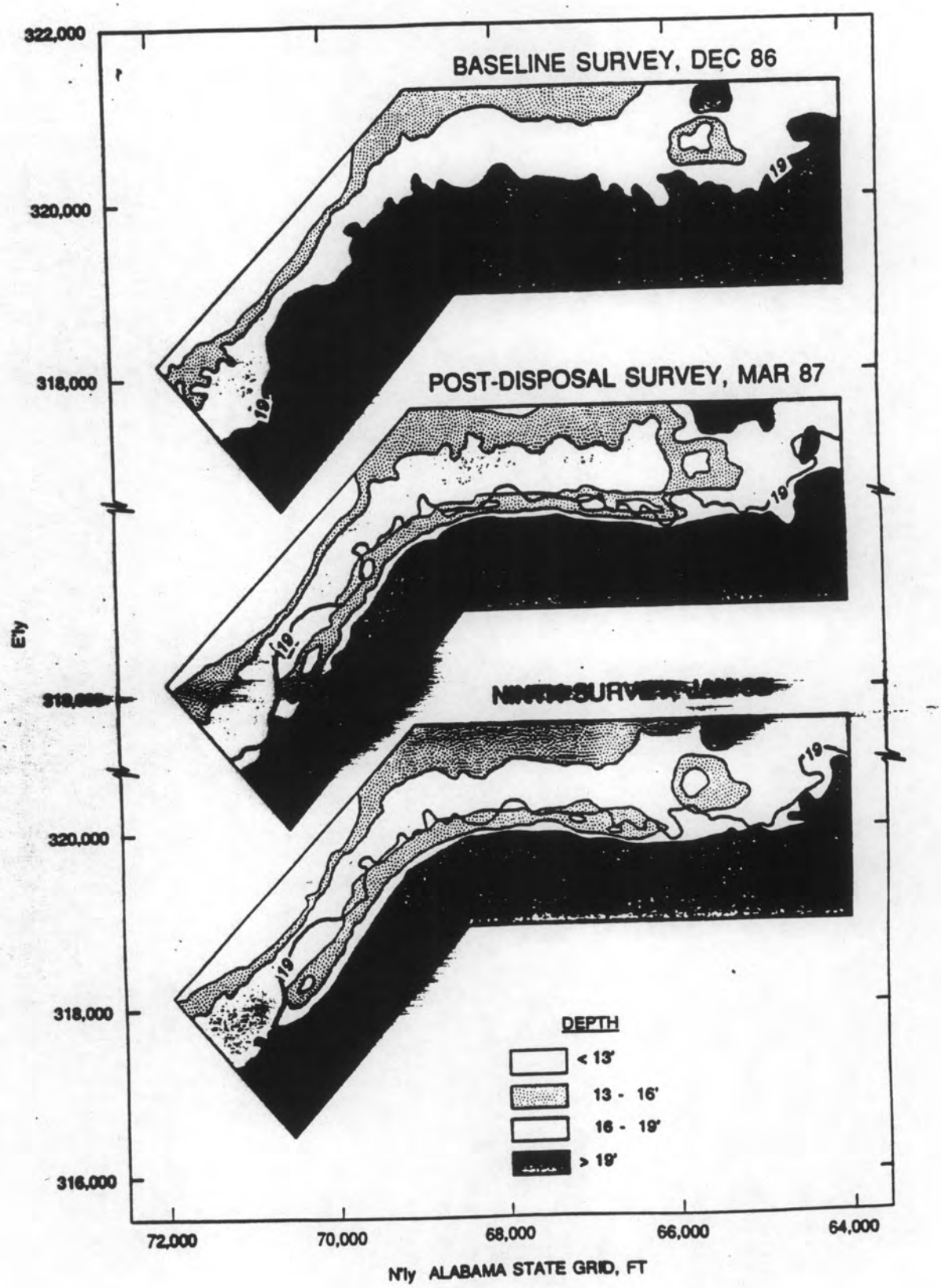
ATTACHMENT 2

30 NOV 88

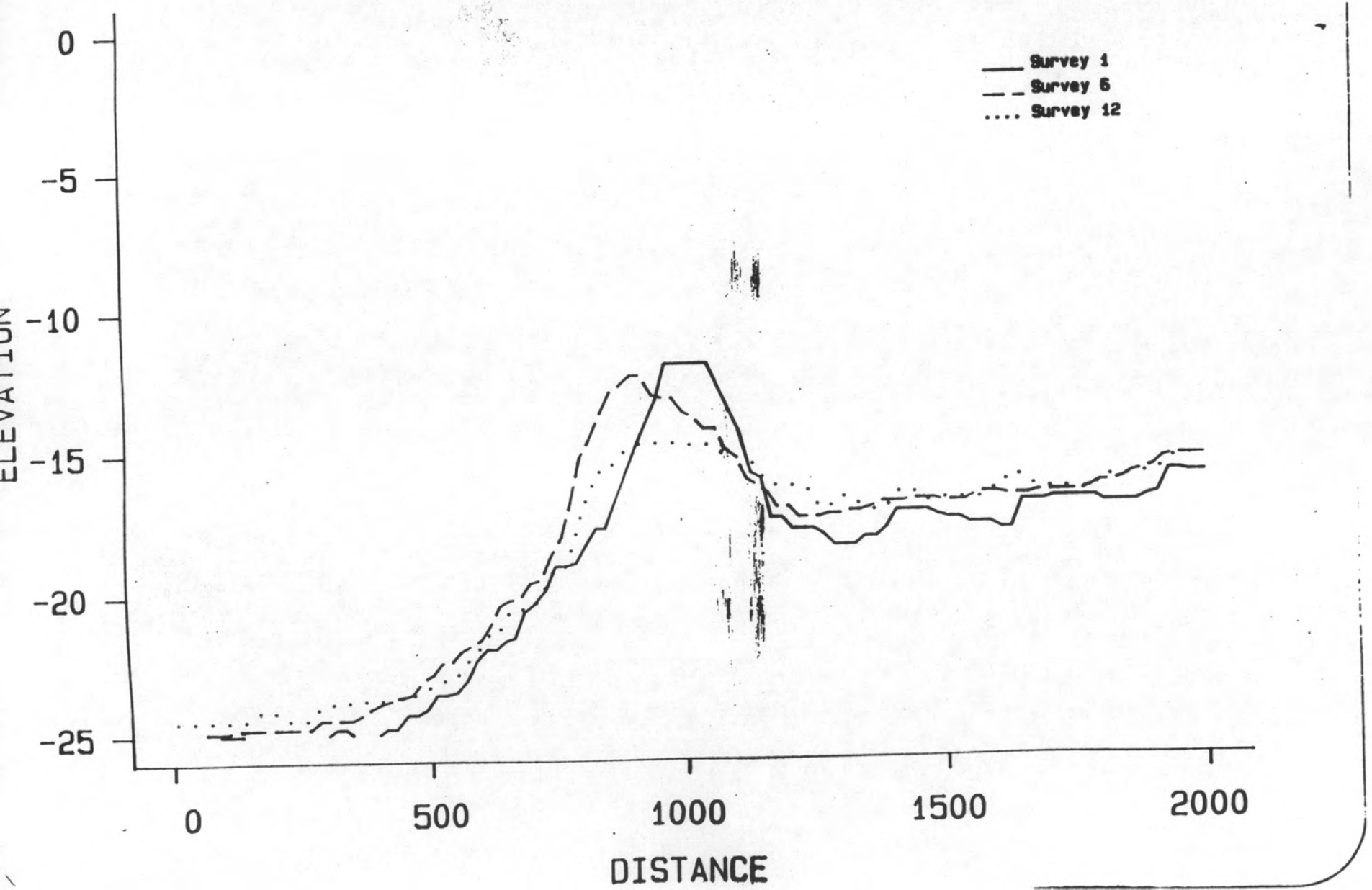
Feeder Berm



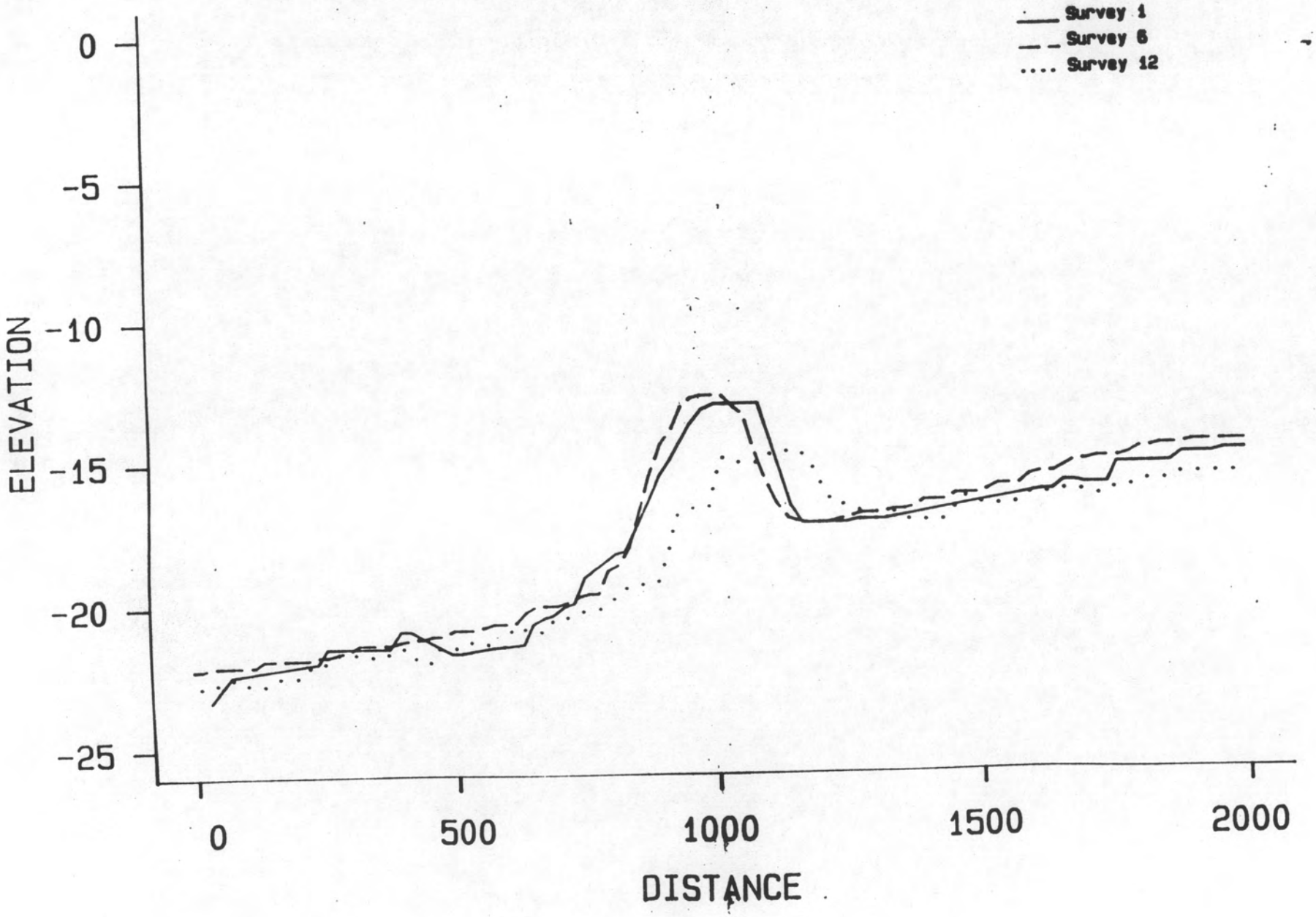
ATTACHMENT 3

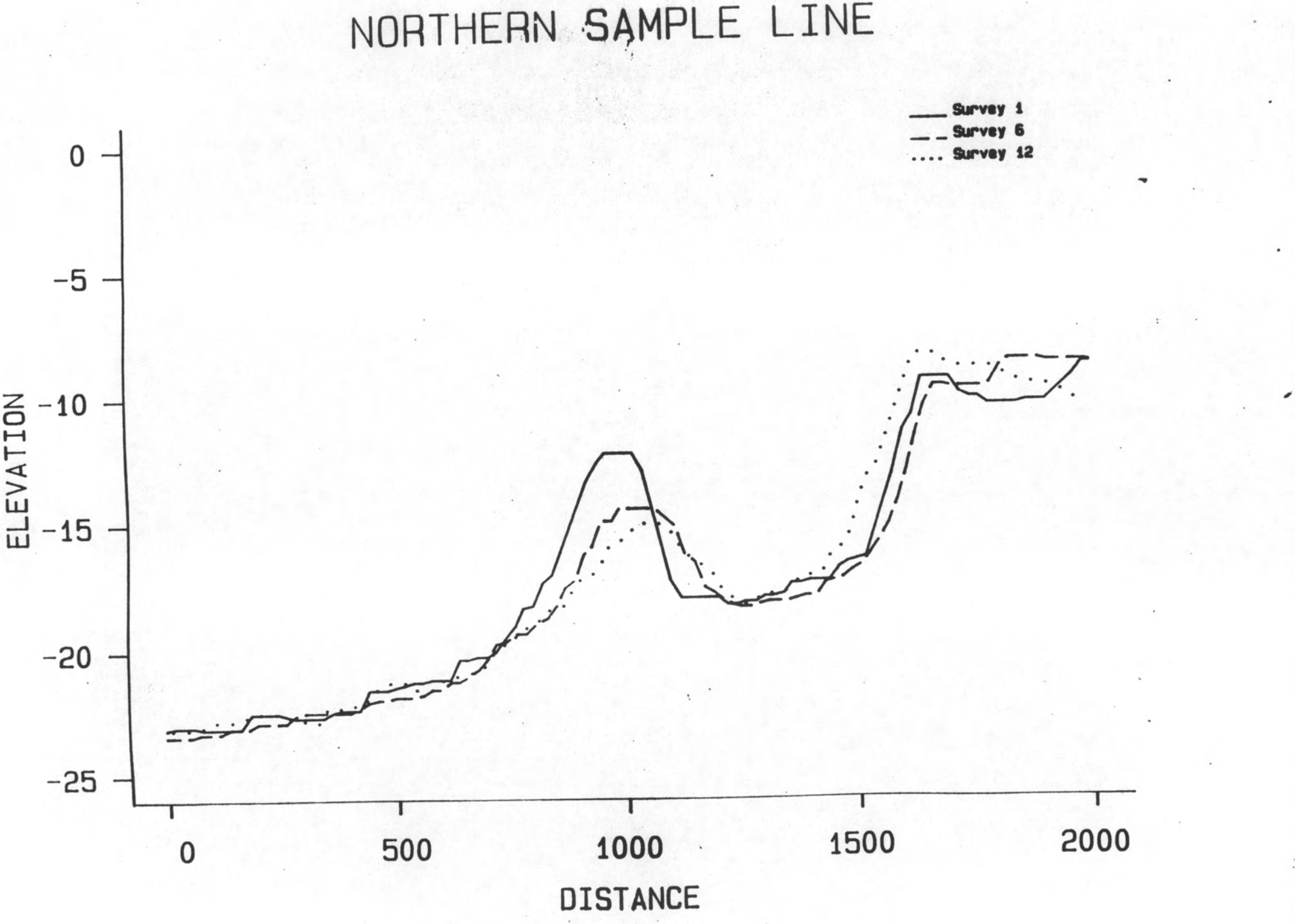

BASELINE SURVEY, DEC 86
POST-DISPOSAL SURVEY, MAR 87
322,000
320,000
318,000
316,000
E'ly
72,000
70,000
68,000
66,000
64,000
N'ly ALABAMA STATE GRID, FT
19
DEPTH
< 13'
13 - 16'
16 - 19'
> 19'

100 FEET SOUTH OF SOUTHERN SAMPLE LINE

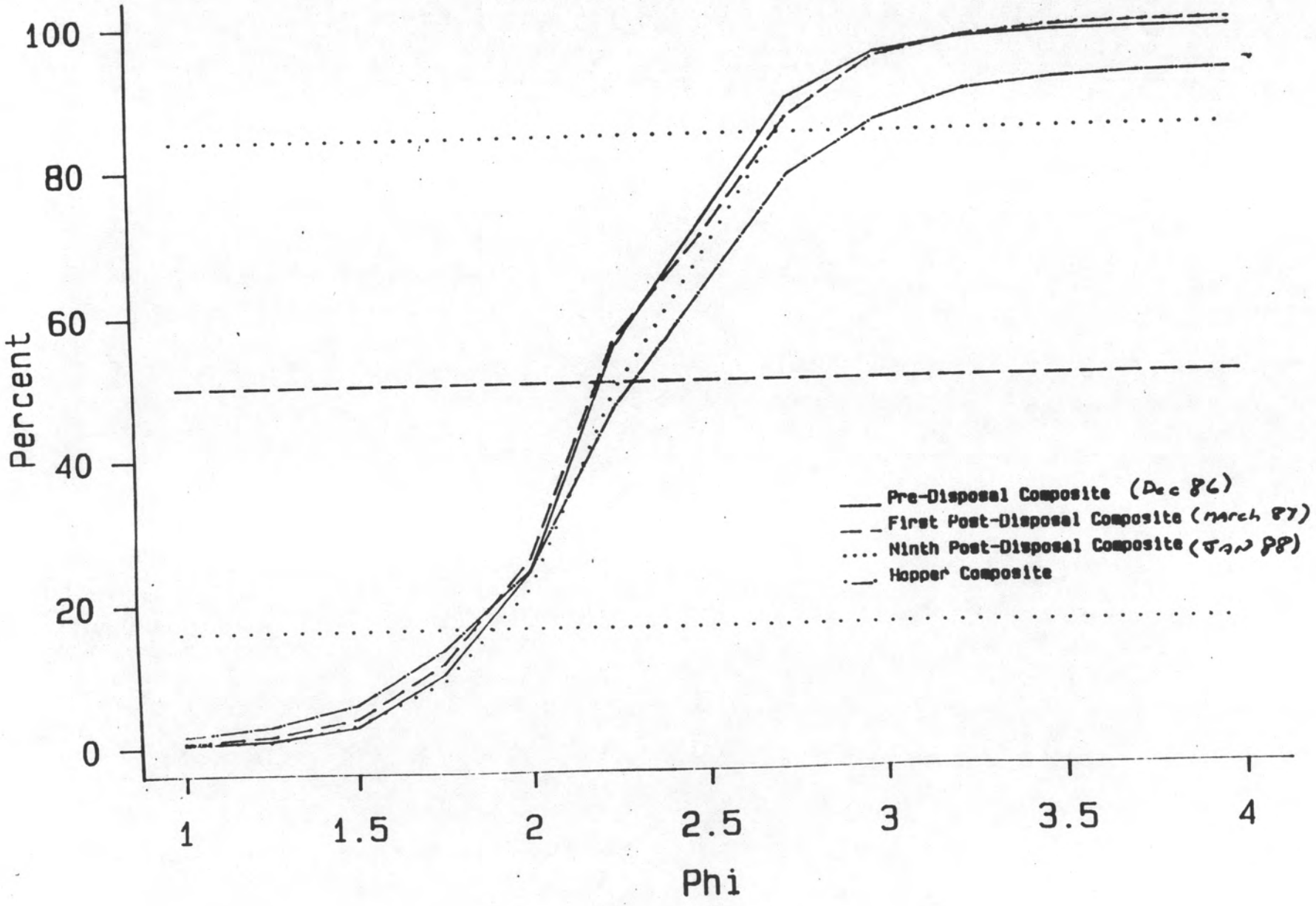


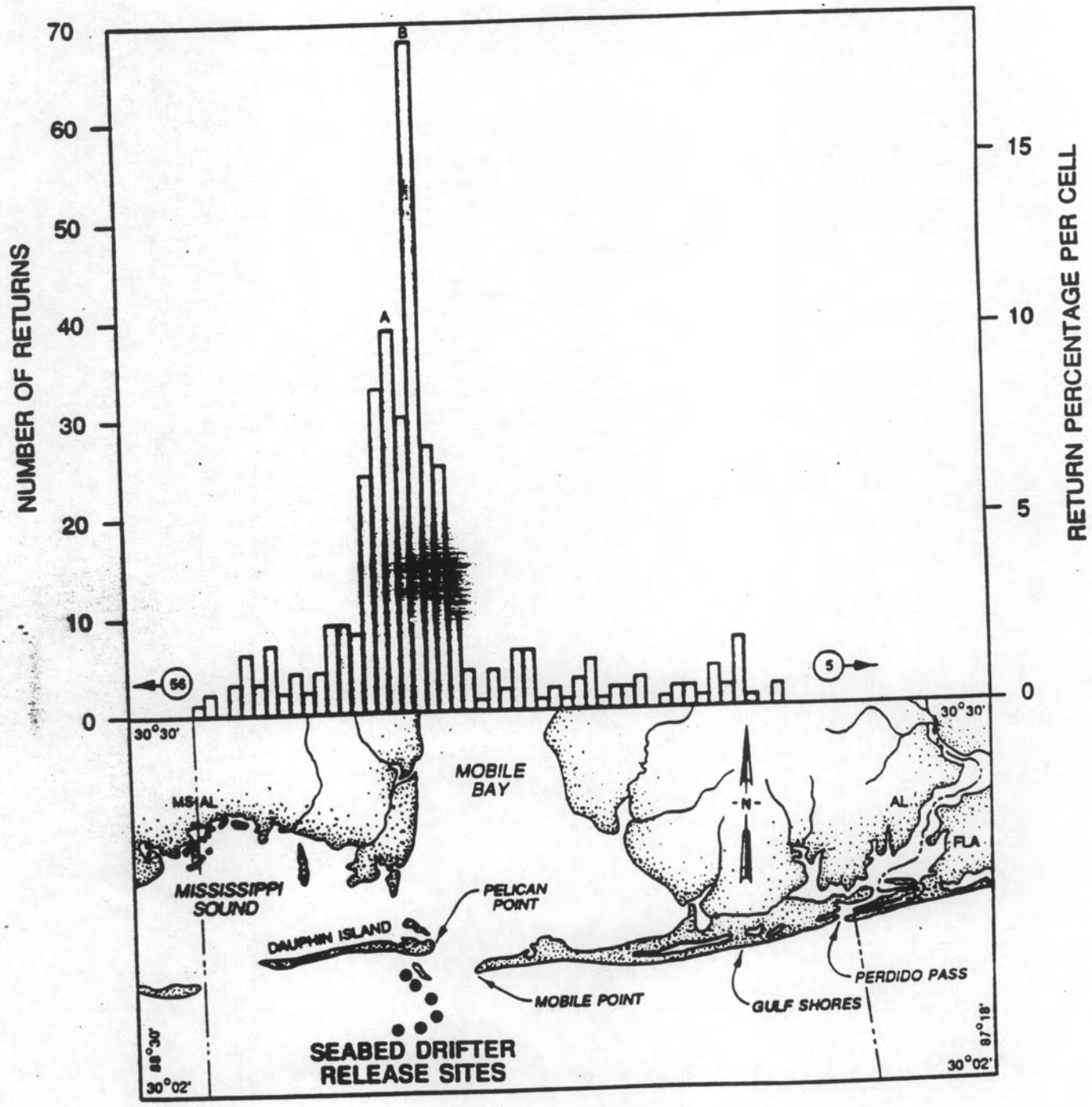
CENTER SAMPLE LINE

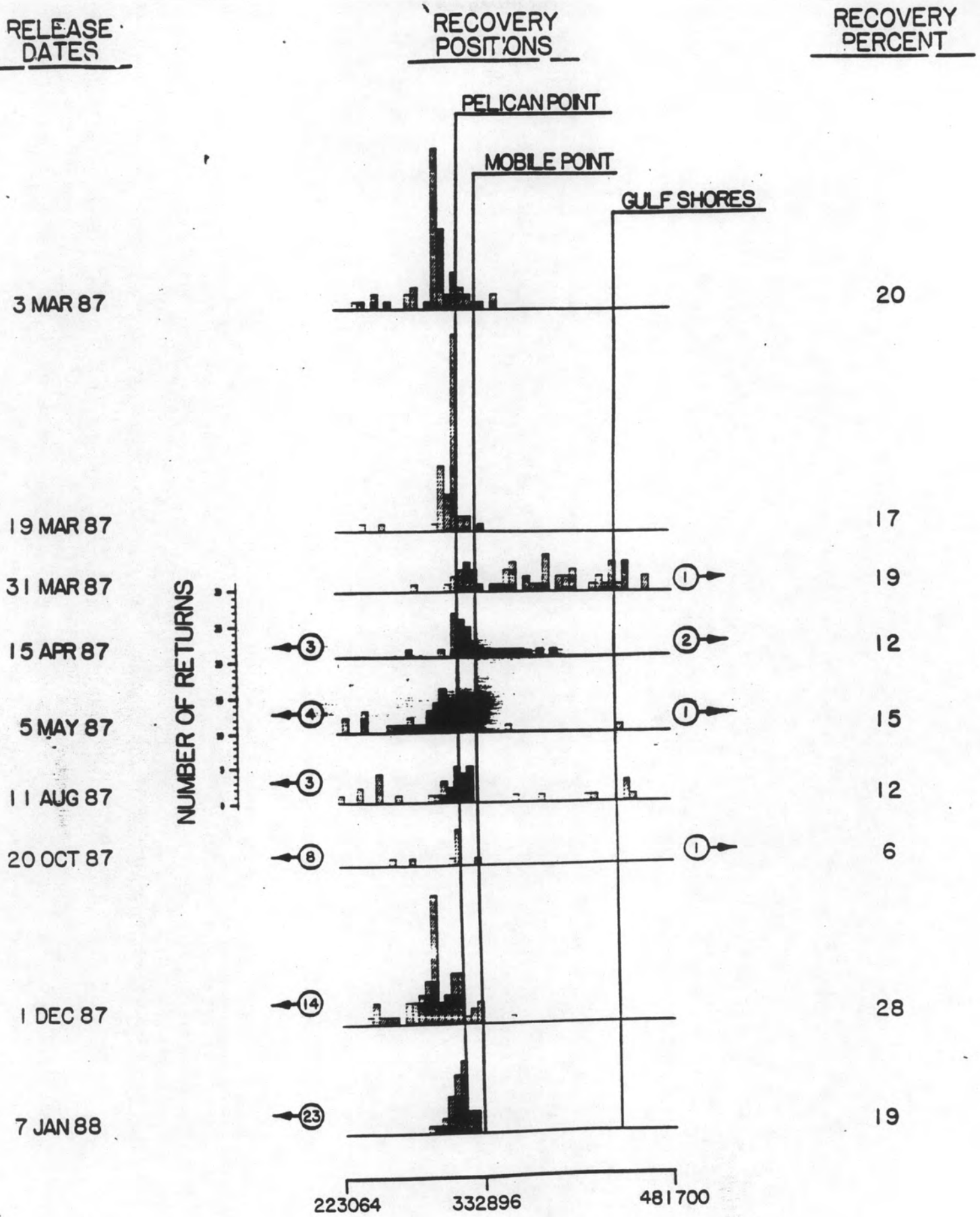



NORTHERN SAMPLE LINE
Survey 1
Survey 6
Survey 12
0
-5
-10
-15
-20
-25
ELEVATION
0
500
1000
1500
2000
DISTANCE

Cummulative Grain Size Plot




NUMBER OF RETURNS
RETURN PERCENTAGE PER CELL
70
60
50
40
30
20
10
0
15
10
5
0
A
B
56
5
30°30'
MOBILE BAY
MS/AL
MISSISSIPPI SOUND
DAUPHIN ISLAND
PELICAN POINT
MOBILE POINT
SEABED DRIFTER RELEASE SITES
N
AL
FLA
PERDIDO PASS
GULF SHORES
88°30'
30°02'
87°18'


RELEASE DATES
RECOVERY POSITIONS
RECOVERY PERCENT
PELICAN POINT
MOBILE POINT
GULF SHORES
3 MAR 87
20
19 MAR 87
17
31 MAR 87
19
15 APR 87
12
5 MAY 87
15
11 AUG 87
12
20 OCT 87
6
1 DEC 87
28
7 JAN 88
19
NUMBER OF RETURNS
223064
332896
481700
E'ly ALABAMA STATE GRID, FT

29 Nov 88

Bradley
CESAM-OP-OM

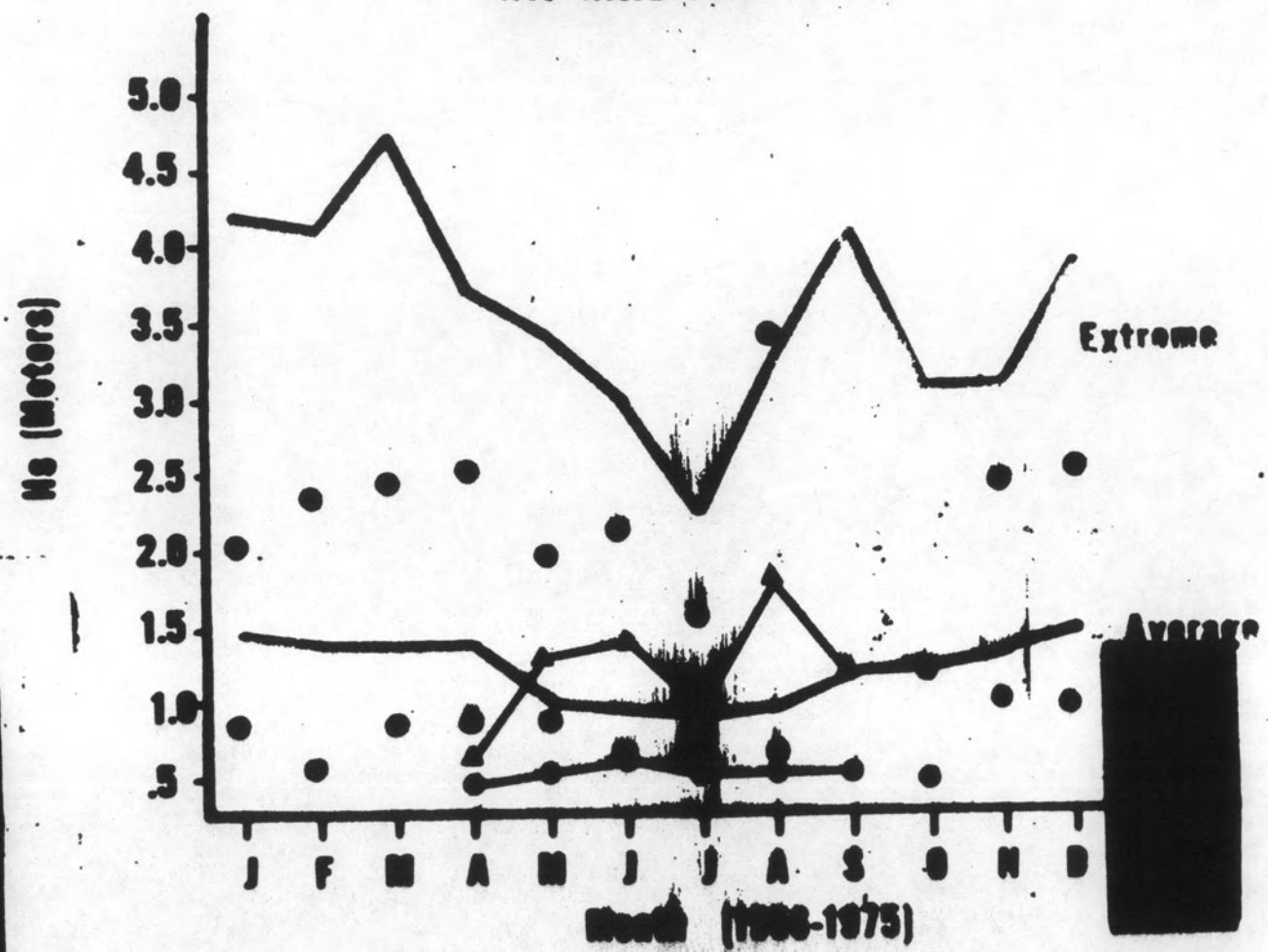
MOBILE HARBOR
FEEDER BERM
SURVEYS

SURVEY NO.	DATE	CONTRACTOR	TIDE GAGE	STORMS
0	2-5 Dec 86	Browning	Dauphin Island	
1	2-5 Mar 87	Browning	Dauphin Island	
2	16-19 Mar 87	Browning	Dauphin Island	
3	1-2 Apr 87	Browning	Dauphin Island	
4	16-17 Apr 87	Browning	Dauphin Island	
5	6-9 May 87	Browning	Dauphin Island	
6	20-21 Aug 87	Browning	Dauphin Island	
7	25 Oct 87	Browning	Dauphin Island	
8	1-2 Dec 87	Browning	Dauphin Island	
9	6-8 Jan 88	Browning	Dauphin Island	
10	10 Apr 88	Chance	Temp. Shell Well	
11	16-17 Jun 88	Chance	Exxon Well	
12	1-7 Aug 88	Chance	Exxon Well	BERYL 9 Aug 88
13	22-23 Aug 88 18-21 Sep 88	Chance	Dauphin Island*	FLORENCE 9 Sep GILBERT 15 Sep
14	18-23 Oct 88	Chance	Dauphin Island*	
15	Dec 88	Chance	Dauphin Island Exxon Well **	

* Exxon Gage not working
** Replaced circuit boards and using 2 transducers

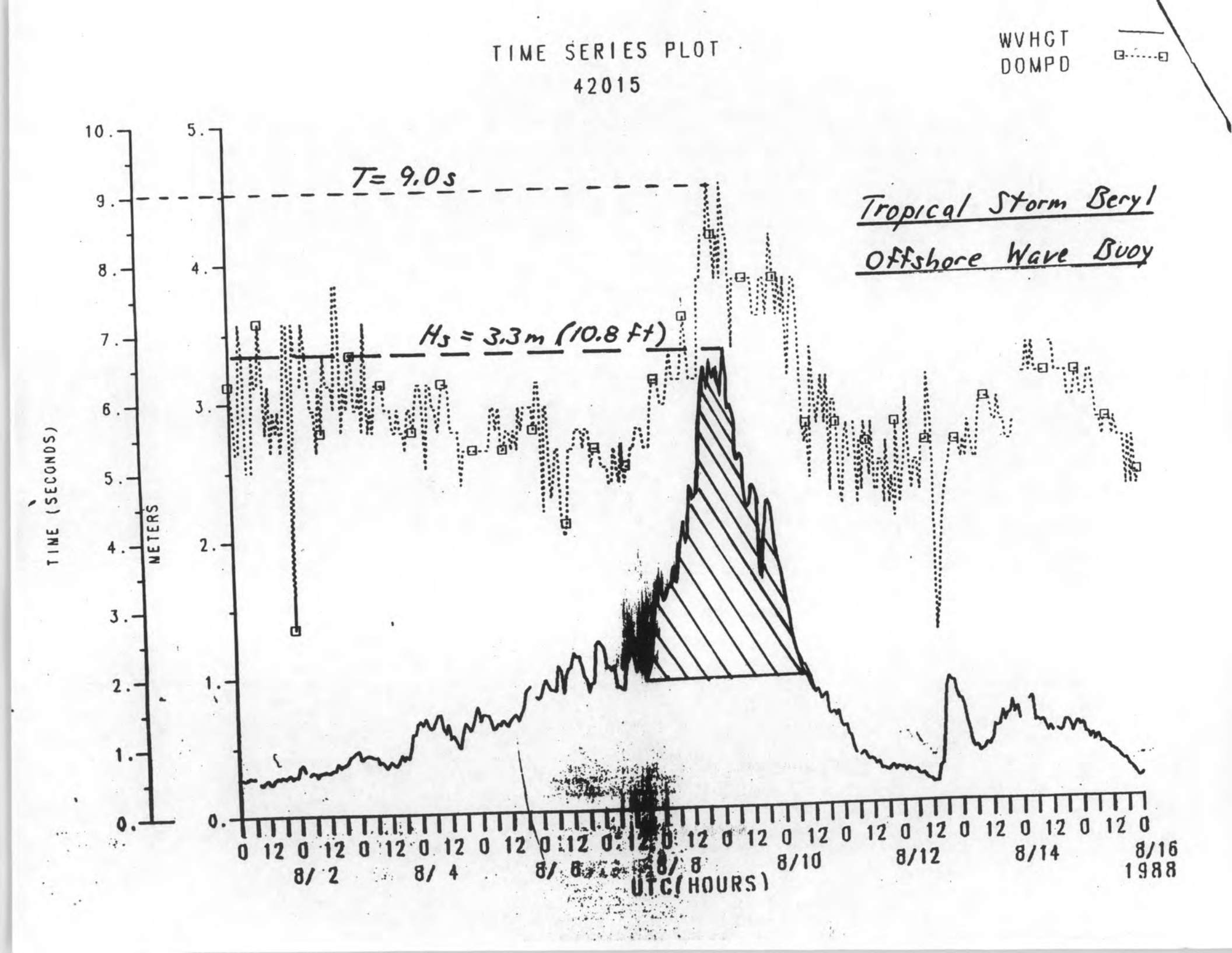
[redacted]

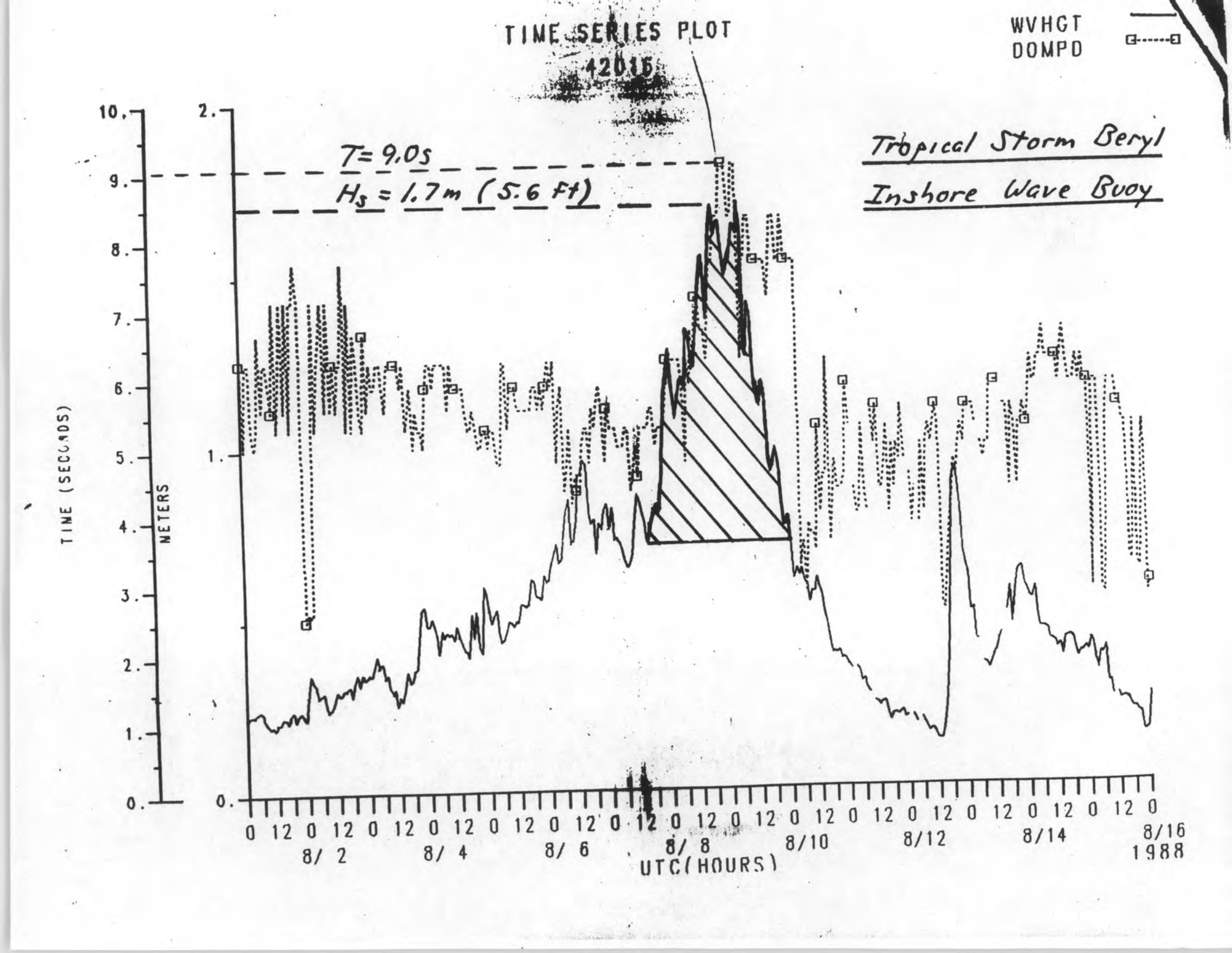
WIS-WAVE CONDITIONS

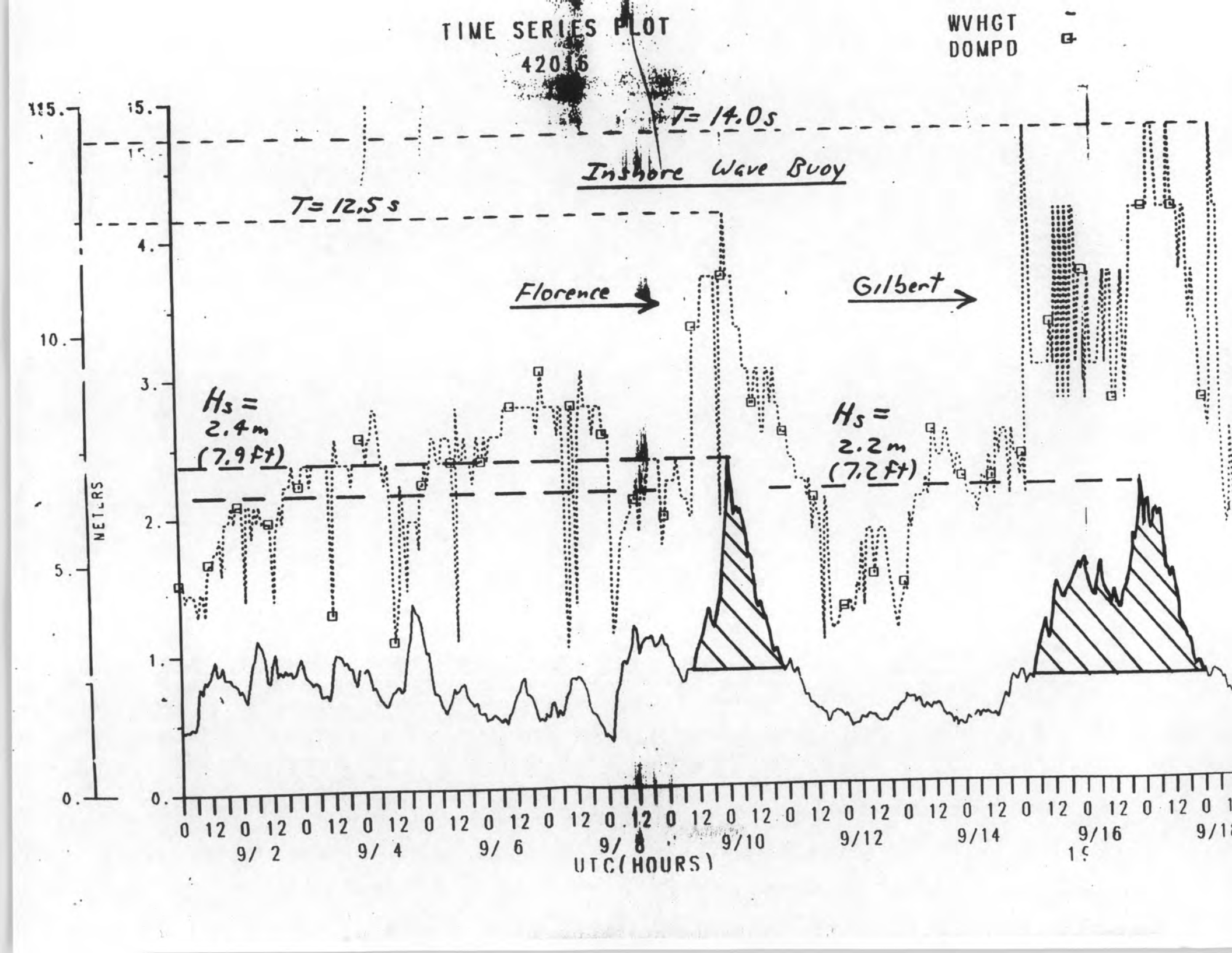


[redacted]

[redacted]


TIME SERIES PLOT
42015
WVHGT
DOMPD
T= 9.0s
Hs = 3.3m (10.8 ft)
Tropical Storm Beryl
Offshore Wave Buoy
TIME (SECONDS)
METERS
10.
9.
8.
7.
6.
5.
4.
3.
2.
1.
0.
5.
4.
3.
2.
1.
0.
0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0
8/ 2
8/ 4
8/ 8
8/10
8/12
8/14
8/16
1988
UTC(HOURS)


TIME SERIES PLOT
42015
WVHGT
DOMPD
T= 9.0s
Hs = 1.7m (5.6 Ft)
Tropical Storm Beryl
Inshore Wave Buoy
TIME (SECONDS)
METERS
UTC(HOURS)
8/ 2
8/ 4
8/ 6
8/ 8
8/10
8/12
8/14
8/16
1988


TIME SERIES PLOT
42016
WVHGT
DOMPD
T= 14.0s
Inshore Wave Buoy
T= 12.5 s
Florence
Gilbert
Hs = 2.4m (7.9ft)
Hs = 2.2m (7.2ft)
METERS
UTC(HOURS)
9/ 2
9/ 4
9/ 6
9/ 8
9/10
9/12
9/14
9/16

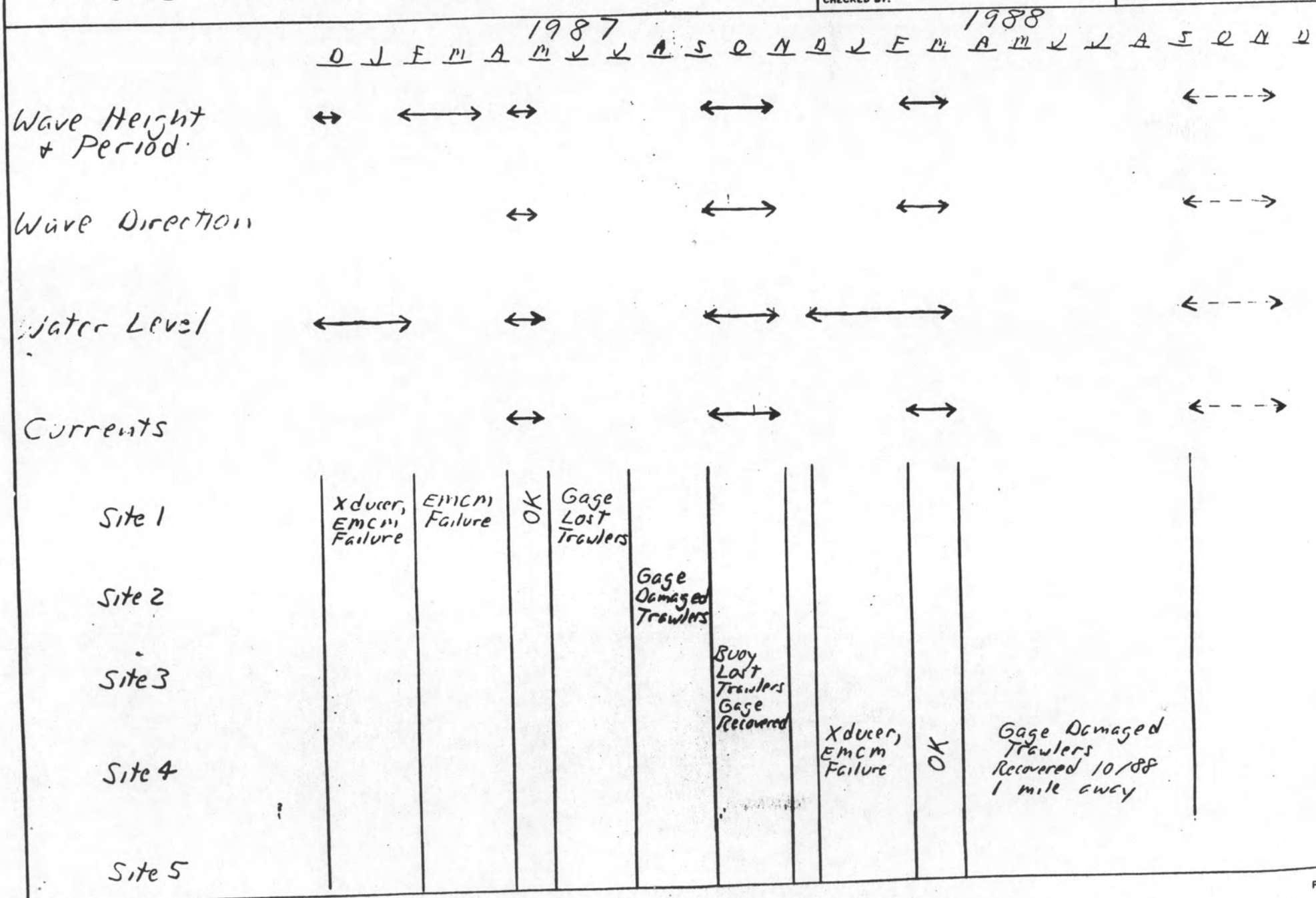
SUBJECT: MOBILE FEEDER BERM

COMPUTED BY:

CHECKED BY:

DATE: 11/28/88

DATE:



WES Form No. 1253A
DECEMBER 80

FEEDER AND STABLE BERM
MONITORING COSTS

I. FEEDER BERM

A. First Year Monitoring (funding from Aug 86 to Dec 87)

MDO surveys, photos, H/L	$130,000
MDO transfer to CERC	207,000
Total	$337,000

B. Second Year Monitoring (funding from Jan 88 to Aug 89)

1. Budgeted

MDO (inhouse)	$196,000
MDO (to CERC)	294,000
CERC	200,000
Total	$690,000

2. Spending Status

a. MDO transfer to CERC

FY88	Jan thru March	$ 23,000	
	Apr thru June	72,000	
	Jul thru Sept	105,000	
	Total	$200,000	
	Total issued	~~$200,000~~	~~Balance $93,600~~
FY89	~~Oct thru Dec~~	~~$ 30,000~~	2
	Jan thru Mar	30,000	
	Apr thru June	19,000	
	Jul thru Aug	15,000	
	Total	$ 94,000	
	Total issued	$ 0	

b. MDO inhouse

CY88 (actual)	Survey contracts	
	April survey	$ 42,978
	May survey	41,032
	Aug/Sept/Oct/Dec survey	118,239
	Tide gage	16,139
	MDO staff(est.)	20,000
	Total	$ 238,000
CY89 (Projected)	MDO staff (est.)	$ 10,000

II. STABLE BERM

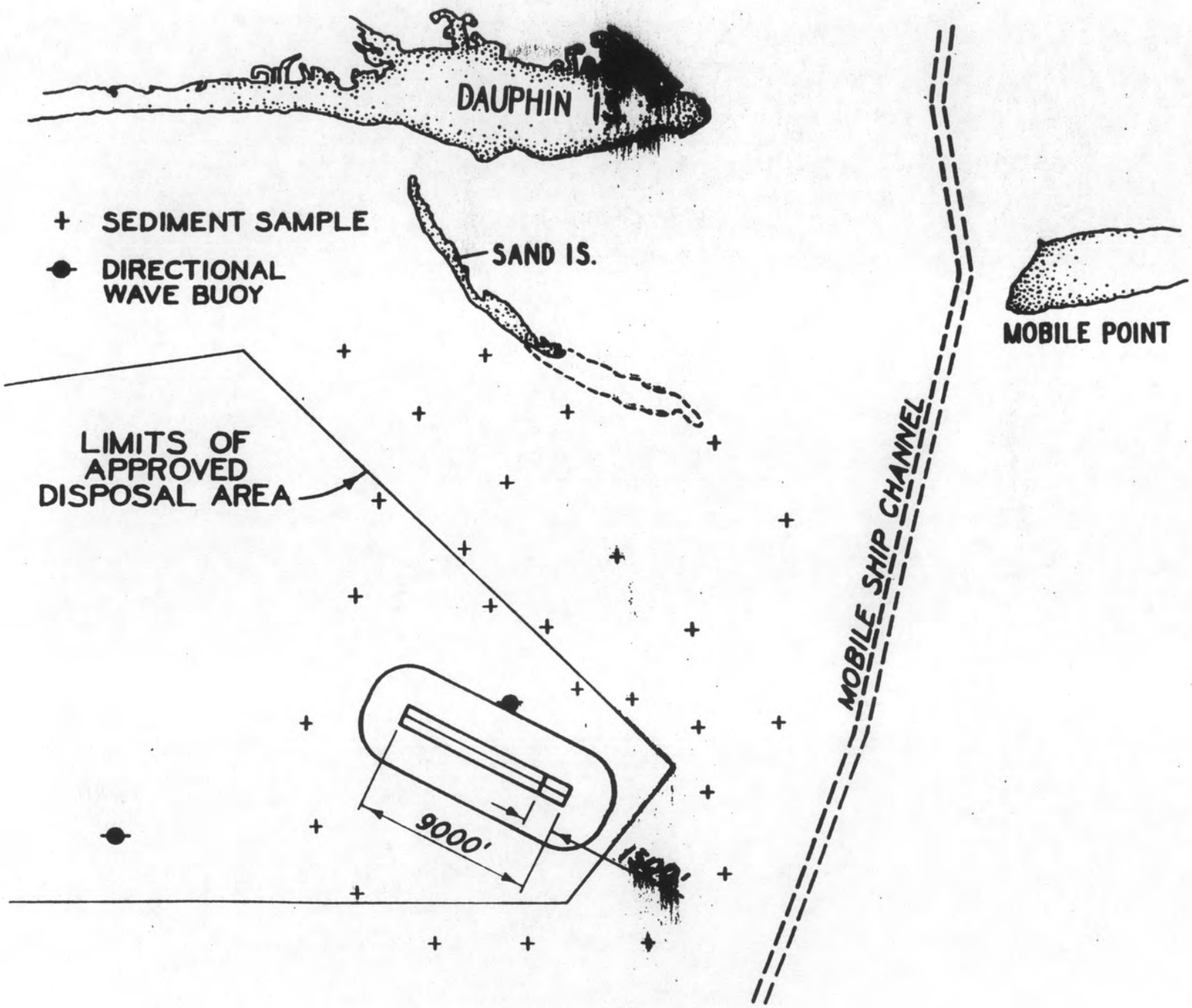
Beneficial Uses (O&M funds)

Fish 3 years NMFS	$150,000
CERC diver cores 3 years	75,000
CERC wave gage 4 years	400,000

ATTACHMENT 4

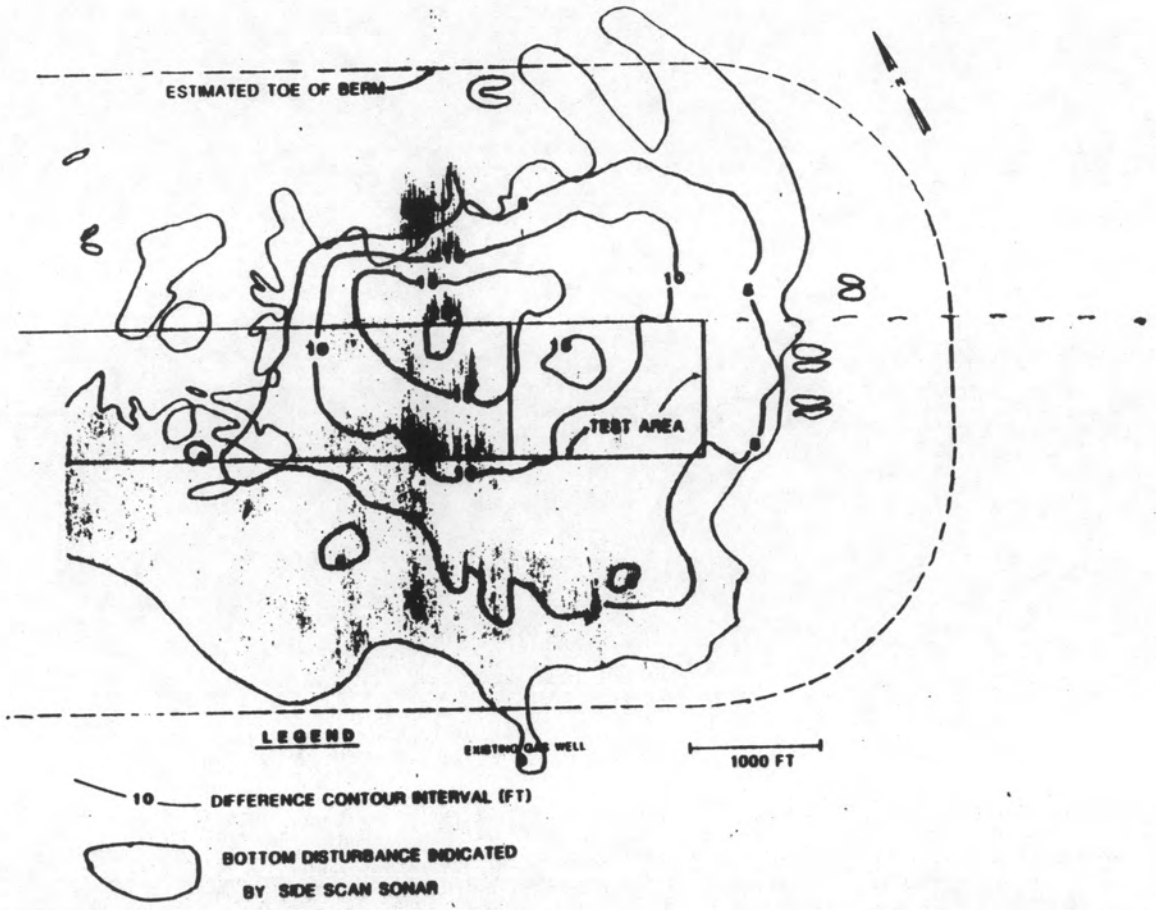
ATTACHMENT 5

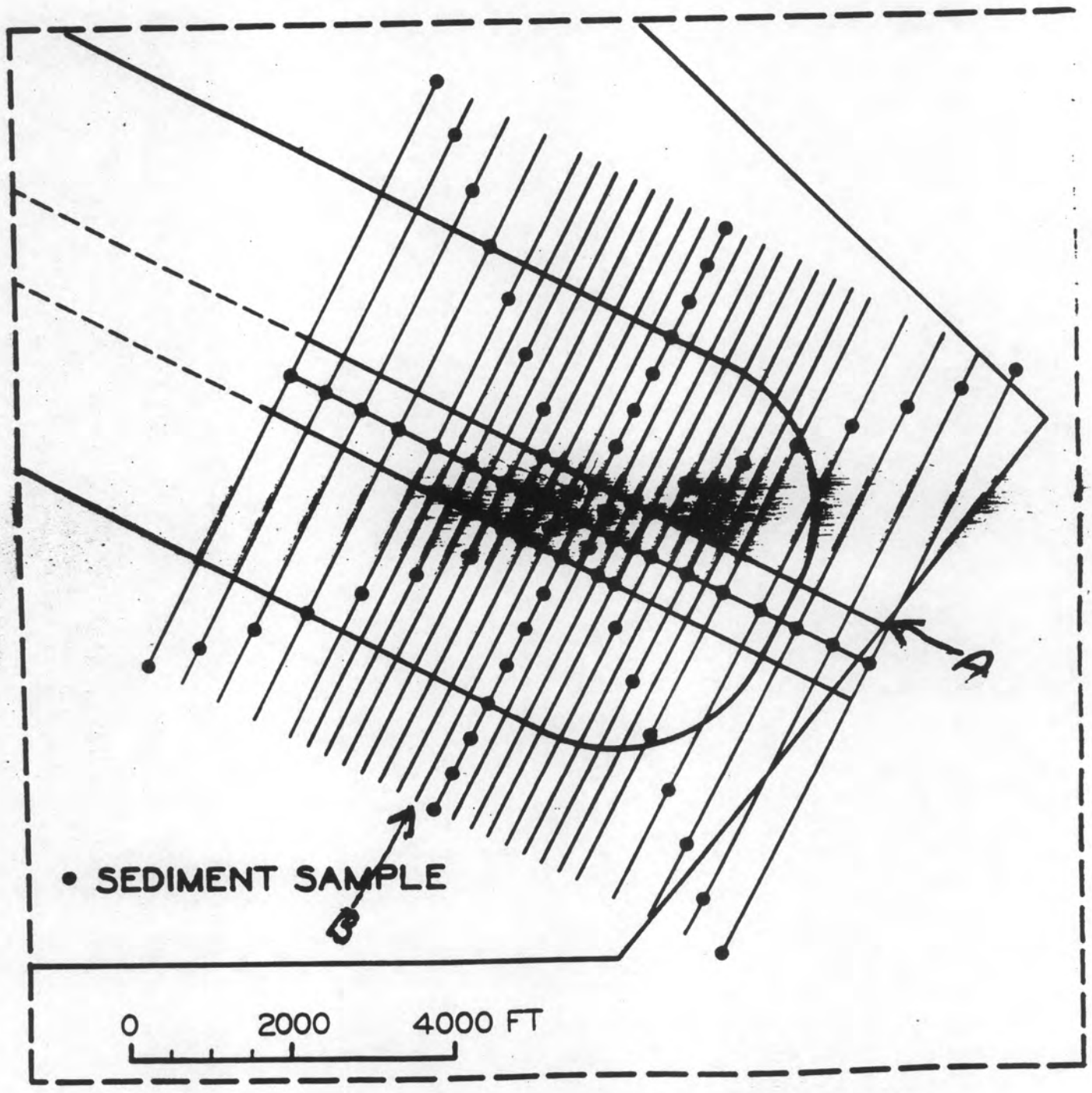
STABLE BERM



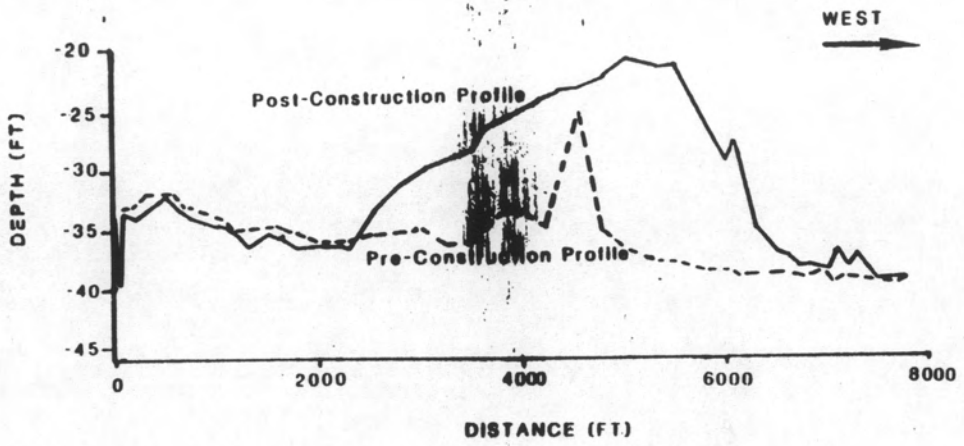
TEST SECTION

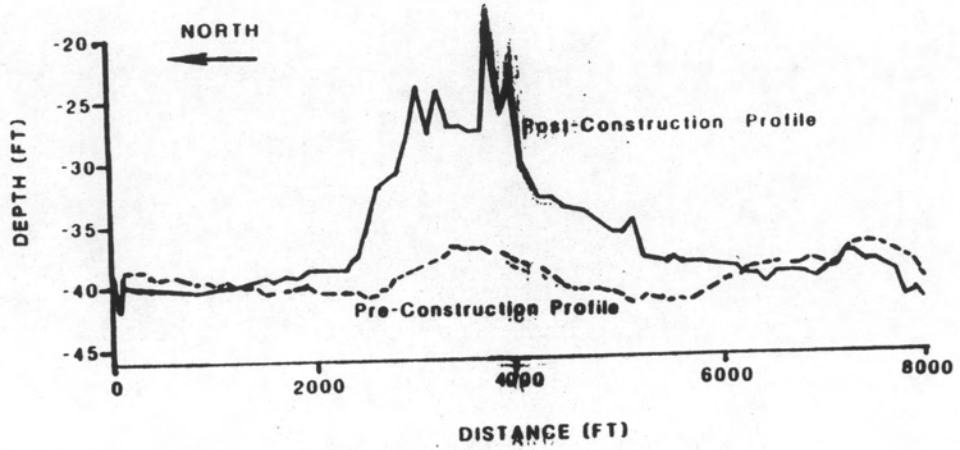
30 Nov 82


ESTIMATED TOE OF BERM
10
10
10
8
6
TEST AREA
LEGEND
1000 FT
10 DIFFERENCE CONTOUR INTERVAL (FT)
BOTTOM DISTURBANCE INDICATED
BY SIDE SCAN SONAR



HYDROGRAPHIC SURVEY LINES
BOTTOM SAMPLING LOCATIONS


WEST
-20
-25
-30
-35
-40
-45
DEPTH (FT)
Post-Construction Profile
Pre-Construction Profile
0
2000
4000
6000
8000
DISTANCE (FT)


NORTH
-20
-25
-30
-35
-40
-45
DEPTH (FT)
Post-Construction Profile
Pre-Construction Profile
0
2000
4000
6000
8000
DISTANCE (FT)

B

CEWFSER-C

MEMORANDUM FOR RECORD

TO: Neil McLellan CD-S
DATE: 25 November 88

SUBJECT: Preliminary results of sediment profiling imagery at the Mobile offshore mound construction site.

1. Rather than wait until completion of the contracted analysis of slides taken during the 28-29 August 1988 sediment profiling survey at the Mobile offshore mound construction site, I have compiled this summary of preliminary results for your use. These consist of general notes of features based on visual observations of the slides for each station. More quantitative results for parameters such as RPD depth will be furnished when the contractor's report has been received.

2. Station data below are given according to their location on radial transects in clockwise order around the mound (Figure 1). Stations are identified in an outermost to innermost sequence.

Station	Comments
A0	Predominantly hard sand substrate. Bedforms present with thin detrital layer.
A2	Predominantly hard sand substrate. Asymetrical bedforms present with some indications of biological activity.
B2	Predominantly hard sand with pitted surface.
D2	Dredged material present. Apparent layering of dredged material possibly the result of multiple dump events. No indication of biological activity.
A1	Predominantly hard sand substrate. Bedforms present with thin detrital layer.
C1	Predominantly hard sand substrate. Biogenic bedforms present.
E1	Predominantly hard sand substrate. Biogenic bedforms present.
M0	Predominantly hard sand substrate. Worm tubes and gastropods at surface.
M1	Sand overlying a layer of finer sediment, possibly dredged material from an old dump. Small tubes at surface.
M2	Hard sand substrate.

Station	Comments
M4	Dredged material present in large clumps. Evidence of chemical oxidation. No biological activity.
Y0	Dredged material present in large clumps. Some biological reworking evident: deep worms possibly carried to site in dredged material, some surface tubes indicating early recolonization.
Y1	Lumpy dredged material layer greater than 30cm deep. Some evidence of surface recolonization.
W1	Deep dredged material layer. Physically disturbed surface with some oxidation. Early recolonization apparent.
U1	Dredged material present in clumps. Surface oxidized. Some burrows and tubes present.
Z2	Lumpy dredged material layer about 15cm thick. Interstiial voids between clunps. No biological activity.
Z1	Dredged material layer present, about 12-30cm thick.
X2	Patchy layer of dredged material of variable thickness. Surface oxidized.
V2	Dredged material layer about 25cm thick. Surface oxidized.
Y3	Sandy substrate with some silt. Tubes at surface. Deep burrows and worms present.
W3	Film lost in development.
U3	Sandy substrate with intermediate silt layer.
M18	Sandy substrate with shell hash. Small tubes at surface. Distinct RPD. Biogenic surface relief.
M17	Sandy substrate with shell hash. Many surface tubes. RPD very distinct. Subsurface voids present.
M16	Sandy substrate with shell hash. Tubes and voids present.
M14	Possible indication of dredged material. Surface oxidized. Tubes and voids present.
A3	Surface biologically reworked and oxidized. Many tubes present.
C3	Sandy substrate with bedforms. Many small tubes present.

Station	Comments
E3	Patchy distribution of dredged material. Surface oxidized. Some evidence of recolonization.

3. The sediment profiling survey also revisited baseline stations previously sampled by a Contractor. Visual observations of these slides revealed no significant differences between the August 1988 survey and the June 1987 baseline conditions. No evidence of the presence of dredged material was indicated at any station. This preliminary indication must await confirmation by detailed image analysis performed under contract. Results of the analysis will be sent to you as soon as possible.

4. The second sediment profiling survey is scheduled to be performed during the week of 5 December 1988. Station locations for the second survey will be adjusted based on the results of the first survey and on updated bathymetry data provided by the Mobile District to more accurately define the lateral extent of dredged material at the test mound site.

Doug Clarke

Douglas Clarke
Coastal Ecology Group

CF:
J. Pullen, C/ER-C
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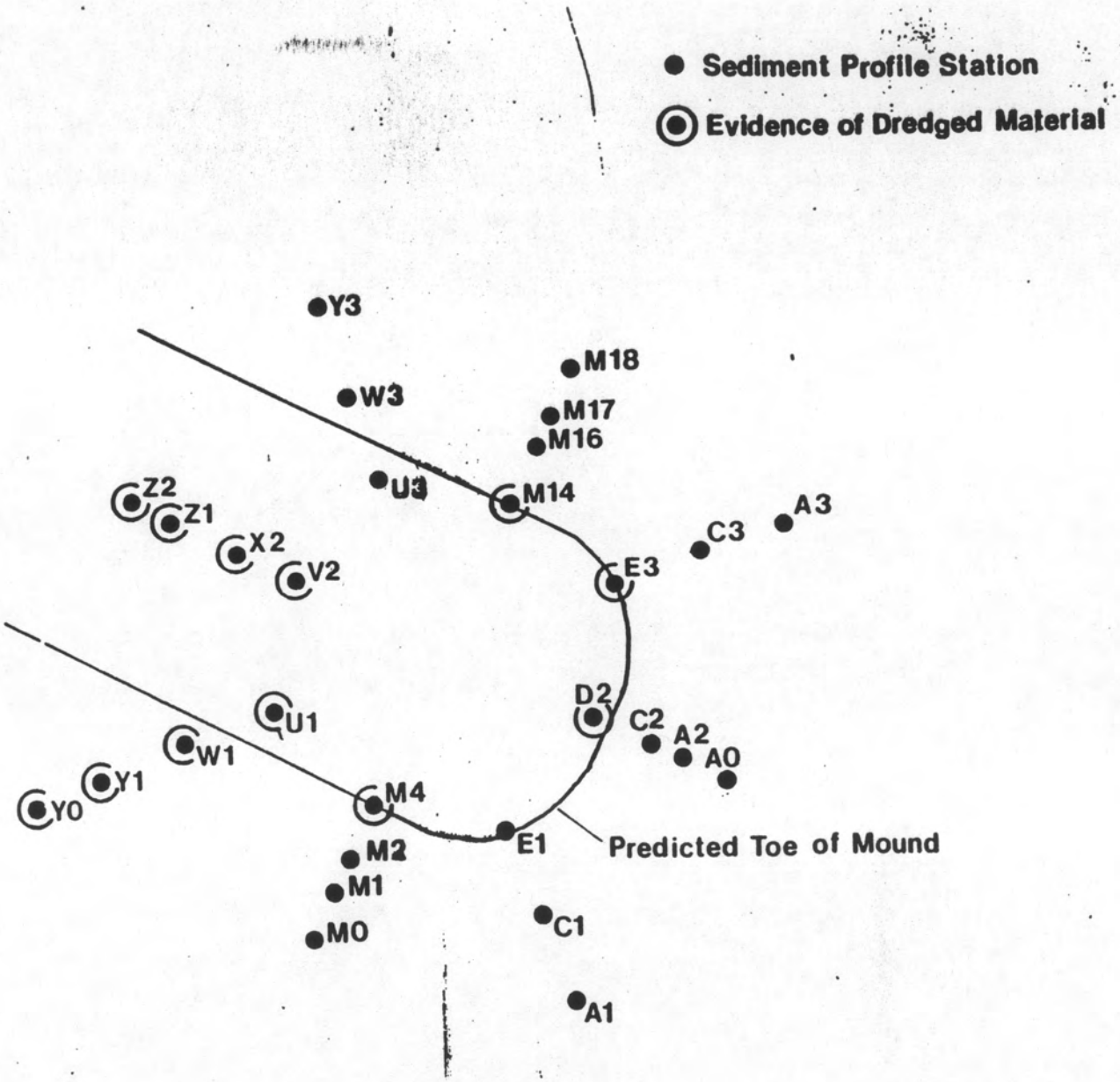
Sediment Profile Station
Evidence of Dredged Material
Y3
M18
W3
M17
M16
U3
M14
Z2
Z1
X2
V2
C3
A3
E3
D2
C2
A2
A0
U1
W1
Y1
Y0
M4
E1
Predicted Toe of Mound
M2
M1
M0
C1
A1

PRINCIPAL STUDY ITEMS
MOBILE GULF DISPOSAL AREA (STABLE BERM) MONITORING

ITEM	CY87 / FY87							CY88 / FY88											CY89 / FY89											CY90 / FY90									
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
a. Baseline Remots	06																																							
b. Wave Gage (CERC)[1]	----------CONTINUOUS MEASUREMENT----------																																							
c. Management Committee[2] Meeting			09																																					
d. Maintenance Dredging[3] Begins				10																																				
e. Baseline Survey Bathymetry, Sediment Sampling (Mobile)				10																																				
f. Deepening Begins								02																																
g. Tide, Wind, Barametric Pressure Gage (Mobile)								----------CONTINUOUS MEASUREMENT----------																																
h. Draft Baseline Report						11																																		
i. Final Baseline Report							12																																	
j. Test Area Disposal Completed													07																											
k. Monitoring Survey Bathymetry, Sediment Samples, Side Scan Sonar, Subbottom Profiles (Mobile/CERC)															08			11			02			05			08			11			02			05			
l. Draft Monitoring Survey Report (Mobile/Contractor)															09			12			03			06			09			12			03			06			
m. Final Monitoring Survey Report (Mobile/Contractor)																10			01			04			07			10			01			04			07		
n. Push Cores (CERC)															08			11					05						11					05						
o. Current Study (CERC)															08								05																	
p. Fisheries Study (Mobile/NMFS)																10								06				10								06				
q. REMOTS (Mobile)															08			11			02			05			08			11			02			05			
r. Status Report (CERC/Mobile)																10												10												10
s. Preliminary Findings Report (CERC/Mobile)																							04												04					
t. Draft Final Report (CERC/Mobile)																																								10
u. Final Report (CERC/Mobile)																																								11

[1] Agencies in parenthesis has prime responsibility

[2] Subsequent meetings will be held periodically

[3] Monitoring schedule will be adjusted dependent on dredging schedule.