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**PRELIMINARY EVALUATION OF WIND AND  
WAVE EFFECTS AT POTENTIAL LNG  
TERMINAL SITES, STATE OF CALIFORNIA**

**APPENDIX A: AN EVALUATION OF THE RELATIVE WAVE  
CLIMATE AT FIVE ONSHORE LNG SITES CONSIDERING  
ISLAND INFLUENCES AND TOPOGRAPHIC EFFECTS.**

by

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P. O. Box 631, Vicksburg, Miss. 39180

April 1978

9 Final Report

Approved For Public Release; Distribution Unlimited

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Prepared for California Coastal Commission  
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APP B, VI

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Miscellaneous Paper H-78-2 ✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PRELIMINARY EVALUATION OF WIND AND WAVE EFFECTS AT POTENTIAL LNG TERMINAL SITES, STATE OF CALIFORNIA; APPENDIX A: AN EVALUATION OF THE RELATIVE WAVE CLIMATE AT FIVE ONSHORE LNG SITES CONSIDERING ISLAND INFLUENCES AND TOPOGRAPHIC EFFECTS	5. TYPE OF REPORT & PERIOD COVERED Appendix A, final report	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) Lyndell Z. Hales	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Engineer Waterways Experiment Station Hydraulics Laboratory P. O. Box 631, Vicksburg, Miss. 39180	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS California Coastal Commission 631 Howard Street San Francisco, Calif. 94105	12. REPORT DATE April 1978	
	13. NUMBER OF PAGES 553	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) California Wind (Meteorology) Liquified Natural Gas terminal sites Wind waves Topography Water wave characteristics Water wave refraction		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The State of California Liquefied Natural Gas (LNG) Terminal Act of 1977 granted to the Public Utilities Commission (PUC) the exclusive power to issue a permit concerning the construction and operation of an LNG terminal pursuant to a prescribed permit procedure. The Act also required the California Coastal Commission (CCC) to study potential sites for the terminal and to make recommendations thereon to PUC. Not later than 31 May 1978, CCC shall complete and transmit to PUC its final report evaluating and ranking the sites.		

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20. ABSTRACT (Continued).

The U. S. Army Engineer Waterways Experiment Station (WES) was requested to assist in the preliminary evaluation of the wave climate at alternate potential LNG terminal sites by applying existing hindcast wave data of a general nature to obtain estimates of the times of excessive wave conditions at the various sites.

After the preliminary evaluation was completed, WES was again requested to assist by analyzing the effects of island sheltering and topographic influences on the wave climate of five onshore sites in order to provide a more refined estimate of the wave conditions existing at the potential sites. The deepwater hindcast wave data used in the evaluation were the State of California Department of Navigation and Ocean Development (DNOD) singular wave statistics, and supplemental hindcast data by National Marine Consultants (NMC) and Marine Advisers (MA).

In recent weeks serious questions have arisen regarding the fundamental developments of the DNOD statistics and evidence exists which indicates the wave heights so predicted are systematically lower than the corresponding heights predicted by a spectral wave model. WES and others are at the present time engaged in a comprehensive program to provide a spectral hindcast of the California coastal region; however, these results will not be available for approximately two years and the LNG site selection process cannot await these findings.

Accordingly, the analysis conducted is a relative evaluation only and should not be interpreted as projections of actual downtime, but rather as a consistently uniform basis for comparison.

It was determined that the wave climate at Rattlesnake Canyon is statistically significantly greater than those sites south of Point Conception, and that the remaining onshore sites are not statistically significantly different from each other. Because of the sheltering effect of the offshore islands and the physically shielding orientation of the southern California coastline from the severe northwest wave climate, any of the proposed onshore sites south of Point Conception appear to be viable potential LNG terminal sites in the absence of additional protective structures.

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## PREFACE

The California Legislature decreed that the California Coastal Commission (CCC) had until 1 February 1978 to identify, evaluate, and rank alternate potential Liquefied Natural Gas (LNG) Terminal sites on the California coast. Because of the Corps' experience in various aspects of such studies, the U. S. Army Engineer Division, South Pacific, was requested by the Coastal Commission to assist, particularly in the use of existing hindcast data to evaluate possible effects of wind and waves on the docking and unloading of an LNG tanker. The U. S. Army Engineer Waterways Experiment Station (WES) was, in turn, asked to provide the technical assistance required by the request. Authority to proceed was received 1 December 1977.

Additionally, the California Legislature decreed that CCC should recommend to the California Public Utilities Commission (PUC) the location of one LNG site to be permitted and operated. WES was again asked to assist in this phase of the study by evaluating the effects of island sheltering, refraction, and shoaling on five onshore sites which had been preliminarily recommended to PUC. Authority to proceed with this effort was received 15 March 1978 by amendment to the original agreement between WES and CCC.

The study was conducted by personnel of the Hydraulics Laboratory, WES, under the general direction of Mr. H. B. Simmons, Chief of the Hydraulics Laboratory, and Dr. R. W. Whalin, Chief of the Wave Dynamics Division. Data analysis was conducted under the direct supervision of Mr. D. D. Davidson, Chief of the Wave Research Branch, and Dr. L. Z. Hales, Project Engineer, assisted by Messrs. R. D. Carver, D. G. Markle, and C. R. Curren, Research Engineers, K. A. Turner, Computer Specialist, R. E. Ankeny, Computer Technician, R. R. Bottin, Jr., H. F. Acuff, Jr., L. A. Barnes, Civil Engineering Technicians, and Ms. J. S. Jones, Civil Engineering Technician. The report was prepared by Dr. Hales.

Director of WES during the conduct of this study and preparation and publication of this report was COL John D. Cannon, CE. Technical Director was Mr. F. R. Brown.

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CONVERSION FACTORS, U. S. CUSTOMARY TO METRIC (SI) AND  
METRIC (SI) TO U. S. CUSTOMARY UNITS OF MEASUREMENTS

Units of measurement used in this report can be converted as follows:

Multiply	By	To Obtain
<u>U. S. Customary to Metric (SI)</u>		
feet	0.3048	metres
fathoms	1.8288	metres
knots (international)	0.5144444	metres per second
miles (U. S. statute)	1.609344	kilometres
degrees (angular)	0.01745329	radians
<u>Metres (SI) to U. S. Customary</u>		
metres	3.280839	feet
kilometres	0.6213711	miles (U. S. statute)
radians	57.29578	degrees (angular)

PRELIMINARY EVALUATION OF WIND AND WAVE EFFECTS

AT POTENTIAL LNG TERMINAL SITES

STATE OF CALIFORNIA

APPENDIX A: AN EVALUATION OF THE RELATIVE WAVE CLIMATE  
AT FIVE ONSHORE LNG SITES CONSIDERING ISLAND  
INFLUENCES AND TOPOGRAPHIC EFFECTS

PART I: INTRODUCTION

Statement of the Problem

1. The California Coastal Act of 1976 authorized but did not provide for the determination of the exact location of one liquefied natural gas (LNG) terminal in the coastal zone. California Senate Bill No. 1081, the Liquefied Natural Gas Terminal Act of 1977, was passed 19 April 1977 and granted to the Public Utilities Commission (PUC) the exclusive power to issue a permit concerning the construction and operation of a liquefied natural gas terminal pursuant to a prescribed permit procedure. The bill also required the California Coastal Commission (CCC) to study potential sites for the terminal and to make recommendations thereon to PUC.

2. The Act further provided that in order for CCC to carry out its responsibilities as required in the most expeditious manner, on the effective day of the Act, CCC should commence a study to identify and evaluate potential sites for an LNG terminal. Not later than 31 May 1978 CCC shall complete and transmit to PUC its final report evaluating and ranking the sites, and this report shall be deemed a recommendation to PUC. On 1 February 1978 CCC transmitted to PUC a report containing a preliminary ranking and evaluation of the terminal sites being studied.

3. The U. S. Army Engineer Waterways Experiment Station (WES) was requested by the Executive Director of CCC to assist in the preliminary evaluation of the potential sites, and by letter of 15 March 1978 was again requested to assist in the final ranking and evaluation of the

five onshore terminal sites recommended to PUC by CCC. This phase of the overall study would be a relative evaluation of the wave climate at the potential sites by considering the effects of the offshore islands and the local topography on the incoming wave trains from deep water. Topographic effects were ignored in the preliminary study because of time and cost constraints.

#### Site Locations

4. The five potential onshore LNG terminal sites listed in geographical order from north to south are:

Name	Latitude North	Longitude West
Rattlesnake Canyon	33°11'	120°47'
Point Conception	34°25'	120°26'
Las Varas Canyon	34°26'	119°58'
Deer Canyon	34°04'	118°59'
Camp Pendleton	33°19'	117°29'

#### Rattlesnake Canyon

5. Rattlesnake Canyon, Figure A1, is exposed to the forces of the open ocean and unsheltered by offshore islands, as are the remaining four sites. This site lies north of Point Conception, which appears to be the dividing region between high wind and wave regimes to the north and a calmer area to the south which is protected to a considerable extent by the Channel Islands. The preliminary evaluation by John J. McMullen Associates, Inc.,<sup>1</sup> indicated that waves greater than 6 ft\* occur around 25 percent of the time and winds average at least 15 knots from the northwest over 30 percent of the time.

6. Numerous rocks and shoals of depth less than 10 fathoms lie in the waters around the potential site location and in the area through

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\* A table of factors for converting U. S. customary units of measurement to metric (SI) units and metric (SI) units to U. S. customary units is presented on page A3.

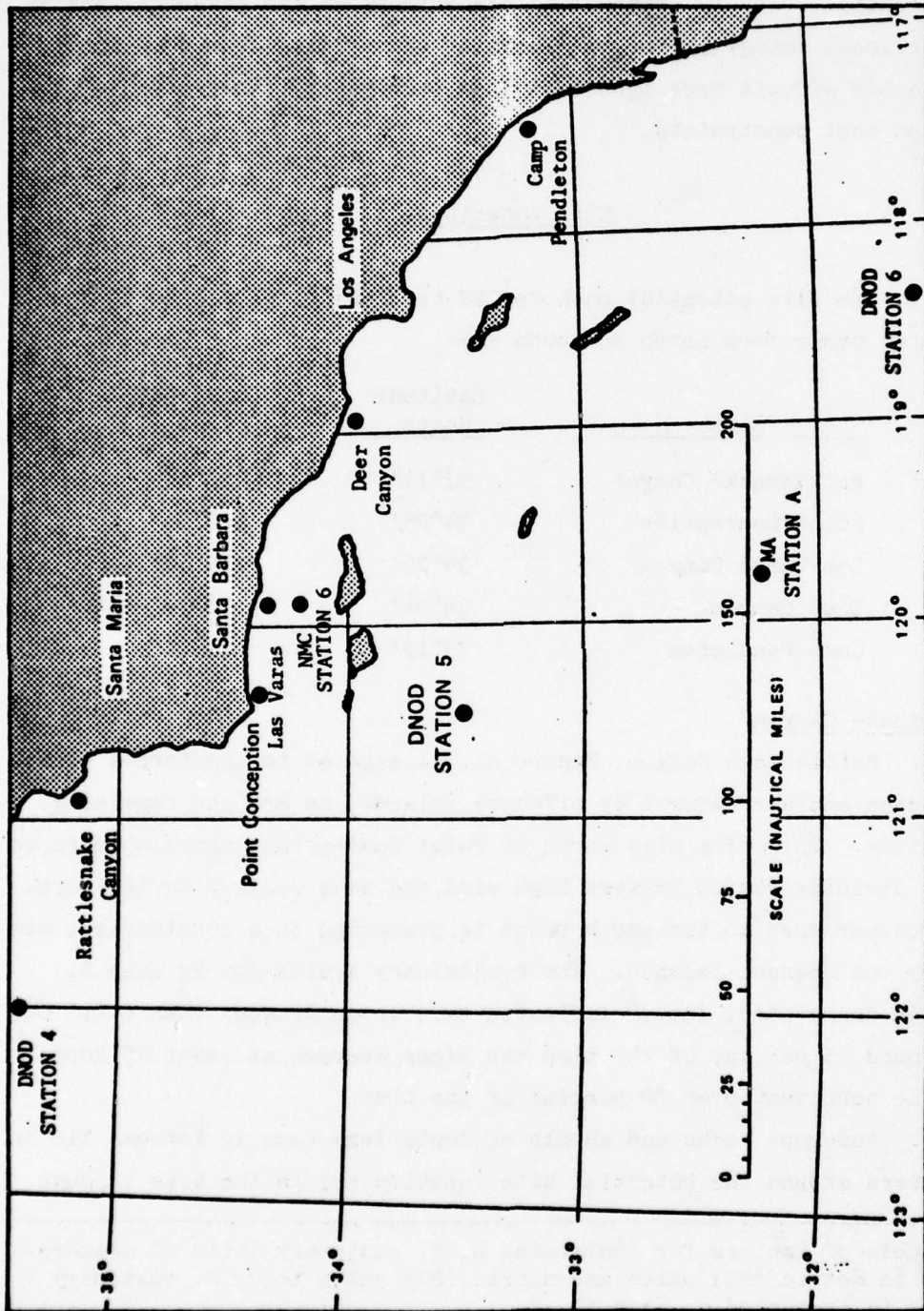


Figure A1. Potential onshore LNG site locations and wave hindcast data stations

which an LNG ship would approach its berth. Santa Rosa reef, one mile south, and Pecho Rocks, one mile northwest, present additional hazards to safe navigation.

#### Point Conception

7. The vessel traffic with which the LNG ship would interact increases at Point Conception as this is the initial westerly approach to Santa Barbara Channel. While the traffic is heavier here than at Rattlesnake Canyon, it is still relatively light compared with the other possible coastal sites.

8. As a result of the preliminary evaluation, the berth availability at Point Conception is questionable. The parent WES publication (Miscellaneous Paper H-78-2) indicated 3 percent of the time the wave climate would be excessive (greater than 6 ft). Oceanographic Services, Inc. (OSI)<sup>2</sup> prepared a hindcast study of the Point Conception potential LNG site for two years of record and indicate waves in excess of 6 ft occur 0.9 percent of the time. A previous investigation by OSI<sup>3</sup> at this site also indicated higher availability (less downtime) than does the more general ocean and weather data (covering a larger average area) which was considered by McMullen.<sup>2</sup> These data indicate excessive waves may occur as much as 19 percent of the time.

#### Las Varas Canyon

9. Las Varas Canyon is located approximately 20 miles east of Point Conception and may experience a weaker wave and wind climate than does Point Conception as it is shielded to a much greater extent by San Miguel, Santa Rosa, and Santa Cruz Islands. These islands effectively shelter the site from detrimental effects of southern swell. Additionally, both Las Varas and Point Conception are protected from waves coming from a direction greater than an azimuth of 270°, and all data indicate the overwhelming majority of northern swell and sea waves come from the northwest and north-northwest.

10. Observational data indicate a high incidence of short-period, southeast wave action in the Santa Barbara Channel off Las Varas. This wave activity is the direct result of the Santa Ana winds blowing over

southern California. These data are reported by National Marine Consultants.<sup>4</sup>

11. The high southeast waves have also been noted by Strange\* as the operational wave model he uses deals with the localized coastal wind effects and most other models do not. Southeast winds are greatly exaggerated due to the topographic influence and convergence in the vicinity of Point Conception, and the southeast seas, therefore, are much greater than those at the deepwater sites nearly 100 miles offshore.

#### Deer Canyon

12. The proposed Deer Canyon site is located at the seaward termination of the Santa Monica mountains. This coastline area is rugged with steep bluffs and slopes at the shoreline which serve to converge winds from the east-northeast. These easterly winds, although occurring infrequently, reach velocities of 50 to 60 knots and can occur with little warning to preclude berthing operations out to the 50-fathom depth. Deer Canyon is more exposed to southern swell waves; however, the orientation of the terminal is such as to permit the tanker to tolerate high allowable wave heights.

#### Camp Pendleton

13. Camp Pendleton is effectively shielded from the large northwesterly waves occurring in the open ocean. The offshore islands, however, offer little or no protection from the southern swell and the sea waves occurring between 180° and 240°. Additionally, northern swell is diffracted around the islands and there is a large occurrence of low amplitude wave energy at this site. A "background" swell of from 1 to 2 ft is always present in the Santa Barbara Channel and inside the offshore islands. The preliminary evaluation indicated this to be one of the most favorable sites from the standpoint of maritime factors.

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\* R. Rea Strange III, Personal Communication, 2 April 1978.

## PART II: DATA SOURCES

14. As previously discussed, the preliminary evaluation was conducted for sites situated throughout the extent of the California coastline from the Oregon border to the international border with Mexico. Accordingly, it was desired to use a comprehensive data source of sufficient areal extent to encompass the entire study regime. The deep-water statistics compiled by Meteorology International Inc. (MII)<sup>5</sup> for the State of California's Department of Navigation and Ocean Development (DNOD) appeared to adequately meet this requirement although it was realized that these data were developed by the use of a "singular wave model" algorithm for deriving the wave field from the wind field. The more sophisticated, and probably more accurate, approach is to store at each grid point the energy spectrum for sea and swell by the use of a "spectral wave model." At the time the DNOD study began, the only data base available which was suitable for the development of wave climatologies at the six MII stations had been derived using the Navy's Fleet Numerical Weather Central's (FNWC) singular model. For the future, improved wind fields used in conjunction with a spectral model should give an even closer approach to absolute reality, and indeed the Navy has now changed to the spectral approach. In either case, if the data produced were systematically developed for the entire region, the results are applicable for the relative magnitudes of phenomena along the coast.

15. The DNOD data contain information on only northern hemisphere swell and sea conditions at the stations. The only source of southern hemisphere swell data in deep water appeared to be the statistics of Marine Adviser (MA).<sup>6</sup> Hence, these southern hemisphere data were used to supplement the DNOD statistics of the northern hemisphere.

16. Additionally, all the aforementioned data are strictly applicable to locations in deep water approximately 100 miles offshore. The harboring effect produced by the Channel Islands required supplemental information regarding the localized conditions near shore. National Marine Consultants<sup>4</sup> had previously established a hindcast data station

in the Santa Barbara Channel and these data were used to provide information regarding the nearshore wave climatology.

17. Other isolated studies of the wave regime at specific locations have been completed, such as the aforementioned OSI work; however, it was believed a relative evaluation could best be obtained by the use of systematically derived data over a wide area even though the site-specific studies could be extremely helpful in avoiding gross errors in computation.

18. Sea is the term applied to short, steep waves which are still in or near the area in which they were generated, as distinguished from swell, which refers to longer, flatter waves which have left the generating area and have begun to change their physical characteristics through the processes of sorting and decay. In order to forecast sea it is necessary to have data representative of the winds over the water area immediately to windward of the forecast station. In this present study the winds of interest are associated either with storms that have invaded southern California waters with strong pressure gradients over the area, or with the everyday sea breeze.

19. Wind conditions vary greatly as one proceeds offshore from the southern California coast, as there is a characteristic transformation from relatively mild winds over the inner channels to strong gusty winds outside the islands. The transition zone extends southeastward from Point Conception in a direction which corresponds roughly to the orientation of the southern California coastline.

20. The sea statistics tabulated in the published literature, strictly speaking, apply only to the station location. When the sea waves leave the station area and propagate shoreward they become, in effect, "decayed" sea. Thus, if the area of interest is a significant distance from the deepwater station, then additional allowance should be made for the supplemental sea waves (local sea) that have been generated near the point of concern. The relative percent times of excessive wave climate developed in this study for the five potential onshore LNG terminal sites include the contributions from northern swell, southern swell, decayed sea, and local sea. The local sea

characteristics were developed from the wind fields accessed from the Synoptic Shipboard Meteorological Observations (SSMO) data tapes.

21. In recent weeks serious questions have arisen concerning the absolute magnitudes of the wave heights displayed in the DNOD singular wave model statistics. As a means of verifying the FNWC singular wave data as presented by DNOD, Strange\* compared one month of DNOD data with the FNWC spectral hindcast for that same month and also compared a number of severe storm events with the DNOD hindcast for that particular period.

22. The two different approaches resulted in an enormous gap in predicted wave heights with the spectral heights being, on the average, 182 percent greater than the heights computed using the singular wave method. The conclusion by Strange was that the DNOD predicted wave heights are far too low, since known events failed to show up at all in the DNOD statistics and the wave heights appeared consistently and dramatically lower than the spectral height.

23. Most knowledgeable researchers agree that the spectral approach is significantly better than the singular approach. In fact, WES is presently engaged in a 5-year wave hindcasting program for the entire coastline regions of the United States using spectral wave models, with funding on the order of 3 million dollars. However, the data results for the coast of California will not be available until the latter part of 1979; hence, it is not possible to delay the selection of the LNG tanker terminal site until these comprehensive data become available. Thus the only alternative is to proceed with a relative analysis based upon the best information presently in existence, and to realize and acknowledge that the absolute results may differ from the relative values so obtained.

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\* R. Rea Strange III, Personal Communication, 2 April 1978.

### PART III: ISLAND SHELTERING EFFECTS

24. If the onshore sites south of Point Conception were not sheltered by the offshore islands, particularly San Clemente, Santa Catalina, Santa Cruz, and Santa Rosa, waves would come in over a wide range of directions even if the direction of the wind in the generating area were relatively constant. According to Arthur,<sup>7</sup> variability of wave direction makes a path of at least  $45^\circ$  on each side of the wind. A directional beam pattern of wave intensity of the form  $(1 + \cos 2\theta)$  has been shown to approximate this spreading function. In effect, the intensity is proportional to the square of the wave height, and this is consistent with observational data. The result of sheltering then is to prevent certain parts of the wave fan from reaching the protected area.

25. In investigating island sheltering, the first consideration is to determine which directions of approach are open to waves of various periods and which are blocked. This cannot be accomplished by simply inspecting the sea level contours of the islands, for shoal water can act as a barrier just as effectively as an island shore. The blocking action depends on both water depth and wave period, with long-period waves requiring deeper water for passage than short-period waves; and as a result, any given opening between two islands will present a narrower portal to a long-period wave than it will to a short-period one. With the aid of precise bottom-contour charts, all such avenues of approach were listed, and the required integrations were performed by digital computer. The theory yields not only height-reduction ratios but indicates modification in direction as well. Periods are assumed to remain unchanged.

26. The direction modifications are necessary because in some cases sheltering will block out part or all of the primary central portion of the direction sector of a train of approaching waves. When this happens, the wave energy reaching the hindcast point will obviously come from around the two ends of the barrier, and the resulting modified wave train will come from a direction within the original sector but modified toward that end of the barrier around which the larger part of the

remaining wave energy came, as is the definitive sketch of Figure A2.

27. The island sheltering coefficients, or the percent remaining of the original deepwater wave heights, and the resulting azimuths of the deepwater wave trains are presented for Point Conception in Tables A1a and A1b, for Las Varas in Tables A2a and A2b, for Deer Canyon in Tables A3a and A3b, and for Camp Pendleton in Tables A4a and A4b. Rattlesnake Canyon is, of course, unaffected by the Southern California offshore islands.

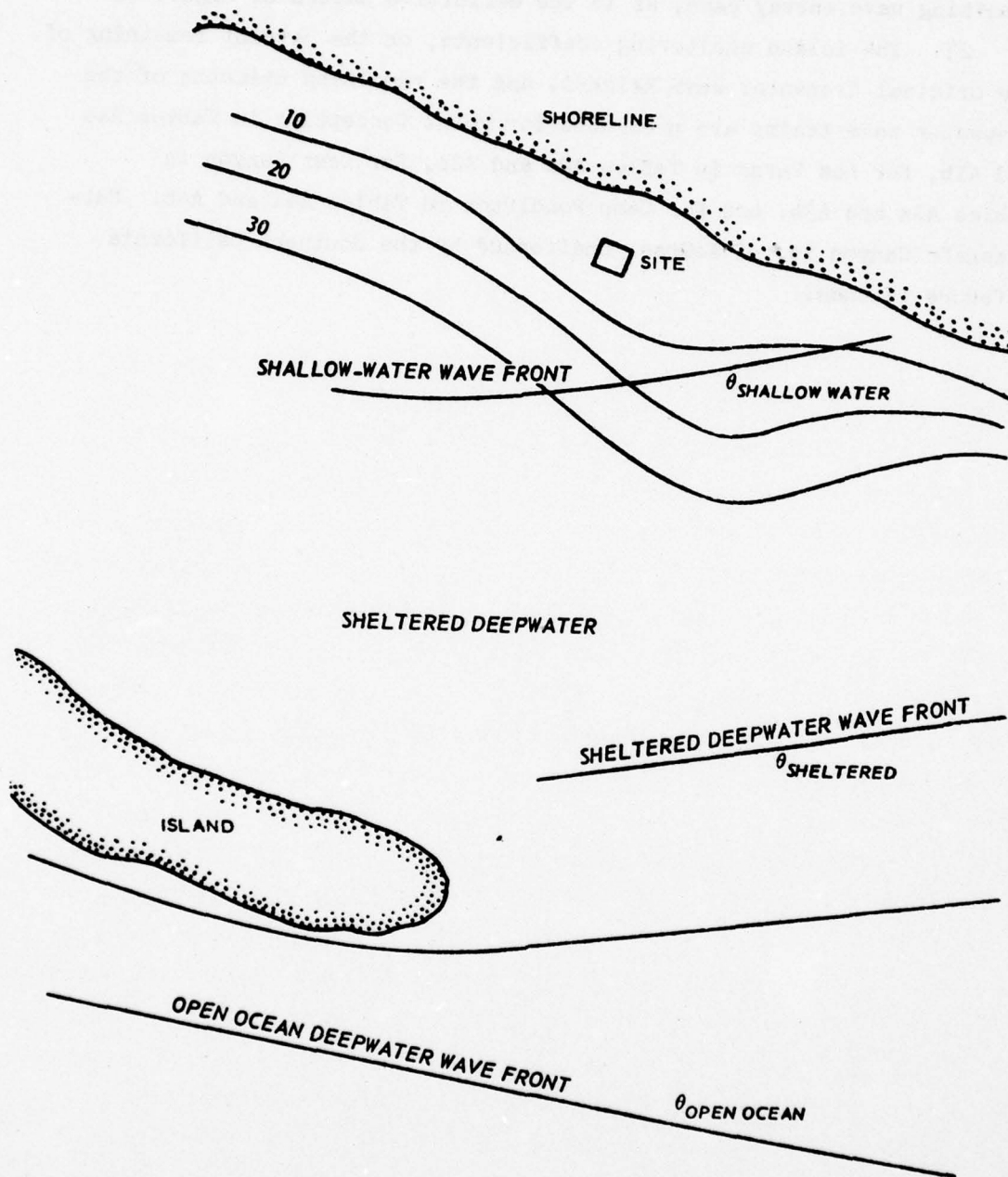


Figure A2. Definitive sketch, wave alterations due to island sheltering and underwater topography

#### PART IV: REFRACTION AND SHOALING EFFECTS

28. The speed of propagation of a surface gravity wave depends on the depth of water in which the wave propagates. As the wave celerity decreases with depth, the wavelength must decrease proportionally for the period to remain constant. Variation in wave velocity occurs along the crest of a wave moving at an angle to underwater contours because that part of the wave in deeper water is moving faster than the part in shallower water. This variation causes the wave crest to bend toward alignment with the contours. This bending effect, called refraction, depends on the relation of water depth to wavelength. It is analogous to other types of waves, such as light or sound.

29. As waves propagate from deep water into shallower water, changes other than refraction take place. The assumption generally made is that there is no loss of wave energy and negligible reflection. The power being transmitted by the wave train in water of any depth is equal to the power being transmitted by the wave system in deep water. The wave period remains constant in water of any depth, whereas the wavelength, velocity, and height vary.

30. The transformation of irregular ocean waves is a complex process which is not fully understood. The usual method of treating the problem which is quite successful is to represent the actual system by a series of sinusoidal waves of different heights, periods, and phases. Such a system now has a two-dimensional energy spectrum. The wave statistics being analyzed in the present study are treated in such a manner.

31. The effects of refraction and shoaling are important for several reasons. These phenomena determine the wave height in any particular water depth for a given set of incident deepwater wave conditions; i.e., wave height, period, and direction of propagation in deep water. Refraction and shoaling, therefore, have significant influence on the wave height and distribution of wave energy along the coast. The change of wave direction of different parts of the wave results in convergence or divergence of wave energy, and materially affects the forces exerted by waves on structures.

## PART V: SITE EVALUATION PROCEDURES

32. The process by which the percent of time that each potential LNG terminal site was subjected to a wave climate in excess of that deemed allowable by appropriate criteria consisted of a determination of the relative wave conditions at the site by propagating the deepwater wave statistics landward. The predominant source of open-ocean data used in this relative evaluation was the DNOD singular wave statistics for decayed sea and northern swell, and Marine Advisers for southern swell.

33. Since there was only one station location in deep water defining the southern swell characteristics, these data were used at all sites for the open-ocean deepwater situation. The justification for this lies in the fact that the southern swell originated thousands of miles away in the South Pacific Ocean, and two hundred approximate miles of further propagation would not significantly alter the characteristics.

34. On the other hand, the DNOD sea and northern swell data are provided at discrete locations and exhibit significant though slowly varying differences between stations. For this reason, a linear interpolation based on their proximity to the stations was performed for obtaining the appropriate deepwater statistics for those potential LNG sites located between DNOD stations 4 and 5, and DNOD stations 5 and 6.

35. When these hypothetical statistics had been deduced they were redistributed in the period bands by assuming a uniform distribution of occurrences over the wave-height bands and applying the appropriate island sheltering coefficients which had been previously and independently obtained. There also may have occurred a shift in direction of approach after the waves propagated past the islands, and this was duly and systematically accounted for in the summation process. The island sheltering process can only account for a decrease in wave height and the net effect is a slight shift in percentages of occurrence toward the lower wave-height bands, as total occurrences were conserved. The resulting tables of sheltered statistics are still applicable only to a

deepwater situation, and these data are stored internally for further processing.

36. In order to transmit these sheltered deepwater data shoreward to the potential LNG terminal site, it is necessary to apply the appropriate refraction and shoaling coefficients applicable at the specific site. These coefficients are a function of the wave period and sheltered deepwater approach azimuth; thus it was necessary to systematically compute the possibilities of these coefficients for each period band and direction band occurring in the tables of statistics.

37. It was desirable to obtain a coefficient representative of a finite but relatively precise area encompassing the potential LNG site. For this reason a region approximately 2 miles in length parallel to the shoreline and centered about the LNG site tentative location was saturated with fairly uniformly spaced wave orthogonals propagated from deep water shoreward by numerical techniques which solve the fundamental governing differential equation of wave motion on the surface of a relatively incompressible fluid. The average value for a large number of these wave rays was determined at the 60-ft mllw depth contour and the corresponding refracted angle of approach at the terminal site was retained. Because of the large number of computer plots generated in this process, only alternate but representative examples are included in this publication. All plots and computer output associated with these displays will be retained at WES for future disposition to interested parties.

38. The coefficients thus obtained and the resulting site angles of approach are presented in Tables A5a and A5b respectively for Rattlesnake Canyon, Tables A6a and A6b for Point Conception, Tables A7a and A7b for Las Varas, Tables A8a and A8b for Deer Canyon, and Tables A9a and A9b for Camp Pendleton. These data of Tables A5a through A9b were then applied to the sheltered deepwater statistics previously obtained, and through the redistribution process previously discussed, the resultant statistics of decayed sea, northern swell, and southern swell were developed.

39. In addition, there must be considered the local sea wave

climate near shore resulting from the wind effects produced by the meteorological condition at the site. These phenomena were evaluated by obtaining wind values from the SSMO data tapes and hindcasting the resulting local sea wave climate. Because these short-period waves propagate essentially in the direction of wind movement and, for practical purposes, are already onsite, they were not subjected to the refraction processes previously discussed.

## PART VI: RESULTS

### 6-Ft Maximum Wave-Height Limiting Criteria

40. Tugboats and line-handling boats which normally service tankers and large carriers by assisting in the docking process have difficulty operating in wave heights above 6 ft, regardless of period or direction. Hence, from the standpoint of docking assistance, the relative wave climates at the individual sites were evaluated to ascertain that percent of the year in which all wave occurrences exceeded 6 ft. These results are presented in Table A10 where it is seen that the excessive time for Rattlesnake Canyon is, statistically, significantly larger than the other sites; but the other sites are not, statistically, significantly different from each other.

### Optimization Techniques Criteria

41. Delft Hydraulics Laboratory<sup>8</sup> was commissioned by Pacific Indonesia LNG Company to provide scientific and engineering services for the design of the proposed Oxnard marine terminal off Port Hueneme, California. These services were to include: (a) refraction computation to convert offshore wave data into values applicable for the terminal site, (b) study of mooring operations and computations of required tug power, and (c) model tests on hawser and fender forces of the LNG carrier and statistical computations to determine the optimum terminal orientation.

42. Physical model tests were performed using a scale model of an LNG tanker subjected to the statistical wave climate referred to above. The wave heights and wave directions for each cumulative frequency distribution had been corrected for shoaling and refraction. For a certain terminal orientation the wave direction for each frequency distribution was related to a certain relative angle (relative angle between the wave direction and the terminal heading). Each frequency distribution was also related to a certain wave period. At a certain terminal heading at each frequency distribution, a certain height could be allocated via the

angle and the period. The percentages of exceedance of the heights gave the downtime for the chosen terminal heading. In this way it is possible to compute the downtime for all terminal orientations. The allowable wave-height optimization criteria for different terminal headings are presented in Figure A3, and were applied to the site relative wave climates. The optimum terminal orientation was determined to be:

Rattlesnake Canyon	$290^{\circ} \pm 10^{\circ}$
Point Conception	$250^{\circ} \pm 10^{\circ}$
Las Varas	$250^{\circ} \pm 10^{\circ}$
Deer Canyon	$240^{\circ} \pm 10^{\circ}$
Camp Pendleton	$280^{\circ} \pm 10^{\circ}$

The percent of time that the relative wave climate exceeded the limiting criteria is presented in Table All. Here again it is observed that the excessive time for Rattlesnake Canyon is, statistically, significantly larger than the other sites; but the other locations are not, statistically, significantly different from each other.

43. In order to provide a conservative optimization estimate, the allowable wave-height criteria of Figure A3 were truncated at the maximum allowable half-meter height band (conforming with the wave data (tabulations) occurring at or immediately below the analog curves. Furthermore, in order to extend the range of applicability of these data, for relative angles between the terminal heading and the wave rays in excess of  $90^{\circ}$  (for example, southern swell at Rattlesnake Canyon) the optimization curves were assumed to be parallel with the horizontal axis of the figure. This procedure resulted in a larger estimate of the percentage of occurrence of southern swell than the preliminary evaluation would have indicated at this site as the previous estimate approximated an extrapolated curve beyond  $90^{\circ}$ .

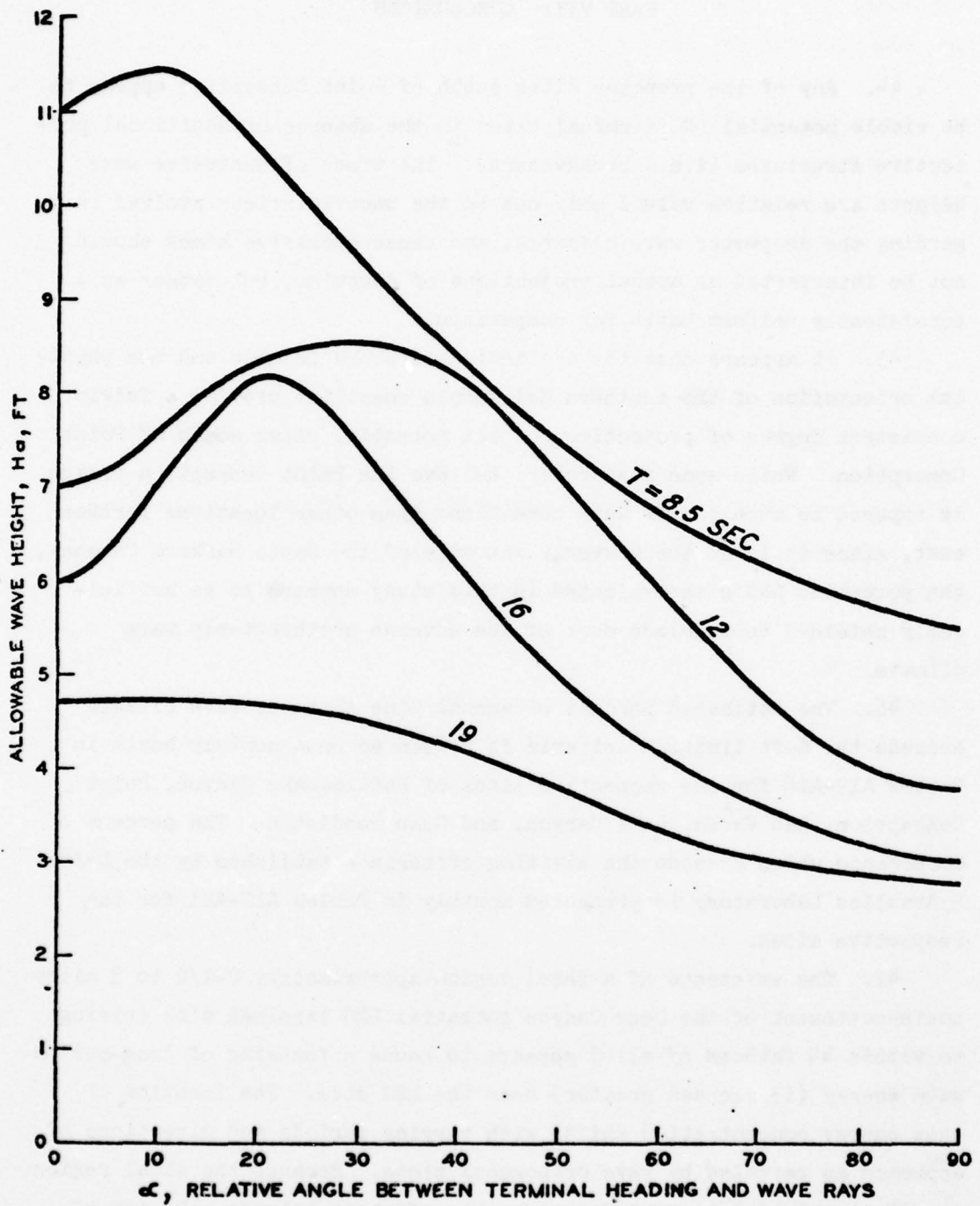


Figure A3. Allowable wave-height optimization criteria, windward side of terminal (after Delft Hydraulics Laboratory)

## PART VII: CONCLUSIONS

44. Any of the proposed sites south of Point Conception appear to be viable potential LNG terminal sites in the absence of additional protective structures (i.e., breakwaters). The times of excessive wave heights are relative values only due to the uncertainties involved regarding the deepwater wave climates, and these excessive times should not be interpreted as actual projections of downtime, but rather as a consistently uniform basis for comparison.

45. It appears that the sheltering offshore islands and the physical orientation of the southern California coastline provide a fairly consistent degree of protection for all potential sites south of Point Conception. While some researchers believe the Point Conception region is exposed to much larger wave conditions than other locations farther east, since it is at the westerly entrance of the Santa Barbara Channel, the potential LNG site evaluated in this study appears to be sufficiently shielded to preclude most of the adverse northwesterly wave climate.

46. The estimated percent of annual time that the wave climate exceeds the 6-ft limiting criteria is presented on a monthly basis in Tables A12-A16 for the respective sites of Rattlesnake Canyon, Point Conception, Las Varas, Deer Canyon, and Camp Pendleton. The percent of occurrence which exceeds the limiting criteria established by the Delft Hydraulics Laboratory is presented monthly in Tables A17-A21 for the respective sites.

47. The existence of a shoal region approximately 2-1/2 to 3 miles south-southwest of the Deer Canyon potential LNG terminal site (rising to within 45 fathoms of mllw) appears to cause a focusing of long-period wave energy (13 sec and greater) near the LNG site. The location of this energy concentration shifts with varying periods and directions of approach as revealed by wave orthogonal plots. Because the shoal region itself is shielded to some degree by the offshore islands, the net effect of long-period southern hemisphere swell propagating past the shoal is difficult to quantify by analytical methods. This phenomena should

be investigated by a hydrodynamically-scaled physical model.

48. Beyond the problem of ascertaining the best possible estimate for the sea and swell wave climate, there exist many other problems which are not readily amenable to relatively routine analytical mathematical solutions, but which can be effectively handled by either sophisticated numerical methods, physical model studies, or both. These problems include the moored response of LNG ships to long-period wave energy (25 sec to 6 min), scour and fill near terminal structures, long-term sediment transport, and the stability of protective structures for various wave climates.

49. It should be recognized that this report only includes estimates of the sea and swell wave climate. Little or no quantitative information is available on the long-period wave climate (25 sec to 6 min) variability along the California coast; however, it is known that there are times when the energy in these wave periods is sufficient to cause substantial movement of moored ships. A moored LNG ship has various frequencies in the 25-sec to 6-min period range at which it is resonant for one or more of the six degrees of freedom; consequently, even very small incident waves (i.e., 0.2 ft) can cause large motions of the ship.

50. Because of the overwhelming importance of, and safety necessary for an LNG terminal, it is extremely important that the best possible design procedures be applied and that sound engineering judgments prevail.

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Table Ala

Point Conception Potential LNG Terminal Site  
Average Island Sheltering Coefficients

Open Ocean Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
120	0.43	0.36	0.28	0.13	0.00	0.00	0.00	0.00
130	0.44	0.35	0.23	0.11	0.00	0.00	0.00	0.00
140	0.43	0.34	0.21	0.10	0.00	0.00	0.00	0.00
150	0.44	0.32	0.19	0.08	0.00	0.00	0.00	0.00
160	0.49	0.39	0.28	0.20	0.00	0.00	0.00	0.00
170	0.60	0.53	0.45	0.25	0.15	0.12	0.10	0.08
180	0.69	0.61	0.53	0.48	0.40	0.31	0.31	0.30
190	0.76	0.70	0.64	0.59	0.53	0.45	0.45	0.44
200	1.00	0.97	0.93	0.88	0.85	0.83	0.79	0.75
210	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
220	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
230	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
240	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
250	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
260	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
270	0.88	0.80	0.70	0.66	0.62	0.59	0.56	0.49
280	0.64	0.61	0.58	0.55	0.51	0.46	0.38	0.35
290	0.53	0.50	0.47	0.45	0.42	0.40	0.36	0.30
300	0.41	0.40	0.40	0.38	0.36	0.33	0.31	0.27
310	0.26	0.25	0.24	0.23	0.22	0.21	0.19	0.18



Table A2a

Las Varas Potential LNG Terminal Site  
Average Island Sheltering Coefficients

Open Coast Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
120	0.32	0.30	0.30	0.15	0.00	0.00	0.00	0.00
130	0.32	0.30	0.30	0.15	0.00	0.00	0.00	0.00
140	0.34	0.30	0.30	0.15	0.00	0.00	0.00	0.00
150	0.33	0.29	0.29	0.14	0.00	0.00	0.00	0.00
160	0.37	0.28	0.24	0.12	0.00	0.00	0.00	0.00
170	0.35	0.22	0.14	0.07	0.00	0.00	0.00	0.00
180	0.38	0.21	0.15	0.07	0.00	0.00	0.00	0.00
190	0.43	0.18	0.17	0.08	0.00	0.00	0.00	0.00
200	0.51	0.38	0.28	0.24	0.20	0.00	0.00	0.00
210	0.62	0.50	0.42	0.37	0.32	0.27	0.26	0.25
220	0.66	0.61	0.55	0.50	0.45	0.40	0.37	0.35
230	0.76	0.68	0.61	0.55	0.50	0.44	0.41	0.38
240	0.86	0.84	0.80	0.72	0.68	0.65	0.62	0.60
250	0.98	0.97	0.96	0.94	0.91	0.88	0.86	0.83
260	0.96	0.95	0.94	0.91	0.88	0.85	0.83	0.81
270	0.88	0.80	0.70	0.66	0.62	0.59	0.56	0.49
280	0.65	0.61	0.58	0.53	0.49	0.44	0.40	0.38
290	0.52	0.49	0.46	0.43	0.42	0.39	0.36	0.34
300	0.39	0.36	0.33	0.29	0.27	0.25	0.22	0.20
310	0.24	0.20	0.14	0.06	0.06	0.06	0.06	0.06



Table A3a

Deer Canyon Potential LNG Terminal Site  
Average Island Sheltering Coefficients

Open Ocean Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
120	0.42	0.40	0.38	0.34	0.28	0.25	0.23	0.17
130	0.70	0.68	0.67	0.65	0.64	0.60	0.59	0.56
140	0.63	0.57	0.54	0.50	0.45	0.38	0.35	0.30
150	0.71	0.67	0.65	0.61	0.56	0.50	0.44	0.38
160	0.74	0.71	0.68	0.65	0.58	0.49	0.44	0.40
170	0.84	0.85	0.80	0.78	0.75	0.71	0.70	0.67
180	0.88	0.88	0.85	0.84	0.81	0.76	0.74	0.70
190	0.92	0.90	0.87	0.86	0.82	0.77	0.76	0.72
200	0.95	0.92	0.89	0.88	0.84	0.78	0.78	0.75
210	0.93	0.88	0.82	0.80	0.72	0.67	0.57	0.50
220	0.95	0.93	0.90	0.89	0.85	0.80	0.77	0.75
230	0.95	0.92	0.89	0.85	0.84	0.79	0.75	0.73
240	0.94	0.92	0.90	0.89	0.84	0.79	0.75	0.71
250	0.93	0.91	0.89	0.87	0.81	0.73	0.70	0.69
260	0.84	0.81	0.77	0.74	0.62	0.52	0.42	0.36
270	0.76	0.74	0.71	0.68	0.59	0.46	0.41	0.35
280	0.84	0.82	0.81	0.79	0.75	0.70	0.69	0.66
290	0.79	0.78	0.76	0.74	0.70	0.67	0.66	0.62
300	0.44	0.45	0.42	0.39	0.35	0.33	0.32	0.22
310	0.40	0.39	0.37	0.35	0.33	0.30	0.29	0.21



Table A4a

Camp Pendleton Potential LNG Terminal Site  
Average Island Sheltering Coefficients

Open Coast Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
170	0.87	0.79	0.77	0.80	0.79	0.78	0.76	0.75
180	0.91	0.87	0.86	0.85	0.85	0.84	0.83	0.83
190	0.93	0.92	0.92	0.91	0.90	0.89	0.88	0.87
200	0.93	0.93	0.92	0.90	0.89	0.87	0.86	0.84
210	0.91	0.90	0.90	0.88	0.86	0.84	0.83	0.81
220	0.89	0.88	0.87	0.85	0.83	0.82	0.80	0.79
230	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.78
240	0.79	0.78	0.76	0.75	0.73	0.72	0.70	0.69
250	0.75	0.74	0.71	0.70	0.68	0.67	0.66	0.65
260	0.70	0.68	0.66	0.64	0.63	0.62	0.60	0.59
270	0.64	0.61	0.59	0.55	0.54	0.52	0.50	0.48
280	0.56	0.53	0.51	0.49	0.48	0.46	0.45	0.45
290	0.54	0.51	0.50	0.47	0.45	0.43	0.42	0.41
300	0.50	0.48	0.46	0.43	0.42	0.41	0.40	0.39
310	0.42	0.40	0.37	0.33	0.32	0.31	0.30	0.29

Table A4b

Camp Pendleton Potential LNG Terminal Site  
Average Sheltered Deepwater LNG Site Approach Azimuths

Open Ocean Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
170	190	190	190	190	190	190	190	190
180	190	190	190	190	190	190	190	200
190	200	200	200	200	200	200	200	200
200	200	200	200	200	200	200	200	200
210	200	200	200	200	200	200	200	200
220	210	210	210	210	210	210	210	210
230	220	220	220	220	220	220	220	220
240	230	230	230	230	230	230	230	230
250	240	240	240	240	240	240	240	240
260	250	250	250	250	250	250	250	250
270	260	260	260	260	260	260	260	260
280	270	270	270	270	270	270	270	270
290	280	280	270	270	270	270	270	270
300	280	280	270	270	270	270	270	270
310	290	280	280	280	280	280	280	280

Table A5a

Rattlesnake Canyon Potential LNG Terminal Site  
(Refraction × Shoaling) Coefficients

Deepwater Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
160	0.99	0.93	0.92	1.05	1.07	1.15	1.24	1.25
180	0.99	0.93	1.00	1.08	1.11	1.08	1.21	1.15
200	0.99	0.93	0.89	1.09	1.00	1.06	1.10	1.21
220	0.99	0.93	0.95	1.09	1.12	1.11	1.16	1.20
240	0.99	0.93	0.96	1.04	1.06	1.08	1.10	1.20
260	0.99	0.93	0.96	1.03	0.92	1.36	1.18	1.09
280	0.99	0.92	0.87	0.83	0.89	0.92	0.97	1.08
290	0.99	0.91	0.86	0.82	0.88	0.98	1.07	1.20

Table A5b

Rattlesnake Canyon Potential LNG Terminal Site  
LNG Site Approach Azimuths

Deepwater Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
160	160	160	160	170	180	180	190	190
180	180	180	180	190	190	190	200	200
200	200	200	200	200	210	210	210	220
220	220	220	220	220	220	220	220	220
240	240	240	230	230	230	230	230	230
260	260	260	250	250	240	240	240	240
280	280	280	270	260	260	250	250	250
290	290	280	270	260	260	250	250	250

Table A6a  
Point Conception Potential LNG Terminal Site  
(Refraction × Shoaling) Coefficients

Sheltered Deepwater Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
90	0.99	0.81	0.77	0.73	0.65	0.60	0.76	0.80
100	0.99	0.87	0.92	0.78	0.78	0.75	1.03	0.87
120	0.99	0.90	0.91	0.92	0.87	1.03	1.07	0.93
140	0.99	0.84	0.89	0.82	0.90	1.04	1.09	1.06
160	0.99	0.85	0.85	0.86	0.91	0.99	1.02	1.05
180	0.99	0.93	0.92	0.95	1.00	1.08	1.12	1.16
200	0.99	0.87	0.83	0.96	0.96	1.00	1.11	1.22
220	0.99	0.90	0.86	0.88	0.89	0.98	0.89	1.23
240	0.99	0.88	0.83	0.88	0.87	0.86	0.94	1.17
260	0.99	0.74	0.68	0.94	0.67	0.68	0.80	1.04
270	0.99	0.60	0.55	0.60	0.60	0.60	0.70	0.90

Table A6b  
Point Conception Potential LNG Terminal Site  
LNG Site Approach Azimuths

Sheltered Deepwater Azimuth	Period (sec)							
	5	7	9	11	13	15	17	19
90	90	100	110	120	130	140	140	140
100	100	110	120	130	140	140	140	140
120	120	120	130	140	140	150	150	150
140	140	140	150	150	160	160	160	160
160	160	160	170	170	170	170	170	170
180	180	180	180	180	180	180	180	180
200	200	200	200	190	190	190	190	190
220	220	220	210	210	210	200	200	200
240	240	240	230	220	220	220	210	210
260	260	250	240	230	230	220	220	220
270	260	250	240	230	230	220	220	220

Table A7a

Las Varas Potential LNG Terminal Site  
(Refraction × Shoaling) Coefficients

Sheltered Deepwater Azimuth	Period (sec)							
	<u>5</u>	<u>7</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>17</u>	<u>19</u>
120	0.99	0.71	0.52	0.54	0.65	0.51	0.45	0.53
140	0.99	0.79	0.71	0.73	0.75	0.79	0.77	0.76
160	0.99	0.89	0.84	0.86	0.89	0.93	0.97	1.01
180	0.99	0.92	0.89	0.91	0.95	1.00	1.04	1.10
200	0.99	0.93	0.92	0.94	0.99	1.04	1.10	1.15
220	0.99	0.93	0.92	0.95	0.99	1.04	1.12	1.17
240	0.99	0.92	0.91	0.94	0.98	1.03	1.05	1.11
260	0.99	0.91	0.86	0.92	1.09	0.88	0.89	1.05
270	0.99	0.87	0.87	0.75	1.02	0.91	0.84	0.98

Table A7b

Las Varas Potential LNG Terminal Site  
LNG Site Approach Azimuths

Sheltered Deepwater Azimuth	Period (sec)							
	<u>5</u>	<u>7</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>17</u>	<u>19</u>
120	120	140	150	160	170	170	180	180
140	140	150	160	170	170	180	180	180
160	160	170	170	180	180	180	190	190
180	180	180	190	190	190	190	190	200
200	200	200	200	200	200	200	200	200
220	220	220	220	220	220	220	210	210
240	240	240	230	230	230	220	220	220
260	260	260	250	240	240	240	230	230
270	270	260	260	250	240	240	240	230

Table A8a

Deer Canyon Potential LNG Terminal Site  
(Refraction × Shoaling) Coefficients

Sheltered Deepwater Azimuth	Period (sec)							
	<u>5</u>	<u>7</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>17</u>	<u>19</u>
120	0.98	0.65	0.54	0.58	0.61	0.69	0.67	0.70
140	0.99	0.84	0.76	0.76	0.80	0.83	0.86	0.92
160	0.99	0.91	0.86	0.87	0.92	0.99	1.04	1.11
180	0.99	0.93	0.90	0.93	1.03	1.03	1.04	1.03
200	0.99	0.93	0.92	0.97	1.12	1.18	1.30	1.08
220	0.99	0.93	0.91	0.96	1.17	0.99	0.94	1.01
240	0.99	0.92	0.89	0.89	0.93	0.97	0.94	1.02
260	0.99	0.91	0.88	0.81	0.84	0.88	0.85	0.89
280	0.80	0.57	0.28	0.51	0.51	0.58	0.63	0.57

Table A8b

Deer Canyon Potential LNG Terminal Site  
LNG Site Approach Azimuths

Sheltered Deepwater Azimuth	Period (sec)							
	<u>5</u>	<u>7</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>17</u>	<u>19</u>
120	120	140	150	160	170	170	170	180
140	140	150	160	170	170	170	180	180
160	160	160	170	170	180	180	180	190
180	180	180	190	190	190	190	190	190
200	200	200	200	200	200	200	200	200
220	220	220	220	220	220	220	220	220
240	240	240	230	230	230	230	230	230
260	260	250	250	240	240	240	230	230
280	280	270	260	250	240	240	240	240

Table A9a

Camp Pendleton Potential LNG Terminal Site  
(Refraction × Shoaling) Coefficients

Sheltered Deepwater Azimuth	Period (sec)							
	<u>5</u>	<u>7</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>17</u>	<u>19</u>
160	0.90	0.82	0.67	0.63	0.69	0.73	0.83	0.88
180	0.99	0.90	0.83	0.85	0.87	0.91	0.93	0.94
200	0.99	0.92	0.89	0.91	0.94	0.97	1.01	1.04
220	0.99	0.93	0.91	0.93	0.97	1.03	1.09	1.16
240	0.99	0.93	0.92	0.94	0.98	1.02	1.09	1.17
260	0.99	0.92	0.90	0.96	1.00	1.03	1.07	1.07
280	0.99	0.90	0.84	0.90	1.03	1.06	0.99	1.01
300	0.99	0.82	0.73	0.63	0.76	0.88	0.83	0.91
310	0.99	0.66	0.52	0.61	0.70	0.59	0.70	0.94

Table A9b

Camp Pendleton Potential LNG Terminal Site  
LNG Site Approach Azimuths

Sheltered Deepwater Azimuth	Period (sec)							
	<u>5</u>	<u>7</u>	<u>9</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>17</u>	<u>19</u>
160	160	160	170	180	180	190	190	190
180	180	180	190	200	200	200	210	210
200	200	200	210	210	210	210	210	220
220	220	220	220	220	220	220	220	220
240	240	240	240	240	240	230	230	230
260	260	260	250	250	250	240	240	240
280	280	280	270	260	260	250	250	240
300	300	290	280	270	270	260	260	250
310	310	300	280	270	270	270	260	260

Table A10

Potential LNG Terminal Sites  
6-Ft Maximum Allowable Height Criteria  
Percent of Year Exceeded

<u>LNG Site</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Rattlesnake Canyon	11.0	1.0	0.3	8.9	21.2
Point Conception	1.8	0.1	0.1	4.7	6.7
Las Varas	1.3	0.2	0.0	3.4	4.9
Deer Canyon	3.3	0.0	0.1	1.2	4.6
Camp Pendleton	5.0	0.0	0.0	0.6	5.6

Table A11

Potential LNG Terminal Sites  
Delft Hydraulics Laboratory Optimization Criteria  
Percent of Year Exceeded

<u>LNG Site</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Rattlesnake Canyon	2.2	1.5	18.3	1.8	23.8
Point Conception	0.3	0.1	0.9	0.8	2.1
Las Varas	0.1	0.1	0.2	2.7	3.1
Deer Canyon	0.4	0.0	0.7	0.1	1.2
Camp Pendleton	0.5	0.1	2.2	0.1	2.9

Table A12

Rattlesnake Canyon Potential LNG Terminal Site6-Ft Maximum Allowable Height CriteriaPercent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.8	0.2	0.0	0.5	1.5
Feb	0.8	0.2	0.0	0.7	1.7
Mar	1.1	0.2	0.0	0.9	2.2
Apr	1.1	0.1	0.0	1.0	2.2
May	1.7	0.0	0.0	1.5	3.2
Jun	1.6	0.0	0.0	1.2	2.8
Jul	1.2	0.0	0.1	0.5	1.8
Aug	1.0	0.0	0.1	0.6	1.7
Sep	0.4	0.0	0.1	0.4	0.9
Oct	0.3	0.0	0.0	0.6	0.9
Nov	0.4	0.1	0.0	0.5	1.0
Dec	0.6	0.2	0.0	0.5	1.3
Annual	11.0	1.0	0.3	8.9	21.2

Table A13

Point Conception Potential LNG Terminal Site6-Ft Maximum Allowable Height CriteriaPercent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.5	0.01	0.00	0.4	0.91
Feb	0.4	0.01	0.00	0.6	1.01
Mar	0.3	0.05	0.00	1.0	1.35
Apr	0.2	0.01	0.00	0.6	0.81
May	0.0	0.00	0.01	0.4	0.41
Jun	0.0	0.00	0.00	0.3	0.30
Jul	0.0	0.00	0.04	0.0	0.04
Aug	0.0	0.00	0.01	0.1	0.11
Sep	0.0	0.00	0.03	0.1	0.13
Oct	0.1	0.00	0.01	0.2	0.31
Nov	0.1	0.01	0.00	0.5	0.61
Dec	0.2	0.01	0.00	0.5	0.71
Annual	1.8	0.1	0.1	4.7	6.7

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Table A14

Las Varas Potential LNG Terminal Site  
6-Ft Maximum Allowable Height Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.3	0.03	0.0	0.3	0.63
Feb	0.2	0.03	0.0	0.4	0.63
Mar	0.3	0.11	0.0	0.6	1.01
Apr	0.2	0.01	0.0	0.5	0.71
May	0.1	0.00	0.0	0.3	0.40
Jun	0.0	0.00	0.0	0.2	0.20
Jul	0.0	0.00	0.0	0.0	0.00
Aug	0.0	0.00	0.0	0.1	0.10
Sep	0.0	0.00	0.0	0.1	0.10
Oct	0.0	0.00	0.0	0.1	0.10
Nov	0.1	0.01	0.0	0.4	0.51
Dec	0.1	0.01	0.0	0.4	0.51
Annual	1.3	0.2	0.0	3.4	4.9

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Table A15

Deer Canyon Potential LNG Terminal Site  
6-Ft Maximum Allowable Height Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.4	0.0	0.00	0.1	0.50
Feb	0.5	0.0	0.00	0.2	0.70
Mar	0.4	0.0	0.00	0.2	0.60
Apr	0.4	0.0	0.00	0.2	0.60
May	0.3	0.0	0.01	0.1	0.41
Jun	0.4	0.0	0.00	0.0	0.40
Jul	0.1	0.0	0.05	0.0	0.15
Aug	0.1	0.0	0.01	0.0	0.11
Sep	0.1	0.0	0.02	0.0	0.12
Oct	0.1	0.0	0.01	0.1	0.21
Nov	0.2	0.0	0.00	0.1	0.30
Dec	0.3	0.0	0.00	0.2	0.50
Annual	3.3	0.0	0.1	1.2	4.6

Table A16

Camp Pendleton Potential LNG Terminal Site6-Ft Maximum Allowable Height CriteriaPercent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.3	0.0	0.0	0.1	0.4
Feb	0.3	0.0	0.0	0.2	0.5
Mar	0.5	0.0	0.0	0.1	0.6
Apr	0.5	0.0	0.0	0.1	0.6
May	0.9	0.0	0.0	0.0	0.9
Jun	1.1	0.0	0.0	0.0	1.1
Jul	0.5	0.0	0.0	0.0	0.5
Aug	0.3	0.0	0.0	0.0	0.3
Sep	0.2	0.0	0.0	0.0	0.2
Oct	0.1	0.0	0.0	0.0	0.1
Nov	0.1	0.0	0.0	0.1	0.2
Dec	0.2	0.0	0.0	0.0	0.2
Annual	5.0	0.0	0.0	0.6	5.6

Table A17

Rattlesnake Canyon Potential LNG Terminal Site  
Delft Hydraulics Laboratory Optimization Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.2	0.3	0.0	0.1	0.6
Feb	0.2	0.3	0.0	0.1	0.6
Mar	0.2	0.3	0.0	0.2	0.7
Apr	0.2	0.1	0.0	0.2	0.5
May	0.3	0.0	3.0	0.2	3.5
Jun	0.3	0.0	1.9	0.2	2.4
Jul	0.2	0.0	4.5	0.2	4.9
Aug	0.2	0.0	3.5	0.2	3.9
Sep	0.1	0.0	3.3	0.1	3.5
Oct	0.1	0.1	2.1	0.1	2.4
Nov	0.1	0.1	0.0	0.1	0.3
Dec	0.1	0.3	0.0	0.1	0.5
Annual	2.2	1.5	18.3	1.8	23.8

Table A18

Point Conception Potential LNG Terminal Site  
Delft Hydraulics Laboratory Optimization Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.07	0.02	0.0	0.19	0.28
Feb	0.07	0.01	0.0	0.17	0.25
Mar	0.05	0.04	0.0	0.15	0.24
Apr	0.03	0.02	0.0	0.09	0.14
May	0.01	0.00	0.2	0.01	0.22
Jun	0.00	0.00	0.0	0.01	0.01
Jul	0.00	0.00	0.3	0.00	0.30
Aug	0.00	0.00	0.2	0.00	0.20
Sep	0.00	0.00	0.2	0.00	0.20
Oct	0.01	0.00	0.0	0.02	0.03
Nov	0.02	0.00	0.0	0.06	0.08
Dec	0.04	0.01	0.0	0.10	0.15
Annual	0.3	0.1	0.9	0.8	2.1

Table A19

Las Varas Potential LNG Terminal Site  
Delft Hydraulics Laboratory Optimization Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.02	0.02	0.00	0.5	0.54
Feb	0.01	0.01	0.00	0.4	0.42
Mar	0.02	0.04	0.00	0.5	0.56
Apr	0.02	0.02	0.00	0.5	0.54
May	0.00	0.00	0.02	0.1	0.12
Jun	0.00	0.00	0.00	0.1	0.10
Jul	0.00	0.00	0.09	0.0	0.09
Aug	0.00	0.00	0.02	0.0	0.02
Sep	0.00	0.00	0.04	0.0	0.04
Oct	0.01	0.00	0.03	0.1	0.14
Nov	0.01	0.00	0.00	0.2	0.21
Dec	0.01	0.01	0.00	0.3	0.32
Annual	0.1	0.1	0.2	2.7	3.1

Table A20

Deer Canyon Potential LNG Terminal Site  
Delft Hydraulics Laboratory Optimization Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.06	0.0	0.00	0.02	0.08
Feb	0.07	0.0	0.00	0.02	0.09
Mar	0.07	0.0	0.00	0.02	0.09
Apr	0.04	0.0	0.00	0.01	0.05
May	0.03	0.0	0.12	0.01	0.16
Jun	0.04	0.0	0.03	0.01	0.08
Jul	0.01	0.0	0.20	0.00	0.21
Aug	0.01	0.0	0.15	0.00	0.16
Sep	0.01	0.0	0.13	0.00	0.14
Oct	0.01	0.0	0.07	0.00	0.08
Nov	0.02	0.0	0.00	0.00	0.02
Dec	0.03	0.0	0.00	0.01	0.04
Annual	0.4	0.0	0.7	0.1	1.2

Table A21

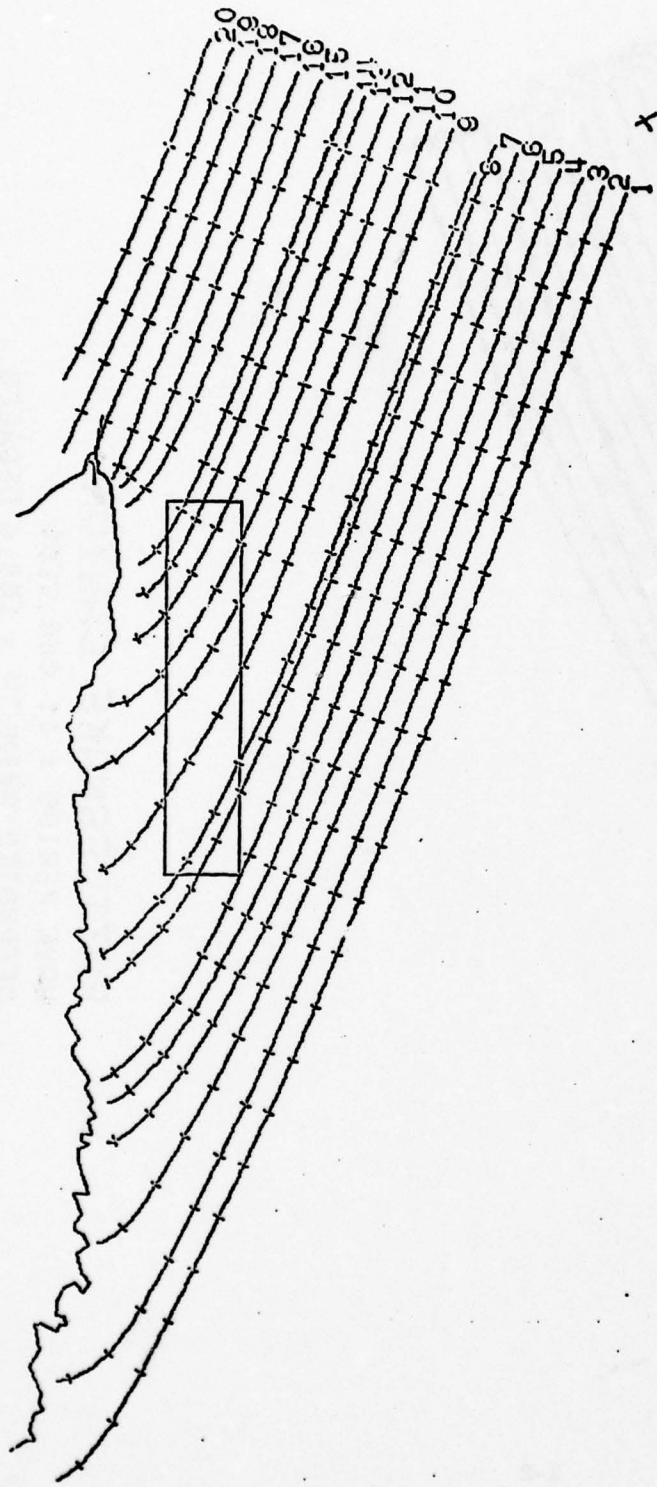
Camp Pendleton Potential LNG Terminal Site  
Delft Hydraulics Laboratory Optimization Criteria  
Percent of Year Exceeded

<u>Month</u>	<u>Decayed Sea</u>	<u>Northern Swell</u>	<u>Southern Swell</u>	<u>Local Sea</u>	<u>Total</u>
Jan	0.03	0.00	0.0	0.01	0.04
Feb	0.03	0.02	0.0	0.01	0.06
Mar	0.05	0.06	0.0	0.01	0.12
Apr	0.05	0.02	0.0	0.01	0.08
May	0.09	0.00	0.2	0.02	0.31
Jun	0.11	0.00	0.1	0.02	0.23
Jul	0.05	0.00	0.8	0.01	0.86
Aug	0.03	0.00	0.5	0.01	0.54
Sep	0.02	0.00	0.5	0.00	0.52
Oct	0.01	0.00	0.1	0.00	0.11
Nov	0.01	0.00	0.0	0.00	0.01
Dec	0.02	0.00	0.0	0.00	0.02
Annual	0.5	0.1	2.2	0.1	2.9

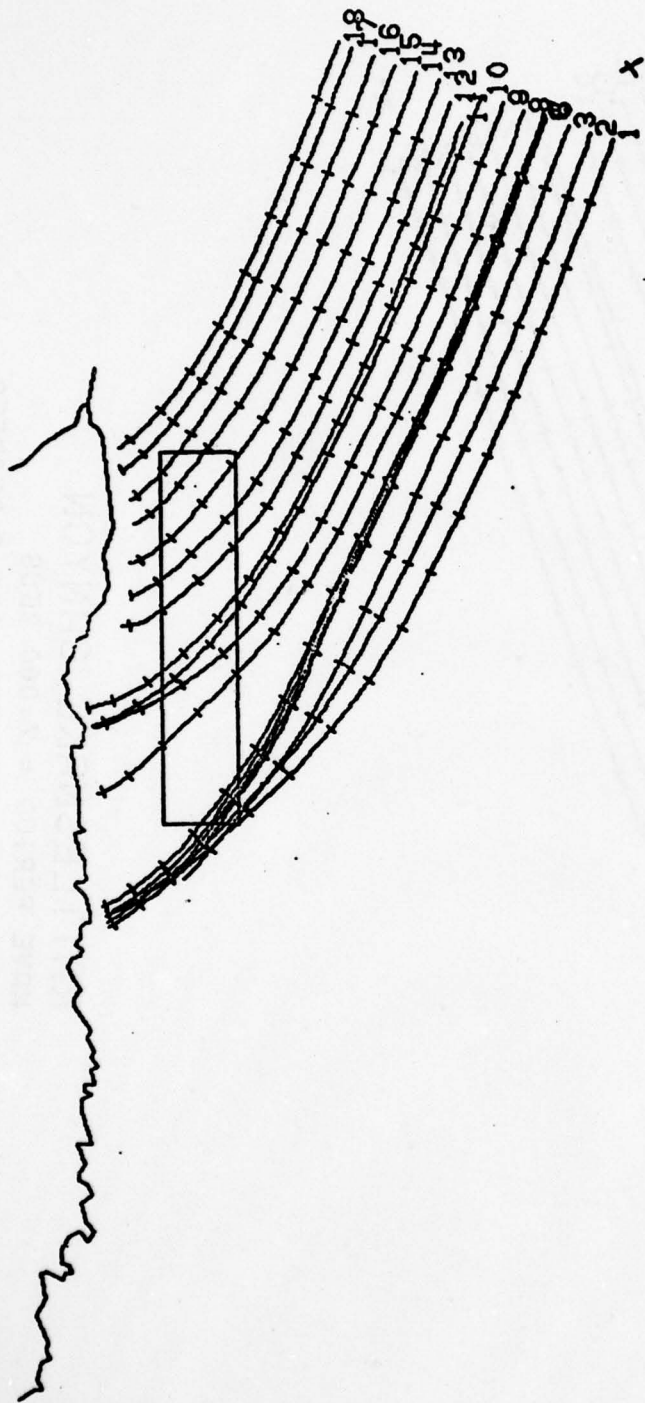
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ADDENDUM I: WAVE RAY PLOTS

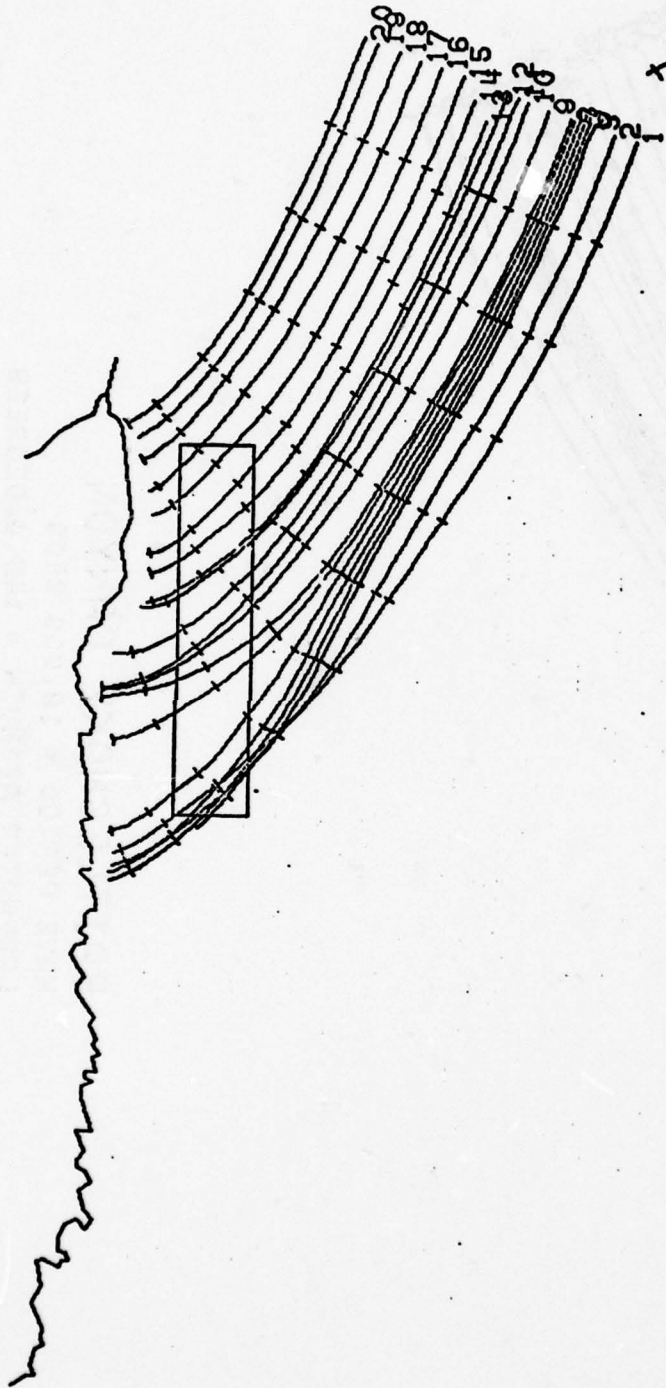
In the following figures, the tentative potential LNG terminal site is positioned at the geometric center of the rectangle; it also coincides with the 60-ft mllw contour at that location.



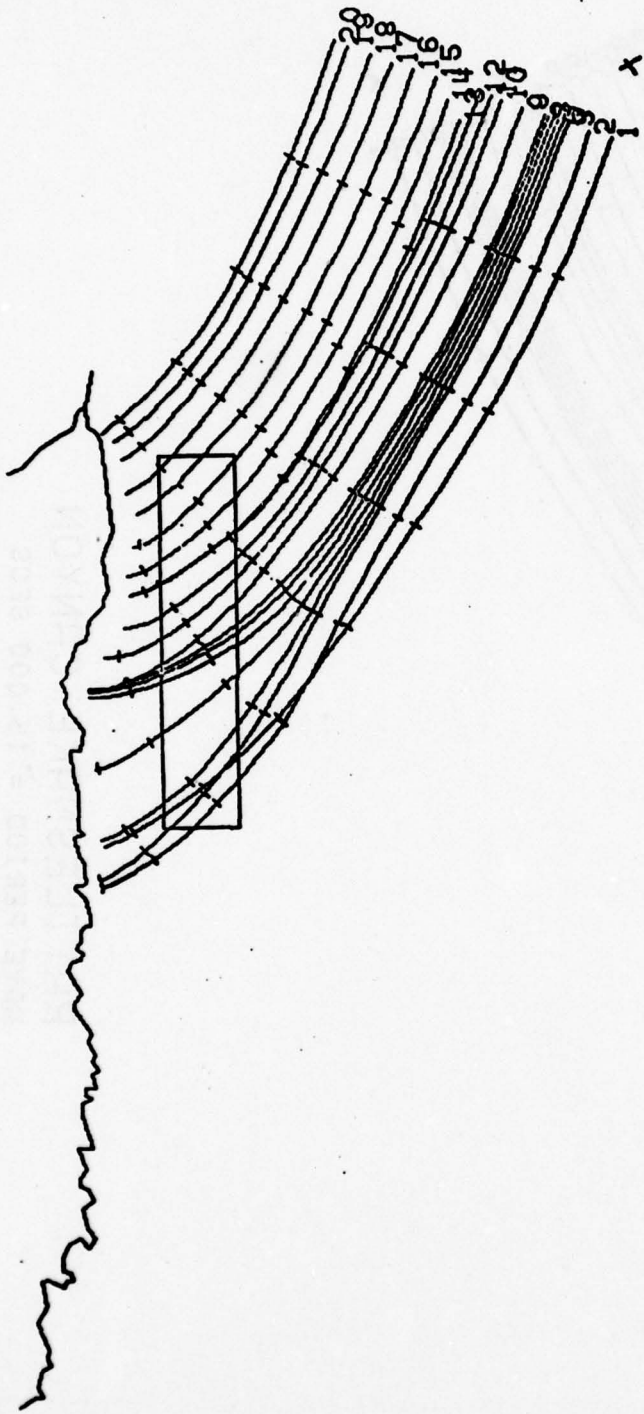
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DEEPWATER AZIMUTH = 140.0 DEGREES



RATTLESLAKE CANYON  
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DEEPWATER AZIMUTH = 140.0 DEGREES



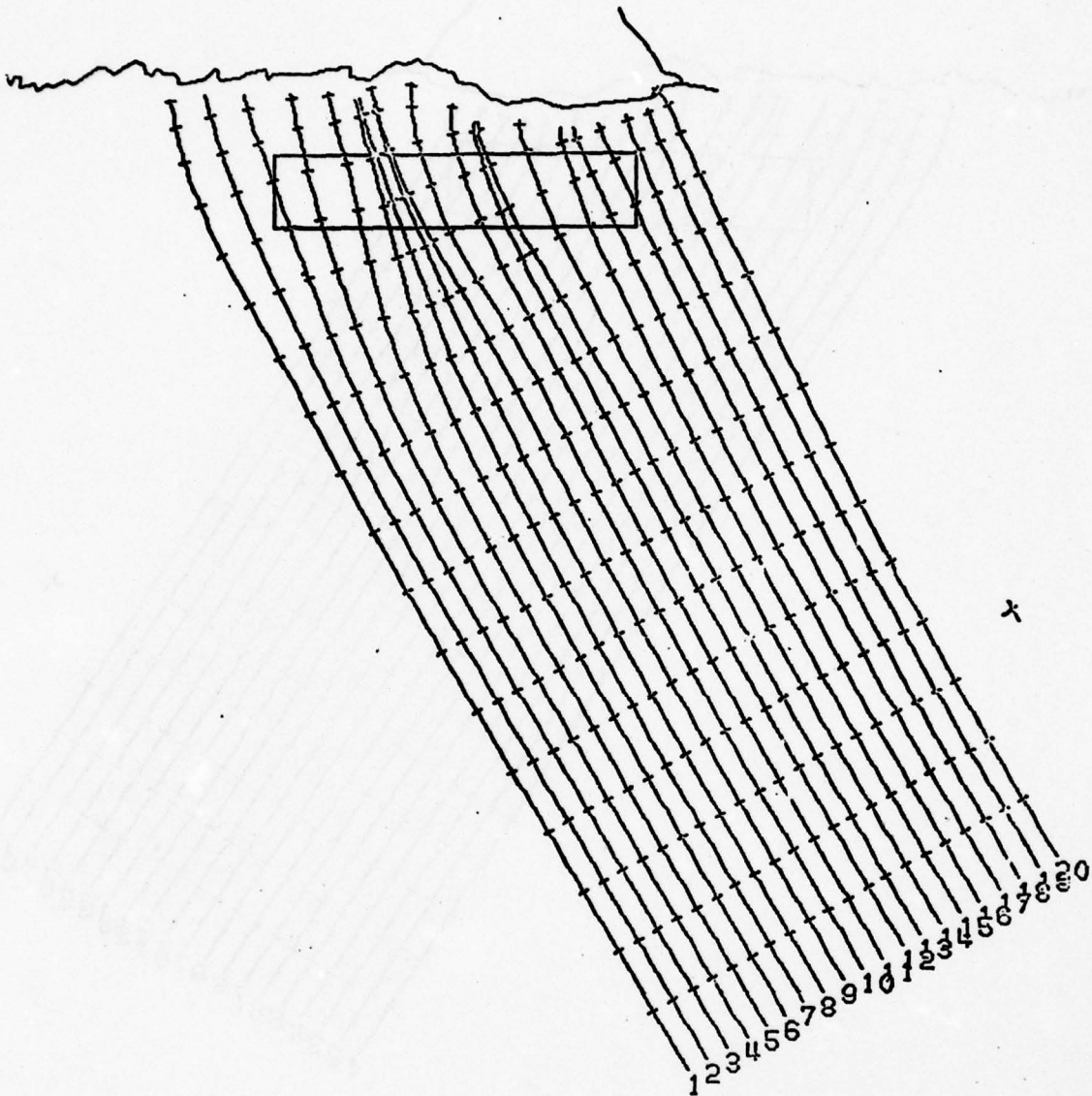
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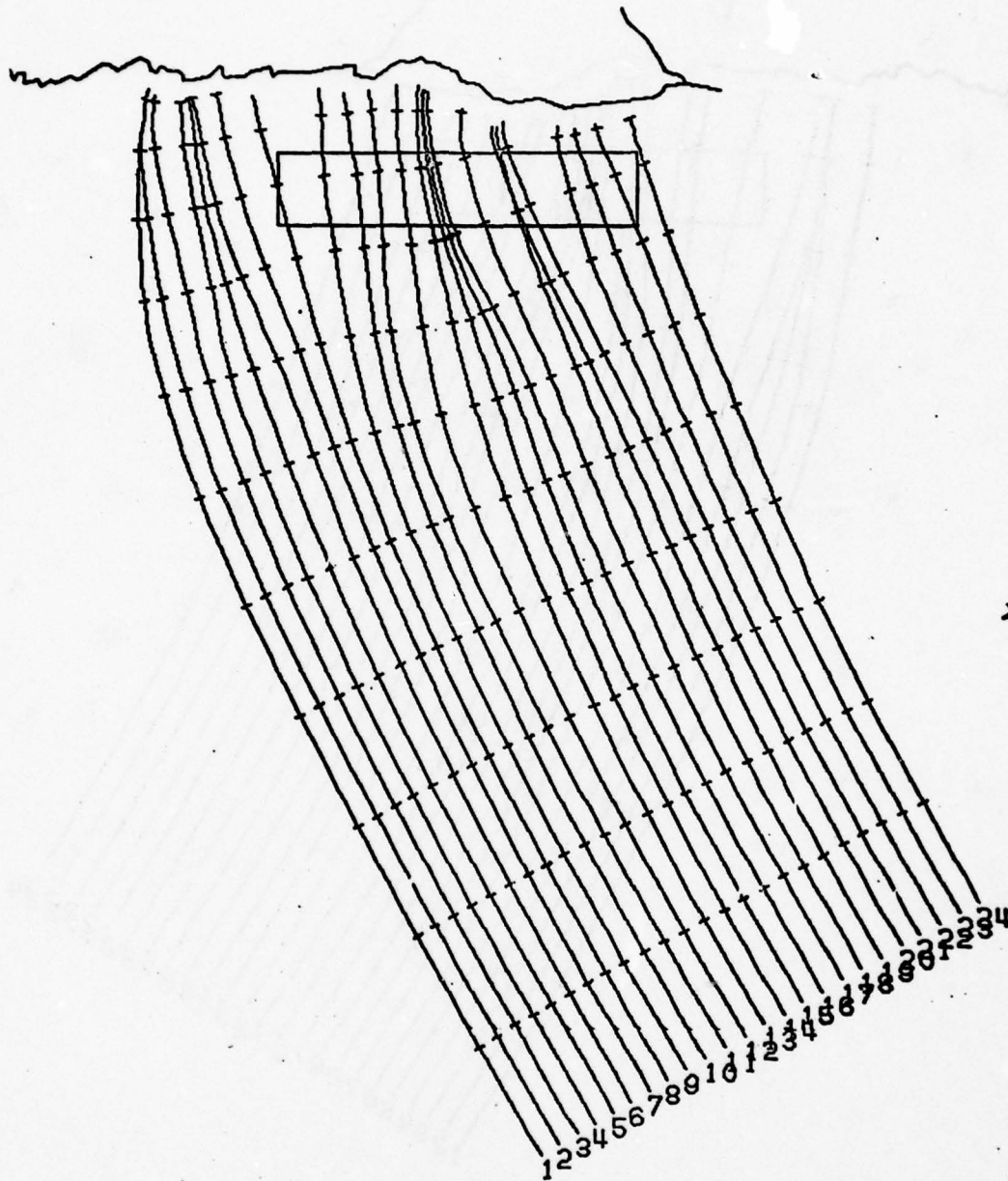
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RATTLESNAKE CANYON  
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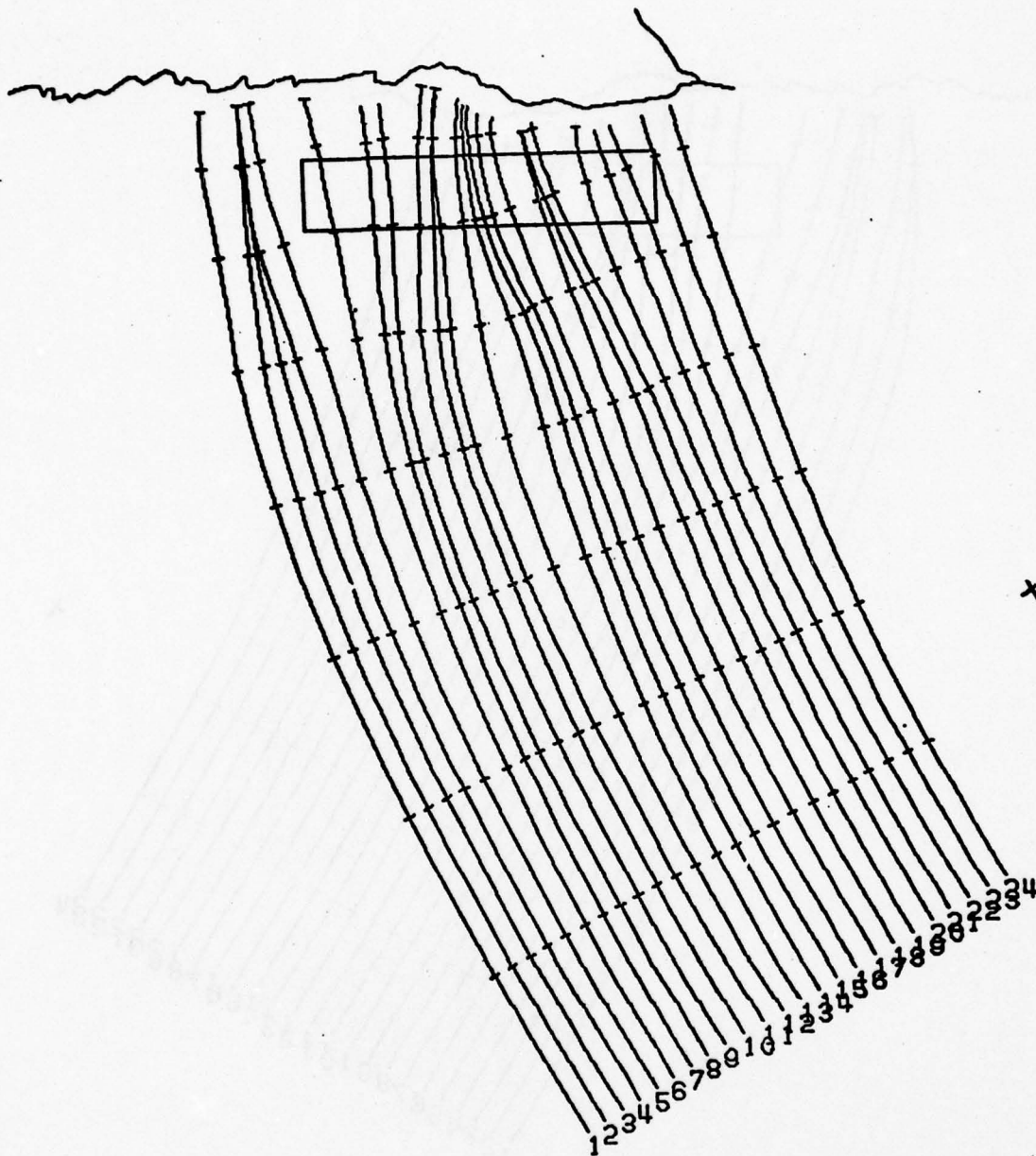
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RATTLESNAKE CANYON

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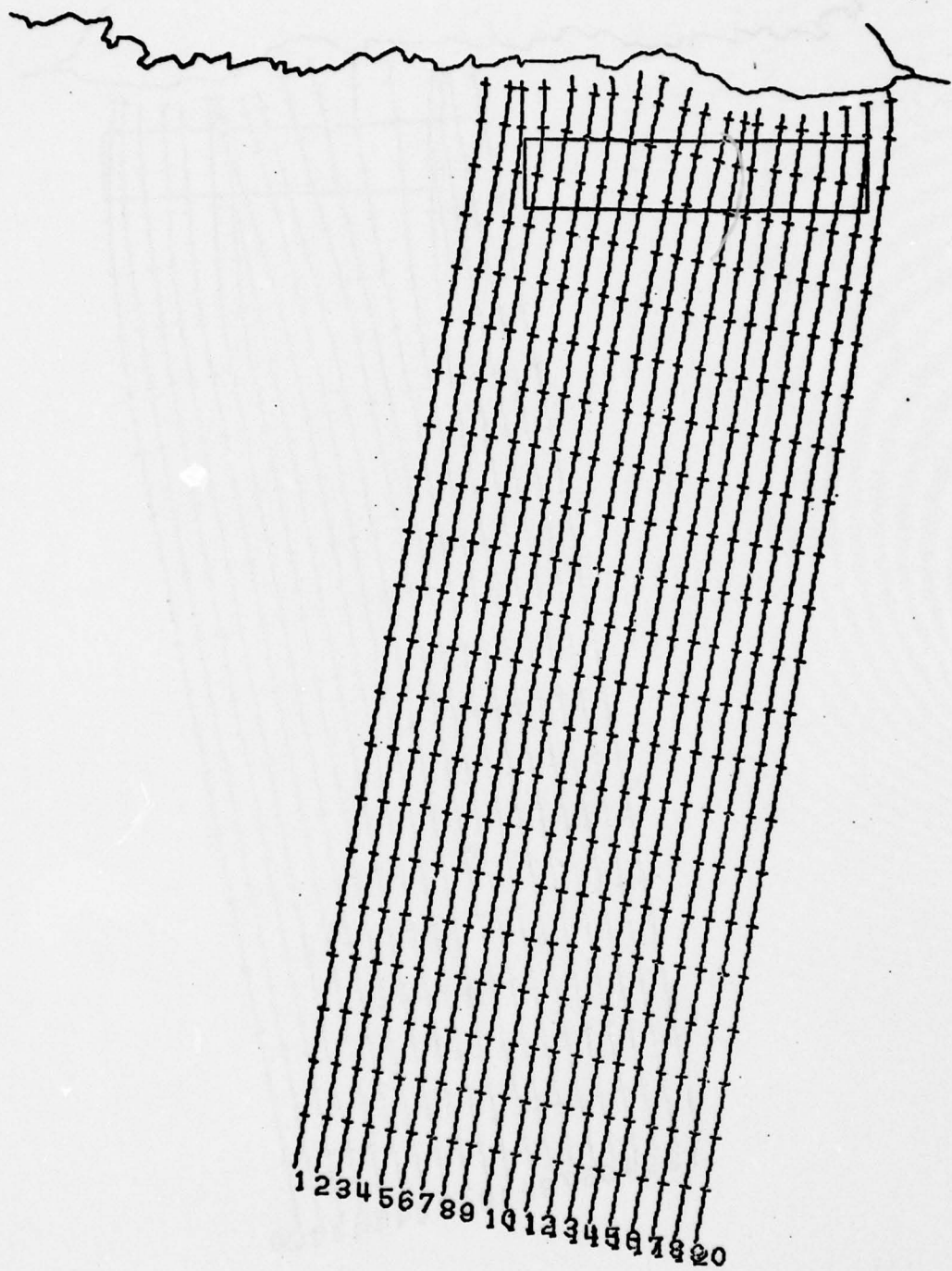
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**RATTLESNAKE CANYON**

**WAVE PERIOD = 19.000 SECS**

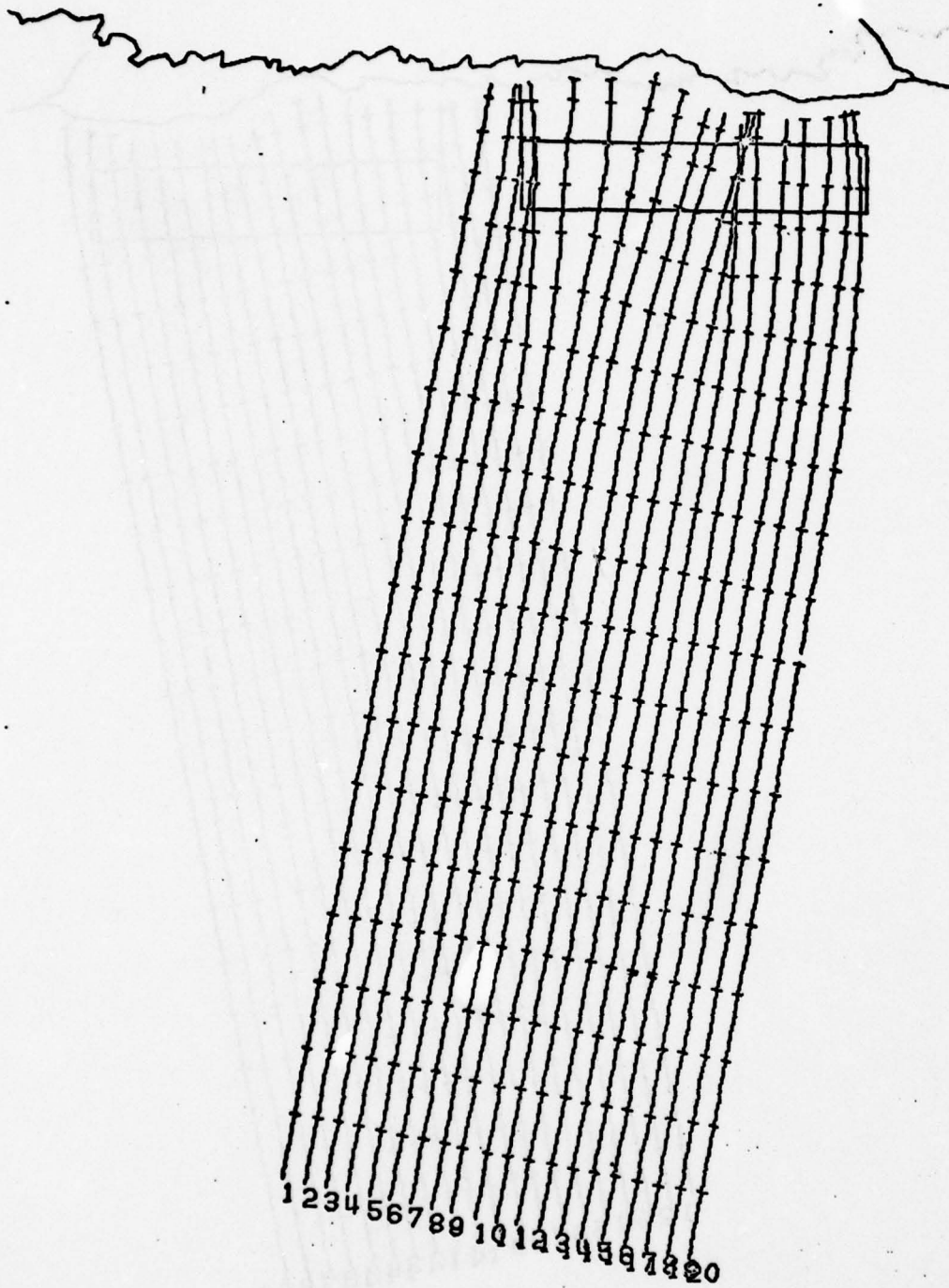
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RATTLESNAKE CANYON

WAVE PERIOD = 7.000 SECS

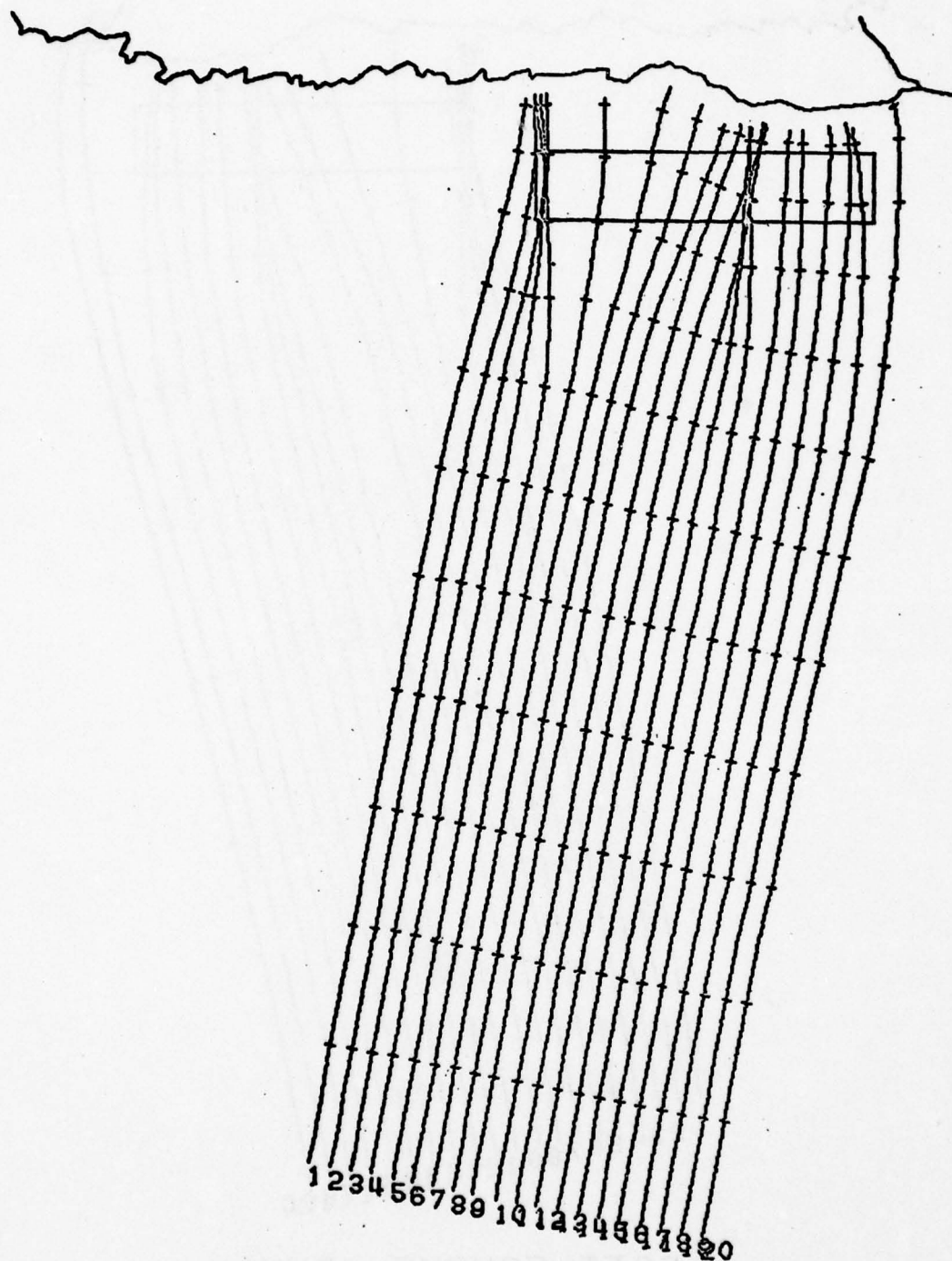
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**RATTLESNAKE CANYON**

**WAVE PERIOD = 11.000 SECS**

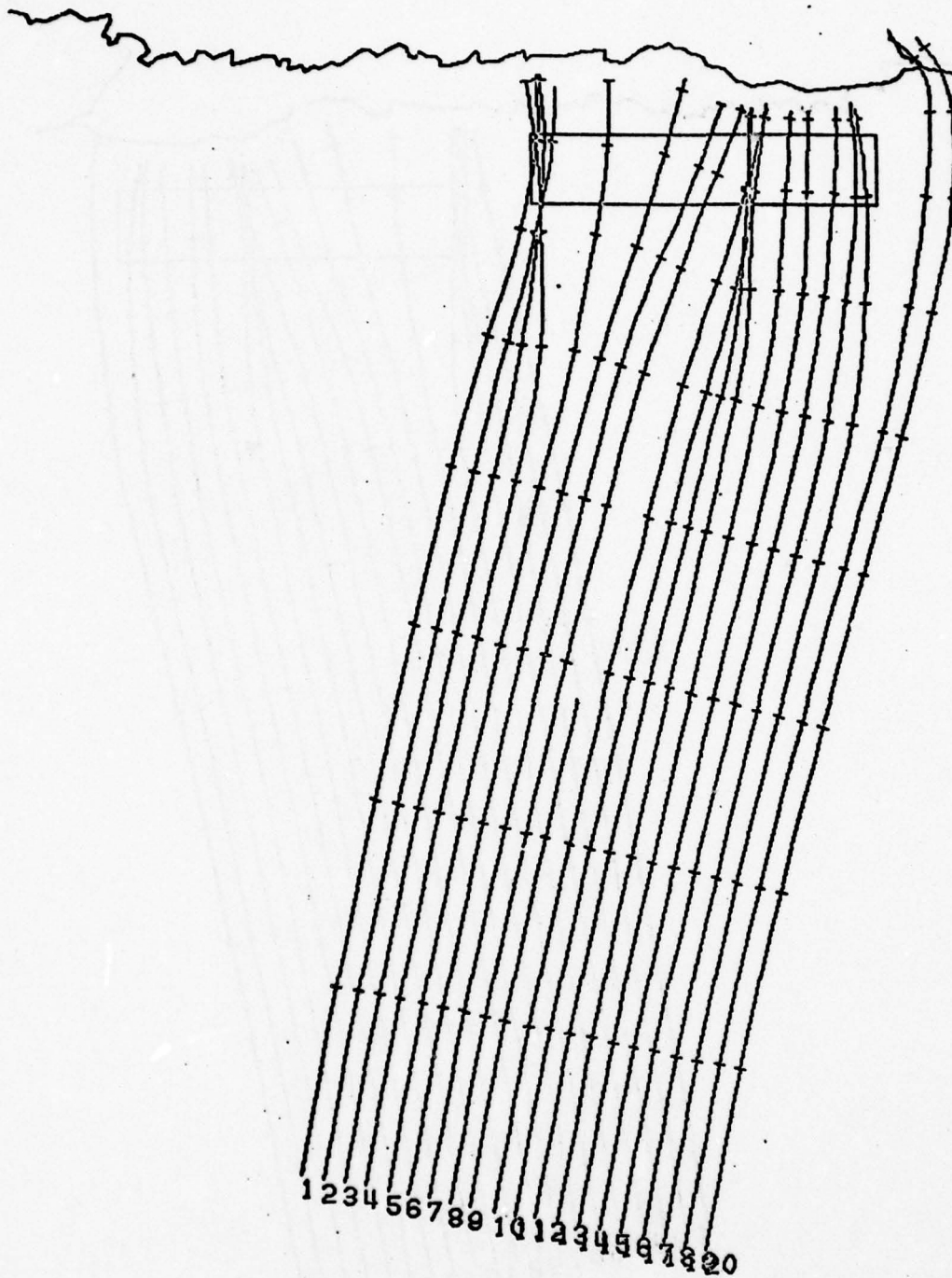
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RATTLESNAKE CANYON

WAVE PERIOD = 15.000 SECS

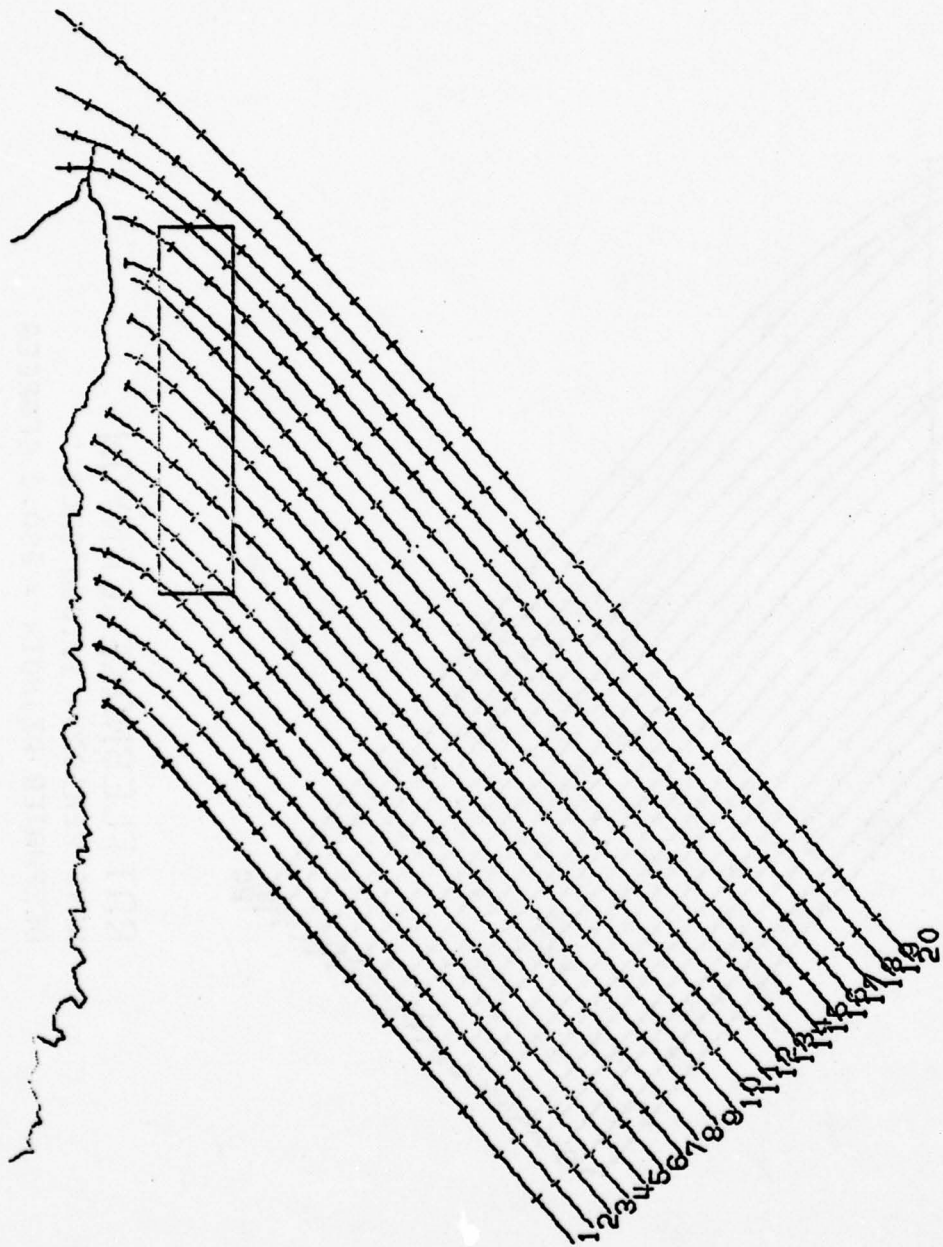
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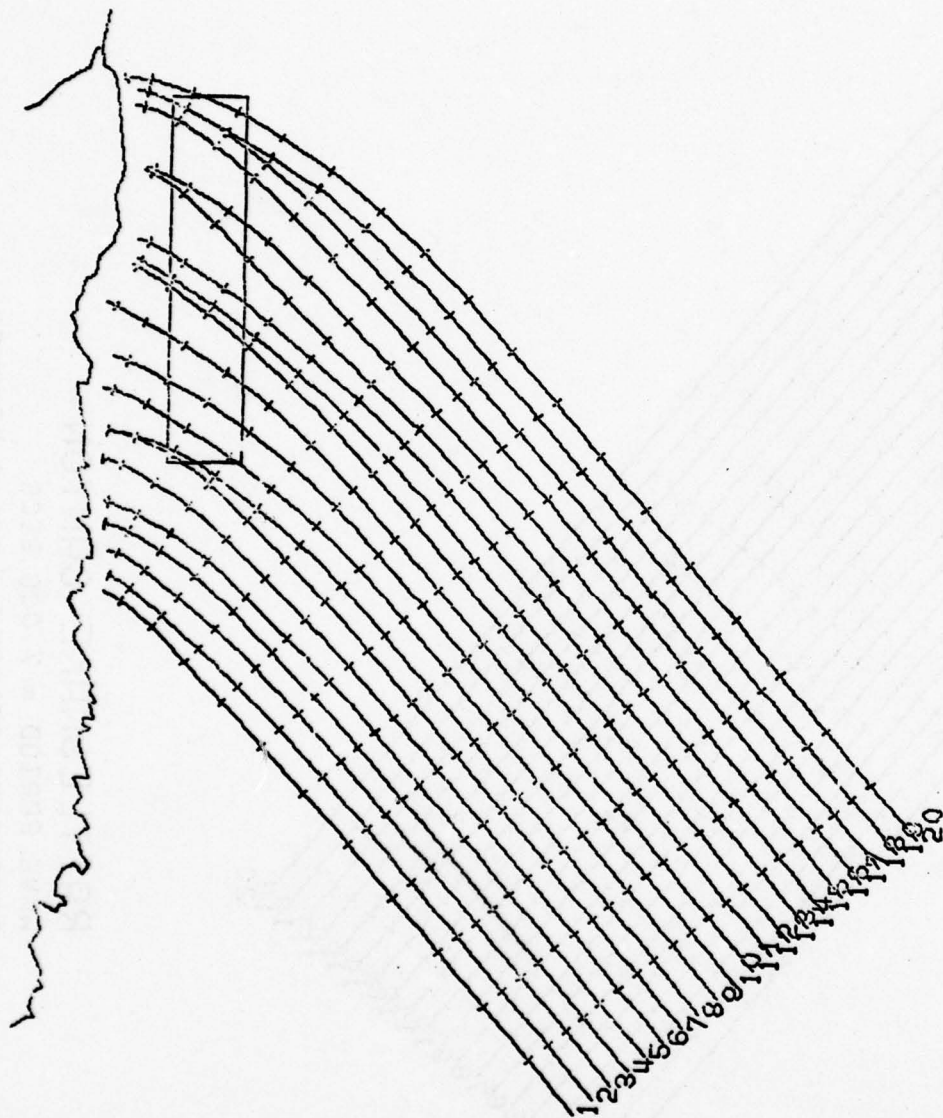
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**WAVE PERIOD = 19.000 SECS**

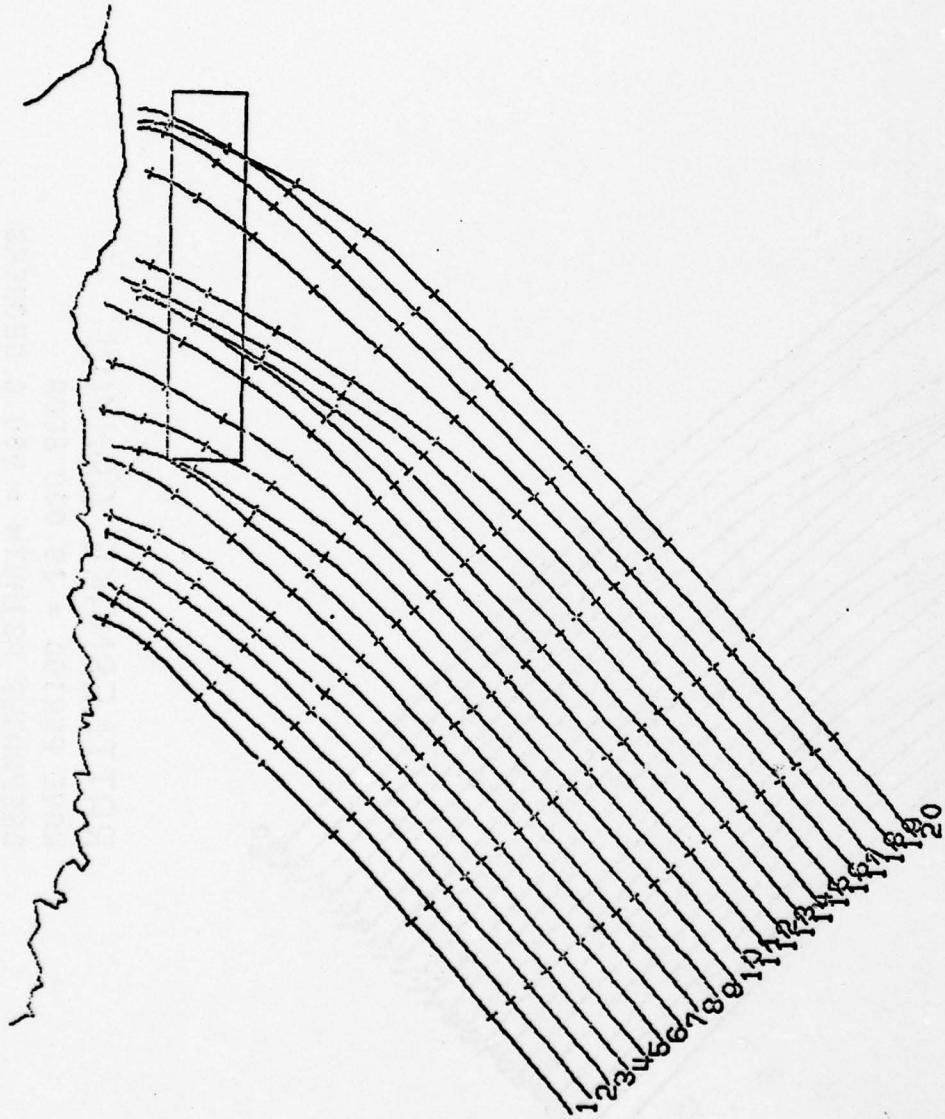
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RATTLESNAKE CANYON  
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DEEPWATER AZINUTH = 260.0 DEGREES



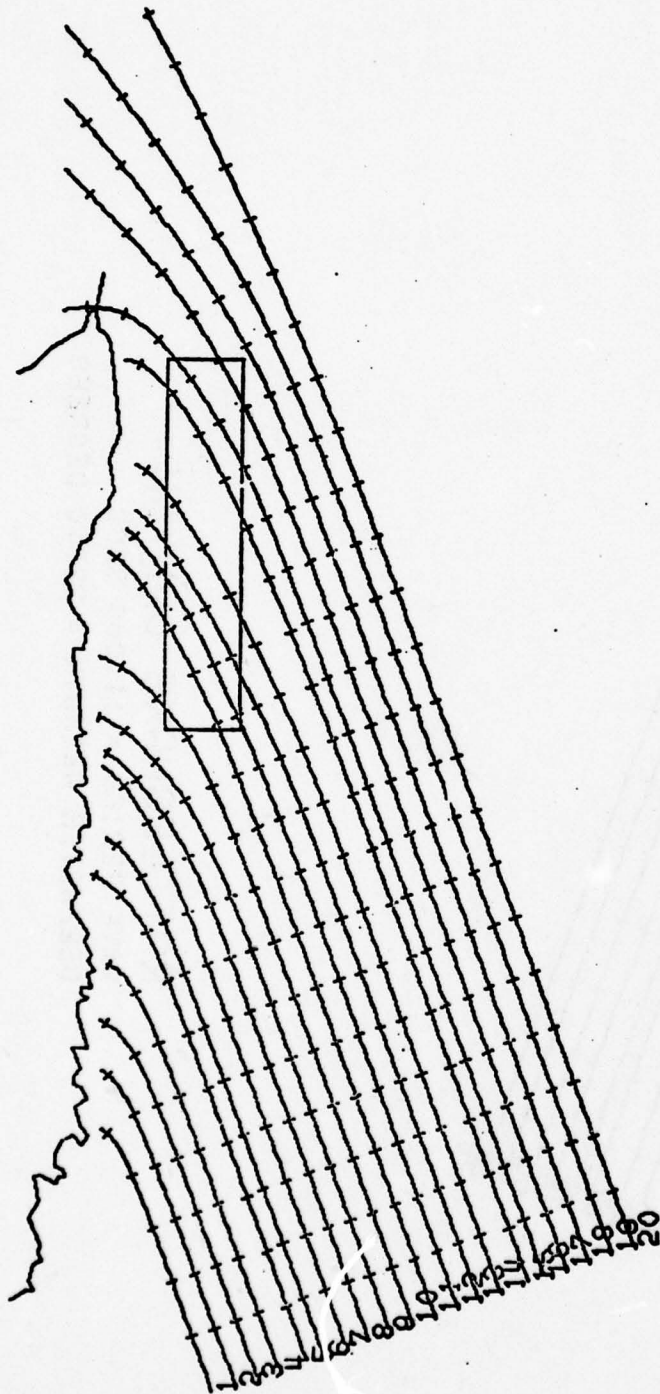
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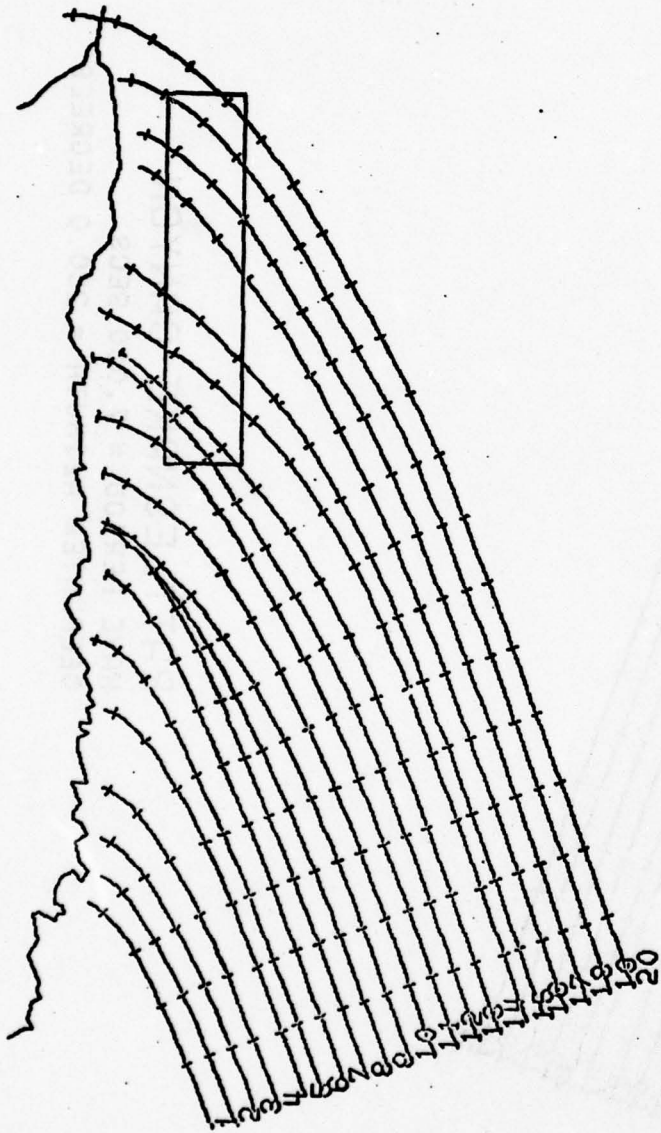
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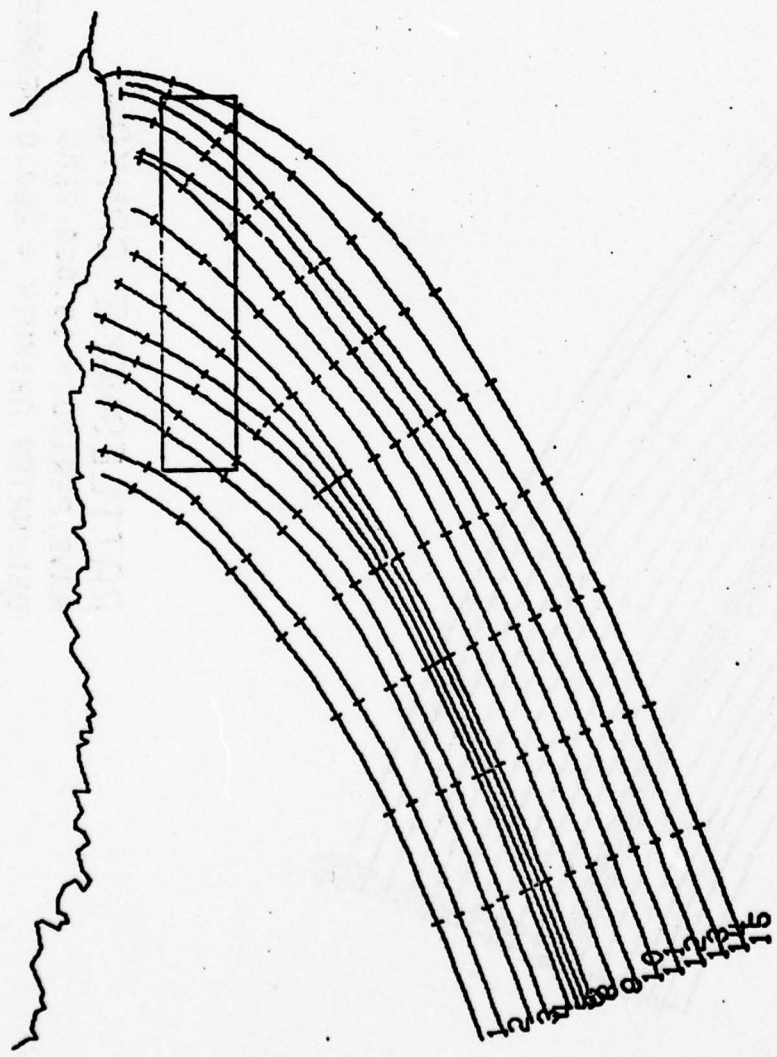
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DEEPWATER AZIMUTH = 260.0 DEGREES



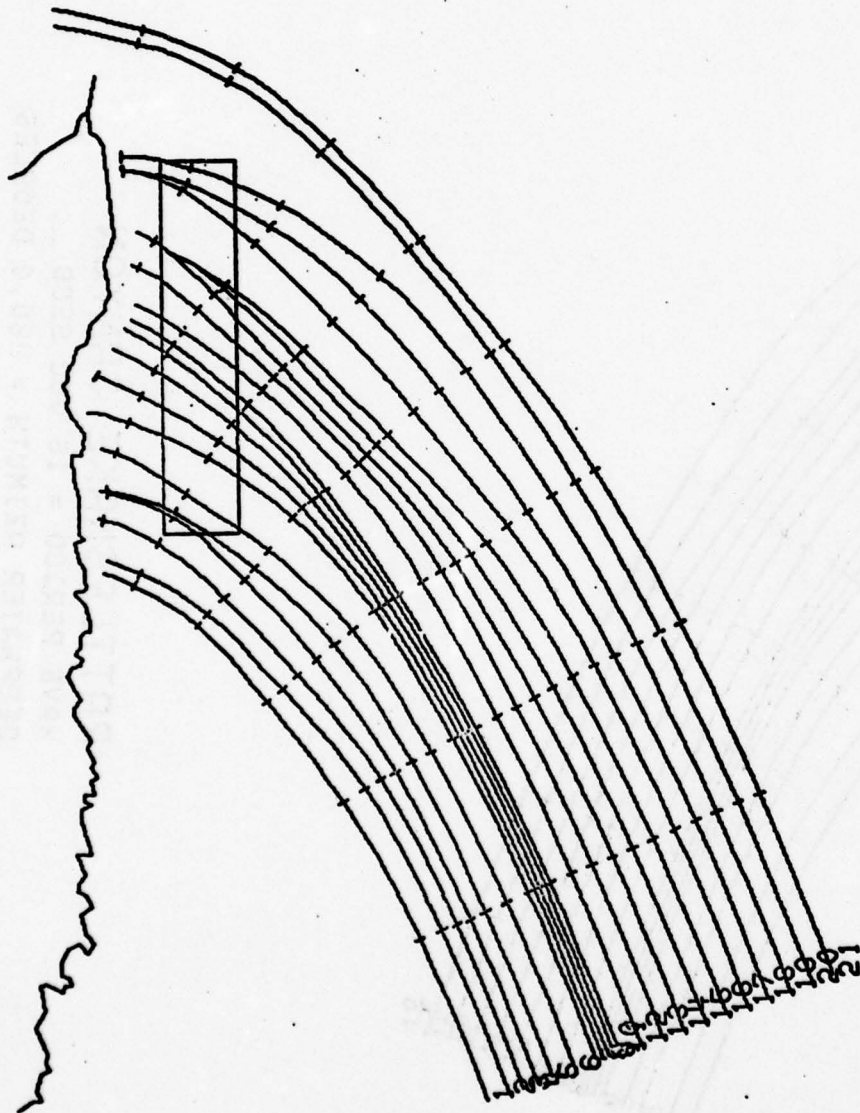
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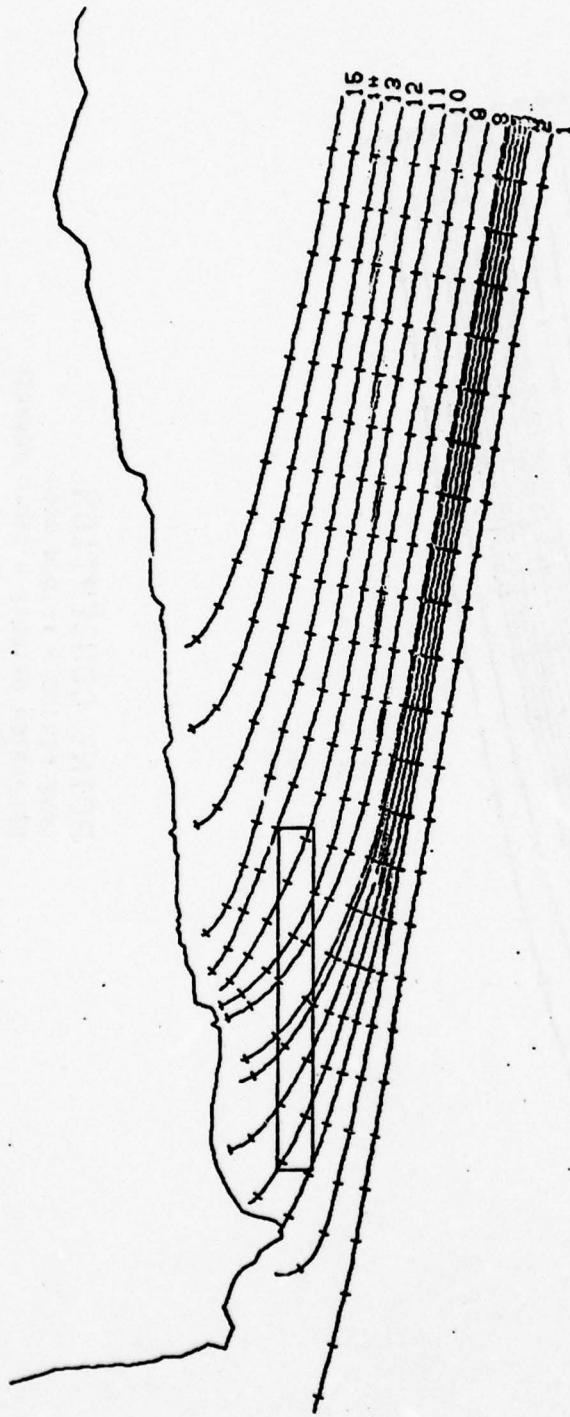
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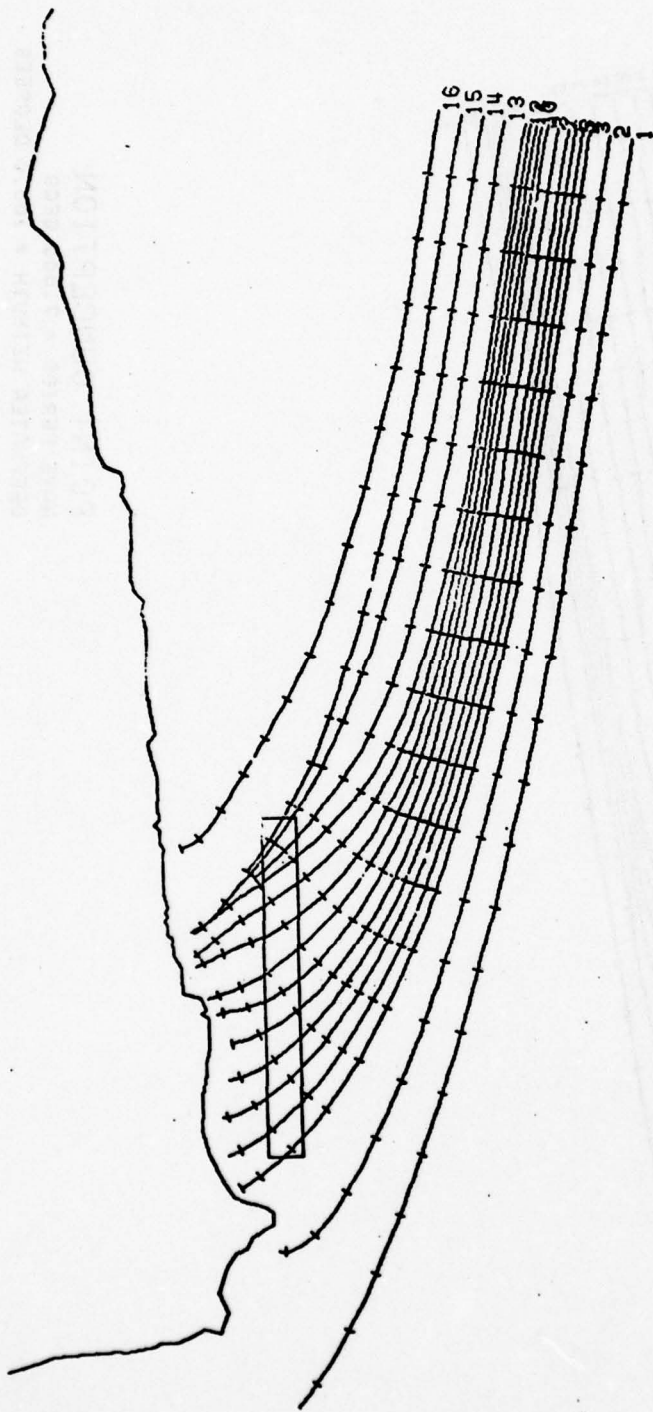
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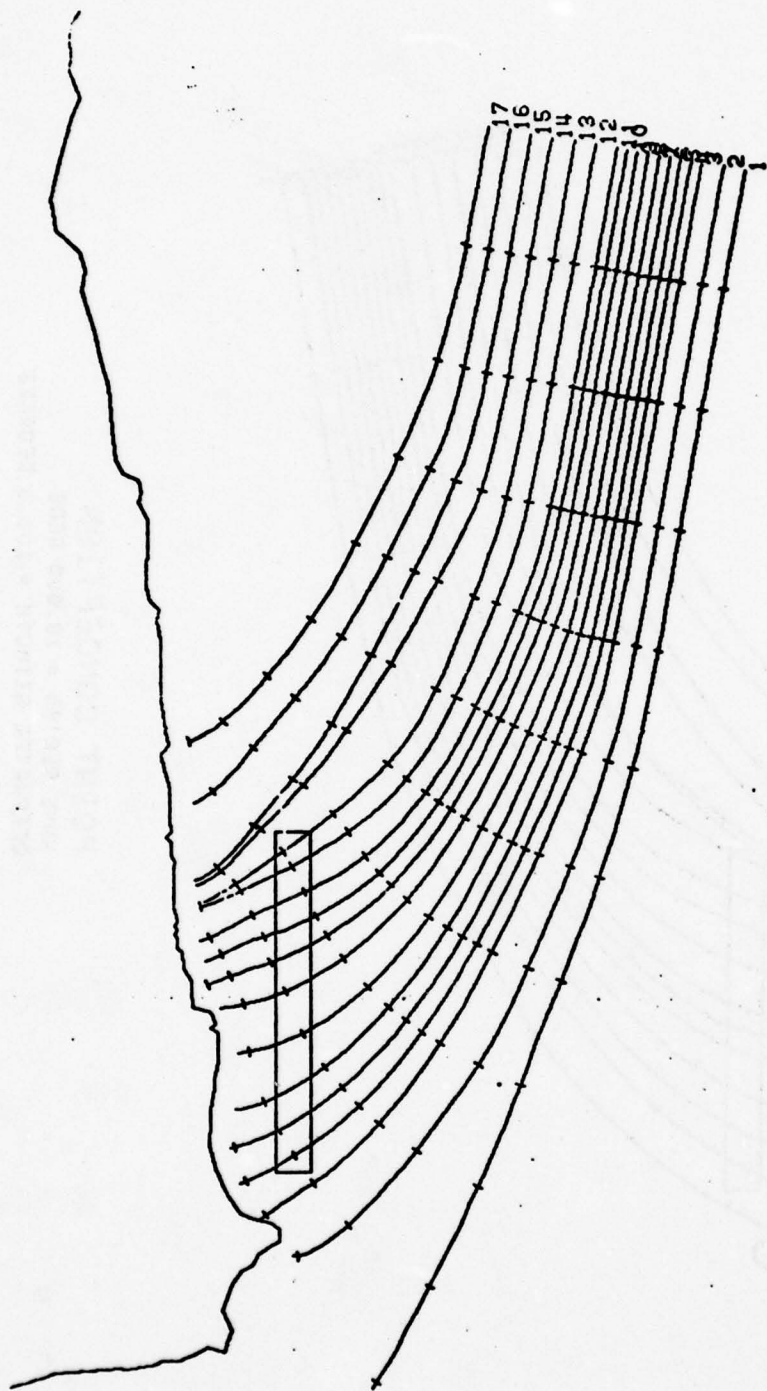
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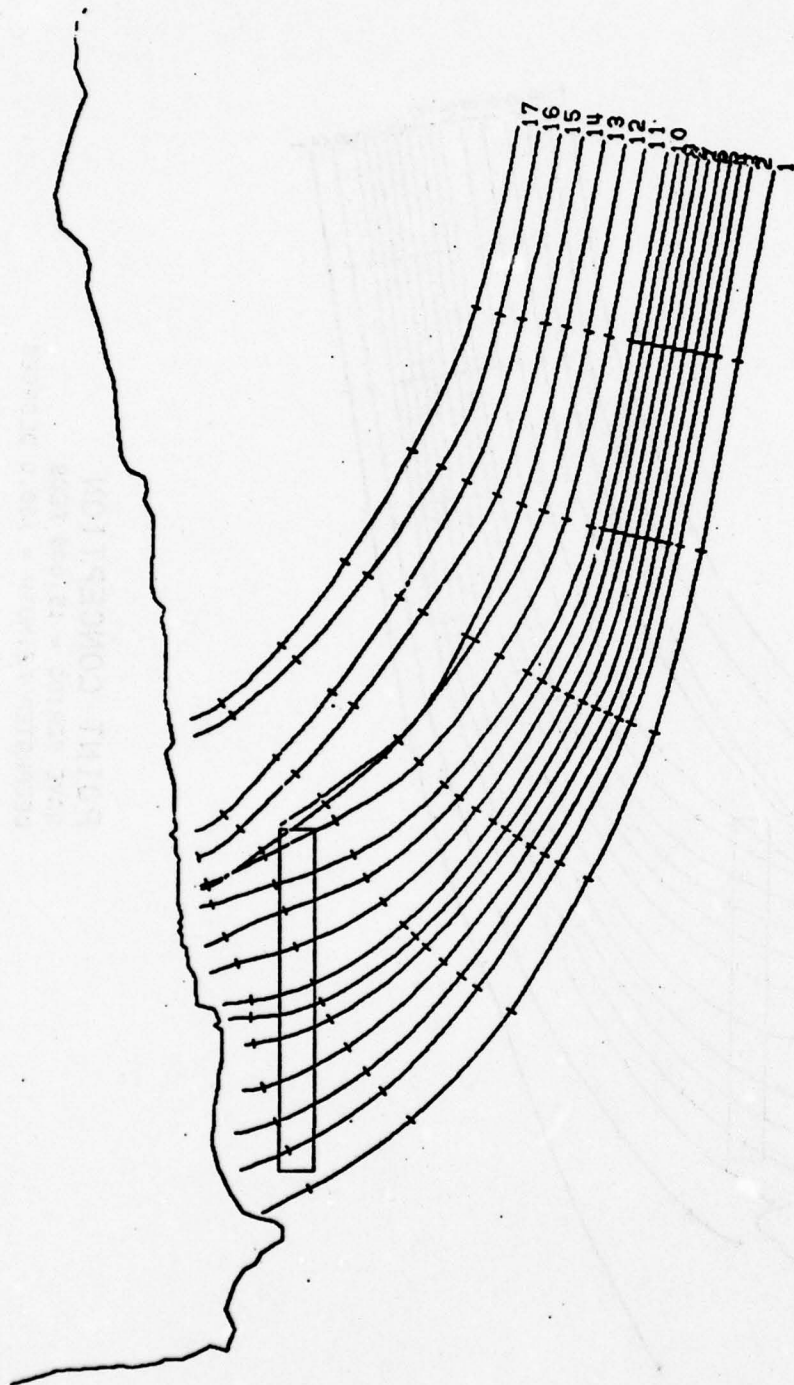
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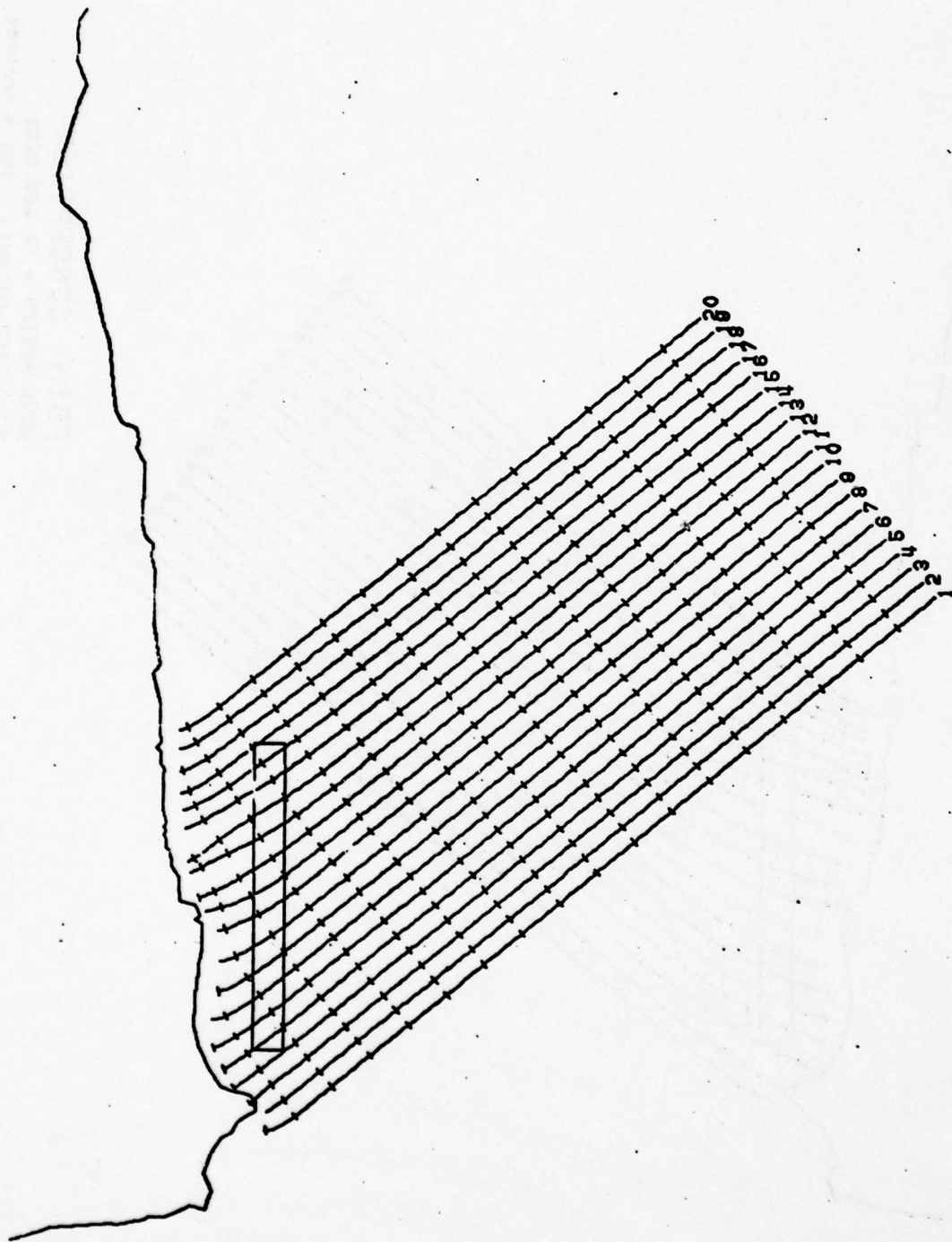
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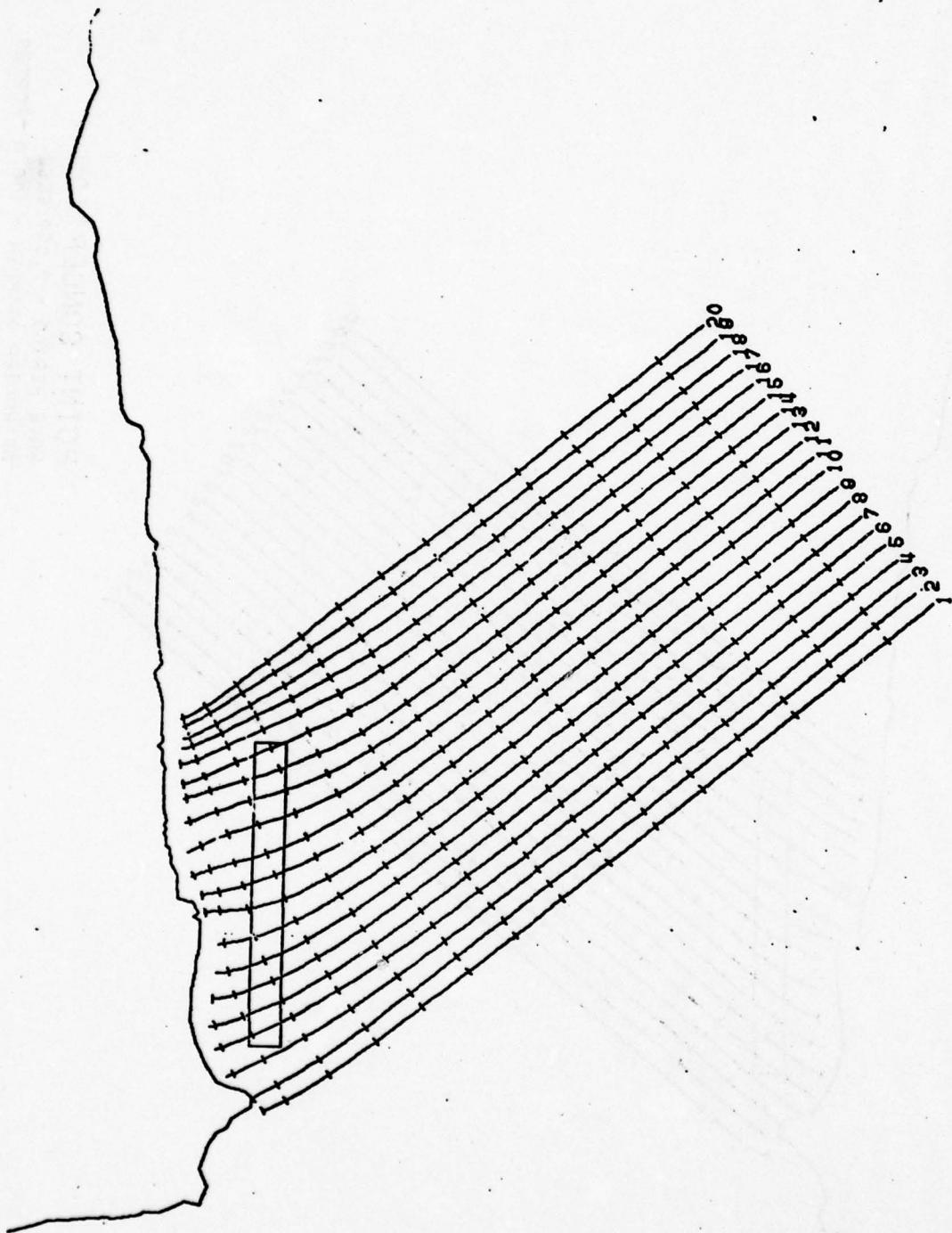
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DEEPWATER AZIMUTH = 100.0 DEGREES



POINT CONCEPTION  
WAVE PERIOD = 19.000 SECS  
DEEPWATER AZIMUTH = 100.0 DEGREES



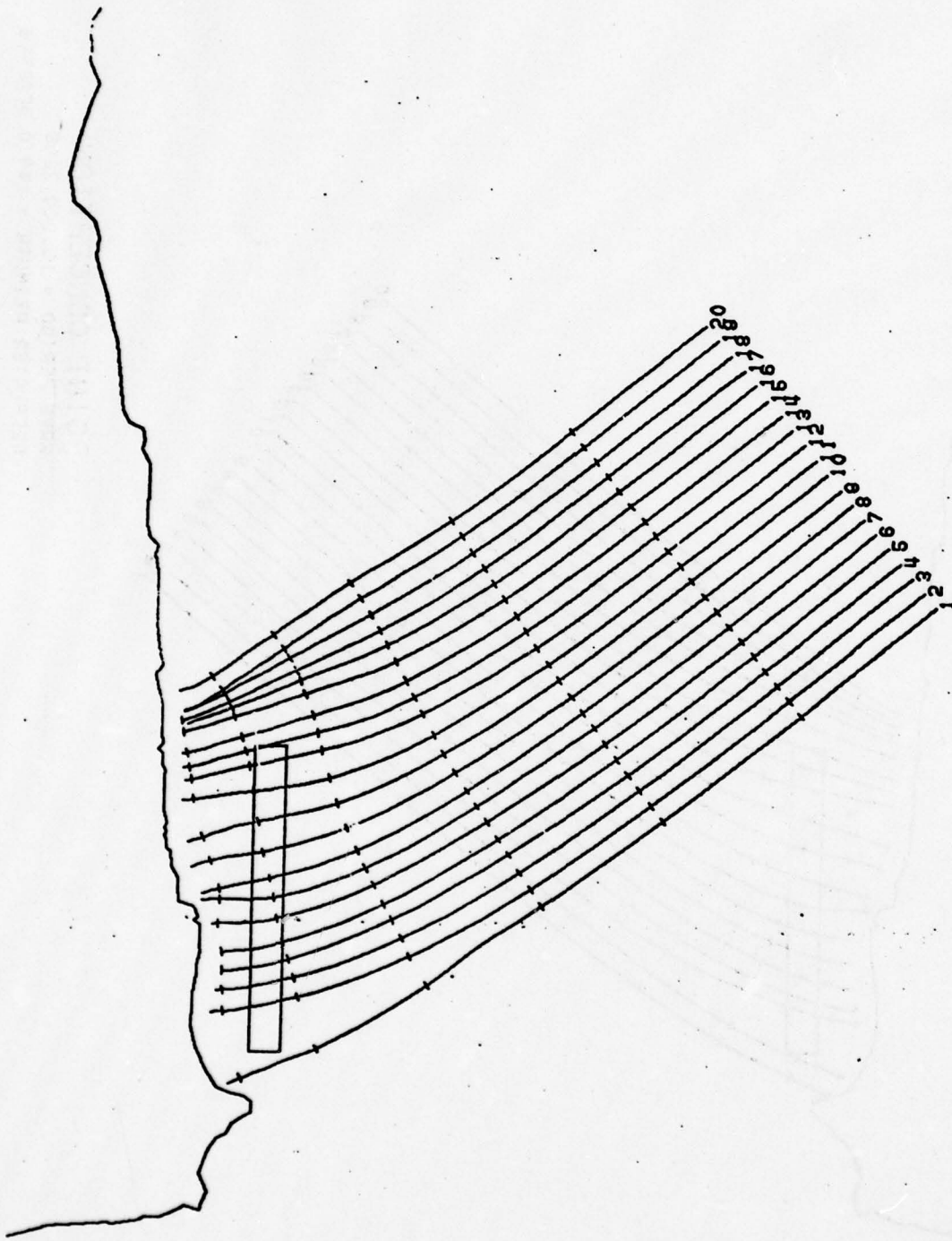
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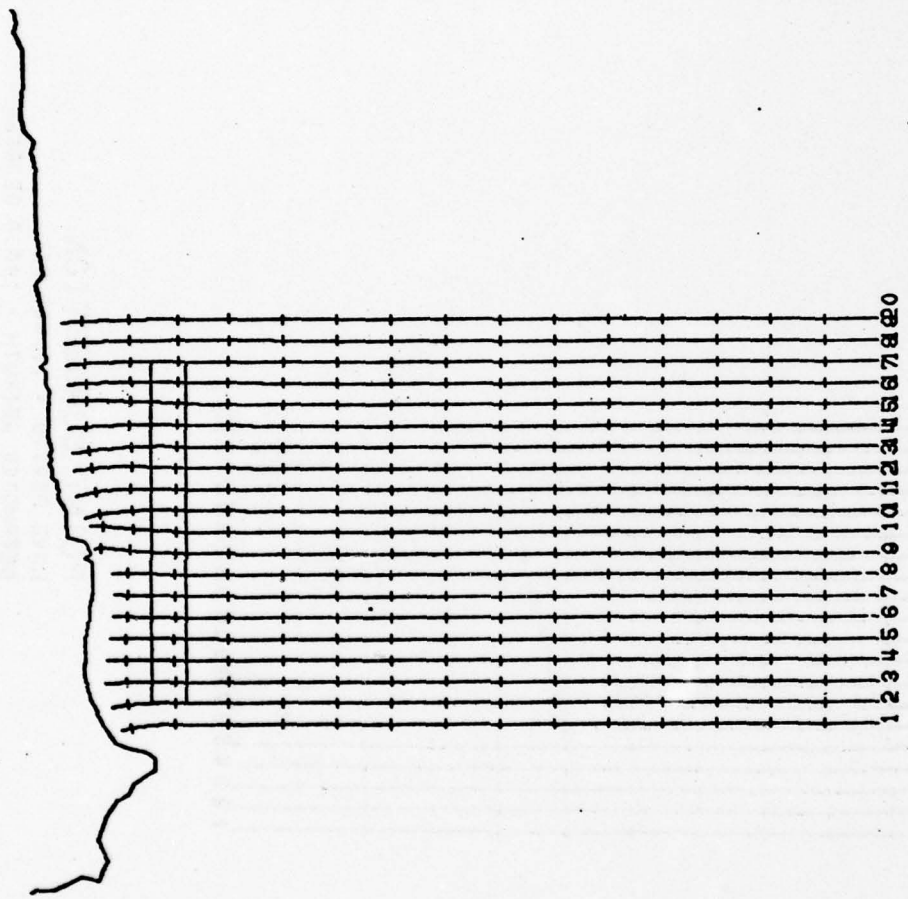
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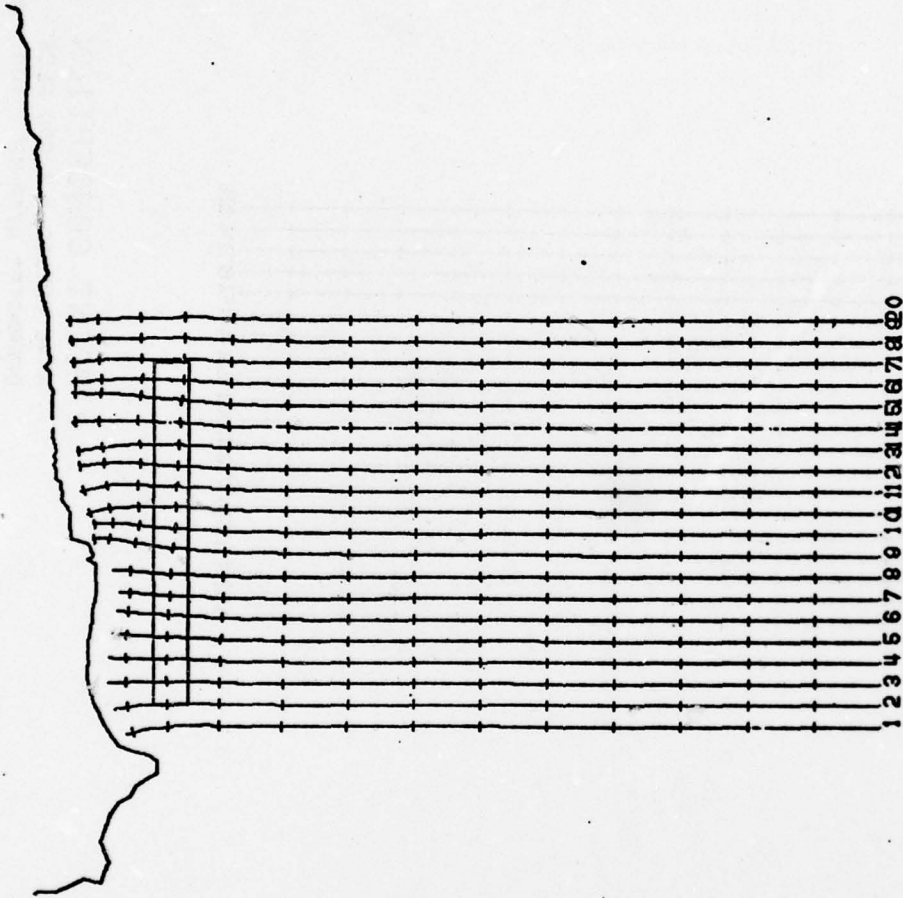
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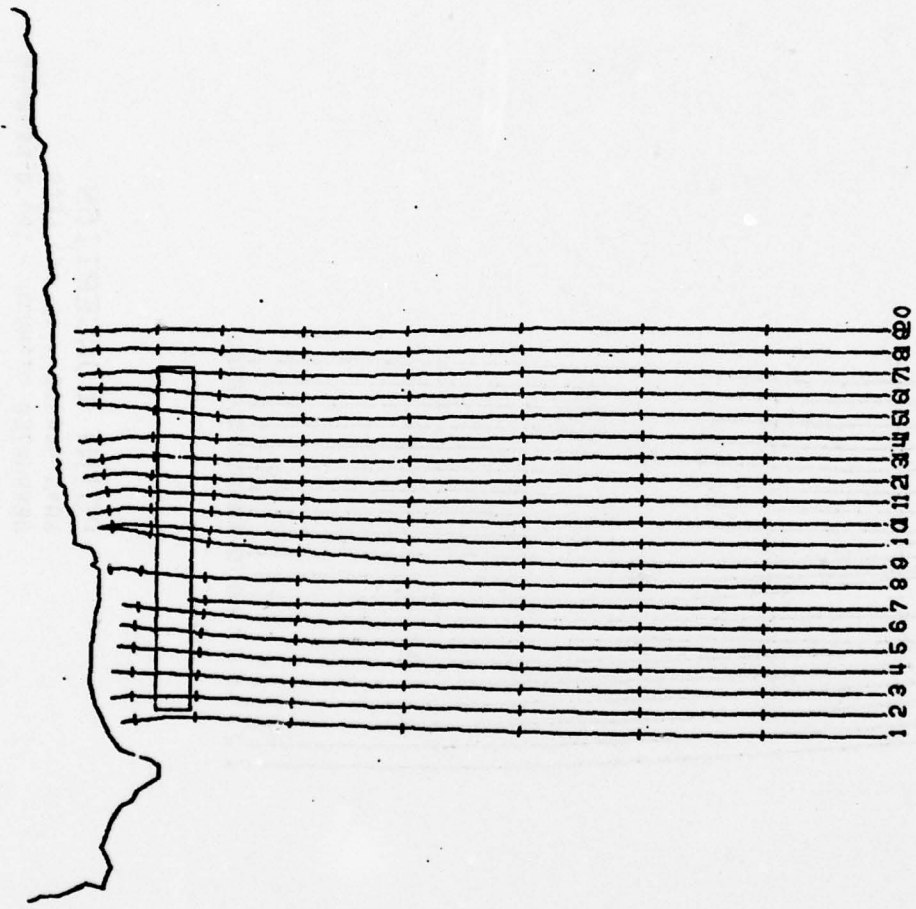
POINT CONCEPTION  
WAVE PERIOD = 16.000 SECS  
DIFFERENTIAL WAVELENGTH = 140.0 METERS



POINT CONCEPTION  
 WAVE PERIOD = 7.000 SECS  
 DEEPWATER AZIMUTH = 190.0 DEGREES



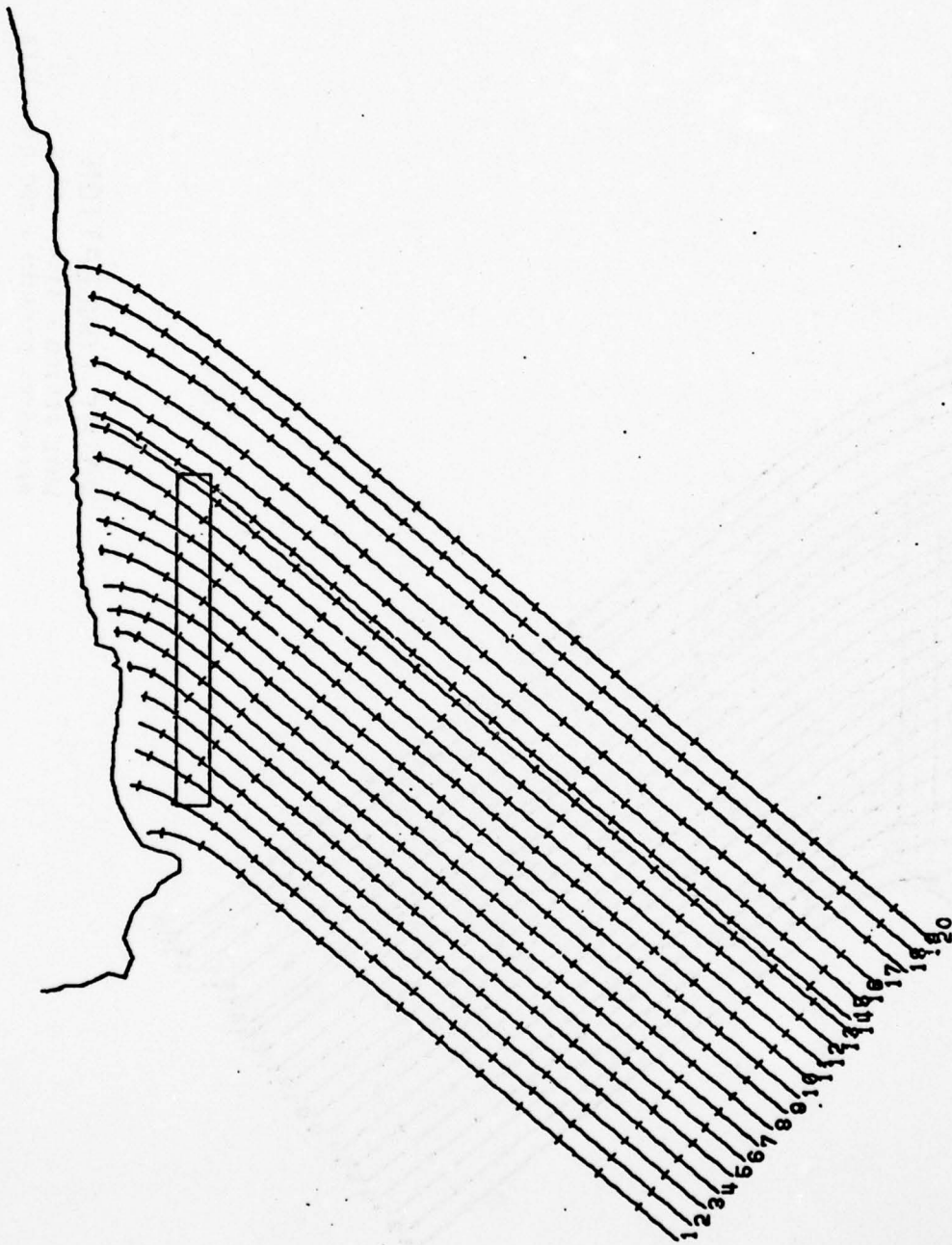
POINT CONCEPTION  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 120.0 DEGREES



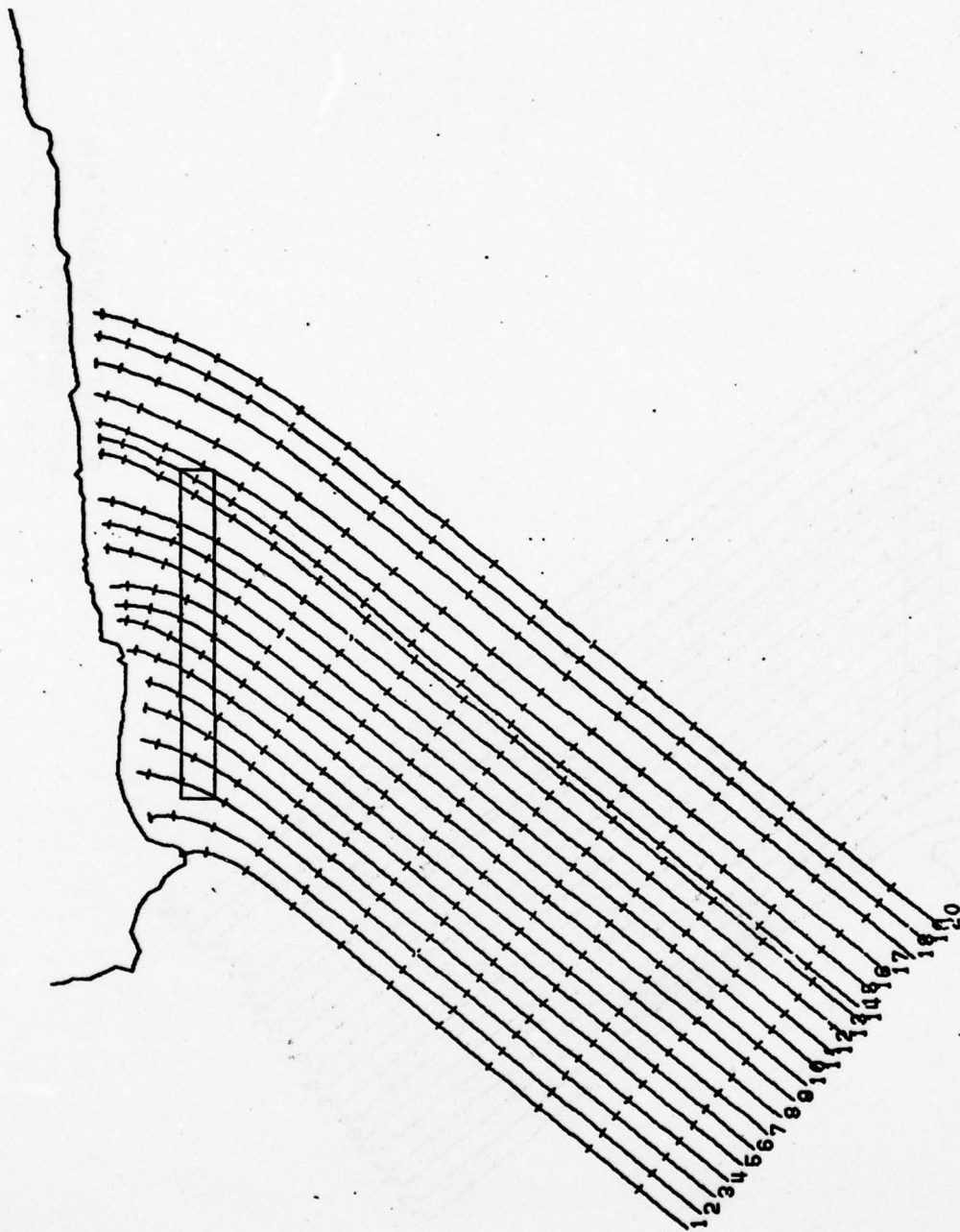
POINT CONCEPTION  
 WAVE PERIOD = 15.000 SECS  
 DEPARTURE 077MUTH = 150.0 DEGREES



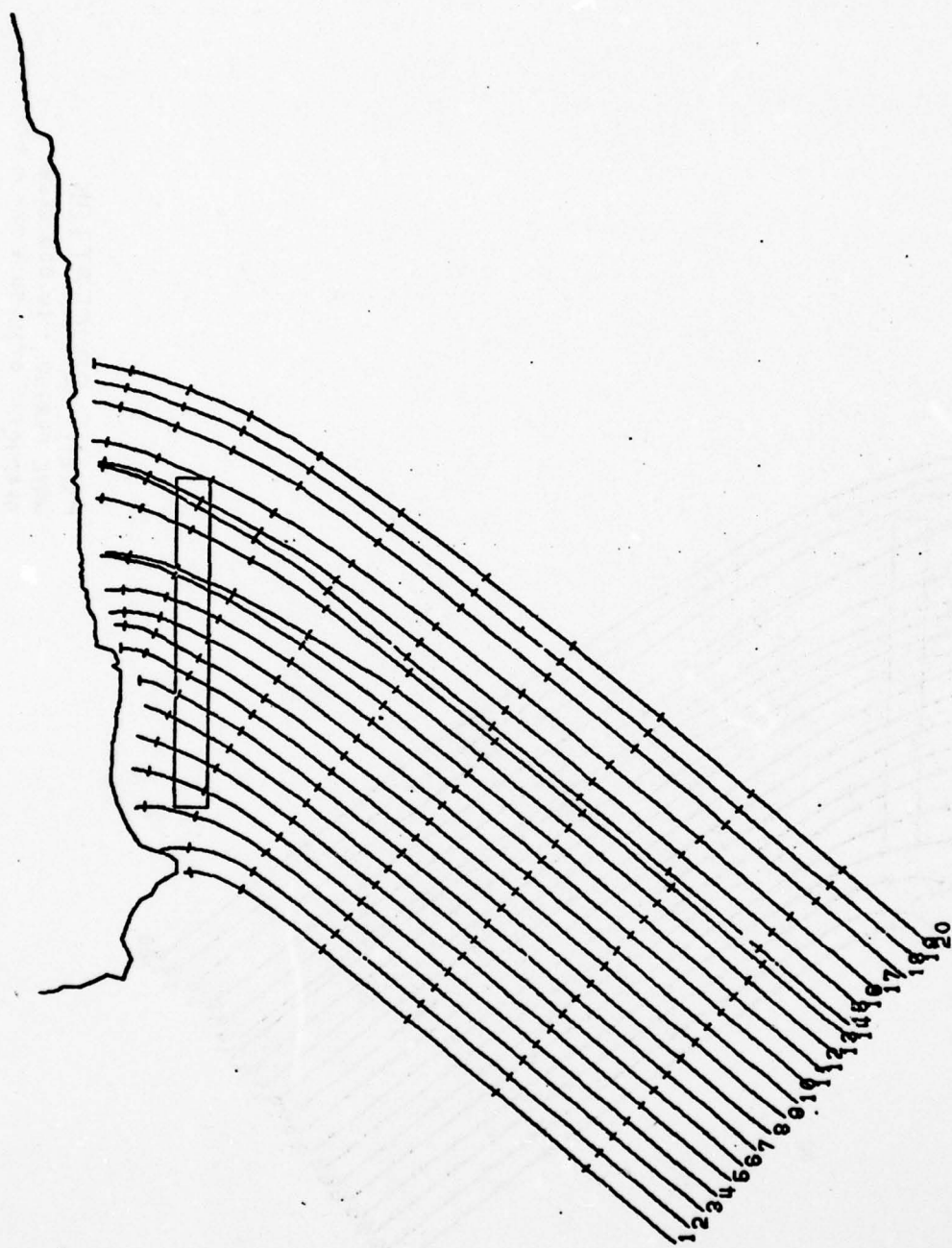
POINT CONCEPTION  
 WAVE PERIOD = 19.000 SECS  
 DEEPWATER DIRECTION = 180.0 DEGREES



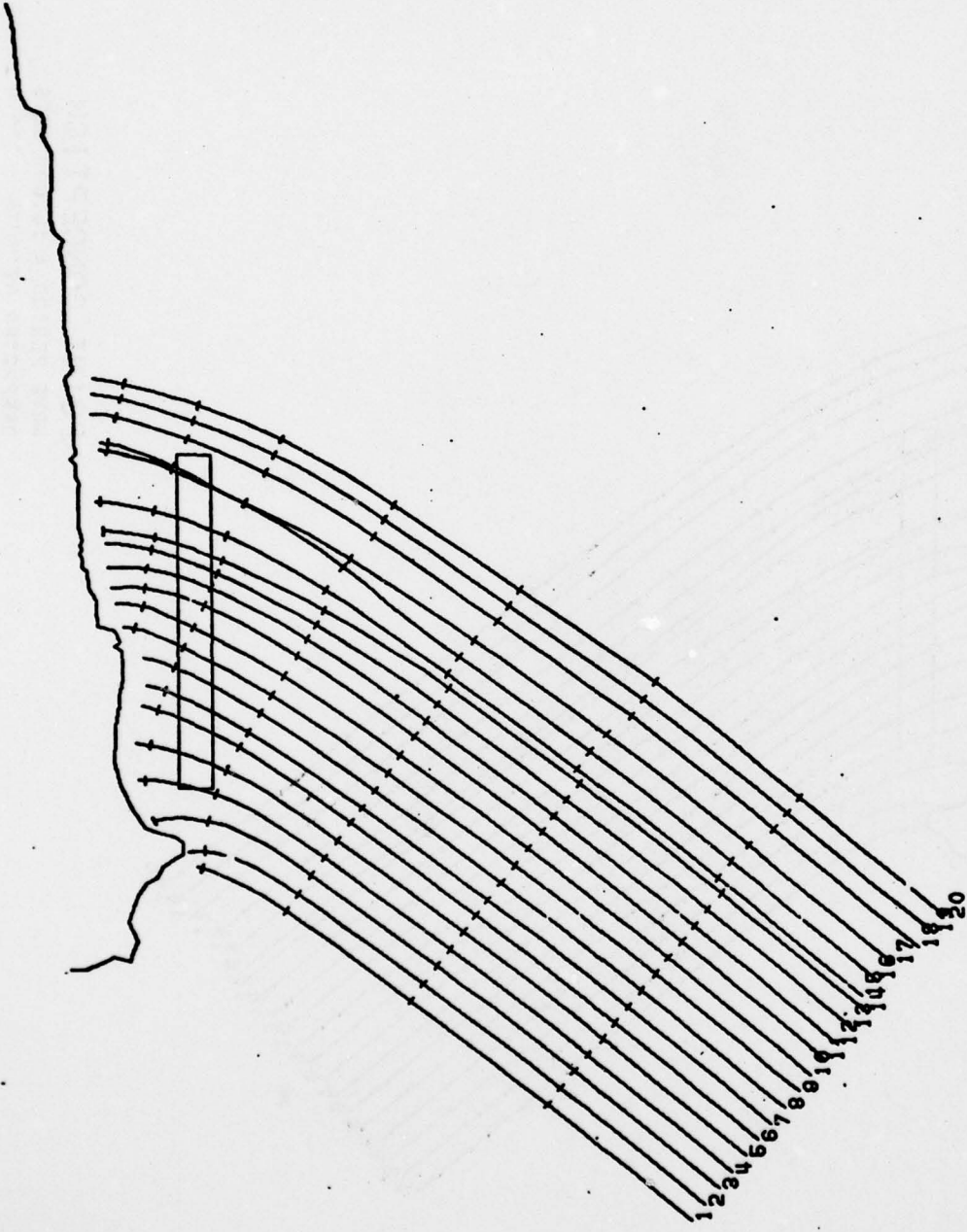
POINT CONCEPTION  
WAVE PERIOD = 7.000 SECS  
CALCULATED AZIMUTH = 220.0 DEGREES



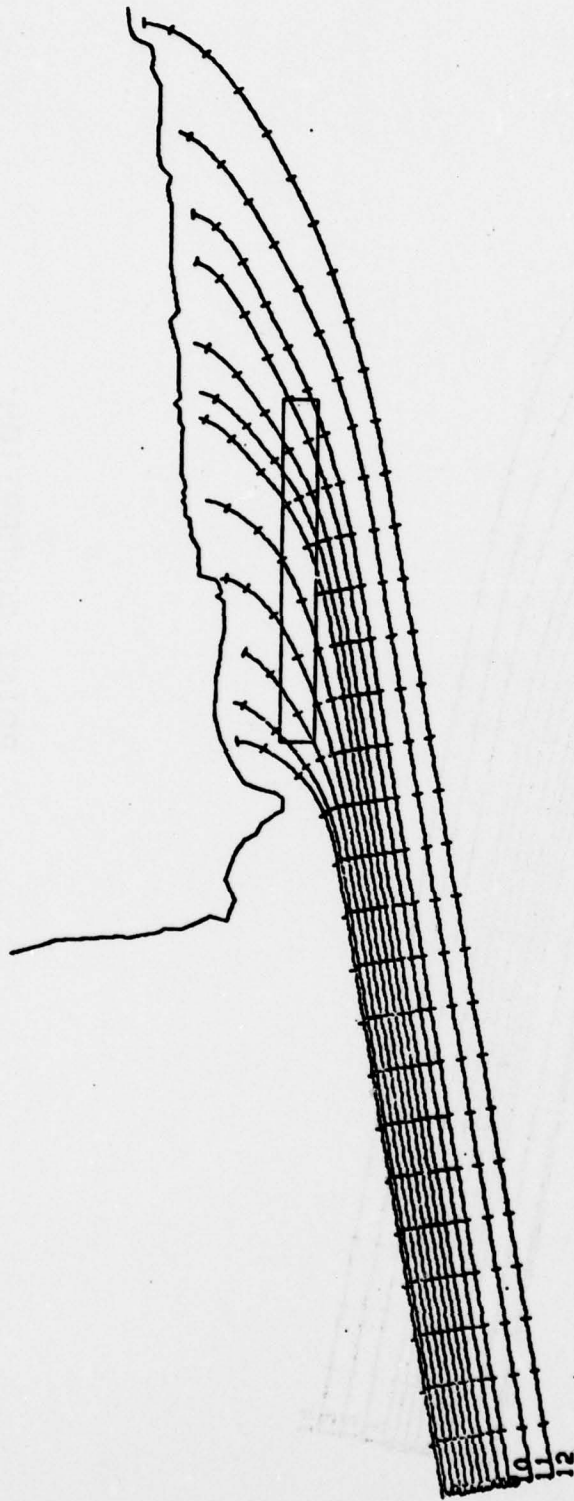
POINT CONCEPTION  
WAVE PERIOD = 11.000 SECS  
APPROXIMATE DIRECTION = 220.0 DEGREES



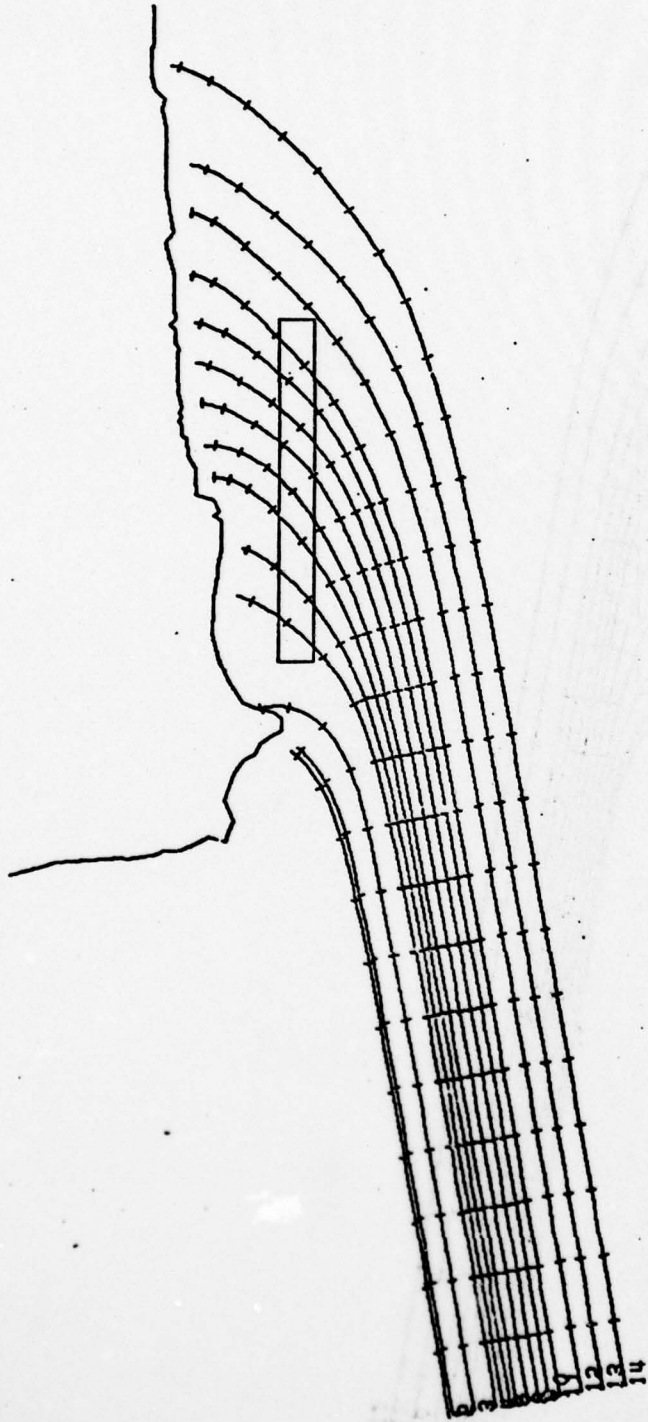
POINT CONCEPTION  
WAVE PERIOD = 15.000 SECS  
DEEPWATER WAVELENGTH = 200.0 FEET



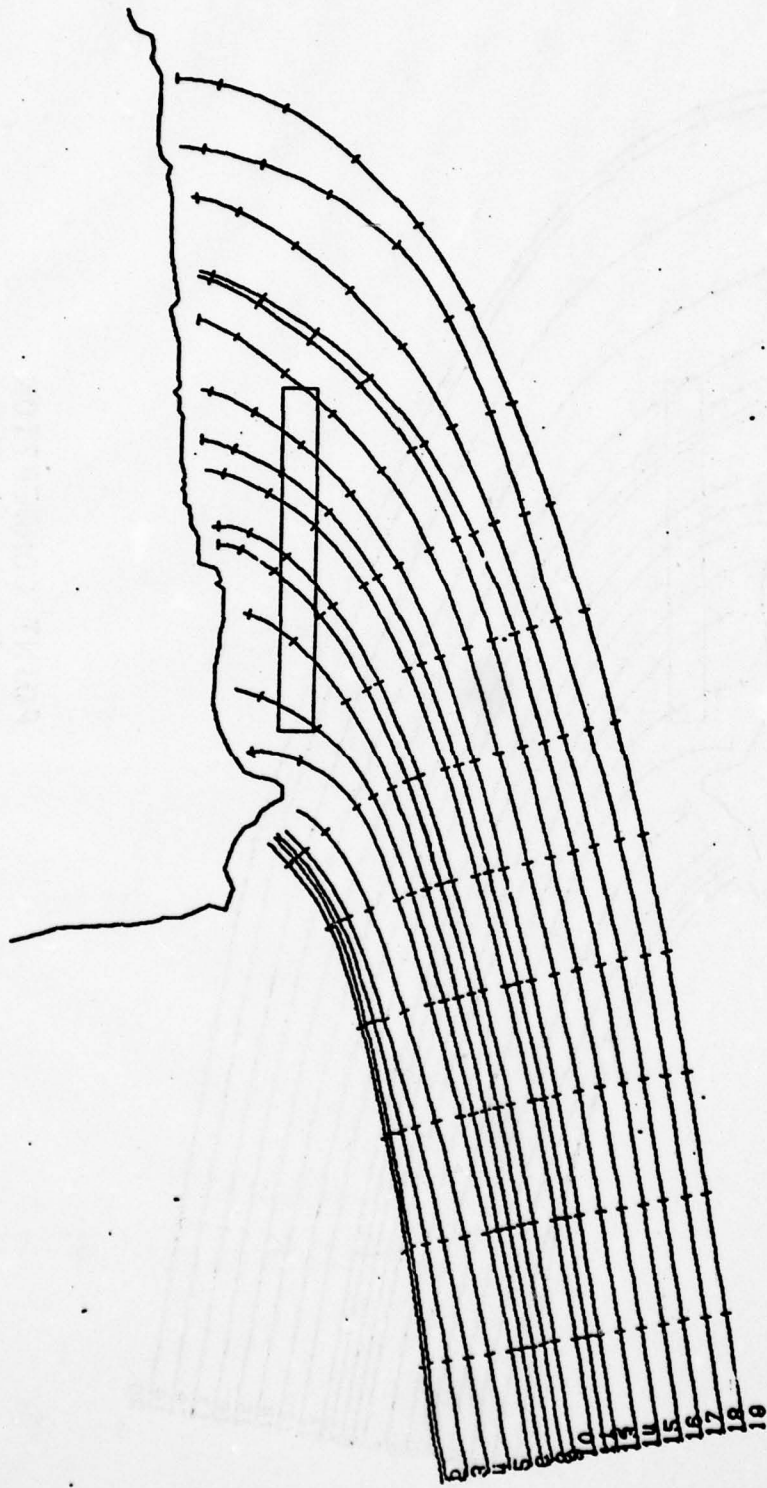
POINT CONCEPTION  
WAVE PERIOD = 18.000 SECS  
DIFFUSION COEFFICIENT = 200 CM<sup>2</sup> SECS



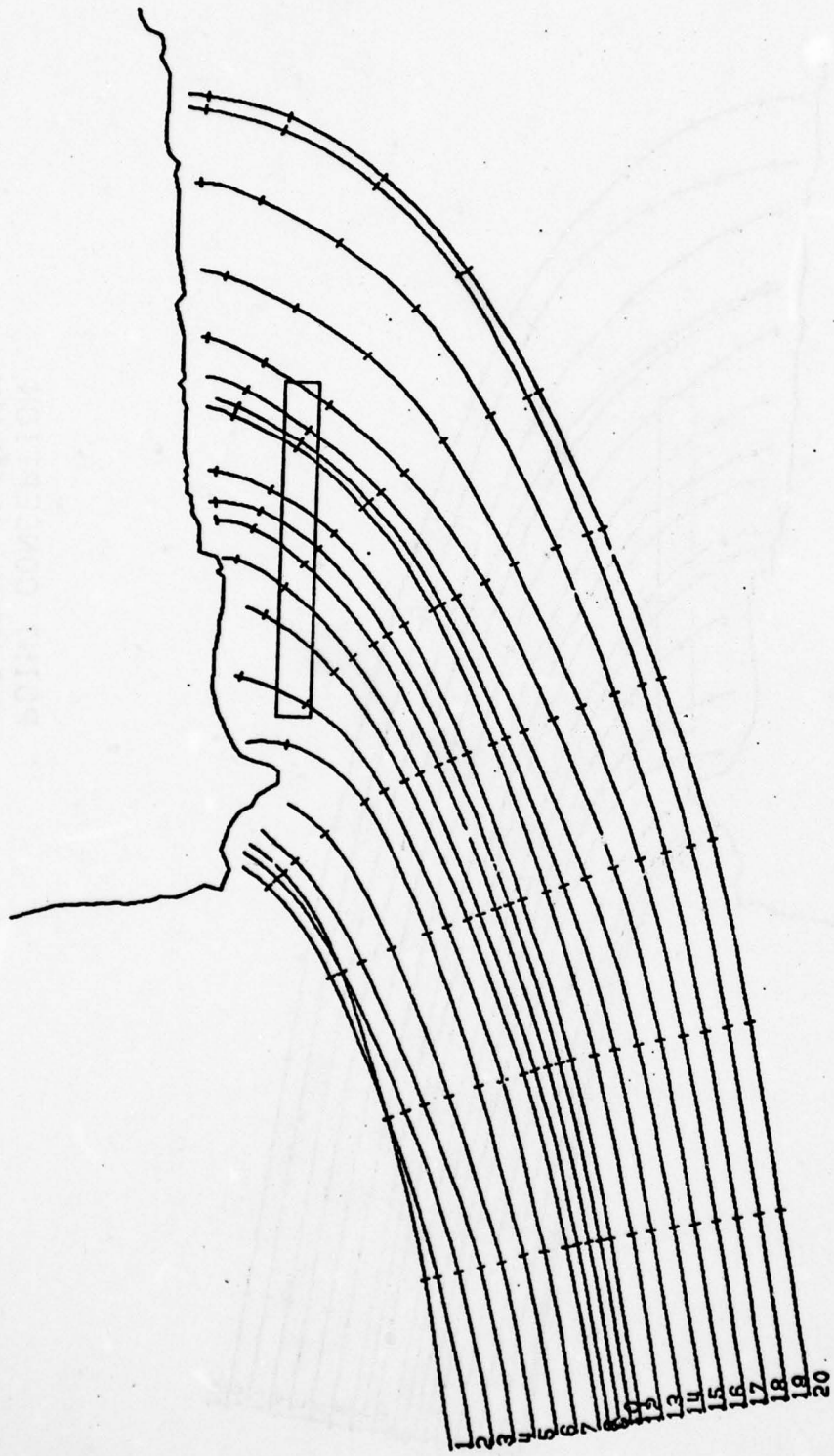
POINT CONCEPTION  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 090.0 DEGREES



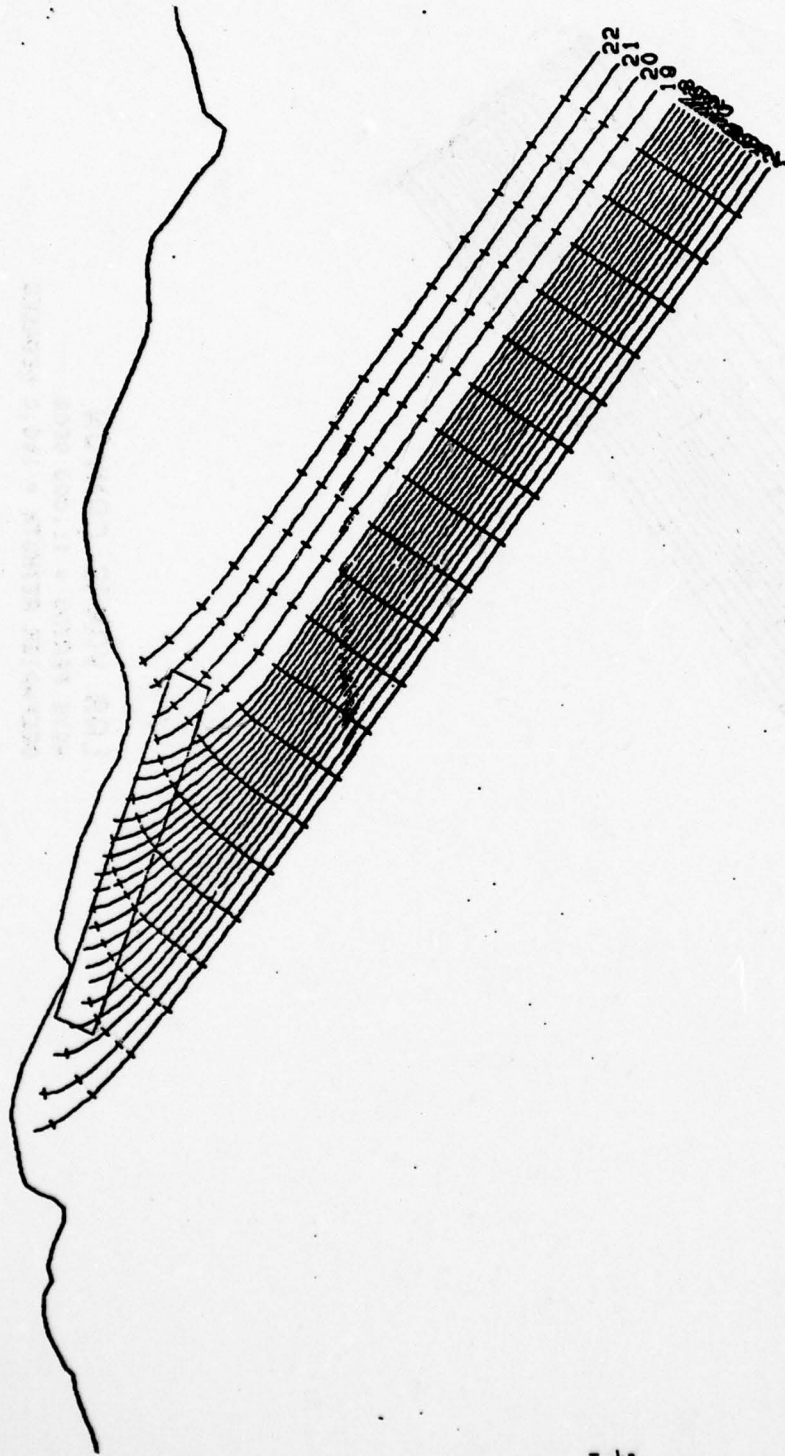
POINT CONCEPTION  
WAVE PERIOD = 11.000 SECS  
DEPT/WATER AZIMUTH = 260.0 DEGREES



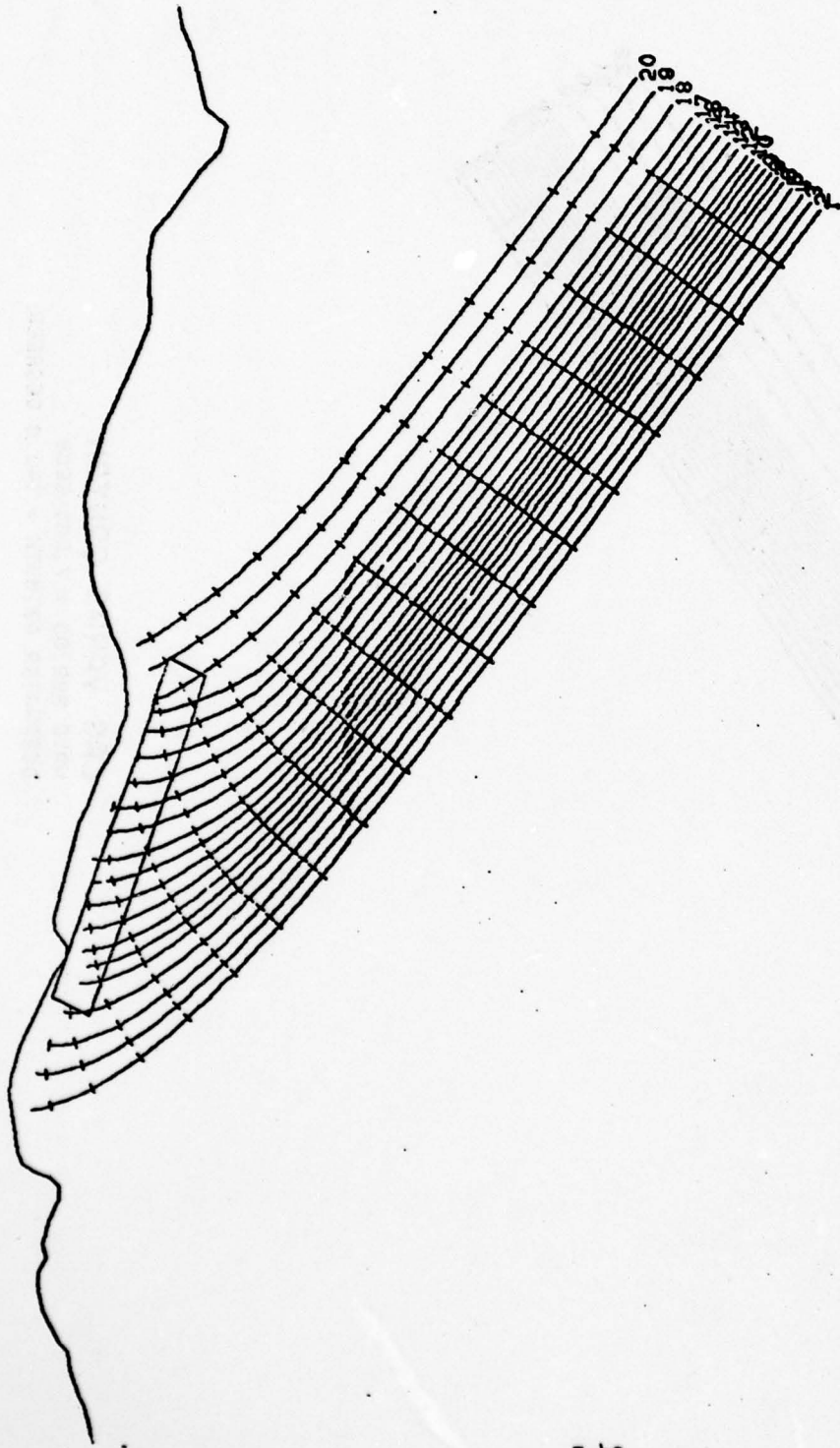
POINT CONCEPTION  
WAVE PERIOD = 15.000 SECS  
DIFFRACTED AZIMUTH = 260.0 DEGREES



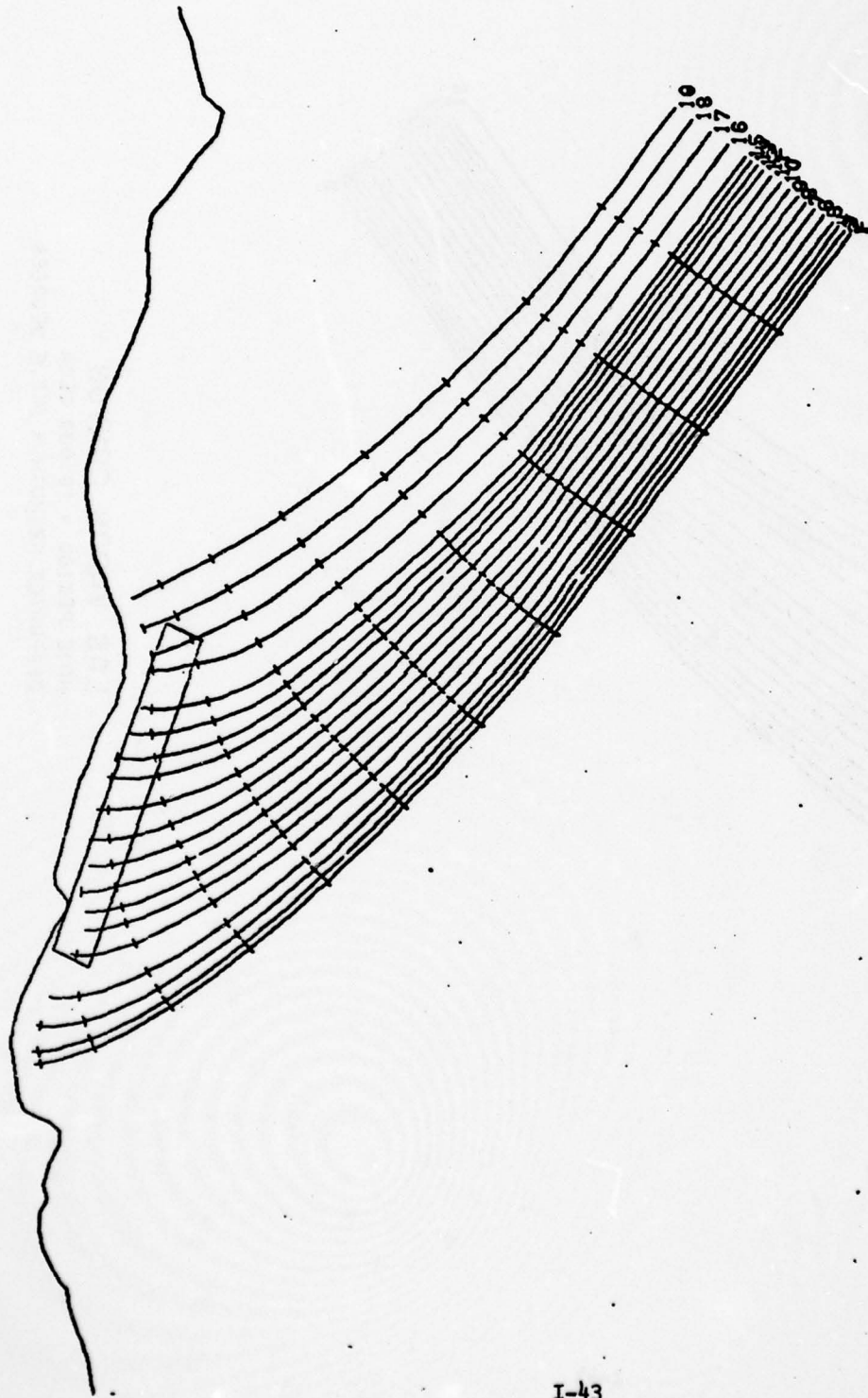
POINT CONCEPTION  
WAVE PERIOD = 19.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



LAS VARAS CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



LAS VARAS CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



LAS VARAS CANYON  
HAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES

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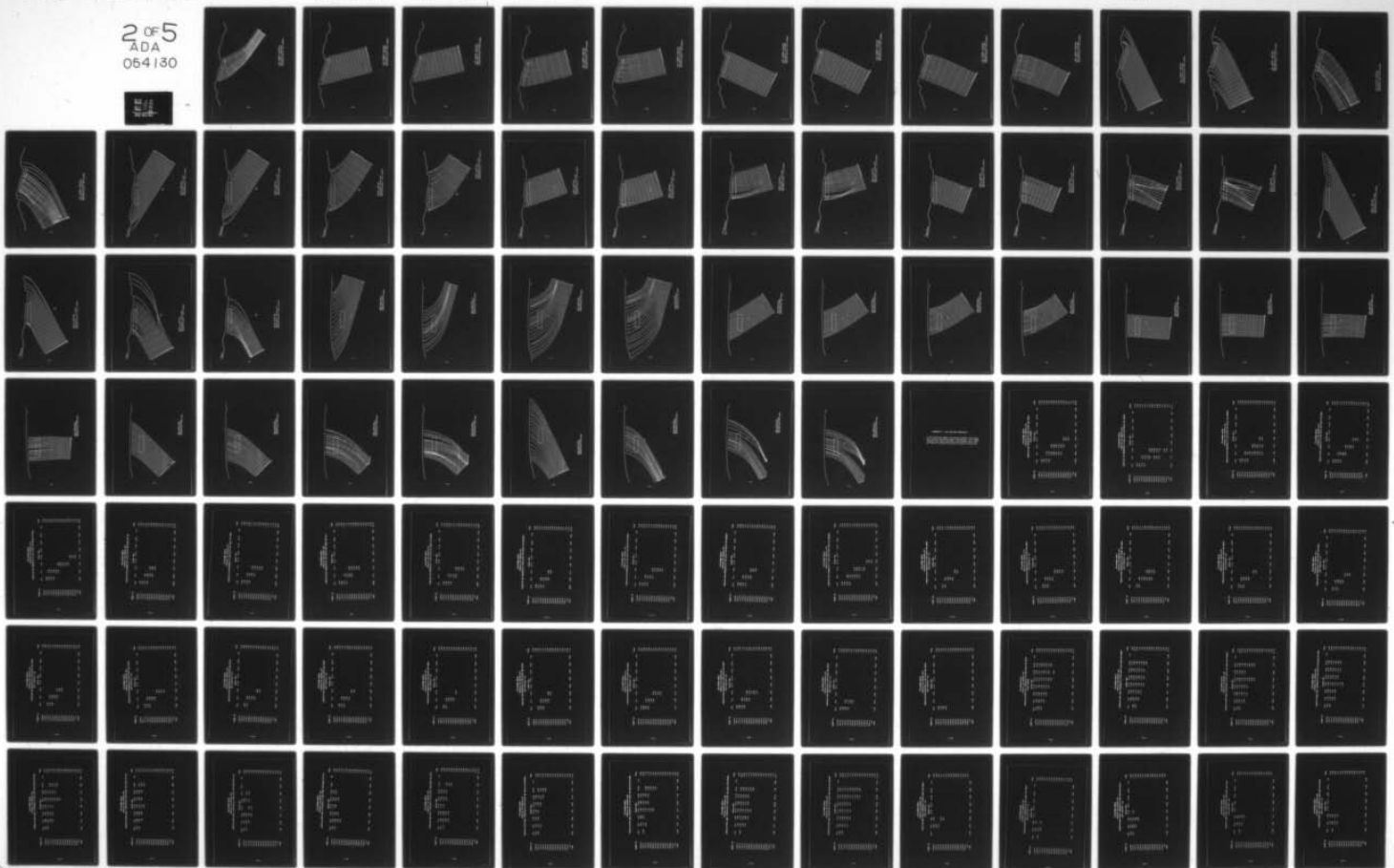
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS F/G 13/10  
PRELIMINARY EVALUATION OF WIND AND WAVE EFFECTS AT POTENTIAL LN--ETC(U)  
APR 78 L Z HALES

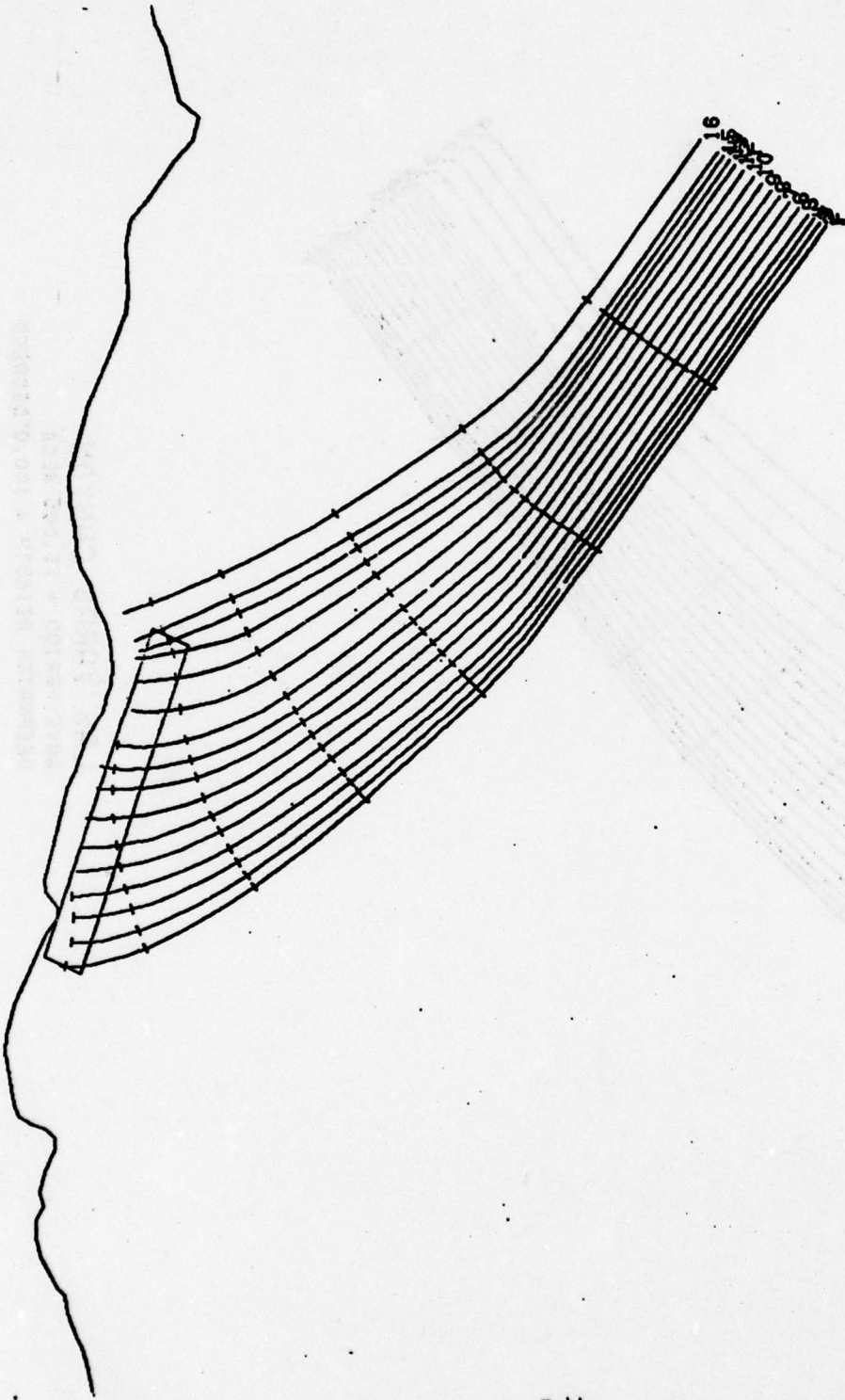
UNCLASSIFIED

WES-MP-H-78-2-APP-A

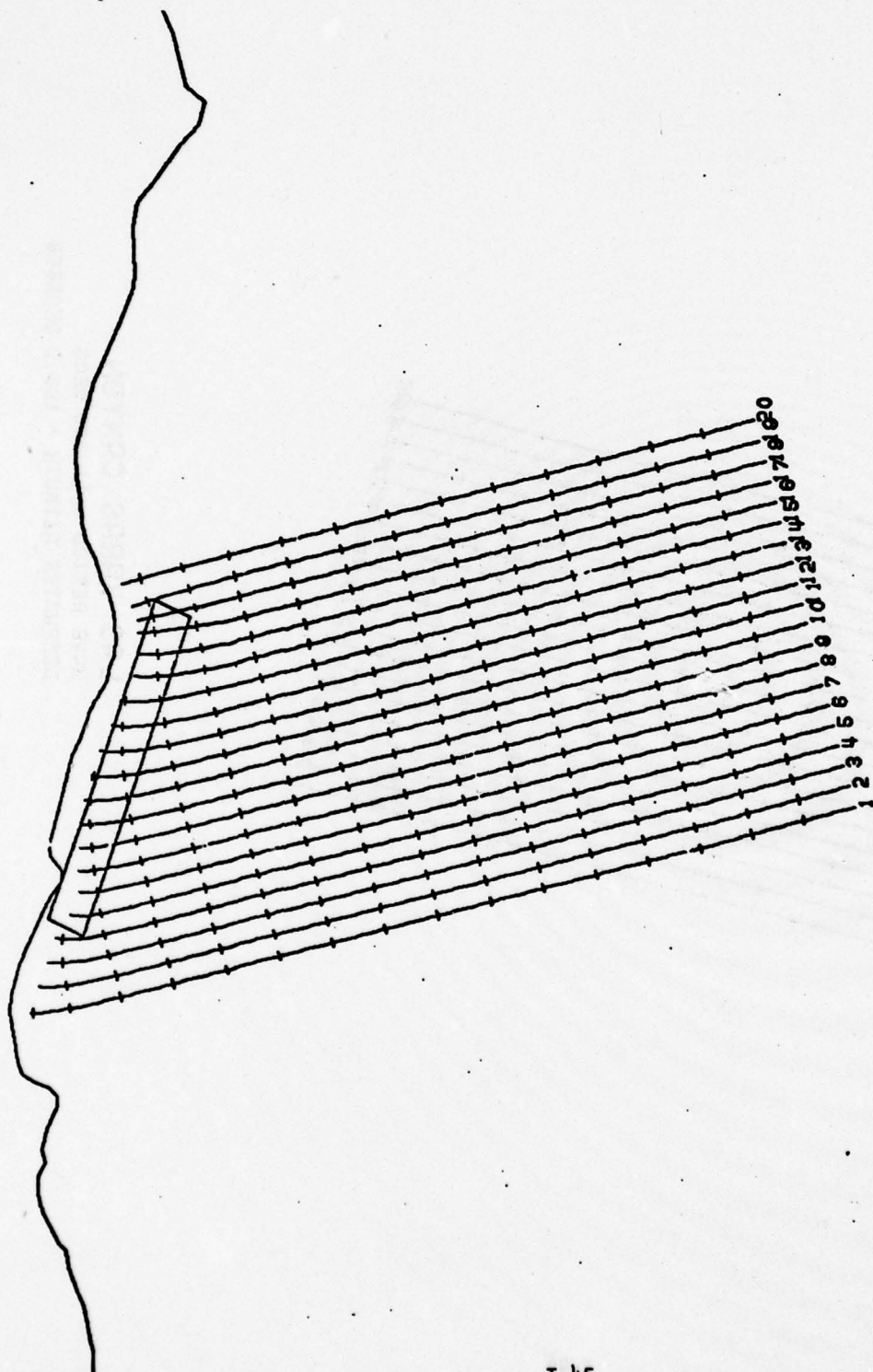
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2 OF 5  
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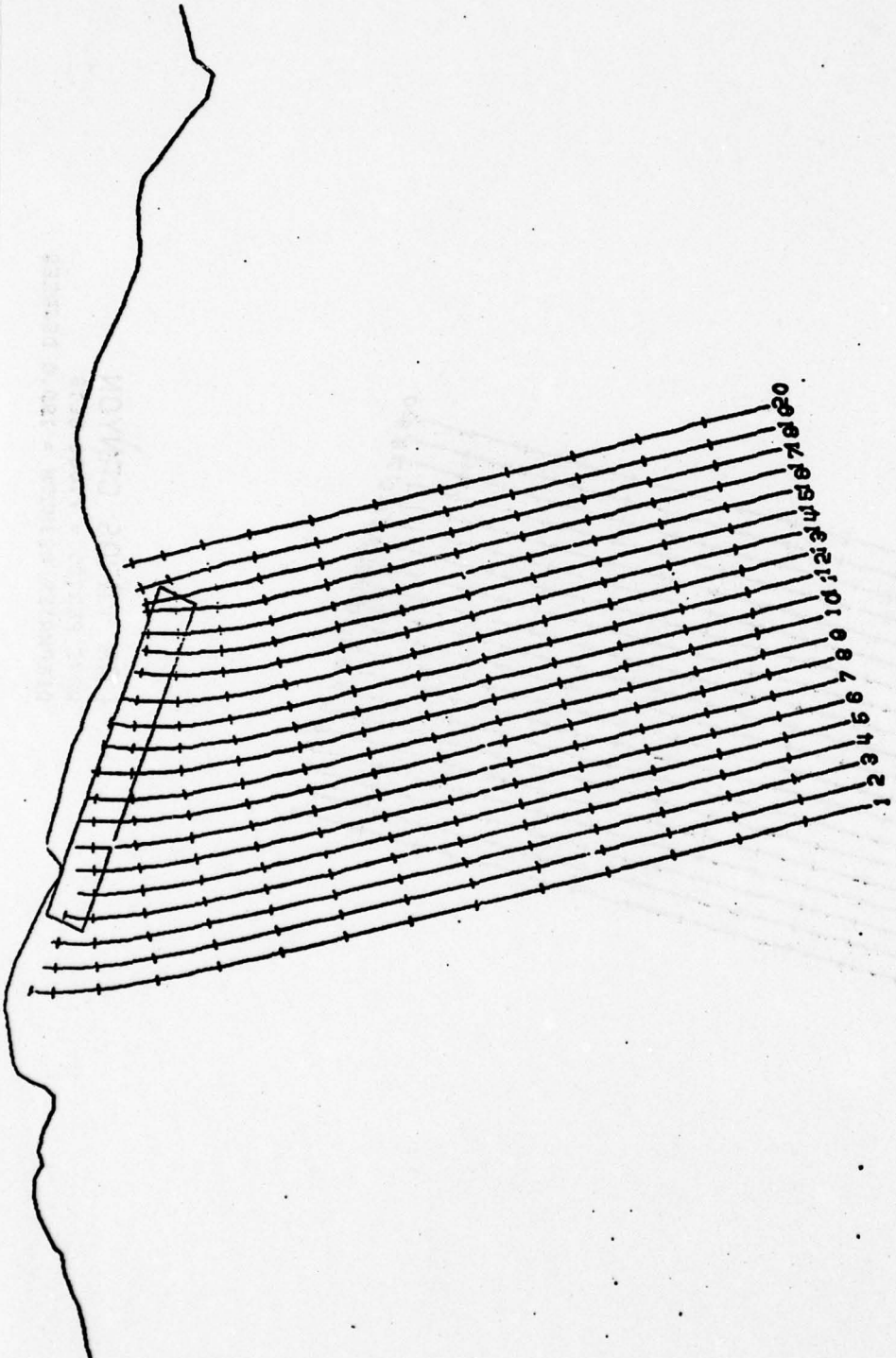




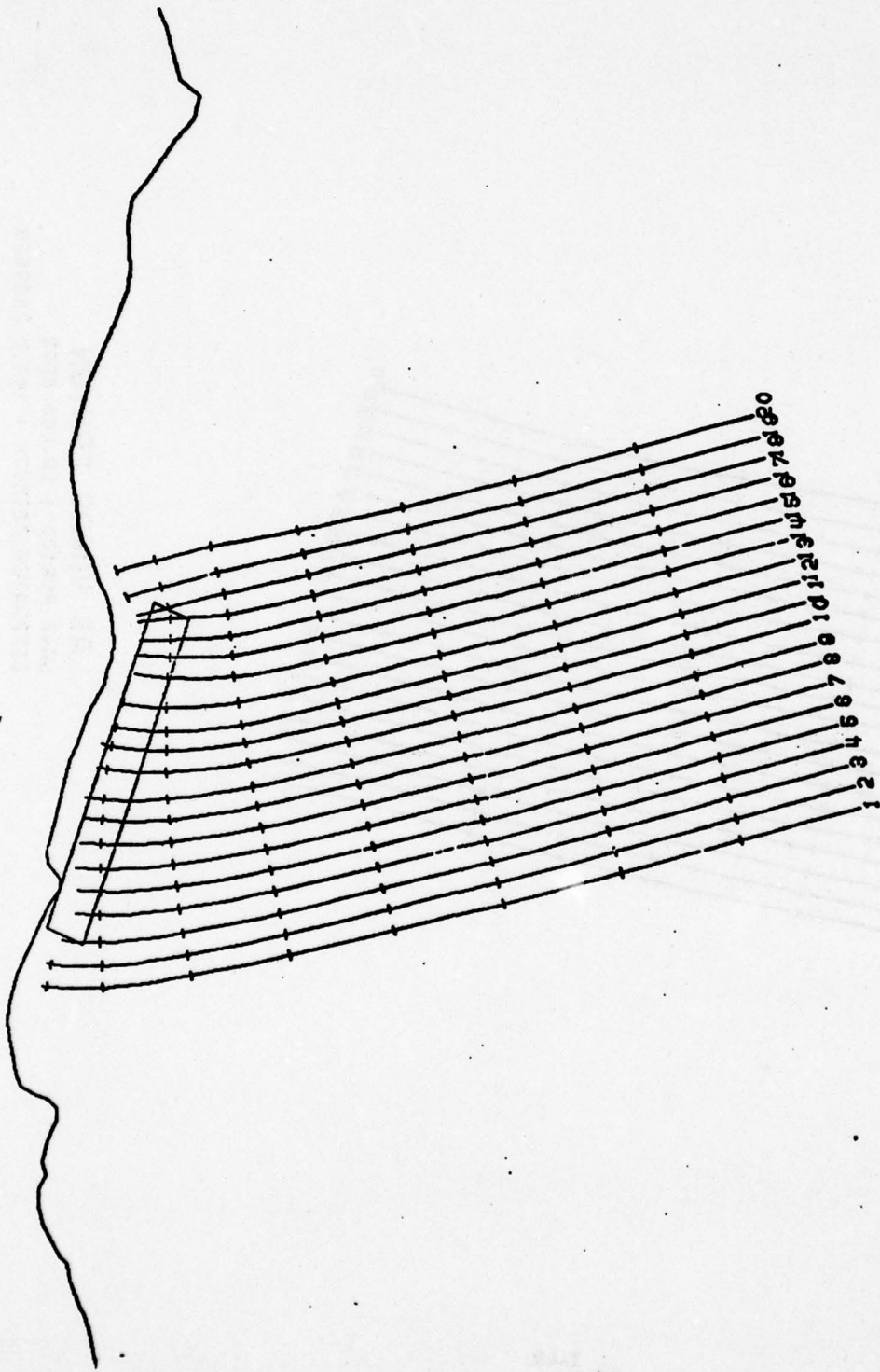
LAS VARAS CANYON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



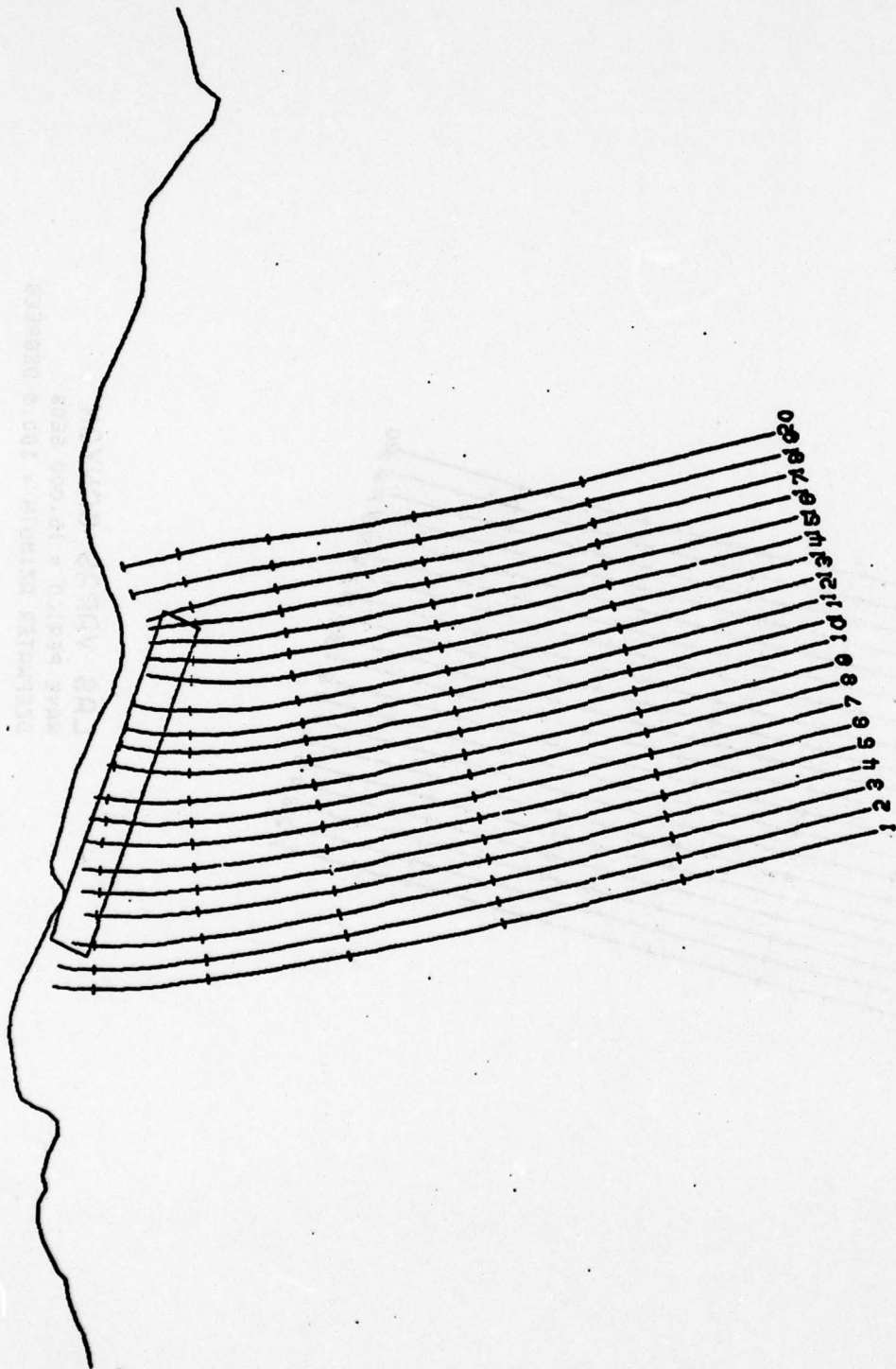
LAS VARAS CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 190.0 DEGREES



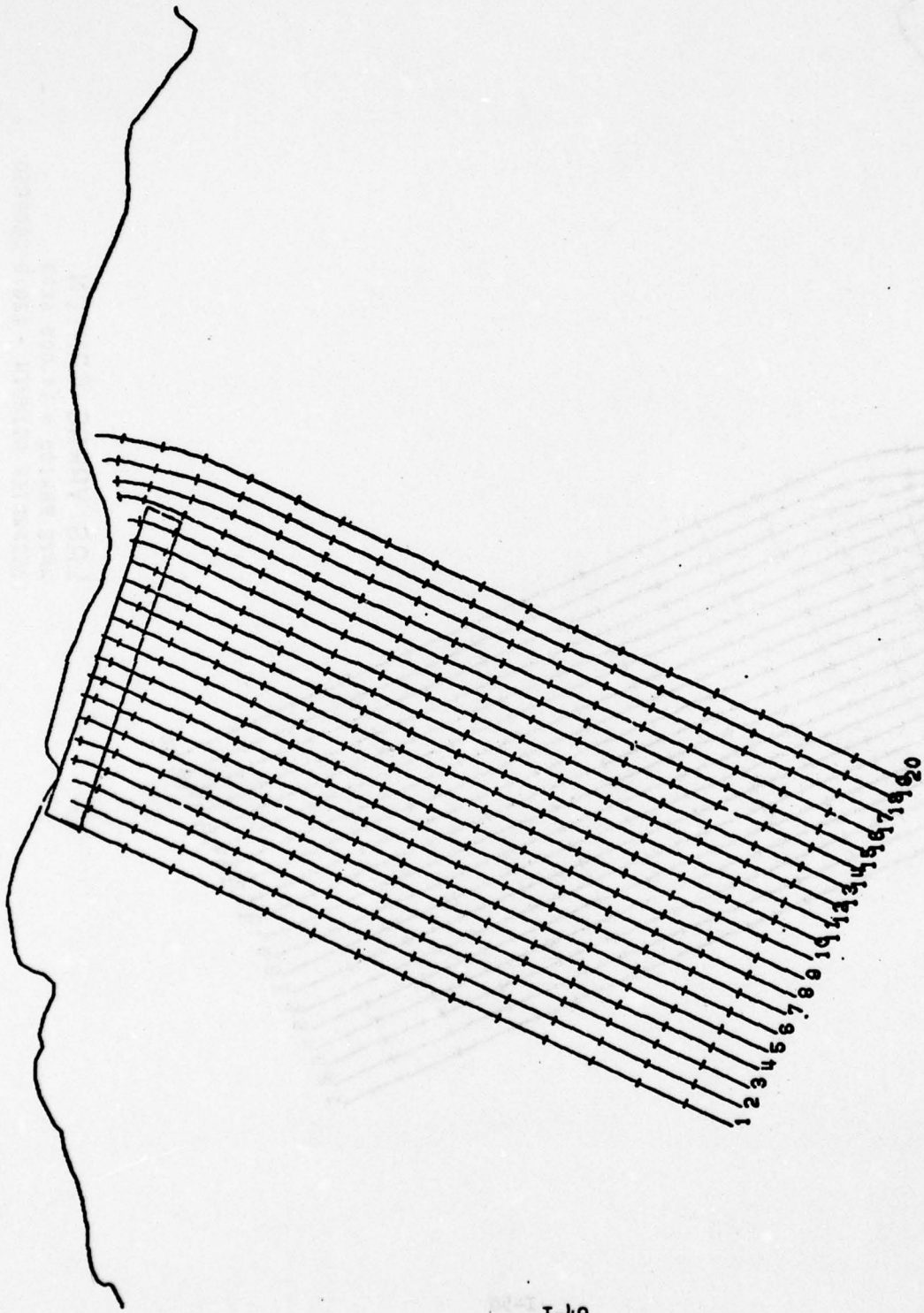
LAS VARAS CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPMETER AZIMUTH = 180.0 DEGREES



LAS VARAS CANYON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 180.0 DEGREES

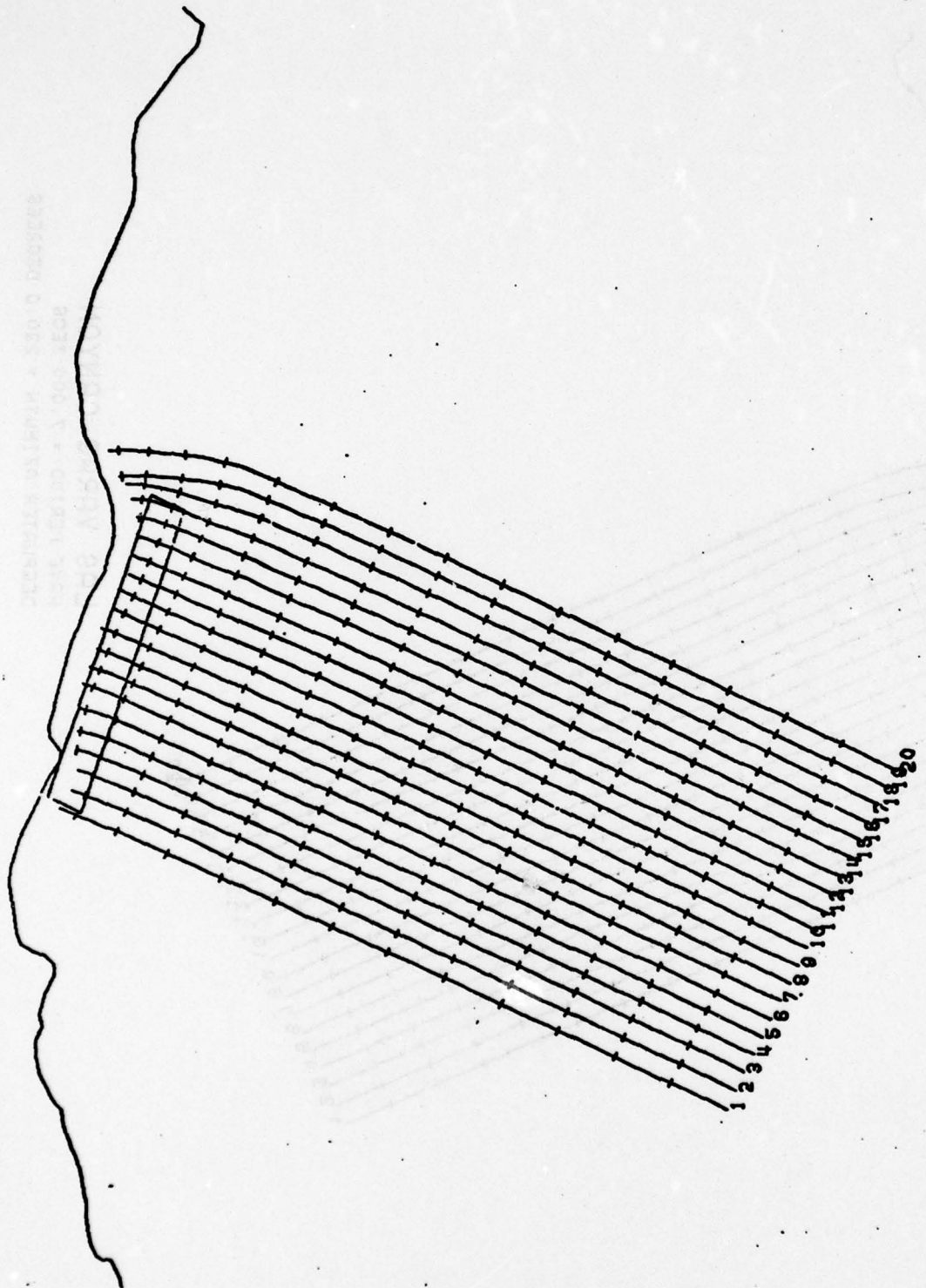


LAS VARAS CANYON  
 WAVE PERIOD = 19.000 SECS  
 DEEPWATER AZIMUTH = 180.0 DEGREES

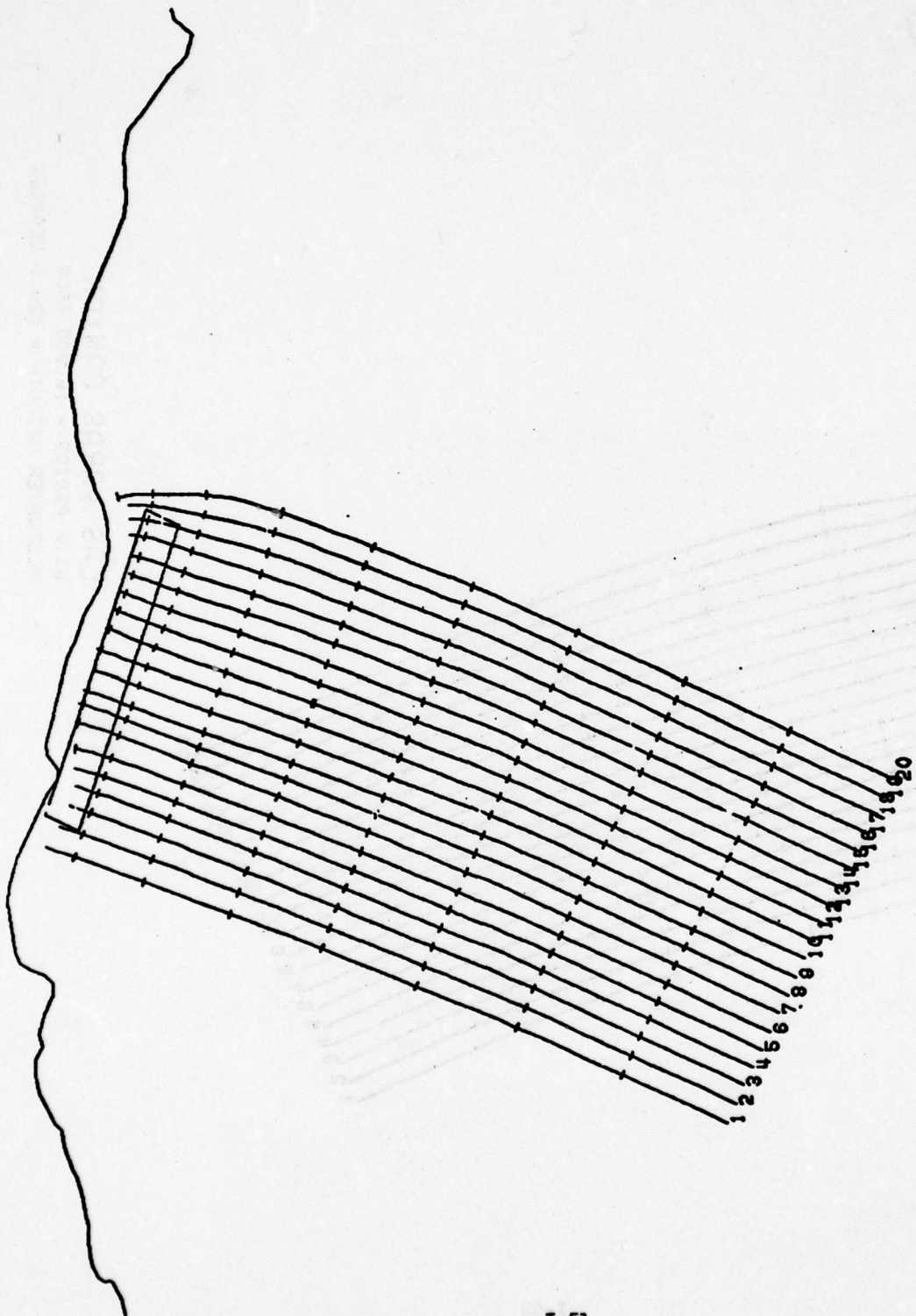


LAS VARAS CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES

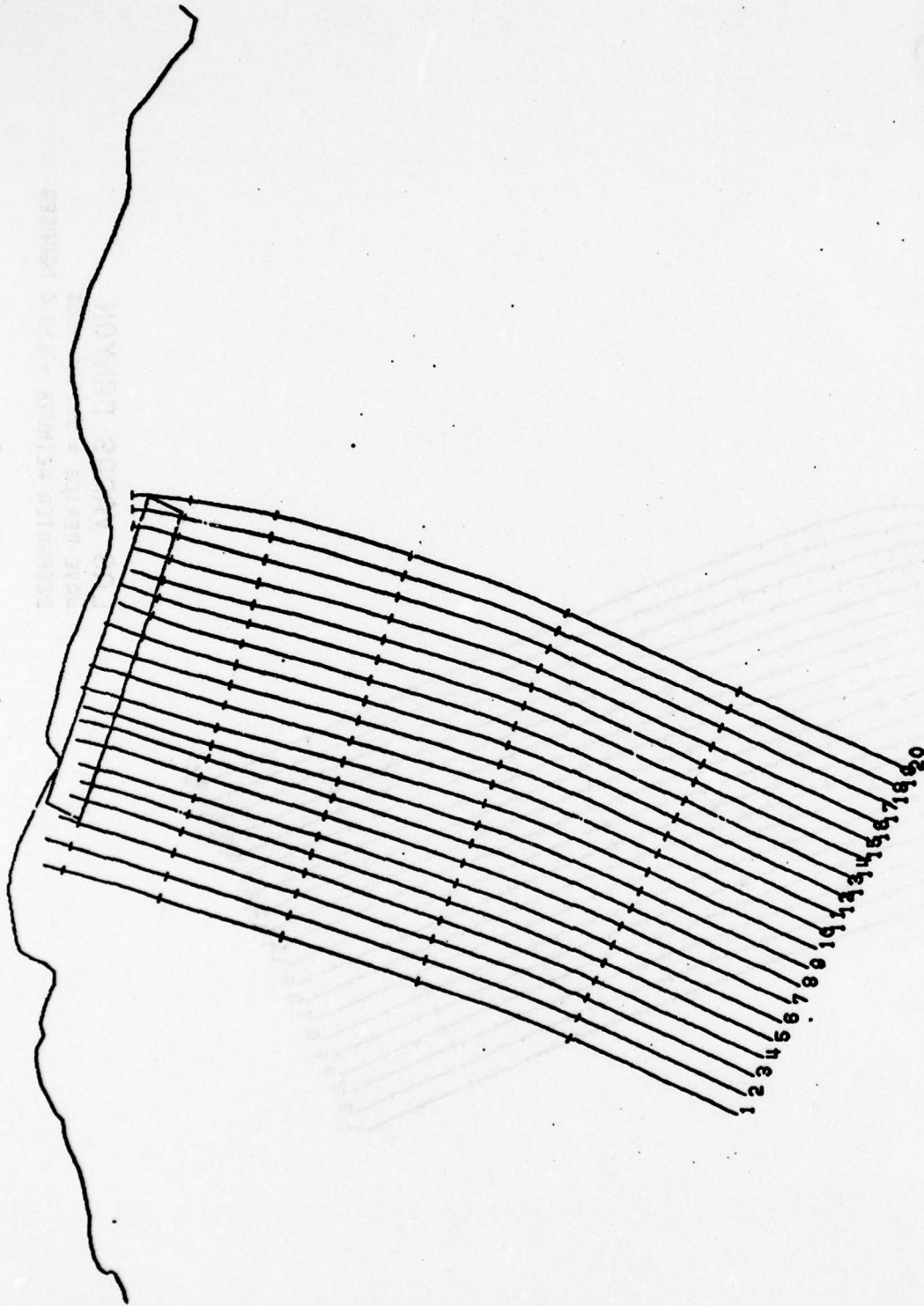
ACQUISITION SYSTEMS - 1950 - 1960  
1950 - 1960 - 1960



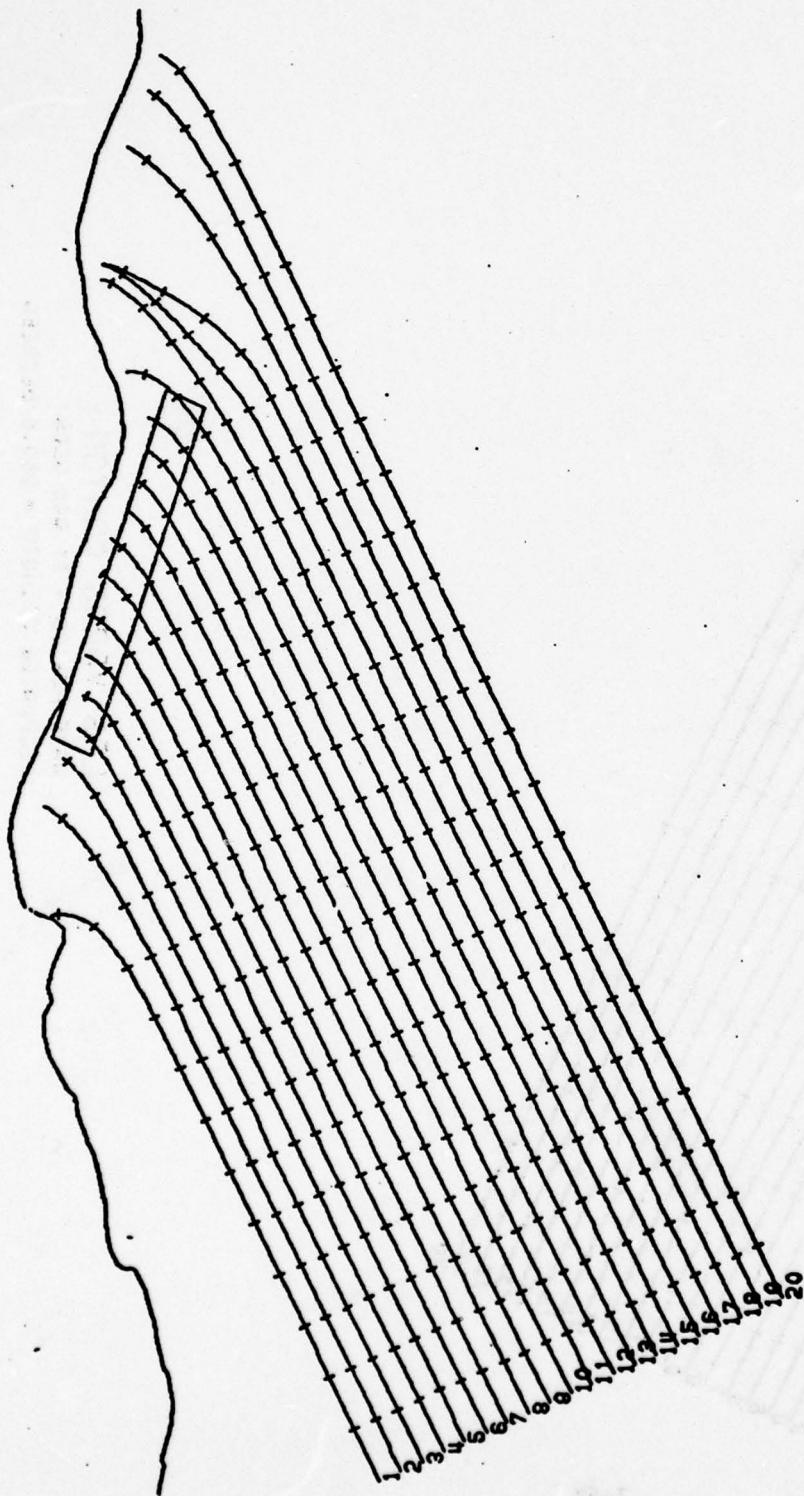
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WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES



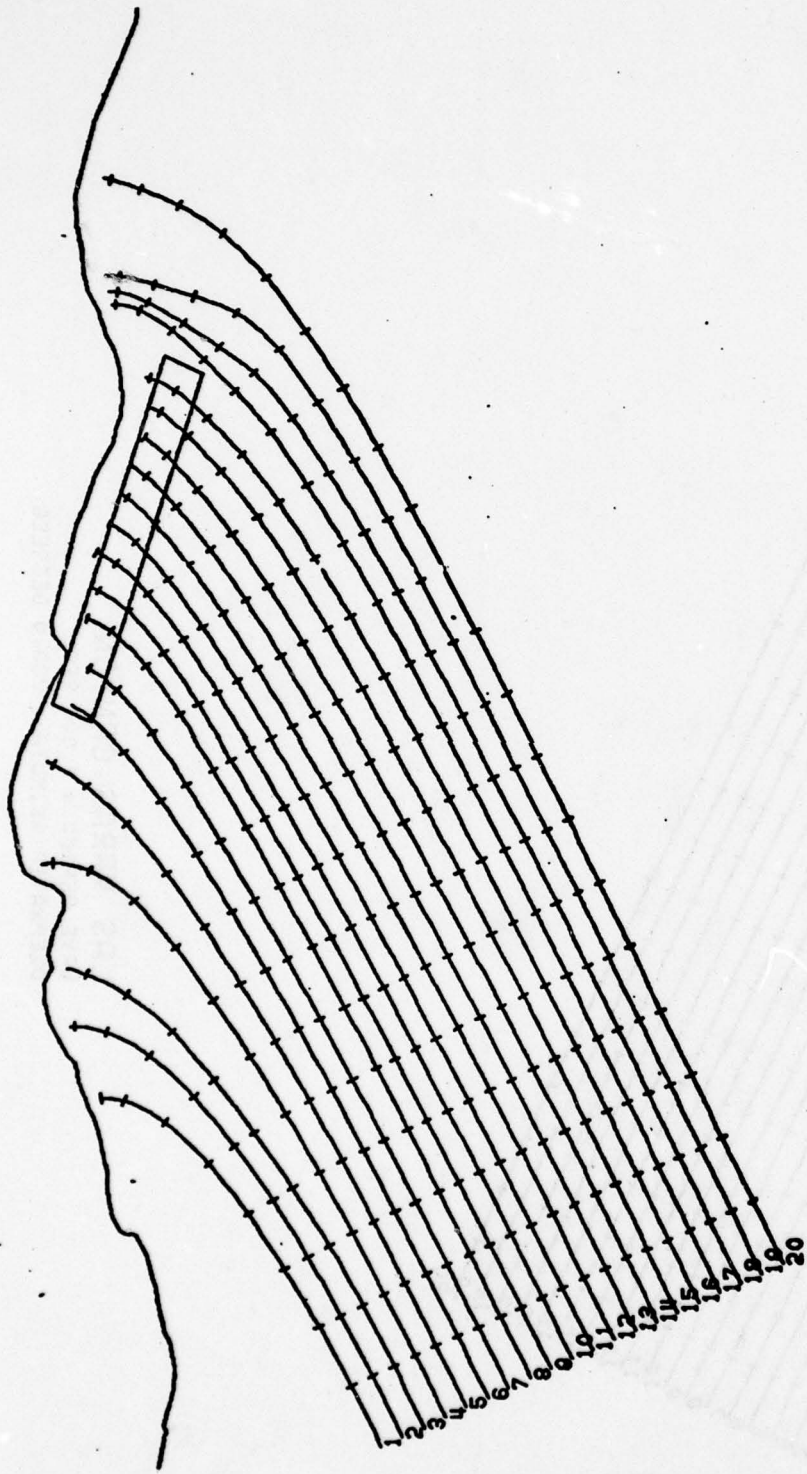
LAS VARAS CANYON  
HAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES



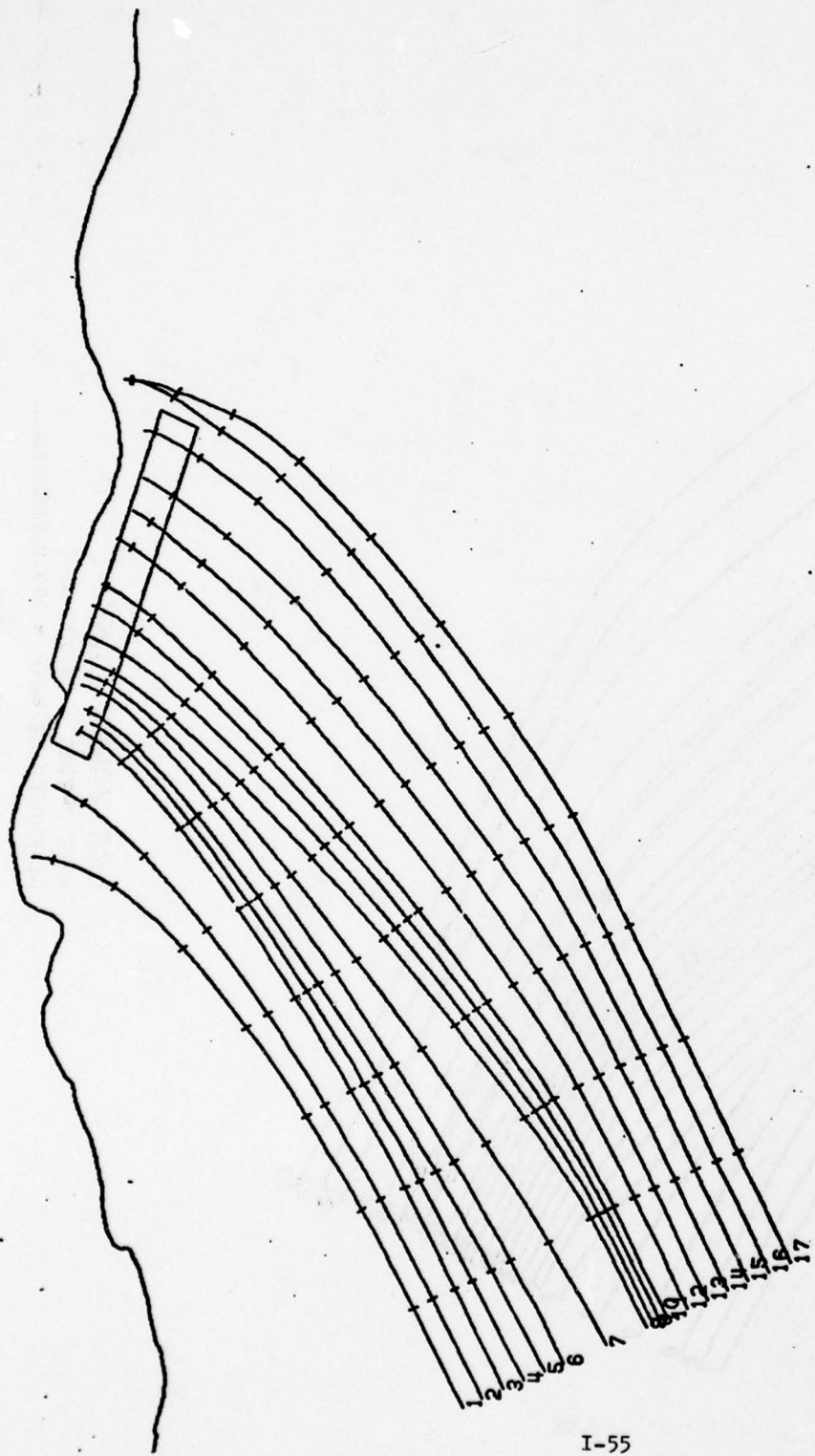
LAS VARAS CANYON  
WAVE PERIOD = 18.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES



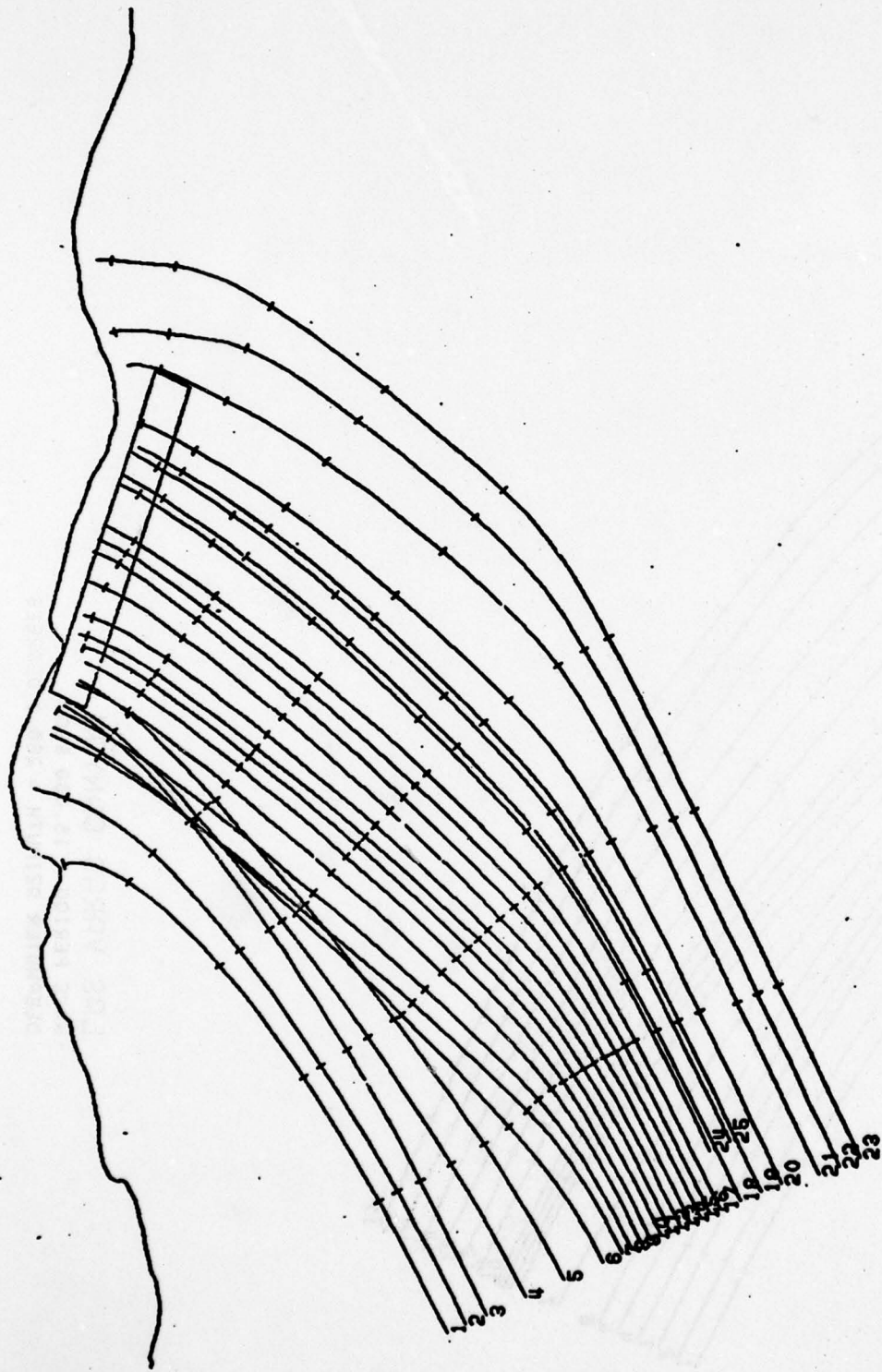
LAS VARAS CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



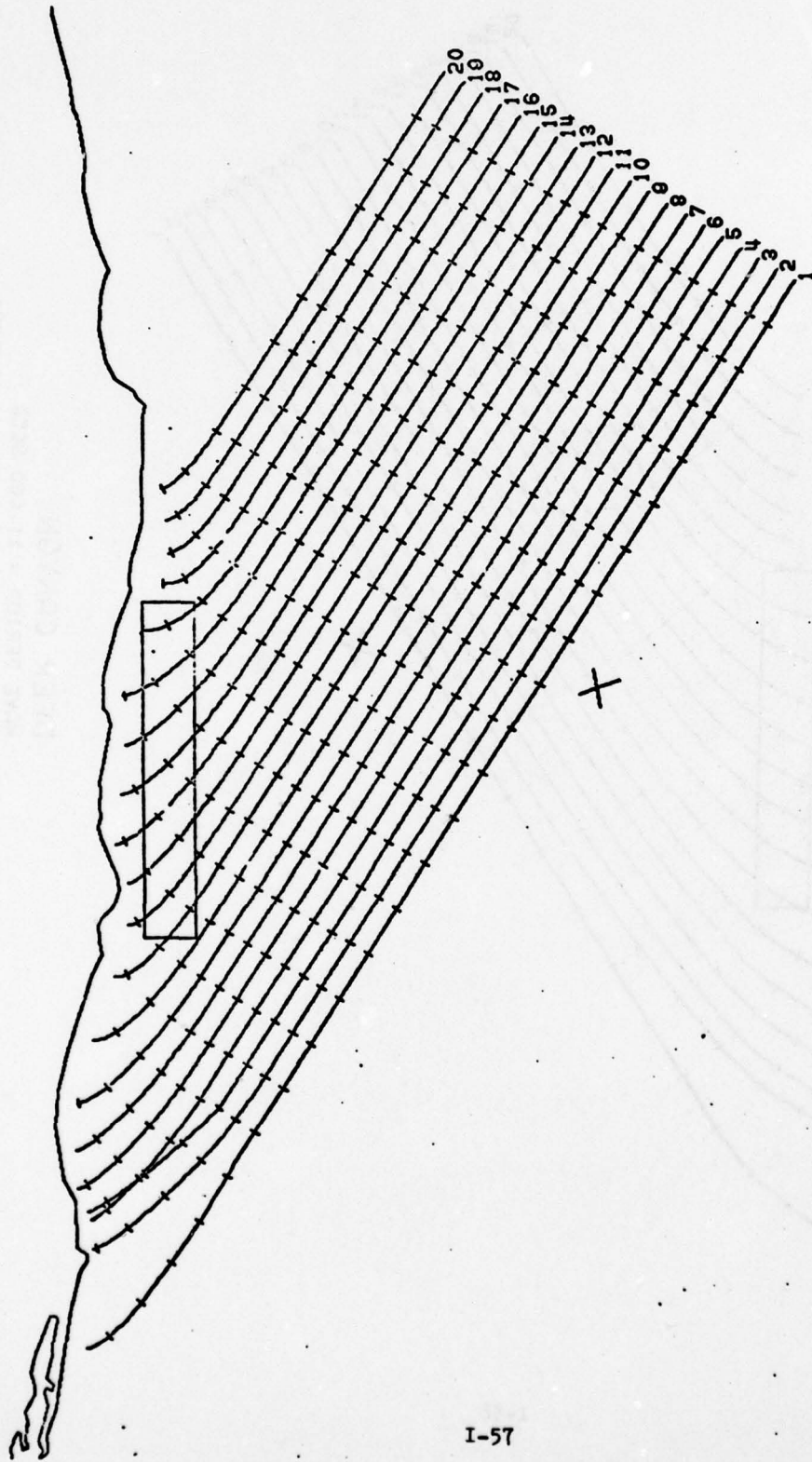
LAS VARAS CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



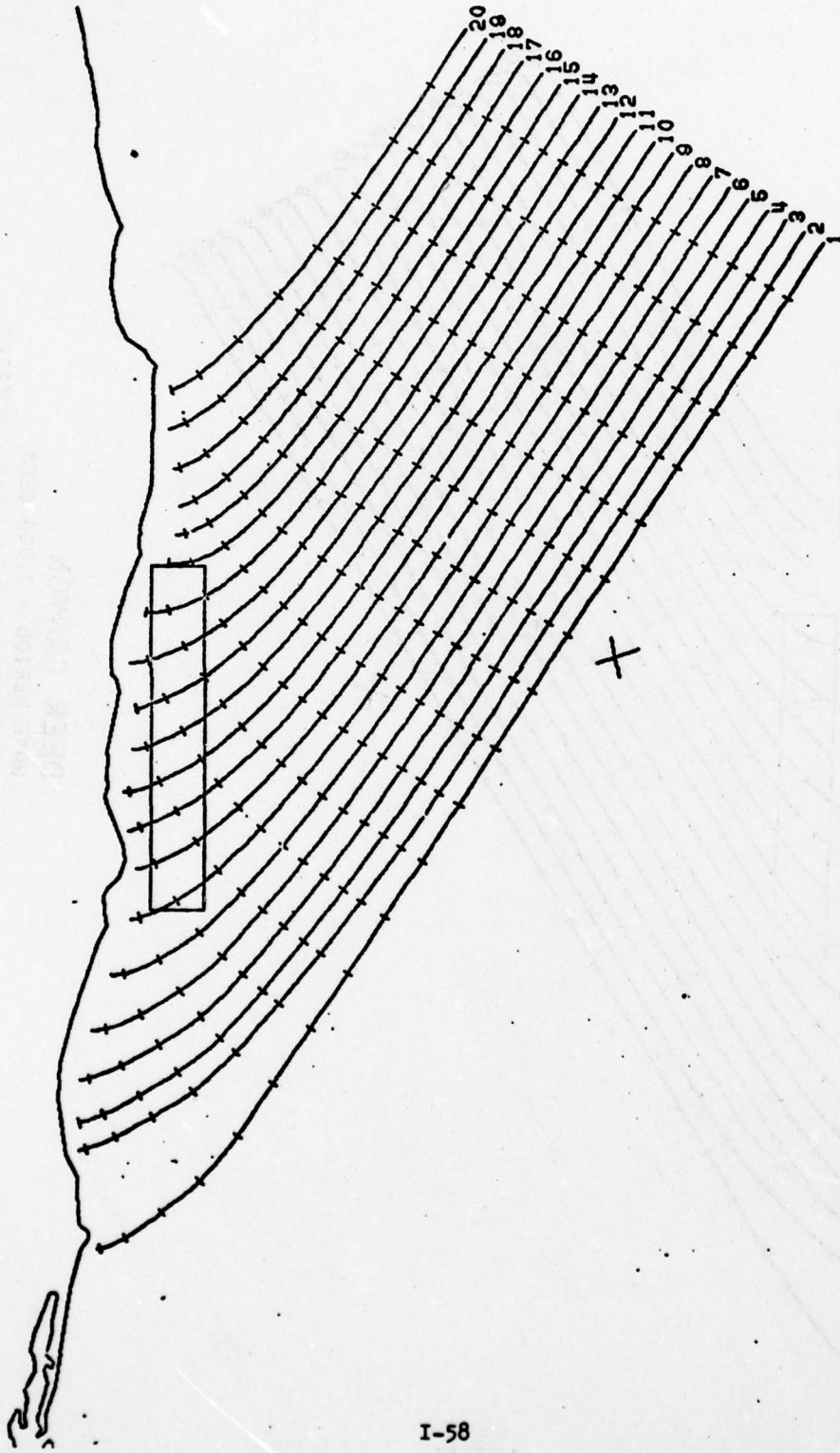
LAS VARAS CANYON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



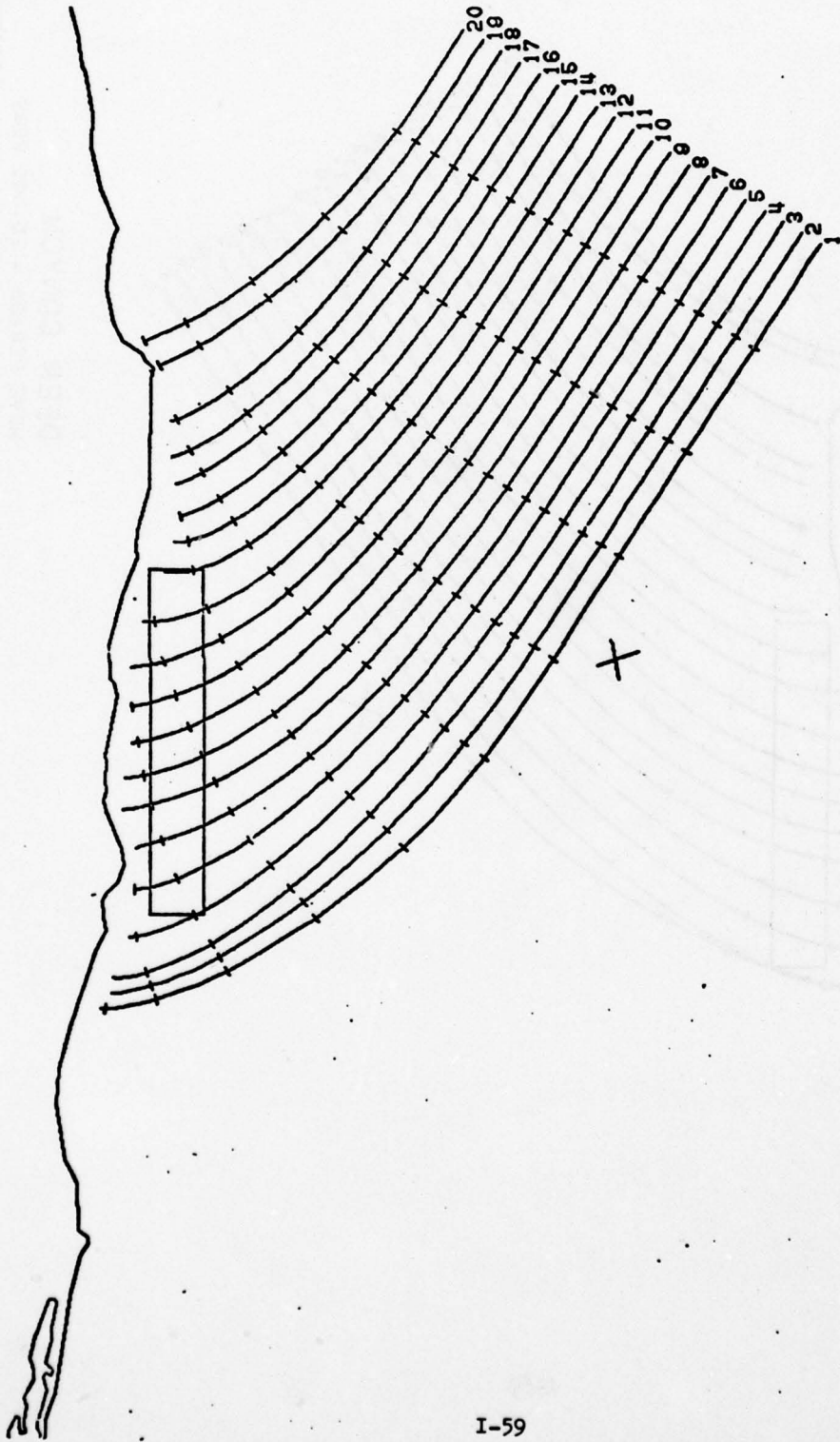
LAS VARAS CANYON  
WAVE PERIOD = 19.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



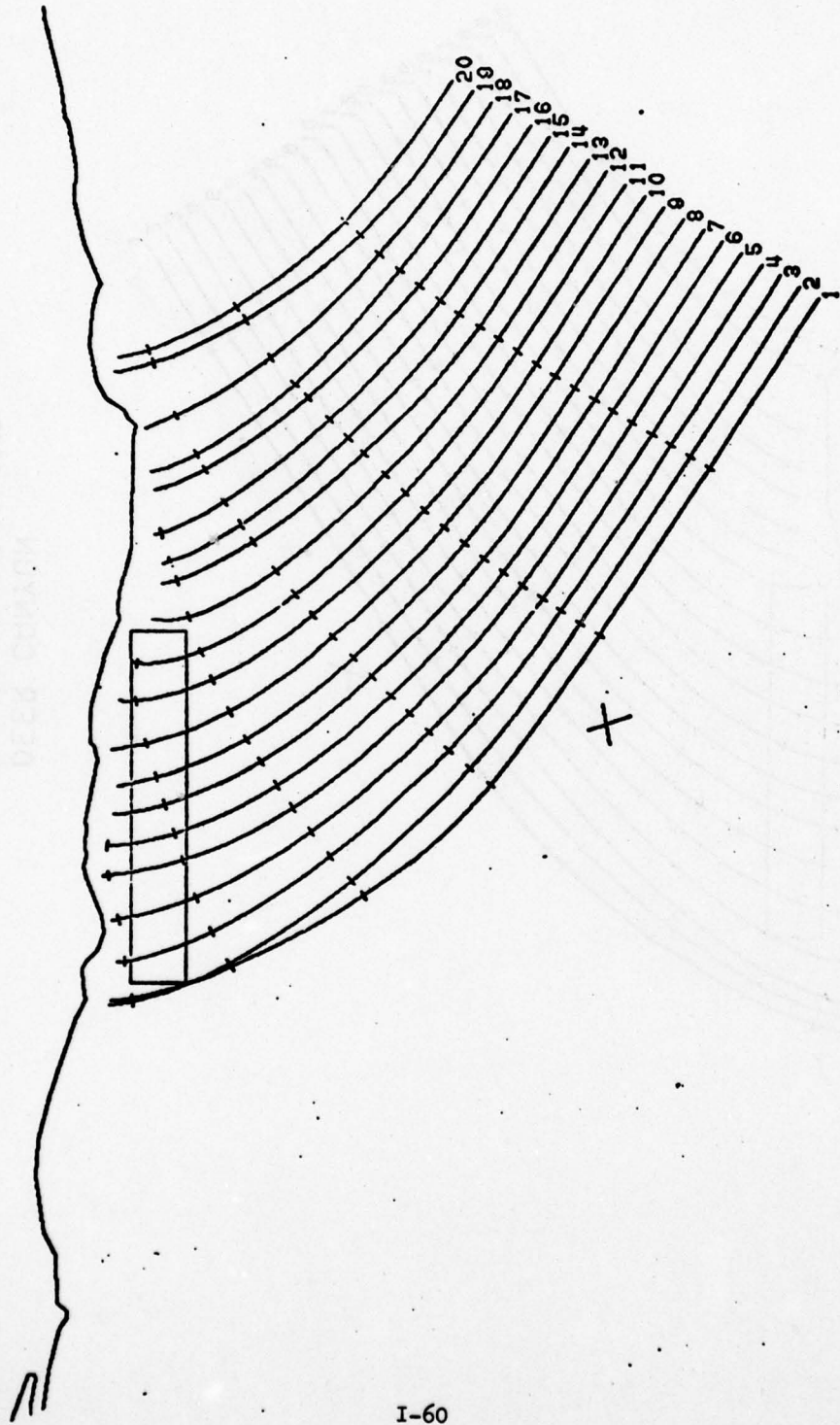
DEER CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



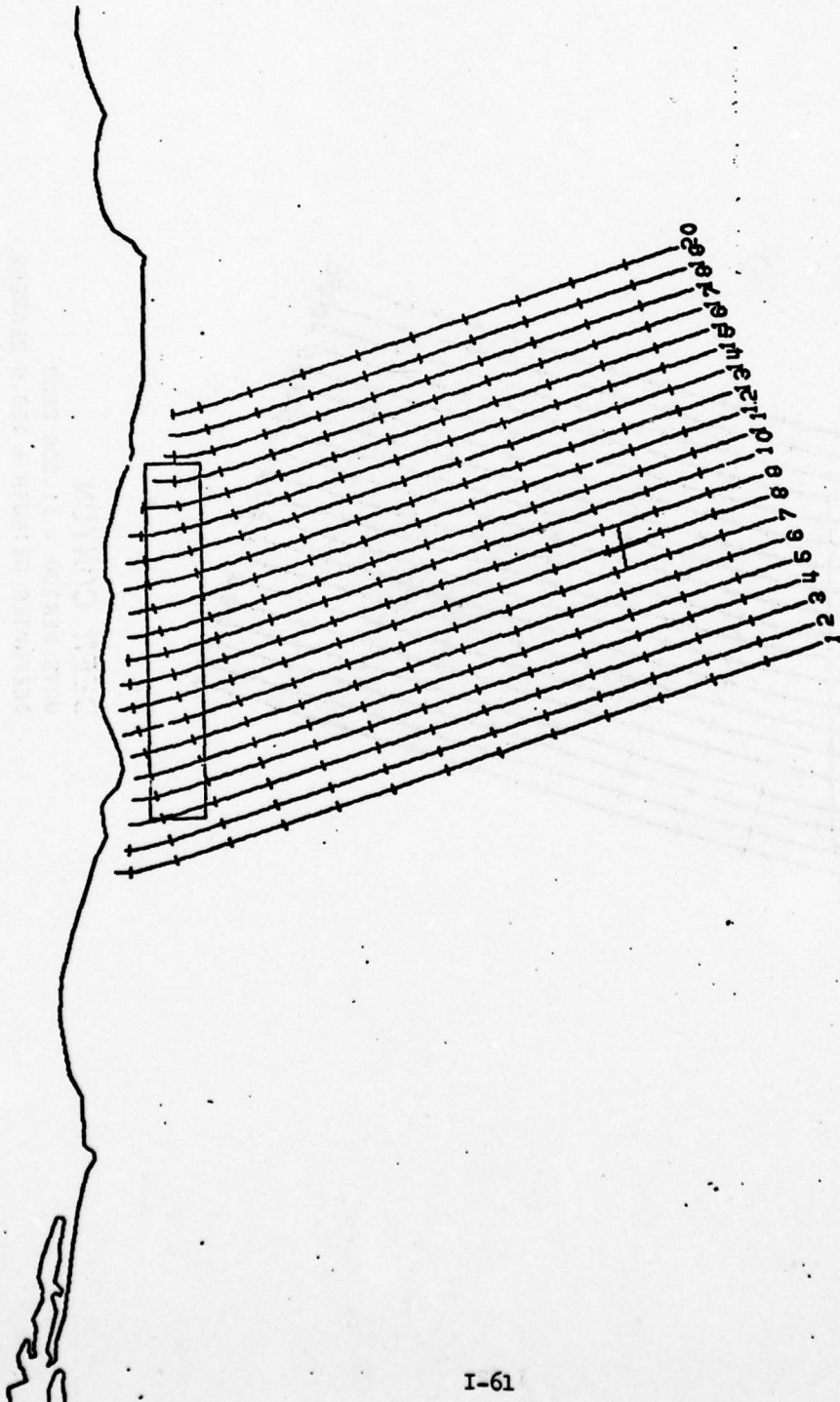
DEER CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



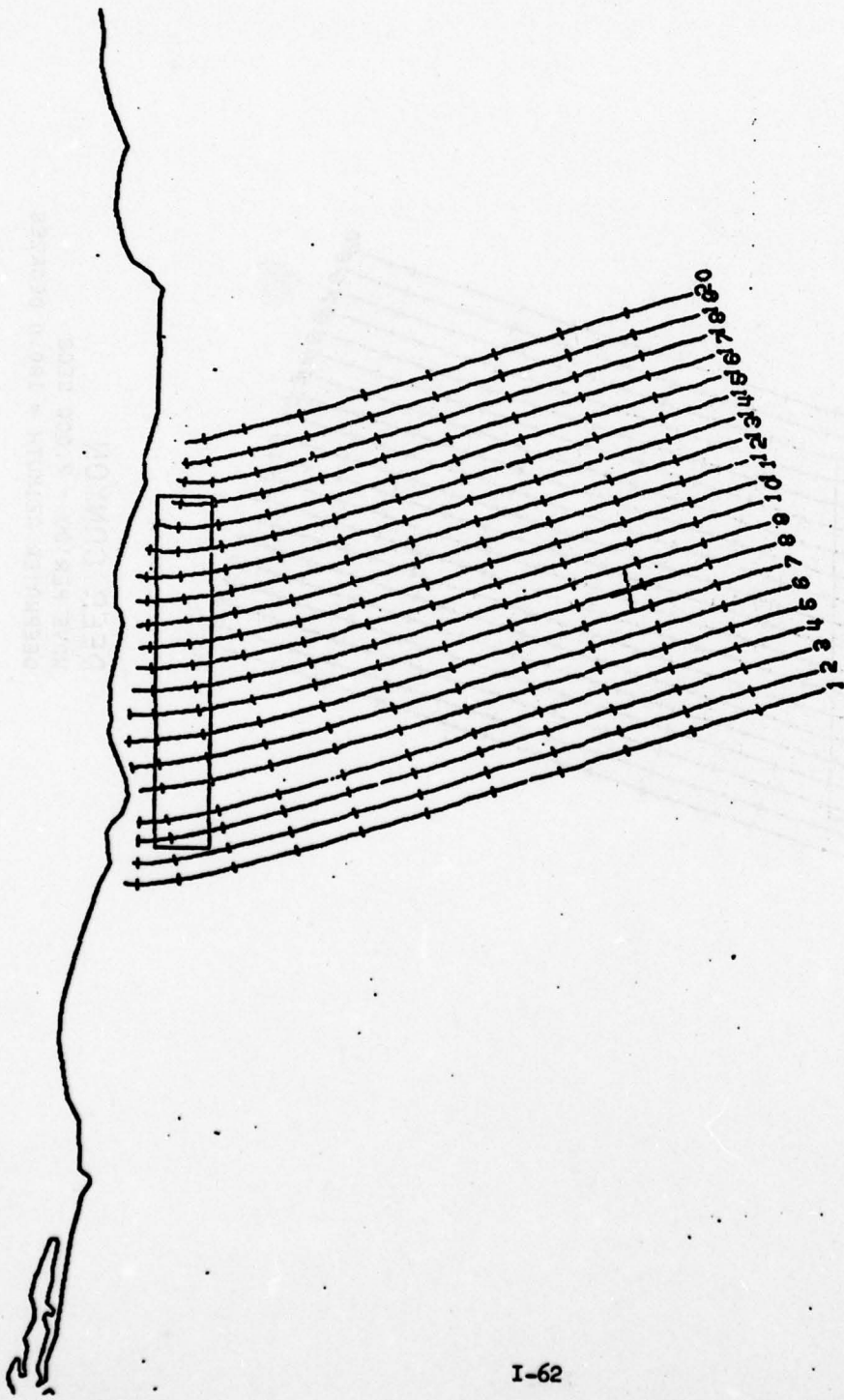
DEER CANYON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



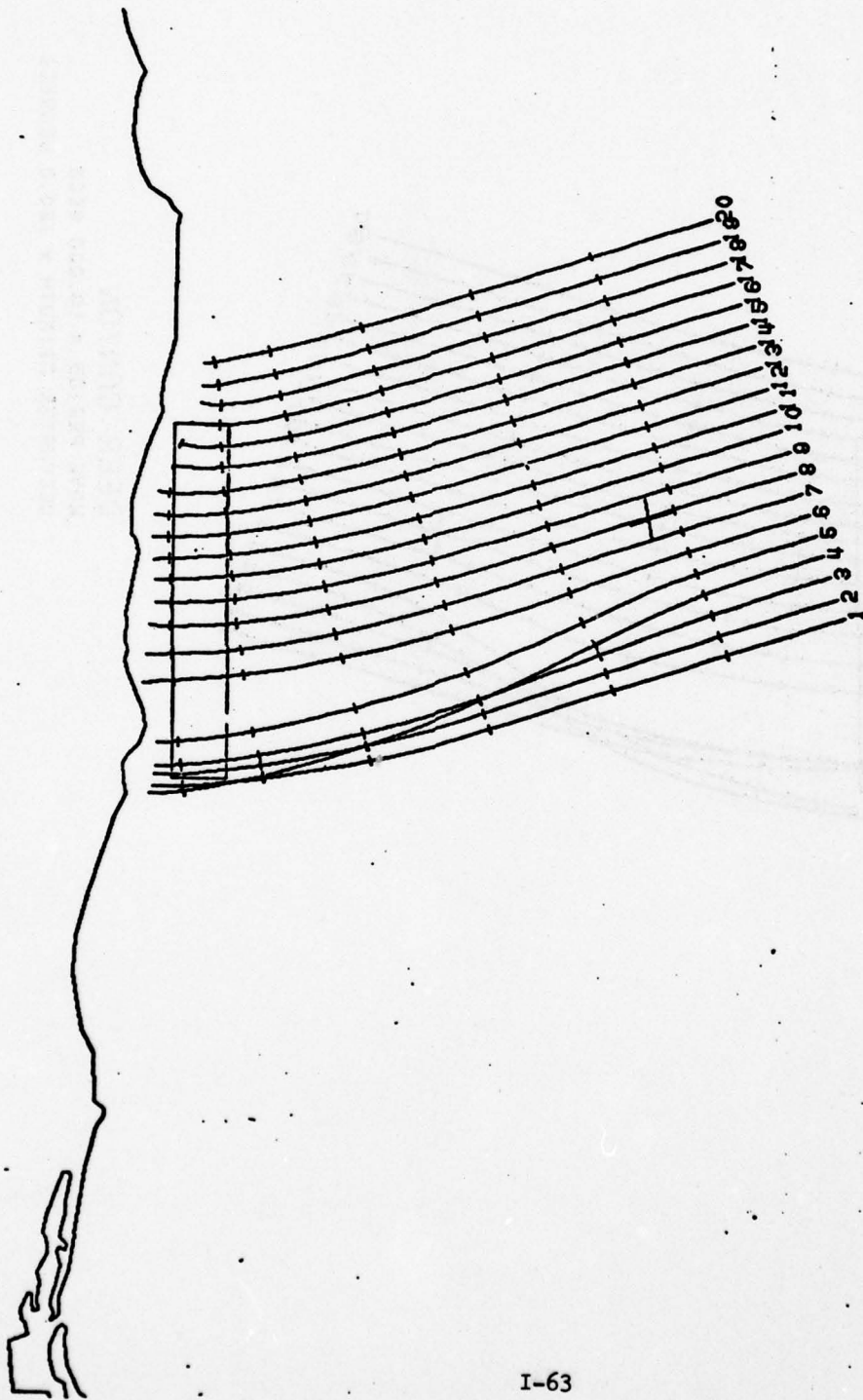
DEER CANYON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 140.0 DEGREES



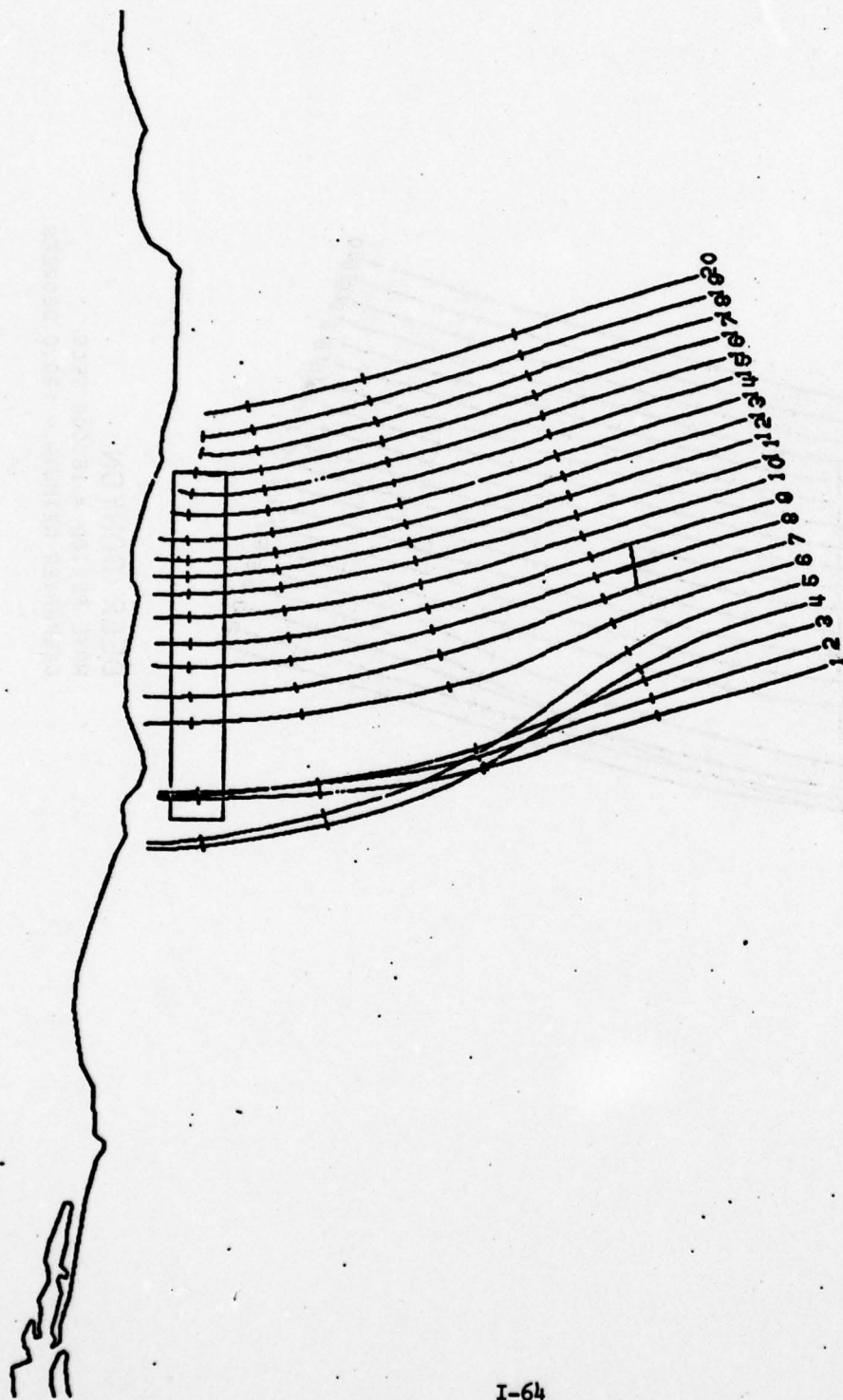
DEER CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 180.0 DEGREES



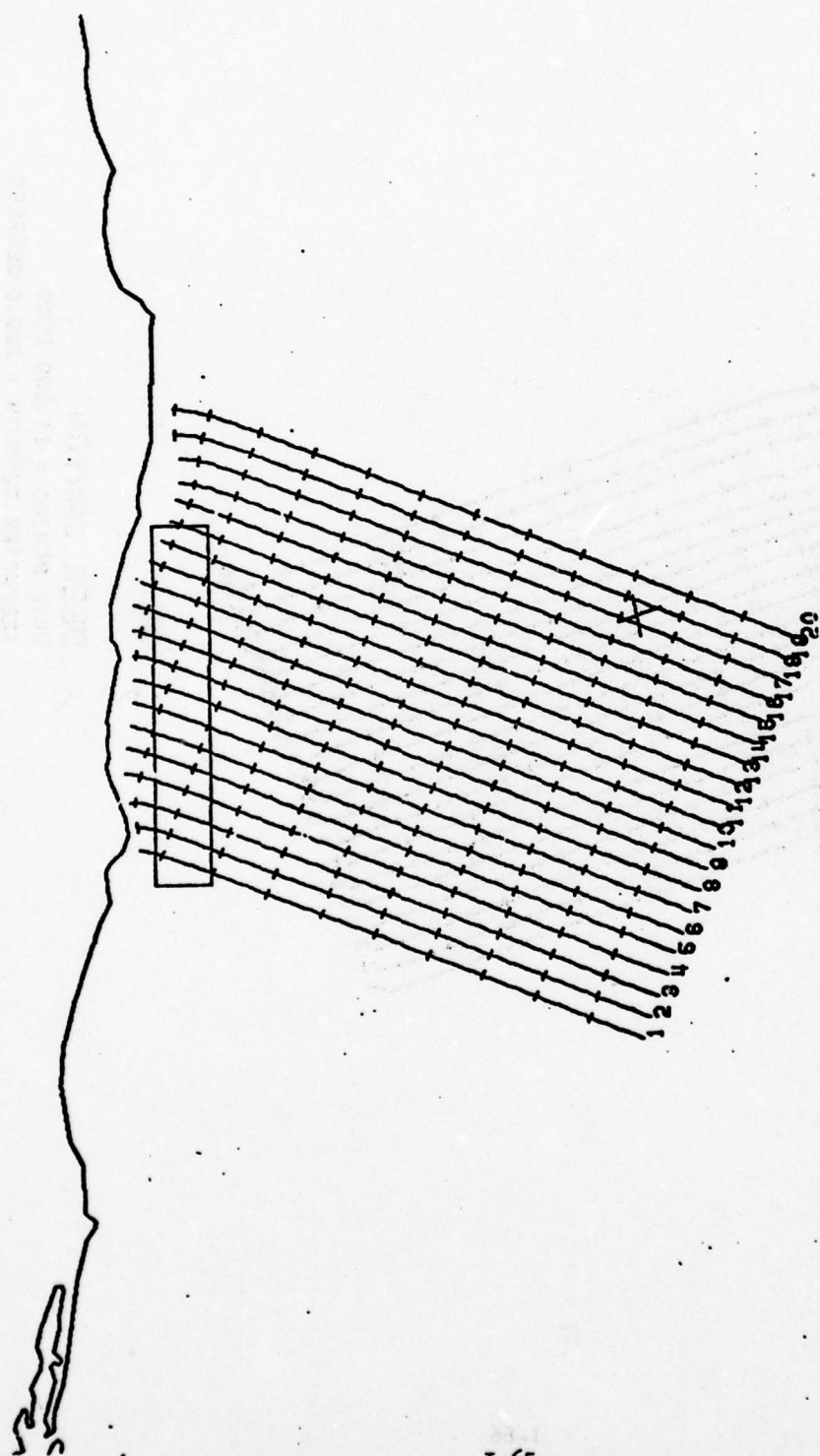
DEER CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 180.0 DEGREES



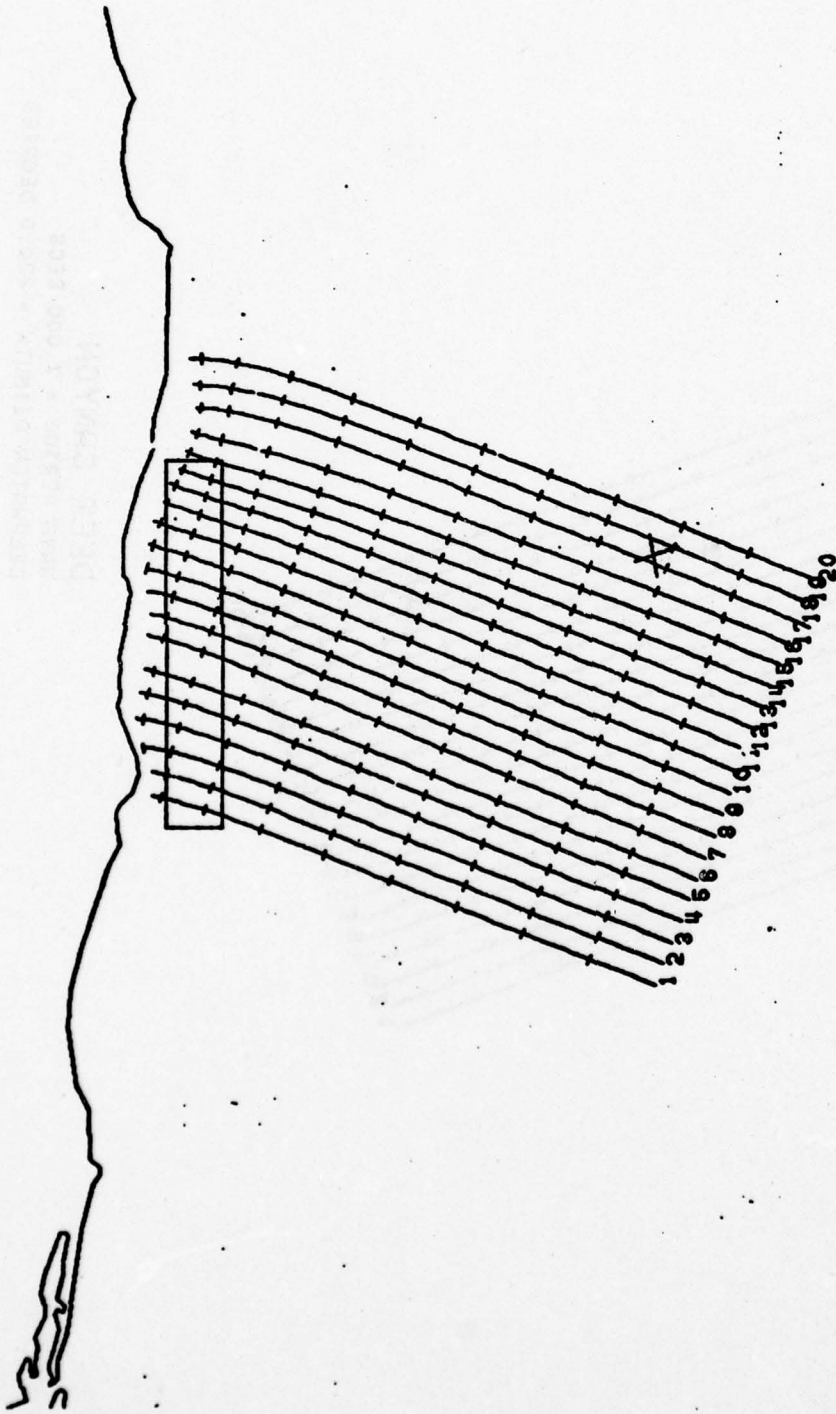
DEER CANYON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 180.0 DEGREES



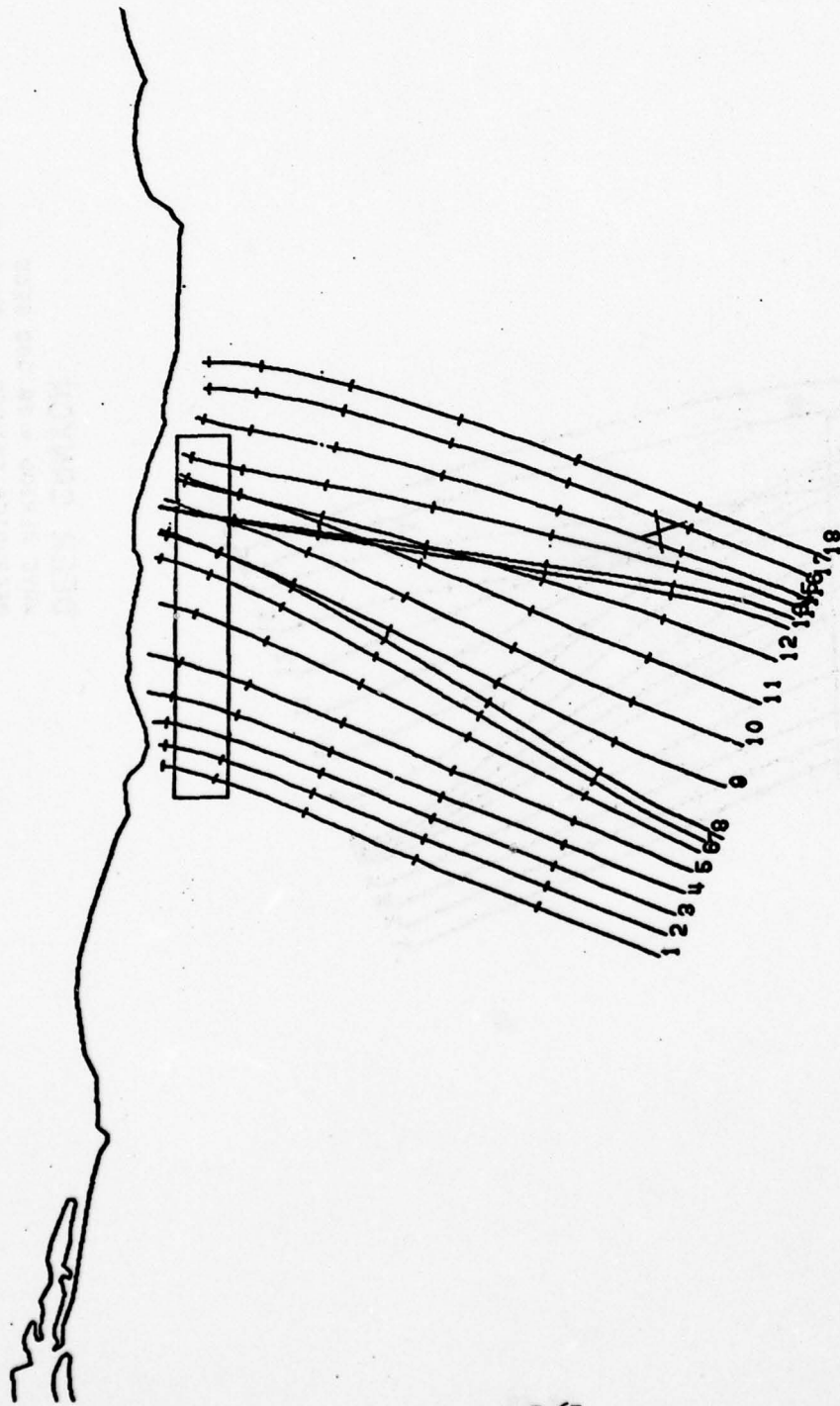
DEER CANYON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 180.0 DEGREES



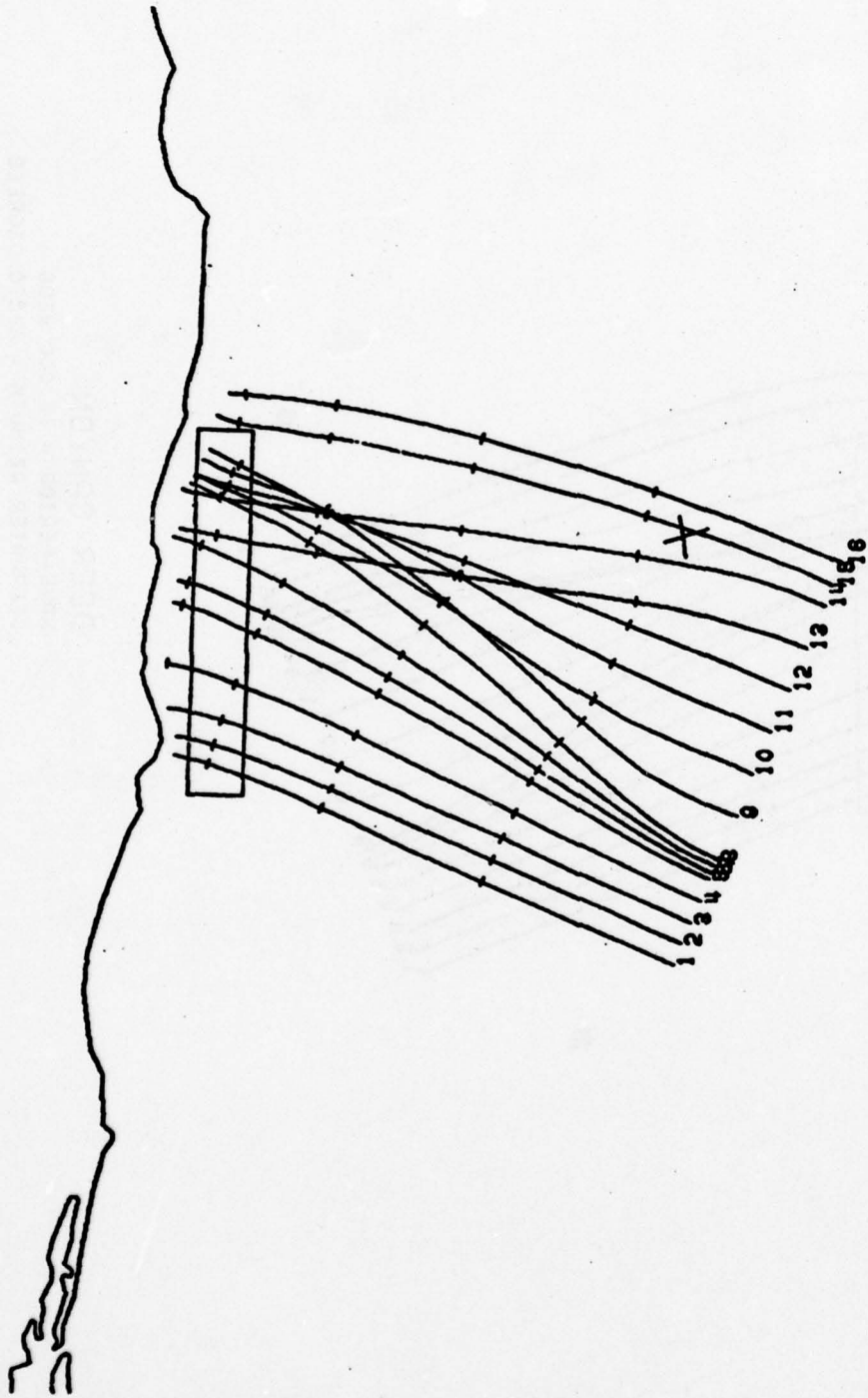
DEER CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZINUTH = 220.0 DEGREES



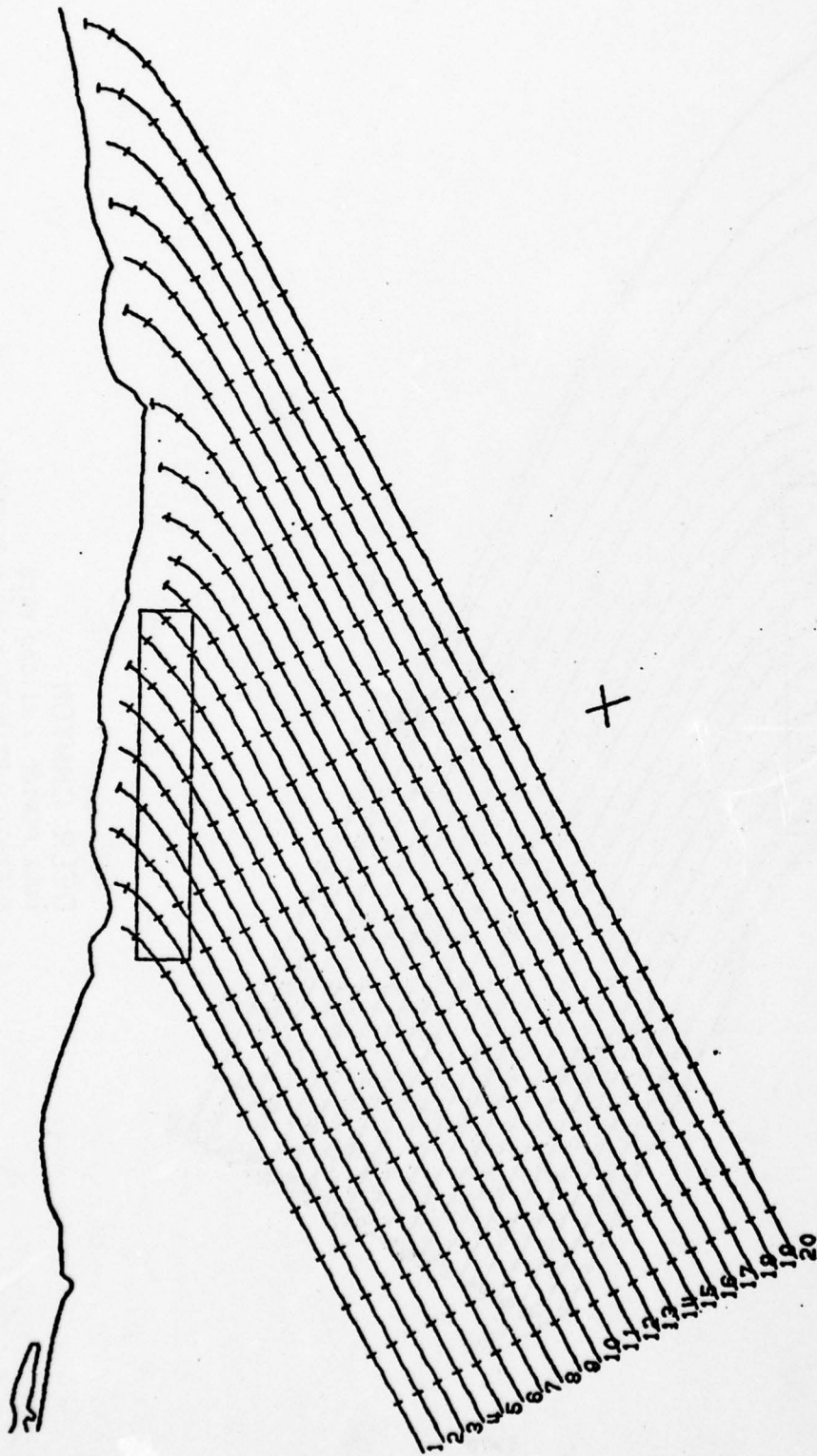
DEER CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES



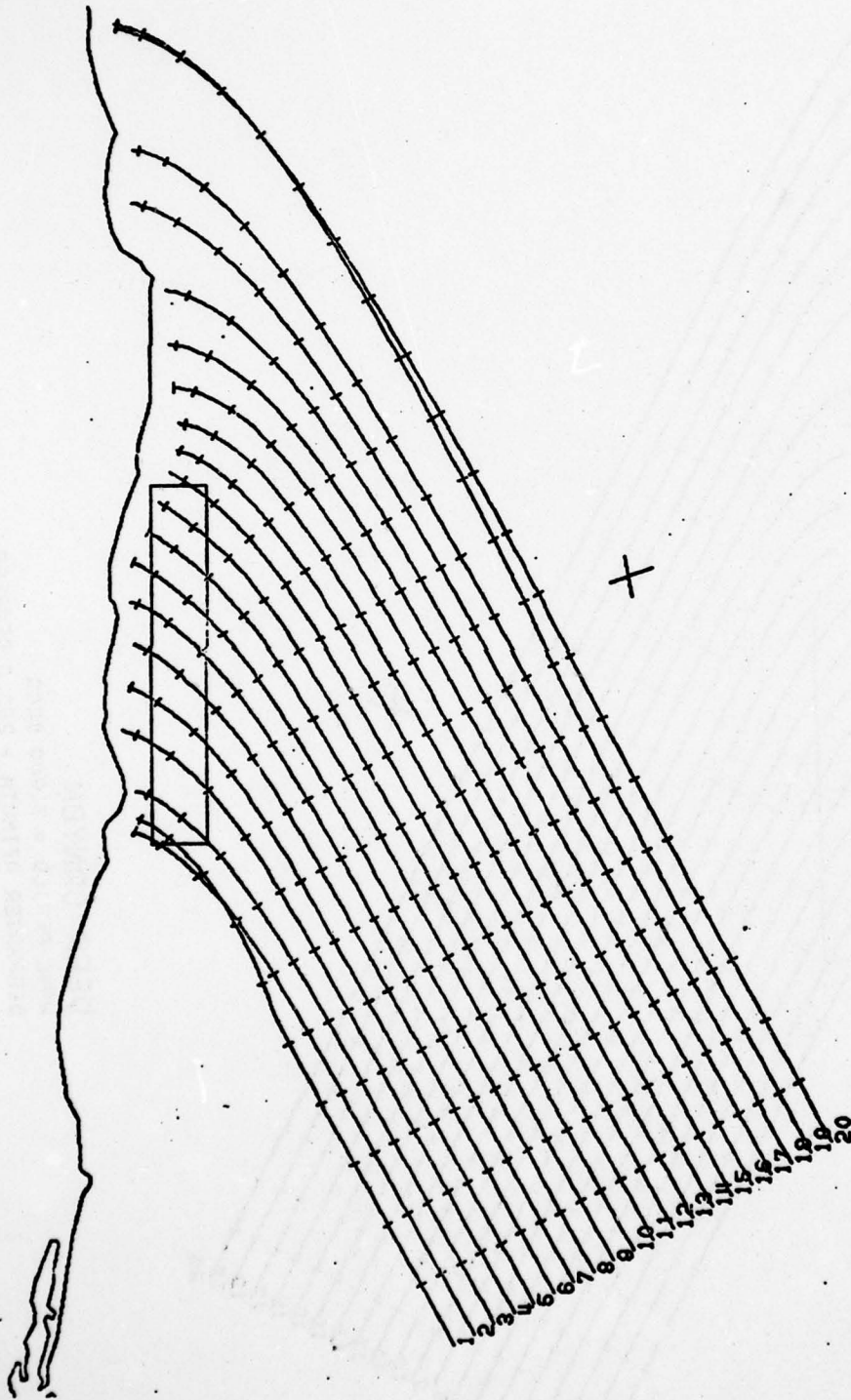
DEER CANYON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES



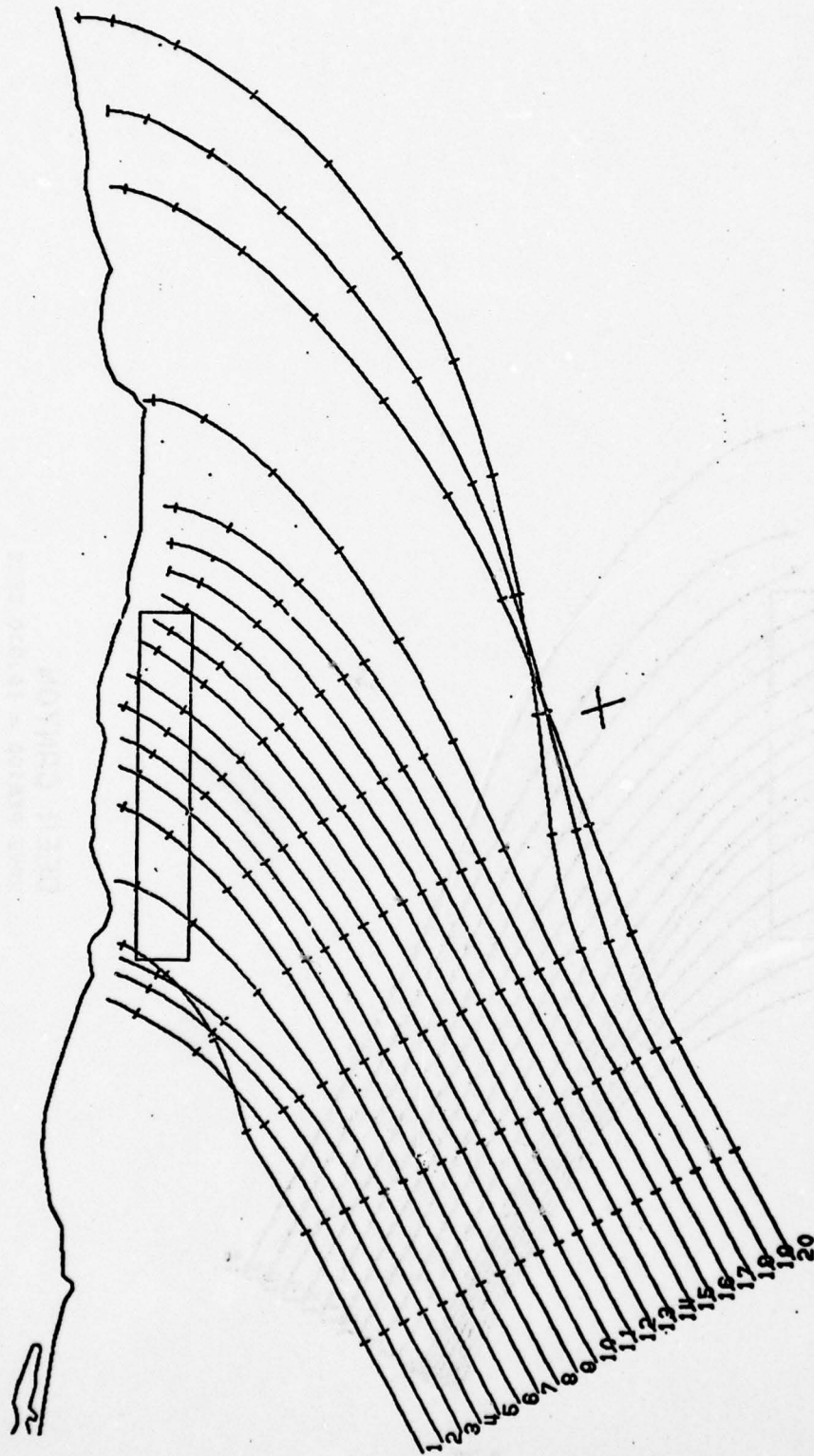
DEER CANYON  
WAVE PERIOD = 19.000 SECS  
DEEPWATER AZIMUTH = 220.0 DEGREES



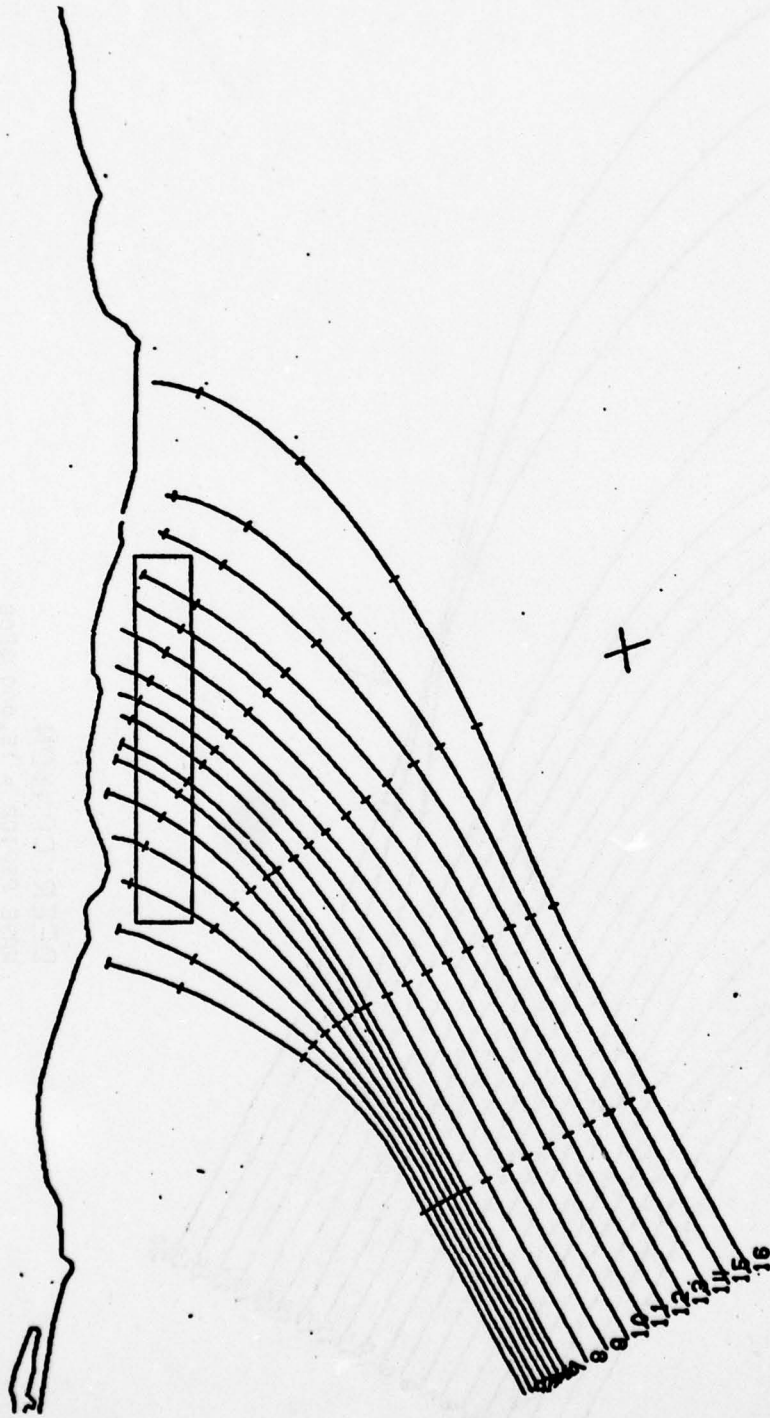
DEER CANYON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



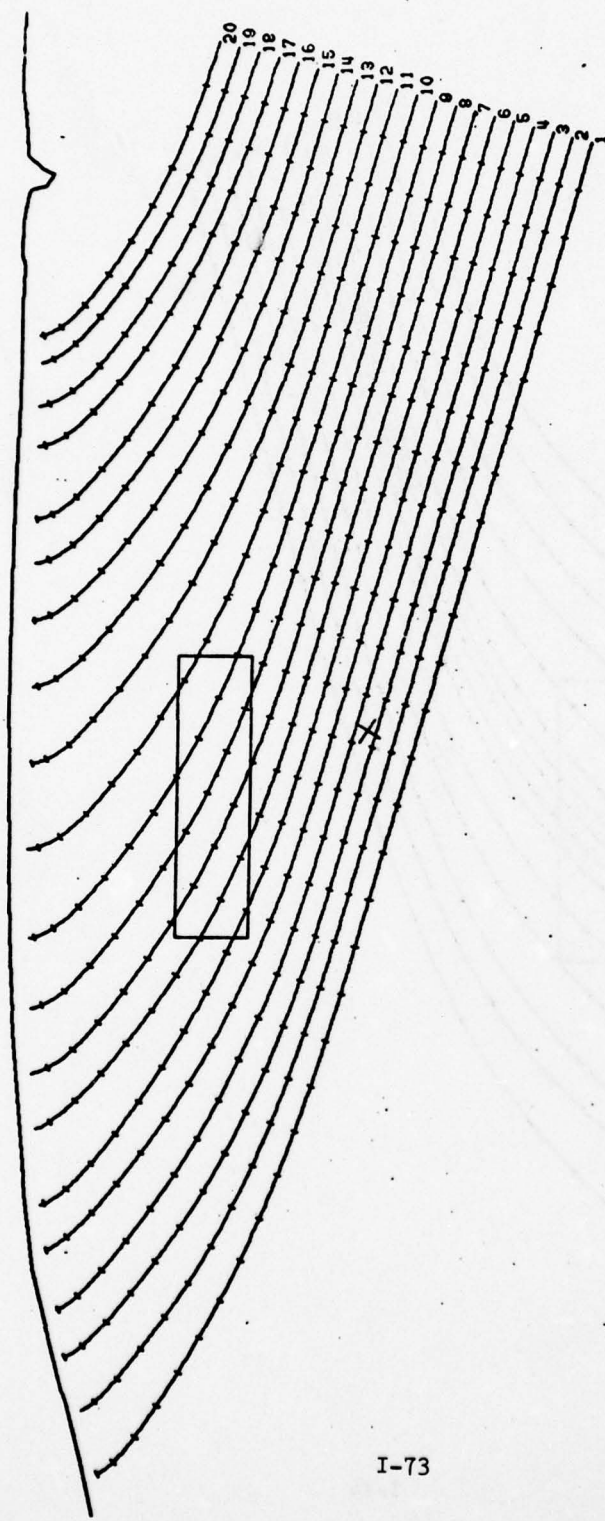
DEER CANYON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



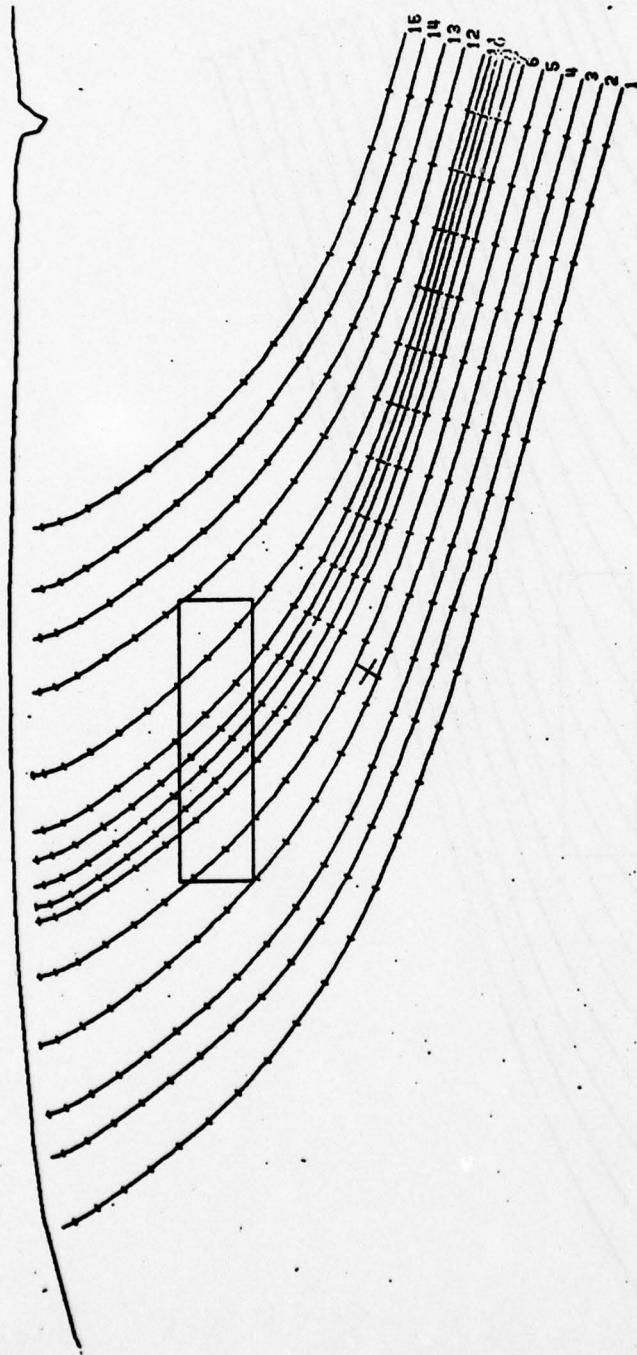
DEER CANYON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



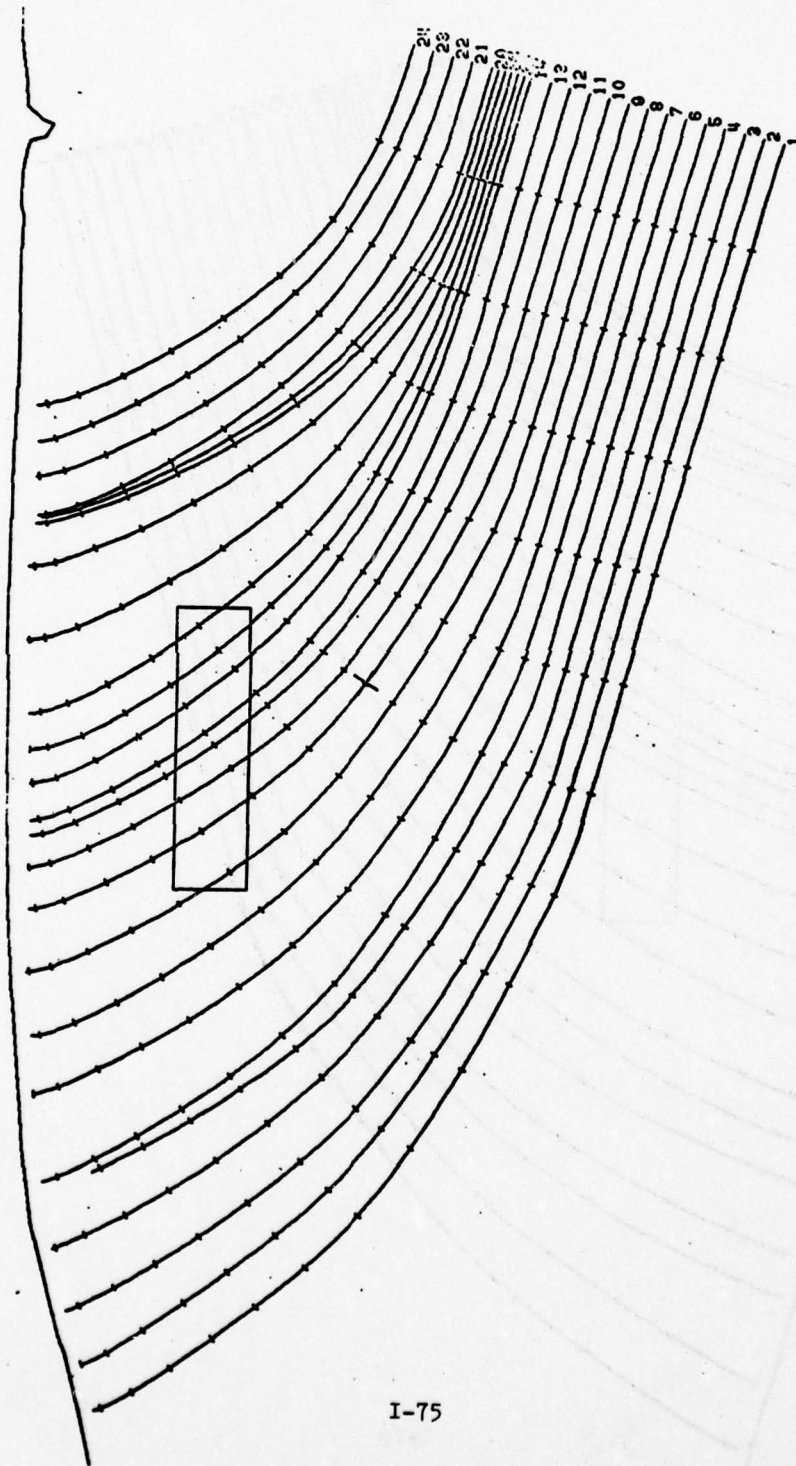
DEER CANYON  
WAVE PERIOD = 18.000 SECS  
DEEPWATER AZIMUTH = 260.0 DEGREES



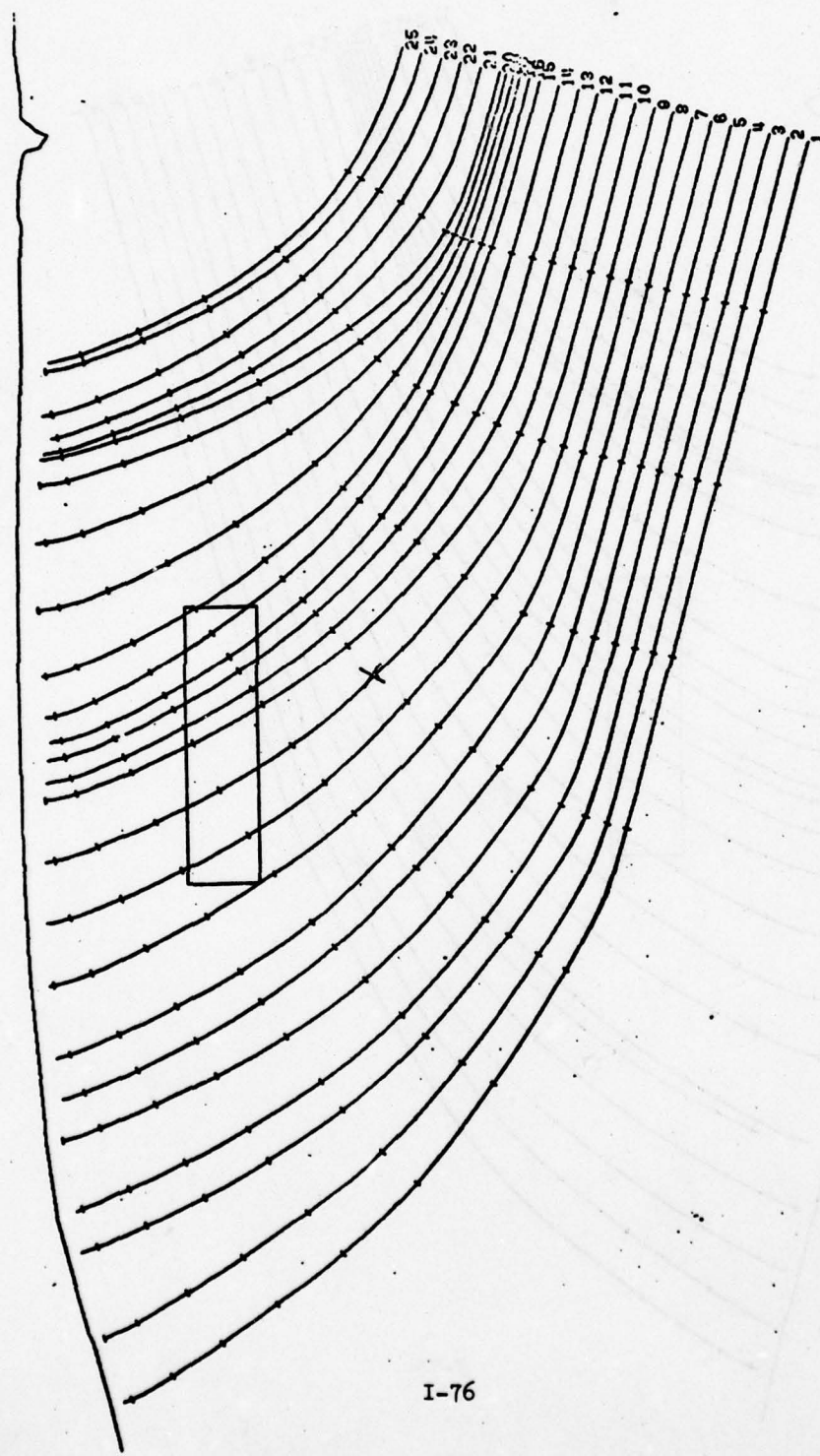
CAMP PENDLETON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 160.0 DEGREES



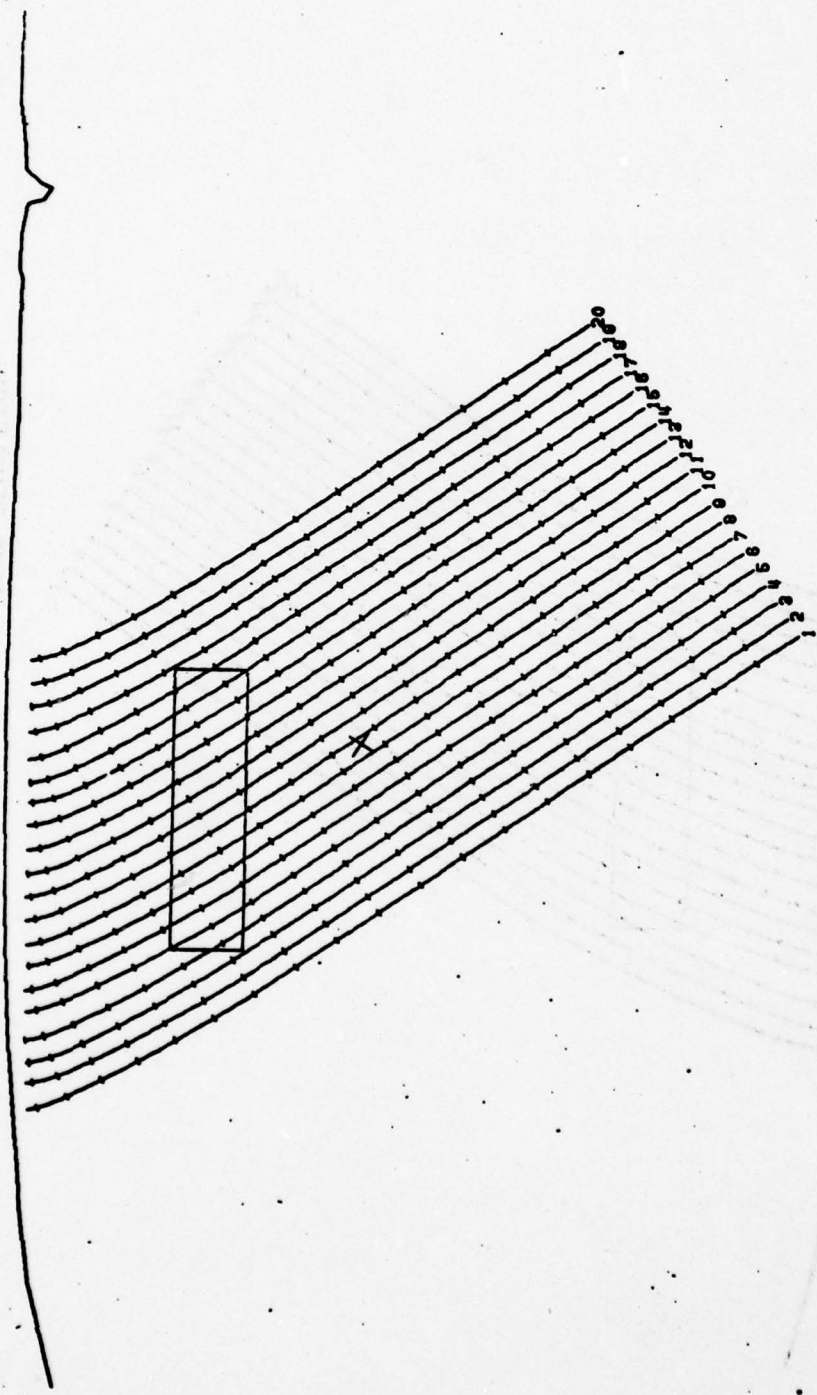
CAMP PENDLETON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 160.0 DEGREES



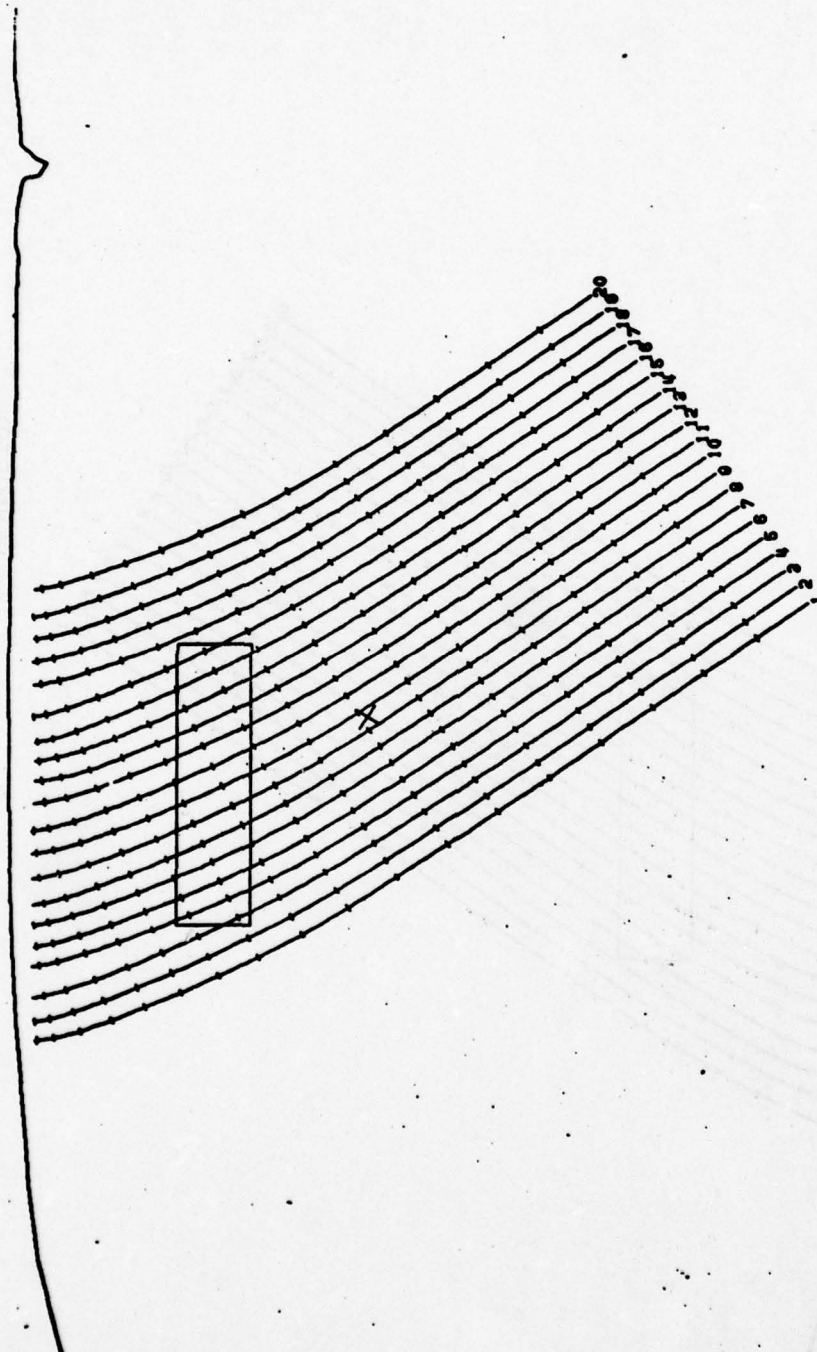
CAMP PENDLETON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 160.0 DEGREES



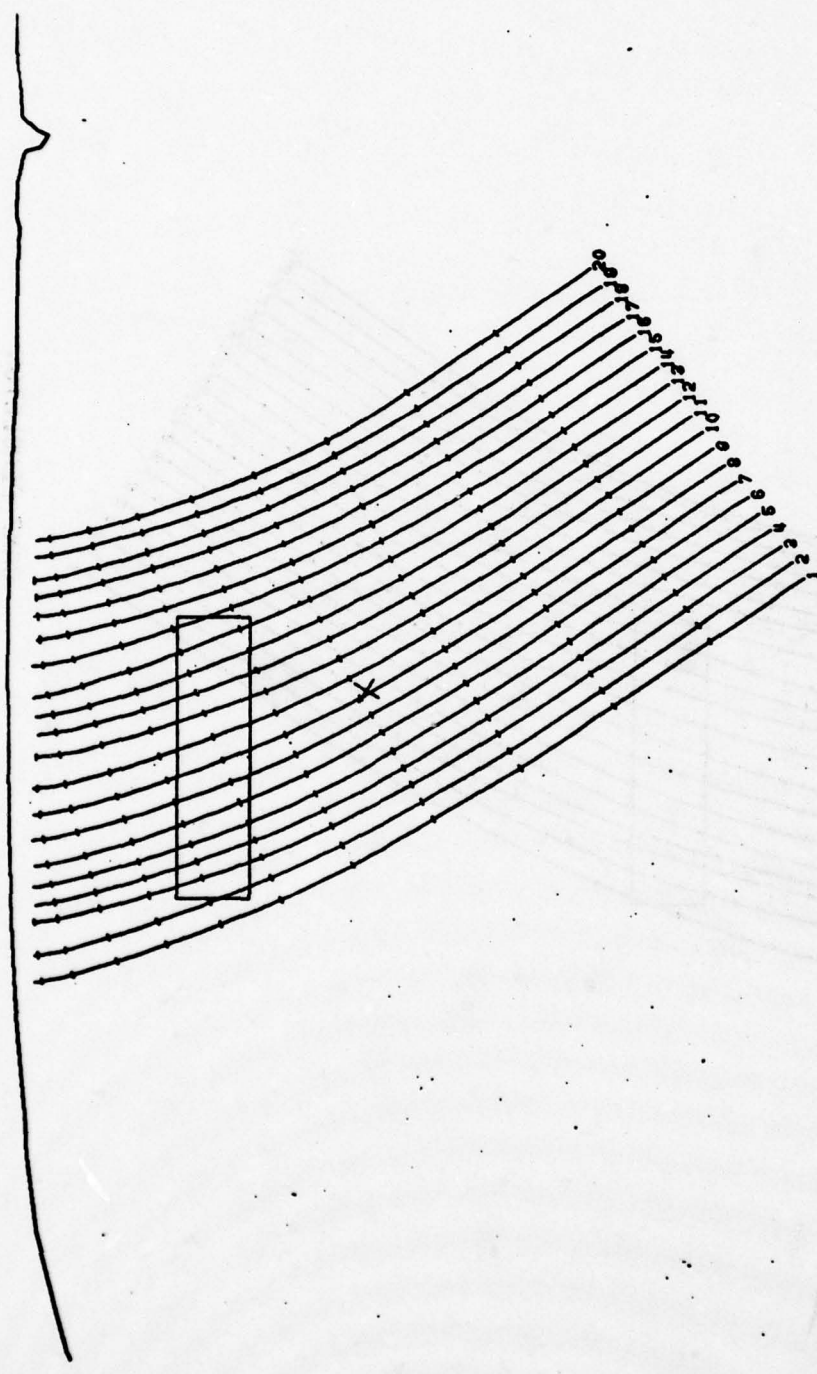
CAMP PENDLETON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 160.0 DEGREES



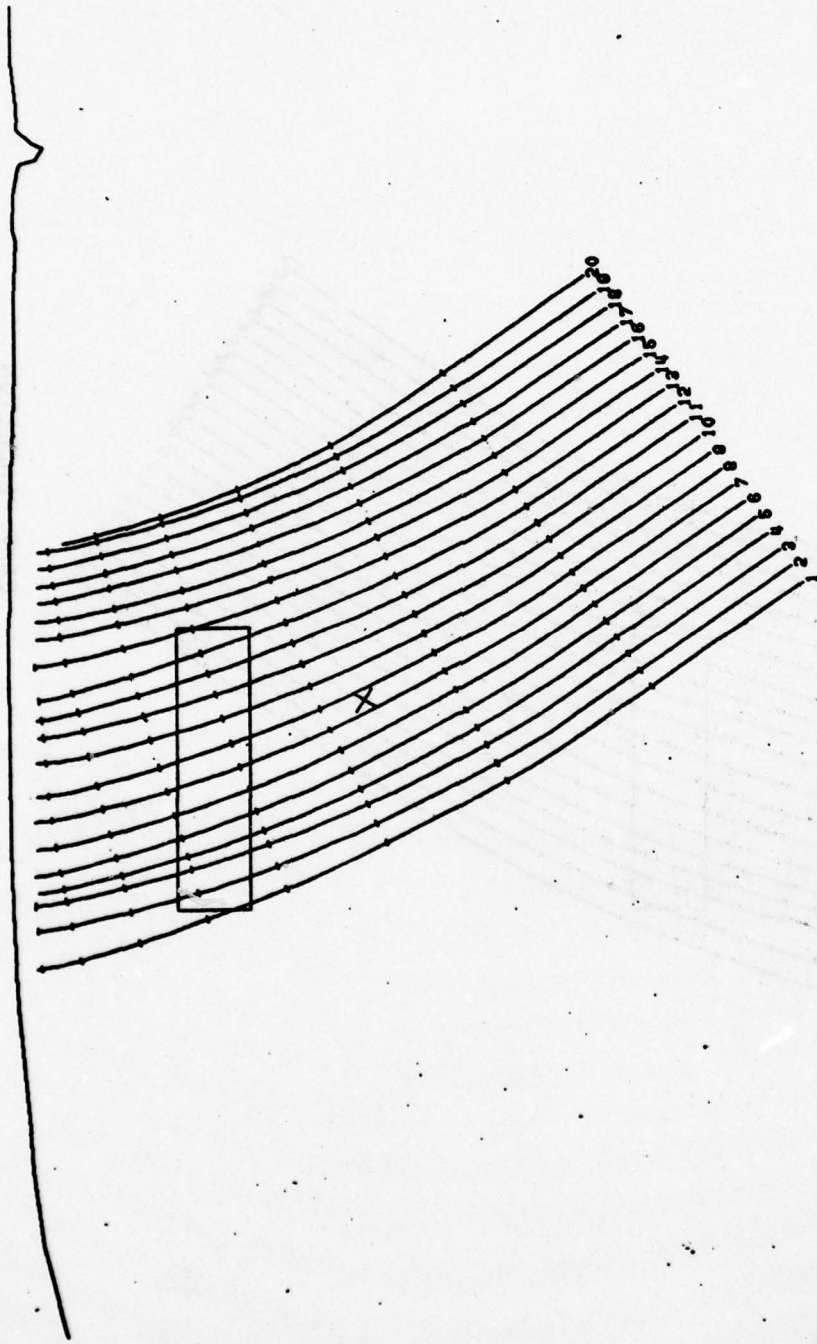
CAMP PENDLETON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 200.0 DEGREES



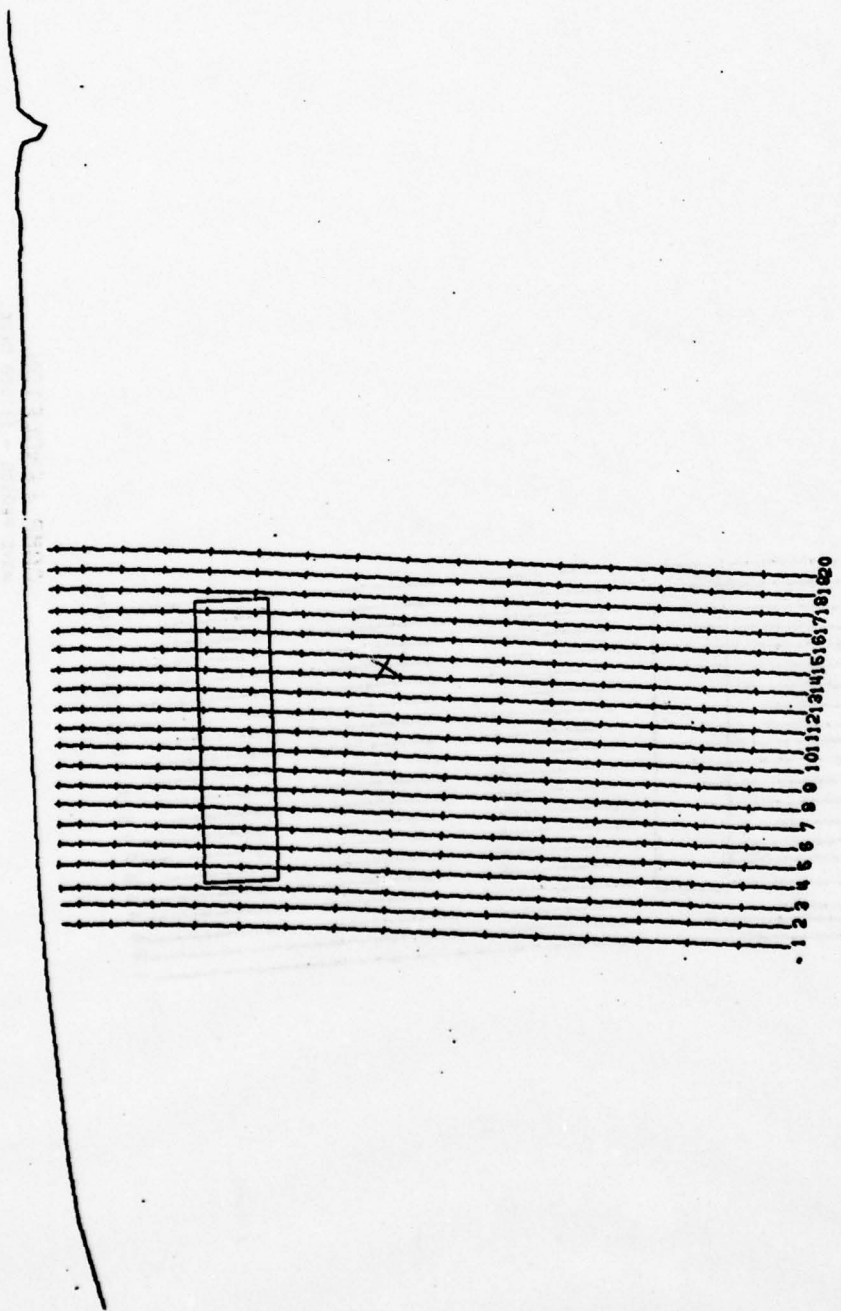
CAMP PENDLETON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 200.0 DEGREES



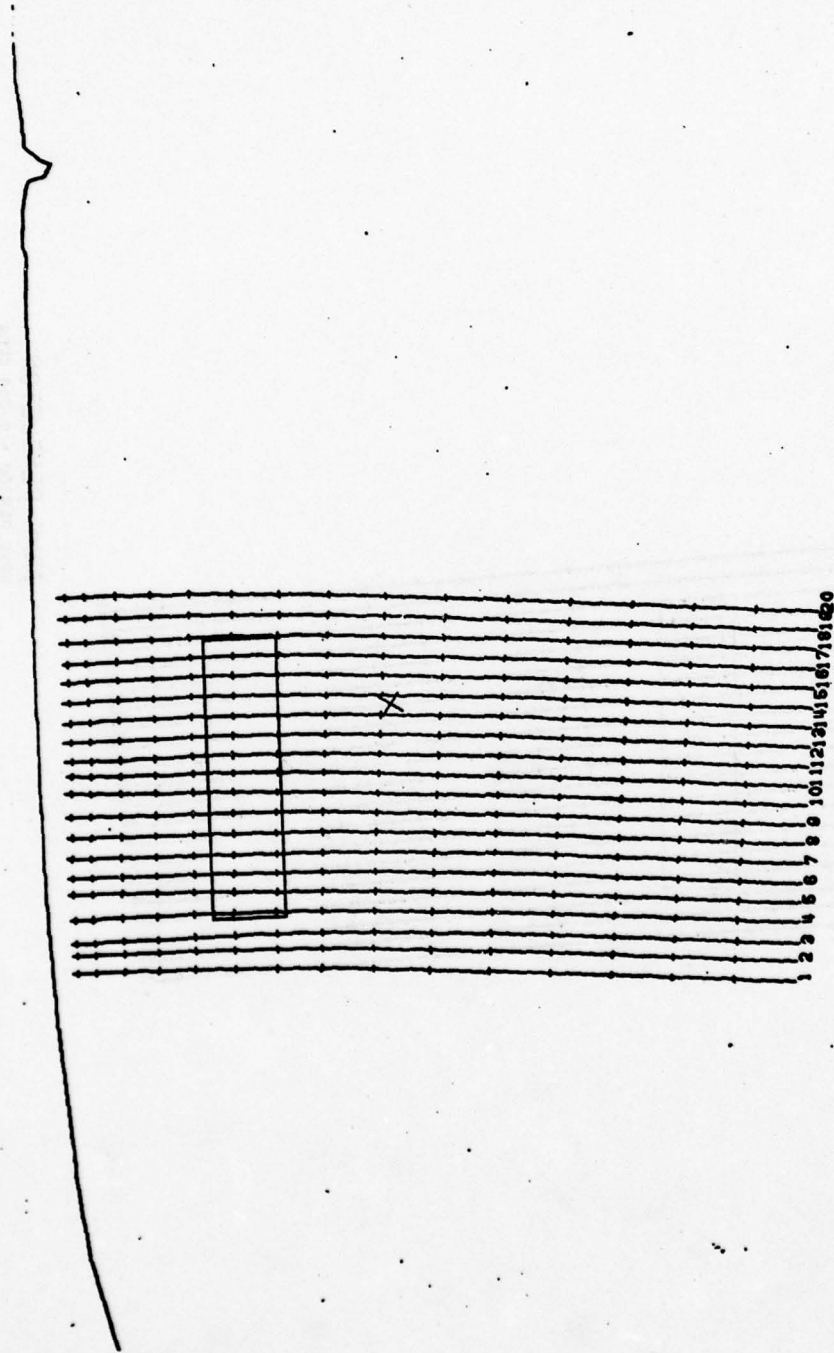
CAMP PENDLETON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 200.0 DEGREES



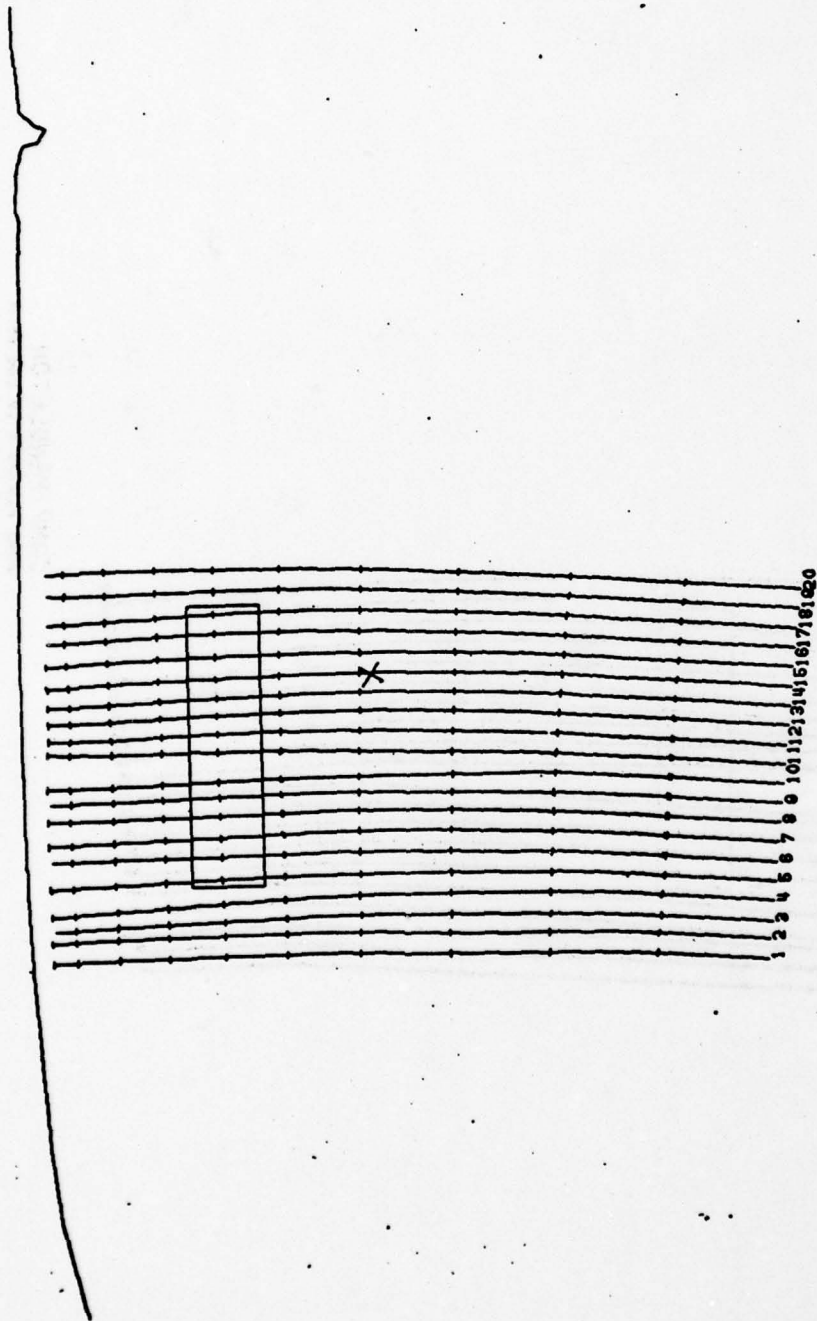
CAMP PENDLETON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 200.0 DEGREES



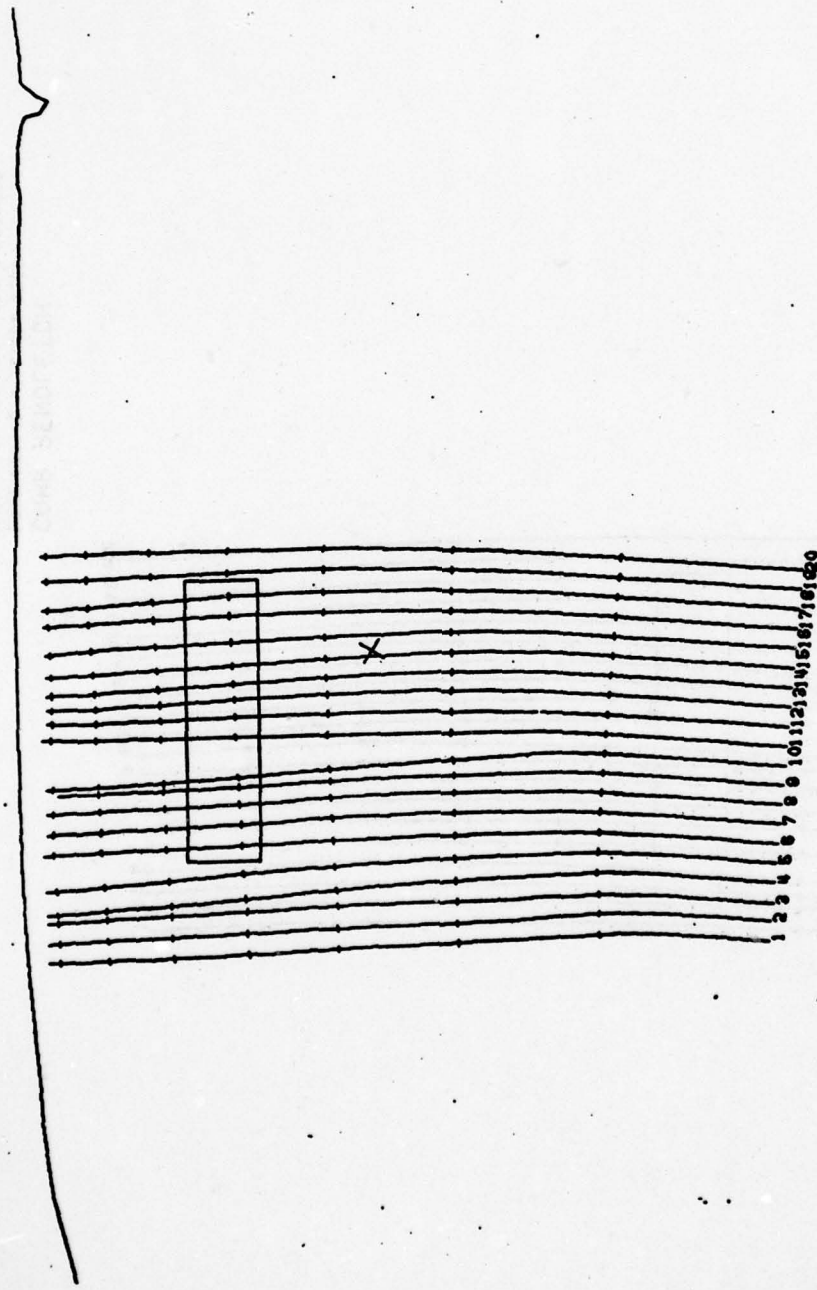
**CAMP PENDLETON**  
 WAVE PERIOD = 7.000 SECS  
 DEEPWATER AZIMUTH = 240.0 DEGREES



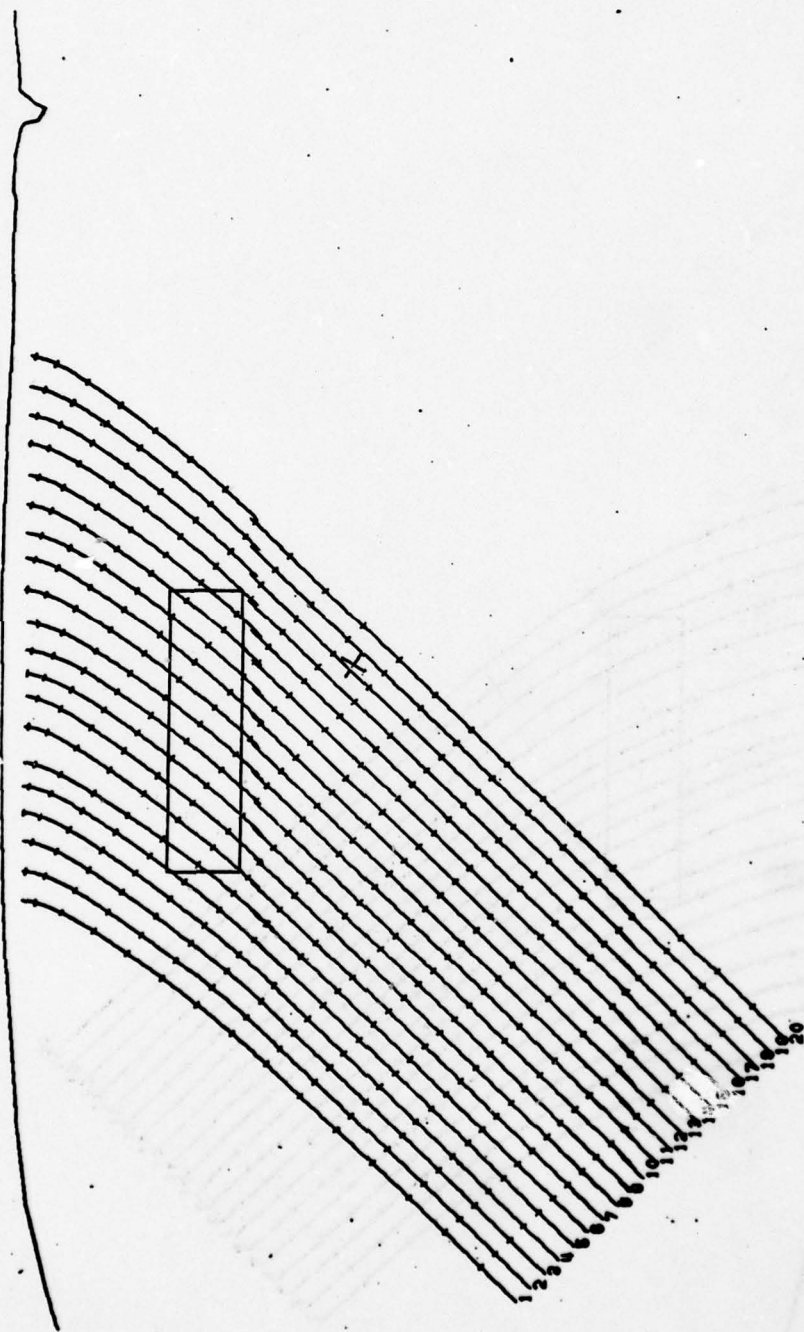
CAMP PENLETON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 240.0 DEGREES



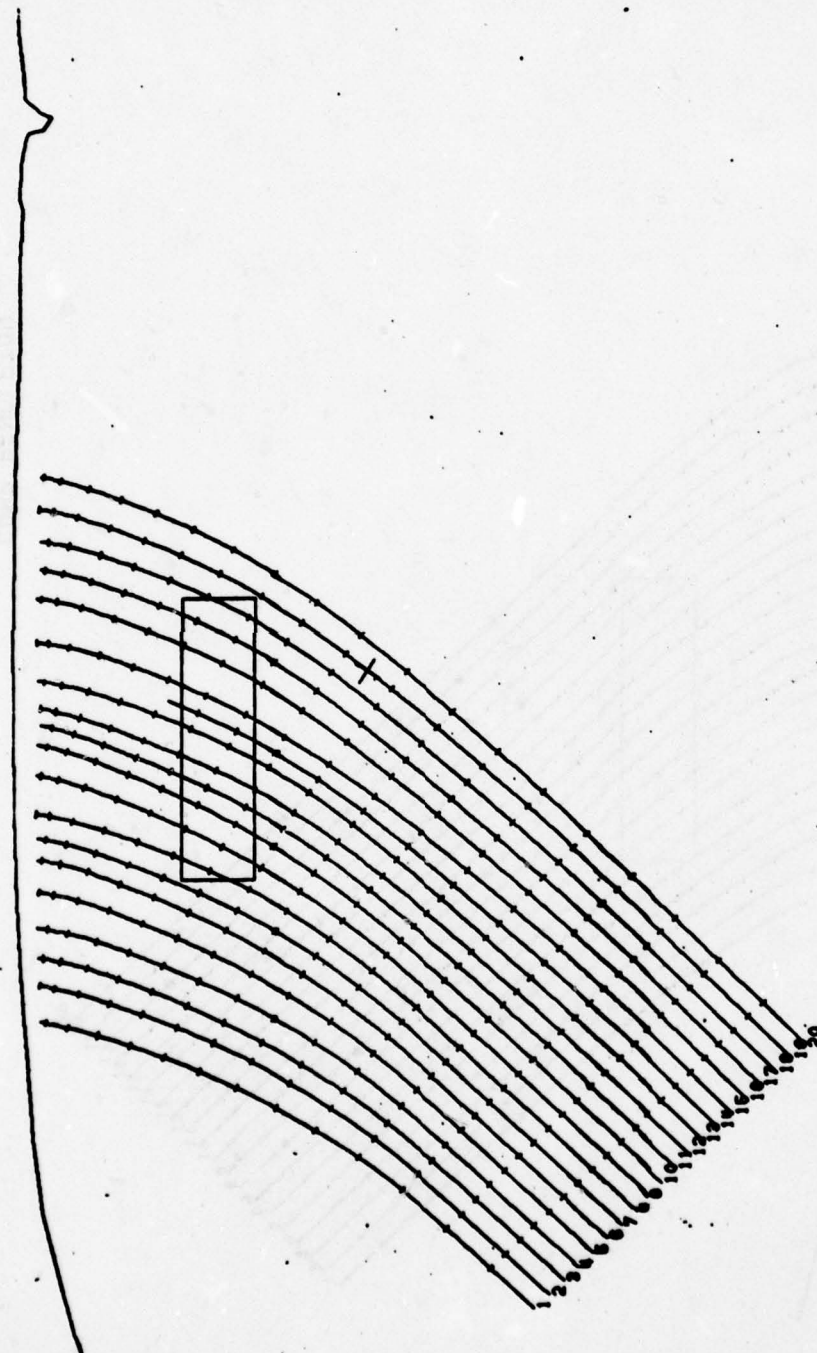
CAMP PENDLETON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 240.0 DEGREES



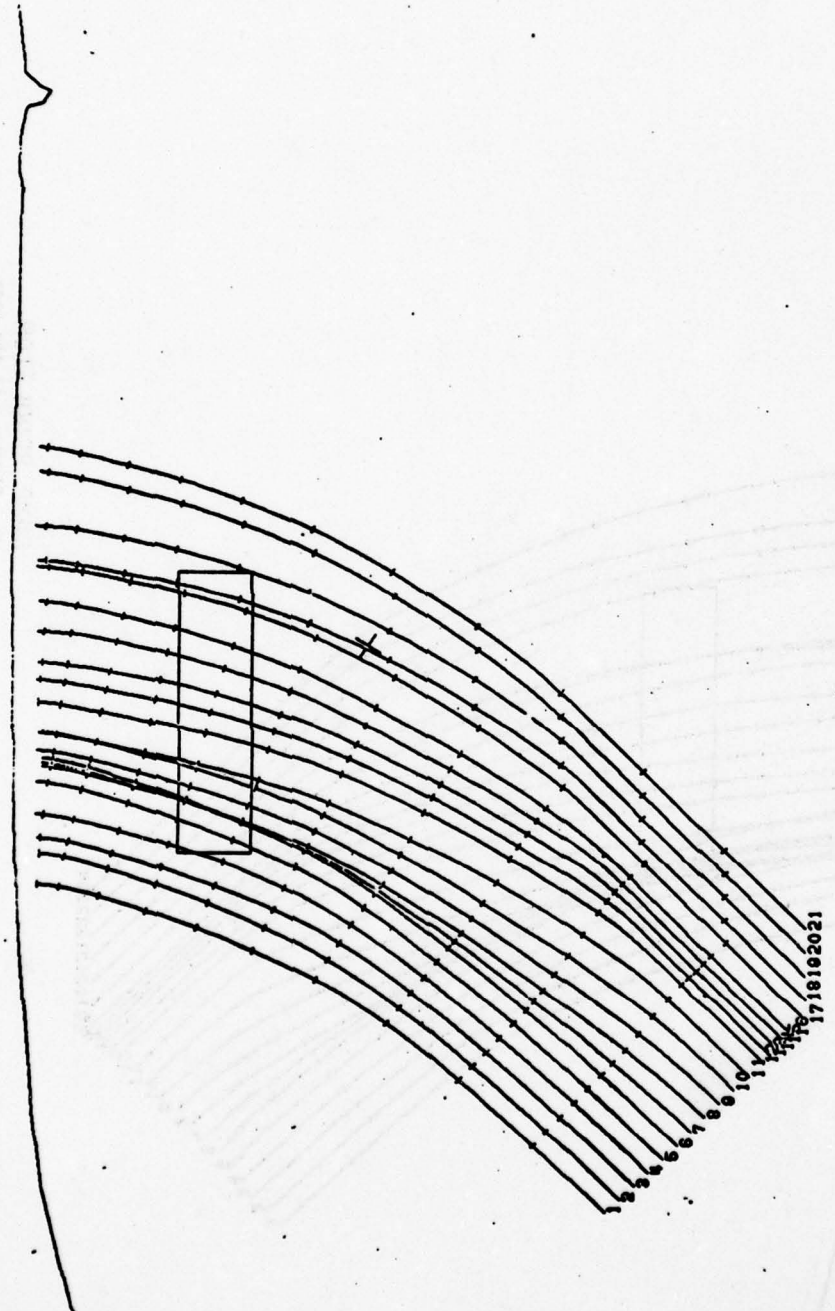
CAMP PENDLETON  
 WAVE PERIOD = 19.000 SECS  
 DEEPWATER AZIMUTH = 240.0 DEGREES



CAMP PENDLETON  
WAVE PERIOD = 7.000 SECS  
DEEPWATER AZIMUTH = 280.0 DEGREES

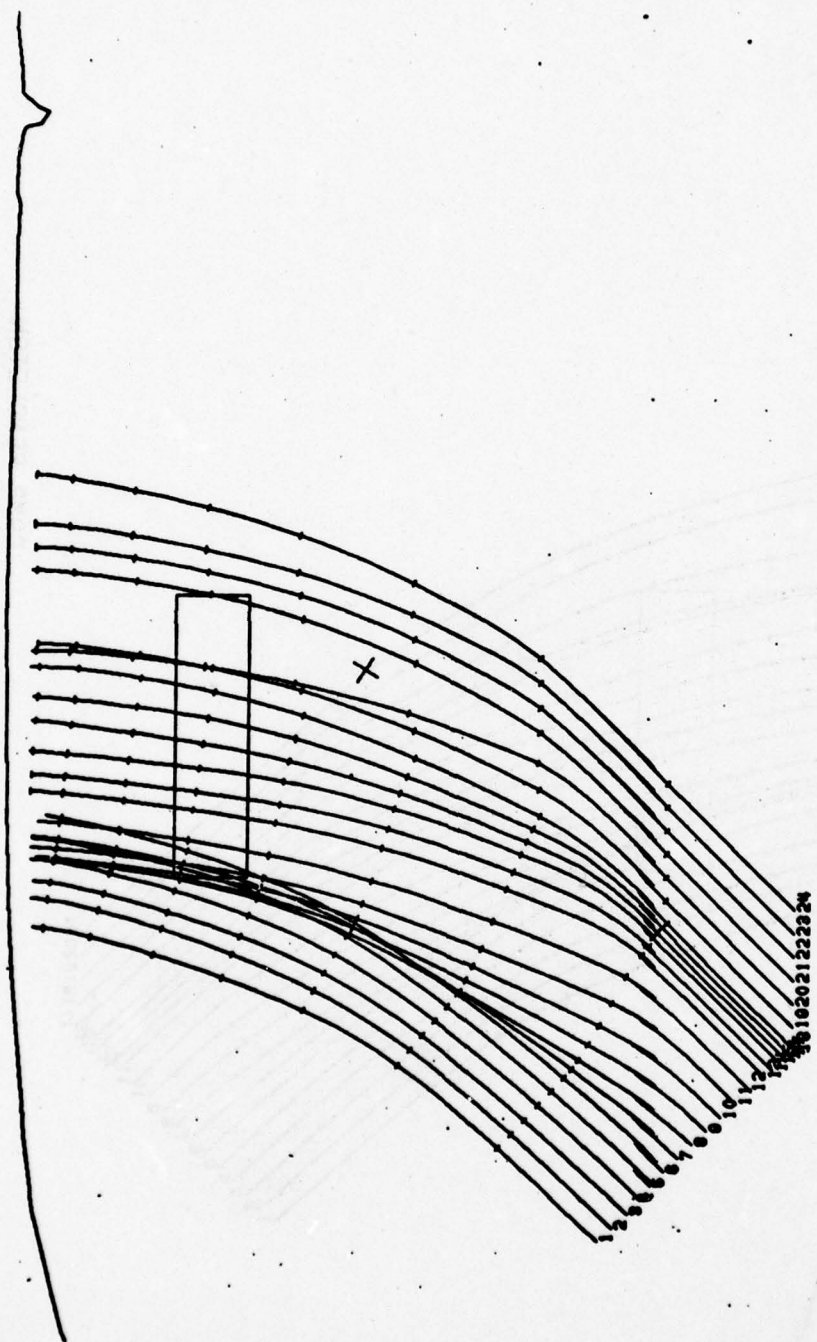


CAMP PENDLETON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 280.0 DEGREES



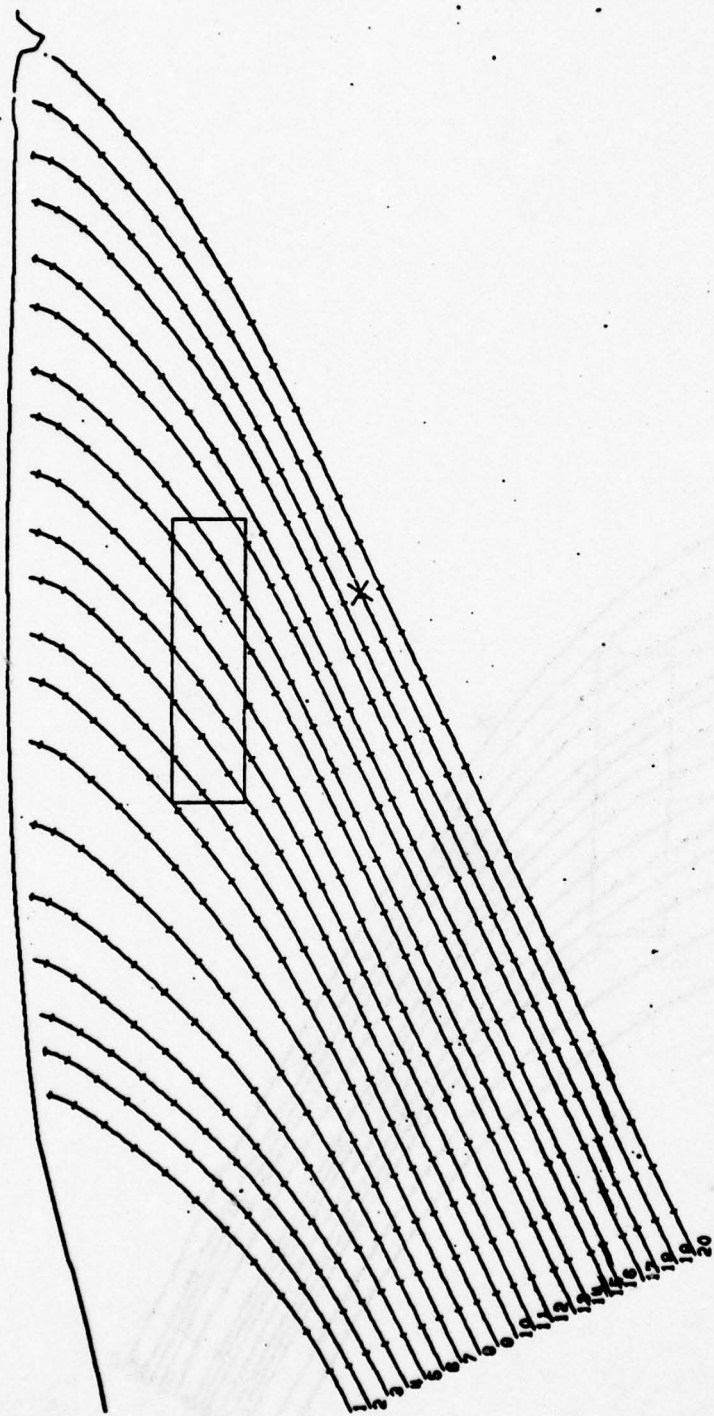
CAMP PENDLETON  
WAVE PERIOD = 15.000 SECS  
DEEPWATER AZIMUTH = 280.0 DEGREES

1718192021

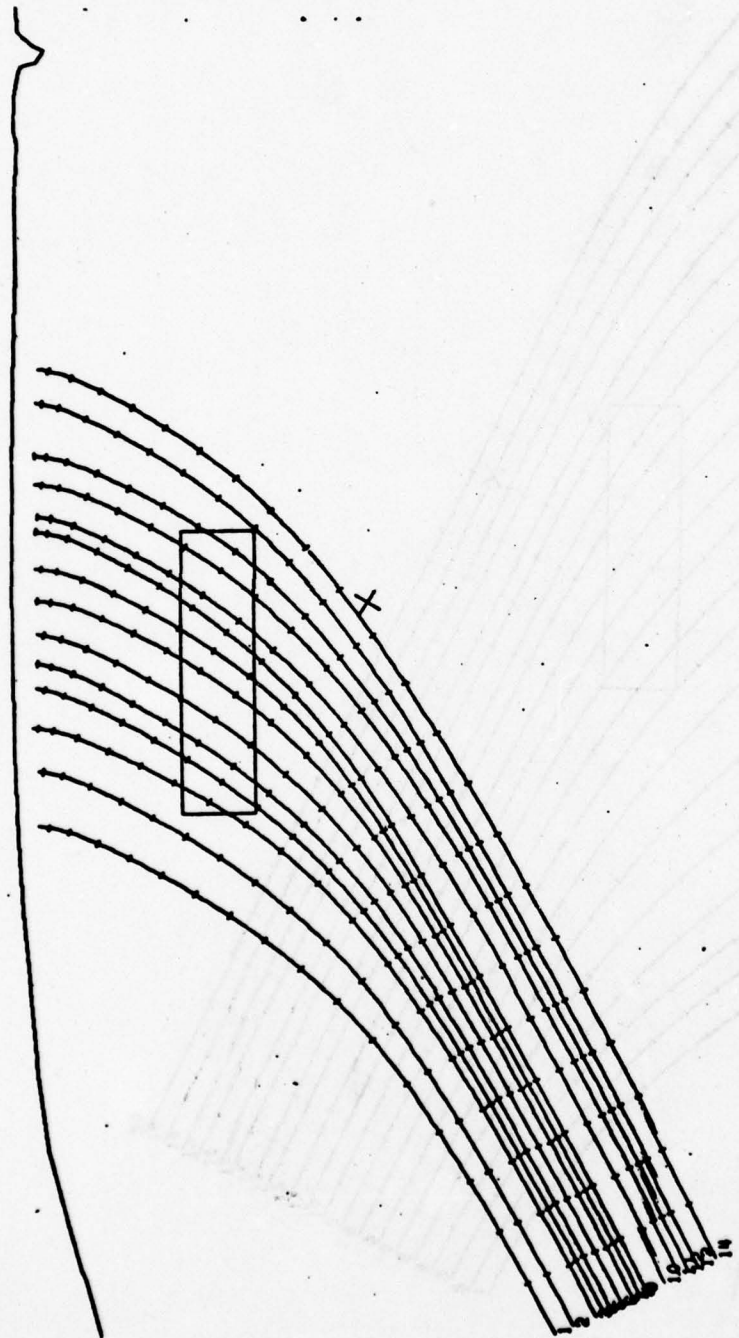


CAMP PENDLETON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 280.0 DEGREES

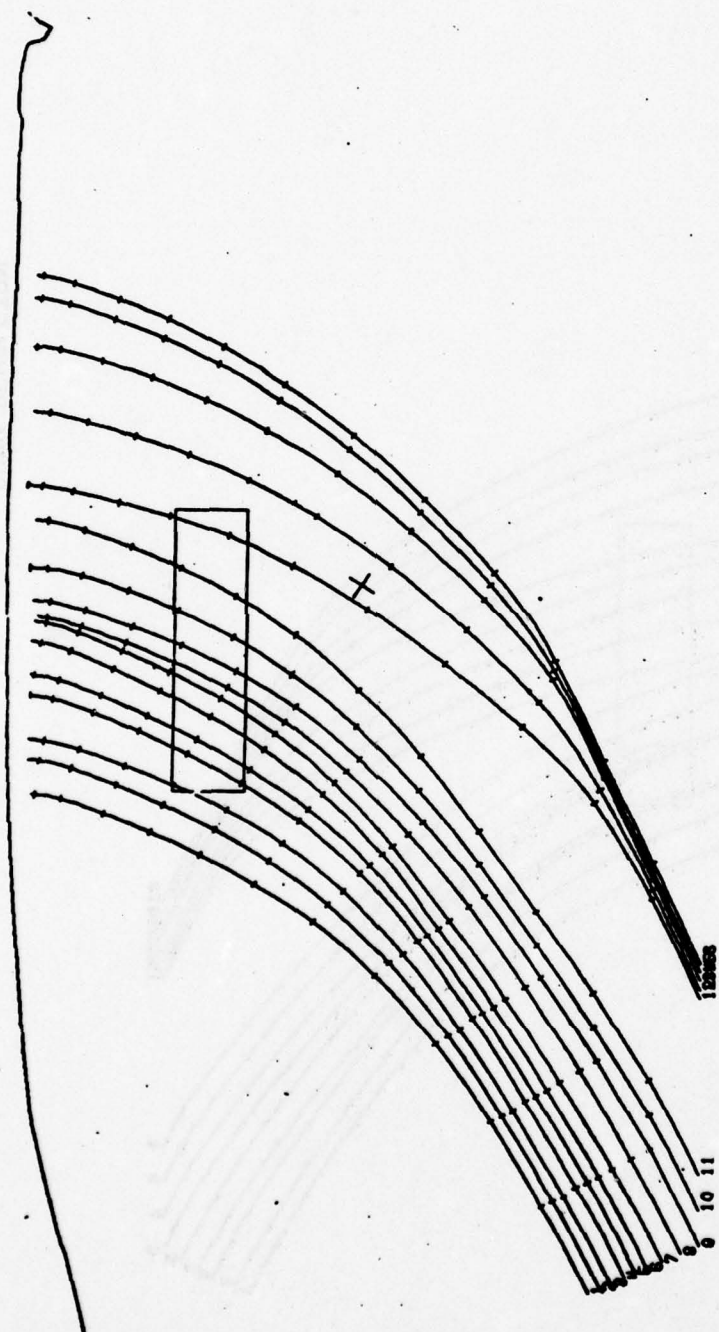
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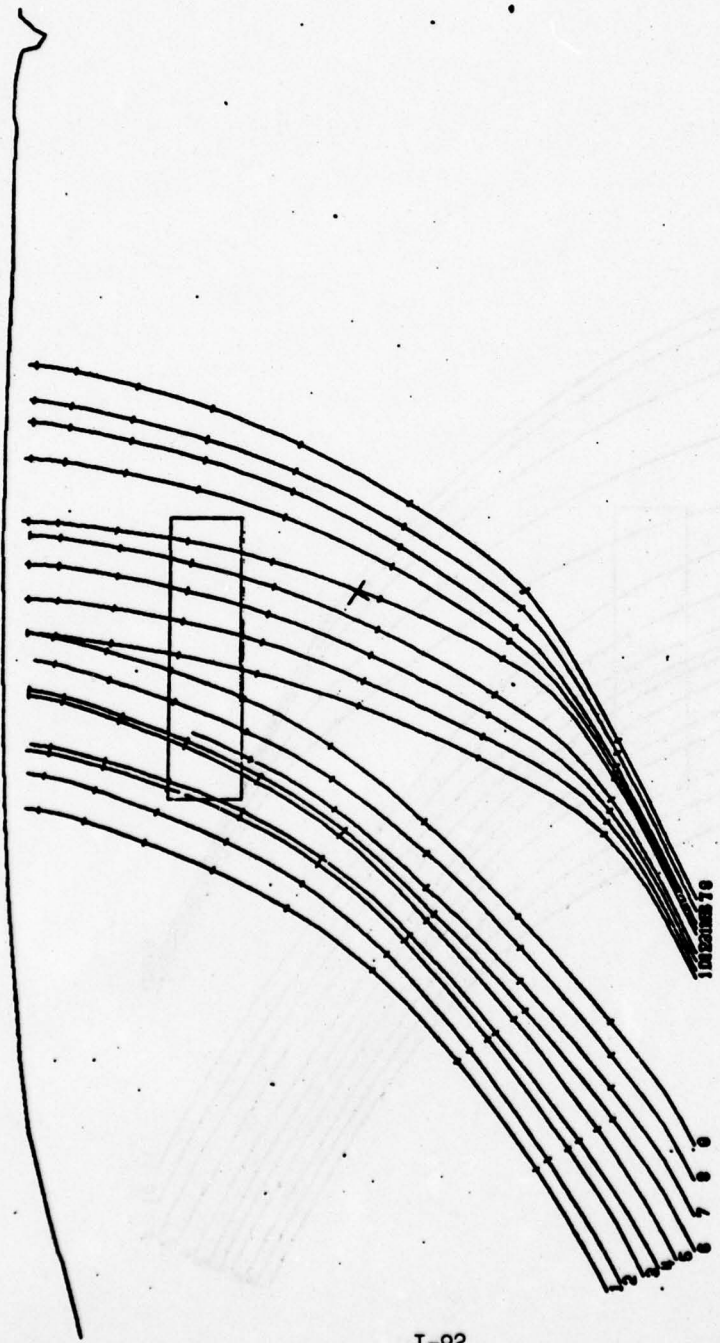
CAMP PENDLETON  
WAVE PERIOD = 7.000 SECS  
DEEPMETER AZIMUTH = 300.0 DEGREES



CAMP PENDLETON  
WAVE PERIOD = 11.000 SECS  
DEEPWATER AZIMUTH = 300.0 DEGREES



CAMP PENDLETON  
MAGN. PERIOD = 18.000 SECS  
DEEPWATER AZIMUTH = 300.0 DEGREES



CAMP PENDLETON  
WAVE PERIOD = 10.000 SECS  
DEEPWATER AZIMUTH = 300.0 DEGREE

ADDENDUM II: LNG SITE WAVE STATISTICS

In the following tables the sea and northern swell data were deduced from Meteorology International, Inc.'s DNOD singular wave model statistics, and southern swell data was deduced from Marine Adviser's Station A statistics.

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**ANNUAL SUMMARY**

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.07								0.07
1.0-1.5	7.04								7.04
1.5-2.0	7.70	1.38							9.08
2.0-2.5	0.83	4.15							4.97
2.5-3.0		2.32	0.03						2.35
3.0-3.5		0.62	0.28						0.90
3.5-4.0		0.01	0.36						0.37
4.0-4.5		0.01	0.15						0.15
4.5-5.0		0.01	0.06						0.07
5.0-5.5			0.02	0.01					0.03
5.5-6.0				0.01					0.01
6.0-6.5				0.01					0.01
6.5-7.0									0.01
>7.0									0.00
TOTAL	15.63	8.50	0.90	0.03	0.00	0.00	0.00	0.00	25.05

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.05							0.05
1.0-1.5	6.12							6.12
1.5-2.0	6.12	0.82						6.94
2.0-2.5	0.25	3.10						3.35
2.5-3.0		1.82						1.82
3.0-3.5		0.65	0.21					1.06
3.5-4.0			0.59					0.59
4.0-4.5		0.02	0.45					0.47
4.5-5.0		0.04	0.24					0.28
5.0-5.5		0.01	0.12					0.13
5.5-6.0								0.00
6.0-6.5			0.04					0.04
6.5-7.0			0.04					0.04
>7.0								0.00
TOTAL	12.25	6.20	1.68	0.00	0.00	0.00	0.00	21.13

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.06							0.06
1.0-1.5	5.78							5.78
1.5-2.0	4.47	0.96						5.43
2.0-2.5	0.59	3.37						3.95
2.5-3.0		1.86						1.86
3.0-3.5		0.61	0.26					0.87
3.5-4.0		0.09	0.39					0.48
4.0-4.5		0.06	0.22					0.28
4.5-5.0		0.04	0.11		C.04			0.19
5.0-5.5		0.01	0.04		C.04			0.10
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	10.89	7.02	1.02	C.08	0.00	0.00	0.00	19.01

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.07							0.07
1.0-1.5	6.50							6.50
1.5-2.0	6.28	1.55						7.83
2.0-2.5	0.51	4.83						5.34
2.5-3.0		2.86						2.86
3.0-3.5		0.80	0.43					1.23
3.5-4.0			0.70					0.70
4.0-4.5			0.29					0.29
4.5-5.0			0.01					0.02
5.0-5.5								0.04
5.5-6.0								0.03
6.0-6.5								0.00
6.5-7.0								0.00
TOTAL	12.45	10.34	1.43	0.08	0.00	0.00	0.00	25.31

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.06							0.07
1.0-1.5	6.26	0.05						6.31
1.5-2.0	7.78	1.48						9.27
2.0-2.5	0.85	4.52						5.38
2.5-3.0		2.54						2.54
3.0-3.5		0.70	0.60					1.30
3.5-4.0			0.66					0.66
4.0-4.5			0.21					0.21
4.5-5.0			0.07					0.07
5.0-5.5			0.03					0.03
5.5-6.0				0.02				0.02
6.0-6.5				0.04				0.04
6.5-7.0				0.02				0.02
>7.0								0.00
TOTAL	14.87	9.30	1.57	0.08	0.00	0.00	0.00	25.91

RATTLESNARE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.07							0.07
1.0-1.5	7.21							7.21
1.5-2.0	10.44	2.60						13.04
2.0-2.5	1.23	7.53						8.76
2.5-3.0		4.73	0.24					5.02
3.0-3.5		1.34	0.69					2.03
3.5-4.0			0.56					0.56
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	18.95	16.26	1.49	0.00	0.00	0.00	0.00	36.70

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.08							0.08
1.0-1.5	7.78							7.78
1.5-2.0	11.55	2.81						14.36
2.0-2.5	1.33	7.85						9.18
2.5-3.0		4.63	0.05					4.68
3.0-3.5		1.21	0.46					1.67
3.5-4.0			0.39					0.39
4.0-4.5			0.07					0.07
4.5-5.0			0.03					0.03
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	20.74	16.51	0.99	0.00	0.00	0.00	0.00	38.24

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.10							0.10
1.0-1.5	8.64							8.64
1.5-2.0	12.18	1.81						14.99
2.0-2.5	1.71	5.42						7.14
2.5-3.0		3.25	0.05					3.30
3.0-3.5		0.62	0.20					0.82
3.5-4.0			0.28					0.28
4.0-4.5			0.08					0.08
4.5-5.0			0.03					0.03
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	24.62	11.11	0.74	0.00	0.00	0.00	0.00	36.48

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.10							0.10
1.0-1.5	9.63							9.63
1.5-2.0	11.48	1.78						13.27
2.0-2.5	1.60	4.74						6.34
2.5-3.0		2.37						2.37
3.0-3.5		0.46	0.25					0.71
3.5-4.0			0.22					0.22
4.0-4.5			0.03					0.03
4.5-5.0			0.02					0.02
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	22.81	9.35	0.52	0.00	0.00	0.00	0.00	32.68

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.08							0.08
1.0-1.5	8.12							8.12
1.5-2.0	6.97	0.85						7.82
2.0-2.5	0.43	2.44						2.87
2.5-3.0		0.86						0.86
3.0-3.5		0.08	0.06					0.16
3.5-4.0			0.05					0.05
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	15.60	4.25	0.11	0.00	0.00	0.00	0.00	20.05

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.07							0.07
1.0-1.5	6.57							6.57
1.5-2.0	4.35	0.48						4.83
2.0-2.5	0.43	1.26						1.69
2.5-3.0		0.41						0.41
3.0-3.5		0.10	0.05					0.15
3.5-4.0			0.07					0.07
4.0-4.5			0.08					0.08
4.5-5.0			0.06					0.06
5.0-5.5			0.01					0.01
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	11.42	2.26	0.28	0.00	0.00	0.00	0.00	13.95

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.06							0.06
1.0-1.5	5.63							5.63
1.5-2.0	4.81	0.60						5.41
2.0-2.5	0.13	2.03						2.16
2.5-3.0		1.04						1.04
3.0-3.5		0.20	0.01					0.21
3.5-4.0			0.07					0.07
4.0-4.5			0.06					0.06
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	10.73	3.96	0.14	0.00	0.00	0.00	0.00	14.83

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.05							0.05
1.0-1.5	5.19							5.19
1.5-2.0	4.72	0.68						5.29
2.0-2.5	0.80	2.54						3.24
2.5-3.0		1.21						1.21
3.0-3.5		0.27	0.08					0.34
3.5-4.0		0.03	0.29					0.32
4.0-4.5		0.01	0.28					0.29
4.5-5.0			0.11					0.11
5.0-5.5			0.03					0.03
5.5-6.0							0.01	0.01
6.0-6.5							0.04	0.04
6.5-7.0							0.04	0.04
>7.0								0.00
TOTAL	10.76	4.73	0.80	0.08	0.00	0.00	0.00	16.37

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 170**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.11							0.11
1.5-2.0	0.10	0.01						0.11
2.0-2.5		0.05						0.05
2.5-3.0		0.05						0.05
3.0-3.5		0.01						0.02
3.5-4.0			0.02					0.02
4.0-4.5			0.01					0.01
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.22	0.12	0.03	0.00	0.00	0.00	0.00	0.37

**RATTLESNARE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 180**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.18							0.18
1.5-2.0	0.16	0.02						0.18
2.0-2.5	0.03	0.07						0.10
2.5-3.0		0.03						0.03
3.0-3.5		0.01						0.01
3.5-4.0			0.03					0.03
4.0-4.5			0.03					0.03
4.5-5.0			0.01					0.01
5.0-5.5			0.01					0.01
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.37	0.13	0.06	0.00	0.00	0.00	0.00	0.55

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 180**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.10							0.10
1.5-2.0	0.07	0.03						0.10
2.0-2.5		0.11						0.12
2.5-3.0		0.05						0.05
3.0-3.5		0.01	0.01					0.02
3.5-4.0		0.01	0.02					0.02
4.0-4.5		0.01	0.01					0.02
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.18	0.22	0.05	0.01	0.00	0.00	0.00	0.45

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 200**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.17							0.17
1.5-2.0	0.14	0.02						0.15
2.0-2.5	0.01	0.07						0.09
2.5-3.0		0.05						0.05
3.0-3.5		0.03						0.03
3.5-4.0								0.01
4.0-4.5			0.01					0.01
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.32	0.17	0.02	0.00	0.00	0.00	0.00	0.51

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 210**

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18
0.0-0.5							0.00	0.00
0.5-1.0							0.00	0.00
1.0-1.5	0.13						0.13	0.13
1.5-2.0	0.14	0.02					0.15	0.15
2.0-2.5	0.01	0.08					0.09	0.09
2.5-3.0		0.06					0.06	0.06
3.0-3.5		0.03					0.03	0.03
3.5-4.0			0.01				0.01	0.01
4.0-4.5			0.01				0.01	0.01
4.5-5.0			0.01				0.01	0.01
5.0-5.5							0.00	0.00
5.5-6.0							0.00	0.00
6.0-6.5							0.00	0.00
6.5-7.0							0.00	0.00
>7.0							0.00	0.00
TOTAL	0.27	0.18	0.04	0.01	0.00	0.00	0.50	0.50

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 220**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.17							0.17
1.5-2.0	0.13	0.02						0.15
2.0-2.5	0.02	0.08						0.11
2.5-3.0		0.06						0.06
3.0-3.5		0.02	0.01					0.03
3.5-4.0			0.02					0.03
4.0-4.5								0.02
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.33	0.18	0.07	0.00	0.00	0.00	0.00	0.58

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 230**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.10							0.10
1.5-2.0	0.12	0.02						0.14
2.0-2.5	0.02	0.09						0.11
2.5-3.0		0.08						0.08
3.0-3.5		0.02						0.02
3.5-4.0			0.01					0.01
4.0-4.5			0.01					0.01
4.5-5.0			0.01					0.01
5.0-5.5			0.01					0.01
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.25	0.21	0.03	0.01	0.00	0.00	0.00	0.49

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 240**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.20							0.20
1.5-2.0	0.18	0.02						0.20
2.0-2.5		0.07						0.08
2.5-3.0		0.04						0.04
3.0-3.5		0.02						0.03
3.5-4.0			0.02					0.02
4.0-4.5			0.01					0.01
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.38	0.15	0.04	0.00	0.00	0.00	0.00	0.57

WAVE DIRECTION = 240  
 WAVELENGTH (M)  
 WAVE PERIOD (SEC)  
 WAVE DIRECTION = 240  
 WAVELENGTH (M)  
 WAVE PERIOD (SEC)

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 250**

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18
0.0-0.5							0.00	
0.5-1.0							0.00	
1.0-1.5	0.18						0.18	
1.5-2.0	0.17	0.02					0.19	
2.0-2.5	0.03	0.07					0.10	
2.5-3.0		0.03					0.03	
3.0-3.5		0.01					0.02	
3.5-4.0			0.01				0.01	
4.0-4.5			0.01				0.01	
4.5-5.0							0.00	
5.0-5.5							0.00	
5.5-6.0							0.00	
6.0-6.5							0.00	
6.5-7.0							0.00	
>7.0							0.00	
TOTAL	0.39	0.14	0.02	0.00	0.00	0.00	0.00	0.54

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 260**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.15							0.15
1.5-2.0	0.21	0.01						0.23
2.0-2.5		0.06						0.07
2.5-3.0		0.05						0.05
3.0-3.5		0.02						0.02
3.5-4.0			0.01					0.01
4.0-4.5								0.00
4.5-5.0								0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.37	0.15	0.01	0.01	0.00	0.00	0.00	0.54

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 270**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.26							0.26
1.5-2.0	0.26	0.03						0.30
2.0-2.5	0.02	0.13						0.14
2.5-3.0		0.05						0.05
3.0-3.5		0.03	0.03					0.05
3.5-4.0			0.03					0.03
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.64	0.24	0.06	0.00	0.00	0.00	0.00	0.94

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 280**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01							0.01
1.0-1.5	0.58							0.58
1.5-2.0	0.48	0.16						0.64
2.0-2.5	0.04	0.55						0.59
2.5-3.0		0.30						0.30
3.0-3.5		0.07	0.07					0.14
3.5-4.0			0.07					0.07
4.0-4.5			0.01					0.01
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.12	1.08	0.16	0.00	0.00	0.00	0.00	2.26

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 290**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01							0.01
1.0-1.5	0.88							0.88
1.5-2.0	0.80	0.25						1.14
2.0-2.5	0.08	1.00						1.07
2.5-3.0		0.55	0.02					0.58
3.0-3.5		0.14	0.15					0.28
3.5-4.0			0.11					0.11
4.0-4.5			0.02					0.02
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.88	2.03	0.20	0.00	0.00	0.00	0.00	4.21

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 300**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01							0.01
1.0-1.5	1.50							1.50
1.5-2.0	1.66	0.67						2.33
2.0-2.5	0.16	1.71						1.87
2.5-3.0		0.93						0.93
3.0-3.5		0.21						0.21
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	3.34	3.51	0.00	0.00	0.00	0.00	0.00	6.85

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 310**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.02							0.02
1.0-1.5	2.10							2.10
1.5-2.0	3.08							3.08
2.0-2.5	0.28							0.28
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	5.58	0.00	0.00	0.00	0.00	0.00	0.00	5.58

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**ANNUAL SUMMARY**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.12	1.32	0.77	0.53	2.70	0.47	0.03	5.95
0.5-1.0	0.65	3.03	0.86	1.23	6.44	2.11	0.17	14.48
1.0-1.5	0.01	1.36	0.51	0.48	1.48	3.11	0.69	7.64
1.5-2.0		0.09	0.25	0.09	0.12	0.28	0.61	1.54
2.0-2.5			0.04	0.03	0.07	0.04	0.35	0.53
2.5-3.0				0.01	0.02	0.02	0.11	0.16
3.0-3.5					0.01		0.02	0.03
3.5-4.0						0.01		0.01
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.77	5.80	2.43	2.38	10.83	6.14	1.89	30.34

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5		0.65	1.59	0.95	4.59	0.86	0.13				8.87
0.5-1.0	0.36	3.30	1.64	2.10	10.91	4.08	0.68				23.07
1.0-1.5	0.08	1.88	1.14	0.99	2.87	5.73	1.46				14.14
1.5-2.0		0.06	0.65	0.23	0.26	1.23	1.68				4.11
2.0-2.5			0.12	0.05	0.14	0.01	1.20				1.52
2.5-3.0				0.01	0.03	0.07	0.37				0.48
3.0-3.5							0.03				0.03
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.44	5.68	5.14	4.32	18.79	12.08	5.56	0.00			52.22

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.17	0.69	0.69	0.94	4.42	0.78	0.13				7.81
0.5-1.0	0.52	2.61	1.41	2.17	10.69	3.87	0.28				21.55
1.0-1.5		1.41	1.55	1.02	2.35	5.50	1.87				13.79
1.5-2.0		0.38	1.10	0.28	0.18	0.34	1.22				3.50
2.0-2.5			0.18	0.02	0.16		0.51				0.87
2.5-3.0					0.09		0.09				0.18
3.0-3.5					0.05		0.07				0.12
3.5-4.0					0.01		0.01				0.01
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.69	5.09	4.92	4.43	17.94	10.59	4.18	0.00			47.83

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.64	1.02	0.53	0.32	2.93	0.83	0.05				6.42
0.5-1.0	0.87	3.40	1.40	1.71	8.01	2.79	0.28				18.46
1.0-1.5		2.03	0.76	0.86	2.28	3.89	1.61				11.45
1.5-2.0		0.26	0.26	0.15	0.13	0.20	2.00				2.99
2.0-2.5				0.14	0.03	0.13	1.62				1.92
2.5-3.0				0.10		0.07	0.33				0.50
3.0-3.5				0.02							0.02
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	1.51	6.71	2.94	3.30	13.40	8.01	5.69	0.00			41.66

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SMOELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	0.01	0.89	0.55	0.35	3.52	0.45		5.77	
0.5-1.0	0.60	2.92	0.98	1.19	8.40	2.01		16.10	
1.0-1.5		1.26	0.33	0.41	1.64	4.57	0.45	8.66	
1.5-2.0		0.05	0.22	0.01	0.26	0.55	0.10	1.20	
2.0-2.5					0.30	0.28	0.10	0.67	
2.5-3.0					0.08		0.18	0.26	
3.0-3.5					0.05			0.05	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	0.61	5.12	2.09	1.95	14.25	7.87	0.83	0.00	32.71

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.07	2.58	0.68	0.23	1.74	0.22		5.53
0.5-1.0	1.12	4.27	0.83	0.78	3.65	0.85	0.10	11.70
1.0-1.5		1.62	0.09	0.09	0.28	1.83	0.13	4.14
1.5-2.0				0.02			0.02	0.04
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.18	8.47	1.60	1.13	5.67	3.11	0.25	21.41

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	0.01	1.51	0.50		0.46				2.48
0.5-1.0	1.01	3.66	0.34		1.46	0.09			6.56
1.0-1.5		1.73	0.22	0.04	0.12	0.18			2.29
1.5-2.0			0.05	0.01					0.06
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.02	6.91	1.10	0.06	2.04	0.28	0.00	0.00	11.39

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY**

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.06	2.03	0.15	0.16	0.24	0.07			2.63
0.5-1.0	0.71	4.02	0.24	0.06	0.31	0.27			5.61
1.0-1.5		1.78	0.14		0.06				1.98
1.5-2.0		0.03							0.03
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.77	7.87	0.52	0.22	0.61	0.28	0.00	0.00	10.31

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNEEL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.12	1.88	0.55	0.13	0.53	0.28			3.49
0.5-1.0	1.12	3.45	0.30	0.17	1.22	0.15			6.40
1.0-1.5		1.09	0.20		0.04	0.24	0.18		1.84
1.5-2.0		0.05	0.06				0.21		0.22
2.0-2.5							0.05		0.05
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.24	6.46	1.10	0.30	1.79	0.77	0.44	0.00	12.10

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER**

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.14	1.37	0.19	0.46	1.57	0.55			4.10
0.5-1.0	0.54	1.91	0.30	0.61	1.86	1.07	0.07		6.38
1.0-1.5		0.40			0.21	0.57	0.18		1.46
1.5-2.0						0.12	0.29		0.42
2.0-2.5							0.06		0.06
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.69	3.69	0.50	1.07	3.63	2.23	0.61	0.00	12.42

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.81	0.89	1.25	2.38	0.24		5.66
0.5-1.0	0.25	1.71	0.42	1.52	6.18	1.89		12.08
1.0-1.5		0.23		0.25	1.54	1.89	0.28	4.19
1.5-2.0				0.01	0.04	0.44	0.23	0.72
2.0-2.5				0.06			0.04	0.10
2.5-3.0				0.02			0.10	0.12
3.0-3.5							0.04	0.04
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.25	2.75	1.40	3.11	10.15	4.57	0.68	22.91

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER.**

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5		1.78	1.46	0.82	4.96	0.67			8.70
0.5-1.0	0.30	2.73	0.76	2.03	12.43	4.27	0.24		22.77
1.0-1.5		1.53	0.84	1.04	3.14	6.10	0.59		13.23
1.5-2.0		0.08	0.39	0.21	0.07	0.84	0.47		2.16
2.0-2.5			0.07	0.08	0.05	0.05	0.14		0.39
2.5-3.0				0.02			0.07		0.10
3.0-3.5							0.02		0.02
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.30	6.11	3.52	4.21	20.66	12.02	1.54	0.00	48.37

RATTLESNAKE CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.20	0.70	1.40	0.80	5.01	0.67	0.08		8.86
0.5-1.0	0.38	2.40	1.69	2.40	12.14	3.73	0.41		23.15
1.0-1.5		1.31	0.85	1.11	3.21	6.46	1.50		14.44
1.5-2.0		0.11	0.28	0.22	0.55	0.78	1.06		2.99
2.0-2.5			0.08	0.01	0.11	0.07	0.50		0.76
2.5-3.0						0.07	0.20		0.26
3.0-3.5						0.01	0.07		0.08
3.5-4.0						0.06	0.04		0.10
4.0-4.5						0.01	0.02		0.03
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.58	4.51	4.29	4.54	21.02	11.86	3.88	0.00	50.67

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 170**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.02	0.01					0.02
0.5-1.0		0.03						0.03
1.0-1.5		0.02						0.02
1.5-2.0			0.01					0.01
2.0-2.5			0.01					0.01
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00

**RATTLENAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 180**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01	0.01					0.01
0.5-1.0	0.01	0.01						0.02
1.0-1.5		0.02	0.01					0.03
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.04	0.01	0.00	0.00	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 190**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.05	0.01					0.08
0.5-1.0	0.01	0.08	0.01	0.01				0.10
1.0-1.5		0.01	0.03					0.05
1.5-2.0			0.02					0.02
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.02	0.14	0.07	0.01	0.00	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 200**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.02	0.01					0.03
0.5-1.0	0.02	0.14	0.03					0.19
1.0-1.5		0.04	0.03					0.07
1.5-2.0			0.02					0.02
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.02	0.20	0.10	0.00	0.00	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 210**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01	0.01					0.02
0.5-1.0	0.01	0.07	0.01					0.09
1.0-1.5		0.03	0.01					0.04
1.5-2.0		0.01	0.01					0.02
2.0-2.5								0.03
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.11	0.05	0.00	0.00	0.00	0.00	0.00

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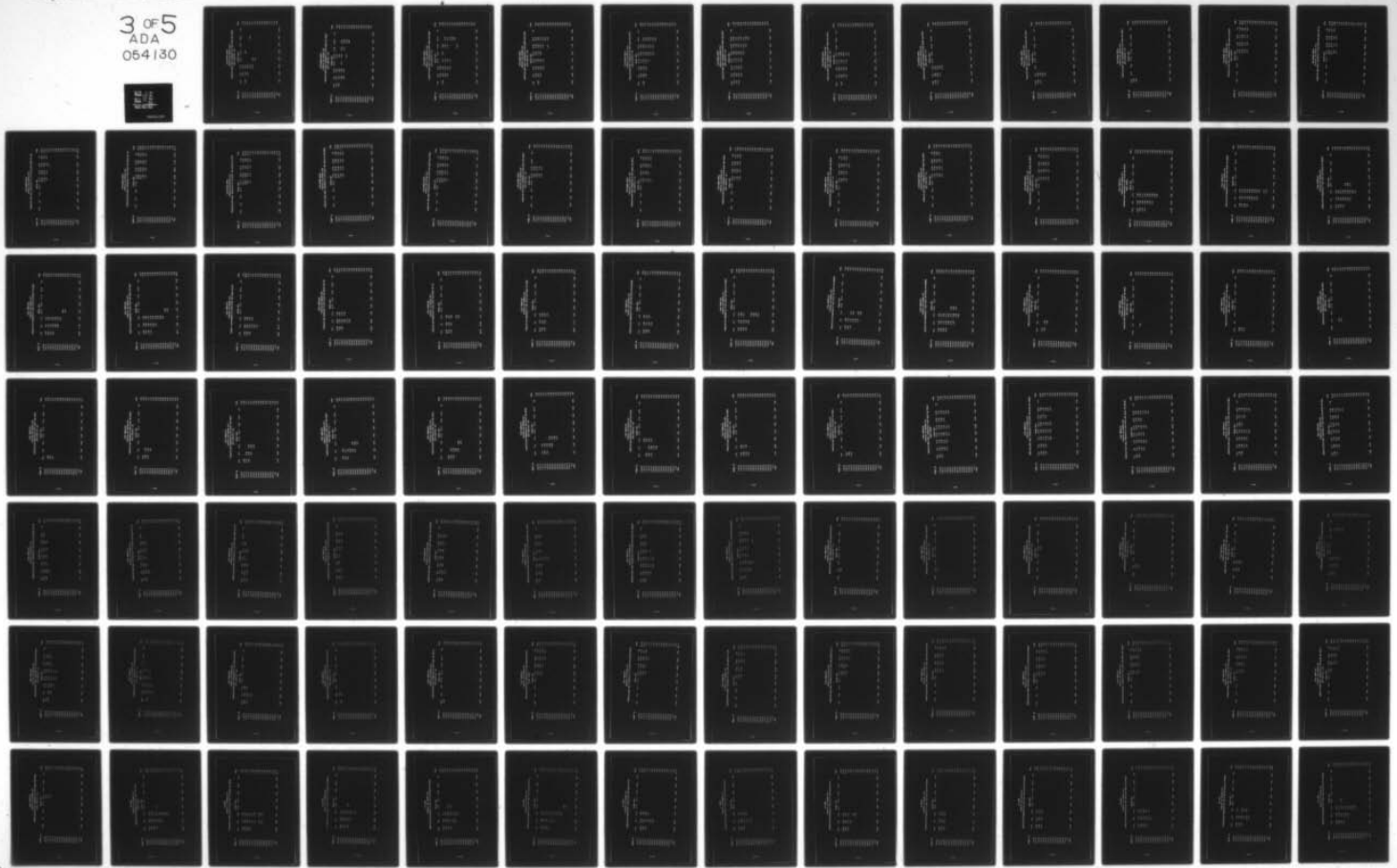
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS F/G 13/10  
PRELIMINARY EVALUATION OF WIND AND WAVE EFFECTS AT POTENTIAL LN--ETC(U)  
APR 78 L Z HALES

UNCLASSIFIED

WES-MP-H-78-2-APP-A

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**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 220**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01	0.02					0.03
0.5-1.0	0.01	0.10	0.04		0.01			0.17
1.0-1.5		0.01	0.05					0.07
1.5-2.0			0.07				0.01	0.08
2.0-2.5			0.02	0.01				0.03
2.5-3.0				0.01				0.01
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.13	0.19	0.03	0.02	0.00	0.01	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 280**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.07	0.01		0.01			0.09
0.5-1.0	0.02	0.14	0.02		0.01			0.19
1.0-1.5		0.05	0.02	0.01	0.01	0.01	0.01	0.10
1.5-2.0		0.02	0.01			0.01	0.02	0.06
2.0-2.5				0.01			0.03	0.04
2.5-3.0							0.03	0.03
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.03	0.27	0.06	0.01	0.03	0.01	0.10	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 240**

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5		0.04	0.02						0.06
0.5-1.0	0.03	0.13	0.01	0.01	0.01	0.03			0.22
1.0-1.5		0.08	0.01	0.01		0.02	0.06		0.18
1.5-2.0		0.02	0.01	0.01		0.01	0.11		0.15
2.0-2.5			0.01	0.01			0.10		0.12
2.5-3.0							0.02		0.02
3.0-3.5							0.01		0.01
3.5-4.0								0.01	0.01
4.0-4.5						0.01			0.01
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.04	0.27	0.05	0.04	0.02	0.06	0.29	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 250**

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5		0.02	0.01	C.03	0.05	0.09	0.01		0.22
0.5-1.0	0.02	0.13	0.07	C.09	0.12	0.25	0.02		0.81
1.0-1.5		0.07	0.04	C.05	0.03	0.59	0.10		0.82
1.5-2.0			0.02	C.01		0.11	0.11		0.26
2.0-2.5							0.04		0.05
2.5-3.0						0.01	0.01		0.02
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.02	0.23	0.15	C.19	0.21	1.09	0.30	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 260**

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5		0.02	0.02	0.15	0.43	0.19					0.82
0.5-1.0	0.03	0.08	0.10	0.27	1.18	0.69	0.04				2.23
1.0-1.5		0.06	0.06	0.07	0.24	1.01	0.21				1.74
1.5-2.0				0.01	0.04	0.15	0.20				0.40
2.0-2.5					0.02	0.01	0.06				0.08
2.5-3.0					0.01	0.01	0.01				0.02
3.0-3.5							0.01				0.01
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.03	0.16	0.18	0.50	2.01	2.06	0.53				0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 270**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.03	0.11	0.17	0.86	0.18	0.02	1.28
0.5-1.0	0.01	0.10	0.17	0.41	2.18	1.03	0.11	4.01
1.0-1.5	0.01	0.07	0.08	0.17	0.50	1.55	0.31	2.69
1.5-2.0		0.01	0.04	0.03	0.04	0.11	0.15	0.28
2.0-2.5				0.02	0.02	0.03	0.11	0.16
2.5-3.0						0.01	0.05	0.05
3.0-3.5							0.01	0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.03	0.21	0.41	0.77	3.60	2.81	0.76	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 280**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.12	0.22	0.18	1.34			1.38
0.5-1.0	0.01	0.33	0.19	0.46	2.93			3.91
1.0-1.5		0.20	0.06	0.17	0.60			1.03
1.5-2.0		0.01	0.02	0.03	0.04			0.10
2.0-2.5					0.01			0.02
2.5-3.0								0.01
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.67	0.49	0.85	4.94	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 290**

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18
0.0-0.5	0.02	0.28	0.31					0.61
0.5-1.0	0.01	0.60	0.21					0.82
1.0-1.5		0.11	0.08					0.20
1.5-2.0			0.03					0.03
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.03	0.99	0.64	0.00	0.00	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 300**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.02	0.63						0.65
0.5-1.0	0.11	1.08						1.20
1.0-1.5		0.59						0.59
1.5-2.0		0.02						0.02
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.13	2.32	0.00	0.00	0.00	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 310**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.04							0.04
0.5-1.0	0.24							0.24
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**ANNUAL SUMMARY**

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					15.02	10.08	3.17	1.13	29.40
0.5-1.0					13.48	11.22	2.95	0.82	28.47
1.0-1.5					3.26	4.11	1.71	0.49	9.57
1.5-2.0					0.32	0.42	0.44	0.20	1.38
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	32.08	25.84	8.26	2.64	68.82

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					81.63	30.78	11.61	3.74	77.76
0.5-1.0					20.51	25.47	10.56	2.10	58.65
1.0-1.5					4.53	7.17	4.52	0.66	16.89
1.5-2.0					0.82	0.48	0.80		1.60
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	57.00	63.80	27.50	6.50	154.90

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SHELFR FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					24.67	24.65	8.46	3.02	60.20
0.5-1.0					10.66	22.71	5.68	1.05	40.10
1.0-1.5					1.78	5.44	1.89	0.23	9.34
1.5-2.0							0.17		0.17
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	6.00	37.10	52.20	16.20	4.30	109.80

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SMELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					22.98	10.84	3.69	4.22	52.73
0.5-1.0					45.13	27.42	3.57	4.54	80.64
1.0-1.5					11.38	14.88	3.02	2.87	22.25
1.5-2.0					0.91	2.76	1.02	1.07	5.77
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	81.40	56.00	11.30	12.70	171.40

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SKEEL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					24.24	20.89	4.08	0.29	50.81
0.5-1.0					29.82	26.59	4.87	0.45	61.73
1.0-1.5				9.50	9.77	4.60	0.26		24.22
1.5-2.0				1.44	0.85	1.75	0.20		4.24
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	6.00	65.10	58.20	15.90	1.90	140.50

RATTLESNAKE CANYON

POTENTIAL LNG TERMINAL SITE

CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					27.60	24.48	6.88	1.65	70.86
0.5-1.0					27.41	21.86	8.47	1.64	59.38
1.0-1.5					6.56	7.95	5.16	1.54	21.21
1.5-2.0					0.83	0.81	1.24	0.87	3.86
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	72.50	55.10	21.80	5.70	155.10

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					28.00	9.85	3.25	0.08	41.18
0.5-1.0					28.24	10.65	2.22	0.08	41.19
1.0-1.5					5.29	4.05	1.29	0.23	10.95
1.5-2.0					0.27	0.15	0.25	0.21	0.88
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	61.90	24.70	7.00	0.60	94.20

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 170**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5					2.82	2.03		4.85
0.5-1.0					2.29	2.04		4.33
1.0-1.5					0.60	1.16		1.76
1.5-2.0					0.06	0.10		0.16
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.00	0.00	0.00	5.87	5.23	0.00	11.20

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 180**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					2.03	1.54	1.26	0.87	5.20
0.5-1.0					1.44	1.18	0.96	0.21	3.79
1.0-1.5					0.25	0.57	0.45	0.08	1.44
1.5-2.0					0.03		0.07	0.01	0.11
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	3.84	3.29	2.74	0.67	10.55

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SNEEL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 180**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					1.71	1.50	0.76	0.14	4.11
0.5-1.0				0.81	0.78	0.45	0.14		2.28
1.0-1.5				0.18	0.12	0.16	0.06		0.52
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	2.80	2.41	1.87	0.34	6.92

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 200**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					0.55	0.42	0.73	0.17	1.86
0.5-1.0					0.25	0.19	0.86	0.08	0.88
1.0-1.5					0.02	0.02	0.13	0.02	0.19
1.5-2.0							0.02		0.02
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	0.82	0.63	1.23	0.27	2.95

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SHELFR FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 210**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					4.10	2.28	0.25	0.06	6.70
0.5-1.0					2.86	2.45	0.52	0.05	5.89
1.0-1.5					0.30	0.66	0.38	0.02	1.36
1.5-2.0					0.02	0.07			0.20
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	7.28	5.47	1.26	0.13	14.14

**RATTLESNAKE CANYON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 220**

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					3.71	2.32	0.17	0.28	6.58
0.5-1.0					5.74	4.56	0.66	0.34	11.28
1.0-1.5					1.81	1.58	0.59	0.21	4.20
1.5-2.0					0.22	0.25	0.24	0.19	0.88
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	11.47	8.71	1.66	1.22	23.07

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	10.21	5.03	0.23					15.47
1.0-1.5	5.43	2.82	0.35					8.70
1.5-2.0	1.30	0.85	0.11					2.27
2.0-2.5	0.11	0.63	0.08					0.82
2.5-3.0		0.33	0.03					0.36
3.0-3.5		0.06	0.08					0.14
3.5-4.0		0.01	0.05					0.06
4.0-4.5			0.02					0.02
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.06	9.83	0.94	0.01	0.00	0.00	0.00	27.84

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	4.96	0.75	0.07					5.78
1.0-1.5	7.13	1.00	0.07					8.20
1.5-2.0	3.00	1.34	0.27					4.62
2.0-2.5	0.21	1.49	0.25					1.95
2.5-3.0		0.89	0.08					1.07
3.0-3.5		0.26	0.26					0.51
3.5-4.0		0.01	0.23					0.24
4.0-4.5		0.02	0.07					0.09
4.5-5.0			0.08					0.08
5.0-5.5								0.00
5.5-6.0			0.01					0.01
6.0-6.5			0.02					0.02
6.5-7.0								0.00
>7.0								0.00
TOTAL	15.30	5.86	1.37	0.00	0.00	0.00	0.00	22.53

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	5.14	1.12	0.16					6.42
1.0-1.5	5.45	1.33	0.28					7.06
1.5-2.0	1.98	1.62	0.07					3.66
2.0-2.5	0.42	1.93	0.08					2.44
2.5-3.0		0.78	0.05	0.01				0.84
3.0-3.5		0.19	0.09	0.02				0.29
3.5-4.0		0.01	0.07	0.01				0.09
4.0-4.5			0.02					0.02
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.99	6.98	0.84	0.04	0.00	0.00	0.00	20.85

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	7.29	4.07	0.10					11.46
1.0-1.5	5.31	3.21	0.38					8.90
1.5-2.0	2.40	1.72	0.31					4.44
2.0-2.5	0.07	1.52	0.22					1.81
2.5-3.0		0.85	0.02					0.88
3.0-3.5		0.05	0.14					0.18
3.5-4.0			0.07					0.07
4.0-4.5				0.02				0.02
4.5-5.0				0.02				0.02
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	15.07	11.42	1.25	0.04	0.00	0.00	0.00	27.79

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	8.88	5.28	0.32					14.58
1.0-1.5	5.24	3.38	0.68					9.31
1.5-2.0	1.82	0.98	0.10					2.90
2.0-2.5	0.13	0.72	0.08					0.93
2.5-3.0		0.44	0.07					0.51
3.0-3.5		0.01	0.24					0.25
3.5-4.0			0.09					0.09
4.0-4.5			0.02					0.02
4.5-5.0			0.01					0.01
5.0-5.5				0.02				0.02
5.5-6.0				0.01				0.01
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	18.17	10.82	1.61	0.04	0.00	0.00	0.00	28.64

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	11.88	12.54	0.86					25.28
1.0-1.5	6.76	6.81	0.69					14.27
1.5-2.0	0.52	0.61	0.18					1.31
2.0-2.5		0.15	0.07					0.21
2.5-3.0		0.07						0.07
3.0-3.5		0.01						0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	18.27	20.19	1.80	0.00	0.00	0.00	0.00	41.26

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	13.78	13.26	0.25					27.40
1.0-1.5	6.69	6.97	0.84					14.51
1.5-2.0	0.25	0.62	0.10					1.06
2.0-2.5		0.03	0.05					0.09
2.5-3.0		0.07						0.07
3.0-3.5		0.03						0.03
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	20.83	20.88	1.25	0.00	0.00	0.00	0.00	43.16

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	19.46	9.59	0.45					29.50
1.0-1.5	6.22	4.53	0.46					11.21
1.5-2.0	0.40	0.21	0.06					0.68
2.0-2.5								0.00
2.5-3.0			0.01					0.01
3.0-3.5			0.03					0.03
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	26.19	14.23	1.01	0.00	0.00	0.00	0.00	41.53

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18
0.0-0.5							0.00	
0.5-1.0	19.27	7.57	0.21				27.15	
1.0-1.5	4.78	2.24	0.50				8.63	
1.5-2.0	0.08	0.22	0.12				0.43	
2.0-2.5			0.01				0.01	
2.5-3.0							0.00	
3.0-3.5							0.00	
3.5-4.0							0.00	
4.0-4.5							0.00	
4.5-5.0							0.00	
5.0-5.5							0.00	
5.5-6.0							0.00	
6.0-6.5							0.00	
6.5-7.0							0.00	
>7.0							0.00	
TOTAL	24.24	11.14	0.84	0.00	0.00	0.00	0.00	0.00
								36.21

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	13.50	3.20	0.07					16.77
1.0-1.5	3.68	1.61	0.12					5.41
1.5-2.0	0.25	0.14	0.01					0.41
2.0-2.5		0.03						0.03
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.43	4.97	0.20	0.00	0.00	0.00	0.00	22.60

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5								0.00	
0.5-1.0	8.57	1.42	0.07					10.05	
1.0-1.5	3.20	0.63	0.08					3.82	
1.5-2.0	0.63	0.18	0.04					0.85	
2.0-2.5	0.13	0.24						0.37	
2.5-3.0		0.06						0.06	
3.0-3.5			0.02					0.02	
3.5-4.0			0.02					0.02	
4.0-4.5			0.02					0.02	
4.5-5.0			0.01					0.01	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	12.53	2.52	0.28	0.00	0.00	0.00	0.00	0.00	15.33

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	5.06	0.88						5.94
1.0-1.5	5.24	1.16						6.40
1.5-2.0	1.94	1.27	0.01					3.22
2.0-2.5		0.78	0.02					0.80
2.5-3.0		0.33						0.33
3.0-3.5		0.10	0.06					0.16
3.5-4.0			0.04					0.04
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.24	4.52	0.14	0.00	0.00	0.00	0.00	16.88

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	4.46	0.66	0.07					5.20
1.0-1.5	5.28	1.03	0.04					6.46
1.5-2.0	2.25	1.27	0.08					3.61
2.0-2.5	0.30	0.73	0.13					1.15
2.5-3.0		0.36	0.05					0.41
3.0-3.5		0.13	0.10	0.01				0.23
3.5-4.0		0.06	0.08	0.02				0.16
4.0-4.5			0.08	0.01				0.08
4.5-5.0			0.03					0.03
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.40	4.24	0.66	0.04	0.00	0.00	0.00	17.35

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 120

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.14							0.14
1.0-1.5	0.22	0.05						0.27
1.5-2.0		0.05						0.05
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.26	0.10	0.00	0.00	0.00	0.00	0.00	0.46

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 140

HEIGHT (H)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0									0.00
1.0-1.5		0.01							0.01
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 150

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0	0.06								0.06
1.0-1.5	0.05								0.05
1.5-2.0	0.01								0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11

**POINT CONCEPTION**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 170**

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0									0.00
1.0-1.5		0.01							0.01
1.5-2.0		0.01							0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0	0.05								0.05
1.0-1.5	0.07								0.07
1.5-2.0	0.01								0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.12							0.12
1.0-1.5	0.28	0.03						0.32
1.5-2.0	0.05	0.06						0.11
2.0-2.5		0.01						0.01
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.45	0.10	0.00	0.00	0.00	0.00	0.00	0.56

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.03							0.03
1.0-1.5	0.10	0.02						0.12
1.5-2.0	0.03	0.05	0.03					0.11
2.0-2.5		0.01	0.04					0.05
2.5-3.0			0.02					0.02
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.16	0.09	0.09	0.00	0.00	0.00	0.00	0.34

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.15	0.02						0.18
1.5-2.0	0.10	0.11						0.21
2.0-2.5	0.01	0.10						0.12
2.5-3.0		0.05						0.05
3.0-3.5		0.01	0.01					0.03
3.5-4.0		0.01	0.01					0.02
4.0-4.5			0.01					0.01
4.5-5.0								0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0	0.27	0.20	0.04	0.00	0.00	0.00	0.00	0.00
TOTAL								0.61

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.28							0.28
1.5-2.0	0.20	0.03						0.23
2.0-2.5	0.03	0.08						0.12
2.5-3.0		0.05						0.05
3.0-3.5		0.01	0.02					0.04
3.5-4.0			0.02					0.02
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.52	0.18	0.04	0.00	0.00	0.00	0.00	0.74

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.11	0.01						0.12
1.5-2.0	0.08	0.05						0.14
2.0-2.5	0.01	0.14						0.15
2.5-3.0		0.08	0.01					0.09
3.0-3.5		0.02	0.04					0.06
3.5-4.0			0.02					0.02
4.0-4.5			0.01					0.01
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.21	0.20	0.08	0.00	0.00	0.00	0.00	0.58

**POINT CONCEPTION**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 240**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0			0.23					0.23
1.0-1.5	0.40		0.34					0.74
1.5-2.0	0.30	0.19	0.09					0.58
2.0-2.5	0.03	0.28	0.04					0.34
2.5-3.0		0.16						0.16
3.0-3.5		0.02						0.02
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.74	0.64	0.69	0.00	0.00	0.00	0.00	2.08

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-8	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01	5.02						5.02
1.0-1.5	0.56	2.77						3.33
1.5-2.0	0.46	0.28						0.76
2.0-2.5	0.02							0.02
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.05	8.08	0.00	0.00	0.00	0.00	0.00	9.14

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	9.81								9.81
1.0-1.5	3.20								3.20
1.5-2.0	0.06								0.06
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	13.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.07

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.66	5.03	1.45	1.74	10.00	5.48	1.13		25.48
0.5-1.0	0.13	1.02	0.40	0.28	0.61	0.68	0.53		3.64
1.0-1.5		0.28	0.16	0.05	0.03	0.01	0.24		0.77
1.5-2.0		0.03	0.05	0.03	0.01		0.16		0.28
2.0-2.5				0.01	0.01		0.05		0.07
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.79	6.35	2.06	2.10	10.65	6.18	2.10	0.00	20.24

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.01	2.48	2.28	2.50	16.85	10.41	3.29		27.84
0.5-1.0	0.20	2.04	1.17	1.00	1.61	1.75	1.98		9.84
1.0-1.5	0.04	0.61	0.48	0.10	0.02	0.01	0.47		1.72
1.5-2.0			0.12	0.05	0.02		0.24		0.43
2.0-2.5			0.02	0.05	0.02		0.07		0.15
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.25	5.13	4.07	3.69	18.52	12.17	6.05	0.00	49.99

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.24	2.17	1.67	3.11	16.60	9.18	3.02		35.99
0.5-1.0	0.22	1.49	1.28	0.62	1.53	1.62	0.92		7.68
1.0-1.5		0.91	0.70	0.13	0.20	0.02	0.10		2.05
1.5-2.0		0.22	0.23	0.04	0.05		0.13		0.67
2.0-2.5			0.01		0.05		0.04		0.10
2.5-3.0							0.01		0.01
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.46	4.78	3.90	3.68	18.43	10.81	4.23	0.00	46.50

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.23	3.75	1.58	2.18	12.20	7.01	1.69		29.74
0.5-1.0	0.29	2.29	0.31	0.42	0.91	1.11	1.00		6.33
1.0-1.5		0.51	0.16	0.12		0.02	2.00		2.81
1.5-2.0		0.04	0.04	0.11			1.46		1.65
2.0-2.5				0.02			0.27		0.30
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.51	6.58	2.09	2.85	13.22	8.14	6.42	0.00	40.82

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.55	3.63	1.46	1.45	13.16	6.84	0.39		27.49
0.5-1.0	0.10	1.60	0.27	0.16	0.57	0.84	0.12		3.67
1.0-1.5		0.25	0.05	0.03	0.02	0.09	0.03		0.48
1.5-2.0							0.10		0.10
2.0-2.5							0.17		0.17
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.65	5.47	1.78	1.64	13.76	7.78	0.83	0.00	31.91

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.76	9.60	1.38	0.97	5.12	2.97	0.34				21.13
0.5-1.0	0.38	0.58	0.17	0.07	0.01	0.09					1.21
1.0-1.5		0.04									0.04
1.5-2.0											0.00
2.0-2.5											0.00
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	1.14	10.22	1.55	1.04	5.13	3.06	0.34	0.00			22.48

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	1.05	8.73	1.51	0.09	1.88	0.25		13.52	
0.5-1.0	0.01	0.48	0.03	0.01	0.02	0.03		0.57	
1.0-1.5		0.07						0.07	
1.5-2.0								0.00	
2.0-2.5								0.00	
2.5-3.0								0.00	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	1.06	9.27	1.55	0.10	1.90	0.28	0.00	0.00	14.16

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.16	10.15	0.83	0.17	0.62	0.37			13.20
0.5-1.0	0.01	0.09	0.01		0.03				0.15
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.17	10.24	0.84	0.18	0.65	0.37	0.00	0.00	13.45

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.23	7.94	1.32	0.21	1.88	0.61	0.11	13.27
0.5-1.0	0.01	0.03			0.07	0.12	0.24	0.54
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.24	8.03	1.32	0.21	1.93	0.73	0.35	13.61

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.87	4.74	0.56	0.88	3.37	2.03	0.37		12.83
0.5-1.0	0.04	0.04	0.03	0.06	0.08	0.11	0.18		0.53
1.0-1.5		0.03					0.10		0.12
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.91	4.81	0.59	0.94	3.45	2.14	0.65	0.00	13.49

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.34	1.65	1.06	2.63	9.62	4.40	0.53	20.23
0.5-1.0		0.43	0.03	0.14	0.17	0.30	0.16	1.23
1.0-1.5				0.03				0.03
1.5-2.0				0.02				0.02
2.0-2.5				0.02				0.02
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.34	2.08	1.09	2.84	9.79	4.70	0.69	21.53

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.16	3.81	1.56	3.24	19.07	11.41	1.32				40.56
0.5-1.0	0.05	1.52	0.48	0.21	0.80	0.88	0.35				4.29
1.0-1.5		0.35	0.21	0.14							0.71
1.5-2.0		0.03	0.10	0.11	0.04						0.28
2.0-2.5			0.01	0.02							0.02
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.21	5.70	2.36	3.72	19.90	12.29	1.67	0.00			45.86

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	0.31	1.74	2.15	3.41	19.51	10.38	2.50	39.99	
0.5-1.0	0.18	1.56	0.97	0.66	1.49	1.33	1.39	7.57	
1.0-1.5		0.55	0.31	0.03	0.11	0.03	0.13	1.15	
1.5-2.0		0.08	0.09					0.18	
2.0-2.5			0.01			0.03		0.04	
2.5-3.0								0.00	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	0.49	3.93	3.53	4.09	21.11	11.77	4.01	0.00	48.93

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 140

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5		0.03							0.03
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 150

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5		0.01							0.01
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 160

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					0.01				0.01
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5		0.03							0.04
0.5-1.0		0.02							0.02
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01	0.04					0.05
0.5-1.0		0.02	0.03					0.05
1.0-1.5			0.01					0.01
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.02	0.08	0.00	0.00	0.00	0.00	0.11

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.11	0.03					0.14
0.5-1.0	0.01	0.15	0.03				0.04	0.23
1.0-1.5		0.02	0.02				0.20	0.25
1.5-2.0			0.01				0.16	0.17
2.0-2.5							0.05	0.05
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.02	0.27	0.09	0.00	0.00	0.00	0.45	0.84

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.01	0.04	0.01	0.04	0.08	5.48	1.13				6.76
0.5-1.0	0.02	0.04	0.04	0.08	0.12	0.68	0.48				1.47
1.0-1.5		0.02	0.05	0.04	0.02	0.01	0.04				0.18
1.5-2.0			0.03	0.02	0.01						0.07
2.0-2.5				0.01	0.01						0.02
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.02	0.07	0.14	0.20	0.23	6.19	1.65	0.00			8.50

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5		0.08	0.09	1.68	9.81				11.78
0.5-1.0	0.03	0.19	0.17	0.20	0.43				1.07
1.0-1.5		0.04	0.07	0.01	0.01				0.14
1.5-2.0		0.01	0.01						0.03
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.03	0.33	0.34	1.90	10.40	0.00	0.00	0.00	13.01

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.02	0.16	1.28					1.46
0.5-1.0	0.04	0.39	0.12					0.54
1.0-1.5		0.19						0.19
1.5-2.0		0.01						0.01
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.06	0.75	1.40	0.00	0.00	0.00	0.00	2.20

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5		4.58							4.58
0.5-1.0	0.03	0.22							0.25
1.0-1.5									0.01
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.04	4.81	0.00	0.00	0.00	0.00	0.00	0.00	4.84

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.62								0.62
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					20.38	14.59	4.61	1.37	40.94
0.5-1.0					10.87	10.07	2.53	0.68	24.15
1.0-1.5					0.84	1.18	1.08	0.39	3.50
1.5-2.0							0.04	0.19	0.23
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	32.08	25.84	8.26	2.64	68.82

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					38.98	41.58	16.78	3.74	101.07
0.5-1.0					17.00	20.67	8.38	2.11	48.16
1.0-1.5					1.02	1.65	2.02	0.65	5.24
1.5-2.0							0.33		0.33
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	57.00	63.90	27.50	6.50	154.90

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5					28.75	31.81	11.61	3.14	75.31
0.5-1.0				8.35	20.33	4.09	0.99	0.99	33.81
1.0-1.5						0.50	0.17		0.67
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	37.10	52.20	16.20	4.30	109.80

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					51.52	19.02	4.29	5.87	80.71
0.5-1.0					37.09	29.68	4.17	3.54	74.48
1.0-1.5					2.79	7.30	2.69	2.23	15.01
1.5-2.0							0.15	1.06	1.21
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	91.40	56.00	11.30	12.70	171.40

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					37.37	33.07	5.65	1.28	77.32
0.5-1.0					24.62	22.93	5.49	0.27	53.32
1.0-1.5					3.11	2.20	4.16	0.20	9.67
1.5-2.0								0.20	0.20
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	65.10	58.20	15.30	1.90	140.50

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					50.07	25.20	12.26	2.38	99.91
0.5-1.0					20.17	17.34	6.73	1.23	45.47
1.0-1.5					2.26	2.56	2.61	1.24	8.67
1.5-2.0								0.05	0.05
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	72.50	55.10	21.80	5.70	155.10

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					37.82	14.27	4.67	0.08	56.94
0.5-1.0					23.17	9.83	1.53	0.08	34.61
1.0-1.5				0.92		0.50	0.80	0.23	2.45
1.5-2.0								0.20	0.20
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	61.90	24.70	7.00	0.60	94.20

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					3.31	2.57	2.75	0.65	9.29
0.5-1.0					2.25	2.60	1.01	0.27	6.24
1.0-1.5					0.20	0.16	0.31	0.08	0.74
1.5-2.0							0.04	0.01	0.05
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	5.87	5.33	4.11	1.02	16.32

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					3.84	12.01	1.85	0.72	18.43
0.5-1.0						7.47	1.52	0.41	9.40
1.0-1.5						1.03	0.78	0.31	2.11
1.5-2.0								0.18	0.18
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	3.84	20.51	4.15	1.62	30.12

POINT CONCEPTION  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					13.22				13.22
0.5-1.0					8.51				8.51
1.0-1.5					0.64				0.64
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	22.37	0.00	0.00	0.00	22.37

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	11.41	4.46	0.21					15.18
1.0-1.5	4.68	2.82	0.30					8.81
1.5-2.0	0.92	0.94	0.17					2.03
2.0-2.5	0.05	0.37	0.07	0.01				0.50
2.5-3.0		0.18	0.02					0.20
3.0-3.5		0.06	0.03					0.09
3.5-4.0			0.03					0.03
4.0-4.5			0.01					0.01
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.06	9.83	0.94	0.01	0.00	0.00	0.00	27.84

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SER FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	7.69	1.11	0.37					9.16
1.0-1.5	5.50	1.90	0.22					7.61
1.5-2.0	2.05	1.56	0.31					3.91
2.0-2.5	0.08	0.79	0.31					1.17
2.5-3.0		0.35	0.11					0.45
3.0-3.5		0.13	0.02					0.15
3.5-4.0								0.00
4.0-4.5		0.01	0.02					0.04
4.5-5.0		0.02	0.02					0.04
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	15.30	5.86	1.37	0.00	0.00	0.00	0.00	22.53

LAS VARRAS

POTENTIAL LNG TERMINAL SITE

CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	6.88	1.52	0.24					8.64
1.0-1.5	4.45	2.96	0.34					7.75
1.5-2.0	1.37	1.51	0.15					3.03
2.0-2.5	0.23	0.74	0.04	0.03				1.11
2.5-3.0		0.25	0.02					0.27
3.0-3.5			0.02					0.02
3.5-4.0			0.02					0.02
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.99	6.98	0.84	0.04	0.00	0.00	0.00	20.85

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	8.54	3.50	0.21					12.24
1.0-1.5	4.74	4.39	0.31					9.44
1.5-2.0	1.76	1.57	0.34	0.01				3.68
2.0-2.5	0.04	1.10	0.20	0.03				1.37
2.5-3.0		0.66	0.01					0.67
3.0-3.5		0.20	0.00					0.20
3.5-4.0			0.11					0.11
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	15.07	11.42	1.25	0.04	0.00	0.00	0.00	27.79

LRS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	9.70	4.66	0.40					14.75
1.0-1.5	4.85	3.75	0.56					9.15
1.5-2.0	1.53	1.27	0.18					2.99
2.0-2.5	0.10	0.61	0.06					0.77
2.5-3.0		0.41	0.03					0.44
3.0-3.5		0.12	0.18					0.30
3.5-4.0			0.16					0.15
4.0-4.5			0.03					0.03
4.5-5.0			0.02					0.02
5.0-5.5					0.01			0.01
5.5-6.0					0.02			0.02
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	16.17	10.82	1.61	0.04	0.00	0.00	0.00	28.64

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	12.78	10.48	0.90					24.16
1.0-1.5	6.00	8.31	0.58					14.89
1.5-2.0	0.48	1.07	0.26					1.81
2.0-2.5		0.21	0.06					0.27
2.5-3.0		0.09						0.09
3.0-3.5		0.03						0.03
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	19.27	20.19	1.80	0.00	0.00	0.00	0.00	41.26

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	14.51	11.18	0.46					26.15
1.0-1.5	6.00	8.28	0.63					14.92
1.5-2.0	0.32	1.36	0.20					1.88
2.0-2.5		0.05	0.06					0.11
2.5-3.0		0.05						0.05
3.0-3.5		0.05						0.05
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	20.83	20.82	1.35	0.00	0.00	0.00	0.00	43.16

LRS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	20.23	8.25	0.51					29.00
1.0-1.5	5.55	5.54	0.35					11.44
1.5-2.0	0.40	0.51	0.11					1.03
2.0-2.5		0.02						0.02
2.5-3.0			0.01					0.01
3.0-3.5			0.02					0.02
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	26.19	14.33	1.01	0.00	0.00	0.00	0.00	41.53

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5								0.00	
0.5-1.0	20.07	6.97	0.22					27.25	
1.0-1.5	4.09	3.64	0.38					8.11	
1.5-2.0	0.08	0.53	0.24					0.84	
2.0-2.5								0.01	
2.5-3.0								0.00	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	24.24	11.14	0.84	0.00	0.00	0.00	0.00	0.00	36.21

LAS VARRAS

POTENTIAL LNG TERMINAL SITE

CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	13.85	2.13	0.07					16.05
1.0-1.5	3.37	2.68	0.09					6.14
1.5-2.0	0.21	0.16	0.04					0.41
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.43	4.97	0.20	0.00	0.00	0.00	0.00	22.60

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	9.39	1.23	0.07					10.69
1.0-1.5	2.61	1.05	0.07					3.73
1.5-2.0	0.50	0.09	0.09					0.68
2.0-2.5	0.04	0.08	0.04					0.16
2.5-3.0		0.07	0.01					0.07
3.0-3.5		0.01						0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.53	2.52	0.28	0.00	0.00	0.00	0.00	15.33

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	6.89	1.22	0.04					8.15
1.0-1.5	4.36	1.99						6.34
1.5-2.0	0.99	0.72	0.01					1.72
2.0-2.5		0.43	0.05					0.49
2.5-3.0		0.09	0.03					0.12
3.0-3.5		0.07						0.07
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.24	4.52	0.14	0.00	0.00	0.00	0.00	15.89

LAS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	6.36	1.27	0.27					7.90
1.0-1.5	4.68	1.35	0.10					6.13
1.5-2.0	1.30	0.34	0.06	0.03				2.33
2.0-2.5	0.07	0.45	0.02					0.54
2.5-3.0		0.17	0.01					0.17
3.0-3.5		0.07	0.04					0.11
3.5-4.0			0.06					0.06
4.0-4.5			0.06					0.06
4.5-5.0			0.05					0.05
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	12.40	4.24	0.66	0.04	0.00	0.00	0.00	17.35

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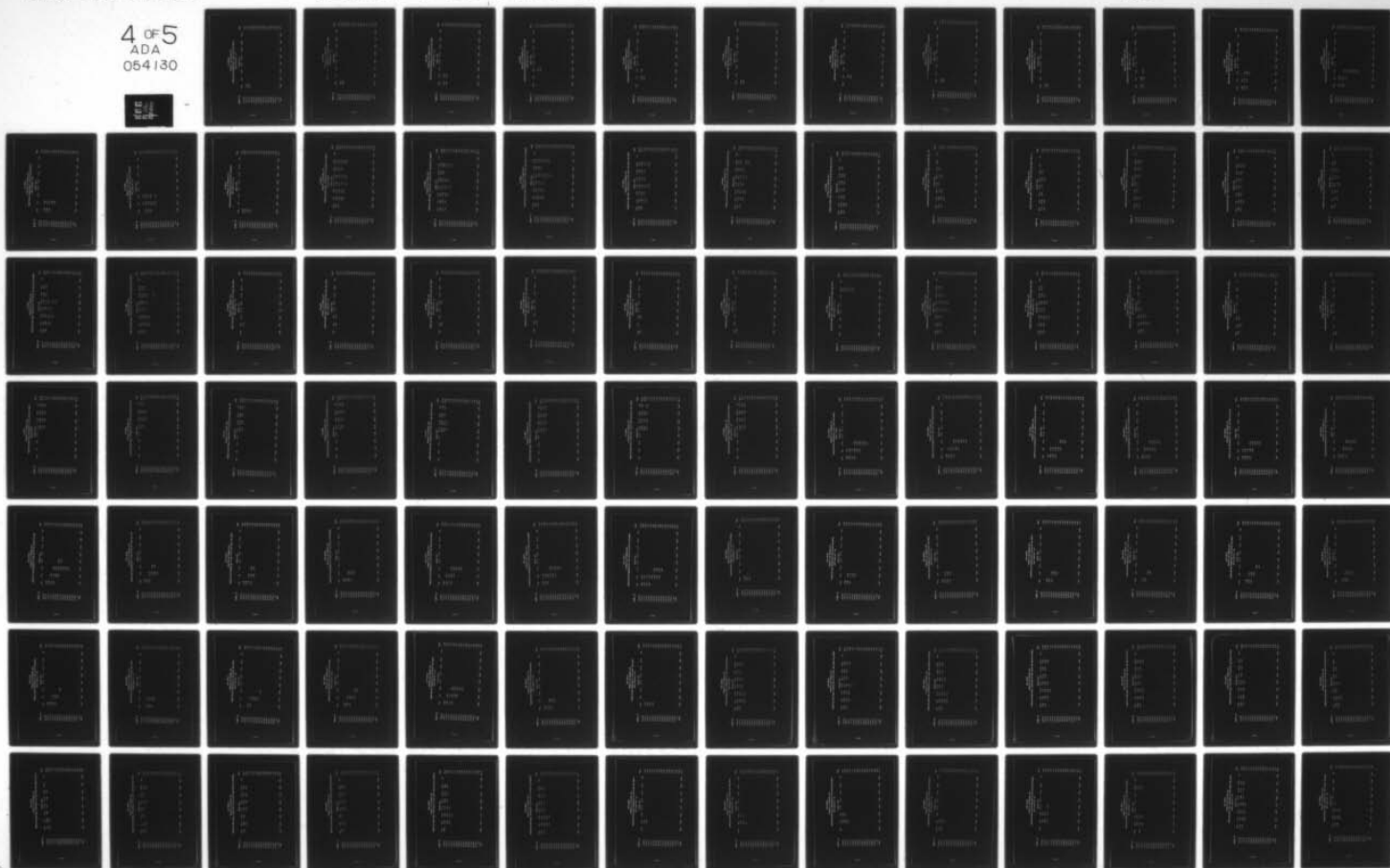
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS F/G 13/10  
PRELIMINARY EVALUATION OF WIND AND WAVE EFFECTS AT POTENTIAL LN--ETC(U)

UNCLASSIFIED

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ADA  
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LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 120

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.17								0.17
1.0-1.5	0.06								0.06
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 130

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.07								0.07
1.0-1.5	0.05								0.05
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

LAS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 140

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0	0.17	0.05							0.22
1.0-1.5	0.07	0.09							0.16
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.24	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.38

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0			0.01					0.01
1.0-1.5			0.01					0.01
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
								0.02

**LAS VARRAS**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 160**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0		0.05	0.04					0.09
1.0-1.5		0.05						0.05
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.10	0.04	0.00	0.00	0.00	0.00	0.15

LPS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 170

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.15								0.15
1.0-1.5	0.02								0.02
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0		0.07							0.07
1.0-1.5		0.02							0.02
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.24								0.24
1.0-1.5	0.03								0.03
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.12								0.12
1.0-1.5	0.04								0.04
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16

LAS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.14	0.09						0.23
1.0-1.5	0.12	0.06	0.02					0.20
1.5-2.0								0.01
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.27	0.15	0.03	0.00	0.00	0.00	0.00	0.44

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 230

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.08	0.01						0.09
1.0-1.5	0.15	0.12	0.01					0.28
1.5-2.0	0.01	0.02	0.02					0.05
2.0-2.5			0.01					0.01
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.24	0.15	0.04	0.01	0.00	0.00	0.00	0.44

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.10	0.02						0.12
1.0-1.5	0.31	0.13						0.44
1.5-2.0	0.08	0.15	0.01					0.23
2.0-2.5		0.01	0.02					0.04
2.5-3.0			0.01					0.01
3.0-3.5			0.02					0.02
3.5-4.0			0.02					0.02
4.0-4.5			0.01					0.01
4.5-5.0			0.01					0.01
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.49	0.31	0.10	0.00	0.00	0.00	0.00	0.63

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0									0.00
1.0-1.5	0.40	0.02							0.42
1.5-2.0	0.30	0.14							0.44
2.0-2.5	0.03	0.16							0.21
2.5-3.0		0.08							0.08
3.0-3.5		0.03							0.04
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.74	0.45	0.01	0.00	0.00	0.00	0.00	0.00	1.20

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5								0.00	
0.5-1.0		4.17	0.26					4.43	
1.0-1.5	0.17	3.33	0.27					3.77	
1.5-2.0	0.21	0.53	0.14					0.88	
2.0-2.5	0.01	0.18	0.04					0.23	
2.5-3.0		0.10						0.10	
3.0-3.5		0.02	0.01					0.03	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	0.39	8.44	0.71	0.00	0.00	0.00	0.00	0.00	9.54

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 270

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	10.16								10.16
1.0-1.5	3.25								3.25
1.5-2.0	0.31								0.31
2.0-2.5	0.01								0.01
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	13.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.73

LAS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	0.69	5.29	1.51	1.83	9.59	5.76	1.48	26.15	
0.5-1.0	0.10	0.80	0.37	0.20	0.94	0.40	0.18	2.99	
1.0-1.5		0.25	0.15	0.05	0.11	0.02	0.17	0.74	
1.5-2.0		0.02	0.02	0.01	0.01		0.20	0.27	
2.0-2.5				0.01	0.01		0.07	0.08	
2.5-3.0								0.01	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	0.79	6.35	2.06	2.10	10.65	6.19	2.10	0.00	30.24

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.13	2.98	2.30	2.71	15.99	10.82	4.55				39.48
0.5-1.0	0.13	1.75	1.19	0.73	2.32	1.35	0.99				8.56
1.0-1.5	0.04	0.41	0.54	0.10	0.20		0.12				1.40
1.5-2.0			0.05	0.03	0.01		0.24				0.32
2.0-2.5				0.07			0.15				0.22
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.35	5.13	4.07	3.69	18.52	12.17	6.05	0.00			49.99

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.30	2.84	1.96	3.27	15.61	9.83	3.76	27.57
0.5-1.0	0.17	0.95	1.28	0.48	2.30	0.96	0.19	6.31
1.0-1.5		0.91	0.61	0.11	0.38	0.03	0.02	2.07
1.5-2.0		0.08	0.05	0.03	0.06		0.19	0.40
2.0-2.5					0.04		0.04	0.08
2.5-3.0					0.04		0.02	0.07
3.0-3.5					0.01			0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.46	4.78	3.90	3.89	18.43	10.81	4.23	46.50

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	1.26	4.04	1.77	2.37	11.77	7.25	2.10				30.55
0.5-1.0	0.25	1.99	0.25	0.23	1.36	0.86	0.28				5.21
1.0-1.5		0.53	0.03	0.14	0.10	0.03	1.72				2.59
1.5-2.0		0.03		0.09			1.07				2.08
2.0-2.5				0.03			0.26				0.39
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	1.51	6.58	2.09	2.85	13.22	8.14	6.42	0.00			40.82

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.55	4.13	1.50	1.51	12.55	7.32	0.51		28.08
0.5-1.0	0.10	1.10	0.17	0.10	1.04	0.23	0.04		2.87
1.0-1.5		0.25	0.09	0.03	0.15	0.12			0.64
1.5-2.0			0.02		0.02		0.03		0.07
2.0-2.5							0.24		0.24
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.65	5.47	1.78	1.64	13.76	7.78	0.83	0.00	31.91

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.86	9.70	1.36	1.01	4.95	3.05	0.34		21.27
0.5-1.0	0.27	0.46	0.19	0.03	0.18	0.02			1.15
1.0-1.5		0.06							0.06
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.14	10.22	1.55	1.04	5.13	3.06	0.34	0.00	22.48

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SUELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.05	8.66	1.47	0.10	1.81	0.28		13.27
0.5-1.0	0.01	0.50	0.08		0.09			0.68
1.0-1.5		0.11						0.11
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.06	9.27	1.55	0.10	1.90	0.28	0.00	14.16

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	1.17	10.20	0.84	0.18	0.59	0.37					13.24
0.5-1.0	0.01	0.04			0.06						0.11
1.0-1.5											0.00
1.5-2.0											0.00
2.0-2.5											0.00
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	1.17	10.24	0.84	0.18	0.65	0.37	0.00	0.00	0.00	0.00	13.45

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	1.23	7.96	1.32	0.21	1.81	0.65	0.28	13.45	
0.5-1.0	0.01	0.07		0.12	0.07			0.25	
1.0-1.5								0.00	
1.5-2.0								0.00	
2.0-2.5								0.00	
2.5-3.0								0.00	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	1.24	8.03	1.32	0.21	1.93	0.73	0.35	0.00	13.81

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.90	4.75	0.56	0.93	3.28	2.11	0.51		13.03
0.5-1.0	0.01	0.03	0.03	0.01	0.13	0.03	0.01		0.29
1.0-1.5		0.03					0.13		0.16
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.91	4.81	0.59	0.94	3.45	2.14	0.65	0.00	13.49

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.34	1.81	1.08	2.67	9.42	4.63	0.69	20.64
0.5-1.0		0.27	0.01	0.10	0.37	0.07		0.82
1.0-1.5				0.06				0.07
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.34	2.08	1.09	2.84	9.79	4.70	0.69	21.53

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.16	4.30	1.55	3.33	18.70	12.04	1.62				41.69
0.5-1.0	0.05	0.99	0.50	0.19	1.12	0.25	0.06				3.16
1.0-1.5		0.25	0.21	0.17	0.04						0.77
1.5-2.0		0.07	0.03	0.02							0.12
2.0-2.5			0.02		0.03						0.05
2.5-3.0					0.01						0.01
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.21	5.70	2.36	3.72	19.90	12.29	1.67	0.00			45.85

LAS VARAS  
SHELTERED DEEP WATER  
CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	0.35	1.92	2.35	3.60	19.60	10.76	3.39	41.97	
0.5-1.0	0.14	1.58	0.80	0.46	1.23	0.93	0.62	5.75	
1.0-1.5		0.34	0.27	0.04	0.28	0.04		0.97	
1.5-2.0		0.10	0.10					0.20	
2.0-2.5								0.00	
2.5-3.0						0.04		0.04	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	0.49	3.93	3.53	4.09	21.11	11.77	4.01	0.00	48.93

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 150

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5		0.03							0.03
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 160

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
				PERIOD (SEC)					
0.0-0.5		0.01	0.03						0.04
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.04

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 170

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
				PERIOD (SEC)					
0.0-0.5		0.05			0.01				0.06
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.06

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5		0.12							0.12
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-8	8-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01		0.05					0.06
0.5-1.0								0.00
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.06

LAS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.01								0.01
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

LAS VEGAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5							0.13		0.13
0.5-1.0							0.17		0.17
1.0-1.5							0.17		0.17
1.5-2.0							0.20		0.20
2.0-2.5							0.07		0.07
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.74

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 230

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5	0.02	0.16	0.07	0.13	0.24	0.68	0.58	1.92	
0.5-1.0	0.01	0.02	0.02	0.13	0.27	0.29	0.02	0.85	
1.0-1.5				0.05	0.05	0.02		0.14	
1.5-2.0				0.01	0.01			0.02	
2.0-2.5				0.01	0.01			0.01	
2.5-3.0								0.01	
3.0-3.5								0.00	
3.5-4.0								0.00	
4.0-4.5								0.00	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	0.02	0.17	0.09	0.34	0.69	1.09	0.55	0.00	2.95

LRS VARPS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)									TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18		
0.0-0.5	0.01	0.10	0.18	0.30	0.24	0.09	0.82			16.33
0.5-1.0	0.02	0.06	0.30	0.07	0.66	0.01				1.11
1.0-1.5			0.14		0.04					0.18
1.5-2.0			0.02							0.02
2.0-2.5										0.00
2.5-3.0										0.00
3.0-3.5										0.00
3.5-4.0										0.00
4.0-4.5										0.00
4.5-5.0										0.00
5.0-5.5										0.00
5.5-6.0										0.00
6.0-6.5										0.00
6.5-7.0										0.00
>7.0										0.00
TOTAL	0.03	0.15	0.64	0.97	9.94	5.10	0.82	0.00		17.65

**LAS VARRAS**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 250**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.02	0.34	0.51	C.73				1.66
0.5-1.0	0.07	0.56	0.05					0.68
1.0-1.5		0.25	0.01					0.25
1.5-2.0		0.02						0.02
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.10	1.16	0.57	C.79	0.00	0.00	0.00	2.62

LPS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-18		16-18
0.0-0.5	0.19	4.47	0.68					5.23
0.5-1.0		0.18						0.18
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.19	4.64	0.68	0.00	0.00	0.00	0.00	5.51

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 270

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5	0.43								0.43
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43

LPS VARRS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					25.99	19.05	5.57	1.77	52.38
0.5-1.0					5.77	6.43	2.33	0.67	15.20
1.0-1.5					0.22	0.36	0.26	0.21	1.24
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	32.03	25.84	8.26	2.64	68.82

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)						TOTAL		
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18	>18
0.0-0.5					53.10	53.07	18.21	5.70	130.08
0.5-1.0					3.80	10.23	8.19	0.80	23.12
1.0-1.5						0.60	1.10		1.70
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	57.00	63.90	27.50	6.50	154.90

LAS YARDS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5									0.00
0.5-1.0					34.70	45.85	13.23	3.60	97.48
1.0-1.5					2.40	6.25	2.97	0.70	12.32
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	37.10	52.20	16.20	4.30	102.80

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)						TOTAL		
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18	>18
0.0-0.5					71.20	33.64	6.13	7.58	113.55
0.5-1.0					19.30	19.66	3.27	4.22	46.15
1.0-1.5					0.90	3.00	1.90	0.90	6.70
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	91.40	56.00	11.30	12.70	171.40

LES VEGAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)						TOTAL		
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18	>18
0.0-0.5									93.13
0.5-1.0				44.34		26.80	10.57	1.30	45.57
1.0-1.5				19.28		21.00	4.73	0.60	1.80
1.5-2.0				1.50		0.30			0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	65.10	58.20	15.30	1.90	140.50

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					61.53	41.72	14.14	2.80	120.20
0.5-1.0					10.57	13.13	6.76	1.70	32.20
1.0-1.5					0.40	0.20	0.90	1.20	2.70
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	72.50	55.10	21.80	5.70	155.10

LAS VARAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					47.05	17.35	4.58	0.20	69.18
0.5-1.0					13.85	7.15	2.02		23.02
1.0-1.5					1.00	0.20	0.40	0.40	2.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	61.90	24.70	7.00	0.60	94.20

LAS VARRAS  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					25.99	19.05	5.57	1.77	52.38
0.5-1.0					5.77	6.43	2.33	0.67	15.20
1.0-1.5					0.32	0.36	0.36	0.21	1.24
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	32.08	25.84	8.26	2.64	68.82

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5									0.00
0.5-1.0	0.43	0.01							0.43
1.0-1.5	3.83	0.05							3.87
1.5-2.0	2.12	0.76							2.89
2.0-2.5	0.20	1.29	0.04						1.53
2.5-3.0		0.58	0.08						0.66
3.0-3.5		0.10	0.06						0.16
3.5-4.0			0.08						0.08
4.0-4.5			0.04						0.04
4.5-5.0			0.01						0.01
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	6.57	2.81	0.31	0.00	0.00	0.00	0.00	0.00	9.70

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.99							0.99
1.0-1.5	6.81	0.01						6.82
1.5-2.0	3.89	0.61						4.50
2.0-2.5	0.31	1.71	0.03					2.04
2.5-3.0		0.88	0.12					1.00
3.0-3.5		0.31	0.25					0.56
3.5-4.0			0.20					0.20
4.0-4.5			0.06					0.06
4.5-5.0			0.03					0.03
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	11.99	3.52	0.69	0.00	0.00	0.00	0.00	16.20

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.71							0.71
1.0-1.5	6.03	0.03						6.05
1.5-2.0	2.62	1.04						3.65
2.0-2.5	0.49	2.78						3.27
2.5-3.0		0.84						0.84
3.0-3.5		0.10	0.02					0.13
3.5-4.0			0.05					0.05
4.0-4.5			0.01					0.01
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	9.85	4.79	0.08	0.00	0.00	0.00	0.00	14.72

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.38							0.38
1.0-1.5	4.13	0.03						4.16
1.5-2.0	3.28	1.39						4.66
2.0-2.5	0.18	2.78	0.11					3.08
2.5-3.0		1.26	0.14					1.40
3.0-3.5		0.13	0.06					0.19
3.5-4.0			0.19					0.19
4.0-4.5			0.11					0.11
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	7.98	5.58	0.61	0.00	0.00	0.00	0.00	14.17

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.37	0.01						0.37
1.0-1.5	3.89	0.10						3.99
1.5-2.0	2.86	1.16						4.02
2.0-2.5	0.34	1.98	0.01					2.32
2.5-3.0		0.66	0.04					0.71
3.0-3.5			0.10					0.10
3.5-4.0			0.16					0.16
4.0-4.5			0.07					0.07
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	7.46	3.91	0.39	0.00	0.00	0.00	0.00	11.75

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18
0.0-0.5								0.00
0.5-1.0	0.28							0.28
1.0-1.5	2.64							2.65
1.5-2.0	1.84	0.89						2.73
2.0-2.5	0.11	1.02	0.21					1.34
2.5-3.0		0.56	0.27					0.83
3.0-3.5		0.13	0.10					0.23
3.5-4.0			0.13					0.13
4.0-4.5			0.06					0.06
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	4.87	2.61	0.77	0.00	0.00	0.00	0.00	8.25

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.25							0.25
1.0-1.5	2.13							2.13
1.5-2.0	2.07	0.75						2.82
2.0-2.5	0.37	1.21	0.09					1.67
2.5-3.0		0.95	0.24					1.20
3.0-3.5		0.06	0.07	0.03				0.16
3.5-4.0			0.08	0.03				0.10
4.0-4.5			0.06					0.06
4.5-5.0			0.03					0.03
5.0-5.5			0.01					0.01
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	4.81	2.97	0.58	0.06	0.00	0.00	0.00	8.42

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.23							0.23
1.0-1.5	2.31							2.31
1.5-2.0	1.50	0.54						2.04
2.0-2.5		0.70	0.02					0.72
2.5-3.0		0.25	0.04					0.29
3.0-3.5		0.05						0.05
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	4.04	1.54	0.06	0.00	0.00	0.00	0.00	5.64

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES CF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.23							0.23
1.0-1.5	2.06							2.06
1.5-2.0	1.10	0.52						1.62
2.0-2.5	0.07	0.61	0.03					0.71
2.5-3.0		0.20	0.08					0.28
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	3.47	1.32	0.11	0.00	0.00	0.00	0.00	4.90

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.34							0.34
1.0-1.5	3.01							3.01
1.5-2.0	0.94	0.56						1.50
2.0-2.5	0.11	0.42						0.54
2.5-3.0		0.22						0.22
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	4.40	1.21	0.00	0.00	0.00	0.00	0.00	5.61

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.20							0.20
1.0-1.5	2.91	0.01						2.91
1.5-2.0	0.96	0.59						1.54
2.0-2.5	0.19	0.38	0.02					0.59
2.5-3.0		0.10	0.04					0.14
3.0-3.5			0.01					0.01
3.5-4.0			0.03					0.03
4.0-4.5			0.02					0.02
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	4.26	1.07	0.11	0.00	0.00	0.00	0.00	5.45

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5								0.00	
0.5-1.0	0.58	0.04						0.62	
1.0-1.5	5.20	0.32						5.52	
1.5-2.0	1.84	0.93						2.77	
2.0-2.5		0.85	0.02					0.87	
2.5-3.0		0.43	0.04					0.47	
3.0-3.5		0.21	0.03					0.24	
3.5-4.0			0.05					0.05	
4.0-4.5			0.01					0.01	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	7.62	2.78	0.14	0.00	0.00	0.00	0.00	0.00	10.54

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.56	0.02						0.58
1.0-1.5	4.79	0.10						4.89
1.5-2.0	2.54	0.41						2.95
2.0-2.5	0.25	1.00						1.25
2.5-3.0		0.59						0.59
3.0-3.5		0.23	0.05					0.28
3.5-4.0		0.04	0.09					0.14
4.0-4.5		0.02	0.07					0.09
4.5-5.0			0.04					0.04
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	8.14	2.42	0.25	0.00	0.00	0.00	0.00	10.81

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 140

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0	0.06								0.06
1.0-1.5	0.14								0.14
1.5-2.0	0.03								0.03
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.03							0.03
1.0-1.5	0.09	0.03						0.11
1.5-2.0	0.01	0.03						0.04
2.0-2.5		0.03						0.03
2.5-3.0		0.01						0.01
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.13	0.08	0.00	0.00	0.00	0.00	0.00	0.22

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 160

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.04							0.04
1.0-1.5	0.14	0.01						0.15
1.5-2.0	0.05	0.02						0.08
2.0-2.5	0.01	0.02						0.02
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.24	0.05	0.00	0.00	0.00	0.00	0.00	0.29

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 170

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.07							0.07
1.5-2.0	0.03							0.04
2.0-2.5	0.01	0.02						0.02
2.5-3.0		0.02						0.02
3.0-3.5		0.01						0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.17

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0									0.00
1.0-1.5	0.11								0.11
1.5-2.0	0.04								0.04
2.0-2.5		0.02							0.02
2.5-3.0		0.02							0.02
3.0-3.5									0.01
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.14	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.19

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.08							0.08
1.5-2.0	0.03	0.01						0.03
2.0-2.5	0.01	0.03						0.04
2.5-3.0		0.02						0.02
3.0-3.5			0.01					0.01
3.5-4.0			0.01					0.01
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.11	0.07	0.02	0.00	0.00	0.00	0.00	0.20

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0									0.00
1.0-1.5	0.10								0.10
1.5-2.0	0.06	0.01							0.07
2.0-2.5	0.01	0.05							0.05
2.5-3.0		0.02							0.02
3.0-3.5		0.01							0.01
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.17	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.26

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
				PERIOD (SEC)					
0.0-0.5									0.00
0.5-1.0	0.01								0.01
1.0-1.5	0.09								0.09
1.5-2.0	0.05	0.04							0.09
2.0-2.5	0.01	0.05							0.07
2.5-3.0		0.02							0.02
3.0-3.5			0.01						0.01
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.16	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.29

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.11	0.01						0.12
1.5-2.0	0.06	0.01						0.07
2.0-2.5	0.01	0.05						0.05
2.5-3.0		0.02						0.02
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.18	0.09	0.01	0.00	0.00	0.00	0.00	0.28

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 230

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5	0.12							0.12
1.5-2.0	0.06	0.01						0.07
2.0-2.5		0.04						0.04
2.5-3.0		0.04						0.04
3.0-3.5		0.01						0.02
3.5-4.0			0.01					0.01
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.18	0.10	0.02	0.00	0.00	0.00	0.00	0.30

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 240

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5									0.00
0.5-1.0									0.00
1.0-1.5	0.20								0.20
1.5-2.0	0.08	0.01							0.10
2.0-2.5	0.01	0.05							0.06
2.5-3.0		0.04							0.04
3.0-3.5		0.01	0.01						0.02
3.5-4.0			0.01						0.01
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.29	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.43

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.04							0.04
1.0-1.5	0.39	0.01						0.39
1.5-2.0	0.24	0.15						0.39
2.0-2.5	0.02	0.42	0.04					0.48
2.5-3.0		0.19	0.08					0.27
3.0-3.5		0.05	0.03					0.08
3.5-4.0			0.04					0.04
4.0-4.5			0.02					0.02
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.69	0.82	0.22	0.00	0.00	0.00	0.00	1.72

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.13							0.13
1.0-1.5	1.00							1.00
1.5-2.0	0.57	0.49						1.06
2.0-2.5	0.05	0.51						0.56
2.5-3.0		0.18						0.18
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.75	1.18	0.00	0.00	0.00	0.00	0.00	2.93

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.12							0.12
1.0-1.5	1.20							1.20
1.5-2.0	0.79							0.79
2.0-2.5	0.08							0.08
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	2.19	0.00	0.00	0.00	0.00	0.00	0.00	2.19

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.65	6.44	1.39	1.42	9.88	6.03	1.60		27.42
0.5-1.0	0.07	0.90	0.22	0.09	0.20	0.14	0.52		2.14
1.0-1.5		0.15	0.07	0.02	0.01		0.01		0.25
1.5-2.0		0.01	0.01						0.02
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.72	7.50	1.69	1.53	10.09	6.17	2.12	0.00	29.82

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.07	2.05	1.52	2.12	17.72	12.40	4.82				40.70
0.5-1.0	0.15	1.44	0.75	0.24	0.68	0.45	1.42				5.13
1.0-1.5		0.27	0.13	0.04			0.01				0.46
1.5-2.0											0.04
2.0-2.5											0.00
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.22	3.77	2.39	2.45	18.40	12.85	6.24	0.00			46.33

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.03	2.22	1.40	2.82	18.20	10.67	3.45		38.78
0.5-1.0	0.14	1.38	0.79	0.24	0.75	0.22	0.49		4.01
1.0-1.5		0.67	0.30		0.05				1.02
1.5-2.0		0.05	0.04						0.10
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.17	4.32	2.53	3.05	19.01	10.89	3.93	0.00	43.91

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.34	4.19	1.19	1.46	12.19	7.85	3.19		31.42
0.5-1.0	0.12	1.90	0.17	0.28	0.22	0.12	3.15		5.96
1.0-1.5		0.26	0.06	0.07			0.04		0.43
1.5-2.0			0.01						0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.46	6.35	1.43	1.82	12.41	7.98	6.38	0.00	37.83

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.57	5.34	1.48	1.03	12.17	7.07	0.81		28.50
0.5-1.0	0.07	1.25	0.03	0.05	0.18	0.30	0.20		2.07
1.0-1.5		0.18	0.06				0.03		0.27
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.63	6.77	1.57	1.10	12.35	7.37	1.05	0.00	30.84

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.85	13.41	1.54	0.67	4.24	2.64	0.52				23.86
0.5-1.0	0.14	0.82	0.09	0.02							1.07
1.0-1.5											0.00
1.5-2.0											0.00
2.0-2.5											0.00
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.89	14.22	1.62	0.69	4.24	2.64	0.52	0.00			24.82

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.02	13.22	2.20	0.13	1.51	0.28		18.46
0.5-1.0	0.02	1.02		0.01				1.05
1.0-1.5		0.02						0.02
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.05	14.26	2.20	0.14	1.51	0.28	0.00	18.53

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.11	13.66	1.38	0.19	0.58	0.47		17.38
0.5-1.0	0.02	0.56						0.59
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.13	14.22	1.38	0.19	0.58	0.47	0.00	17.36

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.00	10.11	1.68	0.08	1.51	0.80	0.17	15.34
0.5-1.0	0.02	0.34			0.01		0.05	0.42
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.02	10.45	1.68	0.08	1.51	0.80	0.22	15.75

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.10	6.56	0.63	0.83	3.00	1.88	0.56		14.57
0.5-1.0		0.15		0.05	0.03	0.02	0.12		0.37
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.10	6.71	0.63	0.88	3.03	1.90	0.69	0.00	14.94

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.30	1.38	0.77	1.32	3.10	4.48	0.59	19.14
0.5-1.0		0.13		0.03	0.01	0.06	0.10	0.34
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.30	2.12	0.77	1.95	9.11	4.54	0.69	19.43

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.25	3.02	1.30	2.47	18.59	12.40	1.58		39.60
0.5-1.0		0.81	0.25	0.04	0.06	0.17	0.16		1.50
1.0-1.5		0.22	0.14	0.07					0.43
1.5-2.0			0.01						0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.25	4.04	1.71	2.59	18.65	12.57	1.73	0.00	41.54

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.19	1.46	1.56	3.32	19.80	11.44	3.52	41.29
0.5-1.0	0.16	0.95	0.61	0.12	0.50	0.30	0.50	3.14
1.0-1.5		0.19	0.15					0.34
1.5-2.0		0.03	0.02					0.05
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.36	2.61	2.34	3.44	20.30	11.75	4.02	44.81

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01						0.01
0.5-1.0		0.02						0.02
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5		0.03	0.01						0.04
0.5-1.0		0.02	0.01						0.04
1.0-1.5		0.01							0.01
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.08

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.02	0.01					0.04
0.5-1.0		0.08	0.01					0.09
1.0-1.5		0.01						0.01
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.12	0.02	0.00	0.00	0.00	0.00	0.14

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.01						0.02
0.5-1.0	0.02	0.03						0.04
1.0-1.5		0.01						0.01
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.08

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01	0.01					0.03
0.5-1.0		0.03	0.01					0.04
1.0-1.5		0.01	0.01		0.01			0.03
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.05	0.04	0.01	0.01	0.00	0.00	0.10

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 230

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.05	0.01				0.18	0.24
0.5-1.0	0.01	0.07	0.03				0.33	0.44
1.0-1.5		0.02	0.01				0.01	0.04
1.5-2.0								0.01
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.15	0.06	0.00	0.00	0.00	0.51	0.73

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.01	0.04	0.03	0.32	9.88	6.03	1.42		17.74
0.5-1.0	0.01	0.09	0.02	0.08	0.20	0.14	0.19		0.72
1.0-1.5		0.03	0.01	0.01					0.05
1.5-2.0									0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.02	0.16	0.06	0.41	10.08	6.17	1.61	0.00	18.51

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.19	0.16	1.10				1.47
0.5-1.0	0.03	0.25	0.14					0.42
1.0-1.5		0.07	0.02					0.09
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.04	0.51	0.33	1.10	0.00	0.00	0.00	1.98

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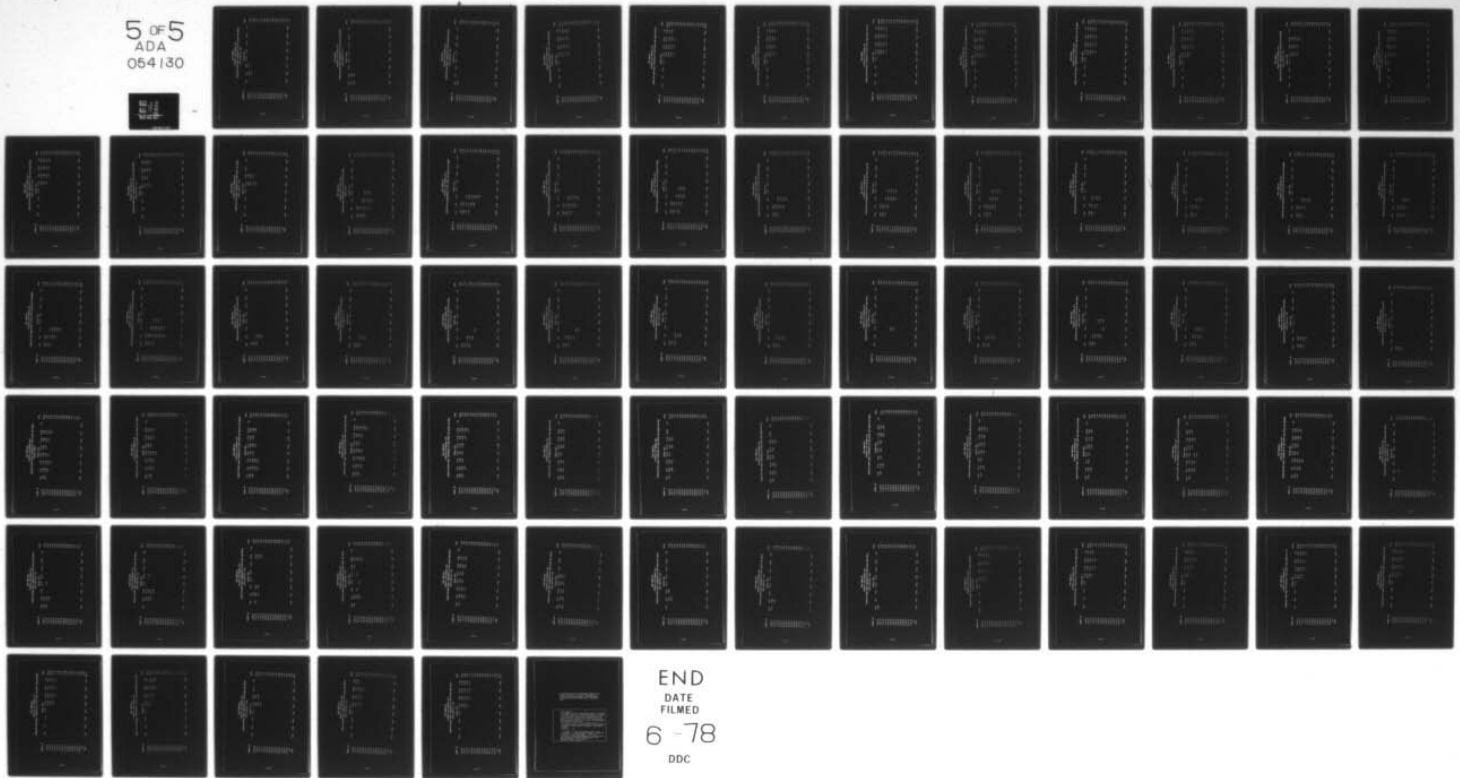
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS F/G 13/10  
PRELIMINARY EVALUATION OF WIND AND WAVE EFFECTS AT POTENTIAL LN--ETC(U)  
APR 78 L Z HALES

UNCLASSIFIED

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DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.28	1.16					1.44
0.5-1.0		0.12						0.12
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.40	1.16	0.00	0.00	0.00	0.00	1.56

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.17	5.79						5.96
0.5-1.0	0.01	0.19						0.20
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.17	5.98	0.00	0.00	0.00	0.00	0.00	6.15

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 280

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.45								0.45
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					18.45	15.40	4.64	1.63	40.12
0.5-1.0					11.67	9.88	2.70	0.68	24.44
1.0-1.5					1.80	0.86	0.76	0.29	3.82
1.5-2.0					0.06	0.09	0.15	0.05	0.35
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	32.08	25.84	8.26	2.64	68.82

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					37.98	43.17	15.78	5.25	102.19
0.5-1.0					15.83	18.27	9.03	1.13	44.25
1.0-1.5					3.03	2.18	2.56	0.12	7.89
1.5-2.0					0.15	0.27	0.13		0.55
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	57.00	63.80	27.50	6.50	154.90

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					27.59	39.50	11.90	3.37	82.27
0.5-1.0					8.67	12.27	3.86	0.83	25.63
1.0-1.5					0.83	0.43	0.43	0.10	1.80
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	37.10	52.20	16.20	4.30	109.80

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					46.56	24.08	5.25	7.48	83.38
0.5-1.0					38.78	27.07	3.64	3.76	73.25
1.0-1.5					5.93	4.21	1.39	1.23	12.76
1.5-2.0					0.13	0.64	1.03	0.22	2.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	91.40	56.00	11.30	12.70	171.40

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)						TOTAL		
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18	>18
0.0-0.5					31.25	28.34	7.17	1.00	67.77
0.5-1.0					27.32	27.64	5.97	0.44	61.26
1.0-1.5					6.16	2.22	2.16	0.45	10.99
1.5-2.0					0.27			0.01	0.28
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	65.10	58.20	15.30	1.90	140.50

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)						TOTAL		
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18	>18
0.0-0.5									
0.5-1.0					43.78	35.76	11.55	2.29	98.37
1.0-1.5					24.83	17.24	7.92	1.90	51.63
1.5-2.0					3.87	2.01	1.94	1.24	9.06
2.0-2.5					0.00	0.09	0.39	0.27	0.78
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	72.50	55.10	21.80	5.70	155.10

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5					24.22	13.89	4.00	0.10	52.20
0.5-1.0					24.66	10.12	2.04	0.10	36.92
1.0-1.5					3.02	0.50	0.59	0.31	4.52
1.5-2.0						0.08	0.28	0.08	0.46
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	61.90	24.70	7.00	0.60	94.20

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNEEL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					3.42	2.60	1.48		7.50
0.5-1.0					2.26	2.58	1.05		5.89
1.0-1.5					0.18	0.16	0.20		0.53
1.5-2.0							0.02		0.02
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	5.87	5.23	2.74	0.00	13.94

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5					4.81	4.10	1.76	1.07	11.73
0.5-1.0					2.49	2.16	0.75	0.52	5.92
1.0-1.5					0.16	0.07	0.09	0.09	0.40
1.5-2.0									0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	7.46	6.33	2.60	1.67	18.07

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					1.52	3.28	0.51	0.25	5.57
0.5-1.0					1.05	1.56	0.37	0.14	3.12
1.0-1.5					0.24	0.53	0.24	0.17	1.18
1.5-2.0						0.09	0.13	0.04	0.27
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	2.82	5.47	1.26	0.60	10.14

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					3.04	3.53	0.89	0.31	7.78
0.5-1.0					1.18	0.51	0.54	0.02	2.24
1.0-1.5					0.25		0.23	0.03	0.51
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	4.47	4.04	1.66	0.37	10.53

DEER CANYON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5					5.65	1.88		7.53
0.5-1.0					4.69	2.58		7.27
1.0-1.5					1.02	0.20		1.28
1.5-2.0					0.06			0.06
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.00	0.00	0.00	11.47	4.67	0.00	16.14

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	4.15	0.29						4.45
1.0-1.5	11.87	4.04						15.91
1.5-2.0	1.22	7.11	0.51					8.84
2.0-2.5	0.03	1.66	0.98	0.01				2.68
2.5-3.0		0.11	0.30	0.03				0.44
3.0-3.5		0.01	0.04	0.02				0.07
3.5-4.0			0.01					0.02
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.26	13.23	1.85	0.06	0.00	0.00	0.00	32.30

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	3.20	0.08						3.27
1.0-1.5	9.68	1.06						10.74
1.5-2.0	1.56	2.21	0.03					3.80
2.0-2.5	0.05	1.18	0.09					1.32
2.5-3.0		0.35	0.23					0.58
3.0-3.5		0.02	0.16					0.18
3.5-4.0			0.08					0.08
4.0-4.5			0.05					0.05
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	14.59	5.00	0.64	0.00	0.00	0.00	0.00	20.22

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	3.59	0.12						3.71
1.0-1.5	8.84	1.59						10.42
1.5-2.0	1.57	3.46	0.06					5.09
2.0-2.5	0.09	1.64	0.13					1.86
2.5-3.0		0.37	0.09					0.45
3.0-3.5		0.04	0.03					0.06
3.5-4.0			0.01					0.01
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	14.09	7.20	0.22	0.00	0.00	0.00	0.00	21.51

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	4.20	0.32						4.52
1.0-1.5	11.57	4.63						16.20
1.5-2.0	1.97	2.65	0.62					11.23
2.0-2.5	0.06	1.93	1.20	0.01				3.20
2.5-3.0		0.18	0.35	0.06				0.59
3.0-3.5			0.04	0.03				0.07
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.80	15.70	2.21	0.09	0.00	0.00	0.00	35.80

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	4.33	0.35						4.68
1.0-1.5	13.98	4.88						18.86
1.5-2.0	1.37	8.63	0.76					10.76
2.0-2.5		1.96	1.50					3.45
2.5-3.0		0.06	0.46					0.52
3.0-3.5			0.04					0.04
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	19.68	15.88	2.76	0.00	0.00	0.00	0.00	38.22

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	3.24	0.53						3.78
1.0-1.5	12.50	8.02						20.52
1.5-2.0	1.02	14.51	1.54					17.07
2.0-2.5		3.23	2.80	0.03				6.05
2.5-3.0			0.68	0.12				0.79
3.0-3.5			0.08	0.11				0.19
3.5-4.0			0.01	0.02				0.03
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	16.77	26.29	5.10	0.28	0.00	0.00	0.00	48.43

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SER FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	2.74	0.61						3.35
1.0-1.5	13.34	8.65						21.99
1.5-2.0	1.32	15.25	1.76					18.33
2.0-2.5		3.54	3.37	0.06				6.97
2.5-3.0		0.03	0.98	0.10				1.11
3.0-3.5			0.05	0.09				0.15
3.5-4.0				0.02				0.02
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.41	28.08	6.17	0.28	0.00	0.00	0.00	51.93

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	5.43	0.53						5.96
1.0-1.5	18.65	6.77	0.01					25.43
1.5-2.0	1.31	11.80	0.46					13.57
2.0-2.5		2.42	0.89					3.31
2.5-3.0			0.25					0.25
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	25.39	21.02	1.61	0.00	0.00	0.00	0.00	48.02

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	6.63	0.48						7.11
1.0-1.5	17.55	5.89						23.45
1.5-2.0	1.17	8.53	0.41					10.11
2.0-2.5		1.16	0.80					1.96
2.5-3.0			0.16					0.16
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	25.35	16.06	1.38	0.00	0.00	0.00	0.00	42.80

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	4.87	0.22						5.08
1.0-1.5	12.50	2.85						15.35
1.5-2.0	0.51	4.84	0.28					5.63
2.0-2.5		1.00	0.47					1.47
2.5-3.0			0.16					0.16
3.0-3.5			0.01					0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	17.88	8.91	0.92	0.00	0.00	0.00	0.00	27.71

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	5.24	0.19						5.42
1.0-1.5	9.62	2.33						11.95
1.5-2.0	0.81	3.66	0.13					4.59
2.0-2.5	0.03	0.45	0.35					0.83
2.5-3.0			0.16					0.16
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	15.69	6.62	0.64	0.00	0.00	0.00	0.00	22.95

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	3.32	0.06						3.38
1.0-1.5	7.15	1.01						8.16
1.5-2.0	0.82	2.19	0.01					3.02
2.0-2.5		0.72	0.06					0.78
2.5-3.0		0.18	0.03					0.21
3.0-3.5			0.02					0.03
3.5-4.0			0.01					0.01
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	11.28	4.17	0.14	0.00	0.00	0.00	0.00	15.59

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5								0.00	
0.5-1.0	2.95	0.05						3.00	
1.0-1.5	7.02	0.86						7.88	
1.5-2.0	1.14	1.94	0.06					3.14	
2.0-2.5	0.08	0.71	0.03	0.01				0.87	
2.5-3.0		0.14	0.04	0.06				0.23	
3.0-3.5		0.04	0.06	0.03				0.12	
3.5-4.0		0.02	0.03					0.05	
4.0-4.5		0.01						0.01	
4.5-5.0								0.00	
5.0-5.5								0.00	
5.5-6.0								0.00	
6.0-6.5								0.00	
6.5-7.0								0.00	
>7.0								0.00	
TOTAL	11.19	3.76	0.27	0.09	0.09	0.00	0.00	0.00	15.31

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 180

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0	0.01								0.01
1.0-1.5	0.06								0.06
1.5-2.0	0.02	0.01							0.03
2.0-2.5		0.01							0.02
2.5-3.0		0.01							0.01
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.13

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01							0.01
1.0-1.5	0.13							0.14
1.5-2.0	0.05	0.02						0.07
2.0-2.5		0.04						0.04
2.5-3.0		0.02						0.02
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.20	0.08	0.00	0.00	0.00	0.00	0.00	0.28

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 200

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01							0.01
1.0-1.5	0.14							0.14
1.5-2.0	0.10	0.04						0.13
2.0-2.5	0.01	0.07						0.08
2.5-3.0		0.03						0.03
3.0-3.5			0.01					0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.26	0.14	0.01	0.00	0.00	0.00	0.00	0.41

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.01							0.01
1.0-1.5	0.09	0.01						0.10
1.5-2.0	0.04	0.03						0.06
2.0-2.5		0.04						0.04
2.5-3.0		0.01						0.01
3.0-3.5			0.01					0.01
3.5-4.0			0.01					0.01
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.14	0.08	0.02	0.00	0.00	0.00	0.00	0.25

**CAPP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 220**

HEIGHT (M)	PERIOD (SEC)						TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16		16-18
0.0-0.5								0.00
0.5-1.0	0.02							0.02
1.0-1.5	0.11							0.12
1.5-2.0	0.04	0.02						0.06
2.0-2.5		0.04						0.04
2.5-3.0		0.02						0.02
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.18	0.08	0.00	0.00	0.00	0.00	0.00	0.26

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 230

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.05							0.05
1.0-1.5	0.16	0.01						0.17
1.5-2.0	0.03	0.04						0.07
2.0-2.5		0.04						0.04
2.5-3.0		0.01						0.01
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.24	0.10	0.01	0.00	0.00	0.00	0.00	0.34

**CAPP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 240**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0								0.00
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0			0.01					0.01
3.0-3.5			0.01					0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.03							0.03
1.0-1.5	0.14	0.01						0.15
1.5-2.0	0.06	0.06						0.12
2.0-2.5		0.05						0.05
2.5-3.0		0.01						0.01
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.24	0.12	0.00	0.00	0.00	0.00	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 260

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.07							0.07
1.0-1.5	0.26	0.01						0.27
1.5-2.0	0.07	0.06						0.12
2.0-2.5		0.03		0.01				0.04
2.5-3.0		0.01		0.03				0.04
3.0-3.5			0.01	0.02				0.03
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.40	0.11	0.01	0.06	0.00	0.00	0.00	0.58

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	0.13							0.13
1.0-1.5	0.38	0.02						0.40
1.5-2.0	0.06	0.09	0.51					0.66
2.0-2.5		0.05	0.97					1.02
2.5-3.0		0.01	0.27					0.28
3.0-3.5			0.01					0.01
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.58	0.17	1.77	0.00	0.00	0.00	0.00	2.51

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 280**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	1.96	0.29						2.25
1.0-1.5	5.23	3.99						9.22
1.5-2.0	0.40	6.74						7.14
2.0-2.5		1.29						1.29
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	7.58	12.31	0.00	0.00	0.00	0.00	0.00	19.89

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SEA FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 290

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5								0.00
0.5-1.0	1.85							1.85
1.0-1.5	5.15							5.15
1.5-2.0	0.35							0.35
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	7.35	0.00	0.00	0.00	0.00	0.00	0.00	7.35

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.62	7.39	1.48	1.28	9.68	5.82	1.52		27.80
0.5-1.0	0.04	0.55	0.14	0.02	0.15	0.31	0.40		1.60
1.0-1.5		0.07	0.02	0.01		0.01	0.13		0.23
1.5-2.0			0.01				0.03		0.04
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.66	8.01	1.67	1.31	9.83	6.13	2.07	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.11	2.43	1.52	1.90	18.26	12.53	4.57	41.33
0.5-1.0	0.08	1.02	0.30	0.02	0.21	0.71	1.34	3.69
1.0-1.5		0.17	0.04	0.03		0.02	0.18	0.44
1.5-2.0				0.01				0.01
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.18	3.62	1.87	1.97	18.48	13.26	6.10	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.03	2.61	1.44	2.74	18.86	10.44	3.35		38.47
0.5-1.0	0.06	1.39	0.63	0.06	0.26	0.38	0.33		3.10
1.0-1.5		0.33	0.08		0.01		0.03		0.45
1.5-2.0		0.03	0.05						0.07
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.09	4.36	2.20	2.79	19.12	10.82	3.71	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.35	4.83	1.19	1.25	11.81	7.35	2.28		30.05
0.5-1.0	0.07	1.42	0.24	0.08	0.16	0.43	2.42		4.82
1.0-1.5		0.04	0.02	0.04		0.01	1.10		1.21
1.5-2.0			0.02				0.23		0.25
2.0-2.5							0.01		0.01
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	1.42	6.26	1.47	1.37	11.96	7.79	6.05	0.00	

CAMP PENDELTON  
 POTENTIAL LONG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.58	6.54	1.56	0.91	11.10	6.70	0.87		28.25
0.5-1.0	0.02	0.82	0.04	0.01	0.59	0.44	0.05		1.97
1.0-1.5		0.07				0.01	0.20		0.28
1.5-2.0							0.07		0.07
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.60	7.44	1.61	0.91	11.68	7.15	1.19	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.85	15.69	1.68	0.50	3.91	2.29	0.58	25.50
0.5-1.0	0.07	0.24	0.01		0.03	0.09	0.02	0.46
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.92	15.93	1.70	0.50	3.94	2.38	0.60	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.01	16.06	2.34	0.14	1.31	0.27		21.13
0.5-1.0		0.38	0.04		0.01	0.01		0.44
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.01	16.44	2.38	0.14	1.33	0.28	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.87	15.45	1.55	0.23	0.50	0.49		19.09
0.5-1.0		0.11	0.01			0.02		0.13
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.87	15.50	1.56	0.23	0.50	0.50	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.87	11.08	1.79	0.05	1.33	0.85	0.15		16.11
0.5-1.0		0.12				0.03	0.03		0.17
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.87	11.20	1.79	0.05	1.33	0.87	0.18	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	1.10	7.52	0.78	0.85	2.75	1.73	0.59	15.32
0.5-1.0		0.01		0.06	0.09	0.06	0.09	0.31
1.0-1.5							0.01	0.01
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	1.10	7.53	0.78	0.92	2.84	1.79	0.69	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.23	2.48	0.73	1.51	8.78	4.17	0.67	18.57
0.5-1.0		0.04			0.07	0.18	0.02	0.31
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.23	2.53	0.73	1.51	8.85	4.35	0.69	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.32	2.56	1.70	2.06	18.12	12.04	1.63		38.44
0.5-1.0		0.50	0.17		0.12	0.56	0.07		1.43
1.0-1.5		0.09	0.06	0.03		0.01			0.18
1.5-2.0				0.01					0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.32	3.15	1.93	2.10	18.24	12.61	1.70	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.13	1.45	1.63	3.25	19.49	10.93	3.49	40.36
0.5-1.0	0.19	0.51	0.25	0.01	0.22	0.83	0.41	2.42
1.0-1.5		0.09	0.07			0.03	0.04	0.23
1.5-2.0			0.02					0.02
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.32	2.06	1.97	3.25	19.71	11.78	3.94	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 190

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5									0.00
0.5-1.0		0.01							0.01
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 200**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5	0.01	0.05						0.06
0.5-1.0	0.02	0.13		0.01				0.15
1.0-1.5		0.02						0.02
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.03	0.19	0.00	0.01	0.00	0.00	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.01	0.02					0.03
0.5-1.0		0.03	0.02		0.01			0.05
1.0-1.5		0.01	0.01					0.02
1.5-2.0			0.01					0.01
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.05	0.05	0.00	0.01	0.00	0.00	0.00

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 220**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.04						0.05
0.5-1.0	0.01	0.05	0.02				0.02	0.10
1.0-1.5		0.01	0.01				0.05	0.07
1.5-2.0							0.02	0.02
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.01	0.10	0.03	0.00	0.00	0.00	0.09	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 230

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.01	0.05				0.01	0.01		0.09
0.5-1.0		0.08	0.01		0.01		0.20		0.31
1.0-1.5		0.02		0.01			0.07		0.09
1.5-2.0							0.01		0.01
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.02	0.15	0.02	0.01	0.01	0.01	0.29	0.00	0.00

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 240**

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.01	0.03	0.07	0.05	0.11	5.80	1.51		7.57
0.5-1.0		0.08	0.03	0.01	0.02	0.31	0.17		0.63
1.0-1.5		0.01	0.01			0.01	0.02		0.03
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.01	0.13	0.11	0.05	0.13	6.12	1.69	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 250

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.01	0.15	0.42	1.23	9.57						11.38
0.5-1.0	0.01	0.05	0.06	0.01	0.11						0.24
1.0-1.5											0.00
1.5-2.0											0.00
2.0-2.5											0.00
2.5-3.0											0.00
3.0-3.5											0.00
3.5-4.0											0.00
4.0-4.5											0.00
4.5-5.0											0.00
5.0-5.5											0.00
5.5-6.0											0.00
6.0-6.5											0.00
6.5-7.0											0.00
>7.0											0.00
TOTAL	0.02	0.20	0.48	1.24	9.68	0.00	0.00	0.00	0.00	0.00	0.00

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 260**

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	
0.0-0.5		0.10	0.98					1.08
0.5-1.0		0.02						0.02
1.0-1.5								0.00
1.5-2.0								0.00
2.0-2.5								0.00
2.5-3.0								0.00
3.0-3.5								0.00
3.5-4.0								0.00
4.0-4.5								0.00
4.5-5.0								0.00
5.0-5.5								0.00
5.5-6.0								0.00
6.0-6.5								0.00
6.5-7.0								0.00
>7.0								0.00
TOTAL	0.00	0.12	0.98	0.00	0.00	0.00	0.00	0.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.15	6.96							7.12
0.5-1.0		0.09							0.09
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.15	7.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE NORTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 280**

HEIGHT (M)	<4-6	6-8	9-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5	0.43								0.43
0.5-1.0									0.00
1.0-1.5									0.00
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 ANNUAL SUMMARY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					21.00	15.63	5.03	1.64	43.30
0.5-1.0					10.50	9.32	2.49	0.70	23.01
1.0-1.5					0.50	0.80	0.67	0.27	2.24
1.5-2.0						0.01	0.07	0.04	0.12
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	32.03	25.84	8.25	2.64	69.76

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5									
0.5-1.0					39.91	42.24	18.46	4.30	105.41
1.0-1.5					16.38	20.17	8.37	1.48	46.39
1.5-2.0					0.71	1.46	0.61	0.22	3.00
2.0-2.5						0.03	0.05		0.10
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	57.00	63.80	27.50	6.50	154.90

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-5	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5									79.68
0.5-1.0					29.92	34.12	11.87	3.76	29.48
1.0-1.5					7.18	17.87	3.87	0.51	0.86
1.5-2.0						0.21	0.42	0.02	0.04
2.0-2.5							0.04		0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	37.10	52.20	16.20	4.30	109.00

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5									90.97
0.5-1.0				52.94	24.84	6.43	4.33		70.80
1.0-1.5				36.93	1.54	1.60	1.42		9.31
1.5-2.0				4.75	0.02	0.11	0.20		0.33
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	91.40	56.00	11.30	12.70	171.40

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5									82.24
0.5-1.0				38.78	35.10	7.14	1.22	0.45	50.85
1.0-1.5				24.06	21.38	5.07	2.71	0.16	6.84
1.5-2.0				2.26	1.72	0.99	0.07		0.47
2.0-2.5					0.01				0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	65.10	58.20	15.30	1.20	140.50

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					48.58	35.16	11.61	2.97	38.32
0.5-1.0					22.38	17.81	7.79	1.48	49.56
1.0-1.5					1.54	1.89	2.25	1.11	6.90
1.5-2.0						0.04	0.15	0.14	0.33
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	72.50	55.10	21.80	5.70	155.10

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					41.83	16.11	4.84	0.11	62.95
0.5-1.0					20.01	8.11	1.63	0.18	29.93
1.0-1.5						0.49	0.48	0.28	1.24
1.5-2.0							0.05	0.03	0.08
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	61.90	24.70	7.00	0.60	94.20

**CAMP PENDELTON**  
**POTENTIAL LNG TERMINAL SITE**  
**CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD**  
**WAVE DIRECTION = 200**

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
	PERIOD (SEC)								
0.0-0.5					9.90	8.61			18.51
0.5-1.0					2.59	2.42			5.01
1.0-1.5					0.02				0.02
1.5-2.0									0.00
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	12.51	11.03	0.00	0.00	23.54

CAPP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					8.22	4.56	4.85	0.84	18.47
0.5-1.0					5.46	4.80	2.19	0.17	12.73
1.0-1.5					0.30	0.56	0.54		1.51
1.5-2.0							0.04		0.04
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	13.97	10.14	7.62	1.02	32.76

CAMP PENDELTON  
 POTENTIAL LNG TERMINAL SITE  
 CUMULATIVE SOUTH SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD  
 WAVE DIRECTION = 220

HEIGHT (M)	PERIOD (SEC)							TOTAL	
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18		>18
0.0-0.5					2.89	2.45	0.18	0.79	6.31
0.5-1.0					2.53	2.00	0.30	0.53	5.35
1.0-1.5					0.19	0.21	0.13	0.27	0.78
1.5-2.0						0.01	0.02	0.04	0.07
2.0-2.5									0.00
2.5-3.0									0.00
3.0-3.5									0.00
3.5-4.0									0.00
4.0-4.5									0.00
4.5-5.0									0.00
5.0-5.5									0.00
5.5-6.0									0.00
6.0-6.5									0.00
6.5-7.0									0.00
>7.0									0.00
TOTAL	0.00	0.00	0.00	0.00	5.60	4.67	0.63	1.62	12.52

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Hales, Lyndell Z

Preliminary evaluation of wind and wave effects at potential LNG terminal sites, State of California; Appendix A: an evaluation of the relative wave climate at five onshore LNG sites considering island influences and topographic effects / by Lyndell Z. Hales. Vicksburg, Miss. : U. S. Waterways Experiment Station ; Springfield, Va. : available from National Technical Information Service, 1978.

24, [427] p. : ill. ; 27 cm. (Miscellaneous paper - U. S. Army Engineer Waterways Experiment Station ; H-78-2, Appendix A)

Prepared for California Coastal Commission, San Francisco, California.

References: p. A24.

1. California. 2. Liquified Natural Gas terminal sites.  
3. Topography. 4. Water wave characteristics. 5. Water wave refraction. 6. Wind (Meteorology). 7. Wind waves.  
I. California. State Coastal Commission. II. Series: United States. Waterways Experiment Station, Vicksburg, Miss.  
Miscellaneous paper : H-78-2, Appendix A.  
TA7.W34m no.H-78-2 Appendix A