

Docket Nos.: 50-275
and 50-323

NOV 14 1984

LICENSEE: Pacific Gas and Electric Company
FACILITY: Diablo Canyon Nuclear Power Plant
SUBJECT: NRC MEETING WITH PG&E - SEISMIC REEVALUATION PROGRAM FOR
DIABLO CANYON

A meeting was held on October 4, 1984 in Bethesda, Maryland regarding the re-evaluation program of the seismic design basis for the Diablo Canyon Nuclear Power Plant. The program was identified as a license condition in the proposed full-power license amendment for Unit 1 and is discussed in detail SSER-27, Sections I.5 and IV.5. (Note: the full power license was since issued on November 2, 1984). The program is to include the following four specific elements: geology and tectonics, earthquake magnitude, ground motion, and probabilistic/deterministic analyses. Pacific Gas and Electric Company (PG&E) is to submit a program plan by the end of January 1985. The purpose of the meeting was to address the overall PG&E program (plan, schedule, organization, staffing) and the first element, geology and tectonics. Participants at the meeting were the NRC staff, D. Slemmons and members of the U.S. Geological Survey (USGS) as advisors to the staff, and PG&E staff with their consultants. A complete list of attendees is attached as Enclosure 1.

Introductory remarks were made by D. Brand, Vice President for Engineering, PG&E, and S. Brocoum, Leader of the Geology Section of Geosciences Branch, NRC. The NRC presented a brief description of its parallel program in the area of geology and tectonics (Enclosure 2). The Geosciences Branch is presently engaged in preparing contracts with the USGS and D. Slemmons. Contract preparation and agreement are expected to be completed by January 1984.

W. White, PG&E, described the PG&E organization that will carry out the seismic reevaluation program based on the requirements of the license condition. Enclosure 3 presents the PG&E view graphs that illustrate the program organization and division of effort in a preliminary and general way.

D. Hamilton, geology consultant for PG&E, described the proposed review and investigation program. The geologic program consists of five tasks: (1) identification and evaluation of post-1978 site and regional data; (2) evaluation of tectonic model; (3) review of seismic source parameters; (4) review of source to site geology and transmission path characteristics; and (5) support of parallel activities in related areas of the long-term seismic program. Details of each task are presented in the PG&E viewgraphs in Enclosure 4.

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11/10/1944

Dear Mr. [Name],

I have received your letter of the 10th and am sorry that I cannot give you a more definite answer at this time. The matter is being reviewed and I will be in touch with you again as soon as a final decision has been reached.

I am sure that you will understand the need for thoroughness in this process and appreciate the time it takes to ensure that all aspects are covered.

Thank you for your patience and understanding. I will contact you again once a final decision has been reached.

Yours faithfully,
[Signature]

12. The three mile zone immediately offshore is notably lacking in data. Efforts should be made to obtain data in this area;
13. The responsibility for the development of the program and its execution lies with PG&E and as such PG&E should not rely on the staff or others to identify every area that requires study.

At the conclusion of the meeting it was agreed that the second meeting should be held on November 15 and 16, 1984 to address license condition element 2, earthquake magnitude, and element 3, ground motion. The third meeting, concerning probabilistic/deterministic analyses, will be held during the second or third week of December, 1984.

D. Slemmons provided his comments on the PG&E program in a letter to S. Brocoum (Enclosure 5).



Hans Schierling, Project Manager
Licensing Branch No. 3
Division of Licensing

Enclosures:

1. Attendance List
2. NRC Comments
3. PG&E Programmatic Information
4. PG&E Viewgraphs for Geologic Review and Investigation
5. Letter D. Slemmons to S. Brocoum, October 21, 1984

cc: See next page

DL:LB#3
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11/14/84

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11/14/84



The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be clearly documented and supported by appropriate evidence. This ensures transparency and accountability in the financial process.

Furthermore, it is noted that regular audits are essential to identify any discrepancies or errors. By conducting these audits frequently, potential issues can be addressed promptly, preventing them from escalating into larger problems. This proactive approach is key to maintaining the integrity of the financial system.

In addition, the document highlights the need for clear communication between all parties involved. Regular meetings and reports should be used to keep everyone informed of the current status and any changes that may occur. This collaborative effort is necessary to ensure that all objectives are met and that the organization remains on track.

The second section of the document focuses on the implementation of internal controls. These controls are designed to prevent fraud, reduce the risk of errors, and ensure that resources are used efficiently. By establishing a strong framework of internal controls, the organization can protect its assets and maintain the trust of its stakeholders.

It is also stressed that these controls should be regularly reviewed and updated. As the organization grows and its operations evolve, the internal control system must adapt to new challenges and opportunities. This ongoing process of improvement is vital for the long-term success and sustainability of the organization.

Finally, the document concludes by reiterating the importance of a strong ethical foundation. All employees should be encouraged to act with integrity and honesty in all their dealings. This commitment to ethical behavior is not only a legal requirement but also a core value that drives the organization's success.

The third part of the document addresses the role of technology in modern financial management. It discusses how advanced software solutions can streamline processes, reduce manual errors, and provide real-time data analysis. By leveraging technology, organizations can gain valuable insights into their financial performance and make more informed decisions.

However, it is also noted that the use of technology must be accompanied by proper training and security measures. Employees should be equipped with the necessary skills to use the software effectively, and robust security protocols should be in place to protect sensitive financial information from cyber threats.

In conclusion, the document provides a comprehensive overview of the key elements of effective financial management. From maintaining accurate records and implementing internal controls to embracing technology and upholding ethical standards, each aspect plays a crucial role in ensuring the organization's financial health and long-term success.

The fourth section of the document explores the importance of budgeting and financial forecasting. A well-defined budget serves as a roadmap for the organization, helping to allocate resources effectively and track performance against targets. Regular forecasting allows management to anticipate future trends and adjust the budget accordingly to stay on course.

It is also emphasized that budgeting should be a collaborative process involving all levels of the organization. This ensures that everyone has a clear understanding of their role in the budget and is committed to achieving the financial goals. Regular communication and reporting are essential to monitor progress and make necessary adjustments throughout the year.

Finally, the document stresses the importance of staying up-to-date with the latest financial regulations and market conditions. The financial landscape is constantly evolving, and organizations must remain agile and responsive to these changes. By staying informed and proactive, the organization can navigate any challenges and seize new opportunities for growth.

In summary, the document provides a detailed guide to the various aspects of financial management. It covers everything from record-keeping and internal controls to technology, ethics, budgeting, and forecasting. By following the principles and practices outlined here, organizations can ensure that their financial operations are efficient, transparent, and aligned with their overall strategic goals.

The document concludes with a final note on the importance of continuous learning and improvement. The financial field is dynamic, and organizations must be committed to staying current in their knowledge and skills. This dedication to growth and excellence is what truly sets successful organizations apart from the rest.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 14 1984

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and 50-323

LICENSEE: Pacific Gas and Electric Company

FACILITY: Diablo Canyon Nuclear Power Plant

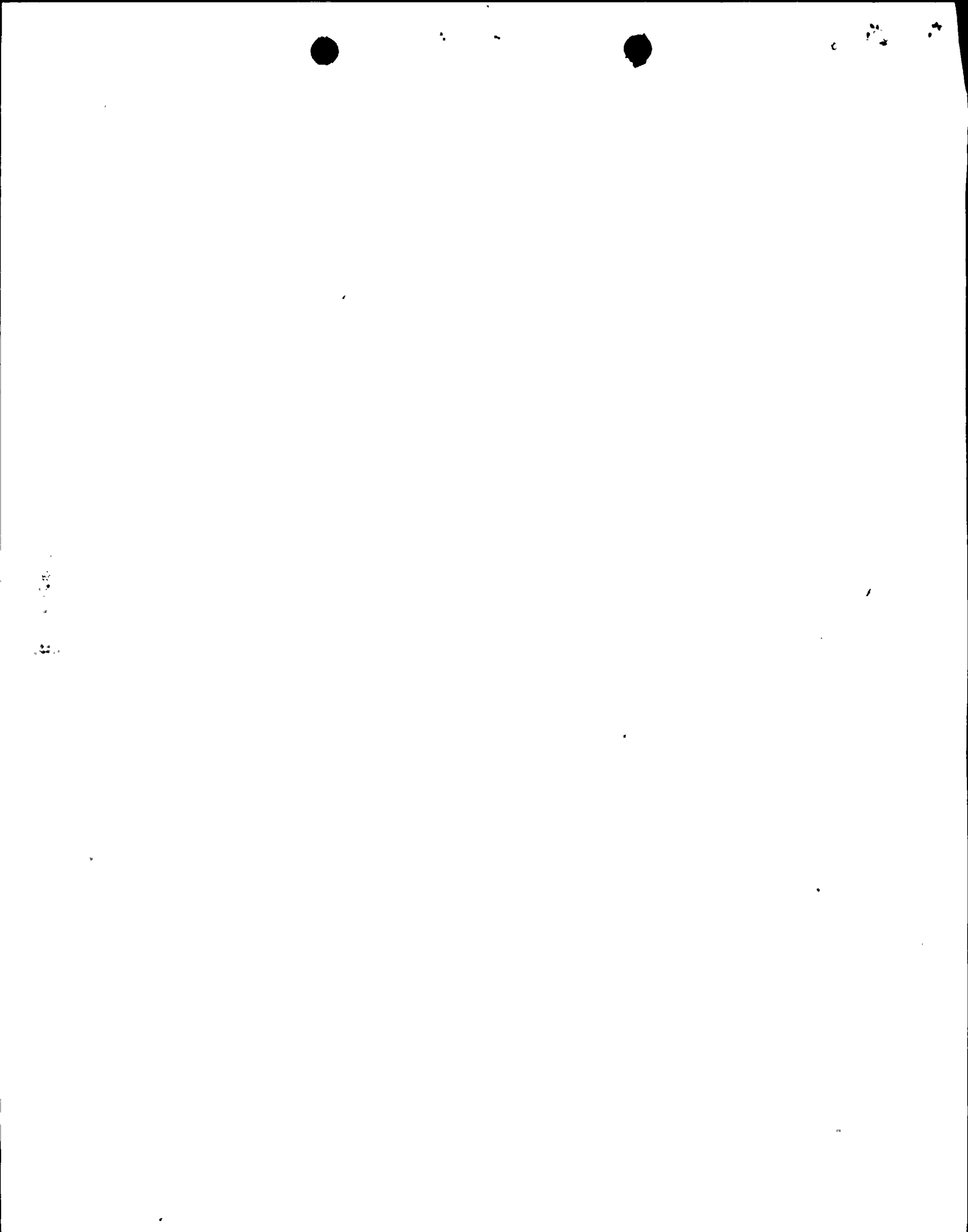
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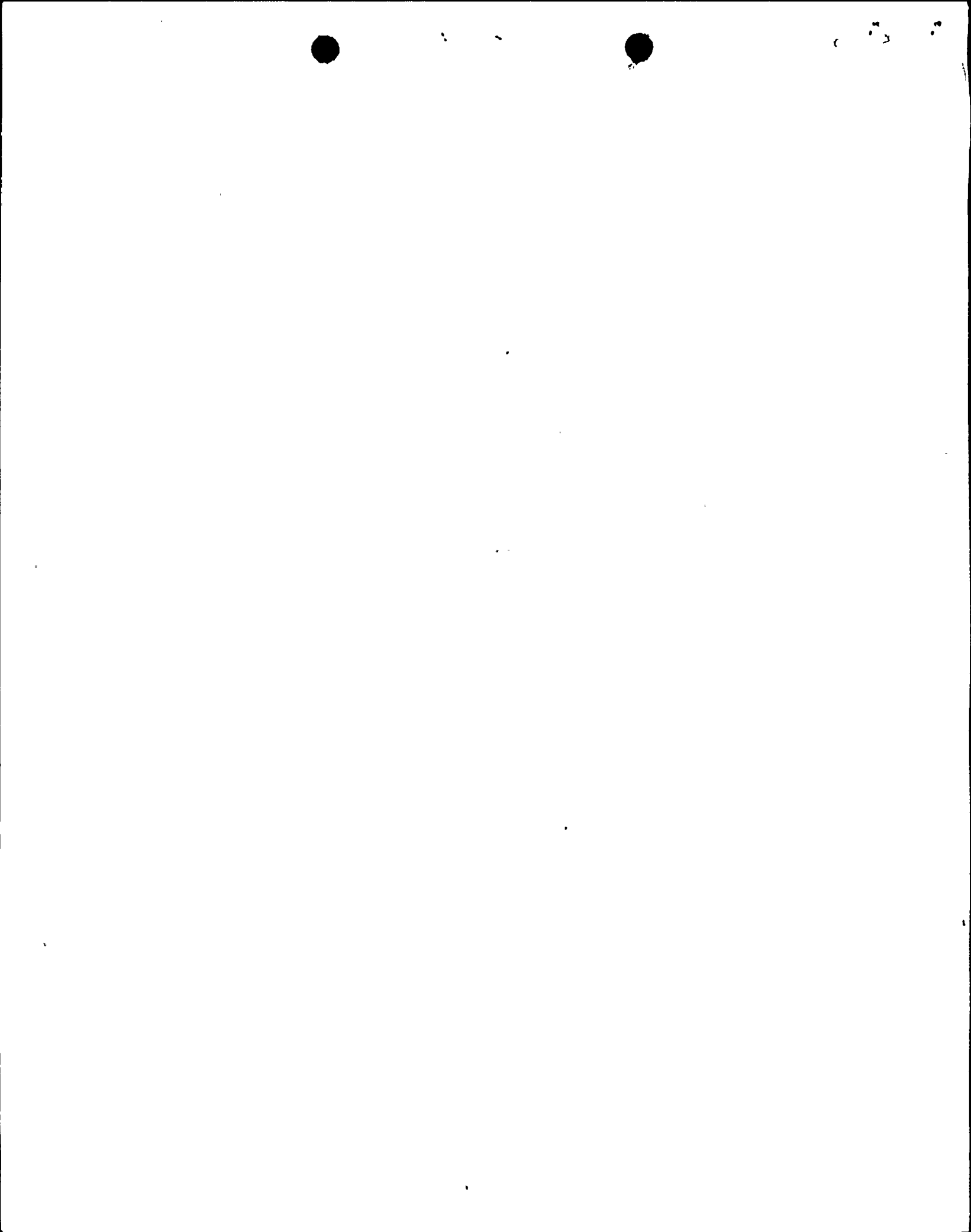
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As part of the PG&E presentation, R. Willingham, geophysicist with Ogle Petroleum Company, described the types of seismic reflection and well data that are available in the offshore region from Diablo Canyon.

After a caucus by the NRC staff and its advisors, S. Brocoum made the following comments to PG&E as the opinion of the NRC Geosciences Branch and its advisors based on the PG&E presentation:

1. PG&E has made a commendable effort in its planning to respond to the license condition and the NRC staff is impressed by the quality of the program;
2. PG&E has appropriately identified and defined the data bases and is preparing a program to utilize these data bases;
3. PG&E's use of panels of experts to plan and monitor the effort is a good approach;
4. PG&E should place more emphasis on the way that will resolve the issue of gaining an understanding of the tectonic framework of the part of California in which the site is located, including the characteristics of the transition from a dominantly thrust tectonic regime south of the site to a dominantly strike-slip regime north of the site;
5. PG&E needs to discuss how the data will be used that were described in the presentation in order to develop an understanding of the tectonics in the site area and onshore, northeast of the site;
6. PG&E needs to determine how thrust faults directly beneath the site will be identified and defined, or how the absence of such features will be demonstrated, and what data will be used to accomplish this;
7. The presentation emphasized the various types of data that will be used. An additional step is necessary to correlate the types of data to be obtained with the outstanding issues and show how they are to be resolved with the data;
8. The evaluation of the offshore faults should include studies and consideration of onshore faults;
9. The importance of studying associated folds to learn about faults that do not break the sea floor or ground surface should be strongly emphasized;
10. Available techniques, such as 3 dimensional logs of boreholes and bore hole breakouts, should be used to estimate the state of stress;
11. Segmentation of the faults in the Diablo Canyon region as it relates to earthquake potential should be evaluated;



12. The three mile zone immediately offshore is notably lacking in data. Efforts should be made to obtain data in this area;
13. The responsibility for the development of the program and its execution lies with PG&E and as such PG&E should not rely on the staff or others to identify every area that requires study.

At the conclusion of the meeting it was agreed that the second meeting should be held on November 15 and 16, 1984 to address license condition element 2, earthquake magnitude, and element 3, ground motion. The third meeting, concerning probabilistic/deterministic analyses, will be held during the second or third week of December, 1984.

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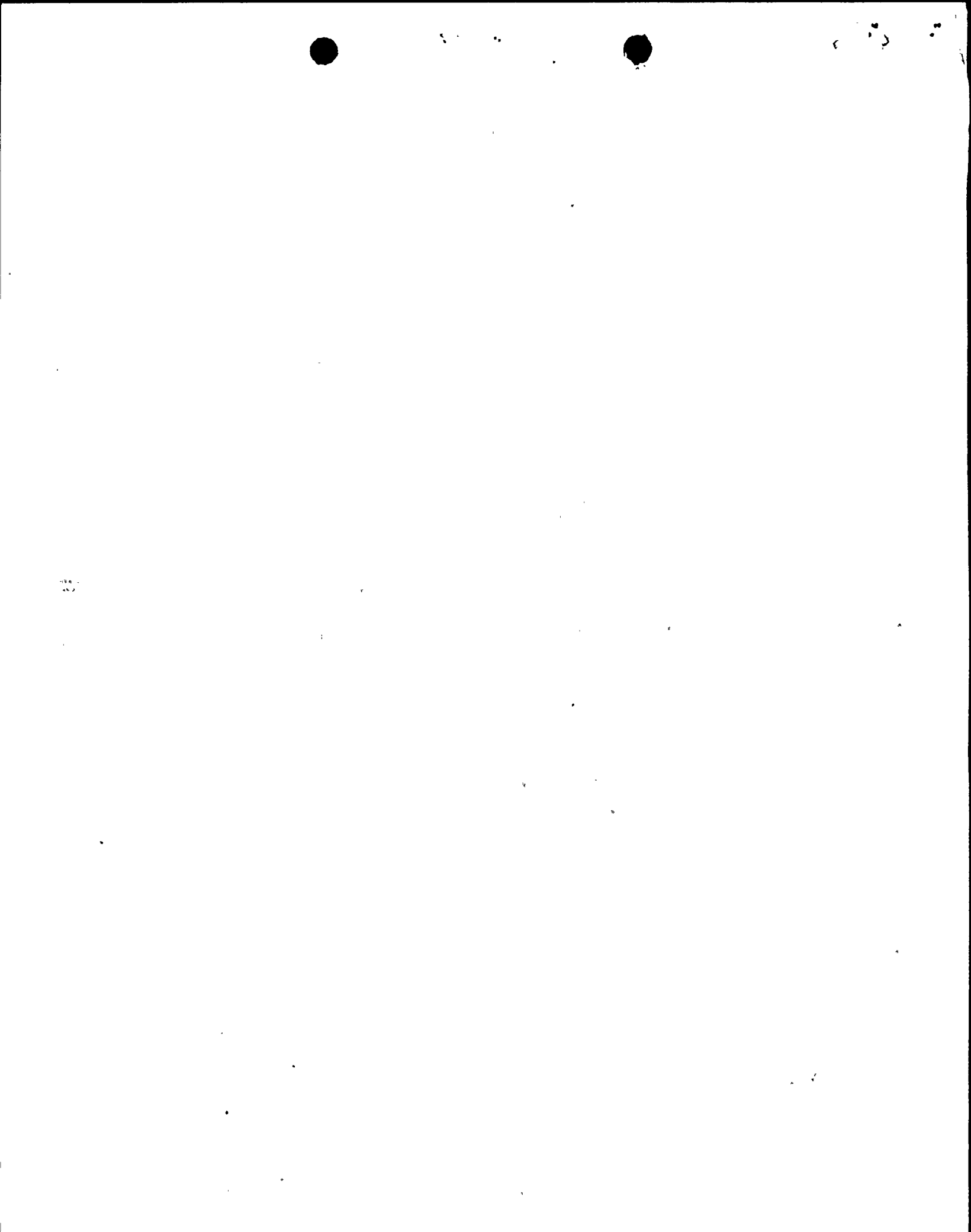


Hans Schierling, Project Manager
Licensing Branch No. 3
Division of Licensing

Enclosures:

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2. NRC Comments
3. PG&E Programmatic Information
4. PG&E Viewgraphs for Geologic Review
and Investigation
5. Letter D. Slemmons to S. Brocoum,
October 21, 1984

cc: See next page



Diablo Canyon

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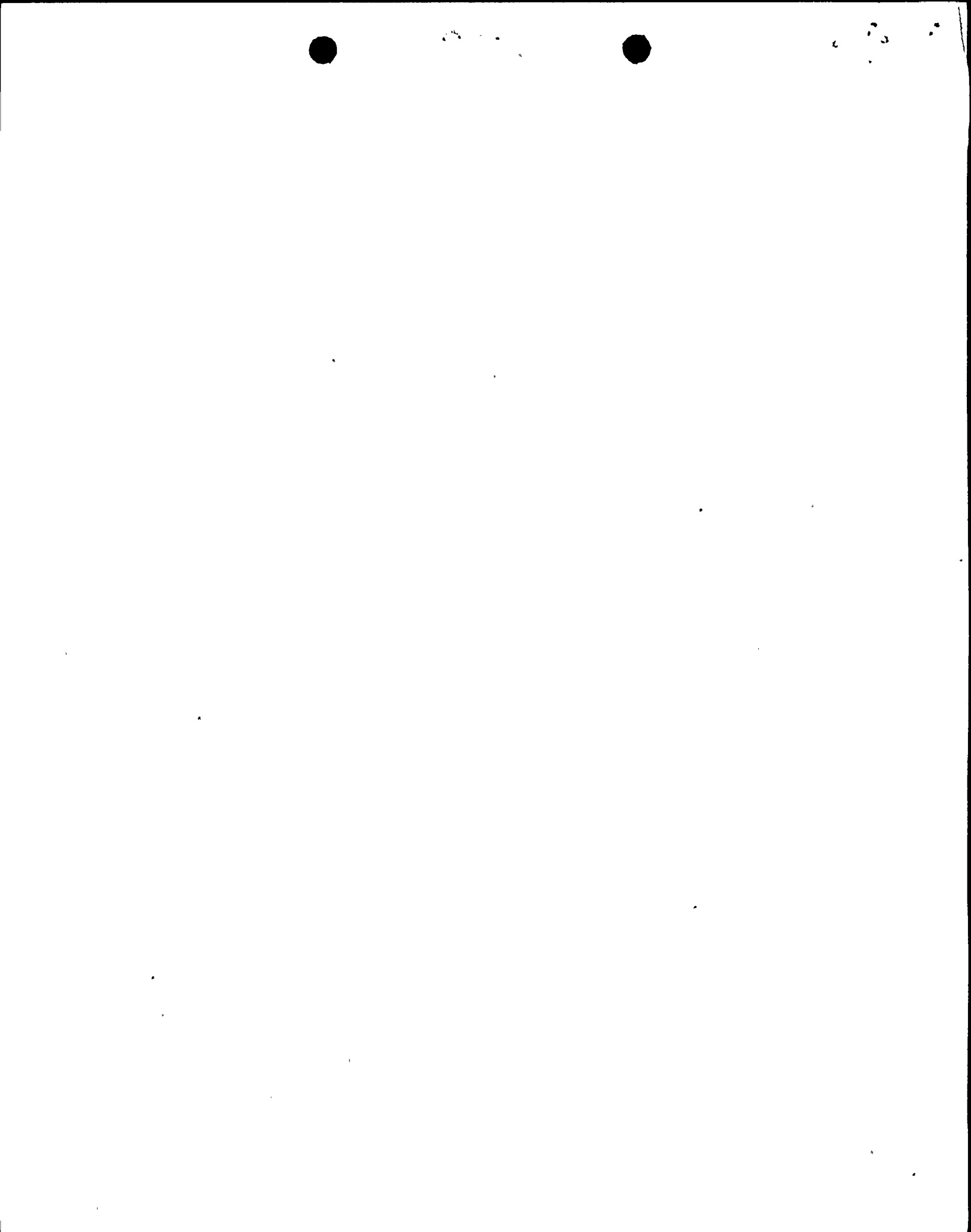
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Enclosure 1

Attendance List



Name

Organization

Hans Schierling
 STEPHAN BROCOUM
 Leon Reiter
 ROBERT L. ROTHMAN
 * Burt Stemmans
 LAWRENCE J. CHANDLER
 Dick McMullen
 PAROLAN LON
 Dick Willingham
 Doug Hamilton
 D.A. BEARD
 W.H. White
 Peter F. Mason
 Bimal Sarkar
 LARRY WIGST
 FRANK BRADY
 R.V. Bettinger
 Phil West
 HOWARD FRIEND
 Bruce Norton
 Richard F. Locke
 John B. Hoch
 H. GENE HAWKINS
 L. Ona
 * PAUL THOMPSON
 * David M. Perkins

NRC Licensing
 NRC GSB Branch
 NRC GSB
 NRC GSB.
 NRC consultant
 NRC - OELD
 NRC - GSB
 DCP - Licensing
 Ogle Petroleum Inc.
 ESA
 PETE
 Bechtel
 Bechtel
 DCP - Civil
 TEZA
 PG&E
 PG&E
 SCE
 Bechtel
 Norton, Burke, Barry & French, P.C.
 PG and E
 PG&E
 SCE
 NRC CPE
 U.S.
 US Geological Survey



Enclosure 2

NRC Comments

NRC GEOLOGY AND TECTONIC STRUCTURE

DIABLO CANYON

SEISMIC LICENSE CONDITION ELEMENTS 1 AND 2

I. STATUS: WE ARE PREPARING CONTRACTS WITH OUR ADVISORS
THE U. S. GEOLOGICAL SURVEY, AND DR. DAVID B. SLEMMONS.
WE EXPECT THESE CONTRACTS TO BE IN PLACE BY 1 JANUARY, 1985



2

II. NRC GEOLOGIC AND TECTONIC PROGRAM

- A. THE NRC HAS THE OVERALL RESPONSIBILITY. THE USGS AND DR. SLEMYONS WILL EACH BE INVOLVED IN ALL ASPECTS OF ELEMENTS 1 AND 2 STUDIES, BUT WITH DIFFERENT LEVELS OF RESPONSIBILITIES THAT ARE PRESENTLY BEING DEFINED. USGS EXPERTISE WILL BE USED IN GEOLOGY, OFFSHORE GEOPHYSICS AND TECTONICS, AND DR. SLEMYON'S EXPERTISE WILL BE UTILIZED IN FAULT CHARACTERISTICS AND NEOTECTONICS
- B. ANTICIPATED ACTIVITIES
1. REVIEW AND ASSESS PG&E INVESTIGATION PROGRAM AND DEVELOP THE NRC PROGRAM.
 2. IDENTIFY, COLLECT AND ANALYZE GEOLOGICAL, GEOPHYSICAL AND SEISMOLOGICAL DATA
 3. REVIEW THE RESULTS OF THE PG&E PROGRAM
 4. SYNTHESIZE ALL DATA AND FORMULATE CONCLUSIONS ON NEOTECTONICS FAULT CHARACTERISTICS AND EARTHQUAKE POTENTIAL
- C. ELEMENTS 3 AND 4 (GROUND MOTION & PROBABILSITIC STUDIES) WILL BE DISCUSSED AT NEXT MEETINGS.



12

III. ESTIMATED LEVEL OF EFFORT OVER AN APPROXIMATELY 42 MONTH PERIOD

- A. NRC - 1 TO 2 STAFF YEARS/YEAR
- B. USGS - 1 TO 2 STAFF YEARS/YEAR
- C. DR. SLEMONS - 1/2 TO 3/4 STAFF YEARS/YEAR



1 2 3

Enclosure 3
PG&E Overview

Encl. 3

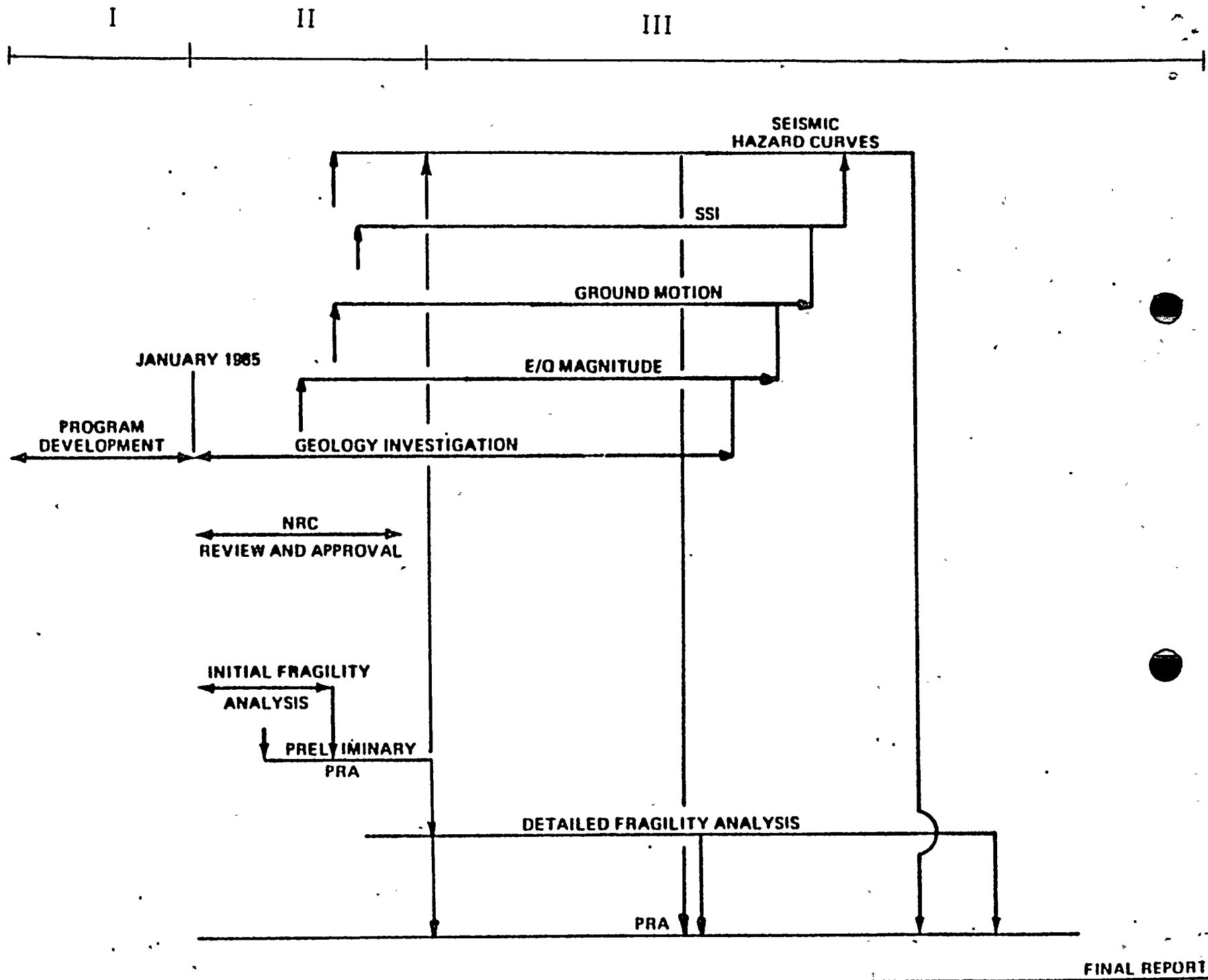
PGandE's
LONG TERM SEISMIC PROGRAM
FOR DIABLO CANYON

October 4, 1984
Phillips Building, Bethesda, MD

<u>Item</u>	<u>Speaker</u>
1. Introductions	H. Schierling (NRC) D. Brand (PGandE)
2. Program Organization	W. H. White (Program Manager)
3. Geological Investigations	D. Hamilton (Earth Science Associates)



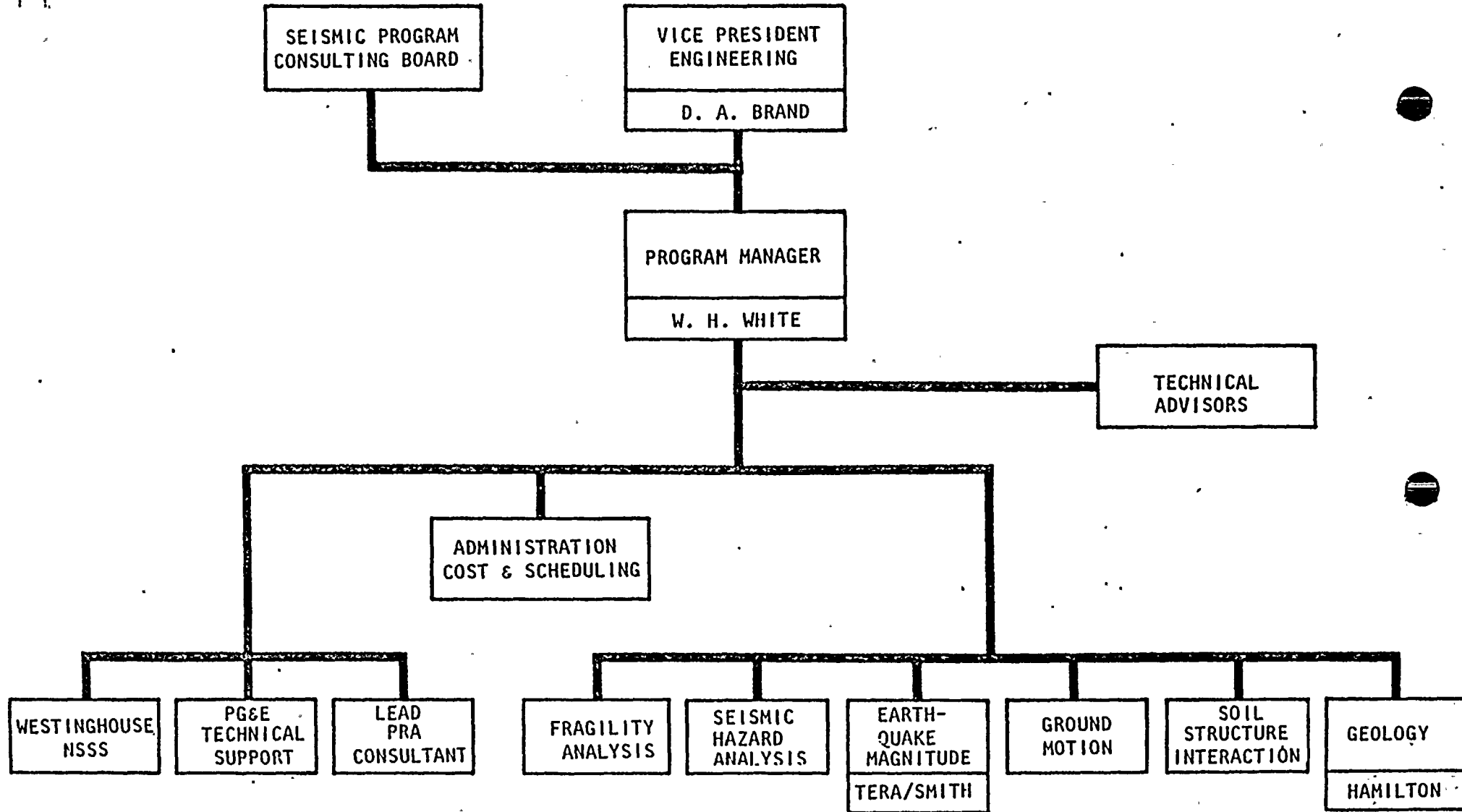
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DIABLO CANYON
LONG TERM SEISMIC PROGRAM
PROPOSED ORGANIZATION





1 2 3

DIABLO CANYON

LONG TERM SEISMIC PROGRAM

SEISMIC PROGRAM
CONSULTING BOARD

SPECIALTY QUALIFICATION

ALLIN CORNELL

PROBABILITY AND RISK ASSESSMENT

THOMAS LEPS

SEISMIC SAFETY EVALUATION OF
CRITICAL FACILITIES

BRUCE BOLT

SEISMOLOGIST

CLARENCE ALLEN

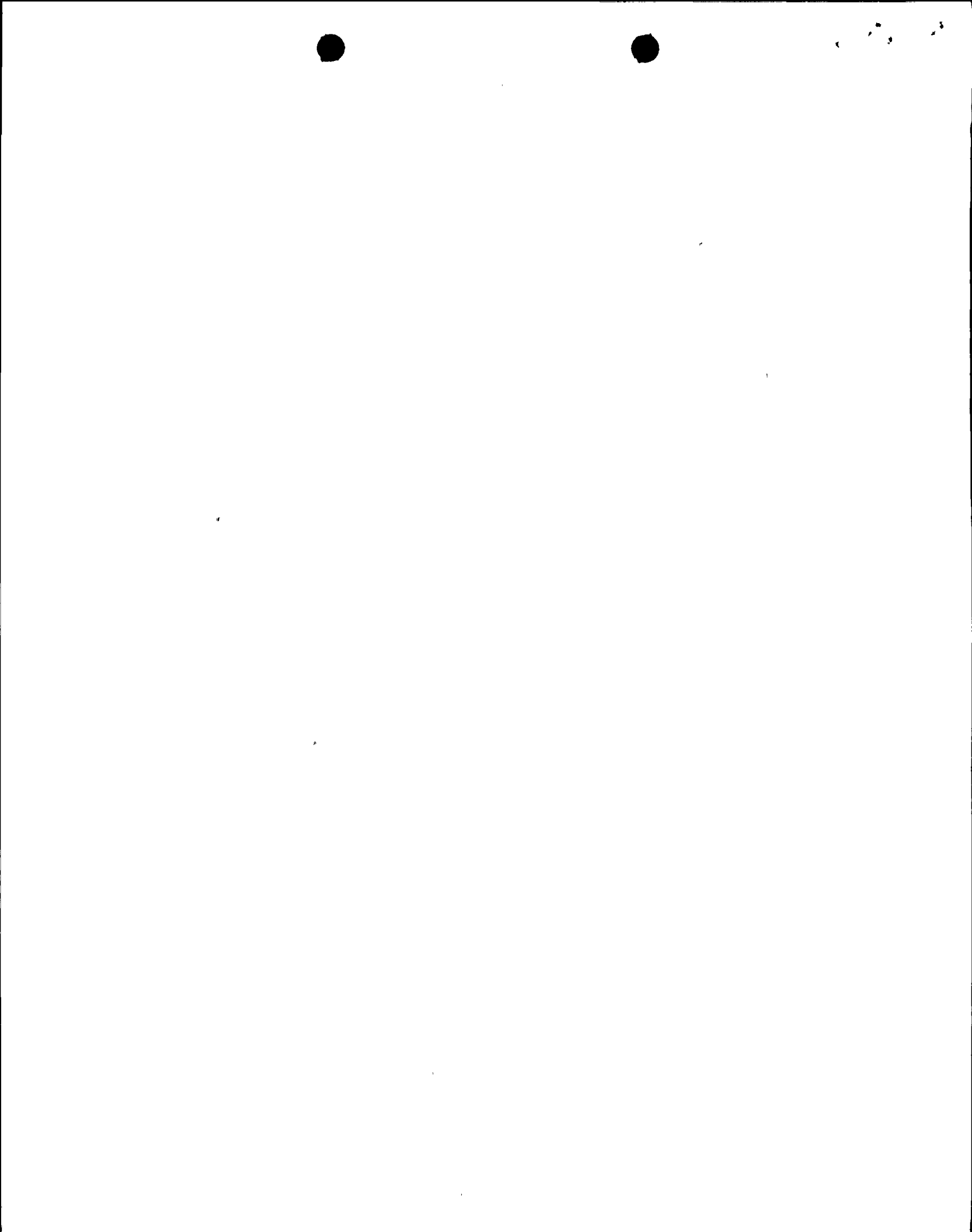
TECTONOPHYSICIST

COLE McCLURE

GEOLOGIST

H. BOLTON SEED

SOIL STRUCTURE INTERACTION



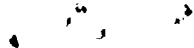
DIABLO CANYON
LONG TERM SEISMIC PROGRAM

TECHNICAL ADVISORS - GEOLOGY

CLARENCE ALLEN

RICHARD HOLT

COLE McCLURE

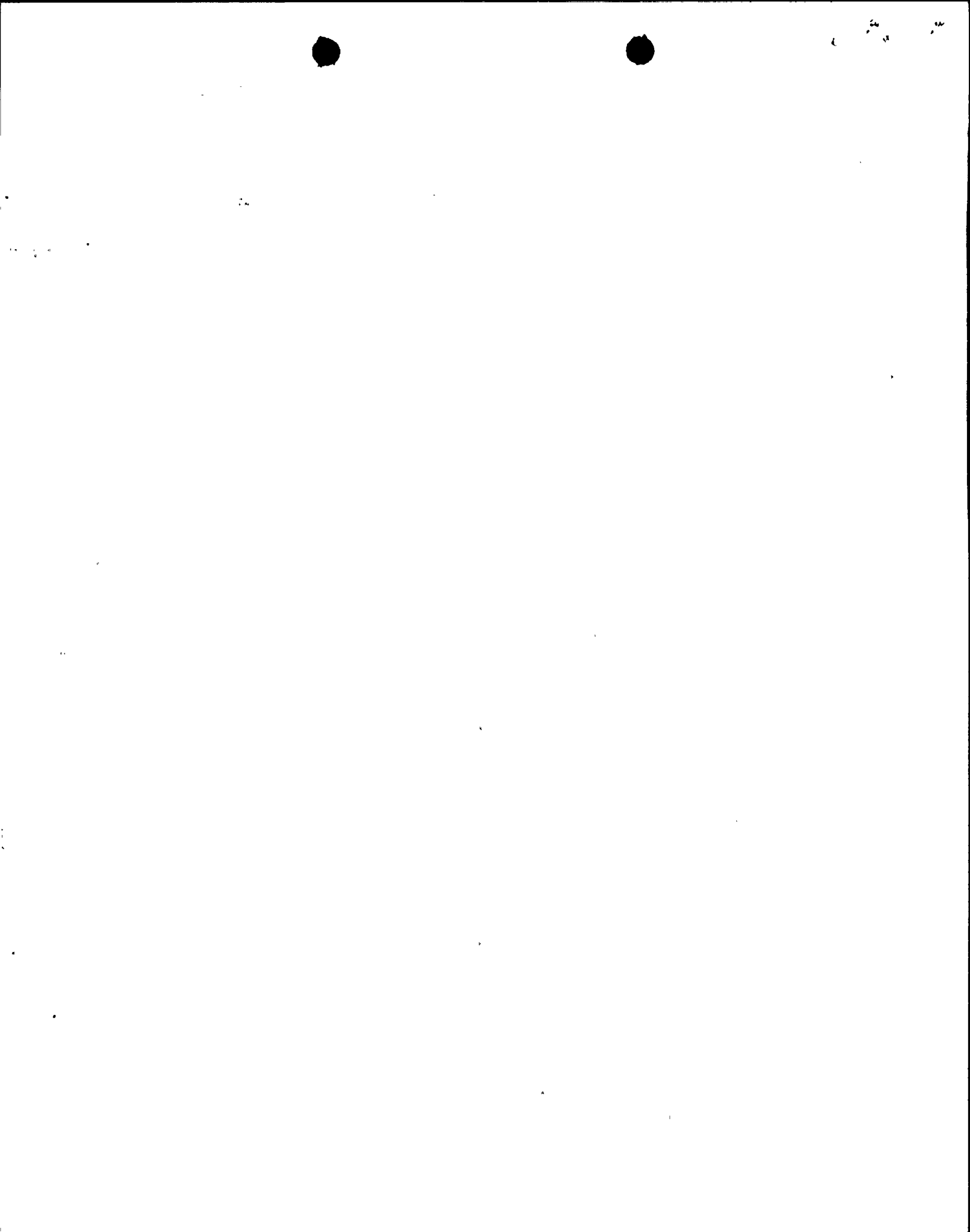


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Encl. 4

Enclosure 4

PG #E Viewgraphs



PACIFIC GAS AND ELECTRIC COMPANY
DIABLO CANYON UNITS 1 & 2
LONG TERM SEISMIC PROGRAM

PROGRAM FOR GEOLOGIC REVIEW AND INVESTIGATION

Task 1: Identification and evaluation of post-1978 site and regional data

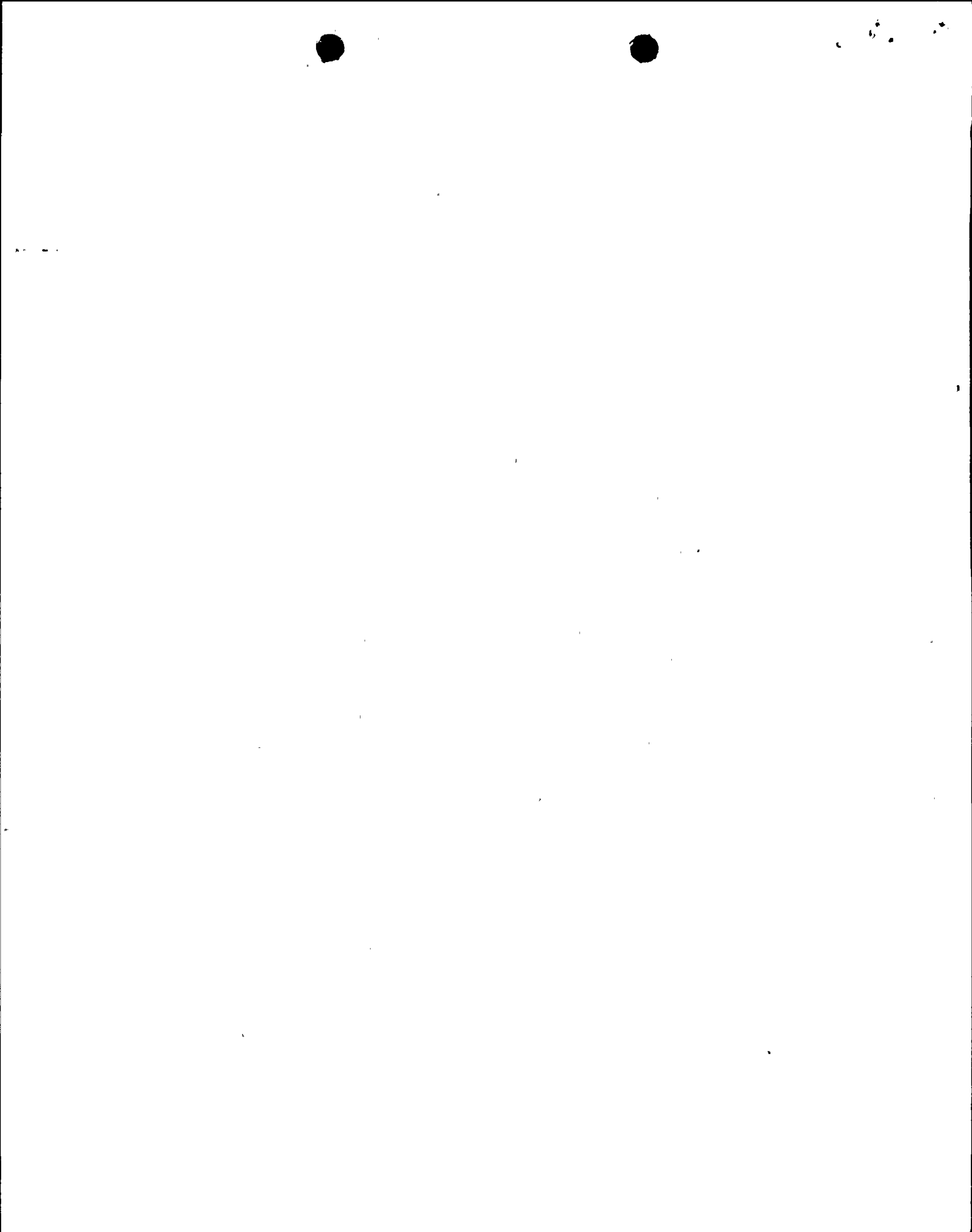
- a. Identify, examine, and evaluate relevant offshore and onshore post-1978 geologic and geophysical data, information, and interpretations; acquire data as necessary.
- b. Process the geophysical data in (a) above as necessary by application of appropriate state-of-the-art techniques.
- c. Evaluate adequacy of current data for delineation and characterization of faults and other features of interest.
- d. Obtain new data if necessary.
- e. Review surface mapping and subsurface characterization of geology, especially tectonic features.
 1. Site.
 2. Local area.
 3. Region of the Santa Maria Basin.
 4. San Gregorio-Hosgri fault trend (including surface traces and down-dip configuration of faults along the trend).

Task 2: Evaluation of Tectonic Model

- a. Assess data relating to regional tectonics, including fault orientations, style of faulting, complexity of faulting, rate of deformation, epicentral locations and focal mechanisms of earthquakes, geodetic data, and apparent relationship to plate boundaries and interplate motion.
- b. Evaluate tectonic stress regime.
- c. Review identification and characterization of potential seismic sources.

Task 3: Review of Seismic Source Parameters

- a. Review best estimates, and assessments of uncertainty, associated with significant characteristics of faults:
 1. Total length.
 2. Segmentation/Continuity.

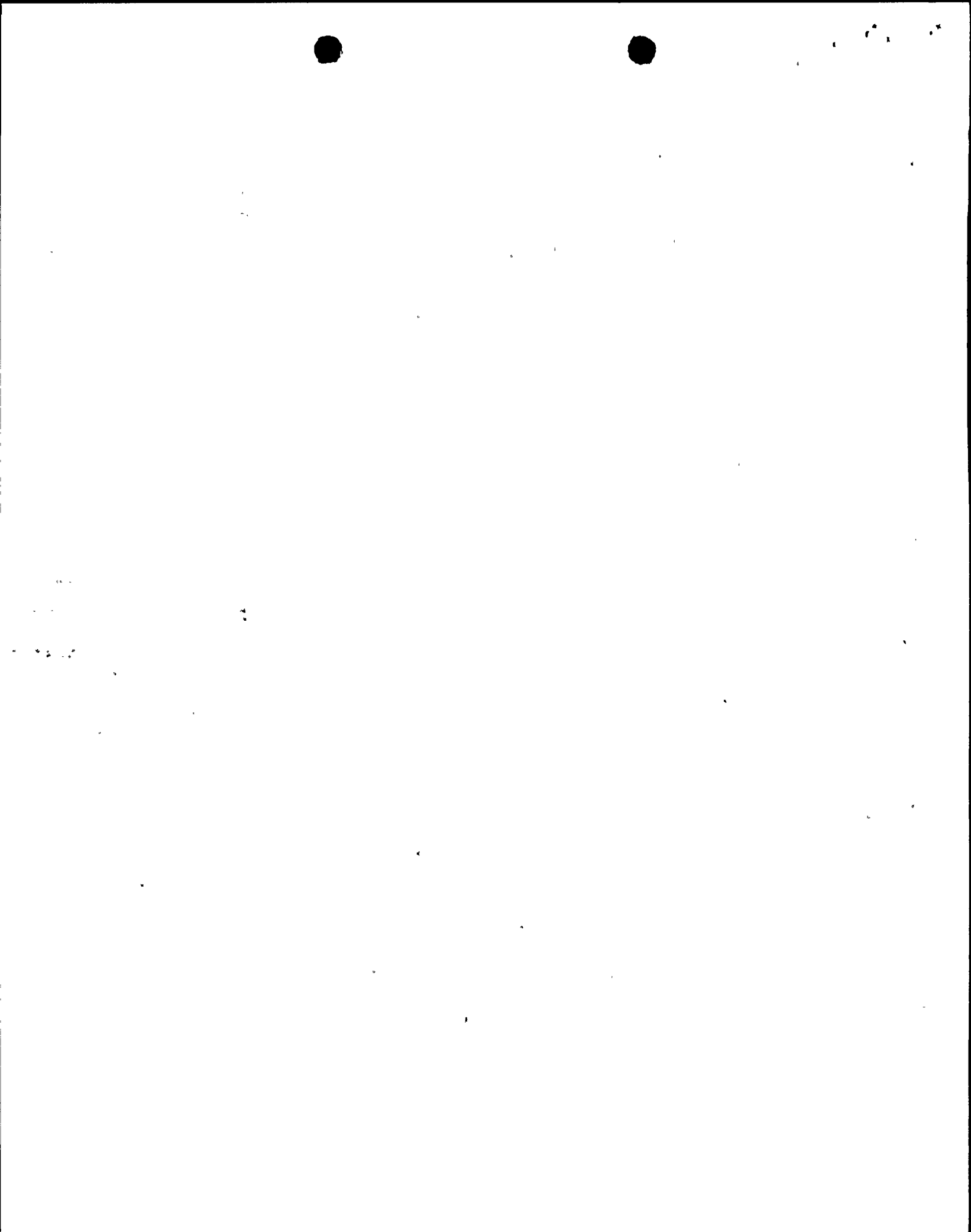


3. Orientation/Geometry.
 4. Sense of slip.
 5. Rate and pattern of late Quaternary (including contemporary geodetic) deformation.
 6. Correlation with earthquake epicenters and foci.
- b. Review current understanding of relationships between tectonic features and characteristics, and earthquake generation.

Task 4: Review of source to site geology and transmission path characteristics

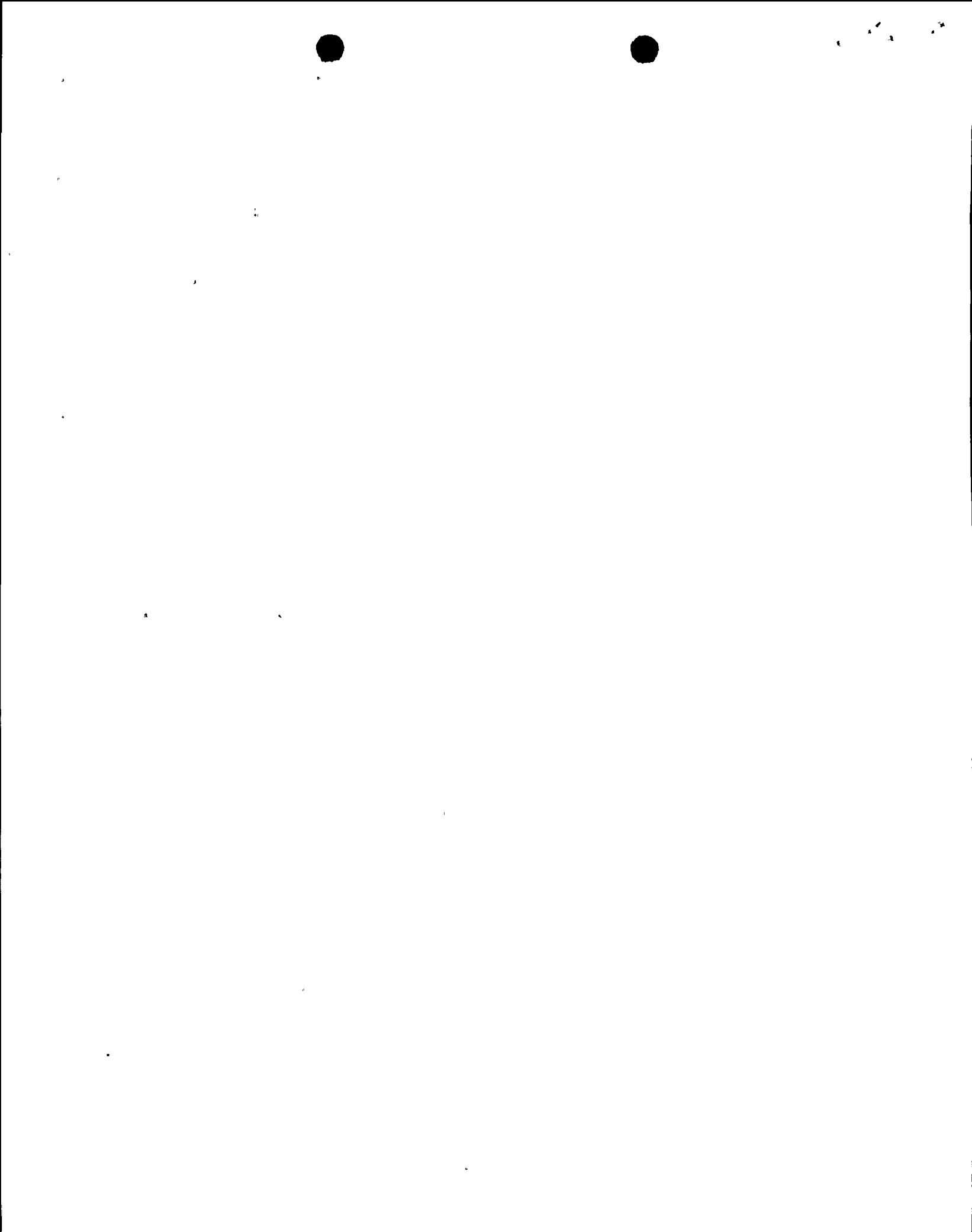
- a. Geologic structure along transmission path, taking alternative tectonic models into account.
- b. Geophysical properties of the crust between source and site.

Task 5: Support of parallel activities in related areas of the long-term seismic program.



LIST OF ILLUSTRATIONS

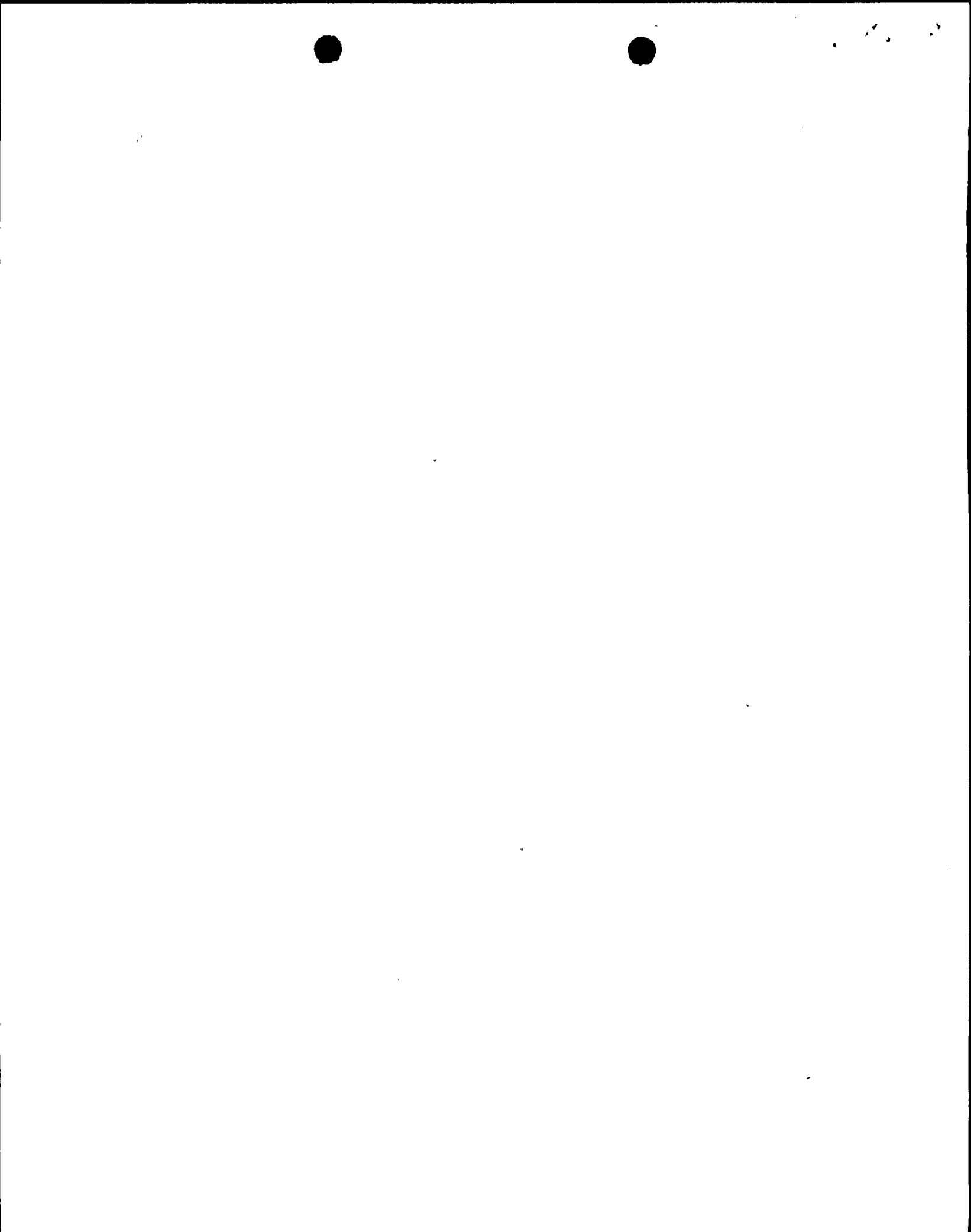
- 1 Diablo Canyon Units 1 and 2, License Condition No. 1
- 2 Tectonic setting of Diablo Canyon Site
- 3 Geology of the region of the Diablo Canyon Site
- 4 Program for Geologic Review and Investigation—Outline
- 5 Task 1: Identification and evaluation of post-1978 site and regional data—Outline
- 6 Data base for offshore seismic lines (through 1978), central sector
- 7 Data base for USGS Open-File Report 80-1095, by McCulloch et al.
- 8 Data base for USGS Open-File Report 81-318, by Richmond et al.
- 9 Track Chart for USGS 1984 GLORIA data acquisition
- 10 OCS Lease Sale 53 and 73 Boundaries
- 11 Petroleum Industry deep seismic track chart
- 12 OCS Lease Sale 53 and 73 Blocks with Geohazards Studies
- 13 Seismic Data Processing: Areas of consideration for local optimization of data--Outline
- 14 Aeromagnetic map showing contours of residual magnetic intensity in the region of the Hosgri fault north of the latitude of Point Sal
- 15 Bouguer gravity anomaly contours in the region of the Hosgri fault
- 16 Exploratory Wells drilled in Lease Sale 53 and 73 area, Offshore Santa Maria Basin
- 17 Outline map showing areas for geologic investigations
- 18 Site geology review area
- 19 Local area geologic investigations
- 20 Region of Santa Maria Basin geologic investigations
- 21 Seismic reflection profile across Santa Maria Basin (Bartlett Line 18)
- 22 Seismic reflection profile across Santa Maria Basin (Bartlett Line 28)
- 23 CDP Seismic reflection profile across the Hosgri fault
- 24 Task 2: Evaluation of Tectonic Model—Outline



PRELIMINARY

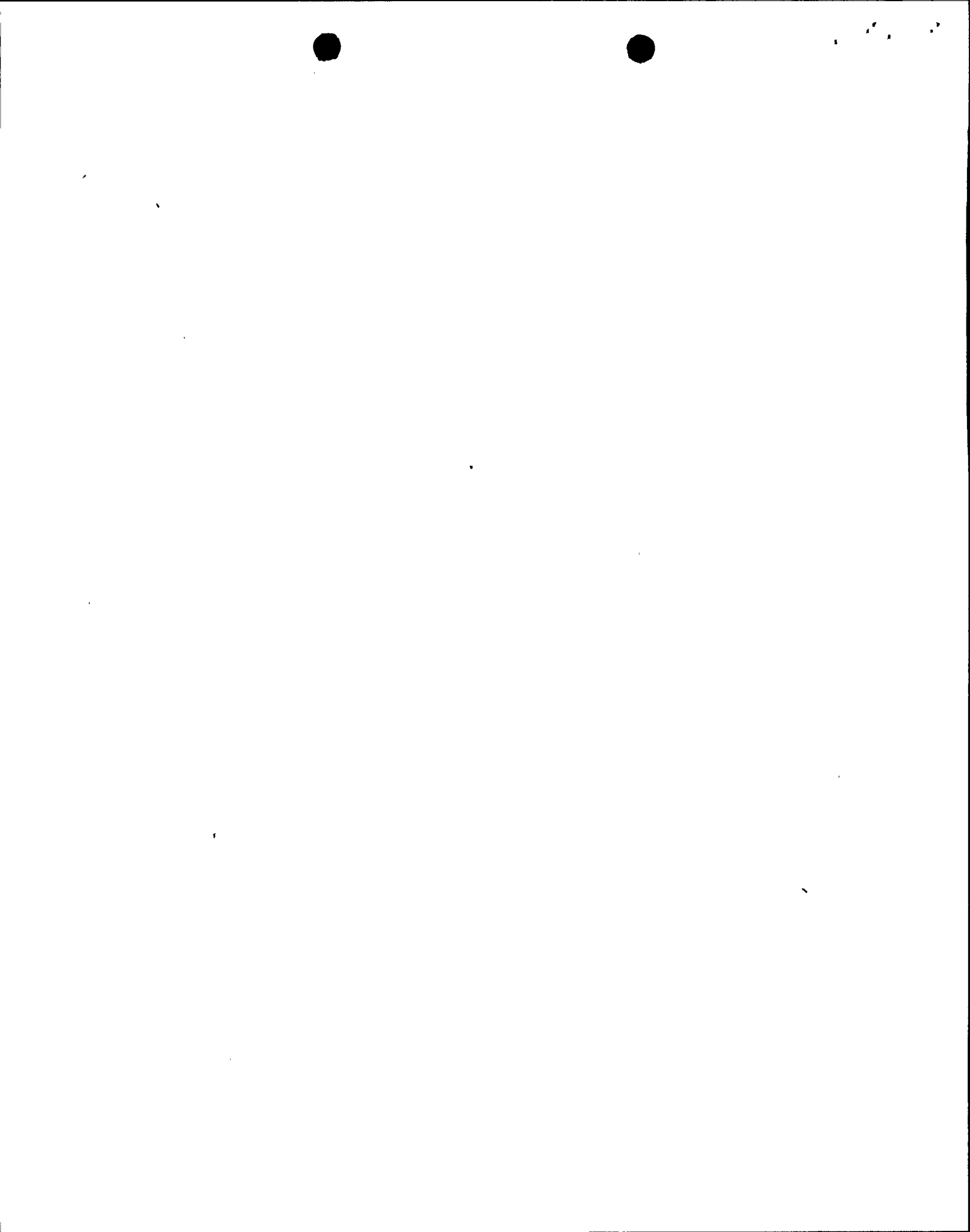
LIST OF ILLUSTRATIONS (Concluded)

- 25 Elements of tectonic model for central California
- 26 Task 3: Review of Seismic Source Parameters—Outline
- 27 Task 4: Review of source to site geology and transmission path characteristics—Outline

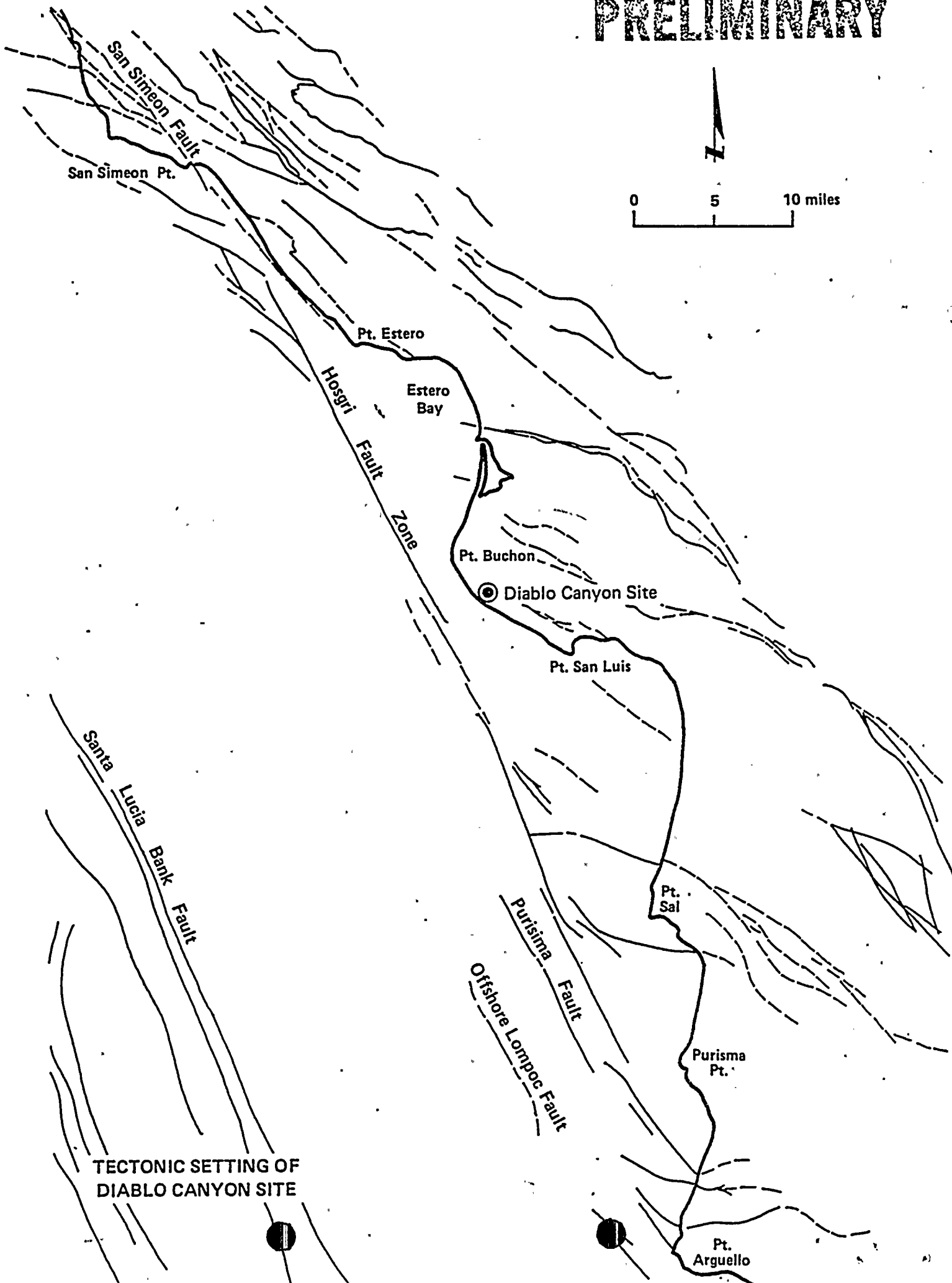


**DIABLO CANYON UNITS 1 AND 2
LICENSE CONDITION NO. 1**

"PG&E shall identify, examine, and evaluate all relevant geologic and seismic data, information and interpretations that have become available since the 1979 ASLB hearing in order to update the geology, seismology and tectonics in the region of the Diablo Canyon Plant. If needed to define the earthquake potential of the region as it affects Diablo Canyon Plant, PG&E will also re-evaluate the earlier information and acquire additional new data."

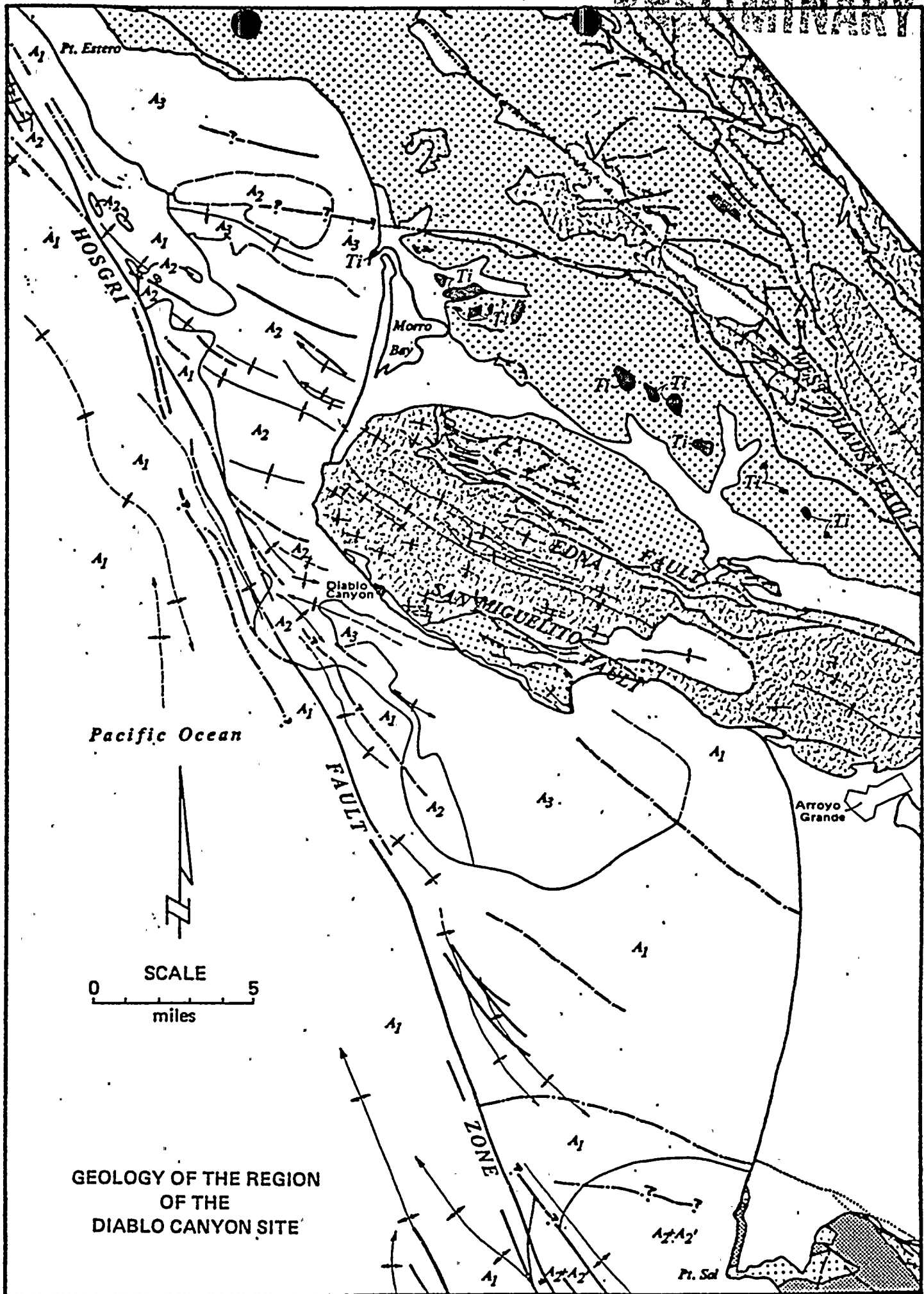


PRELIMINARY



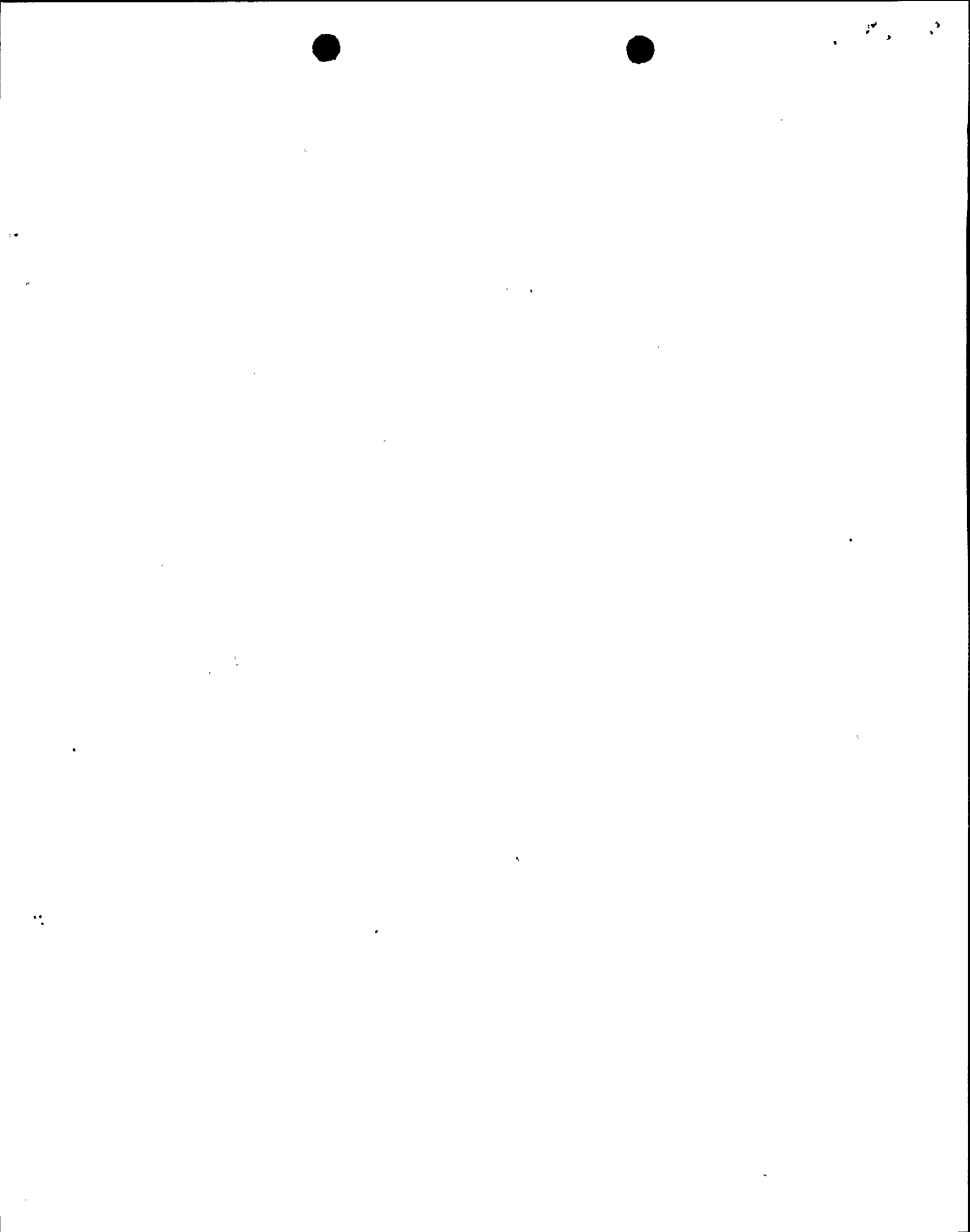
TECTONIC SETTING OF
DIABLO CANYON SITE





GEOLOGY OF THE REGION
OF THE
DIABLO CANYON SITE

Figure 19



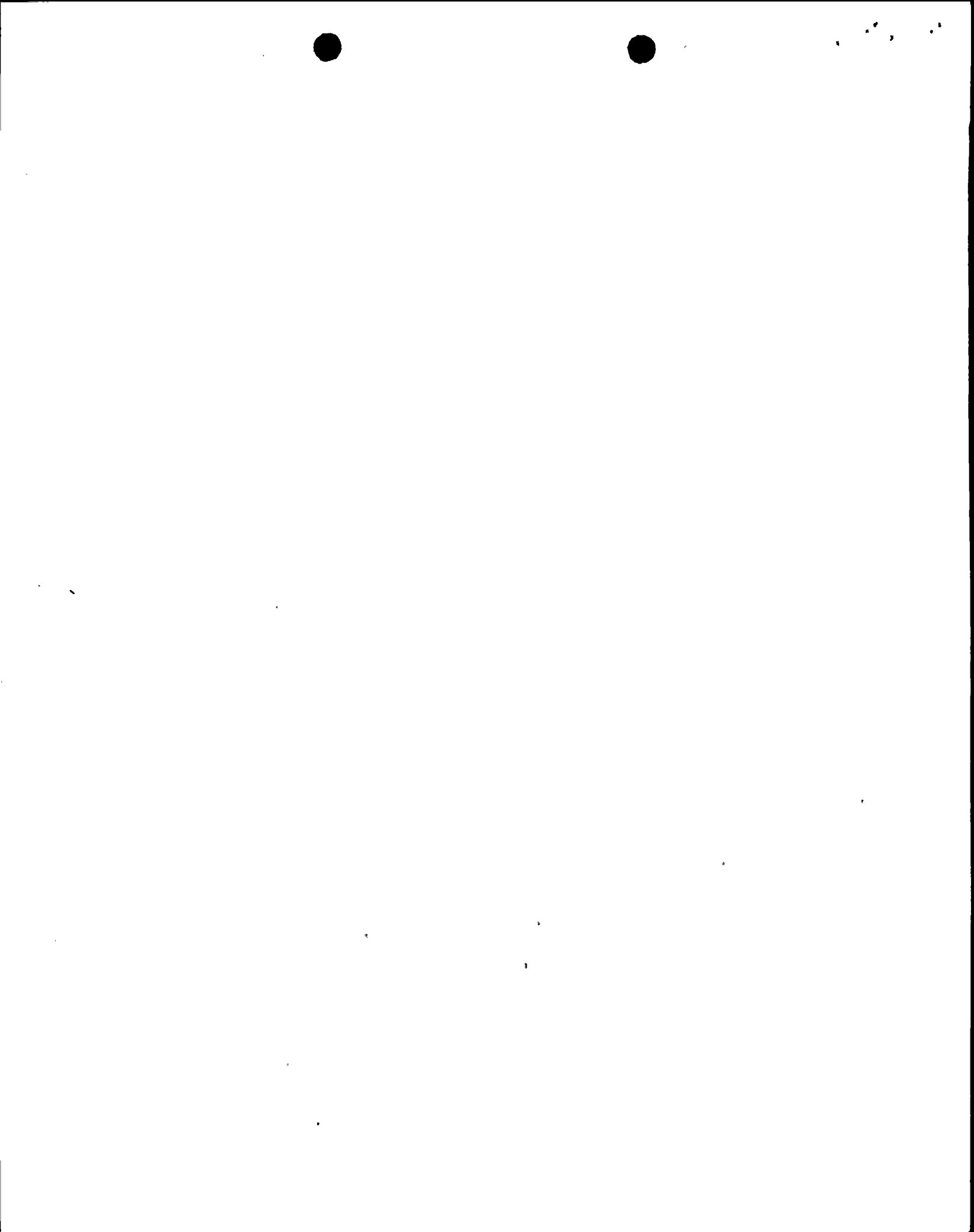
Pacific Gas and Electric Company

PRELIMINARY

**Diablo Canyon Units 1 & 2
Long Term Seismic Program**

Program for Geologic Review and Investigation

- Task 1 — Identification and evaluation of post-1978 site and regional data**
- Task 2 — Evaluation of Tectonic Model**
- Task 3 — Review of Seismic Source Parameters**
- Task 4 — Review of source to site geology and transmission path characteristics**
- Task 5 — Support of parallel activities in related areas of the long-term seismic program**



Pacific Gas and Electric Company**Diablo Canyon Units 1 & 2
Long Term Seismic Program****Program for Geologic Review and Investigation****Task 1: Identification and evaluation of post-1978 site and regional data**

- a. Identify, examine, and evaluate relevant offshore and onshore post-1978 geologic and geophysical data, information, and interpretations; acquire data as necessary
- b. Process the geophysical data in (a) above as necessary by application of appropriate state-of-the-art techniques
- c. Evaluate adequacy of current data for delineation and characterization of faults and other features of interest
- d. Obtain new data if necessary
- e. Review surface mapping and subsurface characterization of geology, especially tectonic features
 1. Site
 2. Local area
 3. Region of the Santa Maria Basin
 4. San Gregorio-Hosgri fault trend (including surface traces and down-dip configuration of faults along the trend)

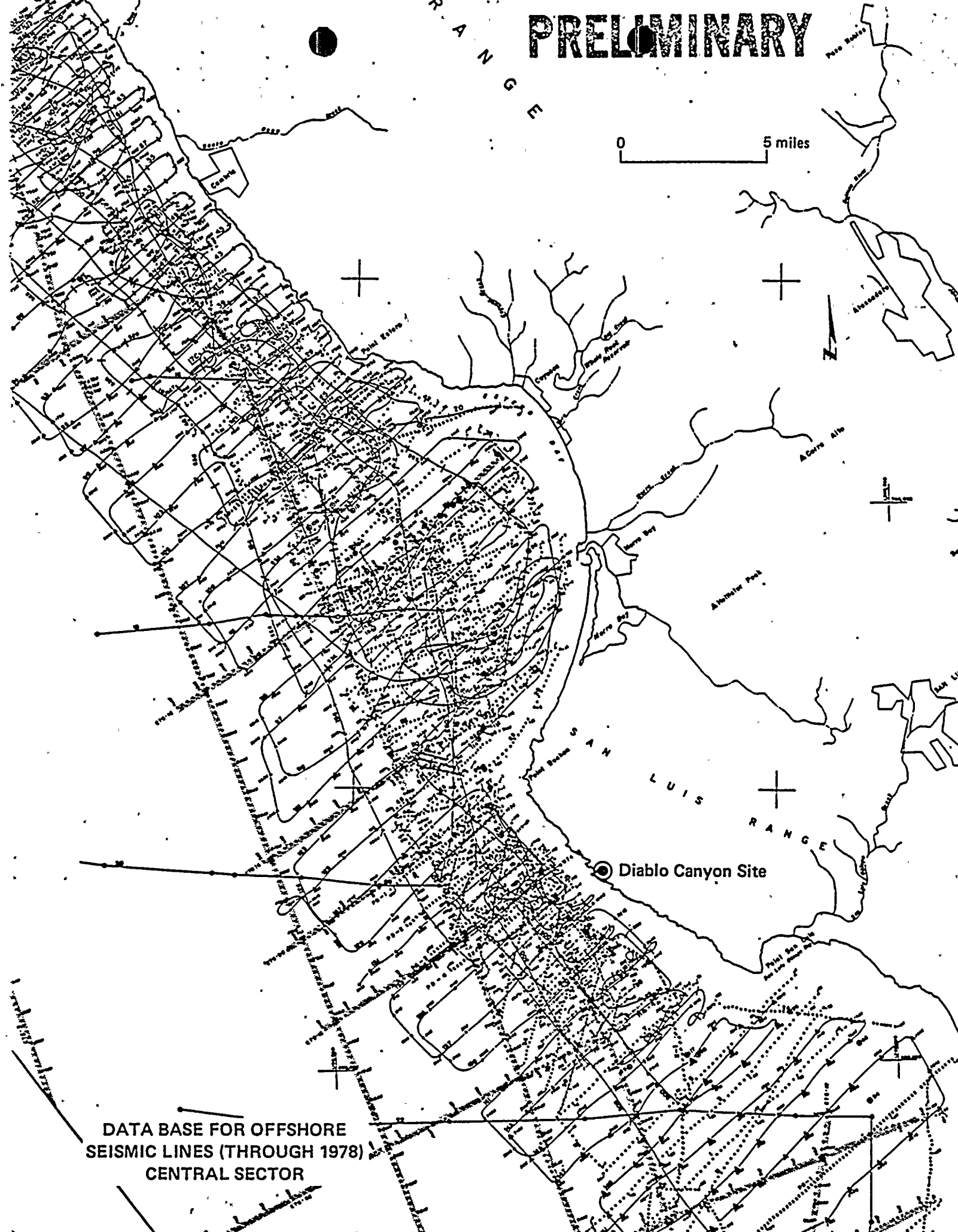


1 2 3

PRELIMINARY

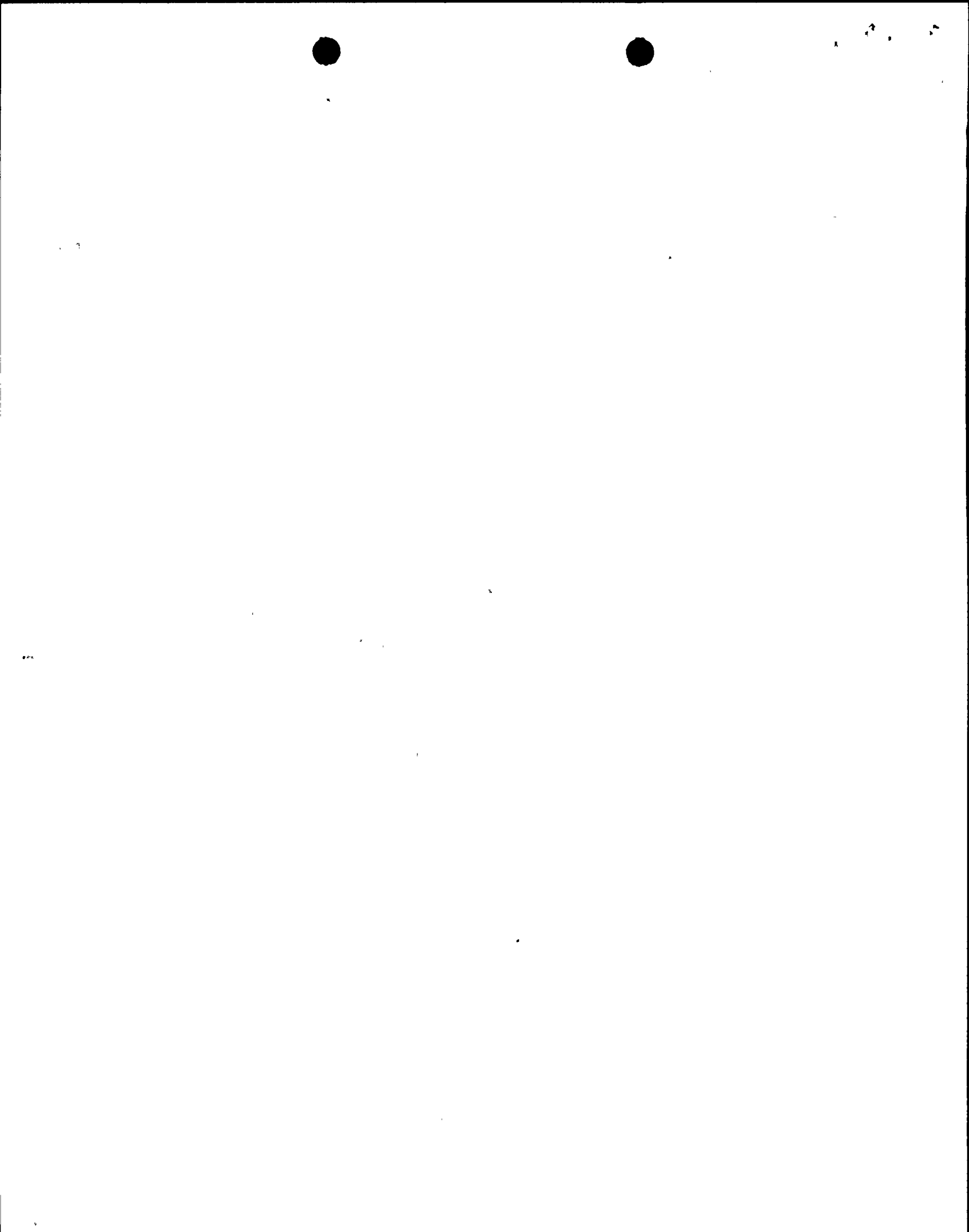
R
A
N
G
E

0 5 miles



Diablo Canyon Site

DATA BASE FOR OFFSHORE
SEISMIC LINES (THROUGH 1978)
CENTRAL SECTOR



PRELIMINARY

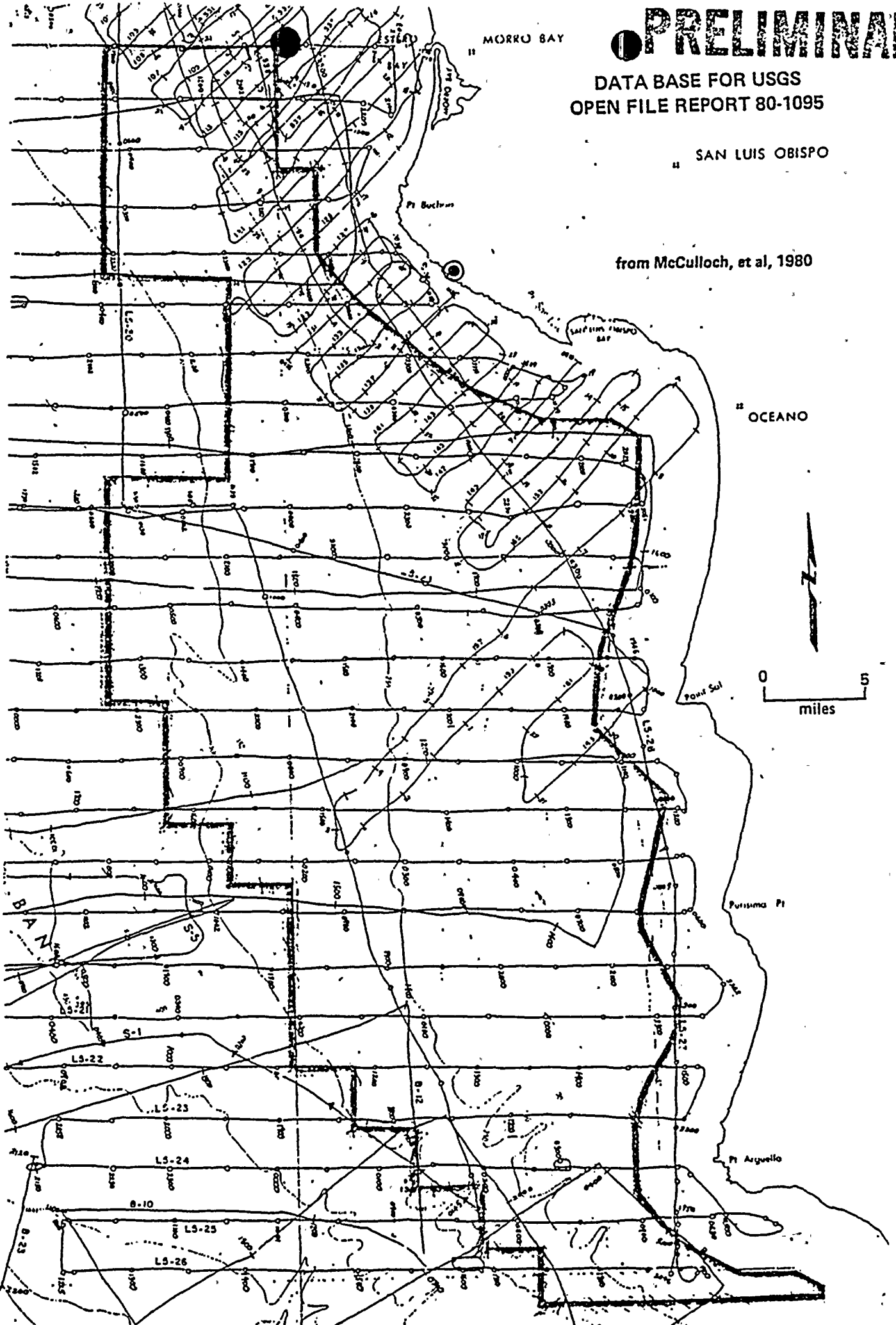
MORRO BAY

DATA BASE FOR USGS
OPEN FILE REPORT 80-1095

SAN LUIS OBISPO

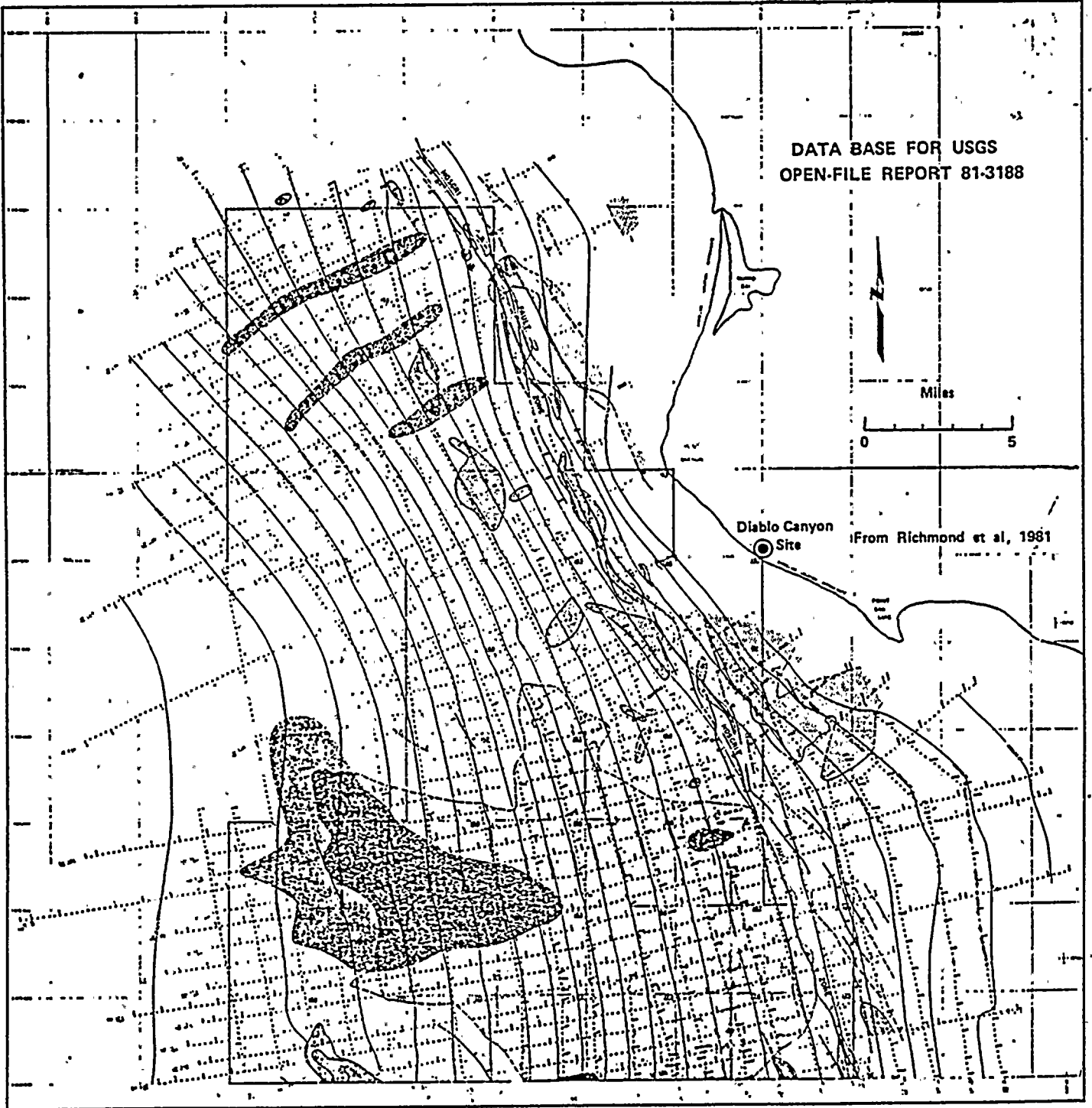
from McCulloch, et al, 1980

OCEANO

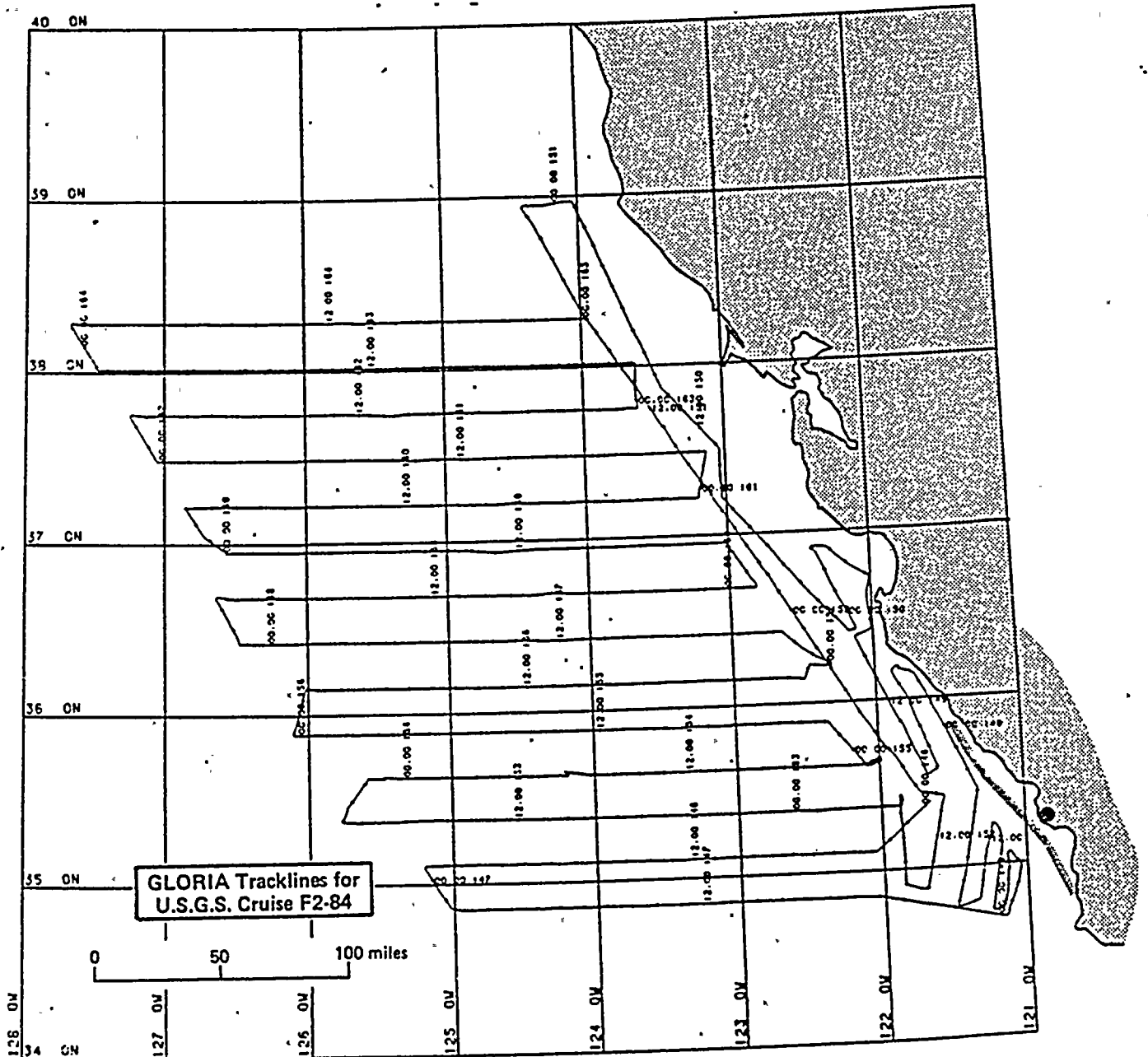




1 2 3



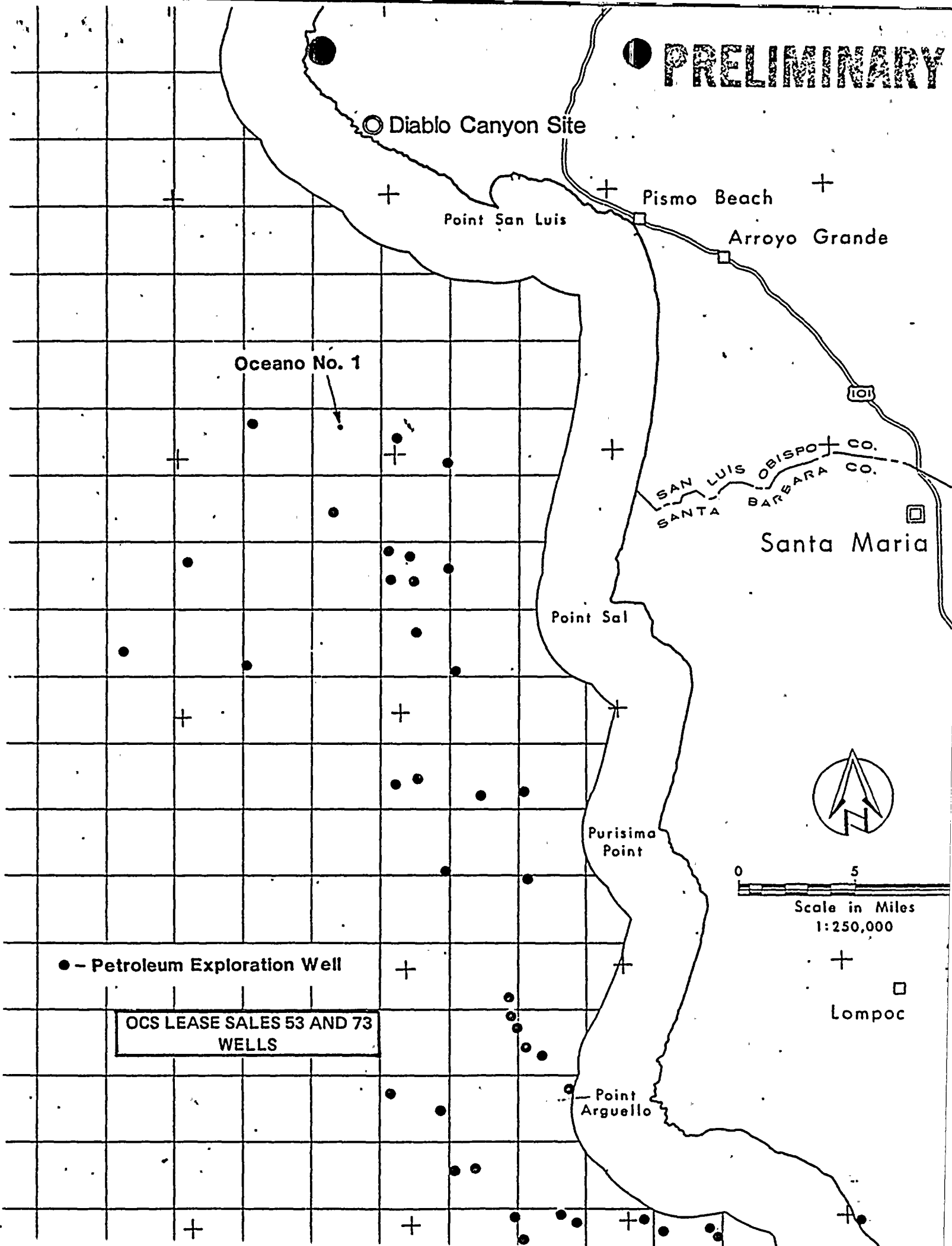






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PRELIMINARY



○ Diablo Canyon Site

Point San Luis

Pismo Beach

Arroyo Grande

Oceano No. 1

SAN LUIS OBISPO CO.
SANTA BARBARA CO.

Santa Maria

Point Sal

Purisimo Point

Point Arguello

● - Petroleum Exploration Well

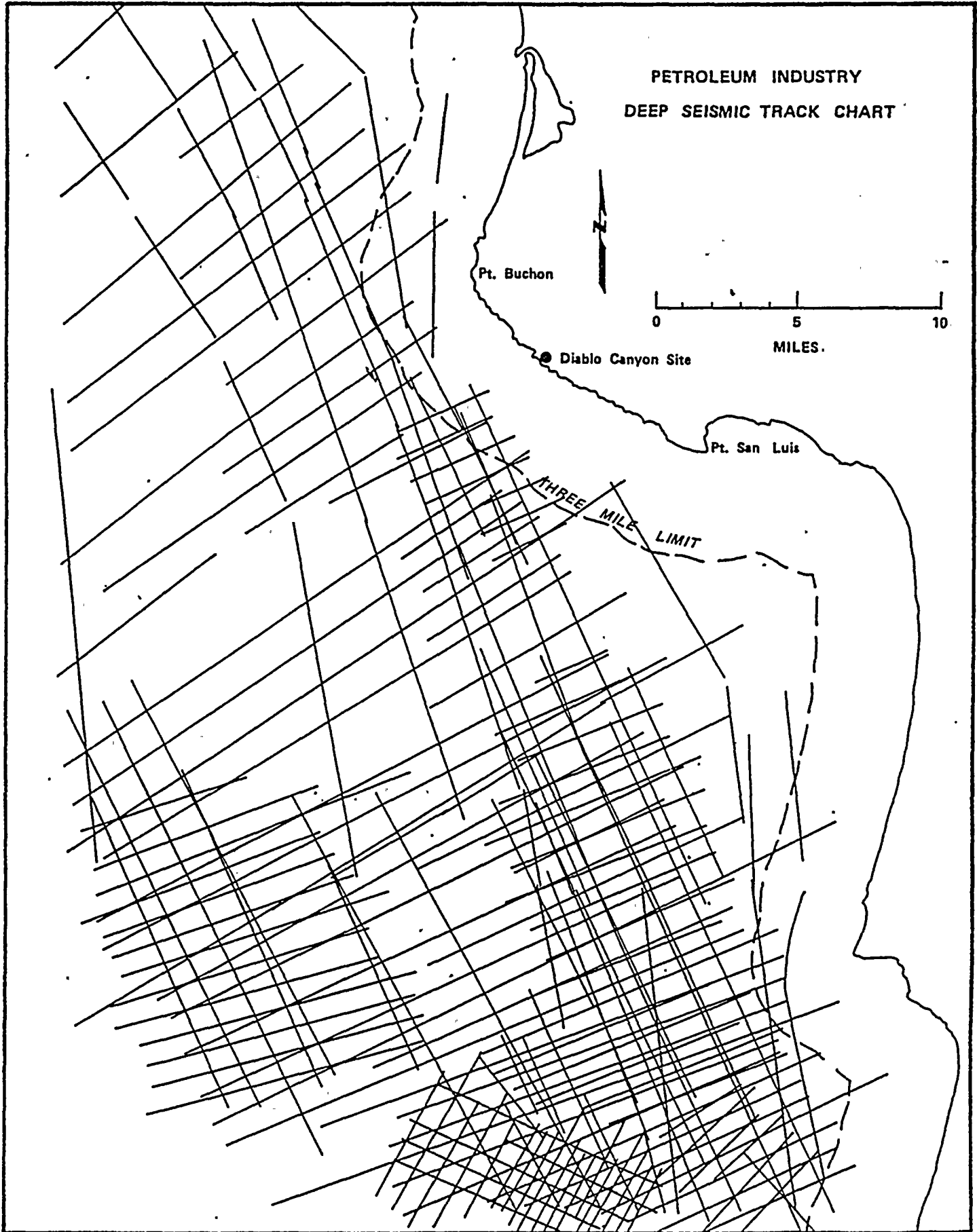
OCS LEASE SALES 53 AND 73
WELLS

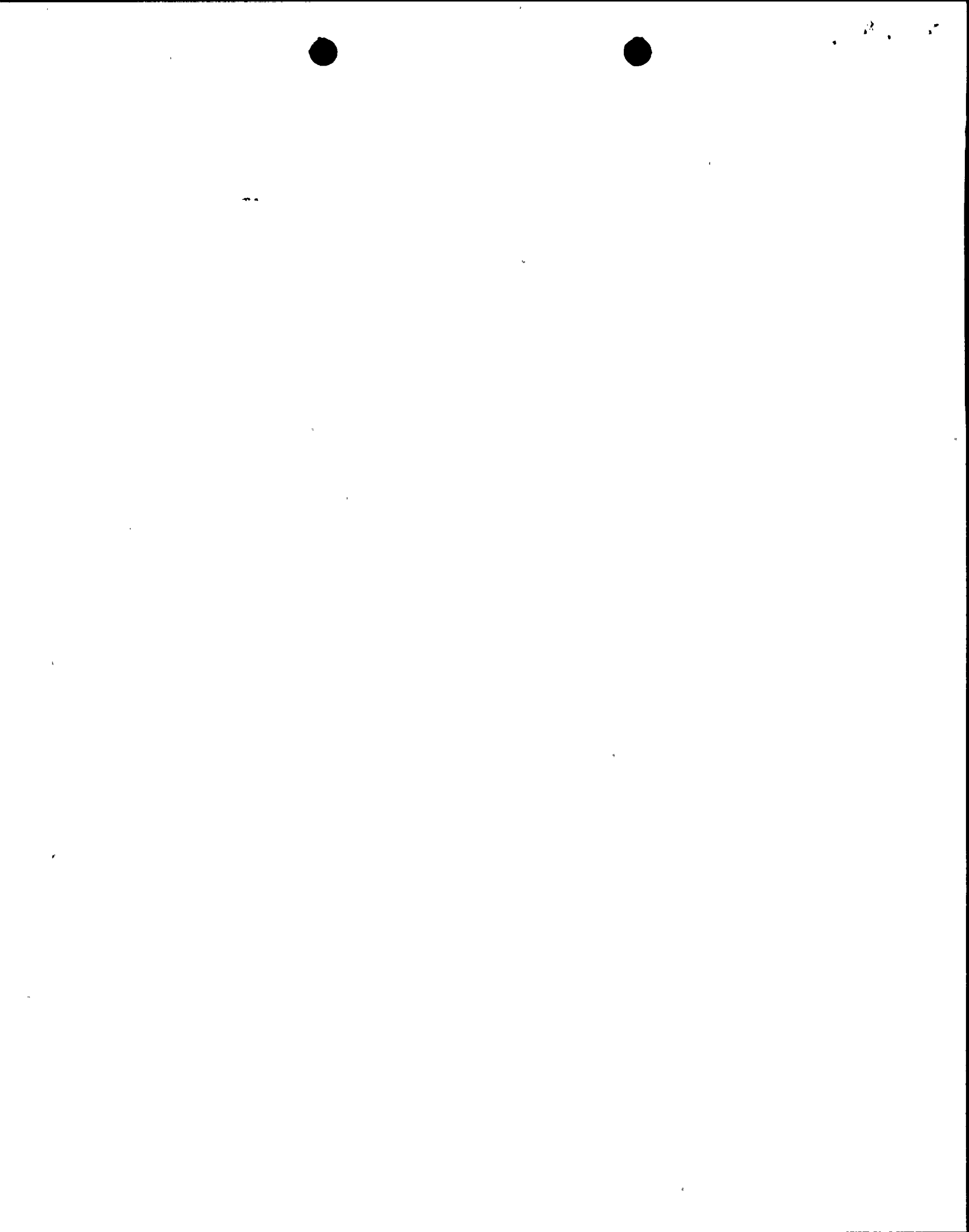
Scale in Miles
1:250,000

Lompoc

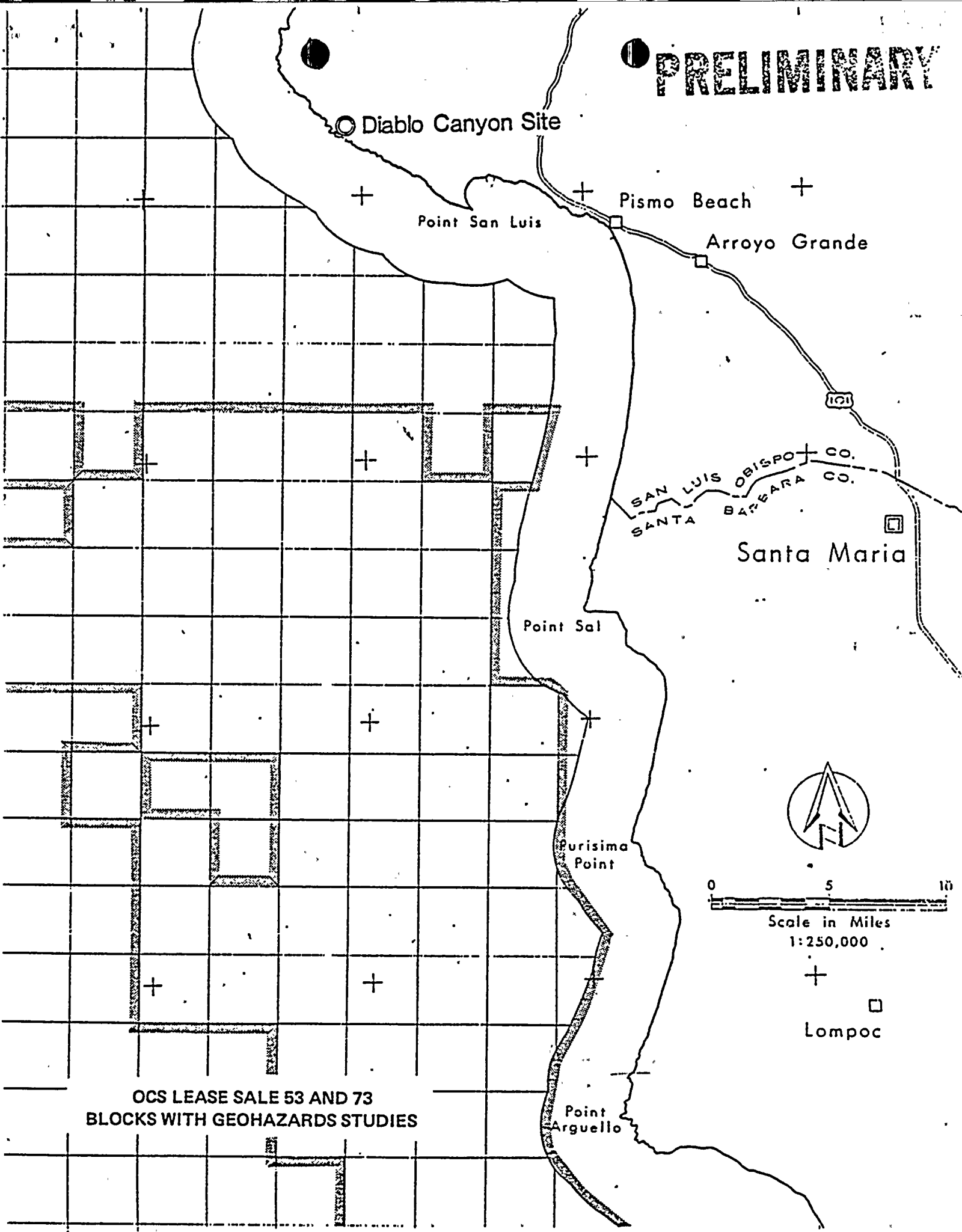


**PETROLEUM INDUSTRY
DEEP SEISMIC TRACK CHART**





PRELIMINARY



○ Diablo Canyon Site

Point San Luis

Pismo Beach

Arroyo Grande

SAN LUIS OBISPO CO.
SANTA BARBARA CO.

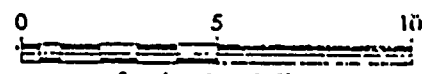
Santa Maria

Point Sal

Purisima Point

Point Arguello

**OCS LEASE SALE 53 AND 73
BLOCKS WITH GEOHAZARDS STUDIES**

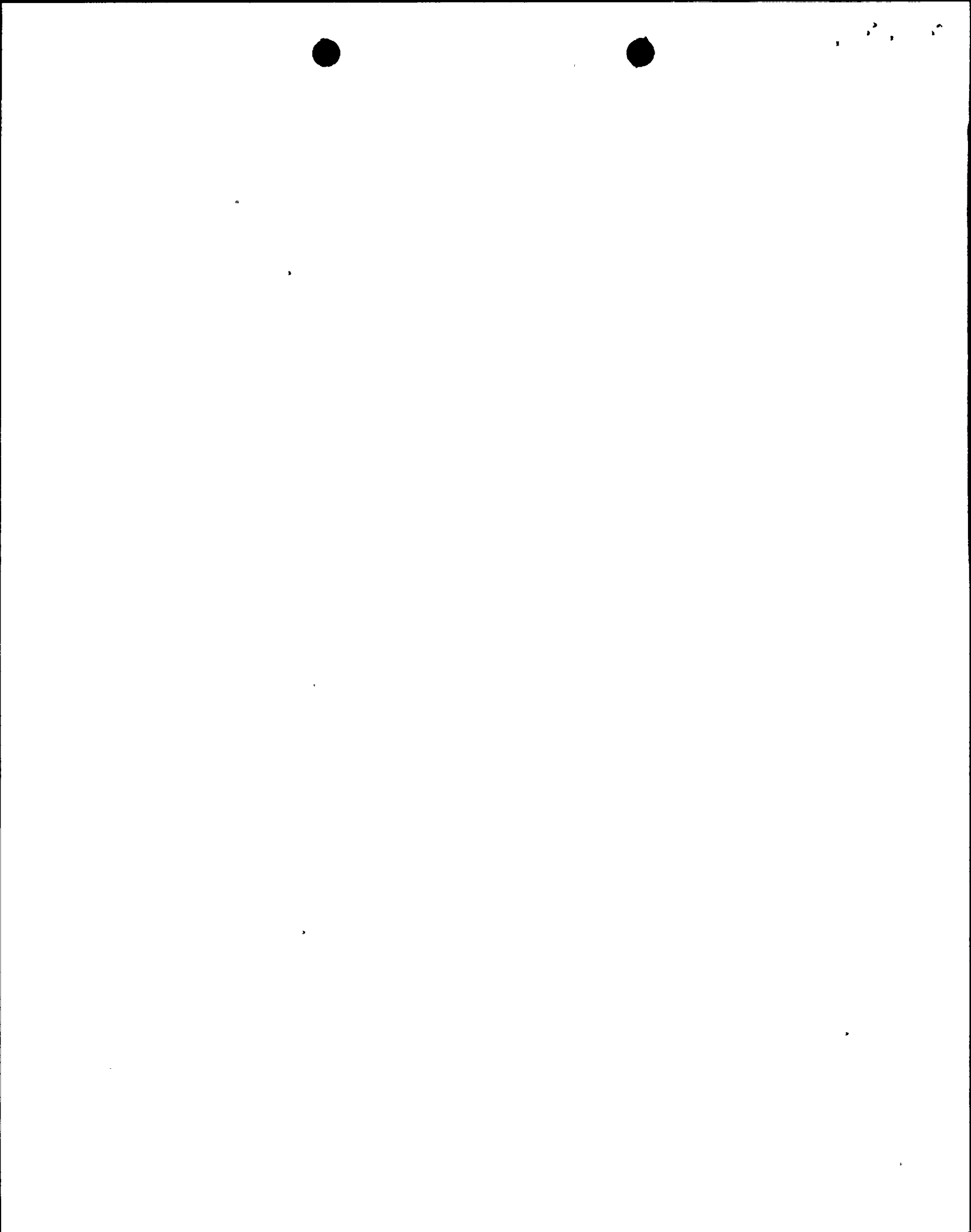


Scale in Miles
1:250,000

+

□

Lompoc



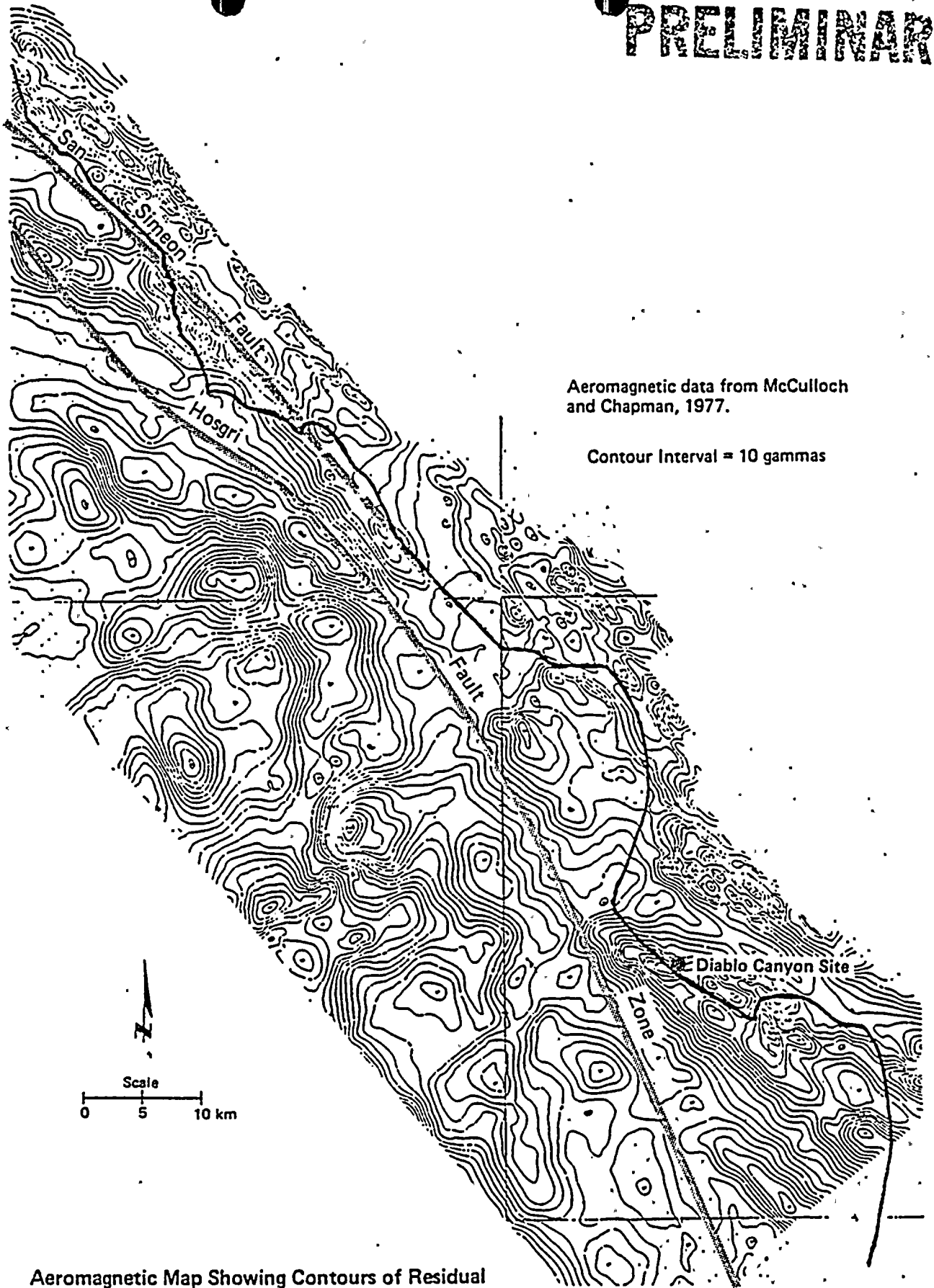
**Seismic Data Reprocessing
Areas of Consideration
for Local Optimization of Data**

- Velocity analysis.**
- Statics corrections**
- Deconvolution/Wavelet recovery**
- Multiple suppression**
- Filtering parameters**
- Processing for optimization
of events of special interest**



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PRELIMINARY



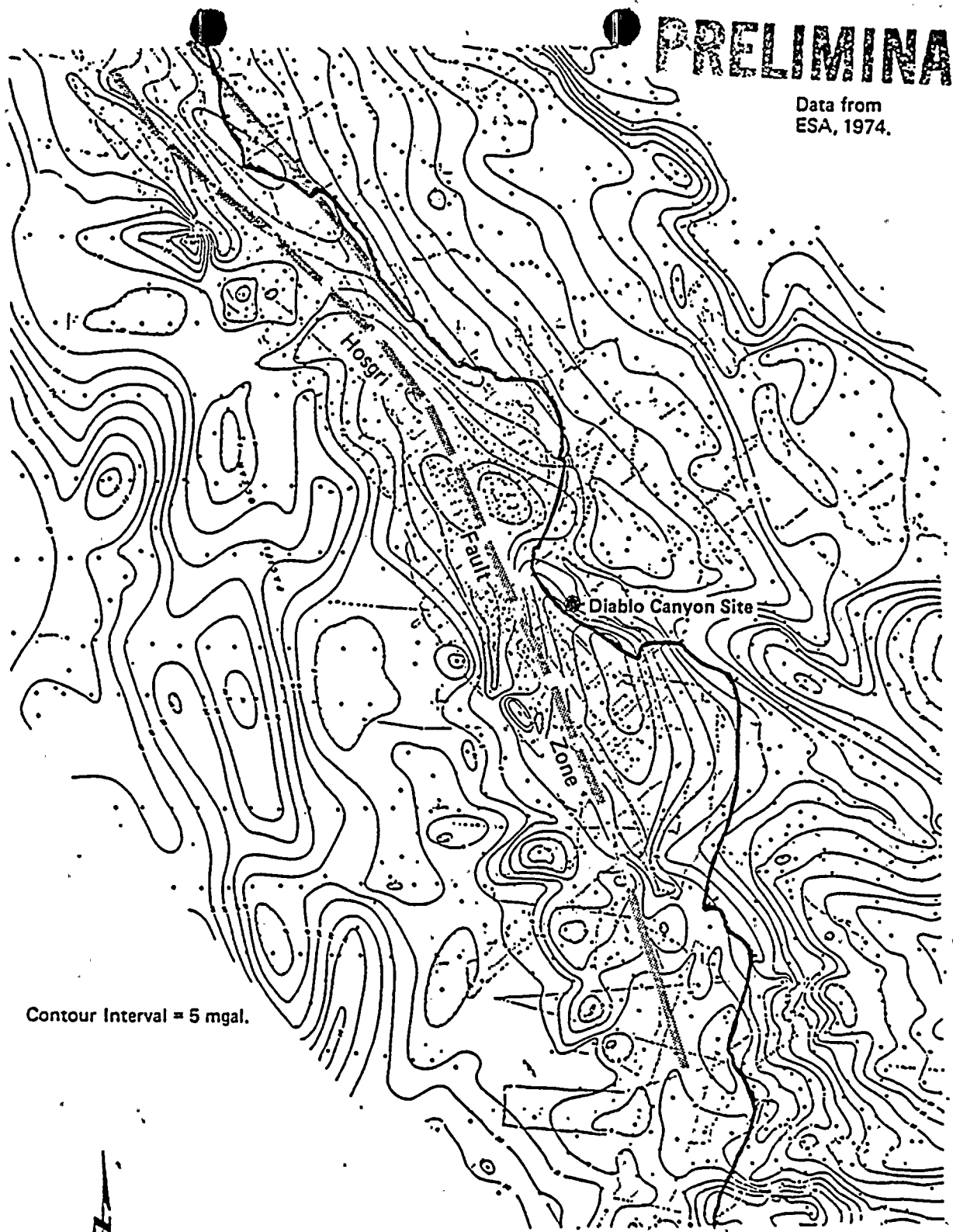
Aeromagnetic Map Showing Contours of Residual Magnetic Intensity in the Region of the Hosgri Fault North of the Latitude of Point Sal



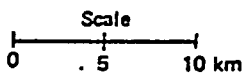
1 2 3

PRELIMINARY

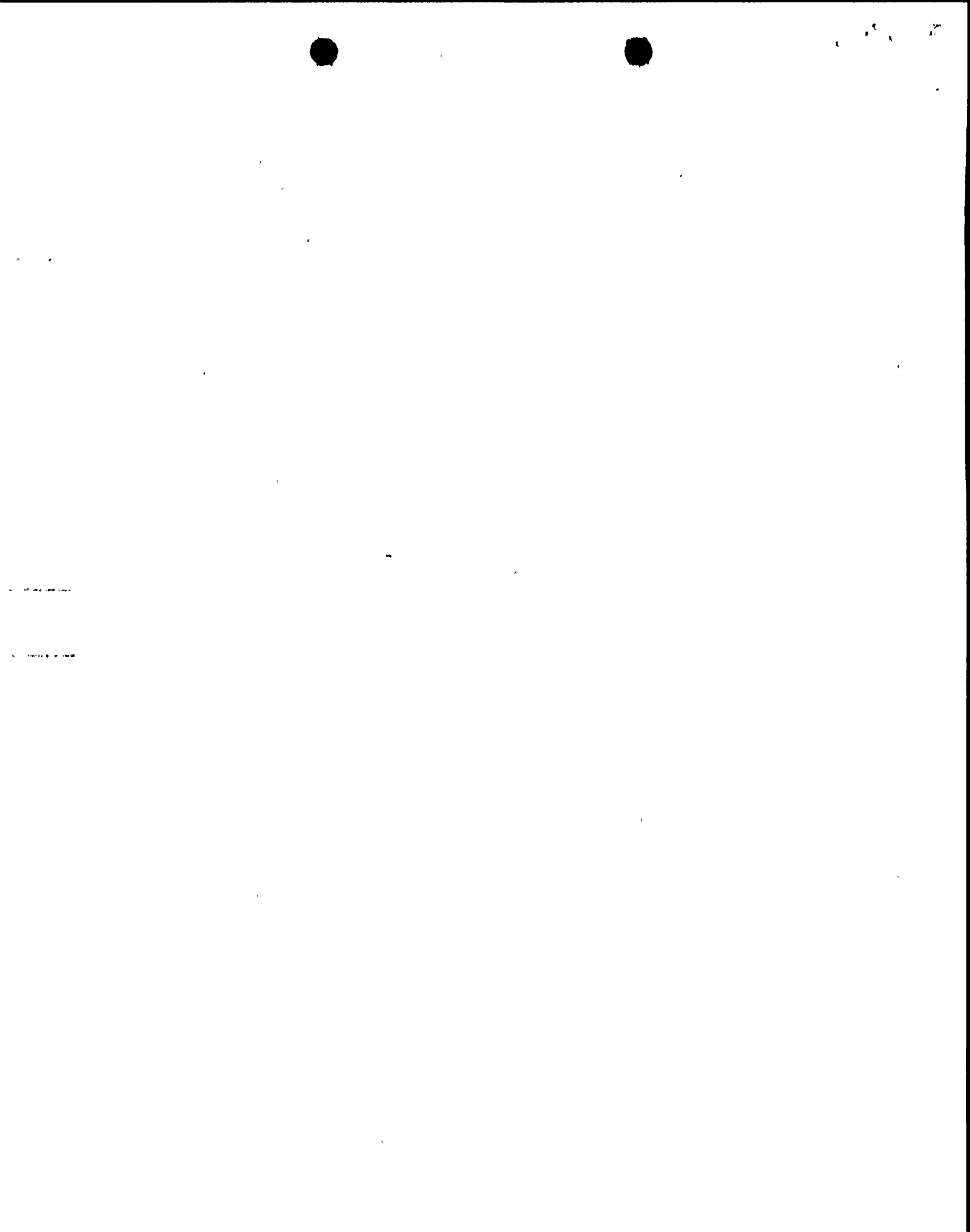
Data from
ESA, 1974.



Contour Interval = 5 mgal.



**Bouguer Gravity Anomaly Contours in the Region
of the Hosgri Fault**



PRELIMINARY

Diablo Canyon Site

Point San Luis

Pismo Beach

Arroyo Grande

SAN LUIS OBISPO CO.
SANTA BARBARA CO.

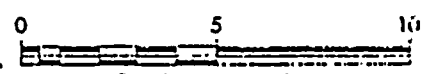
Santa Maria

Point Sal

Furisima Point

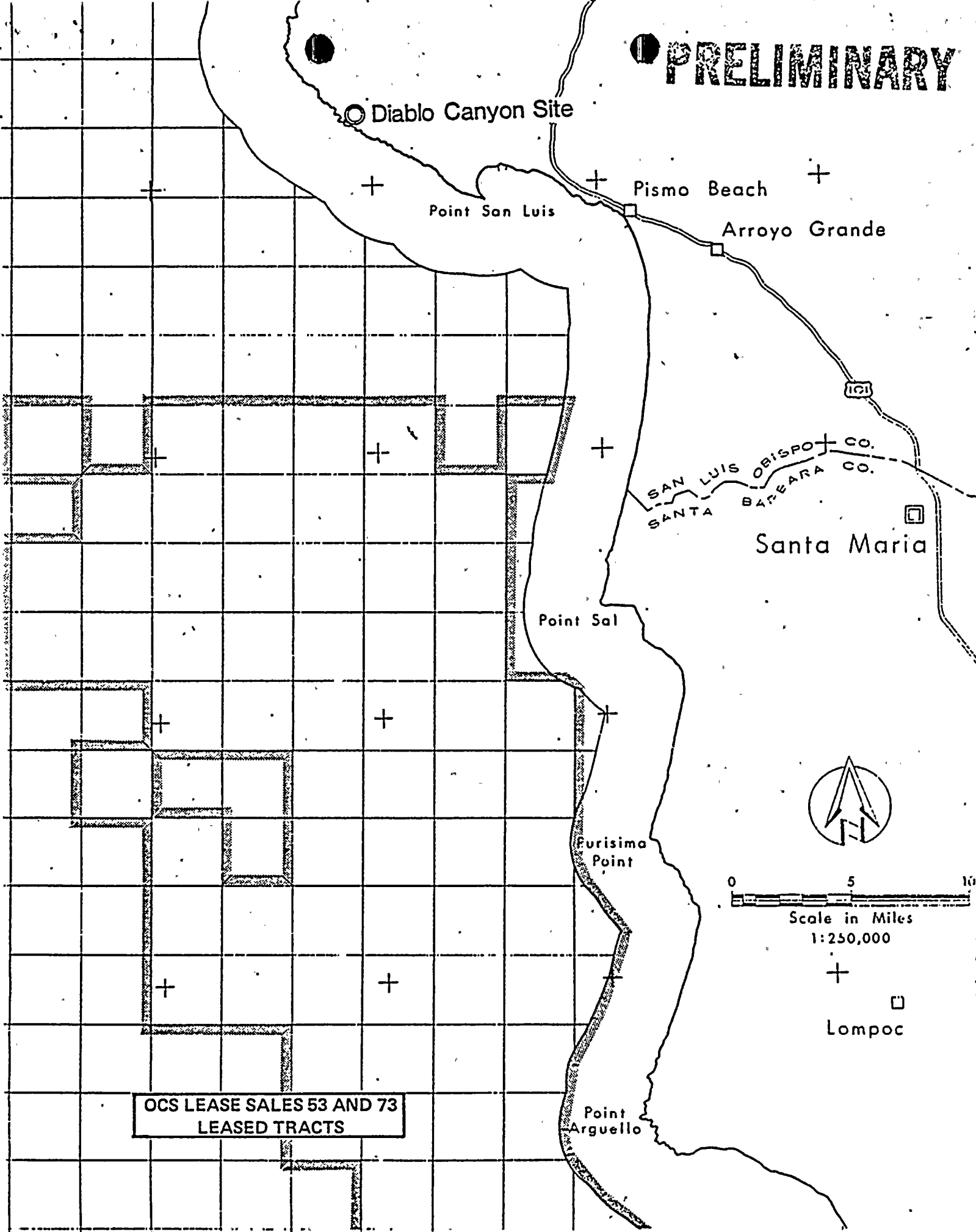
Point Arguello

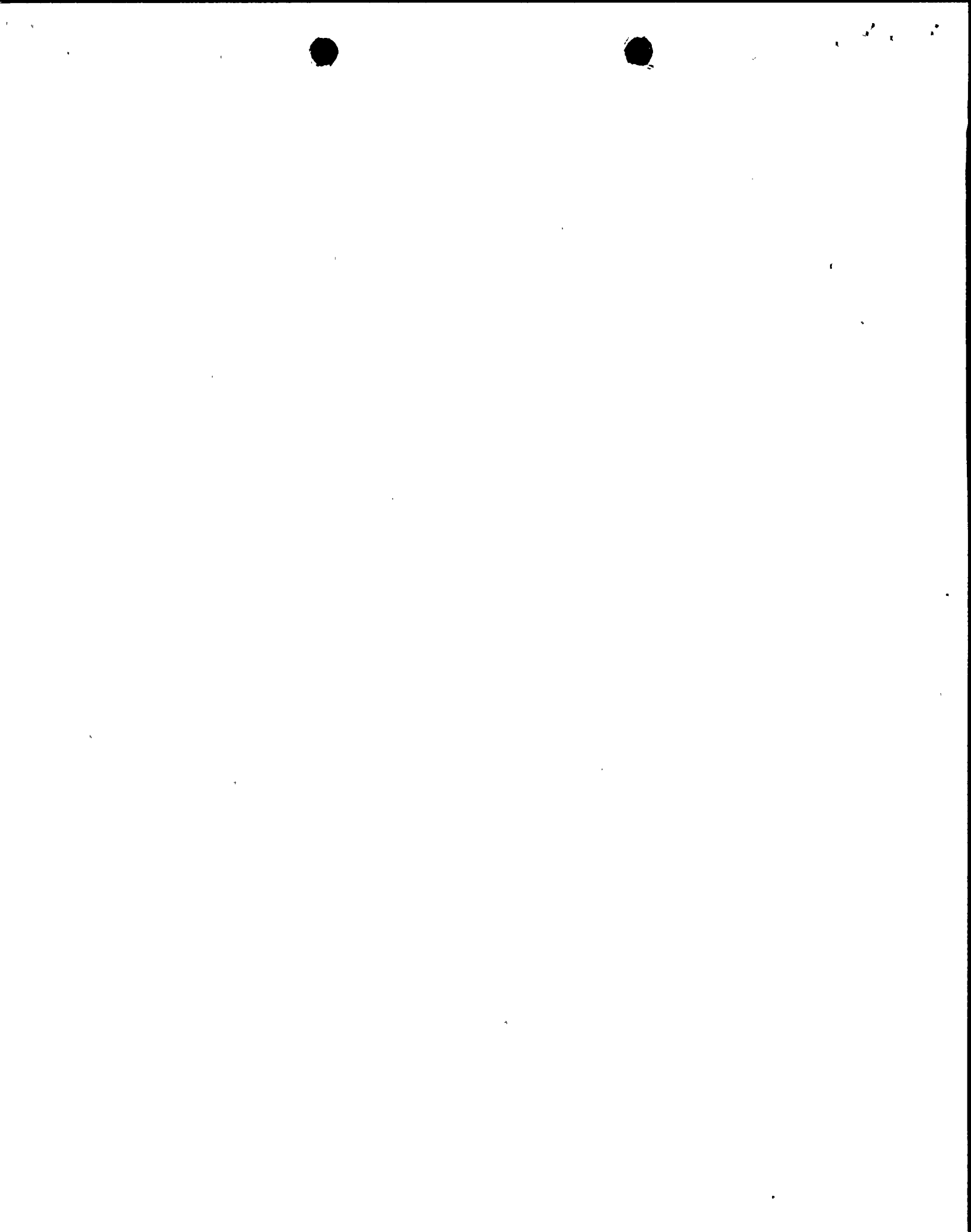
OCS LEASE SALES 53 AND 73
LEASED TRACTS

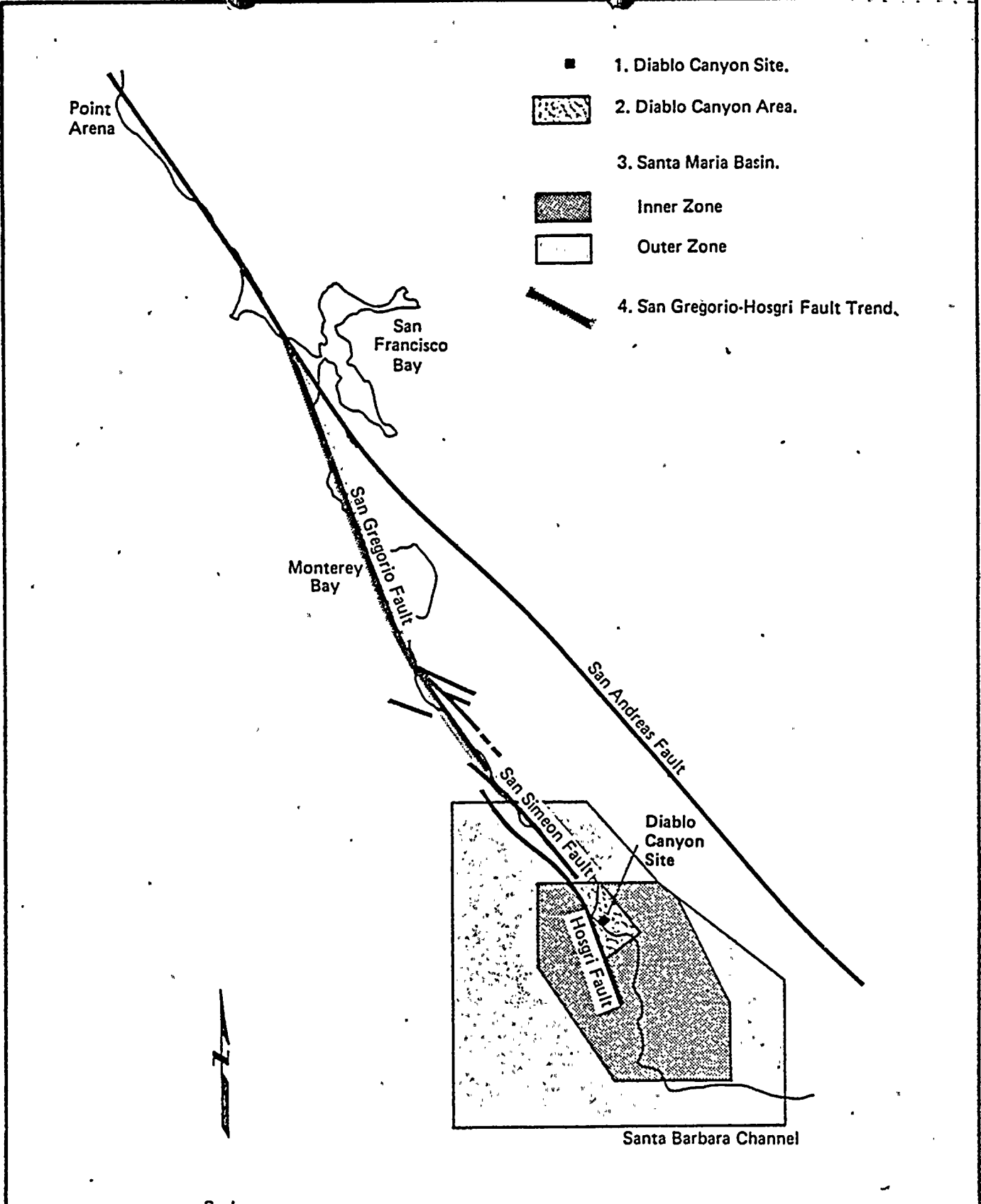


Scale in Miles
1:250,000

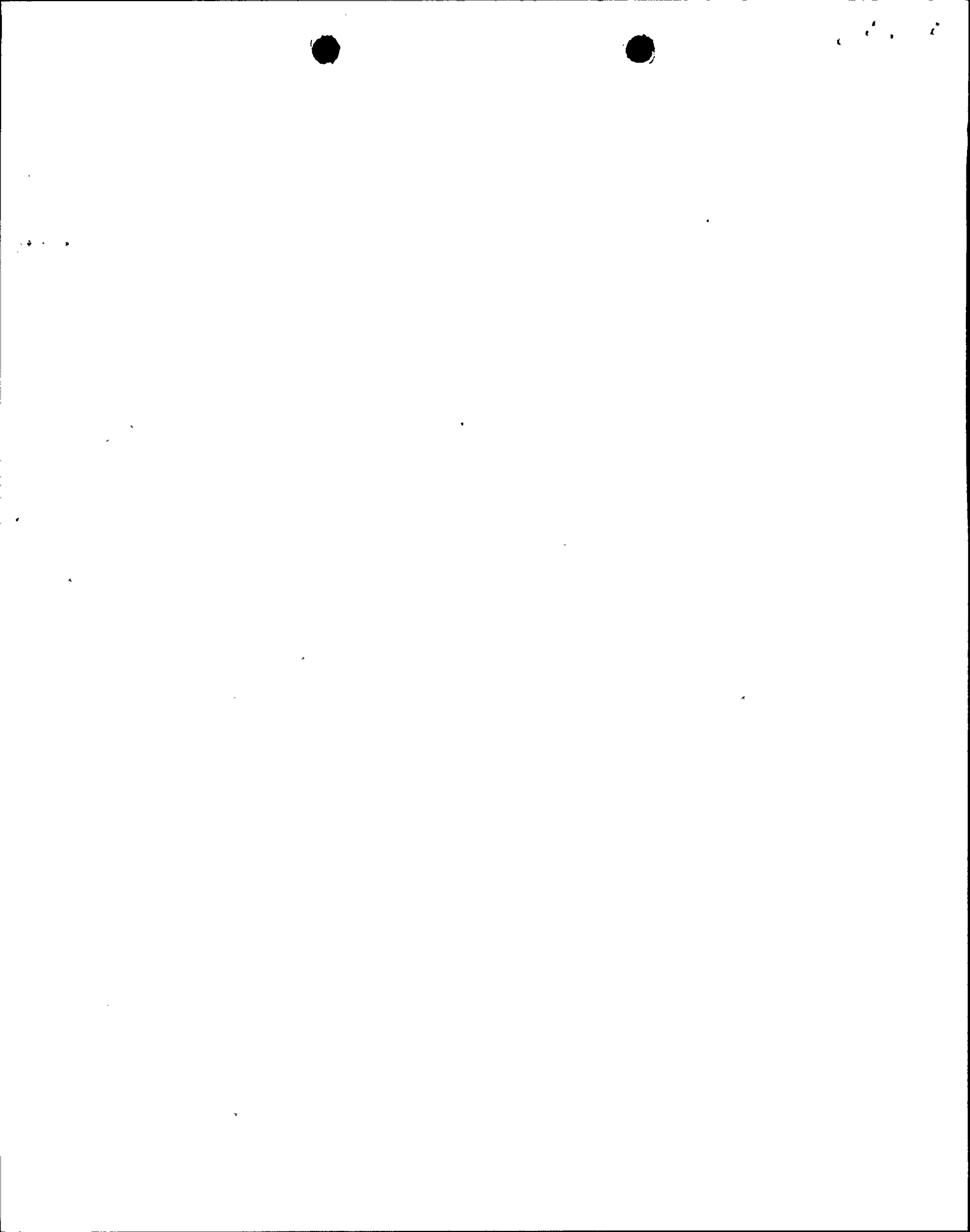
+
□
Lompoc

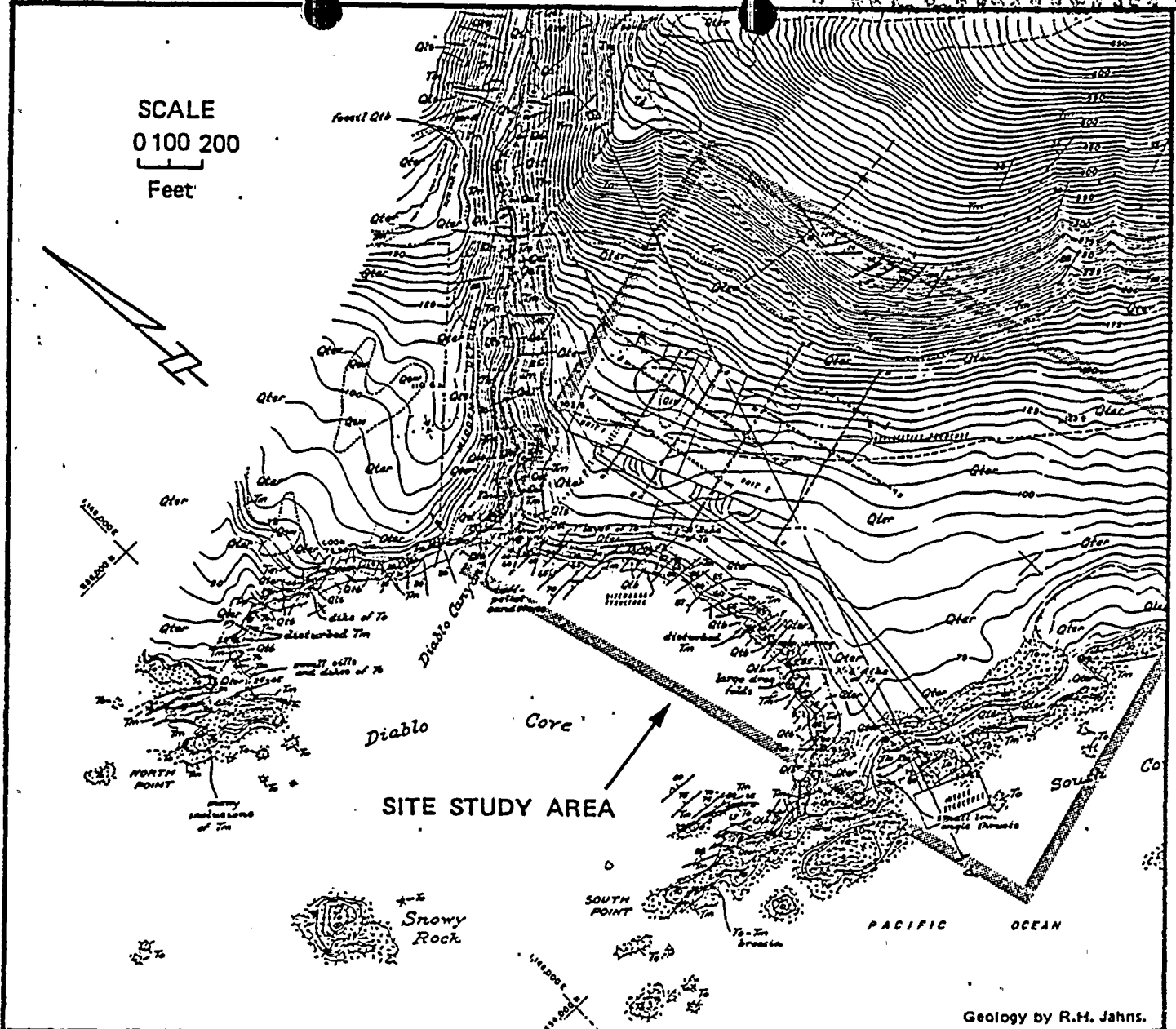




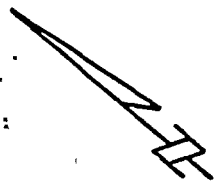


Earth Sciences Associates Palo Alto, California	
TASK 1: AREAS FOR GEOLOGIC INVESTIGATIONS	
Checked by _____ Date _____	Project No. _____
Approved by _____ Date _____	Figure No. 1





SCALE
0 100 200
Feet

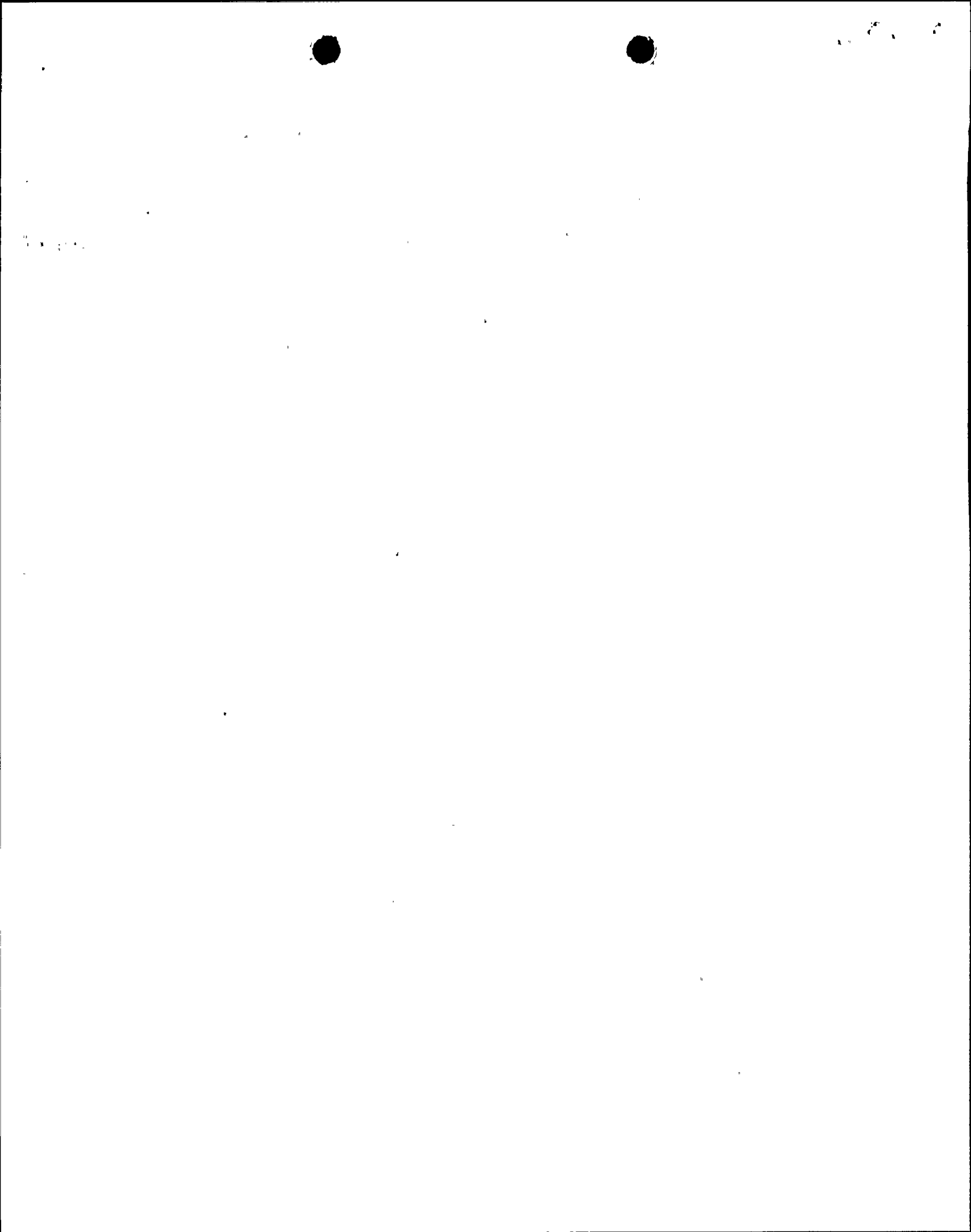


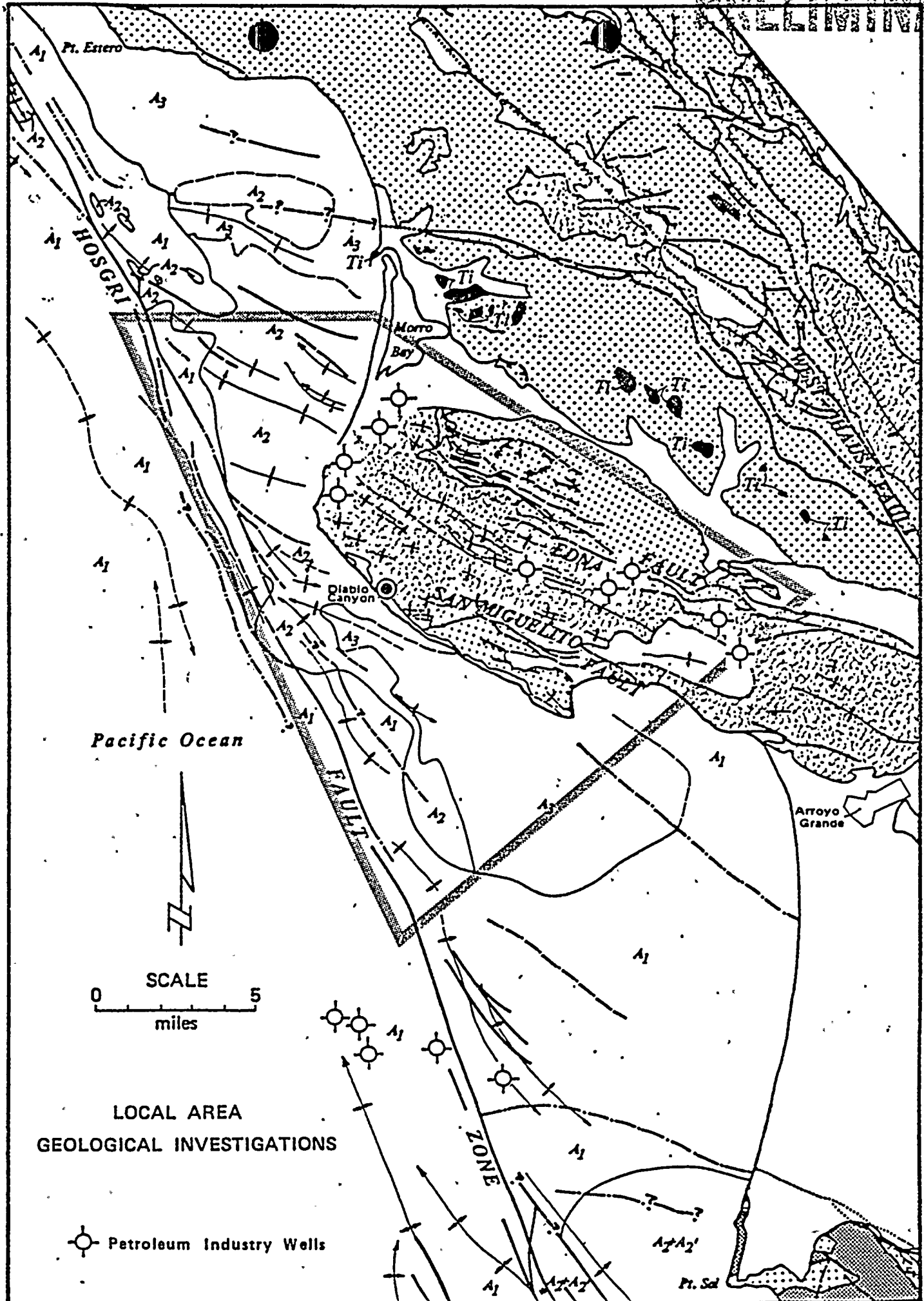
345000 E
345000 N

SITE STUDY AREA


Geology by R.H. Jahns.

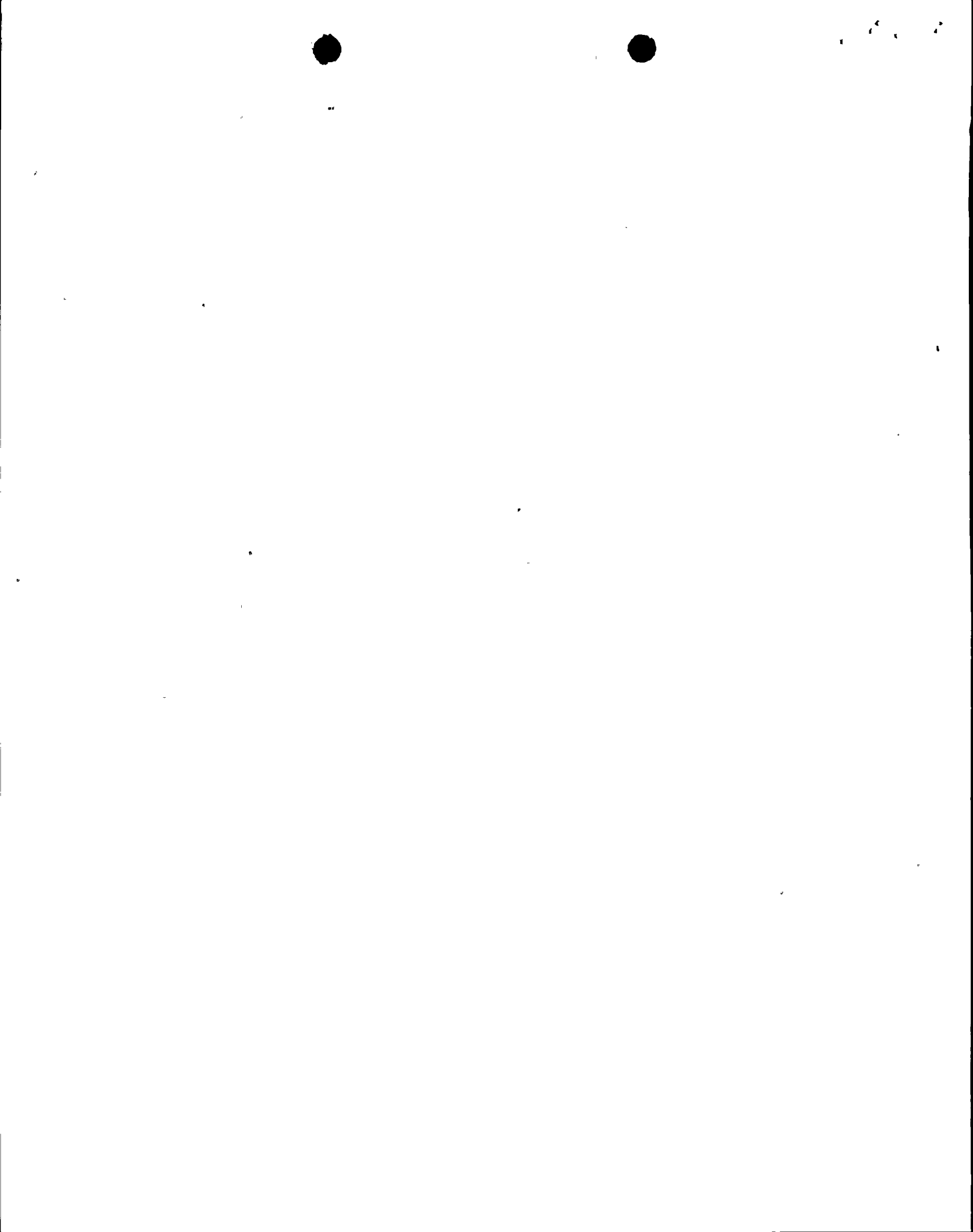
SITE GEOLOGY REVIEW AREA

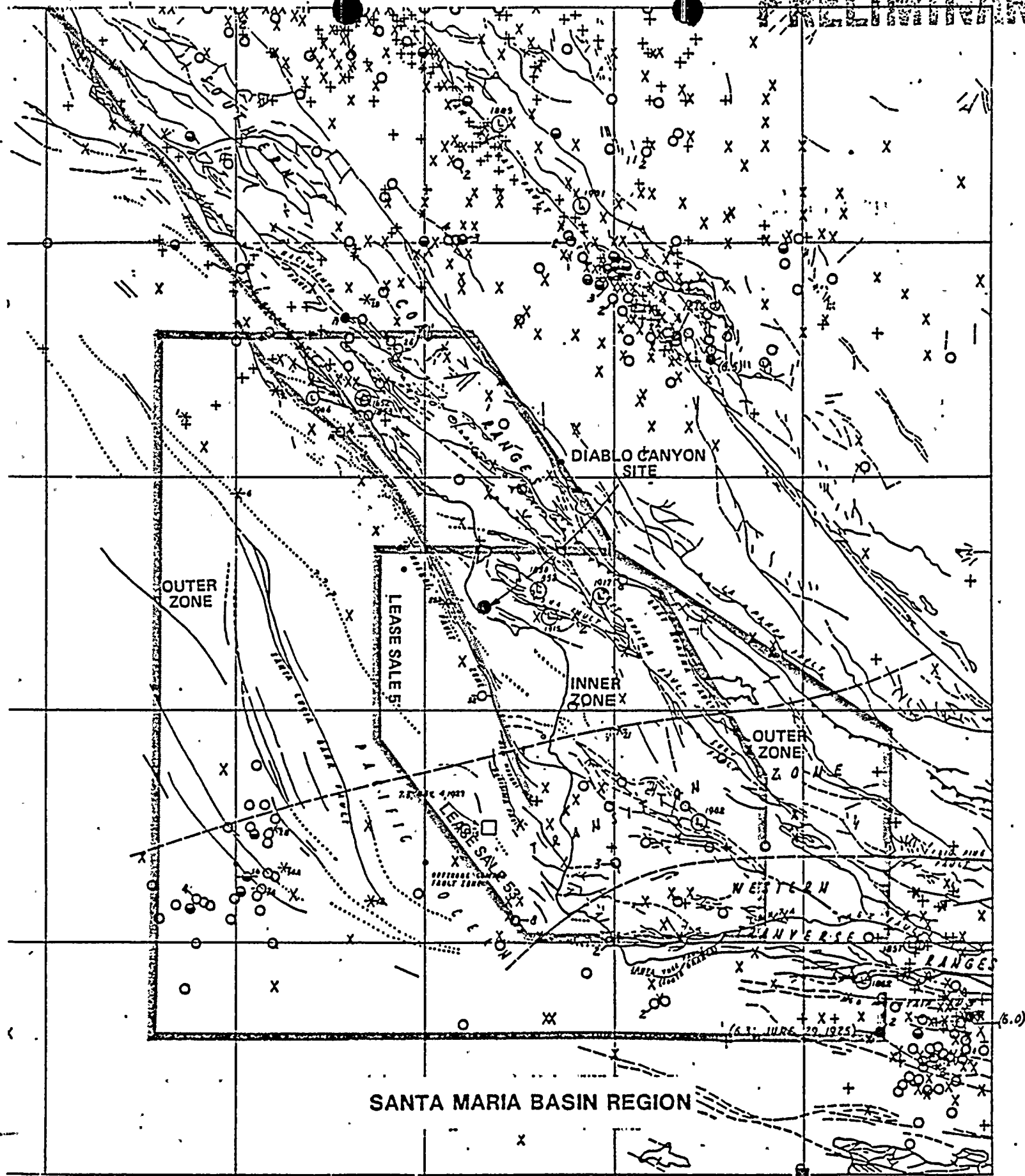




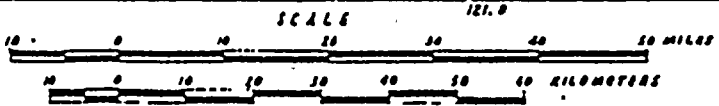
**LOCAL AREA
GEOLOGICAL INVESTIGATIONS**

 Petroleum Industry Wells

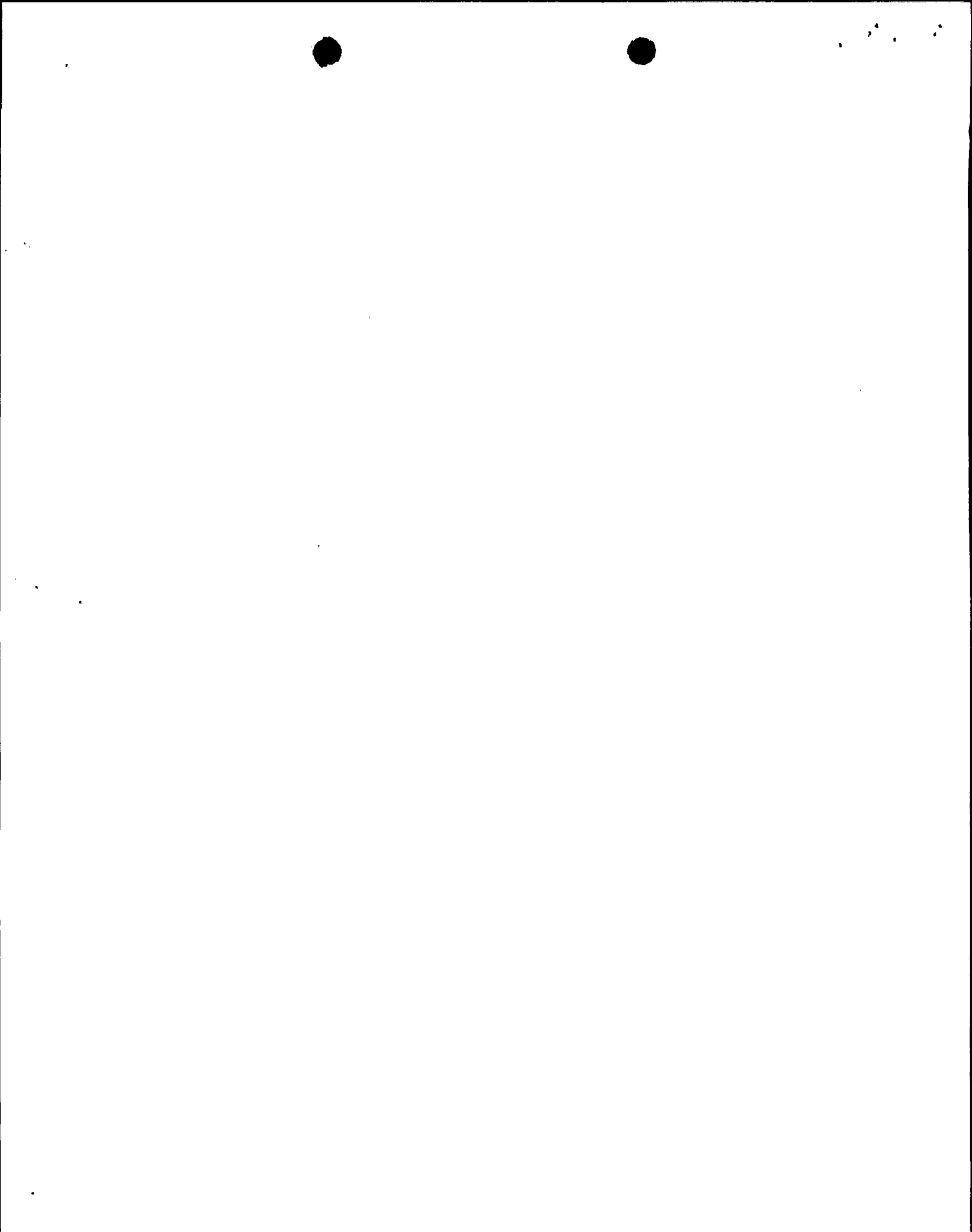


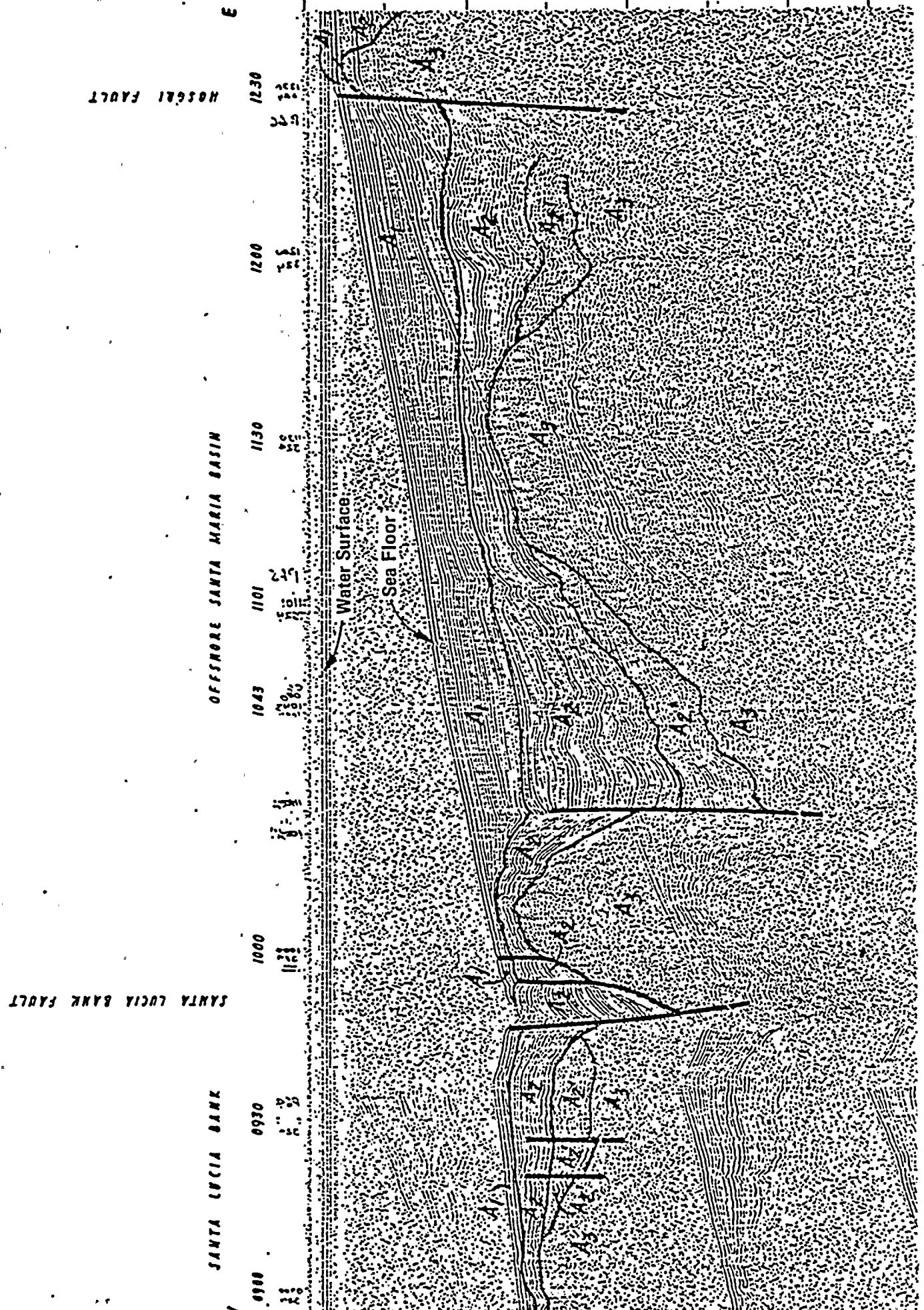


SANTA MARIA BASIN REGION



PRESUMED LOCATION
 DEC. 21, 1912 EARTHQUAKE
 MAG. 7.0 ± 0.5





SANTA LUCIA BANK FAULT

SANTA LUCIA BANK

OFFSHORE SANTA MARIA BASIN

HOSGAI FAULT

E

W

Sparker Seismic Reflection Profile, Bartlett (Leg 2) Line 18



1 2 3

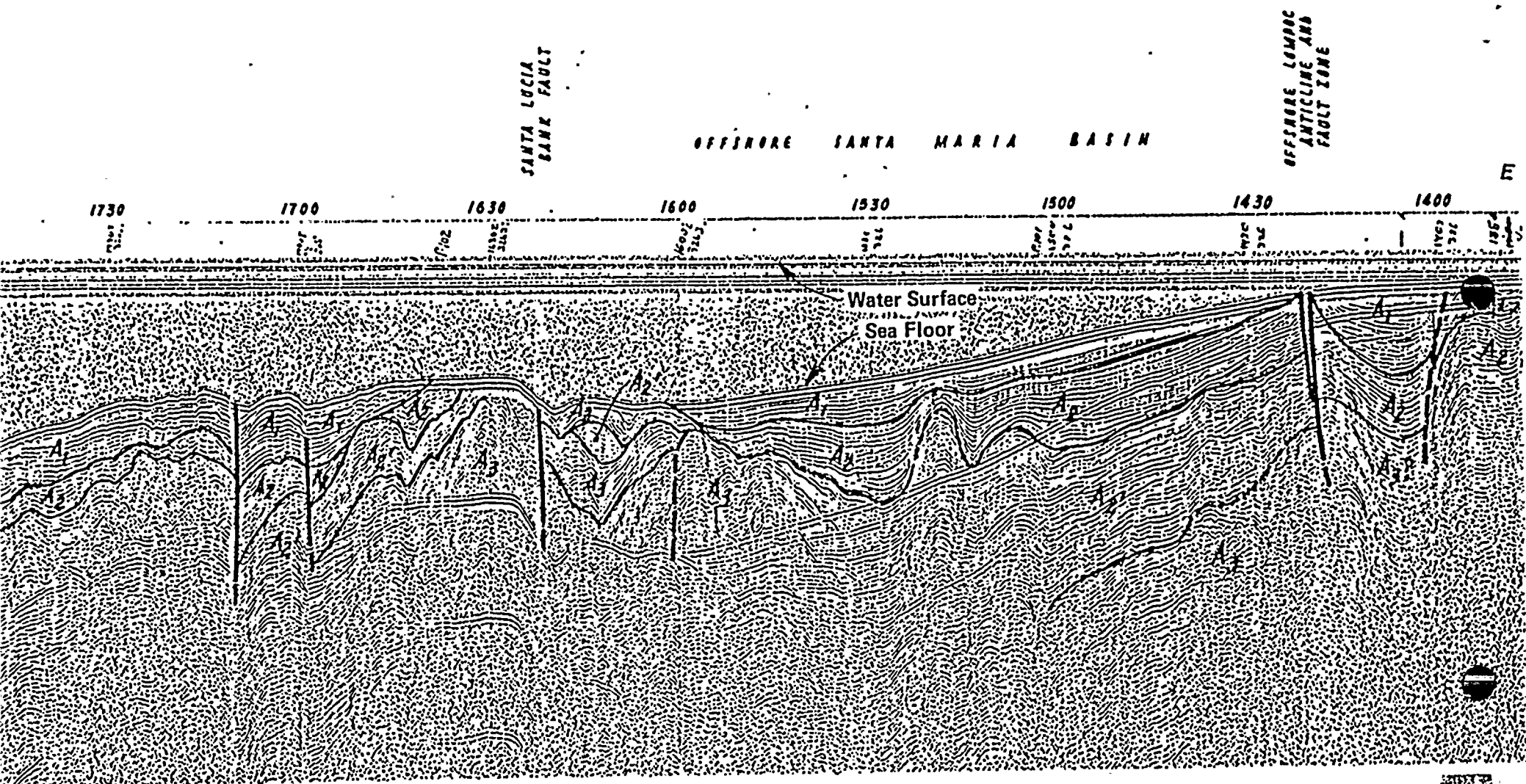
1

2

3

4

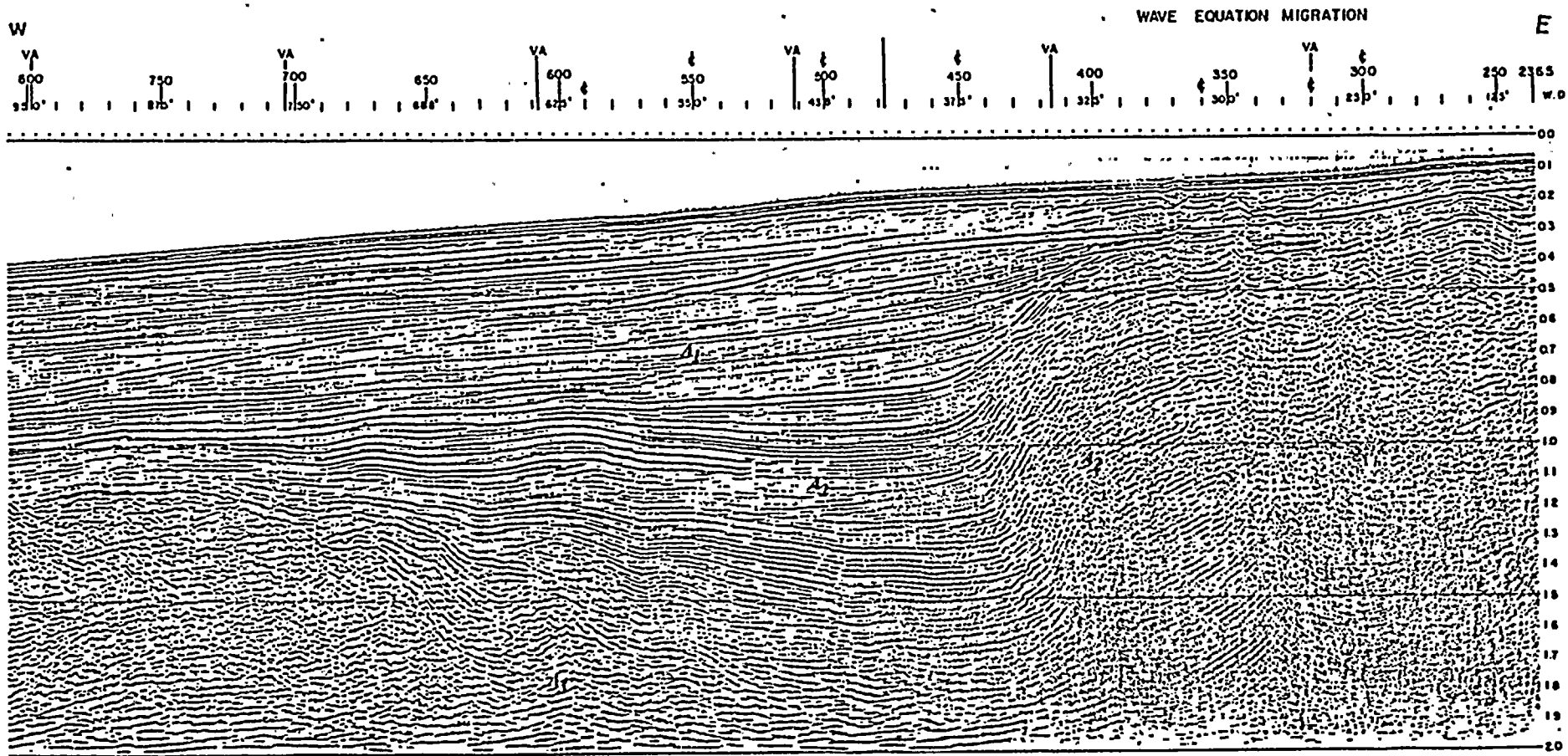
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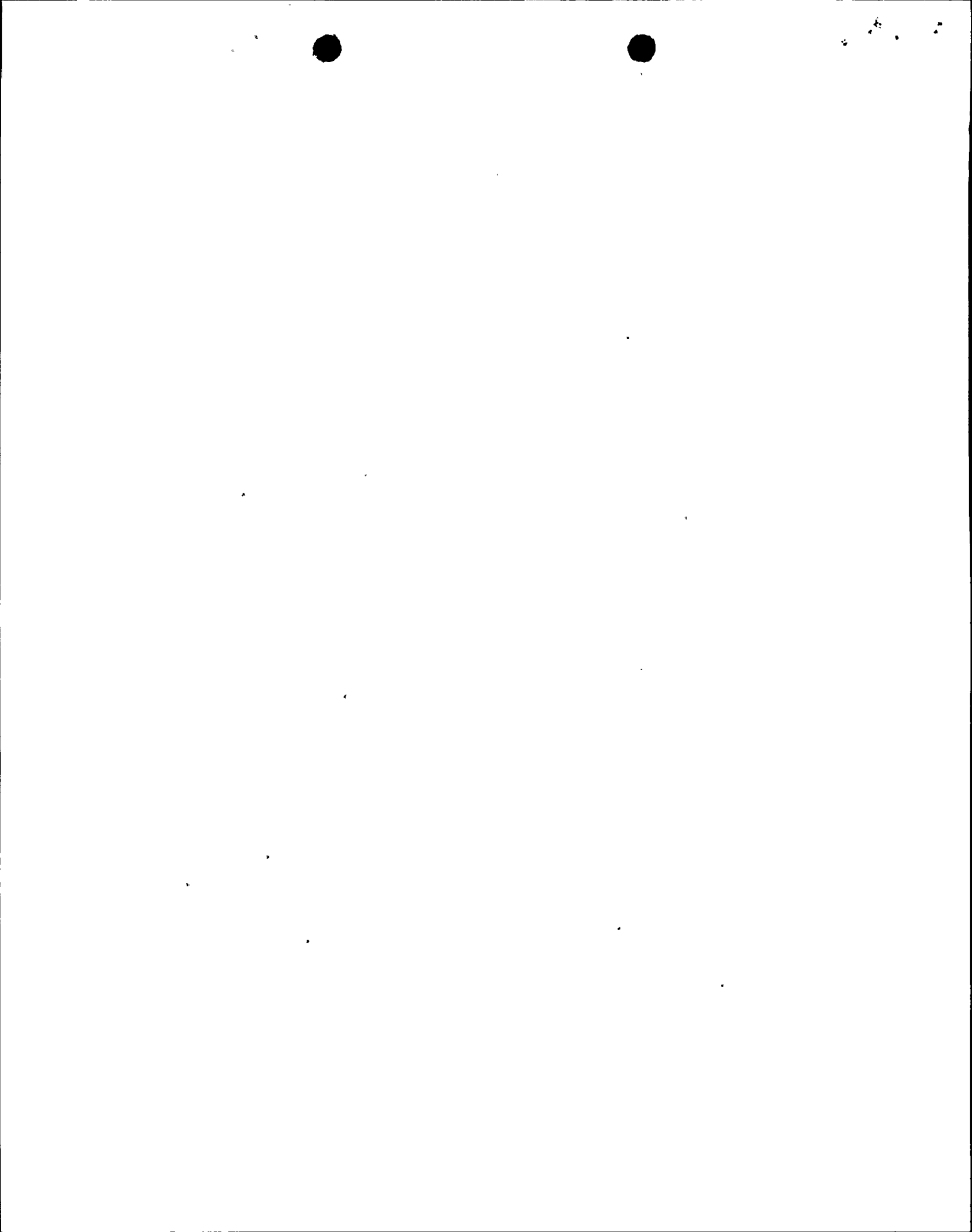
Sparker Seismic Reflection Profile, Bartlett (Leg 2) Line 28

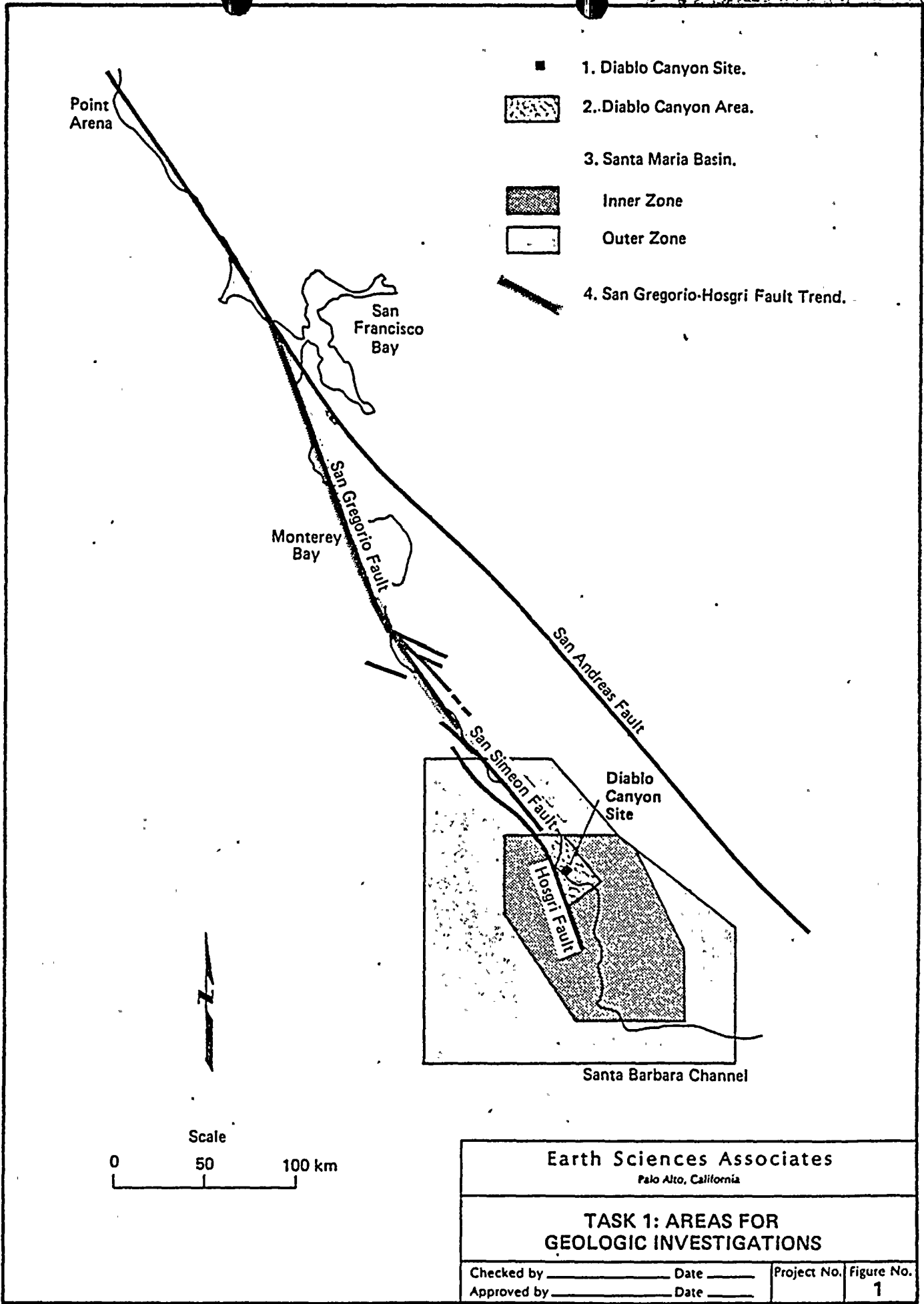
PRELIMINARY





CDP SEISMIC REFLECTION RECORD SHOWING THE HOSGRI FAULT





Earth Sciences Associates
Palo Alto, California

**TASK 1: AREAS FOR
GEOLOGIC INVESTIGATIONS**

Checked by _____	Date _____	Project No. _____	Figure No. 1
Approved by _____	Date _____		



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Pacific Gas and Electric Company

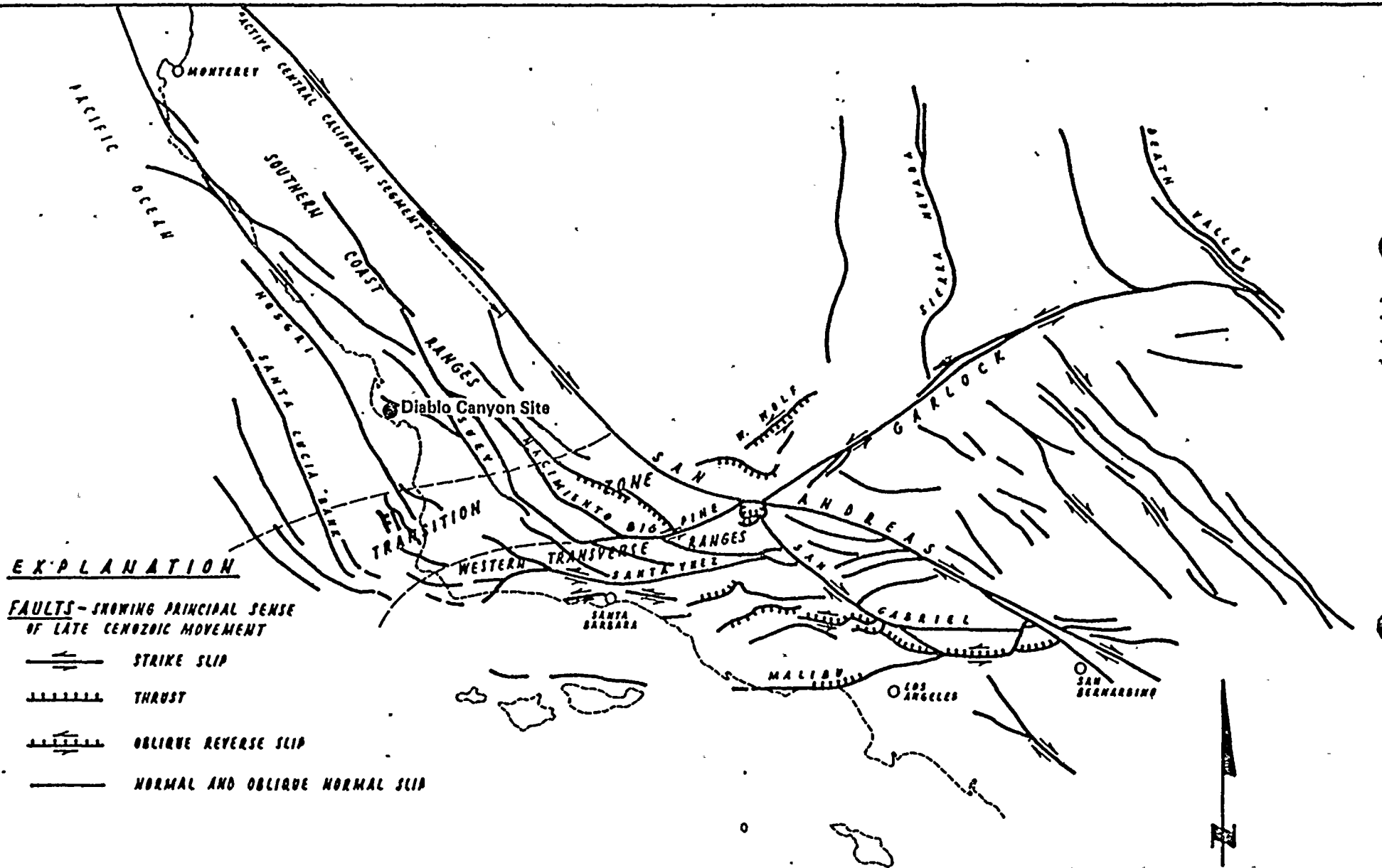
**Diablo Canyon Units 1 & 2
Long Term Seismic Program**

Program for Geologic Review and Investigation

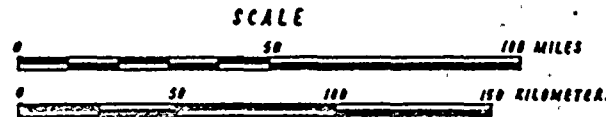
Task 2: Evaluation of Tectonic Model

- a. Assess data relating to regional tectonics, including fault orientations, style of faulting, complexity of faulting, rate of deformation, epicentral locations and focal mechanisms of earthquakes, geodetic data, and apparent relationships to plate boundaries and interplate motion
- b. Evaluate tectonic stress regime
- c. Review identification and characterization of potential seismic sources





MAP OF SOUTH CENTRAL COASTAL CALIFORNIA
SHOWING STRUCTURAL PROVINCES AND FAULTS





.....



, , , , ,

Pacific Gas and Electric Company

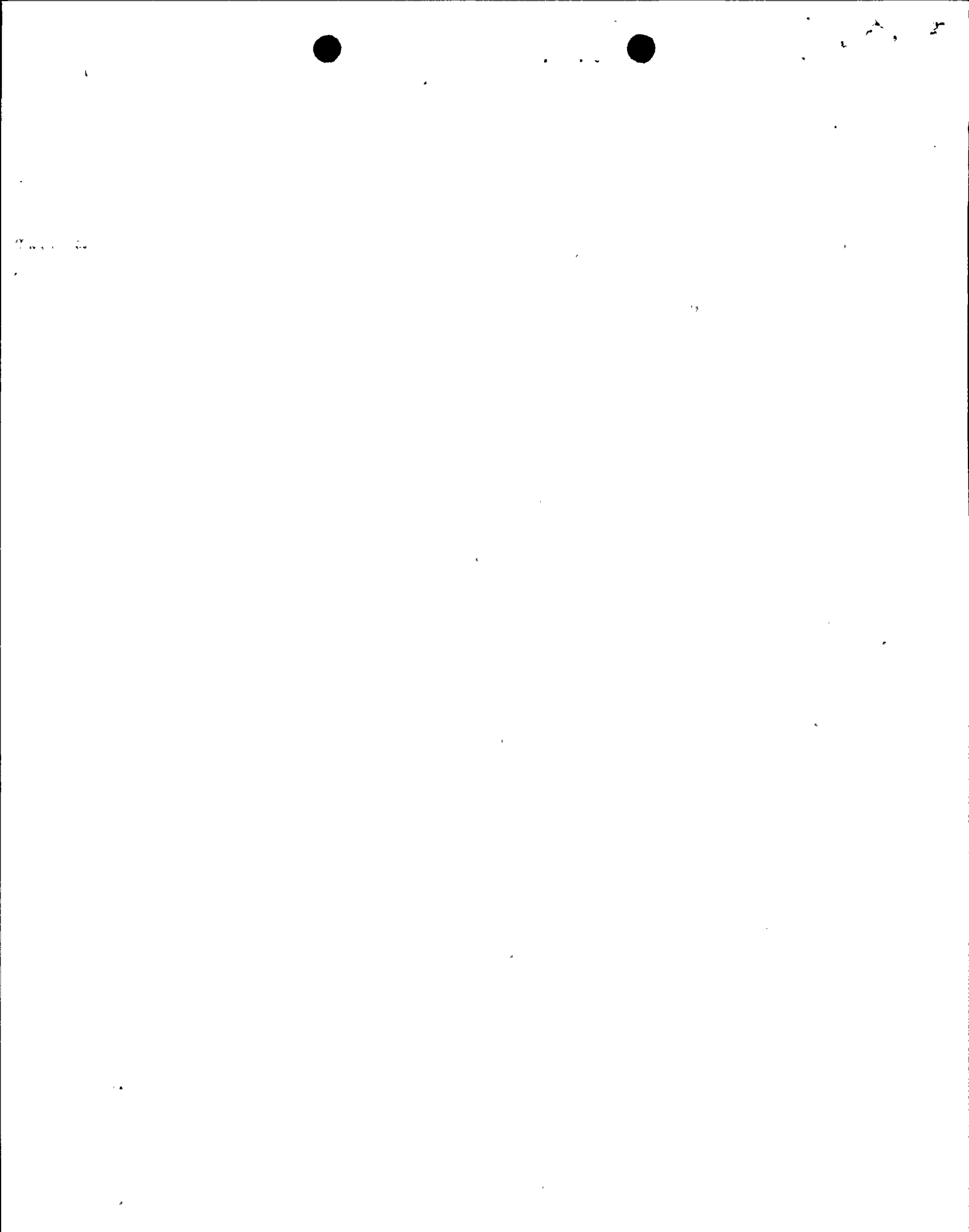
**Diablo Canyon Units 1 & 2
Long Term Seismic Program**

Program for Geologic Review and Investigation

Task 3: Review of Seismic Source Parameters

- a. Review best estimates, and assessments of uncertainty, associated with significant characteristics of faults:
 - 1. Total Length
 - 2. Segmentation/Continuity
 - 3. Orientation/Geometry
 - 4. Sense of slip
 - 5. Rate and pattern of late Quaternary (including contemporary geodetic) deformation
 - 6. Correlation with earthquake epicenters and foci

- b. Review current understanding of relationships between tectonic features and characteristics, and earthquake generation



Pacific Gas and Electric Company

**Diablo Canyon Units 1 & 2
Long Term Seismic Program**

Program for Geologic Review and Investigation

Task 4: Review of source to site geology and transmission path characteristics

- a. Geologic structure along transmission path, taking alternative tectonic models into account
- b. Geophysical properties of the crust between source and site



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PRELIMINARY

Pacific Gas and Electric Company

**Diablo Canyon Units 1 & 2
Long Term Seismic Program**

Program for Geologic Review and Investigation

**Task 5: Support of parallel activities in related areas of the
long-term seismic program**

Enclosure 5

Letter D. Stemmous to S. Brocoun

10/21/84

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