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 AUTH. NAME: BASKIN, K.P. AUTHOR AFFILIATION: Southern California Edison Co.  
 RECIP. NAME: MIRAGLIA, F. RECIPIENT AFFILIATION: Licensing Branch 3

DOCKET #  
 05000361  
 05000362

SUBJECT: Forwards D Phifer 810814 ltr alleging existence of "Mountain Top Fault Zone." Allegations are misinterpretations of previously studied geology, as stated in util 810821 reply. One oversized drawing encl. Aperture card will be in PDR.

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*Southern California Edison Company*

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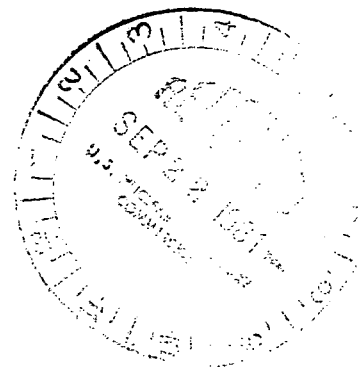
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ROSEMEAD, CALIFORNIA 91770

K. P. BASKIN  
MANAGER OF NUCLEAR ENGINEERING,  
SAFETY, AND LICENSING

September 16, 1981

TELEPHONE  
(213) 572-1401

Director, Office of Nuclear Reactor Regulation  
Attention: Mr. Frank Miraglia, Branch Chief  
Licensing Branch No. 3  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Gentlemen:

Subject: Docket Nos. 50-361 and 50-362  
San Onofre Nuclear Generating Station  
Units 2 and 3

The purpose of this letter is to transmit to you seven copies (NRC Mail Code B024) of a letter from Mr. D. Phifer to SCE dated August 14, 1981. Mr. Phifer's letter discusses his earlier geologic hypotheses which were analyzed thoroughly in an SCE report transmitted to the NRC by letter dated July 29, 1981. In addition, Mr. Phifer's letter alleges the existence of a "Mountain Top Fault Zone."

Seven copies (NRC Mail Code B024) of SCE's August 21, 1981 reply to Mr. Phifer's letter are enclosed. As stated in SCE's reply, Mr. Phifer's most recent feature is a misinterpretation of previously studied geology and, like his earlier allegations, is of no significance to San Onofre seismic design.

If you have any questions concerning this matter, please contact me.

Very truly yours,

*KP Baskin*

B001  
1/7

Enclosures

cc: USGS, Menlo Park, CA (Dr. J. Andrews)  
USGS, Reston, VA (J. F. Devine)  
California Division of Mines and Geology (P. Amimoto)  
D. B. Slemmons

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CHARLES R. KOCHER  
ASSISTANT GENERAL COUNSEL

Southern California Edison Company

P.O. BOX 800  
2244 WALNUT GROVE AVENUE  
ROSEMEAD, CALIFORNIA 91770  
LAW DEPARTMENT

SCE

August 21, 1981

TELEPHONE  
(213) 878-3998

Mr. D. W. Phifer  
944 Stiles Court  
Vista, CA 92083

Dear Mr. Phifer:

Thank you for affording us the opportunity to review the materials you transmitted in your letter of August 14, 1981. We have reviewed the letter which you indicated you were considering sending to the Nuclear Regulatory Commission concerning your... "observed and inferred geologic conditions..." on Camp Pendleton. The Applicants report of July 29, 1981 addresses:

- o "Horno Summit Fault" PP 4-15
- o "Horno Canyon Fault" PP 16,17
- o "San Onofre Mountain Fault" PP 17,18
- o "Mateo Canyon Fault" PP 19-21
- o "San Onofre Canyon Fault" PP 18,19

and concludes that these are "not capable faults" and have no significance relative to the seismic design of the San Onofre Units. This conclusion has not changed as the result of your letter, maps or photographs.

The new fault, which you allege and refer to as the "Mountain Top Fault Zone" and its intersection with your "Horno Creek Fault" is a misinterpretation of a well studied landslide. This landslide has been mapped by two consultants independently and the deformation you describe along the coast and offset terrace surfaces illustrates deformation within the slide and is the result of the several episodes of movement. Photograph #5 "Looking North from Seacliff South of Horno Canyon" is the graben of the younger landslide movement that has been taking place for at least 125,000 years and, perhaps that has been taken for breccia and as seen on the map by Dr. P. L. Ehlig (October, 1977) many slickenside surfaces have been mapped. They are discrete features, and cannot be traced for any distance from the exposure.

August 21, 1981

Your alleged "Mountain Top Fault Zone" identified on your map has been previously mapped by Dr. P. L. Ehlig and others. This particular feature, Fault F, shown on Photograph #1 is a part of Dr. Ehlig's prepared testimony in the San Onofre licensing proceeding. As described by Dr. Ehlig, it is not a fault zone, but a discrete feature. It has no significance to the seismic design of San Onofre.

The Aliso Canyon Fault has been mapped by Boss and Olmstead (1958) and is shown on the geology map by Moyle (1973). The sense of movement shown on these maps is the same as that observed at Fault F, with Monterey formation downdropped against San Onofre breccia. There is no evidence for the extension of this fault to the northwest of Las Pulgas Creek in the mapping done by Dr. Ehlig. The Aliso Canyon Fault is mapped as being overlain by terrace sediments. Thus the distance from the site, over 9 miles, and evidence for a probable age of at least 125,000 years demonstrates that this fault has no significance to the seismic design of San Onofre.

Several of your "Faults" have been shown to have other origins and significance of the faults you have identified are already part of the public record and have been considered in evaluating the seismic design of the plant.

Thank you for your interest and concern, however, from your illustrations and descriptions, there are no significant new geologic findings that would influence the seismic design or safety of San Onofre.

Sincerely,

A handwritten signature in dark ink, appearing to be 'WML' or similar, written in a cursive style.

David W. Phifer

# Coastal and Nearshore Consultant

CRK  
8-17

14 Aug 1981

Mr Charles R. Kocher  
Asst General Counsel  
Southern California Edison  
PO Box 800  
Rosemead Calif 91770

Dear Mr Kocher

Enclosed are:

- 1) A generalized geologic and structural map of portions of NCB Camp Pendleton as I currently interpret the geology. The scale and my unsteady hand make plotting somewhat difficult. The major features are included with minor ones omitted to keep the overall picture from being too busy.
- 2) Pictures keyed to specific locations. Sorry the photo coverage isn't more complete.
- 3) A draft letter to the NRC which I mentioned to you. I'm afraid in the interests of brevity and because of the complexity of the structure, I omitted mention of the Pinos/Piedra de Lumbre & Margarita zones of faulting. Evidence for them is fair but needs to be further explored.

As I indicated the primary interest is public safety and more thorough investigations are needed, in my opinion, to quantify as precisely as possible the seismic risk to SONOS site. I would be happy to expand on the information presented thus far to your organization or the regulatory bodies - in the interests of public safety.

The information presented thus far, as available I should say, will become part of the public record. Hopefully thru the vehicle of the scientific press.

Thank you for your patience and courtesy

Very Truly Yours  
D. H. Jensen

TO: THE NUCLEAR REGULATORY COMMISSION  
Washington, D. C.

SUBJECT: Geologic Conditions in the Vicinity of the San Onofre Nuclear Generating Station, Camp Pendleton, California, and Conduct of the Seismic Safety Hearings at San Diego, California, conducted during June, July, and August, 1981.

PURPOSE: This letter provides the Nuclear Regulatory Commission a summary of observed and inferred geologic conditions near the San Onofre Nuclear Generating Station (SONGS) Units 1,2, and 3, at Camp Pendleton, and a chronological commentary of attempts to bring this data to the NRC Seismic Safety hearings. Its purpose is to clarify and amplify my statement before the NRC of 25 June 81 and provide additional geologic observations. It is not intended to be critical of any person or organization. Rather, it is offered in the interest of public safety and to insure the NRC has a better understanding of the potential seismic risk at SONGS Units 1,2, and 3. Details of field observations are omitted in the interest of brevity. The facts are presented chronologically for clarity.

#### CHRONOLOGY

On or about 14 June, 1981, I concluded, based upon map analysis and 20 years periodic geologic study of the Camp Pendleton area, that the marine terraces near Horno Canyon, approximately 5 miles from the SONGS site, had been displaced vertically, and that a possible cause could be faulting. Subsequent field work found this conclusion to be supported by physical evidence. On 22 June, 1981, I informed the NRC Hearing Chairman, Mr. Kelly, of the substance of my findings. He then arranged a limited appearance before the Commission at which the data and my interpretation was presented.

On 27 June, 1981, a party of 70 geologists accompanied me to Camp Pendleton to view the reported physical evidence. The names of these men and their affiliations are listed in Enclosure 1. At the conclusion of the field trip (about 6 hours duration), my interpretations had not changed significantly. The presence of the following zones of faulting had been confirmed.

Horno Summit Fault, NW-SE - length about 32 miles, apparent vertical displacement greater than 250' - East side up.

Horno Canyon Fault, branches on the axis of Horno Canyon, NE-SW and Piedre de Lumbre Canyon, NE-SW length about 12 miles maximum apparent vertical displacement greater than 600 feet, North side up.

San Onofre Mountain Fault, length about 19 miles, maximum vertical displacement about 500'. West side up.

On 28 June, 1981, I returned to the field alone and found evidence for two additional faults. The character of these features is listed below.

Mateo Canyon Fault, length-greater than 15 miles, vertical displacement approximately 40' in the past 125,000 years.

San Onofre Canyon Fault, length-greater than 9 miles, vertical displacement greater than 20' in the past 125,000 years.

Field studies and map interpretations between 3 and 5 July, 1981, identified the potential for additional faulting between Lake Elsinor and the Pacific Ocean. Inferred displacement within the last million years between Miller Mountain and offshore from the SONGS site is on the order of 5000 feet. *vertically*.

On 17 July, 1981, I accompanied NRC and Southern California Edison staff members listed below to examine the Horno Canyon Fault. After visiting 3 sites in 6 hours, it was my opinion that the Horno Canyon Fault is a major throughgoing fracture which extends from the Oceanside/Carlsbad area to the Northern border of Camp Pendleton. At the end of the field trip it was my conclusion that the geologists I was accompanying agreed.

Mr. J.L. McNey - Southern California Edison  
Mr. P. Ehlig - Consultant, Southern California Edison  
Mr. T. Cardon - NRC Staff Geologist

By 27 July, 1981, following additional analysis and field investigations, positive evidence for 2 additional fractures had been found. Their characteristics are listed below.



Mountain Top Fault Zone, length-greater than 3 miles, Vertical displacement greater than 600 feet, East side up. Approximate age less than 5,000 years. Width about 1 1/2 miles, Minimum Distance to SONG's site- 2 miles.

Aliso Canyon Fault, length about 5 miles, Vertical displacement-unknown. Distance from SONG's site - 11 miles.

On 28 July, 1981, I approached Mr. Kelly of the NRC and offered to present the information gathered to date.

On 31 July, 1981, I again informed Mr. Kelly that I was prepared to testify under oath to the evidence for recent tectonic movement discovered. He indicated that material in writing should be presented to the Commission. At that time, copies of the materials at hand which were reproducible were made and provided. Duplicates of the material provided are attached at enclosure 2. On the same day, Southern California Edison presented a report which largely discounted my earlier information. The NRC staff endorsed the report. It contains significant geologic inconsistencies and is not signed.

On 3 August, 1981, I talked with Mr. Kelly. He indicated that he had referred the material presented to the staff for study and did not wish to call me to present my findings and interpretation to the NRC. I informed Mr. Kelly that it was time the information was made public and called the San Diego Union, Tribune, and Channel 39, a local TV station, announcing a press conference. The following representatives of the press attended the briefing held at about 4 P.M., 3 August, 1981.

Mr. Steve LaRue - San Diego Union  
Mr. Jeff Ristine - San Diego Tribune

### CONCLUSIONS

Conclusions are restricted to geologic information and interpretations to preclude misunderstanding of my public safety motives.

- \* Southern California is a tectonically active zone;
- \* In the vicinity of SONGS Units 1, 2, and 3, <sup>at least three</sup> major fracture zones have

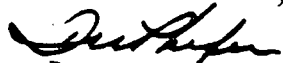
been identified. To date, two, the Christianitos and Newport Inglewood/Rose Canyon have been investigated.

- \* Two others, the Horno Canyon and Horno Summit have been acknowledged to exist by the NRC staff and Southern California Edison.
- \* The recency of faulting differs on the several faults. Most recent is on the order of 5000 years or less before present based on geologic evidence at the seacoast near the point Horno Canyon meets the Pacific. This site is the intersection of the MornoCanyon and Mountain Top Fault Zones.
- \* Considering the limited period in which my observations and analysis has been made, about 40 days, there is a high probability that additional evidence of tectonic activity exists.
- \* Additional independent geologic investigations of the area around SONGS 1, 2, and 3 should be conducted before licenses to operate SONGS 2 and 3 are granted. The investigations should center on the potential seismic risk and hazard to public safety posed by the faulting observed near the SONGS site.
- \* Based upon a limited knowledge of seismicity, I conclude that an earthquake between M6.5 and M8 could occur near the SONGS site. This conclusion is based upon correlations between length of fault and observed earthquake magnitudes. Housner's correlations indicate such a temblor could produce accelerations at the site on the order of 1.0g. My understanding is that the SONGS Units have been engineered to withstand .67g.

Enclosures:

1. Field Trip Participants, 28 June 81
2. Material Presented to the NRC and Southern California Edison, 31 July 81
3. Geologic Map of M.C.B. Camp Pendleton Interpretation by D. W. Phifer

Very Truly Yours,

  
D. W. Phifer  
944 Stiles Court  
Vista, CA 92083

# Geology Field Trip

27 June 1981

MCB CAMP PENDLETON

## PARTICIPANTS

MR PAUL CAMPO

MR J. L. MONEY

DR P. L. ENLIG

MR T. CARDONE

MR K. LAJOLE

MR G. BARLOW

MR C. REINKING

MR L. CARLSON

MR D. PRIGER

DR H. WALAWENDER

DR H. MARSHALL

DR R. J. SHLEMON

1<sup>ST</sup> LT R. R. THURMAN

## ORGANIZATION

DIRECTOR NATIONAL  
RESOURCES, CAMPEN

SOCAL EDISON

SOCAL EDISON, CONSULTANT  
NRE STAFF

USGS, MONUMENT AREA

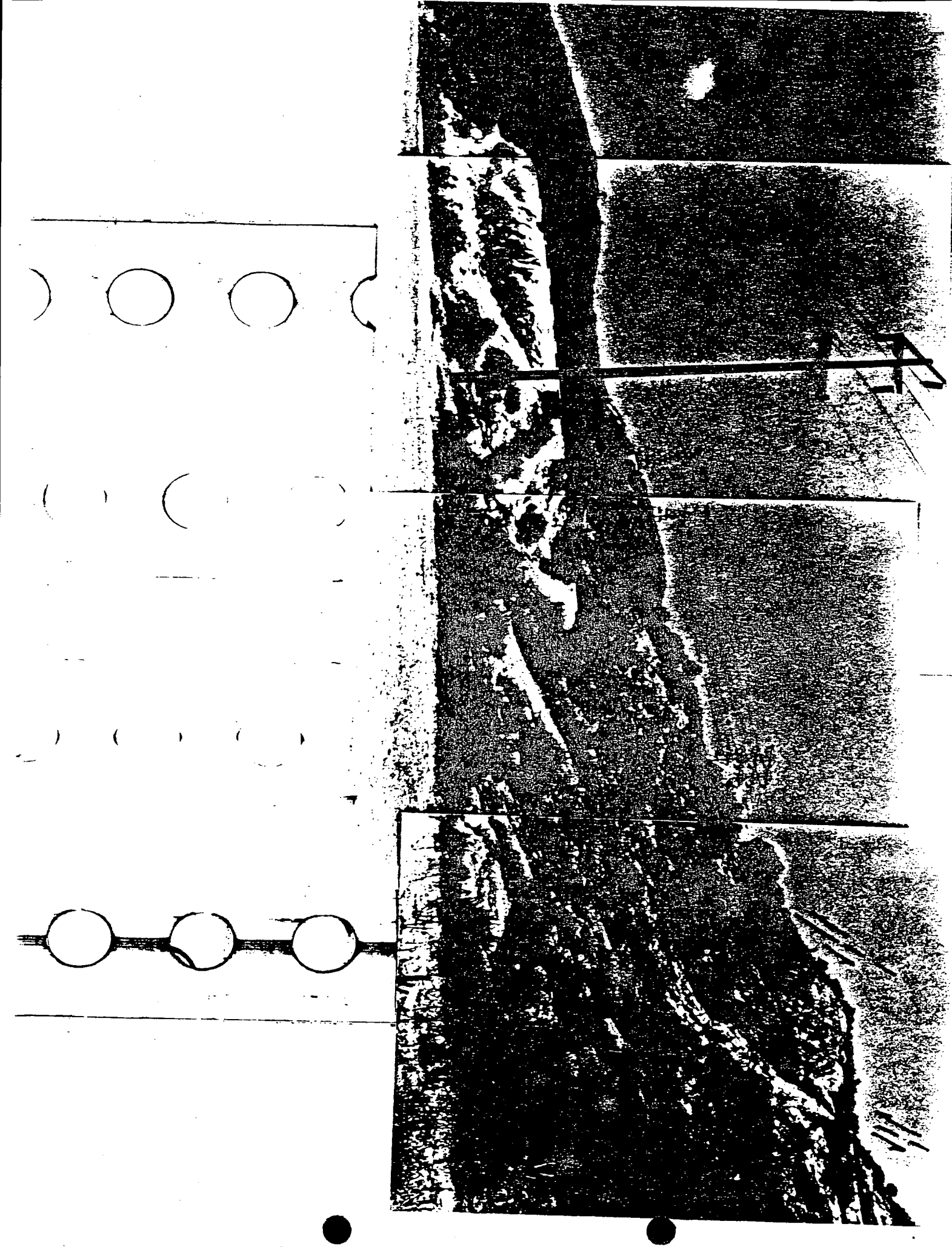
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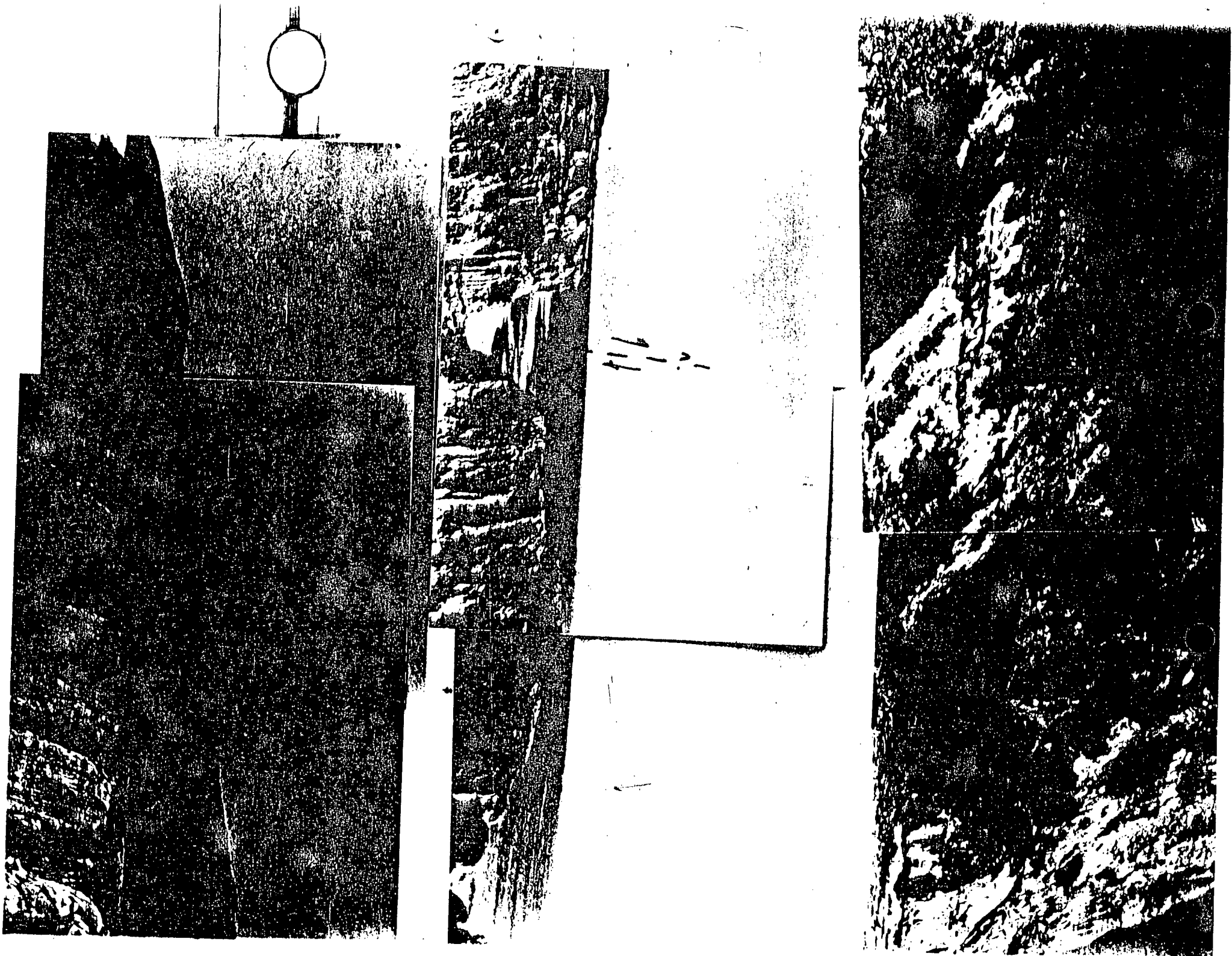
GEOLOGIST, NRO CAMPEN

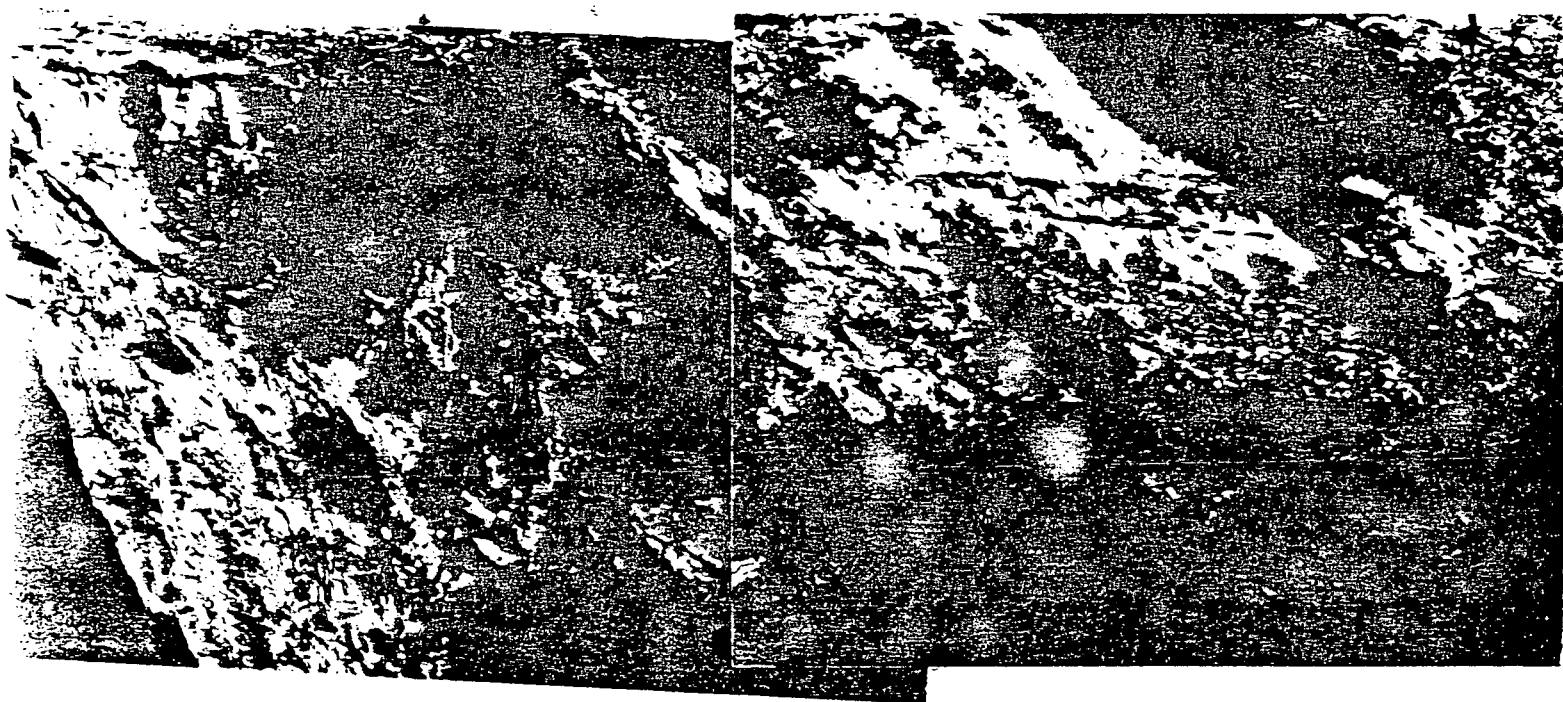
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PUBLIC AFFAIRS, CAMPEN







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