

GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF CONTRACT ADMINISTRATION
SPONSORED PROJECT INITIATION

Date: April 1, 1977 *OKL*

Project Title: *Seismic Monitoring Near the Rocky Mountain Project, Georgia*

Project No: *G-35-627*

Project Director: *Dr. L. T. Long*

Sponsor: *Georgia Power Company*

Agreement Period: From 3/14/77 Until 6/30/82
9/15/80

Type Agreement: *Purchase Order RMP-15*

Amount: *\$45,731 Ga. Power Co.*
750 GIT (G-35-324)
\$46,481 TOTAL

Reports Required: *Quarterly Letter Progress Reports*

Sponsor Contact Person (s):

Technical Matters

Mr. C. R. Thrasher
Georgia Power Company
P.O. Box 4545
Atlanta, Ga. 30302

Contractual Matters

(thru OCA)

Mr. J. E. Ginn
Ga. Power Company
P.O. Box 4545
Atlanta, Ga. 30302

Defense Priority Rating: *none*

Assigned to: *Geophysical Science* (School/Laboratory)

COPIES TO:

Project Director
Division Chief (EES)
School/Laboratory Director
Dean/Director-EES
Accounting Office
Procurement Office
Security Coordinator (OCA) ✓
Reports Coordinator (OCA)

Library, Technical Reports Section
Office of Computing Services
Director, Physical Plant
EES Information Office
Project File (OCA)
Project Code (GTRI)
Other _____

SPONSORED PROJECT TERMINATION SHEETDate 11/1/82

Project Title: Seismic Monitoring Near the Rocky Mountain Project

Project No: G-35-627

Project Director: Dr. L. T. Long

Sponsor: Ga. Power

Effective Termination Date: 9/15/82

Clearance of Accounting Charges: _____

Grant/Contract Closeout Actions Remaining:

- ☒ Final Invoice and Closing Documents ~~XXXXXXXXXXXX~~
- ☐ Final Fiscal Report
- ☐ Final Report of Inventions
- ☐ Govt. Property Inventory & Related Certificate
- ☐ Classified Material Certificate
- ☐ Other _____

Assigned to: Geo Sci (School/Laboratory) ~~XXXXXXXXXX~~COPIES TO:

Administrative Coordinator
Research Property Management
Accounting
Procurement/EES Supply Services

Research Security Services
Reports Coordinator (OCA)
Legal Services (OCA)
Library

EES Public Relations (2)
Computer Input
Project File
Other _____

LIBRARY DOES NOT HAVE

Quarterly Letter Report No. 1

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

Atlanta, Georgia 30332
(404) 894-2857

November 3, 1977

Mr. C. R. Thrasher
Georgia Power Company
P.O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 2, Covering Period of 13 June
1977 to 13 September 1977

Reference: Seismic Monitoring near Rocky Mountain, Georgia

Dear Sirs:

Recording of seismic data began 22 July 1977 with a single geophone tube assembly near the proposed Rocky Mountain Dam Site. Work during the Second Quarterly Report Period consisted primarily of evaluation of site location, equipment, and analysis of events recorded. Further completion of the network is awaiting frequency allocations and data transport equipment.

Problems associated with the initial geophone tube assembly caused data loss during the following periods:

1100 EDT 30 July - 1900 EDT 31 July 1977: Loss of carrier signal; phone line interruption

1600 EDT 8 August - 0900 EDT 19 August 1977: Repair of calibration circuitry

0330 EDT 30 August - 0830 EDT 9 September 1977: Loss of second stage amplifier

The location and quality of the initial seismic monitoring station (RMG) appears to be excellent. Background noise is low except during periods of thunderstorm activity. A histogram of the number-versus-distance (see enclosure) of quarry and other commercial blasts recorded at RMG during the period 19 August to 29 August, 1977, shows the distance distribution of events recorded. The bulk of the data recorded has s-p times of 20-27 seconds which represents blasts originating 159km to 214km (99 to 130 miles) distance. Another peak appears at s-p times of 5 seconds or 40km (25 miles). For purposes of identifying and locating events important to the area of concern, it has been decided that s-p times of 4 seconds or less, which approximate a 30km (20 miles) radius about the proposed site, are the only events which will be logged and studied in detail in the future, except for identifiable regional and worldwide earthquakes. The average number of events

...///

Mr. C. R. Thrasher
November 2, 1977
Page Two

recorded per day is 35 for a normal work week of Monday through Friday.
The weekend average for Saturdays is 10 and for Sundays 3.

Regional earthquakes recorded at RMG during the reporting period are as follows:

27 July 1977	04:52:30.0 UST	near Franklin, Georgia (blast?)
27 July 1977	22:03:44.0 UST	near Englewood, Tennessee
25 August 1977	04:21:07.0 UST	near Bowman, South Carolina
28 August 1977	16:39:30.8 UST	in Central Georgia

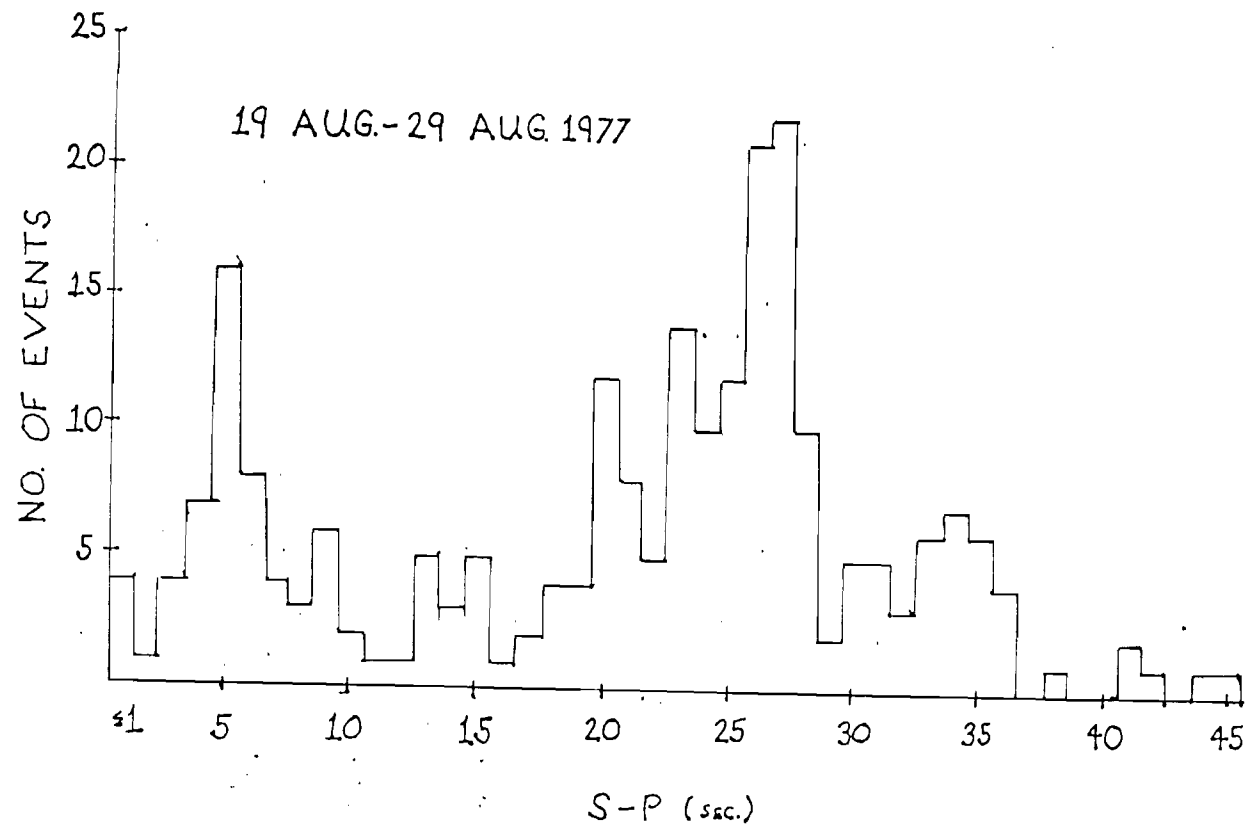
As of the date of this report, no identifiable natural seismic activity has been detected within the area of the proposed project. Those events of 1 second or less s-p times have been analyzed as blasts associated with exploration and testing within the project site. Many of these events have a corresponding air blast recorded, appear in the records during daylight hours and are absent during weekend periods.

Respectfully submitted,

Leland Timothy Long
Associate Professor

Encl.

LTL/gh



GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

Atlanta, Georgia 30332
(404) 894-2857

January 16, 1978

Mr. C.R. Thrasher
Georgia Power Company
P.O. Box 4545
Atlanta, Ga. 30302

Subject: Quarterly Letter Report Number 3, Covering Period of
14 September to 13 December 1977

Reference: Seismic Monitoring Near Rocky Mountain, Georgia

Dear Sirs:

Recording of seismic data continued throughout this reporting period with single station coverage (RMG) using Southern Bell Telephone facilities as a data carrier. Surveyed coordinates of the station location by The Georgia Power Company are $34^{\circ} 22' 05''$ N (34.3681 N) $85^{\circ} 16' 49.9''$ W (85.2805 W).

Work during the third quarterly report period consisted of continued evaluation and analysis of events recorded with emphasis on S-P times of less than or equal to 5 seconds. Planning and preparations were begun for obtaining equipment and designing systems to establish a three station net in the Rocky Mountain area using VHF commercial band radio transmission as data line to the Hammond Power Plant near Rome, Georgia.

Problems associated with the geophone tube assembly and telephone data service caused data loss for the following periods:

2220 UT 21 Sep - 1120 UT 22 Sep 1977: Loss of carrier signal;
phone line disconnected

0445 UT 20 Nov - 0115 UT 21 Nov 1977: Loss of carrier signal;
phone line interrupted

1640 UT 28 Nov - 2145 UT 2 Dec 1977: Loss of carrier signal;
phone line interrupted

An additional 100 hours of records were lost due to ink loss at recorder and 10 hours were lost due to record changing errors. The equipment and recorders operated 86% of the time available during reporting period.

Mr. C.R. Thrasher
January 4, 1978
Page 2

The quality of records remained excellent during the reporting period. Numerous commercial and quarry blasts were recorded daily. The most notable and reoccurring of these events within an S-P time of 5 seconds is a 4.1 second S-P time which has a distinguishing trace record and is easily identified. A few events were recorded within the 0 to 2.0 second S-P time. Some of these had air wave arrivals. The most notable of these events included the large blast on Rocky Mountain for purposes of the project construction at 22:21:20.1 UT 18 November 1977. Of the very distant events recorded 18 teleseismic earthquakes were identified.

Regional earthquakes recorded during reporting period include:

16 October 04:41:41.1 UT - N.W. Tennessee ?

28 October 11:53:08.3 UT - Near Maryville, Tennessee (Blast ?)

For the third quarterly reporting period no natural seismic activity has been identified for the area within the Rocky Mountain Project. Monitoring will be continued.

Respectfully submitted,

Leland Timothy Long
Assoc. Professor of Geophysics

LTL:nlm

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

Atlanta, Georgia 30332
(404) 894-2857

March 31, 1978

Mr. C. R. Thrasher
Georgia Power Company
P.O. Box 4545
Atlanta, Georgia 30302

SUBJECT: Quarterly Letter Report Number 4 Covering Period of 13 December 1977 to 13 March 1978

REFERENCE: Seismic Monitoring near Rocky Mountain, Georgia

Dear Sirs:

Seismic monitoring of the Rocky Mountain area continued this reporting period with single station coverage (RMG). As of this report no natural seismic activity has been detected within the project area.

Loss of the carrier signal from the geophone tube assembly caused data loss for the following period:

1949 UST 4 March 1978 - 2239 UST 9 March 1978

Damage to the cable connecting the geophone tube assembly to the telephone data link interface which caused the carrier signal loss was due to gunshot penetration. This loss of data represents 5.8% of the total time available for monitoring. An additional 87 hours of recording time was lost due to recorder pen ink clogging representing 4.1% of the total time available. Also 17 hours were lost due to transferring the recorder unit to another location, accounting for 0.8% of the total time available. Thus, 10.7% of the total recording time available was lost during the reporting period.

The quality of records and level of background noise remained excellent for the station RMG. Due to the reduced level of commercial blasts because of the bituminous coal miners strike, many regional events (both blasts and earthquakes) were readily identified. The following regional events are reported for the interest of the Rocky Mountain Project:

16 DEC RMG 01:27:41.0 UT

Probable Blast located near 34.6N
85.5W on the Georgia-Alabama border
13 miles NW of Summerville, Ga. Characteristic 4.1 S-P commonly received at RMG.

...///

Mr. C. R. Thrasher
March 31, 1978
Page Two

5 JAN RMG 09:59:29.0 UST	Regional earthquake located near 35.0N 84.8W on Georgia-Tennessee border east of Chattanooga, Tenn. $M_b \pm 1.2$
8 JAN RMG 11:35:10.95 UST	Earthquake on Alabama-Mississippi border. $M_b \pm 2.2$
19 JAN RMG 22:43:39.6 UST	Possible blast or earthquake located near 35.2N 85.4W, 15 NW of Chattanooga, Tenn. $M_b \pm 1.7$
18 FEB RMG 12:39:13.3 UST	Possible blast (earthquake?) located near 35.4N 85.5W, 25 miles NW of Chattanooga, Tenn. $M_b \pm 1.7$
1 MAR RMG 04:08:46.7 UST	Earthquake felt and located near 34.4N 86.6W, 15 miles SE of Huntsville, Ala. $M_b \pm 1.9$
2 MAR RMG 17:04:50.1 UST	Possible blast or earthquake located near 35.4N 85.2W, 25 miles north of Chattanooga, Tenn. $M_b \pm 1.8$

Other work completed during this reporting period includes continuing planning and collection of equipment for three station net proposed for the Rocky Mountain Project. The selected initial station sites are as follows:

STATION 1 (RMG, Rocky Mountain Georgia)

Located 34.3357N 85.3171W on the SW flank of Rocky Mountain at the 1100 foot level on Georgia Power Company property.

STATION 2 (SMG, Simms Mountain Georgia)

Located 34.3452N 85.3485W to the west of the power lines on Simms Mountain at the 1100 foot level on national forest property

STATION 3 (TVG, Tennessee Valley Georgia)

Located 34.3761N 85.3050W to the north of the power plant road on the southern flank of Simms Mountain at the 1000 foot level on national forest property

REPEATER SITE

Located just to the west of power lines on Lavender Ridge near Finche Gap

RECEIVER SITE

Hammond Plant, west of Rome, Georgia

Each seismic monitoring station will include a geophone tube assembly,

...///

Mr. C. R. Thrasher
March 31, 1978
Page Three

data link transmitter, transmitting antenna, lead battery storage cell, and solar panel. The repeater unit will include three receivers, one transmitter, a frequency mixer box, a receiver antenna, transmitter antenna, lead storage cell, and solar panel. The receiver site at Hammond Plant will include one receiver and receiver antenna. This net could be installed and operational during the next reporting period contingent on final authorization for frequencies for transmitters and timely delivery of solar panels, RF transmitters and receivers.

The seismic events suspected to have occurred within the Rocky Mountain Project for this reporting period have been carefully analyzed. All events with S-P times of less than one second have an associated air wave. All S-P times within four seconds have been interpreted as quarry or other commercial blasts with the same familiar character as were identified on records of previous reporting periods. Again, no natural seismic activity has been interpreted off the RMG records as occurring within the Rocky Mountain Project area.

Respectfully Submitted, /

Leland Timothy Long
Associate Professor

LTL/gh

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

Atlanta, Georgia 30332
(404) 894-2857

July 12, 1978

Mr. C.R. Thrasher
Georgia Power Company
P.O. Box 4545
Atlanta, Ga. 30302

Subject: Quarterly Letter Report Number 5, Covering Period of 13
March 1978 to 13 June 1978

Reference: Seismic Monitoring Near Rocky Mountain, Georgia

Dear Sirs:

During this reporting period the first of the VHF data link seismic stations was installed on the southwest ridge of Rocky Mountain. Also, the repeater unit for installation on Lavender Ridge for VHF relay to the Hammond Plant has been assembled. The receiver at Hammond Plant is being modified to provide proper interface with the Georgia Power communication system. The interfacing of the VHF units to the micro-wave system is anticipated to be completed by 23 August 1978 as by agreement with Georgia Tech and the Georgia Power Company Communications Division. By that time the remaining two VHF seismic stations will be in place on Simms Ridge to complete the three station net. At that time, also, the present station (RMG) will be moved and the current phone line system will be terminated.

Seismic data from the present station (RMG) underwent a degradation during this reporting period due to background noise from construction work on the planned dam site and power house site. During the month of June the background noise level has subsided substantially. Seismic events identified as occurring within the immediate and surrounding area have been associated with construction blasts for the project. No natural seismic activity has been detected within or near the proposed project site.

Regional events recorded by RMG during this report period include:

22 Apr 1978	RMG 06:37:21.2	UT	Located near Lake Jocassee, S.C.
2 Jun 1978	RMG 02:08:39.9	UT	Located in South Illinois
9 Jun 1978	RMG 23:15:16.2	UT	Located in Northern Tennessee

Mr. C.R. Thrasher
July 12, 1978
Page 2

Another event recorded with a pure academic interest was the:

24 Mar 1978 RMG 00:46:14.9 UT

This event was a telesism of magnitude 6.0 (m_b) located southeast of Bermuda at 30.61N 68.29W.

Maintenance problems incurred during this reporting period include RMG being out of operation for the period 21:24 UT 18 May to 20:50 UT 24 May 1978 due to a severed cable connecting the geophone to telephone line interface. Other problems included 174 hours lost due to background noise as explained in paragraph one. This represents a loss of approximately 8% of the total hours available for recording during the reporting period. Due to loss of ink on seismograph 54 hours were lost. This represents about 2% of available recording time. Another 15 hours were lost due to record changing errors which represents 0.7% of available recording time.

No natural seismic events were detected during this report period within the project site or surrounding area. With the completion of the three station net, location and detection of local events will be significantly improved over the present single station coverage.

Sincerely,

Leland Timothy Long
Associate Professor

LTL:nlg

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

November 9, 1978

Atlanta, Georgia 30332
(404) 894-2857

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 6, covering period
of 14 June 1978 to 13 September 1978

RE: Seismic Monitoring near Rocky Mountain, Georgia

Dear Sirs:

During the reporting period of 14 June 1978 to 13 September 1978 the Rocky Mountain area continued to be monitored by single station coverage (RMG). As of this report no natural seismic activity has been detected within the project area.

Regional earthquakes and events which could be either an earthquake or a blast recorded by RMG during this report period include:

16 JUN 1978	RMG	20:40:24.8 UT	Located near Dalton, Ga.
29 JUN 1978	RMG	10:19:01 UT	Approximately 175 km N or NW of RMG; insufficient stations to locate
24 JUL 1978	RMG	08:08:17.3 UT	Located in Gulf of Mexico
4 AUG 1978	RMG	08:49:26.8 UT	Approximately 238 km N or NW of RMG; insufficient stations to locate.
10 AUG 1978	RMG	10:37:08.6 UT	Located approx. 34°32'N latitude, 84°26'W longitude (possible blast but at odd time)
21 AUG 1978	RMG	23:15:51.7 UT	Located near Chickamauga, Ga.
26 AUG 1978	RMG	14:04:44.0 UT	Approx. 162 km N or NW of RMG; insufficient stations to locate
26 AUG 1978	RMG	18:59:56.4 UT	Located approximately 34°36'N latitude, 85°20'W longitude
31 AUG 1978	RMG	00:32:00.05 UT	Approx. 400 km N of RMG; insufficient stations to locate.
1 SEP 1978	RMG	08:33:30.95 UT	Approx. 50 km N or NW of RMG; insufficient stations to locate.

Instrument or communication line failures occurring during this reporting period resulted in only minor loss of recording time. Recording times lost include the partial loss of 120 hours, 5% of total recording time, because of recording instrument failure which allowed the pen on the seismograph to move only in one direction, and the loss

Page Two

of 21.25 hours, or 0.97% of the total recording time, due to the loss of time marks. Background noise accounts for a loss of 25 hours, 1.14% of the total recording time, and the loss of ink on the seismograph resulted in 12.7 hours lost. This is 0.58% of the total recording time. Approximately 4 hours or 0.15% of the total recording time was lost while changing records. The total time lost during this recording period was 183 hours or 7.84% of the total recording time.

During the period, the major effort on the project was directed toward further assembly of the RF telemetry equipment. The two RF telemetry seismic stations for Simms Ridge have been completely assembled and they will be installed when permission is ascertained. The repeater unit was partially installed but was brought back to the shop for modification. The station on the west end of Rocky Mountain has been installed and should be in operation.

The quality of recording at Station RMG on the east end of Rocky Mountain has deteriorated during the latter part of the reporting period because of construction noise at the site. The telephone telemetry system to this site will be eliminated after approximately one month of successful operation of the RF telemetry systems.

No natural seismic activity has been identified from the Rocky Mountain project area.

respectfully submitted,

Leland T. Long
Project Director

LTL/dp

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

Atlanta, Georgia 30332
(404) 894-2857

December 20, 1978

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 7, covering period of
14 September 1978 to 13 December 1978

Re: Seismic Monitoring near Rocky Mountain, Georgia

Dear Sirs:

During the reporting period of 14 September 1978 to 13 December 1978 the Rocky Mountain area continued to be monitored. The seismic recording net in the Rocky Mountain area was extended from single station to double station coverage.

As of this report no natural seismic activity has been detected within the project area.

Regional and academically interesting earthquakes and events which could be either an earthquake or a blast recorded by the seismic stations at Rocky Mountain, Georgia include:

<u>Date</u>	<u>Time</u>	<u>Location</u>
15 SEP 1978	05:51:06.2 UT	Approx. 490 km North northwest of RMG; insufficient data to locate
23 SEP 1978	07:34:19.4 UT	Regional Earthquake in Arkansas
4 OCT 1978	05:27:46.6 UT	Located near LaGrange, Georgia (Blast?)
22 NOV 1978	00:36:00.18 UT	Located near London, Kentucky
26 NOV 1978	04:25:37.31 UT	Approx. 39 km from RMG; insufficient data to locate
29 NOV 1978	19:52:05.18 UT	Mexico Earthquake
5 DEC 1978	01:47:38.2 UT	Central U.S.A. Earthquake
	07:00:31.6 UT	Central U.S.A. Earthquake
11 DEC 1978	02:06:44 UT	Approx. 352 km from RMG. earthquake in Alabama- Miss. border (32N, 88.5W) reit Int. V at Melvin
12 DEC 1978	03:34:39.2 UT	Approx. 64 km from RMG. possibly near Trenton, Ga. however, insufficient stations to accurately locate.

The two station seismic nets consists of the old RMG station which is near the construction site and which is relayed to Georgia Tech on a phone line and the new RMG station which is transmitted over the VHF radio and microwave system. The total possible recording time of the old RMG station was 2160 hours. Of which 173.75 hours were lost due to cutting of the cable from the geophone to the telephone company lines. Another 161 hours were lost due to phone line trouble. The loss of ink on the recorder accounts for a loss of 39 hours. Background noise caused the recorder to be unreadable for 65 hours. There was a total loss of record of 438.75 hours or 20.3% of the total recording time. However, even when the records were readable, they were often indistinct. These indistinct records may be due to noise created in the construction area. The new RMG station was first recorded on October 31, 1978. The total possible recording time for this station is 1008 hours. At the new RMG station 25.75 hours were lost due to a loss of ink. Background noise accounts for a loss of 27.25 hours. Another 15 hours are due to an unexplained loss of carrier. The possible loss of charge on some batteries in the field system may account for a loss of 68.5 hours. This station has a total loss of record of 136.5 hours or 13.5% of the total recording time.

During this reporting period, field work on the seismic net in the Rocky Mountain area continued with the activation of the new RMG station on the southwest flank of Rocky Mountain and of the repeater system on Lavender Ridge near Fouché Gap. On the 24th of October the seismic signal was first transmitted over the VHF data link system and received at the Hammond Power Plant. The signal was subsequently transferred to Atlanta by microwave. With the installation of a direct phone line from Georgia Power in Atlanta to Georgia Tech, the signal was first received and recorded at Georgia Tech on October 31, 1978. The remaining field work consisted of verifying property boundaries for the possible relocation of SMG, finalizing permission for the installation of TVG, and minor adjustments to the repeater system. Weather permitting, the entire three station seismic system will be in operation by the end of the next reporting period.

No natural seismic activity has been identified from the Rocky Mountain project area.

respectfully submitted,

Leland T. Long
Associate Professor

LTL/dp

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

March 16, 1979

Atlanta, Georgia 30332
(404) 894-2857

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 8, covering period of
14 December, 1978 to 13 March, 1979.

Re: Seismic Monitoring near Rocky Mountain, Georgia.

Dear Sirs:

During the reporting period of 14 December 1978 to 13 March 1979 the Rocky Mountain area continued to be monitored. As of this report no natural seismic activity has been detected within the project area.

On the 29th of December 1979 the conversion of the Rocky Mountain seismic monitoring system from the phone line to VHF radio and microwave relay suffered a delay due to vandalism. The repeater site, located on Lavender Mountain near Fouché Gap, was found and two VHF receivers, one R. F. splitter, and signal mixer, a steel box, and approximately 300 feet of cable were stolen. By use of other equipment the repeater site was once more made operational. Replacements for the stolen receivers are on order and should be available by the end of March, 1979.

The status of the seismic monitoring stations and field work, including work to minimize the chance of further vandalism at the repeater site include:

<u>Date</u>	<u>Status/Field Work</u>
16 DEC 1978	Site location for SMG
20-21 DEC 1978	Installation of SMG
29 DEC 1978	Repeater site vandalized, VHF data link system down; single station coverage relayed on the phone line.
4 JAN 1979	Disassembled the remainder of the repeater site to prevent further vandalism and evaluated the area to find a suitable place for the relocation of the repeater site.
17-18 JAN 1979	Sunk a steel box in 240 pounds of concrete and installed the receiving antenna at the repeater site. Traded the transmitter for the 3rd (uninstalled) VHF station with the transmitter at the RMG site on the SW of Rocky Mountain.

27 JAN 1979	Installed the solar panel battery box, battery, and the VHF receiver for the transmitter at the RMG site at the repeater site, over 300 feet of cable was buried.
1 FEB 1979	The transmitter and transmitting antenna were installed at the repeater site. Another 50 feet of cable was buried. The VHF system was once more operational.
6 FEB 1979	The station on the phone line went down.
15 FEB 1979	Pulled out the station on the phone line. Moved the repeater site's transmitter and transmitting antenna higher in the tree to discourage vandalism.
18 FEB 1979	VHF system turned to total noise. No coverage.
22 FEB 1979	Determined that for some reason a good signal was not being picked up at Hammond Power Plant. It was thought that relocation of the antenna of Plant Hammond would help.
1 MAR 1979	Met with Georgia Power Communication personnel. It was determined that reception was fine, probably transmitter or receiver off frequency or some other problem.
3 MAR 1979	It was determined that the receiver at the repeater site was bad. It was brought back to Georgia Tech for testing. A directional antenna was installed at Plant Hammond in place of the omnidirectional antenna.
6 MAR 1979	Crystals from the bad receiver were placed in the receiver at Hammond. The signal from the station on the SW part of Rocky Mountain was received. The VHF system was once more operational.
13 MAR 1979	The VHF seismic monitoring system is operational. The signal from the station on the SW end of Rock Mountain is being broadcast directly to Hammond without a repeater site. The quality of the data seems to be weather dependant. SMG is still broadcasting and shall be put back on the VHF system when the replacement receivers arrive from the manufacturer. The equipment for the third seismic station has been assembled. This station shall be installed in the next reporting period.

During the reporting period the VHF, microwave system was down a total of 50 days (1200 hours). There was phone line coverage for 33 of these days (792 hours). Therefore, only 17 days (408 hours) were lost due to vandalism and other problems. For the 40 days (960 hours) which

the VHF system was operational, 83 hours were lost due to the squelching in and out of the bad receiver and other noise. There was a loss of ink of 12 hours on the recorder and an unexplained loss of carrier for 20 hours. The noise, loss of ink, and loss of carrier totals to a loss of record of 115 hours or 12% of the time the VHF system was operational.

Regional events recorded by the Rock Mountain seismic monitoring system during this reporting period are given in Table I.

As of the date of this report, no natural seismic activity has been identified as occurring within the Rock Mountain project area.

Respectfully submitted,

Leland T. Long
Associate Professor

LTL/dp

TABLE I

Regional events recorded at Rocky Mountain

ID NO.	DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAGNITUDE
--------	------	-------------	----------	-----------	-------	-----------

NEAR WATFORD, TENNESSEE

3	77/01/18	12:01:22	36.1641	84.3141	0.000	///
	ORT	PLS	12:01:	27.400	+/-	1.000
	ORT	SLB	12:01:	33.000	+/-	1.000
	R-0	EN	12:01:	57.600	+/-	2.000
	REN	EN	12:02:	7.200	+/-	2.000
	PLS	EN	12:02:	12.300	+/-	2.000

NEEDHAM, SOUTH CAROLINA

2	77/01/18	08:00:35	34.7137	81.9081	0.000	//////
	ENG	EN	08:56:	10.400	+/-	2.000
	CH	PLS	08:58:	32.000	+/-	1.000
	CH	SLB	08:58:	3.300	+/-	1.000
	TK	PLS	08:58:	55.500	+/-	1.000
	CH	SLB	08:58:	12.200	+/-	1.000

ABOUT 10 MI SE OF FAIRBURN, NORTH CAROLINA

4	77/02/01	08:25:48	35.2938	83.3557	0.000	///
	ENG	EN	08:26:	21.500	+/-	1.000
	ENG	EN	08:26:	44.900	+/-	1.000
	ENG	EN	08:26:	20.000	+/-	1.000
	ENG	EN	08:26:	41.900	+/-	1.000
	ENG	EN	08:26:	21.700	+/-	1.000
	ENG	EN	08:26:	47.500	+/-	1.000

NEAR N-RIVILLE, TENNESSEE

3	77/03/07	11:01:	35.0220	84.3125	0.000	///
	ENG	EN	11:01:	31.100	+/-	1.000
	ENG	EN	11:01:	35.100	+/-	2.000
	ENG	EN	11:01:	48.200	+/-	1.000
	ENG	EN	11:02:	13.500	+/-	2.000
	ENG	EN	11:01:	49.300	+/-	2.000
	ENG	EN	11:02:	23.000	+/-	3.000
	ENG	EN	11:01:	29.700	+/-	3.000
	ENG	EN	11:02:	22.300	+/-	2.000
	ENG	EN	11:02:	13.300	+/-	1.000
	ENG	EN	11:01:	07.200	+/-	2.000
	ENG	EN	11:01:	22.400	+/-	1.000

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

June 20, 1979

Atlanta, Georgia 30332
(404) 894-2857

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 9, covering period of
14 March, 1979 to 13 June, 1979

Re: Seismic Monitoring near Rocky Mountain, Georgia

Dear Sirs:

During the reporting period of 14 March, 1979 to 13 June, 1979 the Rock Mountain area continued to be monitored. As of this report no natural seismic activity has been detected within the project area.

The Rock Mountain seismic monitoring system was extended from one station coverage to a 2 station net with the arrival and installation of the replacements for the stolen receivers. Furthermore, the third seismic station (TVG) was installed during this reporting period. Presently, all three stations are operational and are being recorded at Georgia Tech.

Attached is additional information about the Rock Mountain seismic net. This includes descriptions of the seismic system, station locations, the seismic signal, and field equipment. We would appreciate information concerning any changes or errors in this information. You will be informed of any changes we make in the descriptions.

During this reporting period the VHF, microwave system did not produce readable records for 276 hours or 7.9% of the total recording time. The data were lost for the following reasons. Noise at the station recorded on the drum accounts for a loss of 164 hours. The loss of ink on the drum recorder accounts for a loss of 27.5 hours. Loss of power to the mixer box at Plant Hammond caused a loss of 84.5 hours.

Regional events and interesting blasts which were recorded in the Rock Mountain area include:

<u>Date</u>	<u>Origin Time</u>	<u>Location</u>
20 MAR 1979	17:57:41.25 UT	Local blast, on top of Rock Mountain in the sandstone quarry
31 MAR 1979	11:49:41.8 UT	Insufficient stations to locate
4 MAY 1979	12:13:03.9 UT	Earthquake near Greenwood, S.C. 34.75° N, 81.98° W
24 MAY 1979	23:05:49.61 UT	Insufficient stations to locate
11 JUN 1979	04:12:16.9 UT	Earthquake near Carnthersville, Missouri 36.179N, 89.644 WM = 3.8

As of the date of this report, no natural seismic activity has been identified as occurring within the Rock Mountain area.

Respectfully Submitted,

7
2

Leland T. Long
Associate Professor

LTL/dp

Rock Mountain Seismic Monitoring System

The Rock Mountain seismic monitoring system is located in the Georgia Power Company's proposed Rock Mountain dam and reservoir area. This seismic system is being established and monitored by the School of Geophysical Sciences of the Georgia Institute of Technology.

The purpose of this study is to detect and record regional and local earthquakes. If an earthquake is recorded in the vicinity of the project area, then as much information as possible will be collected about this event. This data will improve our understanding of earthquakes which might occur in this area. In particular, if an earthquake occurs, we would like to determine whether the earthquake is related to regional seismic activity or to a mechanism which may be related to the interaction of water and movement on near surface joints.

The Rock Mountain system detects ground movement at three separate locations around the reservoir site and transmits a signal containing these motions to Georgia Tech for recording. The ground motion from one of these seismic stations is continuously recorded for a permanent record and all three stations are monitored by a tape recording system for detection and recording of significant events. The events recorded on tape can be studied in detail for more accurate determination of location and size.

RMG Area

- 0.0 Georgia Tech
 - Get on I-75 North
- 34.0 Get off I-75 North at Exit 123, arrow.) Bethany Beach Road
- 34.0 Turn left and go approximately one mile
- 35.0 Turn right onto U.S. 41
- 44.0 Turn right on U. S. 411 South. (There is a big green sign which says ROME. Follow the arrow)
- 62.6 Exit U.S. 411 South at the Rome 27,20 Exit.
- 65.7 Floyd County Hospital
- 66.05 Fork right onto Shorter Avenue
- 69.3 Turn right onto Huffaker Road (Huffaker Road is at the second red light beyond McDonald's.)
- 74.3 Turn right onto Fouche Gap Road. (Fouche Gap Road is the next paved road after Mt. Alto Baptist Church.)
Climb Lavender Mountain.
- 75.7 If you follow this dirt road to the west, the repeater site may be found. (See the location directions for the repeater site.)
Descend Lavender Mountain.
- 78.4 Dirt road on right with a single pole, steel gate across the entrance. This is the road to the RMG seismic monitoring station. (Note: The key to this gate is in the tool box) (See RMG location information)
- 78.9 Big Texas Valley Road
 - A) Turn left to go to SMG (See SMG location information).
 - B) Turn right to go to TVG (See TVG location information).
 - C) Turn right to go to the Georgia Power field office.
(The Georgia Power field office is 2 miles down Big Texas Valley Road on the left. A chain link fence with barbed wire across the top marks the drive. Can see two white buildings and a drive carefully sign).

To go to the Hammond Power Plant, do not turn onto Huffaker Road at 69.3 but continue on 27,20. Eventually, the power plant will be evident on the left (south) side of the road.

PEOPLE TO CONTACT

Georgia Power Rock Mountain field office

Local Rome number232-0614

Atlanta number.....522-6060
 extensions 3894
 3895

Field Office - Geology personnel

Mr. Ron Wood (transferred to Atlanta - extension 3940 or 2970)

Mr. Ed Davidson

Mr. Bob Cowart (Public relations)

Georgia Power Communications

Mr. Tommy Pickrin - design and installation of phone line - in Atlanta
 447-8111 extension 322

Mr. Phil Baker - Supervisor in charge of Communications in Rome
 291-9971 extension 300
 or call 522-6060 and ask to speak with Mr. Phil Baker
 in communications in Rome, Ga. at 8615-300

Report phone line trouble between Georgia Power and Georgia Tech and any
other problems to: Mr. Rodney Boston at 449-6522

Report changes in the system to: Mr. Rodney Boston at 449-6522

Hammond Power Plant

For permission to enter the power plant have the guard at the gate (if
present) or the lady at the desk check with:

* Ernie Padgent (Engineering) *
Huel Harget

EMERGENCY

Floyd County Police 235-7766
Sheriff 291-4111
Georgia State Patrol 295-6002
Ambulance

Seismic Signal

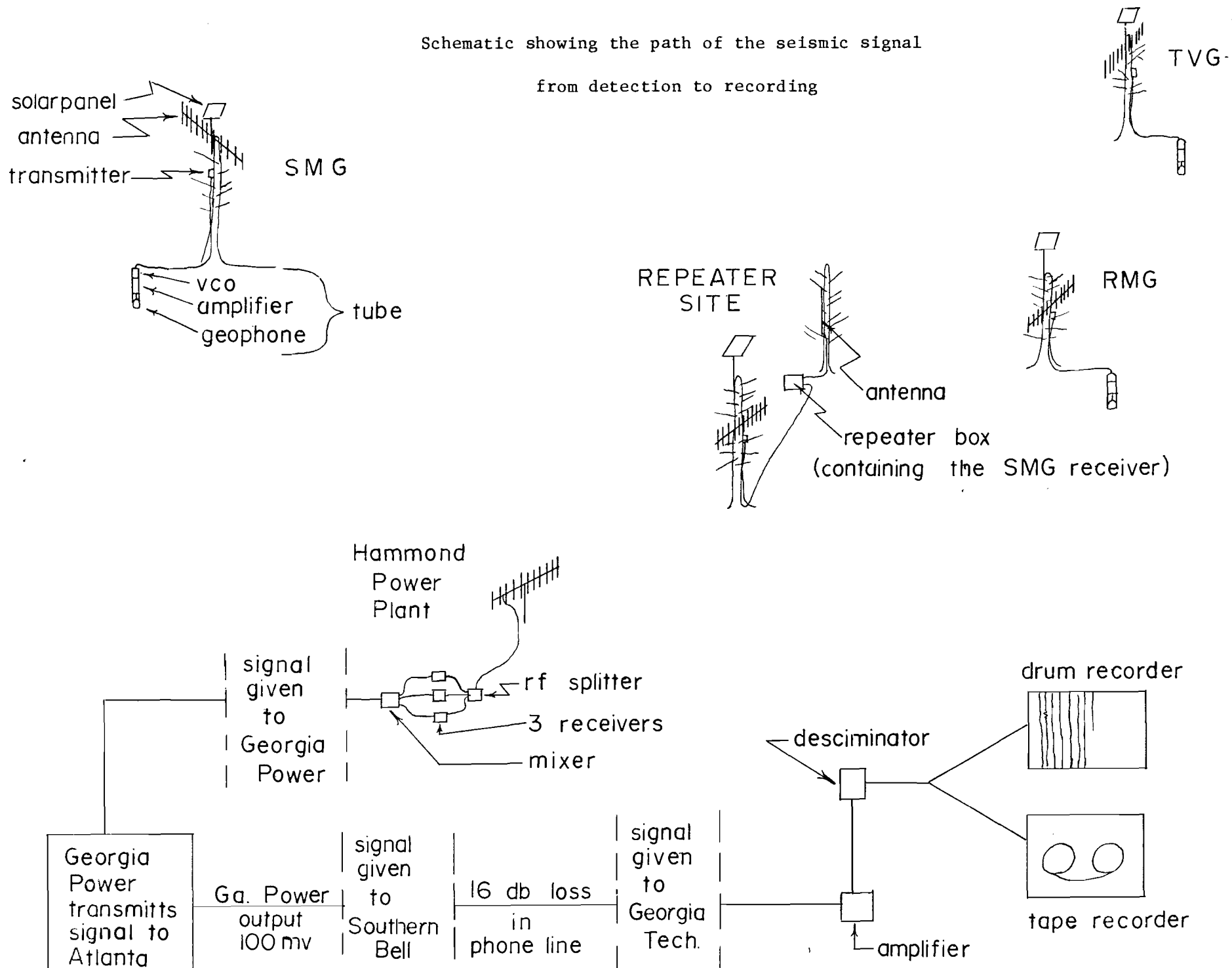
The seismic signal is being detected at the RMG, SMG and TVG seismic stations. These signals are then broadcast to Plant Hammond either directly or through the repeater site on Lavender Mountain. At Plant Hammond the signals are mixed and then the composite signal is turned over to Georgia Power.

Georgia Power takes the composite signal from the Hammond Power Plant and uses its' microwave system to transfer the signal to its' Atlanta office; at the Atlanta office Georgia Power turns the signal over to Southern Bell.

Southern Bell has the responsibility of transferring the signal from the Georgia Power Atlanta office to the Georgia Tech, School of Geophysical Sciences seismic recording system. It should be noted that there is a 16 db loss of signal on this stretch of phone line.

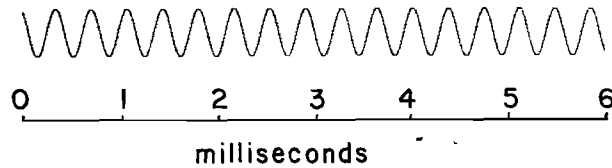
Once the composite signal arrives at Georgia Tech, it is amplified, separated, and recorded. The records produced are subsequently analyzed for local and regional seismic activity.

Schematic showing the path of the seismic signal
from detection to recording

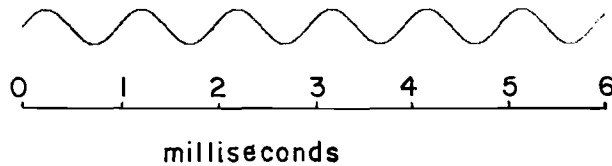


COMPOSITE SEISMIC SIGNAL

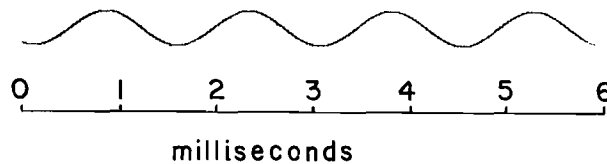
The signal which is given to Georgia Power at Plant Hammond consist of a mixture of three signals at different frequencies. The RMG seismic data is transported at a frequency of 2720 hertz.



The TVG seismic data is transported at 1020 hertz.



The SMG seismic data is transported at 680 hertz.

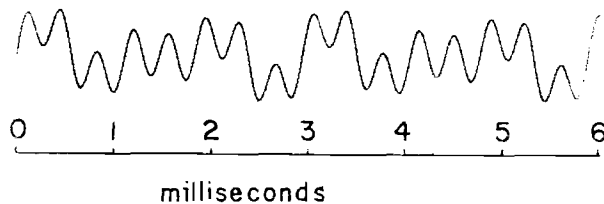


These three signals are mixed by Georgia Tech at Plant Hammond, so that the composite signal contains 0.250 volts of 2720 Hz, 0.180 volts of 1020 Hz, and 0.180 volts at 680 Hz. Mathematically the composite signal is represented by the equation:

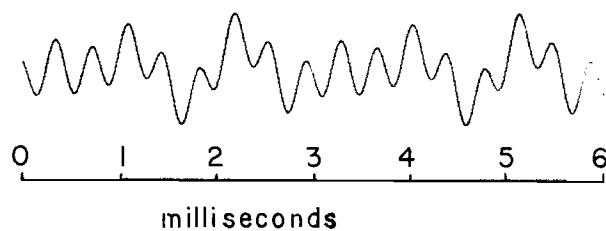
Composite signal = $0.250 \sin(2(2720)t + \phi_1) + 0.180 \sin(2(1020)t + \phi_2) + 0.180 \sin(2(680)t + \phi_3)$ where ϕ_1 , ϕ_2 and ϕ_3 are instantaneous phase angles.

Several possible examples of what the composite signal may look like on an oscilloscope are:

- 1) If $\phi_1 = \phi_2 = \phi_3 = 0.0$



2) If $\phi_1 = 2/3$, $\phi_2 = 4/3$, and $\phi_3 = 0.0$:



As can be seen by the examples above the trace of the composite signal is highly dependent on the instantaneous phase angle. When it becomes necessary for the Georgia Power personnel to check the signal, it will probably be easiest and most accurate just to listen to the signal and to determine which tones are present.

RMG

Location:

The RMG seismic monitoring station of the Rocky Mountain project is located on the southwestern end of Rock Mountain at an elevation of approximately 1100 feet. This station is situated on top of the lower of the two sandstone ridges.

To gain access to the RMG tube site turn right off Fouche Gap road onto the northern most dirt road. This road has a red steel, single bar gate across the turn off. The lock is opened with the round key located in the tool box. Close the gate behind you. From here remember to take a left when possible. Specifically, from the gate travel down the level dirt road for .45 miles and take a left at this first level dirt road. Follow this road .35 miles turn a sharp right and follow the road across the stream. Proceed another .45 miles and make a left turn at the fork. After another .5 miles again take the left fork and drive the truck up this road until you come to the place where the wet weather spring crosses the road. This is as far as you can drive the truck (PARK).

Walk up the road 200-300 feet and take a trail to the right. Cross the stream and proceed up the hill until you reach the top of the ridge. Follow the ridge eastward (uphill) until you reach the crest of this ridge. This is the RMG tube location. It is marked with a Miller beer bottle turned upside down on a twig by the trail going through the site.

Land Owner: Georgia Power Company
Topographic Quadrangle: Rock Mountain, Ga.
Latitude:
Longitude:
Elevation:

RMG

BIG TEXAS VALLEY ROAD

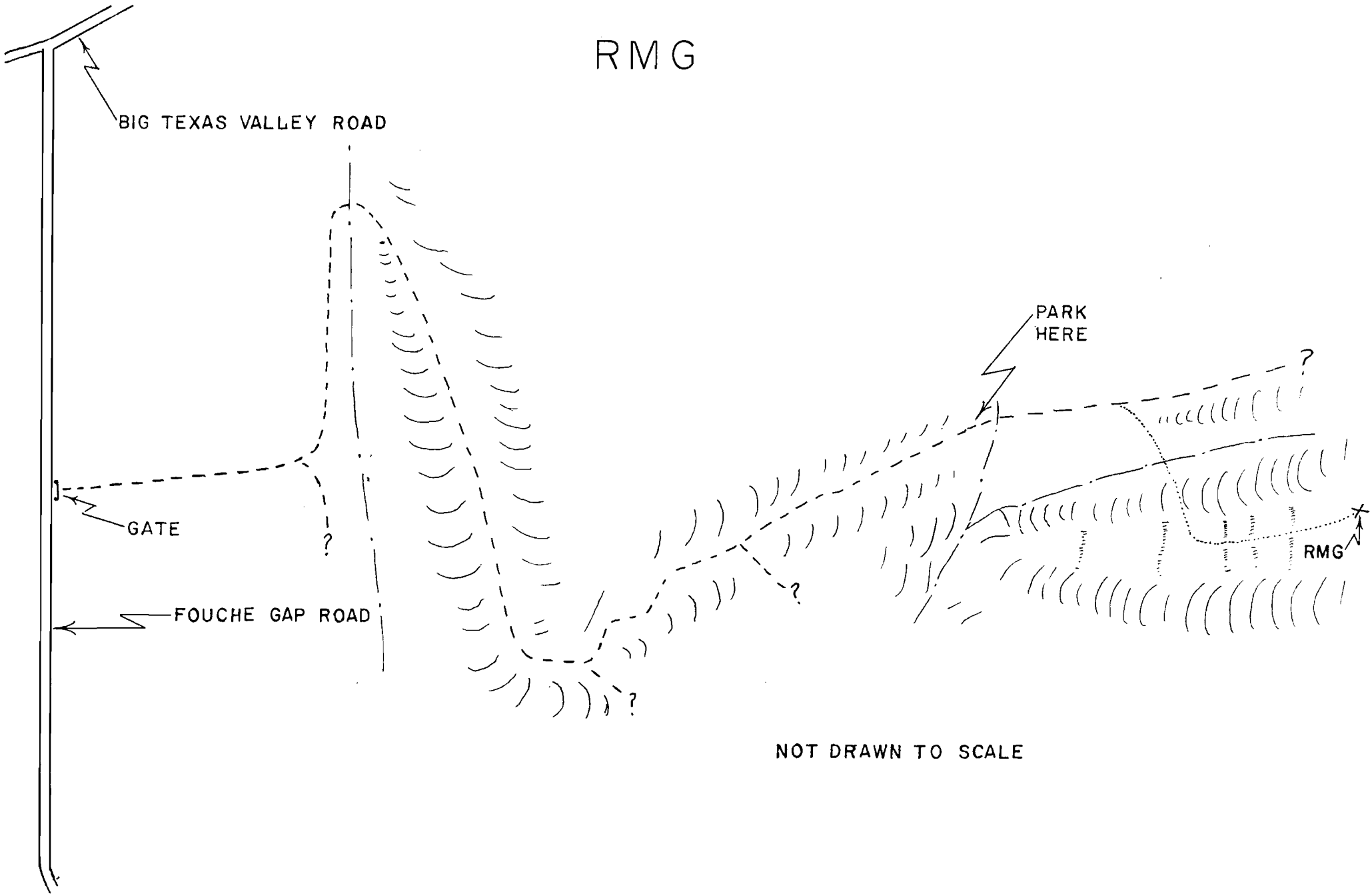
GATE

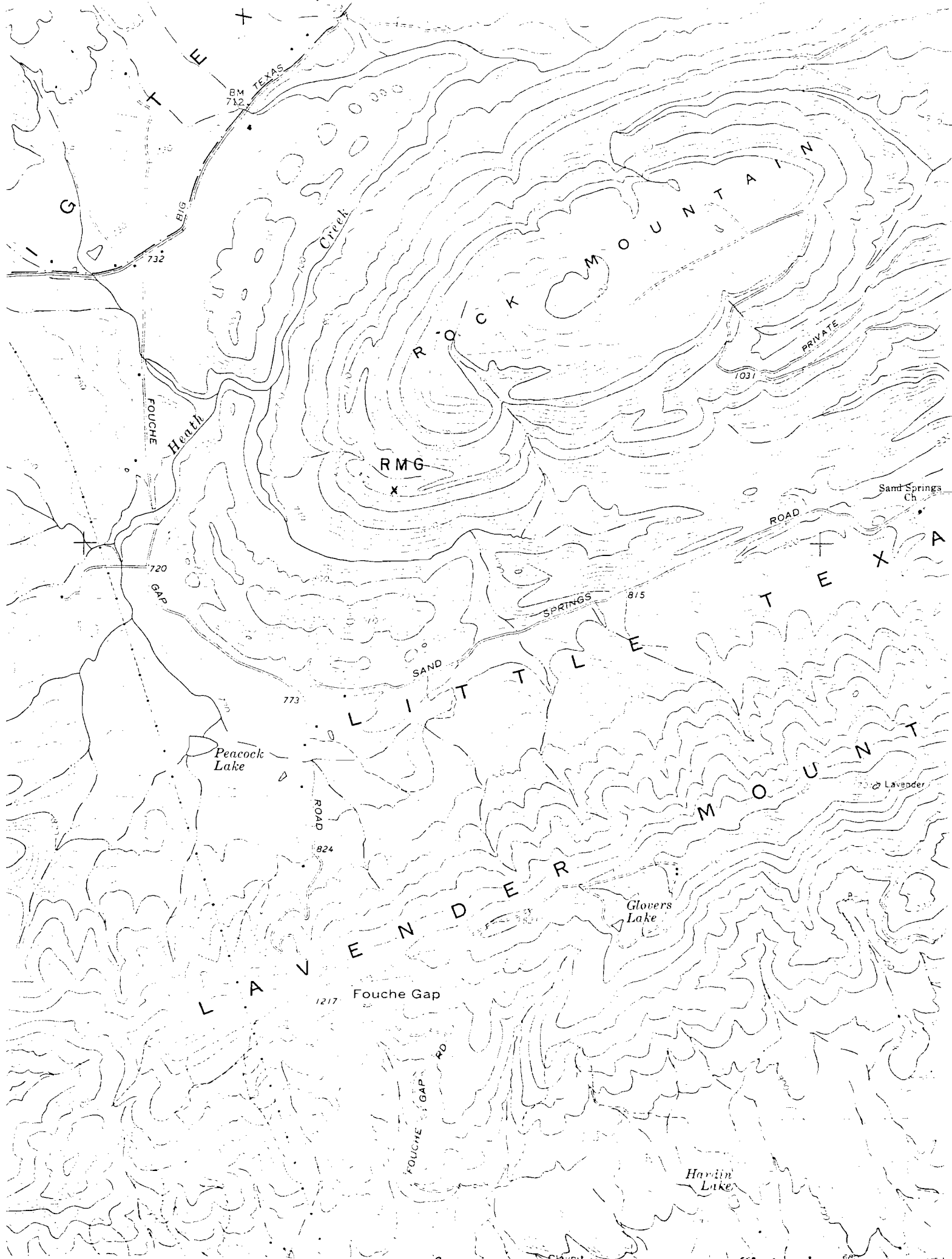
FOUCHE GAP ROAD

PARK
HERE

RMG

NOT DRAWN TO SCALE





SMG

Location:

The SMG seismic monitoring station of the Rocky Mountain project is located on the southeastern side of Simms Mountain at an elevation of approximately 1040 feet and approximately .18 miles west of the power line crossing.

To gain access to this station turn north onto the power line road from Big Texas Valley Road. Follow the road beside the power line until the power line road forks. Take the right fork and climb the steep hill. (Note: The road following the power line becomes very steep and may not be passable.) Everywhere this road branches or forks, go right. Eventually, this road rejoins the power line road. Follow this road, contouring across the area cleaned for power lines, and enter the road which branches off the power line road bearing to the southwest. Follow this road until it switches back and heads uphill. Park here.

Southeastward of the switchback there is a mound of dirt which is traversed by a trail. Follow this trail for 200 to 300 feet. The station is located approximately 50 feet west of the trail. The solar panel for this station can be seen from the trail (Look carefully). Once the tree containing the solar panel, transmitter, and transmitting antenna is found; walk about 30 feet west to find the tube. The tube is covered by a small pile of rocks and wood. The battery box is buried in the ridge southwest of the tube. The battery box is beside a large tree and is also covered with rocks and logs.

Land Owner: Soterra, Inc.
Topographic Quadrangle: Rock Mountain, Ga.
Latitude:
Longitude:
Elevation:

SIMMS MOUNTAIN

SMG

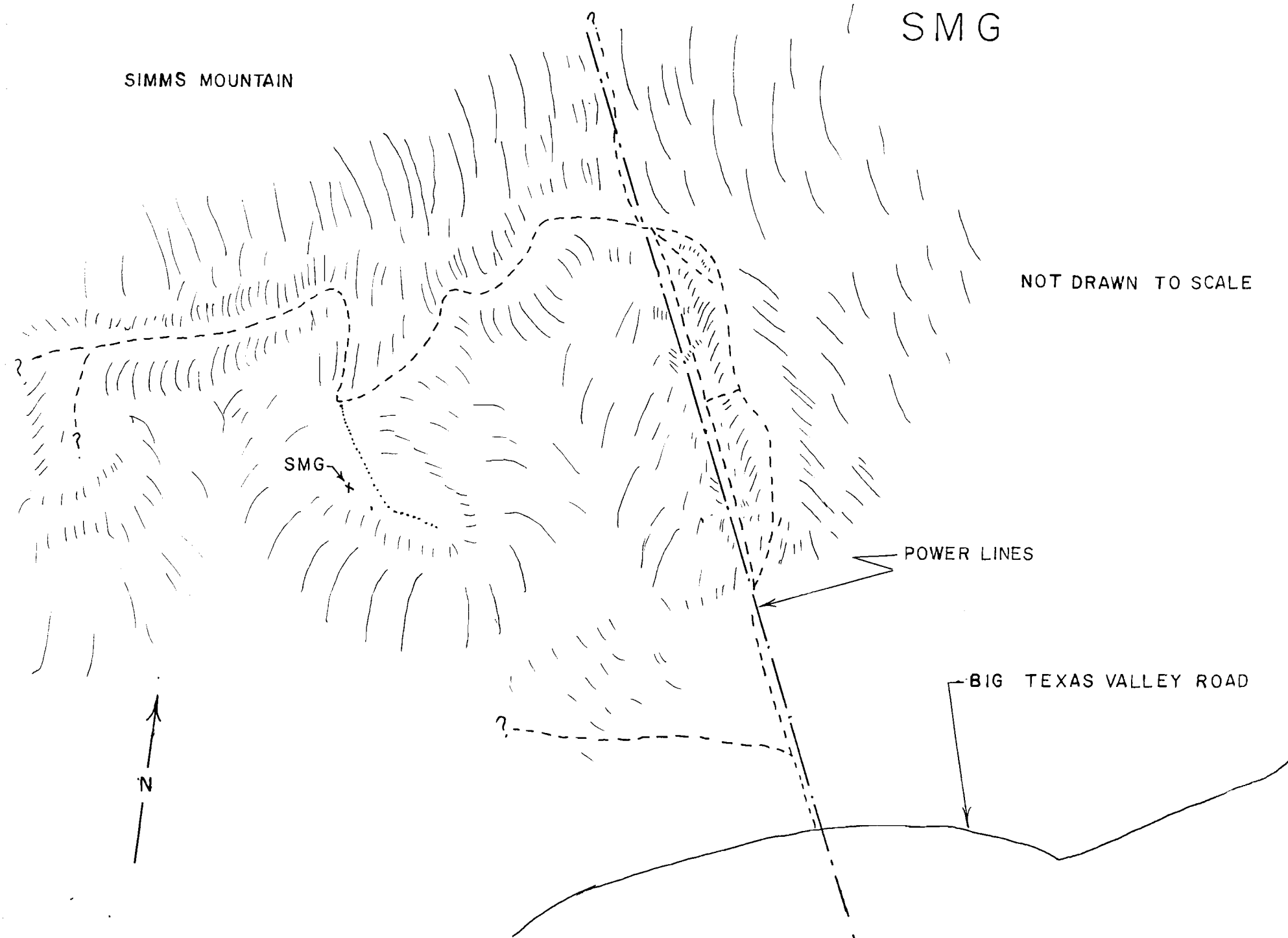
NOT DRAWN TO SCALE

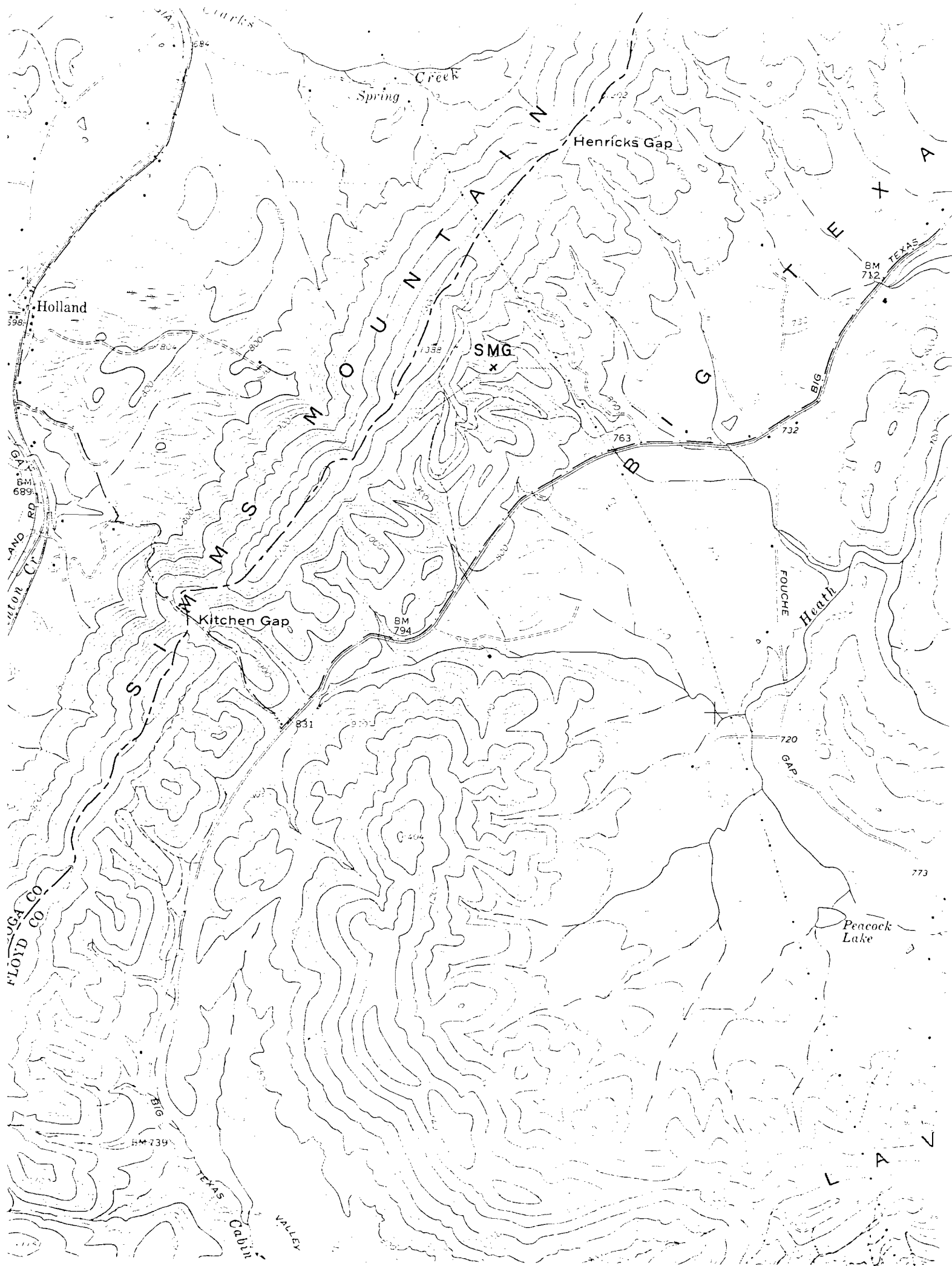
SMG

POWER LINES

BIG TEXAS VALLEY ROAD

N





TVG SITE

Location:

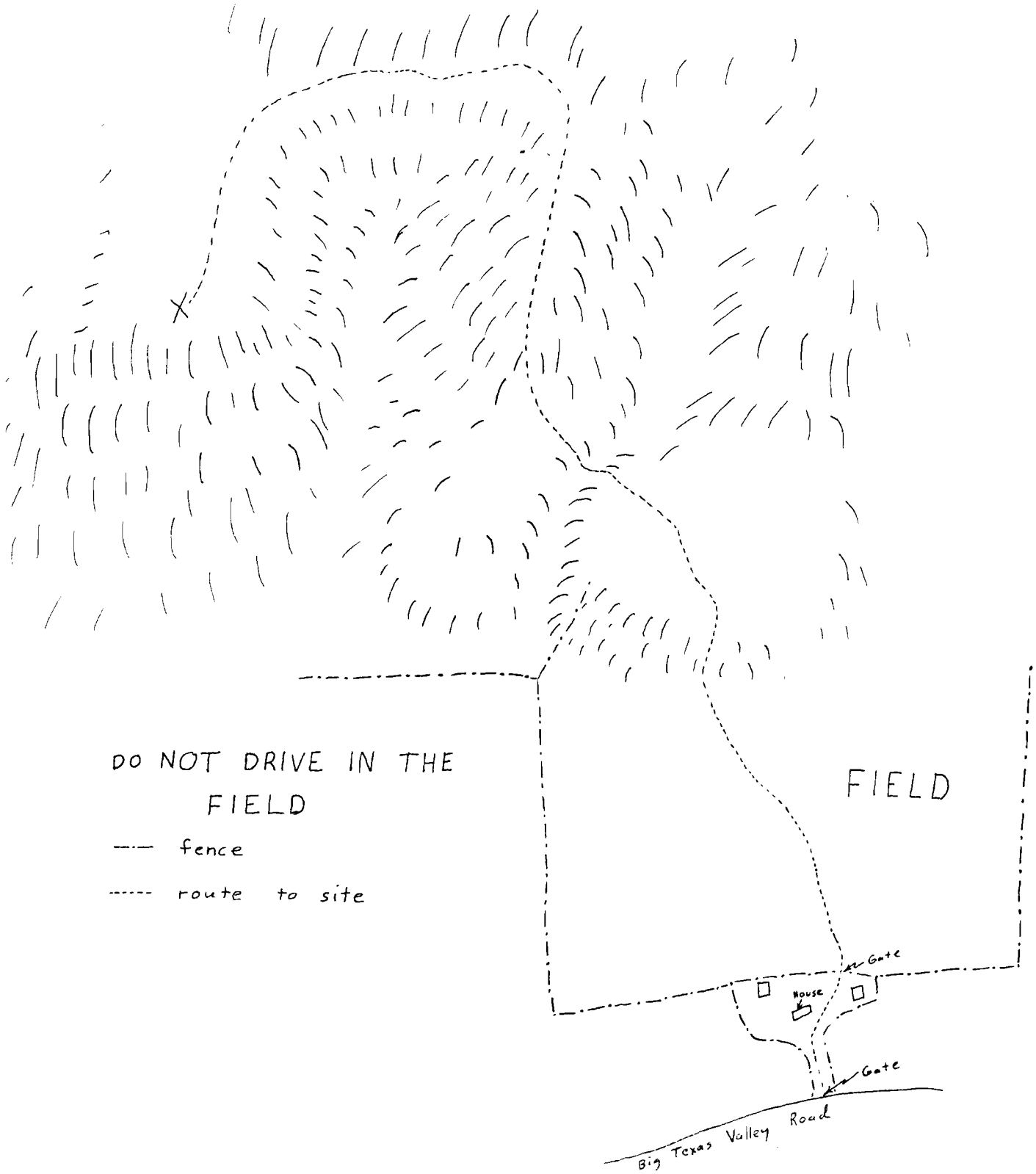
The TVG seismic monitoring station of the Rock Mountain project is located on Simms Mountain north of Big Texas Valley Road and Selman Lakes at an elevation of approximately 1060 feet.

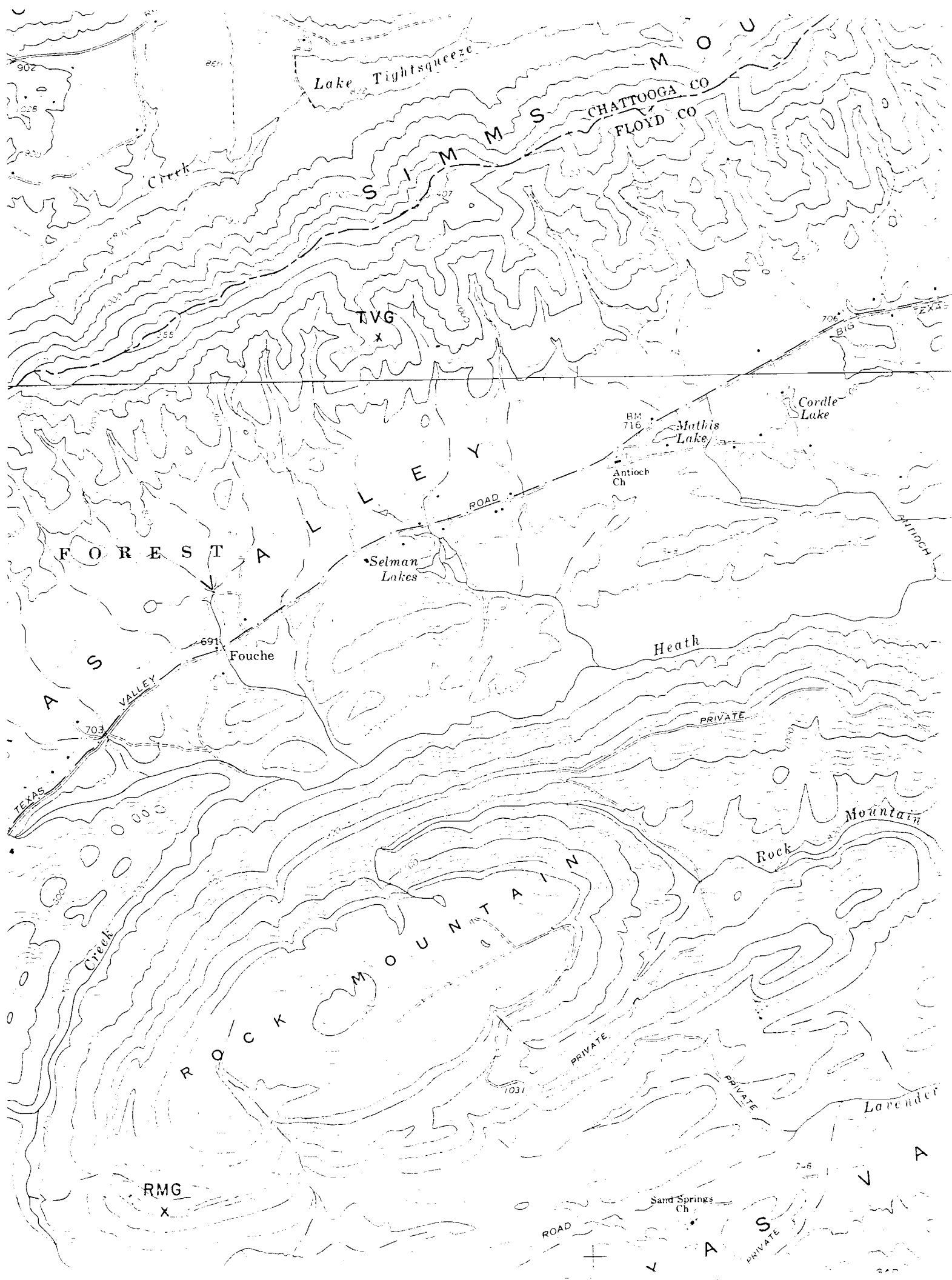
To gain access to the site go the the Fouche Gap Road and the Big Texas Valley Road intersection. Proceed northeast on Big Texas Valley Road for approximately 2.4 miles. Back away from the road on the left there is an old house. There is also a gate across the drive. Park the truck at either Big Texas Valley Road or at the house. DO NOT DRIVE INTO OR THROUGH THE FIELD.

From the truck, walk through the entrance to the field near the house and walk across the field toward the mountain. In the back western part of the field a road can be found which goes up to an upper field. Follow this road to the upper field. Leave this upper field on the western side. Cross the intermittent stream valley and walk uphill. Keep walking uphill until the area flattens into a ridge. Continue on this ridge until there is a good place to contour around to the next ridge to the west. The seismic station is located on the southern rim of this ridge.

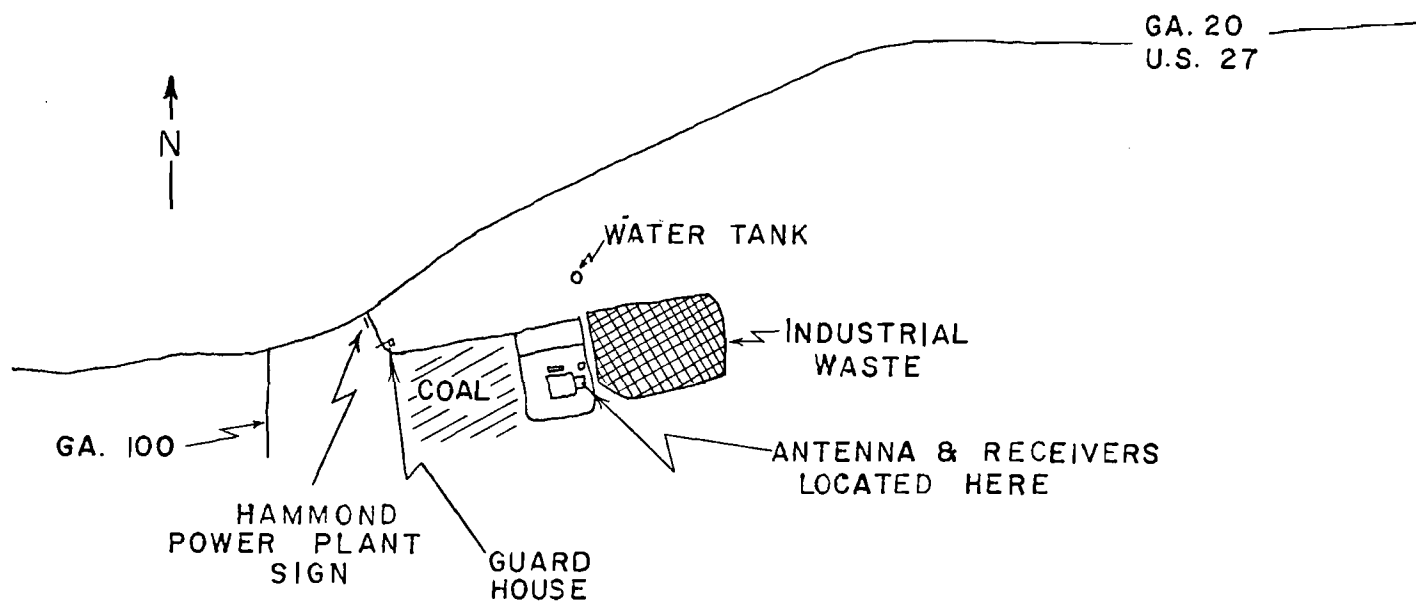
Land Owner: Mrs. Ralph C. Smith
Topographic Quadrangle: Rock Mountain, Ga.
Latitude:
Longitude:
Elevation:

TVG



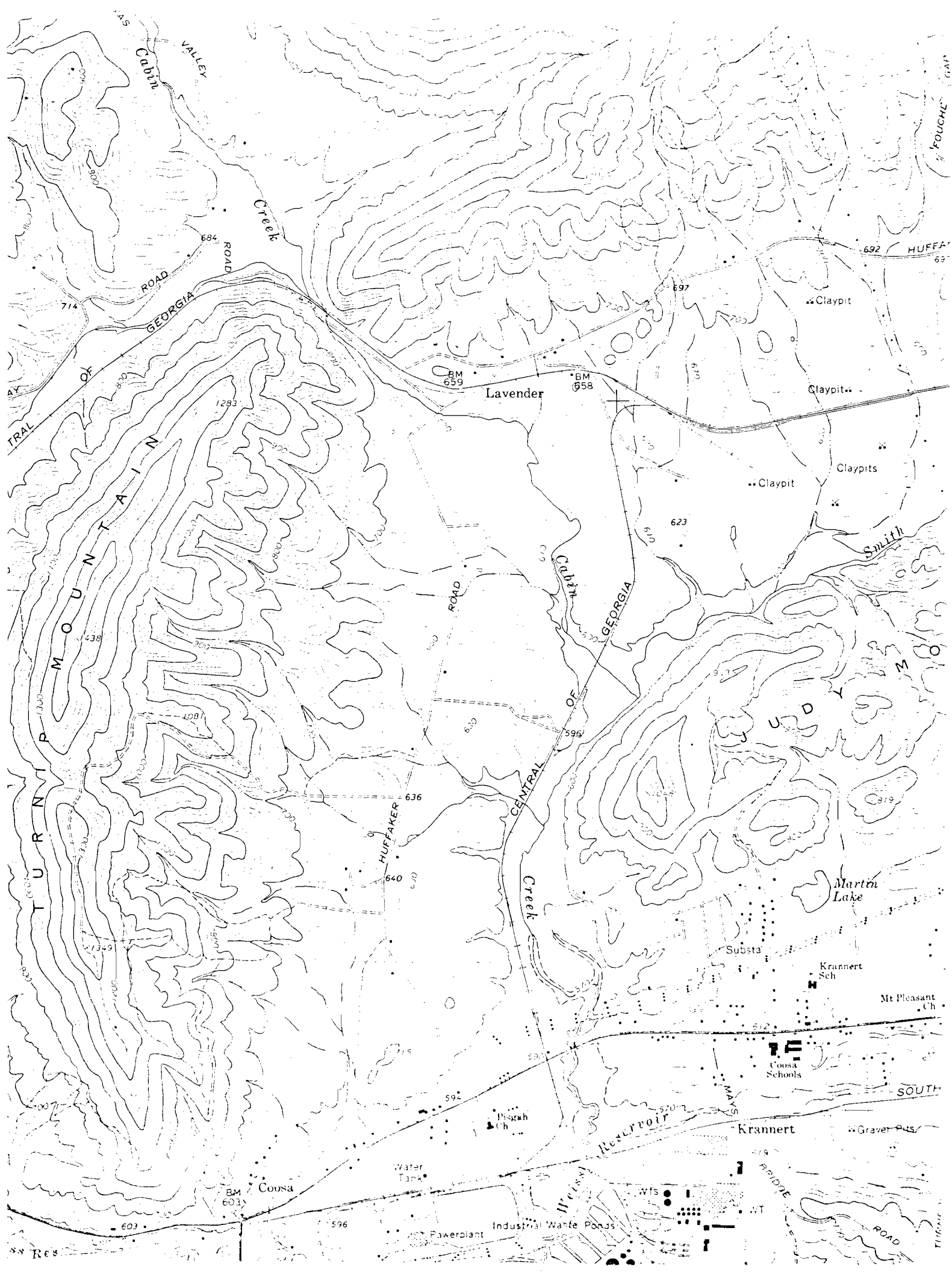


HAMMOND POWER PLANT



To gain access to Hammond Power Plant turn off Ga. 20 (U.S. 27) onto the road beside the Plant Hammond sign. This road has rock walls on both sides of the entrance and leads to a gate with a guardhouse. If the gate is closed there is a speaker outside, in which to talk and try to persuade plant security that there is reason for you to enter. (If when leaving the gate is locked, call extension 228 to have someone open the gate.) Continue following this road until it terminates at the industrial waste pond. Turn right. Go past the first parking lot and the white tank and park in the parking lot in front of the small building on which the antenna and receiver are located. (An eleven element cushcraft antenna can be seen from the parking lot.)

Enter the front door and sign the visitor registration book. Proceed through the next door, cross the hall, and go through the double doors. Take the stairs to the next floor. If you turn right and enter the corridor then turn left you are facing Plant Engineering. This is a good place to make a collect call to Georgia Tech. Turn left at the top of the stairs to get to the roof. Go through the door. Turn left and go up another flight of stairs. On the right is the door to the roof where the antenna and receiver are located.



LAVENDER MOUNTAIN REPEATER SITE

Location:

The radio frequency repeater site for the Rocky Mountain project is located on Lavender Mountain about .77 km west of Fouche Gap.

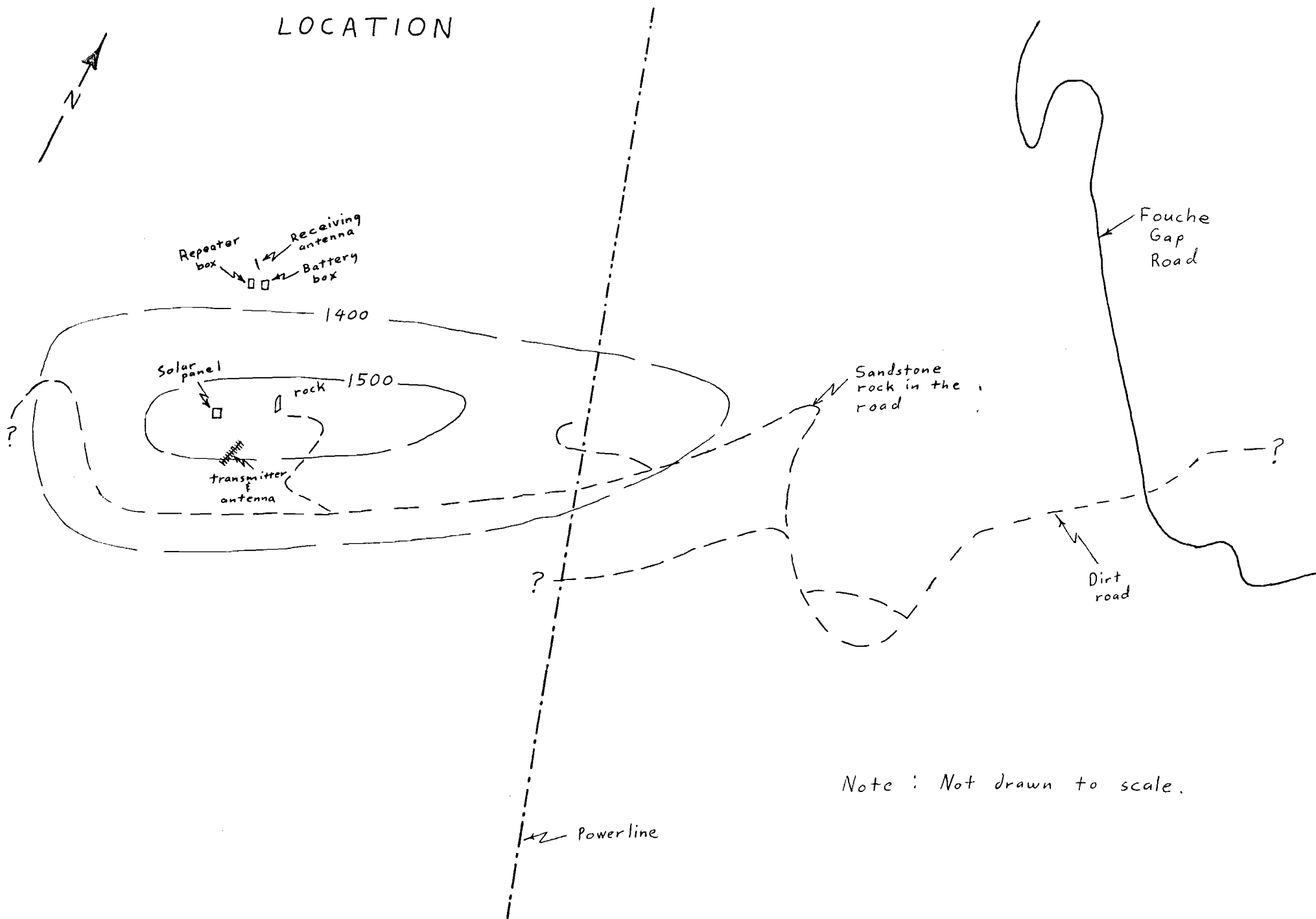
The gain access to the repeater site turn west off Fouche Gap road onto the dirt road in Fouche Gap. Follow this dirt road until the road washes out and there is a deep gully on the left side of the road. Here take the road bearing to the right up the steep grade. (This dirt road is just a bypass around a bad part of the road.) When this dirt road rejoins the other dirt road, turn right and proceed uphill. Eventually there will be a sharp curve and a sandstone boulder in the middle of the road. At present, the road is passable on the right. Stay on this road. At the power lines the road forks again. Take the left fork to get to the repeater site. Cross under the power lines and follow the road to the next fork. Bear right and follow this road to the top of Lavender Mountain. Here the road stops.

From where the road stops proceed on foot along the crest of the mountain approximately 60 to 70 meters to find the solar panel. The transmitter and antenna are mounted in a tree approximately 15 to 20 meters south of the solar panel. To find the repeater box and receiving antenna find the elongate rock oriented in the north-south direction near where the road ended. From this rock proceed north until you cross over the two small ridges. Then turn west about 10 degrees and proceed 30 to 40 meters - look for a depressed place in the ground filled with dirt, rock, leaves and limbs. If you are lucky the strapping used to hold the antenna on the tree or the coax from the antenna to the ground may be seen (Note: The omnidirectional is mounted on the downhill side of the tree.)

Land Owner: Vestim Shipman
Attorney: Walker & Musgrove

Topographic Quadrangle: Rock Mountain, Georgia

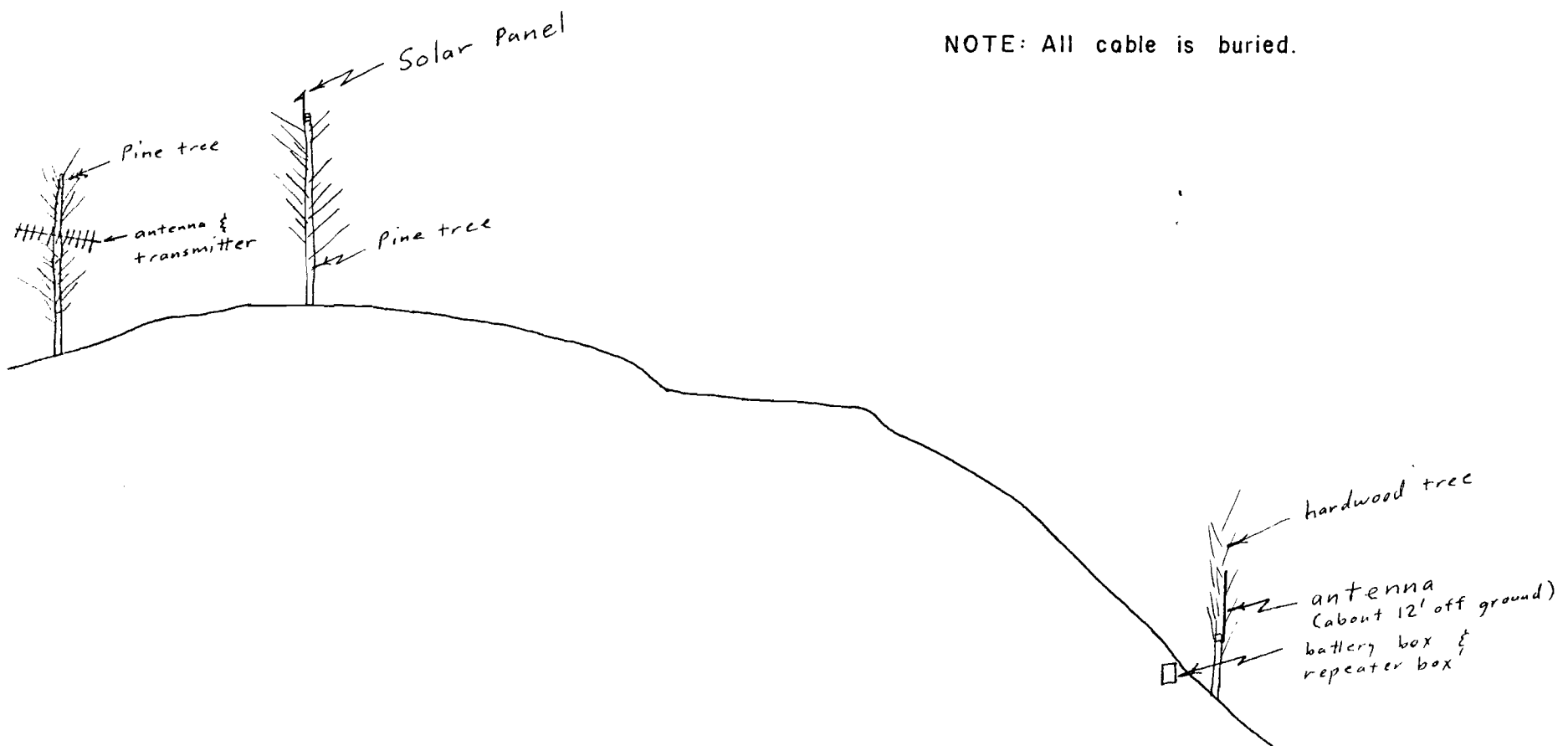
REPEATER SITE LOCATION

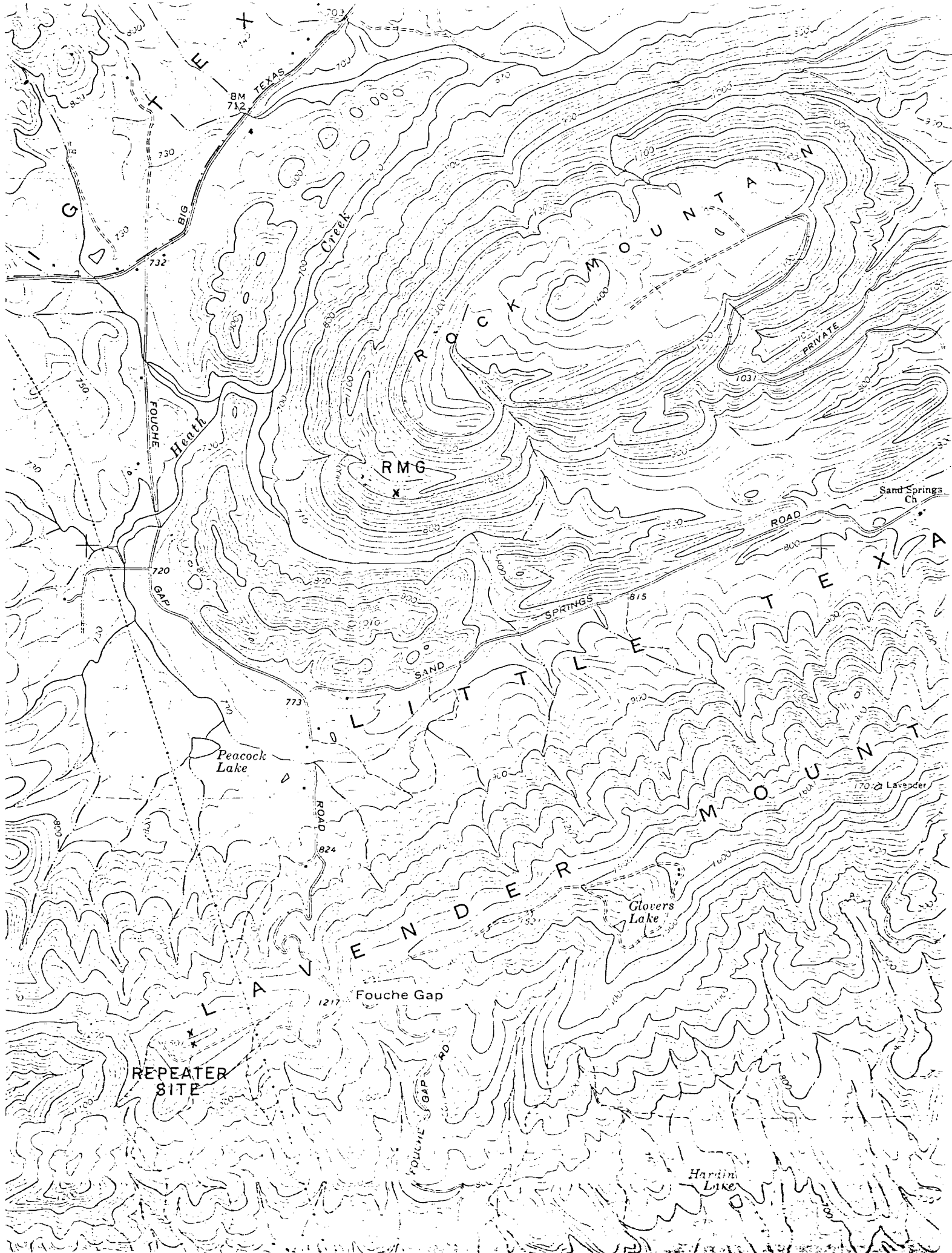


Note : Not drawn to scale.

LAVENDER MOUNTAIN REPEATER SET-UP

NOTE: All cable is buried.





STATION LOG AND SPECIFICATIONS

Date (in field)						
Station Name	RMG					
Tube #						
Geophone #						
Frequency	1 Hz					
Coil Resistance	5500 Ω					
Force Constant	45.9 K					
Mass	.9844 kg					
VCO Board #						
CAL Board #						
Gain Setting	66 db					
CAL Board Setting						
Filter Settings						
Low	.1					
High	30					
GA. TECH ID #						
Date (in for service)						

SERVICE RECORD

[illegible]

STATION LOG AND SPECIFICATIONS

Date (in field)						
Station Name	SMG					
Tube #						
Geophone #						
Frequency	1 Hz					
Coil Resistance	5500 Ω					
Force Constant	48.9 k					
Mass	.9808 kg					
VCO Board #						
CAL Board #						
Gain Setting	66 db					
CAL Board Setting						
Filter Settings						
Low	.1					
High	30					
GA. TECH ID #						
Date (in for service)						

SERVICE RECORD

[illegible]

Date (in field)						
Station Name	TVG					
Tube #						
Geophone #						
Frequency	1 Hz					
Coil Resistance	5500 Ω					
Force Constant	45.5K $\frac{\text{dynes}}{\text{amp}}$					
Mass	.9833 kg					
VCO Board #						
CAL Board #						
Gain Setting	72 db					
CAL Board Setting						
Filter Settings						
Low	.1					
High	30					
GA. TECH ID #						
Date (in for service)						

[illegible]

GEORGIA INSTITUTE OF TECHNOLOGY

SCHOOL OF GEOPHYSICAL SCIENCES

Atlanta, Georgia 30332
(404) 894-2857

September 25, 1979

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 10, covering period of 14
June to 13 September 1979

Re: Seismic Monitoring near Rock Mountain, Georgia

Dear Sirs:

During the reporting period of 14 June 1979 to 13 September 1979, the Rock Mountain area continued to be monitored. As of this report, no natural seismic activity has been detected within the project area.

The VHF-microwave system produced readable records for 1716 hours or 77.7% of the total recording period. The loss of record is due to a loss of ink of 16 hours and unexplained noise for 86 hours. There was a loss of 390 hours due to equipment induced noise.

Regional events recorded in the Rock Mountain area include:

<u>Date</u>	<u>Origin Time</u>	<u>Location</u>
17 JUN 1979	20:39:49 U.T.	Probably earthquake, located northeast of the RMG net at 34.3913, 85.1163
25 JUN 1979	17:11:07.6 U.T.	New Madrid earthquake, approximately 482 km from Rock Mountain
19 JUL 1979	09:27:05.93 U.T.	Southeastern Tennessee earthquake, located at 35.2273, 85.8043
6 AUG 1979	15:21:27.58 U.T.	South Carolina earthquake, located at 34.4140, 81.5075
7 AUG 1979	19:32:16.88 U.T.	South Carolina earthquake, located at 34.2240, 81.2993 ($m_b = 3.0$)
7 AUG 1979	23:25:48.4 U.T.	Earthquake on the Mississippi - Alabama border
13 AUG 1979	05:18:56.84 U.T.	Earthquake east of Chattanooga, Tenn., located at 35.2099, 84.3685 (main shock, $m_b = 3.7$)
13 AUG 1979	05:27:24.34 U.T.	Aftershock of the east Tennessee earthquake of 13 August 1979
13 AUG 1979	05:36:28.49 U.T.	Aftershock of the east Tennessee earthquake of 13 August 1979
13 AUG 1979	09:08:55.25 U.T.	Aftershock of the east Tennessee earthquake of 13 August 1979
14 AUG 1979	08:14:15.26 U.T.	North Georgia earthquake located at 34.6626, 85.3175

During this reporting period a series of local blasts were recorded in the Rock Mountain area. Each of these local blasts had an associated air wave.

As of this reporting period no natural seismic event has been recorded in the Rock Mountain project area.

Respectfully submitted,

Leland T. Long
Associate Professor

LTL/dp

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

January 9, 1980

Atlanta, Georgia 30332
(404) 894-2857

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 11, covering period of
14 September to 13 December 1979.

Re: Seismic Monitoring near Rock Mountain, Georgia

Dear Sir:

During the reporting period of 14 September 1979 to 13 December 1979 the Rock Mountain area continued to be monitored for seismic activity. As of this report, no natural seismic activity has been detected within the project area.

The VHF microwave system produced readable records for 1445 hours or 66.2% of the total recording period. The loss of record is due to a loss of ink for 46 hours, phone line problems for 242 hours, the station being inoperative for 162 hours, and equipment induced noise for 289 hours. Coverage during September was 17.8%, during October 86.6%; during November, 61.9%; and during December, 90.5%.

Regional events recorded in the Rock Mountain area include:

<u>Date</u>	<u>Origin Time</u>	<u>Location</u>
29OCT79	20:27:52.48 UT	Lake Hiwassee area, near the Tennessee-North Carolina border. 35.0598°N 84.5053°W
08DEC79	05:43:39.14 UT	Near Charleston, South Carolina 33.1221°N 80.5674°W

During the reporting period numerous regional blasts and a few local blasts were detected. A number of very small, short events occurred on opening day of hunting season, particularly in the late afternoon and early evening, and are attributed to gunshots.

As of this reporting period, no natural seismic event has been identified in the Rock Mountain project area.

Maintenance Report

- 14 September - No seismic data from the Rock Mountain network being received and recorded at Georgia Tech.
- 22 September - At Plant Hammond determined that station TVG was operational; signal being mixed with noise from the Lavender Mountain repeater. Repeater receiver turned off, TVG signal sent to Atlanta. At Lavender Mountain discovered corrosion of receivers, mixer; animal caused cable damage.

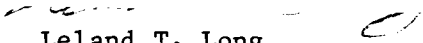
- 30 September - At TVG someone had removed the lid from battery box, and disconnected the cables. Repaired immediately. TVG operative. SMG had carrier; water in seismic tube had caused loss of seismic data. Tube returned to Atlanta for calibration and resealing. RMG had been thoroughly vandalized. Geophone, VCO board removed and returned to Atlanta for protection.
- 7 October - SMG antenna damaged by wind, small solar panel damaged. Antenna repaired, seismic tube reinstalled. SMG operative. Lavender Mountain repeater receiving antenna installed; receiver, mixer returned to Atlanta for work.
- 14 October - Relocation, installation of RMG. New site located on sandstone cliff below old site. Antenna, solar panel left in place. RMG operative. Old site had been revisited by vandals. Dummy site established.
- 21 October - RMG solar panel, antenna relocated. Seismic tube malfunctioning. Dummy site destroyed by vandals. Because of proximity of new site to dummy site, security questionable.
- 24 October - RMG removed and returned to Atlanta for protection prior to relocation.
- 3 November - TVG not received at Atlanta since 29 October. Found TVG operational at Hammond (phone line problem). Battery box buried at TVG. At SMG, installed new antenna and small solar panel. Seismic tube not operating properly, returned to Atlanta.
- 19 November - RMG relocated at new site just below upper sandstone cliff, in and near a large, leaning beech tree; only partially installed.
- 25 November - RMG installation work. SMG seismic tube reinstalled; SMG operational.
- 28 November - Complete RMG installation. RMG operational. Lavender Mountain repeater, which was to be restored to operation had been vandalized. At least 150 yards of buried cable had been dug up and connections were cut. Lavender Mountain repeater down. At Hammond, repeater receiver replaced with Rock Mountain receiver. Reception of Rock Mountain sufficient. Signal is being sent to Georgia Tech.
- 12 December - RMG off frequency. Bad potentiometer on VCO board. Replaced; frequency adjusted. New RMG site located by triangulation. Latitude 34.3384°N - Longitude 85.3150°W

The status, as of 13 December 1979, is that stations RMG, TVG and SMG are all transmitting RF data. Stations RMG and TVG are being received successfully at Georgia Tech. All RF transmissions are in accordance with the FCC license for the Rock Mountain area.

The most severe problem confronting the operation of the Rock Mountain seismic network has been vandalism. In spite of repeated and determined attempts to bury, camouflage, or otherwise conceal the equipment over the past year, the destruction has continued. On the other hand, stations TVG and RMG are now more secure than ever, and station SMG has never been vandalized. The Lavender Mountain site apparently has a considerable amount of traffic and has been the major source of our problems.

Our plans for the future are to test the reception of SMG at RMG. Since RMG has been received reliably since installation and it is within a short line-of-sight distance from SMG, we are considering using RMG for the repeater site. This will allow elimination of the repeater on Lavender Mountain. This system can be put into operation without realigning antennas or in any way violating our FCC license. When in operation, we will instruct you that the license for the Lavender Mountain site (and one frequency) are no longer needed and that the specifications for the direction of the SMG antenna should be changed. After approval of the modifications, we will realign the SMG antenna.

Respectfully submitted,


Leland T. Long
Associate Professor

LTL/dp

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

March 17, 1980

Atlanta, Georgia 30332
(404) 894-2857

Mr. C. R. Thrasher
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 12, covering period of 14
December 1979 to 13 March 1980.

Re: Seismic monitoring near Rock Mountain, Georgia

Dear Sir:

During the reporting period of 14 December 1979 to 13 March 1980 the Rock Mountain area continued to be monitored for seismic activity. As of this report, no natural seismic activity has been detected within the project area.

The VHF microwave system produced readable records for 1614.15 hours or 74.7% of the total recording period. The loss of record is due to a loss of ink for 47 hours and carrier loss for 500 hours. Coverage during December was 99.9%; during January 83.8%; during February 77.8%; and during March 19.8%. Extended cloud cover during January and February has depleted the reserve battery power explaining the signal loss in February and March.

Regional events recorded in the Rock Mountain area include:

<u>Date</u>	<u>Origin Time</u>	<u>Location</u>
10JAN80	19:16:28.45	Gulf of Mexico, 27.0944°N, 85.8713°W
24JAN80	04:12:08.32	Tellico Plains, TN 35.5581°N, 84.2652°W

During the reporting period numerous regional blasts and a few local were detected.

As of this reporting period, no natural seismic event has been identified in the Rock Mountain project area.

Respectfully submitted,

Leland T. Long
Associate Professor

LTL/dp

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

June 15, 1980

Atlanta, Georgia 30332
(404) 894-2857

Mr. C. R. Thrasher
Georgia Power Company
P.O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report Number 13, covering period of
14 March 1980 to 12 June 1980

Re: Seismic Monitoring near Rock Mountain, Georgia

Dear Sir:

During the reporting period of 14 March 1980 to 12 June 1980 the Rock Mountain area continued to be monitored for seismic activity. As of this report, no natural seismic activity had been detected within the project area.

Of a total of 2160 possible recording hours, 1341 were reported or 62.1%. Coverage during March was 43.2%, during April, 61.8%, during May, 74.4%, during June, 59.1%. The down time was caused primarily by cable failure at field sites or antennae damage at Plant Hammond. As of June 1980 all three stations are operating properly and continuously.

Regional events recorded in the Rock Mountain area include:

<u>Date</u>	<u>Origin Time</u>	<u>Location</u>
4/20/80	23:20:43.7	South of Knoxville, Tennessee Lat. 35, 5537 ⁰ N Long. 83, 9864 ⁰ W
4/21/80	20:44:01.9	South of Knoxville, Tennessee Lat. 35, 8882 ⁰ N Long. 83, 9828 ⁰ W

During the reporting period numerous regional blasts and a few local blasts were detected. Several teleseismic events were also detected.

As of this reporting period, no natural seismic event has been identified in the Rock Mountain project area.

Respectfully submitted,

Leland T. Long

LTL:ba

GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF GEOPHYSICAL SCIENCES

October 2, 1981

Atlanta, Georgia 30332
(404) 894-2857

Major H. Thompson
Georgia Power Company
P. O. Box 4545
Atlanta, Georgia 30302

Subject: Quarterly Letter Report No. 14, covering period of June 14
to September 13, 1980

Re: Seismic monitoring near Rock Mountain, Georgia

Dear Sirs:


During the reporting period of 14 June 1980 to 13 September 1980, the Rock Mountain area continued to be monitored, as of this report, no natural seismic activity has been detected within the project area.

The VHF-Microwave system produced readable records for 1903 hours or 85.3% of the total recording period. The loss of record is due to a loss of ink for 14 hours and unexplained noise for 55 hours. There was a loss of 260 hours due to equipment induced noise.

Regional events recorded in the rock Mountain area include:

<u>Date</u>	<u>Origin Time</u>	<u>Location</u>
25 June 1980	18:02:32.5 U.T.C.	Maryville, Tn. Earthquake
5 July 1980	08:55:44.5 U.T.C.	New Madrid, Tn. Earthquake
21 July 1980	08:11:57.1 U.T.C.	Smyrna, Tn. Earthquake
23 August 1980	03:50:00.5 U.T.C.	West Livesy, Ky. Earthquake
1 September 1980	05:46:42.5 U.T.C.	Charleston, S.C. Earthquake

The Rocky Mountain construction blasts are being routinely recorded.

Respectfully submitted, 

Leland T. Long
Professor

LTL:ba