



January 29, 1987

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station •
Units 1 and 2
Docket Nos. 50-416 and 50-417
License No. NPF-29
Mineral Rights/Exclusion Area
AECM-87/0023

- References: (1) O. D. Kingsley letter to H. R. Denton, "Mineral Rights/Exclusion Area," dated December 2, 1986 and Identified as Correspondence No. AECM-86/0384
- (2) O. D. Kingsley letter to H. R. Denton, "Mineral Rights Exemption Request," dated December 10, 1986 and Identified as Correspondence No. AECM-86/0401

In Reference (1), Mississippi Power & Light Company (MP&L) provided the NRC Staff with a preliminary discussion of concerns recently raised regarding ownership interests in the land and minerals at the Grand Gulf Nuclear Station (GGNS) site. In addition, MP&L and System Energy Resources, Inc. (SERI) committed to undertake a detailed review of the matter and subsequently provide a comprehensive analysis of the issue of compliance with the exclusion area control requirements of 10CFR Part 100. SERI has since completed the review of the mineral rights/exclusion area control issue and has also purchased additional mineral rights within the exclusion area. The results of this review are provided below.¹

¹ On December 20, 1986, the NRC issued amendments to the GGNS Unit 1 operating license and the GGNS Unit 2 construction permit reflecting transfer of control and responsibility for licensed activities from MP&L to SERI. Consequently, SERI is now responsible for addressing the mineral rights issue originally raised while MP&L was the licensee responsible for licensing activities.

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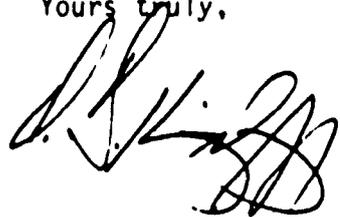
As a result of SERI's comprehensive review of this matter, SERI concludes that it is in compliance with the requirements of 10 CFR 100.11(a)(i) and 100.3(a). SERI's detailed basis for this conclusion is set forth in the Attachment to this letter. For all practical purposes, SERI maintains control of the surface rights and thus maintains control of ingress to and egress from the exclusion area and provides for evacuation of individuals from the area in the event of an emergency. Furthermore, as a result of recent purchases by SERI of additional mineral rights in the GGNS exclusion area, SERI now owns or controls most of the minerals within the exclusion area. The Attachment to this letter provides a detailed description of the ownership of mineral rights pertaining to the GGNS exclusion area as they now exist. To the extent third parties still own mineral interests in the GGNS exclusion area, it is extremely unlikely that such third-party interests would ever be exercised so as to create an exception to SERI's control of the exclusion area.

Section 100.3(a) of NRC regulations specifically recognizes that "activities unrelated to operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result." For the reasons stated in the Attachment hereto, it is clear that SERI's lack of ownership of a small portion of the mineral rights will not result in any significant hazard to public health and safety. Therefore, notwithstanding the mineral interests owned by third parties in the GGNS exclusion area, SERI is in full compliance with the regulations.

In Reference (2), SERI requested a temporary exemption from the relevant Part 100 requirements. The exemption, granted by the NRC Staff on December 20, 1986, will be in effect until the NRC Staff completes its review of this submittal or until April 30, 1987, whichever is earlier. SERI requested this exemption, deemed necessary by the NRC Staff, without prejudice to a later demonstration of compliance with 10 CFR 100 following a complete review of the mineral interest ownership issue. Given that SERI concludes that it is in compliance with the exclusion area control requirements, we do not believe any further exemption or other action on this issue is necessary.

However, in the unlikely event any parties ever request permission from SERI to conduct seismic operations, file an application for a permit to drill a well, or take any other action indicating an intent to explore for minerals on the GGNS site, SERI will expeditiously notify the NRC Staff of such action.

Yours truly,



ODK:lm
Attachment

cc: (See Next Page)

cc: Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. R. C. Butcher (w/a)

Dr. J. Nelson Grace, Regional Administrator (w/a)
U. S. Nuclear Regulatory Commission
Region II
101 Marietta St., N. W., Suite 2900
Atlanta, Georgia 30323

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

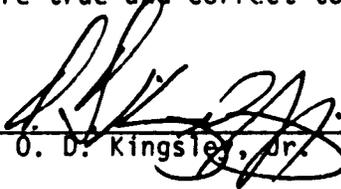
LICENSE NO. NPF-29

DOCKET NO. 50-416

IN THE MATTER OF
MISSISSIPPI POWER & LIGHT COMPANY
and
SYSTEM ENERGY RESOURCES, INC.
and
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

AFFIRMATION

I, O. D. Kingsley, Jr., being duly sworn, stated that I am Vice President, Nuclear Operations of System Energy Resources, Inc.; that on behalf of System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by System Energy Resources, Inc. to sign and file with the Nuclear Regulatory Commission, this letter relating to control of the Grand Gulf Nuclear Station exclusion area; that I signed this letter as Vice President, Nuclear Operations of System Energy Resources, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information and belief.

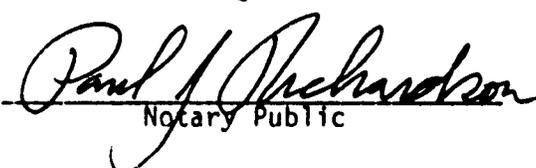


O. D. Kingsley, Jr.

STATE OF MISSISSIPPI
COUNTY OF HINDS

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the County and State above named, this 29th day of January, 1987.

(SEAL)



Notary Public

My commission expires:

Oct 27, 1987

SITE OWNERSHIP, EASEMENTS, MINERAL RIGHTS, AND
EXCLUSION AREA CONTROL AT GGNS

I. INTRODUCTION

For purposes of 10 CFR 100, SERI and South Mississippi Electric Power Association (SMEPA) have defined and maintained an exclusion area at GGNS with a minimum distance of approximately 2,280 feet from the centerlines of the Unit 1 and Unit 2 containment buildings to the boundary of the exclusion area. The following discussion traces the pertinent history of ownership of the land and rights in the land within the exclusion area.

II. SUMMARY OF SURFACE OWNERSHIP

Exhibit 1 hereto, shows the GGNS site, the tracts comprising the site, the location of major plant structures, the exclusion area, other areas discussed in the text, and selected areas adjacent to the site.

Over a period of time from August 1972 to June 1973, Mississippi Power & Light Company (MP&L) acquired eleven tracts of land totalling approximately 2300 acres in Claiborne County, Mississippi upon which to locate the GGNS. In 1974 MP&L sold to SERI^{1/} the Grand Gulf Project, including the land comprising the site, with the exception of the following two tracts, which had been

^{1/} SERI was previously named Middle South Energy, Inc.

previously conveyed by MP&L to two parties: (1) a two acre homestead tract lying outside of the exclusion area which was transferred to Mr. Dwight O. Glodjo and (2) a 164 acre tract lying outside of the exclusion area which was transferred to the Grand Gulf Military Monument Commission.

On June 21, 1977, SERI conveyed back to MP&L approximately 52 acres located within the exclusion area, upon which MP&L would build the plant switchyard. At that same time, SERI also granted MP&L an easement on a part of the site property to allow transmission line access to the switchyard. The 52 acre tract conveyed to MP&L is hereinafter referred to as the switchyard area. On October 13, 1980, MP&L conveyed to SERI a perpetual easement in and over the switchyard area. Further, MP&L and SERI executed a separate written agreement effective December 20, 1986 on switchyard use and access which, among other things, specifies SERI's right to control and exclude third parties from the switchyard area and from other MP&L easements within the exclusion area. This written agreement became effective at the time the operating license for Grand Gulf 1 and the construction permit for Grand Gulf 2 were amended by the NRC to substitute SERI for MP&L as the operator and constructor of GGNS.

Furthermore, pursuant to agreements executed in October 1980, SERI conveyed to SMEPA a ten percent undivided ownership interest in the approximately 94 acre tract of land within the exclusion area upon which the containment buildings, cooling towers and other major structures comprising the Grand Gulf Nuclear Station are or will be situated. This 94 acre tract is hereinafter referred to as the power block area.

The power block area is surrounded by and is a part of the tract of land comprising the GGNS site which was conveyed by MP&L to SERI in 1974. When SMEPA acquired its 10% undivided ownership interest in the power block area from SERI in 1980, it also acquired a ten percent ownership interest in two long, narrow tracts of land, totalling approximately 7.5 acres and 5 acres, respectively, on which the plant's water supply and discharge piping is located, and also acquired certain easement rights in the land owned by SERI surrounding the power block area of approximately 2110 acres and in the switchyard area owned by MP&L.

III. EASEMENTS WITHIN THE EXCLUSION AREA

With respect to easements within the exclusion area, there is one public road which traverses the southern corner of the exclusion area in which Claiborne County maintains an easement or road right of way. In addition, MP&L has two rights of way or easements for transmission line purposes on the GGNS site property which are each 200 feet in width. However, only one of these transmission line easements is located in part within the exclusion area. As noted above, SMEPA also has a general easement within the exclusion area which was obtained from SERI at the time SMEPA obtained an ownership interest in the power block area. SMEPA's easements rights for purposes of exercising its ownership rights in connection with the GGNS apply to all property located within the exclusion area owned by SERI in which SMEPA did not acquire a 10% undivided ownership interest. SERI and SMEPA also have an easement over the switchyard area as explained above. There are no rights of way or easements within the exclusion area other than those described above.

Exclusion area control by the licensee is not affected by these easements since (1) SERI and SMEPA are and will continue to be licensees, (2) MP&L and SERI have entered into an agreement which allows SERI to control future activities in the switchyard area and on MP&L's transmission easement within the exclusion area, and (3) arrangements have been made for control of traffic on the county road as described in the GGNS Final Safety Analysis Report.

IV. MINERAL RIGHTS INTEREST WITHIN THE EXCLUSION AREA

SERI and SMEPA own substantial mineral interests in the exclusion area (summarized in Exhibit 2 hereto). Nevertheless, third parties own a small portion of the mineral rights and interests in part of this same property. As a result of recent purchases of additional mineral rights, the outstanding rights have been reduced to approximately 11% of the mineral interests in the GGNS exclusion area. This section summarizes the history of the outstanding interests and the current status.

Of the tracts originally acquired by MP&L in which the grantors reserved certain mineral interests, only the following five tracts are located in part or in whole within the exclusion area: the Trimble tract, the Glodjo tract, the Hamilton tract, the Nelson tract and the Arnold tract.

The Trimble tract occupies a significant part of the entire exclusion area, including the power block area and the switchyard area. When Mary Lee Hamilton Trimble conveyed this tract to MP&L in 1972, she conveyed with it 1/2

of the minerals and reserved a 1/2 interest in the minerals (excluding sand and gravel). SERI acquired MP&L's 1/2 interest in these minerals in 1974 at the same time it acquired from MP&L the Grand Gulf Project. In 1983, Mary Lee Hamilton Trimble conveyed her undivided 1/2 mineral interest to her son, James Moore Trimble, Jr. On January 15, 1987, SERI acquired from James Moore Trimble, Jr. his undivided 1/2 mineral interest in this tract. As a result of these acquisitions, SERI now owns all of the interest in the minerals in the Trimble Tract, except with regard to the switchyard area in which MP&L owns a 1/2 undivided interest and except with regard to the power block area in which SMEPA owns a 10% undivided interest in 1/2 of SERI's interest. With regard to the switchyard area, SERI controls MP&L's 1/2 mineral interest pursuant to the switchyard use and access agreement, effective December 20, 1986, between SERI and MP&L, referred to above. Accordingly, SERI and SMEPA together own or control all of the mineral interests pertaining to the Trimble tract.

As to the other four tracts of land which are partially located within the Exclusion Area, SERI acquired the following mineral rights from MP&L in 1974; (1) an undivided 1/8 interest in the Glodjo tract; (2) an undivided 1/2 interest in the Hamilton tract; (3) an undivided 1/2 interest in the Arnold tract and (4) an undivided 1/4 interest in the leasing rights and an

undivided 1/8 royalty interest in most of the Nelson tract.^{2/} SMEPA did not acquire mineral rights in these four tracts except in a small area where the water pipes cross the Hamilton tract inside the exclusion area.

On January 15, 1987, SERI acquired from James Moore Trimble, Jr. his 3/4 mineral interest in the Glodjo tract and his 3/4 mineral interest in the White tract of the Nelson tract. Consequently, SERI now owns a 7/8 mineral interest in the Glodjo tract and a 13/16 mineral interest in the White tract of the Nelson tract.

2/ The Nelson tract consists of two tracts which had been joined:

- (a) The Callender tract which makes up most of the Nelson tract and in which SERI owns mineral rights as described in the text. As can be seen from Exhibit 1 and Exhibit 2, most of that part of the exclusion area lying in the Nelson tract occupies the Callender tract.
- (b) The White tract, a relatively small tract within the southwest portion of the Nelson tract is bounded on the northwest by the Graves-Tracey tract and on the southwest and southeast by the Trimble tract. The exclusion area has been calculated to impinge on the White tract portion of the Nelson tract by approximately 10 feet. On the White tract, SERI now owns a 13/16 interest in the mineral rights.

V. EXCLUSION AREA CONTROL

As a result of the transactions described above in which SERI acquired from James Moore Trimble, Jr. the mineral interests which he owned in the exclusion area, SERI now controls most of the mineral interests in the GGNS exclusion area. Despite the ownership by third parties of a small portion of the remaining mineral interests in the exclusion area, SERI maintains that the exclusion area requirements of 10 CFR 100 are met. Due to the extent of ownership discussed above and for the further reasons discussed below, SERI maintains for all practical purposes complete control over the exclusion area. To the extent the mineral rights issue creates a theoretical lack of control, the deficiency does not represent a significant hazard to public health and safety and is therefore de minimis. This assures SERI's continued compliance with the exclusion area regulations.

Part 100 requires that a licensee define and maintain an "exclusion area" surrounding the facility. See 10 CFR 100.11(a)(1). The regulations further require that the exclusion area meet the following definition:

"Exclusion area" means that area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area. This area may be traversed by a highway, railroad, or waterway, provided these are not so close to the facility as to interfere with normal operations of the facility and provided appropriate and

effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of emergency, to protect the public health and safety. Residence within the exclusion area shall normally be prohibited. In any event, residents shall be subject to ready removal in case of necessity. Activities unrelated to operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result.

10 CFR 100.3(a) (emphasis supplied). See Southern California Edison Company (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-268, 1 NRC 383, 387-88 (1973).

The last sentence of Section 100.3(a) demonstrates that the exclusion area control requirement is not an absolute. As a basic rule, it is clear that where an uncontrolled area or uncontrolled activity will be of such a limited nature that there is not a threat to public health and safety and safe operation of the plant, an applicant or licensee will be able to justify less-than-complete control of the exclusion area. See Southern California Edison Company (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-432, 6 NRC 465 (1977). An exemption is not required in these situations. Given a showing of no significant safety hazards, the applicant or licensee must be deemed to be in full compliance with Section 100.11(a)(1) and Section 100.3(a).

In Southern California Edison Company (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-308, 3 NRC 20, 27-28 (1976), the NRC's Atomic Safety and Licensing Appeal Board expressly ratified the de minimis standard for compliance with the exclusion area control requirements. The Appeal Board wrote as follows:

In the final analysis, then, we are called upon to decide whether we were right in our observation by way of dicta in ALAB-268 that, were the applicants to possess total control over the balance of the land portions of their exclusion area, the lack of equivalent control over the tidal beach could be disregarded as de minimis. To answer that question we must first come to grips with the consolidated Intervenor's' seeming claim that Section 100.3(a) does not permit resort to a de minimis doctrine; viz., that unless these applicants possess full control over every square inch of their exclusion area which does not literally fall within one or another of the specific exceptions, there is a fatal non-compliance with the mandate of the Section.

Having taken a fresh look at the matter in light of this claim, we believe that it is neither necessary nor desirable to impart such rigidity to Section 100.3(a) Such regard here compels us to the conclusion that there can be situations in which, because of the unusual nature and/or limited scope of the portion of

the exclusion area in issue, the inability of the applicant to obtain full control over it can be deemed to be of such little potential safety consequence to warrant being dismissed as de minimis (footnote omitted).

This de minimis standard is consistent with the express terms of the regulation allowing certain activities unrelated to reactor operation, and with the intent of the regulation to assure a level of control sufficient to provide protection of the public health and safety and safe operation of the facility. ^{3/}

In San Onofre the Appeal Board suggested two examples of de minimis exceptions to the applicants' control: 1) a segment of an exclusion area, although not under the applicants' control, that would nonetheless be unavailable for public use by reason of location, terrain, or "by reason of strictly enforced prohibition against entry;" or b) a non-controlled segment that would be used "in such a manner that the creation of a public health and safety hazard would be obviated." Id. at 28. In a manner consistent with these two examples, SERI's lack of ownership of all mineral rights in the GGNS exclusion area is a de minimis exception to SERI's control.

^{3/} Note also that the de minimis exception to the exclusion area control requirement, as contemplated by the Appeal Board, is in addition to the express exception inherent in Section 100.3(a) for highways, railroads, and waterways (which, with appropriate measures, may be controlled in an emergency).

First, based on strict prohibitions against entry, the GGNS site generally would be unavailable for use by third parties. Essentially, as discussed above, SERI has and will continue to have complete control of the surface rights within the exclusion area and thus complete control of ingress to and egress from the exclusion area. In this regard, the exclusion area is completely included within the area of the GGNS site (inclusive of the switchyard area). A substantial portion of the exclusion area is included in the Unit 1 protected area, the Unit 2 construction area, equipment laydown areas, and the switchyard area. All of these areas are fenced and the gates are all either locked or guarded. In addition, routine patrols and security checks are made of these areas. The part of the exclusion area which is not fenced is in close proximity to areas which are fenced or which are regularly occupied by SERI personnel. In sum, attempted ingress for the purpose of exercising mineral rights would be readily evident to SERI and could be prohibited at least until such time as questions such as the drill site location, surface damages, the configuration and location of the drilling unit and the payment of drilling costs, and SERI's right to control access to the drilling area during times of emergency and otherwise are resolved between the licensees and anyone asserting a right to explore for minerals within the exclusion area. These questions could be resolved either by negotiations or if necessary by adjudication in the courts. Moreover, the emergency plan provides for evacuation of any individuals engaged in activities unrelated to reactor operations (assuming they were admitted to the site in the first place) in the event of an emergency.

In Mississippi, mineral owners and lessees have no legal right to use physical force or to create a public disturbance to gain access to property in order to explore for or extract minerals. Moreover, Mississippi law prohibits the drilling of any oil or gas well until a permit for such activity has been obtained from the State Oil and Gas Board following at least ten days prior notice and a public hearing. Miss. Code Ann. 53-1-21, 53-3-7 and 53-3-11 (1972). One of the express purposes of the Oil and Gas Board's statutory requirements for establishing a drilling unit or units for each pool prior to issuing a permit is "to protect and enforce the correlative rights of the owners in a pool." Miss. Code Ann. 53-3-5 (1972). Accordingly, since SERI and SMEPA own or control substantially all of the minerals located within the exclusion area, SERI would attend any hearing and would have the opportunity to object to the drilling and/or location of any potential well. This process in and of itself assures, as required by 10 CFR 100.3(a), that the mineral rights owned by third parties in the GGNS exclusion area would not result in any immediate significant hazard to public health and safety.

This conclusion that SERI is in full compliance with 10 CFR 100.3(a) and 100.11(a)(1) is further bolstered by the nature of the noncontrolled segment of the exclusion area (i.e., ownership of mineral rights by third parties).^{4/} The nature of the mineral rights ownership is such that the creation of a

4/ SERI and SMEPA own or control 100% of the sand and gravel mineral rights in the exclusion area and over 80% of all of the other mineral right interests.

public health and safety hazard is practically inconceivable. Commercial production of minerals within or near the exclusion area appears unlikely in the foreseeable future. SERI's bases for this conclusion are set forth in the Geologist's Report, attached hereto as Exhibit 3 and are summarized as follows:

- o There is no exploration activity of any kind in the area of the GGNS site and none is anticipated in the foreseeable future.
- o A relatively large number of seismic lines have been shot on or near the GGNS site, which provides solid evidence that no favorable subsurface structure exists for oil and gas exploration in the vicinity of the GGNS site.
- o The GGNS site and the area immediately adjacent thereto, have been effectively condemned as a potential area for oil and gas exploration.

Mr. Wilbur H. Knight, who prepared the Geologist's Report, is an independent petroleum geologist with over 40 years of experience. His resume is attached hereto as Exhibit 4.

Simply stated, these facts demonstrate that 10 CFR 100.3(a) is met because the outstanding mineral interests will not reasonably mature into any activities which could impact safe operation or create potential health and

safety hazards. Accordingly, the outstanding mineral interests are a de minimis exception to control of the exclusion area. This effectively allows the NRC to defer any further consideration of the implications of the mineral rights until the unlikely event that those rights ever rise to a real issue with potentially real safety impacts.^{5/}

In this respect, the GGNS situation resembles the facts surrounding the Perry Nuclear Power Plant. In the Perry case, the Licensing Board -- in a first partial initial decision -- specifically addressed the applicants' lack of ownership of all the mineral rights in the exclusion area. The Licensing Board found that the rights were owned by the State of Ohio and were regulated by a state agency through leases and permits. The applicants were also negotiating to purchase the rights. This showing of record, according to the Board, was insufficient in order to find "reasonable assurances" that the exclusion area could be controlled. Duquesne Light Company, et al. (Perry Nuclear Power Plant, Units 1 and 2), LBP-74-69, 8 AEC 538, 572 (1974). However, following an additional demonstration by the applicants, the

^{5/} In addition, as discussed above, in the extremely unlikely event that a third party did become interested in exploring mineral rights, the nature of the Mississippi legal process is such that there would be time for notification to the NRC and for appropriate action by SERI.

Licensing Board -- in a second partial initial decision -- found its "reasonable assurances" with respect to the mineral rights. See Duquesne Light Company, et al., (Perry Nuclear Power Plant, Units 1 and 2) LBP-74-76, 8 AEC 701, 706-708 (1974). Additional evidence was presented that a tentative agreement had been reached whereby the applicants would lease the only relevant mineral rights (salt rights) from the state to protect the intake and discharge tunnels and the emergency service water pump house. However, even more importantly, the Licensing Board relied on additional evidence showing that even without the leases the lack of control of mineral rights presented no safety risk. For example, the Board found:

- o there is low probability that oil and natural gas would be found in the vicinity of the site;
- o even if oil or gas were found, extraction would not cause surface subsidence; and
- o salt mining in the vicinity is unlikely because the potential salt depositions are too thin for conventional mining.

Based on all of the above, the Board found the exclusion area control adequate. Ed. at 707. The Perry decision predates the San Onofre "de minimis" standard. However, the Board's logic and focus on the unlikelihood of activities which would result in safety concerns is entirely consistent with San Onofre and is applicable to the GGNS situation.

Finally, with respect to the GGNS exclusion area, it should be noted that with SERI's purchase on January 15, 1987, of 1/2 of the outstanding mineral rights in the Trimble Tract, SERI and SMEPA now own or control 100% of the mineral interests in approximately 80% of the exclusion area property. In the remaining property in the exclusion area, SERI now owns a significant portion of the mineral interests. (See Exhibit 2 hereto.) The mineral interests, which are not owned or controlled by SERI, were, at the time MP&L acquired the property in the early 1970's, divided among at least seventeen owners in 5 tracts with some of the mineral owners owning interest in more than one tract. Under Mississippi law, the owner of mineral interests in property, upon obtaining the necessary consents and approvals, can drill a well without the participation of the other mineral owners. In such a case, the mineral owner or owners who drill the well are responsible for the payment of all drilling costs. If the well is unsuccessful, these costs are borne solely by the owner or owners who decided to drill the well. If the well is successful, the first revenues from the well are used to reimburse the parties who drilled the well for their drilling costs and thereafter the revenues are divided among all mineral interest owners in accordance with their ownership interests. In our case, the mineral interests not owned or controlled by SERI or SMEPA in the exclusion area are so small (and consequently the revenues from a producing well to these owners would be correspondingly relatively small) compared to the significant cost of drilling a well that it is highly unlikely that, even under the best of circumstances, parties owning such a small mineral interest in the property would financially benefit by taking such a commercial risk.

Furthermore, as a practical matter, the owner or a lessee (or a potential lessee) of mineral interests would in all likelihood attempt to obtain a written consent and damage waiver from the surface owners of the property, SERI or SERI and SMEPA, as the case may be, before commencing seismic investigations of the GGNS site. In addition, the mineral rights holder would also likely attempt to negotiate a well site agreement with the surface owner prior to seeking a permit from the Oil and Gas Board to drill on the property. Both of these measures would be reasonable and prudent and are the practice in Mississippi. This would be especially so in the case where the property includes a nuclear power generating station and where the surface owners own or control a major portion of the mineral interests. These factors give SERI an additional, practical measure of control over the exclusion area.

In conclusion, the intent of the exclusion area control requirement of 10 CFR 100.11(a)(1) and 100.3(a) is to assure protection of individuals conducting activities near the plant and to assure safe operation of the plant. To the extent SERI does not have complete theoretical control of the entire exclusion area due to lack of ownership of all mineral rights, there are no likely impacts on public health and safety and safe plant operation. No immediate consequences are possible because the mineral rights cannot be exercised, as a practical matter, without prior consent of SERI to such action or, if necessary, prior recourse to state courts. In addition, as demonstrated in the attached Geologist's Report, the potential for commercial production of minerals within or near the exclusion area is unlikely in the foreseeable future. Based on this justification, SERI remains in compliance with the requirements of 10 CFR 100.3(a) and 100.11(a)(1).

Exhibit 2

Mineral Rights Owned or Controlled by Licensees
In the Exclusion Area

<u>Tract</u>	<u>Approximate No. of Acres Within the Exclusion Area</u>	<u>Percentage of Leasing Rights Owned or Controlled By Licensees (See Note 2)</u>	
		<u>Before 1/15/87</u>	<u>After 1/15/87</u>
Trimble (See Note 1)	338	50%	100%
Arnold	13	50%	50%
Hamilton	36	50%	50%
Glodjo	1	12.5%	87.5%
Nelson (Callender portion)	26	25%	25% (See Note 3)
Nelson (White portion)	0.01 (estimated)	<u>6.25%</u>	<u>81.25%</u>
Estimated cumulative mineral interests owned or controlled by licensees		48%	89%

- NOTES:
1. As discussed in detail in the text and shown on Exhibit 1, the Trimble tract consists of several parts owned by SERI, jointly by SERI and SMEPA, and by MP&L.
 2. On January 15, 1987, SERI acquired additional interests in the Trimble and Glodjo tracts and the White portion of the Nelson tract.
 3. Table 1 of Reference 1 stated that 1/8 of the leasing rights on the Callender portion of the Nelson tract were owned or controlled by licensees. That statement was in error; in fact 1/4 of the leasing rights were owned or controlled by licensees as corrected herein.

EXHIBIT 3

Geologist's Report

on

Oil and Gas Exploration in the
Vicinity of Grand Gulf Nuclear Plant,
Claiborne County, Mississippi*

Prepared by

Wilbur H. Knight

*including a letter report on Seismic Coverage, Grand Gulf Area prepared by
Daniel E. Herlihy, Consulting Geophysicist

OIL AND GAS EXPLORATION IN THE VICINITY OF
GRAND GULF NUCLEAR PLANT, CLAIBORNE COUNTY, MISSISSIPPI

by WILBUR H. KNIGHT (1)
January 1987

INTRODUCTION

The Grand Gulf Nuclear Plant is situated on a site of approximately 2,200 acres located in the western-most part of Claiborne County, Mississippi. This report describes the petroleum geology of the general area and the historical oil and gas exploration activity. The possibilities of future exploration are discussed.

REGIONAL GEOLOGY

Claiborne County, Mississippi is situated in the southwestern part of the Mississippi Salt Basin which occupies the southern one-third of Mississippi and a small portion of adjacent southwest Alabama. The Basin is approximately 240 miles long and 50 miles wide and its long axis strikes North 60° West.

With the exception of the deltaic Wilcox sands, nearly all the oil and gas fields in the Mississippi Salt Basin are found on anticlinal structures resulting from the differential vertical movement of the Louann Salt formation. There are forty-eight known shallow piercement domes in the Basin where the Louann Salt (Jurassic) has penetrated the overlying Jurassic, Cretaceous and Tertiary sediments to points ranging from 5,000 feet to within a few hundred feet of the surface. No significant oil or gas reserves have been found on top of or on the flanks of these shallow domes.

(1) Consulting Geologist, 1030 Capital Towers Building, Jackson, Miss. 39201

Two shallow salt domes exist in the general vicinity of Grand Gulf. The Galloway Dome (Sec. 43-13N-3E, Warren Co.) is located six miles northeast and the Bruinsburg Dome (Sec. 13-11N-1E) is six miles southwest. This Dome produced 540 million cubic feet of dry gas from a small Cockfield sand reservoir found at the depth of 935 to 945 feet. This development occurred during the 1944-1945 period and sporadic efforts since that time to further develop the Bruinsburg Dome have been total failures.

Attached to this report is a Geological Structure Map contoured on Top of the Lower Tuscaloosa Formation. Although the subsurface control is somewhat limited because of the paucity of wells, it is quite evident that no favorable local structure exists at or near the Grand Gulf Plant site.

STRATIGRAPHY

A thick succession of sedimentary rocks exist in the Mississippi Salt Basin. The oldest and deepest formation is the Louann Salt of Jurassic age and would be found at approximately 22,500 feet in Claiborne County. The overlying formations range in age from Jurassic to Miocene and include rocks which are the stratigraphic equivalent of all the known oil and gas producing zones in the Basin.

The Wilcox (Eocene) and the Lower Tuscaloosa (Upper Cretaceous) are the two major oil and gas producing formations in this general area. The Wilcox is a prolific oil producing formation between the depths of 4,000 to 7,000 feet in Adams, Jefferson, Franklin and Wilkinson Counties, Mississippi. These counties lie immediately south of Claiborne County. The Lower Tuscaloosa formation (as shown on the map) occurs at the depth of 9,200 feet at the Grand Gulf Plant site. This formation is productive, usually of gas-condensate, in several relatively small fields in Jefferson County and adjacent Tensas Parish, Louisiana.

EXPLORATION ACTIVITY

Western Claiborne County has experienced very limited oil and gas exploration activity through the years. During the 1944-45 period, the Galloway and Bruinsburg Salt Domes were discovered. The attached Structure Map shows the location of the wells which have been drilled in the vicinity of Grand Gulf. Four of the wells (marked with "W") are shallow Wilcox dry holes which did not penetrate the Lower Tuscaloosa formation. The two most important dry holes in the immediate vicinity of the plant site are summarized below:

<u>WELL</u>	<u>LOCATION</u>	<u>TOTAL DEPTH</u>	<u>DISTANCE FM. PLANT</u>	<u>DATE ABANDONED</u>	<u>DEEPEST FORM.</u>
Barnwell- No. 1 Parker	Acc. 12N-1E	13,614'	2 mi West	1-13-67	Rodessa
Getty Oil- No. 1 Int. Pap.	31-12N-1E	16,996'	3 mi South	6-21-79	Hosston

Neither of these deep wildcat wells encountered any shows of oil or gas nor established the existence of a local structural anomaly. The Getty well penetrated all the known producing formations in this part of the Mississippi Salt Basin down to and including the Hosston formation of Lower Cretaceous age.

There is only one small field in all of Claiborne County. This is the five well Alcorn Gas Field which produces dry gas from the Washita-Fredricksburg formation at the approximate depth of 10,600 feet. Alcorn field is located on the the Claiborne-Jefferson County line some ten miles south of Grand Gulf.

Through the years, since oil was first discovered in Mississippi in 1939, Claiborne County has proven to be one of the least attractive areas for exploration in the entire Mississippi Salt Basin. This situation is the result of several different factors, among which are: (1) the lack of encouraging

shows of oil or gas in the wildcat wells, (2) the lack of mappable prospective subsurface structures, and (3) the fact that numerous seismic surveys have been made (discussed in detail separately) and only a few prospects have been mapped, which were deemed worthy of drilling.

There is no fundamental geological reason why Claiborne County has been such a poor target for exploration, but the historical record over the past 47 years cannot be overlooked. Only one 7,656' Wilcox dry hole has been drilled in Township 12 North, Range 2 East (Grand Gulf site) whereas the average number of wildcat wells drilled in the Wilcox trend in nearby Adams and Jefferson Counties averages over 40 wells per township which is a density of 40 times that of western Claiborne County.

SEISMIC ACTIVITY

This report includes an inventory of the currently available seismic data which exists in the vicinity of the Grand Gulf Plant site. This data was assembled by Mr. Dan Herlihy and clearly demonstrates that sufficient multi-fold stacked seismic lines have been shot to delineate a local structure in the Grand Gulf area if such existed. The seismic lines shown on the various maps are available to anyone for purchase.

CURRENT ACTIVITY

At this time there is no exploration activity of any kind in Claiborne County, and none is anticipated during 1987. Leasing activity in the County during the past year has been negligible except for two small localized areas. One area is near the common corner of Township 12 and 13 North, Range 3 and 4 East which is located some 12 miles east of Grand Gulf; the second area is in the southeast part of Township 11 North, Range 2 East approximately 12 miles south of Grand Gulf. Both of these areas are recognized structural noses which are identified by the subsurface geological data developed by the dry

WILBUR H. KNIGHT
PETROLEUM GEOLOGIST

holes on each prospect. Nearly all the land shown on the Structure Map is not now subject to any oil and gas lease.

FUTURE ACTIVITY

Any long term prediction concerning the future of the oil and gas business in western Claiborne County is fraught with many uncertainties. On the plus side, it is well known that this area is located within the limits of a prolific oil and gas producing sedimentary basin with source and reservoir rocks extending across a stratigraphic interval in excess of 20,000 feet. This fact alone means there is no basic reason why profitable oil and/or gas deposits do not exist somewhere in Claiborne County.

On the minus side there are several factors which indicate a relatively poor oil and gas future for Claiborne County. These include the previously mentioned lack of drilling and absence of prospective structural anomalies which can be mapped with subsurface geological data or seismic surveys.

The relatively large number of seismic lines that have been shot on or near the Grand Gulf Plant site is solid evidence that no favorable structure exists. If such a structure had been identified, it is a foregone conclusion that the operator would have made every possible effort to lease the prospective lands. No such event has occurred in the Grand Gulf vicinity.

CONCLUSION

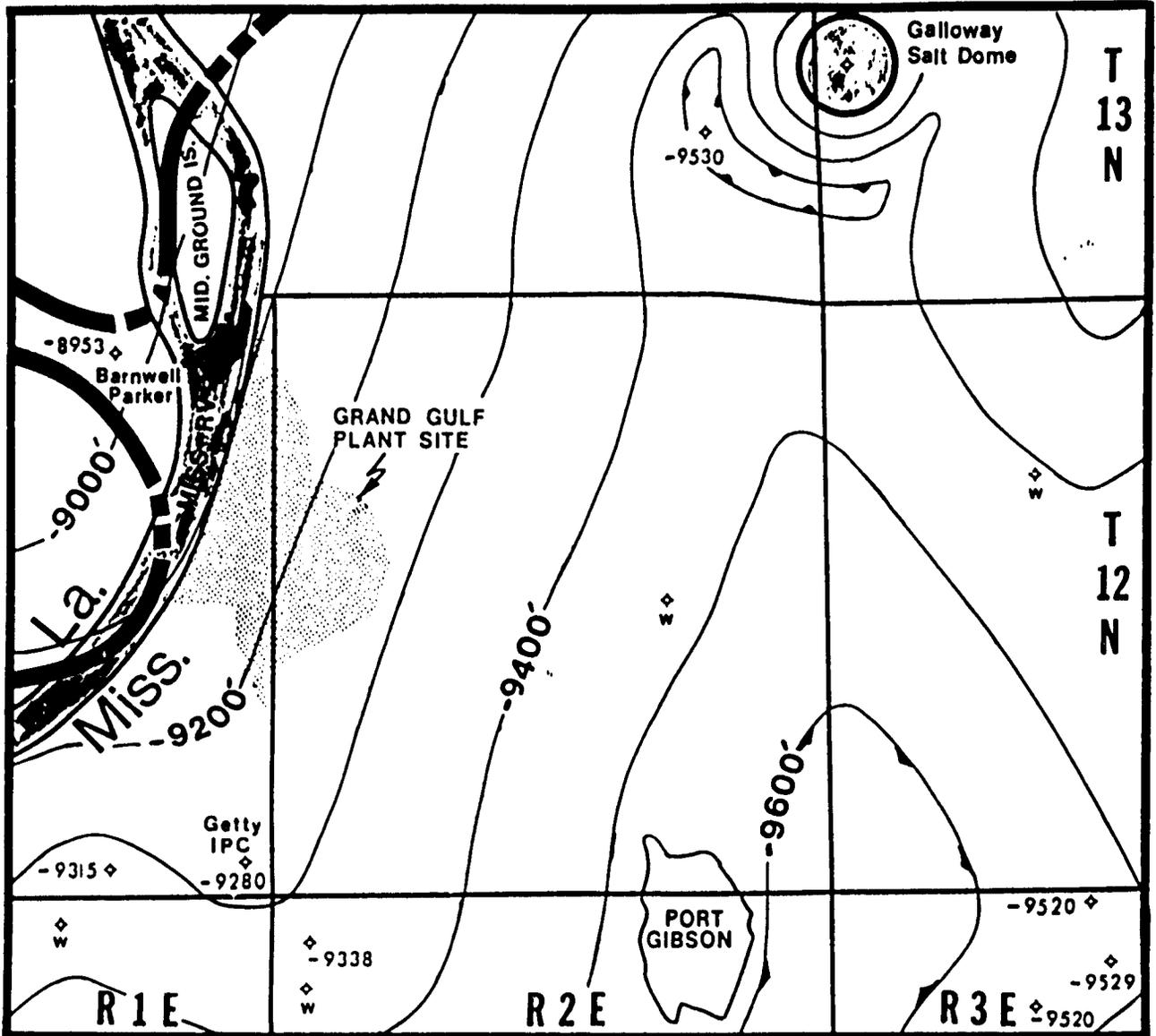
After a careful study of the geology and the oil and gas activity in Claiborne County it is evident that the Grand Gulf Plant site and the area immediately adjacent thereto, has been quite effectively condemned as a potential area for oil and gas exploration. It is the writer's belief, based on 45 years of petroleum geology experience in Mississippi, that no oil and gas operator will want to drill an exploratory well in this area in the foreseeable future (10 to 15 years).

Wilbur H. Knight

Wilbur H. Knight

Cert. Petroleum Geologist No. 177

WILBUR H. KNIGHT
PETROLEUM GEOLOGIST



Grand Gulf Nuclear Plant
CLAIBORNE CO., MISS.

Structure - Top Lwr. Tuscaloosa Fm.

SCALE 0 5,000 10,000 15,000 20,000 25,000 ft.

for
Wise, Carter, Child & Caraway

JAN. 1987

by
Wilbur H. Knight

DANIEL E. HERLIHY
CONSULTING GEOPHYSICIST

P.O. BOX 5086, 1640 LELIA DRIVE, SUITE 210
JACKSON, MISSISSIPPI 39216. (601) 982-0238

December 15, 1986

Mr. Wilbur H. Knight
1030 Capital Towers Building
Jackson, Mississippi 39201

RE: Seismic Coverage
Grand Gulf Area

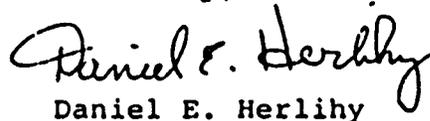
Dear Mr. Knight:

Enclosed are eight plats showing seismic data in the vicinity of Grand Gulf which are available for purchase. I have checked with the seismic data brokers and these plats show the data which has been recorded in this area.

All of the data shown on the plats are multifold stack seismic and should be of fairly good quality. The average cost would be about \$1200 per mile and any of the lines could be checked for quality before purchase.

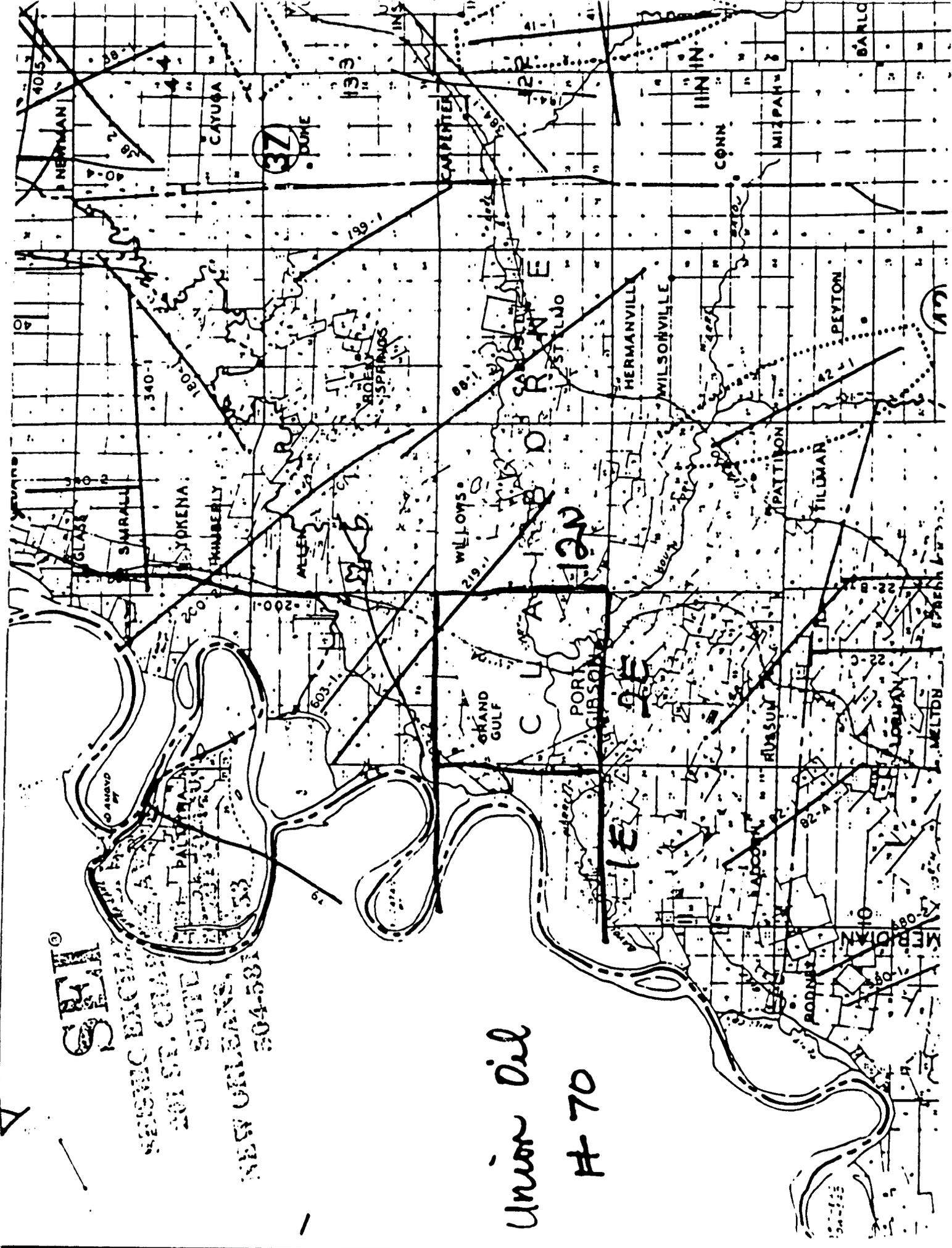
If you need any more information, please let me know.

Cordially,


Daniel E. Herlihy

DEH/mar

Enclosures



SRI

REPRODUCTION
 201 STE. CHARLES
 SUITE
 NEW ORLEANS, LA 70112
 504-581-5353

Union Oil
 # 70

SEISMIC EXCHANGE, INC.
201 ST. CHARLES AVE. SUITE 4300
NEW ORLEANS, LA 70170-4300
(504) 581-7153

Lick Branch

CLAI B. ORNE

BIG
DE

GRAND GULF

12 N
2 E

MSS. WEST ZONE
7° 300,000.000

MSS. WEST ZONE
7° 340,000.000

Ingleston

L. H. Diamond
Anderson Twp Co
1734

Galloway

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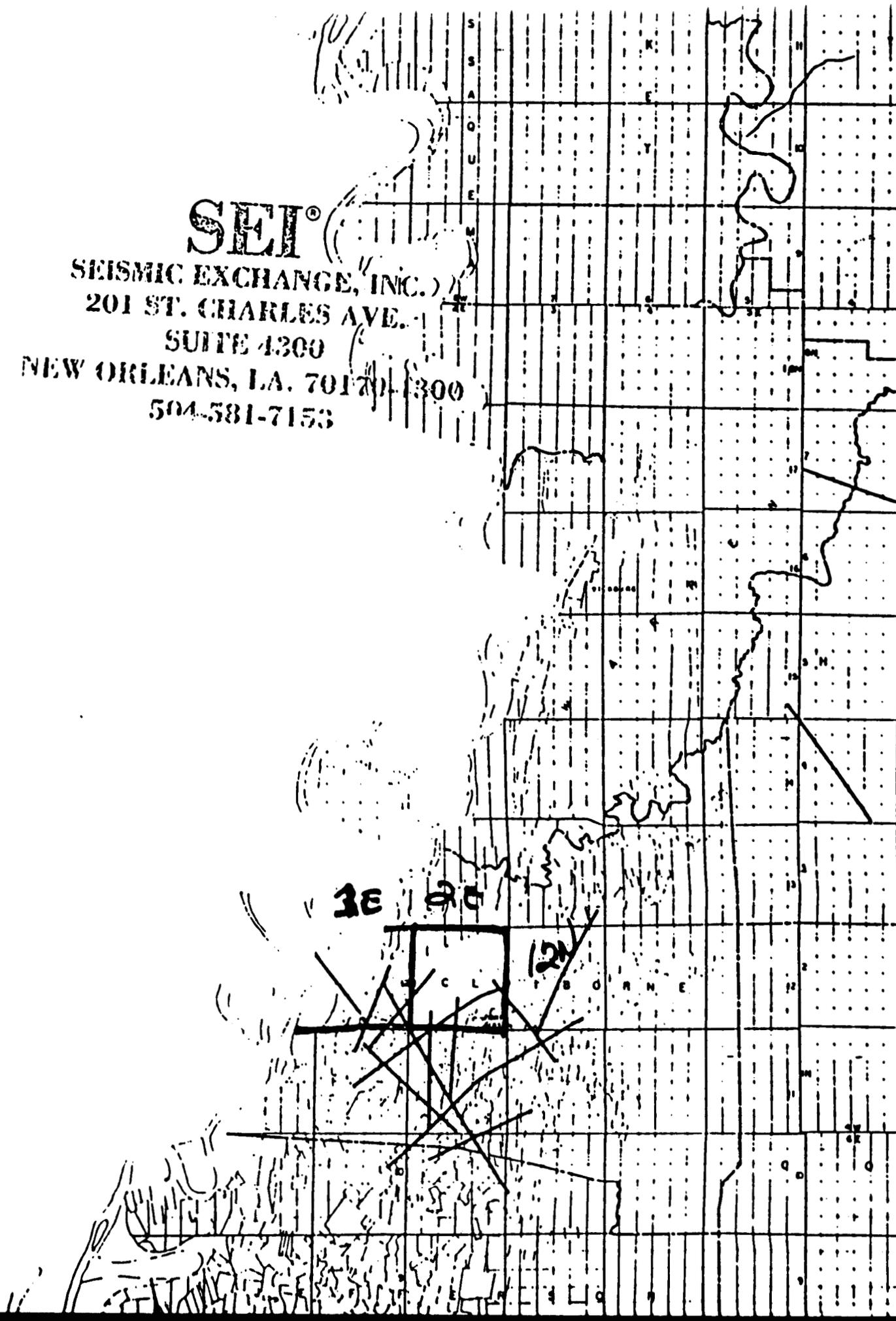
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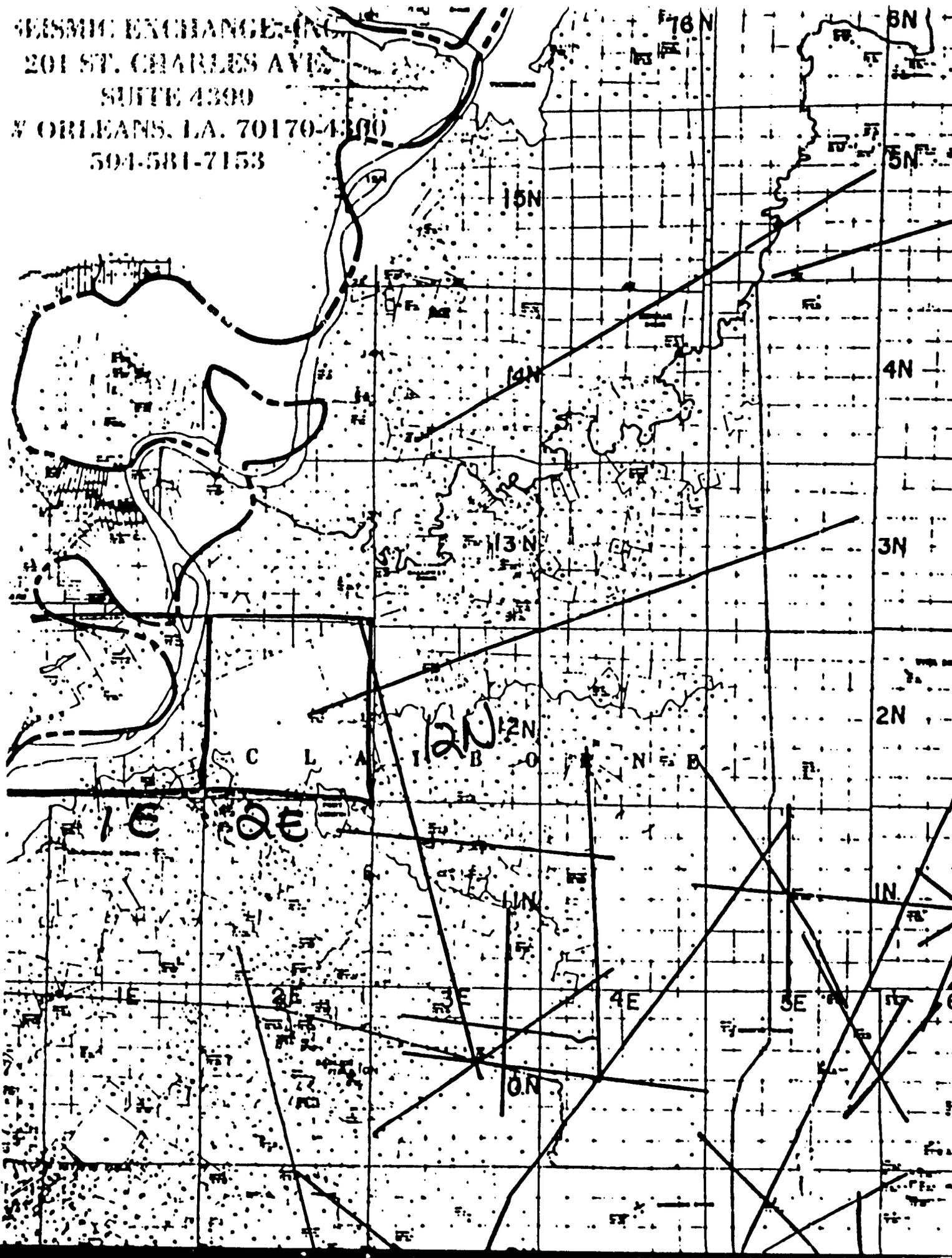
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SEI[®]
SEISMIC EXCHANGE, INC.)
201 ST. CHARLES AVE.
SUITE 1300
NEW ORLEANS, LA. 70170-1300
504-581-7153



SEISMIC EXCHANGE, INC.
201 ST. CHARLES AVE.
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SOUTHWEST ALABAMA

235 EXCEL DRIVE
JACKSON, MS. 39208
(601) 339-5142

701 KIRBY DRIVE
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(713) 630-4416

210 BARONNE STREET
SUITE 945
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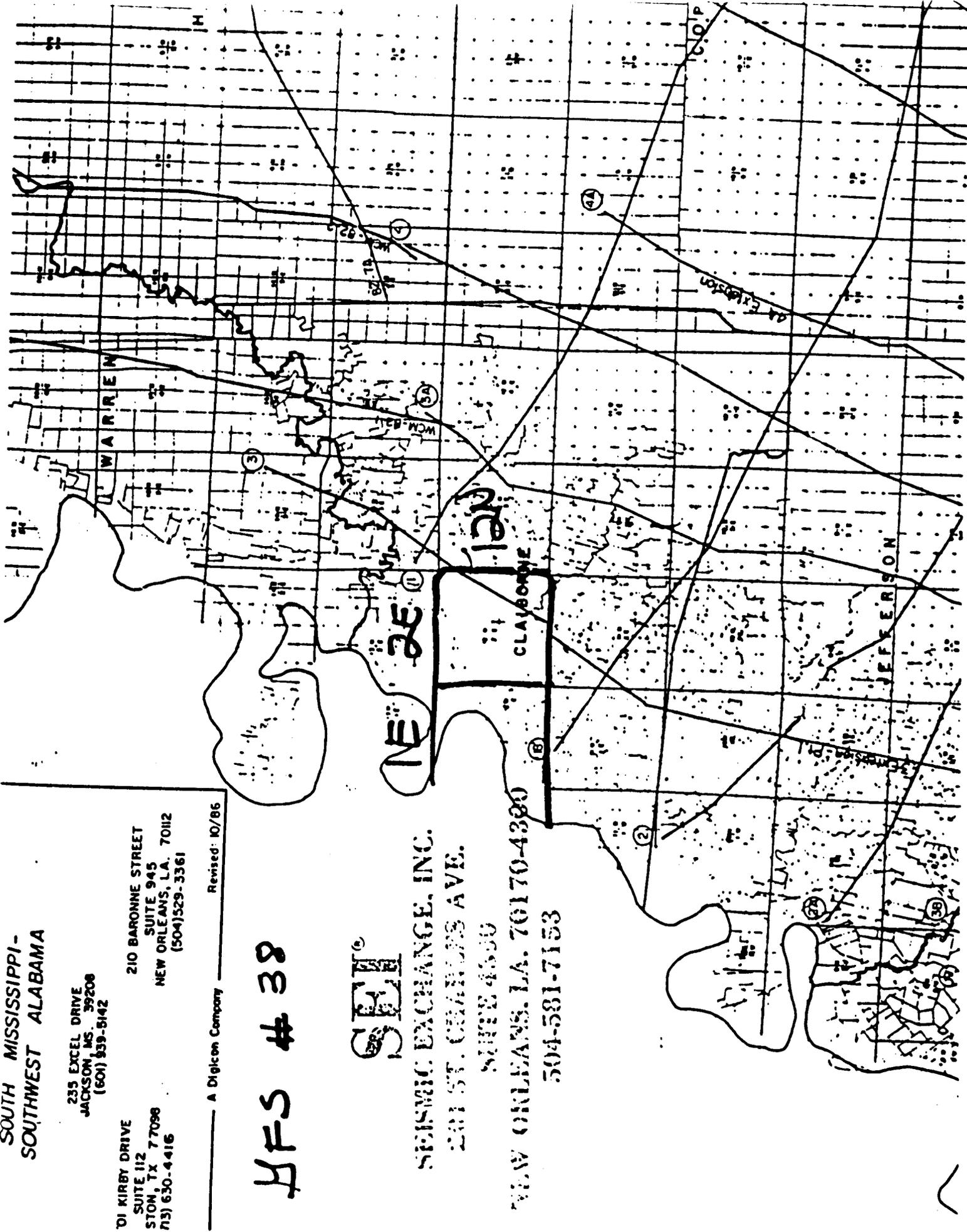
SEISMIC EXCHANGE, INC.

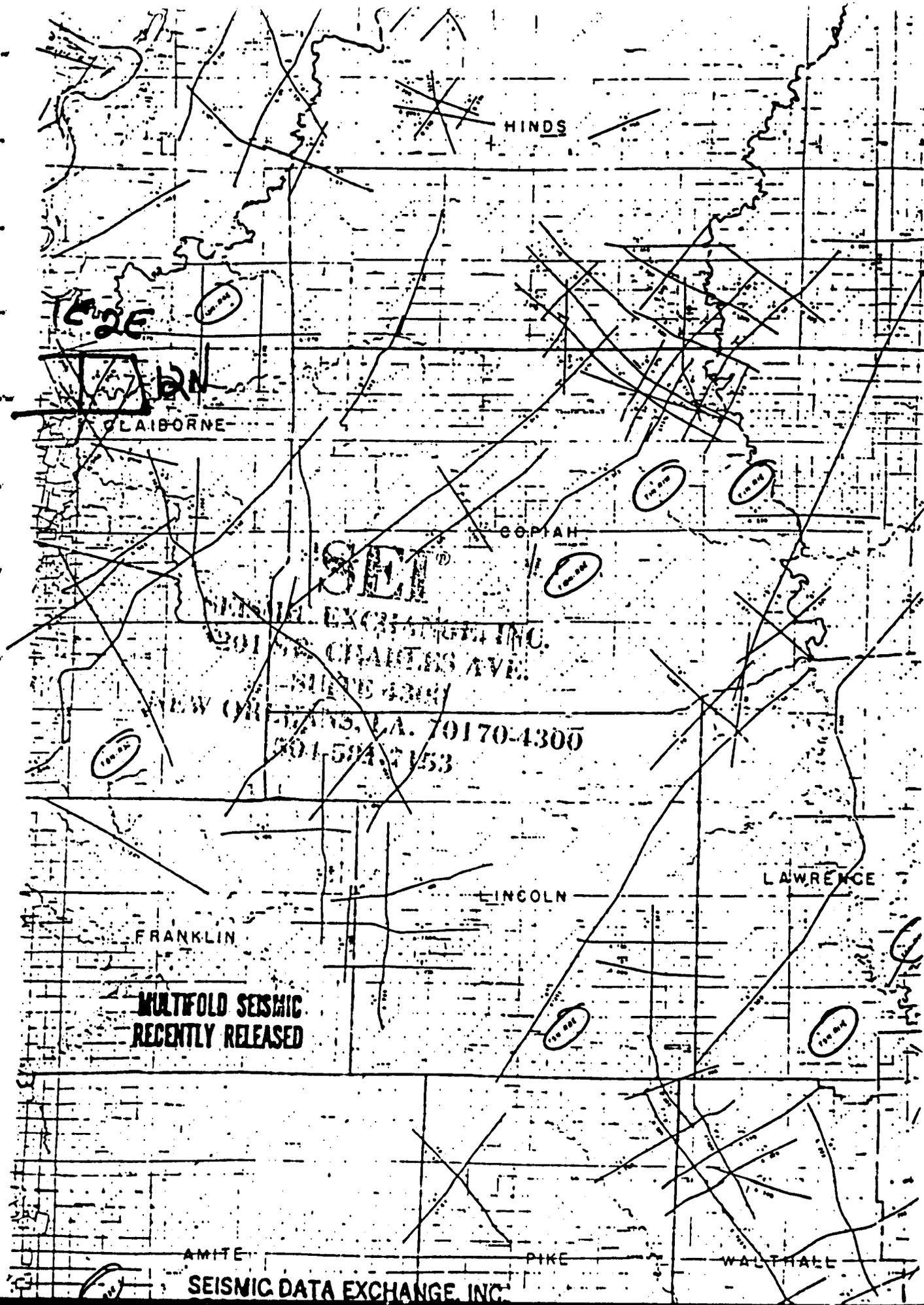
201 ST. CHARLES AVE.

SUITE 4500

NEW ORLEANS, LA. 70170-4300

504-581-7153





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CLAIRBORNE

COPIAH

SEI

SEISMIC DATA EXCHANGE, INC.
501 PINE CHARTER AVE.
NEW ORLEANS, LA. 70170-4300

501-594-7153

LAWRENCE

LINCOLN

FRANKLIN

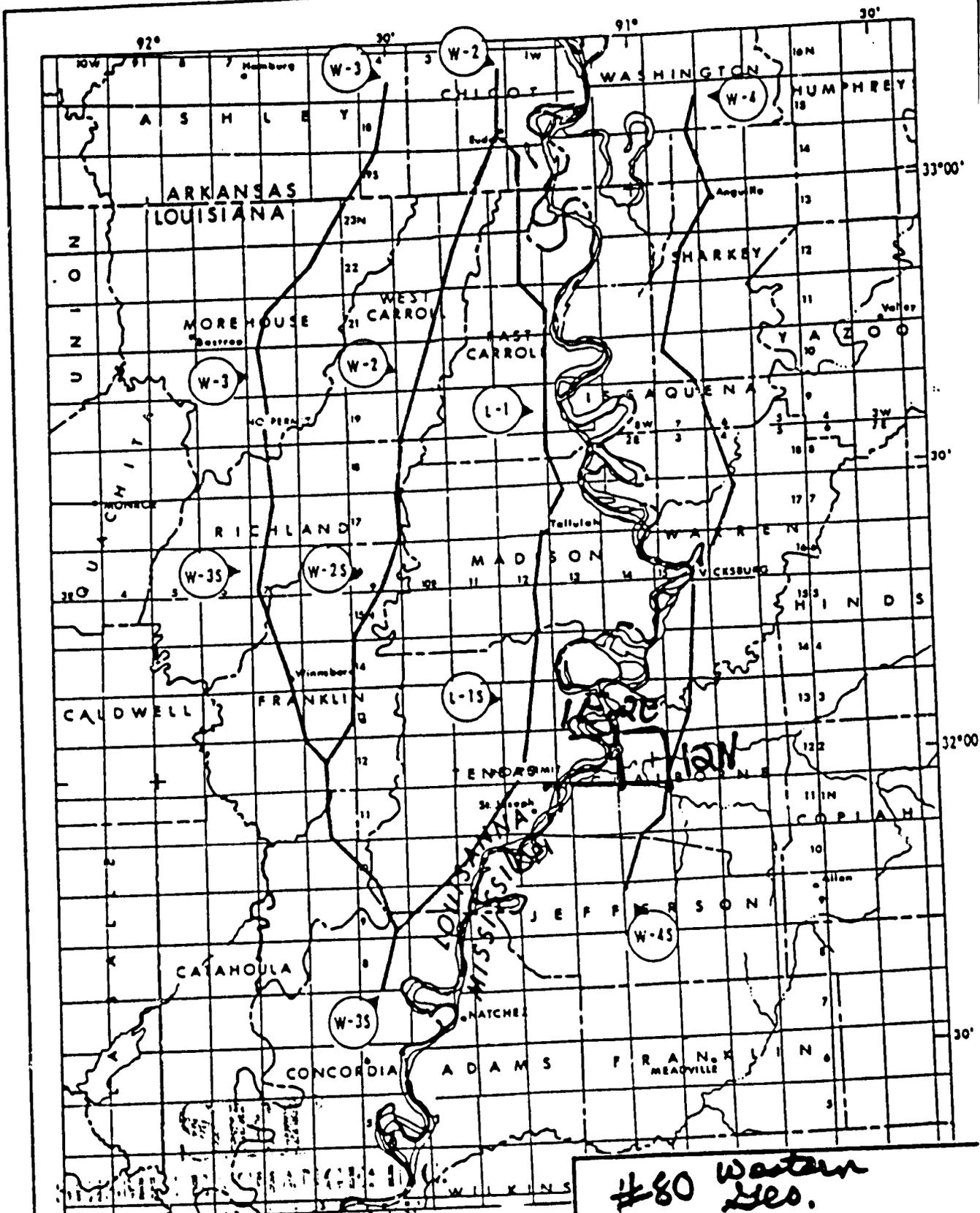
MULTIFOLD SEISMIC
RECENTLY RELEASED

AMITE

PIKE

WALTRAIL

SEISMIC DATA EXCHANGE, INC.



201 St. Charles Ave.
 SCALE 1:1,000,000
 1" = APPROX. 16 Miles



#80 Water
 Sys.
 LOUISIANA
 SPECULATIVE PROGRAM
 NORTHEAST LOUISIANA

PROFESSIONAL QUALIFICATIONS

WILBUR H. KNIGHT

1936-1940

UNIVERSITY OF WYOMING, Major Geology, B. A. 1940

1940-1941

UNIVERSITY OF WYOMING, M. A., in Geology 1941

1941-1942

GEOLOGIST, Union Producing Company (now Pennzoil Producing Co.), Jackson, Mississippi
Scope of Work: Geological Scout

1942-1944

U. S. ARMY, 1st Lt., Infantry

1944-1947

GEOLOGIST, Union Producing Company (now Pennzoil Producing Co.), Jackson, Mississippi
Scope of Work: Subsurface mapping, well sitting and all other duties normally performed by a geologist in a District Office.

1947-1956

DISTRICT GEOLOGIST, Union Producing Company (now Pennzoil Producing Co.), Jackson, Mississippi

Scope of Work: Administrative head of comparatively large district geological office. Employees under direct supervision numbered six geologists plus usual clerks, draftsman, and secretaries. District area embraced Mississippi, Alabama, Florida, and Georgia. Duties included general supervision of all exploration activities, including consultation with seismograph parties and review of all geophysical work. Recommendations regarding exploration programs, including wildcat wells. During this period, several outpost discoveries were made as a direct result of subsurface geological work in District Office. All geological exploitation work was initiated and performed by district personnel. Union operated over 200 producing oil and gas wells in district, so experience in this area was very diverse. Preparation of technical papers for publication in professional journals. Many appearances as an expert witness on behalf of Company before various regulatory bodies (Mississippi Oil and Gas Board, F. P. C.) and courts.

1956-1959

CHIEF GEOLOGIST, Larco Drilling Company, Jackson, Mississippi

Scope of Work: Creation of Geological Department and direct supervision of all exploration work, including subsurface geology and geophysical activities. Complete and direct supervision of all geological phases of drilling wells, completion and workover procedure. Appraisal and reserve reports on Larco properties for bank loan purposes. Evaluation of lease and royalty purchases and supervision of this program. Appraisal of drilling deals submitted by others. During this period (1956-1959), Larco discovered four oil fields and one major field extension, primarily on the basis of geological recommendations. Numerous appearances before State Oil and Gas Board as expert witness.

March 1959 to Present

INDEPENDENT CONSULTING GEOLOGIST

Office: 1030 Capital Towers Building
Jackson, Mississippi 39201
Telephone (601) 355-1528

Scope of Work: Retained by several oil and gas companies and independent oil operators to advise and supervise exploration and/or development programs in Mississippi, Alabama and Florida. Numerous geological reports for clients. Numerous appraisals of large oil and gas Estates for Federal Income Tax purposes. Employment by numerous persons and companies to represent them as an expert witness before various state and federal courts and state and federal regulatory agencies. Employment by various clients to represent them on geological committees involved with field-wide unitization of several oil and gas fields. Development of wildcat and outpost prospects in which a personal interest was retained. The operation and direct supervision of both wildcat and producing wells including all the duties normally performed by an operator. Extensive subsurface geological mapping. Detail knowledge of electrical log analysis. Review and supervision of various geophysical programs (both gravity and reflection seismograph). Supervision of leasing activities for clients. Evaluation of both producing and non-producing mineral interests for clients. Regional stratigraphic and structural studies. Geological studies and supervision of drilling deep industrial waste disposal wells.

Jurisdictions where appearances have been made as an expert witness: Federal District Courts, Mississippi State Courts, Mississippi Oil and Gas Board, Alabama Oil and Gas Board, Federal Power Commission, Internal Revenue Service (Tax Courts).

PROFESSIONAL AFFILIATIONS

Geological Society of American (Fellow)
American Association of Petroleum Geologists (several committees)
Mississippi Geological Society (Past President)
Mid-Continent Oil and Gas Association (Vice-President)
Society of Petroleum Engineers, A.I.M.E.
Society of Independent Earth Scientists, Cert. No. 71
Society of Exploration Geophysists
Independent Petroleum Association of America
Certified Petroleum Geologist (A.A.P.G.), No. 177
American Arbitration Association
Association of Professional Geological Scientists, Cert. No. 2553

PERSONAL DATA

Born May 8, 1921
Married Betty Lee Fath December 26, 1941
Residence, 2030 Southwood Road, Jackson, Mississippi
Episcopalian