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QUARTERLY TECHNICAL PROGRESS REPORT

TITLE: A STUDY OF THE RELATIONSHIP OF GEOLOGICAL FORMATION TO THE NORM

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## ABSTRACT

Naturally Occuring Radioactive Materials (NORM) is a common and costly contaminant of produced waters associated with natural gas production and exploration. One way of combatting this problem is by identifying the problem beforehand. Our approach to this problem involves development of NORM prediction capabilities based on the geological environment.

During the third quarter of this project, emphasis was placed on three tasks; laboratory procedural development, continuance of preliminary geologic data acquisition, and the beginning of field testing of non-produced water sites.

Laboratory procedures development included applications of pertinent EPA/Standard Methods, as well as continuing orientation with respect to radiation safety procedures and practices. In terms of progress on the geologic aspects of the project, compilation of relevant well data for the study area is in progress.

### PROJECT INTRODUCTION:

The Southern University Center for Energy and Environmental Studies along with partners Louisiana State University's Basin Research Institute (BRI), American Gas Association Laboratories (AGAL), United States Geological Survey (USGS), and BJM & Associates (BJM), have teamed up to explore relationships between geological/geochemical factors and NORM. Each of these partners will employ their specific areas of expertise in developing predictive capabilities with respect to NORM in the produced waters associated with natural gas exploration.

The third quarter of the project has experienced somewhat of a setback in that Consolidated Natural Gas (CNG) has withdrawn from the effort due to financial considerations. This development may cause major project modifications. The DOE contracting officer has been informed of these developments.

### PROJECT DESCRIPTION:

This project consists of four major tasks: (1) EMWAL Development, (2) Chemical and Radiological Analysis, (3) Correlative Results with Respect to NORM Activity and geological parameters (Geo-environmental maps), and (4) Technology Transfer. The sampling sites will be initially confined to wells in Vermillion Parish which are operated by CNG. Expansion to other wells in the area of concentration may be considered.

The radiological and chemical analysis of samples will take place at Southern University with the geo-environmental results being generated at Louisiana State University.

### PROJECT STATUS

During this reporting period, the chemical analysis of water samples was continued. The sites selected for sampling were Lake Kernan, on the Southern University campus and the Mississippi River near downtown Baton Rouge. These samples were obtained using a submersible water grabber sampling system.

The recently acquired field sampling system was used in our field testing efforts. Those variables tested were dissolved oxygen, temperature, conductivity and pH. In addition to the chemical analyses, compilation of well data for the Vermillion Parish area is continuing. Preparation of a well base map for the area has also been started.

## SUMMARY

Though we are still without major subcontractual services, limited testing of non-produced water samples is in progress. The withdrawal of Consolidated Natural Gas may cause changes in the sites originally selected for the well studies as well as the project scope of work. Field sampling capabilities are in place with expansion of these capabilities planned for the future. With respect to the geological aspects of the project, compilation of relevant well data for the study area (Vermilion Parish) is in progress. This preliminary information is being obtained from the State of Louisiana' computerized well data base (PARS).