



**Central and South West Fuels, Inc.**

2121 San Jacinto Street • Suite 2500  
P. O. Box 660164 • Dallas, Texas 75266  
214-754-1010

DOCKET NUMBER **PR-19, 20, 21 et al**  
PROPOSED RULE **(50 FR 13797) (75)**

DOCKETED  
USARC

July 29, 1985

'85 JUL 31 P1:07

Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Attention: Docketing and Service Branch

Re: The Proposed Regulation Prohibiting the Use of a  
Sealed Radioactive Source in a Well without Casing

Dear Sirs:

Through my industry contacts, I have become aware of a proposed NRC regulation which would prohibit the use of a sealed radioactive source for geophysical logging in wells without surface casing. This regulation would have a significant adverse effect on coal and lignite exploration and development. For this reason, I would like to submit the following comments for your consideration.

Geophysical logs are completed on most lignite exploration and development drill holes. These logs typically display four "curves" or logged parameters. The most common suite of parameters includes: **Resistivity** - the electrical resistance of the lithologic units encountered in the hole, **Gamma Ray** - the passive emission of gamma radiation, **Caliper** - the hole diameter, and **Gamma-Gamma Density** - the apparent density of the lithologic units. While the other three parameters are of considerable value, the gamma-gamma density log is by far the most important. It is from this curve that the most accurate depth and thickness information is obtained for lignite and coal seams.

To obtain a density log, a sealed radioactive source (cesium-137) is used to emit gamma rays which are projected a few inches into the sediments found in the wall of the drill hole or well. The resulting "back-scatter" of gamma rays (dictated by the density of the lithologic unit) are measured and used to determine an apparent density. Coal and lignite, having significantly lower densities than other sediments, are thus highlighted on the plotted apparent density curve. While the resistivity and gamma ray logs also differentiate

DSIO  
add: Steven McGuire, 113055  
Bruce Carrico, 39655

A Member of the Central and South West System

Central Power and Light Company • Public Service Company of Oklahoma • Southwestern Electric Power Company • West Texas Utilities  
• Central and South West Services, Inc.

8508020309 850729  
PDR PR  
19 50FR13797 PDR

Acknowledged by card

AUG - 1 1985

U.S. Nuclear Regulatory Commission  
July 29, 1985  
GLL to Secretary of the Commission  
Page 2

lignite and coal from other sediments, they can be distorted by hole conditions and rapid lithologic changes. The density curve, therefore, is the only parameter capable of allowing a consistent and accurate depth and thickness determination.

The impacts of the proposed NRC regulation are as follows:

First, the use of casing in every hole would dramatically decrease the accuracy of density logs. Logging inside casing inhibits the proper operation of the logging tool as well as removes the sealed source from close contact with the drill hole wall. This contact is essential since, as you will recall, the gamma rays are only transmitted a few inches into the surrounding sediments. This problem would be magnified even further, should the log be taken inside drill pipe which would cause the logging tool to be even further removed from the drill hole wall.

Next, from the standpoint of practicality, the placement of casing would be very difficult. Especially in areas of soft sediments such as the Gulf Coast, the procedure would require the completion of a significantly larger diameter hole than normally needed. Subsequently, casing would have to be set in place and, following the relatively brief logging process, it would have to be retrieved. In addition to vastly increasing the time required to complete a hole, this procedure would also frequently dictate the use of a larger drill rig. This, combined with the reduction in the quality of the information obtained, would force most companies to reduce the size of their drill programs and also provide them with inferior data.

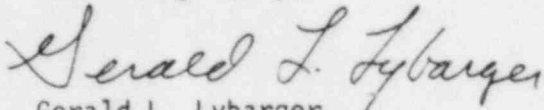
Related to the above time and equipment factors would be a large increase in cost for exploration and development. In my opinion, overall expenditures would increase by a factor of 50 percent (or more) on a typical program. This would require that a company either increase expenditures or decrease the number of holes to be completed. The increased cost and decreased quality and quantity of data would ultimately be reflected in the market price of coal and lignite.

One final comment relates to the purpose of this regulation. While the protection of freshwater aquifers is certainly desirable, sealed sources pose no known threat to these lithologic units. It is my recommendation that any regulation dealing with the protection of aquifers be aimed at lost or damaged radioactive sources. The loss or rupture of a source is an incredibly rare occurrence and would be the only situation in which any contamination could take place.

U.S. Nuclear Regulatory Commission  
July 29, 1985  
GLL to Secretary of the Commission  
Page 3

I hope the above comments are helpful to you in your evaluation of this proposed regulation. In closing, I would like to request that notification of any public hearings regarding this matter be forwarded to me at the address shown above.

Yours very truly,

A handwritten signature in cursive script that reads "Gerald L. Lybarger".

Gerald L. Lybarger  
Senior Geologist

GLL/ljr

c: Gary Antoinette  
Leo Brewer  
Dick Cory  
Jim Flint - NACI  
Keith Honey  
Jackie Mellon - NACCO  
Frank Moseley  
Nancy Ranek