BEFORE THE
NUCLEAR REGULATORY COMMISSION

In re:	Proposed Regulations for Licenses and Radiation Safety Requirements for Well-Logging Operations	Attention: Docketing and Service Branch

COMMENTS OF PEABODY HOLDING COMPANY, INC. PEABODY DEVELOPMENT COMPANY AND PEABODY COAL COMPANY

Chris Farrand
Vice President, Government Relations
Peabody Holding Company, Inc.
1120 20th Street, N.W.
South Building, Suite 720
Washington, D. C. 20036
(202) 659-8101

Peter J. Palumbo
Senior Vice President
Resource Management
Peabody Development Company
301 North Memorial Drive
St. Louis, Missouri 63102
(314) 342-3400

James R. Jones
Vice President, Environmental Affairs
Peabody Coal Company
301 North Memorial Drive
St. Louis, Missouri 63102
(314) 342-3400

David S. Hemenway
Senior Counsel
Peabody Holding Company, Inc.
301 North Memorial Drive
St. Louis, Missouri 63102
(314) 342-3400

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Peabody Holding Company, Inc., Peabody Development Company and Peabody Coal Company (collectively referred to as "Peabody") have a great interest in the proposed regulations for licenses and radiation safety requirements for well-logging operations. Peabody Holding Company is the parent company of Peabody Coal Company, the nation's largest coal producer, and of other coal mining companies. These coal companies operate 22 surface and 18 underground coal mines in 10 states from Appalachia to the West, and have plans to develop a number of new coal mines. Peabody Development Company is the marketing and reserve development subsidiary of Peabody Holding Company.

On April 8, 1985 the NRC proposed a regulation that would specify radiation safety requirements for the use of licensed material in well-logging operations. 50 Fed. Reg. 13797 et seq. Under that proposal, in Subpart C Sec. 39.51 the licensee may not use a sealed source in a well without a surface casing designed to protect fresh water aquifer zones, unless procedures for protecting these zones are specifically approved by the Commission. Both Peabody Development Company and Peabody Coal Company employ independent contractors, who use radiation detectors, known as logging tools to obtain information on certain properties of an underground formation, such as type of material, thickness of coal seam, partings, porosity, hydrologic data, etc.

The proposed NRC Rule 39.51 would greatly impact Peabody in all phases of operations:

1. Exploration and Development

   Peabody currently uses nuclear logs in most of their exploration and development drill holes, which are essentially all uncased. This not only provides verification of the driller's log in the non-cored intervals, but provides additional data that would not be obtainable unless the entire hole was cored

and expensive physical and chemical testing done on the recovered core. These nuclear logs also provide an unbiased record of the hole, not clouded by an individual's interpretations of the core or drill cuttings. In holes which have lost circulation during drilling this is the only reliable method to obtain accurate lithologic logs. Eliminating the coal industry's option of open hole logging of rotary drill holes would cost the industry millions of extra dollars per year to generate the same amount of exploration data. Peabody estimates that our exploration drilling costs would increase between 35 - 50 percent per year.

2. Environmental Baseline Data Gathering and Permitting

In the environmental baseline data gathering and permitting stages, some of our operating divisions run open hole nuclear logs for hydrologic characterization of the fresh water aquifers. Such information is also utilized in the submittal of data required under the Surface Mining Control and Reclamation Act (SMCRA). These logs are used in the correlation of possible toxic lithologies in relation to reclamation activities and ground water contamination. The proposed regulation would make correlation and verification of the data much more time consuming and less exact and would substantially increase our hydrological lab expenses.

3. Production

In the production phase at some of Peabody's operations, open hole nuclear logging is performed on close spaced drill holes (200-300 feet apart), to characterize the quality of the coal. This information is used to modify mining plans in order to provide the quality of coal which is called for under contracts between Peabody and its customers.

At other mines this type of logging is used to obtain accurate porosity logs to calculate in-flow (water) estimates for active open-pit surface coal mining operations.

It is necessary that these logs be run in open holes to provide a high degree of reliability of the received data. Running these logs through a cased hole significantly reduces the resolution of the data due to the dampening effect of the steel casing. In addition, a much stronger radioactive source would have to be used to overcome the effect of the casing, and even then the quality of data would still be diminished.

We have integrated open hole nuclear logging into all phases of our operations. Peabody routinely asks the wire line contractor to run their nonradioactive (no source) logs first, to obtain information on the stability of the bore hole. This is done as a precautionary measure to assure that the radioactive source will not become stuck in the hole. The NRC has indicated in the preamble to the regulation that the real concern is a possible rupture of sources in well holes during logging-tool recovery operations.

Among alternatives which the NRC should consider are these:

1. Not prohibit open hole logging but adopt a set of guidelines for open hole use of logging tools to minimize opportunities for rupture.

2. Regulations for coal and mineral geophysical logging should be made separate from oil and gas logging, since these types of logging are so different.

3. Support more uniform guidelines and approved recovery methods to avoid rupture of tools containing a sealed source which becomes stuck or lodged in a well hole.

4. According to the geophysical logging community the proposed regulation is primarily aimed at oil and gas logging, as those probes emit much more radiation than do mineral probes. Generally a mineral probe will contain a source which emits a 125 millicurie rate or less. A neutron probe, which is especially used for hydrologic studies emits at a 2 curie rate. The oil and gas probes may be 20 to 100 times stronger than a mineral probe. It is suggested that a greater than 2 curie rate be considered as a minimum before protective measures would be required.

Peabody appreciates the opportunity to submit these comments to the Commission, and requests that you give full consideration to the impact which the proposed regulations will have upon the coal mining industry.

Respectfully submitted,

Edward L. Sullivan

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