



# United States Department of the Interior

GEOLOGICAL SURVEY  
RESTON, VA. 22092

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USNRC

OFFICE OF THE DIRECTOR

In Reply Refer To:  
WGS-Mail Stop 106

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July 2, 1985

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

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

Attention: Docketing and Service Branch

Dear Sir:

We appreciate the opportunity for the U.S. Geological Survey to comment on the proposed regulations concerning "Licenses and Radiation Safety Requirements for Well-Logging Operations" published in the Federal Register, Vol. 50, No. 67, Monday, April 8, 1985.

In general, we find the proposed rules well thought out, and the resulting national uniformity will be desirable. We have some concerns because the proposed rules, as written, are directed toward the oil and gas industry and ignore the needs and requirements of those agencies and companies who are involved in programs to define, explore, and develop fresh ground-water resources, to identify minerals potential, and to describe the geologic framework of the Nation.

Some of our concerns are merely operational and can be resolved by clarification of intent or expansion of the discussions sufficiently to allow compliance to be achieved quickly.

For example: Section 39.43(d) concerning removal of a source from a source holder has operational implications in our use of radioactive sources. We operate our well logging program using a wide variety of equipment from diverse manufacturers. To keep our source inventory at a minimum, we regularly transfer sources from one holder to another as the need for a specific tool arises. Part (d), requiring that sources not be transferred "...unless a written instruction has been approved by the Commission...", needs considerable expansion in the "Supplementary Information" section so that the necessary written instructions can be prepared. Alternatively, we would need to increase our source inventory to include a source for each tool we use or suffer some operational hiatus until the necessary documentation could be prepared and approved by the Commission.

Of a more serious nature are the requirements of Sections 39.45(b) and 39.51, because these directly impact the ability of this agency to accomplish our mission. Section 39.45(b) would prohibit the injection of licensed tracers into fresh water aquifers and Section 39.51 would prohibit use of radioactive sources in a well without surface casing to protect fresh water aquifers, unless there were procedures specifically approved by the Commission.

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Major missions of the U.S. Geological Survey include definition of the fresh ground-water resources and minerals potential of the Nation, and to accomplish these missions, we frequently log in the fresh water section or in the unsaturated zone above fresh water bearing aquifers. The usefulness of the measurements is often totally dependent on operating in an open hole, frequently with the detecting tool pressed against the wall of the hole. Additionally, the use of tracers may provide the only technically feasible means of obtaining some aquifer characteristics. The rule as proposed would obviously have a serious impact on our ability to accomplish our mission unless some arrangements can be made on an agency basis to obtain the necessary authorization to use radioactive materials in the fresh ground-water environment. We would appreciate the opportunity to meet with your staff and discuss fully the issues involved and how they can be resolved.

Some specific problems with the rules' language follow.

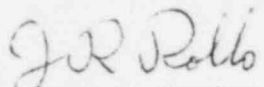
Just as the rule appears to have been written with only oil and gas operations in mind, there is also an apparent failure to recognize that fresh ground water is not only a near-surface occurrence, but also that it can occur at depths of several thousands of feet below the land surface. Any rule must be written with the flexibility to accommodate a wide range of geologic circumstances.

Use of the phrase "significant amount" in the definition of "Fresh water aquifer" can only lead to confusion. For example, in areas where water supplies are very scarce, a well yielding a gallon per minute may be considered "significant" where in an area needing water for rice irrigation, wells yielding less than several hundred gallons per minute would not be "significant."

The definition of "Surface casing" ignores the water well industry which would not isolate the fresh water zone with casing and fails to recognize that fresh water can occasionally occur at great depths.

If we can provide any further information, please contact me by telephone at FTS 928-7491.

Sincerely yours,

  
for James F. Devine  
Assistant Director for  
Engineering Geology