

AB-35-1

PRELIMINARY REGULATORY ANALYSIS

10 CFR Part 39

LICENSES AND RADIATION SAFETY REQUIREMENTS
FOR WELL-LOGGING OPERATIONS

1. STATEMENT OF THE PROBLEM

Existing Commission regulations do not specify detailed safety requirements governing the use of licensed material in well-logging operations. Some general requirements pertaining to well-logging operations are addressed in 10 CFR Parts 20 and 30. Since there are about 50,000 wells logged each year in the oil, gas and mineral industry and about 5,000 workers are directly or indirectly involved in these operations, a uniform set of radiation safety requirements in the Commission's regulations appears necessary. At present, the Commission specifies safety requirements for these operations as license conditions for approximately 170 NRC licensees.

Typical radioactive sources used in well-logging operations include sealed sources containing americium-241 (0.25 curie to 20 curies) and cesium-137 (2 to 3 curies); and millicurie quantities of short-lived tracer materials to label well fluids. NUREG-0714 estimated an average of 22 man-rems per well-logging license or an extrapolated collective dose of 1740 man-rem. A recent incident in Pennsylvania during recovery operations for a separated mineral-logging tool containing americium-241 at a coal field caused extensive contamination and considerable cleanup expense (48 FR 2467).

In response to concerns expressed by several States with heavy oil and gas activities, a task force was established by the Conference of Radiation Control Program Directors to develop a set of radiation safety requirements for use of radioactive material in well-logging operations. The task force was composed of representatives from States, the affected industry, and federal agencies,

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including the NRC. In keeping with previous practices of the organization, the Conference adopted these requirements as Part W of the "Suggested State Regulations for Control of Radiation" (SSRCR). The State of Texas and several other States have already adopted Part W requirements as State regulations without substantive changes. Other Agreement States are also considering adopting Part W requirements.

Since many well-logging companies operate in both Agreement and non-Agreement States, compatible NRC requirements are needed to ensure uniformity between NRC and the Agreement State regulations.

2. OBJECTIVES

This regulatory action focuses on the following objectives:

- to provide a comprehensive and consistent set of regulations to assure radiation safety;
- to maintain compatibility between the NRC and the Agreement States in regulating these operations;
- to encourage the Agreement States (that have not adopted Part W) to adopt similar regulations.

3. ALTERNATIVES

The alternatives considered were as follows:

3.1 Maintain the Status Quo

This alternative was considered unacceptable because it fails to provide legally binding safety requirements for well-logging operations. Further, licensees would not have a ready reference to the NRC's requirement or any additional amendments. Also, the alternative would make the reciprocity with Agreement States more difficult.

3.2 Promulgate New Requirements Based on Part W in NRC Regulations

This alternative was considered acceptable because:

- it provides a sound regulatory base defensible in legal actions;
- it provides compatability with the Agreement States safety requirements and thus provides a simple mechanism for reciprocity;
- it provides licensees with the opportunity to suggest modifications of the regulations.

4. CONSEQUENCES

4.1 Costs

4.1.1 NRC Operations

Anticipated costs to the NRC are expected to be low for this action. An estimated one professional staff-year effort will be needed to support this rule-making activity. Additional costs include the cost of publication of the Federal Register Notices of Proposed and Final Rulemaking.

4.1.2 Other Government Agencies

Agreement States would be asked to review the proposed rule. Each review would require a total estimated staff time of 8 hours. For the 26 Agreement States, the total review effort is estimated at approximately 200 person-hours.

4.1.3 Industry

Approximately 160-170 licensees of the Commission would be affected by this proposed action. Each licensee would be required by the regulation to implement the requirements in the areas of personnel safety, working practices, operating procedures and equipment. The total cost for implementation of all

requirements, if they were being implemented for the first time, would be approximately \$1 million per year for NRC licensees or approximately \$6,000 per licensee per year as shown in Table 1. However, most requirements are already applied as licensing conditions; thus, the increase in cost to the affected licensees from this action would be approximately \$80,000 per year for NRC licensees or approximately \$500 per licensee per year.

4.1.4 Public

There would be no associated cost to the public from this action.

4.2 Benefits

4.2.1 NRC Operations

The benefits from this action are:

- providing a comprehensive and consistent set of regulations to assure radiation safety;
- maintaining compatibility between the NRC and the Agreement States in regulating these operations;
- encouraging the Agreement States (that have not adopted Part W) to adopt similar regulations;
- providing a consistent regulatory program for decentralization of the Commission's licensing and enforcement programs.

4.4.2 Other Government Agencies

Publication of the proposed and final rules would be cost reimbursable to the Office of the Federal Register.

TABLE 1 Total Industry Cost for Implementing Part 39

Section	Content	Costs			Remarks	
		Unit cost (or time)	Freq/yr/unit	No. of units (or units/yr)		Total cost/yr
39.1 - 39.13	General Provisions	-----	No Cost	-----	Administrative procedure	
39.15	Written Agreement	-----	No Cost	-----	Currently required in Parts 30 and 70	
39.31	Labels, etc	-----	No Cost	-----	Currently required in Parts 20 and 71	
39.33	Detection Instruments	\$500/event	--	20 events/yr	\$10,000	1. Survey instruments are currently required by Part 20 2. Assumes 20 events per year that require consultant with high sensitivity instrumentation (unit cost includes transportation of the consultant)
39.35	Leak Test	\$40/ leak test	2/yr	1700 sources	\$140,000	1. Currently required as license condition 2. Assumes 170 NRC licensees with an average of 10 sources per licensee
39.37	Physical Inventory	6 min/ source	4/yr	1700 sources	\$6,800	1. Currently required as license condition 2. Assumes \$10/hr labor cost

TABLE 1 (Continued)

Section	Content	Costs				Remarks
		Unit cost (or time)	Freq/yr/unit	No. of units (or units/yr)	Total cost/yr	
39.39	Utilization Record	3 min/ use	--	20,000 uses/yr	\$10,000	1. Currently required as license condition 2. Assumes 20,000 well-logging operations were performed by NRC licensees (\$10/hr)
39.41	Sealed Source Performance - New Source	\$300/ source	0.1 (10 yr life)	1700 sources	\$50,000	1. Most sources manufactured after 1968 comply with the requirement 2. Assumes 10 years life for each source.
	- Old Source	\$500/source	0.3 (replace in 3 years)	20 sources	\$3,500	1. Assumes 20 cesium sources, which can not meet the requirements, must be replaced.
39.43	Inspection, Maintenance	30 min/ source	2/yr	1700 sources	\$17,000	1. Currently required as license condition 2. Assumes \$10/hr
39.45	Tracer Studies	\$10/study	--	10,000 studies/yr	\$100,000	1. Currently required as license condition 2. Assumes 50% of the 20,000 well-logging operations involving tracer studies
39.47	Radioactive Markers	1 hr/ agreement	0.2 (5 yr life)	80 agreements	\$800	1. Assumes 50% of 170 NRC licensees use markers 2. Assumes \$50/hr attorney fee

TABLE 1 (Continued)

Section	Content	Costs			Total cost/yr	Remarks
		Unit cost (or time)	Freq/yr/unit	No. of units (or units/yr)		
39.49	Sinker Bars	\$10/sinker bars	0.2 (5 yr life)	100 sinker bars	\$200	Assume 10% of NRC licensees and 6 sinker bars/licensee
39.51	Wells without Surface Casing	\$20/event	--	200 events/yr	\$4,000	1. Assumes 1% of 20,000 well logged are uncased
39.61	Training	\$1,000/person	0.25 (4 yr period)	2,000 persons	\$500,000	1. Currently required by Parts 19.12 and 30.33(a)(3) and as licensing condition 2. Assumes 2,000 workers operate under NRC licenses
39.63	Operating and Emergency Procedures	100 hr/licensee	0.2 (5 yr life)	170 licensees	\$70,000	1. Currently required as license conditions 2. Assumes \$20/hr for developing procedures
39.65 - 39.67	Monitoring and Survey	-----No Cost-----				Currently required by Part 20
39.69	Contamination Control (continuous monitoring)	10 hr/event	--	100 events/yr	\$10,000	1. Assumes 100 events of source recovery 2. Assumes \$10/hr
39.71	Security	-----No Cost-----				Currently required by Part 20

TABLE 1 (Continued)

Section	Content	Costs			Remarks
		Unit cost (or time)	Freq/yr/unit	No. of units (or units/yr)	
39.73 - 39.75	Documents	\$100/ licensee	--	170 licensees	Currently required as license condition
39.77	Notification, Abandonment	-----	No Cost	-----	Currently required by Parts 20, 30, and 70
39.91	Exemptions	-----	No Cost	-----	Administrative procedure
				Total cost	\$1,000,000
				Already required	\$ 920,000
				Net cost for implementing the rule	\$ 80,000
Total cost/licensee = $\frac{\$1,000,000}{170} = \$6,000$					
Net cost/licensee = $\frac{\$80,000}{170} = \500					

Agreement States would be able to, with a minimum effort, allow NRC licensees to conduct well-logging operations in their jurisdictions since the Federal and State Regulations would be compatible.

4.2.3 Industry

The benefits to the industry are:

- having a comprehensive set of requirements in the regulations with the opportunity to suggest modifications;
- having consistent requirements in all five NRC Regions;
- minimizing the effort required to obtain reciprocity for NRC licensees to operate in Agreement State or vice versa.

4.2.4 Public

The public would be benefited from a comprehensive and consistent program that would assure radiation safety.

4.3 Impacts on Other Requirements

The recent rulemaking on the irretrievable well-logging source in Parts 30 and 70 would be replaced by this rulemaking activity.

4.4 Constraints

There are no constraints on this proposed rulemaking.

5. DECISION RATIONAL

An assessment of the costs and benefits of the proposed rule leads to the conclusion that there will be a positive impact from the uniformity of safety

requirements for well-logging operations. Costs associated with this action would be negligible. Therefore, the proposed action is recommended.

6. IMPLEMENTATION

No implementation problems are expected. The proposed regulations are similar to the Part W of the Suggested State Regulations which has been developed by representatives from industry, States and Federal agencies, including NRC. Public comments during the proposed rulemaking are expected to be supportive of the intent of these proposed rules.

Office Review request

& Office comments

1. Office conc. requests ^(Sept 84) for
EDO paper / Office comments
(DCS) (with attachments)
2. Office conc requests (Nov. 84)
for Comm. paper (with attachment)
(DCS)