AB35-1

[7590-01]

June 8, 1984

NUCLEAR REGULATORY COMMISSION

10 CFR Part 39

Licenses and Radiation Safety Requirements for Well-Logging Operations

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission is proposing an amendment to its regulations that would specify radiation safety requirements for the use of licensed material in well-logging operations. The proposed regulation would provide a single source of requirements pertaining to well-logging operations by consolidating essential radiation safety requirements in Part 39. The proposed regulation is intended to provide the uniform safety requirements in NRC and Agreement States regulations necessary to ensure the adequate and consistent protection of public health and safety.

DATE: Submit comments by _____ (90 days after the publication date). Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

ADDRESS: Submit written comments to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention:

Enclosure 3

ROUTING AND TRANSMITTAL SLIP Date 5/30/85

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
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REMARKS

SUBJECT - REGULATORY HISTORY FILE FOR PART 39

Enclosed is a pkg for your processing through DCS for the subject regulatory history file.

As I discussed with you today, I would like to receive an index from you by June 5, 1985.

If you have any questions, please call me next monday.

Thanks for help.

(Please send orginal pkg back to A-Tse)

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FPMR (41 CFR) 101-11.206

☆ GPO : 1982 O - 381-526 (223)

Docketing and Service Branch. Copies of comments received on the proposed rule may be examined at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Dr. Anthony N. Tse, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301)443-7902.

SUPPLEMENTARY INFORMATION:

1. Introduction

Uses of Licensed Material in Well-Logging Operations

Oil and gas industry often need to determine the types and characteristics of the underground formations in new or existing wells. Licensed materials are used to obtain certain underground information, such as types of rocks, porosity, hydrocarbon content, and density. These materials are also used for coal or mineral exploration.

In well-logging, sealed radioactive sources with associated radiation detectors, known as logging tools, are lowered into a well on a wireline. The depth of the well could range from several hundred feet to greater than 30,000 feet. Information collected by the detectors is sent to the surface through the wireline and plotted on a chart as the logging tool is slowly raised from the bottom of the well. Americium-241 (typically 0.25 curie to 20 curies) and cesium-137 (typically 2 to 3 curies) are the radioactive materials most frequently used for this purpose.

In subsurface tracer studies, a small amount of radioactive material in liquid or gaseous form is used. After the liquid or gas tracer is injected into the well, a detector is used in the well to monitor the dispersion of the tracer material. This information will help determine certain underground characteristics such as fluid flow rate and the channeling effect. Iodine-131 (typically 5 to 20 millicuries) is the material most frequently used in subsurface tracer studies.

Other licensed materials used in well-logging operations include cobalt-60 used in collar markers, radioactive iron in iron nails, uranium used in sinker bars, and iridium-192 used in sands. Collar markers use Co-60 wire (about 5 μCi) to mark collars between two sections of casing. The collar markers provide positive depth measurement. Iron nails are used to indicate locations of perforation. Sinker bars are constructed of solid uranium (usually weighing 50 to 100 pounds) and are used to provide additional weight to help push a light weight logging tool through the drilling fluid, called mud by the drilling industry, down to the bottom of the well. Sands mixed with small amount of iridium-192 are used to determine the extent of underground hydraulic fracturing.

NRC and Agreement States' Role

Twenty-seven Agreement States, including most major oil production states, have assumed responsibility for regulating certain activities, including use of radioactive materials in well-logging operations, by agreement with the NRC. Each Agreement State issues licenses to persons who use radioactive material in well-logging operations in the state.

The NRC issues licenses to persons using radioactive materials in well-logging operations in non-Agreement States. These licenses specify the radiation safety requirements. Currently, the NRC has approximately 160-170 licensees authorized to use radioactive materials in well-logging operations.

Well-logging licensees from one state frequently perform well-logging jobs in other states. To avoid duplication of licensing effort, the NRC permits, under reciprocity, Agreement State licensees to operate in non-Agreement States according to the conditions of the license issued by their home state. Reciprocity also applies to licensees of different Agreement States. Therefore, compatibility between NRC regulations and Agreement State regulations is essential to permit licensees to conduct well-logging operations in various states without the undue burden of having to comply with different sets of requirements and standards.

NRC's Current Regulatory Practices

Except in the case of abandonment of irretrievable well-logging sources in Parts 30 and 70, current NRC regulations do not provide radiation safety requirements specific to the use of licensed material in well-logging operations. General safety requirements, however, are contained in 10 CFR Parts 20 and 30. At present, the NRC reviews licensees' specific safety programs as part of their license applications, and incorporates the programs into the license as requirements by reference.

Problems with the Current Practice

A major problem with the current practice is that radiation safety requirements applicable to the industry are specified as license conditions on a case-by-case basis rather than spelled out in the regulations. This requires repetitive duplication of effort and allows for discrepancies in requirements among specific licenses issued by the NRC and the Agreement States. Problems in the consistent and uniform application on these requirements could become a greater concern because, under the NRC's program for the decentralization of material licensing actions, well-logging licenses will be issued by the five NRC Regional Offices instead of NRC Headquarters.

Actions Taken by Agreement States

Recognizing the need for comprehensive and consistent radiation safety standards, the Conference of Radiation Control Program Directors established a task force in 1974 to develop the standards. The task force was composed of representatives from states, industry, and Federal agencies, including the NRC. By 1981, a set of model regulations was proposed to the Conference by the task force. 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." Four Agreement States have already adopted Part W requirements as state regulations without significant change. Several other Agreement States are considering adopting Part W requirements.

NRC's Proposed Approach

The NRC is proposing to amend its regulations to include specific radiation safety requirements for well-logging operations. These requirements, which are similar to Part W requirements, are included in the proposed 10 CFR Part 39, a new part exclusively dedicated to well-logging operations.

Several requirements not addressed in Part W are also contained in the proposed Part 39. These additional requirements pertain to the use of collar markers, sinker bars, and requirements that are designed to reduce the consequence and probability of accidents involving licensed materials. If these additional requirements are adopted as final regulations, the NRC would encourage the Conference of Radiation Control Program Directors and the Agreement States to adopt these requirements as well in order to achieve regulations that are compatible.

2. Discussion of the Proposed Rule

The following sections provide a discussion of the major provisions of the Proposed Part 39.

A. Agreement with Well Owner or Operator

The proposed rule (§ 39.15) would require that a licensee, e.g., a well-logging company, enters a written agreement with a well owner or operator before the licensee could use sealed sources in well-logging. The proposed rule specifies the terms of this agreement. The well owner or operator would agree, in the event that a sealed source is lost in the well, to: (1) make reasonable effort to recover the sealed source; (2) not permit specific types of recovery operations that could endanger the

integrity of the sealed source; (3) not release contaminated equipment or environment for unrestricted use unless it has been decontaminated; and (4) implement specified abandonment procedures when a sealed source becomes irretrievable.

This requirement is needed because the licensee (the well-logging company) may not have the legal authority or resources to recover a tool and its sealed source that is lost in a well. The well owner or operator typically controls activities at the well. When a tool is lost in the well, the well owner or operator would, under contract, engage a "fishing company" to recover the source and tool. The fishing company is typically responsible directly to the well owner or operator. The licensed well-logging company typically has no legal right to direct or control the activity of the fishing company. Therefore, the contractural agreement between the licensee and the well owner or operator is necessary to obligate the well owner or operator to (1) recover the sealed source in a safe manner, (2) properly abandon an irretrievable source, and (3) prevent release of contaminated equipment or environment until it has been decontaminated.

It should be noted that the licensee is responsible for the sealed source during well-logging until the sealed source is removed from the temporary jobsite or the completion of the abandonment procedures, if the source is determined to be irretrievable. The written agreement could assign either party, the licensee or the well owner or operator, under the supervision of the licensee in areas of radiation safety, the responsibility for carrying out the recovery operations or abandonment procudures. However, the written agreement could not transfer the

possession of the sealed source from one party to another without specific approval from the NRC.

The requirement to enter into a written agreement pertaining to abandonment procedures for irretrievable well-logging sources was published in the Federal Register (Parts 30, 70, and 150) on August 29, 1983 (48 FR 39036). The requirement for the agreement has been incorporated in the proposed Part 39 without any significant change.

B. Radiation Detection Instruments

The proposed rule (§ 39.33) would require that a licensee have radiation survey instruments at each field station and at each temporary jobsite. The purpose of these survey instruments is to perform routine radiation surveys and to measure for any potential radioactive contamination. The survey instruments must be capable of measuring gamma-beta radiation from 0.1 milliroentgen per hour through 50 milliroentgen per hour. A grandfather clause is provided for existing survey instruments with a range from 0.1 milliroentgen per hour through 20 milliroentgen per hour.

Although the required radiation survey instruments are adequate for routine radiation surveys, they are not designed to handle unlikely events such as the rupture of a sealed source resulting in low-level contamination of americium-241 in the mud. Therefore, the proposed rule would also require that a licensee have available, when needed, radiation detection instruments (for example 2" x 2" sodium iodide crystal detectors) that are capable of measuring radiation levels or contamination levels which could be encountered during an accident. For example, before the initiation of recovery of an americium-241 source from a well, the

licensee must have an instrument present at the jobsite that is sensitive enough to detect americium-241 contamination. The licensee could own the instrument or use a consulting service. The licensee would not be required to own the instrument.

A 6-month calibration interval is specified. This interval is adequate to ensure the proper operation of these instruments and consistent with practices presently required in licenses for well-logging licensees.

C. Leak Testing of Sealed Source

The proposed rule (§ 39.35) would require that sealed sources be leak tested at least every 6 months. This requirement is needed to assure that the sealed source maintains its integrity, especially that these sources are subject to rough handling and severe environmental conditions in a well. The leak test requirement is necessary because a leaking sealed source, if undetected, could cause extensive contamination to the well, equipment, personnel, and environment. The leak test requirement is consistent with the current requirement for well-logging and many other types of licensees. If a licensee suspects that a sealed source may be leaking, the sealed source must be removed from service immediately and the licensee must have the source leak tested as soon as practical.

Several exemptions are provided in the proposed rule to reduce the burden of leak testing on the industry. The sealed sources exempted from leak testing requirements are those that would present minimal hazard to the public or the environment in the event of a leak.

D. Physical Inventory

The proposed rule (§ 39.37) would require that a quarterly physical inventory be made to account for sources of licensed material. This requirement is needed because the sources used in well-logging operations are frequently transported to and from temporary jobsites. An accurate account of each of the sources would ensure that no source has been lost.

E. Sealed Source Performance Criteria

Sealed sources used in well-logging are subject to severe environmental conditions, such as high pressure and high temperature. These sealed sources could also be subjected to accident conditions such as well blowout, fire, etc. These conditions are much more severe than the environmental conditions the source would normally encounter. Additional requirements are needed to provide further assurances that, under the accident conditions, the source is unlikely to lose its integrity.

Performance criteria are proposed in § 39.41 for all sealed sources except those containing gaseous licensed material. These criteria are the same (except for the pressure test) as the criteria for well-logging sources in an industry standard ANSI A542, "Sealed Radioactive Sources, Classification," published by the National Bureau of Standards (NBS Handbook 126) in 1978. The proposed rule would require that an individual sealed source pass a pressure test while the ANSI standard specifies prototype pressure test. In addition, the proposed rule would require that a sealed source be doubly encapsulated and contain licensed material in chemical and physical forms which are as insoluble and nondispersible as practical.

The proposed rule would require that a licensee may not use a new sealed source manufactured after [1 year after the effective date of this rule] unless the source is designed and manufactured in accordance with proposed § 39.41(a).

Sealed sources manufactured before [1 year after the effective date of this rule] may be continuously used by a licensee for 2 years after the effective date of this rule without complying with § 39.41. After this 2-year period, however, these sources may no longer be used unless they can be certified to satisfy either of the following two criteria:

(1) (a) the source is doubly encapsulated, (b) it contains licensed material that is relatively insoluble and non-dispersible, and (c) the source has individually passed the pressure test of 24,600 psi; or

(2) (a) same as (1)(a); (b) same as (1)(b); and (c) a prototype of the source has passed ANSI tests. During the 2-year period, the licensee may have its existing sealed sources certified by the manufacturer or other testing orginization.

If a sealed source is singly encapsulated, or contains soluble or dispersible chemical form such as cesium chloride, the source may not be used in well-logging after 2 years from the effective date of the rule.

Any source that cannot meet the criteria proposed in § 39.41(b) should be phased out of well-logging because a singly encapsulated source has a higher probability of rupture than a doubly encapsulated source, and soluble or dispersible material from a ruptured source could cause significantly more contamination than less soluble, less dispersible material. If a sealed source is doubly encapsulated and is of proper chemical and physical form, then the source can be used in well-logging

after the source is (1) individually tested to 24,600 psi, or (2) certified to meet the ANSI criteria. This requirement would (1) phase out the use of substandard sources in well-logging, (2) result in less chance of source rupture in the well, and (3) reduce the consequence of contamination in the event of a rupture. Most sealed sources manufactured after 1968 complied with the ANSI Standard which is essentially the same as the requirement specified in this proposed rule.

F. Inspection, Maintenance, and Opening Source or Source Holder

Proposed rule (§ 39.43) would require that each licensee inspect and maintain equipment and tools at invervals not to exceed 6 months. The licensee would check the equipment and tools for label legibility and for the absence of physical damage. If any equipment or tools critical to radiation safety are found to be worn or damaged, the licensee would remove the equipment or tool from service until repairs are made.

This requirement would ensure that equipment and tools are maintained in good working condition. This requirement would not be a substitute for daily inspection by field personnel. It is an additional effort by more experienced maintenance personnel to ensure that the equipment and tools are in good working condition.

This section would also prohibit a licensee from forcing a stuck sealed source out of the source holder or out of the logging tool by operations that could endanger the sealed source integrity unless specifically authorized by the NRC or an Agreement State. Prohibited operations include, but are not limited to: drilling, cutting, or chiseling. These

operations are prohibited because they could accidently rupture the sealed source and could contaminate the facility, personnel and environment. For similar reasons, except for licensees who are specifically authorized by the NRC or an Agreement State, a licensee would be prohibited from repairing, opening, or modifying a sealed source unless specifically authorized by the NRC or an Agreement State to perform these operations.

Paragraph (c) of this section would prohibit the licensee from performing non-routine maintenance work on a sealed source or a source holder containing a source, unless the licensee has submitted specific procedures to accomplish the non-routine work in a safe manner and has obtained approval from NRC or an Agreement State to perform the non-routine work. The non-routine work may include, but not be limited to, changing the O-ring on the source holder containing a source, or changing the sealed source from one source holder to another source holder. This requirement is needed because the worker is very close to the sealed source during non-routine maintenance work, and thus, the worker could receive a significant dose unless a specific procedure is used.

G. Subsurface Tracer Studies

Radioactive material in liquid or gaseous forms and other materials, such as sand labeled with radionuclides, are used as tracer materials in subsurface tracer studies. These materials could accidently spill on clothing, contaminate hands, or in the case of gaseous or volatile material, be inhaled by personnel. The proposed rule (§ 39.45) would require that protective gloves, clothing and other equipment be used by individuals who handle tracer materials. When votatile materials such as iodine-131

are handled, a bioassay might be required (see § 39.65, "Personnel Monitoring," for the bioassay requirement). A licensee would also be required to maintain the temporary jobsite and the field station free from contamination from licensed materials.

In addition, a licensee may not inject any licensed material into fresh water aquifer because the water could be used for human or animal consumption or for crops.

H. Radioactive Markers

The proposed rule (§ 39.47) would require that a licensee recover the radioactive markers when such markers are removed from the well, unless the radioactivity of each marker is less than the exempt quantity specified in 10 CFR 30.71, Schedule B. This requirement is needed because a licensee who installs the radioactive marker is responsible for the licensed material until the material is decayed below the exempt quantity or the licensee properly disposes of the material.

I. Uranium Sinker Bars

The proposed rule (§ 39.49) would require that each uranium sinker bar must bear a legend "Caution - Radioactive Material - Uranium" and "Notify Civil Authorities or (company name) if found." This requirement is needed to ensure that, in the event of a uranium sinker bar loss, an individual who found the bar would be able to identify it as radioactive and should return it to the company. Since uranium is source material, the licensee should also comply with requirements in 10 CFR Part 40, "Domestic Licensing of Source Materials."

J. Use of Sealed Source in a Well Without Surface Casing

The proposed rule (§ 39.51) would prohibit the use of a sealed source in a well without surface casing. The purpose of this requirement is to minimize the possibility of contamination of fresh water aquifer zones. In general, most wells have surface casings to prevent oil or other particulates from entering these zones. However, if surface casings cannot be placed, the licensee may not use a sealed source in an uncased well unless the NRC or an Agreement State has specifically approved the licensee's procedures for providing adequate protection of the fresh water aquifer from radioactive contamination.

K. Training

The proposed rule (§ 39.61) would establish specific training requirements for logging supervisors and logging assistants, although general requirements on instruction and training are specified in 10 CFR 19.12 and 30.33(a)(3). Licensees would be prohibited from permitting an individual to perform well-logging operations unless the individual has been properly trained in accordance with the requirements states in this section. Training is needed to provide radiation workers with sufficient knowledge and practical experience concerning radiation safety before the worker is permitted to handle or use licensed materials. The level of knowledge he or she needs, of course, would depend on his or her responsibility and the types of licensed material he or she will be using.

For logging supervisors who handle only sealed sources, the proposed rule would require, at a minimum, 24 hours of formal classroom training in the subjects listed under § 39.61(e).

For those logging supervisors who handle unsealed licensed materials or both sealed sources and unsealed materials, the proposed rule would require, at a minimum, 40 hours of formal classroom training. The longer period is necessary to ensure that emphasis is placed on subjects specifically related to unsealed material such as methods of preventing contamination, inhalation or ingestion, methods of contamination measurement, methods of decontamination, and emergency procedures for an accident that involves radioactive contamination.

Furthermore, the proposed rule would require that an individual must have, at a minimum, 3 months of on-the-job training. This requirement is needed to ensure that a logging supervisor has sufficient practical experience concerning radiation safety procedures to handle routine operation and unanticipated emergencies in a safe manner.

Because logging assistants are working under direct supervision of the logging supervisor, their training requirements are much less stringent than that of logging supervisors. The proposed rule would require that an individual must be instructed on applicable sections of Parts 19, 20, and 21, and the licensee's operating and emergency procedures. The proposed rule would also require that the individual be able to use remote tools, survey instruments, etc., to perform work properly under the supervision of the logging supervisor.

The proposed rule would also require that logging supervisors and logging assistants be re-trained periodically after their initial training. This periodic re-training is needed to: (1) refresh their understanding of basic radiation safety practices, (2) instruct them on any new procedures, or the use of new radiation detection instruments and new tools, and

(3) review regulatory requirements or new regulations which may affect their works.

L. Operating and Emergency Procedures

The proposed rule (§ 39.63) would require that each licensee develop and follow procedures for normal well-logging operations and for dealing with emergencies. These procedures are also used as: (1) training materials for instructing logging supervisors and logging assistants, (2) reference materials at a field station and at a temporary jobsite, and (3) supporting documents in licensing applications.

M. Personnel Monitoring and Radiation Surveys

The proposed rule (§ 39.65) would require that logging supervisors and logging assistants wear personnel monitoring equipment at all times during the operation. The requirements in § 39.65(a), (b) and (c) are specific application of the existing requirements in §§ 20.202, 20.108 and 20.401, respectively. These requirements are repeated in this part because they are one of the main features of a radiation protection program.

Similarily, the proposed rule (§ 39.67) would also require the licensee to conduct certain radiation surveys, which is a specific application of the existing requirement in § 20.201, "Surveys." Again, the requirement is repeated in the part because of its importance in the radiation protection program.

If gaseous or volatile tracer materials are used, the licensee may be required to provide bioassay service to individuals handling the tracer meterials (§ 39.65(b)). Whether a bioassay is required depends

on the type of radioactive materials and quantity used. For example, Regulatory Guide 8.20, "Applications of Bioassay for I-125 and I-131," states that bioassay will be required when individuals work in field operations with more than 50 mci of I-125 or I-131.

N. Contamination Control

The proposed rule (§ 39.69) would require that the licensee monitor radioactive contamination during fishing or source recovery operations, initiate emergency procedures in the event of evidence of a sealed source rupture, and decontaminate any equipment, personnel, or environment that is contaminated. This requirement is needed to ensure that any rupture of a sealed source in a well during fishing operations is detected and reported and that emergency procedures are initiated. Also, paragraph (c) would require that the licensee decontaminate any contaminated equipment, environment, or personnel resulting from an accident during a well-logging operation. The licensee may perform the decontamination or use a contracting or consulting service to perform the decontamination.

These requirements are important to avoid the possibility of unnecessary wide-spread contamination if a sealed source is ruptured. The monitoring requirement would detect contamination from a source rupture and the requirement to initiate emergency procedures would limit the extent of contamination spread. Furthermore, the requirement for decontamination would prevent contaminated objects from leaving the site, and thus further prevent wide-spread contamination to public areas.

O. Security

The proposed rule (§ 39.71) would require that the licensee maintain control of the jobsite restricted area and prevent unauthorized personnel, such as employees of an oil company or drilling company, from entering the restricted area. This requirement is needed to avoid the inadvertent exposure of these personnel to radiation.

P. Documents and Records Required at Field Stations and Temporary Jobsites

The proposed rule (§§ 39.73 and 39.75) would require that certain documents and records be kept at a field station or a temporary jobsite. These records are needed so that operating personnel can have easy access to the documents they need to perform the job, to follow any operational restrictions, or to use emergency procedures if accident occurs. Furthermore, records of radiation surveys, instrument calibrations, sealed source leak tests, etc., are needed for the licensee to make safety checks or to check schedules for maintenance.

Q. Notification of Incidents and Lost Sources, Abandonment Procedures of Irretrievable Sources

The proposed rule (§ 39.77(a)) would require that the licensee notify the NRC of incidents and lost sources except loss of a sealed source in a well. This requirement refers to existing NRC regulations in Part 20; reporting source loss is required in § 20.402 and notification of incidents is required in § 20.403.

The proposed rule (§ 39.77(b), (c) and (d)) consolidates the existing regulation in Parts 30 and 70 concerning irretrievable well-logging

sources into one section in Part 39. The consolidation would be beneficial because it would put all requirements for well-logging operations in a single part. The proposed text is essentially the same as the existing text under §§ 30.56(b) and 70.60(b).

Furthermore, the proposed rule (§ 39.77(e)) would require, in addition to general reporting requirements in Part 20, immediate notification if (1) licensed material has been in or near freshwater aquifers or (2) a sealed source has been ruptured at the licensee's facility or temporary jobsite. This requirement is needed because these conditions could cause severe environmental and public health and safety consequences.

R. Application for Exemption

The proposed rule (§ 39.91) would permit a licensee to apply for an exemption from the requirements in this part. This section is needed to allow the licensee and the NRC to judge, on a case-by-case basis, whether certain requirements can be waived if equivalent protection of public health and safety can be demonstrated to the NRC.

3. Summary

The NRC believes that the proposed rule, if adopted, would provide a comprehensive and consistent set of regulations that help maintain compatibility between the NRC and Agreement States. Furthermore, the proposed rule would also establish additional requirements that would reduce the potential for and severity of accidents. The NRC also believes that the economic impact would be small for implementing the proposed rule. Detailed consideration of economic impact is analyzed in a draft regulatory analysis prepared on this proposed rule.

Interested persons are encouraged to comment on the proposed rule, the impact on the public and the industry, and the draft regulatory analysis.

FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT: AVAILABILITY

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therfore an environmental impact statement is not required. This rule would not affect significantly the quality of the human environment because most of the proposed requirements are already being complied with by licensees as licensing conditions. The environment assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Dr. Anthony N. Tse, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-443-7902).

PAPERWORK REDUCTION ACT STATEMENT

This proposed rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of the paperwork requirements.

REGULATORY ANALYSIS

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The draft analysis is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from Dr. Anthony N. Tse, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555 (301-443-7902).

The Commission requests public comment on the draft analysis. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

REGULATORY FLEXIBILITY CERTIFICATION

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule, if adopted, will not have a significant economic impact upon a substantial number of small entities. The proposed rule affects about 170 specific licensees of which approximately 60% are small entities based on the size standard of the Small Business Administration set out in 13 CFR Part 121 (February 9, 1984, 49 FR 5024). These licenses are issued to companies performing well-logging operations.

The affected licensees, including small business entities are required under current NRC license conditions to comply with most requirements in the proposed rule. Therefore, the economic impact to the

licensees, including small business entities is expected to be small if the proposed rule is adopted.

Any small entity subject to this regulation which determines that, because of its size, it is likely to bear a disporportionate adverse economic impact should notify the Commission of this in a comment that indicates the following:

(a) The licensee's size in terms of annual income or revenue, number of employees, number of well-logging trucks, and average number of wells logged or serviced annually.

(b) How the proposed regulation would result in a significant economic burden upon the licensee as compared to that on a larger licensee;

(c) How the proposed regulations could be modified to take into account the licensee's differing needs or capabilities.

LIST OF SUBJECTS IN 10 CFR PART 39

Byproduct material, Nuclear material, Oil and gas exploration - well logging, Penalty, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Source material, Special nuclear material.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is proposing to adopt 10 CFR Part 39.

1. Part 39 is added to 10 CFR Chapter I to read as follows:

PART 39--LICENSES AND RADIATION SAFETY REQUIREMENTS FOR WELL-LOGGING OPERATIONS

SUBPART A - GENERAL PROVISIONS

Sec.

SUBPART B - SPECIFIC LICENSING REQUIREMENTS

SUBPART C - EQUIPMENT CONTROL

SUBPART D - RADIATION SAFETY REQUIREMENTS

SUBPART E - SECURITY, RECORDS, NOTIFICATIONS

SUBPART F - EXEMPTIONS

APPENDIX A - Example of plaque for identifying wells containing abandoned sealed sources.

AUTHORITY: Sections 81, 82, 161, 182, 183, 186, 68 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2236, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

For purposes of sec. 223, 68 Stat. 958 as amended (42 U.S.C. 2273); §§ 39.15, 39.31-39.51, 39.61-39.77 are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); and §§ 39.15, 39.33-39.43, 39.61-39.67, 39.73-39.77 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

SUBPART A - GENERAL PROVISIONS

§ 39.1 Purpose and scope.

This part prescribes requirements for the issuance of licenses for the use of licensed materials including sealed sources, radioactive tracers, radioactive markers, and uranium sinker bars, in well-logging operations. This part also prescribes radiation safety requirements for persons using licensed materials in these operations. The provisions and requirements of this part are in addition to, and not in substitution for, other requirements of this chapter. In particular, the provisions of Parts 20, 30, 40, 70, and 71 of this chapter apply to applicants and licensees subject to this part.

§ 39.2 Definitions.

"Casing" means a metal pipe or tube used as a lining for oil or gas wells to prevent collapse of the well-bore.

"Field station" means a facility where licensed material may be stored or used and from which equipment is dispatched to temporary job-sites.

"Fresh water aquifer" means a geological formation that is capable of yielding a significant amount of fresh water to a well or spring.

"Injection tool" means a device used for controlled subsurface injection of radioactive tracer material.

"Irretrievable well-logging source" means any sealed source containing licensed material that is pulled off or not connected to the wireline that suspends the source in the well and for which all reasonable effort at recovery has been expended.

"Licensed material" means byproduct material, source material or special nuclear material received, possessed, used, or transferred under a license issued by the Commission pursuant to the regulations in this chapter.

"Logging assistant" means the individual who assists the logging supervisor in performing the well-logging operations.

"Logging supervisor" means the individual who provides personal supervision of the use of licensed material at the temporary jobsite and who is responsible to the licensee for assuring compliance with the requirements of the Commission's regulations and the conditions of the license.

"Logging tool" means a device used subsurface to perform well-logging.

"Mineral logging" means any logging performed for the purpose of mineral exploration other than oil or gas.

"Personal supervision" means guidance and instruction by logging supervisor who is physically present at the temporary jobsite and in such proximity that contact with logging assistant can be maintained and immediate assistance given as required.

"Radioactive marker" means licensed material used for the purpose of depth determination or direction orientation. This term includes radioactive collar markers and radioactive iron nails.

"Sealed source" means any licensed material that is encased in a capsule designed to prevent leakage or escape of the radioactive material.

"Source holder" means a housing or assembly into which a sealed source is placed for the purpose of facilitating the handling and use of the source in well-logging operations.

"Subsurface tracer study" means the release of unsealed licensed material or a substance labeled with unsealed licensed material in a single well for the purpose of tracing the movement or position of the material or substance in the well-bore or adjacent formation.

"Temporary jobsite" means a place to which licensed materials are dispatched to perform well-logging operations or subsurface tracer studies.

"Well-bore" means a drilled hole in which well-logging operations and subsurface tracer studies are performed.

"Well-logging" or "Wireline Service Operation" means the lowering and raising of measuring devices or tools which may contain licensed material into well-bores or cavities for the purpose of obtaining information about the well or an adjacent formations which may be used in oil, gas, mineral, or geological exploration.

"Well-logging operation" means any activity involving licensed material performed in a well, including well-logging, mineral logging, subsurface tracer studies, use of radioactive markers, iron nails, uranium sinker bars, and radioactive sands.

"Wireline" means a cable containing one or more electrical conductors which is used to lower and raise logging tools in the well-bore.

§ 39.8 Information collection requirements: OMB approval.

(a) The Nuclear Regulatory Commission has submitted the information collection requirements contained in this part to the Office of

Management and Budget (OMB) for approval as required by the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). OMB has approved the information collection requirements contained in this part under control number 3150-____.

(b) The approved information collection requirements contained in this part appear in §§ 39.11, 13, 15, 31(a) and (b), 33(c), 35, 37, 39, 41, 43, 61, 63, 65, 67, 73, 75, and 77.

SUBPART B - SPECIFIC LICENSING REQUIREMENTS

§ 39.11 Application for a specific license.

A person may file an application for a specific license authorizing the use of licensed material in well-logging operations on Form NRC 313, "Application for Material License." Each application for license, other than a license exempted from Part 170 of this chapter, must be accompanied by the fee prescribed in § 170.31 of this chapter.

§ 39.13 Specific licenses for well-logging operations.

The Commission will approve an application for a specific license for the use of licensed material in well-logging operations if the applicant meets the following requirements--

(a) The applicant shall satisfy the general requirements specified in § 30.33 of this chapter for byproduct material and in § 70.33 of this chapter for special nuclear material.

(b) The applicant shall develop a program for training logging supervisors and logging assistants and submit to the Commission a schedule or description of this program which specifies the--

(1) Initial training;

(2) Periodic training;

(3) On-the-job training;

(4) Means the applicant will use to determine the logging supervisor's knowledge and understanding of and ability to comply with Commission regulations and licensing requirements, and the operating and emergency procedures of the applicant; and

(5) Means the applicant will use to determine the logging assistant's knowledge and understanding of and ability to comply with the operating and emergency procedures of the applicant;

(c) The applicant shall establish and submit to the Commission written radiation safety program or evidence thereof, including operating and emergency procedures described in § 39.63;

(d) The applicant has an in-house inspection system to assure that Commission regulations, Commission license provisions, and the applicant's operating and emergency procedures are followed by logging supervisors and logging assistants;

(e) (1) If the applicant desires to conduct and evaluate his or her own leak tests, the applicant shall establish procedures to be followed in leak testing sealed sources for possible leakage and contamination and submit a description of these procedures to the Commission. The description must include the--

(i) Instrumentation to be used;

(ii) Method of performing test; and

(iii) Pertinent experience of the person who will perform the test.

(2) If an applicant desires to use a leak test kit, the applicant shall identify the manufacturer and the model number of the kit.

§ 39.15 Requirements for agreement with well owner or operator.

(a) A licensee may not perform well-logging with a sealed source unless the licensee executes a written agreement with the well owner or operator. This written agreement must specify that--

(1) If a sealed source becomes lodged in the well, a reasonable effort will be made to recover the sealed source;

(2) A person may not attempt to recover a source which, in the opinion of the licensee, could result in sealed source rupture;

(3) If equipment, personnel, or environment are contaminated with licensed material, they must be decontaminated prior to being released from the site or released for unrestricted use.

(4) If, after reasonable efforts at recovery have been expended, the sealed source is classified as irretrievable, the requirements of paragraph (b) of this section will be met.

(b) Within 30 days after a sealed source is classified as irretrievable, the following requirements will be implemented:

(1) Each irretrievable well-logging source must be immobilized and sealed in place with a cement plug.

(2) A whipstock or other deflection device must be set at some point in the well above the cement plug, unless the cement plug and source are not accessible to any subsequent drilling operations.

(3) A permanent identification plaque, constructed of long lasting material such as stainless steel, brass, bronze, or monel, must be mounted at the surface of the well, unless the mounting of the plaque is not practical. The plaque must contain--

(i) The word "CAUTION";

(ii) The radiation symbol (the color requirement in Section 20.203 of this chapter need not be met);

(iii) The date the source was abandoned:

(iv) The name of the well owner or well operator;

(v) The well name and well identification number(s) or other designation;

(vi) An identification of the sealed source(s) by radionuclide and quantity;

(vii) The depth of the source and depth to the top of the plug; and

(viii) An appropriate warning such as "DO NOT RE-ENTER THIS WELL."

An example of a plaque which meets the requirements of this paragraph is shown in Appendix A of this part.

(c) Any licensee or applicant for a license may apply to the Commission for approval of proposed procedures to abandon an irretrievable well-logging source in a manner not otherwise authorized in paragraph (b) of this section.

SUBPART C - EQUIPMENT CONTROL

§ 39.31 Labels, storage and transportation precautions.

(a) Labels.

(1) The licensee may not use a source, source holder, or logging tool containing licensed material unless it bears a durable, legible, and clearly visible marking or label. The label must contain the radiation symbol specified in § 20.203 of this chapter, without the conventional

color requirements, and the wording "DANGER (or CAUTION) RADIOACTIVE MATERIAL." The label must be on the smallest component that contains the licensed material transported as a separate piece of equipment.

(2) The licensee may not use a storage or transport container to store or transport licensed material unless it has permanently attached to it a durable, legible, and clearly visible label. The label must contain the radiation symbol, in conventional colors, and the wording "CAUTION (or DANGER), RADIOACTIVE MATERIAL, NOTIFY CIVIL AUTHORITIES (or NAME OF COMPANY)."

(b) Storage precautions.

(1) The licensee shall store each source containing licensed material in a storage or transportation container. The container must be locked and physically secured to prevent tampering or removal of licensed material from the storage by unauthorized personnel.

(2) The licensee shall store licensed material in a manner which will minimize danger from explosion or fire.

(c) Transportation precautions.

The licensee shall lock and physically secure the transport containers containing licensed material to the transporting vehicle to prevent accidental loss, tampering, or unauthorized removal of the licensed material from the vehicle.

§ 39.33 Radiation detection instruments.

(a) The licensee shall keep a calibrated and operable radiation survey instrument at each field station to make radiation surveys at the field station and at each temporary jobsite required by this part and Part 20 of this chapter. To satisfy this requirement, the radiation

survey instrument must be capable of measuring beta-gamma exposure from 0.1 milliroentgen per hour through at least 50 milliroentgens per hour. Survey instruments which were acquired before (one year after the effective date) and capable of measuring 0.1 milliroentgens per hour through at least 20 milliroentgens per hour also satisfy this requirement. The licensee shall have available additional calibrated and operable radiation detection instruments capable of detecting radiation emitted by each of the licensed materials in use and radiation and contamination levels likely to be encountered during well-logging operations or in the event of an accident.

(b) The licensee shall have each radiation survey instrument calibrated--

(1) At intervals not to exceed 6 months and after instrument servicing;

(2) At two readings on each scale; and

(3) So that accuracy within plus or minus 20 percent of the true radiation level can be demonstrated on each scale.

(c) The licensee shall maintain calibration records for a period of two years after the date of calibration for inspection by the Commission.

§ 39.35 Leak testing of sealed sources.

(a) Requirements. Each licensee using a sealed source shall have the source tested for leakage. The licensee shall keep a record of the leak test result in units of microcuries and maintain the record for inspection by the Commission for 2 years after the next required leak test is performed or until transfer or disposal of the sealed source.

(b) Method of testing. A test for leakage may be performed only by a person specifically authorized by the Commission or an Agreement State to perform the test. The test sample must be taken from the nearest accessible point to the sealed source where contamination might accumulate. The test sample must be analyzed for radioactive contamination. The analysis must be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample.

(c) Test frequency.

(1) The licensee shall have each sealed source leak tested at intervals not to exceed 6 months.

(2) A licensee who receives a transferred sealed source may not put the sealed source into use until it has been tested unless the licensee also receives a certificate from the transferor which indicates that the sealed source was tested within 6 months before the transfer.

(3) If the licensee suspects that a sealed source may be leaking or contaminated, the licensee shall remove the sealed source from service immediately and have it tested for leakage as soon as practical.

(d) Removal of leaking source from service.

(1) If the test reveals the presence of 0.005 microcurie or more of leakage or contamination, the licensee shall remove the sealed source from service immediately and have it decontaminated, repaired, or disposed of in accordance with Part 20 of this chapter.

(2) The licensee shall file a report with the appropriate NRC Regional Office listed in Appendix D of Part 20 of this chapter, within 5 days of the test. The report must describe the equipment involved, the test results, and the corrective action taken.

(e) Exemptions. The following sealed sources are exempt from the periodic leak test requirements in paragraphs (a) through (d) of this section:

(1) Hydrogen-3 sources;

(2) Sources with a half-life of 30 days or less;

(3) Sealed sources in gaseous form;

(4) Sources of beta- and/or gamma-emitting radioactive material with an activity of 100 microcuries or less; and

(5) Sources of alpha-emitting radioactive material with an activity of 10 microcuries or less.

§ 39.37 Physical inventory.

Each licensee shall conduct a quarterly physical inventory. The licensee shall maintain records of the inventory for two years from the date of the inventory for inspection by the Commission. The inventory must indicate the quantity and kind of licensed material, location of licensed material stored or used, the date of the inventory, and the name of the individual conducting the inventory.

§ 39.39 Utilization records.

(a) Each licensee shall maintain a utilization record, showing the following information for each source of licensed material:

(1) The make, model number and a serial number or a description of each sealed source used;

(2) In the case of a radioactive marker or unshielded licensed material used for subsurface tracer study, the radionuclide and activity used in a particular well;

(3) The identity of the logging supervisor and logging assistants to whom the licensed material is assigned; and

(4) Location and date of use of the licensed material.

(b) The licensee shall keep the record required by paragraph (a) available for inspection by the Commission at the address specified in the license and shall retain the record for two years from the date of the recorded event.

§ 39.41 Design and performance criteria for sealed sources.

(a) A licensee may not use a sealed source, except one containing licensed material in gaseous form, manufactured after (insert a date one year after the effective date of this part) in well-logging unless the sealed source is certified by the manufacturer, or other testing organization acceptable to the Commission or an Agreement State, to meet the following criteria. The sealed source must--

(1) Be of doubly encapsulated construction;

(2) Contain licensed material whose chemical and physical forms are as insoluble and non-dispersible as practical;

(3) Have individually passed pressure testing to 24,600 pounds per square inch absolute without leakage; and

(4) Meet the following performance requirements by prototype testing. Compliance with the tests is determined by the ability of the prototype to maintain its integrity after each of the following tests:

(i) Temperature test - the test source shall be held at -40°C for 20 minutes, 600°C for 1 hour, and then subject to a thermal shock test with a temperature drop from 600°C to 20°C within 15 seconds;

(ii) Impact test - a 5 kg steel hammer, 2.5 cm in diameter, shall be dropped from a height of 1 m onto the test source;

(iii) Vibration test - the test source shall be subject to a vibration from 25 Hz to 500 Hz at 5 g amplitude for 30 minutes; and

(iv) Puncture test - a 1 gram hammer and pin, 0.3 cm pin diameter, shall be dropped from a height of 1 m onto the test source.

(b) After (2 years after the effective date), a licensee may not use a sealed source manufactured before (insert a date one year after the effective data of this part), except one containing licensed material in gaseous form, unless the manufacturer, or other testing organization acceptable to the Commission or an Agreement State certifies that the sealed source meet: (1) the requirements of paragraphs (a)(1), (a)(2), and (a)(3) of this section; or (2) the requirements of paragraphs (a)(1), (a)(2), (a)(3) of this section by prototype test, and the requirement of paragraph (a)(4) of this section.

(c) The licensee shall keep the certification documents described by paragraphs (a) and (b) of this section for inspection by the Commission for two years after source transfer, disposal or abandonment in a well.

§ 39.43 Inspection, maintenance, and opening source or source holder.

(a) Each licensee shall conduct, at intervals not to exceed 6 months, a program of visual inspection and maintenance of source holders, logging tools, source handling tools, storage containers, transport containers, injection tools, and sinker bars to assure legible

labeling and absence of visual physical damage. The licensee shall maintain records of inspection and maintenance for two years for inspection by the Commission.

(b) If the inspection conducted under paragraph (a) of this section reveals damage to labeling or components critical to radiation safety, the licensee shall remove the item from service until repairs are made.

(c) Non-routine maintenance of the sealed source or source holder may not be performed unless the licensee is specifically authorized to perform the non-routine maintenance;

(d) In the event a sealed source is stuck in the source holder or logging tool, the licensee may not perform any operation, such as drilling, cutting, or chiseling, on the source holder or logging tool, that could lead to a sealed source rupture and result in radioactive contamination, unless the licensee is specifically licensed to perform these operations.

(e) The repair, opening, or modification of any sealed source may be performed only by persons specifically authorized to do so by the Commission or an Agreement State.

§ 39.45 Subsurface tracer studies.

(a) The licensee shall require all personnel handling radioactive tracer material to use protective gloves, protective clothing, and other appropriate equipment. Precautions must be taken to avoid ingestion or inhalation of radioactive material and to avoid contamination of field stations and temporary jobsites.

(b) A licensee may not inject licensed material into fresh water aquifers unless specifically authorized by the Commission or an Agreement State.

§ 39.47 Radioactive markers.

The licensee may not use a radioactive marker, except for markers containing exempt quantities or less of licensed material as specified in § 30.71 of this chapter, unless the licensee has made arrangements necessary to recover the radioactive marker when the marker is removed from the well.

§ 39.49 Uranium sinker bars.

The licensee may not use an uranium sinker bar in well-logging operations [after one year from the effective date of the rule], unless legibly impressed with the words "CAUTION-RADIOACTIVE-URANIUM" and "NOTIFY CIVIL AUTHORITIES OR (COMPANY NAME) IF FOUND."

§ 39.51 Use of a sealed source in a well without surface casing.

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 NRC or an Agreement State.

SUBPART D - RADIATION SAFETY REQUIREMENTS

§ 39.61 Training.

(a) The licensee may not permit an individual to act as a logging supervisor until the individual--

(1) Has attended and satisfactorily completed at least (i) 24 hours of formal training if the individual uses only sealed sources; or (ii) 40 hours of formal training if the individual uses unsealed licensed material in subsurface tracer studies, in a course recognized by the NRC or an Agreement State that covers the subjects outlined in paragraph (e) of this section and has demonstrated an understanding of these subjects;

(2) Has received copies of and instruction in and has demonstrated an understanding of--

(i) NRC regulations contained in this part and in the applicable sections of Parts 19, 20, 21, and 71 of this chapter;

(ii) NRC license under which the logging supervisor will perform well-logging operations; and

(iii) The licensee's operating, recordkeeping, and emergency procedures; and

(3) Has completed 3 months on-the-job training and has demonstrated competence in the use of licensed materials, remote handling tools, and radiation survey instruments that will be used by the licensee.

(b) The licensee may not permit an individual to act as a logging assistant until the individual--

(1) Has received instruction in applicable sections in Parts 19, 20, and 21 of this chapter;

(2) Has received copies of and instruction in the licensee's operating and emergency procedures and has demonstrated an understanding of them; and

(3) Has demonstrated competence in the use, under the personal supervision of the logging supervisor, of tracer material, sealed sources, remote handling tools, and radiation survey instruments which will be used on the job.

(c) The licensee shall provide for the periodic retraining of logging supervisors and logging assistants.

(d) The licensee shall maintain a record of each logging supervisor's and logging assistant's training for two years following the termination of employment.

(e) The licensee shall include the following subjects in the formal training required in paragraph (a) of this section.

(1) Fundamentals of radiation safety.

(i) Characteristics of radiation.

(ii) Units of radiation dose and quantity of radioactivity.

(iii) Hazards of exposure to radiation.

(iv) Levels of radiation from licensed material.

(v) Methods of controlling radiation dose.

(A) Working time.

(B) Working distances.

(C) Shielding.

(2) Radiation detection instrumentation to be used.

(i) Use of radiation survey instruments.

(A) Operation.

(B) Calibration.

(C) Limitations.

(ii) Survey techniques.

(iii) Use of personnel monitoring equipment.

(3) Equipment to be used.

(i) Handling equipment and remote handling tools.

(ii) Licensed materials.

(iii) Storage, control, and disposal of equipment and licensed materials.

(iv) Operation and control of equipment and licensed materials.

(v) Maintenence of equipment.

(4) The requirements of pertinent federal and state regulations.

(5) The licensee's written operating and emergency procedures.

(6) The licensee's recordkeeping procedures.

(7) Case histories and potential consequences of accidents in well-logging operations.

§ 39.63 Operating and emergency procedures.

Each licensee shall develop and follow operating and emergency procedures that cover instruction in--

(a) The handling and use of licensed material to be employed so that no individual is likely to be exposed to radiation doses in excess of the limits established in Part 20 of this chapter;

(b) Methods and occasions for conducting radiation surveys;

(c) Methods and occasions for locking and securing licensed materials;

(d) Personnel monitoring and the use of personnel monitoring equipment;

(e) Transportation of licensed material to field stations or temporary jobsites, including packing of licensed material in vehicles, placarding of vehicles when needed, and physically securing licensed material during transportation to transport vehicles to prevent accidental loss, tampering, or unauthorized removal.

(f) Minimizing personnel exposure, including that from inhalation and ingestion of licensed material, during well-logging operations and in the event of an accident;

(g) The procedure for notifying proper persons in the event of an accident;

(h) Maintenance of records;

(i) The inspection and maintenance of source holders, logging tools, source handling tools, storage containers, transport containers, and injection tools;

(j) The procedure to be followed in the event a sealed source is lodged in a well or ruptured;

(k) The procedure to be used for picking up, receiving, and opening packages containing licensed material;

(l) The procedure for identifying and reporting to NRC defects and noncompliance, as required by Part 21 of this chapter;

(m) The procedure and the use of tools for remote handling of sealed sources and radioactive tracer material except low-activity calibration sources; and

(n) The procedure to be used for detecting contamination, required by § 39.67(c) through (e), and for preventing the spread of contamination.

(o) The procedure to be used to decontaminate if the environment, equipment or personnel are contaminated.

§ 39.65 Personnel monitoring.

(a) The licensee may not permit an individual to act as a logging supervisor or logging assistant unless the individual wears, at all times during well-logging operations, either a film badge or a thermoluminescent dosimeter (TLD) that are capable of measuring radiation exposure from the licensed material in use. Each film badge or TLD dosimeter must be assigned to and worn by only one individual. The licensee shall have the badge or dosimeter processed.

(b) The licensee shall provide appropriate bioassay services to individuals conducting subsurface tracer studies.

(c) The licensee shall keep reports received from the badge or dosimeter processor and from bioassay for inspection until the Commission terminates the license.

§ 39.67 Radiation surveys.

(a) The licensee shall make and record radiation surveys of each area where licensed materials are used and stored.

(b) The licensee shall make and record a radiation survey of occupied positions and of the exterior of each vehicle used to transport licensed material prior to transporting the licensed material.

(c) After removing the sealed source assembly from the logging tool and before departing from the temporary jobsite, the licensee shall confirm that the logging tool is free of contamination by energizing the logging tool detector, or by using a survey meter.

(d) If the licensee suspects that, as a result of operations involving a sealed source, the encapsulation of the sealed source could be damaged by the operation, the licensee shall conduct a radiation survey, including contamination survey, during and after the operation.

(e) The licensee shall make and record a radiation survey at the temporary jobsite for each subsurface tracer study except for those performed with hydrogen-3, carbon-14, and sulfur-35. The survey must include a measurement of radiation levels before and after the operation, and a measurement of contamination levels after the study.

(f) Records required under paragraphs (a), (b), and (e) of this section must include the date the activity took place, the identification of the individual making the survey, the identification of the survey instrument used, and description of the location of the survey. The licensee shall maintain a record of the survey for inspection by the Commission for two years after it is made.

§ 39.69 Contamination control.

(a) During efforts to recover sealed source lodged downhole, the licensee shall continuously monitor, with an appropriate radiation detection instrument or a logging tool with radiation detector, the circulating fluids from the well to check for contamination resulting from damage to the sealed source.

(b) If the licensee detects evidence of source rupture, the licensee shall immediately initiate the emergency procedures required by § 39.63.

(c) If contamination results from the use of licensed material in well-logging operations, the licensee shall decontaminate the work areas, equipment, or the environment prior to release of the areas or equipment for unrestricted use.

SUBPART E - SECURITY, RECORDS, NOTIFICATIONS

§ 39.71 Security.

During each well-logging operation the logging supervisor or other licensee employee designated by the logging supervisor shall maintain direct surveillance of the operation to prevent unauthorized entry into a restricted area, as defined in § 20.3(a)(14) of this chapter.

§ 39.73 Documents and records required at field stations.

Each licensee shall maintain the following documents and records at the field station:

(a) The license authorizing the use of licensed material.

(b) Operating and emergency procedures.

(c) The record of the latest survey instrument calibration required by § 39.33.

(d) The record of the latest leak test results required by § 39.35.

(e) Physical inventory records required by § 39.37.

(f) Utilization records required by § 39.39.

(h) Records of inspection and maintenance required by § 39.43.

(i) Survey records required by § 36.67.

§ 39.75 Documents and records required at temporary jobsites.

Each licensee conducting operations at a temporary jobsite shall maintain the following documents and records at the temporary jobsite:

(a) Operating and emergency procedures.

(b) Survey records required by § 39.67.

(c) Evidence of calibration of the radiation survey instruments in use at the site required by § 39.33.

(d) A copy of the NRC license authorizing use of licensed material, or a copy of the Agreement State license when operating under reciprocity pursuant to 10 CFR 150.20.

(e) The shipping papers for the transporting of radioactive materials required by § 71.5.

§ 39.77 Notification of incidents and lost sources, abandonment procedures for irretrievable sources.

(a) The licensee shall notify the Commission of incidents and sources lost, other than in the well, in accordance with the provisions of Part 20 of this chapter.

(b) If a sealed source becomes lodged in a well, and when it becomes apparent that efforts to recover the sealed source will not be successful, the licensee shall--

(1) Advise the well owner or operator of the abandonment procedures under § 39.15(b) or (c) and assure that these procedures are implemented within 30 days after the sealed source has been classified as irretrievable.

(2) Notify the appropriate NRC Regional Office by telephone of the circumstances of the loss, and request approval to implement abandonment procedures.

(c) The licensee shall, within 30 days after a sealed source has been classified as irretrievable, make a report in writing to the appropriate NRC Regional Office. The licensee shall send a copy of the report to each appropriate State agency that has authority over the particular well-drilling operation. The report must contain the following information:

(1) Date of occurrence.

(2) A description of the irretrievable well-logging source involved, including radionuclide, quantity, chemical and physical form.

(3) Surface location and identification of well.

(4) Results of efforts to immobilize and seal the source in place.

(5) Depth of source.

(6) Depth of the top of the cement plug.

(7) Depth of the well.

(8) Any other information (e.g., warning statement) contained on the permanent identification plaque.

APPENDIX A

Example of Plaque For Identifying Wells

Containing Abandoned Sealed Sources

The size of the plaque should be convenient for use on active or inactive wells, e.g., a 7-inch square and 1/8-inch thick. Letter size of the word "CAUTION" should be approximately twice the letter size of the rest of the information, e.g., 1/2-inch and 1/4-inch letter size, respectively.

(9) Notifications made to State agencies.

(10) A brief description of the attempted recovery effort.

(d) The licensee shall immediately notify the appropriate NRC Regional Office by telephone and subsequently by confirming letter if the licensee knows or has reason to believe that (1) licensed material has been lost in or near a fresh water aquifer; or (2) a sealed source has been ruptured. This notice must designate the well location and describe the magnitude and extent of loss of licensed material, assess the consequences of the loss, and explain efforts planned or being taken to mitigate these consequences.

SUBPART F - EXEMPTIONS

§ 39.91 Applications for exemptions.

The Commission may, upon application by any licensee or upon its own initiative, grant an exemption from the requirements of the regulations in this part if it determines the exemption is authorized by law and will not result in undue hazard to life or property.

Dated at Bethesda, Maryland this ___ day of _____, 1984.

For the Nuclear Regulatory Commission.

_____

William J. Dircks,
Executive Director for Operations.