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June 24, 1985

U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Attn: Mr. Jack E. Whitten
Nuclear Material Safety Section

Re: Renewal of License No. 35-19041-01 - Control No. 60325

Dear Mr. Whitten:

Your letter of May 30, 1985 requests additional information in order to continue your review of our byproduct material license renewal application. Following is our response to the items in your letter:

1. We have three G-M type radiation survey instruments, listed below:

Ludlum Model 2	gamma/beta	0/50 mr/hr
G. E. Smith GS-500A	gamma	0/500 mr/hr
EON Model PSM700	gamma/beta	0/50 mr/hr

2. Our survey meters are calibrated at six months intervals by R/A Services, Inc., Odessa, Texas (Texas License No. 12-3012), or other approved/licensed calibration service company.

3. Our consultant, Keith Moon, made several telephone calls to the Region IV office and the Washington D.C. office in regard to the bioassay requirements and their applications toward tracer studies in oil and gas wells. Due to the infrequency of tracer studies in our operations, it was determined that we would commit to the statements set out in the enclosed revised Page 6 for our Operating & Emergency Procedures Manual (Section II-D) and delete the procedures submitted with our renewal application.

4. Enclosed is revised Section X - Source Handling Procedures (Page 20) for our O&EP manual, in which paragraph G calls for surveillance of the restricted area.

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5. Enclosed is revised Section XII - Source Maintenance and Disposal, (Pages 23 & 24) for our O&EP manual, which includes instruction to conduct physical inventories, inspection and maintenance every six months. Also enclosed is a revised Figure #8 for the manual.

6. Enclosed is Page 3(a) for our O&EP manual which states the records that will be available at each temporary job site location.

7. The new Page 3(a) referenced above also gives a list of records that will be available at each field station where radioactive material is used or stored.

8. The new Page 3(a) covers this requirement. Our Radiation Safety Training Manual will be used for this instruction.

9. Enclosed is a revised Page 21 for our O&EP manual (Section XI Lost Source Procedures) which includes prohibition to perform well logging operations without a written agreement with the well owner/operator.

10. The enclosed revised Section XII - Source Maintenance and Disposal Procedures (Pages 23 & 24) mentioned above contain the labeling requirements outlined in your letter.

We trust this information will allow you to complete your review of our renewal license application and issue the license at an early date. Our consultant, Keith Moon, has prepared these revisions for our manual and should you need additional information or clarification, you may contact him as he is authorized to represent us in this matter.

Sincerely,

MIDCO, INC.

William O. Keller
Radiation Protection Officer

pm
Enclosures
cc: SC&A Inc.

D. Bioassays for Handlers of Iodine 131 Tracers:

1. The U.S. Nuclear Regulatory Commission sets requirements for bioassays in Regulatory Guide 8.20, which are also required by Agreement States, providing for bioassays to be performed whenever an individual handles more than 50 millicuries of liquid Iodine at any one time or a total of 50 millicuries of liquid Iodine within a one week period, in a field application (open air) such as our operations.

2. In our operations we will not handle vials of Iodine 131 containing more than 40 millicuries, and we will not use more than 50 millicuries at any one time. If a job should come up where more than 50 millicuries were required in a one week period, the tracer studies would be performed by different individuals, assuring that no one individual handles more than 50 millicuries in any one week period. If for some reason this could not be accomplished, the job would be turned down or performed using an alternative isotope for which we are licensed.

3. We commit to the above statements because it is not economically feasible for our company to comply with the bioassay requirements.

X. SOURCE HANDLING PROCEDURES

A. Only company employees who are licensed radiation handlers and who have been trained in handling sealed sources shall perform or directly supervise operations utilizing a sealed radioactive source.

B. The source assembly will be transported to and from location in full compliance with Department of Transportation regulations (49 CFR). The source assembly will be carried in a transportation container that meets USA DOT 7A specifications and which is fastened to an integral part of the vehicle and located at the furtherest point possible away from the driver or passengers. Shipping papers as outlined in 49 CFR Subpart C - Parts 172.200 thru 172.204, will be carried in the cab of the vehicle.

C. Prior to leaving the facility for the job site, the source will be logged out on the Source Utilization Log (Ref: Figure #2) and a survey made using a low level survey meter approximately 6 inches from the source container. This log will be kept in the radiation files for review by regulatory agents.

D. At no time will a source be handled by hand. All loading or unloading will be done with the aid of a source handling tool or other approved handling tool.

E. All employees involved in operations using a source will wear a personnel monitoring device (TLD badge). A certified calibrated low level survey meter will be available during all operations using a source.

F. At the well location, and prior to beginning operations utilizing the source, operator will complete "Before" portion of the Job Site Survey. (Ref: Figure #6)

G. A restricted area of not less than 30 feet around the work area will be established and marked with signs, barrier rope, or other designation. Direct surveillance will be maintained by the supervisor or designated employee during all source handling procedures to protect against unauthorized and/or unnecessary entry into the restricted area.

H. Using the remote handling tool, the source assembly is removed from the transport container. The source assembly is attached to the logging tool and placed inside the well.

I. When logging procedures have been completed, the tool is returned to the surface, the source shield is replaced, and the source assembly is removed and placed back into the transport container. A vehicle survey is taken to check for contamination and proper transport index (mr/hr at 1 yard). "After" portion of the Job Site Survey is completed before leaving location to show there is no ground contamination.

J. Upon return to facility, source assembly will be surveyed and logged in on the Source Utilization Log (See C above). Source assembly will then be returned to the storage bunker using the source handling tool, and storage bunker locked.

h. An appropriate warning, depending on the specific circumstances of each abandonment, such as (1) "DO NOT DRILL BELOW PLUG BACK DEPTH", (2) "DO NOT ENLARGE CASING", (3) "DO NOT RE-ENTER HOLE", FOLLOWED BY --- BEFORE CONTACTING (whichever is appropriate) THE U.S. NUCLEAR REGULATORY COMMISSION //or// THE STATE BUREAU OF RADIATION CONTROL.

7. A written report must be filed with the Regional Office of the NRC or the Agreement State Bureau of Radiation Control within 30 days of abandonment, giving description of attempts to recover the source and results of retrieval attempts; steps taken to isolate and protect the source; all pertinent well information; and information contained on the permanent identification plaque. A copy of this report should also be furnished to the State agency issuing permits for or controlling the drilling of oil and gas wells.

XII. SOURCE MAINTENANCE AND DISPOSAL PROCEDURES

A. Every radioactive source must be accounted for. Licensee must have records of receipt and disposal and maintain a current source inventory. A source cannot be sold or transferred to anyone who does not have in his possession a current radioactive material license authorizing possession of that particular source (manufacturer, model, and curie quantity).

B. Inspection and maintenance of source holders, logging tools, source handling tools, storage containers, transport containers, and injection tools will be conducted at intervals not to exceed 6 months to assure proper labeling and physical condition. (Ref: Fig. #8) Should any damage be revealed, the device will be removed from service until repairs have been made. Records of inspection and maintenance should be maintained for a period of two years for inspection by the regulatory agency.

C. Each source, source holder, or logging tool containing radioactive material shall bear a durable, legible and clearly visible marking or label, which has, as a minimum, the standard radiation caution symbol, without the conventional color requirement, and the following wording:

DANGER (OR CAUTION)
RADIOACTIVE

This labeling shall be on the smallest component transported as a separate piece of equipment.

D. Each transport container should have permanently attached to it a durable, legible, and clearly visible label which has, as a minimum, the standard radiation caution symbol and the following wording:

DANGER (OR CAUTION)
RADIOACTIVE
NOTIFY CIVIL AUTHORITIES (OR COMPANY NAME)

E. Under NO circumstances will any employee of licensee remove a source from a source holder or assembly. It is prohibited to make effort to remove sources stuck in a handling tool, logging tool, etc., which involve chiseling, drilling, cutting, etc.

F. Any maintenance or service operations which require direct hand contact with the source assembly, such as cleaning or "O" ring exchange will be performed as follows:

1. Since the source assembly is threaded, a hand tool with the appropriate thread, no less than 24" in length, will be made and screwed into the source assembly. The hand tool then will be secured in a table mounted vice. Note: If there is thread damage, the source will be sent back to the manufacturer for repair or replacement.

2. The "O" rings will be cut off with a razor knife. The source assembly will be cleaned with a long nosed solvent spray apparatus, which can be purchased at any automotive supply.

3. Upon completion of the cleaning, a piece of PVC pipe, 18" in length and of the appropriate diameter to fit over the source assembly, will be used to transfer greased "O" rings to the two grooves that have been cleaned. The PVC pipe will be placed over the source assembly with only the "O" ring groove exposed. A modified round wood stick with a flat end will push the "O" ring off of the PVC pipe into the "O" ring groove. Repeat procedure for second "O" ring.

4. Upon completion of replacement of the "O" rings, the handling tool used for normal operations will be used to unscrew the source assembly from the support holding tool while still in the vice and replaced to its assigned transportation container/shield.

E. Sealed sources will be returned to the manufacturer for disposal, or transferred to a commercial waste disposal service. Receipt from manufacturer or waste disposal service will be placed in the radiation files as record of disposal.

RADIOACTIVE SOURCE INVENTORY AND INSPECTION

ISOTOPE	ACTIVITY	SERIAL NO.	LOCATION	LEAK TEST DATE	PHYSICAL INSPECTION*			
					SOURCE HOLDER	TRANSPORT CONTAINER	HANDLING TOOLS	LOGGING TOOLS

* Visual inspection of physical condition and proper labeling.

Note: Physical inventory and inspection must be conducted every six months and kept on file for two years.

BY _____

DATE _____

Figure # 8

4. Upon hiring, all personnel whose duties may require them to work in/around or visit a restricted area will be informed of the radiation hazards and appropriate precautions as prescribed in 10 CFR 19.12 "Instructions to Workers". A review of the hazards and appropriate precautions will be made annually thereafter, either individually or in group safety meetings.

E. Documents and records at temporary job sites:

1. Operating and emergency procedures.
2. Survey records for the period of operation at the temporary job site.
3. Evidence of current calibration for the radiation survey instruments in use at the temporary job sites.
4. A copy of radioactive material license, if operating under reciprocity.

F. Documents and records at field stations where radioactive materials are used or stored:

1. Copy of radioactive material license.
2. Operating and emergency procedures.
3. Applicable NRC and/or Agreement State regulations.
4. Records of latest survey instrument calibrations on each survey instrument.
5. Records of latest leak test results on each sealed source.
6. Semiannual physical inventories.
7. Utilization records. (for this station)
8. Records of inspection and maintenance. (for this station)
9. Facility, bunker, vehicle, job site, etc. surveys for this particular field station.

XI. LOST SOURCE PROCEDURES (Ref: Figure 10)

A. Prior to performing well logging operations using a sealed source, a written agreement must be executed between licensee and the well owner/operator, stating that within thirty (30) days after a well logging source has been classified as irretrievable, (1) the source will be immobilized and sealed in place with a cement plug, (2) a whipstock or other deflection device will be set well above the cement plug unless the source is not accessible to any subsequent drilling operations, and (3) a permanent identification plaque will be mounted at the surface of the well. (See Section C for specifics).

B. In the event a tool containing a sealed source of radioactive material is stuck in an oil or gas well, the following procedures should be followed to insure maximum safety:

1. Remain in contact with the well operator and offer advice and recommendations regarding safe fishing (retrieval) procedures and make the well operator aware of the possibility that fishing procedures might damage the source capsule.

2. During the retrieval operations, the logging supervisor will monitor for radiation at the surface, using a gamma logging tool near the pipe for fluids circulating from the hole, or using a low level beta/gamma survey meter with a thin window beta probe, or a scintillation probe with high enough energy resolution to accommodate the pipe thickness.

3. Upon retrieval of the source, if no radioactive contamination is detected, logger will remove the source housing assembly from the logging tool and physically check it for any damage such as abrasions brought about by metal to metal contact or any disfigurement brought about by pressure.

4. Should any radioactive contamination be detected during retrieval or if the source appears to be damaged, we will immediately notify the State or Federal regulatory agency governing radiations. (Emergency telephone number on cover page of this manual.)

5. If there is no evidence of radioactive contamination or physical damage, the source will be returned to a licensed storage facility for our company where it will be leak/wipe tested and the wipe sent for immediate analysis. The source will be kept in the storage container out of service pending receipt of the analysis results.

C. If it becomes apparent that the source cannot be retrieved and will have to be abandoned downhole, we will notify the State or Federal regulatory agency having jurisdiction over radiation and any regulatory agency governing the drilling of oil and gas wells. Following are procedures to follow for safe abandonment of a source downhole:

1. After notifying the regulatory agencies, the logging supervisor should determine steps to be taken to abandon the source in such a way as to protect persons and property now and in the future, considering what the well operator wishes and can reasonably do, and then present this proposal to the regulatory agencies for final approval or further recommendations.