JAN 21 1987

Licenses: 35-00502-02
35-00502-05

Dockets: 30-05900/86-02
30-20094/86-01

Halliburton Company
Attn: J. A. Dunlap, President
1015 Bois D'Arc
Duncan, Oklahoma 73536

Gentlemen:

This refers to the special, unannounced radiation safety inspection conducted by L. Ricketson of this office December 8-12, 1986, of the activities authorized by NRC License 35-00502-02 and 35-00502-05, and to the discussion of our findings held by the NRC inspector with members of your staff at the conclusion of the inspection. The enclosed NRC Inspection Report 30-05900/86-02; 30-20094/86-01 documents this inspection.

The inspection was an examination of the activities conducted under the license as they relate to radiation safety and to compliance with the Commission's rules and regulations, and the conditions of the license. The inspection consisted of selective examinations of procedures and representative records, interviews of personnel, independent measurements, and observations by the NRC inspector.

During this inspection certain of your activities appeared to be in violation of NRC requirements. We are releasing this report at this time for your information and you are encouraged to review our findings and take corrective action as you believe appropriate. You will be notified by separate correspondence of our decision regarding enforcement action based on the findings of this inspection. No written response is required at this time.

This letter also confirms the telephone conversation between Mr. J. A. Dunlap and Mr. R. J. Everett of my staff on January 9, 1987, concerning our request to conduct an enforcement conference. You agreed to a date of January 26, 1987, for this enforcement conference, which will address the findings of the NRC inspection referenced above and your response to these findings.

Should you have any questions concerning this letter, we will be pleased to discuss them with you.

Sincerely,
Original Signed By:
WILLIAM L. FISHER

William L. Fisher, Chief
Radiological and Safeguards
Programs Branch

Enclosure: (see next page)

RIV:NMSS	C:NMSS&7	C:R&SPB	D:DRSS	AC	EO
LTRicketson/tw	RJEverett	WLFisher	RLBangart	MEEmerson	DAPowers
1/15/87	1/15/87	1/19/87	1/20/87	1/-/87	1/21/87

8702020292 870121
REG4 LIC30
35-00502-02 PDR

Enclosure:
Appendix - NRC Inspection Report
30-05900/86-02
30-20094/86-01

cc w/enclosure:
Oklahoma Radiation Control Program Director

EPA
Office of Regional Counsel
ATTN: Mr. Bennett Stokes
1201 Elm Street
Dallas, TX 75270

bcc:
DMB - Original (IE-07)
RDMartin
RLBangart
*DWeiss, LFMB (AR-2015)
*NMSS
*RIV Files (2)
DAPowers
MEEmerson
*Inspector
*MIS System
*RSTS Operator

*w/766

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 30-05900/86-02
30-20094/86-01

Licenses: 35-00502-02
35-00502-05

Dockets: 30-05900
30-20094

Licensee: Halliburton Company
1015 Bois D'Arc
Duncan, Oklahoma

Halliburton Industrial Services, Inc.
1015 Bois D'Arc
Duncan, Oklahoma

Inspections At: Duncan, Oklahoma; Oklahoma City, Oklahoma; and Pauls Valley, Oklahoma

Inspections Conducted: December 8-12, 1986

Inspector: L. T. Ricketson P.E., Radiation Specialist — Date: 1-15-87

Approved: C L Cain For
R. J. Everett, Chief, Nuclear Materials Safety Section — Date: 1-15-87

Inspection Summary

Inspection Conducted December 8-12, 1986 (Report: 30-05900/86-02; 30-20094/86-01)

Areas Inspected: A special, unannounced inspection was conducted as a result of allegations of violations of regulations and operating procedures. Included in the inspection were interviews of individuals involved in operations; review of records of personnel monitoring, training, survey results, receipt, transfer, and disposal of licensed material; and a site visit and survey by the NRC inspector.

Findings:

Under License 35-00502-02:

Of the nine allegations, two were substantiated. Of those substantiated, one resulted directly in the identification of an apparent violation. A total of six apparent violations were identified (section 4). The apparent violations were:

1. Failure to calibrate radiation survey instruments at the proper interval.

2. Failure to instruct all individuals working in a restricted area in radiation safety and regulatory requirements.

3. Failure to maintain records of receipt, transfer, and disposal of licensed material.

4. Failure to maintain records of survey results.

5. Failure to post required documents.

6. Failure to post required notices.

Under License 35-00502-05:

Of the four allegations, two were substantiated, resulting directly in the identification of two apparent violations. A total of six apparent violations were identified (section 6). The apparent violations were:

1. Failure to train individuals as required by operating procedures.

2. Release of items contaminated with licensed material in excess of limits established by operating procedures.

3. Failure to operate in a facility as described in the operating procedures.

4. Improper disposal of licensed material.

5. Failure to properly evaluate the results of personnel monitoring devices.

6. Failure to perform disposal surveys.

DETAILS

1. Persons Contacted

*J. A. Dunlap, President, Halliburton Services
*Ronald Bechtel, Manager, Office of Government Regulations
*Richard Leonardi, Radiation Protection Officer
Dan Kelly, Former Radiation Protection Officer
Reese Stewart, Facilities Manager
Roger Ledford
William Dean
Jeff Dahl
L. R. Shirley
Richard Barnes
A. D. Heilman

*Denotes individuals attending exit meeting.

2. Reason for Special Inspection

Region IV received two sets of allegations concerning Halliburton Services and Halliburton Industrial Services, Inc.

The first set of allegations (4-86-A-113) was taken from the text of a letter received by Region IV from a former employee. The specific allegations were not enumerated, but were interpreted as follows: (1) that most work sites store sources in shipping containers; (2) no radioactive storage areas are provided; (3) source handling tools are in poor repair; (4) training for nontechnical personnel is nonexistent; (5) film badges are scarce and randomly issued; (6) film badge results are not reported to individuals; (7) the licensee will not send exposure history upon request; (8) wipe tests were requested, but never performed; and (9) requests for underground storage pits, wipe tests kits, and training were ignored by "upper management."

The second set of allegations (4-86-A-124) was forwarded to Region IV from the Oklahoma State Department of Health. The allegations were: (1) clothing contaminated with radioactive material was burned in an open pit on the licensee's property; (2) persons using cutting torches to cut contaminated steel were not provided with respiratory protection; (3) adequate personnel monitoring was not performed; and (4) supervisory personnel who disagreed with procedures being utilized were either discharged or given other duties.

3. Background and Discussion

The licensee currently has four licenses, in either the company name or in the name of one of its divisions.

The first set of allegations deals with operations in field camps. It should be noted that most of the alleger's employment was in foreign countries. The alleger mentions sources of the size and type which are used for well logging operations. Only the licensee's research license allows it to possess such sources in NRC jurisdiction and the places of use are limited. (The licensee does own Welex, which is separately licensed to perform well logging operations and sites under this license were not visited during this inspection). Because of this, it would appear that some of the allegations may not translate well to operations as they are currently conducted under License No. 35-00502-02, which authorizes the use of material for tracer studies in oil and gas wells and is the only license the company currently possesses which authorizes storage of licensed material at field camps. Additionally, a number of the allegations would not be violations even if they were substantiated.

The second set of allegations involve License No. 35-00502-05 which allows the licensee to perform decontamination of reactor components. The allegations concern a project which was a joint venture between two sister companies. According to representatives of the licensee, the original plan was to accept spent fuel racks from a nuclear power plant. The racks, which were being replaced, were to be decontaminated and the metal was to be sold as scrap.

Records show that the first shipments of the racks arrived at the licensee's facility in November of 1983 and the last in April of 1984. A total of 21 were received.

Preliminary feasibility tests were performed and it was determined that decontamination was not practical. As an alternate plan, it was decided to cut the racks in pieces small enough to fit in containers and dispose of the material by land burial. (The NRC office responsible for issuing the license was contacted by Region IV after the inspection and it was that office's interpretation that such a plan was allowable under the existing license.)

A tent was erected in which to perform the cutting operations. It was equipped with a ventilation system intended to ensure that a negative pressure was maintained. Workers originally wore respirators with cartridge filters, but this was changed to forced air respirators. One man used a plasma arc torch to cut the racks; another stood watch outside to warn the first if the tent caught fire.

Initial cutting began July 1, 1985, according to job records. On September 12, 1985, one of the companies withdrew its personnel. During the first part of October, additional cutting was done on the pieces for the purpose of volume reduction. In December 1985, the pieces of the racks were shipped to South Carolina for burial. No clean up of the work area was attempted until November 1986.

4. Allegation Followup under License 35-00502-02 (Allegation No. 4-86-A-113)

The NRC inspector visited field camps at Pauls Valley, Oklahoma and Oklahoma City, Oklahoma as well as the Rayfrac facility in Duncan, Oklahoma.

The NRC inspector reviewed records, facilities, and equipment at each site. At the Oklahoma City camp, the NRC inspector noted that records for receipt, transfer, and disposal were not available for the time period prior to April 1986. This was identified as an apparent violation of 10 CFR 30.51(a) which requires the maintaining of such records. Additionally, records of surveys performed at job sites and storage areas were not available for the period prior to April 1986. The NRC inspector identified this as an apparent violation of 10 CFR 20.401(b) which requires the maintaining of records of surveys performed in compliance with 10 CFR 20.201(b).

The NRC inspector observed that the licensee had used a radiation survey instrument on tracer jobs performed on August 18, 1986; September 16, 1986; and November 26, 1986. A representative of the licensee stated that he did not know when the instrument was last calibrated. No verification could be provided by either the field office or the licensee's headquarters that the survey instrument had been calibrated during the six months prior to its use. The NRC inspector identified this as an apparent violation of License Condition 13 which requires the licensee to follow procedures submitted with the license application, in particular item 11 of the application which states that instrument calibration is to be performed at intervals not to exceed six months.

In Duncan at the Rayfrac facility, the individual assigned to receive and repackage the waste licensed material from the field camps stated to the NRC inspector that he had not received training concerning radiation safety and regulatory requirements. The NRC inspector identified this as an apparent violation of 10 CFR 19.12 which requires that the licensee provide training to individuals involved in work with licensed material.

The NRC inspector observed that copies of the license, operating procedures, and Parts 19 and 20 of 10 CFR were not posted at any of the sites referenced above. This was identified as an apparent violation of 10 CFR 19.11(a) and (b). Likewise, the inspector observed that Form NRC-3 was not posted at these sites. This was identified as an apparent violation of 10 CFR 19.11(c).

5. Conclusions - License 35-00502-02

Allegation Nos. 1, 2, 3, 8, and 9 seem to refer to the use of sealed sources in well logging which is not performed, in domestic operations, under any of the four licenses in the name of Halliburton Services or its divisions and therefore can not be appropriately and completely addressed. However, where possible, situations of the same type as outlined in the allegations were reviewed under the tracer material license. For example,

the NRC inspector found that most work sites using tracer material do store licensed material in shipping containers for a short time until their use. However, this is neither a violation of regulations or license procedures.

Therefore it must be concluded that allegation No. 1, concerning the storage of licensed material in storage containers, is substantiated. No apparent violations were identified.

Allegation No. 2 is that no storage areas are provided. Adequate storage areas are provided for the tracer material and therefore, allegation No. 2 is not substantiated and no apparent violations were identified.

Both the tracer use and the density gauge use employ handling tools at times. Handling tools were inspected at the various field camps and none were found to be defective; therefore, based on this limited sample, it must be concluded that allegation No. 3, that handling tools are in poor repair, is not substantiated. No apparent violations were identified.

Allegation No. 4 deals with training. The inspector found that the individual handling the consolidation of the radioactive waste had received only on-the-job training, and this did not adequately address radiation safety and regulatory requirements. Licensee's representatives state that the individual had been scheduled for such training the week of the inspection. Findings were sufficient to conclude, in at least this case, that allegation No. 4 is substantiated. One apparent violation was identified.

The inspector observed that various individuals interviewed did have personnel monitoring devices and records were available showing their results. Findings were insufficient to substantiate or refute allegation No. 5, that personnel monitoring badges were scarce and randomly issued. No apparent violations were identified.

Allegation No. 6 was that film badge results are not forwarded to workers. Strictly speaking, there is no requirement to do so, except under the provisions of 10 CFR 19.13(b), which requires the licensee to report results annually to a worker if requested by the individual, or 10 CFR 20.409 which requires that individuals, involved in certain operations, be informed upon termination or upon receiving radiation exposures exceeding applicable limits. A file was available with copies of reports sent to employees working in NRC's jurisdiction. There was no indication that the licensee had not complied with applicable requirements. No information was available at the time of the inspection concerning the handling of exposure histories of individuals working in foreign countries. Allegation No. 6 is not substantiated. No apparent violations were identified.

In allegation No. 7 the individual alleged that he was unable to procure his exposure history. The NRC inspector reviewed a copy of the report sent to the individual. The date of the report was after the allegation was received by Region IV.

Allegation Nos. 8 and 9, as stated earlier, deal with sealed sources and can not be appropriately addressed in the inspection of these licenses.

Even though all allegations were not applicable to these licenses, they did result in the identification of problem areas and in some cases, the identification of apparent violations.

6. Allegation followup under License 35-00502-05 (Allegation No. 4-86-A-124)

Accompanied by a representative of the Oklahoma State Department of Health, the NRC inspector visited the Duncan, Oklahoma office to interview individuals involved in the decontamination/disposal project. Records were reviewed and the site where operations had been performed was surveyed.

Interviews and Records: According to representatives of the licensee, the cutting of the contaminated racks was performed in a tent which was purchased by the district manager at that time. When the radiation protection officer (RPO) questioned its use, he was informed that the decision had already been made. The NRC inspector noted that the facility was not as described in the license application, which requires that a building with a wooden substructure be constructed, and identified this as an apparent violation of License Condition 15, which requires the licensee to follow procedures submitted with the license application.

In Allegation No. 2 the individual alleged that respiratory protection had not been provided. In answer to this, the former RPO described the precautions used. Initially, respirators with cartridge filters were used, but because of dust loading, these were changed to forced air respirators. This was confirmed later by one of the individuals who worked on the project and used the respirators.

General radiation levels in the restricted area were 5 to 10 mR/h, making personnel monitoring a requirement as specified in 10 CFR 20.202(a)(1). The individuals working in the tent wore TLD badges. Bioassays were performed.

A review of the personnel monitoring reports showed that badges for two individuals had not been returned to the supplier for evaluation in a timely manner. Badges issued November 1, 1985, were not evaluated until after April 28, 1986. This was identified by the NRC inspector as an apparent violation of 10 CFR 20.201(b), failure to perform an adequate evaluation.

Bioassay results were available starting July 26, 1985. The former RPO stated that initial bioassays were performed before the individuals

began working on the project and his recollection was that the results for all individuals were negative.

Air sampling was performed inside the tent while cutting operations were being performed. The approximate range for sampling results for cesium was 2E-10 to 6E-9 microcuries per milliliter. For cobalt, typical values ranged from 4E-12 to 9E-10 microcuries per milliliter. These values are below the maximum permissible concentrations specified in 10 CFR 20.

The facilities manager where operations were conducted stated that protective clothing was burned in a pit. He explained that the clothing was not worn by individuals doing the cutting of the fuel racks, but by individuals working outside the tent, but within the surrounding fence. He stated that the RPO performed surveys before the disposal.

The former RPO stated that he had not performed surveys on protective clothing before it was burned with other items in a pit near the site. He stated that he did survey a number of tarps which had been used to cover the racks, but these were placed in the LSA containers and never burned. The failure to perform surveys before the disposal of potentially contaminated items was identified by the NRC inspector as an apparent violation of 10 CFR 20.201(b).

During the review of training records, the NRC inspector noted that one of the individuals involved in the cutting operations had apparently not received training in radiation safety as required by the licensee's operating procedures. The representatives of the licensee did not contest the finding and it was later confirmed in a conversation with the individual that he had not received training as outlined. This was identified by the NRC inspector as an apparent violation of License Condition 15, which requires the licensee to follow operating procedures as submitted with the license application.

Site Visit: The RPO, a representative of the Oklahoma State Department of Health, and the NRC inspector visited the area where the cutting of the spent fuel racks had been conducted. The fence surrounding the area was still in place, but entry into the area was no longer restricted. During a survey of the area, numerous spots of contamination were identified, using radiation survey instruments supplied by the Oklahoma State Health Department and the licensee. These areas ranged from several times background readings to several mR/h on contact. A wooden pallet which measured 20 mR/h on contact was found outside the fenced area. The licensee's procedures contain an upper limit for contamination of 1000 dpm, removable, and 0.4 mR/h, fixed, for items which are to be released to unrestricted areas. This was identified by the NRC inspector as an apparent violation of License Condition 15 which requires the licensee to follow procedures submitted with the license application. During the site visit, areas of contamination were identified in the area which had been used to burn items that had been used on various projects. Analysis of samples taken by the Oklahoma State Department of Health

confirmed that the material was the same as that found in the area where the cutting had been performed. This was identified by the NRC inspector as an apparent violation of 10 CFR 20.301, improper disposal of licensed material.

7. Conclusions - License 35-00502-05

Allegation No. 1: Findings indicate that clothing, possibly contaminated with radioactive material, was burned in an open pit. The allegation is substantiated. Two related apparent violations were identified.

Allegation No. 2: Findings do not support the allegation that persons using cutting torches in the restricted area were not provided with respiratory protection. Statements made by individuals involved in the operation indicated that other individuals may have entered into the area without the benefit of respiratory protection, but any such entries would have been against the licensee's instruction. The allegation is not substantiated. No apparent violations were identified.

Allegation No. 3: Findings indicate that adequate evaluations of personnel monitoring devices were not performed at all times, resulting in inadequate personnel monitoring. The allegation is substantiated. One apparent violation was identified.

Allegation No. 4: There were no findings to indicate that anyone was wrongfully transferred or discharged because of their interest in safety. The allegation is not substantiated. No apparent violations were identified.

The allegations led to the identification of three other apparent violations.

A basic cause for the apparent violations was that the licensee became involved in a project which was not well addressed by the company's existing radiation safety procedures and so was confronted with unanticipated problems. For example, in the licensee's letter of February 4, 1983, it is stated, "Airborne contamination is expected to be nonexistent . . ." and in the letter of November 23, 1983, "No airborne radioactivity is anticipated from this work." Clearly, this operation was not typical of those conducted under this license. Also, it would appear that at least some of these items occurred as a result of intermediate management disregarding the recommendations of health physics personnel or not giving them the proper consideration.

8. Exit Meeting

An exit meeting was held in the president's office to discuss the findings of the inspection under License 35-00502-05. The individuals in attendance are indicated in Section 1. Also attending was a representative of the Oklahoma State Department of Health. The NRC inspector summarized the findings involving the licensee's

decontamination/disposal project and discussed the apparent violations identified up to that time. The representatives of the licensee acknowledged the findings. The NRC inspector stated his plans to also inspect License 35-00502-02.

Results of findings under License 35-00502-02 were discussed with the RPO by telephone after the inspections of the field camps were completed. The RPO acknowledged the results of those inspections.