

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 150-00042  
License: Texas L00065  
Report: 150-00042/98-09  
Licensee: Cardinal Surveys Company  
Facility: Cardinal Surveys Company  
Location: Odessa, Texas  
Dates: June 11-12, 1998  
Inspector: Richard A. Leonardi, Jr., Radiation Specialist  
Approved: D. Blair Spitzberg, Chief  
Nuclear Materials Safety Branch 2  
Attachment: Supplemental Inspection Information

### EXECUTIVE SUMMARY

Cardinal Surveys Company

Odessa, Texas

NRC Inspection Report 150-00042/98-09

This reactive inspection was conducted in response to the licensee's notification that Cardinal Surveys Company (Cardinal) had failed to file an initial NRC Form 241 prior to performing licensed activities in exclusive Federal jurisdiction on April 17, 1998.

#### Use of Radiotracer In Oklahoma

- Based on interviews with licensee personnel and a review of records pertaining to Cardinal's use of licensed material at a well site near Butler, Oklahoma, on April 17, 1998, it was determined that the licensee failed to file an initial NRC Form 241 for proposed activities in exclusive Federal jurisdiction in accordance with 10 CFR 150.20. This Texas licensee used 145 millicuries of iridium-192 coated on artificial proppant to tag a fracture-stimulation job.

#### Corrective Actions and Follow-up on Previous Inspection Findings

- Cardinal notified NRC Regional IV staff by phone on April 27, 1998, after discovering that they had failed to file a NRC Form 241 prior to conducting licensed activities in exclusive Federal jurisdiction on April 17, 1998. Cardinal immediately faxed Region IV copies of a completed Form 241 with a copy of the check covering the fee, followed later with the original Form 241 and required fee.
- An inspection completed in May 9, 1996, identified a similar violation concerning Cardinal's failure to file a revision to their original NRC Form 241, authorizing Cardinal the additional use of licensed material at a location in Wyoming not authorized on the original Form 241 dated September 12, 1995.
- The licensee's corrective actions discussed in a letter dated June 14, 1996, in response to NRC's Notice dated May 22, 1996, appeared ineffective in preventing the recurrence of a similar violation in 1998.

## Report Details

### **1 Purpose of Inspection and Program Overview (87100, 87103)**

#### **1.1 Inspection Scope**

The inspector reviewed Cardinal's use of licensed material in Oklahoma, an area of NRC jurisdiction, for activities conducted on a well site near Butler, Oklahoma, on April 17, 1998. These activities were conducted without Cardinal having applied for reciprocity in accordance with 10 CFR 150.20.

#### **1.2 Observations and Findings**

On April 27, 1998, a Cardinal staff member telephoned NRC Region IV and notified regional staff that Cardinal had used licensed material in Oklahoma at a single jobsite on April 17, 1998, but had failed to file a Form 241 as required. A NRC inspection was performed on June 11-12, 1998, to review the circumstances involving Cardinal's failure to file a Form 241 prior to conducting activities in NRC jurisdiction.

Cardinal holds a Radioactive Material license (Texas L00065) issued by the state of Texas which authorizes Cardinal to perform tracer operations in oil/gas wells at temporary job site locations throughout Texas. Cardinal's corporate offices are located in Odessa, Texas, with a field office in Hobbs, New Mexico. Cardinal utilizes 12 tracer operators, four logging trucks, and three high pressure injection systems (Tagmaster units) to provide tracer services to customers in Texas and New Mexico, and occasionally in Oklahoma. Cardinal uses 20 ejector tools to provide fluid profile studies using primarily liquid iodine-131. Cardinal does not use sealed sources for conventional well logging.

#### **1.3 Conclusions**

Based on the inspector's interview of Cardinal personnel and the review of Cardinal's Texas license, supporting documents, and other records maintained by Cardinal, the inspector concluded that Cardinal's activities that were conducted in NRC jurisdiction on April 17, 1998, appeared to be in accordance with Cardinal's Texas license, and their Operating and Emergency Procedures.

### **2 Use of Licensed Material in Oklahoma (87100)**

#### **2.1 Inspection Scope**

The inspector's review included a detailed review of Cardinal's failure to file NRC Form 241 for licensed activities in Oklahoma on April 17, 1998.



## 2.2 Observations and Findings

Based on interviews with Cardinal's radiation safety officer (RSO) and administrative secretary, the inspector determined that Cardinal performed a fracture-stimulation tag job (frac tag) on April 17, 1998, on a well site (Shelton lease, Well No. 10-7) near Butler, Oklahoma, involving the use of 145 millicuries of iridium-192 coated on proppant to tag a frac job.

During interviews with Cardinal's RSO and secretary, the inspector determined that Cardinal's president received an e-mail request for a tracer job from a customer in Oklahoma. Cardinal's routine procedure called for the person receiving a request for work to provide the name of the customer requesting work to one of the salesman, who in turn would contact the customer and set the job up. Cardinal's salesman, secretary, and RSO were aware that any tracer work scheduled for Oklahoma had to be coordinated through the RSO or the secretary to ensure that the required notifications had been given to NRC Region IV prior to performing the frac tag. However, after Cardinal's president received the request for a tracer tag from the Oklahoma customer, he apparently setup the tracer job without sales personnel, RSO, or secretary being aware of the scheduled tracer job in Oklahoma. The RSO is frequently out of the office on field jobs and was not in the office when the tracer job was scheduled by Cardinal's president, nor were the RSO or secretary aware that Cardinal had performed the frac tag on April 17, 1998, until on April 27, 1998, the secretary was processing billing invoices for jobs performed and noticed that Cardinal had performed a frac tag on April 17, 1998.

Cardinal's secretary disclosed that when she realized that Cardinal had performed a frac tag in Oklahoma, she immediately notified NRC Region IV staff of the oversight, and faxed completed copies of NRC Form 241 with a copy of the required check. Cardinal's secretary indicated that when she questioned Cardinal's president regarding the frac tag and Cardinal's failure to file the NRC Form 241, the president disclosed that he had forgotten the need to request reciprocity in accordance with 10 CFR 150.20.

10 CFR 150.20 requires, in part, that licensee file a NRC Form 241, "Report of Proposed Activities in Non-Agreement States" at least 3 days before engaging in licensed activities in Non-Agreement States. Cardinal's failure to file a NRC Form 241, as discussed above, was identified as a violation of 10 CFR 150.20 (b)(1) (150-00042/98-09).

## 2.3 Conclusions

One violation of NRC requirements was identified for this Texas licensee's failure to file a NRC Form 241 before conducting licensed activities in NRC jurisdiction.

### **3 Corrective Actions and Follow up on Previous Inspection Findings (87100, 92702)**

#### **3.1 Inspection Scope**

This portion of the inspection included a review of corrective actions the licensee had taken or planned on taking relative to the NRC inspection of June 11-12, 1998, and a review of the licensee's corrective actions in response to a previous Notice of Violation letter dated May 22, 1996, involving a NRC inspection completed on May 9, 1996.

#### **3.2 Observations and Findings**

The inspector determined that an administrative secretary for Cardinal identified Cardinal's failure to file a NRC Form 241 for licensed activities that had been conducted in Oklahoma (a NRC state) on April 17, 1998, during the processing of billing invoices on April 27, 1998. The secretary immediately telephoned NRC Region IV staff on the same day regarding Cardinal's failure to file the required NRC Form 241, and faxed Region IV copies of a completed NRC Form 241 with a copy of the required fee check. Cardinal's self-identification of their failure to file a NRC Form 241, Cardinal's prompt reporting of this failure to the NRC, and their submission of a completed NRC Form 241 by fax constituted immediate corrective actions.

During discussions with Cardinal's RSO during the inspection, and subsequent discussion with Cardinal's president during the exit briefing on June 26, 1998, the inspector was informed that Cardinal representatives had discussed long-term corrective measures, but had not drafted a written description of proposed corrective actions at the time of the exit briefing.

During the review of a previous NRC Inspection Report and Notice of Violation (150-00042/95-01) dated May 22, 1996, involving the inspection of Cardinal on November 6, 1995, the inspector noted that Cardinal was issued the Notice for the failure to have filed a revision to their original NRC Form 241 dated September 12, 1995, to request authorization to use licensed material at an additional use location in the state of Wyoming. Cardinal's response letter signed by Cardinal's president and dated June 14, 1996, discussed Cardinal's corrective actions including the establishment of a new company policy requiring that tracer jobs will not be scheduled unless three days notice can be given to the NRC Region IV office. Additionally, Cardinal designated other staff members that were authorized to sign and process a NRC Form 241 for proposed tracer work in NRC jurisdiction.

It appears that Cardinal's corrective actions discussed above were ineffective in preventing the recurrence of the same violation as cited in the previous NRC Notice dated May 22, 1996.

### 3.3 Conclusions

Cardinal initiated immediate corrective actions after discovering that they had failed to file a NRC Form 241 for licensed activities that Cardinal had conducted in Oklahoma on April 17, 1998, which included the immediate notification to the NRC Region IV of their oversight and the faxing of a completed NRC Form 241 with a copy of the required check to NRC Region IV staff.

The inspection revealed that Cardinal's corrective actions in response to a similar violation identified in a NRC Notice of Violation dated May 22, 1996, appeared ineffective in preventing the recurrence of the same violation cited in this Notice.

## 4 **Exit Meeting Summary**

The inspection findings, as noted in the report, were discussed with the licensee during a telephonic exit briefing conducted on June 26, 1998. The licensee acknowledged the findings as presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.



## ATTACHMENT

### SUPPLEMENTAL INSPECTION INFORMATION

#### PARTIAL LIST OF PERSONS CONTACTED

James S. McLaughlin, President of Cardinal  
George W. Newman, RSO  
Annette Davis, Administrative Secretary, Cardinal

#### INSPECTION PROCEDURES USED

IP 87100: Licensed Materials Program  
IP 87103: Inspection of Incidents at Nuclear Materials Facilities  
IP 92702: Follow up on Corrective Actions for Violations and Deviations

#### ITEMS OPENED AND DISCUSSED

##### Opened

150-00042/9809-01 VIO Failure to file a NRC Form 241 prior to conducting licensed activities in NRC jurisdiction was identified as a violation of 10 CFR 150.20.

#### LIST OF ACRONYMS

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|-----|-------------------------------|
| NRC | Nuclear Regulatory Commission |
| RSO | radiation safety officer      |