

APPENDIX A

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 30-20298/89-01 License: 35-23137-01

Docket: 30-20298

Licensee: B&H Wireline Services
P.O. Box 336
Hominy, Oklahoma 74035

Inspection At: B&H Wireline Services
Hominy, Oklahoma

Petro Data, Inc.
Wynona, Oklahoma

Inspector: Charles L. Cain for 1/5/90
Linda L. Kasner, Health Physicist, Nuclear
Materials Inspection Section Date

Approved: Charles L. Cain 1/5/90
Charles L. Cain, Chief, Nuclear Materials
Inspection Section Date

Inspection Summary

Inspection Conducted November 27-28, 1989 (Report 30-20298/89-01)

Areas Inspected: This was a routine, unannounced radiation safety inspection of a byproduct material program pertaining to the use of tracer materials and sealed sources in gamma and neutron logging of oil and gas wells. The inspection included examination of byproduct material use and users, the licensee's facilities and equipment, procedures, and related documents. The inspection also included interviews of employees of Petro Data, Inc., and former employees of Saturn Services, Inc. (SSI), who had conducted well logging operations under this materials license.

Results: This inspection identified apparent violations of both NRC regulations and written commitments made by the licensee to NRC. Collectively, these apparent violations are indicative to NRC of significant weaknesses in management oversight of the radiation safety program and licensed activities.

The Radiation Safety Officer (RSO) and sole proprietor of this license has had no employees, although he had authorized other individuals to conduct activities under this license. He had not worked directly with these individuals and had relied upon them to perform many of the required surveillances, and to conduct activities according to program requirements. This contributed to his failure to recognize that radiation surveys and byproduct material utilization records had not been completed. Additionally, the inspector observed that physical security of byproduct material was inadequate and that survey instruments used routinely to conduct licensed activities had not been calibrated. Although the RSO was aware of these two problems, he failed to implement corrective action prior to NRC identification.

The results of this inspection reveal the need for a dedicated effort to provide adequate program audits and safety reviews to ensure that program requirements are met, and that individuals authorized under the license are familiar with these requirements and NRC regulations. Additionally, it reveals a need to conduct performance safety reviews of sufficient detail to identify the users' failure to adhere to established procedures and regulatory requirements and to correct those deficiencies identified.

Within this inspection, the following apparent violations were identified:

Facilities, Equipment, and Material Use

- ° Failure to adequately secure licensed material during transportation and storage. (Section 4B)
- ° Failure to store licensed material at the location specified in the license. (Section 4B)
- ° Failure to calibrate survey instruments at appropriate intervals. (Section 4C)
- ° Failure to document and maintain records of byproduct material use during logging operations. (Section 4D)
- ° Failure to provide and use written agreements with well owners or operators to ensure appropriate response in the event that a source became lodged downhole. (Section 4D)
- ° Failure to adequately document sealed source inventories. (Section 4D)
- ° Failure to maintain records verifying leak tests of sealed sources. (Section 4D)

Authorized Users and Training

- ° Failure to maintain records demonstrating successful completion of written or oral examinations. (Section 5)

Surveys

- ° Failure to perform radiation surveys while conducting licensed activities. (Section 6)
- ° Failure to maintain records of radiation surveys of sealed source storage areas. (Section 6)

Transportation

- ° Failure to properly complete shipping papers and radioactive package labels. (Section 7)

Records and Reports

- ° Failure to maintain occupational radiation exposure records. (Section 8A)
- ° Failure to post or maintain required documents. (Section 8B)

DETAILS

1. Persons Contacted

B&H Wireline Services

Harold Haught, Owner and Radiation Protection Officer (RPO)

Petro Data, Inc.

- *Harold Haught, President and Logging Supervisor
- *O. C. Lamascus, Secretary and Logging Supervisor
- Bailey Hickson, Treasurer
- *J. Gregory Lamascus, Logging Supervisor
- Harold Haught, Jr., Logging Assistant

NRC, Region IV

Larry Chapman, Investigator

Dennis Boal, Investigator

Vendors

Gulf Nuclear, Inc.

ICN Dosimetry Service

*Individuals formerly employed by Saturn Services, Inc. (SSI)

*Individuals present at exit interview

2. Followup on Previous Violations

(Closed) (30-20298/88-01) Violation of 10 CFR 39.33 - Failure to maintain records of survey instrument calibrations. The inspector observed that although the licensee had not met the required calibration frequency, records for those survey instrument calibrations performed during 1988 and 1989 had been maintained.

(Closed) (30-20298/88-01) Violation of 10 CFR 71.5 (49 CFR 172.200) - Failure to prepare and carry shipping papers when transporting radioactive materials on public highways. The inspector observed that the licensee had prepared and was carrying shipping papers while transporting licensed materials.

3. Program Overview and Inspection History

The original license application was submitted on June 7, 1984. This application was incomplete, and the licensee was subsequently requested to submit another application. The second application, submitted in August 1984, requested authorization for use of americium-241 and cesium-137 sealed sources in neutron and density well logging, as well as

iodine-131 and iridium-192 for use in tracer fluid movement studies in oil or gas wells. This application and the procedures contained therein were submitted by the proprietor, who was also designated as RPO and RSO. This individual's background included 15 years' experience in the use of byproduct material to conduct oil or gas well logging. He had served as RPO for 10 years at another NRC licensee's facility and had completed several radiation safety courses given by Gulf Nuclear, Inc. (GNI). NRC Byproduct Material License 35-23137-01 was subsequently issued on September 19, 1984.

The licensee's business and byproduct materials program had undergone several changes since the previous inspection during March 1988. Among these were the sale of his logging equipment, the RSO's subsequent employment at another well logging company, several changes in business and storage locations, and -- the most significant factor -- changes in individuals using byproduct material under this license. These changes contributed to several of the apparent violations identified during this inspection.

This licensee has a good inspection history with only two previous minor violations of program requirements. The inspector observed that prior to a change in the licensee's business, he had operated a very small program and had continued good performance. Subsequent to a decline in business in the third quarter of 1988, the licensee sold his logging equipment and temporarily suspended licensed activities. Seeking a means to reestablish his well logging services, he became associated with another wireline service company. Additionally, the RSO became a salaried employee of this company, with duties and responsibilities that placed a demand for his time aside from his radiation safety program.

This condition led to a request for license amendment to authorize use of sources on another wireline service's vehicle, using individuals that met specific training requirements. This request also included a change in storage location for his licensed material. This amendment was subsequently granted by NRC.

Although the licensee had submitted notification of a change in his materials program to NRC, by requesting license amendment, he had already implemented the changes prior to issuance of the amendment or request. These changes included moving his licensed material to the address specified in the request, as well as to another facility not identified in the request or in the license. This action was repeated, just prior to this inspection, when the licensee placed sources on logging vehicles, for use and storage, at another location not identified in the license.

In January 1989, the licensee authorized two of his employer's personnel to conduct activities under his materials license. These individuals continued to perform all activities conducted under this license until June 1989. During this period, the RSO continued his business arrangement

with his employer and although he made some attempts to collect and review documents regarding byproduct material use, he relied on the individual users to perform the required surveillances and conduct activities according to program requirements.

Due to the nature of this arrangement, the RSO was not aware of each time licensed material was used. Additionally, he was not working directly with the individuals performing well logging activities. This contributed to his failure to observe that surveys related to byproduct material use and required utilization logs were not completed. Also during this period, the RSO relied on dosimetry and calibration services provided by his employer and failed to periodically review and maintain duplicate dosimetry records or verify that the required calibrations had been completed.

When the licensee terminated this association, the records and documents located at this facility were made unavailable to him. These included documents related to activities both before and after his association with his former employer.

In June 1989, the licensee formed a new company (Petro Data, Inc.), providing well logging services using those individuals previously authorized under the license. Although the licensee implemented dosimetry and leak testing services, he failed to adequately review the activities of those individuals using sealed sources under this license. This again led to the RSO's failure to recognize that one of these individuals did not complete the required radiation surveys and byproduct material utilization records.

4. Facilities, Equipment, and Material Use

a. Materials

At the time of this inspection, the licensee's byproduct material inventory included five 2-curie cesium-137 sealed sources (Gulf Nuclear/Amersham Model CSV, Serial Nos. 0377EW, H-16, F-6, B58, and 933) and four 3-curie americium-241 sealed sources (Gulf Nuclear/Amersham Model NEEI-71-1, Serial Nos. 795B, 575B, 605B, and one which was unknown). One of the cesium-137 sources had been purchased in January 1989, two in June 1989, and two were the former SSI sources. The licensee had purchased one americium-241 source in December 1984, two in June 1989, and one was formerly held by SSI. With the exception of those sources received from SSI, the licensee had maintained original receipt records for all sealed sources in his possession. Although transfer records had not been made for the SSI sources, the licensee had documented their receipt on source inventory records and had maintained copies of correspondence regarding the order issued to Saturn Wireline which had been provided to him by NRC. The licensee had used tracer material a few times

during the previous inspection period but had none in his possession at the time of this inspection. A review of the byproduct material receipt records that were available indicated that tracer material had not been purchased after March 1988.

b. Facilities

Upon arrival at the licensee's facility in Hominy, the inspector was informed, by a family member of the RSO, that although some sources were in storage at this location, the licensee had moved his business to an office in Wynona. The inspector confirmed the location and security of the storage facility at the RSO's home, and proceeded to examine the facility in Wynona. Upon arrival at the Wynona address, the inspector noted that the facility was actually operated by Petro Data, Inc. A Petro Data employee arrived shortly after the inspector, having just returned from a logging job. Although the RSO was not available, the individual returning from the job was an owner of Petro Data and agreed to permit the inspector to examine the facility and materials on hand.

The facility included both office space and an enclosed garage area where the two Petro Data logging trucks were parked when not in use. The licensee had two americium-241 and one cesium-137 sealed sources at this facility. The sources were stored in their transport containers on the logging trucks. Upon examination of the vehicles and source containers, the inspector observed that the sources were stored in the rear of each vehicle, in compartments or mounted to the floor. The licensee had placed padlocks on each source container, but had left the key in the locks. The inspector reviewed these storage provisions with the Petro Data employee, who was involved with the routine transport of licensed material. During this discussion, the inspector determined that the transport containers for the three sources were routinely left unlocked during storage and transportation on the logging vehicles. Additionally, the compartments of the trucks used to store and transport the sources could not be locked. The failure to lock or otherwise physically secure licensed material during storage and transportation was identified as an apparent violation of 10 CFR 39.31(b).

During interviews with the RSO and logging supervisors, the inspector learned that the licensee had used several locations for storage of licensed material during this inspection period. The licensee was originally authorized to store material in a storage pit located at 510 East First Street, Hominy, Oklahoma. This facility was used until December 1985, when the license was amended to authorize a storage facility at 300 East Main Street, Hominy, Oklahoma. The licensee continued to use this facility for storage until license amendment was requested in February 1989. The latter address corresponded to the licensee's business address, and equipment and

materials were routinely dispatched from this facility to temporary jobsites. This continued until October 1988, when the licensee sold his logging vehicle, placed his americium-241 source in storage, and temporarily suspended well logging activities. During this period, the RSO became involved with SSI and in January 1989 agreed to provide storage for three sealed sources formerly owned by Saturn Wireline and later by SSI. These sources were placed in storage at the licensee's facility at 300 East Main Street.

In February 1989, the licensee requested amendment of the license to authorize storage of sealed sources at the RSO's home in Hominy. The licensee moved the three SSI sources to this new storage location and placed his americium-241 source at the SSI facility. This source remained at the SSI facility until June 1989. In June, the licensee removed all of his licensed material, one americium-241 and one cesium-137 source, to the storage location specified in the license. During early November 1989, the RSO opened another facility in Wynona. This facility, as previously noted, was operated by Petro Data, Inc. The RSO moved three sources to this facility for storage and dispatch to temporary jobsites.

The use of both the SSI and Petro Data facilities for storage of licensed materials was identified as multiple examples of an apparent violation of License Condition 18, which references documents describing the manner and location used to store licensed materials.

During interviews with the RSO, the inspector reviewed these provisions and their apparent discrepancy with storage locations identified in the license. The RSO indicated that perhaps he had misinterpreted the definition of a temporary jobsite, but agreed that the duration and nature of these provisions did not correspond to the regulatory definition. He explained that sources had been left on the trucks, at locations previously noted, because it was more convenient for business purposes. Alternatively, he would have had to store material in the storage pits and the wireline services he was working with would have been inconvenienced in having to drive to another location to pick up a source. The inspector reviewed the alternative of amending the license to reflect all storage locations in use, and the RSO agreed to submit an amendment request to authorize the Wynona facility.

c. Equipment

The inspector examined the licensee's sealed source handling and logging tools and noted that all appeared in good condition with no apparent defects. The use of these tools was reviewed with logging personnel, and the inspector noted that handling tools were relatively easy to manipulate in loading or unloading sources in the logging tools. The RSO stated that he had performed the required

maintenance inspections of these instruments and had not found any defects requiring repair. There were no maintenance inspection records available during this inspection.

The licensee owned two Victoreen Model 493 survey instruments (Serial Nos. 1277 and 2393). The meters had been calibrated by an authorized vendor who supplied the licensee with calibration certificates for each instrument. These documents were reviewed, and it was noted that each instrument met the required accuracy standards. One instrument, No. 1277, had been calibrated at the required 6-month intervals through February 1989. The inspector noted that the instrument had not been calibrated after February. The second instrument, No. 2393, had been calibrated only twice, in February and August 1988. During the inspection conducted at Wynona, the inspector confirmed with logging personnel that both meters had been used routinely past these dates, and one had been used during the job performed earlier on the day of the inspection. This was identified as an apparent violation of 10 CFR 39.33(b).

The inspector reviewed this with the RSO who stated that he knew that the meters were out of calibration. He subsequently agreed to obtain a calibrated instrument from another facility, before using licensed materials, and to send his instruments for calibration.

d. Material Use

During interviews with the RSO and logging personnel, the inspector reviewed the locations, dates, and frequency of use for this materials program. Prior to the sale of his equipment, the RSO had performed two or three jobs per month in the northeast Oklahoma area. He stated that he had maintained the required utilization logs for each job performed. The inspector reviewed a copy of this form and noted that it should have contained the appropriate information regarding sources or materials used and individuals conducting logging operations. However, no records were available during this inspection documenting jobs performed during the period from February 1988 through July 1989. This period also included those jobs performed by SSI personnel under authority of this materials license. The RSO attributed the absence of these records to the fact that he had stored them in a facility previously owned or operated by another individual. He stated that they had abruptly terminated their business association and the individual had confiscated or destroyed records related to material use.

The inspector reviewed utilization logs completed by one Petro Data employee for jobs performed during the period from July through November 1989. These records were complete and contained all required information. Additionally, the forms contained information regarding surveys required for the transport and use of licensed material.

During the inspection conducted at the Wynona facility, the inspector noted that a logging job had been performed earlier that morning and requested to examine the utilization log for that particular job. The logging supervisor who performed the job stated that he had not completed the required form. When questioned further, he admitted that he did not always complete utilization logs for each job that he may have performed while authorized under this license. This same individual had also performed well logging services under this license at SSI. The individual also stated that the RSO may not have been aware of all jobs (using sealed sources) performed by SSI.

The failure to make and maintain records of byproduct material use was identified as an apparent violation of 10 CFR 39.39.

This interview was reviewed with the RSO who stated that he had believed that he was aware of most of the jobs performed by SSI. He stated that he had tried to match billing invoices with utilization logs during his association with SSI to ensure himself that he had maintained the required documents. While reviewing this procedure in greater detail, the inspector was informed that the RSO did not invoice or itemize services provided to SSI, but was a salaried employee of SSI. After further discussion, the RSO agreed that he may not have been informed of every occasion the sources were used. The RSO stated that he had not previously been aware that an individual authorized under this license had not complied with the requirement to document byproduct material use.

During discussions regarding byproduct material use, the inspector inquired about the type of agreement used by the licensee with the well owner or operator. The RSO reviewed the form that had been used under B&H with the inspector. This was a written agreement that identified precautions and procedures to be given consideration in the event that a source became lodged downhole. The RSO stated that he had used these during the period that he personally performed well logging, and that several forms had been provided to SSI personnel as well. During interviews conducted with other logging personnel, the inspector was informed that although the SSI loggers had used these forms for a period of time, that during the second quarter of 1989 the forms had not been used. Additionally, the licensee had not used such written agreements during his more recent association with Petro Data. This was identified as an apparent violation of 10 CFR 39.15. During subsequent discussion, the RSO indicated that he would implement the use of the required agreement with the Petro Data employees.

The inspector reviewed sealed source inventory and leak test records that were available at the time of this inspection. The licensee had routinely conducted inventories during January and June, and records were available for the period from 1985 through 1989. The records indicated the source material, nominal activity, and serial number, but did not include the location of the source. During this period,

the licensee had stored sources in multiple locations on more than one occasion. The oversight in recording the source storage location on inventory records was identified as an apparent violation of License Condition 16.

Leak test records were reviewed for those sources currently in use. The americium-241 and cesium-137 sources in use at the Petro Data office had last been leak tested in June 1989. The licensee had used two other sealed sources during this inspection period. One, a cesium-137 source, had been leak tested in January 1989 and had not been used after June 1989. The second source, an americium-241 source, had been used during 1988 and 1989, but the licensee was unable to locate records indicating that it had been leak tested during this period. This was identified as an apparent violation of License Condition 13.B. Subsequent to this inspection, the inspector verified with the licensee's vendor that the subject source had been leak tested during this period.

Seven apparent violations were identified.

5. Authorized Users and Training

The license was originally issued in 1984 with a condition specifying that licensed material would be used by, or under the supervision of, individuals that had attended the GNI safety course and subsequently designated as users by the RSO. This condition was later amended in 1989 to include the Mid-Continent Nuclear Consultants training course. The inspector reviewed the training and qualifications of those individuals designated as logging supervisors or assistants and observed that the three individuals designated as logging supervisors had attended one of the specified training courses. Two of these individuals had been trained prior to 1987 when specific training requirements were introduced in 10 CFR Part 39. The third individual had received his training in January 1989. The RSO had also provided training to several other individuals at SSI who functioned as assistants to the logging supervisors. These individuals completed their training with an oral examination administered by the RSO. The inspector reviewed several of these individuals' training and annual safety review records and noted that records of safety reviews had been maintained. The inspector observed that records of written or oral examinations administered since 1987 for logging supervisors and assistants had not been maintained. This was identified as an apparent violation of 10 CFR 39.61(d).

The requirement to conduct annual performance reviews of logging supervisors was reviewed with the RSO. The inspector noted that the two individuals authorized as logging supervisors had not been working under this license for a full year. The RSO indicated that he intended to perform annual reviews of these individuals at some time in December.

One apparent violation was identified.

6. Surveys

The inspector reviewed radiation surveys specified in the license application or required under 10 CFR Part 39 with both the RSO and logging personnel. The RSO had performed surveys of the sealed source storage areas at monthly intervals, although the license application had only specified quarterly intervals. The inspector reviewed records documenting the results of these surveys, as required under the license, and noted that records of storage area surveys conducted between March 1988 and March 1989 were missing. This was identified as an apparent violation of License Condition 18, which references a requirement, described in the license application, to maintain records of such surveys.

During interviews conducted with logging personnel, the inspector reviewed radiation surveys related to the transport and use of licensed material. Byproduct material utilization logs completed by one individual were reviewed, and it was noted that this individual had completed and documented surveys of the logging vehicle prior to transportation as well as those required at the well site. There were several other records of such surveys that the individual said he had completed that were not available at the time of this inspection. Another logging supervisor admitted that he had not always performed the required surveys. When questioned more specifically, he indicated that he did not routinely perform the required vehicle surveys prior to transporting sealed sources and that he did not routinely survey logging tools after sources were removed from the tool at a temporary jobsite. These conversations were reviewed with the RSO who stated that he was not always present when this individual was performing logging operations. The inspector reviewed the requirement to survey logging tools further with the RSO and determined that the particular logging tools used by this licensee were not always energized when removing sealed sources. The alternative to either survey the tool with a survey instrument or energize it following source removal was discussed with the RSO. The RSO stated that his standard practice would require logging personnel to perform radiation surveys of logging tools regardless of whether the tool was energized. The failure to perform surveys of logging vehicles and tools when conducting operations using licensed materials was identified as an apparent violation of 10 CFR 39.67.

Two apparent violations were identified.

7. Transportation

The inspector observed that licensed material was transported in the appropriate Department of Transportation (DOT) Type A containers and that adequate bracing had been provided in the logging vehicles. The licensee had maintained the required performance testing records for the DOT Type A packages as well as the special form IAEA Certificates of Competent Authority for his specific source models. During the inspection in Wynona, the inspector examined the licensee's transportation packages and

shipping documents. The transportation containers were appropriately marked and bore radioactive labels, but the labels had not been completed with the required content, activity, and transport index (TI) information. Shipping papers used on the day of this inspection, as well as those used in a second vehicle, were reviewed. The inspector observed that shipping papers were carried in an appropriate location within the vehicle and contained the appropriate hazardous material descriptions but did not contain the TI assigned to the packages transported. These deficiencies were identified as an apparent violation of 10 CFR 71.5.

One apparent violation was identified.

8. Maintenance of Records and Reports

a. Personnel Dosimetry Records

The inspector reviewed those records available for the period from the previous inspection in March 1988 through the third quarter of 1989. During the calendar year of 1988, the licensee had provided film badge service for three individuals. This service was terminated in the latter part of 1988 due to the RSO's change in employment. In January 1989, when former SSI employees were authorized to conduct well logging under this license, the RSO arranged for SSI to provide personnel dosimetry services for all employees working under the B&H license. These records were maintained by SSI. In July 1989, when the RSO and former SSI employees formed Petro Data, the licensee initiated dosimetry service for these individuals under the name of Petro Data.

During this review, the inspector noted that records for the period from March through September 1988, provided under the name of B&H, were missing. During the fourth quarter of 1988, the RSO's dosimetry records were provided under the SSI service. Records for the first quarter of 1989 were available, but those provided by SSI during the second quarter of 1989 were not. Records of dosimetry service provided by Petro Data during the third quarter of 1989 were also reviewed. When the inspector reviewed this with the RSO, he stated that he had not maintained copies of these records but had obtained them by requesting a former SSI employee to obtain duplicates of the records. He also explained that dosimetry records provided by B&H during 1988 had been stored at the former office, with other missing B&H documents, and that they had been removed from the office when he was forced to vacate the location. During this discussion, the RSO indicated that he had not contacted the vendor to obtain duplicate copies of the missing records. The failure to maintain records of occupational exposure for those individuals conducting activities under this license was identified as an apparent violation of

10 CFR 20.401(a). Subsequent to this inspection, the inspector confirmed with the licensee's vendors that dosimetry services had been provided during those periods for which records were missing.

b. Documents Required at Temporary Jobsites and Field Office

During the inspection conducted at Wynona and at the RSO's home office, the inspector examined maintenance of documents as required by 10 CFR 19.11 and Part 39. The inspector discovered that individuals dispatched to temporary jobsites from the Wynona facility had not been provided with copies of the NRC Materials License or the licensee's Operating and Emergency Procedures Manual. Additionally, the licensee had not posted copies of an NRC Form 3, and the RSO was unable to locate copies of these documents or others incorporated to the license at his home office. The failure to post or maintain required documents was identified as an apparent violation of 10 CFR 19.11.

Two apparent violations were identified.

9. Exit Interview

At the conclusion of this inspection, the inspector met with the RSO to review the findings as presented in this report. During this interview, the RSO confirmed that he would obtain a calibrated survey instrument for temporary use, secure his licensed material, and submit an amendment request for storage of licensed material at his Wynona office.

APPENDIX B

PROPOSED ENFORCEMENT CONFERENCE AGENDA

B&H WIRELINE SERVICES

JANUARY 26, 1990 - 1 P.M.

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|---|----------------------------|
| I. INTRODUCTION AND PURPOSE OF MEETING | A. B. BEACH |
| II. NRC DISCUSSION OF APPARENT VIOLATIONS | C. L. CAIN
L. L. KASNER |
| III. LICENSEE COMMENTS AND RESPONSE | H. HAUGHT |
| IV. ENFORCEMENT POLICY | G. F. SANBORN |
| V. CLOSING COMMENTS | A. B. BEACH |