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Texas Department of Health

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November 16, 2001

Paul H. Lohaus, Director
Office of State and Tribal Programs
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Lohaus:

Enclosed are the Texas Department of Health, Bureau of Radiation Control responses to the recommendations listed in the draft report of the results of the Texas Integrated Materials Performance Evaluation Program (IMPEP).

We appreciate the IMPEP process and the opportunity to respond to the review team's recommendations. We look forward to participating in the meeting of the Management Review Board on December 10, 2001. If you have any questions, please contact Richard Ratliff at (512)834-6688 or Richard.Ratliff@tdh.state.tx.us.

Sincerely,

Richard Bays, Associate Commissioner
Consumer Health Protection

Enclosures

Texas Department of Health
IMPEP Recommendations and Responses

1. Recommendation

The review team recommends that the Department adhere to the policy of annual supervisory accompaniments of all qualified inspectors. (Section 3.2)

1. Response

The Deputy Director, Radioactive Materials Compliance and Inspection, is presently using a database program for tracking inspector training, both completed and needed, and annual accompaniments. The Regional Health Physics Coordinators are now required to submit a quarterly report to the Deputy Director on the status of the annual inspector inspections.

2. Recommendation

The review team recommends that the Department report all significant and routine events as well as follow-up event information to the NRC in accordance with the STP Procedure SA-300, "Reporting Material Events." (Section 3.5)

2. Response

The following changes to improve timely reporting of significant and routine events, as well as follow-up event information to the Nuclear Regulatory Commission (NRC) have taken place recently in the Incident Investigation Program (IIP):

A. The Department has put in place a detailed procedure that specifically addresses the in-house handling of reports that are to be sent to the NRC. The new procedure (attached) will assure that all members of IIP are fully aware of which reports should be sent to NRC and within what time frames. The new procedure involves the daily implementation of the SA-300 procedure.

B. All IIP technical staff have a copy of the most current SA-300 and have read and reviewed its contents.

C. All IIP staff, three investigators, and an administrative assistant attended a training session on the Nuclear Material Events Database (NMED) in August, 2001.

D. An updated and more user friendly version of NMED was installed on IIP staff computers during the last part of August, 2001.

In response to the issue of medical event information, representatives of the Department's Office of General Counsel and NRC's Office of General Counsel have discussed the issue. They concluded that patient identification information should be

redacted from event reports to NRC, but that technical information should be included. For future medical events, the Department will include technical information necessary to provide NRC a comprehensive review of medical events.

We will continue to redact medical event information prior to placing it on the Department web site. These and other events requiring reports to NRC will be marked "Preliminary, not for public disclosure" as suggested in SA-300, "Reporting Material Events."

It should be noted that events under investigation are not considered open record under Texas statutes. We request NRC's cooperation in preserving the confidentiality of preliminary event information.

3. Recommendation

The review team recommends that the Department modify their "two-man" rule for industrial radiography to make it compatible with the equivalent NRC regulation. (Section 4.1.2)

3. Response

While the Department agrees with a requirement for a two-person radiography crew at temporary job sites, we disagree with NRC's prescriptive interpretation of the requirement for a two-person crew. We contend that our industrial radiography requirements more directly address the historical root causes of the large number of industrial radiographer overexposures, which resulted in numerous injuries, that we were seeing before implementing our requirements in 1986. Our rules are prescriptive when addressing the root causes identified as reasons for the large number of overexposures in Texas. Specifically, our requirements are prescriptive concerning training (such as direct supervision by an authorized trainer when a trainer is using sources of radiation), equipment standards, and accountability of the individual for following safety procedures (such as escalated enforcement against an individual's industrial radiographer certification). We consider our rules more performance-based in other areas such as the requirement for a two-person crew at temporary job sites.

Multiple times since 1986 and during the promulgation of NRC's current industrial radiography rules, the Department has informed NRC of the purpose behind our current industrial radiography rules. We consider the reduction in industrial radiographer overexposures in Texas to be attributable to the comprehensive "package" of requirements we implemented in 1986. This "package" included upgraded training requirements, elimination of the assistant radiographer, certification, requirements for equipment standards, two radiographic personnel at temporary job sites, etc. We have never stated that the improvement in the number of overexposures reported was due solely to any one of those requirements. The revision to our rules in 1986 was developed over a period of five years with careful consideration given to radiography safety problems and with

extensive input from industry. During this time, the Department reviewed overexposure data and determined that the majority of industrial radiographer overexposures could be attributed to inadequate safety training, failure to follow established safety procedures, or equipment malfunction. As a result of this data, rules were promulgated that address these problems with the intent of improving the safety record of the industrial radiography industry.

While it is encouraging to see that NRC has adopted requirements similar to ours in terms of industrial radiographer certification and equipment standards, it is disheartening to see that the NRC industrial radiography rules adopted in 1997 and contained in 10 CFR 34 neglect to address one of the primary factors identified as a root cause for a large number of industrial radiographer overexposures. The current NRC requirements allow a radiographer assistant to use sources of radiation without attending a safety course that addresses the basic radiation topics outlined in both NRC and Texas rules, i.e, fundamentals of radiation safety, hazards of exposure to radiation, methods of controlling radiation dose, etc. It is possible for an individual to work for years as a radiographer assistant and never receive radiation safety training. The NRC rules merely require that the assistant pass a written exam on the rules, license, and licensee's operating and emergency procedures and pass a practical exam on the use of the radiographic equipment. Failing to require safety training prior to using sources of radiation is failing to address one of the root causes of industrial radiography incidents. It is important to remember that not all radiography is conducted by the larger radiography companies who have the resources to establish and oversee adequate and often exemplary training programs. Texas rules require anyone acting as a trainee complete a 40-hour safety course addressing the radiation safety fundamentals specified in rule, in addition to passing a written exam on the rules, license conditions, and operating and emergency procedures and passing a practical exam on the use of the radiographic equipment. NRC rules only require the safety training (unspecified hours) in order to act as a radiographer. NRC rules do require that a radiographer assistant work under the personal supervision of a radiographer, but place no additional requirements on the radiographer supervising the assistant. TX rules require that a trainer (the only individual allowed to supervise a trainee) have one year of documented experience as a certified radiographer, be named on the license, be free of any agency order prohibiting him or her from acting as a trainer, provide personal supervision to a trainee, and prevent any unauthorized use of a source of radiation by a trainee. These requirements provide for an additional measure of responsibility and accountability for the trainer that is lacking in the NRC requirements. Considering this failure to address one of the root causes of industrial radiographer overexposures, it is disappointing to see the NRC focus on compatibility of a prescriptive interpretation of a rule that we believe should be more performance-based.

Texas has had a requirement for a two-person crew since 1986. Our rule differs in that NRC requires the radiographer operating the radiographic equipment to be accompanied by at least one other qualified radiographer or an assistant whenever radiography is performed at a location other than a permanent radiographic installation. The NRC rule requires the additional qualified individual to observe the operations and be capable of

providing immediate assistance to prevent unauthorized entry. This rule has been interpreted in NUREG-1556, Vol 2 to mean, "Both individuals must maintain constant surveillance of the operations and be capable of providing immediate assistance to prevent unauthorized entry to the restricted area." This interpretation means that even if a two-person crew consists of two certified radiographers, both must be out with the camera or, if one of the members is in the darkroom, radiography cannot be performed. The impact of this interpretation on the industry is that companies must employ an additional third person to develop film in the darkroom while two individuals are exposing film or must use additional time at a job site to expose film and then develop it. Either situation results in added cost to the industry.

Texas requires as a minimum, two radiographic personnel for each exposure device in use during any radiography conducted at a location other than at a permanent radiographic installation. If one individual is a trainee, the other must be a trainer. This means that if a two-person crew consists of two radiographers, one may be in the darkroom while the other is exposing film. If the two-person crew consists of a trainee and a trainer, both individuals must be with the radiography equipment when it is in use because of our definition of personal supervision and requirement for the trainee to be under the personal supervision of the trainer when manipulating controls or operating radiographic exposure devices and associated equipment. We contend that in the situation in which a crew consists of two radiographers, the second individual is available to provide immediate assistance, whether in the darkroom or not. Further, we contend that our rule provides a greater degree of safety because it requires at least two individuals for each camera in use at a temporary job site and if the crew consists of a trainee/trainer, the trainee has had basic radiation safety training, something the assistant is not required to have under NRC rules.

To support our contention, we reviewed industrial radiography incident files to determine whether investigation of any industrial radiographer overexposure showed the cause to be attributable to having one certified radiographer in the darkroom and one exposing film. We consider our findings representative of the industrial radiography industry nationwide. Texas has 104 licensed temporary job sites and 42 licensed fixed sites. Data obtained from the Office of State and Tribal Programs shows that NRC has 105 licensed temporary job sites and 16 licensed fixed sites in the 18 non-agreements states and territories. Forty overexposure incidents files, from 1997 to date, were reviewed. No overexposure was attributable to a lapse in safety because one certified radiographer was in the darkroom while the other was exposing film. A performance-based approach tends to emphasize results over process and method. As applied to licensee assessment, a performance-based approach focuses on a licensee's actual performance results. We have no evidence of negative performance that would support the additional cost of enforcing the two-person rule in the same manner NRC does.

To assess the additional cost of enforcing the two-person crew as NRC does, we contacted several of our licensees who have both Texas and NRC licenses. The cost of an additional person would be $200 per day or better (including travel and per diem). The cost of additional time would be $10-12 per hour (not including overtime pay). The licensees we

contacted indicated that an even greater impact of enforcing the two-person crew as NRC does will be the lack of availability of industrial radiographic personnel to do the work. The licensees indicate that not only are there not enough certified radiographers to do the amount of work the companies currently have (one licensee indicated that an average work week is 65 hours), there is a shortage of people interested in obtaining the training and becoming certified. This is the same personnel shortage issue that both state and the federal governments are facing in light of the imminent wave of staff retirements.

Considering all of the above, the Department can find no justification for imposing additional costs and negative impact on an industry that has not demonstrated performance that would warrant such cost and impact. Our industrial radiography rules are a comprehensive set of requirements implemented to directly and prescriptively address the identified root causes of the large number of overexposures that were occurring in Texas before implementing our requirements in 1986. The department made several revisions to our industrial radiography rules that were effective in April, 1999. We sent the proposed revisions to NRC for review on October 23, 1998 and received no comments concerning our two-person crew rule. We consider the requirement for a two-person crew an important safety requirement, but believe it is more appropriately implemented and enforced as a performance-based requirement. We recommend NRC re-evaluate its interpretation and enforcement of this particular requirement.

4. Recommendation

The review team recommends that a training plan be developed and implemented by the Department to assure that all technical staff are sufficiently trained in specific technical areas related to review of reclamation plans at conventional uranium mills. (Section 4.4.3)

4. Response

Through many NRC inspection cycles, the Department has maintained a highly competent technical review staff without notice of the need for a training plan. Staff chosen to fill new or vacant positions have always been carefully screened on the basis of pertinent academic training and/or work experience and a specific training plan was not needed. Consequently, extensive on-the-job training has been minimized and usually reduced to specific training courses or workshops on various software packages or related topics in the general areas of engineering, geology, and environmental health physics. For instance, technical staff have been trained in groundwater modeling (GMS w/EMS-I), transportation of radioactive material (RADTRAN), financial security (NRC Financial Assurance Workshop), surface hydrology (HEC-HMS), and other areas as needed and as available. In comparison to the areas listed by NRC in Section 4.3 of the IMPEP report, technical staff have already had specific training in two out of four areas and basic training (undergraduate degree in civil engineering) in the other two.

In order to respond to the NRC's training recommendation, the Department will identify and pursue training specific to reclamation of conventional uranium mills. We request that NRC

assist the Department by identifying courses pertinent to the review of the reclamation of conventional uranium mills. For instance, what training courses do NRC staff performing the same regulatory functions attend? We will establish a plan for each technical review area so that training of present and future staff will be adequate to address present and future closures of conventional uranium facilities in Texas.

5. Recommendation

The review team recommends that the Department prepare necessary supporting documentation identifying the bases for the licensing actions associated with reclamation plans for the three conventional mills. (Section 4.4.4)

5. Response

The development of supporting documentation to identify the basis for licensing actions for the closeout of conventional mills in Texas is abundantly evident in the record up to the transfer of the uranium program to the Texas Natural Resource Conservation Commission (TNRCC) in 1993. NRC review of the TNRCC uranium program up to and including a review of the program in 1997, just prior to transfer back to the Department, found the program to be satisfactory. After transfer of the uranium program to the Department, Bureau staff soon discovered the absence of any further review work concerning the reclamation issues for the closeout of conventional uranium mills during the TNRCC years. Bureau staff began (as work load permitted) to address the perceived review gap. The Department staff are reviewing license files, identifying the perceived gaps, and using NUREG-1620 and SA-900 (now in draft form) as check lists for the reviews to come. Staff feel that with sufficient time, the more pressing issues of the uranium program and the issues of conventional uranium mill closeout will be addressed satisfactorily.

TDH
TEXAS DEPARTMENT OF HEALTH

IIP EVENT NOTIFICATION TO THE NRC

IMMEDIATE AND 24 HOUR NOTIFICATION

NRC will be notified on the same business day that incidents are received by the Incident Investigation Program (IIP) and logged into the logbook. After the incident is logged into the logbook, an Event Report Cover Sheet and an Event Reporting Form found at the subdirectory Comp\Erp\Summary\NOTIFYNRC\ImmediateReport will be filled out with all the available pertinent information. Pursuant to Texas laws regarding the release of patient information, certain medical information will not be included. The information may be unsubstantiated and will be labeled "Preliminary, Not for Public Disclosure." The forms will then be faxed to the NRC Operations Center. The individual responsible for making the notification will follow the current Program assignments. During leave absences or travel of assigned team members, in-office investigators will assure that immediate and 24 hour notifications are logged and faxed to NRC before the close of each business day. Investigators receiving notifications during nonbusiness hours will notify the NRC Operations Center of immediate and 24 hour reports by telephone.

ROUTINE NOTIFICATION

After the IIP receives an event notification, the incident is logged into the log book. Prior to copying and routing, NRC will be notified of the event by filling out a Routine Event Information Form found at the subdirectory Comp\Erp\Summary\NOTIFYNRC\RoutineReport. As requested by NRC, the Routine Notification Report Form will be filled out with all the pertinent information available and e-mailed to INEEL. The individual responsible for making the notification will follow the current Program assignments. Typically, routine events will be e-mailed on the same business day as the incident is logged. During leave absences or travel of assigned team members, the routine events will be e-mailed within 10 business days after log-in.

FOLLOW-UP NOTIFICATION

As follow-up information or additional information is received by the IIP, prior to copying, a Follow-up Event Information Form found at the subdirectory Comp\Erp\Summary\NOTIFYNRC\FollowUpReport, will be filled out with all the additional information. As requested by NRC, the Follow-up Event Information Form will be e-mailed to INEEL. The individual responsible for making the notification will follow the current Program assignments. The Team Leader for the IIP will be responsible for assuring the follow-up reports are forwarded to NRC.

CLOSE-OUT NOTIFICATION

When the incident investigation is completed and the incident is closed, a Completed Event Information Form found at the subdirectory Comp\Erp\Summary\NOTIFYNRC\CompletedReport, will be filled out with all concluding information. As requested by NRC, the Close-out Information Report Form will be e-mailed to INEEL. The individual responsible for making the notification will follow the current Program assignments.