

August 23, 2007

MEMORANDUM TO: Martin J. Virgilio
Deputy Executive Director for Materials, Waste,
Research, State, Tribal, and Compliance Programs
Office of the Executive Director for Operations

Karen D. Cyr, General Counsel

Charles L. Miller, Director
Office of Federal and State Materials
and Environmental Management Programs

Mark A. Satorius, Deputy Regional Administrator
Region III

FROM: Aaron T. McCraw, IMPEP Project Manager */RA/*
Division of Materials Safety and State Agreements
Office of Federal and State Materials
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SUBJECT: INTEGRATED MATERIALS PERFORMANCE EVALUATION
PROGRAM (IMPEP) REVIEW OF THE UTAH AGREEMENT
STATE PROGRAM

This memorandum transmits to the Management Review Board (MRB) a proposed final report (Enclosure 1) documenting the IMPEP review of the Utah Agreement State Program. The review of the Utah Program was conducted by an interoffice team during the period of June 11-15, 2007. The review team issued a draft report to the State on July 13, 2007, for factual comment. Utah responded to the findings and conclusions of the review by letter dated August 2, 2007, from Mr. Dane Finerfrock, Director, Division of Radiation Control. Based on the response, the State had several comments, most of which were incorporated into this proposed final report.

The review team is recommending that Utah's performance be found "satisfactory, but needs improvement" for the performance indicator, Uranium Recovery Program, and "satisfactory" for all remaining performance indicators reviewed. The review team made two recommendations in regard to program performance by the State. Accordingly, the review team is recommending that the Utah Agreement State Program be found adequate to protect public health and safety and compatible with NRC's program.

The MRB meeting to consider the Utah report is scheduled for **Thursday, September 6, 2007, from 3:00 p.m. - 5:00 p.m., in Two White Flint North, Room 2-B5**. In accordance with Management Directive 5.6, the meeting is open to the public. The agenda for the meeting is enclosed (Enclosure 2).

If you have any questions prior to the meeting, please contact me at 301-415-1277.

Enclosures:

As stated

cc: Dane Finerfrock, Director
Utah Division of Radiation Control

Jared Thompson, Arkansas
Organization of Agreement States
Liaison to the MRB

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM
REVIEW OF UTAH AGREEMENT STATE PROGRAM

June 11-15, 2007

PROPOSED FINAL REPORT

U.S. Nuclear Regulatory Commission

ENCLOSURE 1

1.0 INTRODUCTION

This report presents the results of the review of the Utah Agreement State Program. The review was conducted during the period of June 11-15, 2007, by a review team comprised of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the States of Washington and Minnesota. Team members are identified in Appendix A. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of Final General Statement of Policy," published in the *Federal Register* on October 16, 1997, and the February 26, 2004, NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period of June 28, 2003, to June 15, 2007, were discussed with Utah management on the last day of the review.

[A paragraph on the results of the Management Review Board (MRB) meeting will be included in the final report.]

The Agreement State program is administered by the Division of Radiation Control (the Division). The Division is located within the Department of Environmental Quality (the Department). Organization charts for the Department and Division are included as Appendix B.

At the time of the review, the Utah Agreement State Program regulated approximately 192 specific licenses, including naturally occurring or accelerator-produced radioactive material (NARM). The Division's responsibilities include regulatory authority for the 11e.(2) byproduct material (uranium recovery activities). The Division currently regulates three uranium mill sites and a commercial 11e.(2) disposal facility. The Division also has regulatory responsibility for a low-level radioactive waste (LLRW) disposal site. The review focused on the radioactive materials program as it is carried out under the Section 274b. (of the Atomic Energy Act of 1954, as amended) Agreement between the NRC and the State of Utah. The Agreement was amended in 1990 to add the LLRW disposal program, and in 2004 to include the uranium recovery program.

In preparation for the review, a questionnaire addressing the common and non-common performance indicators was sent to the Division on January 10, 2007. The Division provided its response to the questionnaire on May 25, 2007. A copy of the questionnaire response may be found in the NRC's Agencywide Documents Access and Management System (ADAMS) using Accession Number ML071490307.

The review team's general approach for conduct of this review consisted of: (1) examination of the Division's response to the questionnaire; (2) review of applicable Utah statutes and regulations; (3) analysis of quantitative information from the Division's licensing and inspection database; (4) technical evaluation of selected licensing and inspection actions; (5) field accompaniments of six of the Division's inspectors; and (6) interviews with staff and management to answer questions or clarify issues. The review team evaluated the information gathered against the established criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the Agreement State program's performance.

Section 2.0 of this report discusses the State's actions in response to recommendations made following the previous IMPEP review. Results of the current review of the common

performance indicators are presented in Section 3.0. Section 4.0 discusses results of the review of the applicable non-common performance indicators, and Section 5.0 summarizes the review team's findings and recommendations. The recommendations made by the review team are comments that relate directly to program performance by the State. A response is requested from the State to all recommendations in the final report.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the previous IMPEP review, which concluded on June 27, 2003, one recommendation was made. The results of that review were transmitted to Dianne R. Nielson, Ph.D., Executive Director of the Department, on December 8, 2003.

The review team's evaluation of the current status of the recommendation is as follows:

The review team recommends that LLRW inspectors receive annual supervisory accompaniments in a systematic fashion, and that accompaniments be appropriately documented. (Section 4.3.3 of the 2003 report)

Current Status: Supervisory accompaniments showed improvement over the review period in both quality and quantity. While no accompaniments occurred in 2003 and 2004, the review team noted that by 2006, all LLRW inspectors were being accompanied on an annual basis. Written accompaniment reports were critical, when necessary, and complete. This recommendation is closed.

3.0 COMMON PERFORMANCE INDICATORS

IMPEP identifies five common performance indicators to be used in reviewing NRC Regional and Agreement State radioactive materials programs. These indicators are: (1) Technical Staffing and Training; (2) Status of Materials Inspection Program; (3) Technical Quality of Inspections; (4) Technical Quality of Licensing Actions; and (5) Technical Quality of Incident and Allegation Activities.

3.1 Technical Staffing and Training

Issues central to the evaluation of this indicator include the Division's staffing level and staff turnover, as well as the technical qualifications and training histories of the staff. To evaluate these issues, the review team examined the Division's questionnaire response relative to this indicator; interviewed Division management and staff; and reviewed job descriptions, training plans, and training records. The review team also considered any possible workload backlogs in evaluating this indicator.

The Division consists of the Division Director, two administrative staff, and three technical Sections: the Radioactive Materials and X-Ray Section, the Geotechnical Services Section, and the Health Physics Support Section. The Radioactive Materials and X-Ray Section includes a Section Manager and eight full-time Health Physicist positions, four in the radioactive materials program and four in the x-ray program. The Radioactive Materials and X-Ray Section also includes the Support Services Program with five staff members. The Geotechnical Services Section and the Health Physics Support Section were born out of a reorganization following the addition of uranium recovery activities to Utah's Agreement State Program.

Details of the Geotechnical Services Section's and the Health Physics Support Section's staffing and training are discussed in Sections 4.3.1 and 4.4.1.

Division staffing was stable during the review period. Only two staff members left, one of whom retired. At the time of the review, the Division had no vacant positions.

The Division has a comprehensive and effective training plan for staff and new employees, comparable to NRC's Inspection Manual Chapter (IMC) 1246. Records show that the qualified health physicists have received required and recommended courses for their positions. Staff members demonstrated knowledge of Utah regulations, policies, and procedures. New staff members are scheduled to take required training courses. The Division uses a combination of formal training and on-the-job experience to qualify staff. Three staff members and the Radioactive Materials and X-Ray Section Manager have attended the NRC Security Systems and Principles Course.

The training records demonstrated that Division management is committed to training for the staff. The review team concluded that the Division has a well-balanced staff and a sufficient number of trained personnel to carry out its regulatory duties.

The Utah Radiation Control Board (the Board) guides development of radiation control policy and regulations in the State. Members are appointed by the Governor, with the consent of the Senate. The Board meets at least ten times per year. All members are subject to the Utah Public Officers' and Employees' Ethics Act.

Based on the IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, Technical Staffing and Training, be found satisfactory.

3.2 Status of Materials Inspection Program

The review team focused on five factors while reviewing this indicator: inspection frequency, overdue inspections, initial inspections of new licenses, timely dispatch of inspection findings to licensees, and performance of reciprocity inspections. The review team's evaluation was based on the Division's questionnaire response relative to this indicator, data gathered from the Division's database, examination of completed inspection casework, and interviews with managers and staff.

The Division tracks all inspection activities in a computer database. The review team observed that the database could easily be queried by managers and staff to determine the inspection status for any licensed facility.

The review team verified that the Division's inspection priorities for various types of licenses are the same as, or more frequent than, those currently prescribed in IMC 2800. The review team identified three instances where the Division extended inspection frequencies for individual licensees, based on good performance. The extensions resulted in the inspection frequencies exceeding IMC 2800 frequencies. Division staff were unaware that the 2005 revision of IMC 2800 eliminated the inspection extension option. The Radioactive Materials and X-Ray Section Manager stated that the extension policy would be reevaluated based on the change to IMC 2800.

The Division completed 132 routine Priority 1, 2, and 3 inspections during the review period. The review team determined that only two of those inspections were conducted overdue by more than 25 percent of the inspection frequency listed in IMC 2800. Both overdue inspections were Priority 1 industrial radiography licensees.

The Division conducted 31 initial inspections during the review period. Two of those inspections were conducted overdue by IMC 2800 standards. IMC 2800 prescribes initial inspections to be completed within 12 months of license issuance. Of the 10 initial inspection reports evaluated by the review team, the average time for an initial inspection was approximately five months after license issuance.

Overall, the review team calculated that 2 percent of the Priority 1, 2, and 3 and initial inspections conducted by the Division during the review period were conducted overdue. The review team noted that for those instances where a license was inspected late, documentation showed that inspections had been attempted or other extenuating circumstances prevented a timely inspection.

The timeliness of the issuance of inspection findings was determined by the review team's evaluation of inspection casework. The majority of inspection letters regarding inspection results were sent within 30 days of the inspection date. For the 38 inspections reviewed, the average time for reports to be issued was 26 days.

Reciprocity was granted to 7 licensees in 2004, 5 licensees in 2005, 14 licensees in 2006, and to 11 licensees thus far in 2007. The Section's reciprocity inspection goals are equivalent to the requirements in IMC 1220 (20 percent of candidate licensees). During 2004 through 2006, the Division met or exceeded the 20 percent requirement in IMC 1220. The review team noted that, thus far, the Division had completed inspections of 11 percent of the licensees granted reciprocity in 2007. The Division expects to reach or exceed 20 percent by the end of the year.

The review team also examined the Division's general license program. The Division currently has 47 registered general licensees possessing radioactive material in quantities consistent with the NRC rule for registration of generally licensed devices. The Division completed 44 general license inspections during the review period.

The review team determined that with respect to Commission Staff Requirements Memorandum (SRM) for COMSECY-05-0028, on Increased Controls, the Division planned for the initial set of inspections of licensees subject to the Increased Controls in accordance with the SRM. The review team evaluated the Division's prioritization methodology and found it acceptable. The Division has 19 active Increased Controls licensees. The Division has conducted all nine inspections of licensees identified as needed to be inspected in the first year. In addition, the Division completed three additional Increased Controls inspections at the time of the review. The Division also inspected licensees subject to the Increased Controls granted reciprocity to work in Utah.

Based on the IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, Status of Materials Inspection Program, be found satisfactory.

3.3 Technical Quality of Inspections

The review team evaluated the inspection reports, enforcement documentation, and interviewed inspectors for 38 radioactive materials inspections conducted during the review period. The casework reviewed included inspections conducted by all radioactive materials program inspectors and covered inspections of a variety of licensed activities, including: academic and medical broad scope, decommissioning, fixed and portable gauge, HDR, industrial radiography, pool irradiator, medical institution, nuclear pharmacy, waste disposal, and well logging. Appendix C lists the inspection casework files reviewed, with case-specific comments, as well as the results of the inspector accompaniments.

Based on the evaluation of casework, the review team noted that inspections covered all aspects of licensed radiation programs. The review team found that inspection reports were generally thorough, complete, consistent, and of high quality, with sufficient documentation to ensure that licensees' performance with respect to health and safety was acceptable. The documentation supported violations, recommendations made to licensees, unresolved safety issues, and discussions held with licensees during exit interviews.

The inspection procedures utilized by the Division are generally consistent with the inspection guidance outlined in IMC 2800. All completed inspection reports are reviewed by a peer and the Radioactive Materials and X-Ray Section Manager. Inspection Reports are signed by the Division Director. Supervisory accompaniments are being conducted annually for all radioactive materials program inspectors.

The review team determined that the inspection findings were appropriate and prompt regulatory actions were taken, as necessary. All inspection findings are clearly stated and documented in the report. A Notice of Violation (NOV) is issued to licensees in letter format detailing the results of the inspection. When the Division issues an NOV, the licensee is required to provide a written plan of correction for the violations within 30 days. Inspection closure letters are normally signed by the Executive Secretary of the Board.

The review team noted that the Division maintains an adequate supply of portable instruments for routine confirmatory surveys and incident/emergency response. The instruments are calibrated annually, or as needed, by the Division using an in-house calibration source. An electronic pulser is used to calibrate exposure rate instruments. Instruments used for contamination surveys are calibrated with a variety of alpha- and beta-particle calibration sources.

Accompaniments of two radioactive materials program inspectors were conducted by a review team member during the week of April 9, 2007. The accompaniments included an Increased Controls inspection of an industrial radiography licensee and a health and safety inspection of a medical institution. The accompaniments are identified in Appendix C. During the accompaniments, the inspectors demonstrated appropriate inspection techniques, knowledge of the regulations, and conducted performance-based inspections. The inspectors were trained, well-prepared for the inspection, and thorough in the audits of the licensees' radiation safety and Increased Controls programs. The inspectors conducted interviews with appropriate licensee personnel, observed licensed operations, conducted confirmatory measurements, and utilized good health physics practices. The inspections were adequate to assess radiological health and safety and Increased Controls at the licensed facilities.

Based on the IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, Technical Quality of Inspections, be found satisfactory.

3.4 Technical Quality of Licensing Actions

The review team reviewed the Division's response to the questionnaire and evaluated completed licensing casework and interviewed license reviewers for licensing actions involving 25 radioactive material licenses. Licensing actions were evaluated for completeness, consistency, proper isotopes and quantities used, qualifications of authorized users, adequate facilities and equipment, and operating and emergency procedures sufficient to establish the basis for licensing actions. Licenses were evaluated for overall technical quality including accuracy, appropriateness of the license, its conditions, and tie-down conditions. Casework was evaluated for timeliness, adherence to good health physics practices, reference to appropriate regulations, documentation of safety evaluation reports, product certifications or other supporting documentation, consideration of enforcement history on renewals, pre-licensing visits, peer or supervisory review as indicated, and proper signature authority. The files were checked for retention of necessary documents and supporting data.

The licensing actions reviewed included the following types of licenses: medical institution, academic broad scope, pool irradiator, industrial radiography, medical private practice, portable gauge, waste disposal service, well logging, service provider, gamma stereotactic radiosurgery, and nuclear pharmacy. Licensing actions reviewed included 6 new licenses, 11 amendments, 11 renewals, and 3 terminations. A listing of the licensing actions reviewed, with case-specific comments, may be found in Appendix D.

The review team found that the Support Services Coordinator logs all licensing actions into the Division's radioactive materials database. This database allows the Division to efficiently assign and track all actions throughout the cycle of the licensing action. The Support Services Coordinator then distributes the actions to the appropriate license reviewers, who are automatically assigned by the database.

The review team noted that each licensing action is thoroughly reviewed using a two-phase process. The license reviewers use checklists, that generally follow the NUREG-1556 series, to assist in the reviews. A second qualified reviewer or senior reviewer reviews all actions before they are sent to the Radioactive Materials and X-Ray Section Manager. The Radioactive Materials and X-Ray Section Manager does a tertiary review of all licensing actions before they are sent to the Executive Secretary of the Board for signature. The Radioactive Materials Section and X-Ray Manager's review includes the use of a checklist from which the license is generated.

The review team found that the licensing actions were thorough, complete, consistent, and of high quality, with health, safety, and security issues properly addressed. Tie-down conditions were backed by information contained in the file and were inspectible. Deficiency letters clearly stated regulatory positions, were used at the appropriate time, and identified deficiencies in the licensees' documents. Terminated licensing actions were well-documented, showing appropriate transfer and survey records. The Radioactive Materials and X-Ray Section Manager completed the technical review of all terminations completed during the review period. License files were complete and well-organized. Applicable guidance documents were complete, well-organized, and available to reviewers, and appeared to be followed.

The review team found that the 11 renewal files reviewed did not contain documentation of a review of the licensee's enforcement history, however, reviewers were aware of the importance of a licensee's enforcement history evaluation in the licensing process.

For medical licensees, the review team noted that information regarding each authorized user's (AU), authorized medical physicist's (AMP), or authorized nuclear pharmacist's (ANP) qualifications are maintained in a file in the Division's library. For amendments to the license requesting the addition of an AU, AMP, or ANP, information is appropriately noted and removed from the application by the reviewer and put in the applicable file in the Division's library.

The Division is aware of the pre-licensing guidance distributed to Agreement States in the All Agreement State letter, FSME-06-114. License reviewers use an electronic checklist to ensure that radioactive materials will be used as intended prior to issuance of a license to a new applicant. The review team determined that this process met the essential objectives of the NRC's pre-licensing guidance. The Division does not perform pre-licensing visits for all new licenses.

The review team examined the list of licensees that the Division determined to meet the criteria for the Increased Controls, per COMSECY-05-0028. The review team determined that the Division had correctly identified the licensees that require Increased Controls, based on the criteria. Each affected licensee was issued an administrative license amendment on November 15, 2005, requiring Increased Controls by May 15, 2006. The Division has procedures in place to issue Increased Controls to any additional licensees, as appropriate.

Based on the IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory.

3.5 Technical Quality of Incident and Allegation Activities

In evaluating the effectiveness of the Division's actions in responding to radioactive material incidents, the review team examined the Division's response to the questionnaire relative to this indicator, evaluated selected incidents reported for Utah in the Nuclear Material Events Database (NMED) against those contained in the State's database and files, and evaluated the casework and supporting documentation for 16 incidents. Incident and allegation policies, NMED, and notification of incidents to the NRC Headquarters Operations Center were discussed with Division managers and staff. A list of the incident casework examined, with case-specific comments, may be found in Appendix E. During the review period, the Radioactive Materials and X-Ray Section received no allegations involving radioactive materials regulated under the Agreement.

Written procedures exist for handling radioactive material incidents in the Division's Administrative Policy manual. When notification of an incident is received, the appropriate Section Manager and staff discuss what level of initial response is appropriate and determine if the event requires reporting to the NRC Headquarters Operations Center. The review team determined that the Division appropriately reported incidents to the NRC Headquarters Operations Center in a timely manner. Incidents were also submitted for inclusion in NMED, as necessary. The review team found that the NMED database accurately reflected the information contained in the Division's files and that all of the reports were complete and properly closed.

During the review period, the Radioactive Materials and X-Ray Section received reports of 19 radioactive material incidents. The review team evaluated all 16 of the incidents that required reporting to the NRC Headquarters Operations Center under NRC reporting criteria. The incidents selected for review included the following categories: equipment failure, lost/stolen radioactive material, and medical event. The review team determined that, when on-site investigations were conducted, initial responses were prompt and the level of effort was commensurate with the health and safety significance.

Through the reviews of the incident documentation, the review team determined that inspectors were dispatched for on-site investigations for two lost material incidents and took appropriate followup actions, including enforcement. In seven cases (four medical events and three radiography incidents) where the review team believed that followup actions were appropriate, reactive inspections were not conducted.

The four medical events involved two administrations of the wrong radiopharmaceutical doses and two HDR events resulting in overdoses to unintended sites. Two of these medical events were reported to Congress as Abnormal Occurrences. The specifics of these incidents are described below.

- A patient received a dose of 640 to 1,860 rad to an unintended site during an HDR procedure. The licensee stated that the cause of the event was “insufficient time to insure adequate preparation and verification for a non-typical HDR treatment.”
- A patient was administered a 100 times greater than prescribed dose of technetium-99m, resulting in estimated radiation doses to the patient of 100 rad to certain organs and 5 rad to the whole body. The event occurred when the technologist picked up the wrong syringe.
- A patient received approximately five times the prescribed dose to a treatment site during an HDR procedure. The medical event was attributed to human error.
- A patient was administered a larger than prescribed dose of iodine-131. The cause of the event was reported to be that the dose calibrator was not used prior to administering the dose.

Two of the three industrial radiography incidents involved the same licensee. The specifics of the three events are described below.

- An industrial radiographer reported a disconnect of a radiography source. The cause was that the guide tube had not been connected tightly to the exposure device and allowed the source to rotate and disconnect.
- Six months earlier, the same licensee reported that a crimped fitting on a radiography crank cable housing came loose when a radiographer was moving an exposure device.
- An industrial radiographer had a radiography source disconnect from the drive cable. The licensee concluded that the event resulted from a worn control adapter but the manufacturer believed that the source was not connected appropriately by the user.

The review team evaluated the next routine inspection reports of the licensees involved in the seven cases and found that the reports had minimal information or no information about event followup. Interviews with inspection staff indicated that incident followup was done during the routine inspections, but was not always documented or was poorly documented in the inspection reports.

The review team discussed this issue with Division managers and determined that the Radioactive Materials and X-Ray Section Manager followed the Division's administrative procedures in determining whether an incident warranted a physical inspection or investigation. For each of the events noted above, the management decision was that no on-site investigation was necessary. For some of the incidents, Division staff talked with the licensees via telephone and requested additional information about the incident. The review team believes that on-site investigations should be performed as followup to significant incidents (e.g., medical events, source disconnects, etc.) to fully evaluate the potential safety impacts. The investigation should include an analysis of the sequence of events and conditions that existed at the time of the event and interviews of the staff involved in the incident. In addition, the investigation should determine the root cause of the incident and include a review of the licensee's corrective actions to prevent recurrence.

By failing to perform on-site investigations, the Division missed opportunities to fully evaluate each incident and its root cause. For example, interaction with the licensee that reported the cause of the medical event to be "insufficient time to insure adequate preparation and verification for a non-typical HDR treatment" may have been a good opportunity to evaluate a production versus quality issue at the hospital. Interaction with the radiography licensees may have increased safety awareness during future radiographic operations and possibly prevented similar incidents. The review team recommends that the State conduct on-site investigations of complex incidents to determine potential health and safety impacts and to evaluate licensees' actions to prevent recurrences.

During the last IMPEP review, the team noted that some Division staff members were not fully cognizant of the allegation procedures in the Administrative Policy manual, particularly with respect to the threshold of concerns to be reported as allegations. The review team determined, through interviews with staff members, that appropriate training in the allegation process was provided to all staff members.

Based on the IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, be found satisfactory, but needs improvement.

4.0 NON-COMMON PERFORMANCE INDICATORS

IMPEP identifies four non-common performance indicators to be used in reviewing Agreement State programs: (1) Compatibility Requirements; (2) Sealed Source and Device Evaluation Program; (3) Low-Level Radioactive Waste Disposal Program; and (4) Uranium Recovery Program. Utah's Agreement does not include a sealed source and device evaluation program, so only the other three non-common performance indicators were applicable to this review.

4.1 Compatibility Requirements

4.1.1 Legislation

Utah became an Agreement State on April 1, 1984. In addition to their response to the questionnaire, the Division provided the review team with the opportunity to review copies of legislation that affects the radiation control program. The current effective statutory authority is contained in the Utah Code Annotated, Title 19, Chapter 3, Radiation Control Act. The Division implements the radiation control program. The review team noted that no legislation affecting the radiation control program was passed during the review period.

4.1.2 Program Elements Required for Compatibility

The State's regulations for control of radiation are located in Title R313 of the Utah Administrative Code and apply to all ionizing radiation, whether emitted from a radionuclide or device. Utah requires a license for possession and use of all radioactive material, including naturally occurring materials, such as radium, and accelerator-produced radionuclides.

The review team examined the State's administrative rulemaking process and found that the process takes 120 days after filing a draft administrative rule. Draft administrative rules are sent to the Board for permission to get public comments and to file the proposed rule. Proposed rules are published in the State Bulletin. After a public comment period, the rule is returned to the Board for final approval. The State has the authority to issue legally binding requirements (e.g., license conditions) in lieu of regulations until compatible regulations become effective. Many of Utah's compatibility-required regulations are incorporated by reference to NRC regulations.

The review team evaluated the Division's response to the questionnaire relative to this indicator, reviewed the status of regulations required to be adopted by the State under the Commission's adequacy and compatibility policy, and verified the adoption of regulations with data obtained from the Office of Federal and State Materials and Environmental Management Programs' (FSME) State Regulation Status Sheet.

Current NRC policy requires that Agreement States adopt certain equivalent regulations or legally binding requirements no later than three years after they become effective. The review team identified that the following eight amendments, adopted by the State in the 1990s, were never reviewed by the NRC in final form.

- "Definition of Land Disposal and Waste Site QA Program," 10 CFR Part 61 amendment (58 FR 33886) that became effective July 22, 1993, and was due for Agreement State adoption by July 22, 1996.
- "Frequency of Medical Examinations for Use of Respiratory Protection Equipment," 10 CFR Part 20 amendment (60 FR 7900) that became effective March 13, 1995, and was due for Agreement State adoption by March 13, 1998.
- "Low-Level Waste Shipment Manifest Information and Reporting," 10 CFR Part 20 and 61 amendments (60 FR 15649 and 25983) that became effective March 1, 1995, and was due for Agreement State adoption by March 1, 1998.

- "Radiation Protection Requirements: Amended Definitions and Criteria," 10 CFR Part 19 and 20 amendments (60 FR 36038) that became effective August 14, 1995, and was due for Agreement State adoption by August 14, 1998.
- "Medical Administration of Radiation and Radioactive Materials," 10 CFR Part 20 and 35 amendments (60 FR 48623) that became effective October 20, 1995, and was due for Agreement State adoption by October 20, 1998.
- "Resolution of Dual Regulation of Airborne Effluents of Radioactive Materials; Clean Air Act," 10 CFR Part 20 amendment (61 FR 65120) that became effective January 9, 1997, and was due for Agreement State adoption by January 9, 2000.
- "Criteria for the Release of Individuals Administered Radioactive Material," 10 CFR Part 20 and 35 amendments (62 FR 4120) that became effective May 29, 1997, and was due for Agreement State adoption by May 29, 2000.
- "Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations; Clarifying Amendments and Corrections," 10 CFR Part 34 amendment (63 FR 37059) that became effective July 9, 1998, and was due for Agreement State adoption by July 9, 2001.

Proposed versions of these amendments were evaluated by the NRC, with no comments. On August 10 and October 2, 2001, the Division sent NRC updated final regulations for a number of amendments, including these eight amendments. For unknown reasons, these amendments were not evaluated by the NRC and thus remain annotated as "Proposed" on Utah's State Regulation Status Sheet. The review team evaluated three of the amendments during this review to determine whether the final Utah regulations differed from the proposed versions. All three appeared unchanged and compatible with NRC regulations. The review team also noted that two of the amendments were superseded by later rulemakings.

The Division Director and Radioactive Materials and X-Ray Section Manager expressed a desire to resolve this issue and will submit the necessary documentation to FSME so that the State Regulation Status Data Sheet can be updated. During the course of this review, initial contacts were made with FSME to start the compatibility review process.

The following NRC amendment is overdue; however, the State does not have any facilities subject to the provisions and, until they receive a license application for a facility that would be subject to these provisions, do not need to adopt this amendment:

- "National Source Tracking System - Serialization Requirements," 10 CFR Part 32 amendment (with reference to Part 20 Appendix E) (71 FR 65685) that became effective February 6, 2007, and was due for Agreement State adoption by February 6, 2007.

The State will need to address the following two amendments in upcoming rulemakings or by adopting alternate legally binding requirements:

- "Compatibility with IAEA Transportation Safety Standards and Other Transportation Safety Amendments," 10 CFR Part 71 amendment (69 FR 3697) that became effective on October 1, 2004, and is due for Agreement State adoption by October 1, 2007.

- “Minor Amendments,” 10 CFR Part 20, 30, 32, 35, 40 and 70 amendments (71 FR 15005) that became effective March 27, 2006, and is due for Agreement State adoption by March 27, 2009.

Based on the IMPEP evaluation criteria, the review team recommends that Utah’s performance with respect to the indicator, Compatibility Requirements, be found satisfactory.

4.2 Sealed Source and Device (SS&D) Evaluation Program

Effective June 1, 1996, NRC reassumed regulatory authority for sealed source and device evaluations in Utah in response to a request from the State to relinquish that authority. No sealed source or device evaluations have been performed in Utah since that relinquishment. Accordingly, the review team did not evaluate this indicator.

4.3 Low-Level Radioactive Waste (LLRW) Disposal Program

Authority to regulate LLRW disposal facilities was added to Utah’s NRC Agreement State Program in May 1990. The State of Utah’s LLRW Disposal Program is administered by the Division. Regulatory authority is derived from the Radiation Control Act of Utah Code Title 19, Chapter 3, and the Radiation Control Rules promulgated in Utah Administrative Code, R313.

At the time of the review, the Division regulated one LLRW disposal facility, EnergySolutions (formerly Envirocare). EnergySolutions is a commercial LLRW disposal facility located 80 miles west of Salt Lake City in Tooele County. EnergySolutions is licensed by the Division under a license which expired on October 22, 2003, and is currently in timely renewal. The license authorizes EnergySolutions to receive, store, possess, and dispose of naturally occurring radioactive materials and LLRW less than Class A. Currently, in accordance with Utah statutes, EnergySolutions may not receive Class B or Class C waste without first receiving approval from the Executive Secretary of the Board, the Governor, and the Legislature.

With Utah’s assumption of regulatory authority for uranium recovery activities, an additional license was issued to EnergySolutions in 2004 for the handling of 11.e(2) material at the facility. With the licenses co-located, the health physics licensing and inspections are handled under the LLRW license. Additionally, EnergySolutions is required to maintain compliance with all conditions and schedules stipulated in their Utah Groundwater Discharge Permit, issued by the Utah Water Quality Board.

The review team used five sub-elements to evaluate the performance of the LLRW Disposal Program. The sub-elements are as follows: (1) Technical Staffing and Training; (2) Status of LLRW Disposal Inspection Program; (3) Technical Quality of Inspections; (4) Technical Quality of Licensing Actions; and (5) Technical Quality of Incident and Allegation Activities. To evaluate the above sub-elements, the team reviewed background materials on the site, performed inspector accompaniments, reviewed the Utah response to the questionnaire, interviewed managers and staff, and examined records, as appropriate.

4.3.1 Technical Staffing and Training

The evaluation of this sub-element focused on: (1) qualifications of the technical staff and the expertise necessary to regulate a LLRW disposal facility; (2) the development and

implementation of a training program for the staff; and (3) staffing trends that could have an adverse impact on performance.

As previously noted, the Division reorganized since the last IMPEP review. LLRW responsibilities were split between the Geotechnical Services Section and the Health Physics Support Section. The Geotechnical Services Section consists of a Section Manager and seven full-time positions. The seven staff members include three Environmental Engineers and four Environmental Scientists. The Health Physics Support Section consists of a Section Manager and six full-time Environmental Scientist positions dedicated to LLRW and Uranium Recovery program areas.

Both the Geotechnical Services Section and the Health Physics Support Section are currently fully staffed. The review team determined that there was a good balance of technical expertise in the program, and that staff turnover had no adverse impact on the program.

The review team examined staff training documentation and conducted interviews with all available staff to assess qualification and training needs. The Division has a generic training plan that specifies required and recommended training for each technical position. Individual Training Qualification Forms are maintained for each person. All of the LLRW program staff members received necessary training in accordance with the training plan.

During staff interviews, one staff member expressed a desire for additional health physics training. Division management scheduled additional training for that individual, further demonstrating the Division management's commitment to training for its staff.

4.3.2 Status of LLRW Disposal Inspection Program

The Division has adopted NRC inspection guidance and procedures. The review team examined inspection files and conducted interviews with inspectors to determine that: (1) the LLRW disposal licensee is inspected at least annually, as prescribed in IMC 2800; (2) any deviations from the prescribed inspection schedule are coordinated between working staff and management; and (3) inspection findings are communicated to licensees in a timely manner.

Due to the complexity of the review and timeliness of inspection needs, the Division divided the annual inspection of LLRW site into multiple modules (16 modules in 2004 and 2005; 17 modules in 2006 and 2007). Modular inspections are performed throughout the year and may be adjusted to accommodate additional licensing activities. The modules include, but are not limited to, reviewing specific license condition compliance, radiation safety, engineering, groundwater, emergency planning, and environmental monitoring. The review team concluded that this modular inspection approach is equivalent to a one-time annual inspection for the LLRW facility. In addition, the Division conducts inspections of incoming waste shipments at the EnergySolutions facility daily, or as needed.

The review team identified that a complete inspection (all modules) was not performed during any calendar year during the review period. In 2004, 9 of 16 modules were completed; in 2005, 10 of 16 modules were done; in 2006, 12 of 17 modules were completed; and thus far in 2007, a total of 4 modules were completed. Management Directive 5.6 evaluation criteria requires most inspections to be completed and reviewed. The review team evaluated the completed modules. Critical modules (i.e., radiation safety, dosimetry, and site

access/postings) were completed annually. With the Division's practice of having health physics inspectors at EnergySolutions nearly continuously, the review team concluded that adequate oversight of facility operations and the radiation safety program was occurring. Although all modules were not completed on an annual basis, the review team determined that adequate, performance-based inspections of the licensee's program were completed annually.

During the 2003 IMPEP review, the Division Director agreed to the development of an independent mixed waste module to address unique radiation safety issues at the mixed waste operations facility. The current review team noted that an inspection module was created and is used for the LLRW disposal license assessment.

The review team determined that inspection findings were communicated to the licensee within 30 days following the inspection. Typically, inspection findings were issued in the third week after the inspection was completed.

4.3.3 Technical Quality of Inspections

The review team assessed the quality of LLRW disposal inspections by evaluating: (1) inspector performance during accompaniments; (2) inspection field notes and completed reports; (3) inspection procedures; (4) followup on previous inspection findings; (5) regulatory actions; and (6) annual supervisory accompaniments.

Two Health Physics Support Section inspectors were accompanied by an IMPEP team member on May 3, 2007. One of the inspectors inspected the facility under the "Radiation Safety-Site Access/Posting" module. The other inspector was observed inspecting incoming waste shipments. The inspectors demonstrated appropriate surveying skills and knowledge of the regulations. An adequate supply of calibrated radiation survey instruments were available to the inspectors. The inspections were adequate to assess radiological health and safety at the facility.

The review team determined from an evaluation of the inspection files sampled that modular inspections were complete, with the findings well-founded, appropriately documented, and reviewed by the Health Physics Support Section Manager. With regulatory references, the modular inspection documentation identified poor licensee performance and root causes. The Health Physics Support Section Manager reviews all inspection findings. The Executive Secretary of the Board signs and issues enforcement letters, notices of violations, and/or penalties, as necessary. The findings and observations are maintained in a detailed inspection log. All open items from the previous inspection files were either closed out, scheduled for followup action during the next modular inspection, or tracked as escalated enforcement items. In addition, the Division maintains a database detailing EnergySolutions's compliance history. This database is a valuable tool for assessing and monitoring the LLRW disposal operations and performance. There were no performance issues identified in the inspections that were evaluated.

As noted in Section 2.0 of this report, supervisory accompaniments of inspectors showed improvement over the review period in both quality and quantity compared to the previous review period. While no accompaniments occurred in 2003 and 2004, the review team noted that by 2006, all LLRW inspectors were being accompanied on an annual basis. Written accompaniment reports were critical, when necessary, and complete.

4.3.4 Technical Quality of Licensing Actions

The LLRW site license has been in timely renewal since July 2003. During that time, EnergySolutions requested amendments to modify its operations to enhance safety aspects and to remain competitive. After the initial renewal application was received in July 2003, four operational amendment requests were processed. The Health Physics Support Section Manager was innovative in assigning amendment tracking numbers through the use of letters versus sequential number (e.g., 22A, 22B). The 11e.(2) disposal license has been amended three times since 2004. The major licensing actions were reviewed and were determined to be thorough, complete, consistent, and of acceptable technical quality. The license conditions are clear and auditable. Health and safety issues were properly addressed. Tie-down conditions were complete and verifiable, and the licensing process appeared to be thorough and consistent. License variances were granted, when appropriate.

The Division used independent analyses and public hearings in the license review process. The Division hired a technical consultant to address certain complex technical issues to verify the licensee's analysis for license renewal and facility improvements. Public hearings are held, when needed.

With the license in timely renewal for nearly 4 years, the review team evaluated any public health and safety impacts that may have developed. No health and safety impacts were identified. A completeness review of the renewal request has been completed and discussed with EnergySolutions. In June 2005, EnergySolutions resubmitted its renewal application. The application analysis was recently completed and the Division initiated a 60-day public review of the draft license in June 2007.

With the Division's reorganization, hydrology and engineering issues at EnergySolutions are addressed by the Division's Geotechnical Section. These reviews were thorough, adhered to standard engineering practices, were of high quality, and reviewed by management.

The review team evaluated the Division's process for obtaining adequate financial assurance for the EnergySolutions facility. The review team determined that the Division has obtained adequate financial assurance for the site, based on NRC methodology.

4.3.5 Technical Quality of Incident and Allegation Activities

During the review period, the State received and addressed three allegations involving LLRW activities, including allegations provided directly to the State and those referred to the Division by the NRC. The review team determined that the Division took prompt and appropriate action in response to the concerns raised, including conducting independent surveys and on-site investigations, as needed. The review team noted that all documentation related to the investigation of allegations was appropriately maintained in a separate file. As noted in Section 3.5, additional training was provided to LLRW Program staff with respect to the threshold of concerns to be reported as allegations.

Based on IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, LLRW Disposal Program, be found satisfactory.

4.4 Uranium Recovery Program

Authority to regulate uranium recovery activities was added to Utah's NRC Agreement State Program in August 2004. The applicable regulations for the uranium recovery program include Utah Administrative Code R313-24 – "Uranium Mills and Source Material Mill Tailings Disposal Facility Requirements."

In February 2005, the Division issued licenses to the following four facilities: EnergySolutions, LLC; Denison Mines (USA) Corporation, White Mesa Uranium Mill; Rio Algom Mining Corporation, Lisbon Valley Uranium Mill; and SXR Uranium One, Shootaring Canyon Mill. The Division's Uranium Recovery Program has not been previously assessed by the IMPEP process.

In conducting this review, five sub-elements were used to evaluate the performance of the Uranium Recovery Program. These sub-elements were: (1) Technical Staffing and Training; (2) Status of Uranium Recovery Inspection Program; (3) Technical Quality of Inspections; (4) Technical Quality of Licensing Actions; and (5) Technical Quality of Incident and Allegation Activities.

4.4.1 Technical Staffing and Training

In reviewing this sub-element, the review team evaluated the Uranium Recovery Program staffing level, the technical qualifications of the staff, staff training, and staff turnover. This evaluation included general examination of the qualifications of the inspectors and licensing personnel and interviews with Uranium Recovery Program staff.

As described in Section 4.3.1, oversight of the Uranium Recovery Program is provided by both the Geotechnical Services Section and the Health Physics Support Section. Various members of the Uranium Recovery Program staff participated in inspections and licensing activities at the three uranium mill facilities regulated by the Division. The amount of participation varied, depending on the individual's qualifications and workload. As discussed in Section 4.4.3, during the 2005-2006 timeframe, personnel issues resulted in gaps in the quality of radiation protection and safety inspections at uranium recovery facilities. Division managers prioritized the resolution of the personnel issues which delayed the full implementation of the radiation safety program at the facilities. Those issues were resolved and the Division currently has an effective interdisciplinary team of expertise, with an appropriate training program in place, for its Uranium Recovery Program.

The review team found that the Uranium Recovery Program contains expertise in geology; hydrogeology; construction management; drainage and run off systems; storm water and wastewater design, permitting, and compliance; health physics; and radiation control. For topics where in-house expertise was not available or when work loads did not permit timely reviews of submittals, the Division has outsourced technical review work. Currently, the Division is utilizing an environmental and engineering design firm to assist in a major license amendment review and smaller licensing related work. The technical qualifications of consultant personnel available to the Uranium Recovery Program for technical reviews include civil, environmental, mechanical, and nuclear engineers; geochemists; hydrogeologists; and laboratory technicians. The review team found the Division's outsourcing of technical reviews

to be an effective tool in conducting sound technical evaluations while providing its licensees with timely responses to their submittals.

4.4.2 Status of Uranium Recovery Inspection Program

The review team focused on several factors in evaluating this sub-element, including inspection frequency, overdue inspections, and timely issuance of inspection reports and findings to licensees. The review team's evaluation is based on an evaluation of the Division's response to the questionnaire relative to this indicator, the uranium recovery inspection schedule, inspection casework files, and interviews with inspection staff and management.

From 2005 through May 2007, 4 radiation safety inspections, 18 groundwater inspections and 17 engineering inspections were conducted by the Division. With respect to radiation safety inspections, the review team determined that the inspection frequency was not consistent with IMC 2801, "Uranium Mill and 11e.(2) Byproduct Material Disposal Site and Facility Inspection Program" requirements. No inspections were performed of the Shootaring Canyon Mill since Utah assumed authority over the uranium recovery activities. Only one radiation safety inspection for the Lisbon Valley Mill was performed during the review period. Three radiation safety inspections were conducted at the White Mesa Mill from 2005 through May 2007; however, several important areas of radiation protection and safety do not appear to have been evaluated on an annual basis (see Section 4.4.3 for detailed discussion).

Of the three uranium mill sites regulated by the Division, only one site is active. The White Mesa Mill is currently in "operational status," processing alternate feed material for its uranium and vanadium content. The Shootaring Canyon Mill operated for only three months in 1982, generating a small amount of mill tailings (the byproduct material wastes produced by extraction of uranium from ore). The mill was on standby status until 2002, at which time a decommissioning and reclamation schedule was established. The Lisbon Valley Mill has been in decommissioning status since November 1995. As a result, the Division prioritized inspection efforts to focus on the White Mesa Mill. The Division is currently reviewing a Shootaring Canyon Mill license amendment to return the facility to operational status. Division managers anticipate that as the Shootaring Canyon Mill approaches operational status, the frequency of inspections of the facility will be increased.

With respect to the communication of inspection findings to licensees, the review team found that inspection findings are communicated to licensees in a timely manner, during exit interviews and through inspection correspondence.

4.4.3 Technical Quality of Inspections

In reviewing this sub-element, the review team examined inspection files, inspection reports, and enforcement documentation. The review of records covered inspections conducted from 2005 until May 2007 and included radiation safety, groundwater, and engineering related inspections.

The review team found that the inspections were generally conducted using a site-specific modular approach. Inspection modules were set up at the beginning of the year by management and appropriate staff members.

The Division's records indicated that supervisor accompaniments of radiation safety, groundwater, and engineering inspectors occurred during both 2005 and 2006. The accompaniment documentation contained detailed comments on inspector performance and appeared to provide a sufficient evaluation of the inspector.

The review team found that the inspection reports and memoranda generally provided an appropriate depth of coverage. Inspectors addressed compliance conditions for the licensees, and the reports and memoranda demonstrated that the inspectors pursued root causes where problems or violations were identified. Inspection files contained excellent photographs documenting both general facility features and items of interest/concern. The review team discussed the Division's approach to conducting uranium recovery inspections and that it should ensure that, at a minimum, all elements of a uranium recovery facility are inspected and documented on an annual basis. Appendix C lists the inspection files examined by the review team.

On May 9, 2007, members of the review team accompanied two Uranium Recovery Program inspectors during an inspection of the White Mesa Mill. The review team found that the inspectors focused on specific aspects of the licensee's radiation protection and environmental programs. Although the inspection was not comprehensive, the areas of the radiation protection and environmental programs examined during the inspection were reviewed in detail.

Inspection records indicated that one specific radiation protection issue has not been resolved in a timely manner. Specifically, in March 2005, during a radiation safety inspection of the White Mesa Mill, Division inspectors identified that facility personnel were clipping their dosimeters to the back of their hard hats, thereby violating standard external radiation exposure monitoring procedures and requirements specified in UAC R313-15-503 "Location of Individual Monitoring Devices." Despite a 26-month interval, personal dosimeter placement at the White Mesa facility was still an unresolved issue during the May 2007 radiation safety inspection.

Overall, based on a review of inspection records and interviews with staff, the review team identified deficiencies in the radiation protection and safety inspections performed since 2005. Specifically, for the White Mesa Mill, all of the elements identified in IMC 2801 do not appear to have been evaluated. Since 2005, the following "Inspection Procedures" have not been reviewed on a yearly basis: Radiation Protection, Inspection of Transportation Activities, Management Organization and Controls, Operator Training/Retraining, and Emergency Preparedness. The review team recommends that the State institute a more comprehensive inspection program that ensures radiation safety and protection at uranium recovery facilities, including compliance with applicable regulatory requirements and license conditions.

Division management indicated that gaps in the quality of radiation protection and safety inspections are attributable primarily to personnel issues. Specifically, for the period of 2005 through 2006, a technical staff member, assigned to developing and implementing the radiation safety inspection program, under-performed and was eventually dismissed. Division management appeared to rectify this situation by hiring a qualified replacement. Recently, three radiation protection inspection modules (Internal/External Monitoring, Training/Posting/Exit Monitoring, and ALARA) were developed for the White Mesa Mill by Division staff. The review team found these modules to be comprehensive and appropriately based on requirements in the licensee's application, radioactive material license, and/or relevant NRC Regulatory Guides.

Although the Division inspectors are qualified to perform uranium recovery inspections, the review team identified a beneficial knowledge transfer opportunity. Since NRC had a long history of regulation of the uranium mills in Utah, NRC Region IV inspectors have a wealth of site-specific information and general uranium recovery radiological inspection knowledge, which could be valuable to the State. The Division Director and the NRC agreed to pursue the idea, in the interest of knowledge transfer.

4.4.4 Technical Quality of Licensing Actions

Licenses and amendments for the Lisbon Valley, White Mesa, and Shootaring Canyon Mills were evaluated. Licensing actions for the review period included two amendments for Lisbon Valley Mill, two amendments for the White Mesa Mill, and three amendments for the Shootaring Canyon Mill. At the time of the review, two proposed license modifications were pending for the White Mesa Mill, and one proposed license modification was pending for the Shootaring Canyon Mill. The licenses for these facilities properly addressed health, safety, and environmental issues. The licenses were thorough, and the license conditions were clear and well-written. Requirements associated with these license conditions were based on a need to meet regulations and to protect health and safety.

The review team examined files and documentation for one completed licensing action at the White Mesa Mill and one pending licensing action at the Shootaring Canyon Mill. Division staff reviews utilized appropriate methodologies in their evaluations of the license requests. The review team concluded that these licensing actions were appropriate and that the Division's evaluation was of acceptable technical quality. Appendix D lists the licensing files reviewed for completeness and accuracy.

4.4.5 Technical Quality of Incident and Allegation Activities

For the review period, no incidents or allegations were identified for the Uranium Recovery Program. This sub-element was reviewed under the common performance indicator, Technical Quality of Incident and Allegation Activities, in Section 3.5.

Based on the IMPEP evaluation criteria, the review team recommends that Utah's performance with respect to the indicator, Uranium Recovery Program, be found satisfactory, but needs improvement.

5.0 SUMMARY

As noted in Sections 3.0 and 4.0, the review team found Utah's performance to be satisfactory but needs improvement for the two performance indicators, Technical Quality of Incident and Allegation Activities, and Uranium Recovery Program. The review team found Utah's performance for the other six performance indicators to be satisfactory. The review team made two recommendations regarding the performance of the Utah Agreement State Program. Accordingly, the review team recommends that the Utah Agreement State Program be found adequate to protect public health and safety and compatible with NRC's program. Based on the results of the current IMPEP review, the review team recommends that the next full IMPEP review take place in approximately 4 years.

Below is a summary list of recommendations, as mentioned in earlier sections of the report, for evaluation and implementation, as appropriate, by the State.

RECOMMENDATIONS:

1. The review team recommends that the State conduct on-site investigations of complex incidents to determine potential health and safety impacts and to evaluate licensees' actions to prevent recurrences. (Section 3.5)
2. The review team recommends that the State institute a more comprehensive inspection program that ensures radiation safety and protection at uranium recovery facilities, including compliance with applicable regulatory requirements and license conditions. (Section 4.4.3)

LIST OF APPENDIXES AND ATTACHMENT

Appendix A	IMPEP Review Team Members
Appendix B	Utah Organization Charts
Appendix C	Inspection Casework Reviews
Appendix D	License Casework Reviews
Appendix E	Incident Casework Reviews
Attachment	August 2, 2007, Letter from Dane Finerfrock Utah's Response to Draft IMPEP Report

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Area of Responsibility
James Lynch, RIII	Team Leader Compatibility Requirements Inspector Accompaniments
Linda McLean, RIV	Technical Staffing and Training Technical Quality of Incident and Allegation Activities Inspector Accompaniments
George Johns, Minnesota	Status of Materials Inspection Program Technical Quality of Inspections
Jacqueline Cook, RIV	Technical Quality of Licensing Actions
Paul Michalak, FSME	Uranium Recovery Program
Earl Fordham, Washington	Low-Level Radioactive Waste Disposal Program Inspector Accompaniments

APPENDIX B

UTAH ORGANIZATION CHARTS

ADAMS: ML071490305

APPENDIX C

INSPECTION CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY.

File No.: 1 Licensee: Consolidated Coal Company Inspection Type: Initial, Unannounced Inspection Date: 5/22/06	License No.: UT0800490 Priority: 5 Inspector: DH
File No.: 2 Licensee: City of Moab Inspection Type: Initial Inspection Date: 4/24/07	License No.: UT1000499 Priority: 5 Inspector: GG
File No.: 3 Licensee: Anderson Engineering Company Inspection Type: Initial, Unannounced Inspection Date: 6/7/07	License No.: UT1800270 Priority: 5 Inspector: PG
File No.: 4 Licensee: Alpha Testing Labs, Inc. Inspection Type: Initial Inspection Date: 11/7/05	License No.: UT1800485 Priority: 1 Inspector: GG
File No.: 5 Licensee: Utah Cancer Specialists Inspection Type: Initial, Unannounced Inspection Date: 8/16/06	License No.: UT1800491 Priority: 3 Inspector: GG
File No.: 6 Licensee: Parsons Corporation Inspection Type: Initial, Unannounced Inspection Date: 10/12/06	License No.: UT1800492 Priority: 5 Inspector: DH
File No.: 7 Licensee: CCU Diagnostics, LLC Inspection Type: Initial, Unannounced Inspection Date: 12/19/06	License No.: UT1800496 Priority: 3 Inspector: PG
File No.: 8 Licensee: Canyon Fuel Company Inspection Type: Initial, Unannounced Inspection Date: 10/12/06	License No.: UT2100493 Priority: 5 Inspector: PG

File No.: 9

Licensee: Superior Well Services
Inspection Type: Initial, Unannounced
Inspection Dates: 8/22-23/06

License No.: UT2400489
Priority: 5
Inspector: DH

File No.: 10

Licensee: IHC Heber Valley Medical Center
Inspection Type: Initial, Unannounced
Inspection Date: 1/25/07

License No.: UT2900497
Priority: 3
Inspector: GG

Comment:

Report cover letter was not signed.

File No.: 11

Licensee: Heart of Utah, PC
Inspection Type: Initial, Unannounced
Inspection Date: 12/27/06

License No.: UT2900495
Priority: 3
Inspector: DH

File No.: 12A

Licensee: Universal Testing, LLC
Inspection Type: Routine, Unannounced
Inspection Dates: 6/8/04, 7/29/04

License No.: UT0600125
Priority: 1
Inspector: GG

File No.: 12B

Licensee: Universal Testing, LLC
Inspection Type: Routine, Unannounced
Inspection Date: 8/22/06

License No.: UT0600125
Priority: 1
Inspector: PG

File No.: 13A

Licensee: University of Utah
Inspection Type: Routine, Unannounced
Inspection Date: 12/9/05

License No.: UT1800001
Priority: 2
Inspectors: JF and team

File No.: 13B

Licensee: University of Utah
Inspection Type: Routine, Unannounced
Inspection Date: 2/12/07

License No.: UT1800001
Priority: 2
Inspectors: PG and team

File No.: 14A

Licensee: Isomedix Operations, Inc.
Inspection Type: Routine, Unannounced
Inspection Date: 1/19/05

License No.: UT1800074
Priority: 2
Inspector: GG

File No.: 14B

Licensee: Isomedix Operations, Inc.
Inspection Type: Routine, Unannounced
Inspection Date: 3/22/07

License No.: UT1800074
Priority: 2
Inspector: PG

File No.: 15A
Licensee: LDS Hospital
Inspection Type: Routine, Unannounced
Inspection Date: 5/21/04

License No.: UT1800102
Priority: 2
Inspector: JF

File No.: 15B
Licensee: LDS Hospital
Inspection Type: Routine, Unannounced
Inspection Date: 5/26/05

License No.: UT1800102
Priority: 2
Inspector: GG

File No.: 15C
Licensee: LDS Hospital
Inspection Type: Routine, Unannounced
Inspection Date: 7/26/06

License No.: UT1800102
Priority: 2
Inspector: PG

File No.: 16
Licensee: Central Utah Clinic
Inspection Type: Routine, Unannounced
Inspection Date: 4/14/06

License No.: UT2500361
Priority: 2
Inspector: JF

File No.: 17A
Licensee: University of Utah
Inspection Type: Routine, Unannounced
Inspection Date: 11/4/03

License No.: UT1800145
Priority: 2
Inspector: JF

File No.: 17B
Licensee: University of Utah
Inspection Type: Routine, Unannounced
Inspection Date: 11/4/03

License No.: UT1800145
Priority: 2
Inspectors: PG, DH

File No.: 18
Licensee: Salt Lake Regional Medical Center
Inspection Type: Routine, Unannounced
Inspection Dates: 10/23-12/1/03

License No.: UT1800165
Priority: 3
Inspector: JF

Comment:

The inspection frequency for the HDR was administratively changed to 3 years to coincide with the medical institution's inspection schedule.

File No.: 19
Licensee: RMW-Utah, Inc.
Inspection Type: Routine
Inspection Date: 11/22/05

License No.: UT1800308
Priority: 2
Inspector: PG

Comment:

The subsequent inspection frequency was extended 1 year, which coincides with IMC 2800 inspection schedule.

File No.: 20

Licensee: Mountain West Cardiovascular Associates
Inspection Type: Routine, Unannounced
Inspection Dates: 9/15-16/05

License No.: UT1800319
Priority: 3
Inspector: PG

Comment:

This Priority 3 license was extended 1 year. The subsequent inspection would be overdue using IMC 2800 priorities.

File No.: 21A

Licensee: URS Corporation
Inspection Type: Routine, Unannounced
Inspection Date: 11/13/03

License No.: UT1800410
Priority: 2
Inspector: GG

File No.: 21B

Licensee: URS Corporation
Inspection Type: Routine, Unannounced
Inspection Date: 3/22/07

License No.: UT1800410
Priority: 2
Inspector: DH

File No.: 22

Licensee: Alpha Testing Labs, Inc.
Inspection Type: Routine, Unannounced
Inspection Date: 2/1/07

License No.: UT1800485
Priority: 1
Inspector: DH

File No.: 23

Licensee: Schlumberger Technology Corporation
Inspection Type: Routine
Inspection Date: 1/7/04

License No.: UT1800102
Priority: 3
Inspector: JF

File No.: 24A

Licensee: Quality Testing & Inspection
Inspection Type: Routine, Unannounced
Inspection Date: 11/29/05

License No.: UT2500269
Priority: 1
Inspector: DH

Comment: Next inspection extended to 2 years based on performance.

File No.: 24B

Licensee: Quality Testing & Inspection
Inspection Type: Routine, Unannounced
Inspection Date: 5/1/07

License No.: UT2500269
Priority: 1
Inspector: GG

File No.: 25

Licensee: Nuclear Apothecary, Inc.
Inspection Type: Routine, Unannounced
Inspection Date: 7/14/05

License No.: UT2700464
Priority: 2
Inspector: GG

File No.: 26

Licensee: Universal Testing
Inspection Type: Increased Controls
Inspection Date: 8/22/06

License No.: UT0600125
Priority: 1
Inspector: PG

File No.: 27

Licensee: University of Utah
Inspection Type: Increased Controls
Inspection Date: 2/14/07

License No.: UT1800001
Priority: 2
Inspector: PG

File No.: 28

Licensee: Brigham Young University
Inspection Type: Increased Controls
Inspection Date: 7/19/06

License No.: UT2500081
Priority: 2
Inspector: PG

File No.: 29

Licensee: Quality Testing and Inspection
Inspection Type: Increased Controls
Inspection Date: 4/10/07

License No.: UT2500269
Priority: 1
Inspector: GG

File No.: 30

Licensee: AITEC US Instruments
Inspection Type: Reciprocity, Increased Controls
Inspection Date: 11/17/06

License No.: TX L05718
Priority: 1
Inspector: GG

File No.: 31

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 3/21/05

License No.: UT1900479
Inspectors: CH, JC

File No.: 32

Licensee: Rio Algom – Lisbon Valley
Inspection Type: Routine, Announced
Inspection Dates: 9/19-20/05

License No.: UT1000481
Inspector: CH

File No.: 33

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 12/05/06

License No.: UT1900479
Inspectors : LM, DR

File No.: 34

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 7/11/06

License No.: UT1900479
Inspectors: LM, DR

File No.: 35

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 12/13/06

License No.: UT1900479

Inspectors: RN, JH

File No.: 36

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 3/14/07

License No.: UT1900479

Inspector: RN

File No.: 37

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 5/9/07

License No.: UT1900479

Inspectors: RN, DH

INSPECTOR ACCOMPANIMENTS

The following inspector accompaniments were performed prior to the on-site IMPEP review:

Accompaniment No.: 1

Licensee: Quality Testing & Inspections
Inspection Type: Increased Controls
Inspection Date: 4/10/07

License No.: UT2500269

Priority: 1
Inspector: GG

Accompaniment No.: 2

Licensee: Mountain West Medical Center
Inspection Type: Routine
Inspection Date: 4/11/07

License No.: UT2300452

Priority: 3
Inspector: DH

Accompaniment No.: 3

Licensee: EnergySolutions, LLC
Inspection Type: Routine, Unannounced
Inspection Date: 5/3/07

License No.: UT2300249

Inspectors: BI, JF

Accompaniment No.: 4

Licensee: International Uranium Corporation (White Mesa Mill)
Inspection Type: Routine, Announced
Inspection Date: 5/9/07

License No.: UT1900479

Inspectors: RN, DH

APPENDIX D

LICENSE CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY.

File No.: 1 Licensee: JANX Integrity Group Type of Action: New Date Issued: 5/27/05	License No.: UT0600467 Amendment No.: N/A License Reviewer: DH
File No.: 2 Licensee: JANX Integrity Group Type of Action: Termination Date Issued: 3/7/07	License No.: UT0600472 Amendment No.: N/A License Reviewer: CJ
File No.: 3 Licensee: RWM-Utah, Inc. Type of Action: Amendments Date Issued: 11/14/05	License No.: UT1800308 Amendment Nos.: 13, 14 License Reviewers: PG, GG
File No.: 4 Licensee: City of Eagle Mountain Type of Action: New Date Issued: 6/12/07	License No.: UT2500503 Amendment No.: N/A License Reviewers: MB, PG
File No.: 5 Licensee: Precision Energy Services, Inc. Type of Action: Amendment Date Issued: 2/24/05	License No.: UT2400412 Amendment No.: 5 License Reviewer: PG
File No.: 6 Licensee: IHC Heber Valley Medical Center Type of Action: New Date Issued: 8/22/06	License No.: UT2600497 Amendment No.: N/A License Reviewer: GG
File No.: 7 Licensee: LDS Hospital Type of Action: Renewal Date Issued: 5/25/06	License No.: UT1800102 Amendment No.: 21 License Reviewer: JF
File No.: 8 Licensee: H & H X-Ray Services, Inc. Type of Action: Termination Date Issued: 8/31/06	License No.: UT1800459 Amendment No.: N/A License Reviewer: CJ

File No.: 9

Licensee: IHC Southwest Cardiology

Type of Action: Renewal

Date Issued: 2/4/05

License No.: UT2700419

Amendment No.: 9

License Reviewer: DH

Comment:

Licensee's compliance history was not documented.

File No.: 10

Licensee: Mountain West Cardiovascular Associates, PC

Type of Action: Renewal

Date Issued: 10/16/06

License No.: UT1800319

Amendment No.: 21

License Reviewer: DH

File No.: 11

Licensee: Schlumberger Technology Corporation

Type of Action: Renewal

Date Issued: 5/2/05

License No.: UT2400065

Amendment No.: 17

License Reviewer: GG

File No.: 12

Licensee: Geneva Steel Safety Department

Type of Action: Termination

Date Issued: 9/12/03

License No.: UT2500292

Amendment No.: N/A

License Reviewer: CJ

File No.: 13

Licensee: H & H X-Ray Services, Inc.

Type of Action: New

Date Issued: 8/15/03

License No.: UT1800459

Amendment No.: N/A

License Reviewer: GG

File No.: 14

Licensee: Intermountain Medical Center

Type of Action: New

Date Issued: 5/25/07

License No.: UT1800494

Amendment No.: N/A

License Reviewer: GG

File No.: 15

Licensee: Nuclear Apothecary, Inc.

Type of Action: Amendment

Date Issued: 8/30/05

License No.: UT2700464

Amendment No.: 3

License Reviewer: GG

File No.: 16

Licensee: Universal Testing, LLC

Type of Action: Renewal

Date Issued: 9/28/04

License No.: UT0600125

Amendment No.: 10

License Reviewer: DH

Comment:

Licensee's compliance history was not documented.

File No.: 17

Licensee: Simplot Phosphates, LLC

Type of Action: Renewal

Date Issued: 6/26/06

License No.: UT2400201

Amendment No.: 14

License Reviewer: PG

Comment:

Licensee's compliance history was not documented.

File No.: 18

Licensee: Ogden Regional Medical Center

Type of Action: Renewal

Date Issued: 4/5/06

License No.: UT2900060

Amendment No.: 30

License Reviewer: PG

Comment:

Licensee's compliance history was not documented.

File No.: 19

Licensee: Isomedix Operations, Inc.

Type of Action: Renewal

Date Issued: 4/8/05

License No.: UT1800074

Amendment No.: 18

License Reviewer: JF

Comment:

Licensee's compliance history was not documented.

File No.: 20

Licensee: Utah Power & Light

Type of Action: Renewal

Date Issued: 5/4/05

License No.: UT1800136

Amendment No.: 13

License Reviewer: DH

Comment:

Licensee's compliance history was not documented.

File No.: 21

Licensee: URS Corporation

Type of Action: Amendment

Date Issued: 2/21/07

License No.: UT1800410

Amendment No.: 6

License Reviewer: PG

File No.: 22

Licensee: Gamma West Brachytherapy, LLC

Type of Action: New

Date Issued: 12/21/05

License No.: UT2700488

Amendment No.: N/A

License Reviewer: DH

File No.: 23

Licensee: Salt Lake Regional Medical Center, Inc.

Type of Action: Renewal

Date Issued: 11/7/05

License No.: UT1800165

Amendment No.: 52

License Reviewer: GG

Comment:

Licensee's compliance history was not documented.

File No.: 24

Licensee: Utah State University

Type of Action: Amendment

Date Issued: 8/4/06

License No.: UT1800319

Amendment No.: 30

License Reviewer: GG

File No.: 25

Licensee: University of Utah Radiological Health

Type of Action: Renewal

Date Issued: 11/1/04

License No.: UT1800145

Amendment No.: 14

License Reviewer: PG

File No.: 26

Licensee: EnergySolutions, LLC

Type of Action: Renewal

Date Issued: Pending

License No.: UT2300249

Amendment No.: Pending

License Reviewers: JH, LM

File No.: 27

Licensee: Denison Mines – (White Mesa Uranium Mill)

Type of Action: Amendment

Date Issued: 4/11/07

License No.: UT1900479

Amendment No.: 2

License Reviewers: Multiple

File No.: 28

Licensee: SXR Uranium One Utah, Inc.

Type of Action: Amendment

Date Issued: Pending

License No.: UT0900480

Amendment No.: 4 (Pending)

License Reviewers: Multiple

APPENDIX E

INCIDENT CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT ARE INCLUDED FOR COMPLETENESS ONLY

File No.: 1

Licensee: Utah Valley Regional Medical Center

Date of Incident: 8/15/03

Investigation Date: N/A

License No.: UT2500129

Event No.: 030751

Type of Incident: Medical Event

Type of Investigation: Telephone/Licensee's Report

Comment:

No on-site investigation was conducted.

File No.: 2

Licensee: Mountain View Hospital

Date of Incident: 9/30/04

Investigation Date: N/A

License No.: UT2500098

Event No.: 040715

Type of Incident: Medical Event

Type of Investigation: Telephone/Licensee's Report

Comment:

No on-site investigation was conducted.

File No.: 3

Licensee: LDS Hospital

Date of Incident: 10/26/04

Investigation Date: 11/3/04

License No.: UT1800102

Event No.: 040780

Type of Incident: Medical Event

Type of Investigation: Telephone/Licensee's Report

Comments:

- a) This incident was reported to Congress as an Abnormal Occurrence.
- b) No on-site investigation was conducted.

File No.: 4

Licensee: Kennecott Utah Copper

Date of Incident: 2/18/05

Investigation Date: 2/18/05

License No.: UT1800289

Event No.: 050291

Type of Incident: Equipment Failure

Type of Investigation: Licensee's Report

File No.: 5

Licensee: University of Utah

Date of Incident: 8/4/05

Investigation Date: N/A

License No.: UT1800001

Event No.: 050550

Type of Incident: Medical Event

Type of Investigation: Licensee's Report

Comments:

- a) This incident was reported to Congress as an Abnormal Occurrence.
- b) No on-site investigation was conducted.

File No.: 6

Licensee: University of Utah

Date of Incident: 5/12/05

Investigation Dates: 12/7-9/05

License No.: UT1800001

Event No.: 050743

Type of Incident: Lost Material

Type of Investigation: On-site

File No.: 7

Licensee: Alpha Testing Labs

Date of Incident: 2/23/06

Investigation Date: N/A

License No.: UT1800485

Event No.: 060226

Type of Incident: Equipment Failure

Type of Investigation: Licensee's Report

Comment:

No on-site investigation was conducted.

File No.: 8

Licensee: Superior Well Services, Inc.

Date of Incident: 8/17/06

Investigation Dates: 8/22-23/06

License No.: UT2400489

Event No.: 060525

Type of Incident: Theft/Lost Material

Type of Investigation: On-site

File No.: 9

Licensee: Alpha Testing Labs

Date of Incident: 8/21/06

Investigation Date: N/A

License No.: UT800485

Event No.: 060536

Type of Incident: Equipment Failure

Type of Investigation: Licensee's Report

Comment:

No on-site investigation was conducted.

File No.: 10

Licensee: McKay Dee Hospital

Date of Incident: 6/19/06

Investigation Date: 7/17/06

License No.: UT2900147

Event No.: 060540

Type of Incident: Medical Event

Type of Investigation: Routine Inspection

File No.: 11

Licensee: Applied Geotechnical Engineering Consultants, PC

Date of Incident: 12/6/06

Investigation Date: 1/23/07

License No.: UT1800298

Event No.: 060746

Type of Incident: Lost Material

Type of Investigation: On-site

File No.: 12

Licensee: Shaw Pipeline Services

Date of Incident: 1/15/07

Investigation Date: N/A

License No.: OK-23193-01

Event No.: 070045

Type of Incident: Equipment Failure

Type of Investigation: Telephone/Licensee's Report

Comment:

No on-site investigation was conducted.

File No.: 13

Licensee: Utah Power and Light Co.

Date of Incident: 4/2/07

Investigation Date: N/A

License No.: UT1800163

Event No.: 070207

Type of Incident: Equipment Failure

Type of Investigation: Telephone/Licensee's Report

File No.: 14

Licensee: Applied Geotechnical Engineering Consultants PC

Date of Incident: 5/18/07

Investigation Date: 5/18/07

License No.: UT1800298

Event No.: 070308

Type of Incident: Lost Material

Type of Investigation: On-site

File No.: 15

Licensee: Schlumberger Technology Corporation

Date of incident: 5/10/07

Investigation Date: N/A

License No.: UT2400065

Event No.: UT-07-0003

Type of Incident: Abandoned Well-logging Source

Type of Investigation: Telephone/Licensee's Report

File No.: 16

Licensee: Utah Inspections, LCC

Date of Incident: 12/1/04

Investigation Date: N/A

License No.: CO-1043-01

Event No.: 040063

Type of Incident: Overexposure

Type of Investigation: Telephone/Licensee's Report

ATTACHMENT

August 2, 2007, Letter from Dane Finerfrock
Utah's Response to Draft IMPEP Report

ADAMS: ML072190525

**Agenda for Management Review Board Meeting
September 6, 2007, 3:00 p.m. - 5:00 p.m. (EDT), TWFN-2-B5**

1. Announcement of public meeting, request for members of the public to indicate they are participating and their affiliation.
2. MRB Chair convenes meeting. Introduction of MRB members, review team members, State representatives, and other representatives participating remotely. (Organization of Agreement States (OAS) Liaison is Jared Thompson of Arkansas.)
3. Consideration of the Utah IMPEP Report.
 - A. Presentation of Findings Regarding Utah's Program and Discussion.
 - Technical Staffing and Training
 - Status of Materials Inspection Program
 - Technical Quality of Inspections
 - Technical Quality of Licensing Actions
 - Technical Quality of Incident and Allegation Activities
 - Compatibility Requirements
 - Low-Level Radioactive Waste Disposal Program
 - Uranium Recovery Program
 - B. IMPEP Team Recommendations.
 - Adequacy and Compatibility Ratings
 - Recommendation for Next IMPEP Review
 - C. MRB Consultation/Comments on Issuance of Report.
4. Request for comments from Utah representatives, OAS Liaison, and State IMPEP Team Members. (State IMPEP team members are Earl Fordham of Washington and George Johns of Minnesota.)
5. Adjournment.

Invitees:	Martin Virgilio, DEDMRT	James Lynch, RIII
	Karen Cyr, OGC	Linda McLean, RIV
	Charles Miller, FSME	Jacqueline Cook, RIV
	Mark Satorius, RIII	Paul Michalak, FSME
	Jared Thompson, AR	Earl Fordham, WA
	Dane Finerfrock, UT	George Johns, MN
	Janet Schlueter, FSME	Aaron McCraw, FSME
	Robert Lewis, FSME	Kim Karcagi, FSME
	Duncan White, FSME	William Rautzen, FSME
	Michael Kunowski, OEDO	Dennis Sollenberger, FSME

ENCLOSURE 2