

**DATED: DECEMBER 3, 1999**

**SIGNED BY: CARL J. PAPERIELLO**

Ms. Mary C. Selecky, Secretary  
Washington Department of Health  
1112 SE Quince Street  
Olympia, Washington 98504-7890

Dear Ms. Selecky:

On November 16, 1999, the Management Review Board (MRB) met to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report on the Washington Agreement State Program. The MRB found the Washington program adequate to assure public health and safety and compatible with NRC's program.

Section 5.0, page 24, of the enclosed final report presents the IMPEP team's recommendations. We received your August 31, 1999 letter which described your actions taken in response to the recommendations in the draft report. We request no additional information.

Based on the results of the current IMPEP review, the next full review will be in approximately 4 years.

I appreciate the courtesy and cooperation extended to the IMPEP team during the review and your support of the Radiation Control Program. I look forward to our agencies continuing to work cooperatively in the future.

Sincerely, */RA/*

Carl J. Paperiello  
Deputy Executive Director  
for Materials, Research  
and State Programs

Enclosure:  
As stated

cc: Bill White, Acting Assistant Secretary  
Washington Department of Health

Bob Nichols, State Liaison Officer  
Executive Policy Division  
Office of the Governor

John L. Erickson, Director  
Division of Radiation Protection  
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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF WASHINGTON AGREEMENT STATE PROGRAM

AUGUST 30 - SEPTEMBER 3, 1999

# FINAL REPORT

U.S. Nuclear Regulatory Commission

## 1.0 INTRODUCTION

This report presents the results of the review of the Washington radiation control program. The review was conducted during the period August 30 - September 3, 1999 by a review team comprised of technical staff members from the Nuclear Regulatory Commission (NRC) and the Agreement State of Florida. Review 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 a Final General Statement of Policy," published in the Federal Register on October 16, 1997, and the November 25, 1998, revised NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period June 24, 1995 to September 3, 1999, were discussed with Washington management on September 3, 1999.

A draft of this report was issued to Washington for factual comment on September 17, 1999. The State responded with electronic mail dated October 22, 1999 and November 12, 1999. The Management Review Board (MRB) met on November 16, 1999 to consider the proposed final report. The MRB found the Washington radiation control program was adequate to protect public health and safety and compatible with NRC's program.

The Washington Agreement State program is administered by the Division of Radiation Protection (the Division) located in the Department of Health (the Department). The Division consists of seven sections managed by a Director. Two sections within the Division have responsibilities for radioactive materials, the Radioactive Materials Section and the Waste Management Section. The Waste Management Section includes the Low-Level Radioactive Waste Program and the Uranium Mills Program. A regional office is located at the low-level radioactive waste disposal facility at Hanford, Washington. Organization charts for the Division and the Department are included as Appendix B. The Washington program regulates approximately 396 specific licenses authorizing agreement materials. The review focused on the Agreement 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 Washington.

In preparation for the review, a questionnaire addressing the common and non-common performance indicators was sent to the State on June 15, 1999. The Division provided a response to the questionnaire by e-mail on July 9, 1999. A copy of the questionnaire is included in Appendix G of the proposed final report.

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 Washington statutes and regulations; (3) analysis of quantitative information from the Division licensing and inspection database; (4) technical review of selected licensing and inspection actions; (5) field accompaniments of four materials inspectors, one mill inspector, and one waste site inspector; and (6) interviews with staff and management to answer questions or clarify issues. The review team evaluated the information that it gathered against the IMPEP criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the Division's performance.

Section 2 below discusses the Division's actions in response to recommendations made following the previous review. Results of the current review for the IMPEP common performance indicators are presented in Section 3. Section 4 discusses results of the applicable non-common performance indicators, and Section 5 summarizes the review team's findings and recommendations. Recommendations made by the review team are comments that relate directly to program performance by the Division.

## 2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

The previous review of the Washington radiation control program concluded on June 23, 1995. The review consisted of an evaluation of 30 program indicators per the 1992 Policy Statement. During the last review, 11 recommendations were made in the November 21, 1995 letter to Mr. Bruce Miyahara, Secretary, Washington Department of Health. The items were discussed in the NRC's June 25, 1996 letter to Washington in response to the Department's April 18, 1996 response letter. The team's review of the current status of the open recommendations is as follows:

1. We recommend that the State revise the effective date of its regulations equivalent to the safety requirements for radiographic equipment amendment to 10 CFR Part 34.20 so that its effective date is compatible with that of the NRC, January 10, 1996, or as close to that date as possible.

Current Status: The review team noted that the 10 CFR Part 34.20 regulation was revised subsequently by NRC (60 FR 28323) and became effective June 30, 1995. The Division revised their regulations which became effective on March 9, 1999 to be compatible with 60 FR 28323. The team also noted that Part 34 has been amended again (62 FR 28948) and is due for adoption by the State by June 27, 2000. This recommendation is closed.

2. We recommend that the State clarify its policy and review its procedures for handling allegations referred to them by the NRC from unidentified allegeders. The State should assure that their policy and procedures ensure the proper investigation and follow up of these allegations.

Current Status: The Division has developed and implemented allegation procedures for the handling of all allegations. The Radioactive Materials Section and the Waste Management Section each developed procedures which were reviewed by the review team and were determined to meet the IMPEP criteria. This recommendation is closed.

3. We recommend that the State supplement the incident report form used by the emergency response section with forms specific to events and allegations involving radioactive materials, including misadministrations.

Current Status: The Division has supplemented their incident report forms to be specific to events and allegations involving radioactive material. This recommendation is closed.

4. We recommend that the State develop procedures specific to investigation and reporting allegations and misadministrations.

Current Status: The Division has developed procedures specific to investigations and reporting allegations and misadministrations. This recommendation is closed.

5. We recommend that the State develop a computer system for tracking and closing incident reports and investigations, including prompting management for reports requested by the NRC.

Current Status: The Division has developed and implemented a computerized tracking system for closing out incidents. This recommendation is closed.

6. We recommend the members of program management involve themselves in the escalated enforcement actions by attending all enforcement meetings with licensees and by assuring all escalated enforcement tools are used to carry out program policy and to provide documentation when management decides to deviate from the written policy.

Current Status: Division management objected to the prescriptive nature of the recommendation, and noted that the Division makes determinations regarding attendance at enforcement meetings on a case by case basis. However, Division management did agree that better documentation of deviations from the general rule that management attends all such meetings is needed. The review team did not identify any concerns related to management's role in escalated enforcement actions during this review period. This recommendation is closed.

7. We recommend that the Radioactive Materials Section modify the medical inspection form to add a section applicable to radiopharmaceutical therapy.

Current Status: The Radioactive Materials Section has revised its form to include a review of radiopharmaceutical therapy. This recommendation is closed.

8. We recommend that a procedure and a form be developed for inspecting high-dose-rate remote afterloader (HDR) licensees.

Current Status: Due to the small number of HDR licensees, the Division does not see a need to develop a separate inspection form for this type of licenses. However, Division management has committed to use NRC's inspection procedure and related field notes for HDR inspections until such time as the Division develops its own procedure for this type of inspection. The review team did note some inconsistent use of forms for HDR inspections. See Section 3.2 for further discussion. This recommendation is closed.

9. In order to assure consistency in inspection practices, we recommend that the use of the new short inspection form be discontinued and that the standard forms be used until such time as the new form is evaluated and approved by program management. Once approved, the form should be used uniformly. Any new form developed should ensure that all essential aspects of the inspections are correct and that adequate space is provided on the form for clear documentation of comments and evaluations.

Current Status: The use of the form in question was discontinued. This recommendation is closed.

10. We recommend that the Waste Management Section revise the form used for the annual inspection of the low-level radioactive waste disposal site to include verification that inspectors reviewed the licensee's incident file, and also to document management's review of the report.

Current Status: The review team noted that both of these recommended changes have been incorporated in the inspection checklist currently being used for inspection of the low-level radioactive waste facility. This recommendation is closed.

11. We recommend that the Waste Management Section revise the uranium mill inspection checklist to include review of a licensee's internal audit program, review of a licensee's ALARA program, management review, and subsequent correspondence.

Current Status: Based upon the review of the checklist and evaluation of the inspection files, the team determined that the Waste Management Section has revised the checklist and has implemented the previous recommendations. This recommendation is closed.

### 3.0 COMMON PERFORMANCE INDICATORS

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

#### 3.1 Status of Materials Inspection Program

The review team focused on four factors in evaluating this indicator: inspection frequency, overdue inspections, initial inspection of new licensees, and timely dispatch of inspection findings to licensees. The review team's evaluation is based on the Division's questionnaire responses relative to this indicator, data gathered independently from the Division's licensing and inspection data tracking system, the examination of completed licensing and inspection casework, and interviews with managers and staff.

The review team's evaluation of the Division's inspection priorities revealed that inspection frequencies for most types of licenses were the same or more frequent than similar license types listed in NRC Inspection Manual Chapter (IMC) 2800, with the following exceptions: (1) licensees authorized for installation and maintenance of fixed gauging devices; (2) licensees authorized for training and servicing of portable gauging devices; and (3) licensees authorized for sales demonstrations, installation, and calibration of gauging devices. Each of these license types were assigned a Priority 4 rather than the more restrictive Priority 3 designation found in IMC 2800. However, the Division has an administrative goal of inspecting Priority 2 licenses annually, and Priority 3 and 4 licenses every other year. Nonetheless, during



the onsite portion of this review, the Radioactive Materials Section changed the inspection priority designation of these license types to Priority 3, in accordance with IMC 2800.

The staff uses a computer database program to track inspection due dates. This data is provided to inspection staff and management to monitor upcoming inspections. In their response to the questionnaire, the Radioactive Materials Section indicated that only one inspection was overdue by more than 25% of the specified frequency as of June 15, 1999. This was a Priority 2 licensee that was subsequently inspected on July 29, 1999. The review team verified that no inspections remained overdue past the 25% window. During the review period, the Radioactive Materials Section performed 438 inspections, including 70 initial inspections and 24 reciprocity inspections.

With respect to initial inspections of new licensees, a list of licenses issued since the last review was requested and evaluated. The Radioactive Materials Section inspection database information and a sampling of inspection files were evaluated to determine their initial inspection date. The Division has a policy of hand-delivering initial licenses which gives the Radioactive Materials Section staff an opportunity to discuss the ramifications of the license with the new licensee. The review team noted that initial inspections were performed within six months of license delivery or material receipt, in accordance with IMC 2800 requirements. Additionally, follow-up inspections were performed one year from the date of each initial inspection. At the November 16, 1999 meeting, the MRB discussed the Division's policy of hand delivering initial licenses and then completing two inspections over the next year and a half and deemed this to be a good practice.

The review team also evaluated the status of reciprocity inspections. During the current review period, 188 requests for reciprocity were filed with the program. Ninety-eight of the reciprocity requests were from Priority 4 licensees. The review team noted a significant improvement in the number of core reciprocity inspections performed by the Radioactive Materials Section each year since the last program review. However, the Radioactive Materials Section did not meet the inspection goal outlined in IMC 1220 for Priority 3 licensees during calendar year 1998; two of the nine Priority 3 licensees granted reciprocity were inspected as compared to the IMC 1220 inspection goal of 30%. Additionally, the Radioactive Materials Section did not meet the 100% inspection goal for teletherapy and irradiator source installation and service licenses. The staff performed three inspections of the six service licensees granted reciprocity during 1997, and two inspections of the three service licensees granted reciprocity during 1998. The staff has performed two inspections of the three service licensees granted reciprocity thus far in 1999. The review team discussed this issue with the Radioactive Materials Section Head and was informed that the staff intends to continue its efforts to meet the inspection goals specified in IMC 1220, especially with regard to source installation and exchange licensees, while continuing to direct staff resources to licensed activities posing the highest safety risks. For example, the Radioactive Materials Section performed 24 field site inspections of radiography licensees during this review period. This was considered by the review team to be a program strength.

The Radioactive Materials Section's policy is to dispatch written findings of inspections to licensees within 30 days of completing an inspection. Initial communication of inspection findings is provided at the conclusion of each inspection through an exit briefing with licensee management. The team's review of inspection files determined that written inspection findings were promptly communicated to licensees. The majority of inspection reports were issued onsite

using a form similar to NRC's Form-591. Of the 19 core licensee inspection files evaluated by the team, inspection reports and/or letters of noncompliance were issued less than 30 days following the exit briefing with the licensee with only one exception; the review team identified one reciprocity inspection performed during April 1998 whereby no inspection report was ever provided to the licensee due to an oversight (no violations were identified during this inspection). The review team also noted that the Radioactive Materials Section's review of licensee responses to letters of noncompliance were performed in a timely manner.

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

### 3.2 Technical Quality of Inspections

The review team evaluated the inspection reports, enforcement documentation and inspection field notes, and interviewed inspectors for 19 materials inspections conducted during the review period. The casework included each of the Radioactive Materials Section inspectors and covered inspections of various types including medical institutions, industrial radiography, medical broad scope, research and development, mobile nuclear medicine, nuclear laundry, manufacturing and distribution, nuclear pharmacy, and reciprocity licensees. Appendix C lists the inspection casework evaluated in-depth, with case-specific comments.

Based upon the review of the casework files, the inspector accompaniments, and interviews with the inspection staff, the team noted that routine inspections covered all aspects of the licensees' radiation programs. The review team found that the inspection program is thorough, complete, and of adequate quality, with sufficient documentation to ensure that licensee's performance with respect to health and safety was acceptable. The team noted that some of the reports could be improved with additional details concerning the scope of the licensed activities, areas reviewed, and observations made during the inspection. New field notes for nuclear medicine and radiography were recently developed that are more comprehensive and contain sufficient space for the documentation of an inspector's observations and findings, but these newer forms were not being consistently used by the staff. Some inspectors utilize NRC's inspection field notes for HDR inspections, while other inspectors utilize a combination of Radioactive Materials Section inspection forms for teletherapy and brachytherapy. The Radioactive Materials Section did not have written inspection procedures to clearly delineate what management's expectations are regarding the minimum level of review, and documentation required, for each type of inspection. Inspection procedures were discussed with the Radioactive Materials Section Head as a mechanism to further enhance and strengthen the inspection program.

Each inspection report is reviewed by the Manager, Compliance Program. In addition, approximately 10% of the inspection reports are reviewed by the Radioactive Materials Section Head. Team inspections were performed when appropriate and for training purposes. Inspections are normally unannounced; however, Radioactive Materials Section staff commented that inspectors may contact the licensee either the day before, or the morning of, an inspection to ensure that appropriate licensee personnel are available prior to dispatching an inspector to the facility.

As noted in the questionnaire, the Division has a variety of portable instruments available for routine confirmatory surveys and for use in incident response. All Radioactive Materials Section instruments are tracked in a database which includes the calibration due date. Instruments requiring calibration are delivered to the Northwest Radiation Instrument Calibration Facility at the University of Washington. All instruments used for materials inspection activities possessed current calibrations.

The Radioactive Materials Section Head accompanies inspectors at least once every other year. Additionally, each inspector is accompanied by a peer from the Radioactive Materials Section every other year. Notes are made during the accompaniments and the inspectors are provided with feedback regarding their performance immediately following the inspection. A summary form is prepared and filed to document each accompaniment.

Four Radioactive Materials Section inspectors were accompanied during inspections by a review team member during the period of July 28-29 and August 2-3, 1999. The accompaniments included two biomedical research laboratory licenses and two portable gauge licenses. These accompaniments are also identified in Appendix C.

During the accompaniments, each inspector demonstrated appropriate inspection techniques and knowledge of the regulations. The inspectors were trained, prepared, and thorough in their audits of the licensees' radiation safety programs. Overall, each inspector utilized good health physics practices, their interviews with licensee personnel were performed in an effective manner, and their inspections were adequate to assess radiological health and safety at the licensed facilities.

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

### 3.3 Technical Staffing and Training

Issues central to the evaluation of this indicator include the Radioactive Materials Section 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 responses relative to this indicator, interviewed Division management and staff, and considered any possible workload backlogs.

At the time of the review, the Radioactive Materials Section was staffed by the Radioactive Materials Section Head and seven staff members including five full time technical staff members. Three staff members act as "managers" for specific types of licensees: Manager, Industrial Licensing; Manager, Medical Licensing; and Manager, Laboratory Licensing. Each of these managers completes licensing actions and inspections focused on their primary license areas. The remaining two full time technical staff members conduct inspections (the Manager, Compliance Program and the Compliance Inspector). One additional staff member, an Environmental Specialist, conducts administrative tasks as well as low risk inspections and licensing actions (gauge licensees). In addition, two staff members from other sections of the Department work part time in the Radioactive Materials Section conducting inspections as necessary.

During the review period, staffing levels remained relatively constant. A vacant technical position was filled within a few months with the Compliance Inspector. The stability of the program is reinforced by the experience of the senior staff members. The current staffing level appears to be adequate for the program.

Through discussions with staff, the review team discovered that the Radioactive Materials Section Head is dedicated to providing training to personnel. When a training class is announced, the Radioactive Materials Section Head discusses the course with staff and determines who, if anyone, should attend the class.

The Radioactive Materials Section Head and each of the Managers are well trained and qualified from an education and experience standpoint. All have attended most of the training courses prescribed by IMC 1246 and are very familiar with Washington regulations, policies, and procedures. The remaining staff members that conduct technical work have degrees in appropriate fields or comparable experience, and are qualified to conduct their assigned activities.

The Radioactive Materials Section issued a training and qualification procedure for staff on August 2, 1999, which is based on the "NRC/OAS Training Working Group Recommendations for Agreement State Training Programs." However, the document, Procedure RMS-61, "Staff Qualifications and Training," was not in use during the review period and Radioactive Materials Section staff members had not yet finalized their qualification journals.

Prior to August 2, 1999, each manager and each individual employee remained knowledgeable of qualifications not yet achieved. A documented qualification Inspector Training Record was also used by the Radioactive Materials Section staff at the time of the review. Each record details the inspections a staff member has helped with or been observed completing in order to be qualified to independently complete a certain type of an inspection. As part of RMS-61, in addition to formal coursework, the Radioactive Materials Section uses a "learn, do, and be reviewed" approach to qualifying individuals to complete specific types of inspections. The Radioactive Materials Section does not have a qualification standard for determining when an inspector has qualified to independently complete a certain type of inspection beyond this approach. A senior staff member determines when an individual has a sufficient amount of knowledge and experience and is thus qualified to complete a specific type of inspection or licensing action on their own.

Overall, there are no performance-related problems associated with the training and qualifications of staff. Certain staff members could, however, benefit from additional training to strengthen their understanding of assigned tasks. For example, the Compliance Inspector conducted an inspection of a gamma knife facility independently, without previously participating in a gamma knife facility inspection, without taking the teletherapy/brachytherapy course, and prior to taking the nuclear medicine course. The Compliance Inspector is considered qualified to complete all types of inspections, including medical inspections, through the State's "learn, do, and be reviewed" approach. A senior staff member discussed areas that should be covered during the inspection with the Compliance Inspector prior to the inspection. The review team evaluated the casework from the gamma knife inspection and found no performance issues, but the review team believes that the Compliance Inspector's knowledge of teletherapy/brachytherapy in general could

be enhanced through formal coursework. The Compliance Inspector is planning to take the teletherapy/brachytherapy course in 2000.

At the November 16, 1999 MRB meeting, the Division discussed the status of their training programs for both the Radioactive Materials Section and Waste Management Section. The Radioactive Materials Section completed documenting staff qualifications and the Waste Management Section was in the process of revising their qualification procedure and completing the documentation of staff qualifications. Both Section Heads stated that they are dedicated to properly managing a training program and providing necessary training for staff. At the MRB meeting, the Division Director shared with the MRB and the review team the results of a self audit conducted in 1998 in preparation for the IMPEP review. The MRB found the efforts by the Division to address their training issues in all programs to be acceptable.

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

### 3.4 Technical Quality of Licensing Actions

The review team examined completed licenses and casework for 29 license files representing the work of six license reviewers. The license reviewers, Radioactive Materials Section Head and Waste Management Section Head were interviewed to supply additional information regarding licensing decisions or file contents.

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 reviewed for accuracy, appropriateness of the license and of its conditions and tie-down conditions, and overall technical quality. Casework was evaluated for adherence to good health physics practices, reference to appropriate regulations, supporting documents, peer or supervisory review and proper signature authorities. The files were checked for retention of necessary documents and supporting data.

The licensing actions reviewed included the following types of license: academic, medical and research and development (both broad scope and specific), industrial radiography, radiopharmacy, commercial services, irradiators, portable and fixed gauges, HDR, gamma knife, teletherapy, commercial distribution of devices to general and specific licensees, consulting service and commercial waste processing and brokerage. Licensing actions included 3 new licenses, 19 renewals, 4 terminations, and 73 amendments. A list of these licenses with case-specific comments may be found in Appendix D.

All licensing actions in the Radioactive Materials Section are assigned a tracking number, logged into a computer tracking system, and given to the license reviewer. A reviewer generates a deficiency letter as needed and upon final resolution of all deficiency items produces a draft licensing action. The draft licensing action receives a quality assurance (QA) review by peer license reviewers. Corrections are made as needed and the licensing action is issued. The QA review is documented and maintained for management review. The license reviewers in the Radioactive Materials Section have signature authority and sign their licensing actions. The QA

reviewer initials each final licensing action. Each license reviewer uses boilerplate licenses for their type of licensing actions (industrial, medical, laboratory) to ensure consistency in standard licenses. Monthly reports on the status of each action are generated, reviewed, and discussed in monthly staff meetings.

The two license reviewers in the Waste Management Section perform licensing actions regarding the ATG Richland commercial waste processing license. The ATG license is drafted and a QA review is performed by the other license reviewer in the section. Only the Waste Management Section Head has signature authority and signs all licensing actions after an additional management QA review.

The review team found that the licensing actions were thorough, complete, consistent, and of high quality, with health and safety issues properly addressed. Tie-down conditions are generally backed by information contained in the license or sealed source and device registry files and are inspectable. Deficiency letters state regulatory positions, are used at the proper time, and identify deficiencies in the licensee's documents. Terminated licensing actions are well documented, showing appropriate transfer and survey records. License files are complete and organized. The Radioactive Materials Section uses a combination of NRC and Division application and regulatory guides. Checklists for each type of license are used and kept with the license file. These documents are complete, well organized, available to reviewers, and appear to be followed.

Except for a few new licenses that involve a change in ownership with little management changes, license delivery visits are conducted for all new applicants before the license is issued. If unresolved issues occur, the license is not issued until they are resolved.

The review team noted that two license renewals have been pending for extended periods without a written response by the program. The matter was discussed with Radioactive Materials Section management regarding the recent progress in reducing the renewal backlogs and to ensure that these two remaining actions continue to receive priority to ensure timely completion.

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

### 3.5 Response to Incidents and Allegations

In evaluating the effectiveness of the Radioactive Materials Section's actions in responding to incidents, the review team examined the Division's response to the questionnaire regarding this indicator, evaluated selected incidents reported for the State of Washington in the "Nuclear Material Events Database" (NMED) against those contained in the Washington files, and evaluated the casework and supporting documentation for 20 material incidents. A list of incident casework examined, along with case specific comments, is contained in Appendix E. The team also evaluated the Radioactive Materials Section's response to five materials allegations, four of which were referred to the Division by NRC during the review period.

The review team discussed the Division's incident and allegation process, file documentation, the State's equivalent to the Freedom of Information Act, NMED, and notification of incidents to the NRC Operations Center with key Radioactive Materials Section and Waste Management Section management and staff. There was one radioactive materials incident reported by the Waste Management Section. Incidents and allegations related to the low-level radioactive waste disposal and uranium recovery programs will be discussed under Sections 4.3 and 4.4 of this report.

When notification of an incident or an allegation is received, the Radioactive Materials Section and staff discuss the initial response and the need for an onsite investigation. The safety significance of the incident/allegation is evaluated to determine the type of response that the Radioactive Materials Section will take. After the investigation is completed, the pertinent incident information is forwarded to the NRC as appropriate.

The Department has policies on the disclosure of information. Department policy 17-005 addresses Employee Responsibilities with Confidential Information and Department policy 17-003 addresses Public Disclosure policy. All requests for public information must be sent to the Department Public Disclosure Coordinator for a determination whether the information can be disclosed or exempt from disclosure. The policies specify the information that is exempt from disclosure, including the protection of alleege identity, and directs all divisions to have procedures and train employees in those procedures. Within the Division, both the Radioactive Materials Section and the Waste Management Section have developed separate incident and allegation procedures. The Radioactive Materials Section has written guidance RMS-40, Investigations (Draft), dated August 20, 1999; RMS-41, Handling Allegations, dated August 23, 1999; RMS-42, Concerned Citizen Calls, dated August 24, 1999; and RMS-43, Incident Notification, dated August 22, 1999 for handling incidents and allegations. The Radioactive Materials Section also maintains a computer listing for tracking the status of all incidents and allegations. After a review of the incidents and discussions with staff, the review team determined that all reportable materials events were appropriately reported to the NRC Operations Center and the NMED database contractor.

Nineteen incidents selected for review included a contamination event at a waste processing facility, three loss of control events, an unauthorized maintenance of an HDR unit, two gauge thefts, four damaged equipment problems, two misadministrations, one unauthorized use of material, one overexposure, and five releases of licensed material or contamination events. The review team found that the Radioactive Materials Section's responses to incidents were complete and comprehensive. Initial responses were prompt, well-coordinated, and the level of effort was commensurate with the health and safety significance. Inspectors were dispatched for onsite investigations when appropriate and the Radioactive Materials Section took suitable enforcement action. The review team found the documentation of the response and follow up to incidents consistent and that incidents were followed up at the next inspection or in a timely fashion.

During the review period, there were four materials allegations referred to the Division by the NRC and one allegation reported directly to the program. The review team noted that allegations are maintained in a locked file. The review of the State's allegation files indicates that the State took prompt and appropriate action in response to the concerns raised. All of the allegations reviewed

were closed and information provided to NRC as requested on specific cases. Written notification to allegeders was discussed with the Radioactive Materials Section Head as one way to assure that allegations are closed out in a consistent manner. The review team noted that written notification of the allegeder is incorporated into the new procedures.

Based on the IMPEP evaluation criteria, the review team recommends that the Division's performance with respect to the indicator, Response to Incidents and Allegations, be found satisfactory.

#### 4.0 NON-COMMON PERFORMANCE INDICATORS

IMPEP identifies four non-common performance indicators to be used in reviewing Agreement State programs: (1) Legislation and Program Elements Required for Compatibility; (2) Sealed Source and Device Evaluation Program; (3) Low-Level Radioactive Waste Disposal Program; and (4) Uranium Recovery Program. Washington's Agreement includes all of the non-common performance indicators.

##### 4.1 Legislation and Program Elements Required for Compatibility

###### 4.1.1 Legislation

Washington became an Agreement State in 1966. Along with their response to the questionnaire, the Division provided the review team with the opportunity to review copies of legislation that affect the radiation control program. The currently effective statutory authority is contained in the Revised Code of Washington (RCW), Nuclear Energy and Radiation (RCW 70.98) and Mill Tailings, Licensing and Perpetual Care (RCW 70.121). The Department is designated as the State's radiation control agency and implements the radiation control program.

###### 4.1.2 Program Elements Required for Compatibility

RCW applies to all ionizing radiation and provides the statutory authority for radioactive materials, the low-level radioactive waste, and the uranium mill programs. Regulations are provided in the Washington Administrative Code. The program also is impacted by RCW 70.94, Washington Clean Air Act. Washington requires a license for possession and use of all radioactive material including naturally occurring materials, such as radium, and accelerator-produced radionuclides. The State also requires registration of all equipment designed to produce x-rays or other ionizing radiation.

The review team examined the State's administrative rulemaking process and found that the process takes about 6 to 8 months from the development stage to the final adoption by the Secretary and filing with the Code Reviser, after which the rules become effective in 31 days. The public, the NRC, other agencies, and all potentially impacted licensees and registrants are offered an opportunity to comment during the process. Comments are considered and incorporated as appropriate before the regulations are finalized, approved, and filed. The Division also has the authority to issue legally binding requirements (e.g., license conditions) in lieu of regulations until compatible regulations become effective.



The team evaluated the Division's response to the questionnaire, reviewed the status of regulations required to be adopted by the State during the review period, and verified the adoption of regulations with data obtained from the Office State Programs Regulation Assessment Tracking System. The review team noted that since the June 1995 review, the State updated the Department regulations for Radioactive Materials as follows:

- ! "Definition of Land Disposal and Waste Site QA Program," 10 CFR Part 61 amendment (58 FR 33886) that became effective on July 22, 1993 was adopted by the State and became effective January 20, 1997.
- ! "Decommissioning Recordkeeping and License Termination: Documentation Additions," 10 CFR Parts 30 and 40 amendments (58 FR 39628) that became effective on October 25, 1996 was adopted by the State and became effective May 3, 1997.
- ! "Uranium Mill Tailings Regulations: Conforming NRC Requirements to EPA Standards - Part 40," (59 FR 28220) that became effective on July 1, 1994 was adopted by the State and became effective July 17, 1997.
- ! "Timeliness in Decommissioning of Materials Facilities," 10 CFR Parts 30, 40, and 70 amendments (59 FR 36026) that became effective on August 15, 1994 was adopted by the State and became effective May 3, 1997.
- ! "Preparation, Transfer for Commercial Distribution, and Use of Byproduct Material for Medical Use," 10 CFR Parts 30, 32, and 35 amendments (59 FR 61767 and 65243) that became effective on January 1, 1995 was adopted by the State and became effective July 9, 1998.
- ! "Frequency of Medical Examinations for Use of Respiratory Protection Equipment," 10 CFR Part 20 amendment (60 FR 7900) that became effective on March 13, 1995 was adopted by the State and became effective July 9, 1998.
- ! "Low-Level Waste Shipment Manifest Information and Reporting," 10 CFR Parts 20 and 61 amendments (60 FR 15649 and 25983) that became effective March 1, 1998. The Agreement States were to promulgate their regulations no later than March 1, 1998, so that NRC and the State would require this national system to be effective at the same time. The State's regulation became effective May 23, 1998.
- ! "Performance Requirements for Radiography Equipment," 10 CFR Part 34 amendment (60 FR 28323) that became effective on June 30, 1995 was adopted by the State and became effective March 8, 1999.
- ! "Radiation Protection Requirements: Amended Definitions and Criteria," 10 CFR Parts 19 and 20 amendments (60 FR 36038) that became effective on August 14, 1995 was adopted by the State and became effective March 8, 1999.

- ! “Clarification of Decommissioning Funding Requirements,” 10 CFR Parts 30, 40, and 70 amendments (60 FR 38235) that became effective on November 24, 1995 was adopted by the State and became effective May 3, 1997.
- ! “Medical Administration of Radiation and Radioactive Materials,” 10 CFR Parts 20 and 35 amendments (60 FR 48623) that became effective on October 20, 1995 was adopted by the State and became effective July 9, 1998.
- ! “Criteria for the Release of Individuals Administered Radioactive Material,” 10 CFR Parts 20 and 35 amendments (62 FR 4120) that became effective May 29, 1997 was adopted by the State and became effective July 9, 1998.
- ! “Transfer for Disposal and Manifests; Minor Technical Conforming Amendment,” 10 CFR Part 20 (63 FR 50127) that became effective November 20, 1998 was adopted by the State and became effective May 23, 1998.

The following regulation amendments were provided to the NRC on June 11, 1999 for comment, and a public hearing was held by the State on July 9, 1999. NRC reviewed the proposed rules for compatibility and had no comment on the rules as proposed. Following the review, the team was notified that these proposed rules became effective on August 21, 1999.

- ! “10 CFR Part 71: Compatibility with the International Atomic Energy Agency,” 10 CFR Part 71 amendments (60 FR 50248) that became effective on April 1, 1996, was adopted by the State and became effective August 21, 1999.
- ! “Termination or Transfer of Licensed Activities: Recordkeeping Requirements,” 10 CFR Parts 20, 30, 40, 61, and 70 amendments (61 FR 24669) that became effective on June 17, 1996, was adopted by the State and became effective August 21, 1999.
- ! “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, was adopted by the State and became effective August 21, 1999.
- ! “Recognition of Agreement State Licenses in Areas Under Exclusive Federal Jurisdiction Within an Agreement State,” 10 CFR Part 150 amendment (62 FR 1662) that became effective February 27, 1997, was adopted by the State and became effective August 21, 1999.

The team identified the following regulation changes and adoptions that will be needed in the future, and the Division management related that the regulations would be addressed in upcoming rulemakings or by adopting alternate legally binding requirements:

- ! “Licenses for Industrial Radiography and Radiation Safety - Requirements for Industrial Radiography Operations,” 10 CFR Parts 30, 34, 71, and 150 amendments (62 FR 28947) that became effective June 27, 1997.

- ! “Radiological Criteria for License Termination,” 10 CFR Parts 20, 30, 40, and 70 amendments (62 FR 39057) that became effective August 20, 1997.
- ! “Exempt Distribution of a Radioactive Drug Containing One Microcurie of Carbon-14 Urea,” 10 CFR Part 30 amendment (62 FR 63634) that became effective January 2, 1998.
- ! “Deliberate Misconduct by Unlicensed Persons,” 10 CFR Parts 30, 40, 61, 70, and 150 amendments (63 FR 1890 and 13773) that became effective February 12, 1998.
- ! “Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations,” 10 CFR Part 34 amendment (63 FR 37059) that became effective July 9, 1998.
- ! “Minor Corrections, Clarifying Changes, and a Minor Policy Change,” 10 CFR Parts 20, 32 and 39 amendments (63 FR 39477 and 63 FR 45393) that became effective October 26, 1998.

It is noted that Management Directive 5.9, Handbook, Part V, (1)(C)(III) provides that the above regulations issued prior to September 3, 1997 should be adopted by the State as expeditiously as possible, but not later than three years after the September 3, 1997 effective date of the Commission Policy Statement on Adequacy and Compatibility, i.e., September 3, 2000.

Based on the IMPEP evaluation criteria, the review team recommends that Washington's performance with respect to the indicator, Legislation and Program Elements Required for Compatibility, be found satisfactory.

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

In assessing the Radioactive Materials Section's Sealed Source & Device (SS&D) evaluation program, the review team examined information provided in the response to the IMPEP questionnaire on this indicator. A review of selected new and amended SS&D evaluations (Appendix F) and supporting documents covering the review period was conducted. The team observed the Radioactive Materials Section's use of guidance documents and procedures, and interviewed the Radioactive Materials Section Head and the two SS&D reviewers.

The Manager, Industrial Licensing, conducts the SS&D reviews and the Manager, Medical Licensing, performs the concurrence reviews. The Radioactive Materials Section Head indicated that for a medical SS&D review the roles of the reviewers would be reversed. These reviews are technical in nature, to ensure the technical soundness, readability, and understandability of the registration certificates.

##### 4.2.1 Technical Quality of the Product Evaluation Program

During the review period seven SS&D certificates were issued by the Division. Three new SS&D certificates were issued and four certificates were amendments for two devices. One of the amended certificates was originally issued to contain non-AEA material and later amendments were made to include AEA material.

Analysis of the files and interviews with the staff confirmed that the Division follows the recommended guidance from the NRC SS&D training workshops. The registration files contained all correspondence, photographs, engineering drawings, radiation profiles, and results of tests conducted by the applicant. In addition, the SS&D review checklist received at the NRC SS&D workshop was used to assure all relevant materials had been submitted and reviewed. The checklist was contained in the registration file. The Division management indicated that the guidance in NUREG-1556, Volume 3, issued September 1997, will be utilized for future reviews. All pertinent ANSI Standards, Regulatory Guides, and workshop references were confirmed to be available and are used when performing SS&D reviews. The Radioactive Material Section Head related that the non-AEA material reviews are performed in the same procedural manner using the same references as used for AEA sources and devices.

#### 4.2.2 Technical Staffing and Training

The Manager, Industrial Licensing, conducts the SS&D reviews and a second reviewer performs the concurrence reviews. Both individuals sign the registry sheet and both have attended the SS&D workshops sponsored by NRC and both have had several years experience reviewing license applications and SS&D applications. The Manager is committed to maintaining a high degree of quality in their SS&D reviews and related that additional training and/or another workshop is needed to update staff skills and knowledge. The team related to the reviewers that another workshop is being planned. The Manager also stated that additional engineering support is available from the Waste Management Section if needed. The team determined that the reviewers meet the technical training required for SS&D reviews as described under the guidance.

#### 4.2.3 Evaluation of Defects and Incidents Regarding SS&Ds

No incidents or defects related to SS&Ds were reported with these devices during the review period. The team also verified that there were no reported incidents through discussions with the reviewers and the Radioactive Materials Section Head, and an on-line search by device and manufacturer utilizing the NMED system was conducted by the team prior to the review.

Based on the IMPEP evaluation criteria, the review team recommends that Washington's performance with respect to the indicator, Sealed Source and Device Evaluation Program, be found satisfactory.

#### 4.3 Low-Level Radioactive Waste (LLRW) Disposal Program

US Ecology, Inc. (USE) is licensed by the Division to receive, handle, process, store, and dispose of LLRW for the Richland, Washington site. The license establishes regulatory conditions and procedures that USE must comply with regarding waste acceptance, site operation, and environmental monitoring. Commercial disposal of LLRW at the Richland site began in 1965. Twenty-five license amendments have been issued primarily to address changes in license conditions. The last amendment was issued February 17, 1999. An application for license renewal has been in timely renewal since 1996. The Waste Management Section has completed its review of the site closure plan; however, a decision on the license renewal is pending completion of an Environmental Impact Statement (EIS) that will consider various options for closure of the site. The EIS is tentatively planned for completion in November 1999.

The LLRW disposal program review was initiated through an early evaluation of relevant background materials, including the Waste Management Section's Technical Evaluation Report for the 1996 US Ecology Site Stabilization and Closure Plan, Technical Evaluation Report on Potential Dose Pathways for Disposal of the Portland General Electric's Trojan Reactor Vessel, and responses to the questionnaire. A one-day site visit to the Richland LLRW disposal facility was conducted on September 1, 1999, by a review team member, to accompany the Division's site inspectors in their routine inspection of the facility.

In conducting this IMPEP review, five sub-indicators were used to evaluate the Division's performance regarding its low-level radioactive waste disposal program. These indicators include: (1) Status of Low-Level Radioactive Waste Disposal Inspection; (2) Technical Quality of Inspections; (3) Technical Staffing and Training; (4) Technical Quality of Licensing Actions; and (5) Response to Incidents and Allegations. The results of the LLRW disposal program review will be discussed under each of these sub-indicators.

#### 4.3.1 Status of Low-Level Radioactive Waste Disposal Inspection

The review team found that the Richland LLRW disposal site is inspected annually as prescribed in NRC Inspection Manual Chapter 2800. Inspection of the site, by the Waste Management Section senior inspectors, is designed to ensure compliance with the requirements of the facility standards manual, the site radiological operating procedures, licensing conditions, and regulations. Partial inspections are performed approximately four times per year at the LLRW site, with each inspection focusing on different areas. All of the inspection areas are covered at a minimum frequency of once per year. In addition to the annual inspections, the Waste Management Section onsite representative performs a monthly inspection of the site looking at a shorter list of site requirements. The review team confirmed the frequency of inspections through review of the inspection report files.

The review team analyzed the Division's capability for maintaining and retrieving data on the status of the inspection program. Based on an interview with the Waste Management Section Head, the review team found that an official electronic database which summarizes the inspection status has not been established; however, one of the senior inspectors maintains his own electronic database. Printouts are kept in the inspection files. Given that partial inspections are conducted at the site, such a database is important in identifying which specific requirements have not been addressed in prior inspections.

The review team found that inspection findings are communicated to the licensee in a timely manner. In reviewing the inspection files, the team found that inspection findings are communicated to the licensee using a form similar to NRC's Form 591 issued onsite or in a notice of correction letter. These forms are generally used for small infractions. Notice of correction letters are issued for significant infractions and/or for a large number of infractions. The team found these to be routinely issued within 30 days of the inspection.

#### 4.3.2 Technical Quality of Inspections

A review team member accompanying inspectors combined with a review of inspection files indicate inspection findings are well founded and well documented. The Waste Management

Section inspections were thorough, technically accurate, complete, consistent, and of high quality with sufficient documentation to ensure that the licensee's performance with respect to health and safety were acceptable.

The team reviewed inspection files for 1995-1999. The team reviewed the inspection files for 1998 and 1999 in greater detail than the other years. A review of completed inspection reports indicates that inspections are complete and reviewed promptly by the Waste Management Section Head. The team found that follow-up inspections addressed previously identified open items and/or past violations. An annual summary is provided in each file identifying open items for the year and whether or not they were closed. The files contain the inspection checklist, field notes, notices to the licensees, and some digital photographs of the site. The team also found through examination of these files that a supervisory accompaniment of the site inspectors is regularly made (on an annual frequency).

The team also reviewed notebooks and files maintained by the onsite inspector at the site. The onsite inspector maintains files on waste generators. In addition, notebooks are kept documenting a weekly summary of shipments, fence-line surveys performed by the inspector, and waste container inspections, which included some digital photographs.

The Waste Management Section has recently developed inspection procedures which spell out the frequency of inspections, inspection preparation requirements, inspection reporting requirements, and the checklist of licensing requirements. The procedures also include appropriate forms and sample letters for documenting findings. The Waste Management Section also maintains, at the site, a set of more specific inspection procedures for the onsite inspector.

#### 4.3.3 Technical Staffing and Training

The review team evaluated the Waste Management Section staffing in support of the LLRW program. The team identified nine staff members currently supporting the LLRW program, including the Waste Management Section Head, an administrative assistant, and staff with backgrounds in health physics, physics, nuclear engineering, hydrogeology, geochemistry, geotechnical engineering, mechanical engineering, and civil engineering. Based mostly on interviews with the staff, the team found that all technical staff hold bachelors degrees or higher, or equivalent training and experience. In addition, the team noted that contractual support is commonly used to acquire additional expertise as needed. The review found that the qualifications of the technical staff are generally commensurate with the expertise identified as necessary to regulate an LLRW disposal facility. Waste Management Section staff turnover has been low.

At the time of the review, the review team found the staff training records to be incomplete. Some files had no training information at all, and for some staff no file had been established. In addition, only one file contained adequate information (e.g., resume and training history) to allow an independent assessment of the staff qualifications. The Waste Management Section has recently developed staff qualifications and training procedures. These procedures call for staff to work with their supervisor in identifying and attending appropriate training courses. In addition, the supervisor is to maintain a central training record for each staff member and track the progress of staff toward qualification in specific program areas. Based upon the team's review of the staff

training files, this procedure is still in the early stages of implementation. The only list of training courses identified in any of the files is the core courses listed in IMC 1246. No other pertinent courses were identified. The team found that some staff has taken several of the core courses identified in IMC 1246, while other staff has taken none. None of the staff has completed all of the core courses or equivalent training as identified in IMC 1246. Some staff has taken other training courses; however, these are not included in the list of courses to be tracked by the supervisor. At the November 16, 1999 MRB meeting, the Waste Management Section Head stated that the qualification and training procedures were in the process of being revised and that the Section was dedicated to providing the necessary training for staff members. As noted in Section 3.3, the MRB discussed the training issues with the Division management and review team and found the Divisions efforts to address these concerns acceptable.

#### 4.3.4 Technical Quality of Licensing Actions

USE's license to operate the LLRW disposal facility was placed in timely renewal in 1996. The existing license, which was set to expire after May 31, 1997, will remain in effect while the renewal application is reviewed. The Waste Management Section is currently developing an EIS which will look at various options for closing the site. The Waste Management Section has decided to forego renewal of the operating license until completion of the EIS. In interviews with the Waste Management Section staff, the team has determined that the EIS process has had public involvement. Concerns and issues raised by various stakeholders are being considered in the EIS.

In accordance with condition number 66 of their license, USE is required to submit, every four years for the Waste Management Section's review, an updated facility closure and stabilization plan. The last plan was submitted in September 1996. The Waste Management Section has written a technical evaluation report (TER) documenting their review of the closure plan. The review team primarily evaluated the technical quality of licensing actions for the LLRW program by reviewing this TER since the majority of the Waste Management Section technical staff worked on it. In addition to reviewing the TER for the USE site closure plan, the team also reviewed the TER developed for the Portland General Electric's Trojan Reactor Vessel disposal. The team's review of these documents found that license reviews within the LLRW program are thorough, complete, consistent, and of acceptable technical quality. In reviewing USE's site closure plan, the Waste Management Section performed a detailed assessment of USE's performance assessment, including identifying potential shortcomings. For both the review of the site closure and review of the reactor vessel disposal, the Waste Management Section used NRC guidance as appropriate and published research conducted at the Richland site. In addition to reviewing the Waste Management Section's performance assessment, the Waste Management Section performed their own confirmatory analyses using contractors to support and review their analysis as needed. The Waste Management Section is currently undertaking a probabilistic assessment to gain additional insights into the USE site's performance in support of the EIS. As part of the review of the site closure plan and in support of the EIS, the Waste Management Section has also performed an independent cost estimate for site closure and long-term perpetual care and maintenance of the site. This information will be used in determining whether or not there are adequate funds currently available or will be available when the site is closed. The review team found the Waste Management Section staff to be appropriately utilizing insights from their assessments in establishing licensing conditions and managing the operation of the facility.

In addition to reviewing the TER for the site closure and the reactor vessel disposal, the review team also reviewed license amendments 20-25 to the USE license and the waste acceptance variance requests for Moravek Biochemical, Siemens, and M.F. Physics Corporation. The review team found the technical quality of these licensing actions to be generally acceptable; however, better documentation is needed to explain the nature and rationale for the given licensing action. For example, Amendment No. 22 of the USE license was initiated by the Waste Management Section to change several licensing conditions; however, the team found no documentation explaining the need for changing the conditions or the rationale for why the intended change was deemed to be appropriate.

The Waste Management Section has recently developed license review procedures for the LLRW program. These procedures encourage the use of NRC and international guidance as appropriate. However, the procedures do not specifically identify which guidance should be used or how specific aspects of the review should be found to be acceptable (i.e., the technical basis for accepting specific aspects of the license).

#### 4.3.5 Response to Incidents and Allegations

The review team examined the casework on incidents and allegations within the LLRW program. During 1996, the team found that two incidents were reported and one allegation which was referred to the Division by NRC. The team found that actions taken by the Waste Management Section were generally appropriate and very timely. Incidents and allegation were quickly investigated (within a day) and closed within a week. The review team found the level of effort to be appropriate for the given incident. Neither of the two incidents warranted notification of the NRC.

The Waste Management Section has recently developed procedures for handling incidents and allegations, which were issued August 30, 1999. The procedures for handling allegations include information on protecting the identity of the allegor, documentation of the allegation, and tracking the allegation by management. The procedures for handling incidents include information on what constitutes an incident, appropriate documentation of the incident, reference to abnormal occurrences criteria for States, and tracking the incident by management. Based on review of the documentation and tracking, it appears that the procedures are still in the early stages of implementation.

Based on the IMPEP criteria, the review team recommends that Washington's performance with respect to the indicator, Low-Level Radioactive Waste Disposal Program, be found satisfactory.

#### 4.4 Uranium Recovery Program

In conducting this IMPEP review, five sub-indicators were used to evaluate the Division's performance regarding its uranium recovery program. These indicators include: (1) Status of Uranium Recovery Inspection Program; (2) Technical Quality of Inspections; (3) Technical Staffing and Training; (4) Technical Quality of Licensing Actions; and (5) Response to Incidents and Allegations. The results of the uranium recovery program review will be discussed under each of these sub-indicators.



#### 4.4.1 Status of the Uranium Recovery Inspection Program

The review team focused on several factors in evaluating the Waste Management Section's performance for this sub-indicator, including inspection frequency, overdue inspections, timely issuance of inspection reports and findings to licensees, inspection follow up, and retrievability of uranium recovery inspection materials. The review team's evaluation is based on a review of the Waste Management Section's responses to the questionnaire, the uranium recovery inspection schedule, inspection casework files, and interviews with inspection staff and management.

During the review period, the Waste Management Section reviewed licensee submittals and inspected uranium recovery facilities in various stages of operation. The program regulates two conventional uranium mills: Dawn Mining Company (Dawn), that operated during the review period; and Western Nuclear, Inc., Sherwood Project (Sherwood), that is currently under reclamation.

Based on review of the inspection files, it was determined that inspection frequency is more frequent than IMC 2801, "Uranium Mill and 11e.(2) Byproduct Material Disposal Site and Facility Inspection Program." Partial inspections are performed approximately four times per year at the Dawn active mill, with each inspection focusing on different areas. All of the inspection areas are covered at a minimum frequency of once per year. This guarantees that a complete inspection is performed at least once per year, but since previous issues and deficiencies are evaluated in the next quarterly inspection, the problem areas are inspected more frequently. The team finds this practice to be satisfactory. It should be noted that for the Sherwood site, inspections and construction reviews are numerous and sometimes performed two times a month by Waste Management Section staff that are located in the area of the mill. As a result of the frequent inspections, the team concludes that there are no overdue inspections.

Based on review of the inspection casework files, the team noted that inspection reports are written within 30 days of the inspection, appropriate follow-up actions are conducted if deficiencies are identified, and casework files are easily retrieved and accessible. The reports are reviewed by management and receive appropriate attention.

#### 4.4.2 Technical Quality of Inspections

In reviewing this sub-indicator, the review team examined inspection files, inspection reports, and enforcement documentation for the uranium mills identified in Appendix C. The review covered several inspections conducted during the review period representing a range of uranium recovery inspection activities in various stages of license operations. Inspectors and management were interviewed to assess the adequacy of their preparation for the inspections, the depth and content of the actual inspections, and the appropriateness of inspection findings. The review team's findings are discussed below.

Most inspections are team inspections. The inspection team will review relevant inspection procedures identified in a checklist format and also review previous inspection reports and other background information prior to the inspection.

The review determined that, during a typical inspection, inspectors observe licensee operations; interview workers, managers, and contractors; review facility records; examine site operating plans and procedures; and make independent measurements during inspections, as appropriate. These activities were also verified through an inspection accompaniment that was performed during the review. Although the Waste Management Section inspectors primarily focus on health physics and radiation safety issues, they also routinely inspect for environmental monitoring, management and organizational issues, and general housekeeping practices.

The review team found that the inspection reports provided appropriate depth of coverage. They addressed compliance conditions for the licensees, and demonstrated that the inspectors pursued root causes where problems or violations were identified.

The review team determined that during the review period, the uranium recovery inspectors had been accompanied by their supervisors on several occasions. These accompaniments were adequately documented. The review team found that the Waste Management Section Head routinely meets with the uranium recovery inspectors after their inspections to review inspection findings and to plan follow-up strategy.

Based on a site visit with the Department of Energy (DOE) to the Sherwood site and review of inspection files, the review team learned that Waste Management Section inspectors are not using any specific inspection written procedures. As an example, one NRC inspection procedure, On-Site Construction, is available for use by Agreement States and specifically addresses onsite construction reviews and placement of erosion protection. This inspection procedure suggests specific activities that inspectors should perform when checking the depth, gradation, and adequacy of rock placement. The team considers that use of this inspection procedure, or an equivalent, could have improved the quality of the inspection at the Sherwood site as well as benefitting future inspections at Dawn and the commercial low-level waste site.

The review team also learned that inspections are performed using mill-specific and license-specific checklists. Although the team finds this practice acceptable and has led to an adequate inspection program, the team believes that the State should develop specific inspection procedures in the uranium recovery area containing information similar to the NRC inspection procedures for uranium recovery. For example, NRC inspection procedures cover such areas as Management Organization and Controls, On-Site Construction, and Emergency Preparedness. The review team believes that the inspection staff would benefit from having procedures with details of how inspectors should evaluate each specific inspection area with criteria for acceptability. The review team discussed the usefulness of such procedures with the Waste Management Section in assuring consistency and continuity between inspections, and in the event of staff turnover. The review team recommends that the State develop additional specialized inspection procedures for the uranium recovery program.

#### 4.4.3 Technical Staffing and Training

In reviewing this sub-indicator, the review team evaluated the uranium recovery staffing level, the technical qualifications of the staff, staff training, and staff turnover. This evaluation included general examination of training records of the uranium recovery staff and the qualifications of the reviewers assigned to perform specific reviews of surface water hydrology and erosion protection aspects of site closure.

Various members of the Waste Management Section staff participate in inspections and licensing activities at the two uranium recovery sites. The amount of participation varies, depending on the individual, their qualifications, and their workload. During the review period, there was no staff turnover in the uranium recovery program. Based on discussions with management, no turnover is expected in the immediate future.

Review of the Waste Management Section staff qualifications indicates that the inspectors and technical reviewers generally have strong health physics or radiation safety backgrounds, and the health physics focus of the inspections has been strong. The engineering staff includes a mechanical, nuclear and civil engineer. In the areas of surface water hydrology and hydraulic engineering, much of the expertise by the Waste Management Section has been gained by licensing experience for the Dawn and Sherwood reclamation plans. Through numerous reviews of engineering analyses and interactions with licensees and consultants, this experience has been used to develop conclusions related to the adequacy of several site closure plans. Waste Management Section expertise and experience is further supplemented by the use of professional engineers and technical experts from other State agencies, including surface water hydrology experts, dam safety engineers, and geotechnical engineers.

However, the review team noted from the review of training records and discussions with staff, that staff has limited experience in certain areas and has not received specialized training in areas, such as the construction and placement of erosion protection. The review team concludes that additional training and experience of the inspection staff in these areas will improve the quality of inspections at Sherwood, Dawn, and the Richland LLRW site.

At the time of the review, the IMPEP team suggested that this training could be accomplished by having Waste Management Section staff directly observe the placement of riprap at several sites that have been completed and were found acceptable. A portion of this training was facilitated and conducted by the review team member on October 25-28, 1999. During the November 17, 1999 MRB, the Division management noted the success of this training provided by NRC.

Based on examination of training files and discussions with Waste Management Section staff and management, formal training in several specific program areas, such as surface water hydrology, has not been received. The review team discussed with Waste Management Section staff formal training in various areas such as flood analysis, water surface profile analysis, erosion protection design, sediment analysis, and rock durability. The review team believes that Waste Management Section staff would benefit from additional training, particularly in areas where new models and analytical techniques for calculating floods, sediment yield, and other design conditions have recently been developed. At the November 16, 1999 MRB meeting, the Waste Management Section Head stated that the qualification and training procedures were in the process of being revised and that the Section was dedicated to providing the necessary training for staff members. The current status of the Division's training qualification procedure can be found in Section 3.3.

Overall, based on review of two site closure plans for the Dawn and Sherwood sites, the team concludes that the qualifications of the reviewers and inspectors are sufficient to regulate uranium recovery facilities.

#### 4.4.4 Technical Quality of Licensing

The Waste Management Section normally uses a team approach to review various aspects of a reclamation plan or other licensing actions. Any expertise that is not available in the Waste Management Section is supplemented through the use of other State agencies such as the Washington Department of Ecology, where various engineers and professionals are employed.

The review team reviewed groundwater hydrology, surface water hydrology, and erosion protection aspects of two closure plans currently under review by the Waste Management Section. The team did not review other areas such as geotechnical engineering or radiological cleanup.

Based on this review, the team determined that the Waste Management Section analyses are of acceptable technical quality. All major review areas are addressed by technical evaluations in areas such as flood determinations, water surface profiles, erosion protection design, sediment analyses, and rock durability. The Waste Management Section analyses followed design practices recommended in various NRC technical publications (NUREGs) or other guidance documents developed by the NRC staff.

The team also evaluated licensing actions related to the Dawn mill, in active production. Based on an inspection accompaniment and a review of the licensing file, the team concludes that licensing actions are appropriate and that the license conditions are clear and well-written. Requirements associated with these conditions are based on a need to meet the Department's regulations and to protect health and safety.

In follow-up activities related to the construction issues identified at Sherwood, the Waste Management Section staff has further evaluated the existing site construction conditions, developed reports documenting their findings, issued questions and comments to the licensee, and has acted to resolve any potential issues related to rock placement and rock durability. The review team concludes that the rock placement training identified in Section 4.4.3 should be completed within the next 2-3 months, so that the Waste Management Section staff will be able to better evaluate licensee responses to the recent Waste Management Section questions and comments.

#### 4.4.5 Incidents and Allegations

For this sub-indicator, the review team examined several files related to uranium recovery incidents and allegations. The review team determined that the Waste Management Section process, procedures, and overall performance for uranium recovery facilities were acceptable.

During the review period, the Waste Management Section responded to three allegations in the uranium recovery area. Based on review of the casework files, the team determined that the Waste Management Section acted promptly and appropriately in resolving the concerns.

The Waste Management Section also responded to four incidents that occurred during the review period. The review team found the level of effort to be appropriate for the given incident. None of the incidents warranted notification of the NRC.

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

## 5.0 SUMMARY

As noted in Sections 3 and 4 above, the review team found Washington's performance to be satisfactory for all nine performance indicators. Accordingly, the review team recommended and the MRB concurred in finding the Washington Agreement State program to be adequate to protect public health and safety and compatible with NRC's program.

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

### RECOMMENDATION:

1. The review team recommends that the State develop additional specialized inspection procedures for the uranium recovery program. (Section 4.4.2)

### GOOD PRACTICES:

1. The Division has a policy of hand-delivering initial licenses which gives the Radioactive Materials Section staff an opportunity to discuss the ramifications of the license with the new licensee. The review team noted that initial inspections were performed within six months of license delivery or material receipt, in accordance with IMC 2800 requirements. Additionally, follow-up inspections were performed one year from the date of each initial inspection. At the November 16, 1999 meeting, the MRB discussed the Division's policy of hand delivering initial licenses and then completing two inspections over the next year and a half and deemed this to be a good practice.

## LIST OF APPENDICES AND ATTACHMENTS

Appendix A	IMPEP Review Team Members
Appendix B	Washington's Organization Charts
Appendix C	Inspection Casework Reviews
Appendix D	License Casework Reviews
Appendix E	Incident Casework Reviews
Appendix F	Sealed Source and Device Casework Reviews
Attachment 1	Washington's October 22, 1999 E-mail Response to the Draft IMPEP Report

## APPENDIX A

### IMPEP REVIEW TEAM MEMBERS

<b>Name</b>	<b>Area of Responsibility</b>
Richard L. Woodruff, Region II	Team Leader Response to Incidents and Allegations Legislation and Program Elements Required for Compatibility
Mark Shaffer, Region IV	Accompaniments Status of Inspection Program Technical Quality of Inspections
Lance Rakovan, OSP	Technical Staffing and Training
Michael Stephens, State of Florida	Technical Quality of Licensing Actions Sealed Source and Device Evaluation Program
Mark Thaggard, NMSS	Low-Level Radioactive Waste Disposal Program
Terry (Ted) Johnson, NMSS	Uranium Mill Program

APPENDIX B

STATE OF WASHINGTON

DEPARTMENT OF HEALTH  
and

DIVISION OF RADIATION PROTECTION

**ORGANIZATION CHARTS**





# 1996-97 Organization Chart Washington State Government

State agencies based on gubernatorial appointment authority

## Legislative Branch

## Executive Branch

## Judicial Branch

### Senate - House of Representatives

Joint Legislative Audit and Review Committee  
Legislative Transportation Committee  
Legislative Ethics Board  
Legislative Evaluation and Accountability Program

Office of the State Actuary  
Joint Legislative Systems Committee  
Redistricting Commission

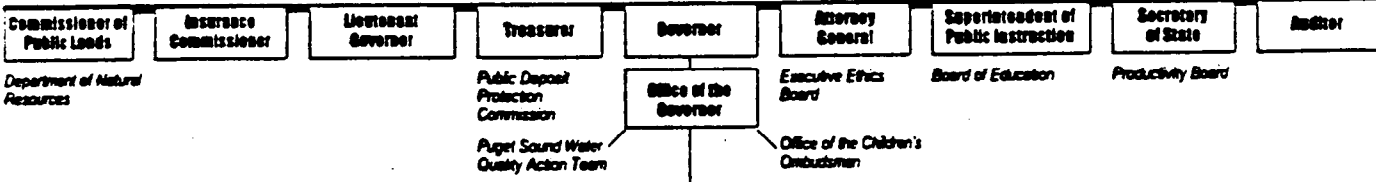
Court of Appeals  
Superior Courts  
District Courts  
Municipal Courts

### Supreme Court

Supreme Court Clerk  
Supreme Court Commissioner  
Administrator for the Courts  
Office of Public Defense

Law Library  
Reporter of Decisions  
Commission on Judicial Conduct

### Statewide Elected Officers



Environment and Natural Resources

General Government

Transportation

Health and Human Services

Education

Community and Economic Development

### Agencies with Executive Appointed by the Governor

Department of Ecology  
Department of Agriculture commodity commissions  
Office of Marine Safety  
Interagency Committee for Outdoor Recreation  
Pollution Liability Insurance Program

Office of Financial Management  
Department of General Administration  
Department of Revenue  
Department of Personnel Personnel Resources Board  
Department of Retirement Systems Employee Retirement Benefits Board  
Department of Information Services  
Lottery Commission  
Department of Financial Institutions  
Military Department  
Public Printer  
Office of Administrative Hearings  
Board of Accountancy

State Patrol  
Department of Licensing occupational regulatory boards  
Traffic Safety Commission

Department of Social and Health Services  
Department of Labor and Industries  
Department of Employment Security  
Department of Health occupational regulatory boards  
Department of Corrections  
Department of Veterans Affairs  
Health Care Policy Board  
Council for the Prevention of Child Abuse and Neglect  
Health Care Authority Public Employees' Benefits Board  
Department of Services for the Blind

School for the Blind  
School for the Deaf  
Workforce Training and Education Coordinating Board

Department of Community, Trade, and Economic Development Energy Facility Site Evaluation Council  
Office of Minority and Women's Business Enterprises  
Commission on Asian Pacific American Affairs  
Governor's Office of Indian Affairs  
Commission on African-American Affairs  
Commission on Hispanic Affairs  
Arts Commission  
Economic Development Finance Authority

### Agencies with Executive Appointed by a Board

Fish and Wildlife Commission Department of Fish and Wildlife  
Parks and Recreation Commission  
Environmental Hearings Office Pollution Control Hearings Board Shorelines Hearings Board Forest Practices Appeals Board Hydraulic Appeals Board  
Conservation Commission  
Columbia River Gorge Commission  
Growth Management Hearings Boards Eastern Washington Central Puget Sound Western Washington  
Board of Natural Resources

Personnel Appeals Board  
Liquor Control Board  
Public Employment Relations Commission  
Board of Tax Appeals  
Public Disclosure Commission  
Board for Volunteer Firefighters and Reserve Officers  
Gambling Commission  
Horse Racing Commission  
Utilities and Transportation Commission  
Investment Board  
State Law Committee Code Revisor  
Municipal Research Council  
Economic and Revenue Forecast Council  
Forensic Investigations Council  
Citizens' Commission on Salaries for Elected Officials  
State Capitol Committee  
State Finance Committee

Transportation Commission Department of Transportation  
Board of Pilotage Commissioners  
Marine Employees' Commission  
Transportation Improvement Board  
County Road Administration Board

Human Rights Commission  
Indeterminate Sentence Review Board  
Board of Industrial Insurance Appeals  
Criminal Justice Training Commission  
Sentencing Guidelines Commission  
Health Care Facilities Authority  
Board of Health

Higher Education Coordinating Board  
Governing Boards of Four Year Institutions of Higher Education University of Washington Washington State University Central Washington University Eastern Washington University Western Washington University The Evergreen State College  
Board for Community and Technical Colleges  
Boards of Trustees Community Colleges Technical Colleges  
Joint Center for Higher Education  
Library Commission State Library  
Higher Education Facilities Authority  
Washington State Historical Society  
Eastern Washington State Historical Society

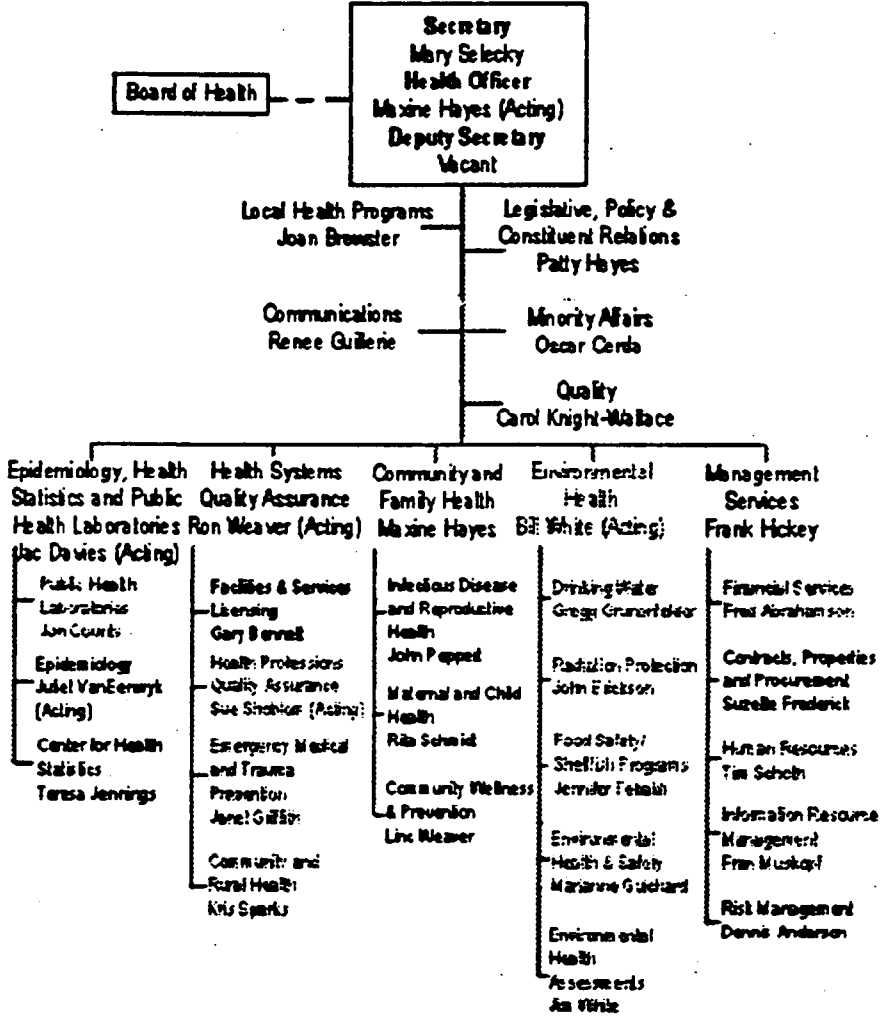
Convention and Trade Center  
Housing Finance Commission



# Agency Organization

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March 15, 1999

## Office of the Secretary

- Health Officer
- Deputy Secretary
- Legislative, Policy & Constituent Relations
- Minority Affairs
- Quality
- Local Health
- Communications

# Washington State

State of Washington  
Governor  
Gary Locke

Department of Health  
Secretary  
Mary Selecky

Environmental Health Programs  
Acting Assistant Secretary  
Bill White

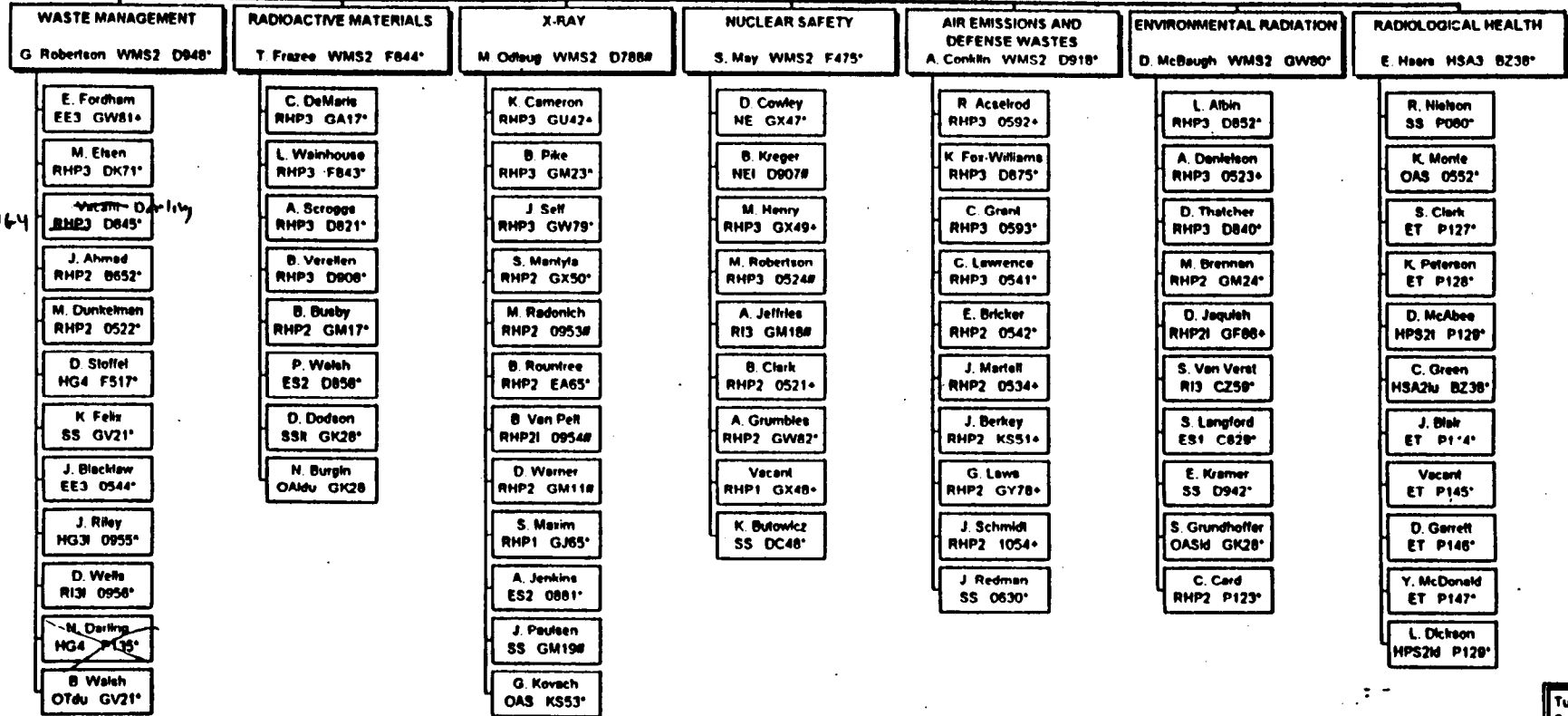
Radiation Protection  
Director  
John Erickson

# DIVISION OF RADIATION PROTECTION

**DIVISION DIRECTOR**  
 1003\*  
 J. Erickson

July 2, 1998

M. Hepburn MA2 D681\*



H64

Tumwater - \*  
 Seattle - #  
 Richland - .  
 Spokane - ^