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CERT Tribal Internship Program

FINAL INTERN REPORTS

U.S. Department of Energy Grant # FG03-93ER75931

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COUNCIL OF ENERGY RESOURCE TRIBES
AND
NATIONAL CONFERENCE OF STATE LEGISLATURES

1995 SUMMER INTERNSHIP REPORT

Prepared by

Lewis M. YellowRobe, Intern

Intern Profile
Intern Resume
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INTERN PROFILE

My name is Lewis Morsette YellowRobe. I am a member of the Gros Ventre tribe of the Fort Belknap Indian Reservation. I am the only son of Paul Byron YellowRobe and Christine Morsette. Other family includes my sister, Eleanor Morsette YellowRobe her children, Frances, and Lindsay Paul Eagleman and my brother, Byron Paul YellowRobe. I will complete my graduate program at the University of Washington's Graduate School of Public Affairs in Seattle.

This internship was a great opportunity for me to apply my public policy skills. I co-wrote one major article, "Environmental Restoration and Waste Management: Worker Health and Safety Concerns During Nuclear Facility Cleanup". I co-authored this work with my supervisor, Linda K. Murakami.

This report was a major challenge because I have not had any experience with the U.S. Department of Energy (DOE) or occupational safety issues at DOE facilities. I didn't know what I was doing, where to look or how to look. After reading three books and an internal document in five days, I brainstormed research methods and broke the project into smaller research pieces.

My most important lesson this summer finding different methods of research. I taught myself basic legal research using the Code of Federal Regulations, the Federal Register, U.S. Code, the Bureau of National Affairs Environmental Library and Corpus Juris Secundum.

I also used state codes to find the current and past status of nuclear occupational health and safety legislation. Each state uses different wording to list occupational health and safety. So, in each case, I would have to reference each heading to make certain my research was thorough.

I had one obstacle in my internship: The U.S. Department of Energy (DOE). DOE is a bloated, unresponsive bureaucracy. I would talk with one to eleven staff members before I would get a definite answer. Sometimes I would get transferred to a telephone that just rang. After a while, I stopped calling. I still have not received information I requested in June. It seems that DOE doesn't have a responsibility to serve the public.

I've had great interactions with State and quasi-private bureaucracies. They were willing to assist me and give me DOE information. Further communication with DOE is pointless.

These discoveries I made will prepare me to work with other federal bureaucracies who are non-responsive towards the public. I'm not going to apply this to every bureaucracy. Each bureaucracy has its own culture and society. Some are user-friendly. Others are not.

This was a unique internship. Advanced research methods and analytical skills are a must. Also, the intern candidate must then be tenacious. Research must be taken beyond

conventional modes to find the information.

After the research is completed, the material must be thoroughly analyzed. It would be embarrassing and highly unprofessional to present a decision maker misleading or misinterpreted information. Reputations are at stake with this information--your's, the company's and the decisionmaker's. Secondly, faulty, inaccurate information renders legislation useless. There is little room for error in this business.

Lewis M. YellowRobe
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Missoula, Montana 59801
(406) 549-7532

Objective: To work in the field of Indian public policy analysis focusing upon tribal governance.

Qualifications: **Project Organization and Management:**
Researched and co-authored Environmental Restoration and Waste Management: Worker Health and Safety Concerns during Nuclear Facility Cleanup for the National Conference of State Legislatures.
Coordinated and developed University of Washington Northwest Tribal Sovereignty Conference.
Wrote three four-page newsletters for student commission's constituency.
Planned, organized and implemented University of Montana's Kyi-Yo Youth Conference.
Developed U.S. Forest Service's Government Division's Congressional legislation tracking system.
Organized Gray Wolf Reintroduction Missoula, Montana, public hearing.

Program and Data Analysis and Evaluation:
Analyzed 1990 Washington State Census and proposed poverty public policy direction from statistical data analysis.
Examined organizational structure of a Seattle public school and proposed recommendations to strengthen organization.
Examined and categorized public comments for the U.S. Forest Service's 1990 Wilderness Dams Decision.

Project Initiative and Innovation:
Researched Department of Energy Occupational Health and Safety issues and history using legal and technical resources.
Wrote letter of inquiry to Montana Commissioner of Higher Education regarding transfer of academic credits from Tribal Colleges to the Montana University System.
Prepared Briefing Packet for Gray Wolf Reintroduction Presentation to U.S. Congressional Delegation.
Organized DEIS Gray Wolf Reintroduction 10,000+ person mailing list.

Financial Budgeting and Mangement:
Able to forecast revenues and expenditures for annual budget preparation.
Negotiated \$1,500 from University of Washington Deans for Pow-wow.
Designed and lobbied \$8,000 budget for student group.

Communications and Interpersonal Skills:
Organized and facilitated Teambuilding/Leadership Seminar for University of Washington student groups.
Assisted in the gathering of 15,000 registered voter's signatures to qualify two citizen campaign finance reform initiative for the 1994 Montana November ballot.

Facilitated small student groups during the University of Montana's summer orientation.

Addressed high school and tribal college students as a University of Montana recruiter.

Computer Program Application and Experience:

Able to effectively operate SPSS, Word Perfect, Aldus, Excel 4.0, 5.0 and Word for Windows.

Knowledge of IBM-clone, MacIntosh and Data General computer systems.

Employment History:

June 1994 to September 1995 Policy and Research Analyst, Intern, Council of Energy Resource Tribes, placed at the National Conference of State Legislatures, Denver, Colorado.

September 1994 to June 1995 Director, American Indian Student's Commission, University of Washington, Seattle, Washington.

June 1990 to June 1994 Public Affairs Assistant, USDA Forest Service, Public Affairs Office, Missoula, Montana.

September 1989 to June 1990 Stay-In-School Program, USDA Forest Service, Range and Watershed, Missoula, Montana.

Education:

1994 to 1996 Masters of Public Administration (candidate), University of Washington, Seattle, Washington.

1994 Bachelor of Arts, Political Science, University of Montana, Missoula, Montana.

Other Training and Education:

June 1994 Technology of Participation, Group Facilitation Methods, Council of Energy Resource Tribes, Denver, CO.

June 1994 Legal Research Methods, National Conference of State Legislatures, Denver, CO.

August 1994 Skills Development Seminar, National Conference of State Legislatures, Denver, CO.

Personal/Professional Development

My internship at the National Conference of State Legislatures provided me invaluable assests, skills and contacts that I will use continually throughout my professional life.

During the internship, I taught myself to conduct basic legal research. Legal research is a necessary and research method I have never used before, much to my own disadvantage. Legal references provide more credibility for a report. Statutory, administrative and judicial cases show the legitimacy or illegality of a public policy.

The National Conference of State Legislatures benefitted from my internship because I was able to effectively use my public policy skills learned in my graduate program to present a legislative report that showed the many facets of a public policy, like Congressional intent and internal Department of Energy policies that give its legitimacy and strength. These facets inform state legislators that could enable them to formulate and propose policy alternatives that could change, diminish, strenghten or abolish Department of Energy public policies.

The skills I learned and brought to this internship are invaluable to tribal governments. Tribes who rely upon the federal government to provide medical, educational and other services because of federal trust responsibilities resulting from treaties. Tribes witness services reduced because the Congress cuts budgets and/or changes its federal Indian policy. To counteract these policy shifts, Tribes rely heavily upon the legal system.

Tribes should use policy analysis in coordination with lawsuits. Every public policy has a window of opportunity that opens briefly and infrequently. When these windows open, Tribes should have policy alternatives available to propose to state legislators, executive branch official and members of the U.S. Congress. Tribes miss plenty of opportunities to formulate public policy because they are so busy "putting out fires" with lawsuits and using reactionary lobbying to new protest Congressional adverse Indian public policies.

This internship presented me with two gifts: direction and opportunity. Before this internship, I did not have a clear direction in my career goals. This internship helped me focus upon my career goals that could give me experience in the world to take back to my tribal government.

Secondly, opportunities are limitless for me. Once armed with an education and technical expertise and professional experience, I will be able to find not just a job but a career.

National Conference of State Legislatures Profile

The National Conference of State Legislatures was founded in 1975 to assist State Legislators and legislative staff who formulate public policy by providing technical research and professional services like consulting, meetings and seminars.¹

According to its literature, "the National Conference of State Legislatures is a bipartisan organization dedicated to serving the lawmakers and staffs of the nation's 50 states, its commonwealths and territories. The Conference is a source for research, publications, consulting services, meetings and seminars. It is the national conduit for lawmakers to communicate with one another and share ideas. The Conference is an effective and respected voice for the states in Washington, D.C., representing their interests before Congress, the administration and federal agencies."²

The Conference has three goals:

- * improve the quality and effectiveness of state legislatures
- * foster interstate communication and cooperation
- * ensure legislatures a strong, cohesive voice in the federal system.³

To meet its goals, the Conference provides many forms of technical assistance to the state legislatures, individual legislators and staff. Assistance includes: information requests, consulting advice, meetings and seminars, publications, state-federal relations, special services for Leaders, Special Services for Legislative Staff, Videos and a Foundation for State Legislators.⁴

The Conference is composed of members, the governing body and NCSL staff. Members include all legislators and staff from the 50 states, commonwealths and territories. The governing body is comprised of a 56-member committee composed of legislators and legislative staff. Finally, the NSCL staff are professional researchers, editors and lobbyists in the Denver and Washington, D.C. offices.⁵

1 National Conference of State Legislatures, external literature. p. 3

2 Ibid. p. 3

3 Ibid. p. 2

4 Ibid. p. 3

5 Ibid. p. 12

National Conference of State Legislatures Mentor Profile

My mentor at the National Conference of State Legislatures is Linda Murakami. She is from Denver. Her family includes her father, mother and brother. She said she has "awesome" older parents who are both retired.

Linda looks forward to the internship mentoring experience. She "hopefully wants to be useful and make it a good experience" for the intern. She wants to look at the internship differently and make it a positive experience by offering hands-on experience with policy analysis and allowing the intern to work as an individual but at the same time as part of a team. She does have one fear though that she may not be as directive as she should be. She wants to give the intern as much freedom as possible and not hover.

Linda thinks it is important that the intern be a "beneficial part of the time and product". She wants the intern to connect with the right people who can open the right doors to new careers and opportunities.

She feels she has demonstrated her mentoring experience by providing the intern opportunities to become involved with and getting experienced in public policy. She feels she's flexible and provides the intern with enough latitude and personal availability to meet project deadlines.

Internal Activity Outline

I. Project Purpose

Present State Legislators with history and overview of Department of Energy policies towards occupational health and safety during cleanup of nuclear weapons production facilities.

II. Project Objectives

Research and assess Department of Energy occupational health and safety policies.

III. Project Approach

Library research

Interviews: Phone and personal

IV. Project Results

Legislative Report

V. Project Assessment

Explained to state legislators the Department of Energy policy towards nuclear occupational health and safety during cleanup of nuclear weapons facilities.

Intern Activity Summary

I. Project Purpose

Present State Legislators with history and overview of Department of Energy policies towards occupational health and safety during cleanup of nuclear weapons production facilities. The purpose of the research and writing a legislative report was to explain and inform state legislators the status and direction of Department of Energy occupational health and safety responsibilities and policies.

II. Project Objectives

Define, summarize and explain Department of Energy occupational health and safety responsibilities and policies. The project objective was to define Department of Energy nuclear occupational health and safety at nuclear production facilities.

III. Project Approach

Library Research. Research was conducted at the Colorado Supreme Court Law Library to obtain information about Congressional and Executive branch statutes and legal cases that explains the Department of Energy and its occupational health and safety policies.

Interviews. State, Federal and Private organizations were contacted to request direction and documentation explaining occupational health and safety at Department of Energy weapons production facilities. During the research, valuable networks and resources were established for future use.

IV. Project Results

Legislative Report. The report explained to state legislators the current status of Department of Energy occupational health and safety at production facilities. The report also presented Congressional intent, past Department of Energy (DOE) occupational policies, and options for state legislators to use to get involved with DOE policy direction.

V. Project Assessment

Explained to state legislators Department of Energy (DOE) policy towards nuclear occupational health and safety during cleanup of weapons facilities. The report satisfied project purpose and objectives. It presented state legislators with historical and current legislative, executive and judicial information to explain DOE responsibilities and policies towards occupational health and safety during cleanup of nuclear weapons production facilities.

ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT:

Worker Health and Safety Concerns during Nuclear Facility Cleanup

by:

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Linda K. Murakami

Energy, Science and Natural Resources Program

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EXECUTIVE SUMMARY

Workers who will attempt to decontaminate 14 post-Cold War U.S. Department of Energy (DOE) nuclear facilities will encounter on-the-job hazards that are unknown, unpredictable and dangerous. Facility cleanup is expected to last a minimum of 30 years.

To address the uncertainties of the future, DOE is sanctioning and funding extensive historical studies of worker health effects from radiation exposure during weapons production. Simultaneously, DOE facilities are monitoring and recording worker's health to study health effects during facility cleanup.

At the same time, DOE is requiring its facilities to produce and implement radiation safety, monitoring and training programs for facility workers by January 1, 1996. These programs will attempt to safeguard and reduce radiation exposure a worker might encounter during cleanup.

The following report highlights accounts of health studies, worker health surveillance projects and radiation protection and safety training programs for worker and scientific benefit, which are a direct result of DOE changing its policy direction from weapons production to facility cleanup with a new emphasis upon worker safety.

Finally, the report lists three sources legislators can use either to get involved within or to become informed of the policy direction of occupational health and safety at DOE facilities.

INTRODUCTION: Worker Health and Safety Concerns

14 nuclear sites in the United States require cleanup and disposal of hazardous nuclear waste left over from the production of nuclear weapons during the Cold War. Cleanup is expected to last a minimum of 30 years. During cleanup, workers could encounter more intense hazardous exposures to radiation from nuclear waste than received during the weapons production era. In the past, regulations to control workers' occupational exposure to toxic substances were less stringent than those designed to protect the general public.

Those past exposure standards still hold true for radiological workers during clean up of Department of Energy (DOE) facilities. Current radiation exposure levels for radiological workers are still much higher than the public's. A DOE cost-benefit radiological control policy supports the differing radiation standards and regulations.

"There should not be any occupational exposure of workers to ionizing radiation without the expectation of an overall benefit from the activity causing the exposure."¹

DOE further explains its higher exposure levels for facility workers in that there are fewer occupational workers than the general public so higher exposure levels are acceptable.² Additionally, nuclear workers understand the occupational risks involved and choose to engage in this type of work, whatever the exposure risks are.³

At the peak of nuclear weapons production, workers at various DOE sites faced risks that often resulted from unforeseen accidents or unexpected leakages. Events such as accidental releases of uranium dust at Fernald and plutonium dust at Rocky Flats exposed shift workers to highly contaminated air. At the Oak Ridge plant, a worker died when he attempted to lift tanks with straps that were inadequate to handle the weight, and it fell on top of him.

Low morale and improper training also can be blamed for safety lapses. At the Rocky Flats plant, some workers periodically arrived for shifts intoxicated or fell asleep at dangerous jobs. At Fernald, an inspector found a work station foreman wearing beach sandals. A note stuck to an alarm stated that the alarm rang sporadically and should be ignored.⁴

The risks associated with cleanup differ from those experienced during weapons production. Although largely unknown, attempting to clean up buried wastes may prove more dangerous than leaving them undisturbed. Nuclear weapons complex employees could face safety

dangers as they decommission buildings, study groundwater movement, collect environmental samples, operate earth moving equipment, handle waste drums, dig trenches, and operate wastewater treatment facilities.

In addition to the normal hazards faced by construction trade workers, there are additional risks with possible fires and explosions, exposure to toxic chemicals, and possible inhalation of toxic, contaminated air. As a result of these working conditions, stress-related illnesses also may be expected. Even with all these risks, however, most emergencies that occur during the cleanup of the facilities are likely to be less calamitous than the worst-case scenarios associated with weapons production activities.⁵

BACKGROUND: Congressional Intent and U.S. Department of Energy Policies

In the late 1980s, U.S. Department of Energy (DOE) changed its program direction from the manufacture of nuclear weapons to cleanup of nuclear production facilities. To guide its new policy direction, DOE issued in 1989 the first Five-Year Plan for Environmental Restoration and Waste Management for the cleanup of its nuclear facilities.

Within the Plan's cleanup goals, the 1989 DOE Five-Year plan listed four priority areas that demonstrates DOE's commitment to occupational health and safety in the cleanup process. Priority 1 sought increased activities that "prevent near-term adverse impacts to workers, the public and the environment".⁶ Priority 2 lists DOE cleanup commitments and timelines.⁷ Priority 3 encourages a reduction of risks or costs from external regulations.⁸ Priority 4 called for the reduction of "personnel (radiation) exposures below levels required by regulations or standards."⁹

Along with Priority 4, ten State Governors, whose states host or are impacted by DOE nuclear facilities, requested increased health studies to reveal the effects of occupational exposure of nuclear workers who will cleanup the nuclear production sites.¹⁰ The Governors also called for worker safety and training programs.¹¹ DOE made health risk assessments a DOE commitment in its 1990 Five-Year Plan.¹² In 1991, health risk assessment studies became official DOE policy.¹³ Additionally, a federal directive required DOE to instruct its facilities to formulate radiation protection and worker safety programs for implementation by January 1, 1996.¹⁴

Although DOE has reversed its Cold War policy and encouraged public participation within the cleanup process of its nuclear weapons facilities, occupational health and safety has remained exclusively under DOE jurisdiction.

During the 1940's, military use of atomic energy became a national policy priority among military and political leaders in the nation. In 1946, The Congress drafted and passed the Atomic Energy Act (AEA). It was amended in 1954. AEA Congressional language distinguishes between military and peaceful uses of atomic energy: "Atomic energy is capable of application for peaceful as well as military purposes."¹⁵ This energy distinction provides for an exemption of DOE weapons production facilities from state occupational health and safety regulations. Further AEA language firmly places DOE production facilities under federal jurisdiction.

"...production facilities are affected with public interest, and regulation by the United States of the production and utilization of atomic energy and of the facilities used in connection therewith is necessary in the national interest to assure the common defense and security and to protect the health and safety of the public."¹⁶

With jurisdiction established, DOE asserts that no immediate health risks threaten workers at its sites. However, the 25,000 scientists, engineers and technicians¹⁷ who work to clean up the 14 nuclear weapons production facilities will face situations that involve serious environmental contamination that could endanger their health. Workers will encounter daily the danger of contact with toxic materials at the facilities. Although it is not certain what specific health risks or dangers the workers will face, DOE is responsible for protecting those who conduct the cleanup.

To uphold its commitment to and responsibility for worker health and safety, DOE is commissioning and funding worker radiation health studies and requiring each nuclear facility to formulate Radiation Protection Programs (RPPs) and Radiation Safety Training Programs (RSTPs) to ensure worker occupational safety. The various health studies will show radiation health effects either during weapons production or during facility clean-up. The RPPs and RSTPs will follow strict criteria to limit worker exposure to radiation during clean up and require specialized on-the-job training to prevent job-related accidents or accidental radiation exposure.

WORKER HEALTH STUDIES: Past, Present and Future

In light of the fact that cleanup efforts at some sites have not yet begun, there has been little investigation of the correlation between environmental remediation and worker health. It is not known what specific health risks cleanup workers face, and it is highly

uncertain what, if any, specific biologic effects result from exposure to toxic substances encountered during work with hazardous waste.¹⁸

The Department of Energy (DOE) approaches research of worker health from radiation exposure with a two-prong strategy. DOE funds federal agencies and state environmental and health agencies to conduct health studies that document worker health during the weapons production era.¹⁹ Concurrent health surveillance programs at nuclear facilities will monitor worker health during cleanup.

In the 1990 Five-Year Plan, DOE called for worker health research. Current research methods used are epidemiological studies, health risk assessments, exposure assessments, birth defects and tumor registries or other health initiatives.²⁰ *Epidemiological studies* are long-term studies that provide cause and effect relationships that could support a researchers expectations of increased diseases or illnesses after a specific event, like radiation exposure.²¹ *Health risk assessments* are "snap-shot" studies to determine potential uses of data to determine individual exposure levels could be after exposure to radiation.²² *Exposure assessments* are integrated into either a health risk assessment and/or epidemiological study to establish an individual exposure amounts and length of time exposed.²³

Historical Worker Health Studies

Studies have been done in the past to show radiation effects upon worker health. A 1981 study presented, "Mortality rates among males employed between 1943 and 1947 at a uranium processing facility".²⁴ Another study in 1985 revealed rates of cancer among employees of Lawrence Livermore National Laboratory from 1969 to 1980.²⁵ Both studies provided significant statistical support of increased cancer rates in nuclear facility workers.

Current Worker Health Studies: Rocky Flats

On-going research continues to reveal worker health effects at nuclear facilities. Amid nationwide nuclear health studies, 11 research projects could provide evidence of an increase of diseases and illnesses due to radiation exposure at the nuclear facilities during the weapons production era. Most of these projects are on-going. Results and evidence will be published when the studies are completed.

Rocky Flats Health Tracking Recall Physical Exam Program

Since 1980, the Rocky Flats Occupational Health Department has been conducting a Recall Program of retired and terminated employees having approximately 20% or more Systematic or Lung Burden of plutonium and americium and individuals having positive wounds. Qualifying individuals are -- at the plant's expense -- brought back to the plant for complete physical examinations, lung counts and urine bioassay samples. Distant participants are brought in approximately every three years. Local participants are often scheduled annually.²⁶

Health Surveillance Program

The Rocky Flats Occupational Health Department is beginning a cooperative ongoing morbidity study of active Rocky Flats employees. This study will monitor all forms of disease (work related or non-work related) that cause more than five consecutive days of absence from work, a job change, cancer or a health reason for terminating work at Rocky Flats.²⁷

Beryllium Worker Studies

The Rocky Flats Occupational Health Department has been working in cooperation with Denver's National Jewish Hospital to study beryllium exposure and methods of early diagnosis of beryllium disease. The researchers hope to develop methods to assist in the early diagnosis of the disease prior to any significant impairment of their health.

Dr. Sara Clarke, a toxicologist/immunologist researcher at Rocky Flats, has successfully isolated the beryllium antibody in beryllium exposed workers. With this breakthrough, it is hoped that additional headway can be made in determining exposure versus early diagnosis of disease.²⁸

Beryllium Worker Surveillance Study

The Department of Energy funded Rocky Flats nearly \$3 million for FYs 1991, 1992 and 1993 to contact and conduct medical and lymphocyte transformation testing of all identified Rocky Flats beryllium workers past and present in an ongoing follow-up surveillance program.²⁹

Beryllium Disease

There have been 53 cases of beryllium disease diagnosed and one death. The first case was confirmed in 1984. A 1987-1991 study identified 23 cases. The surveillance programs has identified 30 more cases.

If a patient has been exposed and tests positive in two consecutive blood tests, the person is sensitized to beryllium. Once sensitized, a medical evaluation will determine if the individual may have chronic beryllium disease.

There are two types of beryllium disease: presumed and confirmed. In presumed cases, granulomas, non-cancerous growths, have not yet been detected in the lungs. Confirmed cases show granulomas detected in the lungs.

After diagnosis, a patient has either the sub-clinical or clinical disease. With the sub-clinical disease, the patient may have no symptoms like coughing or shortness of breath, but have the chronic beryllium disease. If symptoms are displayed, the patient is considered to have clinical disease.

Granulomas are scars that develop in the lungs as a result of the lymphocytes trying to protect itself from the beryllium.

Lymphocytes are colorless cells formed in the lymph glands and released into the blood.³⁰

Women's Health Study

In October 1994, The University of Texas Medical Branch at Galveston began studying female nuclear workers at 12 U.S. nuclear weapons facilities to compile a retrospective group mortality study of tumor and non-tumor cases. The long-term objectives are to develop precise risk control for multiple exposure and other entangled risk factors, and to investigate cancer related- conditions that are not usually fatal but that may be related to exposures received in weapons facilities.³¹

Secretarial Panel for the Evaluation of Epidemiological Research Activities (SPEERA): Health Surveillance Program

In response to concerns that DOE was unable to reliably evaluate the effects of its activities on workers' health, the Secretary of Energy established the Secretarial Panel for the Evaluation of Epidemiological Research Activities (SPEERA) to study the quality of the Department's occupational health activities. The study reported although the DOE had developed health-related programs at its sites, the programs did not prevent work-related illnesses, injuries, and premature deaths. SPEERA recommended that DOE implement a health surveillance program to detect illnesses or health trends that may result from workplace exposure; DOE intends to implement such a program by 1998.

DOE has initiated health surveillance pilot programs at the Hanford, Idaho National Engineering Laboratory, Rocky Flats, Brookhaven, N.Y., and Savannah River sites.³² These programs will attempt to immediately identify risky work conditions and the employees who might be affected. If proven successful, these programs will be studied, expanded and implemented throughout the nuclear weapons complex.

The health surveillance program will consist of four components or modules. The *health events module* will contain data about worker injuries or illnesses. The *demographic module* will include descriptive data such as age, race, gender and work location of each worker. The *exposure module* will incorporate health and hygiene exposure data for each worker. The *clinical module* will contain data on physical examinations and laboratory tests conducted on workers. While the health and demographic modules already are functioning, the latter two modules still are under development. When all modules are functioning, DOE will be able to report workplace hazards and workers' health, subsequently, initiate corrective actions.

Until the health surveillance program is fully operational and worker health studies become conclusive, DOE will continue to analyze patterns of illness and injury based on information provided by workers at the sites. This information, however, is currently limited. As of 1993, the program was in effect at only seven of the 33 DOE sites and covered only 40 percent of the workforce.

RADIATION PROTECTION & SAFETY TRAINING PROGRAMS

Although SPEERA and other programs will begin to mitigate worker health risks, conflicts may arise between worker protection and cleanup priorities. Skepticism exists among some workers about the sincerity of management commitment to safety and health. These doubts are due, in part, to the perception that DOE historically has valued production over the well-being of employees. In a 1991 audit of DOE worker health and safety programs, OSHA inspectors noted that "pressures to get the job done often overrule safety and health concerns."³³

The importance of worker health and safety protection may be disregarded, especially when the workforce is unorganized, transient, and inexperienced--as is the case for a large proportion of cleanup workers.³⁴ These workers may consist of science students recruited from college campuses who will require training and experience. Additionally, more workers could encounter higher accidental radiation exposures because of union seniority preferences. Long-time weapons production workers may enter new worker cleanup classifications, but not possess the training skills and expertise to adequately perform the cleanup tasks. Workers with less seniority but more training and

experience in the cleanup process may not be able to effectively assist the cleanup process that could reduce the likelihood of radiation exposure. If the government fails to keep cleanup workers healthy and safe, serious consequences could result. It is possible that workers will hold DOE legally responsible for occupational diseases or preventable injuries.

Occupational Radiation Protection: 10 CFR 835

To reinforce its occupational radiation protection programs, DOE issued in December 1993 a directive that required its facilities to update its worker safety and training programs. The directive, Title 10 of the Code of Federal Regulations, Part 835, (10 CFR 835) Occupational Radiation Protection, replaced a 1981 DOE radiation protection order. The 1993 DOE requirement was much like the 1981 DOE policy in most aspects. The most prominent difference was the 1993 directive distinguished between 12 radiation protection components. 835 did not change radiation protection standards for the public or the environment.³⁵ It also did not establish new radiation protection requirements.³⁶

To comply with its 835 order, DOE issued in November 1994 an Implementation Guide to assist the sites to develop site-specific Occupational Radiation Protection Programs. Guideline chapters include Workplace Air Monitoring, Radiation Protection Program, Radiation Safety Training and Occupational Radiation Protection: Record-Keeping and Reporting. Each section outlines specific goals, objectives and criteria to achieve optimum worker health and safety in each radiation risk area.

In April 1994, DOE released a Radiological Control Manual to supplement the 835 order. The Manual listed DOE radiation control policy, goals, objectives and criteria. Within the Radiological Control Manual's health and safety goals, DOE issued two challenges. DOE called up each worker to take ownership of personal responsibility and accountability toward radiation and radioactivity.³⁷ Also, DOE insisted on radiation levels to be "maintained As-Low-As-Reasonably-Achievable (ALARA)".³⁸

Some chapters of the 1994 Implementation Guidance handbook are more technical in nature than other sections, and some chapters have fewer compliance standards. However, each radiation risk a cleanup worker encounters has different needs and

considerations. The Workplace Air Monitoring portion simply distinguishes between air monitoring and air sampling and lists methods to accomplish each specific air measurement.

Radiation Safety Training: 10 CFR 835

The Radiation Safety Training is the most unique section of the Implementation Guidebook. It acknowledges the distinct Cold War mission of DOE facilities and radiation risk levels of site workers will face during cleanup.³⁹ The chapter recognizes significant differences in the content of radiation safety training programs necessary for adequate protection of employees⁴⁰ and allows facilities to design specialized training programs.

Additionally, the Training chapter focuses upon worker risk categories. It takes into account different levels of risk associated with various job functions and duty locations⁴¹ by classifying facility personnel into categories such as general, workers, technicians, subcontractors, supervisory, management and support staff.

DOE intent should not be forgotten when designing a program. The original DOE intent is "to increase the level of instruction...to ensure a competent worker."⁴² A training program may be suitable for Hanford Reservation cleanup workers but not appropriate for the Oak Ridge facility workers. These training programs are designed to prevent worker safety lapses like the employee who wore beach sandals on the job or staff who arrived for shifts intoxicated.

Radiation Protection Program (RPP): 10 CFR 835

The Radiation Protection Program (RPP) is the most comprehensive chapter of the Implementation Guidebook. The most striking feature of the RPP chapter is that the 835 order is the chapter. Each chapter of the Implementation Guide is listed in this chapter and is cross-referenced with the April 1994 Radiological Control Manual to ensure compliance with the 835 Occupational Radiation Protection directive. The Control Manual compliments and enhances the Implementation Guide book. The Implementation Guidebook allows DOE facilities to create RPPs that are site-specific.

Regardless of length or depth, each section satisfies the overall DOE goal of protecting worker health and safety integrity "as-low-as-reasonably-achievable". DOE

facilities were given a January 1, 1995, deadline to submit site-specific Radiation Protection Program (RPPs) drafts to DOE for review and approval.⁴³ Site RPP implementation and compliance must be achieved by January 1, 1996.

CONCLUDING REMARKS

Uncertainties exist about the health risks that Department of Energy cleanup crews and the surrounding communities will encounter with the changing role of the facilities. The complexity of nuclear weapon facility contamination guarantees that immediate cleanup is impossible and that those areas of contamination that present the most urgent health risks will be identified first and cleaned up. During the cleanup of the nation's contaminated facilities, every effort must be made to protect the health of DOE employees who report daily to the sites. Ideally, a procedure to identify both community and worker concerns about possible health impacts will be established, which will satisfy the public's concern that every effort has been made to mitigate past, present and future health risks.

In setting cleanup priorities, a wide range of issues will be considered that might direct attention from health and safety to the concerns of surrounding communities, unforeseen technical obstacles, or legally binding agreements relating to cleanup schedules or costs.

However, the budget for the Office of Environment, Safety and Health (responsible for providing DOE's nuclear operations with health and safety protection programs) has been cut by congressional appropriations committees from \$221 million in fiscal year (FY) 1994 to \$203 million in FY 1995.⁴⁴ Even though funds are limited, it remains the federal government's responsibility to ensure that environmental restoration objectives do not expose cleanup workers and the public to greater health risks than those posed by the initial contamination itself.

These uncertainties notwithstanding, DOE is being held accountable for worker health and safety and has instituted reforms at its facilities to improve the protection of cleanup employees. New reforms will require DOE contractors to devote more resource to health and safety and managers' responsibilities for worker protection will be stressed. Other plans include enlarging and improving existing radiation protection programs within the Office of Environmental Management. Programs will be implemented to control

hazardous or toxic materials, explosive materials handling, and the posting of danger signs and tags. Site managers will engage in extensive worker health and safety training and enforce safe work practices. Additionally, workers will be trained to constantly identify and anticipate potential hazards. Equipment will be provided to workers to control radiation inhalation, ingestion and exposure--such as respirators, non-penetrating clothing and other personal protective equipment to ensure their safety.

Attempts at Preempting Federal Jurisdiction at DOE Nuclear Production Sites

Although the Department of Energy (DOE) has reversed its Cold War secrecy policy and encouraged state and public participation within the cleanup of its nuclear weapons facilities, Congressional language within the 1954 Atomic Energy Act (AEA) has assumed exclusive federal jurisdiction over nuclear weapons production sites. State radiation health and safety regulations cannot be enforced at these DOE weapons production sites. DOE oversees the health and safety protection of its workers.

States do have regulatory control over some nuclear power facilities, not production sites, if the States formulate compact or agreements with the Nuclear Regulatory Commission (NRC). However, DOE production facility sites do not fall under NRC jurisdiction. NRC jurisdiction includes only nuclear power facilities, which are considered "peaceful uses of atomic energy".⁴⁵ AEA language deems nuclear weapons production sites as a military use and production sites remain under federal authority, not subject to state laws.

Judicial Attempts

There has been one court case attempting to bring "regulation by states of radiation hazards associated with nuclear materials".⁴⁶ The U.S. Supreme Court refused to hear *Illinois v. Kerr-McGee* (1982), which upheld federal jurisdiction over "radiation hazards associated with nuclear materials."

Legislative Attempts

There have been recent attempts by private citizen groups to bring production sites, like the Hanford or Rocky Flats Sites, under state regulatory control. Drafted legislation in the 1993 session of the U.S. House of Representatives would have amended the 1954 Atomic Energy Act and brought DOE production facilities under state regulatory

control.⁴⁷ DOE would have lost authority and jurisdiction would belong to the Nuclear Regulatory Commission (NRC).⁴⁸ States would enter into agreements with the NRC and state regulations, like occupational health and safety laws, would preempt federal regulatory standards, like DOE's 10 CFR 835.⁴⁹ The bill did not survive the legislative session.

OPTIONS FOR STATE LEGISLATORS

Citizen Organizations

Decisionmakers can get involved with the future policy direction of occupational health and safety of cleanup workers at DOE production sites. Legislators can contact citizen organizations who want to abolish DOE self-regulation of weapons facilities sites.

Two citizen organizations can inform legislators of options under consideration that could remove self-regulation of DOE weapons production sites.

Committee on External Regulation of Department of Energy Nuclear Safety

Tom Issacs, Executive Director
1726 M St., N.W., Suite 401
Washington, D.C. 20036
(202) 254-3829

Conference of Radiation Control Program Directors, Inc.

Office of Executive Director
205 Capital Avenue
Nashville, TN (502) 227-4543
(615) 532-0360

Department of Energy (DOE) Production Facilities

Legislators can also contact the DOE facility Public Affairs Offices to request copies of their site-specific Radiation Protection Plans (RPPs), Worker Training Programs and other radiation safeguards to review DOE health and safety standards.

COLORADO

Rocky Flats Field Office
U.S. Department of Energy
Public Affairs Office
P.O. Box 928
Golden, CO 80401
(303) 275-4700

FLORIDA

Pinellas Field Office
U.S. Department of Energy
Public Affairs Office
P.O. Box 2900
Largo, FL 34649

IDAHO

Idaho National Engineering Laboratory
U.S. Department of Energy
Public Affairs Office
P.O. Box 1625
Idaho Falls, ID 83415
(208) 526-0111

NEW MEXICO

Sandia National Laboratories, Albuquerque
U.S. Department of Energy
Public Affairs Office
P.O. Box 5800
Albuquerque, NM 87185-0960
(505) 844-5678

NEVADA

Nevada Test Site
U.S. Department of Energy
Public Affairs Office
P.O. Box 435
Mercury, NV 89023
(702) 295-9060

OHIO

Ohio Field Office
U.S. Department of Energy
Public Affairs Office
1 Mound Road
Miamisburg, OH 45342
(513) 865-3640

TENNESSEE

Oak Ridge Operations Office
U.S. Department of Energy
Public Affairs Office
P.O. Box 2001
Oak Ridge, TN 37831
(615) 576-5454

WASHINGTON

Richland Operations Office
U.S. Department of Energy
Public Affairs Office
P.O. Box 550
Richland, WA 99532
(509) 376-7411

NEW MEXICO

Los Alamos Area Office
U.S. Department of Energy
Public Affairs Office
528 35th St.
Albuquerque, NM 87544
(505) 667-5061

NEW MEXICO

Waste Isolation Pilot Project Office
U.S. Department of Energy
Public Affairs Office
P.O. Box 3090
Carlsbad, NM 88221
(505) 887-8103

OHIO

Fernald Area Office
U.S. Department of Energy
Public Affairs Office
1400 Willey Road
Cincinnati, OH 45030
(513) 738-6200

SOUTH CAROLINA

Savannah River Operations Office
U.S. Department of Energy
Public Affairs Office
P.O. Box A
Aiken, SC 29801
(803) 725-6211

TEXAS

Amarillo Area Office
U.S. Department of Energy
Public Affairs Office
P.O. Box 30030
Amarillo, TX 79120-0030

State Departments of Health

DOE is funding some state Departments of Health to conduct studies to assess

worker health from radiation exposure at DOE's nuclear weapons facilities during the weapons production era. Legislators can contact these state agencies to inquire about the progress and structure of health studies, risk assessments and health surveillance programs at DOE nuclear facilities and the pending results.

ROCKY FLATS

The Rocky Flats weapons production facility opened in 1953. Located near Denver, Colorado, it became the focal point for the Department of Energy's plutonium operations. Using glove boxes (airtight enclosures containing openings with attached gloves), employees measured, shaped, and polished plutonium clumps into triggers for nuclear warheads.

Since plutonium is a naturally radioactive metal with pyrophoric tendencies when exposed to air, it was inevitable that Rocky Flats workers would be subjected to plutonium contamination from numerous fires and everyday conditions that released plutonium particles into the air during the plant's 40 years of operation. Accounts from former employees and autopsies performed on deceased employees make apparent the fact that the plant's atmosphere contained a significant amount of plutonium that was inhaled. In the human body, plutonium alters the cell structure of blood, lungs, liver, and bones, eventually causing cancer. During the fires, inhalation of plutonium was inevitable. When plutonium burns, it mixes with oxygen to form a compound so minute that even masks become ineffective. In preventing the plutonium from being inhaled, the insolubility of plutonium dust posed another threat to workers. These particles do not disintegrate in rain or soak into the soil, but remain airborne or on the surface of the ground for years. These particles are a continuing problem. In November 1989, plutonium operations ceased, six months after FBI agents inspected Rocky Flats for regulatory violations.

Many of the dangers associated with plutonium production have yet to be resolved. Undissolved plutonium dust remains a risk for cleanup workers, especially for those who will clean the plant's ventilation ducts. It is estimated that 62 pounds of plutonium—enough to make seven nuclear bombs—has lodged in venting ducts at Rocky Flats. Workers who clean these ducts will be exposed to gamma rays emitted by the plutonium unless they are provided with adequate shielding. Other tasks involve removal of leaking Transuranic waste (TRU) drums that currently are in storage awaiting eventual transport to the Waste Isolation Pilot Plant (WIPP), in Carlsbad, New Mexico, and removal of radioactive sludge from the solar ponds.

To protect workers during these cleanup tasks, both the plant and the Department of Energy will implement plans to ensure safety and health. Previous management

problems at Rocky Flats included inadequate attention to safety and health programs, deficiencies in radiation safeguards, and insufficient fire protection. To avoid these hazards and be prepared for new risks, safety awareness programs will be implemented to increase employees' attention to self-protection, improved air monitoring and fire detection devices will be installed, fire exits will be repaired, and fewer combustible materials will be stored.

The DOE has provided funds for several studies, to be conducted by the Colorado Department of Public Health and Environment (CDPHE), to analyze worker health. One such study will determine dosages of plutonium in the organs of workers and another study tracks the incidence of cancer and mortality among workers. CDPHE also has requested that DOE open records that pertain to historical events at Rocky Flats. The information obtained will help identify exactly what contaminants were released from the plant.

With the proper studies, equipment and implementation of precautions for workers, the remediation of one of the nation's most contaminated sites can be conducted with reduced risk to workers.

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