United States General Accounting Office

GAO

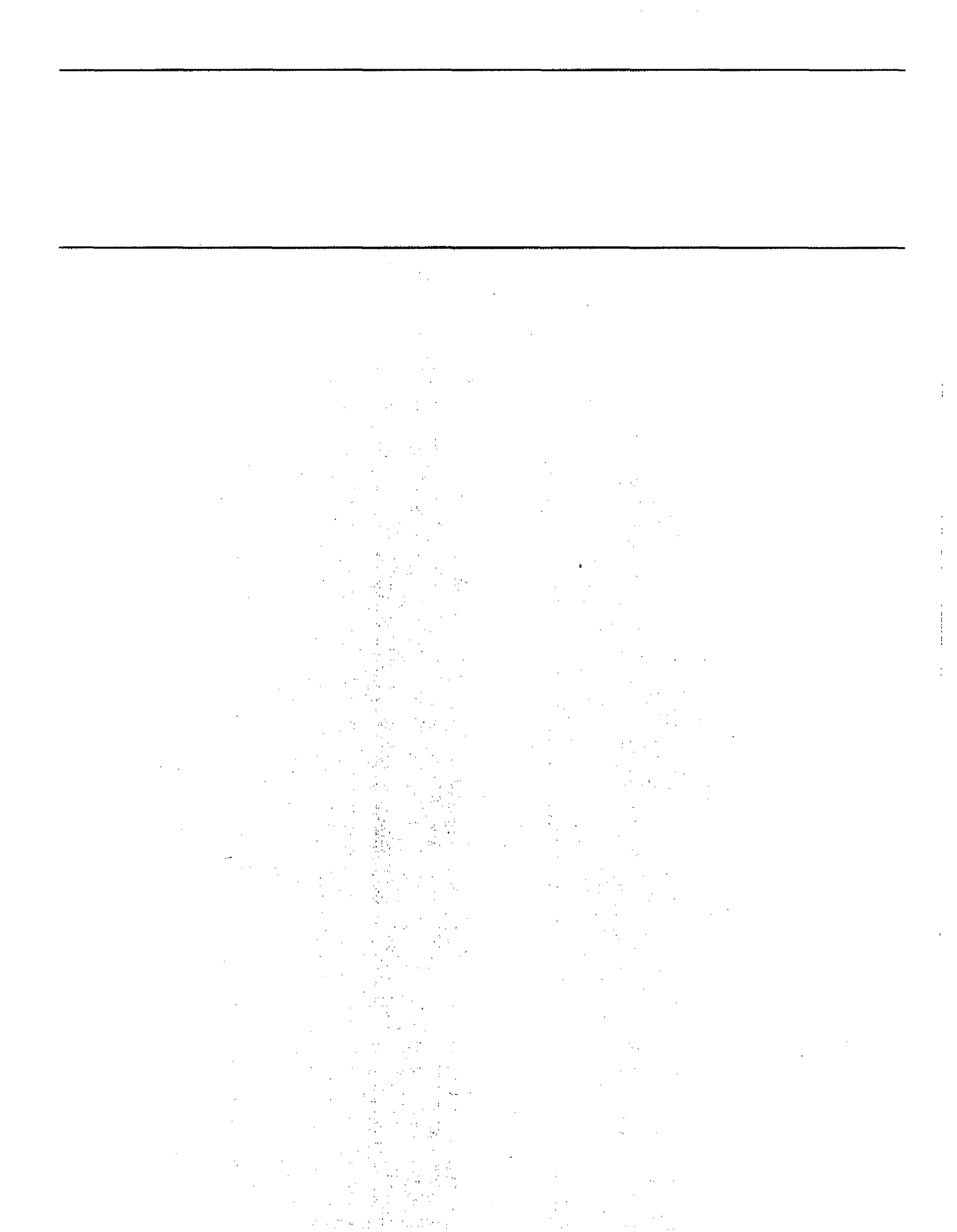
Fact Sheet for the Chairman,
Committee on Governmental Affairs,
U.S. Senate

January 1992

NUCLEAR HEALTH AND SAFETY

Radiation Events at DOE's Idaho National Engineering Laboratory

GAO/RCED-92-64FS



GAO

United States
General Accounting Office
Washington, D.C. 20548

145925

Resources, Community, and
Economic Development Division

B-246287

January 13, 1992

The Honorable John Glenn
Chairman, Committee on
Governmental Affairs
United States Senate

Dear Mr. Chairman:

In response to your request, this fact sheet provides information on nuclear events at the Department of Energy's (DOE) Idaho National Engineering Laboratory (INEL) and on the extent to which DOE considered such events in determining the award fee paid to the INEL contractor. The Laboratory, established in 1949, is an engineering facility whose primary function is to build, test, and operate nuclear reactors and support facilities. As agreed with your office, we focused on (1) airborne radiation releases that may have exposed the public to radiation levels greater than the current public exposure standards and (2) events that resulted in one or more workers receiving an exposure exceeding the current annual standards for protecting workers from radiation.

In summary, during the 1950s and 1960s, several research programs were conducted at INEL that resulted in the release of radioactive materials into the atmosphere. A recent DOE report concluded that none of these releases had produced radiation levels beyond the site that exceeded the exposure standards in effect at the time. However, two releases exceeded current, more stringent radiation standards for protecting the public beyond the boundaries of the site. We also identified six events in which 25 workers received radiation doses in excess of current standards. Eighteen workers received radiation doses in excess of the standards in effect when the events occurred. Finally, with respect to the award fee process, we found that five of the six incidents of worker exposure had occurred before award fee contracts were introduced at INEL in 1976. Only one event, which occurred in 1986, was considered in determining the contractor's award fee. Although the event was mentioned in documents supporting DOE's award fee determination, we were unable to discover

from records or discussions with agency officials whether this event reduced the amount of the fee awarded.

AIRBORNE RADIATION INCIDENTS

DOE's Idaho Operations Office recently completed a study to estimate the radiation doses potentially received by individuals who lived near the INEL site boundary.[1] The study reviewed site operations from 1952 to 1989 and concentrated on airborne releases and their fallout. In 1990, the draft results were reviewed by a panel of external peer reviewers, who offered many suggestions for improving the analysis. DOE responded to the review panel's September 1990 suggestions by completely revising the dose calculations and by adding estimates for infants and young children to the final draft.

In August 1991, DOE issued its final study results. After reviewing operational releases and all 115 known episodic radiation releases to the atmosphere since 1952, the authors of the study concluded that the public had not received radioactive contamination from airborne releases in excess of the radiation standards in place when the releases occurred. However, we found that, according to the study's calculations, two releases would have exceeded present radiation protection standards for the public. The releases were associated with tests for the nuclear airplane program conducted in 1956 and 1958. (See sec. 1 for more detailed descriptions of the releases.) We did not identify any events resulting in releases beyond the site that were not considered in this study.

INEL WORKER EXPOSURE EVENTS

From 1949 to the present, DOE and its predecessor agencies did not have a consistent method to record and report on worker-related events, including those involving workers' exposure to radiation. As a result, we found that the official documentation of such events was not comprehensive, particularly before DOE adopted the systems it currently uses. To identify nuclear-related events that might not have been included in the agency records, we augmented our review of agency accident records with other sources, such as worker exposure records. This exercise,

---

[1]Idaho National Engineering Laboratory Historical Dose Evaluation (DOE/ID-12119, Aug. 1991).

however, did not result in our identifying any nuclear-related events at INEL that were not reported by the existing reporting systems.

Since 1949, six events at INEL caused 25 workers to receive radiation doses in excess of current radiation protection standards. For 18 workers, the doses exceeded standards in place at the time of the events. All but one of these events--a 1986 radiography incident--occurred before 1974. Four of the six events occurred at the Idaho Chemical Processing Plant; the remaining events occurred at the Stationary Low-Power Reactor #1 and the Materials Testing Reactor. The most catastrophic event, an explosion in the Stationary Low-Power Reactor #1 reactor vessel, killed three workers. In addition, 14 people received radiation doses while retrieving the bodies and cleaning up after the explosion. (The circumstances surrounding the six events are described in sec. 2.)

In addition to the exposure from specific events just discussed, according to annual dosimetry data for the period from 1951 through 1985 (the latest data available), 240 workers received doses above the current exposure standards. Of these recorded exposures, 121 involved workers at the Naval Reactors Facility, primarily in 1958 and 1965, and 119 involved workers at other INEL facilities, primarily in 1958, 1962, and 1965.

Naval Reactors Facility officials said that 101 of the records showing exposures greater than the then-existing annual standards were incorrect and, in fact, represented workers' cumulative lifetime dosages, not annual exposures. They explained that the cumulative exposure information had been reported as a single data entry when the Navy data were added to the INEL data base in 1958. In addition, these officials said that the 1965 exposures had occurred during extensive scheduled maintenance work, rather than as a result of unanticipated or accidental exposures, and did not exceed the annual radiation exposure limits in effect in 1965.

INEL officials said that the 119 worker exposures at other INEL facilities (1) were annual accumulations of employees performing well-monitored work assignments and (2) probably occurred during work conducted on specific site projects over a period of time, rather than as a result of a single incident. Officials said that from 1962 to 1985, no INEL

worker received an annual dose in excess of the annual limit in effect at the time.

AWARD FEE PROCESS

INEL officials said that under the award fee contract in use for prime contractors at INEL since 1976, contractors receive award fees that are based on DOE's rating of their performance--higher fees are awarded for excellent performance and lower fees for lower, but still acceptable, performance. According to the officials, one factor that DOE considers in determining the award fee is the contractor's performance record in the environmental safety and health area, which includes radiation events.

Only one significant event occurred at INEL since the award fees were established. In this 1986 incident, two subcontractor employees were exposed to radiation by a malfunctioning radiography camera used to examine welds. Although officials said that DOE does not typically consider a subcontractor's performance in determining the prime contractor's award fee, this incident was mentioned in the documents supporting DOE's fee determination. However, we were unable to determine from the documentation or from discussions with agency officials the extent to which, if at all, DOE considered this incident in establishing the prime contractor's award fee. A DOE official told us that there was no way to determine the percentage weight an incident would receive within the environmental safety and health area, since specific increases and decreases in contractor award fees at INEL have not been linked to particular accidents or events.[2]

- - - - -

[2]Over the last several years we have issued several reports pointing out the need for improvement in DOE's award fee process. These reports include Energy Management: Tightening Fee Process and Contractor Accountability Will Challenge DOE (GAO/RCED-92-9, Oct. 30, 1990), Nuclear Health and Safety: DOE's Award Fees at Rocky Flats Do Not Adequately Reflect ES&H Problems (GAO/RCED-90-47, Oct. 23, 1989), and Nuclear Health and Safety: Information on Award Fees Paid at Selected Facilities (GAO/RCED-90-60FS, Oct. 23, 1989).

We performed our review from December 1990 to October 1991. To develop this fact sheet, we used diverse sources of information because official records did not contain an exhaustive inventory of incidents involving radiation over INEL's 43-year history. To identify accidents resulting in radiation releases, we obtained and reviewed reports of unusual occurrences and accidents and other reports prepared by INEL, INEL's contractors, DOE, and DOE's predecessor agencies. To confirm this information and to determine the extent of unreported incidents, we also interviewed DOE and contractor officials at headquarters and at the site, DOE and independent scientists, state of Idaho officials, and non-DOE sources, such as the Environmental Defense Institute, the Snake River Alliance, and the Palouse-Clearwater Environmental Institute. To further verify these events, we also reviewed worker radiation exposure records (from 1951 to 1985). We also identified and used radiation exposure standards in effect from 1949 to the present. We were assisted in these activities by Dr. George Hinman, a nuclear physicist at Washington State University. (See app. I for a more detailed discussion of our objectives, scope, and methodology.)

We provided a statement of facts to officials at INEL and at the Naval Reactors Facility for their review. These officials agreed with the accuracy of the information provided. However, as you requested, we did not obtain written agency comments on a draft of this fact sheet.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this fact sheet until 30 days from the date of this letter. At that time we will send copies of this fact sheet to the appropriate congressional committees and to other interested parties.

Please call me at (202) 275-1441 if you have any additional questions or if we can be of further assistance. Major contributors to this fact sheet are listed in appendix II.

Sincerely yours,

Victor S. Rezendes
Director, Energy Issues

CONTENTS

ABBREVIATIONS

AEC	Atomic Energy Commission
DOE	Department of Energy
ERDA	Energy Research and Development Agency
FPFRT	Fission Product Field Release Test
GAO	General Accounting Office
HTRE	Heat Transfer Reactor Experiment
INEL	Idaho National Engineering Laboratory
SL-1	Stationary Low-Power Reactor #1

SECTION 1

INEL INCIDENTS THAT RESULTED IN POTENTIAL EXPOSURE TO THE PUBLIC ABOVE CURRENT STANDARDS

The following summarizes the two accidental releases at the Idaho National Engineering Laboratory (INEL) since 1949 that resulted in potential exposure to persons outside the site.

AIRCRAFT NUCLEAR PROPULSION PROGRAM RELEASE IN FEBRUARY 1956

On February 11, 1956, a release of radioactive material occurred while a test reactor was undergoing powered tests as part of the Aircraft Nuclear Propulsion Program operated by General Electric. The reactor had been put through 44 successful tests between December 27, 1955, and February 11, 1956. However, during the first attempt on this date to go to full power and during subsequent tests, the reactor's fuel elements were damaged and an estimated 46,000 curies of fission products,[1] uranium, and argon-41 were released to the atmosphere.

The Aircraft Nuclear Propulsion Program, which operated at INEL from 1953 until it was canceled in 1961, was intended to investigate the feasibility of developing a nuclear propulsion system for the U.S. Air Force. The test engine--the Heat Transfer Reactor Experiment (HTRE-1) assembly--consisted of a nuclear reactor and a turbojet. The test engine was mounted on a railroad dolly in the INEL north test area.

On February 11, 1956, while the test engine was being brought to full reactor power, the fuel element was damaged, and radiation monitors at the site began to detect releases of radioactive materials. A 1962 report estimated that about 2,000 curies were released during the 4-hour test period.[2] An Atomic Energy Commission crew surveyed the test site area but found no trace of radioactivity on the ground. Consequently, the test series continued and was not terminated until February 24, 1956. The 1962 study of the incident attributed the absence of radioactivity to the upward flow of the winds, which presumably carried the radioactive materials into the surrounding hills.

---

[1]A curie is a basic unit of radioactivity, which is equal to 3.7×10^{10} radioactive disintegrations per second.

[2]G. Thornton, et al., Heat Transfer Reactor Experiment No. 1, General Electric, Direct-Air-Cycle Aircraft Nuclear Propulsion Program (APEX-904, Feb. 28, 1962).

The releases were assumed to have traveled in a northeasterly direction to a point more than 60 kilometers beyond the INEL site boundary. On the basis of the amount of radioactive material believed to have been released and meteorological data, the recent Department of Energy (DOE) Idaho historical dose evaluation study estimated that an adult,[3] living at the border of the site in the path of the release, could have received an exposure of about 0.029 rem.[4] Similarly, an infant living at the same location could have received an estimated 0.054-rem exposure. Each of these exposures would exceed the present standard of 0.010 rem per year, but not the 1956 standard of 1.5-rem per year.

FISSION PRODUCT FIELD RELEASE TEST IN SEPTEMBER 1958

On September 18, 1958, radioactive materials were released as part of a planned series of tests sponsored by the U.S. Air Force. The tests, referred to as the Fission Product Field Release Tests (FPFRT), were initiated to study potential accidents involving nuclear-powered aircraft using metallic fuel. The FPFRT consisted of a series of tests in which samples of metallic nuclear fuel were melted in a furnace, the furnace was purged with air, and the effluent was released about 5 feet above ground level. The releases were then monitored as part of the testing process.

The September 18, 1958, test resulted in larger releases than earlier tests because a malfunctioning thermocouple allowed higher melting temperatures. DOE estimated that 100 curies of materials were released and traveled in a northeasterly direction beyond the INEL site boundary. On the basis of the amount of radioactivity released, the historic dose evaluation study estimated that the effective dose equivalent exposures for adults and infants would have been 0.014 rem and 0.017 rem, respectively. Although these exposures were below the 1958 public exposure standard of 0.5 rem per year, they would have exceeded the current standard of 0.01 rem per year.

---

[3] Idaho National Engineering Laboratory Historical Dose Evaluation (DOE/ID-12119, Aug. 1991).

[4] Rem (Roentgen equivalent man) is a measure of the dose of any ionizing radiation to body tissues in terms of its estimated biological effect relative to a dose of one roentgen of X-rays.

SECTION 2

INEL INCIDENTS THAT RESULTED IN EXPOSURE TO WORKERS ABOVE CURRENT STANDARDS

The following summarizes the six incidents in which workers were contaminated by radiation at the Idaho National Engineering Laboratory since 1949.

UNSHIELDED REACTOR COMPONENT AT THE MATERIALS TESTING REACTOR

On July 23, 1956, a radioactive reactor component at the Materials Testing Reactor was not adequately shielded, resulting in radiation exposures above current standards to four employees. While the reactor was shut down for scheduled refueling, the water level in the reactor tank was lowered, and the component was moved to facilitate the insertion and removal of experiments in the reactor. During this procedure, the radioactive component was partially exposed.

Six employees working on the reactor top adjacent to the reactor tank opening and two observers and advisers received radiation exposures. One of the employees received 21.5 rem of radiation, which exceeded the 15-rem-per-year standard in effect in 1956 as well as the current 5-rem standard. In addition to this employee, three employees received radiation exposures that exceed the current standard. These employees received radiation exposures of 6.15 rem, 6.2 rem, and 10.6 rem. The other four employees received radiation exposures below 5 rem.

OPEN TRANSFER VALVES AT IDAHO CHEMICAL PROCESSING PLANT

On March 20, 1958, 11 workers at the Idaho Chemical Processing Plant received radiation exposures during a routine transfer of radioactive waste material (including iodine-131) to permanent storage. The waste materials were being forced under steam pressure from one process cell through another process cell to a permanent storage tank. At the time, the second cell had been out of use for about 8 months. Although the workers had checked the cell's process valves and thought them to be closed, the valves, in fact, were stuck partially open but gave the appearance of being closed. When the steam pressure built up, radioactive vapor was vented through the partially open valves into the work area.

Although 11 workers were exposed to the radioactive vapor, only 7 workers received radiation doses to their thyroids in excess of the 30-rem-per-year thyroid dose standard in effect in 1958. The exposures to the seven workers ranged from 30 rem to 210 rem.

However, only three of the seven workers would have received doses exceeding the current thyroid dose standard of 50 rem per year.

CRITICALITY INCIDENT AT THE IDAHO CHEMICAL PROCESSING PLANT

On October 16, 1959, the accidental transfer of a uranyl nitrate solution to an unsafe storage tank resulted in a criticality event at the Idaho Chemical Processing Plant that exposed two individuals to radiation. The liquid solution, which contained enriched uranium (uranium-235), was accidentally transferred from a geometrically safe storage tank to an unsafe waste collection tank through a line normally used to transfer decontaminating solutions to waste storage. The transfer occurred as a result of an inadvertent siphoning action. The siphoning action drew about 34 kilograms of enriched uranium (in solution) to the unsafe storage tank. The uranium reached a critical mass and a nuclear incident occurred.

The incident spread radioactivity throughout the building and into operating areas via vent lines and drain connections, triggering radiation alarms and prompting the evacuation of the building. Twenty-one individuals evacuated the process building and the surrounding area of high radiation. Although seven individuals received external radiation exposures, none of the individuals received a whole body exposure that exceeded the 15-rem-per-year standard in effect in 1959. However, two individuals received whole body doses of 8 rem and 6 rem, which exceed the current 5-rem whole body exposure standard.

NUCLEAR INCIDENT AT STATIONARY LOW-POWER REACTOR #1

On January 3, 1961, a three-member military operating crew was involved in a nuclear incident at the Stationary Low-Power Reactor #1 (commonly referred to as SL-1). SL-1 was a prototype nuclear power plant designed to provide power and heat for remote military installations. During reactor maintenance, one member of the military crew withdrew the central control rod well beyond the limit specified in the maintenance procedure. This resulted in a release of nuclear energy and the rapid formation of steam in the pressure vessel, accelerating a column of water above the core and slamming it into the pressure vessel. The impact of the compressed water sheared the connecting piping, lifted the vessel into the air, and contaminated the reactor building.

Although the reactor building confined most of the radioactive material, about 1,100 curies of radioactive material were released into the atmosphere. This external release, according to the DOE historical dose evaluation study, did not expose the public to radiation above the current standard.

All three members of the military crew were killed by the force of the reactor explosion or by injuries related to the explosion. Two were killed in the blast itself, and the third died 2 hours later from a head injury. In addition, 22 individuals involved subsequently in retrieving the bodies and cleaning up the site received radiation exposures ranging from 3 to 27 rem. A total of nine individuals received radiation doses exceeding the 15-rem standard in effect in 1961. However, 14 individuals received radiation doses that exceed the current 5-rem standard.[1]

MAINTENANCE INCIDENT AT THE IDAHO CHEMICAL PROCESSING PLANT

From March 19 through March 24, 1973, a pipefitter making repairs on the waste calciner facilities at the Idaho Chemical Processing Plant received high radiation exposures. The pipefitter was on loan to the plant to do repair work on one of the process cells contaminated by ruthenium-106. Working in direct contact with the cell, he was exposed to high-level, high-beta energy fields.

Routine film badge (radiation monitoring device worn by workers) checks indicated that the worker, who was normally assigned to nonradiation areas, had received high exposures. The problem arose, in part, because the radiation monitoring devices (pocket dosimeter and film badge) used by the worker were calibrated for radiation fields significantly different from the fields encountered. The pipefitter received a whole body radiation dose of 5.2 rem, which was less than the 12-rem-per-year exposure standard in effect in 1973 but is greater than the current 5-rem standard.

RADIOGRAPHY INCIDENT AT THE IDAHO CHEMICAL PROCESSING PLANT

On December 9, 1986, a radiographer and his assistant received radiation exposures while examining welds at the Idaho Chemical Processing Plant. After radiographing a weld on a large steel vessel, the radiographer was unable to retract the camera's radiation source (about 51 curies of iridium-192) within the industrial radiography camera. (When not in use, the radiation source used to produce the image of the weld is retracted within the camera, which serves as a radiation shield.) Ignoring the high reading on their radiation survey meters, which they believed to be

---

[1]Under emergency lifesaving conditions, worker radiation protection standards greatly exceed the 5-rem standard. (According to a DOE order, the potential amount of exposure to rescue personnel should be evaluated by the person at the site responsible for the emergency action. Guidelines suggest particular concern when the exposure exceeds 100 rem.)

malfunctioning, the employees continued radiographing welds until they noticed that the indicator needle on the radiation meter was pegged at the top of the scale. At this time they left the area and checked their pocket dosimeters. The pocket dosimeters indicated that they had received radiation exposures.

A DOE review of the incident attributed the overexposure, in part, to a loose connection between the retracting cable and the radiation source and to the tight bend in the guide tube. The tight bend in the guide tube caused the radiation source connector to become separated from the cable connector.

According to readings of personnel monitoring devices, the radiographer received a whole body exposure of about 7.7 rem (exceeding the annual standard of 5 rem in effect since 1974), and his assistant received a radiation exposure of about 3.5 rem.

OBJECTIVES, SCOPE, AND METHODOLOGY

The Chairman of the Senate Committee on Governmental Affairs asked us to identify and describe nuclear-related events at the Idaho National Engineering Laboratory (INEL) over its 43-year history that resulted in persons receiving doses in excess of current radiation exposure standards. For each event, we were asked to describe the location, date, circumstances, and known impact on workers or the public. We were also asked to assess the extent to which these events affected contractors' award fees.

We used the following criteria to identify the nuclear-related incidents on which we reported. For worker exposure, we included all events that exposed workers to radiation in excess of the current annual whole body exposure or maximum organ radiation standards of 5 rem and 50 rem, respectively. For exposures affecting the public beyond the boundaries of the site, we included all releases that might have resulted in public exposures exceeding the current standard of 0.01 rem effective dose equivalent. The worker exposure standard was last revised by the Department of Energy (DOE) in 1988, and the public exposure standard was last revised by the U.S. Environmental Protection Agency in 1990.

To obtain a complete list of nuclear-related events, we first examined the records of DOE and of its predecessor agencies but found that official documentation about nuclear-related events at INEL was not comprehensive. Since DOE, U.S. Energy Research and Development Administration (ERDA), and Atomic Energy Commission (AEC) records did not systematically describe nuclear-related events, we obtained information from several other sources, including contractor reports, scientific studies, and interviews with knowledgeable individuals. Although we reviewed all available records, other nuclear-related events may come to light in the future.

The following describes the approach and information sources used to identify public and worker exposures and the effect of these exposures on the award fee process.

HOW PUBLIC EXPOSURE INCIDENTS WERE IDENTIFIED

To identify incidents in which persons outside the INEL site were exposed to radiation during the facility's 43-year history, we reviewed published and unpublished records and reports concerning INEL incidents. We identified, and to a large measure used, DOE's recent study of the impact of airborne releases on the public to

verify the impact of incidents in which the public was exposed above existing radiation protection standards.[1]

The DOE study, which was based on agency records, assessed the potential impact of airborne nuclear releases on people living outside the site boundary. We interviewed the authors of the study and reviewed drafts, together with the comments and criticisms of a peer review group. We used the information that we collected on accidental worker exposures to test the completeness of the study's information. We did not, however, assess the scientific validity of the study's dose calculations.

EFFORT TO IDENTIFY WORKER EXPOSURE EVENTS

To identify events that exposed INEL workers to radiation, we reviewed a variety of official AEC, ERDA, and DOE records designed primarily to record accidents and incidents. We reviewed the following publications, which listed major accidents and radiation exposure experience at INEL:

-- an AEC Division of Operational Safety report, Operational Accidents and Radiation Exposure Experience Within the United States Atomic Energy Commission, 1943-1975 (WASH 1192);

-- a DOE Office of Environmental Compliance and Overview report, Operational Accidents and Radiation Exposures at ERDA Facilities, 1975-1977 (DOE/EV-0080);

-- an ERDA Final Environmental Impact Statement, Waste Management Operations, Idaho National Engineering Laboratory (ERDA-1536, Sept. 1977);

-- annual reports of radiation exposures for AEC and AEC contractor employees, 1974; for ERDA and ERDA contractor employees, 1975; for DOE and DOE contractor employees, 1976-1989; and

-- annual DOE summary reports of operational accidents/injury and property damage, 1979-1989.

Additional information for the period from 1969 to 1991 was obtained from contractor reports about unusual or unplanned events

[1]U.S. Department of Energy, Idaho Operations Office, Idaho National Engineering Laboratory Historical Dose Evaluation (DOE-ID/12119, Aug. 1991).

at INEL. We reviewed over 2,400 of these contractor reports, now known as Unusual Occurrence Reports.

To determine the completeness of the above records, we examined 51 accident investigation reports provided to us by the Idaho Operations Office covering the period from 1961 to 1988. In addition, we requested DOE's Chief Historian to identify historical documents concerning INEL incidents retained by DOE headquarters.

From our efforts to review official agency records and from discussions with DOE and contractor officials, we determined that the agency's accident files and records appeared to be unavailable, incomplete, or inconsistently maintained. Consequently, we used a variety of agency and independent sources to piece together as complete a history as possible of major nuclear-related events at INEL.

OTHER RECORDS EXAMINED TO SUPPLEMENT AND VERIFY AGENCY RECORDS

We reviewed AEC, ERDA, and DOE annual reports on occupational radiation exposure, which provided statistical data on workers receiving radiation above established limits, as well as the draft data developed by DOE on INEL worker radiation exposures. Using annual dosimetry data, which covered the period from 1951 to 1985 (the latest available information) and included over 7,000 pages of individual files, we identified all employees whose whole body exposures were 5 rem or greater in any year. We also reviewed separate data on radiation exposures to worker organs. We then compared the known exposures from incidents and accidents with the individual exposures from the worker radiation dose information to test the accuracy of DOE's official records and to determine whether additional incidents might have occurred. This exercise resulted in our identifying 264 workers who had received exposures greater than 5 rem or in excess of the current organ dose standards.

We also attempted to obtain information from the state of Idaho on worker compensation cases that might have resulted from an accident or incident at INEL. A state official said that the state does not retain information on the effects on worker health of events occurring at the site and that it is difficult for the state to separate health information for INEL workers from that of other employers in southeastern Idaho.

INFORMATION ON EVENTS OBTAINED THROUGH INTERVIEWS

We interviewed current and former DOE and contractor employees to identify incidents, obtain firsthand information about incidents, and verify information that we had obtained from official records and from non-DOE sources. One individual was able to provide information about an incident not identified in official reports. The Director of the Safety Division at DOE's Idaho Operations Office provided a box of accident investigation folders, which included a description of an accident that our review of official accident files had not disclosed.

Officials of the Environmental Defense Institute, the Palouse-Clearwater Environmental Institute, and the Snake River Alliance also provided information about INEL incidents and worker and public exposures to radiation. Information from the Environmental Defense Institute included 26 event titles and dates that indicated either potential worker exposures or airborne releases. We asked DOE officials to provide descriptions and reports of these events. They referred us to the Director of DOE-Idaho's Safety Division and to other individuals familiar with the site's history. Through our interviews with these individuals and from our other sources, we determined that none of these events had resulted in worker or public radiation exposures that exceeded today's standards.

AWARD FEE REVIEW

To determine the extent to which incidents and accidents affected award fees paid to contractors, we interviewed DOE officials, who explained to us generally how fees were awarded at INEL, and we examined available award fee records.

We reviewed the evaluations of contractor performance that DOE used to determine the award fee paid to a contractor. We compared these evaluations with our inventory of INEL incidents. When we found an incident that occurred in a year in which an award fee was given, we assessed the impact of incidents on the amount of the fee awarded to the contractor by (1) reviewing the DOE award fee evaluation records and (2) interviewing DOE contract management officials about the part that safety and health concerns had played in the award fee evaluation and determination.

MAJOR CONTRIBUTORS TO THIS FACT SHEET

RESOURCES, COMMUNITY, AND
ECONOMIC DEVELOPMENT DIVISION,
WASHINGTON, D.C.

Judy A. England-Joseph, Associate Director
James Noel, Assistant Director
Duane G. Fitzgerald, Technical Director
Edward E. Young, Jr., Assignment Manager

SEATTLE REGIONAL OFFICE

Leonard L. Dowd, Regional Nuclear Energy Issues Manager
Raymond A. Larpenteur, Evaluator-in-Charge
Robin C. Reid, Evaluator-in-Charge
Drummond E. Kahn, Staff Evaluator

(301957)

Ordering Information

The first copy of each GAO report is free. Additional copies are $2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

U.S. General Accounting Office
P.O. Box 6015
Gaithersburg, MD 20877

Orders may also be placed by calling (202) 275-6241.

United States
General Accounting Office
Washington, D.C. 20548

Official Business
Penalty for Private Use $300

First-Class Mail
Postage & Fees Paid
GAO
Permit No. G100