detailed inspection for corrosion and cracks of the station 980 upper deck floor beam, in accordance with Boeing Alert Service Bulletin 747–53A2503, dated November 11, 2004.

(1) Inspect within 120 months since the date of issuance of the original Airworthiness Certificate or the date of issuance of the original Export Certificate of Airworthiness; or

(2) Inspect at the time specified in paragraph (f)(2)(i), (f)(2)(ii), or (f)(3)(iii) of this AD for the applicable airplane group as identified in the service bulletin.

(i) For Group 1 airplanes: Within 18 months after the effective date of this AD.

(ii) For Group 2 airplanes: Within 36 months after the effective date of this AD.

(iii) For Group 3 airplanes: Within 120 months after the airplane has been modified in accordance with Boeing Service Bulletin 747–25–3107, or within 36 months after the effective date of this AD, whichever occurs later.

Repair

(g) If any cracking or corrosion is found during any inspection required by this AD, do all related investigative and corrective actions before further flight in accordance with Boeing Alert Service Bulletin 747–53A2503, dated November 11, 2004. If the bulletin specifies to contact Boeing for appropriate action, repair before further flight according to a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or according to data meeting the certification basis of the airplane approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the approval must specifically reference this AD.

Alternative Methods of Compliance (AMOCs)

(h)(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

(2) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD, if it is approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the approval must specifically refer to this AD.

Issued in Renton, Washington, on April 21, 2005.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 05–8761 Filed 5–2–05; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. H–016]

RIN 1218–AC11

Occupational Exposure to Ionizing Radiation

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Request for information.

SUMMARY: OSHA requests data, information and comment on issues related to the increasing use of ionizing radiation in the workplace and potential worker exposure to it. Specifically, OSHA requests data and information about the sources and uses of ionizing radiation in workplaces today, current employee exposure levels, and adverse health effects associated with ionizing radiation exposure. OSHA also requests data and information about practices and programs employers are using to control employee exposure, such as exposure assessment and monitoring methods, control methods, employee training, and medical surveillance. The Agency will use the data and information it receives to determine what action, if any, is necessary to address worker exposure to occupational ionizing radiation.

DATES: Comments must be submitted by the following dates:

Hard copy: Your comments must be submitted (postmarked or sent) by August 1, 2005.

Facsimile and electronic transmission: Your comments must be sent by August 1, 2005.

ADDRESSES: You may submit comments, identified by OSHA Docket No. H–016, by any of the following methods:

Federal eRulemaking Portal: http://www.regulations.gov. Follow the instructions below for submitting comments.

Agency Web Site: http://ecomments.osha.gov. Follow the instructions on the OSHA Web page for submitting comments.

Fax: If your comments, including any attachments, are 10 pages or fewer, you may fax them to the OSHA Docket Office at (202) 693–1648.

Mail, express delivery, hand delivery and courier service: You must submit three copies of your comments and attachments to the OSHA Docket Office, Docket H–016, Room N–2625, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693–2350 (OSHA's TTY number is (877) 889–5627). OSHA Docket Office and Department of Labor hours of operations are 8:15 a.m. to 4:45 p.m., ET.

Instructions: All submissions received must include the Agency name and docket number (H–016). All comments received will be posted without change on OSHA's Web page at *http://www.osha.gov*, including any personal information provided. For detailed instructions on submitting comments, see the ''Public Participation'' heading of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: For access to the docket to read comments or background documents received, go to OSHA's Web page. Comments and submissions are also available for inspection and copying at the OSHA Docket Office at the address above.

FOR FURTHER INFORMATION CONTACT: *Press inquiries:* Kevin Ropp, OSHA Office of Communications, Room N–3647, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone: (202) 693–1999.

General and technical information: Dorothy Dougherty, Acting Director, OSHA Directorate of Standards and Guidance, Room N–3718, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone: (202) 693–1950.

SUPPLEMENTARY INFORMATION:

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I. Background

A. Introduction

Although ionizing radiation has been used in workplaces since 1896, its use has grown significantly in recent years. For example, the use of X-ray equipment to inspect luggage, packages and other items has become very widespread. Currently, ionizing radiation is also used to neutralize harmful biological agents, including anthrax, as well as microorganisms in certain food.

OSHA seeks data, information and comment on current uses of ionizing radiation in the workplace and issues related to that use, such as employee exposure levels, health effects of ionizing radiation exposure, and workplace programs to control ionizing radiation exposure. OSHA, in consultation with other Federal agencies, will use the data and information submitted to determine if action is necessary given the increased occupational use of ionizing radiation. In particular, OSHA is interested in obtaining information that will allow assessment of the appropriateness of revising its standard for occupational exposure to ionizing radiation (29 CFR 1910.1096).

OSHA regulates worker exposure to ionizing radiation under the authority granted by the Occupational Safety and Health Act of 1970 (the Act) (29 U.S.C. 651 *et seq.*). Several other Federal agencies also have responsibility to regulate worker exposure to ionizing radiation under certain circumstances. The Department of Energy (DOE) regulates exposure to ionizing radiation for employees at DOE facilities including both Federal workers and contractor employees. Similarly, the Department of Defense (DOD) is responsible for worker exposures to ionizing radiation in DOD facilities and operations. The Nuclear Regulatory Commission (NRC) regulates worker exposure to ionizing radiation for specific materials for which NRC issues licenses. The Mine Safety and Health Administration (MSHA), regulates miner's exposure to ionizing radiation from short lived decay products (daughters) of radon and thoron gases and gamma radiation from radioactive ores in underground metal and nonmetal mines (30 CFR 57.5035–57.5047). OSHA standards cover worker exposures from all other radiation sources not identified above, including X-ray equipment, accelerators, accelerator-produced materials, electron microscopes and naturally occurring radioactive materials (NORM). OSHA continues to work with NRC, DOE, DOD and the Environmental Protection Agency (EPA) on advances in the scientific information dealing with worker exposure and Federal policy addressing this important issue. OSHA will also continue its involvement with the Interagency Steering Committee on Radiation Standards in an effort to coordinate any future activity.

B. Sources of Ionizing Radiation Exposure

There are many and diverse sources of exposure to ionizing radiation and conditions in which employees can be exposed. Exposures can result from natural sources, such as radioactive materials that exist in the soil, and from cosmic sources (*i.e.*, the sun). Workers can also be exposed to radiation from sources that result from human activities. For example, exposure to ionizing radiation can result from NORM, or from equipment that emits radiation such as X-ray devices.

1. *Natural sources of workplace exposure.* Exposure to radioactivity can occur in virtually every human environment. A primary source of external exposure is cosmic radiation from the sun, mostly in the form of low-level gamma radiation. Exposure rates increase with increasing altitude so, for example, the exposure to cosmic radiation in an airplane at 30,000 feet is greater than at ground level. Other exposure comes from NORM that are found in the earth's crust (*e.g.*, uranium, thorium, and radon) (Exs. 1–1; 1–2; 1–3; 1–4). Everyone is exposed to small amounts of radiation (gamma radiation, alpha and beta particles) that result from these radionuclides and their decay products. The amount of exposure to naturally occurring sources varies widely because the level of radioactivity in soil or water in different locations varies. Along with external exposures, people are exposed internally by eating foods and drinking water containing NORM (Exs. 1–3; 1–4).

2. *Radiation that results from industrial activity.* Worker exposure to ionizing radiation also takes place when naturally occurring radioactive material is "enhanced" in some way. Technologically enhanced naturally occurring radioactive materials (TENORM) are created when industrial activity enhances the concentrations of radioactive materials or when the material is redistributed as a result of human intervention or industrial processes and this can result in increased worker exposures. TENORM can result from manufacturing processes, such as the production of materials and equipment from raw materials that contained NORM, and concentrations of these materials are sometimes increased as a result of these processes. Another example is increased concentrations of NORM materials in filters and the solid sludge from large quantities of water used in some manufacturing processes, such as paper and pulp mills, or from water treatment systems used to supply drinking water. Workers who clean or change filters or handle sludge may be exposed to these increased concentrations. In addition, downstream use of materials containing TENORM, such as coal ash, aluminum oxide, and fertilizers can result in employee exposure (Ex. 1–3).

TENORM also can be the byproduct or waste product of oil, gas and geothermal energy production (Exs. 1–2; 1–3). Sludge, drilling mud, and pipe scales are examples of materials that often contain elevated levels of NORM, and the radioactive materials may be moved from site to site as equipment and materials are reused.

Disposal, reuse and recycling of TENORM can cause occupational exposures. For example, reusing concrete aggregate contaminated with TENORM (*i.e.*, phosphate slag) can lead to increased radiation exposure for construction workers (Exs. 1–2; 1–3).

In addition to NORM and TENORM, accelerator produced radioactive material that results from operation of atomic particle accelerators for medical, research or industrial purposes can cause occupational exposures. When reference is being made to both naturally and accelerator produced radioactive materials the acronym NARM is used. NARM is a term used to describe naturally occurring radioactive material including TENORM, discussed above and accelerator produced material that results from the operation of atomic particle accelerators for medical, research, or industrial purposes. The accelerator uses magnetic fields to move atomic particles at increasing velocities before crashing into a pre-selected target. This reaction produces desired radioactive materials in metallic targets or kills cancer cells where a cancer tumor is the target. However, it also produces some radioactive waste products that are frequently managed as low-level radioactive waste. The radioactivity contained in the waste from accelerators is generally short-lived.

Equipment that produces ionizing radiation is another source of workplace exposure. X-ray equipment and electron microscopes are some of the OSHA-regulated sources of worker exposure to ionizing radiation (Exs. 1–5; 1–6).

C. Workplace Uses for Ionizing Radiation

Ionizing radiation is used extensively throughout a wide range of industries. The following are just a few of the many and increasing industrial uses of ionizing radiation.

1. *Emergency response and security.* Since OSHA's Ionizing Radiation standard was adopted, the use of X-ray equipment for security purposes has grown significantly. It is used to check the contents of baggage, parcels, vehicles and other items at airports, border crossings, seaports, postal facilities, building entries, public events, and parking facilities, among other places. Another recent use of ionizing radiation is to neutralize biological agents sent through the mail and other delivery methods. Workers can be exposed to ionizing radiation when these types of equipment are maintained improperly or if safety shielding is damaged (Exs. 1–5; 1–6).

Exposures exceeding occupational limits also may occur in emergency situations. The primary occupational safety and health standard for emergency response to an ionizing radiation release is the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR 1910.120). Because Federal OSHA does not cover State and municipal workers in States that do not have their own OSHA approved occupational safety and health program (*i.e.*, non-State Plan States), EPA applies OSHA's HAZWOPER standard to them (40 CFR part 311). In addition, the NRC and DOE ionizing radiation regulations have provisions that address emergency response situations and include exemptions from exposure limits in those situations.

There also is increased awareness of the possibility for the intentional release of radioactive materials as part of terrorist activities (*i.e.*, radioactive dispersion device (RDD) or ''dirty bomb'', or an improvised nuclear device (IND)). Currently, the Department of Homeland Security (DHS) is developing guidelines for responding to terrorist attacks that may result in the release of ionizing radiation. OSHA would provide technical assistance for such an event in cooperation with other Federal agencies.

2. *Medical.* The use of ionizing radiation in medicine also continues to grow. Non-NRC regulated medical uses can be divided into two areas: Diagnostic/imaging techniques and radiotherapy. Imaging techniques include radiography, fluoroscopy, angiography and computed tomography. These imaging techniques are used to perform medical procedures such as cardiac catheterizations; to locate fractures, growths and tumors; to determine the extent of an injury or disease; and to determine the necessity for other medical procedures such as dental work.

Radiotherapy involves the use of ionizing radiation for treatment of diseases such as cancer (Exs. 1–7; 1–8). Non-NRC regulated radiotherapy includes the use of X-rays and accelerators.

3. *Manufacturing and construction.* There are many common uses of ionizing radiation in manufacturing and construction. Ionizing radiation is used, for example, in inspecting welds, measuring the thickness of microelectronic wafers, developing polymers in the rubber and plastics industries, and measuring and inspecting the quantity and quality of goods produced.

Ionizing radiation is used for precision measuring and nondestructive testing to increase quality and uniformity and reduce waste (Exs. 1–8; 1–9). For instance, X-rays are used in the lumber industry to search for knots and other imperfections in board products and to determine moisture content.

In addition, precision measurement and nondestructive testing is important to ensure the safety and health of goods, construction projects, and repairs. For example, employers use ionizing radiation to inspect welds, tires, materials, and machines for defects that could result in death or serious injury or illness. X-rays are used to inspect welds in shipbuilding, automotive and aerospace production. In the construction industry, X-rays are used to measure cement density, to inspect structural materials for fatigue, and to inspect paint for the presence and quantity of lead.

Finally, TENORM wastes can be used in manufacturing and construction. For instance, coal ash can sometimes be incorporated into building materials as a filler and concrete strengthener. Zircon mineral grains, a form of TENORM, which contains small amounts of radionuclides in the mineral matrix, can be ground into fine powder and are commonly applied to ceramics before firing to create a shiny glaze.

Ionizing radiation, in the form of electron beams, has long been used to alter the chemical or physical properties of materials without the use of toxic substances or expensive processes. Electron beams can increase the strength, environmental resistance, and fire retardation of materials such as cable insulation and plastics. Electron beams are also used to bind the coating on non-stick pots and pans and to give garments the ability to repel water. Curing of adhesives and resins with electron beams is an emerging technology for the rapid manufacturing of components and composite structures for aerospace, automotive and consumer applications (Ex. 1–9).

4. *Food and kindred products.* The application of ionizing radiation to food as a means of improving food safety is gradually being implemented in the United States (Exs. 1–9; 1–10). In recent years, the use of ionizing radiation to kill microorganisms in food has grown. The Food and Drug Administration (FDA) allows irradiation of poultry, pork and ground beef. Ground beef is irradiated to eradicate E-coli, a potentially lethal organism. Using ionizing radiation (*e.g.*, electron beam, X-ray) also helps to extend the shelf life of fresh meats. In addition, FDA permits the irradiation of spices and seasonings. A related use of ionizing radiation in the food industry is the creation of aseptic food packaging materials to eliminate the possibility of transferring infectious microorganisms to people (Ex. 1–10). (Although the process of food irradiation is governed by FDA regulations (21 CFR part 179), these regulations do not include requirements to protect employees from ionizing radiation exposure.)

X-rays are commonly used in the food industry for inspection, grading and sorting of food, such as fruit and eggs. Employers also use X-rays to inspect canned beverages for defects and metal contaminants in the cans.

D. Health Effects

There is a large body of scientific research and literature on the health effects of ionizing radiation exposure (*e.g.*, Exs. 1–4; 2–1 through 2–25). In addition, there are a number of detailed reviews and evaluations of the scientific literature base. The National Research Council has conducted several reviews and evaluations of peer-reviewed studies of the effects of ionizing radiation exposure. In 1990, the National Research Council's Committee on the Biological Effects of Ionizing Radiation (BEIR) issued a report (BEIR V) on the ''Health Effects of Exposure to Low Levels of Ionizing Radiation'' (Ex. 1–11). Currently, the BEIR Committee is in the process of updating its review of scientific studies on the effects of low-level ionizing radiation exposure with its results to be published as BEIR VII. OSHA will place this report in the docket when it is published. The International Agency for Research on

Cancer (IARC) has published critical reviews and evaluations of the evidence of carcinogenicity of ionizing radiation exposure (*i.e.,* IARC Volume 75 Monographs (2000), Ex. 1–12).

These studies indicate that the health effects associated with exposure to ionizing irradiation vary depending on the total amount of energy absorbed, the time period, the dose rate and the particular organ exposed (Exs. 1–4; 1–11; 1–13; 1–14). Ionizing radiation affects individuals by depositing energy in the body which can damage cells or change their chemical balance (Exs. 1–4; 1–11; 1–12; 1–15; 1–16). In some cases, exposure to ionizing radiation may not result in any adverse health effects (Exs. 1–1; 1–4; 1–11; 1–12). In other cases, the irradiated cell may survive but become abnormal, either temporarily or permanently, and eventually may become cancerous (Exs. 1–1; 1–2; 1–4; 1–11; 1–12; 1–14; 1–15; 1–16).

Large doses of ionizing radiation can cause extensive cellular damage and death (Exs. 1–1; 1–2; 1–4; 1–13). Epidemiological data on survivors of the atomic bombs, dropped during World War II on Hiroshima and Nagasaki, comprise the largest body of evidence on the effects of high levels of ionizing radiation exposure (Exs. 1–4; 1–11; 1–16). These data demonstrate a higher incidence of cancer among exposed individuals and an increased probability of cancer as the level of exposure increases (Exs. 1–4; 1–11; 1–16). Current Federal regulations prohibit employee exposure to large doses of ionizing radiation.

Health effects from exposure to radiation may occur shortly after exposure, may be delayed, or both. Some health effects may not manifest themselves for months or years. For instance, for leukemia, the minimum latency period is about two years. For solid tumors, the latency period may be more than five years. The types of effects, latency period, and probability of occurrence can depend on the magnitude of the exposure and whether exposure occurs over a long period (*i.e.,* chronic) or during a very short period (*i.e.,* acute). Health effects resulting from chronic exposure (continuous or intermittent) to low levels of ionizing radiation are typically delayed effects. Some of these effects may include genetic defects, cancer, pre-cancerous lesions, benign tumors, skin changes and congenital defects (Exs. 1–2; 1–4; 1–11; 1–16). On the other hand, acute exposures (*i.e.,* one large dose or a series of doses for a short period of time) can cause both more immediate and delayed effects. The more immediate effects may include radiation sickness (*e.g.* hemorrhaging, anemia, loss of body fluids and bacterial infections) (Ex. 1–2). Delayed effects of acute exposure may include genetic defects and cancer as described above, along with sterility (Exs. 1–2; 1–4; 1–11; 1–16). Extremely high levels of exposure can result in death within hours, days or weeks (Ex. 1–2).

A variety of cancers have been associated with exposure to ionizing radiation including leukemia, and cancers of the lung, stomach, esophagus (Ex. 1–11), bone, thyroid (Ex. 1–17), and the brain and nervous system (Exs. 1–16; 1–17).

Exposure to ionizing radiation also may damage developing embryos and fetuses and may damage parental genetic material (DNA) (Exs. 1–4; 1–11). When the reproductive organs are exposed to ionizing radiation, genetic effects may occur. It may not be possible to identify whether a particular abnormality in a child is the result of the parent having been exposed to ionizing radiation prior to the child's conception. The abnormality may have multiple causes, including genetic or mutagenic effects from exposure of either parent (Exs. 1–11; 1–18).

The biological effects of ionizing radiation exposure on developing embryos and fetuses also are a concern because cells are rapidly multiplying into specific organs and tissues. These effects are generally associated with exposures at levels lower than what it would take for similar effects to occur in adults. Some studies suggest that a single, large dose at a critical phase of development may be more damaging than smaller doses spread across the gestation period. As mentioned, the developmental effects of in utero exposure to ionizing radiation can occur shortly after exposure or be delayed (Exs. 1–16; 1–19).

Currently, several Federal agencies are conducting studies to further examine the health effects related to low levels of ionizing radiation exposure. For BEIR VII, EPA, DOE, DOD, DHS and NRC are jointly funding a National Academy of Science study into the ''Health Effects of the Exposure to Low Levels of Ionizing Radiation.'' DOE is also funding the Low Dose Radiation Research Program to understand the biological responses of molecules, cells, tissues, organs, and organisms to low doses of radiation. This program will ensure that research results are communicated openly to scientists, decision makers, and the public. Results will be used in at least two ways: (1) To evaluate models that predict human health risks from exposure to low doses of radiation, and (2) to help determine whether current radiation protection standards reflect the most recent scientific data. It is anticipated that research in the Low Dose Radiation Research Program will produce data that will help improve understanding of the health impact from exposure to low level radiation. Also, as mentioned, BEIR VII is expected to be completed soon. In addition, the International Commission on Radiation Protection (ICRP) is developing new recommendations on radiation protection, all of which OSHA will place in the docket. OSHA will review these studies and documents in determining whether additional action may be necessary to protect workers from ionizing radiation.

II. Regulatory History

OSHA's existing standard on ionizing radiation was adopted in 1971 pursuant to section 6(a) of the Act (29 U.S.C. 655). This section allowed OSHA, during the first two years after passage of the Act, to adopt as OSHA safety and health standards, existing Federal and national consensus standards. The Ionizing Radiation standard was adopted primarily from standards promulgated under the Walsh-Healey Public Contracts Act, as amended (41 U.S.C. 35 *et seq.*), which specified safety and health rules applicable to government contractors. The Walsh-Healey standards on ionizing radiation, in turn, were taken from standards issued by the Atomic Energy Commission (AEC), now the NRC (10 CFR part 20). OSHA's provisions on immediate evacuation warning signals (29 CFR 1910.1096(f)) were adopted from the ANSI N2.3 standard on ''Immediate Evacuation Signal for Use in Industrial Installations Where Radiation Exposure May Occur'' (1967) (36 FR 10523 (5/29/71).

OSHA's Ionizing Radiation standard adopted the radioactive materials exposure limits that AEC issued in 1969 (10 CFR part 20, Appendix B, Tables I and II). The NRC standards have been revised several times since 1969. For example, changes have been made which reduced occupational exposure limits and changed the models used to estimate exposure from radioactive materials in the body. The requirements of OSHA's Ionizing Radiation standard have not been revised since they were adopted in 1971, therefore, the 1969 exposure limits still apply. (Pursuant to section 6(a) of the Act, OSHA adopted the Ionizing Radiation standard for the construction industry, 29 CFR 1926.53, in part from standards issued under section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.

3701 *et seq.*). In 1996, OSHA incorporated by reference in the construction standard the requirements of Ionizing Radiation standard covering general industry.)

OSHA's Ionizing Radiation standard applies to all workplaces except agricultural operations and, as mentioned above, those workplaces exempted from OSHA jurisdiction under section 4(b)(1) of the Act (29 U.S.C. 653). Section 4(b)(1) states:

> Nothing in this Act shall apply to working conditions of employees with respect to which other Federal agencies, and State agencies acting under section 274 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2021), exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health.

NRC has statutory authority for licensing and regulating nuclear facilities and materials as mandated by the Atomic Energy Act of 1954 (as amended), the Energy Reorganization Act of 1974 (as amended), the Nuclear Nonproliferation Act of 1978, and other applicable statutes. Specifically, the NRC has the authority to regulate source, by-product and certain special nuclear materials (*e.g.*, nuclear reactor fuel). This authority covers radiation hazards in NRC-licensed nuclear facilities produced by radioactive materials and plant conditions that affect the safety of radioactive materials and thus present an increased radiation hazard to workers. In 1988, OSHA and NRC signed a memorandum of understanding (MOU) delineating the general areas of responsibility of each agency (CPL 2.86, December 22, 1989). The MOU specifies that, at NRC-licensed facilities, OSHA has authority to regulate occupational ionizing radiation sources not regulated by NRC (CPL 2.86). Examples of non-NRC regulated radiation sources include X-ray equipment, accelerators, accelerator-produced materials, electron microscopes, betatrons, and some naturally occurring radiation sources and TENORM (CPL 2.86). In addition to Federal regulation of ionizing radiation exposure, States have radiation control programs for sources of exposure within their state. NRC has 33 Agreement State Programs. OSHA has 26 State Plan States, of which 13 are Agreement States. A number of other states have some radiation protection program but are neither NRC Agreement States nor OSHA State Plan States.

To promote a coordinated and effective Federal program for the protection of workers exposed to ionizing radiation, the Federal Radiation Protection Guidance was issued in 1960 (25 FR 4402 (5/18/60)) and an updated Federal Guidance document was issued in 1987 (52 FR 2822 (1/27/87)). The purpose of the Federal Guidance document is to help Federal agencies in developing or revising their regulations addressing ionizing radiation exposure. The 1987 Federal Guidance document was developed collectively by 10 Federal agencies. The EPA conducted or sponsored four major studies to support the review. The 1987 Federal Guidance document generally incorporated recommendations on the limits for occupational exposure and the approach to radiation protection that the ICRP published in 1977. However, the ICRP recommendations have been updated, most recently in 1990 (Ex. 1–13). Further revisions of the ICRP recommendations are currently being considered. (The 1990 ICRP recommendations have also been adopted in most other countries.)

OSHA will consider the 1987 Federal Guidance document and supporting materials in determining whether to initiate rulemaking; and if so, what approach the Agency should follow in revising the existing rule. At the same time, because the data on which this document is based are now at least 27 years old, OSHA will also consider more recent scientific information and ICRP recommendations.

III. Request for Data, Information and Comments

The increasing use of ionizing radiation in the workplace presents a number of complex issues. OSHA is seeking information, data, and comment to determine what action, if any, OSHA needs to take to address these issues. Specifically, OSHA requests comment on the issues and questions listed below. OSHA also invites comment on any other issue concerning workplace exposure to ionizing radiation. When commenting on the specific numbered issues below, OSHA requests that you reference the issue number. OSHA also requests that you explain and provide data and information to support your comments. In addition, OSHA requests that you submit with your comments any studies or articles that you reference in support of your comments.

While the Agency is specifically seeking information on those operations covered by OSHA regulations, as identified above, all interested persons are encouraged to respond to the questions below.

A. Sources of Ionizing Radiation Exposure and Occupational Uses

1. How and where does your establishment and industry use ionizing radiation? If possible, please provide workplace and industry-specific data about the types and amounts of ionizing radiation used, its form, and the processes and products in which it is used.

2. Are there new and emerging uses of ionizing radiation in your establishment and industry? Please explain how and for what purpose this ionizing radiation is or will be used.

3. What types of TENORM are present in your establishment and industry? Please provide data and information on the source(s) of TENORM that may be present.

B. Emergency Response and Security

4. Is ionizing radiation used for security-related purposes in your establishment and industry? What equipment and devices are used and how are they used? What measures are in place in your establishment and industry to protect employees from exposure to these sources of ionizing radiation?

5. If your establishment and industry uses radioactive materials, what measures and preparations are in place in your establishment and industry to protect employees performing emergency response and cleanup when the release of ionizing radiation occurs, including intentional release?

6. What action(s) should OSHA take to protect employees from ionizing radiation exposure when responding to emergency situations, including unintentional and intentional releases of radioactive materials? Should OSHA address hazards associated with emergency response to an ionizing radiation release by revising the existing standards or promulgating a separate standard to address this hazard? Please explain what provisions any standard should include.

7. What actions should be taken to ensure the protection of the emergency responders (*e.g.*, police, fire and medical), support workers and other employees responding to the release?

8. To what extent should any action OSHA takes to address emergency response situations reflect information and recommendations in the EPA Protective Action Guide (PAG) Manual (EPA 400–R–92–001 (1991))? The PAG Manual is available at *http://www.epa.gov.*

C. Employee Exposure to Ionizing Radiation

9. In your establishment and industry, how many or what percentage of employees are exposed to or have potential for exposure to ionizing radiation during routine operations? How many or what percentage of

employees work in ''restricted areas,'' as defined in the existing Ionizing Radiation standard (29 CFR 1910.1096(a)(3))?

10. In what jobs or job categories are these employees found? Please explain and describe the source(s) of employee exposure or how exposure occurs.

11. What are employee radiation exposure levels in each of these jobs and job categories? If possible, please provide personal dosimetry exposure data. Please identify the frequency and duration of employee exposure, and the type of sampling and analytical methods used to determine exposure levels.

D. Health Effects

OSHA has placed in the docket articles and studies on the adverse health effects of exposure to ionizing radiation, including BEIR V and the IARC Volume 75 Monographs (Exs. 1–11; 1–12; 2–1 through 2–25). As mentioned, OSHA will also add new ICRP recommendations, the EPA/DOE/DOD/DHS/NRC-funded study and resultant BEIR VII to the docket when they become available. OSHA requests comment on all of these studies and documents. (Please do not submit these documents or the studies referenced in them or any other documents referenced in this **Federal Register** notice.) In particular, OSHA requests comment on how the risk assessment information contained in these documents should be interpreted in the context of the significant risk determination required by the Act (29 U.S.C. 655(b)(5)) and cases interpreting it (*e.g., American Textile Manufacturers Institute, Inc.* v. *Donovan,* 452 U.S. 490 (1981) (Cotton dust); *Industrial Union Department, AFL–CIO* v. *American Petroleum Institute,* 448 U.S. 607 (1980) (Benzene)). OSHA also requests that persons submit and comment on other recent articles and studies that may be useful in identifying and assessing adverse health effects related to occupational exposure to different types of ionizing radiation.

12. Are there any articles, studies, or information, not already identified, indicating that adverse health effects of ionizing radiation exposure occur at levels lower than the exposure limits in OSHA's current Ionizing Radiation standard? Please discuss and submit those studies along with your comments.

13. What are the characteristics of different types of ionizing radiation that are related to the development of adverse health effects? Please describe and discuss or submit any articles and studies that address this issue.

14. To what extent do different ionizing radiation types and energies have specific properties (e.g., penetration) that should be considered when assessing health risks? Please describe and discuss or submit any articles and studies that address this issue.

15. What are the mechanisms of action of ionizing radiation in the development of the different types of adverse health effects such as cancer? Please describe and discuss or submit any articles and studies that address this issue.

16. What are the combined effects of exposure to different types of ionizing radiation and the effects of ionizing radiation when combined with other environmental contaminants? Please describe and discuss or submit any articles and studies that address this issue.

17. What is the role, if any, of genetic factors in the development of adverse health effects related to ionizing radiation exposure? Please describe and discuss or submit any articles and studies that address this issue.

18. What studies, articles or other information should OSHA consider and give weight to in assessing potential adverse health effects associated with exposure to ionizing radiation? Please explain why you recommend the particular articles and studies. Please describe their strengths and weaknesses, such as population size, characterization of exposure, or confounding factors.

19. What adverse health effects, if any, have any employees in your establishment and industry experienced from exposure to ionizing radiation? Please describe and, if possible, provide data and information on their exposure history and exposure levels.

E. Risk Assessment

OSHA is interested in data and information that will assist the Agency in developing quantitative estimates of the risk of adverse health effects from occupational exposure to ionizing radiation. In particular, OSHA seeks case reports and epidemiological and animal studies along with associated exposure data.

20. Which approaches (*i.e.*, methods, models, data) should OSHA use to estimate the risk of adverse health effects from exposure to ionizing radiation? Please explain and discuss or submit any articles and studies that address this issue.

21. Which mathematical models are most appropriate to quantify the risk of cancer or other adverse health effects from ionizing radiation exposure?

22. In particular, which mathematical models are appropriate to characterize alpha or beta particle lung deposition? Please describe the strengths and weaknesses of these mathematical models.

23. What is the dose-response behavior of ionizing radiation, including cellular, mechanistic, and dosimetric considerations? Are any adverse health effects dependent on the time period over which exposure occurs rather than on the total cumulative dose received? Are there studies or data indicating that ionizing radiation exhibits a threshold effect? Please describe and discuss and submit any articles and studies that address these issues.

24. How should the risk assessment address the issue of workers who may wish to conceive children? How should the risk assessment address potential adverse health effects of ionizing radiation exposure on developing fetuses? How does your establishment and industry address the specific concerns of workers who are trying to conceive children and workers who are pregnant? How should the standard address the risk of reproductive and developmental health effects?

25. What studies should OSHA consider or give weight to in doing a quantitative risk assessment for different types of adverse health effects associated with ionizing radiation exposure? Please describe and submit these studies and discuss their strengths and weaknesses.

26. The Interagency Steering Committee on Radiation Standards (ISCORS) has prepared a technical report identifying a method for estimating cancer risks related to ionizing radiation exposure in the ambient environment (Ex. 1–15). To what extent would this method be useful in characterizing or quantifying the risk of cancer from ionizing radiation exposure in the workplace? What other methods of assessment should OSHA consider?

F. Exposure Assessment and Monitoring

27. What methods (*e.g.*, personal or area sampling, dosimetry, objective data, engineering estimates) does your establishment and industry use to initially survey or assess whether and to what extent ionizing radiation exposures are present in the workplace? Please explain why the particular method(s) is used.

28. When does your establishment and industry conduct exposure surveys or initial exposure assessments? For example, does your establishment and industry conduct surveys or assessments before employees begin

working in a new job or when new radiation equipment or sources are introduced into the workplace? If so, please explain when surveys or assessments are conducted and what they involve. If not, please explain why.

29. Does your establishment and industry conduct periodic exposure surveys or assessments? If not, please explain why. If so, please explain why and how frequently periodic assessments are conducted and what criteria are used to determine the frequency.

30. What methods does your establishment and industry use to monitor employee exposure to ionizing radiation? Are there new methods (other than film badges and pocket dosimeters) of monitoring or measuring worker exposure to ionizing radiation? To what extent does your establishment and industry use these methods? If possible, please provide information on the precision and accuracy of these methods, the range and limits of detection, the method of validation of sampling and analysis, and potential sources of interference.

31. What procedures does your establishment and industry follow when exposure monitoring results indicate that overexposures have occurred?

G. Control of Ionizing Radiation

32. What programs have your establishment and industry implemented to prevent or reduce employee exposure to ionizing radiation? Please describe those control programs and their effectiveness in controlling ionizing radiation exposure. To what extent have those programs produced other additional workplace benefits or advantages such as increased product quality or productivity?

33. To what extent does your establishment and industry use the ALARA concept in limiting worker exposure to ionizing radiation? Please describe those actions and the reductions in employee exposure that have been achieved. Please explain whether and how the ALARA concept (in conjunction with an exposure limit) would be relevant to revising OSHA's Ionizing Radiation standard.

34. What engineering and work practice controls has your establishment and industry implemented to prevent or reduce employee exposure to ionizing radiation? In what jobs and operations have these controls been implemented? Please describe their effectiveness in reducing worker exposure and what criteria are used in measuring their effectiveness.

35. To what extent does your establishment and industry use contamination areas or isolated work areas to control radioactive contamination? Please describe those measures and their effectiveness in reducing employee exposure to ionizing radiation. What measures are in place to prevent the spread of contamination out of these areas?

36. What housekeeping practices does your establishment and industry use to control employee exposure to radioactive materials? Please describe those housekeeping practices and cleaning methods (*e.g.*, vacuums with HEPA filters, tack cloths), the frequency they are utilized, and any housekeeping practices that are prohibited.

37. Are there any jobs or operations where engineering, work practice and administrative controls are not available, not effective, or infeasible (technologically or economically) to control ionizing radiation exposure? Please explain and describe what measures are in place to protect employees from ionizing radiation exposure.

38. Does your establishment and industry provide employees with respirators and other types of personal protective equipment (PPE) (*e.g.*, gloves, protective clothing) to protect against ionizing radiation exposure? Please describe what PPE is provided, where and under what conditions it is used (*e.g.*, regulated areas, type of operation, exposure level, exposure duration), the basis for selection, and any difficulties implementing the PPE program.

39. What alternative technologies or substitutes for ionizing radiation are available or in use in your establishment and industry? Please describe these technologies or substitutes and how they work. To what extent have these technologies reduced the frequency, duration and magnitude of exposure to ionizing radiation? If possible, please provide data and information on exposure levels and exposure reduction associated with the application of these technologies. Are there any technological or economic barriers or hindrances to implementing available alternative technologies or substitutes? If so, please explain what they are.

40. Are there emerging alternative technologies or substitutes that may be available in the near future? Please describe them and, if possible, provide information on when they may be available for use in your establishment and industry.

41. DOE (10 CFR part 835) and NRC (10 CFR part 20) have regulations to protect employees working at DOE facilities and with NRC-licensed sources, respectively. To what extent does your establishment and industry also follow these regulations in addition to the OSHA Ionizing Radiation standard? Are there provisions in those regulations that would also be effective in protecting employees from exposure to OSHA-regulated sources of radiation? Please explain what those provisions are and how they would be effective.

H. Employee Training

42. What information and training does your establishment and industry provide to employees with potential exposure to ionizing radiation? Please describe the information and training program. In particular, please explain which employees receive training and the selection criteria, training contents and methods, frequency and duration of training, and procedures used to address language barriers.

43. How do you evaluate the effectiveness of training? What methods do you use, and what factors do you consider in evaluating the effectiveness of training?

I. Medical Surveillance

44. Does your establishment and industry provide medical monitoring for employees who have potential exposure to ionizing radiation? Please describe the medical monitoring program. Please explain which employees receive medical monitoring, the criteria (*e.g.*, job category, exposure levels) used for determining when to provide medical monitoring, the tests and procedures provided, and the frequency medical monitoring is performed.

45. What have been the benefits and cost impacts of the medical monitoring program? For example, what effect has medical monitoring had on the number or severity of adverse health effects associated with ionizing radiation exposure?

46. What measures and procedures does your establishment and industry follow when an employee is overexposed to ionizing radiation or is diagnosed with adverse health effects from exposure to ionizing radiation?

J. Economic Impacts

47. What are the potential economic impacts associated with revising the OSHA Ionizing Radiation standard to further reduce occupational exposures? Please describe those impacts in terms of benefits from reduction in the number or severity of illnesses and from changes in worker productivity, costs of controls, medical surveillance, exposure monitoring and training, effects on revenue and profit, and any other relevant impact measure. To the extent possible, please quantify or provide examples of costs (*e.g.*, dollar estimates

for controls) and benefits (*e.g.*, dollar estimates for medical savings from a reduction in the number or severity of ionizing radiation-related illnesses).

48. What changes, if any, in market conditions would reasonably be expected to result by revising the Ionizing Radiation standard? Please describe any changes in market structure or concentration and any effects on domestic or international shipments of ionizing radiation-related products or services that would reasonably be expected.

49. How many and what kinds of small entities are in your industry? What percentage of the industry do they comprise?

50. The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires that OSHA assess the impact of proposed and final rules on small entities. OSHA requests that members of the small business community and others familiar with small business concerns address any special circumstances small entities face in controlling occupational exposure to ionizing radiation. How and to what extent would small entities in your industry be affected by revising the Ionizing Radiation standard? Are there special circumstances that make the control of ionizing radiation more difficult or more costly in small entities? Please describe those circumstances and explain and discuss any alternatives that might serve to minimize these impacts.

51. Are there reasons why the benefits of revising the Ionizing Radiation standard to further reduce employee exposure might be different for small entities than for larger establishments?

K. Environmental Effects

The National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 *et seq.*), the Council on Environmental Quality (CEQ) regulations (40 CFR part 1500), and the Department of Labor NEPA Compliance Regulations (29 CFR part 11), require that OSHA give appropriate consideration to environmental issues and the impacts of proposed actions significantly affecting the quality of the human environment. OSHA is currently collecting written information and data on possible environmental impacts that could occur outside of the workplace (*e.g.*, exposure to the community through contaminated air/water, contaminated waste sites) if the Agency were to issue guidance or revise the existing standard for occupational exposure to ionizing radiation. Such information should include both negative and positive environmental effects that could be expected to result from guidance or a revised standard. Specifically, OSHA requests comments and information on the following:

52. What is the potential direct or indirect environmental impact (for example, the effect on air and water quality, energy usage, solid waste disposal, and land use) from further reducing employee exposure to ionizing radiation or from using new substitutes for ionizing radiation?

53. Are there any situations in which reducing ionizing radiation exposures to employees would be inconsistent with meeting environmental regulations?

L. Duplication/Overlapping/Conflicting Rules

54. Are there any State or Federal regulations that might duplicate, overlap or conflict with OSHA issuing guidance or a revised standard concerning ionizing radiation? If so, identify which ones and explain how they would duplicate, overlap or conflict.

55. Are there any Federal programs in areas such as defense, energy or homeland security that might be impacted by guidance or a revised standard concerning ionizing radiation? If so, identify which ones and explain how they would be impacted.

IV. Public Participation

You may submit comments in response to this document by (1) hard copy, (2) fax transmission (facsimile), or (3) electronically through the OSHA Web page or the Federal Rulemaking Portal. Because of security-related problems there may be a significant delay in the receipt of comments by regular mail. Please contact the OSHA Docket Office at (202) 693–2350 for information about security procedures concerning the delivery of materials by express delivery, hand delivery and courier service.

All comments and submissions are available for inspection and copying at the OSHA Docket Office at the above address. Comments and submissions posted on OSHA's Web page are available at *http://www.osha.gov*. OSHA cautions you about submitting personal information such as social security numbers and birth dates. Contact the OSHA Docket Office for information about materials not available through the OSHA Web page and for assistance in using the web page to locate docket submissions.

Electronic copies of this **Federal Register** notice, as well as news releases and other relevant documents, are available at OSHA's Web page.

V. Authority and Signature

This document was prepared under the direction of Jonathan L. Snare, Acting Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor. It is issued pursuant to sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657), 29 CFR part 1911, and Secretary's Order 5–2002 (67 FR 65008).

Issued at Washington, DC, this 26th day of April 2005.

Jonathan L. Snare,

Acting Assistant Secretary of Labor.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AJ12

Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Jarbidge River, Coastal-Puget Sound, and Saint Mary-Belly River Populations of Bull Trout

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; reopening of comment period and notice of availability of draft economic analysis.

SUMMARY: We, the U.S. Fish and Wildlife Service, announce the reopening of the public comment period on the proposal to designate critical habitat for the Jarbidge River, Coastal-Puget Sound, and Saint Mary-Belly River populations of bull trout (*Salvelinus confluentus*), and the availability of the draft economic analysis of the proposed designation of critical habitat. We are reopening the comment period to allow all interested parties to comment simultaneously on the proposed rule and the associated draft economic analysis. Comments previously submitted need not be resubmitted as they will be incorporated into the public record as part of this comment period, and will be fully considered in preparation of the final rule. Copies of the draft economic analysis and the proposed rule for critical habitat designation are available on the Internet at *http://pacific.fws.gov/bulltrout* or from the Portland Regional Office at the address and contact numbers below.

DATES: We will accept public comments until June 2, 2005.