select samples for specialized surveys for example on children's services or on access for persons with disabilities.

[FR Doc. 97–9341 Filed 4–10–97; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF ENERGY

Savannah River Operations Office Interim Management of Nuclear Materials at the Savannah River Site

AGENCY: Department of Energy.

ACTION: Supplemental record of decision and supplement analysis determination.

SUMMARY: The U.S. Department of Energy (DOE) prepared a final environmental impact statement (EIS), ''Interim Management of Nuclear Materials'' (DOE/EIS–0220, October 20, 1995), to assess the potential environmental impacts of actions necessary to manage nuclear materials at the Savannah River Site (SRS), Aiken, South Carolina, until decisions on their ultimate disposition are made and implemented. Some of the particular materials considered in the EIS could present environmental, safety and health vulnerabilities in their current storage condition.

On December 12, 1995, DOE issued a Record of Decision (ROD) and Notice of Preferred Alternatives, 60 FR 65300 (December 19, 1995), on the interim management of several categories of nuclear materials at the SRS, including Taiwan Research Reactor (TRR) spent nuclear fuel rods. DOE decided to stabilize 81 TRR spent fuel rods because the TRR fuel had failed,[1] presenting environmental, safety and health vulnerabilities that should be corrected. At the time of this decision, DOE stated that, if additional TRR spent fuel failed, DOE would categorize the failed fuel as Candidates for Stabilization and perform appropriate National Environmental Policy Act (NEPA) review and evaluation for stabilization of the material.

On February 8, 1996, DOE issued a Supplemental ROD, 61 FR 6633 (February 21, 1996), for the stabilization of Mark–16 and Mark–22 fuels, and other aluminum-clad targets. On September 6, 1996, DOE issued a second Supplemental ROD, 61 FR 48747 (September 13, 1996), for the stabilization of plutonium-239 solutions, a neptunium-237 solution and obsolete targets.

DOE has now further decided, because of health and safety vulnerabilities, to stabilize the remaining TRR spent nuclear fuel located in the Receiving Basin for Offsite Fuels (RBOF) at the SRS, using the F-Canyon and FB-Line facilities. The TRR spent nuclear fuel to be stabilized consists of the equivalent of 310 fuel rods (some of the rods were fragmented due to conditions in Taiwan) in 62 aluminum canisters stored underwater in RBOF. DOE has decided to stabilize the TRR spent nuclear fuel because additional TRR spent fuel in at least two of the canisters has failed, and DOE believes that the rest is likely to exhibit signs of failure at unpredictable intervals in the near future. All 62 canisters contain TRR fuel that was subjected to the same poor storage conditions in Taiwan, and the same physical stress due to transportation conditions during shipment from Taiwan to SRS, creating a propensity for corrosion of the fuel elements' cladding. Once the cladding has failed, the failure cannot be arrested, even by the excellent water quality conditions in RBOF. Thus, fission products will continue to be released into RBOF.

By stabilizing the TRR fuel, DOE is taking prudent management steps to alleviate the environmental, safety and health vulnerabilities associated with the continued wet storage and degradation of the TRR spent fuel. DOE considered interim measures to improve storage conditions, such as those described in the Interim Management of Nuclear Materials (IMNM) EIS, but DOE believes that an alternate storage arrangement that eliminates contact between the fuel and water cannot be implemented in a timely manner. For example, dry storage facilities being planned on an aggressive schedule for domestic and foreign research reactor spent fuel will not be available until approximately 2003. In contrast, DOE expects that stabilizing the fuel by processing it in the F-Canyon and FB-Line facilities can be accomplished in 6 to 12 months.

The plutonium separated by the stabilization process (about 15 kilograms) will be stored at the SRS in existing vaults and then in the new Actinide Packaging and Storage Facility, when it becomes operational, until DOE implements long-term storage and disposition decisions on weapons usable forms of plutonium, which were published in the ROD for the Storage and Disposition of Weapons-Usable Fissile Material (62 FR 3014, January 21, 1997). A Departmental commitment to prohibit the use of plutonium-239 and weapons-usable highly enriched uranium separated and/or stabilized during the phaseout, shutdown, and cleanout of weapons complex facilities for nuclear explosive purposes was approved by the Secretary of Energy on December 20, 1994, and DOE is considering options for placing this material under international safeguards.

FOR FURTHER INFORMATION CONTACT: For further information on the interim management of nuclear materials at the SRS or to receive a copy of the final EIS, the initial ROD or the subsequent supplemental RODs contact: Andrew R. Grainger, NEPA Compliance Officer, U.S. Department of Energy, Savannah River Operations Office, P.O. Box 5031, Aiken, South Carolina 29804–5031, (800) 242–8259, Internet: drew.grainger@srs.gov

For further information on the DOE NEPA process, contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Assistance, EH–42, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586–4600, or leave a message at (800) 472–2756.

SUPPLEMENTARY INFORMATION: DOE prepared a final environmental impact statement (EIS), ''Interim Management of Nuclear Materials'' (DOE/EIS–0220, October 20, 1995), to assess the potential environmental impacts of actions necessary to manage nuclear materials at the SRS, Aiken, South Carolina, until decisions on their ultimate disposition are made and implemented. In the Interim Management of Nuclear Materials (IMNM) EIS, DOE evaluated the impacts of several stabilization alternatives and a ''No Action'' alternative for all Taiwan Research Reactor (TRR) spent nuclear fuel in RBOF. The estimates of the potential impacts included normal operations, waste generation, potential accidents, and cumulative impacts. In each case, the potential impacts for each stabilization alternative were estimated based on the entire SRS inventory of TRR spent fuel, the equivalent of 391 spent fuel rods in 143 aluminum canisters. As a result, the potential impact of stabilizing all the TRR spent fuel by processing the material in F-Canyon and FB-Line, as well as the potential impacts from the other alternatives, was analyzed and documented in the IMNM EIS.

DOE previously has issued three RODs based on the IMNM EIS, regarding the stabilization of nuclear materials at the SRS. In the first ROD, 60 *Fed Reg* 65300 (December 19, 1995), DOE determined, as relevant here, that 81

[1] The term ''failed'' means that the cladding on the fuel has been breached. The ROD, 60 Fed. Reg. 65300 (December 19, 1995), stated that failed fuel is indicated by gas releases from a fuel storage canister or visible failure of the cladding or canisters.

failed TRR spent nuclear fuel rods (contained in 81 canisters) would be stabilized by processing the material to a metal through F-Canyon and FB-Line to address environmental, safety and health vulnerabilities. In that ROD, DOE also determined that the remaining intact TRR fuel rods would remain in interim wet storage in RBOF unless they failed. As stated in the ROD, if DOE determined that additional fuel, targets, or canisters have failed, as indicated by gas releases from a canister, or visible failure of cladding or canisters, DOE would categorize those materials as Candidates for Stabilization. The ROD further states that DOE would perform the appropriate NEPA review and evaluation for the stabilization of any additional materials in RBOF that may be determined at a later date to have failed (e.g., Supplement Analysis). Stabilization of the 81 canisters of failed TRR spent fuel is currently being completed.

Two canisters of TRR fuel, previously believed to contain intact fuel, are now releasing gas, and therefore have been categorized as containing failed fuel. DOE believes that the remaining TRR spent fuel is likely to fail at unpredictable times in the near future. All 62 canisters contain TRR fuel that was subjected to the same poor storage conditions in Taiwan, and the same physical stress due to transportation conditions during shipment from Taiwan to SRS, creating a propensity for corrosion of the fuel elements' cladding. Once the cladding has failed, the failure cannot be arrested, even by the excellent water quality conditions in RBOF. Thus, fission products will continue to be released into RBOF.

Interim Management of Nuclear Materials EIS

The IMNM EIS considered the interim management of certain nuclear materials at the SRS. These materials included 143 canisters containing TRR spent nuclear fuel rods that were stored in RBOF. The TRR spent nuclear fuel rods are natural uranium metal clad in aluminum.

At the time the EIS was prepared, DOE knew the cladding on at least 81 of the fuel rods was failed as a result of storage conditions in Taiwan. In about 1990, prior to shipping the TRR spent fuel to the United States, the failed fuel was placed in aluminum canisters, one failed fuel rod per canister. Each canister was then drained of any water that entered the canister, filled with an inert gas, and sealed so that water in the storage pool would not come into contact with the failed fuel.

The 310 TRR fuel rods that were believed to be intact (i.e., those that indicated no visible breach in the cladding) were placed in aluminum canisters for handling and storage purposes. Five rods were loaded in each of the canisters, for a total of 62 canisters. The canisters were designed to be loaded from the side. The opening for loading the rods extended almost the entire length of the canister, and a cover was latched in place after loading was completed. The covers (and the canisters) were designed with slots to allow water into the canisters. The overpack canisters were designed to facilitate handling and storage, not to prevent the contact of the fuel rods with storage pool water.

The IMNM EIS evaluated the potential environmental impact of several alternatives for stabilizing the failed TRR fuel. These alternatives included processing the fuel to either a metal or oxide form, placing the material in dry storage, processing the material for vitrification at the Defense Waste Processing Facility, and vitrification in F-Canyon. DOE also considered continued wet storage of the material, i.e., the ''No Action'' alternative. DOE performed the evaluation of the potential impacts of these alternatives, assuming all the material—i.e., all 143 canisters of TRR spent fuel—would be stabilized, although the proposed action involved only 81 canisters (containing 81 failed fuel rods). A summary of the potential impacts from the alternatives was presented in Table 2–12 of the IMNM EIS.

By mid-1995, DOE had determined that 16 (of the 81) canisters containing failed TRR spent nuclear fuel had deteriorated to the point that the canisters were releasing gas and, as a consequence, radionuclides into the water of RBOF. DOE proposed the 81 canisters of TRR spent fuel as Candidates for Stabilization because: the release of hydrogen gas indicated that the canisters likely would not prevent water from coming into contact with the failed fuel or prevent radionuclides from being released into the storage pool; the presence of hydrogen gas indicated fuel corrosion was occurring; and the failure of any more canisters was certain to result in additional radionuclides being released into RBOF, since once corrosion has begun, it cannot be arrested. DOE also decided that the remaining 62 canisters of presumed ''intact'' TRR fuel should be considered stable for interim wet storage over about the next ten years.

In a ROD issued on December 12, 1995, 60 FR 65300 (December 19, 1995), DOE decided to stabilize the 81 failed TRR spent fuel rods by implementing the Processing to Metal alternative described and analyzed in the IMNM EIS. In addition, DOE concluded that if, ''after removing * * * failed TRR fuel * * * from RBOF, DOE determines that additional fuel * * * or canisters have failed, as indicated by gas releases from a canister, or visible failure of cladding or canisters, DOE would categorize those materials as Candidates for Stabilization. DOE would perform the appropriate * * * [NEPA] review and evaluation for the stabilization of any additional materials in RBOF that may be determined at a later date to have failed (e.g., a Supplement Analysis).'' Id. At 60 FR 65313.

Environmental Impacts of Alternatives

In the IMNM EIS, DOE evaluated the impacts of several stabilization alternatives (i.e., Processing to Metal, Processing to Oxide, Improving Storage, Processing and Storage for Vitrification in the Defense Waste Processing Facility, and Vitrification in F-Canyon) and a ''No Action'' alternative. For each alternative, the IMNM EIS estimated the potential impacts of stabilizing all of the TRR spent nuclear fuel (both failed fuel and that believed to be intact), including normal operations, waste generation, potential accidents, and cumulative impacts. In each case, the potential impacts for each stabilization alternative were estimated based on the entire SRS inventory of TRR spent fuel. As a result, the potential impact of stabilizing all the TRR spent fuel by Processing to Metal, as well as the potential impacts from the other alternatives, was analyzed and documented in the IMNM EIS.

Since discovering that additional TRR fuel has failed, DOE has re-evaluated the stabilization alternatives in the IMNM EIS to ensure that the analysis remains valid. In the IMNM EIS, DOE concluded that these alternatives would take from four to nine years to implement completely for the TRR spent nuclear fuel, while the preferred alternative of processing TRR spent fuel to a metal could be implemented more quickly. DOE believes that the estimates of time to implement TRR spent nuclear fuel stabilization alternatives in the IMNM EIS are still accurate. DOE expects that stabilization of the remaining TRR spent fuel in RBOF could be completed in 6 to 12 months.

As part of its re-evaluation, DOE considered interim storage methods that could be implemented in accordance with the No Action alternative. Interim storage methods would involve canning the TRR spent nuclear fuel in RBOF and placing the material back in wet storage.

To assure safe storage of the TRR spent fuel, vacuum drying capability would be needed in RBOF. High temperature treatment, e.g., heating to ≥200 °C, would also likely be required for failed TRR fuel. Drying and heating would be necessary because water, beyond a minimal amount, must be removed from the fuel to prevent continued corrosion and gas generation that could create unpredictable and unmonitored conditions inside the fuel storage container. The SRS does not currently have the capability to either dry or heat-treat spent fuel, and could not develop such a capability for several years. Additionally, the technology to heat-treat uranium metal fuel with failed cladding is undeveloped and requires research. DOE does not believe that treatment and canning could be satisfactorily implemented before stabilization by processing to a metal could be accomplished.

Continuing to store the fuel in RBOF is not desirable because it would exacerbate the corrosion of the fuel and result in continued releases of fission products and, eventually, metal and oxide particles in the basin water. These releases would subject workers to unnecessary radiation exposure and would present an environmental, safety and health vulnerability. Therefore, continued storage would do nothing to resolve current concerns regarding wet storage of TRR spent fuel.

Furthermore, it would not be practical to remove individual failed rods from the TRR fuel canisters because no efficient method to identify a failed fuel rod exists. An inspection of the cladding surface of each and every rod through magnification or, more likely, nondestructive testing would be required to identify the existence and location of cladding penetration. Based on previous experience with contaminated, but unirradiated, fuel, an inspection of this magnitude could take a year to complete, and stabilization actions would still be required for the failed TRR fuel. As a result, this method would not resolve current concerns regarding TRR fuel corrosion.

Decision

In the 1995 ROD, 60 FR 65300 (December 19, 1995), DOE decided to stabilize 81 TRR spent nuclear fuel rods by implementing the ''Processing to Metal'' alternative described in the IMNM EIS. DOE stated that this alternative was selected for reasons similar to those for the Mark-31 targets (a material very similar to the TRR spent nuclear fuel). That is, by processing the TRR spent fuel to a metal, the material could be stabilized earlier than under the other alternatives, and four to nine years earlier than the environmentally preferred alternative, i.e., Improving Storage. Further delay in removing the fuel from wet storage would serve no practical purpose. Other reasons for selecting Processing to Metal include the fact that the selected stabilization alternative relies on existing operating equipment and trained personnel, the technical uncertainty is low, costs are well established, and the small amount of plutonium metal produced would be a small fraction of the DOE inventory and would not present nuclear nonproliferation concerns. DOE believes that the reasons for choosing the Processing to Metal alternative for initial failed TRR fuel still apply to the remaining TRR spent nuclear fuel.

DOE therefore has concluded that all the TRR spent nuclear fuel in RBOF is ''at risk'' material. DOE bases its conclusion on the following:

- The poor TRR spent fuel use and storage conditions in Taiwan are known to have caused gross failure for other TRR fuel;
- The TRR fuel that DOE believed to be intact was exposed to the same poor conditions in Taiwan;
- Poor storage conditions facilitate the start of corrosion sites on the spent fuel cladding;
- The high quality of the RBOF storage basin water would not be sufficient to arrest existing fuel corrosion because uranium metal corrosion and existing corrosion sites established on aluminum would continue to progress even with excellent water quality;
- Hydrogen gas generation around TRR spent fuel, previously believed to be intact, indicates that fuel cladding has failed and that the uranium metal beneath the fuel cladding is corroding;
- Water monitoring data indicate that storing the TRR spent fuel in RBOF caused radioactivity releases into RBOF water to more than double; and
- The continued presence of fission products in the RBOF pool water indicates that fuel failure is continuing.

Corrosion of the TRR fuel creates radiation exposure, safety, waste and environmental concerns which dictate the expeditious resolution of the corrosion problem. Continued wet storage would facilitate the TRR fuel corrosion process. Other storage arrangements would be impractical because of the protracted implementation schedule. Therefore, DOE has decided to stabilize the TRR spent nuclear fuel in the 62 canisters by the IMNM EIS Processing to Metal alternative using the F-Canyon and FB-Line facilities at the SRS.

Issued at Washington, DC, April 2, 1997.

Alvin L. Alm,

Assistant Secretary for Environmental Management.

Supplement Analysis for Stabilization of TRR Fuel

Background

The U.S. Department of Energy (DOE) prepared a final environmental impact statement (EIS), ''Interim Management of Nuclear Materials'' (DOE/EIS–0220, October 20, 1995), to assess the potential environmental impacts of actions necessary to manage nuclear materials at the Savannah River Site (SRS), Aiken, South Carolina, until decisions on their ultimate disposition are made and implemented. Some of the particular materials considered in the EIS could present environmental, safety and health vulnerabilities in their current storage condition.

On December 12, 1995, DOE issued a Record of Decision (ROD) and Notice of Preferred Alternatives, 60 FR 65300 (December 19, 1995), on the interim management of several categories of nuclear materials at the SRS, including Taiwan Research Reactor (TRR) spent nuclear fuel rods. DOE decided to stabilize 81 TRR spent fuel rods because the TRR fuel had failed,[2] presenting environmental, safety and health vulnerabilities that should be corrected. At the time of this decision, DOE stated that, if additional TRR spent fuel failed, DOE would categorize the failed fuel as Candidates for Stabilization and perform appropriate National Environmental Policy Act (NEPA) review and evaluation for stabilization of the material.

The IMNM EIS categorized 62 canisters of TRR spent nuclear fuel as suitable for interim storage, based on the absence of obvious gas generation or obvious damage to the fuel or the storage canisters. However, no evaluation was conducted of the integrity of the fuel rods within the canisters. Instead, DOE relied on the results of inspections completed prior to shipping the fuel to the United States for classifying the fuel as intact.

TRR fuel failure in Taiwan was the result of poor reactor operations or poor storage and handling conditions. For example, some TRR fuel was stored in outdoor dry storage consisting of a concrete pad into which carbon steel cylinders were vertically inserted below

[2] The term ''failed'' means that the cladding on the fuel has been breached. The ROD, 60 Fed. Reg. 65300 (December 19, 1995), stated that failed fuel is indicated by gas releases from a fuel storage canister or visible failure of the cladding or canisters.

grade. TRR spent fuel rods, held in metal baskets, were lowered into the cylinders. The cylinders were then capped and welded closed. Over time, water intruded into the cylinders and severely damaged some of the fuel. Failed cladding on TRR spent fuel was common, and some of the rods were so damaged that they had literally disintegrated into rubble.

Prior to loading all the TRR spent fuel for shipment to the United States, the Nuclear Assurance Corporation (NAC) evaluated the fuel to determine its integrity. NAC first visually inspected each rod to detect cladding failures on the rods which are approximately one inch in diameter and 10 feet long. NAC conducted its visual inspection from a safe distance of at least 10 feet, using magnification devices such as binoculars. Any failed fuel detected in this fashion was canned immediately.

If no obvious defects were discovered, NAC then subjected each rod to a ''sip'' test. For this test, a fuel rod was first placed in a container filled with water. A sample of the water in the container was drawn and analyzed to detect fission products such as cesium-137. After three or four hours, another sample was drawn and analyzed. If the difference between the two samples was greater than two times the background radiation level, NAC considered the rod to be failed. Any failed fuel detected in this fashion was canned, one failed fuel rod per canister.

Rods that passed the visual and ''sip'' inspections were placed in an aluminum ''overpack'' canister about 5 inches in diameter and 11 feet long. Five intact rods were placed in one canister. There were no baffles or separators installed to provide any cushion between the rods during shipment. The canisters were loaded in dry shipping casks for the 12,000 mile trip to the SRS. During shipment, the fuel rods were subjected to physical stress, such as impact between the rods in each canister,[3] due to transportation conditions. The TRR fuel was shipped to the United States during 1990 and 1991.

Upon receipt at the SRS, the transportation casks were placed underwater in RBOF. The canisters were unloaded from the transportation casks, and a visual inspection of the canisters' exterior was performed prior to placing the canisters in underwater storage in RBOF.

The results of the tests on TRR spent fuel integrity that were performed in Taiwan only provided an assessment of the TRR fuel rods at the time they were loaded into the canisters. The tests could not predict cladding performance after the canisters were loaded into the shipping casks, or after six to seven years of wet storage at the SRS, especially in light of the historically poor storage and handling conditions in Taiwan.

Current Conditions

The Westinghouse Savannah River Company (WSRC), DOE's management and operating contractor at the SRS, has observed occasional gas bubbles coming from the locations in RBOF where the TRR fuel previously believed to be intact is stored. Until recently, the source of the gas bubbles was not specifically identified because gas generation was sporadic. When the TRR fuel canisters were placed in storage in 1990 and 1991, DOE was planning to reprocess the TRR spent fuel, and therefore did not expect the fuel to remain in wet storage for a prolonged period. However, in 1992, the Secretary of Energy decided to phase out reprocessing activities, and consequently the TRR fuel has remained in wet storage much longer than anticipated.

In November 1996, WSRC noted a marked increase in the gas generation rate from two of the canisters containing TRR fuel that was previously thought to be intact. Gas bubbles that previously appeared on a sporadic basis appeared on a continuous basis at intervals ranging from about every 40 seconds to 1 minute. The likely reason for the increase in the generation of gas bubbles from the two TRR fuel canisters is that corrosion of either the fuel cladding or the uranium metal fuel is accelerating. DOE believes that corrosion sites on the TRR spent fuel occurred as a result of damage during handling, or poor storage conditions in Taiwan or in transit to the SRS. Pre-existing corrosion sites on the fuel cladding would have continued to progress after the material was placed in RBOF, because once a corrosion site had been formed, corrosion would continue despite the excellent water quality in RBOF.

Corrosion of uranium metal clad in aluminum was studied extensively for the Mark-31 targets that were stored in the L-Reactor Disassembly Basin.[4] These targets, which have recently been dissolved for stabilization, were very similar in nature to the TRR spent nuclear fuel in that both consisted of uranium-238 metal clad with aluminum. WSRC reported that the typical corrosion phenomenon occurred in two phases: an initiation stage, corresponding with the penetration of the fuel cladding either by corrosion or by storage and handling damage, followed by the beginning of uranium corrosion; and a propagation stage, corresponding with a significant growth of the corrosion's extent. The first stage was usually of unpredictable duration. During that stage, deformation of the cladding did not usually occur, but occasional bubbles of hydrogen could evolve. The reaction involved:

$$U + 2H_2O \rightarrow UO_2 + 2H_2$$

The second phase, that is, the propagation phase, was characterized by growth of a blister at the location of cladding penetration. Once swelling started, the blister grew at a fairly steady rate until the accumulated uranium oxide caused the cladding to split. After the cladding split, the uranium oxide was released into the water, and a larger area of uranium metal was exposed to attack. In either phase, the progression of uranium metal corrosion would continue to occur regardless of the basin water quality. In sum, once the uranium metal is exposed to water, a more rapid reaction takes place liberating hydrogen, and once that corrosive process has started, there is no practical way to stop the process as long as the fuel is in contact with water.

The increase in the generation of gas bubbles from TRR fuel canisters is an indication that corrosion of the fuel is progressing from the initiation stage to the propagation stage. As this process continues, uranium oxide production will cause the cladding to split and expose more uranium metal to the basin water. As the corrosion products form, they will continue to carry radionuclides into the storage basin water. Canisters that display only occasional bubbles contain fuel that is earlier in the initiation stage of corrosion. In any case, the presence of hydrogen gas provides a strong indication that uranium metal corrosion has been initiated in the TRR fuel.

Another indication of corroding fuel is the release of fission products into the RBOF water. The basin filtration system removes fission products to maintain radioactivity levels in the water at acceptable limits, but this system must be turned off on a periodic basis for maintenance. During these periods, the rate of radioactivity release has been determined by establishing the rate of

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[3] Spent fuel from foreign research reactors currently being returned to the United States is shipped in an entirely different manner that does not allow the fuel rods to come into direct contact with one another or contribute in any other way to their degradation.

[4] J.P. Howell, ''Corrosion Surveillance in Spent Fuel Storage Pools,'' NACE Corrosion/97 paper 107 (Houston, Texas: National Association of Corrosion Engineers, 1997).

change in the basin radioactivity levels. Currently, a steady increase in basin radioactivity levels always follows shutdown of the RBOF filtration system. This increase is due to the constant release of fission products by failed fuel in the basin. DOE believes that the source of this radioactivity is the TRR fuel, because the average RBOF water radioactivity levels more than doubled when the TRR spent fuel was placed in storage in the early 1990s.

Environmental Analysis

The CEQ regulations for implementing NEPA, 40 CFR 1502.9(c), direct federal agencies to prepare a supplement to an EIS when an agency ''makes substantial changes in the proposed action that are relevant to environmental concerns, or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.'' The DOE regulations for compliance with NEPA, 10 CFR 1021.314, direct that when it is unclear whether or not a supplemental EIS is required, the Department is to prepare a supplement analysis.

This Supplement Analysis (Analysis) evaluates new information regarding the condition of TRR spent fuel. In addition, this Analysis compares this new information with the IMNM EIS' evaluation of failed TRR spent fuel.

In the IMNM EIS, DOE evaluated the impacts of several stabilization alternatives (i.e., Processing to Metal, Processing to Oxide, Improving Storage, Processing and Storage for Vitrification in the Defense Waste Processing Facility, and Vitrification in F-Canyon) and a ''No Action'' alternative. For each alternative, the IMNM EIS estimated the potential impacts of stabilizing all of the TRR spent nuclear fuel (both failed fuel and that believed to be intact), including normal operations, waste generation, potential accidents, and cumulative impacts. In each case, the potential impacts for each stabilization alternative were estimated based on the entire SRS inventory of TRR spent fuel. As a result, the potential impact of stabilizing all the TRR spent fuel by Processing to Metal, as well as the potential impacts from the other alternatives, was analyzed and documented in the IMNM EIS.

Since discovering that additional TRR fuel has failed, DOE has re-evaluated the stabilization alternatives in the IMNM EIS to ensure that the analysis remains valid. In the IMNM EIS, DOE concluded that these alternatives would take from four to nine years to implement completely for the TRR spent nuclear fuel, while the preferred alternative of processing TRR spent fuel to a metal could be implemented more quickly. DOE believes that the estimates of time to implement TRR spent nuclear fuel stabilization alternatives in the IMNM EIS are still accurate. DOE expects that stabilization of the remaining TRR spent fuel in RBOF could be completed in 6 to 12 months.

Conclusion

Based on the foregoing, DOE finds that stabilizing the TRR fuel by the Processing to Metal alternative in the IMNM EIS will result in neither significantly greater environmental impacts than analyzed in the IMNM EIS nor a substantial change in the proposed action relevant to environmental concerns. Stabilizing all the TRR fuel by processing it to a metal is consistent with the goals of the proposed action in the IMNM EIS. Furthermore, stabilizing all the TRR fuel by processing it to a metal is consistent with the stabilization action selected in the December 12, 1995, ROD, which clearly allowed for the stabilization of additional TRR spent fuel. Consequently, DOE has concluded that the stabilization of the remaining TRR fuel does not require the preparation of a supplemental EIS.

[FR Doc. 97–9340 Filed 4–10–97; 8:45 am]
BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

Office of Defense Programs; Inertial Fusion Science in Support of Stockpile Stewardship Grant Program

AGENCY: Department of Energy (DOE).

ACTION: Notice of solicitation availability.

SUMMARY: The Department of Energy Office of Defense Programs hereby announces its interest in receiving grant applications for performance of unclassified innovative research in high energy-density science relevant to inertial fusion within the stockpile stewardship program.

The objectives of this new Inertial Fusion Science in Support of Stockpile Stewardship Financial Assistance Program are to (1) increase U.S. efforts in high-energy-density science relevant to Inertial Confinement Fusion (ICF) through funding of small research projects at universities and other private sector institutions; (2) promote interactions between such investigators and scientists at the Department of Energy weapons laboratories, and; (3) assist in training scientists in areas of long-term research relevant to stockpile stewardship.

Subject to the availability of appropriated funds, the Office of Inertial Fusion and the NIF Project intends to provide up to $2 million in FY98 for multiple grant awards under this Inertial Fusion Science in Support of Stockpile Stewardship Financial Assistance Program. Applicants will compete for one-to three-year grant awards through open competition with peer review.

The solicitation document invites applications from all segments of the U.S. private sector (non-federal). Any U.S. university or other institution of higher education or other non-profit or for-profit organization, non-federal agency or entity will be eligible for a grant award under this new financial assistance program. Non-U.S. citizens at U.S. institutions are eligible. Investigators at foreign institutions may not apply as a principal investigator, but may receive funding as a co-investigator. DOE must be notified of any foreign nationals involved in the funded work, and there may be some restrictions on their participation at certain facilities and conferences.

DATES: A solicitation will be available on or about April 11, 1997. Preapplications referencing DE-FG03–97DP00167, should be submitted by May 1, 1997. Full applications under this notice should be received by 4:30 pm Eastern Standard Time, June 30, 1997. Initial grant awards under this new financial assistance program are planned for about November 15, 1997.

ADDRESSES: The complete solicitation document will be available on or about April 11, 1997 on the Internet by accessing the ICF grant program home page (http://www3.dp.doe.gov/ifnif/grants.htm) or by accessing the DOE/OAK home page (http://www.oak.doe.gov/procure/proc__main.html). Prospective applicants may also submit a written request including a self-addressed stamped envelope and an MS-DOS formatted high density 3½'', virus free diskette to the contracting officer for a diskette copy of the solicitation (U.S. Dept. of Energy, Oakland Operations Office, 1301 Clay Street 700N, Oakland, CA 94612–5208, Attn: Bill O'Neal).

Completed applications referencing Solicitation Notice DE-PS03–97DP00167 must be submitted to: Office of Inertial Fusion, DP–18, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD, 20874–1290, Attn.: Grant Program.

FOR FURTHER INFORMATION CONTACT: Ann Satsangi, 301–903–8059, ann.satsangi@dp.doe.gov or Bill O'Neal 510–637–1880, bill.o'neal@oak.doe.gov