

**NUCLEAR REGULATORY COMMISSION**

**DOCKET NO. 040-08769  
ENVIRONMENTAL ASSESSMENT AND FINDING OF  
NO SIGNIFICANT IMPACT FOR LICENSE AMENDMENT TO SOURCE  
MATERIALS LICENSE NO. SUB-1382,  
FOR TERMINATION OF THE LICENSE AND UNRESTRICTED RELEASE OF THE  
EXXONMOBIL REFINING & SUPPLY CO., FACILITY IN  
BILLINGS, MONTANA**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Issuance of Environmental Assessment and Finding of No Significant Impact for License Amendment.

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**SUPPLEMENTARY INFORMATION:**

**I. Introduction**

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a license amendment to NRC Source Materials License No. SUB-1382. This license is held by ExxonMobil Refining & Supply Co., (the Licensee) for its ExxonMobil Billings Refinery (the Facility) located at 700 ExxonMobil Road, Billings, Montana. Issuance of the amendment would authorize release of the Facility for unrestricted use and termination of the NRC license. The Licensee requested this action by letters dated February 10 and July 6, 2006. The NRC has prepared this Environmental Assessment (EA) in support of this proposed action in accordance with the requirements of Title 10, Code of Federal Regulations (CFR), Part 51 (10 CFR Part 51).

## II. Environmental Assessment

### Identification of Proposed Action

The proposed action would release the Facility for unrestricted use. NRC License No. SUB-1382 was issued on September 9, 1980, pursuant to 10 CFR Part 40, and has been amended periodically since that time. This license authorized the Licensee to use depleted uranium (DU) catalysts in 84 furnace tubes of a F-551 Reformer Furnace (furnace) at a hydrogen manufacturing plant. Hydrogen carbon gas was passed through the tubes with the rings acting as a catalyst, to produce hydrogen and carbon dioxide. The Licensee used this process from 1980 to 1986.

In 1986, all of the furnace tubes were removed and surveyed. The tubes were replaced with a non-radioactive nickel-molybdenum catalyst. Residual radioactivity was detected at the bottom of some of the furnace tubes that had previously contained the DU catalysts. Those areas were decontaminated and a survey was subsequently performed. The survey results indicated that the residual radioactivity had been reduced to less than 83 becquerels per 100-square centimeter (Bq/100 cm<sup>2</sup>). The tubes were internally sandblasted and returned to service.

In 2005, the Licensee replaced all of the tubes during furnace maintenance. During the 2005 maintenance, several areas of the furnace were made accessible which were normally not accessible during operations. The Licensee performed surveys based on process knowledge of the system. The highest survey readings were found in the manifold that carried the product from the furnace tubes to the collection basin refractory drum. A pipe elbow was removed from the manifold which allowed access to the manifold piping near the removal point. Four residual radioactivity measurements were taken upstream of the elbow. The mean of the measurements was 220 Bq/100 cm<sup>2</sup> (13,200 dpm/100 cm<sup>2</sup>), with the highest concentration measured as 645 Bq/100 cm<sup>2</sup> (38,700 dpm/100 cm<sup>2</sup>). There was no residual contamination that was distinguishable from background detected on the downstream side of the elbow or along the interior of the refractory drum. The elbow was disposed of as radioactive waste and replaced with a new elbow component. The licensee performed 100% surveys on the attachment points

upstream of the manifold and downstream of the pipe elbow and did not measure any areas with concentrations exceeding the highest concentration observed in the accessible area of the manifold. Therefore, the NRC staff concluded that the highest measured concentration taken by the Licensee bounded the total activity in the manifold.

Based on process knowledge of the system and the conditions of the Facility, the Licensee determined that only routine decontamination activities, in accordance with their radiation safety procedures, were required. The Licensee was not required to submit a decommissioning plan to the NRC. The Licensee conducted surveys of the Facility and provided information to the NRC to demonstrate that the furnace component contributed less than 0.01 millisievert/year (mSv/yr) (1 millirem(mrem)/year) and therefore, the Facility meets the criteria in Subpart E of 10 CFR Part 20 for unrestricted release and for license termination. By letters of February 10 and July 6, 2006, the Licensee requested termination of its NRC source materials license.

### **The Need for the Proposed Action**

The Licensee has ceased conducting licensed activities at the Facility and seeks the unrestricted use of its Facility which can be accomplished by the termination of its NRC source materials license.

### **Environmental Impacts of the Proposed Action**

ExxonMobil Refining & Supply Co., is located on a 778 acre site in Billings, Montana. This site is primarily considered a rural area and is bounded by the Montana Rail Link and Interstate-90 on the south side and the Yellowstone River on the north side. The furnace is located within the processing area of the refinery, which is a restricted site. Access to the area is given by permission only, and the area is actively monitored by security personnel.

The Licensee elected to demonstrate compliance with the radiological criteria for unrestricted release as specified in 10 CFR 20.1402 by developing derived concentration guideline levels (DCGLs) for its Facility. The Licensee considered two site-specific exposure scenarios and two generic exposure scenarios as documented in NUREG-1640, "Radiological Assessments for Clearance of Materials from Nuclear Facilities." The exposure scenarios were

analyzed for the critical group to demonstrate that the residual radioactivity remaining on the furnace components at the facility was less than the derived concentration guideline level (DCGL) corresponding to 0.01 mSv/yr (1 mrem/yr). The critical group is the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.

The two site-specific scenarios analyzed the potential exposure to: (1) a worker due to continued furnace operation and, (2) an on-site demolition worker who uses a torch-cutter to cut the manifold piping into shorter lengths for disposal or recycling. The two generic scenarios analyzed the exposure to: (1) a resident living near an industrial landfill and who drinks the groundwater contaminated with landfill leachate, and (2) workers handling and processing steel slag for road construction. Based on the evaluation of all four exposure scenarios, the Licensee concluded that the critical group was the workers handling or processing steel slag. Therefore, this scenario was used as the bounding scenario. The calculated DCGL that would result in a dose of 0.01 mSv/yr (1 mrem/yr) to the critical group of a worker handling or processing steel slag was determined to be 400 Bq/100 cm<sup>2</sup> (24,000 dpm/100 cm<sup>2</sup>).

Based on surveys performed during 2005, the Licensee calculated that the residual low-level contamination within the furnace components remaining at the facility, were less than the calculated DCGL. There was one small area (100 cm<sup>2</sup>) inside the manifold that was contaminated at a concentration of 1.6 times the DCGL. The NRC staff determined that the elevated measurement still met the overall release criteria for the facility. The NRC reviewed the Licensee's methodology and proposed DCGL, and concluded that the proposed DCGL is acceptable for use as the release criteria at the Facility. The NRC confirmed the calculations, which substantiated that the dose to the public would be less than 0.01 mSv/yr (1 mrem/yr) total effective dose equivalent (TEDE).

Based on its review, the staff has determined that the affected environment and any environmental impacts associated with the proposed action are bounded by the impacts evaluated by the “Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities” (NUREG-1496) Volumes 1-3 (ML042310492, ML042320379, and ML042330385). Further, no incidents were recorded involving spills or releases of radioactive material at the Facility. Accordingly, there were no significant environmental impacts from the use of radioactive material at the Facility. The NRC staff reviewed the docket file records and the final status survey report to identify any non-radiological hazards that may have impacted the environment surrounding the Facility. No such hazards or impacts to the environment were identified.

The NRC staff finds that the proposed release of the Facility for unrestricted use and the termination of the NRC source materials license is in compliance with 10 CFR 20.1402. The NRC has found no other activities in the area that could result in cumulative environmental impacts. Based on its review, the staff considered the impact of the residual radioactivity at the Facility and concluded that the proposed action will not have a significant effect on the quality of the human environment.

### **Environmental Impacts of the Alternatives to the Proposed Action**

Due to the environmental impacts of the proposed action identified above, impact of alternatives to the proposed action must be considered. Alternatives to the proposed action discussed below are: (1) the no-action alternative, or (2) disposal of the low-level contaminated components at a low-level disposal facility and replace the respective equipment at the Licensee's facility.

1. *No-action alternative*: As an alternative to the proposed action, the staff could leave the license in place by simply denying the amendment request. This no-action alternative is not feasible because it conflicts with 10 CFR 40.42(d), requiring that decommissioning of source material facilities be completed and approved by the NRC after licensed activities cease. Additionally, this denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the no-action alternative are

therefore similar, and the no-action alternative is accordingly not further considered.

2. *Environmental Impact of Alternative 2:* Another alternative to the proposed action is to dispose of the low-level contaminated equipment at a low-level waste disposal facility and to replace the affected equipment at the Licensee's facility. This alternative would increase the environmental impacts as a result of the air quality, noise and additional work force required during the removal and replacement process of the affected furnace components. There should not be an increase in occupational exposure because the cutting and removal of the component was bounded by the scenario for the proposed action, which was less than 1 mrem/yr. The second alternative, to dispose of the low-level contaminated equipment at a low-level disposal facility and replace the respective equipment at the Licensee's facility, is not a cost-effective alternative. The approval of the proposed action is protective of the health and safety of the public and is consistent with as low as reasonably achievable, and is the most cost-effective alternative.

### **Conclusion**

The NRC staff has concluded that the proposed action is consistent with the NRC's unrestricted release criteria in 10 CFR 20.1402. Because the proposed action will not significantly impact the quality of the human environment, the NRC staff concludes that the propose action is the preferred alternative.

### **Agencies and Persons Contacted**

NRC provided a draft of the Environmental Assessment to Mr. Roy Kemp of the Montana Department of Public Health and Human Services, Division of Quality Assurance, for review on February 6, 2007. Mr. Kemp declined the opportunity to comment on the draft EA.

The NRC staff has determined that the proposed action is of a procedural nature, and will not affect listed species or critical habitat. Therefore, no further consultation is required

under Section 7 of the Endangered Species Act. The NRC staff has also determined that the proposed action is not the type of activity that has the potential to cause effects on historic properties. Therefore, no further consultation is required under Section 106 of the National Historic Preservation Act.

### **III. Finding of No Significant Impact**

On the basis of this EA, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined that preparation of an environmental impact statement is not warranted.

### **IV. Further Information**

Documents related to this action, including the application for amendment and supporting documentation, are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The documents related to this action are listed below, along with their ADAMS accession numbers.

1. NRC, "Radiological Assessment for Clearance of Materials from Nuclear Facilities," NUREG-1640, Volume 1, June 2003 (ML032250178).
2. Title 10 Code of Federal Regulations, Part 20, Subpart K, "Waste Disposal."
3. Title 10 Code of Federal Regulations, Part 40, "Domestic Licensing of Source Material."
4. Title 10, Code of Federal Regulations, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."
5. ExxonMobil, "Radiological Survey & Dose Modeling for Termination of License SUB-1382" February 10, 2006, (ML060520239).
6. ExxonMobil, "Justification for Free Release of F-551 Furnace in Support of License Termination" July 6, 2006, (ML061910360).

