

NUCLEAR REGULATORY COMMISSION

[Docket No. 70-3073]

Environmental Assessment and Finding of No Significant Impact Related to Amendment No. 13 to Material License No. SNM-1999 Release of Portion of Site for Unrestricted Use Kerr-McGee Corporation Cushing Refinery Site

1. Introduction

1.1 Background

The U.S. Nuclear Regulatory Commission (NRC) is considering the Kerr-McGee Corporation's (Kerr-McGee or the licensee) request to have a portion of the property released, for unrestricted use, from the Cushing Refinery Site (Cushing) License, SNM-1999. This action is taken in response to Kerr-McGee's license amendment request, dated November 10, 2000, and supplemented by letter dated January 19, 2001, to release the portions of site blocks 116, 117, 124, and 125 that are south of Skull Creek for unrestricted use and to remove the areas from the license. The proposed boundary of the licensed area is shown in Figure 1, "Cushing, Oklahoma Refinery Site, Proposed Licensed Site," of the January 19, 2001, letter.

On April 6, 1993, NRC issued Materials License SNM-1999 authorizing possession of contaminated soil, sludge, sediment, trash, building rubble, and any other contaminated material, at the licensee's Cushing site. On March 26, 1999, NRC by license amendment released for unrestricted use and removed from the Cushing license Unaffected Area 1, portions of Unaffected Areas 2-4 that are south of Skull Creek, and a portion of the haul road corridor area partially surrounded by Unaffected Areas 2-4. These areas were used for oil refining and storage during the years that nuclear processing and disposal took place and were not to be affected by the nuclear processing or disposal. On August 23, 1999, NRC approved Kerr-McGee's Cushing Refinery Site Decommissioning Plan by license amendment. As part of that approval NRC performed an environmental assessment of the activities necessary to remediate the Cushing site to meet NRC's unrestricted use criteria. As noted in that environmental assessment, NRC concluded that those activities would not adversely affect the environment. That Environmental Assessment, including a Finding of No Significant

Impact, was published in the **Federal Register** on April 1, 1999.¹

The licensee now requests that other portions of the Cushing site be released for unrestricted use and removed from the Cushing license as those areas can be demonstrated to meet NRC's criteria for release for unrestricted use. Kerr-McGee, in its letter dated November 10, 2000, and supplemented by letter dated January 19, 2001, has requested that portions of site blocks 116, 117, 124, and 125 that are south of Skull Creek be released for unrestricted use and to remove this area from its license. The area that is being considered for release from the license encompasses a sediment pond located in Unaffected Area 2 (UA-2). This sediment pond is normally used as a collection area for sediments generated during treatment of water removed from Pit 5. A routine discharge of treated wastewater to Skull Creek in June 1998 resulted in the inadvertent release of some of the pond sediment not releasable under the licensee's discharge permit. Although Skull Creek was radiologically decontaminated in 1991, it is located within a radiologically affected area. Therefore, sediments removed from Skull Creek and placed into UA-2 Sediment Pond had a potential of containing licensed material.

1.2 Proposed Action

The proposed action is the release for unrestricted use, and the removal from License SNM-1999, the portions of site blocks 116, 117, 124, and 125 that are south of Skull Creek for unrestricted use and to remove the areas from the license. The proposed boundary of the licensed area is shown in Figure 1, "Cushing, Oklahoma Refinery Site, Proposed Licensed Site," of the January 19, 2001, letter.

1.3 Need for Proposed Action

The licensee seeks to release property that is currently under license for unrestricted use. This action was requested to remove the current limitations on the future use of this portion of the Cushing Refinery Site property.

2. Description of Cushing Refinery Site

2.1 Site Description

The Cushing Refinery site is comprised of 1.78 square kilometers (km²) (440 acres) in Payne County, Oklahoma. The site is located 3.22 kilometers (km) (2 miles) north of the City of Cushing. The City of Cushing is located about midway between Tulsa and Oklahoma City on Highway 33.

Neighboring communities include Yale (11.27 km (7 miles north-northeast)), Ripley (12.88 km (8 miles west-northwest)), Agra (16.1 km (10 miles southwest)), Oilton (17.71 km (11 miles east-northeast)), Quay (16.1 km (10 miles north-northeast)), Jennings (22.54 km (14 miles northeast)), and Drumright (12.88 km (8 miles east)). The Cushing site terrain is rolling pasture land. The elevation of the site ranges from 250 meters (m) (820 feet) to 280 m (920 feet) above mean sea level (MSL). Skull Creek runs through the Cushing site before joining the Cimarron River 6.44 km (4 miles) east-northeast of the site at an elevation of 232 m (760 feet) MSL.

2.2 Site Operating History

The Cushing site was operated as a refinery from approximately 1915 to 1972, when the refinery was closed and dismantled. The licensee operated the refinery site from 1956 to 1972. The licensee also processed nuclear fuel material at the Cushing site from 1963 to 1966, under two AEC licenses. AEC Source Material License SMB-664 authorized Kerr-McGee to possess unlimited quantities of natural uranium, depleted uranium, and thorium. AEC Special Nuclear Material License SNM-695 authorized Kerr-McGee to possess any enrichment of uranium, but limited it to 1,000 kilograms (2,205 pounds) of uranium-235. Kerr-McGee received, possessed, and processed these materials for the AEC. Both AEC licenses were terminated in 1966.

3. Environmental Impact of Proposed Action

An unaffected area, as defined in NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination," is an area not expected to contain residual radioactivity from licensed operations. The unrestricted use criteria for enriched uranium and natural thorium are the Option 1 values in the 1981 Branch Technical Position on "Disposal or Onsite Storage of Thorium or Uranium Wastes From Past Operations."² The Option 1 criteria are 30 picoCuries per gram (pCi/g) for natural, depleted, and enriched uranium and 10 pCi/g for natural thorium.

The licensee performed final status surveys in the four unaffected areas and submitted the results to NRC in the "Final Radiation Survey of Four Unaffected Areas of the Cushing Refinery Site," dated April 17, 1995. Gamma radiation scans, gamma exposure rate measurements, soil radioactivity concentration

¹ 64 FR 15831

² 46 FR 52061.

measurements, and surface radioactivity survey were performed in each of the four unaffected areas. As a result of the surveys and soil sample analysis, one area of about one meter in diameter on the surface of the ground was found to be contaminated with Th-232. This spot was designated as a radioactive materials area and was removed from the areas that the licensee considered part of the four unaffected areas. The licensee's survey report provided data that indicated that the four unaffected areas meet NRC's criteria for unrestricted use.

The portions of site blocks 116, 117, 124, and 125 that are south of Skull Creek that are being considered for release for unrestricted use were surveyed as part of the four unaffected site areas. The results of the earlier four unaffected areas survey found that concentrations of radionuclides in the soil samples from survey units are as follows: less than 0.1 to 0.5 pCi/g for U-235; 0.3 to 3.0 pCi/g for U-238; 0.6 to 9.0 pCi/g for Th-228; and less than 0.8 to 10.0 pCi/g for Th-232. One small area of thorium, in excess of the criteria (9.0 pCi/g of Th-228 and 10.0 pCi/g of Th-232), is in unaffected area number 2. This area of elevated thorium levels, surveyed by Oak Ridge Institute for Science and Education (ORISE), an independent NRC contractor, is the same area that the licensee designated as a radioactive materials area (about 400 m²) after it performed its final radiation survey. Thus, this small radioactive material area is not part of the licensee's request for unrestricted release. Of the areas that ORISE surveyed that were part of the licensee's request for unrestricted release, the concentrations of radionuclides in soil samples are as follows: 0.6 to 3.8 pCi/g for Th-228; and less than 0.8 to 3.0 pCi/g for Th-232. The soil samples are within the Option 1 soil criteria for uranium (natural, enriched and depleted) and natural thorium.

The licensee performed a final status survey of the sediment pond and submitted the results to NRC in the "Final Status Survey Report for Cushing Refinery Site UA-2 Sediment Pond," dated May 2, 2000, and supplemented by letters dated November 10, 2000, and January 19, 2001. The results of the exposure rate surveys of the sediment pond indicated that no location was more than 10 microRoentgen per hour (μ R/hr) above background. The soil samples yielded results indicating only background or slightly above background concentrations of uranium and thorium. The maximum concentration of each of the two radionuclides in the soil samples from

the sediment pond survey were 10.84 pCi/g for total uranium and 2.72 pCi/g for total thorium. Soil sample concentration results are within the Option 1 criteria for both uranium and thorium. This licensee survey report provided data that indicated that the sediment pond area meets NRC's criteria for unrestricted use.

Groundwater under the Cushing site can be found in one of three water-bearing zones. The water-bearing zones are the shallow water-bearing zone (unconsolidated soil and the upper portion of the Vanoss Group), the lower portion of the Vanoss Group, and Vamoosa-Ada aquifer. The Vamoosa-Ada aquifer is the regional groundwater aquifer. The licensee notes that it appears that there is not a significant groundwater flow between the shallow water-bearing zone and the lower portion of the Vanoss Group. Further the licensee notes that the Vamoosa-Ada aquifer is isolated from the uppermost water-bearing zone by low-permeability strata within the Vanoss. Thus, the Vamoosa-Ada aquifer is unaffected by surface activities. The licensee based this finding on an evaluation of the dispersion of environmental tritium in the aquifer. The State of Oklahoma, Department of Environmental Quality (DEQ)³ found the following: (1) The shallow groundwater unit yields low quantities of poor quality water; (2) it is highly unlikely that future residential or commercial drinking water wells will be established from the shallow groundwater at this site; and (3) no known drinking water wells are screened in the Vanoss within a one-mile radius of the site. Further, DEQ stated that the Vanoss should not be considered a viable drinking water source for the area and that DEQ would consider water quality standards other than maximum contamination levels as set by the U.S. Environmental Protection Agency (EPA) as appropriate for the shallow groundwater at this site. Further, based on EPA's guidance⁴ the Vanoss groundwater would be classified as a Class III—Groundwater Not a Potential Source of Drinking Water and of Limited Beneficial Use.

The staff has reviewed the site potentiometric surface map of the upper zone.⁵ Based on this review the

³ Letter to Jeff Lux, Kerr McGee Corporation, from Darrell Shults, DEQ, dated September 19, 1997.

⁴ "Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy", Final Draft, dated November 1986, Office of Water, EPA.

⁵ Figure 2.5, "Potentiometric Surface Map of the Upper Zone," Kerr-McGee Corporation's Site Decommissioning Plan Cushing, Oklahoma, dated August 1998.

staff determined that: (1) The portions of site grid blocks 116, 117, 124, and 125 are up-gradient of any known sources of contamination; (2) the sediment pond does not contain any radioactive material that exceeds NRC's unrestricted release criteria; and (3) there are no known sources of radioactive contamination up-gradient of this area. Consequently, it is very unlikely that the groundwater in these areas could have been contaminated.

The Other Industrial Waste (OIW) disposal cell is located up-gradient of this area. Material from the remediation of Waste Acid Sludge Pit 4 (Pit 4) that meets NRC's Option 1 criteria for unrestricted release will be disposed of in the OIW. NRC reviewed this disposal activity as part of its review of the Pit 4 remediation plan. On September 3, 1998, NRC approved the Pit 4 remediation plan, License Amendment No. 8.

Based on the above NRC staff finds that because the NRC's unrestricted release criteria have been met for these areas, there is no significant impact on the environment, and this portion of the property can be released for unrestricted use.

4. Alternatives to Proposed Action

The only alternative to the proposed action is to not release this area for unrestricted use and keep the area under license until all site radiological remediation is completed and the Cushing license is terminated. The environmental benefit of maintaining an NRC license for this portion of the Cushing Refinery Site is negligible, but would reduce options for future use of the property.

5. Other Agencies or Persons Consulted

This environmental assessment was prepared entirely by NRC staff. No other sources were used beyond those referenced in this environmental assessment. NRC staff provided a draft of this environmental assessment to DEQ for review. DEQ had no comments or suggestions on this environmental assessment.

6. Conclusions

The NRC finds that because the Commission's unrestricted release criteria have been met, there is no significant impact on the environment, and the property can be released for unrestricted use.

Finding of No Significant Impact

The Commission has prepared an Environmental Assessment related to the proposed unrestricted release, and removal from License SNM-1999, of

portions of site blocks 116, 117, 124, and 125 that are south of Skull Creek on the Cushing Refinery Site, in Cushing, Oklahoma. On May 11, 2001, the Commission provided notice of this proposed action and offered an opportunity for a hearing.⁶ There were no requests for a hearing received. On the basis of the Environmental Assessment, the Commission has concluded that this licensing action would not significantly effect the quality of human environment and has determined not to prepare an environmental impact statement for this proposed action.

The above documents related to this proposed action are available for inspection on the Commission's Public Electronic Reading Room at <http://www.nrc.gov/NRC/ADAMS/index.html>.

Dated at Rockville, Maryland, this 13th day of July 2001.

For the U.S. Nuclear Regulatory Commission.

Larry W. Camper,

Chief, Decommissioning Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

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NUCLEAR REGULATORY COMMISSION

[Docket No. 72-31]

Yankee Atomic Electric Company Issuance of Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (NRC or Commission) is considering issuance of an exemption, pursuant to 10 CFR 72.7, from the provisions of 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(A), and 72.214 to Yankee Atomic Electric Company (YAEC). The requested exemption would allow YAEC to deviate from the requirements of Certificate of Compliance 1025 (the Certificate), Appendix A, Technical Specifications (TS), Items 3.1.5, Canister Maximum Time in Vacuum Drying, and 3.1.6, Maximum Time in Transfer Cask. The exemption would allow YAEC to use extended operating times in Limiting Condition for Operation (LCO) 3.1.5 and 3.1.6 for the fuel loading campaign at Yankee Nuclear Power Station (YNPS) in Rowe, Massachusetts.

Environmental Assessment (EA)

Identification of Proposed: By letter dated April 3, 2001, as supplemented on June 6, 2001, YAEC requested an

exemption from the requirements of 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(A), and 72.214 to deviate from the requirements of Certificate of Compliance 1025, Appendix A, Items LCO 3.1.5 and 3.1.6. YAEC is a general licensee, authorized by NRC to use spent fuel storage casks approved under 10 CFR Part 72, Subpart K.

YAEC plans to use the NAC-MPC cask system to store spent nuclear fuel, generated at YNPS, at an independent spent fuel storage installation (ISFSI) located in Rowe, Massachusetts, on the YNPS site. The YNPS ISFSI has been constructed for interim dry storage of spent nuclear fuel.

By exempting YAEC from 10 CFR 72.212(a)(2), 72.212(b)(2)(i)(A), and 72.214, YAEC will be authorized to extend loaded canister vacuum drying and the time spent fuel is in the transfer cask for canister heat loads that are lower than the design basis heat load.

The time duration from completion of draining the CANISTER through completion of vacuum dryness testing and the introduction of helium backfill shall not exceed the time shown for the specified heat loads:

Total heat loads (L)(kW)	Time limit (hours)
10.5 < L ≤ 12.5	38
8.5 < L ≤ 10.5	48
6.5 < L ≤ 8.5	58
4.5 < L ≤ 6.5	83
L ≤ 4.5	Not Limited

The time duration from end of external forced air or in-pool cooling of the CANISTER through completion of vacuum dryness testing and the introduction of helium backfill shall not exceed the time shown for the specified heat loads:

Total heat loads (L)(kW)	Time limit (hours)	
	Forced air	In-pool
10.5 < L ≤ 12.5	10	10
8.5 < L ≤ 10.5	12	12
6.5 < L ≤ 8.5	16	16
4.5 < L ≤ 6.5	40	40

The time duration from the introduction of helium backfill of the CANISTER through completion of the CANISTER transfer operation from the TRANSFER CASK to the CONCRETE CASK is not limited.

The specifications above would be in lieu of those in the current Certificate of Compliance No. 1025, Rev. 0, Appendix A, LCO 3.1.5 and 3.1.6. The proposed action before the Commission is

whether to grant this exemption under 10 CFR 72.7.

On September 9, 2000, the cask designer, NAC International (NAC), submitted to NRC an application to amend Certificate of Compliance 1025. The requested amendment includes the same revisions to LCO 3.1.5 and 3.1.6 in Appendix A to the Certificate as requested in this exemption. The NRC staff has reviewed the application and determined that extending operating times in TS LCO 3.1.5 and 3.1.6 would have minimal impact on the design basis and would not pose a threat to public health and safety.

Need for the Proposed Action: The revised LCO 3.1.5 and 3.1.6 increase TS times, which are likely to reduce the frequency of entering LCO action statements, thus, reducing radiation doses to workers. The current TS LCO 3.1.5 and 3.1.6 time limits are based on canisters with maximum heat load and the probability for entering LCO action statements will significantly increase for canisters that are lower than the design basis heat load. If action statements are entered as a result of TS requirements without a safety significance, workers will be exposed to low radiation fields for longer periods of time. This would not be consistent with As Low As Reasonably Achievable (ALARA) practices. Workers should be able to conduct loading operations without facing unnecessary time/schedule pressure with sufficient operational flexibility. Unless the exemption is granted or the Certificate is amended, the TS LCO 3.1.5 and 3.1.6 action statements will likely be unnecessarily entered, resulting in additional radiation doses to workers. Because the 10 CFR Part 72 rulemaking to amend the Certificate will not be completed prior to the date that YNPS plans to begin loading fuel into the NAC-MPC cask systems, the NRC is proposing to grant this exemption based on the staff's technical review of information submitted by YAEC and NAC.

Environmental Impacts of the Proposed Action: It has already been determined by the Commission that spent fuel can be stored safely and without significant environmental impact at an onsite ISFSI in the NAC-MPC cask system (65 FR 12444, dated March 9, 2000). Extending the TS times will not increase the probability or consequences of accidents. No changes have been requested to the types or quantities of any radiological effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Occupational radiation exposure will be decreased by the

⁶ 66 FR 24167