

U. S. NUCLEAR REGULATORY COMMISSION

Final Environmental Assessment Related to a Nuclear Regulatory Commission Decision to Take No Further Action at the Kiski Valley Water Pollution Control Authority Site

The U.S. Nuclear Regulatory Commission (NRC) has decided to take no further action on the Kiski Valley Water Pollution Control Authority (KVVWPCA) site in Leechburg, Pennsylvania. The NRC published a Draft Environmental Assessment (EA) in support of this action in the *Federal Register* (69 FR 56102) requesting comments on the proposed action and Draft EA. The NRC did not receive any comments.

I. Summary

KVVWPCA operates a waste water treatment plant in Leechburg, Pennsylvania, about 40 kilometers (25 miles) northeast of Pittsburgh on the flood plain of the Kiskiminetas River. The KVVWPCA site is not licensed by NRC. From 1976 to 1993, KVVWPCA treated sewage sludge by incineration. KVVWPCA disposed of the resulting sewage sludge ash by mixing it with water to form a liquid slurry and pumping this material into an onsite lagoon. Discharges to the lagoon ceased in 1993 and plans for closure were developed in 1994. Subsequent analyses revealed that subsurface uranium contamination was present in the ash lagoon. The NRC conducted dose assessments for a range of potential use scenarios, including off site scenarios where the ash would be removed, and onsite use scenarios where the ash lagoon would be left in place. Based on these assessments, the NRC has determined that the site meets the NRC's criteria for unrestricted use under the License Termination Rule, Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20, Subpart E. Because the ash lagoon meets the criteria for unrestricted use, NRC has determined that the site can be released from NRC jurisdiction without further remedial action.

II. Environmental Assessment

Introduction

In 1994, KVVWPCA made plans to remove the ash from the lagoon at the KVVWPCA site. In the course of site closure, the Pennsylvania Department of Environmental Resources notified NRC that elevated uranium concentrations had been found in an ash sample from the KVVWPCA site. Subsequent analyses revealed that subsurface uranium contamination was present at concentrations of up to 34 becquerels per gram (Bq/g) [923 picocuries per gram (pCi/g)] total uranium, and that the material was enriched to approximately 4% uranium-235. Further characterization revealed that the volume of the contaminated ash is approximately 9,000 cubic meters (320,000 cubic feet) and that the total uranium inventory is approximately 32-41 gigabecquerels (0.85-1.1 Ci), resulting in an average total uranium concentration of approximately 3.0 Bq/g (80 pCi/g). The contaminated ash is highly heterogeneous and the highest levels of contamination are found over a relatively small area, at a depth of 2 to 3 meters (m) [7 to 10 feet (ft)]. Radionuclides other than uranium are also present, but at much lower concentrations.

The contamination is believed to have resulted from the reconcentration of uranium-contaminated effluents released from the sanitary sewers and laundry drains of the Babcock & Wilcox (B&W) Apollo facility. During its operation, the B&W Apollo facility conducted fuel manufacturing and fabrication. Upon successful completion of its decommissioning activities, the NRC terminated the B&W Apollo site's license on April 14, 1997. There is no evidence suggesting that the discharges from the B&W Apollo facility exceeded permissible levels in effect during operation.

Since 1994, NRC, KVVWPCA, and the Pennsylvania Department of Environmental Protection (PADEP) have engaged in numerous interactions on the decommissioning of the KVVWPCA site. By letter dated November 7, 2003, NRC staff informed KVVWPCA that it would conduct a dose assessment to determine what actions should be taken at the KVVWPCA site. This letter also noted that PADEP has taken the position that, under Pennsylvania's Solid Waste Management Act, the ash in the lagoon should be removed and properly disposed of per the Commonwealth's jurisdiction over the material as solid waste. Therefore, the NRC staff's dose assessment included scenarios for leaving the ash on site as well as scenarios for removing the ash.

NRC staff conducted dose assessments for a range of potential scenarios. These scenarios include a removal scenario, in which the contaminated ash is excavated and removed to an offsite disposal facility, and an onsite no-action scenario, in which the lagoon is abandoned in place with no remedial actions performed. The onsite scenarios included a reasonably foreseeable future land use case and a pair of less likely cases used as assessment tools to bound the uncertainty associated with future land use. In all of the scenarios, doses from the groundwater pathway are expected to be significantly limited by the relatively non-leachable form of uranium in the ash, as determined by leaching tests.

It is likely that the contaminated ash will be removed from the lagoon, and that the site will continue to be used as a waste water treatment plant. Thus, the critical group in the removal scenario is the workers who excavate the contaminated ash and are exposed through inhalation of resuspended fine contaminated ash particles and direct irradiation. In addition, to address the possibility that the ash may be removed to a RCRA-permitted landfill, potential impacts of more aggressive leachate chemistry (low or high pH conditions) on uranium mobility were considered and the range of doses to a hypothetical individual residing near the landfill was qualitatively evaluated.

The dose to workers who excavate and remove the ash is expected to be approximately 0.15 mSv (15 mrem). As any removal operation would take considerably less than one year, this constitutes the total annual dose in the year of removal. Doses to ash removal workers are dominated by the inhalation of uranium-234 and uranium-238 along with a small additional dose from external exposure. Doses to the ash removal workers are limited by the relatively low average concentration of these isotopes, the limited exposure time during excavation of the ash, and the limited respirability of the ash particles.

Three cases of the onsite no-action scenario, in which the ash is assumed to be left in place without any remedial action, were also evaluated. These include a recreational use case, in which the property is converted into a riverside park; an agricultural use case; and an intrusion case, in which it is assumed that a volume of ash is excavated for the construction of a basement and the excavated ash is spread on the land surface. These cases, while less likely,

were evaluated because they are useful assessment tools. As they comprise a range of future land use and include all exposure pathways, they can be used to bound other scenarios and, therefore, provide an evaluation of the uncertainty associated with future land use.

In the event that the contaminated ash remains onsite with no remedial action taken, the assumption of a recreational exposure case results in a annual dose of approximately 0.01 mSv (1 mrem) over the next few centuries, eventually rising to approximately 0.02 mSv (2 mrem) at 1000 years. This result is approximately an order of magnitude lower than either the agricultural case or the intrusion case because no crop intake is assumed in the recreational case.

The results of analysis of the agricultural case indicate that the peak annual dose within the 1000-year compliance period is predicted to be less than 0.2 mSv (20 mrem) and to occur at 1000 years after the present time. Results of the analysis of the intrusion case indicate that the peak mean annual dose within the 1000-year compliance period is also expected to be less than 0.2 mSv (20 mrem) and to occur at 1000 years after the present time.

In the agricultural and intrusion cases, it was assumed that a person would site a well or cultivated field at a random location within the 4000 m² (1 acre) site. In the unrealistic case that a farmer were to occupy the site and place a home in the most contaminated 200 m² (0.05 acre) area on the site, the peak annual dose would be expected to be well below the public dose limit and thus this scenario was not given further consideration in the staff's evaluation.

Regardless of whether the ash is left in place or excavated and removed pursuant to Pennsylvania State law, the NRC staff concludes that the doses for all scenarios meet the NRC's criteria for unrestricted use. Therefore, no further remedial action under NRC authority is required. The staff's dose assessment is presented in greater detail in SECY-04-0102, "The Results of the Staff's Evaluation of Potential Doses to the Public from Materials at the Kiski Valley Water Pollution Control Authority site in Leechburg, Pennsylvania."

Proposed Action

NRC proposes to take no further regulatory action regarding the KKWPCA site.

Purpose and Need for the Proposed Action

The purpose of the proposed action is to allow the KKWPCA site in Leechburg, Pennsylvania, to be made available for unrestricted use. This can be justified by demonstrating that the site meets the NRC criteria for unrestricted use. Should the proposed action be approved, under Pennsylvania's Solid Waste Management Act, PADEP could require that the ash in the lagoon be removed and disposed of as solid waste.

Alternative to the Proposed Action

Based on its dose assessment, the NRC staff found the KKWPCA site to be acceptable for release for unrestricted use. The only alternative to the proposed action would be to make no determination regarding the need for NRC action at the site. This would leave the KKWPCA site subject to potential unnecessary regulation by NRC. NRC has determined that the site

meets the NRC's criteria for unrestricted use and that no further action by NRC is necessary. The no action alternative is not acceptable because KVVWPCA does not plan to conduct any activities that would require NRC oversight.

The Affected Environment and Environmental Impacts

The site is located in the central portion of the Appalachian Plateau physiographic province. The Allegheny River and its tributaries such as the Kiskiminetas River drain the majority of the region. The KVVWPCA site drains into the Kiskiminetas River.

The ash lagoon occupies approximately one acre of the 36-acre KVVWPCA site. The bottom of the lagoon basin was excavated into the native silty clay of the bench terrace of the Kiskiminetas River. The lagoon is 2 to 3 meters deep. Land use within the vicinity of the site consists of medium-sized rural residences, small farms, and light industrial areas.

The NRC staff has reviewed the Closure Plan for the KVVWPCA site and as discussed earlier, the NRC staff has conducted a dose assessment using site-specific data. Based on its review and analyses, the staff has determined that the affected environment and environmental impacts associated with the release for unrestricted use of the KVVWPCA site 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). The staff also finds that the proposed release for unrestricted use of the KVVWPCA site is in compliance with 10 CFR Part 20.1402, "Radiological Criteria for Unrestricted Use." The proposed action will result in no physical change to the site. Therefore, NRC expects no significant impact of a nonradiological nature. However, by NRC taking no action, PADEP will have the ability to exercise its authority to require the material to be removed from the site, which will result in physical change to the site. The NRC staff has found no other activities in the area that could result in cumulative impacts.

Agencies and Persons Consulted

This EA was prepared by the NRC staff. The State Office of Historical Preservation, the State Fish and Wildlife Service, and the U.S. Fish and Wildlife Service were not contacted because release of the KVVWPCA site for unrestricted use would not affect historical or cultural resources, nor would it affect threatened or endangered species. The NRC staff consulted with PADEP on an ongoing basis. No other sources were used beyond those referenced in this EA. NRC published this draft EA for public comment and will address comments received in the final EA.

Conclusions

The NRC staff concludes that the proposed action meets the NRC's criteria for unrestricted use under the License Termination Rule, 10 CFR Part 20, Subpart E. NRC has prepared this EA in support of the proposal to take no further action in regard to the KVVWPCA site. On the basis of the EA, NRC has concluded that the environmental impacts from the proposed action are expected to be insignificant and has determined that an environmental impact statement for the proposed action is not necessary.

List of Preparers

Kenneth Kalman, Project Manager, Division of Waste Management and Environmental Protection

List of References

1. November 7, 2003 Letter from Kenneth Kalman to Robert Kossack, "Nuclear Regulatory Commission Staff Intent to Conduct Dose Assessment of the Kiski Valley Water Pollution Control Authority Site. (ADAMS ML032880386).
2. Kenneth Kalman (2004) The Results of the Staff's Evaluation of Potential Doses to the Public from Materials at the Kiski Valley Water Pollution Control Authority site in Leechburg, Pennsylvania. (SECY-04-0102). US Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, June 22, 2004. (ADAMS ML041110312)
3. Chester Environmental (1994). Closure Plan for Incinerator Ash Lagoon, Kiski Valley Water Pollution Control Authority, Westmoreland County, Pennsylvania. Chester Environmental. Pittsburgh, PA, July 1994. (ADAMS ML003693188)
4. Chester Engineers (1997) Ash Lagoon Closure: Kiski Valley Water Pollution Control Authority. Chester Engineers, Pittsburgh, PA. February 1998. (ADAMS ML003683061).
5. Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities (NUREG-1496). US Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, July 1997. (ADAMS ML042310492, ML042320379 and ML042330385)

III. Further Information

Supporting documentation is available for inspection at NRC's Public Electronic Reading Room at <http://www.nrc.gov/readingrm/ADAMS.html>. Any questions should be referred to Ken Kalman, Decommissioning Directorate, Division of Waste Management and Environmental Protection, U.S. Nuclear Regulatory Commission, Washington DC 20555, Mailstop T-7-E18, telephone (301) 415-6664, fax (301) 415-5398.

Please note that on October 25, 2004, the NRC suspended public access to ADAMS, and initiated an additional security review of publicly available documents to ensure that potentially sensitive information is removed from the ADAMS database accessible through the NRC's web site. Interested members of the public may obtain copies of the referenced documents for review and/or copying by contacting the Public Document Room pending resumption of public access to ADAMS. The NRC Public Document Room is located at NRC Headquarters in Rockville, MD, and can be contacted at 800-397-4209 or 301-415-4737 or pdrc@nrc.gov.