UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

May 12, 1988

NRC INFORMATION NOTICE NO. 88-22: DISPOSAL OF SLUDGE FROM ONSITE SEWAGE TREATMENT FACILITIES AT NUCLEAR POWER STATIONS

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

This information notice is being provided to alert licensees to two recent events indicating that not all licensees are fully aware of the potential for contamination of sewage sludge and the relevant regulatory requirements.

It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Related Documents:

IE Bulletin 80-10 (Reference 1) requested that licensees review the design and operation of their facilities to identify systems that are considered non-radioactive (or described as non-radioactive in the facility's Final Safety Analysis Report (FSAR)) but that could become radioactive through interfaces with radioactive systems and result in unmonitored, uncontrolled releases in liquid and gaseous effluents. This bulletin stated that special consideration was to be given to particular systems, including the sanitary waste system; however, sludge from the sanitary waste system was not discussed specifically.

IE Information Notice No. 83-05 (Reference 2) called attention to the provisions of 10 CFR 20.302, "Method For Obtaining Approval Of Proposed Disposal Procedures," as a means for obtaining approval for disposal of, among other things, large volumes of material radioactively contaminated at very low levels. IE Information Notice No. 86-90 (Reference 3) informed licensees that, in Agreement States, applications to obtain approvals for such disposals should be sent to the Agreement State and not to the NRC.

8805060148 ZA

IE Information Notice No. 85-92 (Reference 4) emphasized the need for careful surveys of materials that may be contaminated and that are to be disposed of as "clean" waste; i.e., as waste that does not contain licensed radioactive material.

Description of Circumstances:

During an inspection at the Point Beach Nuclear Power Plant, it was found that the licensee had made onsite disposals of slightly contaminated sludge removed from aeration ponds and the aerobic digester in the onsite sanitary sewage treatment facility. The sludge was spread on licensee-owned land and mixed into the soil by plowing. Radionuclides identified by the licensee in the sludge included chromium-51, manganese-54, cobalt-58, cobalt-60, cesium-134, and cesium-137. The total activity for six onsite disposals was 300 microcuries. Licensee representatives indicated their belief that these disposals were in compliance with regulatory requirements because (1) they met the requirements of 10 CFR 20.303, "Disposal By Release Into Sanitary Sewerage Systems," for disposal into a sanitary sewerage system and (2) their subsequent disposition of sludge was consistent with measures that would be taken by any operator of a sanitary sewerage system. The licensee was informed that these disposals were contrary to 10 CFR 20.301, "General Requirements (Waste Disposal)," and that 10 CFR 20.303 does not apply to contaminated sludge removed from onsite sewage treatment facilities. 10 CFR 20.303 only allows a licensee to discharge radioactive material into a sanitary sewerage system under limited conditions. It does not cover removal and land disposal of contaminated sludge from the licensee's sanitary sewage treatment facilities. Considering the very low level of radioactive contamination of the sludge and the licensee's estimate that these disposals would result in very low annual doses, the licensee applied for, and obtained, approval of future disposals of this type pursuant to 10 CFR 20.302.

Subsequently, during an inspection at the Surry Nuclear Power Station, it was found that the licensee had disposed of dried sludge from the onsite sewage treatment facility at the county sanitary landfill without determining if the sludge was contaminated with licensed material. Licensed radioactive material was found in sludge that had not yet been disposed of. The licensee was informed that failure to determine, before disposal, if the sludge was contaminated was contrary to 10 CFR 20.201, "Surveys," and that disposal of contaminated sludge by this means would be contrary to 10 CFR 20.301.

Before receiving the application from Point Beach, the NRC had received only one application pursuant to 10 CFR 20.302 for disposal of radioactively contaminated sewage sludge from a sanitary sewage treatment facility at a nuclear power station. This was a request from the Duke Power Company for disposal of contaminated sludge at its Oconee Nuclear Station. In this case, the requested method of disposal was by transfer to a contracted vendor for transport to a publicly owned treatment works. The NRC found the request acceptable; however, because Oconee is in an Agreement State, South Carolina, it was necessary for the licensee to obtain approval of the State for this disposal of byproduct material.

Discussion:

Licensees may wish to consider the following:

1. Sludge from onsite sewage treatment plants may be contaminated with licensed radioactive material which has been concentrated by the treatment system.

2. The provisions of 10 CFR 20.303 do not apply to the disposal of contaminated sludge removed from sanitary sewerage systems at nuclear power stations.

3. 10 CFR 20.201 covers surveys required before disposing of sewage treatment sludge, to determine if the sludge is contaminated. Gamma-ray spectrometry can be performed on representative samples of the sludge under conditions that provide a lower limit of detection (LLD) appropriate to measurements of environmental samples. Such measurements make it possible to distinguish licensed material from other radioactive materials (natural radioactive materials and world-wide fallout) that may be present in the sludge.

4. 10 CFR 20.301 covers the disposal of sewage sludge from a licensee's sewage treatment facility when contaminated with licensed radioactive material.

5. Licensees may apply in accordance with the provisions of 10 CFR 20.302 to dispose of sewage sludge containing very low levels of licensed radioactive material in a manner not otherwise authorized in the regulations. Applications for approval of such disposal may be made to the NRC or Agreement State, as appropriate.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: John D. Buchanan, NRR
(301) 492-1097

W. Wayne Meinke, NRR
(301) 492-3152

Attachment: List of Recently Issued NRC Information Notices

References

1. IE Bulletin No. 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment," May 6, 1980.

2. IE Information Notice No. 83-05, "Obtaining Approval for Disposing of Very-Low-Level Radioactive Waste - 10 CFR Section 20.302," February 24, 1983.

3. IE Information Notice No. 86-90, "Request to Dispose of Very-Low-Level Radioactive Waste Pursuant to 10 CFR 20.302," November 3, 1986.

4. IE Information Notice No. 85-92, "Surveys of Waste Before Disposal from Nuclear Reactor Facilities," December 2, 1985.

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
88-21	Inadvertent Criticality Events at Oskarshamn and at U.S. Nuclear Power Plants	5/9/88	All holders of OLs or CPs for nuclear power reactors.
88-20	Unauthorized Individuals Manipulating Controls and Performing Control Room Activities	5/5/88	All holders of OLs or CPs for nuclear power, test and research reactors, and all licensed operators.
88-19	Questionable Certification of Class 1E Components	4/26/88	All holders of OLs or CPs for nuclear power reactors.
88-18	Malfunction of Lockbox on Radiography Device	4/25/88	All NRC licensees authorized to manufacture, distribute, and/or operate radiographic exposure devices.
88-17	Summary of Responses to NRC Bulletin 87-01, "Thinning of Pipe Walls in Nuclear Power Plants"	4/22/88	All holders of OLs or CPs for nuclear power reactors.
88-16	Identifying Waste Generators in Shipments of Low-Level Waste to Land Disposal Facilities	4/22/88	Radioactive waste collection and service company licensees handling prepackaged waste, and licensees operating low-level waste disposal facilities.
88-15	Availability of U.S. Food and Drug Administration (FDA)-Approved Potassium Iodide for Use in Emergencies Involving Radioactive Iodine	4/18/88	Medical, Academic, and Commercial licensees who possess radioactive iodine.

OL = Operating License
CP = Construction Permit

Discussion:

Licensees may wish to consider the following:

1. Sludge from onsite sewage treatment plants may be contaminated with licensed radioactive material which has been concentrated by the treatment system.

2. The provisions of 10 CFR 20.303 do not apply to the disposal of contaminated sludge removed from sanitary sewerage systems at nuclear power stations.

3. 10 CFR 20.201 covers surveys required before disposing of sewage treatment sludge, to determine if the sludge is contaminated. Gamma-ray spectrometry can be performed on representative samples of the sludge under conditions that provide a lower limit of detection (LLD) appropriate to measurements of environmental samples. Such measurements make it possible to distinguish licensed material from other radioactive materials (natural radioactive materials and world-wide fallout) that may be present in the sludge.

4. 10 CFR 20.301 covers the disposal of sewage sludge from a licensee's sewage treatment facility when contaminated with licensed radioactive material.

5. Licensees may apply in accordance with the provisions of 10 CFR 20.302 to dispose of sewage sludge containing very low levels of licensed radioactive material in a manner not otherwise authorized in the regulations. Applications for approval of such disposal may be made to the NRC or Agreement State, as appropriate.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: John D. Buchanan, NRR
(301) 492-1097

W. Wayne Meinke, NRR
(301) 492-3152

Changes to the final draft were discussed with L. J. Cunningham by CE Rossi on 5/6/88 CER

Attachment: List of Recently Issued NRC Information Notices
*Transmitted by memo to C. H. Berlinger from L. J. Cunningham dated April 1, 1988
*SEE PREVIOUS CONCURRENCES

	D/DOEA:NRR	*D:DRPEP	*C/OGCB:DOEA:NRR	*PPMB:ARM
	CERossi	PStohr	CHBerlinger	TechEd
	05/6/88	05/03/88	04/12/88	03/21/88
*OGCB:DOEA:NRR	*PRPB:DREP:NRR	*SC/PRPB:DREP:NRR	*C/PRPB:DREP:NRR	*OGC
PCWen	JDBuchanan	JEWigginton	LJCunningham	RFonner
04/12/88	03/23/88	03/23/88	03/24/88	04/12/88

Discussion:

Licensees should be aware of the following:

1. Sludge from onsite sewage treatment plants may be contaminated with licensed radioactive material which has been concentrated by the treatment system.

2. The provisions of 10 CFR 20.303 do not apply to the disposal of contaminated sludge removed from sanitary sewerage systems at nuclear power stations.

3. Before disposing of sewage treatment sludge, to conform with 10 CFR 20.201, licensees must perform a survey to determine if the sludge is contaminated. Gamma-ray spectrometry can be performed on representative samples of the sludge under conditions that provide a lower limit of detection (LLD) appropriate to measurements of environmental samples. Such measurements make it possible to distinguish licensed material from other radioactive materials (natural radioactive materials and world-wide fallout) that may be present in the sludge.

4. If the sewage sludge from a licensee's sewage treatment facility is contaminated with licensed radioactive material, it must be disposed of as radioactive waste in accordance with 10 CFR 20.301.

5. Licensees may apply in accordance with the provisions of 10 CFR 20.302 to dispose of sewage sludge containing very low levels of licensed radioactive material in a manner not otherwise authorized in the regulations. Applications for approval of such disposal should be made to the NRC, or to the Agreement State, as appropriate.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: John D. Buchanan, NRR
(301) 492-1097

W. Wayne Meinke, NRR
(301) 492-3152

Attachment: List of Recently Issued NRC Information Notices
*Transmitted by memo to C. H. Berlinger from L. J. Cunningham dated April 1, 1988
*SEE PREVIOUS CONCURRENCES

	D/DOEA:NRR	D:DRPEP	*C/OGCB:DOEA:NRR	*PPMB:ARM
	CERossi	PStohr	CHBerlinger	TechEd
	05/ /88	05/3 /88	04/12/88	03/21/88
*OGCB:DOEA:NRR	*PRPB:DREP:NRR	*SC/PRPB:DREP:NRR	*C/PRPB:DREP:NRR	*OGC
PCWen	JDBuchanan	JEWigginton	LJCunningham	RFonner
04/12/88	03/23/88	03/23/88	03/24/88	04/12/88

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: John D. Buchanan, NRR
(301) 492-1097

W. Wayne Meinke, NRR
(301) 492-3152

Attachment: List of Recently Issued NRC Information Notices

References

1. IE Bulletin No. 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment," May 6, 1980.

2. IE Information Notice No. 83-05, "Obtaining Approval for Disposing of Very-Low-Level Radioactive Waste - 10 CFR Section 20.302," February 24, 1983.

3. IE Information Notice No. 86-90, "Request to Dispose of Very-Low-Level Radioactive Waste Pursuant to 10 CFR 20.302," November 3, 1986.

4. IE Information Notice No. 85-92, "Surveys of Waste Before Disposal from Nuclear Reactor Facilities," December 2, 1985.

*Transmitted by memo to C. H. Berlinger from L. J. Cunningham dated April 1, 1988

*SEE PREVIOUS CONCURRENCES

		D/DOEA:NRR	C/OGCB:DOEA:NRR	*PPMB:ARM
		CERossi	CHBerlinger	TechEd
		04/ /88	04/12/88	03/21/88
OGCB:DOEA:NRR	*PRPB:DREP:NRR	*SC/PRPB:DREP:NRR	*C/PRPB:DREP:NRR	OGC
PCWen PCW	JDBuchanan	JEWigginton	LJCunningham	RFonner
04/12/88	03/23/88	03/23/88	03/24/88	04/12/88

No specific action or written response is required by this Information Notice. If you have any questions about this matter, please contact the Regional Administrator of the appropriate NRC regional office or this office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: John D. Buchanan, NRR
(301) 492-1097

W. Wayne Meinke, NRR
(301) 492-3152

References

1. IE Bulletin No. 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment," May 6, 1980.

2. IE Information Notice No. 83-05, "Obtaining Approval for Disposing of Very-Low-Level Radioactive Waste - 10 CFR Section 20.302," February 24, 1983.

3. IE Information Notice No. 86-90, "Request to Dispose of Very-Low-Level Radioactive Waste Pursuant to 10 CFR 20.302," November 3, 1986.

4. IE Information Notice No. 85-92, "Surveys of Waste Before Disposal from Nuclear Reactor Facilities," December 2, 1985.

Attachment: List of Recently Issued NRC Information Notices

DREP:NRR	PPMB:ARM	DREP:NRR	DREP:NRR	C:OGCB:DOEA:NRR	D/DOEA:NRR
JDBuchanan:bt	AThomas	JEKigginton	LJCunningham	CHBerlinger	CERossi
03/23/88	03/21/88	03/23/88	03/24/88	03/ /88	03/ /88