DISPOSING OF NORM WASTES IN ATOMIC ENERGY ACT 11(e)(2) DISPOSAL SITES: A LEGAL STRATEGY

Joseph R. Egan and John F. Seymour*
Shaw, Pittman, Potts & Trowbridge

ABSTRACT

Naturally Occurring Radioactive Material ("NORM") wastes are accumulating in the U.S. at the rate of tens of billions of tons per year. For all intents and purposes, only one site in the nation is now licensed explicitly to accept NORM wastes. This paper proposes a legal and regulatory framework and strategy to permit the placement of NORM wastes in several additional sites already licensed by the Nuclear Regulatory Commission ("NRC") for the placement of uranium and thorium mill tailings and associated wastes, so-called 11(e)(2) sites. The authors suggest that placement of NORM in 11(e)(2) sites could possibly be accomplished notwithstanding NRC opposition.

INTRODUCTION

In no instance in recent history has the U.S. government demonstrated a greater failure of oversight of potentially dangerous substances than in the case of Naturally Occurring Radioactive Materials ("NORM"). Indeed, the Nuclear Regulatory Commission ("NRC") appears recently to have interfered, unjustifiably and without legal authority, in private efforts to dispose of NORM in sites that remain the most logical and environmentally suitable places for that material.

Aside from its ubiquitous very-low-level presence in all of nature, NORM can be found in significant concentrations in more than fifty common wastes from key industrial activities such as oil and gas extraction, water treatment, mining, agriculture, fossil-fired power production, and aluminum production. In many cases, the NORM found in such wastes has radiation exposure levels many times higher than would be permitted by federal law for a nuclear power plant. According to the U.S. Environmental Protection Agency ("EPA"), industry generates tens of billions of metric tons of so-called "diffuse" NORM wastes each year in the U.S. with concentrations of radioactivity averaging at least 35 pCi/g. Some types of NORM can average well over 100,000 pCi/g -- a level requiring extraordinary protective measures in the nuclear industry.

The health risks potentially associated with NORM wastes are high enough on a probabilistic basis so as to warrant federal regulation of disposal. Indeed, the risks are considerably higher in many instances than those which served as the foundation for the Clean Air Act. The cancer risks posed by NORM are considered to be comparable to, if not greater than, those posed by uranium mill tailings, which are the subject of extensive federal regulation.

Because the Atomic Energy Act ("AEA") was designed to deal with nuclear reactors and the nuclear materials required for and resulting from controlled nuclear fission ("source," "special nuclear," and "byproduct" materials), NORM is not regulated under the AEA. Neither NRC nor the Department of Energy ("DOE") has authority to regulate non-defense NORM or NORM wastes. Such authority would require new federal legislation, which presently appears unlikely. While EPA may choose to regulate NORM under one or more of its enabling environmental statutes, to date it has declined to do so, although proposed regulations that would apply only to NORM of concentrations over 2000 pCi/g have existed at EPA in draft form since 1989.

The National Conference of Radiation Control Program Directors ("CRCPD"), an ad hoc group led by state officials, has drafted proposed model state rules for the control of NORM (the "Model Rules"). The Model Rules, however, have precipitated general confusion and inaction by the states. Those few states which adopted regulations patterned after the Model Rules discovered that the Rules were in many respects unworkable and did little to spur NORM disposal. Revisions to the Model Rules are in progress.

FINDING DISPOSAL SITES FOR NORM

Despite the immense volume of NORM wastes produced annually, there exists only one disposal site in the nation, located near Clive, Utah, that is licensed expressly to receive such wastes. Because most generators cannot afford to ship their huge quantities of NORM to this site and dispose of it there (and because this site cannot completely insulate generators from potential long-term environmental liability for their NORM), the vast majority of all NORM generated in the U.S. is simply being buried or stored on-site, ignored, or disposed of wholly without special regulatory oversight.

Diffuse NORM is in many cases physically similar or nearly identical to the tailings and wastes from uranium mining and milling operations. That is why holders of federal licenses for the disposal of uranium mill tailings have often asked federal authorities why they should not be permitted to receive diffuse NORM waste and, if not directly commingle it with their tailings, at least bury it in separate cells within the same secure disposal sites. Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978 ("UMTRCA"), there are approximately 26 such sites that are operating, inactive, or being dismantled.

Although uranium mill tailings are not materials necessary for or resulting from controlled nuclear reactions, UMTRCA amended Section 11(e) the Atomic Energy Act to categorize the tailings and associated wastes as "byproduct" material that may be regulated by DOE and the NRC (or NRC's "Agreement States"). Thus, "byproduct" materials

* JOSEPH R. EGAN, formerly a nuclear engineer, is a partner at Shaw, Pittman, Potts & Trowbridge in Washington, D.C. JOHN F. SEYMOUR is an environmental law partner at the same firm.

resulting from controlled nuclear reactions are now categorized as Section "11(e)(1)" materials, and "byproduct" materials consisting of uranium or thorium mill tailings and wastes are categorized as Section "11(e)(2)" materials under the AEA. Legally, NORM is neither of these.

ADVANTAGES OF 11(e)(2) SITES FOR NORM DISPOSAL

For several compelling reasons, many of the existing sites for 11(e)(2) wastes represent the most logical, secure, and economically viable places to dispose of most types of NORM wastes.

First, these sites are already licensed to dispose of radioactive wastes of similar physical composition and activity, generally in areas of the country that are the most suitable physically and geographically for radioactive waste disposal. Recent attempts by Texcor Industries to site and license a NORM disposal site in Texas failed due to grass-roots political and legal opposition. This scenario is likely to be played out in other jurisdictions and underscores the advantages of using existing sites with accepted transportation routes for NORM disposal.

Second, most mill tailings disposal sites are technically equipped to handle many types of NORM wastes more cost-effectively, securely, and efficiently than are other types of disposal sites. For example, sites designed primarily for relatively modest quantities of hazardous or toxic wastes under the Resource Conservation and Recovery Act ("RCRA") or the Toxic Substances Control Act ("TSCA") are generally not suitable to handle cost-effectively significant quantities of NORM. On the other hand, ordinary industrial waste landfills regulated principally by the states are clearly inappropriate for radioactive materials.

Third, existing and proposed "low-level radioactive waste" sites, which could be authorized to receive NORM, are less secure by design for NORM wastes than are 11(e)(2) sites, which require enhanced protective measures. Moreover, attempts by federal regulators to compel operators of low-level sites to accept NORM (as would EPA's draft proposed regulations) may well prove unsuccessful, because states and Interstate Compacts apparently may refuse, under the terms of the Low-Level Radioactive Waste Policy Act ("LLRWPA") or associated Compact authority, to accept NORM wastes. In any event, such attempts (unless restricted, as is EPA's proposal, to higher-level non-diffuse NORM) could further compound the already intensely political process of securing critical low-level waste disposal capacity nationwide for the nuclear power industry, hospitals, and other generators and users of 11(e)(1) materials.

Finally, and perhaps most importantly, 11(e)(2) disposal sites, because of their so-called "perpetual surveillance" attributes under federal law, could very significantly reduce potential long-term environmental liability for NORM generators -- enough to make NORM waste disposal an economically viable enterprise for generators and site operators alike.

"PERPETUAL SURVEILLANCE" OF 11(e)(2) SITES

For each 11(e)(2) licensee under Title II of UMTRCA, the Code of Federal Regulations (10 CFR 40 Appendix A) establishes technical, financial and long-term surveillance criteria relating to the siting, operation, decommissioning and reclamation of mills and the sites at which such mills are located.

Part III of Appendix A requires that, after closure and reclamation of the site and approval of a Long-Term Surveillance Plan ("LTSP") by NRC, title to the 11(e)(2) material and the land on which it is disposed must be transferred "without cost" to DOE or to the respective State, at the option of the State.

Subsequent to the transfer of ownership, DOE or the State, as the case may be, must conduct annual inspections of the reclaimed site to ensure adherence to groundwater and release standards set forth in the LTSP and in EPA regulations under Parts 192 and 264 of the Code of Federal Regulations.

Together, the above provisions represent the so-called "perpetual surveillance" obligations attached to 11(e)(2) disposal sites.

In assessing potential environmental liabilities associated with ownership and operation of a disposal site, these government obligations provide the site owner-operator with a considerable degree of comfort. Since title is certain to pass to DOE or the respective state following acceptable remediation, the owner can be confident that it will be able to transfer ownership of the property (and its attendant potential liabilities) upon termination of operations notwithstanding the lack of a buyer.

COMMINGLING NORM AND 11(e)(2) WASTES: DOE'S POSITION

In 1990, DOE wrote to NRC stating that "it generally would appear advisable" for NRC to authorize 11(e)(2) license holders to receive NORM wastes. Furthermore, DOE stated that it "would interpose no objection" if NRC authorized transfer of a remediated 11(e)(2) site containing NORM to DOE for perpetual surveillance, so long as DOE could be assured that the transfer would be "without cost" to DOE. As far as DOE was concerned, placement of NORM in 11(e)(2) sites could occur "now," if the waste material was "appropriate" for transfer of title "without cost." (Indeed, DOE was apparently so eager to avoid the proliferation of radioactive waste sites that it encouraged -- unwisely, we believe -- disposal of NORM at 11(e)(2) sites even if it contained toxic materials like asbestos and PCBs.)

DOE has established two conditions it believes should be met for an 11(e)(2) site containing NORM to be transferred "without cost" to the federal government. For the most part, NRC has affirmed these conditions:

1. NORM disposal will have no significant additional adverse effects on public health, safety, and the environment, and will not compromise the reclamation of the impoundment.
2. There are no outstanding compliance issues associated with any applicable environmental law (e.g. RCRA or the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA")).

As is demonstrated below, NORM disposal in 11(e)(2) sites can probably be accomplished in a manner that will permit satisfaction of both of these key requirements.

NRC'S POSITION ON COMMINGLING

NRC's technical staff ("Staff"), by contrast, issued a recommendation to the commissioners in August 1991 that NRC should not allow the disposal of NORM in 11(e)(2) tailings impoundments. The Commission itself has yet to issue any formal policy guidance or otherwise act on Staff's recommendation, although it plans to request public comment soon.

The typical manner in which 11(e)(2) license holders have obtained permission to dispose of materials other than 11(e)(2) wastes in their impoundments has been to petition NRC for a license amendment on an ad hoc basis. Thus, for now, it appears that NRC's Staff would deny (and apparently has denied) requests to commingle NORM in tailings impoundments. License holders appear to have largely acquiesced to this arrangement, as have the generators and would-be shippers of NORM. This is unfortunate because, as explained below, none of Staff's asserted reasons for prohibiting the commingling of NORM and 11(e)(2) wastes seem valid. More important, NRC appears to lack legal authority to prohibit disposal of NORM at 11(e)(2) sites, so Staff's position may also be largely irrelevant.

STATES' POSITIONS ON COMMINGLING

In the absence of federal laws or regulations governing NORM, the states have virtually exclusive authority over NORM disposal, so long as EPA's applicable environmental regulations are met. Although most states (particularly NRC Agreement States) have laws governing exposure and release of radionuclides, few states have a regulatory regime designed to govern explicitly NORM and its disposal.

There are many reasons to believe that the states would not (or should not) oppose disposal of NORM at 11(e)(2) sites. For one thing, the states in which 11(e)(2) sites are located are themselves significant producers of NORM wastes. These states, like all others, effectively have no place to ship their NORM other than to the single site in Utah. Reliance on this sole site as the foundation for a state regulatory regime is unsound, as discussed below, and may be unduly expensive for state businesses.

For another, failure to permit NORM disposal at 11(e)(2) sites may ultimately mean, for many states which have these sites, the development of wholly new sites within the state for NORM wastes, together with the attendant political problems associated with land acquisition, siting, transportation, environmental impact analysis, monitoring, liability, and, of course, budgeting. Preventing the proliferation of waste sites should be at least as important to the states as it is to DOE.

The states, in fact, have already implicitly recognized the technical and environmental compatibility of NORM and 11(e)(2) wastes: The CRCPD's Model Rules suggest that NORM, because it so closely resembles materials already present in tailings impoundments, should be disposed of in accordance with national standards for the disposal of uranium and thorium 11(e)(2) mill tailings, 40 CFR Part 192.

ENVIRONMENTAL ACCEPTABILITY

Long-term environmental liability that might attach to an owner or former owner of a disposal site of any kind is minimized in the case of an 11(e)(2) site not containing NORM. RCRA exempts from its application "source, special nuclear, and byproduct" material. Since 11(e)(2) byproduct material is defined under the AEA as "tailings and wastes," it follows that the general constituents of an 11(e)(2) impoundment are not subject to RCRA programmatic and permitting requirements. Moreover, Title II of UMTRCA expressly excludes the requirement for EPA to permit 11(e)(2) material under RCRA.

Although CERCLA (the most potentially onerous of the environmental statutes) applies to radionuclides, environmental liability for uncontrolled releases of 11(e)(2) materials is unlikely under CERCLA due to the design criteria and technical performance specifications for 11(e)(2) sites and materials, and because of the government's continual oversight and inspection of the site following approved remediation. Freedom from CERCLA liability is equally important to both the generators and the shippers of 11(e)(2) wastes, given CERCLA's requirements for joint, several, and perpetual liability for each.

In short, 11(e)(2) sites without NORM provide about as much assurance against long-term environmental liability as the private participants in a disposal site for radioactive substances (including generators and shippers) are likely to get in the United States now or ever.

Under the law, what happens when NORM and 11(e)(2) wastes are commingled?

If NORM material was a characteristically hazardous or listed waste under RCRA, the 11(e)(2) site would be transformed into a mixed waste site with all the attendant problems of dual permitting and dual technical and performance specifications under RCRA and the AEA. However, according to EPA and NRC, the vast majority of all NORM is not considered RCRA "hazardous waste." RCRA expressly excludes wastes associated with oil and gas production, including NORM wastes. Certain metal-processing NORM wastes, including phosphogypsum, are also likely to remain exempt. The lists of RCRA hazardous wastes set forth in 40 CFR §§ 261.31 and 261.32 do not appear to include any significant category of NORM waste, and most NORM waste is also not characteristically hazardous (i.e., toxic, reactive, corrosive, or ignitable). Thus, in most cases, freedom from RCRA liability would still apply to a site at which NORM and 11(e)(2) wastes were commingled.

Nor would the potential for CERCLA liability be materially enhanced, we believe, if NORM were brought to the 11(e)(2) site. Although releases of NORM, unlike 11(e)(2) materials, would not fall within CERCLA exemptions for "federally permitted releases," it seems extremely unlikely that an action would be brought against a site (with or without NORM) unless releases, if they occurred, were in excess of permissible limits for 11(e)(2) material -- in which case the site operator would be liable under CERCLA regardless of the placement of NORM at the site. Moreover, the federally permitted release exemption applies only to "response costs and damages," not to all remedial and compliance activities. Thus, an 11(e)(2) site operator remains exposed to potential liabilities under CERCLA with or without NORM, and to other relevant laws, including tort law.

In any event, remediation of the site to the extent required under both NRC and State law to have authorized transfer of ownership, followed by perpetual surveillance under an NRC-approved LTSP, should serve to minimize the risk that any significant uncontrolled release would result in CERCLA liability.

In January 1991, DOE provided to NRC a general inventory of the elemental constituents, including concentrations, of materials (both radioactive and non-radioactive, "hazardous" and non-"hazardous") that can be found in mill tailings impoundments. DOE suggested that its ability to accept title to and perpetual surveillance of 11(e)(2) sites containing NORM would not be compromised so long as the constituents fell generally within the elemental and concentration categories already found in these sites. While the concentrations would undoubtedly restrict some NORM, the vast majority of all NORM wastes would likely fit within the DOE guidelines. NORM restricted in this manner would not materially affect the constituency of the impoundment.

The above discussion suggests that the principal environmental impact arising from NORM placement at an 11(e)(2) site would stem from the additional volume of materials disposed of at the site. Presumably, volumetric restrictions applicable to the site would apply with or without NORM. Therefore, it appears that the transfer to DOE could indeed be accomplished "without cost" arising from NORM wastes.

REEXAMINING NRC'S POSITION

While acknowledging the physical similarity of the two types of materials, NRC Staff and regional directors have advanced several reasons for their recommended prohibition against commingling NORM and 11(e)(2) wastes:

1. Commingling would create a "dual regulatory regime" in which "regulated and unregulated materials" were disposed of at the same site.
2. NRC's authority under the AEA to "approve alternatives to requirements for disposal or reclamation" would be impaired (e.g., if NORM migrated into groundwater).
3. If NORM wastes from a CERCLA clean-up were to be disposed of at the site, EPA requirements for disposal of CERCLA wastes would also have to be met.
4. There is currently a NORM disposal site available in Utah, so there is no need to dispose of NORM in 11(e)(2) sites.

As already noted, each of these reasons is invalid.

The first -- fear of creating a dual regulatory regime -- is perhaps the most curious. Already, almost every activity the NRC engages in is also regulated by the states and/or EPA. More specifically, every 11(e)(2) disposal site already contains "regulated and unregulated materials," insofar as everything but the tailings and associated wastes are regulated by the respective state or EPA (e.g., the land, the landfill overburden and its constituents, the water and its use, release and emission criteria, groundwater standards, etc.)

The second -- that NORM placement in 11(e)(2) sites would impair or undermine NRC's ability to approve the use of alternative or customized regulations at such sites -- is an unjustified fear. It is the 11(e)(2) licensees which propose such alternatives, not NRC. Failure to secure NRC approval over alternatives to required regulations does not stop 11(e)(2) operations; nor would it jeopardize the operability of a site that had suddenly became substantially more attractive economically due to its acceptance of NORM. At any rate, if the operator is compelled to assure that the physical constituents of NORM remain not materially different from 11(e)(2) materials at the same site and that the NORM is handled no differently, there is no technical or environmental reason to believe that alternatives could not be approved just as they would without NORM at the site.

The third reason -- anticipated problems with CERCLA clean-up materials -- is easily solved by the site operator agreeing not to accept such materials. There is plenty of NORM waste to go around. However, there is no reason to think that the majority of CERCLA NORM materials (e.g., the New Jersey radium wastes) are not fully compatible with 11(e)(2) sites. Under its policy governing off-site disposal of CERCLA wastes, EPA simply requires that a proposed disposal facility be in compliance with applicable state and federal laws and that the site not be the source of current or potential releases. Mill tailings sites with proven environmental records would, in all likelihood, be viewed as appropriate disposal sites for NORM waste generated during the course of CERCLA remediation. Finally, in response to its supposed "competitive" bidding on clean-up activities, EPA would probably be quite happy to find that there is more than a single operator in the U.S. capable of bidding to receive CERCLA NORM wastes.

The fourth rationale -- that there is already one site available -- is simply silly. This single site is nowhere near capable of handling the vast volume of diffuse NORM produced annually in the U.S. At any time, moreover, Utah can decide to shut this site, to harshly tax its receipts, to allow it to receive wastes only from within the state, or to impose onerous new restrictions on operation. The fees charged by this site are not subject to the competitive pressures that ought to apply to a vast waste industry. And finally, for many NORM generators and transporters, shipping wastes to Utah may simply be too costly.

NRC'S LEGAL AUTHORITY (OR LACK THEREOF)

Can NRC prohibit the disposal of NORM in 11(e)(2) sites? We think the answer, under current law, might well be no.

NRC has itself (repeatedly) disclaimed legal jurisdiction over NORM. Nothing in the AEA or any other statute purports to give NRC such jurisdiction. Under federal law, NORM is perhaps no different legally than common manure -- a waste regulated by the state. If an 11(e)(2) license holder decided for justifiable reasons that it wished to cover its 11(e)(2) overburden with dirt and turkey manure to bolster the growth of vegetation, it would go to local authorities (and perhaps NRC) for permission. Assuming such permission was granted by the state and that DOE remained willing to accept title and perpetual surveillance, could NRC prohibit the licensee from going forward?

Probably not without being "arbitrary and capricious." However, this may not be the critical issue: Since NRC is required to approve a Long-Term Surveillance Plan for the site prior to its reclamation and transfer to DOE or the respective state, NRC might conceivably decline to approve an LTSP for a site that contained excessive quantities of manure -- or NORM. That prospect could indeed pose an untenable potential liability for an 11(e)(2) licensee seeking to retain the government's perpetual surveillance assurances.

We believe, however, that NRC might have serious trouble under the Administrative Procedure Act in disapproving an LTSP simply because it contained NORM that did not interfere in NRC's exercise of its regulatory duties concerning

11(e)(2) sites. NRC's power of approval over such a plan does not hinge directly on the volume of materials present at the site, but rather on the site's integrity. Such a decision by NRC might reasonably be considered by a reviewing court to be arbitrary and capricious, particularly if the NORM at the site was (a) authorized by the respective state; (b) "diffuse;" (c) non-RCRA-"hazardous;" (d) not materially different in constituency and concentration than DOE's listed inventory of tailings impoundments; and (e) treated with equal care as uranium and thorium mill tailings. (For added protection, the licensee could decide to accept only NORM of less than 2000 pCi/g concentration -- EPA's draft proposed jurisdictional limit -- and to place the NORM in independent cells at the 11(e)(2) site.)

TESTING THE WATERS: A LEGAL STRATEGY

Notwithstanding the apparent law on NORM, no prudent attorney would counsel a client simply to seek authorization from a state and then to dispose of NORM meeting the above criteria in an 11(e)(2) site without further assurances from the federal government or the courts. The potential for loss of perpetual surveillance protection without such assurances may be too high to justify the substantial rewards likely in the case of successful NORM disposal site development.

What is required, it seems, is for 11(e)(2) license holders, generators, and other interested parties to conduct joint negotiations with DOE, NRC and EPA in an effort to resolve the impasse. Those three agencies appear unlikely to find a solution themselves anytime soon, and if they do, it may well turn out to be an unfavorable one (such as regulating NORM under RCRA).

If negotiations fail to result in a resolution, interested parties should collectively seek a sensible legislative solution or jointly initiate a test case against NRC to take to the courts. A test case could be as simple as appealing to federal court NRC's denial of permission to dispose of diffuse, non-hazardous NORM in an 11(e)(2) site. Alternatively, an 11(e)(2) licensee might take the position that NRC approval is not required, notify the NRC that it intends to put NORM at the site on a specific date, and challenge the agency if any attempted action is taken against the licensee. It might also be possible for some states or licensees to secure declaratory or injunctive relief in federal court that would effectively allow disposal of NORM in an 11(e)(2) site given the exigencies involved.

Whatever the course of action pursued, there is little to be gained in acquiescing to a draft position paper, still unapproved by NRC commissioners, that prohibits commingling of NORM and 11(e)(2) wastes on the basis of faulty rationale and dubious legal authority. In the time it took the reader to read this paper, NORM wastes averaging above 35 pCi/g have further accumulated in the U.S. by about 1.5 million metric tons.

It's time to get on with the show.