

MANAGING LIABILITIES WHICH ARISE
OUT OF RADIOACTIVE WASTE

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ABSTRACT

The Atomic Energy Act has established a comprehensive regulatory program which governs the management of most radioactive wastes. There are substantial civil and criminal penalties for violations. In addition, environmental statutes such as the Resource Conservation and Recovery Act and the Superfund law impose liabilities on managers of "non-nuclear" hazardous wastes. The availability of common law remedies by private parties subjects companies and their officers and employees, and in some cases the government, to liability for personal injuries or property damage. An environmental manager at any facility where radioactive materials are being handled must be aware of these potential liabilities and should engage in a regular program of environmental auditing to ensure compliance.

THE FEDERAL STATUTORY FRAMEWORK

The Atomic Energy Act

The Atomic Energy Act provides a comprehensive federal regulatory and licensing scheme regarding the processing and utilization of source, byproduct, and special nuclear material.^a It is administered by the Nuclear Regulatory Commission (NRC) which prescribes and enforces standards governing the design, location, and operation of commercial facilities which handle these materials, in order to protect public health and safety. Under this authority, the NRC has established standards for protection against radiation hazards, and for the domestic licensing of byproduct, source, and special nuclear material and other radioactive material and equipment.

"Source material" is defined in the Act as:

(1) uranium, thorium, or any other material which is determined by the Commission . . . to be source material; or (2) ores containing one or more of the foregoing materials, in such concentration as the Commission may by regulation determine from time to time.

"Special nuclear material" is defined as:

(1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission . . . determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

The NRC may determine that other material is "special nuclear material" if it finds that such material is "capable of releasing substantial quantities of atomic energy", and may determine that other material is "source material" if it finds that such material "is essential to the production of special nuclear material".

"Byproduct material" is defined as:

(1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

The Atomic Energy Act provides that the NRC may issue general or specific licenses for the use of byproduct material for research or development purposes, medical therapy, industrial uses, or agricultural or other uses. Licenses must incorporate applicable technical facility standards, which NRC has developed, to ensure that these and other radioactive materials are managed so as to "protect the public health and safety and the environment from radiological and non-radiological hazards", and in compliance with applicable environmental standards issued by the U.S. Environmental Protection Agency (EPA). The terms of the license must ensure safe management and eventual disposal of the byproduct material. The standards which EPA has issued are designed to protect public health and the environment at nuclear power plants and at uranium and thorium mill tailings sites.^b

^b 42 U.S.C. § 2022, as amended by the Uranium Mill Tailings Radiation Control Act (supp. 1985). For EPA regulations, see 40 C.F.R. Parts 190 and 192 (1985).

^a 42 U.S.C. § 2011 et seq. (1976; supp. 1985).

NRC has comparable authority to establish technical standards for facilities handling special nuclear material and source material, and for licensing such facilities. This includes appropriate health and safety standards, which NRC has proceeded to establish. Indeed, NRC has developed a comprehensive set of regulations regarding ownership, possession, extraction, refining, shipment, and other management and disposal of these materials.

The Act provides substantial penalties for violation of the provisions of the Act, its implementing regulations, or any license issued thereunder. These penalties include civil and criminal economic penalties, injunctions, and imprisonment.

Recognizing the substantial potential liabilities to members of the public which could arise through a nuclear accident, Congress in 1957 amended the statute with the Price-Anderson Act.^c This established an indemnification scheme under which NRC could require a licensed nuclear facility to obtain the maximum amount of insurance available from private sources, currently up to \$60 million, and then provide an additional indemnification for the next \$500 million of liability. The statute then imposed a limit on liability of \$560 million for any one nuclear incident. This indemnification has been critical in enabling nuclear facilities to operate. Its constitutionality was upheld by the Supreme Court in Duke Power Co. v. Carolina Environmental Study Group, Inc., 438 U.S. 59 (1978).

Uranium Mill Tailings Radiation Control Act

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 established a program of remedial action at inactive uranium mill tailings sites in order to stabilize and control the tailings so as to minimize radiation health hazards to the public, and to regulate mill tailings generated during uranium or thorium ore processing at active mill operations and after termination.^d This program has been implemented by the U.S. Department of Energy (DOE) in conjunction with the states. EPA has issued standards for environmental protection from radiological hazards. At many facilities, states have carried out the remedial action pursuant to cooperative agreements with DOE. Waste management at active, licensed sites is supervised by NRC or by states under agreement with NRC.

Low-Level Radioactive Waste Policy Act of 1980

In this legislation,^e Congress established a policy that each state is responsible for providing available capacity either within its borders or through cooperative agreement with another state for the disposal of low-level radioactive waste generated within its borders. Congress envisioned a regional

interstate low-level waste disposal program through cooperation among the states. However, public opposition to siting of facilities in particular locations (the "not in my backyard" syndrome) has forced delays and extensions in this program, and is causing a backlog for some facilities currently storing low-level radioactive wastes. This in turn compounds the problems faced by environmental managers responsible for such wastes.

Nuclear Waste Policy Act of 1982

This Act^f established a long-term program to select sites and provide safe disposal of high-level radioactive waste and spent nuclear fuel. The "high-level radioactive waste" in question is the highly radioactive material resulting from reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products, and such similar wastes as NRC includes by rule.

Congress determined that there must be one or more national repositories for permanent geological disposal of such wastes. The statute established a program for siting, construction, and operation of permanent repositories, and a Nuclear Waste Fund to carry out these tasks derived from payments by the generators and owners of the wastes and spent materials. EPA is to establish standards "for protection of the general environment from off-site releases from radioactive materials in repositories". The NRC is then to establish technical standards and licensing procedures. The Secretary of Energy takes title to wastes placed in such a repository. A temporary storage program is also provided.

Once again, public sentiment is running high in particular areas targeted for siting, as evidenced by the reaction in the three states identified as leading candidates for the first site: Nevada, Texas, and Washington. Implementation of this program has been extraordinarily difficult for DOE. The resulting delays have posed continuing problems for environmental managers responsible for the management of high-level radioactive waste and spent nuclear fuel, as well as radioactive waste resulting from certain medical research and treatment activities.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) establishes a comprehensive program for the management of hazardous wastes.^g Under this law, EPA has established comprehensive waste management standards for persons who generate or transport hazardous wastes, or who own or operate treatment, storage, or disposal facilities.^h Substantial civil and criminal penalties, as well as injunctive relief and a variety of

^c 42 U.S.C. § 2210 (1976; supp. 1985).

^d 42 U.S.C. § 7901 et seq. (1978; supp. 1985).

^e 42 U.S.C. § 2021b (supp. 1985).

^f 42 U.S.C. § 10101 et seq. (supp. 1985).

^g 42 U.S.C. § 6901 et seq. (1985).

^h EPA's implementing regulations and standards are set forth at 40 C.F.R. Parts 260-271 (1985).

administrative penalties, are provided for violations. Permits are required for owners and operators of treatment, storage, and disposal facilities. The regulations are extremely complex, and will become more so as a result of far-reaching amendments to RCRA in 1984.

States are encouraged to take over implementation of the RCRA regulatory program, and virtually all states have taken steps to do so. RCRA specifically provides that all departments and agencies of the federal government with jurisdiction over any solid waste management facility or which are engaged in any such activity "shall be subject to, and comply with, all federal, state, interstate, and local requirements, both substantive and procedural" established under RCRA.ⁱ Notwithstanding this provision, initially some federal agencies took the position that if they were comprehensively regulated under the Atomic Energy Act by DOE or NRC, they need not obtain RCRA permits for hazardous waste management activities. This position was rejected in litigation involving the Oak Ridge, Tennessee, facility in LEAF v. Hodel, 586 F.Supp. 11633 (E.D. Tenn. 1984), which held that for "non-nuclear" wastes, federally owned or operated facilities are subject to all applicable environmental laws, including specifically RCRA and the Clean Water Act.

RCRA does contain an important exclusion from its jurisdiction, in that the term "solid waste" does not include "source, special nuclear, or by-product material as defined by the Atomic Energy Act". Thus, wastes which clearly meet that definition are not subject to RCRA. In order to resolve potential disputes at facilities where both nuclear and non-nuclear hazardous wastes exist, EPA and DOE entered into a joint "Memorandum Of Understanding" on February 22, 1984. It allowed EPA inspectors to perform site investigations, and provided that DOE would comply with all RCRA standards, as would its AEA facilities. The Memorandum also required that "radioactive mixed waste", i.e., a RCRA hazardous waste containing source, special nuclear, or by-product materials, would be managed in compliance with RCRA regulatory requirements, but that instead of getting a RCRA permit, the DOE facility would eventually receive a "Hazardous Waste Compliance Plan". This falls short of compliance with the letter of RCRA, and is the subject of continuing debate among EPA, DOE, NRC, and environmental groups.

While the "mixed waste" issue will be discussed further below, the important point in connection with RCRA is that any facility manager who manages hazardous wastes under RCRA must take extraordinary care to comply with applicable federal and state regulations under RCRA. These include detailed facility standards, periodic reporting requirements, and the use of a "manifest", or shipping document, for any shipment of such wastes off site.^j

The "Mixed Waste" Issue

EPA and NRC have continued to have disagreements on exactly how mixed wastes containing both nuclear wastes and hazardous constituents should be managed. There is widespread belief that the 1984 Memorandum Of Understanding between EPA and DOE needs to be revised to address this problem, and because of continuing disagreement it may eventually require a legislative resolution.

A recent NRC report has identified certain low-level nuclear wastes which should also be managed under RCRA. This study, entitled An Analysis Of Low-Level Wastes: Review Of Hazardous Waste Regulations And Identification Of Radioactive Mixed Wastes (Brookhaven National Laboratory 1985), has identified discarded lead shielding and containers used to limit worker exposure to radioactivity which contain lead, together with certain chromium and mercury containing wastes, trichlorethylene still bottoms, and certain organic liquids including scintillation liquids, organic lab liquids, and various solvents as appropriate for regulation under RCRA. While this controversy rages, it leaves the environmental manager at any given facility in some doubt and potentially exposed to liabilities for failure to manage such mixed wastes in compliance with both regulatory programs.

The Superfund Law

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund")^k to provide a federal fund to respond to releases or threatened releases of "hazardous substances" from any facility or vessel, and to impose strict cleanup liability (i.e., liability without fault) on the owner or operator of the facility. Statutory liability extends to any generator of a hazardous substance which was shipped to the site, any transporter who selected the site, and any person who owned or operated the site either at the time of the release or threatened release, or at the time when hazardous substances were placed there. Where more than one potentially responsible party exists, the federal courts have consistently held that their liability is "strict, joint, and several". United States v. Chem-Dyne Corp., 572 F.Supp. 802 (S.D. Ohio 1983); United States v. Northeastern Pharmaceutical & Chemical Co., Inc., 579 F.Supp. 823 (W.D. Mo. 1984). This means that the government may perform removal and remedial action and recover the full costs thereof from any one or more of the potentially responsible parties. The government also has broad authorities to inspect and gather information at facilities, and to order owners or operators of facilities to perform response action.

Although the definition of a "hazardous substance" is extremely broad, it is made up of substances which have been listed or designated as toxic or hazardous under other environmental statutes, namely, the Clean Water Act, RCRA, the Clean Air Act,

ⁱ 42 U.S.C. § 6961 (supp. 1985).

^j For a comprehensive discussion of this law and its implementing regulations, see R. M. Hall, et al., RCRA HAZARDOUS WASTES HANDBOOK, Government Institutes, Washington, D.C. (6th Ed. 1985).

^k 42 U.S.C. § 9601 et seq. As of this writing, Congress is debating reauthorization and significant expansion of this law.

and the Toxic Substances Control Act. With respect to the type of "release" for which reporting and response action is required, there is a statutory exclusion for the following:

Release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under Section 170 of such Act, or, for the purposes of . . . any . . . response action, any release of source byproduct, or special nuclear material from any processing site designated under Section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978. [42 U.S.C. § 9601(22)].

In addition, there are exceptions to the Superfund reporting requirement for any release of source, special nuclear, or byproduct material which is "in compliance with a legally enforceable license, permit, regulation, or order" issued under the Atomic Energy Act. Clearly, those exceptions do not apply to all radioactive waste.

Superfund imposes exceptionally broad liabilities. An environmental manager who releases or disposes of wastes which are not subject to the exemptions referred to above risks continuing liability if those wastes later migrate into the environment and threaten harm. If such wastes are disposed of together with wastes generated by others, liability can be joint and several. Therefore, great care should be taken to manage such wastes in a way that will avoid such liabilities.

Other Laws

There are other federal and state laws which may apply to wastes generated at nuclear facilities to which an environmental manager must pay close attention. For example, while the Clean Water Act contains exclusions for special nuclear, source, or byproduct materials, the term "pollutant" under that statute includes radioactive materials not encompassed in that exclusion, such as radium and accelerator produced isotopes. See Train v. Colorado Public Interest Group, 426 U.S. 1, 11 (1976). In addition, many states have laws which are more stringent than federal laws and which apply in the environmental area. These may include more stringent laws relating to hazardous waste management, or "mini-Superfund" laws that may not contain the same exemptions as the federal statute. The manager of radioactive wastes must be aware of all applicable federal and state statutory requirements which may apply to such wastes.

The Federal Tort Claims Act imposes liability on the U.S. Government for the negligence or other "wrongful act or omission" of a federal employee, if a private person would be similarly liable under

the law of the place where the act occurred. In Allen v. United States, 588 F.Supp. 247 (D. Utah 1984), appeal pending, plaintiffs who had been exposed to radiation as a result of atomic testing prior to 1963 and who, years later, contracted cancer and leukemia as a result, were allowed to recover against the United States under this Act for the government's negligent failure to warn of the foreseeable risks of nuclear fallout, and to take reasonable steps to mitigate those risks. While the plaintiffs could not prove conclusively that fallout from nuclear testing caused their injuries, they proved through medical testimony that it significantly increased the likelihood of such injuries. The court found that the plaintiffs' injuries were consistent with those known to be caused by exposure to the type of radiation to which they had been exposed. The case not only underscores the availability of a Federal Tort Claims Act remedy, but the fact that conclusive proof of cause and effect will not be required in order to establish liability where there is strong circumstantial evidence.

COMMON LAW AND INDIVIDUAL LIABILITY

Because of the comprehensive statutory and regulatory programs surrounding the management of radioactive wastes, it is easy to overlook the fact that a waste which is managed in compliance with such regulatory programs, if it injures another person or damages his property, can still give rise to a cause of action for damages or injunctive relief. Usually such lawsuits are based upon such common law legal theories as nuisance, negligence, or trespass. In addition, some courts have held that the management of toxic substances is an "ultrahazardous activity", which triggers the imposition of strict, or "no fault" liability.

In Silkwood v. Kerr-McGee Corp., 104 S.Ct. 615 (1984), the Supreme Court held that even though the NRC has exclusive jurisdiction to license and regulate the handling of nuclear materials, the Atomic Energy Act does not preempt courts from allowing a private common law "tort" action to recover for personal injuries. That case involved injuries arising out of plutonium contamination suffered by a laboratory analyst at a federally licensed nuclear plant in Oklahoma. The Supreme Court held an award of compensatory and punitive damages based upon Oklahoma law. It also held that the Price-Anderson Act did not preclude such lawsuits, but simply put a cap on the overall amount of liability.

Similarly, in McKay v. United States, 703 F.2d 464 (10th Cir. 1983), involving a claim of property damage resulting from release of plutonium from a weapons manufacturing facility, a common law cause of action for damages was allowed. The court held that there would only be a preemption if the state action in effect compelled conduct which was not consistent with the federal regulatory program. The court in McKay also indicated that there could be liability on the part of the United States, or even a government contractor acting as its alter ego, under the Federal Tort Claims Act if negligence or some other recognized misfeasance or nonfeasance were shown. If a government contractor were such an "alter ego", presumably liability would be imposed on the United States Government and not the contractor

AN ENVIRONMENTAL AUDITING PROGRAM

itself, although ultimate responsibility as between the government and the contractor may well turn on the particular language of the government contract involved. In addition, of course, a common law cause of action for nuisance can be maintained to remedy a non-radiation hazard at a nuclear facility. People of State of Illinois v. Kerr-McGee Chemical Corp., 677 F.2d 571 (7th Cir. 1982).

Another disturbing trend for corporate managers is the increasing willingness of courts to impose individual personal liability for violations. The Clean Water Act and Clean Air Act have long provided that criminal penalties may be imposed on any "responsible corporate officer" for a knowing violation of those Acts. The Resource Conservation and Recovery Act imposes extensive civil and criminal penalties on "any person" who violates its provisions. In United States v. Johnson & Towers, 741 F.2d 662 (3rd Cir. 1984), cert. denied 105 S.Ct. 1171 (1985), individuals holding the positions of foreman and shipping manager were held subject to criminal liability under RCRA where they knew or should have known that their disposal of hazardous wastes without a permit was illegal.

One of the leading cases in this area involved a criminal conviction of a corporate officer for violation of the Federal Food, Drug, and Cosmetic Act. In United States v. Park, 421 U.S. 658 (1975), the Supreme Court held that an individual corporate official, as well as the company itself, could be held criminally liable where the official had knowledge of violations and had failed to do everything possible to ensure that there would not be further violations, even though he had no personal involvement in the illegal action. The Court held that because he had a "responsible share" in the management of the business, he had an affirmative duty to ensure that it was not carried out in an unlawful way. In a 1977 case involving Velsicol Chemical Corporation, indictments were returned against top management individuals, the general counsel, and an outside attorney where there was an alleged failure to fully disclose to EPA reports concerning certain pesticides. United States v. Gold, et al., N.D. Ill., Dec. 12, 1977, reported at 8 Envir. Rep. (BNA) 1239 (1977). The Department of Justice and EPA have both increased the number of personnel and resources assigned to civil and criminal enforcement, and more individual indictments for knowing violations can be anticipated.

This trend is also reflected in several recent Superfund cases. In United States v. Northeastern Pharmaceutical & Chemical Company, Inc., 579 F.Supp. 823 (W.D. Mo. 1984) (involving the mismanagement of dioxin wastes), and in United States v. Wade, 20 E.R.C. 1277 (E.D. Pa. 1983), civil liability for response costs was imposed upon individual employees. All of these developments strongly suggest that the shelter which the Atomic Energy Act was once thought to provide for owners and operators of facilities managing radioactive wastes is not as secure as it used to be.

There are a number of things which a corporate or environmental manager can do to minimize potential liabilities arising out of the handling of radioactive waste. First, someone in the organization who has regular communication with the on-site managers should be thoroughly knowledgeable on the legal and regulatory requirements. Second, in the case of a corporation, word must go out from the highest authorities that safety, protection of the environment and human health, and compliance with the law are top priorities. In the case of a government agency, the same message should be issued from senior commands. Third, steps should be taken to make sure that people who are actually managing radioactive wastes understand the potential liabilities and understand the importance of complying with applicable legal requirements as well as minimizing the possibility of personal and property damage which could result from the mismanagement of radioactive wastes.

One of the best ways to accomplish these objectives is through a process known as environmental auditing. Environmental auditing is simply a process by which all applicable legal constraints are identified, and a program is established for the routine monitoring of a company's activities to make sure that it is in compliance with all of these requirements. Under some environmental statutes, self-inspection and reporting on a regular basis is required. An example of this is the monthly discharge monitoring reports required to be submitted to EPA under the Clean Water Act for any discharge to the navigable waters. Others include self-inspection and annual report requirements for facilities handling polychlorinated biphenyls (PCBs) under the Toxic Substances Control Act, and the biennial report required for hazardous waste management facilities under RCRA. Other statutes impose reporting requirements only where a spill or release to the environment occurs.

Environmental auditing, however, calls for a systematic process of self-monitoring without waiting for a problem to arise. When an audit is initially performed, normally, in addition to identifying applicable laws, a major data gathering effort is undertaken. This includes appointing an audit team with the necessary skills and firsthand knowledge of the company's facilities and operations. The audit team in turn prepares a checklist of points to be covered, which may go into quite specific detail. It may include, for example, a list of all documents likely to reflect compliance or noncompliance with applicable laws, such as permits, permit applications, outstanding judicial orders or consent decrees, shipping manifests, and the like. Most facilities where radioactive wastes are managed will have contingency plans with elaborate provisions for crisis management as well as minor problems. These should be carefully reviewed not merely from the point of environmental compliance, but from the point of view of providing maximum protection for health and safety. This is because, as noted above, compliance with a

regulatory requirement does not insulate a company from liability for personal injury or property damage if waste is mismanaged.

Many companies computerize their environmental auditing program to provide for regular updates as legal requirements change, and an early warning system of compliance deadlines or other action items. In the case of a multiple-site operation, computers can be used to help transmit data back and forth and be sure that small or potential problems are identified and resolved before they get out of hand. This is the essence of risk management and preventive maintenance.

Emphasis in implementing the audit should be on what is practical and what is helpful. A lean guidance manual which will be followed is preferable to a fat one which will be ignored. A clear set of instructions on what to do if a government inspector shows up is essential. Clear and regularly followed instructions on how to respond to a complaint from a citizen or employee who may have been exposed to a radioactive substance is also essential. Beyond the nuts and bolts, however, someone at the senior corporate staff level should be assigned to oversee the program, and make sure that it is being properly used to ensure compliance with the law in a cost-effective manner.