Characterization of the Hanford 300 Area Burial Grounds

Decontamination and Decommissioning Regulatory Issues

March 1979

**Prepared for the U.S. Department of Energy
under Contract EY-76-C-06-1830**

**Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute**

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PACIFIC NORTHWEST LABORATORY
operated by
BATTELLE
for the
UNITED STATES DEPARTMENT OF ENERGY
Under Contract EY-76-C-06-1830

Printed in the United States of America
Available from
National Technical Information Service
United States Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22151

Price: Printed Copy \$____*; Microfiche \$3.00

*Pages	NTIS Selling Price
001-025	\$4.00
026-050	\$4.50
051-075	\$5.25
076-100	\$6.00
101-125	\$6.50
126-150	\$7.25
151-175	\$8.00
176-200	\$9.00
201-225	\$9.25
226-250	\$9.50
251-275	\$10.75
276-300	\$11.00

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CHARACTERIZATION OF THE HANFORD 300 AREA
BURIAL GROUNDS

DECONTAMINATION AND DECOMMISSIONING
REGULATORY ISSUES

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under Contract EY-76-C-06-1830

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PREFACE

The United States Department of Energy (DOE) is considering decontamination and decommissioning alternatives for its retired nuclear facilities in order to provide adequate protection from radioactive and other hazardous materials potentially originating from such sources. Decontamination and decommissioning of these facilities may involve the selective removal of radioactive or other materials from retired nuclear facilities and selection of the ultimate disposition of the facilities. Among the facilities being evaluated are retired radioactive waste burial grounds at DOE's Hanford Site, Richland, Washington.

The "Characterization of the Hanford 300 Area Burial Grounds" project was initiated to provide an assessment of retired radioactive waste burial grounds prior to selection of decontamination and decommissioning alternatives at the Hanford Site. The project was sponsored by the U.S. Department of Energy, Division of Environmental Control Technology and was conducted by Pacific Northwest Laboratory from 1975 through 1978.

The original intent of this project was to develop technology and methods for characterization of waste burial sites and to apply them to the 300 Area Burial Grounds. During the course of the study, the scope was broadened to include development of recommendations pertaining to buried waste disposition alternatives.

Project tasks were initiated to provide the necessary technology and to characterize burial ground sites. These tasks included:

Task I - Geophysical Evaluation

Task II - Geochemical Analysis

Task III - Fluid Transport Characterization and Modeling

Task IV - Biological Transport

Topical reports from each of these tasks have been issued under separate cover.

Two other reports have been issued: "Decontamination and Decommissioning" provides an overview of the 300 Area Burial Grounds, project results and recommendations. "Decontamination and Decommissioning Regulatory Issues" details regulatory issues to be considered when evaluating the alternatives.

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INTRODUCTION

Currently, the Department of Energy (DOE) is considering decontamination and decommissioning alternatives for its retired nuclear facilities to ensure protection from radioactive and other hazardous materials potentially originating from such sources. Among the facilities being evaluated are 10 retired radioactive waste burial grounds at DOE's Hanford Site, Richland, Washington. These facilities are located adjacent to the 300 Area where laboratory and nuclear development engineering is performed.

This report, as part of the "Characterization of the Hanford 300 Area Burial Grounds" project, is intended to provide a general background of regulatory issues which may be pertinent to evaluating decontamination and decommissioning alternatives. The issues focus on one particular set of burial grounds adjacent to the 300 Area: those in the southeastern portion of the Hanford Site in which radioactive waste materials from numerous laboratory-scale chemical separations processes and related activities have been previously collected and buried.^(a) In part, DOE's evaluation will entail specific research and technology development regarding the status of radiocontaminated materials in these sites. However, DOE's range of choice in selecting decontamination and decommissioning policies will partly depend on regulations, standards, and guidelines set forth by Federal, state, and local governmental entities. Current and proposed regulatory issues will influence what alternatives are chosen for decontamination and decommissioning and,

(a) Presently, low-level radioactive waste burial of materials originating from the 300 Area is conducted near chemical separations areas some 30 km northwest of the 300 Area, where this practice is environmentally more acceptable. Furthermore, these areas are closer to facilities producing large volumes of waste. Consideration of these sites is beyond the scope of this report.

ultimately, will lead to delineation of specific post-operational burial site modifications and facilities requirements. These regulatory issues are also important in considering national decontamination and decommissioning plans for such facilities as nuclear reprocessing plants, reactors, fuels fabrication plants, mines, and mills, from which a voluminous amount of low activity materials is likely to require shallow land disposal.

The Hanford 300 Area Burial Grounds characterization project has identified four management alternatives for disposition of the burial grounds. These alternatives are: (1) abandonment, (2) entombment, (3) perpetual care, and (4) exhumation and translocation. This report identifies major Federal statutes and regulations that could apply to management alternatives, analyzes their applicability, and identifies the constraints that applicable laws could impose. This analysis includes explicit attention to the uncertainty surrounding various legal constraints. Also specified are legislative developments as well as trends in other agencies and the courts, obtained by review of legislative proceedings, statutes and regulations, that could result in legislation or policies posing additional constraints.

CONCLUSIONS

The principal conclusion of this review is that the Department of Energy (DOE) is able to determine its policies relevant to decontamination and decommissioning for the 300 Area Burial Grounds largely free of legal restraints, subject to the following important exceptions:

1. DOE may be subject to review or licensing by the Nuclear Regulatory Commission (NRC), if either legislation is passed clearly establishing such authority for NRC, or if litigation (perhaps brought by environmental intervenors) causes a court to interpret Section 202(4) of the Energy Reorganization Act of 1974 in such a way to bring the 300 Area Burial Grounds under its coverage.
2. If approved by the President, EPA's Criteria for Radioactive Wastes and any standards promulgated thereunder could limit the available alternatives.
3. DOE may be required by the National Environmental Policy Act to prepare an environmental impact statement on any actions taken on the 300 Area Burial Grounds, and perhaps even if the burial grounds are left as they are (that is, no action). However, the Hanford Waste Management Impact Statement may suffice. [Final Environmental Statement, Waste Management Operations, Hanford Reservation, Richland, Washington, U.S. Energy Research and Development Administration, ERDA-1535, December 1975.]
4. DOE must comply with Federal, state and local air quality regulations under the Clean Air Act. Should the Environmental Protection Agency (EPA) include radiologic pollutants as hazardous air pollutants, the influence of the air quality regulation system on DOE actions would become more extensive.
5. DOE may be required to comply with provisions of the Federal Water Pollution Control Act, the Toxic Substances Control Act, and the Resource Conservation and Recovery Act that apply to the nonradioactive though potentially hazardous materials buried in the 300 Area sites.

PRESENT LEGAL CONSTRAINTS

In evaluating the Federal statutes purporting to apply to nuclear energy or environmental quality, three threshold questions were identified:

(1) applicability to Federal actions regarding Federal facilities, (2) applicability to Federal actions concerning the management of radioactive waste, and (3) applicability to any of the four potential management alternatives for the 300 Area Burial Grounds. For those statutes for which the answer to all three questions is affirmative or potentially affirmative, we have specified the possible legal constraints on each of the four alternatives.

THE ATOMIC ENERGY ACT OF 1954 AND THE ENERGY REORGANIZATION ACT OF 1974

The Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq., and the Energy Reorganization Act of 1974, 42 U.S.C. 5801 et seq., give DOE substantial autonomy in the management of its own activities. These statutes subject neither DOE nor its contractors to the licensing, and hence rule-making, authority of NRC. As provided in Section 110(a) of the Atomic Energy Act:

Nothing in this Chapter shall be deemed to require license for (1) the processing, fabricating, or refining of special nuclear material, or the separation of special nuclear material, or the separation of special nuclear material from other substances, under contract with and for the account of [DOE]; or (2) the construction or operation of facilities under contract with and for the account of the [DOE]....Atomic Energy Act of 1954, Section 110(a), 42 U.S.C. 2140(a).

Instead, DOE itself, and not NRC, has the responsibility to see that the activities of DOE and its contractors promote common defense and security, protect health, and minimize danger to life and property in pursuit of DOE's activities, as required by the Atomic Energy Act of 1954, Section 161(b), 42 U.S.C. Section 2201(b). As the legislative history of the Energy Reorganization Act of 1974 stipulates:

[DOE] will be responsible to assure that [its] programs are environmentally sound and will not impact adversely on public health and safety...

This oversight responsibility will extend to such vital areas as low-level radioactive emissions from test reactors, leakage of high-level radioactive wastes from disposal and storage facilities, and the safeguarding of special nuclear materials from theft and of nuclear facilities from sabotage, including those materials and facilities used in the weapons program. S. Rep. No. 93-980, U.S. Code Cong. and Admin. News (1974) at 5492-93.

Autonomy from NRC regulation, then, is the general rule for DOE facilities and activities. For example:

The safe operation of noncommercial facilities, which are owned and operated by [DOE] will be strictly the responsibility of [DOE]. The only exceptions, in the form of specific extensions of [NRC's] licensing authority, are provided in Section 202. S. Rep. No. 92-980, supra. at 5523.

In the present instance, a potentially relevant exception is that provided in Section 202(4):

Notwithstanding the exclusions provided for in Section 110a..., the Nuclear Regulatory Commission shall...have licensing and related regulatory authority pursuant to Chapters 6, 7, 8 and 10 of the Atomic Energy Act of 1954, as amended, as to...: (4) Retrievable Surface Storage Facilities and other facilities authorized for the express purpose of subsequent long-term storage of high-level radioactive waste generated by [DOE] which are not used for, or a part of, research and development activities. 42 U.S.C. 5842.

This language could conceivably give NRC regulatory authority over DOE activities in connection with the 300 Area Burial Grounds, regardless of the decontamination and decommissioning alternative chosen. Plainly, the burial grounds do not constitute retrievable "surface" storage facilities, i.e., the waste materials were buried below grade with no expectations of exhumation and subsequent treatment and/or reburial. Nor are they intended as part of research and development activities, although they hold waste produced in connection with such activities. However, they could constitute "facilities authorized for the express purpose of subsequent long-term storage of

high-level radioactive waste." If so, NRC would then have licensing authority over DOE's actions in connection with the burial grounds. Thus, the applicability of the quoted language merits careful analysis.

The applicability of Section 202(4) depends on four issues: (1) whether the wastes in question are "high-level radioactive waste;" (2) whether management under any of the four options would constitute "long-term storage;" (3) whether such long-term storage would be "subsequent;" and (4) whether the facilities selected in connection with one of the four alternatives would be "authorized for the express purpose" of long-term storage.

High-Level Radioactive Waste

Neither the Atomic Energy Act nor the Energy Reorganization Act itself defines high-level radioactive waste. Both DOE and NRC have, however, defined high-level waste in connection with their respective management and regulatory activities. DOE, in the Atomic Energy Commission Manual, Appendix 0511, Part 1, defines high-level liquid waste as:

The aqueous waste resulting from the operation of the first cycle extraction system, or equivalent concentrated wastes from subsequent extraction cycles, or equivalent wastes from a process not using solvent extraction, in a facility for processing irradiated reactor fuels.

The same source defines high-level waste as:

(a) high-level liquid waste, or (b) the products from solidification of high-level liquid waste, or (c) irradiated fuel elements if discarded without reprocessing.

NRC has also defined high-level liquid waste in connection with the licensing of commercial nuclear utilization and production facilities at 10 CFR Section 50, Appendix F:

For the purpose of this statement of policy [as to the siting of reprocessing and waste management facilities], "high-level liquid radioactive wastes" means those aqueous wastes resulting from the operation of the first-cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels...

With the following passage, NRC implicitly defines high-level waste as well:

High-level liquid radioactive wastes shall be converted to a dry solid...All of these high-level radioactive wastes...

Careful reading of the two sets of definitions suggests that they are identical. Both sources define high-level liquid wastes in the same way and (implicitly, in the case of NRC) define high-level waste to include both high-level liquid waste and the products from solidification of high-level liquid wastes. The only significant difference is that DOE's manual also explicitly includes irradiated fuel elements if discarded without reprocessing. As authoritative expressions of the two agencies involved, they have strong factual if not legal significance in the interpretation of Section 202. Since these definitions may encompass some of the material buried in the 300 Area Burial Grounds, the material could be considered high-level waste for purposes of Section 202(4).

Long-Term Storage

The second issue is whether any of the four alternatives constitute "long-term storage." Two sources provide some guidance on this issue. The Atomic Energy Commission Manual at Appendix 0511 has defined long-term storage as follows:

The status of radioactive waste under control and surveillance, and readily retrievable, but in such a form and location that no further processing or manipulation is considered necessary for a period of time which is very long compared to other periods of time in the nuclear fuel cycle; an example would be storage in a high-quality near-surface storage vault with an expected durability of many decades.

This issue was also relevant to the only case that has interpreted Section 202(4), Natural Resources Defense Council v. Administrator, Energy Research and Development Administration, 2 Nuclear Reg. Rep. (CCH) ¶20,082, F. Supp. (DDC, 1978). There, the issue concerned the applicability of Section 202(4) to the construction of tanks for the storage of high-level liquid wastes at Hanford, Washington, and Savannah River, South Carolina. In

siding with DOE on the issue, the Court pointed out that DOE has consistently maintained that storage in tanks constitutes an interim program, the wastes to be stored for a period of between 15 and 20 years, pending resolution of the high-level waste management issue. Both the Court's interpretation and the definition in the AEC manual point to the same conclusion: since no further processing would be contemplated, the four alternatives clearly involve long-term storage rather than interim storage for the purposes of Section 202.

Subsequent Storage

For Section 202 to apply, the waste storage must be "subsequent." This language could mean three different things: (1) that Section 202 applies only to wastes generated after its enactment, (2) that Section 202 applies only to storage arrangements built or modified after its enactment, or (3) simply that Section 202 applies to wastes that continue to be stored after its enactment. If (1) were correct, Section 202 would not apply to any of the four alternatives. If (3) were correct, Section 202 would apply to all four options. If (2) were correct, Section 202 would probably apply to exhumation and translocation, abandonment, and entombment but not to perpetual care (the present arrangement). Again, the legislative history provides some guidance as to the meaning of "subsequent storage". The Senate report states: "It is not the intent of the committee to require licensing of such storage facilities which are already in existence." S. Rep. No. 93-980, supra at 5521. This interpretation essentially corresponds to (2), and would mean that NRC would license only departures from present practice (under a literal reading, only arrangements involving new facilities, such as may be required by exhumation and translocation and possibly entombment).

Authorized for the Express Purpose

The fourth issue concerns whether or not any alternatives invoke the language referring to express authorization. In the NRDC case, the court held that "at the very least, the phrase 'authorized for the express purpose' of long-term storage requires that [DOE] in fact intend to use the waste storage

facilities in issue for such 'long-term storage'." The court did not resolve the issue of whether or not express authorization means Congressional authorization of such storage. In a footnote the court left the implication that such authorization would not be necessary. The legislative history, however, refers to "facilities for high-level radioactive wastes which may be authorized by Congress to be built by" DOE. S. Rep. 93-980, supra at 5521, emphasis added. Thus, congressional authorization may be required to initiate evaluation of Section 202.

Altogether, a moderately strong argument can be made that Section 202(4) applies at least to each of the three alternatives that depart from present practice. Some materials in the 300 Area Burial Grounds could appear to be high-level wastes in long-term storage. These wastes are also not used in R&D activities. Whether this storage would be subsequent and expressly authorized in the absence of express Congressional authorization is a more problematic issue.

Further doubt as to the applicability of Section 202 arises from Congress's apparent purpose in giving NRC licensing authority over DOE high-level waste facilities. According to the legislative history, Section 202 was intended to enable NRC "to develop early expertise in new generations of nuclear technology as they approach commercial application." Id. 5520. In light of this statutory purpose, Section 202 should not apply to any of the alternatives unless it involves "new generations of nuclear technology." This appears unlikely, even for entombment or for exhumation and translocation, since either would probably represent a singular solution to an old and non-recurring problem rather than a new "generation" of commercial technology. The conclusion that current practices at the 300 Area Burial Grounds may not be covered is further reinforced by an additional piece of legislative history. Section 202 of the House Bill expressly exempted waste facilities "in existence, under construction, or authorized or appropriated for by the Congress on the date this Act becomes effective." Id. 5547. The Act as passed eliminated that language "because there are no such facilities." Id.

If NRC does have licensing authority with respect to the 300 Area Burial Grounds, the question becomes what level of DOE activity would invoke this authority. This question, too, is likely to depend on the meaning of the "authorized for the express purpose" language in the statute. Probably, Congressional authorization of any course of action would be necessary and sufficient to trigger NRC's licensing authority under the statute. Any authoritative decision by DOE constituting an intent to use facilities as part of long-term waste storage might also possibly be sufficient. Exhumation and translocation, entombment, and abandonment appear likely to meet this test, whereas perpetual care raises a more difficult issue. Inasmuch as this alternative could be pursued without such an authoritative decision, the difficulty of inferring intent from inaction is raised. However, this would not seem to pose an insuperable barrier. It is probable that a court would be willing to infer intent from inaction, or at the very least to place on DOE the burden of demonstrating that DOE does not intend to use the facility as part of its long-term waste storage plans.

ATOMIC ENERGY ACT OF 1954 AND ENERGY REORGANIZATION ACT OF 1974:
CONSTRAINTS OTHER THAN LICENSING

Whether or not DOE must obtain a license from NRC with respect to the 300 Area Burial Ground activities, DOE may be subject to additional constraints by virtue of the Atomic Energy Act and the Energy Reorganization Act. Section 161(b) of the Atomic Energy Act authorizes DOE to:

establish by rule, regulation, or order, such standards and instruction to govern the possession and use special nuclear material, source material, and by-product material as [DOE] may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property. 42 U.S.C. 2201(b).

The legislative history of the Energy Reorganization Act suggests strongly that this provision registers Congress's intent that DOE take responsibility "to protect health and to minimize danger to life or property" in connection with its own facilities. This language establishes a norm to be followed by DOE--to ensure public health and safety--and delegates to DOE the responsibility for determining precisely how its responsibility shall be fulfilled. In discharging its responsibility for the safe management of DOE-generated radioactive wastes, DOE has issued detailed guidelines in Chapter 0511 of its Manual. Item 0511-044B of the Manual provides, among other things, that:

high-level liquid wastes shall be converted to suitable physical and chemical forms and confined in a manner which shall provide high assurance of isolation from man's environment with minimal reliance on perpetual maintenance and surveillance by man under conditions of credible geologic, seismic, and other naturally occurring events...High-level wastes in long-term storage, or in pilot plant facilities shall, in each case, be contained and emplaced so as to be retrievable for removal and transfer elsewhere.

Other chapters of the Manual could impose further constraints. For example, Chapter 0513 provides for effluent and environmental monitoring and reporting. Chapter 6202 provides for site-selection criteria. Appendix 0510 provides for prevention, control, and abatement of air and water pollution. The question arises whether DOE is bound by these standards in pursuing any of the four alternatives.

This cannot be resolved with certainty. The answer probably depends on whether the Manual represents a general policy statement or a substantive rule. A general policy does not establish a "binding norm," whereas "a properly adopted substantive rule establishes a standard of conduct which has the force of law." Pacific Gas and Electric Company versus Federal Power Commission, 506 F.2d 33, 38 (D.C.Cir. 1974). In all likelihood, the Manual would be considered a policy statement rather than a set of substantive rules. DOE has not characterized it as regulation, has not published it in the Federal Register, and has not sought to apply it to others than DOE itself. See

Columbia Broadcasting System versus United States, 316 U.S. 407, 62 S.Ct. 1194, 86 L.Ed. 1563 (1942). In any event, if the Manual posed insuperable constraints, DOE could modify it.

Conceivably, Section 161(b) of the Atomic Energy Act could also give EPA some limited authority to regulate radioactive emissions from DOE installations. In creating EPA, Reorganization Plan No. 3 of 1970 transferred to the new agency most of the environmental protection responsibilities then held elsewhere in the executive branch. Among the functions transferred were:

the functions of the Atomic Energy Commission...administered through its Division of Radiation Protection Standards, to the extent that such functions of the Commission consist of establishing generally applicable environmental standards for the protection of the general environment from radioactive material. As used herein, standards mean limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material. 84 Stat. 2806.

Thus, EPA has the responsibility to promulgate radiation protection standards to protect the public "outside the fence" of nuclear facilities. In addition, EPA received the functions of the old Federal Radiation Council, by virtue of which EPA is to "advise the President with respect to radiation matters, directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards..." [42 U.S.C. 2021(h), Reorganization Plan No. 3 of 1970, Sec. 2(7)].

Pursuant to this authority, EPA has issued draft Criteria for Radioactive Wastes. 43 Fed. Reg. 53,262. If approved by the President as guidance to Federal agencies, the final criteria will be binding on DOE in the management of its waste facilities. Essentially, the criteria set forth broad principles. EPA will later use the criteria as the basis for developing more specific environmental standards for different radioactive waste sources. Id. 53,263. However, even in their present broad form, the criteria could constrain the choice of options for the 300 Area Burial Grounds. Criterion 1 clearly indicates that the criteria do apply to the 300 Area burial sites,

which are part of "the supporting fuel cycles (of military and research reactors) including spent fuel if discarded, fuel reprocessing wastes, and radio-nuclides removed from process streams or effluents." Id. Criterion 2, which provides that controls based on institutional functions should not be relied on for longer than 100 years, could rule out the "perpetual care" alternative for the sites. Criterion 4, which limits the risks acceptable for waste management, could pose even more difficult problems. Criterion 4 could fore-close the "exhumation and translocation" alternative if it required exposure to workers in excess of the expected population exposure if the wastes were left alone. Yet all the other alternatives may imply the continuance of institutional controls indefinitely (violating Criterion No. 2) and might also imply an expected future risk at a total higher than permitted under Criterion 4.

THE NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA), 42 U.S.C. 4321 et seq., requires Federal agencies to prepare an environmental impact statement (EIS) in connection with any Federal actions significantly affecting the quality of the human environment. Id. 4332. Obviously, DOE is such an agency and, conceivably, some actions taken in connection with 300 Area Burial Grounds could significantly affect the human environment. See NRDC v. ERDA, *supra*.

The actions to which NEPA applies include revisions to present policies and programs. Virginians for Dulles v. Volpe. 541 F.2d 442 (4th Cir. 1976). Three of the management alternatives represent departures from current practice and thus potentially constitute actions sufficient to initiate application of NEPA: entombment, abandonment, and exhumation and translocation. For entombment or abandonment, the Hanford Waste Management Impact Statement or a brief amendment may suffice. [Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington, U.S. Energy Research and Development Administration, ERDA-1535. December 1975.] If the exhumation

and translocation alternative is chosen, then a new site may have to be selected for relocation of the waste. If this site is not already operated under existing license, agreement, or other Federal control, an EIS would almost certainly be required. Such an EIS would assess the impacts associated both with the new site and with the process of translocation.

A more difficult question pertains to perpetual care, i.e., essentially continuation of present practices. This option could constitute sufficient Federal action to initiate application of NEPA. In the case just cited, the court stated that in enacting NEPA, "Congress wanted agencies to address environmental consequences not only in considering future projects, but also in reviewing present policies and programs." Id. On this basis, any review by DOE of the 300 Area Burial Grounds and any identifiable decision to forego other actions and continue the present policy of perpetual care may be sufficient to initiate application of NEPA. (However, the general proposition was dicta in the Dulles case because the review of present policies there resulted in revision. When the review of present policies does not result in revision, it might be argued that an EIS is not required, especially since the Hanford Waste Management Impact Statement is in place.)

CLEAN AIR ACT

The Clean Air Act, 42 U.S.C. 7401, et seq., including the 1977 amendments, provides a comprehensive framework for the regulation of airborne pollutants by the Federal government and states. Section 118(a) of the Clean Air Act provides that any Federal agency having jurisdiction over a facility is subject to all Federal, state, interstate, and local requirements respecting the control and abatement of air pollution to the same extent as any non-governmental entity. Therefore, the 300 Area Burial Grounds would be subject to the Clean Air Act, and thus to state and local requirements as well as Federal. Although radioactive pollutants are not presently regulated under the Clean Air Act, Section 122(a) of the Act, added in 1977, provides that not later than August 7, 1979, EPA must review all available relevant information

and determine whether or not emissions of radioactive pollutants (defined to include source material, special nuclear material, and by-product material) into the ambient air will cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health. If EPA determines radioactive air emissions are hazardous under this standard, it is to include these substances in the list published under Section 108(a)(1) or 112(b)(1)(A), which would subject radioactive emissions to regulation either through ambient air quality standards under Section 108 or emission standards under Section 122.

FEDERAL WATER POLLUTION CONTROL ACT

The Federal Water Pollution Control Act (FWPCA), as amended by the Clean Water Act of 1977, 33 U.S.C. 1251, et seq., provides a comprehensive framework for the control of water pollution by the Federal government and the states somewhat analogous to control of air pollution under the Clean Air Act. The effect of the FWPCA on burial ground alternatives involves three issues: (1) the applicability of the Act to Federal facilities, (2) the provisions of the Act that apply to such potential pollution sources as the burial grounds, and (3) the pollutants subject to regulation.

Section 313, 33 U.S.C. 1323, provides that any Federal agency having jurisdiction over any facility is subject to all Federal, state, interstate, and local requirements respecting the control and abatement of water pollution to the same extent as any nongovernmental entity. Federal agencies such as DOE are thus subject to the pollution limitations promulgated by EPA under the authority of the Act.

A key distinction in the FWPCA involves point sources versus nonpoint sources of pollution. Point sources are subject to the effluent limitations, technology standards, and permit procedures of the National Pollutant Discharge Elimination System. Nonpoint sources of pollution are regulated solely through State Water Quality Management Plans required under Section 208, 33

U.S.C. 1288. D. L. Donky and K. L. Hall, Section 208 and Section 303 Water Quality Planning and Management: Where is it Now?, 6 Env't'l L. Rep. 50115, 50116 (1976). The 300 Area burial sites in question are almost certainly nonpoint pollution sources for these purposes (if they are pollution sources at all). Section 502, 33 U.S.C. 1362, defines point source to mean:

Any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include flow from irrigated agriculture.

In defining the items to be included in State Water Quality Management Plans, on the other hand, Section 208, 33 U.S.C. 1288, specifically refers to "disposal of pollutants on land or in subsurface excavations" in a list that does include return flows from irrigated agriculture. Section 304(f), 33 U.S.C. 1314(f), does the same. Since the burial sites involve disposal of potential pollutants in subsurface excavations, the FWPCA will potentially subject them only to the Washington Water Quality Management Plan applicable to the Hanford Site, adopted pursuant to 40 C.F.R. Part 130.

Finally, the question arises as to what substances are subject to regulation. Section 502 of the Act defines pollutant to include "radioactive materials." However, in Train v. Colorado Public Interest Research Group, 96 S.Ct. 1938 (1976), the Court held that the radioactive pollutants subject to regulation under the Federal Water Pollution Control Act do not include source, by-product, and special nuclear materials. Nonetheless, the 300 Area Burial Grounds may include substantial quantities of nonradioactive toxic waste, such as "carcinogens", cyanides, dichromates, cadmium, beryllium, and mercury. The burial sites may also contain radioactive materials other than source, special nuclear, and by-product material, such as radiotracer pharmaceuticals and the like. These materials would constitute pollutants under the FWPCA, and thus be subject to regulation under the State Water Quality Plan.

TOXIC SUBSTANCES CONTROL ACT

The Toxic Substances Control Act, 15 U.S.C. 2601, et seq., provides a somewhat "cumbersome and fragmented" framework for the regulation of toxic substances. From Microbes to Men: The New Toxic Substances Control Act and Bacterial Mutagenicity/Carcinogenicity Tests, 6 Env't'l L. Rep. 10248 (1976). TOSCA gives EPA the authority to regulate the disposal of substances whose disposal would otherwise present an unreasonable risk of injury to health or the environment. 15 U.S.C. 2605. While the Act specifically excludes source material, special nuclear material, and by-product material as defined in the Atomic Energy Act of 1954 from coverage, 15 U.S.C. 2602, EPA could determine that the disposal of other materials buried in the 300 Area sites presents health or environmental hazard. The extent of EPA's authority to regulate 300 Area activities depends on two issues. First, TOSCA is unclear as to EPA's authority to regulate the activities of Federal agencies such as DOE. The Act frequently refers to commercial manufacturers and processors, but never expressly includes or excludes the Federal government. Second, if TOSCA does apply to DOE, it probably only applies prospectively: TOSCA would thus impinge only on the exhumation and translocation alternative (or possibly to the alternatives involving new practices at the present site).

RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq., regulates the treatment, storage, transportation and disposal of hazardous wastes having adverse effects on health and the environment. While the Act expressly applies to Federal facilities, 42 U.S.C. 6961, it expressly excludes from coverage source, special nuclear, and by-product material as defined by the Atomic Energy Act of 1954. 42 U.S.C. 6903(27). However, to the extent application of the Act is not inconsistent with the Atomic Energy Act of 1954, it could still apply to management of the wastes at the 300 Area Burial Grounds should they contain materials defined as hazardous by the EPA pursuant to 42 U.S.C. 6921. 42 U.S.C. 6905. Such application would subject

DOE to the record keeping, labeling, permit, and other requirements of the Act in connection with maintenance of the present sites or with exhumation and translocation. 42 U.S.C. 6922-6925.

SAFE DRINKING WATER ACT

The Safe Drinking Water Act, 42 U.S.C. 300g, et seq., provides a comprehensive framework for drinking water standards to be set by EPA. Section 1401(6) of the Act defines the contaminants for which EPA is to set standards to include "any physical, chemical, biological or radiological substance or matter in water." The standards promulgated by EPA at 40 CFR Part 141 include maximum contaminant levels for various radionuclides. Presumably, the 300 Area Burial Grounds could contribute to the presence of radionuclides in public drinking water supplies. However, since the Act applies to the owners of public drinking water systems, and not directly to facilities operators other than those who emplace pollutants by well injection, the Act would appear not to apply directly to DOE's activities in connection with the 300 Area Burial Grounds.

POTENTIAL CHANGES IN LEGAL REQUIREMENTS

Changes in legal requirements could occur by legislation, administrative actions, or Court decisions.

LEGISLATIVE CHANGES

Legislation that would extend authority of NRC to radioactive wastes generated by defense-related facilities was introduced in the 95th Congress (S. 3146 and S. 2804). On June 14 and 20, 1978, hearings were held on these measures by the Nuclear Regulation Sub-Committee of the Senate Environment and Public Works Committee. At present, NRC's jurisdiction over defense wastes includes licensing authority for facilities intended for the long-term storage of high-level wastes. Sec. 202(4) of the Energy Reorganization Act of 1974. S. 3146 would extend NRC authority to cover all DOE facilities, existing, proposed, or no longer in use, which are used for the storage and disposal of any form of radioactive waste. The President would have authority to exempt any facility from licensing requirements upon determining that such action would be in the national security interest of the United States. S. 2804 would extend NRC authority in a more limited way to include long-term storage and disposal for defense high-level waste and new long-term storage and disposal for spent fuel from the Federal defense programs. S. 2804 defines short-term storage as storage where retrieval is intended not later than 20 years after initial emplacement of the radioactive wastes.

Key Issues

Neither the existing law nor the proposed legislation is sufficiently clear to define precisely which DOE waste-related activities would be subject to NRC licensing authority and which would be excluded. However, it is clear that existing legislation provides the most limited NRC role, that S. 3146 would require an NRC license for virtually all DOE waste-related activities, and that S. 2804 falls in between the two positions. What is important is not the precise details of proposed legislation, but rather the issues that the different legislative approaches address. These are:

1. Should NRC have authority over defense-related wastes? One position expressed in Congressional hearings is that the regulatory process improves the safety of any operation to which it is applied, and that the hazards of defense-related wastes are sufficiently great that the benefits of extending the NRC regulatory process to defense wastes would be substantial. The other position holds that the national security implications of the defense-related atomic programs require freedom from NRC regulation in order to ensure the secrecy of sensitive data on nuclear weapons production processes and to eliminate the possibility of delays in weapons programs brought on by environmental intervention.
2. If NRC regulates defense wastes, what form should that regulation take? One possibility, used by both S. 3146 and S. 2804, is NRC licensing, which implies not only an NRC veto over a proposed DOE activity but a set of formal procedures (including hearings and comment periods). Another possibility, discussed by NRC Commissioners Hendrie and Gilinsky in Congressional testimony on June 14, 1978, is that of "review and concurrence" authority, which would allow NRC to exercise general oversight over DOE actions but not to veto DOE's activities. This type of authority was generally favored by the NRC commissioners on the grounds that separate licensing actions for all DOE facilities would exceed NRC waste management staff resources.
3. What kind of NRC authority is appropriate for new DOE waste facilities, for "currently in use" DOE waste facilities, or for decommissioned DOE facilities? NRC authority might be extended to any or all of these three categories of facilities. If NRC authority is extended to decommissioned DOE facilities, the 300 Area Burial Grounds might clearly fall under that authority. But, if the extension of NRC authority is limited to new actions taken by DOE, a DOE decision to leave the burial grounds as they are might not be subject to NRC review.

4. What NRC authority is appropriate for short-term versus long-term waste storage facilities? This is an issue that is of concern to the drafters of these bills and is a potentially difficult one for them to resolve. This issue will not likely affect the 300 Area Burial Grounds, since all wastes there are no longer in temporary storage.
5. How should NRC authority over defense wastes vary according to waste type (high-level, TRU, low-level, or spent fuel)? The existing law already gives NRC authority over long-term storage facilities for high-level waste. This authority may already extend to the 300 Area Burial Grounds, since it might be possible to define the wastes as high level. However, as discussed earlier, the references to high-level waste in existing law are not definitive. Neither S. 3146 nor S. 2804 define high-level waste. New legislation could impinge, by precisely defining forms of wastes, so as to clarify the application of current Section 202(4), and/or by extending NRC authority to the regulation of wastes with lower hazard levels.

Likely Outcome of this Legislative Debate

No legislation on the above topic passed the 95th Congress, but there are indications that there may be some action on it in Congress during 1979. Senators Hart and Domenici asked NRC to study the issues and respond to their questions by March 1, 1979. (Nucleonics Week, vol. 19, no. 47, November 23, 1978, pp. 6-7.) The FY-79 NRC Authorization bill (PL 95-601) required NRC to study what changes should be made in NRC licensing authority over DOE waste management activities, but specified no deadline for the study. (See 2 Nuclear Regulation Reporter 20,098.)

The draft report of the President's Interagency Review Group on Nuclear Waste Management recommended no changes in NRC licensing authority that would affect the 300 Area Burial Grounds. (The IRG report did contain legislative recommendations related to NRC licensing, and did recommend extension of NRC licensing authority, but only to cover: (1) new DOE facilities for spent fuel

from commercial reactors and (2) "ultimate disposal of DOE-generated TRU and nondefense low-level wastes, at the minimum, at new sites." Neither of these provisions would cover the 300 Area Burial Grounds. See Report to the President by the Interagency Review Group on Nuclear Waste Management, October 1978 draft, TID-28817, p. 70.

ADMINISTRATIVE CHANGES

Another source of change in legal requirements is the possibility that agencies with existing legislative authority over the 300 Area Burial Grounds will issue new regulations that will apply to the sites. DOE is clearly one such agency with the authority to issue new regulations. As previously discussed, EPA has the responsibility under the Clean Air Act Amendments of 1977 to determine by August 1979 whether radioactive pollutants should be controlled under provisions of the Act. If those pollutants are made subject to the Clean Air Act, then the Act would very likely apply to the 300 Area Burial Grounds, and would be subject both to EPA Air Pollution Regulations and to the Washington State Air Quality Implementation Plan. The Washington State Plan would first need to be amended by submission to EPA in order to regulate radioactive pollutants. These developments could take place in 1979, although the length of time required to modify and submit new implementation plans might mean that there were no definitive guidelines until sometime in 1980.

COURT DECISIONS

Another source of new legal requirements is court decisions. No current court cases appear directly applicable to the 300 Area Burial Grounds. However, an analogous case is now on appeal in Federal Court. NRDC sued the Nuclear Regulatory Commission in order to force NRC to license the construction of waste storage tanks at Hanford and Savannah River. NRDC argues that existing legislative authority was sufficient to require NRC licensing of such tanks. NRDC versus ERDA, supra. Should this finding be reversed on appeal,

it might set a precedent that could be used in a later lawsuit relevant to the 300 Area Burial Grounds. But developments along these lines are some time away; the appeals court decision is perhaps a year away, and Hanford area litigation would take even longer.

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