EVALUATION OF THE U.S. DEPARTMENT OF ENERGY'S PETITION FOR A MIXED WASTE TREATMENT EXTENSION AND SUBSEQUENT PASSAGE OF THE FFCA

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ABSTRACT

The U.S. Department of Energy (DOE) owns and operates facilities throughout the United States that engage in research, production, and testing activities related to quality-of-life-enhancing applications of nuclear energy, nuclear medicine, and nuclear weapons. These facilities for many years have generated hazardous, radioactive, and mixed wastes as a normal byproduct of operations. By 1991, DOE was managing over 300,000 cu.m. of stored mixed wastes at 31 different facilities, and generating them at the rate of 30,000 cu.m. per year.

EPA has established treatment standards for hazardous and mixed wastes which are designed to make land disposal of these wastes safe and protective of human health and the environment. The standards for mixed wastes became effective on May 8, 1992. After this date, known as the Land Disposal Restrictions (LDR) effective date, mixed wastes cannot be land disposed without treatment unless the generator, owner, or operator can demonstrate that the mixed wastes will not migrate from the disposal facility. Developing solutions for the management and treatment of mixed wastes has been difficult, costly, and time-consuming for DOE. DOE concluded that it could not obtain adequate treatment capability by May 8, 1992, and, as provided under 40 CFR 268.5, submitted a petition requesting a one year case-by-case extension of the LDR effective date for 352 mixed wastes at 31 facilities.

In accordance with the demonstrations required by 40 CFR 268.5(a), EPA evaluated many complex factors in DOE's petition. One demonstration, the binding contractual commitment, could not be fully met by DOE, and became a particularly unique and difficult issue requiring extensive legal and technical analysis. To resolve this issue, EPA considered several approaches that might be equivalent to binding contractual contracts. These approaches, as well as EPA's evaluation of the rest of DOE's petition, were published as a proposed finding in the Federal Register on May 26, 1992; see 57 FR 22035 through 22098. EPA requested comments on these approaches and stated that it would issue a second Federal Register notice addressing this issue.

Subsequently, the Federal Facilities Compliance Act (FFCA) became law, but deferred the waiver of sovereign immunity for DOE's mixed wastes for three years, provided DOE meets certain conditions and provides extensive information to EPA and the States where its facilities are located. The FFCA conference committee report stated that the Act had "obviated the need for EPA to pursue the [case-by-case] CBC petition," and that an [Interagency Agreement] IAG would not be acceptable to satisfy the binding contractual commitment requirement. In the meantime, EPA has not issued a second Federal Register notice nor has an IAG been executed. In letters dated November 20, 1992, and January 8, 1993, DOE and EPA exchanged differing opinions as to whether the EPA should continue its consideration of the extension request.

BACKGROUND OF LAND DISPOSAL RESTRICTIONS

The Hazardous and Solid Waste Amendments--HSWA (1), enacted by Congress on November 8, 1984, amended the Resource Conservation and Recovery Act (RCRA) and required EPA to develop regulations that would require treatment of hazardous wastes prior to disposal and put restrictions on the land disposal (Land Disposal Restrictions-LDRs) of untreated hazardous wastes. Sections 3004(d) through (g) prohibit the land disposal of certain hazardous wastes after specified dates unless those wastes have been treated to meet EPA-specified treatment standards. The treatment standards (established under Section 3004(m)) require EPA to set "levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized."

Recognizing that adequate treatment technologies and capacity may not be available for specific wastes in all cases, Congress in Section 3004(h) allowed EPA to grant one-year case-by-case extensions and two-year National Capacity Variances when necessary.

In accordance with the schedule requirements of Section 3004(g), EPA promulgated rules for solvents and dioxins on November 7, 1986 (51 FR 40572); for California List wastes on July 8, 1987 (52 FR 25760); for First Third hazardous wastes on August 8, 1988 (53 FR 31138); and for Second Third hazardous wastes on June 8, 1989 (54 FR 26594). Because of these early LDR dates, solvents, dioxins, and California List wastes were not eligible for extensions and DOE did not include them in the petition.

On June 1, 1990 (55 FR 22520), EPA promulgated the regulations for the final Third Third of hazardous wastes, including mixed wastes, to take effect on May 8, 1990. At the same time, however, EPA granted a two-year National Capacity Variance under RCRA Section 3004(h)(2) based on EPA's determination that "there is inadequate treatment capacity available for these wastes" (55 FR 22532).

Section 3004(j) of the HSWA also prohibits storage of hazardous wastes unless storage is necessary to accumulate quantities to facilitate recovery, treatment, or disposal, and in 40 CFR 268.50, EPA has set the storage limit at 90 days, after

which a generator must have a permit to operate a RCRA storage facility.

APPLICABILITY OF RCRA TO MIXED RADIOACTIVE/HAZARDOUS WASTES

Uncertainty has surrounded the applicability of RCRA to hazardous wastes containing certain radioactive materials (i.e., source, special nuclear, or byproduct material as defined by the Atomic Energy Act (AEA) of 1954, as amended (68 Stat. 923)). This uncertainty stemmed, to a large extent, from the exclusion of source, special nuclear, and byproduct material from the definition of solid waste under Section 1004(27) of RCRA (53 FR 37045).

To clarify State responsibilities with regard to the hazardous components of radioactive mixed waste, the EPA published a notice in the Federal Register of July 3, 1986 (51 FR 24504). That notice recognized that States had not previously been authorized under RCRA to regulate radioactive mixed waste because of continuing debate surrounding the extent of RCRA jurisdiction over this category of waste. Through that notice, EPA clarified its position that "wastes containing both hazardous waste and radioactive waste are subject to the RCRA regulation" (51 FR 24504). The notice further provided that authorized State hazardous waste programs must include provisions for radioactive mixed wastes (51 FR 24504).

At the same time that EPA's rules governing State programs for radioactive mixed waste were being developed and implemented, controversy arose over which wastes are mixed and therefore subject to RCRA and which wastes are pure "byproduct material" and therefore exempt from RCRA regulations as provided by Section 1004(27). On May 1, 1987, DOE issued an interpretive rule which stated that the term "byproduct material" refers only to the actual radionuclides dispersed or suspended in a DOE waste stream (52 FR 15938). Therefore, radioactive mixed wastes are those wastes that contain both radioactive constituents subject to the AEA, and constituents that are either listed as a hazardous waste in Subpart D of 40 CFR 261, or exhibit any of the hazardous waste characteristics identified in Subpart C of 40 CFR 261. Hazardous portions of mixed wastes are subject to RCRA regulations while the radioactive component is regulated under the AEA.

In its petition, DOE cited this uncertainty of definitions as one of the circumstances beyond its control which prevented it from providing adequate treatment capacity.

DOE'S CASE-BY-CASE PETITION

In November 1991, prior to the expiration of the National Capacity Variance, DOE submitted a petition to EPA requesting a case-by-case LDR extension for 352 Third Third mixed wastes generated and stored at 31 of its facilities. These mixed wastes include 309 low level mixed wastes, 41 transuranic mixed wastes, and two high level mixed wastes. Figure 1 shows 13 of the sites included in the petition (Pinellas and Nevada Test Site were not included). Other facilities included in the petition are those at Argonne National Laboratory (Illinois and Idaho sites), Bettis Atomic Power Laboratory, Brookhaven National Laboratory, Colonie Interim Storage Site, Energy Technology and Engineering Center, Feed Materials Production Center, Fermi National Accelerator Laboratory, Inhalation Toxicology Research Institute, K-25 Plant, Knolls Atomic Power Laboratory (Kesselring and Niskayuna sites), Lawrence Berkeley Laboratory, Naval Reactor Facility, Oak Ridge National Laboratory, Paducah Gaseous Diffusion Plant, Portsmouth Gaseous Diffusion Plant, Sandia National Laboratories, Weldon Spring Remedial Action Project, and West Valley Demonstration Project.

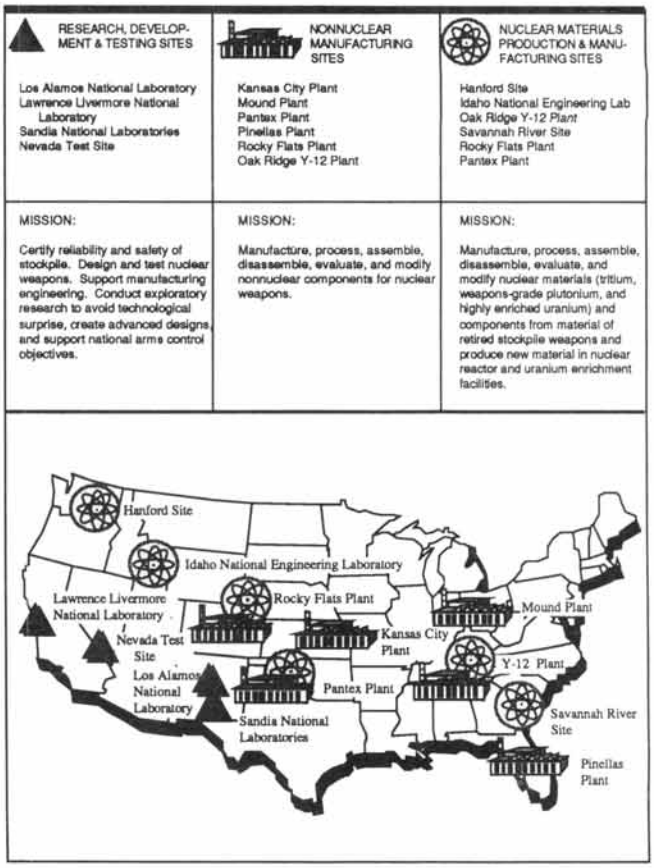

Fig. 1. DOE generates mixed wastes in facilities throughout the United States.

DEMONSTRATIONS EVALUATED DURING THE PETITION REVIEW

Case-by-case extension petitions must meet the requirements specified in 40 CFR 268.5. These requirements include those specified in RCRA Section 3004(h): the applicant must demonstrate that there is a binding contractual commitment to construct or otherwise provide alternative capacity but due to circumstances beyond the control of such applicant such alternative capacity cannot reasonably be made available by such effective date (40 CFR 268.5(a)(2) and (a)(3)). A hazardous waste may be disposed of in a landfill or surface impoundment during the extension period only if such facility meets EPA's technical requirements (40 CFR 268.5(a)(7)).

In addition, EPA has established four other requirements which the applicant must demonstrate:

- A good-faith effort to locate and contract with treatment, recovery, or disposal facilities nationwide to manage the waste (40 CFR 268.5(a)(1));
- The alternative capacity will be sufficient to manage the entire quantity of waste (40 CFR 268.5(a)(4));
- A schedule for obtaining required operating and construction permits or an outline of how and when

alternative capacity will be available (40 CFR 268.5(a)(5)); and

- Sufficient capacity to manage the entire quantity of waste which is the subject of the petition during the requested extension period, and to document in his case-by-case petition the location of all facilities at which the waste will be managed (40 CFR 268.5(a)(6)).

After these demonstrations are satisfied, and after providing notice and opportunity for public comment and consultation with appropriate State agencies in all affected States, the EPA Administrator may, on a case-by-case basis, grant an extension of the effective date for up to one year. An extension may be renewed once for no more than one additional year.

After an applicant has been granted a case-by-case extension, the applicant is required to keep EPA informed of the progress being made towards obtaining adequate alternative capacity. Any change in the demonstrations made in the petition must be reported immediately to EPA. The applicant must also submit progress reports which describe the progress being made towards obtaining adequate alternative capacity, identify any delay or possible delay in developing the capacity, and describe any mitigating actions being taken in response to such delays.

EVALUATIONS

The petition was evaluated between November 1991 and May 1992. The results and conclusions are reported in detail in the Federal Register of May 26, 1992; see 57 FR 22035 through 22098. A succinct summary is given below.

For Demonstration 40 CFR 268.5(a)(1), we reviewed the extensive surveys DOE had made of potential commercial treatment facilities. Out of all these, DOE found only two facilities able to treat only very limited amounts of DOE's mixed wastes. Based on this information, EPA concluded that DOE had met this demonstration (57 FR 22038).

To meet Demonstration 40 CFR 268.5(a)(2), DOE had to show that it had "entered into a binding contractual commitment to construct or otherwise provided alternative treatment..." Evaluation of this demonstration was very difficult since DOE did not have binding contractual commitments to provide all the required treatment capacity. DOE stated that "...due to the nature of the Federal budget process, it cannot enter into binding multi-year commitments...that appropriations are established by Congress on an annual basis...and that the Federal Anti-Deficiency Act (31 U.S.C. 1341) prohibits the obligation of Federal funds for which Congress has made no appropriation." Because of these unique features of Federal facilities, EPA evaluated several approaches to binding contractual commitments that might be acceptable, and the following conclusions were reached.

In the petition, DOE stated that it planned to provide 36 treatment units and one disposal facility; the disposal facility is the Waste Isolation Pilot Plant (WIPP) for the TRU low level waste streams. Eleven of these treatment units and the WIPP were constructed and were expected to be made available soon for operation. They were therefore judged to meet Demonstration 40 CFR 268.5(a)(2). DOE submitted purchase orders or contracts for an *additional five units*; EPA concluded that these also met the Demonstration. EPA then proposed that Compliance Agreements between DOE and regulatory agencies (EPA, States) could provide binding contractual commitments if they *contained commitments* to provide specified treatment units by a stated date. EPA considers them enforcement documents and enforceable through citizen suits under RCRA Section 7002. From information submitted by DOE, EPA found that four units at Hanford and five units at Savannah River were addressed by Compliance Agreements.

This evaluation left 11 treatment units for which DOE provided no commitments. For these, EPA proposed that an Interagency Agreement could provide the equivalent of a binding contractual commitment. Such an agreement would be binding on DOE and could not be altered without EPA's consent. If breached, the LDR extension would be rendered retroactively void and expose DOE to claims of RCRA violations. In its notice of May 26, 1992 (57 FR 22038), EPA announced that it was considering these approaches and anticipated issuing for public comment a specific proposal addressing the contractual requirement in greater detail. This notice has not been issued as apparently the events described below have overtaken the petition and its complete resolution.

Demonstration 40 CFR 268.5(a)(3) required DOE to show that circumstances beyond its control prevented it from having treatment capacity available by the effective date (May 8, 1992). Factors taken into account included the uncertainty surrounding the regulation of mixed wastes (previously discussed), the lack of technologies to treat them, the reluctance of the commercial sector to devote resources to an uncertain market, and DOE's treatment backlog of California List wastes, solvents, and dioxins. EPA concluded that DOE met this demonstration.

Demonstration 40 CFR 268.5(a)(4) required DOE to show that the capacity being constructed will be sufficient. DOE stated that it planned to use seven treatment technologies for low level mixed wastes and vitrification for its high level mixed wastes at INEL. DOE stated that it plans to ship transuranic (TRU) low level mixed wastes to the Waste Isolation Pilot Plant (WIPP) for disposal under a "no-migration" variance, previously granted by EPA. DOE had segregated all mixed wastes into 20 treatability groups (plus TRU). The evaluation of this demonstration was extremely complicated and required the segregation of the inventories and generation rates of the 352 mixed wastes into the 20 treatability groups. These groups were then matched and compared with the planned capacities of the treatment units and DOE's planned operation date for each unit. We then determined if the ultimate capacities would in fact reduce the inventories of each treatability group. No cap was put on the time required to start a reduction of the inventories. As proposed by DOE, it was assumed that any mixed waste from a specific facility could be treated at any other facility which had an applicable treatment technology unit. The capacities were found to be acceptable.

We expect that some States may take exception to such a strategy. Apparently DOE will determine its strategies and the States will comment through development of the DOE *National Compliance Plan* (2).

For Demonstration 40 CFR 268.5(a)(5), DOE provided schedule milestones for its planned treatment units; these milestones are shown in 57 FR 22048 and were judged to satisfy the requirement.

Demonstration 40 CFR 268.5(a)(6) required DOE to show that it had adequate capacity to manage the mixed wastes during the extension. For each of the facilities, DOE

submitted mixed waste storage locations, design capacities for storage, and forecasted inventories for each location. The permit status of each was also provided. For each of the 31 facilities, we calculated from the current inventories and generation rates (from data supplied by DOE) that sufficient permitted storage capacity would be available during the extension year and for one additional year. EPA concluded that DOE had met this requirement for each facility.

The last Demonstration, 40 CFR 268.5(a)(7), involves the use of impoundments or landfills. The only surface impoundment to be used by DOE is at INEL, and EPA found that DOE met this requirement.

In summary, EPA concluded that DOE had satisfied the required demonstrations, with the exception of Demonstration No. 2, the binding contractual commitment, and that it would issue in the near future a "companion proposal" addressing that demonstration in a second Federal Register notice. EPA proposed to grant a one-year extension of the May 8, 1992, effective date for the 352 mixed wastes (57 FR 22053). These actions were not taken, however. We presume that events surrounding the passage of the Federal Facilities Compliance Act took precedence.

FEDERAL FACILITIES COMPLIANCE ACT OF 1992 (FFCA)

In the summer of 1992, the pace picked up on the Hill to pass a Federal Facilities Compliance Act that would explicitly waive sovereign immunity to RCRA, including Land Disposal Restrictions. On October 6, 1992, President Bush signed it into law (3). In signing the bill, the President stated:

> "The objective of the bill is to bring all Federal facilities into compliance with applicable Federal and State hazardous waste laws, to waive Federal sovereign immunity under these laws, and to allow the imposition of fines and penalties. During the development of H.R. 2194, my Administration supported this objective, but insisted that the legislation recognize unique situations presented by activities of the Department of Defense and the Department of Energy. I commend the Congress for the effort made to address these situations."

These unique situations undoubtedly include the mixed wastes. Provisions for them include:

- A delay for 3 *years* of the waiver of sovereign immunity as it applies to departments, agencies, and instrumentalities of the Federal Government for mixed waste storage violations of the Solid Waste Disposal Act (SWDA) that is not subject to an existing agreement, permit, or administrative or judicial order, so long as such waste is managed in compliance with all other applicable requirements.
- Further, the waiver will not apply to DOE after 3 years if DOE is in compliance with a Plan submitted and approved pursuant to the new Section 3021(b) of the SWDA, and an order has been issued requiring compliance with the Plan. This Plan must be prepared for each facility and must describe how DOE will develop treatment technologies and capacities for all mixed wastes, including California List wastes, solvents, and dioxins. It must provide detailed schedules, funding requirements, and R&D programs.
- The Plan may provide for centralized, regional, or on-site treatment. We note that DOE has issued notice that it intends to prepare a "National Compliance Plan" (2). The FFCA Plan is not, however, required for any DOE facility which is under a State-EPA Compliance Agreement. At the time of the review of the DOE petition, DOE had submitted Compliance Agreements affecting only three facilities: Savannah River, Hanford, and Rocky Flats. The Rocky Flats agreement contained no commitments for treating mixed wastes.
- The Plan is to be submitted to the State, if the State has authority under EPA and State law to prohibit land disposal without treatment and to regulate mixed wastes. Otherwise the Plan is submitted to EPA. The State must consider the need for regional treatment facilities and provide for public participation.
- The States and EPA must act on the Plan within six months of receipt. Upon approval, the State or EPA must issue a Compliance Order under SWDA Section 3008(a). When this is done, waiver of sovereign immunity is further deferred so long as DOE is in compliance with the Plan.
- The State may, however, waive the requirement for this Plan if, in the meantime, it enters into an agreement with DOE for a facility that addresses compliance of mixed waste with the storage provisions of SWDA Section 3004(j) and issues a Compliance Order.
- The new Section 3021 of the SWDA further requires DOE to prepare and submit to EPA and to the States additional comprehensive reports and plans concerning mixed waste inventories; types, descriptions, and characterization techniques; generation rates and source; treatment capacities and treatment technologies; minimization actions; and a detailed description and explanation of mixed wastes for which no treatment technologies exist. These reports must be submitted by April 21, 1993.
- Additional progress reports are required from both DOE and the Comptroller General.
- Annual facility environmental assessments, including a comprehensive groundwater monitoring evaluation, are required by FFCA Section 104, and DOE must reimburse EPA for the cost of the inspections. This Section applies to all departments, agencies, and instrumentalities of the Federal Government.

THE FATE OF EPA'S PROPOSED SECOND NOTICE AND THE INTERAGENCY AGREEMENT (IAG)

The events surrounding passage of the FFCA appear to have superseded EPA's second Federal Register notice as proposed on May 26, 1992 (57 FR 22039, 22053). As far as we know, neither has the IAG been executed. It would appear, not surprisingly, that efforts in Congress to pass the FFCA have caused DOE and EPA to discontinue these efforts. Indeed, the FFCA conference committee report (4) states that the conferees believe that no further action is needed.

Disagreement Over the Conference Committee Report

The report of the House of Representatives joint conference committee provided two significant conditions, and DOE and EPA have very different opinions as to whether these conditions should, or should not, preclude further consideration of the petition. The report states:

> "...[T]he conferees have obviated the need for EPA to pursue the case-by-case petition. Further, the conferees do not agree that a 'binding contractual commitment' as the term is used in Section 3004(h) of the SWDA includes an agreement between two or more Federal departments, agencies, or instrumentalities."

However, DOE believes that it still requires a case-by-case extension, not withstanding the FFCA. In a letter dated November 20, 1992 to EPA (5), DOE stated:

> "[The FFCA] does not legalize the storage of LDR restricted mixed wastes during this interim period...other enforcement actions are not affected by the FFCA including, but "not by limitation," injunctive relief...DOE disagrees with the conferees assessment on the need for the CBC extension and believes that it is imperative for EPA to proceed with its consideration of DOE's extension request...the statement by the conferees appears to disregard these aspects of RCRA not addressed by the FFCA."

For example, the FFCA language specifies that the waiver shall not apply ..."so long as such waste is managed in compliance with all other applicable requirements." Unless it can be shown that DOE meets the requirements for an extension under 40 CFR 268.5, is it clear that "all other applicable requirements" are met? Is it clear that DOE's M&O contractors are covered?

DOE does not request any specific actions, however, particularly with regard to the IAG which the conference committee found disagreeable. To issue an extension, EPA would still have to determine that DOE has provided binding contractual commitments under 40 CFR 268.5(a)(2).

On January 8, 1993, EPA responded to DOE (6):

> "...Congressional intent in the FFCA is that plans for addressing treatment and disposal of mixed waste be approved by the impacted states rather than EPA...where those states have appropriate RCRA and LDR authority...In light of the fact that the FFCA provides DOE the opportunity to more comprehensively inventory its wastes and provides additional time to develop plans by which to manage those wastes, EPA believes that it is more appropriate to make commitments to treatment plans within the framework of the FFCA."

At this writing, we are not aware of any further actions between EPA and DOE.

IN CLOSING

As discussed above, DOE submitted a lengthy and comprehensive petition in November 1991 to EPA requesting an extension to the effective date of Land Disposal Restrictions for approximately 300,00 cu.m. of mixed wastes. In the petition DOE described and committed to legally binding plans to manage, store, and treat its Third Third mixed wastes. In compliance with EPA regulations, EPA and DOE were working to ensure that DOE would store and treat the mixed wastes in a manner that would be protective of human health and the environment. EPA and DOE invested great resources into this effort.

Now, in accordance with the FFCA, DOE is to again study and develop plans and reports for another three years; much of the information specified by Congress had already been developed for the petition. In addition, DOE is preparing a National Compliance Plan. Are these studies and plans taking the place of actions to provide the treatment units proposed by DOE in its petition? Have additional studies and plans been substituted for cleanup actions? Has progress on the national goal of cleaning up hazardous and radioactive waste sites been advanced by the actions described in this paper?

We leave this for you to judge.

ACKNOWLEDGEMENT

Under subcontract to EPA, the authors supported EPA in evaluating the DOE petition and preparing the May 26, 1992 Federal Register notice. The material in this paper pertaining to the petition is based on that work. Any opinions expressed are solely those of the authors.

REFERENCES

1. Public Law 98-616, November 8, 1984, *Hazardous and Solid Waste Amendments*.
2. *Availability of Department of Energy Strategy for Development of a National Compliance Plan for DOE Mixed Waste,* 57 FR 57170, December 3, 1992.
3. Public Law 102-386, Oct. 6, 1992, *Federal Facility Compliance Act of 1992.*
4. *Conference Report* 102-886, 102nd Congress-2nd Session, House of Representatives Report 102-886, p. 22.
5. Letter, Leo P. Duffy, Assistant Secretary for Environmental Restoration and Waste Management, U.S. Department of Energy, to Don R. Clay, Assistant Administrator, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, November 20, 1992.
6. Letter, Don R. Clay, Assistant Administrator, U.S. Environmental Protection Agency, to Leo P. Duffy, Assistant Secretary for Environmental Restoration and Waste Management, U.S. Department of Energy, January 8, 1993.