

TMD Authority  
(Its genesis and development)

From the very beginning there has been, of necessity, a transportation activity within the DOE predecessors including the AEC. Fundamentally this activity arose because of the need to transport a broad variety of materials ranging from the household goods of transferred employees, to the parts, and finally the finished weapons, for which the AEC was originally formed to design, produce, and stockpile. Authority to perform these functions was explicitly stated in the Atomic Energy Act of 1954<sup>1</sup> (Sec. 53a, 62, 81, and 84a) and supported by several paragraphs in the then existing U.S. Code (42 USC 2077, 2092, and 2111). Further support for these activities was contained in the Transportation of Explosives Act of 1960 and subsequent amendments to that Act. Originally this was considered a property management function and consisted of an almost purely Traffic Management activity. For that reason the activity was part of the Assistant Manager for Administration and was located in the Division of Property Management. In the late 1960s this Traffic Management function was performed by Bob Kaye.

In 1970 the Department of Transportation (DOT) enticed Bob Kaye to leave the AEC to take a position as a Division head in the Bureau of Motor Carrier Safety. The resulting vacancy was subsequently filled by a DOT employee named Bill Brobst - Brobst was, by background and training, a health physicist and not a traffic manager and did not want the position as it then stood. In order to get Brobst to accept, it was agreed that the position would be modified to include other transportation activities outside of Traffic Management. On that basis the AEC transportation activity was redefined<sup>2</sup> to include Packaging; Testing; R and D; and Certification of Packagings for use by the General Manager. (The AEC was organized into two parts; one was the General Manager and the other was Regulation. The certification activity referred to here is that involving packagings certified by the General Manager as contrast to those certified by the Director of Regulation, which later became the NRC.) All of this was in addition to the previous responsibilities of Traffic Management and Transportation Operations. While all of these expanded activities were implicitly allowed by the Atomic Energy Act of 1954 there had been little activity in these areas within the AEC except for some under the Assistant General Manager for Regulation<sup>3</sup>. Almost all AEC transportation activity, apart from Traffic Management, involved interfaces with the DOT and its predecessor the ICC. Memorandum of Understanding (MOU) between the AEC and the ICC (dated 1966) and superseded<sup>4</sup> by the MOU between DOT and the AEC (dated 3/22/73)(4) gave the AEC the authority to "develop safety standards, for packaging design and performance, for packages of fissile materials and Type B and large quantities of radioactive materials." The development of the technology was generally considered a function of the program offices and not a part of the charter of the Assistant General Manager for Regulation.

In support of the expanded role under Brobst the activity also began to pick up staff and became the Transportation Branch within the Division of Property Management. In the early 1970s, the transportation activity within the AEC began to change as activity surrounding the waste management programs began to increase. So, in 1972 the Transportation Branch was moved from the Division of Property Management into a new Division of Waste Management and Transportation (WMT) under Frank Pittman, the Assistant General Manager for Environment. Several factors argued in favor of this move. For one thing, there were a number of activities which the transportation staff at that time considered technically important which the Assistant General Manager for Administration (with limited budget) could not support. For another, the new emphasis on the transport of TRU wastes and spent fuel introduced new problems of interest to operational groups. All of this dictated an expanded role for the Transportation Branch: one which could not be met within the Division of Property Management.

Shortly after this move three changes in the program took place. First, the MOU with DOT clearly gave AEC authority to regulate the packaging of high level materials and efforts to implement that capability were initiated. Second, in June of 1973 an agreement was reached between the General Manager and the Director of Regulation<sup>5</sup> which established "procedures for obtaining Regulatory staff review of safety evaluations of designs of packages to be used by license-exempt AEC contractors for the shipment of Type B, large quantity and fissile radioactive materials." Under this agreement the General Manager would issue an "Interim Certificate of Compliance after review of the Safety Analysis Report for Packaging (SARP) and then would submit the SARP along with the Interim C of C to Regulatory who would then

review the information and issue a memorandum to the General Manager stating the results of the review. The agreement then implies that the General Manager could take whatever action he deemed advisable with the proviso that he would forward the final certificate of compliance to the Director of Regulation.

The third change was of a programmatic nature. The newly relocated Waste Management and Transportation Branch began a series of test programs designed to define and understand the "hazards of transportation." As part of this new role, the Waste Management and Transportation Division was empowered to "improve the technology, protect the environment, and inform the public." This expanded scope, among other things, resulted in developing plans for a rather ambitious cask testing program which was eventually carried out during the latter half of the 1970s.

Even though the move from an administrative function solved some problems (most notably the lack of funding), it created other difficulties. In spite of being called the "Waste Management and Transportation Division, it was still responsible for the transport of many things which were not considered waste by any definition. The Traffic Management function continued to handle the movement of Navy fuels, weapons and weapon parts, test objects, and even household goods. So, the title of the Branch caused some difficulties with these other functions. Further, the Traffic Management function was in reality being carried out not by Headquarters but by the Field Offices. Murray Chais was the Headquarters Traffic Manager and he functioned to coordinate the activities of the Field Office Traffic Managers. Basically this meant that Headquarters set policy which was operationally carried out by the Field Offices. This method was very much in tune with the AEC method of handling its affairs at that time. Package certification was handled in much the same way. Each Field Office, through its Office of Operational Safety, would review any proposed packaging designs and issue the Certificate of Compliance for those programs under the General Manager. Copies of the Certificates were forwarded to Headquarters for information only.

This arrangement appears to have been satisfactory to all involved since in June of 1974, in response to questions raised by Senator Magnuson, L. Manning Muntzing, Director of Regulation stated<sup>7</sup> "From the standpoint of regulatory authority over shippers and carriers of radioactive material, we are not aware of any gaps in the regulatory authority of the United States." (See Question #7) That same response (SECY-R-74-233) stated in response to another question "the AEC has plenary authority to regulate and control, through contracts and other agreements, the transportation of radioactive materials during the course of performing certain programmatic activities, such as AEC-supported research and development programs in the atomic energy field." (See Question #1) The response then continues by defining another function by stating "The Atomic Energy Act of 1954 also gives the AEC certain licensing and regulatory authority over persons possessing, using and transferring certain radioactive materials." (See Question #1). Thus, the parallel certification paths were duly noted in correspondence with the Senate.

With the reorganization of the AEC into the Energy Research and Development Administration (ERDA) and the formation of the separate Nuclear Regulatory Commission (NRC) in late 1974, the role of the transportation activity again became somewhat clouded. The new NRC (basically the old Director of Regulation) continued to be responsible for the establishment of regulatory standards based upon those previously in place under the AEC except now the tie to program activities was no longer in place. In fact, one of the first activities undertaken by the Transportation Branch of the newly formed Nuclear Regulatory Commission was to initiate a study of the adequacy of the existing regulations (NUREG-0170).

While sorting out the many details of the breakup of the AEC, it was decided, after extended discussions and consideration of various alternatives, to place the transportation function under the Assistant General Manager for Nuclear Energy (ANE) assigning the Transportation Branch as a major function of the fledgling Division of Environmental Control Technology (ECT). This action was evaluated by Dr. Pittman, the Assistant General Manager for the Environment, in a letter<sup>8</sup> to Liverman, the Assistant Administrator of Environment and Safety, dated July 30, 1975, by observing "The assignment of the Transportation Branch function of WMT to ECP should be looked upon only as a short-term holding action. Once the

decisions are made with regard to the overall problem, the FY 1976 and FY 1977 budgets should be reviewed and all work included therein on transportation should be transferred elsewhere."

During this period of uncertainty, the Transportation Branch within ERDA asked the office of General Counsel for an opinion concerning authority for carrying on its transportation programs, including the authority to certify ERDA packagings. Based on the fact that "Under the Reorganization Act, legal authorities which were available to AEC would be available to ERDA, NRC, or both depending on whether the authorities related to functions transferred from AEC to ERDA, NRC, or both."<sup>9</sup>, the Office of General Counsel concluded that ERDA retained the right to certify packagings designed by and for the use of its contractors. The governing provision cited in the Energy Reorganization Act<sup>10</sup> was subsection 104(h): "[t]o the extent necessary or appropriate to perform functions and carry out programs transferred by this Act, the Administrator and Commission may exercise, in relation to the functions so transferred, any authority or part thereof available by law, including appropriation Acts, to the official or agency from which such functions were transferred". Prior to the reorganization there had been two certification authorities within the AEC (one through the General Manager and one through the Office of Regulation) and because the Energy Reorganization Act specified that NRC was to regulate the commercial sector only, the opinion was offered by the General Counsel that ERDA retained the authority specified in the Transportation of Explosives Act as available to the AEC to certify packagings for use by its contractors. While an action memo<sup>11</sup>, signed August 8, 1975, by the ERDA Administrator (Dr. Seamans) directed that ERDA not take advantage of this finding, the memo was extremely unpopular and was never implemented. In fact, in December 1976, ERDA approved and published ERDA Manual Chapter 0145, "Organization and Functions of the Assistant Administrator for Environment and Safety (AAES)."<sup>12</sup> In this Manual Chapter, one of the functions assigned to the AAES was the development of "transportation standards and technology for ERDA operations exclusive of nuclear weapons from the standpoint of environment and safety." The implication intended by those who framed this Manual Chapter was that ERDA was to retain its self-certification authority. In the confusion of the subsequent change over to the Department of Energy the action proposed by Dr. Seamans was of such low priority that it evidently was simply never brought up again. As a result, the transportation activity remained active within ERDA as part of the Office of Environment.

As things continued to develop, it became progressively more obvious to those in the Office of the Environment that the operational functions were essentially safety related and not an environmental activity. While this awareness was known by, and should have interested, the Office of Operational Safety, there was no attempt to move the transportation function into that organization.

The next major adjustment occurred in 1977 with the creation of the Department of Energy. With that change there was also a change in the transportation function. Portions of the program were split off and given to the Assistant Secretary for Energy Technology and Waste (ETW). ETW was given responsibility for program policy, program guidance, program financial support and institutional interaction. Such activities as the Traffic Management, certification, testing, QA, R&D, and related data gathering programs were left to the Assistant Secretary for Environment, Health, and Safety (ASEH). This split of responsibilities was developed as the result of a study initiated and supported by John Erlewine. Since the results did not please anyone, Bob Thorne, Acting Assistant Secretary for Waste Management, in the summer of 1977, established a committee headed by Woody Cunningham (Director of Waste Management) to review transportation related issues within the Department of Energy. That committee produced a report, published in draft form only, which recommended consolidation of the transportation activities across all DOE program lines. Bob Thorne asked Dick Chitwood to set up the transportation function at an Office level. But Thorne's appointment had not yet been approved by Congress (and wouldn't be until April 1978), so nothing was done organizationally. In recognition of the need for the function and in spite of the hiatus institutionally, Frank Falci was added to the staff during the waiting period. Also during the waiting period, John Deutch, the Under Secretary of Energy, conducted a study which among other things addressed the role of transportation activities within DOE (this was not the Interagency Review Group which Dr. Deutch also headed up). Deutch also favored consolidation. Upon the congressional approval of Bob Thorne, he set up the Division of Waste Management under Woody Cunningham. Within the Division of Waste Management there were five offices: the Office of Waste Handling under Goetz Oertel; the Office of Waste Isolation under Colin Heath; the Office of Environment

and Safety under Alex Perge; the Office of Program Support under John Gilbert; and the Office of Transportation Technology Development to be headed by Dick Chitwood. Shortly after this concept was proposed, Woody Cunningham was replaced by Bob Morgan who, when he saw the Office of Transportation Technology with only two employees and no manpower budgeted, promptly reduced it to a Branch. After some considerable unrest at the turn of events, Bob Thorne asked Moose Hardin in mid 1978 to look into the matter and recommend a solution. Hardin recommended that the transportation function be a Division level activity so once again Thorne established the activity as the Office of Transportation Technology Development. Again a shift in personnel occurred as Bob Morgan was replaced by Shelley Meyers. Again, when Meyers saw an office created with only three people and no manpower budget he recommended that it remain a Branch level activity. The major problem in getting the transportation activity up to a critical mass was the fact that during this period the program was fragmented with the several parts located in separate organizations. Traffic management and package certification remained under the Assistant Secretary for Environment, Health and Safety (ASEH) while the programmatic (line) functions were handled by Chitwood and the Branch under the Division of Waste Management. Chitwood's activities included only those activities with specific program related functions while the bulk of the transportation program responsibilities remained under Bill Brobst. That part of the program under Brobst, residing within ASEH, was placed in the Division of Environmental Control Technology (ECT) under Bill Mott. Mott felt strongly that transportation was a safety activity and not a technical activity and that Traffic Management was operational and thus should not have been assigned to ECT but to the Assistant Secretary for Administration. This created an atmosphere of considerable unrest between Mott and Brobst.

While all of this was going on the program was beginning to achieve considerable external notice by virtue of some of the test work it had conducted. Perhaps as much as anything else this notice generated some momentum for the program which was encouraged by the program participants. In an effort to overcome the manpower problems which had been an ever present part of the history of this activity it was decided to focus the transportation program by establishing a lead lab who would direct the technical portions of the expanding tasks. At the very end of 1978, Sandia National Laboratory was selected to fill that role.

Another event which took place in 1978 was based upon the fact that the problem of where to put this program was beginning to grow to a point of some visibility. Repeated reviews pointed out that the program needed to be performed as a single activity, yet its component parts belonged under several distinct organizations. So, in late 1978 Deputy Secretary John O'Leary reorganized the activity by placing the transportation program in Energy Technology leaving only environmental and safety overview in ECT. Another intent of this reorganization was the elevation of the transportation activity to division status but budget and manpower restrictions again prevented that. The Transportation Branch instead became a part of the Division of Fuel Storage and Transportation under Mike Lawrence and thus part of the Office of Nuclear Waste Management headed by Shelly Meyers within the Assistant Secretary for Defense Programs.

At about the same time, but prior to the 1978 rearrangement, there was an effort begun by Brobst, who still headed the Transportation Branch, to distribute the various functions to the organizations where each might find a home. While this appears contrary to the tack he had previously taken, and opposed to the collected wisdom of the various studies, it did serve his purpose of eliminating his job so as to make him eligible for early retirement. The rationale given for this stance was that the three functions, Traffic, Research and Development, and Certification each had conflicting goals and should not therefore be within the same organization. As a result, at the same time that the program was being strengthened via the lead lab concept, efforts were underway to dismantle it. Brobst campaigned that Traffic Management belonged under the Assistant Secretary for Administration, development programs belonged within the various line organizations and certification belonged in Operational Safety. While the traffic function was not transferred to Administration, the program offices did assume responsibility for development programs (Chitwood's function) and certification (Tom Dunckel) was moved to the Division of Operational Safety within the Assistant Secretary for Environment, Health and Safety (ASEH).

During 1978 another series of events began which was eventually to have a significant impact upon the authority of the DOE to conduct its transportation programs. After considerable discussion between DOE and DOT and several attempts to develop a formal MOU concerning certification of DOE packagings, DOT published a Final Rule effective December 1, 1980 which drastically changed the situation. DOT claimed that this Final Rule was to "change or delete certain incorrect references, to correct certain spelling and editorial errors, and to make minor regulatory changes which will not impose any restrictions on persons affected by these regulations." By changing all references to AEC to read NRC without any mention of the DOE, the changes had the effect of removing DOE's self-certification authority. After considerable discussion between DOT and DOE during which DOE promised (and took the first steps toward) the establishment of an independent and uniform approach to certification there was another Final Rule published on February 18, 1982. By that Rule the DOT reinstated the authority of the DOE to certify Type B packagings which comply with safety standards equivalent to those contained in the NRC Regulations. This authority is now contained in 49CFR173.7.

In January of 1978 Murray Chais had retired as the DOE headquarters Traffic Manager and had been replaced by Roy Garrison. Coincidental with all of this rearrangement was the climax of many years of battle with the railroads and a perceived need to hold the DOE transportation function together through that action. Another fact which became evident about this time was that the only organization which was able to provide consistent funding to the transportation activity had been the waste management program under the Assistant Secretary for Defense Programs (ASDP). As a result of the 1978 Hardin study it was decided to try to consolidate the transportation activity and interest was expressed by the Assistant Secretary for Nuclear Energy (ASNE) for collecting the activity within the group resident within ASNE (now known as TOTM or Transportation Operations and Traffic Management). Defense Programs (ASDP) argued on the other hand that most of the programs requiring transportation were under DP (e.g. Navy, and Waste), and that the services would be available DOE wide if ASDP were to be the home for transportation programs. The result was the revival of the transportation program under DP but with the certification activity remaining under ASEH. Transportation Operations and Traffic Management (along with eight staff positions including Roy Garrison) were moved to DP in June of 1981 sometime after Brobst retired (March 1979). When Dunckel retired in 1982(?), EP (previously ASEH) concluded that because of budgetary constraints and reduced staffing levels they were "no longer in a position to continue to manage the DOE package certification program and to provide resources required to coordinate with NRC and others in the development of transportation standards and regulations." The prospect of this move of the certification oversight activity to DP was objected to by Chitwood in a memo to Laughon dated May 5, 1983. In the same memo Chitwood suggested that Technology Development be placed in NE and TOTM remain in DP. In spite of such objections of conflict of interest inherent in placing both development and certification oversight within the same organization, the activities were eventually consolidated under DP in late 1984 at about the same time that Larry Harmon became the Director of Transportation Management. This completed the reunification of Traffic, Development and Certification within one organization. In October of 1985 the Assistant Secretary for Defense Programs (with the cognizance of the Under Secretary for Defense Programs) attempted to introduce a measure of independence into the certification process by centralizing packaging certification at Headquarters/Department of Energy. Certification authority was removed from the Operations Offices, but at that point there was no one in Headquarters to take on the task. In mid 1986 DP brought Charlie Mauck from the San Francisco Operations Office to head up that effort. Mauck, as Chief of Packaging Certification for Defense Programs, is now responsible for all DOE Type B packaging review and certification.

## REFERENCES

1. The Atomic Energy Act of 1954.
2. Private communication with Bill Brobst.
3. AEC General Manager's Announcement # I22 dated June 29, 1971
4. Federal Register, Vol. 38, No. 62, Page 8466 -8467.
5. Agreement Between the General Manager and the Director of Regulation for Package Design Reviews, signed June 1973.

6. Sisler, James A. "A Transportation Research and Development Program", Proceedings of the 3rd PATRAM Conference, 1974
7. SECY-R-74-233, "Functions of AEC in Regulating the Transportation of Hazardous materials", June 1974.
8. Internal Memorandum, Dr. Frank Pittman to James Liverman dated July 30, 1975 as cited in undated and unpublished memo from Brobst to Liverman.
9. Letter to Dr. Frank Pittman, Director Division of Waste Management and Transportation, from Hudson B. Ragan, Assistant General Counsel, "Responsibilities Under ERDA", dated November 11, 1974.
10. Energy Reorganization Act of 1974.
11. Action Memorandum, "Regulatory Relationships Between ERDA, NRC, and DOT", signed August 13, 1975, by Robert C. Seamans, Administrator of ERDA.
12. ERDA Manual Chapter 0145, "Organization and Functions of the Assistant Administrator for Environment and Safety", December 3, 1976.

## The DOE Transportation Program (Genesis and Development)

### Before 1970

From the very beginning of the Atomic Energy Commission (AEC), there was, of necessity, a transportation activity. This activity existed because of a need to transport a wide variety of government-owned materials. AEC's initial charter to design, produce, and stockpile nuclear weapons was quickly expanded to cover nuclear power reactor research and development, peaceful use of atomic energy, and regulation of the budding nuclear industry.

Materials to be transported included raw materials (uranium), equipment, nuclear weapons parts, production materials (e.g., uranium hexafluoride), radioactive isotopes, reactor fuel material, and even household effects of transferred employees.

Authority to perform these functions, including the transportation operations, was explicitly stated in the Atomic Energy Act of 1954<sup>(1)</sup> (Sec. 53a, 62, 81, and 84a) and supported by several paragraphs in the then-existing U. S. Code (42 USC 2077, 2092, and 2111). Further, support for these activities was contained in the Transportation of Explosives Act of 1960 and in subsequent amendments of that Act.

The transportation functions were considered to be an administrative matter, primarily involving the discipline of traffic management. For that reason, the functions were assigned to the AEC's Assistant Manager for Administration (AMA), and a Traffic Management Branch was established within the AMA's Division of Property Management. In the late 1960s, that Branch was headed by Dr. Robert Kaye, assisted by Murray Chais, traffic manager.

All of this transportation activity took place under the AEC's General Manager (GM) who was responsible for the program aspects of AEC's overall charter. The "other side" of the AEC was the Office of Regulation (REG), established around 1960 to exercise regulatory jurisdiction over the nuclear industry. The GM was responsible for both operations and safety in AEC's production, weapons, and research and development activities; the Assistant General Manager for Regulation, and later a more independent Director of Regulation, was responsible for setting national nuclear safety standards and for regulating the nuclear industry. Both the GM and the Director of Regulation reported to the Commission itself (consisting of five Commissioners appointed by the President).

At this time, the Interstate Commerce Commission (ICC) was responsible for regulating the transportation industry, both for economics and safety. The ICC's safety regulatory authority was transferred to the new Department of Transportation in April of 1967. Relationships between the GM, the Director of Regulation, and the ICC were spelled out in an Interagency Memorandum of Understanding (MOU) approved early in 1966, and reaffirmed later between the AEC and DOT in 1973<sup>(2)</sup>. This MOU recognized the authority of AEC's REG to "develop safety standards for packaging design and performance, for packages of fissile materials and Type B and large quantities of radioactive materials," and also recognized the GM's authority to perform the same functions for AEC's operational activities. The development of packaging technology and hardware was clearly considered at that time to be a function of the GM's program offices rather than of the Director of Regulation.

### The Early 1970s

In 1970, the Department of Transportation (DOT) enticed Dr. Kaye to leave the AEC to take a position as the Director of its Bureau of Motor Carrier Safety. Just prior to his departure, the Section brought in James Sisler, a packaging engineer from Sandia Laboratories, to assist AEC's operational groups in package design for nuclear materials.

William Brobst, then Deputy Director of DOT'S Office of Hazardous Materials, was recruited to replace Dr. Kaye. Brobst was a health physicist and nuclear engineer by background, and accepted the position only with the understanding that the program would be expanded to include packaging development and testing, transportation research and development, and packaging design certification, in addition to the existing traffic management function.<sup>(3)</sup>

While all of these expanded transportation activities were implicitly allowed by the Atomic Energy Act of 1954, there had been little activity in these areas within the AEC except some safety regulatory and inspection work by REG<sup>(4)</sup>. A need for interagency coordination on transportation matters was recognized early on to provide a central point of contact within the GM's operation for discussions with the REG and the Interstate Commerce Commission (ICC) (and later the Department of Transportation).

The new consolidated transportation functions were assigned to AMA's Transportation Branch. That Branch was also made responsible for providing the GM's interface with the AEC's Director of Regulation and with the Department of Transportation on transportation safety matters. The Branch began to grow slowly as it took on the new tasks.

In the early 1970s, the transportation activity within the AEC began to change as the programs for waste management became of greater importance and safety concern. The transportation of spent nuclear fuel and waste became an increasingly larger part of the Branch's work. Therefore, in 1972, the Branch was moved from its administrative home in the Division of Property Management to a programmatic location in a new Division of Waste Management and Transportation (WMT) under Dr. Frank Pittman. This Division reported to the Assistant General Manager for Environment.

Several factors argued in favor of this move. For one thing, there were many activities which the transportation staff at that time considered technically important, but which the Assistant General Manager for Administration (with a very limited budget) could not support with resources. For another, the new emphasis on transport of transuranic wastes from the nuclear weapons program and of reactor fuel and wastes from the research and development program introduced new logistical and safety problems. A third reason was the very basic one that packaging development, research, and testing was a programmatic matter, not an administrative matter.

#### **The Mid-1970s**

At about this time, three changes occurred which brought about a redirection of the GM's transportation program. First was the already-discussed programmatic expansion of the Branch's operational and safety function for activities under the GM's cognizance. Along with this was the delegation of part of DOT'S safety regulatory function for high level radioactive materials to AEC's Director of Regulation in the 1973 MOU.

Second was the agreement<sup>(5)</sup> reached in June, 1973, between the GM and the Director of Regulation regarding safety review of designs of packages for radioactive materials. This agreement established "procedures for obtaining Regulatory staff review of safety evaluations of designs of packages to be used by license-exempt AEC contractors for the shipment of Type B, large quantity and fissile radioactive materials." Under this agreement, the GM retained authority to review and approve package designs for those materials, just as the Director of Regulation had that same authority for nuclear industry package designs.

The Transportation Branch was responsible for administering the package review program for the GM, and the individual Field Office Managers were responsible for performing the reviews and issuing the certificates of compliance for their package designs. Upon issuance of a certificate by the field office, the GM (actually the Transportation Branch) would forward a copy of the safety analysis report and the certificate to the REG for a second-level review and comment. The regulatory transportation staff would review the design and return comments to the GM for whatever action his staff considered appropriate. The Branch would then forward a copy of the final certificate to the regulatory staff.

The third change was programmatic. The Transportation Branch role was expanded to "improve the technology, protect the environment, and inform the public"<sup>(6)</sup> on nuclear transportation matters. As a part of this program, and in order to answer questions as to how well the design engineers could predict accident damage to a nuclear materials package, the Transportation Branch developed an ambitious series of "crash tests" to be carried out by Sandia Laboratories. These tests were done in the 1977-1978 time frame.

Even though the move from an administrative function solved some problems (primarily the lack of funding), it created other difficulties. Although the Branch was assigned to the Waste Management and Transportation Division, its responsibilities covered many other activities outside of the nuclear waste program. Traffic management remained an administrative function; package testing and certification was safety-related; package design advice and assistance was program-related beyond just the waste functions. It was also deeply involved in evaluating environmental impacts of nuclear materials transportation, and in developing public information exhibits and publications.

In the traffic management area, the Branch acted in a coordinating role. The actual freight rate negotiations and movement scheduling was done in the field offices by regional traffic managers. The Branch set policy, the field offices and contractors did the work. This arrangement was in keeping with the relationship between Headquarters and the field offices generally, including package design and certification. At this time, the Branch was also very involved with dealing with operational restrictions being imposed by the railroads on Navy fuel shipments.

By mid-1974, these relationships were working well and both sides of the AEC were comfortable with them. In response to several safety-related questions raised by Senator Magnuson in June 1974, L. Manning Muntzing, Director of Regulation, stated (SECY-R-74-233)<sup>(7)</sup> "From the standpoint of regulatory activity over shippers and carriers of radioactive material, we are not aware of any gaps in the regulatory authority of the United States." (See the response to Question 7 in that testimony.) In response to another question (Question 1) in that proceeding, Muntzing stated that "the AEC has plenary authority to regulate and control, through contracts and agreements, the transportation of radioactive materials during the course of performing certain programmatic activities, such as AEC-supported research and development programs in the atomic energy field," and "The Atomic Energy Act of 1954 gives AEC certain licensing and regulatory authority over persons possessing, using, and transferring certain radioactive material." (Underlining added.) Thus, the parallel certification paths was duly noted in correspondence with the Senate. It is also noted that the Director of Regulation interpreted the term "transferring" to mean "transporting" in addition to just transferring custody of materials from one licensee to another.

The Transportation Branch asked the Office of General Counsel for an opinion concerning authority for carrying on its transportation programs, including the authority for ERDA to certify its own nuclear package designs for use by its contractors. The Branch believed that ERDA retained that authority, based on language in the Energy Reorganization Act: "104(h) .....to the extent necessary or appropriate to perform functions and carry out programs transferred by this Act, the Administrator and Commission may exercise, in relation to the functions so transferred, any authority or part thereof available by law .... to the official or agency from which such functions were transferred."

The General Counsel opined that ERDA retained the authority specified in the Transportation of Explosives Act as available to the AEC to certify packagings for use by its contractors<sup>(8)</sup>: "Under the Reorganization Act, legal authorities which were available to AEC would be available to ERDA, NRC, or both depending on whether the authorities related to functions transferred from AEC to ERDA, NRC, or both."

### **The Dissolution of AEC**

With the passage of the Energy Reorganization Act in late 1974, the AEC was fissioned into two fragments (accompanied by much expenditure of energy): (1) the Energy Research and Development Administration (ERDA), including the former GM's activities plus some additional functions from other Federal agencies, and (2) the Nuclear Regulatory Commission (NRC), comprised solely of the former REG.

The transportation picture became clouded again. A newly formed NRC Transportation Branch, headed by Charles McDonald, took over the package certification activities; other NRC groups took over the regulatory standards and inspection functions. McDonald's group immediately undertook a study of the adequacy of the existing regulations, based on an earlier joint GM-REG study (WASH-1238) done by Brobst's Transportation Branch and REG'S Office of Transportation Standards.

While sorting out the many details of the breakup of the AEC, it was decided, after extended discussions and consideration of various alternatives, to separate the Transportation Branch from the Division of Waste Management and Transportation and to place it in a new Division of Environmental Control Technology (ECT), headed by Dr. William Mott. Mott reported to Dr. James Liverman, Assistant Secretary for Environment and Safety (AAES). This was done with Pittman's concurrence, but with a proviso. In his letter to Liverman dated July 30, 1975<sup>(9)</sup>, Pittman stated "The assignment of the Transportation Branch function of WMT to ECT should be looked upon only as a short-term holding action. Once the decisions are made with regard to the overall problem, the FY-1976 and FY-1977 budgets should be reviewed and all work included therein on transportation should be transferred elsewhere."

Mott was outspoken in his disdain of having to worry about transportation matters, and made it clear that he would rather see the resources spent on more worthwhile projects in the environmental control technology field. He began a concerted effort to dissolve the Transportation Branch. Liverman's support of the Branch's program kept it alive for a while.

During this period of uncertainty, the question of packaging certification arose again. Although an Action Memo<sup>(10)</sup> signed August 8, 1975, by Dr. Seamans, Administrator of ERDA directed that ERDA was not to take advantage of the opinion of the General Counsel; the Memo was extremely unpopular and never implemented. In fact, in December 1976, ERDA approved and issued ERDA Manual Chapter 0145<sup>(11)</sup>, "Organization and Functions of the Assistant Administrator for Environment and Safety." In that issuance, one of the functions assigned to the AAES was the development of "transportation standards and technology for ERDA operations exclusive of nuclear weapons from the standpoint of environment and safety." The framers of this Manual Chapter intended that ERDA retain its self-certification authority, in spite of the Action Memo.

It was about this time that the Administration proposed to convert ERDA into an expanded Department of Energy (DOE). In the confusion of the impending change-over to DOE, the action proposed by Dr. Seamans was of such low priority that it evidently was simply never brought up again. As a result, the transportation activity, including the certification function, remained active in ERDA's Transportation Branch as a part of AAES.

However, Mott continued to believe that his ECT division had no business supporting a Transportation Branch that has administrative, logistical, programmatic, and safety activities, but none in environmental control technology. Liverman was aware of this, but took no action to relieve the stressful management relationship between Mott and Brobst. Curiously, the Division of Operational Safety, also reporting to Liverman, was not interested, or at least took no action, in taking over the Branch's safety functions.

### **The Dissolution of ERDA**

The next major adjustment occurred in 1977 with the creation of the Department of Energy out of ERDA plus several other energy related activities. Based on a study by John Erlewine, DOE'S new Assistant Secretary for Environment, Health, and Safety (ASEH), the packaging development portion of the Branch's program was split off and assigned to the Assistant Secretary for Energy Technology and Waste (ETW). ETW was made responsible for the related program policy, guidance, and financial support. The question of interagency coordination and institutional interaction was left confused. The Branch itself remained within ECT under Mott. ECT, along with the Office of Operational Safety, fell under ASEH.

The Branch's efforts in trying to resolve the issue of special trains for shipment of spent fuel, especially Navy fuel, and the pending DOE litigation against the railroads led to Roy Garrison coming on board to help Murray Chais and DOE's Office of General Counsel.

The transportation program was gaining considerable visibility and credibility. At this time, the Transportation Branch set out to establish a transportation technology center -- a "lead laboratory"-- at the field level to coordinate the various transportation-related RLD and testing programs. He settled on Sandia Laboratories in Albuquerque, with Robert Jefferson to head up that program. One of the first and

most visible tasks undertaken by Sandia was to develop and carry out the crash testing program which Brobst had sketched out earlier.

Problems had arisen in the package certification, and during this time period the matter came to a head. NRC was becoming more and more reluctant to perform packaging reviews for DOE, and was also finding more and more errors and regulatory misinterpretations during NRC review of DOE package designs. DOT was concerned that DOE's safety review program was less reliable than NRC's, and was considering what action to take. Brobst's efforts to bring consistency and uniformity to the package certification programs in the various field offices met with great resistance at the field office level. Discussions became bitter at times with the field offices seeing Headquarters becoming more involved in how they did business, and Headquarters becoming concerned that the lack of consistency and competency of field office review might lead to withdrawal by DOT of DOE's certification authority.

On top of this, the basic organizational dysfunction had still not been solved, and so in the summer of 1977 Robert Thorne, Acting Assistant Secretary for Waste Management (ASWM), established a new committee, headed by Woody Cunningham, Director of Waste Management, to review transportation-related issues within DOE. The committee report, drafted but never finalized, recommended consolidation of the transportation activities across all DOE program lines. Thorne asked Richard Chitwood to set up a transportation program office in ASWM, at the Office level. Since Thorne's appointment was temporary, nothing was done organizationally at that time.

During the ensuing waiting period, Dr. John Deutch, Undersecretary of Energy, had conducted a study which, among other things, addressed the role of transportation activities within DOE. (This study was not done under the Interagency Review Group which Deutch also headed.) Deutch's study report also favored consolidation. Upon Congressional approval of Thorne's position in April 1978, he formalized the establishment of a new Division of Waste Management (WM) under Cunningham. Chitwood was named to head WM's Office of Transportation Technology Development (TTD). At this time, the responsibilities of TTD were in addition to the existing ECT Transportation Branch which continued with its previously assigned tasks and projects.

Shortly thereafter, Cunningham was replaced by Robert Morgan from the Savannah River field office. Morgan saw TTD with only two employees and no manpower budget, and promptly reduced it to a Branch level. In mid-1978, after some unrest at the turn of events, Thorne asked GEN Moose Hardin to look into the matter and recommend a solution. Hardin recommended reestablishment of WM's transportation function to the Office level, and Thorne agreed.

Morgan was replaced by Dr. Shelley Meyers. Again, when Meyers saw an Office with only three employees and no manpower budget, he recommended that it remain at the Branch level, leaving it with continuing credibility and longevity questions.

A major problem in getting a centralized transportation program up to a critical mass was the fragmentation itself. No single program office had overall broad interest in transportation, and each program office wanted that part of the program that affected its work. The only consistency was that Mott wanted the entire transportation program moved out of ECT, but with the staff positions and budget left ECT. The weapons transportation program remained, as it always had been, under the Assistant Secretary for Defense Programs (ASDP).

Sandia Laboratory remained as the lead laboratory in transportation technology, doing work for both Chitwood's and Brobst's branches. Other DOE contractors were also involved. For example, Brobst had arranged for Battelle Northwest Laboratories to serve as the central point for risk assessments of transportation. Mound Laboratories took on the task of package testing for Type A designs, while Sandia Laboratories and Oak Ridge National Laboratories were doing testing on Type B packages.

#### **The Late 1970s**

By 1978, the various transportation programs of DOE, including the transport of weapons and weapons components under ASDP, were gaining visibility in DOE, and more program managers were becoming

aware of the need to solve transportation problems as a system rather than as fragments. Repeated reviews pointed out that the overall program needed to be managed as a single coordinated activity; this could not be done as long as its component parts belonged to several different DOE organizations.

In late 1978, Deputy Secretary John O'Leary proposed to reorganize the programmatic aspects of transportation by transferring Chitwood's organization from the Assistant Secretary for Waste Management to the Assistant Secretary for Energy Technology. One of the purposes of this reorganization was the elevation of the transportation activity to divisional status, but budget and manpower restrictions again prevented that. Instead, Chitwood's branch became attached to Mike Lawrence's Division of Fuel Storage and Transportation who reported to Shelley Meyers' Office of Nuclear Waste Management, all under the ASDP.

Meanwhile, Brobst saw the growing deterioration of his position in ECT and the increasingly successful attempts by ECT's director to funnel off personnel and funds from the Transportation Branch into other ECT activities. Murray Chais retired, and several Branch members were transferred out of the Branch into other ECT activities. As a means to preserving the transportation program in some fashion, Brobst proposed to distribute the various remaining functions to other DOE organizations where each might find a home. This was contrary to his initial consolidation efforts ten years earlier, and also contrary to the conclusions of the several organizational studies, but if something was not done along those lines, Mott would carry out his resolve to dissolve the program completely.

Brobst's rationale was that his three functions -- Traffic Management, R&D, and Certification -- had conflicting goals and should not be in the same organization. As a result, at the same time that his efforts to establish a strengthened program via the lead laboratory concept, various efforts were underway to dismantle it. Brobst reasoned that (1) traffic management was still a property management function and so belonged in DOE'S administrative arm, (2) R&D belonged to the program divisions for which the work was being done, and (3) package certification belonged in the safety office. That action was taken to some extent. The packaging development and R&D programs were transferred to Chitwood's branch under ASDP, and package certification was transferred to the Office of Operational Safety (still under ASEH). The traffic management program went also to DP, rather than to Administration. Brobst retired on March 1, 1979.

During 1978, another series of events began which was eventually to have a significant impact on the authority of the DOE to manage its own package certification program. After considerable discussion between DOE and DOT, and after several attempts to develop a formal MOU concerning certification of DOE packagings by DOE, DOT published a final rule effective December 1, 1980, which drastically changed the situation. DOT claimed that this final rule did nothing but to "change or delete certain incorrect references, to correct certain spelling and editorial errors, and to make minor regulatory changes which will not impose any restrictions on persons affected by these regulations." What actually happened is that DOT changed all references to AEC in its regulations to read "NRC" without any mention of DOE. The effect was that DOE lost its own package certification authority, and made DOE's package design program subject to NRC review and interpretations. After considerable discussion between DOT and DOE during which DOE promised (and soon took the first steps toward) the establishment of an independent and NRC-compatible approach to certification, DOT further amended its regulations (10 CFR 173.7) reinstating DOE's package certification authority for Type B and fissile materials.

### **The Early 1980s**

It became more and more apparent that the only organization which had the capacity and will to provide consistent funding for the transportation activities had been the ASDP waste management programs. Upon further review of the 1978 Hardin study, it was proposed to consolidate many of the transportation functions under the Assistant Secretary for Nuclear Energy who had expressed interest in the program. ASDP argued that most of the programs requiring special transportation expertise (Navy fuel and waste shipments) were in DP programs. ASDP assured other DOE program offices that the transportation management services would be available on a DOE-wide basis if they were left in DP.

The result was the revival of a centralized transportation function in DP under Roy Garrison. ECT's transportation operations and traffic management activities, along with eight staff positions (including Roy Garrison) were transferred to DP in June 1981.

The package certification program remained in the Office of Operational Safety along with Tom Dunckel who had managed that program under ECT's now-defunct Transportation Branch. At this time, DOE package design reviews were still being done in the field with little coordination or consistency. Shortly thereafter, Dunckel retired, and the Assistant Secretary for Environmental Programs (ASEP, formerly ASEH) decided that because of budgetary constraints and reduced staffing levels there were "no longer in a position to continue to manage the DOE package certification program and to provide resources required to coordinate with NRC and others in the development of transportation standards and regulations." ASEP and ASDP agreed to transfer that program to DP, in spite of the obvious conflict of interest having an "independent safety approval program" responsible directly to the program manager. DOT continued to be concerned about the conflict of interest and the program inconsistencies.

Chitwood objected to this shift of responsibility for the package certification program, based on the conflict of interest. In his memo to Laughon dated May 5, 1983, he suggested that Transportation Technology Development be placed in the Office of Nuclear Energy and that the transportation operations and traffic management function (called "TOTM"). In spite of the concern over program management and safety oversight being in the same office, all of these activities were eventually consolidated under-DP in late 1984, with Larry Harmon becoming Director of Transportation Management.

Now the reunification of the three activities was complete once again. Traffic management, RLD and package design development, and certification were once again under a single manager.

In October 1985, ASDP finally decided to consolidate all package design review and certification authority and management into a single Headquarters office. Over the next few months, the certification authority of the field offices was rescinded and reassigned to DP. In mid-1986, Charles Mauck was reassigned from the San Francisco field office to head up this certification program as Chief of Packaging Certification.

#### **The 1990s**

By the end of 1990, the TOMD transportation operations and traffic management functions were once again reassigned to a new Assistant Secretariat for Environmental Restoration and Waste Management as the Division of Transportation Management (TMD) under Susan Denny. In early 1991, TMD became the Transportation Management Program, still under Denny. By late 1991, the group became the Transportation Management Staff, reporting to the Deputy Assistant Secretary for Technology Development.

The reshuffling is underway again.

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Author: Bill Brobst  
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