# The Institutional Component of a Technical Decision: Uniform Permits for Overweight Truck Shipment of Spent Nuclear Fuel in the United States

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## INTRODUCTION

Overweight trucks are being considered for shipments of spent nuclear fuel from reactors to an MRS or repository by the Office of Civilian Radioactive Waste Management (OCRWM). The use of overweight trucks will be determined by OCRWM's upcoming decisions on whether to proceed with the development of an overweight truck cask and the choice of modal options. Overweight trucks (over 80,000 pounds gross vehicle weight) are being considered because they could significantly reduce the number of shipments required compared to "legal weight" trucks.

A report from Battelle's Office of Transportation Systems & Planning, Truck Shipments to Nuclear Waste Repositories: Legal, Political, Administrative, and Operational Considerations (BMI/OTSP-1), confirmed the potential reduction in total number of shipments along with other operational and institutional advantages. Recent analyses have indicated that a legal weight cask could transport 3 PWR or 7 BWR spent nuclear fuel assemblies and that an overweight truck could transport 5 PWR or 12 BWR assemblies, resulting in a 40% reduction in the required number of shipments.

However, the Battelle study also pointed out that certain institutional constraints exist, including the complications of obtaining permits for overweight trucks. Permitting of overweight trucks is left to State and other non-Federal authorities, such as turnpike and bridge authorities. As a result, permitting is inconsistent between jurisdictions as to parameters and process. This is a cause for concern for OCRWM shipments because several, if not many, permits might be required for each shipment. Additionally, any overweight shipment would need to satisfy the jurisdiction with the most restrictive specifications, which could jeopardize the projected advantages of overweight trucks.

The Battelle study offered several recommendations to resolve these issues. One of those recommendations was to establish a management-level working group composed of DOE, the American Association of State Highway Transportation Officials (AASHTO), the Federal Highway Administration, and truck company representatives to address permitting issues as well as other associated concerns. It was expected that this group could seek some "common denominators" that would allow the benefits of overweight truck shipments to be realized while fully respecting State, Tribal, and local jurisdictions, policies, and practices.

The OCRWM began discussions with the AASHTO in late 1986. The AASHTO has worked on the issue through its committee structure for the last two years and will be offering a formal recommendation to OCRWM later this summer. Regardless of the outcome of that recommendation, however, the principles and process that were followed in addressing this permitting question could serve as a useful example for future efforts to resolve other institutional issues.

The remainder of this paper describes the institutional objectives that were satisfied by OCRWM's decision to work with the AASHTO on this matter and how the AASHTO (1) established a task group to handle this work, (2) surveyed their members' states and members of the International Bridge, Tunnel and Turnpike Association (IBTTA), and (3) formulated a recommendation on the use of overweight truck shipments of spent nuclear fuel. The paper concludes with an assessment on the effectiveness of this approach in satisfying the institutional component of technical decisions.

## INSTITUTIONAL OBJECTIVES

The Transportation Institutional Program has a long-standing principle of encouraging meaningful participation by State, Tribal and local governments and other interested parties in the development of the OCRWM transportation system. In assessing the feasibility of overweight trucks for the shipment of spent nuclear fuel, OCRWM recognized the importance of ensuring early and continual involvement of relevant groups, particularly State and public authority permitting agencies.

OCRWM considered several approaches for working with those groups, including direct contact with the various jurisdictions, but chose to work with a representative organization for several reasons. First, a representative organization would have the structure and staff already in place to do this regulatory analysis. Second, it would have an established credibility. Third, and most importantly, a representative organization could help OCRWM to understand the issues from the State's perspectives while at the same time helping OCRWM to inform those States about the OCRWM transportation program.

OCRWM invited the AASHTO to work on this project because its members represent all 50 States, it has established contacts with other similar organizations, and it has a long history of interest in the progressive development of the highway system.

## THE PROCESS

OCRWM's cooperative effort with the AASHTO began in late 1986. OCRWM staff met with the AASHTO's headquarters staff to discuss the problem and to request their assistance. The AASHTO agreed to work with the OCRWM and convened their Task Force on Truck Size and Weight Regulations. This standing committee has done the bulk of the work on this effort. Several working groups within the Task Force met on several occasions with OCRWM and OCRWM cask development and operations contractors to address specific items, such as cask size and weight, vehicle dimensions, and scope of the cask design effort.

The Task Force is composed of several members from the AASHTO's larger Subcommittee on Highway Transport, the Federal Highway Administration (FHWA), and the International Bridge, Tunnel and Turnpike Association (IBTTA). It was constituted to represent a geographical and technical breadth. After reviewing the general OCRWM program its members suggested that

efforts be focussed on the questions of load divisibility, weight limits (both total and axle) each state would permit, and permit conditions, with a goal of developing a uniform standard on these issues.

Load divisibility was of concern to the Task Force because the Federal Highway Administration (FHWA) is empowered to withhold federal funding for highways in states that allow overweight but "divisible" loads. Divisible loads are those that could be divided into smaller, legal weight shipments. The AASHTO's Task Force suggested that OCRWM contact the FHWA and ask for an interpretation whether spent nuclear fuel shipments in Type B casks would constitute a divisible load. The FHWA replied that these shipments would not be considered divisible and that states permitting these shipments would not jeopardize their Federal funding. With this confirmation of the non-divisibility of overweight spent fuel casks the AASHTO approved a resolution endorsing uniformity in permitting of overweight truck casks to transport spent nuclear fuel at their Policy Committee meeting in February 1988.

The Task Force began to develop a "conceptual vehicle" that incorporated many of the critical features on an overweight truck for spent nuclear fuel shipments. This conceptual vehicle was intended to provide a basis for discussions with States and other jurisdictions without locking OCRWM in to any particular design. In essence, the conceptual vehicle was considered to be an "outside envelope" of possible designs, with any future actual designs that fit inside the envelope to be presumed acceptable to most States and other jurisdictions that had approved the conceptual vehicle. The Task Force developed the conceptual vehicle by an iterative process of drafting a design and then requesting review and comments by the AASHTO's members, the OCRWM, and several of the cask design contractors. The conceptual vehicle design that resulted from this effort is shown in Figure 1.

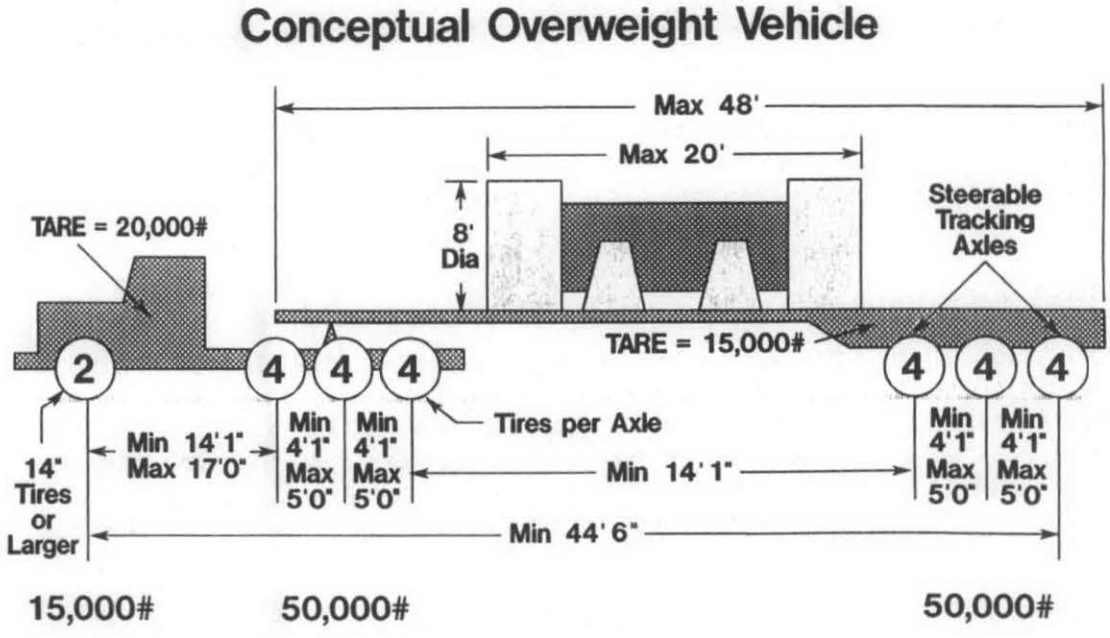


Figure 1

The AASHTO next developed a survey that asked each of the 50 States and the District of Columbia whether the conceptual vehicle could be permitted in their jurisdiction and what, if any, conditions would be applied. The Task Force drew upon the expertise of its members in formulating the survey design and the questions asked. The survey was sent to all 50 States and the District of Columbia and responses were received from all 51 jurisdictions. A similar survey was also sent to 56 members of the IBTTA which represents almost 5000 miles of these facilities. Many of these facilities are quasi-public organizations not subject to direct State, Tribal, or local political oversight, yet they provide critical links in potential routes for highway shipments of spent nuclear fuel. Although the response rate on these surveys was lower than on the State surveys the answers have been helpful in assessing the permittability of the conceptual vehicle.

The AASHTO is now evaluating the survey results and formulating a recommendation to the OCRWM concerning the feasibility of uniform permitting of overweight truck shipments of spent nuclear fuel. The Task Force will meet with the OCRWM in June 1989 to present its recommendation and to discuss the next steps to be taken.

## RESULTS

Although the AASHTO's final recommendation on uniform overweight truck shipments is not yet available, a preliminary assessment of survey results suggests that permitting of overweight shipments is feasible. Several of the key factors are discussed below.

### Acceptability of overweight shipments

The AASHTO's survey of the 50 states and selected members of the IBTTA have disclosed widespread approval of uniform permitting of the conceptual vehicle, as shown in Figure 2.

Only one state said that under no conditions would a permit be issued for an overweight truck shipment. Georgia considers spent fuel shipments to be divisible into legal weight shipments. All other states said that they would, with minor conditions, approve a permit for shipment of the conceptual vehicle.

### Conditions applied to overweight shipments

The most common condition attached to an overweight permit, according to the survey results, would be a restriction against "continual movement" (such as after dark or on weekends). Several states also expressed concern about the axle spacing or trailer length of the conceptual vehicle.

### Permitting process

The process for acquiring permits for overweight shipments was found to vary greatly among states and IBTTA members. The most common differences were found in the waiting period to acquire a permit and in the actual administrative office that issued the permit.

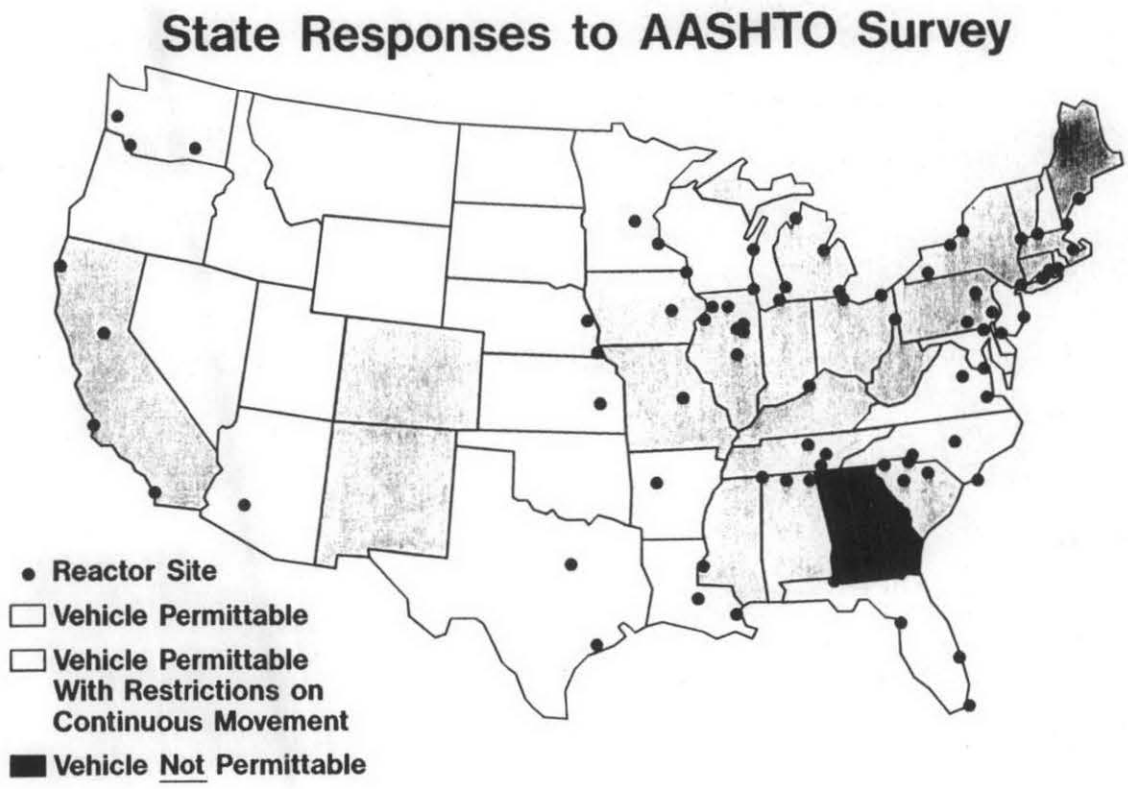


Figure 2

Uniform permitting

The high degree of acceptance of the conceptual vehicle, and the limited number of conditions imposed by the States suggest that uniform permitting of overweight truck shipments of spent nuclear fuel is feasible. The upcoming AASHTO Task Force recommendation on this issue is expected to confirm this interpretation.

## NEXT STEPS

The Task Force is continuing to develop its recommendation on the feasibility of uniform permitting of overweight shipments. It is preparing a report that will be presented to OCRWM at a meeting in June 1989. Later this year the AASHTO's Policy Committee will vote on a resolution endorsing the Task Force recommendation. The Task Force has also begun to draft a uniform permit application that could be used in all states.

The OCRWM will be requesting internal DOE review and coordination on the AASHTO's recommendations to ensure consistent policy development in DOE programs. OCRWM will also begin to incorporate the AASHTO's recommendation – whether it supports uniform permitting of

overweight trucks or not – into the decision on whether to continue the technical design of overweight casks.

The OCRWM will also continue to monitor legislative and regulatory developments related to truck size and weight, as well as related uniformity efforts. There is a general, industry trend towards uniform permitting of overweight shipments of all commodities, and the OCRWM is just one of several organizations presently exploring uniformity issues. The Specialized Carriers and Rigging Association has called for Federal leadership in the enactment of uniform oversize and overweight truck laws across the country while the National Governors' Association, the New England Transportation Consortium, and the Transportation Research Board have begun various uniformity projects. The OCRWM will consider the recommendations of these studies in making its own decisions.

The OCRWM program has a June 1990 milestone to review progress on developing a uniform state permit procedure. The decision on whether to proceed with an overweight truck cask preliminary design is scheduled for 1992.

## CONCLUSIONS

Working with the AASHTO to determine the feasibility of uniform permitting of overweight shipments has been successful on two counts: First, OCRWM has gained up-to-date information about the feasibility of uniform permitting of overweight trucks. The OCRWM can continue to consider overweight trucks as one of several modes to be used for these shipments. Second, OCRWM has found that working with an organization such as the AASHTO brings good results.

Those results come in several forms. OCRWM has benefitted by tapping the AASHTO's established expertise and credibility while the AASHTO, and the jurisdictions that its members represent, have benefitted from gaining early insight to the OCRWM's shipment needs and the demands that those needs may place on them. Presumably those jurisdictions will be better able to plan and implement their response to OCRWM's shipment program.

OCRWM must be careful, however, not to presume that all questions related to overweight shipments have been answered. First, this effort has been focussed almost exclusively on the question of uniform permitting. Many technical issues remain to be resolved, such as the design, testing, and economic feasibility of overweight truck casks. Second, the survey was just that – a survey. It is in no way binding on any jurisdiction, and while OCRWM expects that the person(s) responding to the survey accurately reflect the policies and practices of each state, there is no assurance that all non-technical factors have been considered. Third, and just as importantly, the survey was a "snapshot" in time, reflecting the prevailing transportation environment. It is possible that before, and during, the actual shipment campaign in the early part of the next century that Federal and State laws, regulations, and policies regarding truck size and weight will be amended

This last factor provides a strong rationale for maintaining cooperative arrangements with groups such as the AASHTO because they allow a continual two-way flow of information between OCRWM and State agencies, giving all parties the opportunity to remain current on the technical and policy issues of concern and ensuring a timely response to changing needs.

The OCRWM's work with the AASHTO also illustrates the importance of considering institutional factors in making technical decisions. The Federal, State, Tribal, and local governments all have responsibilities for regulatory or policy actions that have a technical basis. Continuing to work closely with these groups in technically based areas of mutual concern, such as permit uniformity, allows OCRWM policy makers to gain awareness of the technical factors supporting regulation or policy positions. This work also informs technical staff about regulatory or policy needs. Exchange of this type is as important within the OCRWM program as it is across levels of government. The model has broad applicability and broad benefits that should accrue to OCRWM throughout the life of the program.

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## Tie-Downs/ Structural Analysis