TRANSPORTATION OF LOW-LEVEL RADIOACTIVE WASTE IN TEXAS:

STATUTORY FRAMEWORK, ISSUES, AND RECOMMENDATIONS

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ABSTRACT

This paper addresses three aspects of the issue of transportation of low-level radioactive waste in Texas. Presented first is a description of the statutory provisions and implementing regulations which govern the transportation of low-level radioactive waste on Texas highways. The second portion of this paper reviews transportation issues which are currently under consideration or could potentially be raised for consideration in the relatively near future. The third portion of this paper presents some suggestions for coping with the current and potential transportation issues in Texas in the context of the current statutory and regulatory framework and from the perspective of a technologist faced with the task of suggesting policy which is consistent with current technology and also sensitive to sociopolitical concerns.

THE TEXAS STATUTORY AND REGULATORY FRAMEWORK

The most direct statutory treatment of low-level radioactive waste transportation in Texas appears in the Texas Low-Level Radioactive Waste Disposal Authority Act (Texas Civil Statutes, Art. 4590f-1). Section 3.21 of that act provides that the Texas Department of Health shall promulgate rules for proper packaging of radioactive waste and that an inspector of the department shall inspect all such packages prior to transportation to the disposal site. The rules to be promulgated shall provide for a reasonable fee for the inspection which shall not exceed the cost of the inspection. In the case of low-level waste shipments in excess of 75 cubic feet, any person making such a shipment shall notify the disposal site operator at least 72 hours before the shipment departs the point of origin. Finally, on arrival of the shipment at the disposal site, the shipment is to be again inspected by the site operator or his representative to verify that the packaging is acceptable for on-site handling and disposal. The site operator is authorized to process and repackage the waste, if necessary, for safe handling and proper long-term storage and to charge the cost of such operations to whomever made the shipment.

The version of this act originally filed included the provision for prenotification for shipments in excess of 75 cubic feet as well as the provision for inspection of shipments upon arrival at the disposal site. The provision requiring preinspection for proper packaging of all radioactive waste shipments prior to departure was added to the legislation during debate on the floor of the Texas House of Representatives.

These provisions of the Texas Low-Level Radioactive Waste Disposal Authority Act are intended to serve several purposes. First, the prenotification requirement will provide some notice that a large shipment of waste will be on state highways and will also provide some idea of the approximate route. Second, the preinspection provision provides an opportunity to verify that the shipment is safely packaged for transportation so that it represents minimal hazard. Third, the processing and repackaging provision minimizes the possibility that improperly packaged or processed shipments will be put back on the road to return them to their originator for remedial action. And fourth, prenotification to the site operator of a large shipment provides opportunity for preparation for receipt of the shipment.

The importance of notifying the site operator of the pending arrival of relatively large shipments is emphasized by a summary of the expected waste receipt rates at the site. Initial receipt rates at the site are expected to be in the order of 30,000 cubic feet per year which is about equivalent to only half of a tractor trailer load per week. By the early 1990's when four nuclear reactors are expected to be in operation, the total waste generation rate in Texas is expected to be approximately 135,000 cubic feet which is about equivalent to a receipt rate of only two tractor trailer loads per week. The Texas site is restricted by state law to disposal of waste generated in Texas.

An additional statutory element for transportation of low-level radioactive waste in Texas is found in the Texas Radiation Control Act (Texas Civil Statutes, Art. 4590f). That statute provides in subsection 4(d)(9C) that the Texas Bureau of Radiation Control (a subdivision of the Texas Department of Health) is authorized by a 1981 amendment to the Act to promulgate rules and guidelines "...for the transport and routing of radioactive material within the State of Texas". Note that low-level radioactive waste is not singled out for regulation by this statute but rather is regulated simply as a subset of the larger category of "radioactive material". At this time such regulations and guidelines have not been promulgated and most of the activity of the Bureau of Radiation Control in this area is a matter of spot inspections for compliance with NRC regulations.

A third element of the responsibility for regulation of low-level waste transportation in Texas is assigned to the Texas Department of Public Safety (Highway Patrol) under the provisions of Article 6701d, Section 139, Texas Civil Statutes. Regulations promulgated by the Texas Department of Public Safety adopt by reference relevant portions of the U.S. Department of Transportation regulations applying to motor vehicle shipment of hazardous materials including Title 49 Code of Federal Regulations Part 171 (General Information, Regulations, and Definitions), Part 172 (Hazardous Material Table and Communications Regulations), Part 173 (General Requirements for Shipments and Packagings), Part 177 (Transportation by Public Highway), and Part 178 (Shipping Container

Specifications). Generally, responsibility for the enforcement of these regulations is delegated to the employees responsible for enforcement of vehicle inspection regulations rather than delegated to the uniformed patrolmen responsible for enforcement of traffic and criminal law. However, none of the divisions of the Department of Public Safety has been authorized sufficient personnel or budget for comprehensive enforcement of these Department of Transportation regulations.

In summary, the Texas laws and regulations applicable to the transportation of radioactive materials are at this time essentially self-enforced with occasional spot checks by the regulators. The primary exception to this self-enforcement will be the requirement for prenotification of shipments of low-level waste larger than 75 cubic feet and the pre- and post-inspection provisions for shipments to a disposal site. Promulgation of regulations pursuant to the current statutes and implementation of the existing regulations as well as those to be developed address most of the fundamental transportation issues.

CURRENT AND POTENTIAL LOW-LEVEL WASTE TRANSPORTATION ISSUES IN TEXAS

It is clear that transportation of low-level radioactive waste is a limited subset of the overall issue of transportation of radioactive materials. It is also clear that the hazard presented by most shipments of low-level radioactive waste is relatively small compared to the risk associated with for example, transportation of spent nuclear fuel or some types of hazardous chemical waste. This relatively low hazard does not, however, alleviate all concerns regarding potential hazards of shipment of low-level radioactive waste, and there are low-level radioactive waste transportation issues now under review by the Texas Legislature and by Texas regulatory agencies. There are, in addition, other potential issues which are not yet being debated but which could be brought up for consideration at any time.

A member of the Texas House of Representatives has proposed the establishment of a statewide system of collection and processing sites designed to minimize waste transportation needs by collecting waste at regional locations, processing it to reduce volume, and holding it on-site to accumulate full loads for shipment. This proposal appearing in House Bill 543 has been filed in the House of Representatives (Sixty-ninth Texas Legislature) and referred to the Environmental Affairs Committee for consideration.

An additional proposal embodied in the draft legislation cited above calls for consideration of fully engineered, long-term storage options that could free site selection of geologic siting criteria and thereby allow location of an engineered facility near the centroid of waste generation minimizing overall transportation needs. A modification of that proposal providing for limited engineered enhancement to require somewhat less reliance on natural site conditions is embodied in the Committee Substitute for House Bill 449 which has been approved by the House of Representatives (Sixty-ninth Texas Legislature) and has been referred to the Senate Committee on Health and Human Affairs.

A third transportation issue on which action is likely is the development of transportation regulations by the Texas Bureau of Radiation Control pursuant to their statutory authorization. At this time staff of the Bureau are in the initial stages of review of sample regulations. As mentioned above, those regulations are to apply to shipment of radioactive materials in Texas generally and not solely to the shipment of low-level radioactive waste.

A perennial issue which has not as yet been adequately addressed is the comprehensive enforcement of the U.S. Department of Transportation regulations adopted by the Texas Department of Public Safety. This is, of course, a relatively low priority issue but one that will likely recur until the legislature either provides for adequate personnel and resources to enforce those regulations or transfers responsibility for enforcement to some other agency already equipped to implement them.

Several other issues have been suggested but are not at this time under active review and consideration. Those issues include route specification, accident response capability, special training or certification for drivers, and special equipment features and maintenance requirements for vehicles.

Many who are familiar with the technology of radioactive waste management may regard some of these ideas, particularly the latter ones, as excessively burdensome for most low-level radioactive waste shipments. There is also merit to the assertion that the relatively lower hazard posed by these shipments should be addressed only after addressing the greater hazards posed by shipments of, for example, high-level radioactive waste, spent fuel, and some of the particularly dangerous chemical wastes. However, highly visible issues such as that of low-level radioactive waste management attract significant attention and must be dealt with in the sociopolitical arena. As the low-level waste disposal site selection process in Texas approaches selection of one or more potential sites, controversy over all aspects of low-level waste management will intensify and, as a result, further scrutiny of these transportation issues can be expected.

CONCLUSIONS AND SUGGESTIONS

The available statutory and regulatory framework for transportation of low-level radioactive waste in Texas may or may not actually be technically adequate. An assessment of that technical adequacy certainly must be made. A less tractable but certainly revelant additional consideration is whether or not the current framework is perceived to be adequate by the public and the leadership of the state. The issue of perception of adequacy is addressed in the following discussion.

Recognizing that there are outstanding low-level transportation issues in Texas should lead the nuclear community to ask "What, if anything, should be done about low-level waste transportation issues?" A number of options can be identified: (1) the nuclear community might elect to do nothing and when issues are addressed by law or rule, simply accept without discussion or argument any requirements that may be imposed; (2) the nuclear community could opt to vehemently object to any proposed legislative or regulatory initiatives and then continue that resistance even if initiatives culminate in laws or regulations; (3) the nuclear community could support an intermediate position between the extremes represented by options (1) and (2); and (4) the nuclear community may elect to voluntarily undertake a course of action that addresses the outstanding issues to such an extent that neither legislative nor regulatory action is perceived by the public or state leadership to be required. The following provides some arguments in favor of this fourth option for dealing with low-level radioactive waste

transportation issues in Texas. (Although this paper is specific to low-level waste transportation, these considerations may, in fact, be applicable to other issues.)

To illustrate option (4) above with a simplistic example assume that a utility knows that shipping high activity spent resin and evaporator bottoms through residential areas will generate strong protest from neighborhood and environmental organizations. Exercising option (4) above, the utility could choose to pursue a policy of bypassing residential areas. Such an action would reduce the perceived need for formally addressing the issue and could reasonably be expected to generate goodwill and credibility.

A number of considerations lead to the belief that this option should be pursued: (1) scientists and technologists often simply dismiss unfounded or unsubstantiated perceived risks; (2) to an individual who sincerely perceives a risk, the risk need not be substantiated in order to precipitate action by that individual as though the risk were real; (3) the credibility of the nuclear community is at a low ebb, (4) bare minimum compliance with regulations can leave the impression that those regulated are only interested in satisfying procedural requirements and are not sufficiently concerned about the most fundamental goal of protection of public health and safety; (5) the system of government under which these issues are addressed is one in which the constituents of elected leaders can demand the attention of those leaders if enough constituents speak loudly enough; (6) generally, elected officials are proficient in law and soft sciences, but they do not always possess the expertise to independently assess the technical merits of the very complex issues of nuclear science and so are often persuaded by default of the validity of their constituents perceived concerns; and (7) there are often technical factors and sociopolitical factors that bear directly on resolution of an issue and it may be possible in some cases to satisfy the constraints of both types of factors and violate neither.

For example, in Texas, the issue of pre-inspection of shipments of low-level waste was precipitated to a large extent by the perception that future shipments of low-level radioactive waste to a disposal site in Texas would be prone to the same types of problems as were illustrated by some well-publicized incidents occurring during shipment of low-level waste to the currently operating disposal sites in other states. Problems such as leaking containers, unstabilized liquids, and spontaneous combustion of shipments had all occurred. These concerns regarding the condition of low-level waste shipments which might enter the Texas transportation system could perhaps have been allayed by voluntary development of a rigorous third party inspection process at the point of origin for significant size shipments. Instead, there is now a statutory requirement in Texas law for development of rules and guidelines for pre-inspection by state inspectors of all shipments of low-level waste prior to departure en route to the disposal site as well as inspections upon arrival at the disposal site.

A related and equally legitimate suggestion for addressing these issues is that full and accurate information be provided (within the constraints of any statutory restrictions) to parties expressing concern, perceived or otherwise, regarding any activity of the nuclear community. At this point in the implementation of numerous aspects of nuclear science in industry, medicine, and power generation, the nuclear community can ill afford the consequences of being discovered providing half-truths or selectively ignoring information which is accurate but negative to the nuclear science community.

Although this paper, particularly sections II and III, deals specifically with the issue of transportation of low-level radioactive waste in Texas, the observations presented in this final Section IV may well be applicable to other issues. The observations and suggestions presented are certainly not intended to present additional hurdles which must be overcome in order to implement these technologies. They are offered rather as suggestions for early investments in the sociopolitical process which will produce long-term dividends of goodwill, credibility, and reasonably expedient implementation of nuclear technology.