



Economic Impact Analysis Virginia Department of Planning and Budget

9 VAC 20-170 - Transportation of Solid and Regulated Medical Wastes on State Waters Department of Environmental Quality January 11, 2000

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 9-6.14:7.1.G of the Administrative Process Act and Executive Order Number 25 (98). Section 9-6.14:7.1.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

Summary of the Proposed Regulation

This proposal establishes regulations concerning the transportation of solid and regulated medical waste (hereinafter, waste) on state waters. The Department of Environmental Quality is mandated by Section 10.1-1454.1 of the Code of Virginia to promulgate these rules. The provisions of the regulation include:

- a permit requirement for facilities receiving waste by ship, barge or other vessel,
- design, construction and operation requirements for permitted facilities,
- a registration requirement for any ship, barge or other vessel transporting waste on state navigable waters,
- design, construction and operation standards for these vessels,
- a requirement that waste be transported in closed, watertight containers,

- standards for containers including a watertightness performance standard, periodic testing requirements, a manifest system and stacking restrictions for containers located at permitted facilities, and
- financial assurance requirements.

Estimated Economic Impact

Each of the new requirements in this proposal can be expected to add to the cost of transporting waste by water for disposal in Virginia, and each (with one possible exception to be discussed later) can be expected to provide benefits in the form of increased protection of the environment. Assessing the net economic impact of these rules is particularly difficult in this case for a number of reasons. First, the magnitude of the impact on Virginians will depend on such currently unknown factors as where the wastes are generated, the shipping routes used, and the net affect that the rules have on the demand for Virginia labor used in transporting and processing the waste.

Second, both the increased shipping costs and the potential hazard from the shipments are highly speculative at this time. No wastes are currently being shipped to Virginia on state waters although, according to DEQ, there are outstanding contracts for such services. The agency believes that the waste transportation services provided for in that contract will occur. According to the agency, the timing for this activity is not known at this time.

In the event that shipment does commence, the risks are, for the most part, not from the impact of daily operations but rather from the potential for a maritime disaster such as the sinking of a barge or the spilling of a number of containers of waste into Virginia waterways. The consequences of a large waste spill would depend critically on a number of unknown factors including: the constituents of the waste, the location of the spill, the extent of the spill, local weather conditions, and the time of year.

While the increased costs of waste transportation may or may not affect the performance of existing contracts for waste disposal services, economic theory and a large body of empirical evidence suggest that increasing the cost of waste transport would tend to reduce the quantity of these services that waste generators would choose to buy. This is simply a restatement of the well understood observation that, as the price of a good or service increases, potential buyers of

that good will tend to move some of their business to the now relatively less costly substitutes. Thus, it may be expected that any health and safety regulation will likely result in some substitution away from the regulated activity. There are many empirical studies supporting this conclusion.

The provisions of this proposal will almost certainly increase the cost of water transport of waste. Thus, in equilibrium, some reduction in demand for these services from the levels that would occur in the absence of the health and safety regulations must be expected. This does not imply that all waste transport activity will stop or even that actual reductions in waste transport will actually occur. These are things that cannot be known at this time. Waste transport under conditions similar to those provided in these rules is a profitable business in the Pacific Northwest.

The permit, registration and manifest requirements do not add significantly to the cost of transporting and disposing waste. These requirements do, however, reduce the cost of enforcing the more substantive provisions.

The provisions that will have the greatest impact on costs are: (1) the rules requiring that the waste be containerized in watertight containers; (2) the testing and certification requirements for those containers; (3) the rules for design and operation of vessels and port facilities; and (4) the financial assurance provisions.

The financial assurance provisions require firms shipping waste to carry insurance to cover at least a significant portion of the damage that might occur should there be a release of waste into state waters. As with any insurance, if the cost of the insurance varies with the amount of care taken to avoid accidents, then it provides firms with incentive to increase the level of care that they take relative to the case where no insurance is required. However, if it is difficult for insurance companies to monitor the actual level of care taken by waste transporters, then there is a possibility that forcing firms to insure could actually result in less care than they would take if they simply faced liability under a negligence rule. Since the financial assurance requirement also has the effect of increasing the cost of transporting waste, it may reduce the quantity of waste shipped. Whatever the impact on firm incentives to take care, reducing the level of waste shipments will lower risk somewhat. Without more information, it is not possible

to determine whether the financial assurance requirement increases or reduces the likely magnitude of waste releases.

Many of the rules for design and operation of vessels and port facilities simply specify things that firms would probably do anyway, such as maintain the roadways on which their vehicles will carry waste and visually inspect their facility daily. Other provisions require facilities to make provisions to ensure that waste and leachate do not enter state waters. While such a requirement may tend to increase the cost of operation, it is simply a matter of the state protecting its own property interest in state waters from unauthorized use. The same sort of restriction would apply to the port facility if it were only adjacent to other private property owners rather than to state waters.

Two of the provisions pertaining to the operation of port facilities merit separate analysis. First, is the requirement that port facilities not stack the (watertight) containers more than two high. DEQ has given two reasons for this provision: (1) limiting stack height allows for visual inspection of the certification marking on the containers thereby simplifying enforcement of the rule requiring certification, and (2) containers stacked more than two high represent a fire hazard. While limiting stacking to two high would probably facilitate visual inspection of the containers, any number of other mechanisms can be imagined for facilitating enforcement. If limiting stacking on port facilities would significantly increase the cost of operating port facilities, owners would have substantial incentive to find other, less expensive means to facilitate inspection.

DEQ indicated that limiting stack height reduces fire hazard at port facilities. However, the agency did not provide any specific information about the effectiveness of stack height restrictions in reducing fire hazard. Without this information it is not possible to evaluate what economic benefits will result from this restriction.

Without knowing what would occur in the absence of this regulation, it is not possible to know how much costs are actually increased. It may be that port facilities would choose not to stack containers more than two high. In that case, the rule will add little to costs. If, on the other hand, port facilities could operate more efficiently with higher stacks, then costs will be increased. This provision of the proposed rule could result in a situation where a port facility owner wishing to process more waste would be forced to expand the acreage of the facility rather

than stacking containers higher. In such a case, this rule would increase the amount of waterfront property used for offloading waste relative to the amount needed if higher stacking were allowed.

The second notable provision of the facility regulations is the one requiring that waste not be stored on the site for more than 72 hours. Depending on the reason for this rule, there may be other, less costly ways of accomplishing the intended result. This prevents the facility from being used as a batch processing facility rather than a continuous flow facility. As before, since there is no waste currently being received, there is no basis for knowing whether facilities would choose to retain waste on sight for more than 72 hours in the absence of the regulations. It may be that the rule requires firms to do what they would otherwise do anyway. No conclusion can be drawn on this issue given the current absence of waste transport activity.

The provisions requiring the use and maintenance of watertight containers for shipping waste will impose the greatest costs on shippers. In the absence of this requirement, the waste would probably be shipped in containers that are not fully enclosed. Fully enclosed, watertight containers are considerably more expensive than open containers. These containers must be certified by the American Bureau of Shipping. In addition to the higher capital cost for the containers, shippers are required to certify the watertightness of the containers bi-annually. Presumably, these containers will be more costly to fill and maintain. Given the absence of shipping activity at this time, there is no data on the actual increase in costs associated with using watertight containers, although it is reasonable to expect an increase in costs.

These containerization provisions probably also provide the lion's share of the economic benefits of the proposed rules. They do this by greatly reducing the probability of a major disaster resulting from an otherwise routine barge accident. There is always a non-zero probability of accidents involving barges in busy shipping corridors and ports. There is not enough experience with the barge transport of waste in Virginia state waters to estimate the likelihood of a disastrous accident. However, some of the factors influencing the cost of a spill can be assessed.

Much of the shipping of waste would be through the Chesapeake Bay and along the Eastern Shore. The Bay is a very significant source of economic value to Virginia. It is an active shipping route; a source of shellfish, tidal marshes and seafood; and it is valued for

recreation and tourism. All of these sources of value would be threatened by a large waste spill which could do significantly more damage than an oil spill of similar size.

A major spill of waste should affect the entire water column, with some waste settling to the bottom, some suspended and some floating. The waste could hurt biological resources and greatly reduce harvestability and the value of any harvest. A spill in a shipping lane could disrupt shipping and activity at some important ports. The cooling water services of the Bay could be disrupted forcing the shutdown of some power plants. The spilled waste could result in a stigma on Bay resources, lowering the value of seafood, recreation and tourism. If the waste turned out to contain bio-hazardous waste, the cleanup would be much more lengthy and expensive. All of these possible damages are quite speculative in terms of their probability and likely magnitude.

There is some evidence that watertight containers would greatly reduce the probability of a catastrophic spill. In 1995, a barge carrying watertight containers of waste ran aground and dumped five containers, each holding 25 to 30 tons of waste into the Columbia River. Five days later, the containers were recovered from the river. The containers had not leaked or spilled any waste into the river. While this does not prove that containers would always perform this well, it does suggest that watertight containers can reduce the probability of contamination.

There is little data to use to estimate the actual magnitude of costs and benefits of these regulations. That said, it is clear that the rules will increase the costs of transporting waste and may result in less waste being transported on state waters. It is also clear that the rules will reduce the probability that the transport of waste will result in the contamination of environmentally and economically sensitive resources.

Businesses and Entities Affected

Currently, only one port facility in Virginia is affected by this regulation, the Weanack port facility in Charles City. Since no wastes are currently being shipped into this facility, no other businesses or entities will be affected at this time. However, should waste shipments begin, the regulation may reduce the amount of waste going into area landfills which would constitute a loss of business for the landfills but possibly a gain to those living or owning property near those facilities or near the roads leading to the facilities.

The reduction in the probability of a catastrophic accident in sensitive areas of the Chesapeake Bay is a benefit to businesses dependent on the Bay and to citizens of Virginia who use the Bay for recreation and casual harvesting of seafood.

Localities Particularly Affected

The Charles City area and the portions of the Chesapeake Bay where transport of waste would occur are the only Virginia localities likely to be affected by this regulation.

Projected Impact on Employment

By increasing the cost of transporting waste by barge within Virginia, these rules may reduce the amount of waste shipped by water within the state, including the waste shipped to the state by water for disposal. If so, this, in turn, will reduce the need for labor in processing, transporting and disposing of the waste. Since there is no waste being shipped by barge at this time, it is not likely that there will be any impact on employment in the very short run.

Effects on the Use and Value of Private Property

Increasing the cost of transporting and handling waste may reduce the profitability of facilities intended for use in this activity. Some of the capital invested in facilities may be less valuable in other uses. Consequently, this regulation could reduce the value of investments made in equipment and facilities intended for use in transporting and processing barge-transported waste.

Transportation of waste is perceived as a noxious activity. There is substantial evidence that properties located near waste facilities tend to have lower value than similar properties at greater distance from the facilities. These regulations, by requiring containerization of waste, would tend to reduce both the amount of waste transported by water and the aesthetic impact of the transportation process. The rules would, in turn, reduce any impact that the shipment of waste would have on property values for affected property.