historical data used for the NPRM RIA and revised it for the regulatory assessment for this SNPRM. Comments on the revised data are solicited.

Assessment

The methodology for completing the regulatory assessment for this SNPRM employed a two phase process. First, a screening analysis was conducted to evaluate the effectiveness, efficiency, and technological feasibility of certain structural measures on a baseline of analytical tank vessel models. The screening analysis included an estimation of the onetime expense associated with refitting the vessel at a shipyard, called a rough order-of-magnitude (ROM) estimate; the cost of losing cargo carrying capacity due to implementing a measure that would not allow cargo carriage in certain tanks or above certain levels, called cargo shutout; and other costs such as loss of revenue during the shipyard period, called opportunity costs. It also included an estimate of the potential reduction in accidental oil outflow and operational oil outflow for certain measures. For this assessment, operational oil outflow is the oil prevented from being discharged by pre-MARPOL vessels if, instead of being allowed to discharge dirty ballast water, they are fitted with SBT or CBT and are not permitted to discharge dirty ballast water. Vessels are not allowed to discharge dirty ballast water in U.S. navigable waters; however, in accordance with international conventions they may do so in certain areas outside of these waters.

The second phase of this regulatory assessment consists of a detailed analysis conducted to estimate the costs and benefits of those measures which were deemed not only technologically feasible, but also appeared to be the most effective at reducing oil outflow on the affected existing single hull tank vessel fleet. The detailed analysis included a breakdown in costs, benefits, and a cost-benefit analysis over the 19-year period this rule is expected to be in effect.

Screening Analysis

1. General

There were five steps to the screening analysis phase of this assessment. First, baseline analytical tank vessel models were developed that represented the existing single hull tank vessel fleet. Second, selected measures were imposed on four of these analytical tank vessel models and the resultant oil outflow reductions were calculated. Third, cargo shutout, operating costs, and onetime ROM refit costs were developed. Then cost-effectiveness ratios were developed and the results of each measure were correlated with selected baseline analytical tank vessel models. Finally, the ratios were used to rank the measures and identify those combinations of measures and vessel categories that resulted in the lowest cost per barrel of oil not spilled. Table 1 summarizes the combinations of vessels and measures researched for this screening analysis.

BILLING CODE 4910–10–M

Table 1

Regulatory Alternatives and Baseline Model Combinations

MEASURES	DWT Model Sizes	
	70,000 dwt	264,000 dwt
1.a. PL/Spaces, 30% coverage	Pre-MARPOL	Pre-MARPOL
1.b. PL/SBT, 30% coverage, with ballast to max. feasible draft	Pre-MARPOL	Pre-MARPOL
1.c. PL/CBT, 30% coverage, empty to extent feasible	Pre-MARPOL	Pre-MARPOL
2.a. HBL all tanks	MARPOL '73	MARPOL '73
2.b. HBL, equivalent to Regulation 13G	MARPOL '73	MARPOL '73
3. PL/Spaces as in 1.c. and HBL as in 2.b.	Pre-MARPOL	Pre-MARPOL
4. Retrofit double bottom	MARPOL '73	Pre-MARPOL
5. Retrofit double sides	MARPOL '73	Pre-MARPOL
	31,000 dwt	12,700 dwt
6. PL/Spaces (install bulkheads)	Tank Barge	Tank Barge
7. PL/Spaces using existing cargo tanks	Tank Barge	Tank Barge

BILLING CODE 4910–14–C

To develop the baseline fleet and its characteristics, several designs were considered. It was assumed that the pre-MARPOL tank vessel had crude oil washing capabilities but no other required MARPOL features. MARPOL 73 tank vessels were assumed to be fitted with SBT, and MARPOL 78 tank vessels were assumed to have PL/SBT. As part of the process of ensuring that the design of the baseline models was appropriate, the baseline tank vessels were investigated for intact stability, longitudinal bending stresses, shear stresses, and sloshing frequencies. It was also assumed that the vessels were constructed to comply with the prevailing American Bureau of Shipping rules when the vessels were built; specifically, the still water bending moment, bending stress, and shear stress values. The resulting average shear stresses and bending moments were satisfactory. The fill depth level to tank depth level ratio for all loading conditions of the vessels investigated did not fall below 75–80 percent,