based on levels currently achieved by many industry plants and is considered by the Agency to represent the current acceptable level of safety. An establishment whose product does not meet the target under the proposed requirements must, as it must do under current regulations, take action to adjust its process to produce product that meets this standard. The cost of taking this action is not considered a cost of the proposed requirement.

6. Equipment and Materials

The proposed rule does not make any existing equipment obsolete. (Some modification may be necessary, however, such as increasing cooling capacity for complying with the time-and-temperature requirements.) The proposal does require establishments to systematically monitor their processes. Costs of the necessary materials, such as thermometers and test kits, are estimated at \$10 to \$20 per establishment.

7. Wages

The hourly wage rates used in estimating costs are based on data from the Bureau of Labor Statistics and *Meat and Poultry Magazine*. They are \$25.60 for a quality control manager, \$18.13 for a quality control technician, and \$12.87 for a laborer. They include a 33 percent overhead rate.

8. Cost Offsets

Because many establishments are currently operating or capable of operating quality control systems and programs, total costs are reduced to the extent that establishments already have the required plan development, monitoring, record keeping, and training.

9. TQC Overtime Costs

With the publication of the rule, TQC plants could lose their authority to produce and ship product after their normal shift production time. As a result, 287 active TQC establishments could begin to incur annual overtime charges.

B. Costs of the Near-term Initiatives

Costs associated with the four nearterm initiatives can be thought of as preimplementation HACCP costs. Since these interventions or similar controls will for the most part be incorporated into HACCP systems, their cost will reduce the overall cost of HACCP. Total cost of these initiatives is estimated at \$358.9 million, including \$266.7 for Federal establishments and \$92.3 million for State establishments. The estimated cost to small establishments is \$172.9 million. The four initiatives and their estimated costs are described below

1. Sanitation Standard Operating Procedures

Federal plants—\$81.1 million State plants—21.0 million Total—\$102.1 million Small establishments—\$50.4 million

The SOPs would not add new sanitation standards but would require documentation of cleaning and sanitizing procedures for all equipment and facilities involved in the production of every product. This would serve as a basis for the plant's monitoring and the inspector's verification. An establishment's owner or manager would be required to detail in a written plan how the basic sanitation requirements would be met. Establishment employees would record results of the daily sanitation checks on a checklist, which would be made available to the inspector.

The amount of time to develop the plan would vary by establishment size, equipment, production capacity, and the process being performed. Plan development costs are one-time costs which would be incurred in the six months before the effective date of the regulation. They are estimated at \$1.99 million for Federal establishments and \$0.522 million for State establishments. Establishments now following a written sanitation program are not considered in the one-time or the recurring cost estimates.

Training establishment employees in the requirements of the SOP intervention program would represent another one-time cost incurred in the six months before the regulation takes effect. The training cost for Federal establishments is estimated at \$1.1 million and for State establishments \$0.251 million.

Recurring SOP costs would involve recordkeeping. Annual record keeping costs are estimated at \$19.5 million for Federal establishments and \$5.1 for State establishments.

2. Antimicrobial Treatments

Federal plants—\$58.7 million State plants—0.6 million Total—\$59.4 million Small establishments—\$2.7 million

Slaughter establishments would be required for the first time to provide antimicrobial treatments before the carcasses enter the chiller or cooler. Costs are reduced by the number of establishments already meeting these requirements. In estimating the resulting costs, it is assumed that the

establishments would use the most costeffective treatment. For meat establishments the cost analysis is based on the hot water system, at a cost of \$.08 per carcass. For poultry establishments it is based on a hypochlorination system at \$.0125 per carcass.

3. Time and Temperature Requirements

Federal plants—\$26.5 million State plants—22.9 million Total—\$49.4 million Small establishments—\$28.8 million

These requirements are already in effect for poultry plants, so would affect only the meat industry. An establishment would be required to maintain the cooled carcass and raw meat at the specified temperature throughout handling, holding, and shipping to other official establishments. Costs are reduced by the number of meat establishments already meeting these requirements. First-year costs for Federal establishments are estimated at \$13.7 million, which covers developing a plan, training employees, upgrading cooling equipment, and keeping records. For State establishments the estimate is \$18.9 million.

4. Microbiological Testing

Federal plants—\$100.3 million State plants—47.8 million Total—\$148.1 million Small establishments—\$91.1 million

FSIS would mandate testing and reporting procedures to determine the pathogen incidence rate for each process at each establishment that slaughters livestock or poultry or produces raw, ground meat or poultry products. One-time costs for plan development and employee training are estimated at \$6.7 million.

Specimens would be collected once a day at the end of the production process and tested for the presence of the target organism (*Salmonella*) in the establishment's own laboratory or in a commercial/contract laboratory. The sample collection and analysis cost in the first year after promulgation of the rule is estimated at \$67.5 million. This includes \$46.4 for Federal establishments and \$21.1 million for State establishments. The cost for small establishments represents 59 percent of the total, or \$39.8 million.

First-year costs for record keeping are estimated at \$2.4 million. Large establishments account for only about 10 percent of this total, since most of them are already performing quality control functions which require continuous records.