1.1. EMERGENCY RESPONSE REQUIREMENTS

1.1.1. Issue

In the proposal, EPA creates a contingent requirement for water and wastewater facilities to be responsible for the emergency response requirements for their facility. The LEPC or equivalent local response authorities can request in writing that the RMP facility develop an emergency response program.[1] The facility then must develop an emergency response capability: train responders and purchase equipment such as communication equipment, vehicles, tools, storage, protective gear, and other necessary items. In addition to training and equipment, the facility must develop an emergency response plan and implement its provisions.

One required provision is for coordination with community emergency responders to occur at least annually, and more frequently if necessary -- to address changes at the source; changes in the source's emergency action plan; in local authorities' response resources and capabilities; or, changes in the local community emergency response plan. Regulated facilities must perform exercises as an element of the emergency response program and plan. EPA proposes that both responding and non-responding RMP facilities with any Program 2 or 3 process must perform emergency exercises.

This emergency response exercise program is to have two types of exercises—field exercises and tabletop exercises. EPA is proposing to require the RMP facility to annually conduct an emergency tabletop exercise involving the simulated accidental release of a regulated substance. Under the proposal the owner or operator to conduct an emergency response field exercise involving the simulated accidental release of a regulated substance at least once every five years and within one year of any accidental release. The field exercise must be conducted with local safety and emergency responders.

The RIA includes some costs for the emergency response requirements. The RIA includes the costs of a chlorine emergency response, the most common capacity that would be required at water treatment facilities. This methodology seems incorrect, however, for other RMP facilities. For example, facilities that store flammables would have little use for a Chlorine B kit. They would need fire suppression equipment and specialty vehicles (like water pumpers, fire trucks).

However, the RIA omits the following essential required elements of an emergency response at a water utility:

- *Vehicles.* The RIA does not include any costs for dedicated vehicles for emergency response. The chlorine emergency response kits weigh over 90 lbs.; people in personal protective equipment also do not move quickly. A vehicle is necessary to transport the equipment and the responders quickly and safely from a central point to the incident location. In addition, to manage an off-site release, a utility will need vehicles to direct traffic, transport people to medical facilities, and transport on-site workers away from the incident. We assume a water treatment facility dedicates two pickup trucks to emergency response.

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[1] 81 FR 13672

- *Back-up Response Kit.* For an effective response, the facility would not have just one response kit in case the primary emergency response location is affected by the release. At a minimum, we assume a facility will maintain two Chlorine A and B kits at different points on the facility.
- *Equipment Replacement.* The RIA assumes the equipment lasts indefinitely. In reality, even if rarely used, some response equipment must be replace after a certain time period to maintain its effectiveness. For example, the manufacturer's recommendation is that the gaskets in the standard chlorine response kit must be replaced every four years.[2] We use the manufacturers' recommended shelf-life of the required equipment to estimate replacement costs.
- *Emergency Communication and Road Safety Equipment.* Since the facility now is responsible for at least the initial stages of the community response, the facility must purchase some basic equipment to create roadblocks to direct other responders to the facility and evacuated workers away from the danger zone. We also add some simple sirens, megaphones, and two-way radios for emergency communication to the emergency response costs.

1.1.2. Approach More Consistent with Best Practices

Since the most common registered chemical at water facilities is chlorine, we estimate the full costs to maintain an emergency response capability for chlorine canister release.[3] The Chlorine Institute publishes guidelines for emergency response planning for facilities using chlorine.[4] If water utilities must develop an on-site emergency response due to this proposed regulation, they will follow these long-standing, industry-standard recommendations.

We compare the Chlorine Institute guidelines to the cost elements included in the RIA for the emergency response capability. The table below expands Exhibit 4-11 of the RIA to include the modifications discussed above. The table also gives the shelf-life of the equipment. We divide the unit cost by the shelf life to create a constant annual expense to maintain the equipment.

Table 4-12. Equipment Costs for Emergency Response

	Unit Costs ($)	No. per Facility	Useful Life	Annual Total ($)
Sirens/horns	200	2	7	57
Dedicated Telephone Line	50	1	1	50

[2] The Chlorine Institute, *Pamphlet 64: Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities Edition 7*, November 2014.

[3] While some larger facilities receive chlorine through rail car shipments, canisters are the more common storage device at water systems. Tank car accidents and the attendant emergency response would have greater costs than presented in this section.

[4]The Chlorine Institute, *Pamphlet 64: Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities Edition 7*, November 2014.

Megaphones	200	2	5	80
Two-way radios	1500	2	5	600
Flashlights	5	10	4	13
Chlorine Monitors	600	3	3	600
2 Pick-up trucks	27000	2	7	7,714
Traffic Barricades	150	6	15	60
Traffic Wands, Suits	150	10	5	300
Computer	1000	1	5	200
Level A Suit	1750	6	5	2,100
Tyvek Suit	200	1	5	40
Cryogenic Gloves	180	10	5	360
Chemical Resistant Boots	150	6	5	180
Vinyl Boot Covers	7	6	1	42
Neoprene Boot Covers	100	6	1	600
Nitrile Rubber Gloves	12	6	7	10
Vitron Rubber Gloves	10	6	20	3[5]
PVC/Nitrile Gloves	57	6	5	68
SCBA	5500	6	15	2,200[6]
Hydrostatic Testing	20	12	3	80
Spare SCBA Bottles	800	6	15	320
Chlorine Kit A	2300	2	7	657[7]
Chlorine Kit B	2500	2	7	714[8]
Replacement Gaskets B	390	2	4	195
Replacement Gaskets A	240	2	4	120
Non-sparking Tool Kit	900	1	7	129
Sledgehammer	55	3	7	24
Bolt Cutter	85	1	7	12
Sorbent Pad	64	1	3	21
Neutralizer	436	1	5	87
Eye Wash Station	129	1	5	26
Plastic Pools	10	3	5	6
First year Cost		**$130,000**		
Annual Cost		**$18,000**		

[5]http://www.safetyandhealthmagazine.com/articles/determining-the-shelf-life-of-gloves-shouldn-t-be-a-stretch-2

[6] http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=1852

[7] http://www.chlorineinstitute.org/emergency-preparedness/Emergency_Equipment.cfm

[8] http://www.chlorineinstitute.org/emergency-preparedness/Emergency_Equipment.cfm

Numbers rounded to two significant digits; values may not add due to rounding

The Chlorine Institute recommends that the emergency response team check access to, and the functioning of, the emergency equipment on a regular basis. We model the costs of a monthly inspection encompassing two hours of an engineer's time.

We apply these equipment and inspection costs to the estimated number of water sector facilities expected to be asked to become responders. Table 4-13 below gives the national estimate of the emergency equipment costs using EPA's baseline assumption that 50 percent of these facilities become responders. Based on these assumptions, the water sector will purchase $39 million in equipment per year.

Table 4-13 National Cost Estimate of Equipment Costs for Emergency Response for the Water Sector

Equipment Costs	No of Facilities'	Initial Costs ($)	Annualized Cost ($/yr.)	Total Annualized Cost ($/yr.)
Simple w/ 0-19 FTEs	776	130,000	39,000	30,000,000
Simple w/ 20-99 FTEs	201	130,000	39,000	7,900,000
Simple w/ 100+ FTEs	31	130,000	39,000	1,200,000
Total				39,000,000

Numbers rounded to two significant digits; values may not add due to rounding

We use the RIA's estimated costs for the LEPC coordination, notification of drills, table top exercises, and field exercises. We update the RIA's costs with the most current employer costs of labor given in Section 4.1.3. Table 4-14 gives these costs:

Table 4-14. National Cost Estimate for Emergency Response for the Water Sector

	Number of Water Facilities	Coord. ($/yr.)	Notif. Of Drills ($/yr.)	Table Top Exercise ($/yr.)	Field Exercise Cost ($)	Annual Field Exercise Cost ($/yr.)
Simple w/ 0-19 FTEs	1,551	550	163	6,700	9,400	1,900
Simple w/ 20-99 FTEs	401	550	163	7,800	16,000	3,200
Simple w/ 100+ FTEs	61	550	163	15,000	27,000	5,300

Similarly, for the training costs, we update the wage rates and add one additional person as a receiving training. Since there are two levels of training in the RIA and in the Chlorine Institute recommended approach, the RIA's assumption of only one backup trained person would not leave a backup person for each level of training. In this instance, the RIA properly includes the costs for employee turnover.[9] Given a turnover rate of approximately six years and seven people trained for the facility, we agree with the RIA's assumption of one newly-trained person per year. Table 4-15 show that the annualized training costs is $14 million per year for the water sector.

[9] RIA. 65.

Table 4-15. National Cost Estimate for Emergency Response Training for the Water Sector

Training Costs	Number of Water Facilities	Initial Costs ($)	Annual Costs ($/yr.)	Annualized Cost ($/yr.)	Total Annualized Cost ($/yr.)
Water Sector	2,014	28,000	4,000	7,000	14,000,000

In summary, the costs to the water sector of the proposed emergency response program capacity is given in Table 4-16. EPA's proposed requirements will increase costs to the water sector by $73 million per year.

Table 4-16. National Cost Estimate for the Proposed Emergency Response Requirements for the Water Sector

Requirement	Annualized Cost ($/yr.)
Notification, Coordination, Exercises	20,000,000
Training	14,000,000
Equipment Costs	39,000,000
Total	73,000,000