

Safety measures led by Tokyo Waterworks

~Action plan to prevent waterworks construction accidents~

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INTRODUCTION

The Tokyo Metropolitan Government's Bureau of Waterworks constructed a huge number of facilities during the period of rapid economic growth in the 1960s and 1970s, and those will all shortly be in need of renovation at the same time. Reconstruction and renovation of the facilities underlying Tokyo's waterworks system, the largest in Japan, is costly and takes as long as over half a century to complete. In order to promote this work efficiently and effectively, it is important to ensure safety during construction. In this context, the Bureau of Waterworks formulated the "Action plan to prevent waterworks construction accidents" in order to eradicate construction accidents during facility construction and development.

The "Action plan to prevent waterworks construction accidents" includes Bureau measures promoting the prevention of construction accidents as well as systematic, comprehensive support for contractors. These initiatives are a first for a Japanese waterworks utility.



Figure 1: Action plan to prevent waterworks construction accidents (Booklet)

Action plan to prevent waterworks construction accidents

The "Action plan to prevent waterworks construction accidents" specifies four specific actions implemented by the Bureau and promotes initiatives to prevent construction accidents.

1. Information collection on measures to prevent reoccurrence and frequently-occurring accidents (Figure 2 and 3)

In order to prioritize working on the prevention of the reoccurrence of frequently-occurring accidents in waterworks construction, we provide information to contractors on frequently-occurring accidents and measures to prevent reoccurrence.

«frequently-occurring accidents in waterworks construction»

- 1 Third-party disaster
- 2 Disaster caused by an ordinary vehicle and involving laborers and guidance personnel (not-at-fault accidents)
- 3 Disaster caused by movement of dump trucks or other heavy equipment
- 4 Disaster in excavation work
- 5 Paving work; Crash disaster caused by a roller
- 6 Disaster during the assembly or disassembly of trench timbering
- 7 Disaster during unloading work using a crane / backhoe
- 8 Special disaster in pipe-laying work
- 9 Disaster falling from a ladder
- 10 Laborer falling disaster
- 11 Work disaster in machine- or equipment-related work
- 12 Strong wind disaster (Scattering of construction signs, etc.)
- 13 Work disaster in timber-felling work

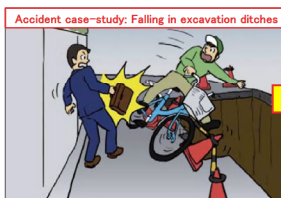


Figure 2: Accident case study and reoccurrence prevention measure for a frequently-occurring "third-party disaster"



Figure 3: Accident case study and reoccurrence prevention measure for a frequently-occurring disaster: "Disaster caused by movement of dump trucks or other heavy equipment"



2. Improved guidance via on-site patrols (Figure 4 and 5)

We improve on-site patrols by Bureau construction personnel, perform inspections to ensure that safety measures are being properly performed on-site and basic safety rules are being complied with, and ensure thorough guidance is given to contractors.

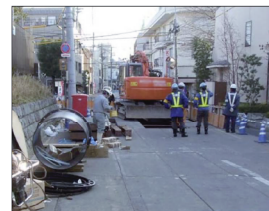


Figure 4: On-site patrol underway (daytime)



Figure 5: On-site patrol underway (nighttime)

3. Contractor guidance on reoccurrence prevention countermeasures and accident information propagation (Figure 6 and 7)

After an accident occurs, we give powerful guidance to contractors with discovering the causes of accidents and designing reoccurrence prevention measures.

We also provide relevant accident information and reoccurrence prevention measures to Bureau personnel and contractor laborers.

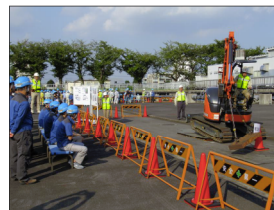


Figure 6: Safety training based on a simulation of an accident that did actually occur (backhoe topping accident)

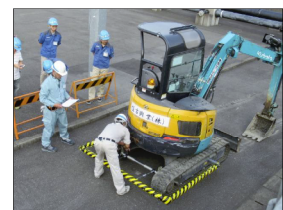


Figure 7: Reoccurrence prevention measures shared among contractors (equipment to stop backhoe collisions)

4. Support for contractor laborer education (Figure 8 and 9)

The Bureau provides educational materials and support for laborer safety training to improve and expand laborer education at contractors with little flexibility in terms of management resources.



Figure 8: Safety education video (available on the Bureau website)



Figure 9: Educational materials for distribution (Leaflet on fall / tumbling accident prevention)

Results

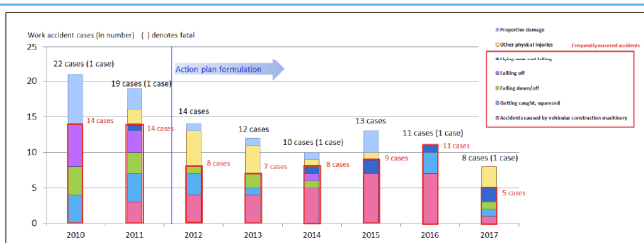


Figure 10: Change in number of accidents before and after action plan formulation

After the formulation of "Action plans to prevent waterworks construction accidents," accident occurrence dropped dramatically. Thus these action plans are considered effective in preventing accidents. (Figure 10)

- Number of accidents before action plan formulation (FY 2010, FY 2011): 20.5 per year
- Number of accidents after action plan formulation (FY 2012 to FY 2017): 11.3 per year

In order to smoothly implement facility reconstruction and similar work, the Bureau continues and further develops initiatives in the "Action plans to prevent waterworks construction accidents" to promote further accident prevention.

Bibliography:

- "Action plan to prevent waterworks construction accidents," Tokyo Metropolitan Government Bureau of Waterworks, Editing / Cooperation, National Institute of Occupational Safety and Health, Japan
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