

7 Safeguard Toxic Materials Stored in Flood Zones

I. Summary

Issue:

The NYC Department of Environmental Protection requires facilities that store hazardous chemicals to file a risk management plan, but it does not require special protection for chemicals stored in flood zones.

Recommendation:

Require toxic materials in flood zones to be stored in a floodproof area.

II. Proposed Legislation, Rule or Study

Amendments to the Rules of the City of New York:

1. Add a new paragraph (5) to subdivision (a) of section 41-05 as follows:

(5) Determination whether the facility, or portions of the facility, lie within the area of special flood hazard (100 year floodplain) as mapped by the Federal Emergency Management Agency on the Flood Insurance Rate Map.

2. Amend subdivision (d) of section 41-05 by deleting paragraph (2) as follows:

(d) These filing requirements shall not apply to:

(1) Facilities where the only hazardous substances present during the preceding calendar year were in mixtures in which the total content of the hazardous substance was less than the Threshold Reporting Quantity per container unless such hazardous substance was present at the facility in an aggregate amount equal to or greater than the Threshold Reporting Quantity; and

(2) Owners or tenants of residential buildings that contain no commercial or manufacturing enterprise.}

3. Add a new paragraph (5) to subdivision (b) of Section 41-10 as follows:

(5) Determination whether the facility or portions of the facility lie within the area of special flood hazard (100 year floodplain) as mapped by the Federal Emergency Management Agency on the Flood Insurance Rate Map.

4. Add a new paragraph (9) to subdivision (b) of Section 41-11 as follows:

(9) If the facility or portions thereof lies within the area of special flood hazard (100 year floodplain) as mapped by the Federal Emergency Management Agency on the Flood Insurance Rate Map, the risk management plan shall include engineering measures that flood proof any chemicals, processes, and or operations within the floodplain, operating measures to ensure that chemicals, processes, and or operations shall be located in portions of the facility that are above or beyond the floodplain, or an approved operational plan to relocate chemicals above the floodplain in advance of a flood event.

After revising these rules, the City of New York should modify the Facility Information Forms (FIF), Risk Management Plans (RMP) and the regulatory review procedure at the Department of Environmental Protection and the New York Fire Department to take into account: the location of facilities in the floodplain; and measures to mitigate or prohibit storage of certain categories of chemicals within the 100 year flood plain. Additionally, the City of New York should consider expanding the categories of chemicals or buildings required to file RMPs.

III. Supporting Information

Expanded Issue and Benefits:

In the event of significant flooding, storage of hazardous materials in spaces that are within floodplains and are not protected from such events can lead to serious environmental contamination and present a significant threat to human health. For example, the flooding of the Mississippi River in 1993 and New Orleans in 2005 resulted in severely contaminated water. In New Orleans, floodwaters were found to contain elevated lead levels, and bacteria associated with sewage was at least ten times higher than acceptable to public health officials. This contamination threatened the health of both rescue workers and remaining residents, especially children, who were in direct contact with the floodwaters.ⁱ Reports indicate that toxic chemicals in the floodwaters in New Orleans will negatively impact human health for a decade.ⁱⁱ Here in New York City, OSHA advocated protective measures for residents and recovery workers following Sandy, indicating that Sandy floodwaters contained toxic chemicals as well as sewage and soil related bacteria.ⁱⁱⁱ

As the consequences of inaction are significant, and as preventative measures are relatively simple, it is crucial that New York City require the safe storage of hazardous materials within the 100-year floodplain. Of the roughly one million buildings in the City, it is anticipated that less than 750 will be impacted by the preventative measures proposed here.

While several New York City programs address toxic chemical storage, none contain provisions to secure such substances within the floodplain. The Community Right-to-Know program, administered by the New York City Department of Environmental Protection (NYC DEP),

ⁱ Christine Lagorio, EPA: Danger in the Drinking Water, CBS NEWS, Sept. 7, 2005, available at <http://www.cbsnews.com/stories/2005/09/07/katrina/main823891.shtml>.

ⁱⁱ Geoffrey Lean, Cover-up: toxic waters 'will make New Orleans unsafe for a decade, THE INDEPENDENT, Sept. 11, 2005, available at <http://www.waterconserve.org/shared/reader/welcome.aspx?linkid=46033>.

ⁱⁱⁱ OSHA Fact Sheet, Keeping Workers Safe during Hurricane Sandy Cleanup and Recovery, December 2012. http://www.osha.gov/Publications/OSHA_FS-3610.pdf

requires disclosure of information on the handling of hazardous substances through annual filing of a Facility Inventory Form (FIF). Buildings that exceed minimum threshold quantities must also submit an annual Risk Management Plan (RMP), which includes a Risk Assessment, a risk reduction plan and emergency response procedures. The NYC DEP reviews the RMP, inspects the facility and forwards the RMP to the New York City Fire Department for their review, but no aspects of this process specifically deal with the protection of hazardous substances during flood events.

Similarly, Appendix G of the New York City Building Code includes rules for construction in or around the 100-year floodplain but does not include any special guidance with regard to storage of hazardous materials within the floodplain. Requirements are limited to the construction and location of tanks and sewage facilities, and apply only to newly constructed facilities or substantial alterations of existing facilities, outside the purview of significant portions of construction and renovation work in the City.

Since New York City already has programs addressing the general storage of hazardous materials minimal work is necessary to implement this proposal. This proposal simply requires an additional determination within the RMP as to whether or not the facility lies within the 100 year floodplain. DEP would then inspect the facility to determine the adequacy of the chemical storage as a part of their current inspection practices.

Additionally, the benefits of the Community Right-to-Know program should be extended to residential buildings. A relatively small number of residential buildings would be impacted and the benefits of safeguarding toxic or hazardous substances from floods in residential areas greatly outweigh any costs.

Implementation:

Since programs addressing the storage of toxic chemicals already exist in New York City, the implementation of the proposal will require minimal additional effort. Modification to the DEP program will involve:

1. revising the notification and filing provisions of the RMPs;
2. DEP staff modifying their forms and procedures to require the RMP filing to address this issue;
3. amending the RMP filing to include a determination as to whether the project lies within the 100-year floodplain;
4. including flood plain boundaries in DEP staff evaluations; and
5. if the facility is located within the 100-year flood plain, the DEP determination of appropriate storage procedures.

Cost:

Turner Construction Company prepared cost estimates based upon several standardized building typologies. Due to the innate variances in construction costs between projects, the complexity of the Task Force proposals, and the wide range of buildings to which the proposals may apply, these cost estimations should only be used as rough order-of-magnitude guides. The cost analysis is presented at the end of this proposal; more information about the cost methodology is given at the end of the full report.

