U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD

Urgent Recommendations

Whereas:

1. Allied Terminals Incorporated, 502 Hill Street, Chesapeake, Virginia, stores liquid fertilizer[1] in aboveground storage tanks (designated Tanks 201, 202, 205, and 209). The tanks were constructed circa 1929 for the storage of petroleum products. Rivets were used to join the horizontal and vertical shell plate.

2. Allied Terminals contracted G & T Fabricators, Inc., a welding company, to replace the vertical riveted joints on each tank with welded joints in 2006. The contract required the work to comply with American Petroleum Institute (API) Standard 653 - *Tank Inspection, Repair Alteration, and Reconstruction*.

3. Allied Terminals contracted HMT Inspection, a tank inspection company, to perform an API Standard 653 out-of-service inspection on each of the four tanks after they were modified by the addition of the welded joints. As part of the inspection, the tank inspection company specified a "safe fill height" for liquid fertilizer to be stored in each tank.

4. On November 12, 2008, Tank 201 catastrophically failed while it was being filled to the "safe fill height" established by HMT Inspection, Inc. At the time of the failure the liquid level was at about 26.74 feet, which was less than the specified "safe fill height" of 27.01 feet. More than two million gallons of liquid fertilizer were released nearly instantaneously .

5. The released liquid fertilizer overtopped the secondary containment dike, flooding the facility and portions of an adjacent residential neighborhood of about 40 homes. Liquid fertilizer also spilled into the nearby Elizabeth River. Based on the quantity of liquid fertilizer recovered, it is estimated that at least 200,000 gallons are unaccounted for now.

6. The collapsing tank wall seriously injured two contractors working at the facility; two employees of an adjacent business who came to the aid of the injured contractors were injured by exposure to the released materials.

7. Post-incident visual examination of Tank 201 identified defective welds as the likely immediate cause of the catastrophic failure.

8. Post-incident visual examination of Tanks 202, 205, and 209[2] revealed numerous welding defects that were similar to defects observed on the remnants of the collapsed tank, including insufficient reinforcement, porosity, and weld undercut.

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[1] An aqueous mixture of ammonium nitrate and urea.
[2] These tanks still contain liquid fertilizer.

9. Since Tank 201 failed at a fill level below its "safe fill height" established by HMT Inspection, Inc. the "safe fill height" established by HMT Inspection, Inc. for Tanks 202, 205, and 209 may not prevent failure of these tanks.

10. Occupied residences are located as close as 250 feet from the tanks . The secondary containment around the tanks is likely not adequate to prevent liquid from a catastrophic tank collapse from reaching residential structures. Accordingly, the potential for collapse of a tank poses an unacceptably high risk of causing substantial property damage or a number of injuries or possibly deaths among the general public.

11. Under 42 U.S.C. §7412(r)(6)(C) (ii), the Board is charged with "recommending measures to reduce the likelihood or the consequences of accidental releases and proposing corrective steps to make chemical production, processing, handling and storage as safe and free from risk of injury as is possible …."

12. The Board may authorize the issuance of an urgent safety recommendation before a final investigation report is completed where there is a safety issue considered an imminent hazard that has the potential to cause serious harm unless it is rectified in a short timeframe.

Accordingly:

Pursuant to its authority under 42 U.S.C. §7412(r)(6)(C)(i) and (ii), and in the interest of promoting safer operations at Allied Terminal, Inc. and protecting the adjacent community, the Board makes the following urgent safety recommendations:

To Allied Terminals, Inc.

2009-03-I-VA-UR1
Take immediate action to reduce the risk of a catastrophic failure of Tanks 202, 205, and 209 at the Allied Terminals Hill Street facility including but not limited to significantly reducing the maximum liquid levels ("safe fill height") based on sound engineering principles. Report the actions taken to the City of Chesapeake.

2009-03-I-VA-UR2
Select and retain a qualified, independent tank engineering firm to evaluate Tanks 202, 205, and 209 and determine their fitness for continued service. The evaluation should be based on recognized and generally accepted good engineering practices, such as API 653 - *Tank Inspection, Repair Alteration, and Reconstruction* and API 579 - *Fitness for Service*.

2009-03-I-VA-UR3
Within 30 days, provide the report prepared by the independent tank engineering firm to the City of Chesapeake, together with a comprehensive action plan and schedule to address any identified deficiencies.