

WATER SECTOR COORDINATING COUNCIL



MEMORANDUM

TO: David Travers, Director, EPA Water Security Division
George Famini, Director, DHS Chemical Security Analysis Center

FR: Charles Hilton, Chair, Water Sector Coordinating Council

DT: May 31, 2013

RE: Contamination Incident Response and Recovery Capability

Request for Action

The Water Sector Coordinating Council (WSCC) requests that EPA and DHS perform collaborative assessment(s) to construct contaminant response case studies. These case studies would describe a contamination event, identify a list of relevant questions, and provide actionable response information to guide recovery of water systems. These case studies would allow the water sector to be better prepared to answer utility inquiries and, most importantly, help water utilities and the communities they serve to be better prepared in the event of a water contamination event or incident.

The WSCC is making this request as a result of the multiple information requests received by water utilities and associations following the NCIS-LA episode that aired on CBS on April 9, 2013, showing an intentional water contamination that resulted in a fatality. This episode is summarized at the end of this memo. Information requests were made to both EPA-NHSRC and EPA-OW for guidance on how utilities would respond to this type of contamination incident, but unfortunately, the information provided was neither sufficient nor actionable.

At a minimum, the WSCC would like EPA and DHS to provide a detailed analysis of the recovery plan they would recommend if an incident like the NCIS-LA episode occurred. If this requires classified setting, then it should be anticipated as a deliverable for the August 21, 2013 joint briefing of the WSCC and Government Coordinating Council (GCC). The water sector must have confidence that EPA and DHS have the necessary strategic capabilities and contingencies in place to support rapid response and recovery of this critical lifeline.

This request complements action items defined in the 2008 CIPAC report, *Water Sector Decontamination Priorities*, with regard to the needs of utility owner/operators. Based on this report, the following specific questions represent a starting point for this request:

1. What guidance would be provided to the impacted utility for decontamination?
2. What is the status of EPA/DHS contaminant specific decontamination protocols as recommended in the 2008 CIPAC Decontamination Strategies report? This includes containing and/or disposing of large amounts of contaminated water (Issue #1).
3. Would physical attributes of the contaminant mitigate exposure due to aesthetic taste/odor threshold? Are these thresholds known? What is the level of concern for acute exposure?

Whelton et al. (2003)¹ reports that EPA's one-day and ten-day health advisories for a 10-kg child are both 0.2 mg CN⁻/L. The analysis also notes that consumers may detect exposure by noticeable water tastes and odors. When cyanides are added to water they dissociate producing cyanide ions; for example, $\text{Ca}(\text{CN})_2 \rightarrow \text{Ca}^{+2} + 2\text{CN}^-$. In most drinking waters (pH 7-9), cyanide will be present as HCN (Kim et al., 2001)². The odor threshold concentration of HCN is 1 ppm. Some research has speculated that water with a 50 mg HCN/L concentration would be unpalatable to consumers (Sanchis, 1946)³.

4. What rapid response capabilities exist? Is there a clear definition and accepted operational plan for federal leadership, roles and responsibility in this type of incident?

NCIS-LA Purity Episode Summary

- NCIS-LA, Purity Episode, aired on April 9, 2013 (recognize that NCIS-LA was the #1 show in the 9:00 PM timeslot with 14 million viewers). The main plot is the contamination of water supply, both bottled water and municipal.
 - Test case is with bottled water causing 1 fatality, 1 injured, testing by HazMat confirmed cyanide, tap water at location of incident test clear.
- Investigation reveals that "terrorists" stole ~1,000 lbs of potassium cyanide (KCN) from a gold/silver plating operation.
 - Actor - *Enough to kill 4 million people.*

¹ Whelton AJ, Jensen JL, Richards TE, Valdivia RM. 2003. The Cyanic Threat to Potable Water. AWWA ACE 2004 Proceedings. Anaheim, CA.

² Kim E, Little JC, Chiu N, Chiu A. 2001. Inhalation Exposure to Volatile Chemicals in Drinking Water. *Journal of Environmental Science and Health*. C19: 2: 387-413.

³ Sanchis JM. 1946. Chemical Warfare and Water Supplies. *Journal AWWA*. 38: 1179-1196.

- News reporting confirms 3 fatalities in San Fernando Valley's Chatsworth neighborhood
 - Only 1 home used bottled water.
 - Conclusion the contaminate must be in the municipal water supply
 - Actor 1: *Metro Water District has monitoring equipment to detect contamination.*
 - Actor 2: *Didn't work well last night.*
- NCIS investigators go to impacted neighborhood disguised as a "Water Ambassador" and a sewer worker.
 - Generic water utility uniforms appear with no discussion of any coordination/approval from water utility.
 - "Water Ambassador" offers to test water and install new shower head/faucets in return for cooperation.
 - Door-to-door canvassing locates empty home (appears to be for sale), investigators pick the lock and discover an industrial pump with a 5 gallons reservoir connected to the kitchen sink (see image below).



- Further "investigation" reveals plan to contaminate larger population, earlier incident was a test to confirm capability. The "terrorists" use a mock water main repair site to gain access to the distribution system and introduce an undefined volume of KCN.
 - Actor 1: *All water sensors are being monitored and access points.*
 - Actor 2: *DWP is ready to cut off water supply at moment's notice.*