

From: McVeigh, James
Sent: Sunday, December 19, 2010 11:16 AM
To: Meda, Jesus
Cc: Fisher, Jim; Chapin, Dana; Snow, Richard; Jarrell, Wayne; Rauscher, Dean; Simpson, Michael; Green, Bryan
Subject: Fluoridation Implementation -- Request for Delay

Jesus:

This email is a request to delay the implementation of fluoridation at the City of San Diego's water treatment plants. I have serious concerns about our planning, preparation, and training for implementing this new treatment process. I know that we are all committed to providing a safe work environment for our employee. I strongly believe, however, that we are sacrificing this ideal in a headlong rush to start fluoridation to meet an arbitrary schedule. Getting this system started on 22 December is not worth putting our employees at risk.

Below are the justifications for this request.

Safety

On Thursday 16 December, Fluoride HAZMAT training was conducted by Dan Drown, a Certified Industrial Hygienist with many years of industrial experience. Dan delivered a 90 minute presentation /discussion about the risks, hazards, and precautions of working with and around Fluorsilicic acid. (Copy attached.)

The most important lesson from Dan's presentation was that Fluorsilicic acid (FSA) is every bit as hazardous (if not more) to employee safety as chlorine or ammonia. The table below shows that Cal OSHA Permissible Exposure Level for FSA is lower than either chlorine or ammonia. Yet we have done no planning whatsoever on process hazard assessment, job safety analysis, or emergency response.

Cal OSHA Permissible Exposure Level	
	PEL (mg/m ³)
Chlorine	3
Ammonia	35
Fluorsilicic acid	2.5

I believe that we need to address the following issues that came out of his presentation **before** FSA is allowed on site at any of the treatment facilities:

- **Personal Protective Equipment (PPE) policy.** Dan provided very specific guidelines for PPE use with FSA including"

" When your job requires the operation of pumps and/or valves containing concentrated FSA the following PPE should be used:

- ***Faceshield and goggles***
- ***Full body acid gear including boots***
- ***Gauntlet length impermeable gloves***
- ***Hardhat"***

This is a significant upgrade of our current policy but one that should be considered in light of the hazards associated with FSA. At this time the treatment plants do not have a policy for safe handling of FSA nor do we have all of this equipment on site if this is our adopted standard.

- **Additional Engineering Controls.** Although considerable effort went into the design for environmental safety (spill containment), an equal level of effort was not given to employee safety. The consultant showed several pictures of the City fluoride facilities that he thought provided inadequate engineering controls for employee safety. It was noted that the hazards of contact from a material or equipment failure could be mitigated (with possibly lower PPE requirements for routine tasks such as filling the Day Tank). **A Process Hazard Assessment, just like we do for chlorine and ammonia, should be conducted and the findings implemented prior to FSA coming on site.**
- **Bulk Tank Vent Condensate.** We experience vent condensate from other Bulk Tanks. Given, the extreme dermal hazard of FSA, is the existing vent system on the Bulk Tank safe? As currently constructed, FSA will most likely condense in the vent and drip down the side of the Bulk Tank creating a dermal hazard.



Ferrous & Ferric Condensate Dripping

- **HAZ Op Plan.** Dan noted that there should have been a HAZ Op Plan developed in design. This plan is similar to a Process Hazard Assessment in the RMP process. We should obtain and review this plan. **Absent this plan, job safety analyses should be conducted for FSA handling activities.**
- **Site Emergency Action Plan.** Our Site Emergency Action Plan does not incorporate FSA. Dan presented specific elements that should be in our plan to improve the care of an injured employee in the event of FSA exposure. These should be included in our plan.
- **Unsafe Piping.** I have identified piping conditions similar to those that caused the 2009 caustic soda spill. These conditions have been brought to the construction team's attention. I will not allow FSA on site until these conditions are corrected. This situation raises the question of what other unsafe conditions exist.

Operational Planning & Training

Implementing a new treatment process requires more than just building the pipes, tanks, pumps, and control system. A plan must be developed and trained to put this equipment together as a working and effective system. Add to this the regulatory requirements of strict performance standards for fluoride treatment -- there is not "testing period" we must meet tight standards from day one -- and you have a very difficult startup that requires much more operational planning than has been done to-date. System monitoring protocols and procedures need to be developed and Operators trained in their use. I have been stymied in this process by two major hurdles:

1. The fluoridation system is not yet fully operational. As of this moment, we are in day 6 of a 7 day test with water in this system. Both chemical feed pumps were not operational until Thursday 16 December. The Transfer Pump don't work to specifications. There are still programming issues. I cannot train Operators in the use of a system that is not operational.
2. We will not receive Operational Training from the engineer until after the 7-Day test is over and the same day FSA is scheduled to be delivered and the system started. This precludes any hands on training on the system before it goes live and severely compromises Operator knowledge and experience before they are asked to accurately feed and monitor the application of a toxic chemical into the drinking water.

SUMMARY & RECOMMENDATIONS

1. Fluorosilicic acid is a hazardous material with health and safety consequences to our employees at least as severe, if not more severe, than chlorine or ammonia. Yet our operational procedures and engineering controls for employee safety are nowhere that of chlorine or ammonia systems. A Process Hazard Assessment and Job Safety Analysis are necessary to ensure employee safety. These should be completed and all recommendations implemented before FSA is brought on site.
2. Problems with getting the system started up have blocked development of operational and monitoring procedures. Training on the system scheduled for the same day as FSA delivery precludes Operators learning the systems in a testing mode using water. The system should be fully operational and running on water for at least one week subsequent to the system training to allow hands on Operator experience on the system.
3. The existing fluoride piping system contains dangerous piping that is susceptible to breakage and release of FSA. FSA will not be permitted on site until these conditions are corrected. It is strongly recommended that a third-party expert inspect and review these facilities for other safety inadequacies.

Regards,

Jim McVeigh CET
Senior Water Operations Supervisor
Otay Water Treatment Plant
1500 Wueste Road,
Chula Vista, CA 91915