



TO: Solid and Hazardous Waste Commissioners

FROM: The Hazardous Materials and Waste Management Division
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DATE: July 29, 2016

SUBJECT: Solid and Hazardous Waste Program Newsletter

[Commission Schedule Update](#)

Included below is the current Solid and Hazardous Waste Commission (Commission) meeting schedule and work plan. The schedule includes both informational briefings and rulemakings as we know them now.

**Solid and Hazardous Waste Commission
 Rulemaking Agenda Docket and Schedule**

	2016	2017
February		<ul style="list-style-type: none"> • Rulemaking, Coal Combustion Residuals, Part 19 (SW) • Rulemaking, Water Treatment Plant Residuals (repeal) (SW)
May	ANNUAL MEETING	
August	<ul style="list-style-type: none"> • Informational Briefing, Composting (SW) • Informational Briefing, Waste Tires (SW) 	
November	<ul style="list-style-type: none"> • Rulemaking, Public Composting, Part 14 (SW) • Rulemaking, Waste Tires, Part 10 (SW) • Informational Briefing, Coal Combustion Residuals, Part 19 (SW) • Informational Briefing, Water treatment plant residuals (SW) 	

Proposed August, 2016 Commission Meeting Agenda

Information Briefing #1, Amendment to 6 CCR 1007-2, Part 1, Section 10 - Waste Tires and End User Fund: Staff from the Solid Waste and Materials Management Program will provide an informational briefing on proposed changes to Section 10 - Waste Tires and End User Fund. Proposed changes include reporting requirements for haulers with fewer than nine tires, monthly fee reporting, and establishment of rates for the end users' fund.

Informational Briefing #2, Amendment to 6 CCR 1007-2, Part 1, Section 14 - Composting: Staff from the Solid Waste and Materials Management Program will provide an informational briefing on proposed amendments to Section 14 of 6 CCR 1007-2, Part 1 (Composting). The proposed changes include new classes and operational requirements for composting facilities.

2016 Legislative Developments

The 2016 legislative session concluded on May 11, 2016. There are no legislative developments requiring Commission action at this time.

Project Updates

This newsletter focuses on current project in the Hazardous Waste Permitting Unit managed by Kevin Mackey.

The Hazardous Waste Permitting Unit has kept busy this last year issuing significant permit modifications and overseeing the construction completion of the largest treatment, storage and disposal facility in the state. Construction of the Pueblo Chemical Agent Destruction Pilot Plant (PCAPP) facility is complete and the facility is ready to begin final Integrated Operation Demonstrations followed closely by Pilot Test Demonstration activities involving the stepped treatment of agent-containing munitions. The 84 acre, \$1.6 billion facility will utilize over 55 hazardous waste treatment and storage units to safely treat and destroy the chemical weapons stockpile at the Pueblo Chemical Depot.

The plant's treatment process will utilize a variety of first-of-a-kind equipment to robotically disassemble the weapons, separate the explosive components and access and wash the mustard agent from the rounds. Neutralization of the resulting agent liquids will then occur in large titanium tank reactors. Once neutralized, further treatment of the neutralization fluid (Hydrolysate) will take place in biological reactors (bio-treatment system). This system will further destroy the neutralization fluid that is largely composed of thiodiglycol (TDG). Water used in the treatment process is recovered and recycled and the waste salts and other solid materials will be disposed of off-site as hazardous waste. Finally, contaminated metal munitions bodies, parts and other secondary wastes will be heat treated at PCAPP to remove agent contamination. Once cleared for mustard agent, the metal munitions bodies are sent off-site for recycling.



The Permitting Unit has been busy reviewing and approving permit modification requests and working toward facility certification and Pilot Testing. CDPHE will be observing the performance of various plant hazardous waste treatment systems during the Integrated Operations Demonstration (IOD) activities scheduled for early August of this year. IOD activities will not include the treatment of actual mustard agent but will involve operating the approximate 300 plant subsystems together under the anticipated operating conditions during actual munitions treatment. CDPHE will observe the operations of various processes and will be utilizing information gathered to evaluate plant readiness as it pertains to the initiation of pilot testing activities.



Photo of the robotic Linear Projectile/Mortar Disassembly Device (LPMD)

The Bio-treatment system is going through the Acclimation and Start-Up process. Acclimation activities commenced on June 1, 2016 and it will take an estimated 1 month to reach steady state. In order to get the system up and running, the site is utilizing commercial grade thiodiglycol (TDG) to acclimate the microorganisms to the system and the bioreactors have been inoculated with biomass obtained from the City of Pueblo's wastewater treatment facility.



Placement of the Immobilized Cell Bioreactors where Agent Hydrolysate is treated

The Bio-treatment System is currently achieving approximately 99% TDG removal; however, PCAPP anticipates a decreased treatment efficiency when utilizing hydrolysate derived from actual weapons due to the presence of other compounds and elements present in the stored munitions.

So far, the Bio-Treatment system has generated 3,500 pounds of salt cake utilizing commercial grade TDG.

Explosive Destruction System

The Permitting Unit was involved in permitting and inspecting activities conducted during the initial treatment of mustard-agent containing munitions in the Explosive Destruction System (EDS). The EDS is a truck or skid-mounted self-contained treatment unit deployed by the US Army to a variety of sites around the nation to treat unexploded ordinance, including chemical weapons. The EDS Unit at the Pueblo Chemical Depot operates inside an Environmental Enclosure (EE) that is under negative pressure. The EE is equipped with an air filtration system to prevent releases of mustard during destruction activities.

Colorado has had previous experience with the EDS as an earlier version of the treatment unit destroyed Sarin Bomblets discovered at the Rocky Mountain Arsenal over ten years ago.



Picture of the truck-mounted EDS Treatment System; picture of over-packed munitions rounds; picture of an x-ray image of an over-packed round showing level of liquid mustard inside round.



Photos of the sprung-steel structures (Environmental Enclosures) utilized to house both the EDS P2R and (the future) P2A systems.

The Explosive Destruction System (EDS) has completed treatment of over-packed munitions stored in the permitted igloos onsite at the Pueblo Chemical Depot. The unit has successfully treated in excess of 500 over-packed containers containing 105 mm, 155 mm, and 4.2 inch Mortars, as well as DOT bottles containing neat mustard agent collected from past sampling efforts. Mustard agent was collected and stored in the DOT containers for analysis and testing intended to characterize the mustard agent.



Photos of the EDS P2R detonation chamber before and after treatment of munitions.

The P2R EDS Unit is currently idle, waiting utilization for treatment of reject rounds accumulated during PCAPP operations. Reject rounds are defined as any problematic mustard-bearing rounds that cannot be safely treated at PCAPP. These rounds have leaked mustard agent or corrosion prevents the safe disassembly and emptying of the munitions in the plant.

In addition, the site is anticipating the delivery and installation of a second EDS Unit (P2A). The operations of the P2A Unit will be similar to the P2R; however, the configuration of the blast doors and closure mechanisms have been updated in the P2A unit to allow for the more efficient operation and destruction of the reject rounds.

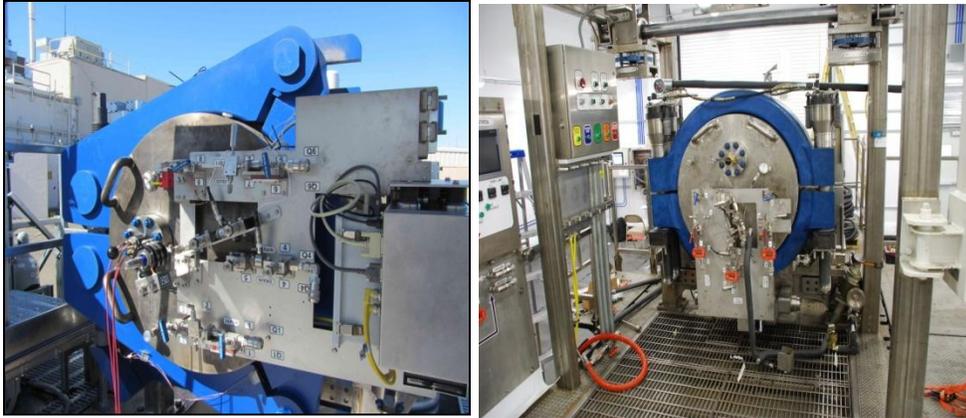


Photo of the P2A closure system (left) and the P2R system (right) currently in use at the PCAPP Facility.

Deer Trail Highway 36

The Permitting unit has continued monthly inspections of Clean Harbors, Deer Trail, as in previous years. This year the facility completed inspections of its hazardous waste leachate tanks, required every five years by the permit. The inspection identified problematic areas of the tanks requiring structural repairs to both tanks. Upon completion of the repairs, the tanks were re-coated. All wall thickness measurements were within the allowable range, and waste will continue to be stored in the tanks before treatment in the facility's wastewater treatment system.

Additionally, the Clean Harbors' permit was modified via Class 2 Modification to allow for acceptance of listed K903 waste, which will be generated at the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP). The K903 listing applies to agent hydrolysate produced by neutralizing mustard agent through the hydrolysis reaction. The listing also applies to any secondary waste contacting the hydrolysate, such as rags and personal protective equipment (PPE). Once the hydrolysate has been bio-treated and has subsequently passed through the Brine Reduction System, the resulting filter cake will also carry the K903 listing. This filter cake can now be treated and disposed of at Clean Harbors Deer Trail facility.

Safety Clean Pueblo

CDPHE is currently conducting a review including updates and revisions in support of a 10-year RCRA Permit renewal for Safety-Kleen Systems, Inc. - Pueblo facility. The facility is a storage and transfer facility for parts washer solvents, used oil, dry-cleaning, and some photochemical wastes. The facility is composed of an exterior tank and pad storage area as well as interior container storage located within a warehouse. Revisions to the current permit include: Revising Diagrams and maps to include drawings that have a Colorado P.E. certification; various language changes to provide more specificity as to the operating conditions at the facility; clarification of lightning protection system inspection and testing; as well as updating names, and addresses of critical site contacts.

Fort Carson

US Army Fort Carson's hazardous waste permit expires in October 2016. The facility has submitted an application for renewal to the Division in April. While there are no major proposed changes in the application with respect to the facility's permitted storage building or its Open Detonation (OD) Unit at Range 121, the facility and the Division are considering potential modifications to the groundwater monitoring program associated with the OD Unit and other minor changes to the permit. The Division is currently reviewing the renewal application, and expects to issue Notice of Deficiencies (NODs) upon completion of the review process.

Veolia

Veolia ES Technical Solutions, LLC located in Henderson, Colorado, is permitted to treat and store hazardous waste in tanks and containers. Permitted treatment in containers includes neutralization of corrosive wastes, aerosol can treatment, solidification, and container-to-container blending. Permitted treatment activities in tanks includes thin-film and fractional distillation, neutralization of corrosive waste, phase separation, filtration, liquid/liquid and solid/liquid extraction, and blending. Recent significant activities at the Veolia facility involving the Division include the submittal of a major permit modification request.

The Division continues to conduct routine hazardous waste inspections at the Veolia facility, with the last inspection performed on September 9, 2015.

The Veolia facility has submitted a few permit modifications including a Class 3 permit modification request to convert seven existing chemical service tanks to hazardous waste storage tanks. An initial 60-day comment period was completed and the Division is preparing a draft permit that will have a 45-day public comment period when issued.

Organizational/Staffing Highlights

Lindsay Masters recently joined the Hazardous Waste Corrective Action unit as an environmental protection specialist. Lindsay holds a degree in geology from Colby College and is a licensed environmental attorney. Welcome, Lindsay!

The Hazardous Waste Corrective Action Unit also said farewell to its Unit Leader recently, with the retirement of Walter Avramenko. Walter possessed extensive knowledge and corrective action experience and was a significant resource in the Division. A hiring process for Walter's replacement will commence shortly.