TRI-TAC AIR COMMITTEE
NOVEMBER 13, 2003

Issue Summary

1. WERF ODOR CONTROL TECHNOLOGIES ASSESSMENT

Los Angeles County Sanitation Districts (LACSD) and CH2M HILL received a Water Environment Research Foundation (WERF) Odor Assessment grant for a two-phase research program. The primary purposes of this study are to provide a working definition of odors, determine POTWs odor sources, list known odor compounds of concern, provide odor assessment approaches, provide modeling techniques for odor emissions estimating and odor dispersion, and conduct field research on the most important odor issues. The first phase was primarily a literature search that was used to develop a field research agenda for the second phase studies. This phase also looked at what has been successfully used at industrial and agricultural sites to control odors and whether there is any application to POTWs. Other technical areas addressed in the Phase 1 work include all potential POTW odor sources - collection system, processes, biosolids handling facilities and combustion sources; odor characterization; the public's perception of odors and complaint trigger levels; and measurement and analysis approaches. In the second phase of the study, the WERF team will assess potential origins of odors from biosolids processes following stabilization by anaerobic digestion. The research aims at determining the means of odor generation in various dewatering, storage, and conveyance processes. This was determined to be the most important odor research need at the WERF workshop held at the 2001 WEFTEC Conference.

Update: In the summer of 2002 the WERF team completed an extensive testing program of eleven wastewater treatment facilities to produce data for Phase 2 of the project. The facilities represent a broad range in terms of size and treatment processed used. Technologies represented include dissolved air flotation thickening, gravity belt thickening, centrifuges for dewatering (and in one plant also for thickening), a plate-and-frame filter press, drying beds, and solids storage lagoons. Local labs conducted some analyses of collected samples, and onsite headspace test testing was conducted for NH_3 and H_2S. Bucknell University and Virginia Polytechnic laboratories conducted further headspace analyses and tests for organics, cations, anions, and residual biological activity. St. Croix Sensory measured odors from various points in the biosolids process train.

Initial conclusions were reported in a March 2003 preliminary Draft Phase 2 Report to the WERF Project Sub-Committee (PSC), which has since been published by WERF. At a workshop at WEFTEC in October 2003, Phase 2 findings were presented and

Phase 3 was discussed. Phase 3 will involve optimization of solids processing at several plants in an effort to hone in on the parameters affecting odor generation.

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2. EMISSIONS MODELS

As air districts become more stringent about requiring updated emissions inventories, accurate emissions estimation is becoming more important. Several computer models are used in practice, and efforts are underway to evaluate and improve these models. Two models commonly used for estimation of emissions from wastewater are the Bay Area Sewage Toxics Emissions Model (BASTE) and WATER9.

BASTE is a liquid process emissions model that was originally developed for AB2588 compliance in 1990 by the Bay Area Air Toxics (BAAT) Group. The model is widely accepted by regulators as a tool for estimating VOC emissions, and it is also useful for estimating emissions of odorous compounds. The model's technology is, however, outdated, so an effort is underway by the Air Issues and Regulations Committee (formerly the BAAT Group) to update the model.

WATER9, which was recently released, is an EPA air emissions estimating model that is built off of WATER8 and WATER7 Models. It contains several new items, including a collection system model component that predicts VOC emissions for over 400 compounds from a sewer system. An AMSA Workgroup reviewing WATER9 is concerned that it overestimates emissions, as WATER8 and WATER7 were known to do.

***Update*:** The BASTE Upgrade project is underway. CH2M HILL will be doing the upgrades, with matching funding from the AIR Committee. The Committee has selected the following improvements to the model:

- Conversion from DOS-based to Windows-based environment via .net format
- Input/Output File type alteration away from *.dat
- Create fully-searchable, indexed online help manual
- Upgrade model to analyze 400 compounds
- Create algorithm for Trickling Filter
- Alter existing manual for better definition of current method of modeling bar screens
- Create algorithm for Septicity
- Account for variation in Henry's constant with temperature and pH

Capability upgrades are almost complete and the user interface is well underway. A beta version of the new and improved model is expected by the end of this year.

In response to the concerns over WATER9, AMSA has contracted CH2M HILL to investigate WATER9 Model's collection system component for its accuracy in comparison to two proven POTW-specific collection system models – CH2M HILL's Interceptor Model and Coral Model from TOXCHEM. Scope items include a "paper" comparison of the three models, detailed evaluation of WATER9 Model's equations, strengths, and weaknesses, and in a 2nd Phase, direct source testing of a collection system to compare to WATER9 emission predictions.

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3. CARB DIESEL AIRBORNE TOXIC CONTROL MEASURES (ATCMS)

CARB is currently working on several Airborne Toxic Control Measures (ATCMs) for diesel engines that will have large impacts on POTWs. Workshops have been held to discuss draft regulations and regulatory concepts for stationary and portable diesel-fueled engines, and heavy-duty diesel vehicles. These rules have major implications for POTWs, as they have the potential to force retrofits of all existing diesel engines over 50 hp.

Tiered emissions standards have been proposed for stationary diesel emergency standby engines based on the number of hours they operate for maintenance and testing. Engines that operate fewer than 20 hrs/yr would not be required to meet specific standards. Emergency use of standby engines can be unlimited and does not count against these hour totals. Retrofits would be phased in, and older engines (pre-1989) would have to be retrofitted first. These engines would have to be retrofitted by January 1, 2006. CARB is also working on changes to AB2588 risk assessment rules to make it consistent with the ATCM. These modifications to AB2588 may trigger facilities that were not in the air toxics program before into the program based on diesel risk.

Portable engines are defined as engines that are not self-propelled but that change locations at least once every twelve months. Retrofits will not likely be required of portable engines, but there will be a mandatory phase-in of new portable engines by 2020.

CARB has also proposed a diesel control measure for on-road heavy-duty diesel-fueled publicly owned and operated fleets. This regulation would affect all on-road vehicles with gross vehicle weight ratings of greater than 14,000 lbs owned or operated by a public agency. The proposal requires the retrofit of these vehicles to decrease diesel PM. The retrofits would be done in phases according to engine model year.

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***Update*:** The latest draft of the stationary engine ATCM has been posted on the CARB website at http://www.arb.ca.gov/regact/statede/statde/htm. The new draft contains several changes from prior drafts. Previously, dual-fueled engines that operated primarily on digester gas but used diesel for pilot fuel were regulated by this rule. Thanks to the efforts of the POTW community, the new draft contains an exemption for digester gas- and landfill gas-fired engines.

Also, the ATCM has to date, precluded the use of diesel-fueled emergency engines to support participation in interruptible load shedding contracts. In recent proposals, CARB has introduced language that would allow continued participation under certain conditions and with certain limitations. SCAP has been active in discussing this issue with CARB staff. An off-the-record draft of the ATCM that was circulated in October includes provisions for engines used to fulfill interruptible service contracts or to fulfill requirements of Rolling Blackout Reduction Programs.

The Board Hearing on this stationary engine ATCM will be held in Sacramento on November 20 and 21. Once adopted, individual air districts will have 120 days to adopt the ATCM as it is or amend their rules to make them equivalent or more stringent.

The development of the portable engine ATCM is lagging behind the ATCM for stationary engines. Draft regulatory language has recently been released and is available on CARB's website at http://www.arb.ca.gov/diesel/portdiesel.htm. The greatest concerns with current proposals relate to use of portable engines during emergency conditions and use of engines near schools. New language in the most recent draft ATCM allows until 2020 for retrofit or replacement of engines that are for emergency use only or that operate less than 50 hours per year. The school provision has been changed slightly but still requires that beginning in January 2006, engines that operate within 300 feet of a school be certified to new engine standards. The Portable Equipment Work Group will meet in Sacramento on November 18.

A new draft was recently released for the control measure governing Heavy-Duty Diesel Public Fleets. Concerns with a previous draft centered around the fact municipalities were also responsible for vehicles operated under contract. However, the new draft has removed language related to contract fleets and requires only that fleets owned by the municipality are fitted with Best Available Control Technology in a phased approach, beginning in 2005 and ending in 2010.

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4. Risk Assessment Guidelines

The California Office of Environmental Health Hazard Assessment (OEHHA) has embarked on a process to update Health Risk Assessment Guidelines. They began this process by updating the toxicity values used in risk assessments. This took place in 1999-2001 and yielded increases in the toxicity of some compounds and toxicity decreases for others. The next phase of the update involves an overhaul of the Health Risk Assessment Guidance Manual. This guidance manual will replace the 1993 CAPCOA Air Toxics Assessment Manual currently in use.

The assumptions contained in the new guidance manual have the potential to significantly raise project risks. Changes in breathing rate assumptions as well as exposure durations will raise residential receptor risk by about 30% and will raise worker receptor risk by about 32%.

Concurrently, CARB is in the final stages of developing its new computer software for risk assessment, the Hot Spots Analysis and Reporting Program (HARP). This software will allow for analysis and reporting of risk assessments, consistent with the new OEHHA Risk Assessment Guidelines.

CARB is also planning to put risk data, not just emissions data for AB2588 facilities on the web in the future. It will therefore be increasingly important to ensure that risk is calculated correctly and that data is right.

***Update*:** OEHHA's Health Risk Assessment Guidelines were officially released on October 2. CARB is still working on the HARP Software, and no release date has been proposed. CARB has also indicated that they will issue an Interim Policy for Risk Assessment. This policy will modify the assumptions for residential receptors contained in the OEHHA Guidelines. This will effectively keep risk for residential receptors similar to current levels. This Interim Policy will not modify assumptions for worker receptors, however, so project risks will likely be driven by risks to workers. The assumptions built into the HARP Software will reflect the Interim Policy. There is no word on when this Interim Policy will be released.

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5. BAAQMD Complaints Guidelines

On October 1, the Bay Area Air Quality Management District (BAAQMD) released draft Complaint Guidelines, a revision of their Compliance and Enforcement Division's Policy and Procedure Guidance document. These guidelines govern how complaints from the public related to air quality or odors are addressed by the BAAQMD. While the guidelines are only applicable in the Bay Area, they have statewide implications, as procedures followed in the Bay Area are often mimicked by other air districts. Concerns related to the guidelines

included lack of acknowledgement that some odor complaints stem from upsets of biological systems that take time to correct, so complaints received over that period should be regarded as one event. The guidelines also leave a lot of discretion to the District, including allowance of a nuisance determination when "the weight of facts and evidence demonstrates that the public has been impacted over time." The text of the guidelines can be found at http://www.baaqmd.gov/enf/complaints/Complaint_Program.pdf

***Update*:** The Bay Area AIR Committee submitted a comment letter to the BAAQMD on October 31. The letter included the comments of Tri-TAC members outside the Bay Area. A meeting has been requested with BAAQMD staff but has not yet been scheduled.

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