

# SCS TRACER ENVIRONMENTAL BULLETIN

May / June 2010

An SCS Tracer Environmental Bi-Monthly Publication

Volume XIV Issue 3

## Odor & Ambient Air Monitoring A Valuable Tool for Assessing Landfill-Related Exposures

This March, SCS Tracer Environmental was requested by one of the SCS Engineers regional offices to assist with the identification and quantification of odor causing compounds related to a certain landfill operation, including the landfill gas generation/collection system, and other non-landfill odor sources in the local area of the subject landfill. Odors had been detected and reported by residents of neighborhoods (residential and commercial areas) in the general vicinity of the subject landfill since unusually heavy rains occurred in the autumn of 2009, but it was uncertain whether the source of the odors could be attributed exclusively to landfill operations or due to unrelated off-site sources as well.

The goal of the project was to identify the odor causing pollutants, evaluate whether the odors were primarily due to emissions from the landfill, and to determine if exposures to these compounds presents any health concerns.

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*... tailor cost effective adjustments to its operations and practices to reduce the impacts of odors in the vicinity of the landfill.*

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Services provided by SCS Tracer Environmental included field monitoring, air sampling, as well as dispersion modeling of potential emission sources. Our work efforts under this task focused on

evaluating potential on-site sources of odors, specifically fugitive landfill gas (LFG) emissions and other aspects of the LFG collection and control system and site operations. This task also involved ambient air sampling within the facility boundary as well as the surrounding vicinity to measure concentrations of hydrogen sulfide (H<sub>2</sub>S) using field instrumentation as an indicator constituent for odors, and air sampling and laboratory testing to assess the presence of a wider spectrum of compounds that may be contributing to detected odors.

Air monitoring and sampling was performed at locations where odors from the landfill (and other potential sources) were likely to be encountered based on wind trajectories, locations of past multiple odor complaints and locations of odor complaints that occurred during the actual field testing. These candidate locations were visited primarily during the early morning and evening hours, the predominant times of past odor complaints and periods when meteorological conditions theoretically support the occurrence of an odor event.

Ambient air monitoring activities involved time-integrated sampling as well as instantaneous "grab" samples. Programmable sample pumps were deployed for the collection of samples over 1-hour periods. Sampling metrics were recorded on project specific sampling forms. The occurrence and intensity of odors experienced by SCS Tracer technicians during field activities were also

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## Risk Group Update

### Maintaining Your PSM / RMP / CalARP Program

**N**ow that you have your PSM/RMP/CalARP program, you can't merely let it sit on the shelf and collect dust. It needs to be implemented. There are many tasks that need to be performed on a routine basis to maintain your program. Each section included in your program requires periodic documentation and/or updates.

#### Some tasks have preset time intervals:

- Operating Procedures – Review SOP's and update (if necessary) annually.
- Training – Refresher training conducted every three years.
- Mechanical Integrity – Periodic inspections of the system (daily, weekly, monthly, quarterly, semi-annual, annual, and 5 year).
- Emergency Response – Annual evacuation drills.

#### Some tasks are "as-needed":

- Process Safety Information.
- Contractors – Performance Evaluations and packages / training.
- Emergency Response – Release reporting.
- Employee Participation (e.g. safety meetings/ inspections).
- Incident Investigation.

- Hot Work.
- Management of Change.
- Pre-Startup Safety Review.

#### Program updates have defined schedules:

- Three-Year Compliance Audits
- Five-Year Process Hazard Analysis / Hazard Review Revalidation
- Five-Year Hazard Assessment Update
- Five-Year Seismic Assessment Revalidation (if required in your area)
- Submittals (EPA & Local Administering Agency) – **At least** every 5 years

The program updates, are required to be completed on or before the date they were last updated (anniversary) per the timeframe criteria listed above.

*NOTE: This criteria is a minimum, if you make changes to your process, your Management of Change Program must be followed.*

There are many tools which can be used to keep track of these tasks. Many facilities have preventative maintenance systems already in use, however these programs do not typically include the additional items that need to be completed as part your PSM/RMP/CalARP program.

Two items that SCS Tracer has developed to assist with maintaining your PSM/RMP/CalARP document are the "roadmap" and compliance calendar.

The PSM/RMP and CalARP roadmaps offered by SCS Tracer provide a quick, at-a-glance reference. They provide an outline of the sections included in your PSM/RMP or CalARP programs and list the various tasks and required frequencies associated with each.

The Compliance Calendar offers a detailed list of each task, specific to your facility. Each task is listed according to the month and year it should be performed. It covers a time period of five years. The calendar also offers additional backup documentation with sign off sheet locations for each individual task. The calendar can either be paper or electronic.

Regardless of which tool you choose to use, ensure that it will work for your facility. Also ensure that it incorporates all sections of your PSM/RMP/CalARP program.

For additional information on the implementation tools SCS Tracer offers, please contact Jeanna Emmons, Project Manager for the Risk Group. ✓

SCS Tracer  
Environmental Bulletin  
A Bi-Monthly Newsletter by  
SCS Tracer Environmental

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Do you have questions about an article appearing in this bulletin?  
Call us at (760) 744-9611.



Marjorie Buyson, Jennifer Green and HanhPhuc Nguyen at LA / IE RETA Safety Day (4/16/10)

*(Continued from page 1 - Monitoring)*

recorded. Collection media consist of SUMMA canisters (complete with flow restrictor orifices), sorbent tubes and coated filters. Sampling periods, flow rates, holding times, and sample preservation methods were adhered to relative to the specific test method protocols.

The samples were analyzed for sulfur dioxide, sulfate, organosulfur compounds, ammonia and fatty acids (acetic, propionic and butyric acid). The ambient air samples were shipped in accordance with DOT and IATA specifications, and all applicable regulations. Chain-of-Custody documentation was completed and the air samples were relinquished to the analytical laboratory in accordance with USEPA guidelines.

Based on the field monitoring and laboratory analytical results, SCS Tracer performed air dispersion modeling analyses to estimate the maximum ambient odor causing constituent concentrations that could occur in the neighborhoods from sources at the landfill. The EPA SCREEN3 model (Version 96043) was preliminarily used for this air dispersion modeling analysis with support from other more refined models. This modeling approach is typically considered conservative and is used as a screening tool for developing preliminary calculations and evaluating whether more refined air dispersion modeling may be beneficial. All modeling performed on this task used the Gaussian plume approximation that incorporates source-related factors and meteorological factors to estimate pollutant concentrations from continuous sources.

This work effort was able to provide SCS's client with valuable information that will help them tailor cost effective adjustments to its operations and practices to reduce the impacts of odors in the vicinity of the landfill. For help or questions relating to Odor Monitoring, Air Monitoring, and Dispersion Modeling please call Paul Schafer at (760)744-9611 x111.



## ***New & Returning Hires @ SCS Tracer***

**Lucas Marsalek** will be graduating from Cal Poly State University, San Luis Obispo in June with a BS in Forestry and Natural Resources and most importantly, returning to work at SCS Tracer. Lucas spent two summers at SCS Tracer in 2007 and 2008 where he was responsible for maintenance and care of oak trees as part of a large scale restoration project and assisted the Santa Maria staff with Land Use Permits, Waste Minimization and Management Plans, and participated in a TRACER study measuring wind patterns at Edwards Air Force Base. Lucas is currently a peer advisor at Cal Poly and has family ties to the oil industry.

**Dianna Beck** was born and raised in Southern California where she attended Moorpark College and developed an interest in environmental studies. Dianna moved to San Luis Obispo in 2007 and graduated from Cal Poly with her bachelor's degree in Environmental Management and Protection this year. Dianna joined the Santa Maria office in April and has been working on land use permitting. Her hobbies include sewing, golfing, and cooking.

**Jessica Garcia** just recently graduated from Cal Poly, San Luis Obispo with an Environmental Engineering degree and an interest in air quality and pollution prevention. Throughout her college career Jessica fell in love with the Central Coast and joined the Santa Maria group in April. During an internship at Chevron in 2009, Jessica was exposed to the nuances of the oil industry in the San Joaquin Valley. She also spent 5 months interning at the Bay Area Air Quality Management District in San Francisco where she processed permit applications. Jessica's hobbies include: hiking, the beach, playing guitar, and baking.

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## SCS TRACER Anniversaries

Jim Stirling	22 Years	June 1988
Lee Pyle	21 Years	May 1989
Matthew Pena	20 Years	June 1990
Bob DeVillez	7 Years	June 2003
John Deacon	6 Years	May 2004
Diane Kerrin	4 Years	June 2006
Jennifer Green	2 Years	June 2008
Michael Wood	2 Years	June 2008