

Effective Approaches for Public Communication of Air Quality Results from Two Environmental Dredging Projects

Presenter: Scott Manchester



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Overview

Dredging project descriptions

- Indiana Harbor and Canal
- Onondaga Lake

Air quality monitoring programs

Data communications

- Alarm notifications
- Public websites

Successes and benefits



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Indiana Harbor and Canal Project – Northern Indiana (East Chicago)



- ~1.8M cu. yard maintenance (VOC-contaminated); 7 to 10 year
- Mechanical dredge and barge 3 mi. to combined disposal facility

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Harbor and Canal Project – Combined Disposal Facility (CDF)



- Sediment hydraulically off-loaded to ponded disposal facility
- Residences and a school to the south

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Lake Project – Sediment Consolidation Area (SCA)



- Sediment containment (geo-textile tubes), dewatering , and water treatment
- Residences surround the site perimeter

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Air Quality Monitoring (AQM) Programs

Purpose: community protection

- Short-term (1-hr) monitoring (24/7)
- State and Federal regulations

Data requirements (short-term)

- Continuous; real-time
 - ▶ Harbor and canal project – naphthalene and inhalable dust (PM10)
 - ▶ Lake project – total VOCs and PM10
- Automated alarms
 - ▶ Work perimeter limits
 - ▶ Lower preemptive action levels

Data posted to public website



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Harbor and Canal Project – AQM Station Layout



- 4 fixed stations at corners of berm surrounding CDF
- VOCs (naphthalene) monitored across each side; PM10 at each corner

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Harbor and Canal Project AQM System

Real-time, 24/7; centralized via radio telemetry

- Naphthalene (most significant VOC) and PM10
- 15-minute averages

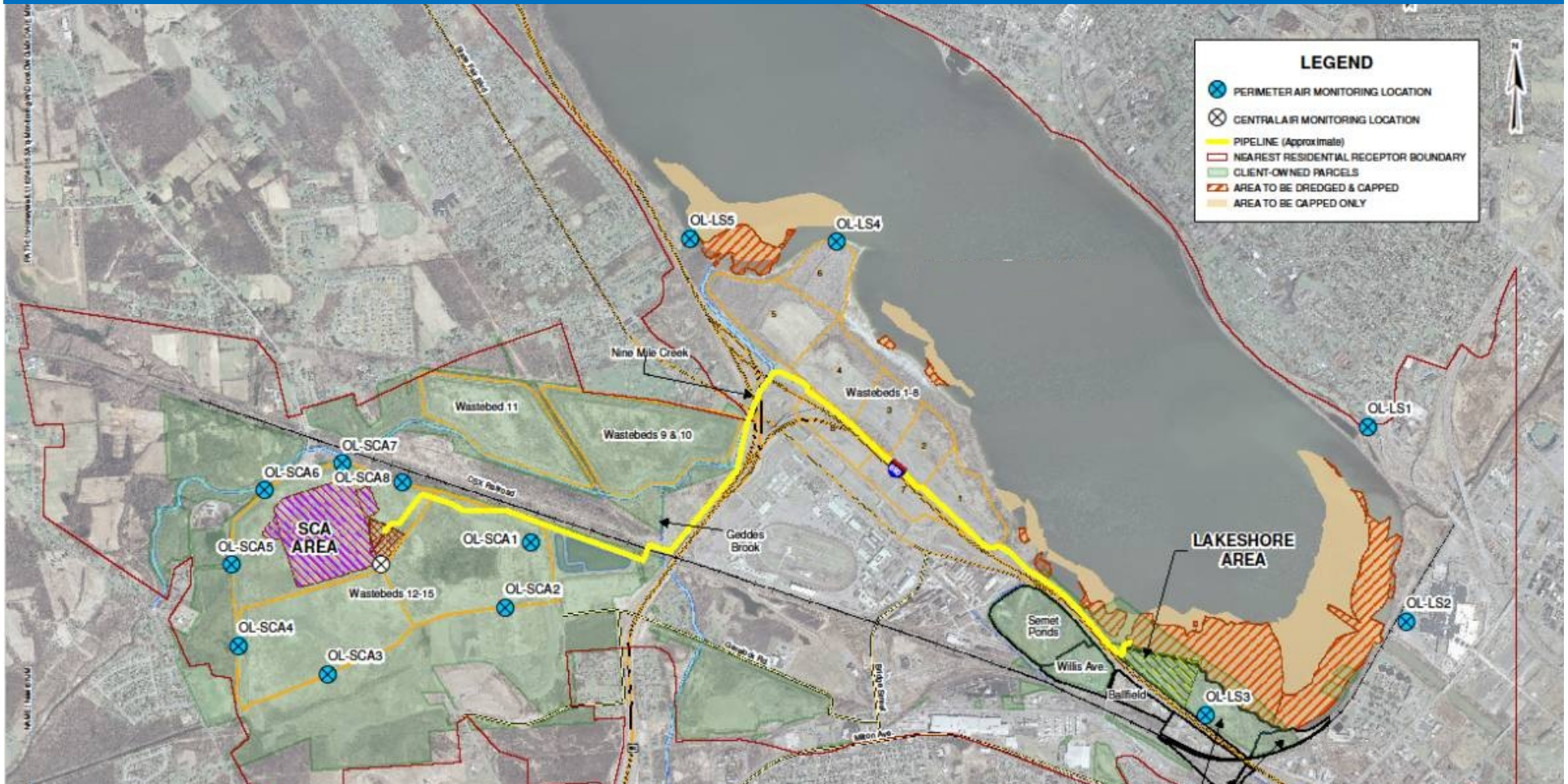
On-site weather station for automated background correction

Action level exceedance alarms – issued by project website



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Lake Project – AQM Station Layout



- 13 fixed stations: 8 around the SCA and 5 at Lakeshore; TVOCs and PM10

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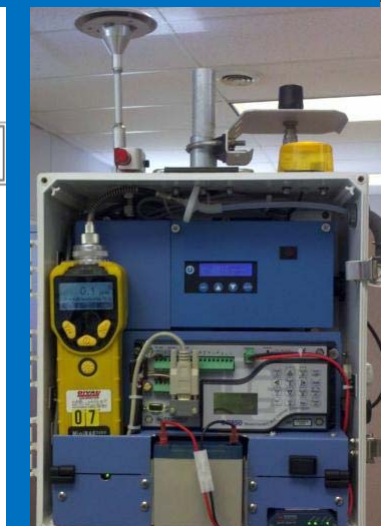
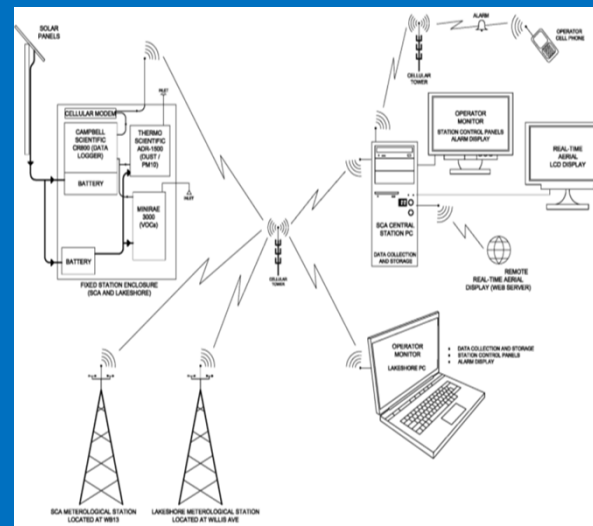
Lake Project AQM System

Real-time, 24/7; centralized via cellular communication

- >8 miles of site perimeter; up to 4 miles away
- TVOCs and PM10
- 1-hour and 1-minute averages
- 15-second updates

Two integrated weather stations

Action level exceedance alarms – issued directly by instruments



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Project Websites

Publically accessible project websites

- Homepage
- Air quality webpage
- Data webpage

Public communications meetings before dredging



Indiana Harbor and Canal Dredging and Disposal Project

[PM Log In]

Home Site News Health & Safety Project Information Contact Us Site Map

Welcome to the Indiana Harbor and Canal Dredging and Disposal Project

Click each image to jump to key areas of interest, or use the menu above to navigate the entire site.

For more detailed project information, visit the [U.S. Army Corps of Engineers \(USACE\), Chicago District](#) Indiana Harbor and Canal Dredging and Disposal Project website.

If you have **additional questions about dredging in the Indiana Harbor and Canal**, email [USACE](#).

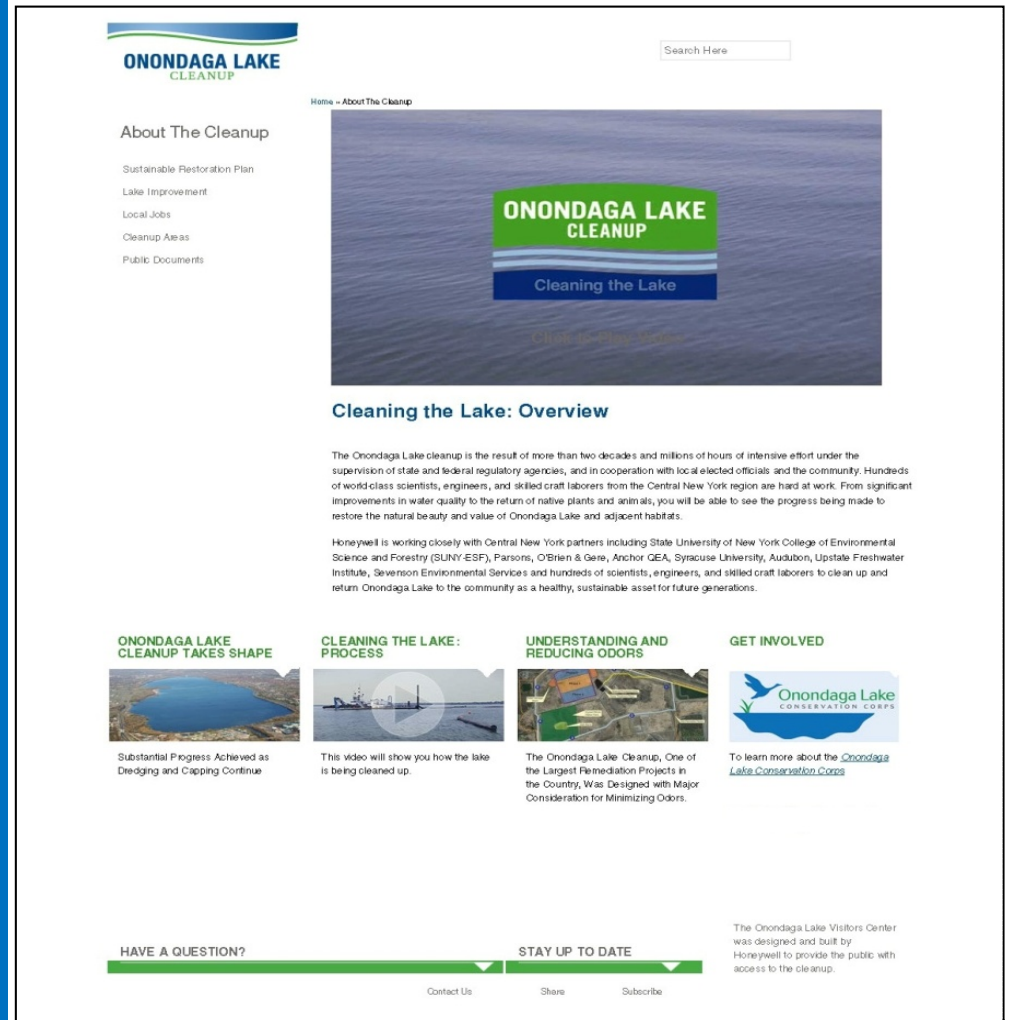
Quick Links



Project Homepages

Purpose: Inform stakeholders, project team, and the public

- Project background and status
- News and contact info
- Health and safety
- Regulatory information and public docs
- Option for public to receive automatic project updates



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Air Quality Webpages

Link from health & safety tab

AQM program description

- Action levels to be protective of public following State and Federal guidelines
- Implementation of emission controls

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Indiana Harbor and Canal Dredging and Disposal Project

Home | Site News | **Health & Safety** | Project Information | Contact Us | Site Map

Community Protection

During the Indiana Harbor and Canal (IHC) Dredging and Disposal Project, the Kokosing Construction/O'Brien & Gere Joint Venture (JV) is conducting a comprehensive monitoring program developed by the U.S. Army Corps of Engineers (USACE). The goal is to implement the project safely, efficiently, and in compliance with USACE specifications, while preserving quality of life for the surrounding community.

During dredging, the program monitors:

- **Air quality:** A real-time air monitoring program provides immediate environmental data demonstrating that air quality is consistent with USEPA guidance for remediation projects and within Indiana Department of Environmental Management (IDEM) regulations for air quality. The program includes a network of four air emission monitoring systems located at each corner of the berms within the confined disposal facility (CDF) that will continuously measure total particulate matter and naphthalene concentrations during dredging operations. The data will be used to prevent negative environmental impacts to the surrounding community.

Action levels for real-time air monitoring have been established to protect human health during dredging and sediment disposal into the CDF. The action levels are guidelines that determine corrective actions to be taken by the JV to control emissions. If an action level for any of the above parameters is exceeded during project activities, control measures will be implemented.

[Air Monitoring Results](#)

ONONDAGA LAKE CLEANUP

Home » Community Health & Safety » Air Monitoring

Community Health & Safety

News

Air Monitoring

Understanding and Reducing Odors

Navigational Safety

Air Monitoring

To jump immediately to the air monitoring maps below, [click here](#).

Lake dredging and capping began in 2012. A [Community Health and Safety Plan](#) was developed and approved by the New York State Department of Environmental Conservation (DEC) in consultation with the New York State Department of Health (DOH) and the U.S. Environmental Protection Agency (EPA) on May 26, 2012.

The plan outlines the activities and measures taken to protect the community and environment during dredging operations. Section 3 describes a comprehensive real-time air monitoring program.

The air monitoring program takes into consideration EPA's human health risk assessment conducted in 2010. The results indicate that operations at the consolidation area, which holds material removed from the lake, "will not result in unacceptable risk for the surrounding community." Nevertheless, the work is closely monitored to ensure that air quality is maintained.


The monitoring system operates continuously 24 hours per day, seven days per week at the consolidation area and at the lakeshore whenever dredging takes place. There are eight fixed monitoring locations along the consolidation area perimeter, and up to five monitoring stations along the lakeshore (two or three will operate at any one time, depending on where dredging is taking place).

Air is monitored for dust, mercury, sulfides, and total volatile organic compounds (TVOCs) to ensure concentrations at the perimeter of the work zones remain below criteria established by the Community Health and Safety Plan. Regulators have established short-term (hourly average) and long-term (12-month average) criteria for this project. Sampling for individual VOCs (referred to as specialized VOCs) is being conducted as part of the long-term monitoring program. Long-term monitoring takes place every six days over a 24-hour period at four pre-determined locations along the consolidation area work zone perimeter to determine individual VOC concentrations. All 12-month averages of individual VOCs were below regulatory criteria for the first year of operations. [Click here](#) for the results.

Air monitoring results, which are collected in real time, are reviewed regularly by technicians and government regulators to ensure that the air quality criteria are not exceeded. According to DEC, "total VOC levels detected at the perimeter monitoring locations comply with the standard established for protecting public health."


To provide additional protection, the equipment is set to provide notification to a technician if lower levels (investigative and control levels) than those established by the regulators (work perimeter limits) are met. If an investigative level is reached, there will be an evaluation, the emission source(s) identified, and the perimeter concentrations closely watched for potential increases. If a control level is reached, mitigation measures will be implemented, such as modifying the layout and filling of the gedestixle tubes. For more details, see the Community Health and Safety Plan referenced above. If the work perimeter limit is reached, operations related to the source(s) will be restricted or stopped until the work is reassessed.

RECENT NEWS



2014 Annual Update

GET INVOLVED



To learn more about the [Onondaga Lake Conservation Corps](#)

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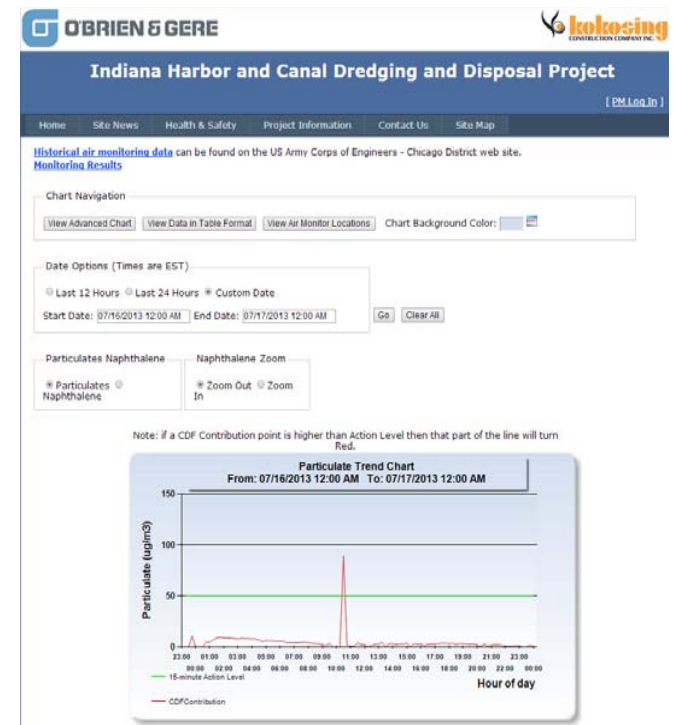
Harbor and Canal – Data Webpage

Project team – notify and inform

- Action level alarms issued directly from webpage to the project team
- Timely feedback to manage operations
- Maintain operations within Federal and State limits

Public – communicate data results

- Info meetings – annually before dredging
- Data updated every 15-minutes
- Accounts for background air quality
- Action level alarms – link to response logs



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Harbor and Canal Project – AQM Data Webpage and Graphs

Indiana Harbor and Canal Dredging and Disposal Project

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[Historical air monitoring data](#) can be found on the US Army Corps of Engineers - Chicago District web site.
[Monitoring Results](#)

Chart Navigation

Chart Background Color:

Date Options (Times are EST)

Last 12 Hours Last 24 Hours Custom Date

Start Date: End Date:

Links to historical data (ACOE)

Particulates Naphthalene

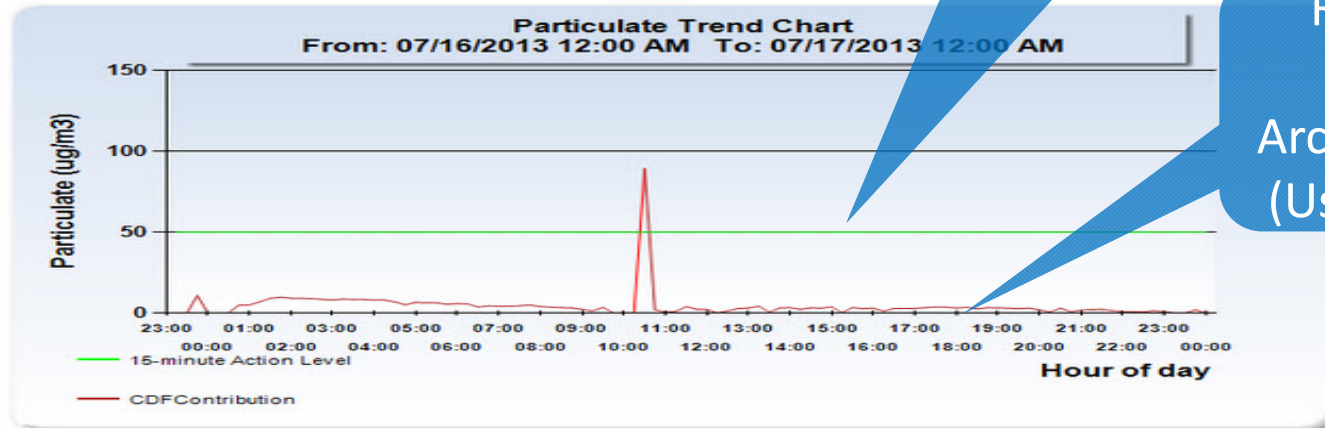
Particulates Naphthalene

Naphthalene Zoom

Zoom Out Zoom In

Air quality limits displayed

Note: if a CDF Contribution point is higher than Action Level then that part of the line will turn Red.



Real-time + Archived Data (User selects)

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Harbor and Canal Project – Data Webpage: Alarm Action Response Log

IHC CDF Dredge Project : Air Monitoring Alarm Response Log

Air Monitoring Station: M1 M2 M3 M4 Dock

Air Monitoring Instrument:
 Cerex Unit (Naphthalene) Thermo Unit (Particles) PID Monitor

Date & Time of alarm: 7/16/2013 10:45 AM **Email sent to site Technician?** (Yes or No)

Technician responded to the alarm: John Doe

1. Was dredging occurring at the time of the alarm? (Yes or No)

2. Alarm caused by:

<input type="checkbox"/>	Loss of Power
<input type="checkbox"/>	Loss of Radio Communication
<input type="checkbox"/>	Out of Calibration
<input type="checkbox"/>	UV Alignment
<input type="checkbox"/>	Blockage in Air Tube
<input checked="" type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Other: Site Maintenance-Mowing

3. Corrective Actions taken? (Yes or No)

4. Dredging suspended? (Yes or No)

5. Alarm logged in air monitoring action spreadsheet? (Yes or No)

Description of Action Taken:

A) While USACE was performing site maintenance of mowing and trimming, along with dry site condition and high pollen count, the particulate reading were above normal for most of the day. The mowing tractor started working at 8:00 AM and finished around 2:30PM.

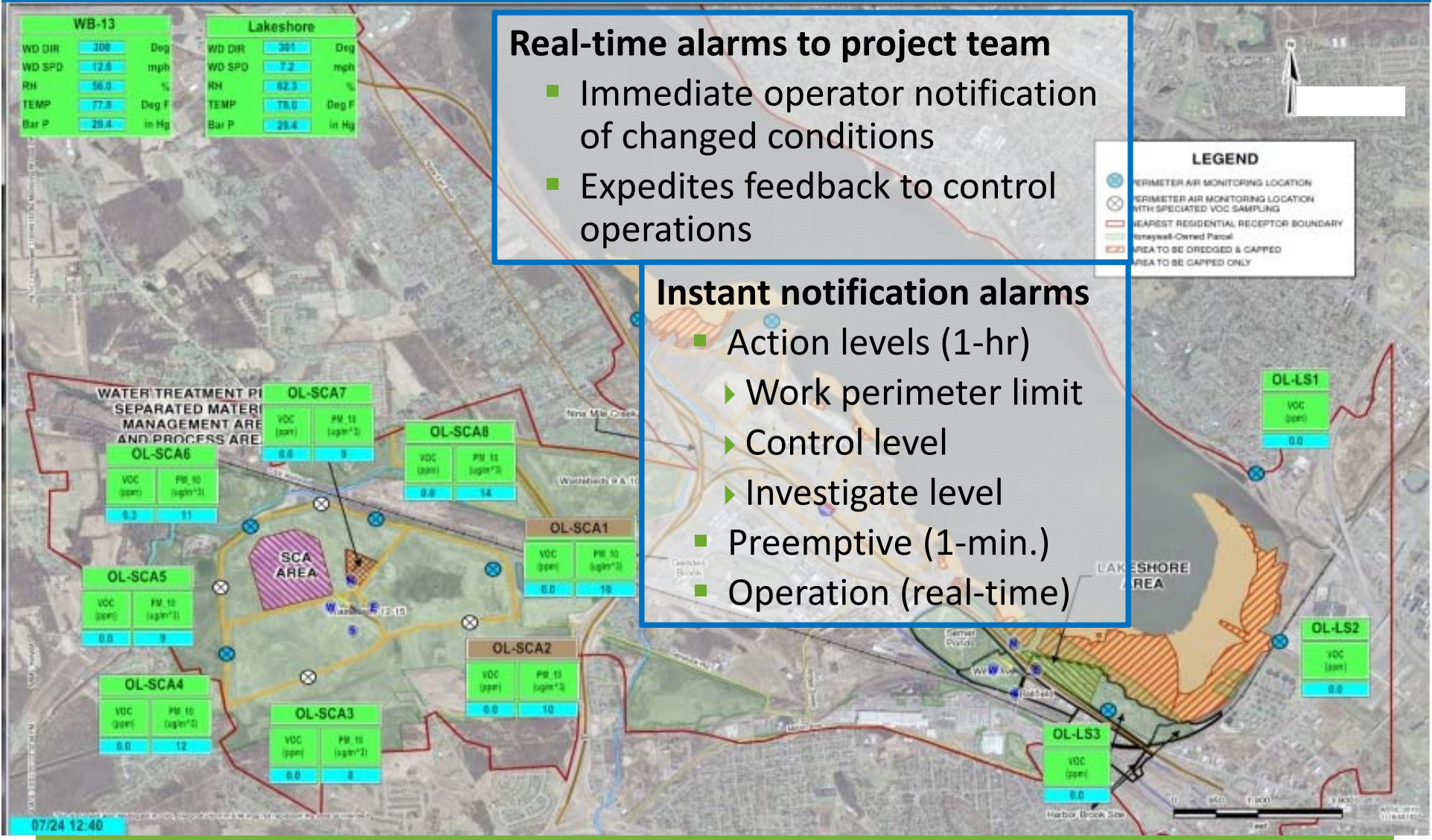
Alarm Details

Cause

Actions Taken

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Lake Project – Real-time Alarm Notifications



Lake Project – Data Webpage

Public access to AQM results

- Daily graphs of validated hourly data – data reviewed before posting
- Data graphs annotated to inform public of any limit excursions or missing, invalid or biased data
- Comparisons to project air quality limits

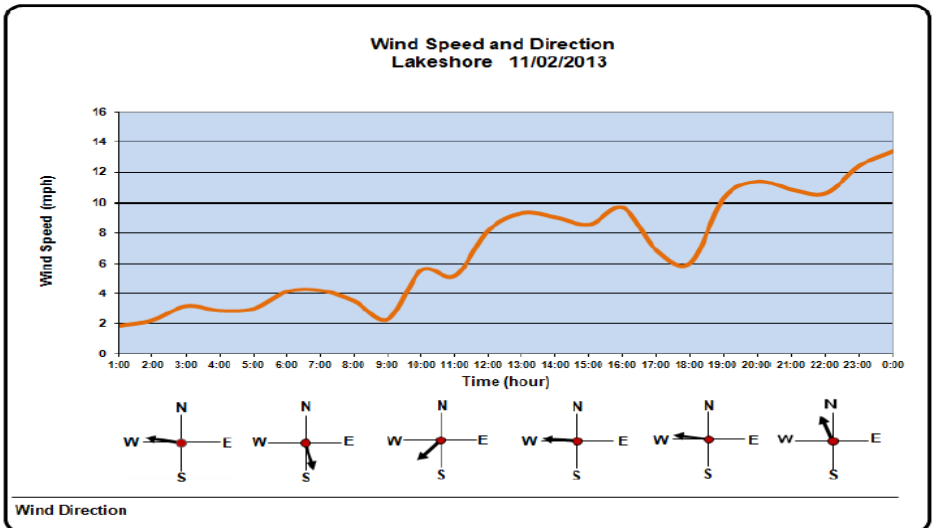
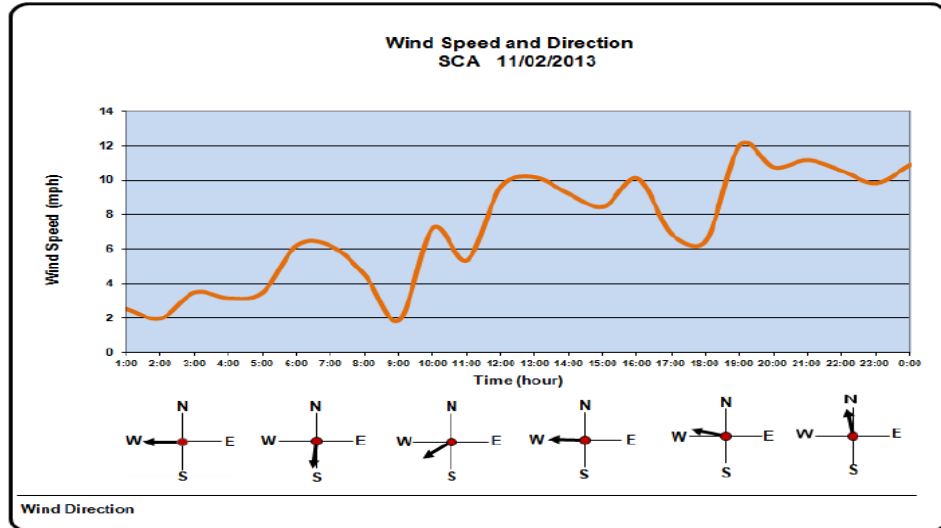
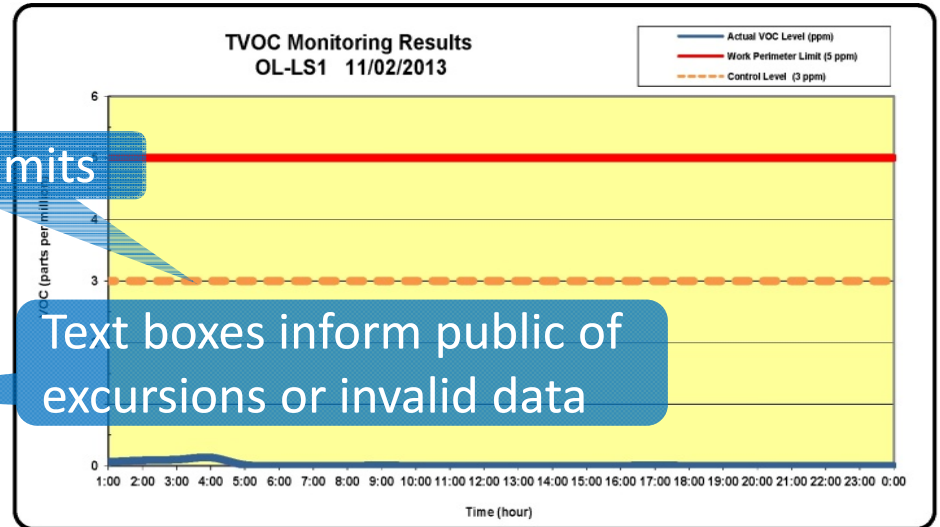
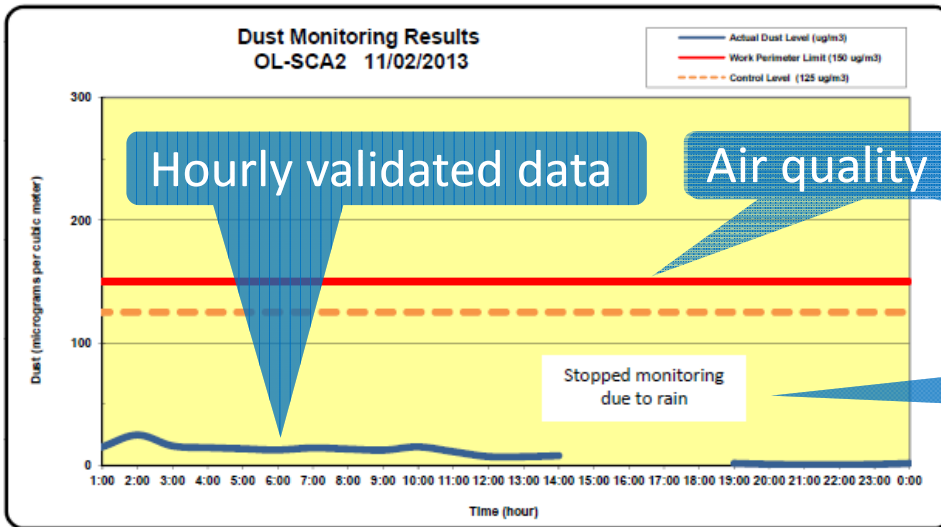
Both current and historic daily data

Site wind conditions – hourly data from Lakeshore and SCA weather towers



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Lake Project – AQM Data Webpage Graphs



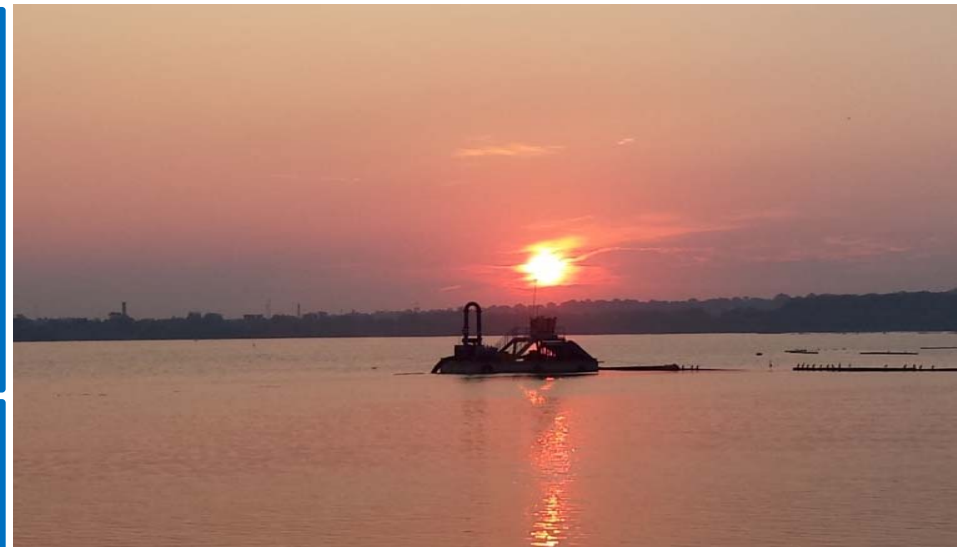
Successes and Benefits

Project Team Communication

- Alarms provided project team rapid notification and feedback
- Maintained air quality within State and Federal limits

Public Communication

- Increased Public Awareness
 - ▶ Continuous review of pollutant levels, and monitor status
 - ▶ Demonstrated operations well within project limits
- Continuous air quality protection to the community



Benefits to Project and Public

- Improved relations with the community
- No work perimeter AQ-related dredging shutdowns or delays

THANK YOU



QUESTIONS?




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energy master planning at the university at albany

O'Brien & Gere has been awarded a contract with University at Albany – State University of New York (SUNY) to develop an energy master plan for the campus, as well as for the [more »](#)

company joins rhode island resource recovery for groundbreaking at \$27 million pretreatment plant

On October 30, 2013, O'Brien & Gere representatives joined Rhode Island Resource Recovery Corporation (RIRRC), Rhode Island Governor Lincoln D. Chafee, Johnston Mayor Joseph M. [more »](#)

events

- » RE3 CONFERENCE
01/27/14 - 01/29/14
- » 17th Annual AWMA/NYWEA Joint Seminar
02/12/14
- » 18th Annual CNY A&WMA Technical Conference
03/25/14

[more »](#)

in the news

- » Council views plans to overhaul wastewater treatment plant, Olean, NY
- » Nearly \$1M flows for NY dams
- » Improving Production Safely with Integrated Heat Treat and Quenching Cell
- » Innovative Partnership with USACE Charleston District
- » Recognized among nation's top 200 environmental firms

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