



Working Together For Clean Air

www.pscleanair.org

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From: Manager, Technical Services

SUBJECT: South Park and Highland Park Air Monitoring Project

Executive Summary

In response to concerns raised by residents of South Park and the Highland Park communities in south Seattle, the Agency conducted an air monitoring project beginning in July 2004. The primary objectives of the project were:

1. Detect ambient levels of Sulfur Dioxide (SO₂) and Nitric Oxide (NO)
2. Evaluate the relationship of odor complaints to detections of target pollutants.
3. Involve the communities in the design of the project
4. Report results to the public in a timely manner.

The following report is provided to convey the preliminary results of this effort. Within this document are a series of graphics that depict data collection results for July and August 2004. These results confirm the following:

- At both monitoring sites the target pollutants were detected.
- Concentration levels of the target pollutants are very low.
- There is a strong relationship between received complaints of odors in the communities to increased levels of SO₂ and NO.
- There is a strong relationship to increased pollution levels when winds are coming from a northerly direction.
- There is a strong relationship to low pollution levels when winds are coming from a southerly direction.

Project Overview

To address the air monitoring needs of this project the Agency selected the UV-SENTRY system from CEREX Environmental Inc. This technology uses ultraviolet light to detect the presence of pollutants by identifying absorbance's of light that are known to occur at discrete locations along the light spectrum. Unlike traditional point monitors these system detect pollution over an open path of ambient air between a transmitter (light source) and a receiver. Connected to the receiver site is a processing device that compares ambient readings against site background levels and known reference libraries. This comparison results in an output that depicts the presence of the analyzed parameter.

Challenges

As this technology was new to the Agency, a larger than anticipated learning curve was encountered. Throughout the project our staff worked with CEREX to address a number of issues that impacted the implementation of this highly sophisticated approach to air monitoring. These issues included:

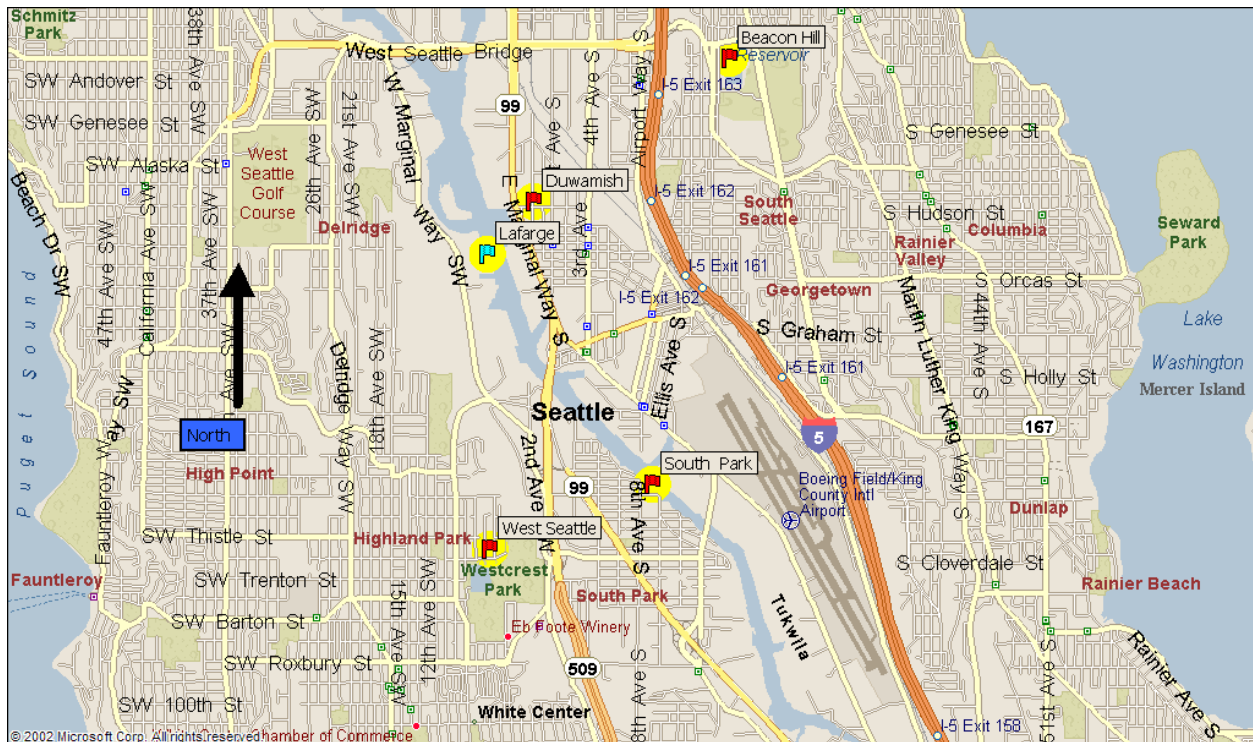
- Upon initial delivery the equipment failed to perform adequately due to ammonia contamination that occurred in the manufacturing of the devices.
- Establishing site specific backgrounds.
- Instability in the data processing software.

As a result we did not achieve the intended goal of publishing weekly data on our website. We regret this but found it necessary to delay reporting while software issues were resolved with the vendor.

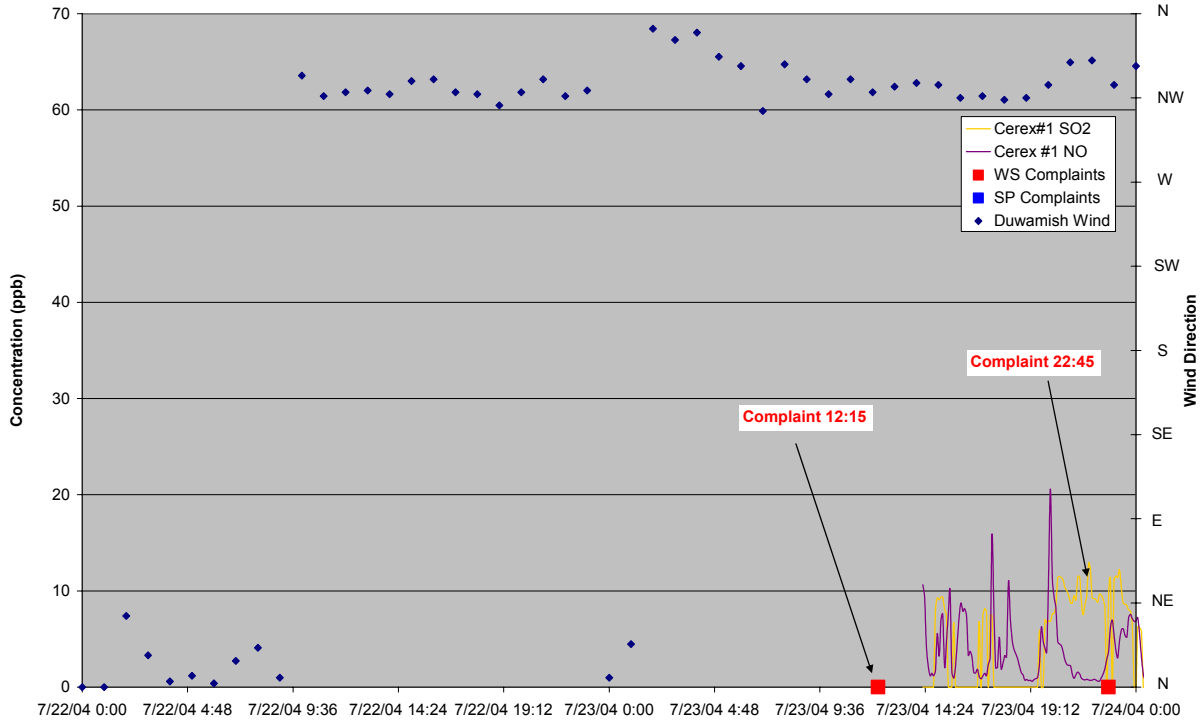
Results

The following graphics are provided for review. It must be noted that during this project members of the community had no access to the real time data results. As such the association between complaints and detections of SO₂ and NO is considered noteworthy. The actual time of pollutant detections are based on internal clocks in the UV-SENTRY and are accurate (+/- 4 min). Variations in the time of the complaints may be accounted for by a number of factors (drift of a plume, too busy to call at the time of the odor, reported the time event began, approximated the times, etc.). Several of the events do not have any complaint data associated with them. This may be accounted for by several factors having no bearing on the quality of the data (time of day, residents were not home, etc). Despite these slight variations, all of the complaints included in these results are considered as strong indicators that increased levels of SO₂ and NO were present.

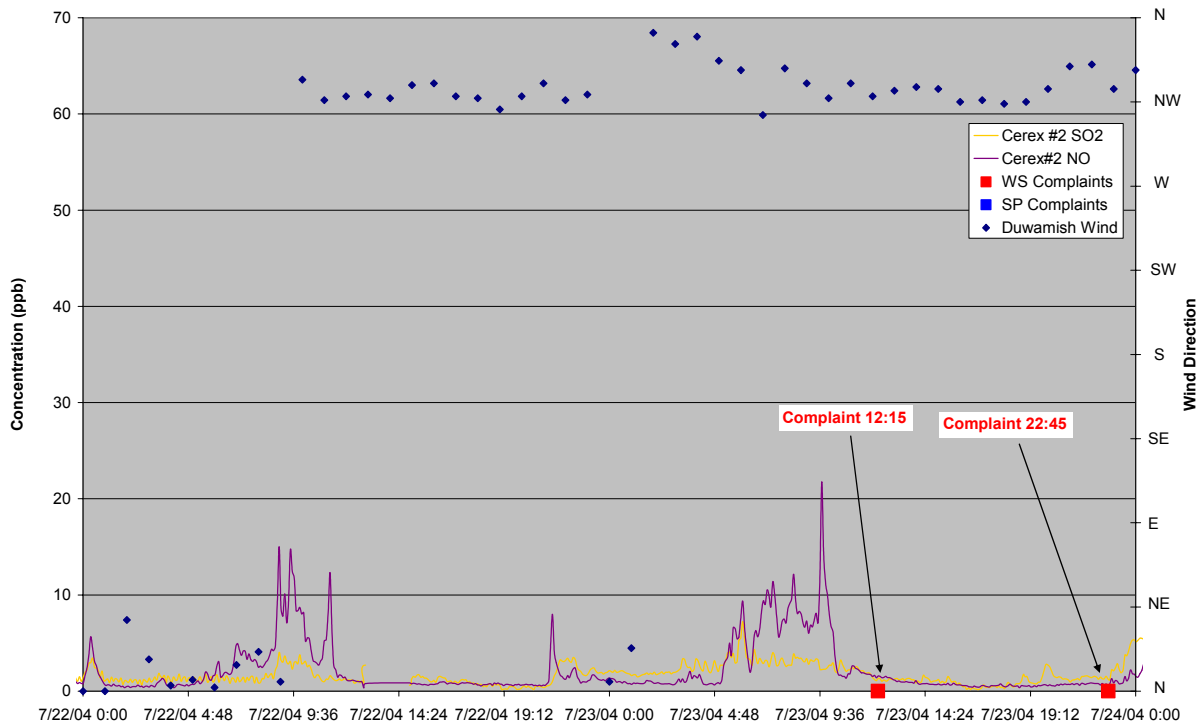
The Monitoring Network



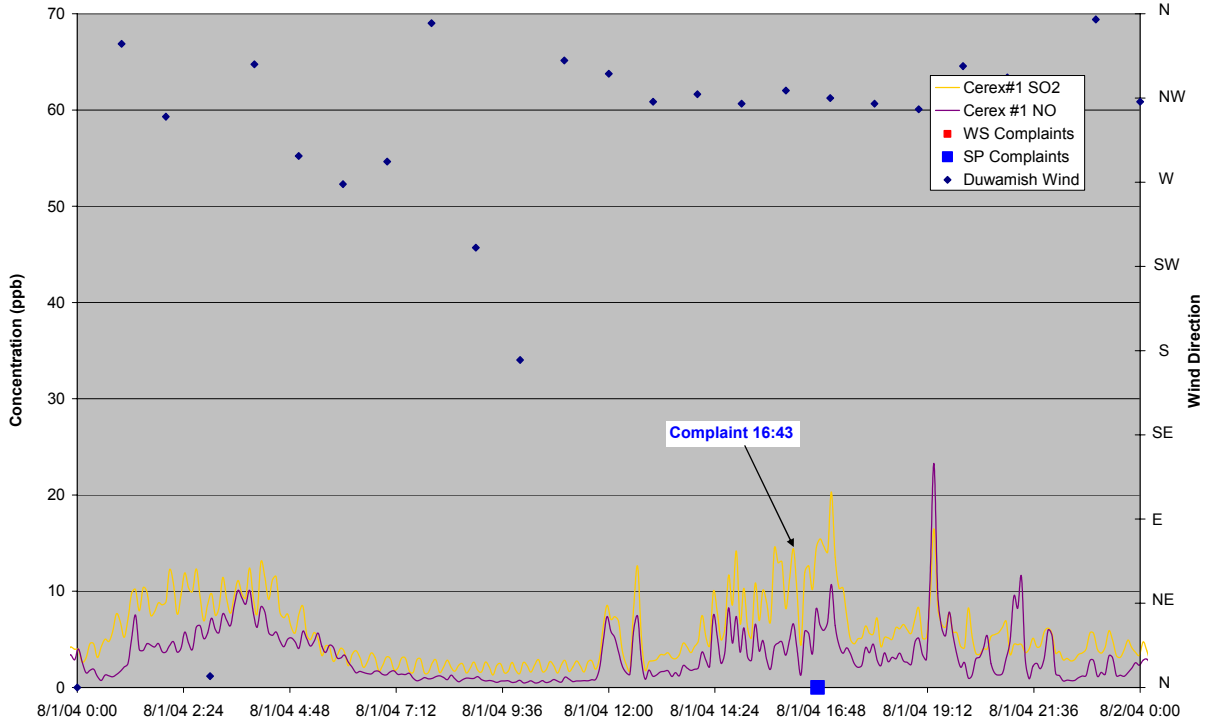
Real-time Cerex Monitoring (5 min Average) at South Park
July 22nd to July 24, 2004



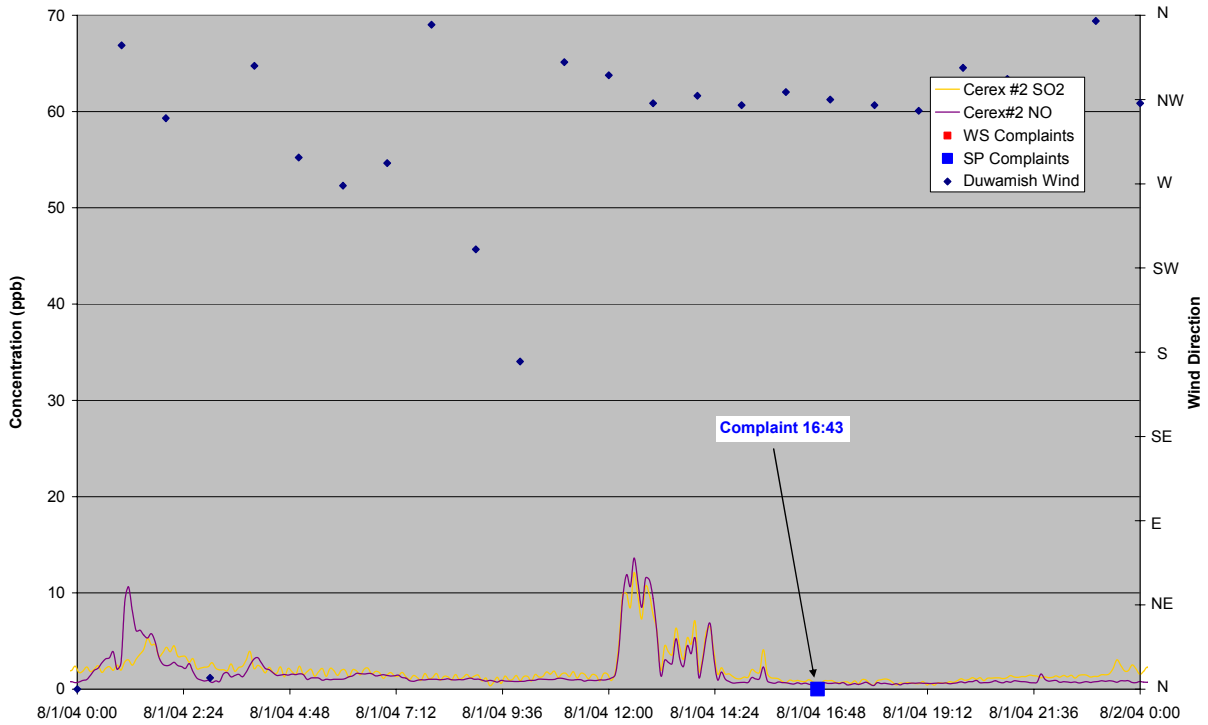
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
July 22nd to July 24, 2004



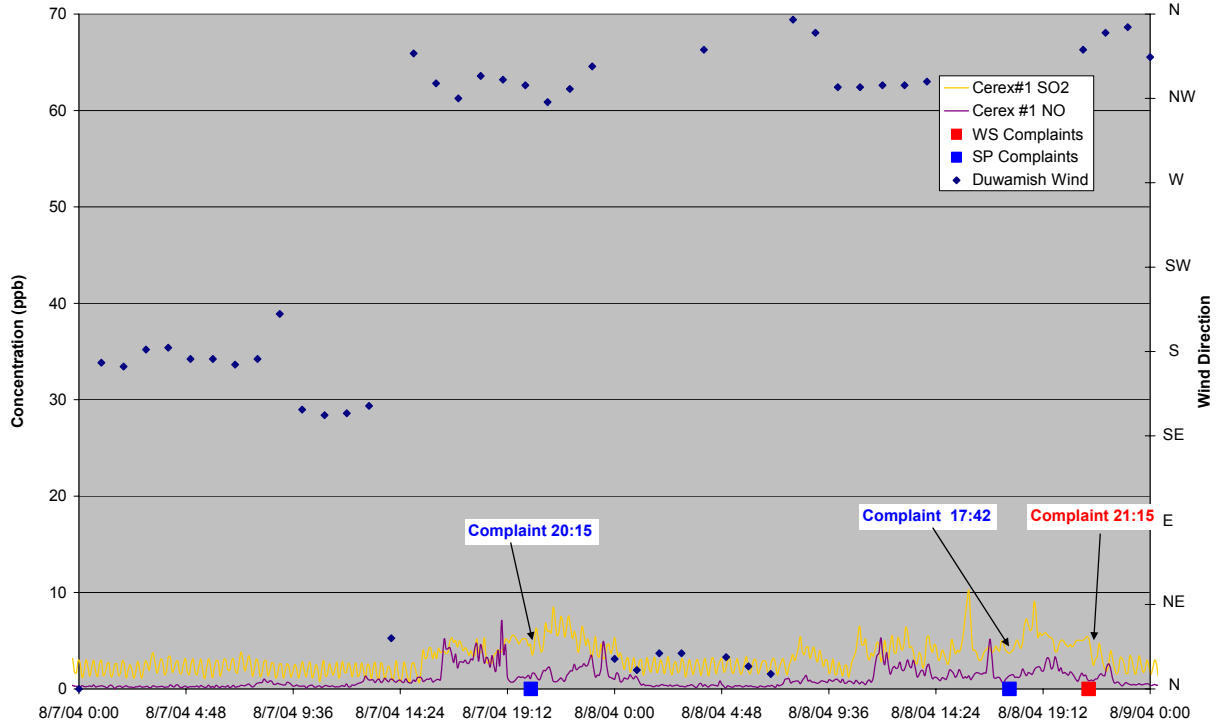
Real-time Cerex Monitoring (5 min Average) at South Park
August 1st to August 2nd, 2004



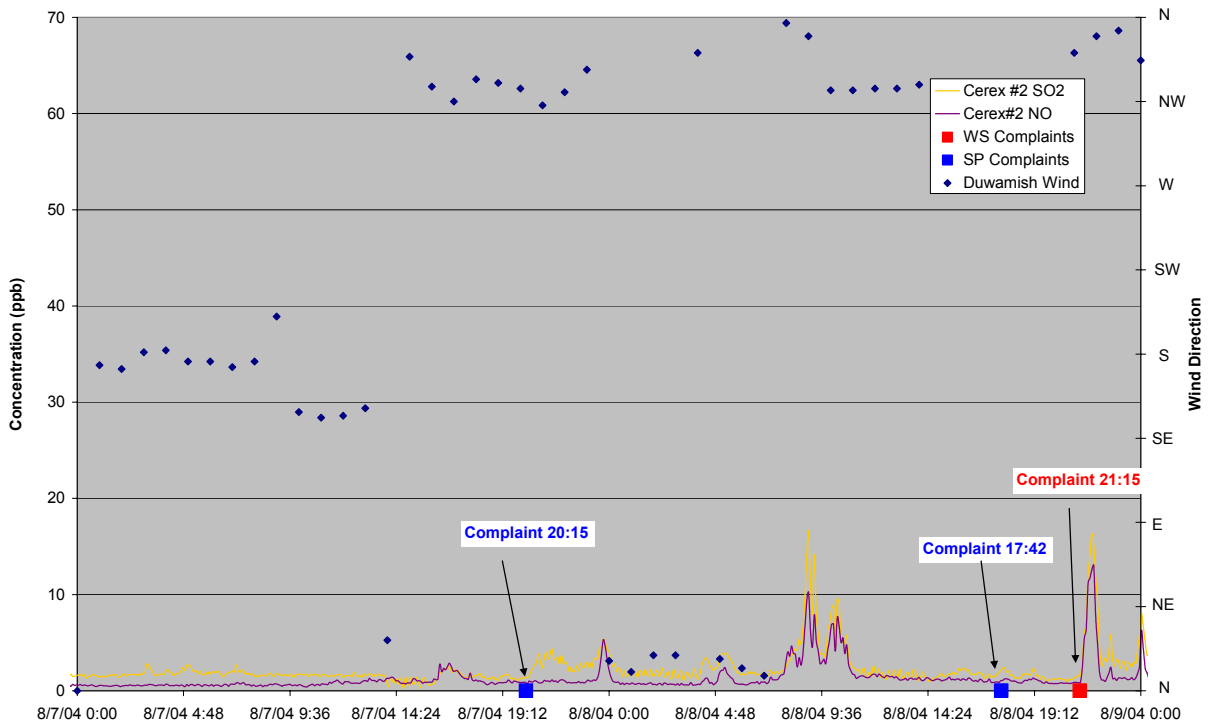
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
August 1st to August 2nd, 2004



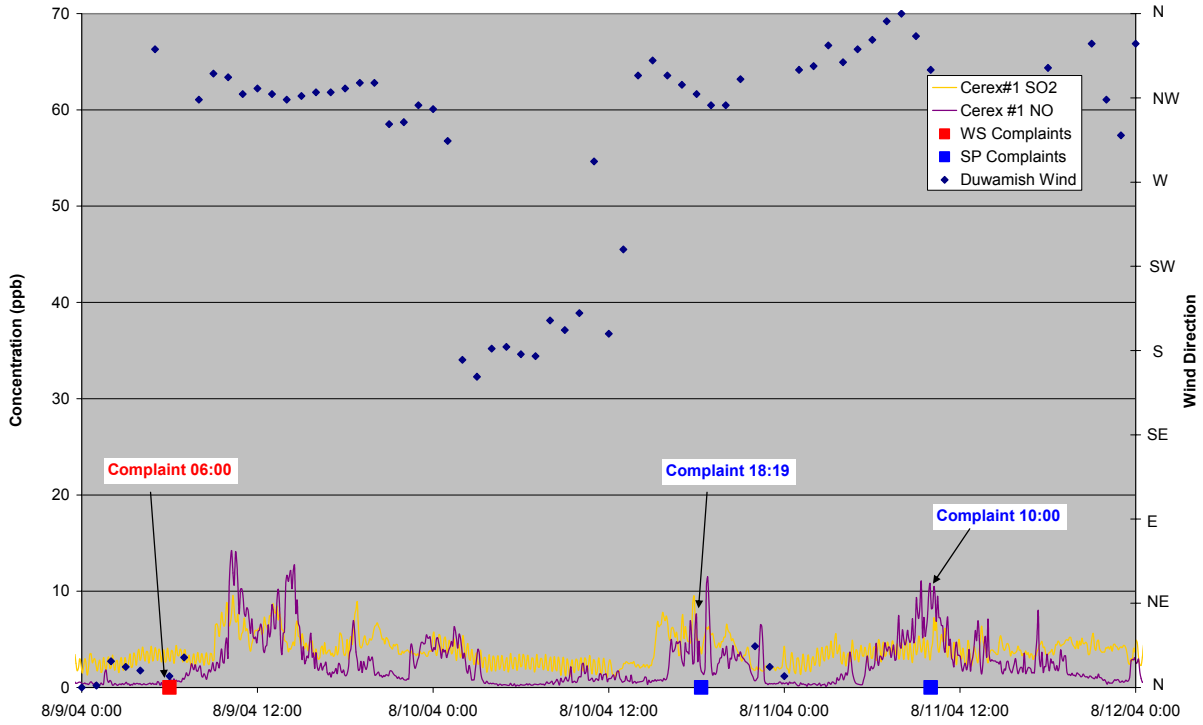
Real-time Cerex Monitoring (5 min Average) at South Park
August 7th to August 9th, 2004



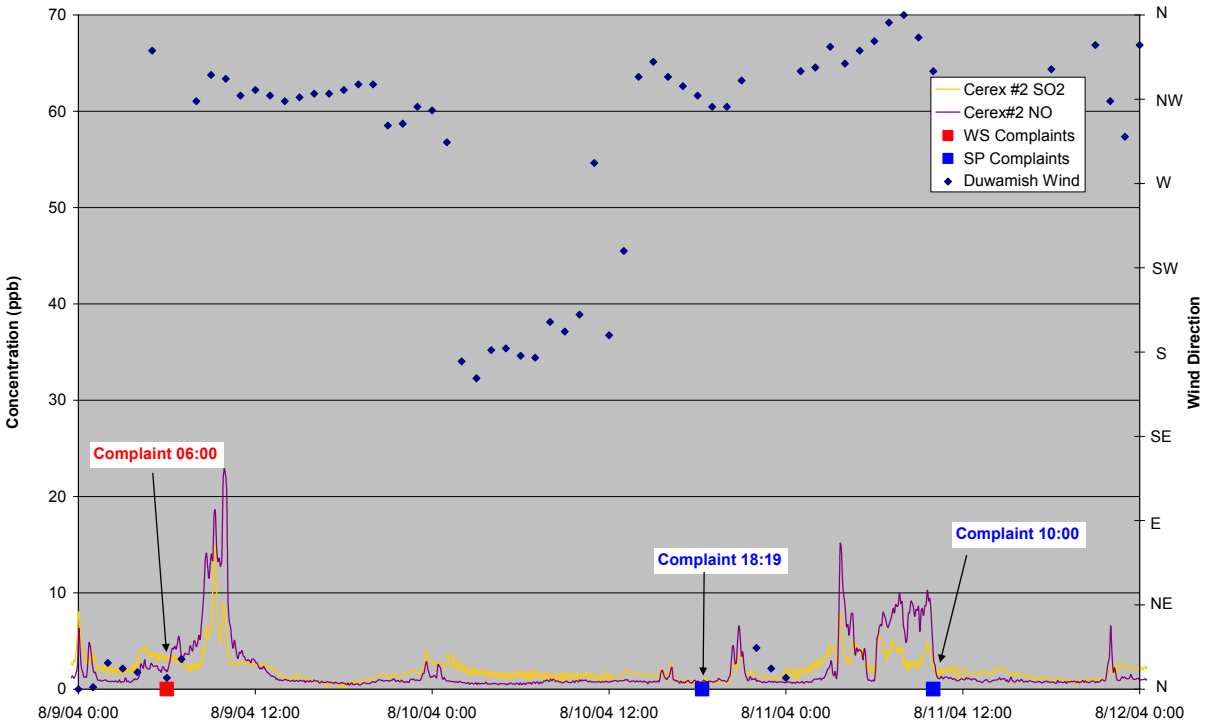
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
August 7th to August 9th, 2004



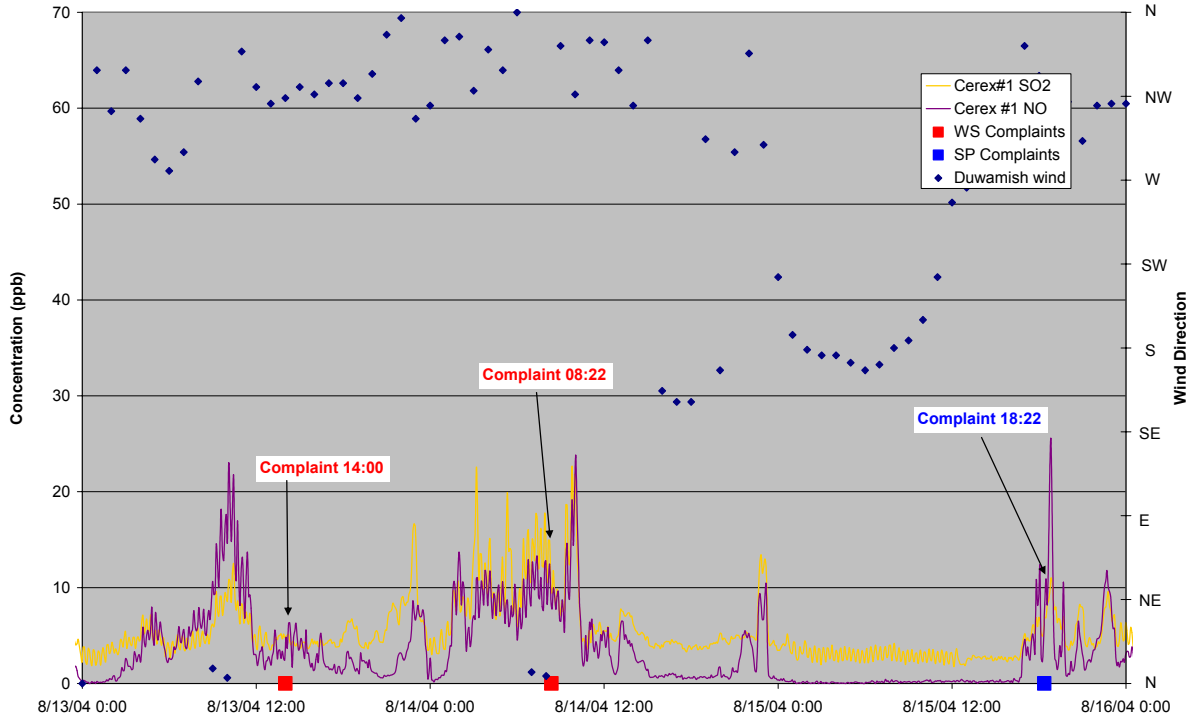
Real-time Cerex Monitoring (5 min Average) at South Park
August 9th to August 12th, 2004



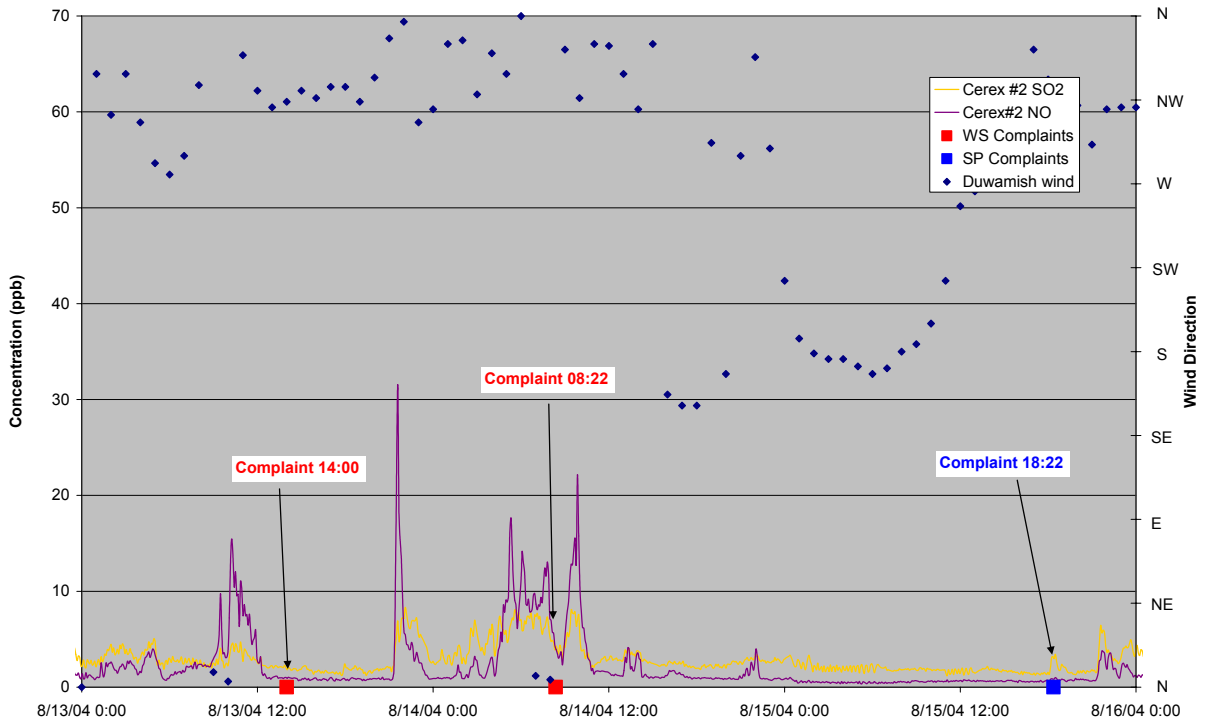
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
August 9th to August 12th, 2004



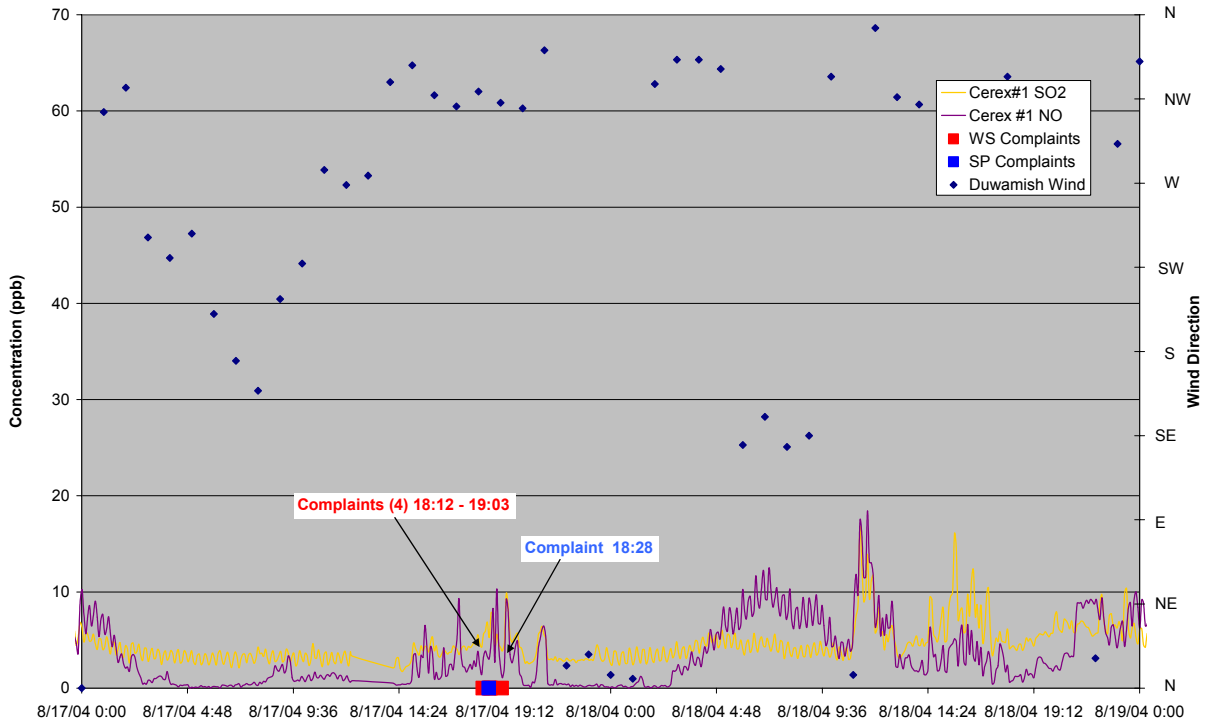
Real-time Cerex Monitoring (5 min Average) at South Park
August 13th to August 16th, 2004



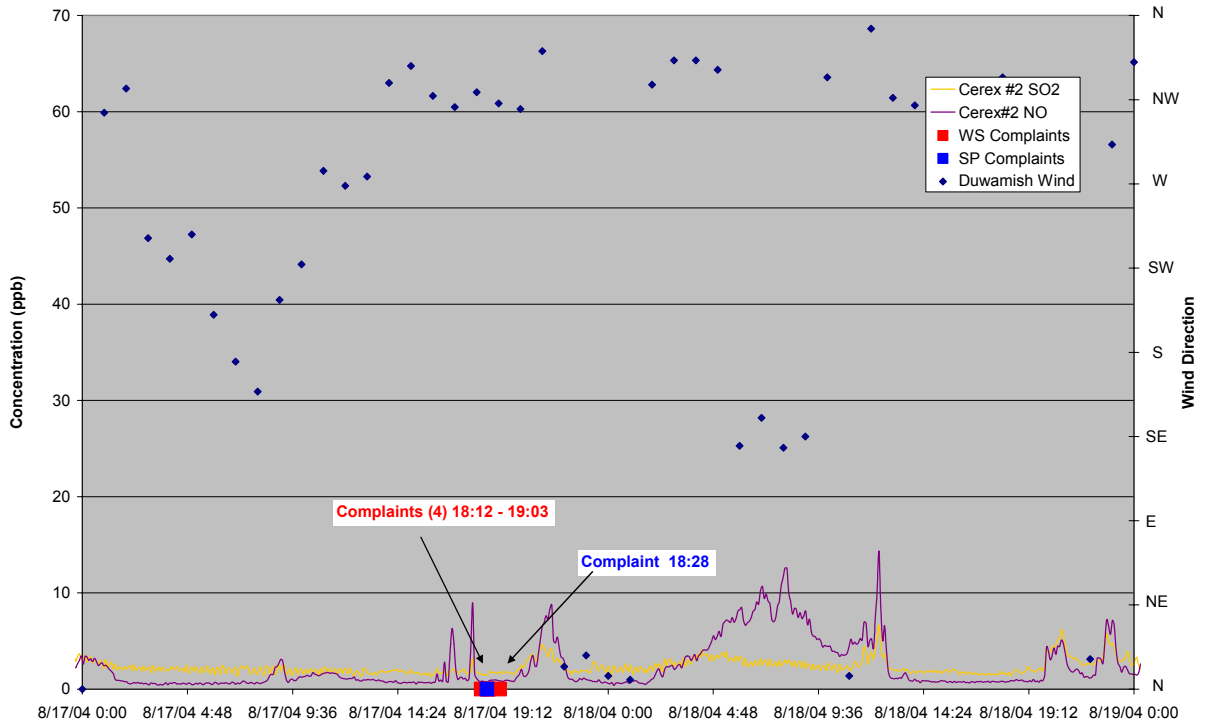
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
August 13th to August 16th, 2004



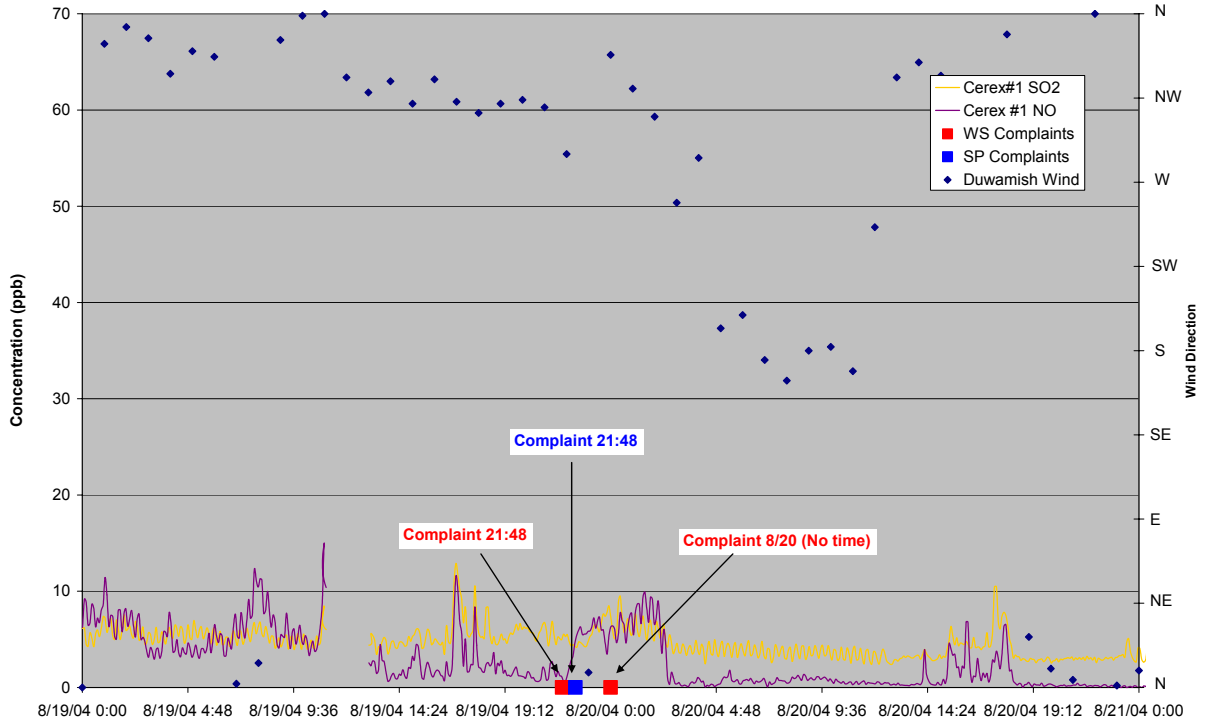
Real-time Cerex Monitoring (5 min Average) at South Park
August 17th to August 19th, 2004



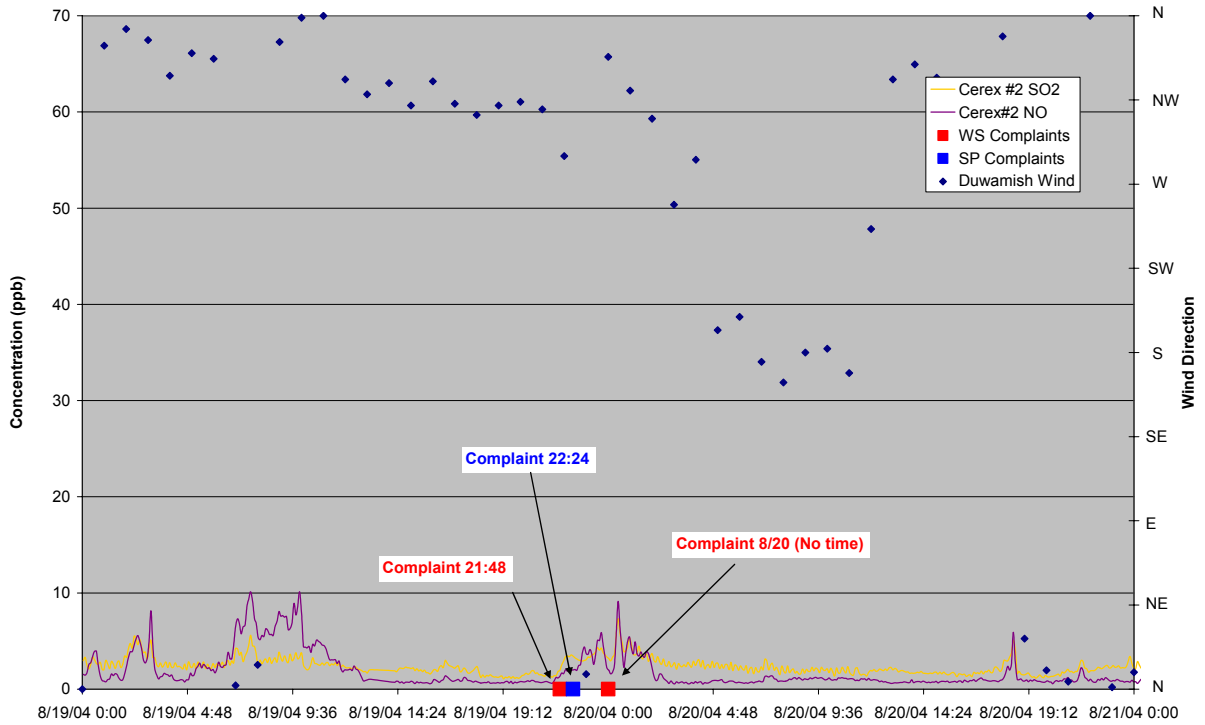
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
August 17th to August 19th, 2004



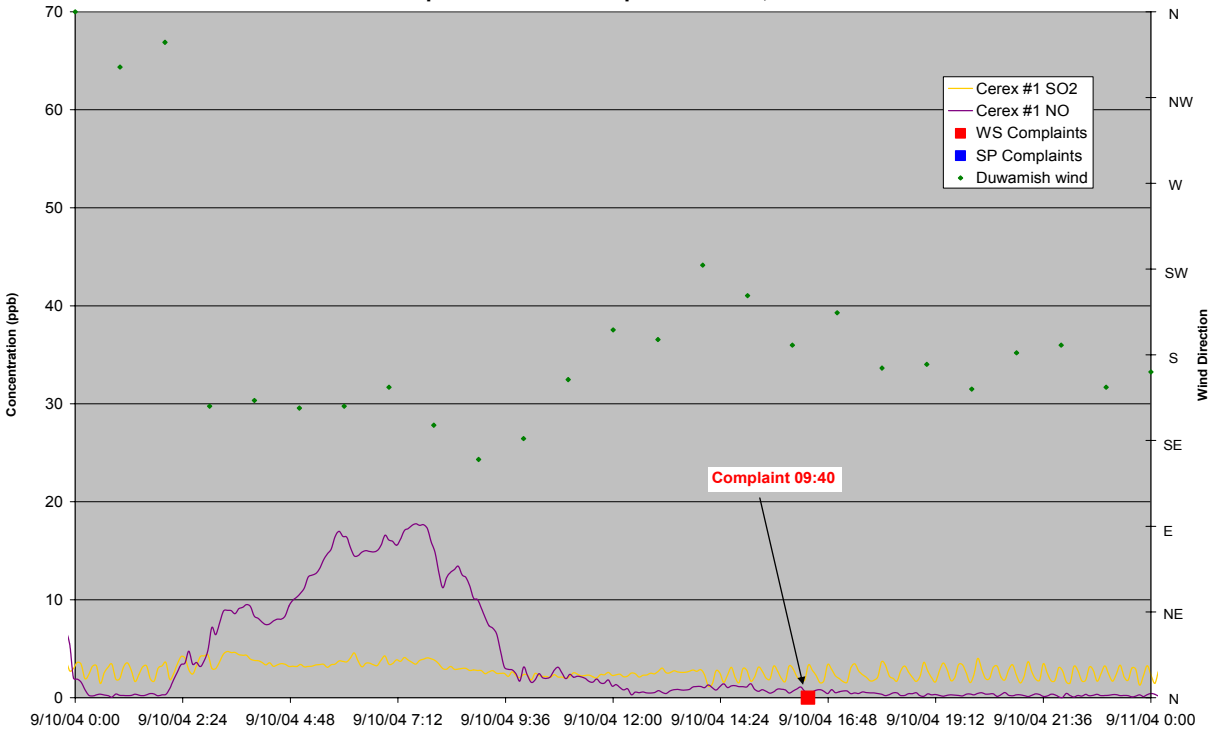
Real-time Cerex Monitoring (5 min Average) at South Park
August 19th to August 21st, 2004



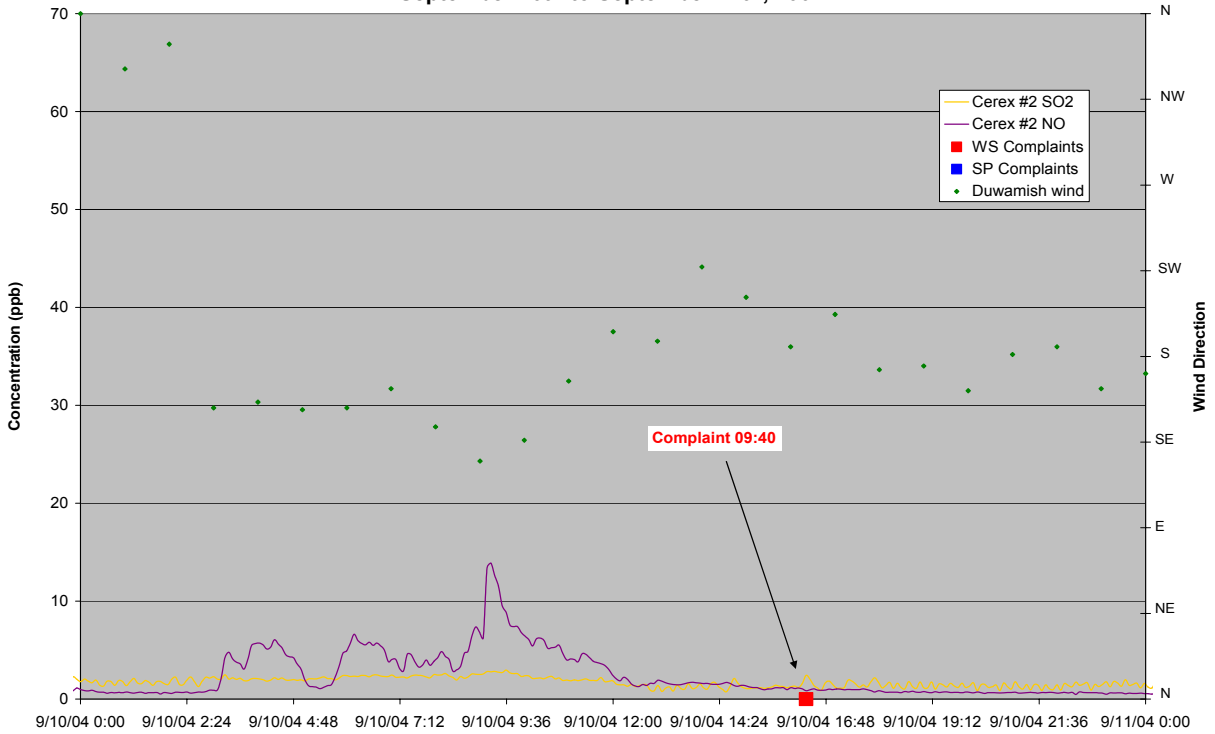
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
August 19th to August 21st, 2004



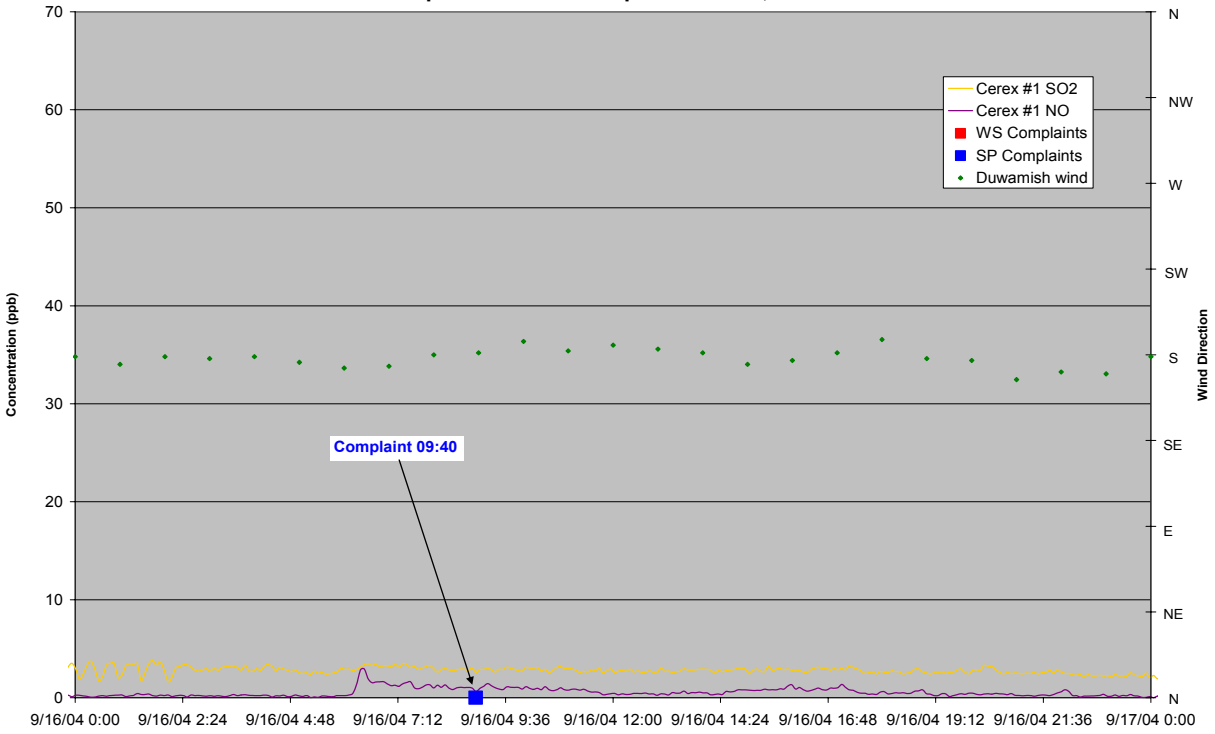
Real-time Cerex Monitoring (5 min Average) at South Park
September 10th to September 11th, 2004



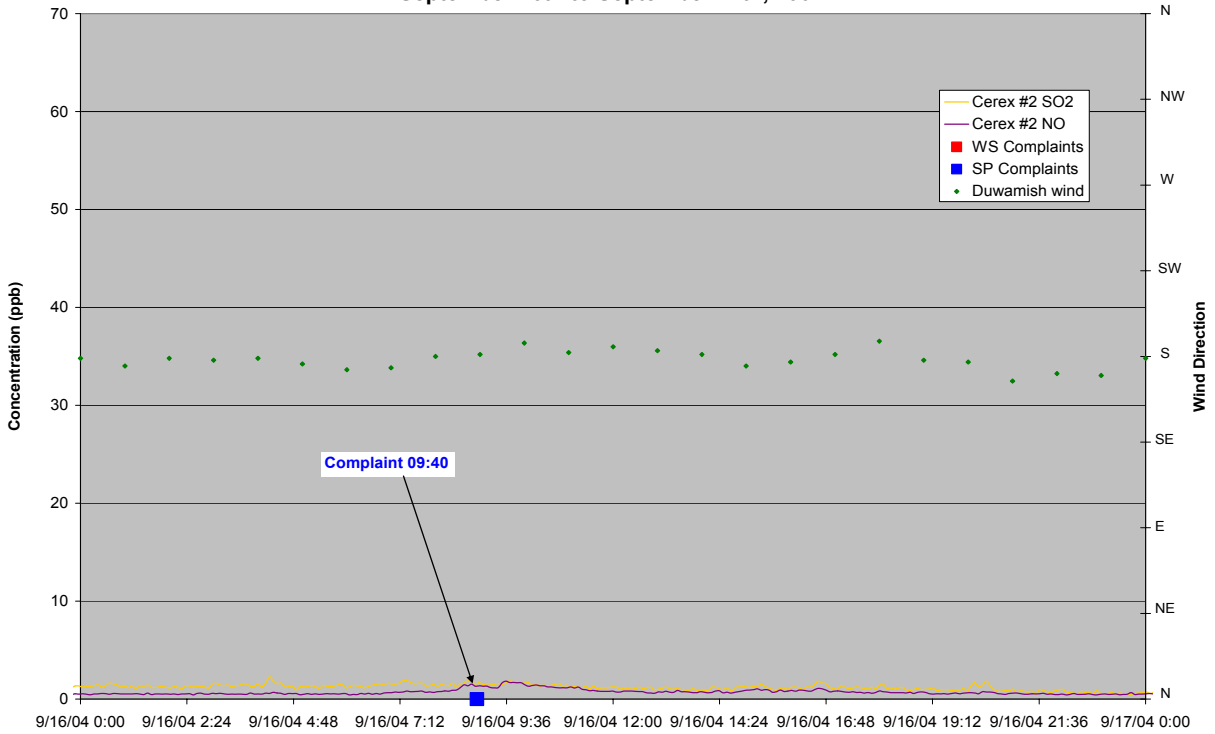
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
September 10th to September 11th, 2004



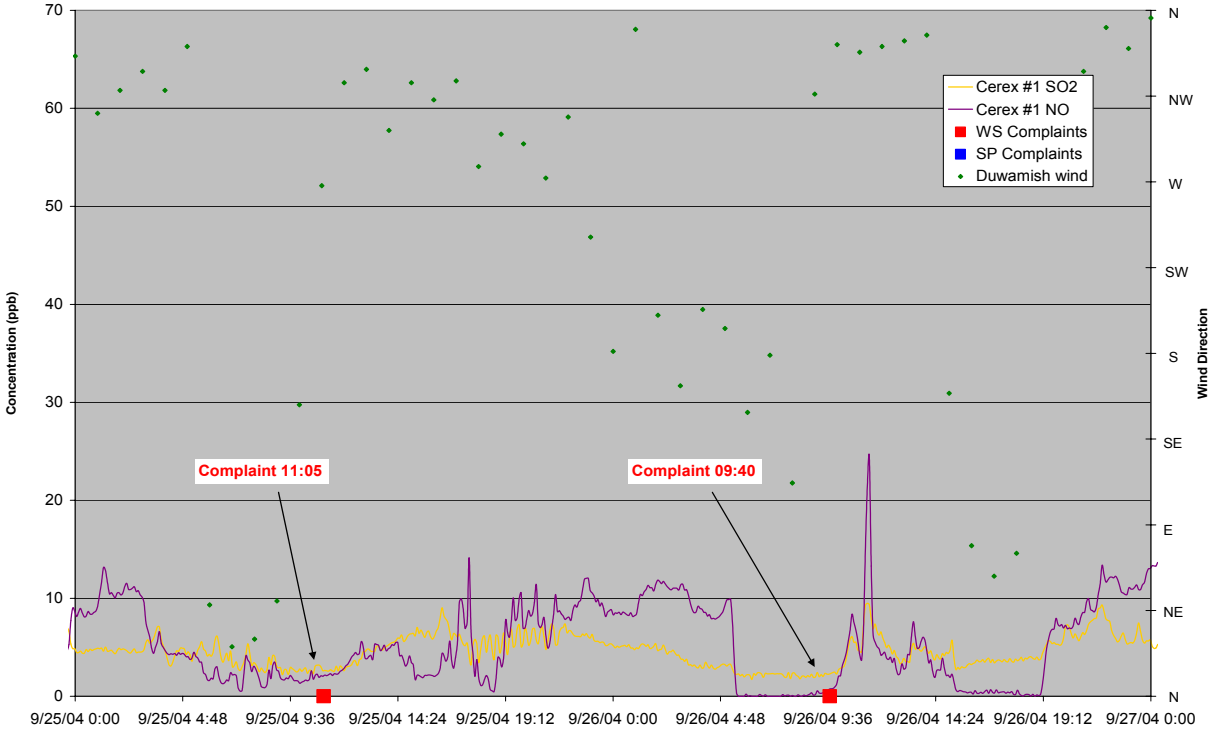
Real-time Cerex Monitoring (5 min Average) at South Park
September 16th to September 17th, 2004



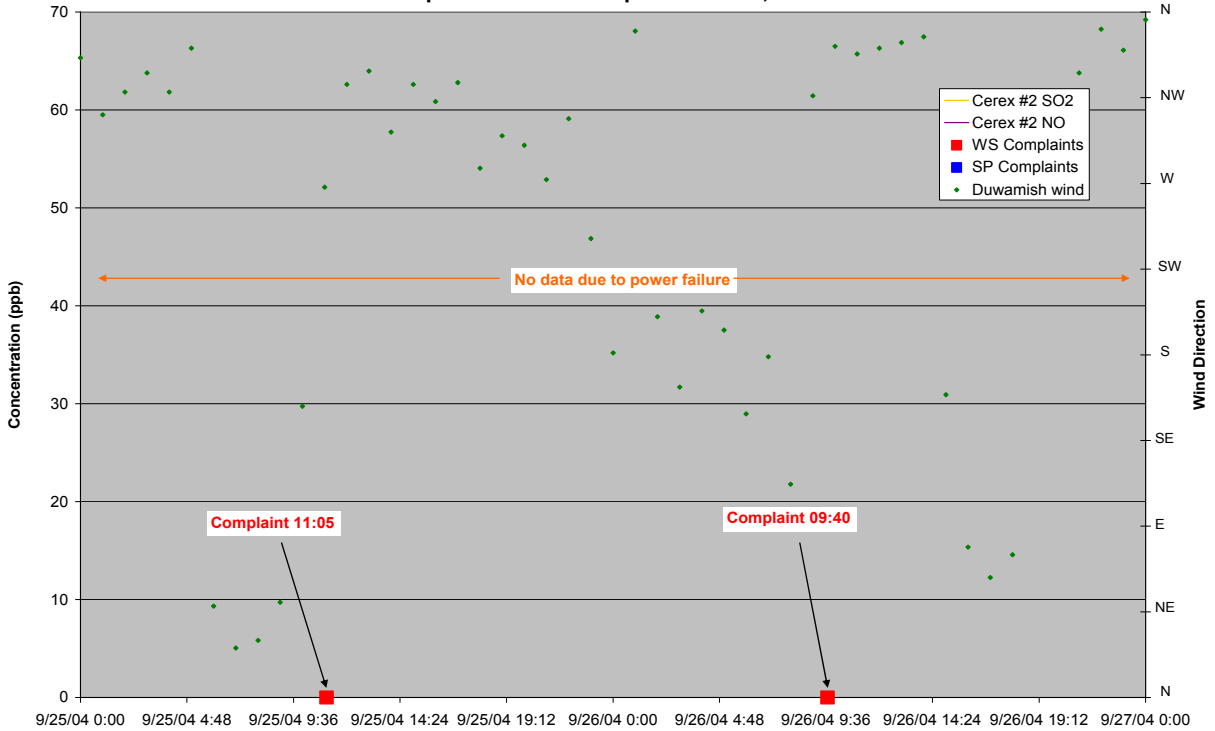
Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
September 16th to September 17th, 2004



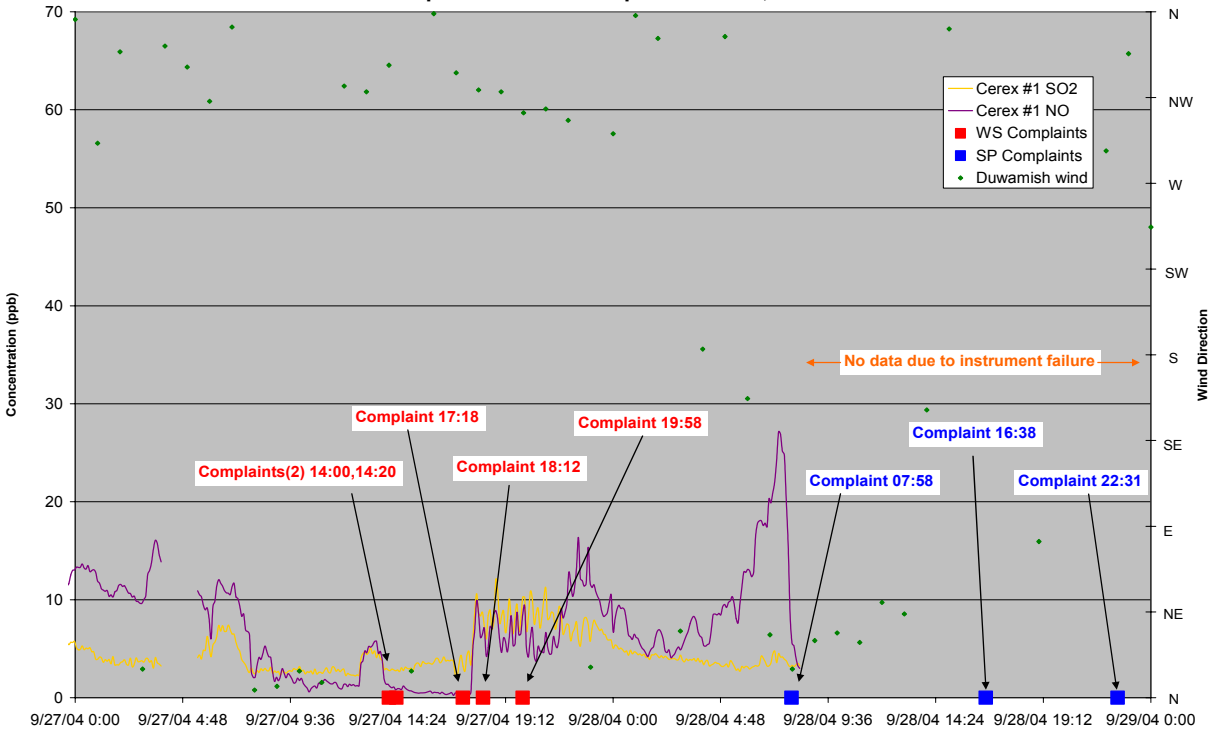
**Real-time Cerex Monitoring (5 min Average) at South Park
September 25th to September 27th, 2004**



**Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
September 25th to September 27th, 2004**



Real-time Cerex Monitoring (5 min Average) at South Park
September 27th to September 29th, 2004



Real-time Cerex Monitoring (5 min Average) at West Seattle Reservoir
September 27th to September 29th, 2004

