

This report was not issued as shown, but was incorporated into larger Chambers Works report under the Consent Order.
Washington Works Telomers Area
ISC Modeling Methodology and Results

Emission Source Information

Dispersion modeling was performed for APFO emissions from the Telomers area at the Washington Works site. Although there are several different sources of emissions in the Telomers area, these emission points are all headered together into a common stack. The following parameters for the stack were used in the model:

Stack Height: 85 feet
Diameter: 1.5 feet
Temperature: 68°F
Velocity: 47 ft/s
APFO Emission Rate: 0.16 lb/yr (1.83×10^{-5} lb/hr)
UTM Coordinates:

Modeling Methodology

Dispersion and deposition modeling was performed using EPA's Industrial Source Complex 3 Model (ISC3), version 02035, provided by Trinity Consultants. All modeling was done in accordance with the procedures in EPA's Guideline on Air Quality Models (40 CFR Part 51, Appendix W). The EPA regulatory default options and rural dispersion coefficients were used in the model.

The APFO emission sources were evaluated for downwash effects from surrounding buildings. EPA's Building Profile and Input Program (BPIP) was used to provide wind direction specific building parameters. All buildings on the site were evaluated to determine if they could potentially impact the stack by causing building downwash effects. Plot plans showing the location of buildings included in the model are shown in Figures 1 and 2.

A 100-meter grid extending out 4,000 meters from the source was used. In addition, discrete receptors with 100-meter spacing were placed on the plant property line. Terrain elevations were imported from electronic files obtained from the U.S. Geological Survey using the "highest" method to assign an elevation to each receptor.

One year of on-site meteorological data (1996) was analyzed. The data was processed by Trinity consultants, using Wilmington, Ohio for the upper air data. The precipitation data used is from the Parkersburg, West Virginia airport. Missing data and measured wind speeds of less than 1 m/s were treated consistent with the recommendations made in EPA's On-site Meteorological Program Guidance for Regulatory Modeling. An anemometer height of 10 meters was used for the modeling.

Modeling Results

An averaging time of one year was used to determine the annual average ground-level concentrations over the entire receptor grid. The maximum off-site value predicted by the model was $0.00003 \mu\text{g}/\text{m}^3$. This maximum concentration was located at a receptor on the plant fenceline north of the plant (441944.5E, 4346847N). Figure 3 shows a contour plot of the concentrations predicted by the model.

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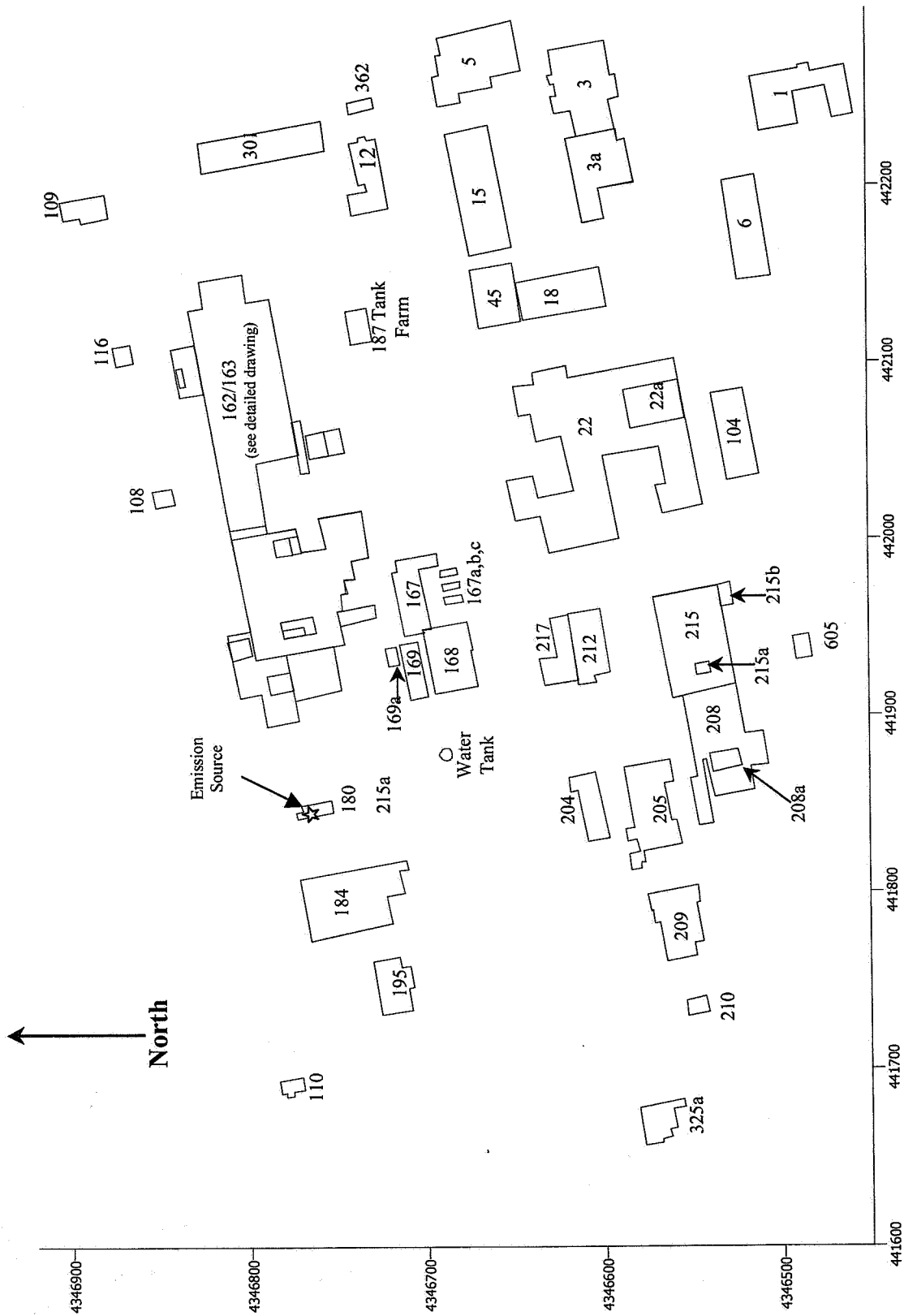


Figure 1 – Building Plot Plan

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Figure 2

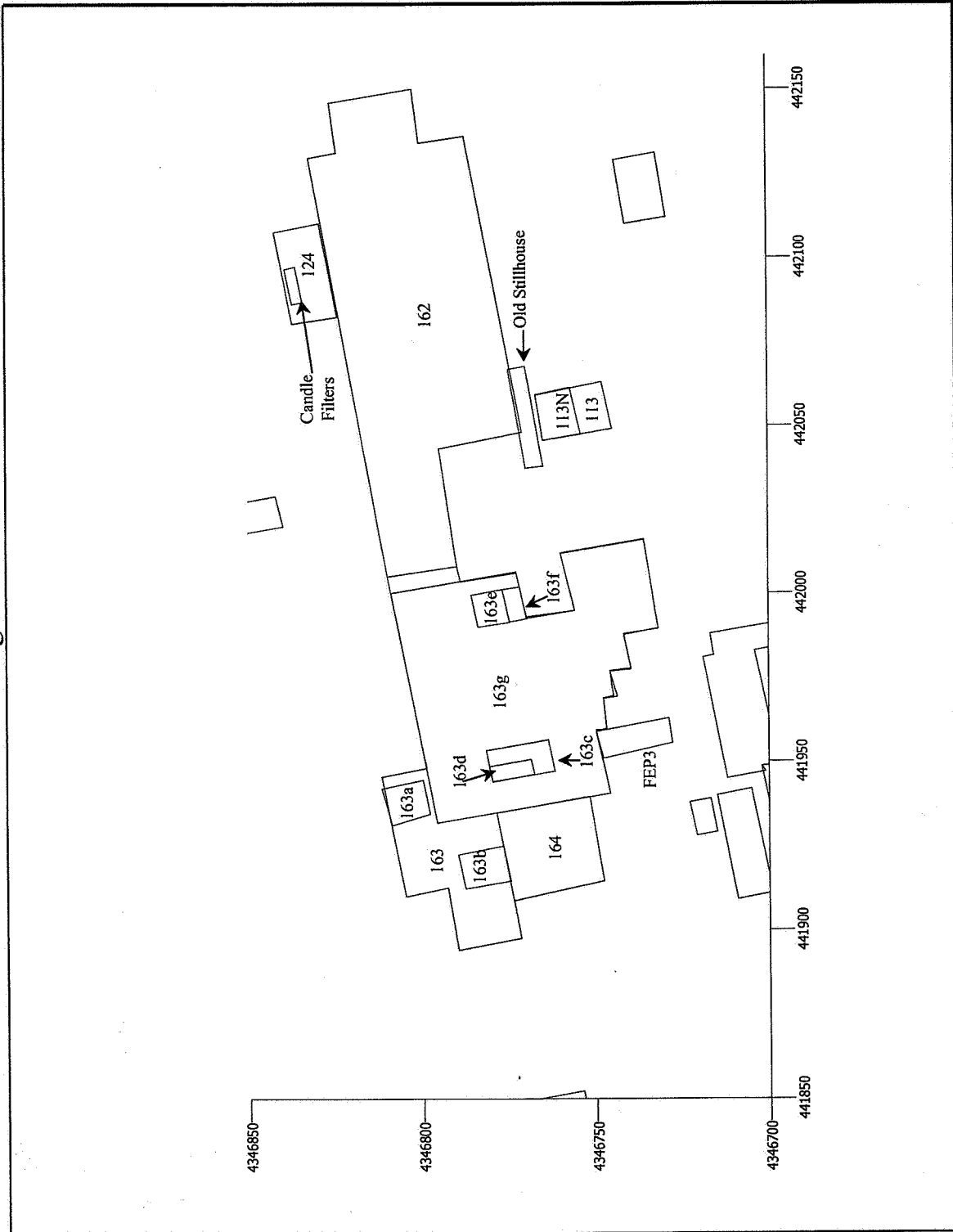


Figure 2 – Building Plot Plan
Building 162/163 Detailed Drawing



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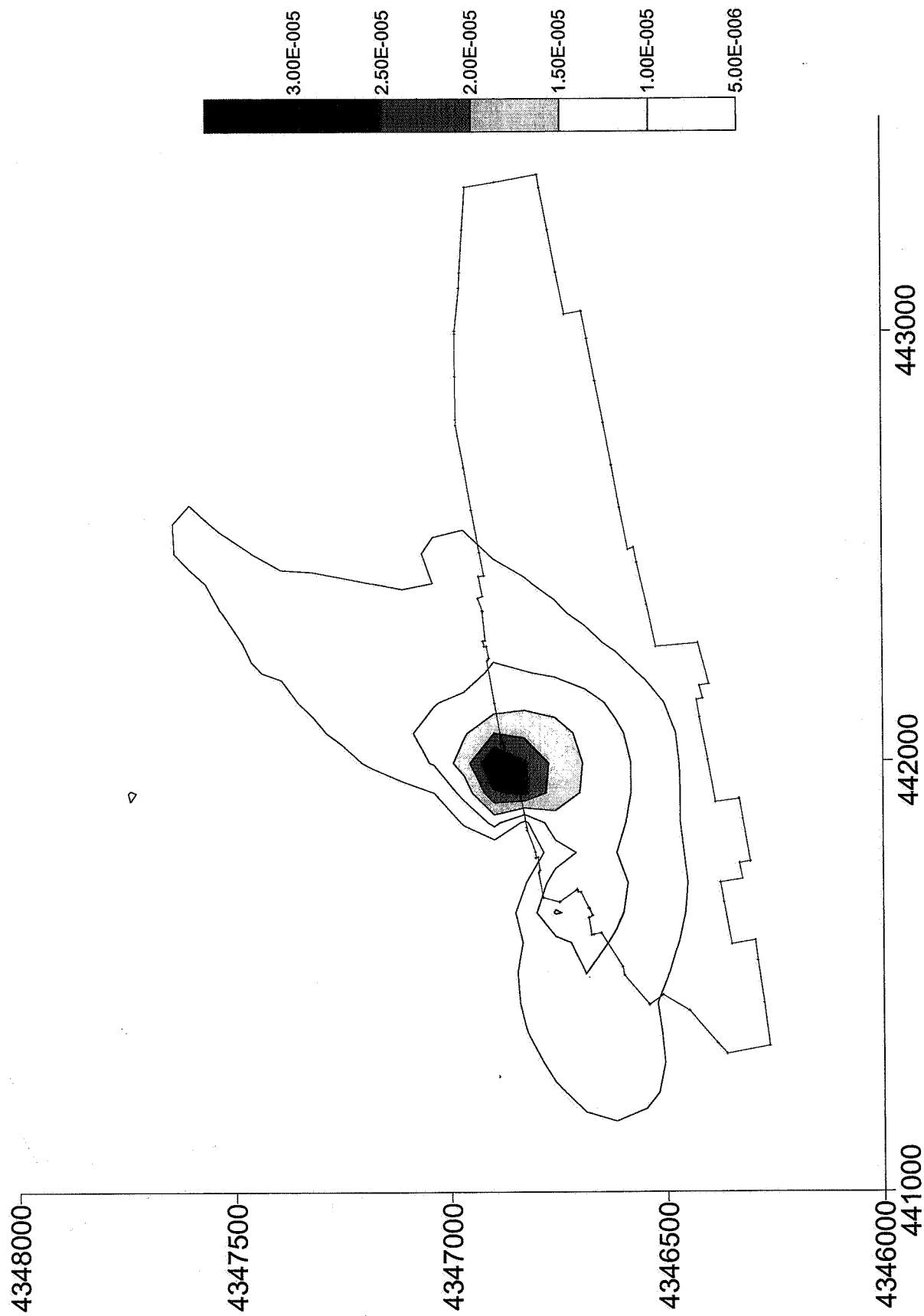


Figure 3
Annual Average Concentrations ($\mu\text{g}/\text{m}^3$)