Measuring Ambient Odor

Charles McGinley, PE

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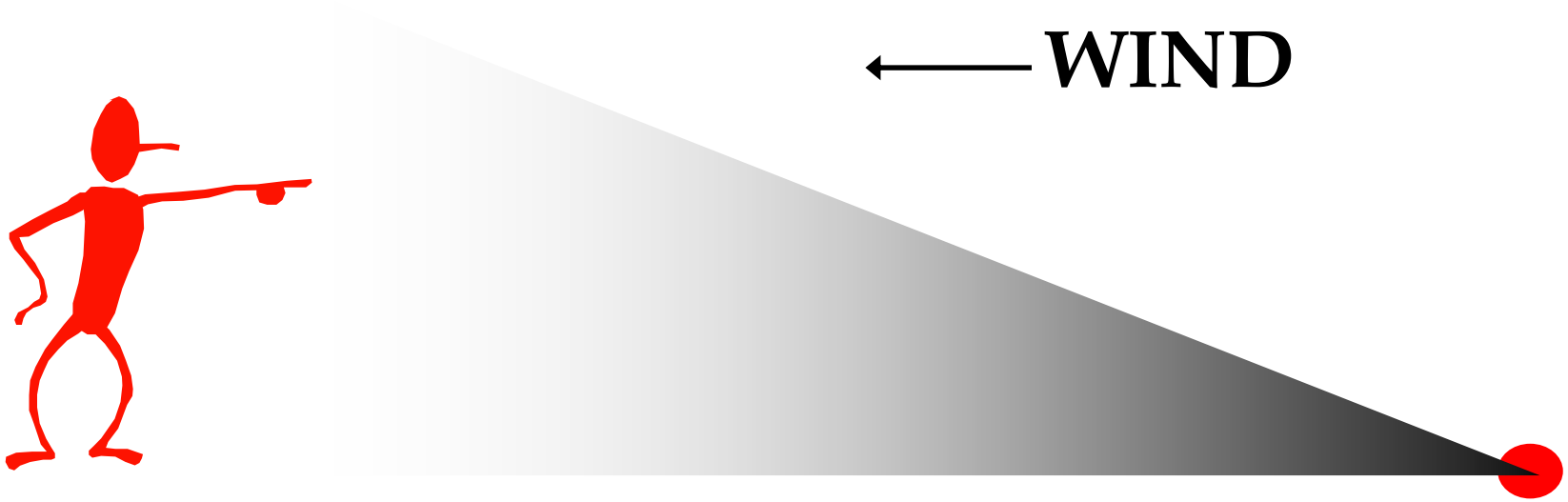
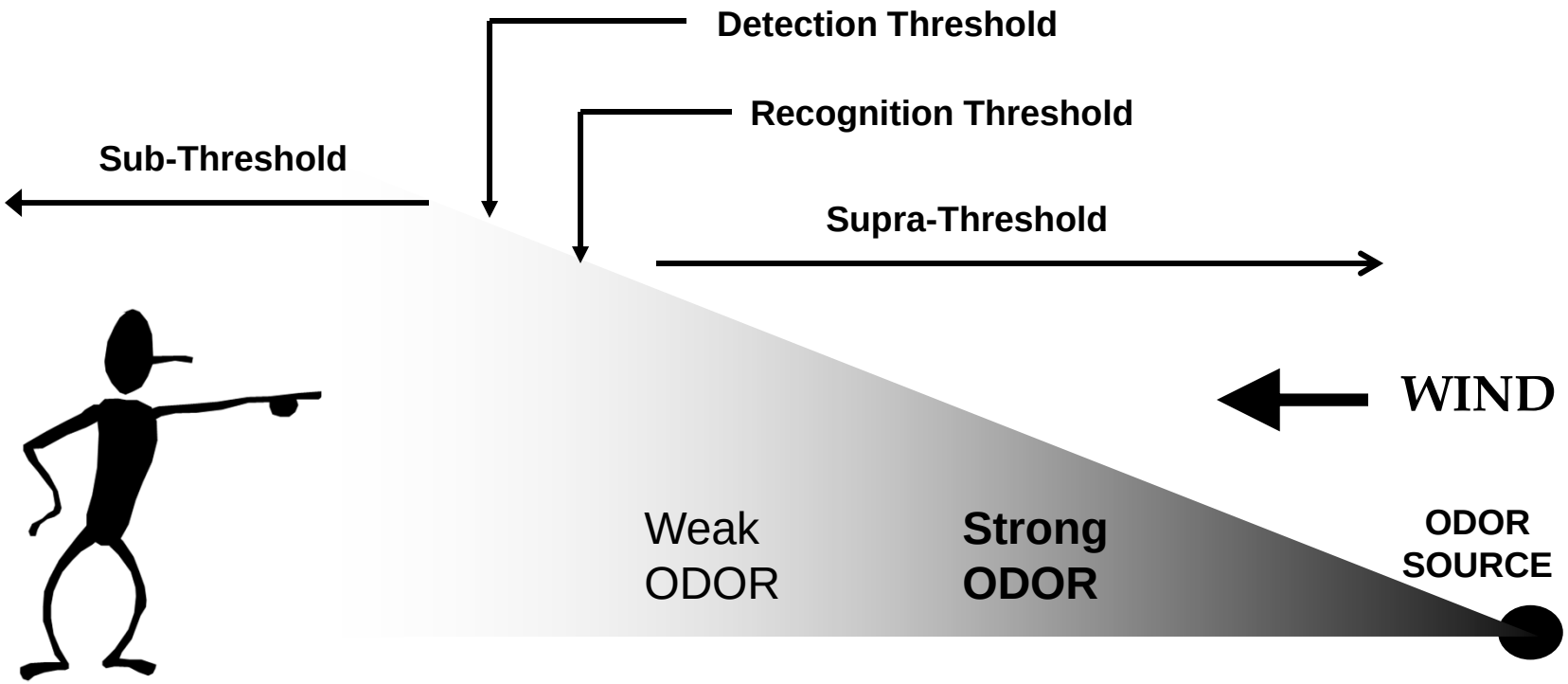
Dilution of Odor in the Ambient Air

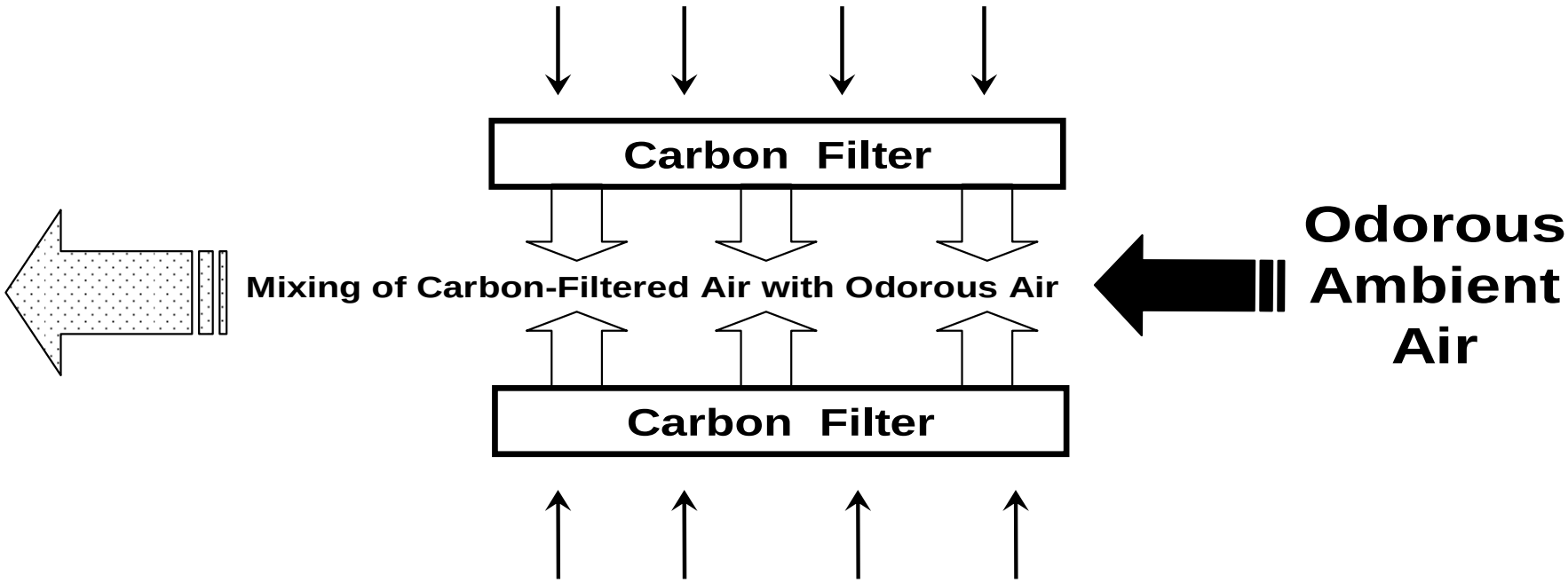


Dilution of Odor in the Ambient Air



1958 - U.S. Public Health Service - Scentometer

Dilution-to-Threshold (D/T)



Understanding D/T Values

Also known as “Odor Units”

$$\frac{\text{Volume of Carbon-Filtered Air}}{\text{Volume of Odorous Air}} = \text{Dilution Ratio}$$

Example: $\frac{7 \text{ parts of carbon filtered air}}{1 \text{ part of odorous air}}$ = ***7 D/T***

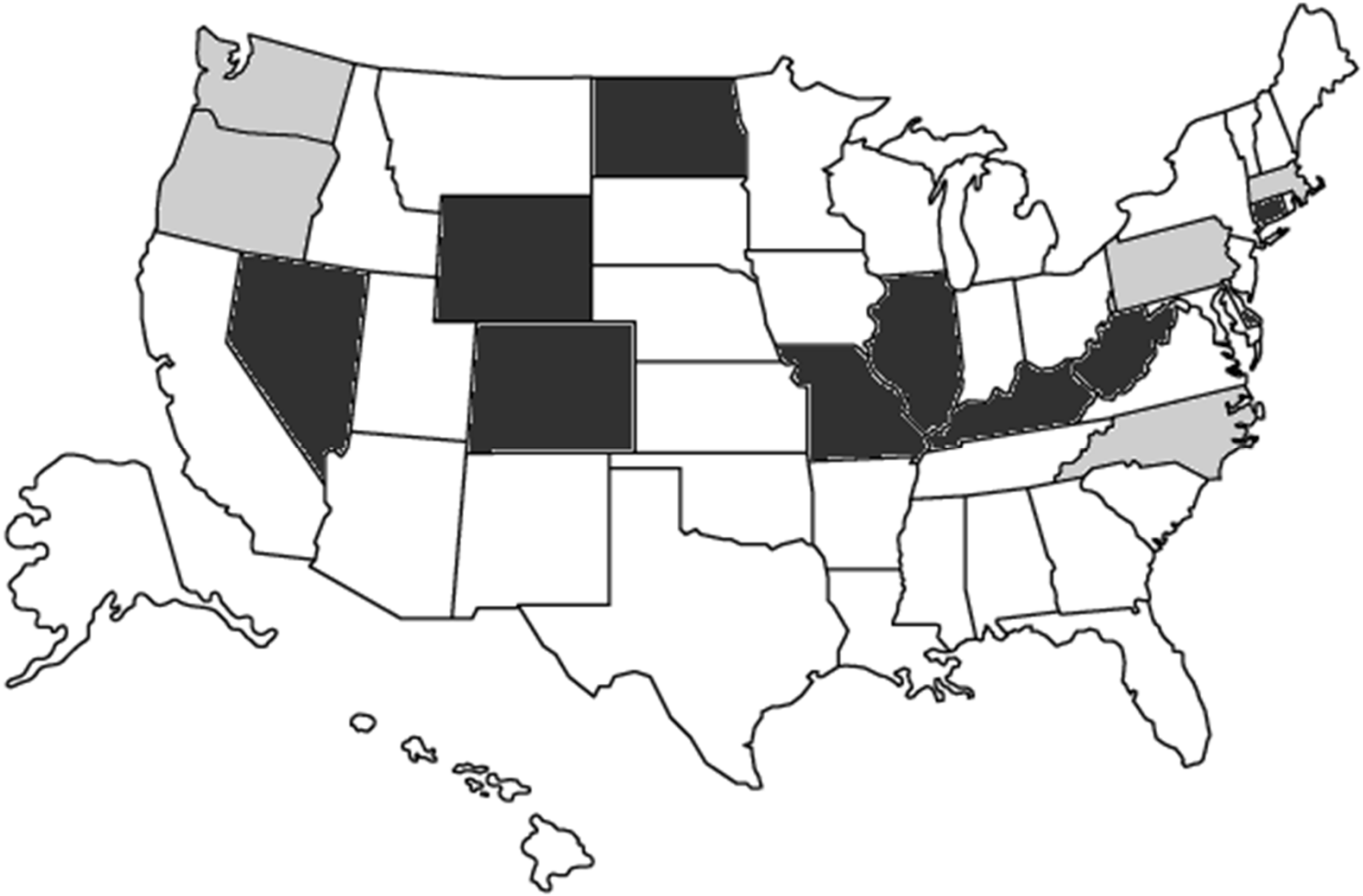
7 “Odor Units”

What is an Odor Unit ?

… estimate of the number of dilutions needed to make the actual odor “non-detectable”...

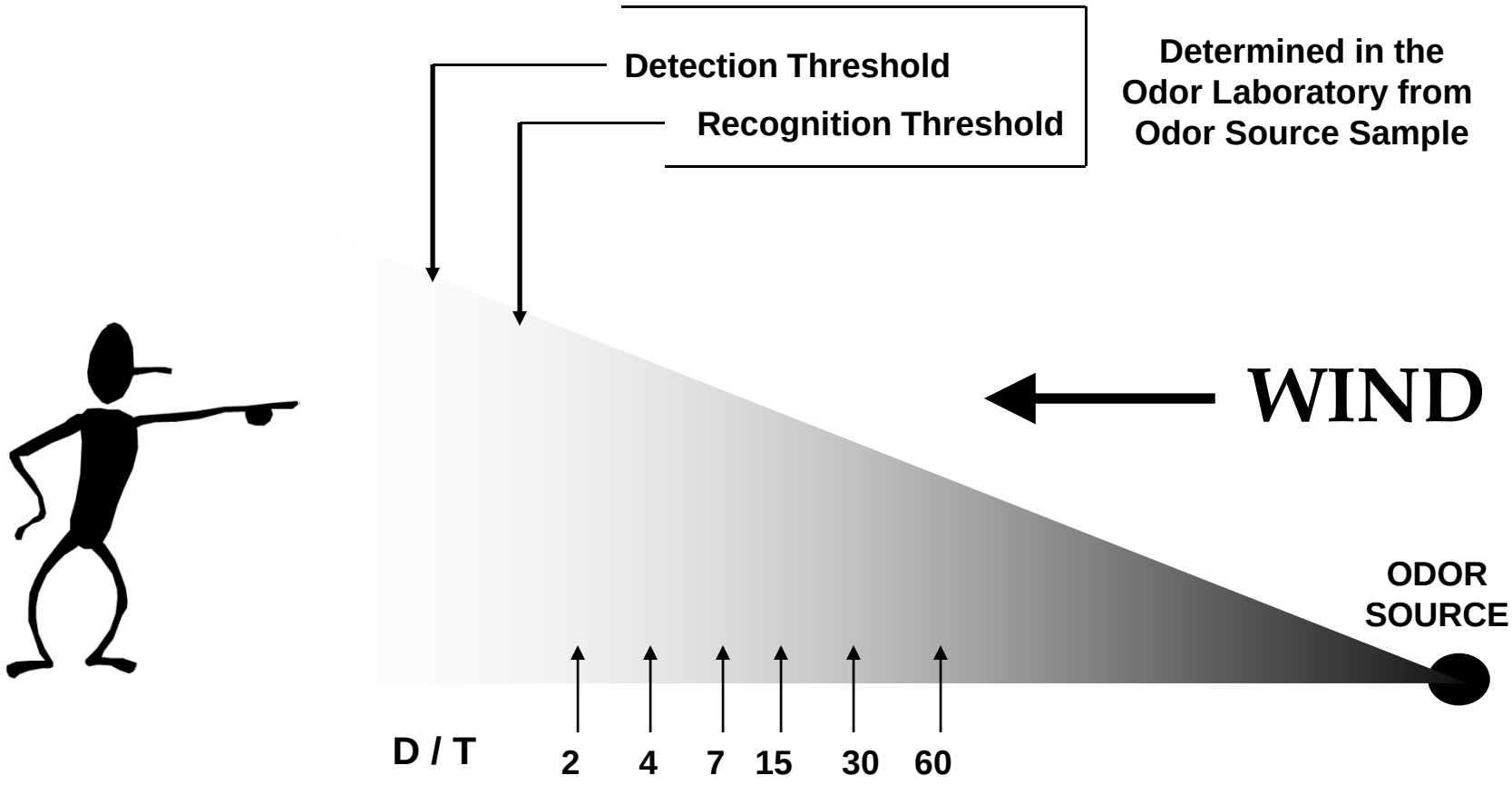
1970 EPA Copley Reports

- ✓ Odor serious community problem
- ✓ Trust surveillance not complaints
- ✓ Investigators can provide odor description
- ✓ Scentometer is an effective tool
- ✓ National odor ordinance not realistic



2002 - Nasal Ranger Field Olfactometer

Dilution of Odor in the Ambient Air



Dilution-to-Threshold with Field Olfactometer

Site of new Twins Stadium
HERC Facility
N
6th Ave N
55
Image © 2009 DigitalGlobe
© 2009 Tele Atlas
Image U.S. Geological Survey
Image © 2009 Sanborn
elev 251 m
Google
44°58'52.66" N 93°16'38.60" W
Eye alt 352 m

April 2004

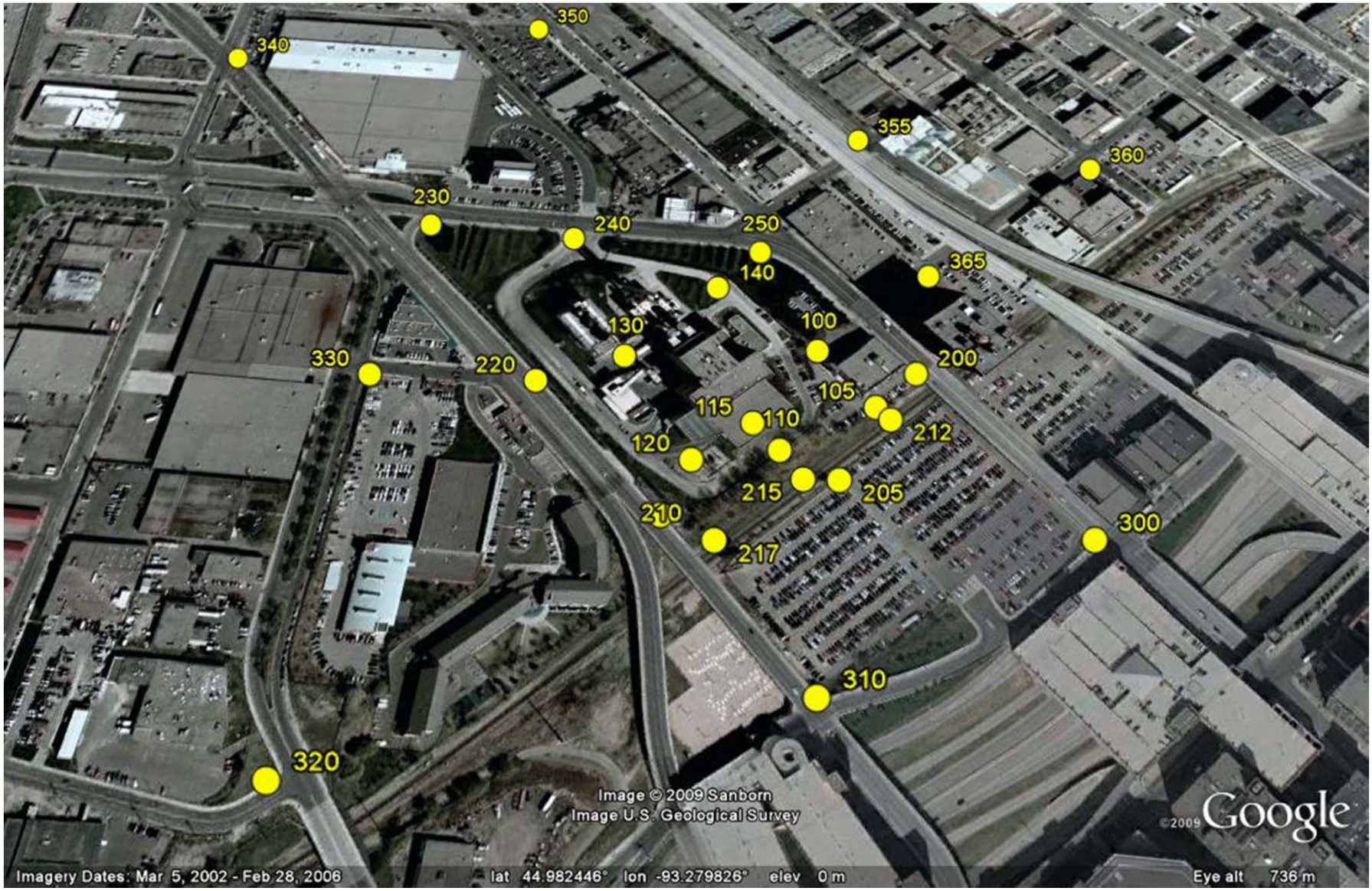

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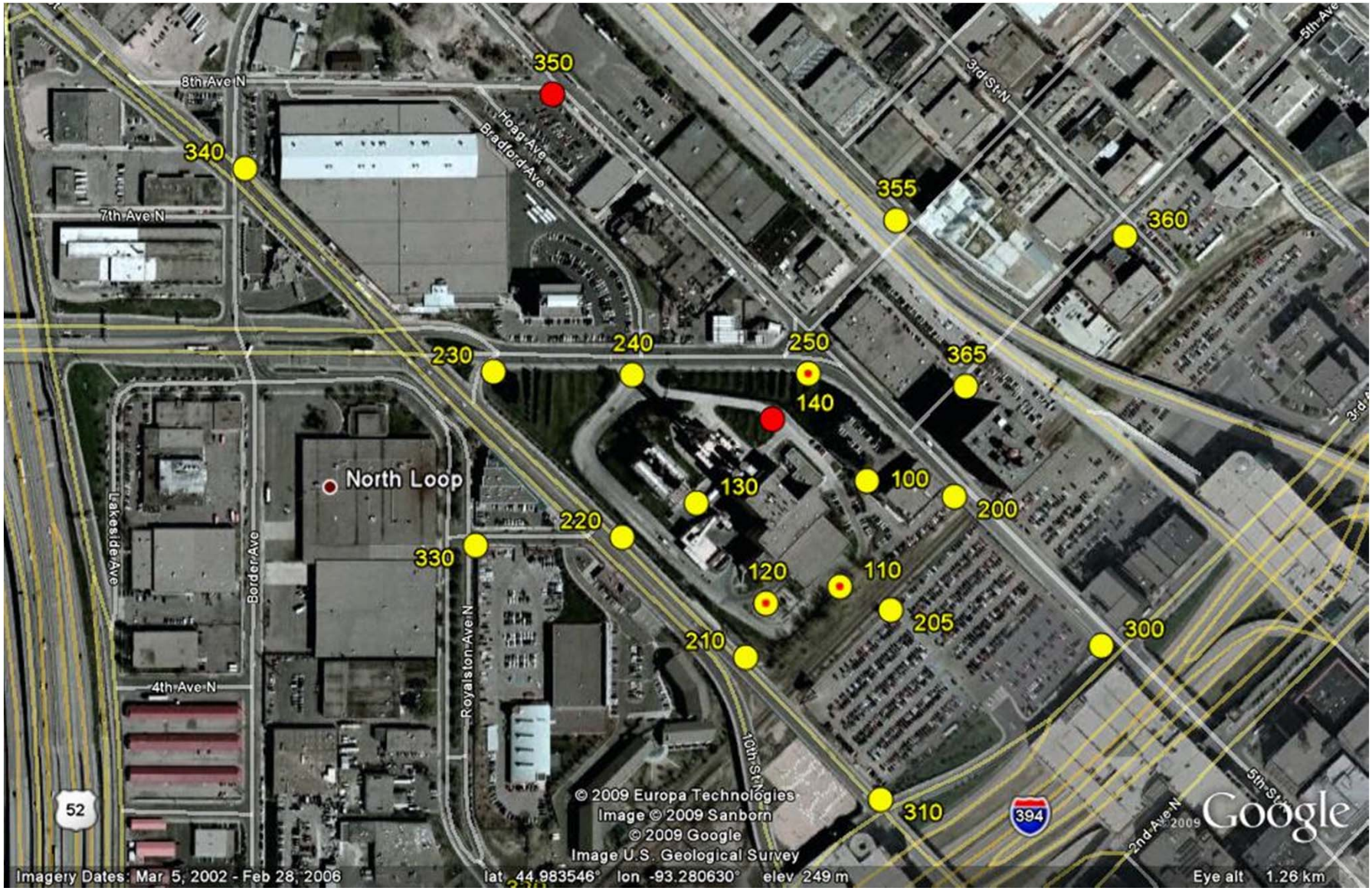
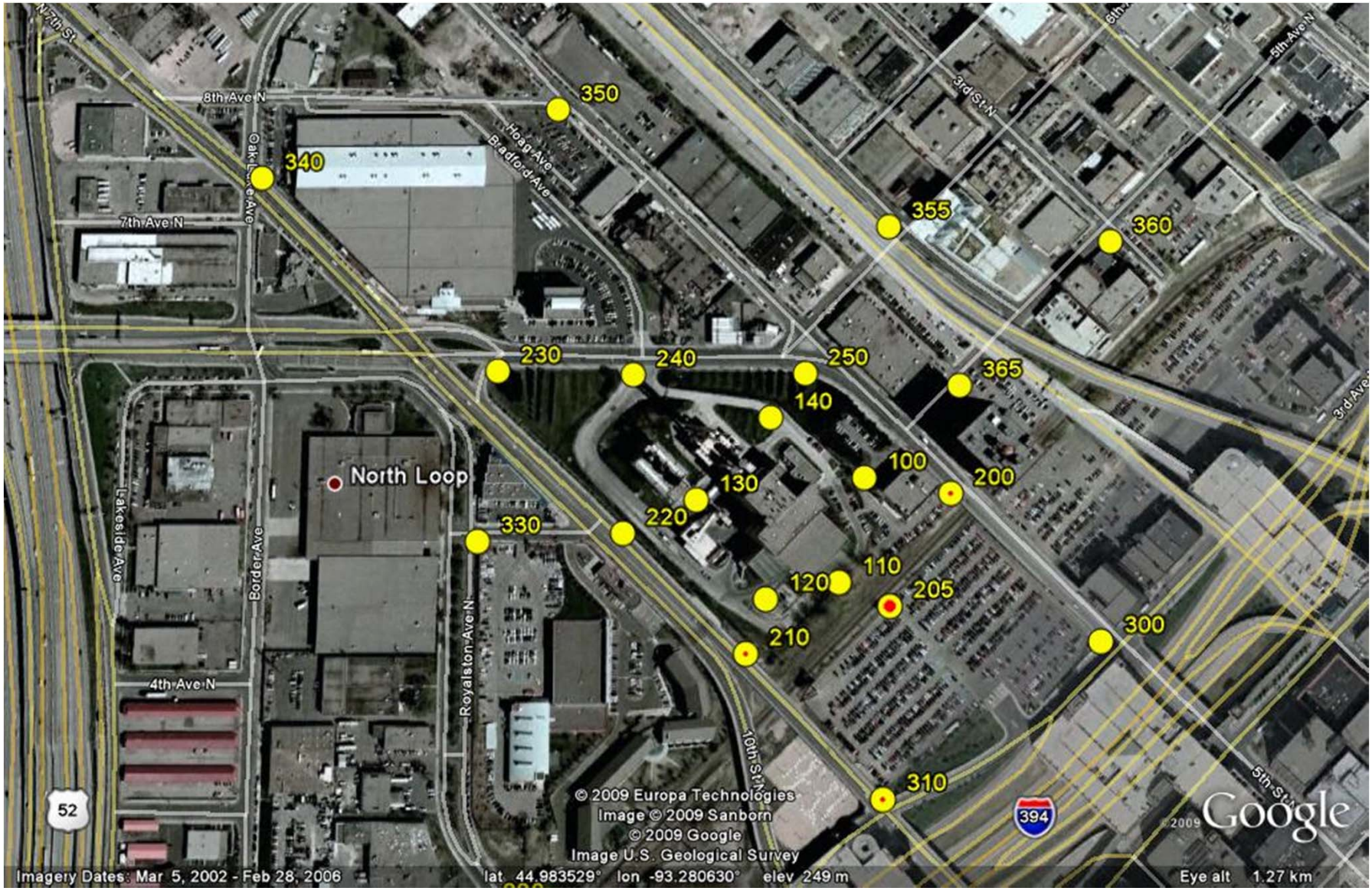
Image © 2009 Sanborn
Image U.S. Geological Survey
©2009 Google
Imagery Dates: Mar 5, 2002 - Feb 28, 2006
lat 44.982446° lon -93.279826° elev 0 m
Eye alt 736 m

26 August 2004



6 November 2005



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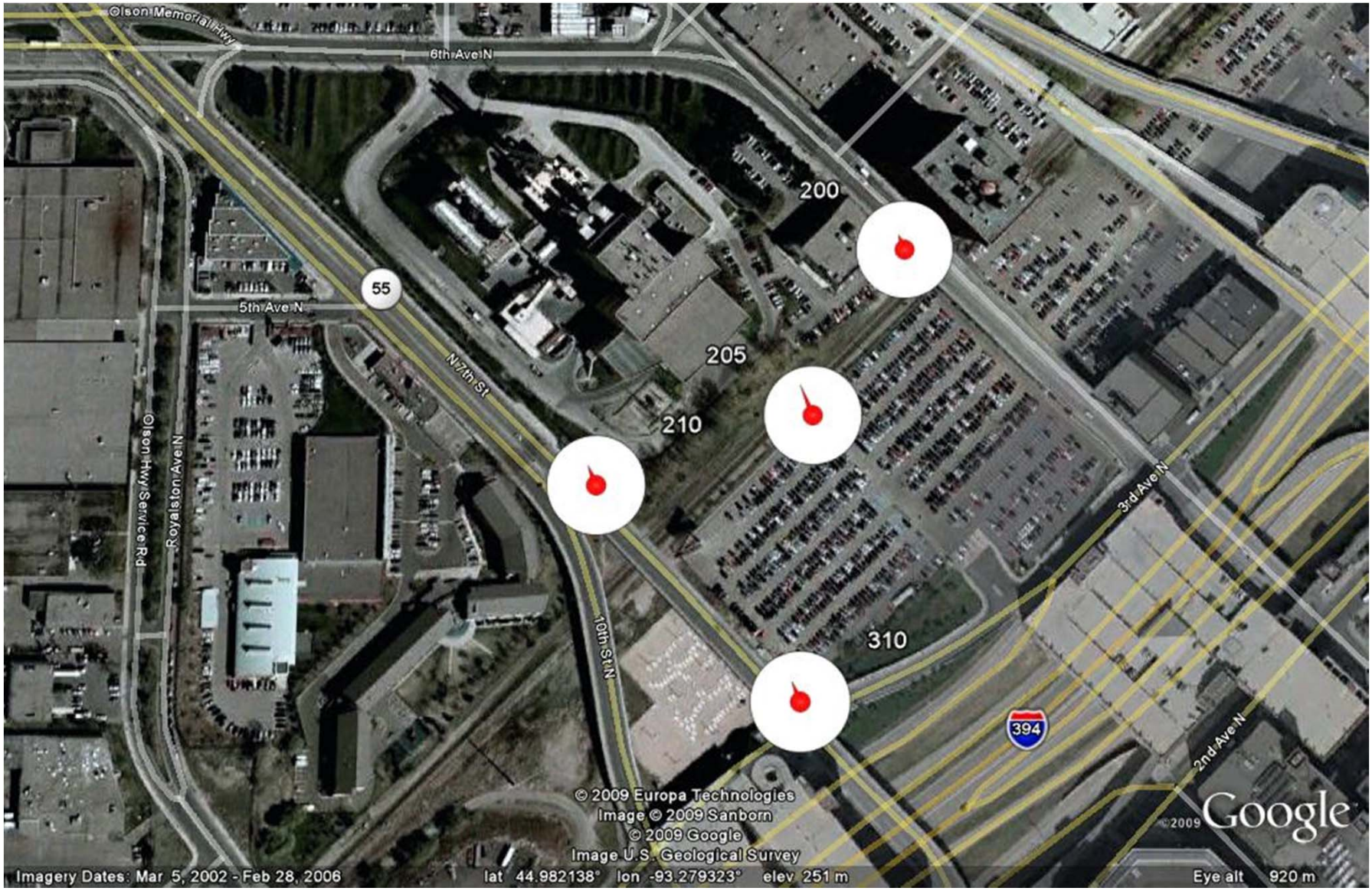

HERC Facility

11/23/2009

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Questions/Comments?