Intermittent Sources and 1-Hour NO2 Modeling

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When does it make a difference?
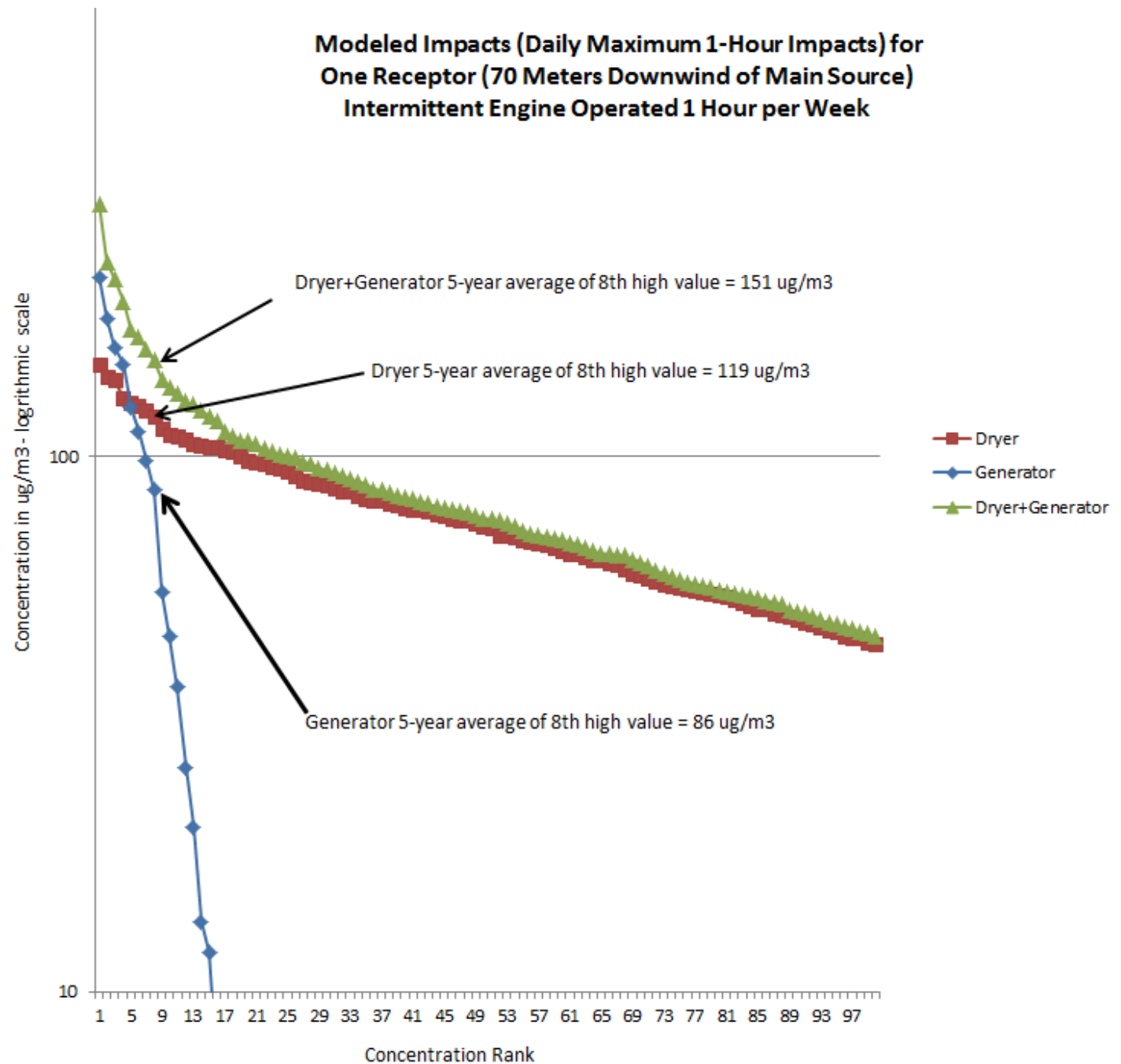
Is it worth it?

Modeling Approach:

- **Continuous Source: 30 lb/hr; 15 m stack ht.; 0.1 NO2/NOx**

- **Intermittent Source: 30 lb/hr; 5 m stack ht; 0.2 NO2/NOx**

- **Model 2 scenarios for Intermittent sources:**
  - **1 hr/week (random hour)**
  - **1 hr/month (random hour)**
- **PVMRM**

- **Select 1 downwind receptor**

- **Sort and rank NO2 impacts for each year**

- **Calculate 5-year means and sort by ranking for each source & combined impact**

- **Plot ranked impacts**

Modeled Impacts (Daily Maximum 1-Hour Impacts) for One Receptor (70 Meters Downwind of Main Source) Intermittent Engine Operated 1 Hour per Week

Modeled Impacts (Daily Maximum 1-Hour Impacts) for One Receptor (70 Meters Downwind of Main Source) Intermittent Engine Operated 1 Hour per Month
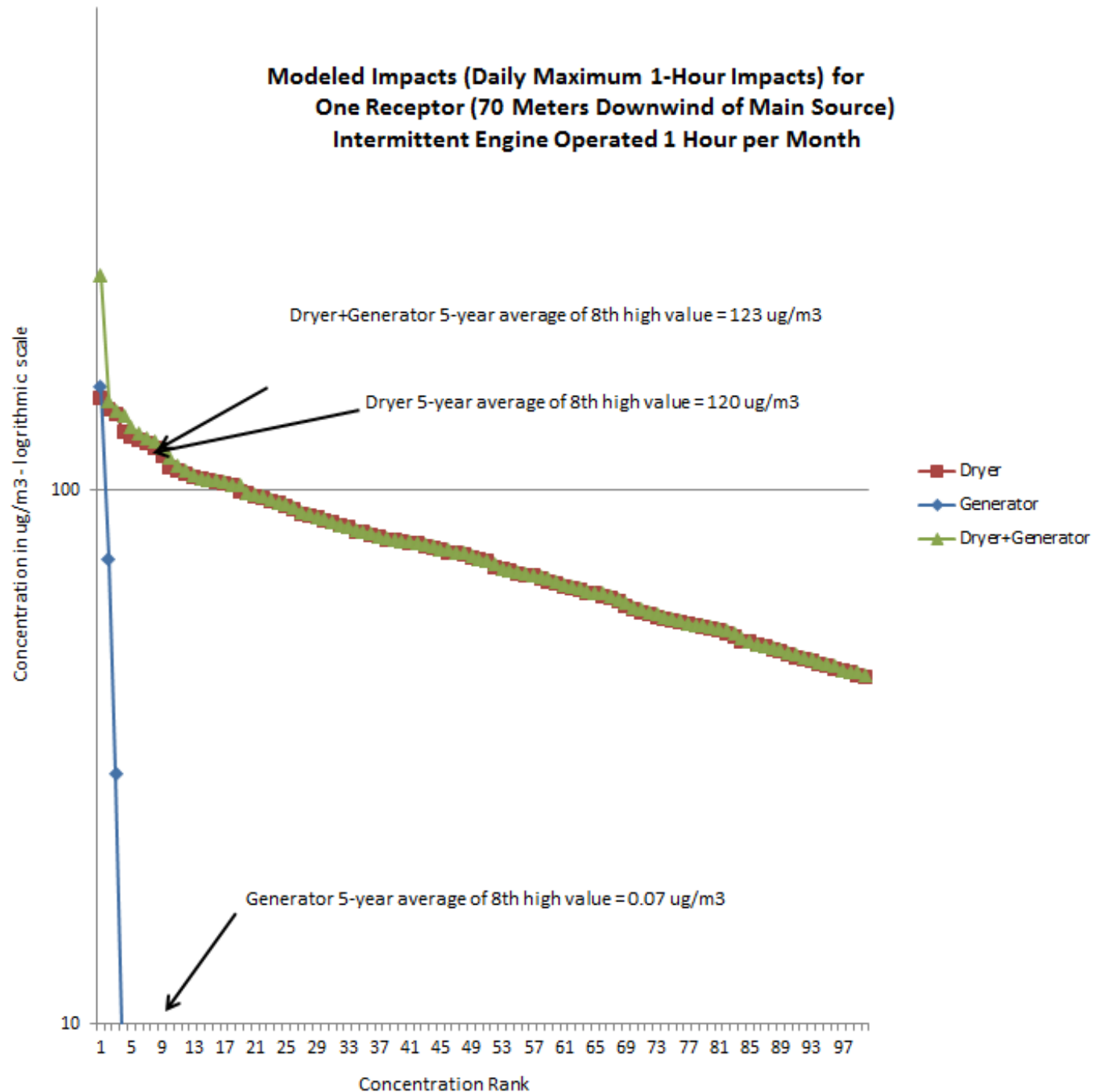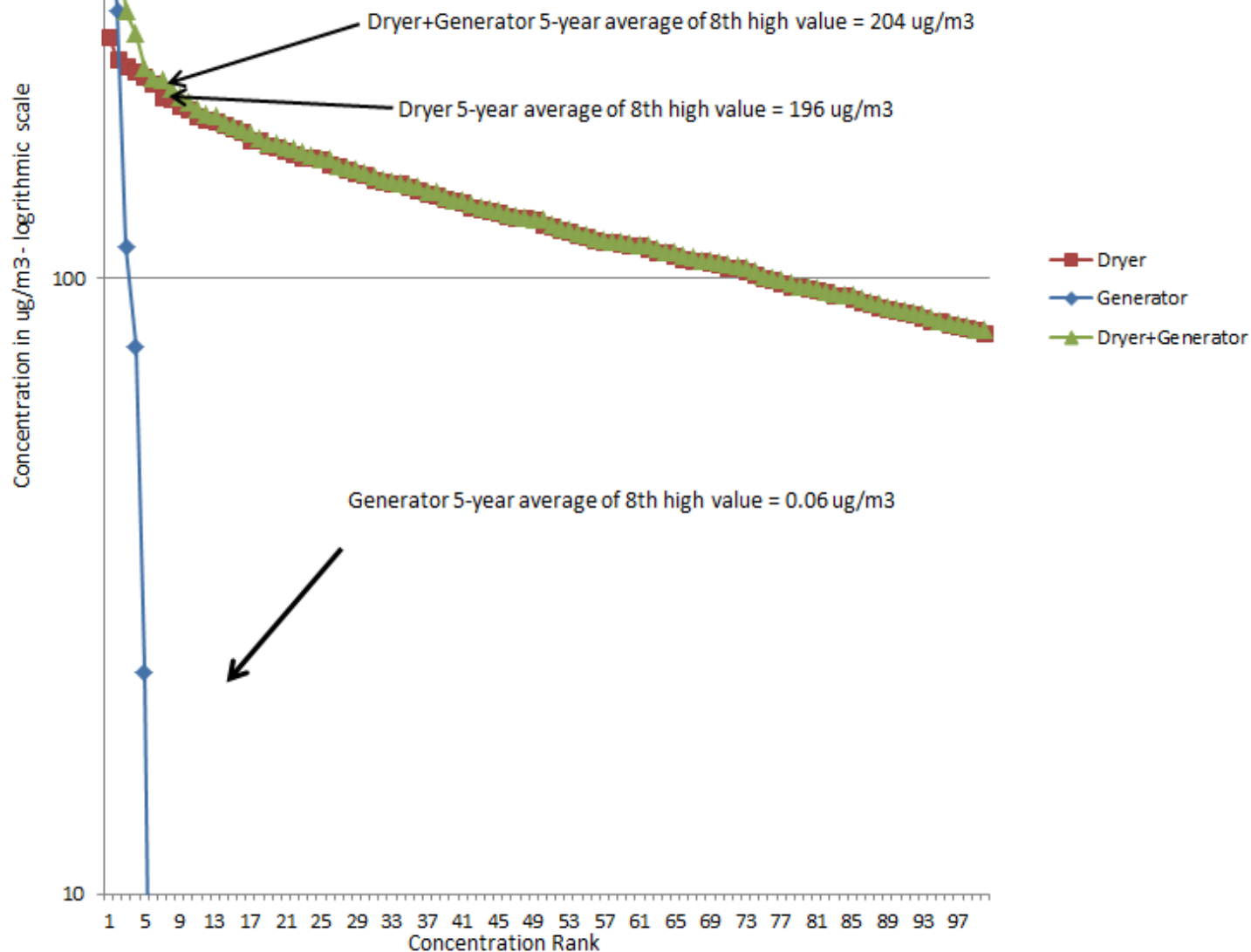
Modeled Impacts (Daily Maximum 1-Hour Impacts) for
One Receptor (Maximum Impacted Receptor at 30 m)
Intermittent Engine Operated 1.0 Hour Per Month

Dryer+Generator 5-year average of 8th high value = 204 ug/m3

Dryer 5-year average of 8th high value = 196 ug/m3

Generator 5-year average of 8th high value = 0.06 ug/m3

Concentration in ug/m3 - logrithmic scale

Concentration Rank

Dryer
Generator
Dryer+Generator

Conclusions

- **Weekly 1 hour operations can have a substantial effect on design values**

- **Monthly 1-hour operations can have a measurable effect on design values if close to the standard and near source**

- **Monthly 1-hour operations have a minimal effect on design values when not near source**

Model or Not Model

- **Monthly operations or less may be a good threshold for exclusion**

- **Weekly operations can affect design value, but impacts quickly drop off because of limited hours**

- **Monthly 1-hour operations have a minimal effect on design values when not near source**