



ENERGY STAR® Commercial Dishwasher Version 2.0 Discussion

Flight Type Machines

May 23, 2011

Chicago, IL

NAFEM Flight Type Discussion



- EPA discussed ideas for evaluating flight type performance at February stakeholder meeting

Water Consumption Metric

- Consider conveyor speed because this gets to cost of operation (e.g., gal/100 dishes)
 - Challenges using slowest speed (worst case scenario), NSF certifies at max speed/min water use
 - Pick a fixed speed to compare apples to apples, but may not be representative and what is a fair speed
 - Peg spacing too variable, could result in gaming

NAFEM Discussion cont.



- Suggested square foot of belt metric
- Consider narrow vs. wide belt requirements or use a metric based on conveyor width
- Break out single and multi tank, similar to other conveyors
- EPA agreed to plot several metrics to determine any trends compared to GPH
 - Conveyor width, chamber volume, etc.

NAFEM Discussion cont.



Idle Energy

- Feedback is mixed regarding time spent in idle
- EPA has received no data points for flight type
- Should be similar to other conveyors in terms of tank heater(s) – use proposed Draft 2 conveyor levels

ENERGY STAR Options



- **Option 1:** Address flight type machines under Version 2.0
 - Only if it doesn't delay process for other types
 - EPA could finalize all other requirements in next draft and do another reiteration just for flights
 - Must decide on a metric and propose levels by the next draft version
 - EPA prefers this option to give flight types access to ENERGY STAR and rewards efficient designs available now

ENERGY STAR Options cont.



- **Option 2:** Address flight type under Version 3.0 once ASTM procedures are final
 - Lumped in with total machine consumption effort
 - Assumes the ASTM conveyor method can be used for flight type with minimal changes, if not could be further delays

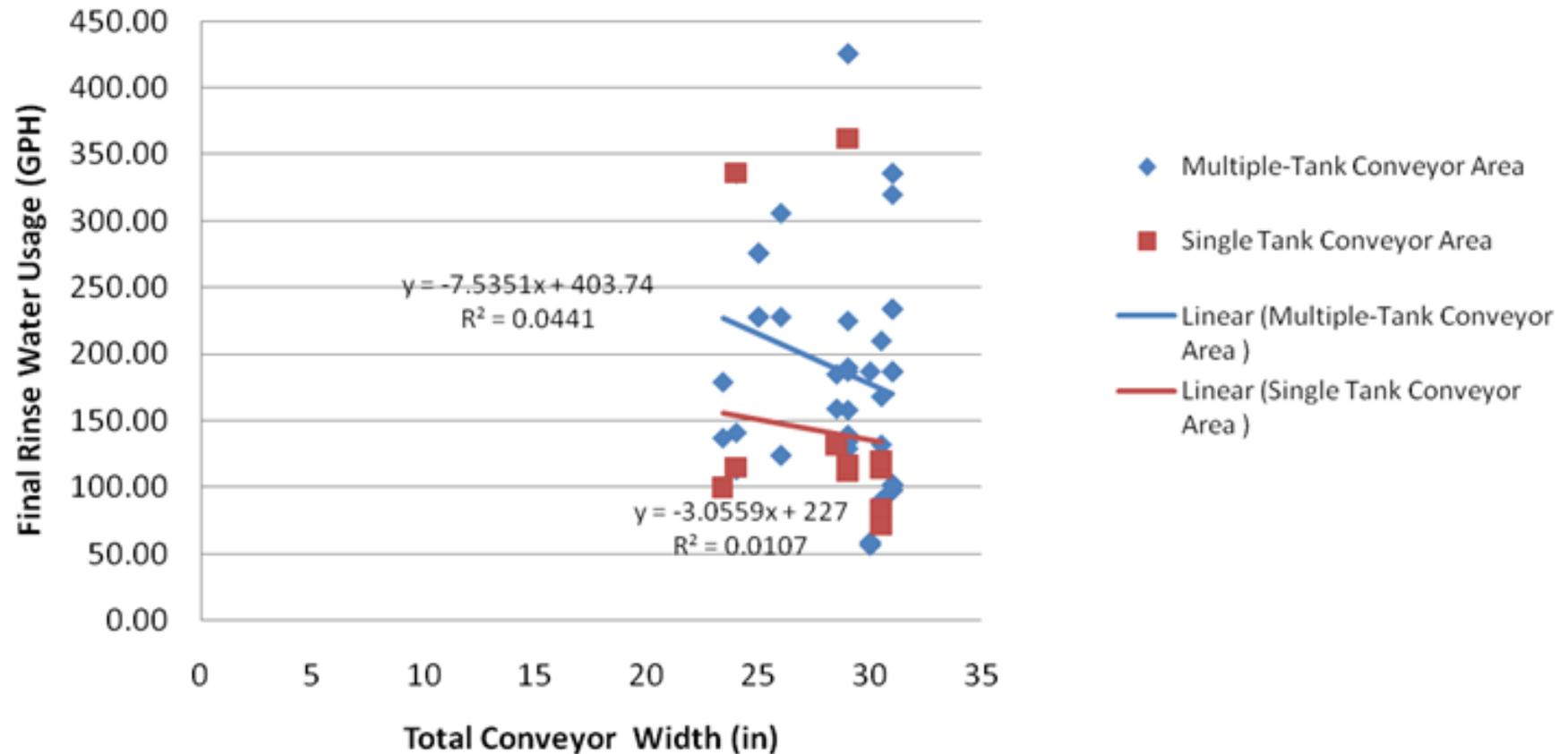
EPA Analysis



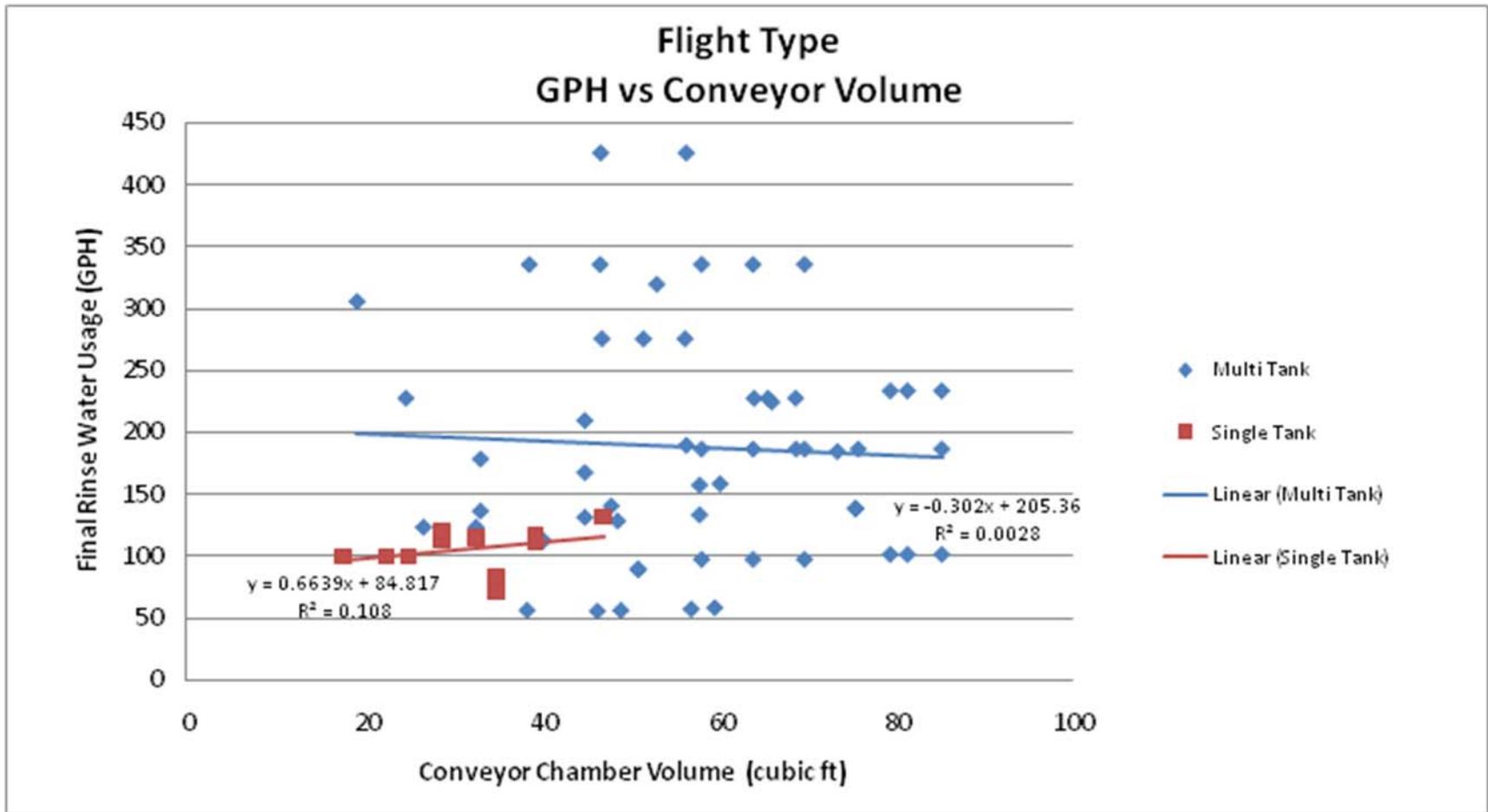
- EPA evaluated several different metrics to determine if there are any strong relationships
- Plotted against GPH to determine trends
- Sources included:
 - NSF Directory
 - Manufacturer spec sheets
 - Discussions with manufacturers

GPH vs. Conveyor Width

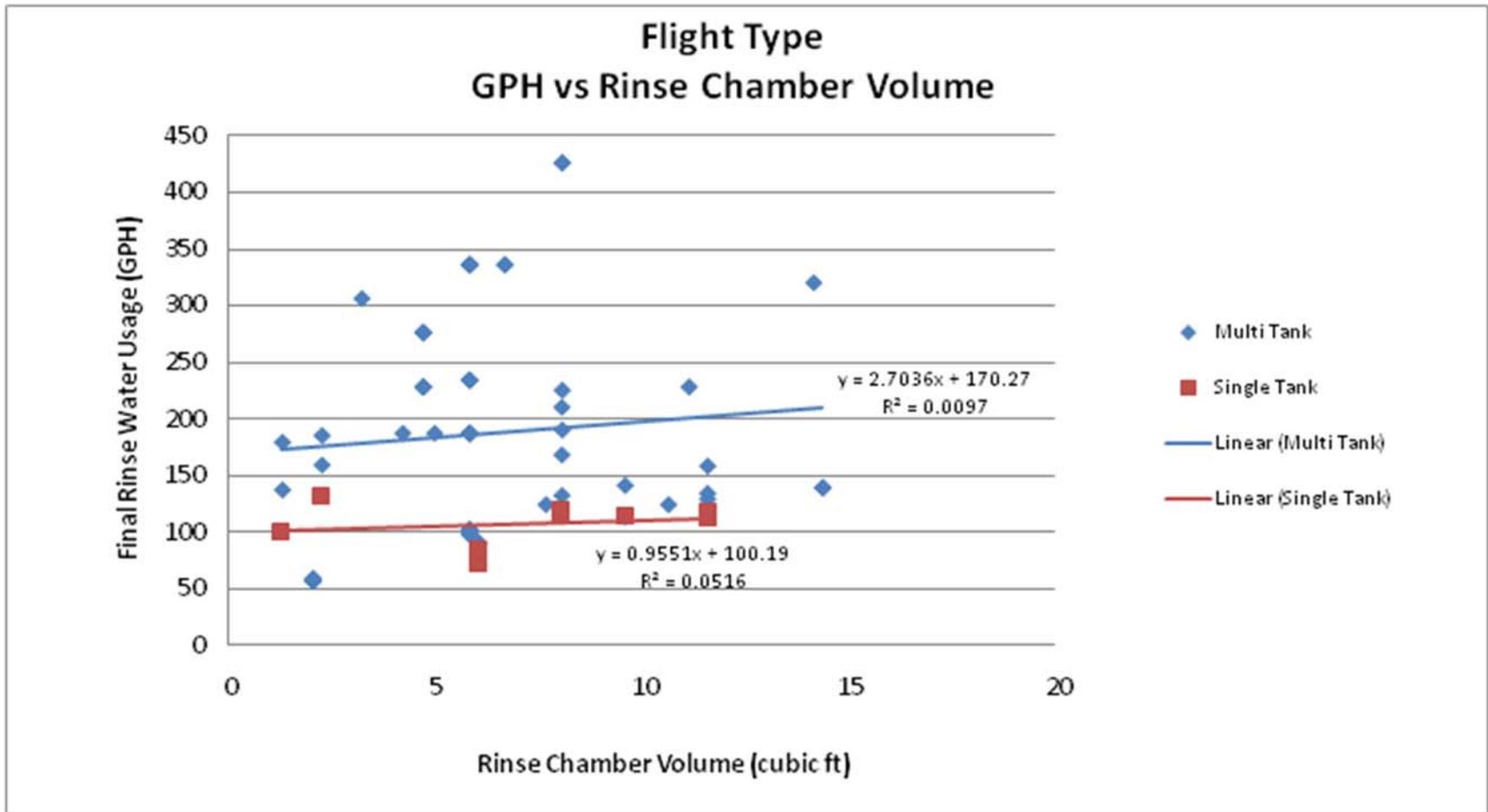
Total Conveyor Width vs GPH



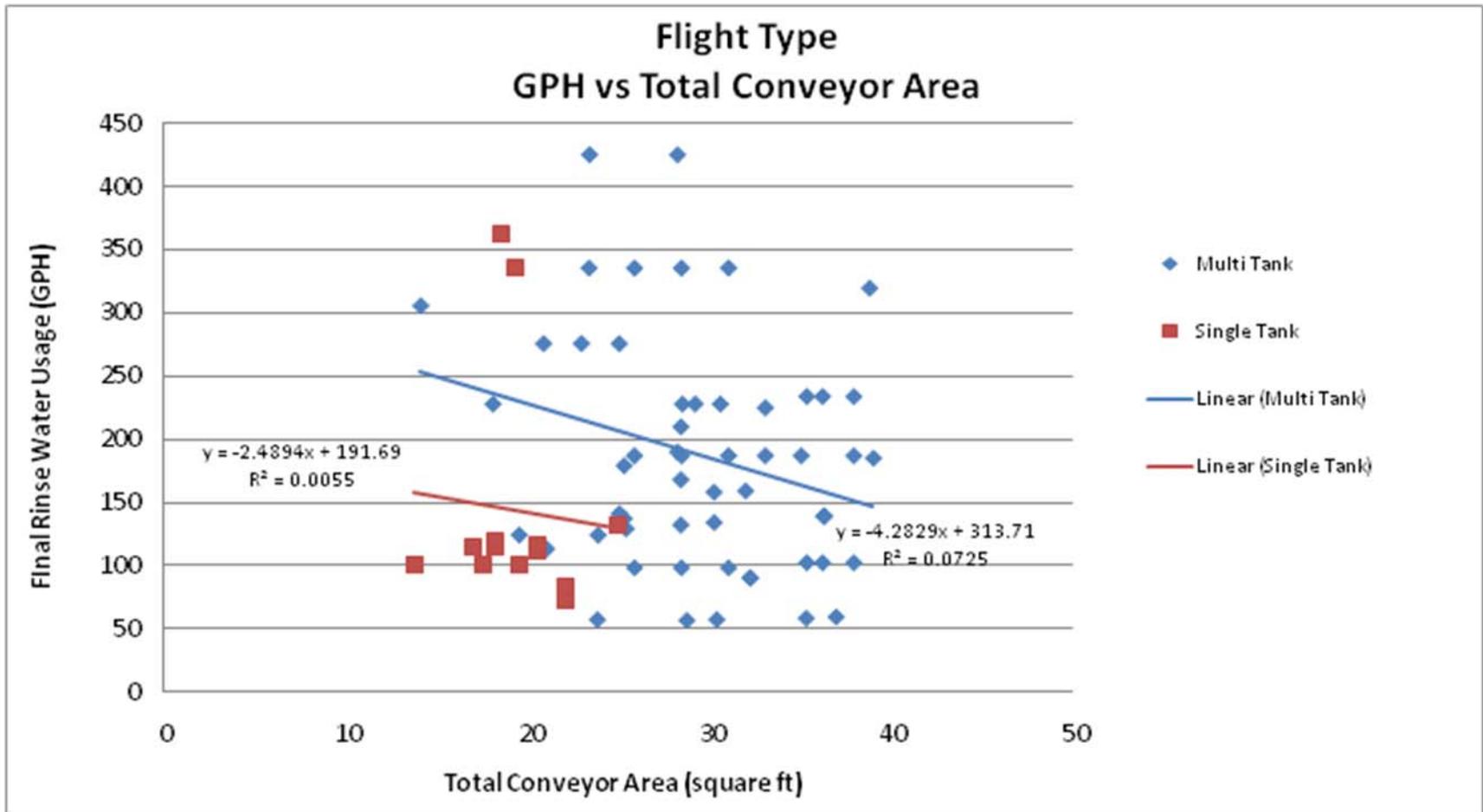
GPH vs. Conveyor Volume



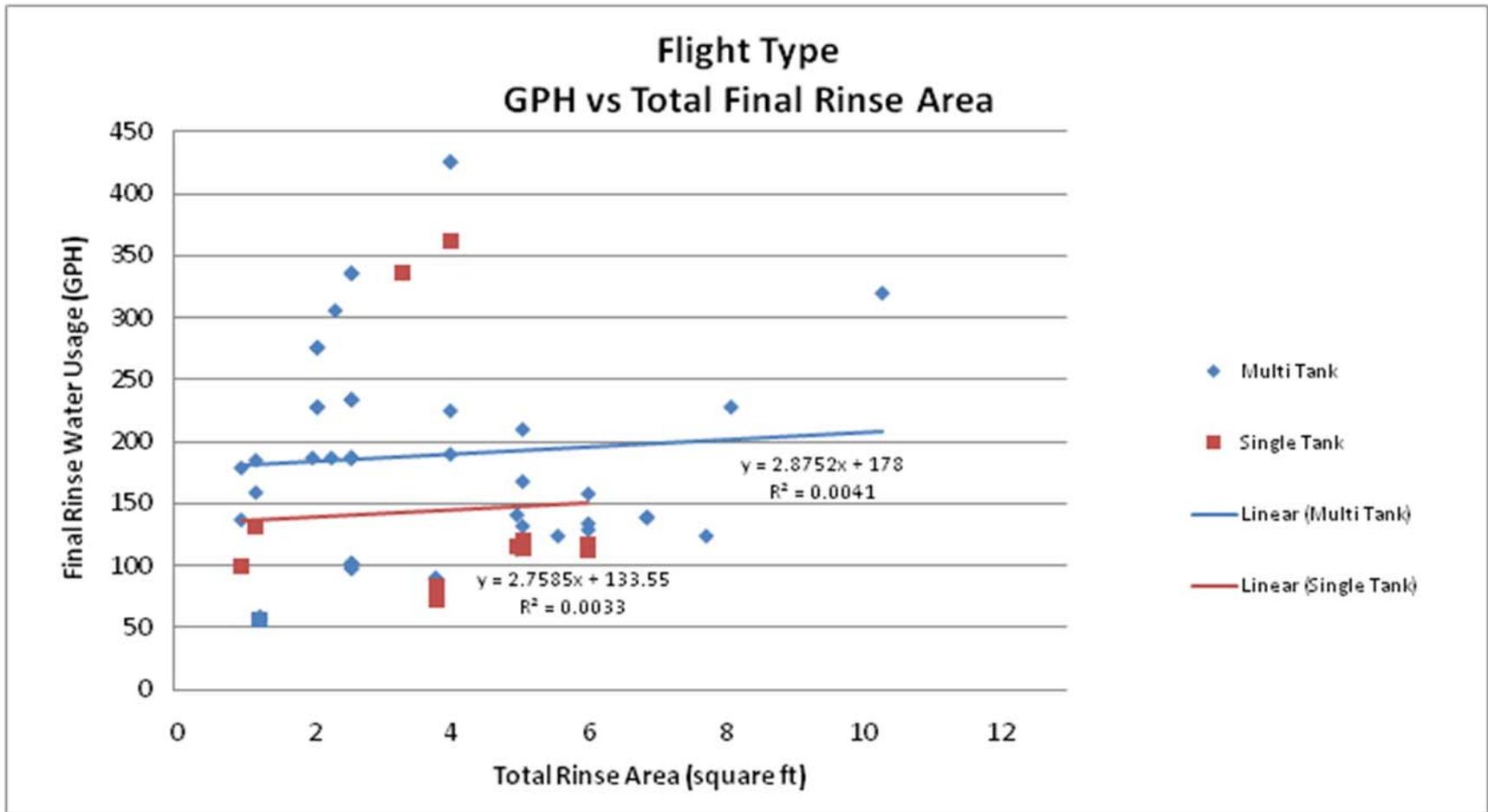
GPH vs Rinse Chamber Volume



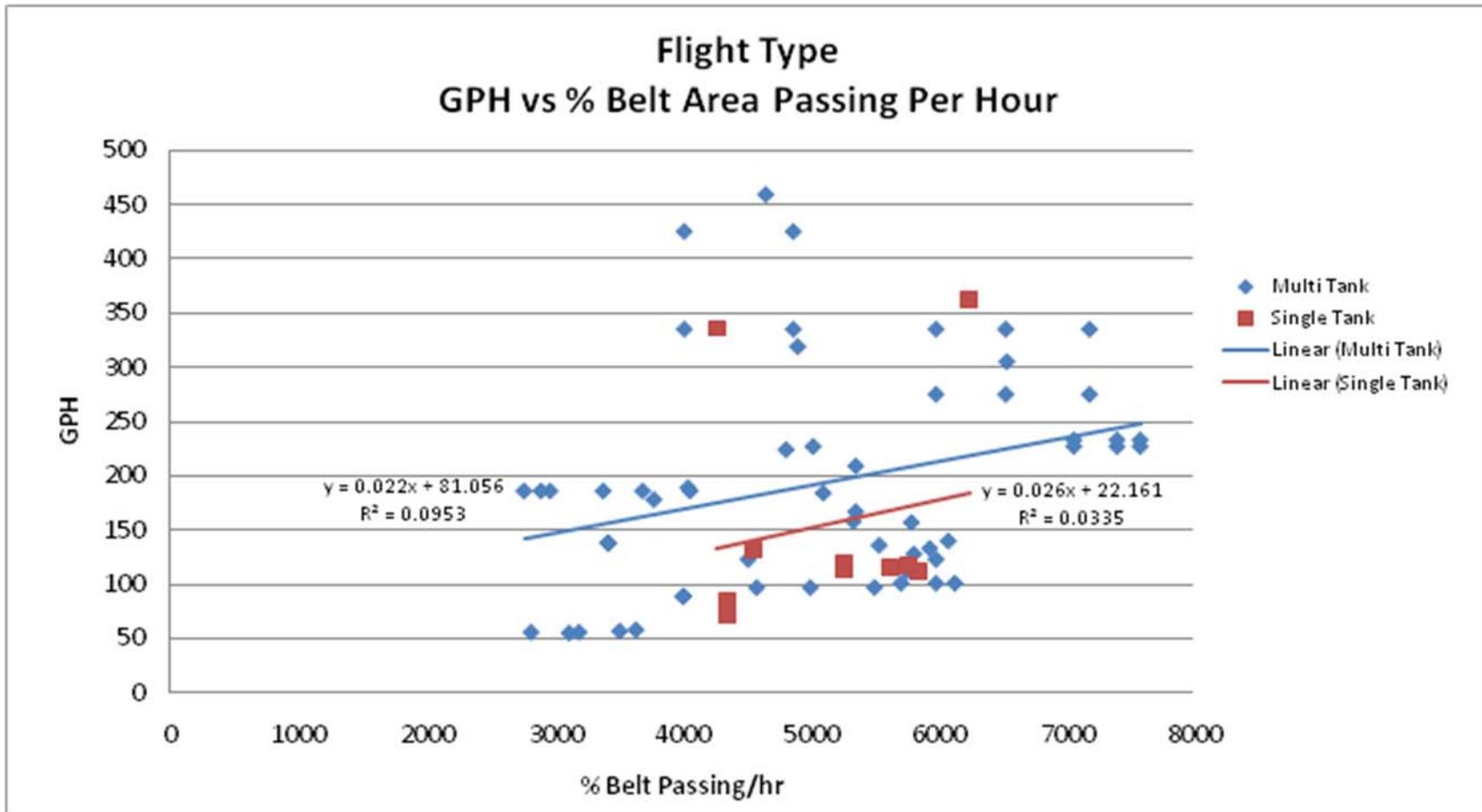
GPH vs. Total Conveyor Area



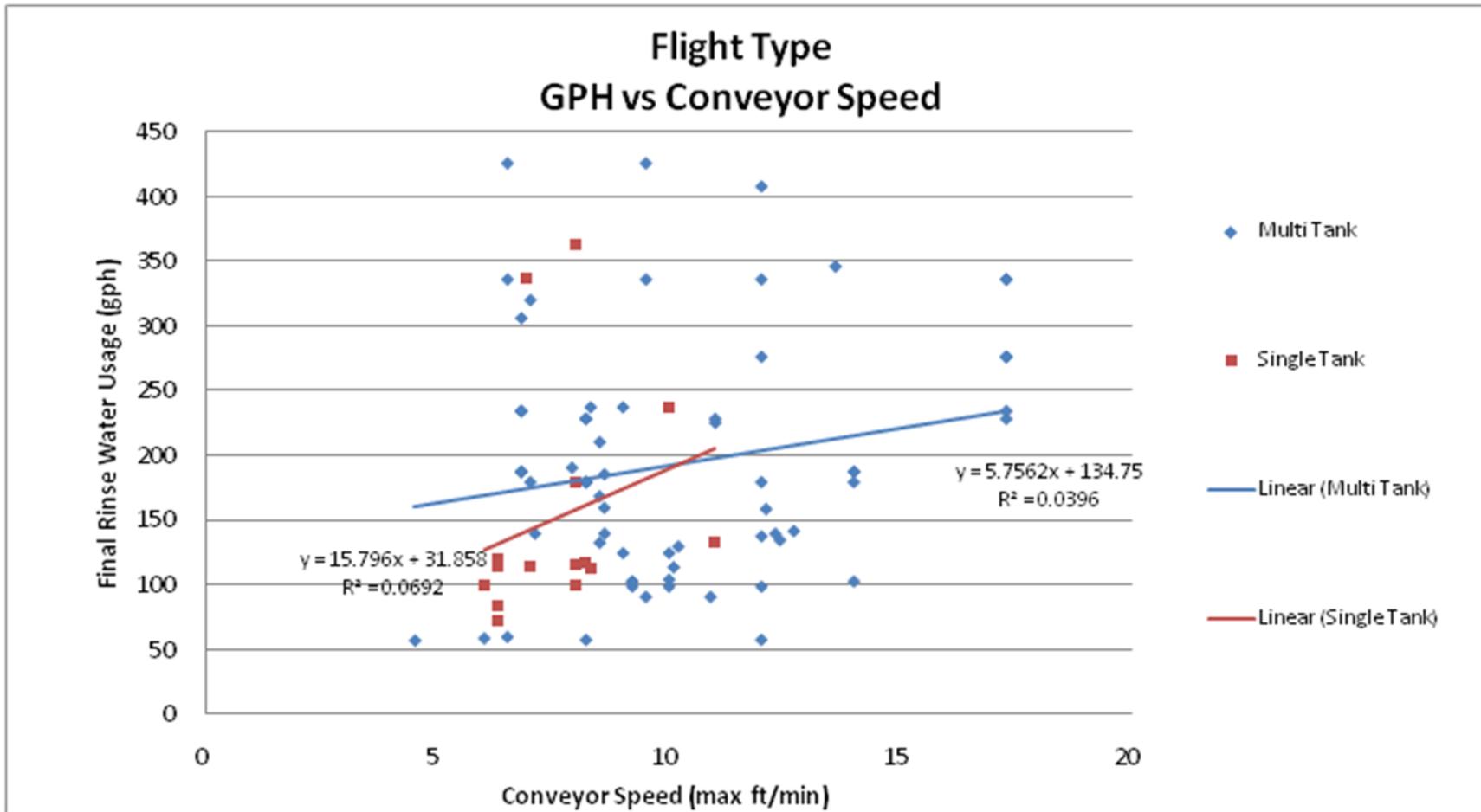
GPH vs. Total Final Rinse Area



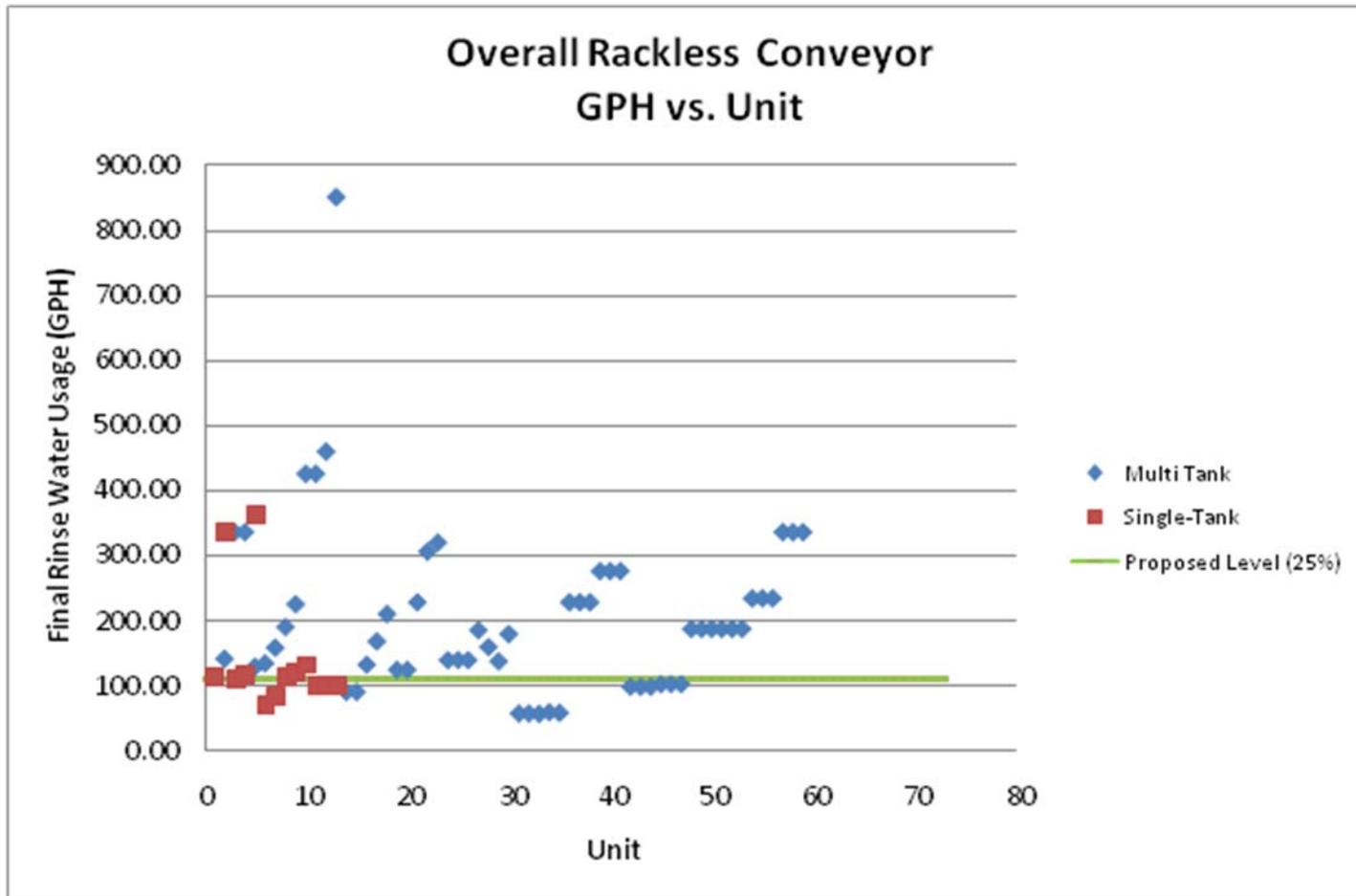
GPH vs Percentage of Belt Area Passing Per Hour



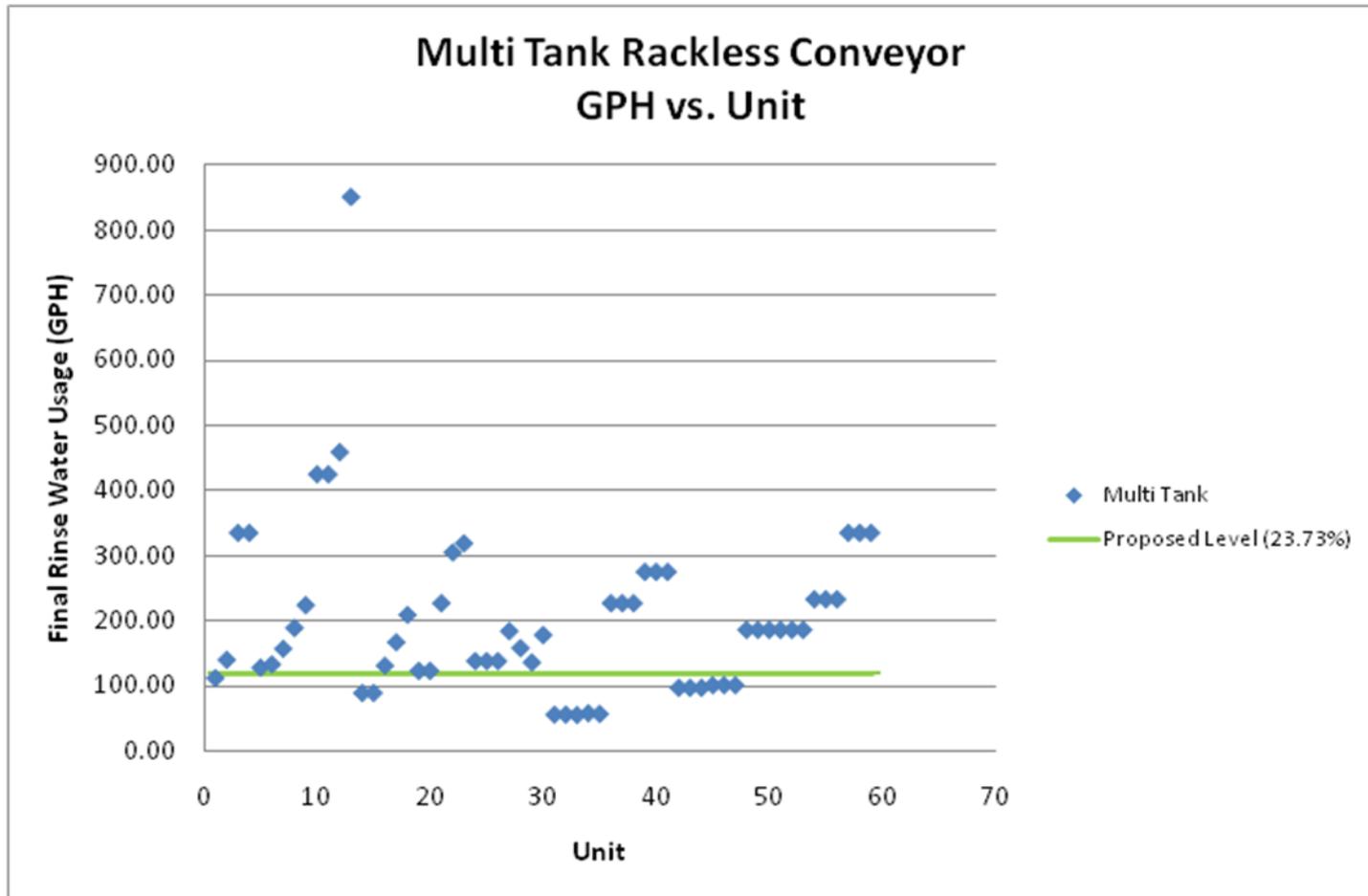
GPH vs. Conveyor Speed



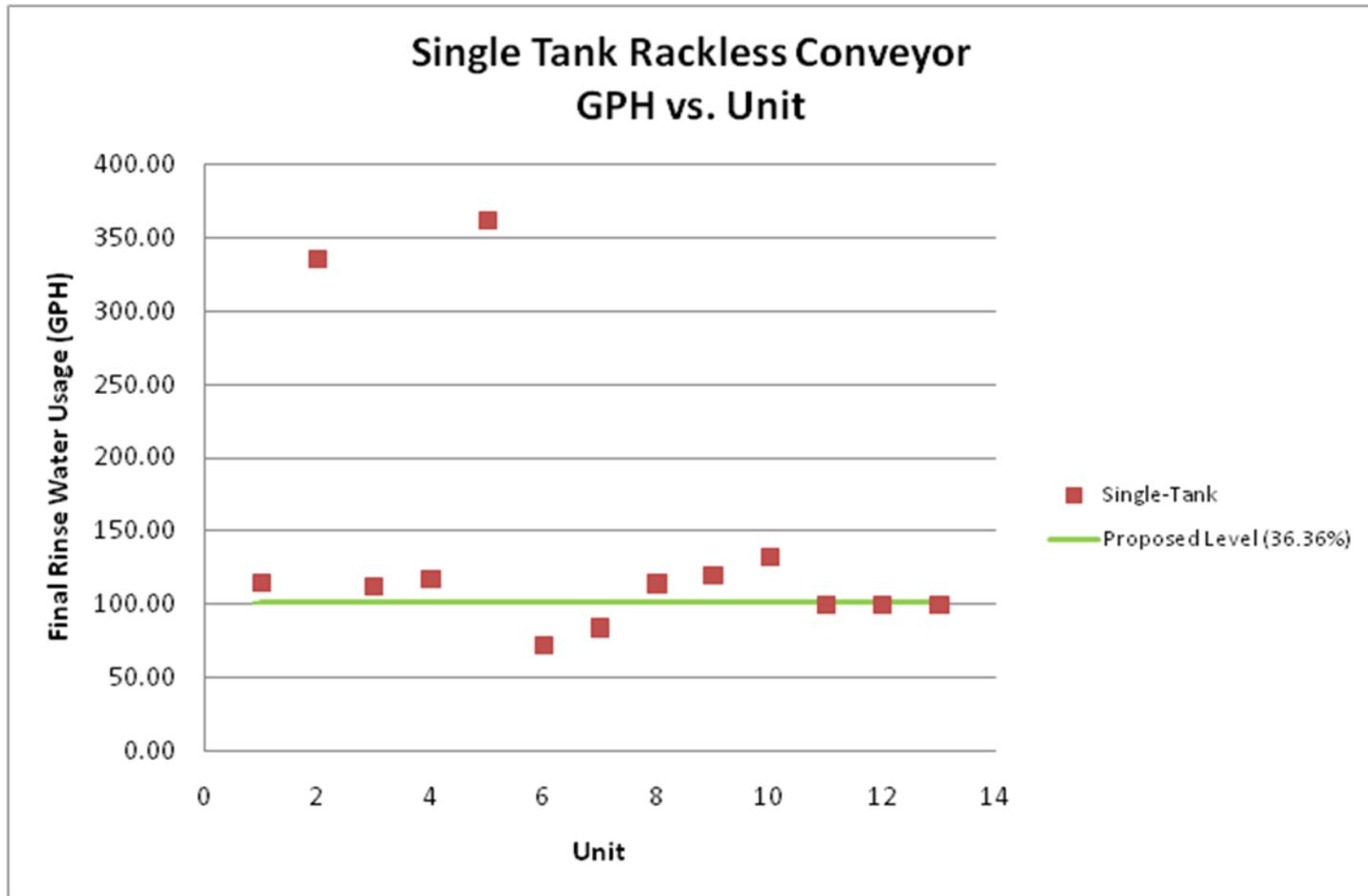
GPH vs. Unit



Potential ENERGY STAR Levels



Potential ENERGY STAR Levels



Additional Questions



- How do product families work?
 - Does EPA need to define representative model?
 - How are these products sold and installed?
 - Could there be a situation where the product meets during testing but not in the field?
- Does the ENERGY STAR rinse water test method apply to flight type? Are there any tweaks that need to be made?

Proposed Timeline



- Draft 2 comments due June 3
- Draft 3 released June/July
 - Finalize requirements for all other product types
 - Proposed levels for flight types
- Draft 3 comments early August
- Final Draft released early September
- Specification finalized by October

ENERGY STAR Contacts



- Christopher Kent, EPA
 - (202) 343-9036
 - Kent.christopher@epa.gov
- Rebecca Duff, ICF International
 - (434) 202-7878
 - rduff@icfi.com