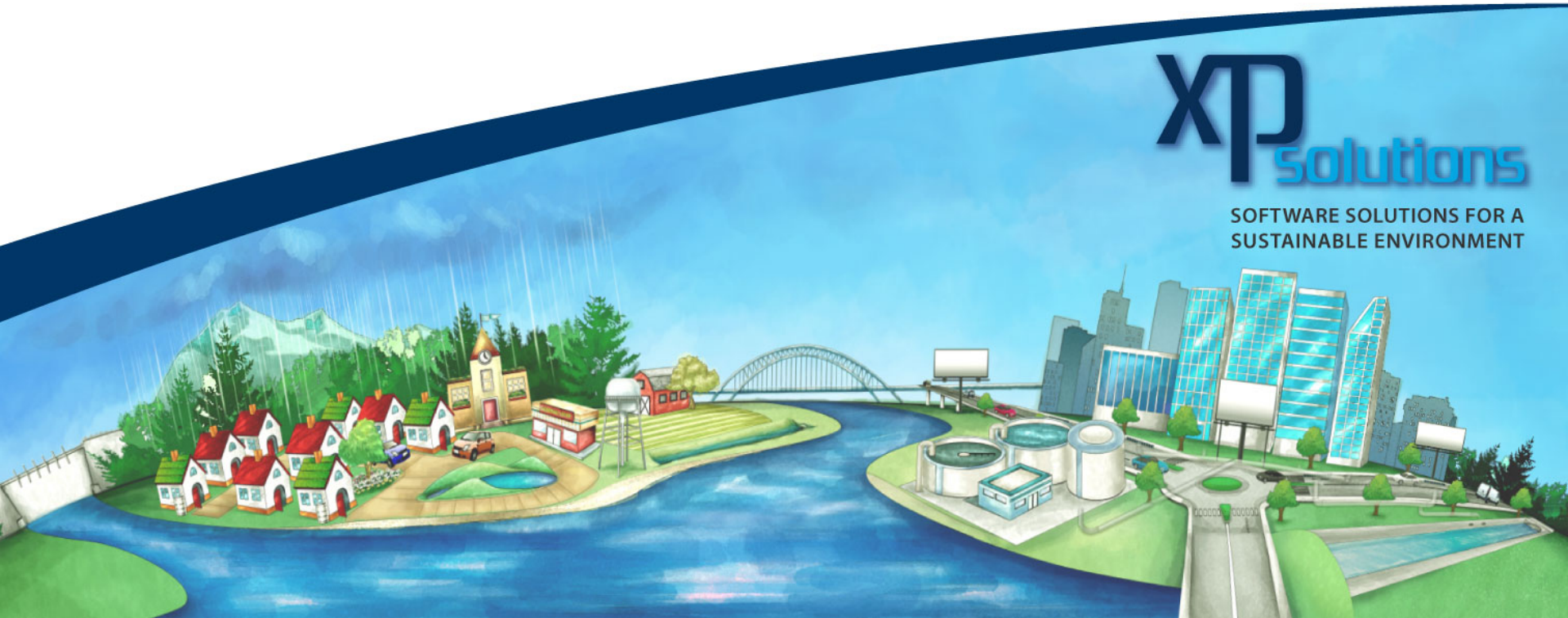


Sanitary Sewer Calibration

Adam Rose, PE, GISP

XP
solutions

SOFTWARE SOLUTIONS FOR A
SUSTAINABLE ENVIRONMENT

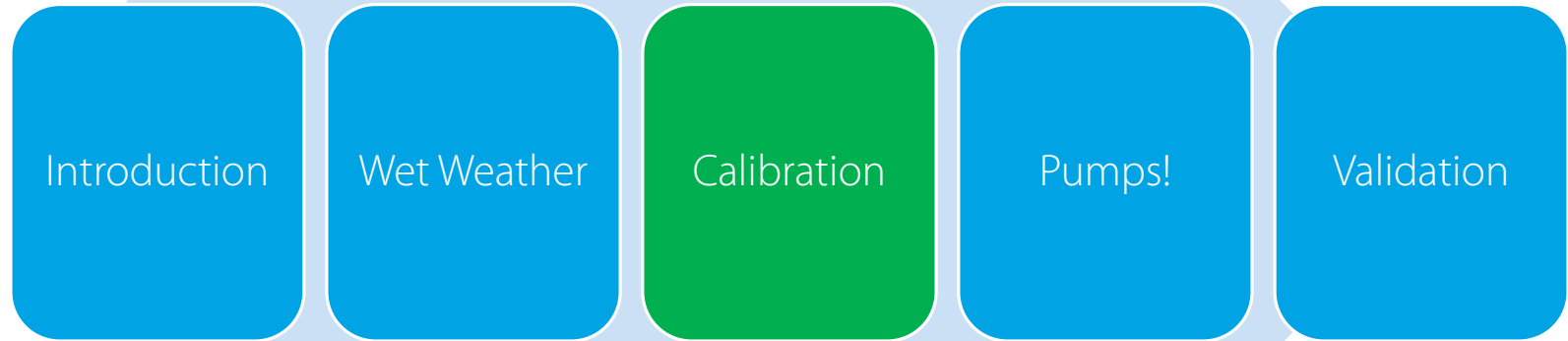


- Adam Rose, PE, GISP
- 14+ years modeling experience
- Sanitary Product Manager

- Father of 2.97
- Tinkerer



Series Information



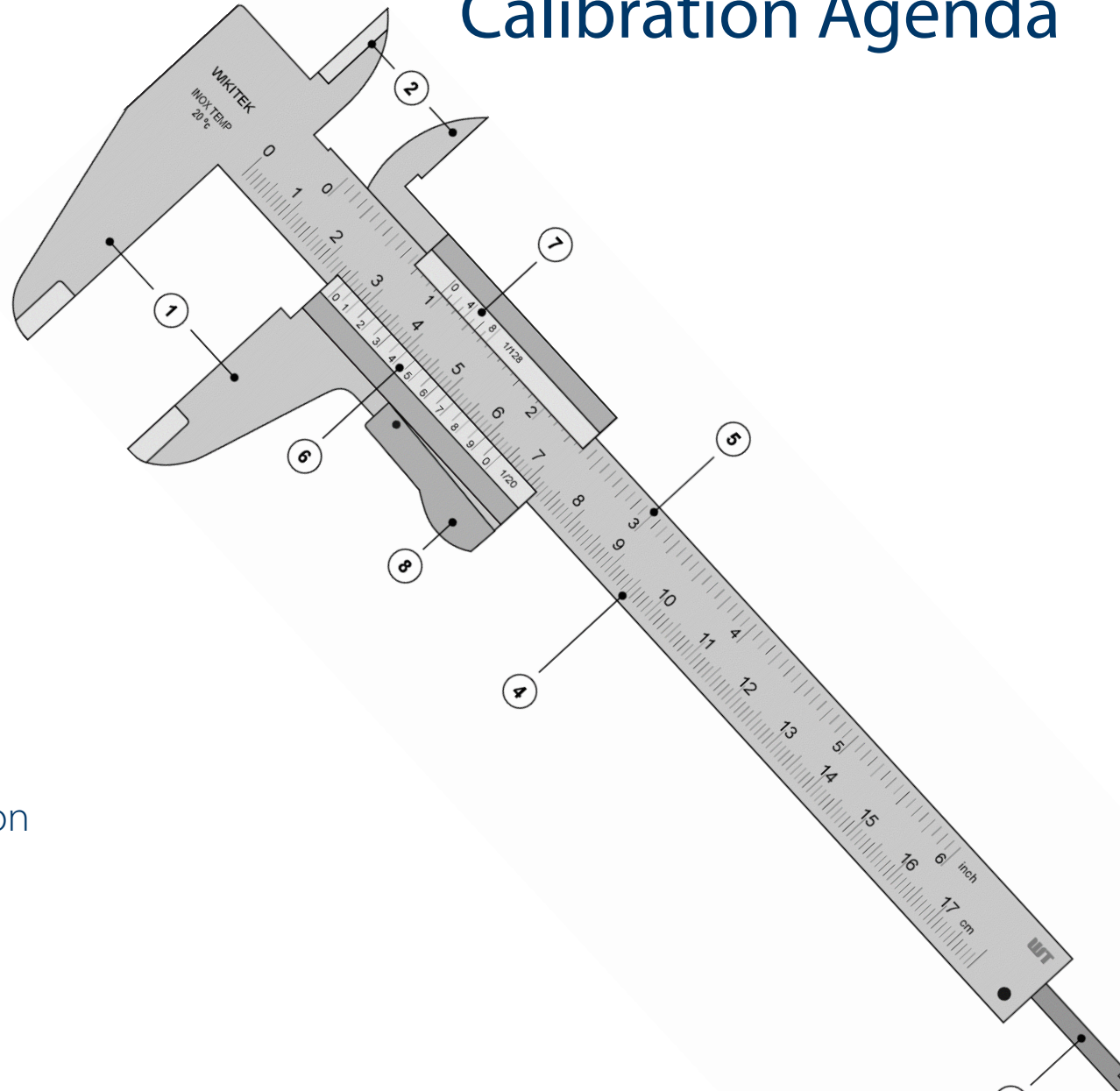
- Comment! We can incorporate into later webinars

- Copy of first presentation: <http://xps.link/ss1>
- Copy of second presentation: <http://xps.link/ss2>
- Major Comments:
 - I do it X – it's the best: not Y!
 - I do it Y – it's the best: not X!
 - Give me a real example!



Calibration Agenda

- Definition
- Goals/Scope
- Methods
- Examples
- Summary
- Q&A



<http://xps.link/calibration>

- *Model calibration is the initial testing of a model and tuning it to reflect a set of field data. --US EPA*
- To match your model with ...
- To compare reasonably well with ...
 - Another model
 - Another method
 - My gut
 - Actual data
- To compare reasonably well with actual data

- To compare reasonably well with actual data
- Actual data considerations
 - Quality
 - Relevance
 - Quantity
- Reasonably well considerations
 - Validation
 - Calibration

- Validation
 - High level, short duration initial sanity checks
 - Example: does my system really overflow when dry
 - Uses: prepares model for calibration
- Calibration
 - Theoretical: $\min f(\$, \text{time}, \text{data}, \text{error})$
 - Practical: something like 5% error DWF, 10% WWF (p, \bar{a})
 - Example: does my system overflow with 2"/hr rain in April
 - Uses: prepares model for extrapolation

Please feel free to steal these and make them yours/better

- What can we vary? These will be our methods
 1. Hydrology
 2. RTK
 3. Flow

- Recall our poll from the last webinar
 - What methods do you use for wet weather

Hydrology	40%
RTK	30%
Multiplier or Pattern	13%
Groundwater	9%
Other	9%

- *There are known knowns. These are things we know that we know.*
- *There are known unknowns. That is to say, there are things that we know we don't know.*
- *But there are also unknown unknowns. There are things we don't know we don't know.*



- Standardize
 - Document your goals and scope first
- Synthesize
 - Validation should occur first
- Symmetry
 - Mat'l, age, condition
- Simplify
 - Drier is better
 - Upstream is better



- Project Summary
 - Simple example of a simple system
- Demonstration Goal
 - Calibrate one junction against gauge data
- Notes
 - This is a simplified example



- Project Summary
 - Small, municipal collector system in SW USA
- Demonstration Goal
 - Show how to create and use RTK parameters
- Notes
 - For only one rainfall event



- Project Summary
 - Medium separate sanitary system in NE USA
- Demonstration Goal
 - Show interface between runoff and hydraulics
- Notes
 - Run with interface files



- Different methods (solutions) for different problems
- XPSWMM :: knowledge base articles, support portal
- Don't forget: pumps coming up next!

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Questions? Comments?

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Thank you for joining this presentation,

Calibration

by

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