Components to Develop a Strong Quality Assurance Program

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A Good Motto to Follow

"Trust, but verify"

- Only trusting the readings from an instrument or other data source with no verification will result in bad data
- A good QA program is designed to identify and prevent bad data from entering the system
  - Not all bad data can be detected and eliminated but will lower it to an acceptable level

What is Quality Assurance

- Quality Assurance (QA)- the maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production
- It can be as simple as following the manufacturer instructions
- Different types of QA checks while being more complex will improve overall data quality…to a point

How to Build A Good QA Program

- Have a suitable individual(s) who oversee only the quality assurance aspects of a project
- Budget to cover ~10% duplicate sampling and independently check samples/equipment
- Ability to regularly calibrate and maintain equipment
- Have a response plan to address problems identified

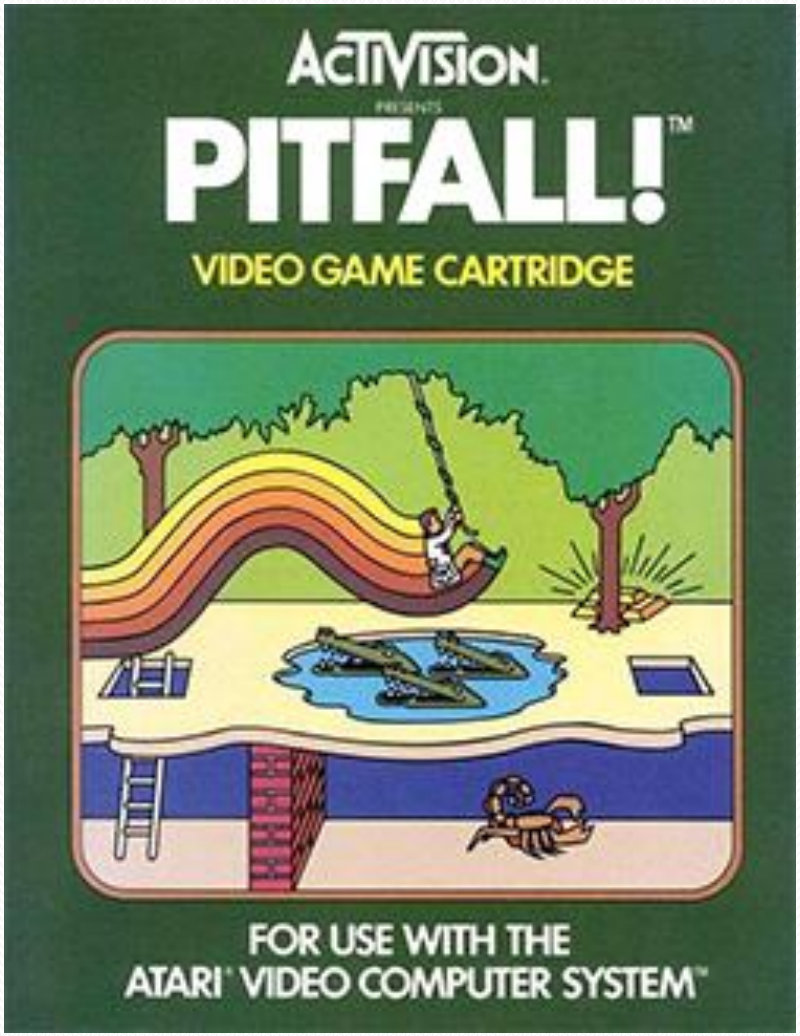
Having Written Procedures A Must

- Quality Assurance Project Plan: Outlines equipment used, training and procedures used and how data is handled and checked and problems addressed
- Standard Operating Procedures: Document(s) that cover the various tests used in the field and laboratory to collect, transport, and analyze samples
- Other documents like Quality Management Plans but for most projects the above two are the essentials

Work With Others Is A Good Idea

- Partnering with other monitoring groups to share split samples is excellent QA
  - Independently confirms the precision of both groups
  - If problems are found the other group may know of a solution based on their own experiences
  - Opens the doors to larger projects on a regional, State, or National level

Some Pitfalls to Avoid



Don’t Trust Your Instruments

- Instruments will lie but we trust them as they cannot lie…yet
- Instruments lie from mechanical failure
- Failure may be severe and apparent but…
- Often failure is subtle and occurs over time
- Solution: Regular calibration and maintenance of equipment and check two or more of the same at the same time

Samplers / Analysts Know What to Do

- Everyone wants to do the right thing
- Everyone does things differently
- Solution: Train, retrain, and audit
  - Train new personnel and pair with experienced people
  - Retrain veteran samplers and analysis regularly
    - Vary training methods and styles to avoid “IKnowItus”
  - Audit the trained people randomly but regularly to ensure they retain the knowledge

Rotate Tasks to Avoid Burnout

- Doing the same thing all the time is BORING!
- Boring leads apathy. Apathy leads to inattention. Inattention leads to bad data…
- Solution: Rotating people to handle different tasks keep things interesting and keeps people's attention

Wise is Yoda. Him trust I will.

Don’t Get Too Paranoid

- Looking for problems all the time and you will find problems
- It can be easy to overblow potential QA issues
  - Often issues can still allow the data to be used but with qualifiers
- You could get exact results 100% but only if doing only checks and no actual data collection
- Solution: Foil hats help!

Thank You

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