Chesapeake Bay Point Source Data Project: Common Themes in Jurisdictional Experience

Introduction

This document highlights common themes among the jurisdictions in gathering, reviewing, and submitting point source data to the Chesapeake Bay Program for the progress model run each year. More information about specific experiences, and who attended each meeting, is available in the meeting notes from each conversation, as well as the Stakeholder Register for this project.

Summary of Input

What are the barriers you see to submitting uniform data across the jurisdictions?

- Jurisdictions see differences in each other's QA/QC processes that would make developing a single tool or portal difficult.
- Differences exist among jurisdictions in the treatment of nonsignificant facilities, in terms of the data available and the extent to which default values are used.
- A tool would have to accommodate entry of different formats of data (from a state system, from an Excel spreadsheet), or the jurisdictions would have to agree to a common entry format.
- Jurisdictions also differ in the proportion of facilities within their jurisdiction are included in the Chesapeake Bay Watershed and, therefore, are of concern to the Bay Program.

What does your current data gathering process look like?

- Some jurisdictions start their data gathering process with a pull from ICIS-NPDES, while others take data directly from the state database that feeds ICIS-NPDES.
- The effort required to gather data for significant facilities is substantial, but the true pain point is combining this data with data (or lack thereof) for nonsignificant facilities.
- Jurisdictions are in various states of transition to an electronic reporting system, through either net or e-DMR.
    - The differences between these documents are outlined in a separate process notes document; they are largely based on whether the reporting system is hosted and maintained with EPA or the state.
    - When reissuing permits, most jurisdictions add a new requirement to report electronically.
- Region 3 is in the process of analyzing how the NPDES e-Reporting rule would affect its jurisdictions.
    - Preliminary results of this analysis show that several states will have to complete CROMERR approval of their system (or use the federal system, net-DMR) to comply with the new rule.

  - *Question—would the NDPES E-Reporting rule expand the number of facilities that have to report and whose data flows, eventually, into ICIS-NPDES?*
  - Rule would require state systems to interface with ICIS-NPDES.
- One of the challenges of data collection is the required format for some systems. For example, net DMR does not accept raw data, only calculated statistics (e.g., average flow) that could contain errors made when performing these calculations.
- Use of default values:
  - Many jurisdictions use default values per Attachment 6 of the grant guidance for nonsignificant facilities, either because they don't have the data (not required to report) or, in some cases, the data set of nonsignificant facilities is too large to assess.
    - PA raised the issue of data quality in relation to default values. In PA's experience, default values can fail to represent what is actually occurring.
    - Once PA began to monitor those facilities for which it had used default values, it found the actual data to be lower than the default values.
  - Moving away from using default values places more burden on jurisdictions to QA/QC data for nonsignificant facilities in addition to data for significant facilities.
- Jurisdictions are in agreement that there is room for streamlining in the data gathering, review, and submission process.

What does your current QA/QC of gathered data look like?

- States have invested in different methods of QA/QC to save time and effort, including:
  - macros built into spreadsheets to pull data from ICIS-NPDES,
  - run programs (e.g., SAS) to check data
  - series of database queries
  - investing in new e-DMR systems with validation and error catching built into the system.
- A QA/QC tool may be useful, if it provided benefits in addition to those provided by existing jurisdiction tools.
  - It is relatively easy for the jurisdiction data handler to see missing data in the current process.
  - A tool will help most if it is able to perform more sophisticated checks, like identifying outliers and checking for expected trends in the data.

Can ICIS-NPDES help report the parameters the Bay program is interested in?

- There was general agreement among jurisdictions that building a separate system would be redundant. It would be better to create the QA/QC tools to make better use of existing systems.
- Many jurisdictions do not require facilities to report all parameters the Bay Program is interested in.
  - For example, many report simply total nitrogen and total phosphorus.
  - Different species behave differently; thus it is helpful to have speciation of nitrogen and phosphorus in the model.
  - Some jurisdictions are moving towards including these parameters as reporting requirements. With this increase in data comes an increase in the effort to gather and, in particular, to review the data with a robust QA/QC process prior to submission to the Bay Program.

    - A few jurisdictions are moving away from including more reporting requirements.
        - Having different species that don't add up to the total makes the QA/QC lengthier.
        - These jurisdictions use default values or design flow to fill in missing parameters.
    - Most jurisdictions do not have reporting requirements for nonsignificant facilities.
    - Without standardization of reporting requirements, ICIS-NPDES may be difficult to use as a data source for Bay Program model runs.
- Jurisdictions see challenges associated with getting minor permitees to report data into ICIS-NPDES (i.e., changing and enforcing additional reporting requirements).
- ICIS-NPDES does not allow the flexibility needed for entry of actual data.
    - The system doesn't allow data entry for intermittent flow; it assumes the entered data is a daily flow.
    - System does not accept negative values, which may occur for non-contact cooling waters.
        - This means the net value is calculated over time, resulting in a manipulation of the data.
        - Eventually, the negative and positive values cancel each other out over time.
    - Any tool built to enhance ICIS-NPDES (data quality tool) or upload data to the Bay Program would have to be flexible enough to not prevent entering of accurate data (e.g., flag something as an outlier, but do not prohibit its entry).
- There were varied views on the quality of data in ICIS-NPDES.
    - For some jurisdictions, data quality of ICIS-NPDES is not an important issue because it is a reflection or duplication of the data in their state database, until they do the QA/QC of the data prior to submission to the Bay Program.
    - Others cited data quality issues that led to unnecessary work investigating possible compliance issues based on data errors.
- Some jurisdictions expressed support for an automatic data flow from ICIS-NPDES to the Bay Program, but this was not widely expressed. The Bay Program would need to bring this suggestion back to the larger group to get a better read on how it would affect the process of all jurisdictions.

How do your progress run data and your compliance data sets differ?

- Jurisdictions agree that the submitted DMR (electronic or in paper) is legally definitive, regardless of what system it is entered into.
    - Data errors should be corrected by requesting and accepting a revised DMR from the facility.
    - For electronic DMRs, this corrected data can easily flow into the state database and/or ICIS-NPDES.

Major Challenges and Themes:

- **Speciation** makes ICIS-NPDES a less useful tool and requires more QA/QC to make totals add up. It requires some data manipulation—changing raw data to fit reported total.
- Data quality in ICIS-NPDES is still lacking but not necessarily prohibitive to using ICIS-NPDES as a starting point for a way to collect Bay Program data.
- There is no legal incentive to **consolidate or improve** the quality of data collections, as the submitted DMR is the basis for legal action. There is, however, a process incentive to improve the quality, as jurisdictions often find they can address flagged compliance issues with a correction to a data error.
- The Bay Program needs to better understand the **existing QA/QC tools** that jurisdictions have to be able to create a tool that adds more value.
- Jurisdictions **vary on reporting requirements** in permits—and whether the trend is to include more or fewer parameter requirements.
- The group varies in opinion concerning the use of **default values**.
    - Some see default values as a useful way to incorporate facilities into the model that are otherwise not reporting data frequently (usually some portion of the jurisdiction's nonsignificant facilities).
    - Others recognize that default values can skew the data and, thus, the model results.

Options

The following paragraphs describe several options to address the identified challenges. The best outcome would incorporate a combination of these options working together.

Pre-processing tool

This tool would be programmed to screen for Bay Program requirements, including speciation that adds up to the total for nitrogen and phosphorus.

Considerations

- This tool could be connected to a submission method.
    - If the goal is to get the output into ICIS-NPDES, tool would either have to draw from net or state e-DMR system, or occur prior to submission into either of those systems.
    - Building more data quality checks into the ICIS-NPDES system would reduce the number of compliance issues jurisdictions must investigate.
- How would development of the tool be funded?
- Could a tool automatically reallocate the species to add up to the total?
- Could the tool add values for nonsignificants automatically?

Add Nonsignificant Facilities to ICIS-NPDES

Many nonsignificant facilities are not required to report regularly, or at all, or on all of the parameters of interest to the Bay Program. Working with jurisdictions to add these reporting requirements to renewed permits, or investigating whether there is a more voluntary way to include this information, could address this issue.

Considerations

- Does this option infringe on the autonomy of each jurisdiction?
    - Some are requiring more reporting over time, while others are requiring less.
- Will facilities have concerns about uploading non-required information to a compliance database? Is there a mechanism in ICIS-NPDES for gathering non-required information?
- By itself, this option does not address the data quality or data manipulation (speciation).

Use default ratios for speciation

Because many jurisdictions expressed a high level of effort associated with reporting speciation, which is not monitored consistently and does not always add up to total, one option to reduce the level of effort is to agree to apply default ratios for speciation.

Considerations

- PA expressed that using default values skewed their data higher than real values, collected at a later date.
- Use of default values through ratios to the total would allow for simpler programming of a pre-processing tool.

Pull data from ICIS-NPDES for use in the Bay Program progress model

To incentivize data quality in ICIS-NPDES, the Bay Program could declare that it will pull data from ICIS-NPDES for each progress model run.

Considerations

- Bay Program would either shoulder the responsibility of QA/QC and preparing the data, or would send data back to jurisdiction for further processing.
- Most of nonsignificant facilities in all jurisdictions do not have data (or all parameters of interest to the Bay Program) available in ICIS-NPDES.
- In coordination with a QA/QC tool, this option could improve data quality but may not do much to reduce the level of effort associated with compiling the data set for each jurisdiction.