

USING THE DEQ LOCAL LIMITS WORKBOOK

June 22, 2016

ACWA Workshop: Setting Pretreatment Local Limits
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HISTORY OF THE DEQ LOCAL LIMITS WORKBOOK

- A long, long time ago, when dinosaurs ruled the earth, DEQ asked me to write an Excel-based workbook for calculating Local Limits



HISTORY OF THE DEQ LOCAL LIMITS WORKBOOK

- OK, there were no more dinosaurs in 2002. Well, maybe a few...



HISTORY OF THE DEQ LOCAL LIMITS WORKBOOK

- Back in 2002, POTWs in Oregon used PRELIM, which was software developed by EPA to calculate local limits



HISTORY OF THE DEQ LOCAL LIMITS WORKBOOK

- PRELIM actually (mostly) worked, but there were two problems:
 - It didn't handle Water Quality-based allowable loadings correctly
 - The newest version, PRELIM5, kept crashing when users tried to use it



HISTORY OF THE DEQ LOCAL LIMITS WORKBOOK

- The first problem, the problem with WQ criteria, was solved by having PRELIM users utilize a spreadsheet in conjunction with PRELIM
 - The EPA Region 10 spreadsheet was designed to calculate POTW WQ-based effluent limits
 - The POTW “effluent limits” were then input into PRELIM to calculate pass-through allowable loadings



THE FIRST DEQ LOCAL LIMITS WORKBOOK

- Completed in late 2002, minor revision in January 2003
- Performed essentially the same calculations as did PRELIM
- The EPA Region 10 WQ spreadsheet was incorporated as a sheet within the DEQ Local Limits Workbook
- Did not consider Human Health Standards – only the Aquatic Life criteria that were evaluated in the EPA Region 10 WQ Spreadsheet
- Was not revised when Oregon made changes to its WQ criteria



FLASH FORWARD TO LATE 2015...

DEQ called and asked me to write... the



DEQ Local Limits Workbook!



THE NEW AND IMPROVED LOCAL LIMITS WORKBOOK

- Looks very much like the old version
- The EPA WQ spreadsheet was replaced with the DEQ Reasonable Potential Analysis (RPA) Spreadsheets
- RPA Spreadsheets consider Aquatic Life and Human Health Standards
- Process inhibition and Sludge Quality are handled they were with the old DEQ Local Limits Workbook



AQUATIC LIFE CRITERIA CONSIDERED IN RPA SPREADSHEET

- **Arsenic (total inorganic + dissolved)**
- **Cadmium (total recoverable)**
- **Cadmium (dissolved)**
- **Chromium III (dissolved)**
- **Copper (total recoverable)**
- **Iron (total recoverable)**
- **Lead (dissolved)**
- **Mercury (total)**
- **Nickel (dissolved)**
- **Selenium (selenate+selenite, dissolved)**
- **Silver (dissolved)**
- **Zinc (dissolved)**
- **Cyanide (free)**



NOTE THAT MOST OF THE CRITERIA ARE DISSOLVED

- But monitoring requirements are typically total recoverable
- Local limits usually expressed as total recoverable
- To develop a local limit expressed as dissolved, one would need to use appropriate conversion outside of the Local Limits Workbook



HUMAN HEALTH CRITERIA CONSIDERED IN RPA SPREADSHEET

- **Antimony (total recoverable)**
- **Arsenic (total inorganic)**
- **Barium (total recoverable)**
- **Copper (total recoverable)**
- **Nickel (total recoverable)**
- **Selenium (total recoverable)**
- **Thallium (total recoverable)**
- **Zinc (total recoverable)**
- **Cyanide (total)**



AND NOW, THE LOCAL LIMITS WORKBOOK...

