Safety-Kleen Cyanide Discussion

July 30, 2019

East Chicago, IN

safety-kleen.

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Timeline of Compliance Activities

- 2007 – EC establishes limit of 3 ppb in Ordinance 13.13.3.02.3. Equivalent to one teaspoon in 500,000 gallons of water. Unknown technical rationale for this limit.

  S-K commissions Ashland Chemical for bench and field trials

- 2008 – S-K commissions McMahon & Associates for bench and field trials

- 2009 – S-K installs 10,000-gallon oxidation tank and begins breakpoint treatment per consultant recommendations.

- 2010 – S-K installs and begins operation of Hydrogen Peroxide treatment system per consultant recommendations.

  S-K begins analytical program with ALS & Suburban Labs to address measurement challenges recognized by S-K and ECSD.

- 2011 – S-K commissions Indiana-focused Environ to assist with treatment options

- 2012 – S-K initiates study with US Peroxide to improve treatment effectiveness.

  S-K modifies biological treatment tanks (T-603/4) to increase system capacity by 23%

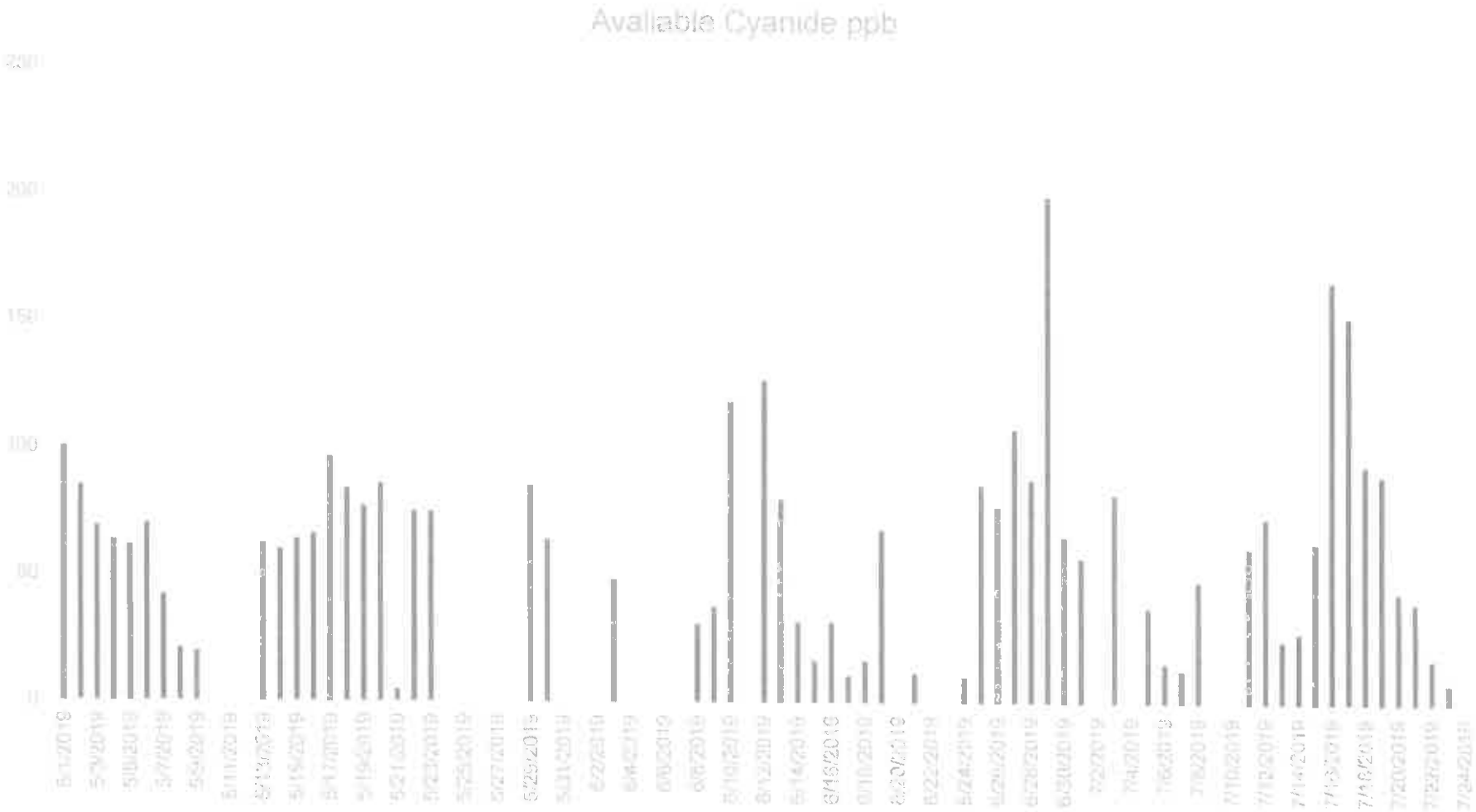
Timeline of Compliance Activities

- 2013 – S-K discontinues Hydrogen Peroxide treatment system after shown ineffective.
- 2015 – Environ completes cyanide measurement methods study. Results relayed to ECSD.
- 2015 – ECSD updates cyanide measurement method to Environ recommendation (OIA1677)
- 2016 – S-K completes installation of new 600,000-gallon Surge Tank (T-601). New tank allows the facility to regulate WWTP flows through heavy rain events.

  S-K completes system analysis of system cyanide loading. Finds breakpoint treatment can contribute to cyanide generation. Begins bench trials with new technology.
- 2017 – S-K completes bench trials and begins pilot process using hydrogen peroxide and proprietary reagents with CCI.

  ECSD publishes draft permit which includes proposed cyanide limit of 19 ppb.
- 2018 – S-K procures lab instrument to measure cyanide in-house for process monitoring

Recommendations

- S-K requests City adjust limit based on best engineering practices
- Flow allocation options per regulation – All keep ECSD compliant with NPDES permit
  - Flow-based — Volume flow across all users – lowest limit would be ~ 184 ppb
  - Mass-based — Users' long-term average flow – lowest limit would be ~ 309 ppb
  - All method options are recognized by EPA and used by other POTW's
- ECSD Cyanide Removal Efficiency Calculation
  - ECSD using 21% based on two sample points. We do not believe this is statistically valid.
  - Typical EPA recognized removal efficiency is 69%

Cyanide Discharge Data