Results

Exposure Screening Case Study Surface Water Detected Chemicals

- The automated workflow was applied to the 1,762 case study chemicals identified in surface water from MMDB. All case study chemicals were scored and ranked against criteria and test vectors were completed approximately 88 hours.

- Chemicals were screened in the order they appeared within the database, and results were returned to the user within five minutes, with data-rich chemicals potentially requiring additional testing.

- The automated workflow resulted in a total of 14 chemicals completing the workflow in under five minutes, with data-rich chemicals potentially requiring additional testing.

- Of those chemicals completing the workflow, ordered by total workflow time, the highest can be obtained via the EOP API (negative times of up to 2 hours).

- More detailed chemical screening, including additional data fields related to chemical environmental occurrence was completed.

- The workflow shows promise for rapid screening and ranking of chemicals in surface water.

- The workflow incorporates multiple test vectors to identify potential candidates for the CEC program.

- Examination of highly-scored chemicals could also be used to refine current screening algorithms (e.g., elucidation of chemical properties).

- Future work will allow MDH scientists to speed up screening evaluations to expand the number of chemicals assessed, freeing resources to complete the more complex aspects of exposure assessment.

- The workflow shows promise for rapid screening of large libraries of chemicals for potential initiative nominees which would allow MDH to be more proactive in contaminant identification.

Impact and Next Steps

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References