Earth Volumetric Studio™

union & intersection modules

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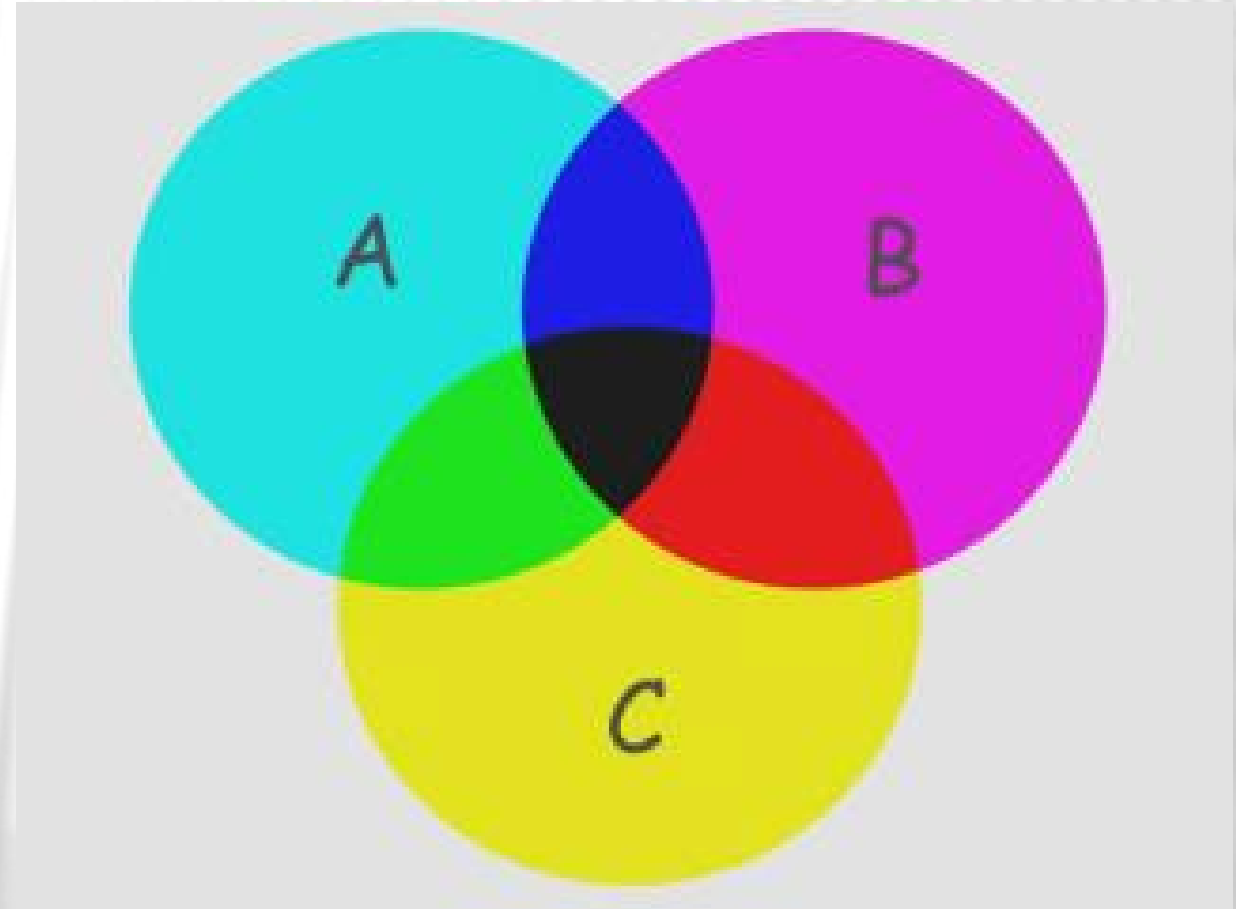
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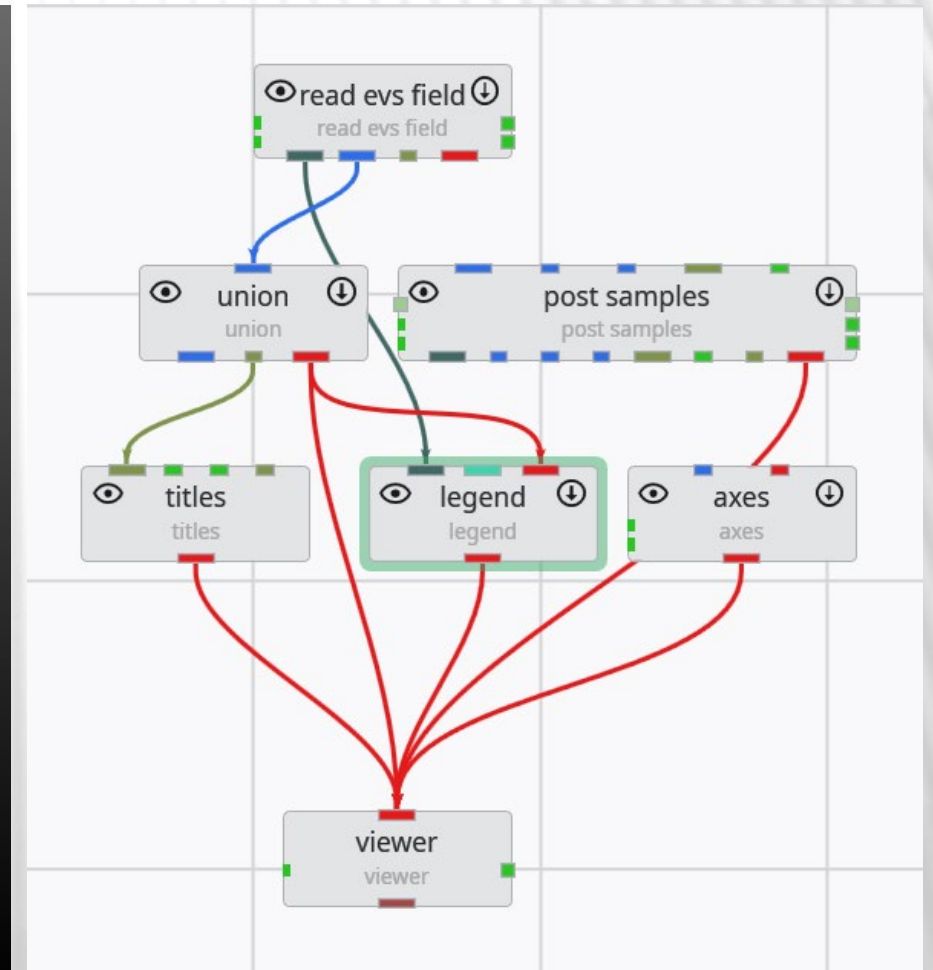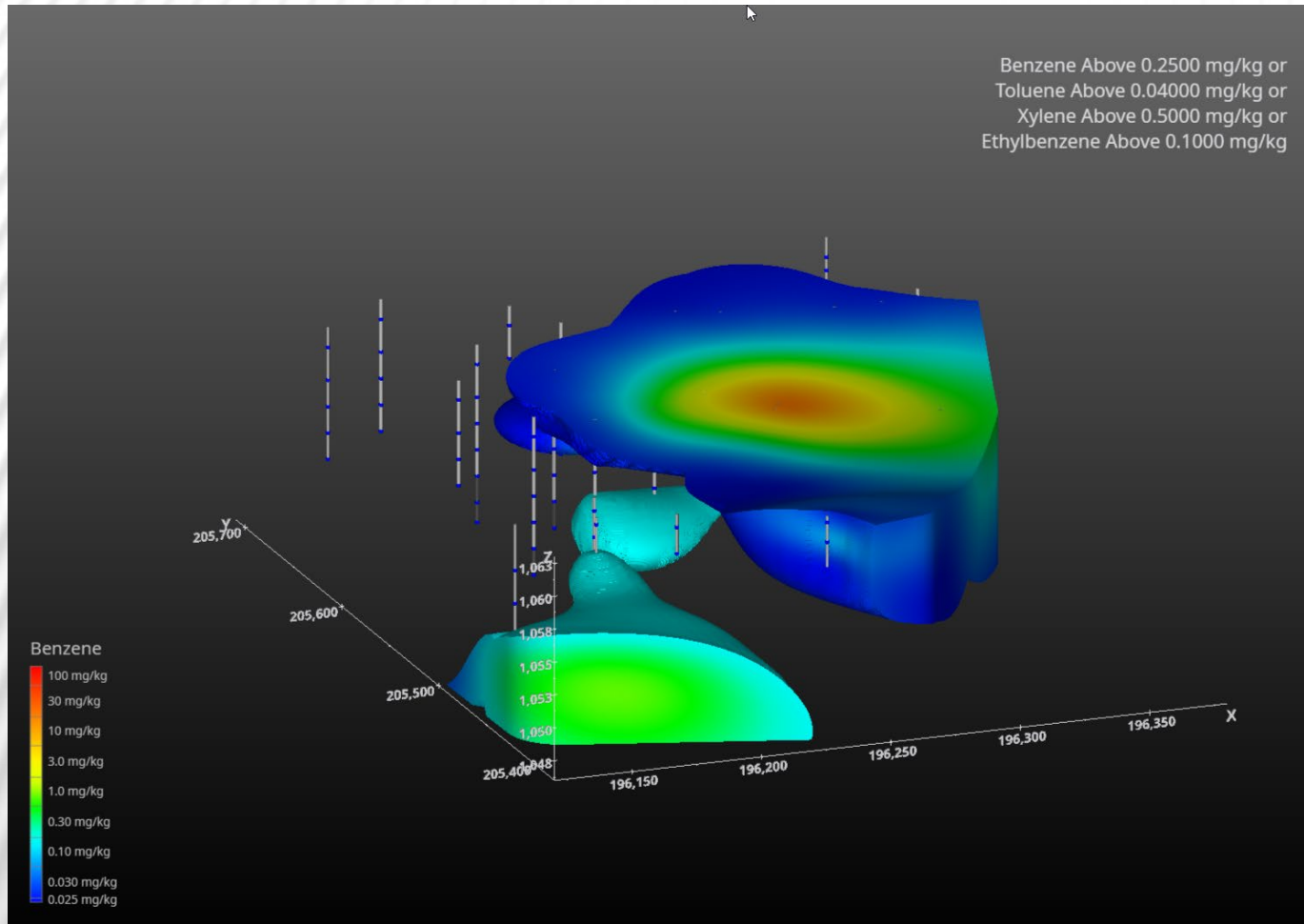
WHAT IS A UNION

➢ If we consider three analytes, "A", "B" and "C" each with specific subsetting levels:

  ➢ The volume within your model where A is above a, **OR** B is above b, **OR** C is above c is the union.

➢ In the figure to the right, this represents all colored regions.

THE UNION MODULE

- **union performs the serial & parallel subsetting operations required to compute and visualize the union of multiple criteria (e.g., analytes at user specified threshold levels).**
  - **The functionality of the union module *can* be duplicated using only plume modules.**
  - **However, as the number of analytes (n) in the union increases, the number of plume modules increases with order n^2.**
    - **$(n * (n+1)) / 2$**
    - **In other words: Unions are complicated to compute.**
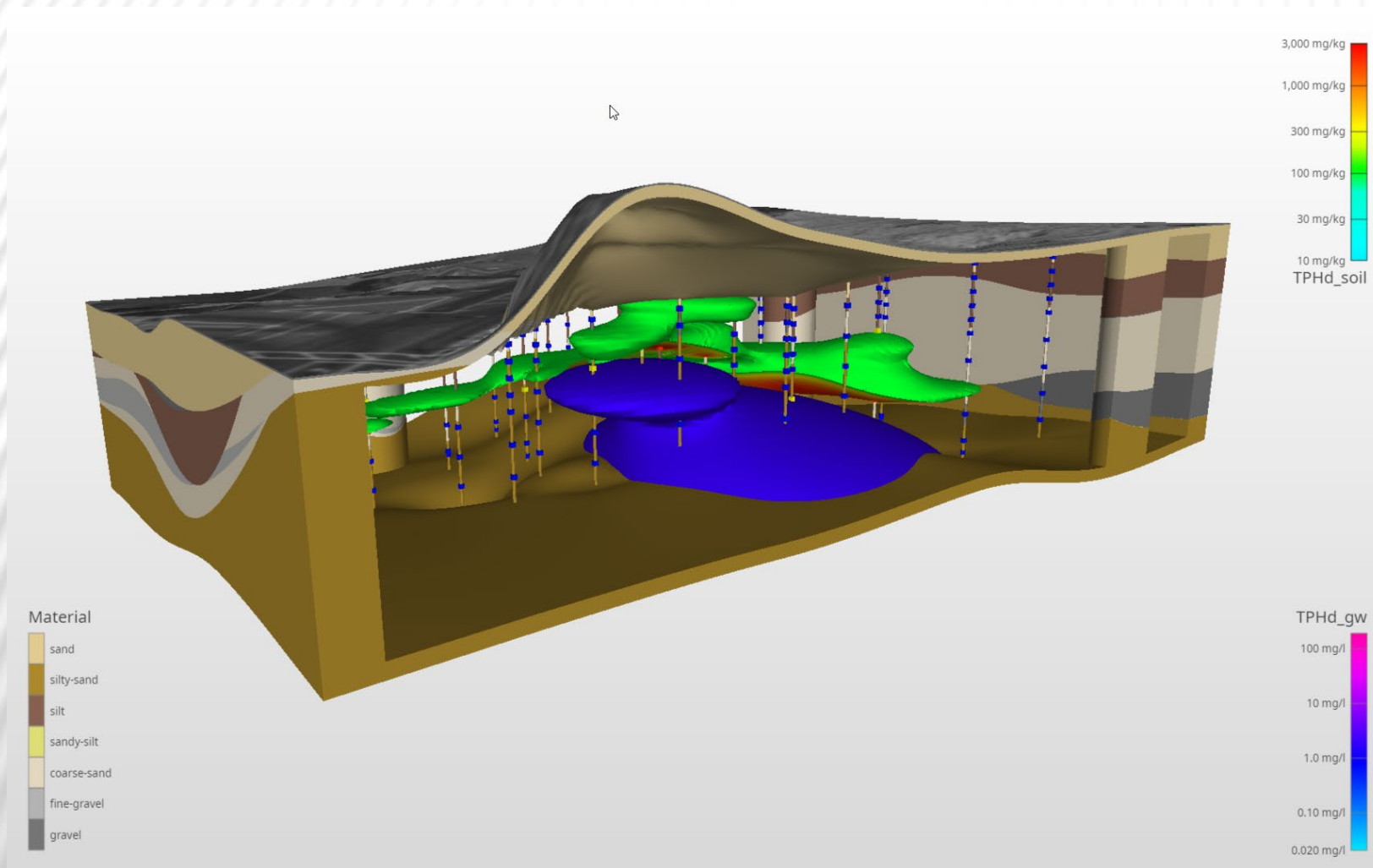
UNION MODULE with ANALYTICAL DATA

Analytic and Lithologic Modeling\bnz-tol-xyl-ethylbnz-lithology-efb-union.evs

UNION MODULE WITH MIXED DATA
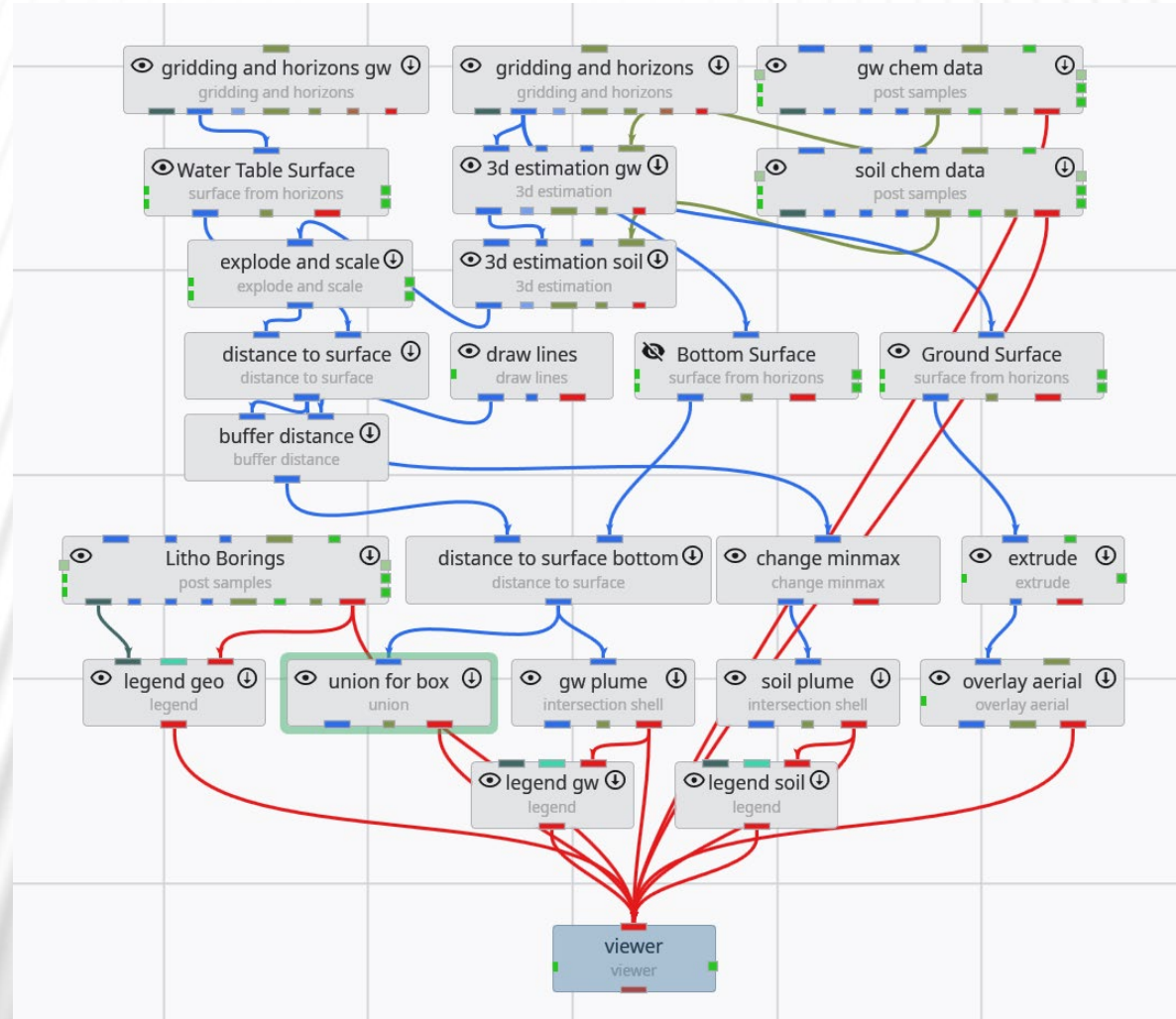
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UNION MODULE WITH MIXED DATA

- Union is used to create the box and columns which display stratigraphy.
- Subsetting with union uses:
  - Distance from bottom, or
  - Depth below ground, or
  - Buffer distance from small vertical lines which define the columns (and half columns)

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WHAT IS AN INTERSECTION?

➤ If we consider three analytes, "A", "B" and "C" each with specific subsetting levels:

  ➤ The volume within your model where A is above a, **AND** B is above b, **AND** C is above c is the *intersection"*

➤ In the figure to the right, this represents the dark (black) region where all three analytes overlap.
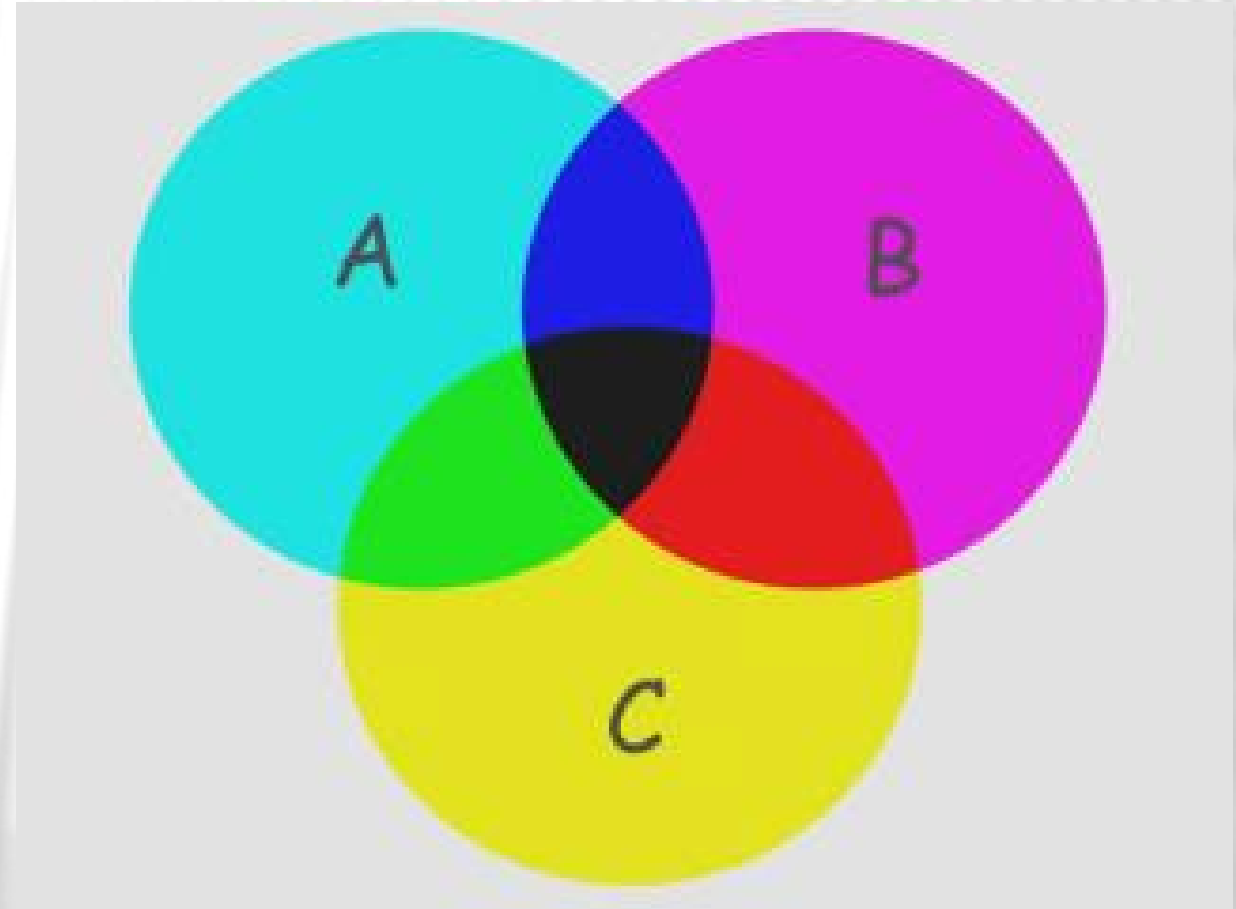
THE INTERSECTION MODULE

➢ **intersection performs any number of serial subsetting operations required to compute and visualize the intersection of multiple criteria (e.g., analytes at user specified threshold levels).**

  ➢ **The functionality of the intersection module can be duplicated using one plume module for each subset, arranged in series.**

    ➢ **However, intersection is more efficient.**

INTERSECTION MODULE WITH ANALYTICAL DATA
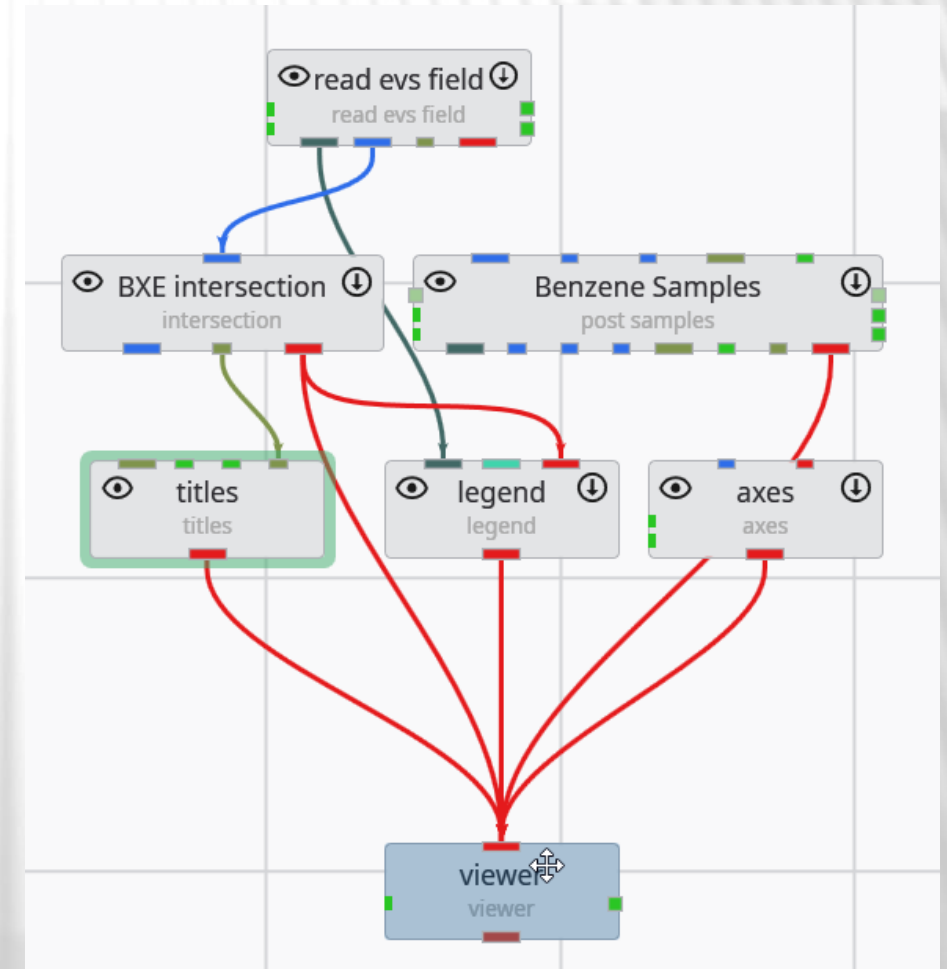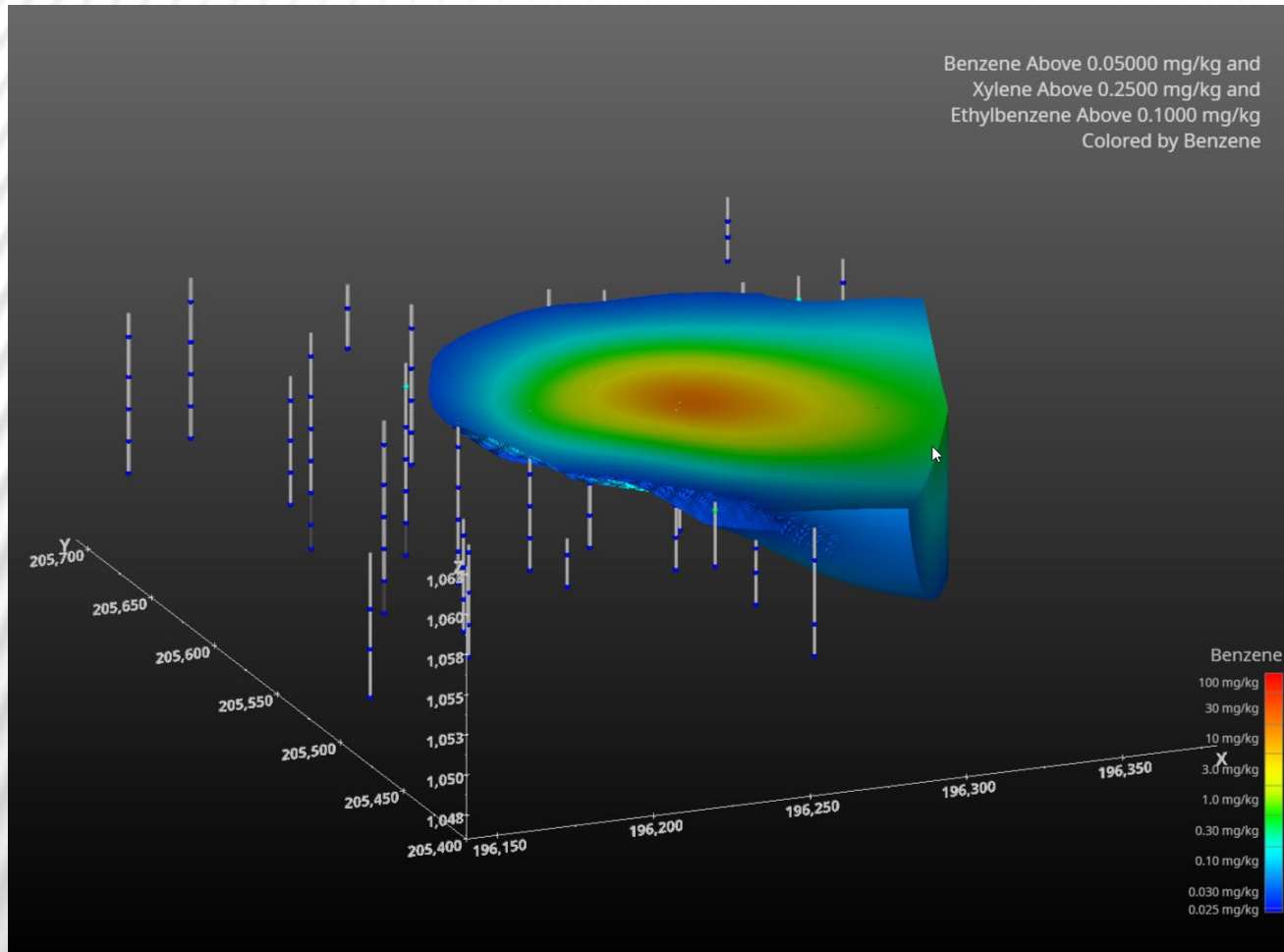
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