Livermore Valley Groundwater Model Update

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Agenda:

1. Project Objectives
2. Project Status
3. Hydrogeologic Field Investigations
4. Hydrogeologic Conceptual Model
5. Groundwater Flow Model Update
6. Summary and Next Steps
7. Q&A

Project Objectives

Refine and upgrade the groundwater model

- Investigate uncertainties & fill data gaps
- Refine Hydrogeologic Conceptual Model (HCM)
- Update groundwater flow model to reflect revised HCM
- Run GW model for different scenarios
- Develop decision support tool

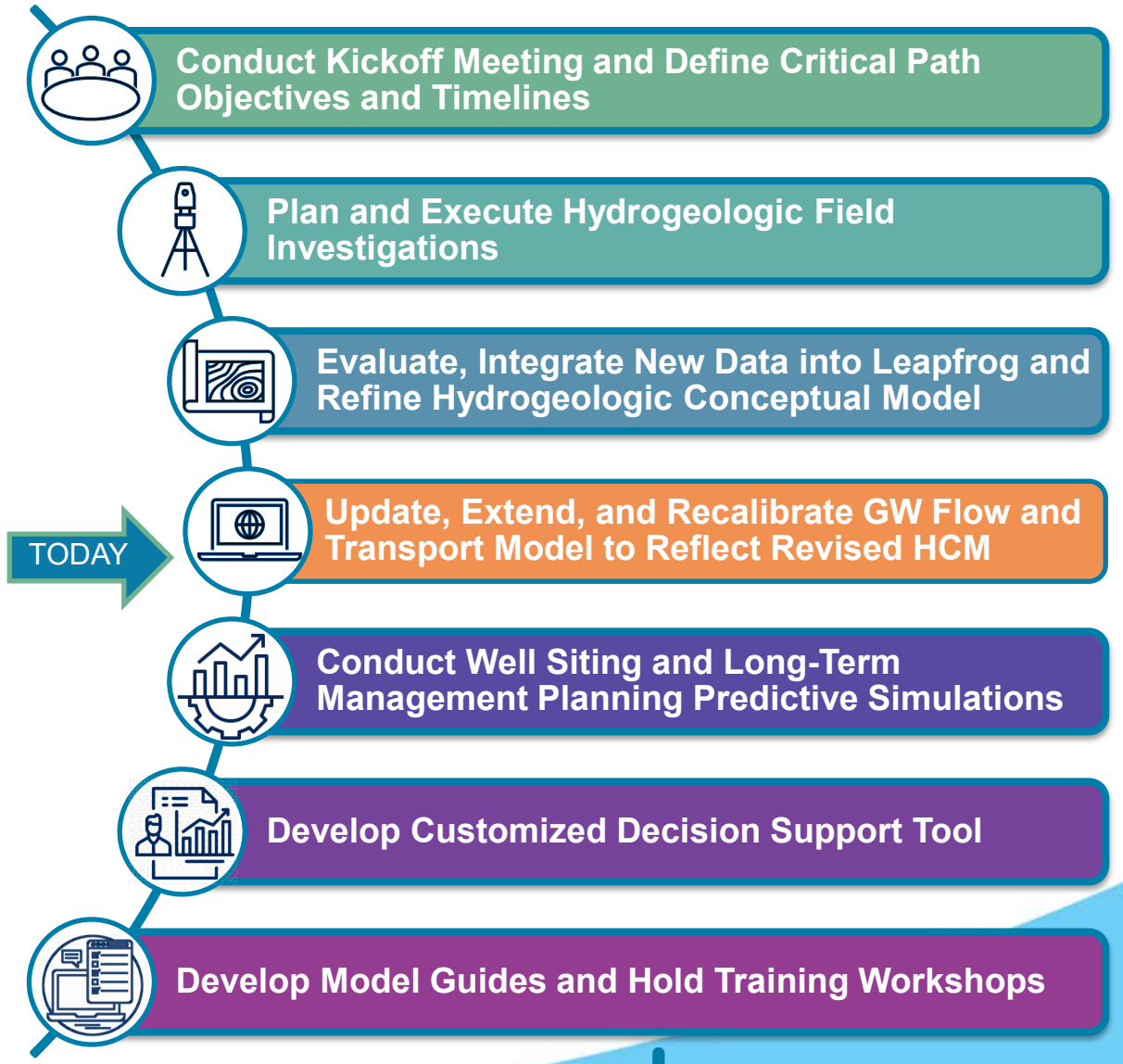
Project Status

Completed Efforts

- Field Investigations
- Hydrogeologic conceptual model (Leapfrog Model)
- Defined model domain, grid, and layering

Ongoing Efforts

- Refining Model Parameters
- Optimizing Model Calibrations



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Hydrogeologic Field Investigations

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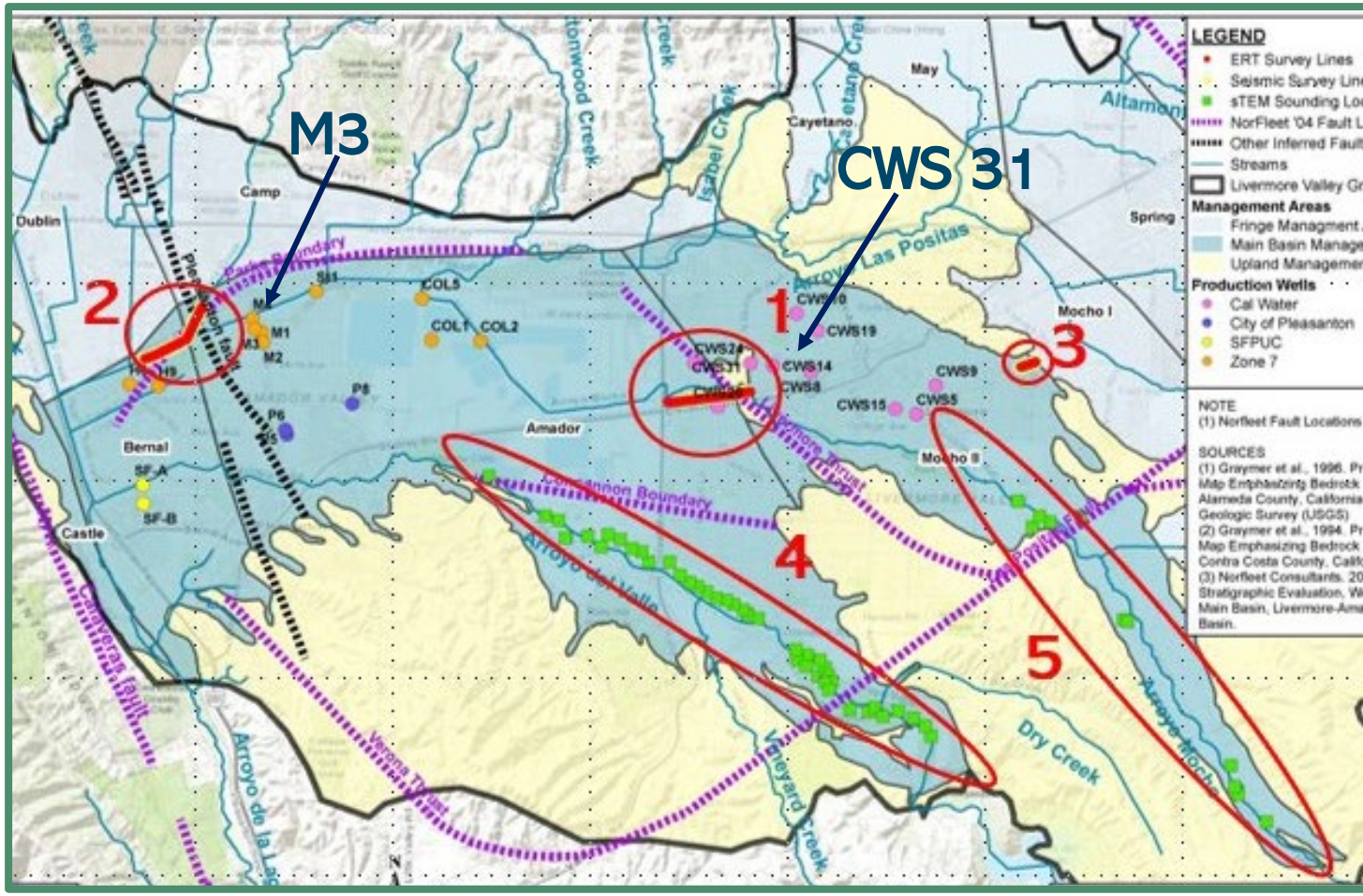
Hydrogeologic Field Investigations

Aquifer Pumping Tests:

1. Mocho 3
2. CWS 31

Geophysical Studies:

1. Electrical Resistivity Tomography (ERT)
2. Seismic Refraction
3. Stationary Time-Domain Electromagnetics (sTEM)

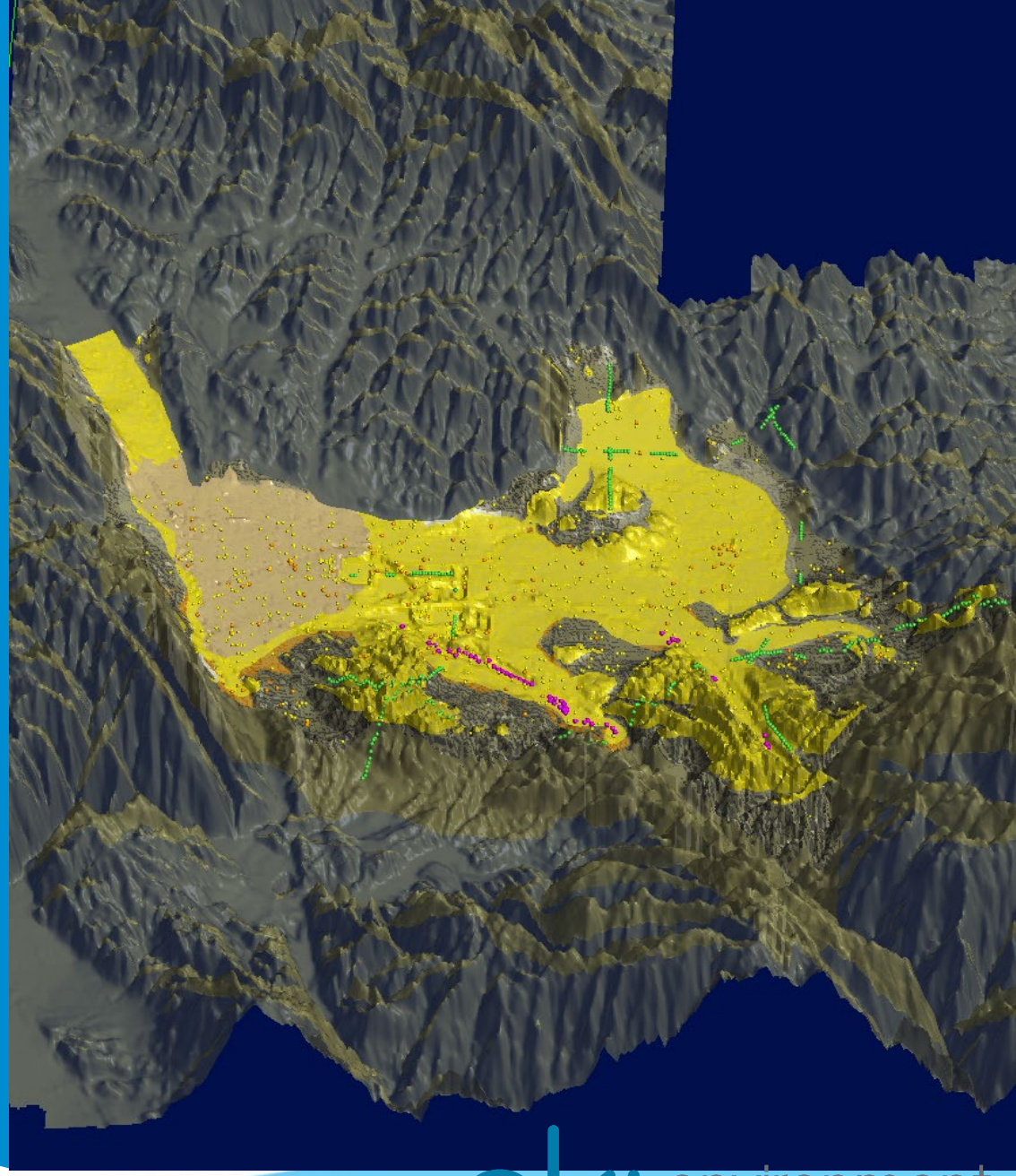


Hydrogeologic Field Investigations

Result:

New aquifer pumping test and geophysical datasets collected in areas of critical data gaps for use in conjunction with existing hydrogeological data and references to further refine our conceptual understanding of the Livermore Valley Basin

Hydrogeologic 3-D Conceptual Model (Leapfrog)



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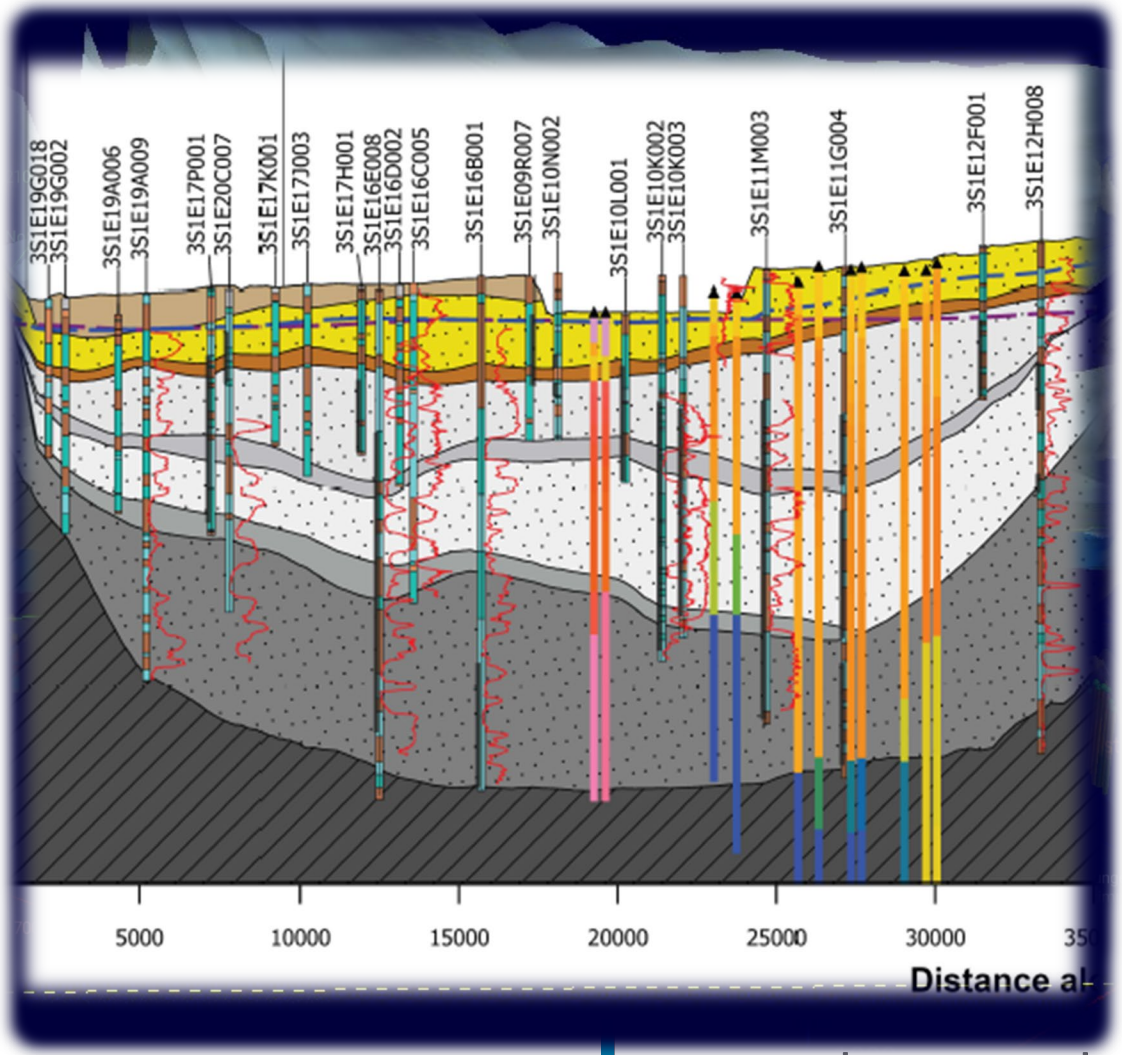
Leapfrog Model

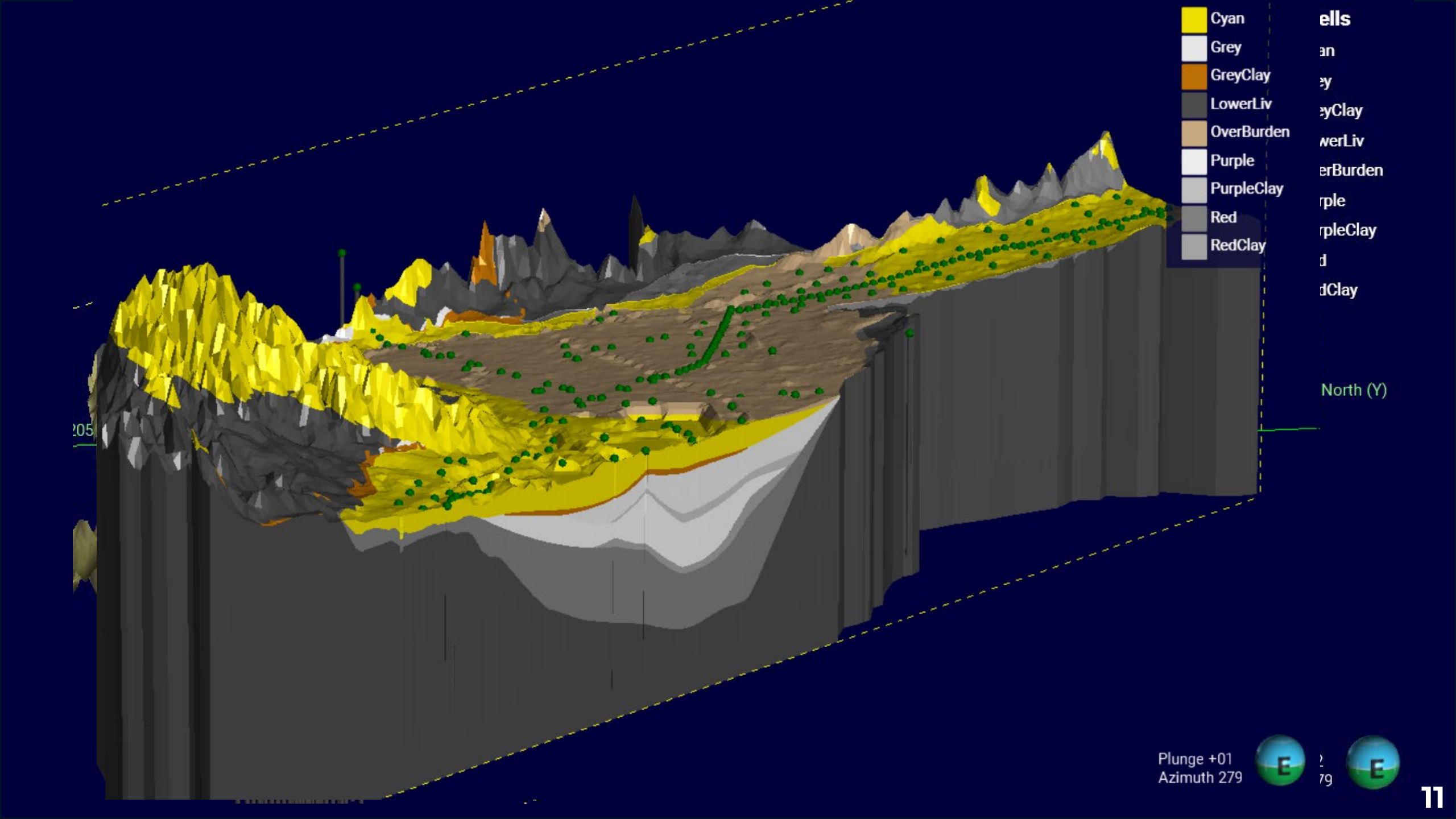
What is Leapfrog?

- Geologic Database
- 3-Dimensional Geologic Modeling
  - Create Cross-sections
  - Dynamic Model Updating
  - Easy Integration from Leapfrog to Modflow

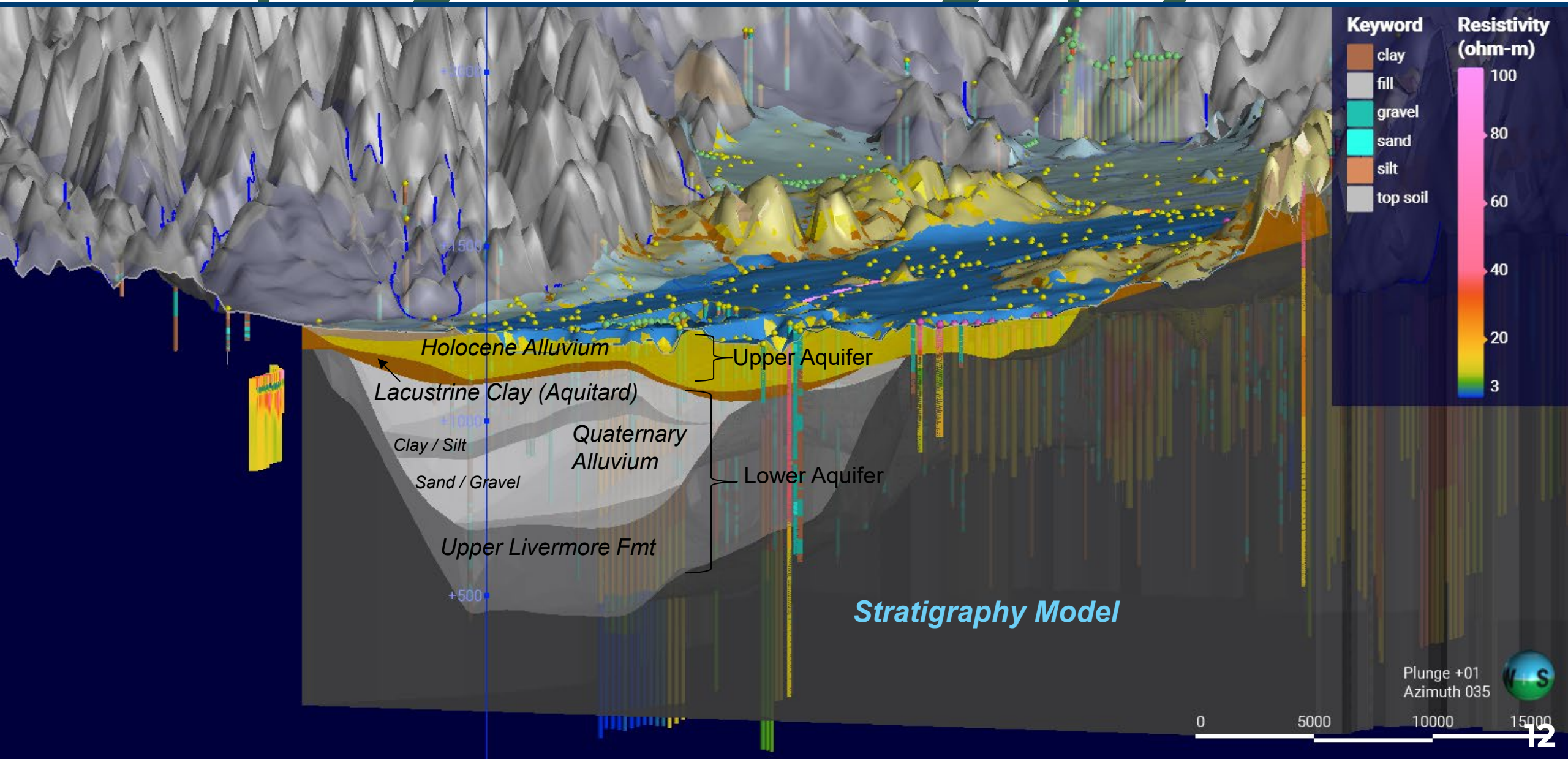
Leapfrog Model Development

- Surficial Geology & Structural Features
- Existing Cross Sections
- Borehole Data
- AEM Lines
- Field Investigation Data
- Stratigraphy Configuration

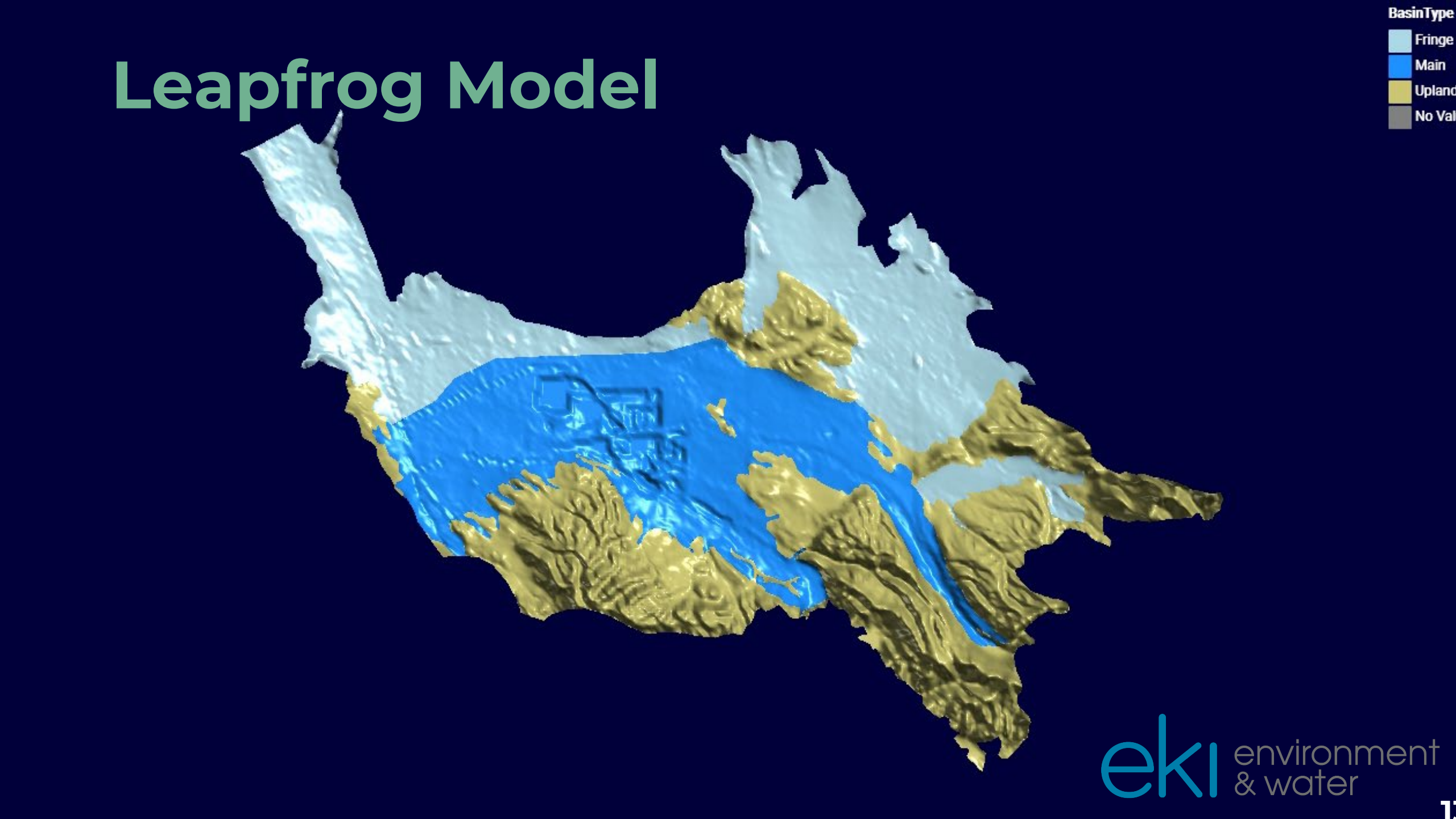



Cyan
Grey
GreyClay
LowerLiv
OverBurden
Purple
PurpleClay
Red
RedClay
North (Y)
Plunge +01
Azimuth 279

Leapfrog Model Stratigraphy



Leapfrog Model



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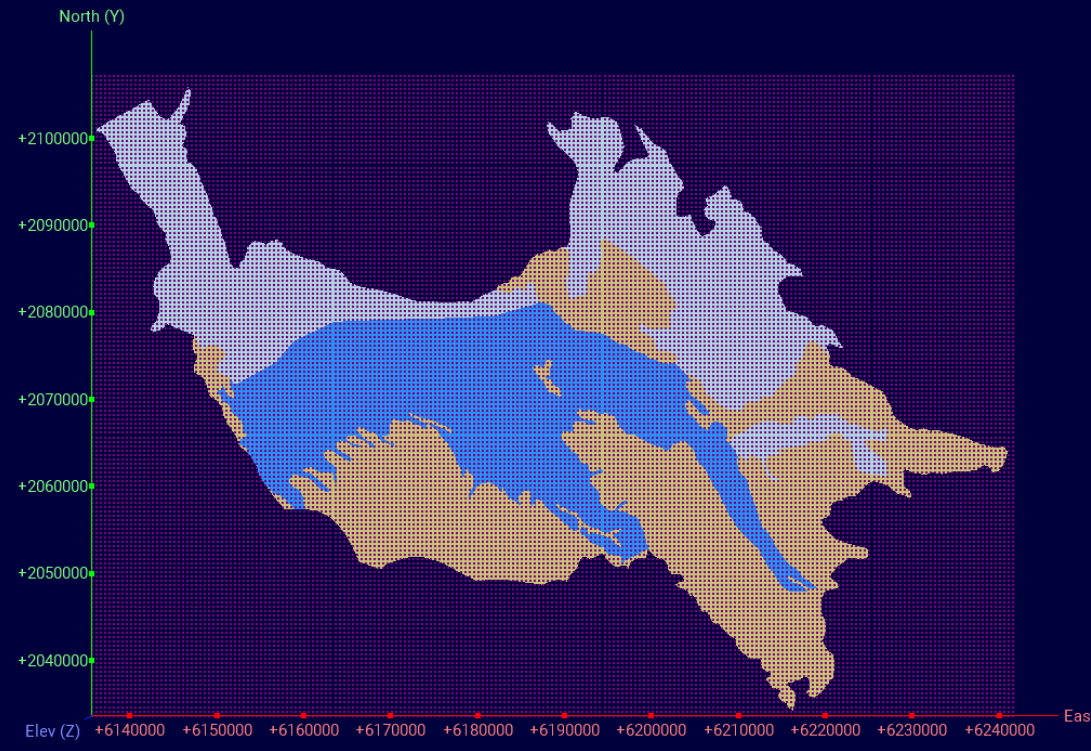
Groundwater Flow Model Update



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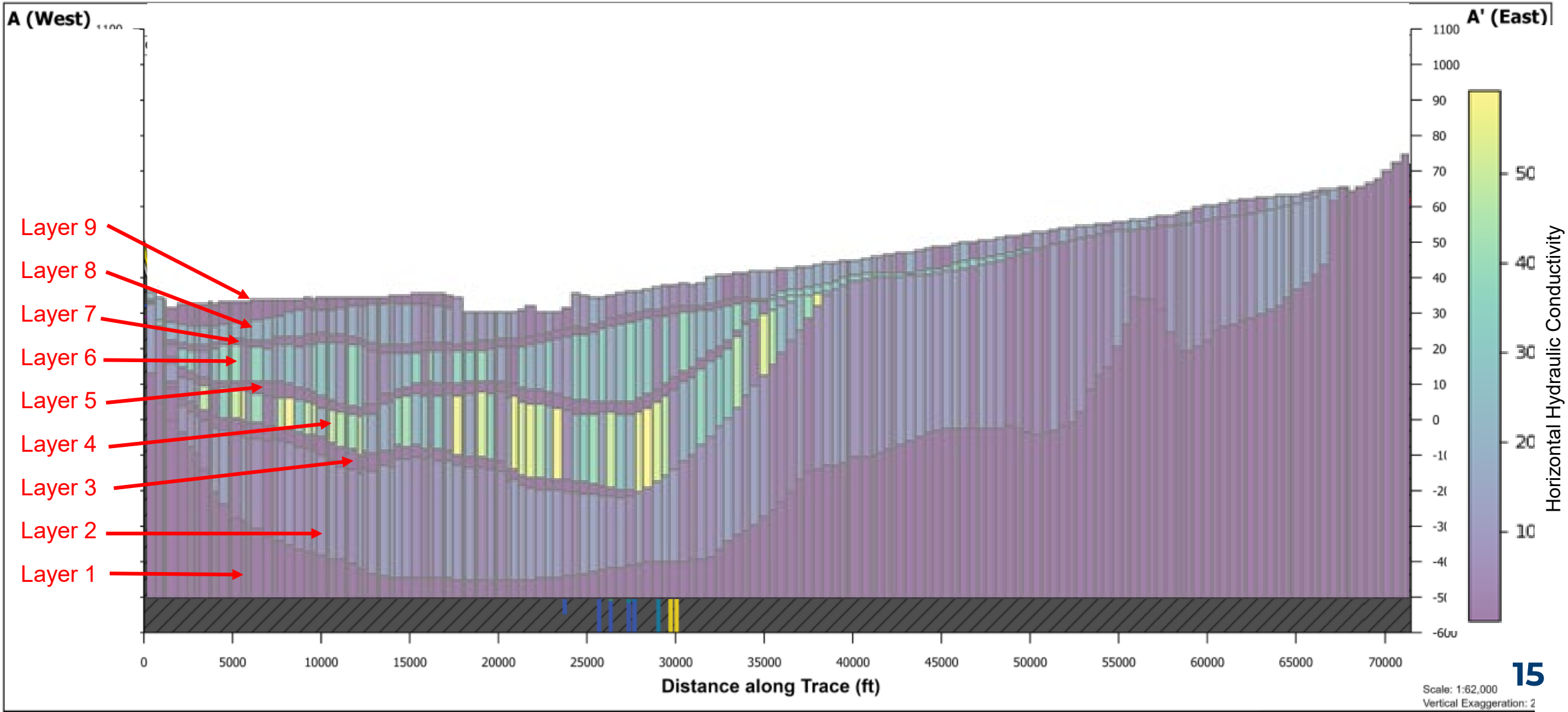
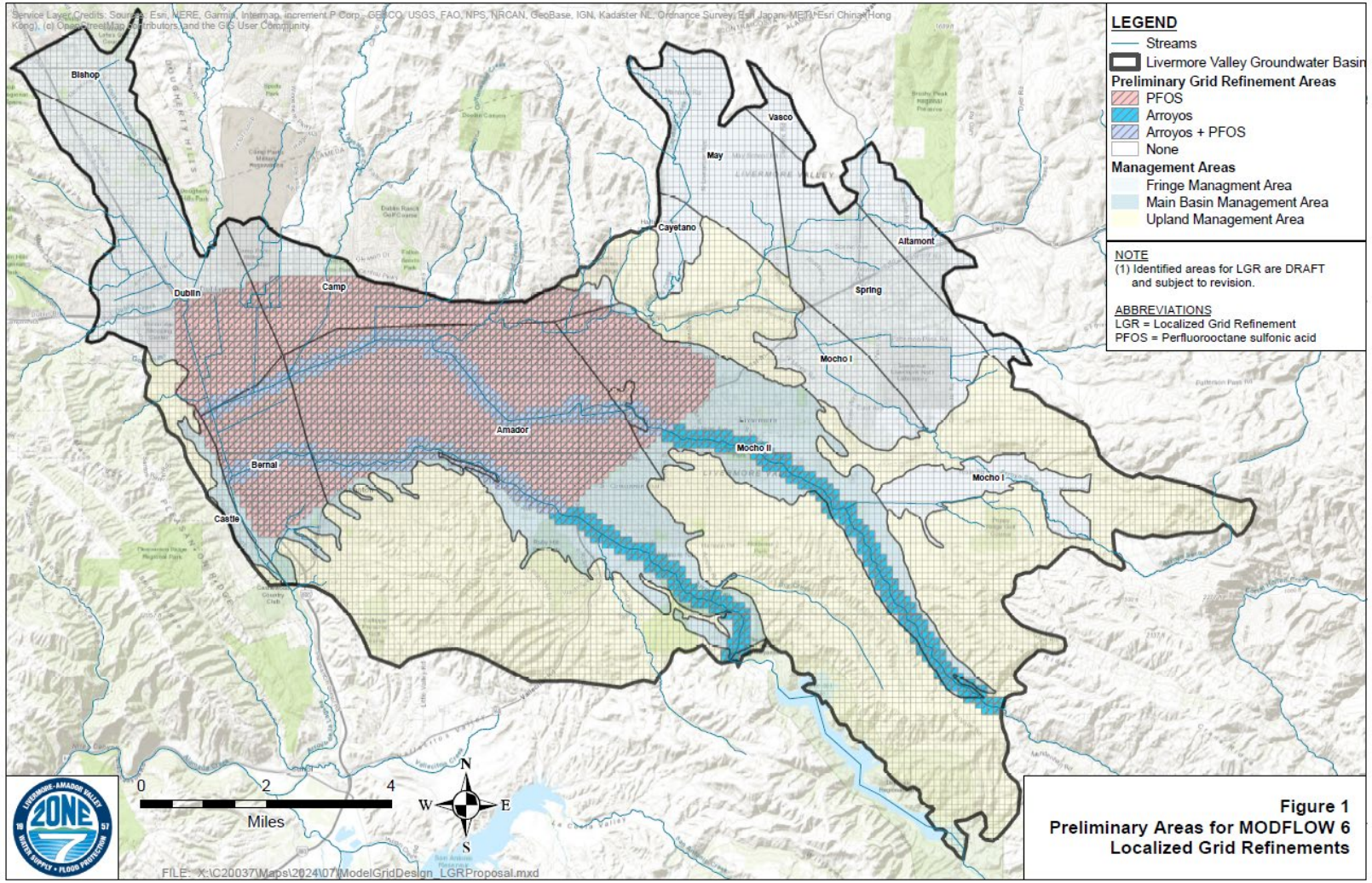
Revised Model Layering



Model Domain & Grid Refinement

- Entirety of Groundwater Basin
- 500’ x 500’ cells
- Localized grid refinements:
  - PFAS footprint
  - Arroyo corridors



Summary & Next Steps

Results Achieved to Date:

- Field Investigations
- Leapfrog Model
- Groundwater Model Updates

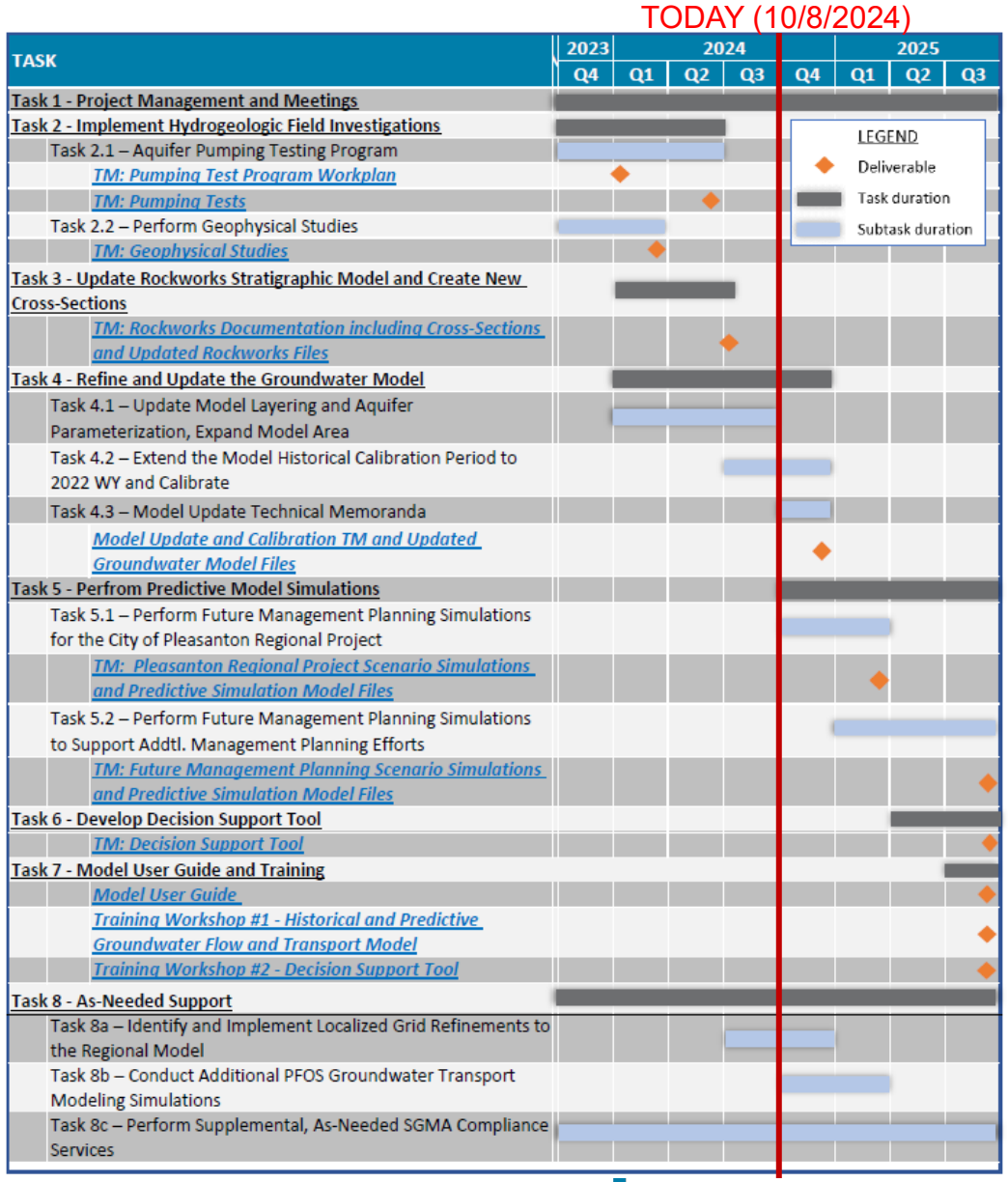
Next Steps:

- Model Parameter Refinements
- Model Calibrations
- Predictive modeling scenarios

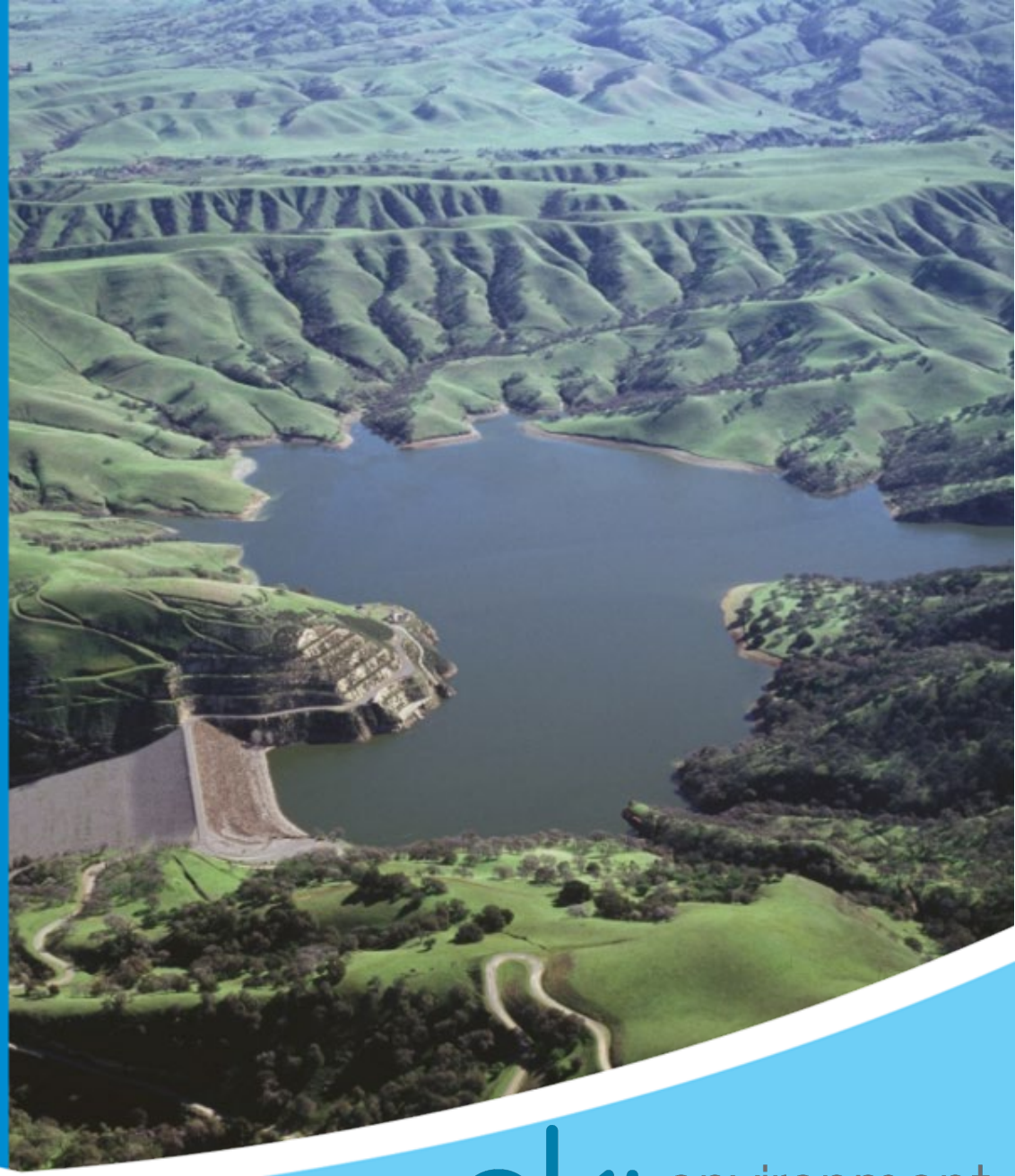
Schedule Update:

The project is currently:

- Within budget
- On schedule
- Functional in December 2024
- Ready to support regional project



Q&A



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