



SPGIT

Spatial Prioritization Geographic Information Tool

Evaluating Drinking Water for Site Investigation Using
GIS

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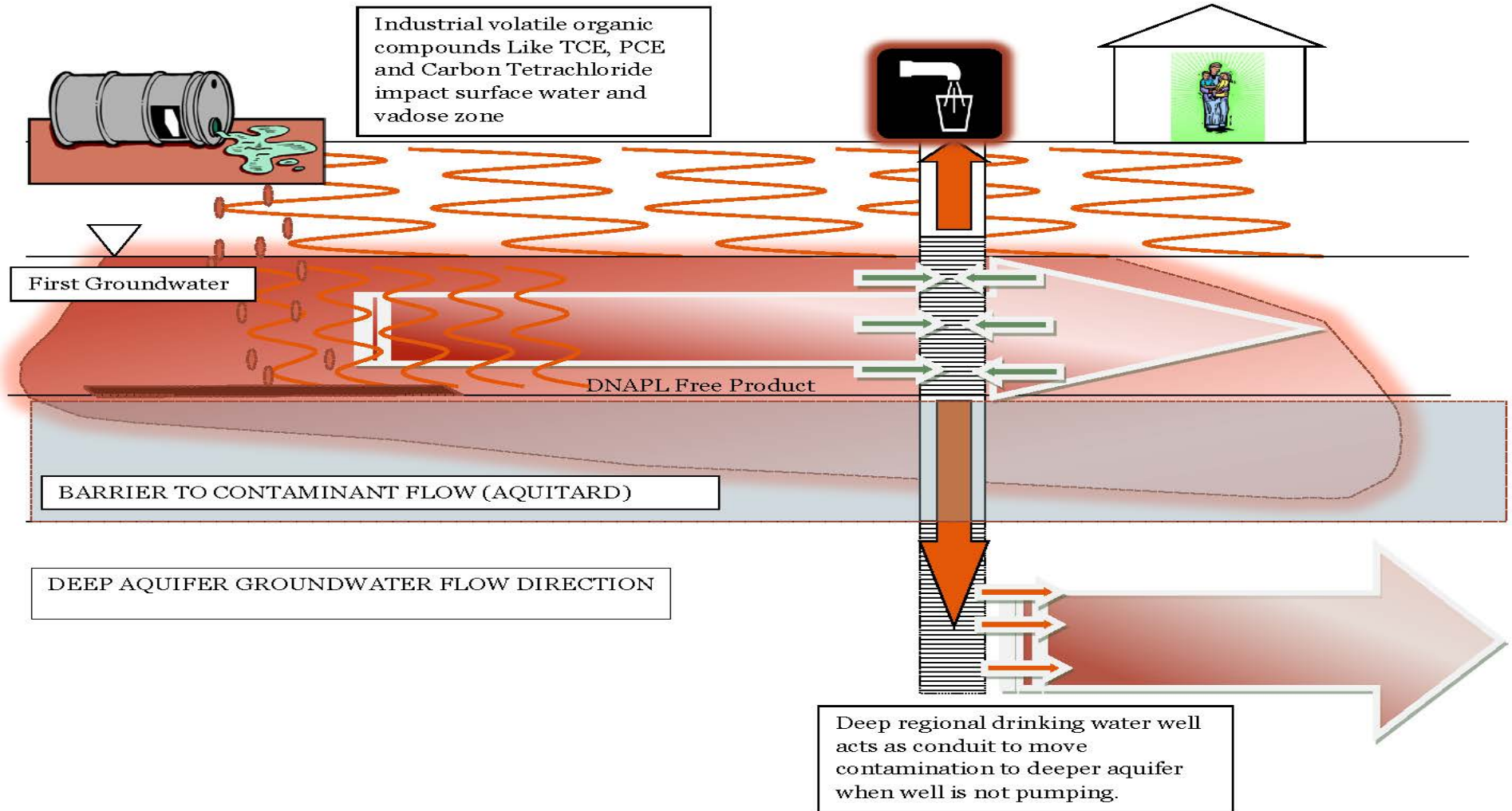
**Department of Toxic Substances Control
State of California**

SPATIAL PRIORITIZATION GEOGRAPHIC INFORMATION TOOL (SPGIT)

- **PURPOSE:** SPGIT Tool is to protect the population and the environment from harmful effects of toxic substances found in drinking water aquifers.
- The SPGIT approach allows DTSC to better allocate State resources to address drinking water aquifer contamination through identifying high priority SPGIT areas and focusing those resources to efficiently and effectively mitigate groundwater pollution within those areas.
- The SPGIT uses data from various environmental sources that are combined by Geographic Information System (GIS) to analyze and rank areas of significant groundwater contamination in California.

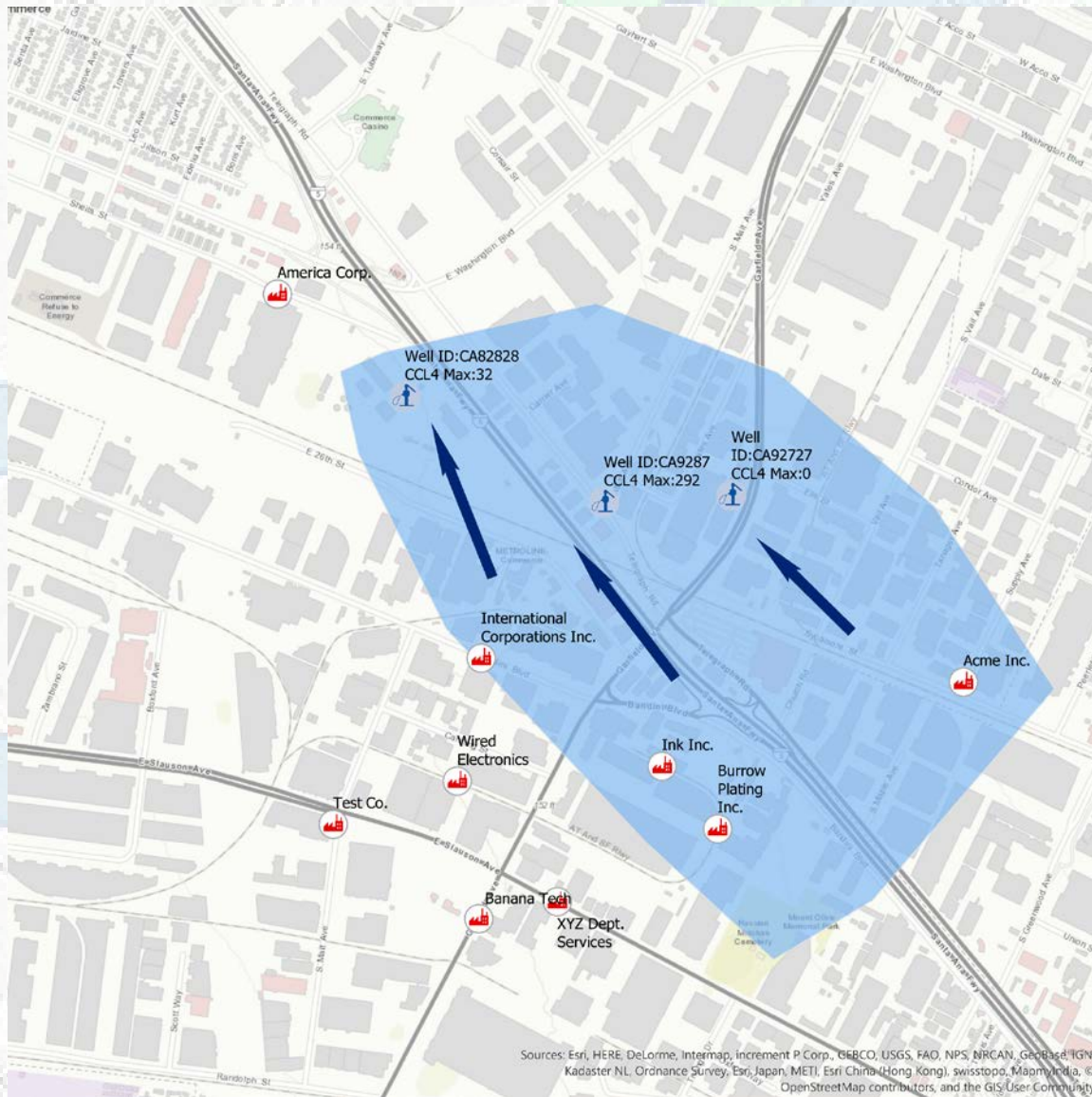


710 CORRIDOR GROUNDWATER CONCEPTUAL SITE MODEL



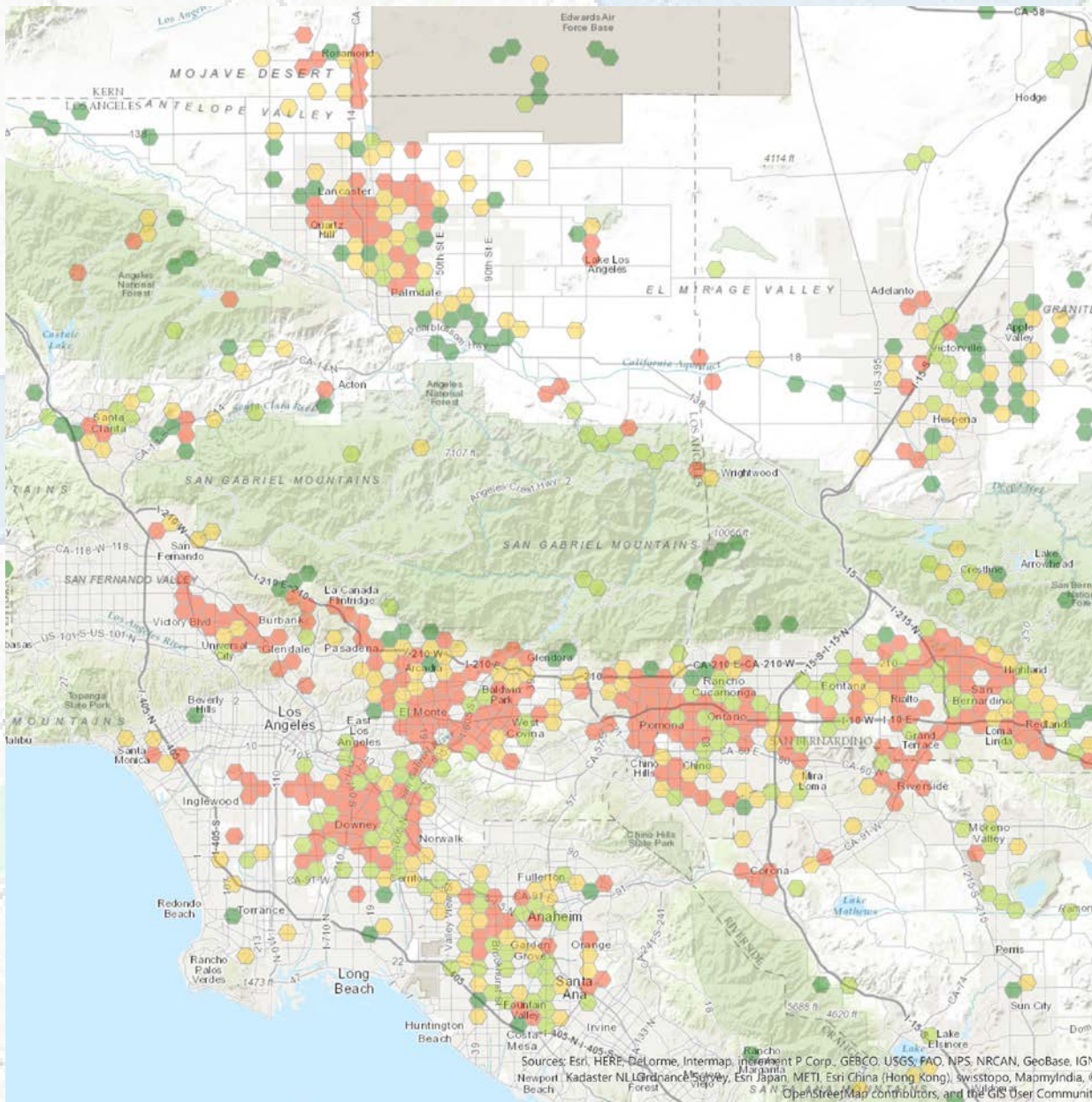
Analyzing Sites

- Evaluate drinking water wells and contaminants present in each one
- Analyze capture zones for wells and locate facilities within them
- Hone in on potential responsible parties and stop contamination.



Spatial Aggregation With SPGIT

- 4 KM sq. hexagons used to aggregate data
- Data acquired from multiple sources:
 - California Drinking Water Wells
 - California Water Board
 - Halogenated Waste
 - DTSC Halogenated Generators
 - US EPA Toxics Release Inventory
 - Environmental Justice Scores
 - OEHHA CalEnviroscreen 3.0
 - Facility Information
 - DTSC Envirostor Permitted and Cleanup Sites
 - US EPA Facilities
 - California Water Board Geotracker Sites



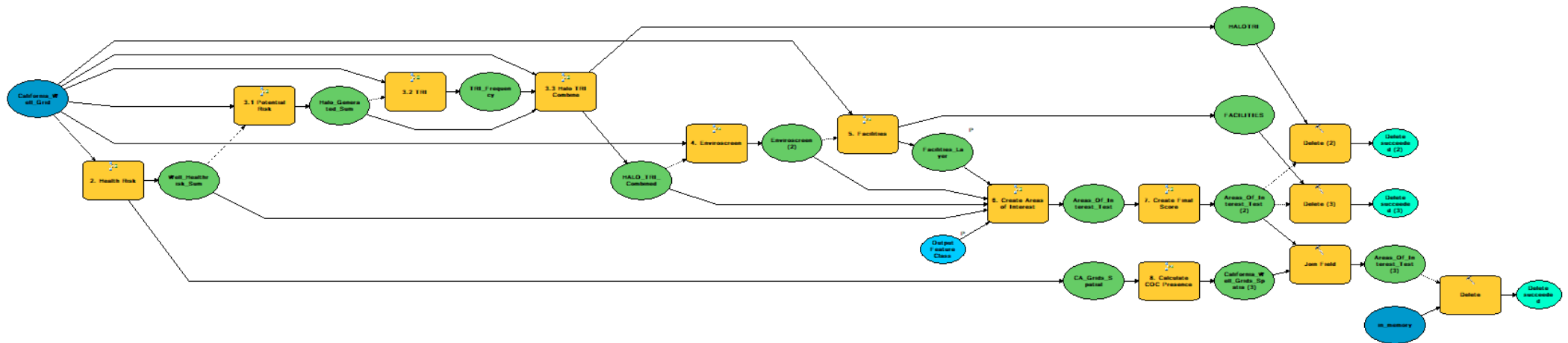
Prioritization Factors Targeting Impacted Well Clusters

Factor	Weight
A. HEALTH RISK – AGGREGATED SCORE BASED ON CHEMICAL EXCEEDANCES IN DRINKING WATER WELLS	8
B. POTENTIAL RISK – TOTAL HWTS HALOGENATED AND TRI CHEMICAL DENSITY	3
C. CAL ENVIROSCREEN: RANKS CUMMULATIVE HEALTH RISK AND ENVIRONMENTAL JUSTICE	2
D. FACILITIES: 1/X OF CLEANUP AND PERMITTED SITE DENSITY	1



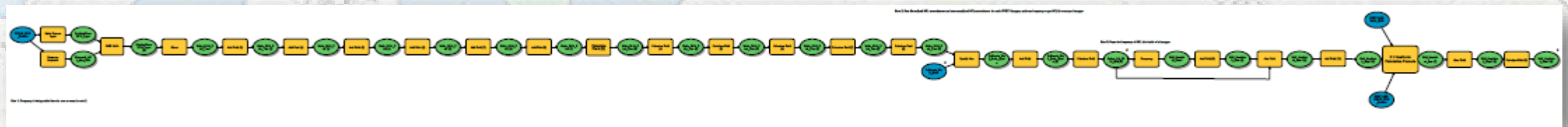
Building The Tool

- Utilizing Modelbuilder in ArcMap 10.4.1, the process of associating and aggregating data was streamlined.
- Nine different datasets were factored and spatially combined with 4KM hexagons
- Specific steps were required to be performed in a certain order. Modelbuilder helped to keep steps organized.



Advantages & Limitations

- Advantages:
 - Complex workflows easily documented
 - Segmentation helps with testing
 - Drastic reduction of processing time
- Disadvantages:
 - Tools can easily become too cumbersome to manage
 - Movement of data sources jams up tool
 - Certain tools were finicky and performed oddly (spatial joins)



Proactive Site Discovery

SPGIT helps to prioritize State resources and find new sites, furthering DTSC's mission of protecting humans and the environment from toxic substances.

