

AIM Toolbox v. 1.0.0 – Quick Reference

AIM (Aquifer Injection Modeling) Toolbox to estimate the area impacted by underground injection operations, supporting technical aspects of planning, evaluation, and overseeing injection activities.

Analysis Mode and Algorithm Selection

Coordinate System and Coordinates

List of Required Input Parameters (inputs that aren't needed are grayed out)

Warning or Error Message Banners

Select Location Tool

Scenario Title

Existing Aquifer Exemptions

Map Pane

Result Contours

Selected Location Dot

Buttons to Access Disclaimer/Copyright and the User Guide

Buttons to Export and Import Analysis Scenarios

Show/Hide Assumptions and References Info Panel

Show/Exit Full Screen Mode

Street Map/Satellite

Center on Selected Location

Map Zoom

Enlarge/Reduce Chart Pane Size

Scale Bar, Unit Options, North Arrow

Calculate Button (active when inputs are all valid)

Reset Icon (for select inputs)

Input Parameter Unit Selection

Tooltip Guidance

Show/Hide Details of Selected Existing Aquifer Exemption

Show/Hide Groundwater Flow Direction Arrow

Chart Pane (concurrent display of two result types)

Chart Type Options:
 Radial Extent Time Series
 Areal Extent Time Series
 Radial Extent 2D XY Plot
 Calculation Results Table

Default Map Actions:
 Click to select AE
 Click+Drag to Pan Map
 Mouse Wheel to Zoom

Algorithm	Radius, Major/Top	Radius, Minor/Bot.	Area
Radial Volumetric	722.40 ft		0.06 mi ²
Vol. w/ Den. Displ.	529.35 ft	916.17 ft	0.09 mi ²
2D Radial + Flow	1551.01 ft	382.60 ft	0.06 mi ²

The individual analysis algorithms for injectate extent each represent specific approaches/assumptions regarding the nature of the subsurface and injection operations. However, it is intended that these analysis algorithms be used collectively to provide an overall assessment of the area potentially impacted by injection operations.

- Radial Volumetric – volumetric displacement of formation (aquifer) groundwater by injectate fluid
- Radial Volumetric with Dispersion – adds an estimate of injectate spread due to dispersion
- Radial Volumetric with Density Displacement – displacement without dispersion, but accounting for the density (specific gravity) difference between groundwater and the injectate fluid
- 2D Radial + Flow – displacement of formation groundwater by injectate fluid, accounting for groundwater flow
- 2D Radial + Flow + Dispersion – adds an estimate of injectate spread due to dispersion