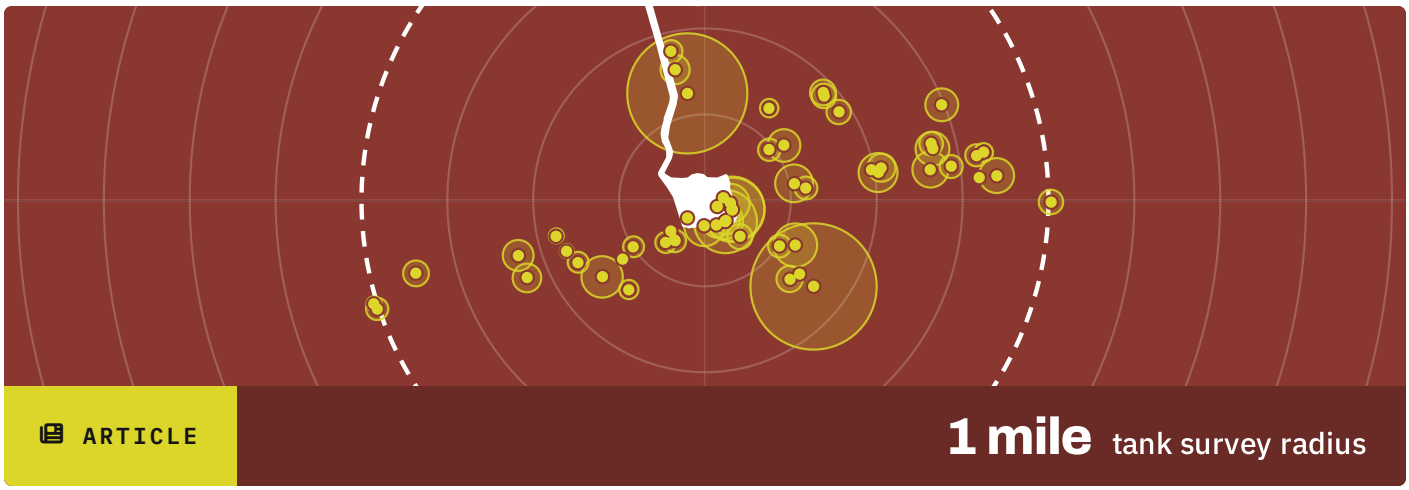
Tanks within a mile: automating HUD's explosive and flammable hazard review

HUD requires an acceptable separation distance between a project and every above-ground tank of flammable or explosive material nearby. Here is how AVA turned that survey into one record — from the phone to HUD's own calculator.

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The picture: One real project: the site in white, the dashed ring one mile out, a dot for every tank where it stands, and around each the largest separation distance HUD's calculator returned for it.

The requirement

Under **24 CFR 51 Subpart C**, a HUD-assisted project must sit at an acceptable separation distance (ASD) from above-ground containers of flammable or explosive material. In practice that means finding every fuel tank, gas tank and generator belly tank within about a mile, measuring it, working out its capacity, measuring its distance to the project and running HUD's ASD calculation for people and buildings.

On an industrial corridor that can be dozens of tanks per project — each one photographed, measured and documented.

One record from the field to the calculator

AVA's tank survey now runs through a single record shared by four tools:

1. **Capture in the field.** On the phone, the engineer photographs the tank (with GPS) and types the measurements once — even as free text: "two tanks, 10 ft by 4 ft".

2 **Read the notes.** A rule-based parser handles most entries; for wordy notes a language model extracts the dimensions as structured fields. The *gallons are computed in code*, never by the model.

3 **Measure the distances.** Each tank's distance is computed to the Site and to the Off-Site areas — access roads and utility corridors included.

4 **Run HUD's own calculator.** The official online ASD calculator is run automatically for each tank and its PDF is filed with the record.

5 **Deliver.** Excel inventory, KMZ, maps at 1 mile and 1:8,000, the exhibit and the narrative report — all from the same records.

153	139	52
tanks recorded across 7 projects	run through HUD's official calculator, PDF filed	output files delivered for 5 projects

The error a better rule caught

The first version measured each tank to the Site only. When we added the **Off-Site areas** to the check, one tank turned out to be 1,262 feet from the Site but only **180 feet from the Off-Site corridor** — against an acceptable separation distance of 238 feet. It had been marked compliant.

We changed the rule, recomputed every project with tanks, and the review now measures to both. No model was involved: it was a rule, written once and applied everywhere.

Where AI helps — and where it doesn't

- **Helps:** reading messy field notes, suggesting cleaner names for sites and contents (shown in a review table and applied only when ticked), and finding look-alike photos of the same tank model.
- **Doesn't:** compute gallons, distances or the separation distance. Those stay in code and in HUD's calculator, where the reviewer can check them.

> The most valuable change was not the AI — it was having one record. A tank measured in the field is the same tank on the map, in the calculator run and in the report.

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