

MIRA SAFETY

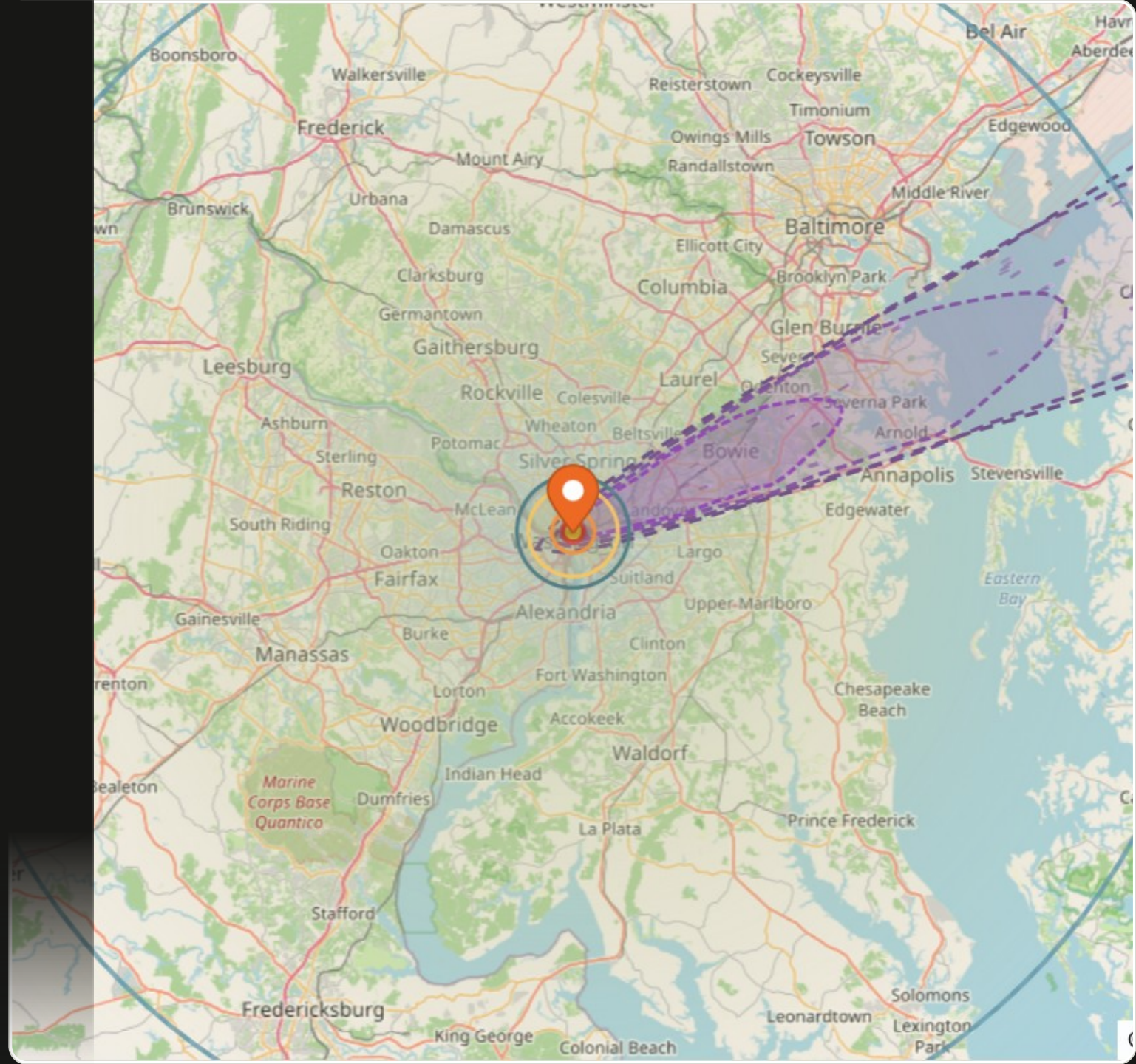
Nuclear Blast & Fallout Simulator

Customer guide

How to configure a scenario, read each effect zone, and explain the result responsibly.

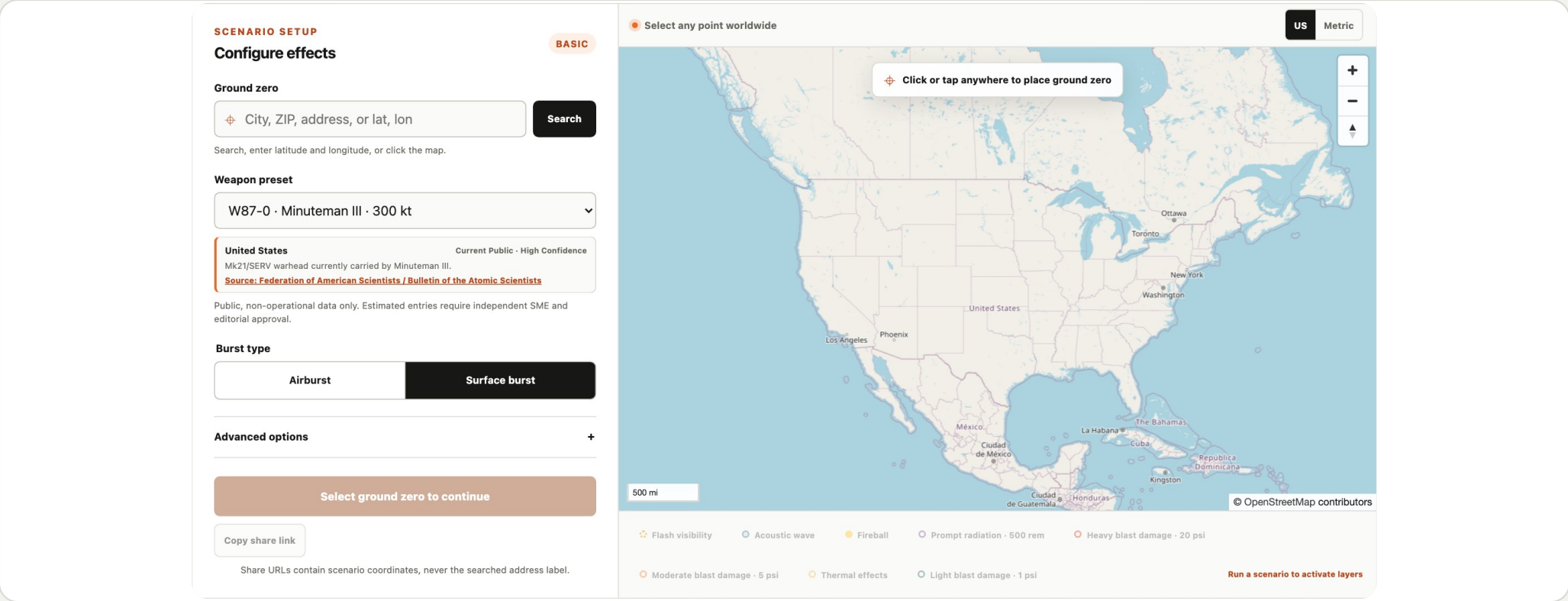
LIVE PRODUCTION GUIDE

Prepared for customer use · October 2026



The Nuclear Simulator workspace

STANDALONE WEBSITE



Scenario setup

Choose ground zero, yield, burst type, wind, and fallout options.

Map & results

Review effect zones, layer controls, distances, and result explanations.

Configure the scenario on the left. Review the interactive map, layer controls, and result cards on the right.

1. Choose ground zero

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Ground zero selected: 38.90720°, -77.03690°. Press Run simulation to view the effects.

38.90720°, -77.03690°

38.90720, -77.03690

Clear

Weapon preset

W87-0 · Minuteman III · 300 kt

United States

Mk21/SERV warhead currently carried by Minuteman III.

Source: [Federation of American Scientists / Bulletin of the Atomic Scientists](#)

Public, non-operational data only. Estimated entries require independent SME and editorial approval.

Burst type

Airburst

Surface burst

Advanced options

Click directly on the map

Place the marker at any point worldwide. The orange pin becomes the scenario’s ground zero.

Search for a place

Enter a city, ZIP code, street address, or recognizable location, then select Search.

Paste coordinates

Enter latitude and longitude when you already know the exact point you want to examine.

Confirm the orange pin before continuing. A shared link keeps coordinates, but never keeps the searched address label.

2. Select the weapon yield and burst type

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Weapon preset

W87-0 · Minuteman III · 300 kt

United States

Current Public · High Confidence

Mk21/SERV warhead currently carried by Minuteman III.

Source: [Federation of American Scientists / Bulletin of the Atomic Scientists](#)

Public, non-operational data only. Estimated entries require independent SME and editorial approval.

Weapon preset

Choose a source-linked public preset. The number shown in kt is explosive yield in kilotons, not the physical weight of the weapon.

Airburst

The simulator applies a modeled burst height and emphasizes prompt blast, thermal, radiation, flash, and acoustic effects. Local fallout is not drawn for the current preview.

Surface burst

The burst occurs at ground level. When fallout is enabled, the simulator can add illustrative downwind H+1 dose-rate contours.

Use Custom yield only when you have a specific value. Increasing yield expands effect radii, but the relationship is not one-to-one.

3. Set wind and fallout options

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Advanced options

Wind speed

15

mph

Wind travels toward

65

degrees

0° and 360° both indicate north.

☒ Show illustrative fallout when applicable

Fission fraction

0,5

Wind speed

Sets the constant wind used for the illustrative fallout preview.

Wind travels toward

Enter 0–360°. 0°/360° is north, 90° east, 180° south, and 270° west.

Show fallout

Keep enabled for an applicable surface-burst scenario; switch off to hide the preview.

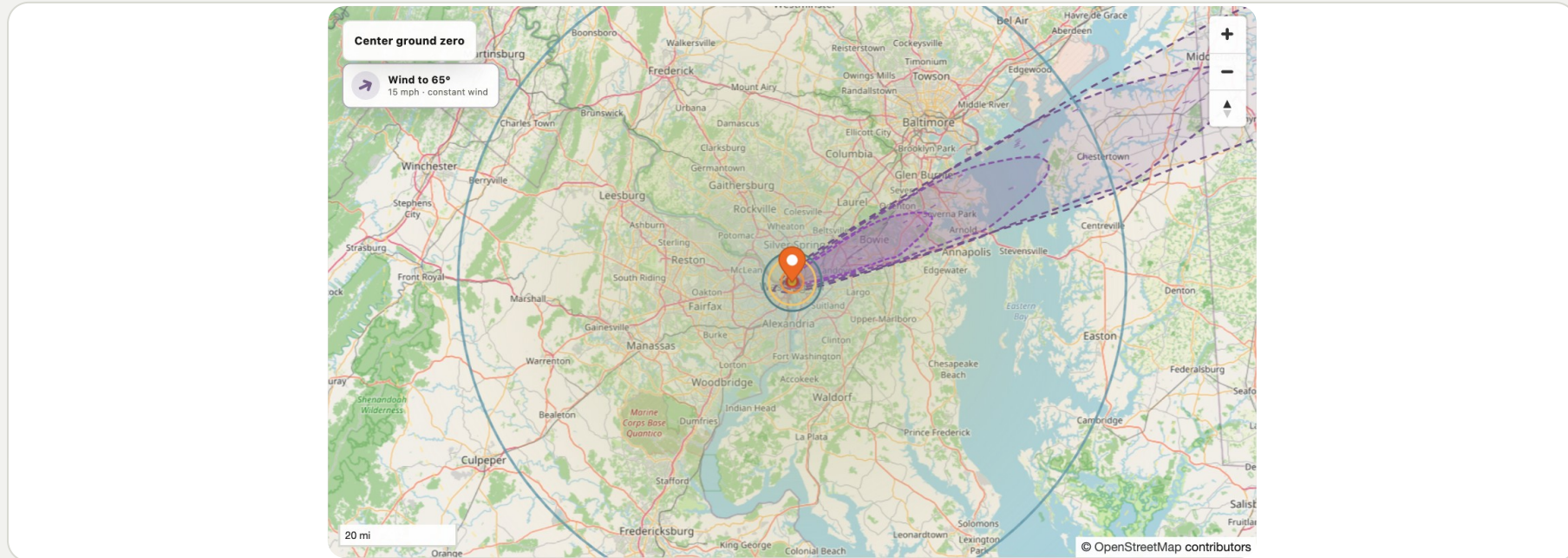
Fission fraction

Controls the assumed fraction of yield from fission and therefore the illustrative fallout estimate.

The wind is a single constant input—not live weather. Wind shear, precipitation, terrain, and changing conditions are not modeled.

4. Run the scenario and control the map

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Select Run simulation

Toggle individual layers

Switch US / Metric

The map overlays each selected effect zone around the pin. The fallout plume follows the selected travel direction.

Use the legend below the map to show or hide one effect at a time when the combined view feels too crowded.

5. Read the prompt-effect zones

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FLASH	Visible flash awareness Illustrative clear-air visual reach	≈ 68 mi +
SOUND	Potentially audible boom Illustrative awareness reach; not a hearing-damage boundary	≈ 56 mi +
FIREBALL	Modeled fireball Maximum fireball envelope	≈ 0.5 mi +
500 REM	Prompt radiation 500 rem free-in-air dose	≈ 1.0 mi +
20 PSI	Heavy blast damage 20 psi peak overpressure	≈ 0.9 mi ×
WHAT IT MEANS Near-total structural destruction is expected. Few buildings are likely to remain structurally sound, and streets may be impassable with rubble. WHAT TO DO If warning exists, underground or deeply interior shelter offers the best chance. Afterward, do not enter or remain in a visibly unstable structure.		
5 PSI	Moderate blast damage 5 psi peak overpressure	≈ 1.9 mi +
THERMAL	Thermal effects Third-degree burns - approximately 50% probability	≈ 3.9 mi +
1 PSI	Light blast damage 1 psi peak overpressure	≈ 4.9 mi +

Awareness layers

Flash and sound are illustrative reach overlays—not visibility, injury, or hearing-damage guarantees.

Fireball & thermal

Fireball is the modeled maximum envelope. Thermal marks the stated burn-probability threshold.

Prompt radiation

The 500 rem radius is a free-in-air estimate and does not model shielding or weapon-specific output.

Blast pressure

20 psi = heavy, 5 psi = moderate, and 1 psi = light blast-damage thresholds.

Each distance is approximate. A boundary is a modeled threshold, not a statement that every person or building inside has the same outcome.

6. Open a result card for plain-language meaning

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FLASH	Visible flash awareness Illustrative clear-air visual reach	≈ 68 mi +
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5 PSI	Moderate blast damage 5 psi peak overpressure	≈ 1.9 mi +
THERMAL	Thermal effects Third-degree burns - approximately 50% probability	≈ 3.9 mi ×
WHAT IT MEANSUnshielded line-of-sight exposure may cause third-degree burns. This is an injury threshold, not a prediction that everything inside the circle ignites. WHAT TO DO		
1 PSI	Light blast damage 1 psi peak overpressure	≈ 4.9 mi +

Approximate distance

The right-hand value is the modeled radius from ground zero in the selected unit system.

What it means

Explains the physical effect or damage threshold in customer-friendly language.

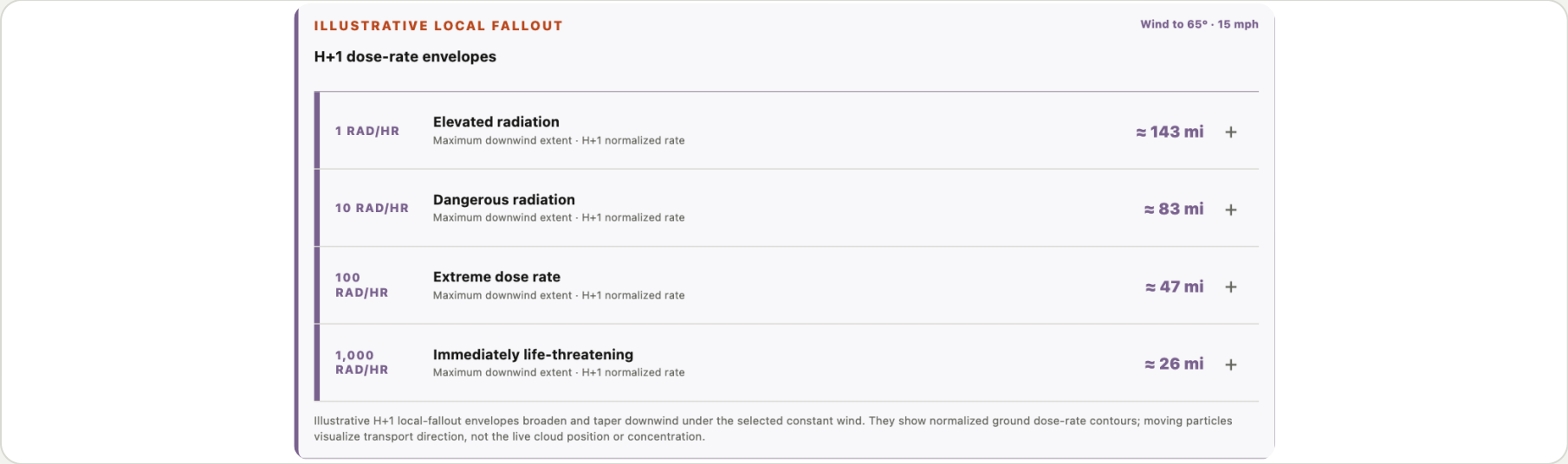
What to do

Provides general protective context. It does not replace official emergency instructions.

Select the + beside any row. Open only the effects you are discussing so the customer can follow the explanation clearly.

7. Read the illustrative fallout plume

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1 rad/hr

Elevated radiation · largest displayed downwind envelope.

10 rad/hr

Dangerous radiation · smaller, higher-rate envelope.

100 rad/hr

Extreme dose rate · high-severity inner envelope.

1,000 rad/hr

Immediately life-threatening · most severe displayed band.

H+1 means a normalized dose rate one hour after detonation. The moving particles show direction—not live cloud position or concentration.

8. Share the scenario—and explain its limits

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▼ Methodology and sources

Radii use public yield-scaling relationships and a published 300 kt reference scenario. Fallout uses public Miller/Grune H+1 outer-pattern scaling with normalized nested preview bands. Flash and acoustic awareness overlays are qualitative presentation aids, not validated visibility, audibility, injury, or hearing-damage boundaries. Results are approximate and still require independent scientific review.

[Glasstone & Dolan, 1977](#) [Public scaling summary](#) [300 kt reference table](#) [Miller-model analysis](#) [H+1 interpretation](#) [FEMA/HHS damage-zone guidance](#)

[CDC protective actions](#) [HHS flash-blindness guidance](#)

Copy share link

Use the button after choosing ground zero. The link reproduces the scenario coordinates and inputs without preserving the searched address label.

Educational engineering preview

Terrain, buildings, shielding, local weather, precipitation, wind shear, arrival time, and decay after H+1 are not modeled in this version.

During a real incident

Do not use these contours for emergency planning or response. Follow official alerts and local-authority instructions; get inside, stay inside, and stay tuned.

Customer-ready summary: use the simulator to compare educational scenarios, then use official sources for real-world decisions.