CERES

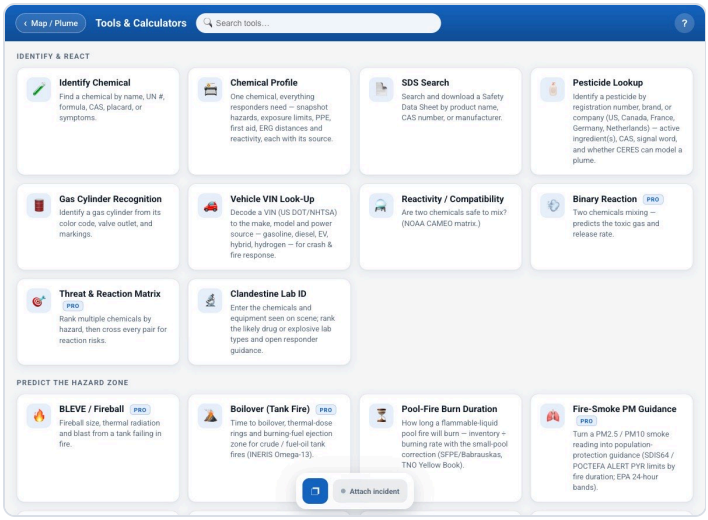
Chemical Emergency Response E-Service
Capability sheet

For everyone on the apparatus, in the command post or in the control room

95 tools, grouped by the question they answer.

The Tools workspace opens from the map or on its own, attaches to the incident so every result lands in the record, and runs on a phone at the scene. Most tools are free with any CERES account. Pro tools are marked; the eleven fire and rescue calculators, marked First Responder as well, come with every CERES subscription, CERES First Responder included. Each one names the standard or study behind its numbers. The Training module uses the same tools for its missions and lessons.

- **Nine groups that follow the incident: identify, predict, mitigate, protect, treat, fight, command, plan, look up**
- **Search that forgives typos, windows you can park side by side, read-only share links for any result**
- **A how-to tour on every tool, most with a practice mode, help in 11 languages, your agency's equipment pinned where it matters**



The workspace: groups follow the incident, Pro cards are marked, and the incident stays attached while you work.

Identify and react

What is it, what will it do, and what happens if it meets something else.

11 tools

Identify Chemical

Find a chemical by name, UN number, formula, CAS, placard or symptoms.

Chemical Profile

One chemical, everything responders need: hazards, exposure limits, PPE, first aid, ERG distances and reactivity, each with its source.

NIOSH, CAMEO, DOT, OSHA, EPA

SDS Search

Search and download a Safety Data Sheet by product name, CAS number or manufacturer.

Pesticide Lookup

Identify a pesticide by registration number, brand or company in the US, Canada, France, Germany and the Netherlands, with the active ingredients and whether CERES can model a plume.

Gas Cylinder Recognition

Identify a cylinder from its color code, valve outlet and markings.

CGA

Vehicle VIN Look-Up

Decode a VIN to make, model and power source: gasoline, diesel, EV, hybrid, hydrogen, with the vehicle's rescue sheet.

US DOT NHTSA

Vehicle Rescue Sheets

The maker's rescue sheet for a vehicle by make, model and year, or from its VIN or a barcode scan, with the makers' hybrid, EV, CNG, LNG, propane and hydrogen guides and an offline pack for your own fleet.

NHTSA, Euro NCAP

Reactivity and Compatibility

Are two chemicals safe to mix?

NOAA CAMEO reactivity matrix

Binary Reaction
PRO FIRST RESPONDER Two chemicals mixing: the toxic gas produced and its release rate.

Clandestine Lab ID
Enter the chemicals and equipment seen on scene; rank the likely drug or explosive lab types and open responder guidance.

Threat and Reaction Matrix
PRO Rank several chemicals by hazard, then cross every pair for reaction risks.

Predict the hazard zone

How far, how hot, how hard and how long, for fire, blast, vapor and radiation.

21 tools

BLEVE / Fireball
PRO FIRST RESPONDER Fireball size, thermal radiation and blast from a tank failing in fire, with time to failure and cooling-water guidance.

Pool-Fire Burn Duration
How long a flammable-liquid pool fire burns, from inventory and burning rate with the small-pool correction.
SFPE, Babrauskas, TNO Yellow Book

Products of Combustion
PRO FIRST RESPONDER What is in the smoke when a material burns: toxic products with quantities, AEGL-ranked hazards and a screening downwind reach.

EV Fire Thermal Model
Safe separation distances and heat flux from a burning electric vehicle, from its peak heat release rate.
UL FSRI

Indoor Release
PRO FIRST RESPONDER A release inside a room: the indoor concentration minute by minute against the levels of concern, the exhaust fan's effect, and the outdoor plume the exhaust makes.
IIAR 2, ASHRAE 15

IED / BLEVE Standoff
Bomb standoff cards, LPG fireball and ERG propane BLEVE distances.
DHS-ATF, NGIC, ERG

Fireworks Explosion Mix
Total TNT equivalent and blast standoff for a mixed fireworks load by UN hazard division.

Li-Ion Battery Gas Vent
PRO FIRST RESPONDER Toxic and flammable gas in a room, vehicle or container when a lithium-ion battery vents: HF and CO against AEGL and IDLH, percent LFL, and what the meters miss; outdoor ERG-style distances.

Boilover (Tank Fire)
PRO FIRST RESPONDER Time to boilover, thermal-dose rings and the burning-fuel ejection zone for crude and fuel-oil tank fires.
INERIS Omega-13

Fire-Smoke PM Guidance
PRO FIRST RESPONDER Turn a PM2.5 or PM10 reading into population-protection guidance by fire duration.
SDIS 64, POCTEFA ALERT PYR, EPA bands

BESS Battery Fire
PRO FIRST RESPONDER Radiant heat-flux rings from a lithium-ion energy-storage fire, scaled from the stored energy.

Gas Leak and Jet Fire
PRO FIRST RESPONDER Release rate from a pressurized vessel and the jet-fire reach if ignited.

Pool-Fire Radiation / PPE
PRO FIRST RESPONDER Radiant heat from a pool fire; time to PPE failure and skin burns at each distance.

Vapor Cloud Explosion
PRO Overpressure rings at 8, 3.5 and 1 psi when a flammable cloud ignites in a congested area.
Baker-Strehlow-Tang

Ammunition Danger Areas
Fragment danger areas for ammunition or bulk explosives by all-up weight, and quantity-distance storage separations.
UN SaferGuard, IATG, Hopkinson-Cranz

Solution Evaporation
PRO Initial evaporation rate from an aqueous spill, ready to feed ALOHA.

Liquid Spill Evaporation
PRO FIRST RESPONDER Quick evaporation rate and time to dry for a spilled liquid without weather data.
Illinois EPA screening

Spill to Water
PARTLY PRO Flammable vapor in storm drains, river dilution and travel time, whether it floats, sinks, dissolves or evaporates, and intake closure against benchmarks.
SEBC, EPA

Dirty Bomb / RDD
PRO Blast zone and the downwind dose and contamination plume.
HotSpot method

Cryogen O_2 Displacement
Oxygen left in a confined space after a cryogenic or gas release: no-entry verdict, maximum safe quantity, time to hazard.
EIGA, OSHA

Nuclear Detonation
PRO Blast, thermal, radiation and flash zones from yield and height of burst.
Glasstone-Dolan

Size up and mitigate the spill

How much is out, what container it came from, and what it takes to make it safe.

11 tools

Tank Volume
Capacity by shape and dimensions, and the liquid volume from a level, including a horizontal tank on its side.

Mass ↔ Volume
Mass to volume and back for any chemical at its temperature, compressed gases at cylinder pressure included.

Dilution Calculator
Water to render a spill safe by chemical or by pH: water required, total volume to contain, feasibility.

Absorption
How much sorbent to bring for a liquid spill, by sorbent type, with the bag count.

Technical Decon
Start from the chemical: the decon method in order, every solution ranked and the ones your agency carries marked, PPE first, and the eye-irrigation answer; in the field, the label's mixing card, timers, first aid, and drug-lab, dive and K9 guidance.

Ventilation Calculator
Time to clear an indoor space to a safe level, and the air changes required.

Spill Volume
Spilled volume and mass from the puddle footprint and average depth; hands off to neutralization, absorbent and evaporation.

Transport Containers
Rail car, cargo tank, ISO tank and barge presets with standard capacity and geometry to pre-fill a tank scenario.
DOT-111, MC-331, T11 and more

Neutralization
Neutralizing-agent mass for an acid or base spill by chemical equivalents, with exotherm, gas and HF safety notes.

Decon Runoff and Containment
How much contaminated water decon makes, whether the berm or pool holds it, plus drums, totes and absorbent.

Disinfectant Finder
EPA-registered disinfectants by pathogen or registration number, refreshed daily from EPA, sterilants included.
US EPA

Protect the entry team

The suit, the respirator, the meter and the clock.

5 tools

CPC Breakthrough
Chemical-suit and glove breakthrough times by chemical.
ASTM F739

APR Canister and Life
Will a canister or cartridge protect against a chemical, and for how many minutes.

Respiratory Protection
The legal respirator class, and SCBA air time at your work rate.
OSHA 1910.134

Detector Correction
PID and LEL correction factors, Dräger CatEx LEL tables included, and the true concentration from a reading; 604 Kitagawa, Dräger and Gastec tubes.

Heat Stress and Stay Time
Work and rest cycle, fluids and monitoring cadence in protective clothing, from temperature, humidity and work rate.

Casualties and medical

From the first symptom to the antidote, and from a mass-casualty sort to a radiation dose.

12 tools

Toxidrome
The likely toxic syndrome and antidote from the patient's signs.

Antidote Dosing
Weight-based mg and mL dosing for hazmat and CBRN antidotes; fixed-dose products return their regimen.
CHEMM, REMM, FDA

Bio/CW Agents
Reference cards for biological, toxin and chemical-warfare agents: incubation, signs, treatment, decon and isolation.

Infectious Disease
Recognize 56 diseases in the field from contact, travel, signs and red flags; sourced precautions; outbreak notices from CDC, WHO, ECDC and NaTHNaC.

Triage Tracker
The crews' shared mass-casualty patient list: each patient tagged by color in two taps, the START / JumpSTART, SALT or RAMP questions when unsure, where each was found, a warning inside a hazard zone, running totals for command and the hand-off to a hospital.
START, JumpSTART, SALT, RAMP

Burn Triage
Burned surface area, the fluid-resuscitation starting rate and burn-center referral criteria.
Rule of Nines, Lund-Browder, ABA, Parkland

Decontamination Advisor
Is wet decon worth it? Volatility and urgency check, then disrobe and wet or dry decon steps.
CHEMM, PRISM, IOR

Radiation Calculator
Unit conversion, gamma dose rate, stay time and fallout decay.

Radiation Dose from Vomiting
The dose a casualty received from the time to onset of vomiting.
AFRRI BAT, Demidenko

ARS Management
Whole-body dose to the expected acute radiation syndrome, treatment bundle and destination.
REMM, Waselenko

Radiation Countermeasures
Reference doses for potassium iodide, Prussian blue, DTPA and the myeloid cytokines.
FDA, REMM

Scarce-Resource Radiation Triage
Triage category and cytokine recommendation after a detonation when resources are overwhelmed.
REMM

Fireground operations

Water, foam and pressure.

4 tools

Foam Application
Foam supply: flow, concentrate and water.
NFPA 11

Hose Friction Loss
Friction loss and the required pump discharge pressure for a hose lay.
NFPA, IFSTA

Drafting / Suction Lift
Maximum safe suction lift from static water by altitude, water temperature and cavitation.

Fire Flow and Water Supply
How much water the fire needs, what hydrants and tanker shuttles deliver, and whether it is enough.
NFA, Iowa, ISO, NFPA 1142

Incident management

The command post, the people and the paperwork.

19 tools

Incident Weather
PRO Weather read as a hazmat size-up: where a release goes and the sector it can reach, stability class and ERG day or night, the changes in the operational period, heat, cold, lightning and rain, plus a briefing to paste or export.

Coordinate Converter
Any position notation in, all of them out: decimal degrees, DMS, UTM, MGRS, Plus Code, geohash or a map link. Works offline.

Incident Notification
Notify the call-down list and partner agencies by email and SMS with location, summary, POC, chemical and plume links and photos, from templates, with a delivery log for every recipient.

Public Alert
TEAM A public warning drafted from a run's threat zones or the incident's drawn zones, sent by call-down and to digital signage, with the CAP 1.2 file for the county's warning system.
OASIS CAP 1.2

My Status
TEAM Set your response status in one tap; your location is shared only while you respond; every change is logged to the ICS 214.

Team / Site Status Board
TEAM Live roster with per-status counts, teams, officer overrides, PAR roll calls and responder-emergency alarms; wallboard mode.

Multi-Site Readiness
TEAM Status counts for every site you can see; emergencies and open PARs are flagged on each site.

Personnel Manager
TEAM Every responder's own exposure record, started automatically at the On Scene check-in: time on scene, gas readings, their own statement.

Incident Manager
Run an incident: header, tasks, live activity log, and the ICS 202, 203, 204, 208 and 214 forms filled from the record, to Word or PDF.
FEMA ICS 202, 203, 204, 208, 214

Incident Log
The live log alone, filtered by responder, ICS role, time and tag.

Video Recordings
TEAM The recordings of the site's CERES Video calls: play, download, legal hold and delete, kept five years by default.

Air Monitoring and Sampling
Readings per meter, sensor and unit number in a few taps, sealed into the record; test papers; samples with chain of custody in CERES Docs; CSV imports.

Gas Detectors
The site's detectors on one board: readings, alarms with corroboration, a chart per gas, a wall of device screens, calibration readiness and an Excel export, for sites with live detectors (HAZMAT Team and Live Facility).

Cost Review
What a reviewer would question on an incident's costs, and the published rule behind each item.

Command Board
Digital command and accountability board: drag crews onto assignments, one-tap PAR, air and work-cycle timers, MAYDAY, automatic ICS 214 log, ICS 201 and 211 exports. Works offline.

Rehab Tracker
Check crews in, capture vitals and the medical screening, time the rest cycle, log fluids, release or transport.
NFPA 1584

Preliminary Exposure Reduction
Each member logs the on-scene steps from the phone: decon method, gear bagged, shower within the hour, lithium-ion fires marked.
NFPA 1851

Incident Sketch and Mark-Up
Sketch the scene on grid paper, an aircraft outline, the DOT/MC cargo-tank and rail tank-car outlines, a photo or the live map; stamp NIMS symbols; print it or post it to the board.

Open Action Tracker
The command-post whiteboard for tasks below objectives: POC, priority, deadlines, live sharing, printed as an ICS 233.
FEMA ICS 233

Planning and compliance

The facilities, the pipelines, the worst case, the emergency planning zone, the relief

Tier II Facilities
Every Tier II, RMP, E2 and Seveso facility of the site on a map and a sheet: contacts, chemicals with their ERG distances, the people nearby by day and at night, scenarios, and an incident started at the facility.

Pipelines
The site's NPMS pipelines on the map with operator, product and size, and a predefined release scenario on every corridor.
PHMSA NPMS

valve and the detector layout.

7 tools

Tier II Summary Reports
PRO Roll up the EPCRA Tier II inventory across the site: totals, extremely hazardous substances and CSV export.

EPZ — Directive 071
PRO The emergency planning zone that Alberta's AER Directive 071 requires around wells, pipelines and facilities with hydrogen sulfide or high-vapor-pressure products, from the operator's own inventories and analyses: drawn on the map, filed as a scenario and written into a report.

AER Directive 071

Detector Coverage
PRO Where the site's fixed detectors would and would not catch a leak of a design size, with their mounting heights, open-path beams, building walls, and one wind or three years of winds.

Worst-Case Auto-Analysis
PRO Batch-model the worst-case release for every Tier II or RMP facility chemical: distances, population, stacked footprints, influencing facilities.

PRV Sizing
PRO Size a relief valve for fire engulfment.

NFPA 58, API 521

Training

Learn the tools between calls, and prove it.

1 module

Training
Six story missions played with the real tools on a private exercise incident, so nobody is paged: guided mode teaches with hints and tours, tested mode records a qualification with an expiry. Fifteen Basics lessons cover the workspace, chemicals, levels of concern, weather, running models, PPE, decon, radiation and blast standoff, and three incident-command lessons cover taking command, the roster and the record, and accountability. The chief's Team tab holds the matrix, curricula and assignments.

HSEEP-style ratings, after-action review

Reference and administration

The phone book, the links, the equipment and the simulators for drills.

5 tools

Contacts and Resources
The team's response phone book: dispatch, hospitals, CHEMTREC and key people, kept current by your administrators.

Agency Equipment
Mark the fans, gas meters, detector tubes, test papers, PPE, cartridges and decon solutions your agency carries; they are pinned and highlighted across the tools, the tubes and papers starred and listed first, the decon items with FEMA AEL numbers for grant requests.

Sensor and Device Simulator
Create and drive simulated detectors from manufacturer presets, a custom build or a clone of a live device, for drills and commissioning. For site administrators; integration simulators for Modbus, PI Web API, Blackline Live and Safety Suite are available to application administrators.

Useful Links
CERES references and manuals, plus the links your administrators add.

Rate Schedules
The published equipment rates your incident bills are priced from; load the FEMA schedule and publish newer editions.

Free, Pro and Team. Tools without a mark are included with every CERES account, including the free version. PRO tools come with Vulnerability and Risk, HAZMAT Team and Live Facility (Incident Weather with First Responder too); the modeling ones need the scenario-runner role. TEAM tools come with First Responder, HAZMAT Team and Live Facility, for every member whatever their role. Locked cards show a padlock, never an error.

Open the free tools at **ceres.vlahi.com**. To unlock the Pro tools for your team, write to **sales@vlahi.com** or call **+1 832-356-6669**.

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