

The EON Situation Room: Turning the Industry's Worst Accidents into Verified, Simulatable Training

A converged approach to high-consequence Oil & Gas safety training — 120 verified courses that drive a certifiable campus, a live physics simulation, and a 3D facility platform from a single source.

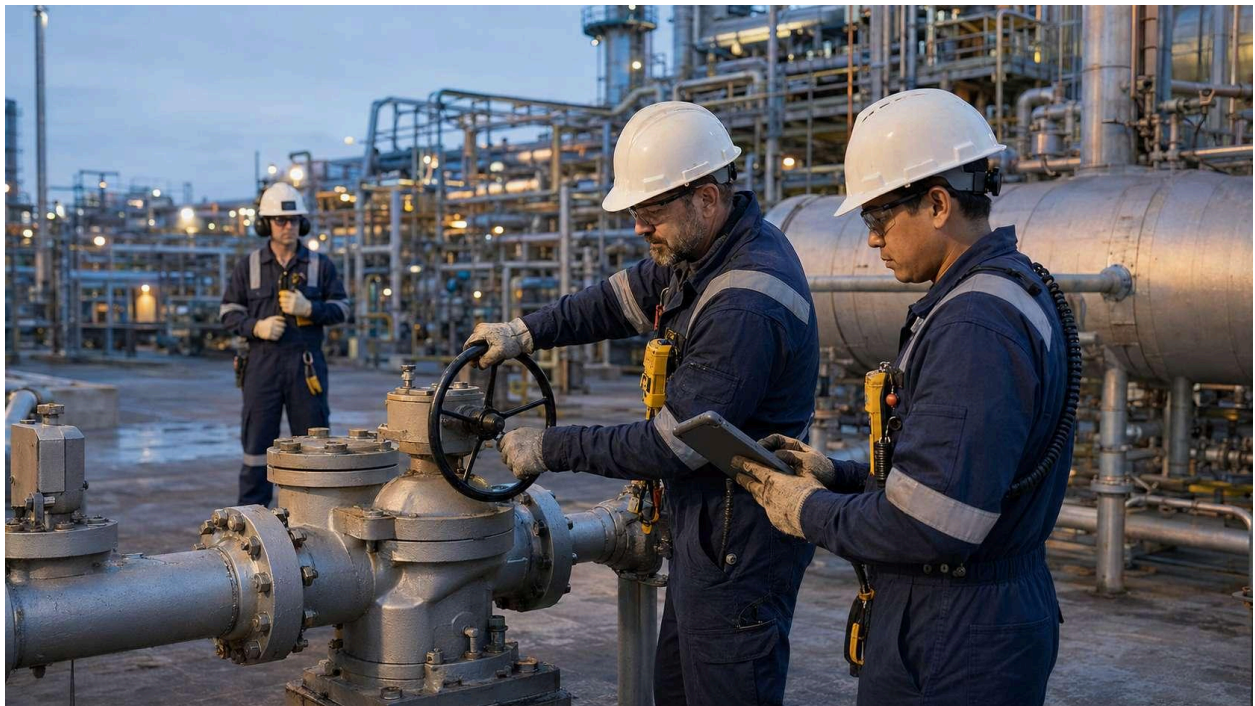


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Executive summary

The scenarios that cause the most harm in oil and gas are precisely the ones that cannot be safely rehearsed on a live plant. Conventional training — slide decks and multiple-choice quizzes — informs but does not build readiness. EON AI Ventures has completed the EON Situation Room for Oil & Gas: 120 concise, certification-grade courses covering the industry's highest-consequence scenarios, each engineered so the same content drives three connected systems — a Custom Virtual Campus, the EON Live simulation runtime, and the EON Universal 3D facility platform. Every course was independently and adversarially verified against its source material. This paper describes the problem, the method, the anatomy of a course, the verification approach and its results, the converged architecture, and the opportunity it creates for operators.

1. The problem: you cannot practice the accidents that kill

High-consequence events — stored-pressure release during lockout, runaway reactions, boiling-liquid expanding-vapor explosions (BLEVEs), well blowouts, arc flash, toxic gas releases, fired-heater explosions — unfold in seconds and are driven by energy that is invisible until it is released. They cannot be staged on a working facility, so workers often encounter them for the first time when they are already going wrong. Traditional e-learning conveys facts but does not let a person make the dangerous decision safely, feel the consequence, and learn the correct response in their hands. The result is a persistent gap between what workers know and what they are ready to do.

2. The EON Situation Room approach

The EON Situation Room reframes the industry's worst accidents as a structured catalog of teachable, testable, and simulatable scenarios. Each scenario begins as an authoritative “card” — a compact, source-referenced description of the hazard: what happens, why, how it unfolds, how often, its consequences, the relevant standards, and, where applicable, the named incident that established the lesson. The 120 cards span eight topic families: isolation and lockout/tagout; thermal and startup; overpressure and relief; rotating equipment; process and separation; fire, release and loss of containment; and utilities and power.

3. Anatomy of a course

From each card, a full course is produced — deliberately lean at roughly 20 tight pages so it teaches without padding. Every course contains:

- **The hazard mechanism** — how the accident actually develops, step by step
- **The safe procedure** — the correct control spine, in exact order
- **Failure modes and early-warning signs** — what to detect before the situation escalates
- **Governing standards** — real codes, cited honestly and never invented
- **Assessment** — twelve or more examination questions and an oral interview
- **A scored simulation** — competence demonstrated by doing, not just recall

Certification is weighted consistently across the catalog: 20% written examination, 30% oral interview, and 50% simulation performance — placing the emphasis on demonstrated competence.

4. Building for trust: independent adversarial verification

Safety-critical training cannot be merely plausible; it must be faithful. Course drafting and a first quality pass are only the beginning. Every course was then subjected to an independent, adversarial verification pass whose sole job was to distrust the draft and compare it, line by line, against its authoritative source card. Reviewers checked that the procedure spine was reproduced in the correct order; that hazard mechanism, statistics, frequencies and named incidents matched the source; that confidence labels were preserved so uncertain figures were never presented as established fact; that no standards clause, setpoint, casualty count or incident was invented; and that assessment and certification weighting were intact.

Results across the full catalog:

- **114 of 120** — verified clean on independent re-check
- **6 of 120** — carried a minor citation or labeling slip — each corrected and re-issued

- **0 of 120** — reversed or omitted a safety-critical step, and none required a safety escalation

Every course retains its own machine-readable verification record alongside it, so the audit trail is transparent and repeatable.

5. The convergence: one course, three engines

The defining characteristic of the EON Situation Room is that a single course is not a static document — it is a source that drives three connected systems:

- **Custom Virtual Campus** — the course becomes a full, certifiable program with reading, examination, oral interview and scoring
- **EON Live** — the same scenario becomes a live, real-time physics simulation a trainee can step into and operate, where consequences are computed as they act
- **EON Universal** — supplies the real 3D equipment and facility models on which the simulation runs

Because the three engines share the same underlying scenario definition, the catalog scales as a system: 120 courses establish the foundation for 120 corresponding live simulations. Reading, assessment and hands-on rehearsal are no longer separate products stitched together after the fact; they are generated from one verified source.

6. The opportunity for operators

For a major operator, the catalog is a turnkey path to competence on the scenarios that matter most. A workforce can progress through a course, pass the written and oral assessments, and then rehearse the actual emergency in a live simulation built on realistic 3D plant — safely, and as many times as needed to build genuine readiness. Because scenarios can be varied — a different valve left open, a different sequence, a different operator decision — a single incident yields many playable variations, and the combinations across 120 scenarios are effectively endless. The same catalog supports onboarding, refresher training, competency assurance, and incident-driven learning after a near-miss.

7. Why this is different

- **Verified, not just generated** — every course independently checked against its source, with a transparent audit trail
- **Lean by design** — ~20 focused pages that teach, rather than 90 pages that pad
- **Grounded in real incidents** — the lessons the industry paid to learn, cited faithfully
- **Simulatable at the source** — instruction and live simulation generated from one definition, not bolted together
- **A system, not a set of files** — courses, campus, simulation and 3D plant converge on one platform

8. Conclusion and what is next

The 120-course Oil & Gas catalog is complete and verified. The immediate next steps are human subject-matter-expert sign-off — particularly for the named-incident courses — and progressive activation of each course as a live EON Live simulation on EON Universal plant. Additional industry verticals are in development. The EON Situation Room demonstrates a repeatable model: take the most serious things that can go wrong, turn each into a verified course, and let the same source teach, test, and simulate. It is a way to make the hardest lessons in the industry both trustworthy and practicable.

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