

This Is Why People Die

**Human factors in fatal oil and gas accidents,
and EON's comprehensive solution.**

Not a catalogue. One system that goes to the bottom of why people die. Built on 184 fatal IOGP accidents (2013–2017) and IOGP 2024. For operators, HSE directors, and the people who sign.



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1. The fact that should change the meeting

People in oil and gas still die of causes everyone already knows. Not because nobody wrote a procedure. Because the people doing the work had often never seen that plant, had only practised the job going right, had nobody next to them who had done it, skipped a step on the wrong asset, worked under a permit that did not cover the job — and because it had happened before, and nothing changed.

A peer-reviewed analysis of 184 fatal accidents in the IOGP database, 2013 to 2017, coded each case against the HFACS-OGI human-factors framework. A cause is marked present or absent. Several can be present in one death. That is allowed. These numbers are not a pie, and they are not a promise that a product removes that share of deaths. They are how often the cause was judged present.

The number that should sit at the front of every conversation:

In 90% of those 184 fatal accidents, the contractor’s work environment was judged present. The people doing the work had often never seen that plant. Contractors were involved in 86% of the cases (159 of 184). In 2024, IOGP members reported 32 fatalities in 21 incidents. 26 of those 32 who died were contractors.

That is why this is not a training-catalogue problem. A course about “safety” does not put this plant in front of a crew that has never walked it. A headset scenario about a generic skid does not either. The bottom of the problem is this plant, this procedure, this permit, this last incident — in their hands — before they start.

2. Why people die — six problems, one death can carry several

The table below is the diagnosis. Left column: how often the cause was judged present in the 184. Middle: the problem in investigation language. Right: what a comprehensive solution has to do. EON’s products are named only after the problem, because the problem is what the customer already knows.

How often (of 184 fatalities)	Why they die	What the solution must do	EON, as part of one system
90% — contractor environment	The crew had never seen this plant. Most of the people who die are contractors.	Put this plant in their hands before they touch it.	Genesis + Universal. The Foundation.
53% — skill-based error	The hand that slips. First time at the equipment. Nobody next to them who has done it.	Let them run the job on this geometry. Put the expert in their pocket.	Genesis · Tacit · EON Live
57% — crew resource management	The team. Who speaks. Who is heard. Handover. They have only practised it going right.	Rehearse the bad day, with the team in the room.	Situation Room · Tacit · Brainy · EON Live

50% — routine violation	The step everyone skips, because that is how the job gets done. On the wrong asset. Nobody saw it.	Guide the work at the point of work. Record what they actually did.	Field IQ / Edge
86% — organisational process	How the work was planned and authorised. The permit did not cover the job. Nobody verified the isolation.	Make the permit a live, checkable contract.	Permit IQ
The loop — it happens again	It happened before. Nothing changed. So it happened again. The next contractor crew never saw the last job.	Make the last job visible to the next crew.	Compound IQ · Distillery

Organisational climate was judged present in 68% of the 184. It is real. EON does not sell a “culture app.” Climate moves when the last job is visible to the person who can stop the next one. That is Compound. The technological environment was judged present in 77%. EON does not redesign the control room. EON puts a guide in his hand that he does not have today, on a twin of this plant.

3. What EON does about it — one comprehensive solution

EON is not matching seven problems to seven SKUs. EON is building one comprehensive solution that goes to the bottom of why people die. The bottom is not “more training.” The bottom is: this plant, this procedure, this crew, this permit, this last incident — connected — before anyone starts, and after they finish.

This is why people die.

In 184 fatal accidents, **90% of the time the people doing the work had never seen that plant.** Last year **26 of 32 who died were contractors.** Each row is a problem, then what we put in their hands. **One death can carry several of these.**

HOW OFTEN	THE PROBLEM · WHY THEY DIE	THE SOLUTION
90%	The crew had never seen this plant. Most of the people who die are contractors.	Genesis + Universal. They run this plant before they touch it.
53%	The hand that slips. First time at the equipment. Nobody next to them who has done it.	Genesis · Tacit (the expert in their pocket) · EON Live
57%	The team. Who speaks. Who is heard. Handover. They have only practiced it going right.	Situation Room · Tacit · Brainy · EON Live
50%	The step everyone skips, because that is how the job gets done. On the wrong asset. Nobody saw it.	Field IQ / Edge. Guidance in his hand, and a record of what he <u>actually</u> did.
86%	How the work was planned and authorized. The permit did not cover the job. Nobody verified the isolation.	Permit IQ. The permit as a live, checkable contract.
AGAIN	It happened before. Nothing changed. <u>So</u> it happened again. The next contractor crew never saw the last job.	Compound IQ · Distillery. The last job is visible to the next crew.

EON AI VENTURES ·

Safety & Ergonomics 28(3), 2022. Open-access PDF Journal page: doi.org/10.1080/10803548.2021.1916238 IOGP Safety Performance Indicators — 2024 data.

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The plant they have never seen

Universal builds a living digital twin of the operator's facility. Genesis turns the operator's own SOP into a scored run on that twin. Together they are the Foundation: every procedure, on every skid, on this geometry. The contractor who has never seen this plant sees it here. That is the 90%. Without this, everything else is a course about somewhere else.

The expert who is not standing next to them

Skill-based error was present in 53% of the 184. The hand slips because it is the first time, at the equipment, with nobody who has done it. Genesis is the run. Tacit is the experienced person in their pocket. Live is the physics behaving as it actually would. That is not a video. That is this job, on this kit.

The team that has only practised going right

Crew resource management was present in 57%. Who speaks. Who is heard. Handover. Major incidents are rare, so crews only ever rehearse the perfect run. Situation Room puts the bad day in the room — fire, isolation, the tank that is already failing — with the team together. Brainy is the interpersonal layer. Live is the plant behaving badly for real. 41% of IOGP deaths in 2024 were fire, explosion or burns. The bad day is not theoretical.

The step everyone skips

Routine violation was present in 50%. The step everyone skips, because that is how the job gets done. On the wrong asset. Nobody saw it. Field IQ / Edge is guidance at the moment of work, on the right asset, in his hand, and a record of what he actually did. A job closes with proof, not with a signature.

The permit that did not cover the job

Organisational process was present in 86%. How work is planned, authorised, resourced, changed. The permit did not cover the job. Nobody verified the isolation. Permit IQ is the permit as a live, checkable contract — help writing it so it covers the work actually planned, and proof afterwards that the isolation was done.

It happened before. Nothing changed.

This is the comprehensive part. If the last job dies in a report, the next contractor crew never sees it. Compound IQ makes the last job visible. Distillery turns those jobs into the next module. The 90% and the 50% and the 53% stop being separate products. They become one loop: see the plant, run the job, capture what happened, show it to the next crew. That is going to the bottom.

4. How operators use it — their decision, not a prescription

EON sells the plant. How an operator writes it into a contract is theirs. Some operators buy the Foundation and require every contractor crew to run the actual job on that twin, scored, before mobilisation. Assess IQ and Competence IQ are the pass, if they choose a pass. Permit IQ does not issue until that pass is green, if they choose that rule.

That is not EON telling them how to run contractors. That is the comprehensive solution making a rule possible that matches the data: the people dying have often never seen this plant. The seven mistakes are the same whether the person is a contractor or the operator's own crew. The 90% is why some operators point the system at contractors first.

5. What this paper does not claim

It does not claim that Genesis prevents 53% of deaths, or that the Foundation “covers 90% of the problem.” The presence of a cause is not the effect of a control.

It does not split “70% of incidents” into 13, 19, 15 and 23. Those were an internal sketch. They are not in this paper.

It does not use United States extraction figures (Permian, vehicles) as if they were worldwide. IOGP travels. NIOSH does not. NIOSH FOG (470 US deaths, 2014–2019; Permian 148) belongs in a US room, labelled US.

It does not treat “\$104,000 a day” as a Kimberlite finding. Where money is needed, the honest ask is: what did your last serious incident cost? Industry placeholders are generic. Their number is the meeting.

6. Sources

Nwankwo C.D., Arewa A.O., Theophilus S.C., Esenowo V.N. (2022). Analysis of accidents caused by human factors in the oil and gas industry using the HFACS-OGI framework. *International Journal of Occupational Safety and Ergonomics* 28(3), 1642–1654. doi:10.1080/10803548.2021.1916238. Open-access PDF: <https://gala.gre.ac.uk/id/eprint/37142/>

Theophilus S.C. et al. (2017). Human factors analysis and classification system for the oil and gas industry (HFACS-OGI). *Reliability Engineering & System Safety* 167, 168–176. The framework paper.

IOGP. Safety Performance Indicators — 2024 data. 32 fatalities in 21 incidents. 26 of 32 contractor fatalities. Fire/explosion/burns 41%. <https://www.iogp.org/bookstore/product/iogp-safety-performance-indicators-2024-data/>

NIOSH / CDC. Fatalities in Oil and Gas Extraction (FOG), United States 2014–2019. *MMWR* 72(SS-8). Use only in US rooms. <https://www.cdc.gov/mmwr/volumes/72/ss/ss7208a1.htm>