

Permit IQ for Oil & Gas

The source-grounded intelligence layer connecting permit competence, job preparation, field evidence, and governed learning.

Permit IQ prepares the work. Field IQ verifies and captures it. The Distillery turns approved evidence into controlled improvement.



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Executive summary

Permit-to-work systems protect high-hazard work, but the process often stops at the form. Permit IQ adds an intelligence layer without replacing the operator's permit authority. It teaches the exact company process, navigates a proposed job through the correct permit path, and prepares drafts grounded in approved sources and equipment intelligence. Field IQ—not Permit IQ alone—delivers the approved intent at the equipment and captures the physical evidence. The Work Intelligence Distillery then governs what may be learned from completed work.

The first product is deliberately narrow: oil and gas, one complete pump-seal replacement story, multiple operator rulebooks, and strict human authority. The narrow story proves the reusable architecture.

1. The problem worth solving

Control of work is a safety system built from hazard analysis, permits, isolation, gas testing, field inspection, qualification, signatures, custody, and close-out. Its structure is broadly shared, but its language and exact rules vary by operator. Preparation can rival wrench time. New workers and contractors must learn the local system quickly. Generic forms cannot see the equipment-specific danger. And the useful difference between the plan and what experienced workers actually found is usually lost.

2. The product boundary

Capability	Owns	Does not own
Permit IQ	Training, explanation, navigation, source-grounded drafting, provenance, approval workflow.	Physical safety verification, permit authority, automatic rule changes.
Field IQ	Delivery of approved intent at the asset; capture of checkpoint evidence and execution deltas.	Independent confirmation that the job is safe or authorized.
Distillery	Human-reviewed validation, generalization, versioned release of approved learning.	Automatic rewriting of controlled procedures or customer rules.

3. The governed journey

1. **Learn:** practice the operator's permit process through multilingual explanations and simulation-based rehearsal.
2. **Prepare:** describe the job and equipment; retrieve the applicable rules; determine the permit path; assemble a draft with field-level provenance.

3. **Approve:** a qualified human edits and approves the artifact. No draft becomes official without a recorded approval.
4. **Verify and capture:** Field IQ guides the approved checkpoints while qualified workers independently perform the checks and capture evidence.
5. **Improve:** the Distillery reviews validated episodes and releases approved learning into the appropriate controlled destination.

4. Five assistant roles

Role	Purpose	Trust constraint
Navigator	Returns the exact sequence of forms, permits, tests, inspections, signatures, and custody actions.	Rules-first; asks when ambiguous; every rule links to its clause.
Explainer	Explains a clause or form field in plain language and the worker's language.	Original clause remains visible; translations are labeled.
Co-pilot	Prepares a job-specific hazard-analysis and permit-request draft.	Only approved sources; editable; human approval required.
Trainer	Builds competence through scored practice, simulation, and rehearsal.	Training supports but does not replace operator certification.
Verifier bridge	Hands approved intent to Field IQ and receives structured evidence.	Permit IQ does not claim physical verification itself.

5. One engine, every rulebook

The universal engine models shared control-of-work concepts: job, equipment, hazard analysis, permit trigger, isolation envelope, inspection, approval, custody, checkpoint, delta, and close-out. An operator rulebook pack supplies exact terminology, controlled clauses, forms, roles, trigger rules, signature authorities, certification conditions, and version history. The same pump job can therefore produce different operator-specific journeys without forking the product.

CONTROLLED-DOCUMENT SUPREMACY A released rulebook pack is a governed representation, not the ultimate authority. If it conflicts with the operator's controlled document, the controlled document wins and the mismatch is a defect.

6. The pump-seal proof story

A worker proposes replacing the mechanical seal on pump P-4501B. Permit IQ recognizes the intended asset, retrieves the stored procedure and rulebook, surfaces trapped pressure and isolation context already approved for that equipment, determines the required permit path, identifies the field inspection and qualified roles, and prepares a draft. A qualified supervisor reviews it. Field IQ then carries the signed intent to the pump, where the crew captures checkpoint evidence and records any delta. After close-out, the Distillery determines whether the delta is evidence, uncertainty, a local exception, or a candidate improvement.

7. Validated work episodes

The durable output is not a video archive. It is a customer-resident, append-only work episode containing approved intent, checkpoint events, readings, evidence hashes, actor roles, execution deltas, approvals, and close-out. Identity is minimized by default. Episodes can support customer learning without becoming worker surveillance.

8. Trust architecture

- **No invention:** normative safety content requires an approved source anchor.
- **Verbatim plus explanation:** the rule and its source remain visible beside any plain-language explanation.
- **Fail closed:** insufficient or conflicting evidence produces uncertainty and escalation, not a confident answer.
- **Human authority:** only authorized people approve, sign, verify physical conditions, and close the permit.
- **Not an authorization:** every field surface points back to the signed permit.
- **Worker protection:** minimize identity, prohibit individual rankings, and separate safety learning from performance management.
- **Version everything: rulebooks,** source documents, artifacts, approvals, and learning releases are traceable.

9. Connection to the EON product suite

EON capability	Contribution to Permit IQ
EON Universal	Equipment identity, smart components, recognition, configuration, anatomy, energy, isolation, and procedure context.
Genesis	Simulation-based permit training and approved procedural content.
Situation Room	Approved incident knowledge explaining why a rule or safeguard exists.

EON capability	Contribution to Permit IQ
EON Live	Physics and consequence visualization where approved for training and explanation.
Field IQ	At-equipment guidance and capture of physical evidence.
AssessIQ / Compound IQ	Assessment and transformation of validated deltas into proposed durable knowledge.
Distillery	Governance, human review, ownership controls, and versioned deployment of approved learning.

10. Competitive position

Electronic permit-to-work platforms digitize workflow, approvals, isolation registers, and SIMOPS. Permit IQ should coexist with them. Its differentiated value is the connected loop among operator rulebook, equipment intelligence, competence, approved intent, field evidence, and governed learning. Generic AI lacks the same equipment ontology and trust architecture. The moat is the connected EON stack and the Work Intelligence it compounds—not the language model.

11. Oil-and-gas-first release priorities

1. Source-grounded Navigator and Explainer for two code-named operator archetypes.
2. Pump-seal job preparation with field-level provenance and a human approval gate.
3. Permit-system training rehearsal connected to Genesis.
4. Field IQ checkpoint handoff and structured evidence return.
5. Validated episode store and Distillery review queue.
6. Pack-building workflow that makes the third operator faster than the second.

12. What Permit IQ does not do

- It does not replace the signed permit or issue work authorization.
- It does not invent a safety rule, threshold, or procedural step.
- It does not independently verify zero energy or declare a physical condition safe.
- It does not automatically rewrite a controlled procedure or rulebook.
- It does not rank workers, create hidden surveillance, or use safety evidence for individual performance scoring.
- It does not require the operator to replace an existing ePTW platform.

13. Decision

Proceed to the software specification using this boundary: Permit IQ owns learning and preparation; Field IQ owns field delivery and evidence capture; the Distillery owns controlled improvement. Build the complete pump-seal story first, make every safety assertion source-grounded, and keep human authority structural rather than rhetorical.