



June 2026 | OAK RIDGE, TN

Harnessing AI for ORNL Operations

AI for Operations Team



U.S. DEPARTMENT OF
ENERGY

ORNL IS MANAGED BY UT-BATTELLE LLC
FOR THE US DEPARTMENT OF ENERGY



Enhancing Safety at DOE Sites with AI: Leveraging Advanced AI to Analyze Workflows, Deploy Intelligent Tools, and Fortify the Security of ORNL Operations.

Motivation

Purpose: Enhancing Safety at DOE Sites with AI.

- **Event Forecasting for Predictive Operations:**
 - AI enables proactive identification of hazardous events, reducing risks and improving operational safety.
- **Personnel Safety:**
 - Protects workers during high-risk tasks by anticipating and mitigating hazards.
- **Operational and Financial Stability:**
 - Prevents costly disruptions and damages through advanced risk analysis.
- **Safer Work Environment:**
 - Builds a secure framework for critical work at ORNL and DOE sites using AI-driven insights.

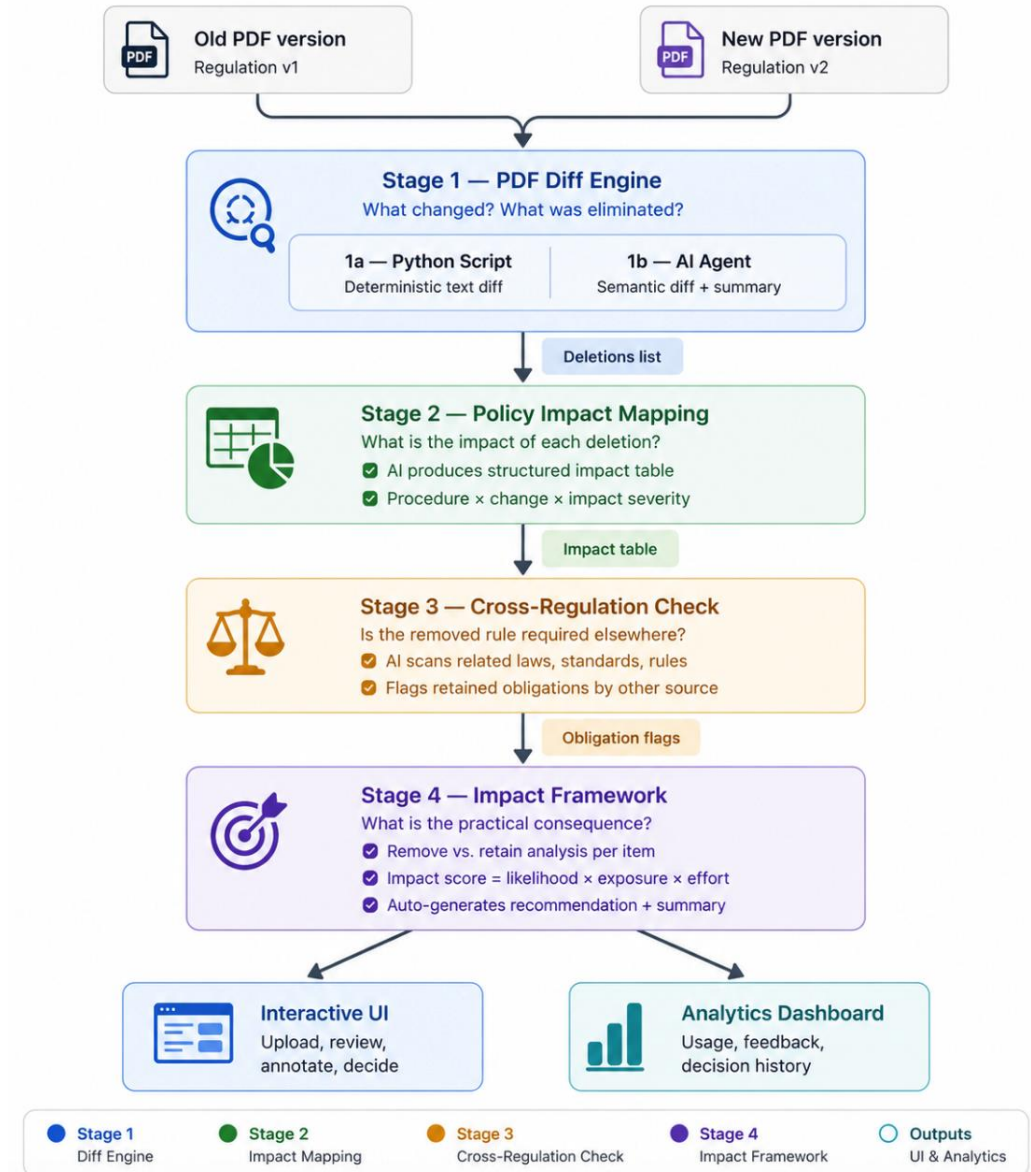
Velocity – Regulation change impact analysis

Sanjay Das

Regulatory Change Analysis

How this works — 5 steps:

1. **Upload** your old & new regulation PDFs
2. **Compare** — the system finds every word that changed, was removed, or added
3. **AI Summary** — an AI reads the changes and explains what matters in plain English
4. **Policy Check** — checks which of your internal procedures need updating
5. **Decide** — get a recommendation: keep, remove, or escalate each affected procedure



Landing page

app

Dashboard

RegChange

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Deploy



Compare two regulation versions · Find what changed · Protect your compliance

Step 1 of 1 — Upload your documents

Upload the **old** and **new** versions of your regulation PDF below. The system will compare them word by word and show you exactly what changed.



Old version

The regulation before the update

 Drag and drop file here

Limit 200MB per file • PDF

Browse files



New version

The updated regulation

 Drag and drop file here

Limit 200MB per file • PDF

Browse files

▶ Start analysis

— or —

 Try with demo PDFs

Upload both PDFs to continue

Deterministic diff between two versions

Compare — The system finds every word that changed, was removed, or added.

Based on a threshold identifies changed blocks of text.

It is deterministic and no probabilistic tool is applied yet.

The screenshot shows a web interface for comparing two documents. At the top, there are tabs for 'Diff' (selected), 'AI', 'Impact', 'Cross', and 'Decide'. Below the tabs, the document titles are listed: 'DOE O 243.1C' and 'Draft DOE O 243-1D - Records Management Program - Draft 5'. A progress bar shows five steps: 'Step 1 · Compare' (selected), 'Step 2 · AI Summary', 'Step 3 · Policy Impact', 'Step 4 · Cross-check', and 'Step 5 · Decisions', followed by an 'Export & Feedback' button.

Compare the two documents

We compare every single word between the old and new regulation. No AI yet — this is a precise, mechanical comparison.

11.3% Text unchanged	185 Blocks removed	13 Blocks modified	25 Blocks added	15178 Words in old PDF
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Full annotated diff (colour-coded document view)

Legend: ■ Unchanged ■ Removed ■ Added / Modified

~~AVAILABLE ONLINE AT: INITIATED BY: www.directives.doe.gov Office of the Chief Information Officer~~ U.S. Department of Energy ORDER
Washington, DC Approved:

~~2-7-2022~~ ~~XX-XX-20XX~~ SUBJECT: RECORDS MANAGEMENT PROGRAM 1. PURPOSE. To set forth requirements and responsibilities for creating and preserving records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the Department of Energy (DOE) and to provide information necessary to protect the legal and financial rights of the Government and persons directly affected by DOE activities.

~~See 44 United States Code (U.S.C.) 3101 and 36 Code of Federal Regulations (CFR) Chapter 13, Subchapter B, Records Management, s. To~~

AI analysis of the changes

Summarize — AI reads the changes and explains what matters in plain English.

Cosmetic/stylistic changes are ignored.

It provides an overview and major changes.

✓ Diff

✓ AI

Impact

Cross

Decide

DOE O 243.1C → Draft DOE O 243-1D - Records Management Program - Draft 5

Step 1 · Compare

Step 2 · AI Summary

Step 3 · Policy Impact

Step 4 · Cross-check

Step 5 · Decisions

Export & Feedback

What changed

The AI reads all the differences and tells you: what was removed, what it means for your organisation, and which changes are highest risk.

Major change

15 critical changes found

The new DOE Records Management Order, DOE O 243.1D, significantly tightens contractor responsibilities, removes some deadlines, and introduces many new obligations, including stricter recordkeeping, reporting, and FOIA support. These changes raise compliance complexity and the risk of non-compliance penalties. The biggest risk if ignored is legal exposure from missed record retention or FOIA violations.

15
Critical changes

7
High risk

8
Medium risk

0
Low risk

All 15 critical changes — click any to expand

• [Modified] Contractor scope narrowed to creation, receipt, use or maintenance only

• [Added] Contractor must designate a single records manager

Internal Policy Impact

Changes impact: Impact analysis is performed over Internal SBMS procedures.

It identifies discrepancies between order and SBMS policies and lists them with provenance.

app

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Settings

AI Model

gpt-oss:20b

Ollama connected · 10 model(s)

Diff

AI

Impact

Cross

Decide

DOE O 243.1C → Draft DOE O 243-1D - Records Management Program - Draft 5

Step 1 · CompareStep 2 · AI SummaryStep 3 · Policy ImpactStep 4 · Cross-checkStep 5 · DecisionsExport & Feedback

Which of our procedures are affected?

We search your internal procedure library for anything that references the changed regulations, then map out what needs attention.

3 of your procedures need review

1Act immediately

2Review soon

0Monitor

Search queries used to find procedures

3 affected procedures — click to see details

Information Release to the Public — Immediate

What is now misaligned: The procedure does not detail how to respond to DOE FOIA requests or how records are released to DOE.

Action needed: Add explicit procedures for DOE FOIA request handling and record release to DOE, including timelines and responsible contacts.

Current procedure text: Structure Management Systems Document Review Comments SBMS Document Review - Comment Report Document Title: Information Release to the Public Document Status: Closed Review Period: Nov 3, 2021 - Nov 17, 2021 Resolution Date: Feb 22, 2022 by BDS Document Review History Section Comment Date Entered By Comment Resolution General Comments Nov 16, 2021

Source: https://sbms.ornl.gov/SBMS_RV_CommRpt.cfm?DocID=9961

Keep requirement

The new regulation requires active support of DOE FOIA and public access, so the procedure must be updated to meet these obligations.

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Cross Check External Policy:

Changes impact: Impact analysis is performed over Internal **ORNL prime contract** and **TN laws**.

It identifies discrepancies between order and regional/organizational policies and lists them with provenance.

app

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Settings

✓ Diff

✓ AI

✓ Impact

✓ Cross

Decide

DOE O 243.1C → Draft DOE O 243-1D - Records Management Program - Draft 5

Step 1 · Compare

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Export & Feedback

Are any removed rules still required by other laws?

Even if a rule was removed from *this* regulation, it might still be required by a different law (e.g. OSHA, EPA, state regulations). This step checks for that.

This step checks whether any removed regulation is still required by other laws (e.g. OSHA, EPA, state law). It needs a web search connection to work. Your IT team can enable this in the next version.

4 items to verify against other laws

Contractor scope narrowed to creation, receipt, use or maintenance only

Removed requirement: *create, receive, use, maintain, manage, disseminate, and/or dispose of DOE records...*

Status: Not yet checked — web search required

Suggested search: [Search regulations.gov for "Contractor scope narrowed to creation, receipt, use or maintenance only"](#)

Removed 6-month deadline for GRS dissemination

Removed requirement: *Disseminate new and revised GRS within 6 months after NARA transmittal...*

Status: Not yet checked — web search required

Suggested search: [Search regulations.gov for "Removed 6-month deadline for GRS dissemination"](#)

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Get Recommendations

Recommendations: Finally, it recommends steps for addressing the impactful changes.

These recommendations needs to be verified with SMEs, before applying them.

Step 1 · Compare Step 2 · AI Summary Step 3 · Policy Impact Step 4 · Cross-check **Step 5 · Decisions** Export & Feedback

What should we do about each affected procedure?

For each affected procedure, the AI recommends whether to safely remove the requirement, keep it as a good-practice safeguard, or escalate to legal for review.



Executive Recommendation

We need to update three procedures to align with the new DOE policy. Spare Parts inventories can be safely trimmed to reduce costs. Vehicle records must be re-linked to the designated system but remain required. The public release process must be revised urgently to meet FOIA obligations. These changes keep us compliant, reduce risk, and improve efficiency.

1

✓ Safe to remove

1

🔒 Keep for safety

1

⚠️ Needs legal sign-off

Decisions for all 3 procedures

⚠️ Information Release to the Public — Needs legal sign-off (risk: 8/10)



🔒 Vehicles and Motor Equipment — Keep for safety (risk: 6/10)



✓ Spare Parts/Inventory Control — Safe to remove (risk: 3/10)



Submit feedback

Feedback collection:
Feedback collection to make it better.

Export & Feedback

Download reports

✓ Stage 1 — Diff statistics

↓ JSON

✓ Stage 2 — AI analysis

↓ JSON

✓ Stage 3 — Policy impact table

↓ JSON

✓ Stage 4 — Cross-reg check

↓ JSON

✓ Stage 5 — Risk decisions

↓ JSON

↓ Download complete analysis (all stages)

↓ Download colour-coded diff report (HTML)

How was your experience?

How useful was this analysis?

★ Not useful

★★★★★ Excellent

★★★★★ Excellent