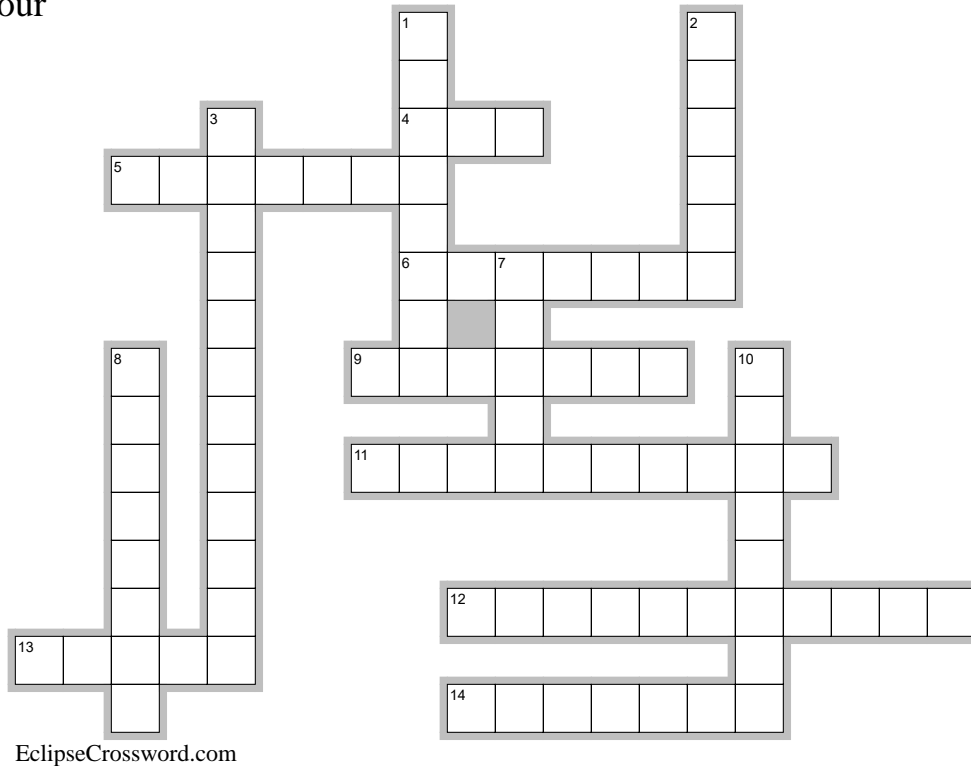# Petroleum engineering-themed crossword puzzle #15

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Digital Oilfields, also known as ……A….., depend on real-time information to guide operations. The idea of ……B…….. still follows the same cycle used many years ago: 1) ……C….., 2) ……D…, 3) ……E…., 4) ……F…., and 5) ……G…. . Today, the use of artificial intelligence in production engineering is growing and supports this cycle.

As technology continues to advance, the automation systems in oil production have become more complex. At the same time, information has become a key ……H…… for all areas of oil and gas companies, including process, management, and marketing. These areas need better ……I…… and control, which increases the demand for accurate and fast data.

DOF environments require simultaneous access to many types of data, such as real-time, ……J…, production, maintenance, and economics databases. But these data sources are rarely integrated. This makes the search for useful production information slow and overwhelming, and it also adds difficulty to the decision-making process.

The main requirements of DOF technology fall into four groups:
1. Information Technology Infrastructure
2. Field Instrumentation and Control
3. ……k…… Automation
4. Multi-disciplinary Collaboration

Many artificial intelligence components are used in DOF systems, such as ……L……. sensors, pattern recognition, predictive and … …M……. models, expert systems, and fuzzy logic.

Because asset management tools—like ……N……., data sources, and software—change quickly, DOF environments must support this continuous evolution. For this reason, DOF solutions should not depend only on proprietary technologies. Instead,
workflows should be defined independently from the applications and systems used to run them.

Across

4.	G
5.	L
6.	D
9.	N
11.	J
12.	A (2 words)
13.	M
14.	C

Down

1.	E
2.	F
3.	I
7.	H
8.	K
10.	B