

GAS COMPRESSION

magazine

APRIL 2023

COW POWER




(NSTD). Launched in March 2021, NSTD is focused on transitioning the North Sea to net-zero emissions by 2050 through investments in hydrogen production; carbon capture, utilization, and storage (CCUS); offshore wind; and decommissioning. UK public and private investment is estimated to be US\$19.2 billion by 2030, including US\$3.6 billion specifically toward CCUS. According to the International Energy Agency, the deal is expected to cut pollution by up to 66.1 million tons (60 million tonnes) by 2030, including 16.5 million tons (15 million tonnes) from oil and gas production on the UK Continental Shelf, while supporting up to 40,000 jobs across the supply chain.

ADDITIONAL INVESTMENTS

Equinor's announcement to buy Suncor came just days after the company signed an agreement with Wellesley Petroleum AS (Wellesley) to acquire equity interests in five discoveries in the Troll, Fram, and Kvitebjørn areas in the North Sea on the Norwegian Continental Shelf (NCS).

Oil And Gas Field	Equinor Equity Stake Before Transaction	Equinor Equity Stake After Transaction	License
Toppand	50%	95%	PL630/PL630CS
Grosbeak	40%	85%	PL925
Atlantis	40%	80%	PL878/878B/878C
Røver Nord/Sør	40%	60%	PL923/PL923B
Grosbeak	40%	55%	PL248I

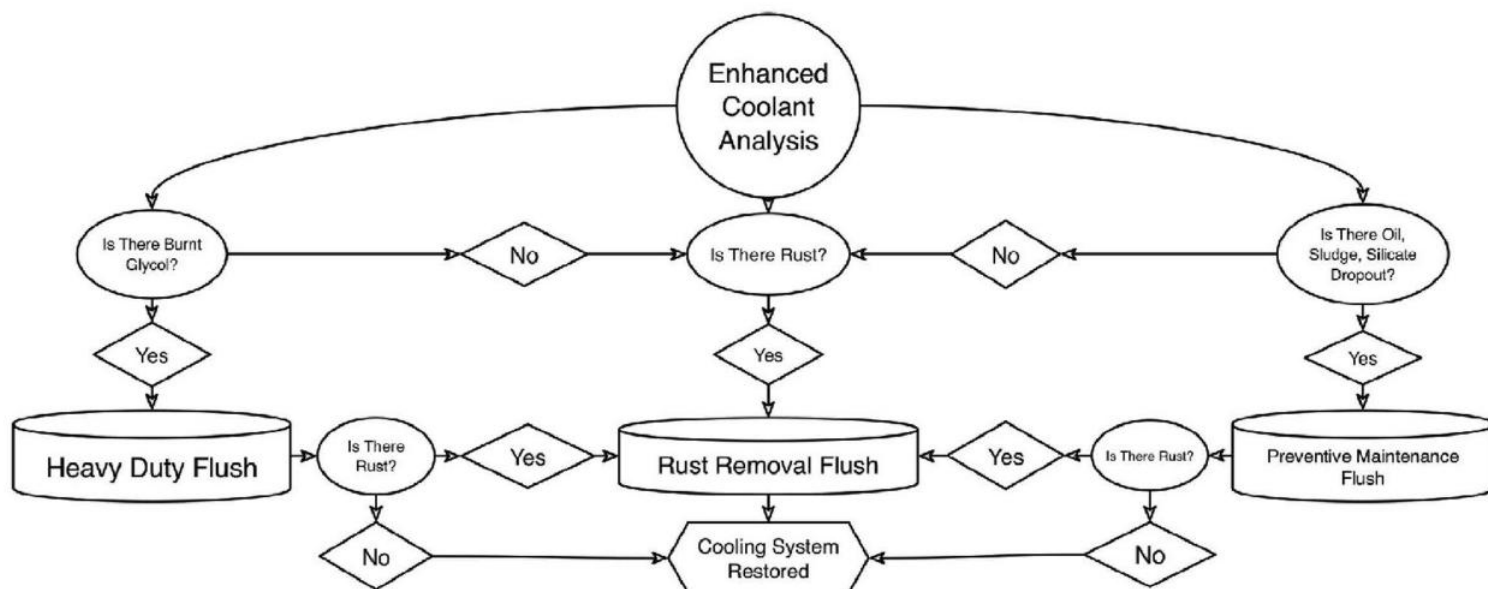
Data Source: Equinor

Equinor said it has made seven discoveries in the region since 2019. The area is one of the more mature parts of the North Sea. However, Equinor has spent decades lowering its cost of production across the North Sea. Thanks to the geological advantages of the NCS and Equinor's decades of experience in offshore exploration and production, the company currently sports one of the lowest costs of production of the integrated oil and gas majors. "With this transaction, we strengthen our position in one of our core areas on the NCS," said Kjetil Hove, Equinor's executive vice president for Norwegian Exploration and Production. "These discoveries can be put into production with low costs and low CO₂ emissions by being connected to the suitable infrastructure in the area. Discoveries close to infrastructure are important for our ambition to maintain production at current levels from the NCS beyond 2030." 



SIMPLIFIED SAMPLING

ULTIMATE CHEMICALS AND LAB ONE PARTNERSHIP
REINVENTS ENGINE COOLING SYSTEM ANALYSIS



After the coolant is tested in the lab, it follows an if-then-else flow chart. Based on the condition of the coolant, the appropriate flush is applied to make the cooling system viable again.

BY BRENT HAIGHT

Ultimate Chemicals offers cleaning products that have been developed specifically for industrial engines and cooling systems. It provides internal and external chemical resources and cleaning services for oil and gas, natural gas pipeline compression, natural gas processing plants, compressor stations, refineries, power plants, manufacturing facilities, machine shops, radiator shops, and other industrial applications. Headquartered in Moore, Oklahoma, the company has developed an extensive portfolio of chemical cleaners that is the result of formulating a solution to meet customers' needs in the field.

"We are about applying the right chemistry and using the right technology," said David Vannostran, vice president of operations at Ultimate Chemicals. "It all starts with a sample."

When it comes to engine cooling system analysis, traditional methodology



calls for analysis of solids that have been collected in the coolant. "We use that analysis to determine what flush is going to clean out a customer's cooling system and bring it back to zero-hour. A lot hinges on getting a physical sample," said Vannostran. "The operator has to scrape out and gather everything they can and hopefully recover enough solid material to get tested. It's not always an efficient method."

Enter Lab One. Headquartered in Phoenix, Lab One is an independent testing laboratory that specializes in industrial fluid testing and analysis. A recent partnership between Ultimate Chemicals and Lab One has led to a new approach to engine cooling system analysis — testing the coolant itself.

Continued on page 52

Control #	100420230308	100320230308	100220230308	100120230308	100020230308
Date Taken	03/08/2023	01/21/2023	12/08/2022	09/28/2022	06/24/2022
Service Meter Reading	0	0	0	0	0
Fluid Run Time	0	0	0	0	0
Fluid Added Gal / Qts	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Fluid Status	Sampled	Sampled	Sampled	Sampled	Sampled
Filter Changed	Unknown	Unknown	Unknown	Unknown	Unknown
Iron (FE)	199	24	24	2	4
Lead (PB)	0	0	0	0	0
Copper (CU)	44	3	3	2	2
Aluminum (AL)	276	5	2	6	5
Silicon (SI)	50	24	25	24	22
Potassium (K)	389	609	451	562	843
Sodium (NA)	9999	9999	9999	9999	9999
Boron (B)	1	0	0	0	0
Magnesium (MG)	25	4	2	2	2
Calcium (CA)	160	8	6	6	6
Phosphorus (P)	0	0	0	0	0
Zinc (ZN)	34	4	2	2	1
Molybdenum (MO)	394	621	601	693	681
Freezepoint F	0	-40	-40	-35	-38
% Antifreeze	31	52	52	50	51
Nitrites	217	300	300	300	417
pH	10.2	6.8	7.3	7.5	7.5
Reserve Alk	6.7	2.5	2.6	3.0	2.6
Color	Red	Red	Red	Orange	Red
Contaminants	Major Sed	Sediment	Sediment	Sediment	None
Comment	TDS=15,000	TDS=11,000	TDS=10,100	TDS=4,440	TDS=5,001
Conductivity	4660uS/cm	4880uS/cm	4850uS/cm	3480uS/cm	3030uS/cm



Testing Performed by Lab One, Inc.
An Independent Fluids Analysis Laboratory

Critical

1 of 1

03/08/2023

Make / Model

ULTIMATE CHEMICAL

Unit/Serial

UCECA/

Compartment

Coolant

Fluid Type

COOLANT

WO / Reference

Current Interpretation

CRITICAL SAMPLE IMMEDIATE ACTION REQUIRED. Metals extremely high. Coolant has MAJOR Sediment contamination. Total Dissolved Solids (TDS) elevated. Drain and flush system to remove contaminants/debris. Resample to monitor trend.

Sample Report From Lab One



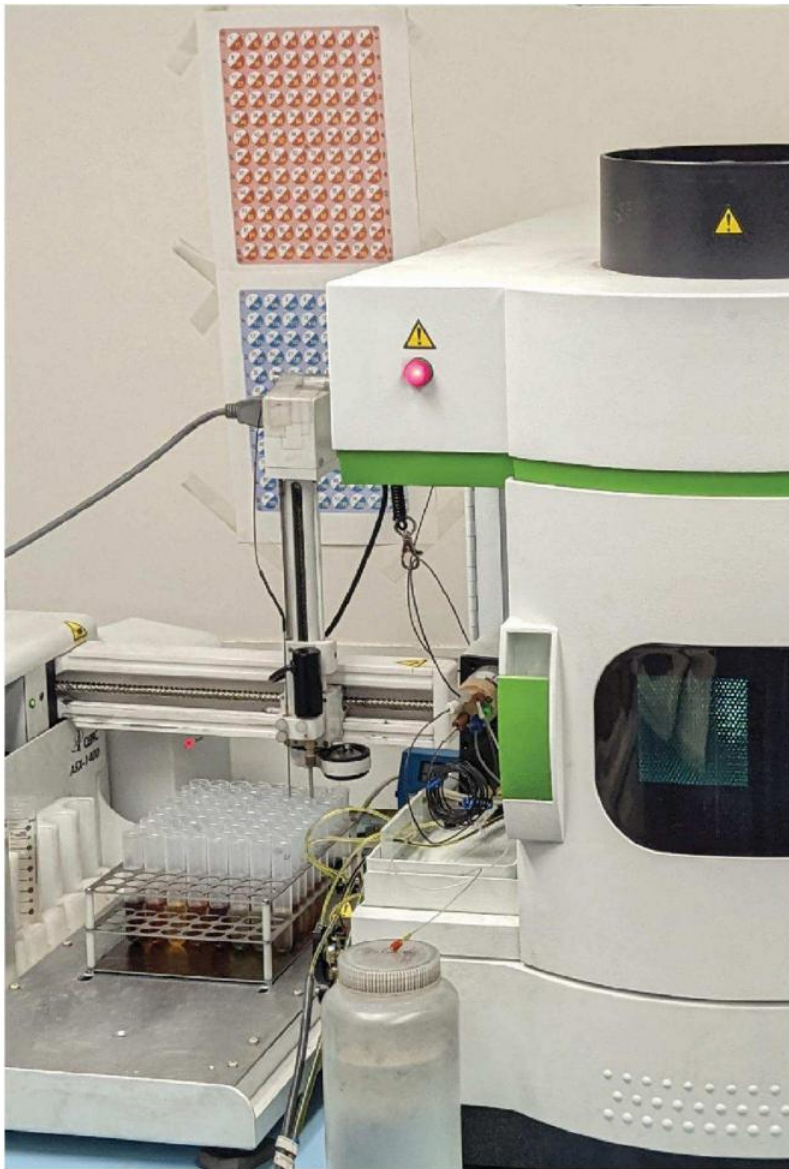
A sample kit includes everything Lab One needs to perform testing.

"Thanks to Lab One and the development of Ultimate Chemicals' Enhanced Coolant Analysis Program, a customer can send a liquid coolant sample and Lab One will discern what's happening in the cooling system," said Vannostran. "From there, we can determine what actions need to be performed — a heavy-duty flush, preventive maintenance flush, a rust removal flush, etc."

"Cooling systems are one of the most neglected systems in the engine," said Jason Kronlund, president of Lab One. "Companies are routinely performing oil testing and analysis to determine the condition of the engine, but the cooling system is often forgotten. The cooling system is one of the most detrimental systems for degradation and failure, and it is not being addressed."

"Vannostran and his team are spearheading a program where, in conjunction with coolant test analysis, the end user is informed on the preventive maintenance measures available," said Bob Robie, president of Lab One Consulting, a division of Lab One. "We get a sample of coolant into the lab, we test it, and then it follows an if-then-else flow chart. Based on the condition of the coolant, the appropriate flush is applied to make the cooling system viable again for a more stress-free continued functionality of the coolant."

Continued on page 54



An inductively coupled plasma (ICP) Spectrometer is among the testing equipment used by Lab One.

Coolant sampling requires no more than 4 ounces. Coolant sample kits for the Enhanced Coolant Analysis Program can be ordered from a portal on Ultimate Chemicals' website. The kits include everything required for Lab One to perform testing. "As soon as the results are available, the customer is notified via email, and they can access the results online," said Kronlund.

According to Kronlund, coolant test results are available within 24 to 48 hours of receipt at the lab. Lab One saves results for all tests for up to five years. "We look at the coolant metals, looking for corrosion metals," said Kronlund. "We also look at coolant additives, phosphates, molybdates, silicates, and borates, checking to make sure they're in the appropriate ratio to what they were when they were a virgin product. We check the pH of the coolant, the reserve alkalinity of the coolant, which measures the coolant's capability of being functional. We check the nitrite levels, the physical appearance of the coolant. We then look at the conductivity of the coolant and the total dissolved solids in the coolant."

“

The cooling system is one of the most detrimental systems for degradation and failure and it is not being addressed.

”

"We pride ourselves in being a one-stop shop for oil, fuel, and coolant testing," said Robie. "Data are our livelihood. One of the great strengths of independent analysis is that we don't sell fluid, we don't sell equipment — we provide numbers. That's the value we bring to this partnership with Ultimate Chemicals. The customer gets non-biased results from us and a suggested action plan from Vannostran. And that action plan is based on data."

The partnership between Lab One and Ultimate Chemicals gives the end user access to myriad experts in their given field. "Vannostran and his team have the support of our entire laboratory, including a whole consulting arm that can accommodate any request that their customers may have," said Kronlund. "From there, Ultimate Chemicals is able to recommend what actions need to be taken, based on the data. There's a big difference between receiving data and understanding the data received."

"The Ultimate Chemicals' Enhanced Coolant Analysis Program improves engine performance and simplifies the customer experience," said Vannostran. "This partnership allows an end user the ability to use a liquid sample of their coolant and receive actionable data, regardless of the equipment manufacturer."

"And this is third-party, independent testing," said Robie. "The partnership between Ultimate Chemicals and Lab One empowers the customer to make the right decision. It is giving them the facts, the science, and the direction in which they can proceed to return their engine to zero-hour." 