



Certificate of Analysis

Number: 2500-23090066-001A

Greeley Laboratory
2881 S. 31st Ave
Unit 6-8
Greeley, CO 80631

Jeff Braden
Ensolum
11049 W 44th Ave, Ste 100
Wheat Ridge, CO 80033

Sep. 28, 2023

Station Name: Ikenouye F 29-23
Sample Conditions:

Sampled By: Jeff Braden
Sample Of: Liquid Spot
Sample Date: 09/06/2023 10:30

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Total Sediment and Water	ASTM D-4007	0.00	vol%		SO	09/12/2023
Sulfur Content by X-ray	ASTM D-4294	0.014	wt%		SO	09/12/2023
Viscosity - Kinematic @ 100°F	ASTM D-445	0.6940	cSt		MRL	09/20/2023
Viscosity - Kinematic @ 100°F	ASTM D-445	28.01	SUS		MRL	09/20/2023
API Gravity @ 60° F	ASTM D-5002	58.71	°		SO	09/12/2023
Specific Gravity @ 60/60° F	ASTM D-5002	0.7439	—		SO	09/12/2023
Density @ 60° F	ASTM D-5002	0.7395	g/ml		SO	09/12/2023
VP of Crude Oil: V/L = 4:1 @ 100 °F	ASTM D-6377	6.41	psi		SO	09/12/2023
RVPE (D323 Equivalent) @ 100 °F	ASTM D-6377	5.35	psi		SO	09/12/2023
Initial Boiling Point	ASTM D-86-IBP	145	°F		MRL	09/20/2023
Pour Point	ASTM D-97	-70	°C		SO	09/15/2023

Comments:

AS-D-4007: TRACE AMOUNT OF SEDIMENT FOUND
AS-D-97: EXCEEDS MAX TEMP RANGE OF -70C FOR TESTING METHOD
RESULT WILL BE GREATER THAN -70C (COLDER)

Data reviewed by: Ryleigh Jacobs, Laboratory Analyst
Methods: ASTM D-4007, ASTM D-4294, ASTM D-5002, ASTM D-6377, ASTM D-97

Data reviewed by: Matthew Loveley, Laboratory Manager
Methods: ASTM D-445, ASTM D-86-IBP

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



Certificate of Analysis
Number: 1030-23090329-001A

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Jenifer Hakkarinen
PDC Energy
1775 Sherman Street
Suite 3000
Denver, CO 80203

Sep. 27, 2023

Station Name: Ikenouye F29-23
Sample Conditions:

Sampled By: JB
Sample Of: Liquid Spot
Sample Date: 09/06/2023 10:30

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Viscosity - Kinematic @ 104°F	ASTM D-445	0.6940	cSt		ES	09/20/2023
Viscosity - Kinematic @ 104°F	ASTM D-445	28.02	SUS		ES	09/20/2023
Initial Boiling Point	ASTM D-86-IBP	145	°F		ES	09/20/2023

Comments:

AS-D-86-IBP: Visual color is Light Straw.

Michael Staley

Data reviewed by: Michael Staley, ASTM Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

SPL, Inc.
Analysis Request Chain of Custody Record

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Contact: Jenifer Hakkarinen jenifer.hakkarinen@pdce.com jessica.johannsen@pdce.com braden@ensolum.com Phone: 303.860.5815 Fax: _____				Special Instructions: 																																																																																																																																																
Invoice To: PDC Energy (Company Name): Address: 1775 Sherman Street, Suite 3000 City/State/Zip: Denver CO 80203 Contact: Jenifer Hakkarinen@pdce.com Phone: 303.860.5815 Fax: _____ Client PO# or Ref. No.: N/A Contract/Proposal #: _____ (i.e. SPLQ###)				Requested Analysis (Place an "X" next to Sample ID below)																																																																																																																																																
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Terms: Cylinders will be rented for \$10/cyl. All cylinders checked out are to be returned within 21 days, whether they contain sample or not. Cylinders not returned after 30 days will be considered lost and will be billed at current replacement cost.				10 business days																																																																																																																																																
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Note - As a convenience to our clients, this form is available in an electronic format. Please contact one of our offices above for the form to be e-mailed to you.