



Report of Analysis

INTERIM

Client: Poseldon Pipeline
Job Location: New Orleans, LA, USA
Our Reference Number: US320-0046744

Client Reference Number:
none

Sample ID: 2012-NOLA-003626-A-001
Sample Designated As: crude
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - Whole Crude

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 24-May-2012
Drawn By: Client

Method	Test	Result	Units
ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	29.9	°API
	Relative Density @ 60/60°F	0.8767	
	Density 15°C/ 59°F	0.8762	g/mL
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sample Preparation	Centrifuged	
	Sulfur Content	1.68	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur		
	H ₂ S	< 1	ppm Wt
	Mercaptan Sulfur	65	ppm Wt
ITM 6008	Light Ends in Crude and Other Samples by GC		
	Methane	<0.01	Vol %
	Ethane	0.10	Vol %
	Propane	1.20	Vol %
	iso-Butane	0.64	Vol %
	n-Butane	2.53	Vol %
	iso-Pentane	1.19	Vol %
	n-Pentane	1.71	Vol %
ASTM D664_MOD	2,2-Dimethylpropane	0.04	Vol %
	Acid Number of Petroleum Products by Potentiometric Titration		
	Acid Number	0.30	mg KOH/g
ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	1500	ppm Wt
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0130	Wt %
	Basic Nitrogen	130	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.75	
ASTM D86	Distillation		
	Unable to perform test	Due to the nature of the sample this test was not performed	
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	-18	°C
	Pour Point	-0.4	°F
ASTM D5708	Metals by ICP-AES		



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Sample ID: 2012-NOLA-003626-A-001	Date Taken: 04-May-2012
Sample Designated As: crude	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 24-May-2012
Representing: "Poseidon Crude" (Enterprise) - Whole Crude	Drawn By: Client

Method	Test	Result	Units
ASTM D5708	Metals by ICP-AES		
	Procedure	Test Method B	
	Vanadium Content	50.3	mg/kg
	Nickel Content	16.2	mg/kg
	Iron Content	3.60	mg/kg
ASTM D3230	Salts in Crude Oil (Electrometric Method)		
	Salt Content (as electrometric chloride)	78.0	lb/1000bbl
ASTM D7169	Boiling Point Distribution of Samples with Residues by High Temperature GC		
	Boiling Point Distribution	See Attached Report	
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 60 °F/ 15.56 °C	27.18	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 100.4 °F/ 38 °C	12.36	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 212 °F/ 100 °C	3.737	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Unable to perform test	Unable to perform test @275F due to the nature of the sample	

Sample ID: 2012-NOLA-003626-A-002	Date Taken: 04-May-2012
Sample Designated As: crude	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 04-May-2012
Representing: "Poseidon Crude" (Enterprise) - LPG cold bomb	Drawn By: Intertek

Method	Test	Result	Units
ITM 6005	Detailed Hydrocarbon Analysis by GC		
	DHA Results	See Attachment	

Sample ID: 2012-NOLA-003626-A-003	Date Taken: 04-May-2012
Sample Designated As: crude	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 23-May-2012
Representing: "Poseidon Crude" (Enterprise) - IBP-68 deg F	Drawn By: Intertek

Method	Test	Result	Units
ITM 6005	Detailed Hydrocarbon Analysis by GC		
	Total Aromatics	0.98	Vol %
	Total Naphthenes	3.32	Vol %
	Total Olefins	< 0.01	Vol %
	Total Paraffins	95.70	Vol %
	Total Unknowns	< 0.01	Vol %
	Specific Gravity by DHA	0.566	



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Sample ID: 2012-NOLA-003626-A-003	Date Taken: 04-May-2012
Sample Designated As: crude	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 23-May-2012
Representing: "Poseidon Crude" (Enterprise) - IBP-68 deg F	Drawn By: Intertek

Method	Test	Result	Units
ITM 6005	Detailed Hydrocarbon Analysis by GC		
	DHA Results	See Attachment	
ITM 6016	Determination of Sulfur by Gas Chromatography		
	Total Sulfur	64.0	ppm

Sample ID: 2012-NOLA-003626-A-004	Date Taken: 04-May-2012
Sample Designated As: crude	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 25-May-2012
Representing: "Poseidon Crude" (Enterprise) - 68-150 deg F	Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.6478	g/mL
	Relative Density @ 60/60°F	0.6479	
	API Gravity @ 60°F	86.9	°API
ASTM D2622-05	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	59	ppm
ITM 6005	Detailed Hydrocarbon Analysis by GC		
	Total Aromatics	0.55	Vol %
	Total Naphthenes	3.59	Vol %
	Total Olefins	< 0.01	Vol %
	Total Paraffins	95.86	Vol %
	Total Unknowns	< 0.01	Vol %
ASTM D1319	Hydrocarbon Types by Fluorescent Indicator Adsorption		
	¹ Aromatics	0.7	Vol %
	¹ Olefins	0.2	Vol %
	¹ Saturates	99.1	Vol %

Sample ID: 2012-NOLA-003626-A-005	Date Taken: 04-May-2012
Sample Designated As: Naphtha	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 25-May-2012
Representing: "Poseidon Crude" (Enterprise) - 150-365 deg F	Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.7484	g/mL
	Relative Density @ 60/60°F	0.7487	
	API Gravity @ 60°F	57.5	°API
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	0.0300	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur		



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Sample ID: 2012-NOLA-003626-A-005
Sample Designated As: Naphtha
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 150-365 deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 25-May-2012
Drawn By: Intertek

Method	Test	Result	Units
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur		
	1 H2S	<1	ppm Wt
	1 Mercaptan Sulfur	0.0	ppm Wt
ITM 6005	Detailed Hydrocarbon Analysis by GC		
	Total Aromatics	16.22	Vol %
	Total Naphthenes	25.35	Vol %
	Total Olefins	< 0.01	Vol %
	Total Paraffins	58.42	Vol %
	Total Unknowns	< 0.01	Vol %
ASTM D1319	Hydrocarbon Types by Fluorescent Indicator Adsorption		
	Aromatics	9.0	Vol %
	Olefins	0.7	Vol %
	Saturates	90.3	Vol %
ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	0.4	mg/kg
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	<0.00100	Wt %
	Basic Nitrogen	<1.00	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.01	
ASTM D86	Distillation		
	Barometric Pressure	763	mm Hg
	IBP Recovery	191.0	°F
	5% Recovery	214.0	°F
	10% Recovery	221.1	°F
	20% Recovery	230.3	°F
	30% Recovery	239.8	°F
	40% Recovery	250.8	°F
	50% Recovery	264.6	°F
	60% Recovery	278.4	°F
	70% Recovery	293.7	°F
	80% Recovery	308.1	°F
	90% Recovery	325.0	°F
	95% Recovery	337.0	°F
	FBP Recovery	358.2	°F
	Residue	1.0	Vol %
	Corrected Loss	0.3	Vol %
	Corrected Recovery	98.7	Vol %
ASTM D2500	Cloud Point		



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Sample ID: 2012-NOLA-003626-A-005
Sample Designated As: Naphtha
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 150-365 deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 25-May-2012
Drawn By: Intertek

Method	Test	Result	Units
ASTM D2500	Cloud Point		
	Cloud Point	<-30	°C
	Cloud Point	<-22.0	°F
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	<-33	°C
	Pour Point	<-27.4	°F
ASTM D2699	Octane Number - Research (RON)		
	PROCEDURE USED	Bracketing-EFL	
	Engine Room Barometric Pressure	29.88	in_Hg
	Intake Air Temperature	125	°F
	Research O.N.	46	
ASTM D2700	Octane Number - Motor (MON)		
	PROCEDURE USED	Bracketing-EFL	
	Engine Room Barometric Pressure	29.88	in_Hg
	Mixture Temperature	300	°F
	Motor O.N.	46	
ASTM D1747	Refractive Index of Viscous Materials		
	Test Temperature	20°C	
	Average Refractive Index	1.4175	

Sample ID: 2012-NOLA-003626-A-006
Sample Designated As: crude
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 365-450 deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 23-May-2012
Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8050	g/mL
	Relative Density @ 60/60°F	0.8054	
	API Gravity @ 60°F	44.2	°API
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	0.196	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur		
	¹ H ₂ S	<1	ppm Wt
	¹ Mercaptan Sulfur	0.0	ppm Wt
ASTM D1319	Hydrocarbon Types by Fluorescent Indicator Adsorption		
	Aromatics	16.8	Vol %
	Olefins	1.1	Vol %
	Saturates	82.1	Vol %
ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		



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Sample ID: 2012-NOLA-003626-A-006**Sample Designated As:** crude**Vessel/Location:** Houma, LA**Representing:** "Poseidon Crude" (Enterprise) - 365-450 deg F**Date Taken:** 04-May-2012**Date Submitted:** 04-May-2012**Date Tested:** 23-May-2012**Drawn By:** Intertek

Method	Test	Result	Units
ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	2.8	mg/kg
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	<0.000100	Wt %
	Basic Nitrogen	<1.00	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.81	
ASTM D86	Distillation		
	Barometric Pressure	763	mm Hg
	IBP Recovery	371.4	°F
	5% Recovery	382.8	°F
	10% Recovery	385.1	°F
	20% Recovery	388.4	°F
	30% Recovery	391.9	°F
	40% Recovery	395.6	°F
	50% Recovery	398.9	°F
	60% Recovery	402.8	°F
	70% Recovery	407.6	°F
	80% Recovery	413.4	°F
	90% Recovery	421.5	°F
	95% Recovery	427.9	°F
	FBP Recovery	445.4	°F
	Residue	1.1	Vol %
	Corrected Loss	0.1	Vol %
	Corrected Recovery	98.8	Vol %
ASTM D2500	Cloud Point		
	Cloud Point	<-30	°C
	Cloud Point	<-22.0	°F
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	<-33	°C
	Pour Point	<-27.4	°F
ASTM D1747	Refractive Index of Viscous Materials		
	Test Temperature	20°C	
	Average Refractive Index	1.4468	
ASTM D4530	Micro Carbon Residue		
	¹ Average Micro Method Carbon Residue	0.00	Wt %
ASTM D5708	Metals by ICP-AES		
	Procedure	Test Method B	
	Vanadium Content	<0.100	mg/kg



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Sample ID: 2012-NOLA-003626-A-006
Sample Designated As: crude
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 365-450 deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 23-May-2012
Drawn By: Intertek

Method	Test	Result	Units
ASTM D5708	Metals by ICP-AES		
	Nickel Content	<0.100	mg/kg
	Iron Content	0.200	mg/kg
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 60 °F/ 15.56 °C	2.044	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 100.4 °F/ 38 °C	1.380	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 104 °F/ 40 °C	1.341	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 122 °F/ 50 °C	1.174	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 140 °F/ 60 °C	1.036	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 210 °F/ 98.9 °C	0.7700	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 275 °F/ 135 °C	0.5361	mm²/s

Sample ID: 2012-NOLA-003626-A-007
Sample Designated As: crude
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 450-600 deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 24-May-2012
Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8454	g/mL
	Relative Density @ 60/60°F	0.8458	
ASTM D4294	API Gravity @ 60°F	35.8	°API
	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	0.740	Wt %
ASTM D1319	Hydrocarbon Types by Fluorescent Indicator Adsorption		
	Aromatics	24.2	Vol %
	Olefins	1.8	Vol %
ASTM D4629	Saturates	74.0	Vol %
	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	17	mg/kg
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.00150	Wt %
	Basic Nitrogen	15.0	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.73	
ASTM D86	Distillation		



Report of Analysis

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Sample ID: 2012-NOLA-003626-A-007

Sample Designated As: crude

Vessel/Location: Houma, LA

Representing: "Poseidon Crude" (Enterprise) - 450-600 deg F

Date Taken: 04-May-2012

Date Submitted: 04-May-2012

Date Tested: 24-May-2012

Drawn By: Intertek

Method	Test	Result	Units
ASTM D86	Distillation		
	Barometric Pressure	762	mm Hg
	IBP Recovery	474.7	°F
	5% Recovery	491.0	°F
	10% Recovery	493.6	°F
	20% Recovery	497.6	°F
	30% Recovery	501.9	°F
	40% Recovery	506.8	°F
	50% Recovery	512.5	°F
	60% Recovery	519.1	°F
	70% Recovery	527.7	°F
	80% Recovery	537.8	°F
	90% Recovery	550.5	°F
	95% Recovery	559.5	°F
	FBP Recovery	566.8	°F
	Residue	1.5	Vol %
	Corrected Loss	0.1	Vol %
	Corrected Recovery	98.4	Vol %
ASTM D2500	Cloud Point		
	Cloud Point	-24	°C
	Cloud Point	-11.2	°F
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	-24	°C
	Pour Point	-11.2	°F
ASTM D1747	Refractive Index of Viscous Materials		
	Test Temperature	20°C	
	Average Refractive Index	1.4698	
ASTM D4530	Micro Carbon Residue		
	¹ Average Micro Method Carbon Residue	0.00	Wt %
ASTM D5708	Metals by ICP-AES		
	Procedure	Test Method B	
	Vanadium Content	<0.100	mg/kg
	Nickel Content	<0.100	mg/kg
	Iron Content	0.300	mg/kg
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 60 °F/ 15.56 °C	5.381	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 100.4 °F/ 38 °C	3.095	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		



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Sample ID: 2012-NOLA-003626-A-007

Sample Designated As: crude

Vessel/Location: Houma, LA

Representing: "Poseidon Crude" (Enterprise) - 450-600 deg F

Date Taken: 04-May-2012

Date Submitted: 04-May-2012

Date Tested: 24-May-2012

Drawn By: Intertek

Method	Test	Result	Units
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 104 °F/ 40 °C	2.945	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 122 °F/ 50 °C	2.449	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 140 °F/ 60 °C	2.062	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 210 °F/ 98.9 °C	1.203	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 275 °F/ 135 °C	0.8197	mm²/s

Sample ID: 2012-NOLA-003626-A-008

Sample Designated As: crude

Vessel/Location: Houma, LA

Representing: "Poseidon Crude" (Enterprise) - 600-670 deg F

Date Taken: 04-May-2012

Date Submitted: 04-May-2012

Date Tested: 24-May-2012

Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8768	g/mL
	Relative Density @ 60/60°F	0.8772	
	API Gravity @ 60°F	29.8	°API
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	1.24	Wt %
ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	120	ppm Wt
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.00540	Wt %
	Basic Nitrogen	54.0	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.99	
ASTM D1160	Distillation of Petroleum Products at Reduced Pressure		
	IBP	545	°F
	AET @ 5% Recovery	647	°F
	AET @ 10% Recovery	682	°F
	AET @ 20% Recovery	691	°F
	AET @ 30% Recovery	697	°F
	AET @ 40% Recovery	703	°F
	AET @ 50% Recovery	705	°F
	AET @ 60% Recovery	708	°F
	AET @ 70% Recovery	710	°F
	AET @ 80% Recovery	714	°F



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Sample ID: 2012-NOLA-003626-A-008**Sample Designated As:** crude**Vessel/Location:** Houma, LA**Representing:** "Poseidon Crude" (Enterprise) - 600-670 deg F**Date Taken:** 04-May-2012**Date Submitted:** 04-May-2012**Date Tested:** 24-May-2012**Drawn By:** Intertek

Method	Test	Result	Units
ASTM D1160	Distillation of Petroleum Products at Reduced Pressure		
	AET @ 90% Recovery	721	°F
	AET @ 95% Recovery	724	°F
	FBP	730	°F
	% Recovered	99.0	%
	% Loss	0.0	%
	% Residue	1.0	%
	Cold Trap Volume	0.0	ml
ASTM D2500	Cloud Point		
	Cloud Point	4	°C
	Cloud Point	39.2	°F
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	-3	°C
	Pour Point	26.6	°F
ASTM D1747	Refractive Index of Viscous Materials		
	Test Temperature	20°C	
	Average Refractive Index	1.4865	
ASTM D4530	Micro Carbon Residue		
	¹ Average Micro Method Carbon Residue	0.00	Wt %
ASTM D5708	Metals by ICP-AES		
	Procedure	Test Method B	
	Vanadium Content	<0.100	mg/kg
	Nickel Content	<0.100	mg/kg
	Iron Content	0.300	mg/kg
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 60 °F/ 15.56 °C	17.72	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 100.4 °F/ 38 °C	7.797	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 104 °F/ 40 °C	7.323	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 122 °F/ 50 °C	5.566	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 140 °F/ 60 °C	4.338	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 210 °F/ 98.9 °C	2.111	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 275 °F/ 135 °C	1.318	mm²/s



Report of Analysis

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Sample ID: 2012-NOLA-003626-A-009
Sample Designated As: crude
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 670+ deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 24-May-2012
Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.9726	g/mL
	Relative Density @ 60/60°F	0.9732	
	API Gravity @ 60°F	13.9	°API

Sample ID: 2012-NOLA-003626-A-010
Sample Designated As: crude
Vessel/Location: Houma, LA
Representing: "Poseidon Crude" (Enterprise) - 670-850 deg F

Date Taken: 04-May-2012
Date Submitted: 04-May-2012
Date Tested: 24-May-2012
Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.9060	g/mL
	Relative Density @ 60/60°F	0.9065	
	API Gravity @ 60°F	24.6	°API
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	1.56	Wt %
ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	430	ppm Wt
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0162	Wt %
	Basic Nitrogen	162	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.98	
ASTM D1160	Distillation of Petroleum Products at Reduced Pressure		
	IBP	736	°F
	AET @ 5% Recovery	760	°F
	AET @ 10% Recovery	776	°F
	AET @ 20% Recovery	789	°F
	AET @ 30% Recovery	796	°F
	AET @ 40% Recovery	805	°F
	AET @ 50% Recovery	816	°F
	AET @ 60% Recovery	829	°F
	AET @ 70% Recovery	842	°F
	AET @ 80% Recovery	861	°F
	AET @ 90% Recovery	885	°F
	AET @ 95% Recovery	903	°F
	FBP	944	°F
	% Recovered	99.0	%



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Sample ID: 2012-NOLA-003626-A-010

Sample Designated As: crude

Vessel/Location: Houma, LA

Representing: "Poseidon Crude" (Enterprise) - 670-850 deg F

Date Taken: 04-May-2012

Date Submitted: 04-May-2012

Date Tested: 24-May-2012

Drawn By: Intertek

Method	Test	Result	Units
ASTM D1160	Distillation of Petroleum Products at Reduced Pressure		
	% Loss	0.0	%
	% Residue	1.0	%
	Cold Trap Volume	0.0	ml
ASTM D2500	Cloud Point		
	Cloud Point	22	°C
	Cloud Point	71.6	°F
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	21	°C
	Pour Point	69.8	°F
ASTM D1747	Refractive Index of Viscous Materials		
	Test Temperature	20°C	
	Average Refractive Index	1.5017	
ASTM D4530	Micro Carbon Residue		
	¹ Average Micro Method Carbon Residue	0.00	Wt %
ASTM D5708	Metals by ICP-AES		
	Procedure	Test Method B	
	Vanadium Content	<0.100	mg/kg
	Nickel Content	<0.100	mg/kg
	Iron Content	<0.100	mg/kg
ASTM D445	Kinematic / Dynamic Viscosity		
	Unable to perform test	Unable to perform test @ 60F due to the nature of the sample	
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 100.4 °F/ 38 °C	28.35	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 104 °F/ 40 °C	25.61	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 122 °F/ 50 °C	17.13	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 140 °F/ 60 °C	12.08	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 210 °F/ 98.9 °C	4.424	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity		
	Kinematic Viscosity @ 275 °F/ 135 °C	2.364	mm²/s



Report of Analysis

INTERIM

Sample ID: 2012-NOLA-003626-A-011

Sample Designated As: crude

Vessel/Location: Houma, LA

Representing: "Poseidon Crude" (Enterprise) - 850-1029 deg F

Date Taken: 04-May-2012

Date Submitted: 04-May-2012

Date Tested: 25-May-2012

Drawn By: Intertek

Method	Test	Result	Units
ASTM D4052	Density of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.9366	g/mL
	Relative Density @ 60/60°F	0.9371	
	API Gravity @ 60°F	19.5	°API
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	1.95	Wt %
ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	1200	ppm Wt
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0345	Wt %
	Basic Nitrogen	345	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.98	
ASTM D1160	Distillation of Petroleum Products at Reduced Pressure		
	IBP	808	°F
	AET @ 5% Recovery	847	°F
	AET @ 10% Recovery	870	°F
	AET @ 20% Recovery	896	°F
	AET @ 30% Recovery	919	°F
	AET @ 40% Recovery	935	°F
	AET @ 50% Recovery	956	°F
	AET @ 60% Recovery	971	°F
	AET @ 70% Recovery	988	°F
	AET @ 80% Recovery	1014	°F
	AET @ 90% Recovery	1042	°F
	AET @ 95% Recovery	1069	°F
	FBP	1095	°F
	% Recovered	98.0	%
	% Loss	0.0	%
	% Residue	2.0	%
	Cold Trap Volume	0.0	ml
ASTM D2500	Cloud Point		
	Unable to perform test	Unable to perform test due to the nature of the sample	
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	39	°C
	Pour Point	102.2	°F
ASTM D1747	Refractive Index of Viscous Materials		
	Test Temperature	20°C	



Report of Analysis

INTERIM

Sample ID: 2012-NOLA-003626-A-011**Sample Designated As:** crude**Vessel/Location:** Houma, LA**Representing:** "Poseidon Crude" (Enterprise) - 850-1029 deg F**Date Taken:** 04-May-2012**Date Submitted:** 04-May-2012**Date Tested:** 25-May-2012**Drawn By:** Intertek

Method	Test	Result	Units
ASTM D1747	Refractive Index of Viscous Materials Average Refractive Index	1.5213	
ASTM D4530	Micro Carbon Residue Average Micro Method Carbon Residue	0.47	Wt %
ASTM D5708	Metals by ICP-AES Procedure	Test Method B	
	Vanadium Content	0.100	mg/kg
	Nickel Content	0.300	mg/kg
	Iron Content	0.600	mg/kg
ASTM D445	Kinematic / Dynamic Viscosity Unable to perform test	Unable to perform test @ 60F due to the nature of the sample	
ASTM D445	Kinematic / Dynamic Viscosity Unable to perform test	This test was not able to be performed @ 100.4F due to the sample's pour point being 102.2F	
ASTM D445	Kinematic / Dynamic Viscosity Unable to perform test	This test was not able to be performed @ 104F due to the sample's pour point being 102.2	
ASTM D445	Kinematic / Dynamic Viscosity Kinematic Viscosity @ 122 °F/ 50 °C	89.45	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity Kinematic Viscosity @ 140 °F/ 60 °C	53.57	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity Kinematic Viscosity @ 210 °F/ 98.9 °C	12.59	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity Kinematic Viscosity @ 275 °F/ 135 °C	5.452	mm²/s

Sample ID: 2012-NOLA-003626-A-012**Sample Designated As:** crude**Vessel/Location:** Houma, LA**Representing:** "Poseidon Crude" (Enterprise) - 1029+ deg F**Date Taken:** 04-May-2012**Date Submitted:** 04-May-2012**Date Tested:** 24-May-2012**Drawn By:** Intertek

Method	Test	Result	Units
ASTM D70	Density / Relative Density /API (Pycnometer Method) Density @ 60 deg F	1.032	g/mL
	Sp Gr @ 60/60 deg F	1.033	
	API Gravity	5.5	°API
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		



Report of Analysis

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Sample ID: 2012-NOLA-003626-A-012**Sample Designated As:** crude**Vessel/Location:** Houma, LA**Representing:** "Poseidon Crude" (Enterprise) - 1029+ deg F**Date Taken:** 04-May-2012**Date Submitted:** 04-May-2012**Date Tested:** 24-May-2012**Drawn By:** Intertek

Method	Test	Result	Units
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	3.90	Wt %
ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	5300	ppm Wt
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.127	Wt %
	Basic Nitrogen	1272	ppm Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	unable to calculate	Due to this sample being asphalt D1160 was not able to be ran which gives the results needed for this calculation.	
ASTM D1160	Distillation of Petroleum Products at Reduced Pressure		
	Unable to perform test	Unable to perform test due to sample being asphalt	
ASTM D2500	Cloud Point		
	Unable to perform test	Unable to perform test due to the sample being asphalt	
ASTM D97	Pour Point of Petroleum Products		
	Pour Point	72	°C
	Pour Point	161.6	°F
ASTM D1747	Refractive Index of Viscous Materials		
	Unable to perform test	Unable to perform test due to the sample being asphalt	
ASTM D4530	Micro Carbon Residue		
	Average Micro Method Carbon Residue	22.6	Wt %
ASTM D5708	Metals by ICP-AES		
	Procedure	Test Method B	
	Vanadium Content	196	mg/kg
	Nickel Content	58.0	mg/kg
	Iron Content	16.0	mg/kg
ASTM D445	Kinematic / Dynamic Viscosity		
	Unable to perform test	Unable to perform test @ 60F due to the sample being asphalt	
ASTM D445	Kinematic / Dynamic Viscosity		
	Unable to perform test	Unable to perform test @ 100.4F due to the sample being asphalt	
ASTM D445	Kinematic / Dynamic Viscosity		



Report of Analysis

INTERIM

Sample ID: 2012-NOLA-003626-A-012	Date Taken: 04-May-2012
Sample Designated As: crude	Date Submitted: 04-May-2012
Vessel/Location: Houma, LA	Date Tested: 24-May-2012
Representing: "Poseidon Crude" (Enterprise) - 1029+ deg F	Drawn By: Intertek

Method	Test	Result	Units
ASTM D445	Kinematic / Dynamic Viscosity Unable to perform test	Unable to perform test @ 104F due to the sample being asphalt	
ASTM D445	Kinematic / Dynamic Viscosity Unable to perform test	Unable to perform @ 122F test due to the sample being asphalt	
ASTM D445	Kinematic / Dynamic Viscosity Unable to perform test	Unable to perform test @ 140F due to the sample being asphalt	
ASTM D445	Kinematic / Dynamic Viscosity Kinematic Viscosity @ 210 °F/ 98.9 °C	6545	mm²/s
ASTM D445	Kinematic / Dynamic Viscosity Kinematic Viscosity @ 275 °F/ 135 °C	850.6	mm²/s

* Out of Scope of the Method

Whole Crude, Basic Nitrogen UOP_269 method is out of scope of method
IBP-68 F cut the specific gravity is extrapolated from the LPG and distillate for this cut

This report has been reviewed for accuracy, completeness, and comparison against specifications when available. The reported results are only representative of the samples submitted for testing and are subject to confirmation upon completion of the final report, which may contain warnings, exceptions and terms and conditions which are pertinent to the data supplied herein. It is the position of Intertek that the final report is the prevailing document, and that the use of interim documents by the client is at their own risk. This report shall not be reproduced except in full without written approval of the laboratory.

Signed: _____
Intertek

Date: _____