THE REPORT BELOW WAS GENERATED WITH FEEDSTOCK AND PRODUCT SAMPLES TAKEN BY CONOCO CANADA LTD, WHO USED CORE LABORATORIES, ONE OF THE LARGEST SERVICE PROVIDERS OF CORE AND FLUID ANALYSIS IN THE PETROLEUM INDUSTRY.

Results Certified by Core Labs for Conoco Canada Ltd.

GHU Process Upgrading

°API Increase	16.3 (°)
% HDS	95
% HDN	48
CCR Conversion, %	80
C7 Asphaltenes Conversion, %	90
975°F+ (524°C+) Conversion, %	81

The report below summarizes the incredible results achieved by Genoil's Hydroconversion upgrader. No other process can come close in performance or efficiency especially with regard to the Hydrodesulphurization (HDS).

Executive summary

Genoil Inc. has designed, built and operated a 10 bbl/D Upgrader Pilot Demonstration Unit (PDU), used to convert heavy oil into a full body crude. The Upgrader was commissioned in June 1999 at a Renaissance Energy battery near Jenner, Alberta. The PDU processed heavy oil having an API content ranging from 11.5 to 12.7 degrees. The PDU was moved to Kerrobert, Saskatchewan, to the CONOCO battery site were it was in operation to upgrade bitumen with an API range from 6.9 to 8.5 under both non-catalytic and catalytic conditions at various operating parameters. More recently, The PDU was moved to Two Hills, Alberta to commence testing of various oil fractions with a liquid catalyst.

Introduction

The general purpose of an upgrading facility is to convert heavy crude / bitumen into a lighter crude so that it can be transportable by pipeline without the aid of diluent, and to make it more compatible for processing in existing refineries. By increasing the yield of light products and decreasing the residual

portion of a heavy crude stream, heavy crude or bitumen becomes more compatible with conventional oil as typically treated existing refineries.

These objectives can be achieved by reducing the carbon content of the heavy crude, or by adding sufficient hydrogen to the crude to make it similar to conventional crudes. The most common technologies associated with carbon reduction are called coking, while hydrocracking is the normal hydrogen addition process. Both of these processes are very expensive, and require a high degree of related treating facilities and offsite infrastructure. They are best suited to large-scale operations, and are not as well suited for smaller operations such as might be built in a field upgrader.

There are many heavy and extra heavy crudes (10-20° API), and bitumen (8-10° API), which are very difficult feedstocks for existing refineries to process. These heavier crudes are characterized by high sulfur content and yield a high portion of residual product. The residual product is usually high in metals, high in con-carbon, and high asphaltenes. Typically, these crudes are very difficult to refine and have only limited markets. Furthermore, these crudes are so viscous that they cannot be pumped through pipelines without first being diluted, usually with a light naphtha or condensate, or shipped in a heated line. Thus, there is interest in upgrading heavy crude so that it can be utilized in existing refineries.

Heavy oils contain significant concentrations of high molecular weight molecules, consisting of asphaltenes and resins. Most heavy crudes have high concentrations of asphaltenes. The asphaltenes are concentrated in the higher boiling point fractions of a crude oil. For example, Athabasca Bitumen has an API gravity of 8.8° and over 85% of its material has a boiling point of over 680°F (360°C). Over 50% of the material in this bitumen has a boiling point over 1050°F (565°C).

Asphaltenes do not readily crack, and they also inhibit the cracking of lighter compounds. In the presence of asphaltenes, condensation reactions occur rapidly to the extreme of producing coke. To prevent the formation of coke, hydrogen is injected to limit asphaltene condensation and prevent higher conversion levels without reaching instability.

Genoil Upgrader

The Genoil Upgrader Technology is based on non-destructive, catalytic hydrogenation, and flash separation. The main features of the Genoil upgrading process are the reactor and its LHSV.

The hydrogenation reactions (or non-destructive hydrocracking) converts asphaltenes into napathenes removes nitrogen and provides desulphurization. The high partial pressure of the hydrogen slows down the development of polymerization and polycondensation of the aromatic hydrocarbon radicals, and allows the hydrogen to transfer from the heavier to the lighter components.

By controlling temperature, pressure and hydrogen addition rate; the Genoil upgrading process has much flexibility to accommodate a range of process objectives.

Genoil designed, built and has in operation a 10 BPD state-of-the-art upgrading pilot plant. The plant comes complete with a hydrogen generation plant, hydrogen compressor, electrical substation and, a PLC for automatic operation control. For on line feed and product monitoring the plant has; a gas chromatograph, a hydrogen analyzer and mass flow density meters. The cooling is provided by a glycol cooling system aided by fin fan cooling. The sour gas streams are treated and sweetened in a gas absorber tower.

The plant is manned continuously by a staff of two process operators (a control panel operator and a field operator) on 12 hour shift for a total operations staff of four process operators (day shift and night shift) per 24 hours daily coverage. The four process operators rotate every 7 days. The process operators report to the onsite engineer. There are three engineers assigned to this project, they rotate every four days and provide technical support to the operations group on 12 hour days and on call at night. Furthermore, external maintenance services are provided by local contractors on an as needed basis. **CONOCO ENGINEER'S WERE PRESENT DURING THE ENTIRE TEST AND TOOK ALL SAMPLING. SAMPLES WERE ANALYSED BY CORE LABORATORIES**

The Upgrading of Bitumen at Kerrobert

Genoil has completed the upgrading bitumen at Kerrobert. The objective was to upgrade bitumen to an API of 25 with the aid of a catalyst. The catalyst used was Criterion-DN-190, which is a nickel/molybdenum catalyst used primarily for hydrotreating. This catalyst was originally developed for first stage hydrocracking primarily for polynuclear aromatics saturation, since bitumen is highly aromatic, we decided to first try this catalyst understanding that DN-190 is not the traditional bitumen hydrocracking catalyst as employed at Syncrude (they have an LC Finer Hydrocracking process).

Lab Results

Conoco collected samples on the feed, product and gas streams and had them analyzed by CORE Laboratories in Calgary, Alberta. The following are the main results extracted from the lab report:

	Feed (bitumen)	Product (Genoil upgraded)
API	8.5	24.8
Sulfur (wt %)	5.14	0.236
Total Nitrogen (wt %)	0.286	0.1432
Acid Number	3.05	0.11
Carbon Content	83.25	86.68
Hydrogen Content	10.59	11.88
Oxygen Content	0.78	1.07
Pentane Insoluble Asphaltene	17.3	1.6
Heptane Insoluble Asphaltene	12.6	1.2
Distillation	**% yield (volume)**	**% yield (volume)**
IBP-171 C	0	8.67
IBP-232 C	1.96	11.49
232-343 C	12.44	33.02
343-524 C	32.27	36.71
524 C plus	53.25	10.08
Loss	0.08	0.03

Of major interest is the conversion of the 524 plus fraction by over 80% at the mild conditions of 745 F and 1600 psig. In addition the reduction in the acid number from 3.05 to 0.11. The sulfur and nitrogen reductions were expected due to previous testing on heavy crudes, but nevertheless again were significant.

Last but not least is the fact that these results were obtained with a Criterion catalyst DN-190, a catalyst that was developed primarily for hydrotreating rather than bitumen conversion. A secondary catalytic test is warranted with the use of a selective catalyst for bitumen. As is, the above results far surpass the current yields generated in the upgrading of Alberta tarsands bitumen in commercial applications.

Economics

The Genoil Upgrader has proved in its pilot plant that it can achieve a greater LHSV than current processes, in the magnitude of 25 to 100%. This allows for a substantial reduction in operating costs as well as capital costs. In essence, it means that it can debottleneck existing infrastructure by providing the option of greater capacity throughput or at the same throughput substantially improve product specifications. For new facilities, it allows for the construction of smaller vessels to meet the same demand. This represents a reduction in capital and operating costs on a BPCD basis on a magnitude of 30 to 40%.

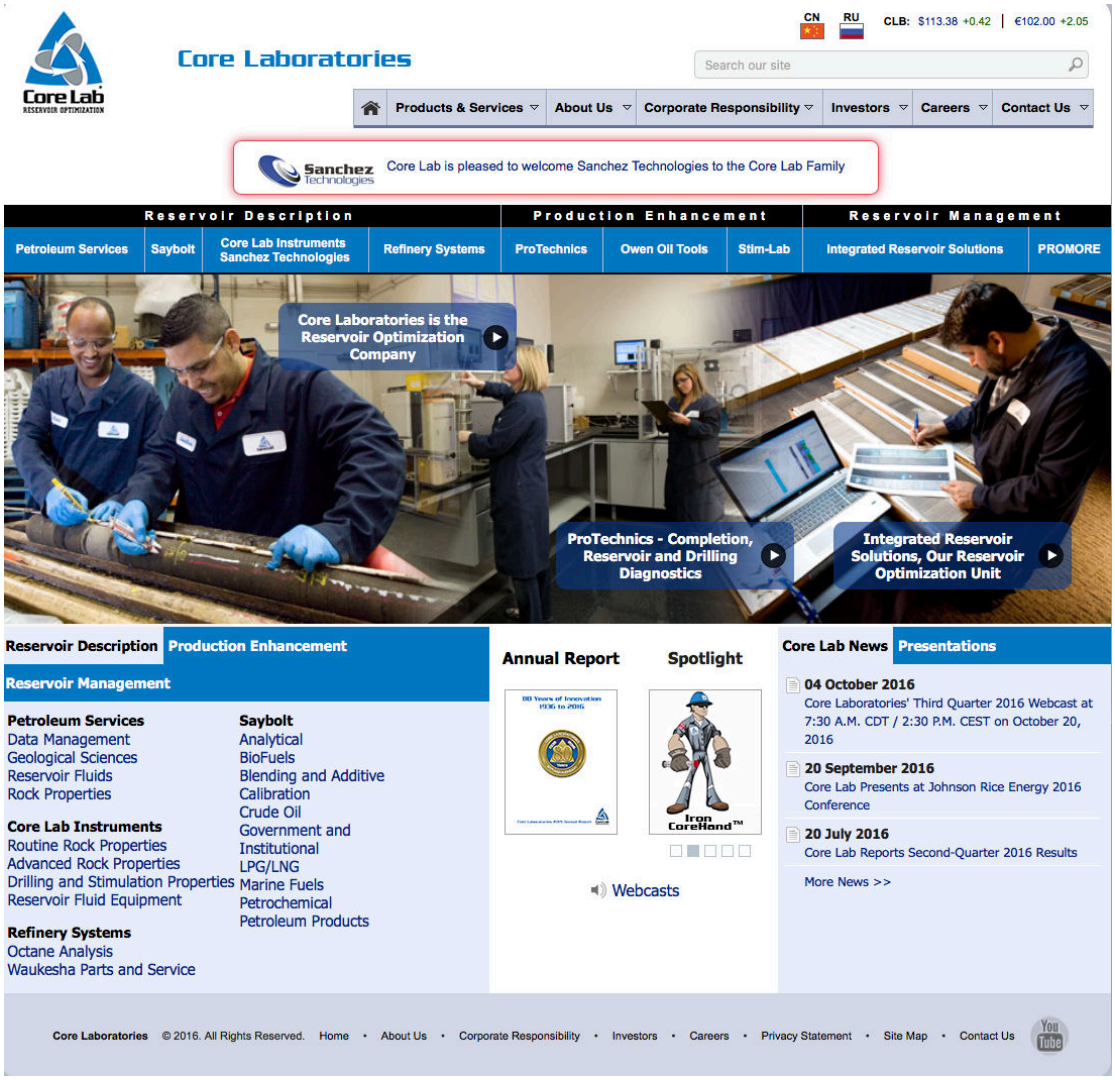
Summary

Genoil has completed the testing Alberta tarsands bitumen at the Conoco site in Kerrobert, Saskatchewan. The results proved that the test was very successful; it outperformed existing commercial technology independent of the fact that the catalyst used is not specific for use in bitumen applications. The achieved results warrant a new test with specific catalyst for bitumen. The reduction of LHSV in the Genoil reactors are significantly greater than those in practice today, this allows for corresponding significant savings in capital and operating costs.

In next phase of testing at Two Hills, Genoil will use a licensed liquid catalyst in its reactor to upgrade Alberta tarsands bitumen.

BITUMEN ANALYSIS

LABORATORY TEST RESULTS BY CORE LABORATORIES



Feedstock Analysis

JACOS BITUMEN

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 | CUSTOMER: Conoco Canada Ltd. | ATTN: Bob Huggins-Chan

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: Whole Crude

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Density @ 15°C	1009.9	0.1	kg/m3	ASTM D-5002	01/09/21	WC
Relative Density @ 15/15°C	1.0108			ASTM D-5002	01/09/21	WC
Specific Gravity @ 60°F	1.0106			ASTM D-5002	01/09/21	WC
API @ 15.6°C	8.5			ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	5.140	500	ppm	ASTM D-4294	01/10/03	TK
Mercaptan Sulphur	150	1	mg/kg	ASTM D-3227	01/09/21	JE
Total Nitrogen by Chemiluminescence	2680	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Acid Number	3.05		mg KOH/g	ASTM D-664	01/09/21	JE
Ash Content	0.036		Wt. %	ASTM D-482	01/09/24	JE
Carbon Residue, Conradson	12.75		Wt. %	ASTM D-189	01/09/20	JE
Base Sediment	0.05	0.05	LV %	ASTM D-4007	01/09/20	JE
Water	0.05	0.05	LV %	ASTM D-4007	01/09/20	JE
Total BS & W	0.10	0.05	LV %	ASTM D-4007	01/09/20	JE
Elemental C, H. O				ASTM D-5291		
Carbon Content	83.25		Wt %			
Hydrogen Content	10.59		Wt %			
Oxygen Content	0.78		Wt %			
Salt Content	5.5		lb/Kbbl	ASTM D-3230	01/09/20	JE
Pour Point	24	- 60	°C	ASTM D-97	01/09/21	JE
Pentane Insoluble Asphaltene	17.3	0.1	Wt %	IP-143M	01/09/20	EH
Heptane Insoluble Asphaltene	12.6	0.1	Wt %	IP-143	01/09/20	EH

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LABORATORY TEST RESULTS

11/13/01

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CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: Whole Crude

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Fractional Distillation	% Yield (Mass)	% Yield (Volume)		ASTM D-2892	01/09/12	WC
IBP = 171 (Deg C @ 760 mmHg)						
IBP - 232 (Deg C @ 760 mmHg)	**1.67**	**1.96**				
232 - 343 (Deg C @ 760 mmHg)	**11.18**	**12.44**				
343 - 454 (Deg C @ 760 mmHg)	**21.58**	**22.41**				
4540 - 524 (Deg C @ 760 mmHg)	**9.70**	**9.86**				
524 Plus (Deg C @ 760 mmHg)	**55.80**	**53.25**				
Loss	**0.07**	**0.08**				
Vacuum Distillation			°C AET	ASTM D-1160	01/10/11	WC
I.B.P.	**214.8**					
5% Off	**293.7**					
10% Off	**331.5**					
20% Off	**381.2**					
30% Off	**444.0**					
40% Off	**503.8**					
46% Off	**513.5**					
FBP	**513.5**					
Wt. % Recovery	**44.3**					
Wt. % Residue	**54.6**					
Wt. % Loss	**0.1**					
Wt. % Cold Trap (Overheads)	**1.0**					

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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: Whole Crude

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/ DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Metals by ICAP			mg/kg	ASTM D-5185	01/10/19	TW
Nickel	77					
Vanadium	196					
Cobalt	< 0.1					
Molybdenum	9					
Sodium	6					
Iron	7					
Potassium	1.3					
Calcium	17					
Magnesium	0.7					
Aluminum	15					
Copper	0.5					
Arsenic	< 0.1					
Shell Hot Filtration	0.04		Wt %		01/10/05	*NCUT
Shell p-Value	3.50				01/10/05	*NCUT
Viscosity, Kinematic @ 60 °C	2399		cSt	ASTM D-445	01/10/07	JE
Viscosity, Kinematic @ 100 °C	193.1		cSt	ASTM D-445	01/10/07	JE
Viscosity, Kinematic @ 140 °C	46.86		cSt	ASTM D-445	01/10/07	JE

*NCUT - analysis conducted by National Center for Upgrading Technology

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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: IBP - 232 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	**1.96**		LV %	ASTM D-2892	01/09/12	WC
Yield	**1.67**		WT %	ASTM D-2892	01/09/12	WC
API Gravity	**33.4**		@ 60 °F	ASTM D-5002	01/09/21	WC
Specific Gravity	**0.8582**		@ 60/60 °F	ASTM D-5002	01/09/21	WC
Relative Density	**0.8585**		@ 15/15 °C	ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	**1.200**	0.05	Wt %	ASTM D-4294	01/10/03	TK
Mercaptan Sulphur	**147**	1	mg/kg	ASTM D-3227	01/09/21	JE
Total Nitrogen by Chemiluminescence	**51**	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Acid Number	**0.25**		mg KOH/g	ASTM D-664	01/10/04	TK
Bromine Number	**5.6**		g / 100 g	ASTM D-1159	01/10/04	*HP
Aniline Point	**50.3**		° C	ASTM D-611	01/10/04	TK
Elemental C, H.				ASTM D-5291	01/10/17	PM
Carbon Content	**84.93**		Wt %			
Hydrogen Content	**12.26**		Wt %			
Hydrocarbon Type				ASTM D-1319	01/10/04	JE
Aromatics	**10.2**		LV %			
Olefins	**3.8**		LV %			
Saturates	**86.0**		LV %			
Smoke Point	**19.5**		mm	ASTM D-1322	01/10/10	JE

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LABORATORY TEST RESULTS

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CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: IBP - 232 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/ DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Cloud Point	< - 60	-60	° C	ASTM D-2500	01/10/06	TK
Freeze Point	solid @ -75 C no crystals	-75	° C	ASTM D-2386	01/10/10	JE
Viscosity, Kinematic @ 40 ° C	1.662		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 80 ° C	0.9773		cSt	ASTM D-445	01/09/21	JE

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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 232 °C - 343 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	12.44		LV %	ASTM D-2892	01/09/12	WC
Yield	11.18		WT %	ASTM D-2892	01/09/12	WC
API Gravity	24.7		@ 60°F	ASTM D-5002	01/09/21	WC
Specific Gravity	0.9061		@ 60/60 °F	ASTM D-5002	01/09/21	WC
Relative Density	0.9064		@ 15/15 °C	ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	1.946	500	ppm	ASTM D-4294	01/10/03	TK
Mercaptan Sulphur	69	1	mg/kg	ASTM D-3227	01/09/21	JE
Total Nitrogen by Chemiluminescence	172	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Acid Number	1.59		mg KOH/g	ASTM D-664	01/10/04	JE
Bromine Number	3.0		g / 100 g	ASTM D-1159	01/10/08	*HP
Aniline Point	48.0		° C	ASTM D-611	01/10/04	TK
Elemental C, H.				ASTM D-5291	01/10/17	PM
Carbon Content	86.24		Wt %			
Hydrogen Content	13.53		Wt %			
Hydrocarbon Type				ASTM D-1319	01/10/04	JE
Aromatics	30.7		LV %			
Olefins	7.9		LV %			
Saturates	61.4		LV %			
Smoke Point	13.0		mm	ASTM D-1322	01/10/10	JE
Pour Point	< - 60	- 60	°C	ASTM D-97	01/10/04	TK
Cetane Index	35.9			ASTM D-976	01/10/17	EM

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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 232 °C - 343 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Cloud Point	< - 60	-60	° C	ASTM D-2500	01/10/04	TK
Freeze Point	solid @ -62 C no crystals	-75	° C	ASTM D-2386	01/10/17	JE
Viscosity, Kinematic @ 40 ° C	5.638		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 80 ° C	2.307		cSt	ASTM D-445	01/09/21	JE

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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 | CUSTOMER: Conoco Canada Ltd. | ATTN: Bob Huggins-Chan

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 343 °C - 454 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	**22.41**		LV %	ASTM D-2892	01/09/12	WC
Yield	**21.58**		WT %	ASTM D-2892	01/09/12	WC
API Gravity	**14.2**		@ 60 °F	ASTM D-5002	01/09/21	WC
Specific Gravity	**0.9710**		@ 60/60 °F	ASTM D-5002	01/09/21	WC
Relative Density	**0.9713**		@ 15/15 °C	ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	**3.507**	500	ppm	ASTM D-4294	01/10/03	TK
Total Nitrogen by Chemiluminescence	**1510**	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Nitrogen, Basic	**458**		ppm Wt.	UOP-269	01/10/10	JE
Acid Number	**3.9**		mg KOH/g	ASTM D-664	01/09/21	JE
Bromine Number	**3.5**		g / 100 g	ASTM D-1159	01/10/04	HP*
Elemental C, H.				ASTM D-5291	01/10/17	PM
Carbon Content	**84.83**		Wt %			
Hydrogen Content	**11.04**		Wt %			
Pour Point	**-18**	- 60	°C	ASTM D-97	01/09/28	JE
Cetane Index	**27.6**			ASTM D-976	01/10/17	EM
Cloud Point	solid @ - 21°C no crystals		° C	ASTM D-2500	01/10/04	TK
Viscosity, Kinematic @ 40 ° C	**143.50**		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 80 ° C	**17.57**		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 100 ° C	**8.995**		cSt	ASTM D-445	01/09/21	JE

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SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 343 °C - 454 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Paraffins	5.3	0	LV %	ASTM D-3239	01/10/09	LWS
Naphthenes	38.8	0	LV %	ASTM D-2549		
Aromatics	55.9	0	LV %	ASTM D-2786		
NAPHTHENIC DISTRIBUTION						
—1 Ring	9.3	0	LV %			
—2 Ring	14.7	0	LV %			
—3 Ring	8.2	0	LV %			
—4 Ring	5.2	0	LV %			
—5 Ring	1.4	0	LV %			
—6 Ring	< 0.1	0	LV %			
AROMATIC DISTRIBUTION						
Monoaromatics	24.3	0	LV %			
—Alkylbenzenes	8.0	0	LV %			
—Naphthenebenzenes	7.2	0	LV %			
—Dinaphthenebenzenes	9.1	0	LV %			
Diaromatics	14.8	0	LV %			
—Naphthalenes	4.5	0	LV %			
—Acenaphthenes/Dibenzofurans	4.6	0	LV %			
—Fluorenes	5.7	0	LV %			
Triaromatics	4.5	0	LV %			
—Phenenanthrenes	3.3	0	LV %			
—Naphthenephenanthrenes	1.2	0	LV %			
Tetraaromatics	2.1	0	LV %			
—Pyrenes	1.7	0	LV %			
—Chyrsenes	0.4	0	LV %			
Pentaaromatics	0.2	0	LV %			
—Perylenes	0.2	0	LV %			
—Dibenzanthracenes	< 0.1	0	LV %			
Thiopheno Aromatics	9.8	0	LV %			
—Benzothiophenes	5.9	0	LV %			
—Dibenzothiophenes	3.5	0	LV %			
—Naphthabenzothiophenes	0.4	0	LV %			
Unidentified Aromatics	0.2	0	LV %			

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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 454 °C - 524 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	**9.86**		LV %	ASTM D-2892	01/09/12	WC
Yield	**9.70**		WT %	ASTM D-2892	01/09/12	WC
API Gravity	**11.3**		@ 60 °F	ASTM D-5002	01/09/21	WC
Specific Gravity	**0.9913**		@ 60/60 °F	ASTM D-5002	01/09/21	WC
Relative Density	**0.9915**		@ 15/15 °C	ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	**4.045**	500	ppm	ASTM D-4294	01/10/03	TK
Total Nitrogen by Chemiluminescence	**2620**	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Nitrogen, Basic	**723**		ppm Wt.	UOP-269	01/10/10	JE
Acid Number	**4.9**		mg KOH/g	ASTM D-664	01/10/03	TK
Elemental C, H.				ASTM D-5291	01/10/17	PM
Carbon Content	**84.33**		Wt %			
Hydrogen Content	**11.87**		Wt %			
Carbon Residue, Conradson	**0.16**		Wt. %	ASTM D-189	01/10/04	JE
Pour Point	**15**	- 60	°C	ASTM D-97	01/10/09	TK
Viscosity, Kinematic @ 40 °C	**2192**		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 80 °C	**93.25**		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 100 °C	**31.71**		cSt	ASTM D-445	01/09/21	JE

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 454 °C - 524 °C

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Paraffins	3.6	0	LV %	ASTM D-3239	01/10/09	LWS
Naphthenes	24.8	0	LV %	ASTM D-2549		
Aromatics	71.6	0	LV %	ASTM D-2786		
NAPHTHENIC DISTRIBUTION						
---1 Ring	6.2	0	LV %			
---2 Ring	9.9	0	LV %			
---3 Ring	6.0	0	LV %			
---4 Ring	2.1	0	LV %			
---5 Ring	0.6	0	LV %			
---6 Ring	< 0.1	0	LV %			
AROMATIC DISTRIBUTION						
Monoaromatics	**34.8**	0	LV %			
---Alkylbenzenes	12.4	0	LV %			
---Naphthenebenzenes	9.8	0	LV %			
---Dinaphthenebenzenes	12.6	0	LV %			
Diaromatics	**19.0**	0	LV %			
---Naphthalenes	6.4	0	LV %			
---Acenaphthenes/Dibenzofurans	5.1	0	LV %			
---Fluorenes	7.5	0	LV %			
Triaromatics	**3.3**	0	LV %			
---Phenenanthrenes	2.6	0	LV %			
---Naphthenephenanthrenes	0.7	0	LV %			
Tetraaromatics	**2.3**	0	LV %			
---Pyrenes	1.9	0	LV %			
---Chyrsenes	0.4	0	LV %			
Pentaaromatics	**0.2**	0	LV %			
---Perylenes	0.2	0	LV %			
---Dibenzanthracenes	< 0.1	0	LV %			
Thiopheno Aromatics	**11.1**	0	LV %			
---Benzothiophenes	8.7	0	LV %			
---Dibenzothiophenes	2.2	0	LV %			
---Naphthabenzothiophenes	0.2	0	LV %			
Unidentified Aromatics	**0.9**	0	LV %			

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 343 °C Plus

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/ DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	**85.5**		LV %	ASTM D-2892	01/09/12	WC
Yield	**87.1**		WT %	ASTM D-2892	01/09/12	WC
API Gravity	**6.2**		@ 60°F	ASTM D-5002	01/09/21	WC
Specific Gravity	**1.0279**		@ 60/60 °F	ASTM D-5002	01/09/21	WC
Relative Density	**1.0281**		@ 15/15 °C	ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	**5.718**	500	ppm	ASTM D-4294	01/10/03	TK
Total Nitrogen by Chemiluminescence	**2960**	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Acid Number	**2.70**		mg KOH/g	ASTM D-664	01/10/10	JE
Elemental C, H.				ASTM D-5291	01/10/17	PM
Carbon Content	**83.29**		Wt %			
Hydrogen Content	**10.20**		Wt %			
Carbon Residue, Conradson	**16.05**		Wt. %	ASTM D-189	01/09/24	JE
Pour Point	**42**	- 60	°C	ASTM D-97	01/10/07	TK
Viscosity, Kinematic @ 60 °C	**30 230**		cSt	ASTM D-445	01/09/21	JE
Viscosity, Kinematic @ 100 °C	**1 436**		cSt	ASTM D-445	01/09/24	JE
Viscosity, Kinematic @ 140 °C			cSt	ASTM D-445		
Pentane Insoluble Asphaltene	**20.5**	0.1	Wt %	IP-143M	01/09/20	EH
Heptane Insoluble Asphaltene	**14.1**	0.1	Wt %	IP-143	01/09/20	EH
Ash Content	**0.062**		Wt. %	ASTM D-482	01/09/24	JE

CORE LABORATORIES
2810 - 12th STREET N.E.
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LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 343 °C Plus

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Metals by ICAP			mg/kg	ASTM D-5185	01/10/19	TW
Nickel	89					
Vanadium	227					
Cobalt	< 0.1					
Molybdenum	10					
Sodium	10					
Iron	41					
Potassium	0.3					
Calcium	8					
Magnesium	1					
Aluminum	19					
Copper	0.8					
Arsenic	< 0.1					

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 524 °C Plus

LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	53.25		LV %	ASTM D-2892	01/09/12	WC
Yield	55.80		WT %	ASTM D-2892	01/09/12	WC
API Gravity	2.4		@ 60 °F	ASTM D-5002	01/09/21	WC
Specific Gravity	1.0570		@ 60/60 °F	ASTM D-5002	01/09/21	WC
Relative Density	1.0572		@ 15/15 °C	ASTM D-5002	01/09/21	WC
Sulphur, Total by X-ray Fluorescence	6.431	500	ppm	ASTM D-4294	01/10/03	TK
Total Nitrogen by Chemiluminescence	3770	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Acid Number	2.16		mg KOH/g	ASTM D-664	01/10/10	JE
Elemental C, H. O				ASTM D-5291	01/10/17	PM
Carbon Content	82.02		Wt %			
Hydrogen Content	9.36		Wt %			
Oxygen Content	1.34		Wt %			
Carbon Residue, Conradson	24.74		Wt. %	ASTM D-189	01/09/21	JE
Pour Point	90	- 60	°C	ASTM D-97	01/10/09	TK
Viscosity, Kinematic @ 100 °C	99 860		cSt	ASTM D-445	01/09/24	JE
Viscosity, Kinematic @ 140 °C	4 071		cSt	ASTM D-445	01/10/07	TK
Viscosity @ 200 °C			Poise	ASTM D-2171		
Viscosity @ 250 °C			Poise	ASTM D-2171		
Pentane Insoluble Asphaltene	32.3	0.1	Wt %	IP-143M	01/09/20	EH
Heptane Insoluble Asphaltene	24.0	0.1	Wt %	IP-143	01/09/20	EH
Ash Content	0.104		Wt. %	ASTM D-482	01/09/24	JE
Penetration @ 0 °C						
Penetration @ 25 °C						

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 CUSTOMER: Conoco Canada Ltd. ATTN: Bob Huggins-Chan

CLIENT I.D.....: Bitumen Sample
DATE SAMPLED.....:August 23, 2001
SAMPLE INFO.....: Feed Stock Tank
SAMPLE DESCRIPTION...: 524 °C Plus

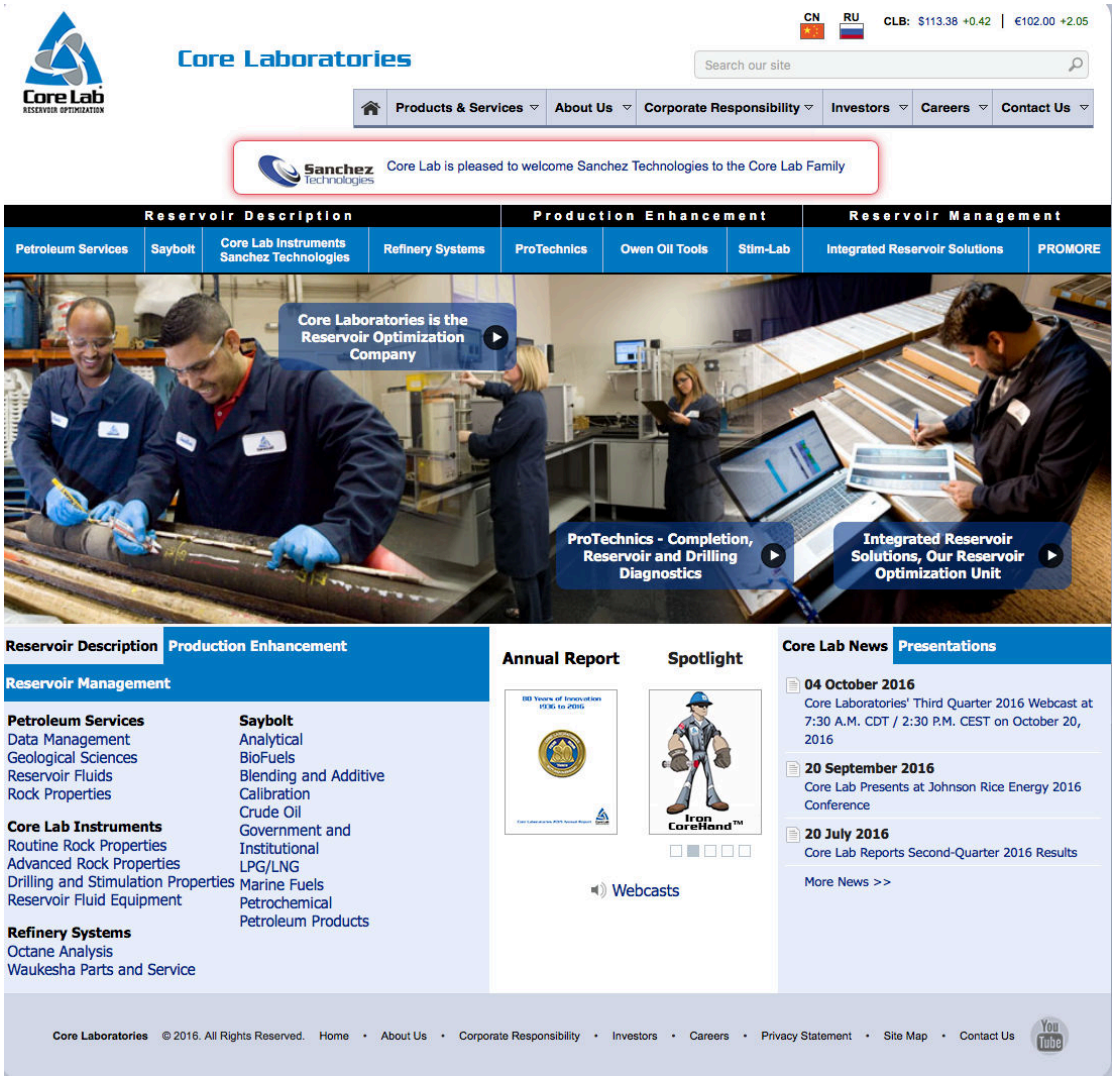
LABORATORY I.D.....: 52137-01-5412-1
DATE RECEIVED.....: 01-08-29
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Metals by ICAP			mg/kg	ASTM D-5185	01/10/19	TW
Nickel	123					
Vanadium	311					
Cobalt	< 0.1					
Molybdenum	14					
Sodium	17					
Iron	49					
Potassium	< 0.1					
Calcium	11					
Magnesium	2					
Aluminum	25					
Copper	1					
Arsenic	< 0.1					

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

GENOIL TEST RESULTS - PRODUCT ANALYSIS

LABORATORY TEST RESULTS BY CORE LABORATORIES



NCUT
National Centre for Upgrading Technology
'a Canada/Alberta research alliance'

NCUT ANALYTICAL LABORATORY
ANALYSIS REPORT

Submitter	**Eric MacDonald**
	Core Laboratories Canada Ltd
	2810- 12th Street NE
	Calgary, Alberta
	T2E 7P7

Lab ID	Customer ID	P-Value	FR (Flocculation Ratios)	1/X (Inverse of dilution Ratio)	SHFT (wt%)
10006785	Whole Crude 52137-01-5412-1	3.50	0.2056	0.150	0.04
This Athabasca Bitumen feed sample.			0.1244	0.250	
			0.0431	0.350	
10006786	Whole Crude 52137-01-5412-12	1.20	0.4400	0.200	0.42
This is the liquid product from the catalytic run.			0.4218	0.400	
			0.4036	0.600	
10006854	**52137-01-5412-12 524C PLUS**	**1.41**	**0.5780**	**0.251**	**0.012**
This is the 524 C+ fraction of the liquid product above.			0.5060	0.439	
			0.4350	0.754	

X= dilution ratio=(ml of Heptane+ml Toluene)/ml sample
1/X= inverse of dilution ratio= ml sample/(ml Heptane+ml Toluene)

Test Results

Product Sample

Catalyst Run · Composite Sample.

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 | CUSTOMER: Conoco Canada Ltd. | ATTN: Bob Huggins-Chan

CLIENT I.D.....: Crude Sample
DATE SAMPLED.....:
SAMPLE INFO.....: 20010828
SAMPLE DESCRIPTION...: Whole Crude

LABORATORY I.D.....: 52137-01-5412-12
DATE RECEIVED.....: 01-09-19
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Density @ 15°C	904.7	0.1	kg/m3	ASTM D-5002	01/10/04	WC
Relative Density @ 15/15°C	905.5			ASTM D-5002	01/10/04	WC
Specific Gravity @ 60°F	905.2			ASTM D-5002	01/10/04	WC
API @ 15.6°C	24.8			ASTM D-5002	01/10/04	WC
Sulphur, Total by X-ray Fluorescence	2360	500	ppm	ASTM D-4294	01/10/04	TK
Total Nitrogen by Chemiluminescence	1432	1	ppm Wt.	ASTM D-4629	01/10/12	WC
Acid Number	0.11		mg KOH/g	ASTM D-664	01/10/16	JE
Ash Content	0.001		Wt. %	ASTM D-482	01/10/16	JE
Carbon Residue, Conradson	2.59		Wt. %	ASTM D-189	01/10/16	JE
Elemental C, H. O				ASTM D-5291	01/10/17	PM
Carbon Content	86.68		Wt %			
Hydrogen Content	11.88		Wt %			
Oxygen Content	1.07		Wt %			
Salt Content	3.2		lb/Kbbl	ASTM D-3230	01/10/15	JE
Pentane Insoluble Asphaltene	1.6	0.1	Wt %	IP-143M	01/10/02	EH
Heptane Insoluble Asphaltene	1.2	0.1	Wt %	IP-143	01/10/02	EH

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Crude Sample
DATE SAMPLED.....:
SAMPLE INFO.....: 20010828
SAMPLE DESCRIPTION...: Whole Crude

LABORATORY I.D.....: 52137-01-5412-12
DATE RECEIVED.....: 01-09-19
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Fractional Distillation	% Yield (Mass)	% Yield (Volume)		ASTM D-2892	01/09/29	WC
IBP = 48 (Deg C @ 760 mmHg)						
IBP - 177 (Deg C @ 760 mmHg)	**7.44**	**8.67**				
177 - 232 (Deg C @ 760 mmHg)	**10.59**	**11.49**				
232 - 343 (Deg C @ 760 mmHg)	**32.23**	**33.02**				
343 - 524 (Deg C @ 760 mmHg)	**38.00**	**36.71**				
524 Plus (Deg C @ 760 mmHg)	**11.68**	**10.08**				
Loss	**0.06**	**0.03**				
Atmospheric / Vacuum Distillation			°C AET	ASTM D-1160	01/10/17	WC
I.B.P.	**60.2**	(atmospheric)				
5% Off	**150.6**	(atmospheric)				
10% Off	**175.8**	(atmospheric)				
20% Off	**203.5**	(atmospheric)				
30% Off	**290.0**	(vacuum)				
40% Off	**315.1**	(vacuum)				
50% Off	**333.8**	(vacuum)				
60% Off	**363.5**	(vacuum)				
70% Off	**395.5**	(vacuum)				
80% Off	**443.8**	(vacuum)				
90% Off	**518.1**	(vacuum)				
94% Off	**567.8**	(vacuum)				
FBP	**567.8**					
Wt. % Recovery	**89.8**					
Wt. % Residue	**9.3**					
Wt. %t Loss	**0.9**					

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Crude Sample
DATE SAMPLED.....:
SAMPLE INFO.....: 20010828
SAMPLE DESCRIPTION...: Whole Crude

LABORATORY I.D.....: 52137-01-5412-12
DATE RECEIVED.....: 01-09-19
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Metals by ICAP			mg/kg	ASTM D-5185	01/10/19	TW
Nickel	**8**					
Vanadium	**18**					
Cobalt	**< 0.1**					
Molybdenum	**< 0.05**					
Sodium	**5**					
Iron	**1**					
Potassium	**1**					
Calcium	**1**					
Magnesium	**0.1**					
Aluminum	**3.0**					
Copper	**0.5**					
Arsenic	**< 0.1**					
Shell Hot Filtration	**0.42**		Wt %		01/09/19	*NCUT
Shell p-Value	**1.20**				01/09/19	*NCUT
Viscosity, Kinematic @ 40 °C	**10.04**		cSt	ASTM D-445	01/10/03	TK
Viscosity, Kinematic @ 80 °C	**3.71**		cSt	ASTM D-445	01/10/03	TK

*NCUT - analysis conducted by National Center for Upgrading Technology

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Crude Sample
DATE SAMPLED.....:
SAMPLE INFO.....: 20010828
SAMPLE DESCRIPTION...: 177 °C - 232 °C

LABORATORY I.D.....: 52137-01-5412-12
DATE RECEIVED.....: 01-09-19
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Yield	**11.49**		LV %	ASTM D-2892	01/09/29	WC
Yield	**10.59**		WT %	ASTM D-2892	01/09/29	WC
API Gravity	**38.2**		@ 60 °F	ASTM D-5002	01/10/04	WC
Specific Gravity	**0.8340**		@ 60/60 °F	ASTM D-5002	01/10/04	WC
Relative Density	**0.8344**		@ 15/15 °C	ASTM D-5002	01/10/04	WC
Sulphur, Total by UV Fluorescence	**19**	1	mg/kg	ASTM D-5453	01/10/04	TK
Total Nitrogen by Chemiluminescence	**66**	1	ppm Wt.	ASTM D-4629	01/10/05	WC
Bromine Number	**0.5**		g / 100 g	ASTM D-1159	01/10/08	*HP
Elemental C, H.				ASTM D-5291	01/10/17	PM
Carbon Content	**88.04**		Wt %			
Hydrogen Content	**12.91**		Wt %			
Hydrocarbon Type				ASTM D-1319	01/10/17	JE
Aromatics	**26.8**		LV %			
Olefins	**0.8**		LV %			
Saturates	**72.4**		LV %			
Aniline Point	**46.0**		° C	ASTM D-611	01/10/04	TK
Smoke Point	**18.0**		mm	ASTM D-1322	01/10/15	JE
Freeze Point	**-69**	-76	° C	ASTM D-2386	01/10/16	JE

CORE LABORATORIES
2810 - 12th STREET N.E.
CALGARY, ALBERTA T2E 7P7

LABORATORY TEST RESULTS

11/13/01

JOB NUMBER: 52137-01-5412 **CUSTOMER: Conoco Canada Ltd.** **ATTN: Bob Huggins-Chan**

CLIENT I.D.....: Crude Sample
DATE SAMPLED.....:
SAMPLE INFO.....: 20010828
SAMPLE DESCRIPTION...: 524 °C Plus

LABORATORY I.D.....: 52137-01-5412-12
DATE RECEIVED.....: 01-09-19
TIME RECEIVED.....:
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Metals by ICAP			mg/kg	ASTM D-5185	01/10/19	TW
Nickel	67					
Vanadium	147					
Cobalt	< 0.1					
Molybdenum	< 0.05					
Sodium	12					
Iron	4					
Potassium	2.3					
Calcium	12					
Magnesium	2					
Aluminum	10					
Copper	1					
Arsenic	< 0.1					
Shell Hot Filtration	0.012		Wt %		01/10/31	*NCUT
Shell p-Value	1.41				01/10/31	*NCUT

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CALGARY, ALBERTA T2E 7P7