



**Global Survey Solutions Limited**

Your Reference : UT # 31

ConocoPhillips

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For the attention of

Report no.	HOU 2346
Date of report	May 2, 2016
Barges	Buffalo 302, Kirby 30709, San Francisco, Kirby 19400
Location	GTI Terminal, Houston
Product	Bow River Sour CO, Napo Crude Oil, Vasconia Crude Oil
B/Lading date	May 2, 2016

**LOADED FOR DESTINATION: TBA**

We have pleasure in enclosing herewith, our report for the above referenced inspection.

Please note the following in this respect:

Report distribution has been effected as follows:

To yourselves and our Global Survey Solutions Limited Office via e-mail. Hard copy retained on file.  
Invoice to follow from our Global Survey Solutions Limited Office.

Should you have any query, or require any additional information, please contact  
Mr. Bob Watt at our Global Survey Solutions Limited office (Telephone number ).

For Global Survey Solutions Limited .....



Report no. HOU 2346  
 Date of report May 2, 2016  
 Barges Buffalo 302, Kirby 30709, San Francisco, Kirby 19400  
 Location GTI Terminal, Houston  
 Product Bow River Sour CO, Napo Crude Oil, Vasconia Crude Oil  
 B/Lading date May 2, 2016

## KEY MEETING

Date of Key Meeting :		from Hrs	to
Individuals Present at This Key Meeting:	<b>Name</b>	<b>Title</b>	
Vessel Representative		Chief Officer	
Terminal Representative		Loading Master	
Global Survey Solutions Limited		Surveyor	

<input checked="" type="checkbox"/> At Loading	<input type="checkbox"/> At Transfer	<input type="checkbox"/> At Discharge	<input checked="" type="checkbox"/> Crude Oil	<input type="checkbox"/> Dark Products	<input type="checkbox"/> Clean Products	<input type="checkbox"/> Chemicals / Gases
--	--------------------------------------	---------------------------------------	---	--	---	--

Above Vessel will	<input checked="" type="checkbox"/> Load	<input type="checkbox"/> Ship-to-ship Transfer	<input type="checkbox"/> At This Terminal
	<input type="checkbox"/> Discharge	<input type="checkbox"/> Internal Transfer	<input checked="" type="checkbox"/> At (Specify) _____
	<input type="checkbox"/> Blend	<input type="checkbox"/> Other _____	

Following Quantity(ies) of:	Quantities	+/-	Units in:
Bow River Sour CO	Volume of		Barrels at Standard Temperature
Napo Crude Oil	Volume of		Barrels at Standard Temperature
Vasconia Crude Oil	Volume of		Barrels at Standard at

**The Above Quantity(ies):**

Will Be Determined by:	<input checked="" type="checkbox"/> Shore Stop	<input type="checkbox"/> Ship Stop
Will Be:	<input checked="" type="checkbox"/> Shore Tank(s)	<input type="checkbox"/> Vessel Tank(s)
<input type="checkbox"/> Delivered fro	Delivered from	Tank(s) No.
<input checked="" type="checkbox"/> Received int	Received into	

**Cargo requires:**

☒ Segregation ☐ Separation ☐ Volumetric Blending

**Are stop gauges:**

	Yes	No		
▶ taken by the Inspector	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
▶ taken by Vessel	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
▶ witnessed by Inspector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes	No

**Were discharge procedures and plans reviewed and understood by everyone concerned?**

☒ ☐

**Includes:**

<input checked="" type="checkbox"/> Arrangements for sampling vessel tanks	<input checked="" type="checkbox"/> Before	<input type="checkbox"/> After	<input type="checkbox"/> Discharge	<input checked="" type="checkbox"/> Load
<input checked="" type="checkbox"/> Capacity Nominated to receive product			<input checked="" type="checkbox"/> Shore tanks	<input type="checkbox"/> Vessel Tanks
<input checked="" type="checkbox"/> Arrangements for sampling from vessel manifold during			<input type="checkbox"/> Discharging	<input checked="" type="checkbox"/> Loading
<input type="checkbox"/>				
<input checked="" type="checkbox"/> Arrangements for first foot sampling of			<input checked="" type="checkbox"/> Shore Tanks	<input type="checkbox"/> Vessel Tanks
<input checked="" type="checkbox"/> Will be stopped as per instructions of		<input type="checkbox"/> Charter	<input checked="" type="checkbox"/> Vessel	<input type="checkbox"/> Terminal

**Remarks:**

\_\_\_\_\_  
 Vessel Representative

\_\_\_\_\_  
 Terminal Representative

\_\_\_\_\_  
 Global Survey Solutions Limited



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B/Lading date May 2, 2016

## CONTENTS LISTING

<b>Name of documents</b>	<b><u>Quantity</u></b>
Cover Page	One
Key Meeting	One
Contents Listing	One
Summary Of Gross Bill Of Lading Quantities	One
Summary Of Net Bill Of Lading Quantities	One
Summary Of Gross Quantities	One
Summary Of Net Quantities	One
Statement Of Quantities (Bow River Sour CO)	One
Statement Of Quantities (Napo Crude Oil)	One
Statement Of Quantities (Vasconia Crude Oil)	One
Time Log	One
Meter Report (Bow River Sour CO)	One
Meter Report (Napo Crude Oil)	One
Meter Report (Vasconia Crude Oil)	One
Ullage Report, Barge After Loading (Barge 1)	One
Ullage Report, Barge After Loading (Barge 2)	One
Ullage Report, Barge After Loading (Barge 3)	One
Ullage Report, Barge After Loading (Barge 4)	One
Report Of Shore Test Results (Bow River Sour CO)	One
Report Of Shore Test Results (Napo Crude Oil)	One
Report Of Shore Test Results (Vasconia Crude Oil)	One
Total pages:	21

Global Survey Solutions Limited Inspector: Bob Watt



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Vessel  
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## SUMMARY OF GROSS BILL OF LADING QUANTITIES

### Bill of Ladings for Bow River Sour CO

Summary of Gross Quantities				API
Bill of Lading No.	US barrels @ 60°F	Long Tons	Metric Tons (in Air)	
1	8,251.60	1,199.435	1,218.683	
2	4,588.30	666.946	677.648	
3	5,217.60	758.419	770.590	
4	4,334.30	630.025	640.135	
<b>Total</b>	22,391.80	3,254.825	3,307.056	20.50

### Bill of Ladings for Napo Crude Oil

Summary of Gross Quantities				API
Bill of Lading No.	US barrels @ 60°F	Long Tons	Metric Tons (in Air)	
5	4,301.34	629.797	639.904	
6	5,385.50	788.539	801.193	
<b>Total</b>	9,686.84	1,418.336	1,441.097	

### Bill of Ladings for Vasconia Crude Oil

Summary of Gross Quantities				API
Bill of Lading No.	US barrels @ 60°F	Long Tons	Metric Tons (in Air)	
7	3,290.36	462.733	470.159	
8	4,353.88	612.299	622.125	
<b>Total</b>	7,644.24	1,075.032	1,092.284	



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## SUMMARY OF NET BILL OF LADING QUANTITIES

### Bill of Ladings for Bow River Sour CO

Summary of Net Quantities			
Bill of Lading No.	US barrels @ 60°F	Long Tons	Metric Tons (in Air)
1	8,223.54	1,195.357	1,214.538
2	4,572.70	664.678	675.344
3	5,199.86	755.841	767.970
4	4,319.56	627.882	637.958
<b>Total</b>	<b>22,315.66</b>	<b>3,243.758</b>	<b>3,295.810</b>

Sed., % vol.	Water, % vol.
0.01	0.33
0.01	0.33
0.01	0.33
0.01	0.33

### Bill of Ladings for Napo Crude Oil

Summary of Net Quantities			
Bill of Lading No.	US barrels @ 60°F	Long Tons	Metric Tons (in Air)
5	4,285.86	627.531	637.601
6	5,366.11	785.700	798.308
<b>Total</b>	<b>9,651.97</b>	<b>1,413.231</b>	<b>1,435.909</b>

Sed., % vol.	Water, % vol.
0.01	0.35
0.01	0.35

### Bill of Ladings for Vasconia Crude Oil

Summary of Net Quantities			
Bill of Lading No.	US barrels @ 60°F	Long Tons	Metric Tons (in Air)
7	3,288.39	462.456	469.877
8	4,351.27	611.932	621.752
<b>Total</b>	<b>7,639.66</b>	<b>1,074.388</b>	<b>1,091.629</b>

Sed., % vol.	Water, % vol.
0.01	0.05
0.01	0.05



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 Date of report May 2, 2016  
 Barges Buffalo 302, Kirby 30709, San Francisco, Kirby 19400  
 Location GTI Terminal, Houston  
 Product Bow River Sour CO, Napo Crude Oil, Vasconia Crude Oil

## SUMMARY OF GROSS QUANTITIES

B/Lading date May 2, 2016

Product	Bow River Sour CO	Napo Crude Oil	Vasconia Crude Oil			
<b>US BARRELS AT 60°F (GROSS STANDARD VOLUME)</b>						<b>Total</b>
Total of Bills of Lading	22,391.800	9,686.840	7,644.240			39,722.880
Loaded as per Barges	22,391.350	9,686.740	7,643.960			39,722.050
Difference	-0.450	-0.100	-0.280			-0.830
% Difference	-0.002	-0.001	-0.004			-0.002
Loaded as per Barges	22,391.350	9,686.740	7,643.960			39,722.050
Loaded quantity by shore	22,391.800	9,686.840	7,644.240			39,722.880
Difference	0.450	0.100	0.280			0.830
% Difference	0.002	0.001	0.004			0.002
<b>LONG TONS (GROSS WEIGHT)</b>						<b>Total</b>
Total of Bills of Lading	3,254.825	1,418.336	1,075.032			5,748.193
Loaded as per Barges	3,254.761	1,418.321	1,074.993			5,748.075
Difference	-0.064	-0.015	-0.039			-0.118
% Difference	-0.002	-0.001	-0.004			-0.002
Loaded as per Barges	3,254.761	1,418.321	1,074.993			5,748.075
Loaded quantity by shore	3,254.826	1,418.335	1,075.033			5,748.194
Difference	0.065	0.014	0.040			0.119
% Difference	0.002	0.001	0.004			0.002
<b>METRIC TONS IN AIR (GROSS WEIGHT)</b>						<b>Total</b>
Total of Bills of Lading	3,307.056	1,441.097	1,092.284			5,840.437
Loaded as per Barges	3,306.989	1,441.080	1,092.243			5,840.312
Difference	-0.067	-0.017	-0.041			-0.125
% Difference	-0.002	-0.001	-0.004			-0.002
Loaded as per Barges	3,306.989	1,441.080	1,092.243			5,840.312
Loaded quantity by shore	3,307.056	1,441.096	1,092.284			5,840.436
Difference	0.067	0.016	0.041			0.124
% Difference	0.002	0.001	0.004			0.002

REMARKS: Vessel Experience Factor (VEF) : N/A

For Global Survey Solutions Limited .....



## SUMMARY OF NET QUANTITIES

Report no. HOU 2346  
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 Barges Buffalo 302, Kirby 30709, San Francisco, Kirby 19400  
 Location GTI Terminal, Houston  
 Product Bow River Sour CO  
 B/Lading date May 2, 2016

Product	Bow River Sour CO	Napo Crude Oil	Vasconia Crude Oil			
<b>US BARRELS AT 60°F (NET STANDARD VOLUME)</b>						<b>Total</b>
Total of Bills of Lading	22,315.660	9,651.970	7,639.660			39,607.290
Loaded as per Barges	22,315.240	9,651.880	7,639.370			39,606.490
Difference	-0.420	-0.090	-0.290			-0.800
% Difference	-0.002	-0.001	-0.004			-0.002
Loaded as per Barges	22,315.240	9,651.880	7,639.370			39,606.490
Loaded quantity by shore	22,315.660	9,651.970	7,639.650			39,607.280
Difference	0.420	0.090	0.280			0.790
% Difference	0.002	0.001	0.004			0.002
<b>LONG TONS (NET WEIGHT)</b>						<b>Total</b>
Total of Bills of Lading	3,243.758	1,413.231	1,074.388			5,731.377
Loaded as per Barges	3,243.710	1,413.210	1,074.350			5,731.270
Difference	-0.048	-0.021	-0.038			-0.107
% Difference	-0.001	-0.001	-0.004			-0.002
Loaded as per Barges	3,243.710	1,413.210	1,074.350			5,731.270
Loaded quantity by shore	3,243.758	1,413.230	1,074.387			5,731.375
Difference	0.048	0.020	0.037			0.105
% Difference	0.001	0.001	0.003			0.002
<b>METRIC TONS IN AIR (NET WEIGHT)</b>						<b>Total</b>
Total of Bills of Lading	3,295.810	1,435.909	1,091.629			5,823.348
Loaded as per Barges	3,295.760	1,435.910	1,091.580			5,823.250
Difference	-0.050	0.001	-0.049			-0.098
% Difference	-0.002	0.000	-0.004			-0.002
Loaded as per Barges	3,295.760	1,435.910	1,091.580			5,823.250
Loaded quantity by shore	3,295.811	1,435.909	1,091.627			5,823.347
Difference	0.051	-0.001	0.047			0.097
% Difference	0.002	0.000	0.004			0.002

**REMARKS:**

Vessel Experience Factor (VEF) :

N/A

For Global Survey Solutions Limited .....



Report no. HOU 2346  
Date of report May 2, 2016  
Barges Buffalo 302, Kirby 30709, San Francisco, Kirby 19400  
Location GTI Terminal, Houston  
Product Bow River Sour CO  
B/Lading date May 2, 2016

## STATEMENT OF QUANTITIES

Consignee,

The undersigned, Independent Inspector, herewith declares that the quantity of Bow River Sour CO

loaded to the above mentioned barge(s) based on shore figures amounts to:

	<u>GROSS</u>	<u>NET</u>
Gallons at 60°F	940,456	937,258
Barrels at 60°F	22,391.80	22,315.66
Long Tons	3,254.826	3,243.758
Metric Tons (air)	3,307.056	3,295.811
Kilograms (air)	3,307,056	3,295,811

The above mentioned quantities were determined on basis of meter readings, calculations by Terminal Computer, checked by ourselves and API at 60°F as advised by Terminal, checked by ourselves

API AT 60°F **20.5**

For Global Survey Solutions Limited .....



Report no. HOU 2346  
Date of report May 2, 2016  
Barges Buffalo 302, San Francisco  
Location GTI Terminal, Houston  
Product Napo Crude Oil  
B/Lading date May 2, 2016

## STATEMENT OF QUANTITIES

Consignee,

The undersigned, Independent Inspector, herewith declares that the quantity of Napo Crude Oil

loaded to the above mentioned barge(s) based on shore figures amounts to:

	<u>GROSS</u>	<u>NET</u>
Gallons at 60°F	406,847	405,383
Barrels at 60°F	9,686.84	9,651.97
Long Tons	1,418.335	1,413.230
Metric Tons (air)	1,441.096	1,435.909
Kilograms (air)	1,441,096	1,435,909

The above mentioned quantities were determined on basis of meter readings, calculations by Terminal Computer, checked by ourselves and API at 60°F as advised by Terminal, checked by ourselves

API AT 60°F **19.4**

For Global Survey Solutions Limited .....



Report no. HOU 2346  
Date of report May 2, 2016  
Barges Kirby 30709, San Francisco  
Location GTI Terminal, Houston  
Product Vasconia Crude Oil  
B/Lading date May 2, 2016

## STATEMENT OF QUANTITIES

Consignee,

The undersigned, Independent Inspector, herewith declares that the quantity of Vasconia Crude Oil

loaded to the above mentioned barge(s) based on shore figures amounts to:

	<u>GROSS</u>	<u>NET</u>
Gallons at 60°F	321,058	320,865
Barrels at 60°F	7,644.24	7,639.65
Long Tons	1,075.033	1,074.387
Metric Tons (air)	1,092.284	1,091.627
Kilograms (air)	1,092,284	1,091,627

The above mentioned quantities were determined on basis of meter readings, calculations by Terminal Computer, checked by ourselves and API at 60°F as advised by Terminal, checked by ourselves

API AT 60°F **25.6**

For Global Survey Solutions Limited .....



## TIME LOG

Report no. HOU 2346  
 Date of report May 2, 2016  
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 B/Lading date May 2, 2016

<u>Date</u>	<u>Time</u>	
1-May-2016	19:30	Hose connected to Kirby 30709
1-May-2016	19:45	Commenced Loading Kirby 30709
2-May-2016	00:27	Completed Loading Kirby 30709
2-May-2016	00:42	Hose disconnected from Kirby 30709
2-May-2016	09:45	Hose connected to Kirby 19400
2-May-2016	10:10	Commenced Loading Kirby 19400
2-May-2016	13:20	Completed Loading Kirby 19400
2-May-2016	13:36	Hose disconnected from Kirby 19400
2-May-2016	14:15	Hose connected to Buffalo 302
2-May-2016	14:35	Commenced Loading Buffalo 302
2-May-2016	16:40	Hose connected to San Francisco
2-May-2016	16:50	Commenced Loading San Francisco
2-May-2016	18:00	Completed Loading Buffalo 302
2-May-2016	18:12	Hose disconnected from Buffalo 302
2-May-2016	21:40	Completed Loading San Francisco
2-May-2016	21:54	Hose disconnected from San Francisco

### Delays/Stoppages/Additional Times:

2-May-2016	01:30	Completed measuring/sampling Kirby 30709's tanks and cargo calculations
2-May-2016	12:24	Completed measuring/sampling Kirby 19400's tanks and cargo calculations
2-May-2016	19:10	Completed measuring/sampling Buffalo 302's tanks and cargo calculations
2-May-2016	22:10	Completed measuring/sampling San Francisco's tanks and cargo calculations

### Shore Tank Gauging Times:

### Average Loading Rate:

#### Bow River Sour CO

127.603 Metric Tons per hour (based on Total quantity of Bill(s) of Lading)  
 3,307.056 Metric Tons divided by 25 hours 55 minutes

#### Napo Crude Oil

203.449 Metric Tons per hour (based on Total quantity of Bill(s) of Lading)  
 1,441.097 Metric Tons divided by 7 hours 5 minutes

#### Vasconia Crude Oil

42.146 Metric Tons per hour (based on Total quantity of Bill(s) of Lading)  
 1,092.284 Metric Tons divided by 25 hours 55 minutes.

Global Survey Solutions Limited Inspector: Bob Watt

For Global Survey Solutions Limited .....



## METER REPORT

Report no. HOU 2346  
 Date of report May 2, 2016  
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 Location GTI Terminal, Houston  
 Product Bow River Sour CO  
 B/Lading date May 2, 2016

Meter No.	FE-1009	FE-2009			
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1	Open Meter Reading, US barrels	1,123,948.00	727,927.00		
2	Closing Meter reading, US barrels	1,134,469.00	740,028.00		
3	Indicated Volume, US barrels, (2) - (1)	10,521.00	12,101.00		
4	Meter factor	0.9945	0.9933		
5	Average Cargo Pressure, psi	64.2	11.8		
6	Average Cargo Temperature °F	70.6	70.7		
7	Average Cargo API at 60°F	20.5	20.5		
8	Sediments by volume, % volume	0.01	0.01		
9	Water by volume, % volume	0.33	0.33		
10	CTPL by Table 6A	0.99608	0.99582		
11	Composite Correction Factor, (4) x (10)	0.9906	0.98915		
12	Gross Standard Volume at 60°F, (3) x (4) x (10)	10,422.12	11,969.68		
13	Sediment & Water Factor, 1 - [(8) + (9)] / 100%	0.9966	0.9966		
14	Net Standard Volume at 60°F, (12) x (13)	10,386.68	11,928.98		
15	Gross Long Tons, (12) x (19)	1,514.938	1,739.888		
16	Net Long Tons, (14) x (19)	1,509.786	1,733.972		
17	Gross Metric Tons, (12) x (20)	1,539.248	1,767.808		
18	Net Metric Tons, (14) x (20)	1,534.014	1,761.797		

**Criteria used for calculations:**

Type of Meter: Uncompensated

19	Long tons / GSV by API MPMS Chapter 11.5.1.	0.145357916	0.145357916		
20	Metric tons / GSV by API MPMS Chapter 11.5.1.	0.147690461	0.147690461		
21	US gallons / US barrels	42	42		

<b>Totals</b>	<b>Gross</b>	<b>Net</b>
US Gallons at 60°F	940,456	937,258
US Barrels at 60°F	22,391.80	22,315.66
Long Tons	3,254.826	3,243.758
Metric Tons	3,307.056	3,295.811
Kilograms	3,307,056	3,295,811

For Global Survey Solutions Limited .....



## METER REPORT

Report no. HOU 2346  
 Date of report May 2, 2016  
 Barges Buffalo 302, San Francisco  
 Location GTI Terminal, Houston  
 Product Napo Crude Oil  
 B/Lading date May 2, 2016

Meter No.	FF-1010	FF-2010	FF-3010		
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1	Open Meter Reading, US barrels	986,455.00	866,232.00	453,217.00		
2	Closing Meter reading, US barrels	988,837.00	869,176.00	457,642.00		
3	Indicated Volume, US barrels, (2) - (1)	2,382.00	2,944.00	4,425.00		
4	Meter factor	0.9967	0.9978	0.9972		
5	Average Cargo Pressure, psi	87.5	91.5	51.4		
6	Average Cargo Temperature °F	70.6	70.6	70.7		
7	Average Cargo API at 60°F	19.4	19.4	19.4		
8	Sediments by volume, % volume	0.01	0.01	0.01		
9	Water by volume, % volume	0.35	0.35	0.35		
10	CTPL by Table 6A	0.99623	0.99625	0.99604		
11	Composite Correction Factor, (4) x (10)	0.99294	0.99406	0.99325		
12	Gross Standard Volume at 60°F, (3) x (4) x (10)	2,365.19	2,926.51	4,395.14		
13	Sediment & Water Factor, 1 - {[ (8) + (9) ] / 100%}	0.9964	0.9964	0.9964		
14	Net Standard Volume at 60°F, (12) x (13)	2,356.68	2,915.97	4,379.32		
15	Gross Long Tons, (12) x (19)	346.308	428.496	643.531		
16	Net Long Tons, (14) x (19)	345.062	426.953	641.215		
17	Gross Metric Tons, (12) x (20)	351.866	435.372	653.858		
18	Net Metric Tons, (14) x (20)	350.600	433.804	651.505		

**Criteria used for calculations:**

Type of Meter: Uncompensated

19	Long tons / GSV by API MPMS Chapter 11.5.1.	0.146418884	0.146418884	0.146418884		
20	Metric tons / GSV by API MPMS Chapter 11.5.1.	0.148768455	0.148768455	0.148768455		
21	US gallons / US barrels	42	42	42		

<b>Totals</b>	<b>Gross</b>	<b>Net</b>
US Gallons at 60°F	406,847	405,383
US Barrels at 60°F	9,686.84	9,651.97
Long Tons	1,418.335	1,413.230
Metric Tons	1,441.096	1,435.909
Kilograms	1,441,096	1,435,909

For Global Survey Solutions Limited .....



## METER REPORT

Report no. HOU 2346  
 Date of report May 2, 2016  
 Barges Kirby 30709, San Francisco  
 Location GTI Terminal, Houston  
 Product Vasconia Crude Oil  
 B/Lading date May 2, 2016

Meter No.	FG-1011	FG-2011	FG-3011		
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1	Open Meter Reading, US barrels	1,022,437.00	871,056.00	786,531.00		
2	Closing Meter reading, US barrels	1,024,687.00	872,993.00	790,036.00		
3	Indicated Volume, US barrels, (2) - (1)	2,250.00	1,937.00	3,505.00		
4	Meter factor	0.9985	0.9983	0.9974		
5	Average Cargo Pressure, psi	93.5	89.4	56.6		
6	Average Cargo Temperature °F	70.7	70.6	70.7		
7	Average Cargo API at 60°F	25.6	25.6	25.6		
8	Sediments by volume, % volume	0.01	0.01	0.01		
9	Water by volume, % volume	0.05	0.05	0.05		
10	CTPL by Table 6A	0.9959	0.99593	0.99574		
11	Composite Correction Factor, (4) x (10)	0.99441	0.99424	0.99315		
12	Gross Standard Volume at 60°F, (3) x (4) x (10)	2,237.41	1,925.84	3,480.99		
13	Sediment & Water Factor, 1 - [(8) + (9)] / 100%	0.9994	0.9994	0.9994		
14	Net Standard Volume at 60°F, (12) x (13)	2,236.07	1,924.68	3,478.90		
15	Gross Long Tons, (12) x (19)	314.654	270.837	489.542		
16	Net Long Tons, (14) x (19)	314.465	270.674	489.248		
17	Gross Metric Tons, (12) x (20)	319.703	275.183	497.398		
18	Net Metric Tons, (14) x (20)	319.511	275.017	497.099		

**Criteria used for calculations:**

Type of Meter: Uncompensated

19	Long tons / GSV by API MPMS Chapter 11.5.1.	0.140633011	0.140633011	0.140633011		
20	Metric tons / GSV by API MPMS Chapter 11.5.1.	0.142889736	0.142889736	0.142889736		
21	US gallons / US barrels	42	42	42		

<b>Totals</b>	<b>Gross</b>	<b>Net</b>
US Gallons at 60°F	321,058	320,865
US Barrels at 60°F	7,644.24	7,639.65
Long Tons	1,075.033	1,074.387
Metric Tons	1,092.284	1,091.627
Kilograms	1,092,284	1,091,627

For Global Survey Solutions Limited .....

Report no. HOU 2346  
Date of report May 2, 2016  
Barge Buffalo 302  
Location GTI Terminal, Houston  
Product Bow River Sour CO, Napo Crude Oil  
B/Lading date May 2, 2016

## ULLAGE REPORT, BARGE AFTER LOADING

(Barge 1)

### Before Loading

Date: May 2, 2016

Time: 14:35

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V. US barrels	Temp °F	API at 60°F	CTL Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	0' 0 1/4"	0' 0 1/4"	16.14			16.14	60.0	20.5	1	16.14
2P	Napo Crude Oil	0' 0 1/4"	0' 0 1/4"	21.89			21.89	60.0	19.4	1	21.89
3P	Bow River Sour CO	0' 0 1/4"	0' 0 1/4"	19.82			19.82	60.0	20.5	1	19.82
4P											
1S	Bow River Sour CO	0' 0 3/4"	0' 0 3/4"	23.72			23.72	60.0	20.5	1	23.72
2S	Napo Crude Oil	0' 0 1/4"	0' 0 1/4"	17.72			17.72	60.0	19.4	1	17.72
3S	Bow River Sour CO	0' 0 3/4"	0' 0 3/4"	23.59			23.59	60.0	20.5	1	23.59
4S											

### After Loading

Date: May 2, 2016

Time: 18:30

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V. US barrels	Temp °F	API at 60°F	VCF Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	7' 1"	7' 1"	1,814.13			1,814.13	70.6	20.5	0.99581	1,806.53
2P	Napo Crude Oil	7' 6 1/2"	7' 6 1/2"	2,120.94			2,120.94	70.5	19.4	0.99591	2,112.27
3P	Bow River Sour CO	9' 3 1/2"	9' 3 1/2"	2,362.84			2,362.84	70.5	20.5	0.99585	2,353.03
4P											
1S	Bow River Sour CO	7' 1"	7' 1"	1,814.13			1,814.13	70.8	20.5	0.99573	1,806.38
2S	Napo Crude Oil	7' 11 1/2"	7' 11 1/2"	2,237.96			2,237.96	70.7	19.4	0.99583	2,228.63
3S	Bow River Sour CO	9' 4 1/4"	9' 4 1/4"	2,378.71			2,378.71	70.5	20.5	0.99585	2,368.84
4S											

### Grandtotals:

<u>Product</u>	<u>G.S.V., US bbls at 60°F</u>	<u>Gross Long Tons (Air)</u>	<u>Gross Metric Tons (Air)</u>	<u>N.S.V., US bbls at 60°F</u>	<u>Net Long Tons (Air)</u>	<u>Net Metric Tons (Air)</u>
Bow River Sour CO	8,251.51	1,199.423	1,218.669	8,223.46	1,195.340	1,214.530
Napo Crude Oil	4,301.29	629.790	639.896	4,285.81	627.520	637.600

	<u>Before, Port</u>	<u>Before, Stbd</u>	<u>After, Port</u>	<u>After, Stbd</u>
Draft Forward:	2' 0"	2' 0"	7' 3"	7' 3"
Draft Aft:	4' 0"	4' 0"	7' 3"	7' 3"
Trim:	2' 0"	2' 0"	0' 0"	0' 0"

**Remarks:** A manual tape was used for innage measurements.  
The tables were calibrated on August 13, 2002.

Barge representative: Luis Lopez

Global Survey Solutions Limited Inspector: Bob Watt

Report no. HOU 2346  
Date of report May 2, 2016  
Barge Kirby 30709  
Location GTI Terminal, Houston  
Product Bow River Sour CO, Vasconia Crude Oil  
B/Lading date May 2, 2016

## ULLAGE REPORT, BARGE AFTER LOADING

(Barge 2)

### Before Loading

Date: May 1, 2016

Time: 19:45

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V.	Temp °F	API at 60°F	CTL Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	0' 0 1/8"	0' 0 1/8"	40.90			40.90	60.0	20.5	1	40.90
2P	Bow River Sour CO	0' 0 1/4"	0' 0 1/4"	18.23			18.23	60.0	20.5	1	18.23
3P	Bow River Sour CO	0' 0 3/4"	0' 0 7/8"	25.71			25.71	60.0	20.5	1	25.71
4P	Bow River Sour CO	0' 1 1/4"	0' 1 1/4"	31.60			31.60	60.0	20.5	1	31.60
5P	Vasconia Crude Oil	0' 2"	0' 2"	38.63			38.63	60.0	25.6	1	38.63
1S	Bow River Sour CO	0' 0"	0' 0"	40.24			40.24	60.0	20.5	1	40.24
2S	Bow River Sour CO	0' 0 1/8"	0' 0 1/8"	16.76			16.76	60.0	20.5	1	16.76
3S	Bow River Sour CO	0' 0 3/8"	0' 0 1/2"	20.87			20.87	60.0	20.5	1	20.87
4S	Bow River Sour CO	0' 1 1/2"	0' 1 1/2"	35.35			35.35	60.0	20.5	1	35.35
5S	Vasconia Crude Oil	0' 3 1/2"	0' 3 5/8"	63.28			63.28	60.0	25.6	1	63.28

### After Loading

Date: May 2, 2016

Time: 00:27

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V.	Temp °F	API at 60°F	VCF Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	0' 0 1/8"	0' 0 1/4"	41.51			41.51	60.0	20.5	1	41.51
2P	Bow River Sour CO	0' 0 1/4"	0' 0"	15.38			15.38	60.0	20.5	1	15.38
3P	Bow River Sour CO	0' 0 3/4"	0' 0"	15.31			15.31	60.0	20.5	1	15.31
4P	Bow River Sour CO	10' 0 3/8"	10' 0"	2,295.06			2,295.06	71.8	20.5	0.99534	2,284.37
5P	Vasconia Crude Oil	7' 11 1/2"	7' 11 1/2"	1,621.21			1,621.21	72.4	25.6	0.99477	1,612.73
1S	Bow River Sour CO	0' 0 1/8"	0' 0 1/4"	41.45			41.45	60.0	20.5	1	41.45
2S	Bow River Sour CO	0' 0 1/4"	0' 0"	15.33			15.33	60.0	20.5	1	15.33
3S	Bow River Sour CO	0' 0 1/8"	0' 0"	15.23			15.23	60.0	20.5	1	15.23
4S	Bow River Sour CO	10' 6 1/8"	10' 5 3/4"	2,400.79			2,400.79	72.2	20.5	0.99518	2,389.22
5S	Vasconia Crude Oil	8' 10 1/4"	8' 9 1/8"	1,788.54			1,788.54	72.1	25.6	0.99489	1,779.40

### Grandtotals:

<u>Product</u>	<u>G.S.V., US bbls at 60°F</u>	<u>Gross Long Tons (Air)</u>	<u>Gross Metric Tons (Air)</u>	<u>N.S.V., US bbls at 60°F</u>	<u>Net Long Tons (Air)</u>	<u>Net Metric Tons (Air)</u>
Bow River Sour CO	4,588.14	666.923	677.625	4,572.56	664.660	675.330
Vasconia Crude Oil	3,290.22	462.713	470.139	3,288.24	462.440	469.850

	<u>Before, Port</u>	<u>Before, Stbd</u>	<u>After, Port</u>	<u>After, Stbd</u>
Draft Forward:	2' 6"	2' 6"	1' 6"	1' 6"
Draft Aft:	1' 10"	1' 10"	9' 6"	9' 6"
Trim:	-0' 8"	-0' 8"	8' 0"	8' 0"

**Remarks:** A manual tape was used for innage measurements.  
The tables were calibrated on March 28, 2006 by PMA.

Barge representative: Keneth Williams

Global Survey Solutions Limited Inspector: Bob Watt



Report no. HOU 2346  
Date of report May 2, 2016  
Barge San Francisco  
Location GTI Terminal, Houston  
Product Bow River Sour CO, Napo Crude Oil, Vasconia Crude Oil  
B/Lading date May 2, 2016

## ULLAGE REPORT, BARGE AFTER LOADING

(Barge 3)

### Before Loading

Date: May 2, 2016

Time: 16:50

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V.	Temp °F	API at 60°F	CTL Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	0' 1 3/8"	0' 1 3/8"	4.65			4.65	60.0	20.5	1	4.65
2P	Napo Crude Oil	0' 0 3/4"	0' 0 3/4"	1.90			1.90	60.0	19.4	1	1.90
3P	Vasconia Crude Oil	5' 0 3/4"	5' 0 3/4"	72.28			72.28	60.0	25.6	1	72.28
1S	Bow River Sour CO	0' 1 1/8"	0' 1 1/8"	3.78			3.78	60.0	20.5	1	3.78
2S	Napo Crude Oil	0' 1 1/8"	0' 1 1/8"	3.38			3.38	60.0	19.4	1	3.38
3S	Vasconia Crude Oil	0' 6 1/8"	0' 6 1/8"	79.76			79.76	60.0	25.6	1	79.76

### After Loading

Date: May 2, 2016

Time: 21:40

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V.	Temp °F	API at 60°F	VCF Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	10' 3 7/8"	10' 6 3/8"	2,631.42			2,631.42	70.1	20.5	0.99601	2,620.92
2P	Napo Crude Oil	11' 1 3/8"	11' 3 3/8"	2,696.66			2,696.66	72.2	19.4	0.99525	2,683.85
3P	Vasconia Crude Oil	9' 6 1/4"	9' 4 1/8"	2,242.46			2,242.46	71.7	25.6	0.99506	2,231.38
1S	Bow River Sour CO	10' 2 3/4"	10' 5 1/4"	2,616.71			2,616.71	71.3	20.5	0.99554	2,605.04
2S	Napo Crude Oil	11' 2 1/2"	11' 4 1/2"	2,719.47			2,719.47	71.9	19.4	0.99537	2,706.88
3S	Vasconia Crude Oil	9' 8 3/8"	9' 6 1/4"	2,285.88			2,285.88	71.9	25.6	0.99498	2,274.40

### Grandtotals:

<u>Product</u>	<u>G.S.V., US bbls at 60°F</u>	<u>Gross Long Tons (Air)</u>	<u>Gross Metric Tons (Air)</u>	<u>N.S.V., US bbls at 60°F</u>	<u>Net Long Tons (Air)</u>	<u>Net Metric Tons (Air)</u>
Bow River Sour CO	5,217.53	758.409	770.580	5,199.79	755.840	767.960
Napo Crude Oil	5,385.45	788.531	801.184	5,366.07	785.690	798.310
Vasconia Crude Oil	4,353.74	612.280	622.104	4,351.13	611.910	621.730

	<u>Before, Port</u>	<u>Before, Stbd</u>	<u>After, Port</u>	<u>After, Stbd</u>
Draft Forward:	2' 6"	2' 6"	10'	10'
Draft Aft:	1' 6"	1' 6"	9'	9'
Trim:	-1' 0"	-1' 0"	-1' 0"	-1' 0"

Remarks: A manual tape was used for innage measurements.

Barge representative: Robert Bull

Global Survey Solutions Limited Inspector:

Report no. HOU 2346  
Date of report May 2, 2016  
Barge Kirby 19400  
Location GTI Terminal, Houston  
Product Bow River Sour CO  
B/Lading date May 2, 2016

## ULLAGE REPORT, BARGE AFTER LOADING

(Barge 4)

### Before Loading

Date: May 2, 2016

Time: 10:10

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V.	Temp °F	API at 60°F	CTL Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	0' 0"	0' 0"	5.38			5.38	60.0	20.5	1	5.38
2P	Bow River Sour CO	0' 0"	0' 0"	13.35			13.35	60.0	20.5	1	13.35
3P	Bow River Sour CO	0' 0"	0' 0"	13.33			13.33	60.0	20.5	1	13.33
4P	Bow River Sour CO	0' 0"	0' 0"	42.46			42.46	60.0	20.5	1	42.46
1S	Bow River Sour CO	0' 0"	0' 0"	5.38			5.38	60.0	20.5	1	5.38
2S	Bow River Sour CO	0' 0"	0' 0"	13.34			13.34	60.0	20.5	1	13.34
3S	Bow River Sour CO	0' 0"	0' 0"	13.35			13.35	60.0	20.5	1	13.35
4S	Bow River Sour CO	0' 0"	0' 0"	28.88			28.88	60.0	20.5	1	28.88

### After Loading

Date: May 2, 2016

Time: 13:20

Tank No.	Product	Innage Feet - Inches	Corr. Innage Feet - Inches	T.O.V. US barrels	Free Water		G.O.V.	Temp °F	API at 60°F	VCF Table 6A	G.S.V., US bbls at 60°F
					Feet - Inches	US barrels					
1P	Bow River Sour CO	0' 0"	0' 0"	5.38			5.38	60.0	20.5	1	5.38
2P	Bow River Sour CO	0' 0"	0' 0"	13.35			13.35	60.0	20.5	1	13.35
3P	Bow River Sour CO	0' 0"	0' 0"	13.33			13.33	60.0	20.5	1	13.33
4P	Bow River Sour CO	8' 11"	8' 8 5/8"	2,189.08			2,189.08	72.1	20.5	0.99522	2,178.62
1S	Bow River Sour CO	0' 0"	0' 0"	5.38			5.38	60.0	20.5	1	5.38
2S	Bow River Sour CO	0' 0"	0' 0"	13.34			13.34	60.0	20.5	1	13.34
3S	Bow River Sour CO	0' 0"	0' 0"	13.35			13.35	60.0	20.5	1	13.35
4S	Bow River Sour CO	9' 0 3/4"	8' 10 3/8"	2,236.35			2,236.35	70.7	20.5	0.99577	2,226.89

### Grandtotals:

<u>Product</u>	<u>G.S.V., US bbls at 60°F</u>	<u>Gross Long Tons (Air)</u>	<u>Gross Metric Tons (Air)</u>	<u>N.S.V., US bbls at 60°F</u>	<u>Net Long Tons (Air)</u>	<u>Net Metric Tons (Air)</u>
Bow River Sour CO	4,334.17	630.006	640.115	4,319.43	627.870	637.940

	<u>Before, Port</u>	<u>Before, Stbd</u>	<u>After, Port</u>	<u>After, Stbd</u>
Draft Forward:	2' 0"	2' 0"	0' 0"	0' 0"
Draft Aft:	2' 0"	2' 0"	8' 6"	8' 6"
Trim:	0' 0"	0' 0"	8' 6"	8' 6"

Remarks: A manual tape was used for innage measurements.

Barge representative: Beau Fournet

Global Survey Solutions Limited Inspector:



# REPORT OF SHORE TEST RESULTS

Report no.	HOU 2346
Date of report	May 2, 2016
Vessel	
Location	GTI Terminal, Houston
Product	Bow River Sour CO
B/Lading date	May 2, 2016

Sample of: Bow River Sour CO

Sample drawn by: Surveyor on the: 02-May-16

Sample description: In-line autosample

Testing performed by: Lab Technician

on the: 2-May-2016

<u>Test</u>	<u>Method</u>	<u>Results</u>
API Gravity @ 60°F	ASTM D 287	20.5
Water by Distillation, % by volume	ASTM D 4006	0.33
Sediments by Extraction, % by volume	ASTM D 473	0.01

For Global Survey Solutions Limited .....

Brittney Sanders

When testing is witnessed by Global Survey Solutions Limited, our responsibility is solely to ensure that the testing is conducted to standard tests methods in accordance with industry accepted practices. Global Survey Solutions Limited are not responsible for apparatus, instrumentation or measuring devices, the calibration of same and their working order.

Reagents and solutions are accepted as prepared.

The terms and conditions of business of Global Survey Solutions Limited will apply.

Any terms or conditions of the customer shall not apply except as accepted in writing by us.



# REPORT OF SHORE TEST RESULTS

Report no.	HOU 2346
Date of report	May 2, 2016
Vessel	
Location	GTI Terminal, Houston
Product	Napo Crude Oil
B/Lading date	May 2, 2016

Sample of: Napo Crude Oil

Sample drawn by: Surveyor on the: 02-May-16

Sample description: In-line autosample

Testing performed by: Lab Technician

on the: 2-May-2016

<u>Test</u>	<u>Method</u>	<u>Results</u>
API Gravity @ 60°F	ASTM D 287	19.4
Water by Distillation, % by volume	ASTM D 4006	0.35
Sediments by Extraction, % by volume	ASTM D 473	0.01

For Global Survey Solutions Limited .....

Brittney Sanders

When testing is witnessed by Global Survey Solutions Limited, our responsibility is solely to ensure that the testing is conducted to standard tests methods in accordance with industry accepted practices. Global Survey Solutions Limited are not responsible for apparatus, instrumentation or measuring devices, the calibration of same and their working order.

Reagents and solutions are accepted as prepared.

The terms and conditions of business of Global Survey Solutions Limited will apply.

Any terms or conditions of the customer shall not apply except as accepted in writing by us.



# REPORT OF SHORE TEST RESULTS

Report no.	HOU 2346
Date of report	May 2, 2016
Vessel	
Location	GTI Terminal, Houston
Product	Vasconia Crude Oil
B/Lading date	May 2, 2016

Sample of: Vasconia Crude Oil

Sample drawn by: Surveyor on the: 02-May-16

Sample description: In-line autosample

Testing performed by: Lab Technician

on the: 2-May-2016

<u>Test</u>	<u>Method</u>	<u>Results</u>
API Gravity @ 60°F	ASTM D 287	25.6
Water by Distillation, % by volume	ASTM D 4006	0.05
Sediments by Extraction, % by volume	ASTM D 473	0.01

For Global Survey Solutions Limited .....

Brittney Sanders

When testing is witnessed by Global Survey Solutions Limited, our responsibility is solely to ensure that the testing is conducted to standard tests methods in accordance with industry accepted practices. Global Survey Solutions Limited are not responsible for apparatus, instrumentation or measuring devices, the calibration of same and their working order.

Reagents and solutions are accepted as prepared.

The terms and conditions of business of Global Survey Solutions Limited will apply.

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