

Independent Petroleum Cargo Surveyors

## CERTIFICATE OF QUALITY/QUANTITY

Certificate	: 2/99/2018	Sample Source	: Ship's composite
No. Report	: 30.10.2018	Date Sample collected	: 30.10.2018
date Report	: 72/2018/M.S.	Date Sample tested	: 30.10.2018
No. Vessel's	: M/T "STRENGTH1"	Analysis performed by/at	: Rochem Lab.
Product	: HEAVY CRUDE OIL		
Quantity	: US BARRELS 563,036.30 / LT 84,736.963 / MT 86,091.133		

Parameters	Method	Unit	Result
Density@15degC	D1298	Kg/L	0.9650
Flash Point	D93	Deg C	90
Sulphur	D4294	%wt	4.8
K. Viscosity@50DegC	D445	Cst	125
Water Content	D95	%vol	0.55
Pour Point	D97	Deg C	+6
Carbon residue	D189	%wt	10.4
Ash Content	D482	%wt	0.036
Sediment by extraction	D473	%wt	0.05
Total Sediment Potential	IP 390 A	%wt	0.04
Al	IP 501	mg/kg	-
Si	IP 501	mg/kg	-
Al + Si	IP 501	mg/kg	<
Vanadium	IP 501	mg/kg	-
Sodium	IP 501	mg/kg	-
H2S Content	IP 570	mg/kg	0.73

\* Precision parameters apply in the evaluation of the test results specified above. Please also refer to ASTM D 32 44 (except for analysis of RFG) and IP 367 with respect to the utilization of test data to determine conformance with specification.  
This report is issued in accordance with the general terms and conditions of ROCHEM Inspectors  
The reported results relate only to the tested samples.

**Rochem Inspectors**  
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Cert. No. 16408

16408

07110901013

## TANK INSPECTION REPORT

Vessel : **STRENGTH1**  
Cargo : **IRAQI HEAVY CRUDE OIL**  
Location : **BASRAH**  
Date : **7-Oct-2018**  
FORM NO.: **RCH-FR-98/02**

THIS IS TO CERTIFY THAT AT **10:30** HOURS ON **7-Oct-2018** ALL CARGO TANKS WERE INSPECTED AND TOTAL ON BOARD QUANTITY FOUND TO BE **0** BARRELS.

\* THE ABOVE QUANTITY IS CONSISTED OF :

Liquid Oil	0	Barrels
Free Water	0	Barrels
Non Liquid	0	Barrels
Slops GSV	0	Barrels
Slops Free Water	0	Barrels
Total Volume	<u>0</u>	Barrels

- ☒ Slops not found on board.  
☐ Slops found on board and loaded on top with ..... Slops found on  
☐ board and not loaded on top.

Remarks :

# Cargo tanks No. **1W, 2W, 3W, 4W, 5W, 6W, SLP, SLS**  
Were nominated for loading with **CRUDE OIL**

\*PLEASE SEE O.B.Q REPORT FOR DETAILS.

*c/ Goncharov*  
**FOR VESSEL**  
ORIGINAL SIGNED  


**FOR PESSANJ CO.**  
ORIGINAL SIGNED  


## VESSEL EXPERIENCE FACTOR

Vessel : **STRENGTHI**  
Cargo : **IRAQI HEAVY CRUDE OIL**  
Location : **BASRAH**  
Date : **7-Oct-2018**  
FORM NO. : **PSJ-FR-112/02**

Units: **BBLS**

VOY NO.	CARGO	PORT/TERMINAL	DATE	B/L TABLE	SHIP		SHORE TCV	DIFF +/-	RATIO	QUAL Y/N
					OBQ	LOADED TCV				
Last	CRUDE OIL	BASRA	27-Jul-18	0	6A	297,369	297,902	-533	0.99821	Y
2nd	CRUDE OIL	BASRA	25-Jun-18	0	6A	447,209	447,883	-674	0.99850	Y
3rd	CRUDE OIL	BASRA	31-May-18	0	6A	673,590	674,854	-1,264	0.99813	Y
4th	FUEL OIL	FUJAIRAH / UAE	14-May-18	0	6B	444,985	447,192	-2,207	0.99506	Y
5th	FUEL OIL	FUJAIRAH / UAE	03-Apr-18	0	6B	629,195	632,671	-3,476	0.99451	Y
6th	FUEL OIL	BASRAH	20-Feb-18	0	6B	555,564	558,724	-3,160	0.99434	Y
7th	FUEL OIL	BASRAH	23-Jan-18	0	6A	547,548	549,244	-1,696	0.99691	Y
8th	FUEL OIL	BASRAH	06-Dec-17	0	6B	556,382	559,561	-3,179	0.99432	Y
9th	FUEL OIL	SANTA ANGIA	23-Oct-17	0	6B	167,266	168,675	-1,409	0.99165	N
10th	FUEL OIL	SANTA ANGIA	20-Oct-17	0	6B	417,345	416,523	822	1.00197	N
11th	FUEL OIL	BASRAH	27-Sep-17	0	6B	549,652	552,896	-3,244	0.99413	Y
12th	FUEL OIL	FUJAIRAH / UAE	14-Aug-17	0	6B	235,671	235,969	-298	0.99874	Y
13th	FUEL OIL	BASRAH	08-Aug-17	0	6B	539,001	540,599	-1,598	0.99704	Y
14th	C.OIL	SUDAN	30-Jun-17	0	6A	569,537	572,523	-2,986	0.99478	Y
15th	C.OIL	BASRA	09-Jun-17	0	6A	681,560	683,338	-1,778	0.99740	Y
16th	FUEL OIL	BASRAH	23-Apr-17	0	6B	546,604	550,137	-3,533	0.99358	N
17th	FUEL OIL	SINGAPORE	27-Feb-17	0	6B	493,359	493,978	-619	0.99875	Y
18th	FUEL OIL	SINGAPORE	22-Feb-17	0	6B	494,349	492,752	1,597	1.00324	N
19th	FUEL OIL	SINGAPORE	10-Feb-17	0	6B	435,398	436,092	-694	0.99841	Y
20th	FUEL OIL	MAI LIAO.TAIWAN	31-Jan-17	0	6B	247,890	248,483	-593	0.99761	Y

	SHIP TCV	SHORE TCV	RATIO	QUAL
INITIAL TOTALS	9,529,474	9,559,996	0.99681	
QUALIFIED TOTALS	7,903,910	7,931,909	0.99647	16

INITIAL VEF (AV. TCV RATIO):	0.99681	UPPER LIMIT:	0.99981	LOWER LIMIT:	0.99381
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FINAL VEF:	<b>0.9965</b>	SHIP UNDER SHORE BY	-0.353%
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### NOTES

1. LAST DRY DOCK WAS ON Apr/16
2. EXCLUDE MAIDEN VOYAGE AND VOYAGE FOLLOWING BY DRY DOCK.
3. EXCLUDE LOAD/DISCHARGE DATA WHERE SHORE MEASUREMENTS WERE NOT AVAILABLE.
4. EXCLUDE ALL VOYAGES PRIOR TO LAST DRY DOCK UNLESS VERIFIED THAT NO DE-SLUDGING WAS PERFORMED OR NO SIGNIFICANT STRUCTURAL, MEASUREMENT EQUIPMENTS OR TABLE CHANGES WERE MADE AFFECTING VESSEL MEASUREMENT.
5. EXCLUDE VOYAGES WHERE THE VLR/VDR IS LESS THAN 0.98000 OR GREATER THAN 1.02000, (KNOWN AS GROSS ERROR)
6. EXCLUDE VOYAGES WHERE THE VESSEL'S FIGURE IS KNOWN TO BE INACCURATE.
7. UPPER AND LOWER LIMITS MUST BE WITHIN +/-0.3% OF INITIAL VEF TO QUALIFY (EXCLUDING GROSS ERRORS)

FOR VESSEL  
ORIGINAL SIGNED



FOR PESSANJ CO.  
ORIGINAL SIGNED





## SAMPLE REPORT

**Vessel** : STRENGTH1  
**Cargo** : IRAQI HEAVY CRUDE OIL  
**Location** : BASRAH  
**Date** : 9-Oct-2018  
**FORM NO.** : RCH-FR-116/02

DATE	GRADE	METHOD	SOURCE	SIZE	SEAL No.	DISTRIBUTION
6-Oct-2018	SHORE TK NO.50	M6	S1	1 X 2 Ltr	RCH- 50021	D1
				1 X 2 Ltr	RCH- 50022	D3
				1 X 2 Ltr	RCH- 50023	D3
6-Oct-2018	SHORE TK NO.120	M6	S1	1 X 2 Ltr	RCH- 50024	D1
				1 X 2 Ltr	RCH- 50025	D3
				1 X 2 Ltr	RCH- 50026	D3
6-Oct-2018	SHORE TK NO.140	M6	S1	1 X 2 Ltr	RCH- 50027	D1
				1 X 2 Ltr	RCH- 50028	D3
				1 X 2 Ltr	RCH- 50029	D3
6-Oct-2018	SHORE TK NO.150	M6	S1	1 X 2 Ltr	RCH- 50030	D1
				1 X 2 Ltr	RCH- 50031	D3
				1 X 2 Ltr	RCH- 50032	D3
6-Oct-2018	SHORE TK NO.160	M6	S1	1 X 2 Ltr	RCH- 50033	D1
				1 X 2 Ltr	RCH- 50034	D3
				1 X 2 Ltr	RCH- 50035	D3
9-Oct-2018	CONTINUOUS DRIP	M1	S7	1 X 2 Ltr	RCH- 50038	D1
				1 X 2 Ltr	RCH- 50039	D3
				1 X 2 Ltr	RCH- 50040	D3
9-Oct-2018	SHIP'S TK COMPOSITE	M6	S3	1 X 2 Ltr	RCH- 50041	D1
				1 X 2 Ltr	RCH- 50042	D3
				1 X 2 Ltr	RCH- 50043	D4

**METHOD OF SAMPLING :**

M1=IN-LINE SAMPLING  
 M2=RUNNING  
 M3=MIDDLE  
 M4=UPPER / MIDDLE / LOWER  
 M5=INTERMITTENT  
 M6=SPOT SAMPLE  
 M7= TOP  
 M8= BOTTOM

**SOURCE :**

S1=SHORE TANK  
 S2=SHORE LINE  
 S3=VESSEL CARGO TANKS  
 S4=CLEAN BALLAST TANKS  
 S5=SEGREGATED BALLAST TANKS  
 S6=DOCK  
 S7=MANIFOLD

**DISTRIBUTION :**

D1=SAMPLE DELIVERED TO VESSEL  
 D2=SAMPLE DELIVERED TO VESSEL (FOR RECEIVERS)  
 D3=SAMPLE RETAINED FOR 90 DAYS  
 D4=SAMPLE USED FOR ANALYSIS

FOR ROCHEM CO  
 ORIGINAL SIGNED

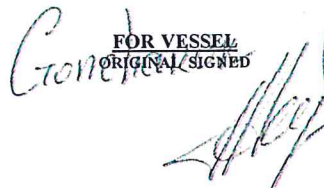

## SLOP REPORT

Vessel : **STRENGTH**  
Cargo : **IRAQI HEAVY CRUDE OIL**  
Location: **BASRAH**  
Date : **9-Oct-2018**  
FORM NO.: **RCH-FR-111/02**

TANK NO.	SLOP P		SLOP C		SLOP S	
	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER
OVERALL ULLAGE (Cm)	NOMINATED FOR LOADING		0	0.0	NOMINATED FOR LOADING	
TRIM CORRECTION (Cm)			0.0	0		
CORRECTED ULLAGE (Cm)			0.0	0.0		
TOV (BBLs)			0	0		
FREE WATER ULLAGE (Cm)			0	0.0		
CORRECTED FREE WATER ULLAGE (Cm)			0.0	0.0		
FREE WATER VOLUME (BBLs)			0	0		
GROSS OBSERVED VOLUME (BBLs)			0	0		
API @ 60 F	--	--	--	--	--	--
TEMPERATURE F	--	--	--	--	--	--
VCF ASTM TABLE NO.:	--	--	--	--	--	--
GROSS STANDARD VOLUME	--	--	--	--	--	--
LONG TONS	--	--	--	--	--	--
METRIC TONS	--	--	--	--	--	--
BSW (%VOL)	--	--	--	--	--	--
TANK REFERENCE HEIGHT ( Cm. )	--	--	--	--	--	--
ACTUAL GAUGED HEIGHT ( Cm. )	--	--	--	--	--	--
PREVIOUS CARGOES :	Slop		Slop		Slop	
SLOPS TO BE LOADED ON TOP	NOT LOT		NOT LOT		NOT LOT	
SAMPLE TAKEN	NO		NO		NO	
SEAL NO.:	--		--		--	

DRAUGHT	BEFORE	AFTER
FORE	540	1280
AFT	840	1280

TRIM	300	E.K.
LIST	0.00	0.00

FOR VESSEL  
ORIGINAL SIGNED  
  


FOR ROCHEM CO.  
ORIGINAL SIGNED  
  


### SHORE TANK SURVEY (LOADING)

Vessel : **STRENGTHI**  
Cargo : **IRAQI HEAVY CRUDE OIL**  
Location : **BASRAH**  
Date : **9-Oct-2018**  
FORM NO. : **RCH-FR-121/02**

UNITS: Mm - Bbl - F	TANK : 15		TANK : 16		TANK : 120		TANK : 140		TANK : 50		TANK : 60	
	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER
GAUGE DATE	7-Oct-18	7-Oct-18	7-Oct-18	7-Oct-18	7-Oct-18	7-Oct-18	8-Oct-18	8-Oct-18	8-Oct-18	8-Oct-18	9-Oct-18	9-Oct-18
GROSS GAUGE DIP	43-02-3/4	09-10-0/0	43-02-5/8	07-01-3/4	42-05-1/2	05-00-0/0	42-10-1/2	06-11-0/0	42-03-0/0	07-01-5/8	43-07-0/0	23-06-0/0
T O V	124088.00	27240.00	124089.00	19513.00	121759.27	12870.71	123279.00	18830.00	121395	19600	125237	66996
C . T . S	1.00063	1.00071	1.00064	1.00072	1.00043	1.00061	1.00068	1.00068	1.00069	1.00069	1.00069	1.00072
CORRECT T O V	124,166	27,259	124,168	19,527	121,812	12,879	123,363	18,843	121,479	19,614	125,323	67,044
ROOF CORRECTION	0	0	0	0	0	0	0	0	0	0	0	0
FREE WATER DIP	0	0	0	0	0	0	0	0	0	0	0	0
FREE WATER VOL.	0	0	0	0	0	0	0	0	0	0	0	0
G O V	124,166	27,259	124,168	19,527	121,812	12,879	123,363	18,843	121,479	19,614	125,323	67,044
Amb. TEMP. F	80	85	80	104	80	100	85	100	85	100	84	102
TEMP. F	115.0	121.0	116.0	120.0	97.0	110.0	119.0	117.0	120.0	118.0	120.0	120.0
API @ 60 F	15.18	15.18	15.33	15.33	15.71	15.71	15.25	15.25	15.18	15.18	15.18	15.18
V C F	ASTM 6B	0.9783	0.9760	0.9778	0.9762	0.9854	0.9802	0.9766	0.9774	0.9764	0.9771	0.9764
G S V		121,472	26,605	121,412	19,062	120,033	12,624	120,476	18,417	118,612	19,164	122,366
W C F (Table 11)		0.15063	0.15063	0.15048	0.15048	0.15009	0.15009	0.15056	0.15056	0.15063	0.15063	0.15063
W C F (Table 13)		0.15305	0.15305	0.15290	0.15290	0.15250	0.15250	0.15298	0.15298	0.15305	0.15305	0.15305
LONG TONS		18,297.33	4,007.51	18,270.08	2,868.45	18,015.75	1,894.74	18,138.87	2,772.86	17,866.53	2,886.67	18,431.99
METRIC TONS		18,591.290	4,071.895	18,563.895	2,914.580	18,305.033	1,925.160	18,430.418	2,817.433	18,153.567	2,933.050	18,728.116
DELIVERED G S V		94,867		102,350		107,409		102,059		99,448		56,904
DELIVERED L.Tons		14,239.82		15,401.63		16,121.01		15,366.01		14,979.86		8,571.45
DELIVERED M.Tons		14,519.395		15,649.315		16,379.873		15,612.985		15,220.517		8,709.157

	UNITS	EXCLUDING LINE DISPLACEMENT	INCLUDING LINE DISPLACEMENT
QUANTITY RECEIVED IN TANKS	BBLs @ 60 F	563,037	563,037
LINE DISPLACEMENT QUANTITY	BBLs @ 60 F	0	
WEIGHT	LONG TONS	84,729.78	84,729.78
LINE DISPLACEMENT QUANTITY		0.000	
WEIGHT	METRIC TONS	86,091.242	86,091.242
LINE DISPLACEMENT QUANTITY	LONG TONS	0.000	

