HYDROCARBON MANAGEMENT

Fall in global crude oil voyage losses

The latest analysis of the 2019 data on global marine crude oil voyage losses, presented by *Paul Harrison*, Consultant to the El's HMC-4A Marine Oil Transportation Database Committee, shows a fall in losses over the past year.

he Energy Institute's (EI) HMC-4A Marine Oil Transportation Database Committee has been collecting and analysing worldwide oil shipping data for over 25 years and meets twice a year. The 2019 autumn meeting was held in Houston in November 2019, hosted by ExxonMobil, while the spring 2020 meeting was held online due to the COVID-19 pandemic.

Committee members submit their voyage measurement data annually and receive a global analysis and confidential individual company reports.

The following member companies submitted data for 2019: Bazan, BP Oil International, CEPSA, Chevron, Chinese Petroleum Corporation, Equinor, Essar Oil UK, ExxonMobil, Marathon Petroleum, Mercuria, Monroe Energy, Petrobras, Petrogal (GALP Energia), PetroIneos, Phillips 66, PREEM, Repsol, Saras, Shell and Total. Additional members are always welcome.

The main findings from the global analysis are presented below. US inland barge movements are analysed separately but are not included.

Database development

The total number of ship voyages reported for 2019 increased, as did loaded volume, with reported bill of lading (BOL) volume totalling 5.71bn barrels. However, the volume of crude with complete voyage data fell slightly to 4.15bn barrels, as shown in **Figure 1**.

Comparison with the *BP* Statistical Review of World Energy indicates that the 2019 database includes approximately 38% of the global shipped volume at BOL and contains complete load and discharge data for around 28% of estimated global seaborne movements.

Global losses

Losses fell steadily after 2001 to a net standard volume (NSV) loss of





-0.161% in 2010 (by convention losses are given as negative). The 2011 figures showed an increased loss of -0.172%, with losses then remaining fairly steady until 2015, which saw a significant fall to -0.160%. The fall in 2019 from -0.168% to -0.147% is the first significant change since 2015.

It must be noted that losses include apparent as well as physical losses. Apparent losses result from the combination of fixed and random errors in the measurement systems used at load and discharge.

In recent years, changes in NSV loss have been largely driven by gross or total calculated volume (TCV) loss. This was the case for the change seen in 2019, with TCV loss falling from -0.16% to -0.13%. Water loss increased slightly, as shown in **Figure 2**.

TCV loss comprises any real



Figure 2: NSV, water and TCV losses, 1990–2019 losses due to evaporation plus any apparent losses due to systematic measurement differences. Water loss represents any additional water reported at discharge compared with that reported at load, ie an accounting loss in terms of oil quantity but not a real loss of either oil or water.

Analysis indicates that the reduced TCV loss in 2019 was due to reduced losses seen for a number of high volume grades/ ports, rather than any major shift in trading patterns. This may have been coincidental and it will be interesting to note if the reduced losses are maintained in 2020.

Loss comparison for individual crude oils

Table 1 (pp36–37) gives mean NSV loss and standard deviation for shipments of the most popular crudes in the database (20 or more voyages with full data). The mean of the reported API gravity is also given, together with the overall percentage loss based on reported total barrels shipped. For comparison, figures for NSV loss calculated by voyage are given for 2019 and 2018.

Conclusion

It has been clear for some time that any significant improvement in mean NSV loss would depend on reducing TCV loss and it seems that this has been the case in 2019. Significant loss differences for individual ports remain and the detailed work of the Committee helps to highlight where improvements might be made. Offshore loadings are particularly susceptible to large swings in gross measurement and water determination and the Committee has recently developed new guidance aimed at improving measurement for cargoes loaded offshore - HM 86: Guidelines for measurement of crude oil loaded at offshore installations, which should be published shortly.

The HMC-4 Committee also analyses US crude oil barge movements and has also developed product loss benchmarks which were reviewed in 2019. New members are always welcome to join and expand the database and any companies with data to submit should contact Kishan Kansara at the Energy Institute, **kkansara@ energyinst.org** ●

The El as a body is neither responsible for the statements or opinions presented in this article nor does it necessarily endorse the technical views expressed.

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Barrels Barrels Barrels Borrels Dotation Barrels Dotation Main St. Dev. No 2018 Vietors Al shaheen 28.8 1,542,331 -103,816 -0.31 0.20 47 0.33 0.20 47 0.33 0.20 47 0.33 0.20 47 0.33 0.20 47 0.33 0.20 47 0.33 0.20 43 0.20 0.33 0.20 0.33 0.20 0.33 0.20 0.33 0.20 0.33 0.20 0.33 0.20 0.33 0.20 0.33 0.20 0.22	Crude Type	ΑΡΙ	Overall volumes (NSV)			Calculation by voyage						
Image <thimage< th=""><thi< th=""><th></th><th>gravity</th><th>Total</th><th>Barrels</th><th>Barrels</th><th colspan="3">2019 NSV loss %</th><th colspan="4">2018 NSV loss 3</th></thi<></thimage<>		gravity	Total	Barrels	Barrels	2019 NSV loss %			2018 NSV loss 3			
Alshane2881.96.2,31-1.03-0.33-0.300.7070.0.10<			barrels	loss	loss %	Mean	St. Dev.	No.		Mean	St. Dev.	No.
Abx Abx Abx Abx Abx Abx Abx Abx Abx Abx Abx Abx Abx Abx32.6	Al Shaheen	29.8	31,542,331	-103,836	-0.33	-0.33	0.20	47		-0.32	0.13	57
Abheim33620.8, 20.10.2-0.88-0.08-0.090.19300.000.1010.1013.10Amenam Bend39.223.719.071-51.693-0.22-0.220.200.282.2Anaban Kayn Light39.655.073.19-13.824-0.25-0.260.308.20.3130.05.2Anaban Kayn Light33.1205.583.29-376.245-0.18-0.170.3130.0-0.220.323.2-0.15-0.13-0.100.102.72.70.103.330.0-0.22-0.15-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.7-0.100.102.8-0.100.102.82.8-0.100.102.82.8-0.100.102.82.8-0.100.102.82.8-0.100.102.8 <t< td=""><td>Alaskan North Slope</td><td>32.6</td><td>78,833,915</td><td>-61,761</td><td>-0.08</td><td>-0.06</td><td>0.17</td><td>107</td><td></td><td>-0.10</td><td>0.16</td><td>94</td></t<>	Alaskan North Slope	32.6	78,833,915	-61,761	-0.08	-0.06	0.17	107		-0.10	0.16	94
Amema lend39.23.2.719.67-6.7.693-0.22-0.220.172.5-0.260.200.220.220.271.58Arabian Extra Light39.65.500.2.319-139.824-0.25-0.260.39110-0.220.271.58Arabian Heavy2744.5666.920-54.966-0.12-0.170.3166-0.220.241.58Arabian Medium30.71.764.860-35.467-0.30-0.170.310.160.100.210.160.100.21Arabian Medium30.71.764.860-35.467-0.10-0.110.230.22-0.160.120.110.140.400.140.1	Alvheim	33.6	24,051,612	-20,385	-0.08	-0.09	0.15	30		-0.13	0.19	34
Anna37.71.2.372.492.32.440.250.260.212.020.20 <th< td=""><td>Amenam Blend</td><td>39.2</td><td>23,719,671</td><td>-51,693</td><td>-0.22</td><td>-0.22</td><td>0.17</td><td>25</td><td></td><td>-0.26</td><td>0.23</td><td>25</td></th<>	Amenam Blend	39.2	23,719,671	-51,693	-0.22	-0.22	0.17	25		-0.26	0.23	25
Anaban Extra Light39.65,509,33-1.398,24-0.25-0.280.39112-0.200.210.300.53Arabian Light27.445,966,20-54,966-0.12-0.140.3266-0.120.010.31660.0267Arabian Light20713,764,80-75,467-0.10-0.210.7142-0.140.0127-0.160.127Agaid20713,044,897-34,102-0.11-0.110.2147-0.110.141.040.010.1241Agaid23012,07,776-10,057-0.12-0.140.141.040.010.271.01.0Barsch Heary23013,747,70-13,7591-0.230.200.381.54-0.040.294.88Bonny Light23013,747,70-24,7591-0.170.303.89-0.020.068.82.5-0.39-0.250.150.100.110.10.140.10.140.10.10.140.10.10.10.10.10.10.10.10.140.1 <td< td=""><td>Amna</td><td>37.7</td><td>12,378,249</td><td>-23,924</td><td>-0.19</td><td>-0.20</td><td>0.28</td><td>22</td><td></td><td>-</td><td>-</td><td>-</td></td<>	Amna	37.7	12,378,249	-23,924	-0.19	-0.20	0.28	22		-	-	-
Anaban Heavy27.44,566,5206,4860.12-0.140.3168-0.200.3095Anabian Medium33.1205,853,2337,625-0.30-0.170.31310-0.220.32407Anabian Medium33.710,948,98734,190-0.18-0.110.110.2332-0.160.140.21434333 </td <td>Arabian Extra Light</td> <td>39.6</td> <td>55,092,319</td> <td>-139,824</td> <td>-0.25</td> <td>-0.26</td> <td>0.39</td> <td>112</td> <td></td> <td>-0.22</td> <td>0.27</td> <td>168</td>	Arabian Extra Light	39.6	55,092,319	-139,824	-0.25	-0.26	0.39	112		-0.22	0.27	168
Anabian Medium33.1208,582,29-376,245-0.18-0.210.7124.0-0.220.230.70Anabian Medium30.711,764,80-35,467-0.30-0.180.010.100.100.100.100.100.100.100.100.100.100.100.100.100.100.100.110.110.110.140.140.121.81Actric On52.052.022-29.147-0.11-0.140.120.140.121.81Barken37.881,142,81-10.0087-0.12-0.140.140.140.121.81Barken Heavy23.752,707,76-10.0567-0.19-0.220.381.610.124.81Bongia23.737,077,80-51,628-0.15-0.170.300.410.224.81Bongia13.317,071-3,039-0.120.140.121.921.921.921.92Burkife14.013,79,379-0.120.150.160.33590.100.121.92 <td>Arabian Heavy</td> <td>27.4</td> <td>45,966,920</td> <td>-54,986</td> <td>-0.12</td> <td>-0.14</td> <td>0.32</td> <td>86</td> <td></td> <td>-0.19</td> <td>0.39</td> <td>55</td>	Arabian Heavy	27.4	45,966,920	-54,986	-0.12	-0.14	0.32	86		-0.19	0.39	55
Anaban Medium 307 1.17.64.860 -9.54.67 -0.30 -0.21 0.71 2.4 -0.41 0.10 Arctic Oil 2.37 13.048.987 -9.149 -0.11 0.11 0.12 1.10 0.11 0.12 1.01 0.11 0.12 0.11 0.11 0.12 0.11	Arabian Light	33.1	208,583,239	-376,245	-0.18	-0.17	0.31	310		-0.22	0.32	407
Archeloli22719.048.9873.43.90-0.180.180.100.270.0160.100.31Agard52.0026.521.622-29.147-0.110.220.230.220.220.240.210.210.220.220.240.210.270.220.240.210.270.220.240.230.220.230.220.230.250.220.240.240.220.240.240.220.240.	Arabian Medium	30.7	11,764,860	-35,467	-0.30	-0.21	0.71	24		-0.14	0.40	56
Agard52062,621,622-9,147-0,110,110,210,239,20,14 </td <td>Arctic Oil</td> <td>23.7</td> <td>19,048,987</td> <td>-34,190</td> <td>-0.18</td> <td>-0.18</td> <td>0.10</td> <td>27</td> <td></td> <td>-0.16</td> <td>0.10</td> <td>30</td>	Arctic Oil	23.7	19,048,987	-34,190	-0.18	-0.18	0.10	27		-0.16	0.10	30
Aref 97.8 81,14,281 -100,087 -0.12 -0.14 0.14 0.04 0.01 0.12 0.12 0.12 Basken 24,463,041 -34,622 -0.14 0.21 0.23 0.22 0.34 0.35 0.22 0.34 0.35 0.05 0.23 0.35 0.22 0.35 0.24 0.35 0.22 0.25 0.26 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0	Asgard	52.0	26,521,622	-29,147	-0.11	-0.11	0.23	32		-0.16	0.14	31
Baken43.624.463,941-34.612-0.14-0.140.210.47-0.100.0242Barsh Heyry23.752.707,76-100,677-0.19-0.220.381540.120.2733Bongh27.933.57.092-51.682-0.15-0.170.393.80.060.2148Bony Light43.417.907,491-24.64-0.14-0.170.160.273.80.400.274.10Bu Attife43.417.907,491-24.654-0.14-0.160.284.70.160.214.70.150.160.214.70.150.150.150.160.214.70.150.150.160.214.70.150.150.160.214.70.10.110.120.100.11 <t< td=""><td>Azeri</td><td>37.8</td><td>81,142,815</td><td>-100,087</td><td>-0.12</td><td>-0.11</td><td>0.14</td><td>104</td><td></td><td>-0.14</td><td>0.12</td><td>183</td></t<>	Azeri	37.8	81,142,815	-100,087	-0.12	-0.11	0.14	104		-0.14	0.12	183
Basrah Heavy23.75.707.7-100,567-0.19-0.220.345.3-0.120.120.120.120.13Basrah Hight28.9137.470,07-37.591-0.33-0.200.840.400.0148Bongy27.933.5709-5.62-0.14-0.140.270.1-0.400.2828Burktfrei44.013.795,357-3.309-0.020.060.8825-0.1-1-00.100.1350-0.1-00.10	Bakken	43.6	24,463,941	-34,612	-0.14	-0.14	0.21	47		-0.10	0.21	42
Basrah tight 28.9 137,417,070 -0.17, 51,622 -0.23 -0.27 0.38 1.40 0.30 1.42 Bonga 77.9 33,357,092 -51,682 -0.15 -0.17 0.39 3.8 -0.02 0.08 2.5 -0.03 0.20 0.20 0.20 0.20 0.21 0.20 0.21 0.20 0.21 <td>Basrah Heavy</td> <td>23.7</td> <td>52,707,776</td> <td>-100,567</td> <td>-0.19</td> <td>-0.22</td> <td>0.34</td> <td>53</td> <td></td> <td>-0.12</td> <td>0.27</td> <td>80</td>	Basrah Heavy	23.7	52,707,776	-100,567	-0.19	-0.22	0.34	53		-0.12	0.27	80
Bonga27.933,37,02-51,682-0.15-0.170.3938-0.060.2048Bonylght43.017,97,491-24,654-0.14-0.140.780.216.020.70.02300.7	Basrah Light	28.9	137,417,070	-317,591	-0.23	-0.20	0.38	154		-0.18	0.37	142
Bonny Light 94.3 17.907,491 -24.654 -0.14 0.17 0.27 21 -0.49 0.29 4.81 Bu Attifel 41.0 13.795,37 -3.309 -0.02 0.06 0.88 25 -0.32 0.51 27 Buzios 238 38.38,048 -57,854 -0.17 -0.16 0.32 37 - - - - Castilla Blend 27.3 38.970,42 -57,854 -0.02 0.01 0.20 37 -	Bonga	27.9	33,357,092	-51,682	-0.15	-0.17	0.39	38		-0.06	0.21	48
Buxtifel 41.0 13,795,357 -3,399 -0.02 0.06 0.88 25 -0.32 0.71 Buzios 28.8 33,83,048 -56,012 -0.17 -0.16 0.32 37 - - - Castilla Blend 17.9 39,279,422 -57,854 -0.15 0.33 59 -0.10 0.21 0.37 - <t< td=""><td>Bonny Light</td><td>34.3</td><td>17,907,491</td><td>-24,654</td><td>-0.14</td><td>-0.14</td><td>0.27</td><td>21</td><td></td><td>-0.49</td><td>0.29</td><td>48</td></t<>	Bonny Light	34.3	17,907,491	-24,654	-0.14	-0.14	0.27	21		-0.49	0.29	48
Buzios28.833,83,84,8-56,012-0.17-0.160.2237-1-1-1Castlila Blend17.939,279,422-57,854-0.150.160.3359-0.100.2161Catcher27.318,970,94237,720.200.210.2937Clair23.522,139,95310,2330.0230.010.200.100.200.210.20-0.210.1922-0.310.1323CPC Blend46.6179,175,684-447,562-0.25-0.260.1628-0.020.130.1221Egle Ford44.644,294,44-73,296-0.010.010.1163-0.020.1371Elsharan25.522,983,6683,0110.010.010.14350.010.168Es Sider36.137,320,881-92,069-0.25-0.260.2354-0.280.3112Espo35.618,711,564-24,926-0.010.010.14350.140.22222354Espor Blend36.018,711,564-24,926-0.010.010.11120.280.3112Forcados Blend36.218,711,564-24,926-0.01-0.010.11140.222.2560Garder29.075,74,060-9.455-0.01-0.010.11190.22	Bu Attifel	41.0	13,795,357	-3,309	-0.02	0.06	0.88	25		-0.32	0.51	27
Castilla Blend 179 39.279,422 -57,854 -0.15 0.16 0.33 59 -0.10 0.21 0.21 Catcher 27.3 18,970,944 37,723 0.20 0.21 0.26 37 - - - Clair 23.5 22,139,953 10,233 0.05 0.04 0.26 37 - - - Clov 466 179,175,64 -447,562 -0.20 0.06 288 -0.19 0.26 0.31 0.19 0.26 0.31 0.19 0.26 0.31 0.19 0.26 0.31 0.19 0.26 0.31 0.19 0.26 0.31 0.19 0.26 0.31 0.19 0.26 0.31 0.10 0.31 0.31 0.10 0.31	Buzios	28.8	33,838,048	-56,012	-0.17	-0.16	0.22	37		-	-	-
Catcher 273 18,970,94 37,723 0.20 0.21 0.29 37 - - - Clair 23.5 22,139,953 10,233 0.05 0.04 0.26 37 - - - Clov 31.9 18,126,129 -39,144 -0.22 -0.26 0.16 229 -0.31 0.13 213 CPC Bled 46.4 44,294,544 -473,296 -0.07 -0.04 0.16 38 - - - - Egina 27.5 34,905,891 -15,974 -0.05 -0.04 0.16 38 -0.02 0.13 41 -0.02 0.13 41 -0.02 0.13 41 -0.02 0.13 41 -0.02 0.13 41 -0.02 0.13 41 -0.03 41 -0.03 41 41 21 0.01 0.11 41 41 41 41 41 41 41 41 41 41 41<	Castilla Blend	17.9	39,279,422	-57,854	-0.15	-0.16	0.33	59		-0.10	0.21	61
Clair 23.5 22,139,953 10,233 0.05 0.04 0.26 97 - - - Clov 31.9 18,126,129 -39,144 -0.22 -0.21 0.19 22 -0.31 0.13 23 CPC Blend 46.6 179,175,684 -447,562 -0.25 0.16 229 -0.26 0.15 229 -0.26 0.15 229 -0.26 0.15 229 -0.26 0.25 -0.26 0.26 0.20 0.13 71 Elsfnst 38.8 36,43,511 -5,339 -0.01 0.01 0.14 35 0.01 0.16 45 Elsfnst 36.1 37,320,831 -92,069 -0.25 -0.26 0.23 54 -0.28 0.31 40 2.2 Elsfnara 42.5 22,983,668 3,011 0.01 0.11 61 0.02 4.3 Esport 36.1 3,720,831 -92,69 -0.58 0.13 0.11 1.0<	Catcher	27.3	18,970,944	37,723	0.20	0.21	0.29	37		_	_	-
Clov31.918,126,129-39,144-0.22-0.210.1922-0.310.1323CPC Blend46.6179,175,684-447,562-0.25-0.260.16229-0.260.15269Eagle Ford44.444,29,544-73,296-0.17-0.170.289.8-0.190.263.0Egina27.534,905,891-15,974-0.05-0.010.1163-0.00.1337Ekofisk38.838,643,511-5,339-0.010.010.1254-0.280.010.1365ES Sider30.122,933,6683.0110.010.0254-0.280.010.1410.1 <td>Clair</td> <td>23.5</td> <td>22,139,953</td> <td>10,233</td> <td>0.05</td> <td>0.04</td> <td>0.26</td> <td>37</td> <td></td> <td>-</td> <td>_</td> <td>_</td>	Clair	23.5	22,139,953	10,233	0.05	0.04	0.26	37		-	_	_
CPC Blend 46.6 179,175,684 -447,562 -0.25 0.16 229 -0.26 0.17 20.38 Eagle Ford 44.4 44,29,544 -73,296 -0.17 -0.17 0.28 98 -0.19 0.26 30 Eigna 27.5 34,905,891 -15,974 -0.05 -0.04 0.16 38 - - - Ekofsk 38.8 364,3511 -5,339 -0.01 0.11 63 0.02 0.13 71 Elsharaa 43.5 22,936,68 3011 0.01 0.01 0.14 35 0.01 0.16 42 Es Sider 31.7 32,533,268 -28,397 -0.09 -0.8 0.31 0.7 -0.2 0.35 9 -0.14 0.32 12 Esport 31.6 13,17,564 -12 0.01 -0.18 0.33 50 -0.14 0.32 52 -0.12 0.38 43 -0.2 0.32 52 -0.2	Clov	31.9	18,126,129	-39,144	-0.22	-0.21	0.19	22		-0.31	0.13	23
Eagle Ford 44.4 44.294,544 -73,296 -0.17 0.28 98 -0.19 0.26 90 Egina 27.5 34,905,891 -15,974 -0.05 -0.04 0.16 38 - - - Ekofisk 38.8 36,643,511 -5,339 -0.01 0.01 0.14 35 0.01 0.16 38 54 -0.28 0.18 0.16 45 Eshara 42.5 22,933,668 3.011 0.01 0.14 35 0.01 0.16 45 Escavos 31.7 32,533,268 -28,397 -0.09 -0.28 0.31 37 -0.28 0.18 0.12 0.17 0.28 0.18 0.12 0.17 0.28 0.18 0.21 0.28 0.11 0.11 0.11 0.17 0.18 0.23 58 0.13 37 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.12 0.12	CPC Blend	46.6	179,175,684	-447,562	-0.25	-0.26	0.16	229		-0.26	0.15	267
Egina27.534,905,891-15,974-0.05-0.040.1638Ekofisk38.838,643,511-5,339-0.010.010.11630.020.1371El Sharaa42.522,983,6683,0110.010.010.14350.010.1645Es Sider36.137,320,831-92,069-0.25-0.260.2354-0.280.1866Escravos31.732,533,268-28,397-0.09-0.080.1337Espo35.613,71,5642120.00-0.080.2429-0.170.3221Flota Gold36.041,977,578-69,733-0.17-0.180.24290.140.2222Flota Gold32.434,80.932-113,077-0.32-0.280.3843-0.220.2560Grane39.516,583,133-20,276-0.12-0.210.2328Grane29.075,774,066-9,485-0.01-0.010.111190.020.1796Gulrun Blend52.715,115,96-6,892-0.05-0.050.1024-0.060.182324Hebron (Offshore)20.118,41,8306,6260.200.010.101260.160.1641-0.070.3111190.0213	Eagle Ford	44.4	44,294,544	-73,296	-0.17	-0.17	0.28	98		-0.19	0.26	30
Ekofisk 38.8 38,643,511 -5,339 -0.01 0.01 6.31 6.002 0.13 71 El Sharaa 42.5 22,983,668 3,011 0.01 0.01 0.14 35 0.01 0.16 45 Es Sider 36.1 37,320,831 -92,069 -0.25 -0.26 0.23 54 -0.28 0.18 66 Escravos 31.7 32,533,268 -28,397 -0.09 -0.08 0.13 37 - - - - - 12 59 1.01 0.23 59 -0.17 0.25 21 Export Blend 36.2 13,270,90 -41,228 -0.31 -0.11 21 -0.28 0.13 21 -	Egina	27.5	34,905,891	-15,974	-0.05	-0.04	0.16	38		-	-	-
El Sharan Es Sider42.522,983,6683,0110.010.010.14350.010.1645Es Sider36.137,320,831-92,069-0.25-0.260.2354-0.280.1866Escravos31.732,533,268-28,397-0.09-0.080.1337Espo35.618,711,5642120.00-0.000.2429-0.170.2521Export Blend30.041,977,538-69,733-0.17-0.180.2359-0.140.2232Flotta Cold36.213,270,902-41,228-0.31-0.110.1121-0.280.3121Forcados Blend32.434,880,932-113,077-0.32-0.290.3843-0.220.2560Gina Krog39.515,58,133-20.276-0.12-0.120.2328Grane29.075,774,006-9,485-0.01-0.010.111190.020.1796Gudrun Blend52.715,111,596-6,892-0.05-0.050.1024-0.060.1823Gulfaks39.462,355,823-91,374-0.15-0.150.16390.140.2228Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,321	Ekofisk	38.8	38,643,511	-5,339	-0.01	-0.01	0.11	63		-0.02	0.13	71
Esider36.137,30,831-92,069-0.25-0.260.2354-0.280.1866Escravos31.732,533,268-28,397-0.09-0.080.1337<	El Sharara	42.5	22,983,668	3,011	0.01	0.01	0.14	35		0.01	0.16	45
Escravos 31.7 32,533,268 -28,397 -0.09 -0.08 0.13 37 - - - Espo 35.6 18,711,564 212 0.00 -0.00 0.24 29 -0.17 0.25 21 Export Blend 30.0 41,977,538 -69,733 -0.17 -0.18 0.23 59 -0.14 0.25 32 Flotta Cold 36.2 13,270,902 -41,228 -0.31 0.11 21 -0.28 0.38 43 -0.22 0.25 60 Grane 32.4 34,80,932 -113,077 -0.32 -0.12 0.23 28 - <	Es Sider	36.1	37,320,831	-92,069	-0.25	-0.26	0.23	54		-0.28	0.18	66
Espo35.618,711,5642120.00-0.000.2429-0.170.2521Export Blend30.041,977,538-69,733-0.17-0.180.2359-0.140.3232Flotta Gold36.213,270,902-41,228-0.31-0.310.1121-0.280.1321Forcados Blend32.434,880,932-113,077-0.32-0.290.3843-0.220.2560Gina Krog39.516,583,133-20,276-0.12-0.120.2328Gadrun Blend52.715,111,596-6,892-0.05-0.050.102.4-0.060.182328Gulfaks39.462,355,823-91,374-0.150.2080-0.160.1964Hebron21.126,967,404-833-0.00-0.010.2053Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,621-24,786-0.310.3274-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kimanis36.614,034,3768,6450.060.07 <td< td=""><td>Escravos</td><td>31.7</td><td>32,533,268</td><td>-28,397</td><td>-0.09</td><td>-0.08</td><td>0.13</td><td>37</td><td></td><td>-</td><td>-</td><td>-</td></td<>	Escravos	31.7	32,533,268	-28,397	-0.09	-0.08	0.13	37		-	-	-
Export Blend30.041,977,538-69,733-0.17-0.180.2359-0.140.3232Flotta Gold36.213,270,902-41,228-0.31-0.310.1121-0.280.1321Forcados Blend32.434,880,932-113,077-0.32-0.290.3843-0.220.2560Grane29.016,583,133-20,276-0.120.210.2328Grane29.075,774,006-9,485-0.01-0.010.111190.020.1796Gudrun Blend52.715,111,596-6,892-0.05-0.050.1024-0.060.1823Gulfaks39.462,355,823-91,374-0.15-0.050.1024-0.160.1964Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1641Kimanis36.614,034,3768,6450.060.080.3635-0.060.1641Kimanis30.371,806,821-224,786	Espo	35.6	18,711,564	212	0.00	-0.00	0.24	29		-0.17	0.25	21
Flotta Cold36.213,270,902-41,228-0.310.110.1121-0.280.1321Forcados Blend32.434,880,932-113,077-0.32-0.290.3843-0.220.2560Grane39.516,583,133-20,276-0.12-0.120.2328Grane29.075,774,006-9,485-0.01-0.010.111190.020.1796Gudrun Blend52.715,111,596-6,892-0.05-0.050.1024-0.060.1823Gulfaks39.462,355,823-91,374-0.15-0.150.2080-0.160.1964Hebron21.126,967,404-833-0.00-0.010.2053Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,32136,5630.150.150.16390.140.2228-Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.133121Iracema32.136,971,432-43,148-0.12-0.080.3635-0.060.1641-0.130.1649Kimanis36.614,034,3768,6450.060.880.3635-0.010.310.279	Export Blend	30.0	41,977,538	-69,733	-0.17	-0.18	0.23	59		-0.14	0.32	32
Forcados Blend32.434,880,932-113,077-0.32-0.290.3843-0.220.2560Gina Krog39.516,583,133-20,276-0.12-0.120.2328	Flotta Gold	36.2	13,270,902	-41,228	-0.31	-0.31	0.11	21		-0.28	0.13	21
Gina Krog 39.5 16,583,133 -20,276 -0.12 0.12 0.23 28 - - - Grane 29.0 75,774,006 -9,485 -0.01 -0.01 0.11 119 0.02 0.17 96 Gudrun Blend 52.7 15,111,596 -6,892 -0.05 -0.15 0.10 24 -0.06 0.18 23 Gullfaks 39.4 62,355,823 -91,374 -0.15 -0.15 0.20 80 -0.16 0.19 64 Hebron 21.1 26,967,404 -833 -0.00 -0.11 0.20 53 -7 -7 -7 Hebron (Offshore) 20.7 18,411,830 36,226 0.20 0.19 0.16 28 -7 -7 -7 Heidrun 24.4 24,481,321 36,563 0.15 0.15 0.16 39 0.14 0.22 28 Hibernia 33.3 26,417,695 -6,573 -0.02 -0.03 0.15 41 -0.07 0.13 314 Kimanis 36.6 <td>Forcados Blend</td> <td>32.4</td> <td>34,880,932</td> <td>-113,077</td> <td>-0.32</td> <td>-0.29</td> <td>0.38</td> <td>43</td> <td></td> <td>-0.22</td> <td>0.25</td> <td>60</td>	Forcados Blend	32.4	34,880,932	-113,077	-0.32	-0.29	0.38	43		-0.22	0.25	60
Grane 29.0 75,774,006 -9,485 -0.01 0.01 119 0.02 0.17 96 Gudrun Blend 52.7 15,111,596 -6,892 -0.05 -0.05 0.10 24 -0.06 0.18 23 Gullfaks 39.4 62,355,823 -91,374 -0.15 0.20 80 -0.16 0.19 64 Hebron 21.1 26,967,404 -833 -0.00 0.19 0.16 28 - <td< td=""><td>Gina Krog</td><td>39.5</td><td>16,583,133</td><td>-20,276</td><td>-0.12</td><td>-0.12</td><td>0.23</td><td>28</td><td></td><td>-</td><td>-</td><td>-</td></td<>	Gina Krog	39.5	16,583,133	-20,276	-0.12	-0.12	0.23	28		-	-	-
Gudrun Blend52.715,111,596-6,892-0.05-0.050.1024-0.060.1823Gullfaks39.462,355,823-91,374-0.150.2080-0.160.1964Hebron21.126,967,404-833-0.00-0.010.2053Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.030.15410.150.1649Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3655	Grane	29.0	75,774,006	-9,485	-0.01	-0.01	0.11	119		0.02	0.17	96
Gullfaks Hebron39.462,355,823 2,6967,404-91,374 -833-0.15 -0.00-0.15 -0.010.20 0.2080 53-0.16 -0.19 -64. -Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.370.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3655	Gudrun Blend	52.7	15,111,596	-6,892	-0.05	-0.05	0.10	24		-0.06	0.18	23
Hebron21.126,967,404-833-0.00-0.010.2053Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.39303-0.110.40356Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Gullfaks	39.4	62,355,823	-91,374	-0.15	-0.15	0.20	80		-0.16	0.19	64
Hebron (Offshore)20.718,411,83036,2260.200.190.1628Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Hebron	21.1	26,967,404	-833	-0.00	-0.01	0.20	53		-	-	_
Heidrun24.424,481,32136,5630.150.150.16390.140.2228Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Hebron (Offshore)	20.7	18,411,830	36,226	0.20	0.19	0.16	28		-	_	_
Hibernia33.326,417,695-6,573-0.02-0.030.1541-0.070.1331Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Heidrun	24.4	24.481.321	36.563	0.15	0.15	0.16	39		0.14	0.22	28
Iracema32.136,971,432-43,148-0.12-0.090.2641-0.130.1843Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Hibernia	33.3	26,417,695	-6,573	-0.02	-0.03	0.15	41		-0.07	0.13	31
Kimanis36.614,034,3768,6450.060.080.3635-0.060.1649Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Iracema	32.1	36,971,432	-43,148	-0.12	-0.09	0.26	41		-0.13	0.18	43
Kuwait Export30.371,806,821-224,786-0.31-0.330.3274-0.310.2799Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Kimanis	36.6	14,034.376	8.645	0.06	0.08	0.36	35		-0.06	0.16	49
Lula30.0119,201,192-91,142-0.08-0.070.21118-0.080.24138Maya21.9182,342,990-101,481-0.06-0.070.39303-0.110.40356Mellitah42.717,957,221-19,155-0.11-0.100.1326Midland Sweet42.8197,764,164-457,771-0.23-0.210.29239-0.120.3650	Kuwait Export	30.3	71,806,821	-224,786	-0.31	-0.33	0.32	74		-0.31	0.27	99
Maya 21.9 182,342,990 -101,481 -0.06 -0.07 0.39 303 -0.11 0.40 356 Mellitah 42.7 17,957,221 -19,155 -0.11 -0.10 0.13 26 - - - Midland Sweet 42.8 197,764,164 -457,771 -0.23 -0.21 0.29 239 -0.12 0.36 50	Lula	30.0	119,201,192	-91,142	-0.08	-0.07	0.21	118		-0.08	0.24	138
Mellitah 42.7 17,957,221 -19,155 -0.11 -0.10 0.13 26 - - - Midland Sweet 42.8 197,764,164 -457,771 -0.23 -0.21 0.29 239 -0.12 0.36 50	Maya	21.9	182,342.990	-101.481	-0.06	-0.07	0.39	303		-0.11	0.40	356
Midland Sweet 42.8 197,764,164 -457,771 -0.23 -0.21 0.29 239 -0.12 0.36 50	Mellitah	42.7	17,957,221	-19,155	-0.11	-0.10	0.13	26		-	-	-
	Midland Sweet	42.8	197,764,164	-457,771	-0.23	-0.21	0.29	239		-0.12	0.36	50

Crude Type	API gravity	Overall volumes (NSV)				Calculation by voyage						
		Total	Barrels	Barrels	201	2019 NSV loss %			2018 NSV loss %			
		barrels	loss	loss %	Mean	St. Dev.	No.		Mean	St. Dev.	No.	
Murban	40.4	48,905,674	-119,823	-0.25	-0.24	0.20	91		-0.28	0.21	110	
Novy Port	35.4	34,373,679	-60,986	-0.18	-0.18	0.13	45		-0.17	0.11	42	
NWS Condensate	60.7	13,452,269	-18,589	-0.14	-0.15	0.16	23		-	-	-	
Oseberg	38.9	17,078,816	-19,226	-0.11	-0.12	0.22	25		-0.22	0.22	27	
Patos Marinza	9.4	3,716,654	10,328	0.28	0.26	0.64	30		-0.02	0.15	26	
Peregrino	13.7	19,833,125	-10,966	-0.06	-0.07	0.37	36		-0.19	0.50	23	
Qatar Marine	32.0	14,053,950	-40,306	-0.29	-0.32	0.33	22		-	-	-	
Qua Iboe	37.4	35,552,807	-63,325	-0.18	-0.18	0.36	40		-0.19	0.13	26	
Russian Export Blend	30.4	182,430,384	-331,377	-0.18	-0.18	0.22	272		-0.19	0.17	313	
Saharan Blend	44.9	94,934,696	-63,887	-0.07	-0.05	0.18	131		-0.07	0.16	111	
Sapinhoa	30.0	24,297,341	-26,641	-0.11	-0.12	0.31	26		-0.10	0.29	30	
Schiehallion	25.6	24,032,789	-45,848	-0.19	-0.19	0.40	41		-0.00	0.66	48	
Sokol	34.7	19,434,119	-24,616	-0.13	-0.12	0.22	31		-0.13	0.55	41	
Statfjord	38.9	31,368,452	-61,325	-0.20	-0.20	0.20	40		-0.17	0.34	48	
Stones	28.9	11,115,466	-26,780	-0.24	-0.24	0.20	38		-0.11	0.17	26	
Troll	34.6	15,944,440	-6,041	-0.04	-0.03	0.16	26		-	-	-	
Upper Zakum	33.8	73,731,859	-232,266	-0.32	-0.31	0.30	84		-0.30	0.43	71	
Varandey	36.7	44,443,048	-61,057	-0.14	-0.14	0.19	55		-0.27	0.22	47	
Vasconia	23.5	57,338,297	8,612	0.02	0.01	0.14	93		-0.08	0.31	104	
West Texas Intermediate	42.7	46,217,356	-52,801	-0.11	-0.10	0.19	75		-0.17	0.19	119	
West Texas Intermediate Light	46.6	10,458,214	-32,379	-0.31	-0.25	0.45	27		-	_	-	
Western Desert	41.4	21,235,652	-44,170	-0.21	-0.21	0.23	42		-0.29	0.29	51	
Table 1. Analysis by crude oil type 2018 and 2019											MC AN	

Bespoke Live Online Training

Although the current climate is bringing a number of challenges, it can offer a great opportunity to learn and to continue professional development within your organisation, which is why our extensive training portfolio now includes new live online courses.

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With a dedicated Learning Management System and an integrated video conferencing system, we can offer a flexible training solution at a time to suit your company.

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