# - Exhibit F -

# **VALUE ADJUSTMENT PROCEDURE**

In this Exhibit F including appendices Danish numerical punctuation is used using "." as a thousand separator and "," as decimal separator  $\frac{1}{2}$ 

The provisions of the Agreement regarding quantity and quality determination will be superseded by the provisions of this Exhibit F to the Agreement and in case of conflict the provisions of this Exhibit F shall prevail over the provisions of the Agreement unless otherwise provided for herein.

#### **Definitions**

Capitalized terms used in this Exhibit F, but not defined herein, shall have the meaning set forth in the Agreement.

For the purpose only of this Exhibit F, the terms set forth below, when capitalised, shall have the indicated meaning:

<u>DB</u>: The aggregate volume of Crude Oil available for export from the Terminal, commonly known as the DUC Blend.

<u>Gross Product Worth or GPW:</u> The gross product worth for each Allocated Crude Oil, as specified in Section 8. The Gross Product Worth shall be relative to the DB and shall not be construed as the outright price of any Allocated Crude Oil.

Owed Entrant: An Entrant for which the Gross Product Worth of that Entrant's Allocated Crude Oil is greater than the Gross Product Worth of the DB.

Owing Entrant: An Entrant for which the Gross Product Worth of that Entrant's Allocated Crude Oil is less than the Gross Product Worth of the DB.

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### 1. SCOPE

This Exhibit F shall provide a means to compensate for the difference in value of each Allocated Crude Oil compared to the quality of the DB ensuring that an Entrant is not unduly advantaged or disadvantaged through commingling of the Crude Petroleum delivered to the Transportation System.

Accordingly, whereas the Allocation Procedure, Exhibit G to the Agreement, accounts for any quantity differences between the Crude Petroleum delivered to the Pipeline by each Entrant, this Value Adjustment Procedure accounts for any quality differences between such Allocated Crude Oil; thus the two procedures interact in order to maintain the value of each Entrant's Crude Petroleum.

After completion of the Allocation Schedule, Transporter shall procure that hydrocarbons from the Sole Concession, the Lulita Field and the Trym Field are allocated from the hierarchical level "Entrant" to "Producers" by applying such allocation key as provided by Producers in accordance with Article 9.3f of the Agreement.

Following allocation of hydrocarbons to Entrants pursuant to the Allocation Procedure, Exhibit G to the Agreement, Transporter shall procure that hydrocarbons from the Sole Concession, the Lulita Field and the Trym Field are allocated from the hierarchical level 'Entrant' to 'Producers' by applying the allocation keys on volume of Crude Petroleum, and any other information requested by Transporter, pursuant to Article 9.3.f of the Agreement.

Further and for use in the Off-take and Lifting Procedures as well as the Value Adjustment Procedure, Transporter shall procure that Producers' hydrocarbons are allocated from the hierarchical level "Producers" to "Producer" by applying each Producer's Percentage.

The aim of the Value Adjustment Procedure is to establish and describe the principles according to which a fair and equitable value adjustment of each Allocated Crude Oil is performed. This involves calculating the GPW based upon assay cuts and the price of various petroleum products.

The operation of this procedure is based on additional procedures including a simplified yield cut model to replicate as far as reasonably possible the relative value between each Entrant's Allocated Crude Oil as determined from a refinery yield model.

In Appendix 1 an exemplification of the calculations made according to this Exhibit F is shown. Appendix 1 is also included as an excel spread sheet in Exhibit P.

### 2. RELEVANT MONTH

The Value Adjustment Procedure shall be applied to each Entrant's Allocated Crude Oil each Month and shall use average prevailing product prices as determined in accordance with the principles described in Section 5 herein applicable for such Month.

This Exhibit F shall become effective the first (1<sup>st</sup>) Day of the Month of an Entrant's first delivery of Crude Petroleum to the Pipeline. The quality of Allocated Crude Oil for the first production Month shall be determined by the first available assay.

Payments of any monies owed by one Party to another Party shall be made retrospectively in accordance with the payment terms of Section 11.

### 3. DISTILLATION CUT POINTS AND PROPERTIES

The GPW calculation shall be based upon the weight percentage of product distilled from the boiling range cut points below (normalised to sum to 100%) and as determined by the ASTM D2892 methodology. Where establishment of an assay of an Entrant's Crude Oil by sampling and analyses is not possible (all or in part), the assay shall be determined by synthetic assays in accordance with the Allocation Procedure, Exhibit G to the Agreement, and the principles set forth in Appendix 2 hereto.

Light Ends, $C_1$ - $C_4$	$Y_{Cl-C4}\%$	(wt/wt)
Naphtha, C <sub>5 -</sub> 180°C	$Y_{Naphtha}\%$	(wt/wt)
Kerosene, 180°C - 260°C	$Y_{Kero}\%$	(wt/wt)
Gas oil, 260°C - 370°C	$Y_{Gas\ oil}\%$	(wt/wt)
Vacuum Gas oil, 370°C - 535°C	$ m Y_{VGO}\%$	(wt/wt)
Vacuum Residue, 535°C +	$Y_{Resid.}\%$	(wt/wt)

Within each cut the following physical properties shall be determined:

Kerosene Density at 15°C	$(\rho_{ m Kero})$
Gas oil Density at 15°C	$(\rho_{Ga\ soil})$
Vacuum Residue weight per cent sulphur	$(S_{Residue})$
Vacuum Residue viscosity at 50°C in cSt.	$(V_{Residue})$

The inverse Density for each Entrant will be calculated according to Appendix 2.

### 4. SAMPLING AND ANALYSES

Calculations shall be based on Monthly samples of the Entrants' Crude Petroleum. The content of Off Gases shall, however, be based on synthetic assays made as part of the Allocation Procedure.

The sampling frequency shall be Monthly according to the Agreement and may be altered if agreed by Producers and Other Producers. However, where such sampling frequency is not Monthly then sampling shall revert to a Monthly frequency if a change or expected change of an Entrant's Crude Petroleum is estimated to have an impact on the GPW of that Entrant's resulting Allocated Crude Oil.

The costs of sampling and analysis of the Entrants' Crude Petroleum shall be paid by Transporter to be included in the Pipeline Costs.

The samples shall be analysed by a mutually agreed single accredited independent laboratory and measurements made in accordance with Exhibit B, Measurements, Tests and Sampling, to the Agreement. The new sample properties shall be applied from the Month in which the sample analysis is applicable in accordance with Appendix 2.

If a sample is destroyed or in other way not representative for the Month, the analysis of the sample of the previous Month shall be applied for the Month.

# 5. PRODUCT PRICES

The calculation of GPW shall be based upon the Monthly average of the daily mean cargo price quotations c.i.f. NWE (basis ARA) in USD/Tonne for the following products taken from the Platt's Oilgram Price Report for the relevant Month:

Naphtha Physical	(P <sub>Naphtha</sub> )	PAAL00
Jet-Kero	$(P_{Kero})$	PJAAU00
Gas oil (0.1% sulphur)	(P <sub>Gas oil</sub> )	POAAC00
0.5-0.6% Sulphur Vacuum Gas oil	$(P_{VGO})$	AAHMZ00
1% Sulphur Fuel oil	$(P_{LSFO})$	PUAAL00
3.5% Sulphur Fuel oil	$(P_{HSFO})$	PUABA00

### 6. STANDARD PRODUCT PROPERTIES

The standard quality specifications applicable to the product prices above are:

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Density at 15°C	$(\rho_{Std.Kero})$	0.800 kg/l
Gas Oil: Density at 15°C Sulphur by per cent weight Kinematic Viscosity at 50°C	$\begin{aligned} &\left(\rho_{Std.Gas~oil}\right) \\ &\left(S_{Std.Gas~oil}\right) \\ &\left(V_{Std.Gas~oil}\right) \end{aligned}$	0.845 kg/l 0.1 3.00 cSt
Fuel Oil: Low-sulphur by per cent weight High-sulphur by per cent weight Kinematic Viscosity at 50°C	$(S_{LSFO})$ $(S_{HSFO})$ $(V_{Std.Fuel})$	1.0 3.5 420 cSt

These standard quality specifications are required in the GPW calculations herein in order to take into account the differing qualities in each distillation cut of each Entrant's Crude Oil.

# 7. KEROSENE VOLUME ADJUSTMENT CREDIT

For any Entrant the kerosene volume credit ( $VC_{Kero}$ ) shall be calculated in order to take into account the kerosene cut Density of Allocated Crude Oil relative to the standard kerosene Density referred to in this Exhibit F to the Agreement:

$$VC_{Kero} = Y_{Kero} \% * P_{Kero} * ((\rho_{Std.Kero}/\rho_{Kero}) - 1) / 100 (USD/Tonne)$$

### 8. GAS OIL VOLUME ADJUSTMENT CREDIT

For any Entrant the gas oil volume credit ( $VC_{Gas\ oil}$ ) shall be calculated in order to take into account the gas oil cut Density of Allocated Crude Oil relative to the standard gas oil Density referred to in this Exhibit F to the Agreement:

 $VC_{Gas~oil} = Y_{Gas~oil}\% * P_{Gasoil}* ((\rho_{Std.Gas~oil}/\rho_{Gas~oil}) - 1) \ / \ 100 \ (USD/Tonne)$ 

# 9. RESIDUE VISCOSITY BLENDING AND SULPHUR CONTENT VALUE ADJUSTMENT

For any Entrant the value of the vacuum residue cut of Allocated Crude Oil shall take into account its viscosity and sulphur content. The impact of viscosity on the value of the vacuum residue shall be accounted for by a process of blending or deblending the vacuum residue with current standard viscosity gas oil ( $V_{Std.Gas\ oil}$  as stated above) in order to bring the residue cut of Allocated Crude Oil to the current standard market viscosity of fuel oil ( $V_{Std.Fuel}$  as stated above). As a refinery would preferentially use a cheaper cutter stock than marketable grade gas oil, the price of such cutter stock is deemed to be 90% of the price of gas oil.

To perform vacuum residue viscosity blending calculations, it is necessary to calculate the vacuum residue cut viscosity blending number (VBN) for Allocated Crude Oil according to the equation below:

$$VBN = 23.097 + 33.468 * LOG_{10} (LOG_{10} (V_{Residue} + 0.8))$$

The same formula shall be used to calculate the VBN of standard gas oil ( $VBN_{Std.Gas}$  oil) and the VBN of standard fuel oil ( $VBN_{Std.Fuel}$ ) by substituting the relevant viscosity.

The quantity of standard gas oil blended into the residue cut (SGO<sub>Blended in</sub>) of Allocated Crude Oil shall be calculated as follows:

$$SGO_{Blended\ in} = (VBN_{Residue} - VBN_{Std.Fuel}) * Y_{Residue}\% / (VBN_{Std.Fuel} - VBN_{Std.Gas\ oil}) [wt\%]$$

For Allocated Crude Oil the weight percentage of sulphur in the viscosity adjusted residue ( $S_{Residue\ visc.}$ ) by the addition of standard gas oil shall be calculated according to the equation below:

$$S_{Residue.visc.} = (Y_{Residue}\% * S_{Residue} + SGO_{Blended in} * S_{std.Gas oil}) / (Y_{Residue}\% + SGO_{Blended in})$$
[wt %]

The price of the viscosity and sulphur adjusted residue (P<sub>Residue.visc.sulph</sub>) for Allocated Crude Oil shall be further adjusted to take account of the actual sulphur content of the viscosity adjusted residue according to the equation below:

$$\begin{array}{lll} P_{Residue.visc.sulph.} = & ((Y_{Residue}\% + SGO_{Blended\ in}) * (P_{HSFO+}(S_{HSFO-}S_{Residue.visc.})*(P_{LSFO-}P_{HSFO})/(S_{HSFO} - S_{LSFO})) - & SGO_{Blended\ in} * P_{GO} * 90\%)/(Y_{Residue}\%) \end{array}$$

### 10. GROSS PRODUCT WORTH

The GPW of Allocated Crude Oil is calculated as follows:

The calculated GPW in USD/Tonne for Allocated Crude Oil is converted to USD/Barrel (U.S.) according to the following equation:

$$GPW \; (USD/Barrel) \quad = \quad \quad \frac{GPW \; (USD/Tonne)}{Inv \rho_{Allocated \; Crude \; Oil}}$$

### 11. MONETARY SETTLEMENT BETWEEN ENTRANTS

In order to account for the difference for each Entrant in value between Allocated Crude Oil, a financial settlement shall be made according to this Section 11.

The GPW of DB for the Month is calculated as follows:

 $GPW_{DB} = x*GPW_{E1} + y*GPW_{E2} + z*GPW_{E3} + ...$ 

where;

 $GPW_{DB}$  is GPW of DB

GPW<sub>E1...</sub> is GPW of Allocated Crude Oil

x, y, z is the proportion of Allocated Crude Oil in the DB

during the Month where

$$x + y + z + \dots = 1$$

The total monetary gain or loss accruing to each Entrant in a Month by commingling is calculated as follows:

 $GL_E = (GPW_{DB} - GPW_E) * Q_E$  [USD]

where:

GL<sub>E</sub> total monetary (gain) / loss to that Entrant

Q<sub>E</sub> the Allocated Crude Oil quantity allocated to that

Entrant in a relevant Month (Barrels) as determined

by the Allocation Procedure.

The sum of monetary gains and losses for all Entrants must always equal zero.

Transporter will on behalf of Owed Entrants promptly after each Month invoice the Owing Entrant(s) together with a statement of the above calculations to allow review of such calculations.

Payment to Transporter is due within thirty (30) Days following receipt of such invoice. The Owing Entrants shall pay the said invoice without deduction, whether or not any of or the entire amount of the invoice is disputed. Any late payment shall bear interest in accordance with the Danish Overdue Payments Interest Act as amended from time to time. Transporter will promptly upon receipt of the invoiced amount forward the received amount to the respective Owed Entrant(s).

# 12. REVIEW – PRODUCERS' FORUM

Twelve (12) months after an Entrant's first delivery of Crude Petroleum to the Pipeline the Producers' Forum shall meet in accordance with Section 19.11 of the Agreement to review the operability, accuracy and refinery value representation of this Exhibit F and, if necessary, agree any actions to be made.

### 13. AUDIT RIGHTS OF CALCULATION

Producers and Other Producers shall have the right to audit the calculations and records of this Exhibit F to the Agreement. The right of audit includes the right of access at reasonable times during normal business hours to all calculations and records pertaining to Exhibit F maintained by Transporter and its Affiliates. Notwithstanding termination of the Agreement or any transportation agreement between Transporter and Other Producers, this right shall extend for a period of twelve (12) Months following the end of the calendar year in which the calculations were made. With the exception of the ascertainment of historical mis-measurements or measurement inaccuracies or unresolved audit findings all records will be considered correct thereafter.

A Producer shall give at least thirty (30) Days' notice of their intention to conduct such an audit and will use reasonable endeavors to conduct such audits jointly with other Producers and in a manner which results in the minimum of inconvenience to Transporter.

Transporter shall in his contract with independent laboratory or any third party arising from the provisions of Section 16 herein secure a similar right of audit.

### 14. CORRECTION METHODOLOGY

In the event that a calculation error, incorrect price or sample analysis has been used in this Exhibit F, the Transporter shall promptly issue a revised statement giving such details of any correction and a calculation of monies required to correct such event. Such monies will be included in the next Monthly calculation of Owed Entrants and Owing Entrants.

### 15. DISPUTE RESOLUTION

Any dispute arising out of this Exhibit F to the Agreement shall, unless subject to the authority of the Relevant Authority according to Section 19.3 of the Agreement, be settled in accordance with Article XIV of the Agreement and the provisions of said article shall apply mutatis mutandis to all Producers and Other Producers.

### 16. DISCHARGE OF OBLIGATION

Transporter may discharge its rights and obligations under this Exhibit F to the Agreement in whole or in part to one or more Third Parties; however, Transporter shall remain responsible and liable for the good performance by such third party.

# 17. APPENDICES

The following Appendices are part of this Exhibit F:

- 1. Exemplification
- 2. Procedure for Establishing Data for the Value Adjustment

### 18. DISCLOSURE AND CONFIDENTIALITY

All Parties agree to disclose all relevant information in order to make this Exhibit F operational and hereby waive the confidentiality restrictions under the Agreement. Any information received under this Exhibit F to the Agreement shall be kept confidential in accordance with the principles of confidentiality of the Agreement.