JADRANSKI NAFTOVOD, dioničko društvo (JANAF Plc.)
ZAGREB (Croatia), Miramarska cesta 24
Ref. No: 433/20

TECHNICAL CONDITIONS FOR ACCESS TO JANAF TRANSPORTATION CAPACITIES

Zagreb, 2020

JADRANSKI NAFTOVOD, dioničko društvo
ZAGREB, Miramarska cesta 24
Ref. No: 433/20

TECHNICAL CONDITIONS FOR ACCESS TO JANAF TRANSPORTATION CAPACITIES

Zagreb, 2020

CONTENTS

1. INTRODUCTORY PROVISIONS

Article 1

Technical conditions for access to the JANAF transportation capacities (hereinafter referred to as: Technical Conditions) shall be applied by JANAF in its business activities, and they shall be binding for JANAF and all its offtakers.

Article 2

The expressions used in the wording of the Technical Conditions shall have the following meaning:

Crude oil
Liquid hydrocarbons intended for processing in the refinery facilities.

Grade
The expression used to identify crude oil from a particular source generally having the same defined properties.

Offtaker
The legal entity for whose account JANAF transports or stores crude oil in the pipeline system.

Pipeline system
Port installations with berths and pipelines running from the terminal to the offtakers with all facilities, equipment and related plants, i.e. receiving and dispatching terminals, tank farm, pump stations, handling pipings, metering and control systems, telecommunications and other systems necessary for the receipt, transportation, storage and delivery of crude oil.

Port of Omišalj
Port with berthing facilities, receiving facilities, loading and unloading facilities and various kinds of ancillary installations, under the management of the Port of Rijeka Authority in accordance with the regulations of the Republic of Croatia.

Terminal
Tank farm with handling pipings and pump stations with all related facilities and utilities in Omišalj, Sisak, Virje and Slavonski Brod.

Receiving point
Place where JANAF receives crude oil from offtakers as per quality and quantity.

Metering point
Place where quantity is measured during receipt and delivery of crude oil.

Sampling point
Place of taking the samples, which is competent for determination of quality.

Delivery point
Place where JANAF delivers crude oil to offtakers as per quality and quantity.

Border crossing point
A geographical point where the pipeline intersects the line of the Croatian border and whereto/wherefrom JANAF transports crude oil. For tanker, the border crossing point is the point of flange coupling on the unloading arms.

Cargo
Quantity of crude oil of determined properties received by JANAF at the receiving point.

Batch
Quantity of crude oil of determined properties (of different or the same grade) which is transported to the delivery point.

Transportation Calendar
Programme of the arrival of individual tankers into the Port of Omišalj and programme of crude oil delivery from the receiving to the delivery point.

Average crude oil sample
A sample of crude oil that represents an average quality of received or delivered crude oil, and taken according to the standards mentioned in Attachment 3.

Article 3

In the range of its activities, JANAF performs the transportation of crude oil through the pipeline system from the receiving up to the delivery point, including all activities indispensable for transportation as well as storage operations.

2. PROPERTIES OF TRANSPORTED CRUDE OIL

Article 4

JANAF receives for transport crude oil having properties, which do not exceed the following limit values:

DENSITY	880 kg/m³ max. at 15°C
VISCOSITY	55 mm²/s (cSt) max. at 10°C
BASIC SEDIMENT AND WATER (BSW)	1% vol. max.
VAPOUR PRESSURE (Reid)	50 kPa max.
SULPHUR CONTENT	2.8% m/m max.
POUR POINT	+ 6°C max.

The standards regulating the quality determination procedures are listed in Attachment 3.

Receipt, transportation, storage and delivery of crude oil with the properties exceeding the indicated limit values shall be separately agreed upon between the contracting parties, provided that such deviations are acceptable to JANAF, and the offtaker is obliged to notify JANAF of such crude oil at least 30 days in advance.

Article 5

The offtaker shall, when submitting the details for the Annual Transportation Calendar, notify JANAF of the basic properties of crude oil to be transported by JANAF.

JANAF is capable of transporting or storing only two grades of crude oil at a time for each individual offtaker provided such crude oil grades are within the quality range defined in Article 4.

The offtaker shall, in the notification on the basic properties of crude oil, submit to JANAF the following data:

- density at 15°C or °API,
- viscosity at 20°C and 40°C in mm^2/s (cSt),
- basic sediment and water (BSW),
- vapour pressure (Reid),
- sulphur content,
- H_2S content in a liquid phase,
- pour point,
- content of organic chlorides in crude oil,
- information of the compounds whose concentration in crude oil requires the additional protection and security measures.

The offtaker is obliged to submit the written confirmation of the stated crude oil properties in terms of the laboratory analysis of the same.

Article 6

JANAF shall refuse to transport and store any crude oil whose properties may have adverse effects on other crude oils in the JANAF system, or may cause damage to the facilities and/or property of JANAF and the facilities and/or property of other offtakers respectively. JANAF shall notify the offtaker in writing on the reasons for such refusal, and JANAF shall not be liable for any damage that might occur for the offtaker and/or the third party due to such JANAF's action.

The offtaker who delivered for transportation the crude oil that might have and/or did have adverse effects on other crude oils in the JANAF system or that might cause damage to the facilities and other property of JANAF, and to the facilities and other property of other offtakers, is obliged to bear the entire costs that shall arise for JANAF and/or the third party for the purpose of removal of such crude oil from the JANAF system and/or the systems of other offtakers. JANAF shall not be obliged to indemnify to such offtaker any damage that might occur due to JANAF's actions taken in order to remove the dangers for the JANAF system and the facilities of JANAF and those of other offtakers.

The offtaker is liable for any damage to JANAF and/or other offtaker that occurred or is related to the wrong and/or insufficient and/or incorrect information and data on the crude oil properties delivered for transportation, according to the principle of objective liability.

The damage occurred in relation to the wrong and/or insufficient and/or incorrect information on the crude oil properties delivered by the offtaker to the transportation is considered to originate from such crude oil unless it is to be proved that such crude oil was not the cause of damage.

3. METHOD OF OPERATION

Article 7

Respecting the JANAF Transportation Calendar represents one of the terms providing proper fulfilment of the obligations undertaken by the Contract on crude oil transportation and by the Technical Conditions, and JANAF may reject any request, which is not in compliance with the Transportation Calendar. JANAF shall aim to propose an appropriate solution for each case from this Article.

Article 8

JANAF shall transport and handle crude oil with due care, taking account of its quality and quantity, in accordance with the common practice for pipeline transportation, unless otherwise provided for by the Contract on crude oil transportation or by the Technical Conditions.

JANAF shall deliver to offtakers the crude oil of the same grade (crude oil defined by its origin) and of the same properties respectively as the crude oil received for transportation or storage.

Article 9

JANAF shall store crude oil of different quality in different storage tank units depending on the storage capacities available.

JANAF is permitted to mix crude oil only as provided under Attachment 1 to these Technical Conditions.

Exceptionally, if, due to insufficient storage, JANAF shall not be able to meet the above-stated requirements, JANAF may, upon the approval given by offtakers, take all measures it considers appropriate including also mixing not provided for under Attachment 1.

4. TRANSPORTATION CALENDAR

Article 10

By the 1st November of the current year, all offtakers shall submit to JANAF for the next year the details on sizes and number of tankers, quantities of crude oil planned for transport, specified by grades, delivery points, quarters and approximately by months.

The offtakers shall further give the information on the planned standstills of the installations and plants for the year of the planned transportation.

The form of data submission is given as Attachment 2 to these Technical Conditions.

Article 11

Based on the information and data obtained as referred to in Article 10, by the 1st December of the current year JANAF shall prepare an Annual Draft Programme for the receipt, storage and delivery of crude oil for the next year, which shall be discussed and confirmed during the regular joint meeting of JANAF and offtakers in December of the current year.

In accordance with the Annual Programme, on the 15th of every month, JANAF shall notify offtakers of the

time available for transportation in the following month, as well as on the planned standstills due to the regular maintenance in the JANAF system.

The implementation of the Annual Programme for the current year shall be discussed during the regular joint meetings of JANAF and offtakers, which will be held in May and in November.

Article 12

Every week, in the term and for the period for transportation indicated in Attachment 2 hereto, “Procedure for Preparation of Transportation Calendar”, the offtakers shall submit to JANAF proposals for arrivals of tankers and dates of crude

oil delivery, and of crude oil receipt respectively in case of loading, taking account of the notification by JANAF from the second paragraph of the preceding Article.

Every week, in the term and for the period indicated in Attachment 2 hereto, JANAF shall submit to offtakers the Transportation Calendar with the scheduled arrival of tankers, storage and delivery of crude oil, having regard for the needs of the offtakers from the above paragraph to the largest possible extent.

Since the preparation of the Transportation Calendar is a continuous process, the first-week schedule in each issue of the Transportation Calendar represents the executive schedule, while the schedules for the following three weeks are forecasts subject to revision in the next issue of the Calendar.

Valid issue of the Transportation Calendar makes the basis for the application of those articles of the Technical Conditions to which they are related.

In case an offtaker requests the receipt, storage or delivery of crude oil quantities in excess of those stated in the valid Calendar, while such requested receipt, storage or delivery is likely to interfere with the JANAF's operation, JANAF may postpone the receipt, storage or delivery of the quantities without incurring any claim for compensation.

JANAF shall notify the offtaker of possible postponements as early as possible.

In order to remove any doubt, JANAF shall not be responsible to the offtaker for any damage in case of a change in the Transportation Calendar, especially as regards the terms of available time for transportation as well as terms of the planned standstills due to the regular maintenance in the JANAF system.

Article 13

If due to force majeure, due to a repair emergency or due to similar unforeseen circumstances the capacity of the pipeline system is reduced, JANAF shall distribute such reduced capacity among the offtakers in proportion to the crude oil quantities of each offtaker as determined by the Transportation Calendar. JANAF shall not be liable to the offtakers for any damage that might arise for the same from such JANAF's action.

5. RECEIPT AND DELIVERY OF CRUDE OIL IN THE PORT OF OMIŠALJ

CRUDE OIL UNLOADING FROM TANKER

Article 14

The offtaker undertakes to make available to JANAF the crude oil on the berth facilities for unloading in the Port of Omišalj in accordance with the Transportation Calendar.

The offtaker is obliged to notify JANAF in writing of the exact arrival time of tanker and the properties of cargo in compliance with the respective Transportation Calendar.

The offtaker or the company authorised by the offtaker shall send the first notice in writing. Such notice shall state the following:

- name of a tanker,
- flag of a tanker,
- DWT, draught and length of a tanker,

- port of loading and time of departure,
- ETA of a tanker in the Port of Omišalj,
- quantity of cargo in tons and barrels,
- origin of cargo,
- quality of cargo in terms of Article 5,
- temperature of crude oil in degrees Celsius (°C),
- actual unloading rate of tanker's pumps.

The offtaker shall send the first notice of cargo loading to the following address:

JADRANSKI NAFTOVOD, dioničko društvo (JANAF Plc.), Commercial Division, Zagreb, Miramarska cesta 24.

The second notice shall be sent by the ship's master or the ship's agent 72 hours prior to the entrance of tanker into the Port of Omišalj and it shall state the following:

- name of a tanker,
- the exact date and expected hour of arrival at anchorage in the area of the Port of Rijeka Authority.

In case of loading in the Mediterranean ports, the second notice shall be sent 48 hours prior to the entrance of tanker into the Port of Omišalj.

The ship's master is obliged to submit the final notice, giving the exact date and hour of arrival, 24 hours prior to the entrance of tanker into the area of the Port of Rijeka Authority. Should there be any change in the arrival time, the ship's master shall immediately notify JANAF and the Port of Rijeka Authority accordingly.

Prior to the commencement of unloading operation the ship's master is obliged to hand over to JANAF's authorised representative the following documents:

- one non-negotiable copy of Bill of Lading,
- Cargo Manifest,
- Certificate of Origin,
- Certificate of Quality,
- Certificate of Quantity,
- Ullage Report,
- OBQ,
- Vessel Experience Factor,
- sealed samples of crude oil from the loading port with an accompanying report.

CRUDE OIL LOADING ON TANKER

Article 15

JANAF undertakes to make the crude oil available to the offtaker on the berth facilities for loading in the Port of Omišalj in accordance with the Transportation Calendar.

The exact arrival time of tanker and the properties of cargo should be precisely notified to JANAF by the offtaker in compliance with the respective Transportation Calendar.

The offtaker or the company authorised by the offtaker shall send the first notice in writing. Such notice shall state the following:

- name of a tanker,
- flag of a tanker,
- DWT, draught and length of a tanker,
- ETA of a tanker in the Port of Omišalj,
- quantity of cargo for loading in tons and barrels,
- maximum allowable rate of cargo loading.

The offtaker shall send the first notice of tanker arrival to the following address:

JADRANSKI NAFTOVOD, dioničko društvo, Commercial Division, Zagreb, Miramarska cesta 24.

The second notice shall be sent by the ship's master or the ship's agent 72 hours prior to the entrance of tanker into the Port of Omišalj and it shall state the following:

- name of a tanker,
- the exact date and expected hour of arrival at anchorage in the area of the Port of Rijeka Authority.

In case of arrival from the Mediterranean, the second notice shall be sent 48 hours prior to the entrance of tanker into the Port of Omišalj.

The ship's master is obliged to submit the final notice, giving the exact date and hour of arrival, 24 hours prior to the entrance of tanker into the area of the Port of Rijeka Authority. Should there be any change in the arrival time, the ship's master or the ship's agent shall immediately notify JANAF and the Port of Rijeka Authority accordingly.

Prior to the commencement of loading operation the ship's master is obliged to hand over to JANAF's authorised representative the following documents:

- ullage report,
- safety checking list tanker/terminal,
- tanker's notice of readiness for the cargo receipt.

Article 16

The unloading/loading programme shall be determined in agreement between JANAF and the ship's master and JANAF shall make the efforts to provide for the cargo handling at the maximum unloading/loading rate.

Article 17

A tanker is obliged to reach the area of the Port of Rijeka Authority within the time determined by the Transportation Calendar.

A tanker shall be deemed to have arrived in the Port of Omišalj in due time if she enters the port 2 (two) days before or after the date scheduled in the Transportation Calendar.

JANAF shall accept on the berth a tankers arriving in due time within the agreed laytime and in accordance with the conditions defined by the Contract on transportation/storage.

Exceptionally, JANAF shall be entitled to determine a different turn of tanker reception, if the accommodation of tanker, in terms of the provisions from the previous paragraph, happens to interfere with the delivery of crude oil to offtakers as determined in the Transportation Calendar, provided that JANAF shall notify the offtakers of such change in the turn.

If a tanker reaches the Port of Omišalj before her expected time, she is obliged to wait until the time determined in the Transportation Calendar. Should the circumstances allow to do so, JANAF shall accommodate such tankers according to a sequence of their arrival and shall start with (un)loading operations earlier than indicated in the Transportation Calendar, provided that the same does not affect the planned receipt, and (un)loading of crude oil of other tankers arrived on due time.

Tankers arriving after their expected time shall be accommodated provided that the berth is cleared and that there is no other due time tanker waiting to be (un)loaded. The sequence of arrival should, if possible, be respected.

If the (un)loading of a tanker late in arrival caused additional expenses to JANAF, JANAF should be compensated by the respective offtaker.

Time of crude oil delivery to offtakers shall be adjusted according to the deviations in the arrival of tankers from the time determined by the Transportation Calendar.

JANAF is responsible for demurrage only in case the demurrage is due to JANAF's fault.

Tankers arrived and accommodated before or after their expected time shall, at request, leave the berth, having failed, due to their negligence or fault, to (un)load their cargo within 30 running hours weather permitting.

Article 18

A tanker is obliged to discharge her cargo and to deliver the same to the Omišalj Terminal within 30 running hours weather permitting, and the Omišalj Terminal is obliged to take over the cargo within that period (weather permitting).

The discharge hours are running from the moment when a tanker has her first rope ashore and shall end when on completion of discharge, the unloading arms are disconnected, and the last rope ashore is off.

Besides 30 running hours required for cargo discharge, tankers are allowed 5 (five) hours for crude oil washing operation (COW).

During crude oil loading onto a tanker, the loading time is limited by the pipeline capacity.

Article 19

Should the offtaker exceed the time for keeping crude oil in the pipeline system as determined in the Transportation Calendar, JANAF shall make the efforts to store such crude oil.

For keeping the crude oil in the pipeline system beyond the time determined by the Transportation Calendar, the offtaker shall compensate to JANAF all costs and possible damage occurred by such keeping.

Should the event from the previous paragraph hereof occur while a tanker with a new cargo for the same offtaker arrives and JANAF is unable to accept such crude oil, JANAF may refuse to receive a tanker until the offtaker takes over its crude oil from the pipeline system.

6. ADDITIONAL SERVICES

SERVICE OF CRUDE OIL MIXING

Article 20

At the offtaker's request and within its technical possibilities, JANAF shall perform an additional service of mixing different crude oil grades that individually satisfy the crude oil properties referred to in Article 4 of the Technical Conditions.

The conditions for performing the stated service are the available storage capacity for crude oil receipt at the Omišalj/ Sisak Terminal and an interval between arrivals of two components (cargo, crude oil grade) of max. 7 (seven) days.

The offtaker shall check the compatibility of all components intended for mixing and give the written instructions to JANAF on the required ratios of individual components for mixing, on its own risk and responsibility.

SERVICE OF CRUDE OIL TREATMENT

Article 21

At the offtaker's request, JANAF may allow the crude oil treatment service to be performed at the Omišalj Terminal for the purpose of lowering the pour point and lowering the content of hydrogen sulphide (H_2S) by a legal entity nominated by the offtaker if the following conditions are cumulatively satisfied:

(i) the stated legal entity is specialised for performing such services;

(ii) it fulfils the conditions required for entering the JANAF system;

(iii) it has the agreement concluded with JANAF thereon.

JANAF is not a purchaser or service provider and in no way participates in performing the relevant service and is in no way responsible for method, quality, safety and consequences of performing the stated service,

nor for anything else related to the relevant service and shall be considered as the third party in relation to the same.

Article 22

The quantity measurement and sampling for the final quality analysis of the treated crude oil shall be performed by the inspection company of JANAF and attended by the inspection company to be determined by the offtaker and shall be conducted in a storage tank after the preformed treatment.

Article 23

The offtaker shall be entirely and unlimitedly liable to JANAF for the method, quality and safety of performing the treatment service referred to in Article 21 and that the crude oil upon the completion of the relevant service shall completely correspond to the properties stated in the valid Contract on transportation/storage (pour point of max. +6°C).

The offtaker shall be entirely and unlimitedly liable to JANAF, and third parties for all damage that might arise as a result of performing the service referred to in Article 21, which especially includes (but is not limited to): (i) all damage caused on the property and installations of JANAF; (ii) damage to the crude oil and the environment occurred due to the crude oil pollution, (iii) physical injuries, health impairment and deaths; (iv) damage occurred while keeping the crude oil in the JANAF system and transferring the crude oil from the JANAF system (e.g. retention costs, transfer costs, loss of profit) and similar.

7. QUANTITY MEASUREMENT AND QUALITY ANALYSIS

Article 24

Authorised representatives of the offtakers shall take over the crude oil on board tanker in the Port of Omišalj on the basis of Bill of Lading and other relative documents.

JANAF shall receive the crude oil unloaded from a tanker at the flange coupling on the unloading arms. The quantity of the unloaded crude oil shall be determined in the storage tanks of the Omišalj Terminal, while the quality shall be determined from the sample taken from the ship, if not otherwise stipulated or if there are no significant deviations between its properties and the properties of other crude oils at the Omišalj Terminal. In the case of crude oil having the density significantly lower than the density of the tank technical minimum, a composite sample shall be made in the storage tanks, whose quality then becomes relevant for the calculation of quality towards the offtakers.

JANAF shall deliver the crude oil intended for loading on a tanker at the flange coupling on the loading arms. The quantity of the loaded crude oil shall be determined in the storage tanks of the Omišalj Terminal or at the Metering Station MS 76101, while the quality is determined from the sample taken from the storage tank at the Omišalj Terminal or at the automatic sampler on the loading arms.

JANAF shall receive the crude oil from Hungary direction on the Croatian-Hungarian border. The quantity is determined according to the measurement results of the Metering Station MS 47101 at the Virje Terminal, while the quality is determined by the laboratory analysis of the samples taken at the automatic sampler of the Metering Station MS 47101.

JANAF shall receive the crude oil from the Sisak Oil Refinery direction in the storage tank farm at the Sisak Terminal. The quantity is determined according to the measurements of the tank or at the Metering Station

MS 28101, while the quality is determined by the laboratory analysis of the sample taken from the storage tank at the Sisak Terminal or at the automatic sampler of the Metering Station MS 28101.

Article 25

JANAF and its authorised inspection company shall perform sampling, quantity measurement and quality analysis, and the representatives of the offtakers and their authorised inspection companies shall witness the above-stated procedure. A protocol shall be prepared thereon, which is to be signed by both parties. The form and contents of the protocols are given as Attachment 4 to these Technical Conditions. Customs formalities are to be arranged by the offtaker or its authorised representative according to the valid customs regulations.

Article 26

The quantity measurement of crude oil shall be made in compliance with the respective standards of the Republic of Croatia or the respective standards as indicated in Attachment 3 hereto.

Article 27

The quantity measurement of crude oil delivered to the offtakers at the metering point shall be made at the metering station.

If the metering station is out of function, the delivery shall be stopped temporarily. Further delivery shall be resumed with the measurement at the metering point on one of the following two locations, in JANAF's option:

- at the nearest JANAF terminal,
- in the storage tanks of the offtaker.

The points of crude oil delivery to the offtakers are as follows:

- Metering Station MS 73101 of the Omišalj-Urinj oil pipeline section at the Omišalj Terminal for the Rijeka Oil Refinery direction,
- Metering Station MS 28101 at the Sisak Terminal for the Sisak Oil Refinery direction,
- Metering Station MS 37101 at the Slavonski Brod Terminal for the direction to Bosnia and Herzegovina,
- Metering Station MS 47101 at the Virje Terminal for the direction to Hungary,
- Metering Station MS 84101 at Sotin for the direction to Serbia,
- Metering Station MS 76101 for a tanker loading at the Omišalj Terminal.

Article 28

If the representative of the authorised company selected by the offtaker shall disagree over the results of quantity measurement in the tanks and/or the quality control, the same procedure should be immediately repeated.

If the repeated procedure fails to give identical results as regards the quantity and/or quality, the offtaker shall, at its expense, ask an independent authorised inspection company to repeat the quantity measure-

ment and/or quality control and consequently to make the final decision and all this to be completed within 24 hours.

JANAF shall give its prior written consent to the selection of an independent authorised inspection company from the previous paragraph. The authorised representatives of JANAF and the offtaker are entitled to attend the procedure of the quantity measurement and/or quality control from the previous paragraph.

The final expenses incurred for passing the arbitration decision shall be borne by the party whose findings deviate more from the findings of the arbitration.

Article 29

In order to avoid excessive and unnecessary disputes, the parties agree that disputes arising out of the present Technical Conditions, which cannot be settled by direct discussion, will be put on the agenda of the joint meeting of JANAF and the offtakers.

This procedure is of mere conciliating nature and cannot affect the right of the parties to settle disputes by arbitration as stipulated by the Contract.

Article 30

JANAF and its authorised inspection company shall take the control samples, and the representatives of the offtakers and their authorised inspection companies shall witness the sampling procedure.

The samples are taken as follows:

- during the crude oil receipt from a tanker by manual sampling from the ship's tanks, or by a method described in Article 24, paragraph 2;
- during the crude oil receipt from the Hungarian direction at the Metering Station MS 47101 using an automatic sampler, or if the same is not operational, by manual sampling;
- during the crude oil delivery at the metering stations using an automatic sampler or, if the same is not functional, by manual sampling;
- during the crude oil receipt from the Sisak Refinery at the Metering Station MS 28101 using an automatic sampler, or if the same is not operational, by manual sampling;
- during a tanker loading at the Omišalj Terminal at the Metering Station MS 76101 using an automatic sampler or, if the same is not operational, by manual sampling from the tanks at the Omišalj Terminal.

Taking samples for analysis purpose and keeping those samples shall be made in compliance with the valid standards provided for in Attachment 3 hereto.

The offtaker is obliged to submit to JANAF possible objections on crude oil quality within 8 (eight) days upon the receipt/delivery of the relevant oil batch or cargo respectively.

Control samples shall remain sealed for possible needs of arbitration and at the disposal of the parties 21 days after taking, while in case of a dispute until its settlement.

Article 31

JANAF is entitled to mix the crude oil within the range given in Table 2 - Attachment 1 hereto.

Mixing during storage and transport and/or contamination during transport provided for in Attachment 1 allow for a discrepancy from crude oil properties established during receipt at the annual level, as follows:

density	± 1 °API
basic sediment and water (BSW)	± 0,25% v/v
sulphur	± 0,25% m/m

Article 32

Crude oil quantities received in the pipeline system and delivered to offtakers at the delivery point are recorded in net kilograms on the air.

The records are kept continuously on the offtaker-by-offtaker basis. The records shall contain data on quantity and quality of crude oil received for transport, and again the same data on crude oil delivered to each offtaker and also of the status of supplies in the pipeline system.

Article 33

Based on the Protocols on received and delivered quantities, including the quality analysis, JANAF shall prepare the annual statement of quantities received and delivered for each offtaker. JANAF shall submit the annual statement to the offtakers by 31st January for the previous year.

A shortage for each individual offtaker shall not exceed the contracted maximum allowable shortage. The quality deviations at the annual level shall not exceed the maximum deviations allowed by the Contract.

8. DELIVERY OF CRUDE OIL TO OFFTAKERS

Article 34

JANAF shall deliver the transported crude oil to the offtaker at the delivery point.

Article 35

JANAF may commence the crude oil delivery to the offtaker at any time from the moment the crude oil has been received into the pipeline system in compliance with the Transportation Calendar, with the notification given to the offtaker.

JANAF shall notify the offtaker of the commencement of delivery of a batch.

If the offtaker is unable to accept or refuses to accept the batch stored in JANAF's tank farm and ready for transport in the period determined in the Transportation Calendar, the offtaker is obliged to try immediately to solve that problem in agreement with other offtakers and JANAF. If the offtaker fails to solve the problem within not later than 48 hours from the time determined in the Transportation Calendar for delivery of the concerned batch at the delivery point, JANAF has the right to take all the measures it finds necessary, including the right to sell the crude oil.

If the offtaker is unable to accept or refuses to accept the batch, which has already been pumped into the pipeline and consequently hampers the accomplishment of the Transportation Calendar, JANAF has the right to take without delay all measures, which it finds necessary to have the pipeline system free, including also the sale of crude oil.

In that case, the crude oil shall be sold at the public auction, and the funds obtained by such sale shall be, unless stipulated otherwise, remitted to the offtaker, while from that amount JANAF deducts the transportation and storage fees and costs incurred relative to the sale, and such amounts as JANAF might therefore be obliged to pay. The deduction is to be made based on authentic documents.

If, due to the reasons stated herein, JANAF would have to interrupt the transportation either partially or completely, damages derived therefrom shall be dealt with in accordance with provisions of the Contract on crude oil transportation.

Quantities of non-delivered crude oil cannot be physically compensated.

9. LIABILITY

Article 36

The offtaker shall be liable and is obliged to compensate to JANAF all additional costs and/or to indemnify the damage that occurs to JANAF due to the fact that the offtaker has failed to deliver crude oil for transport and/or has failed to take over crude oil in compliance with the Transportation Calendar.

The offtaker shall be liable to JANAF for all damage on the facilities and other property of JANAF and for all damage to other offtakers on the facilities of other offtakers and/or cargoes of other offtakers, that are caused by incorrect and/or insufficient and/or false information of the offtaker regarding the properties of crude oil delivered for transport and/or storage, applying Art. 6 of the Technical Conditions.

JANAF shall be liable exclusively for ordinary damage on crude oil and ordinary damage caused by crude oil, while such crude oil is at JANAF's custody, if and to the extent that such ordinary damage is exclusively due to the intention or gross misconduct of JANAF.

JANAF shall not be liable for other forms of damage sustained by the offtakers and/or any third party.

The offtaker shall be liable for any damage caused by pollution by crude oil.

JANAF is not obliged to ensure crude oil against possible risks in the pipeline system and shall not carry responsibility neither towards the offtaker nor the third parties.

The offtaker is obliged to ensure at its own expense crude oil in the JANAF pipeline system against all risks common for such type of cargo and such way of transport, and especially to have also liability insurance for pollution by crude oil.

10. CLOSING PROVISIONS

Article 37

The wording of the Technical Conditions in the Croatian and English languages is considered original and these languages are considered official in the communication with the offtakers.

All forms provided for under these Technical Conditions shall be prepared in both Croatian and English language.

Article 38

The constituent parts of the Technical Conditions are the following attachments:

Attachment 1	Principles of Grouping of Crude Oil Grades
Attachment 2	Transportation Calendar
Attachment 3	Determination of Quality and Quantity
Attachment 4	Forms of Protocol on Received - Delivered Crude Oil Quantities and Form of Report of Sampling and Analysis

Article 39

The Technical Conditions shall come into force and shall be applied from the date of their adoption.

MEMBER OF JANAF MANAGEMENT BOARD
Vladislav Veselica

CHAIRMAN OF JANAF MANAGEMENT BOARD
Stjepan Adanić, MSc.

JADRANSKI NAFTOVOD, dioničko društvo (JANAF Plc.)
ZAGREB (Croatia), Miramarska cesta 24

PRINCIPLES OF GROUPING OF CRUDE OIL GRADES

Zagreb, 2020

PRINCIPLES OF GROUPING OF CRUDE OIL

Article 1

Taking into account technical possibilities of the pipeline system and estimates as to the offtakers' possibilities for crude oil purchase, the crude oil shall be classified under three groups according to similar properties.

Article 2

During the preparation of the Annual Transportation Calendar, the variations in properties of three groups of crude oil may be considered depending on the technical possibilities of the pipeline system and Table 2 may possibly be amended accordingly.

Article 3

Table 1 gives the basic properties of crude oil per groups.

Table 2 gives the groups of crude oil as per their properties and the allowable mixing according to their origin. Whenever technically feasible, the mixing shall not exceed the ratio of 10/90 %.

Crude oil not covered by Table 2 shall be grouped in accordance with their basic properties given in Table 1.

Article 4

The expression ***"mixing of crude oil"*** shall understand the mixing of crude oil of different origin falling under the same group.

The expression ***"contamination of crude oil"*** shall understand the mixing of crude oil falling under different groups.

Article 5

The contamination may occur during transport in the pipeline and during storage in the tanks due to tank technical minimum.

The expression "tank technical minimum" shall understand the crude oil quantity in the tank required for buoyancy of the floating roof in the tank.

Article 6

Within the range of its technical possibilities, JANAF shall transport the crude oil in the manner to keep the contamination between two batches of different quality at the minimum.

TABLE 1. **BASIC PROPERTIES OF CRUDE OIL AS THE BASIS FOR GROUPING**

	GROUP I	GROUP II	GROUP III
°API, min	34	29	29
S, % mas.	max. 0,5	0,5 - 1,9	1,9 - 2,8

TABLE 2. **GROUPING AND ALLOWABLE MIXING OF CRUDE OIL OF DIFFERENT ORIGIN**

	GROUP I												GROUP II								GROUP III		
CRUDE OIL GRADE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
1 AZERI LIGHT	X	X	X	X	X	X	X	X	X	X	X	X											
2 BONNY LIGHT	X	X	X	X	X	X	X	X	X	X	X	X											
3 BRENT	X	X	X	X	X	X	X	X	X	X	X	X											
4 DSW	X	X	X	X	X	X	X	X	X	X	X	X											
5 ES SIDER	X	X	X	X	X	X	X	X	X	X	X	X											
6 FORCADOS	X	X	X	X	X	X	X	X	X	X	X	X											
7 MELLITAH	X	X	X	X	X	X	X	X	X	X	X	X											
8 NOVYPORT	X	X	X	X	X	X	X	X	X	X	X	X											
9 SIBERIAN LIGHT	X	X	X	X	X	X	X	X	X	X	X	X											
10 PANON	X	X	X	X	X	X	X	X	X	X	X	X											
11 TENGIZ	X	X	X	X	X	X	X	X	X	X	X	X											
12 WESTERN DESERT	X	X	X	X	X	X	X	X	X	X	X	X											
13 AL JURF													X	X	X	X	X	X	X	X			
14 ARABIAN LIGHT													X	X	X	X	X	X	X	X			
15 BONGA													X	X	X	X	X	X	X	X			
16 IRAN HEAVY													X	X	X	X	X	X	X	X			
17 IRAN LIGHT													X	X	X	X	X	X	X	X			
18 KIRKUK LIGHT													X	X	X	X	X	X	X	X			
19 SYRIAN LIGHT													X	X	X	X	X	X	X	X			
20 REB													X	X	X	X	X	X	X	X			
21 BASRAH LIGHT																					X	X	X
22 KBT																					X	X	X
23 KUWAIT																					X	X	X

X | Mixable

| Non-mixable

JADRANSKI NAFTOVOD, dioničko društvo (JANAF Plc.)
ZAGREB (Croatia), Miramarska cesta 24

TRANSPORTATION CALENDAR

Zagreb, 2020

TABLE 1. **PROCEDURE FOR PREPARATION OF TRANSPORTATION CALENDAR**

DATE	FOR PERIOD	DESCRIPTION	PREPARED BY:
By the 15th of the current month	for the following month	Available capacities for tanker reception and dispatching, storage and delivery of crude oil to offtaker	JANAF
Every Tuesday till 12.00 h, noon	for six (6) weeks	Planned arrival and departure dates of tankers, grade and quantity of crude oil, required dates for crude oil delivery at the delivery points	OFFTAKERS
Every Thursday till 12.00 h, noon	for four (4) weeks	Preparation of Transportation Calendar (executive schedule for the first week and schedule forecasts for the other three weeks), 52 issues per year, in total.	JANAF

In case an offtaker, on the occasion of the preparation of Transportation Calendar, renounces the already announced crude oil quantities and transportation dates and announces new dates and quantities and while acting so obstructs the implementation of the valid Transportation Calendar, JANAF shall, in preparing a new issue of the Transportation Calendar, give preference to the offtaker who does not renounce quantities and dates set in the previous issue of the Transportation Calendar.

TABLE 2. **FORM OF DATA SUBMISSION FOR PREPARATION OF ANNUAL TRANSPORTATION CALENDAR***

OFFTAKER	CRUDE OIL QUANTITY ANNOUNCED FOR TRANSPORT IN YEAR 20.....					CRUDE OIL GROUP FOR TRANSPORT IN YEAR 20.....			PLANNED NUMBER OF TANKERS	AVERAGE CARGO SIZE	PERIOD OF PLANNED OVERHAUL OF OFFTAKER
	Q1	Q2	Q3	Q4	IN 20__.	I.	II.	III.	YEARLY		

YEAR 20__.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	TOTAL
APPROXIMATE MONTHLY TRANSPORTATION SCHEDULE									
NUMBER OF TANKERS									

*Note: all quantities are given in tons

JADRANSKI NAFTOVOD, dioničko društvo (JANAF Plc.)
ZAGREB (Croatia), Miramarska cesta 24

DETERMINATION OF QUANTITY AND QUALITY

Zagreb, 2020

DETERMINATION OF QUANTITY

Article 1

Determination of received and delivered crude oil quantities is made by measurement.

Article 2

Quantity determination is made in kilograms, by which the gross and net mass of received and delivered crude oil is determined at the metering point.

Article 3

Gross and net mass shall be calculated on the basis of volume measurement corrected to the temperature of 15°C, obtained from the flow computer of the metering station and the quality data obtained in the laboratory (density, BSW).

Article 4

Determination of quantities shall be made on the following locations of JANAF: Omišalj Terminal, Sisak Terminal, Virje Terminal, Slavonski Brod Terminal and MS Sotin.

Article 5

Measurement of the crude oil level in tanks shall be made by means of an officially approved measuring tape or verified automatic tank level gauges.

When computing the volume, the use of valid and officially approved volume table is obligatory.

Article 6a

One copy of the tank volume tables issued by the State Office for Metrology (DZM) or other body authorised by DZM for the tank verification shall be made available for insight on those locations of JANAF where the respective tanks have been constructed. DZM can confer the powers and authorise other institution if it satisfies the requirements (the accreditation for the inspection bodies according to the HRN EN ISO/IEC 17020:2012 standard is also among the requirements). The tank volume table shall be made available for insight on those locations of JANAF where the relative tanks have been constructed.

Article 6b

The volume tanks are verified during the construction/repairs and then every ten (10) years. The verification period is determined by the Ordinance on the verification periods for individual legal meters and method of their use and on the verification periods for standards to be used for verification of legal meters (Official Gazette NN 107/15). The verification period for tanks is indicated in Article 2, point 2 of the stated Ordinance and is ten (10) years.

Article 7

The measurement shall be made in the tanks before and after filling and emptying of tanks respectively. Crude oil level shall be established minimum 2 (two) hours before and after filling and emptying of the tank respectively, in the calmed state.

Article 8

The measurement of the delivered crude oil quantities shall be made by means of automatic volumetric flow meters at the metering stations. Metering stations are in compliance with the following legal acts, ordinances and standards:

- Metrology Act (Official Gazette NN 74/14)
- DZM – Ordinance on the technical metrology requirements related to the meters (Appendix MI-005 – Metering systems for uninterrupted and dynamic measurement of quantities of liquids other than water) (Official Gazette NN 21/16)
- REGULATION on specific requirements that need to be fulfilled by the authorised bodies for performing the activities of verification of legal meters and/or activities of preparation of the meters for verification (Official Gazette NN 90/14)
- Ordinance on the verification periods for individual legal meters and method of their use and on the calibration periods for standards to be used for verification of legal meters (Official Gazette NN 107/15)
- HRN ISO 91-1:2002 Petroleum measurement tables -- Part 1: Tables based on reference temperatures of 15°C and 60 oF (ISO 91-1:1992)
- HRN ISO 91-2:2002 Petroleum measurement tables -- Part 2: Tables based on reference temperatures of 20°C (ISO 91-2:1991)
- HRN ISO 2715:2005 (turbine flowmeter) Liquid hydrocarbons -- Volumetric measurement by turbine flowmeter (ISO 2715:1981)
- HRN EN ISO 3170:2005 Petroleum liquids -- Manual sampling (ISO 3170:2004; EN ISO 3170:2004)
- HRN EN ISO 3171:1999 Petroleum liquids -- Automatic pipeline sampling (ISO 3171:1988; EN ISO 3171:1999)
- HRN ISO 5024:2008 Petroleum liquids and liquefied petroleum gases -- Measurement – Standard reference conditions (ISO 5024:1999)
- HRN EN ISO 6551:2002 Petroleum liquids and gases -- Fidelity and security of dynamic measurement -- Cabled transmission of electric and/or electric pulsed data (ISO 6551:1982; EN ISO 6551:1995)
- OIML R 117 1,2,3 Dynamic measuring systems for liquids other than water
- API – Standard 2540, Manual of Petroleum measurement standards Chapter 4,5,6,7,8,9,10,11;11.1 Volume correction factors
- ASTM D341-93 Viscosity-Temperature Charts for Liquid Petroleum Products; Appendix X1 Mathematical relationships
- Measuring Instruments Directive 2014/32/EC (MID)
- ISO 12242:2012 – Measurement of fluid flow in closed conduits – Ultrasonic transit-time meters for liquid
- API MPMS Ch 4.8 – Proving Systems – Operation of Proving Systems
- API MPMS Ch 5.8 – Measurement of Liquid Hydrocarbons by Ultrasonic Flow Meters

Remarks:

HRN EN ISO 91-1, ASTM-D1250, API Standard 2540-Chapter 11.1 and IP 200 are identical in the part of volume correction factors at 15°C.

The maximum permissible measurement error limit of the metering station should not be greater than ± 0.3 %, while the maximum permissible measurement error of the meters shall amount to ± 0,2 % at maximum. The DZM document entitled – Ordinance on technical metrology requirements related to the meters (Official Gazette NN 21/16) – Measuring systems for uninterrupted and dynamic measurement of quantities of liquids other than water (MI – 005), states that the measuring systems in pipelines fall under the accuracy class of 0.3 (the maximum permissible measurement system error less than ± 0.3 %, ± 0,2 % for the volumetric meter and 0.1% for the influence of other measuring quantities on the corrected volume).

Table 1: **TYPES OF MEASURING SYSTEMS AND ACCURACY CLASSES (according to the Ordinance)**

Accuracy class	Types of measuring systems
0,3	Measuring systems on pipeline
0,5	Measuring systems for (un)loading ships and road tanks and rail tanks

Table 2: **PERMISSIBLE ERROR (according to the Ordinance)**

	Accuracy class	
	0,3	0,5
Measuring system (A)	0,3 %	0,5 %
Meters (B)	0,2 %	0,3 %

Table 3: **MAXIMUM PERMISSIBLE ERRORS ON MEASUREMENTS OF TEMPERATURE, PRESSURE AND DENSITY (according to the Ordinance)**

Maximum permissible errors on measurements:	Accuracy classes of the measuring system				
	0,3	0,5	1,0	1,5	2,5
Temperature	± 0,3°C	± 0,5°C			± 1,0°C
Pressure	Less than 1 MPa: ± 50 kPa From 1 to 4 MPa: ± 5 % Over 4 MPa: ± 200 kPa				
Density	± 1 kg/m^3		± 2 kg/m^3		± 5 kg/m^2

Article 9

The notified body or the body which is, under the responsibility of the notified body, authorised for performing the first verification of the measuring system, shall place the measuring system on the market/

use marking the measuring instrument by the mark of conformity (CE marking) and issue the related documents.

The State Office for Metrology or the authorised inspection body, while conducting the regular or extraordinary verification, shall issue the verification certificate verifying that the measuring systems with the volumetric flow meters are within the maximum permissible measurement error limits in accordance with the Ordinance on technical and metrology requirements related to the meters (Official Gazette NN 21/16). If the existing measuring system, which was put into

use according to the rules proceeding the Ordinance on technical and measuring requirements related to the meters, is to be verified, the procedure indicated for a regular or extraordinary verification shall apply.

The preparation of legal measuring instruments for verification shall be made at the premises of the authorised body for the preparation of the meters for verification No. 390 of JANAF, located at the Sisak Terminal, Capraške poljane 47b (DZM RH – Authorisation, Class: UP/I – 034 – 02/15 – 03/17) or other authorised body for the preparation of the meters for verification and directly at the metering station respectively, if technically possible. The verification shall be made by the authorised body for verification No. 22 of JANAF Plc. or other authorised body for verification for such field of operation or the DZM employees and such body shall issue, upon request, the verification certificate upon the verification completion.

The Regulation on specific requirements that need to be fulfilled by the authorised bodies for performing the activities of verification of legal meters and/or activities of preparation of the meters for verification (Official Gazette NN 90/14) regulates the conditions under which DZM conferred the powers to JANAF as authorised body for preparation of meters for verification of turbine volumetric flow meters and to the authorised inspection body.

Appendix 6 of the stated Regulation prescribes specific requirements that need to be fulfilled by the authorised bodies for performing the activities of verification and/or preparation of the legal meters for verification of meters and measuring systems intended for measuring the quantities of liquids other than water.

Article 10

The interval between two verification processes is determined by the Ordinance on the verification periods for individual legal meters and method of their use and on the verification periods for standards to be used for verification of legal meters (Official Gazette NN 107/15). After repairs and removal of failures, the verification should also be made.

Article 10a

For the pipe prover loop, the calibration laboratory accredited according to the HRN EN ISO/IEC 17025 standard shall issue the Calibration Certificate based on the calibration process performed at the Sisak Terminal, Omišalj Terminal, Slavonski Brod Terminal and MS (Metering Station) Sotin respectively. The Sisak Laboratory undergoes the accreditation process according to the HRN EN ISO/IEC 17025:2017 standard, and upon obtaining the accreditation, it shall have a status of the calibration laboratory.

Article 10b

The calibration period for the pipe prover loop is three (3) years. In case of any service that might affect the volume of the pipe prover loop, the calibration procedure shall be repeated and the calibration laboratory accredited according to the valid standard HRN EN ISO/IEC 17025:2017 shall issue the Calibration Certificate.

Article 10c

All elements of the measuring system – temperature and pressure transducers, viscosity and density meters shall be regularly calibrated during the calibration and verification procedures, respectively.

Article 11

The pipe provers and verification methods of the inspection body for verification of volumetric and mass flowmeters (up to 2500 m³/h and 2500 t/h respectively) at Sisak, Sotin and Omišalj shall comply with the following standards:

- HRN EN ISO 4124: 2005 Liquid hydrocarbons -- Dynamic measurement --Statistical control of volumetric metering systems (ISO 4124:1994)

- HRN EN ISO 4267-2:2005 Petroleum and liquid petroleum products -- Calculation of oil quantities -- Part 2: Dynamic measurement (ISO 4267-2:1988; EN ISO 4267-2:1995)
- HRN EN ISO 7066-2:2005 Assessment of uncertainty in the calibration and use of flow measurement devices -- Part 2: Non-linear calibration relationships (ISO 7066-2:1988)
- HRN ISO 7278-1:2005 Liquid hydrocarbons -- Dynamic measurement -- Proving systems for volumetric meters -- Part 1: General principles (ISO 7278-1:1987; EN ISO 7278-1:1995)
- HRN EN ISO 7278-2:2005 Liquid hydrocarbons -- Dynamic measurement -- Proving systems for volumetric meters -- Part 2: Pipe provers (ISO 7278-2:1988; EN ISO 7278-2:1995)
- HRN EN ISO 7278-3:2005 Liquid hydrocarbons -- Dynamic measurement -- Proving systems for volumetric meters -- Part 3: Pulse interpolation techniques (ISO 7278-3:1998)
- HRN EN ISO 7278-4:2005 Liquid hydrocarbons -- Dynamic measurement -- Proving systems for volumetric meters -- Part 4: Guide for operators of pipe provers (ISO 7278-4:1999)
- OIML R 119 Pipe provers for testing measuring systems for liquids other than water
- OIML R 120 Standard capacity measures for testing measuring systems for liquids other than water
- HRN EN ISO/IEC 17020:2012 - Conformity assessment – Requirements for the operation of various types of bodies performing inspection
- HRN EN ISO/IEC 17025:2017 - General requirements for the competence of testing and calibration laboratories
- HRN EN ISO 8222:2019 Petroleum measurement systems -- Calibration -- Temperature corrections for use when calibrating volumetric proving tanks (ISO 8222:2002; EN ISO 8222:2002)
- WECC 19-1990 – Guidelines for the Expression of the Uncertainty of Measurement in Calibrations
- EA-4/02 - Expression of the Uncertainty of Measurement in Calibration

Article 12

Measuring quantity meter is to be reset at the start of every transport or every batch and the automatic sampler properly adjusted in order for the automatically taken sample to be a representative sample of the entirely transported crude oil quantity and batches respectively. Sampling shall be proportionate to the flowrate according to the HRN EN ISO 3171:1999 standard.

At the end of the batch, the following data shall be recorded:

- number (code) of the metering station/batch no.
- volume at the average temperature
- date and time (start and end)
- volume given in cubic meters calculated to three decimal places and corrected to standard conditions (1013 mbar and 15°C)
- average flow rate in m^3/h
- average temperature (0.1°C)
- average pressure (0.1 bar)

- average vacuum density (kg/m³ in standard conditions)
- average viscosity in mm²/s (cSt)
- mass in kilograms
- calculation.

Article 13

JANAF guarantees reliability and safety of the metering system, including an uninterrupted power supply, testing of the computer system, control of the use of all inputs into the flow computer, including also parameters of volumetric meters, density and viscosity meters, and other calculation parameters. Besides that, JANAF provides outputs control and non-admittance to calculations and data for any unauthorised persons. The continuity of monitoring all actions during transport is ensured by print on the endless paper of the matrix printer and record in the SCADA system (electronic record).

DETERMINATION OF QUALITY

Article 14

Quality of crude oil transported by the pipeline is analysed in order to determine its basic properties.

Article 15

In the course of the analysis, the following basic properties are to be determined:

at the receiving point

density at 15^{0}C	HRN EN ISO 3675	or ASTM D 1298
basic sediment and water (BSW)	HRN ISO 9030	or ASTM D 4007
vapour pressure (Reid)	HRN ISO 3007	or EN 13016
pour point	ASTM D 6749	or ASTM D 5853
viscosity at +20^{0}C and +40^{0}C	HRN EN ISO 3104/AC	or ASTM D 7042
sulphur content	HRN EN ISO 8754	or ASTM D 4294
H_2S content	IP 570	ASTM D 7621
organic chloride content		ASTM D 4929

at the delivery point

density at 15^{0}C	HRN EN ISO 3675	or ASTM D 1298
basic sediment and water (BSW)	HRN ISO 9030	or ASTM D 4007
pour point	ASTM D 6749	or ASTM D 5853
viscosity at +20^{0}C and +40^{0}C	HRN EN ISO 3104/AC	or ASTM D 7042
sulphur content	HRN EN ISO 8754	or ASTM D 4294

Article 16

The crude oil properties obtained by the laboratory analysis shall be stated in the protocol within 4 (four) hours as per the Attachment 4 hereto.

Article 17

Sampling is carried out in compliance with the requirements of the HRN EN ISO 3170, HRN EN ISO 3171 and ASTM D 4507 and ASTM D 4177 Standards, respectively.

Article 18

The control samples shall be kept at the sampling point.

For performing analyses, JANAF shall provide appropriate space and instruments at both the receiving and delivery points.

Article 19

For the receipt of crude oil and petroleum products, the storage tanks shall be used that are subject to the following standards and international recommendations:

- OIML R-71 Fixed storage tanks. General requirements
- OIML R-85 Automatic level gauges for measuring the level of liquid in stationary storage tanks
- HRN ISO 4266-1:2009 Petroleum and liquid petroleum products -- Measurement of level and temperature in storage tanks by automatic methods -- Part 1: Measurement of level in atmospheric tanks (ISO 4266-1:2002)
- HRN ISO 4266-2:2009 Petroleum and liquid petroleum products -- Measurement of level and temperature in storage tanks by automatic methods -- Part 2: Measurement of level in marine vessels (ISO 4266-2:2002)
- HRN ISO 4266-3:2009 Petroleum and liquid petroleum products -- Measurement of level and temperature in storage tanks by automatic methods -- Part 3: Measurement of level in pressurized storage tanks (non-refrigerated) (ISO 4266-3:2002)
- HRN ISO 4266-4:2009 Petroleum and liquid petroleum products -- Measurement of level and temperature in storage tanks by automatic methods -- Part 4: Measurement of temperature in atmospheric tanks (ISO 4266-4:2002)
- HRN ISO 4266-5:2009 Petroleum and liquid petroleum products -- Measurement of level and temperature in storage tanks by automatic methods -- Part 5: Measurement of temperature in marine vessels (ISO 4266-5:2002)
- HRN ISO 4266-6:2009 Petroleum and liquid petroleum products -- Measurement of level and temperature in storage tanks by automatic methods -- Part 6: Measurement of temperature in pressurized storage tanks (non-refrigerated) (ISO 4266-6:2002)
- HRN ISO 7507-1:2004 Petroleum and liquid petroleum products -- Calibration of vertical cylindrical tanks -- Part 1: Strapping method (ISO 7507-1:2003)
- HRN ISO 7507-2:2008 Petroleum and liquid petroleum products -- Calibration of vertical cylindrical tanks -- Part 2: Optical-reference-line method (ISO 7507-2:2005)
- HRN ISO 7507-3:2008 Petroleum and liquid petroleum products -- Calibration of vertical cylindrical tanks -- Part 3: Optical-triangulation method (ISO 7507-3:2006)
- HRN ISO 7507-4:2011 Petroleum and liquid petroleum products -- Calibration of vertical cylindrical tanks -- Part 4: Internal electro-optical distance-ranging method (ISO 7507-4:2010)
- HRN ISO 7507-5:2009 Petroleum and liquid petroleum products -- Calibration of vertical cylindrical tanks -- Part 5: External electro-optical distance-ranging method (ISO 7507-5:2000)
- ISO 7507-6: 1997 Recommendations for monitoring, checking and verification of tank capacity table
- HRN EN ISO 8222:2003 Petroleum measurement systems -- Calibration -- Temperature corrections for use when calibrating volumetric proving tanks (ISO 8222:2002; EN ISO 8222:2002)

JADRANSKI NAFTOVOD, dioničko društvo (JANAF Plc.)
ZAGREB (Croatia), Miramarska cesta 24

FORM OF PROTOCOL ON RECEIVED - DELIVERED CRUDE OIL QUANTITIES

AND

FORM OF REPORT OF SAMPLING AND ANALYSIS

Zagreb, 2020

JANAF JADRANSKI NAFTOVOD, dioničko društvo

PROTOKOL O PRIMLJENIM / PREDANIM KOLIČINAMA Br.
PROTOCOL ON RECEIVED / DELIVERED QUANTITIES No. _

MJESTO I DATUM
PLACE AND DATE _____

KUPAC
BUYER _____

KORISNIK
OFFTAKER _____

PRODAVATELJ
SELLER _____

PRIMATELJ
RECEIVER _____

ISPORUČITELJ
SUPLLIER _____

VRSTA ROBE
KIND OF GOODS _____

KOLIČINA PO TERETNICI BRUTO (i.v.
B/L QUANTITY GROSS (i.v.) BRUTO *GROSS* _____

KOLIČINA PO TERETNICI NETO (i.v.)
B/L QUANTITY netto(i.v.) NETO *NETO* _____

BROD
VESSEL _____

SPREMNIK Br.
SHORE TANK No. _____

MJESTO KONTROLE
PLACE OF INSPECTION _____

POČETAK PUMPANJA
PUMPING START _____

ZAVRŠETAK PUMPANJA
PUMPING COMPLETED _____

POČETAK MJERENJA
OPEN GAUGE _____

ZAVRŠETAK MJERENJA
CLOSE GAUGE _____

MJERE SUHOZEMNIH SPREMNIKA - *SHORE TANKS GAUGE*

SPREMNIK Br. *TANK No.*	PRIJE - *OPEN* POSLIJE - *CLOSE*	VISINA - *HEIGHT*		TEMPERATURA *TEMPERATURE*	GUSTOĆA *DENSITY*	ZAPREMNINE - *VOLUME*		GUSTOĆA NA 15°C *DENSITY AT 15° C*	FAKTOR KOREKCIJE *CORRECTION FACTOR*	KOLIČINA *QUANTITY*	PREDANA KOLIČINA *DELIVERED QUANTITY*
		UKUPNO - TOTAL	VODA - *WATER*			VODA - *WATER*	ROBA - *GOODS*				
		mm	mm	°C	kg/m³	l	l	kg/m³		l / 15°C	l / 15°C

CJEVOVOD PRIJE PUMPANJA
PIPELINE BEFORE PUMPING _____

CJEVOVOD POSLIJE PUMPANJA
PIPELINE AFTER PUMPING _____

GUSTOĆA NA 15°C, kg/m³ (i.v.)
DENSITY AT 15° C _____

KORIGIRANA GUSTOĆA NA 15°C, kg/m³ (i.a.)
CORRECTED DENSITY AT 15° C _____

BRUTO KOLIČINA, l/15°C
GROSS QUANTITY _____

BRUTO KOLIČINA, kg (i.a.)
GROSS QUANTITY _____

B.S.&W., % v/v _____ l _____

NETO KOLIČINA, l/15°C
NET QUANTITY _____

NETO KOLIČINA, kg (i.a.)
NET QUANTITY _____

NETO KOLIČINA, Bbls/60°F
NET QUANTITY _____

JANAF

ZA KONTROLORA
FOR INSPECTION

ZA KONTROLORA
FOR INSPECTION

ZA KONTROLORA
FOR INSPECTION

JANAF JADRANSKI NAFTOVOD, dioničko društvo

PROTOKOL O PRIMLJENIM / PREDANIM KOLIČINAMA Br.
PROTOCOL ON RECEIVED / DELIVERED QUANTITIES No. _

MJESTO I DATUM
PLACE AND DATE _____

KUPAC
BUYER _____

KORISNIK
OFFTAKER _____

PRODAVATELJ
SELLER _____

PRIMATELJ
RECEIVER _____

ISPORUČITELJ
SUPLLIER _____

VRSTA ROBE
KIND OF GOODS _____

KOLIČINA PO TERETNICI BRUTO (i.v.
B/L QUANTITY GROSS (i.v.) BRUTO *GROSS* _____

KOLIČINA PO TERETNICI NETO (i.v.)
B/L QUANTITY netto(i.v.) NETO *NETO* _____

BROD
VESSEL _____

SPREMNIK Br.
SHORE TANK No. _____

MJESTO KONTROLE
PLACE OF INSPECTION _____

POČETAK PUMPANJA
PUMPING START _____

ZAVRŠETAK PUMPANJA
PUMPING COMPLETED _____

POČETAK MJERENJA
OPEN GAUGE _____

ZAVRŠETAK MJERENJA
CLOSE GAUGE _____

CJEVOVOD PRIJE PUMPANJA
PIPELINE BEFORE PUMPING _____

CJEVOVOD POSLIJE PUMPANJA
PIPELINE AFTER PUMPING _____

GUSTOĆA NA 15°C, kg/m^3 (i.v.)
DENSITY AT 15° C _____

KORIGIRANA GUSTOĆA NA 15°C, kg/m^3 (i.a.)
CORRECTED DENSITY AT 15° C _____

BRUTO KOLIČINA, l/15°C
GROSS QUANTITY _____

BRUTO KOLIČINA, kg (i.a.)
GROSS QUANTITY _____

B.S.&W., % v/v _____ l _____

NETO KOLIČINA, l/15°C
NET QUANTITY _____

NETO KOLIČINA, kg (i.a.)
NET QUANTITY _____

NETO KOLIČINA, Bbls/60°F
NET QUANTITY _____

JANAF

ZA KONTROLORA
FOR INSPECTION

ZA KONTROLORA
FOR INSPECTION

ZA KONTROLORA
FOR INSPECTION

JANAF

JADRANSKI NAFTOVOD, dioničko društvo

PROTOKOL O UZIMANJU UZORAKA I ANALIZA
REPORT OF SAMPLING AND ANALISYS

Br. - *No.* _____

ISPORUČITELJ *SUPPLIER* _____

PRIMATELJ *RECEIVER* _____

PRODAVATELJ *SELLER* _____

KUPAC *BUYER* _____

ŠARŽA Br. *BATCH No.* _____

VRSTA ROBE *KIND OF GOODS* _____

NETO KOLIČINA *NET QUANTITY* _____

BROD *VESSEL* _____

SPREMNIK Br. *SHORE TANK No.* _____

MJESTO, DATUM I VRIJEME UZORKOVANJA

PLACE, DATE AND TIME OF SAMPLING _____ u _____

UZORKOVANJE PREMA NORMI *SAMPLING TO THE STANDARD* ☐ ISO 3170:2001 ☐ ISO 3171:1999

UZORAK *SAMPLE* ☐ SASTAVLJEN *COMPOSITE* ☐ KONTINUIRAN

IZ *FROM* ☐ BRODSKIH SPREMNIKA *CARGO TANKS* ☐ SUHOZEMNIH SPREMNIKA *SHORE TANKS* ☐ CJEVOVODA *PIPELINE*

1 LITRA *LITRE* ☐ ZA PRIMATELJA *FOR RECEIVER* ☐ ZA ISPORUČITELJA *FOR SUPPLIER* ☐ ZA KONTROLORA *FOR INSPECTION* ☐ ZA ANALIZU *FOR ANALYSIS*

POSUDE S UZORCIMA ETIKETIRANE SU I PEČAĆENE PO
THE CONAINTER(S) WITH SAMPLE WERE LABELED AND SEALED BY _____

ANALIZA - *ANALYSIS*

GUSTOĆA NA 15°C *DENSITY AT 15° C*	ISO 3675	_____	kg/m^3
API GUSTOĆA *API GRAVITY*	ISO 3675	_____	°
VODA I SEDIMENTI(BSW) *B.S.&W.*	ISO 9030	_____	% v/v
SADRŽAJ SUMPORA *SULPHUR CONTENT*	ISO 8754	_____	% m/m
TECIŠTE *POUR POINT*	ISO 3016	_____	°C
VISKOZITET NA 20°C *VISCOSITY AT 20° C*	ISO 3104	_____	mm^2/s
VISKOZITET NA 40°C *VISCOSITY AT 40° C*	ISO 3104	_____	mm^2/s
NAPON PARA PO REIDU *VAPOUR PRESSURE*	ISO 3007	_____	bar

MJESTO I DATUM *PLACE AND DATE* _____

JANAF	ZA KONTROLORA FOR INSPECTION	ZA KONTROLORA *FOR INSPECTION*	ZA KONTROLORA *FOR INSPECTION*

JADRANSKI NAFTOVOD, dioničko društvo
10000 ZAGREB • Miramarska cesta 24

www.janaf.hr