

Comments to regulations relating to measurement of petroleum for fiscal purposes and for calculation of CO₂ tax

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CHAPTER 1 INTRODUCTORY PROVISIONS

Re. Section 1

Scope

According to Section 1-4 of the Petroleum Act the regulations apply also to onshore facilities if petroleum is transported to the facility by pipeline from the continental shelf and the metering for practical reasons is carried out onshore in Norway. The Norwegian Petroleum Directorate will in such cases coordinate the supervisory activities with the Office of Weights and Measures (Justervesenet - JV) as referred to in Agreement on co-operation between the two agencies. At terminals abroad where Norwegian petroleum is landed by pipeline the Norwegian Petroleum Directorate carries out supervision of the metering in co-operation with the relevant authorities of the state in question, cf. Section 1-4 first paragraph second sentence of the Petroleum Act.

CO₂ tax metering

The CO₂ tax is calculated per field/facility. In accordance with the Act relating to CO₂ Tax Section 5, decisions relating to the basis and extent of the tax are made by the Ministry of Finance.

These regulations are applicable to the measurement of natural gas used for the operation of combustion machinery and to the measurement of natural gas burned off or vented to the atmosphere. Discharge of pure CO₂ shall be taxable according to the same tax rate as natural gas used for combustion. These regulations are not applicable to other fuel than natural gas with regard to requirements applicable to metering system.

The regulations are also applicable to diesel oil used for operation of combustion machinery.

Diesel is taxed for mobile facilities which undertake service functions for facilities and are associated with facilities which produce oil or gas. The diesel quantities shall be documented and reported as mentioned in Section 29 of these regulations. Diesel constitutes a relatively limited part of the fuel consumption in the petroleum activities. The Norwegian Petroleum Directorate has consequently considered it to be inappropriate to impose a detailed procedure in these regulations with regard to determination of the volume of diesel oil.

When putting new fields on stream, the CO₂ tax starts to run from the time when petroleum from the first producing well enters into the process system of the facility. From this point on, all burning of natural gas or diesel on the facility in question will be taxable. Wells which are classified as exploration wells will also be exempted from the CO₂ fee when they are drilled from facilities which pay the CO₂ fee.

Drilling of exploration wells from mobile facilities shall not be taxable. A mobile facility with a direct connection to a production facility shall be subject to CO₂ tax.

When petroleum production ceases in connection with shutdown of a field, i.e. when the recovery of petroleum from the deposit ceases and the installation is without hydrocarbons, no further CO₂ tax shall be payable. In the case of facilities without own production of petroleum no CO₂ tax shall be payable after the principal function of the facility has ceased. By facilities without own production is meant for example pumping/compressor platforms.

Deduction may on application be made for water vapour or nitrogen accompanying volumes of gas for flaring for process related reasons.

Re. Section 2
Definitions

Definitions according to superior legislation are not repeated in these regulations.

Re. Section 3
Responsibility according to these regulations

It is emphasised that the first paragraph of this section entails a material duty to comply with the provisions of these regulations and with individual decisions issued pursuant to the regulations. The duty to do this through implementation of necessary systematic measures follows from Section 5 of these regulations.

The operator of the individual facility will be directly responsible in relation to the duties placed with the licensees jointly pursuant to the Petroleum Act and the Act relating to CO₂ Tax, such as the design, purchase and operation of metering systems with associated reporting and payment of tax. The provisions of these regulations are consequently addressed to the operator on behalf of the licensees.

Re. Section 4
Requirements to the petroleum activities in general

In comments to the individual sections the use of a number of industry standards or other normative documents is recommended, in some cases with additional reference as stated in the comments, as a way to comply with the requirements of the regulations. Through this reference the recommended solution becomes a recognised standard. In areas where no industry standards are available, these regulations in some cases contain, in the comments to the provision in question, a description of solutions that represent ways in which to comply with the requirements of the regulations. Such recommendations will have the same status as reference to industry standards as mentioned. According to Section 4 the licensee may as a rule assume that the recommended solution will satisfy the regulation requirement in question.

The regulations and the comments are meant to be seen as a whole in order to achieve the best possible understanding of the level aspired for through these regulations. Standards recommended in the comments will be central in the interpretation of the individual regulation requirements.

Total measuring uncertainty as mentioned in Section 8 of these regulations will be decisive in selecting the measuring methods to be used.

The use of recognised standards as mentioned in the first paragraph is optional inasmuch as other technical solutions, methods or procedures may be selected.

The basis for using alternative methods may be:

- a) documentation demonstrating that measuring uncertainty and operational reliability is equal to or better than conventional equipment,
- b) in metering for allocation purposes, when there is a cost disproportion between a conventional system compared to a simplified system (cf. NORSOK I-105, Annex C).

Clarification with regard to the measurement concept should emerge from the process in connection with approval of Plan for development and operation of a petroleum deposit (PDO) or Plan for installation and operation of facilities for transport and utilisation of petroleum (PIO) or an application for exemption from such plan.

Approval of PDO or PIO entails authorisation of the measurement concept with associated uncertainty level. A possible exemption, cf. Section 33, shall only be applicable to deviations from regulation

requirements which are not identified in the PDO or PIO.

CHAPTER II

REQUIREMENTS RELATING TO MANAGEMENT CONTROL SYSTEM ETC.

This chapter contains requirements to management control systems within the scope of application of both the Petroleum Act and the Act relating to CO₂ Tax. It has been deemed appropriate that common provisions are applicable to both these areas.

Reference is further made to Section 10-6 of the Petroleum Act and Sections 56, 57 and 58 of the Petroleum Regulations.

Re. Section 5

Management control system

A management control system for measuring should contain:

- a) uncertainty limits accumulated and by component;
- b) the chain of responsibility for the follow-up of measuring equipment quality;
- c) apportionment of responsibility between different sections of the organisation and interfaces between them.

For verification of documentation:

- a) persons who receive the documentation and in what order;
- b) what is done with the documentation;
- c) how information from the documentation is handled;
- d) after processing, how and where the documentation is filed;
- e) what action is taken if the evaluation of data requires follow-up.

For verification of equipment:

- a) a description of purpose, guidelines for implementation and definition of the section responsible;
- b) a description of equipment verified and specification of equipment to be used in the process;
- c) a description of the necessary preparations;
- d) a systematic description of how the verifications are carried out;
- e) a description of how the derived results are handled to ensure quality;
- f) a reference to the log book for the metering systems;
- g) an example showing how results, remarks and deviation limits should be registered.

For use of equipment:

- a) a description of the equipment in service during normal operation;
- b) a procedure on how to handle situations where any of the in-service equipment fails during normal operation;
- c) a summary of important information and how relevant experience and information is conveyed from one shift of personnel to the next;
- d) a list of alarms and a procedure on how they are handled.

The management control system may comprise other elements than those mentioned in this list.

Re. Section 6

Organisation and competence

The licensee should see to it that the person responsible as mentioned in this section second paragraph exercises a particular professional responsibility to see that the metering system at all times complies

with the provisions in force. Furthermore the licensee should see to it that the person responsible for the metering system is kept informed about metering systems under planning, manufacture and completion.

The licensee should ensure that:

- a) a job description exists for each position, which includes qualifications requirements;
- b) procedures are established and maintained to identify training needs;
- c) all personnel are properly trained to perform their dedicated tasks;
- d) a summary of qualifications, training and experience is established and maintained in respect of all personnel with tasks comprised by the present regulations.

Re. Section 7 Verification

The intention with verification is to confirm, by checking and acquiring evidence for, compliance with specified requirements. By independent verification as mentioned in the second sentence of this section is meant that the operator may be required to use a third party for the execution of this function.

CHAPTER III GENERAL REQUIREMENTS RELATING TO MEASURING AND THE MEASUREMENT SYSTEM

Re. Section 8 Allowable measurement uncertainty

The basic principles for uncertainty analysis are stated in the ISO “Guide to the Expression of Uncertainty in Measurement” (the Guide).

Manual for uncertainty calculation, CMR/NFOGM/OD, , comprises both oil and gas measurement.

In relation to a number of parameters, measurement uncertainty is defined in relation to measured value. The operating range for sensing elements must be adapted to the normal range of measurement. When a metering tube is started up or shut down, there will be short periods where one is outside the operating range and uncertainty limits.

In some special cases the working range for pressure sensing elements is such that the requirements given for pressure measurement oil, gas; pressure measurement fuel, flare gas and differential pressure measurement can not be fulfilled. After informing the Norwegian Petroleum Directorate, as given in section 30, the given equipment can be used for the purpose.

When prover calibration is carried out with low-density fluids, as condensate and LPG, the uncertainty limit for the component will be slightly higher because of CTL temperature sensitivity. In such cases an uncertainty limit of $\pm 0,07$ % can be used for the component.

Requirements for ultrasonic fuel gas meter should be as given in NORSOK I-104, article 6.2.2.4.

With regard to sampling and analysis of LNG reference is made to LNG Custody Transfer Handbook (CTH), NORSOK I-104 and ISO 13398 Refrigerated light hydrocarbon fluids – Liquefied natural gas – Procedure for custody transfer on board ship.

Re. Section 8 a
Allowable measurement uncertainty for measuring systems for liquids other than water
No comments

Re. Section 9

Units of measurement

Recognised standard is ISO 1000 or NS 1024. With regard to pressure, the unit 'bar' may be used.

Re. Section 10

Reference conditions

The reference conditions mentioned in this section are from NS 4900, ISO 5024 or NORSOK I-104 and I-105. When petroleum products are sold, the mass (vacuum weight) should in accordance with SI units be used as fiscal quantity.

Re. Section 11

Determination of energy content etc.

Recognised standard for determination of energy content will be ISO 6976 or equivalent. Reference temperature for energy calculation should be 25 °C/ 15 °C (°C reference temperature of combustion/ °C volume). When continuous gas chromatography is used, recognised standard will be NORSOK I-104.

Re. Section 12

Bypassing the metering system

When oil is loaded into tankers a recirculation line for the oil metering station may be allowed.

When loading petroleum products in small batches, there will be a need to install a by-pass loop for recirculation at the metering station. A prerequisite is that a system for valve integrity is used.

Any bypass tube shall be closed using blind flange or shutoff valve with double block and bleed system, so that oil can not pass without being measured.

CHAPTER IV

REQUIREMENTS TO DESIGN OF THE METERING SYSTEM

Re. Section 13

General requirements to the measuring system

If, on an allocation metering station with ultrasonic metering a concept based on only one metering tube is selected, there should be possibilities to check the meter during operation and to have the necessary spare equipment ready for installation in the metering tube.

In gas metering the maximum flow velocity during ultrasonic metering should not exceed 80 percent of the maximum flow rate specified by the supplier.

One metering tube where maintenance is provided for will fulfil the regulation requirement to a fuel gas metering station.

With regard to maintenance of a fuel gas metering station with only one metering tube, there should be a bypass.

If flow straighteners are used, they should be of a recognised make.

Recognised standards for shut-off valves are NORSOK I-104, I-105 and NORSOK P-001.

Vents with double tightening and intermediate expanding chamber can be used.

The block-and-bleed valves should have an equalising line to allow pressure to be equalised before they are opened.

The need for electronic equipment being approved as given in OIML R 117 Measuring systems for liquids other than water, Annex A should be considered.

Re. Section 13a

Liquid flow measurement (for liquids other than water)

The NPD metering regulation is the amendment of 22 August 2006 no. 1014, changed as a consequence of Norway's implementation of the Directive 2004/22/EU, Measuring Instrument Directive (MID), cf. the EEA treaty, annex II chap. IX, concerning measuring instruments no. 27.

For measurement in the petroleum sector, included onshore terminals, this requirement only comprises measuring systems for liquids other than water.

The requirements for these measuring systems are changed according to the MID and are harmonized with the Regulation of 21 December 2007 no. 1738, "Requirements for measuring systems for liquids other than water" adopted by Department for Industry and Trade (NHD) and Norwegian Metrology Service.

The regulation mentioned above section 4, determines which requirements measuring systems shall fulfil to be made available on the market and to be used in connection with economical transactions.

The procedure for conformity evaluation is in section 4-11 of this regulation. The modules to which the procedures refer to is described in attachment 1 to the above mentioned regulation.

The requirements in the annex are regarded as minimum requirements, such that the measuring equipment should at least fulfil these minimum requirements. The Licensee, as user, and the manufacturers are thereby free to introduce more stringent requirements.

The changes are not valid for existing flow meters used in the petroleum industry. This exemption applies to both technical requirements and requirements for use.

The Directive is primarily directed to the manufacturer of measuring instruments, but is also applicable for others selling measuring instruments. Measuring instruments covered by MID shall comply with technical requirements stated the directive before they are made available on the market. The pre market survey includes conformity assessment done by a notified body and a conformity marking to prove that the requirements of the Directive are fulfilled.

It follows of the instrument specific annexes to MID which modules a specific measuring instrument (system) should be approved in accordance to, cf. MI-005 and section 4 in Regulation for measuring systems for liquids other than water.

According to the directive a manufacturer which produce an instrument for own use, is considered a manufacturer of a measuring instrument regulated by MID.

For existing measuring systems which have been in use or made available on the market before the entry into force date (30 October 2006), the requirements of the NPD metering regulation apply as in the past (MID does not apply). Same apply to measuring equipment sold in the EEA before the time of implementation, and thereafter resold for use.

Transitional provisions are prevailing for measuring systems which are type approved before the time of implementation, cf. section 8-1 in the regulation for measurement units and measurement.

The changes will not apply where the Regulations relating to measurement of petroleum for fiscal purposes come into force as a consequence of a treaty with a foreign state, cf. the Petroleum Act section 1-4 first paragraph.

Re. Section 14

The mechanical part of the metering system

Design of the metering system for hydrocarbons in liquid phase

Recognised standard is Norsok I-105 and American Petroleum Institute (API), Manual of Petroleum Measurement (MPMS) ch.4 and ch.5.

When an ultrasonic meter is used in allocation metering for liquid, a concept with reference meter and portable prover should be used.

Prover oil

Recognised standards for prover design are Norsok I-105 and API, MPMS ch.4.

Determination of prover volume based on pulse interpolation may be according to ISO7278.

It is not recommended to reduce the prover volume down towards the design criterion, as this may lead to repeatability problems.

Compact prover may be used.

Compact prover

Equipment and manning should be available so that it is possible if required to establish a new volume within four days.

With regard to design and calibration the following should be complied with:

- a) water calibration;
- b) list of critical parts, which should be available for necessary maintenance;
- c) compact provers should be equipped with leak detection facilities in the total calibrated area;
- d) filters should be installed upstream;
- e) compact provers should be installed vertically;
- f) compact provers should be installed upstream of the flow meter so that the downstream volume is used.

Flow meters liquid

At the ultrasonic liquid gauge the upstream length should be 20D including the flow straightener.

Design of the metering system for hydrocarbons in gas phase

Recognised standards are Norsok I-104, ISO 5167-1, AGA Report no. 9 and ISO 9951.

Flow profile gas

When orifice plate is used, the Reynolds number should not exceed the highest number for which there exists basic calibration data ($3.3 \cdot 10^7$).

Differential pressure should not exceed 500 mBar.

Design of the metering system for fuel gas

Recognised standards are Norsok I-104, ISO 5167-1, AGA Report no. 9 and ISO 9951.

Measurement methods for fuel gas may be:

- a) orifice plate with pressure and temperature compensation;
- b) turbine meter with associated pressure and temperature compensation; (not insertion turbine)
- c) ultrasonic meter with minimum two output beams and associated pressure and temperature compensation.

The diameter ratio β may vary between the outer limits referred to by ISO 5167. The differential pressure should not exceed 1 Bar.

Density measurement may be omitted and be calculated according to AGA report no.8.

Design of the metering system for flare gas

Recognised standard is Norsok I-104.

Alternative methods

When metering oil and gas for allocation purposes test separator measurement in combination with multiphase meters, which are calibrated against the test separator, may be used. Test separator measurement should in such cases be improved in relation to conventional systems.

Re. Section 15

The instrument part of the metering system

Recognised standards are Norsok I-104 and I-105.

The signals from the sensors and transducers should be transmitted so that measurement uncertainty is minimised. Transmission should pass through as few signal converters as possible. Signal cables and other parts of the instrument loops should be designed and installed so that they will not be affected by electromagnetic interference.

When density meters are used at the outlet of the metering station, they should be installed at least 8 D after upstream disturbance.

When oil is loaded into tankers, the density may be determined by analysing the contents of a sample container.

When petroleum products are measured, density may be calculated by using a recognised standard.

In measuring petroleum products, there may be a need to consider simplifications in the instrumentation.

When gas metering takes place, density may be determined by continuous gas chromatography, if such determination can be done within the uncertainty requirements applicable to density measurement. If only one gas chromatograph is used, a comparison function against for example one densitometer should be carried out. This will provide independent control of the density value and that density is still measured when GC is out of operation.

Measured density should be monitored.

Re. Section 16

The computer part of the metering system

Recognised standards are Norsok I-104 and I-105.

The computer part of the metering system should not have any functions other than those associated with

the metering system. Where a number of digital computers are used, the locations where the different calculations are performed should be defined. To avoid sources of error, the part of the computer performing the fiscal calculations should be connected to the other computer equipment in such a way that errors are avoided.

With regard to pulse transmission from flow meters it should be possible to read the signal as a number of pulses.

Quantities registered during calibration should be registered separately, irrespective of measured quantities.

Figures for accumulated fiscal quantities, which are comprised by the present regulations, should for each meter run and the total metering system be stored in electronic storage units. The storage units should be secured in such a way that they cannot be zeroed or altered unless a security system is followed.

In ultrasonic measuring the computer part should contain control functions for continuous monitoring of the quality of the measurements. It should be possible to verify time measurement.

With regard to CO₂ tax measurements the alarm function may be carried out by transferring a general alarm to a manned control room.

With regard to fuel gas metering using flow meter, a simpler signal transmission than ISO 6551 Class A may be considered.

Re. Section 17 Requirements relating to sampling

Recognised standards are NORSOK I-104 and I-105, ISO 3171 (oil) and ISO 10715 (gas), NFOGM-manual for water in oil measurements (2001).

In respect of oil and gas sampling it should be ensured that equipment in direct contact with hydrocarbons is not corroded by the substance from which it is sampling. Operating instructions should be mounted in the sampling cabinets.

The liquid samples from the sampling system should be analysed at a laboratory according to ISO 103337, crude petroleum - coulometric titration method. Certified syringes of digital model should be used.

Homogenisation of samples to be analysed should if necessary be documented.

The sampling cabinet for oil and condensate should in the case of pipeline transportation have a daily and a monthly sample container. When loading into a tanker one sample container will be sufficient. The equipment should be designed so that the samples can be transported to a laboratory for analysis. The filling of sample containers should be monitored and the number of samples should be not less than 10.000 during the sampling period.

Water in oil may be determined fiscally at allocation metering stations by using continuous metering.

When the water content is in excess of 5 volume percent, water in oil should be determined by direct measuring using a water in oil meter.

The sampling cabinet for gas should have instrument pipes and hoses of such a material that gas molecule diffusion cannot take place.

It should be possible to evacuate air out of the system before placing new sampling cylinders in service.

Installation of automatic sampling equipment will not be required in respect of CO₂ tax metering.

CHAPTER V REQUIREMENTS RELATING TO CALIBRATION AND VERIFICATION ETC. PRIOR TO START-UP OF THE METERING SYSTEM

Re. Section 18 Application for consent

Application for consent should be submitted no later than 20 working days prior to planned start-up of the activity that the application for consent refers to.

It is important that it during the project phase is established a good communication between the licensee and the NPD. This to ensure a common understanding of the requirements between the authority and the licensee.

How incidents connected with the fiscal measurement system are to be registered, and how follow-up is to be carried out, should be described.

The application for consent should furthermore contain allocation procedures and cargo claims procedures, if any.

The application for consent should also contain a system for calculation of the mass balance for the flow of hydrocarbons through the processing plant, so that flare gas quantities can be calculated when necessary.

Re. Section 19 General

When equipment is taken into use, the calibration data furnished by the supplier may be used, if they are having adequate traceability and quality. If such is not the case, the equipment should be recalibrated by a competent laboratory. By competent laboratory is meant a laboratory which has been accredited as mentioned in recognised standard EN 45000/ISO 17025, or in some other way has documented competence and ensures traceability to international or national standards.

Based on the work progress plan of the operator, the Norwegian Petroleum Directorate will decide which activities it will want to be witnessed.

Re. Section 20 Calibration of mechanical part

The checks referred to will for example be measuring of critical mechanical parameters by means of traceable equipment.

With regard to requirements to calibration of flow meters and provers, reference is made to Section 8 of these regulations.

Volumetric measure used for calibration of prover should be certified annually. The volumetric measure volume should be certified by gravimetric method with reference to national standard with uncertainty better than $\pm 0,01$ %.

With regard to small one-way provers it should be verified that the 4 volumes are mutually consistent. The spread should not exceed 0.02 % for K-factors or flow rates.

Recommended calibration methods for provers:

a) “Master prover/master meter” method.

Before and after or simultaneously with this calibration the “master meter” should be checked against the “master prover”, with the same requirements to repeatability as mentioned in Section 8. The calibration requirement is met if the “master meter” calibration factors before and after the calibration of the prover deviate from each other by less than 0.02 %.

b) “Master tank/master meter” method.

The same calibration requirements as in item a) are applicable.

c) “Water draw” method.

Three consecutive individual calibrations shall be carried out, and one of these shall have a flow rate which is different from the two others. The repeatability requirements are the same as for the methods mentioned in items a) and b). Determination with volumetric reference will be acceptable in the case of factory testing (FAT) if determination with gravimetric reference is carried out before start-up at the place of operation.

During calibration as per item a) and b) five consecutive individual calibrations should be carried out at each measurement location.

The linearity and repeatability of the flow meter should be tested in the highest and lowest part of the operating range, and at three points naturally distributed between the minimum and the maximum values.

Re. Section 21

Calibration of instrument part

Measurement results should be from calibration equipment equivalent to that which will be used for calibration of the transmitters at the place of operation. Transmitter may be omitted and replaced by a signal generator. The effect of the barriers on measurement signals should be determined.

Verification of the system for pulse transmission from the turbine meters should be carried out.

Recognised standard is ISO 6551. The reading of the pulses should be undertaken on the computer part and also on external counters. 100 000 pulses should be simulated and in the event of deviation of two pulses the simulated pulse number should be doubled.

When new metering systems are started up, instruments may be kept in storage for a period of time exceeding the recommended time for calibration. In such cases calibration shall be carried out by a competent laboratory before the instruments are taken into use.

Re. Section 22

Verification of computer part

Alarm handling and reporting should be verified with manually entered measurements for each metering tube and for the entire metering system. The system should be verified for voltage failure and data link transmission failure.

Verification of pulse alarm for the turbine meters should be carried out and alarm should be activated if deviation occurs between the two pulse trains.

Verification of the performance of the electronic equipment should be carried out and should be in

accordance with the climatic and mechanical environment that the equipment will be subjected to.

CHAPTER VI REQUIREMENTS RELATING TO OPERATION OF THE METERING SYSTEM

Re. Section 23 Maintenance

When using maintenance systems based on integrated operations, then it should be ensured that the supervision of the fiscal parameters and scheduled maintenance should be performed in a systematic and controlled manner.

To ensure continuous quality in the measurements, it should at all times be relevant technical support personnel available for interpretation, analysis and eventual correction of error modes.

When two instruments do the same measurement with the same quality, then one of the instruments should be identified as in use and the other should then have a monitoring/back up function. A change between the two instruments should just take place when the instrument in service fails.

Re. Section 24 Operating requirements for the prover

Calibration of provers is dealt with in the comments re. Section 20. If the meter prover volume deviates by more than $\pm 0.04\%$ compared with the volume at the last calibration, a troubleshooting procedure should be carried out in order to discover the reason for the deviation.

With regard to allocation metering systems a longer calibration interval than annually may be used, if three consecutive calibrations fall within a band of 0.02% of average volume.

For measurement systems used with low density fluids, as condensate and LPG, the limiting values given in this remark can be increased, ref. re. Section 8.

Re. Section 25 Operating requirements for flow meters

Recognised standard for monitoring of turbine meter K-factors is API MPMS ch.13.

With regard to flare gas meters the zero point check should be carried out regularly with an external unit.

Ultrasonic flow meters for gas should be checked after pressurisation and before they are put into operation to verify sound velocity and zero point for each individual sound path. Deviation limits for the various parameters shall be determined before start-up.

Recalibration should be carried out if the meter has a poor maintenance history.

Sound velocity and the velocity of each individual sound path should be followed up continuously in order to monitor the meter.

When petroleum products are loaded into tankers in small batches it may be expedient to utilise K-factor established during recirculation.

With regard to requirements to repeatability and linearity for calibration of flow meters, reference is made to Section 8 of these regulations.

Inspection and cleaning of the meter tube should if necessary be carried out when the meter tube sections are disassembled.

The operating requirements for the turbine meter deviate from the design criteria given in Section 8 and are specified in Section 25.

Re. Section 26

Operating requirements for instrument part

When monitoring functions are in operation, condition based maintenance may be used to extend calibration intervals.

Instruments used for calibration should be kept separated from other instruments.

The interval between calibrations may be increased if stability of the measuring equipment is documented.

In the case of condition based maintenance a number of transmitters for each metering station parameter should be calibrated at least once annually in order to ensure traceability. A comparison of these with corresponding metering station transmitters should be carried out in order to ensure traceability.

If a transmitter is removed from the meter tube during calibration, the signal transmission should be checked with a signal generator.

Recognised standard for uncertainty of traceable reference gases is given in NORSOK I-104.

Re. Section 27

Operating requirements for computer part

Alarms from the metering system should after start up be reviewed in a systematic way, to reduce numbers and establish an effective interface against other control room equipment.

Calculation requirements should be verified by using an independent system (PC).

CHAPTER VII REQUIREMENTS RELATING TO DOCUMENTATION

Re. Section 28

Documentation prior to start-up of the metering system

No comments.

Re. Section 29

Documentation relating to the metering system in operation

The first and second paragraphs of this section apply to all measuring referred to in these regulations. Documentation as mentioned in the first paragraph of this section will include specifications, calculations and drawings relating to the metering system, as well as operating procedures and other relevant documentation.

The general rule referred to in the Petroleum Act Section 10-4 with regard to material and information entails that documentation relating to fiscal metering as referred to in these regulations shall be available in Norway irrespective of where the operational organisation is located. This does not entail any prohibition against storing documentation abroad, as long as it can be made available

to the Norwegian Petroleum Directorate within a reasonable length of time. In some cases, e.g. during supervision of metering stations located abroad, the most practical solution will be that the documentation is made available to the Norwegian Petroleum Directorate on location. Operational organisations located outside Norway should have the documentation available at the place of operation and available to the Norwegian Petroleum Directorate on request.

If any of the equipment components drift inside their variation range and this is detected by routine calibration, this will not constitute basis for correction.

A correction should, however, not be implemented if the cost of the correction work is higher than the value of the wrongly measured quantity that should be corrected for.

Standard forms for reporting of CO₂ tax are included as Appendix 1 and 2 to these regulations.

Documentation referred to in these regulations may be transmitted electronically.

Re. Section 30 Information

The cargo claims procedures should be drawn up in such a way that when oil is sold in tanker loads from an offshore loading buoy, the correction limit should be the one which is internationally accepted for trade in oil, 0.5 %. A correction should only be implementable when both the ship's figures in port and the terminal's figures deviate from the figures of the metering station by 0.5 % or more. Furthermore, failure in connection with the official measuring equipment should be demonstrated before corrections may be carried out.

Re. Section 31 Calibration documents

No comments.

CHAPTER VIII GENERAL PROVISIONS

Re. Section 32

Supervisory authorities - authority to make individual administrative decisions etc.

The Ministry of Petroleum and Energy is the appeal body in relation to decisions made by the Norwegian Petroleum Directorate pursuant to these regulations.

With regard to the basis for and extent of the CO₂ tax, the Ministry of Finance is the appeal body.

Any appeal against a decision shall be forwarded through the Norwegian Petroleum Directorate, cf. Chapter VI of the Public Administration Act.

Re. Section 33 Exemption

Exemption constitutes a decision by the authorities, normally as a result of an application, to accept a deviation from a regulation requirement. Deviation in this connection denotes a discrepancy between selected solutions and regulation requirements.

Application for exemption must be filed if one intends to apply a solution different from the one referred to by a specific regulation requirement, or a solution which does not meet the level required

by the regulations.

Applications for exemption, if any, should as a rule contain:

- a) a list of the provisions from which exemption is sought;
- b) an account of the particular reasons for why an exemption is necessary or reasonable;
- c) an account of the internal procedure of the enterprise in dealing with the exemption issue;
- d) an account of the deviation and its planned duration;
- e) an account of measures, if any, to compensate for the deviation, in full or in part;
- f) an account of measures, if any, to correct for the deviation, if the deviation is of a temporary nature.

**Re, Section 34
Penal provision**

No comments.

**Re. Section 35
Entry into force and transitional provisions.**

In a material sense these regulations mainly constitute a continuation of previous legislation. The regulations do not represent any increased stringency which necessitates exemptions from entry into force or transitional arrangements.