

Comments to regulations relating to resource management in the petroleum activities

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COMMENTS TO PREFACE

The preface deals with; inter alia, submission and direct availability of data. Material and information is assumed to be submitted or made directly available to the Norwegian Petroleum Directorate, or anyone authorised by the Norwegian Petroleum Directorate, free of charge, cf. the Petroleum Act Section 10-4 and the Petroleum Regulations Section 53.

COMMENTS CHAPTER 1, RE. INTRODUCTORY PROVISIONS

Re. Section 2 Definitions, abbreviations etc.

Exploration target: If a petroleum deposit, which has been included in the resource basis for a field, is reported as a new discovery when the deposit is proven by drilling, the resources will be registered twice. It is therefore not appropriate to use the term “discovery” relating to deposits that already have been included in the resource basis. This situation may occur when deposits are proven/ confirmed by drilling of development wells.

Re. Section 3 Responsibility according to these regulations

Reference is made to the Petroleum Act Section 10-6 Obligation to comply with the Act and to see to it that provisions are complied with, as well as the Petroleum Regulations Sections 56, 57 and 58 relating to management systems. It is pointed out that the first paragraph contains a material duty to comply with the provisions of the regulations, as well as a duty to do this through implementation of necessary systematic measures.

COMMENTS CHAPTER 2, RE. EXPLORATION ACTIVITY

The provisions relating to exploration activities contained in these regulations must be seen in connection with the provisions of the Petroleum Act Sections 2-1 and 2-2 and the Petroleum Regulations Sections 3, 4, 5 and 6. Requirements and conditions previously stipulated in the individual exploration licence have been included in these regulations. The fact that these provisions are now included in the regulations, constitutes a contribution to assuring equality and predictability in the administrative process. The provisions of these regulations relating to drilling and well activities also apply to shallow boreholes.

Application for and payment in respect of exploration licence shall be submitted to the Norwegian Petroleum Directorate, cf. Sections 3 and 4 of the Petroleum Regulations. The provisions relating to information and reporting apply to exploration activities within the scope of an exploration licence, a production licence and a licence to install and to operate facilities for transport and utilisation of petroleum.

If the exploration activity entails drilling to a depth exceeding 200 meters, consent has to be obtained for this activity, cf. the regulations for health, environment and safety in the petroleum activities.

Re. Section 4 Particular information in connection with exploration activities

This section elaborates on Section 6 of the Petroleum Regulations with regard to the information to be submitted in connection with exploration activities. This information has until now been required as conditions stipulated in the individual exploration licence, and has furthermore been included as part of a form prepared by the Norwegian Petroleum Directorate to be completed in connection with submission of information prior to and during exploration activities. This provision therefore does not constitute any change in relation to information to be submitted.

Re. Section 5 Vessels carrying out seismic surveys on the Norwegian continental shelf

This section represents a continuation of provisions previously contained in regulations relating to fishery expert on board seismic vessels, Sections 1, 10, 12, 14 and 15.

An object of the regulations is to prevent possible conflicts of interest, cf. Petroleum activities regulations Section 6. If there is no fishing activity in the area in question in the relevant time period, the seismic vessel may initiate the activity. As long as the vessel is operating with the cables out, it is regarded to be a vessel restricted in her ability to manoeuvre, cf. Regulations for preventing collisions at sea of December 1 1975 no 5, rule 3 litera g. If fishery vessels then arrive, they will have duty to yield according to regulations for preventing collisions at sea rule 18 litera c until the seismic vessel has pulled the cables. According to the *lex specialis* principle the regulations for preventing collisions at sea will take precedence over the seismic vessel's duty to keep a safe distance to vessels engaged in fishing stipulated in the Resource regulations Section 5 when the seismic vessel has its cables out.

The general rule according to Section 5 second paragraph of the present regulations is that every seismic vessel shall carry a fishery expert on board.

According to the last paragraph of this section, relevant provisions and data shall be made available to the fishery expert. By this is meant both the relevant legal framework, including a copy of the licensee's exploration licence, and any decisions made in connection with the individual exploration activity, e.g. conditions imposed in connection with the activity.

Re. Section 6 Fishery expert on board vessels carrying out seismic surveys

This section basically represents a continuation of provisions previously contained in Section 11 of regulations relating to fishery expert on board seismic vessels. The new element is a clarification of the fact that the fishery expert has a duty to familiarize himself with what is comprised by the rights of the licence. There is also a requirement for the fishery expert to maintain knowledge and competence to remain in the Directorate of Fisheries register of fishery experts.

Re. Section 7 Track surveys and other sub-surface surveys

This section supplements the requirements relating to information contained in Section 30 of the Petroleum Regulations.

COMMENTS CHAPTER 3, RE. DRILLING AND WELL ACTIVITIES

Re. Section 8 Information and application prior to drilling and well activities

This section basically represents a continuation of provisions contained in previous regulations relating to drilling and well activities and geological data collection in the petroleum activities, Sections 9 and 10, cf. the Petroleum Regulations Section 46. Several simplifications and clarifications have, however, been introduced.

An opening has been provided for that drilling programmes as well as logs in connection with plugging do not have to be submitted, but may be made directly available to the Norwegian Petroleum Directorate in an alternative way.

It has been made clear that wells, wellbores and shallow boreholes shall be registered prior to drilling activities, and that registration of shallow boreholes shall take place in respect of all types of licences.

Overall plan

An overall plan is to be submitted together with the Plan for Development and Operation (PDO) or application for exemption from such plan, cf. also guidelines to the PDO and the PIO.

Drilling programme

For geo-technical content of the drilling program, reference is made to NORSOK standard D-010 Drilling and well operations, Revision 3.

For exploration wells and development wells with exploration targets, the following information should be included in the program:

- Well information, production permit, licensees, well name, drilling facility (name, owner, water depth, RKB/rotary table, etc.), coordinator, brief history of the production licence.
- Geological background: regional geological placement, map with coordinates for the production licence and outline of the prospect and well location, lithologic column with depths, formations and explanatory text, pressure, temperature.
- Presentation of the prospect: map (time and depth), geological description, velocities, intersecting seismic lines through the well, at least one geo-seismic section, volume with probability
- Data acquisition: type and recipient (incl. NPD), criteria (for e.g. coring, WL), table indicating planned formation evaluation.
- Organisation chart showing positions, telephone numbers and email addresses.

With regard to the geological contents of a drilling programme, reference is made to NORSOK Standard D-010 Drilling and well operations, Rev 3.

Registration of wells:

A prerequisite for registration of wells is that the Norwegian Petroleum Directorate is contacted through submission of an application for registration. Such registration is, inter alia, necessary in order to ensure correct data storage. Registration form may be acquired from the website of the Norwegian Petroleum Directorate: <http://www.npd.no/>

Information on formation testing should contain the following:

- purpose and implementation of the test, use of produced petroleum, cost breakdown and income from sale, if any,
- duration of flow periods and shut-in periods,
- estimated rates for oil and gas, and volume indication for discharges to air (burning and cold venting) and discharge to water,
- evaluation of consequences to the environment,
- planned volume of formation liquid to be taken out and analyses intended to be carried out on the formation liquid,
- planned production logging, if any,
- preliminary log evaluation (CPI) in TVD and MD from the reservoir on a scale 1:500.

Information on permanent plugging:

The deadline for information has been set to 24 hours. The minimum deadline will primarily be relevant to exploration wells, as information on permanent plugging of development wells normally can be given substantially earlier. Reference is further made to the requirements of the regulations for health, environment and safety with regard to deadlines for plugging programme etc.

Re. Section 9 Geological and reservoir technical data acquisition in connection with drilling and well activities

This section constitutes a continuation of provisions contained in Section 10 of the previous regulations relating to drilling and well activities and geological data collection in the petroleum activities. An adaptation has been made in the distribution between the previous regulation text and the guidelines text.

COMMENTS CHAPTER 4, RE. DESIGNATION, NAME AND CLASSIFICATION

Re. Section 10 Well and wellbore designation etc.

This section elaborates on Section 79 of the Petroleum Regulations, and represents a continuation of the previous provisions contained in appendix to previous regulations relating to drilling and well activities and geological data collection in the petroleum activities. Formally the appendix was part of the regulations. The new element is that the well and well path designations have been adapted to the Petroleum Open Software Corporation (POSC) well model. Furthermore a number of concepts from previous appendices have been included as part of the definitions section of the present regulations. The Norwegian Petroleum Directorate's system for well/well path designations and classification is shown in a separate thematic guideline and will be available on the Internet site of the Norwegian Petroleum Directorate.

Re. Section 12 Designation in respect of facilities

This provision constitutes an elaboration of Section 79 of the Petroleum Regulations and a continuation and clarification of previous provisions issued as appendix, which formally constituted a part of the previous regulations relating to drilling and well activities and geological data collection in the petroleum activities. The term permanently placed facilities refers to both fixed and mobile facilities, which have been placed on a permanent basis.

Re. Section 13 Classification of petroleum resources on the Norwegian continental shelf

This section is a codification of current practice. This has been presented in the Norwegian Petroleum Directorate's publication on resource classification. Thematic guidelines on petroleum resource classification have been prepared.

Re. Section 14 Designation of petroleum deposits

This section is a codification of current practice and supplements Section 79 of the Petroleum Regulations.

An example of a designation of a petroleum deposit is "the 33/99-1-deposit". If several deposits have been proven in the same well, a geological unit shall be stated in addition, e.g. "the 33/99-1paleocen deposit" or "the 33/99-1-NN deposit".

Re. Section 15 Designation of discoveries

This section is a codification of current practice and supplements Section 79 of the Petroleum Regulations.

An example of a designation in respect of a discovery is "the 33/99-1-discovery".

Re. Section 16 Naming of discoveries

This section is a codification of current practice and supplements Section 79 of the Petroleum Regulations.

An example of naming of a discovery is "the 33/99-1- NN".

Re. Section 17 Naming of fields

This section is a codification of current practice and supplements Section 79 of the Petroleum Regulations. If the name has not been selected from a pre-approved list from Norsk Språkråd, the Norwegian Petroleum Directorate will inform Norsk Språkråd of the name in question. The name must satisfy security/contingency related requirements with regard to pronunciation.

If more than one discovery previously designated with proper names are to be included in a field, the

individual discovery included in the field may on application keep the earlier name as a sub-designation in addition to the discovery well identification (example: 6506/12-1 Smørbukk which is included in the Åsgard field).

COMMENTS CHAPTER 5, RE. MATERIAL AND INFORMATION AFTER THE ACTIVITIES HAVE BEEN CARRIED OUT

Re. Section 20 Submission of material and information from exploration activities

This section supplements the provisions of Section 6 of the Petroleum Regulations.

All material and information is to be submitted in accordance with the Norwegian Petroleum Directorate's format requirements and specifications. These may be obtained on request from the Norwegian Petroleum Directorate, or they may be downloaded from the Internet site of the Norwegian Petroleum Directorate, <http://www.npd.no/>.

A specified selection of material and information mentioned in this Section litera a shall be submitted to the DISKOS database.

All material and information submitted to the DISKOS database shall be clearly marked to show that it has been submitted in accordance with the Norwegian Petroleum Directorate requirements.

A specified selection of material and information mentioned in this Section first paragraph literas b to f shall be submitted to the Norwegian Petroleum Directorate in a format corresponding to industry standard. Also transparency copies of seismic sections (litera a) shall be submitted to the Norwegian Petroleum Directorate if such copies nevertheless are produced.

Re. Section 21 Fishery expert log

This section basically constitutes a continuation of previous provisions contained in regulations relating to fishery expert on board seismic vessels, Section 13.

Re. Section 22 Reporting during drilling and well activities

This section constitutes a continuation of provisions contained in Section 12 of the previous regulations relating to drilling and well activities and geological data collection in the petroleum activities.

Re. Section 23 Submission of samples and preparations from wells

This section basically constitutes a continuation of provisions contained in previous regulations relating to drilling and well activities and geological data collection in the petroleum activities, Section 12. Certain clarifications have been made and central topics from the previous guidelines text have been included in the regulation text. This section must be regarded in connection with Section 9 of these regulations regarding Geological and reservoir technical data acquisition in connection with drilling and well activities.

All test depths are stated as measured depth in relation to the drill floor/rotary table (RKB). With regard to fluid samples taken as down hole pressure tests (RFT, MDT etc.) the date and name of the sampler shall be stated both for the pressure test run on the drilling facility and for subsequent opening of / sampling of the pressure test in the laboratory. For fluid samples the depth interval is the same as the perforation interval. Standard sample bottles for fluid samples may be obtained from the Norwegian Petroleum Directorate. Such standard sample bottles are described in this section last paragraph regarding format, packaging and marking of submitted samples.

Re. Section 24 Final reporting of geological and reservoir technical well data

This section constitutes a continuation of provisions contained in Section 12 of previous regulations relating to drilling and well activities and geological data collection in the petroleum activities. A final report is to be submitted in respect of all types of wells, while a discovery evaluation report is to be submitted in respect of exploration wells where hydrocarbons have been discovered. Separate reports on biostratigraphy, geochemistry and other special studies shall be submitted separately. In the following the normal contents of the reports are outlined:

Final well report

- a) general information, the geographical position of the well, its purpose and result,
- b) litho-stratigraphic description and indications of hydrocarbons, if any,
- c) overview of logs, core intervals and fluid samples,
- d) description of conventional cores and side wall cores,
- e) results from testing, if any,
- f) for exploration wells: updated prospect map,
- g) overview of type of mud, commercial name, producer, base (oil/water), additives and an evaluation of the possible effect of the drilling mud on collected data,
- h) digital format of all geological and reservoir technical data, where type of data and format correspond to the Norwegian Petroleum Directorate's guidelines on digital reporting of well data, including a composite log with interpreted formation tops in depth and time, a pressure evaluation log and a formation evaluation log,
- i) temperature logs shall indicate measured and corrected value, and all relevant data for determination of local geothermal gradients in a well at thermal equilibrium,
- j) all depths shall be related to the drill floor/ rotary table (RKB), and the logs shall indicate measured depth (MD) and true vertical depth (TVD). Information enabling the conversion of measured depth into vertical depth, as well as the well path geometry, shall also be included,
- k) biostratigraphic range charts in digital format are to be enclosed with the biostratigraphic report. Preferred file formats are StrataBugs or S.I.S. (Stratigraphic Information System).

With regard to wildcat wells the Norwegian Petroleum Directorate also wants the prognosis and the result submitted on a specific form in digital format as enclosure to the final report. Specific form for this purpose may be acquired from the Internet site of the Norwegian Petroleum Directorate, <http://www.npd.no/>

Discovery report

- a) results from data collected from test activities. Should contain relevant test data such as Pi (initial reservoir pressure), P_{li} (initial productivity index), S (skin factor), permeability, fluid contacts if any, effects resulting from stimulation and evaluations relating to formation strength,
- b) overview of fluid samples with test intervals, test number, type of test (production test, RFT, MDT etc.) fluid type, and an evaluation of whether the tests are representative of the tested formations,
- c) geological and reservoir technical results, including
 - ac) description of method of petrophysical analysis
 - bc) reservoir geological updating, including updated seismic velocity functions
 - cc) updated depth charts of petroleum bearing structures in case of significant deviations from the prognosis
 - dc) results from PVT analyses,
- d) results from core analyses,
- e) size of petroleum deposit if any, indicated by P10-P_{expected} and P90 to the extent possible.

Re. Section 26 Status report at start-up of production

This section is a codification of the current practice. The report will provide the authorities with a status overview on resource related matters at the time of start-up with emphasis on changes in the basic data and possible measures in relation to the original plans. The report will also provide a basis for evaluation of the future production schedule for the field. The Norwegian Petroleum Directorate will make available guidelines in respect of this reporting.

Re. Section 27 Daily reports during the production phase

This section constitutes a codification of the current practice, but the provision allows for not having to submit the information.

Re. Section 28 Monthly reporting of production data

This section supplements Sections 48 and 49 of the Petroleum Regulations. Data shall be reported at the end of each month to the DISKOS database.

Re. Section 29 Contents of annual status report for fields in production

This section supplements the Petroleum Regulations Section 47 and is a codification of previous guidelines issued by letter to the operators. It has been made clear that Annual status report also shall contain necessary supplementary information to data reported for the purpose of the National Budget.

The Annual status report will provide the authorities with updated information on the individual field and will contribute with information enabling an evaluation of the production schedule of the field, its production strategy etc. The status report will also constitute a basis for evaluation of a possible application for production permission on the field and provide an overview of significant factors affecting production, provide an evaluation of the production schedule in relation to adopted plans or production permission and if applicable give an account of deviations.

Thematic guidelines describing the contents of the report have been prepared.

COMMENTS CHAPTER 6, GENERAL PROVISIONS

Re. Section 32 Entry into force etc

The regulations replace regulations relating to drilling and well activities and geological and reservoir technical data collection in the petroleum activities inasmuch as it constitutes regulations of resource management matters issues and regulations relating to fishery expert. Conditions etc. previously stipulated in the individual exploration license have now been incorporated into the regulations. Provisions previously issued by letter relating to status report at start-up of production, daily reports during the production phase and monthly reporting of production data have been replaced by these regulations.