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Field Development Plan (Winningsplan) P10a De Ruyter Western Extension

Revision Info

Updated with actual field data

	Originator	Verifier	HSEQ	Authority
Job Title	Reservoir Engineer	Team Leader PE	HSEQ Manager	Country Manager
Name	Jonquelle Low	Quirinius van Dorp	Sander Floore	Bert Abbas
Signature		PP		
Date	27 July 2015	27-7-2015	27-7-2015	27-7-2015

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	Jonquelle Low	Subsurface	Dana Petroleum Netherlands B.V.
	Quirnius van Dorp	Production Engineering	Dana Petroleum Netherlands B.V.

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1 General

1.1 Plan details

Item	Details
Name applicant	Dana Petroleum Netherlands B.V.
Address	Binckhorstlaan 410, 2516 BL DEN HAAG
Contact	B (Bert) Abbas, Manager Operated Assets
Email	bert.abbas@dana-petroleum.com
Telephone	070-3713000
Fax	070-3713999
Applicant status	Is operator conform article 22 of the mining act and license holder with the following parties: Energie Beheer Nederland B.V. (EBN)
Production area	P10a: 2005/E/EP/5032732

1.2 Introduction

This document serves as an update to the Concept Field Development Plan (Winningsplan) for P10a De Ruyter Western Extension [RTPOM-INT3-PD-PLN-0008], submitted to the Ministry of Economic Affairs on 20 February 2013.

De Ruyter Western Extension (DRWE) is a small gas discovery located in Block P10a. It is a fault and dip closed structure, located immediately west of the main De Ruyter oil & gas field. The productive reservoir in the field is the Volpriehausen formation, which is also developed in the adjacent De Ruyter, and nearby Van Ghent fields.

DRWE was discovered in June 2013 by exploration well P11-08. Due to the proximity of the DRWE accumulation to De Ruyter, P11-08 was drilled from the existing De Ruyter production platform located in the P10a/P11b De Ruyter Unitsed area. The well was drilled as a pilot hole, designed to intercept both the gas-oil and oil-water contacts if present. Based on the initial results of the pilot hole, the decision was made to plug back and drill a horizontal side-track (P11-08-s1) targeting a perceived oil rim interpreted on the openhole logs. P11-08-s1, was later renamed P11-D-01.

To facilitate rapid development of the accumulation, the well has been completed as an oil producer, tied-back to the existing De Ruyter facilities. DRWE was tied-back on the De Ruyter topsides into the Van Ghent flowline.

After tie-back, subsequent testing of P11-D-01 has demonstrated the initially interpreted oil rim not to be present, reducing the initial volumetric estimates for the field. Well P11-D-01 is therefore sub-optimally placed and completed for gas production. Due to the onset of rapid water breakthrough during the testing phase, liquid loading prevents start-up of the well under natural flow conditions therefore, gas-lifting is required to at start-up to kick-off the well. The De Ruyter Platform existing gas-lift facilities became available for use on DRWE in May 2015, enabling the final development of the accumulation.

Production from DRWE is expected to commence in the third quarter of 2015. De Ruyter Western Extension has estimated HCIIP's of 0.14 BNcm gas and gross proven plus probable ultimate recoverable reserves of 0.09 BNcm gas and 5.3 KSm^3 associated condensate. The field is expected to produce 19 - 27 $MMNm^3$ gas during 2015.

Evacuation of the DRWE fluids will be done via the existing De Ruyter Platform production facilities. These facilities include oil separation, gas handling, produced water treatment, power generation and oil and gas export (including compression). The gas is exported via an 8" gas export line with a length of approximately 29 km to Wintershall's P12-SW facility. From there the gas is transported via Wintershall's P6-A platform into the NGT (Noordgastransportleiding) gas transportation system. The oil and condensate is stored in the Gravity Base Structure (GBS) before being exported via the De Ruyter TMLS by shuttle tankers. This TMLS is located at 1.5 kilometres distance from the P11-B-De Ruyter platform.

Further detail of the De Ruyter field and facilites is included in the Field Development Plan (Winningsplan) – P10a/P11b De Ruyter [RTPOM-INT3-PD-PLN-0007]. Other relevant developments also tied back to the De Ruyter facilities include the Van Nes (gas) and the Van Ghent (oil and gas) fields. These fields have been developed as subsea tie-backs to the De Ruyter platform. Further detail of these fields are included the in Field Development Plan (Winningsplan) – Van Nes [VNGEN-INT3-PM-PLN-0001] and the Field Development Plan (Winningsplan) – Van Ghent [VGGEN-INT3-PM-PLN-0001].

DRWE has been developed by Dana Petroleum Netherlands B.V. (Dana NL) on behalf of the De Ruyter field owners, Dana NL and Energie Beheer Nederland B.V.

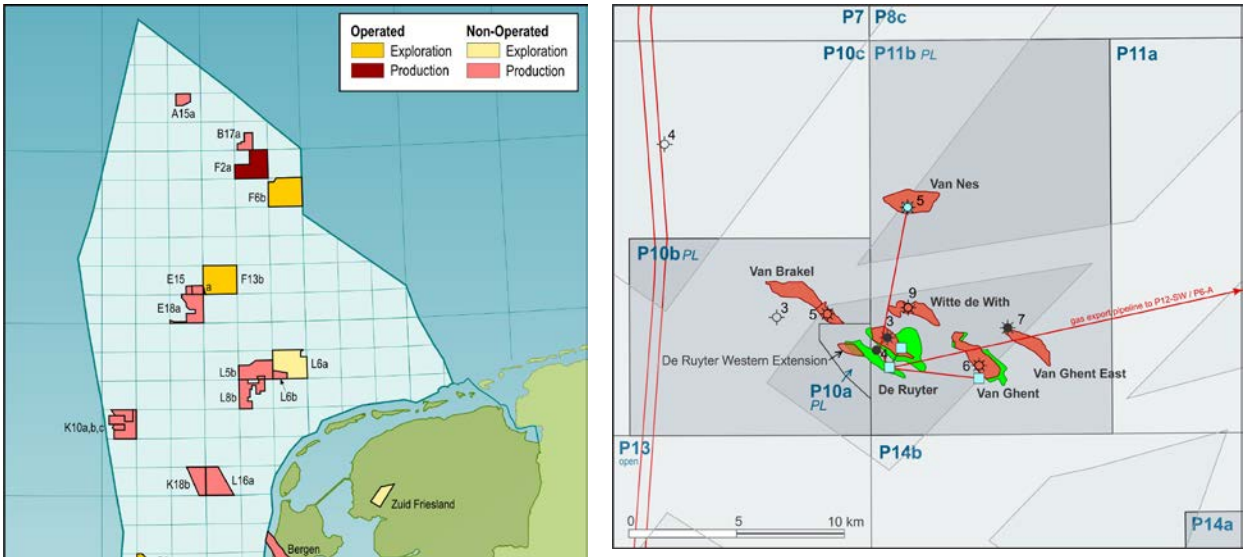


Figure: *De Ruyter Area Location Map*

1.3 License Overview

Decree	:	P10a: 2005/E/EP/5032732	
License effective	:	P10a: 31 May 2005	
Commitments	:	None	
Partner interest	:	Dana Petroleum Netherlands B.V.	60.00%
		Energie Beheer Nederland B.V.	40.00%

A detailed license history is included in Appendix B.

1.4 About this Document

Article 34 paragraph 1 of the Mining Act states: 'the production of minerals will be carried out according to a "Field Development Plan". The holder of the production licence or person designated in accordance with Article 22 of the Mining Act is required to submit a Production Plan to the Minister of Economic Affairs. Relevant sections of legislation are included in Appendix C.

This document serves as Field Development Plan (Winningsplan) for the P10a De Ruyter Western Extension development. The current document is the second issued version of this plan. Revision information is included in Appendix D.

The recoverable resources reported in this document are determined in accordance with the PRMS regulations and the production forecasts are based on these reported recoverable resources.

2 Field Development

2.1 Subsurface

The De Ruyter Area is located in the southwestern part of the Dutch Continental Shelf. Tectonically, the De Ruyter & DRWE fields are on a ridge bounded by the London-Brabant High to the south and the Winterton High in the north. The Permo-Triassic Shelf is deepening towards the east into the West and Central Netherlands Basin and to the northwest toward the Sole Pit Basin. Various Pre-Tertiary tectonic phases have given the area a pronounced structural fabric with dominant NW-SE fault trends.

2.1.1 Mining Decree, Article 24 1a

Description of the expected quantity and the composition of the hydrocarbons present, broken down according to reservoir layer and reservoir compartment.

The main De Ruyter field consists of two separate accumulations at different stratigraphic levels, separated by a major NW to SE trending fault. The first is known as the P11-03 oil and gas accumulation which consists of a Volpriehausen sandstone reservoir. The second is the P11-04 oil accumulation, which consists of a Hewett and Zechstein Fringe sandstone reservoir. Both accumulations are located at depths of 1,500 – 1,600 m tvdss.

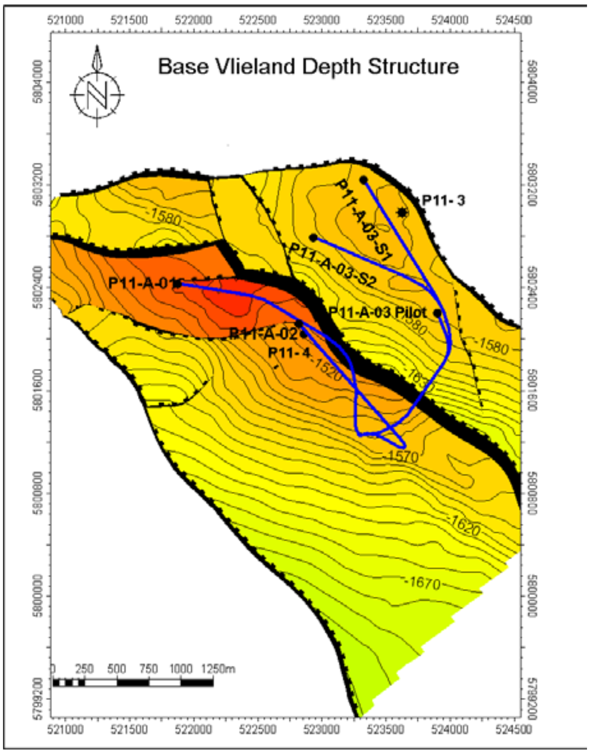


Figure: *De Ruyter Top Structure Map*

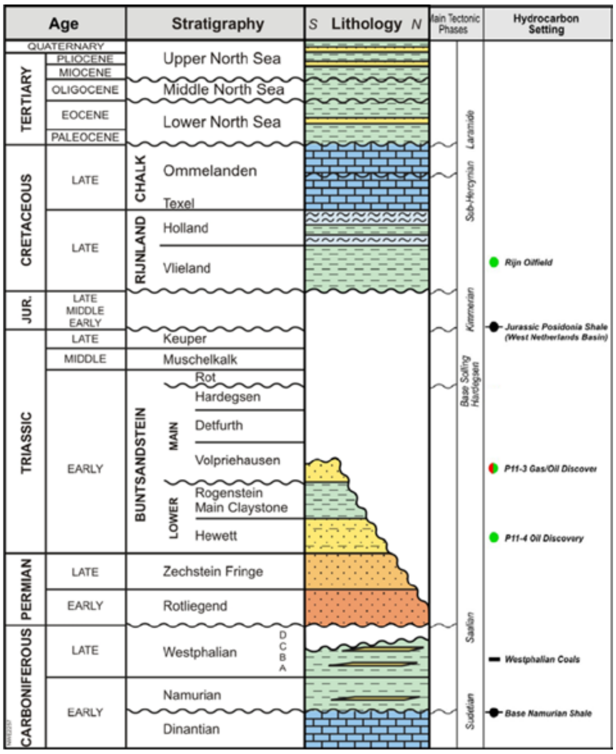


Figure: *De Ruyter Field Stratigraphy*

De Ruyter Western Extension is located right above the producing De Ruyter Hewett (P11-04) compartment. It is similar to the Volpriehausen (P11-03) compartment of the De Ruyter Field, in consisting of westerly dipping Volpriehausen reservoir.

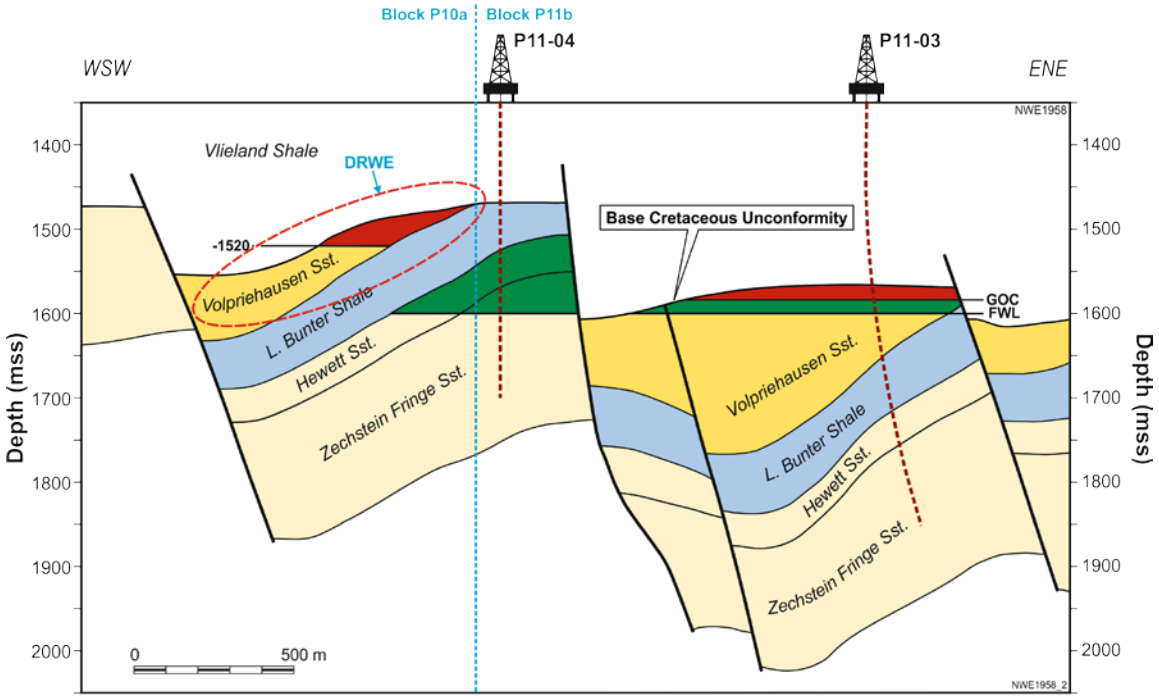


Figure: *De Ruyter Cross-Section*

The Volpriehausen Reservoir

The Volpriehausen formation is a collection of Lower Triassic Bunter sand and siltstones and is known from the P11-03 location, as well as from the nearby Van Ghent Field. The Triassic sequences dip gently (5-10 deg) towards the southwest. The reservoir can be subdivided into two main units, the Upper and Lower Volpriehausen, based on detailed core descriptions and sedimentology analysis from well P10-05 (Van Brakel discovery to the north of De Ruyter). These derived reservoir properties link very well with the De Ruyter log interpretations as well as with the Van Ghent log and sidewall core data. Thus a full regional description of reservoir parameters for the Volpriehausen Fm was established. The formation is known for good reservoir quality.

The overlying Early Cretaceous Vlieland shale provides top seal for the accumulation and the Lower Bunter Shale constitutes the base of the reservoir. There is no communication with the producing De Ruyter compartments.

Fluid Properties

PVT data are derived from fluid samples taken during P11-08-s1 (P11-D-01) initial clean-up flow (surface recombination samples only). These properties are seen as representative of the fluids in the DRWE accumulation.

Item	P11-08-s1
Initial reservoir pressure (bara)	150.0
Dew point pressure (bara)	150.0
Gas Specific Gravity @ S.C (Air = 1.000)	0.742
Gas FVF @ Pi (rm^3/ Sm^3)	0.00646
Gas Calorific Value (MJ/m^3) @ 15.0 degC	43.7
Initial CGR* ($m^3/MMSm^3$) @ 31.2 bara & 31.3 degC	142.7
Condensate gravity (^{o} API)	65 - 70

** Initial CGR measured during clean-up flow. Used for surface DST sample recombination*

Table: *De Ruyter Western Extension Fluid Properties*

Hydrocarbons Initially In Place

Item	Base Case (P50)
De Ruyter Western Extension - Free gas ($MMNm^3$)	142.2

Table: *De Ruyter Western Extension HCIIP*

2.1.2 Mining Decree, Article 24 1b

Specification of the data with regard to the structure of the reservoir, broken down according to reservoir layer and reservoir compartment, with pertaining geological, geophysical and petrophysical studies and the uncertainty analyses used thereby.

The De Ruyter & DRWE area is covered by two 3D seismic surveys:

- Z3AMC1993A 3D survey acquired for Amoco in 1993 over the P11 licence (re-processed in 2003 by Petro-Canada).
- Z3PGS1999C 3D survey acquired in 1999 by PGS over the P10 licence – this survey covers block P10 entirely and extends across the De Ruyter field (P11-03, -4) area.

Some 90 km2 of the 1993 3D data over De Ruyter/DRWE was re-processed by Veritas during 2003. The processing was aimed specifically at reducing noise, attenuating multiples and improving fault definition. The application of Pre-Stack Time Migration and Radon de-multiple, particular attention to the velocity field, and zero-phase correction using wells, achieved these objectives. Re-processing of the P11 data resulted in a more accurate three-dimensional description of the field through improved horizon and fault interpretation. The new data was processed to the same polarity as the 1993 seismic. The older seismic data matches the 2003 re-processing with time shifts of -14 ms (P10) and -19 ms (P11) respectively.

A detailed description of the De Ruyter field seismic interpretation which also covers the DRWE structure, is included in the Field Development Plan (Winningsplan) – P11-B-De Ruyter [RTPOM-INT3-PD-PLN-0007].

Petrophysical Parameters

Both P11-08 and P11-08-s1 (P11-D-01) were logged with Baker Hughes Inteq MDW-LWD tools:

- **P11-08:** GR, Resistivity, Density, Neutron Porosity, Formation Pressures (TESTrak), Sonic, Directional
- **P11-08-s1 (P11-D-01):** ECD, GR, Resistivity, Directional, Caliper, Density, Neutron Porosity

No additional open or case hole wireline logs have been run.

A summary of petrophysical data available from offset wells is included in the Field Development Plan (Winningsplan) – P11-B-De Ruyter [RTPOM-INT3-PD-PLN-0007]. Core and SCAL data from a Volpriehausen analogue (well P10-05, gas discovery 3.25 km NW of De Ruyter) has been used to calibrate Volpriehausen porosities.

Reservoir Modelling

A new static model for the entire de Ruyter Field, including DRWE was built during 2011-2012. Based on updated seismic interpretation of top effective reservoir (based on Medway project learnings) a new structural model with updated zonation was put in place. Petrophysical analysis of all surrounding wells (De Ruyter, Van Nes, Van Brakel, Van Ghent) resulted in a consistent parameter analysis for porosity, permeability and saturation height functions. HCIIPs for the DRWE accumulation are based on post-drill updates to the 2011-2012 static model.

Pre-drill dynamic simulation studies were done to assess the range of recoverable hydrocarbons for both oil-rim and gas-only cases. However, since the gas-only case assumed a structurally higher positioning of the drainage point as compared to the current well, recovery factors are now predicted to be lower than the original pre-drill simulation results. Early onset of water breakthrough observed during the testing phase of P11-D-01 has led to liquid loading problems during start-up of the well. This transient well behaviour gives rise to higher uncertainty in the forward recoverable volume estimates.

2.2 Well Construction

The field produces via one production well, the P11-D-01, further detailed in this paragraph.

2.2.1 Mining Decree, Article 24 1e

Specification of the number of boreholes used in the production.

Well code	Operator	Drill year	Goal	Status
P11-D-01	Dana Petroleum	2013	Volpriehausen	Gas production

2.2.2 Mining Decree, Article 24 1f

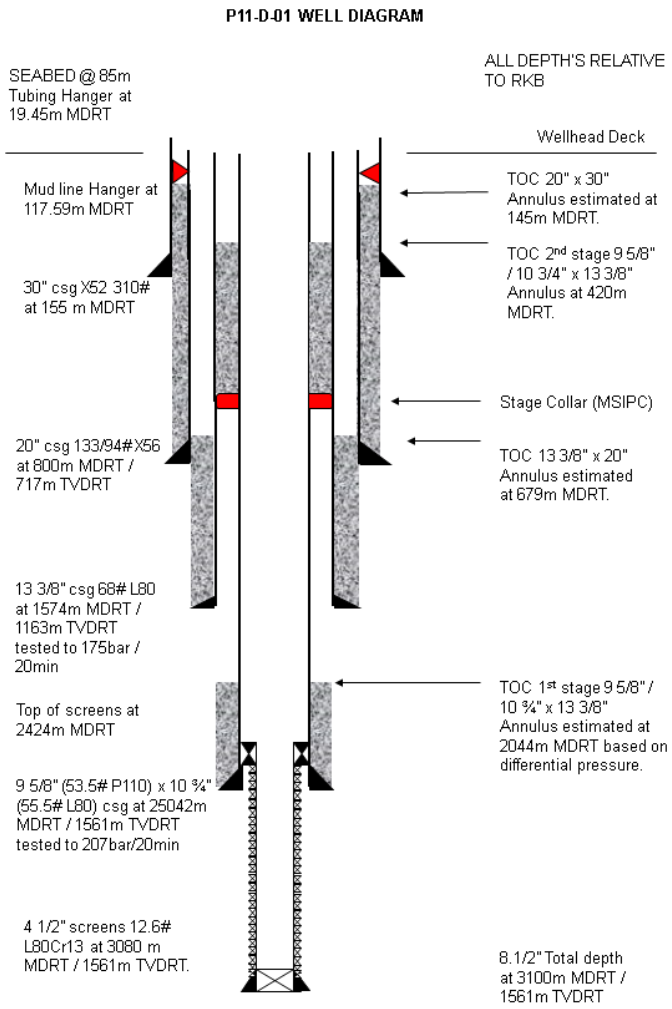
Specification of the sequence and timeframe involved in the making boreholes.

NA.

2.2.3 Mining Decree, Article 24 1g

Specification of the location, length and diameter of the casing-plan of the boreholes.

Well P11-D-01, Casing plan
From De Ruyter Western Extension Final Well Report
[RTWEC-INT3-DR-RPT-0005]



2.2.4 Mining Decree, Article 24 1h

Specification of the location and the manner in which the hydrocarbons enter into the tubing.

The P11-D-01 well is completed as an oil producer with HP Well Screens wire wrapped screens and Inflow Control Devices (ICDs) to avoid sand production and to prevent water and gas breakthrough over the entire horizontal section of the reservoir. In addition, the upper completion is equipped with an orifice valve located at 876 m MD to facilitate offloading of the well using gas-lifting during start-ups.

2.3 Production Strategy

Hydrocarbons from the De Ruyter Western Extension field will be produced by means of a platform drilled well on the existing P11-B-De Ruyter production platform and treated in the existing process. The De Ruyter field has been developed with stand-alone oil facilities providing an infrastructure hub for future developments in the area. The production facilities include a steel Gravity Base Structure (GBS) with crude oil storage, an Integrated Production Deck (IPD), and a Tanker Mooring Loading System (TMLS). Access for a jack-up drilling rig is also possible. Oil is stored in the GBS and exported via the TMLS in dedicated shuttle tankers. Gas is exported by a 29 km 8" pipeline via the Wintershall operated P12-SW platform to the P6-A processing platform for treatment and compression. Gas is then exported to shore at Uithuizen via the NGT pipeline system.

2.3.1 Mining Decree, Article 24 1c

Description of the production method.

P11-D-01 is completed in the reservoir section with a 4 ½" horizontal with screens, annular flow barriers and ICDs to prevent excessive gas production. Production is started through gas lift injection through an orifice located at 876m MD. Once the liquids have been successfully unloaded and gas coning is sufficiently developed, free gas production takes over the function of gas lift and natural flow is possible. Gas lift injection is subsequently terminated.

Due to the rapidly declining FTHPs observed during testing and the requirement for gas-lift to start-up, P11-D-01 will be produced under compression (via the oil train) to minimise the back pressure on the well. However, since compression ullage is currently fully utilised by existing producers, it is envisaged that the well will be produced intermittently in the base case. This will be either via a fixed alternating sequence with the Van Ghent P11-C-01 well, or on an adhoc basis as and when excess ullage is available. An alternative scenario whereby well P11-C-01 is choked back to create ullage and P11-D-01 is produced simultaneously at minimum rate is also potentially possible. However, this requires further production testing to demonstrate whether a co-production scheme is feasible.

2.3.2 Mining Decree, Article 24 1d

Description of the mining work and its location.

The De Ruyter production platform is located in block P11b. Water depth at the platform location is approximately 34 m. The main components of the platform are:

- A single steel Gravity Based Structure (GBS) with wellhead and lattice towers to support an Integrated Production Deck and 150,000 bbl integrated crude oil storage (tank dimensions: 72m x 63 m x 12 m high)
- An Integrated Production Deck (IPD) with processing facilities (maximum capacity: 27,000 bbl/d oil, 650,000 Nm3/d gas, and 50,000 bbl/d water), helideck, and living quarters (max POB: 39)
- A Tanker Mooring and Loading System (TMLS) located approximately 1.5 km from the platform
- A 29km 8" gas export pipeline to P12-SW platform

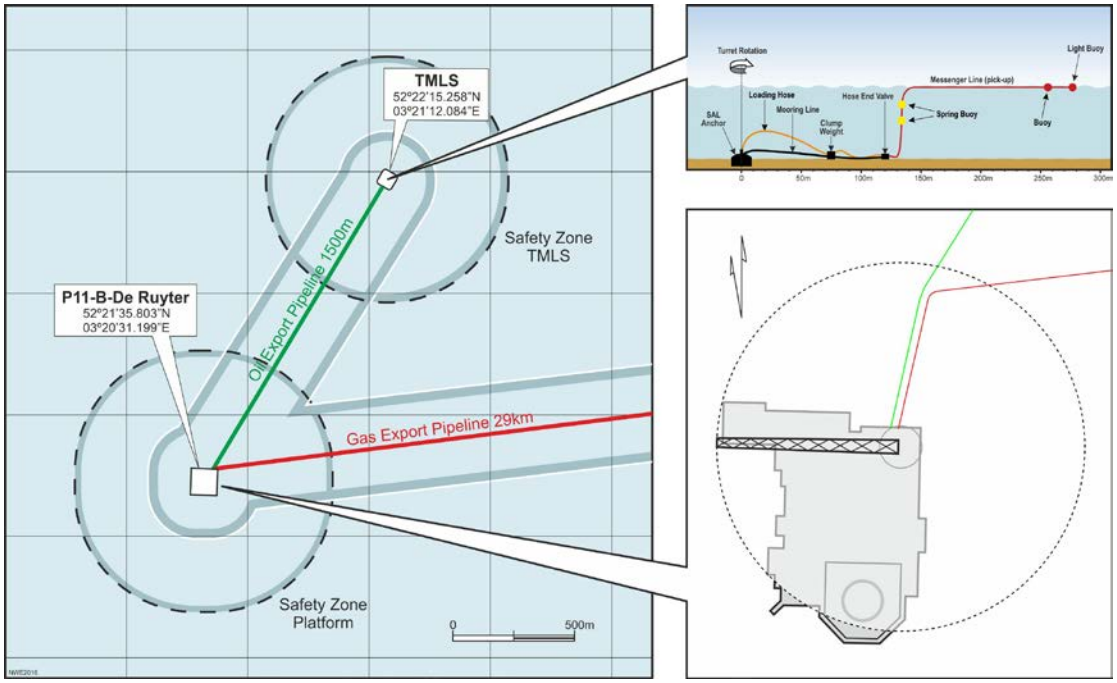


Figure: *De Ruyter Field Layout*

The IPD consists of three main decks which house the process equipment, which includes: oil, gas and water separation and treatment, gas handling equipment, and power generation. The figure below summarises the main processing system on the platform.

The Tanker Mooring and Loading System (TMLS) comprises a seabed suction anchor with combined mooring and production swivel leading to an integrated polyester mooring line with a central clump weight and connection loading hose. The mooring line and loading hose connect to North Sea industry standard couplings at the tanker bow. During lifting, oil is pumped at a nominal rate of 1500 m^3/h.

Picture: *De Ruyter Platform*

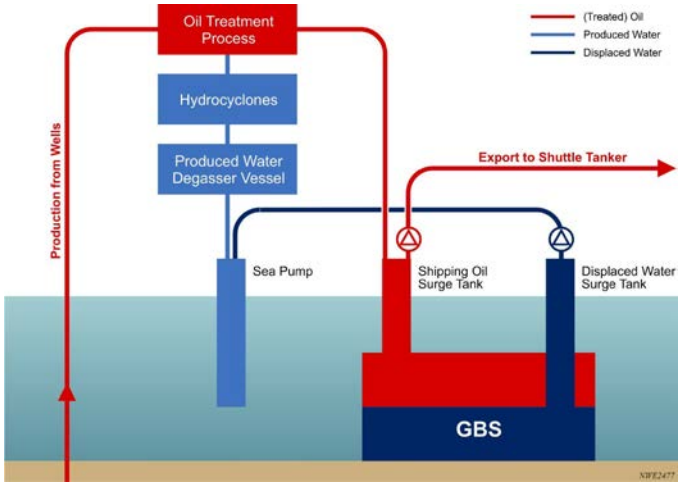


Figure: *De Ruyter Process Overview*

The topside facilities accept and process the fluids from the wells. The oil is separated and the off-gas compressed prior to export. Produced water collected in the process is treated and discharged overboard. The wet gas is compressed to the required pressure, metered and sent to Wintershall's P12-SW facilities via a gas export pipeline. The oil is transferred to the integrated storage facilities. The oil is periodically offloaded via the Tanker Mooring & Loading System (TMLS) to shuttle tankers.

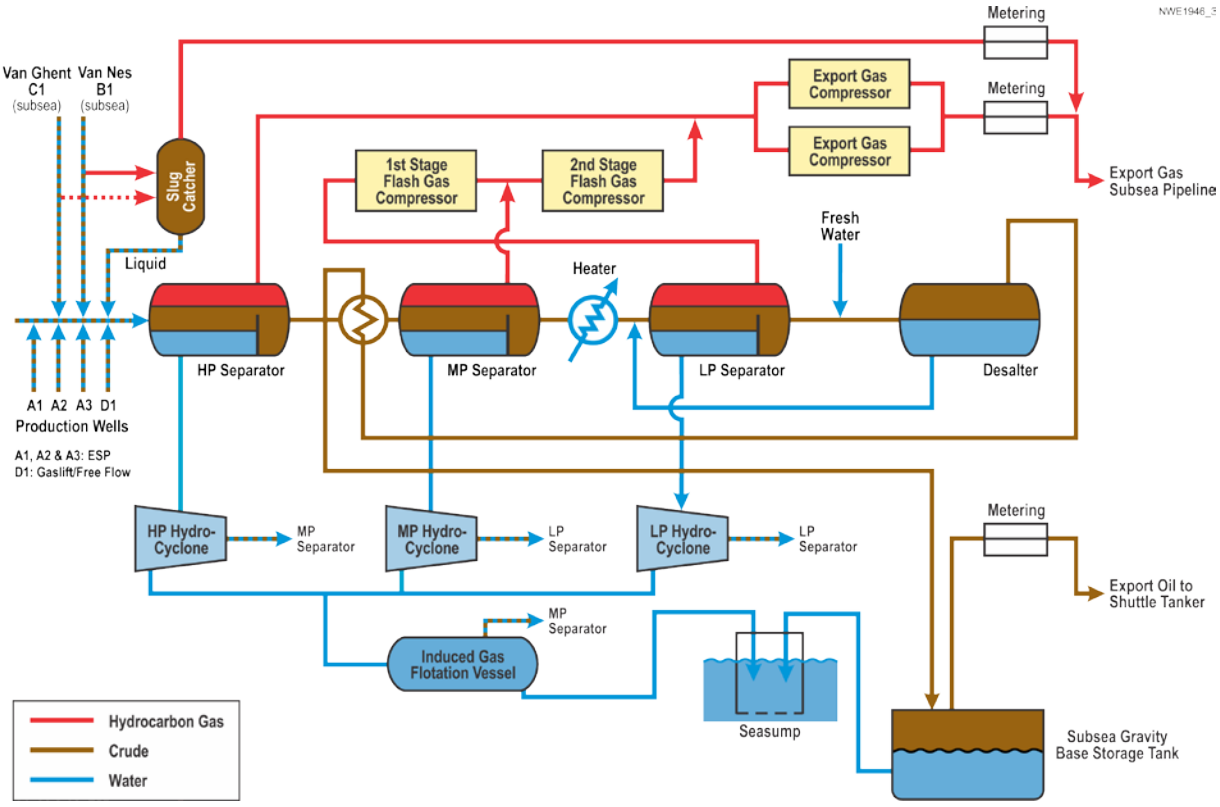


Figure: *De Ruyter Processing Facilities Schematic*

In 2007 and 2008, two explorations wells were drilled in the area (block P11b), which resulted in the discoveries of the Van Ghent and Van Nes fields. These fields are located relatively close to the existing De Ruyter platform (4-8 kilometres distance). The joint development of these reservoirs was called the Medway Project. The fields have been developed as subsea wells tied-back to the De Ruyter platform and production commenced in January 2012 (Van Ghent) and April 2012 (Van Nes).

The Medway facilities installed on De Ruyter consist of:

- Medway allocation flow meter.
- HP gas production slug catcher and meter.
- HP and LP production manifolds.
- New inter-stage scrubbers and aftercoolers for the upgraded gas export compressors.
- New methanol tank and pumps and subsea chemicals pump.
- New topsides subsea system equipment for the support of up to three subsea wells: MCS, HPU, EPU, TUTU.

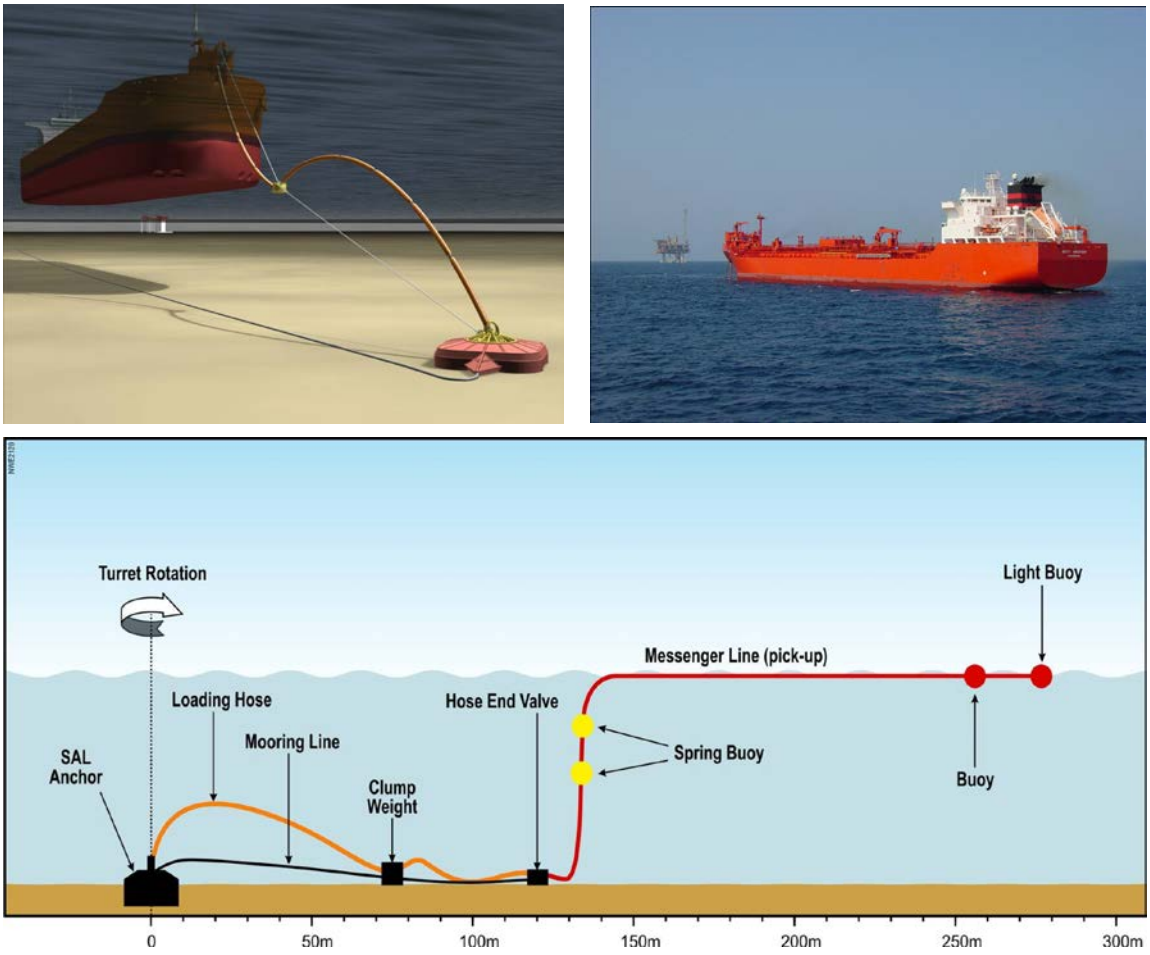


Figure: *De Ruyter Tanker Mooring & Loading System (TMLS)*

The De Ruyter Western Extension facilities installed on De Ruyter consist of:

- Process flowline, allocation meter and tie-in.
- Connection to the the gas lift system.
- Utility Production chemical tie-ins.
- New instrumentation connections.
- DCS and ICSS modifications.

A Abbreviations and Definitions

Term	Explanation
AVO	Amplitude vs. Offset
BCM	Billion Cubic Meters.
BBL	Barrels
BHP	Bottom Hole Pressure
BOE	Barrels of Oil Equivalent
mD	mili Darcy, a unit of measurement for permeability
DHI	Direct Hydrocarbon Indicators
DST	Drill Stem Test
EBN	Energie Beheer Nederland
ESP	Electrical Submersible Pump
FTHP	Flowing Tubing Head Pressure
FWL	Free Water Level
GBS	Gravity Based Structure
GOR	Gas Oil Ratio
HCIIP	Hydrocarbons Initially in Place
ICD	Inflow Control Device
IPD	Integrated Production Deck
LWD	Logging While Drilling
MD RKB	Measured Depth from Rotor Kelly Bushing
MDT	Modular Dynamic Test
MSL	Mean sea Level
OWC	Oil Water Contact
P&A	Plugged and Abandoned
PLA	Production License Application
POB	Persons on Board
PSI completions	Perforate, Stimulate, Isolate completions
RFT	Repeat Formation Test
SCAL	Special Core Analysis
STOIIP	Stock Tank Oil Initially In Place
TMLS	Tanker Mooring and Loading System
TOC	Top of Cement
TVD	True Vertical Depth
TVDss	True Vertical Depth subsea, TVD minus the elevation above mean sea level of the depth reference point of the well.
TVD RKB	True Vertical Depth from Rotor Kelly Bushing
Vp/Vs	The compressional to shear wave velocity ratio

B License History P11

09-04-1968	Exploration licence for P11 granted to Union Oil Co of the Netherlands (First Round)
09-04-1978	Relinquishment of the P11 exploration licence
10-07-1979	Exploration licence for P11 granted to Amoco Netherlands Petroleum Co (Fourth Round)
10-07-1985	Partial relinquishment of the P11 exploration licence; P11b becomes open block
01-02-1989	Dry well P11-01 drilled by Amoco, TD: 3226m AHBRT in Maurits formation (Carboniferous)
10-07-1989	Exploration licence P11a expired
11-05-1992	Production licence for P11a granted to Wintershall Noordzee B.V. as part of the P14a production licence
16-12-1992	Exploration licence for P11b granted to Amoco Netherlands Petroleum Company and Veba Oil Nederland B.V. (Eight Round)
29-12-1995	Dry well P11-02 drilled by Amoco, TD: 3460m AHBRT in Ruurlo formation (Carboniferous)
03-10-1996	Oil and gas well P11-03 drilled by Amoco, TD: 1974m AHBRT in Zechstein
22-07-1977	Oil well P11-04 drilled by Amoco, TD: 1760m AHBRT in Zechstein
07-05-1998	Partial relinquishment of the P11b exploration licence; P11c becomes open block
20-12-2002	Transfer of BP (former Amoco) share and operatorship of the P11b exploration licence to Petro-Canada Netherlands B.V. (former Veba Oil Netherlands B.V.)
02-04-2004	Production licence for P11b granted to Petro-Canada Netherlands B.V. for development of De Ruyter oil and gas field
30-06-2002	Exploration licence for P11c granted to Petro-Canada Netherlands B.V.
14-07-2006	Oil production well P11-A-01 drilled by Petro-Canada Netherlands B.V. from the P11b-A-De Ruyter platform
13-09-2006	Oil production well P11-A-02A drilled by Petro-Canada Netherlands B.V. from the P11b-A-De Ruyter platform
30-09-2006	First oil from De Ruyter field
26-10-2006	Multi-lateral oil production well P11-A-03 drilled by Petro-Canada Netherlands B.V. from the P11b-A-De Ruyter platform
28-12-2006	Partial relinquishment of the P11c exploration licence; P11d becomes open block
20-01-2007	Gas well P11-05 Van Nes drilled by Petro-Canada Netherlands B.V., TD: 2093m AHBRT in Rotliegend
19-08-2007	Relinquishment of the P11c exploration licence; former P11c and P11d blocks merge into new P11c open block
01-04-2008	Gas well P11-06 Van Ghent drilled by Petro-Canada Netherlands B.V., TD: 1892m AHBRT in Zechstein
31-12-2008	Relinquishment of the P11a production licence; former P11a and P11c blocks merge info new P11a open block
01-09-2010	Medway Project approved by Ministry of Economic Affairs
15-08-2011	Trilateral development well P11-C-01 for Van Ghent oil & gas field drilled by Dana NL
21-10-2011	Tie-back P11-B-01 (P11-05) van Nes to the De Ruyter platform
17-12-2011	Gas and oil well P11-07 van Ghent East drilled by Dana Petroleum Netherlands B.V., TD: 2900m AHBRT in Volpriehausen
11-01-2012	First oil P11 Van Ghent
30-04-2012	First gas P11 Van Nes
17-05-2013	Gas condensate exploration well P11-08 drilled by Dana Petroleum Netherlands B.V., TD:

	2963 m AHBRT in Volpriehausen
04-06-2013	Horizontal production well P11-D-01 (P11-08-s1) drilled by Dana Petroleum Netherlands B.V., TD: 3100 m AHBRT in Volpriehausen
29-07-2013	First gas (testing phase) P10 De Ruyter Western Extension

C Relevant Sections of Legislation

Mining Act

Article 34

- The production of minerals from a reservoir will be carried out according to a production plan.
- The holder of a production licence or the person designated in accordance with Article 22 shall submit a production plan to Our Minister.
- The production plan needs the approval of Our Minister.
- Section 3.4 of the Algemene wet bestuursrecht applies to a decision with respect to the approval of a production plan, to the extent the production of minerals does not occur in the continental shelf or under the territorial sea from a reservoir that is located on the seaward side of the line established in the attachment to this Mijnbouwwet. Points of view may be submitted by anybody. Section 3.4 of the Algemene wet bestuursrecht does not apply if it concerns a decision with respect to an amendment of a decision with respect to approval of a production plan.
- Article 34.1 does not apply to the production of minerals within the scope of the search for data for pure scientific research or for the central government policies to be implemented.

Article 35

1. The production plan sets forth in respect of each reservoir within the licence area at least a description of:
   a. the anticipated volume of minerals present and the location thereof;
   b. the commencement and duration of the production;
   c. the method of production and the activities relating thereto;
   d. the volume of minerals to be produced annually;
   e. the cost on an annual basis of the production of the minerals;
   f. the soil movement as a result of the production and the measures to prevent damages as a result of soil movement, to the extent the production of minerals does not take place in the continental shelf or under the territorial sea from a reservoir that is located on the seaward side of the line established in the attachment to this Mijnbouwwet, unless our Minister has decided otherwise.
2. The Technical committee soil movement provides advice to Our Minister with respect to Article 35.1.f.
3. By or by virtue of an order in council further rules can be set with respect to the production plan.

Mining Decree

Article 24

1. The production plan as meant in Article 34.1 of the Mijnbouwwet, for the production of hydrocarbons shall contain:
   a. a description of the expected quantity and the composition of the hydrocarbons present, broken down according to reservoir layer and reservoir compartment;
   b. a specification of the data with regard to the structure of the reservoir, broken down according to reservoir layer and reservoir compartment, with pertaining geological, geophysical and petrophysical studies and the uncertainty analyses

used thereby;

c. a description of the production method;
d. a description of the mining work and its location;
e. a specification of the number of boreholes used in the production;
f. a specification of the sequence and timeframe involved in the making boreholes;
g. a specification of the location, length and diameter of the tubing of the boreholes;
h. a specification of the location and the manner in which the hydrocarbons enter into the tubing;
i. a specification of the composition and quantities of the substances that annually inevitably are co-produced with the production of hydrocarbons;
j. a specification of the quantities of hydrocarbons produced which are annually used, vented or flared;
k. a specification of the composition and quantities of minerals and other substances that are annually re-introduced into the subsoil during production;
l. a specification of the annual costs of production, broken down into costs for investment, maintenance, operational management and the costs of abandonment and removal of mining works;
m. a map indicating the contours of the expected final extent of soil subsidence;
n. an overview indicating the course of the expected extent of soil subsidence over time;
o. an indication of uncertainty concerning the expected extent of soil subsidence as referred to in m and n here above;
p. a risk analysis concerning soil tremor as a result of the production;
q. a description of the possible extent and expected nature of damage caused by soil movement;
r. a description of the measures taken to prevent or reduce soil movement, and
s. a description of the measures taken to prevent or reduce damage by soil movement.

The above items m. up to and including s. do not apply to deposits located on the seaward side of the line laid down in the Annex to the Mijnbouwwet.

2. In the production plan as meant in Article 24.1 the considerations will be explained that were important in the choices made for each subsection, to the extent relevant.

Article 113

1. The operator shall annually, before 15 March, provide Our Minister with the following data for each reservoir in which hydrocarbons have been found:
   a. the name adopted by the operator for the reservoir;
   b. the exploration or production licence or exploration or production licences under which the reservoir is located;
   c. a structure map;
   d. the probable year of commencement of production, if production does not take place yet;
   e. the quantity of producible minerals found as at 1st January of the year under

review;

f. the expected quantities to be produced annually up to the moment in time that production ceases;
g. possible use of the reservoir for storage;
h. the reservoir pressure, to the extent;
i. the actual use of the boreholes present in the reservoir, and
j. the data referred to in Articles 24.1.b and 24.1.k, to the extent the data differ materially from the submitted production plan.

2. The operator shall also provide Our Minister annually with the data concerning the expected quantities of producible minerals per probable reservoir in the licence area that have not been proven by means of exploration, and also the associated structure maps.

D Document Revision Log

Revision	Date	Changes	Details
00	14-JAN-2013	NA	First issued version.
01	24-JUL-2015	01	Document updated with current field and well data.