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# **ABOUT PETRONAS**

Petroliam Nasional Berhad (PETRONAS) is an integrated and progressive global energy and solutions company, ranked among the largest corporations on Fortune Global 500®. We seek opportunities in energy investments both in hydrocarbon and renewables across the globe, while maximising value through our integrated business model. Our technology is our differentiator and the key to ensuring excellence in all that we offer – energy, products and solutions, unlocking new business frontiers.

Sustainability is at the core of everything that we do. We believe in harnessing the good in energy to add quality to everyday lives. People are our strength and our partners for growth, as we continuously progress and address the needs in today's changing energy landscape.

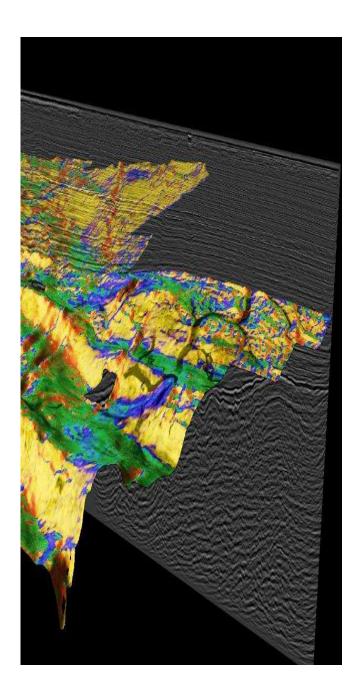


# **MALAYSIA'S OIL & GAS LANDSCAPE**

Malaysia is one of the key oil and gas producers in the Asia-Pacific region with an average daily production of over 2.209 million barrels of oil equivalent in 2020. The country's remaining commercial reserves are estimated at over 5 billion barrels of oil equivalent contained in more than 400 fields, with gas making up around three-fourth of the mix.

The Petroleum Development Act of 1974 (PDA) vested PETRONAS with the entire ownership in, and the exclusive rights, powers, liberties and privileges of exploring, exploiting, winning and obtaining petroleum whether onshore or offshore of Malaysia. From a national perspective, PETRONAS' objectives under PDA is to maximize value of domestic resources and to promote spin-off to the Nation.

Today, the duties and powers conferred to PETRONAS under PDA, as custodian of petroleum resources, is executed by PETRONAS' Malaysia Petroleum Management also known as MPM. MPM is entrusted with the responsibility of managing and steering the overall E&P activities in Malaysia, including to promote exploration investments and facilitate the development and production activities, whilst protecting the national interest. In addition, MPM role also encompasses the optimization of Malaysia E&P assets and the management of all E&P companies operating in the country.



# **INTRODUCTION**

The PETRONAS Malaysia Exploration Prospect and Well Naming Guideline (PWNG 2.0) issued in 2019 comprises only of exploration lead, prospect and well naming. PWNG 2.0 is developed to ensure the consistency, validity and uniqueness of naming a lead, prospect and well in Malaysia. From the publishment of PWNG 2.0, it has highlighted the need of revising the current PETRONAS Upstream Well Naming Guideline for Development and Production Wells.

Thus, this document will provide the requirements and the general standards which must be adopted, adhered and circulated to PETRONAS Petroleum Arrangement Contractors (PACs) in naming a lead, prospect and well throughout the Exploration, Development and Production lifecycle. This document will also supersede PETRONAS Malaysia Exploration Prospect and Well Naming Guideline (PWNG) 2.0 as a comprehensive standard covering exploration, prospect and well naming.

A well name is given during the Exploration phase following the respective naming conventions. The same theme name will be used under the field name during Development and Production phase, but it will expand accordingly as depicted in the figure below:

# DOMESTIC EXPLORATION LEAD, PROSPECT & WELL NAMING

- Theme
- Naming Standards
- Numerical Indicator
- Spacing & Order

Inherit & Expand

# DOMESTIC DEVELOPMENT & PRODUCTION WELL NAMING

- Field
- Naming Standards
- Numerical Indicator
- Spacing & Order

This document is aligned, and an extension of the requirements stated in PETRONAS Procedures and Guidelines for Upstream Activities (PPGUA 4.1) in:

- Volume 5 Exploration, Section 2.1.1
- Volume 7 Drilling and Well Operations, Section 1 and Section 2

# **GUIDING PRINCIPLES**

The guiding principles of this document are:

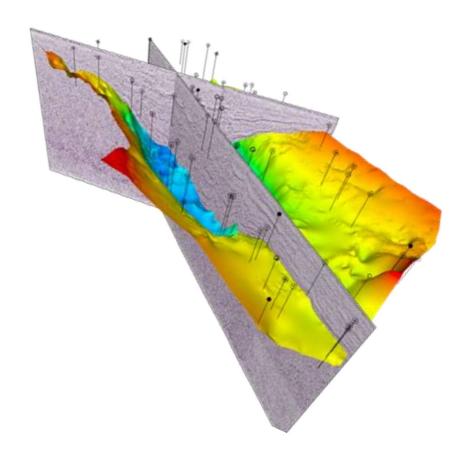
- 1. This Prospect and Well Naming Standards for Malaysia Operations shall be applicable to prospect and well naming in Malaysia, including wells drilled from unitized areas located in Malaysia water effective from October 2022.
- 2. Well naming exception is applicable to the below:
  - a) Historical wells
  - b) Inherited well name within the same field

However, for 2(a) and 2(b), MPM will have the authority to rename the wells if deemed necessary while PAC is required to seek MPM's approval for any renaming of those wells on case-by-case basis.

# **OBJECTIVES**

The purpose of this document is:

- To ensure adoption of prospect and well naming standards for PACs that will enable a systematic and consistent prospect and well name.
- To align the prospect and field naming standards in the PETRONAS' Annual Review Petroleum Resource (ARPR)



# **Chapter 1: Exploration Prospect & Well Naming Standards** Open

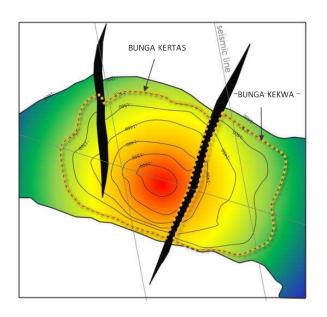
# **NAMING A LEAD & PROSPECT**

# Lead

Any indication of the presence of potentials ubsurface accumulation which gives the explorationists a thinking base to explore further as more data is required to classify lead as a prospect

# **Prospect**

Potential viable drilling candidate with geological and geophysical evaluation, which sufficiently defines the potential accumulation, risk and associated resource estimation.



#### Naming Convention:

Lead/Prospect: <Lead/Prospect>
Example: BUNGA KERTAS

Na ming a lead/prospect should follow the following naming convention\*:

# <Lead/Prospect>



#### Theme:

• Lead/Prospect name should follow the 18 designated themes of the geological provinces/geographical area

#### Naming standards:

- Must be in Malay word, with maximum 2 words and in full spelling
- No additional information such as geographical direction or location are allowed
- Written in CAPITAL LETTERS

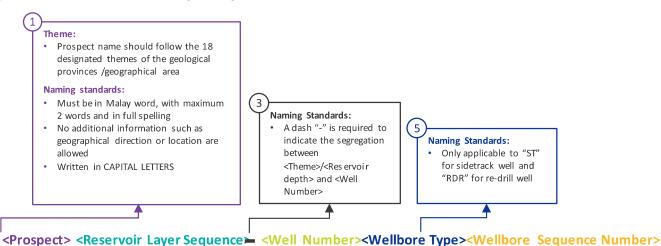
<sup>\*</sup>Further explanation and examples on the naming conventions can be found in page 9-19 of this document

# **NAMING A WELL**

#### Naming Convention:

Well: < Prospect > < Reservoir Layer Sequence > - < Well Number > < Wellbore Type > < Wellbore Sequence Number > Example: BUNGA KERTAS DEEP1-1ST1

Naming a well should follow the following naming convention\*:



# Naming Standards:

- Additional naming allowable for well that has deeper or shallower target reservoirs (not the same reservoir)
- Not applicable for the first well drilled

#### Spacing & Order:

- Between <Theme> and <Reservoir Layer Sequence> there should be a space
- No spacing allowed between <Reservoir Layer Sequence> until <Well bore Sequence Number>
- In the case that <Reservoir Layer Sequence> is not relevant, no spacing is allowed between <Theme> and dash "-"

#### Numerical Indicator:

 1st well will use 1 after prospect/field name

#### Spacing & Order:

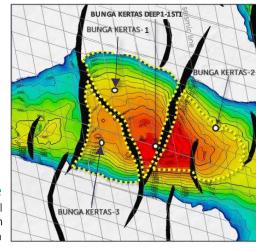
 The <Well Number> drilled after the initial well drill should be in ascending order

#### Numerical Indicator:

1st well will use 1 after
 Well bore Type>

#### Spacing & Order:

The <Well bore
Sequence Number>
drilled after the initial
well drill should be in
ascending order



# Well Name

The name given to a well with a well origin (top/start) drill location

\*Further explanation and examples on the naming conventions can be found in page 9-19 of this document

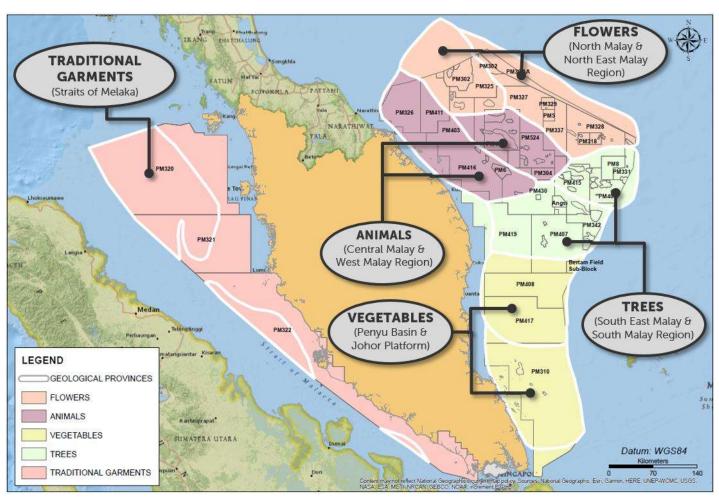
# **THEME**

The following table indicates the 18 designated themes (reflecting Malaysia) for the 27 provinces in Malaysia Basins, which categorized based on geological province or geographical area (onshore/offshore). Of these themes, suitable names may be chosen (see example below):

Region	Geological Province / Geographical Area	Theme	Example
	Straits of Melaka	Traditional Garments	BATIK, KURUNG
	North Malay Region	Flowers	BUNGA SETAWAR, BUNGA PUDING
	North East Malay Region		
Peninsular	Central Malay Region	Animals	PELANDUK, RUBAH
Malaysia	West Malay Region		
	South East Malay Region	Trees	AUR, TUKAS
	South Malay Region	Trees	
	Penyu Basin	Vegetables	KELADI, KUNDUR
	Arong Graben	vegetables	
Sarawak	North Luconia	Underwater Creatures	BELANAK, OBOR-OBOR
	West Luconia Delta	Local Hills / Mountains	JERAI, NUANG
	West Luconia Rim		
	South West Sarawak		
	Tatau (offshore)	Traditional Instruments	GAMBUS, SAPE
	Balingian (offshore)	Traditional Arts / Crafts	DOKOH, GASING
		Spices / Herbs	SELOM, OREGANO
	Sentral Luconia	Traditional Cuisines	KERIA, LAKSA
	West Baram Delta	Fruits	PISANG, MEMPELAM
	Tinjar & Onshore Sarawak	Traditional Weapons	KERIS, MERIAM
Sabah	Sabah Platform	Birds	MERBOK, PUNGGOK
	Sabah Trough		
	East Baram Delta	Good Traits	PINTAR, SABAR
	Thrust Sheet		
	Outboard Belt	Local Forest Reserves	BELUM, SEKAYU
	Inboard Belt	Minerals / Gemstones	ILIT, MIKA
	North East Sabah (offshore)	Insects	TEBUAN, CENGKERIK
	South East Sabah (offshore)	Local Dances	MAK YONG, KUDA KEPANG
	Onshore Sabah	Tales	KEBAYAN, LAKSAMANA

# PENINSULAR MALAYSIA ACREAGE MAP

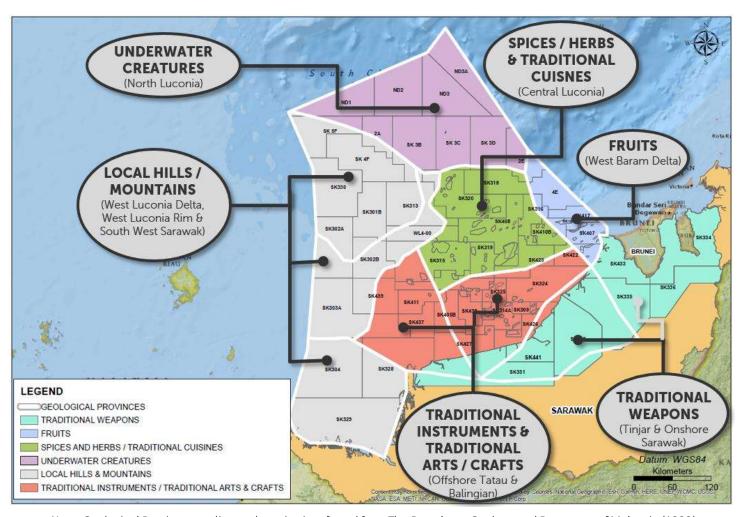
The themes for Peninsular Malaysia have been identified in the map below:



Note: Geological Provinces outline and naming is referred from The Petroleum Geology and Resources of Malaysia (1999)

# **SARAWAK ACREAGE MAP**

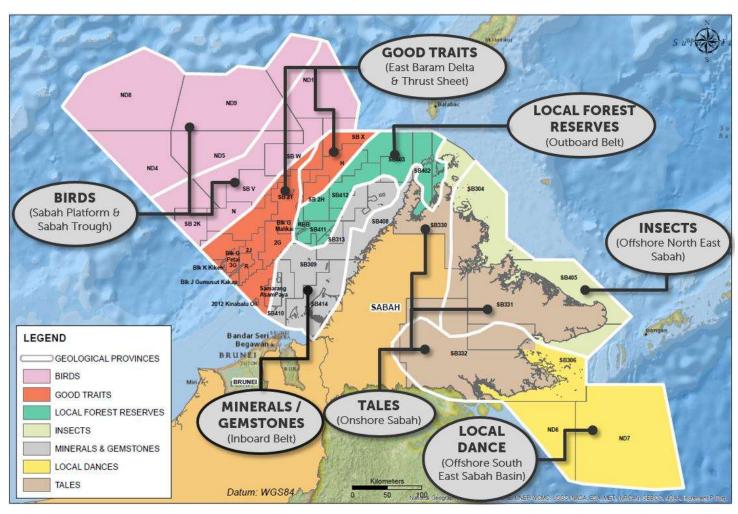
The themes for Sarawak have been identified in the map below:



Note: Geological Provinces outline and naming is referred from The Petroleum Geology and Resources of Malaysia (1999)

# **SABAH ACREAGE MAP**

The themes for Sabah have been identified in the map below:



Note: Geological Provinces outline and naming is referred from The Petroleum Geology and Resources of Malaysia (1999)

# **NAMING STANDARDS**

1

6

Prospect and lead must be in Malay word, with maximum 2 words and in full spelling

e.g., "BUNGA KERTAS' is permitted

Prospect and lead names must be in CAPITAL LETTERS

No geographical direction or location are allowed e.g., South, Utara and Atas

Names containing controversial or sensitive issues e.g., politics, race or religion are not permitted

"ST" for sidetrack and "RDR" for re-drill are the only abbreviations allowed for well bore type

Additional naming allowable for well that has deeper or shallower target reservoir, such as,

BUNGA KERTAS DEEP1-1, BUNGA KERTAS SHALLOW1-1

# **NUMERICAL INDICATOR**

1

For wildcat wells (the first well drilled in the structure or area) the well name will be followed by a dash "-" and the number "1", e.g., BUNGA KERTAS-1

2

For the next well drilled in the same structure or area for exploration appraisal purposes, the numbering will continue, e.g., BUNGA KERTAS-2, BUNGA KERTAS-3 and so on

# **SPACING AND ORDER**

1

No spacing between well number and well bore type

e.g., "BUNGA KERTAS-1ST1"

No spacing or dashes allowed between combinations of the two well bore names, e.g., "1ST1"

2

Spacing is allowable for well name with reservoir layer sequence and should be considered as a one well name

e.g., BUNGA KERTAS DEEP1-1 or

**BUNGA KERTAS SHALLOW1-1** 

Combination of wellbore types are allowed, and must be in ascending order from the last well or wellbore number,

e.g., BUNGA KERTAS DEEP1-1RDR1ST1 (the first re drilled sidetrack of

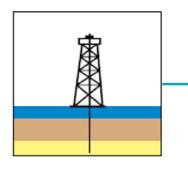
BUNGA KERTAS DEEP1-1RDR1),

BUNGA KERTAS DEEP1-1RDR1ST2 (the first re drilled second sidetrack of

BUNGA KERTAS DEEP1-1RDR1 well), and so on

3

# **NAMING A WELL BORE**



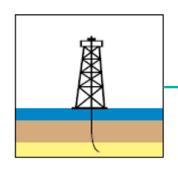
# Vertical/Deviated Well (Including suspended vertical/deviated pilot hole)

Definition: Well drilled at an inclination of three degrees or less Alpha-<n=1,n=n+1>

n=1 or the largest target number

Naming Convention: <Theme/Name>-<Well Number>

Wildcat well: n=1, BUNGA KERTAS-1 Appraisal well: n=n+1, BUNGA KERTAS-2



#### Side-track Well

Definition: Newwell bore drilled off the well track after plugging the original wellbore due to geological reasons or due to drilling problems e.g., stuck pipe, losses etc.

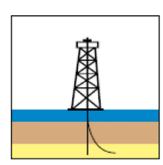
Alpha-1ST<n=1,n=n+1>

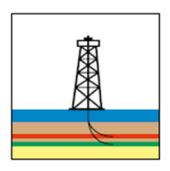
n=1 of continue from the side-track number

 $Naming\ Convention: < Theme/Name > - < Well\ Number > < Wellbore\ type > < Wellbore\ Sequence$ 

Number>

Wildcat well: n=1, BUNGA KERTAS-1ST1
Appraisal well: n=n+1, BUNGA KERTAS-2ST1





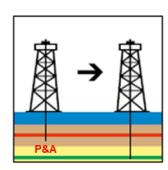
# Multiple Exploration Targets Well

Definition: Well with mother and child wellbores where both are designed to produce hydrocarbons Alpha-1ST< n=1, n=n+1>

n=1 of continue from the last side track number

Naming Convention: <Theme/Name>-<Well Number><Wellbore type><Wellbore Sequence Number>

Wildcat well: n=1, BUNGA KERTAS-1ST1 Appraisal well: n=n+1, BUNGA KERTAS-2ST1



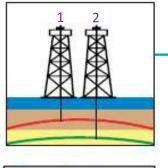
# Re-Drilled Well

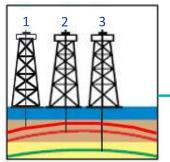
Definition: New wellbore redrill from an existing geological structural after plugging and a bandoning the original wellbore

Alpha-1RDR<n=1,n=n+1> n=1 or the last redrill number

Naming Convention: <Theme/Name>-<Well Number><Wellbore type><Wellbore Sequence Number>

Wildcat well: n=1, BUNGA KERTAS-1RDR1 Appraisal well: n=n+1, BUNGA KERTAS-2RDR1





# Deeper Well\*

Definition: New well bore drilled at the deeper section and/or stratigraphically deeper than the 1<sup>st</sup> targeted reservoir well drilled at the same structure or field

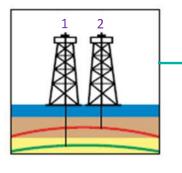
Alpha Dn-1<n=1,n=n+1>

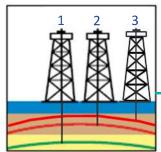
n=1 of continue from the last deep reservoir number drilled regardless of total depth

Naming Convention: <Theme/Name> <Reservoir layer sequence> - <Well Number> < Wellbore type> < Wellbore Sequence Number>

Well 1: Wildcat well, n=1,

Well 2: BUNGA KERTAS DEEP1-1
Well 1: Appraisal well, n=n+1
Well 2: BUNGA KERTAS DEEP1-1
Well 3: BUNGA KERTAS DEEP2-1





# **Shallow Well**

Definition: New well bore drilled at the shallower section and/or stratigraphically shallower than the previous discovery well drilled at the same structure or field

Alpha SHn-1< n=1, n=n+1>

n=1 of continue from the last shallow reservoir number drilled regardless of total depth

Naming Convention: <Theme/Name> <Reservoir layer sequence> - < Well Number> < Wellbore

type><Wellbore Sequence Number>

Well 1: Exploration well, n=1,

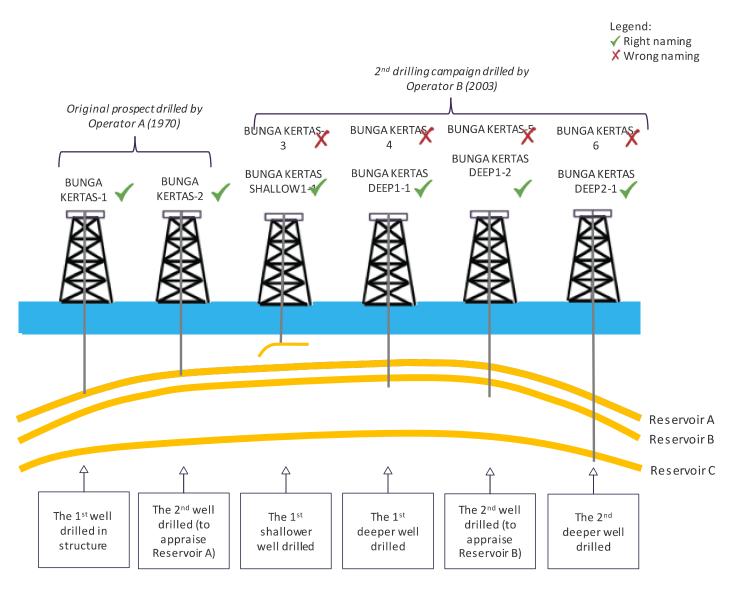
Well 2: BUNGA KERTAS SHALLOW1-1

Well 1: Appraisal well, n=n+1

Well 2: BUNGA KERTAS SHALLOW1-1 Well 3: BUNGA KERTAS SHALLOW2-1

<sup>\*</sup>Deeper well is not referring to water depth

# Well drilled within the same structure but different targeted reservoir



This diagram illustrates the sequence of well naming based on different phases (exploration) of well drilled

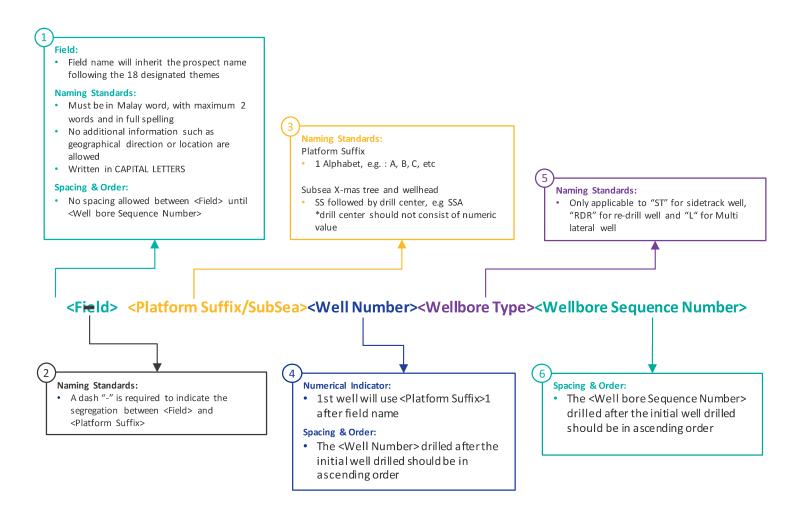
# **Chapter 2: Development & Production Well Naming Standards**

# **NAMING A WELL**

#### Naming Convention:

Well: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence Number> Example: BUNGA KERTAS-A1ST1

Naming a well should follow the following naming convention\*:



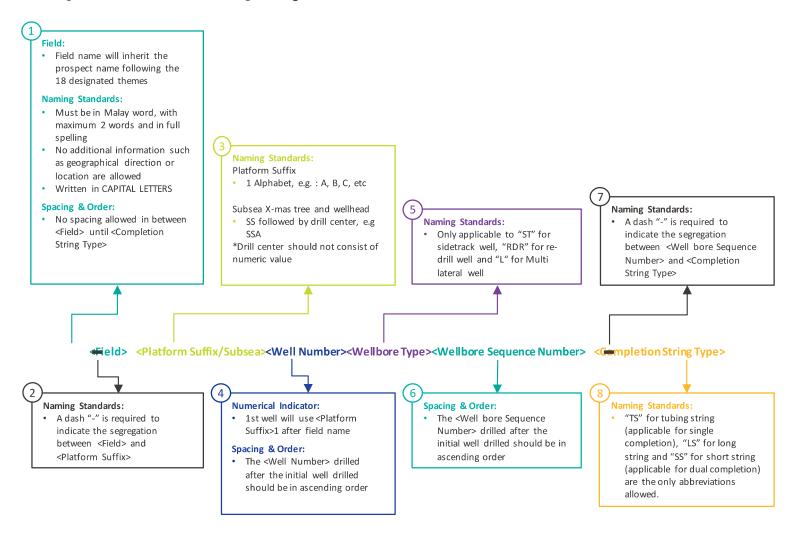
<sup>\*</sup>Further explanation and examples on the naming conventions can be found in page 23-29 of this document.

# NAMING A WELL STRING

#### Naming Convention:

Well: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence Number>-<Completion String Type> Example: BUNGA KERTAS-A1ST1-TS

Naming a well should follow the following naming convention\*:



<sup>\*</sup>Further explanation and examples on the naming conventions can be found in page 23-29 of this document

1

Field name must inherit the prospect name and based on the 18 designated themes of the geological provinces /geographical areas

2

Names containing controversial or sensitive issues e.g., politics, race or religion are not permitted

# **NAMING STANDARDS**

1

Field name must be in Malay word, with maximum 2 words and in full spelling

e.g., "BUNGA KERTAS' is permitted

2

Field name must be in CAPITAL LETTERS

3

No geographical direction or location are allowed in the Field name e.g., South, Utara and Atas

4

All Development/Production drilled well will use <Platform Suffix><Wellbore Number> after Field Name, <Platform suffix> will use 1 Alphabet, e.g. : A, B, C, D

5

"ST" for sidetrack, "RDR" for re-drill and "L" for Multi lateral are the only abbreviations allowed for well bore type

# **NUMERICAL INDICATOR**

1

For the 1<sup>st</sup> development well drilled the well name will be followed by a dash "-" and <platform suffix>1, e.g., BUNGA KERTAS-A1

2

For the next well drilled in the same structure for development purposes, the numbering will continue,

e.g., BUNGA KERTAS-A2, BUNGA KERTAS-A3 and so on

3

Well Number & Wellbore Sequence Number can only have a maximum of 3 integers, e.g.: 1-999

# **SPACING AND ORDER**

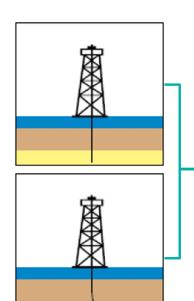
1

No spacing from platform suffix until completion string type e.g., "BUNGA KERTAS-A1ST1"

2

Combination of wellbore types are allowed, and must be in ascending order from the last wellbore name, e.g., BUNGA KERTAS-A1RDR1ST1 (the first re drilled sidetrack of BUNGA KERTAS-A1RDR1), BUNGA KERTAS-A1RDR1ST2 (the first re drilled of the second sidetrack of BUNGA KERTAS-A1RDR1 well), and so on

# NAMING A DEVELOPMENT & PRODUCTION WELL BORE



# Vertical Well/Deviated Well (including suspended vertical/deviated pilot hole)

Definition: Well drilled at an inclination of three degrees or less

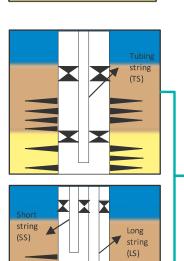
Alpha-< n=1, n=n+1>

n=1 or the largest target number

Naming Convention: <Field>-<Platform Suffix><Well Number>
Development/Production well: n=1, BUNGA KERTAS-A1
Development/Production well: n=n+1, BUNGA KERTAS-A2

Naming Convention: <Field>-<Platform Suffix><Well Number>-<Completion String Type>

Well String: n=1, BUNGA KERTAS-A1-LS
Well String: n=n+1, BUNGA KERTAS-A2-LS



# Completion String Type (Single/Dual)

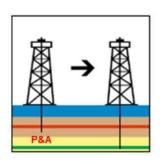
Definition: A wellbore with simultaneous production of hydrocarbons using single or dual string from one or more producing zone

For single completion, Tubing String = TS

For dual completion, Long String = LS, Short String = SS

Naming Convention: <Field>-<Platform Suffix><Well Number>-<Completion String Type>

Well String: n=1, BUNGA KERTAS-A1-SS Well String: n=1, BUNGA KERTAS-A1-LS Well String: n=1, BUNGA KERTAS-A2-TS



#### Re-Drill Well

Definition: New wellbore re-drilled from an existing geological structural after plugging and a bandoning the original wellbore

Alpha-1RDR<n=1,n=n+1>

n=1 or the last re-drill number

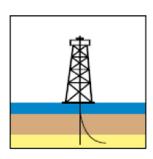
Naming Convention: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence Number>

Development/Production well: n=1, BUNGA KERTAS-A1RDR1
Development/Production well: n=n+1, BUNGA KERTAS-A2RDR1

Naming Convention: <Field>-<Platform Suffix><WellNumber><Wellbore Type><Wellbore Sequence Number>-

<Completion String Type>

Well String: n=1, BUNGA KERTAS-A1RDR1-SS Well String: n=n+1, BUNGA KERTAS-A2RDR1-SS



# Side-track Well

Definition: New wellbore drilled off the well track after plugging the original well bore due to geological reasons or due to drilling problems e.g., stuck pipe, losses etc.

Alpha-1ST<n=1,n=n+1>

n=1 of continue from the side-track number

Naming Convention: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence

Number>

Development/Production well: n=1, BUNGA KERTAS-A1ST1
Development/Production well: n=n+1, BUNGA KERTAS-A2ST1

Naming Convention: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence

Number>-<Completion String Type>

Well String: n=1, BUNGA KERTAS-A1ST1-TS
Well String: n=n+1, BUNGA KERTAS-A2ST1-TS



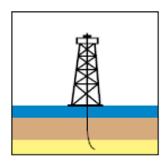
#### Multi-lateral Well

Definition: Well with mother and child wellbores where both are designed to produce hydrocarbons Naming Convention: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence Number>

Development/Production well: n=1, BUNGA KERTAS-A1L1
Development/Production well: n=1, BUNGA KERTAS-A1L2
Development/Production well: n=n+1, BUNGA KERTAS-A2L1
Development/Production well: n=n+1, BUNGA KERTAS-A2L2

Naming Convention: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence

Number>-<Completion String Type>
Well String: n=1, BUNGA KERTAS-A1L1-TS
Well String: n=1, BUNGA KERTAS-A1L2-TS
Well String: n=n+1, BUNGA KERTAS-A2L1-SS
Well String: n=n+1, BUNGA KERTAS-A2L2-LS



#### Subsea X-Mas tree and wellhead

Definition: A deep water well drilled and produced from subsea X-mastree and wellhead.

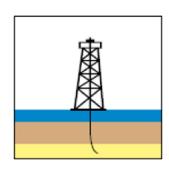
Naming Convention: <Field>-<Subsea><Well Number><Wellbore Type><Wellbore Sequence Number>

Development/Production well: n=1, BUNGA KERTAS-SSA1

Naming Convention: <Field>-<Subsea><Well Number><Wellbore Type><Wellbore Sequence Number>-

<Completion String Type>

Well String: n=1, BUNGA KERTAS-SSA1-TS Well String: n=n+1, BUNGA KERTAS-SSA2-TS



# **Exploration converted to Development Well**

Definition: An exploration well that has been converted to Development Well due to realized hydrocarbon production.

Naming Convention: <Field>-<Well Number><Wellbore Type><Wellbore Sequence Number>/<Field>-

Development/Production well: n=1, BUNGA KERTAS-1/BUNGA KERTAS-A1
Development/Production well: n=n+1, BUNGA KERTAS-1/BUNGA KERTAS-A2

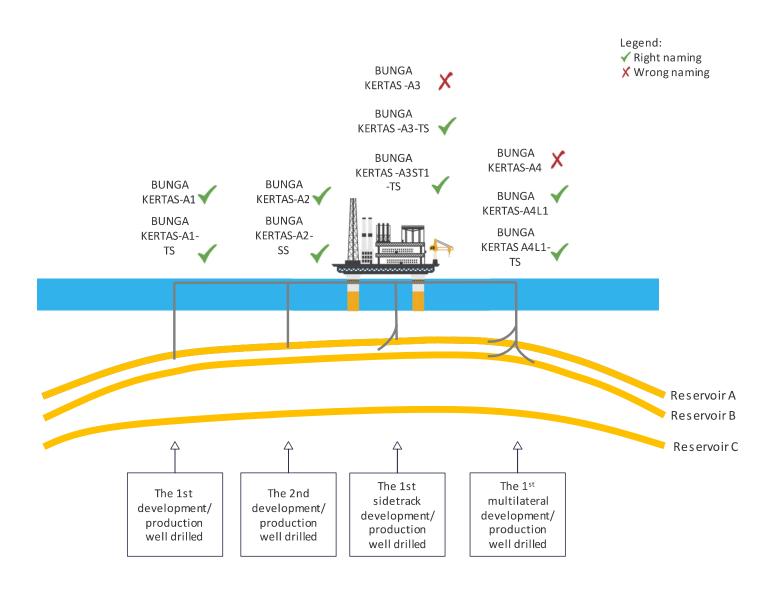
Naming Convention: <Field>-<Platform Suffix><Well Number><Wellbore Type><Wellbore Sequence

Number>-<Completion String Type>

Well String: n=1, BUNGA KERTAS-1/BUNGA KERTAS-A1-TS
Well String: n=n+1, BUNGA KERTAS-1/BUNGA KERTAS-A2-SS

# **EXAMPLE CASES**

# Well drilled within the same structure but same targeted reservoir



This diagram illustrates the sequence of well naming based on different phases (development and production) of well drilled

# **ABBREVIATION**

МРМ	Malaysia Petroleum Management
PDA	Petroleum Development Act
E&P	Exploration and Production
PWNG	PETRONAS Malaysia Exploration Prospect and Well Naming Guideline
PAC	PETRONAS Petroleum Arrangement Contractors
PPGUA	PETRONAS Procedures and Guidelines for Upstream Activities
ARPR	PETRONAS' Annual Review Petroleum Resource
ST	Sidetrack
RDR	Re-drill
L	Multi Lateral Well
TS	TubingString
SS	Short String
LS	Long String

# **GLOSSARY**

<b>Exploration</b>
Well

Wildcat well or an appraisal well

# Wildcat Well

A high-risk exploration well in untested area/play or have no concrete historic production records for oil and gas output

# **Appraisal Well**

A well drilled with the objective of further defining a potential commercial quantity of petroleum indicated by a wildcat well

# **Well Name**

The name given to a well with a well origin (top/start) drill location

# Wellbore

A path of drilled footage, from the well origin (top/start) to a terminating point (bottom/end)

# **Well String**

The primary conduit through which reservoir fluids are produced to surface that typically assembled with tubing and completion components in a configuration that suits the wellbore conditions and the production method

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