



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Oil and Gas Management



Form C Well Integrity Inspection Instructions

Bureau of Oil and Gas Planning and Program
Management
Subsurface Activities Section

Training Outline

Learning Objectives

Casing Definitions

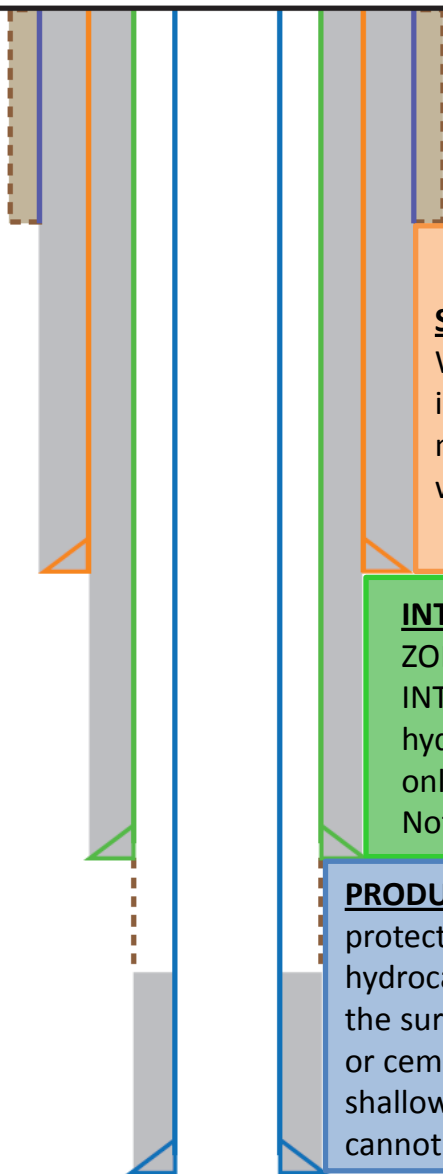
Annulus Definitions

Examples by Well Type

▶ Learning Objectives

- To understand casing and well annular space naming conventions in order to properly identify where leaks of gas, oil, and/or brine are occurring
- To understand what inspection components are required for common well designs in the state

➤ Casing Definitions: Wells Spud PRIOR TO February 5, 2011



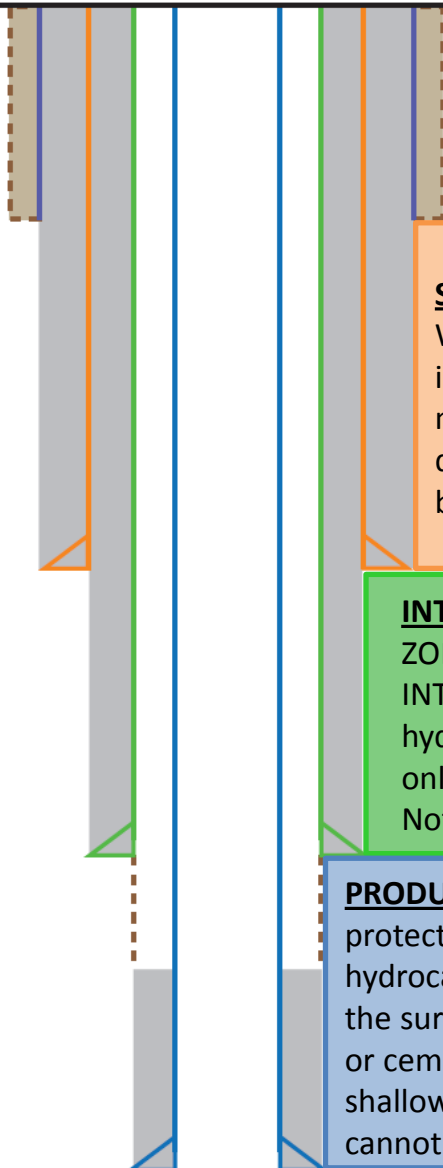
CONDUCTOR PIPE: A short string of large-diameter casing used to stabilize the top of the wellbore in shallow unconsolidated formations. It may be cemented, driven, or sanded in (this is not counted as a separate casing string if using Form A).

SURFACE/COAL CASING: In most cases, if **ANY** FRESHWATER ZONES or WORKABLE COAL SEAMS/MINE VOIDS are isolated over this depth interval, the casing is considered SURFACE/COAL CASING. Note that more than one surface or coal casing string may be used and brackish water/brine zones may also be isolated.

INTERMEDIATE CASING: In most cases, if **ONLY** BRACKISH WATER/BRINE ZONES are isolated over this depth interval, the casing is considered INTERMEDIATE CASING. This casing may also isolate non-target hydrocarbon zones. Intermediate casing is not used in every well and is only possible if separate coal/surface and production strings are present. Note that more than one intermediate string may be used.

PRODUCTION CASING: A string of pipe other than surface casing and coal protective casing which is run for the purpose of confining or conducting hydrocarbons and associated fluids from one or more producing horizons to the surface. Production casing may be anchored with cement or a packer, or cemented to surface, but **MUST ISOLATE** hydrocarbons from the next shallower casing string in the well completely to meet this definition, i.e., it cannot be free-hanging in the wellbore.

➤ Casing Definitions: Wells Spud AFTER February 5, 2011



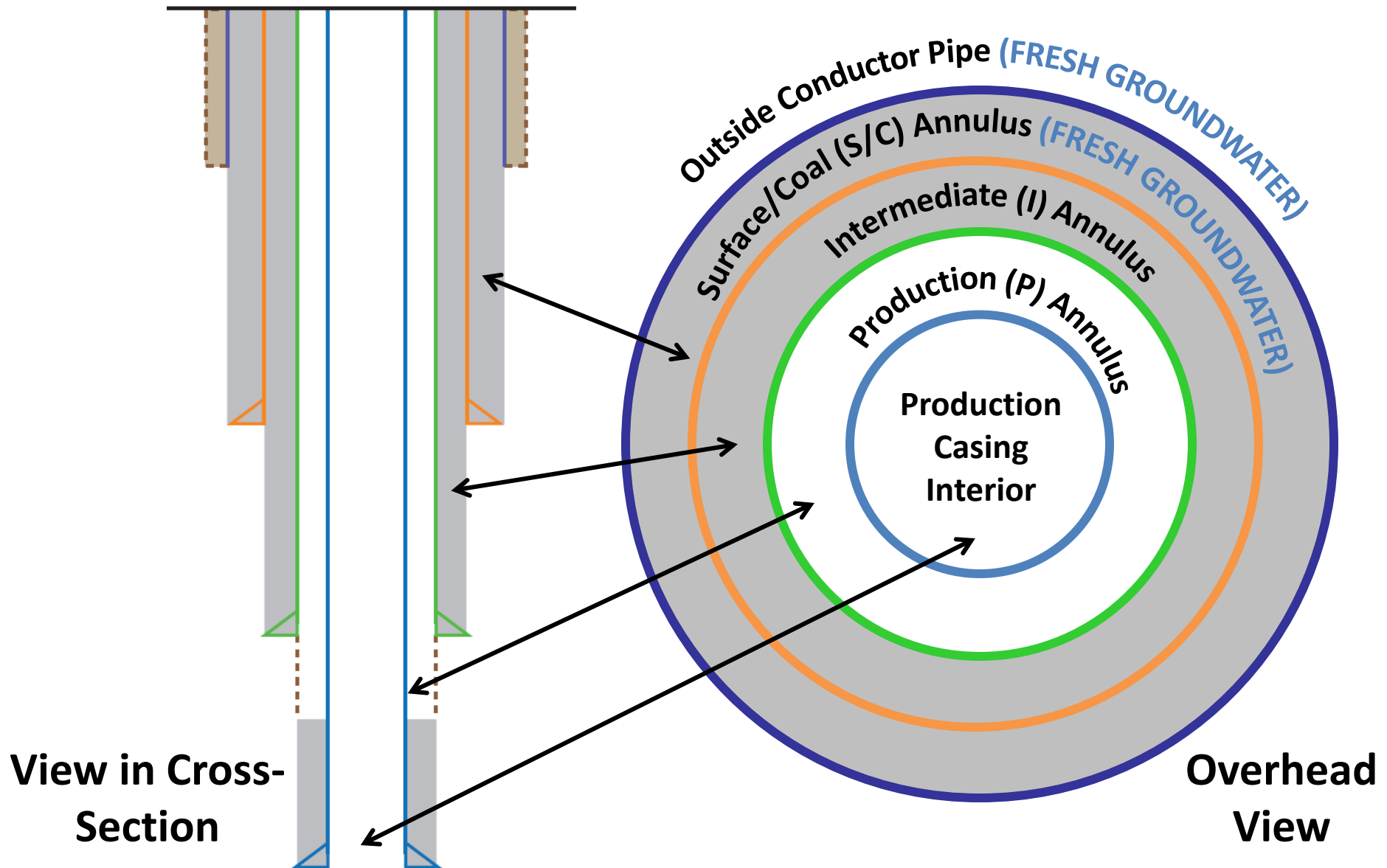
CONDUCTOR PIPE: A short string of large-diameter casing used to stabilize the top of the wellbore in shallow unconsolidated formations. It may be cemented or driven (this is not counted as a separate casing string if using Form A).

SURFACE/COAL CASING: In most cases, if **ONLY** FRESHWATER ZONES or WORKABLE COAL SEAMS/MINE VOIDS are isolated over this depth interval, the casing is considered SURFACE/COAL CASING. Note that more than one surface or coal casing string may be used and that the deepest fresh groundwater casing must be no more than 200 feet below the base of fresh groundwater.

INTERMEDIATE CASING: In most cases, if **ONLY** BRACKISH WATER/BRINE ZONES are isolated over this depth interval, the casing is considered INTERMEDIATE CASING. This casing may also isolate non-target hydrocarbon zones. Intermediate casing is not used in every well and is only possible if separate coal/surface and production strings are present. Note that more than one intermediate string may be used.

PRODUCTION CASING: A string of pipe other than surface casing and coal protective casing which is run for the purpose of confining or conducting hydrocarbons and associated fluids from one or more producing horizons to the surface. Production casing may be anchored with cement or a packer, or cemented to surface, but **MUST ISOLATE** hydrocarbons from the next shallower casing string in the well completely to meet this definition, i.e., it cannot be free-hanging in the wellbore.

Annulus Definitions



Examples by Well Type

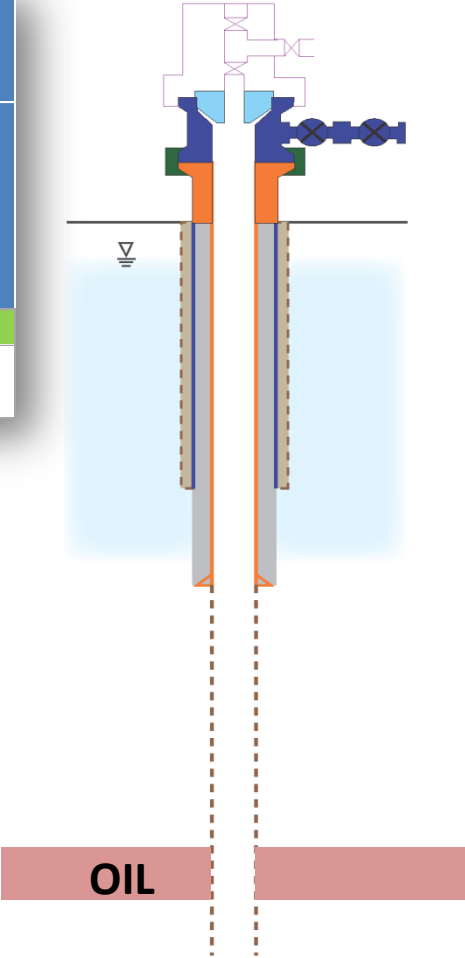
- Single-String* Vented Oil Well
- Single-String* Combo Well
- Single-String* Gas Well
- Unknown Gas/Combo Well
- Unknown Oil Well
- Multi-String Oil Well (3-String)
- Multi-String Gas Well (3-String)
- Multi-String Combo Well (2-String)
- Multi-String Gas Well (2-String)
- Multi-String Combo Well, Annular Production (2-String)

* *Single-String wells are those equipped with surface and/or coal casing only*

Single-String Vented Oil Well Example

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
				Measurement can be blank if Unit is NPW		Unit can be blank if Measurement is "I"	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



- Required, unless otherwise noted
- Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Single-String Vented Oil Well Example

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

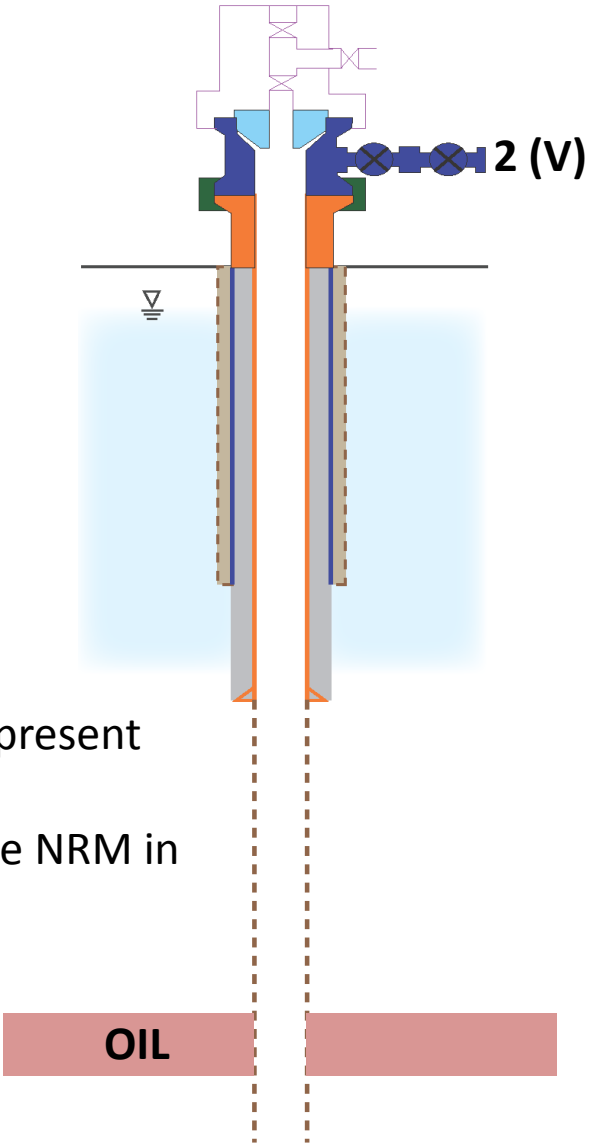
- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (2).



Single-String Vented Oil Well Example

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

Other: Water level unit is ft; may also enter average daily pumping time (hrs/day), average daily pumping volume (bbls/day), mud scale weight of produced water (ppg), water quality measurement of produced water (mg/L TDS, mg/L Cl or uS/cm) OR leave (5) blank if no produced water (NPW)

LB: Leave Blank

R: Required (Provide Unit or NPW)

P: Pressure

V: Volume / Flow

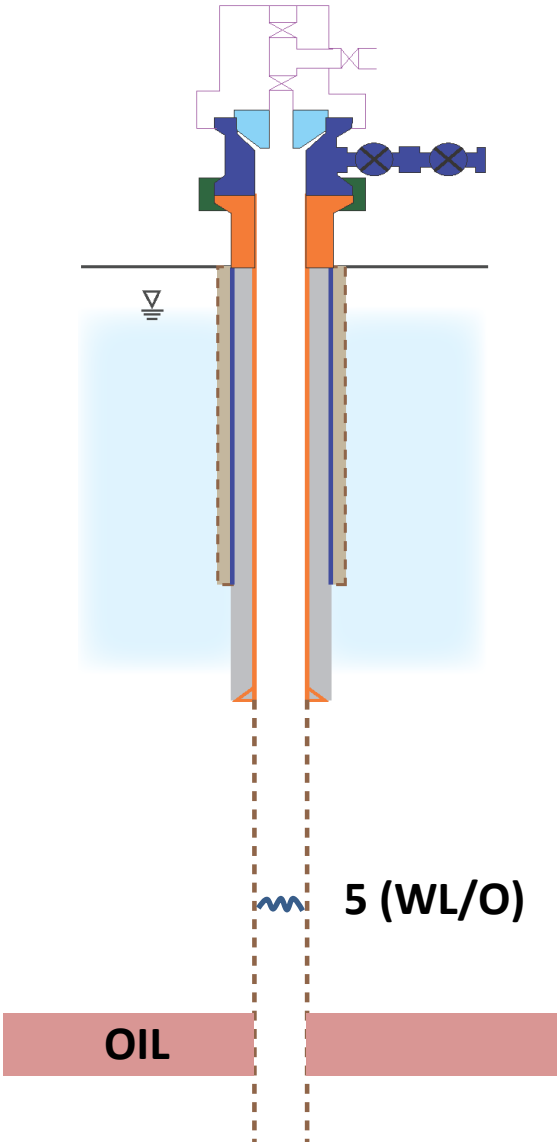
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

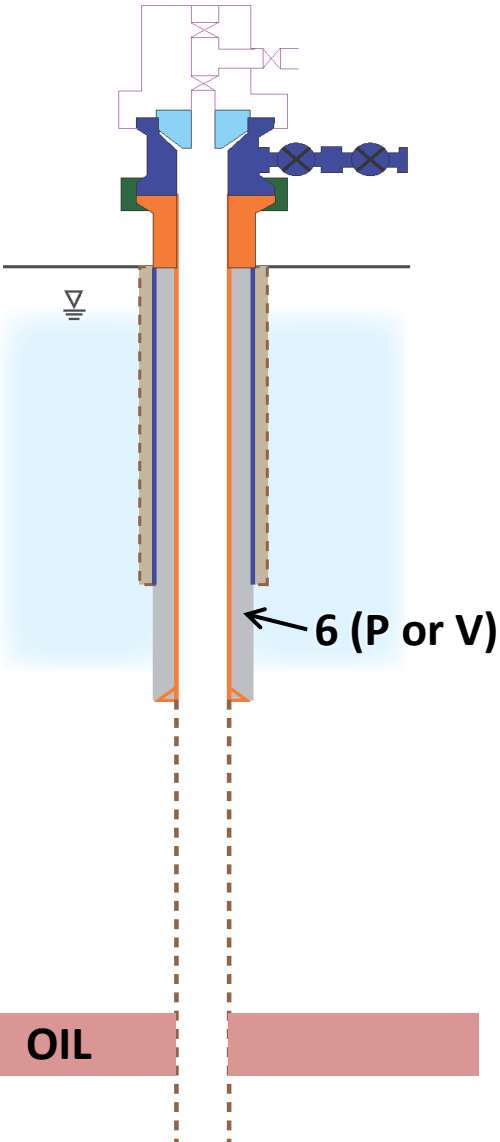
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



➤ Single-String Vented Oil Well Example

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.



- LB:** Leave Blank
- R:** Required (Provide Unit)
- P:** Pressure
- V:** Volume / Flow
- D:** Dependent on “Any Fluids Noted”
 - If Any Fluids Noted = Y, then fill out
 - If Any Fluids Noted = N, leave blank
- WL/O:** Water Level or Other
- MAP:** Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$
 - 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{Y}$
 - 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{N}$
 - IF Casing Depth is Unknown = **U**

Single-String Vented Oil Well Example

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	LB	D	D

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

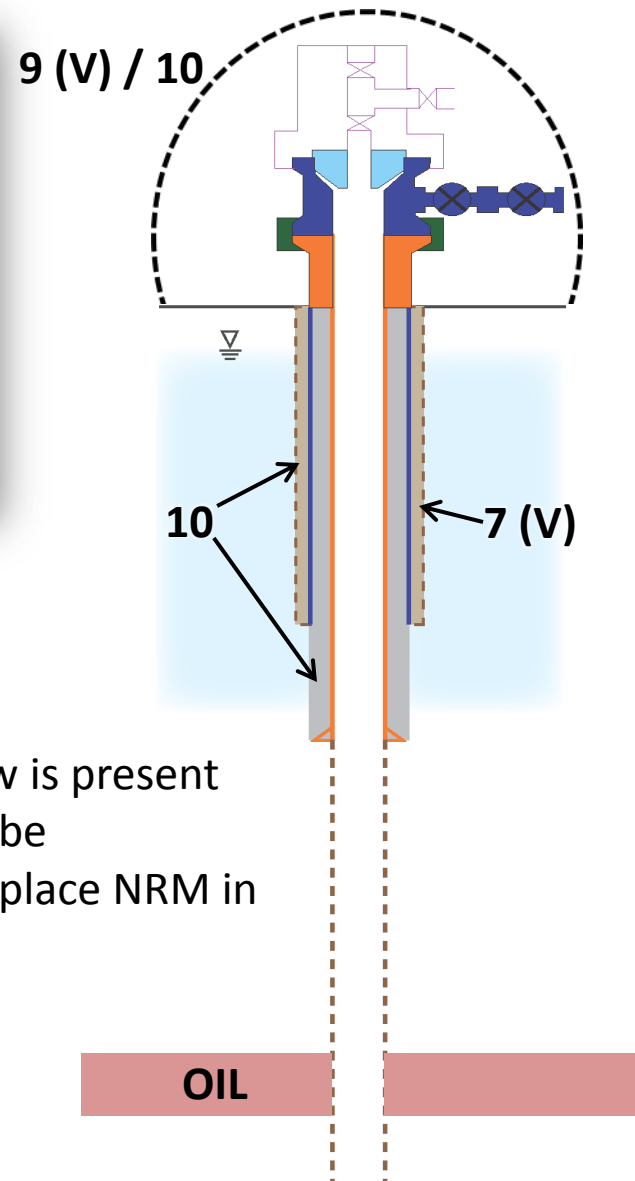
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Note: If flow is present but cannot be quantified, place NRM in (7) and (9).

Single-String Vented Oil Well Example

Corrosion Problems (Y/N)

11

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out

- If Any Fluids Noted = N, leave blank

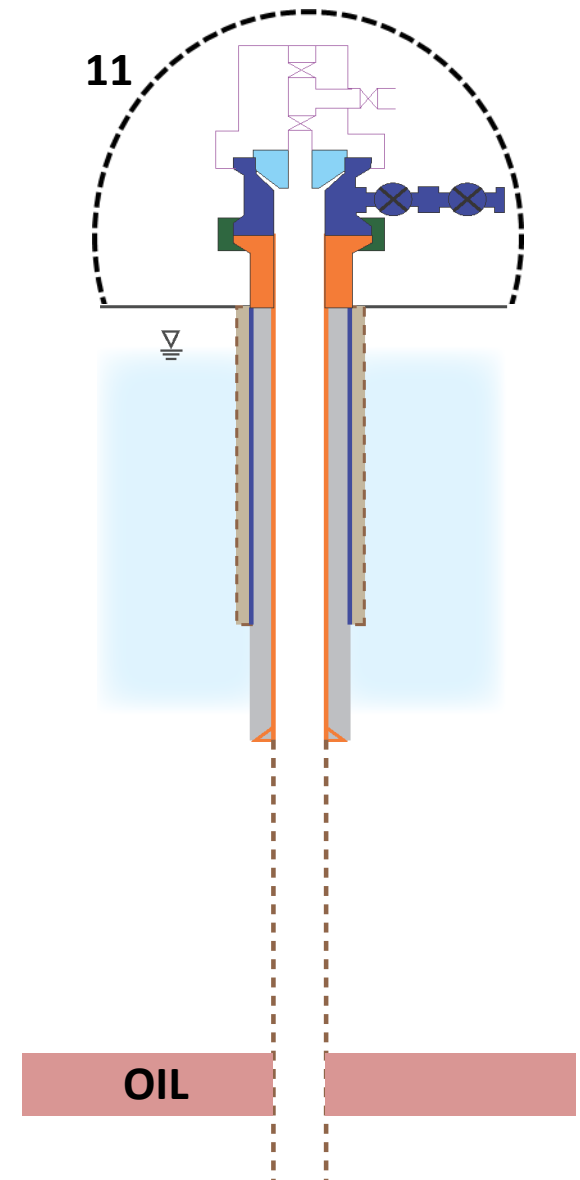
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$

- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$

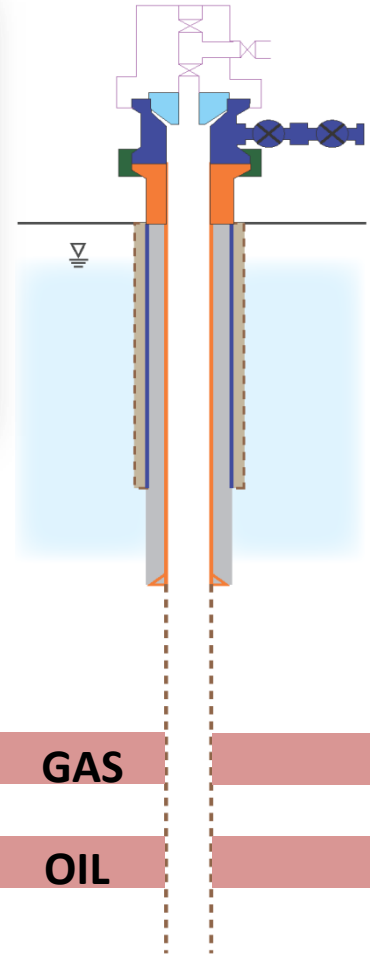
- IF Casing Depth is Unknown = **U**



Single-String Combo Well Example

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
				Measurement can be blank if Unit is NPW		Unit can be blank if Measurement is "I"	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



Required, unless otherwise noted

Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Single-String Combo Well Example

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

MAP

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out

- If Any Fluids Noted = N, leave blank

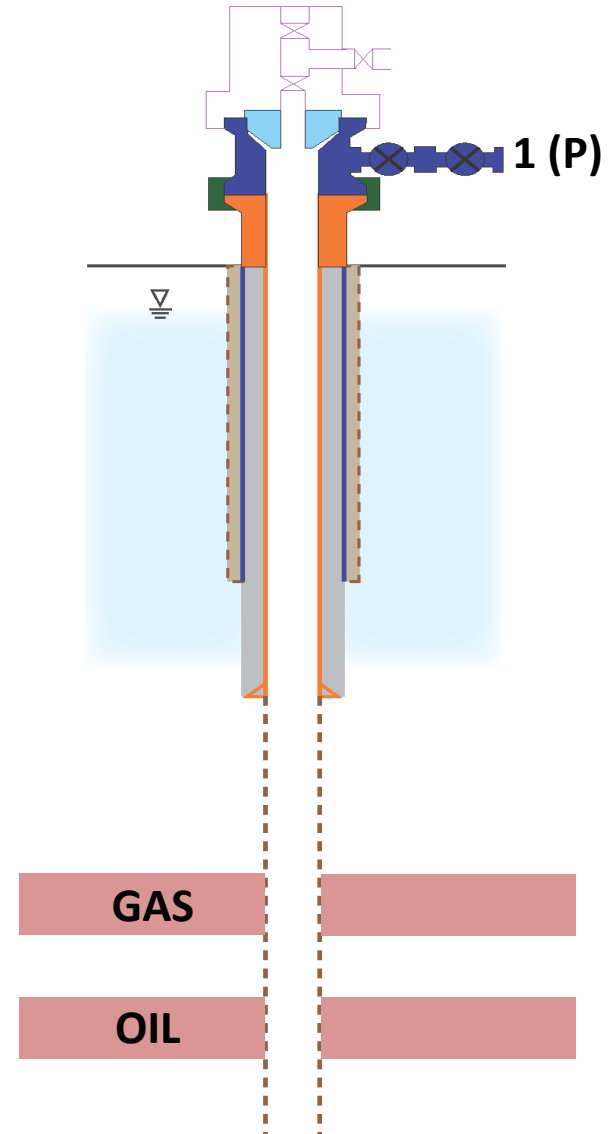
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$

- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$

- IF Casing Depth is Unknown = **U**



Single-String Combo Well Example

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

Other: Water level unit is ft; may also enter average daily pumping time (hrs/day), average daily pumping volume (bbls/day), mud scale weight of produced water (ppg), water quality measurement of produced water (mg/L TDS, mg/L Cl or uS/cm) OR leave (5) blank if no produced water (NPW)

LB: Leave Blank

R: Required (Provide Unit or NPW)

P: Pressure

V: Volume / Flow

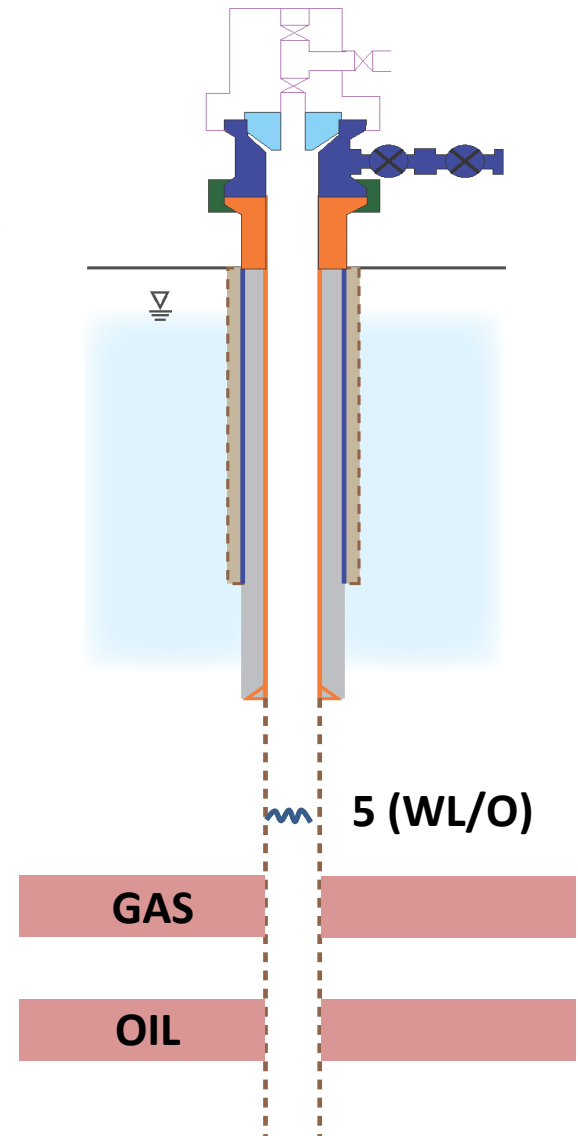
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Single-String Combo Well Example

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.

LB: Leave Blank

R: Required (Provide Unit)

P: Pressure

V: Volume / Flow

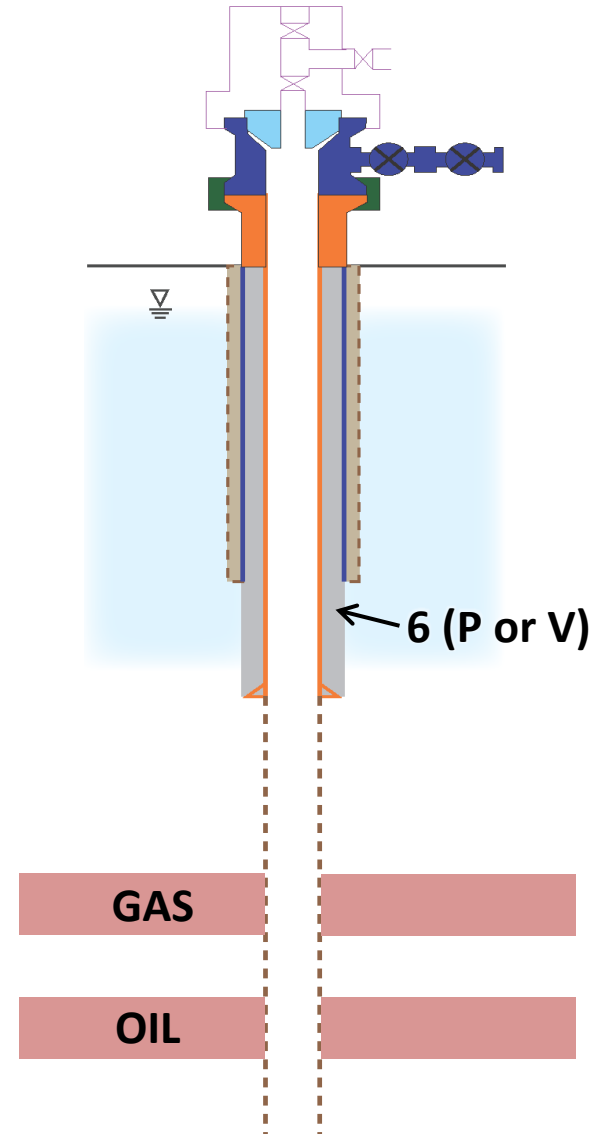
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
- IF Casing Depth is Unknown = U



Single-String Combo Well Example

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	LB	D	D

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

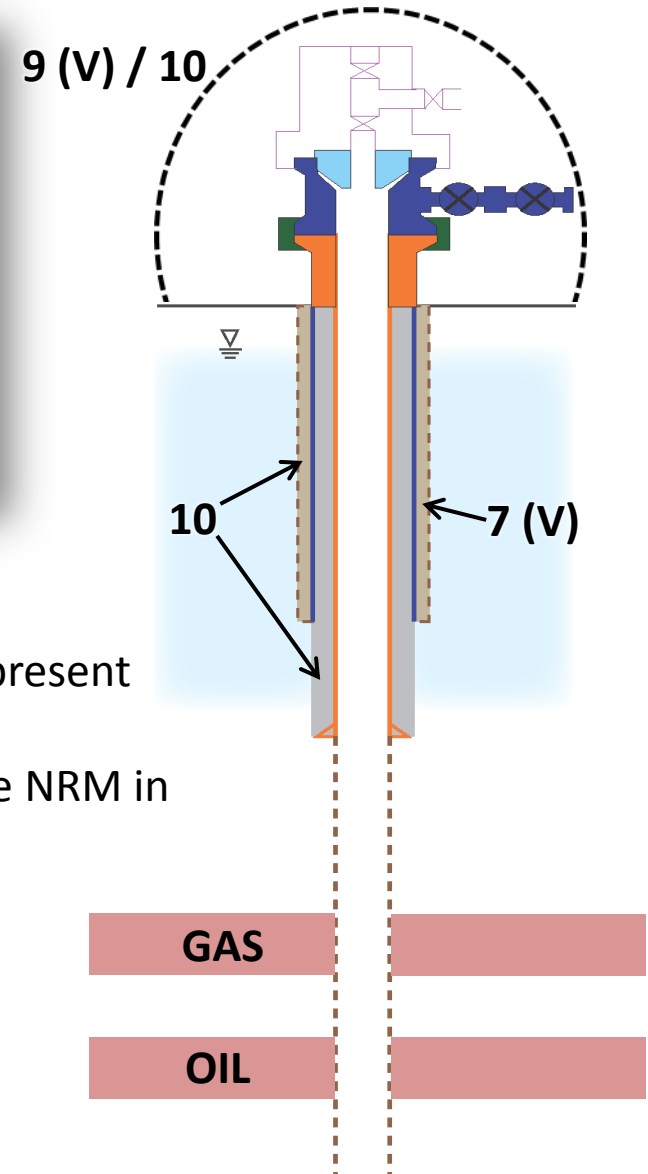
- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (7) and (9).



Single-String Combo Well Example

Corrosion Problems (Y/N)

11

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

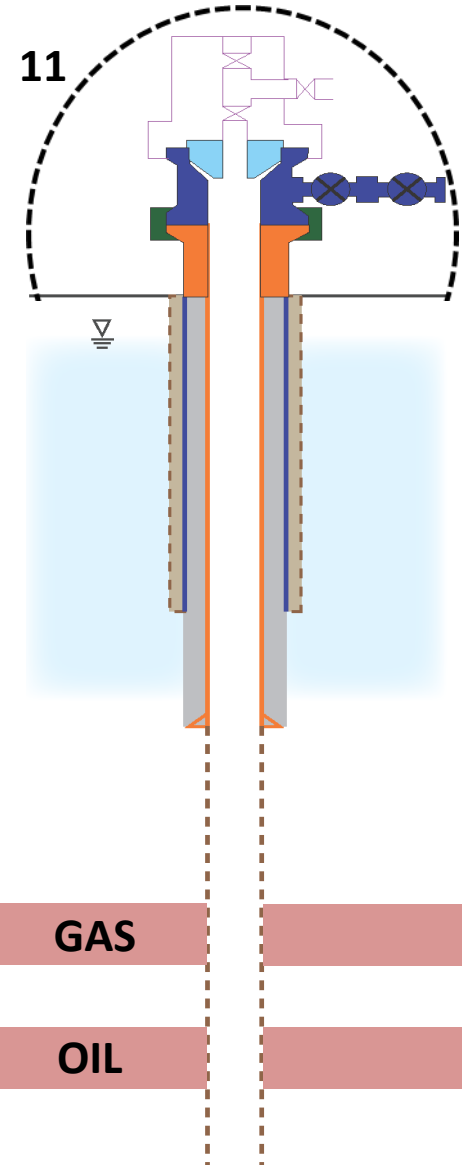
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

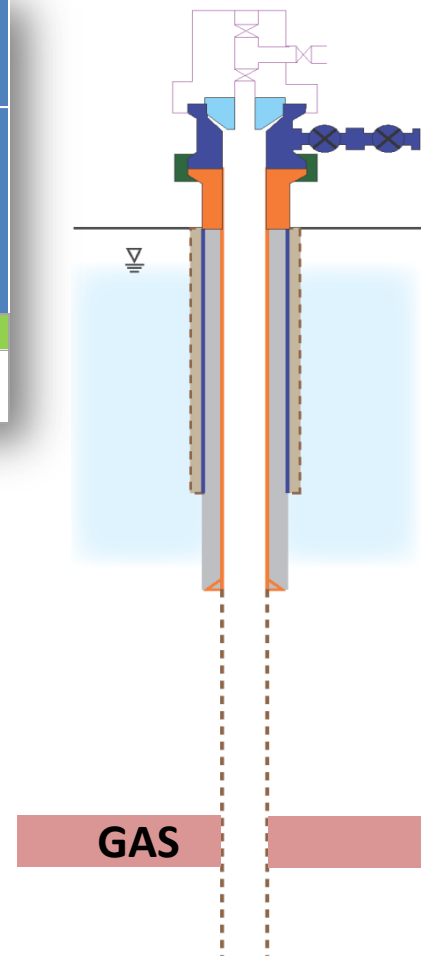
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Single-String Gas Well Example

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
						Unit can be blank if Measurement is "I"	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



Required, unless otherwise noted

Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Single-String Gas Well Example

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

MAP

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out

- If Any Fluids Noted = N, leave blank

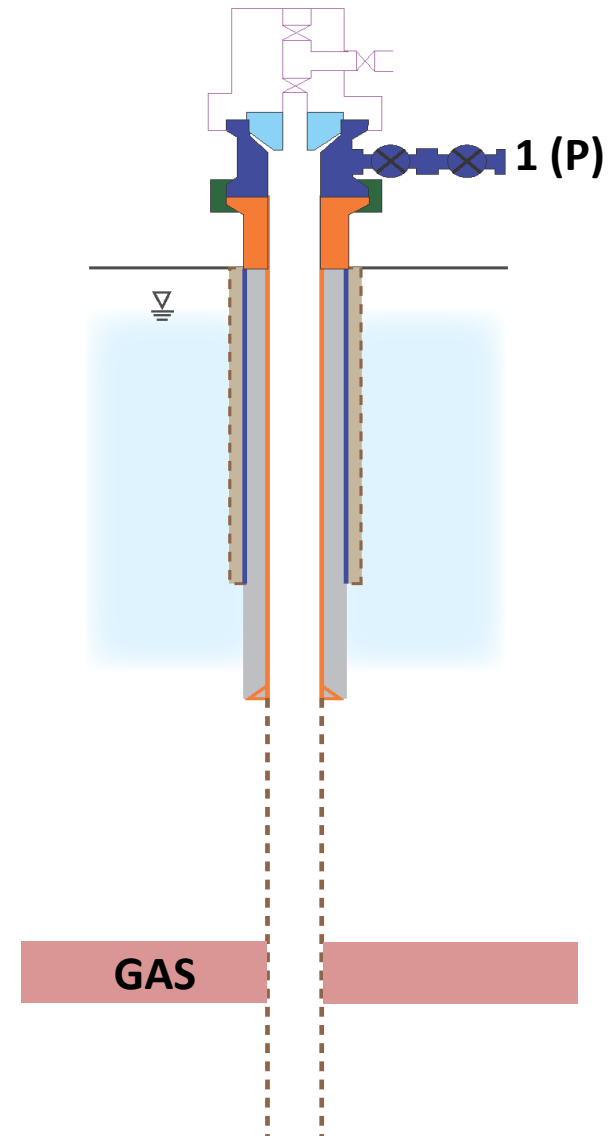
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$

- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$

- IF Casing Depth is Unknown = **U**



Single-String Gas Well Example

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

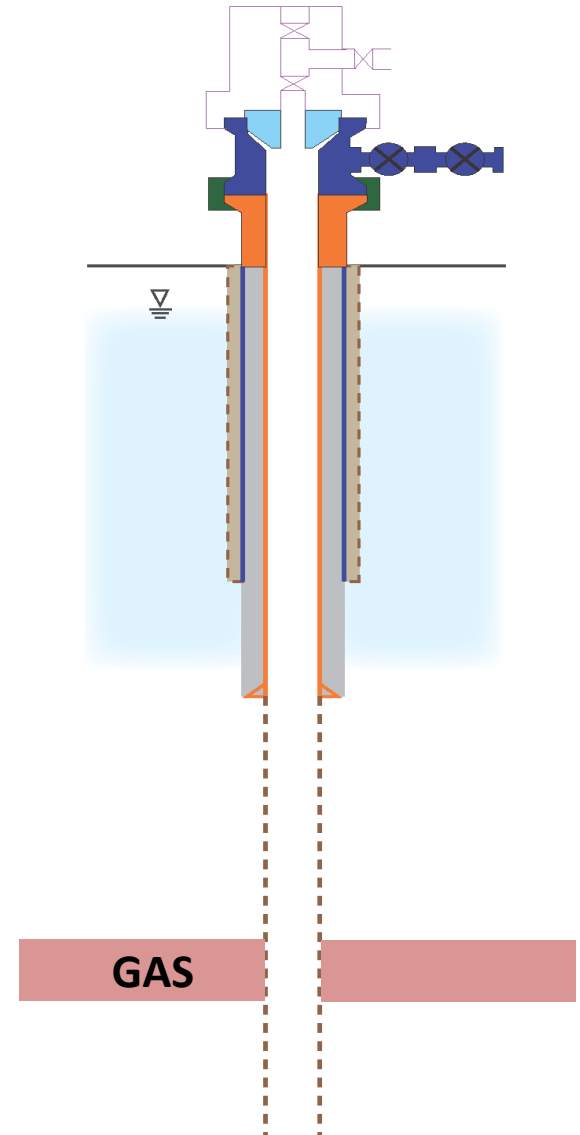
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

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- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Single-String Gas Well Example

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.

LB: Leave Blank

R: Required (Provide Unit)

P: Pressure

V: Volume / Flow

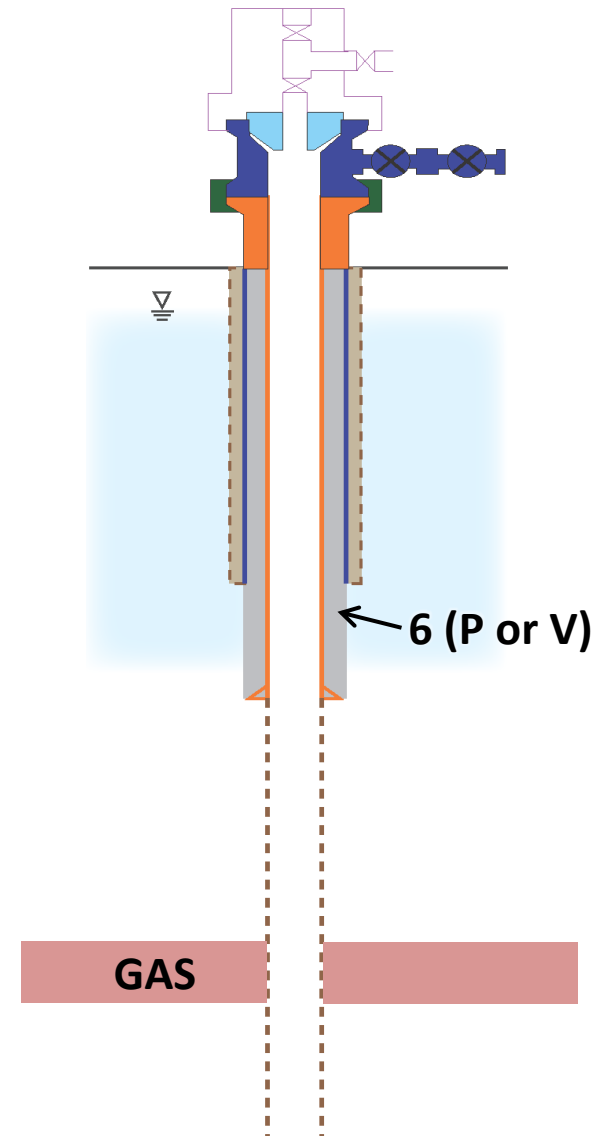
D: Dependent on "Any Fluids Noted"

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MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

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- IF Casing Depth is Unknown = **U**



Single-String Gas Well Example

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	LB	D	D

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

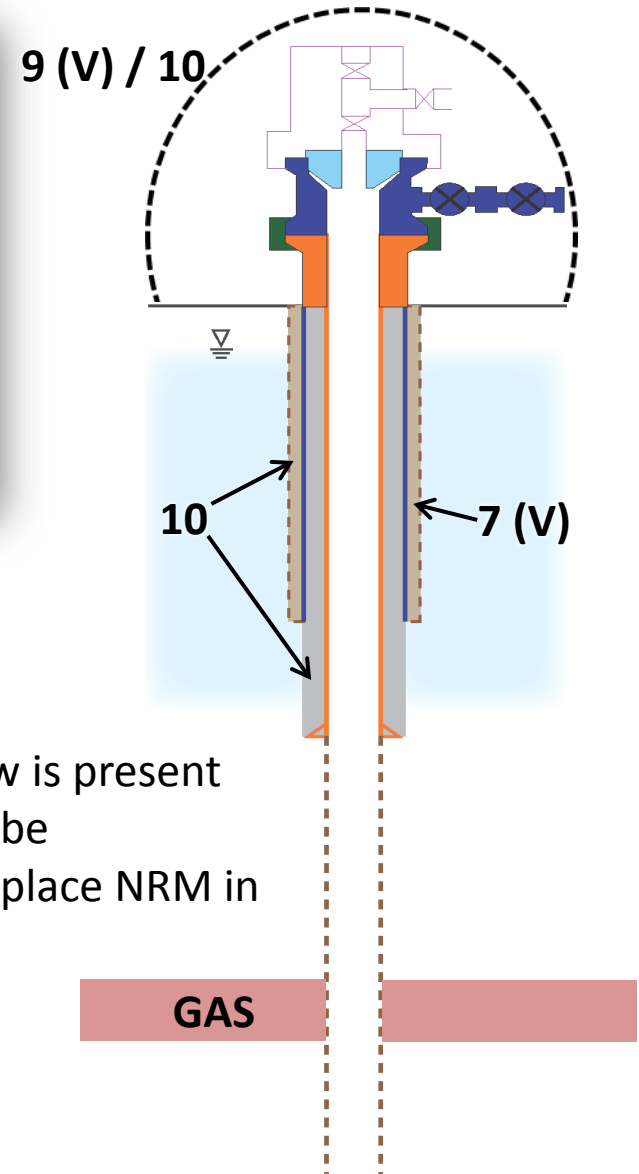
D: Dependent on "Any Fluids Noted"

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- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

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- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Note: If flow is present but cannot be quantified, place NRM in (7) and (9).

Single-String Gas Well Example

Corrosion Problems (Y/N)

11

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

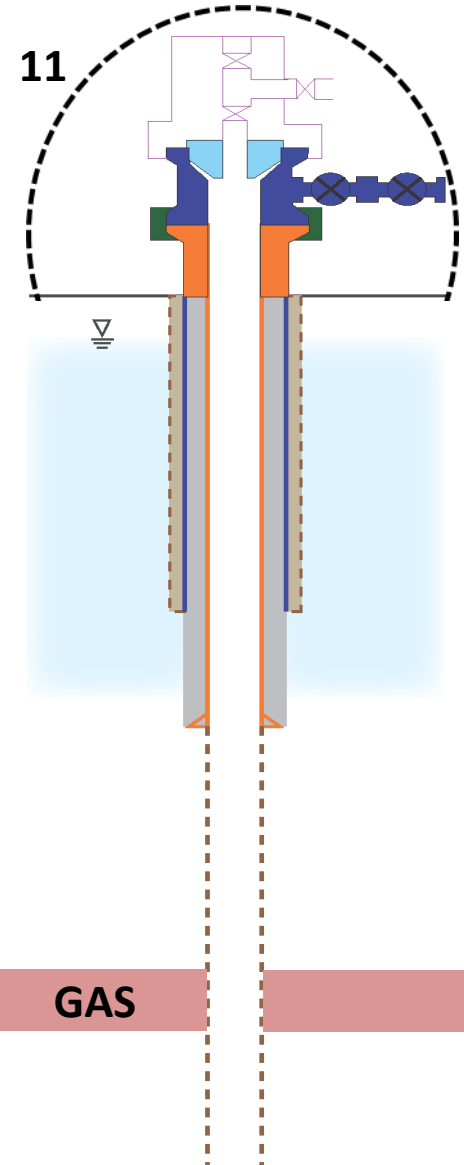
D: Dependent on "Any Fluids Noted"

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- If Any Fluids Noted = N, leave blank

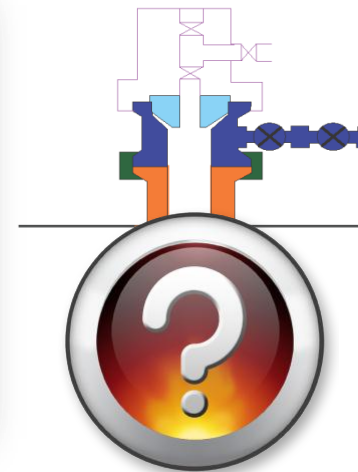
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

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- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Unknown Gas/Combo Well Example



Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
						Measurement is always "I" and Unit is blank	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)

Required, unless otherwise noted

Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Unknown Gas/Combo Well Example

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

LB

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

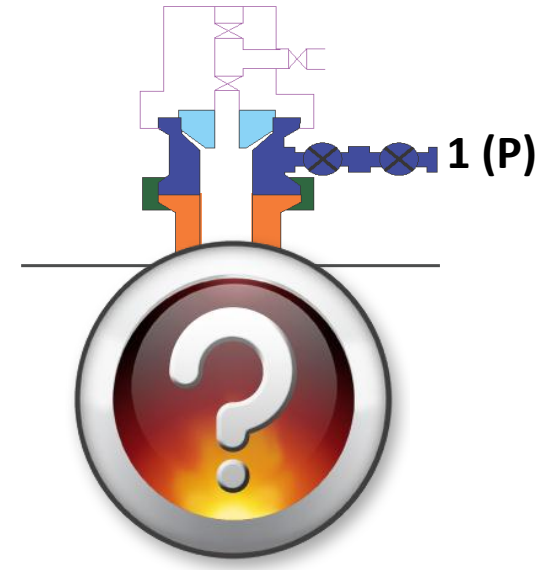
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Unknown Gas/Combo Well Example

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

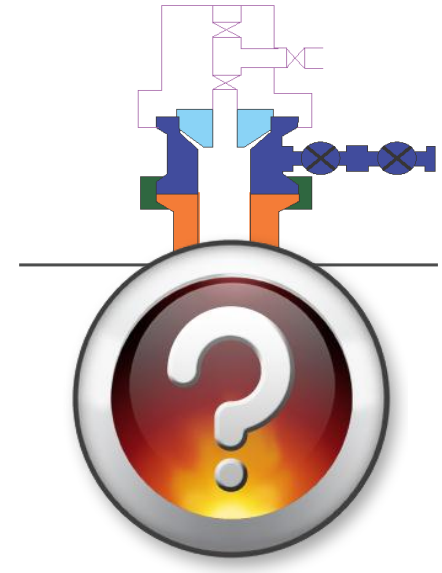
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

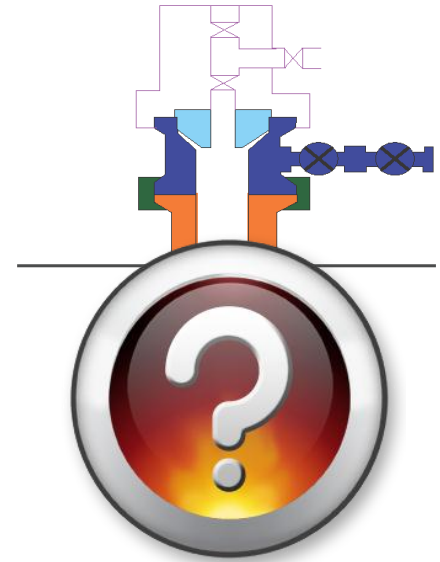


Unknown Gas/Combo Well Example

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

LB

Note: The production annulus is not visible/accessible for this example and 'I' must be entered in (6)



LB: Leave Blank

R: Required (Provide Unit)

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

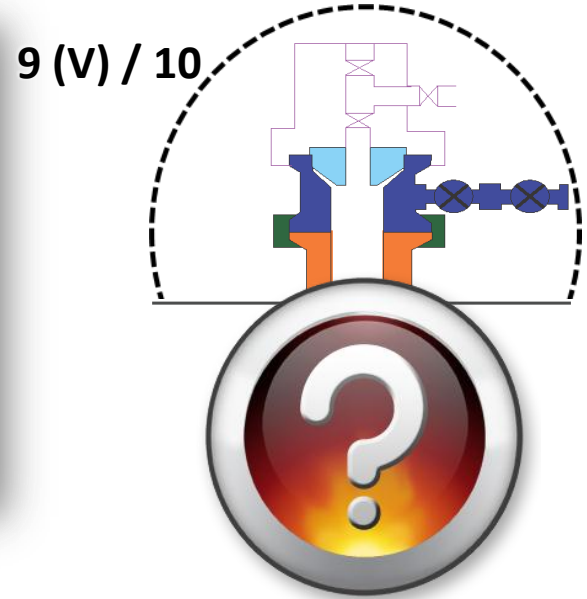
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Unknown Gas/Combo Well Example

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	LB	LB	D	D



LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

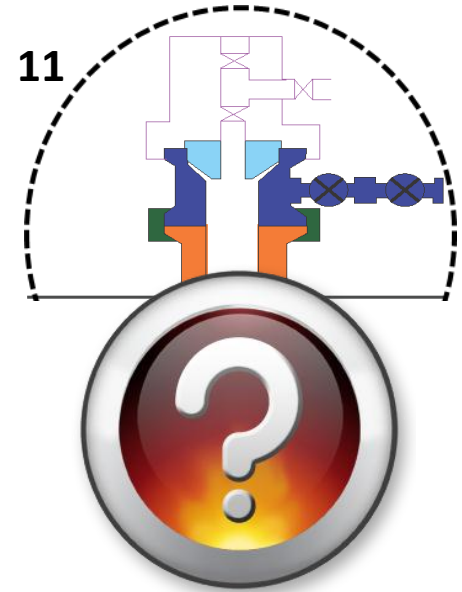
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (9).

Unknown Gas/Combo Well Example

Corrosion
Problems (Y/N)

11



LB: Leave Blank

R: Required (Provide Unit)

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

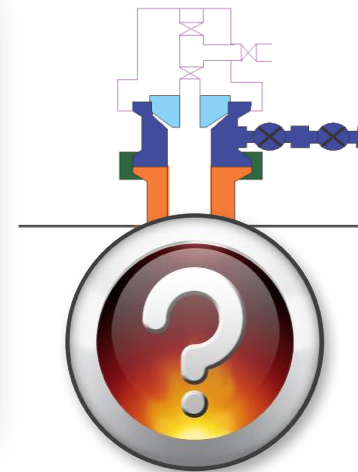
- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Unknown Oil Well Example



Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
						Measurement is always "I" and Unit is blank	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)

Required, unless otherwise noted

Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Unknown Oil Well Example

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

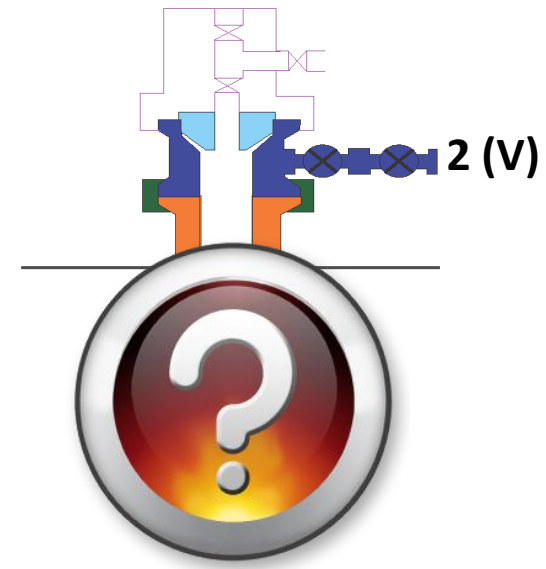
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Unknown Oil Well Example

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

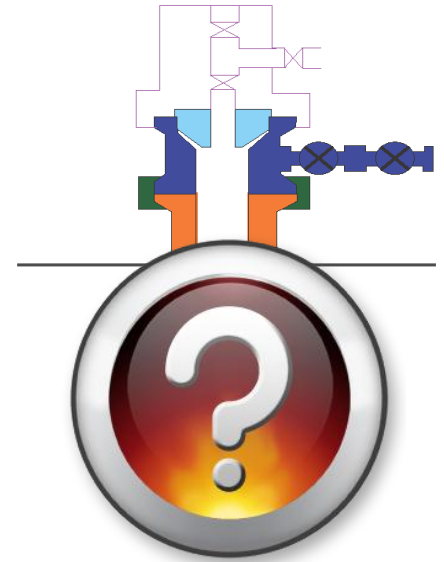
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

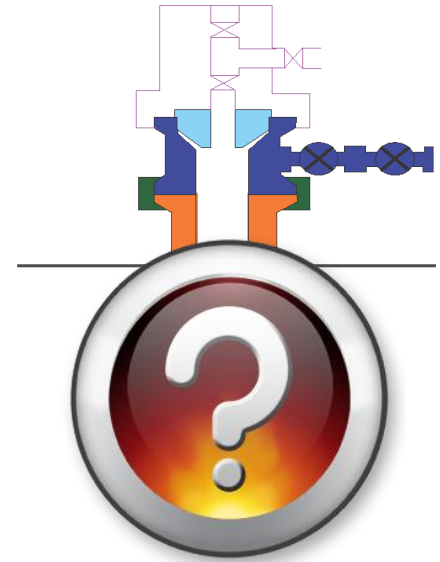


Unknown Oil Well Example

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

LB

Note: The production annulus is not visible/accessible for this example and 'I' must be entered in (6)



LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

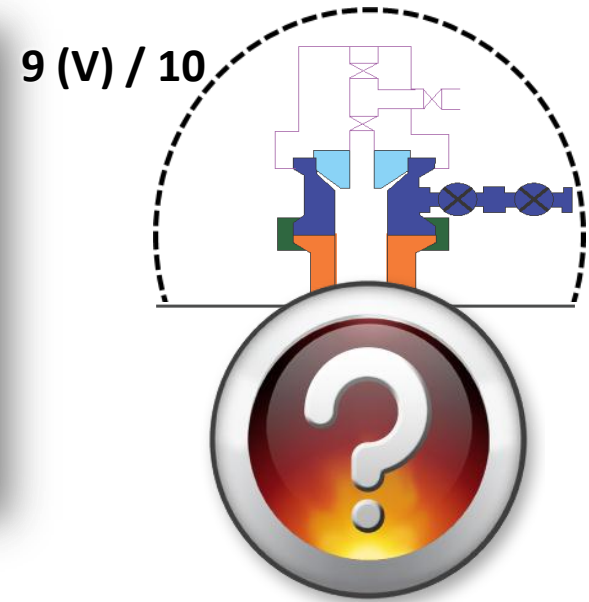
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Unknown Oil Well Example

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	LB	LB	D	D



LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

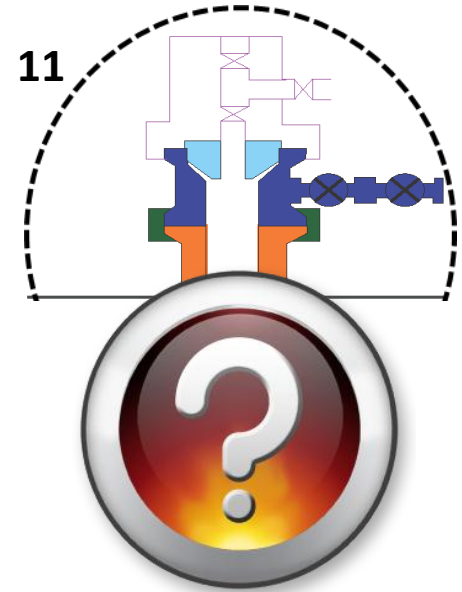
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (9).

Unknown Oil Well Example

Corrosion
Problems (Y/N)

11



LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

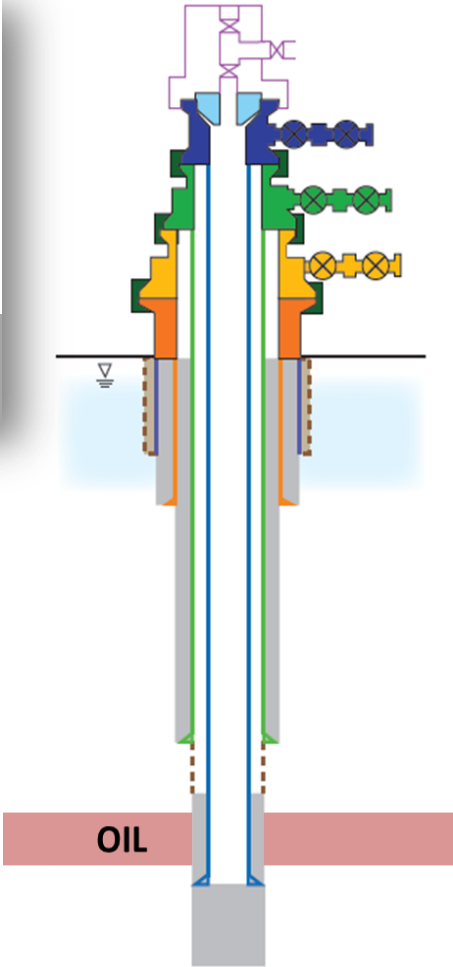
MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Multi-String Oil Well Example (3-String)

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
				Unit can be blank if Measurement is "I"			

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



- Required, unless otherwise noted
- Required if any fluids are noted (i.e., if first box in “Fluids Survey” is Y)

Multi-String Oil Well Example (3-String)

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

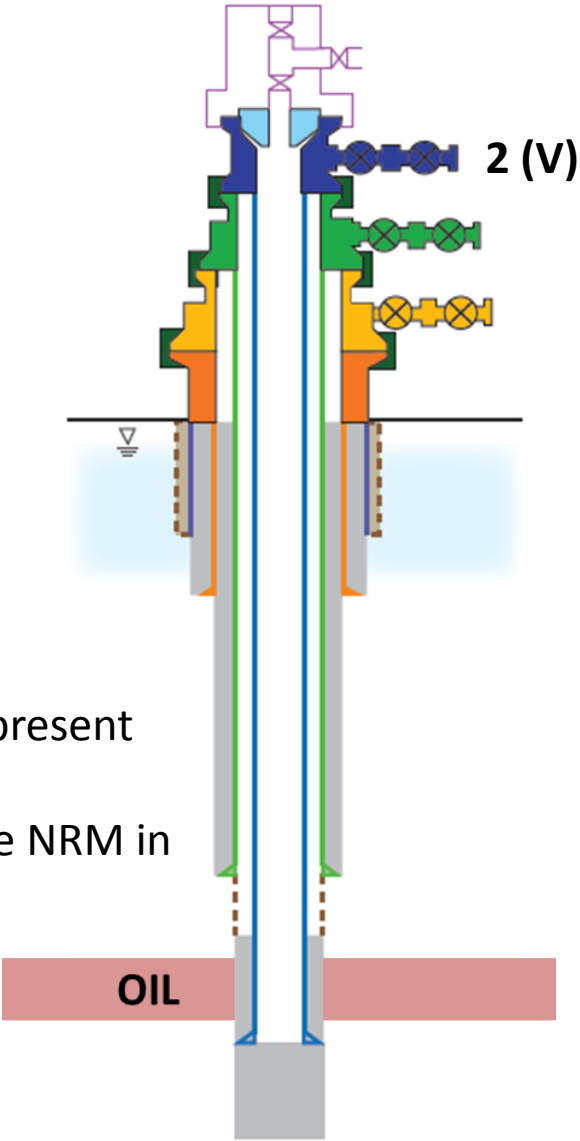
- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (2).



Multi-String Oil Well Example (3-String)

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

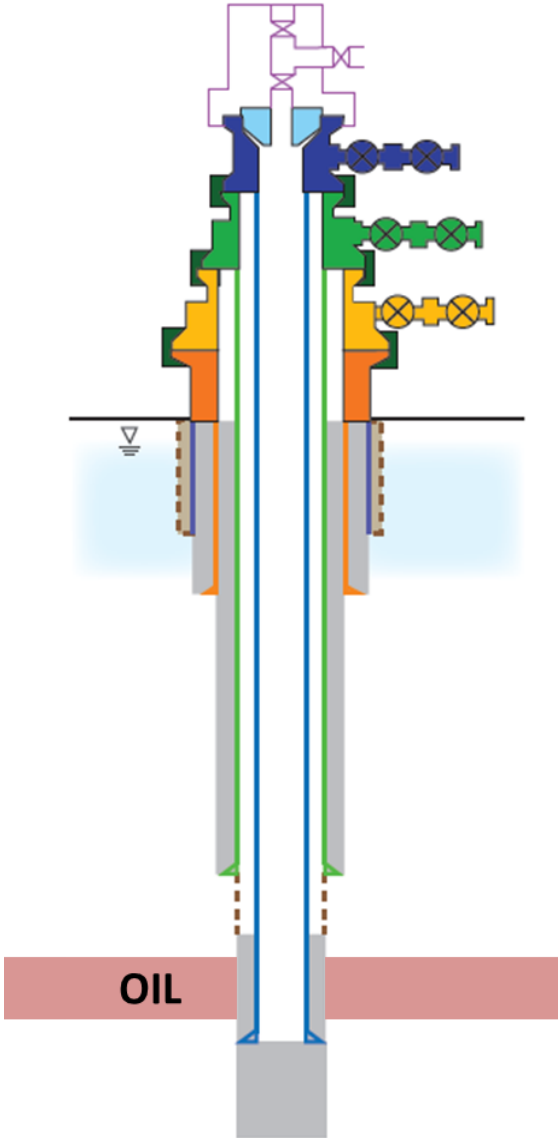
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

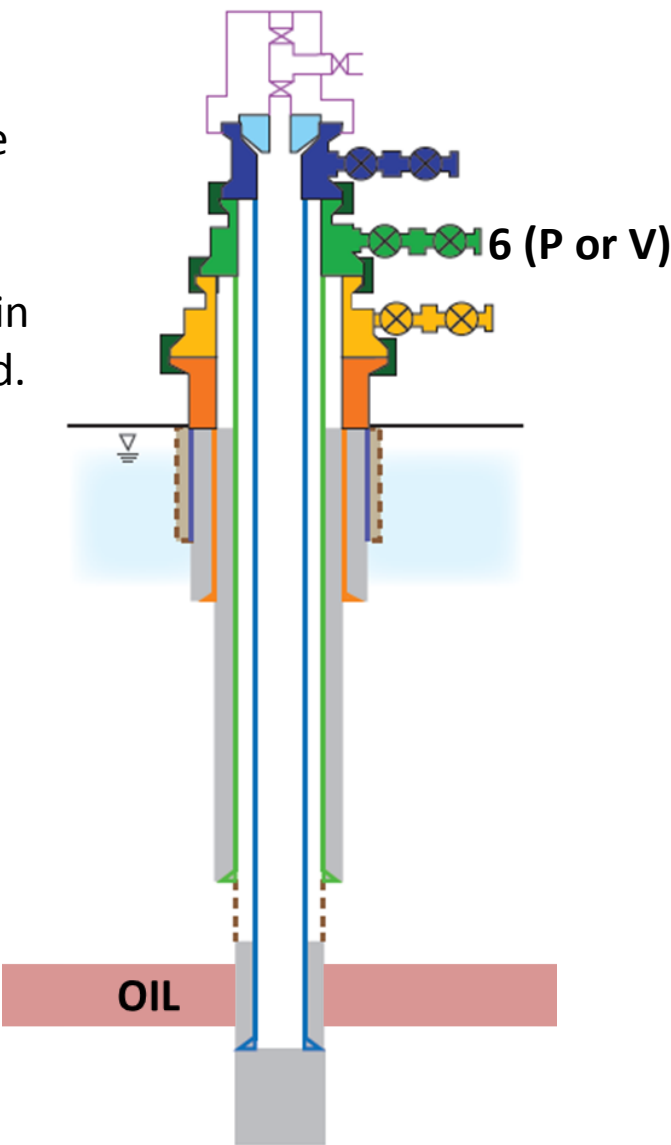
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Oil Well Example (3-String)

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

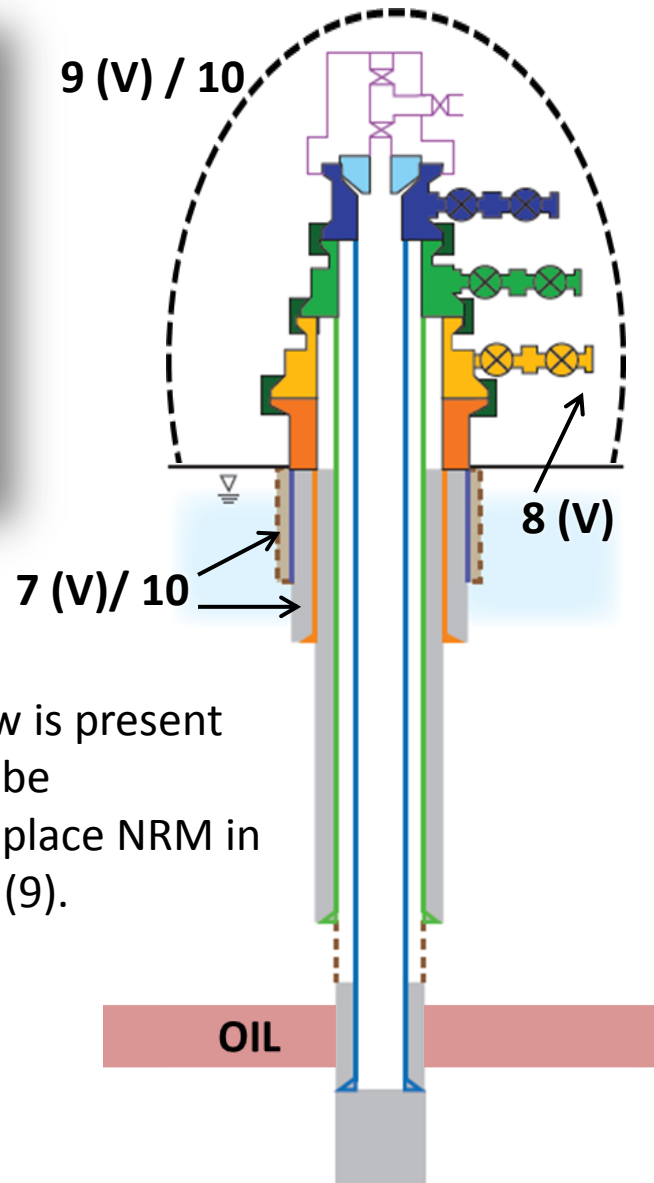
Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.



- LB:** Leave Blank
- R:** Required (Provide Unit)
- P:** Pressure
- V:** Volume / Flow
- D:** Dependent on "Any Fluids Noted"
 - If Any Fluids Noted = Y, then fill out
 - If Any Fluids Noted = N, leave blank
- WL/O:** Water Level or Other
- MAP:** Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$
 - 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
 - 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
 - IF Casing Depth is Unknown = **U**

Multi-String Oil Well Example (3-String)

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	D	D	D



LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

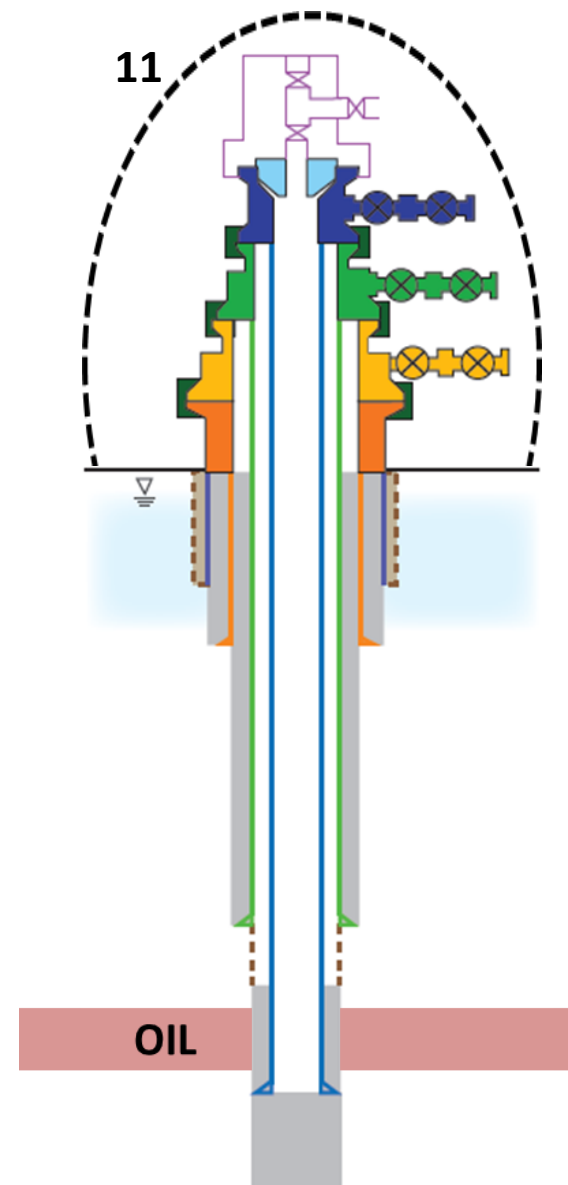
Note: If flow is present but cannot be quantified, place NRM in (7), (8) and (9).

Multi-String Oil Well Example (3-String)

Corrosion Problems (Y/N)

11

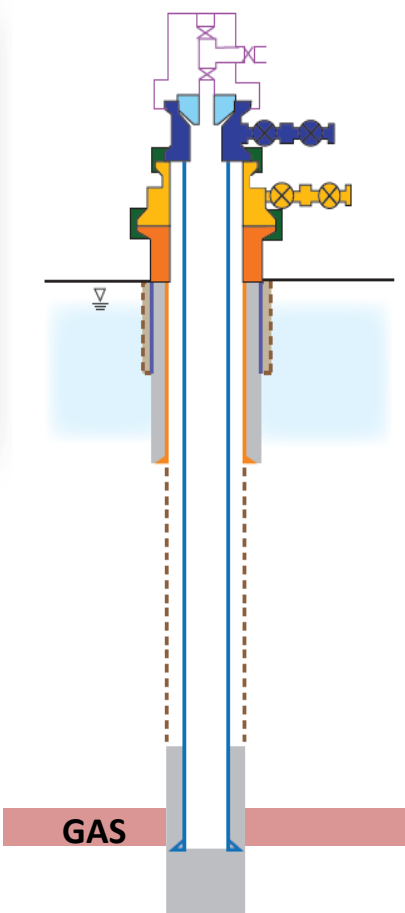
- LB:** Leave Blank
R: Required (Y or N)
P: Pressure
V: Volume / Flow
D: Dependent on “Any Fluids Noted”
 - If Any Fluids Noted = Y, then fill out
 - If Any Fluids Noted = N, leave blank
WL/O: Water Level or Other
MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$
 - 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{Y}$
 - 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{N}$
 - IF Casing Depth is Unknown = **U**



Multi-String Gas Well Example (2-String)

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
						Unit can be blank if Measurement is "I"	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



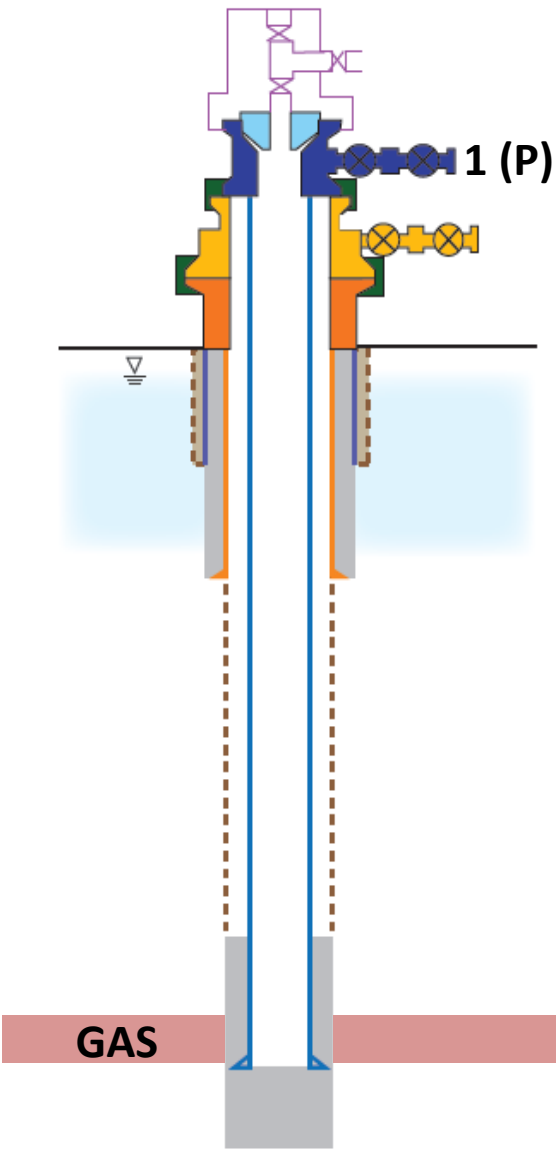
- Required, unless otherwise noted
- Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Multi-String Gas Well Example (2-String)

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB **LB** **LB**

- LB:** Leave Blank
- R:** Required
- P:** Pressure
- V:** Volume / Flow
- D:** Dependent on “Any Fluids Noted”
- If Any Fluids Noted = Y, then fill out
 - If Any Fluids Noted = N, leave blank
- WL/O:** Water Level or Other
- MAP:** Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
 - 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
 - IF Casing Depth is Unknown = U



Multi-String Gas Well Example (2-String)

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

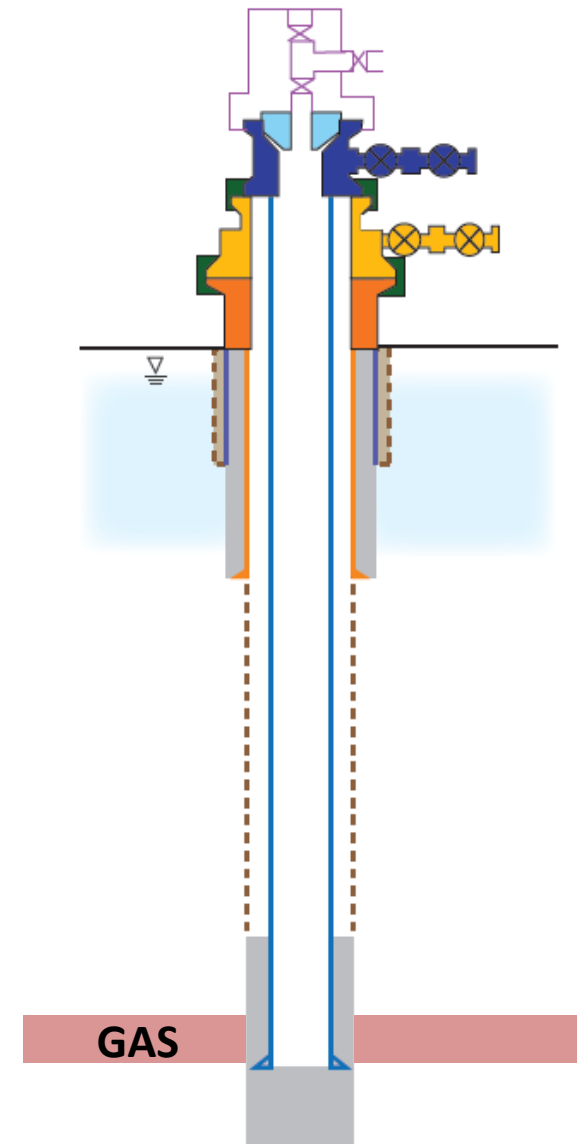
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

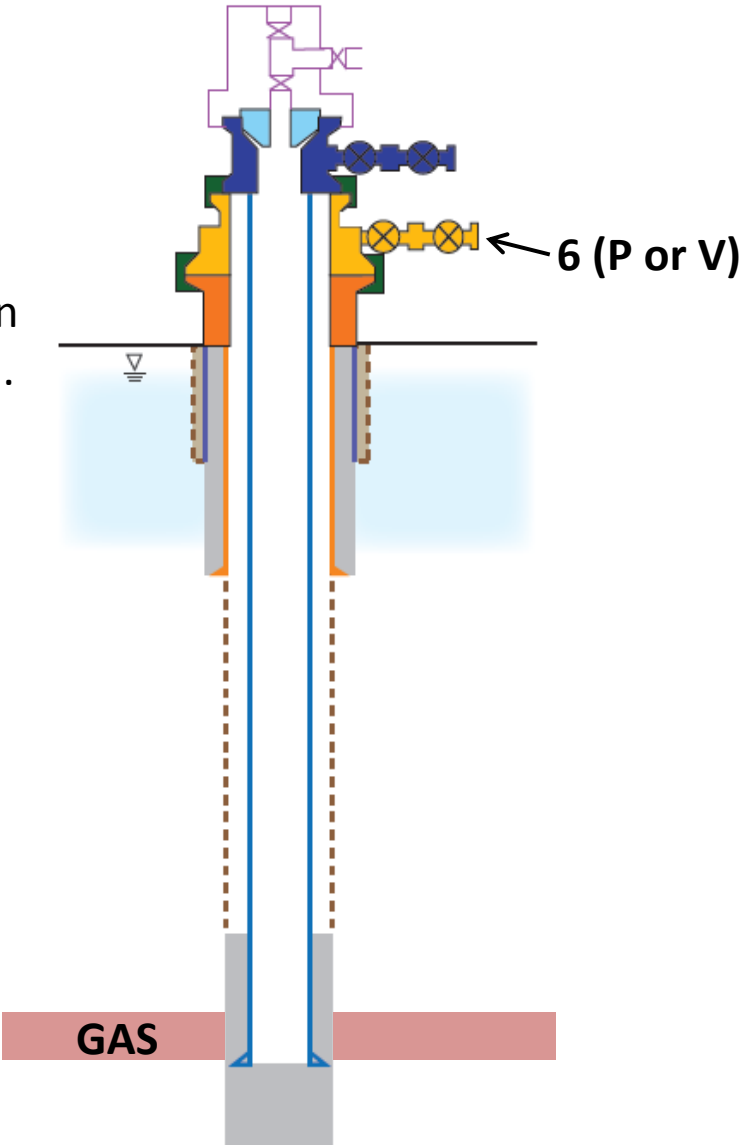
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
- IF Casing Depth is Unknown = U



Multi-String Gas Well Example (2-String)

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.



- LB:** Leave Blank
- R:** Required (Provide Unit)
- P:** Pressure
- V:** Volume / Flow
- D:** Dependent on "Any Fluids Noted"
 - If Any Fluids Noted = Y, then fill out
 - If Any Fluids Noted = N, leave blank
- WL/O:** Water Level or Other
- MAP:** Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$
 - 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
 - 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
 - IF Casing Depth is Unknown = **U**

Multi-String Gas Well Example (2-String)

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	LB	D	D

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

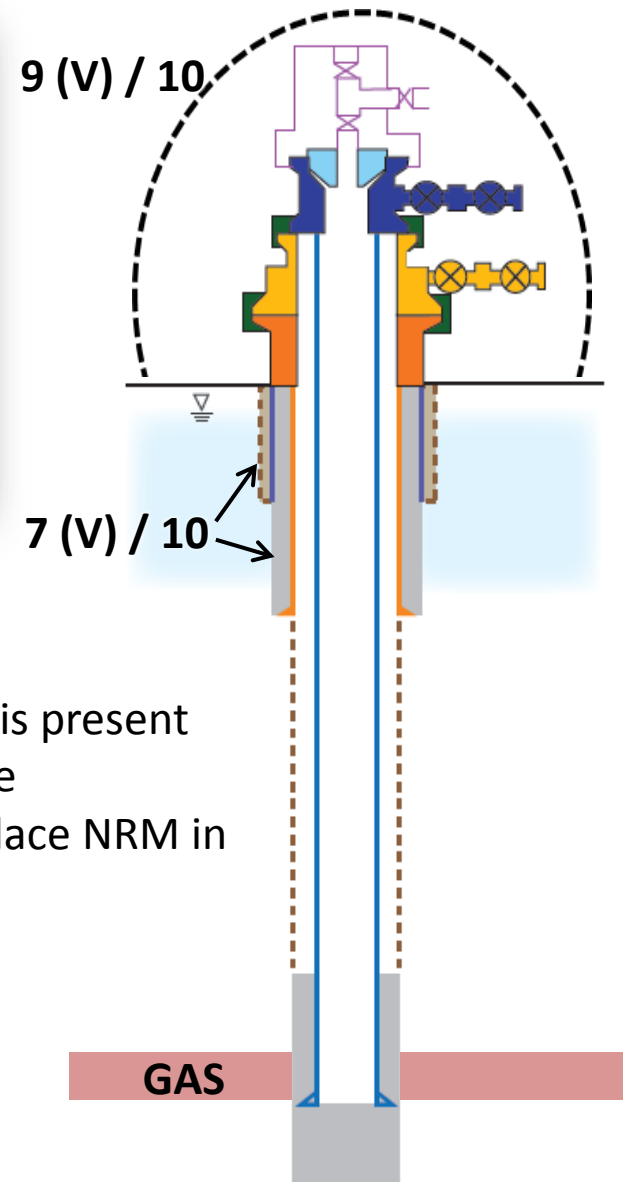
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{N}$
- IF Casing Depth is Unknown = U



Note: If flow is present but cannot be quantified, place NRM in (7) and (9).

Multi-String Gas Well Example (2-String)

Corrosion
Problems (Y/N)

11

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

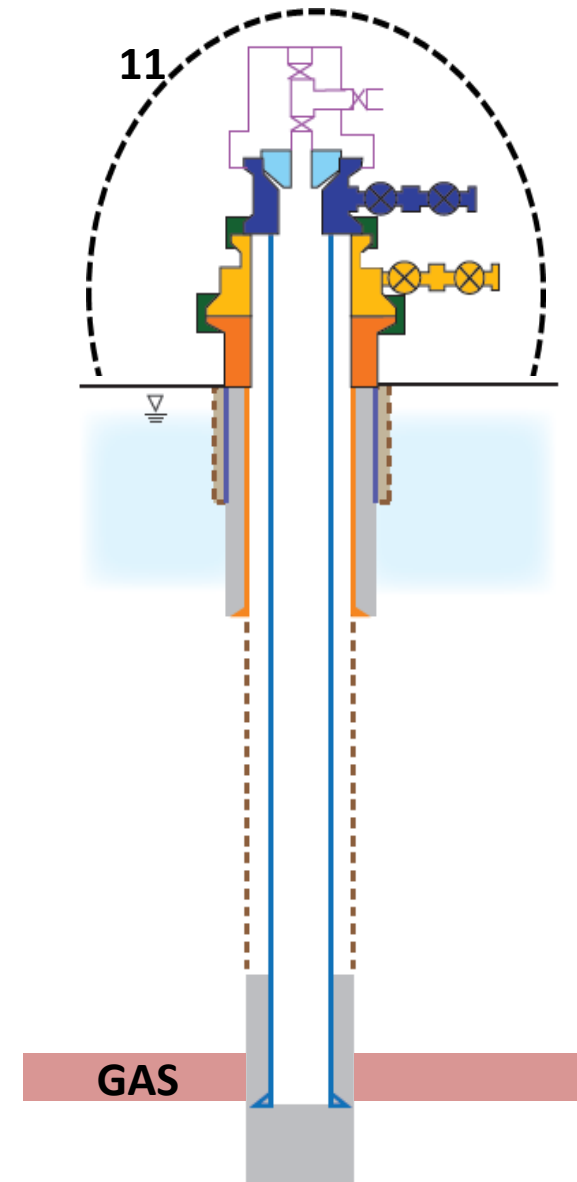
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

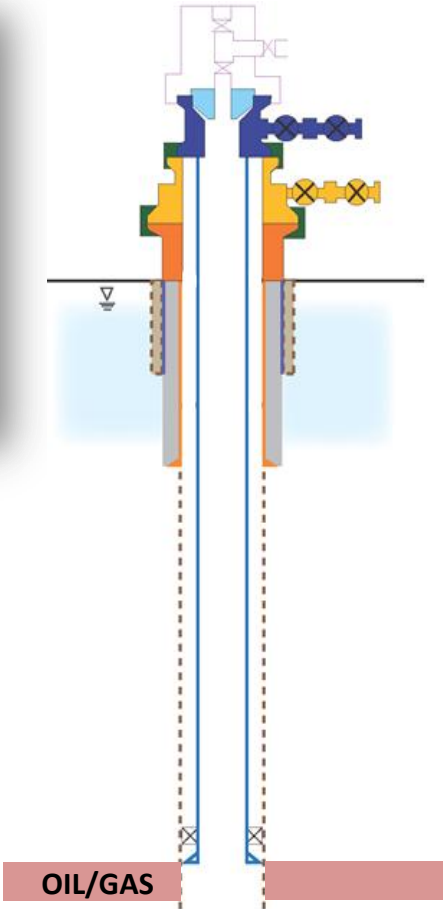
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Combo Well Example (2-String)

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
						Unit can be blank if Measurement is "I"	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



- Required, unless otherwise noted
- Required if any fluids are noted (i.e., if first box in “Fluids Survey” is Y)

Multi-String Combo Well Example (2-String)

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

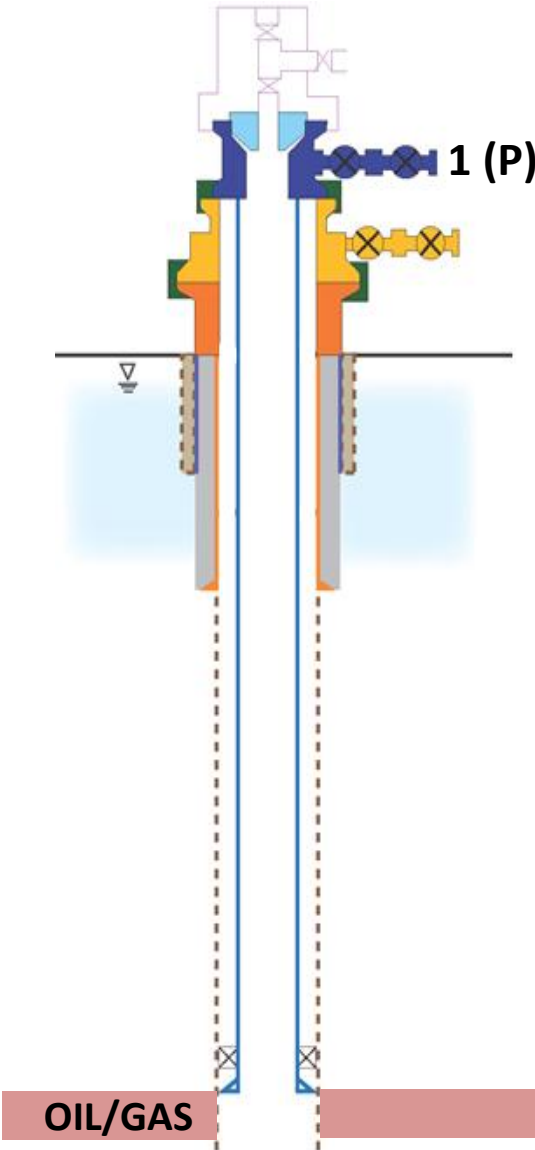
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \text{N}$
- IF Casing Depth is Unknown = U



Multi-String Combo Well Example (2-String)

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

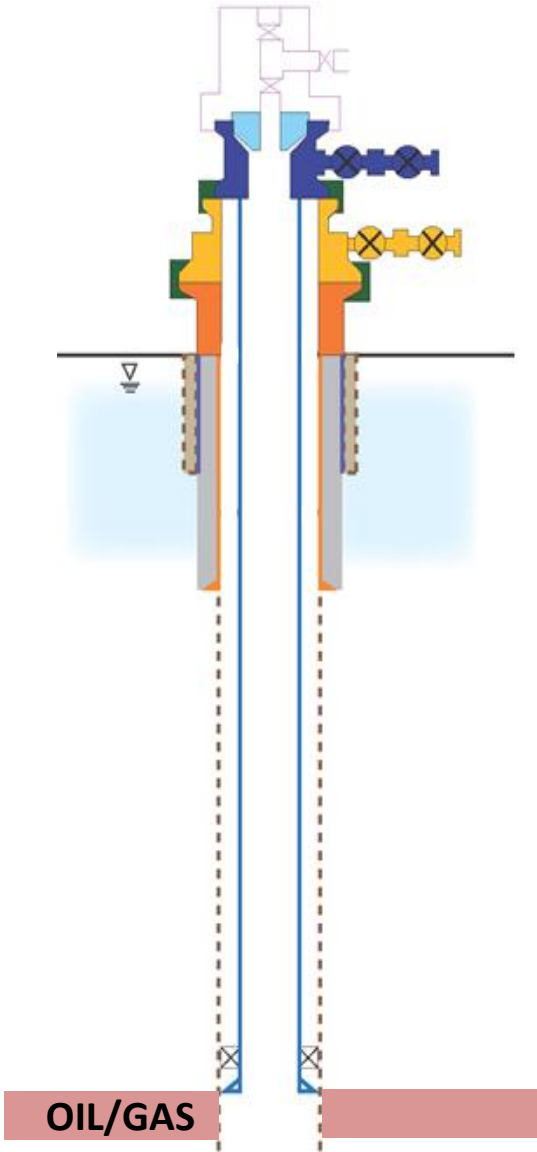
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

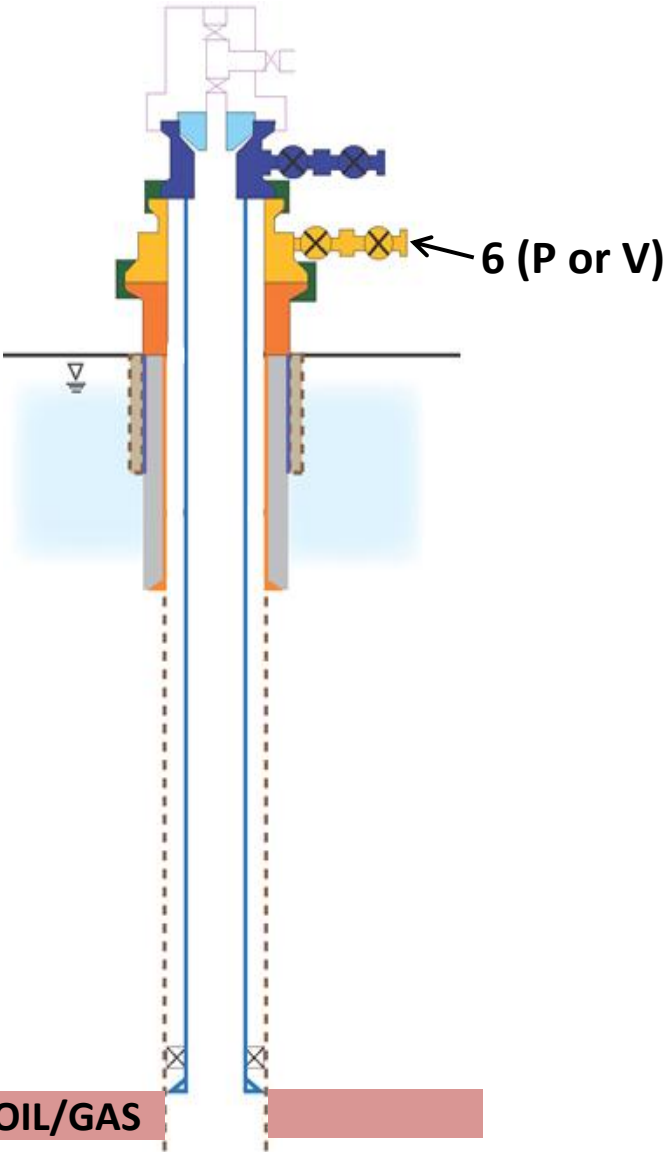
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
- IF Casing Depth is Unknown = U



Multi-String Combo Well Example (2-String)

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.



- LB:** Leave Blank
- R:** Required (Provide Unit)
- P:** Pressure
- V:** Volume / Flow
- D:** Dependent on "Any Fluids Noted"
 - If Any Fluids Noted = Y, then fill out
 - If Any Fluids Noted = N, leave blank
- WL/O:** Water Level or Other
- MAP:** Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$
 - 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
 - 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
 - IF Casing Depth is Unknown = U

Multi-String Combo Well Example (2-String)

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	LB	D	D

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

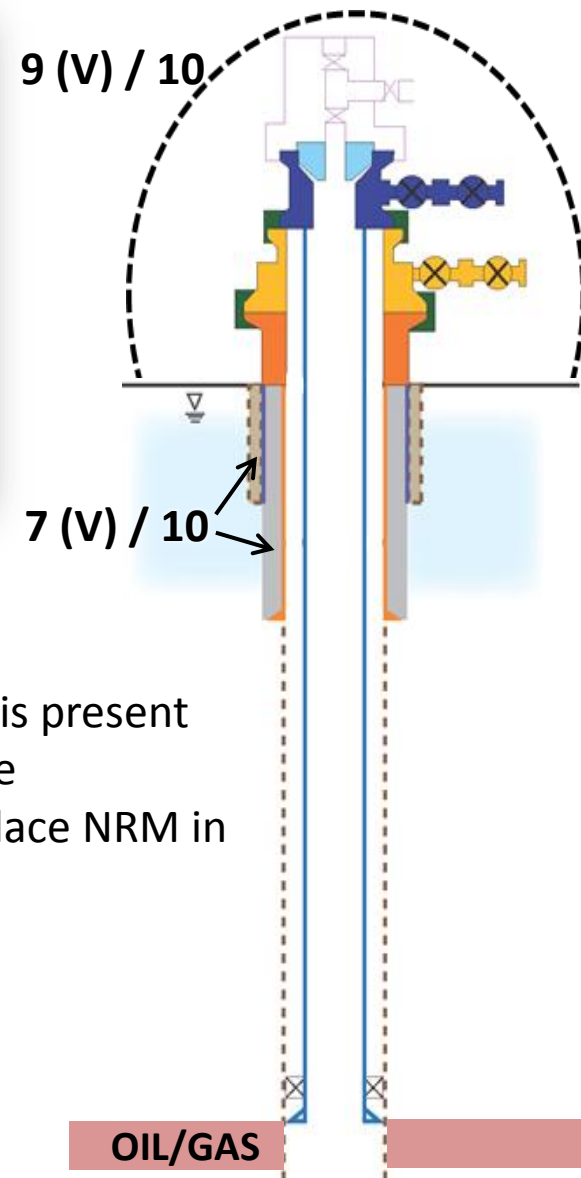
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
- IF Casing Depth is Unknown = U



Note: If flow is present but cannot be quantified, place NRM in (7) and (9).

Multi-String Combo Well Example (2-String)

Corrosion Problems (Y/N)

11

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

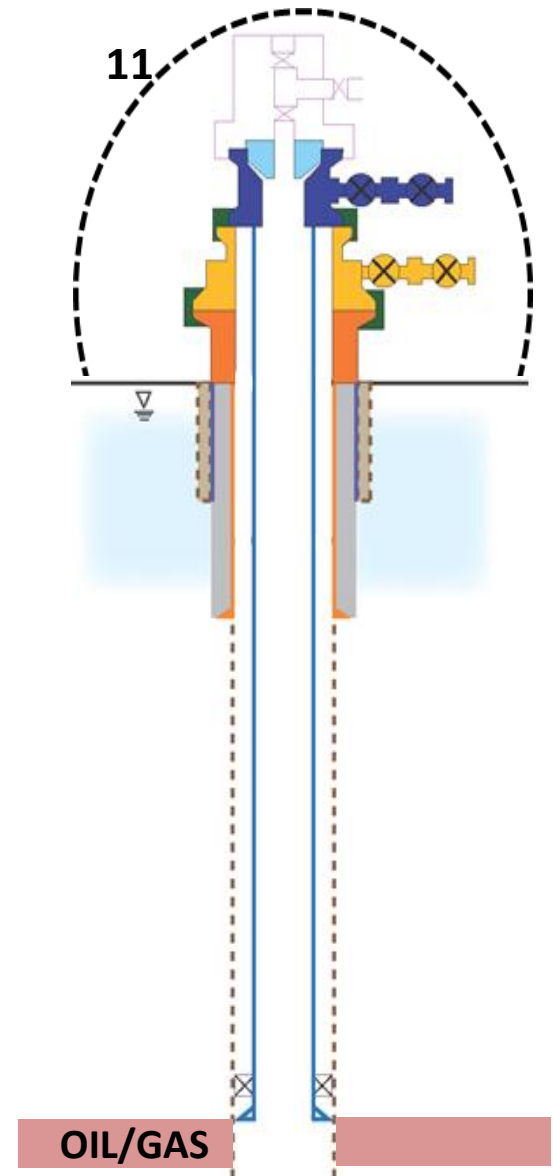
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

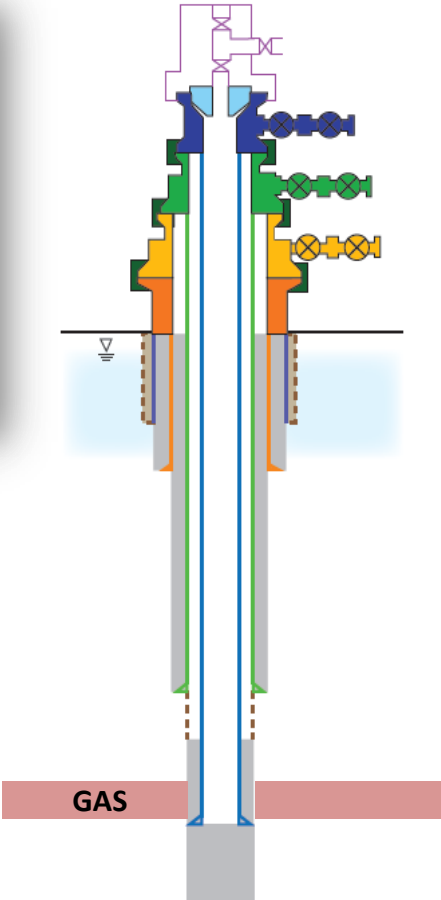
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Gas Well Example (3-String)

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
						Unit can be blank if Measurement is "I"	

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



- Required, unless otherwise noted
- Required if any fluids are noted (i.e., if first box in "Fluids Survey" is Y)

Multi-String Gas Well Example (3-String)

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4
	LB	LB	LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

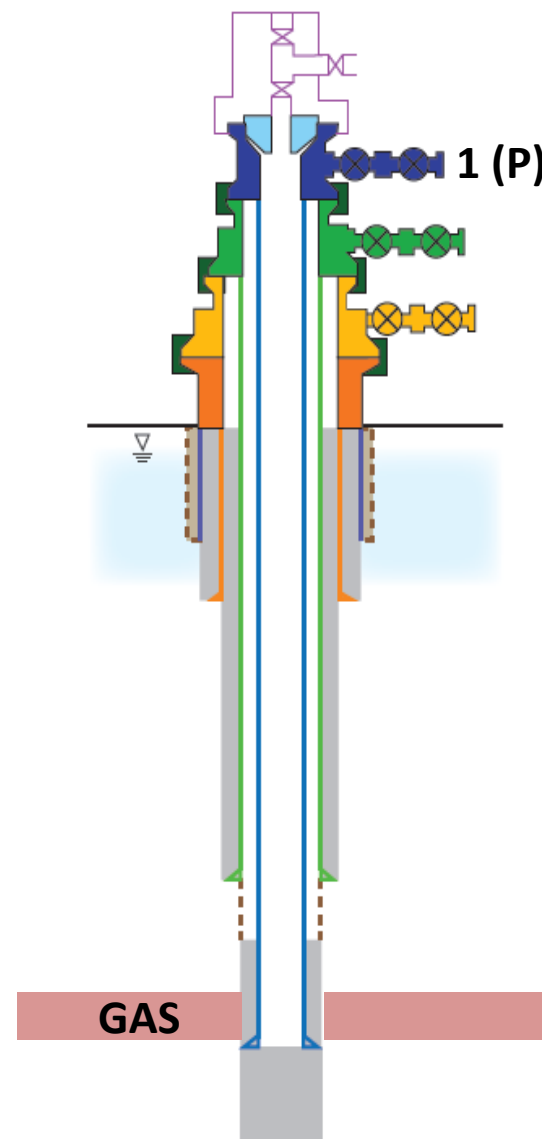
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Gas Well Example (3-String)

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R
LB	LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

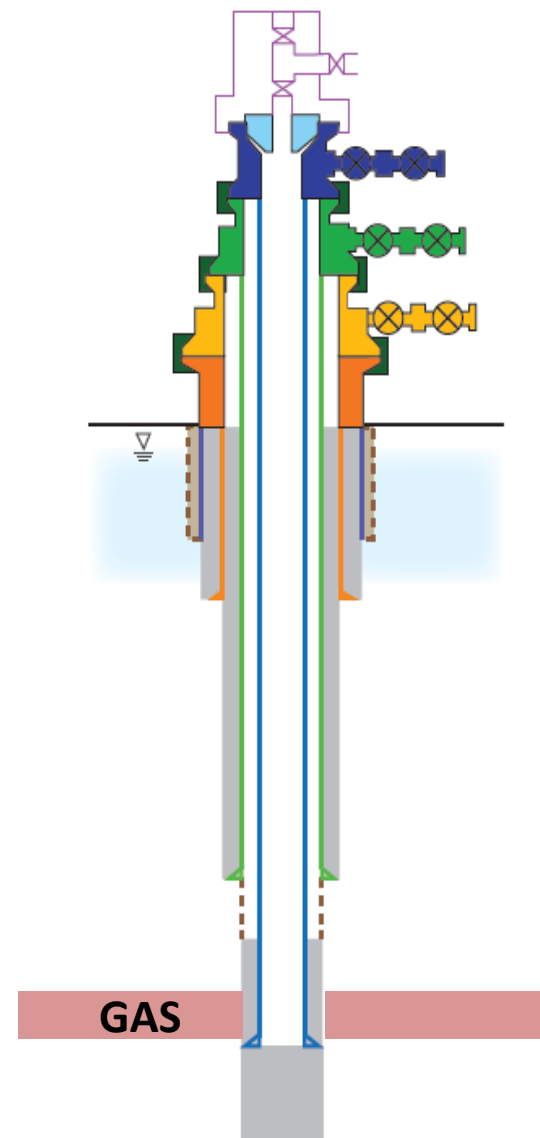
D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

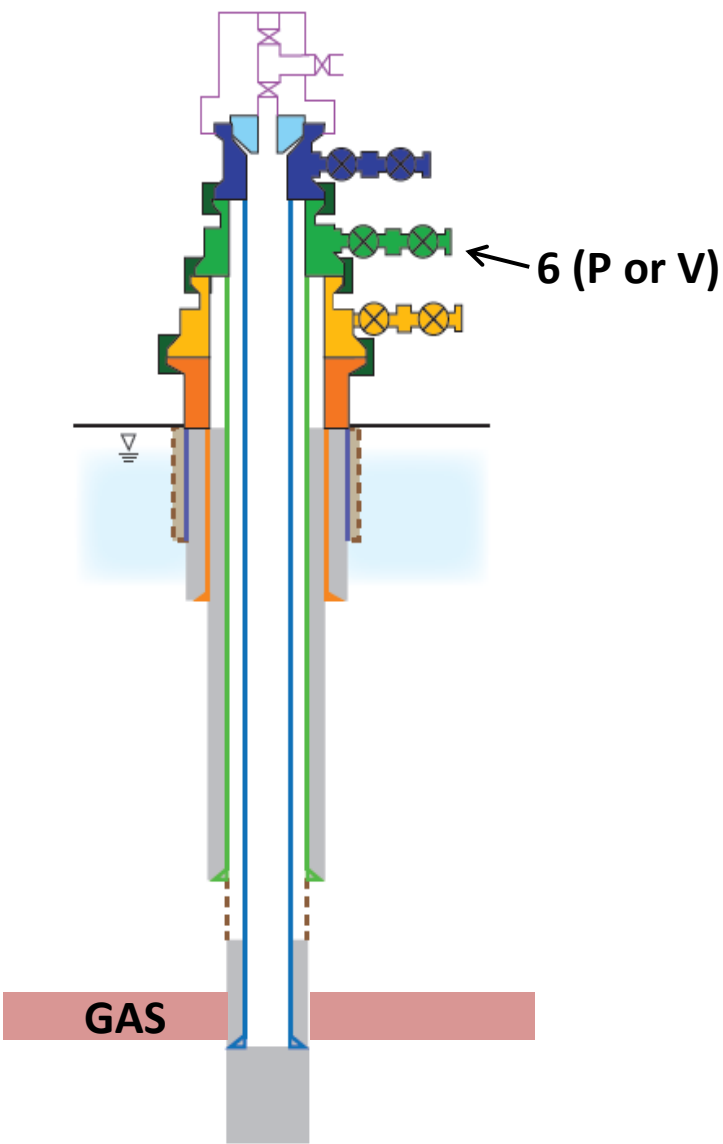
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
- IF Casing Depth is Unknown = U



Multi-String Gas Well Example (3-String)

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.



LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

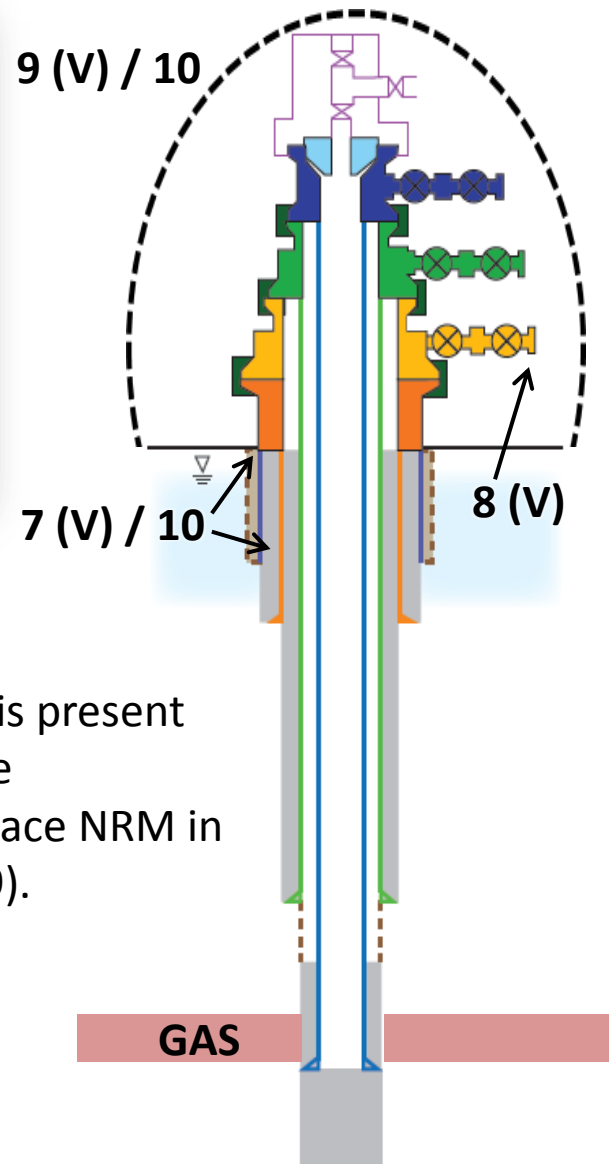
WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = Y$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = N$
- IF Casing Depth is Unknown = U

Multi-String Gas Well Example (3-String)

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	D	D	D



LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on “Any Fluids Noted”

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (7), (8) and (9).

Multi-String Gas Well Example (3-String)

Corrosion Problems (Y/N)

11

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

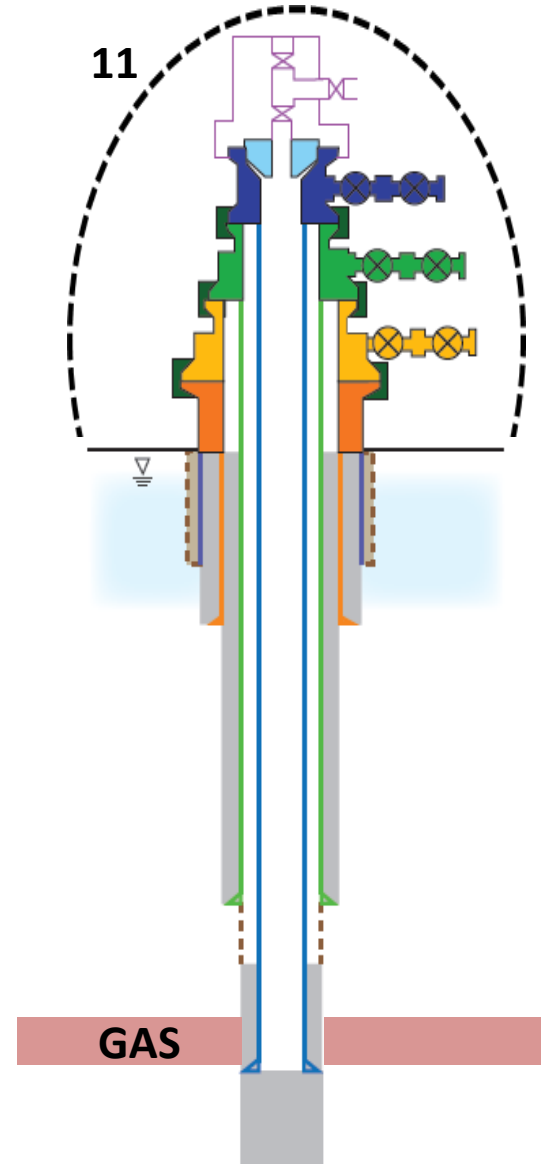
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

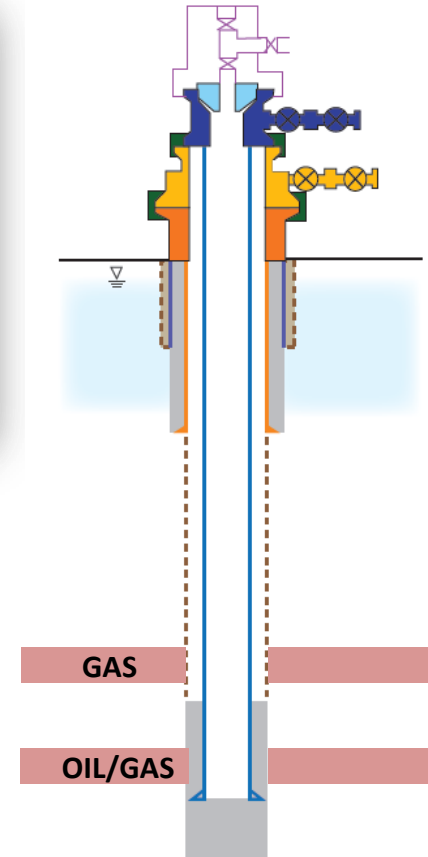
- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Combo Well, Annular Production Example (2-String)

Primary Production Pressure (psig)				Water Level or Other		Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)	Water Level or Other Measurement	Water Level or Other Unit	Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit

Fluids Survey (Gas, Oil, or Brine)					
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)	Corrosion Problems (Y/N)



Required, unless otherwise noted

Required if any fluids are noted (i.e., if first box in “Fluids Survey” is Y)

Multi-String Combo Well, Annular Production Example (2-String)

Primary Production Pressure (psig)			
Primary Production Pressure (psig)	Primary Production Vent Flow as Required per 78.83(a)(1) or Other (cfpd)	Annular Production Pressure (psig)	Maximum Allowable Pressure Exceeded per 78.73(c) (Y/N/U)
1	2	3	4

LB

MAP

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

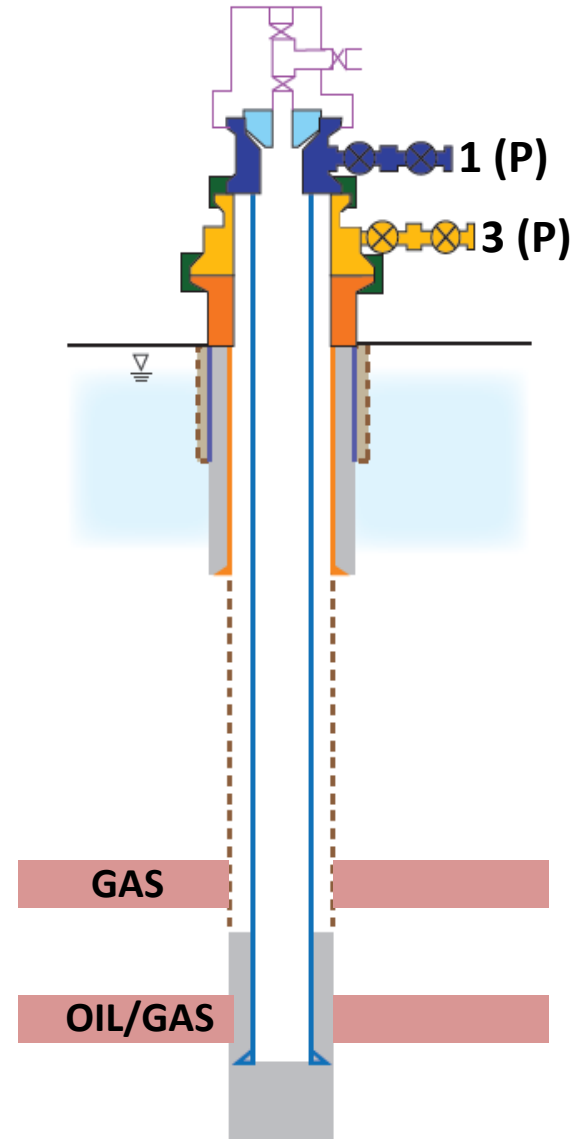
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Combo Well, Annular Production Example (2-String)

Water Level or Other	
Water Level or Other Measurement	Water Level or Other Unit
5	R

LB

LB

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

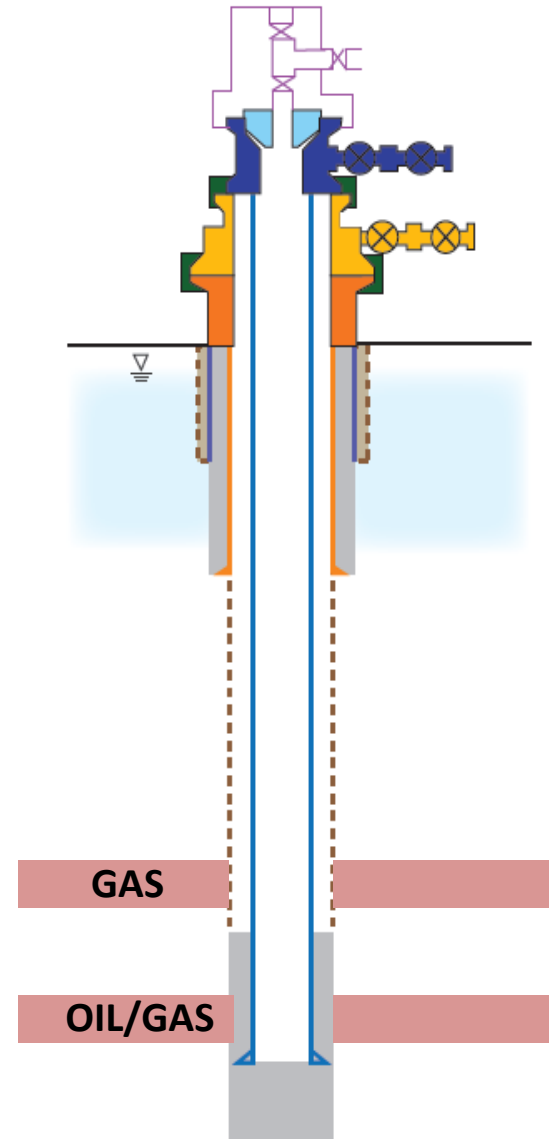
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Combo Well, Annular Production Example (2-String)

Open Flow (cfpd) or Shut-in Pressure on Production Annulus (psig)	
Open Flow or Shut-in Pressure Measurement	Open Flow or Shut-in Pressure Unit
6	R

LB

LB

Note: If production annulus is inaccessible, enter 'I' in (6) and leave unit blank. If flow is present but cannot be quantified, place NRM in (6) and cfpd in unit field.

LB: Leave Blank

R: Required

P: Pressure

V: Volume / Flow

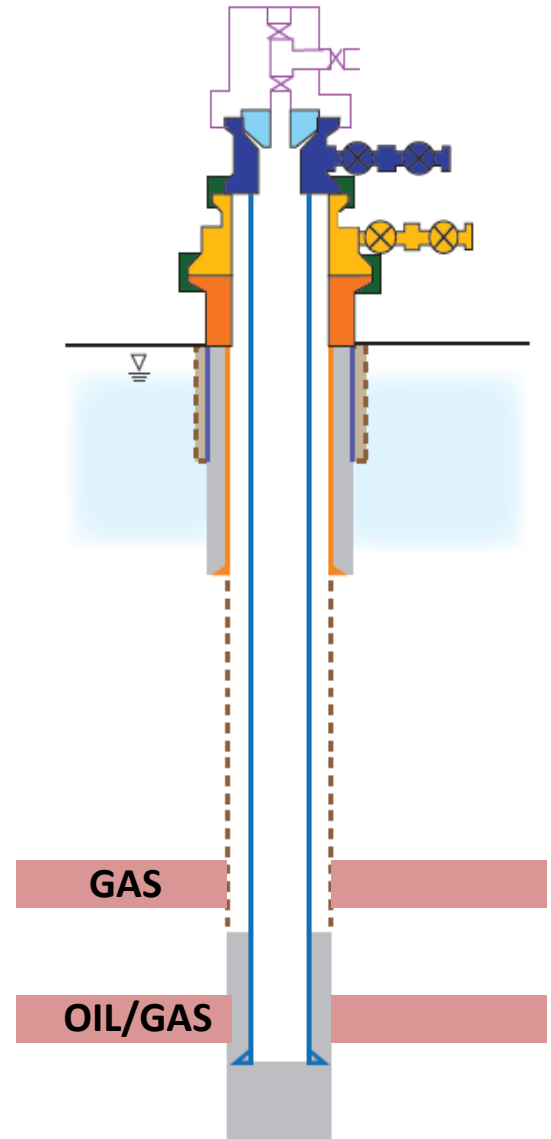
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**



Multi-String Combo Well, Annular Production Example (2-String)

Fluids Survey (Gas, Oil, or Brine)				
Any Fluids Noted (Y/N)	Gas Outside Freshwater Casing (cfpd)	Gas Outside Intermediate Casing (cfpd)	Surface Wellhead Equipment Gas Emissions (cfpd)	Any Liquids (Oil or Brine) to Surface or Outside Freshwater Casing (Y/N)
R	7	8	9	10
	D	LB	D	D

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

D: Dependent on "Any Fluids Noted"

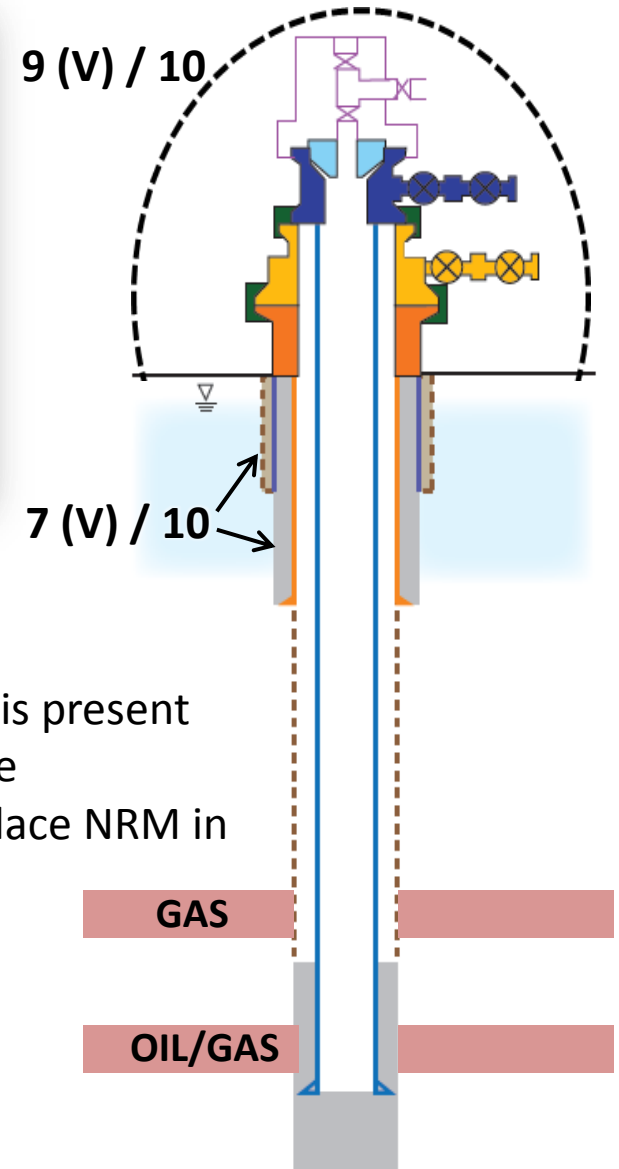
- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**

Note: If flow is present but cannot be quantified, place NRM in (7) and (9).



Multi-String Combo Well, Annular Production Example (2-String)

Corrosion Problems (Y/N)

11

LB: Leave Blank

R: Required (Y or N)

P: Pressure

V: Volume / Flow

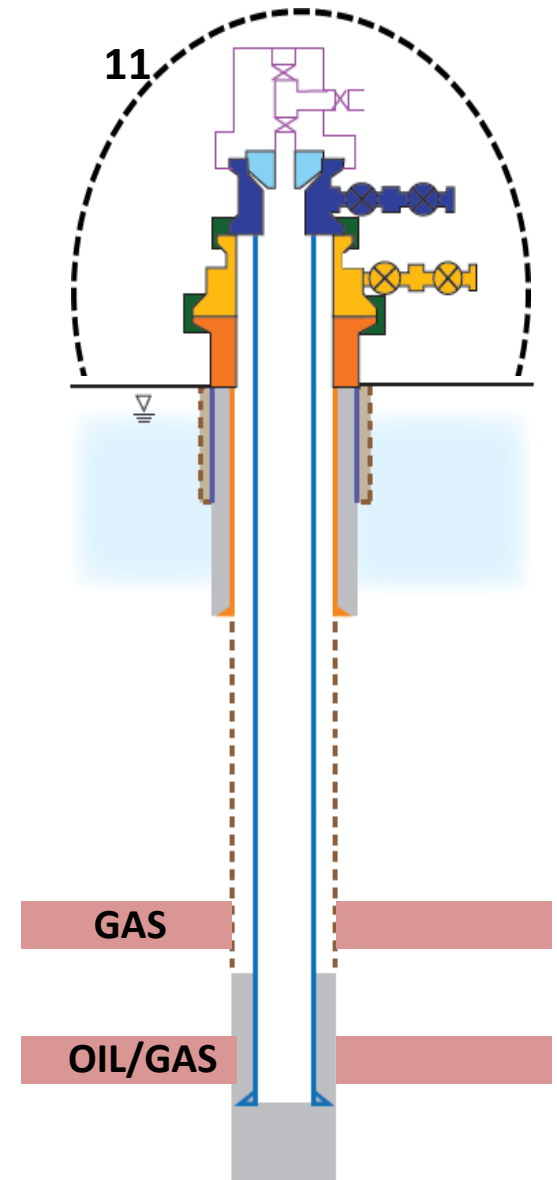
D: Dependent on "Any Fluids Noted"

- If Any Fluids Noted = Y, then fill out
- If Any Fluids Noted = N, leave blank

WL/O: Water Level or Other

MAP: Compare either 1 or 3 to $(80\% \times 0.433 \times \text{Casing Depth})$

- 1 or 3 Greater Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{Y}$
- 1 or 3 Less Than $(80\% \times 0.433 \times \text{Casing Depth}) = \mathbf{N}$
- IF Casing Depth is Unknown = **U**





pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Oil and Gas Management



Thanks!

Questions?

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