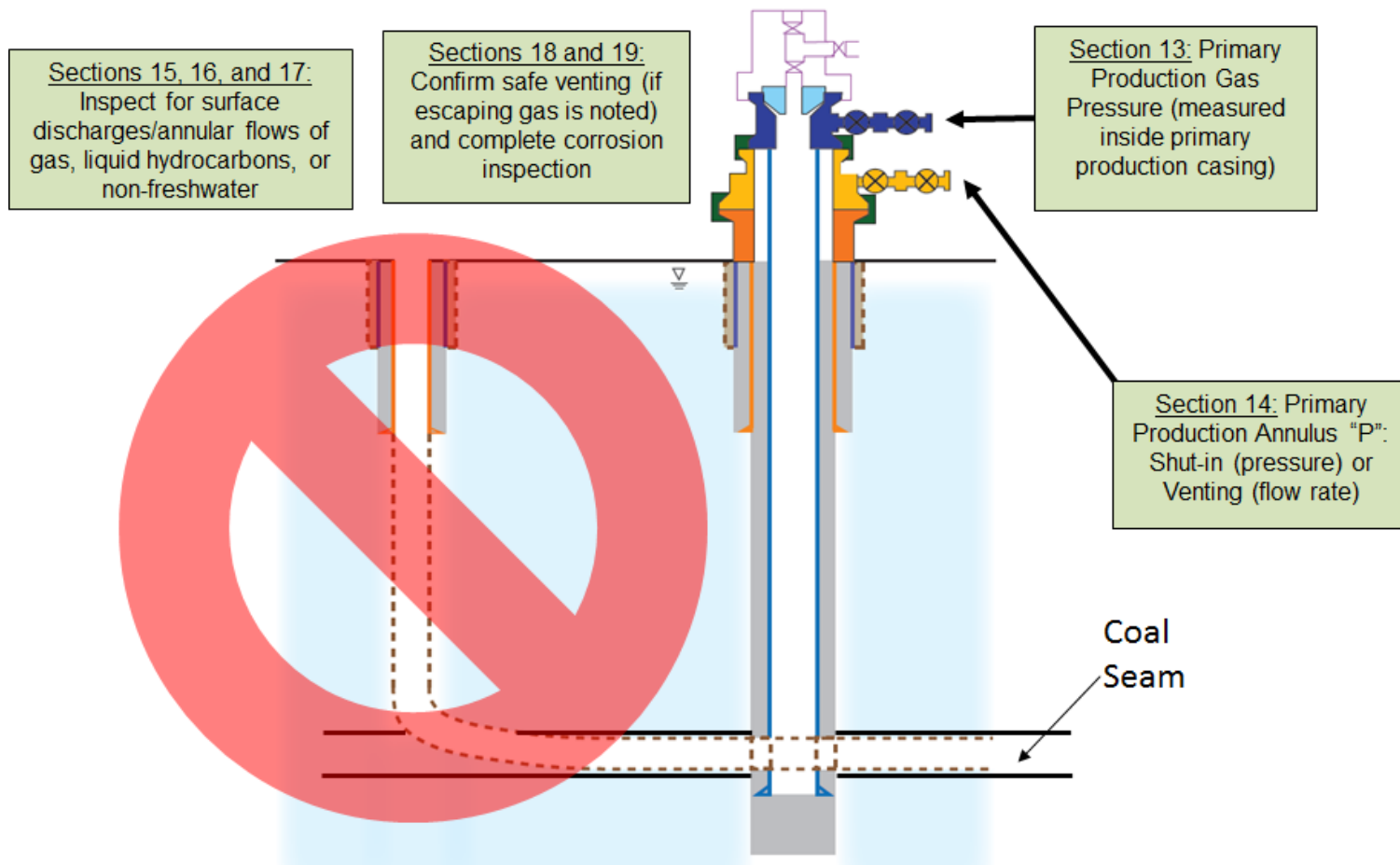


## **MIA Training Example (CBM 3 – Well with Separate Access and Production Holes)**

CBM 3 is a coalbed methane (CBM) well with separate access and production holes. Like many CBM wells, it is installed in the fresh groundwater interval, although it is equipped with separate surface and production casing strings. These wells are sometimes referred to as “Turkey Foot” wells, as they have a single, vertical production hole; but multiple laterals are drilled in a semi-radial pattern from the access hole. These laterals merge at the production hole, which is fitted with a composite section of casing across the produced zone. Gas is produced through the production casing, which is cemented to surface. The shallower surface casing string is typically used to protect the portion of the aquifer that is used for local drinking water supplies. Although the access hole does not require a separate well integrity inspection, it is a best practice to ensure that there are no leaks or other integrity problems associated with it. In this example, quarterly inspections began in the first quarter of 2013 and no problems are revealed. However, production pressures do decline somewhat dramatically throughout the year, which is typical for such CBM wells.

## Well Schematic and Inspection Components for Well with Separate Access and Production Holes



## MIA Training Example (CBM 3 – Well with Separate Access and Production Holes)

**Step 1:** Enter basic information, including the operator, well ID and abridged API.

- Well Operator/Owner (cell/box 1.): **Operator A**
  - Only needs to be done once for the entire form
- Operator Assigned ID (cell/box 2.): **CBM 3**
- Abridged API # (cell/box 3.): **063-25670**

**Step 2:** Enter well construction information under cells/boxes 4-8. This only needs to be done once for the life of the well, unless a change is made to the construction of that well.

- Well Type (cell/box 4a.): **Gas**
- Well Construction Information Not Readily Available (cell/box 4b.): **N/A**
- Water Level Accessible (cell/box 5.): **N/A**
- Freshwater Casing Only (cell/box 6.): **N**
- Annular Production (cell/box 7.): **N**
- Annular Production Inside Surface or Coal Casing String (cell/box 8.): **N/A**

1. Well Operator/Owner	4a. Well Type	5. Water Level Accessible (Yes/No)	6. Freshwater Casing Only (Yes/No)	7. Annular Production (Yes/No)	8. Annular Production Inside Surface or Coal Casing String (Yes/No)				
	Oil (Freshwater Casing Only)					Yes	Yes	Yes	Yes
	Combo (Freshwater Casing Only)					No	No	No	No
Operator A	4b. Well Construction Information Not Readily Available								
	Set Up Well for First Inspection	No	No	No	No				
2. Operator Assigned ID	Gas		N	N					
CBM 3									
3. Abridged API #									
063-25670									

**Step 3:** Enter the number of casing strings and click “Customize Data Tables.”

- Number of Casings Strings, Excluding Conductor Pipe, Tubing, and Liners (cell/box 9): **2**
- Click (cell/box 9): **Customize Data Tables**

Steps 2 and 3 set up the rest of Form A.

**Step 4:** Enter the Surface or Coal Casing Set Depth in feet (ft), if applicable, and then enter the first quarterly inspection date.

- Surface or Coal Casing Set Depth (ft) (cell/box 10.): **N/A**
- Q1 Date (cell/box 11.): **2/1/13**

9. Number of Casing Strings Excluding Conductor Pipe, Tubing, and Liners	10. Surface or Coal Casing Set Depth (ft)	11. Quarterly Inspection Information	
		Date	Quarter
2		2/1/13	Q1
			Q2
			Q3
			Q4

**Step 5:** Fill out Section 13 “Wellhead Pressure or Water Level” for Q1. In this case, leave Section 12 blank for Q1 because this is a new well entry in Form A and, thus, there are no previous data to transfer from either the 4<sup>th</sup> quarter of the previous year or previous quarter of the current year.

- a. Primary Production Gas Pressure (psig) (cell/box 13a.): 150
- b. Produced Annular Gas Pressure (psig) (cell/box 13b.): N/A
- c. Shoe Test Pressure (psig) (cell/box 13c.): N/A
- d. Annulus (cell/box 13d.): N/A
- e. Water Level (ft) (cell/box 13e.): N/A
- f. Average Daily Pumping Time (hours) or average daily pumping volume (bbls) (If no produced water, Indicate “NPW”) (cell/box 13f.): N/A
- g. Produced Water Quality – Specific Conductance (µS or µmhos)/cm (cell/box 13g.): N/A

13. Wellhead Pressure or Water Level §78.88(b)(1)						
a. Primary Production Gas Pressure (psig)	b. Produced Annular Gas Pressure (psig)	c. Shoe Test Pressure (psig) (OPTIONAL)	d. Annulus	e. Water Level (ft)	ENTER ONE FROM CHOICES BELOW (IF FIELDS ARE AVAILABLE)	
					f. Average Daily Pumping Time (hours) or Average Daily Pumping Volume (bbls) (If no produced water, indicate "NPW")	g. Produced Water Quality - Specific Conductance (µS or µmhos/cm)
150						

**Step 6:** Fill out Section 14 “Flow or Pressure in Production Annulus” for Q1.

- a. Production Annulus Status (cell/box 14a.): Choose button labeled “Venting”
- b. Production Annulus Flow (scfpd) (cell/box 14b.): 0
- c. Production Annulus Pressure (psig) (cell/box 14c.): N/A
- d. Time Since Production Annulus Was Last Blown Down (days) (cell/box 14d.): N/A
- e. Cement Top in Production Annulus Above Next Outer Casing Shoe (cell/box 14e.): N/A
- f. Annulus (cell/box 14f.): P (auto populated)

14. Flow or Pressure in Production Annulus §78.88(b)(2)						
a. Production Annulus Status		b. Production Annulus Flow (scfpd)	c. Production Annulus Pressure (psig)	d. Time Since Production Annulus was Last Blown Down (days) (OPTIONAL)	e. Cement Top in Production Annulus Above Next Outer Casing Shoe (Y/N) (OPTIONAL)	f. Annulus
<input type="button" value="Shut-In"/> <input checked="" type="button" value="Venting"/> <input type="button" value="Inaccessible"/>						
		0				P
						P
						P
						P

**Step 7:** Fill out Section 15 “Measurement or Best Estimate of Leaking/Venting Gas Quantity” for Q1.

- a. Annulus (cell/box 15a.): **S/C**
- b. Flow (scfpd) (cell/box 15b.): **0**
- c. Annulus Shut-in (cell/box 15c.): **N**
- d. Annulus (cell/box 15d.): N/A
- e. Flow (scfpd) (cell/box 15e.): N/A
- f. Annulus Shut-in (cell/box 15f.): N/A
- g. Annulus (cell/box 15g.): N/A
- h. Flow (scfpd) (cell/box 15h.): N/A
- i. Annulus Shut-in (cell/box 15i.): N/A
- j. Annulus (cell/box 15j.): N/A
- k. Flow (scfpd) (cell/box 15k.): N/A
- l. Annulus Shut-in (cell/box 15l.): N/A
- m. Surface/Wellhead Equipment/Outside Conductor (cell/box 15m.): **N**

15. Measurement or Best Estimate of Leaking/Venting Gas Quantity §78.88(b)(3)												
a. Annulus	b. Flow (scfpd)	c. Annulus Shut-in (Y/N/I)	d. Annulus	e. Flow (scfpd)	f. Annulus Shut-in (Y/N/I)	g. Annulus	h. Flow (scfpd)	i. Annulus Shut-in (Y/N/I)	j. Annulus	k. Flow (scfpd)	l. Annulus Shut-in (Y/N/I)	m. Surface /Wellhead Equipment/ Outside Conductor (Y/N)
S/C	0	N										N
S/C												
S/C												
S/C												

**Step 8:** Fill out Section 16 “Liquid Hydrocarbon Flows” for Q1.

- a. Annulus (cell/box 16a.): *P (auto populated)*
- b. Y/N/I (cell/box 16b.): **N**
- c. Annulus (cell/box 16c.): *S/C (auto populated)*
- d. Y/N/I (cell/box 16d.): **N**
- e. Annulus (cell/box 16e.): N/A
- f. Y/N/I (cell/box 16f.): N/A
- g. Annulus (cell/box 16g.): N/A
- h. Y/N/I (cell/box 16h.): N/A
- i. Annulus (cell/box 16i.): N/A
- j. Y/N/I (cell/box 16j.): N/A
- k. Surface/Wellhead Equipment/Outside Conductor (cell/box 16k.): **N**

16. Liquid Hydrocarbon Flows §78.88(a), §78.81(a)(2) & 78.73(b)										
a. Annulus	b. (Y/N/I)	c. Annulus	d. (Y/N/I)	e. Annulus	f. (Y/N/I)	g. Annulus	h. (Y/N/I)	i. Annulus	j. (Y/N/I)	k. Surface /Wellhead Equipment/ Outside Conductor (Y/N)
P	N	S/C	N							N
P		S/C								
P		S/C								
P		S/C								

**Step 9:** Fill out Section 17 “Non-Freshwater Flows” for Q1.

- a. Annulus (cell/box 17a.): P (auto populated)
- b. Y/N/I (cell/box 17b.): **N**
- c. Annulus (cell/box 17c.): S/C (auto populated)
- d. Y/N/I (cell/box 17d.): **N**
- e. Annulus (cell/box 17e.): N/A
- f. Y/N/I (cell/box 17f.): N/A
- g. Annulus (cell/box 17g.): N/A
- h. Y/N/I (cell/box 17h.): N/A
- i. Annulus (cell/box 17i.): N/A
- j. Y/N/I (cell/box 17j.): N/A
- k. Surface/Wellhead Equipment/Outside Conductor (cell/box 17k.): **N**

17. Non-Freshwater Flows (Y/N) §78.88(a), §78.81(a)(2) & 78.73(b)										
a. Annulus	b. (Y/N/I)	c. Annulus	d. (Y/N/I)	e. Annulus	f. (Y/N/I)	g. Annulus	h. (Y/N/I)	i. Annulus	j. (Y/N/I)	k. Surface /Wellhead Equipment/ Outside Conductor (Y/N)
P	<b>N</b>	S/C	<b>N</b>							<b>N</b>
P		S/C								
P		S/C								
P		S/C								

**Step 10:** Fill out Section 18 “Safe Venting” and check for Corrosion Problems for Q1 in Section 19.

- a. Gas Leaking or Venting to Atmosphere (cell/box 18a.): N (auto populated)
- b. Wellhead Hydrogen Sulfide (ppm) (cell/box 18b.): N/A
- c. Wellhead Methane (%LEL) (cell/box 18c.): N/A
- d. Corrosion Problems (cell/box 19.): **N**

18. Safe Venting §78.88(a), §78.74 & 78.77(c)			
a. Gas Leaking or Venting to Atmosphere (Y/N)	b. Wellhead Hydrogen Sulfide (ppm)	c. Wellhead Methane (% LEL)	19. Corrosion Problems (Y/N) §78.88(b)(4)
N			<b>N</b>

**Step 11:** Fill out the “Comments” section, if needed; and check to see if “Immediate DEP Reporting is Necessary” based on the information entered in Form A for Q1. The option to “Reset” this portion of Form A is available as well. This function will only reset the four rows associated with this well.

- a. Comments (cell/box 20.): N/A
- b. Immediate DEP Reporting Necessary (cell/box 21.): Y (auto populated)
- c. Reset (cell/box 22): N/A

20. Comments	21. Immediate DEP Reporting Necessary (Y/N)	22. RESET SECTION (Y)
		RESET
		N
		N
N	N	
N	N	
N	N	
N	N	

**Step 12:** Once you have finished inputting all data for Q1, return to Section 11 “Quarterly Inspection Information” and enter the date of the Q2 inspection. Next, fill out Section 12 “All Well MIA Conditions Unchanged from Previous Quarter,” which will transfer all data from the previous quarter. This function is useful when only a few conditions or no conditions at all change at the well.

- a. Q2 Date (cell/box 11.): 6/21/13
- b. All Well MIA Conditions Unchanged from Previous Quarter (cell/box 12.): Y
- c. Click: Transfer Previous Quarter’s Data

11. Quarterly Inspection Information		12. All Well MIA Conditions Unchanged from Previous Quarter (Y)
Date	Quarter	Transfer 4th Qtr From Previous Year
		Transfer Previous Quarter's Data
2/1/13	Q1	
6/21/13	Q2	Y
	Q3	
	Q4	

**Step 13:** Once all data from the previous quarter have been transferred, make the following change to Section 13 for this example. Sections 14, 15, 16, 17, 18, 19, and 20 require no changes from the previous quarter.

a. Section 13

1) Primary Production Gas Pressure (psig) (cell/box 13a.): 60

13. Wellhead Pressure or Water Level §78.88(b)(1)						
a. Primary Production Gas Pressure (psig)	b. Produced Annular Gas Pressure (psig)	c. Shoe Test Pressure (psig) (OPTIONAL)	d. Annulus	e. Water Level (ft)	ENTER ONE FROM CHOICES BELOW (IF FIELDS ARE AVAILABLE)	
					f. Average Daily Pumping Time (hours) or Average Daily Pumping Volume (bbls) (If no produced water, indicate "NPW")	g. Produced Water Quality - Specific Conductance (µS or µmhos/cm)
150						
60						

**Step 14:** Once you have finished inputting all data for Q2, return to Section 11 “Quarterly Inspection Information” and enter the date of the Q3 inspection. Next, fill out Section 12 “All Well MIA Conditions Unchanged from Previous Quarter,” which will transfer all data from the previous quarter.

a. Q3 Date (cell/box 11.): 8/14/13

b. All Well MIA Conditions Unchanged from Previous Quarter (cell/box 12.): Y

c. Click: [Transfer Previous Quarter's Data](#)

11. Quarterly Inspection Information		12. All Well MIA Conditions Unchanged from Previous Quarter (Y)
Date	Quarter	Transfer 4th Qtr From Previous Year
		Transfer Previous Quarter's Data
2/1/13	Q1	
6/21/13	Q2	Y
8/14/13	Q3	Y
	Q4	



**Step 15:** Once all data from the previous quarter have been transferred, make the following change to Section 13 for this example. Sections 14, 15, 16, 17, 18, 19, and 20 require no changes from the previous quarter.

a. Section 13

1) Primary Production Gas Pressure (psig) (cell/box 13a.): 20

13. Wellhead Pressure or Water Level §78.88(b)(1)						
a. Primary Production Gas Pressure (psig)	b. Produced Annular Gas Pressure (psig)	c. Shoe Test Pressure (psig) (OPTIONAL)	d. Annulus	e. Water Level (ft)	ENTER ONE FROM CHOICES BELOW (IF FIELDS ARE AVAILABLE)	
					f. Average Daily Pumping Time (hours) or Average Daily Pumping Volume (bbls) (If no produced water, indicate "NPW")	g. Produced Water Quality - Specific Conductance (µS or µmhos/cm)
150						
60						
20						

**Step 16:** Once you have finished inputting all data for Q3, return to Section 11 “Quarterly Inspection Information” and enter the date of the Q4 inspection. Next, fill out Section 12 “All Well MIA Conditions Unchanged from Previous Quarter,” which will transfer all data from the previous quarter.

a. Q4 Date (cell/box 11.): 12/9/13

b. All Well MIA Conditions Unchanged from Previous Quarter (cell/box 12.): Y

c. Click: [Transfer Previous Quarter's Data](#)

11. Quarterly Inspection Information		12. All Well MIA Conditions Unchanged from Previous Quarter (Y)
Date	Quarter	Transfer 4th Qtr From Previous Year
		Transfer Previous Quarter's Data
2/1/13	Q1	
6/21/13	Q2	Y
8/14/13	Q3	Y
12/9/13	Q4	Y

**Step 17:** Once all data from the previous quarter have been transferred, make the following changes to Sections 13 and 20 for this example. Sections 14, 15, 16, 17, 18, and 19 require no changes from the previous quarter.

- a. Section 13
  - 1) Primary Production Gas Pressure (psig) (cell/box 13a.): **0**
- b. Section 20
  - 1) Comments (cell/box 20.): **Begin operating well on vacuum system – pressure reported as '0'**

13. Wellhead Pressure or Water Level §78.88(b)(1)						
a. Primary Production Gas Pressure (psig)	b. Produced Annular Gas Pressure (psig)	c. Shoe Test Pressure (psig) (OPTIONAL)	d. Annulus	e. Water Level (ft)	ENTER ONE FROM CHOICES BELOW (IF FIELDS ARE AVAILABLE)	
					f. Average Daily Pumping Time (hours) or Average Daily Pumping Volume (bbls) (If no produced water, indicate "NPW")	g. Produced Water Quality - Specific Conductance (µS or µmhos/cm)
150						
60						
20						
0						

20. Comments	21. Immediate DEP Reporting Necessary (Y/N)	22. RESET SECTION (Y)
	N	RESET
	N	
	N	
Begin operating well on vacuum system	N	

**Final:** This concludes the CBM 3 example.