pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Oil and Gas Management

Mechanical Integrity Assessment Training

Pennsylvania Independent Oil & Gas Association

September 12, 2013

PADEP: Bureau of Oil and Gas Planning and Program Management
Division of Well Plugging and Subsurface Activities

Seth Pelepko, P.G.
Harry Wise, P.G.
Gene Pine, P.G.
Stew Beattie

Presentation Outline

Introduction to MIA Program

- ❑ Overview and History

Module 1: Review of Form A Instructions

- ❑ Definitions
- ❑ Guidance/Best Practices
- ❑ Naming Conventions for Annular Spaces

Module 2: Form A

- ❑ Form A Overview
- ❑ Form A Use with Examples
- ❑ Form A 2-Year Example and Data Transfers
- ❑ Development of MIA Program "Pocket Reference"

Module 3: Form B

- ❑ Form B Overview
- ❑ Form B Use with Examples
- ❑ Form B Data Transfers

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

FORM B Overview

- Form B can accommodate up to 6,000 well entries
- Only compatible with Microsoft Excel versions 2007 or later
- It contains limited instructions in the form of embedded comments
- Form B is intended for operators/owners who know what inspection components apply to the different wells in their inventory
- If they are uncertain, they are advised to download Form A and the instructions and “profile” their inventory to determine what inspection components are required on a “well type-by-well type” basis
- Once they have the inspection components defined for their well inventory, they should be capable of using Form B without much trouble

Module 3: Form B

Form B Overview

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

1. Well Operator/Owner
Operator A

Create Data Summary Sheet for Annual Report

PADEP: Enter API# in CCC-XXXXX format. CCC represents the 3-digit county code and the sections of the API# must be separated by a dash (-).

3. Abridged API #			11. Quarterly Inspection Date	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)	f. Average Pumping Time (hours) (If no produced water, indicate 'NA')	g. P Qu Cone
063-12345	Gas		1/1/13	50						
063-12346	Gas		1/2/13	50						
063-12347	Gas		1/3/13	50						
063-12348	Gas		1/4/13	50						
063-12349	Gas		1/5/13	50						
063-12350	Gas		1/6/13	50						
063-12351	Gas		1/7/13	50						
063-12352	Gas		1/8/13	50						

Module 3: Form B

Form B Use with Examples

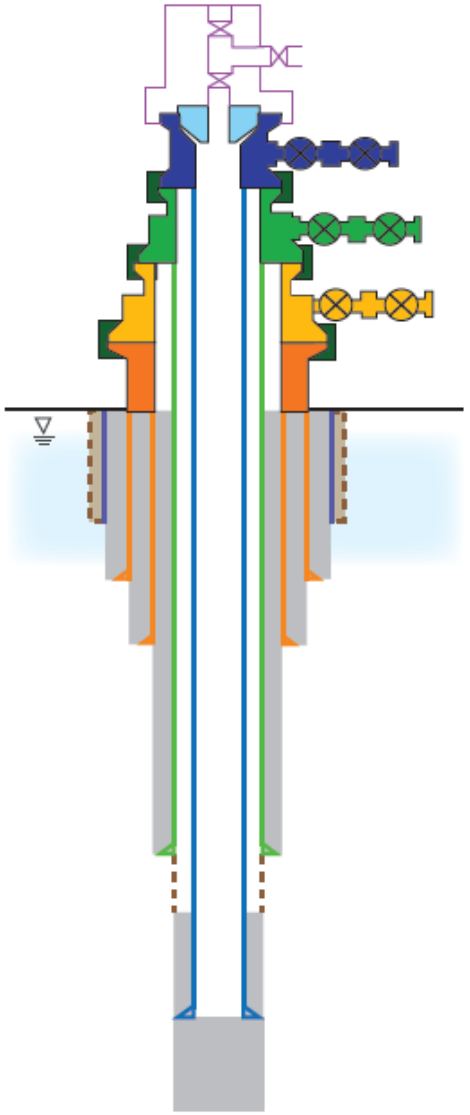
- ❑ Form A is designed to help operators understand how to set up and populate Form B
- ❑ This is accomplished by entering data into the first 9 fields (numbered 1 – 9) in Form A – it may also be necessary to enter one date
- ❑ Use the specified fields on Form A to determine what fields on Form B must be populated with data

1. Well Operator/Owner	4. 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)	9. Number of Casing Strings Excluding Conductor Pipe, Tubing, and Liners	10. Surface or Coal Casing Set Depth (ft)	11. Quarterly Inspection Information	
Operator A	Oil / Gas / Combo Oil (Freshwater Casing Only) Combo (Freshwater Casing Only)	Yes No	Yes No	Yes No	Yes No	Customize Data Tables RESET		Date	Quarter
2. Operator Assigned ID	Oil (Freshwater Casing Only)	N				1		1/21/13	Q1
Lencer 10						22. RESET SECTION (Y)			Q2
3. Abridged API #									Q3
063-15469									Q4

Module 3: Form B

Form B Use with Examples

- In this example, Operator A has reviewed their inventory and determined they have the following well design:
  - **354** four-string gas wells in coal areas producing through a tubing assembly – similar to the CATALANO 2H design



Module 3: Form B

CATALANO 2H

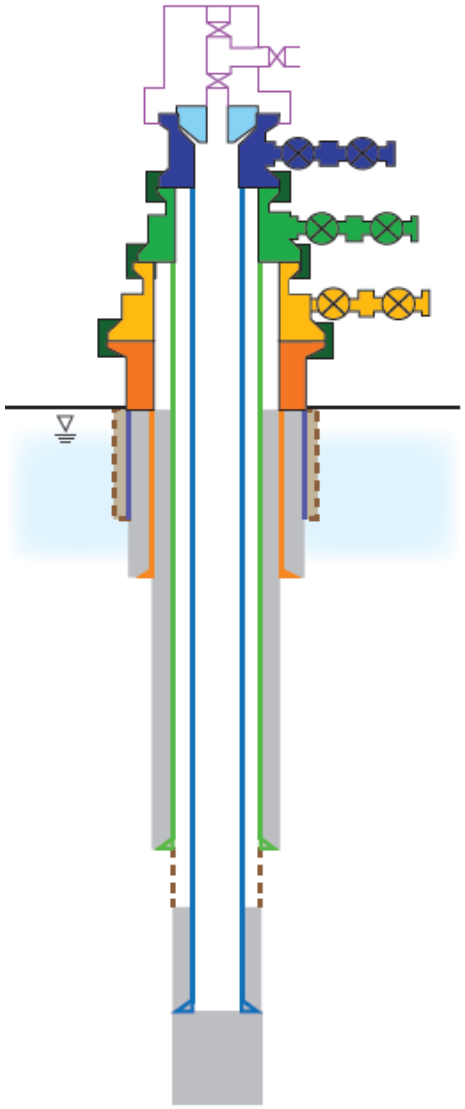
1. Well Operator/Owner	4. Well Type	5. Water Level Accessible (Yes/No)	6. Freshwater Casing Only (Yes/No)	7. Annular Production (Yes/No)	8. Annular Production Inside Surface or Coal Casing String (Yes/No)	9. Number of Casing Strings Excluding Conductor Pipe, Tubing, and Liners	10. Surface or Coal Casing Set Depth (ft)	11. Quarterly Inspection Information	
Operator A	Oil / Gas / Combo Oil (Freshwater Casing Only) Combo (Freshwater Casing Only)	Yes No	Yes No	Yes No	Yes No	Customize Data Tables RESET		Date	Quarter
2. Operator Assigned ID	Gas		N	N		4		2/12/13	Q1
Catalano 2H						22. RESET SECTION (Y)			Q2
3. Abridged API #									Q3
063-45879									Q4

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

Form B Use with Examples

- In this example, Operator A has reviewed their inventory and determined they have the following well design:
  - **210** three-string gas wells with annular production with the primary production through a tubing assembly and annular gas production inside of the intermediate casing – similar to the SWANK 4H design



Module 3: Form B

SWANK 4H

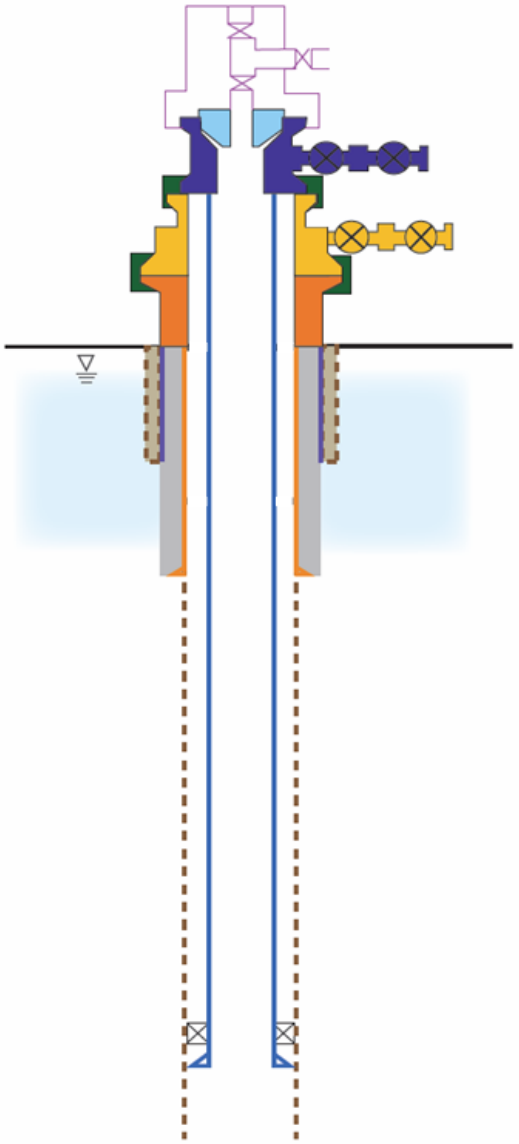
1. Well Operator/Owner	4. Well Type	5. Water Level Accessible (Yes/No)	6. Freshwater Casing Only (Yes/No)	7. Annular Production (Yes/No)	8. Annular Production Inside Surface or Coal Casing String (Yes/No)	9. Number of Casing Strings Excluding Conductor Pipe, Tubing, and Liners	10. Surface or Coal Casing Set Depth (ft)	11. Quarterly Inspection Information	
Operator A	Oil / Gas / Combo / Oil (Freshwater Casing Only) / Combo (Freshwater Casing Only)	Yes / No	Yes / No	Yes / No	Yes / No	Customize Data Tables / RESET		Date	Quarter
2. Operator Assigned ID	Gas		N	Y	N	3		2/24/13	Q1
Swank 4H						22. RESET SECTION (Y)			Q2
3. Abridged API #									Q3
063-43256									Q4

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

Form B Use with Examples

- In this example, Operator A has reviewed their inventory and determined they have the following well design:
  - **280** two-string combo wells producing oil through a rod and tubing assembly and annular gas inside of the surface casing and outside of the production string – similar to the <u>WELSH NO. 3</u> design



Module 3: Form B

WELSH NO. 3

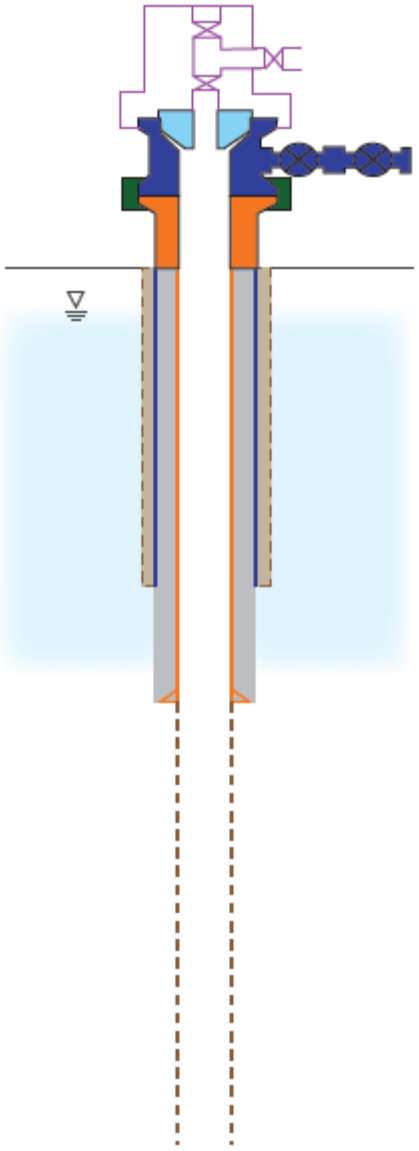
1. Well Operator/Owner	4. Well Type	5. Water Level Accessible (Yes/No)	6. Freshwater Casing Only (Yes/No)	7. Annular Production (Yes/No)	8. Annular Production Inside Surface or Coal Casing String (Yes/No)	9. Number of Casing Strings Excluding Conductor Pipe, Tubing, and Liners	10. Surface or Coal Casing Set Depth (ft)	11. Quarterly Inspection Information	
Operator A	Oil / Gas / Combo / Oil (Freshwater Casing Only) / Combo (Freshwater Casing Only)	Yes / No	Yes / No	Yes / No	Yes / No	Customize Data Tables / RESET		Date	Quarter
2. Operator Assigned ID	Combo			Y	Y	2		1/13/13	Q1
Welsh 3						22. RESET SECTION (Y)			Q2
3. Abridged API #									Q3
063-15897									Q4

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

Form B Use with Examples

- In this example, Operator A has reviewed their inventory and determined they have the following well design:
  - **617** combo wells equipped only with freshwater casing only and producing oil through a rod and tubing assembly and gas outside of the tubing and inside the surface casing – similar to the COSTELLO NO. 1 design



Module 3: Form B

COSTELLO NO. 1

1. Well Operator/Owner	4. 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)	9. Number of Casing Strings Excluding Conductor Pipe, Tubing, and Liners	10. Surface or Coal Casing Set Depth (ft)	11. Quarterly Inspection Information	
Operator A	Oil / Gas / Combo / Oil (Freshwater Casing Only) / Combo (Freshwater Casing Only)	Yes / No	Yes / No	Yes / No	Yes / No	Customize Data Tables / RESET		Date	Quarter
2. Operator Assigned ID	Combo (Freshwater Casing Only)	Y				1		1/21/13	Q1
Costello 1						22. RESET SECTION (Y)			Q2
3. Abridged API #									Q3
063-25256									Q4

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

Important Notes

- Enter the well design criteria in Form A to “profile inventory” and determine what parameters need to be measured quarterly for each well design
- The well type and production information will dictate how to fill out the columns in Sections 13 and 14 of Form B. The number of casing strings in the well design will determine what columns must be completed in Sections 15, 16 and 17 of Form B, **JUST LIKE IN FORM A**
- The status of the production annulus (Section 14), must be filled out appropriately on Form B based on actual conditions, unless that annulus is produced
- If the well is routinely vented, or there are any leaks, Section 18 must be completed on Form B

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

Main Closing Points:

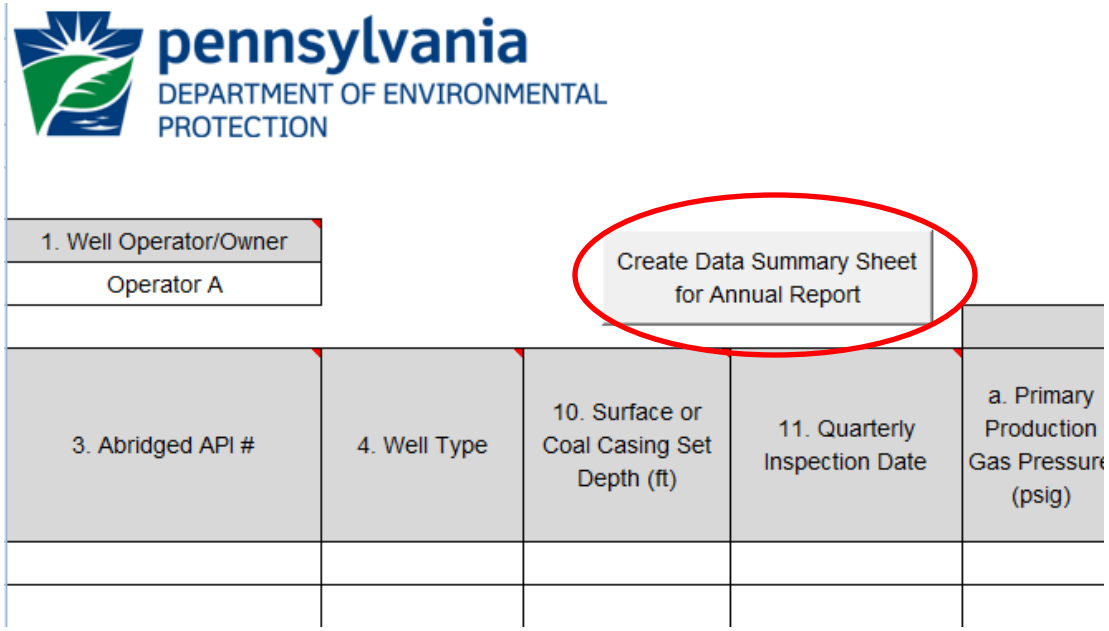
- ❑ Profile your wells in order to divide them into distinct groups
- ❑ Complete one row in Form A for each distinct group, remembering to enter at least one date for each entry
- ❑ Gray or block out unnecessary cells in Form B based on Form A designs evaluated
- ❑ Use your own software/tools to complete well integrity assessments and copy and paste required well data into Form B prior to submitting annual report to DEP

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Module 3: Form B

Form B Data Transfers

- After all annual inspection data are entered in Form B and validated by the operator/owner, select the button labeled “Create Data Summary Sheet for Annual Report” to submit to the Department



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Oil and Gas Management

Thank You – Questions?

Harry C. Wise, P.G.
Licensed Professional Geologist
Subsurface Activities Section
717.772.2199
(hwise@pa.gov)