

# Industry Orientation

## Presented by Saskatchewan Ministry of the Economy

**Oil and Gas Measurement and Reporting  
and Enhanced Production Audit Program (EPAP)**

February 10, 2016

# Introduction

Bruce Lerner

Director

Petroleum Data Management and Compliance

# Agenda

- Introduction
- Directive PNG017: Measurement Requirements for Oil and Gas Operations Overview
- Directive PNG076: Enhanced Production Audit Program (EPAP) Overview
- Break
- Guideline PNG028: Implementing and Operating the Enhanced Production Audit Program (EPAP) Overview
- Petrinex EPAP Comparison (SK vs AB)
- Question Period
- Overview of Petrinex EPAP Functionality

# Regulatory Priorities

- Renew outdated regulatory requirements
- Address compliance issues respecting measurement and reporting
- Reduce health and safety concerns
- Enhance accuracy of reported volumetric data
- Better understand the state of compliance
- Increase the level of compliance assurance
- Harmonize programs between provinces

# Benefits for Industry

- Harmonized requirements between jurisdictions
- Increased public confidence
- Higher quality volumetric data
- More accurate volumetric allocations
- Reduced operating costs
- Improved health and safety respecting field operations

# Benefits For ECON

- Appropriate level of assurance respecting compliance
- Continuous improvement with respect to compliance
- Improved volumetric business processes and controls
- Higher accuracy and completeness of volumetric data
- Improved audit efficiency
- Assurance that Saskatchewan oil and gas resources are well managed
- Improved assurance with respect to health and safety concerns related to air quality

# Regulatory Documents

- Directive PNG017
  - Harmonized with Alberta's Directive 017
- Directive PNG076
  - Harmonized with Alberta's Directive 076
- Guideline PNG028
  - Similar to Alberta's EPAP Operator's Handbook
- Latest drafts are available on ECON's website

# Responding to Questions



# Directive PNG017

## Measurement Requirements for Oil and Gas Operations Overview

Steve Rymes

Manager, Facility Data

Petroleum Data Management and Compliance

# Outline

- Structure of Directive PNG017
- New Requirements for Saskatchewan
- Major Differences between SK and AB
- Implementation of New Requirements
- Available Information and Resources
- Summary

# Structure of Directive PNG017

- Comprehensive and detailed document
- Provides clear direction to industry and the regulator
- Includes:
  - Fundamental principles
  - Base requirements
  - Recommended procedures
  - Reporting requirements

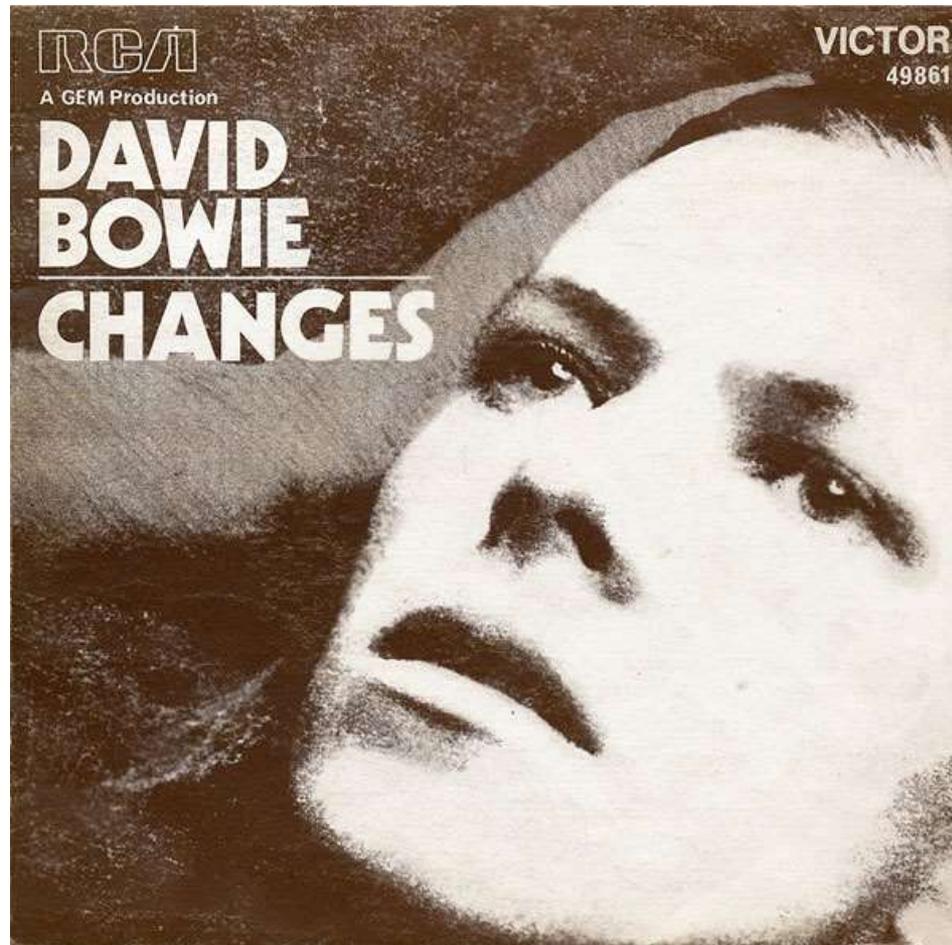
# Directive PNG017 - Table of Contents

1. Standards of Accuracy
2. Calibration and Proving
3. Proration Factors, Allocation Factors and Metering Difference
4. Gas Measurement
5. Site-specific Deviation from Base Requirements
6. Non-Heavy Oil Measurement
7. Gas Proration Batteries
8. Gas and Liquid Sampling and Analysis

# Directive PNG017 - Table of Contents

9. Cross-Border Measurement
10. Trucked Liquid Measurement
11. Acid Gas and Sulphur Measurement
12. Heavy Oil Measurement
13. Condensate and High Vapour Pressure Liquid Measurement and Reporting
14. Liquid Measurement
15. Water Measurement

# Ch-ch-ch-changes



# New Requirements for Saskatchewan

- Replaces provisions in *The Oil and Gas Conservation Regulations, 2012* and authorizations under the Act
- Petrinex functionality has been expanded:
  - Adopted proration battery subtypes
  - Crude Oil Type based on actual density
  - Criteria for paper battery facility subtype

# New Requirements for Saskatchewan

- Sampling and analysis
  - Explicit requirements throughout document
- Measurement points identified
  - Delivery point measurement
  - Metered vs estimated measurement
- Measurement schematics

LEGEND

- STREAM**
- A = ACID GAS
  - B = BUTANE
  - C = CONDENSATE
  - D = PROPANE
  - E = EMULSION
  - F = FLARE
  - G = GAS
  - M = CONDY WATER MIXTURE
  - N = NATURAL GAS LIQUIDS
  - O = OIL
  - P = PENTANES PLUS
  - R = STEAM
  - S = SAND
  - T = SULPHUR DIOXIDE
  - W = PRODUCED WATER
  - WG = WET GAS
  - Z = OTHER
- WELL TYPES**
- OIL WELL
  - ☀ GAS WELL
  - ☀ GAS WELL PRODUCING OIL
  - ☀ GAS INJECTION WELL
  - ☀ WATER SOURCE WELL
  - ☀ WATER INJECTION WELL
  - ☀ SUSPENDED GAS WELL

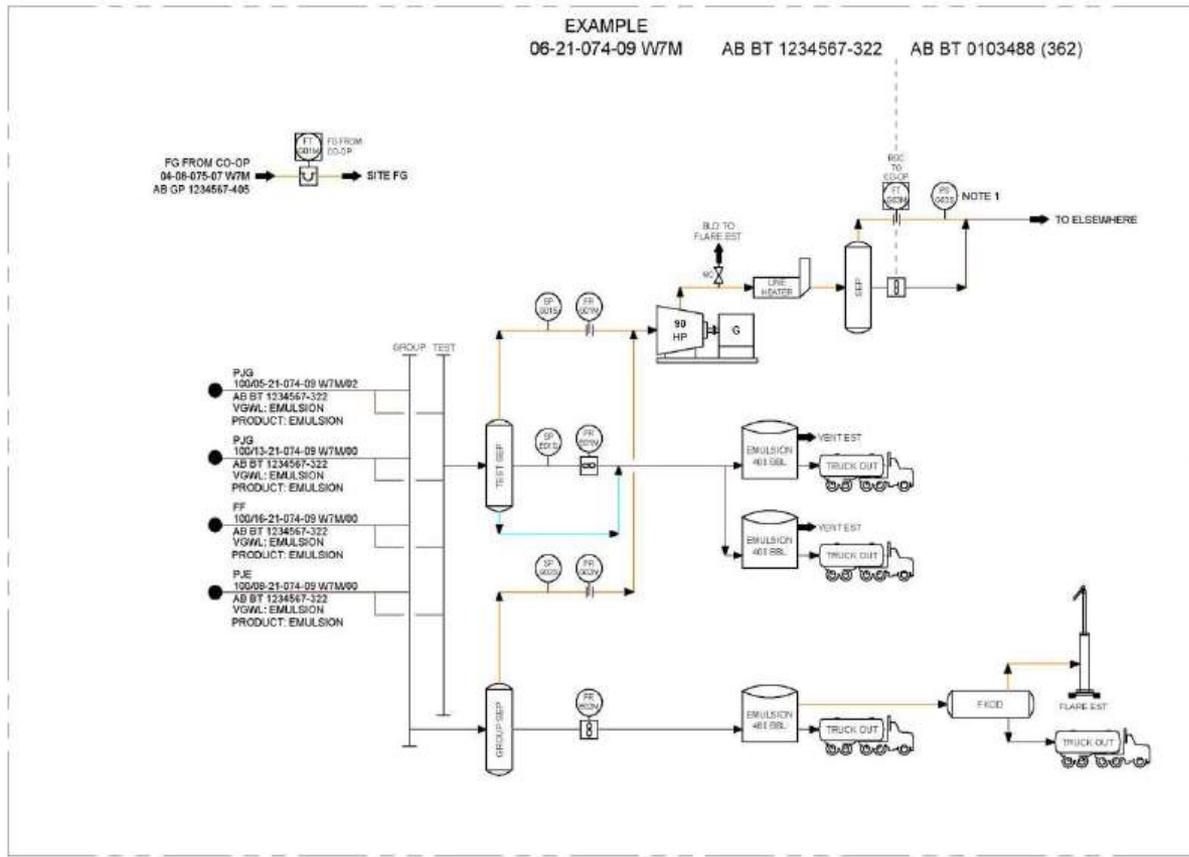
**METER TYPES**

- METER #**
- 01, 02, 03 ETC. DEPENDING ON NUMBER OF METERS AT A SPECIFIC LOCATION
- METER/SAMPLE POINT**
- M = METER
  - S = SAMPLE POINT
- COMPRESSORS**
- E = ELECTRIC
  - G = GAS
  - M = CASING GAS COMPRESSOR DRIVEN OFF OF PUMP JACK ENGINE
- METER TYPES**
- ☐ CORIOLIS METER
  - M MAG METER
  - NCA NET OIL ANALYZER
  - || ORIFICE METER
  - B P.O. METER
  - ☉ PROBE STYLE OPTICAL TURBINE METER
  - ☐ THERMAL MASS METER
  - V-CONE (WAFER CONE) METER
  - ☐ VORTEX METER
  - ☐ SCADA

**ABBREVIATIONS**

- AB = ALBERTA
- AT = ANALYZER TRANSMITTER
- ATM = ATMOSPHERE
- BBL = BARREL
- BC = BRITISH COLUMBIA
- BG = BLANKET GAS
- BLD = BLOWDOWN
- BT = BATTERY
- EST = ESTIMATE
- COMGL = COMMINGLED
- CONDY = CONDENSATE
- DEHY = DEHYDRATOR
- DH = DOWN-HOLE
- ESP = ELECTRIC SUBMERSIBLE PUMP
- FE = FLOW ELEMENT
- FF = FREE FLOWING
- FG = FUEL GAS
- FT = FLOW TRANSMITTER
- FR = FLOW RECORDER
- GIS = GAS IN SOLUTION
- GP = GAS PLANT
- GS = GATHERING SYSTEM
- HP = HORSE POWER
- LACT = LEASE AUTOMATIC CUSTODY TRANSFER
- LPG = LIQUID PETROLEUM GAS
- LTS = LOW TEMPERATURE SEPARATOR
- NC = NORMALLY CLOSED
- NO = NORMALLY OPEN
- PG = PURGE GAS
- PJE = PUMP JACK ELECTRIC
- PJP = PUMP JACK GAS
- PJP = PUMP JACK PROPANE
- PL = PLUGGER LIFT
- SEP = SEPARATOR
- SI = SHUT IN
- SP = SAMPLE POINT
- SUB = SUBMERSIBLE PUMP
- SUSP = SUSPENDED
- SURF = SURFACE
- TCPL = TRANS CANADA PIPELINE
- TEMP = TEMPERATURE
- TI = TIMER
- UG = UNDERGROUND
- VGWL = VOLUMETRIC GAS WELL LIQUID
- VRLU = VAPOR RECOVERY UNIT

EXAMPLE  
06-21-074-09 W7M AB BT 1234567-322 AB BT 0103488 (362)



NOTES  
1. PROPORTIONAL SAMPLER INSTALLED AND IN SERVICE.

DRAWING	REFERENCE DRAWING TITLE	REV	DATE	DESCRIPTION	DWN	CHKD	APPR
		A	11/11/09	DRAWN PER FIELD	JC	UH	
		B	11/11/04	UPDATED PER FIELD	JF	YM	

BATTERY CODE/COMMENTS

**OIL & GAS INC**

EXAMPLE  
06-21-074-09 W7M  
METERING SCHEMATIC  
AB BT 1234567-322

1 OF 1 REV. 5

# Major Differences Between SK and AB

- Differences between Saskatchewan and Alberta requirements are highlighted in *Directive PNG017*
- Examples:
  - Saskatchewan has facility subtypes specific to Heavy Oil
    - 313 - Heavy Crude Oil Paper Battery
    - 325 - Heavy Crude Oil Single-Well Battery
    - 326 - Heavy Crude Oil Multiwell Group Battery
    - 327 - Heavy Crude Oil Multiwell Proration Battery

# Major Differences Between SK and AB

- Condensate produced and separated at a gas well in Saskatchewan:
  - If recombined with gas, reported as GAS Production
  - If delivered in liquid form, reported as COND Production
- Royalty Triggers:
  - SK does not charge royalties on natural gas liquids
  - SK Gas royalties payable at the wellhead
- Sulphur measurement requirements in section 11 do not apply in Saskatchewan

# Under Pressure?



# Implementation of New Requirements

- *Directive PNG017* comes into force effective April 1, 2016
- All existing measurement exemptions will be rescinded
- An exemption may not be necessary under the new requirements
- If an exemption is required, an operator must receive approval from ECON through the Integrated Resource Information System (IRIS)

# Implementation of New Requirements

- Facilities that currently exist:
  - Must be fully compliant with current measurement requirements
  - Necessary improvements to meet *Directive PNG017* requirements can be phased in over a four-year period.
  - Operators expected to make significant progress each year
  - ECON will not prescribe how the annual percentage is determined or measured

# Implementation of New Requirements

- Not mandatory for operators to submit supporting documentation regarding the progress they have made each year
- All operators must fully implement *Directive PNG017* requirements by March 31, 2020
- Facilities licensed after April 1, 2016
  - Must be constructed and operated in compliance with Directive PNG017 requirements

# Available Information and Resources

- Ministry of the Economy Website
  - <http://economy.gov.sk.ca/Directive-PNG017>
  - *Directive PNG017*
    - Official version will be posted prior to April 1, 2016
  - FAQs about *Directive PNG017*
    - Answers to some common questions
  - Compliance Reporting Tool
    - Spreadsheet to measure an operator's implementation progress during the four-year phase-in period

<http://economy.gov.sk.ca/Directive-PNG017>

**NOTICE TO ALL OPERATORS**

**Initial Version of new Directive PNG017: Measurement Requirements for Oil and Gas Operations**

**RELATED DOCUMENTS**

**Directive PNG017 Rollout Memo**

 [Directive 017 Rollout Memo.pdf](#) ( 1 MB )

**Directive PNG017**

 [Directive PNG017 - Version 1.2 2015 11-13.pdf](#) ( 4.7 MB )

**FAQs about Directive PNG017**

 [FAQs about Directive PNG017 20Aug2015.pdf](#) ( 394.7 KB )

**Compliance Reporting Tool for Directive PNG017**

 [Compliance Reporting Tool for Directive PNG017 5Feb2016.xlsx](#) ( 282.6 KB )

# Available Information and Resources

- ECON Measurement Committee
  - e-mail [directive17.econ@gov.sk.ca](mailto:directive17.econ@gov.sk.ca)
- Petroleum and Natural Gas (PNG) Support Desk
  - e-mail [png.support@gov.sk.ca](mailto:png.support@gov.sk.ca)
- Measurement Exemption
  - <http://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/oil-and-gas/oil-and-gas-licensing-operations-and-requirements/oil-and-gas-drilling-and-operations/exemption-from-measurement>

# Summary

- More accurate measurement and reporting benefits Industry and the Regulator
- Directive PNG017 will remain current and harmonized through continuous improvement
- Operators must understand the new requirements and plan the necessary improvements to achieve compliance

# Directive PNG076

## Enhanced Production Audit Program Overview

Blake Linke

Manager, Compliance Programs

Petroleum Data Management and Compliance

# Outline

- Background
- EPAP Goals
- Major EPAP Components
- Important Dates

# Background - EPAP Philosophy



“Trust but verify”

- Ronald Reagan

Trust => Declaration

Verify => Compliance Assessment

# Background

- In the recent past:
  - ECON demonstrated compliance to Industry by:
    - Site inspections
    - Review industry measurement documents
    - Exceptional basis
- EPAP approach:
  - Industry demonstrates compliance to ECON by:
    - Annual declaration by executive
    - Reporting evaluation of controls work
    - Remediation of deficiencies

# Background

- In the recent past:
  - Reactive
  - Involved few facilities & operators
- EPAP approach:
  - Proactive
  - Involves all facilities (~20,800) and all operators (~380)

# EPAP Goals

- Shift how operators demonstrate Measurement & Reporting compliance (Directive PNG017)
- Raise level of compliance assurance over Directive PNG017
- Encourage continuously improving compliance

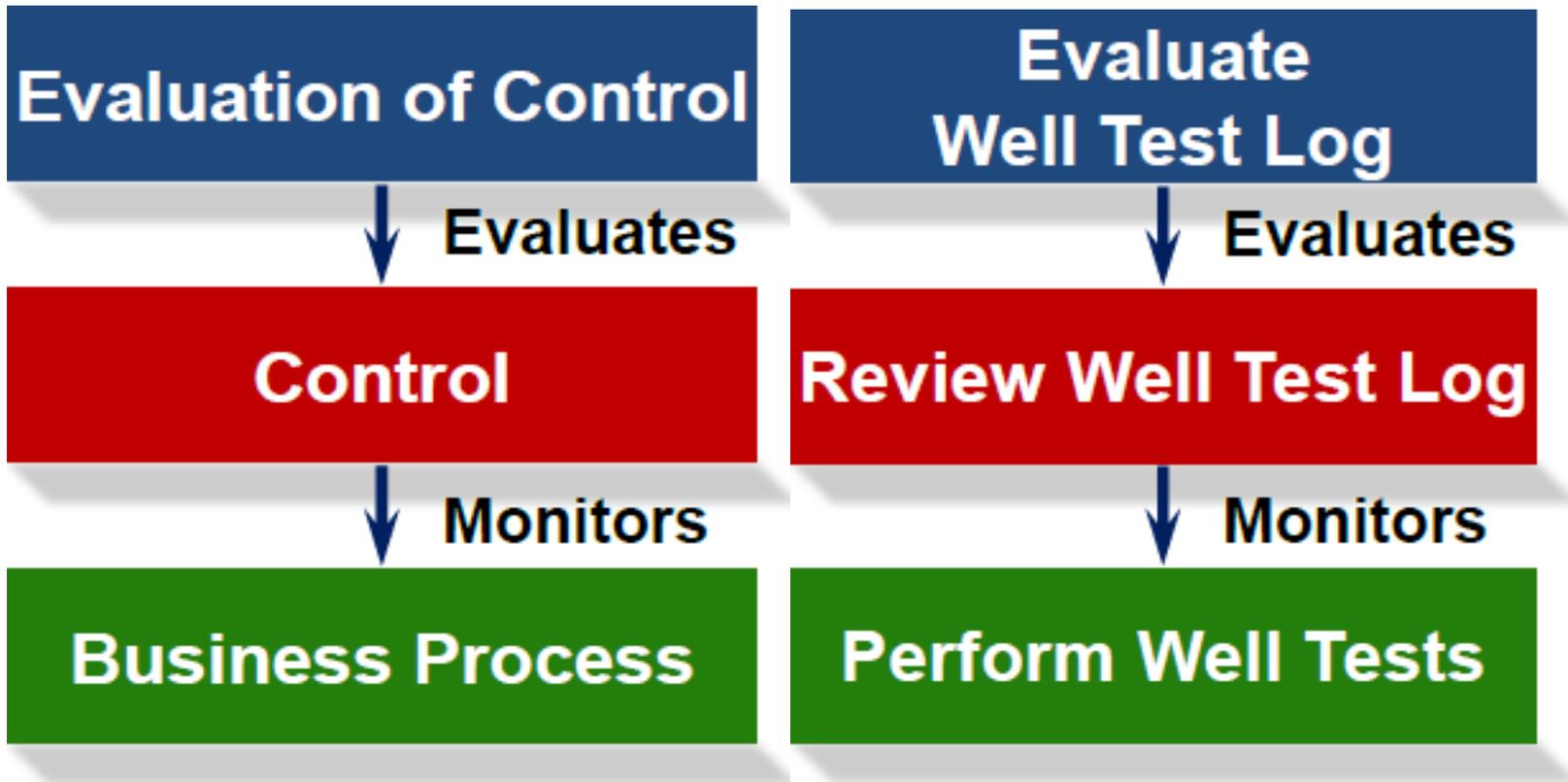
# Major EPAP Components

- Controls & Evaluation of Controls
- Declaration
- Compliance Assessment
- Workflows
- Escalation

# Controls & Evaluation of Controls

- Every business has controls
- EPAP requires operators to evaluate controls
- Proactive instead of reactive
- Controls must cover all measurement and reporting requirements

# Controls & Evaluation of Controls



# Declaration

- Results of evaluation of controls reported by theme
- Contains assertions about the state of compliance
- Requires signature of senior executive(s)
- Executed via Petrinex

# Declaration - Reporting Themes

1. Measurement System Design and Installation
2. Measurement Device Maintenance (Calibration etc.)
3. Measurement Device Operation
4. Sampling and Analysis
5. Proration testing – Oil/Heavy Oil/In-situ/Sulphur Reporting
6. Proration testing – Gas Well
7. EFM records

# Declaration - Reporting Themes

8. Field records

9. Trucked Production

10. Fuel/Flare/Vent

11. Schematic

12. Facility Master Data Set Up

13. Calculation Factors

14. Monthly Volumetric Activity Reporting

# Declaration

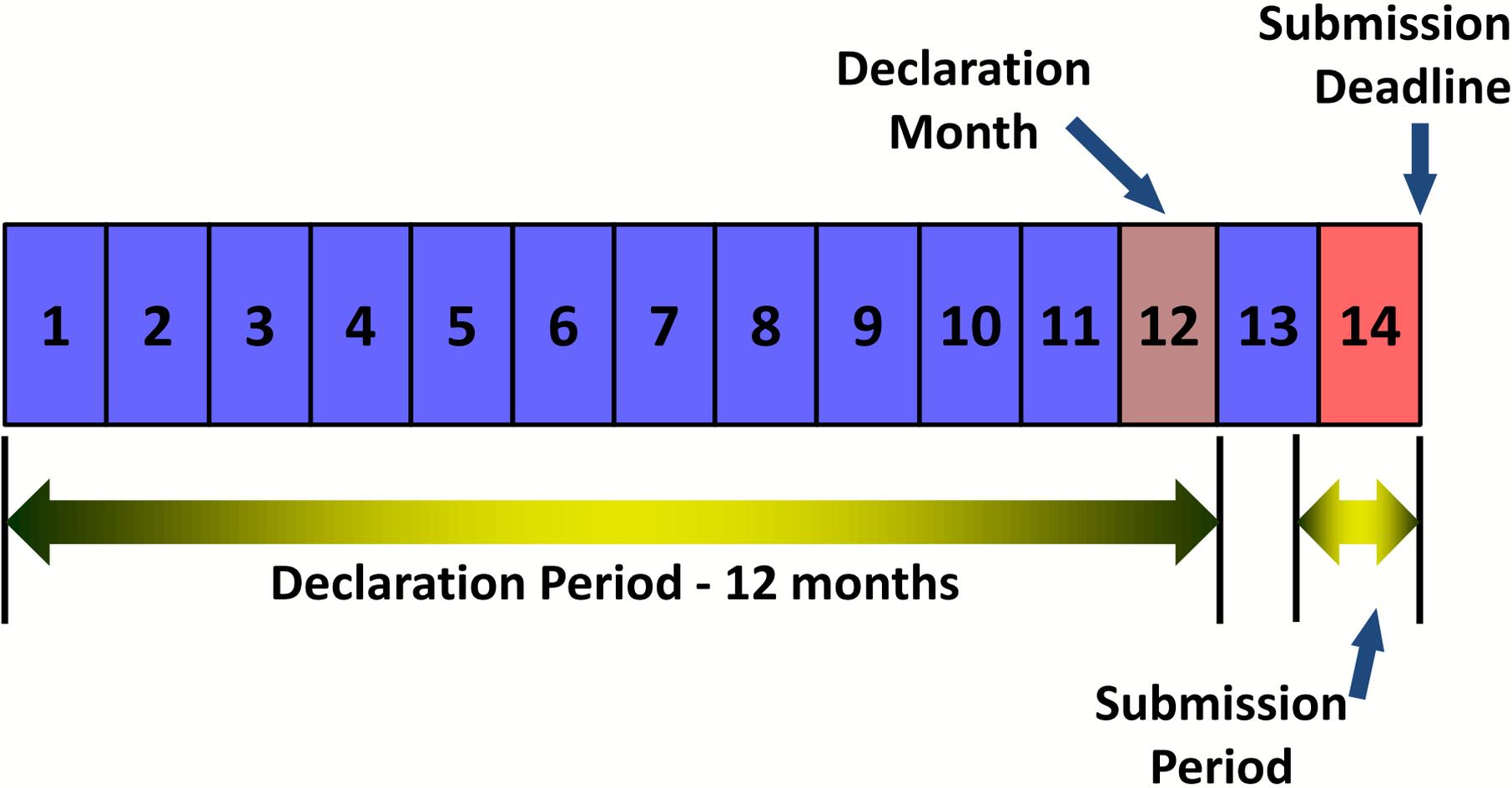
5. I/We recognize that Compliance Assessment Indicator (CAI) items on the CAI Report provide useful information to assess compliance with measurement and reporting requirements.

6. I/We recognize that the Regulator has recently introduced *Directive PNG017: Measurement Requirements for Oil and Gas Operations* that describes measurement requirements in more detail.

7. I/We have committed appropriate resourcing to ensure measurement and reporting remediation at our facilities for the following one-year periods:

Period ending on March 31, 2017	25% implemented
Period ending on March 31, 2018	50% implemented
Period ending on March 31, 2019	75% implemented
Period ending on March 31, 2020	100% implemented

# Declaration Timeline



# Declaration Considerations

- Data Entry Completeness
- Number of Evaluations of Controls
- Reasonable sample size to conduct evaluation of controls
  - Inclusion of more facility subtypes is preferable
- Evaluations determine effectiveness of controls

# Compliance Assessment

- There are 53 CAIs... Examples:
  - Low Solution Gas Conservation Efficiency
  - Excessive Flaring
  - Low Gas/Oil Ratio
  - Invalid Water Metering Difference
  - Questionable use of Destination Codes
  - Excessive Gas Proration Factor

# Compliance Assessment

- Monthly CAI Report
- Runs algorithms and displays results for CAIs
- CAI being triggered is not necessarily a noncompliance
- ECON can initiate a Workflow directing operators to address CAIs

# Workflows

- Carried out through EPAP functionality on Petrinex:
  - Communicates between ECON & Operator
  - Documents discussion and actions
  - Provides basis for follow-up
  - Request more information re: controls & evaluation information
  - Also used for Voluntary Self Disclosures (VSDs)

# Escalation

- Notice of noncompliance
- Financial penalties up to \$250,000
- Facility suspensions
- Cease applications

# Important Dates

- Effective date: April 1, 2016
- Trial declaration period from April 1, 2016 to November 30, 2016
- **Your Declaration month has been emailed to your EPAP Change Leader from PNG Support as of today (Wednesday, February 10, 2016) to operators that identified EPAP change leaders.**

# More Information

[www.economy.gov.sk.ca/EPAP](http://www.economy.gov.sk.ca/EPAP)

[Email](mailto:PNG.Support@gov.sk.ca)

## NOTICE TO ALL OPERATORS

### Future Changes to Oil and Gas Measurement Requirements and Implementation of EPAP in Saskatchewan

As part of finalizing the Saskatchewan EPAP program, which takes effect April 6, 2016, the Ministry of the Economy (ECON) has consulted with industry regarding the development of a Saskatchewan version of Alberta *Directive 076: Operator Declaration Regarding Measurement and Reporting Requirements* as well as an accompanying industry Guideline for implementing EPAP. Industry consultation meetings for both documents have concluded and the resulting documents are now available below for further input.

If anyone from industry is interested in providing feedback on these documents, please email Blake Linke at [Blake.Linke@gov.sk.ca](mailto:Blake.Linke@gov.sk.ca) or call (306) 787-6494.

- **Directive PNG076: Enhanced Production Audit Program (EPAP)**
- **Guideline PNG028: Initiating and Operating the Enhanced Production Audit Program (EPAP)**

ECON has finalized key features of EPAP. The two documents below describe these features. One document shows Saskatchewan's list of Compliance Assessment Indicators (CAIs) and Reporting Themes. The next document shows Measurement and Reporting Noncompliance Events (NCEs). Differences in these features between Saskatchewan and Alberta are minor.

- **CAIs & Declaration Themes**
- **Noncompliance Events**

## RELATED DOCUMENTS

EPAP Letter

 EPAP LTR.pdf ( 952.5 KB )

[PNG.Support@gov.sk.ca](mailto:PNG.Support@gov.sk.ca)

# Guideline PNG028

## Initiating and Operating the Enhanced Production Audit Program (EPAP) Overview



Yogi Schulz

Partner

Corvelle Consulting



# Yogi Schulz

## Biography

- Partner in Corvelle Consulting
- Information technology consulting
- EPAP implementation and operation
- Relevant development work:
  - Led EPAP at AER
  - Led PSAP at AER
  - Led measurement at ECON
  - Leading EPAP at ECON



# Outline

- Major EPAP Operation Processes
- Suggested initiation tasks
- Suggested initiation schedule
- Discussion

# Major EPAP Operation Processes

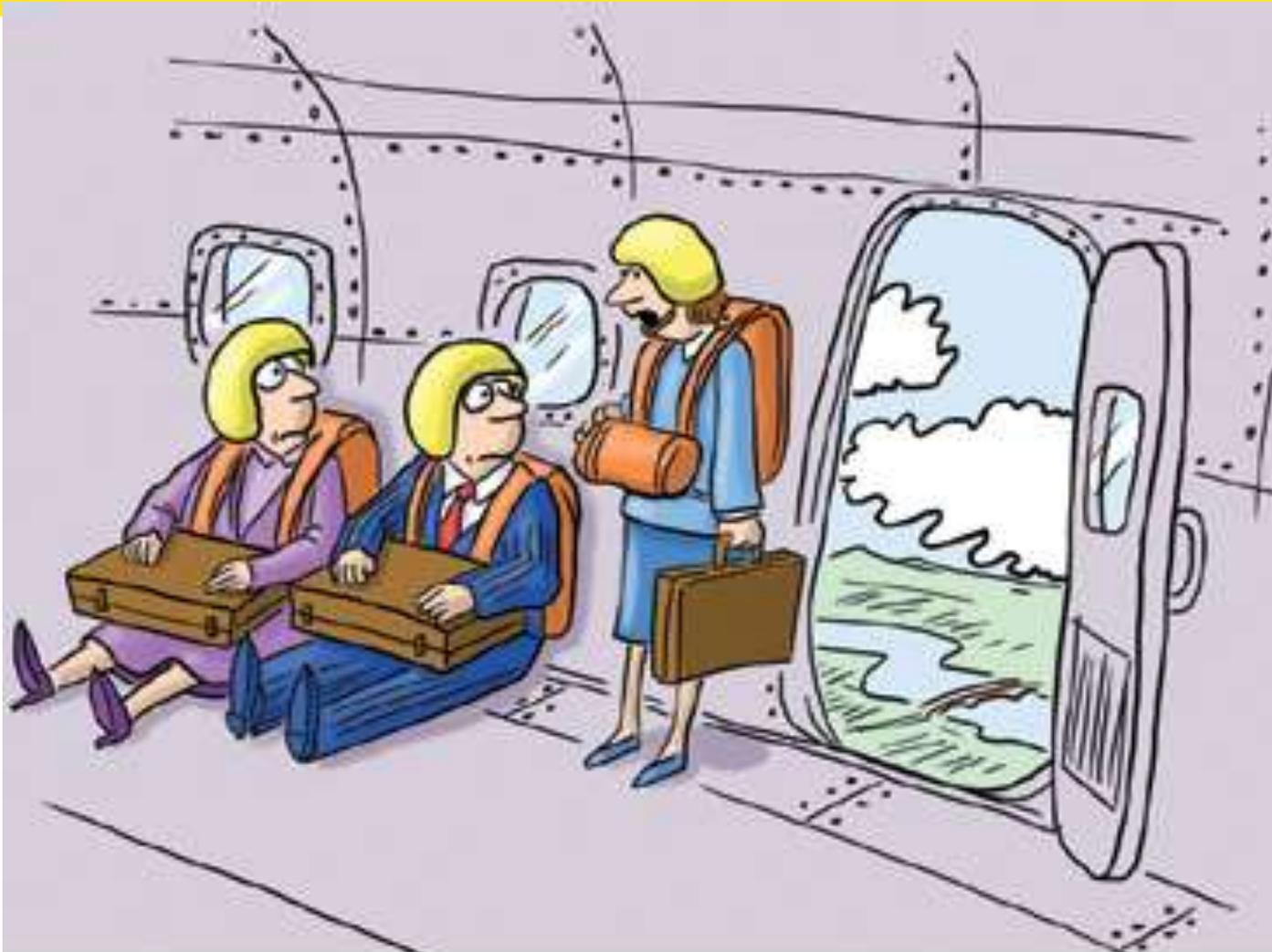


# Design Choices for Operating EPAP

- Measurement and Reporting Controls
- Procedure to Evaluate Controls
- Evaluation of Controls
- Remediation Effort
- CAI Investigation and Remediation Effort
- Regulator-initiated Workflows
- Roles and Responsibilities for EPAP Operation

# Annual EPAP Declaration

- Confirm the Design
- Create List of Possible Facilities for Evaluation
- Conduct Evaluations of Controls at Sample Facilities
- Consolidate Conclusions of Evaluations of Controls
- Complete EPAP Declaration in Petrinex
- Present EPAP Declaration to Senior Executives
- Submit EPAP Declaration in Petrinex
- Respond to Regulator Queries about EPAP Declaration
- Receive Regulator Approval of EPAP Declaration



“We’re going to parachute in and conduct a surprise evaluation of controls, but I want to keep the whole event low key.”

# Ongoing Remediation Arising from Evaluations of Controls

- Scope/Plan Remediation Projects
- Execute Remediation Projects
- Present Remediation Results to Senior Executives
- Respond to Regulator Queries about Remediation

# Monthly CAI Report

- Download CAI Report from Petrinex
- Filter CAI Items
- Prioritize CAI Items
- Investigate CAI Items
- Remediate CAI Items
- Present CAI Progress Report
- Respond to Regulator-initiated CAI Workflow Items

# Ongoing Regulator-initiated Workflows

- Receive Regulator-initiated Workflow Item
- Investigate Regulator-initiated Workflow Item
- Respond to Regulator-initiated Workflow Item
- Remediate Noncompliance
- Receive Regulator Approval of Workflow Item

# Suggested Initiation Tasks



# EPAP Initiation Project Tasks

- Assign project manager and project resources
- Conduct an initial EPAP assessment
- Brief managers and senior executives
- Build awareness of operator staff
- Develop project plan
- Execute project plan
- Estimate of annual EPAP operation effort

# Acceptable Practices

- PNG028 describes examples of acceptable practice that achieves EPAP compliance
- PNG076 provides significant latitude for operator professional judgment
- Operators may adopt other acceptable practices in the operation of EPAP

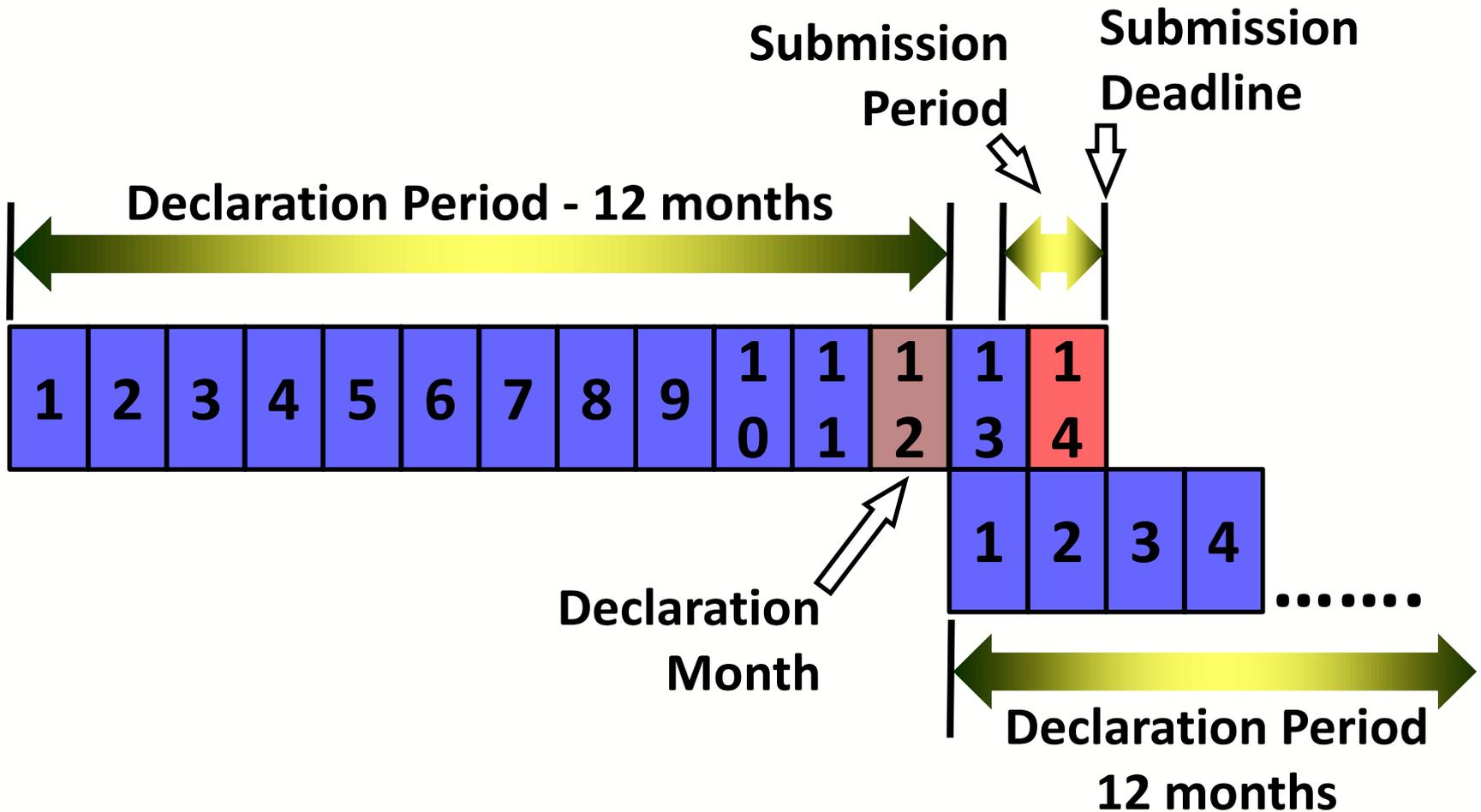
# Suggested Initiation Schedule



# EPAP Initiation Schedule

Event Name	Dates
Directive PNG076 EPAP Effective	April 1, 2016
Trial Declaration <span style="border: 1px solid blue; padding: 2px;">Suggested period for initiation project</span>	April 1, 2016 to November 30, 2016

# EPAP Declaration Timeline



# Question Period



# Stakeholder Engagement

- Stakeholders were consulted during program development
- ECON will continue working with stakeholders to improve and enhance these programs
- ECON intends to participate in the Alberta EPAP stakeholder committee as well as the CAI subcommittee
- ECON will work with AER and Industry to refine CAIs and make them more effective.

Thank you for your participation