



# **Evaluation of Innovative Methane Detection Technologies**

**Interstate Technology and Regulatory  
Council**

**Lisa Dorman, PE**

**Pennsylvania DEP**

**August 14-18, 2017**

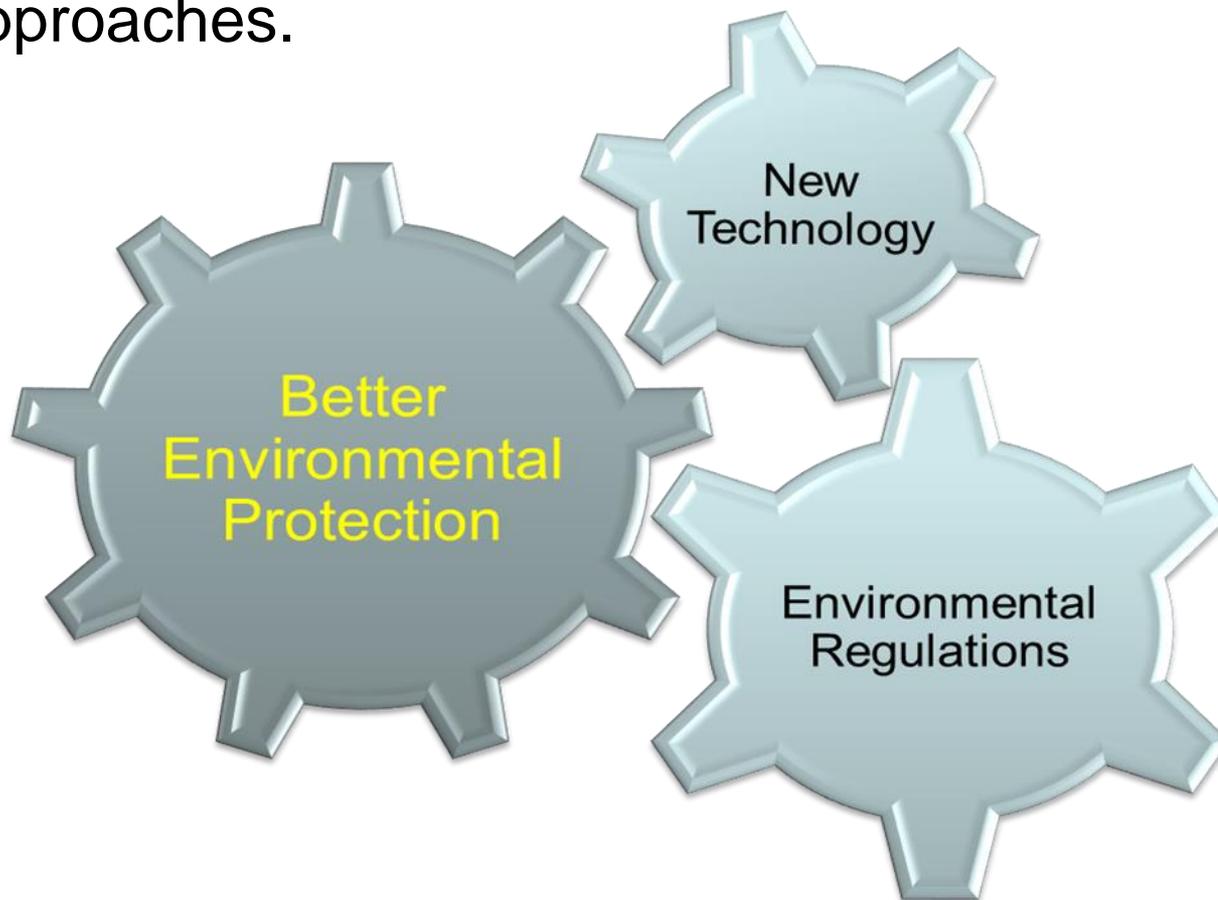
[WWW.ITRCWEB.ORG](http://WWW.ITRCWEB.ORG)

*Advancing Environmental Solutions*



# What is ITRC?

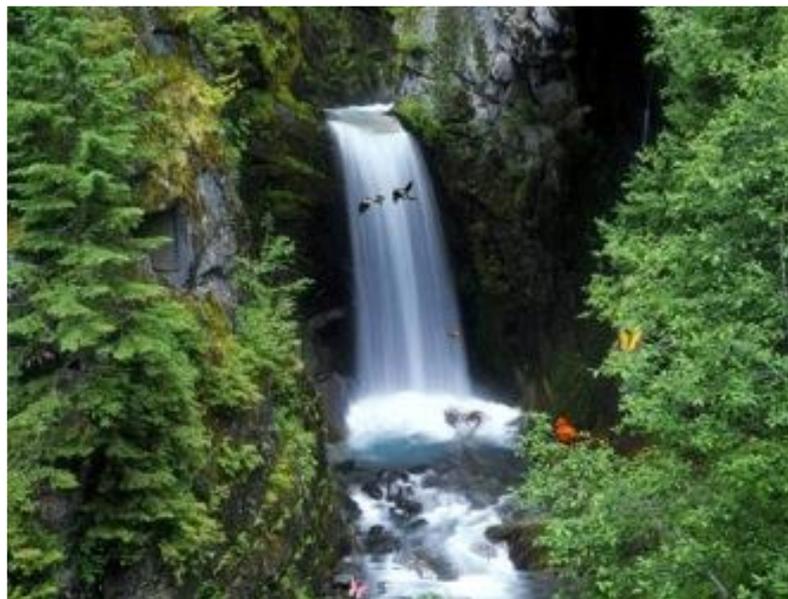
ITRC is a state-led coalition working to advance the use of innovative environmental technologies and approaches.



ITRC translates good science into better decision making

# ITRC Mission

*To develop information resources and processes to break down barriers to the use of technically sound innovative solutions for healthy communities, the economy and environment*



## **ITRC Adds Value**

- Facilitate better **DECISION-MAKING** by fostering the acceptance and use of **INNOVATIVE** solutions
- Develop solutions by working as a **STATE-LED ORGANIZATION** in **PARTNERSHIP** with those affected by the guidance we develop
- Produce products that are grounded in **TECHNICAL EXCELLENCE**
- Work with **INTEGRITY** in a culture of **COLLABORATION**
- Strive for **CONSENSUS** in decision-making and development of products

# ITRC Role in the Environmental Community

**Reduce  
barriers**

**To the use of innovative  
environmental  
technologies**

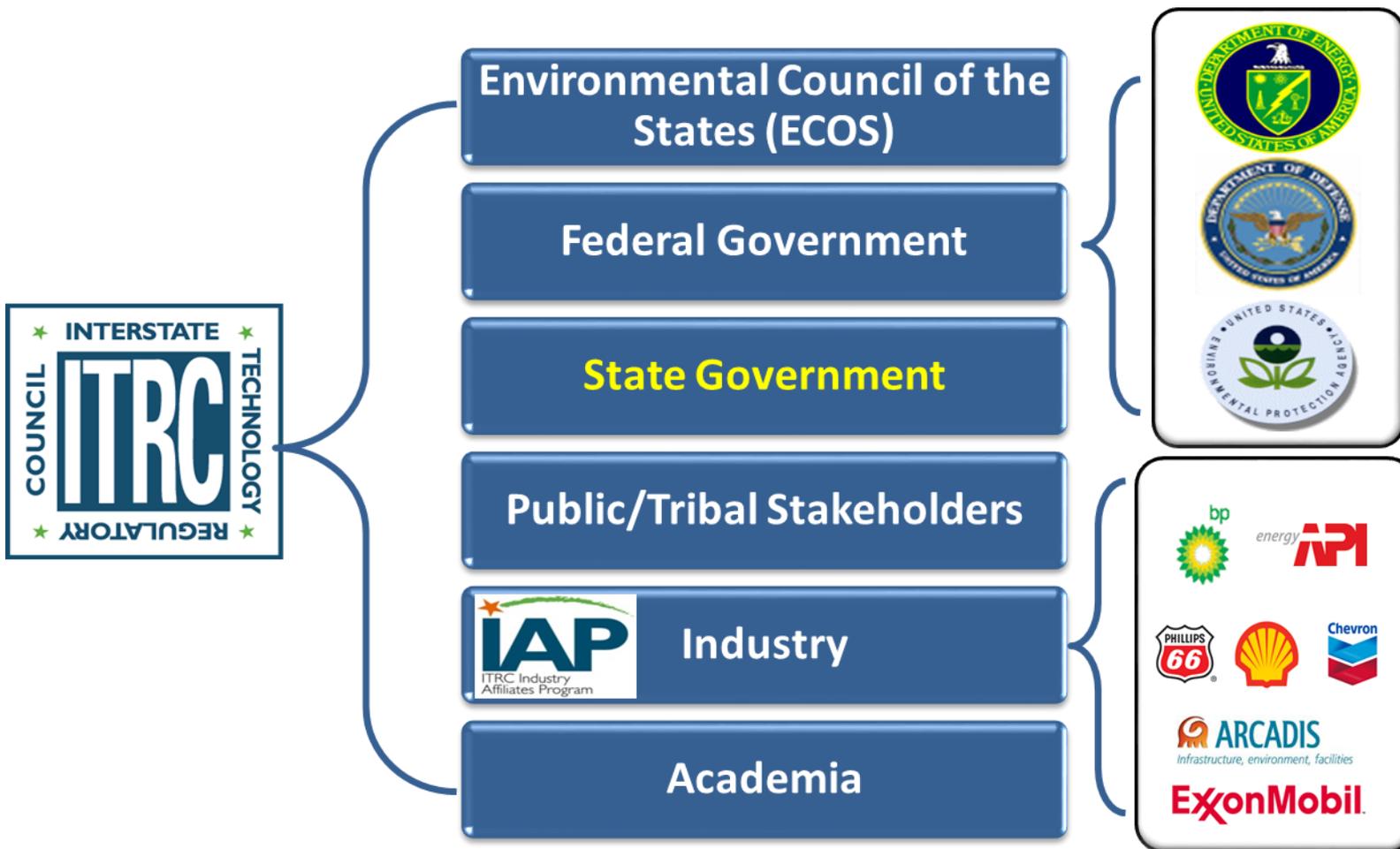
**Improve  
cleanup**

**By educating on  
innovative environmental  
technologies**

**Provide a  
national  
consensus**

**On approaches to  
implementing innovative  
environmental technologies**

# Power of ITRC's Unique Network



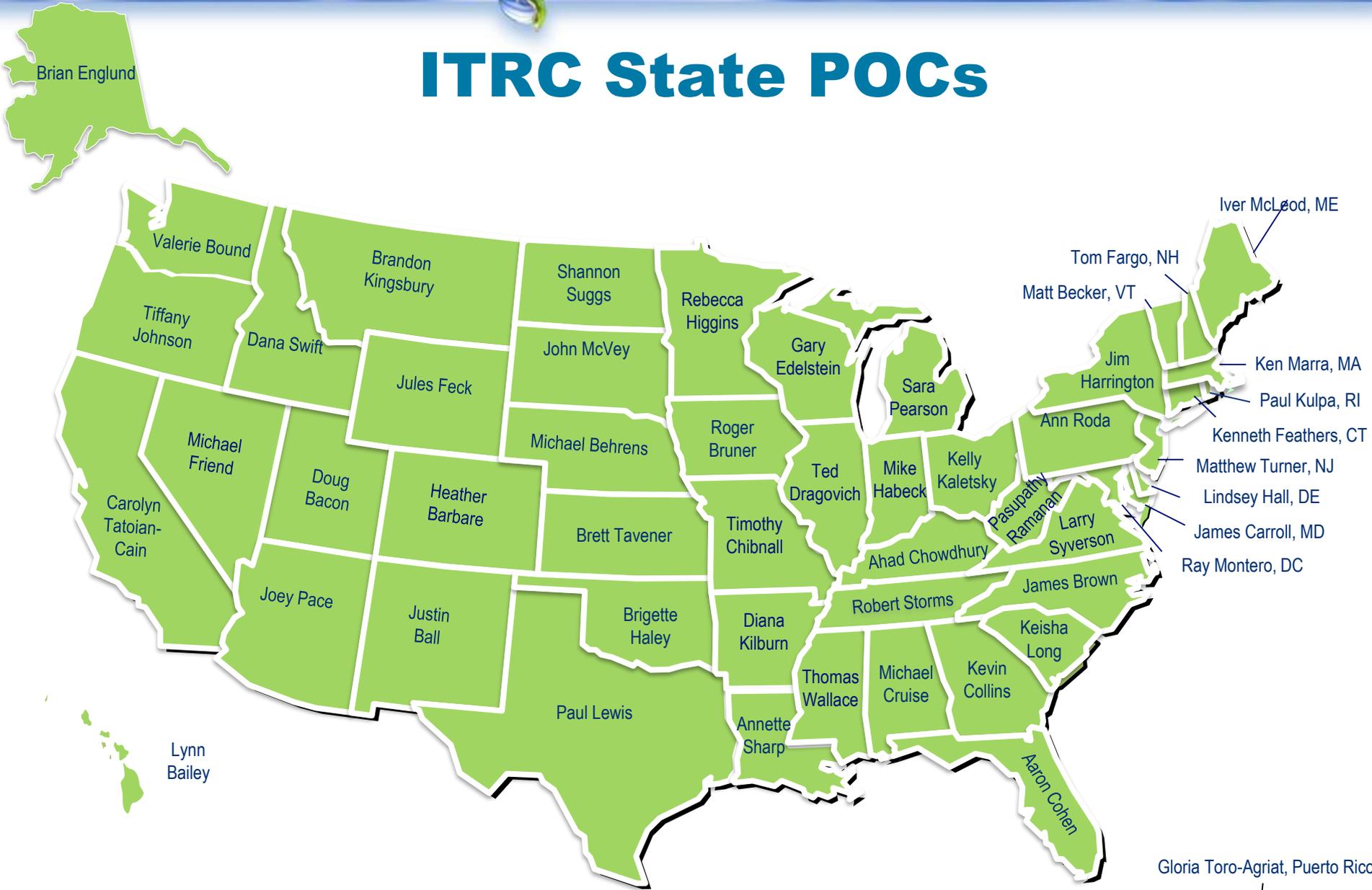
## ITRC Team Members

- Team members write and review the tech-reg guidance document. This required diversity of members brings the best mix of perspective and talent to its products:
  - ◆ **State and federal regulators** understand regulations
  - ◆ Practitioners/consultants (**Industry Affiliates Program**) understand technology and methodology application
  - ◆ **Site owners** are sensitive to cost-effectiveness, environmental performance, and the benefits of regulatory acceptance of good technologies and practices
  - ◆ **Academics** understand the latest research
  - ◆ **Emeritus, public, and tribal stakeholders** understand the interests and concerns of their constituencies, and ensure that technologies and approaches provide claimed environmental and social benefits.

# ITRC State Points Of Contact (POC)

- Primary day-to-day communication link between ITRC & states
  - ◆ Ensure two-way communication between their state and ITRC
  - ◆ Serve as state's implementation leader of ITRC tools & resources
- Provide input of state interest in future ITRC project areas:
  - ◆ Submit state priorities and emerging issues
  - ◆ Develop proposals for potential projects
  - ◆ Indicate expected level of state involvement in ITRC proposals
- Provide state input for increasing the usability/ quality of ITRC products
  - ◆ Recruit team members and team leaders
  - ◆ Respond to surveys
  - ◆ Provide state input on draft documents
  - ◆ Participate in training dry runs

# ITRC State POCs



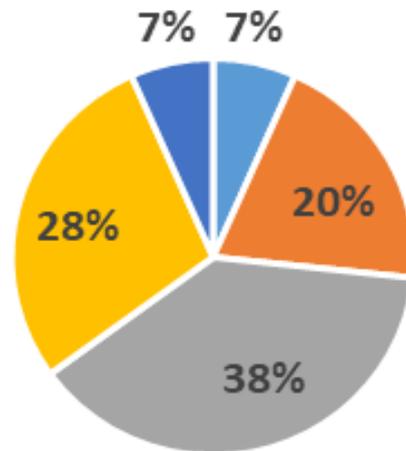
Doug Bacon, State Engagement Coordinator (UT)  
Matt Placky, State Engagement Program Advisor (NJ)

# Working Towards Consensus

- Consensus is an agreement reached by the group as a whole.
- Steps to achieving consensus:
  - ◆ Identify the issue to be addressed.
  - ◆ Openly discuss the issue.
  - ◆ Identify concerns of team members.
  - ◆ Resolve concerns.
  - ◆ Ask that team members affirm the result of the consensus.
- Achieving consensus avoids major (and expensive) re-work of the document.

# Team Composition – 58 Members

Methane Team Percentages by Category



- Academia = 3
- Private Sector = 22
- Public Stakeholders = 4
- Federal Government = 11
- State Government = 15

# ITRC Methane Team - Background

- ◆ Oil and gas (O&G) sector rapidly changing and in the spotlight as public becomes aware and concerned of danger from methane emissions
- ◆ Natural gas leaks contribute and detection understandably comes into sharper focus
- ◆ Current development of wide ranging state-of-the-art technologies for detecting/quantifying from O&G and natural gas production and the natural gas supply chain.
- ◆ Includes extremely sensitive and low-cost optical and chemical sensing devices.
- ◆ But currently no standard methodology to evaluate the performance of these new technologies.

# ITRC Methane Team Tasks

The Methane Team is tasked with:

- ◆ Developing a standardized evaluation methodology for innovative methane-detection technologies
- ◆ Assessing the performance of these methane detection technologies and regulatory barriers hindering the use of a standardized evaluation methodology
- ◆ Evaluation methodology will be developed via a consensus process and documented in a **web-based Technical-Regulatory (Tech Reg) document**
- ◆ Document will broaden/deepen technical knowledge and expedite quality regulatory decision-making while protecting human health and the environment
- ◆ Will also result in a central repository of information for use by professions from all sectors

# Tech Reg Document Goals

- ◆ To provide an overview of existing and developing technologies and guidance on performance characteristics and parameters to consider in technology evaluation
- ◆ To enable regulators, facility owners and operators to **evaluate, compare, and select suitable technologies** that **detect and quantify methane emissions** for compliance with existing and forthcoming methane emission (leak) regulations, monitor inventories, and enhance safety
- ◆ Will conclude with lessons learned and discussion of tribal and stakeholder concerns

# Tech Reg Document Elements

- ◆ Evaluate sources of fugitive methane within the oil and gas industry (characterization of emission types and rates)
- ◆ Research existing & proposed regs (local, state, federal) on methane leak detection and repair programs (LDAR) including regulatory barriers to use of types of detection technologies
- ◆ Create framework for evaluation of technologies, including metrics for assessing primary and secondary data quality. Technology equivalence determination included
- ◆ Develop approach so existing commercially offered technologies comparable to those being developed.
- ◆ Compare by result type, data type, time period covered in a measurement, size, working distance, deployment method, relative cost, measurement limitations, as well as other features such as safety, interferences, durability, and other ancillary benefits.

# Tech Reg Document

- ◆ Use the EPA Greenhouse Gas Inventory (GHG) for Natural Gas Systems and Petroleum Systems to characterization of emissions

<b>Source (GHG Inventory)</b>	Natural Gas Systems (3-47)											
<b>Stage (GHG Inventory)</b>	Field Production					Processing	Transmission & Storage				Distribution	
<b>Natural Gas Supply Chain</b>	Drilling	Well Completion	Producing Wells	Gathering Lines	Gathering & Boosting Compressors	Gas Processing Plant	Transmission Compressor Stations	Transmission Pipeline	Underground Storage	Distribution Mains/Services	Regulators & Meters	
<b>Segment (Subpart W)</b>	Onshore Production			Onshore Gathering & Boosting		Onshore Natural Gas Processing	Onshore Transmission Compression	Onshore Natural Gas Transmission Pipeline	Underground Natural Gas Storage	Distribution		

<b>Source (GHG Inventory)</b>	Petroleum Systems (3-37)							
<b>Stage (GHG Inventory)</b>	Production Field Operations (Table A-127)						Crude Oil Transportation	Refining
<b>Petroleum Supply Chain</b>	Drilling	Well Completion	Producing Wells	Gathering Lines		Crude Oil to Refineries		
<b>Segment (Subpart W)</b>	Onshore Production				Onshore Gathering & Boosting			

# Conclusions

- ◆ Still a work in progress; anticipate rolling out online version mid to late 2018 with presentations at conferences. ITRC dedicated to training and sharing of information to all.
- ◆ Check out the ITRC website for further information and updates on this and other projects.
- ◆ <http://itrcweb.org/>