



# REMEDIATION ROUNDTABLE

May 13, 2014



Connecticut Department of Energy and Environmental Protection

[www.ct.gov/deep/remediationroundtable](http://www.ct.gov/deep/remediationroundtable)

# Agenda

- Various Updates
- 2014 Legislative Session Wrap Up
- Connecticut PCB Requirements
- QA/QC Survey Results on the Reasonable Confidence Protocols (RCPs)
- Break Out Discussion Groups on potential Wave 2 RSR Amendments



# Updates

- February - [Draft Technical Impracticability Guidance](#) posted
  - Public meeting occurred April 8, 2014 and comments were due May 2, 2014
- March - Selected Risk Evaluation Proposal has been posted on the new [Risk-Based Decision Making](#) webpage. The March 12, 2014 public meeting presentation is also posted
- April - [Public Discussion Draft for Direct Exposure Criteria for Passive Recreation](#) posted
  - Deadline for comments for all seven draft discussion documents is May 30, 2014



# Background Work Group

## Goal: Guidance document for determining background conditions

Participation would involve regularly scheduled meetings  
Length and frequency determined by the group

If you would like to participate drop your business card in box if you did not already sign up via email

Participants will be notified of their selection the week of May 19th by DEEP Staff and to schedule first meeting



# Questions / Comments

Please state your name and  
speak loudly

Submit comments to

[DEEP.remediationroundtable@ct.gov](mailto:DEEP.remediationroundtable@ct.gov)

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# 2014 LEGISLATIVE REVIEW

ROBERT BELL  
ASSISTANT DIRECTOR  
REMEDIATION DIVISION



Connecticut Department of Energy and Environmental Protection

# Questions / Comments

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speak loudly.

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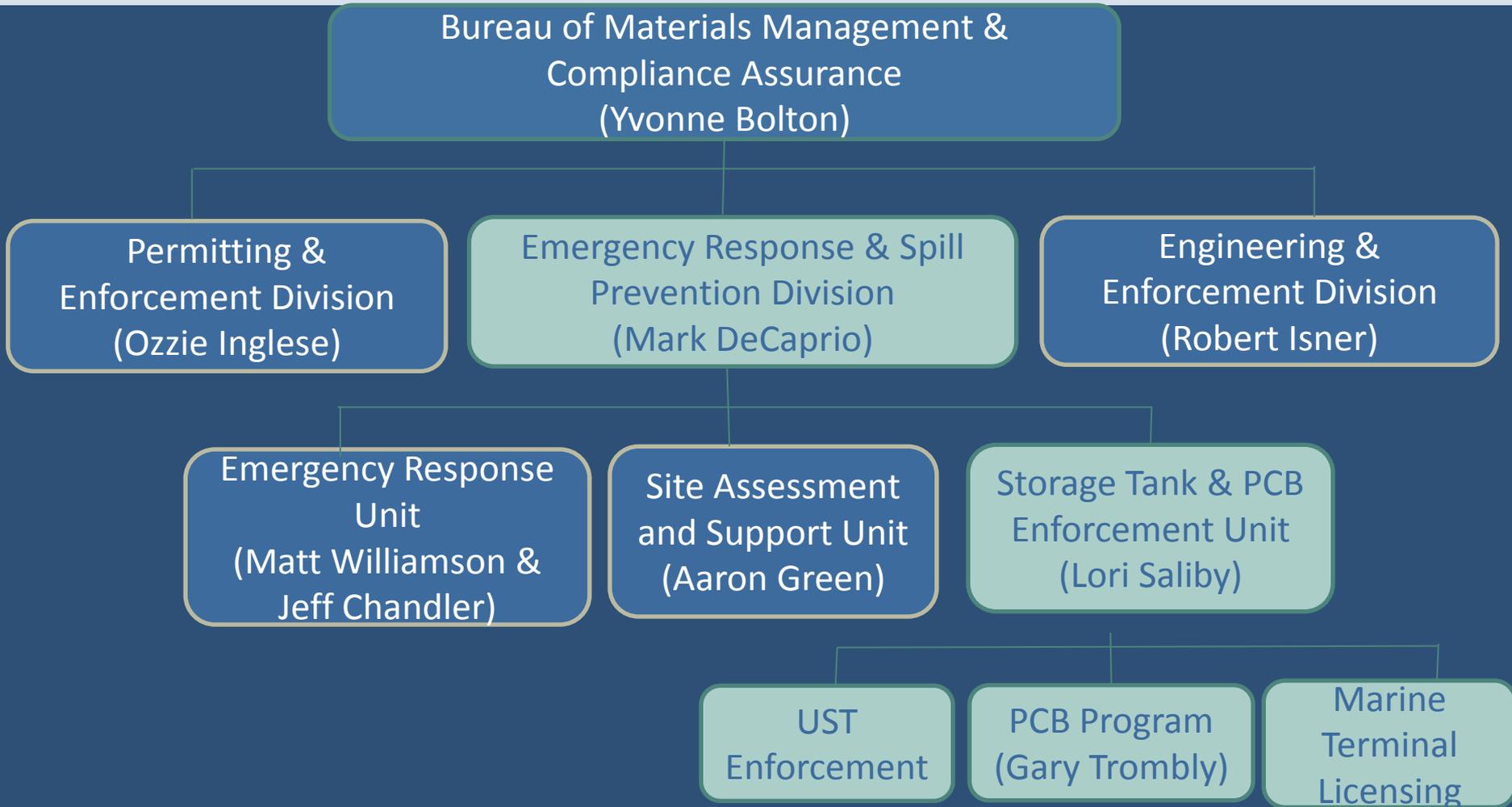
# CT PCB Requirements

LORI SALIBY  
SUPERVISING ENVIRONMENTAL ANALYST  
MATERIALS MANAGEMENT AND  
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Connecticut Department of Energy and Environmental Protection

# Organization



# PCB Program Staff

Gary Trombly (860) 424-3486  
Environmental Analyst 3  
PCB Coordinator

Janet Kwiatkowski (860) 424-3330  
Environmental Analyst 2  
PCB Field Operations

Main Line (860) 424-3368



# Frequently Asked Questions

- Is there a particular concentration or PCB threshold I should be aware of?
  - Prior to the determination of any threshold, at a minimum, the following must be taken into account if PCBs are detected at any concentration;
    1. All efforts must be made to determine the original PCB source and the original source concentration
    2. What is the future use of the location?
    3. Is it a remediation waste by definition in TSCA?



# Frequently Asked Questions

- What types of analysis should be run for PCBs?
  - PCB analysis would depend on the media impacted by the release
  - Aroclor vs. homolog/congener
- If total PCBs by aroclor is  $< 1\text{mg/kg}$  do I have to run SPLP?
  - No. If PCBs are  $< 1\text{ mg/kg}$ , testing by TCLP/SPLP is not required to comply with the PMC



# Analytical Requirements

SW-846 Method	Matrix	Description
3542	Air Samples	Extraction of Analytes Collected Using a Modified Method 5 Sampling Train
3510C	Aqueous	Separatory Funnel liquid-Liquid Extraction
3520C	Aqueous	Continuous Liquid-Liquid Extraction
3511	Aqueous	Organic Compounds in Water by Microextraction
3540C	Soil/Sediment	Soxhlet Extraction
3541	Soil/Sediment	Automated Soxhlet Extraction
3545A	Soil/Sediment	Pressurized Fluid Extraction (PFE)
3546	Soil/Sediment	Microwave Extraction
3570	Soil/Sediment	Microscale Solvent Extraction (MSE)
<b>3550C</b>	Contaminated Solids <sup>1</sup>	Ultrasonic Extraction
3580A	NAPL	Solvent Dilution

1) Sonication may only be used for the extraction of Highly contaminated (free Product non-soil/sediment (debris). Any other use of ultrasonic extraction is not allowed

2) SW-846 method 3540C Soxhlet extraction is the only method accepted by BOTH the EPA and CTDEEP



Connecticut Department of Energy and Environmental Protection

LORI SALIBY

# TSCA PCB Remediation Waste

- Waste containing PCBs as a result of a spill, release, or other unauthorized disposal that are currently at concentrations >50ppm PCBs regardless of the concentration of the original spill and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use
  - ✓ What is an authorized use? (Find out at 40CFR761.30)
- Notification under federal Self-Implementing (40CFR761.61(a)) should be made to Gary Trombly and Kim Tisa
- Risk-based (40CFR761.61(c)) requires federal approval (Kim Tisa) and may require state review of risk assessment/eco-risk assessment



# PCB Facts

- Commercial manufacture started in 1930
- Monsanto sole U.S. producer - 1.25 billion pounds
- Suitable for many industrial uses
- Toxicity and water solubility related to degree of chlorination
- Fires - a particular concern - Combustion reaction
- Regulated by Federal (TSCA) & State Statute (DEEP)



# PCB Trade Names

Generic Name Askarel			
TRADE NAME	USER	TRADE NAME	USER
ALC	Uptegraff	Aroclor	Monsanto
Asbestol	American	ASK	Queensboro
Capacitor 21	Monsanto	Chlorextol	Allis-Chalmers
Chlorinol/Clorinol	Sprague Electric	Clophen	Bayer
Diaclor	Sangamo Electric	Dykanol	Cornell Dubilier
EEC-18	Niagra	EEC-18	Power Zone
Elemex	McGraw Edison	Eucarel	Electrical Util. Corp.
Hyvol	Aerovox	Inclor	Caffaro
Inerteen	Westinghouse	Magvar	General Electric
MCS 1489	Monsanto	Non-Flammable Liquid	ITE
No-Flamol	Wagner	Pydraul	Monsanto
Pyranol	General Electric	Pyroclor	Monsanto
Saf-T-Kuhl	Kuhlman Electric	Santotherm	Monsanto
Santovac 1 & 2	Monsanto	Therminol	Monsanto

# Common Uses of PCBs

- Dielectric Fluid
- Carbonless Copy Paper
- Plasticizers/Rubberizers
- Inks/Dyes
- Paints
- De-dusting Agents
- Lubricants
- Heat Transfer Fluid
- Electromagnets
- Space Heaters
- Fluorescent Light Ballasts
- Caulking/Grout
- Wood-floor sealants
- Compressor Oil/ Natural Gas Pipeline
- X-Ray Equipment
- Submersible Well Pumps
- Oil-filled Radio Equipment
- Asphalt Roofing Materials/Tar Paper
- Adhesives
- Insulating Coatings
  - Military applications
  - Mixed with Asbestos
- Wax Extenders
- Waste Oil



# Connecticut PCB Program

- Not delegated
- Act as agents for EPA to assess compliance with federal requirements through a contract with EPA – issued federal credentials
- Act also as agents of the Commissioner of DEEP to assess compliance with state requirements



# Waste that is not a Remediation Waste

- Per Connecticut requirements, it does not matter whether PCB contamination meets the definition of a federal PCB Remediation Waste

★ PCB >1ppm is subject to Connecticut requirements ★



# Connecticut PCB Statutory Requirements

- PCBs are regulated at all concentrations, not only 50ppm and above
- Effect of Pre-emption
- CGS Sec. 22a-463 through 22a-469a



# Health Effects Associated with PCBs

- The higher the degree of chlorination, the higher the toxicity
- WHO Congeners & Dioxin Reassessment
- Cancer: liver, skin, kidney, reproductive
- Non-Cancer: immune effects, reproductive effects, neurological effects, endocrine effects, liver & skin effects



# PCB Issues Frequently Encountered in The Field

- Evidence of spills or leaks of PCBs from any source
- Off-line or abandoned equipment - even if no leaks
- Storage of PCB items, waste or debris
- Disposal (dumping) contaminated soil, items, and other articles
- Storage or dumping of PCB light ballasts
- Submersible well pump failures

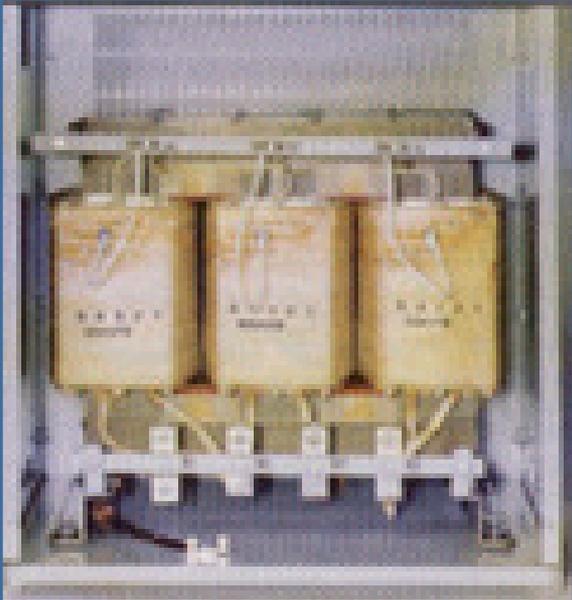
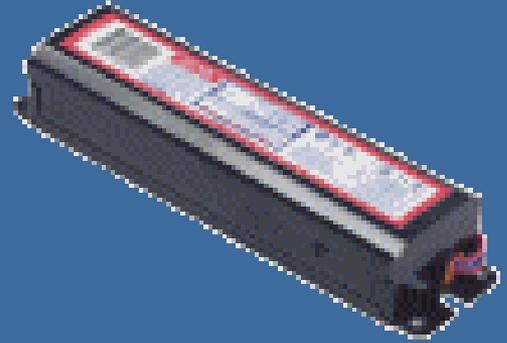


# Leaking Large Capacitors





# Small PCB Capacitors



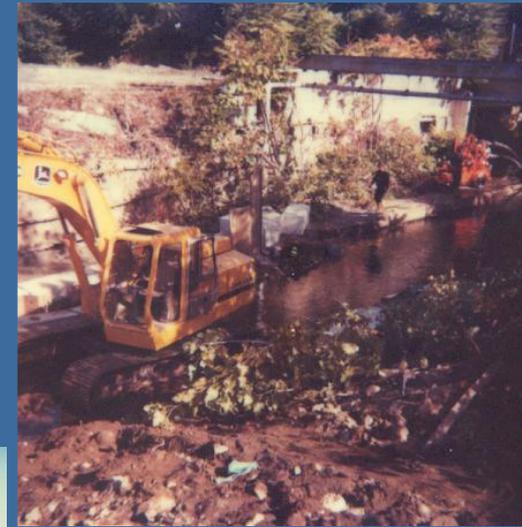
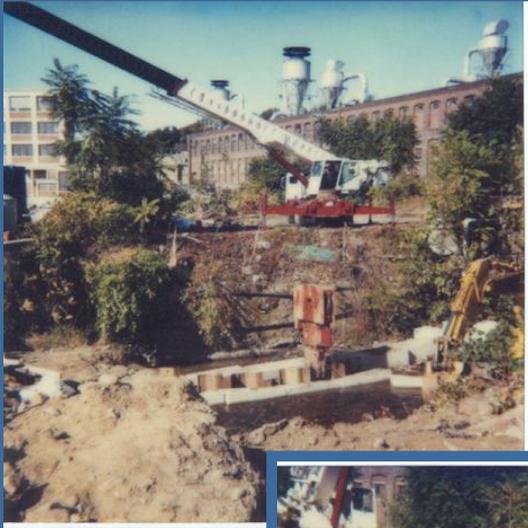
# Fluorescent Light Ballasts



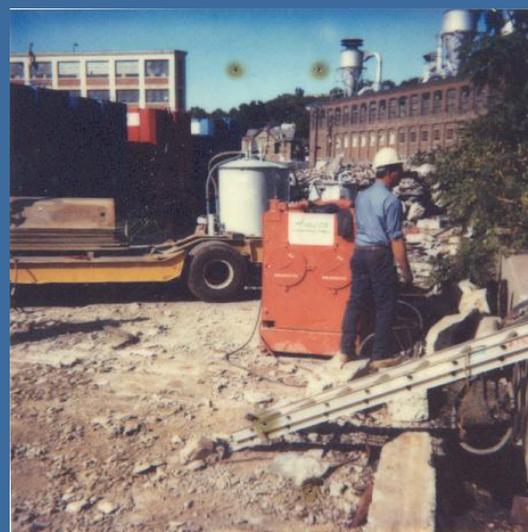


**AOC -  
transformer  
with leak**

# Single Transformer Spill



Entered a catchbasin leading to a nearby river



Diverted river to facilitate cleanup

# CT Remediation Standard Regulations

## Direct Exposure Criteria (DEC)

- Residential – 1ppm
- Industrial/Commercial – 10ppm
- Only substance with criteria for inaccessible soil (10ppm)
- Contrast with federal high & low occupancy; remedial options

## DEC Inaccessible Soil (22a-133k(a)(28))

- More than four feet below surface
- More than two feet below 3-inch paved surface
- Beneath an existing building
- Beneath other permanent structure approved by the commissioner



# CT Remediation Standard Regulations

## Electrical Substations

- Unlabeled 25ppm
- Properly Labeled 50ppm

## Other Restricted Access (non substation) locations

- As defined by 40 CFR 761.123
- Must also meet the definition of a residential/commercial area as stated in the definition of the other restricted access location.
- 10ppm in soil with ELUR
- 25ppm if rendered inaccessible



# CT Remediation Standard Regulations

## Pollutant Mobility Criteria

- GA PMC - 0.5ppb (SPLP)
- GB PMC – 5.0ppb (SPLP)

## Groundwater Protection Criteria

- GA Groundwater 0.5ppb

## Sediments

- Clean-up Levels are site/ecosystem specific



# Soil Re-use and ELUR vs. TSCA Deed Notice

## Soil Reuse (22a-133k-2(h)(3))

- Location of reuse documented with map(s) submitted to the Commissioner
- Soil not placed below the water table
- Soil not placed in an area subject to erosion
- Soil can not be placed over soil not affected by a release (anti-degradation policy)
- For PCBs, Commissioner must issue written approval
- Soil handling may also be subject to General Permit for Contaminated Soil and/or Sediment Management



# Soil Re-use and ELUR vs. TSCA Deed Notice

## ELURs are more restrictive than DEED Notices

- Class A-2 Survey of Parcel
- Description of any Engineered Controls
- Subordination documentation
- Public notice requirements
- Decision Document

ELUR will meet the EPA DEED notice requirements



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LORI SALIBY

# Engineered Controls/Caps – CT vs. TSCA

## Permeability

- CT DEEP RSRs require  $10^{-6}$
- EPA requirements are  $10^{-7}$

CT RSRs require an Engineered Control Variance on any soil left in place at >10ppm, except

- Other restricted access locations
- Electrical substations



Questions / Comments  
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Connecticut Department of Energy and Environmental Protection

# RCP Survey Results

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ENVIRONMENTAL ANALYST 2  
REMEDIATION DIVISION

ALLISON FORREST  
ENVIRONMENTAL ANALYST 2  
SITE ASSESSMENT AND SUPPORT UNIT



# QA/QC Workgroup

- These surveys were developed by the QA/QC Workgroup
- The QA/QC Workgroup is formed by a broad base of professionals:
  - LEPs
  - Laboratory personnel
  - DPH Laboratory Manager & Staff
  - EPA
  - DEEP
  - CT Lab Advisory Committee



# Pre-RCP Laboratory QA/QC Practice

- QA/QC practices vary widely by laboratory
  - Undocumented QA/QC practices.
  - Inconsistency in QA/QC deliverables.
  - Inconsistency in laboratory performance.
- Often laboratory data did not meet intended use due to wrong compound list, incorrect method employed, reporting limits too high, etc.
- “Some laboratories fall short in quality and/or integrity,”  
Chemical and Engineering News, April 1, 2002.



# Reasonable Confidence Protocols

On November 2007,  
the RCPs were established to improve  
the quality and consistency of analytical data  
used to support environmental investigation  
and remediation projects statewide.



# CTDEEP Expectations Regarding Analytical Data Quality

- Analytical data used for environmental investigation and remediation projects must be of a known and sufficient level of quality.
- The environmental professional has the responsibility to evaluate the usability of the data in relation to the intended purpose.



# Why Two RCPs Surveys?

- DEEP needed input from the users of the RCPs in order to make informed decisions regarding updates.



LEPs

## – LEP Survey

- 82 people started and 64 finished the entire survey

LABs

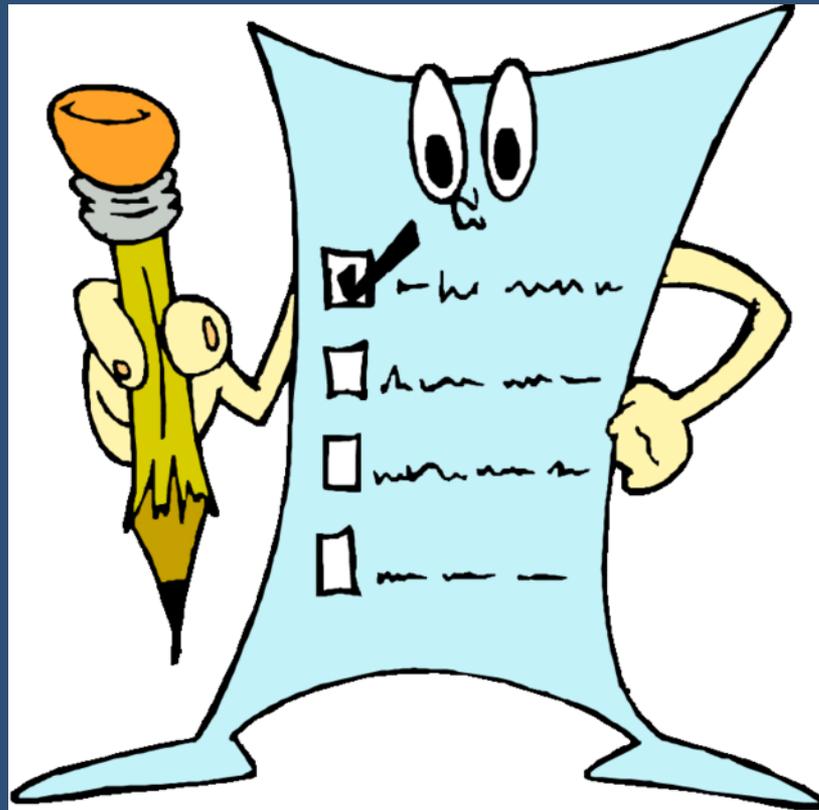
## – Laboratory Personnel Survey

- 17 people started and 9 finished the entire survey
- Sample Representativeness



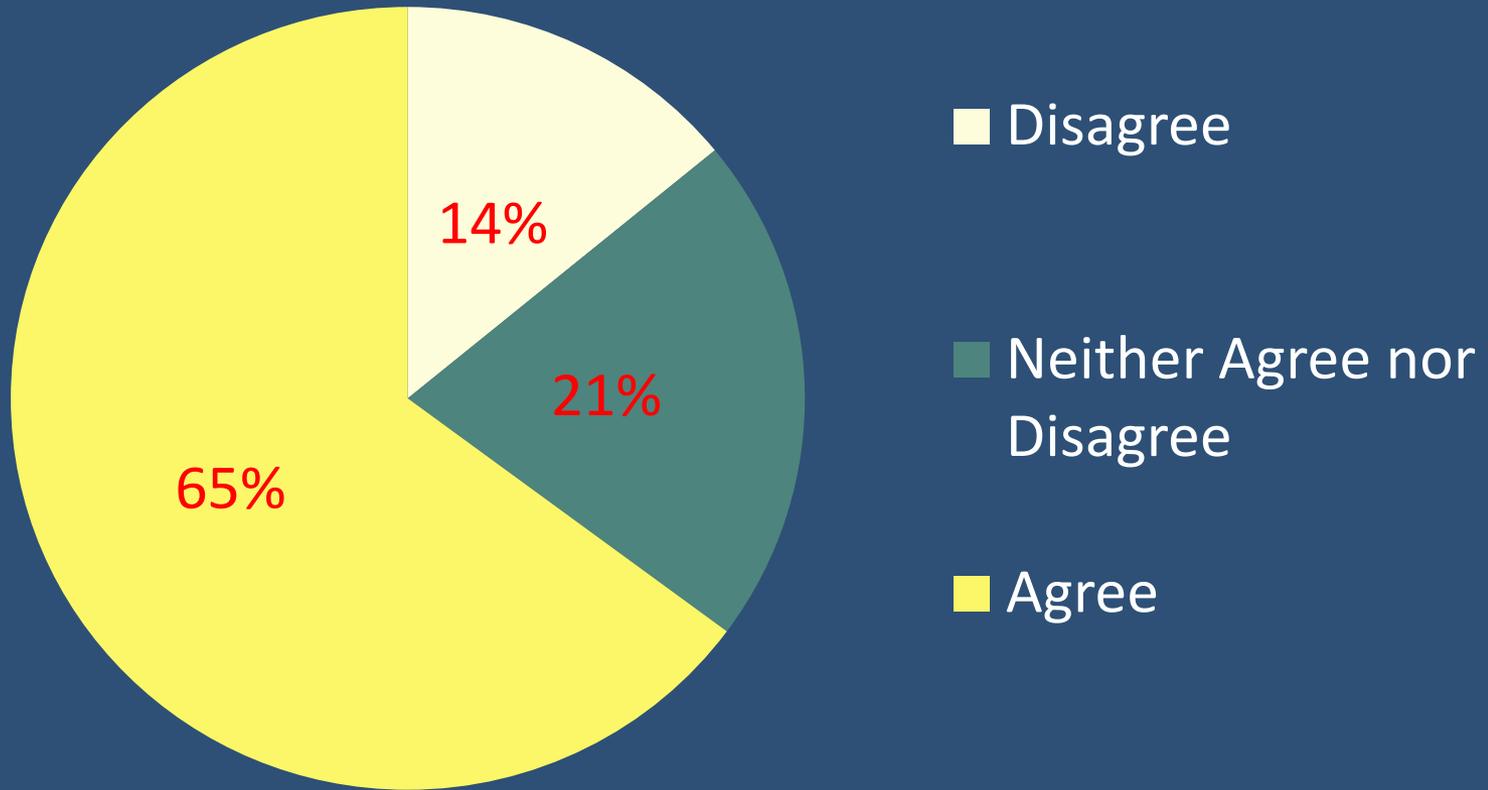


# Highlights of the LEP Survey





# Do RCPs Provide Data of Known Quality?



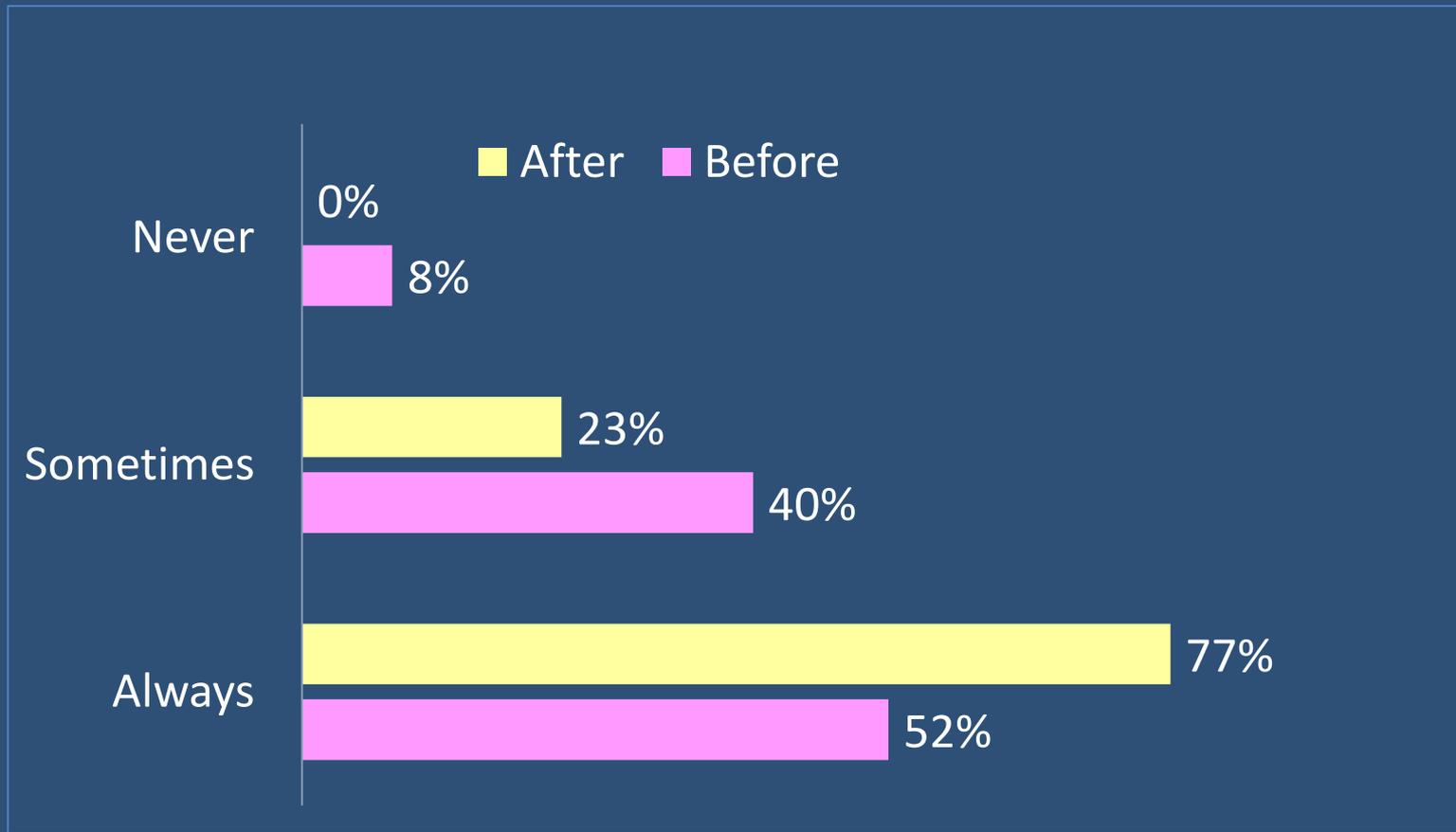
N = 62





# Data Quality Review: Before and After RCPs

Since the RCPs were implemented, more LEPs are performing DQAs/DUEs





# Survey Results

## Communication Between LEPs and Labs

- LEPs report that they often use the Chain of Custody to communicate with laboratories
- Some LEPs have difficulties with understanding the narrative

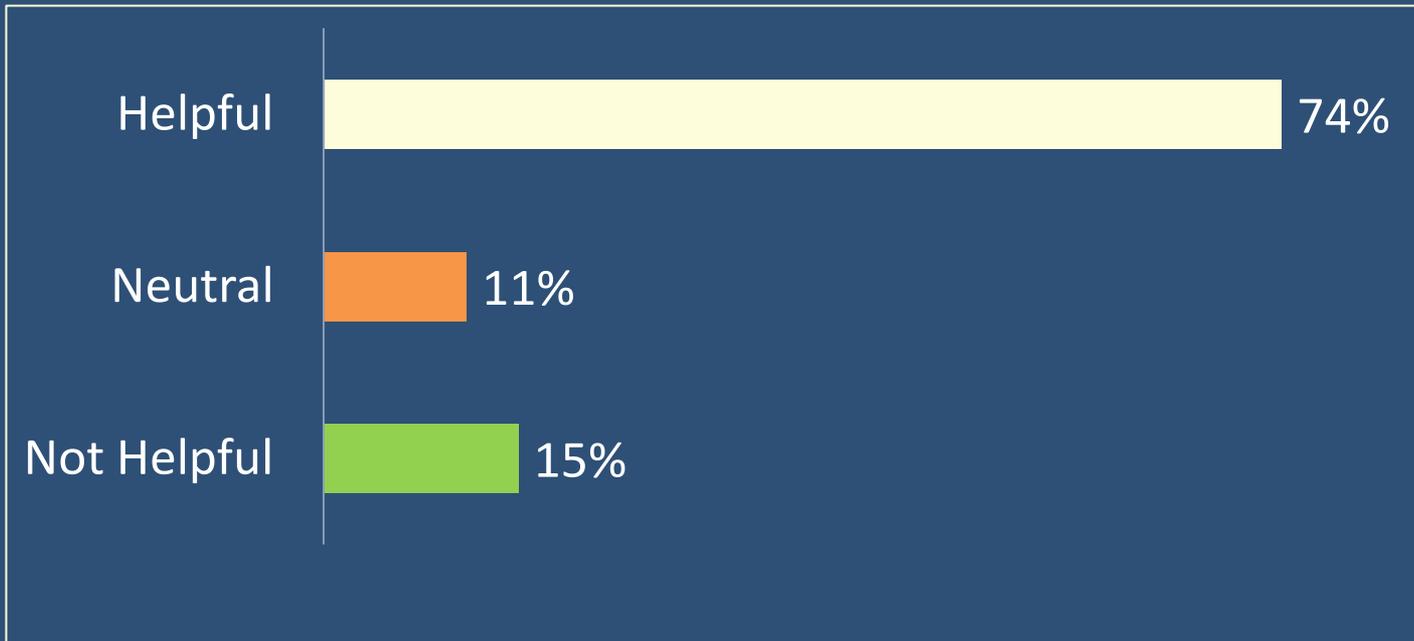




# Laboratory Narrative

The RCPs strongly recommends laboratories to document quality control non conformances in a narrative format.

To what extent is this helpful in reviewing laboratory reports?





# Improvements to the RCPs

- Narrative
  - LEPs prefer more uniformed, standardized, and concise
- DQA/DUE Process
  - LEPs prefer to streamline review process and documentation



# Costs

- Depends on the laboratory
  - LEPs reported that some laboratories had increased the charge for analysis by 5-15%
  - LEPs reported that some laboratories had no increase in cost of analysis

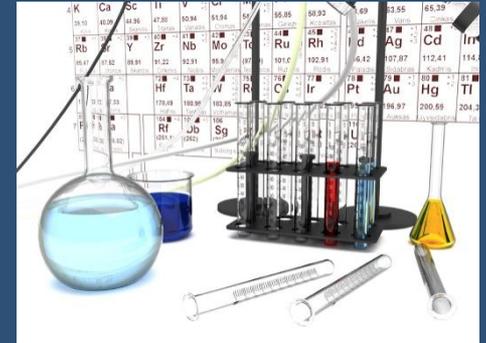
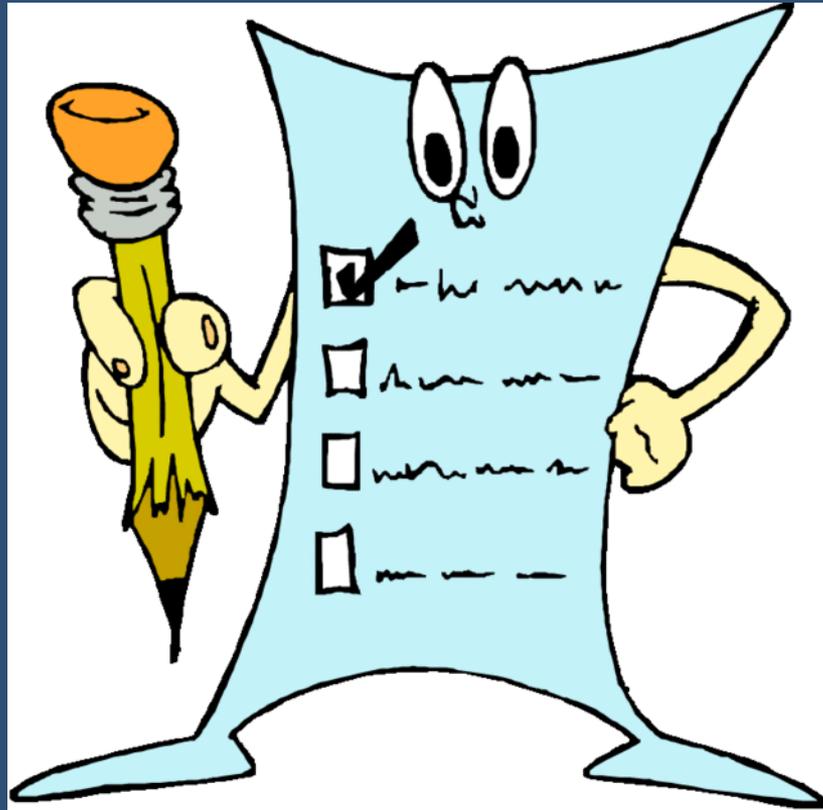


# Training

- There is an interest in training for the following topics:
  - Application of RCPs
  - DQA/DUE
  - RCPs laboratory issues



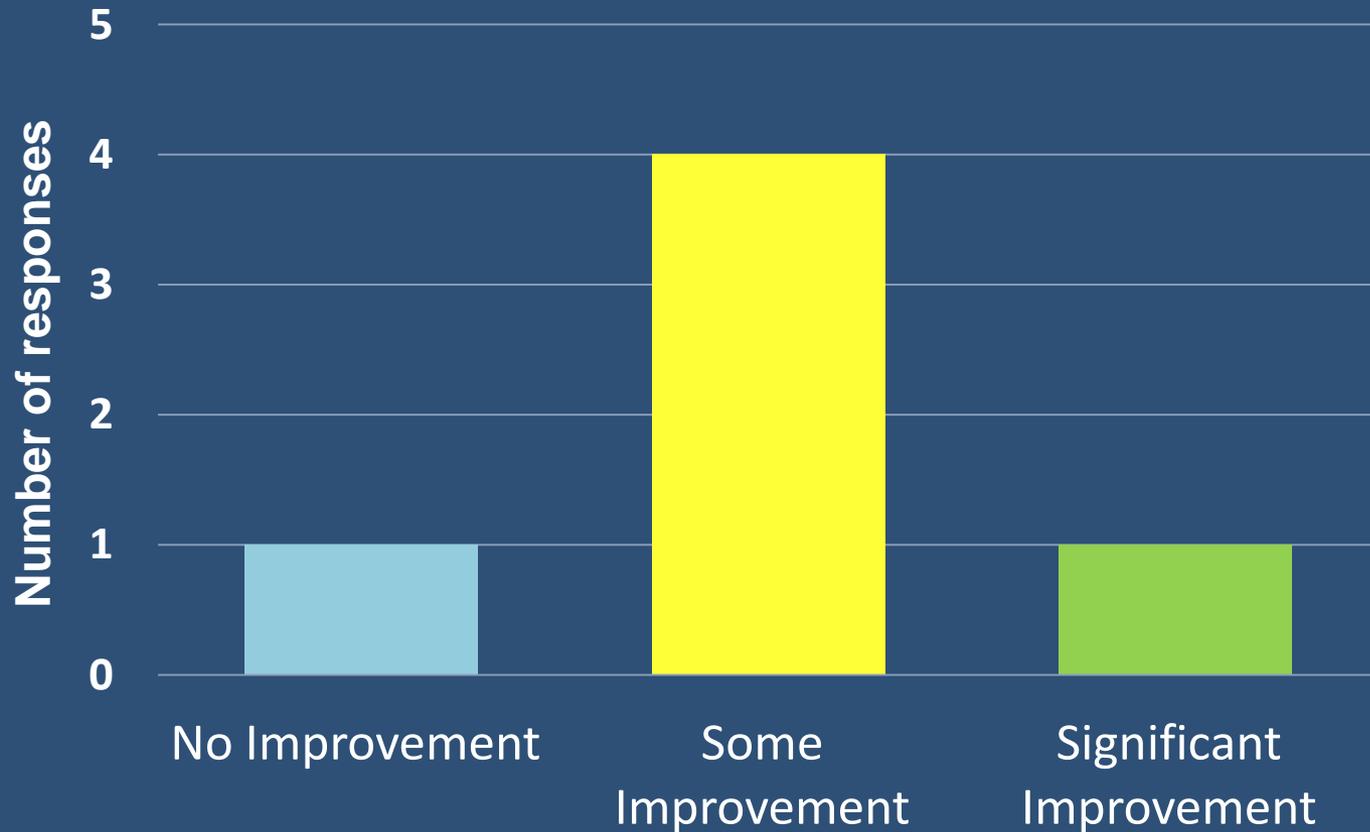
# Highlights of the Laboratory Personnel Survey



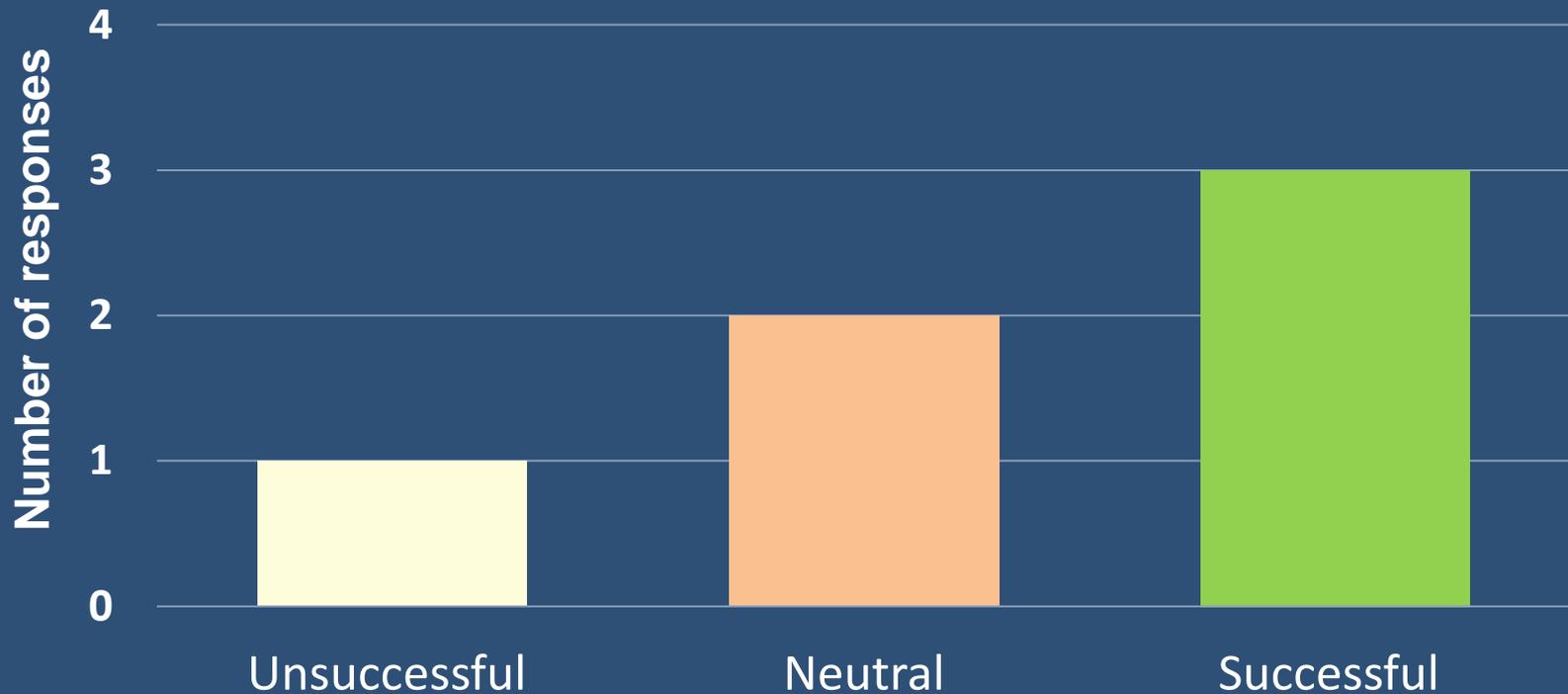
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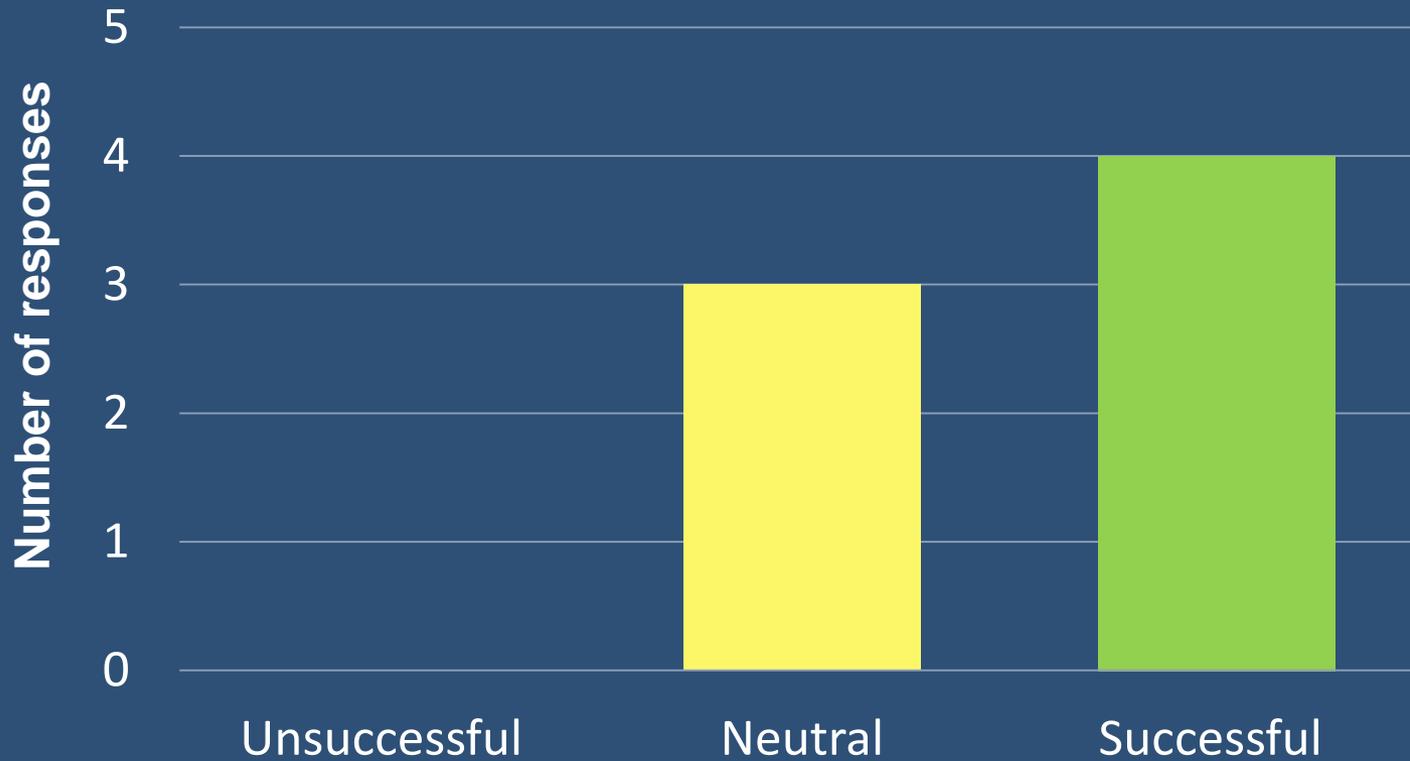
# Have the RCPs improved the quality of laboratory data?



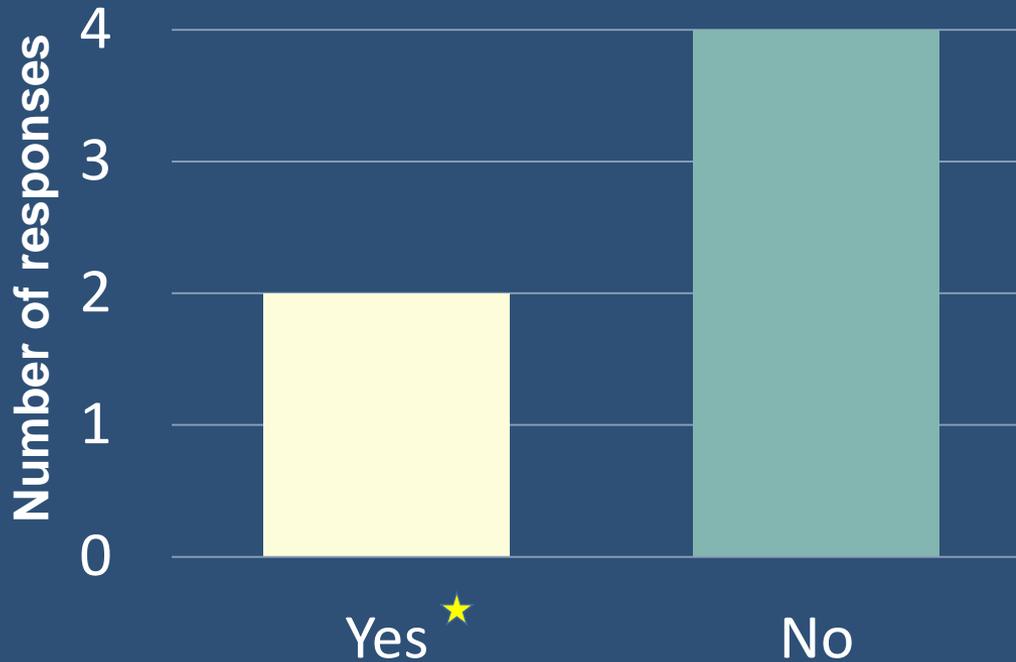
# Have the RCPs been successful at reporting data of known quality?



# Are the RCPs successful at standardizing methodologies, reporting limits, and establishing minimum quality control criteria?



# Do laboratories have difficulties implementing the RCPs?



- ★ Laboratories difficulties:
  - Initially: Developing and Implementing RCPs
  - Continuing: Training of laboratory staff and helping with client understanding of narratives



# Communication Between LEPs and Laboratories (Laboratory Perspective)



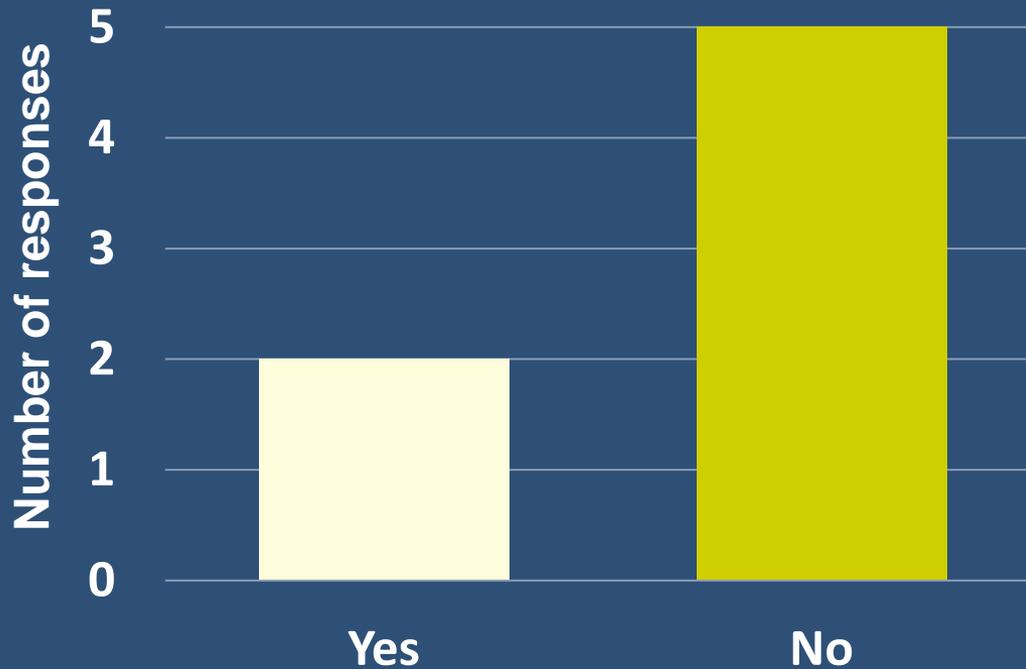
- Overall the laboratories do not often receive the laboratory communication form
- Sometimes the laboratories have trouble determining what the LEPs need



# Lab Charges



Does your laboratory charge extra for the RCPs?



# Lab Internal Costs to Perform Analysis and Report Data



- Laboratories that indicated that the RCPs have increased their costs of analysis and reporting expressed that the increase may have occurred because of:
  - Need for additional personnel
  - Additional time needed to process and evaluate reports
  - Additional programming needs



# Training

- There is a strong interest in attending training for:
  - Managing RCPs reporting requirements
  - RCPs Methodologies and Modifications
  - Preparation of Narratives



# Laboratories' Suggestions for Improvements to the RCPs



- The connection between the RCPs and RSRs needs to be clarified (i.e. target analyte lists should match RSR criteria list)
- Clarification that the RCPs reflect current SW-846 practices
- Need to improve the communication between the LEPs and Laboratories



# Conclusions

- There is a general consensus that the RCPs:
  - Are Beneficial
  - Have room for improvement
  - Need to be supported with additional training



# Next Steps

- Revise RCPs to reflect suggestions
  - Training/Education
  - Improve Communications
  - Streamline the DQA/DUE process



# Questions / Comments

Please state your name and  
speak loudly.

Submit comments to

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# BREAKOUT GROUPS

30 Minutes to discuss topic

☀ Things to keep in mind:

- 1- Identify Notetaker
- 2- Identify Reporter
- 3- Keep the Conversation on Track
- 4- Be Mindful of Time
- 5- As always this is not the end of the conversation



# BREAKOUT GROUPS

## REPORT OUT



# Thank you!

Next meeting: August 26, 2014

Schedule and agenda on website  
[www.ct.gov/deep/remediationroundtable](http://www.ct.gov/deep/remediationroundtable)

Submit comments to the Roundtable  
Committee at

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