

# Lean Construction Institute

Building Knowledge in Design and Construction

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# Good 5-Why™ Application in a Design Environment

**LCI Design Forum June 2009**

Good 5-Why is a trademark of Lean Project Consulting (Hal Macomber, [hmacomber@leanproject.com](mailto:hmacomber@leanproject.com))

## What is a Good 5-Why™?

- Root cause analysis – but different
- Stop when and where a variance or problem occurs – whenever one occurs
- Those present explore multiple causes and countermeasures – going wide and deep
- Focus on the issue – not the people
- Take action to improve – right away
- Training developed and delivered by Lean Project Consulting
- Based upon *Training Within Industry* instruction methodologies



## How did we get started?

- Asked team members to call attention to surprises and problems
- Looked for small issues (e.g. plan variances)
- Little complaints are a rich source. “This is the third time I’ve redrawn this detail.”
- “Hey, let’s see what we can learn here.”
- Looked at drawings, calcs, sketches, design guides for clues as we talked
- Focused on how and why, not who and you. Opened the discussion this way.



## What are we seeing?

- Six Good 5-Whys (G5Y™) in 3 weeks led by a CH2M HILL facilitator
- Generated 12 to 25 improvement actions for each G5Y
- About 2/3 of possible actions taken as commitments
- Most actions within team's immediate control
- Predicted improvements 2X to 5X time invested (not counting systemic fixes!)
- System-level causes and improvement actions from every G5Y



## What's it been like?

- Generally very positive experience for participants
- Individual's personal concerns are there in the open. No blame is essential.
- “Ah-ha” moments are common. “You know what? We struggle with this on every job.”
- Free-flowing conversation within a framework
- Compelling. Makes group ready to act.
- What happens after the G5Y is just as important. Build support for improvements.
- Began seeing variances everywhere!



## Overall assessment

- Real power lies in engaging leadership to listen and lead these conversations
- Potential to be an engine of improvement and lean transformation
- Helps tell the story and spread learning to others
- Making it a personal habit will take **work**
- Developing discipline of **check** will be critical

# Good 5-Why facilitator's card

## CONDUCT A GOOD 5 WHY

Our purpose is to learn with others in a way that leads to improving the product, the process or our situation. It is most beneficial before problems occur.

### STEP 1 – PREPARE FOR LEARNING

- Gather at place of variance
- Include everyone who was present
- Include other expertise and experience
- Ensure 100% safety!
- Describe the variance on paper

*Create the mood of curiosity*

### STEP 2 – INVESTIGATE ALL CAUSES

- Investigate many plausible causes
- Go down a level and repeat
- Test logic as you go: Is that so? How do you know?
- Continue down actionable chains
- Re-commit to learning while exploring the issue
- Use questions other than 'why?'

*Go tough on the issue and easy on the people*

### STEP 3 – INSTALL COUNTERMEASURES

- Eliminate the cause every time it is possible
- If you can't eliminate, error-proof
- Identify CMs for each cause as you find them
- Countermeasures can be temporary or permanent
- Consider multiple alternative countermeasures

*Quickly fix until permanent solution can be installed*

### STEP 4 – PLAN FOLLOW-UP ACTION

- Who promises to do what by when?
- Consider wherewithal, authority and timing
- How and when will you check?
- Check for unintended consequences
- Where else are these improvements useful?
- Spread out the learning

*Predict how the countermeasure will alleviate the issue*

MAKE LEARNING EVERY DAY YOUR HABIT

## MAINTAIN A FOCUS ON LEARNING

### GO TOUGH ON THE ISSUE

Have people announce the issue when they see it. Describe issue or variance: the difference between what you expect and what you observe.

Don't be satisfied with getting an answer and taking action. Ask why again and again. Be rigorous. Use 6Ms + E to explore causes:

Man	Material	Environment
Machine	Management	
Method	Metrics	

Explore causes of overburdening and variation  
The answer to "why?" should be likely  
Don't work around the problem  
Foster creativity when exploring issues

### GO EASY ON THE PEOPLE

Respond immediately when someone calls attention to an issue.

Create a good experience for all participants.

Put people at ease; uncomfortable people may be defensive.

Don't blame; create conditions that people are going to tell the truth.

Use leading questions about the scenario to get people talking.

Use follow-up questions throughout to learn even more.

Use questions other than "why?" to fully explore the causes: What? Where? When? and How?

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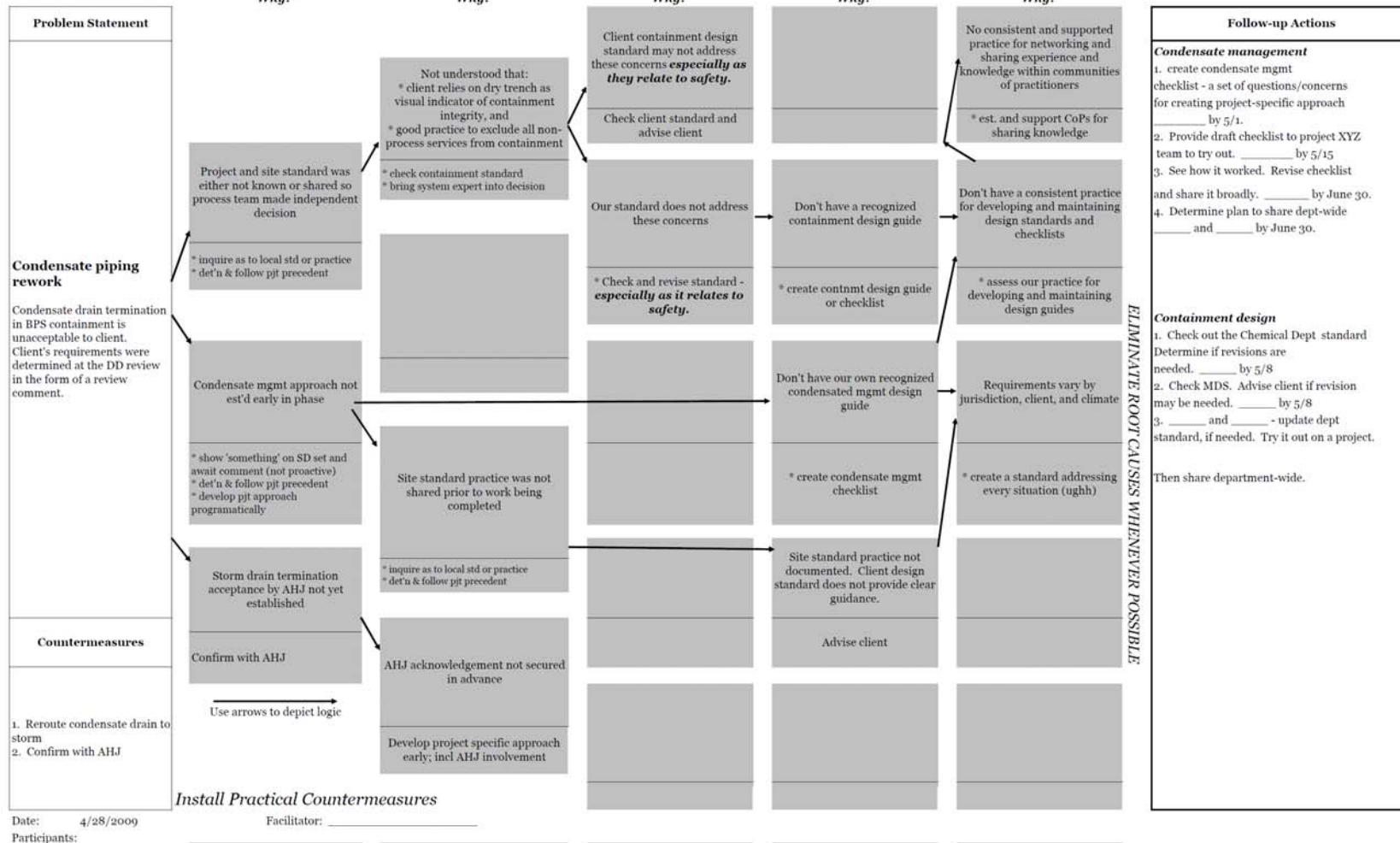


# Example Good 5-Why – piping design rework

## Conduct a Good 5 Why™

Go Tough on the Issue

Go Easy on the People



# Questions

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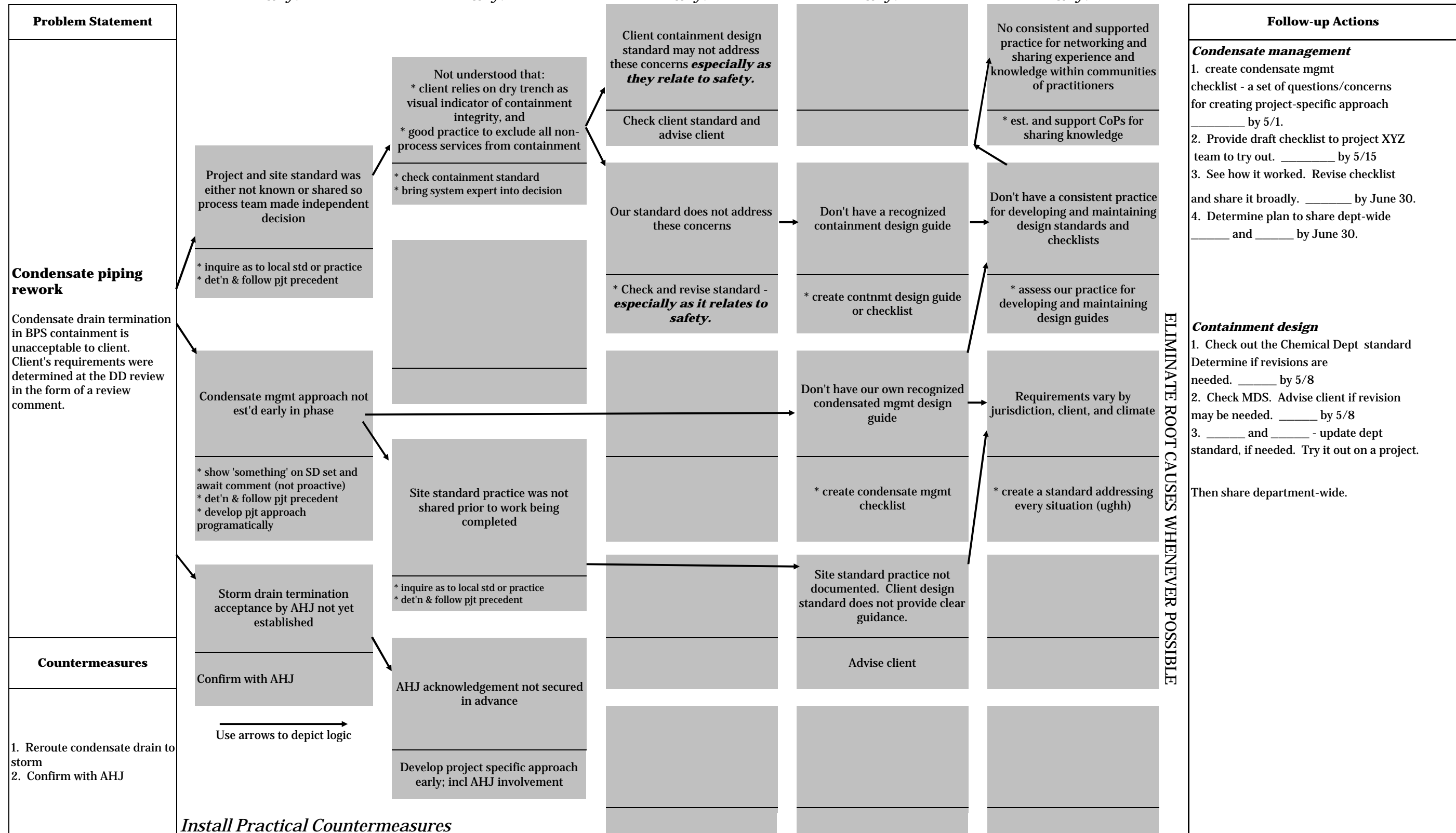
Industrial and Advanced Technology



# Conduct a Good 5 Why™

Go Tough on the Issue

Go Easy on the People



Date: 4/28/2009

Facilitator: \_\_\_\_\_

Participants: \_\_\_\_\_