



# Lean 6-Sigma Program



## ***REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION***

***Scott Hatton***  
**(Project Green Belt)**

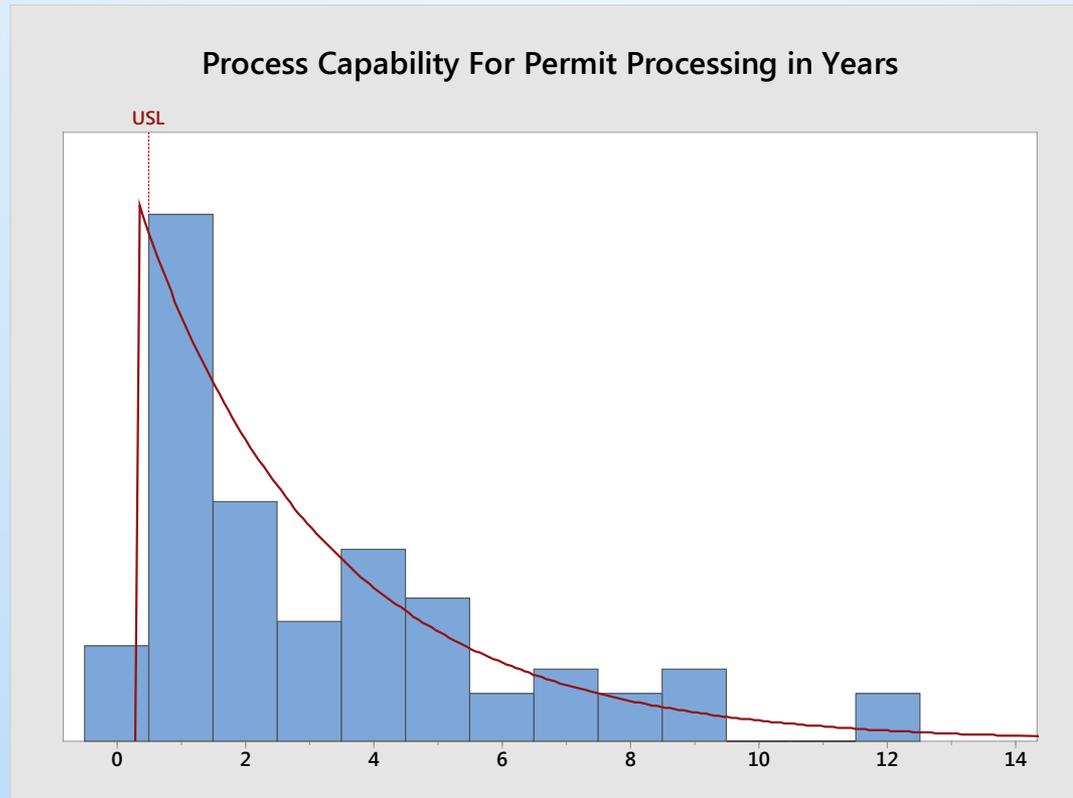
***Andrew Altevogt***  
**(Project Champion and  
Executive Sponsor)**



# *Reduction in Processing Time for Non-15 Waste Discharge Requirement Permits*

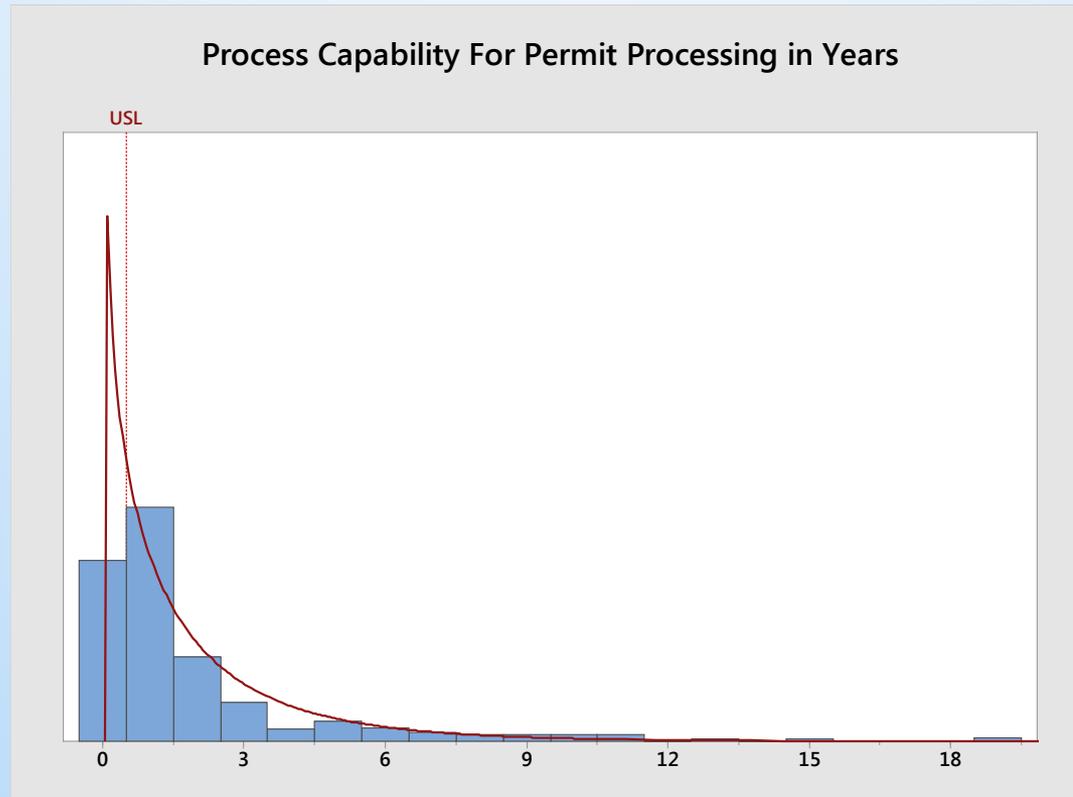
- ❖ **Problem Statement:** *Amount of time to process permit applications is excessive and a significant backlog of permit applications exists*
- ❖ **Objective:** *Reduce the amount of time to process permit applications*
- ❖ **Project Team:**
  - ❖ *Andrew Altevogt – Project Champion and Executive Sponsor*
  - ❖ *Scott Hatton – Project Green Belt*
  - ❖ *Lani Andam – Permitting*
  - ❖ *George Low – Permitting*
  - ❖ *Robin Merod – Permitting*
  - ❖ *Steve Rosenbaum – Compliance and Enforcement*
  - ❖ *Patrick Pulupa – Attorney*
  - ❖ *Nathan Jacobsen - Attorney*

# Baseline Capability – High Complexity Discharge



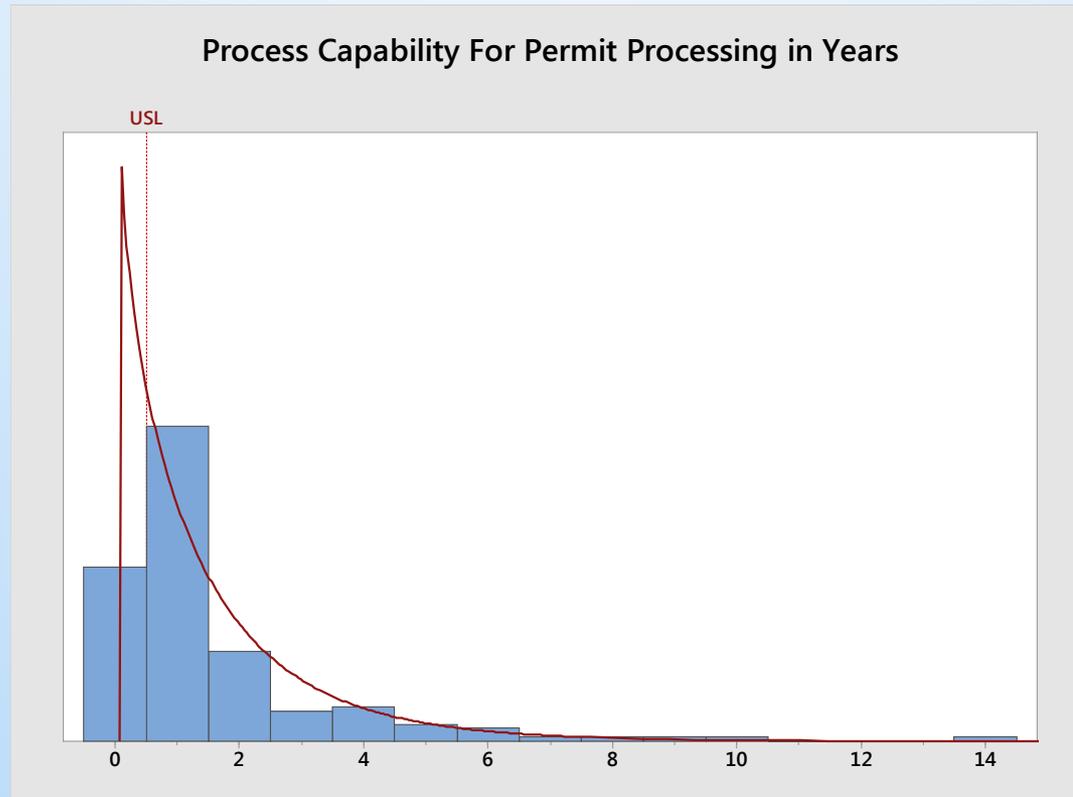
- ❖ Sample Size = 67 permits; Sample Mean = 3.2 years
- ❖ Sample Max = 12.5 years
- ❖ % Within Spec = 22%

# Baseline Capability – Medium Complexity Discharge



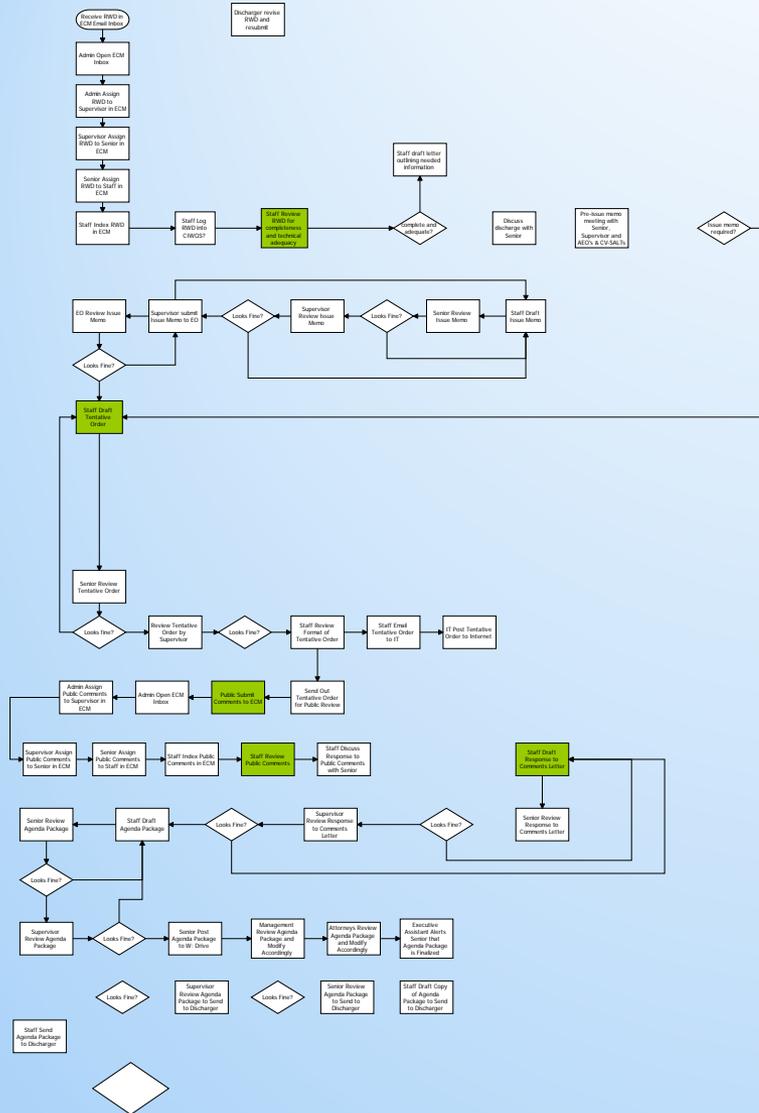
- ❖ Sample Size = 367 permits; Sample Mean = 1.9 years
- ❖ Sample Max = 19 years
- ❖ % Within Spec = 29%

# Baseline Capability – Low Complexity Discharge



- ❖ Sample Size = 163 permits; Sample Mean = 1.6 years
- ❖ Sample Max = 13.8 years
- ❖ % Within Spec = 25%

# Initial Process Map

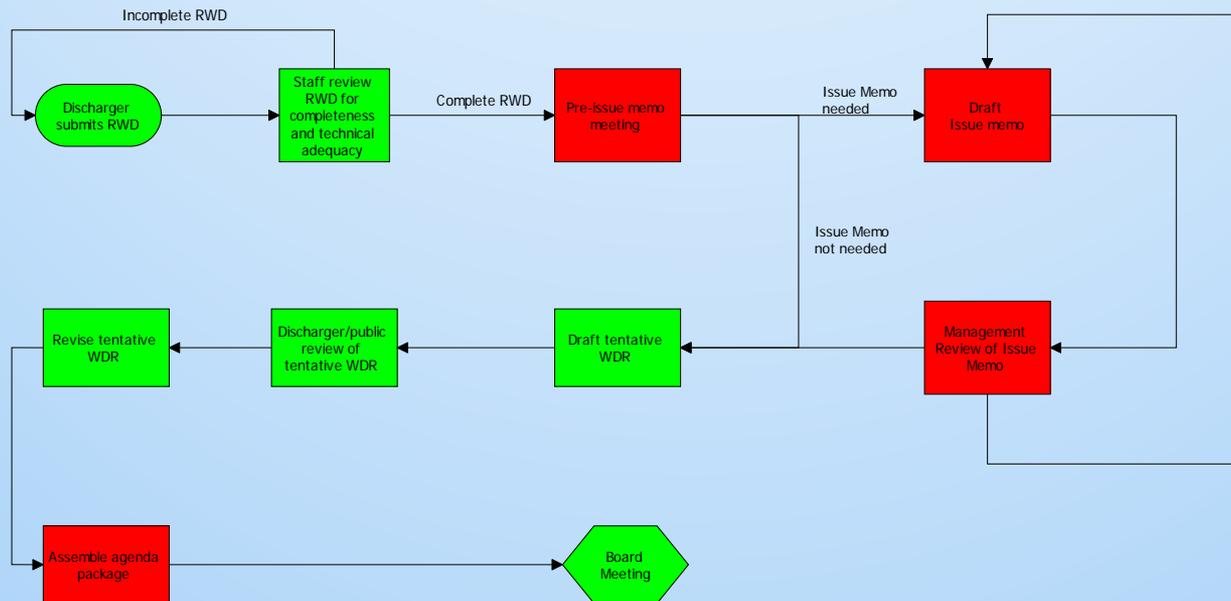


- ❖ 59 possible steps
- ❖ 17 possible rework loops
- ❖ Multiple Levels of Review
- ❖ 7 Value Added Steps

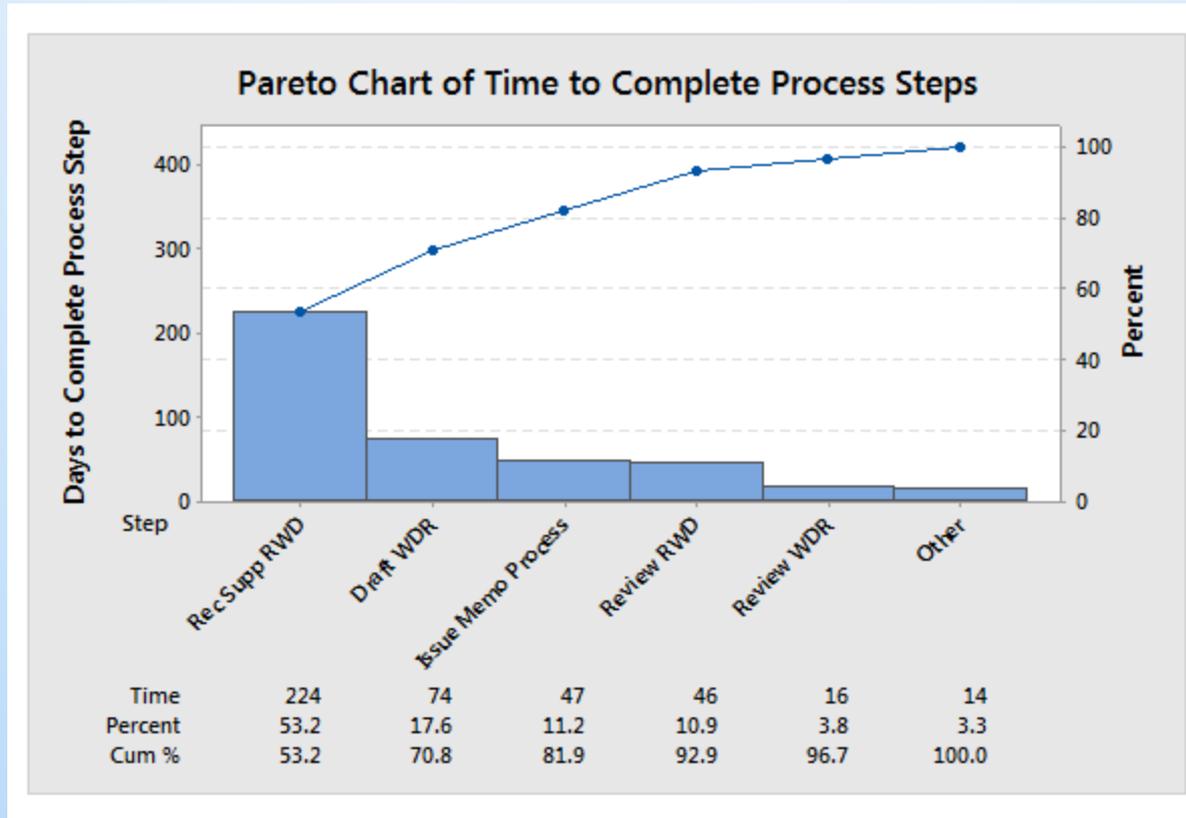
# Analysis Tools

- ❖ Fishbone Diagram
- ❖ Boxplots
- ❖ Multi-variable Analysis
- ❖ Pareto Charts
- ❖ FMEA
- ❖ Hypothesis Testing (Mood's Median Test)

## ❖ Value Stream Diagram

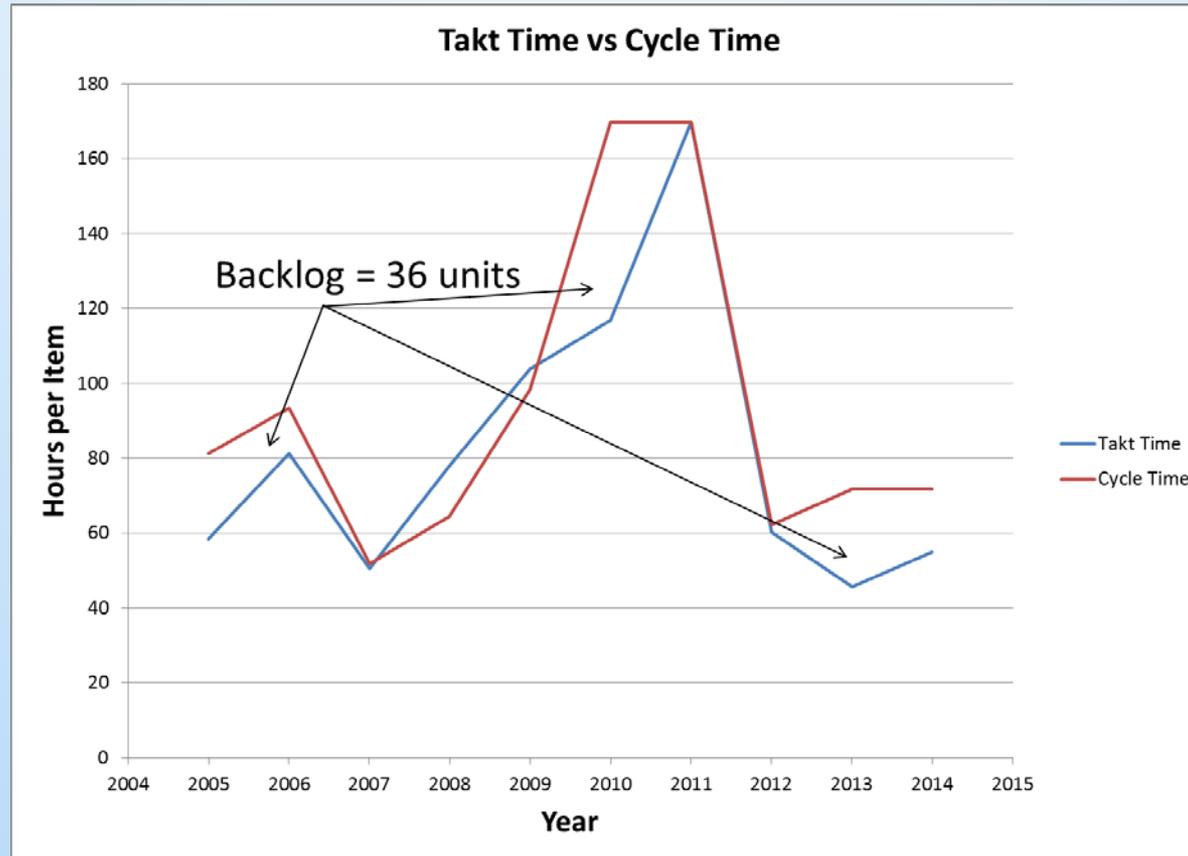


# Key Analytical Finding 1



- ❖ This plot shows the process step that takes the most time to complete is receiving supplemental information to complete the permit application (i.e., Report of Waste Discharge)

# Key Analytical Finding 2



- ❖ This plot shows the permit application backlog when cycle time is greater than takt time. The significant backlog occurred prior to 2005.

## *Critical X's*

- ❖ Incomplete permit applications
- ❖ Time it takes to review permit applications
- ❖ Incorrect implementation of the Issue Memo Process
- ❖ Time dedicated to permitting activities



# *Improvement Techniques*

## ❖ Incomplete permit applications

- ❖ Enforced use of Information Needs Sheet for permit applications
- ❖ Permit application review checklist
- ❖ Shift burden of providing missing information to permit applicant
- ❖ Template for letter requesting additional information from applicant

## ❖ Review Permit Applications

- ❖ Permit application review checklist

## ❖ Resolve Discharge Issues

- ❖ Define Policy Issues that require Issue Memo
- ❖ Issue Memo template
- ❖ Recurring conference calls to discuss lower level issues
- ❖ Lower level issues template

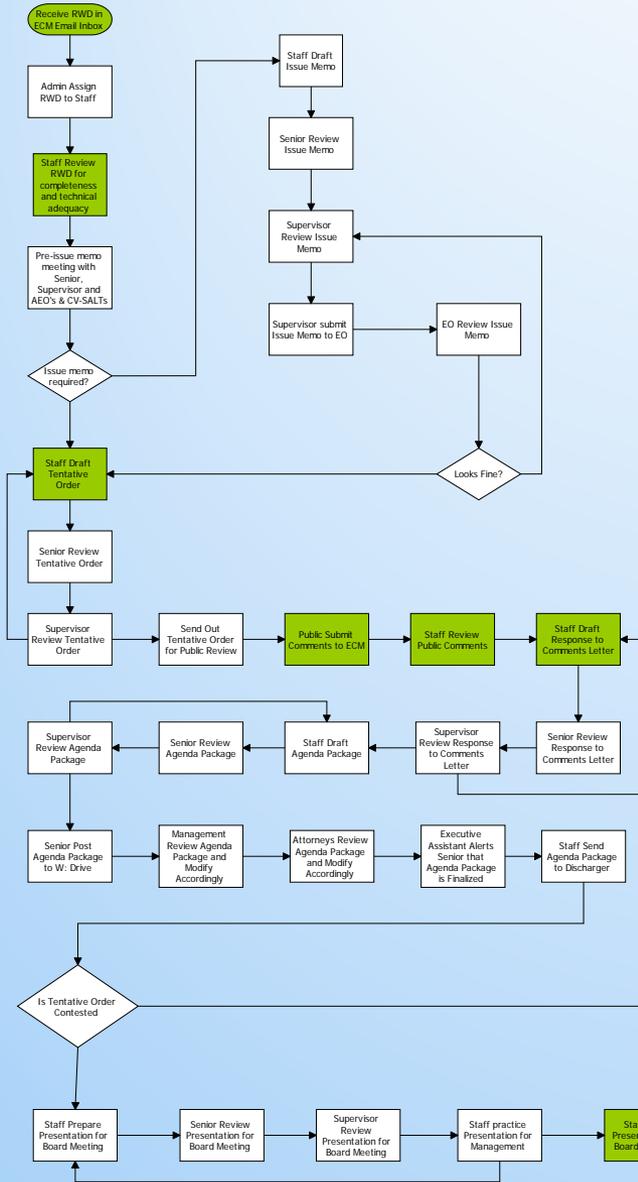
## ❖ Permitting Activities

- ❖ Utilization of Non-permitting staff to summarize data
- ❖ Permit template



# New Process Map

- ❖ 31 possible steps
- ❖ 5 possible rework loops
- ❖ Multiple Levels of Review
- ❖ 8 Value Added Steps



# New Capability

| Process Step  | Original Completion Time (days) | Improved Completion Time (Days) |
|---|---------------------------------|---------------------------------|
| Receive Supplemental Information to Complete Permit Application | 224                             | 0                               |
| Review Permit Application                                       | 46                              | 23                              |
| Issue Memo Process  | 47                              | 24                              |
| Draft Permit  | 74                              | 37                              |
| <b>Overall Process</b>  | <b>421</b>                      | <b>114</b>                      |

- ❖ This table shows how much faster it will take to complete each process step as a result of implementing the improvement techniques



# *Control Plan*

- ❖ Standard Operating Procedures
- ❖ Traveler that follows permit throughout entire process
- ❖ Electronic calendar to identify schedule and track progress
- ❖ Audit to comply with SOP



## *Additional Benefits*

- ❖ Protection of water quality
- ❖ Improved consistency between offices
- ❖ Better understanding of permitting process
- ❖ Customer satisfaction



# *Green Belt Contact Information*

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