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# Integrating Nuclear Safety and Engineering Design

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Presented to  
2008 SAWG, 1189 Workshop  
**May 2008**

T100EEU042307

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# Genesis

- Established as a NNSA Performance Objective
- Based on several recent projects that encountered significant problems
- Did not use the Draft DOE-STD-1189 except in a limited way
- About half way complete at this time

# Process

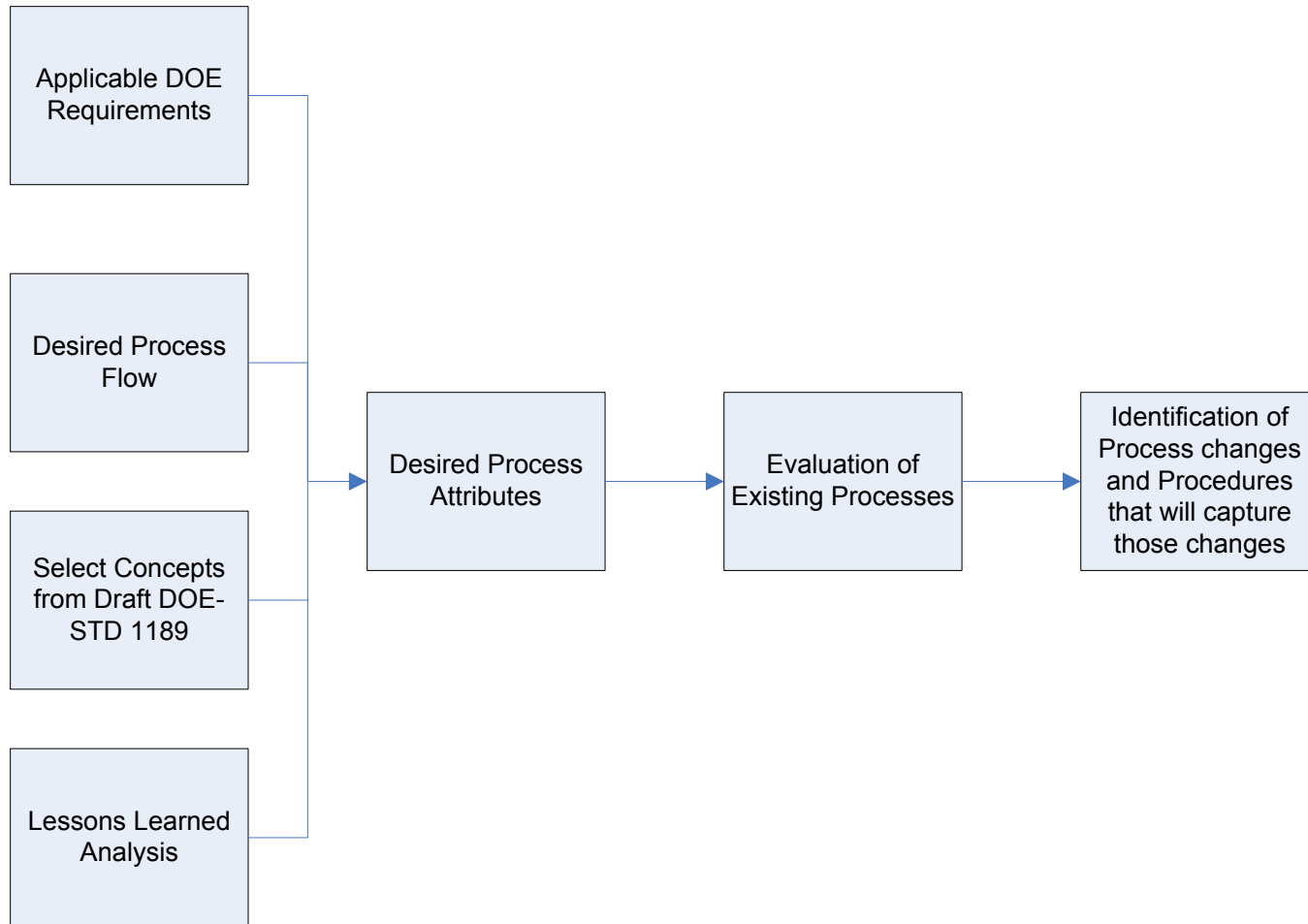
- Formed multidisciplinary team
  - Nuclear Safety (lead)
  - Design Engineering
  - Project Management
  - Nuclear Engineering (CSEs, Config mgt, etc.)
  - Training
  - Quality Assurance
- Developed an Implementation Plan – NNSA Approved
- Execute the Plan

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# Objectives

- Address past deficiencies
- Develop top level processes/requirements documents
- Train staff involved in nuclear design activities and projects

# Determining Requirements

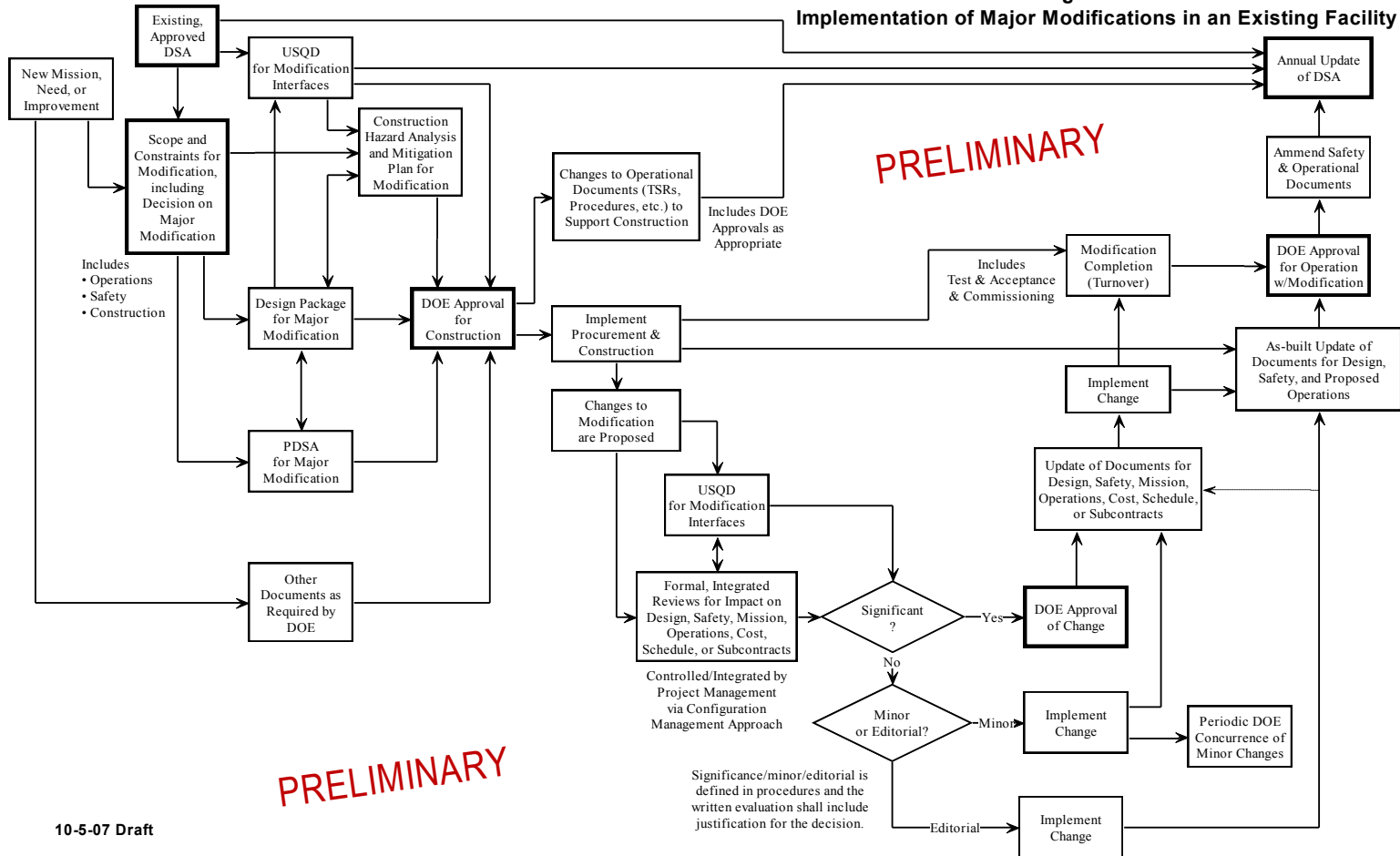


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# Desired Process Flow

## “Should Be” Based on Modification

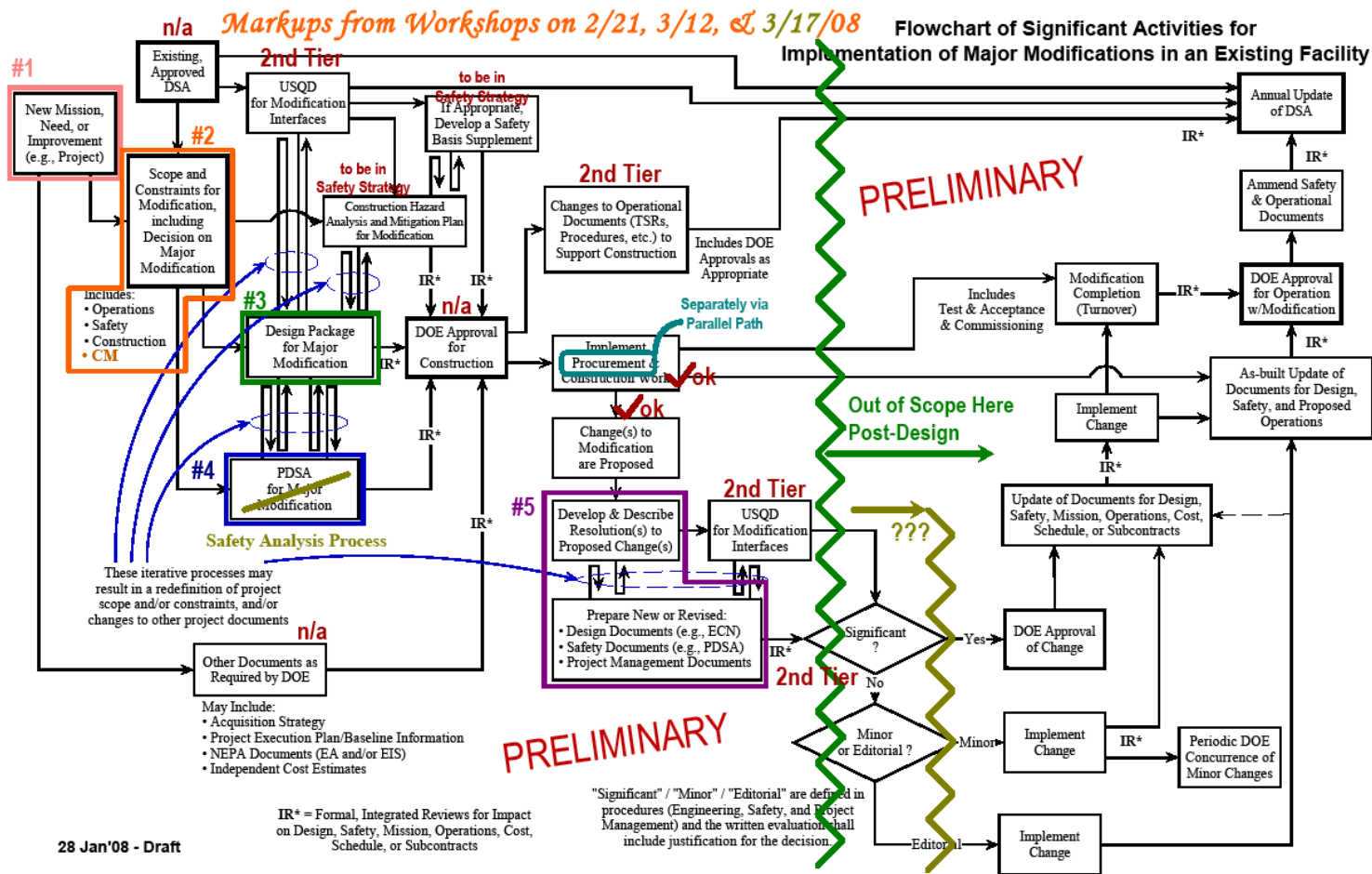
Flowchart of Significant Activities for Implementation of Major Modifications in an Existing Facility



10-5-07 Draft

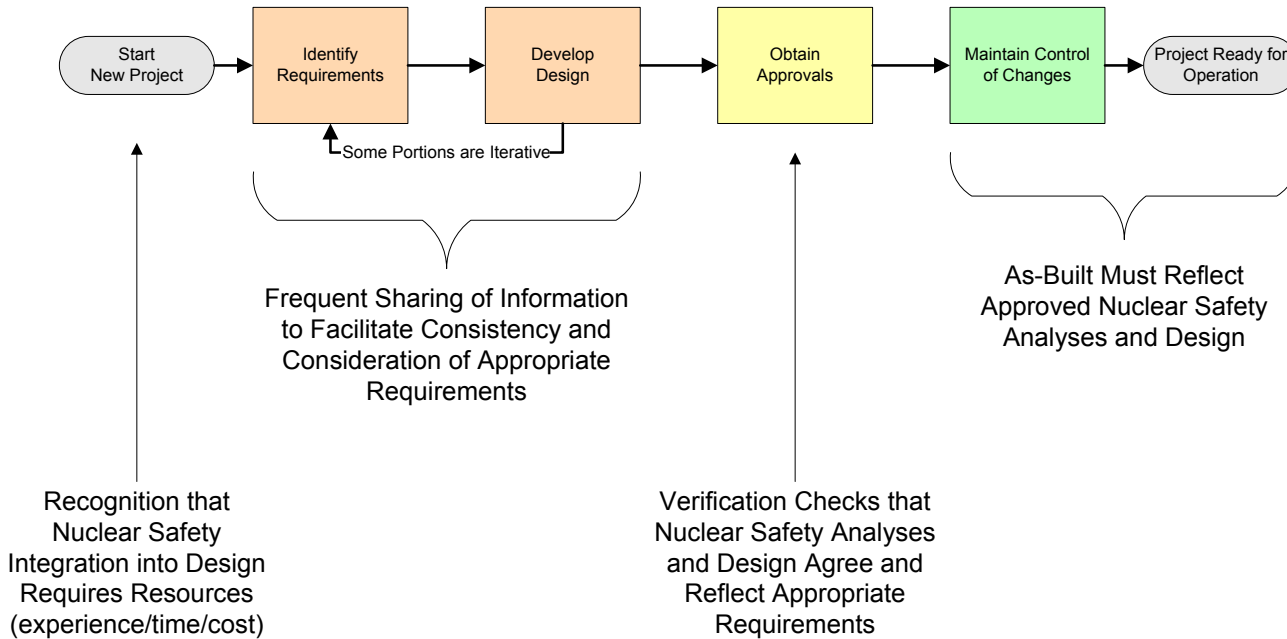
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# Analysis Structure



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# General Concepts of Integrating Nuclear Safety into the Engineering Design Process



1 May'08

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# Process Change Determination

- Took inputs from all the various processes
- Framed desired change in context of overall process
- Assigned the changes (or aspects thereof) to the various key processes
- Assessed state of current process/requirements set
- Identified additional changes or revisions needed
- Develop revised procedures (current action)

# Major Conclusions

- Design Criteria established early
  - Structured to support engineering
  - Not based on predefined solution
- Process improvements all consistent with 1189
- Need for high level integration process due to stovepipe organizations
- Process detail at lower procedural levels
- Tailoring remains problematic

# Next

- Complete revisions
- Develop and deliver training
- Address 1189
- Integrate with other initiatives
- Develop second tier changes and objectives