

PMLevyCOLPEm Resource

From: Habib, Donald
Sent: Monday, March 30, 2015 8:37 AM
To: PMLevyCOLPEm Resource
Subject: Condensate Return NRC Status 3-26-2015 (3-24-15)
Attachments: CR NRC Status 3-26-2015 (3-24-15).pptx

Hearing Identifier: Levy_County_COL_Public
Email Number: 1269

Mail Envelope Properties (E3D0DF334F617344BE38EB00C881B1B3021BABF3EDB9)

Subject: Condensate Return NRC Status 3-26-2015 (3-24-15)
Sent Date: 3/30/2015 8:36:52 AM
Received Date: 3/30/2015 8:37:18 AM
From: Habib, Donald

Created By: Donald.Habib@nrc.gov

Recipients:
"PMLevyCOLPEm Resource" <PMLevyCOLPEm.Resource@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	Size	Date & Time
MESSAGE	3	3/30/2015 8:37:18 AM
CR NRC Status 3-26-2015 (3-24-15).pptx		325139

Options
Priority: Standard
Return Notification: No
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Sensitivity: Normal
Expiration Date:
Recipients Received:

AP1000[®] IRWST Condensate Return Status

March 26th, 2015

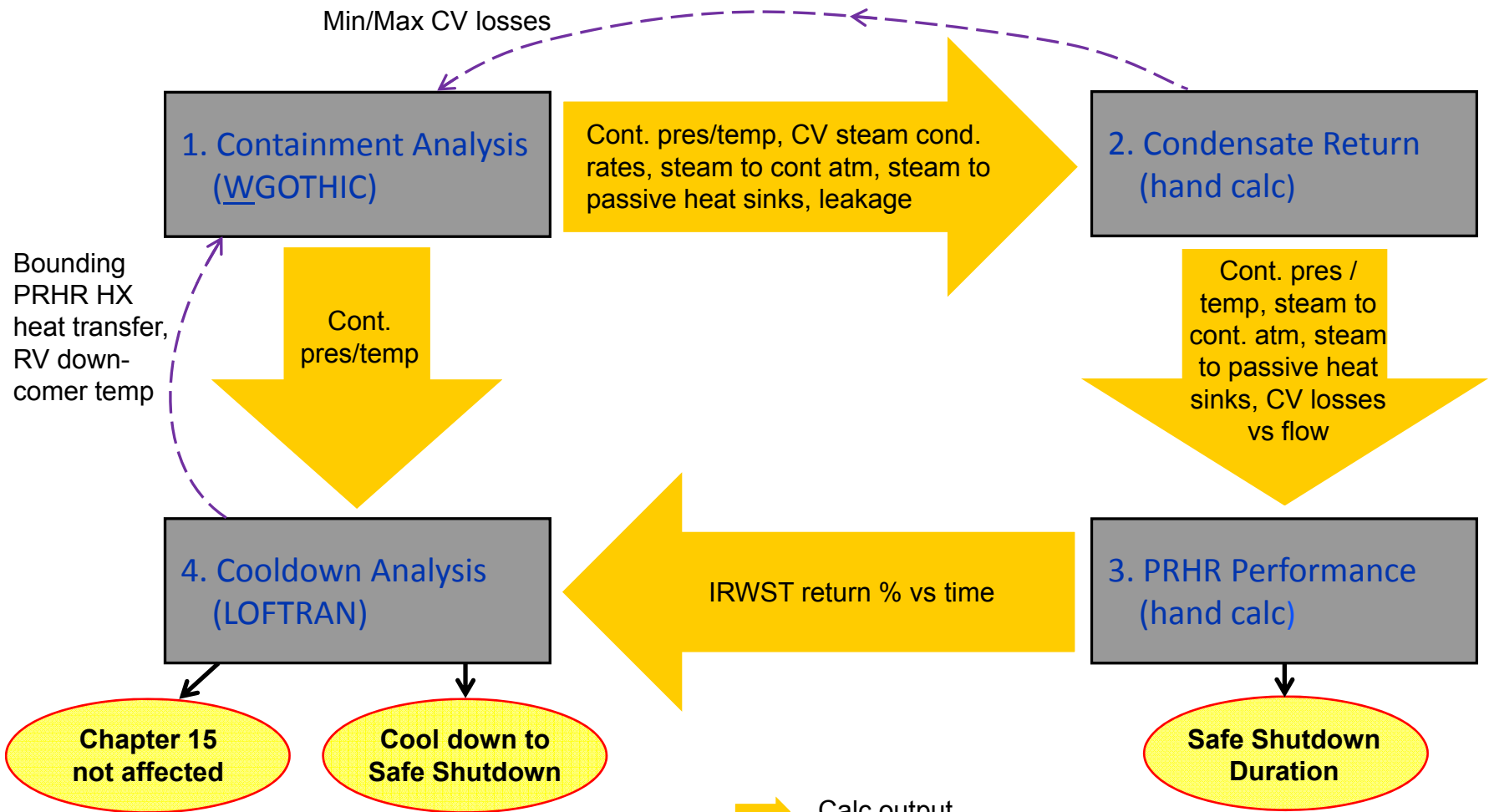


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Agenda

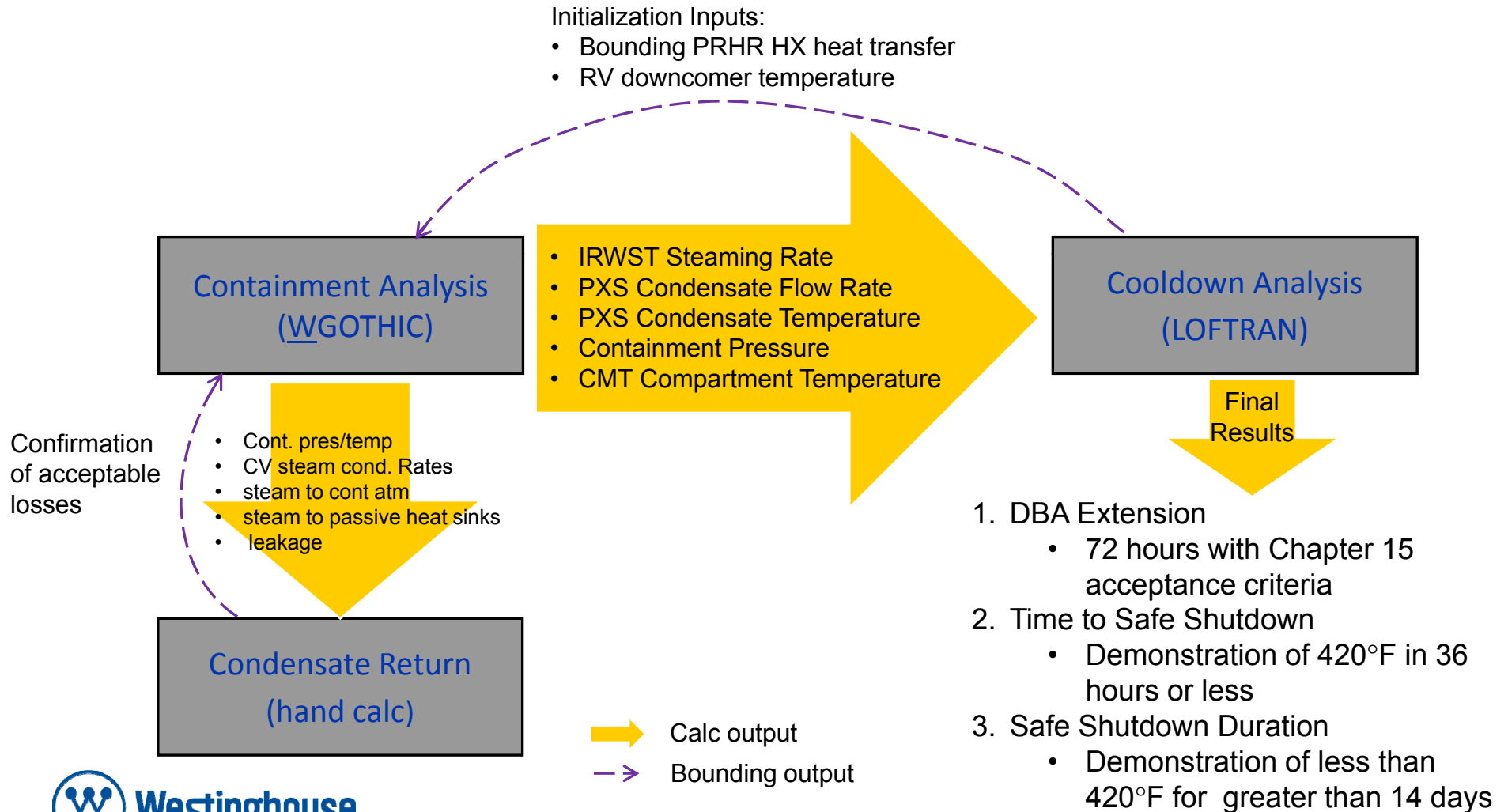
- Streamlined Analysis Approach
- Status of Condensate Return (CR) Calculations
- Root Cause Analysis Summary
- Long Term Analysis Plan
- CR Submittal Timeline

Prior Analysis Approach



Streamlined Analysis Approach

- Initialization Inputs:
- Bounding PRHR HX heat transfer
 - RV downcomer temperature



Streamlined Analysis Approach - Benefits

- Reduction in exchanges between calculations
 - Limits error likely handoffs
 - Avoids the need for additional iterations
 - Limits the addition of unnecessary conservatism to bound each input
- Utilizes two analysis methodologies previously reviewed and approved by the staff
 - Benchmarked to integral system and separate effects testing
- Should improve ease of review for staff

New approach has major benefits without sacrificing quality or margin



Status of CR Calculations

- DBA Extension
 - Calculations ready for NRC review by April 30th
 - Preliminary results acceptable with respect to Chapter 15 acceptance criteria, including margin
- Time to Safe Shutdown
 - Calculations ready for NRC review by April 30th
 - Preliminary results showing 420°F less than 36 hours
 - Change of acceptance criterion no longer expected
- Duration of Safe Shutdown
 - Discussed in subsequent slides

Analysis completion supports NRC review in advance of Sept ACRS Mtg.



Root Cause Analysis

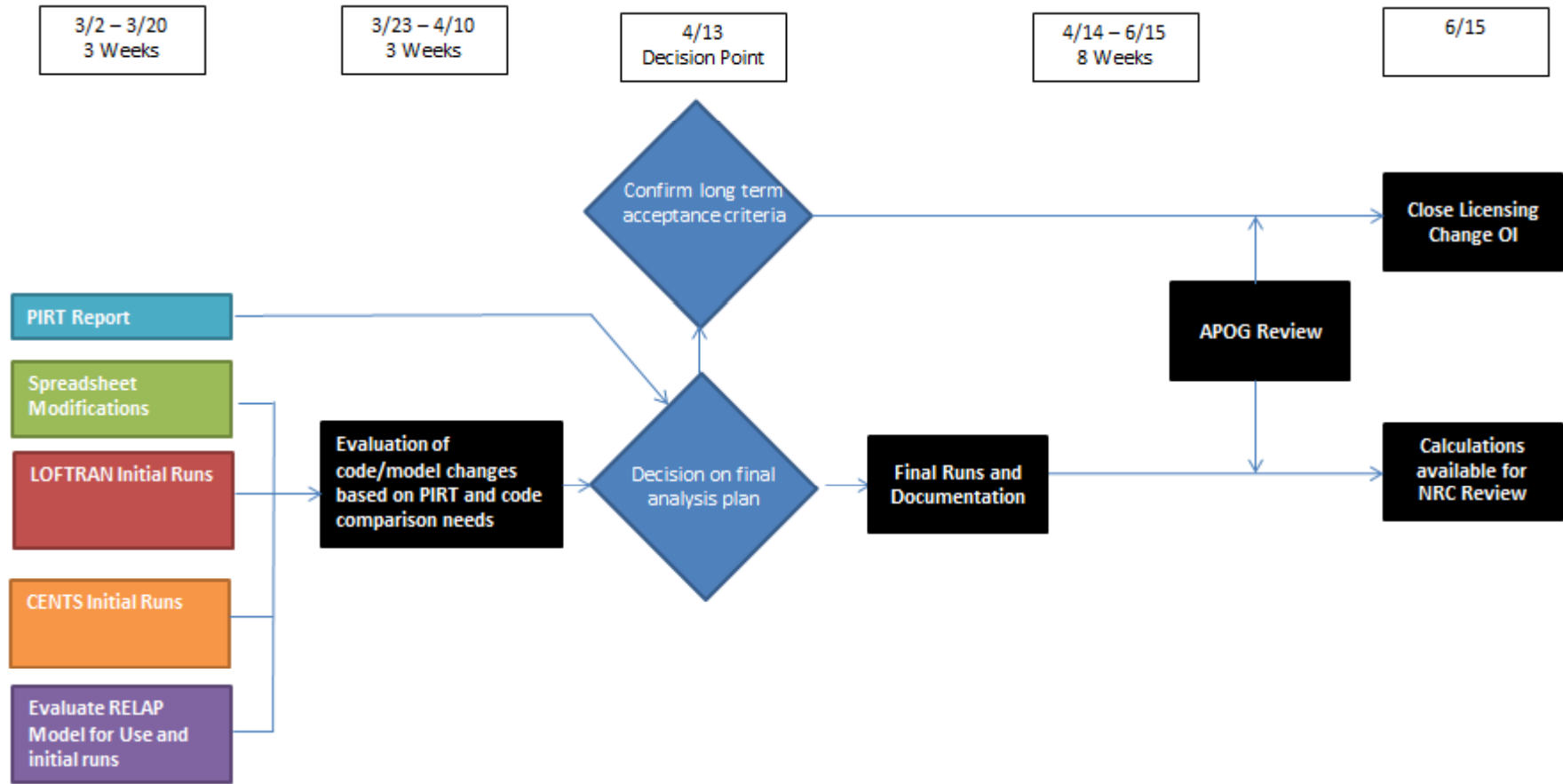
- RCA Completed on 3/9/15
- Problem Statement
 - Since 2012, multiple issues with the condensate return assumptions and analyses have been identified leading to the return rate being less than the 90% assumed and thus impacting long term PRHR operation
- Root Cause
 - The AP1000 design requirements process was not adequate to fully capture the design, licensing, or safety analysis basis requirements and flow-down of these requirements to the design.
- Corrective Action
 - Use Safety Analysis Input Knowledge data as an input requirements management tool for Safety Analysis. Develop a plan for safety analysis personnel and owners of parameters to verify parameters such that this can be used as an input requirements management tool, including addition of missing parameters from the DCD Chapters 6, 15 and 19E safety analyses.

**Application of existing tool to help
resolve this issue**

Root Cause Analysis - Continued

- Extent of Condition
 - *As a direct result of the detailed comparison between the spreadsheet and LOFTRAN calculations it was decided to reduce the complexity of the calculation methodology by having the WGOthic calculation directly feed into the LOFTRAN calculation without going through the two spreadsheet calculations first. This reduces the potential extent of condition by relying on two benchmarked, validated safety analysis codes. The inputs and assumptions are still analysis specific; therefore, they are being evaluated by the team to ensure consistency between the two calculations*
- This extent of condition assessment on the specific CR analyses will be documented as part of the RCA resolution actions

Long Term Analysis Plan



Finalization of analysis process and justification of LOFTRAN for long term use are still in progress



Submittal timeline

- Levy submittal to NRC – April 30th
 - Calculations for CR submittal complete
 - Also RAI 6.03-13 response to NRC
 - Open item for finalization of Safe Shutdown Duration
- Calculations for Demonstration of Safe Shutdown Duration complete – June 15th
- Levy submittal of open item closure – June 26th
 - Confirmation Activity: No changes expected to licensing change package
- NRC review of COLA change package in support of September ACRS meeting

Questions?

