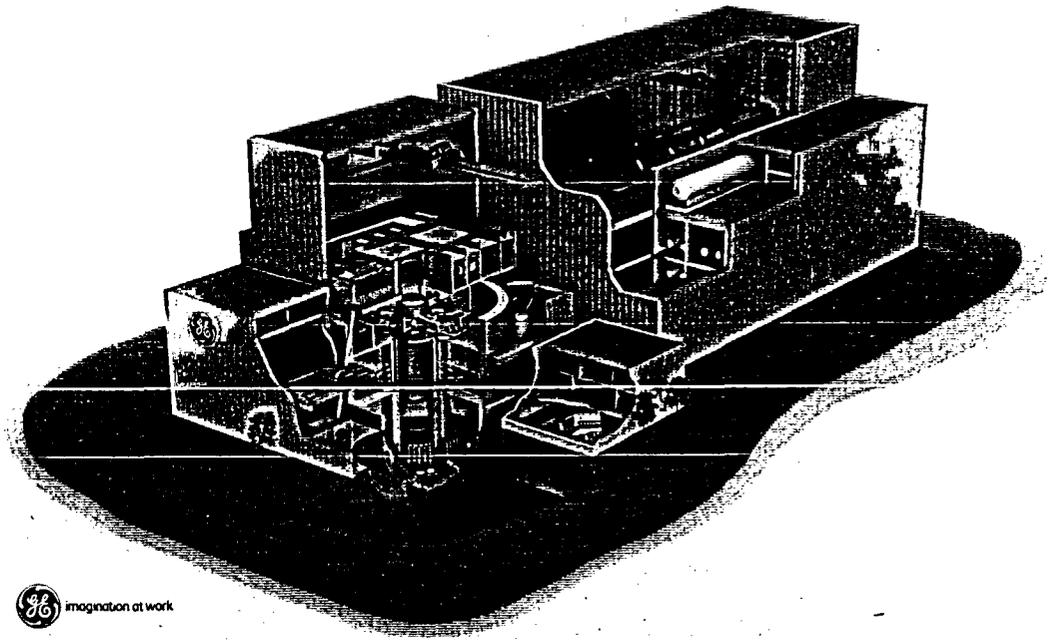


ESBWR Update Design Certification

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GE Energy Nuclear
June 19, 2006



ESBWR Design Certification

- GE Committed to Success of ESBWR
 - > Advanced, simplified, and passive safety plant
 - > Increased level of safety by orders of magnitude
- Design Certification key to Standardized Projects

Design Certification summary and objectives:

- DCD docketed December 1, 2005
- Initial GE/NRC seminars with the NRC staff to introduce DCD review
- Agreement with NRC on additional Licensing Topical Reports providing additional detail for NRC review basis
- **GE review objective:** provide sufficient detail in LTR's and RAI's to fully support NRC review and close issues in DC and not defer to COL
 - > Get understanding of key comments for LTR's and RAI's
 - > Directly answer with sufficient detail in order to satisfy question and reduce or eliminate additional RAI's or incomplete responses
 - > Formal process to receive RAI's, clarify questions, draft response, verify, issue
 - > Ensure sufficient detailed responses and LTR's to close issues

ESBWR Design Certification (cont'd)

- GE working with NRC to a very aggressive review schedule
 - > Excited About NRC's aggressive review to support schedules
 - > Detailed NRC review of all areas of DCD in parallel, significant NRC actions and review output
 - > Large number of RAI's in process early in review schedule (over 1200)
 - > Currently, in parallel, GE and the NRC/ACRS have completed several significant technical review milestones
 - TRACG code methods approval for LOCA analysis
 - TRACG methods approval for containment analysis
 - TRACG methods approval for stability analysis/natural circulation

DCD Revision and Licensing Topical Reports Status

- Large number of Licensing Topical Reports committed early in order to facilitate review (at time of docketing)
 - > In first 3 months, committed to approx 42 LTR's and a DCD revision
 - > Many complex and detailed technical areas addressed in these LTR's
 - > Desire to provide complete documents to close issues
 - > Commitments were aggressive and best known dates at time of docketing
 - > Updated status provided below:
 - > Outstanding deliverables:
 - Portions of PRA Complete in 4 weeks
 - I&C Defense in Depth & Diversity Complete in 4 weeks
 - Human Performance Monitoring Plan Complete in 3 weeks
 - Portions of Fission Product Removal Scheduled for 8/31/06

Summary:	DCD Revision completed
	Total LTR's = 42
	Complete = 37 (88%) (27 completed early or on time)
	Due = 5 (12%)

Licensing Topical Reports Status

- Implemented mitigating strategy for outstanding or delayed LTR's
 - > Submitted review material in advance of full LTR submittal
 - > Detailed technical meetings with review staff to summarize LTR
 - > Discussed strategy for closure of issue – ensured common understanding
 - > Final LTR's incorporated results of dialogue to facilitate closure
 - > Only one long term LTR will remain after the next 4 weeks
- Completion of LTR's and prior completion of DCD revision will allow for increased focus on accelerated closure of RAI's
- Process improvements continuously reviewed to expedite response closures

Current DC Schedule Will Be Maintained

Working With NRC to Resolve All Open Technical Issues

Licensing Topical Reports

- PRA

- > Detailed PRA challenging on certification level of design/iterative approach
- > Developed strategy – stages of PRA
- > Incorporated key design requirements
- > Supplied PRA in sections to allow review to proceed
 - Rev 0 of entire PRA submitted
 - 13 chapters revised to include updated info

Licensing Topical Reports

- Fission Product Release
 - > Complex technical issue, with new considerations
 - > Recognized need for increased level of detail
 - > Completing detailed backup supporting analysis
 - > Have already submitted additional supporting technical details and PCC test results prior to final report to facilitate review
 - > Draft topical report expected within next 4 weeks

RAI's

Important Formal Process to Complete DCD Review

- Mapped process to find efficiency gains
- Analyzed data to target specific areas in process
- Current Process
 - > Draft RAI from NRC
 - > After review of draft RAI's, schedule conference call to clarify and modify RAI's as necessary
 - > Conduct conference call, commit to response date
 - > Receive NRC formal RAI letter including necessary changes
 - > Prepare, verify, approve, and submit response

Current RAI Status

• Total Formal RAI's Received	582
> Response Submitted	379 (65%)
> In Progress in formal process	203
• Total Draft RAI's Received	620
> Pending NRC/GE confirmation or clarification telecon	268
> Pending NRC Formal Letter	352
• Total RAI's	1202

RAI Process

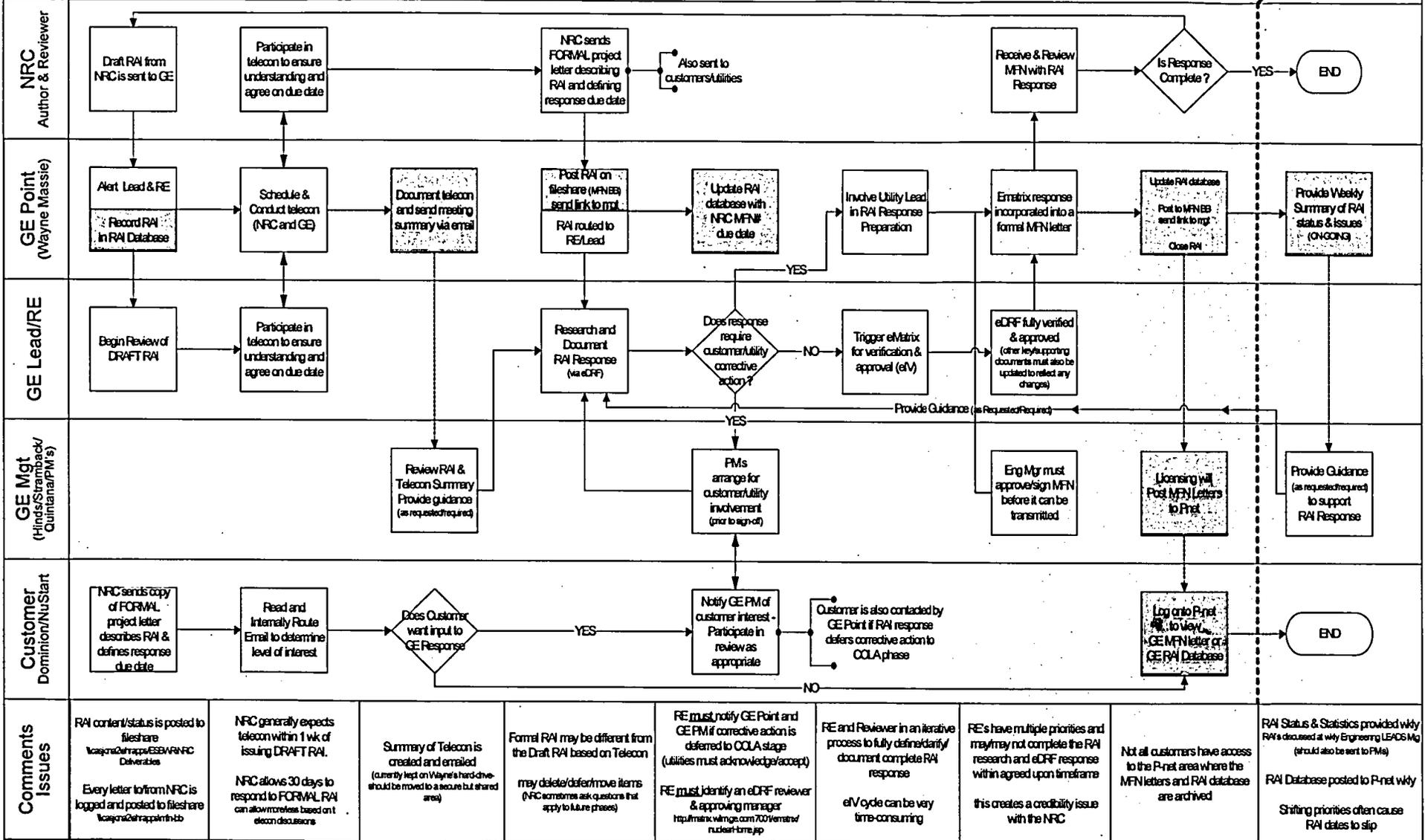


RAI Process

P. Pearson March 2006
Rev 1 issued May 2006

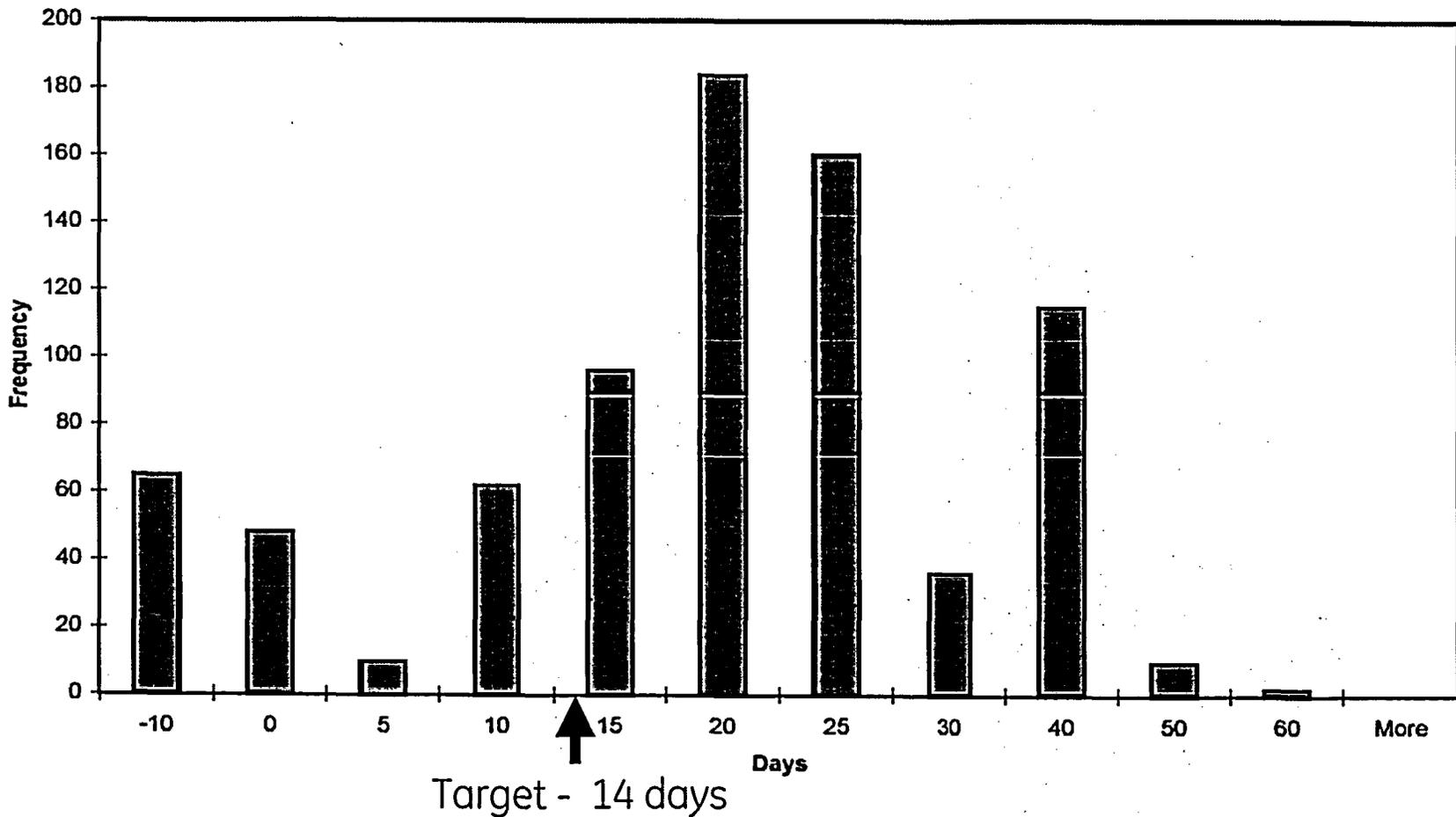
NOTE: NRC RAI could generate multiple GE responses (1 RAI to many eDRF's and many MFN letters)

Weekly Review Cycle



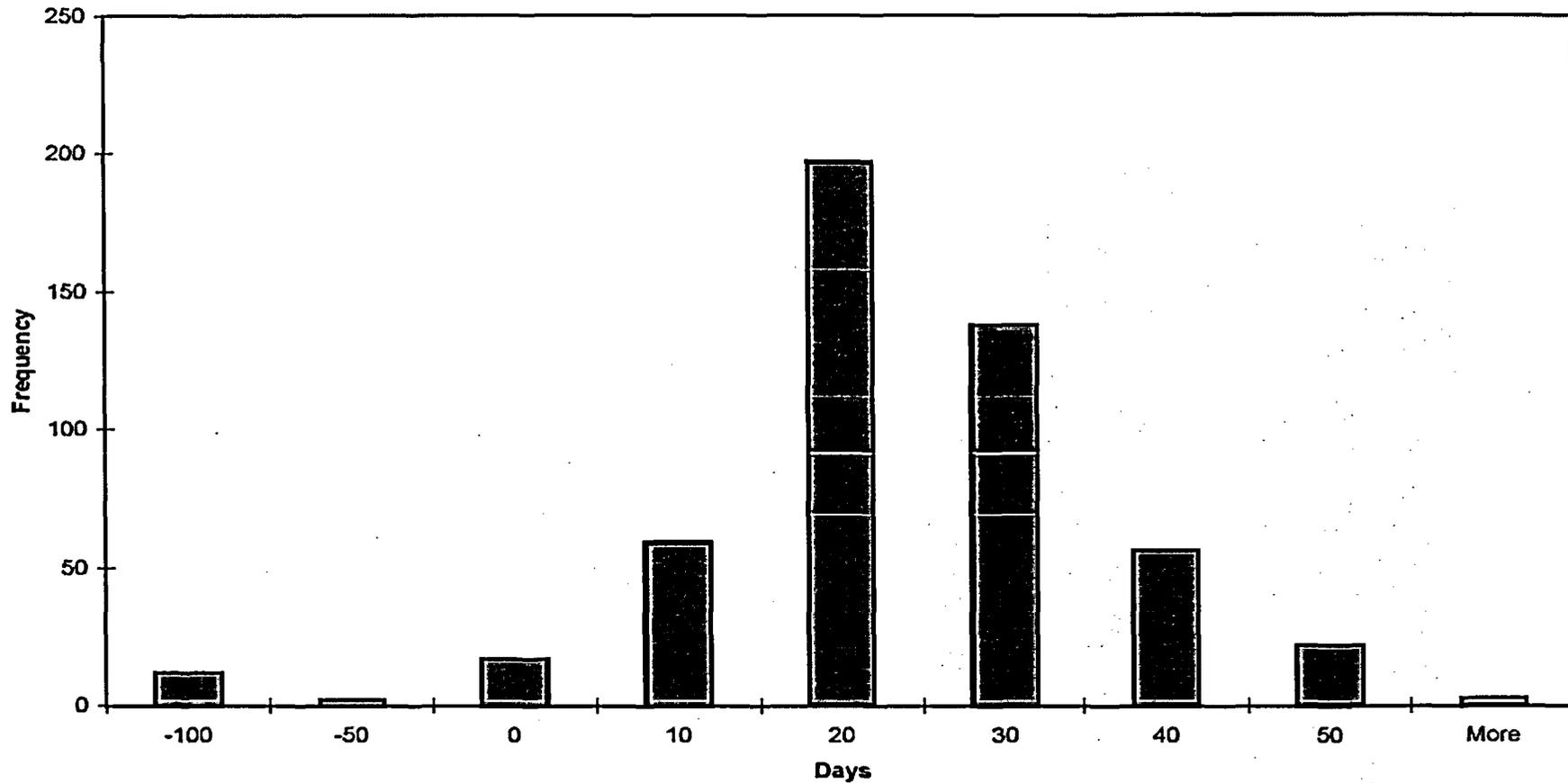
Time to Conduct Telecon of Draft RAI

Telecon Interval
Initial Telecon - Draft RAI



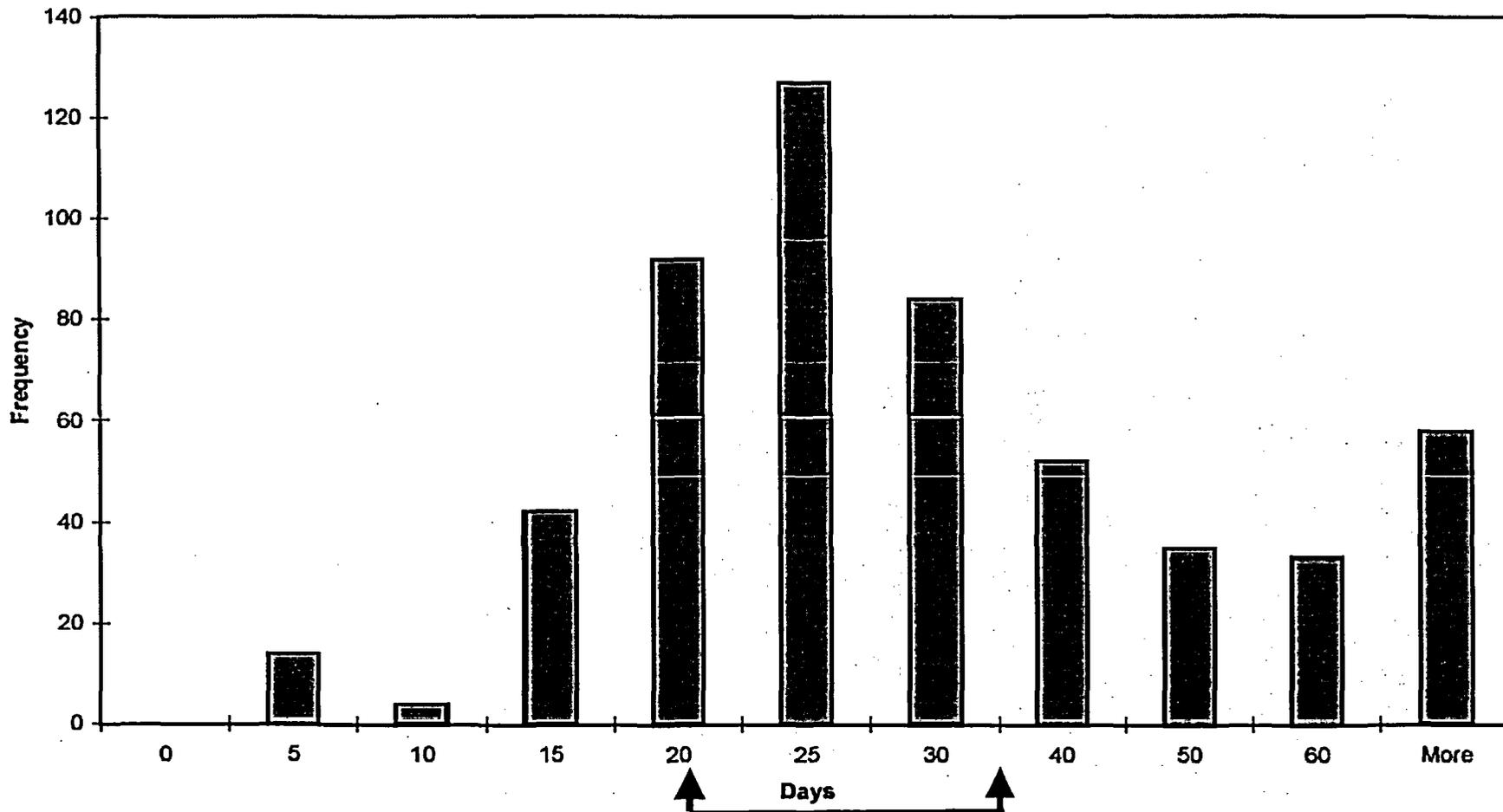
NRC RAI Formal Letter Issue Time

Formal RAI Issue
RAI Letter - Telecon



RAI Commitments vs. Receipt

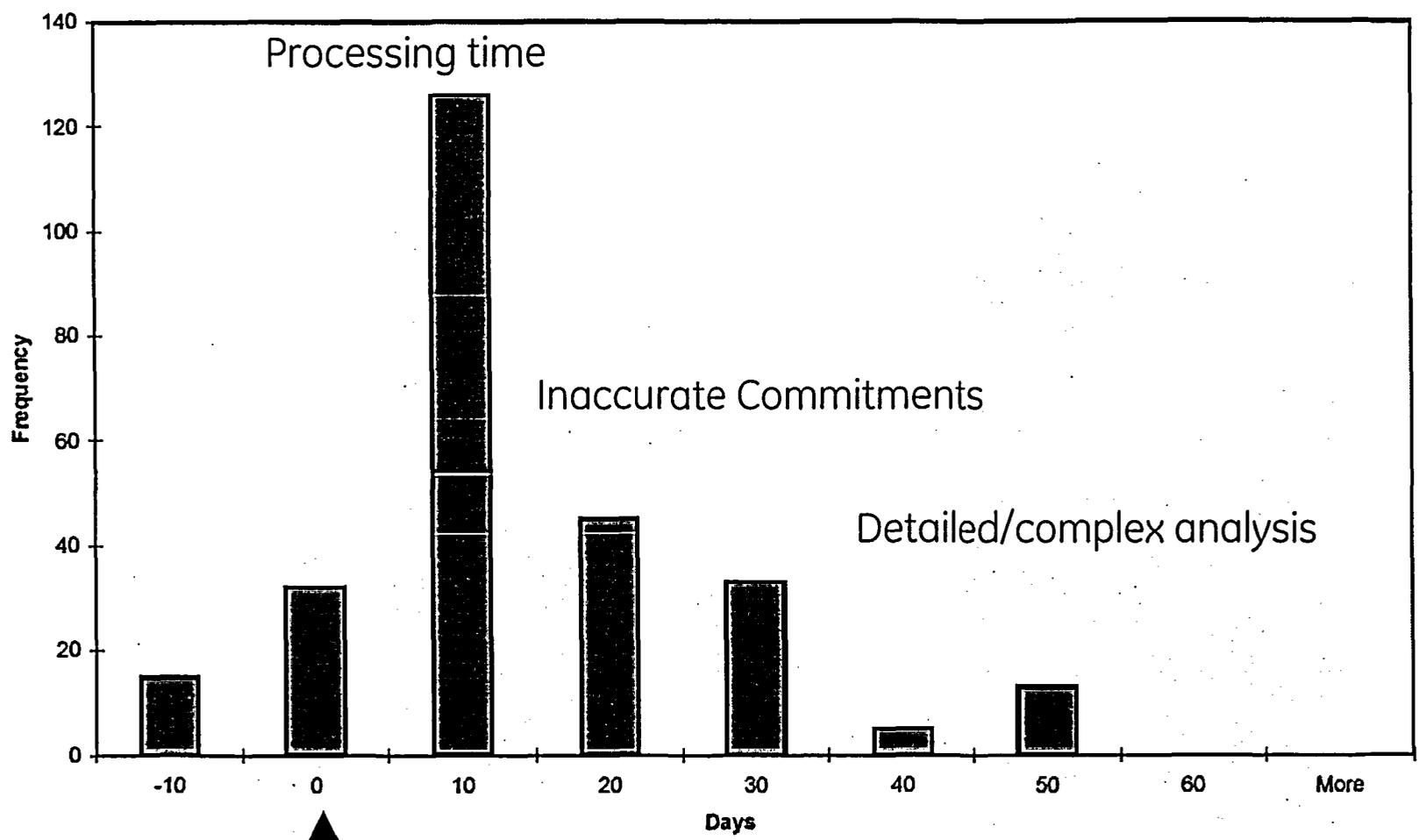
Verify Interval
GE Commit Date - Formal NRC Letter



Target - 3-5 weeks

RAI Response Time vs. Commitment

Delivery Interval
Response - Commit Date



↑
Target - 0

Observations From Data

- Need to reduce time to conduct telecon concerning draft RAI's
- Cannot allow NRC formal letter to delay response
 - > Preparing draft based on telecon understanding
- Average commitment approx four weeks after letter
 - > Some responses require additional detailed analysis
- Need to ensure that all deliveries are no later than commitment date – no late deliveries

RAI's

- Level of detail requested higher than past certifications
 - Caused mismatch in expectations
 - > Rate of incoming RAI's greater than anticipated, but NRC up-front review preferred to expedite schedule and identify any issues early for resolution during DC, not COL.
 - Example – in excess of 200 in one topical area
 - ABWR – 1026 RAI's
 - AP-1000 – 750 RAI's
- Recent completion of majority of LTR's and Rev 1 of DCD, now allows more focus on RAI's

RAI's

- Actions going forward
 - > Focus on prompt incoming assignment/work start
 - > Make accurate commitments
 - > Streamline review and release while not compromising QA and quality

ESBWR Staffing

- Actions to Address Workload - Staffing
 - > ESBWR Staffing has been greatly increased during the certification review
 - > Extensive negotiations have occurred during this period with large engineering service providers
 - Agreements in place to leverage significant workforce

Summary

- NRC expediting overall DC review
- GE aggressively supporting review and providing necessary details
- Increased staffing to enhance response
- Streamlined RAI internal process
- Increased emphasis on commitment dates
- Closure of Licensing Topical Reports and major DCD revision completed, allows increased RAI focus
- Working with NRC to resolve all open technical issues
- GE committed to meeting DC schedule

Subject Area/Topical Report Number and Title	GE Commitment	Submittal date	Status
Thermal Hydraulic codes			
NEDE-33083P, Supplement 2, TRACG ATWS	01/13/06	1/13/06	On Time
NEDE-32176P, TRACG Model Description, Revision 3	01/6/06	04/20/06	Late
Instrumentation and Control			
NEDE-33232P, Rev. 1, SSLC/RTIF System Performance Specification	12/12/05	12/15/05	On Time
NEDE-33233P, Rev. 1, Safety System Logic and Control/Reactor Trip and Isolation Functions (SSLC/RTIF) Hardware/Software Specification	12/12/05	12/15/05	On Time
NEDE-33234P, Rev. 1, RTIF Digital Trip Module (DTM) Function Software Design Specification	12/12/05	12/15/05	On Time
NEDE-33226P, Rev. 1, ESBWR I&C Software Management Plan	04/07/06	03/27/06	Early
NEDE-33227P, Rev. 1, ESBWR I&C Software Configuration Management Plan	04/07/06	03/27/06	Early
NEDE-33229P, Rev. 1, ESBWR I&C Software Configuration Development Plan	04/07/06	03/27/06	Early
NEDE-33245, ESBWR I&C Software QA Plan (SQAP)	04/28/06	01/18/06	Early
NEDE-33230, ESBWR I&C Software Safety Plan (SSP)	04/28/06	01/31/06	Early
NEDE-33228, ESBWR I&C Software V&V Plan (SV&VP)	04/07/06	01/18/06	Early
NEDE-33246, ESBWR I&C Integration Plan	04/28/06	01/31/06	Early
NEDE-33247, ESBWR I&C Installation Plan	05/05/06	01/31/06	Early
NEDE-33248, ESBWR I&C Maintenance and Operations Plan	05/05/06	04/19/06	Early
NEDE-33249, ESBWR I&C Training Plan	05/05/06	04/09/06	Early
NEDE-33251, ESBWR I&C Defense in Depth and Diversity Evaluation report	05/12/06	Within next 4 wks	Late
Human Factors Engineering			
NEDO-33217, Rev. 1, ESBWR Man-Machine Interface System and Human Factors Engineering Implementation Plan	01/06/06	01/06/06	On Time

NEDO-33262, Operating Experience Review Plan	01/31/06	01/31/06	On Time
NEDO-33219, Functional Requirements Analysis and Allocation Plans	01/31/06	01/31/06	On Time
NEDO-33220, ESBWR Allocation of Functions Implementation Plan	01/31/06	01/31/06	On Time
NEDO-33221, Task Analysis Plan	01/31/06	01/31/06	On Time
NEDO-33266, Staffing and Qualifications Plan	02/28/06	03/09/06	Late
NEDO-33268, Human Reliability Analysis Plan	02/28/06	03/10/06	Late
NEDO-33268, ESBWR Human Factors Engineering Human-System Interface Design Plan	02/28/06	03/31/06	Late
NEDO-33278, Design Implementation Plan	03/31/06	06/14/06	Late
NEDO-33274, Procedures Development Plan	03/31/06	06/14/06	Late
NEDO-33275, Training Development Plan	03/31/06	06/14/06	Late
NEDO-33276, Human Factors Engineering Verification and Validation Plan	03/31/06	06/13/06	Late
NEDO-33277, Human Performance Monitoring Plan	03/31/06	Within next 4 wks	Late
Fuel/Critical Heat Flux Correlation/Control Rods			
NEDE-33236P, GE14 Fuel Assembly Mechanical Design Report	11/21/05	11/21/05	On Time
NEDE-33241P, GE14 Fuel Rod Thermal-Mechanical Design Report	11/21/05	11/21/05	On Time
NEDE-33238P, GE14 Pressure Drop Characteristics	12/12/05	12/12/06	On Time
NEDE-33242P, GE14 for ESBWR Fuel Rod thermal-Mechanical Design Report	01/23/06	01/23/06	On Time
NEDE-33240P, GE14 for ESBWR Fuel Assembly Mechanical Design Report	02/06/06	01/31/06	Early
NEDE-33239P, GE14 for ESBWR Nuclear Design Report	02/20/06	02/16/06	Early
NEDE-33237P, GE14 for ESBWR Critical Power Correlation, Uncertainty, and OLMCPR Development	03/06/06	03/02/06	Early
NEDE-33243P, ESBWR Marathon Control Rod Nuclear Design Report	04/24/06	05/23/06	Late
NEDE-33244P, ESBWR Marathon Control Rod	04/24/06	Complete –	Late

Mechanical Design Report		in delivery	
Fission Product Removal			
NEDE-33279P, Fission Product Removal Evaluation Model	04/28/06		Late
Flow Induced Vibration			
NEDE-33259P, Flow Induced Vibration Evaluation Process, Part I	01/13/06	01/13/06	On Time
NEDE-33259P, Flow Induced Vibration Evaluation Process, Part 2	TBD		TBD
Containment Load			
NEDE-33216P, ESBWR Containment Load Definition	04/28/06	05/18/06	Late
PRA Report Revision 1 (Verified)			
NEDO-33201, ESBWR PRA Report, Chapter 1, 11, and 17 - 20	01/06/06 *03/03/06		Late
NEDO-33201, ESBWR PRA Report, Chapter 2 - 6	01/06/06 *02/03/06	02/08/06	Late
NEDO-33201, ESBWR PRA Report, Chapter 7	01/06/06 *02/03/06	02/15/06	Late
NEDO-33201, ESBWR PRA Report , Chapter 8 - 10	01/06/06 *03/03/06	04/20/06	Late
NEDO-33201, ESBWR PRA Report , Chapter 12 - 16	01/06/06 *03/03/06	06/08/06 (12,13) 06/13/06 (14)	Late
NEDO-33201, ESBWR PRA Report , Chapter 21	01/06/06	12/29/06	Early
ESBRW Design Control Document (DCD) Revision 1 (Verified)			
DCD Tier 1	02/28/06	3/13/06	Late
DCD Tier 2 Chapters 1-15, 17 & 18	01/31/06	02/05/06	Late
DCD Tier 2 Chapter 16 (Tech Specs)	02/28/06	03/20/06	Late
DCD Tier 2 Chapter 19 (PRA/Severe Accidents)	01/31/06		Late