UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 12, 1996

ORGANIZATION: WESTINGHOUSE OWNERS GROUP (WOG)

SUBJECT: PUBLIC MEETING OF MAY 15, 1996, REGARDING UPDATE ON INCOMPLETE ROD CLUSTER CONTROL ASSEMBLY (RCCA) INSERTION ISSUE

On May 15, 1996, representatives of Westinghouse, the WOG, and nine nuclear utilities, met with representatives of the Nuclear Regulatory Commission (NRC). The purpose of the meeting was to provide Westinghouse and the WOG with an opportunity to update the NRC staff on their efforts related to the RCCA insertion problems at Westinghouse plants. The majority of the meeting involved proprietary presentations by Westinghouse. Attachment 1 provides a list of meeting attendees.

Representatives of the WOG opened the meeting with a short discussion of the close working relationship between Westinghouse and the WOG. Summaries of WOG activities, plant trip information, and responses to NRC Bulletin 96-01, "Control Rod Insertion Problems," were then presented. The non-proprietary slides used in the presentation are included as Attachment 2.

Westinghouse stated that they are working hard on the analysis of the Wolf Creek event and that they believe they have collected sufficient data for a root cause determination. In response to questions from the staff, the WOG representative stated that the WOG believes that either drag testing or recoil testing is sufficient for this purpose. The staff reitirated that it expects a letter from the WOG explaining why the recoil data is sufficient. Westinghouse clarified their position by explaining that they believe that drag data is better for root cause evaluation because the recoil data shows lots of scatter. However, Westinghouse and the WOG believe that the recoil data is sufficient to show RCCA acceptability. The NRC staff emphasized that the purpose of publishing Bulletin 96-01 was to ensure that RCCAs are operable and not to collect data for root cause analyses.

Westinghouse next made a short presentation on the status of the Wolf Creek root cause analysis. They stated that they were preparing some fuel assembly samples for hot channel analysis at Westinghouse's facility near Pittsburgh in late June or early July. They also stated that teams from Westinghouse had completed site visits at North Anna, Point Beach, and V.C. Summer but that no analysis had been done yet. The rest of the meeting involved discussions of Westinghouse proprietary material and was closed to the public

After the proprietary portion of the meeting, Westinghouse proposed that the next briefing for the staff be held during the last week of June. The staff agreed that should allow sufficient time for Westinghouse to collect and analyze enough data to perform a susceptibility determination.

Stewart L. Magruder

Stewart L. Magruder, Project Manager
Generic Issues and Environmental Projects Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Project No. 694

Attachments: As stated

cc w/attachments:
See next page

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Original Signed By:

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NRC/WOG MEETING ON
INCOMPLETE RCCA INSERTION ISSUES
LIST OF ATTENDEES
May 15, 1996

NAME	ORGANIZATION
Hal Ornstein	NRC/AEOD
Margaret Chatterton	NRC/NRR
Eric Weiss	NRC/NRR
Robert Jones	NRC/NRR
Ralph Meyer	NRC/RES
Hank Sepp	Westinghouse/WOG
Howard Menke	Westinghouse/CNFD
Rick Kohrt	WEPCO/WOG
Ron Kesterson	Westinghouse/CNFD
Sumit Ray	Westinghouse/CNFD
Vance Vanderburg	AEP/WOG
Roger Newton	WEPCO/WOG
Andrew Drake	Westinghouse/WOG
Pete Kokolakis	NYPA
Roger Huston	TVA
Bob Borsum	Framatome Technologies Inc.
Lynn Connor	STS
Kris Thomas	NRC/NRR
Tom Alexion	NRC/NRR
Stephen Koenick	NRC/NRR
Steve Katradis	NUS Corp.
Claudia Craig	NRC/NRR
John Duran	Westinghouse/SMPD
John Heard	Yankee Atomic
Shih-Liang Wu	NRC/NRR
Scott Ferguson	Wolf Creek Nuclear
Harold Scott	NRC/RES
John Galembush	Westinghouse
Bill Rice	Westinghouse
Vince Noonan	STS for Kansai Electric
Richard Clark	Duke Power
Tom Brookmire	Virginia Power
Nayeem Farukhi	Westinghouse
David Hoppes	Houston Lighting & Power
Mark McBurnett	Houston Lighting & Power
Stu Magruder	NRC/NRR

Attachment 1

Incomplete RCCA Insertion Issue Update

NRC/Westinghouse/WOG Meeting

May 15, 1996

Purpose and Introduction

Purpose

- Provide update on actions in response to Bulletin 96-01
- Provide status update on progress towards root cause determination

Introduction

- Agenda
- Status Summary

Agenda

- Purpose and Introduction — Westinghouse/WOG
- Summary of WOG activities — WOG
- Summary of plant trip information — WOG
- Summary of responses to NRC Bulletin 96-01 — WOG

Proprietary Portion

- Discussion of drag data and incomplete insertion relationship — Westinghouse
- Root Cause Analysis Update — Westinghouse
  - Thimble tube material evaluations
  - Site testing program
  - Incomplete RCCA Insertion Project Action Plan & Schedule
  - Conclusion
- Discussion — All

Status Summary

- No incomplete insertions have been observed subsequent to Wolf Creek and South Texas events
  - Over 540 successful insertions in assemblies > 42.5K MWD/MTU burnup
  - Site inspections and testing proceeding per plan
  - Westinghouse program on schedule
    - Isolate susceptible population by 6/17
    - Establish root cause by 8/31
    - Challenges
      - Series of complex site operations need to be carried out successfully

Summary of WOG Activities

Initial Response to NRC/Background

- Wolf Creek Event 1/30/96
- NRC contacted the WOG 2/6/96
- NRC transmitted 9 questions 2/7/96
  - Requested draft response by 2/15/96
- WOG membership informed and data requested 2/8/96
- NRC transmitted 5 additional questions 2/9/96
- WOG provided draft response to all 14 questions 2/15/96
- Westinghouse/WOG/NRC meeting 2/20/96
  - Addressed safety significance
  - Adequate shutdown margin
  - Operating experience - 49 plants
  - Adequacy of plant operator guidance
  - WOG will follow issue

Summary of WOG Activities (continued)

Follow up Activity by WOG

- WOG suggested actions to membership — 2/23/96
  - Inform plant operators to be aware of issue
  - For plants trips, provide data
  - Provide trip data for past 5 years
  - Suggest tripping rods at EOC and collecting rod drop test data
- NRC issues Bulletin 96-01 — 3/8/96
- WOG IRG Representatives met with W in Columbia, SC to review root cause evaluation effort — 3/12/96
- WOG provides guidance to membership on responding to Bulletin 96-01 — 3/20/96
- WOG/Westinghouse/NRC meeting — 3/25/96
  - Westinghouse presented root cause efforts to date
  - WOG proposed relaxations to NRC Bulletin 96-01
  - WOG supports data collection for root cause effort
- WOG Utilities responses to NRC Bulletin 96-01 — 4/8/96

Summary of WOG Activities (continued)

Long Term WOG Activities

- WOG approved Project Authorization for Analysis Subcommittee to continue long term activities to address issue 4/15/96
  - Collect and review plant-specific data and responses to the NRC Bulletin 96-01
  - Provide communications concerning incomplete control rod insertion to all WOG members
  - Participate in the Westinghouse root cause determination effort

- Rick Kohrt, Analysis Subcommittee Vice Chairman, Wisconsin Electric Power Company, will chair the WOG Analysis Subcommittee Task Team

- 12 utilities represented on Task Team

- Task Team met 4/25/96 to review utility 96-01 responses, available drag/recoil data, and root cause determination progress

Summary Of Plant Trip Information

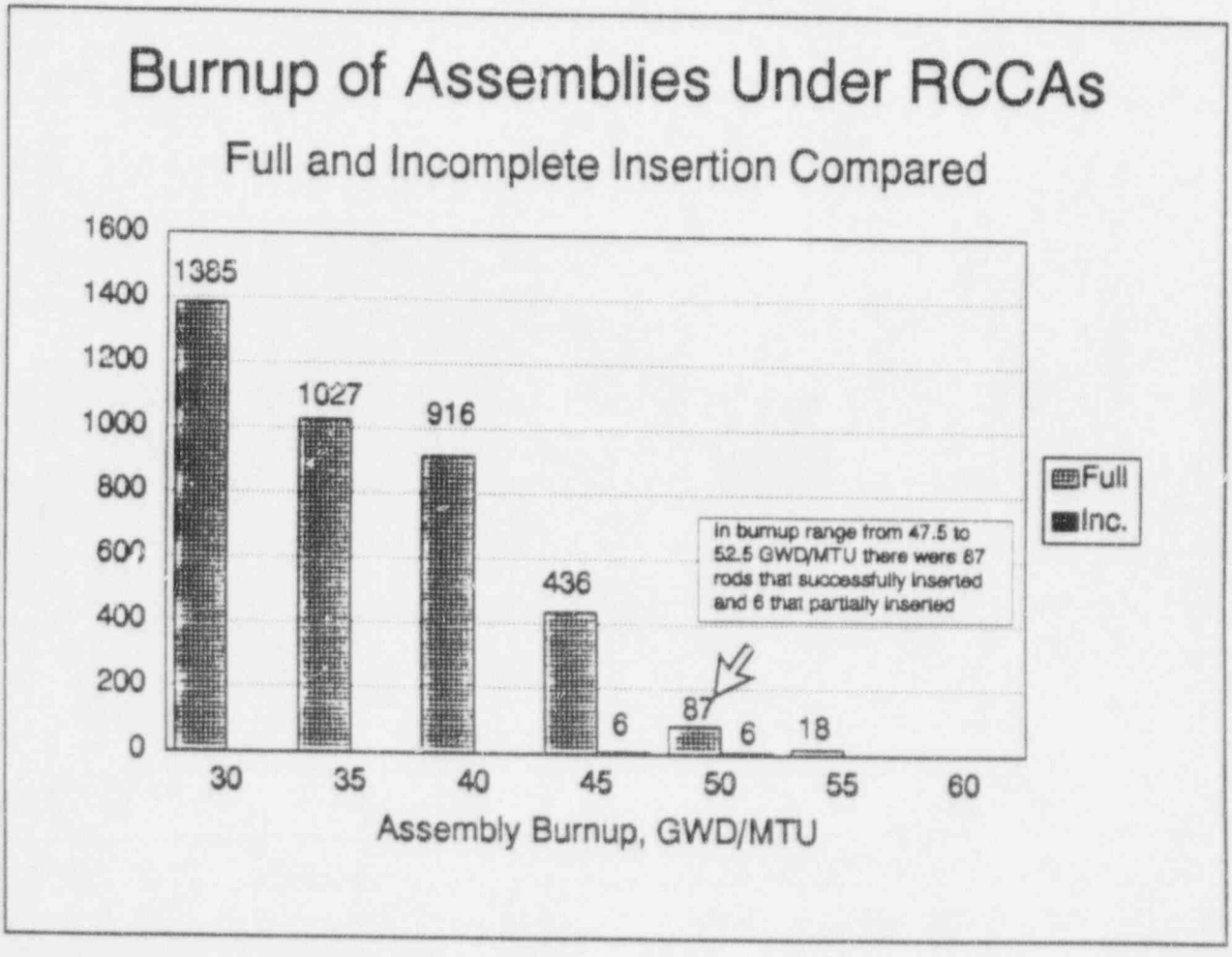
Westinghouse/WOG Data Base

Data provided by utilities

- Historic trip data
- EOC drag test data
- Rod drop data
  - Trip data
  - EOC data
- Data which have been provided as well as supplemental plant test data being obtained by Westinghouse are sufficient to define the areas of susceptibility

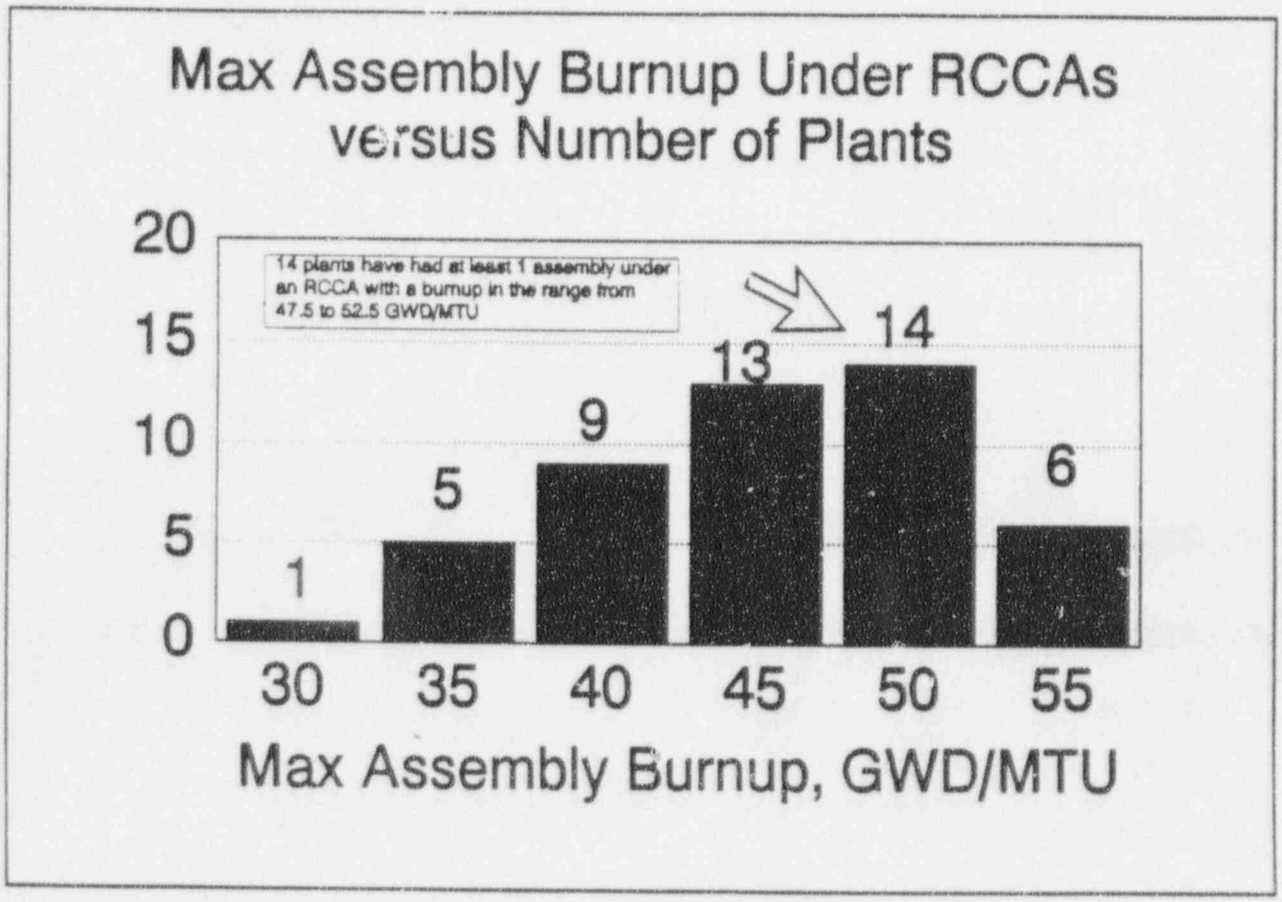
Summary Of Plant Trip Information (continued)

- Data from 48 plants (Westinghouse and Non-Westinghouse fuel)
- Data includes 116 BOC and EOC tests and 163 trips



Burnup (GWD/MTU) Range Under RCCAs	Number of Assemblies Showing Full Insertion	Number of Assemblies Showing Incomplete Insertion
42.5 - 47.5	436	6
47.5 - 52.5	87	6
52.5 - 57.7	18	0

Summary Of Plant Trip Information (continued)



Assemblies Under Burnup (GWD/MTU) Range Under RCCAs	Number of Plants
37.5 - 42.5	9
42.5 - 47.5	13
47.5 - 52.5	14
52.5 - 57.5	6

Summary of Utility Response to NRC Bulletin 96-01

- All utilities have indicated that their operators have been informed, or will be informed prior to plant restart, of the issue

- All utilities, with one exception, have completed or plan simulator drills; remaining utility evaluating simulator capability

- All utilities have provided a continued operability assessment

- Most plants have indicated rod drop timing tests, with recoil evaluation, will be conducted during outages of sufficient duration

- All plants which have a 1996 refueling outage have committed to either rod drop timing testing, drag testing, or a combination of both

- All utilities have committed to confirm that rods have fully inserted for each trip in 1996

Summary of Utility Response to NRC Bulletin 96-01

Requested Action 1

- *Promptly inform operators of recent events (reactor trips and testing) in which control rods did not fully insert and subsequently provide necessary training, including simulator drills, utilizing the required procedures for responding to an event in which the control rods do not fully insert upon reactor trip (e.g., boration of a pre-specified amount).*

Summary Of Utility Responses

- All but one utility indicated that the operators have been informed (remaining utility indicated operators would be informed prior to plant restart following an extended outage)

- All but one utility indicated that simulator drills are either completed or planned (one utility evaluating its simulator capability)

Summary of Utility Response to NRC Bulletin 96-01

Requested Action 2

- *Promptly determine the continued operability of control rods based on current information. As new information becomes available from plant rod drop tests and trips, licensees should consider this new information together with data already available from Wolf Creek, South Texas, North Anna, and other industry experience, and make a prompt determination of control rod operability*

Summary Of Utility Responses

- All utilities provided a continued operability assessment

Summary of Utility Response to NRC Bulletin 96-01

Requested Action 3

- *Measure and evaluate at each outage of sufficient duration during calendar year 1996 (end of cycle, maintenance, etc.), the control rod drop times and rod recoil data for all control rods. If appropriate plant conditions exist where the vessel head is removed, measure and evaluate drag forces for all rodded fuel assemblies.*

Summary Of Utility Responses

- Control rod drop timing tests at each outage of sufficient duration
  - 46 of 51 plants will perform these tests
    - Two plants will not perform due to low burnup of fuel
    - Two plants will evaluate each outage on a case by case basis
    - One utility addressed this issue by performing EOC drag testing
  - 45 of these plants will evaluate recoil (one plant's equipment will not show recoil)
  - Many utilities qualified additional testing based on incremental burnup of fuel

Summary of Utility Response to NRC Bulletin 96-01

Requested Action 3 (continued)

- End-of-cycle testing - Applicable to 29 plants (22 plants w/o refueling outage in 1996)
  - All 29 plants will perform either rod drop or drag testing, or both
    - 26 plants will perform EOC rod drop testing (25 with recoil evaluation)
  - 27 plants will perform drag testing
    - 13 plants in reactor vessel
    - 7 plants in spent fuel pool
    - 7 plants in either vessel or pool
  - Some qualifiers on testing relative to previous in-cycle rod drop testing and F/A burnup
- Westinghouse believes that available drag data and drag data being obtained from site testing is currently sufficient for providing drag information needed for root cause analysis
  - Additional specific data may be requested, if needed

Summary of Utility Response to NRC Bulletin 96-01

Requested Action 4

- *For each trip during calendar year 1996, verify that all control rods have promptly fully inserted (bottomed) and obtain other available information to assess the operability and any performance trend of the rods. In the event that all rods do not fully insert promptly, conduct tests to measure and evaluate rod drop times and rod recoil.*

Summary of Utility Responses

- All utilities agreed to this action by confirming that rods have fully inserted

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