# GEH Presentation on Vallecitos Nuclear Center License Renewal Application

HITACHI

February 8, 2011

# Agenda

- Background
- Process used to analyze/improve LRA for docketing
- Analysis of Staff comments and GEH planned response actions
- Staff reactions to GEH Approach
- Conclusion

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# Background

- LRA initially submitted September 30, 2009
- License expired June 30, 2010
- GEH December 17, 2010 letter committed to a process for systematically resolving NRC docketing concerns
- Management meeting set to review GEH plans and obtain NRC Staff feedback
- Presentation materials provided to NRC Staff in advance for review
- Revised LRA requested by February 28, 2011
  -changes from prior version will be clearly delineated

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# Process used to analyze/improve LRA for Docketing

- Evaluated all prior NRC Staff comments
- Organized comments into common substantive areas (e.g., equipment and facilities, chemical safety)
- Reviewed requirements of 10CFR70.22 and guidance in NUREG 1520 (as appropriate)
- Identified areas in need of additional information
- Identified with specificity, information GEH intends to provide in the LRA to address NRC comments and improve the LRA

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# Common Substantive Areas

NRC Staff comments cover the following substantive areas:

- Facility and equipment descriptions
- Process information
- Change control/configuration management
- Chemical safety
- Radiation protection
- Decommissioning funding

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# Incomplete Facility and Equipment Information

Staff Comment

- Better description of facilities (e.g. Buildings 102, 103, 105, 107 RCRA Waste Storage Building, Waste Evaporator Building 349 and Hillside Waste Storage Facility)

GEH Response

- The first section of Chapter 1 of the LRA will be restructured to provide a general overview and orientation to the VNC site, including a clear identification of the location in which the SNM-960 activities are conducted
- A more detailed description of the SNM-960 facilities and equipment will be provided later in Chapter 1

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# Incomplete Facility and Equipment Information

Staff Comment

- Better description of equipment used to comply with 70.22(a)(7), including design information for among other things: Hot Cells/Shielded Enclosures, temporary storage pool, dry pit storage, vault, interlocks and interlock overrides

GEH Response

- The sections of Chapter 1 discussing the SNM-960 authorized activities will be expanded to include design information and equipment details necessary to support the safety evaluation
  - 1 Million Curie ($Co^{60}$ 1Mev gamma) cell design (Bldg 102)
  - General Mills overhead bridge mounted manipulators (Bldg 102)

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# Incomplete Facility and Equipment Information

Staff Comment *(Continued)*

- Better description of equipment used to comply with 70.22(a)(7), including design information for among other things: Hot Cells/Shielded Enclosures, temporary storage pool, dry pit storage, vault, interlocks and interlock overrides

GEH Response *(Continued)*

- CRL master slave manipulators (Bldg 102)
- 3-ton bridge crane (Bldg 102)
- Large (25k) capacity propane fork truck (Bldg 102)
- Electric forklift (3K#) (Bldg 102)
- Air pallet (Bldg 102)
- 30 ton bridge crane (Hill Side Facility)

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# Incomplete Facility and Equipment Information

Staff Comment *(Continued)*

- Better description of equipment used to comply with 70.22(a)(7), including design information for among other things: Hot Cells/Shielded Enclosures, temporary storage pool, dry pit storage, vault, interlocks and interlock overrides

GEH Response *(Continued)*

  - Large (50K#) fork truck (cask transfer)
  - Storage pit, 19, 6" schedule 40 pipes designed to limit 500 R/h @ 1 Mev to 2.5 mR/h
  - Site transfer cask

- Figures/drawings/diagrams will be improved to support the descriptive wording in the LRA

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# Incomplete Facility and Equipment Information

Staff Comment

- Maximum burn-up, maximum dose rates and shielding information

GEH Response

- The LRA will be modified to include information that the burn-up is limited by the licensed Type B shipping casks (typically USA/9225 and USA/9228) which are authorized for burn-ups averaging 30-52 GWd/MTU with various cool times
- VNC has evaluated handling burn-ups of 80-100 GWd/MTU
- Shielding information, where applicable is included in the discussion of the facilities used to conduct SNM-960 activities

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# Incomplete Facility and Equipment Information

Staff Comment

- Discussion of maintenance program as it applies to equipment used to meet 70.22(a)(7)

GEH Response

- Current maintenance program commitments in LRA Chapter 11, Sections 11.3.1 – 11.3.4 appear adequate.
- These sections will be reorganized and expanded to include additional examples to improve the clarity
  - hot maintenance shop
  - manipulator repair
  - decon

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# Incomplete Facility and Equipment Information

Staff Comment

•Figures are often defined as “typical” - send pictures

GEH Response

•Figures are to be revised to remove clutter and highlight those features used to meet 70.22(a)(7)

•Photographs will be included to highlight some of the key items of interest

•Example photos follow

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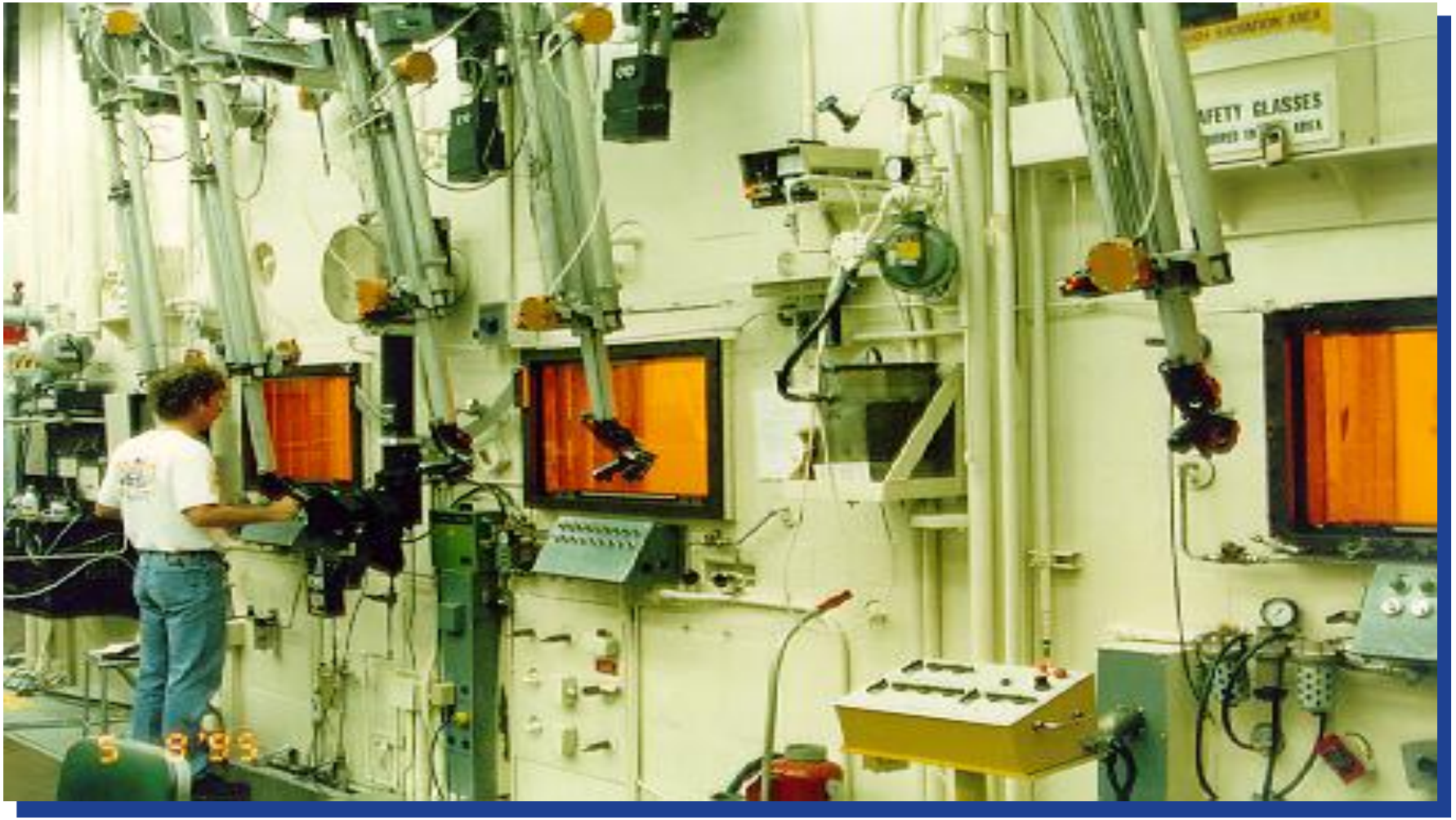
# Incomplete Facility and Equipment Information




Hot Cells

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# Incomplete Facility and Equipment Information

Building 102 Corridor

25,000# Propane Fork Truck and onsite transfer cask

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# Incomplete Facility and Equipment Information

30 ton Bridge Crane and GE-2000 with one impact limiter removed

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# Incomplete Facility and Equipment Information

50,000 pound capacity fork truck for site movement

# Incomplete Facility and Equipment Information

Hill Side Storage Facility and storage canister

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# Incomplete Facility and Equipment Information

Staff Comment

- Better description of the relation of the supply and exhaust sides of the ventilation system to maintain pressure gradients

GEH Response

- Ventilation schematics will be revised to show the supply as well as the exhaust
- A discussion of the control of pressure differentials between work areas will be included

# Incomplete Facility and Equipment Information

Staff Comment

- Discussion of back-up power supply where needed

GEH Response

- The ventilation system for Building 102 and the Criticality Alarm are the only two systems requiring back-up power for operation. Loss of all power results in ceasing all SNM activity and the activation of a recovery plan. This discussion and the equipment description will be included in the description of Building 102

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# Incomplete Process Information

Staff Comment

- Better description of overall facility processes from SNM receipt through to use, treatment, storage, disposal and release

GEH Response

- The LRA will include a general introductory section followed by more comprehensive descriptions of the processes conducted in the facilities handling SNM including receipt, use, LLRW waste processing, storage, disposal and discharge. This will include typical quantities and characteristics as appropriate

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# Incomplete Process Information

Staff Comment

- Better description of SNM transfer processes and handling devices, including shipping cask to hot cell, spent fuel transfers to temporary storage pool, dry storage pit and storage vault

GEH Response

- The description of the facilities, processes and equipment is being revised and improved to specifically include details of the key handling equipment and transfer processes for materials received and transferred throughout the facility
  - Fuel rod receipt and transfer details
  - Liquid waste transfers (1500 gallon tank)
  - Storage canisters

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# Incomplete Process Information

Staff Comment *(Continued)*

- Better description of SNM transfer processes and handling devices, including shipping cask to hot cell, spent fuel transfers to temporary storage pool, dry storage pit and storage vault

GEH Response *(Continued)*

- Special shielding will be identified and described where applicable
  - Cask transfer collar

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# Incomplete Process Information

Staff Comment

- Level of detail insufficient for staff to understand processes from a safety perspective

GEH Response

- The descriptive sections of the LRA are being revised to be more comprehensive and better understood
- Attention will be given to figures, drawings and sketches to make sure they are clear and provide the level of detail required to make the licensing determination

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# Incomplete Description of Procedures

Staff Comment

- LRA needs to better specify the types of procedures used

GEH Response

- The LRA will identify the "specific types" of procedures used at VNC including management control, operating, maintenance and emergency procedures
- This will include, for example: management control (training and qualification, audits and assessments); operating (normal, off-normal operations); maintenance (preventive, corrective maintenance); and emergency (alarm response, emergency preparedness)

# Incomplete Description of Procedures

Staff Comment *(Continued)*

- LRA needs to better specify the types of procedures used

GEH Response *(Continued)*

- The LRA (Section 11.5) also will be reorganized and improved to address the procedure development process; temporary changes to procedures; temporary procedures; timing of periodic reviews; use and control of procedures; records; and topics covered in procedures
- GEH will confirm that activities involving SNM are conducted in accordance with written and approved procedures, including the employee responsibility and authority to stop work if procedures are unclear or incorrect

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# Change Process/Configuration Management

Staff Comment

- No explanation about when NRC is required to approve changes

GEH Response

- The LRA (1.3.1) currently describes criteria under which facility changes can be made without "prior NRC authorization by license amendment". Any changes not meeting the approved criteria will require NRC approval by way of a license amendment request

# Change Process/Configuration Management

Staff Comment *(Continued)*

- No explanation about when NRC is required to approve changes

GEH Response *(Continued)*

- The LRA currently states that facility changes that do not involve a "significant increase in potential or actual environmental impact" do not require prior NRC approval GEH will modify the criteria to delete the "environmental impact" criterion, and focus on changes that do not decrease the effectiveness of approved commitments

# Change Process/Configuration Management

Staff Comment

- Commit to an annual summary report of changes made without prior NRC approval

GEH Response

- GEH will commit to make records of facility changes, made without prior NRC approval, available on site for NRC review. Records will be maintained for 2 years

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# Change Process/Configuration Management

Staff Comment

- GEH should provide the basis for assurance that the licensing basis is kept current

GEH Response

- The current LRA contains the two components necessary to provide reasonable assurance that the licensing basis is maintained. The first is the facility “change process” described previously. The second is the formal configuration management program committed to and described in section 11.2 of the LRA

# Change Process/Configuration Management

Staff Comment *(Continued)*

- GEH should provide the basis for assurance that the licensing basis is kept current

GEH Response *(Continued)*

- The LRA will be revised to make clear how these two components provide reasonable assurance that:
  - the effectiveness of approved commitments is not decreased; and
  - approved changes are reflected, as appropriate, in applicable specifications, drawings, procedures, training, records and other controlled documents, as needed

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# Chemical Safety

Staff Comment

- Identify types, amounts, concentrations and bounding statements for chemicals used; in contact with licensed material

GEH Response

- The LRA will describe the hazardous chemicals used at VNC with a focus on those specific hazardous chemicals that come in contact with licensed material and those that could adversely affect the safe handling of licensed material
- Types of chemicals, amounts, concentrations and bounding statements (as necessary) will be provided
  - Inorganic chemicals e.g. $HN0_3$, Dilute HF, $H_20_2$, etc.

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# Chemical Safety

Staff Comment *(Continued)*

- Identify types, amounts, concentrations and bounding statements for chemicals used; in contact with licensed material

GEH Response *(Continued)*

  - Organic solvents
  - Quantities limited to laboratory reagent scale
- De minimis quantities/concentrations will be addressed in summary fashion (e.g. Windex, lubricants, epoxy resin, etc.)
- There are no hazardous chemicals produced from license material on the VNC site

# Chemical Safety

Staff Comment

- Demonstrate how GEH ensures that hazardous chemicals do not affect the safety of licensed material

GEH Response

- The LRA will improve the existing description of the procedural or other controls used to provide reasonable assurance that hazardous chemicals will not adversely affect the safe handling of licensed material
  - formal chemical approved process
  - employee training
  - labeling and identification

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# Chemical Safety

Staff Comment *(Continued)*

- Demonstrate how GEH ensures that hazardous chemicals do not affect the safety of licensed material

GEH Response *(Continued)*

- The LRA will clarify those hazardous chemicals that do not come in contact with licensed material, are sufficiently separated by distance from licensed material, or are used in such small quantities as to not pose a credible threat to the safe handling of licensed material

# Radiation Safety

Staff Comment

- Provide a more complete set of commitments to applicable regulations

GEH Response

- GEH has reviewed the previously approved SNM-960 license and references by the Staff to specific regulations of interest. In addition to committing generally to comply with Parts 19 and 20 as applicable, the LRA will be revised to include specific commitments to, at a minimum, those regulations specified in the previously approved license and the Staff comments

# Radiation Safety

Staff Comment *(Continued)*

- Provide a more complete set of commitments to applicable regulations

GEH Response *(Continued)*

- These include:
  - 19.12 Instructions to workers
  - 20.1101 Radiation protection programs
  - 20.1201 Occupational dose limits
  - 20.1202 Compliance with requirements for summation of external and internal doses
  - 20.1204 Determination of internal exposure
  - 20.1501 Surveys and monitoring - general

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# Radiation Safety

Staff Comment *(Continued)*

- Provide a more complete set of commitments to applicable regulations

GEH Response *(Continued)*

- 20.1502 Conditions requiring individual monitoring of external and internal occupational dose
- 20.2102 Records of radiation protection programs
- 20.1003 Definitions
- 20.1601 Control of access to high radiation areas
- 20.1703 Use of individual respiratory protection equipment

# Radiation Safety

Staff Comment *(Continued)*

- Provide a more complete set of commitments to applicable regulations

GEH Response *(Continued)*

- Part 20, Subpart J — Precautionary procedures (including posting and labeling)

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# Radiation Safety

Staff Comment

- Discussion of dose rates/limits for moving SNM around the site

GEH Response

- Personnel dose rates for moving SNM are limited (e.g. 50mRem/hr for fork truck vehicle drivers without special approvals documented in Radiation Work Permits)
- Dose rate limits are maintained ALARA and described and controlled by internal procedures and the LRA will be modified to provide more information on applicable controls

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# Radiation Safety

Staff Comment

- Discuss provision of annual exposure reports to individuals

GEH Response

- Will revise LRA Chapter 4 to state that exposure reports will be provided to individuals in accordance with 10CFR 19.13

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# Radiation Safety

Staff Comment

- More detail on ALARA Committee

GEH Response

- The LRA will be revised to better describe the ALARA Committee, including the composition, charter and an identification of where it reports in the organization

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# Decommissioning Funding

Staff Comment

•Incomplete discussion of the assumptions underlying the cost estimates

•Key assumptions are not evident, such as the cost being based on the use of an independent third party contractor

GEH Response

•GEH understands the need to comply with regulatory requirements and is working with NRC Staff to resolve the issue

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# Decommissioning Funding

Staff Comment

- Major decommissioning tasks or activities not itemized.
- Labor costs are not broken down by task

GEH Response

- GEH understands the need to comply with regulatory requirements and is working with NRC Staff to resolve the issue

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# Decommissioning Funding

Staff Comment

•Lack of discussion about techniques and methods that will be used to decontaminate facility components

GEH Response

•The revised decommission funding plan and cost estimate (DFP/CE Chapter 8) currently describes techniques and methods that will be used to decontaminate facility components

•GEH understands the need to comply with regulatory requirements and is working with NRC Staff to resolve the issue

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# Decommissioning Funding

Staff Comment

- Lack of discussion about the means by which the cost estimate and associated funding levels will be adjusted over the life of the facilities

GEH Response

- Update the DFP/CE to include a description of the means used to periodically adjust the cost estimate and associated funding levels

# Decommissioning Funding

Staff Comment *(Continued)*

•Lack of discussion about the means by which the cost estimate and associated funding levels will be adjusted over the life of the facilities

GEH Response *(Continued)*

- This will include, for example, the process to adjust costs to reflect completed remedial activities, current contamination levels, inflation changes in burial, transportation, goods and service rates, changes in facility conditions or operations and revised decommissioning techniques

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# Other Comments

Staff Comment

- Put reference to FNMCP in LRA not in cover letter

GEH Response

- Fundamental Nuclear Material Control Plan is not required for a facility with less than 1 effective kg SNM. (reference 10CFR 74.31 and 74.51)
- License conditions SG-2.1 & SG-2.2 should be retained in the renewal license

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# Other Comments

Staff Comment

- Explain how a safe batch amount is measured for NCS purposes

GEH Response

- The quantity of SNM is tracked in the accountability system as specified in a criticality safety analysis documented in LRA Section 5.4.5.5. This includes the limits to maintain less than a Safe Batch
- Safe Batch is defined in Section 5.4.3 of the LRA
- No change in the LRA appears necessary

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# Conclusion

- GEH has used a methodical process to identify NRC comments and has proposed specific modifications to the LRA to provide additional detail

- GEH needs NRC feedback as to whether the responses are on the "right track"
  - Has GEH failed to address any known impediments to docketing?

- Discussion and resolution of the date for resubmitting the LRA

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