

MEETING AGENDA
ACI Committees 227 & 349-4
San Diego, CA
March 26, 2000

I. Welcome and introductions (CAZ)

II. Purpose of Joint Committee Effort (CAZ)

Share collective committee resources to achieve individual committee goals for the proposed documents.

III. Individual Committee Document Goals: What is our purview?

- A. Committee 227:** "Study and report the use of concrete in the storage and isolation of radioactive waste materials, hazardous wastes, and isolation of mixed wastes." (RJD)
- B. Committee 349-4:** "Provide guidelines for the design of low-level and high-level radioactive material repository structures." (CAZ)

IV. Likely End Users of the Individual Committee Documents

- A. Committee 227:** Environmental firms, utilities, DOE personnel and their contractors
- B. Committee 349-4:** A/E firms, Electric Utilities, Department of Energy personnel & US NRC Inspectors, others?

V. Status of Committee 227 State-of-the-Art Report, "Radioactive and Hazardous Materials" (RJD)

Committee 227 has produced a draft of several chapters comprising roughly half the planned document. Since little progress was made in several years, the committee voted in Spring 1999 to publish several papers in *Concrete International* based on the document in order to make the information available. Four papers were planned. So far, one has been submitted for publication:

"Concrete Structures for Waste Storage and Disposal", by Barry Oland and John Baker

VI. Status of Committee 349-4 Technical Report, ACI 349.4R-XX, "Guidelines for the Design of Low-Level and High-Level Waste Repository Structures": (CAZ)

This technical report has been under discussion by ACI Committee 349 since 1991, at which time Subcommittee 4, "Waste Repository Structures", was formed. Subcommittee 4 last met on Monday morning, November 1, 1999. It was decided that the existing draft technical report, ACI 349.4R, "Guidelines for the Design of Low-Level and High-Level Waste Repository Structures", was not ready for a full committee letter ballot. The current depth of experience on Subcommittee 4 will not support a satisfactory treatment of the

diverse range of repository structure types and their various regulatory requirements in this proposed state-of-the-art technical report. Due to the diversity of waste repository structure types and the limited depth of experience on Subcommittee 4, generic design issues and design guidelines could not be identified at this time.

A. ACI 349 Chairman Zalesiak suggested several options to shore up the experience gap on Subcommittee 4: (CAZ) [Please keep the discussion brief.]

1. recruitment of experienced new members
2. initiation of collaborative effort with ACI Committee 227
3. increased information sharing amongst subcommittee members
4. initiate a review of ACI 349/349R-97 and develop a list of key design issues (i.e. section-by-section), not addressed or not applicable to waste repository structures:

B. At the Subcommittee 4 meeting, certain design issues were raised for consideration when reviewing ACI 349/349R-97 for applicability to waste repository structures: (CAZ) [Please keep the discussion brief.]

1. load cases and load combinations
2. long-term durability issues and material recommendations
3. creep effects under long-term exposure to high temperatures
4. in-service inspection requirements
5. quality assurance requirements

VII. Status of Other Committee 349 Documents: (CAZ) [For Information Only]

A. ACI 349/349R-XX, “Code Requirements for Nuclear Safety Related Concrete Structures”:

Committee 349 last revised this document in April 1997. TAC has approved the latest proposed changes in October 1999. The proposed changes reflect ACI 318/318R-95 revisions and will appear in an upcoming issue of Concrete International for public comment.

B. ACI 349.1R-91 (Re-approved 1996), “Reinforced Concrete Design for Thermal Effects on Nuclear Power Plant Structures”:

Committee 349 last re-approved this technical report in November 1996. The next committee action must occur by 2001 to maintain this document in the “ACI Manual of Concrete Practice”. **Subcommittee 2 action is required at this time.**

C. ACI 349.2R-97, “Embedment Design Examples”:

Committee 349 last revised this technical report in October 1997. The next committee action must occur by 2002 to maintain this document in the “ACI Manual of Concrete Practice”. Subcommittee 3 is working to revise the design examples to include the CC Method. Plans are to ballot these new examples once the new Appendix B has been issued. **Subcommittee 3 action is required at this time.**

D. ACI 349.3R-96, “Evaluation of Existing Nuclear Safety Related Concrete Structures”:

Committee 349 first issued this technical report in January 1996. The next committee action must occur by 2001 to maintain this document in the “ACI Manual of Concrete Practice”. This technical report is currently under committee ballot for revision. **Subcommittee 1 action is required at this time.**

E. ACI 349.5R-XX, “Methodology for Capacity-Side Fragility Analyses”:

This technical report has been under discussion, by Subcommittee 2, since March 1995. **Subcommittee 2 action required at this time.**

VIII. General Subject Areas of Overlap Relative to ACI Committees 227 & 349-4 (RJD)

- A. Design Philosophy for Low-Level Waste Facilities
- B. Definitions and Terminology Associated with LLW Facilities
- C. Regulatory Requirements, Standards/Codes for Licensing/Operation of LLW Facilities
- D. Types of LLW Facilities Applicable to Committees 227 & 349-4 Technical Reports
- E. Degradation Mechanisms Associated with LLW Facilities
- F. Service Life Predictions for LLW Facilities
- G. Performance Expectations and Technical Issues for LLW Facilities

IX. General Subject Areas Unique to ACI Committees 227 & 349-4

A. Subject Areas Unique to Committee 227: Materials Science and Chemistry (RJD)

- 1. waste stabilization and solidification
- 2. chemical interactions between waste and cementitious materials
- 3. others _____?

B. Subject Areas Unique to Committee 349-4 (CAZ)

- 1. structural design guidelines for reinforced concrete repository structures
- 2. QA/QC requirements for design, construction and record keeping
- 3. others _____?

X. Available Options to Prepare State-of-the-Art Technical Report(s)

- A. work collectively to prepare one comprehensive technical report on the subject
- B. work collectively on subject area overlaps, but prepare separate technical reports
- C. work independently, but collaborate for peer review prior to committee letter ballots
- D. work independently, but collaborate for peer review after committee balloting
- E. develop design philosophy jointly
- F. develop common glossary

XI. The Next Step(s)

- A. decide on the most effective option, above, to achieve each committee's goal
- B. minimize duplication of efforts between Committees 227 & 349-4
- C. agree on an effective peer review arrangement between Committees 227 & 349-4
- D. assign responsibilities for design philosophy paper to be submitted to *Concrete International*
- E. assign tasks for developing common glossary for use in the state-of-the-art reports of both committees
- F. joint session?
- G. call for new members

XII. Action Items

- A.** review both draft technical reports to ensure no unnecessary overlaps
- B.** identify key technical issues within each technical report and assess expertise
- C.** classify identified key technical issues into one of the following categories:
 - 1.** information and expertise to address key issue currently available
 - 2.** information and expertise to address key issue not currently available, but can be readily obtained to address key issue
 - 3.** key issue will require extensive research beyond the committee's expertise
- D.** other action items _____?