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Subject: **Response to NRC Request for Information Regarding CANDU 3U
Application for Final Design Approval and Design Certification**

- Refs: 1. NRC letter to AECLT (D. M. Crutchfield to A. D. Hink) dated December 15, 1994: Results of the Acceptance Review for AECL Technologies' Application for Final Design Approval and Standard Design Certification for the CANDU 3U Design
2. NRC Meeting Summary, dated January 12, 1995: Summary of Meeting Held with AECL and AECLT in Ottawa, Ontario

Gentlemen:

This letter responds to the results of the NRC staff acceptance review of the subject application as documented in Reference 1.

AECL Technologies Inc. (AECLT) has developed a schedule for submittal of additional information as requested in Reference 1. The schedule for updating the Safety Analysis Report (SAR) and submitting other information (ITAAC, Technical Specifications, etc.) is provided in Enclosure 1. The schedule set forth in the enclosure is based on the review milestones developed by the NRC staff in SECY-93-097; however, the milestones have been relocated to coincide with an AECLT-proposed schedule for the review. This schedule was presented to members of the NRC staff at a January 30, 1995 meeting to discuss cost and schedule for the CANDU review. The schedule proposes a period of generic licensing issue review followed by the specific plant design review. This timing is based on the current AECL CANDU plans and schedules for developing design information for the full CANDU plant product line. AECLT is planning to meet with the NRC staff to identify

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CANDU in the USA
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and address several technical and safety issues that are generic to the review of CANDU plants using NRC regulatory requirements and guidance. Therefore, the period prior to initiating the specific design review would be used productively to resolve generic issues such as those identified in SECY-93-092 and in Reference 2. These issues involve all major aspects of CANDU technology; therefore, their evaluation and resolution would result in a more efficient review of the application. Reference 1 contained specific questions in the form of a request for additional information. Many of these questions will be answered, and result in SAR updates, during the planned generic issue review effort. AECLT intends to provide responses to the remaining questions in an SAR update submitted no later than January 1997. AECLT proposes to initiate discussions with the NRC staff in the near future to identify and schedule reviews of generic CANDU issues. A list of candidate issues is provided in Enclosure 2.

At the January 30 meeting, AECLT again stated that (1) the cost for an FDA review should be more in line with that of other evolutionary plants (with due consideration of unique design differences) and (2) that AECLT could not proceed under the previous estimate of approximately \$50 million if that amount were proposed to AECLT for NRC cost recovery. AECLT is looking forward to further discussions after the decision of the NRC Commission regarding confirmatory research costs and NRR's reassessment of resources for the CANDU review are available.

In the final paragraph of Reference 1, ongoing program support tasks are mentioned. It is requested that NRC staff provide AECLT with task descriptions and an estimate of the anticipated fees that will be associated with these tasks over the next year - to March 31, 1996.

Should you have any questions regarding this letter, please contact the undersigned.

Very truly yours,



M. H. Fletcher
Director, Safety and Licensing

Enclosures: 1. Proposed Program Milestones
2. CANDU Generic/Policy Issues

cc: D. Scaletti NRR

Proposed Program Milestones

The following milestones are based on the program for CANDU review discussed with the NRC staff at a meeting on January 30, 1995. The proposed program involves an initial two-year review of generic/policy issues followed by a three-year detailed review of the CANDU design. The salient points affecting the program schedule are: (1) recognition of CANDU as a well-developed reactor plant design; (2) the necessity of pursuing innovative and efficient review methods to limit costs; (3) the need for AECLT to provide timely and complete information to the NRC; (4) maintaining a level of effort within AECLT budget during the generic review phase, i.e., \$1M (US) the first year building up to \$2M in the second year; and (5) elimination of costs for research that duplicates existing CANDU research. The milestones are also shown graphically on Figure 1.

- Present - 4/97 Review of CANDU generic licensing issues
- Present - 1/97 AECLT updates to SAR
- 4/97 NRC staff initiate specific design review
- 5/97 (approx.) AECLT initiate review seminars in selected design topics for NRC staff technical reviewers
- 1/98 AECLT submit response to NRC RAIs
- 1/98 AECLT submit Level I PSA
- 11/98 NRC issues Draft Safety Evaluation Report
- 7/98 AECLT submit Level II & III PSA, ITAAC & DAC, Technical Specifications, Initial Test Program Test Abstracts, and Severe Accident Mitigation Design Alternatives
- 3/99 AECLT respond to Draft Safety Evaluation Report and submit Final SAR, Final Technical Specifications, and Final ITAAC & DAC
- 10/99 NRC issues Final Safety Evaluation Report for Review
- 4/00 AECLT submit Design Control Document
- 9/00 FDA issued



AECLT PROPOSED PROGRAM

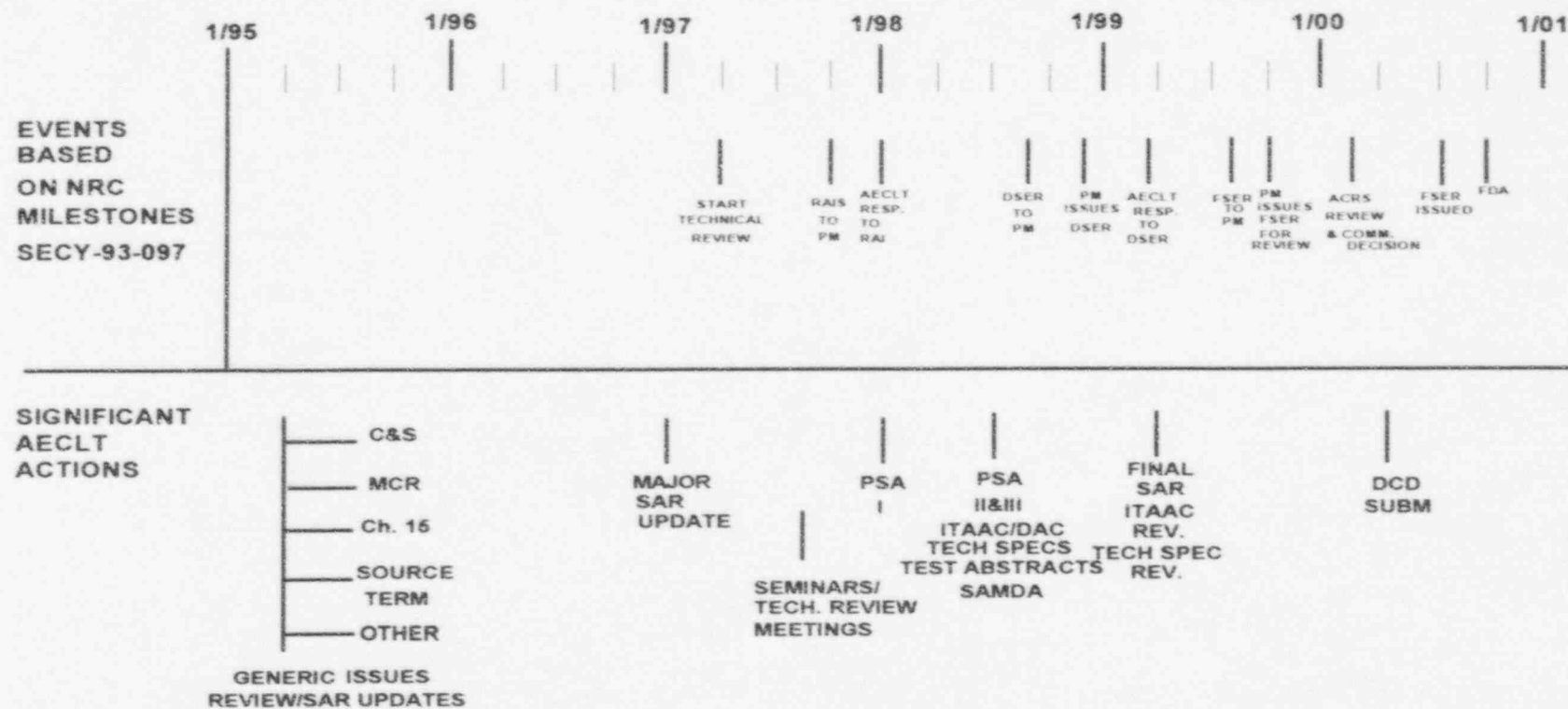


FIGURE 1

CANDU GENERIC/POLICY ISSUES

1. Codes and Standards (structures, pressure-retaining systems, testing/inspection, electrical)
2. Accident Analysis* (event selection and evaluation, categorization of events, acceptance criteria, assumptions, analytical tools, severe accidents, external events)
3. Source Term* (mechanistic evaluation: fuel performance, transport, event-specific source terms)
4. Containment Performance* (offsite dose limits, ASME Level C limits or equivalent)
5. Positive Void Reactivity* (probability, consequences)
6. Control Room/Secondary Control Area* (CANDU philosophy, NRC GDC-19)
7. Seismic Design (assumptions for SDE, seismic margins)
8. Quality Group Boundaries (reactor coolant pressure boundary, containment penetrations, Class 6 systems, differences between U.S. and CANDU definitions)
9. Fire Protection (CANDU methodology and NRC Standard Review Plan)
10. On-Power Fuelling (safety issues and operating experience)
11. Human Factors Engineering (CANDU human factors engineering plan and criteria)

* Issue identified in SECY-93-092