Seventy-Five Years of Nuclear Criticality Safety Documents—A Bibliography

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The Bibliography Continues to Grow

• Our collection of nuclear criticality documents was begun in the 1970s.

• It now contains nearly **23,000** references to reports that contain information that can be helpful to nuclear criticality safety specialists or others that have an interest in the properties of fissile materials and systems.

• The first bibliographic collection, published in 1979, referenced reports that could provide specifications for relatively simple critical configurations necessary for validating nuclear constants and calculational techniques. It included **1143** reports.

• A computer database was created but in order to share the information we prepared a printed publication.

• To make it useful, various lookup tables were made and concordances were constructed that were based on keyterms and phrases in the titles and abstracts.
The Beginning of the Work

- Our collecting and indexing of a large number of reports into one bibliography began with the work begun in partial collections by A. D. Callihan, J. H. Chalmers, H. C. Paxton, and many others.
- We had to obtain printed copies of the documents to determine if they were relevant and to acquire the bibliographic information.
- We keyboarded the bibliographic information (including abstracts) onto punched cards.
- Software had been recently written that was used to create the computer listings. A team led by Viktor E. Hampel at Livermore had recently accomplished the task by creating a relational database program using FORTRAN coding.
- Still, additional coding was done to process the program’s output into the various formats needed for the 1979 publication.
The Hardcopy Documents: Collected Mostly in the 70s and 80s
Collecting Was Done The “Old-Fashioned” Way

• Our Technical Information Department searched for possibly relevant documents and gave us a large quantity of computer printouts.

• We examined the printouts to find those that might be of value.

• A purchase order was prepared for each document.

• A substantial number of reports were found by simply examining the reference lists within other reports and conference papers.

• We stopped ordering hard-copy documents and now rely on digital downloading to obtain full-text reports.

• Today, we still use some “old-fashioned” methods to get bibliographic information and do not just rely on computer technology.

• We have even examined the references contained within ICSBEP evaluations, assuming that if they were important for the evaluations they should be included in the bibliography.
In the 1980s We Published a Compilation of Paper Summaries Presented at American Nuclear Society Meetings

- This was done with the consent of ANS.
- We continued to use the tools developed for the 1979 bibliography.
- Complete images of the paper summaries were included.
- Lookup tables and concordances were provided.
- It was available in a document printed in 1982.
- After I retired from LLNL, I collaborated with ANS and in 1999 we published an update to the 1982 compilation (a paper was presented at the ICNC’99 conference in Versailles, France).
- This document was produced in only printed form, but ANS has given approval for a reissue in digital format.
Publication Frequency Rose Rapidly in the Early Decades and then (Mostly) Declined
## Some Publication Sources

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## Some Major Topics

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A publication is nearly complete

- It would take many reams of paper to be printed
- Would be about a foot tall if printed
- So it will be issued only in digital format (DVD or equivalent)
- However, the bibliographic database is available on the DOE/NCSP Website
The bibliography is included on the NCSP Website

• It is called “LLNL Database.”
• Links are provided to full-text reports.
• We continue to scan our “vintage” document collection.
• It is easy to use. The homepage is the place to start…

Try it at:
https://ncsp.llnl.gov
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Thank You For Your Attention