

From: Alexander Adams
To: Blanca Hinojosa
Date: 11/14/2007 11:06:17 AM
Subject: Re: PINS ANS-5.1-200x for Review

Blanca

I approve the PINS as written.

Alexander Adams Jr.
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>>> "Blanca Hinojosa" <BHinojosa@ans.org> 10/22/2007 1:40 PM >>>
Dear N17 Committee,

Attached for your review and approval is the PINS form along with the vote/comment form for:

ANS-5.1-200x, "Decay Heat Power in Light Water Reactors"

Page 1 of the PINS form must be approved as this information is submitted to ANSI. Page 2 of the PINS form is background information for Standards Committee purposes only and does not require approval.

Your response is requested by November 21, 2007.

Regards,
Blanca

Blanca Hinojosa
Standards Assistant
American Nuclear Society
555 N. Kensington Avenue
LaGrange Park, IL 60526
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CC: Anthony Mendiola; dxc1

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Subject: Re: PINS ANS-5.1-200x for Review
Creation Date 11/14/2007 11:06:17 AM
From: Alexander Adams

Created By: AXA@nrc.gov

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Options

Expiration Date: None
Priority: Standard
ReplyRequested: No
Return Notification: None

Concealed Subject: No
Security: Standard

PINS: PROJECT INITIATION NOTIFICATION SYSTEM FORM (Rev. 1/05)

*NOTE: Adoptions of international standards require compliance with ANSI's Sales & Exploitation Policy.

| | | | | |
|--|---|--|--------------------------|------|
| 1. Designation of Proposed Standard: | ANS-5.1-200x | | | |
| 2. Title of Standard: | Decay Heat Power in Light Water Reactors | | | |
| 3. Project Intent: (Check the applicable box below) | Supersedes or Affects: (Specify designation of approved ANSI standard(s) or international standard(s)* affected or superseded.) | | | |
| Create new standard | <input type="checkbox"/> | | | |
| *Adopt identical international standard (see Expedited Procedures, Section 1.2.9.2, Annex H: IDT and Annex I) | <input type="checkbox"/> | | | |
| *Adopt modified international standard (see Requirements Associated, Section 1.2.9.1, Annex H: MOD and Annex I) | <input type="checkbox"/> | | | |
| *AND this adoption revises this current ANS | <input type="checkbox"/> | | | |
| Revise current standard | <input checked="" type="checkbox"/> | | | |
| Revise and Re-designate current standard | <input type="checkbox"/> | | | |
| Revise, Re-designate and Consolidate current standard | <input type="checkbox"/> | | | |
| Revise and Partition current standard | <input type="checkbox"/> | | | |
| Reaffirm current standard | <input type="checkbox"/> | | | |
| Reaffirm and Re-designate current standard | <input type="checkbox"/> | | | |
| Supplement to a current standard | <input type="checkbox"/> | | | |
| Withdraw current standard | <input type="checkbox"/> | | | |
| 4. This standard contains excerpted text from an international standard, but is not an ISO or IEC adoption: | Check here if this standard includes excerpted text from an ISO or IEC standard, but is not an identical or modified adoption of an international standard. | | | |
| 5. Provide an explanation of the need for the project: (If revision, note need for revision due to new reports, tests, data, etc.) | The Standard presently includes only the decay heat contributions from fission products and ²³⁹ U and ²³⁹ Np. The Standard will be expanded to address contributions from other actinides and activation products that are presently left to the user to provide. In addition, improved methods are needed to determine uncertainty. | | | |
| 6. Identify the stakeholders (e.g., telecom, consumer, medical, environmental, etc.) likely to be directly impacted by the standard: | The Standard is widely implemented for the analysis of normal reactor operations and postulated accidents. Stakeholders include nuclear power plant vendors, owners/operators, fuel vendors, Nuclear Regulatory Commission. | | | |
| 7. Scope Summary: (Provide a one paragraph description, not to exceed 650 characters including spaces. Should be written as it will appear in the published standard (present tense verb). If necessary, scope in standard may be longer provided that it is editorially the same.) | This standard sets forth values for calculating the decay heat power of uranium fuelled light water reactors (LWRs). The decay heat power from fission products is presented in tables and equivalent analytical representations. The methods account for reactor operating history, for the effect of neutron capture in fission products, the contributions from actinides and activation products, and for assessing the uncertainty in the calculated decay heat power. | | | |
| 8. Consumer Product or Service: | Check here if standard covers Consumer or Service Product | | | |
| 9. Units of Measurement Used: (check one) | <input checked="" type="checkbox"/> | Metric | <input type="checkbox"/> | US |
| | <input type="checkbox"/> | | <input type="checkbox"/> | Both |
| | <input type="checkbox"/> | | <input type="checkbox"/> | NA |
| 10. Accredited Standards Developer Acronym: | ANS | | | |
| 11. Submitter: (Specify submitter's name and complete contact information, address, phone, email, etc.) | Name/Title: | Patricia Schroeder / Standards Administrator | | |
| | Organization: | American Nuclear Society | | |
| | Address: | 555 North Kensington Avenue | | |
| | City, ST, Zip: | La Grange Park, IL 60526 | | |
| | Phone/Fax: | 1(708) 579-8269 • 1 (708) 352-6464 | | |
| | Email: | pschroeder@ans.org | | |

The information on this page is not an official part of the ANSI PINS form. It was designed for ANS Standards Committee purposes to provide more background information about the standard. It is not required that this section be approved. Only the ANSI PINS form on page 1 requires approval.

Project #: ANS-5.1

1. Purpose:

Update the Standard to address several components of decay heat power that are presently not included and left to the user to determine. For postulated accident analyses involving longer timeframes (e.g., small break LOCA), these components become increasingly important and can lead to an underestimate of decay heat power if not included. Other proposed improvements include adding a flexible approach to determine the uncertainty for implementations of the Standard that utilize the $f(t)$ functions. Finally, analytic expressions for the neutron capture correction factor need to be reviewed for applicability to modern high burnup commercial fuel.

2. Benefit to Users:

The proposed improvements will provide users with an accepted approach to calculate several components of decay heat presently not covered by the Standard. Analytical representations of the uncertainty are needed for the values of $f(t)$, in addition to the values of $F(t)$ already included in the Standard, to provide users a straightforward method of determining uncertainty when the $f(t)$ analytic expression is applied to calculate decay heat.

3. Consensus Body:

N-17

4. Subcommittee under which it is assigned:

ANS-19

5. Working Group Chair (s):

Ian Gauld, Oak Ridge National Laboratory

6. Working Group Members (including organizations):

Michaele Brady Raap (Pacific Northwest National Laboratory – past Chair), Arnold H. Fero (Westinghouse), Richard D. Ankney (Westinghouse Electric Company), Sylvia Wang (General Electric), Bill Wilson (Los Alamos National Laboratory), Chas Boss (Atomic Energy of Canada Ltd.), Ed Knuckles (Florida Power and Light), Vacant TBD (Nuclear Regulatory Commission), Holly Trelue (Los Alamos National Laboratory), Jun-ichi Katakura (Japan Atomic Energy Agency), Kirk Dickens (Oak Ridge National Laboratory - retired), Schenter, Robert E (Pacific Northwest National Laboratory - retired), Tadashi Yoshida (Musashi Institute of Technology), Virgil Schrock (University of California, Berkeley - retired), David Carpenter (Bechtel Bettis)

7. Interests Represented in Development of Standard (in addition to members' organizations, other affiliations that may be represented important to the development of this standard):

Nuclear power plant vendors, utilities, fuel vendors, regulators

8. Coordination and Interfaces (Liaison):

D. Cokinos, Chairman ANS-19

Ben Rouben

9. Related Standards or References, or Both:

ANS 19.8 (proposed), "Fission Chain Yield Data"

ISO 10645:1992(E), International Standard, "Nuclear Energy – Light Water Reactors – Calculation of the decay heat power in nuclear fuels"

10. Project Initiation Date:

January 2008