



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 1, 1997

MEMORANDUM TO: Jack R. Strosnider, Jr., Chief
Materials and Chemical Engineering Branch
Division of Engineering

THRU: Edmund Sullivan, Chief
Chemical Engineering and Metallurgy Section
Materials and Chemical Engineering Branch

FROM: James A. Davis, Materials Engineer
Chemical Engineering and Metallurgy Section
Materials and Chemical Engineering Branch

SUBJECT: TRIP REPORT ON THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS (ASME) B1 MAIN COMMITTEE AND SUBCOMMITTEE
MEETINGS ON APRIL 16-17, 1997 IN ORLANDO, FLORIDA

I attended the American Society of Mechanical Engineers (ASME) B1 Subcommittee Meetings in Orlando, Florida on April 16-17, 1997. The Subcommittee meetings attended were Subcommittee B1.2 on Gaging, Subcommittee 1.3 on Gages, Subcommittee B1.7M on Definitions, Subcommittee B1.15 on Metric J Screw Threads, the B1 Technical Advisory Subcommittee, and the Main B1.1 Committee meeting. The Chairman of the B1.2 Subcommittee requested a 4 hour meeting next fall to resolve the large number of negative votes on the revision of the B1.2 standard. The current plan is to issue B1.2 with minor changes and to immediately continue the major revision with hopes of resolving all of the negative ballots within the next 5 years when the standard is up for reballot. The same request was made for B1.1, B1.3, and B1.7M. The B1.7M standard has added a number of definitions in an attempt to clarify the remaining standards. All of these major revisions are in response to the request by NRC and the recommendations of the NIST/ASME Research Report. To be recognized as an ANSI Standard, a document can not be more than 5 years old. ASME, ASTM, NACE, AWWA, and most other professional societies that issue standards want their standards to be ANSI Standards as well. In the case of the ASME B1 standards, their deadline for renewal is approaching, and, if they wait for the revision to be complete, they will be withdrawn as ANSI standards. A standard can be revised at any time within the 5 year period and the plan is to revise these standards in less than 5 years. This will involve resolution of all negative votes on the standards, which can be a lengthy process. The resolution of negative votes can be appealed to several higher levels of ASME before a final resolution is reached, which also takes more time. Since these are such major revisions to the standards, I am sure there will be numerous negatives.

CONTACT: James Davis, EMC/NRR
415-2713

9705120078 970501
PDR ORG NRR
PDR

97-93
NRC FILE CENTER COPY

A definition for functional diameter has been added to B1.7M. The functional diameter is defined as "functional diameter - is a theoretical tube that is concentric around the axis of a screw thread including the cumulative effect on the pitch diameter, lead, half angles, roundness and taper. Variations of the crest and root are excluded. The pitch diameter of an enveloping thread with correct pitch, lead, half angles, roundness and taper are needed for engagement of the smallest internal correct thread form with an external product thread or the largest external product thread form with an internal product thread. On a given external thread, the functional diameter size is always equal to or greater than its pitch diameter size. These limits of its size are exactly equal to those of the pitch diameter of the same size and thread class. For threads of correct form and lead, the numerical value of the functional diameter is equal to the pitch diameter." As you can see by this definition, making clear, technically correct definitions that are understandable may prove to be quite a challenge.

A letter was discussed at the B1 Technical Advisory Committee Meeting from James A. Abrahamson, Lieutenant General, USAF (Ret) to Mr. David Belden, President of ASME International about how cancelling MIL-S-8879 before an identical ASME document is approved will result in additional "mishaps which resulted in both tragic loss of life and aircraft." The Secretary of the Air Force has dictated that all MIL specifications be replaced with consensus documents such as ASME or ASTM standards to bring the Air Force in line with industry and as a cost savings. The general was invited to attend the meeting and he did not show up so the matter was considered closed.

One of the goals of the ASME B1 Subcommittee is to provide oversight of the ongoing revision of ASME Standard B1.1 on UNS screw threads. A detailed revision was started two and a half years ago and the first draft is currently being balloted. It is anticipated that the issuance of a revised standard will require several years to complete since the standard will be balloted by the ASME B1 Subcommittee, Main Committee, the Standards Council. The main objectives for the revision are: 1) Eliminate any errors in the standard; 2) Clarify the language in the standard; and 3) Shorten the standard to a reasonable length by eliminating any sections that do not contribute to the standard. The most significant error to be corrected is related to the tables of dimensions with their tolerances. The tables were first developed over 100 years ago and, when the values were recalculated, about 10 percent were found to be in error although the errors were small. The errors in the tables would not have resulted in any substandard performance and would not have created any safety issues in nuclear applications. The tables previously listed the pitch diameter and the pitch diameter tolerances for nuts and bolts. The revision substitutes functional diameter and pitch diameter for the pitch diameter. For perfect threads, the functional diameter as measured using System 21 is identical to the pitch diameter as measured using System 22. When the threads are not perfect, the pitch diameter and functional diameter will be different. The ASME B1 Subcommittee has examined the ASME B1 documents in an attempt to clarify any sections that are confusing. They are looking closely at ASME B1.7, the standard containing definitions.

the functional diameter is equal to the pitch diameter." As you can see by this definition, making clear, technically correct definitions that are understandable may prove to be quite a challenge.

A letter was discussed at the B1 Technical Advisory Committee Meeting from James A. Abrahamson, Lieutenant General, USAF (Ret) to Mr. David Belden, President of ASME International about how cancelling MIL-S-8879 before and identical ASME document is approved will result in additional "mishaps which resulted in both tragic loss of life and aircraft." The Secretary of the Air Force has dictated that all MIL specifications be replaced with consensus documents such as ASME or ASTM standards to bring the Air Force in line with industry and as a cost savings. The general was invited to attend the meeting and he did not show up so the matter was considered closed.

One of the goals of the ASME B1 Subcommittee is to provide oversight of the ongoing revision of ASME Standard B1.1 on UNS screw threads. A detailed revision was started two and a half years ago and the first draft is currently being balloted. It is anticipated that the issuance of a revised standard will require several years to complete since the standard will be balloted by the ASME B1 Subcommittee, Main Committee, the Standards Council. The main objectives for the revision are: 1) Eliminate any errors in the standard; 2) Clarify the language in the standard; and 3) Shorten the standard to a reasonable length by eliminating any sections that do not contribute to the standard. The most significant error to be corrected is related to the tables of dimensions with their tolerances. The tables were first developed over 100 years ago and, when the values were recalculated, about 10 percent were found to be in error although the errors were small. The errors in the tables would not have resulted in any substandard performance and would not have created any safety issues in nuclear applications. The tables previously listed the pitch diameter and the pitch diameter tolerances for nuts and bolts. The revision substitutes functional diameter and pitch diameter for the pitch diameter. For perfect threads, the functional diameter as measured using System 21 is identical to the pitch diameter as measured using System 22. When the threads are not perfect, the pitch diameter and functional diameter will be different. The ASME B1 Subcommittee has examined the ASME B1 documents in an attempt to clarify any sections that are confusing. They are looking closely at ASME B1.7, the standard containing definitions.

Distribution:

PDR
EMCB RF
Central Files
BSheron
GLainas
JStrosnider
GMillman

DOCUMENT NAME: G:\DAVIS\ASME97.B1

To receive a copy of this document, indicate in the box C=Copy w/o attachment/enclosure E=Copy with attachment/enclosure N = No copy

OFFICE	DE:EMCB	DE:EMCB	DE:EMCB
NAME	JDavis:jbsaw	ESullivan	JStrosnider
DATE	04/30/97	5/12/97	1/197

OFFICIAL RECORD COPY

Distribution:

PDR

EMCB RF

Central Files

BSheron

GLainas

JStrosnider

GMillman

DOCUMENT NAME: G:\DAVIS\ASME97.B1

To receive a copy of this document, indicate in the box C=Copy w/o attachment/enclosure E=Copy with attachment/enclosure N = No copy

*See Previous Concurrence

OFFICE	DE:EMCB		DE:EMCB		DE:EMCB
NAME	*JDavis:jb		*ESullivan		JStrosnider
DATE	04/30/97		05/02/97		5/6/97

#2
5/6/97
add

OFFICIAL RECORD COPY

Distribution:

PDR

EMCB RF

Central Files

BSheron

GLainas

JStrosnider

GMillman

120008

DF0310

04m-7 ASME

X-04m-15-1

DOCUMENT NAME: G:\DAVIS\ASME97.B1

To receive a copy of this document, indicate in the box C=Copy w/o attachment/enclosure E=Copy with attachment/enclosure N = No copy

*See Previous Concurrence

OFFICE	DE:EMCB		DE:EMCB		DE:EMCB	
NAME	*JDavis:jb		*ESullivan		JStrosnider	
DATE	04/30/97		05/02/97		5/6/97	

OFFICIAL RECORD COPY

97-93
NRC FILE CENTER COPY