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DUKE POWER COMPANY

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L. C. DAIL
VICE PRESIDENT
DESIGN ENGINEERING

July 7, 1980

Mr. J. P. O'Reilly, Director
U.S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Re: Cherokee Nuclear Station
Docket Nos: 50-491, 50-492, 50-493
Perkins Nuclear Station
Docket Nos: 50-488, 50-489, 50-490
IE Bulletin 80-08
File: P81-1412.11-1

JUL 15 AM 9:

Dear Mr. O'Reilly:

Enclosed is Duke Power's response to IE Bulletin 80-08 which was transmitted by your letter of April 7, 1980.

Very truly yours,

L. C. Dail, Vice-President
Design Engineering

EKM/pam

Enclosure

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PROJECT 81
CHEROKEE/PERKINS NUCLEAR STATIONS

USNRC IE BULLETIN 80-08
90-DAY RESPONSE

ITEM 1: Determine if your facility contains the flued head design for penetration connections, or other designs with containment boundary butt weld(s) between the penetration sleeve and process piping as illustrated in Figure NE 1120-1, Winter 1975 Addenda to the 1974 and later editions of the ASME B&PV Code.

ITEM 2: If an affirmative answer is reached for Item 1, determine the following:

a. Applicability of the ASME Code including year and addenda and/or Regulatory Guide 1.19,

b. Type of nondestructive examinations performed during construction,

c. Type of weld joint (including pipe material and size) and whether or not backing bars were used,

d. Results of construction nondestructive examinations, i.e., if repairs were required, this should be identified including extent of repairs and description of defects encountered during repair, if known.

ITEM 3: For those facilities committed during construction to perform volumetric examination of such penetrations through SAR commitments which have not performed radiography, justify not performing radiography or submit plans and schedules for performing radiographic examinations.

Response to Item 1: The piping penetration design for Project 81 does contain containment boundary butt welds within the penetration assembly. The general configurations of the piping penetration assemblies are shown on Figures 1 and 2.

Response to Item 2a: The piping penetrations are designed and fabricated in accordance with the 1977 edition of the ASME Boiler and Pressure Vessel Code including the Summer 1977 addenda. These penetration assemblies are defined as parts of the Containment Vessel and are installed at the construction site per the requirements of the 1974 edition of the ASME Code including the Summer of 1976 addenda. The requirements of USNRC Regulatory Guide 1.19 are applicable as modified in Section 3.8.2.2 of the PSAR and as summarized as follows:

Nondestructive examination of primary containment welds will comply with the requirements of Regulatory Guide 1.19 with the following clarification:

Response to Item 2a: (Cont'd)

1) The liquid penetrant method is considered an acceptable means of testing liner seal welds where radiographic examination is not feasible (Reg. Guide Section C.1b).

2) The test described in Section C.1c of the guide is not considered applicable. Primary reactor containment leakage testing will be in accordance with 10CFR50, Appendix J.

Response to Items 2b, 2c, and 2d:

With reference to Figures 1 and 2, the following is a summary of the containment boundary welds within the penetration assembly:

a. Weld number 1 on Figures 1 and 2 is a Category B weld. This weld joins the 1/2 inch thick, ASME SA-516, Grade 70 or SA-106, Grade B expansion joint assembly sleeve to the ASME SA-516, Grade 70 or SA-106, Grade C containment vessel sleeve. This welding will be performed at the construction site, and will either be made without a backing bar or if used, the backing bar will be removed prior to final nondestructive examination. This weld will be fully radiographed per ASME Article NE-5220. None of these welds have been performed to date.

b. Weld number 2 on Figures 1 and 2 is a Category D weld. This weld joins the 3/8 to 1/2 inch thick, ASME SA-234, WPB or SA-516, Grade 70 expansion joint assembly head to the ASME SA-106, Grade C; SA-155, Class 1, Grade KCF 70; SA-106, Grade B; SA-312, Type 304; or SA-376, Type 304 guard or process piping. This welding will be performed at the construction site, and will be made without a backing bar. This weld will be thoroughly examined by either magnetic partide or liquid penetrant method. None of these welds have been performed to date.

c. Weld number 3 on Figure 1 is a Category B weld. This weld joins the 1.13 to 2.06 inches thick ASME SA-106, Grade B guard pipe to the ASME SA-182, Grade F304 process pipe flued head. This welding is performed at the penetration assembly vendor's shop. This weld is made without the use of a backing bar. This weld is thoroughly examined by the ultrasonic method and either the magnetic particle or liquid penetrant method, in accordance with Article NE 5211.1.

Only one of these welds has been completed to date. Final nondestructive examination of the weld indicates that it is acceptable and no repairs are required.

Response to Items 2b, 2c, and 2d: (Cont'd)

d. Weld number 4 on Figure 2 is a Category C weld. This weld joins the 1.3 inches thick, ASME SA-106, Grade C or SA-155, Class I, Grade KCF70 guard pipe to the ASME SA-516, Grade 70 flat head. This welding will be performed at the construction site, and will be made without a backing bar. This weld will be examined thoroughly by the ultrasonic method and either the magnetic particle or liquid penetrant method. None of these welds have been performed to date.

e. Weld number 5 on Figure 2 is a Category D weld. This weld joins the 1.5 inches thick, ASME SA-516, Grade 70 flat head to the ASME SA-106, Grade B process piping. This welding will be performed at the construction site, and will be made without a backing bar. This weld will be thoroughly examined by the ultrasonic method and either the magnetic particle or liquid penetrant method. None of this welding has been performed to date.

Response to Item 3: Weld number 3 on Figure 1 is not volumetrically examined by the radiographic method. This weld detail does not permit radiographic examination because of the inaccessibility of the guard pipe/process pipe annular space (due to insulation), variable thickness of the flued head tapered transition, and the metallic portions of the insulation. This weld is fully volumetrically examined by the ultrasonic method, which provides a thorough examination in the absence of a backing bar. This weld is also a stainless steel weld performed under controlled shop conditions.

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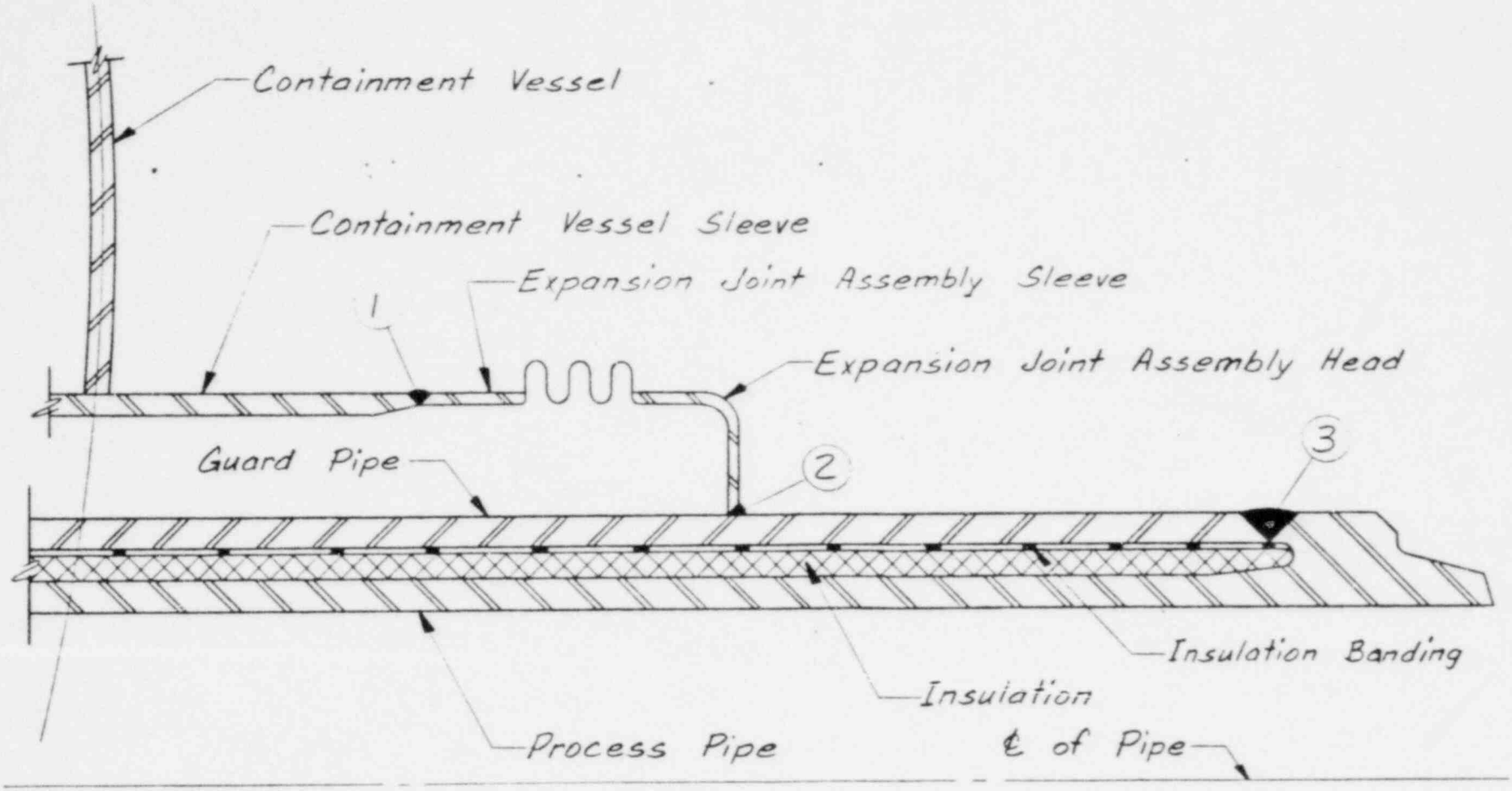

FIGURE 1

NOTE: For non-guarded piped penetrations, Weld Number 2 is made directly to the process piping.

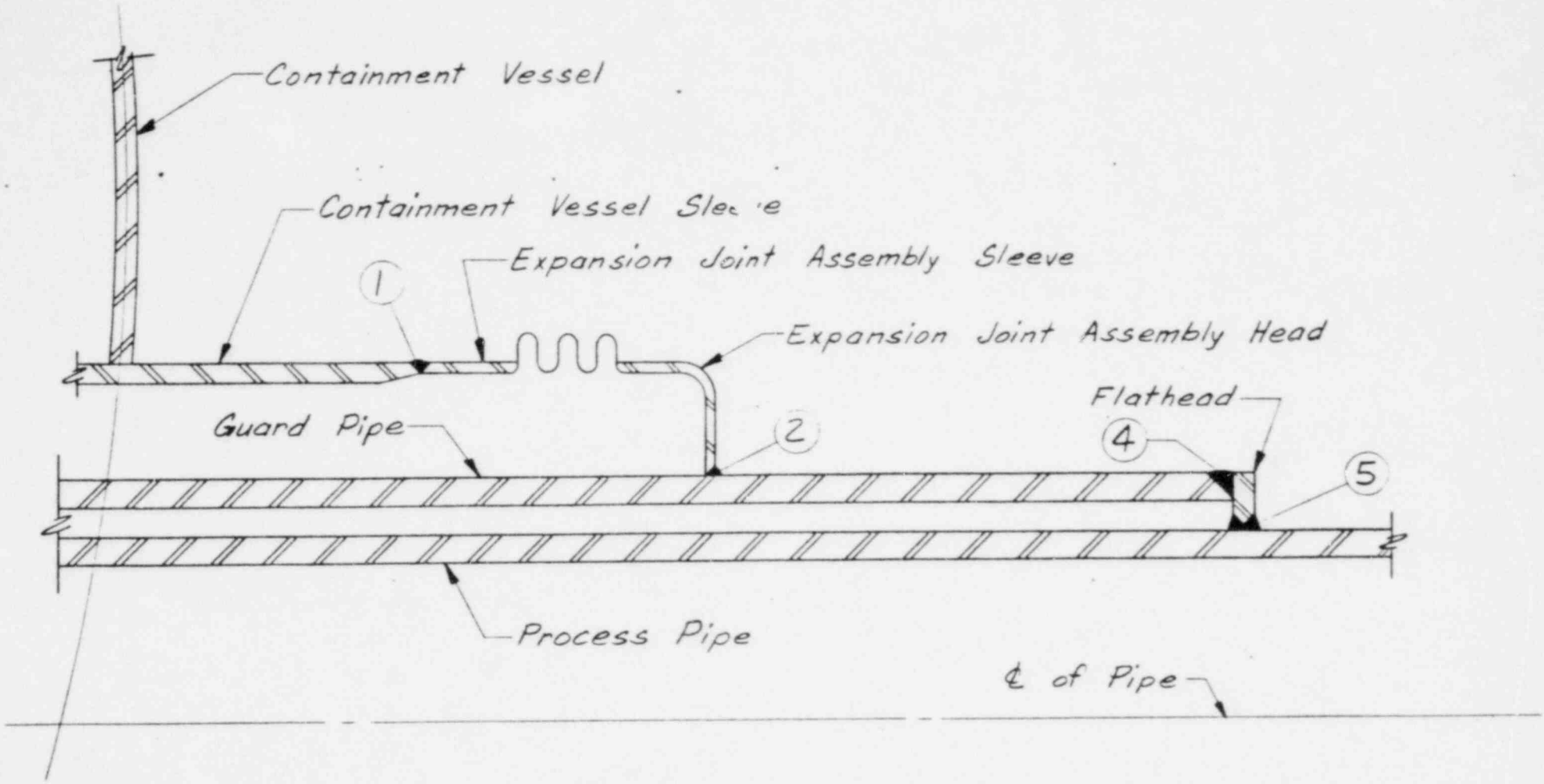
Containment Vessel
Containment Vessel Sleeve
Expansion Joint Assembly Sleeve
1
Expansion Joint Assembly Head
Flathead
Guard Pipe
2
4
5
Process Pipe
℄ of Pipe

FIGURE 2