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TOLEDO EDISON

August 24, 1979

Docket No. 50-346

License No. NPF-3

Serial No. 1-84

Mr. James G. Keppler
Regional Director, Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

This letter is in response to IE Bulletin 79-17 dated July 26, 1979 (Log No. 1-216), as applicable to Davis-Besse Nuclear Power Station Unit No. 1. Attached is Toledo Edison's required 30 day response to Item No. 1.

Yours very truly,

R. P. Crouse/jhh

RICHARD P. CROUSE
ACTING VICE PRESIDENT
ENERGY SUPPLY

RPC/TWH

Attachments

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ATTACHMENT 1

ITEM 1(a):

Provide the extent and dates of the hydrotests, visual and volumetric examinations performed per 10 CFR 50.55a(g) (Re: IE Circular 76-06 enclosed) of identified systems. Include a description of the nondestructive examination procedures, procedure qualifications and acceptance criteria, the sampling plan, results of the examinations and any related corrective actions taken.

RESPONSE:

The extent of Inservice Inspection (ISI) performed at the Davis-Besse Nuclear Power Station Unit No. 1 (DB-1) on the Makeup and Purification System, Core Flood System, High Pressure Injection/Low Pressure Injection System, Decay Heat Removal System, and Containment Spray System, in accordance with 10 CFR 50.55a(g) was performed on the Class 1 portion of these systems and components. The Spent Fuel Pool Cooling System and components are Class 2 and Class 3 and did not receive a preservice inspection under ASME Boiler and Pressure Vessel Code, Edition 1971 through Winter 1977 Addenda.

NRC IE Circular 76-06 issued November of 1976, referenced in Paragraph 1(a), of IE Bulletin 79-17, was addressed to operating plants. Because Davis-Besse Unit No. 1 received its operating license on April 27, 1977, no action was taken as a result of the circular.

The Nondestructive Examination (NDE) utilized on Davis-Besse Unit No. 1 for those Class 1 systems as noted above are listed on Attachment 2. Attachment 3 provides the Procedure Qualifications, the Acceptance Criteria used and the results of the examination performed.

The ISI on the Class 2 and Class 3 portions of these systems and components as well as the Spent Fuel Cooling System are to be performed during our first refueling outage as scheduled.

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ATTACHMENT 1

ITEM 1(b):

Provide a description of water chemistry controls, summary of chemistry data, any design changes and/or actions taken, such as periodic flushing or recirculation procedures to maintain required water chemistry with respect to pH, B, CL^-, F^-, O_2.

RESPONSE:

Attachment 4 provides a description of water chemistry controls associated with these systems and their subsystems, a summary of chemistry data, identification of these systems as required by Technical Specification. Pump testing is performed every 31 days to verify system operability.

ITEM 1(c):

Describe the preservice NDE performed on the weld joints of identified systems. The description is to include the applicable ASME Code sections and supplements (addenda) that were followed, and the acceptance criterion.

RESPONSE:

The preservice inspection of Class 2 and Class 3 systems and component under ASME Boiler and Pressure Vessel Code 1971 Edition through Winter 1971 Section XI was not required to be performed when Davis-Besse Unit No. 1 was under construction. The preservice inspection of Class 1 systems and components, as identified by Attachments 1 and 2 of this letter, was performed under ASME Boiler and Pressure Vessel Code Edition 1971, Section XI, through the Winter 1971 Addenda.

ITEM 1(d):

Facilities having previously experienced cracking in identified systems, Item 1, are requested to identify (list) the new materials utilized in repair or replacement on a system-by-system basis. If a report of this information and that requested above has been previously submitted to the NRC, please reference the specific report(s) in response to this Bulletin.

RESPONSE:

In response to Item 1(d), Davis-Besse Unit No. 1 having been in operation for approximately 18 months, has not, to date, experienced any apparent cracking as identified by Item No. 1 of this bulletin in the above listed systems.

DAVIS-BESSE UNIT NO. 1 NONDESTRUCTIVE EXAMINATION PROCEDURES

(BULLETIN ITEM 1a)

NUMBER	TITLE	REVISION	DATE
ISI-107	Ultrasonic Examination of Full Penetration Nozzle Welds from the Inside Surface	4	1/30/76
ISI-108	Transfer Calibration Technique for Ultrasonic Examination of Plate and Weldments	4	1/30/76
ISI-109	Ultrasonic Examination of Seams of Dissimilar Weld Metal	7	1/30/76
ISI-110	Ultrasonic Examination of Nozzle Knuckle Area from the Outside Surface	4	1/30/76
ISI-111	Automated Ultrasonic Examination of Reactor Vessel Weld Seams, Nozzle Welds and Ligament Area	2	7/22/7
ISI-112	Ultrasonic Examination for Thickness Measurement Using Pulse-Echo Techniques	2	1/30/76
ISI-116	Ultrasonic Examination of Reactor Coolant Pump Motor Flywheel	2	1/30/76
ISI-200	Dye Penetrant Examination of Clad Surfaces	2	1/13/7
ISI-210	Dye Penetrant Examination of Base Materials	2	1/15/7
ISI-220	Dye Penetrant Examination of Welds	2	1/14/7
ISI-230	Penetrant Examination of Nuts, Studs, Bolts and Washers	2	1/14/7
ISI-250	Wet or Dry Method of Magnetic Particle Examination of Nuts, Studs, Bolts and Washers	2	1/15/7
ISI-252	Magnetic Particle Examination of Reactor Coolant Pump Motor Flywheel	0	10/9/7
ISI-253	Wet Method of Magnetic Particle Examination of Studs, Bolts and Nuts Using Fluorescent Particles	0	1/12/7
ISI-260	Wet or Dry Method of Magnetic Particle Examination of Welds	2	1/16/7
ISI-300	Radiographic Examination of Welds and Base Materials	2	1/15/7

LIST OF APPROVED INSERVICE INSPECTION PROCEDURES

NUMBER	TITLE	REVISION	DATE
ISI-50	Surface Conditioning of Welds and Adjacent Areas for Nondestructive Examination	2	12/26/74
ISI-52	Accessibility for Inservice Examinations where Removable Insulation is Used	0	4/22/76
ISI-60	Administrative Procedure for Purchase and Use of Consumables	0	8/3/74
ISI-61	Administrative Procedure for Control of Manuals and Reports	2	7/28/76
ISI-62	Administrative Procedure for Control of Documents	0	8/29/74
ISI-63	Administrative Procedure for Approval of Manuals and Reports for Toledo Edison Company's Inservice Inspection Program	1	12/26/74
ISI-64	Administrative Procedure for Handling Nondestructive Examination Data for Preoperational or Inservice Examinations	7	7/23/76
ISI-80	Administrative Procedure for Preventative Maintenance of Nondestructive Examination Equipment	6	3/23/76
ISI-101	Ultrasonic Examination of Similar Metal Weld Seams and Attachment Welds	11	1/30/76
ISI-102	Ultrasonic Examination of the Base Metal Areas Bordering Welded Seams and Base Metal Repairs	7	1/30/76
ISI-104	Ultrasonic Examination of Ligaments Between Threaded Holes and of Studs and Bolts 1 Inch and Larger in Diameter	8	1/30/76
ISI-105	Ultrasonic Examination of Nuts and Washers	5	1/30/76
ISI-106	Ultrasonic Examination of Full Penetration Nozzle Welds from the Outside Surface	4	1/30/76

NUMBER	TITLE	REVISION	DATE
ISI-350	Visual Examination of Welds and Surface Conditions	3	10/13/75
ISI-360	Identification and Layout of Welds and System Components	0	11/27/72
ISI-365	Application of Weld or Part Identification Marking for Inservice Inspection	1	4/25/77

Procedure Acceptance Criteria

The NDE procedures listed in Attachment 1 meet or exceed the general requirements of Paragraph IX - 3100 of Section III of the ASME Boiler and Pressure Vessel Code, 1971 Edition through the Winter 1971 Addenda. The procedures are in accordance with the requirements of paragraph IX-3300 for radiographic examination, paragraph IX-3400 for ultrasonic examination, paragraph IX-3500 for magnet partial examination and paragraph IX-3600 for liquid penetrant examination.

Procedure Qualification

The NDE procedures listed in Attachment 1 also meet or exceed the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, 1971 Edition through the Winter 1971 Addenda and are approved for use on Davis-Besse Unit No. 1.

Results of Examination

Core Flood System

The Core Flood Nozzle to safe end welds were examined by Ultrasonic and Liquid Penetrant examination. During the Ultrasonic examination a low amplitude indication was found on each of these safe end welds. These indications were due to nozzle geometry. No other recordable indications were found.

Core Flood and Low Pressure Injection Lines

The primary-side welds on the two Core Flood lines and the two Low Pressure Injection lines were examined Ultrasonically. Eight recordable indications were found during the examination of the two Core Flood lines. The Ultrasonic examinations of the Low Prssure Injection lines revealed eighteen recordable indications. Of these, two indications were reportable, they were reviewed, and comparisons were made by radiography which showed one as a suck-back type condition and was acceptable. The other was located at a depth of 1.9" which made it a reflector of the top of the weld. This was a dampable signal which indicated that it was reflecting from the crown of the weld itself and its probable cause was a geometric condition on the inner wall. This weld was acceptable.

Decay Heat Lines

The Class 1 piping welds on the decay heat lines were examined visually and ultrasonically. Two recordable ultrasonic indications were found. One of these indications was reportable, it was reviewed and a comparison was made by radiography, evaluation of this found the weld acceptable.

High Pressure Injection, Normal Make-Up, Let Down Cooler, and R.C. Suction Drain Lines

The primary-side welds on these lines were examined visually and ultrasonically. Nineteen recordable indications were found of which none were reportable (i.e. geometry, welded restraint interferences etc.). There were no recordable visual indications.

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Within are the defined limits for chemical control of water within these systems as identified in Item 1(a). This is necessary to protect these systems from corrosion, cracking, embrittlement and wear. In addition these chemical control limits are used to minimize releases to the environment. Also attached are our most recent data sheets showing the chemical control data from the BWST and the Core Flood Tanks.

Recirculating Procedures

The Make-Up and Purification System is normally running during normal plant operation, recirculating back to the Make-Up Tank, utilizing both trains on an intermittance basis. During plant shutdown conditions, Make-Up System is in recirculating mode through the Borated water storage tank via the High Pressure Injection System (HPI).

Pump operation on the Decay Heat System (DH) and the HPI system are performed on a monthly basis in order to demonstrate operability of the ECCS subsystems, per Davis-Besse Station Procedure ST 5051.01 "ECCS SUBSYSTEMS MONTHLY TEST" which states, that the following is satisfied by this test:

1. Verifying pump operation is in accordance with the Technical Specification by measuring the following parameters for each pump, at least once every 31 days:

   a) Inlet pressure
   b) Pump ΔP
   c) Flow rate
   d) Vibration amplitude
   e) Proper lubricant level

2. Verifying that ECCS piping is full of water by venting the ECCS pump casings and discharge high points at least once every 31 days.

3. Verifying at least once every 31 days that each valve is not locked, sealed or otherwise secured in position, is in its correct position.

4. This test is used to satisfy Technical Specifications for HPI flow, DH flow HPI pump and valve status, DH pump and valve status, Borated Water Storage Tank (BWST) status and Containment Emergency Sump valve status monthly channel check.

Pump operation on the Containment Spray Pumps are performed on a monthly basis to verify that the Containment Spray System is operable in Modes 1, 2, 3 and 4, per, station procedure ST 5062.01 "Containment Spray System Monthly Test" which states the following is satisfied by this test:

1. The pumps must be tested in accordance with Technical Specification. This required the following test quantities to be measured at least once every 31 days:

   a) Inlet pressure
   b) Pump ΔP
   c) Flow rate
   d) Vibration amplitude
   e) Proper lubrication levels

2. A valve test must be performed at least once every three months in accordance with the Technical Specifications.

3. This test is also used to satisfy Technical Specifications for Containment Spray Pump and Valve status monthly channel checks.

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CHEMISTRY CONTROLS AND DATA AND RECIRCULATING PROCEDURES

(BULLETIN ITEM 1b)

Borated Water Storage Tank

Condition: Storage

Normal Sample Point: Borated Water Storage Tank SS 13

	Analysis	Specification	Recommended Frequency of Analysis	Remarks
TS 3.1.2.9	Boron	> 1800 ppmB < 2200 ppmB	Weekly	
	pH @ 77°F	4.5 - 4.6	Weekly	Range may be increased due to presence of Li
	Chlorides	0.15 ppm max as Cl^-	Weekly	
	Fluorides	0.15 ppm max as F^-	Weekly	
	Suspended Solids	0.1 ppm max	Weekly	By membrane filter
	Turbidity	0.3 JTU max	Weekly	Water clarity needed for refueling operations

ATTACHMENT 4

Makeup Tank

Condition: Operating

Normal Sample Point: Gas Space SS 17
Liquid Space SS 18

Analysis	Specification	Recommended Frequency of Analysis	Remarks
Oxygen in gas space	See Remarks	Weekly	Oxygen in the gas space must be below the potential explosive mixture of 2 to 4%. Should be less than .1% to avoid O_2 problems in the RCS. Large amounts of O_2 may be present in the gas space on startup. This should be checked carefully before going above 250°F. Venting the tank will eliminate the O_2 and minimize the amounts of hydrazine needed to reduce O_2 in the RCS. Minimizing hydrazine will reduce the possibility of chloride elution from the purification demineralizers.
Hydrogen in gas space	See Remarks	Weekly	Hydrogen should be the major constituent of gases in the tank and according to Henry's law should be equivalent to 13.7-36.5 psia. The other gases should be mainly nitrogen.
Dissolved Hydrogen in Liquid Space	See Remarks	See Remarks	Especially during initial plant operations, this analysis can be used to determine relationship between H_2 partial pressure in gas space and dissolved H_2 in the water/ Should be 15 to 40 stdcc/kg before exceeding 250°F in RCS.

ATTACHMENT 4 (CONTINUED)

(Continued)

Analysis	Specification	Recommended Frequency of Analysis	Remarks
Dissolved Oxygen in Liquid Space	See Remarks	See Remarks	This should be checked upon startup. in conjunction with O_2 in gas spice Dissolved O_2 in the liquid cannot be reduced till low O_2 is present in the gas space. Should be less than .1 ppm before exceeding 250°F in RCS.

Spent Fuel Pool & Fuel Transfer Canal & Refueling Canal

Condition: Operating

Normal Sample Point: SFP - Demin Inlet SS 156
FTC - Dip Sample
RFC - Dip Sample

Analysis	Specification	Recommended Frequency of Analysis	Remarks
Boron	> 1800 ppmB	Weekly (See Remarks)	In Mode 6, Refueling Canal must be sampled every 72 hours per ST 5043.02.
Chlorides	.15 ppm max as Cl^-	Weekly	
Fluorides	.15 ppm max as F^-	Weekly	
Suspended Solids	1.0 ppm max	Weekly	
Turbidity	1 JTU max	Weekly	

ATTACHMENT 4 (CONTINUED)

Core Flooding Tanks

Condition: Operating

Normal Sample Point: CF 1-1 - SS 12
CF 1-2 - SS 12

Analysis	Specification	Recommended Frequency of Analysis	Remarks
Boron	1800 ppmB minimum	Monthly	Should be ~ 3500 ppm initially to allow for some dilution during the fuel cylce. Performed monthly per SI 5050.01.
pH	4.5 - 4.6	Monthly	
Chlorides	.15 ppm max as Cl^-	Monthly	
Fluorides	.15 ppm max as F^-	Monthly	