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August 20, 1987
NRC/TMI 87-064

Docket No. 50-320

Mr. F. R. Standerfer
Vice President/Director, TMI-2
GPU Nuclear Corporation
P. O. Box 480
Middletown, PA 17057

Dear Mr. Standerfer:

Subject: Plasma Arc Cutting

Reference (a) submitted, for NRC staff review and approval, your proposal for using a plasma arc torch to cut upper end fittings inside the reactor vessel (RV) to facilitate placing them directly into fuel canisters. In our reviews we have also considered the additional information you supplied in reference (f) and also your responses to our questions which you supplied in references (c) and (e).

Our reviews have determined that there has not been adequate information provided pertaining to the potential for generating nickel carbonyl and other toxic substances during plasma arc torch use and their concentration in confined spaces to make a conclusive determination that there is no safety hazard. However, reference (f) states that, "During in-vessel cutting, the off-gas will be collected above the RV and transferred to the "B" O-ring in the vicinity of the plant purge system exhaust suction point." We find this to be an acceptable solution to the potential accumulation of toxic substances in confined spaces during plasma arc cutting inside the reactor vessel.

We have completed our review of reference (a) and supporting documents and have concluded that your proposed operation of using a plasma arc torch to cut upper end fittings inside the reactor vessel presents no adverse impact on public health and safety and does not involve an unreviewed safety question. This conclusion is supported by the following conditions which, consistent with your submittals, will apply to this activity.

1) Only upper end fittings will be cut using the plasma arc torch.

2) The cutting station shall be located within the four foot exclusion zone (typical elevation 323 ft. 6 in. to 327 ft. 6 in.).

3) Nitrogen, N_2, shall be used as both primary and secondary torch gases.

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4) Effluent from the defueling work platform off gas system will be routed to the vicinity of the containment purge system suction point similar to that described in reference (g).

5) The defueling work platform off gas system and containment purge system must be operating whenever plasma arc cutting is performed.

We have determined that an additional condition should apply to this activity. In the event that plasma arc cutting interferes with the nuclear instruments (i.e., NI-1 and NI-2) which monitor nuclear core conditions, no additional core alterations may take place during the cutting of upper end fittings in the reactor vessel.

We, therefore, approve the proposed use of a plasma arc torch to cut upper end fittings inside the RV contingent upon the above specified conditions.

Sincerely,

ORIGINAL SIGNED BY,
William D. Travers

William D. Travers, Director
TMI-2 Cleanup Project Directorate

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REFERENCES

a. GPUN letter 4410-86-L-0143, F. R. Standerfer to TMI-2 Cleanup Project Directorate, Use of Plasma Arc Torch, dated August 27, 1986.

b. NRC letter NRC/TMI 86-111, W. D. Travers to F. R. Standerfer, dated December 2, 1986.

c. GPUN letter 4410-87-L-0012, F. R. Standerfer to Document Control Desk, Plasma Arc Cutting, dated January 20, 1987.

d. NRC letter NRC/TMI 87-022, W. D. Travers to F. R. Standerfer, Plasma Arc Cutting, dated March 20, 1987.

e. GPUN letter 4410-87-L-0067, F. R. Standerfer to USNRC Document Control Desk, Plasma Arc Cutting, dated May 7, 1987.

f. GPUN letter 4410-87-L-0091, F. R. Standerfer to USNRC Document Control Desk, Plasma Arc Cutting, dated June 25, 1987.

g. GPUN Engineering Change Authorization No. 3261-87-0488, Rev. 0, dated July 13, 1987.