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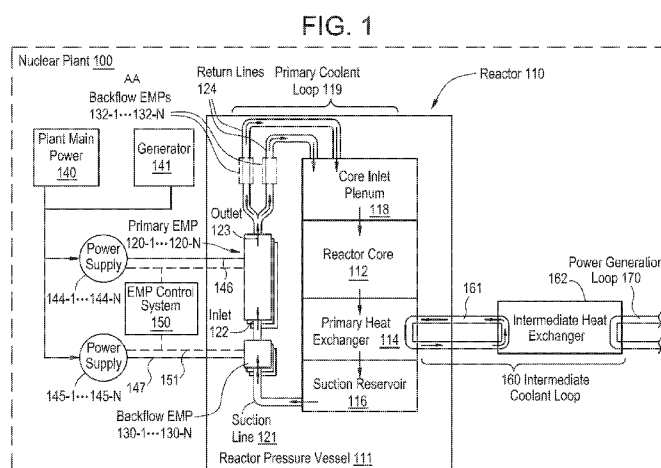
Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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[Continued on next page]

(54) **Title:** NUCLEAR REACTOR LIQUID METAL COOLANT BACKFLOW CONTROL

(57) **Abstract:** A liquid metal-cooled nuclear reactor includes, within a reactor pressure vessel, a primary electromagnetic pump (EMP) circulating liquid metal coolant through the reactor core and a backflow EMP. The nuclear reactor may be configured to at least partially mitigate liquid metal coolant backflow in response to a primary EMP failure. The backflow EMP is coupled in series with the primary EMP within the reactor pressure vessel. The backflow EMP may be selectively activated in response to failure of the primary EMP to mitigate liquid metal backflow through the primary EMP. The primary EMP and backflow EMP may receive power from separate power sources. Multiple backflow EMPs may be coupled in parallel to the primary EMP via parallel liquid metal coolant lines. A nuclear reactor may include multiple primary EMPs and multiple sets of backflow EMPs, where each separate set of backflow EMPs is coupled to a separate primary EMP.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G21C H02K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 104 710 A (WESTINGHOUSE ELECTRIC CORP [US]) 9 March 1983 (1983-03-09)	1,2,4,
A	abstract figures page 2, lines 51-89	6-11,13, 15-17,20 3,5,12, 14,18,19
A	----- US 4 765 948 A (DELUCA ROBERT A [US] ET AL) 23 August 1988 (1988-08-23) the whole document	1-20
A	----- US 3 951 738 A (GEORGE JOHN A ET AL) 20 April 1976 (1976-04-20) the whole document -----	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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