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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

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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))*

Published:

- *with international search report (Art. 21(3))*

[Continued on next page]

(54) **Title:** SYSTEMS AND METHODS FOR HARVESTING AND STORING MATERIALS PRODUCED IN A NUCLEAR REACTOR

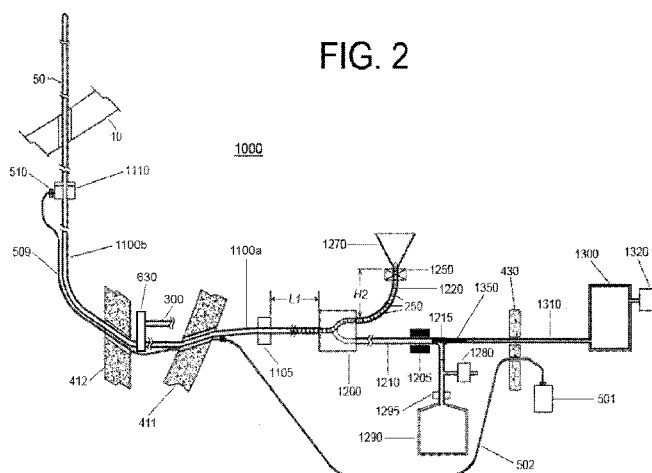


FIG. 2

(57) **Abstract:** Systems produce desired isotopes through irradiation in nuclear reactor (10) instrumentation tubes (50) and deposit the same in a robust facility for immediate shipping, handling, and/or consumption. Irradiation targets (250) are inserted and removed through inaccessible areas without plant shutdown and placed in the harvesting facility, such as a plurality of sealable and shipping-safe casks and/or canisters. Systems may connect various structures in a sealed manner to avoid release of dangerous or unwanted matter throughout the nuclear plant, and/or systems may also automatically decontaminate materials to be released. Useable casks (1290) or canisters (1260) can include plural barriers for containment that are temporarily and selectively removable with specially-configured paths inserted therein. Penetrations in the facilities may limit waste or pneumatic gas escape and allow the same to be removed from the systems without over-pressurization or leakage. Methods include processing irradiation targets through such systems and securely delivering them in such harvesting facilities.





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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. G21G1/02 G21C19/20
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)
G21G G21C

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, 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	US 2011/051875 A1 (BLOOMQUIST BRADLEY [US] ET AL) 3 March 2011 (2011-03-03)	1-3
A	abstract; claims; figures -----	4-10
X	EP 2 093 773 A2 (GE HITACHI NUCL ENERGY AMERICA [US]) 26 August 2009 (2009-08-26)	1-3
	abstract; claims; figures -----	



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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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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