

Proposal for Forming an IAA Study Group SG 3.21

Title of Study:

Space Disposal of Radioactive Waste

Proposer(s):

Degtyarev Olexandr V.

Primary IAA Commission Preference: Commission 3

Secondary IAA Commission Interests: Commissions 1, 4, 5, 6

Members of Study Team**Chair(s):**

Co-Chair: Degtyarev Olexandr V.

Secretary: TBD

Other Members:

Slyunyayev Mykola
Kushnaryov Olexandr
Moshnenko Yuriy
Ventskovsky Oleg
Baranov Eugeniy
Pyshnev Vladimir

Ramusat Guy (TBC)
Bonnal Christophe (TBC)
Mankins John (TBC)
Schmidt-Tedd Bernhard (TBC)
Maccone Claudio (TBC)
Mowry Clayton (TBC),

other members TBD

Short Description of Scope of Study

Analysis of ecological situation on the Earth related to the increasing volume of waste from nuclear power plants (NPP), shows that the issue of processing and safe management of spent nuclear fuel and radioactive waste (RW) will be increasingly serious for mankind in near future.

Traditional approach of resolving the issue of RW storage is burial of the RW in stable geological formations, but it has certain major limitations: *first*, the approach proved to be very costly; *second*, it does not guarantee safe storage since any place on the Earth can not be stable in the course of many thousands of years. In addition, irrespectively of the way of processing the used nuclear fuel, small volume of extremely long half life high radio-activity elements remains, and it presents a great threat to the Earth biosphere.

This Study will focus on a possible solution suggesting that those elements might be stored in space with the help of a Launch Vehicle (LV) systems. This approach would allow to constantly free the Earth's biosphere from the most harmful part of RW.

Overall Goal:

Determination of expediency of deploying scientific-research and engineering works to provide implementation of space disposal of radio-active waste, specification of the works directions, scope and possible duration of implementing it.

Intermediate Goals:

1. Establishment of basic technical solutions as to rocket-technology aspects of the Project, conceptual approaches to nuclear-technology and international legal aspects of the Project.
2. Performance of costs assessments as well as preparation of proposals for possible scientific-industrial cooperation.

Methodology:

Forming an international study group, draft a detailed schedule of the study;

Coordination of a study report outline.

Assigning individual responsibility for sections of the study report.

Assigning editor to coordinate individual sections and preparing an integral and coherent final study report.

Work to be conducted through on-line collaboration of the study group members and study group meetings to be held in the course of annual Congresses and the IAA conferences.

Time Line:

October 2015

Final Product (Report, Publication, etc.):

Report

Target Community:

International space community

International nuclear community

Support Needed:

National Space Agencies, Private Companies (both from Space and Nuclear Energy domains), insurance companies

Potential Sponsors:

National Academy of Sciences of Ukraine, State Space Agency of Ukraine (SSAU), ESA, CNES, Ariespace, Astrium ST, UN COPUOS

To be returned to the IAA Secretary General Paris

by fax: 33 1 47 23 82 16 or

by email: sgeneral@iaamail.org

Date: 21.02.2013

Olexandr Degtyarev

Follow-up Section for IAA use only

Initial Phase

Application received:

22 February 2013

Commission Approved:

SAC Approved:

Web Site Section opened:

Members Formally Appointed by IAA:

Final Phase

Peer Review by Commission Completed:

Recommended by the Commission:

Final Report Received:

SAC Approved:

BOT Accepted:

Publisher Selected:

Study Published: