Online Nuclear Dilemma-3

Organized by: Information Center on Nuclear Energy, Dhaka & Public Information Center on Nuclear, Ishwardi

Nuclear dilemma is a contest on critical thinking and problem solving on a theoretical or real scenario. It is a role playing team activity. After getting the problem statement, discuss among your team members about the purpose of your team's role and how to build an answer to the question that have been asked on this particular dilemma. Read the problem statement well and present your opinions in a Powerpoint presentation in not more than **6 slides** including the team members' name. The presentation should be very brief. Your problem statement starts from next page of this document.

1. You can use graphs, pie chart or other data to support your position.

2. You can use pictures.

3. Long descriptions are highly discouraged in slides for the preliminary round.

4. The file must be submitted within 12 hours after receiving the problem statement.

4. After evaluation of your work submitted online, we will select top 4 teams to participate in the final round in front of our judges to be held at February 28.

For any query, call: 01710124807

ENERGY OF THE FUTURE

NUCLEAR ROCKET ENGINE

Even before the first manned flights, engineers discussed the possibility of using nuclear rocket engines in space exploration. In particular, the Soviet Union was developing the RD-0410 nuclear rocket engine, which implied the pumping of hydrogen through a nuclear reactor. The hydrogen, heated by the nuclear engine, moved with great speed and propelled the rocket forward. The development of this project was suspended, in particular, due to concerns about radioactive contamination in the event of a rocket crash. Today in Russia and other countries, nuclear propulsion system projects, where the reactor generates electricity to start and power an electric rocket engine, are up for discussion. The advantages of the projects are the possibility of long-term (up to ten years) operation, a large inter-repair interval and a long operational duration per switch-on. Nuclear rocket engines will revolutionize space exploration. With their help, it will be possible to put super-heavy loads into orbit to construct new generation orbital stations, to design lunar colonies and organize missions to Mars and other planets. To start testing a new engine, you need to convince the public of its safety. It will not be easy: everyone understands that in the event of an accident with a nuclear-powered missile, a very large area will be exposed to nuclear contamination.

The dilemma:

Is it right to test a nuclear rocket engine, unless reliable technologies are developed that eliminate the possibility of an accident during the launch?

YOUR ROLE: EDITOR-IN-CHIEF OF "ASTRONAUTICS NEWS"

You write about the successes and failures of domestic space exploration regularly and you are aware of the newest technologies. Of course, you know about the development of a nuclear rocket engine and you realize the prospects coming along with its application. But you are too tired of numerous changes in priorities within the industry and you doubt that the new venture will bring success.

Your purpose:

• To estimate the prospects of nuclear rocket engine introduction.

• To explain to the readers the pros and cons of the new technology. Developing a new engine will cost the budget tens of billions of dollars. This would be enough to send several missions to the Moon, and to achieve new scientific results.

You are sure that a nuclear engine is just a beautiful dream, but in real life it is necessary to engage in more pragmatic projects.

Note: You can go beyond the information given in the description and use other sources. But present your opinions strictly according to your role's point of view.