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| ISTC Project # 3831 | | |
| **Development and experiments at large-scale installation for**  **heating and retention of corium** | | |
| Short technical report for open publication about fulfilled work during the time interval from May 1st, 2009 until January 31st, 2010 | | |
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| Approved for publication | | |
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| Deputy Director | Rogachev V. G.  Doctor of Science |  |

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# Main goal / work amount and technical method of fulfillment/ expected results

During the project implementation the pyrotechnic technology of producing corium is to be worked and perfected; experiments on corium-concrete interaction are to be carried out

It is expected during the Project implementation to:

1. Develop the technology of pyrotechnic compound and briquettes producing;
2. Develop the technology of pyrotechnic briquettes initiating
3. Develop the technology of pyrotechnic briquettes dumping into corium.
4. Develop and make the measuring system of melt and concrete temperature diagnosis;
5. Conduct the medium scale experiment on study of corium behavior and melt interaction with concrete;
6. Analyze the results of the experiments.

Work implementation on this project will allow us to experimentally study the process of corium-concrete interaction with the help of PTC technology of corium producing.

During the project implementation the temperature of concrete and corium will be experimentally measured. Using experimental data thermal flows into concrete will be calculated. The concrete ablation rate will be experimentally measured.

# Achieved results

The medium scale installation was developed for corium heating with the following characteristics: corium volume ~25 l, corium mass ~105 kg, corium temperature ~2500-3000C, heat fluxes towards walls and bottom of the tank ~100-150 kW/m2, corium retention time 20 min.

The complex of measuring equipment was developed for the diagnosis of the temperature in corium and concrete. During the middle-scale experiment the temperature in corium and concrete was measured. Using experimental data thermal flows into concrete were estimated. The concrete ablation rate was experimentally measured.

# Keywords: corium, pyrotechnic technology, corium-concrete interaction

