

Demonstration Project for Unmanned Boring Technologies

1. Requirements for Project Implementation

An implementation plan should be made based on the details of the demonstration implementation described below, and the functional conditions of the equipment installed for the demonstration should be confirmed using the basic conditions, and necessary information should be written in the relevant items in Form 3(1).

In addition, it is required to attend public conferences and to report on the implementation plan, progress, and results of the project. Also, upon completion of the project, a report on the implementation of the project must be prepared and submitted.

< Details of Verification Implementation >

Various civil engineering works will be required in Fukushima Daiichi NPP. To ensure the workers for boring works which is a fundamental part of civil engineering works, it is required that radiation dose may be reduced for the workers. From the view point to reduce the radiation dose to boring workers, demonstration tests must be carried out the performance of boring under high dose rate condition.

<Basic Conditions>

(1) Applicable for the unmanned boring

The boring works in Fukushima Daiichi NPS are required to excavate the hole which diameter is 20 to 30 cm and depth is about 50 m.

The proposal must include the technologies which realize above requirement and the labor automation (including partial remote control) to reduce workers' exposure to radiation in highly radioactive environments.

(2) Concept of boring performance

The proposal must include how much working time in high dose rate will be reduced with the technology.

<Additional Point Items>

(1) Minimizing working time

Proposals which show shorter working time in high dose rate will gain additional points.

(2) Working space

Proposals with a small working space required for the boring will gain additional points.

(3) High quality boring

Points will be added to proposals with high quality boring such as preventing destruction of geological structure to get boring core, or suppress too much consumption of rod.

(4) Presentation of experiment data

Points will be added to proposals that are able to demonstrate their feasibility with experiment data regarding the basic conditions or additional point items. Additional points will be gained by proposals which are expected to shorten the time period necessary for demonstration based on the presentation of experimental data.

<Goals and objectives>

Technical feasibility and validity of the items concerning the basic conditions and the additional point items are to be confirmed during the contract term.

2. Project Implementation Period/Subsidy Amount

From the Decision Date of Grant to March 31, 2015

In this project, it is planned that the demonstration of technologies will be carried out for the one-year period of FY2014.

3. Point Rating Method

The proposal will be scored based on the point rating described in Form 3(1). A proposal which does not meet all of the basic conditions shall not be selected.

The amount of the subsidy is a fixed amount, and its upper limit is 400 million yen. The details of implementation, the amount of the granted subsidy, and other details shall be decided by negotiation with METI and the Project Management Office.

Name of proposer:

Title of proposed subject:

[Basic conditions]

Details of the proposal	Allocation of marks (Basic points)
<p><u>(1) Applicable for the unmanned boring</u></p> <ul style="list-style-type: none"> ➤ Technologies to excavate the hole which diameter is 20 to 30 cm and depth is about 50 m is presented. ➤ Technologies which realize labor automation (including partial remote control) to reduce workers' exposure to radiation in highly radioactive environments is presented. 	5
<p><u>(2) Concept of boring performance</u></p> <ul style="list-style-type: none"> ➤ The reduction of working time in high dose rate is presented. 	5

[Items for Additional Points]

Details of the proposal	Allocation of marks (Technical points)
<p><u>(1) Minimizing working time</u></p> <ul style="list-style-type: none"> ➤ How much working time in high dose rate area will be reduced comparing ordinary boring work? ➤ There are no environmental effects with the boring work. ➤ The number of workers required is small. 	<p>23 (10) (3) (10)</p>
<p><u>(2) Working space</u></p> <ul style="list-style-type: none"> ➤ Required space for boring work is small. ➤ Installation of equipment is easy. 	<p>12 (10) (2)</p>
<p><u>(3) High quality boring</u></p> <ul style="list-style-type: none"> ➤ The quality of obtained boring core is high. ➤ Too much consumption of rod is suppressed. 	<p>9 (6) (3)</p>
<p><u>(4) Presentation of experimental data</u></p> <ul style="list-style-type: none"> ➤ The experiment is conducted and the data are analyzed from various points of view to confirm the effect. ➤ Based on the presented data, it is expected to be shorten the time period for demonstration. 	<p>6 (2) (4)</p>

The evaluations for technical points are classified into four classes; A (factor is 5/5), B (3/5), C (1/5), D (0/5), and the technical points will be calculated by multiplying the allocated points with the factors of each class.