

Comparison Table “Guidelines for the Subsidy Program “Project of Decommissioning and Contaminated Water Management (Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures)”

This table shows the changes from Temporary Translation to Unofficial Translation of the Guidelines for the Subsidy Program “Project of Decommissioning and Contaminated Water Management (Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures). Underlined parts are changed.

Unofficial Translation	Temporary Translation
<p data-bbox="459 400 779 435">(Unofficial Translation)</p> <p data-bbox="125 512 1113 715">Guidelines for applying to the “Project of Decommissioning and Contaminated Water Management (<u>Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures</u>)”</p> <p data-bbox="824 791 1113 823">Date: March 2, 2017</p> <p data-bbox="383 850 1113 935">Management Office for the Project of Decommissioning and Contaminated Water Management</p> <p data-bbox="125 1074 1113 1441">The Management Office for the Project of Decommissioning and Contaminated Water Management (hereinafter called “PMO”) solicits entities to implement subsidies for the "<u>Subsidized Project of Decommissioning and Contaminated Water Management (Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures)</u>". Details of the project are stipulated in these Guidelines; furthermore, the procedures for implementation of the project are</p>	<p data-bbox="1462 400 1783 435">(temporary translation)</p> <p data-bbox="1131 512 2112 715">Guidelines for applying to the “Project of Decommissioning and Contaminated Water Management (<u>Advancement of Fundamental Technologies for Retrieval of Fuel Debris/Internal Structures</u>)”</p> <p data-bbox="1821 791 2110 823">Date: March 2, 2017</p> <p data-bbox="1382 850 2110 935">Management Office for the Project of Decommissioning and Contaminated Water Management</p> <p data-bbox="1131 1074 2110 1441">The Management Office for the Project of Decommissioning and Contaminated Water Management (hereinafter called “PMO”) solicits entities to implement subsidies for the "Subsidy Project of Decommissioning and Contaminated Water Management (<u>Advancement of Fundamental Technologies for Retrieval of Fuel Debris/Internal Structures</u>)". Details of the project are stipulated in these Guidelines; furthermore, the procedures for implementation of the project are</p>

<p>stipulated in the “Grant Policy for Subsidy for the Project of Decommissioning and Contaminated Water Management”.</p> <p>1. Purpose of Project “No Change”</p> <p>2. Contents of Project</p> <p>Based on the results of previous examinations of methods for the removal of <u>fuel debris</u> and <u>internal structures</u>, develop the <u>essential technologies</u> necessary for the decommissioning of the Fukushima Daiichi Nuclear Power Plant, and carry out a viability assessment of the tools and equipment.</p> <p>The entity whose partial proposal is adopted or whose proposal is partly adopted (hereinafter called the Partial Subsidized Project Operating Entity) will carry out the project based on the analysis and coordination by the Subsidized Project Operating Entity with adopted comprehensive proposal (hereinafter called the Comprehensive Subsidized Project Operating Entity) from the perspectives of the risks involved in the application of the technology and the estimated timing to become it applicable. The Comprehensive Subsidized Project Operating Entity shall be responsible for the implementation of all the below-mentioned items (1) through (3) and shall evaluate and coordinate other Partial Subsidized Project Operating Entities. The</p>	<p>stipulated in the “Grant Policy for Subsidy for the Project of Decommissioning and Contaminated Water Management”.</p> <p>1. Purpose of Project</p> <p>2. Contents of Project</p> <p>Based on the results of previous examinations of methods for the removal of <u>nuclear fuel debris</u> and <u>reactor core internals</u>, <u>we will develop the component</u> technologies necessary for the decommissioning of the Fukushima Daiichi Nuclear Power Plant, and carry out a viability assessment of the tools and equipment.</p> <p>The entity whose partial proposal is adopted or whose proposal is partly adopted (hereinafter called the Partial Subsidized Project Operating Entity) will carry out the project based on the analysis and coordination by the Subsidized Project Operating Entity with adopted comprehensive proposal (hereinafter called the Comprehensive Subsidized Project Operating Entity) from the perspectives of the risks involved in the application of the technology and the estimated timing to become it applicable. The Comprehensive Subsidized Project Operating Entity shall be responsible for the implementation of all the below-mentioned items (1) through (3) and shall evaluate and coordinate other Partial Subsidized Project Operating Entities. The</p>
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Partial Subsidized Project Operating Entity shall be responsible for the implementation of one or any combination of the below-mentioned items (1)[2] and (4).

(1) Technology development to prevent the scattering of fuel debris

Develop efficient recovery technology for fuel debris in various conditions as well as dust collecting technology for the dust generated during the removal operation for the purpose of preventing the scattering of fuel debris.

[1] Development of fuel debris collecting system

Develop an efficient method and system for the recovery of fuel debris thought to exist in the reactor primary containment vessel (PCV) in various forms (e.g. fragments, sludge, minute particles); consider a transport and storage system by which to place the collected fuel debris in container, etc..

[2] Development of fuel debris cutting and dust collection systems

Carry out cutting performance tests for cutting methods for which information exists on performance tests using ceramic and metal-concrete mixture simulating fuel debris (e.g. laser, boring, crushing) and gather data on volume of chip powder and dust generated by these methods and their particle size distributions; also develop a dust collection system which is appropriate for the cutting method thus developed, and gather data on dust collection

Partial Subsidized Project Operating Entity shall be responsible for the implementation of one or any combination of the below-mentioned items (1)[2] and (4).

(1) Technological development to prevent the scattering of fuel debris

Develop efficient recovery technology for fuel debris in various conditions as well as dust collecting technology for the dust generated during the removal operation for the purpose of preventing the scattering of fuel debris.

[1] Development of fuel debris recovery system

Develop an efficient method and system for the recovery of fuel debris thought to exist in the reactor containment vessel (PCV) in various forms (e.g. fragments, sludge, minute particles); consider a transfer and storage system by which to place the recovered fuel debris in storage cans.

[2] Development of fuel debris cutting and dust collection systems

Carry out cutting performance tests for cutting methods for which information exists on performance tests using ceramic and metal-concrete mixture simulating fuel debris (e.g. laser, boring, crushing) and gather data on volume of chip powder and dust generated by these methods and their particle size distributions; also develop a dust collection system which is appropriate for the cutting method thus developed, and gather data on dust collection

efficiency with respect to chips and dust generated by the method.

[3] Development of a system for the prevention of the scattering of fuel debris

Examine concepts for scatter prevention technologies for fuel debris with which to limit the scattering of fuel debris generated during the removal operation around the work area (i.e. prevention of outflow to the suppression chamber) and carry out essential tests as necessary.

(2) Development of essential technologies for removal equipment

Develop the following remote operation techniques ([1],[2]) required for each of the anticipated tasks during the debris removal in order to meet the needs for remote operations to deal with high-dose environment at work site.

[1] Development of essential technologies for work cells

Develop essential technologies for the securing of airtightness and strength between the access points and work cell containing fuel debris removal equipment (e.g. sealing mechanisms, remote welding) for remote installation of the work cell and carry out essential tests as necessary. The access points include, for example, horizontal access such as PCV access through narrow and high-dose areas inside the reactor buildings (e.g. X-6 penetration) and vertical access such as the high-dose area above the reactor well in the operation floor.

efficiency with respect to chips and dust generated by the method.

[3] Development of a system for the prevention of the scattering of fuel debris

Examine concepts for scatter prevention technologies for fuel debris with which to contain fuel debris generated during the removal operation to the work area (i.e. prevention of outflow to the suppression chamber) and carry out component tests as necessary.

(2) Development of component technologies for removal equipment

Develop the following remote operation techniques ([1],[2]) required for each of the anticipated tasks during the debris removal in order to meet the needs for remote operations to deal with high-dose environment at work site.

[1] Development of component technologies for work cells

Develop component technologies for the securing of airtightness and strength between the access points and work cell containing fuel debris removal equipment (e.g. sealing mechanisms, remote welding) for remote installation of the work cell and carry out component tests as necessary. The access points include, for example, horizontal access such as PCV access through narrow and high-dose areas inside the reactor buildings (e.g. X-6 penetration) and vertical access such as the high-dose area above the reactor well in the operation floor.

[2] Development of technologies for the removal of obstacles during fuel debris removal

Develop remote technologies which enable the dismantling, removal, collection and transport obstacles from vertical and horizontal access routes to the fuel debris during the removal operation; carry out essential tests as necessary, taking into the following into consideration:

- Obstacles to vertical access: upper PCV structures (e.g. well shield plug, PCV head, RPV head), structures inside the reactor pressure vessel (RPV) (e.g. dryers, separators);
- Obstacles to horizontal access: equipment outside the pedestal (e.g. PLR pumps)
- Obstacles common to all access routes: equipment inside the pedestal (e.g. CRD housing), structures inside the reactor building (e.g. contaminated instrument ducts, high-dose piping).

Organize any issues identified to be significant, such as the removal of obstacles during the construction of access routes and investigate countermeasures therefor.

(3) Development of remote maintenance technology for fuel debris removal equipment

Organize approaches to the maintenance of fuel debris handling equipment and systems, investigate maintenance methods based

[2] Development of technologies for the removal of obstacles during fuel debris removal

Develop remote technologies which enable the dismantling, removal, collection and carrying out of obstacles from vertical and horizontal access routes to the fuel debris during the removal operation; carry out component tests as necessary, taking into the following into consideration:

- Obstacles to vertical access: upper PCV structures (e.g. well shield plug, PCV head, RPV head), structures inside the reactor pressure vessel (RPV) (e.g. dryers, separators);
- Obstacles to horizontal access: equipment outside the pedestal (e.g. PLR pumps)
- Obstacles common to all access routes: equipment inside the pedestal (e.g. CRD housing), structures inside the reactor building (e.g. contaminated instrument ducts, high-dose piping).

Organize any issues identified to be significant, such as the removal of obstacles during the construction of access routes and study countermeasures therefor.

(3) Development of remote maintenance technology for fuel debris removal equipment

Organize approaches to the maintenance of fuel debris handling equipment and systems, study maintenance methods based thereon,

<p>thereon, evaluate the feasibility and identify issues, and <u>investigate</u> the rational measures for the actual equipment for the fuel debris removal equipment (e.g. debris cutting/dust collection system, containers and work tables, monitoring systems and robot arms to manipulate them) which will be installed in high-dose areas and generally require remote maintenance.</p> <p>(4) Development of monitoring technology for the fuel debris removal Develop a monitoring technology which has practical visual and measurement capabilities inside RPV and PCV that can be deployed during the fuel debris removal under conditions requiring radiation resistance (target) of 10kGy/hr or better and 2MGy cumulative. A proposal for the visual technology must include a method which makes underwater use available.</p> <p>3. Operation of research and development “No Change”</p> <p>4. Project Term</p> <ul style="list-style-type: none"> ● From the day of grant decision to March 31, 2019 <p><u>In “Outline of Subsidized Project (Form 2)”, please describe both “Implementation Plan” and “Plan of the income and expenditure” for each period; The period from the day of grant decision to March 31, 2018 and the</u></p>	<p>evaluate the feasibility and identify issues, and <u>study</u> the rational measures for the actual equipment for the fuel debris removal equipment (e.g. debris cutting/dust collection system, containers and work tables, monitoring systems and robot arms to manipulate them) which will be installed in high-dose areas and generally require remote maintenance.</p> <p>(4) Development of monitoring technology for the fuel debris removal Develop a monitoring technology which has practical visual and measurement capabilities inside RPV and PCV that can be deployed during the fuel debris removal under conditions requiring radiation resistance (target) of 10kGy/hr or better and 2MGy cumulative. A proposal for the visual technology must include a method which makes underwater use available.</p> <p>3. Operation of research and development</p> <p>4. Project Term</p> <ul style="list-style-type: none"> ● From the day of grant decision to March 31, 2019 <p><u>In Outline of Subsidy Project (Form 2), Please list the implementation plan and plan of income and expenditure. (The period from the day of grant decision to March 31, 2018, the period from April 1, 2018 to March 31,</u></p>
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period from April 1, 2018 to March 31, 2019 since the contents of the grant decision would be coordinated considering the National Budget, etc..

5. Implementing Scheme

“No Change”

6. Application Requirements

The private companies, etc. satisfying all of requirements (1) to (9) shown below are qualified to apply for the subsidies.

(1)~(6) “No Change”

(7) The applicant must have a compliance system under a self-regulated structure which meets the "Standards for Exporters, etc. to Meet" provided for in Article 55-10 (1) of the Foreign Exchange and Foreign Trade Act. We will confirm this system using (Form 3) "Response to Security Export Controls" when selecting applicants, so please use this form to fill in the required items and submit the required documents.

[Reference] Standards for Exporters, etc. to Meet Regulations to be observed by parties engaged in export or provision of technology in the course of trade (exporters). Exporters that do not handle security-sensitive "specified important goods, etc." have a duty to 1) nominate a person

2019).

5. Implementing Scheme

6. Application Requirements

The private companies, etc. satisfying all of requirements (1) to (8) shown below are qualified to apply for the subsidies.

(1)~(6)

(7) The "standards for exporters, etc. to meet" provided for in Article 55-10 (1) of the Foreign Exchange and Foreign Trade Act provide an establishment of internal compliance program(ICP) under a self control system.

[Reference] Exporter Compliance Standards Regulations to be observed by parties commercially engaged in export or technology transfer (exporters). Exporters which do not handle security-sensitive "special important goods, etc." have a duty to 1) nominate a party responsible for checking freight, etc.,

responsible for checking goods, etc., and 2) provide guidance to managers and export workers on compliance. Exporters that do handle security-sensitive "specified important goods, etc." have a duty to 1) identify a representative as the responsible person, 2) set out an export control system, 3) set out a procedure for checking regulated/non-regulated goods, 4) set out a procedure for confirming the usage and consumer, and confirm these in accordance with that procedure, and 5) confirm that the goods to be shipped coincide with the confirmed non-regulated goods at the time of shipping.

(8)~(9) "No Change"

7. Requirement Conditions for Grant Decision

"No Change"

8. Application Procedure

(1) "No Change"

(2) Information Session

Friday, March 10, 2017 9:00 - 9:30 AM

Venue: Main Conference Room C at Mitsubishi Research Institute, Inc.

Map:http://www.mri.co.jp/english/profile/locations/map_headoffice

and 2) comply with the law. Exporters which do handle security-sensitive "special important goods, etc." have a duty to 1) identify an agent as the responsible party, 2) set out an export control system, 3) set out a procedure for non-regulated freight, 4) set out a procedure for confirming the usage and consumer, and confirming these in accordance with that procedure, and 5) confirming that non-regulated freight remains so at the time of shipping.

(8)~(9)

7. Requirement Conditions for Grant Decision

8. Application Procedure

(1)

(2) Information Session

Friday, March 10, 2017 9:00 - 9:30 AM

Venue: Main Conference Room C at Mitsubishi Research Institute, Inc.

Map:http://www.mri.co.jp/english/profile/locations/map_headoffice

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If you would like to attend the session, please inform the contact point written in “13. Contact” by 12:00 AM on Thursday, March 9 via email. The session will be held in Japanese. If you need a translator, please make arrangements on your own (You are responsible for the expense) . If you need an information session in English, please consult with PMO by 12:00 AM on Thursday, March 9 via email.

(3) Application form and other documents to be submitted

[1] Please submit the following documents as one file. Please title your file “Application for the subsidy program ‘Project of Decommissioning and Contaminated Water Management (Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures)’.

- Application form (Form 1)
- Outline of Subsidized Project (Form 2)

“No Change”

[2]~[5] “No Change”

(4) “No Change”

9.~13. “No Change”

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If you would like to attend the session, please inform the contact point written in “13. Contact” by 12:00 AM on Thursday, March 9 via email. The session will be held in Japanese. If you need a translator, please make arrangements on your own (You are responsible for the expense) . If you need an information session in English, please consult with PMO by 10:00 AM on Friday, January 27 via email.

(3) Application form and other documents to be submitted

[1] Please submit the following documents as one file. Please title your file “Application for the subsidy program ‘Project of Decommissioning and Contaminated Water Management (Advancement of Fundamental Technologies for Retrieval of Fuel Debris/Internal Structures)’.

- Application form (Form 1)
- Outline of Subsidy Project (Form 2)

[2]~[5]

(4)

9.~13.

(Form 1)

Management Office for the Project of Decommissioning and
Contaminated Water Management

Application for the subsidies for the "Advancement of Fundamental
Technologies for Retrieval of Fuel Debris and Internal Structures"

(Exhibit)

1. Name of the Subsidized Project

2. Objective and contents of the Subsidized Project

**Describe your own understanding of the background of the project, the purpose of the project and its contents briefly.*

3. Scheduled commencement and completion dates of the Subsidized Project

(Scheduled commencement date):

(Scheduled completion date):

4. ~6. "No Change"

7. Allocation amount of the costs for the Subsidized Project, costs eligible for the subsidy and subsidy amount to be applied for

The contents are the same as (2) Expenditures, I. Summary

(Form 1)

Management Office for the Project of Decommissioning and
Contaminated Water Management

Application for the subsidies for the "Advancement of Fundamental
Technologies for Retrieval of Fuel Debris/Internal Structures"

(Exhibit)

1. Name of the subsidy project

2. Objective and contents of the subsidy project

**Describe your own understanding of the background of the project, the purpose of the project and its contents briefly.*

3. Scheduled commencement and completion dates of the subsidy project

(Scheduled commencement date):

(Scheduled completion date):

4. ~6.

7. Allocation amount of the costs for the subsidy project, costs eligible for the subsidy and subsidy amount to be applied for

The contents are the same as (2) Expenditures, I. Summary

table of "2. Plan of the income and expenditure" of the Form 2, "Brief explanation of subsidized project".

8. Bases for Calculation for the above amount

The contents are the same as (2) Expenditures, II. Distribution of Costs of "2. Plan of the income and expenditure" of the Form 2, "Brief explanation of subsidized project".

9. "No Change"

Note 1:~Note 3: "No Change"

Remark: "No Change"

(Form 2)

Outline of Subsidized Project

(Form 3)

Certificate of Conformance to Qualification Requirements for the Project of Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures

table of "2. The income and expenditure budget of the Subsidized Project" of the Form 2, "Brief explanation of subsidized project".

8. Bases for Calculation for the above amount

The contents are the same as (2) Expenditures, II. Distribution of Costs of "2. The income and expenditure budget of the Subsidized Project" of the Form 2, "Brief explanation of subsidized project".

9. "No Change"

Note 1:~Note 3:

Remark:

(Form 2)

Outline of Subsidy Project

(Form 3)

Certificate of Conformance to Qualification Requirements for the Project of Advancement of Fundamental Technologies for Retrieval of Fuel Debris/Internal Structures

(Form 4)
 Input/Output information on Project of Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures

(Form 5)
 Response to Security Export Controls on Project of Advancement of Fundamental Technologies for Retrieval of Fuel Debris and Internal Structures

Response to Security Export Controls	
Circle one of the following three options: handled, not handled or not required.	
Handled	Submit relevant documents (export control regulations for security trade)
Not handled	<u>State the date of submission:</u> Year Month:
	State future plans
Not required	State reasons

(Form 4)
 Input/Output information on Project of Advancement of Fundamental Technologies for Retrieval of Fuel Debris/Internal Structures

(Form 5)
 Response to Security Export Controls on Project of Advancement of Fundamental Technologies for Retrieval of Fuel Debris/Internal Structures

Response to Security Export Controls	
Circle one of the following three options: handled, not handled or not required.	
Handled	Submit relevant documents (export control regulations for security trade) <u>Date of completion of handling:</u>
Not handled	
	State future plans
Not required	State reasons

<p>(Reference Document 1)~(Reference document 3) "No Change"</p>	<p>(Reference Document 1)~(Reference document 3)</p>
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