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| and make it available in safety evaluation codes. | | | | | | |
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| Mid to Long-Term Objectives (Current Version) | Mid to Long-Term Objectives (Proposal under Consideration) | Mid to Long-Term Plan (Current Version) | Mid to Long-Term Plan (Proposal under Consideration) | Major Evaluation Axis (Proposal under Consideration) | Remarks (Related Evaluation and Monitoring Indicators) (Proposal under Consideration) |
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| | | NRC. Moreover, having learned lessons from the accident at TEPCO's Fukushima Daiichi Nuclear Power Station, we shall look at external events that may pose a threat to nuclear facilities. Through these research, we shall ensure and maintain the infrastructure necessary for the technical assistance to nuclear safety regulations and administration, contribute to the development of scientific and reasonable regulation standards and safety confirmation of nuclear facilities by actively releasing obtained results and making technical proposals, and aid the improvement of nuclear power safety and the improvement of reliability of nuclear power. In carrying out research, we shall carry out cooperative research and information exchange with domestic and foreign research institutions, reflect the latest wide technical knowledge on nuclear power safety, get a good evaluation from external experts, and continuously improve details | NRC. Moreover, having learned lessons from the accident at TEPCO's Fukushima Daiichi Nuclear Power Station, we shall look at external events that may pose a threat to nuclear facilities. Through these research, we shall ensure and maintain the infrastructure necessary for the technical assistance to nuclear safety regulations and administration, contribute to the development of scientific and reasonable regulation standards and safety confirmation of nuclear facilities by actively releasing obtained results and making technical proposals, and aid the improvement of nuclear power safety and the improvement of reliability of nuclear power. In carrying out research, we shall carry out cooperative research and information exchange with domestic and foreign research institutions, reflect the latest wide technical knowledge on nuclear power safety, get a good evaluation from external experts, and continuously improve details of the research based on opinions from NRC. Besides, we shall keep | | |
| | | regulation standards. In addition, we shall provide human and technical | 2) Cooperation for relevant administrative organizations We shall provide scientific data etc., to contribute to the development of regulation standards. In addition, we shall provide human and technical assistance to investigations etc. to investigate the causes of accidents and failures of nuclear facilities upon specific requests from regulatory administrative bodies etc. | | |

| Mid to Long-Term Objectives (Current Version) | Mid to Long-Term Objectives (Proposal under Consideration) | Mid to Long-Term Plan (Current Version) | Mid to Long-Term Plan (Proposal under Consideration) | Major Evaluation Axis (Proposal under Consideration) | Remarks (Related Evaluation and Monitoring Indicators) (Proposal under Consideration) |
|--|--|--|---|--|---|
| (4) Development of nuclear human resources and promotion of service facility uses Based on the Basic Energy Plan, with human resources in a wide range of sectors as a target, the Agency shall develop researchers and engineers with a high problem-solving ability in the nuclear power sector in the R&D sites, human resources via training corresponding to the needs of industries, universities, government agencies etc., human resources for nuclear power upon requests etc. from relevant administrative organizations.Based on the Basic Energy Plan, with human resources in a wide range of sectors as a target, the Agency shall develop researchers and engineers with a high problem-solving ability in the nuclear power sector in the R&D sites, human resources via training corresponding to the needs of industries, universities, government agencies etc., human resources who can be active both domestically and abroad, and human resources for nuclear power upon requests etc. from relevant administrative organizations. In particular, facilities such as JRR-3 and the Japan Materials Testing Reactor (JMTR) etc., which have stopped their operations after the carthquake disaster, shall immediately restart the operations attenderds.These efforts shall maintain and develop nuclear technology and human resources at a high level and support nuclear R&D infrastructure. | uses Based on the Basic Energy Plan, with human resources in a wide range of sectors as a target, the Agency shall develop researchers and engineers with a high problem-solving ability in the nuclear power sector in the R&D sites, human resources via training corresponding to the needs of industries, universities, government agencies etc., human resources who can be active both domestically and abroad, and human resources for nuclear power upon requests etc. from relevant administrative organizations. Based on the Basic Energy Plan, with human resources in a wide range of sectors as a target, the Agency shall develop researchers and engineers with a | operation after the earthquake disaster, immediately after receiving the | | [Qualitative Viewpoint] -Implementation status of R&D human resources development program (evaluation indicator) -Activity status of human resources development network (evaluation indicator) -Status of efforts to restart the operation of test reactor (evaluation indicator) [Qualitative Viewpoint] -Evaluation of training courses in questionnaires by Japanese and overseas training participants (evaluation indicator)) -The numbers of service facilities, usages, adopted challenges, and users (evaluation indicator) -The number of trainings on safety and security offered to users (evaluation indicator) -The number of accepted students including overseas post-doc and training participants (monitoring indicator) -The number of papers presented by providing facilities (monitoring indicator) -Intellectual property including patents acquired by providing facilities (monitoring indicator) -The number of consultations with candidate users(monitoring indicator) | [Qualitative Viewpoint] -Implementation status of R&D human resources development program (evaluation indicator) -Activity status of human resources development network (evaluation indicator) -Status of efforts to restart the operation of test reactor (evaluation indicator) [Qualitative Viewpoint] -Evaluation of training courses in questionnaires by Japanese and overseas training participants (evaluation indicator)) -The numbers of service facilities, usages, adopted challenges, and users (evaluation indicator) -The numbers of accepted students including overseas post- doc and training participants (monitoring indicator) -The number of papers presented by providing facilities (monitoring indicator) -The number of consultations with candidate users(monitoring facilities (monitoring indicator) -The number of consultations with candidate users(monitoring indicator) |
| 5. R&D on Fast-Breeder Reactors (FBR) In the Basic Energy Plan, Fast-Breeder Reactors (FBR) are expected to undertake new roles, not only by using uranium resources effectively in a conventional way, but also by reducing the volume and toxicity of radioactive waste and technologies related to non-proliferation. The Agency shall contribute to solving these challenges of Japan and diversifying the future energy policy by promoting R&D on "MONJU" and R&D to establish verification technologies for Fast-Breeder Reactors (FBR). | <u>Nuclear Energy in December 2016</u> , fast-breeder reactors (FBR) are required not only to use uranium resources effectively in a conventional way but also are expected to play a new role of reducing the volume and toxicity of high-level radioactive waste and improving technologies | only to use uranium resources effectively in a conventional way but also are expected to play a new role of reducing the volume and toxicity of high-level radioactive waste and improving technologies related to non- proliferation. For this purpose, while giving the highest priority to safety and promoting international cooperation, we shall carry out R&D on <u>the</u> <u>prototype fast-breeder reactor "MONJU"</u> and R&D to establish verification technologies for FBR, and contribute to the formulation and | toxicity of high-level radioactive waste and improving technologies related to non-proliferation. For this purpose, while giving the highest | | [Qualitative Viewpoint] -Status of efforts to prevent human disasters, accidents, and troubles (evaluation indicator) -Implementation status of quality assurance activities and creation of safety culture, and compliance with laws and regulations (evaluation indicator) -Status of handling troubles until restoration (evaluation indicator) -Status of accumulation and transmission of operation and maintenance management technology (monitoring indicator) [Qualitative Viewpoint] -The number of human disasters, accidents, and troubles (monitoring indicator) -The number of matters indicated in security checks (monitoring indicator) |

| Mid to Long-Term Objectives (Current Version) | Mid to Long-Term Objectives (Proposal under Consideration) | Mid to Long-Term Plan (Current Version) | Mid to Long-Term Plan (Proposal under Consideration) | Major Evaluation Axis (Proposal under Consideration) | Remarks (Related Evaluation and Monitoring Indicators) (Proposal under Consideration) |
|--|---|--|--|---|--|
| | | | | [2] Are sufficient efforts made to develop human resources? | [Qualitative Viewpoint] -Status of efforts of human resources development related to the technical transmission of "MONJU" and others, and the enhancement of operation and maintenance management technology (evaluation indicator) |
| (1)R&D on "MONJU" Based on the Basic Energy Plan and the "MONJU Research Plan" (the Working Group on MONJU R&D Planning, the Nuclear Science and Technology Committee, the Subdivision on R&D Planning and Evaluation, the Council for Science and Technology, MEXT in September 2013; hereinafter referred to as the "MONJU Research Plan"), "MONJU" is positioned as a global research center to reduce the volume and toxify of waste and improve non-proliferation technologies. The Agency shall strive to reduce maintenance and management costs until the resumption of operation to summarize results of FBR technology development shown in the MONJU Research Plan, formulate a specific roadmap subject to resumption of operations as early as possible and aim at restarting operations by giving the highest priority to safety. Specifically, the Agency shall properly work on responding to orders on security measures received from NRA, confirming investigations of fracture zones at NPS sites, and responding properly to new regulation standards, and prompt resumption of operations and advance R&D after receiving confirmation of conformity to the new regulation standards and permission for amendment of the reactor installment license etc. At that time, based on the guidelines shown in the MONJU Research Plan, the Agency shall specifically and clearly show implementing methods, result contents and its time, and the utilization methods of individual R&D, state goals by fixing the term, and advance R&D to create results. In addition, we shall receive necessary evaluations depending on acancelling it etc., Moreover, the Agency shall by focusing do progress, global R&D trends concerning FBR, and changes of social conditions etc., and constantly review ongoing R&D by focusing on or cancelling it etc., Moreover, the Agency shall disclose the efforts mentioned above including the process etc. before the resumption of operation of "MONJU." The Agency shall disclose the efforts mentioned above including the process etc. before the resumption of op | safety is secured within about five and a half years after developing a basic plan concerning decommissioning. In advancing future efforts, the Agency shall give top priority to ensuring safety and endeavor to enhance local and other citizens' understanding. | (1)R&D on "MONJU" MONU shall be regarded as an international research center to reduce waste and toxicity and improve technologies related to nuclear non- proliferation, focus on promoting responses to new regulation standards and other issues to be overcome, and aim at putting together research results shown in the "MONJU research plan" (September 2013, MONJU Research Plan working group, the Nuclear Science and Technology Committee, the Subdivision on R&D Planning and Evaluation, the Council for Science and Technology; hereinafter, "MONJU Research Plan".) To this end, we shall try to reduce the maintenance and management cost until the resumption of operations, formulate a specific roadmap for each issue to restart performance tests, and restart operations prioritizing ensuring safety. Specifically, we shall properly work on responding to orders on security measures received from NRA, confirming investigations of fracture zones at the site, and respond to new regulation standards, and resume operations and restart performance tests after receiving confirmation of conformity to the new regulation standards and permission for amendment of the reactor installment license. After restarting the performance test, we shall make efforts to carry out international collaboration research to put together completions and results of the test and flexibly and effectively use plutonium (Pu) and M2 in the FBR. Upon implementation, we shall specifically and clearly show implementing methods of individual R&D, details and the time of results utilization methods etc., state goals by fixing the term, and advance R&D to create results. These efforts shall contribute to ensuring energy security in Japan and reduction of long-term risks of radioactive waste by contributing to verification of performance, reliability, and safety of FBR as the only sodium cooling fast reactor with power generation equipment in Japan and the establishment of technical infrastructure. | dela. [2] The Agency undertakes necessary efforts, aiming at completing retrieval of fuel from a reactor core to a fuel pond (water pool) while safety is secured within about five and a half years after developing a basic plan concerning decommissioning. [3] In advancing future efforts, the Agency shall give top priority to ensuring safety and endeavor to enhance local and other citizens' understanding. | [3] Are efforts and results for operation resumption proper? [3] Are efforts and results for decommissioning proper? [4] Are results and efforts after restart properly created and implemented based on "MONJU Research Plan?" | [Qualitative Viewpoint] -Status of efforts for restarting a performance test such as compliance with new regulation standard (evaluation indicator) -Status of efforts to supply fuels (evaluation indicator) -Status of efforts to supply fuels (evaluation indicator) -Status of information transmission (evaluation indicator) -Status of information transmission (evaluation indicator) -Status of a performance test (monitoring indicator) -Tefforts to build a global research center (evaluation indicator) -Progress of a performance test (monitoring indicator) -The status of efforts for decommissioning (evaluation indicator) [Qualitative Viewpoint] -Timing of restarting the performance test (evaluation indicator) (Qualitative Viewpoint] -The progress of "MONJU research plan" and the status of creation of results (evaluation indicator) |
| Furthermore, to advance R&D on "MONJU," while each officer or staff works on his/her duty in a responsible way and reviews the system so that the highest priority can be given to safety in the operations management, the Agency shall establish and continuously use methods to improve issues in the field so that staff in sites can be surely aware of safety and improve operational problems. | | Furthermore, we shall constantly focus on or cancel R&D etc., depending on national energy policies, R&D progress, global R&D trends concerning FBR and changes of social conditions etc. As for mixed oxides (MOX) fuel fabrication required for the operation o "MONJU," we shall carry out countermeasure construction to comply with new regulation standards and supply fuels in accordance with the operation plan of "MONJU." In addition, it is essential to gain understanding of the public before the resumption of the operation of "MONJU." We shall disclose the process up to the restart of performance testing, meaning and efforts of R&D and reasonable grounds for safety etc. in a manner easily understandable to the public. Furthermore, to advance R&D on "MONJU", we shall review the system so that it is most suitable for the progress of the project, and establish and continuously use methods to improve issues in the field so that staff on site can be surely aware of safety and improve operational problems. In addition, based on the collection of accident information and analysis results of the causes etc., we shall continuously promote efforts on site such as improvement of normal time and accident manuals. We shall continuously make the following efforts for the safety of plant | <u>c</u> | | |

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| | | and advancement of operation/maintenance and management technologies. We shall receive an intermediate evaluation on these efforts from an external expert by the midst of the objectives period and reflect it | | | |
| | | in a future plan. •We shall summarize safety improvement measures obtained through responses to new regulation standards and enhance the technical system to provide the increasing the provident in the distribution of and improvement the technical system. | | | |
| | | ensure safety in consideration of characteristics of sodium cooling fast reactors. • While accumulating knowledge learned through operations, we shall | | | |
| | | continuously reflect it in maintenance experiences, operation procedures, maintenance plans etc., and build the operation and FBR maintenance management technology system. •To form an international unique FBR R&D center around "MONJU," | | | |
| | | we shall carry out sodium handling tests to further improve the safe and stable operation of MONJU by using the sodium engineering research facility. | | | |
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| achievements To establish verification technologies for FBR, the Agency shall use experiences learned from R&D on "MONJU" and the fast breeder laboratory reactor "Joyo," which is used as an irradiation facility (hereinafter referred to as "Joyo") and carry out R&D on FBRs through participation in international projects such as the ASTRID reactor in France which is in the verification stage. In order to smoothly carry out these R&Ds, the Agency shall obtain a confirmation of conformity with new regulation standards for Joyo, resume its operation, and implement irradiation tests etc. Furthermore, through the participation in international projects such as the ASTRID reactor in France, it is necessary to sufficiently reflect past research results and accumulated technologies into the projects. The Agency shall use the necessary human resources and develop human resources with international negotiation skills. At the same time, the Agency shall make use of the project results in future R&D. The Agency shall receive an intermediate evaluation for the R&D achievements from external experts by the midst of objectives period and reflect it in future plans. To proceed (1) and above-mentioned R&D, the Agency shall consider technical, economic and social risks in view of the efficient use of maximize the results of safe and efficient R&D of FBR. To achieve this, in light of the international trends in FBR R&D, the Agency shall plan a global strategy for R&D on FBR in consideration of a smooth transition to the verification process, effective and efficient resource allocation, maintaining and development of FBR technologies and human resources in Japan, agree policies with interested parties such as the government, and contribute to policy planning etc. In addition, the Agency shall formulate a policy of FBR safety design standard draft and lead the international standardization of FBR safety design standards by using the Generation-IV International Forum (GIF) | (2) Global strategy planning aiming at the establishment of verification technologies for Fast-Breeder Reactors (FBR) and maximization of R&D achievements To establish verification technologies for FBR, the Agency shall use experiences learned from R&D on "MONJU" and the fast breeder laboratory reactor "Joyo," which is used as an irradiation facility (hereinafter referred to as "Joyo") and carry out R&D on FBRs through participation in international projects such as the ASTRID reactor in France which is in the verification stage. In order to smoothly carry out these R&Ds, the Agency shall obtain a confirmation of conformity with new regulation standards for Joyo, resume its operation, and implement irradiation tests etc. Furthermore, through the participation in international projects such as the ASTRID reactor in France, it is necessary to sufficiently reflect past research results and accumulated technologies into the projects. The Agency shall use the necessary human resources and develop human resources with international negotiation skills. At the same time, the Agency shall make use of the project results in future R&D. The Agency shall receive an intermediate evaluation for the R&D achievements from external experts by the middle of objectives period and reflect it in future plans. To proceed (1) and above-mentioned R&D, the Agency shall consider technical, economic and social risks in view of the efficient use of resources, reduction of high-level radioactive waste and toxicity etc., and maximize the results of safe and efficient R&D of FBR. To achieve this, in light of the international trends in FBR R&D, the Agency shall pan a global strategy for R&D on FBR in consideration of a smooth transition to the verification process, effective and efficient resource allocation, maintaining and development of FBR technologies and human resources in Japan, agree policies with interested parties such as the government, and contribute to policy planning etc. In | results 1) R&D aiming at the establishment of verification technologies for Fast- Breeder Reactors (FBR) To establish verification technologies for FBR, while using achievements gained in "MONJU" R&D such as equipment/system design technologies etc., and the breeder laboratory reactor "Joyo," the irradiation field of fuels and materials (hereinafter, "Joyo"), we shall carry out FBR R&D through participation in international projects such as the ASTRID reactor in France, which is in the verification stage. As for "Joyo," we shall restart it after receiving confirmation of conformity to the new regulation standards and gain data to improve fuel performance including irradiation data of fuel-cladding pipe material that is resistant to breaking. | out FBR R&D through participation in international projects such as the ASTRID reactor in France, which is in the verification stage. As for "Joyo," we shall restart it after receiving confirmation of conformity to the new regulation standards and gain data to improve fuel | [5][4] Do results and efforts obtained through the participation of international projects such as ASTRID reactor in France contribute to the establishment of the verification technologies for Fast-Breeder Reactor (FBR) ? | [Qualitative Viewpoint] -Status of developing and securing human resources with international negotiation skills and effective and efficient resource allocation (evaluation indicator) -Status of efforts to restart the operation of "Joyo" (evaluatio indicator) -Implementation status of irradiation tests by using "Joyo" (evaluation indicator) -Implementation status of Japan-France ASTRID cooperation (evaluation indicator) -Status of the reflection of our country's strategy in ASTRID furnace in France -Progress of designs and R&D of FBR technology and use of results of Japan-France ASTRID cooperation in Japanese empirical researches -Progress of tests required to establish a heat removal technology for severe accidents by using AtheNa and others and analyze behaviors when the core is damaged (evaluation indicator) -Status of leading the international standardization of FBR safety design standard by using the Generation-IV International Forum (GIF)(evaluation indicator) -implementation status of preparing documents and information transmission necessary to clearly explain the significance of FBR R&D such as reduction of radioactive wastes and the reduction of toxity (monitoring indicator) -Status whether PBR R&D is effectively and flexibly advanced based on the latest global developments, regardless of past circumstance (monitoring indicator) |
| | | | | [6] [5] Were necessary contributions made so that the government can frame the policy through planning the global strategy leading to the maximization of results of FBR R&D? | [Qualitative Viewpoint] -Status of constant grasp of the international trend on FBR R&D (monitoring indicator) -The status of creating usage plans on the facilities possessed by the agency such as "Joyo," "MONJU," and "AtheNa" (evaluation indicator) -Reflection of the past R&D results and accumulated technologies in the strategy planning (monitoring indicator) -The status of strategic planning where vital technologies, which should be possessed by Japan, can be possessed and reasonably promoted in the international cooperation in consideration of technological, economical, and social risks (evaluation indicator) -Status of proposals with proper timing to the interested parties including the government and agreement on policy with the interested parties including the government based on the schedule related to Japanese and overseas FBR R&D (evaluation indicator) [Qualitative Viewpoint] -The number of strategic involvement cases in international conferences (monitoring indicator) |

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| R&D: The Agency shall develop basic technologies toward the advancement of reprocessing technology and reprocessing of light water reactor MOX fu etc., and provide technical support to nuclear fuel cycle operations based on these results. In addition, the Agency shall develop basic technologies keeping the production process and reprocessing of FBR MOX fuel in mind and gain results helpful for determining which technologies are promising to establish MOX fuel fabrication and reprocessing technologies in the future. In addition, the Agency shall have stopped some facilities of Tokai Reprocessing Plant, which resolves and shears spent fuels, and plan to apply for a decommissioning plan, clarify the process and the period until | fabrication Based on the Basic Energy Plan, the Agency shall promote the following R&D: The Agency shall develop basic technologies toward the advancement of el reprocessing technology and reprocessing of light water reactor MOX fue etc., and provide technical support to nuclear fuel cycle operations based on these results. In addition, the Agency shall develop basic technologies keeping the production process and reprocessing of FBR MOX fuel in mind and gain results helpful for determining which technologies are promising to establish MOX fuel fabrication and reprocessing technologies in the future. In addition, the Agency shall have stopped some facilities of Tokai Reprocessing Plant, which resolves and shears spent fuels, and plan to 1 apply for a decommissioning plan, clarify the process and the period until g decommissioning, re-organize the R&D system of spent fuel reprocessing | reprocessing technology and reprocessing of light water reactor MOX fuel etc., and offer technical support to nuclear fuel cycle projects based on l these results. In addition, we shall develop basic technologies, keeping the production process of MOX fuel for FBR and reprocessing of MOX fuel for FBR in mind, and enhance basic data (separation characteristics, fuel physical properties etc.) necessary for maximization of the design to improve reliability and productivity. These help future reprocessing and the establishment of the fuel fabrication technology system and contribute to ensuring the energy security of Japan. We have stopped some facilities of Tokai Reprocessing Plant, which resolve and shear spent fuels, and shall clarify the process and the period until decommissioning, re-organize the R&D system of spent fuel reprocessing technology after decommissioning, utilize facilities for the time being, and create a decommissioning plan etc. after that as a preparation for the decommissioning, and systematically formulate a decommissioning plan. Moreover, to safely manage stored spent fuel and | these results. In addition, we shall develop basic technologies, keeping the production process of MOX fuel for FBR and reprocessing of MOX fuel for FBR in mind, and enhance basic data (separation characteristics, fuel physical properties etc.) necessary for maximization of the design to improve reliability and productivity. These help future reprocessing and the establishment of the fuel fabrication technology system and contribute to ensuring the energy security of Japan. We have stopped some facilities of Tokai Reprocessing Plant, which resolve and shear spent fuels, and shall clarify the process and the period until decommissioning, re-organize the R&D system of spent fuel reprocessing technology after decommissioning, utilize facilities for the time being, and create a decommissioning plan etc. after that as a preparation for the decommissioning, and systematically formulate a decommissioning plan. Moreover, we shall give top priority to securing | develop MOX fuel producing technology for FBR, and the establishment of decommissioning technology system for reprocessing facilities meet needs of the | [Qualitative Viewpoint] -Progress of the development and the enhancement of glass solidification technology (evaluation indicator) -Progress of fundamental technology development to reprocess light-water reactor MOX fuel (evaluation indicator) -The creation status of results of MOX fuel producing technology development for FBR (evaluation indicator) -Progress of efforts to establish reprocessing facility decommissioning technology system (evaluation indicator) -Status of developing/ applying for decommissioning plan (evaluation indicator) -Status of announcing results outside (monitoring indicator) |
| the establishment of a technical system concerning prospected decommissioning of reprocessing facilities. Moreover, the Agency shall properly work on <u>complying</u> with new standards to safely manage stored spent fuel and waste and solidify and stabilize plutonium solution and high-level radioactive waste liquid in <u>accordance to the plan</u> to reduce causes for potential danger. The Agency shall receive an intermediate evaluation on results of technology development from external experts by the middle of the targe period and reflect it in future plans. | decommissioning of reprocessing facilities. Moreover, the Agency shall give top priority to securing safety and reducing risks and properly work on improving safety based on new standards to safely manage stored spent fuel and waste and steadily implement the plan etc. to decommission Tokai Reprocessing Plant, which was submitted under the direction from NRA, to complete solidifying andstabilizing plutonium solution and high-level radioactive waste liquid in 2028 to reduce causes for potential danger. | waste, we shall properly work on complying with new regulation standards and solidify and stabilize plutonium solutions and high-level radioactive waste liquid to reduce causes for potential danger. We shall contribute to the establishment of decommissioning technology systems including reprocessing facilities etc., with these efforts. In carrying out these activities, we shall effectively use technological knowledge in coordination among divisions, develop human resources to support future nuclear fuel cycle technology and reduce risks of nuclear materials at facilities etc. In addition, we shall receive an intermediate evaluation on the results of technology development from an external specialist by the midst of the objectives period and reflect it in future plans. | | [4] Are technical supports offered to the nuclear fuel cycle project through results of glass solidification of high-level radioactive waste liquid? | [Qualitative Viewpoint] -Status of technical supports to the nuclear fuel cycle project (evaluation indicator) -Status of announcing results outside (monitoring indicator) |

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| Mid to Long-Term Objectives (Current Version) | Mid to Long-Term Objectives (Proposal under Consideration) | Reprocessing technology development For further advancement of glass solidification technology as the advancement of reprocessing technology, we shall gain and evaluate data concerning behaviors of platinum group elements, design and develop new types of reactors for a facility for vitrification technology (TVF: Tokai Vitrification Facility), contribute to the early completion of vitrification of high-level radioactive liquid waste, work on the development of basic technologies for reprocessing of light water reactor MOX fuel, and provide technical support to the nuclear fuel cycle project based on these achievements. In addition, we shall study elemental technology development and plant concepts to reprocess FRB MOX fuel and obtain achievements to contribute to determining how promising technologies are to establish reprocessing technology We shall develop technologies for advancement of the pellet manufacturing process of FRB MOX fuel fabrication technology related to a simplified pellet method. Besides, we shall develop dry recycling technologies to reuse scrap generated in MOX fuel fabrication as a raw material. Moreover, we shall improve the reliability and maintainability of automatic fuel fabrication equipment and gain data contributing the study of remote automation of MOX fuel fabrication plants. Tokai Reprocessing Plan We shall work on the Tokai Reprocessing Plan to <u>comply</u> with new regulation standards, continue the control of stored used fuel and waste and responses based on aging of facilities, and make the following efforts We shall give the highest priority to safety securement, complete | Reprocessing technology development For further advancement of glass solidification technology as the advancement of reprocessing technology, we shall gain and evaluate data concerning behaviors of platinum group elements, design and develop new types of reactors for a facility for vitrification technology (TVF: Tokai Vitrification Facility), contribute to the early completion of vitrification of high-level radioactive liquid waste, work on the development of basic technologies for reprocessing of light water reactor MOX fuel, and provide technical support to the nuclear fuel cycle project based on these achievements. In addition, we shall study elemental technology development and plant concepts to reprocess FRB MOX fuel and obtain achievements to contribute to determining how promising technologies are to establish reprocessing technology in the future. Development of MOX fuel fabrication technology We shall develop technologies for advancement of the pellet manufacturing process of FRB MOX fuel and elemental technology related to a simplified pellet method. Besides, we shall develop dry recycling technologies to reuse scrap generated in MOX fuel fabrication as a raw material. Moreover, we shall improve the reliability and maintainability of automatic fuel fabrication equipment and gain data contributing the study of remote automation of MOX fuel fabrication plants. Tokai Reprocessing Plan We shall work on the Tokai Reprocessing Plan by <u>improving safety based on</u> new regulation standards, continue the control of stored used fuel and waste and responses based on aging of facilities, and make the following efforts: | Conside |
| | | solidification and stabilization by MOX powderization, construct/maintain facilities in a well-planned manner, and ensure | We shall give the highest priority to safety securement and <u>risk reduction</u> , complete solidification and stabilization by MOX powderization, construct/maintain facilities in a well-planned manner, and take necessary | |
| | | facility to pack vitrified waste packages into containers to transport to a final waste disposal site. We shall also prepare for decommissioning of the Tokai Reprocessing Plant, apply for permission for the decommissioning plan, and start efforts to establish the decommissioning technology system of the reprocessing facility. | and plans to reduce risks related to high-level radioactive waste liquid and to shorten vitrification of high-level radioactive liquid waste in order to complete vitrification of high-level radioactive liquid waste in 2028. In addition, to manage high-level radioactive waste, we shall study storage methods of vitrified waste packages etc., and take proper measures. We shall also prepare for decommissioning of the Tokai Reprocessing Plant, apply for permission for the decommissioning plan in the first half of 2017, and start efforts to establish the decommissioning technology system of the reprocessing facility. As for high radioactive solid waste, we | |
| | | As for high radioactive solid waste, we shall develop technologies concerning remote extraction to contribute to proper storage management. As for the low-level radioactive waste treatment facility (LWTF), we shall steadily develop and maintain a cement solidification facility and a nitrate radical analysis facility to carry out construction improvements to the incineration facility and start operation within the target period. | shall develop technologies concerning remote extraction to contribute to proper storage management. As for the low-level radioactive waste treatment facility (LWTF), we shall steadily develop and maintain a cement solidification facility and a nitrate radical analysis facility to carry out construction improvements to the incineration facility and start operation within the target period. We shall study how to use the recycle equipment test facility (RETF). | |
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| n and high-level radioactive I stabilized in accordance to the ed spent fuels and wastes? | [Qualitative Viewpoint] -Implementation status of solidification and stabilization of high-level radioactive waste liquid and plutonium solution with MOX powder (evaluation indicator) -Implementation status of compliance with new regulation standards (evaluation indicator) -Implementation status of improving safety based on new regulation standard (evaluation indicator) -Effort impementation status of RETF usage evaluation indicator) -LWTF development status (evaluation indicator) [Qualitative Viewpoint] -Processing rate of high-level radioactive waste liquid (evaluation indicator) -The number of glass solidification of high-level radioactive waste liquid (monitoring indicator) -Storage capacity of plutonium solution (monitoring indicator) |