

Evaluation of Operating Results for  
Japan Atomic Energy Agency  
in the 3rd Mid to Long-Term Objective Period

October 2019

Minister of Education, Culture, Sports, Science and Technology,  
Minister of Economy, Trade and Industry, Nuclear Regulation Authority

1. Items related to the evaluation		
Agency	Japan Atomic Energy Agency	
Mid to long-term objectives period for evaluation	Period evaluation	FY 2015-FY2018
	Mid to long-term objective period	FY 2015-FY2022

2. Items related to the assessor			
The Competent Minister	Minister of Education, Culture, Sports, Science and Technology		
Incorporated jurisdiction dept.	Research and Development Bureau	Dept. and person in charge	Atomic Energy Division, Takashi Kiyoura
Evaluation and inspection dept.	Science and Technology Policy Bureau	Dept. and person in charge	Planning and Evaluation Division, Masao Yokoi
The Competent Minister	Minister of Economy, Trade and Industry		
Incorporated jurisdiction dept.	Electricity and Gas Industry Department, Agency for Natural Resources and Energy	Dept. and person in charge	Nuclear Energy Policy Planning Division, Daisuke Matsuno
Evaluation and inspection dept.	Minister's Secretariat	Dept. and person in charge	Policy Coordination/Evaluation and Public Relations Division, Naohiko Yokoshima
The Competent Minister	Nuclear Regulation Authority		
Incorporated jurisdiction dept.	Secretary-General's Secretariat, Regulatory Standard and Research Department, Secretariat of Nuclear Regulation Authority	Dept. and person in charge	Regulatory Standard and Research Division, Shin Tohyama, Fumihisa Nagase
Evaluation and inspection dept.	Secretary-General's Secretariat, Secretariat of Nuclear Regulation Authority	Dept. and person in charge	Policy Planning and Coordination Division, Yohei Kojima

3. Items regarding implementation of the evaluation	
(1) Listening to opinions and hearings from the National Research and Development Agency Council (hereinafter referred to as the "Council").	
As mentioned below, at the time of an evaluation by the competent minister, we heard opinions from the Councils of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Ministry of Economy, Trade and Industry (METI), and the Nuclear Regulation Authority (NRA).	
July 4, 2019	The Sub-Committee on Japan Atomic Energy Agency (JAEA) under MEXT and METI (hereinafter referred to as the "Sub-Committee") held hearings with JAEA about business performance and self-evaluation and heard opinions from sub-committee members concerning Item No. 1 "Item on security assurance and nuclear security" Item No. 2 "R&D on countermeasures against the accidents at the TEPCO's Fukushima Daiichi Nuclear Power Station," Item No.4 "Activities towards nuclear disarmament and nuclear security, and research and development to improve the safety of nuclear power" Item No. 6 "R&D on Fast-Breeder Reactors (FBR)," and Item No. 11 "Establishment of an effective and efficient management structure" Hearing opinions from the president of JAEA was conducted.
July 12, 2019	The Sub-Committee under MEXT held hearings with JAEA about business performance and self-evaluation and heard opinions from sub-committee members concerning Item No. 3 "Technical support and safety research for nuclear safety regulation and administration" and Item No. 5 "Basic and fundamental nuclear research and human resource development."
July 22, 2019	The Sub-Committee under MEXT/METI held hearings with JAEA about business performance and self-evaluation and heard opinions from sub-committee members concerning Item No. 7 "Reprocessing of nuclear fuel cycle and research and development for processing and disposal of radioactive waste and fuel production" Item No. 8 "Activities to ensure public trust from society and reinforcement of cooperations with industry, academia, and government," Item No. 9 "Streamlining and efficiency of operations," and Item No. 10 "Budget (Including personnel expenses)/income and expenditure plan, and funding plan".
July 24, 2019	The Sub-Committee under NRA held hearings with JAEA about business performance and self-evaluation and heard opinions from sub-committee members concerning Item No. 3 "Technical support and safety research for nuclear safety regulation and administration."
August 6, 2019	The council under MEXT heard opinions concerning competent minister's evaluation on FY2018 operational results of JAEA.

August 8, 2019	The Sub-Committee under NRA heard opinions concerning competent minister's evaluation on FY2018 operational results of JAEA regarding jurisdiction of the committee from document deliberation.
August 14, 2019	Head of the Sub-Committee under NRA reported contents of the resolution to the head of the council of the NRA.
August 22, 2019	The council under METI heard opinions concerning competent minister's evaluation on FY2018 operational results of JAEA.
(2) Field visit by Sub-Committee members	
June 18, 2019	Field visit was made by JAEA Sector of Nuclear Science Research and Sector of Nuclear Fuel Cycling Science

#### 4. Important items and others relating to the evaluation

Since 2016, a part of the quantum beam research and work concerning research and development in nuclear fusion were moved to the National Institute for Quantum and Radiological Science and Technology (established in fiscal 2016); because today this no longer is the business of Japan Atomic Energy Agency, an evaluation on the business performance in fiscal 2015 was used as a mid-term evaluation.

1. Overall evaluation	
Rating (S, A, B, C, D)	B
Reasons for rating	As shown in the overall evaluation of the agency as a whole, the creation of achievements and anticipated creation of achievements in the future and so on were recognized as a result of comprehensive consideration based on circumstances surrounding the agency's business achievements, efforts and so on through its activities and with the national research and development agency's mid to long-term objectives taken into account, and steady business operations have been also recognized.

2. Evaluation of the whole agency	
<p>As the only comprehensive research and development institute on the atomic energy in Japan, we recognize that, in general, JAEA steadily implemented successful operations according to the stipulations set forth in the mid to long-term plan and annual plan to maximize R&amp;D achievements on the whole.</p> <p>In particular, we highly evaluate the following activities as we recognize the considerable and future achievements are created.</p> <ul style="list-style-type: none"> <li>○ With regard to research and development for responding to the event at TEPCO Fukushima Daiichi Nuclear Power Station, we give high marks to the research and development towards decommissioning, the research and development towards recovery of our environment, and the establishment of a research and development platform as we recognize the creation of significant achievements and the creation of achievements for our future.</li> <li>○ “Technical support and safety research for nuclear safety regulation and administration” is highly evaluated because the creations of the considerable and future achievements which are recognized concerning the technical support for the administration of nuclear safety regulation and research on safety and technical support for nuclear power disaster prevention, etc.</li> <li>○ “R&amp;D to improve nuclear safety and activities to contribute to nuclear non-proliferation and nuclear security” is highly evaluated as the creations of the considerable and future achievements are recognized concerning R&amp;D etc. on improvement of nuclear safety and activities conducive to nuclear non-proliferation and nuclear security.</li> <li>○ “Basic and fundamental nuclear research and human resource development” is evaluated, because the development of nuclear human resources and promotion of service facility uses were steadily worked on. At the same time, it is highly evaluated because the creations of the considerable and future achievements are recognized concerning the promotion of basic and fundamental research and advanced nuclear science research that underpin nuclear power, R&amp;D on high-temperature gas reactors and associated heat utilization technologies and the promotion of public utilization of the specific large research facilities. We give high marks to “Basic and fundamental research into nuclear power and human resource education and training”, as we have recognized in particular the creation of significant achievements and the creation of special achievements in our future, concerning the education and training of human resource on nuclear power and advancements in the usage of shared facilities, the advancements on sharing certain large-scale research facilities, the research and development of a high-temperature gas-cooled reactor and reactor technologies for thermal utilization, and the advancements in areas including neutron utilization research and research into the innovative nuclear power sciences.</li> <li>○ With regard to “Research and development of reprocessing of nuclear fuel cycle and research and development for processing and disposal of radioactive waste and fuel production”, we give high marks to the reprocessing of use fuel, the development of technology for fuel production, the research and development towards volume reduction and hazard level reduction of radioactive waste, and the research and development into and scheduled performance of processing and disposal of radioactive waste and decommissioning works for the nuclear power facilities, as we can recognize the creation of significant achievements and the creation of achievements for our future.</li> </ul> <p>Relatedly, on the points below, we expect more creativity and applications, and improvements.</p> <ul style="list-style-type: none"> <li>○ In regard to “Item on security assurance and nuclear security”, in particular with regard to nuclear security and such, business operations are mostly steadily moving forwards; however, with regard to work into security assurance which impacts society widely, we need further improvements, as there has been continuous issues; eg, the contamination and exposure event at the fuel research building of Oarai Research and Development Center in June 2017; the contamination event at Sector of Nuclear Fuel Cycling Science in the fuel technology development center's plutonium fuel development laboratory no 2 inside their control zone.</li> </ul>	

3. Issues to be solved and /or improved for each subject	
<ul style="list-style-type: none"> <li>○ With regard to the internal exposure accident at the Oarai Research &amp; Development Center in FY2017, JAEA is required to take thorough measures to prevent recurrence based on the analysis of causes of the accident. JAEA must also review its responses after the occurrence of the accident to identify what to be improved for applying the result to the future activities. We recognize that improvement activities were performed based on the plan, including lateral deployments and reinforcements in the security controls system, for the contamination and exposure event concerning radioactive matter in June 2017 at the Fuel Research Building of Oarai Research and Development Center, and they are working on the prevention of reoccurrence of events and so on. With that said, in January 2019 there was a contamination event inside a controlled zone of Sector of Nuclear Fuel Cycling Science in the Fuel Technology Development Center's Plutonium Fuel Development Laboratory No 2. As such, we require further improvements in areas including the mechanism of lateral deployment of safety measures.</li> </ul>	

- In view of repeated events and problems at JAEA, a Ministry of Education, Culture, Sports, Science and Education Minister Guidance was issued in April 2019 to the effect that JAEA must suss out the fundamental cause of why a lesson is not learned from prior events and consider an action plan. As such, the immediate issue at JAEA is to implement improvements with regard to their work on security assurance.
- With regard to MONJU, in working towards restarting operations, receiving a safeguarding order from the Nuclear Regulation Authority given the problem in maintenance and management was a serious problem; we believe however that the completion of all reoccurrence prevention actions in response to this order is one milestone. As a reoccurrence prevention action, there is a need to perform actions thoroughly in also the decommissioning stage.

4. Other items	
Main opinions of the council on research and development	<ul style="list-style-type: none"> <li>○ With regard to research and development, we have been accumulating on schedule achievements in research throughout the mid-term period. Among them, we see particularly significant achievements in the item “Human resource education and training and basic platform research into atomic power”, significant achievements are made in areas including “Research and development on response to the incident at TEPCO Fukushima Daiichi Nuclear Power Station” and “Research and development etc. on treatment and disposal of radioactive waste and fuel manufacturing, and reprocessing concerning nuclear fuel cycle”. Based on these achievements, we can give high marks to the point that achievements in research and development are maximized. Going forward, we expect that research and development of high quality will continue, which meet the needs of the general public. Furthermore, in the areas of business such as improving the efficiency and rationale of businesses and establishing an effective and efficient management structure, we are performing business on schedule, under the President’s leadership.</li> <li>○ For the mid-term evaluation period, there were various problems but we also had many achievements. There were some very worrisome incidents, including the security problem with MONJU and exposure event at Oarai Fuel Research building. Furthermore, we believe that this reviewed the legacy thus far concerning a turning point in atomic power research and development, such as the abolition action plan for the research facility and the swift approval of the MONJU abolition action plan.</li> <li>○ We can give good marks to marking these achievements while managing many research centers and following new regulations and standards. Moreover, it is of particular note that our achievements are receiving good marks globally in fields such as nuclear security, safety research, and basic research.</li> <li>○ At the Agency there is no ease of communication between/among groups, and our impression is that there is little exchange of technology and exchange of human resource between/among the groups. Why not look at the competency of the researchers, and consider increasing the mobility of human resource?</li> <li>○ It appears that the time that researchers can spend on research is continuing to shrink as compared to before. We ask that you continue to pay attention so that the researchers can use the time for their primary work, including the abolition of administrative procedures and unnecessary meetings. Furthermore, we wish to propose that the researchers monitor the time spent on the primary work as a KPI.</li> <li>○ We are putting in much effort as a national research and development agency into Japan’s atomic energy technology on also education and training of human resource in atomic energy, and furthermore we are making efforts to apply our development technology to the industry in addition to providing support to our industry on technologies as we have been doing.</li> <li>○ There are significant works including various achievements in research; however, in order to regain public trust from our society and continuously develop our atomic energy business, we need to work on safety as the most important item. From the standpoint of safeguarding, we see improvements but there are many issues including management and project details.</li> <li>○ There was, among others, a plutonium contamination event at the nuclear fuel cycle engineering research center and an exposure event at Oarai Research Center’s Fuel Research building; going forward, we need to make more efforts to prevent such events and problems.</li> <li>○ With regard to staff who work in decommissioning, we need to be more creative on how we raise their motivation through human resource evaluations, which is separate from research and development.</li> <li>○ JAEA’s objective is to do this at some point, and what we would like to see is a big objective that makes why this type of research and development is done easy to understand.</li> </ul>
Auditor’s special comments	No special matters to note.

\* Evaluation categories are as follows:

- S: Based on the National Research and Development Agency’s aims, businesses with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency’s business achievements, and efforts through its activities, especially the creation of considerable achievements, anticipated creation of special achievements in the future and so on toward “maximization of R&D achievements” under the conditions of appropriate, effective and efficient operations are recognized.
- A: Based on the National Research and Development Agency’s aims, businesses with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency’s business achievements, and efforts through its activities, especially the creation of considerable achievements, anticipated creation of special achievements in the future and so on toward “maximization of R&D achievements” under the conditions of appropriate, effective and efficient operations are recognized.

- B: Based on the National Research and Development Agency's aims, business with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency's business achievement, and efforts through its activities, a certain degree of expectation for the creation of achievement and creation of achievement in the future toward "maximization of R&D achievements" were recognized, and steady business operations have been also recognized.
- C: Based on the National Research and Development Agency's aims, businesses with mid to long-term objectives due to comprehensive consideration based on some circumstances regarding the agency's business achievements, and efforts through its activities, the creation of achievements, further drastic efforts and improvements toward "maximization of R&D achievements" or "appropriate, effective and efficient operations" are anticipated.
- D: Based on the National Research and Development Agency's aims, businesses, mid to long-term objectives and so on, as a result of comprehensive consideration based on some circumstances regarding the agency's business achievements, efforts and so on, through its activities, special efforts and improvements including a fundamental drastic review, toward "maximization of R&D achievements" or "the appropriate, effective and efficient operations" are required.

Mid to long-term objectives (Mid to long-term plan)	FY Ratings							Mid to long-term objective period evaluation	Itemized evaluation document No	Remarks
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2014	FY 2015			
I. Maximization of R&D achievements and quality improvement of the other operations										
R&D in response to the accident at Fukushima Daiichi Nuclear Power Station	A	A	A	A				A	2	
Technical support and safety research for nuclear safety regulation and administration	A	A	A	A				A	3	
R&D to improve nuclear safety and activities to contribute to nuclear non-proliferation and nuclear security	A	A	A	A				A	4	
Basic and fundamental nuclear research and human resource development	B	A	A	S				A	5	
R&D on Fast Breeder Reactors (FBR)	C	C	B	B				B	6	
R&D on reprocessing related to the nuclear fuel cycle and treatment, fuel fabrication, and disposal of radioactive wastes	B	A	B	A				A	7	
R&D on nuclear fusion	A	/						A	-	
Activities to promote industry academia government	B	B	B	A				B	8	

Mid to long-term objectives (Mid to long-term plan)	FY Ratings							Mid to long-term objective period evaluation	Itemized evaluation document No	Remarks
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2014	FY 2015			
II. Items regarding the efficiency of business operations										
Streamlining and efficiency of operations	B	B	B	B				B	9	
III. Items regarding improvements in financial related matters										
Budget (Including personnel expenses)/ income and expenditure plan, and funding plan	B	B	B	B				B	10	
IV. Other items										
Items concerning securing of safety and nuclear security	C	C	B	C				C	1	
Establish an effective and efficient management system	B	B	B	B				B	11	

