

Rokkasho Reprocessing Plant

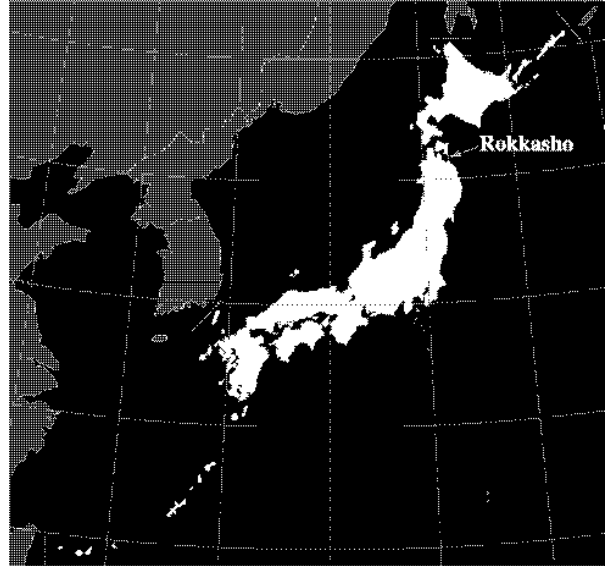
frequently asked questions

Q: What is the Rokkasho Reprocessing Plant?

A: It is a plant for extracting plutonium from the spent fuel produced in Japan's nuclear reactors.

Q: At what stage of development is it?

A: Officially it is still under construction. It is basically built, but is currently undergoing commissioning trials. 'Uranium trials' commenced in December 2004 and 'active trials' using spent fuel are scheduled to commence in December 2005. The plant is scheduled to commence operations in May 2007.



Q: What is its capacity?

A: When operating at full capacity it will process 800 tons of spent fuel and in so doing extract 8 tons of plutonium per year.

Q: How many nuclear weapons is that equivalent to?

A: Based on a 'significant quantity' defined by the IAEA as 8kg of plutonium, the plutonium extracted at Rokkasho could be used to produce 1,000 nuclear weapons per year.

Q: What is the official purpose of extracting this plutonium?

A: There are two proposed uses. The long-term plan is to use it in the fast breeder program, but this is stalled and it is highly doubtful whether it will proceed. In any case, a commercial plant isn't expected to be running before 2050. In the meantime the plan is to burn the plutonium as MOX fuel (a mixture of plutonium and uranium oxides) in light water reactors (LWR). The start up of this program has also encountered major obstacles. As a result the plutonium stockpile continues to grow.

Q: What if the fast-breeder program succeeds?

A: In that case it would be better to hold onto the plutonium, rather than burn it as MOX fuel now,

but that means having an ever-growing stockpile of weapons-usable plutonium, until sometime, decades hence, it becomes feasible to use it in a commercial fast breeder program. The reality is that the fast breeder program has been 45 years in development and all there is to show for it is one hour of electricity produced by the prototype Monju plant. This plant has been stopped since a major accident in 1995 and is currently awaiting a Supreme Court decision on the validity of its license.

Q: How much plutonium does Japan already have?

A: Japan has over 40 tons of separated plutonium. Of this 35 tons is held at reprocessing plants in France and the UK and the rest (around 5.5 tons) is held in Japan. There is no plan for reducing this stockpile. Under current contracts it will increase to around 48 tons, not including any plutonium extracted at Rokkasho.

Q: So what is the hurry to proceed with reprocessing?

A: The main reason relates to storage of spent fuel. There are agreements with regional governments not to hold spent fuel indefinitely at nuclear power plants. The theory is that by sending spent fuel to Rokkasho this agreement can be fulfilled. But in that case, the pools at Rokkasho will soon be filled, unless the spent fuel is reprocessed. The reality is, however, that the amount of spent fuel produced each year exceeds Rokkasho's reprocessing capacity, so the problem of storage of spent fuel can't be solved in this way.

Q: So what should be done with the radioactive material produced in nuclear reactors?

There is no final disposal site for either spent fuel or for the vitrified high-level waste that will be produced at Rokkasho. Therefore, reprocessing at Rokkasho will not be the solution to the problem of radioactive waste. If this problem is solvable, it is solvable without Rokkasho.

Q: How many nuclear reactors does Japan currently have and what percent of Japan's electricity is nuclear?

A: Japan has 53 operational nuclear power reactors. In a typical year these supply in the order of 35% of Japan's electricity. But this is not dependent on the operation of the Rokkasho Reprocessing Plant. Japan operates its LWRs using uranium fuel. These reactors were not designed to use MOX fuel and none are currently using MOX fuel. Furthermore, MOX fuel is much more expensive. The Citizens' Nuclear Information Center estimates that a MOX fuel cycle based on plutonium extracted at the Rokkasho Reprocessing Plant will be more expensive than a once through uranium fuel cycle, unless the uranium price exceeds \$2,200 per kilogram, nearly a hundred times greater than current prices of \$25-\$35/kgU.

May 2005