France told to prepare for 'unimaginable' accidents

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After Fukushima, France must prepare to cope with a nuclear accident whose scenario is "unimaginable," Jacques Repussard, head of the Institute of Radiation Protection and Nuclear Safety, IRSN, said May 5.

"What threatens us is not a 'standard' accident," Repussard said. IRSN analyses indicate that EDF's nuclear power plants would "very satisfactorily" withstand an "ordinary" accident scenario, he said. The accident ongoing at Japan's Fukushima 1nuclear power plant —which combined loss of all power and all cooling with an earthquake- and tsunami-ravaged environment — shows that French society must "accept that we must prepare ourselves for completely unimaginable situations," he said.

Andre-Claude Lacoste, chairman of the Nuclear Safety Authority, ASN, said France had previously used a "basically deterministic" approach to nuclear safety, with "insights" from probabilistic assessments. But what Fukushima has shown, he said, is the need to "go beyond saying 'that scenario is totally improbable' and take a symptom-based approach" that assumes a certain degraded status of the nuclear facility and derives ways to keep the plant and environment safe in that situation.

Repussard said IRSN has been criticized for proposing "unrealistic" accident scenarios, but what happened at Fukushima, engulfed by a tsunami twice the height the plant's tsunami wall was built to withstand, "wasn't considered realistic."

The officials were speaking at a hearing of the French parliament's office of technology assessment, Opecst, which opened a two-day seminar on post-nuclear-accident planning. The seminar, the second of its kind, is being held to review progress on preparation for managing the medium- and long-term phases, up to years or even decades after a nuclear accident.

It was organized by ASN, which heads the national steering committee for post-accident preparation. The committee — known by its French abbreviation, Codirpa — is working on guidelines for transitioning from the accident phase to the immediate post-accident phase, and from there to the longer term.

"No one can guarantee that there will never be a nuclear accident in France," Lacoste said. He said everything must be done to avoid such an accident and to mitigate the consequences if one occurs, but "we must be capable of managing them."

Pierre Berbey of the scientists group ACRO in Normandy, which is critical of nuclear power, said the disaster at Fukushima I shows nuclear accident studies must be revised to take into account "very complex" scenarios such as an accident with an oil tanker near the Flamanville nuclear power plant site. A probabilistic approach is no longer acceptable, he argued.

Berbey said society must be able to debate and decide whether, in face of the potential consequences of a nuclear power plant accident, it is ethically acceptable to "continue with a stochastic approach that reasons only on the basis of risk," that is, consequences multiplied by probabilities.

A nuclear program is a "national decision," he said, but it must be justified in light of the potential for "intolerable consequences," including for future generations.

Discrepancies

Augustin Janssens, responsible for radiation protection at the European Commission, told the hearing that France was the only country in Europe to have launched a formal national consideration of how to manage all phases of a nuclear accident.

Ted Lazo, head of radiation protection at the OECD Nuclear Energy Agency, said the agency has been collecting information on individual countries' decisions regarding protection of their citizens since the March 11 Fukushima accident. Most of those decisions were consistent, he said — but not all of them, and discrepancies have the potential to create big problems.

Whereas Japanese authorities ordered evacuation of the population within 20 kilometers of the Fukushima I site and sheltering of those between 20 and 30 km from the site, US authorities recommended evacuation of US citizens in Japan from a radius of 50 miles (80 km) around the plant, Lazo noted, saying that "a number of other countries followed" the US approach.

Not only did the US recommendation create problems for Japanese authorities, but it has also raised questions about whether protection of the public is sufficient around US nuclear power plants, such as the Indian Point plant near the city of New York. US plants are required by the NRC to develop emergency response plans using a 10-mile emergency planning zone, but agency and industry officials have said evacuations of larger areas could be conducted if the circumstances of a severe accident warrant it.

Lazo said national authorities are responsible for their own citizens, but he said NEA's working group on emergency planning is asking for coordination of information and decision making "before the information is put out" to the public.

The international working group, which met early last week in Paris to review the initial lessons from the Fukushima accident, also said preparations for evacuation and sheltering should be reviewed in the context of "having to manage several emergencies at the same time."

The group said that after an accident, national governments must be prepared to provide an enormous amount of information "translated into English" in near-real time, so it can be understood internationally, Lazo said.

Discussions must be held with stakeholders in advance on important issues such as how to coordinate evacuation of children and their parents if they are in different places when the evacuation is ordered, he said.

Mayors

Jean-Claude Delalonde, chairman of the national association of Local Information Commissions around French nuclear facilities, said on the sidelines of the conference that Fukushima had caused French national authorities to finally pay attention to local officials.

Before the Japanese accident, he said, prefects — the local representatives of the national government — had largely bypassed mayors in their accident planning.

"We have been getting a lot of calls since Fukushima," Delalonde said, as the prefects realize they will need help from mayors and other local officials to manage an accident in France.

Many communities near nuclear facilities do not yet have municipal emergency plans and small communities in particular need help in drawing them up, he said.

Exemption levels

At the opening session, Guillaume Dederen, head of the Office of Major Risks in the Civil Security Division of the French interior ministry, called for the establishment of exemption levels for equipment potentially contaminated in recovery efforts after a nuclear accident.

Dederen later said that Civil Security, which sent a team of specialists to Japan's stricken prefectures to help in lifesaving and rubble-clearing operations, had not been able to repatriate some equipment to France because French doctrine holds that any object that has been in a contaminated area is to be treated as radioactive waste.

He said some such pieces of equipment cost hundreds of thousands of euros and that Civil Security also needs that equipment to be able to provide assistance after other disasters.

France is one of the only countries that had refused to set universal exemption levels, including for decommissioning waste, on grounds that such levels encourage dilution of radionuclides in large volumes of material to bring their concentration down to the exemption levels.

But Lacoste said on the sidelines of the seminar that the problem of repatriating the Civil Security's equipment can be resolved without setting such levels now. He said, however, that ASN and the administration are working on regulations under which in the future, temporary exemption levels could be applied after an accident to facilitate management of contaminated vehicles and equipment.

The Codirpa seminar was scheduled to discuss a broad spectrum of issues involved in post-accident management, including strategies for measuring environmental radioactivity, how to deal with huge quantities of radioactive waste, how to mitigate contamination in the early post-accident phases, management of agricultural products in an affected area, and compensation of victims.

Lazo said ASN had asked the NEA to peer-review the Codirpa program and that the parties would be discussing on May 6 how to proceed.

—Ann MacLachlan, Paris