भारत सरकार
GOVERNMENT OF INDIA
परमाणु ऊर्जा नियामक परिषद
ATOMIC ENERGY REGULATORY BOARD

March 14, 2016

Update on the current situation at KAPS Unit 1 subsequent to the leakage incident from the coolant system.

Queries are being received from the media and other agencies seeking information on the incident at unit – 1 of Kakrapar Atomic Power Station. The following update is intended to address these queries.

The present situation at KAPS Unit 1 is stable and the reactor is in cold shutdown state. The reactor is being continuously cooled and at present there are no major safety concerns.

There has been no radioactivity release exceeding the specified daily limits for normal operation, between March 11, 2016, till date. There has also not been any case of workers receiving abnormal radiation exposures.

An independent detailed Environmental Monitoring carried out in the vicinity of the plant up to a distance of around 20 kms, has confirmed that there is no increase in the background radiation levels and /or radioactive contamination, corroborating that no abnormal releases have taken place.

The AERB observers who were at the site have since returned and the above information has been confirmed by their assessment as well.

After confirming sustained cooling of the reactor and also no abnormal radiation levels, the operators of the unit have entered the affected reactor building for investigations and to identify the source of the leak. The leak has been identified to be from one of the coolant channel assemblies of the reactor.

The pressure tubes of the coolant channels in this reactor were replaced with the ones made from improved material in the year 2011, as part of pressure tube ageing management programme.

Currently cooling of the reactor is continuing and planning / preparations for isolating the leak and other recovery operations is in progress as reported by the station.

AERB is obtaining regular updates from the plant and is continuously monitoring the safety status.

The incident at KAPS Unit-1 is provisionally rated at level - I in the IAEA International Nuclear and Radiological Event (INES) scale, which corresponds to an anomaly in the plant.

A brief write up on the IAEA INES is enclosed separately.

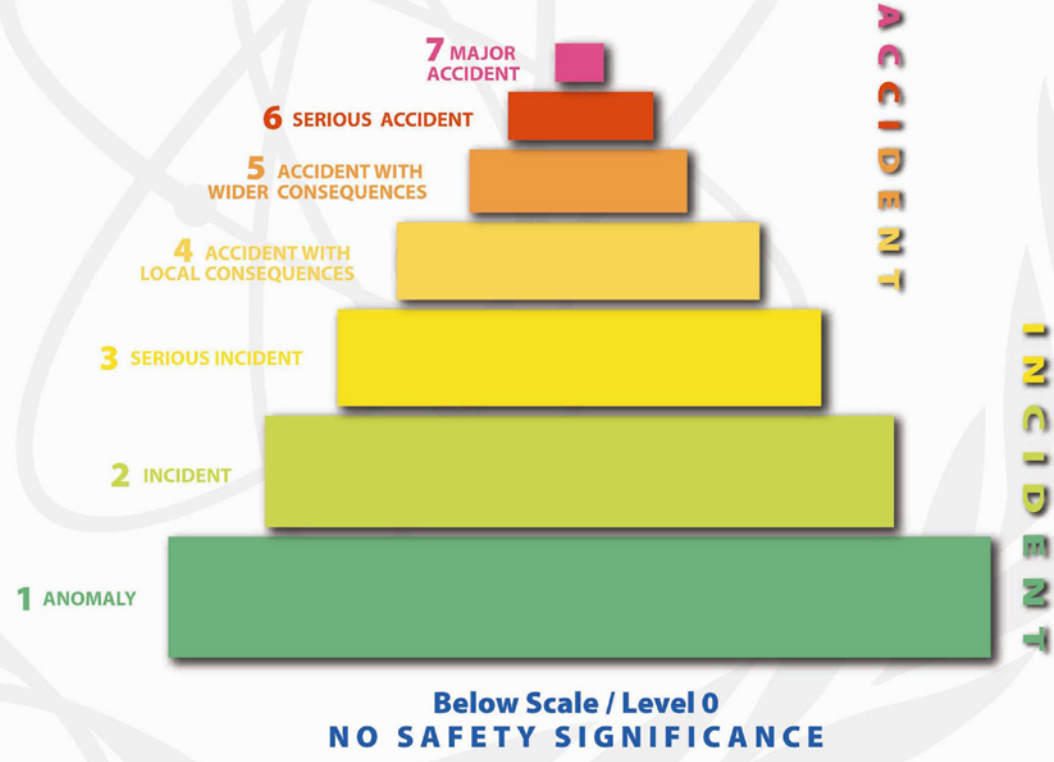
INES

THE INTERNATIONAL NUCLEAR AND RADIOLOGICAL EVENT SCALE

The INES Scale is a worldwide tool for communicating to the public in a consistent way the safety significance of nuclear and radiological events.

Just like information on earthquakes or temperature would be difficult to understand without the Richter or Celsius scales, the INES Scale explains the significance of events from a range of activities, including industrial and medical use of radiation sources, operations at nuclear facilities and transport of radioactive material.

Events are classified on the scale at seven levels: Levels 1–3 are called "incidents" and Levels 4–7 "accidents". The scale is designed so that the severity of an event is about ten times greater for each increase in level on the scale. Events without safety significance are called “deviations” and are classified Below Scale / Level 0.



INES classifies nuclear and radiological accidents and incidents by considering three areas of impact:

People and the Environment considers the radiation doses to people close to the location of the event and the widespread, unplanned release of radioactive material from an installation.

Radiological Barriers and Control covers events without any direct impact on people or the environment and only applies inside major facilities. It covers unplanned high radiation levels and spread of significant quantities of radioactive materials confined within the installation.

Defence-in-Depth also covers events without any direct impact on people or the environment, but for which the range of measures put in place to prevent accidents did not function as intended.

Communicating Events

Nuclear and radiological events are promptly communicated by the INES Member States, otherwise a confused understanding of the event may occur from media or from public speculation. In some situations, where not all the details of the event are known early on, a provisional rating may be issued. Later, a final rating is determined and any differences explained.

To facilitate international communications for events attracting wider interest, the IAEA maintains a web-based communications network that allows details of the event to immediately be made publicly available.

The two tables that follow show selected examples of historic events rated using the INES scale, ranging from a Level 1 anomaly to a Level 7 major accident; a much wider range of examples showing the rating methodology is provided in the INES Manual.

Scope of the Scale

INES applies to any event associated with the transport, storage and use of radioactive material and radiation sources, whether or not the event occurs at a facility. It covers a wide spectrum of practices, including industrial use

EXAMPLES OF EVENTS AT NUCLEAR FACILITIES

	People and Environment	Radiological Barriers and Control	Defence-in-Depth
7	*Chernobyl, 1986* — Widespread health and environmental effects. External release of a significant fraction of reactor core inventory.		
6	*Kyshtym, Russia, 1957* — Significant release of radioactive material to the environment from explosion of a high activity waste tank.		
5	*Windscale Pile, UK, 1957* — Release of radioactive material to the environment following a fire in a reactor core.	*Three Mile Island, USA, 1979* — Severe damage to the reactor core.	
4	*Tokaimura, Japan, 1999* — Fatal overexposures of workers following a criticality event at a nuclear facility.	*Saint Laurent des Eaux, France, 1980* — Melting of one channel of fuel in the reactor with no release outside the site.	
3	*No example available*	*Sellafield, UK, 2005* — Release of large quantity of radioactive material, contained within the installation.	*Vandellos, Spain, 1989* — Near accident caused by fire resulting in loss of safety systems at the nuclear power station.
2	*Atucha, Argentina, 2005* — Overexposure of a worker at a power reactor exceeding the annual limit.	*Cadarache, France, 1993* — Spread of contamination to an area not expected by design.	*Forsmark, Sweden, 2006* — Degraded safety functions for common cause failure in the emergency power supply system at nuclear power plant.
1			Breach of operating limits at a nuclear facility.

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