



न्यूक्लियर पावर कॉर्पोरेशन
ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)

NUCLEAR POWER CORPORATION
OF INDIA LIMITED
(A Govt. of India Enterprise)

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नलिनीश नगाइच

उत्कृष्ट वैज्ञानिक एवं
अधिशासी निदेशक (सी पी एवं सी सी)

NALINISH NAGAICH
Outstanding Scientist &
Executive Director (CP & CC)

July 14, 2013

Kudankulam Unit-1 Attains Criticality

The first of the twin VVER nuclear power reactor units of Kudankulam Nuclear Power Project (KKNPP Unit-1), being implemented in technical collaboration with the Russian Federation, attained its first criticality (start of controlled self sustaining fission chain reaction for the first time) at 23:05 hrs of July 13, 2013.

The approach to the first criticality started at 23:49 hours on July 11, 2013 after completing all the stipulated statutory and regulatory requirements and obtaining the final clearance from AERB. The entire process was supervised by experts from Atomic Energy Regulatory Board (AERB), NPCIL and Russian specialists.

Boron (a neutron absorber) is used in the form of boric acid solution in the primary coolant to keep the nuclear reactor in a sub-critical state before attaining criticality. The process of approach to criticality involves gradual dilution of Boron, which allows neutrons in the nuclear fuel matrix to multiply till a controlled self-sustaining nuclear fission reaction is attained in the reactor.

N. Nagaich
14.07.2013

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The next step following the criticality will be to increase the reactor power in stages to generate 1000 MW electricity as per the laid-down procedures and regulatory clearances. Initially, the plant will be synchronized to the southern grid with about 400 MW power within an expected period of 30 to 45 days from criticality. Subsequently, power will be increased in a step-wise manner to 50%, 75%, 90% and 100% Full Power after obtaining necessary regulatory clearances.

The combination of multi-layered safety features in KKNPP provides enhanced safety, making these reactors one of the safest in the world.

KKNPP-1 is the first Pressurised Water Reactor (PWR) belonging to Light Water Reactor category and harbinger of the large-size LWR technology in India. At 1000 MW, KKNPP-1 also has the distinction of being the largest 'single' power generation unit in the country.

KKNPP unit-1 is the twenty-first nuclear power reactor in the country. India stands sixth in the world based on the number of nuclear power reactor units in operation.


(N. Nagaich) 14.07.2013