

Update on the Construction of the New, Large Khushab Reactor

David Albright and Paul Brannan

October 4, 2006

The Institute for Science and International Security (ISIS)

On July 24, 2006, ISIS released a report¹ on the construction of a new reactor at the Khushab site in Pakistan. Since then, many have contributed to a discussion of the size and power of the new reactor. On September 8, 2006, Dr. Thomas B. Cochran of the Natural Resources Defense Council released a report in which he argues that the new reactor will operate at a power level consistent with Bush administration claims of between 40-100 MWth—the same power level as the first Khushab reactor. ISIS continues to believe that satellite imagery of the site, taken from June of 2005 and April of 2006, depicts construction of a reactor capable of far more powerful operation.

Dr. Cochran's report, "What is the size of Khushab II?"² argues that ISIS's analysis is flawed, but only provides examples of reactor designs to which our analysis would not necessarily apply. He does not provide any reasons why our analysis would not apply to the construction of the new reactor at Khushab. Cochran does not address the considerable differences between the building designs for the first and second Khushab reactors. If Pakistan were indeed building a second reactor with a similar power output, why would the new reactor building be of such a different design? Even if the first Khushab reactor had exhibited operational problems rooted in design, Pakistan could be expected to apply the specific changes to the original design. Therefore, a second Khushab reactor, with a building design much different from the original unit, would be expected to have a much different power output. Furthermore, the cost of building a reactor with a different design on the same site would be considerably higher than if Pakistan had merely replicated the original one. This discrepancy points to the second Khushab reactor performing a different function.

Cochran's analysis also mistakenly implies that reactor vessels must be transported intact to the site. He offers no support for such a sweeping generalization other than his review of the construction of a few reactors which may or may not have any relationship to the Pakistani reactor. In particular, Cochran overlooks the difficulties of transporting an entire reactor vessel to the Khushab site. We said that the reactor vessel was assembled from metal rings on site³. We examined imagery and did not see a capability to bring an entire vessel to the site either by land or via the adjacent river or canal. Cochran also offers no support, other than speculation, that the power of the second reactor is similar to the first.

¹ Commercial Satellite Imagery Suggests Pakistan is Building a Second, Much Larger Plutonium Production Reactor at Khushab, David Albright and Paul Brannan, July 24, 2006

<http://isis-online.org/publications/southasia/newkhushab.pdf>

² http://docs.nrdc.org/nuclear/nuc_06090801A.pdf#search=%22cochran%20khushab%22

³ A Further Discussion of the New, Large Khushab Reactor, David Albright and Paul Brannan, August 4, 2006 <http://isis-online.org/publications/southasia/khushabdiscussion.pdf>

The main visible activity that has occurred at the site after the construction of what we believe to be the reactor vessel has been the arrangement on the ground of what appears to be framing for a roof over the inner structure. For Cochran to be correct, the reactor vessel would need to be installed before the roof was placed on top. Yet, the imagery indicates that the roof may soon be put in place.

We recently acquired an August 2006 image of the Khushab site which shows that the roof is still not installed, though the image quality was too poor to decipher the state of construction of the reactor. However, there were more roof frames visible in August 2006 than there were in the April 2006. We are waiting for more satellite imagery to provide further information regarding the status of the reactor construction.

We will continue to follow this reactor closely because we do not believe this issue of its power is settled. Our concern is especially great in this case because both countries hid the construction of this reactor from the public. To facilitate the discussion of this important, and potentially destabilizing reactor, the US and Pakistani governments should be forthcoming with information substantiating their claims about the size of the second Khushab reactor, including its potential to be scaled upward in capacity once built.