



## Arresting Leakage of 6500Lit/Min

<b>Region</b>	Uttarakhand (India)
<b>Type</b>	Chemical grouting with single/double component Polyurethane (PU) and Urea Silicate
<b>Main Contractor</b>	Larsen & Toubro
<b>Execution of the work</b>	Valplast Technologies Pvt Ltd
<b>Construction Period</b>	2021

## Project Description:

The Singoli-Bhatwari hydro-electric power plant is 99MW run-of- river project being constructed on Mandakini River in Uttarakhand, India.

Wet commissioning of project was successfully done on 21st September 2020. By the time client noticed some water ingress from Adit-3 HRT Plug but situation was not vulnerable initially but situation became panic when water ingress from HRT plug abruptly increases to 6000 lit./min.

As initial remedy client tried arresting the water ingress with cementitious grouting followed by grouting with single component hydrophobic polyurethane with their own engineering design & pattern. But client failed to arrest the water ingress & called up Valplast Technologies Pvt. Ltd. for a technical solution.

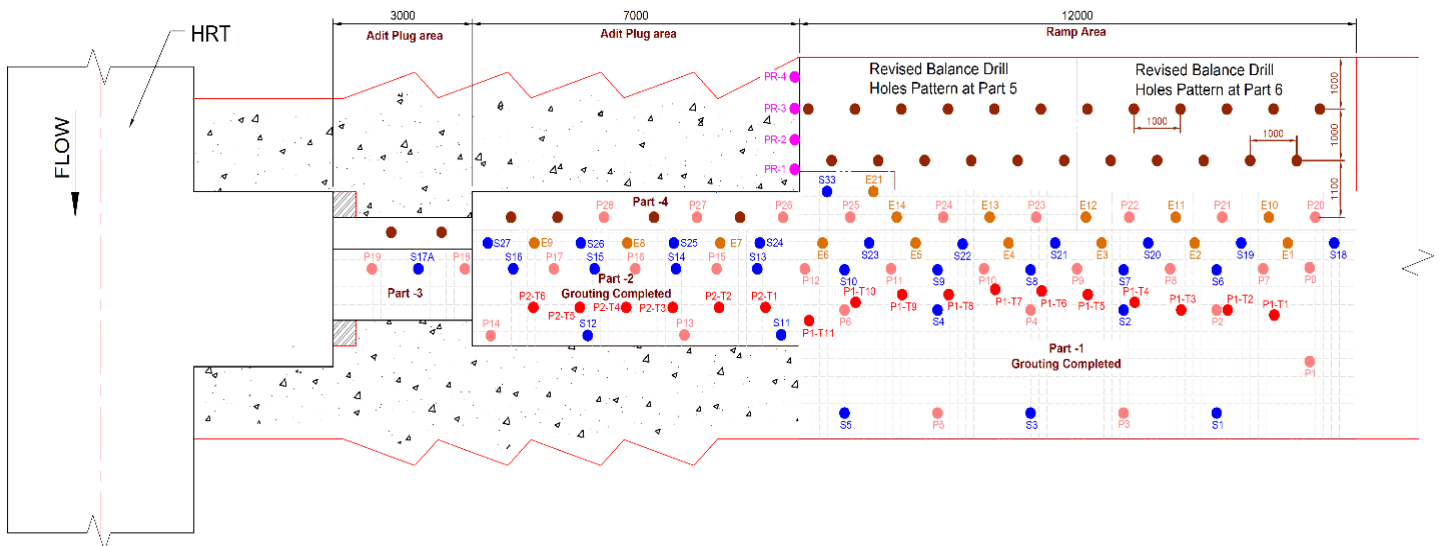
Experts from Valplast Technologies Pvt. Ltd visited the site, collected technical data & proposed a technical solution which was further reviewed by client's design team & finally approved for final go ahead.

## Site Condition:

Heavy water ingress of approx. 6000 ltr/min observed in invert of Adit-3 Gate Plug Concrete structure. Further it was concluded based on site visit that water ingress is through gap between RCC foundation of Gate Plug concrete & parent rock.

## Proposed Solution:

Water ingress needs to be stopped with sequential injection grouting which shall have combination of customized grouting materials & mechanism to achieve the goal. Following drill hole pattern designed to perform the grouting work.





## Customization of product:

Looking at water ingress of 6000lit/min. combination of different products were required in different holes for water diversion, consolidation of rock mass, filling concrete voids/cracks. To achieve the goal combination of product from fast to medium reaction time products with other suitable parameters were used.

## Choice of Suitable Packers & Grouting pump:

For injection of different products following a particular grid pattern suitable two component & single component high pressure grouting pumps were used for successful execution of works. At same time for smooth grouting operations suitable NRV mechanical packer with suitable perforation pattern were used having depth of up to 3.5m.

Water ingress pressure was too high hence to counter the same suitable high-pressure grouting pumps were used & cut-off pressure limit was 25bar further subjected to site condition.

## Scope of Service:

- Providing and Injecting Chemical Grout.
- Chemical grouting with single/double component Polyurethane (PU) and Urea Silicate

