

BADRINATH HE PROJECT (2X70 =140 MW)

SALIENT FEATURES

LOCATION

State	Uttaranchal
District	Chamoli
River	Alaknanda
Dam site	
Location	3 km down stream of Badrinath Shrine on Alaknanda river
Latitude	30° 43'09" N
Longitude	79° 29'49" E
Nearest Airport	Dehradun
Nearest rail head	Rishikesh

HYDROLOGY

Catchment area at dam site	1265.0 sq km
Maximum average discharge at dam site	168.2 cumec
Minimum average discharge at dam site	9.7 cumec

RESERVOIR

Full Reservoir Level (FRL)	El 2812.0 m
Minimum Drawdown level (MDDL)	El 2790.0 m
Gross storage at FRL	0.70 M cum
Live storage	0.45 M cum
Area under Submergence at FRL	3.74 ha

DIVERSION TUNNEL

Number	1
Size	5.0 m ø (Circular)
Length	300 m
Diversion discharge(assumed)	60.0 cumec

DAM

Type	Gravity Dam
Top elevation of dam	2814.0 m
Height of dam above river bed level	36.0 m
Length of dam at top	170.0 m
River bed level	2778.0 m

SPILLWAY

Design flood (PMF)	3530 cumec
Type	Sluice spillway with breast wall
Crest elevation	2781.0 m
Number of bays	4 of 8 m x 11 m
Length of spillway	64.0 m
Energy dissipation type	Trajectory type bucket

INTAKE

Design Discharge	40.66 Cumecs
Invert level	2783.0 m
Number	1 No
Gate Size	4.0m x 4.0m
Trash rack	5 Nos. 5 m x 9 m
Intake tunnel	3.5 m ϕ D-shaped

DESILTING CHAMBER

Number	1
Size	210 m x 9.5 m x 14 m
Design discharge	40.66 cumec
Particle size to be removed	0.2 mm & above

HEAD RACE TUNNEL

Number	1
Size	3.5 m ϕ
Shape	Horse shoe
Length	2.84 km
Design Discharge	33.88 Cumecs

SURGE SHAFT

Number	1
Size	8 m ø
Height	100.0 m

PRESSURE SHAFT

Numbers	1
Size	2.8 m ø
Length	500.0 m

POWER HOUSE

Type	Underground
Installed capacity	140 MW
Number of units	2
Power house cavern size (main)	71.5 m x 16.0 m x 35.0 m (H)
Type of turbine	Vertical Axis Francis Turbine
C.L. of turbine	El 2328.0 m
Rated Head	459.67 m

TAIL RACE

Size	4.0 m dia
Type	D-Shape
Length	340.0 m
Design Discharge	33.88 cumecs
River Bed Level	2332.0 m
Average TWL	El 2334.0 m

SWITCHYARD

Size	Gas Insulated Switchyard (GIS) on the floor above the transformer/s in P/H cavern
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POWER GENERATION

Installed capacity	140 MW
i) 90% dependable year	702.7 GWh
ii) Energy in 90% dependable year on 95% availability	681.42 GWh

CONSTRUCTION PERIOD

5 years