

## CHAPTER – 2

## SALIENT FEATURES

**LOCATION**

State	:	Uttaranchal
District	:	Tehri Garhwal
River	:	Bhagirathi
Location of Dam & Power House	:	Near Muneth village
Nearest Rail head	:	Rishikesh
Nearest Airport	:	Jolly Grant (Near Dehradun)

**HYDROLOGY**

Bhagirathi River	
Catchment area at diversion site	: 7887 sq. km
Snow catchment (out of total)	: 2227 sq. km

**DIVERSION TUNNEL**

Location of Diversion Tunnel	:	Right Bank
Invert EL of DT at Inlet	:	EL 459.0 m
Invert EL of DT at Outlet	:	EL 458.0 m
Diversion Discharge	:	372 cumec
Diameter of Diversion Tunnel	:	6.50 m
Shape of Diversion Tunnel	:	Horse Shoe Shaped
Length of Diversion Tunnel	:	425 m
Diversion Tunnel Gates Nos. & Size	:	One, 5.4 m x 6.5 m
Sill elevation	:	EL 459.0 m

**COFFER DAMS**

Location of u/s coffer dam	:	55 m u/s of dam axis
Location of d/s coffer dam	:	240 m d/s of dam axis
Top of u/s coffer dam	:	EL 478.00 m
Top of d/s coffer dam	:	EL. 469.00 m

**DAM**

Type	:	Concrete Gravity
Dam Top	:	EL 534.00 m
Minimum river bed level at dam site	:	EL 458.4m
Dam Height above River Bed	:	73.6 m
Deepest Foundation Level	:	EL 451.5 m
Dam Height above Deepest Foundation Level	:	82.5 m
Length of Dam at Top	:	143 m

**SPILLWAY**

Type	:	Orifice Type Spillway
Design Flood	:	12200 cumec
Width of spillway	:	85 m
Nos. of Bays	:	5 (including one standby)

Crest of Spillway	:	EL 504.0 m
Width of each bay	:	11.0 m
Regulation gates	:	Hydraulically operated radial gates of size 11 m x 18 m
Energy Dissipation System	:	Ski Jump Bucket

**UNDER SLUICE**

Nos. of Openings	:	4
Size of Openings	:	3.5 m (Width) x 3.7 m (Height)
Type of Gate	:	Hydraulically operated vertical lift gates
Crest of Under Sluice	:	EL 476.00 m

**RESERVOIR**

FRL	:	EL 532.00 m
MDDL	:	EL 528.50 m
River Bed Slope	:	1 : 250
Gross storage at FRL	:	46.17 M cum
Gross storage at MDDL	:	39.25 M cum
Live storage	:	6.92 M cum
Reservoir area at FRL	:	2.103 sq. km
Length of reservoir	:	18.4 km

**INTAKE**

No. & Size of Bell mouth entry	:	1 No, 17.64 m x 15.71 m
Invert Level at Inlet	:	EL 507.00 m
Bulk head gate (opening)	:	9.1 m x 11 m
Service gate (opening)	:	9.1 m x 11m
Trash Rack	:	Inclined

**HEADRACE TUNNEL**

No.	:	1
Size & type	:	11.0 m dia., Horse-shoe shaped
Design Discharge	:	443.2 cumec
Length of HRT	:	165 m

**U/S SURGE SHAFT**

Nos., Type & Size	:	1 No, Restricted Orifice Type, 23 m Dia
No. of Gate	:	1
Size of Opening	:	6.7 m x 8.5 m

**PRESSURE SHAFT****Main Pressure Shaft**

Number, Size & Shape	:	1 No, 8.5 m dia, Circular
Design Discharge	:	443.2 cumec
Total Length (incl vertical portion)	:	125 m

**Trifurcated Pressure Shafts**

Number, Size & Shape	:	3 No, 4.85 m dia, circular
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Design Discharge : 147.73 cumec each  
 Length : 50 m, 65 m & 50 m

### **POWER HOUSE COMPLEX**

Location : Left Bank  
 Type : Underground  
 Installed Capacity : 240 MW  
 Size of Power House Cavern : 140 m x 25 m x 45 m  
 Size of Transformer Cavern : 105 m x 17 m x 15.5 m  
 Nos. and size of draft tube gates : 3 sets, 5.3 m x 6.4 m  
 Type of Turbine : Francis  
 Generating units : 3 nos. of 80 MW each  
 Net head available : 60 m  
 Type of switchgear : GIS (Outdoor)  
 Size of pothead yard : 50 m x 120m

### **Main Access Tunnel**

Length : 300 m

### **Cable cum Ventilation Tunnel**

Size of Tunnel : 6 m, D-shaped  
 No. : 1  
 Length : 120 m

### **TAIL RACE TUNNEL**

#### **Branch Tunnels**

Nos. & Size : 3 Nos., 6.4 m Dia, Horse-shoe shaped  
 Length : 70 m, 80 m & 57 m

#### **Main Tunnels**

Nos. & Size : 1 No, 11.0 m Dia, Horse-shoe shaped  
 Length of TRT : 45 m

### **POWER GENERATION**

Installed capacity : 240 MW  
 Annual energy generation in 90% dependability year at 95% machine availability : 1055.94 MU