



# MEGHALAYA POWER GENERATION CORPORATION LIMITED



## GUIDELINES FOR RELEASE OF WATER THROUGH THE GATES OF THE UMIAM -UMTRU, STAGE-IV DAM

2021



1.1- Dams have been constructed across the Rivers to create artificial Lakes/Reservoirs for storing of water which is being utilized for generation of electricity, irrigation, drinking water and others. Water stored in the Reservoir during rainy seasons, is also utilized during dry/lean seasons. Sometimes due to heavy rain during rainy season, the discharge in the River can be so high that the water level in the Reservoir, if not controlled, can rise beyond F.R.L. In such cases the excess water from the Reservoir has to be released in a gradual and regulated manner through the Radial Gates provided in the Dams, to ensure that people at downstream are not affected by the sudden surge of river water, at the same time to safeguard the Dams from being overtopped, thereby, endangering the abutments from being washed out, and causing loss of lives and properties due to flooding.

Water from the Reservoir may also be required to be released through the Radial Gates at any time of the year as may be required by the owner or due to emergency/crisis that may arise due to many reasons.

In view of this, all Radial Gates of Dams are required to be in operational mode 24x7.

## **2.0- Requirement of Guidelines for Radial Gates**

2.1- The Guidelines for Operation of Radial Gates is needed by all entity/owner of Dams and Reservoirs as it is the guiding instrument at any time whenever Gates are required to be operated to release water from the Reservoir due to Flood, Sabotage, Natural disaster or any other crisis. The Guidelines for Operation of Gates also guides the Operator of the Radial Gate the process of releasing of water from the Reservoir in such a manner that;

- (i) The Dams and other related Hydraulics Structure are not put in any danger.
- (ii) The Reservoir is allowed to retain optimum quantity of water for economic generation of electricity.
- (iii) It mitigates the damage of flood downstream of the Dams.

2.2- The Guidelines help the owner to maintain the Radial Gates in operational mode 24x7.

2.3- The Guidelines for Operation of Radial Gates provide;

- (i) Technical details of the Dams, the Reservoir and the Radial Gates.
- (ii) Guidelines for inspection, monitoring and reporting of the healthiness of the Dams, Reservoir and Radial Gates.
- (iii) Guidelines to the in charge in regard to maintenance of the Gates, including Operation of the Gates to facilitate release of water from the Reservoir whenever required.
- (iv) It also contains names, addresses and contacts of all stake holders of the Dams.

### 3.0- Nongkhylllem Reservoir and requirement for Control Release of Water through the Gates:-

The Nongkhylllem Reservoir received water from the catchment of the Umtru River and Tail Race of Umiam Stage-II Power Station through the Tail Race of Stage-III Power Station, and excess water through the Radial Gates of Stage-III Dam and Nongmahir Spillway. It has one Concrete Dam and is linked to the Stage-IV Power Station by the underground Tunnel of about 7Km. Nongkhylllem Reservoir is a small manmade Lake in the State of Meghalaya and can store about 1.83 Million Cubic Meter of water. Downstream of the Concrete Dam, the River runs through Ravines of about 33.5 Km consisting mostly the Reserve Forest and other private Forest before it reach the Umtru Pondage at Dehal. On its way there are human activities like road, cultivation and other. It is for this reason that any release of water from the Umiam-Umtru Stage-IV Concrete Dam has to be properly planned, estimated, and regulated so as to avoid any untoward incidents.

Since the Reservoir capacity is very small, and the requirement of frequent release of water through the Gates during Monsoon as well as during Non-Monsoon period, issuing the notification for release of water is not practicable; however warnings in the form of blowing the Siren, Telephone/SMS may be issued to stake holder to avoid untoward incidents.

### 4.0- Name, Address & Contacts of the Owners of the Dams

4.1- Name&Address: Meghalaya Power Generation Corporation Limited,  
Lumjingshai, Shillong-793001,  
East Khasi Hills District, Meghalaya.

4.2- Contacts of responsible Persons:-

#### Proforma-1

Sl. No.	Names & Designation	Address		Telephone No.	Mobile No.	E-mail ID
		Office	Residence	Office		
1	2	3	4	5	6	7
1.	Shri. Arunkumar Kembhavi , IAS Chairman-cum- Managing Director	Me.E.C.L, Lumjingshai, Shillong 793001.	—	0364-2590367 0364- 2590638 (F)		arunkumar.kembhavi@gmail.com
2.	Shri D. D. Shira, MCS Director Corporate Affairs	Me.E.C.L, Lumjingshai, Shillong 793001.	—	0364-2591992		

3.	Shri. E. B. Kharmujai i/c Director (Generation)	Me.P.G.C.L, Lumjingshai, Shillong 793001.	–	0364-2591406	9436165325	pce_meecl@yahoo.co.in
4.	Shri. M. Rymbai Chief Engineer(C), HP&HC, MePGCL, Shillong.	Me.P.G.C.L, Lumjingshai, Shillong 793001.	–	0364-2590113	9436101142	cehphc.epgcl@gmail.com
5.	Shri. N. K. Syiem Chief Security Officer	Me.E.C.L, Lumjingshai, Shillong 793001.	–		9436790999	
6.	Smti. B. Wann, Executive Engineer (C), Dam Safety Cell	O/o Chief Engineer(C), M&SH, Me.P.G.C.L, Shillong 793001	Lower Lumparing Laban, Shillong-793004	0364-2590226	9863141531	eedamsafetymsh@gmail.com

### 5.0- SALIENT FEATURES:-

#### 5.1- DAMS:-

Type of Dam: CONCRETE GRAVITY

Height of Dam: 43.00 m

Length of Dam: 137.50m

F.R.L: 503.00 m

Maximum Water Level: 503.00 m

M.D.D.L : 496.00 m

Crest Level: 491.00 m

Spillway capacity: 75,000.00 cusec

#### 5.2- RESERVOIR:-

Catchment Area: 52.00 Sq.Km

Water Spread Area at FRL:0.15 Sq. Km

Storage Capacity:

(i) Live Storage: 0.81 MCUM

(ii) Dead Storage: 0.99MCUM

(iii) Overall Storage: 1.80MCUM

#### 5.3- RADIAL GATES:-

No. of Gates: 3 Nos.

Types: Radial Gates (Tainter)

Size: 14M X 12 M (each gate)

Mode of operation: Electrically operated  
(Provision available for Hand operation in emergency cases)

Brake:- Solenoid operated brake

Company made: TEXMACO

Gate Operation:-

Minimum: 1 gate and 1.00 ft. Opening:

Maximum: 3 gates and 46.00 ft. Opening each:

## 6.0- **Inspection, Testing of Radial Gates including Gate Reporting**

### 6.1- Components of Radial Gates

#### **I). GATES:**

- a) Gate leaf: Curve face plate
- b) Seal seat: Stainless Steel

#### **II) HOISTING ARRANGEMENT:**

- a) Drum Hoist: Worm gear arrangements with drum
- b) Ropes: 38 mm
- c) Capacity of motor: 7.5hp each
- d) Type of brake: Hydraulic operated brake

6.2- All the Radial Gates including its components and accessories are to be inspected and tested at least once in a month.

6.3- All the Radial Gates are to be operated at least once in a month. If stop log gate is available then lifting of gates can also be carried out.

6.4- All electrical components of the Radial Gates are to be checked and tested at least once in a week.

6.5- All the inspection and testing cited above are to be done according to the operation manual of the Radial Gates or as directed by the Engineer in charge. The inspection period should be periodical.

6.6- The Dams Safety Cell shall inspect all Gates and their components at least once before the monsoon period, and during operation of the Gates as per the Guidelines of the Central Water Commission (CWC), Government of India.

6.7- All the reports of inspection, testing are to be forwarded to the Engineer in charge for his/her necessary action as may be required.

6.8- All materials, equipments required for Gate Operation are to be kept in good and working condition. They are to be checked and inspected at least once in a month from time to time.

### 7.0- **Maintenance and Upkeep:-**

7.1- All Radial Gates are to be in operational mode 24x7.

7.2- All repairing and maintenance work including greasing, oiling etc. related to the Radial Gates are to be taken up on top priority.

7.3- All reports of inspection and testing of Radial Gates and its components indicating any needs of repairing, refurbishing, renovation, modification etc. are to be taken up by the Engineer incharge without delay.

#### 8.0- Guidelines for Recording of Informations:-

8.1- All messages incoming and outgoing relating to release of excess water through the Gates are to be recorded in the register as per the following Proforma.

##### 8.1.1- In coming Message:-

**Proforma - 2**

Sl. No.	Date	Time	Senders name including Contact No.	Content of the Message	Whether the Message was send to higher authority	Name & Signatu re of receiver	To whom forwarded	Remarks
1	2	3	4	5	6	7	8	9
1.								
2.								
3.								
4.								
5.								

##### 8.1.2- Outgoing Message:-

**Proforma - 3**

Sl. No.	Date	Time	To whom sent including Contact No.	Content of the Message	Name & Signature of sender	Remarks
1	2	3	4	5	6	7
1.						
2.						
3.						
4.						
5.						

The messages both incoming and outgoing are to be compiled and forwarded to the higher authority on daily basis.

#### 9.0- Contact Persons for Umiam-Umtru, Stage-IV Reservoir, Nongkhyllem:-

The following persons are to be contacted through telephone, SMS,E-mail before the release of water from the Reservoir.

### 9.1- Incharge of the Dams:-

**Proforma - 4**

Sl. No.	Names & Designation	Address		Telephone No.	Mobile No.	E-mail ID
		Office	Residence	Office		
1	2	3	4	5	6	7
1.	Shri. K. Thangkhiew, Superintending Engineer (C), HSM, Me.P.G.C.L., Shillong.	SE, (C), HSM Circle, MePGCL, Lumkshaid, Shillong - 793002	—	0364-2547878	9856370407	murray_nong@yahoo.com/ <a href="mailto:hcmshp16@gmail.com">hcmshp16@gmail.com</a>
2.	Shri. C. Pariat, Executive Engineer (C), HSMD, Sumer,	EE (C), HSMD, Sumer	Mission Compound, Shillong	-	9863852246, 8731096843	<a href="mailto:chare_pariat@yahoo.com">chare_pariat@yahoo.com</a>
3.	Shri S, Jala AEE, HSMSD, Kyrdemkulai	AEE, HSMSD, Kyrdemkulai	Qtr./Type-II, Kyrdemkulai	-	9436709033	—
4.	Shri H. Kharkongor, Junior Engineer, HSMSD, Kyrdemkulai	AEE, HSMSD, Kyrdemkulai	Pohkse, Shillong	—	9615028103	hehbok1@gmail.com
5.	Security In-charge of Kyrdemkulai Sector	Stage-IV Dam	—	—	—	—

### 9.2- Contacts of important State Government, Officials including Police & Other Stake Holders.

**Proforma - 5**

Sl. No.	Names & Designation	Address		Telephone No.	Mobile No.	E-mail ID
		Office	Residence	Office		
1	2	3	4	5	6	7
1.	Shri. M.S Rao, IAS, Chief Secretary and State Vigilance Commissioner	Room no 316 Meghalaya Secretariat Building Shillong 793001		0364-2224801 0361-225978 (Fax)		csomeg@nic.in
2.	Smti. R. M. Kurbah IAS, Deputy Commissioner & Chairperson (DDMA)	O/o the Deputy Commissioner, Ri-Bhoi District, Nongpoh		03638-232221 Fax 03638-232503	98633-18344	nongpoh@nic.in & dc-rbmeg@nic.in
3.	Shri. D.P. Kharsati, MCS, Addl. Deputy Commissioner & CEO (DDMA)	O/o the Deputy Commissioner, Ri-Bhoi District, Nongpoh		Fax 03638-232503	87873-76669	donpkharsati@gmail.com
4.	Shri. Nazarius Lamare, MPS Superintendent of Police	O/O the Superintendent of Police :: Ri-Bhoi District HQ : Nongpoh, Meghalaya Pin Code-793102		03638-232304 Fax 03638-232230	97748-31025	sp.rbmeg@nic.in
5.	Smti V. A Hynniewta, MCS, EAC	O/o the Deputy Commissioner, Ri-Bhoi District, Nongpoh		Fax 03638-232503	97748-76609	viveraalicia@yahoo.com
6.	Smti. K. Wanniang, DDMO	Ri-Bhoi District, Nongpoh		03638-232028 Fax 03638-232503	93668-43731	eocribhoi@gmail.com



7.	Shri. D. Syiemiong, BDO Jirang C&RD Block	Jirang C&RD Block			98620-14284 81320-00287	megjirang@ nic.in
8.	Dr. R. Nongrum, BDO Umling C&RD Block	Umling C&RD Block			88372-33681	megumlingbl ock@gmail.c om
9.	Shri. R. Brahma, MCS, BDO Umsning C&RD Block	Umsning C&RD Block			82590-74759 94021-91280	megumsning@ nic.in & rajabrahma7 4@gmail.com
10.	Shri. Cliff Warjri, BDO Bhoiymbong C&RD Block	Bhoiymbong, C&RD Block			8787676324	bhoiymbong.c rd.block@gma il.co
11.	Directorate Information and Public relations,	Lower Lachumiere, Shillong-793003		0364- 2224617		diprmeg@gma il.com
12.	Dr. P. Kakoti's Building G.S. Road, Ganeshguri Guwahati 781006	Doordarshan Kendra Shillong		0361- 2232232 Fax 0361- 2232232		adgenez@nic.i n
13.	Shri. Derrick. P.Pariat Head of the Programme	Doordarshan Kendra Shillong		0364- 2580319	9436105194	ddkshillong@ gmail.com
14.	All India Radio, Shillong - 793001			0361- 2224153 Fax 0361- 2224153		airshill@gma il.com airshill@air.rg. in

**9.3- Contacts of Prominent Persons residing along the River Downstream of the Stage-IV Dam who may be affected due to release of excess water through the Gates of the Dam. (Area under Kyrdekulai & Nongkhyllem Reserve Forest)**

**Proforma – 6**

<i>Sl.No</i>	<i>Name of the Villages</i>	<i>Designation</i>	<i>Contact No.</i>
1.	Nongdiengngan	Rangbah Shnong	8731021601
2.	Umdiker	Rangbah Shnong	9366475277
3.	Umshorshor	Rangbah Shnong	7005914486
4.	Nongmahir	Rangbah Shnong	8974834371
5.	Mawpyrhut	Rangbah Shnong	7005885645
6.	Umtham	Rangbah Shnong	8730962805
7.	Wahlakhar	Rangbah Shnong	6009667017

**10.0- Preparation, Warning& Release of Water:-**

Preparation, Warning and release of water from the Reservoir may be done under two conditions i.e., Normal condition and emergency/crisis condition.



**10.1- Under Normal condition:-** Under this condition the water may have to be released during Monsoon Period due to high flood or during Non - Monsoon Period as may be required.

**10.1.1-During Monsoon Period:-**

- (a) When the Water Level of Nongkhylllem Reservoir is between the Level 502 m to 502.50 m warning of likely release of the excess water should be issued.
- (b) All materials, equipment required for Gate Operation are to be checked and made ready for operation.
- (c) 24 hours operational duty is to be enforced during the Monsoon period or as soon as the Water Level reached 502 m, and whenever water need to be release from the Gates.
- (d) Preparation for release of excess Water when water level reaches 502 m.**

- (i) The inflow of the water into the reservoir is to be calculated every hour and the same is to be informed to the higher authority through SMS, Whatsapp, Phone etc.
- (ii) If the inflow is very high, the inflow calculation should be done in half hourly basis.

**(e) Release of Excess Water:-**

When the concerned authority authorized release of water through the Gates the following actions are to be taken:

- (i) The decision to release water shall be taken at least one hour before the actual operation of the Radial Gates and actual release of water. The initial decision to release water through the Gates is to be taken by the Executive Engineer In charge with in consultation with the controlling Officer, Chief Engineer (C), HP&HC, Me.P.G.C.L, Shillong and the Director (Generation), Me.P.G.C.L, Shillong.
- (ii) The Siren installed on the deck of the gates is to be blown for a duration not less than 30 (thirty) minutes.
- (iii) Simultaneously, information of release of water should be sent through Telephone, SMS, Whatsapp, etc. to all concerned and stake holders as recorded in **Performa 1, 4, 5& 6** and record the same as indicated in **Performa 2 & 3**.
- (iv) Half an hour after blowing the Siren, initially one gate can slowly be opened and may be raised up to the maximum height of 0.3 m.
- (v) In case, there is requirement to enhance therelease of water due to high inflow, another gate may be opened. The Gates may be increased by 0.3 m. one gate every half an hour or hourly as the case may be and as decided by the concerned authority.
- (vi) In case of the decrease of inflow into the Reservoir, the size of opening of the Gates should be reduced accordingly.

- (vii) The decision to increase or decrease the size of opening of the gates or closing the gates may be taken by the Officers in charge of the Dams in the consultation with the higher authority.
- (viii) In all circumstances, water should not be allowed to overtop the Radial Gate or the Dams.
- (ix) The water level of the Reservoir should not be allowed to go beyond the maximum water level of the Reservoir.

**10.1.2- During Non - Monsoon Period:-Non-Monsoon Period means the period when the water level of the Reservoir is below (503 m) and the inflow of water into the Reservoir is less than 60 cumecs and not threatening to over top the Dams.**

**10.1.2.1-** Under Normal condition the water is usually not required to be release through the gates during Non-Monsoon Period. However, there may be times that release of water may have to be done during this period to enable the owner to take up necessary repairs of Machines and Hydraulic Structures or any other reasons. Such release needs the approval of the higher authority, and in consultation with the Chief Engineer (Generation) and SLDC.

When the authority concerned decided to release water through the Gates under any of these conditions, the following action is to be taken:-

- (a) The quantity of water to be release, including the rate of discharge through the gates and the time period of release are to be properly calculated and planned to avoid unwanted submergence along the river course in the downstream of the Dam.
- (b) All materials, equipment required for Gate Operation are to be checked and made ready for operation.
- (c) One hour before release of water through the Gates, a warning is to be sounded by blowing the siren installed on the Deck of the Gates. Simultaneously information of release of water should be sent through Telephone, SMS, Whatsapp, etc. to all concerned and stake holders as recorded in **Performa 1, 4, 5 & 6** and record the same as indicated in **Performa 2 & 3**. The copy of the notification of the warning should be send to all Officers concerned within Me.E.C.L, Me.P.D.C.L, Me.P.G.C.L, Me.P.T.C.L and also to (1) Deputy Commissioner, Nongpoh (2) Superintendent of Police, Nongpoh (3) BDO, Umsning (4) DIPR and (5) Print & Electric Media.
- (d) Half an hour after blowing the siren, initially one gate can slowly be opened and maybe raised up to the maximum of 0.3 m.

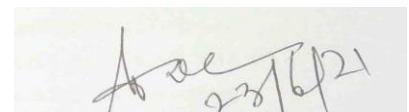
- (e) After the initial release of one hour, another gate may be opened. The size of opening of the Gate may be increase by 0.3 m for 1 (one) Gate everyone hour up to the required size of opening as per schedule.
- (f) All Gates should be closed as soon as the targeted quantity of water is released or the required water level of water in the Reservoir is achieved.

**10.2.0- Under Crisis/Emergency condition:- Water may be released at any time of the year in case of the emergency/crisis situation that may arise due to;**

- (a) Sudden and unprecedented heavy and very heavy rainfall in the catchment causing very high and unexpected flooding of the Reservoir.
- (b) Breaking of the Dam due to structural failure, earthquake, sabotage and others.
- (c) Failure of other hydraulic structures like Tunnel, Dykes and other.
- (d) Any other reasons that require urgent release of water.

**10.2.1- The Engineer in charge, after satisfying his/her self that the crisis/emergency condition warranted urgent release of water through the Gates of the Dams will immediately inform the controlling Officers and Chief Engineer (C), HP&HC, who will order for immediate release of water and inform the same to the higher authority of the Corporation. When the decision to release water is communicated (verbally or officially) the following steps are to be taken;**

- (i) The Siren installed on the deck of the gates is to be blown for duration not less than half an hour.
- (ii) Simultaneously information of release of water should be sent through Telephone, SMS, Whatsapp, etc. to all concerned and stake holders as recorded in **Performa 1, 4, 5 & 6** and record the same as indicated in **Performa 2 & 3**
- (iii) At the end after blowing the siren, initially one gate can be opened and may be raised up to the maximum of 0.3 m.
- (iv) Depending on the situation of emergency/crisis the size of opening of the Gates, the number of gates and the Discharge of water to be released will be decided by the Chief Engineer (C), HP&HC, Me.P.G.C.L, in consultation with Director (Generation) Me.P.G.C.L, Shillong and to accordingly intimate the CMD, Me.P.G.C.L.
- (v) During emergency/crisis situation the in charge and other higher official are to be present at the place/site of event (Ground Zero).



**DIRECTOR (GENERATION)**