



MEGHALAYA POWER GENERATION
CORPORATION LIMITED



*GUIDELINES FOR RELEASE
OF WATER THROUGH THE
GATES OF THE
NEW UMTRU
HE PROJECT
CONCRETE 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 etc. 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 the FRL. In such cases, the excess water from the Reservoir has to be released in a gradual and regulated manner through the Radial Gates of the Dams, to ensure that people on the downstream are not affected by the sudden rise of water level. This will also safeguard the Dams from being overtopped, which may endanger the abutments from being washed out, thereby causing loss of lives and properties.

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 various 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 Hydraulic Structures are not put in any danger.
- (ii) The Reservoir is allowed to impound 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 also provide;

- (i) Technical details of the Dam, Reservoir and Radial Gates.
- (ii) Mode of inspection, monitoring and reporting of the healthiness of the Dams, Reservoir and Radial Gates.
- (iii) Instruction to the Engineer-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- New Umtru Reservoir and requirement for Controlled Release of Water through the Gates:-

New Umtru Reservoir receives water from the catchment of the Umtrew River and from the Tail water of Umiam-Umtru Stage-IV Power Station. The New Umtru Dam has 6(six) Nos of Radial gates with a design flood of 3820 Cumec.

The reservoir can store water for about 3.552MCM up to FRL of 130.10M. Downstream of the Concrete Dam, the River runs through Ravines of about 9.80 Km up to Byrnihat Bridge. On its way, there are few villages/developments on both banks, and invariably there are always human activities along the stretch of this River.

Since, New Umtru HEP is a Run of the River (ROR) Scheme with small Storage capacity which requires frequent release of water through the Radial Gates during Monsoon and Non-monsoon period during incessant rainfall, any release of water from the New Umtru Concrete gravity Dam has to be properly planned, estimated, and regulated and action needs to be taken instantly so as to avoid any untoward incident.

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	Name & Designation	Address		Telephone	Mobile No.	E-mail ID
		Office	Resident	No. (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 Lumbaring Laban, Shillong- 793004	0364-2590226	9863141531	eedamsafetymsh @gmail.com
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5.0- SALIENT FEATURES:-

5.1- DAMS:-

Type of Dam:	CONCRETE GRAVITY
Height of Dam:	28.38m
Length of Dam: (104.40+86.68+85.60)	276.68m
F.R.L	130.10m
M.W.L:	132.78m
M.D.D.L	124.50m
Crest Level:	124.00m
Top of Gates:	130.30 m
Spillway capacity:	3820.00 Cumec

5.2- RESERVOIR:-

Catchment Area:	1020 Sq.km
Water Spread Area at FRL:	0.537 Sq. Km
Storage Capacity:	
(i) Live Storage:	2.35Mcm
(ii) Dead Storage:	1.16Mcm
(iii) Gross Storage:	3.55Mcm
(iv) Storage at EL 128.00M	2.515Mcm

5.3- RADIAL GATES:-

No. of Gates:	6 Nos.
Types:	Radial Gates (Tainter)
Size:	13.40M X 7.00M (each gate)
Mode of operation:	Electrically operated
(Provision available for Hand operation in emergency cases)	
Brake:-	Hydraulic operated brake
Company made:	Electro Mechanic
Gate Operation:-	
Minimum:	1 gate and 0.30mOpening.
Maximum:	6(six) No. of gates and 7.0mOpening 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) Seals:	P-shaped
c) Seal seat:	Stainless steel

II) HOISTING ARRANGEMENT:

a) Drum Hoist:	Rope Drum Hoist with D/s. Suspension
b) Ropes:	32mm ø Wire Rope
c) Capacity of motor:	11KW (15 H.P) each
d) Type of brake:	Hydraulic operated brake
e) Hoisting Capacity of Single Gate:	70 tonne each

- 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. During testing of the gates, the stop log gate is lowered to facilitate the process.
- 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 & Maintenance Manual of the Radial Gates or as directed by the Engineer-in-charge. The inspection period should be as per maintenance schedule.
- 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 etc. are to be forwarded to the Engineer-in-charge for his/her necessary action as may be required.
- 6.8- All materials/equipment 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.

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 changing of hydraulic oils, filters, solenoid, switches, seals, pipes, valves, pump and motor, and other components related to Radial Gates, Hydraulic Hoists are to be taken up on top priority.

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

8.0- Guidelines for Recording of Information's:-

- 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 Performa.

8.1.1- In coming Message:-

Performa - 2

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

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						

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

9.0- Contact Persons for New Umtru Reservoir

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

9.1- In charge of the Dams:-**Proforma - 4**

Sl. No.	Names & Designation	Address		Telephone No. (office)	Mobile No.	E-mail ID
		Office	Residence			
1	2	3	4	5	6	7
1	Shri. K.Thangkhiew, Superintending Engineer (C),	SE, (C), HSM Circle, MePGCL, Lumkshaid, Shillong - 793002		0364-2547878	9402150325	murray_nong@yahoo.com/hcmshp16@gmail.com
2	Shri. R. Pakyntein, Executive Engineer (C),	New Umtru Civil Division, MePGCL, Dehal, Byrnihat.			9615136794	refillpakyntien@gmail.com
3	Shri.K.Changreade Assistant Executive Engineer(C)	New Umtru Civil Sub-Division - III,MePGCL, DehalByrnihat			8837057162	Kynsai979@yahoo.com
4	Shri D. Lyngdoh Junior Engineer(C)	O/O New Umtru Civil Sub-Division -III, MePGCL, Dehal,Byrnihat			7005825224	
5	ShriMarak Security InchargeDehal,Byrnihat	New Umtru 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			
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	megumlingblock@gmail.com
9	Shri. R. Brahma, MCS, BDO Umsning C&RD Block	Umsning C&RD Block			82590-74759 94021-91280	megumsning@nic.in & rajabrahma74@gmail.com
10	Shri. Cliff Warjri, BDO Bhoirymbong C&RD Block	Bhoirymbong, C&RD Block			8787676324	bhoirymbong.crd.block@gmail.co
11	Directorate Information and Public relations,	Lower Lachumiere, Shillong-793003		0364-2224617		diprmeg@gmail.com
12	Dr. P. Kakoti's Building G.S. Road, Ganesh guri Guwahati 781006	Doordarshan Kendra Shillong		0361-2232232 Fax 0361-2232232		adgenez@nic.in
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@gmail.com airshill@air.rg.in
15.	The DC/Adj For Commandant 1 st Bn NDRF, Ministry of Home Affairs,	Patgaon, PO:Azara, Guwahati, Assam-781017		0361-2840284		

9.3-Contacts of Prominent Persons residing along the River Downstream of the new Umtru Dam who may be affected due to release of excess water through the Gates of the Dam.

Proforma – 6

Sl No	<i>Name of the Villages</i>	<i>Designation</i>
1	Nerbong	9862153384
2	Borbalu	8974146790
3	Panitola	7630026906
4	Umsarang	8415983450
5	Santipur	813290138
6	Jojwa	7005036572
7	Upper Balian	7005259099
8	Lower Balian	8974235633
9	Jojwabil	8730080634
10	Rubber Khuli	9383201245
11	Kongkhakhuli	8730938291
12	Umjojwa	7005303523
13	Pahamlang17 th Mile	8119862135
14	Umdoh18 th Mile	9862476368
15	Amjok	9436108888
16	Amphangree	7005784465
17	Borbhuin	8131986020
18	Byrnihat	7005315813
19	Harlibagan	8837251058
20	Matchokgre	8787610166
21	NongkyllaKhasi	9862856184
22	NongrimByrni	8787816454
23	Rongsakona	8794068134
24	Ronghona	9862858057
25	Upper Amjok	8131326645
26	Upper Bagan	8730856302
27	Ampher	8974344151
28	DehalBagan	8837488841
29	NongkyllaMik ir	8794944161
30	Upper Bagan	8787750051

31	Temulkuhi	7005675574
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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 pre-monsoon rain with heavy showers start in the month of May-June or before that, warning of likely release of excess water should be issued.
- (b) The Warning will be notified by the Engineer-In-charge through sms and in writing to the District authorities and stakeholders.
- (c) A copy of the notification of the warning for likely release of excess water from New Umtru Dam should be sent to all Officers concerned within Me.E.C.L, Me.P.G.C.L, Me.P.D.C.L, Me.P.T.C.L and also to (1) Deputy Commissioner, Nongpoh (2) Superintendent of Police, Nongpoh (3) BDO, Umsning, Jirang, Umling (4) DIPR (5) Print & Electronic Media, and (6) All Concerned and stake holders residing or undertaking activities along the Umtrew River downstream of the New Umtru Dam to provide advance information and to restraint from any activities along the bank of the Umtrew river.
- (d) All materials, equipment required for Gate Operation are to be checked and made ready for operation.
- (e) 24 hours operational duty is to be enforced as soon as the pre-monsoon starts.
- (f) Release of Excess Water:-
When the concerned authority authorizes 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 Engineer In-charge with information to the higher authorities.
 - (ii) The Siren installed on the deck of the gates is to be blown for a duration not less than 30 (thirty) minutes before releasing of water.

- (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) Minimum 15 minutes after blowing the Siren, initially one gate can slowly be opened and may be raised upto a height of not less than 1 (one) ft.
- (v) In case, there is requirement to enhance the release of water due to high inflow, more gates may be opened. The Gates may be increased by 1 ft. one gate every half an hour or hourly as the case may be and as decided by the Engineer-in-charge.
- (vi) In case of decrease of inflow into the Reservoir and other consideration, 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 Engineer-in-charge of the Dam with intimation to the higher authority.
- (viii) In all circumstances, water should not be allowed to overtop the Radial Gates.
- (ix) The water level of the Reservoir should not be allowed to go beyond the restricted 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 128.00m and the inflow into the Reservoir is not likely to over top the Radial gates.

10.1.2.1- Under Normal conditions, the water is usually not required to be released 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 any Hydraulic Structure or de-silting of the reservoir near the Intake or for any other reasons. Such release needs the approval of the higher authority, and in consultation with the Chief Engineer (Generation) and State Load Dispatch Centre.

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 released, the rate of discharge through the gates and the time period of release are to be properly calculated and planned to avoid unwanted situations along the river course on the downstream of the Dam.
- (b) The Warning will be notified by the Engineer-In-charge through sms and in writing to the District authorities and stakeholders.
- (c) A copy of the notification of the warning for likely release of excess water from New Umtru Dam should be sent to all Officers concerned within Me.E.C.L, Me.P.G.C.L, Me.P.D.C.L, Me.P.T.C.L and also to (1) Deputy Commissioner, Nongpoh (2) Superintendent of Police, Nongpoh (3) BDO, Umsning, Jirang, Umling (4) DIPR (5)

Print & Electronic Media, and (6) All Concerned and stake holders residing or undertaking activities along the Umtrew River downstream of the New Umtru Dam to provide advance information and to restraint from any activities along the bank of the Umtrew river.

- (d) All materials, equipment required for Gate Operation are to be checked and made ready for operation.
- (e) 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**.
- (f) After blowing the siren, initially one gate can slowly be opened and may be raised up to a height of not less than 1ft.
- (g) After the initial release of one hour, another gate may be opened. The size of opening of the Gate may be increased by 1 ft for 1 (one) Gate every 1 hour upto the required size of opening as per schedule.
- (h) 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.

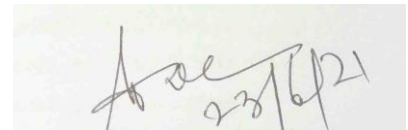
10.2.0- Under Crisis/Emergency condition: - Water may be released at any time of the year in case of the emergency/crisis situation that may arise due to;

- (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 other.
- (c) Failure of other hydraulics structure 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 Dam, will immediately inform the controlling Officers and Chief Engineer concerned, 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) After blowing the siren, initially one gate can be opened and may be raised up to a height of not less than 1ft.
- (iii) 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 officials are to be present at the place/site of event (Ground Zero).



DIRECTOR (GENERATION)