1.8 Operation of gates and rule curve levels for Irrigation Projects

1.8.1 The detailed guidelines for gate operation with graphs of (1) Spillway discharges at different reservoir levels and gate opening and (2) Rate of change in storage to decide inflow based on rise/fall in Reservoir level in unit duration are prepared by CDO under NWR, WS & K .D. for almost all the projects and are furnished to concerned Project Officers. These guidelines may be followed for operation of reservoir, (Rule levels are appended in Annexure 1C).

1.8.2. The rule levels are prepared considering following points.

(i) There is no specific flood storage space provided in any of the dams in the State. Due to this, if the provision of artificial flood control space is proposed to be kept for flood moderation by keeping lower rule levels whenever feasible, then there may be a risk of non filling of reservoir full up to FRL. If in later part of the monsoon, the availability as assumed is less and in turn as its repercussions, the irrigation requirements as planned thereafter may not be fulfilled.

(ii) For dams completed recently the initial filling criteria given in C.W.C. letter No. L/25/86-DSS/509 dated 13/5/86 should be followed. The same is also reproduce in the Flood Memorandum for ready reference. While following the CWC's criteria for initial filling, the concerned Superintending Engineer/Executive Engineer should assess the behavior of the structure on the basis of observed data of instruments provided in dams at different stages of filling as well as seepage through dams and review the decision for further filling of reservoir accordingly in consultation with CDO, Gandhinagar.

(iii) For the safety measures against the existence of hidden damages of dams restored recently or to be restored before june-2013, the initial reservoir filling criteria given in CWC's letter dated 13/05/1986 no. L-25-86-DSS-509 is advisable to be followed.

(iv) As an advance precaution to safe guard against occurrence of any abnormal condition required goods and materials like sand, rubble stone, empty cement bags wire cats, etc. should be stacked at suitable places. Gates, Hoists and other mechanical accessories, wireless sets, lighting arrangement, alternative arrangement in absence of electricity supply, D.G. set etc. approach road, should be kept in working condition. For further information Govt. Circular included in Chapter No.3 of this Flood Memorandum may kindly be referred.

(v) In case of reservoir, which releases water for hydro power generation and the same water is utilized through down stream weir, as far as possible, the releases from reservoir should be made critically and economically in accordance with the actual irrigation demand at the weir site, so that, undue wastage of water through overflow over the weir can be avoided.

(vi) There may be restriction in filling the reservoir due to other aspects like leakage for which remedial measures may be in progress / likely to be taken up etc. This point may also be considered while deciding rule levels. the concerned SEs are requested to submit the proposal to Govt. for approval from the respective Chief Engineer and Additional Secretary for this restricted filling of reservoir.

1.8.3 In case of the reservoir proposed for restricted filling due to reasons mentioned in Para No. 1.8.2 above concerned Superintending Engineer are requested to submit proposal to the Government and get it approved before on set of monsoon.

1.8.4 The proposed Rule Levels are tentative and concerned project officers are requested to give their comments/views based on their past experiences of observed storms , the down stream hazards, safe carrying capacity of the down stream channel and other restrictions, if any. The project officers are also requested to review and finalise the Rule Levels for this monsoon based on the inflow data, water requirements for irrigation, water supply and power generation for the year reservoir losses etc. in consultation with C.D.O. and get it approved from the Government.

1.8.5 When the proposed Rule Levels are reached and the position is such that water is to be stored above the rule level, in that case or water is to be released for the purpose other than irrigation before Rule Levels are reached, the concurrence from the concerned Chief Engineer & Addl. Secretary may please be obtained. While deciding the above parameters, following points should be examined critically by the concerned field officers in consultation with respective Chief Engineer & Addl Secretary.

(i) Prevailing overall conditions of the rainfall during the monsoon.

(ii) Storage capacity and safety of dam structure and U/s -D/s Structures, flood cusion available in the reservoir above the rule level of the particular time.

(iii) Efficiency of the existing network of flood forecasting system and flood warning arrangement along with communication system and actual experiences of the same in past to reduce the downstream hazard potential.

1.8.6 When two or more reservoirs are to be operated on the same river basin, gate regulation should be done in such a way that the maximum water can be stored without risk to the safety of upstream and downstream of the dams along with consideration of floods moderation to suit the downstream safe channel carrying capacity such that there is minimum hazarded potential in downstream areas.

1.8.7 Release of water from the dam (outflow), is to be decided by the Superintending Engineer, Ukai Circle (Civil), Ukai. When there is release of water in the river through spill-way, the Superintending Engineer, Ukai Circle (Civil), Ukai has to submit the hourly information to concern Chief Engineer & Add. Secretary, Chief Engineer (Central Gujarat) & Addl. Secretary, Gandhinagar and Flood Control Cell, Gandhinagar in the Proforma attached vide **Annexure 1-F**.

1.8.8 The details of the Spillway/Weir and the maximum discharge capacity of the Spillway/Weir are also mentioned in the Scheme. The maximum discharge released after the year 1990 from the major project is mentioned in **Annexure-1- G**

ANNEXURE - 1(E)

MAXIMUM DISCHARGE CAPACITY AND THE DETAILS OF SPILLWAY OF THE SCHEMES

Sch No.	Name of Dist-rict and Name of Scheme	Type of Scheme	F.R.L Meter	Crest Level Meter	Spillway Length Meter	Details of Gates Nos.	Size Meter	Max. Discharge (Cum)
BANASKANTHA								
3.	Mukteshwar	Gated	201.65	193.37	104.00	7	12.50 x 8.23	4698
4.	Dantiwada	Gated	184.10	175.91	165.00	11	12.50 x 8.23	7504
				Add. Spillway		14	18.29 x 4.87	7787
5.	Sipu	Gated	186.43	178.15	180.00	12	12.50 x 8.23	8603
NARMADA								
6	Karjan	Gated	115.25	101.23	172.00	9	15.545 x 14.02	17286
8.	Chopadvav	Un Gated	187.40	186.30	70.00	-	-	863
11.	Kakdi-Amba	Un Gated	187.71	186.71	100.00	-	-	822
BHARUCH								
7.	Dholi	Un Gated	136.00	-	260.00	-	-	1085
9.	Baldeva	Un Gated	141.50	-	198.00	-	-	918
10.	Pigut	Un Gated	139.70	-	125.00	-	-	285
MAHISAGAR								
12.	Wanakbori	Un Gated	69.30	-	735.00	-	-	46978
KHEDA								
202.	Varansi	Gated	81.00	76.43	159.68	14	9.14 x 4.57	1503
MEHSANA								
13.	Dharoi	Gated	189.59	178.92	219.04	12	14.94 x 11.28	21662
PANCHMAHALS								
14.	Panam	Gated	127.41	116.74	182.00	10	14.93 x 11.28	10075
15.	Deo	Gated	89.65	81.40	120.00	8	12.50 x 8.23	4118
16.	Hadaf	Gated	166.20	155.53	89.00	5	14.43 x 10.67	5324
DAHOD DISTRICT								
17.	Kadana	Gated	127.71	113.72	406.00	27	15.50 x 14.00	49497
	(Additional Spillway)			113.72				
18.	Patadungri	Un Gated	170.84	170.84	137.00	-	-	878
19.	Bhadar (P)	Gated	123.72	115.52	89.00	6	12.48 x 8.25	5706
20.	Karad	Fuse Gate	140.08	140.08	107.00	36	1.80 x 1.00	934
21.	Machhanala	Un Gated	277.64	-	260.00	-	-	363
22.	Kabutri	Un Gated	186.35	-	104.00	-	-	1232
23.	Wankleshwar- Bhey.	Ungated	223.57	223.57	137.00	-	-	961
24.	Umaria	Un Gated	280.00	280.00	70.00	-	-	2010

Sch No.	Name of Dist-rict and Name of Scheme	Type of Scheme	F.R.L Meter	Crest Level Meter	Spillway Length Meter	Details of Gates Nos.	Size Meter	Max. Discharge (Cum)
25.	Edalvada	FuseGate	237.30	235.70	60.00	20	1.60 x 2.85	1033
26.	Kali - II	Un Gated	257.00	257.00	98.50	-	-	95
SABARKANTHA								
28.	Guhai	Gated	173.00	164.77	89.00	6	12.50 x 8.23	4380
32.	Javanpura	Gated	91.00	86.43	-	15	9.15 x 4.57	-
33.	Harnav – II	Gated	332.00	323.77	43.00	3	12.50 x 8.23	1632
197.	Khedva	Gated	259.70	253.60	55.50	5	9.15 x 6.10	1651
201.	Gorthiya (Mota Chekhala)	Gated	110.43	105.25	101.80	9	9.14 x 5.18	3774
ARAVALLI								
27.	Watrak	Gated	136.25	128.00	89.00	6	12.50 x 8.23	5669
29.	Mazam	Gated	157.10	151.00	102.00	9	9.15 x 6.10	3313
30.	Hathmati	Un Gated	180.74	-	241.00	-	-	2943
31.	Lank	Gated	111.55	105.45	-	5	9.15 x 6.10	-
34.	Meshwo	Un Gated	214.59	-	62.00	-	-	2067
35.	Waidy	Un Gated	199.20	-	122.00	-	-	1090
TAPI								
36.	Ukai	Gated	105.156	91.135	425.19	22	15.54 x 14.78	46269
36.a	Kakrapar	Ungated	48.77	-	613.38	-	-	1083
37.	Doswada	Un Gated	123.44	-	207.00	-	-	899
SURAT								
38.	Ver – II	Gated	115.80	109.73	90.00	8	9.10 x 6.10	2155
39.	Lakhigam	Un Gated	74.10	-	25.00	-	-	434
CHHOTAUDEPUR								
40.	Sukhi	Gated	147.82	139.59	145.66	10	12.50 x 8.23	7899
41.	Rami	Un Gated	196.35	-	222.00	-	-	660
VALSAD								
42.	Damanganga	Gated	79.86	65.83	138.00	10	15.55 x 14.00	22040
NAVSARI								
43.	Jhuj	Un Gated	167.50	-	97.00	-	-	1554
44.	Kelia	Un Gated	113.40	-	113.00	-	-	1225
KACHCHH								
45.	Tapper (W.S))	Gated	40.85	-	159.71	14	9.14 x 5.47	4182
46.	Godhatad	Un Gated	23.00	-	55.00	-	-	1641
47.	Sanandro	Un Gated	59.74	-	152.00	-	-	1466
48.	Rudramata	Un Gated	66.44	-	436.00	-	-	6788
49.	Nara	Un Gated	27.43	-	152.00	-	-	1840
50.	Niruna	Un Gated	43.58	-	274.00	-	-	2997
51.	Bhukhi	Un Gated	73.00	-	80.00	-	-	1490
52.	Kankavati	Un Gated	131.67	-	457.00	-	-	1893
53.	Mathal	Un Gated	82.78	-	550.00	-	-	1260
54.	Kaila	Un Gated	79.25	-	191.00	-	-	1760
55.	Suvi	Un Gated	42.67	-	122.00	-	-	1557
56.	Kaswati	Un Gated	51.20	-	175.00	-	-	934
57.	Gajod	Un Gated	90.82	-	152.00	-	-	1612
58.	Jangadia	Un Gated	38.60	-	70.00	-	-	1447

Sch No.	Name of Dist-rict and Name of Scheme	Type of Scheme	F.R.L Meter	Crest Level Meter	Spillway Length Meter	Details of Gates Nos.	Size Meter	Max. Discharge (Cum)
59.	Fatehgadh	Un Gated	22.70	-	35.00	-	-	1196
60.	Berachiya	Un Gated	70.40	-	250.00	-	-	1337
61.	Gajansar	Un Gated	30.00	-	430.00	-	-	1601
62.	Kalaghogha	Un Gated	37.00	-	82.00	-	-	1342
63.	Don	Un Gated	47.75	-	61.00	-	-	999
64.	Mitti	Un Gated	18.65	-	235.00	-	-	5328
AMRELI								
65.	Khodiar	Gated	202.68	196.58	102.00	9	9.15 x 6.10	2409
66.	Thebi	Gated	126.00	119.90	136.58	12	9.15 x 6.10	3794
67.	Dhatarwadi	Un Gated	81.23	-	329.00	-	-	4342
68.	Raidy	Gated	50.85	44.75	102.00	9	9.15 x 6.10	2265
69.	Vadia	Gated	130.25	124.15	55.50	5	9.15 x 6.10	1556
70.	Vadi	Gated	134.00	127.90	90.23	8	9.15 x 6.10	2195
71.	Shell-Dedumal	Gated	179.50	173.40	55.50	5	9.15 x 6.10	1408
72.	Munjiasar	Un Gated	62.93	-	366.00	-	-	1184
73.	Sankroli	Un Gated	44.20	-	243.82	-	-	1848
74.	Surajwadi	Un Gated	130.50	-	320.00	-	-	1396
75.	Dhatarwadi-II	Gated	34.41	30.76	651.47	32	18.29 x 3.66	8370
93.	Ghelo – I	Un Gated	166.72	-	213.00	-	-	1190
BHAVNAGAR								
76.	Shetrunji	Gated	55.55	54.63	646.00	59	8.84 x 0.91	7080
77.	Rajawal	Gated	56.75	50.65	95.00	8	9.15 x 6.10	4294
80.	Kharo	Gated	54.12	48.02	163.00	14	9.15 x 6.10	3592
81.	Malan	Gated	104.25	102.74	448.00	46	9.15 x 1.50	1334
82.	Ranghola	Gated	62.50	60.98	549.00	47	10.98 x 1.55	2396
83.	Limbali	Gated	128.10	122.00	136.57	12	9.15 x 6.10	5394
84.	Lakhanka	Gated	44.22	38.22	44.00	4	9.15 x 6.10	1182
85.	Hamirpura	Gated	87.80	81.70	32.00	3	9.15 x 6.10	661
86.	Hanol	Gated	90.10	87.05	148.20	13	9.15 x 3.05	1296
88.	Pingli	Gated	51.30	45.20	43.90	4	9.15 x 6.10	1061
90.	Bagad	Un Gated	60.41	-	242.00	-	-	2929
91.	Rojki	Un Gated	99.08	-	314.00	-	-	1094
196.	Jaspara-Mandva	Ungated	40.25	-	142.00	-	-	841
BOTAD								
1.	Khambhada	Gated	50.35	46.69	140.00	7	18.29 x 3.66	1817
2.	Utavali (Gunda)	Gated	49.30	45.64	304.19	15	18.29 x 3.66	3862
78.	Kalubhar	Gated	60.36	54.26	183.00	16	9.15 x 6.10	7983
79.	Malpara	Gated	78.10	72.00	90.28	8	9.15 x 6.10	2148
87	Kaniyad	Gated	102.25	99.20	78.69	7	9.15 x 3.05	963
89.	Goma	Un Gated	126.50	-	164.00	-	-	1189
92.	Bhimdad	Un Gated	104.87	-	110.00	-	-	975
182.	Sukhbhadar	Gated	109.20	103.10	236.50	20	9.15x6.10	10750
JAMANAGAR								
94.	Und-I	Gated	98.00	91.90	219.00	11	9.15x6.10	15866
		(Addl. Spillway)		89.77		6	12.50x8.23	
96.	Sasoi	Ungated	28.96	-	1037.00	-	-	2921
98.	Fulzar-I	Ungated	24.69	-	305.00	-	-	1274
99.	Dai-Minsar	Ungated	75.40	-	135.00	-	-	1982
101.	Vijarkhi	Ungated	30.48	-	533.00	-	-	453
102.	Puna	Ungated	24.38	-	135.00	-	-	963
103.	Umiyasagar	Gated	71.05	66.48	217.63	19	9.14 x 4.57	6119

Sch No.	Name of Dist-rict and Name of Scheme	Type of Scheme	F.R.L Meter	Crest Level Meter	Spillway Length Meter	Details of Gates Nos.	Size Meter	Max. Discharge (Cum)
105.	Ruparel	Ungated	48.20	48.20	142.10	Ogee shaped spillway		898
106.	Und-II	Gated	18.25	12.15	623.00	54	9.14x6.10	16450
107.	Kankawati	Gated	30.50	27.75	133.00	10	9.15x2.74	1557
108.	Rangmati	Gated	43.20	37.10	56.00	5	9.15x6.10	1125
110.	Fulzar(KB)	Gated	95.85	89.75	136.55	12	9.15 x 6.10	5456
111.	Aji-IV	Gated	20.40	14.30	658.00	57	9.14 x 6.10	18354
112.	Demi - III	Gated	25.60	19.50	206.03	18	9.14 x 6.10	5516
113.	Phophal-II	Ungated	129.33	129.33	110.00	-	-	1220
114.	Sapda	Ungated	32.77	-	344.00	-	-	807
116.	Fulzar-II	Ungated	52.12	-	277.00	-	-	1076
119.	Wadisang	Ungated	76.50	-	371.70	-	-	3204
120.	Rupavati(Lalpur)	Ungated	77.30	-	164.00	-	-	653
121.	Und-III	Ungated	110.60	-	123.00	-	-	1048
DEV BHUMI DWARKA								
95.	Sani	Gated	17.25	11.15	192.06	17	9.15x6.10	7019
97.	Ghee	Ungated	40.54	-	107.00	-	-	671
100.	Vartu	Ungated	39.01	-	350.52	-	-	1557
104.	Gadhaki	Ungated	30.00	30.00	100.00	Ogee shaped spillway		607
109.	Vartu-II	Gated	39.95	33.85	368.20	32	9.15 x 6.10	10801
115.	Sonmati	Ungated	78.50	78.50	145.00	-	-	1540
117.	Shedhabhadthari	Ungated	32.50	-	274.00	-	-	1093
118.	Veradi	Ungated	85.15	-	175.00	-	-	1390
122.	Sindhani	Ungated	16.35	-	125.00	-	-	1391
123.	Kabarka	Ungated	96.85	96.85	150.00	-	-	917
194.	Veradi-II	Ungated	65.40	65.40	269.00	-	-	1795
195.	Minsar(V)	Ungated	91.80	91.80	136.50	-	-	845
JUNAGADH								
128.	Uben	Ungated	107.61	-	160.00	-	-	1550
129.	Madhuvanti	Ungated	165.19	-	183.00	-	-	750
130.	Prempara	Ungated	127.50	-	-	-	-	
131.	Hasnapur(W.S.)	Ungated	148.17	-	62.00	-	-	488
132.	Ozat-II	Gated	77.50	69.27	378.26	25	12.50 x 8.23	14890
133.	Vrajmi	Gated	94.00	90.95	102.00	9	9.15x3.05	1175
134.	Ambajal	Gated	182.31	176.21	49.00	4	9.15x6.10	1030
135.	Draphad	Gated	124.00	117.90	125.00	11	9.15x6.10	3073
136.	Bantva-Kharo	Gated	16.25	13.20	183.00	16	9.14 x 3.05	1764
137.	Ozat-Weir Sahpur (Tilting Gate)	Gated	32.80	29.80	233.40	23	9.00 x 3.00	10581
138.	Ozat-Weir (Vanthli)	Gated	27.50	25.00	202.80	12	9.14 x 3.05 (Vertical)	7170
139.	Mota Gujariya	Ungated	140.02	140.02	150.00	-	-	1320
141.	Jhanjeshri	Ungated	149.96	-	137.00	-	-	935
198.	Sabali	Gated	43.75	39.95	125.00	11	9.14 x 3.05 (Vertical)	1159
GIR SOMNATH								
124.	Shingoda	Gated	141.58	133.33	90.00	6	12.50 x 8.23	3309
125.	Hiran-II	Gated	71.26	63.03	183.00	7	12.50x8.23	3559
126.	Raval	Gated	148.85	140.60	124.00	6	12.50x8.23	2774
127.	Machhundri	Ungated	109.50	-	350.00	-	-	5506
140.	Hiran-I	Ungated	44.20	-	194.00	-	-	1034

Sch No.	Name of Dist-rict and Name of Scheme	Type of Scheme	F.R.L Meter	Crest Level Meter	Spillway Length Meter	Details of Gates Nos.	Size Meter	Max. Discharge (Cum)
PORBANDAR								
142.	Phodarness(W.S)	Ungated	93.59	-	27.00	-	-	204
143.	Khambhala(W.S.)	Ungated	39.63	-	107.00	-	-	344
144.	Sorthi	Ungated	95.50	-	157.00	-	-	1932
145.	Amipur	Gated	5..64	3.23	20.00	4	2.44x2.86	139
146.	Kalindri	Ungated	52.23	-	168.00	-	-	1445
147.	Advana	Ungated	24.00	-	153.00	-	-	604
199.	Saran	Gated	37.00	33.95	182.00	16	9.14 x 3.05 (Vertical)	1748
RAJKOT								
148.	Bhadar	Gated	107.90	106.07	378.00	29	10.67x1.83	16504
149.	Bhadar - II	Gated	53.10	42.43	405.52	22	14.93x10.67	25380
151.	Aji-III	Gated	53.15	44.92	272.00	18	12.50x8.23	17571
152.	Moj	Gated	72.54	71.02	329.00	27	9.14x1.52	7243
153.	Venu-II	Gated	55.00	48.91	229.00	20	9.15x6.10	9866
154.	Nyari-II	Gated	88.50	82.40	160.00	14	9.15x6.10	4826
155.	Karmal	Gated	169.00	162.90	79.00	7	9.15x6.10	3588
156.	Veri	Gated	142.04	141.12	427.00	75	3.05x0.91	1642
157.	Karnuki	Gated	164.50	161.45	183.00	16	9.14x3.05	2486
159.	Phophal	Ungated	81.76	-	417.00	-	-	10580
160.	Aji-I	Ungated	147.52	-	335.00	-	-	1785
161.	Nyari-I(W.S.)	Ungated	103.50	-	54.00	-	-	396
162.	Lalpari	Ungated	137.46	-	733.31	-	-	2095
163.	Aji-II	Gated	73.76	67.66	183.00	16	9.15x6.10	5644
165.	Chhaprawadi-II	Gated	98.38	90.15	89.00	6	12.50x8.23	6219
167.	Motisar	Gated	143.00	141.00	151.00	15	9.10x2.00	759
168.	Khodapipar	Gated	55.27	52.22	113.40	10	9.15x3.05	1339
169.	Survo	Gated	99.85	93.75	187.76	16	9.14x6.10	5748
170.	Dondi	Gated	103.72	100.67	101.81	9	9.14x3.05	1354
171.	Sodvadar	Ungated	76.70	76.70	100.00	-	-	1183
173.	Gondali	Ungated	45.80	-	350.00	-	-	948
174.	Ghelo-S	Ungated	135.10	-	213.00	-	-	878
175.	Vachhapari	Ungated	43.89	-	183.00	-	-	535
176.	Phardangbeti	Ungated	189.25	-	190.00	-	-	2370
177	Ishwaria	Ungated	157.30	-	211.00	-	-	1377
179.	Kabir Sarovar	Ungated	32.45	32.45	295.00	-	-	2350
180.	Dhari	Ungated	49.07	-	84.00	-	-	651
181.	Malgadh	Ungated	159.37	-	140.00	-	-	760
MORBI								
150.	Machhu-II	Gated	57.30	49.09	508.00	20	12.50x8.23	26650
		(Addl. Spillway)		51.20		18	9.15x6.10	
158.	Machhu-I	Ungated	135.33	-	488.00	-	-	3313
164.	Demi-II	Gated	48.00	41.90	192.00	17	9.14x6.10	3568
166.	Ghodadharoi	Gated	98.30	92.20	102.00	9	9.15x6.10	2618
172.	Demi-I	Fuse Gate	60.35	59.35	244.00	135	1.80 x 1.00	4044
178.	Bangawadi	Fuse Gate	42.65	41.05	200.00	69	2.85 x 1.60	2405
189.	Brahmani	Ungated	64.62	-	247+548A	-	-	2950
200.	Brahamani-II	Gated	44.50	36.27	271.58	18	12.50 x 8.23	11896

Sch No.	Name of Dist-rict and Name of Scheme	Type of Scheme	F.R.L Meter	Crest Level Meter	Spillway Length Meter	Details of Gates Nos.	Size Meter	Max. Discharge (Cum)
SURENDRANAGAR								
183.	Nayaka	Gated	101.80	99.36	671.00	20 14	9.15x2.44 9.15x2.44	2097
184.	Dholidhaja	Ungated	80.47	-	450.00	-	-	1839
185.	Falku	Gated	107.00	103.00	182.50	16	10.00x4.00	4275
186.	Nimbhani	Gated	134.50	131.45	113.00	10	9.14 x 3.05	1463
187.	Limbdi Bhogavo II	Gated	76.00	69.90	322.00	28	9.15 x 6.10	10530
188.	Vansal	Ungated	100.70	100.70	220.00	-	-	736
190.	Limbi-Bhogavo	Ungated	46.02	-	463.20	-	-	1471
191.	Morsal	Ungated	177.00	-	106.00	-	-	1271
192	Saburi	Ungated	129.50	-	255.00	-	-	1446
193.	Triveni Thanga	Ungated	208.00	-	207.00	-	-	1795

Note: There is no important scheme in Ahmedabad, Gandhinagar, Patan, Anand, Dang & Vadodara Districts

ANNEXURE-1 (A)

Note : Please see Flood Telephone Directory of the current year

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
1. GUJARAT REGION				
A.	Damanganga Basin			1. Executive Engineer Tapi Division (C.W.C.) Surat 2. Superintending Engineer Damanganga Project Circle, Valsad (Focal Officer)
Valsad District				
1.	Madhuban Dam	82.40 (270.27)	79.86 (261.94)	Executive Engineer Damanganga Project Dn. No. 1, Madhuban Colony
2.	Madhuban Dam D/S	49.45(162.20)	— (—)	
3.	Vapi (R.G.) (N.H.No. Bridge)	19.20 (62.98)	— (—)	
	Union Territory			
4.	Daman (R.G.)	3.40 (11.159)	— (—)	Collector, Daman
5.	Silvassa (R.G.) (Athal Bridge)	30.00 (98.43)	— (—)	Collector, DNH Silvassa
B.	Tapi Basin			(1) Executive Engineer Tapi Division (C.W.C), Surat (2) Superintending Engineer Surat Irrigation Circle, Surat (Focal Officer).

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	Narmada District			
1.	Chopadvav Dam	188.80 (619.44)	187.40 (614.85)	Executive Engineer,
2.	Kakdiamba Dam	188.71 (619.15)	187.71 (616.53)	Ver - II Project, Division Vyara (Surat),
	Tapi District.			
3.	Ukai Dam	106.984(351.00)	105.15(345.00)	Executive Engineer, Ukai Division No.1, Ukai.
	Surat District.			
4.	Lakhigam Dam	75.90 (249.02)	74.10 (243.11)	Executive Engineer,
5.	Ver - II Dam	118.00 (387.15)	115.80 (379.93)	Ver - II Project Division,
6.	Ver - I Dam	64.16 (210.50)	60.96 (200.00)	Vyara (Surat District)
	Tapi District.			
7.	Kakrapar Weir	53.66 (176.05)	48.77 (160.00)	Executive Engineer, Surat Canal Division, Surat
8.	Ghala (R.G.)	— (—)	— (—)	Executive Engineer Tapi Division
9.	Surat Nehru Bridge (R.G.)	9.50(31.16)	— (—)	(C.W.C.) Surat
C.	**Narmada Basin**			
	1. Executive Engineer Tapi Division, (C.W.C.) Surat.			
	Superintending Engineer - Designs Narmada Project (Dam & Power House) Vadodara (Focal Officer)			
	Superintending Engineer Vadodara Irrigation Circle, Vadodara. (Focal Officer for Sukhi/Rami)			
Bharuch & Narmada Districts				
1.	Bharuch Golden Bridge (R.G.)	7.315 (24.00)	— (—)	Executive Engineer Tapi Division
2.	Garudeshwar Bridge (C.W.C.) Surat (R.G.)		31.09 (102.00)	— (—)
3.	Dholi Dam	136.00 (446.22)	136.00 (446.22)	Executive Engineer Irri. Proj. Dn.No.4 Rajpipala
4.	Karjan Dam Executive Engineer Irrigation Project Dn. No. 4, Rajpipla	116.10 (380.50)	115.25 (378.13)	

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	Chhotaudepur District			
5.	Rami Dam	197.87 (649.21)	196.35 (644.22)	Executive Engineer Pipe Line Project Dn.No.1 Chhotaudepur
6.	Sukhi Dam	148.30 (486.57)	147.82 (485.00)	Executive Engineer Irri.Proj.Dn.No.2, Bodeli
7.	Wadhwana	56.39 (185.00)	55.63 (182.50)	Executive Engineer Vadodara Irrigation Division,Vadodara
D.	Mahi Basin			Executive Engineer Mahi Division (C.W.C.) Gandhinagar Superintending Engineer Mahi Irrigation Circle, Nadiad (Focal Officer)
	Mahisagar District			
1.	Wanakbori Weir	74.98 (246.00) (Danger Level)	67.234 (220.60) (Hydro Fuse Gate)	Executive Engineer Nadiad Irrigation Division, Nadiad
	Kheda District			
2.	Varansi dam	81.20(266.34)	81.00(265.68)	Executive Engineer WatrakProject Canal Dn. Modasa
	Panchmahals District			
3	Kadana Dam	127.71 (419.00) (Danger Level) 126.18 (414.07) (Warning Level)	127.71 (419.00)	Executive Engineer Kadana Dn. No. 1 Divda Colony
4.	Panam Dam	128.00 (420.00)	127.41 (418.00)	Executive Engineer Panam Project Division, Godhra.
	Vadodara District			
5.	Mahi Weir at Sindhrot	19.50 (63.98) (HFL)		Executive Engineer Vadodara Irrigation Division,Vadodara
E	**Sabarmati Basin**			Executive Engineer Mahi Division (C.W.C.) Gandhinagar
	Superintending Engineer Ahmedabad Irrigation Project Circle Ahmedabad (Focal Officer)			
	Superintending Engineer HImatnagar Irrigation Project Circle, Himatnagar (Focal Officer)			

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	Ahmedabad District			
1	Subhash Bridge	45.34 (148.76) (Danger Level) 44.09 (144.65) (Warning Level)	— (—) (R.G.)	Executive Engineer Ahmedabad Irrigation Dn. Ahmedabad
	Kheda District			
2.	Dakor Bridge(R.G.)	7.05 (23.13)	— (—)	Executive Engineer
3.	Kathlal Bridge(R.G.)	6.49 (21.30)	— (—)	Shedhi Irrigation Dn. Nadiad
4.	Ladvel Bridge(R.G.)	5.27 (17.30)	— (—)	Executive Engineer
5.	Kheda Bridge(R.G.)	6.57 (21.56)	— (—)	Mahi Division (C.W.C.) Gandhinagar
	Mehsana District			
6.	Dharoi Dam	192.24 (630.70) (Danger Level) 187.06 (613.72) (Warning Level)	189.59 (622.00)	Executive Engineer Dharoi Head Works Division No.1, Dharoi Colony
7.	Derol Bridge(R.G.)	— (—)	100.23(328.85)	Executive Engineer Mahi Division (C.W.C.) Gandhinagar
	Sabarkantha District			
8.	Himatnagar Weir(R.G.)---	(—)	134.05(439.82)	Executive Engineer
9.	Harnav Weir(R.G.)	— (—)	234.76 (—)	Mahi Division
10.	Ratanpur Bridge(R.G.)	9.63(31.60)	— (—)	(C.W.C.) Gandhinagar
11.	Raska Weir (R.G.)	38.17(125.20)	— (—)	
12.	Guhai Dam	174.02 (570.78)	173.00(567.44)	Executive Engineer
13.	Javanpur Rech. MI Sch.	94.70 (310.62)	91.00 (298.48)	P.C. Division No. 3 Himatnagar
14.	Harnav Stage II Dam	332.25(1090.11)	332.00 (1088.96)	-do-
15.	Khedva Dam	259.70(851.82)	259.70(851.82)	-do-
16.	Gorthiya	113.75(373.21)	113.75(373.21)	Executive Engineer Suj. Suf. Spre.Ch. Dn. No. 1 Himatnagar
	Aravalli District			
17.	Hathmati Dam	183.18 (601.00)	180.79 (593.00)	Executive Engineer
18.	Meshwo Dam	219.16(718.86)	214.59 (703.86)	H'nagar Irrigation
19.	Waidy Dam	201.10 (659.80)	199.20 (653.57)	Division, Himatnagar
20.	Mazam Dam	158.44 (519.83)	157.10 (515.29)	Executive Engineer
21.	Watrak Dam	140.49 (460.95)	136.25 (447.00)	Irrigation Project
22.	Lank Weir (R.G.)	111.55 (365.67)	111.55 (365.67)	Division, Modasa

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
F.	**Banas Basin**			Executive Engineer Mahi Division (C.,W.,C.) Gandhinagar Superintending Engineer Sujlam Suflam Circle No.2, Kherva (Focal Officer)
	Rajasthan State			
1.	Abu Road (R.G.)	265.00 (869.47)	— (—)	Executive Engineer
2.	Swaroopganj (R.G.)	335.35 (1100.28)	— (—)	Mahi Division (C.W.C.) Gandhinagar
	Banaskantha District			
3.	Bhakhudar (R.G.)	163.87(537.66)	— (—)	Executive Engineer
4.	Chitrasani (R.G.)	195.00 (639.80)	— (—)	Mahi Division
5.	Sarotri (R.G.)	192.00(629.95)	— (—)	(C.W.C.) Gandhinagar
6.	Dantiwada Dam	185.06 (607.00) (Danger Level) 182.88 (600.00) (Warning Level)	184.10(604.00)	Executive Engineer
7.	Deesa Road Bridge (R.G.)	123.75(406.00)	— (—)	Deesa Irrigation Division, Deesa
8.	Sipu Dam	186.48 (611.84)	186.43 (611.68)	Executive Engineer Sipu Project Dn. Palanpur.
G.	**Vishwamitry Basin & Deo Basin**			Superintending Engineer Vadodara Irrigation Circle, Vadodara (Focal Officer)
	Vadodara District			
1.	Ajwa (W.S.) (Gauge)	64.31 (211.00)	— (—)	Municipal Commissioner
2.	Pratappura (Gauge)	69.69 (228.63)	— (—)	Vadodara Municipal
3.	City Bridge (R. G.)	30.57 (100.27)	— (—)	Corp. Vadodara
4.	Bhaniara (Gauge)	— (—)	— (—)	Executive Engineer
5.	Dhanora (Gauge)	62.18 (204.00)	— (—)	Vadodara Irrigation
6.	Ghansarvav (Gauge)	34.75 (114.00)	— (—)	Division, Vadodara
7.	Haripura (Gauge)	65.84 (216.00)	— (—)	
8.	Vadadala (Gauge)	58.52 (191.95)	— (—)	
9.	Shivrajpur (Gauge)	90.15 (295.78)	— (—)	
	Panchmahals District			
9.	Halol (Gau.ge)	— (—)	— (—)	Executive Engineer Vadodara Irrigation Division, Vadodara
10.	Deo Dam	90.15 (295.77)	89.65 (294.14)	Executive Engineer Vadodara Irrigation Division Vadodara

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
H.	**Saraswati Basin**			Superintending Engineer Sujlam Suflam Circle No.2, Kherva (Focal Officer)
	Banaskantha District			
1.	Mukteshwar Dam	202.12 (663.11)	201.65 (661.57)	Executive Engineer Sipu Project Dn. Palanpur.
	Patan District			
2.	Saraswati Barrage	85.39 (280.11)	84.40 (277.00)	Executive Engineer Deesa Irri. Dn., Deesa
I.	**Bharuch District**			
1.	Baldeva Dam	— (—)	141.50 (464.26)	Executive Engineer
2.	Pigut Dam	— (—)	139.70 (458.36)	Irri.Proj.Dn.No.4 Rajpipala
J.	**Panchmahals & Dahod District**			Superintending Engineer Panam Project Circle Godhra . (Focal Officer except Kadana Dams)
1.	Bhadar (P) Dam	128.35 (421.00)	123.72 (406.00)	Executive Engineer Kadana Division No. 1 Diwda Colony
2.	Hadaf Dam	168.32 (552.09)	166.20 (545.30)	Executive Engineer Panam Proj. Dn. Godhra
3.	Patadungri Dam	172.97 (567.50)	170.84 (560.50)	Executive Engineer
4.	Wankleshwar Bhey Dam	225.24 (739.00)	223.57 (733.50)	Dahod Irri.Dn., Dahod
5.	Edalwada Dam	238.78 (783.20)	237.30 (778.58)	Executive Engineer
6.	Machhanala Dam	281.33 (923.04)	279.05 (915.56)	Machhanala Proj.Dn.D' Colony
7.	Umaria Dam	284.24 (932.31)	280.00 (918.68)	Dahod Irr. Dn. Dahod
8.	Kabutri Dam	189.56 (621.75)	186.30 (611.25)	
9.	Kali - II Dam	269.90 (885.54)	257.00 (843.22)	
10.	Karad Dam	141.43 (454.00)	140.08 (459.60) (With fuse gate) 138.50 (454.30) (Without fuse gate)	Executive Engineer Panam Irrigation Division, Godhara
11.	Padardi	149.65 (491.00) Max. Water Level		Executive Engineer Mahi Dn., G'nagar
12.	Cheklia	230.20 (755.29) Max. Water Level		Executive Engineer Mahi Dn., G'nagar
13.	Anas P.S.	160.00 (524.96) Max. Water Level		Executive Engineer Mahi Dn., G'nagar
14.	Santroad Weir	150.64 (494.25)	144.50 (474.11)	Executive Engineer Panam Proj. Dn., Godhra

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
K.	**Tapi District**			
1.	Dosawada Dam	— (—)	123.44 (405.00)	Executive Engineer Ver - II Project Dn. Vyara (Surat District)
L.	**Navsari District**			
1.	Kelia Dam	115.12 (377.59)	113.40 (371.85)	Executive Engineer
2.	Jhuj Dam	171.25 (561.70)	167.50 (549.40)	Jhuj Project Canal Division Vansda, (Dist. Navsari)
II.	**KACHCHH REGION**			
	Kachchh District			
1.	Fatehgadh Dam	25.15 (82.49)	22.70 (74.48)	EE, WRI Dn., Bhuj
2.	Gajansar Dam	31.89 (104.60)	31.08 (102.00)	EE,Salinity Control Dn.,Bhuj
3.	Gajod Dam	94.90 (311.27)	90.82 (297.98)	EE, Kachchh Irri Dn., Bhuj
4.	Godhatad Dam	27.99 (91.81)	23.00 (75.46)	EE,Salinity Control Dn.,Bhuj
5.	Kaila Dam	81.74 (268.11)	79.25 (260.02)	EE, Kachchh Irri Dn., Bhuj
6.	Kalaghogha Dam	41.19 (135.10)	37.00 (121.40)	EE, Kachchh Irri Dn., Bhuj
7.	Kankawati Dam	133.95 (439.36)	131.67 (432.01)	EE, Kachchh Irri Const. Dn.,Bhuj
8.	Kaswati Dam	53.73 (176.23)	51.20 (167.99)	EE, Kachchh Irri Const. Dn.,Bhuj
9.	Nara Dam	32.54 (106.73)	27.43 (90.00)	EE,Salinity Control Dn.,Bhuj
10.	Niruna Dam	47.83 (156.88)	43.58 (142.99)	EE,Salinity Control Dn.,Bhuj
11.	Rudramata Dam	69.88 (229.21)	66.44 (217.99)	EE, Kachchh Irri Dn., Bhuj
12.	Sanandro Dam	63.32 (207.69)	59.74 (196.01)	EE,Salinity Control Dn.,Bhuj
13.	Suvi Dam	46.37 (152.09)	42.67 (140.00)	EE, WRI Dn., Bhuj
14.	Tappar (W.S)Dam	41.90 (137.43)	40.85 (134.00)	Executive Engineer, Public Health Division Bhuj Kachchh.
15.	Bhukhi Dam	77.15 (253.05)	73.00 (239.44)	EE,Salinity Control Dn.,Bhuj
16.	Berachiya Dam	73.99 (241.69)	70.40 (230.98)	EE, Kachchh Irri Const. Dn.,Bhuj
17.	Don Dam	54.33 (178.20)	47.75 (156.67)	EE, Kachchh Irri Const. Dn.,Bhuj
18.	Jangadia Dam	42.81 (140.42)	38.60 (126.64)	EE, Kachchh Irri Const. Dn.,Bhuj
19.	Mathal Dam	84.87 (278.37)	83.18 (272.83)	EE,Salinity Control Dn.,Bhuj
20.	Mitti Dam	23.00 (75.44)	18.50 (60.68)	EE, Kachchh Irri Const. Dn.,Bhuj
III	**SAURASHTRA REGION**			
A	**Under Flood Control Cell, Rajkot.**			Superintending Engineer Rajkot Irrigation Circle, Rajkot (Focal Officer)

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
(1)	**Amreli District**			
1.	Sankroli Dam	46.60 (152.88)	44.20 (145.00)	Executive Engineer Rajkot Irrigation Division, Rajkot.
(2)	**Jamngar District**			
1.	Dai Minsar Dam	78.61 (257.62)	75.40 (247.39)	Executive Engineer
2.	Fulzar - I Dam	26.52 (87.00)	24.69 (81.00)	Jamnagar Irrigation
3.	Fulzar - II Dam	53.65 (176.00)	52.12 (171.00)	Division, Jamnagar.
4.	Puna Dam	25.60 (84.00)	24.38 (80.00)	
5.	Rangmati Dam	43.20 (141.74)	43.20 (141.74)	
6.	Sapada Dam	34.14 (112.00)	32.77 (107.52)	
7.	Sasoi Dam	30.48 (100.00)	28.96 (95.00)	
8.	Vijarkhi Dam	31.39 9103.00)	30.48 (100.00)	
9.	Kankavati Dam	31.68 (103.91)	30.50 (100.00)	E. E., Jam. Irr. Dn. Jamnagar
10.	Und - I Dam	102.92 (337.57)	98.00 (321.54)	E. E., Jam. Irr. Dn. Jamnagar
11.	Rupavati(Lalpur)Dam	78.80 (258.54)	77.30 (253.62)	E. E., Jam. Irr. Dn. Jamnagar
12.	Umiyasagar Dam	73.63 (241.58)	71.05 (233.11)	E. E., Und Canal Dn. Jamnagar
13.	Ruparel Dam	50.20 (164.66)	48.20 (158.10)	E. E., Und Irr. Dn. Jamnagar
14.	Ranjit-Sagar(WS) Dam	----- (---)	---- (----)	Municipal Commissioner Municipal Corporation Jamnagar
15.	Und - II Dam	19.11 (62.68)	18.25 (59.88)	E. E., Und Irr. Dn. Jamnagar
16.	Wadisang Dam	79.00 (259.12)	76.50 (250.92)	E. E., Jam. Irr. Dn. Jamnagar.
17.	Fulzar(KB) Dam	98.12 (321.83)	95.85 (314.38)	E. E., Und Canal Dn. Jamnagar
18.	Und - III Dam	113.10 (371.08)	110.60(362.87)	E. E., Irr. Dn. Rajkot
19.	Phophal - II Dam	132.33 (434.19)	129.33 (424.30)	E. E., Irr. Dn. Rajkot
20.	Demi - III Dam	25.60 (83.99)	25.60 (83.99)	E. E., Proj. Const. Dn. 3 Rajkot,
21.	Aji - IV Dam	20.40 (66.91)	20.40 (66.91)	E. E., Und Canal Dn. Jamnagar
(3)	**Dev Bhumi Dwarka District**			
1.	Ghee Dam	42.73 (140.20)	40.54 (133.00)	E. E., Jam. Irr. Dn. Jamnagar
2.	Sonmati Dam	81.04 (265.88)	78.50 (257.56)	E. E., Jam. Irr. Dn. Jamnagar
3.	Vartu -I Dam	41.15 (135.00	39.01 (127.98)	E. E., Jam. Irr. Dn. Jamnagar
4.	Sani Dam	18.68 (61.27)	17.25 (56.58)	E. E., Jam. Irr. Dn. Jamnagar
5.	Sindhani Dam	18.42 (60.41)	16.35 (53.62)	E. E., Jam. Irr. Dn. Jamnagar
6.	Shedhabhadthari Dam	34.00 (111.55)	32.50 (106.63)	E. E., Jam. Irr. Dn. Jamnagar
7.	Vartu - II Dam	40.55 (133.00)	39.95 (131.04)	E. E., Und Irr. Dn. Jamnagar
8.	Gadhaki Dam	32.00 (104.96)	30.00 (98.40)	E. E., Und Irr. Dn. Jamnagar
9.	Veradi -I Dam	87.52 (287.06)	85.15(287.29)	E. E., Und Canal Dn. Jamnagar
10.	Kabarka Dam	98.85 (324.33)	96.85 (317.76)	E. E., Und Irr. Dn. Jamnagar
11.	Veradi-II (W.R.)	67.50 (221.40)	65.40 (214.51)	E. E., Und Canal Dn. Jamnagar
12.	Minsar(V) (W.R.)	93.80 (307.66)	91.80 (301.10)	E. E., Und Irr. Dn. Jamnagar
(**4**)	**Porbandar District**			
1.	Sorthi Dam	98.82 (324.21)	95.50 (313.32)	E. E., Jam. Irr. Dn. Jamnagar

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
(5)	**Rajkot District**			
1.	Nyari – I (W.S.) Dam	105.75 (346.96)	103.50 (339.58)	Municipal Commissioner, R.M.C. Rajkot
2.	Aji – I Dam	149.35 (490.00)	147.52 (484.00)	E.E., RID, Rajkot
3.	Bhadar Dam	112.74 (369.88)	107.90 (354.00)	E.E., RID, Rajkot
4.	Gondali Dam Dam	47.24 (155.00)	45.80 (150.25)	Executive Engineer
5.	Kabir–Sarovar Dam (Chhaparwadi-I)	34.52 (113.25)	32.45 (106.46)	Irr.& Maintenance Dn. Rajkot
6.	Lalpari Dam	138.71 (455.08)	137.46 (451.00)	Executive Engineer
7.	Moj Dam	76.50 (251.00)	72.54 (238.00)	Rajkot Irr. Dn.
8.	Phophal Dam	86.44 (283.60)	81.76 (268.23)	Rajkot.
9.	Vachhapari Dam	45.57 (149.50)	43.89 (144.00)	Executive Engineer
10.	Veri Dam	143.41 (470.50)	142.04 (466.00)	Irr. & Maintenance
11.	Chhaparwadi-II Dam	100.44 (329.44)	98.38 (322.78)	Division. Rajkot.
12.	Dhari Dam	51.51(169.00)	49.07 (161.00)	EE, S'nagar Irr. Dn., Rajkot
13.	Ishwaria Dam	159.30 (522.66)	157.30 (516.10)	Irr. & Maintenance
14.	Karmal Dam	170.94 (560.68)	169.00 (554.49)	Division. Rajkot
15.	Motisar Dam	143.00 (469.18)	143.00 (469.18)	E.E., Rajkot Irr. Dn., Rajkot
16.	Nyari – II Dam	88.50 (290.28)	88.50 (290.28)	E.E., Rajkot Irr. Dn., Rajkot
17.	Bhadar - II Dam	53.10 (174.22)	53.10 (174.22)	E.E., Rajkot Irr.Proj Dn., Rajkot
18.	Dondi Dam	103.72 (340.31)	103.72 (340.31)	E.E., Rajkot Irr.Proj Dn., Rajkot
19.	Survo Dam	99.85 (327.61)	99.85 (327.61)	E.E., Rajkot Irr.Proj Dn., Rajkot
20.	Sodvadar Dam	79.20 (259.86)	76.70 (251.65)	E.E., Rajkot Irr.Proj Dn., Rajkot
21.	Venu – II Dam	56.91 (186.71)	55.00 (180.46)	Executive Engineer
22.	Aji – II Dam	74.72 (245.14)	73.76 (242.00)	Rajkot Irr. Dn. Rajkot.
23.	Phadangbeti Dam	191.94 (629.76)	189.25 (620.93)	EE, S'nagar Irr. Dn., Rajkot
24.	Aji – III Dam	55.34 (181.56)	53.15 (174.38)	E.E., Rajkot Irr. Dn., Rajkot
25.	Karnuki Dam	164.50 (539.72)	164.50 (539.72)	E.E., Rajkot Irr.Proj Dn., Rajkot .
26.	Khodapipar Dam	55.27 (181.34)	55.27 (181.34)	E. E., I & M Dn. Rajkot
(6)	**Surendranagar District**			
1.	Dholidhaja Dam	82.22 (269.75)	80.47 (264.00)	EE, S'nagar Irr. Dn., Rajkot
2.	Limdi Bhogovo-I Dam	47.55 (156.00)	46.02 (151.00)	EE, S'nagar Irr. Dn., Rajkot.
3.	Nayka Dam	101.80 (334.00)	101.80 (334.00)	EE, S'nagar Irr. Dn., Rajkot
4.	Falku Dam	107.00 (351.06)	107.00 (351.06)	EE, S'nagar Irr. Dn., Rajkot
5.	Morsal Dam	179.50 (588.94)	177.00 (580.74)	EE, S'nagar Irr. Dn., Rajkot
6.	Saburi Dam	131.00 (429.81)	129.50 (424.89)	EE, S'nagar Irr. Dn., Rajkot
7.	Vansal Dam	102.55 (336.36)	100.70 (330.40)	EE, S'nagar Irr. Dn., Rajkot
8.	Nimbhani Dam	134.50 (441.29)	134.50 (441.29)	EE, S'nagar Irr. Dn., Rajkot
9.	Limdi Bhogavo-II Dam	76.00 (249.35)	76.00 (249.35)	E. E., Proj. Const. Dn. 4 Rajkot,
10.	Triveni - Thanga Dam	210.00(688.50)	208.00(682.24)	E. E., Proj. Const. Dn. 4 Rajkot,

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	(7) Morbi District			
1.	Bangawadi Dam	44.20 (145.00)	42.65 (139.90)	E.E., I & M Dn, Rajkot
2.	Demi – I Dam	63.20 (207.35)	60.35 (198.00)	E.E., I & M Dn, Rajkot
3.	Godhadharoi Dam	100.49 (329.60)	98.30 (322.52)	Executive Engineer
4.	Machhu – I Dam	137.46 (451.00)	135.33 (444.00)	
5.	Machhu – II Dam	57.30 (187.94)	57.32 (188.00)	E.E., I & M Dn., Rajkot
6.	Demi – II Dam	48.78 (160.05)	48.00 (157.49)	E.E., I & M Dn., Rajkot.
7.	Brahmani Dam	66.14 (217.00)	64.62 (212.00)	EE, S'nagar Irr. Dn., Rajkot
11.	Brahmani-II	44.50 (146.00)	44.50(146.00)	E. E., Proj. Const. Dn. 4 Rajkot,
	SAURASHTRA REGION			
B	**Under Flood control Cell, Bhavnagar**			Superintending Engineer Bhavnagar Irrigation Project Circle Bhavnagar (Focal Officer)
	1) Botad District.			
1.	Khambhada Dam	50.35 (165.14)	50.35 (165.14)	Executive Engineer Irri. & Maintenance Division, Bhavnagar.
2.	Utavali Dam	49.30 (161.70)	49.30 (161.70)	Executive Engineer Bhavnagar Irri. Proj.Dn. Bhavnagar
	(2) Amreli District			
1.	Dhatarwadi Dam	84.45 (277.00)	80.83 (265.19) (FG not Restored)	Executive Engineer Irri. & Maintenance Division Bhavnagar
2.	Khodiar Dam	202.68 (665.00)	202.68 (665.00)	Executive Engineer
3.	Munjiasar Dam	64.46 (211.50)	62.93 (206.50)	Amreli Irrigation
4.	Vadia Dam	130.25(427.35)	130.25 (427.35)	Division Amreli
5.	Raidy Dam	50.85 (166.78)	50.85 (166.78)	Executive Engineer
6.	Shell-Dedumal Dam	179.50(588.76)	179.50(588.76)	Amreli Irrigation Division Amreli
7.	Surajwadi Dam	51.80 (169.69)	50.30 (165.03)	Executive Engineer Bhavnagar Irri. & Maintenance Division Bhavnagar
8.	Vadi Dam	134.00 (439.52)	134.00 (439.52)	Executive Engineer
9.	Thebi Dam*	126.40 (414.59)	126.00 (414.38)	Amreli Irrigation
10.	Dhatarwadi-II Dam	34.41 (112.89)	34.41 (112.89)	Division, Amreli
11.	Ghelo(Itaria) Dam	168.59 (553.00)	166.76 (546.97)	EE, BIMDn, Bhavnagar

" * "Thebi gate pier damaged - Restriction for filling

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
(3)	**Bhavnagar District**			
1.	Shetrunji Dam	57.68 (189.25)	55.55 (182.20)	Executive Engineer
2.	Hamirpura Dam	87.80 (288.07)	87.80 (288.07)	Bhavnagar Irrigation
3.	Kharo Dam	54.25 (177.99)	54.12 (177.57)	Division, Bhavnagar
4.	Rajawal Dam	58.49 (191.91)	56.76 (186.23)	
5.	Lakhanka Dam	44.98 (147.58)	44.22 (145.08)	
6.	Bagad Dam	63.28 (207.62)	60.41 (198.21)	Executive Engineer Irri. and Maintenance Division, Bhavnagar
7.	Malan Dam	104.25 (342.04)	104.25 (342.04)	
8.	Ranghola Dam	62.80 (206.05)	62.50 (205.06)	
9.	Rojki Dam	100.91 (331.09)	99.08 (325.08)	
10.	Limbali Dam**	128.44 (421.28)	122.00 (400.16)	Executive Engineer
11.	Hanol Dam	90.10 (295.52)	90.10 (295.52)	Bhavnagar Irri.Project Division, Bhavnagar
12.	Pingali Dam	51.30 (168.26)	51.30 (168.26)	
13.	Jaspara-Mandva	42.25 (138.58)	40.25 (132.02)	
	" ** "**Limbali gate pier damaged - Restriction for filling**			
(4)	**Botad District**			
1.	Bhimdad Dam	107.31 (352.08)	104.87 (344.08)	Executive Engineer
2.	Goma Dam	128.81 (422.63)	126.50 (415.05)	Irri. and Maintenance
3.	Kalubhar Dam	62.84 (206.11)	60.36 (198.04)	Division, Bhavnagar
4.	Malpara Dam	78.10 (256.17)	78.10 (256.17)	
5.	Kaniyad Dam	102.25(335.38)	102.25 (335.38)	Executive Engineer Bhavnagar Irr. Project Division, Bhavnagar
6.	Sukhbhadar Dam	110.73 (363.20)	109.23 (358.28)	Executive Engineer Irrigation & Maintenance. Dn. Bhavnagar.
(5)	**Junagadh District**			
1.	Hashanpur (WS) Dam	150.30 (493.00)	148.17 (486.15)	Muni. Commissioner Muni. Corporation Junagadh
2.	Varjami Dam (Salinity)	94.40 (309.62)	94.00 (308.41)	Executive Engineer Salinity Control Division, Porbandar
3.	Ambajal Dam	182.30 (597.94)	182.30 (597.94)	Executive Engineer
4.	Hiran – I Dam	46.27 (151.80)	44.20 (145.00)	Junagadh Irrigation
5.	Hiran – II Dam	71.26 (233.80)	71.26 (233.80)	Division Junagadh
6.	Jhanjeshri Dam	152.25 (499.50)	149.96 (492.00)	
7.	Madhuvanti Dam	167.02 (548.00)	165.19 (542.00)	
8.	Uben Dam	110.98 (364.12)	107.61 (353.06)	Executive Engineer
9.	Shingoda Dam	141.58 (464.52)	141.58 (464.52)	Junagadh Irri. Dn.
10.	Dhrafad Dam	124.00 (406.84)	124.00 (406.84)	Junagadh
11.	Machhundri Dam	112.91 (370.34)	109.50 (359.16)	Executive Engineer
12.	Raval Dam	150.45 (493.48)	148.85 (488.38)	Junagadh Irri. Dn. Junagadh

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter(Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
13.	Bantwa-Kharo Weir	16.25(53.30)	16.25 (53.30)	E. E., Porbandar Irrigation Division, Porbandar
14.	Ozat-Weir(Shapur)	35.77 (117.32)	32.80 (107.58)	E.E., Junagadh Irr.Proj Dn.Junagadh
15.	Ozat-II Dam	77.59 (254.49)	77.50 (254.28)	E.E., Junagadh Irr.Proj Dn.Junagadh
16.	Ozat-Weir(Vanthli)	28.80 (94.46)	27.50 (90.20)	E.E., Junagadh Irr.Proj Dn.Junagadh
17.	Mota Gujariya	142.52(467.46)	140.02(459.26)	E.E., Junagadh Irr.Proj Dn.Junagadh
18.	Sabali	43.75 (143.54)	43.75 (143.54)	E.E., Junagadh Irr.Proj Dn.Junagadh
(6)	**Porbandar District**			
1.	Khambhala (WS) Dam	41.15(135.00)	39.63(130.00)	Executive Engineer
2.	Phodarness(WS)Dam	96.63(317.04)	93.59(307.00)	Public Health Works Dn. Porbandar.
3.	Amipur Dam	6.34(20.80)	5.64(18.50)	Executive Engineer S.C. Dn. Porbandar
4.	Kalindri Dam	54.96 (180.30)	52.22(171.28)	E.E., S.C. Dn. Porbandar
5.	Advana Dam	25.50 (83.66)	24.00(78.72)	E. E., Porbandar Irr. Dn. Porbandar
6.	Saran	37.00 (121.40)	37.00 (121.40)	E. E., Porbandar Irr. Dn. Porbandar
(7)	**Rajkot District**			
1.	Ghelo (s) Dam	136.66 (448.25)	136.66 (448.25)	Executive Engineer
2.	Malgadh Dam	161.25 (528.90)	159.37 (522.73)	Irri. & Maintenance Division, Bhavnagar

ANNEXURE - 1 (B)

LIST OF IMPORTANT GAUGE STAIONS
List showing the Danger Level and Warning Level in Mt. (Ft)

SR No.	NAME OF GAUGE STATION	DANGER LEVEL IN Meter	DANGER LEVEL IN Feet	WARNING LEVEL IN Meter	WARNING LEVEL IN Feet
1	2	3	4	5	6
1.	**DAMANGANGA BASIN**				
1.	Madhuban Dam Site (Damanganga Dam)	82.40	(270.27)	79.86	(261.94)
2.	Madhuban Dam D/S	49.45	(162.20)	48.30	(158.42)
3.	Daman(Moti Daman-Nani Daman Bridge)	03.40	(11.16)	2.60	(8.53)
4.	Vapi(National High way No.8 Bridge)	19.20	(63.00)	18.20	(59.71)
5.	Silvasa(Athal Bridge)	30.00	(98.43)	29.00	(95.15)
2.	**TAPI BASIN**				
1.	Ukai	105.15	(345.00)	103.32	(339.00)
2.	Kakrapar	53.66	(176.05)	53.15	(174.33)
3.	Surat Nehru Bridge	9.50	(31.16)	8.50	(27.88)
3.	**NARMADA BASIN**				
1.	Garudeshwar	31.09	(102.00)	30.48	(100.00)
2.	Bharuch	7.315	(24.00)	6.71	(22.00)
4.	**MAHI BASIN**				
1.	Kadana	127.71	(419.00)	126.18	(414.00)
2.	Panam	128.00	(420.00)	126.18	(414.00)
3.	Wanakbori	74.98	(246.00)	71.93	(236.00)
5.	**SABARMATI BASIN**				
1.	Dharoi	192.24	(630.70)	187.06	(613.72)
2.	Subhash Bridge	45.34	(148.76)	44.09	(144.65)
6.	**BANAS BASIN**				
1.	Dantiwada	185.06	(607.00)	182.88	(600.00)
2.	Deesa Road Bridge	123.75	(406.00)	122.95	(403.40)

Note: The Danger Level and Warning Level values can be subjected to change by State Govt.

ANNEXURE - 1 (B-1)

LIST OF GAUGE STAIONS FOR INFORMATION

List showing the Danger Level and Warning Level in Mt. (Ft)

SR No.	NAME OF GAUGE STATION	DANGER LEVEL/ HFL IN Meter	DANGER LEVEL/ HFL IN Feet	"0" Gauge R.L. IN Meter	"0" Gauge R.L. IN Feet
1	2	3	4	5	6
1.	**NORTH GUJARAT REGION**				
A.	**SABARMATI RIVER**				
1.	Derol Bridge (R. G)	100.23*	328.85	89.00	292.00
2.	Hathmati Weir-Balochpur (R.G.)	146.40	480.34	142.50	467.54
3.	Wasana Bridge (R.G.)	41.75	137.00	38.09	125.00
	"*" Before Const. of Dharoi Dam, **{95.83 mt. (314.42 ft.) After Const. of Dharoi Dam}**				
B	**Rupen River (Mehsana)**				
1.	At Delwada Site	51.61	169.33	46.26	151.73
C.	**WATRAK RIVER**				
1.	Ratanpur Bridge	44.62	146.40	39.12	128.35
2.	Dabha Bridge	83.20	272.98	71.19	233.57
D.	**MESHWO RIVER**				
1.	Raska Weir	38.17	125.24	35.61	116.85
E.	**SHEDHI RIVER**				
1.	Dakor Bridge	53.51	175.51	45.01	147.63
F.	**MOHAR RIVER**				
1.	Kathlal Bridge	45.09	147.90	36.94	121.16
2.	**CENTRAL GUJARAT REGION**				
G.	**PANAM RIVER**				
1.	Santroad Bridge	152.02	498.63	143.06	469.24
H.	**VISHWAMITRI RIVER**				
1.	Pilol	104.00	341.12	93.18	305.63
2.	City Bridge	30.57	100.30	22.64	74.28
3.	**SOUTH GUJARAT REGION**				
I.	**KARJAN RIVER**				
1.	Rajpipla Bridge	30.45	99.90	19.75	64.80
J.	**ORSANG RIVER**				
1.	Bodeli Bridge	81.70	267.98	74.75	245.18
K.	**PURNA RIVER**				
1.	Wankla	57.42	188.34	46.37	152.09
L.	**Ambika River**				
1.	Unai (Vansda)	58.45	191.72	46.45	152.36
2.	Waghai (Ahwa)	105.91	347.49	99.66	327.00
M.	**AURANGA RIVER**				
1.	Bhervi (Chikhali)	42.08	138.02	31.58	103.58

Note: The Danger Level and Warning Level values can be subjected to change by State Govt.

ANNEXURE - 1 (C)

Statement Showing The Tentative Rule Levels of Water Resources Project of Gujarat State for Monsoon -2014

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2014 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
001	Khambhada	46.69	50.35	49.50	50.10	50.25		50.35
002	Utavali (Gunda)	45.64	49.30	49.00	49.30	49.30		49.30
003	Mukteshwar	193.37	201.65	196.00	199.00	200.50		201.30
		Remark: F.O. has suggested to fill up the dam upto FRL 201.65 m on Dt.16/10/2014						
004	Dantiwada	175.91	184.10	182.00	182.50	183.00		184.10
005	Sipu	178.15	186.43	180.00	183.50	185.02		186.24
		Remark: F.O. has suggested to fill up the dam upto FRL 186.43 m on Dt.16/10/2014						
006	Karjan	101.23	115.25	103.23	107.55	110.50	113.00	115.25
013	Dharoi	178.92	189.59	188.06	188.37	188.67		189.28
		Remark: F.O. has suggested to fill up the dam upto FRL 189.59 m on Dt.16/10/2014						
014	Panam	116.74	127.41	125.00	125.88	127.41		127.41
015	Deo	81.40	89.65	87.50	88.00	88.50		89.65
016	Hadaf	155.53	166.20	164.00	164.50	166.20		166.20
017	Kadana	113.71	127.71	124.50	126.00	126.80		127.71
019	Bhadar (P)	115.52	123.72	121.50	122.50	123.72		123.72
027	Watrak	128.00	136.25	133.50	134.50	136.00		136.25
028	Guhai	164.77	173.00	171.00	172.25	173.00		173.00
029	Mazam	151.00	157.10	155.00	155.50	156.75		157.10

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2014 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
031	Lank	105.45	111.55	105.45	110.00	111.25		111.55
032	Javanpura (Minor Recharge Scheme)	86.43	91.00	Gate open	Gate open	91.00		91.00
033	Harnav-II	323.77	332.00	330.00	330.50	332.00		332.00
036	Ukai	91.14	105.16	96.32	99.37	102.11	103.64 (15/09/14)	105.16
		Remark: Rule Level for Ukai Dam is incorporated as per Govt. of Gujarat, N.W.R.W.S. & K. Dept. letter No.Ukai/2006/23/Part-1/J Dtd.09-04-2014						
038	Ver-II	109.73	115.80	111.00	113.00	115.00		115.80
040	Sukhi	139.59	147.82	145.50	146.50	147.32		147.82
042	Damanganga (Madhuban Dam)	65.83	79.86	70.00	72.00	76.00	78.00	79.86
045	Tappar	36.27	40.85	40.15	40.85	40.85		40.85
065	Khodiar	196.58	202.68	201.00	202.25	202.50		202.68
066	Thebi	119.90	126.00	119.90	124.00	125.00		125.50
		Remark: The reservoir is to be filled up to crest level 119.90 m in case restoration works are not completed. F.O. has suggested to fill up the dam upto FRL 126.00 m on Dt.16/10/2014						
068	Raidy	44.75	50.85	49.00	49.55	50.55		50.85
069	Vadia	124.15	130.25	130.25	130.25	130.25		130.25
070	Vadi	127.90	134.00	133.50	134.00	134.00		134.00
071	Shell-Dedumal	173.40	179.50	175.50	177.50	178.50		179.50
075	Dhatarwadi-II	30.76	34.42	33.00	33.50	34.00		34.42
076	Shetrunji	54.63	55.54	55.25	55.25	55.54		55.54
077	Rajaval	50.65	56.75	56.00	56.50	56.75		56.75

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2014 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
078	Kalubhar	54.26	60.36	58.50	59.00	59.36		59.36
		Remark: Rule Level, as per instruction given by CDO Vide his letter No: B/CDO/RAD/GTS/Kalubhar/13 dtd.25-02-2008.						
079	Malpara	72.00	78.10	77.80	77.80	77.80		78.10
080	Kharo	48.02	54.12	53.50	53.50	54.12		54.12
081	Malan	102.74	104.25	104.25	104.25	104.25		104.25
082	Ranghola	60.98	62.50	62.50	62.50	62.50		62.50
083	Limbali	122.00	128.10	-	-	-		-
		Remark: Restoration to spillway work at Limbali project is under progress.						
084	Lakhanka	38.12	44.22	44.22	44.22	44.22		44.22
085	Hamirpara	81.70	87.80	87.00	87.00	87.50		87.80
086	Hanol	87.05	90.10	89.50	90.10	90.10		90.10
087	Kaniyad	99.20	102.25	101.75	102.25	102.25		102.25
088	Pingli	45.20	51.30	50.20	50.70	51.10		51.30
094	Und-I	91.90 89.77	98.00	97.00	97.50	98.00		98.00
095	Sani	11.15	17.25	16.50	17.00	17.25		17.25
103	Umiyasagar	66.48	71.05	66.48	66.48	66.48		71.05
106	Und-II	12.15	18.25	17.75	17.75	18.25		18.25
107	Kankavati	27.75	30.50	30.20	30.50	30.50		30.50
108	Rangmati	37.10	43.20	42.60	42.90	43.20		43.20
109	Vartu-II	33.85	39.95	38.95	39.00	39.95		39.95
		Remark: Problem occur in gate operation of gate no.12 last year, left side arm assembly both arm bend – buckling.						

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2014 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
110	Fulzar (KB)	89.75	95.85	94.85	94.85	95.35		95.85
111	Aji-IV	14.30	20.40	17.00	18.00	19.00		20.00
		Remark: The reservoir will be charged up to 17.00 m. level if R&R of Jaragadh not completed.						
112	Demi - III	19.50	25.60	24.60	25.30	25.60		25.60
124	Shingoda	133.33	141.58	139.73	140.23	141.00		141.58
125	Hiran-II	63.03	71.26	70.00	70.75	71.26		71.26
126	Raval	140.60	148.86	146.50	147.50	148.55		148.86
132	Ozat-II	69.27	77.50	73.50	75.00	77.00		77.50
133	Vrajmi	90.95	94.00	92.00	93.00	93.50		94.00
134	Ambajal	176.21	182.31	181.80	181.80	182.00		182.31
135	Draphad	117.90	124.00	122.50	123.00	123.50		124.00
136	Bantva-Kharo	13.20	16.25	15.75	16.00	16.25		16.25
137	Ozat-Weir (Shahpur)	29.80	32.80	29.80	29.80	29.80		29.80
		Remark: Godbole automatic gates have been damaged heavily in previous year and also hoist platform has been removed hence operation of gates will not be charged with post monsoon flow by manually gate operation. F.O. has suggested to fill up the dam upto FRL 32.50 m on Dt.16/10/2014						
138	Ozat-Weir (Vanthali)	25.00	27.50	25.00	25.00	25.00		27.50
148	Bhadar - I	106.07	107.90	107.30	107.60	107.90		107.90
149	Bhadar - II	42.43	53.10	50.50	51.00	52.00		53.10
150	Machchhu-II	51.20 49.07	57.30	57.00	57.30	57.30		57.30
151	Aji-III	44.92	53.15	52.55	52.85	53.15		53.15

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2014 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
152	Moj	71.02	72.54	72.54	72.54	72.54		72.54
153	Venu-II	48.91	55.00	54.00	54.50	55.00		55.00
154	Nyari-II	82.40	88.50	88.50	88.50	88.50		88.50
155	Karmal	162.90	169.00	168.70	169.00	169.00		169.00
157	Karnuki	161.45	164.50	163.50	164.00	164.50		164.50
163	Aji - II	67.66	73.76	73.70	73.76	73.76		73.76
164	Demi - II	41.90	48.00	47.70	48.00	48.00		48.00
165	Chhaparwadi-II	90.15	98.38	98.00	98.38	98.38		98.38
166	Ghodadhroi	92.20	98.30	98.00	98.30	98.30		98.30
168	Khodapipar	52.22	55.27	55.20	55.27	55.27		55.27
169	Survo	93.75	99.85	99.00	99.50	99.85		99.85
170	Dondi	100.67	103.72	102.80	102.80	102.80		102.80
		Remark: 102.80m restricted due to protection work of U/S village Mota Vada is not completed due to agitation by the villagers.						
182	Sukhbhadar	103.10	109.20	108.20	108.70	109.20		109.20
183	Nyka (Wadhavan Bhogavo-I)	99.36	101.80	101.80	101.80	101.80	101.80	101.80
		Remark: 20 No. of gates are vertical, 14 No. of gates are automatic						
186	Nimbmani	131.45	134.50	134.20	134.50	134.50		134.50
187	Lim-Bhogavo-II	69.90	76.00	74.50	75.00	75.45		75.45
		Remark: Restricted level upto FSL of Botad branch canal						
197	Khedva	253.60	259.70	255.00	257.00	257.50		258.25
		Remark: Reservoir is not proposed to be filled up to FRL 259.70 m. as the rehabilitation of people under submergence is yet not completed.						

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2014 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
198	Sabali	40.70	43.75	41.50	42.50	43.50		43.75
199	Saran	33.95	37.00	36.50	36.50	37.00		37.00
200	Brahmani-II	36.27	44.50	42.50	43.00	43.00		43.00
		Remark: Restricted level upto FSL of Dhagadhra branch canal and also khatedar has not shifting of village Sundergadh due to rehabilition problem						
201	Gorathiya (Mota Chekhala) Reachrge Scheme	105.25	110.43	105.25	106.25	108.25		110.43
		Remark: The water is stored upto RL 110.43m during monsoon-2013 and 110.10 m. during monsoon 2012.						
202	Varansi	76.43	81.00	76.43	79.50	80.00		81.00

ANNEXURE - 1-D

Accompaniment to G.O.I. C.W.C's letter No. L/25/86-DSS/509 dated 13th May 1986.

CRITERIA AND GUIDELINES FOR EVACUATING STORAGE RESERVOIR SIZING LOW LEVEL OUTLETS AND INITIAL FILLING OF RESERVOIRS.

General :

All dams should be provided with low level outlets of adequate capacity to lower the reservoir water level to a specified elevation for inspection, maintenance and repairs to control the rate of reservoir pool rise during initial filling and for emergency draw down.

The draw down levels and the evacuation time shall be set forth for each project.

Criteria for evacuating facilities.

For lowering the water level for inspection and repairs when necessary the requirement would be to evacuate a major portion of the reservoir in such time so that after the water level is lowered, sufficient time is available for repairs before the water level rises due to higher inflows. For such a consideration the outlets should be at the lowest possible level and sufficient cater for the anticipated inflows.

Other factors to be taken into account are:

1. To control the rate of reservoir rise during initial filling and if necessary subsequently also.
2. To hold the reservoir at pre-determined levels for stage-wise initial filling.
3. Emergency draw down during initial filling or at a future date when distress conditions are noticed.

The low level outlets should be sized to maintain specific reservoir filling rates and also to hold the reservoir level reasonably constant at specified elevations during initial filling to accomplish a predetermined monitoring programme. The period during which the initial reservoir filling is to be done has to be decided and a detail programme drawn up. Flood routing studies with different frequency floods (lower floods) will have to be done. As such the low level outlets works should have discharge capacity sufficient to maintain reservoir filling rate to a pre-specified programme and to hold the reservoir levels reasonably constant for elevations above fifty percent of the height. Inflows in the reservoir should include a reasonable frequently flood which would be dependent on the anticipated filling period.

The capacity and level of low level outlets for emergency draw down during initial filling or at a future date when distress conditions are noticed has to be evaluated in each individual case separately.

For Structural safely the reduction in height of water which gives relief is important. For very large reservoirs this would mean very large capacity outlets for prompt evacuation. Sizing of outlets works should be accomplished in a systematic way considering the following aspects.

1. Project release requirements.

2. Economic benefits that can be derived from using the outlet works in routing the inflow design flood. This study may result in increase in outlet works capacity.

3. Initial filling required.

4. Evacuation Criteria:- This study to meet the evacuation criteria may result in further increase in capacity which may turn be beneficial in routing the inflow design flood.

5. After the above requirements are satisfied a study to take the advantage of the outlets works capacity for diversion requirements during construction and the multistage construction of outlet works is made.

Initial Filling of Reservoirs :

Initial reservoir filling is the first test of a dam to perform its, intended functions. As the sizing of the outlet works to meet the probable outflow requirements during initial filling has to be fixed during designs. The information on the desired rates of pool rise must also be available at the time their design requirements are established.

In order to monitor reservoir performance, the rate of filling should be controlled to the extent feasible to allow in accomplishing a pre-determined monitoring programme. Low level outlets should be located and sized to provide discharge capacity sufficient to maintain the reservoir filling rates specified by the initial filling criteria to hold reservoir levels reasonably constant for elevation above 50 percent of the hydraulic heights of the dam. Inflow into the reservoir should be assumed as the average of the mean monthly inflow in the selected filling period and reasonable frequency flood.

Reservoir filling criteria are established on dam. In general the objective as already stated above is to provide a planned programme with adequate time for monitoring and evaluating performance of the dam and its foundation as the reservoir is being filled for the first time.

The major factors to be considered in establishing initial filling criteria are as under:

1) Type of dam namely Concrete, Earth and Rockfill.
2) Geology of the dam foundation and reservoir and land-slide potential along the banks of the reservoir.
3) Hazard potential
4) Inflow characteristics controlled or uncontrolled.
5) Hydrology - flood patterns and seasonal based flows.
6) Release provisions for projects requirements flood release and emergency evacuation.
7) Type of instrumentation and provision for monitoring reading and evaluation time needed and response time.
8) Safe channel capacities down stream of the dam.
9) Characteristics of reservoir Storage.

Filling rates for concrete dams are much less restricted and are not normally specified for the bottom half of the depth of the reservoir impounded of the dam. Broadly the stage wise filling to be done as under .

The first stage consists of filling the reservoir upto MDDL. This filling can be done without restraint as there is no hazard potential to the public and economic development downstream of the dam. The second stage consists of filling the reservoir from MDDL to the crest of the spillway. The rate of the filling should be controlled and it has to be specified. The third stage consists of filling above the crest of the spillway upto the full reservoir level (FRL) which has also to be conducted in stages.

Concrete Dams

The first stage consists of filling the reservoir upto Minimum Draw Down Level (MDDL). This filling can be done without restraint.

The second stage consists of filling the reservoir from MDDL to the crest of spillway. The reservoir above MDDL should be gradually built up at a rate not exceeding 3 meters per fortnight depending upon the height of the dam and held at the level of crest of spillway in order to assess the behaviour of the structure on the basis of observed data and to take a decision about further storage.

This third stage consists of filling above the crest of the spillway and upto full reservoir level (FRL). Above the crest level of spillway the building upto the reservoir should be restricted to 0.3 meters (1 ft) in 48 hours and the same should be temporarily held at half the height between the crest of spillway and FRL to monitor and assess the behaviour of structure before further filling is resumed. The period for which the reservoir is held at this level will depend on the instrument response time.

In case of concrete dams having high earthen flanks the procedure suggested for earthen dams should be followed.

Earthen Dam :

The first stage consists of filling the reservoir upto MDDL. This filling can be done without restrain.

The second stage consists of filling the reservoir from MDDL to the crest of spillway. In case of earthen and rockfill dam, this stage filling shall be done in two parts.

The reservoir above MDDL should be gradually built at a rate not exceeding 3 meters per fortnight and filling should be temporarily stopped at 50 percent elevation from MDDL to crest of spillway in order to assess the behaviour of the structures on the basis of observed values and to take a decision about further storage.

After a decision is taken to continue the filling further building upto the storage should be done in gradual sub stage of 2 to 3 meters depending upon the height of the dam. Observations of pore pressure cells, uplift pressures, seepage quantum other instrumentation data should be carried out at each stage after allowing a suitable establishing period before going on to the next sub stage of filling.

The third stage consists of filling above the crest of the spillway upto the full reservoir level (FRL).

The rate of reservoir filling crest of spillway should be restricted to 0.3 meters (1 feet) in 48 hours. the reservoir should be temporarily held at half the height between FRL and crest of spillway for sufficient time for monitoring and evaluation performance of dam also taking into account instrument response time and to take a decision about further storage.

Evacuation Time :

Guidelines on this aspect should generally take into account the assessment of hazard potential and risk potential of the dam. However, in the Indian conditions where population growth in downstream areas is not controllable the hazard potential at the initial stage and its subsequent increase can not be assessed. In most cases, the dams would come under high hazard category.

Similarly risk is very difficult to classify because of many combinations of adverse conditions that may be involved at particular dam site and the type of dam.
Classification is also recommended to be based on the height of dams so far as determination of risk potential is concerned and dams with a height of more than 50 meters are to be considered more important than those of height less than 50 meters.

For evacuating storage reservoirs sizing low-level outlets, three categories have been suggested is given in the table below. These assume a general balance between hazard and risk could be adjusted on the basis of detailed site specific studies.

Evacuation Time (in days):

Sr. No	Depth of Evacuation (from initial pool level)	Degree of Hazard or risk (Evacuation time in days)		
		High	Significant	Low
1.	25 percent	20	30	50
2.	50 percent	40	50	70
3.	75 percent	80	90	100

The above evacuation periods would generally be within the overall requirement to draw down the reservoir within a period of one to four months allowing sufficient time for carrying out inspection and repairs, before the water level rises due to higher inflows of monsoon.

In some exceptional case it may not be technically possible and economically feasible to provide the required draw down capability to meet the above criteria because of the size of the project (unusually small or large) or because some of special feature. In such a case the criteria regarding draw down level or the evacuation time could be altered to suit the site specific case if the result of studies so indicate.

ANNEXURE - 1 (F)

Hourly Information to be submitted to the concern Chief Engineer & Add. Secretary, Chief Engineer (Central Gujarat) & Add. Secretary & Flood Control Cell, Gandhinagar.

District :- **Date :**

Name of Scheme :-
& Scheme No. :-

Rule Level :-

Full Reservoir Level :-

Date & Time (1)	PWL in Meter (2)	Gate Position No. (3)	Gate Position Opening in Mt (4)	Inflow (Cumecs) (5)	Outflow (Cumecs) (6)	Remarks (7)
08.00						
09.00						
10.00						
11.00						
12.00						
13.00						
14.00						
15.00						
16.00						
17.00						
18.00						
19.00						
20.00						
21.00						
22.00						
23.00						
24.00	And Up to 07.00 Hrs. of Next Day.					

Seal and Signature of
Superintending Engineer
Ukai Circle (Civil), Ukai

ANNEXURE - 1 (G)

Maximum Release Made After the Year 1990 in Major Dams of The Gujarat State

Sr. No.	District	Name of Dam	Date	Maximum Flood Discharge in Cumecs
1	Valsad	Damanganga	03-08-2004	17443.00
2	Tapi	Ukai	09-08-2006	25774.00
3	Narmada	Sardar Sarovar	07-09-1994	62296.00
4.	Narmada	Karjan	19-06-1994	4451.00
5	Chhotaudepur	Sukhi	23-08-1990	3510.00
6	Dahod	Kadana	12-08-2006	27079.00
7	Panchmahals	Panam	07-09-1994	9590.00
8	Mahisagar	Wanakbori	12-08-2006	32568.00
9	Aravalli	Watrak	07-09-2006	3398.00
10	Mehsana	Dharoi	17-07-1993	8920.00
11	Banaskantha	Dantiwada	07-09-2006	6800.00
12	Rajkot	Bhadar	07-08-2007	4496.00
13	Morbi	Machchhu-II	15-07-1994	3205.00
14	Bhavnagar	Shetrunji	30-07-2006	3024.00
15	Banaskantha	Sipu	09-07-2007	566.33
16	Aravalli	Hathmati	19-08-2006	365.66
17	Aravalli	Meshwo	20-08-1994	155.02
18	Jamnagar	Und-I	14-07-1994	6900.00
19	Morbi	Machhu-I	18-09-2008	1297.00