

RESOLUTION NO. 003-1209
December 10, 2009 – 84th Board Meeting
APPROVAL OF THE NEW ANGAT RESERVOIR OPERATION RULES

WHEREAS, the operation and management of the Angat reservoir as multipurpose dam for municipal, irrigation, power and flood control uses, is governed by the Angat Reservoir Operation Rules;

WHEREAS, the existing operation rule curves for Angat Reservoir agreed upon by MWSS, NIA, NPC and NWRB was approved by the Board last December 14, 1998 and its operation criteria was modified last February 19, 2004 thru Resolution No. 004-2004 with criterion No. 2 amended pursuant to resolution No. 004-0406 dated April 28, 2006 for effective utilization and allocation of water in the dam;

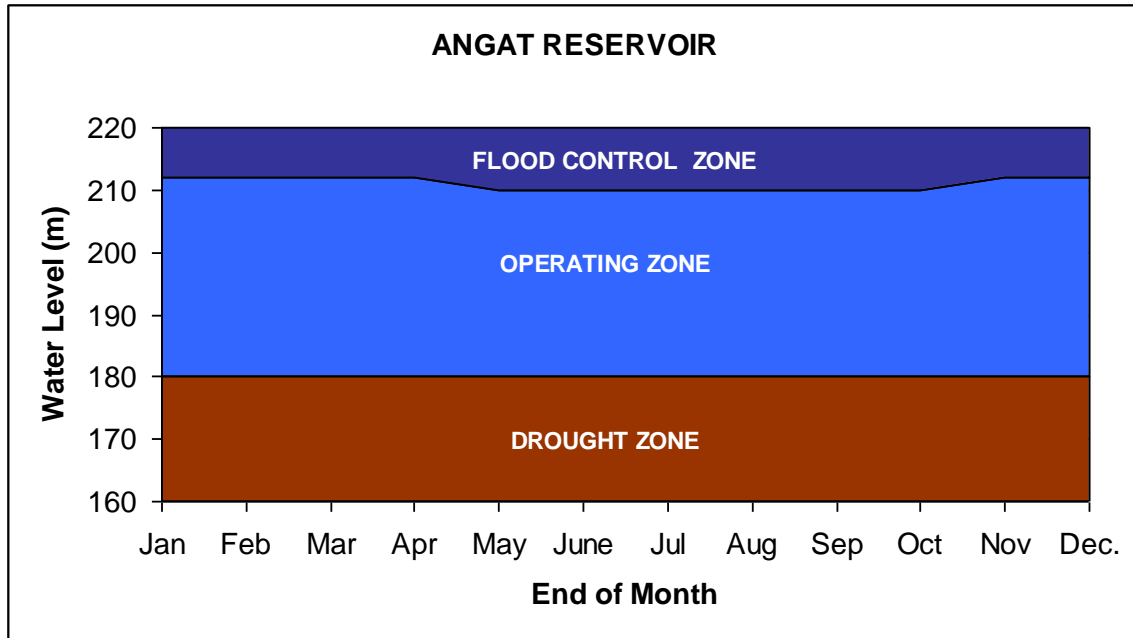
WHEREAS, due to the increasing demand from the Angat reservoir, occurrence of extreme climatic event and the contribution of Umiray water into the Angat reservoir, the said operation rules has to be revised;

WHEREAS, the NWRB staff in consultation with the members of the Technical Working Group (MWSS, NIA, NPC, PAGASA and NWRB as chair) developed a new Angat Reservoir Operation Rules for the Optimum benefits from the reservoir;

NOW THEREFORE, BE IT RESOLVED, AS IT IS HEREBY RESOLVED, to adopt the Operation Rule For Angat Reservoir, as follows:

OPERATION RULES FOR ANGAT RESERVOIR

1. The reservoir is divided into three zones, as follows:
 - a. **Flood Control Zone** - is the reservoir storage above the normal high water levels (NHWL) which is set at Elev. 212 M (Dec. 1 – April 30) during non-flood season and Elev. 210 M during flood season (May 1 – October 31).
 - b) **Operating zone** – is the reservoir storage bounded by the NHWL and the minimum water supply level which is set at Elev. 180M.
 - c) **Drought zone** – is the reservoir storage from Elev. 180 and below.



2. The reservoir operational plans shall be prepared by the TWG and approved by the NWRB for more efficient management of the reservoir and for stable water supply. The reservoir operational plan intervals are the following:
 - a) Annual Operational Plan – Annual plan at the start of the cropping operation in November
 - b) Seasonal Operational Plan – Seasonal plan to consider the seasonal cropping operations of NIA-AMRIS.
 - c) Monthly Operational Plan – Monthly plan to incorporate changes in hydrological and climatic conditions;
 - d) 10-day Operational Plan or as needed – to incorporate changes in flow duration, and request by the users and concerning agencies.
3. All water releases from the reservoir, in principle, shall be made by the turbine discharges and must be recommended by the TWG and approved by the NWRB; except when the water level is above the NHWL.
4. When water level is above the NHWL, the reservoir operations shall be in accordance with the flood operation rule. The TWG shall review the flood operation plan of the Flood Forecasting and Warning System for Dam Operations (FFWSDO) before the operations commence. Monitoring report shall be submitted to the NWRB Board.
5. When there is sufficient available water supply from the reservoir as determined by the NWRB, all of the water requirements of municipal and irrigation uses shall be

satisfied. However, during periods when there is deficit in the available water supply, the water releases for municipal and irrigation uses shall be reduced in accordance with the Philippine Water Code.

6. The water level of the reservoir at any given time shall not be allowed to fall in the drought zone or below Elev. 180 M; except during critical water shortages where the water releases shall be made on the following order of priority: 1) Municipal use ii) irrigation use, iii) river maintenance.
7. Requests for additional water releases for power generation or for the maintenance of the minimum elevation of Bustos Dam and Ipo Dam shall be subject to the approval of NWRB.
8. When the water level is within the operating zone and there is incoming weather disturbance, pre-release shall be allowed provided that the flood operation shall not adversely affect the requirements of the water supply and its recovery to its full capacity. The Operator/FFWSDO shall submit to NWRB for approval the flood operation plan indicating the volume of water to be released and its release time.
9. NWRB approval is not required for water releases during emergency reservoir operation. Provided that the water releases as determined by the Operator shall not adversely affect the requirements of water supply, in normal operation and the recovery of the reservoir to its full capacity. The operational procedures of such emergency shall be reviewed by the TWG for appropriate water level reduction. The emergency reservoir operation are defined as follows:
 - a) **Black start** – In time of system black out, the plant may be dispatched for immediate restoration of power to the Luzon Grid.
 - b) **Major earthquake** - After major earthquake, when safety of the dam is at stake, the reservoir must be lowered at a safe reservoir level as determined by the Operator.
 - c) **Abnormal seepage** – When abnormal seepage is observed that might compromise the safety of the dam, reservoir water level must be lowered as determined by Operator to relieve the dam/dyke from high hydraulic pressure.
10. The TWG shall review the Angat Reservoir operation rules every 5 years or whenever necessary to incorporate the long-term changes in hydrological conditions and to improve the operation with advanced technology and state-of-the art system. Any revision made on the operation rules is subject for NWRB approval.

This resolution supersedes NWRB Resolution No. 02-1298, 004-0204 and 004-0406.