

MEMORANDUM

Date: May 22, 2015
Subject: Cougar Creek Long Term Mitigation Measures
 Detail Design - Option A
 Structure Height
 IDF, Remaining Discharges, Channel Capacity

To: Town of Canmore
 BGC Engineering Ltd.

Prepared by: Henle/Scheikl

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01 Background and Purpose of the Memorandum

The Town of Canmore retained engineering services for the detail design of a flood retention structure proposed at creek station 2+900. This mitigation option was selected with a risk based decision-making process according to the Option Analysis Summary Report for Cougar Creek Long Term Mitigation (Town of Canmore January 13, 2015).

For determining the exact structure height, a more detailed hydrological investigation for deriving the IDF, the PMF needs to be performed. The setting of the remaining operating based bottom outflow discharge, which furthermore will be called **design outflow**, directly influences the structure height assuming a certain return period for the IDF scenario.

Because a risk-based approach is setting the hydrological characteristic of the structure, in terms of return period related remaining discharges and acceptable / not acceptable risk levels, some coordination between the design team and the Town of Canmore as well as with BGC Engineering Ltd. is currently in progress.

This memorandum summarizes following:

- (a) The preliminary results of a more detailed hydrological analysis, which is based on the hydrological analysis performed within the option analysis (ALPINFRA 2014).
- (b) Preliminary results showing remaining overall peak discharges related to flood retention structure heights and varying design outflow discharges.
- (c) A statement on the capacity of the channel, considering erosion stability issues and incidences potentially occurring at certain hydraulic load cases.

02 Hydrology

With a first refinement of the hydrological analysis a more detailed assignment of spatial runoff parameters and surface characteristics was done. In addition, a sensitivity check of parameters was used for setting up a more exact precipitation run-off calculation.

01 01 Inflow Hydrographs

The preliminary results of the first refinement of the hydrological analysis for rainfall scenarios with durations between 2 and 12 hours for return periods of 100years 300years and 1000years hydrological analysis are summarized at Table 1. The Hydrographs are shown in

Table 1: Summary of preliminary peak discharges for 100 to 1000year return period rainfall events.

Return period	Max. discharge 2 hours [m ³ /s]	Max. discharge 3 hours [m ³ /s]	Max. discharge 5 hours [m ³ /s]	Max. discharge 9 hours [m ³ /s]	Max. discharge 12 hours [m ³ /s]
100	102	97	76	60	53
300	126	113	97	71	65
1000	150	133	114	83	75

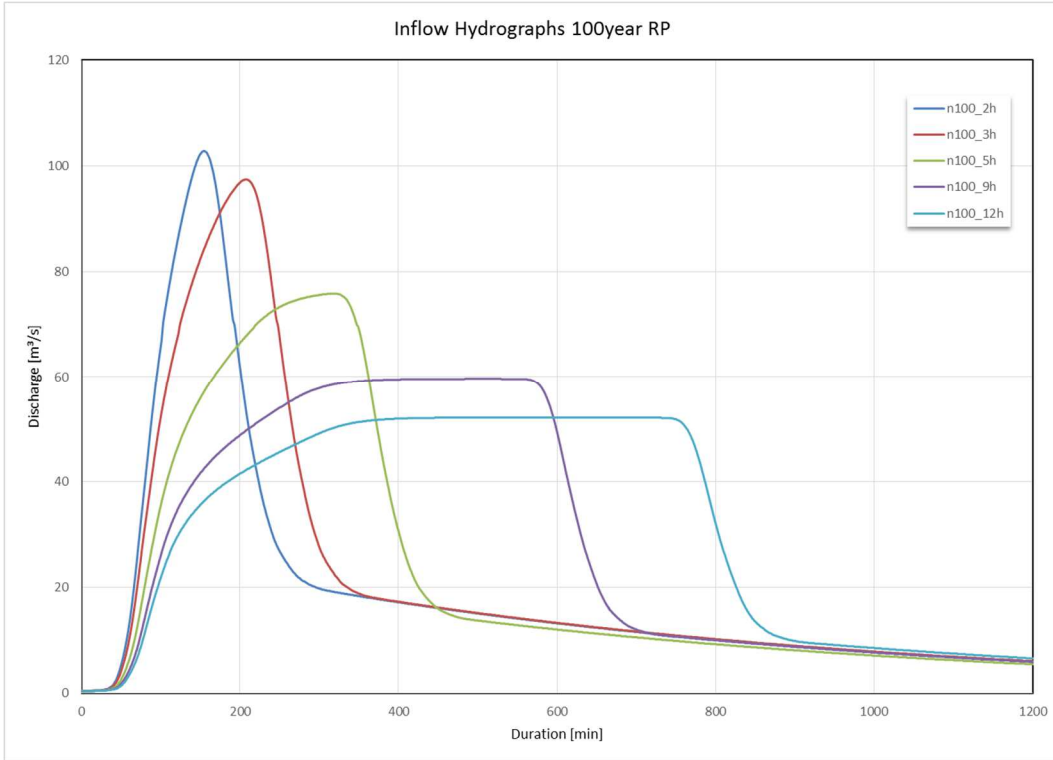


Figure 1: Inflow hydrographs for 100year return period rainfall events

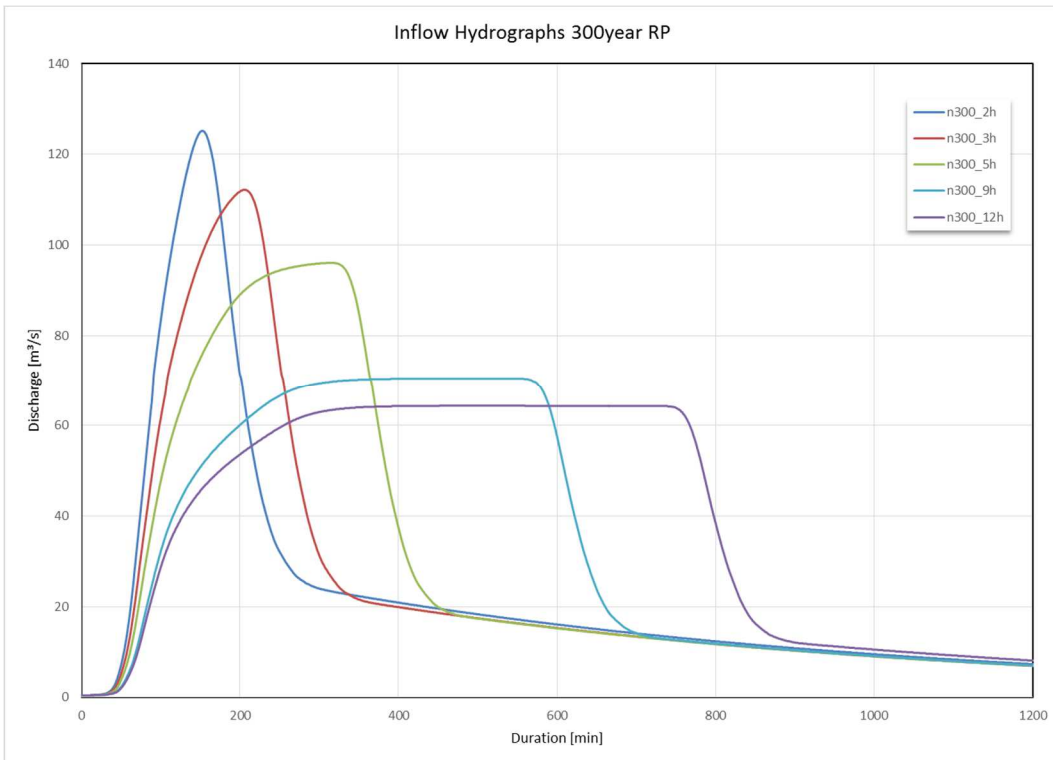


Figure 2: Inflow hydrographs for 300year return period rainfall events

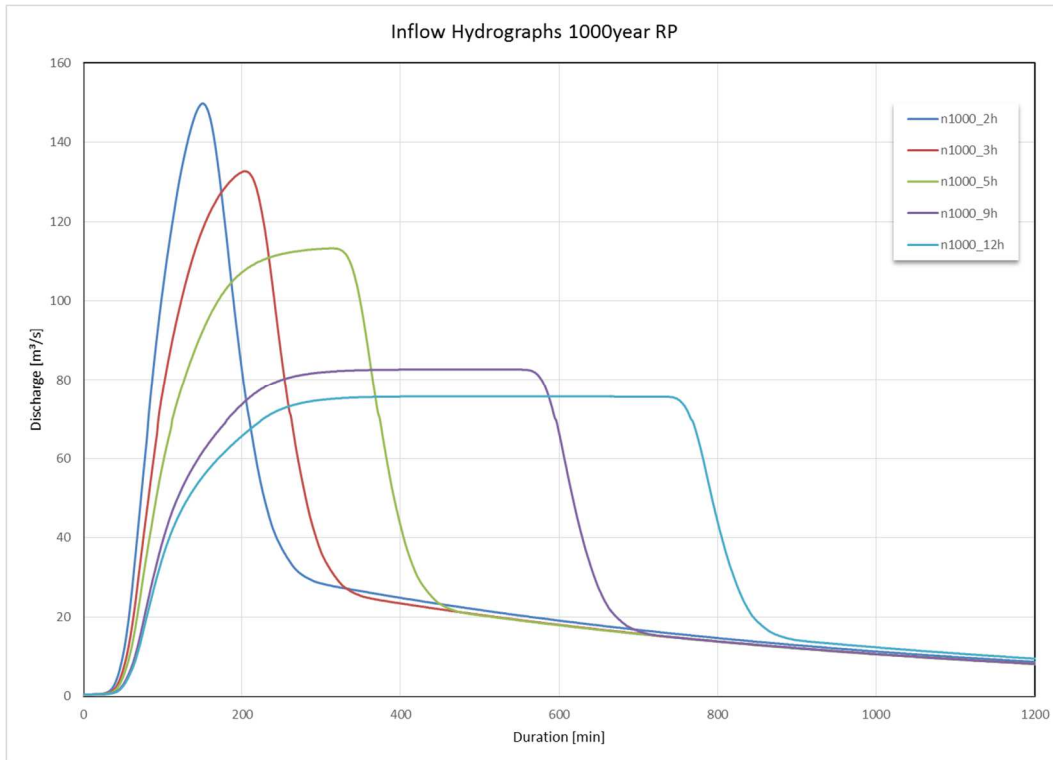


Figure 3: Inflow hydrographs for 1000year return period rainfall events

01 02 Storage Characteristics

The tables presented within the following chapters show the remaining peak discharges for structure height options 20m, 25m and 30m. It is highlighted which remaining discharge has to be taken into account assuming a throttle opening for 50m³/s, 60m³/s and 70m³/s.

We note that a design discharge of more than 60m³/s would result in grade control structures similar to those conceptualized for Option C (Option Analysis - ALPINFRA 2014).

The tables listed in the following chapters are highlighting the expected overall discharge and the related frequency per year for each setup (structure height and throttle setting).

We marked all remaining discharges **red**, which would very likely lead to severe damage at the channel possibly resulting in partial blockages at Elk Run Boulevard and partial blockage at free channel sections due to erosion of the banks, ripping out of major parts of the concrete mats. This would possibly lead to overtopping of the banks or even breaching at some sections but predominantly at Elk Run Boulevard and outside bends.

We marked all remaining discharges **orange**, which lead to an overload of the planned channel update to a capacity of 60m³/s, leading to small damages and less severe impairments.

The right column contains the recurrence frequency of the outlined scenarios.

01 01 01 20m high Storage

Bottom Outlet Design 50m³/s

Bottom outlet		50 m ³ /s	n= 100	Dam height 20 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	304	1441,1	61,8	20,1	Spillway	102,8	0,010	
n100_3h	97,4	311	1441,3	92,7	20,3	Spillway	97,4	0,010	
n100_5h	75,8	307	1441,2	75,7	20,2	Spillway	75,8	-	
n100_9h	59,7	303	1441,1	59,6	20,1	Spillway	59,7	-	
n100_12h	52,2	276	1440,2	49,1	19,2		49,1	-	
Bottom outlet 50 m³/s n= 300 Dam height 20 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	315	1441,4	114,4	20,4	Spillway	125,2	0,003	
n300_3h	112,2	315	1441,4	111,9	20,4	Spillway	112,2	0,003	
n300_5h	96,1	311	1441,3	96,1	20,3	Spillway	96,1	0,003	
n300_9h	70,5	306	1441,1	70,5	20,1	Spillway	70,5	-	
n300_12h	64,4	304	1441,1	64,4	20,1	Spillway	64,4	-	
Bottom outlet 50 m³/s n= 1000 Dam height 20 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	323	1441,6	147,6	20,6	Spillway	149,8	0,001	
n1000_3h	132,7	319	1441,5	132,6	20,5	Spillway	132,7	0,001	
n1000_5h	113,3	315	1441,4	113,3	20,4	Spillway	113,3	0,001	
n1000_9h	82,7	308	1441,2	82,7	20,2	Spillway	82,7	-	
n1000_12h	75,7	307	1441,2	75,7	20,2	Spillway	75,7	-	

Bottom Outlet Design 60m³/s

Bottom outlet		60 m ³ /s	n= 100	Dam height 20 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	262	1439,8	58,1	18,8		58,1	-	
n100_3h	97,4	305	1441,1	77,0	20,1	Spillway	97,4	0,010	
n100_5h	75,8	287	1440,6	59,4	19,6		59,4	-	
n100_9h	59,7	228	1438,7	56,0	17,7		56,0	-	
n100_12h	52,2	160	1436,1	51,3	15,1		51,3	-	
Bottom outlet 60 m³/s n= 300 Dam height 20 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	311	1441,3	105,6	20,3	Spillway	125,2	0,003	
n300_3h	112,2	312	1441,3	110,7	20,3	Spillway	112,2	0,003	
n300_5h	96,1	309	1441,2	96,1	20,2	Spillway	96,1	0,003	
n300_9h	70,5	304	1441,1	70,5	20,1	Spillway	70,5	-	
n300_12h	64,4	302	1441,0	64,3	20,0	Spillway	64,3	-	
Bottom outlet 60 m³/s n= 1000 Dam height 20 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	320	1441,5	145,6	20,5	Spillway	149,8	0,001	
n1000_3h	132,7	317	1441,4	132,6	20,4	Spillway	132,7	0,001	
n1000_5h	113,3	313	1441,3	113,3	20,3	Spillway	113,3	0,001	
n1000_9h	82,7	306	1441,1	82,7	20,1	Spillway	82,7	-	
n1000_12h	75,7	305	1441,1	75,7	20,1	Spillway	75,7	-	

Bottom Outlet Design 70m³/s – not recommended

Bottom outlet		70 m ³ /s	n= 100	Dam height 20 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	219	1438,4	64,8	17,4		64,8	-	
n100_3h	97,4	260	1439,7	67,6	18,7		67,6	-	
n100_5h	75,8	215	1438,2	64,5	17,2		64,5	-	
n100_9h	59,7	143	1435,4	58,3	14,4		58,3	-	
n100_12h	52,2	93	1432,8	52,1	11,8		52,1	-	
Bottom outlet 70 m³/s n= 300 Dam height 20 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	305	1441,1	87,3	20,1	Spillway	125,2	0,003	
n300_3h	112,2	309	1441,2	103,8	20,2	Spillway	112,2	0,003	
n300_5h	96,1	307	1441,2	96,1	20,2	Spillway	96,1	0,003	
n300_9h	70,5	253	1439,5	67,1	18,5		67,1	-	
n300_12h	64,4	202	1437,8	63,5	16,8		63,5	-	
Bottom outlet 70 m³/s n= 1000 Dam height 20 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	317	1441,4	141,6	20,4	Spillway	149,8	0,001	
n1000_3h	132,7	315	1441,4	132,5	20,4	Spillway	132,7	0,001	
n1000_5h	113,3	311	1441,3	113,3	20,3	Spillway	113,3	0,001	
n1000_9h	82,7	304	1441,1	82,7	20,1	Spillway	82,7	-	
n1000_12h	75,7	302	1441,0	75,7	20,0	Spillway	75,7	-	

01 01 02 25m high Storage

Bottom Outlet Design 50m³/s

Bottom outlet		50 m ³ /s	n= 100	Dam height 25 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	342	1442,1	46,0	21,1		46,0	-	
n100_3h	97,4	427	1444,3	48,2	23,3		48,2	-	
n100_5h	75,8	434	1444,5	48,4	23,5		48,4	-	
n100_9h	59,7	436	1444,5	48,5	23,5		48,5	-	
n100_12h	52,2	372	1442,9	46,8	21,9		46,8	-	
Bottom outlet 50 m³/s n= 300 Dam height 25 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	464	1445,2	49,2	24,2		49,2	-	
n300_3h	112,2	508	1446,2	79,3	25,2	Spillway	112,2	0,003	
n300_5h	96,1	512	1446,3	96,0	25,3	Spillway	96,1	0,003	
n300_9h	70,5	505	1446,1	70,5	25,1	Spillway	70,5	-	
n300_12h	64,4	503	1446,1	64,3	25,1	Spillway	64,3	-	
Bottom outlet 50 m³/s n= 1000 Dam height 25 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	516	1446,4	109,8	25,4	Spillway	149,8	0,001	
n1000_3h	132,7	522	1446,5	127,9	25,5	Spillway	132,7	0,001	
n1000_5h	113,3	517	1446,4	113,2	25,4	Spillway	113,3	0,001	
n1000_9h	82,7	509	1446,2	82,7	25,2	Spillway	82,7	-	
n1000_12h	75,7	507	1446,2	75,7	25,2	Spillway	75,7	-	

Bottom Outlet Design 60m³/s

Bottom outlet		60 m ³ /s	n= 100	Dam height 25 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	291	1440,7	53,3	19,7		53,3	-	
n100_3h	97,4	358	1442,6	55,7	21,6		55,7	-	
n100_5h	75,8	339	1442,1	55,1	21,1		55,1	-	
n100_9h	59,7	296	1440,9	53,5	19,9		53,5	-	
n100_12h	52,2	222	1438,5	50,2	17,5		50,2	-	
Bottom outlet 60 m³/s n= 300 Dam height 25 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	404	1443,8	57,3	22,8		57,3	-	
n300_3h	112,2	463	1445,2	59,0	24,2		59,0	-	
n300_5h	96,1	509	1446,2	92,8	25,2	Spillway	96,1	0,003	
n300_9h	70,5	475	1445,5	59,3	24,5		59,3	-	
n300_12h	64,4	443	1444,7	58,5	23,7		58,5	-	
Bottom outlet 60 m³/s n= 1000 Dam height 25 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	508	1446,2	91,7	25,2	Spillway	149,8	0,001	
n1000_3h	132,7	517	1446,4	120,3	25,4	Spillway	132,7	0,001	
n1000_5h	113,3	514	1446,3	113,2	25,3	Spillway	113,3	0,001	
n1000_9h	82,7	506	1446,1	82,7	25,1	Spillway	82,7	-	
n1000_12h	75,7	504	1446,1	75,7	25,1	Spillway	75,7	-	

Bottom Outlet Design 70m³/s – not recommended

Bottom outlet		70 m ³ /s	n= 100	Dam height 25 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	247	1439,3	59,9	18,3		59,9	-	
n100_3h	97,4	298	1440,9	62,5	19,9		62,5	-	
n100_5h	75,8	261	1439,8	60,7	18,8		60,7	-	
n100_9h	59,7	194	1437,5	56,8	16,5		56,8	-	
n100_12h	52,2	131	1434,8	51,7	13,8		51,7	-	
Bottom outlet 70 m³/s n= 300 Dam height 25 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	351	1442,4	64,8	21,4		64,8	-	
n300_3h	112,2	395	1443,5	66,5	22,5		66,5	-	
n300_5h	96,1	464	1445,2	68,9	24,2		68,9	-	
n300_9h	70,5	335	1442,0	64,1	21,0		64,1	-	
n300_12h	64,4	285	1440,5	61,9	19,5		61,9	-	
Bottom outlet 70 m³/s n= 1000 Dam height 25 m									
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	479	1445,5	69,4	24,5		69,4	-	
n1000_3h	132,7	509	1446,2	103,1	25,2	Spillway	132,7	0,001	
n1000_5h	113,3	512	1446,3	113,2	25,3	Spillway	113,3	0,001	
n1000_9h	82,7	503	1446,1	82,4	25,1	Spillway	82,7	-	
n1000_12h	75,7	489	1445,8	69,7	24,8		69,7	-	

01 01 03 30m high Storage

Bottom Outlet Design 50m³/s

Bottom outlet		50 m ³ /s	n= 100	Dam height 30 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	366	1442,8	42,7	21,8		42,7	-	
n100_3h	97,4	459	1445,1	44,9	24,1		44,9	-	
n100_5h	75,8	479	1445,5	45,3	24,5		45,3	-	
n100_9h	59,7	508	1446,2	45,9	25,2		45,9	-	
n100_12h	52,2	454	1445,0	44,8	24,0		44,8	-	
Bottom outlet		50 m ³ /s	n= 300	Dam height 30 m					
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	492	1445,8	45,6	24,8		45,6	-	
n300_3h	112,2	578	1447,7	47,2	26,7		47,2	-	
n300_5h	96,1	744	1450,8	49,9	29,8		49,9	-	
n300_9h	70,5	738	1450,7	49,8	29,7		49,8	-	
n300_12h	64,4	759	1451,0	60,0	30,0	Spillway	60,0	-	
Bottom outlet		50 m ³ /s	n= 1000	Dam height 30 m					
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	642	1448,9	48,3	27,9		48,3	-	
n1000_3h	132,7	752	1450,9	50,0	29,9		132,7	0,001	
n1000_5h	113,3	768	1451,3	113,1	30,3	Spillway	113,3	0,001	
n1000_9h	82,7	763	1451,1	82,7	30,1	Spillway	82,7	-	
n1000_12h	75,7	762	1451,1	75,7	30,1	Spillway	75,7	-	

Bottom Outlet Design 60m³/s

Bottom outlet		60 m ³ /s	n= 100	Dam height 30 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	316	1441,4	49,5	20,4		49,5	-	
n100_3h	97,4	392	1443,5	51,9	22,5		51,9	-	
n100_5h	75,8	387	1443,3	51,7	22,3		51,7	-	
n100_9h	59,7	365	1442,8	51,1	21,8		51,1	-	
n100_12h	52,2	293	1440,8	48,7	19,8		48,7	-	
Bottom outlet		60 m ³ /s	n= 300	Dam height 30 m					
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	434	1444,5	53,0	23,5		53,0	-	
n300_3h	112,2	503	1446,1	54,8	25,1		54,8	-	
n300_5h	96,1	629	1448,7	57,6	27,7		57,6	-	
n300_9h	70,5	563	1447,4	56,2	26,4		56,2	-	
n300_12h	64,4	549	1447,1	55,9	26,1		55,9	-	
Bottom outlet		60 m ³ /s	n= 1000	Dam height 30 m					
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	575	1447,6	56,5	26,6		56,5	-	
n1000_3h	132,7	667	1449,4	58,3	28,4		58,3	-	
n1000_5h	113,3	766	1451,2	108,3	30,2	Spillway	113,3	0,001	
n1000_9h	82,7	761	1451,1	82,3	30,1	Spillway	82,7	-	
n1000_12h	75,7	760	1451,1	75,6	30,1	Spillway	75,7	-	

Bottom Outlet Design 70m³/s – not recommended

Bottom outlet		70 m ³ /s	n= 100	Dam height 30 m			Overload	Rem. Discharge	frequency 1/years
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n100_2h	102,8	274	1440,2	56,0	19,2		56,0	-	
n100_3h	97,4	335	1442,0	58,4	21,0		58,4	-	
n100_5h	75,8	309	1441,2	57,4	20,2		57,4	-	
n100_9h	59,7	255	1439,6	55,1	18,6		55,1	-	
n100_12h	52,2	185	1437,1	51,0	16,1		51,0	-	
Bottom outlet		70 m ³ /s	n= 300	Dam height 30 m					
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	384	1443,2	60,2	22,2		60,2	-	
n300_3h	112,2	437	1444,6	62,0	23,6		62,0	-	
n300_5h	96,1	527	1446,6	64,6	25,6		64,6	-	
n300_9h	70,5	419	1444,1	61,5	23,1		61,5	-	
n300_12h	64,4	377	1443,1	60,0	22,1		60,0	-	
Bottom outlet		70 m ³ /s	n= 1000	Dam height 30 m					
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	517	1446,4	64,3	25,4		64,3	-	
n1000_3h	132,7	591	1447,9	66,3	26,9		66,3	-	
n1000_5h	113,3	734	1450,6	69,5	29,6		69,5	-	
n1000_9h	82,7	635	1448,8	67,3	27,8		67,3	-	
n1000_12h	75,7	614	1448,4	66,9	27,4		66,9	-	

03 Recommendation

Summarizing the investigated combinations for structure heights and bottom outlet design discharges, a reasonable flood retention would consist of following elements:

- (a) A retaining structure with a height of 26-27m, built as full overtopable embankment dam with a bottom outlet design discharge of 60m³/s.
- (b) A moderate channel update, consisting of grade control structures, predominately placed in the currently not reinforced channel bed. This structure would form a low- and mean water section for approximately 17m³/s and a secondary flow section for discharging up to 60m³/s (see Figure 4).

Table 2: Characteristic of the recommended retention structure

Bottom outlet		60 m ³ /s	n= 100	Dam height	26-27 m		Overload	Remaining Impact	Recurring frequency 1/a
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level			cms	
n100_2h	102,8	291	1440,7	53,3	19,7			53,3	-
n100_3h	97,4	358	1442,6	55,7	21,6			55,7	-
n100_5h	75,8	339	1442,1	55,1	21,1			55,1	-
n100_9h	59,7	296	1440,9	53,5	19,9			53,5	-
n100_12h	52,2	222	1438,5	50,2	17,5			50,2	-

Bottom outlet		60 m ³ /s	n= 300	Dam height	26-27 m				
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n300_2h	125,2	404	1443,8	57,3	22,8			57,3	-
n300_3h	112,2	463	1445,2	59,0	24,2			59,0	-
n300_5h	96,1	509	1446,2	60,0	25,2			60,0	-
n300_9h	70,5	475	1445,5	59,3	24,5			59,3	-
n300_12h	64,4	443	1444,7	58,5	23,7			58,5	-

Bottom outlet		60 m ³ /s	n= 1000	Dam height	26-27 m				
Flow	Inflow cms	Storage (1000m ³)	Elevation	Outflow cms	Water level				
n1000_2h	149,8	508	1446,2	60,0	25,2			60,0	-
n1000_3h	132,7	517	1446,4	120,3	25,4	Spillway		132,7	0,001
n1000_5h	113,3	514	1446,3	113,2	25,3	Spillway		113,3	0,001
n1000_9h	75,7	504	1446,1	75,7	25,1	Spillway		75,7	-
n1000_12h	82,7	506	1446,1	82,7	25,1	Spillway		82,7	-

This structure is capable to retain following precipitation related floods with a remaining peak discharge of 60m³/s:

- (a) All 100years return period, 2-12hours rainfall events
- (b) All 300years return period, 2-12hours rainfall events
- (c) A 1000years 2hours rainfall event

It would also retain:

- (d) The 1000years return period 9hours and 12hours rainfall event with a remaining peak discharge of up to approximately 83m³/s possibly leading to small impairments at the channel.

It would not retain greater events.

The capability of this structure to retain a landslide dam outbreak flood with a return period of at least 3000years will be investigated as soon as the relevant inflow hydrographs are available.

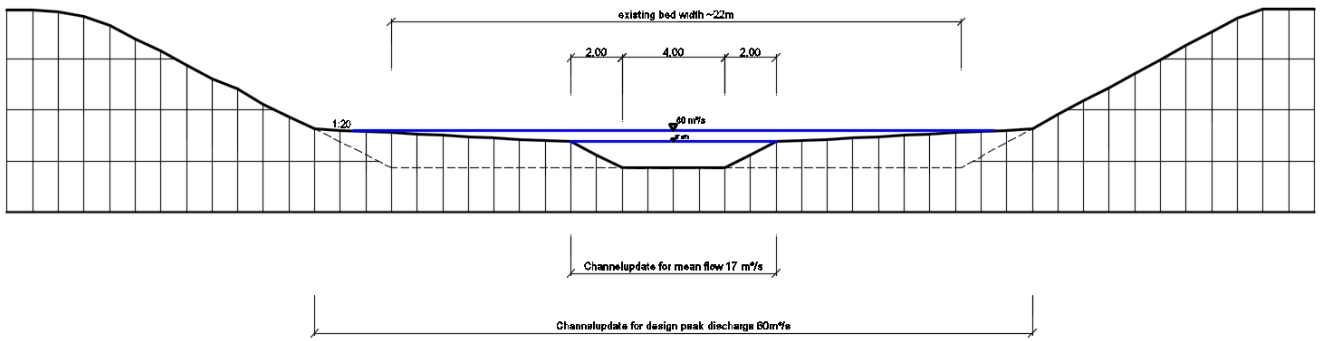
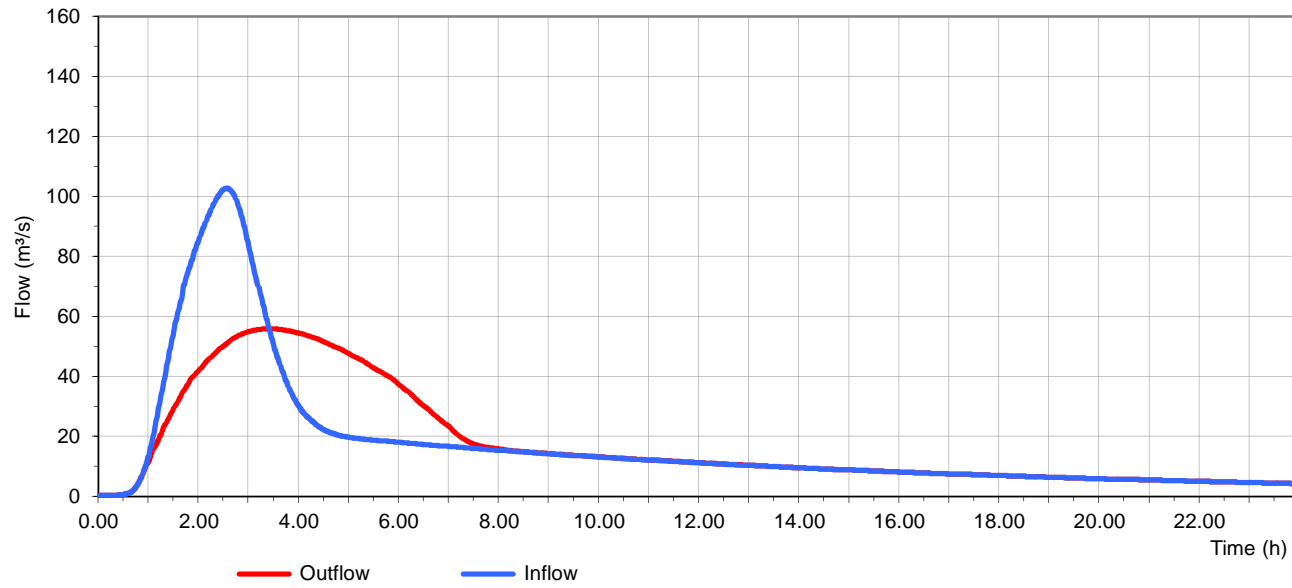
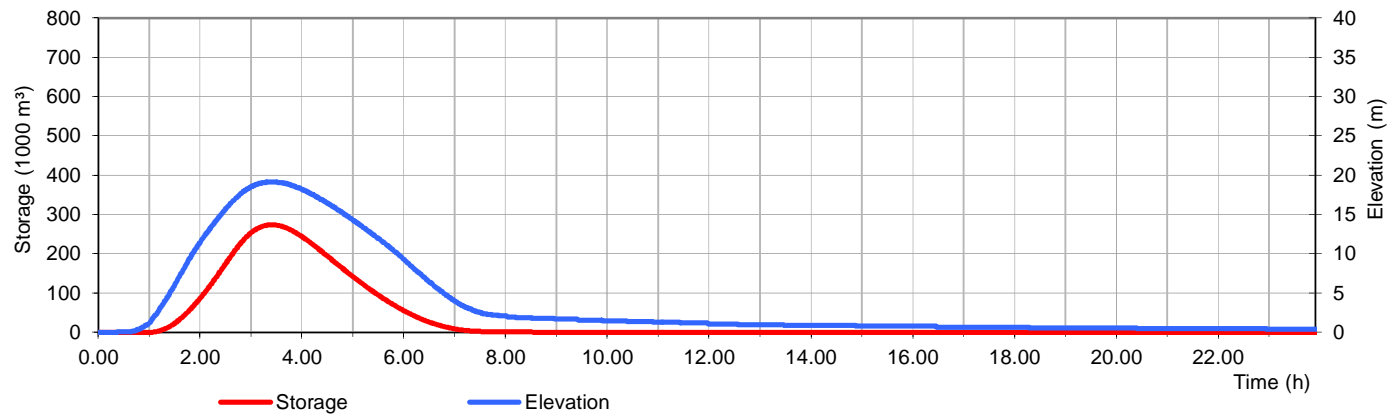


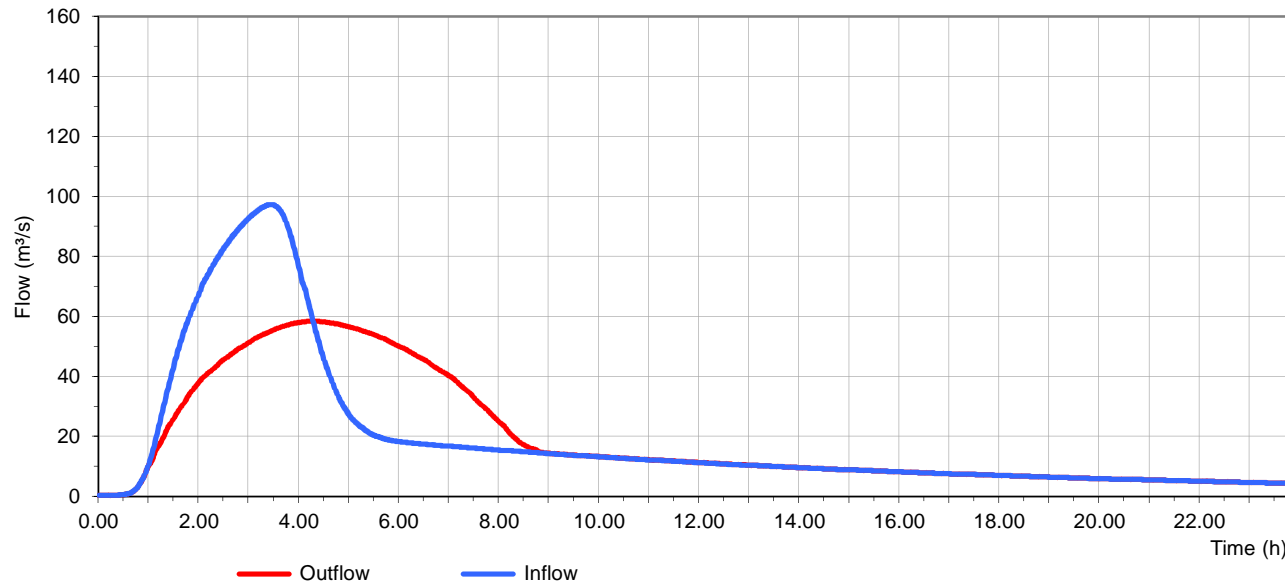
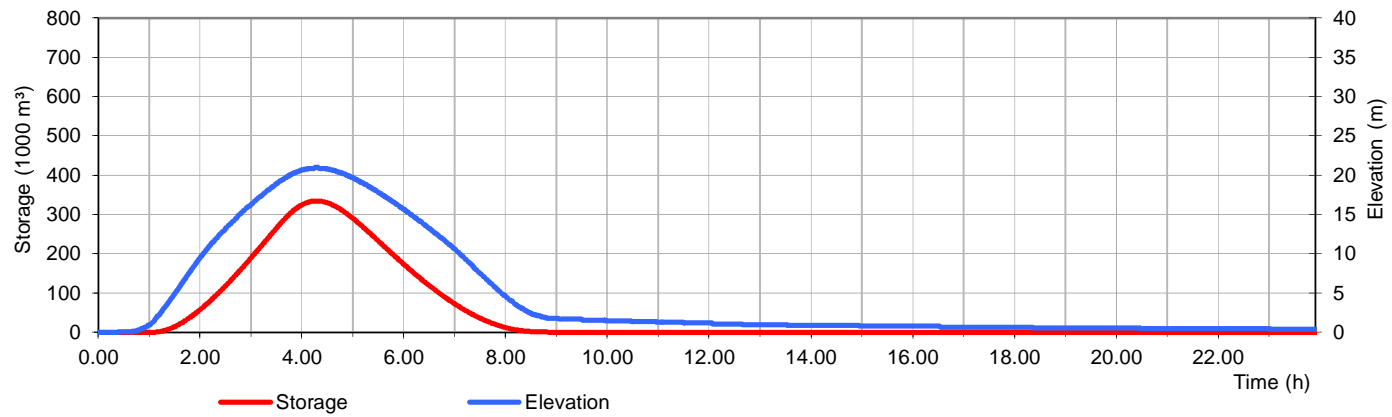
Figure 4: Preliminary layout of the channel update as basis for 2D-hydraulic calculations

Attachment: Inflow and outflow hydrographs for investigated dam heights and throttle settings, 135 pages.

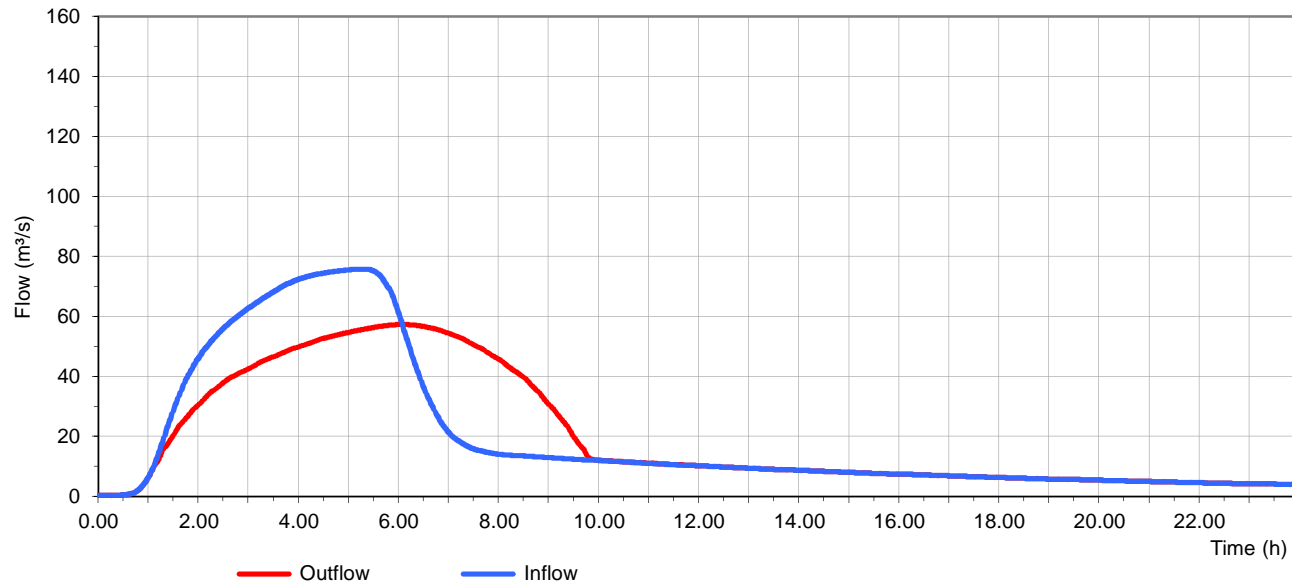
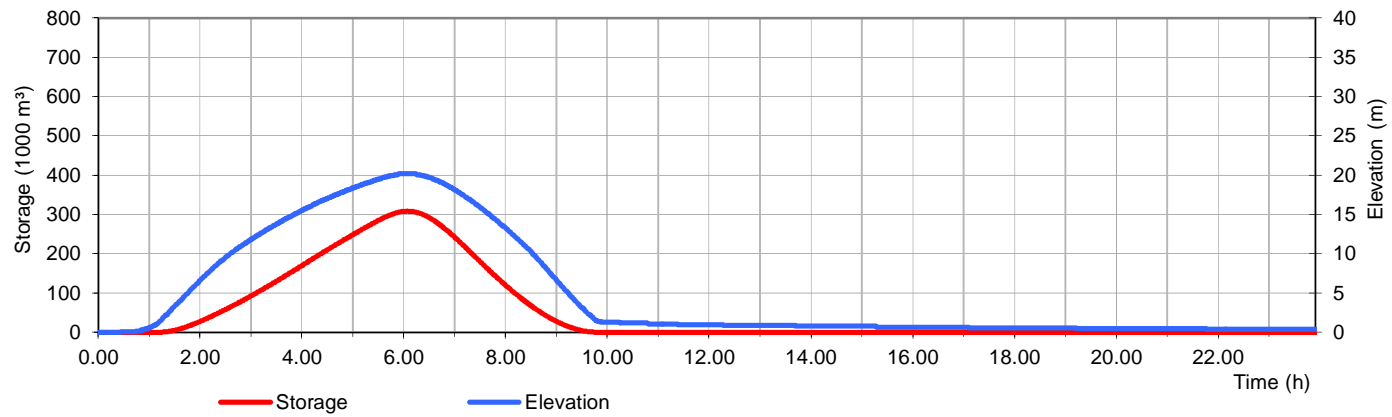


Flow	n100_2h
max. Inflow	102.80 m ³ /s
max. Outflow	56.00 m ³ /s
Elevation	24.20 m
Storage	274 300 m ³

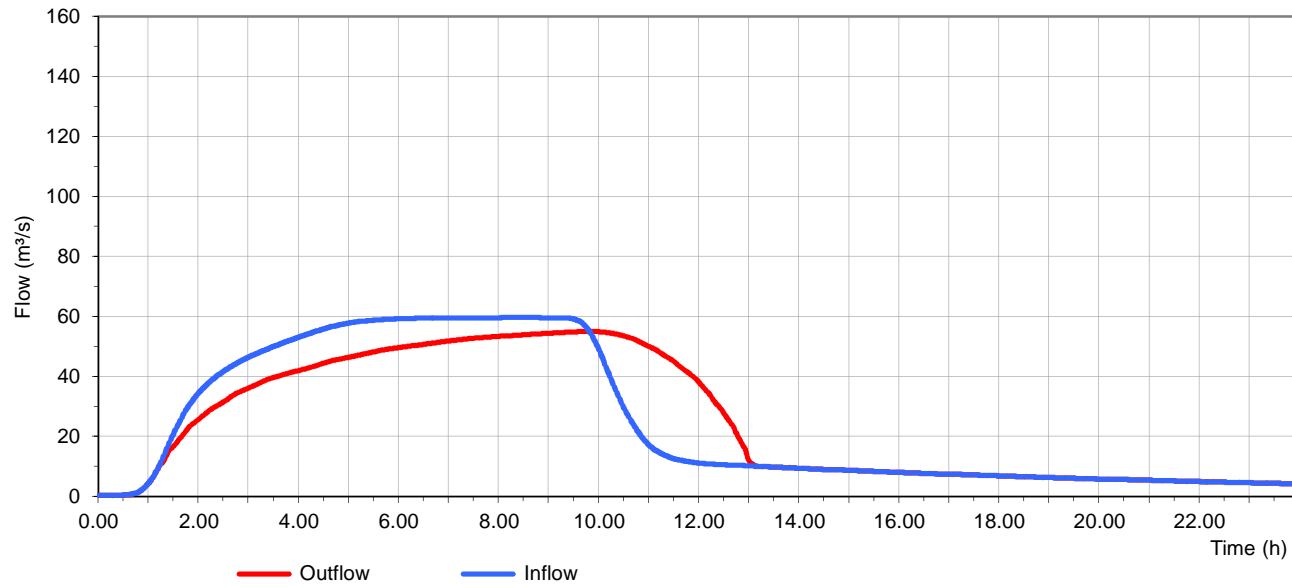
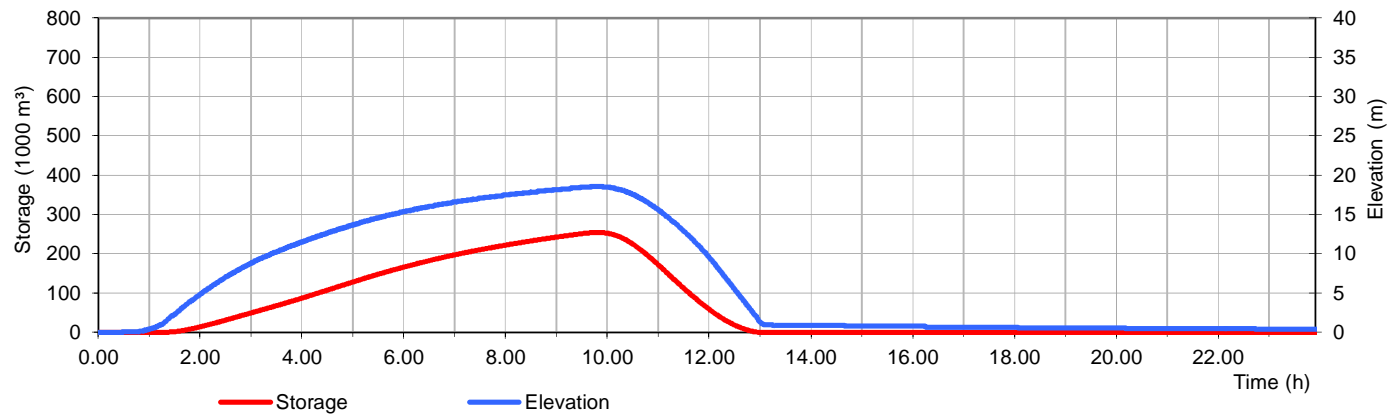
Dam high	30 m
Bottom outlet	70 m ³ /s



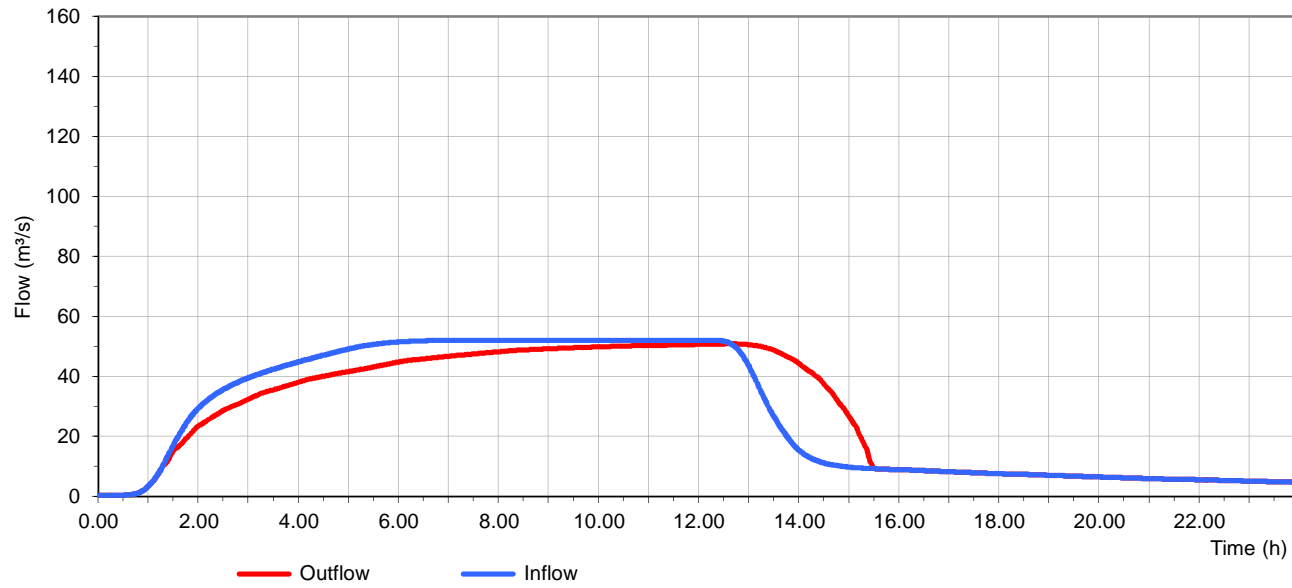
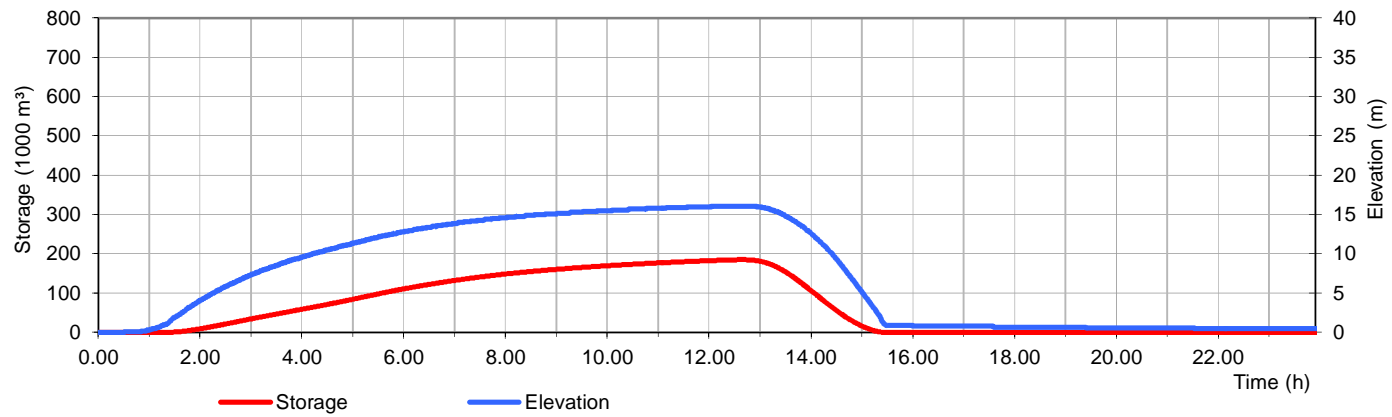
Flow	n100_3h	Dam high	30 m
max. Inflow	97.40 m³/s	Bottom outlet	70 m³/s
max. Outflow	58.40 m³/s		
Elevation	26.00 m		
Storage	335 000 m³		



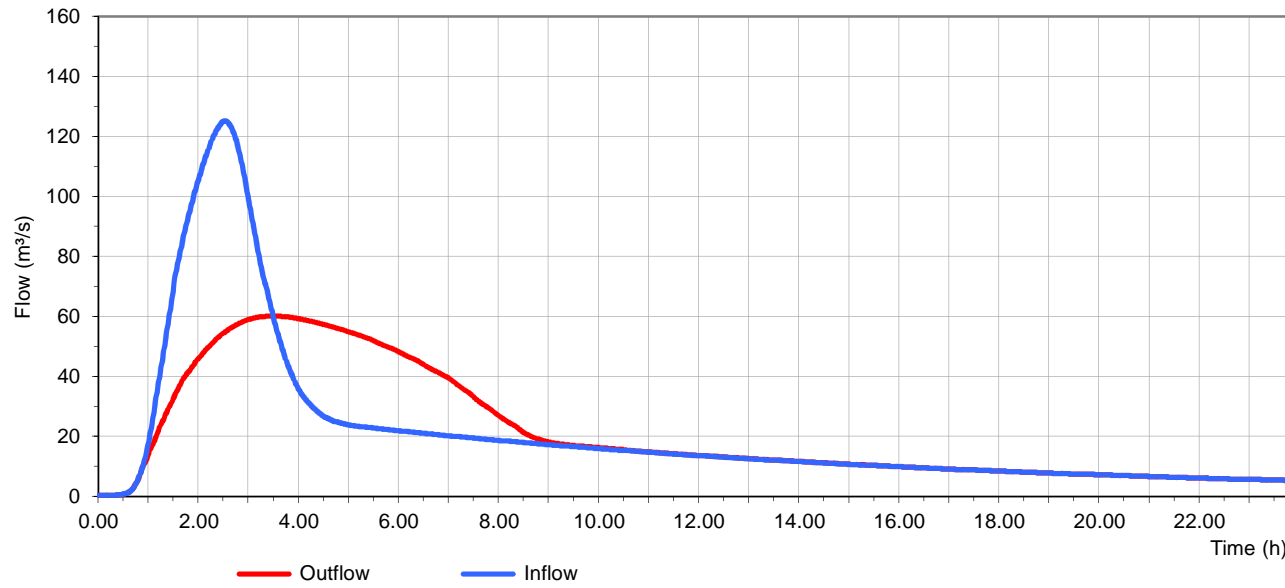
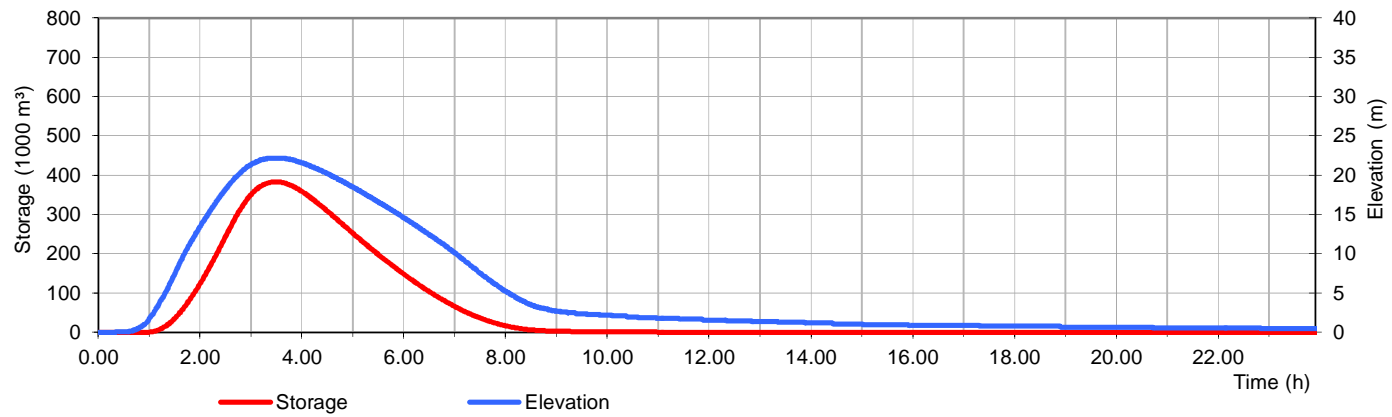
Flow	n100_5h	Dam high	30 m
max. Inflow	75.80 m³/s	Bottom outlet	70 m³/s
max. Outflow	57.40 m³/s		
Elevation	25.20 m		
Storage	309 200 m³		



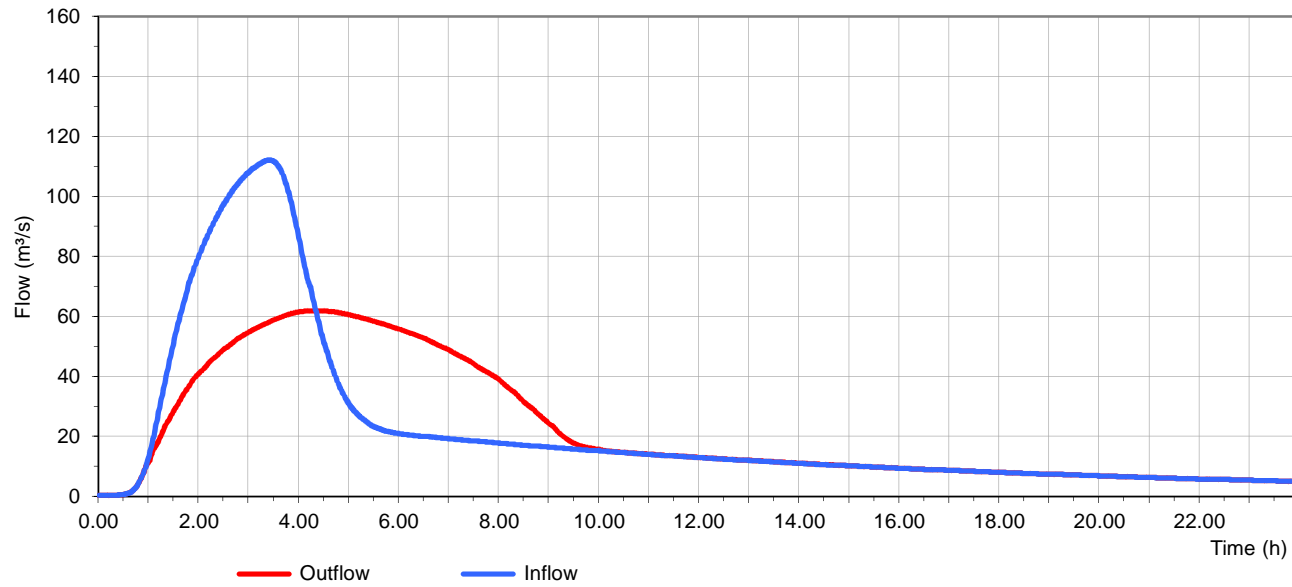
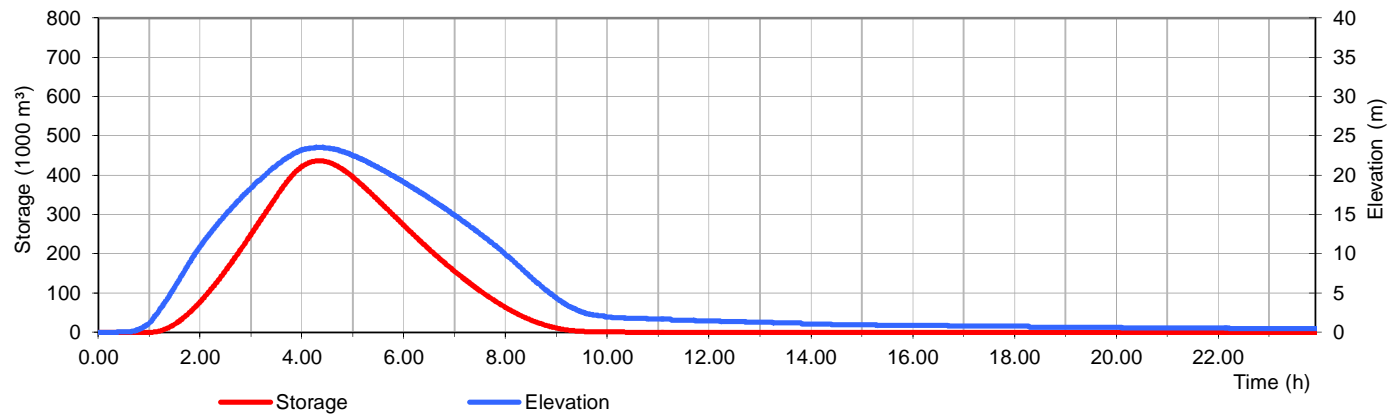
Flow	n100_9h	Dam high	30 m
max. Inflow	59.70 m ³ /s	Bottom outlet	70 m ³ /s
max. Outflow	55.10 m ³ /s		
Elevation	23.60 m		
Storage	254 700 m ³		



Flow	n100_12h	Dam hight	30 m
max. Inflow	52.20 m³/s	Bottom outlet	70 m³/s
max. Outflow	51.00 m³/s		
Elevation	21.10 m		
Storage	185 400 m³		

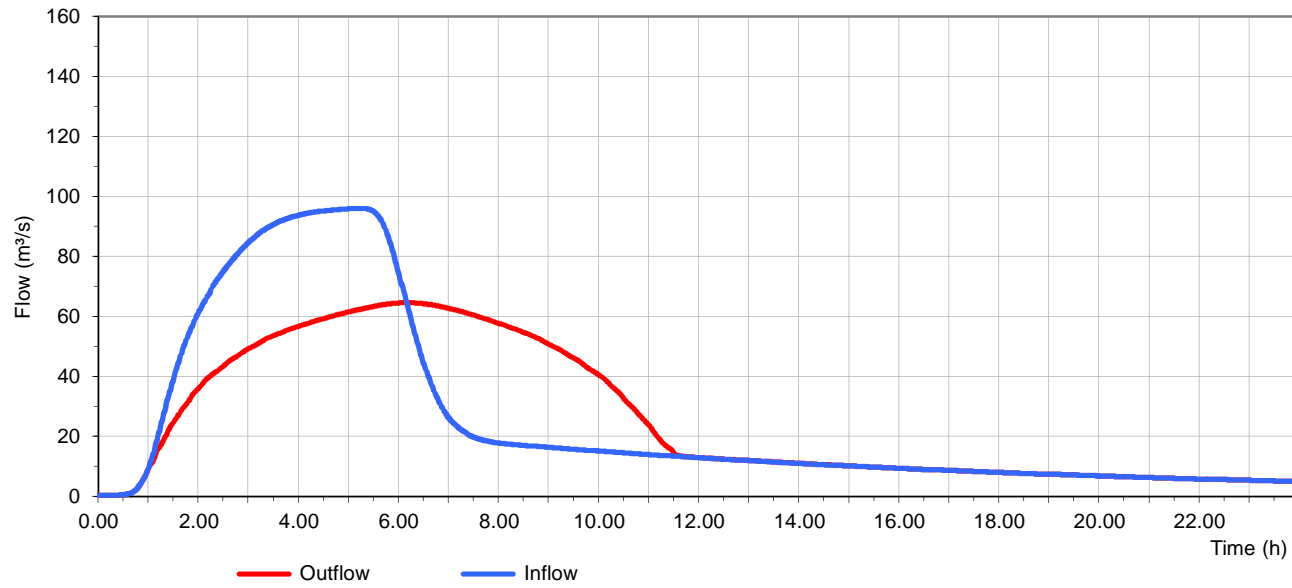
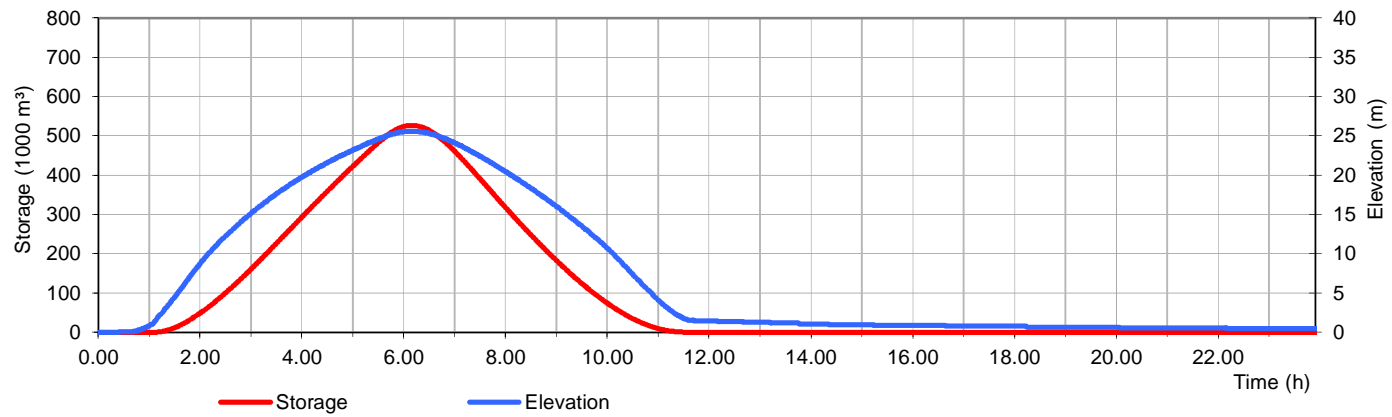


Flow	n300_2h	Dam high	30 m
max. Inflow	125.20 m³/s	Bottom outlet	70 m³/s
max. Outflow	60.20 m³/s		
Elevation	27.20 m		
Storage	383 700 m³		

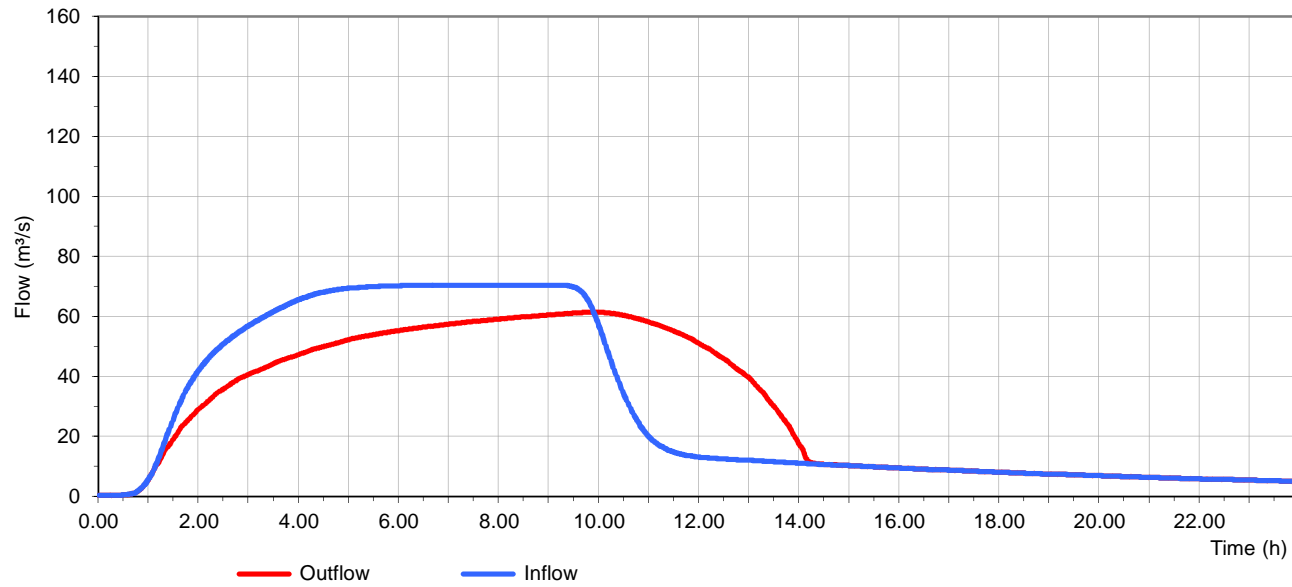
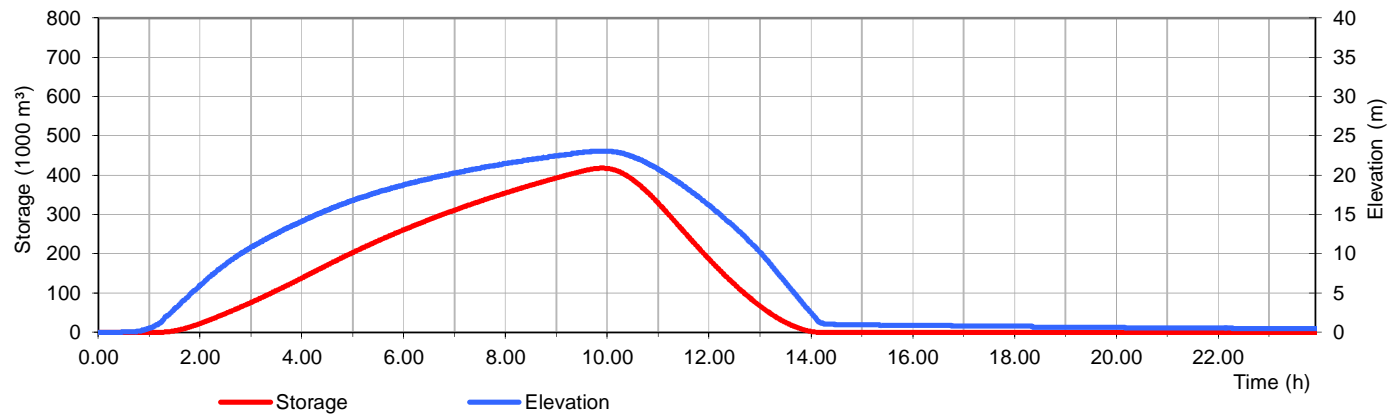


Flow **n300_3h**
 max. Inflow 112.20 m³/s
 max. Outflow 62.00 m³/s
 Elevation 28.60 m
 Storage 437 200 m³

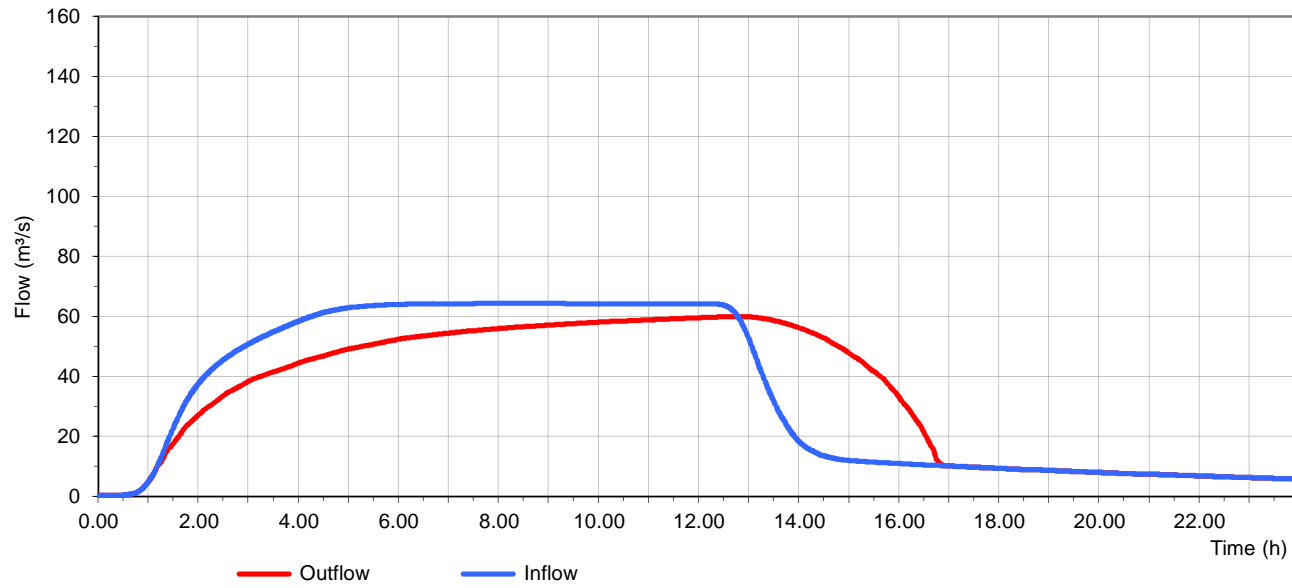
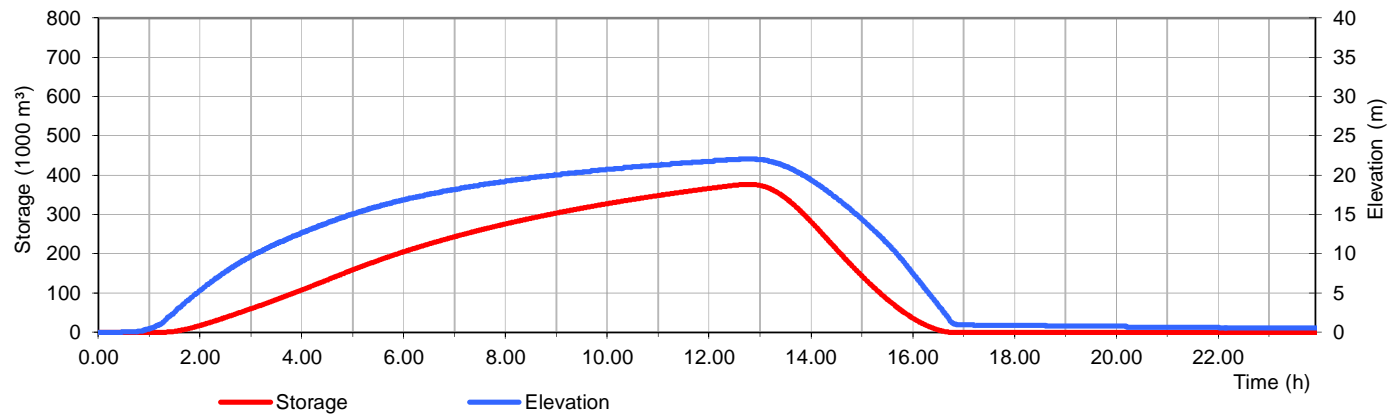
Dam high 30 m
 Bottom outlet 70 m³/s



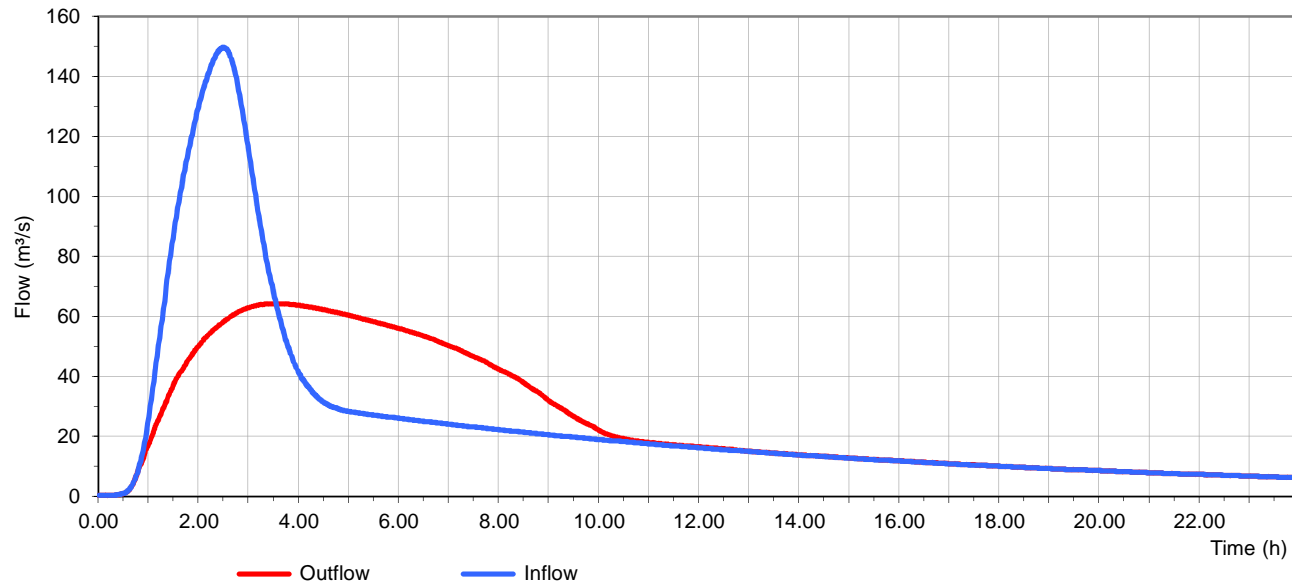
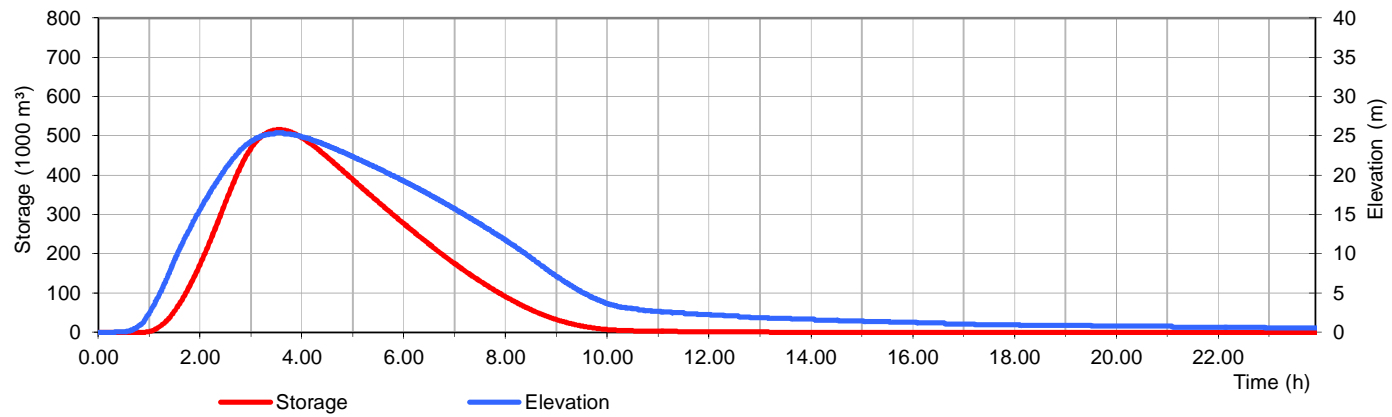
Flow	n300_5h	Dam high	30 m
max. Inflow	96.10 m³/s	Bottom outlet	70 m³/s
max. Outflow	64.60 m³/s		
Elevation	30.60 m		
Storage	527 400 m³		



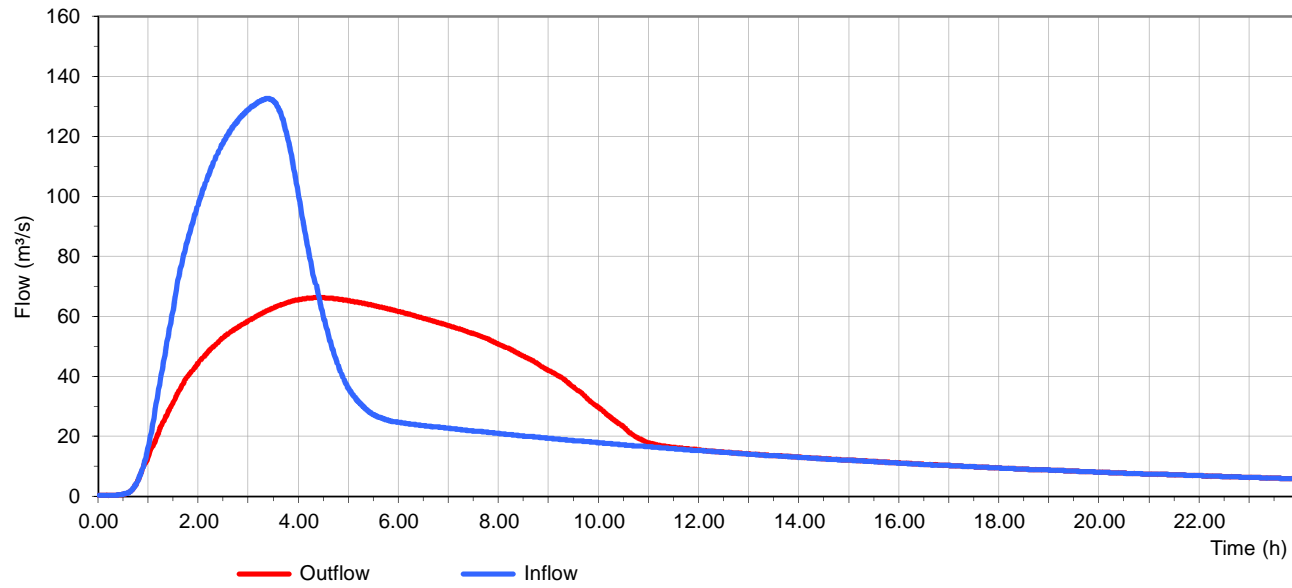
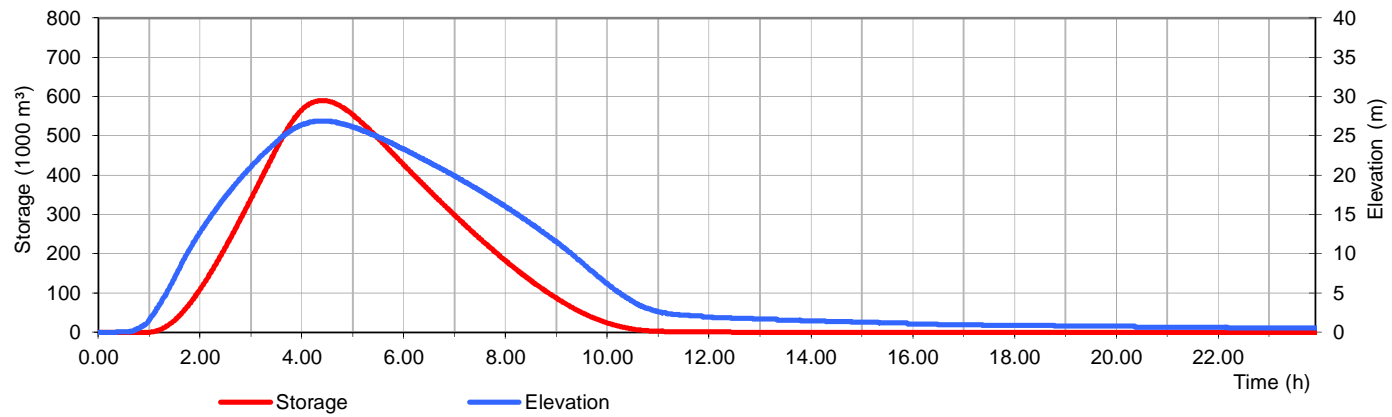
Flow	n300_9h	Dam high	30 m
max. Inflow	70.50 m³/s	Bottom outlet	70 m³/s
max. Outflow	61.50 m³/s		
Elevation	28.10 m		
Storage	418 500 m³		



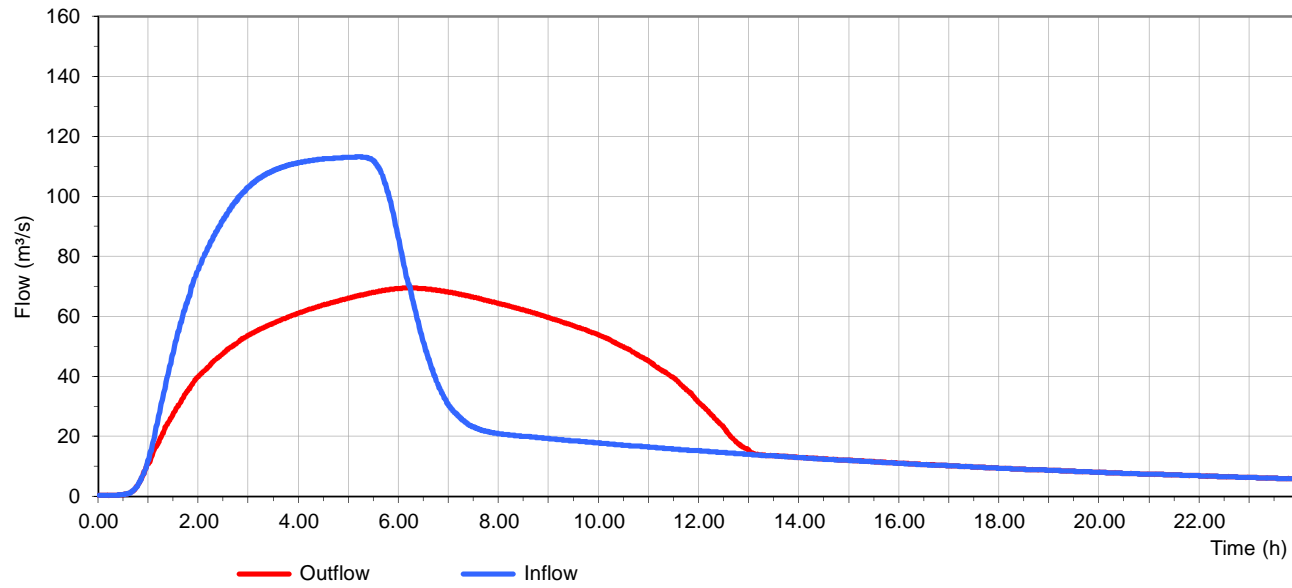
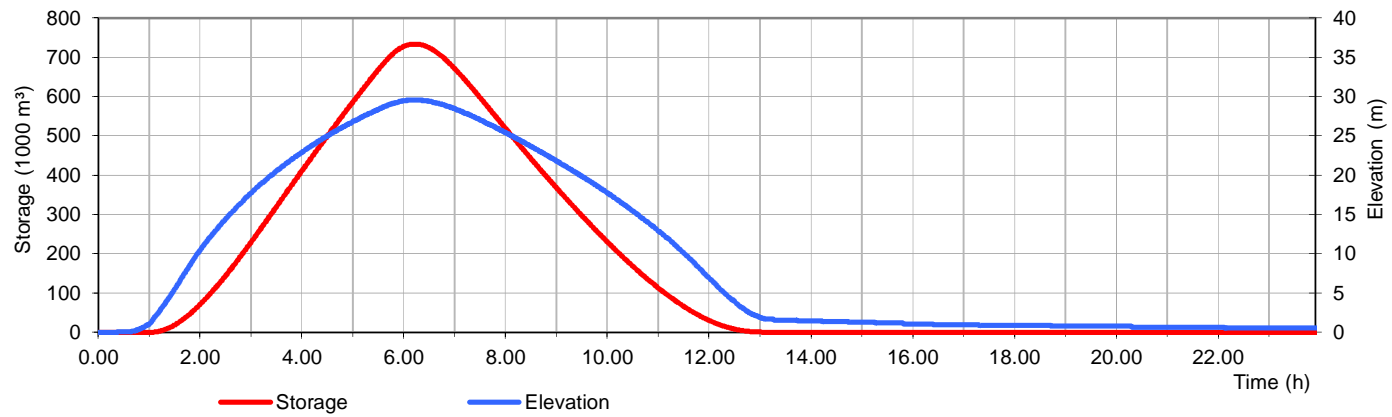
Flow	n300_12h	Dam high	30 m
max. Inflow	64.40 m³/s	Bottom outlet	70 m³/s
max. Outflow	60.00 m³/s		
Elevation	27.10 m		
Storage	377 200 m³		



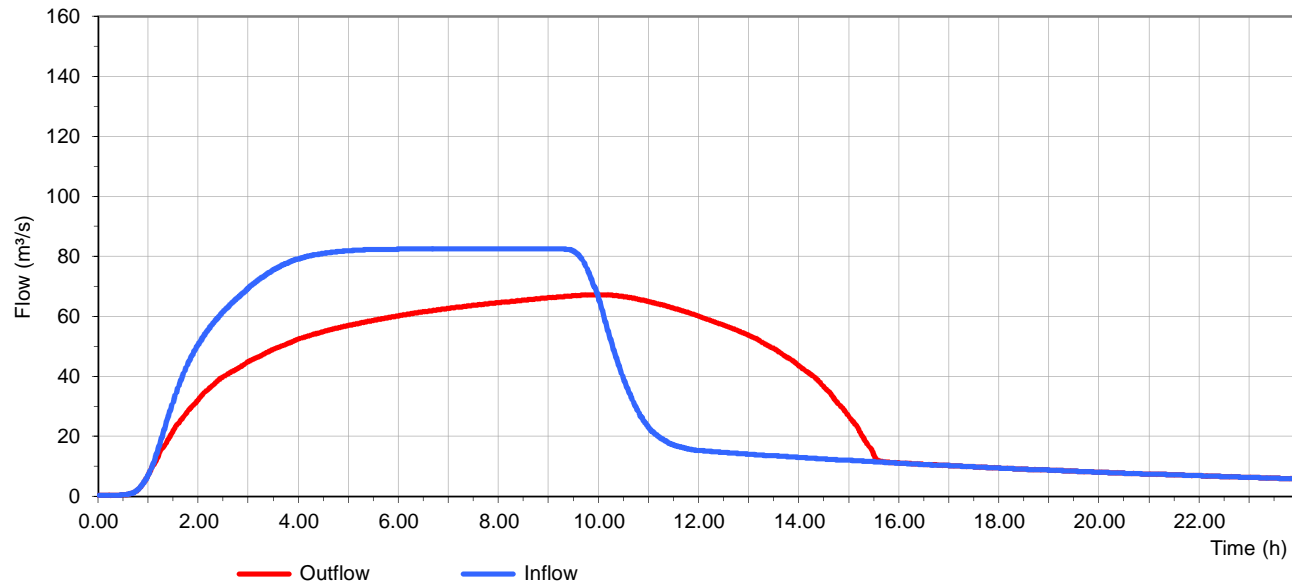
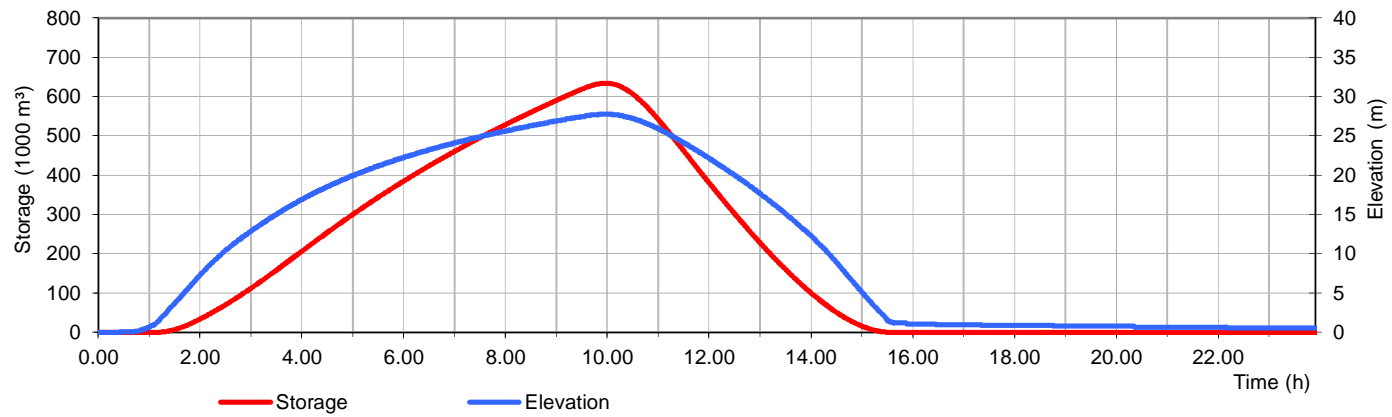
Flow	n1000_2h	Dam high	30 m
max. Inflow	149.80 m³/s	Bottom outlet	70 m³/s
max. Outflow	64.30 m³/s		
Elevation	30.40 m		
Storage	516 500 m³		



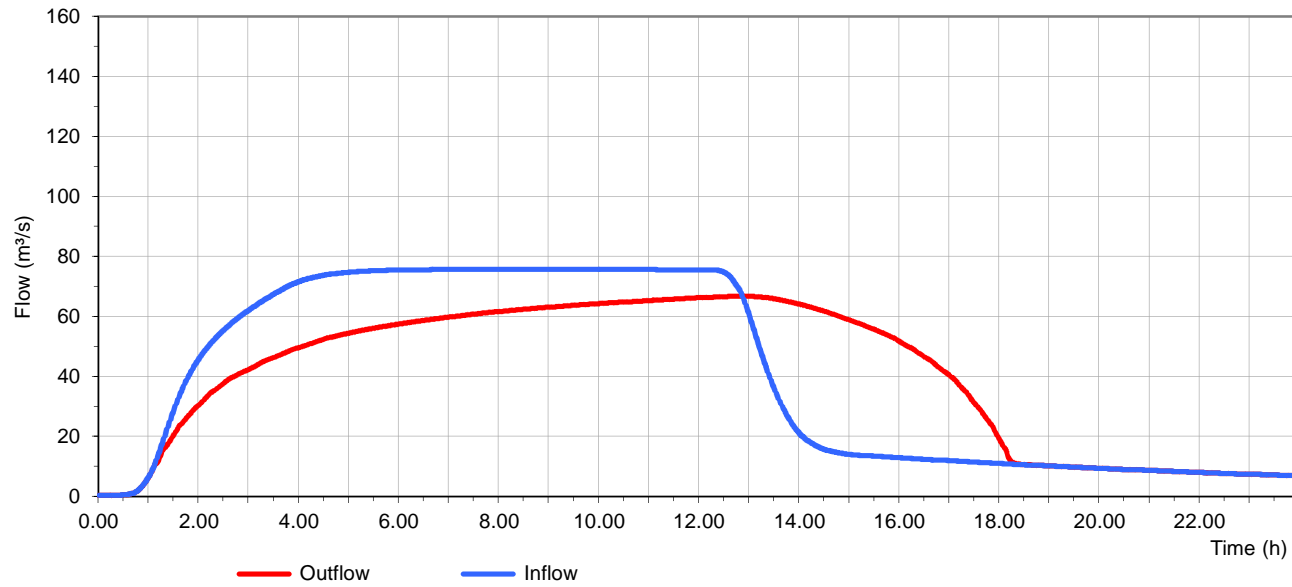
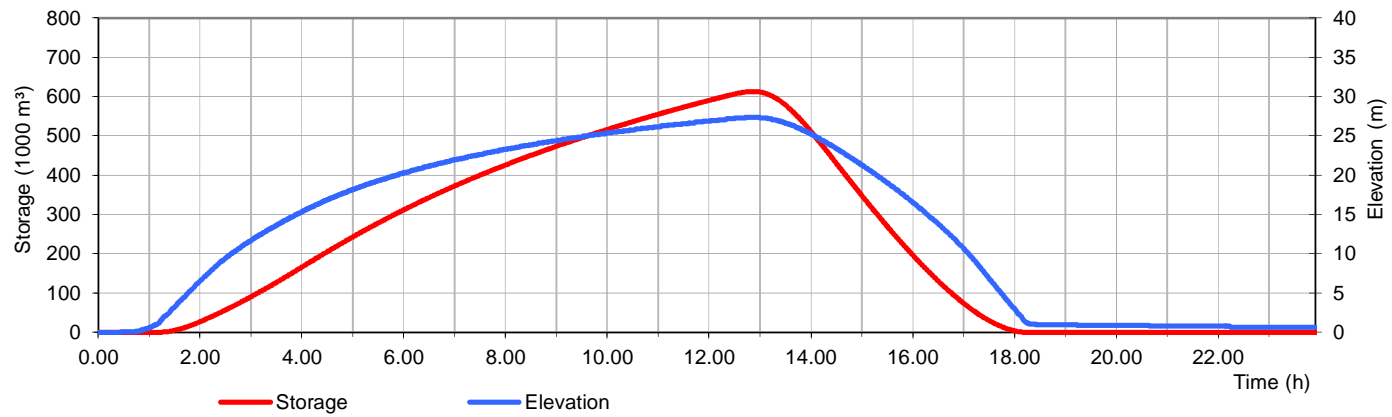
Flow	n1000_3h	Dam high	30 m
max. Inflow	132.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	66.30 m³/s		
Elevation	31.90 m		
Storage	590 600 m³		



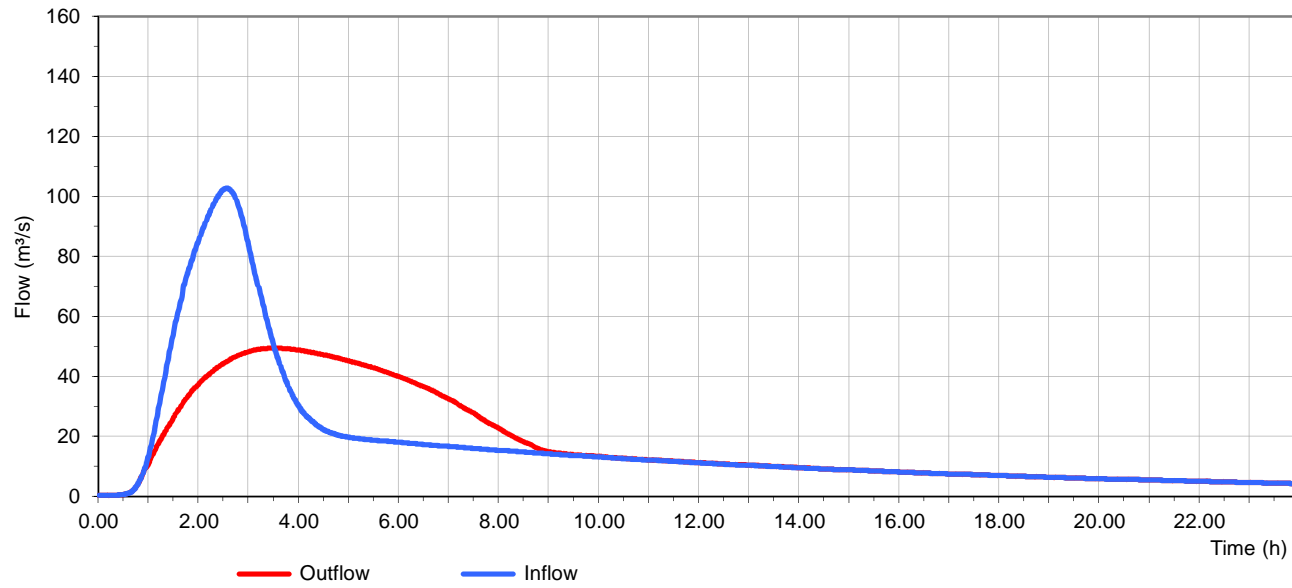
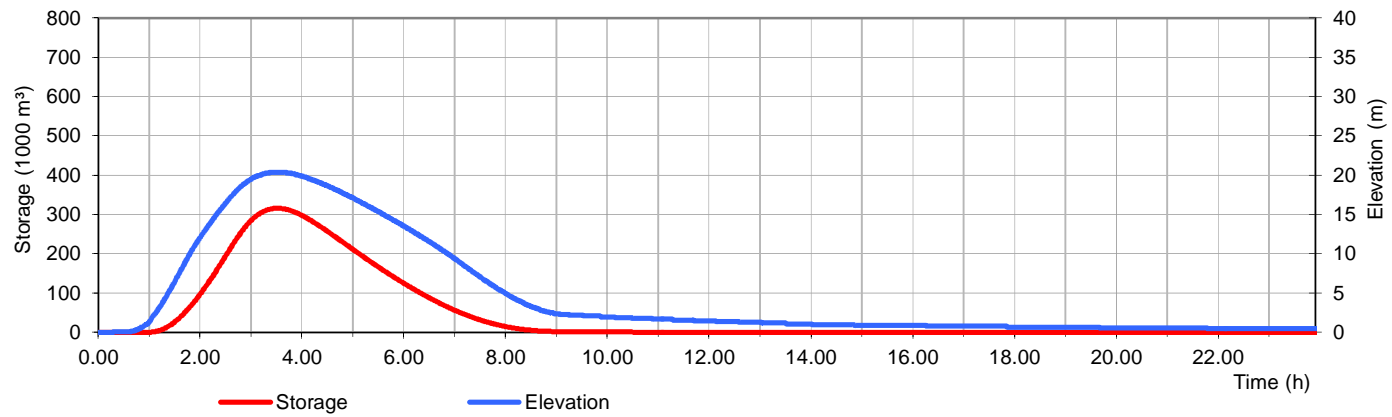
Flow	n1000_5h	Dam high	30 m
max. Inflow	113.30 m³/s	Bottom outlet	70 m³/s
max. Outflow	69.50 m³/s		
Elevation	34.60 m		
Storage	734 400 m³		



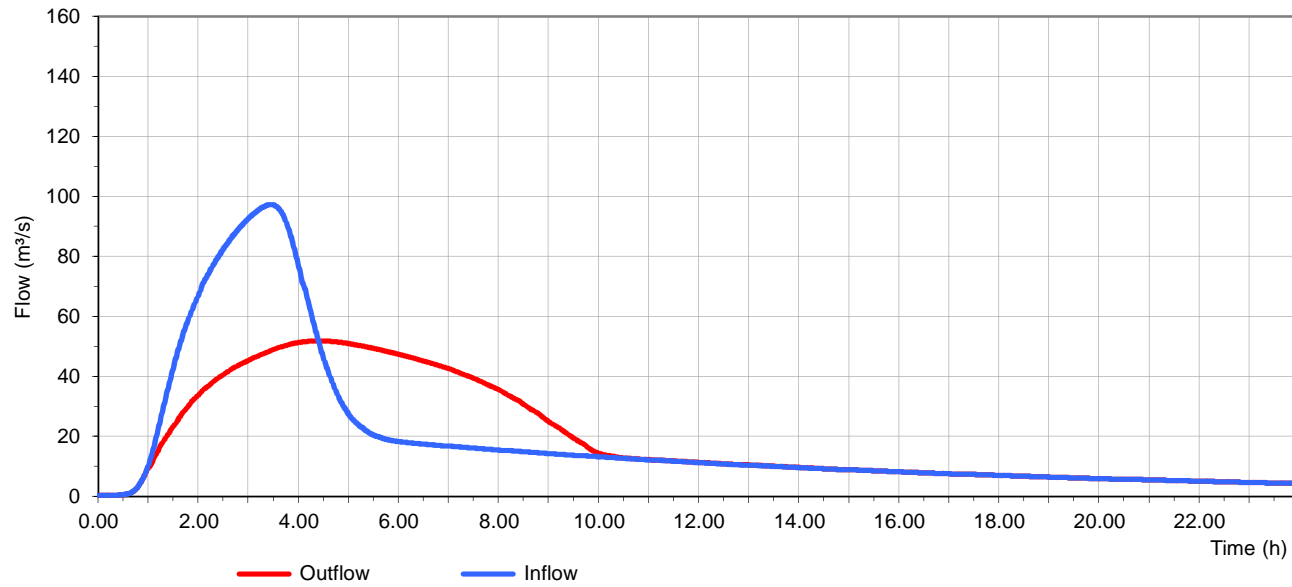
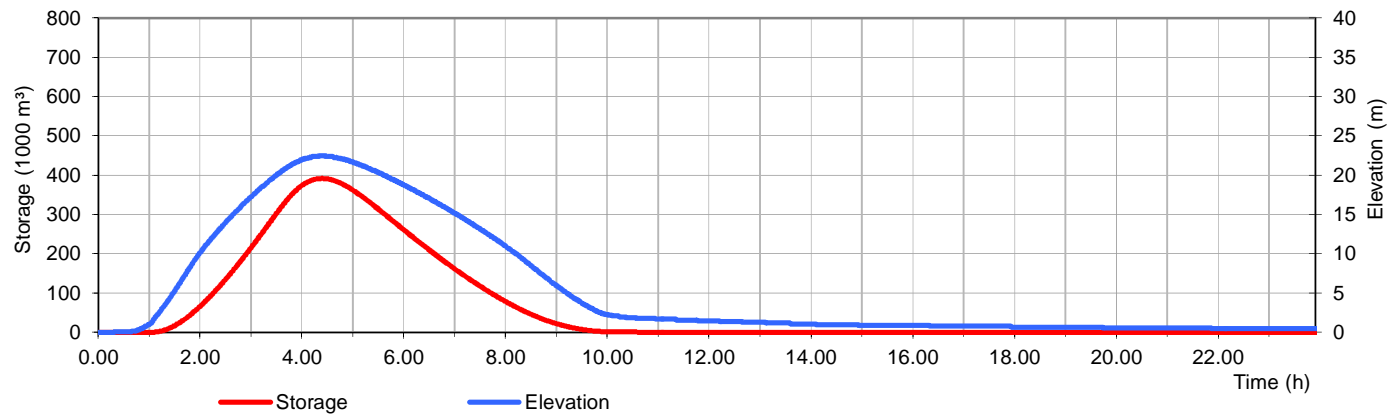
Flow	n1000_9h	Dam hight	30 m
max. Inflow	82.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	67.30 m³/s		
Elevation	32.80 m		
Storage	634 700 m³		



Flow	n1000_12h	Dam hight	30 m
max. Inflow	75.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	66.90 m³/s		
Elevation	32.40 m		
Storage	613 800 m³		

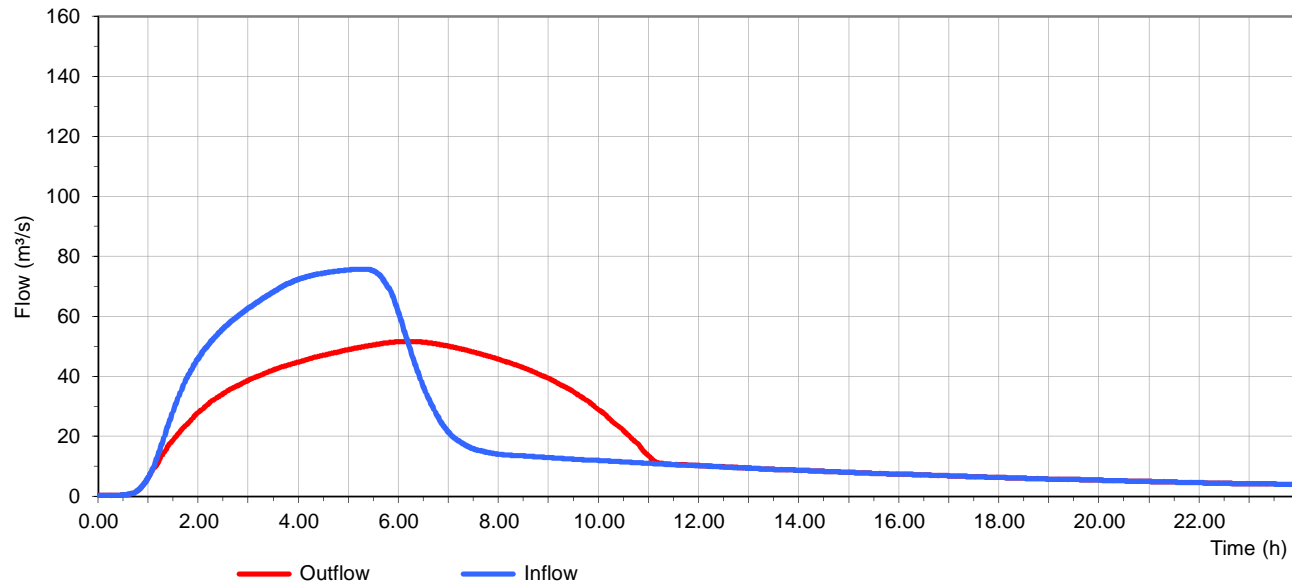
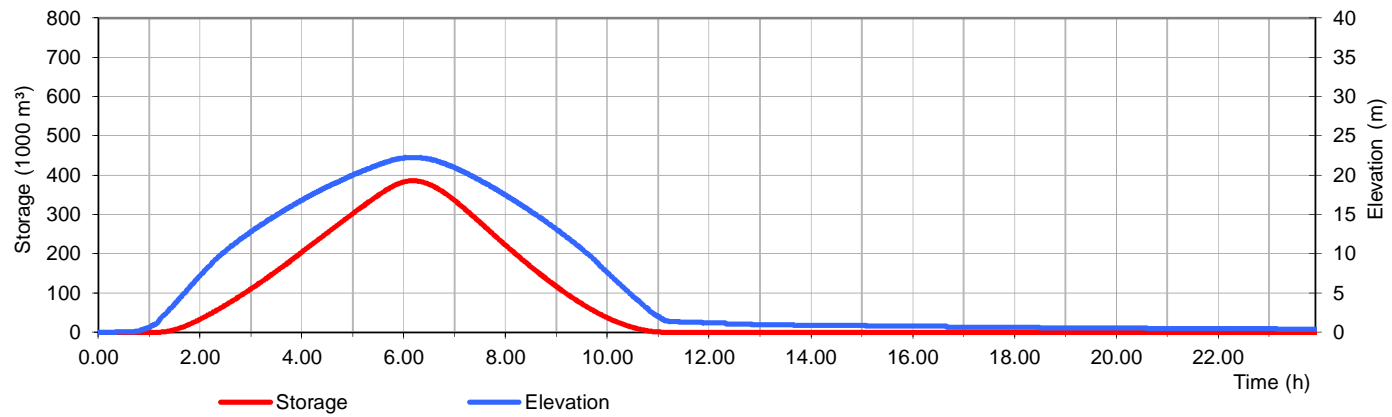


Flow	n100_2h	Dam high	30 m
max. Inflow	102.80 m³/s	Bottom outlet	60 m³/s
max. Outflow	49.50 m³/s		
Elevation	25.40 m		
Storage	316 400 m³		

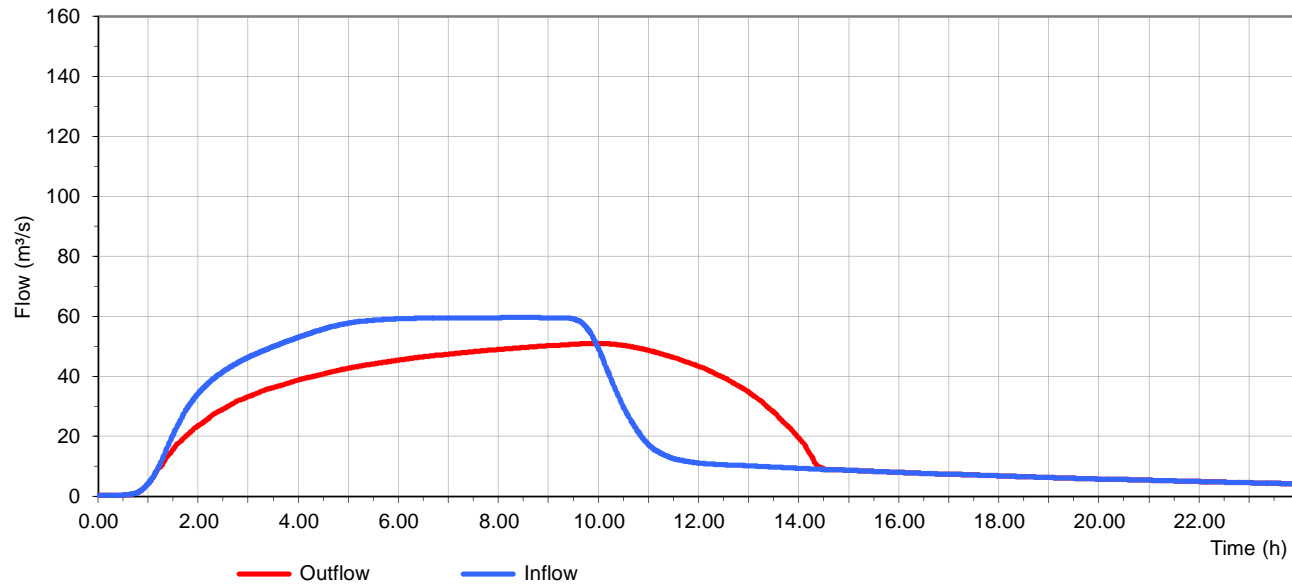
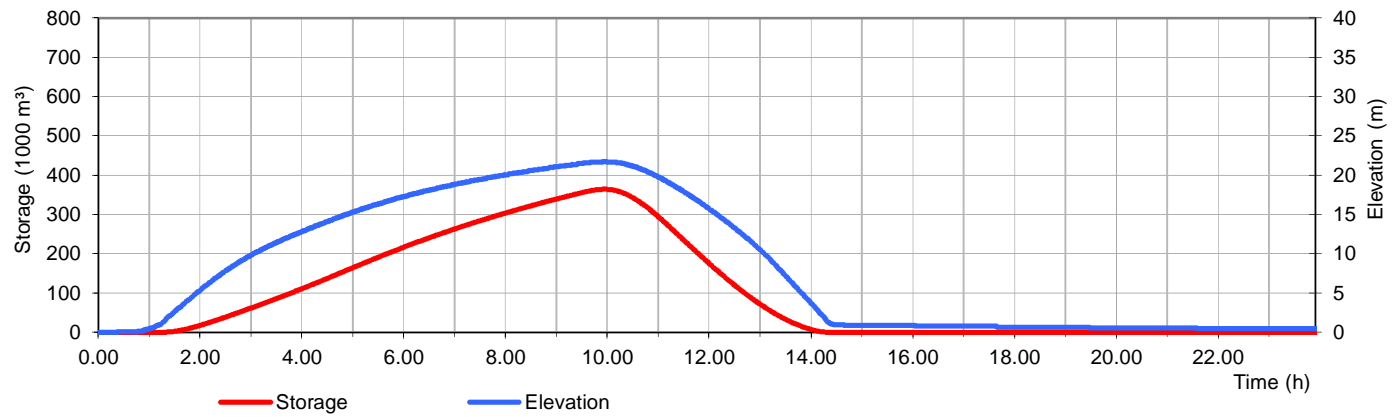


Flow **n100_3h**
 max. Inflow 97.40 m³/s
 max. Outflow 51.90 m³/s
 Elevation 27.50 m
 Storage 392 300 m³

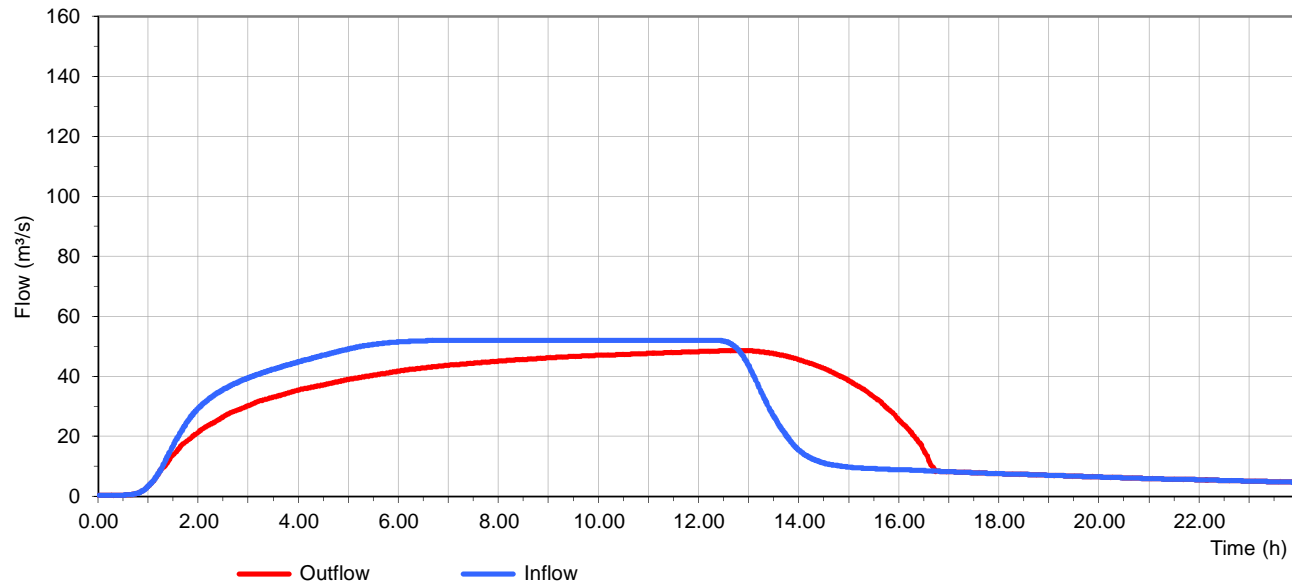
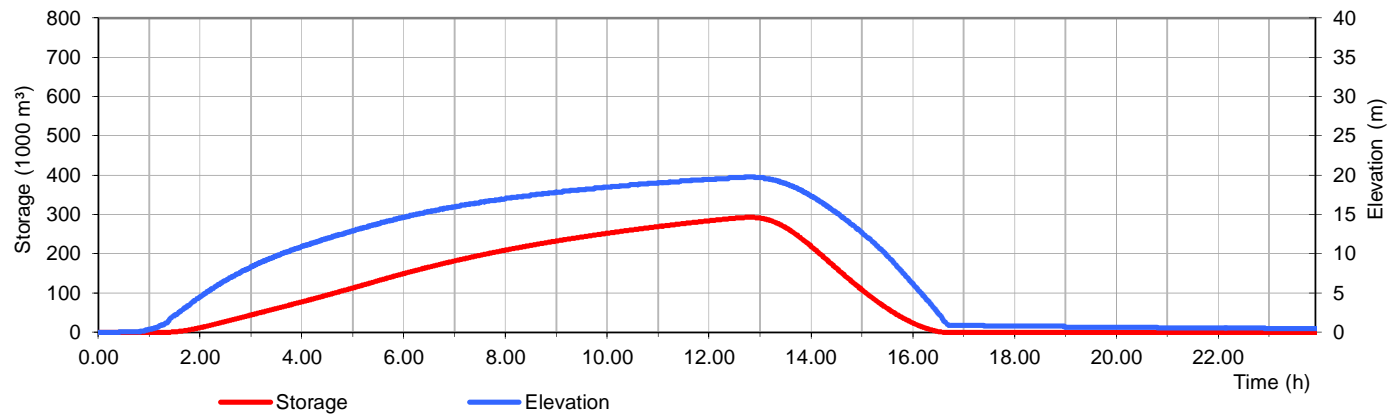
Dam high 30 m
 Bottom outlet 60 m³/s



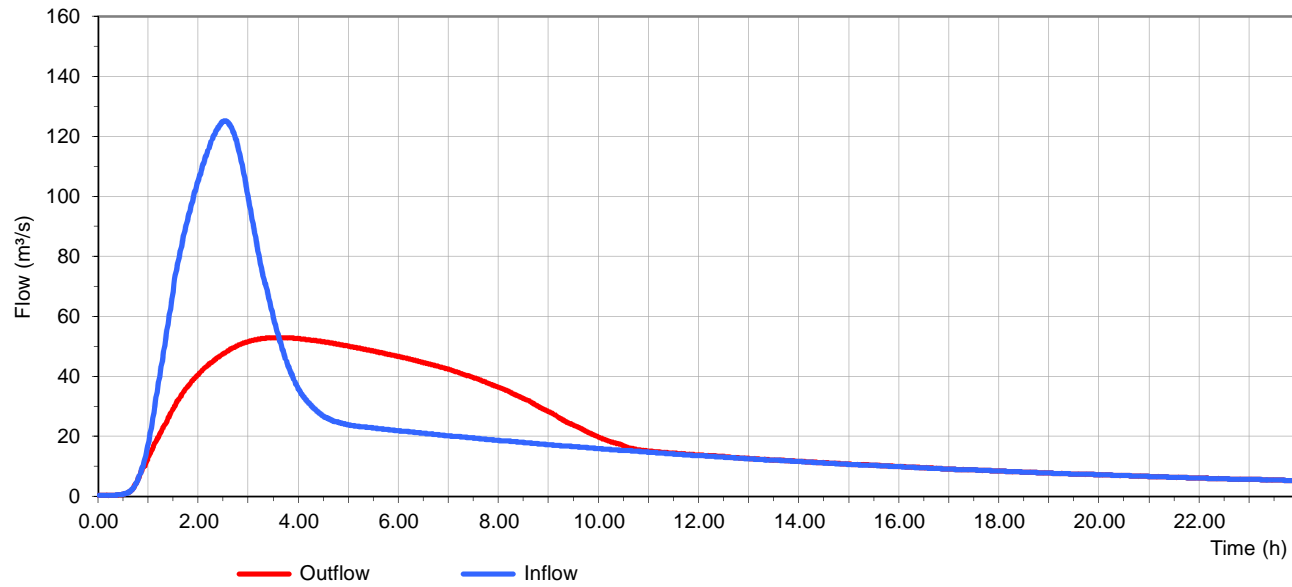
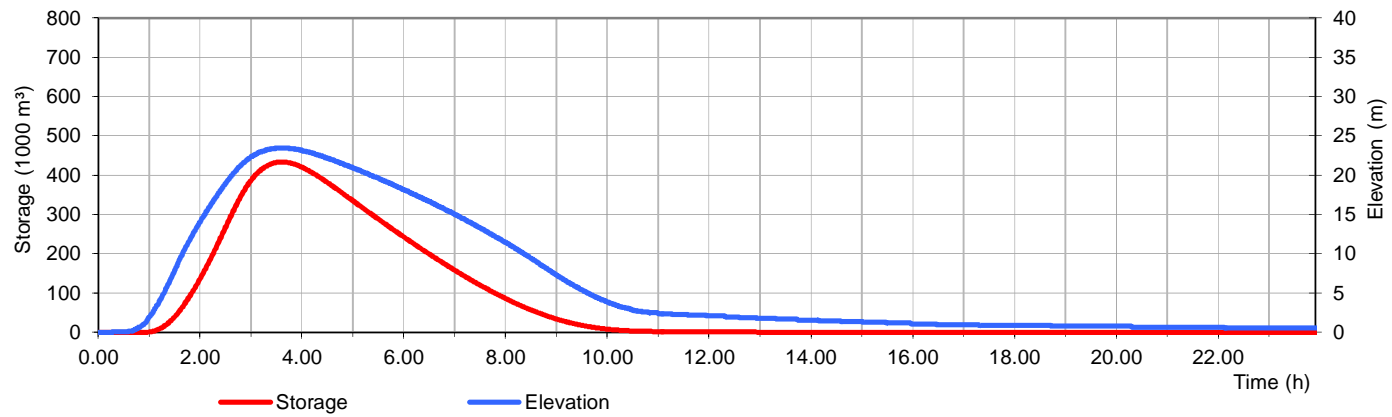
Flow	n100_5h	Dam high	30 m
max. Inflow	75.80 m³/s	Bottom outlet	60 m³/s
max. Outflow	51.70 m³/s		
Elevation	27.30 m		
Storage	386 500 m³		



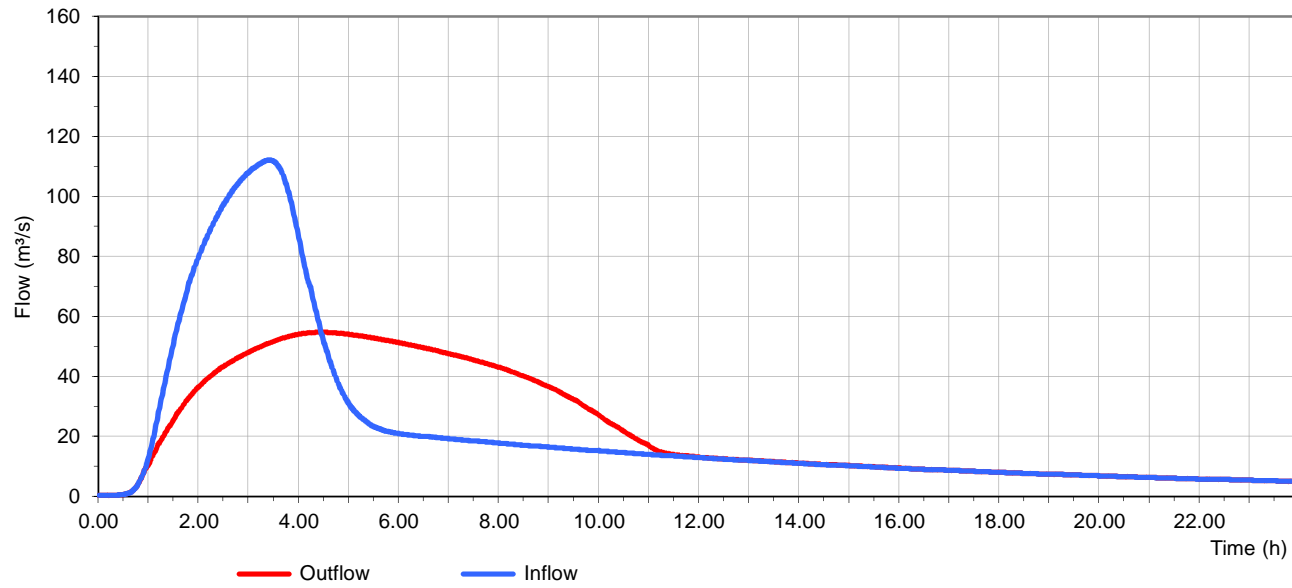
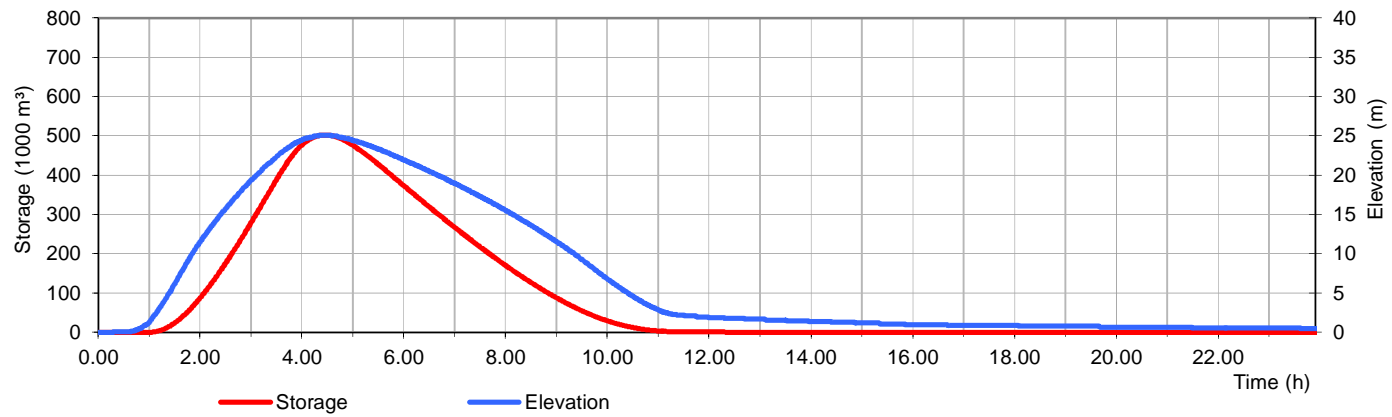
Flow	n100_9h	Dam high	30 m
max. Inflow	59.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	51.10 m³/s		
Elevation	26.80 m		
Storage	364 700 m³		



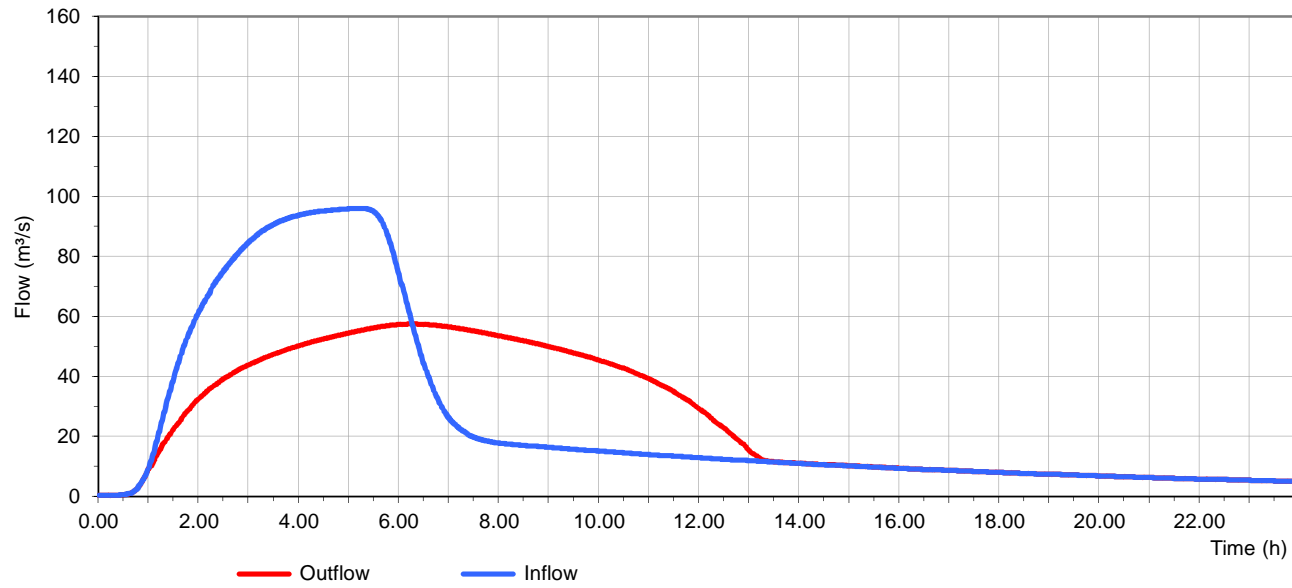
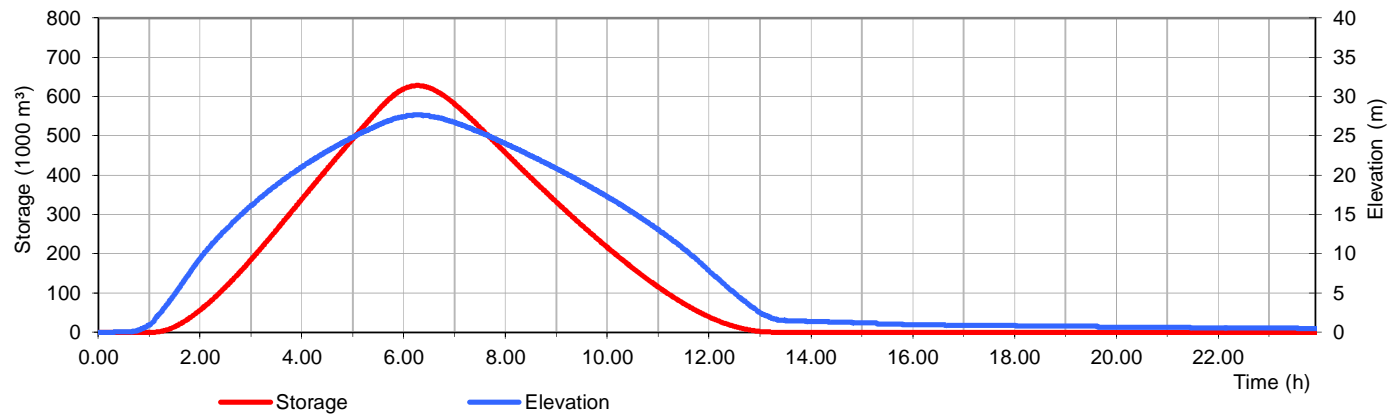
Flow	n100_12h	Dam high	30 m
max. Inflow	52.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	48.70 m³/s		
Elevation	24.80 m		
Storage	293 200 m³		



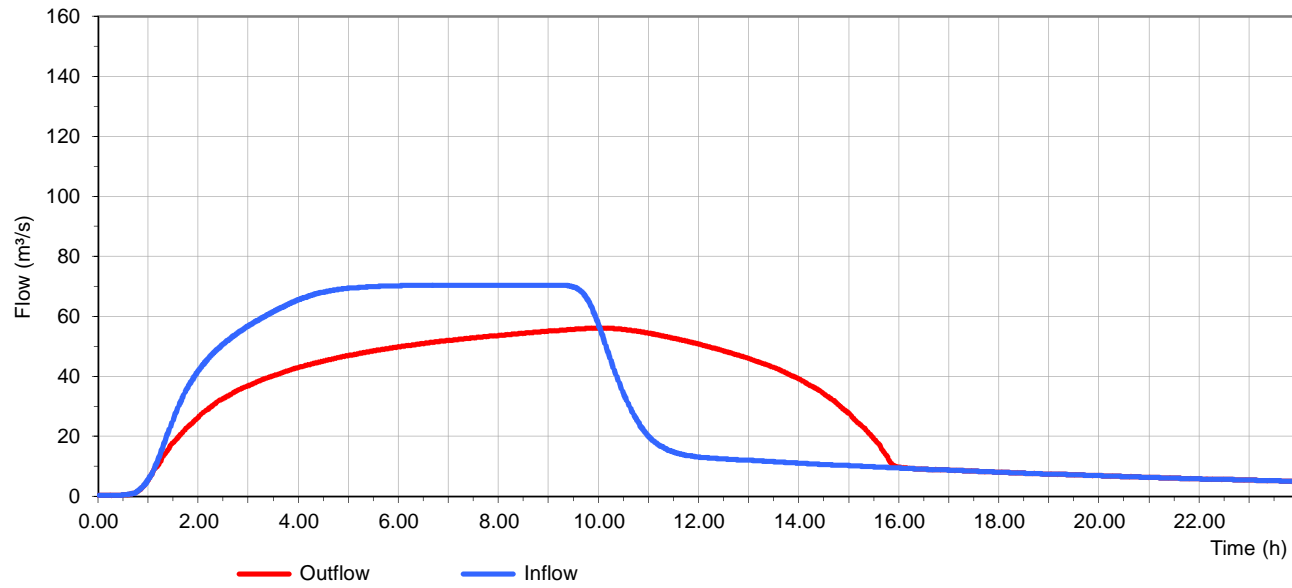
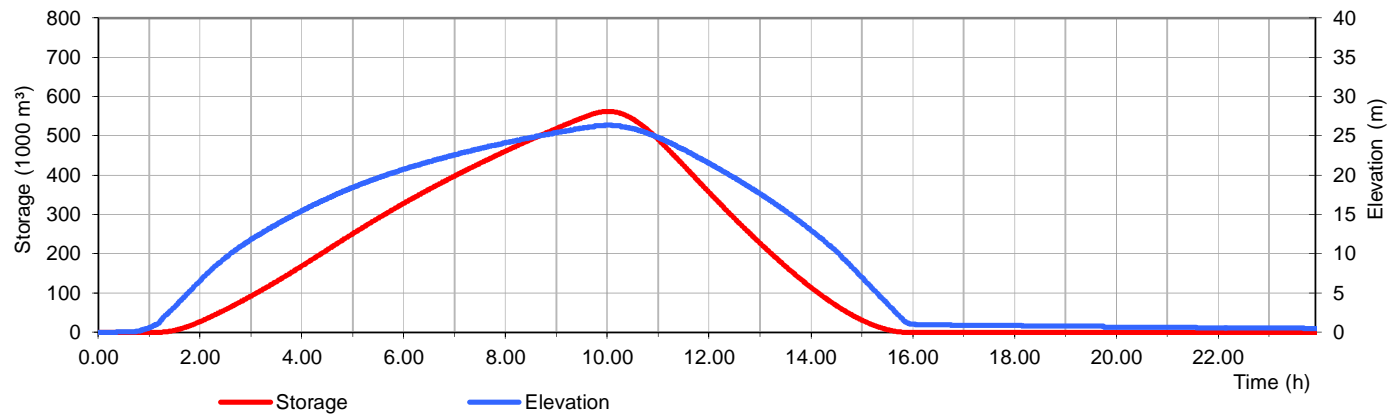
Flow	n300_2h	Dam high	30 m
max. Inflow	125.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	53.00 m³/s		
Elevation	28.50 m		
Storage	434 200 m³		



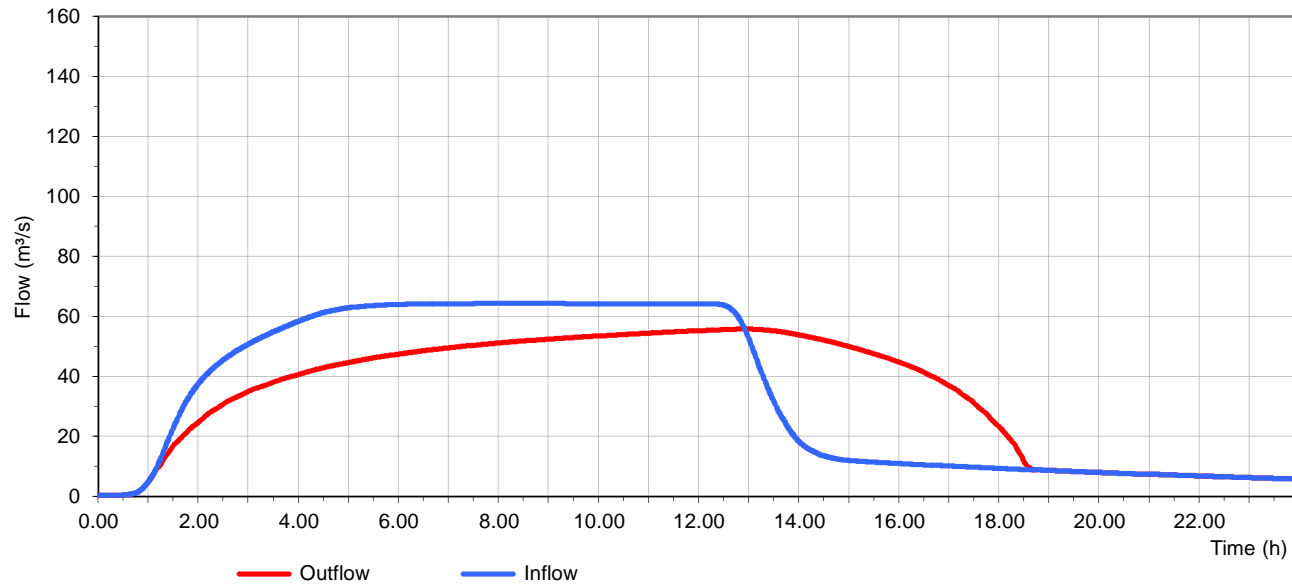
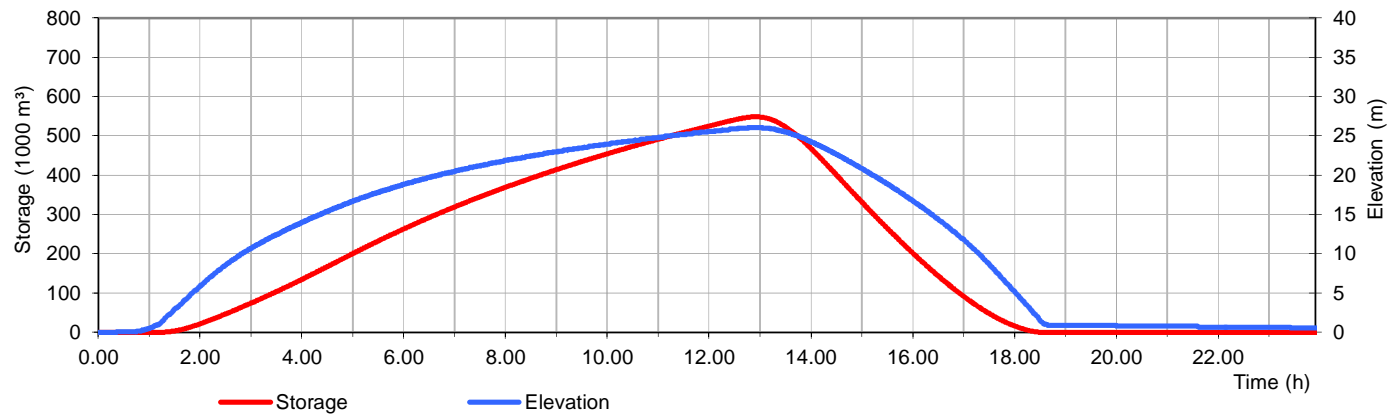
Flow	n300_3h	Dam high	30 m
max. Inflow	112.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	54.80 m³/s		
Elevation	30.10 m		
Storage	503 000 m³		



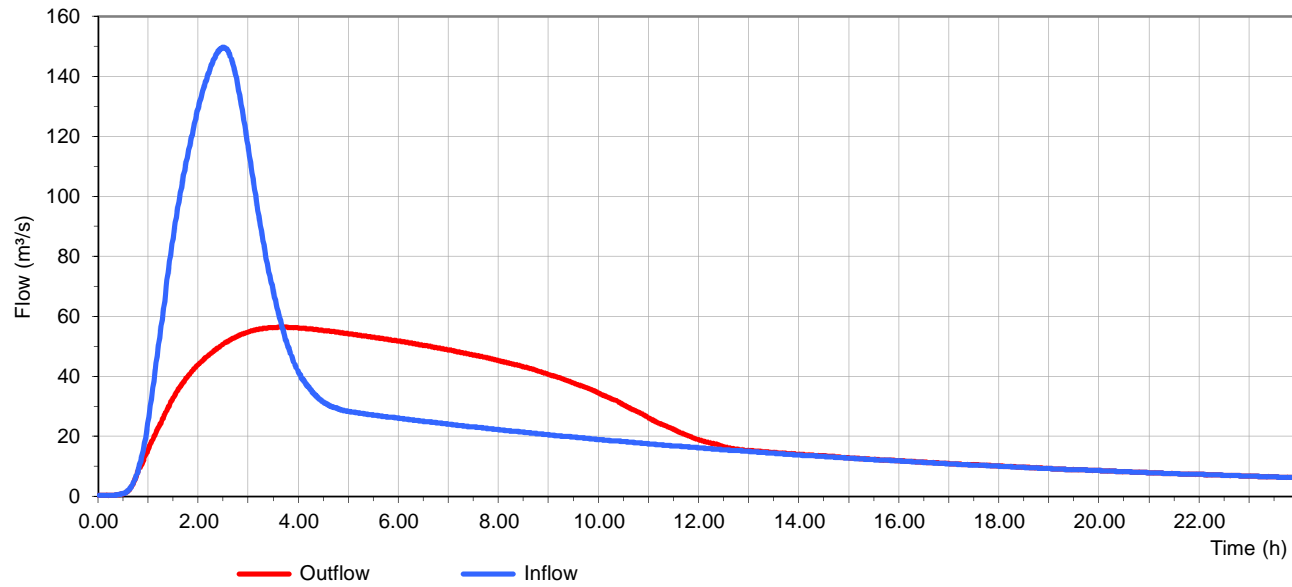
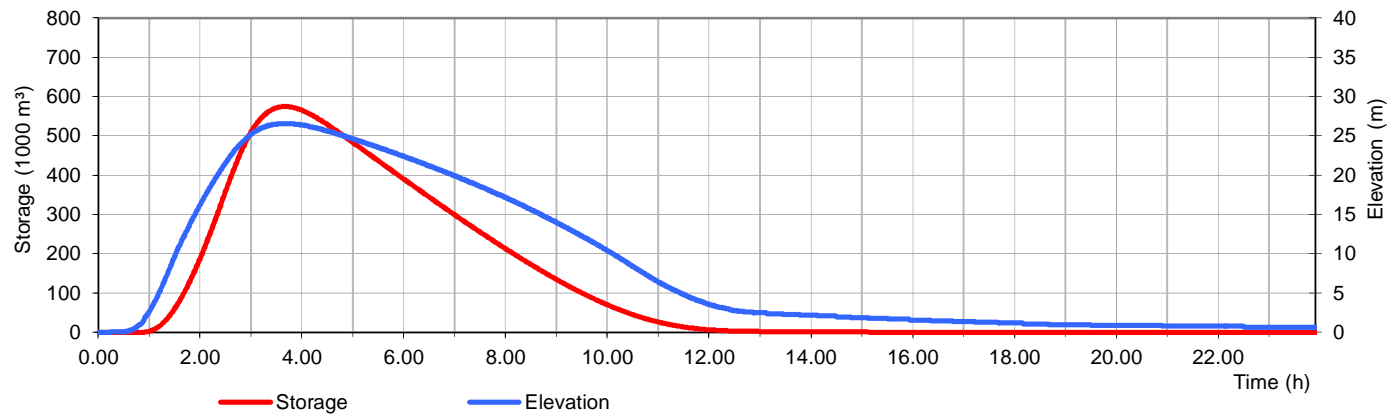
Flow	n300_5h	Dam high	30 m
max. Inflow	96.10 m³/s	Bottom outlet	60 m³/s
max. Outflow	57.60 m³/s		
Elevation	32.70 m		
Storage	628 700 m³		



Flow	n300_9h	Dam hight	30 m
max. Inflow	70.50 m³/s	Bottom outlet	60 m³/s
max. Outflow	56.20 m³/s		
Elevation	31.40 m		
Storage	563 100 m³		

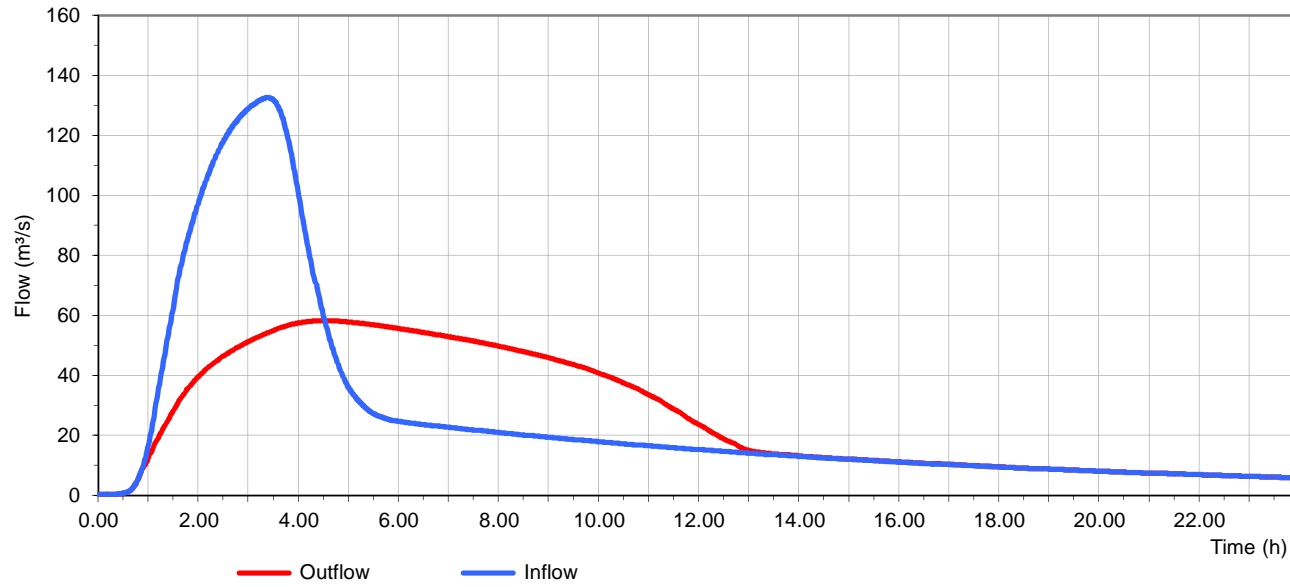
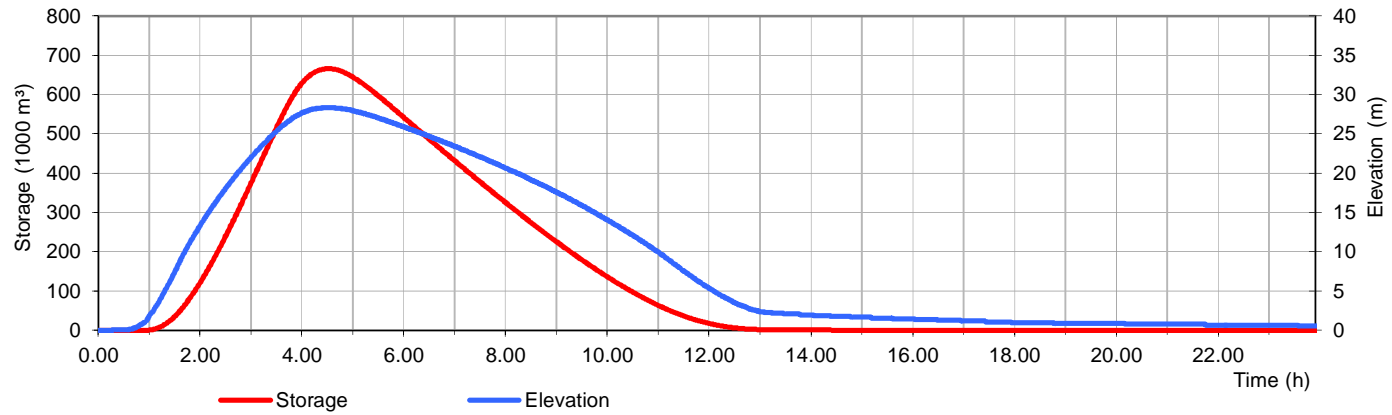


Flow	n300_12h	Dam high	30 m
max. Inflow	64.40 m³/s	Bottom outlet	60 m³/s
max. Outflow	55.90 m³/s		
Elevation	31.10 m		
Storage	549 200 m³		



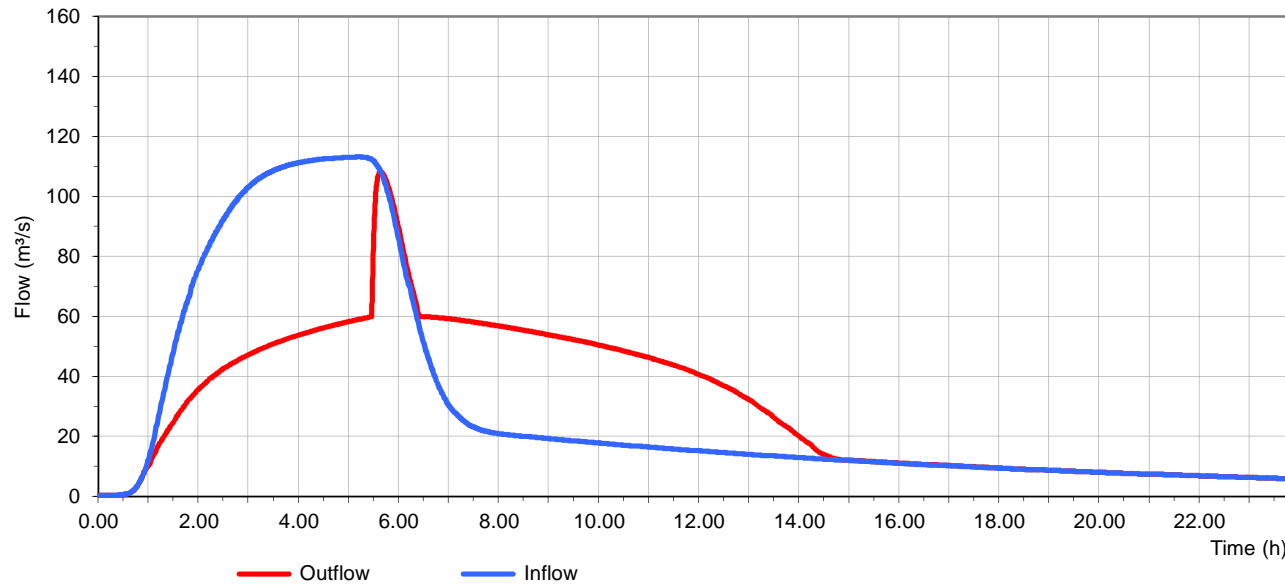
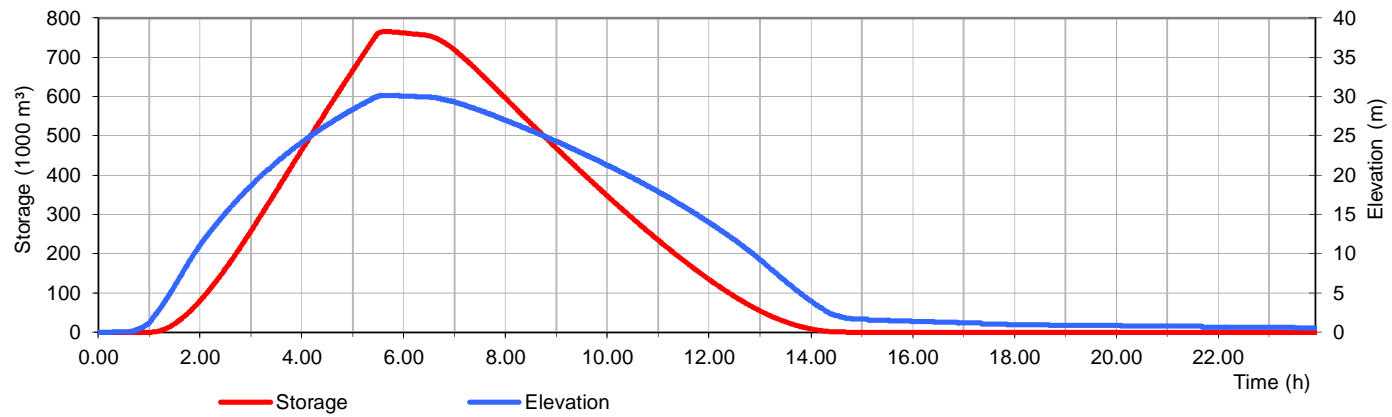
Flow	n1000_2h
max. Inflow	149.80 m ³ /s
max. Outflow	56.50 m ³ /s
Elevation	31.60 m
Storage	575 400 m ³

Dam high	30 m
Bottom outlet	60 m ³ /s

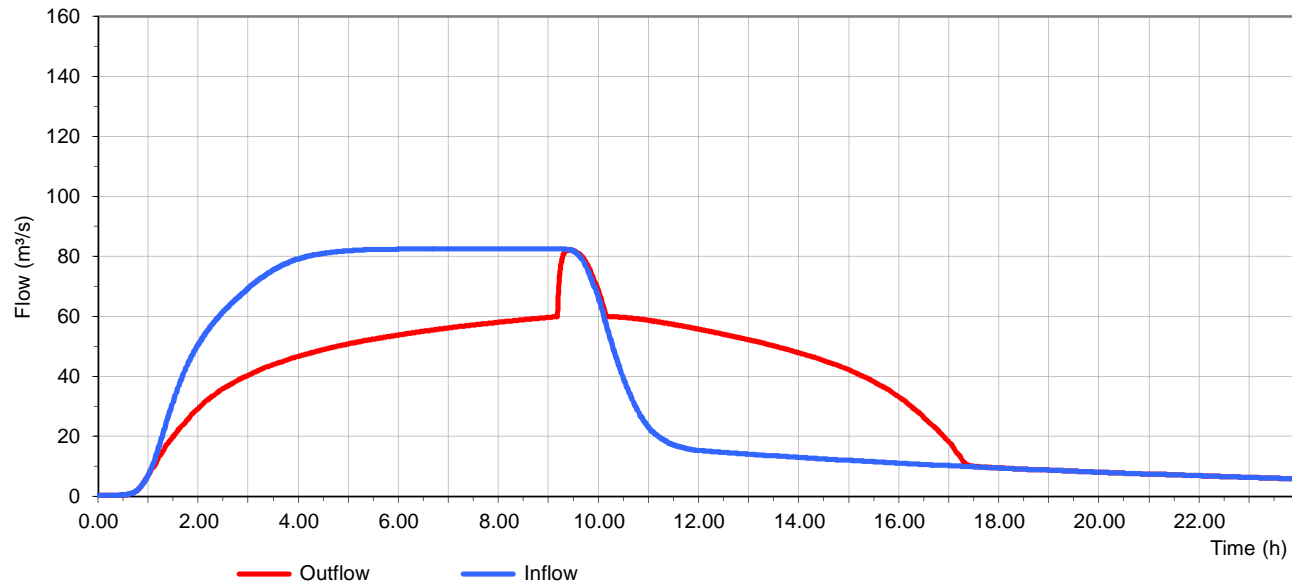
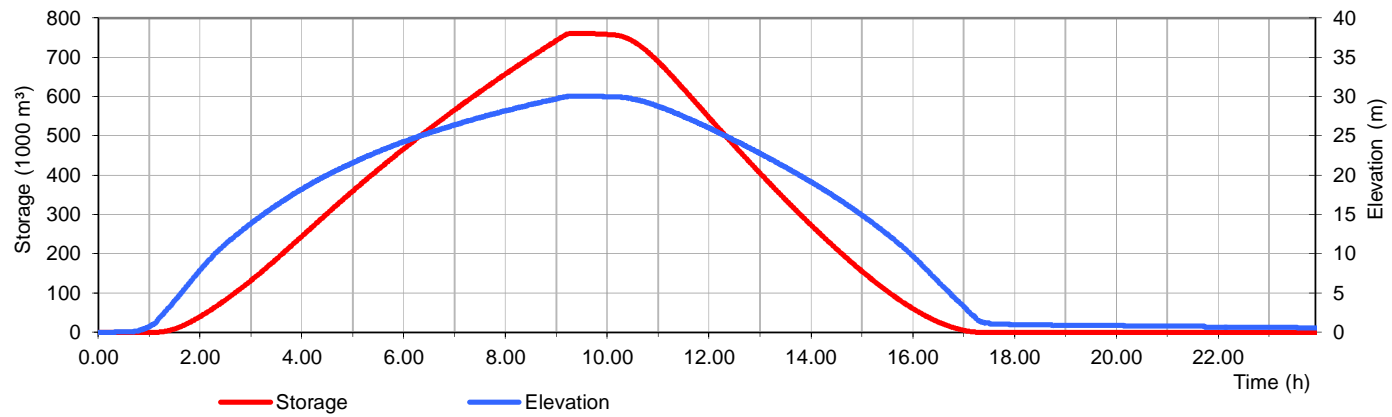


Flow	n1000_3h
max. Inflow	132.70 m³/s
max. Outflow	58.30 m³/s
Elevation	33.40 m
Storage	666 700 m³

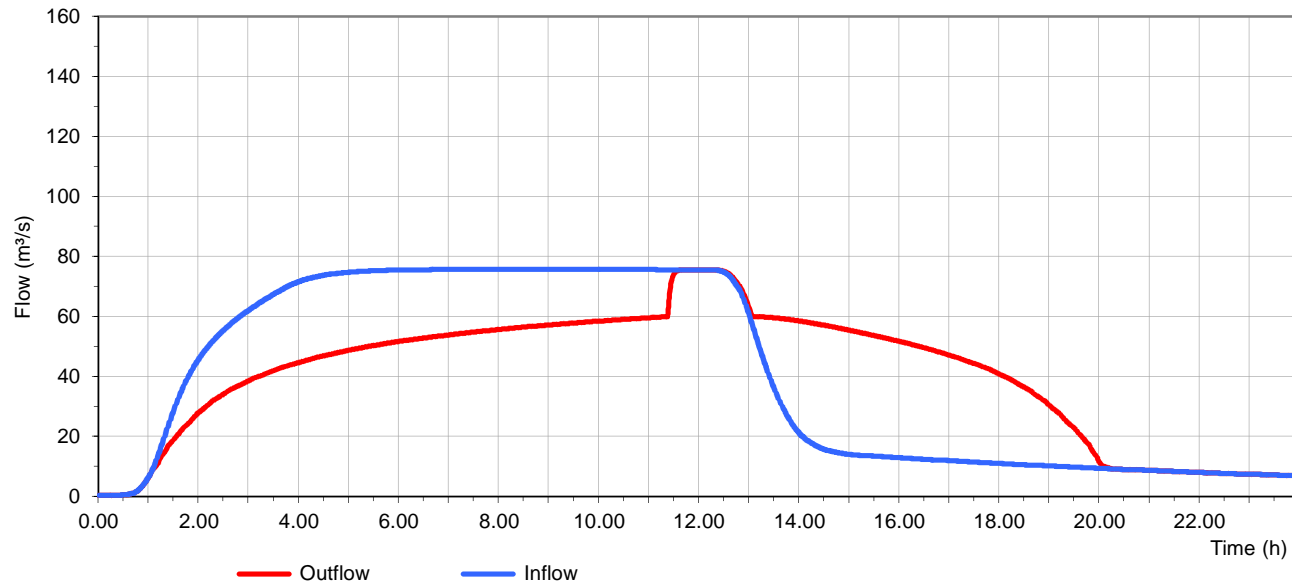
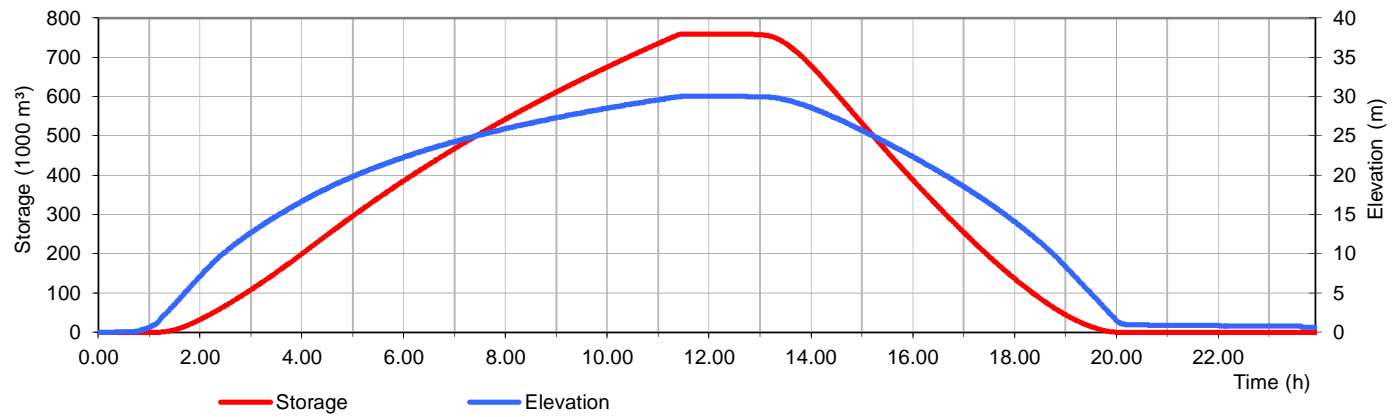
Dam high	30 m
Bottom outlet	60 m³/s



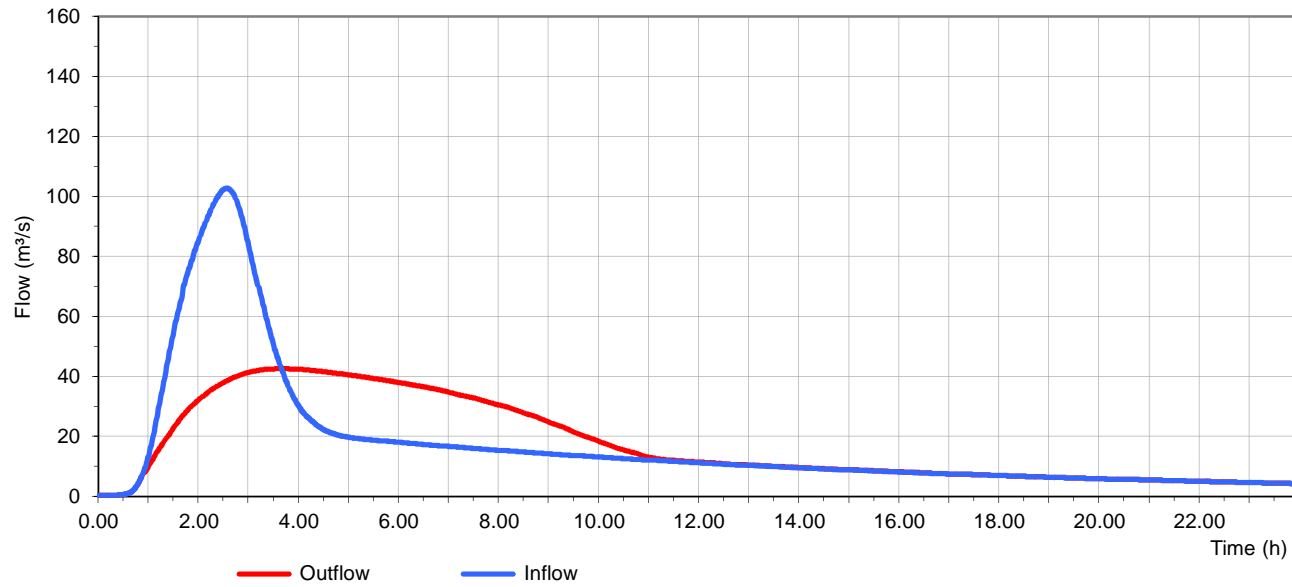
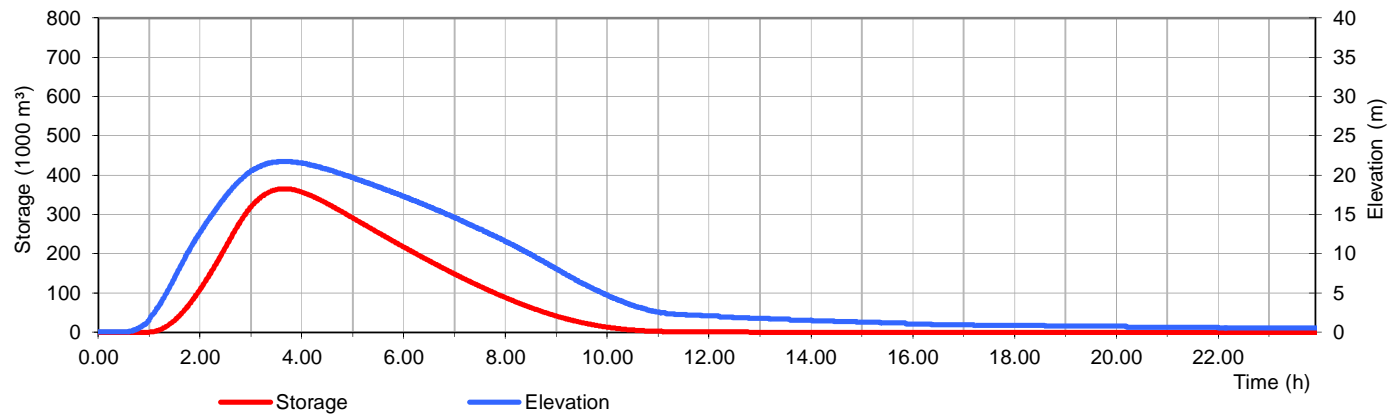
Flow	n1000_5h	Dam high	30 m
max. Inflow	113.30 m³/s	Bottom outlet	60 m³/s
max. Outflow	108.30 m³/s		
Elevation	35.20 m		
Storage	766 000 m³		



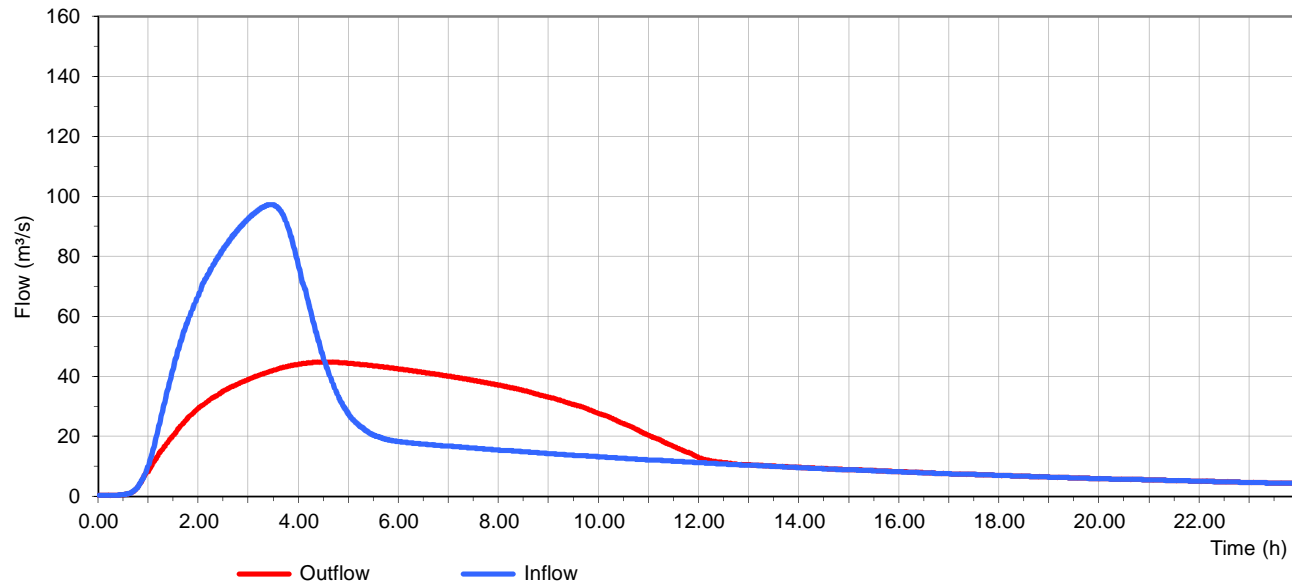
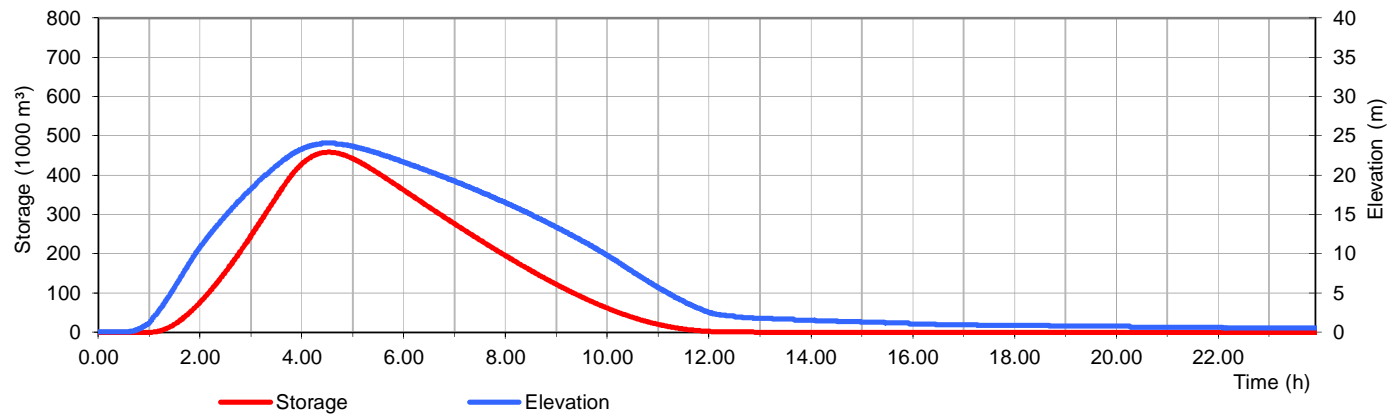
Flow	n1000_9h	Dam high	30 m
max. Inflow	82.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	82.30 m³/s		
Elevation	35.10 m		
Storage	761 400 m³		



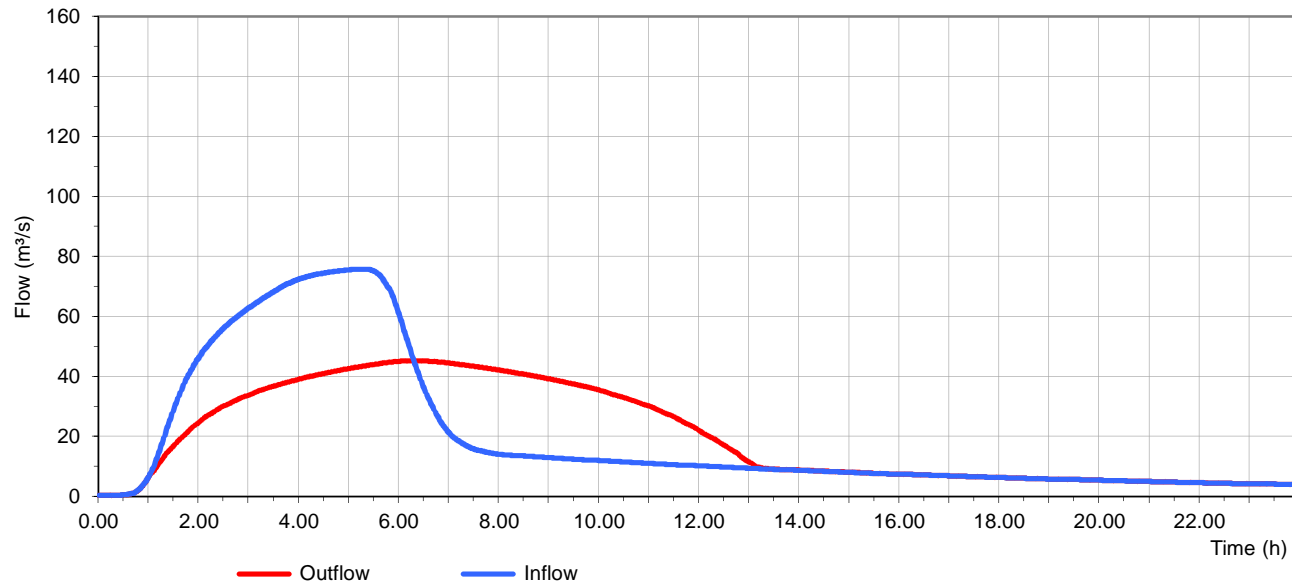
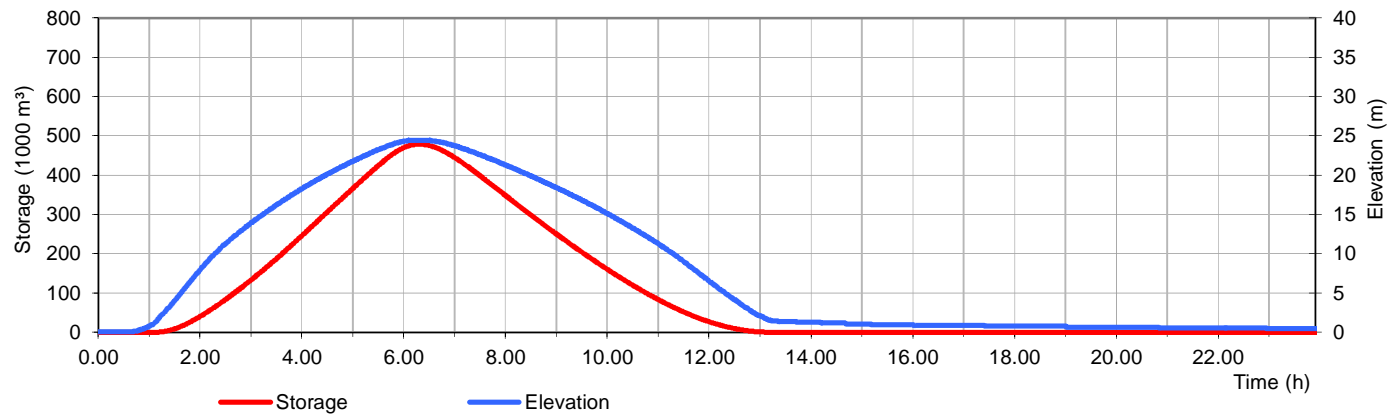
Flow	n1000_12h	Dam hight	30 m
max. Inflow	75.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	75.60 m³/s		
Elevation	35.10 m		
Storage	760 300 m³		



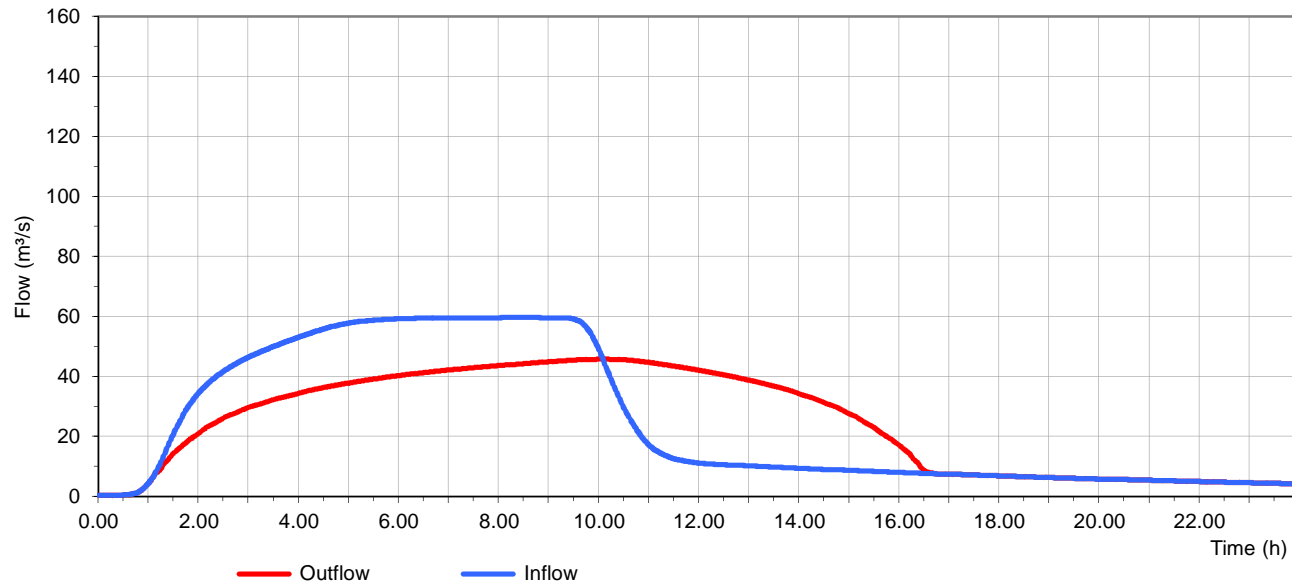
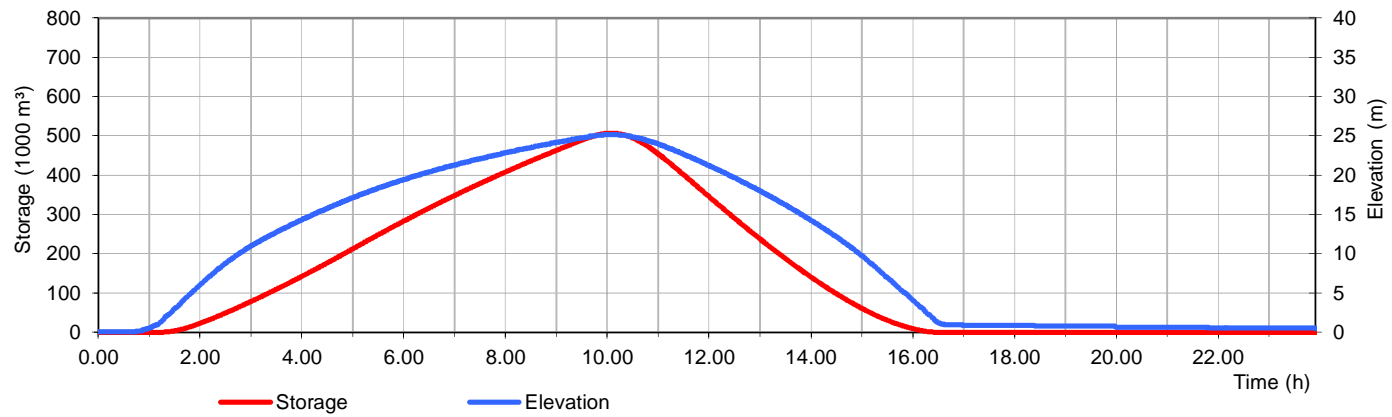
Flow	n100_2h	Dam high	30 m
max. Inflow	102.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	42.70 m³/s		
Elevation	26.80 m		
Storage	366 100 m³		



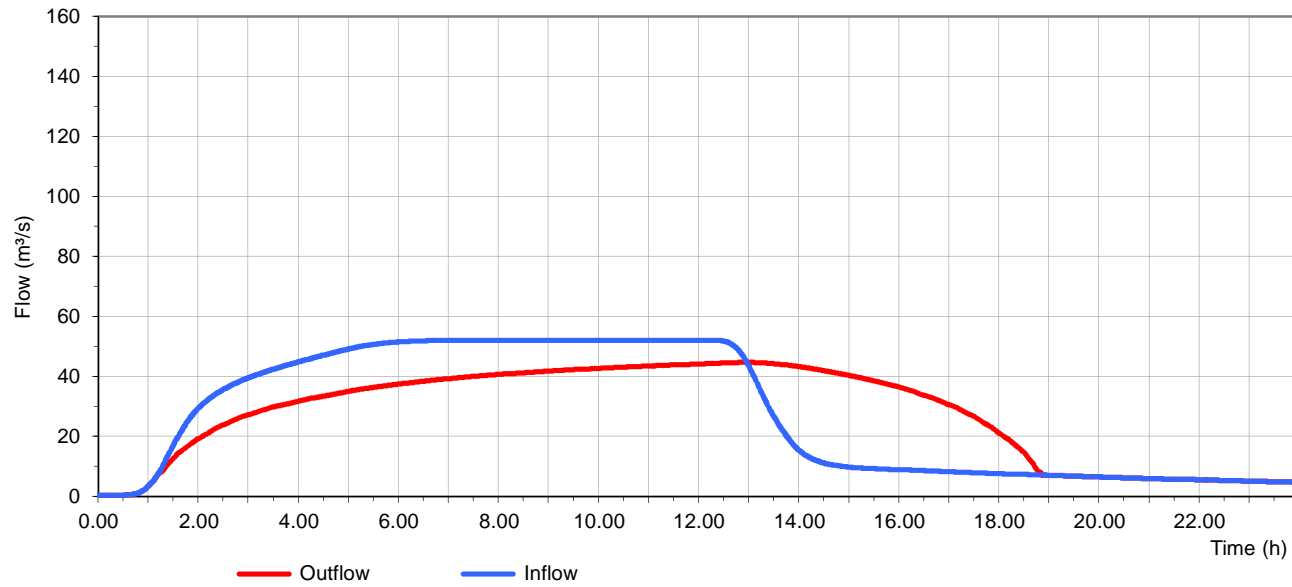
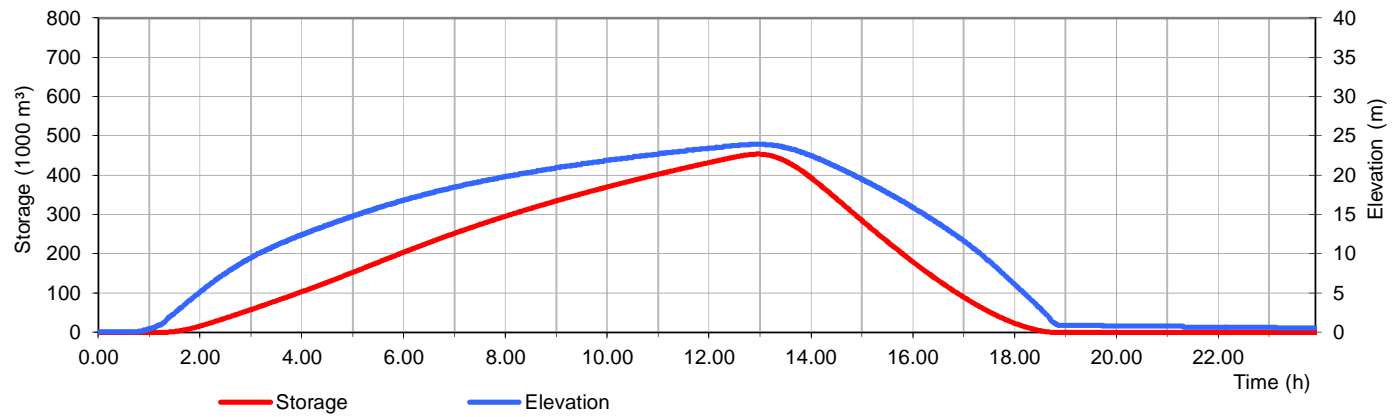
Flow	n100_3h	Dam high	30 m
max. Inflow	97.40 m³/s	Bottom outlet	50 m³/s
max. Outflow	44.90 m³/s		
Elevation	29.10 m		
Storage	459 200 m³		



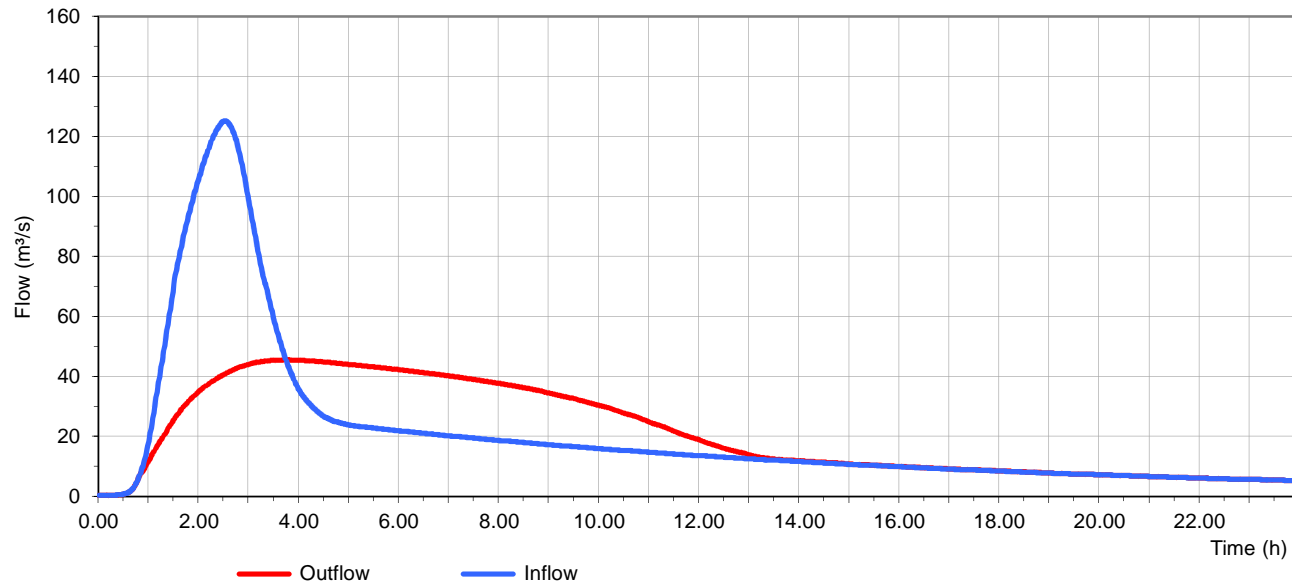
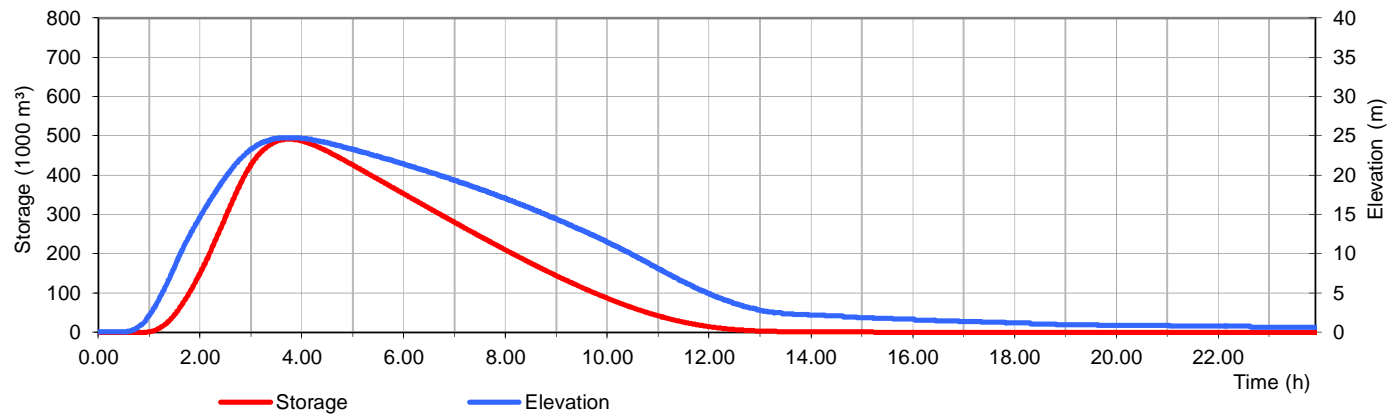
Flow	n100_5h	Dam high	30 m
max. Inflow	75.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	45.30 m³/s		
Elevation	29.50 m		
Storage	479 300 m³		



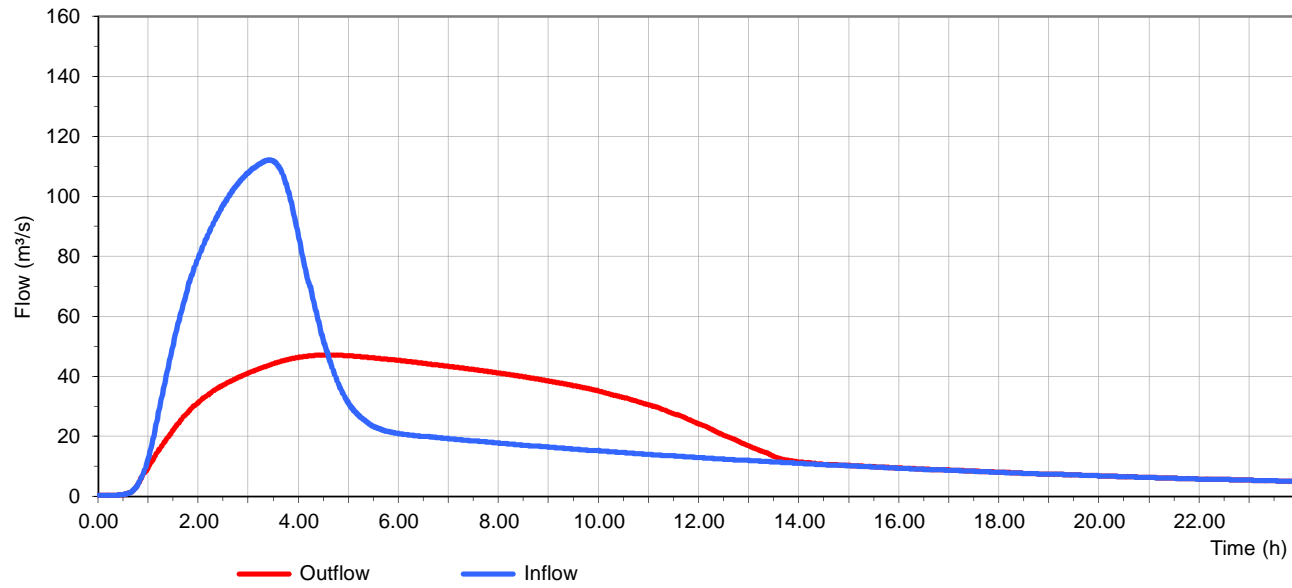
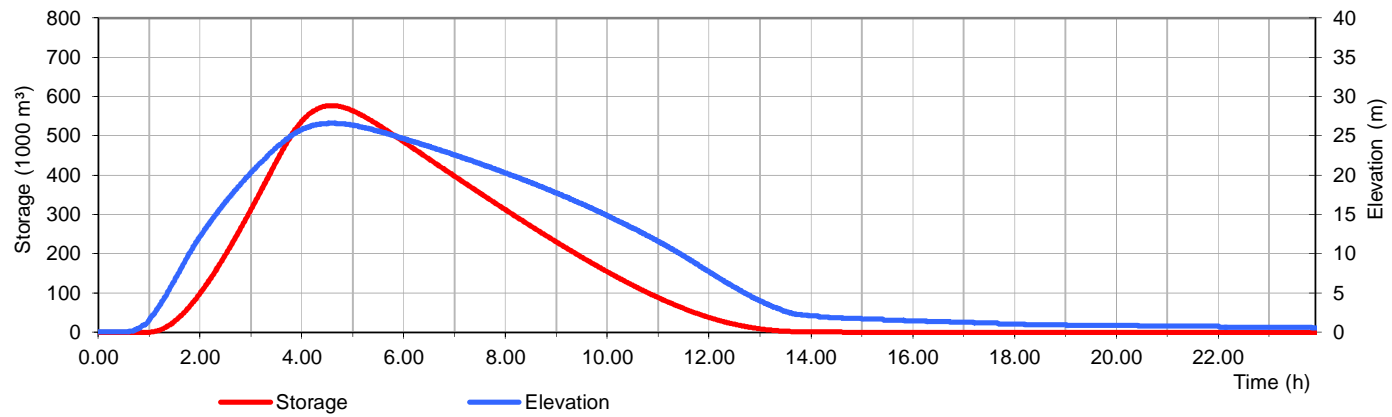
Flow	n100_9h	Dam high	30 m
max. Inflow	59.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	45.90 m³/s		
Elevation	30.20 m		
Storage	507 900 m³		



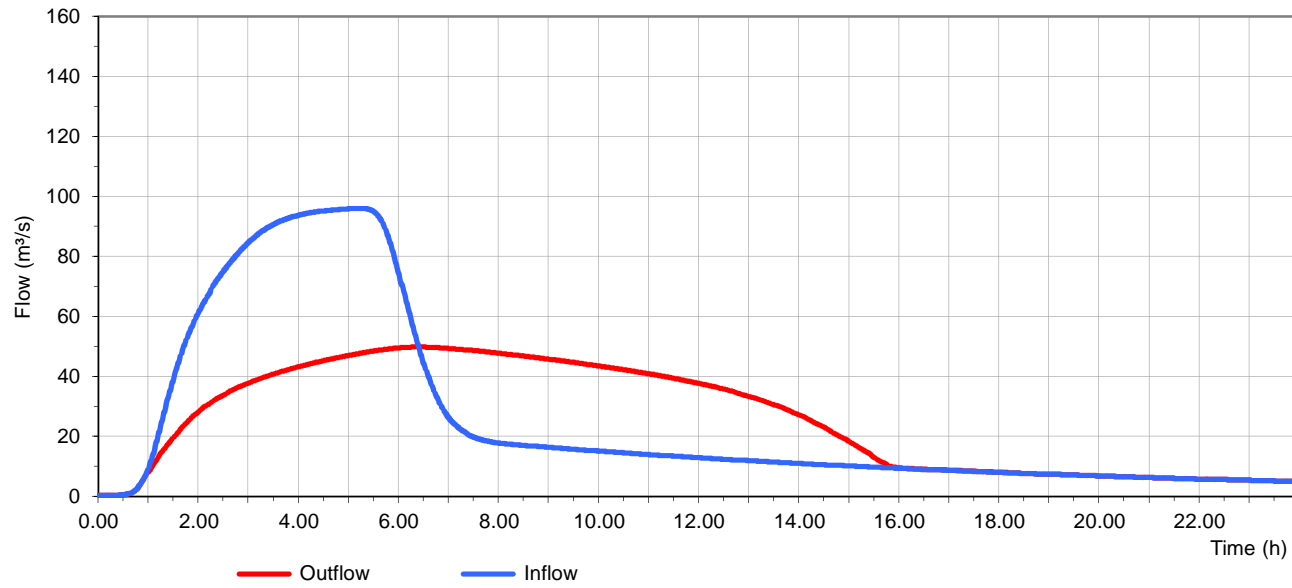
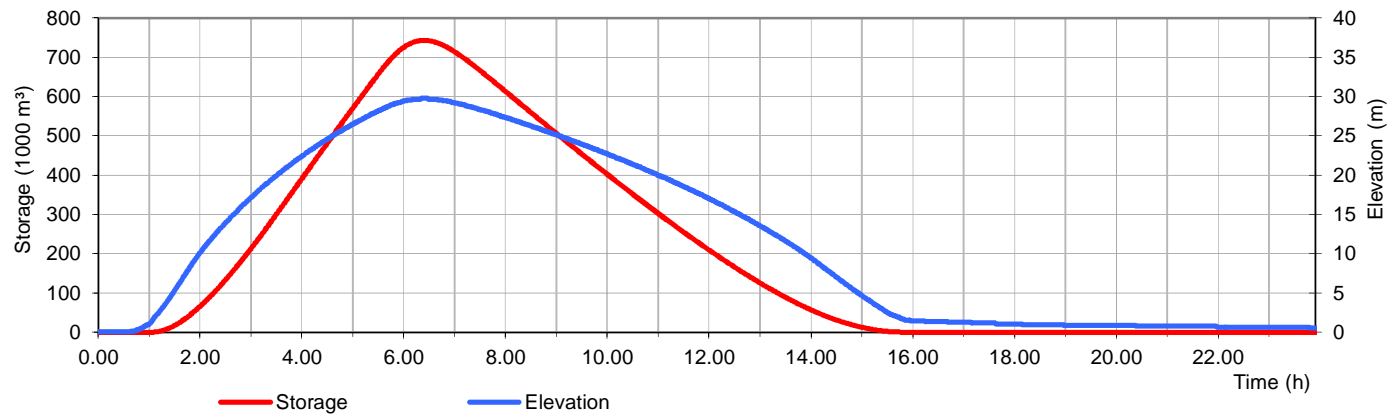
Flow	n100_12h	Dam high	30 m
max. Inflow	52.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	44.80 m³/s		
Elevation	29.00 m		
Storage	454 200 m³		



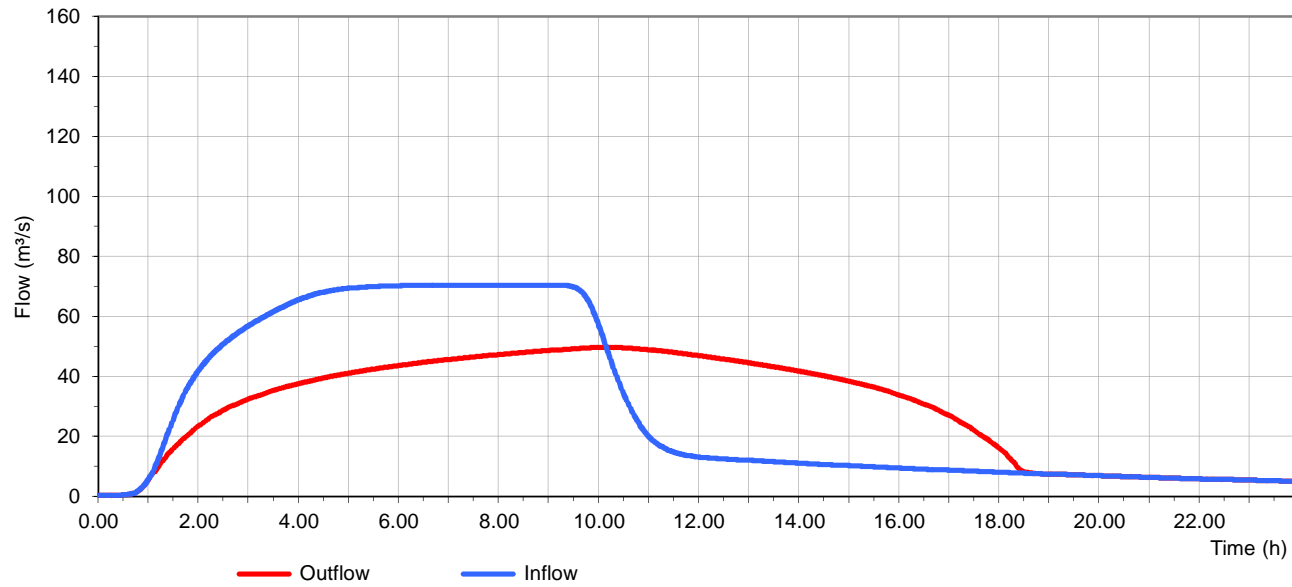
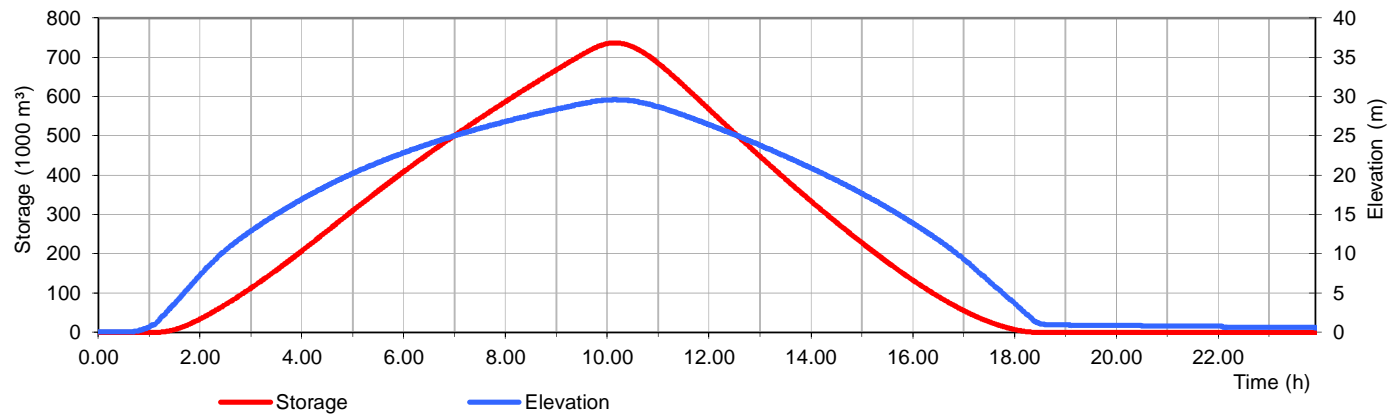
Flow	n300_2h	Dam high	30 m
max. Inflow	125.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	45.60 m³/s		
Elevation	29.80 m		
Storage	492 300 m³		



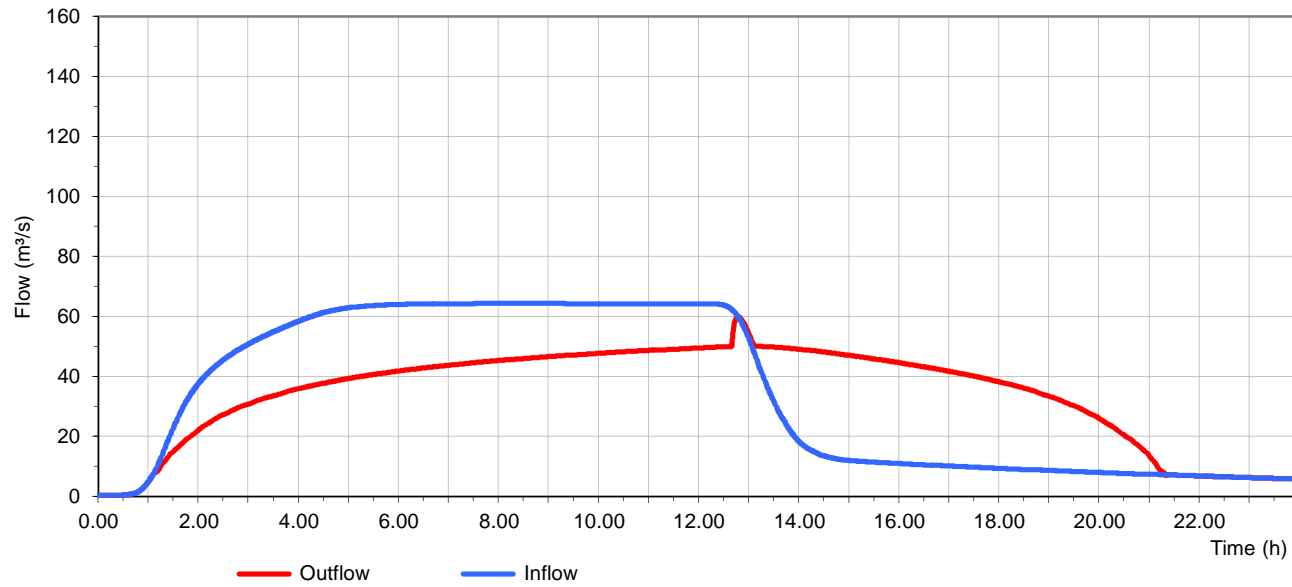
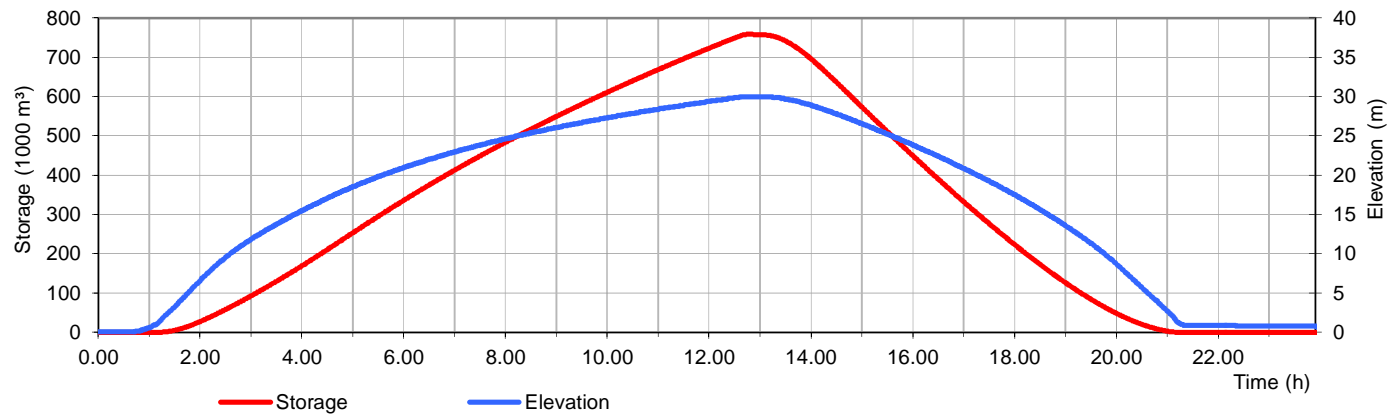
Flow	n300_3h	Dam high	30 m
max. Inflow	112.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	47.20 m³/s		
Elevation	31.70 m		
Storage	577 800 m³		



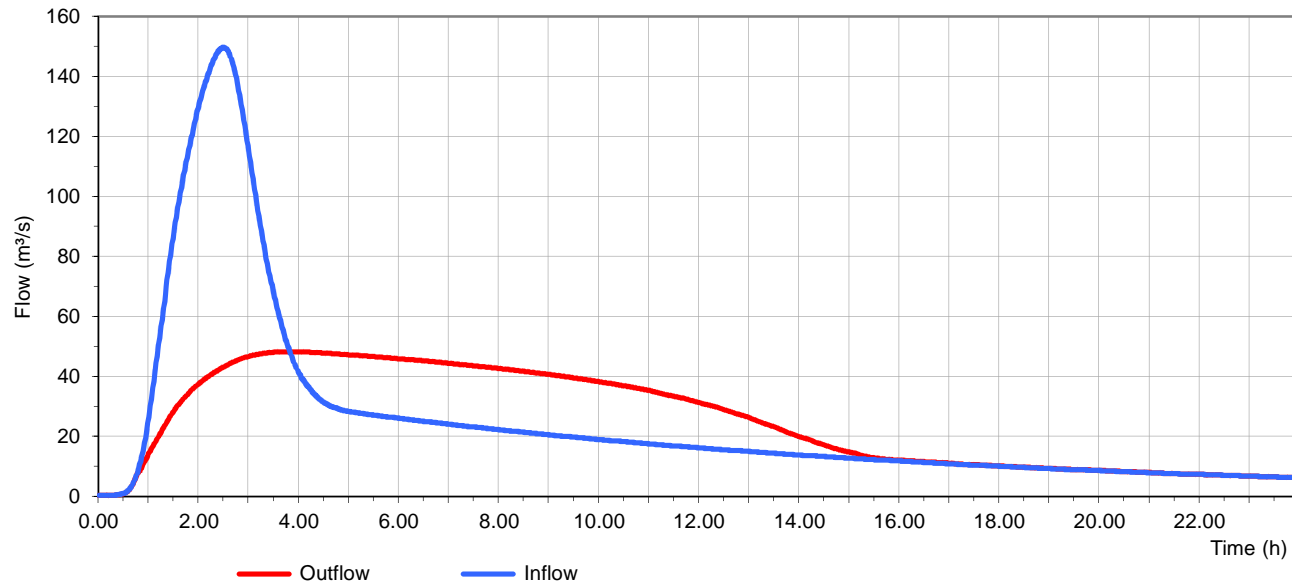
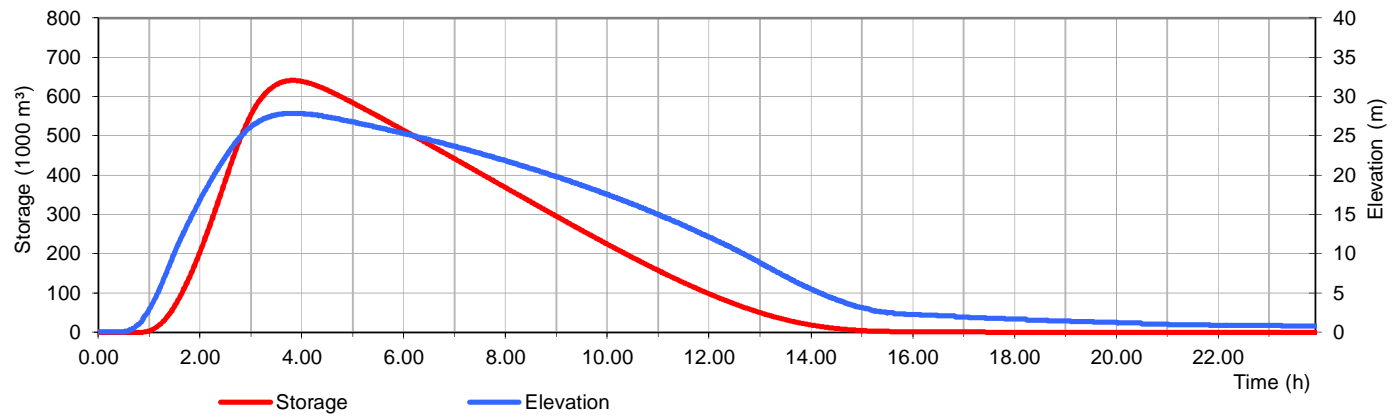
Flow	n300_5h	Dam hight	30 m
max. Inflow	96.10 m³/s	Bottom outlet	50 m³/s
max. Outflow	49.90 m³/s		
Elevation	34.80 m		
Storage	743 800 m³		



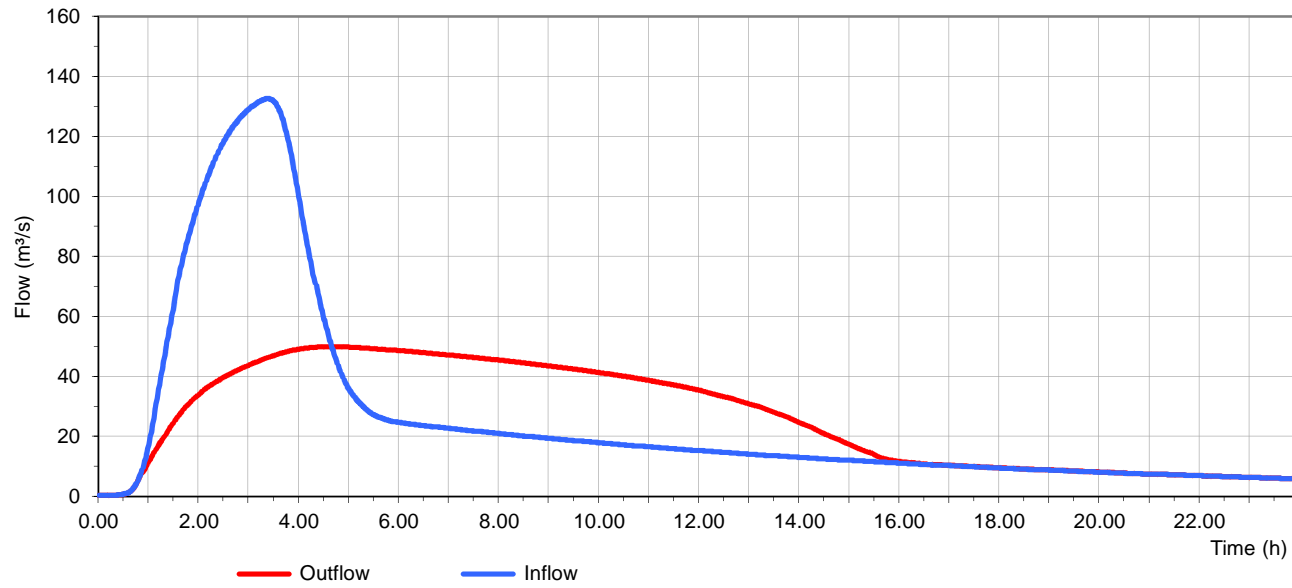
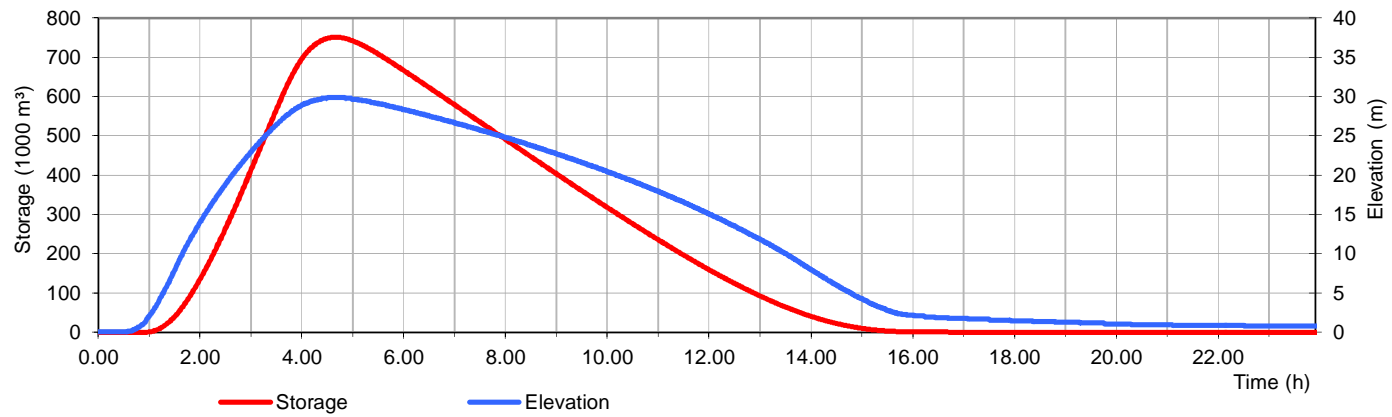
Flow	n300_9h	Dam high	30 m
max. Inflow	70.50 m³/s	Bottom outlet	50 m³/s
max. Outflow	49.80 m³/s		
Elevation	34.70 m		
Storage	737 600 m³		



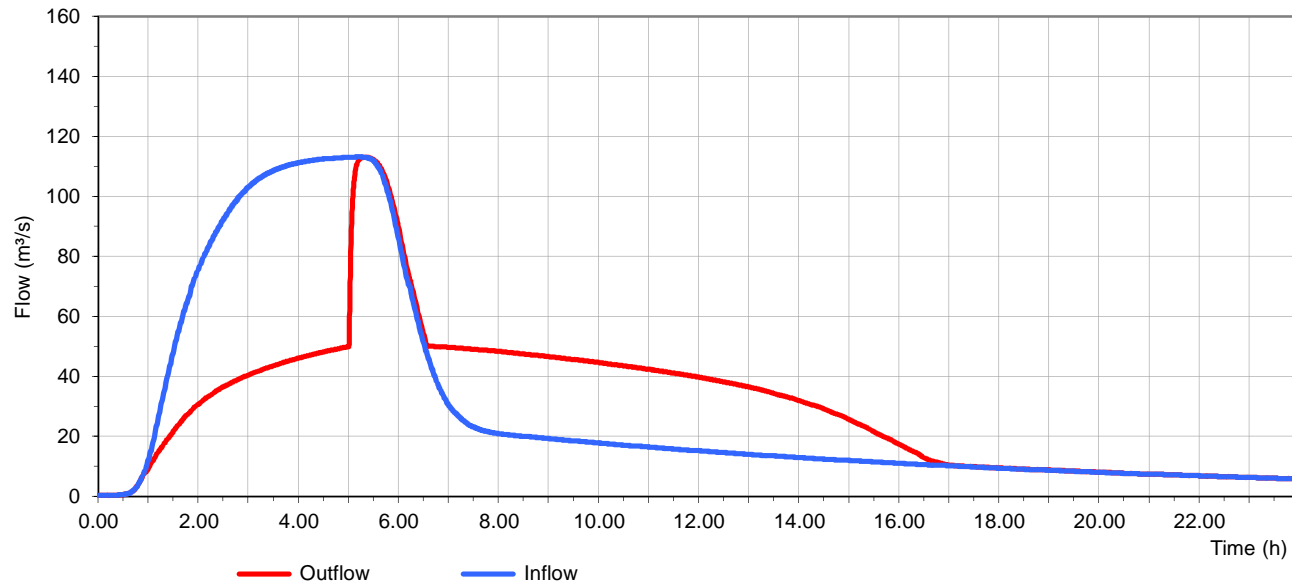
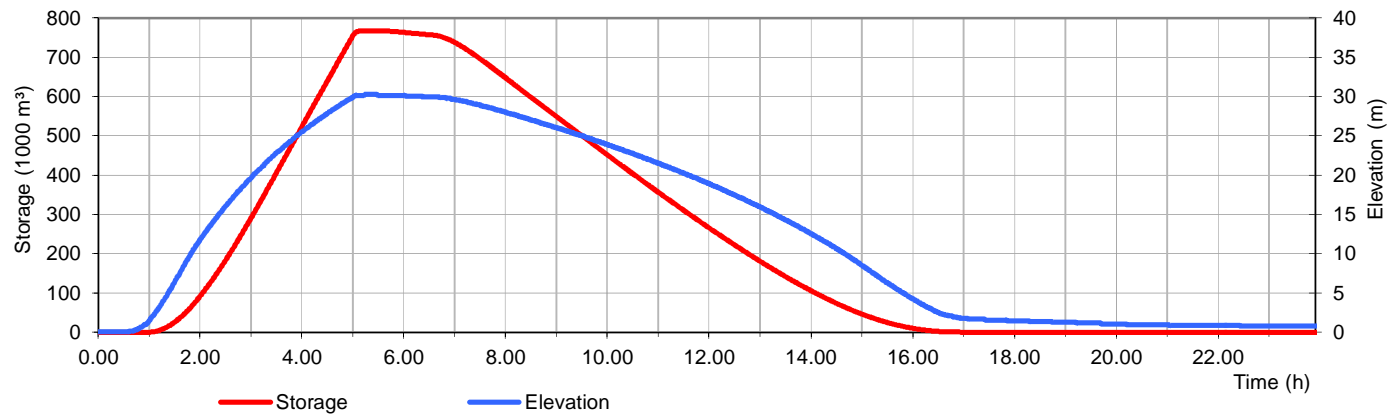
Flow	n300_12h	Dam high	30 m
max. Inflow	64.40 m³/s	Bottom outlet	50 m³/s
max. Outflow	60.00 m³/s		
Elevation	35.00 m		
Storage	759 200 m³		



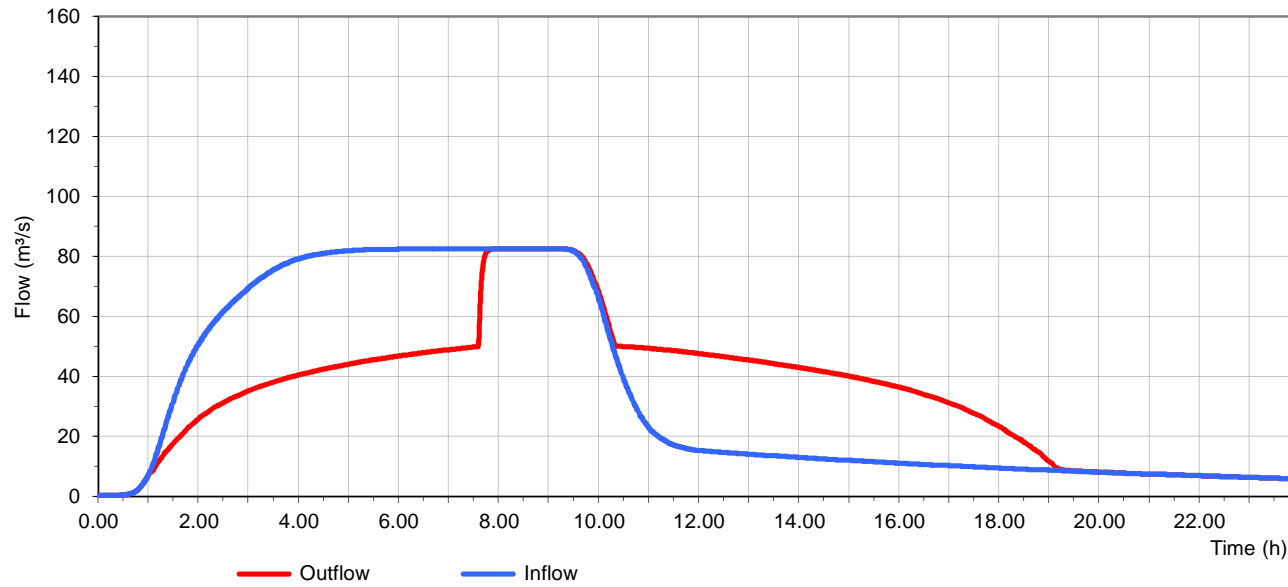
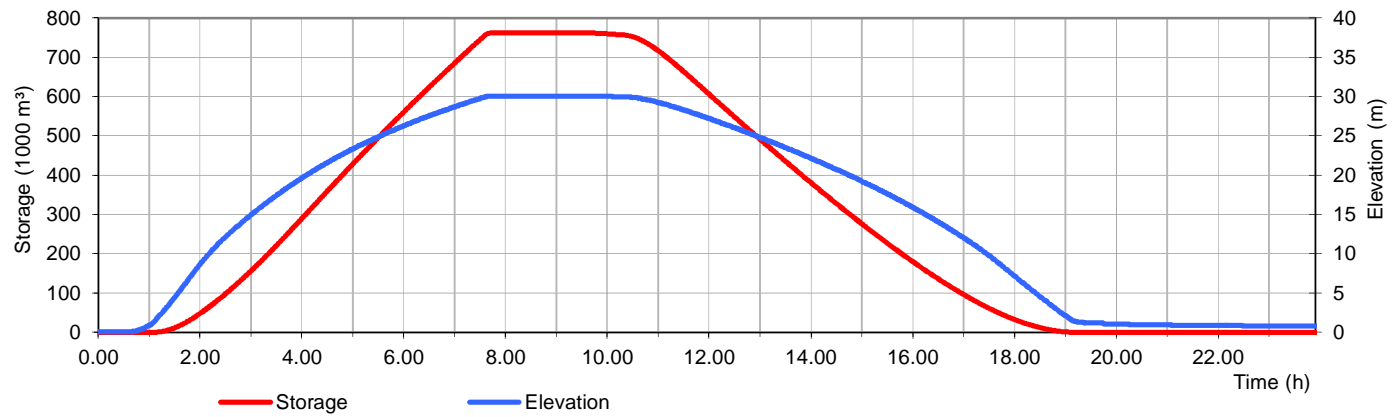
Flow	n1000_2h	Dam high	30 m
max. Inflow	149.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	48.30 m³/s		
Elevation	32.90 m		
Storage	641 900 m³		



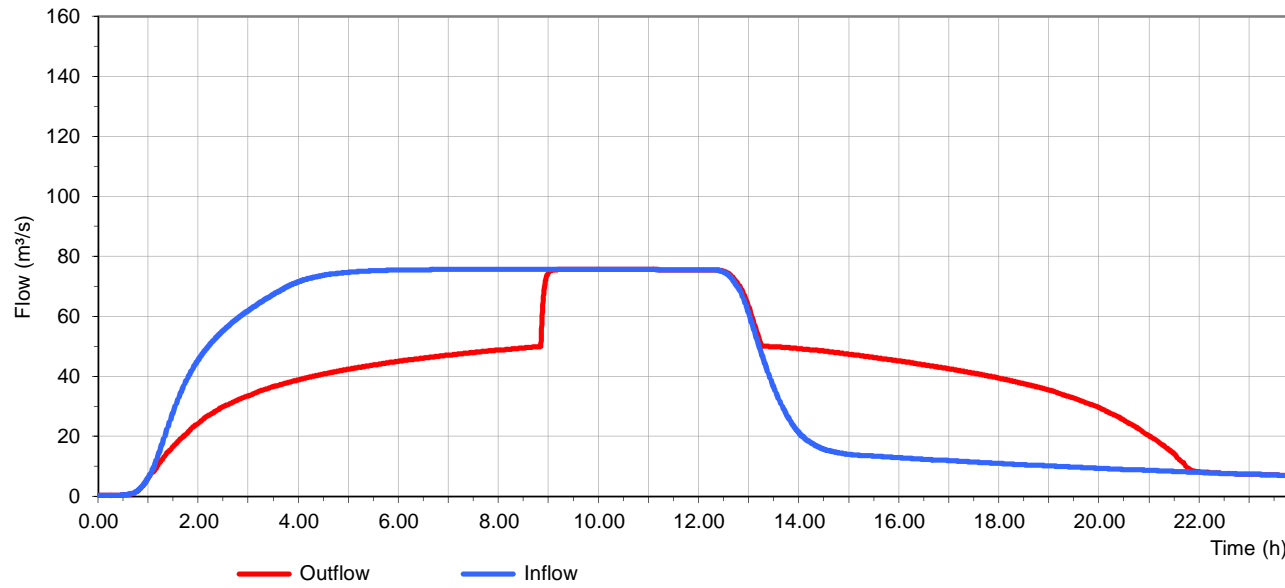
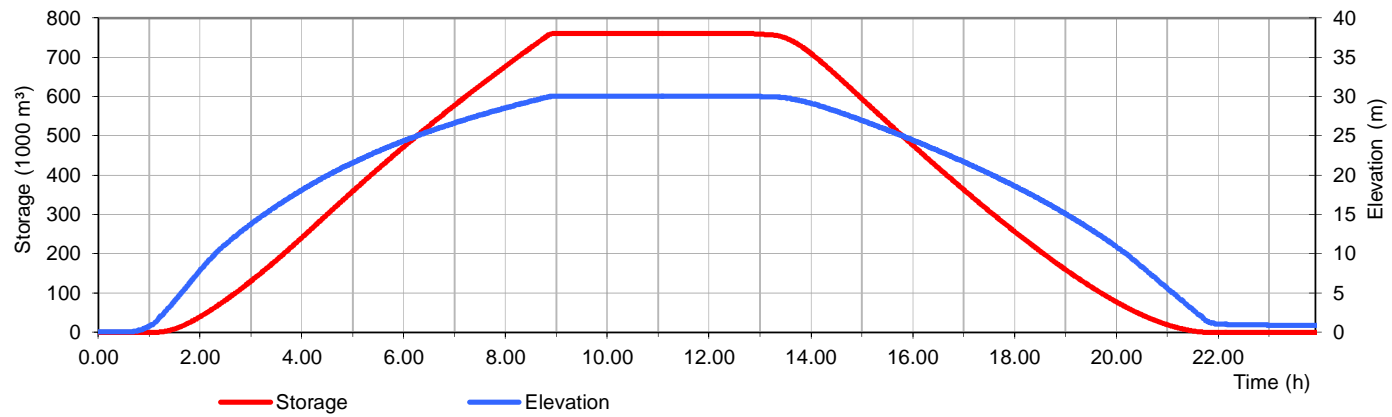
Flow	n1000_3h	Dam hight	30 m
max. Inflow	132.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	50.00 m³/s		
Elevation	34.90 m		
Storage	751 800 m³		



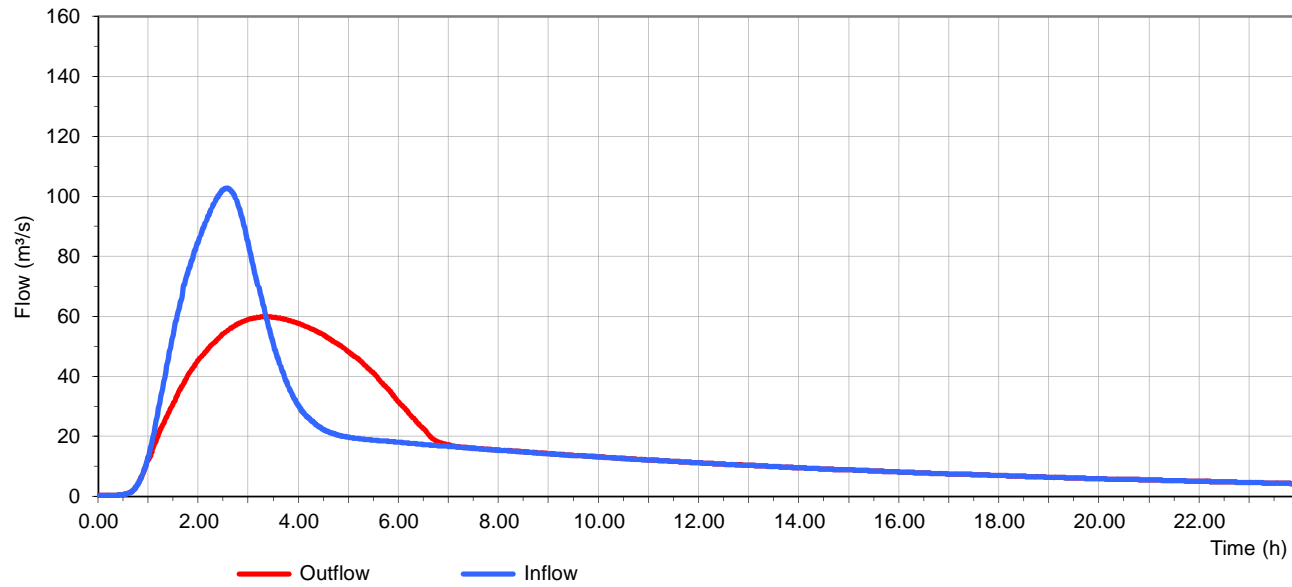
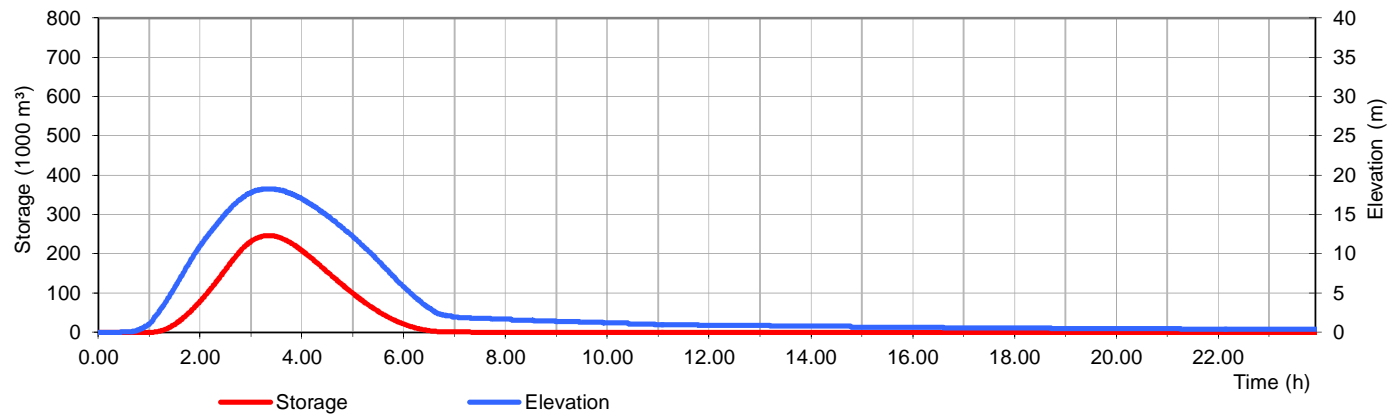
Flow	n1000_5h	Dam high	30 m
max. Inflow	113.30 m³/s	Bottom outlet	50 m³/s
max. Outflow	113.10 m³/s		
Elevation	35.30 m		
Storage	768 200 m³		



Flow	n1000_9h	Dam high	30 m
max. Inflow	82.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	82.70 m³/s		
Elevation	35.10 m		
Storage	763 000 m³		

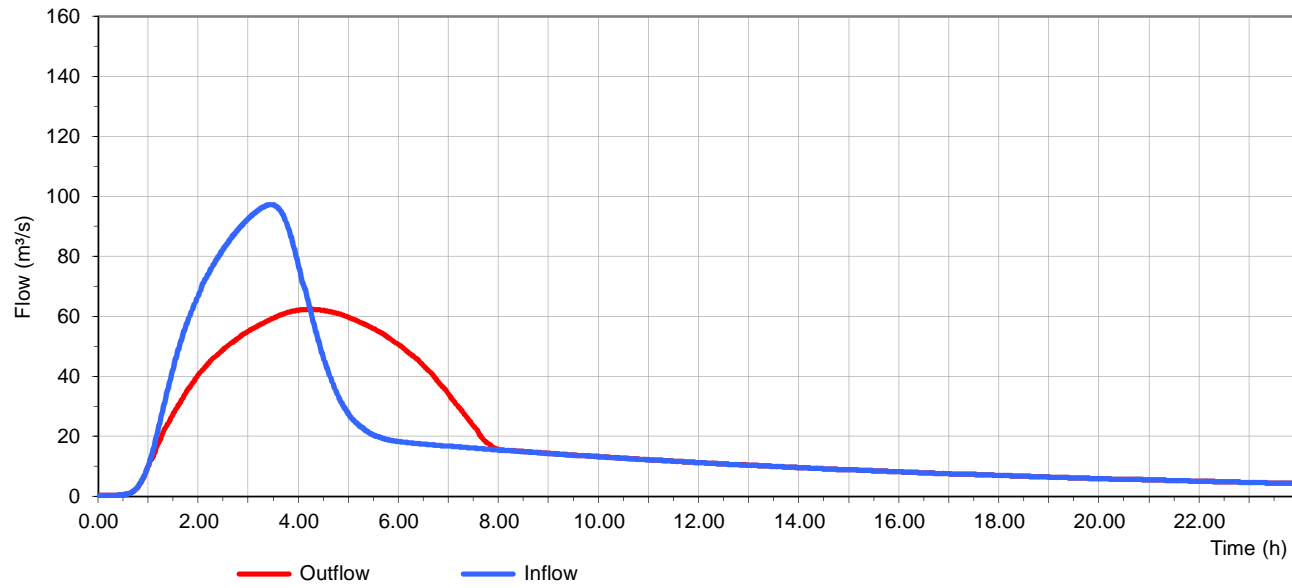
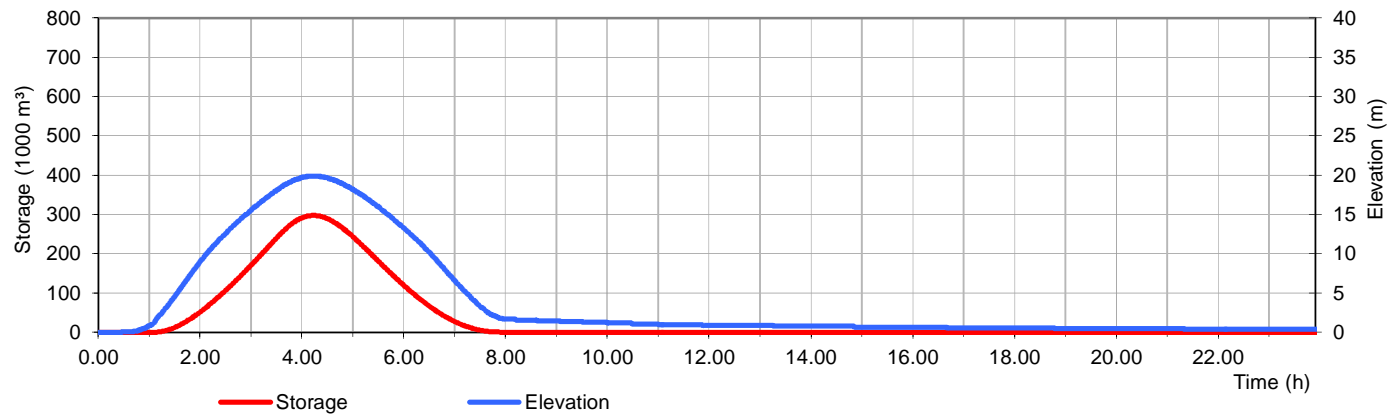


Flow	n1000_12h	Dam hight	30 m
max. Inflow	75.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	75.70 m³/s		
Elevation	35.10 m		
Storage	761 800 m³		

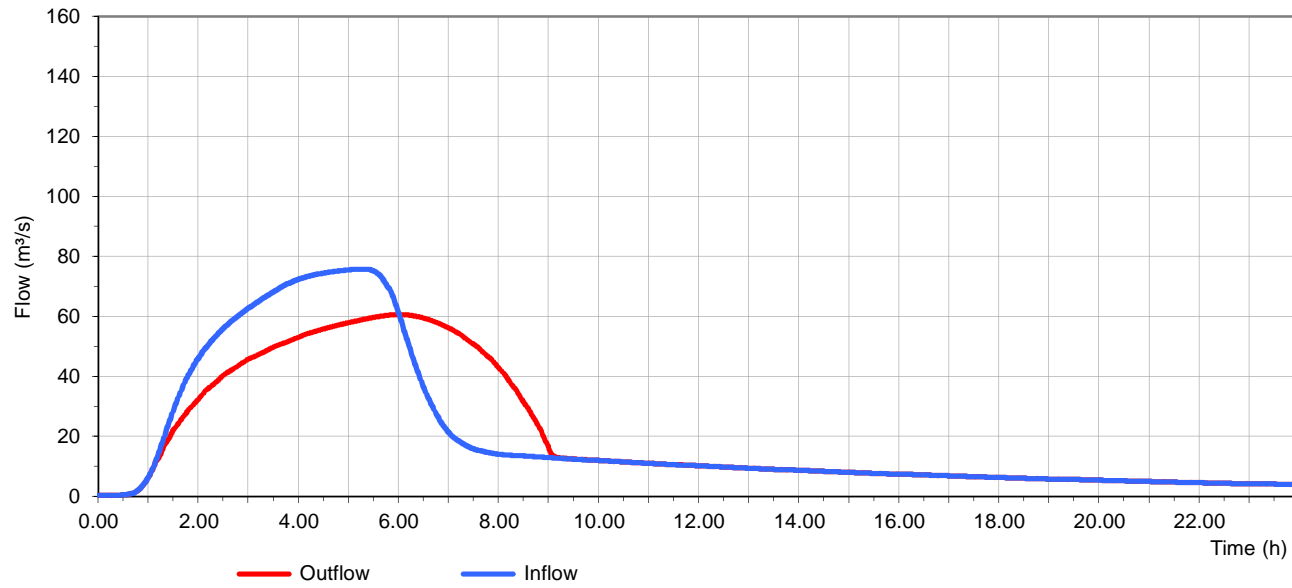
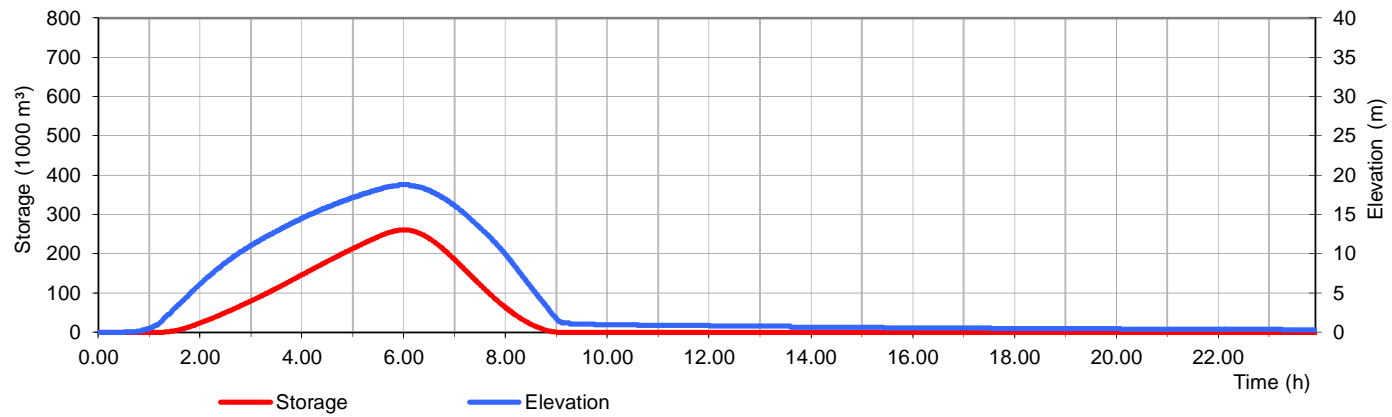


Flow **n100_2h**
 max. Inflow 102.80 m³/s
 max. Outflow 59.90 m³/s
 Elevation 23.30 m
 Storage 246 900 m³

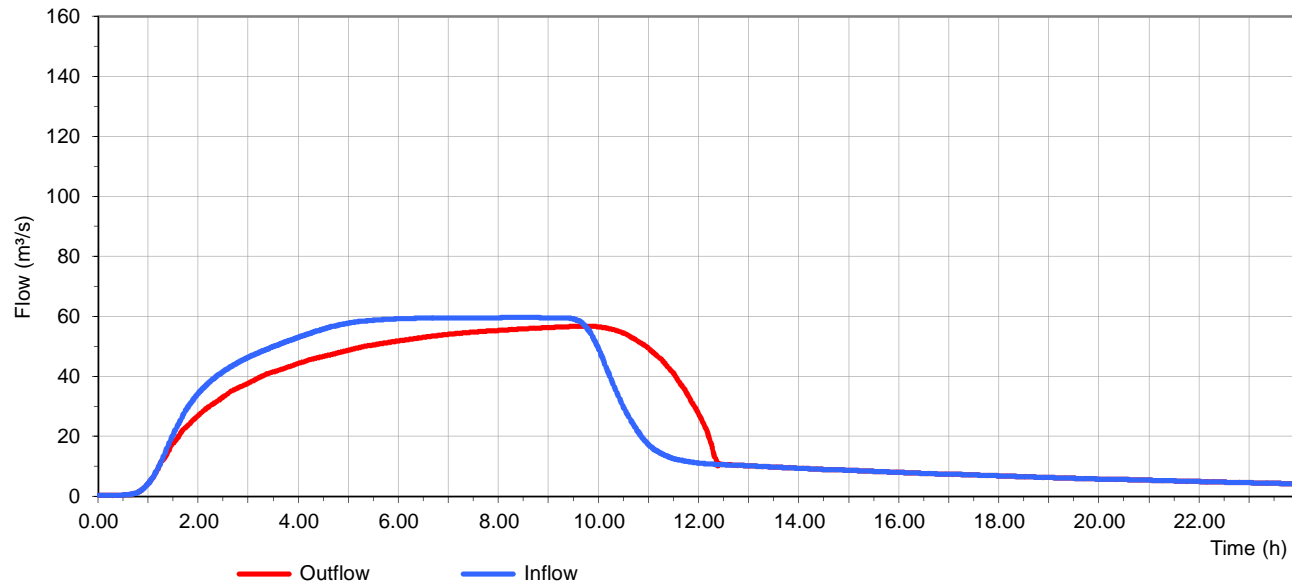
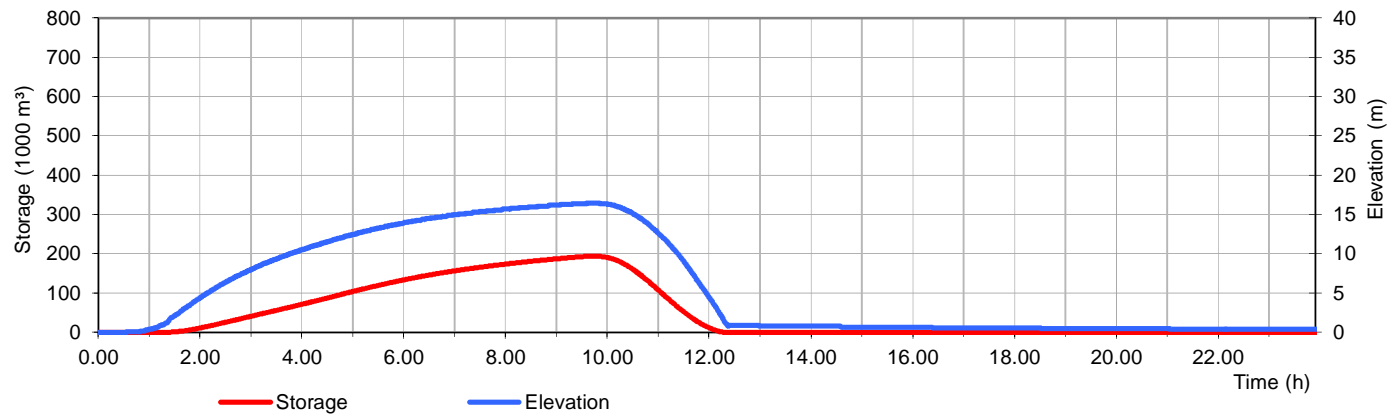
Dam high 25 m
 Bottom outlet 70 m³/s



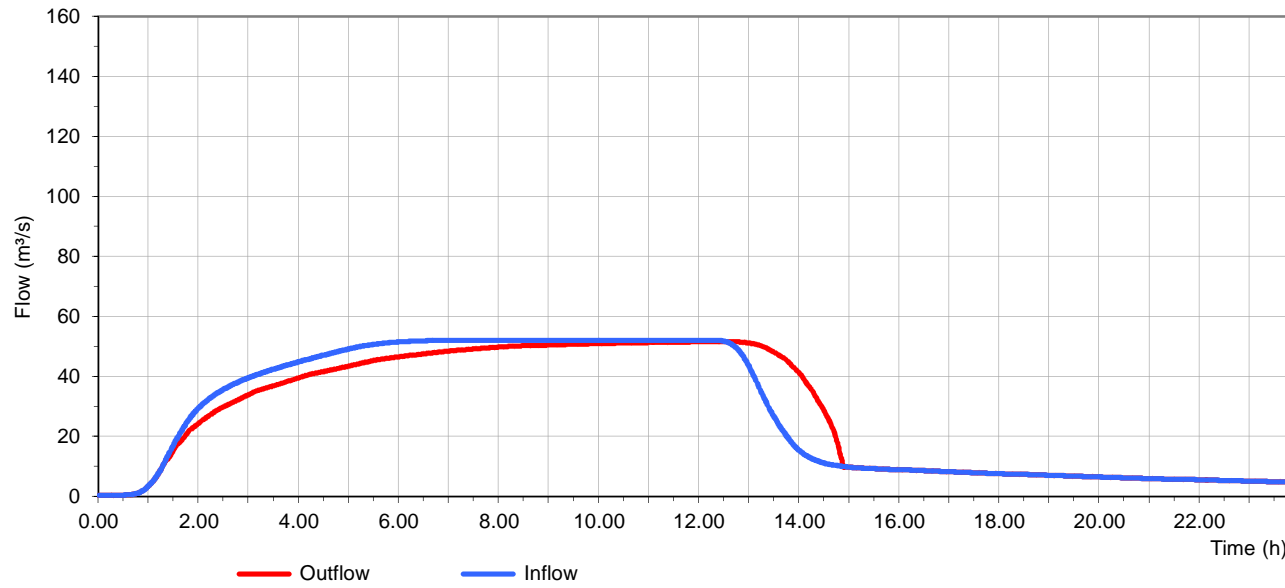
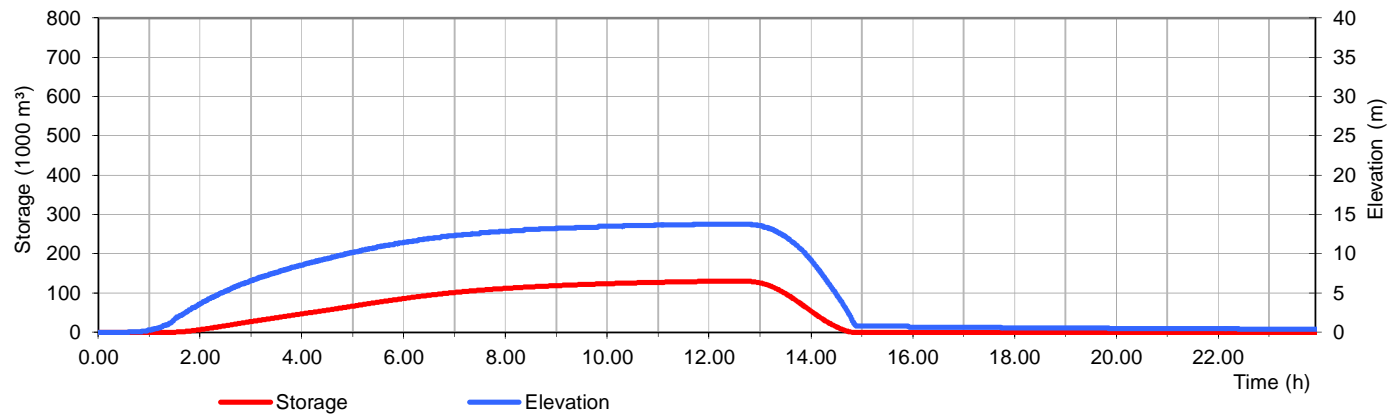
Flow	n100_3h	Dam high	25 m
max. Inflow	97.40 m³/s	Bottom outlet	70 m³/s
max. Outflow	62.50 m³/s		
Elevation	24.90 m		
Storage	298 100 m³		



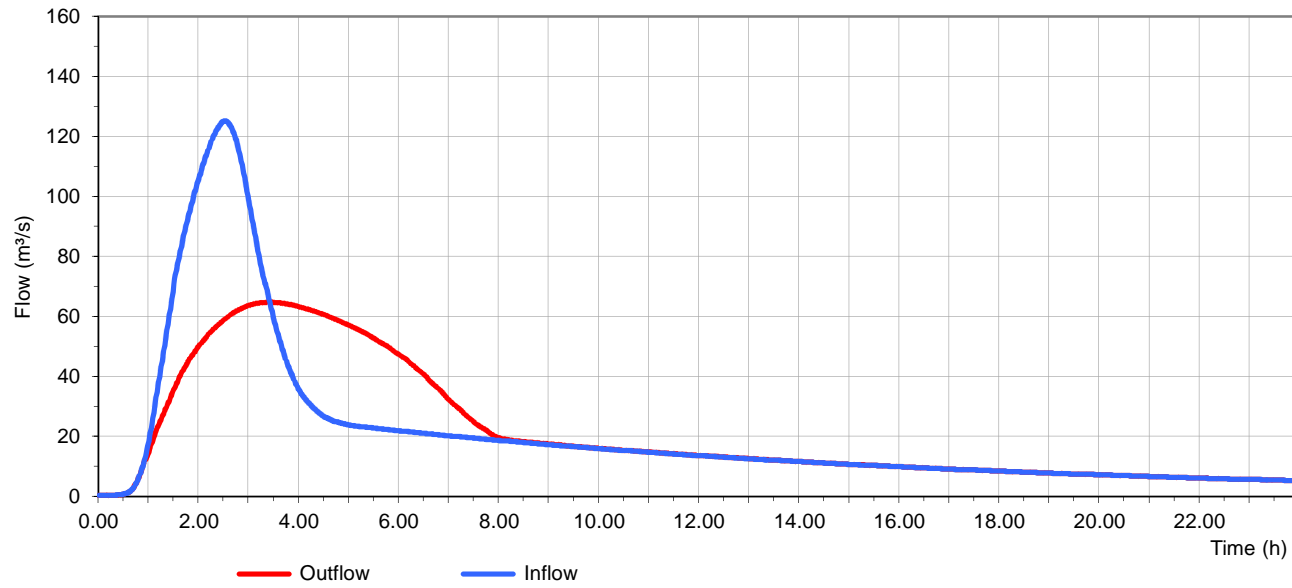
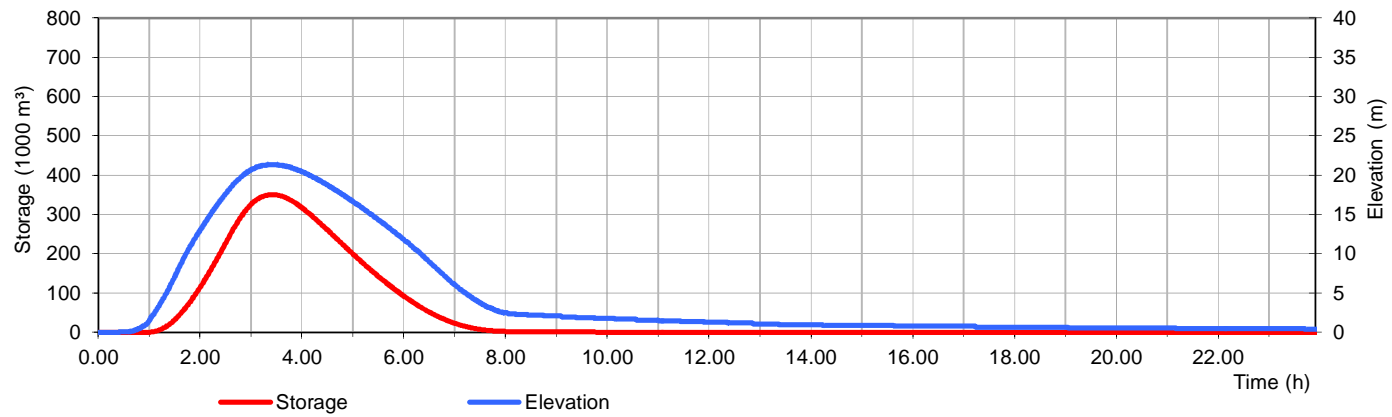
Flow	n100_5h	Dam high	25 m
max. Inflow	75.80 m³/s	Bottom outlet	70 m³/s
max. Outflow	60.70 m³/s		
Elevation	23.80 m		
Storage	261 400 m³		



Flow	n100_9h	Dam high	25 m
max. Inflow	59.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	56.80 m³/s		
Elevation	21.50 m		
Storage	194 300 m³		

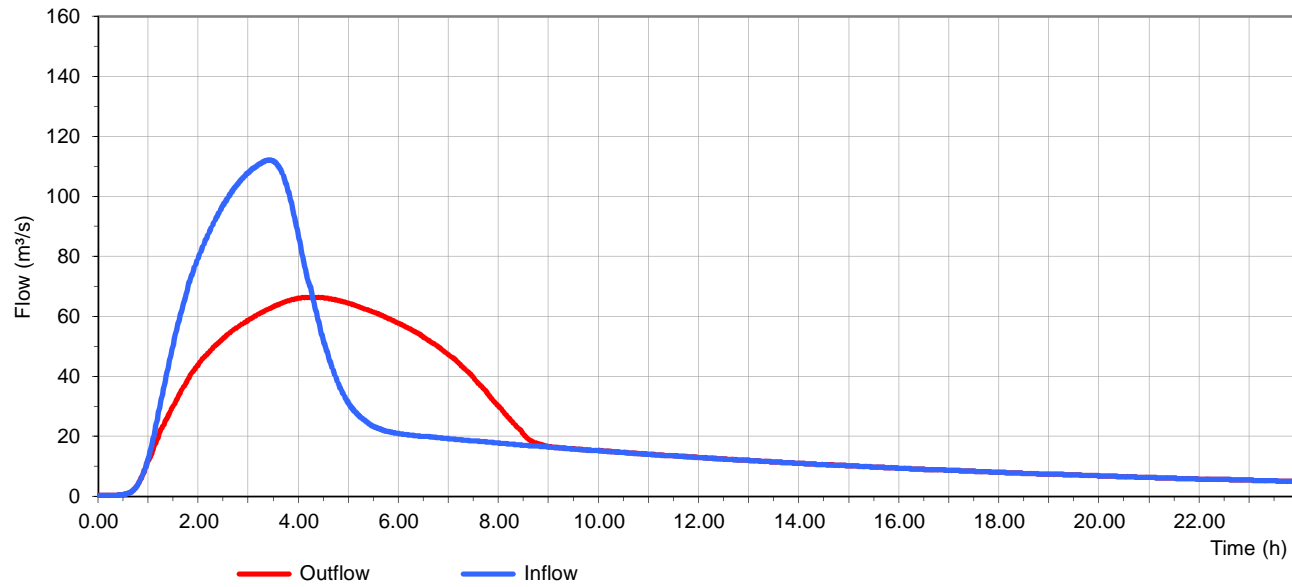
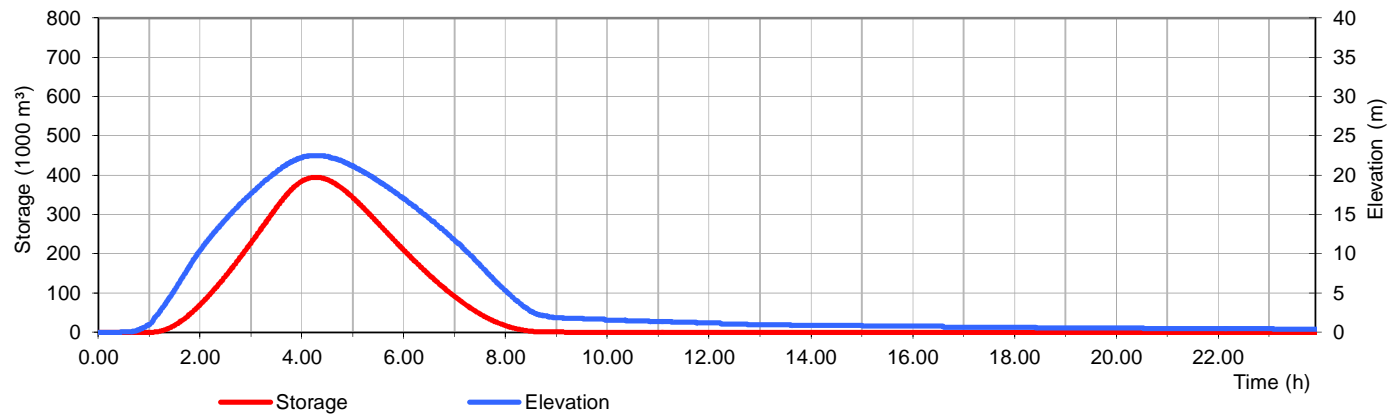


Flow	n100_12h	Dam high	25 m
max. Inflow	52.20 m³/s	Bottom outlet	70 m³/s
max. Outflow	51.70 m³/s		
Elevation	18.80 m		
Storage	131 200 m³		

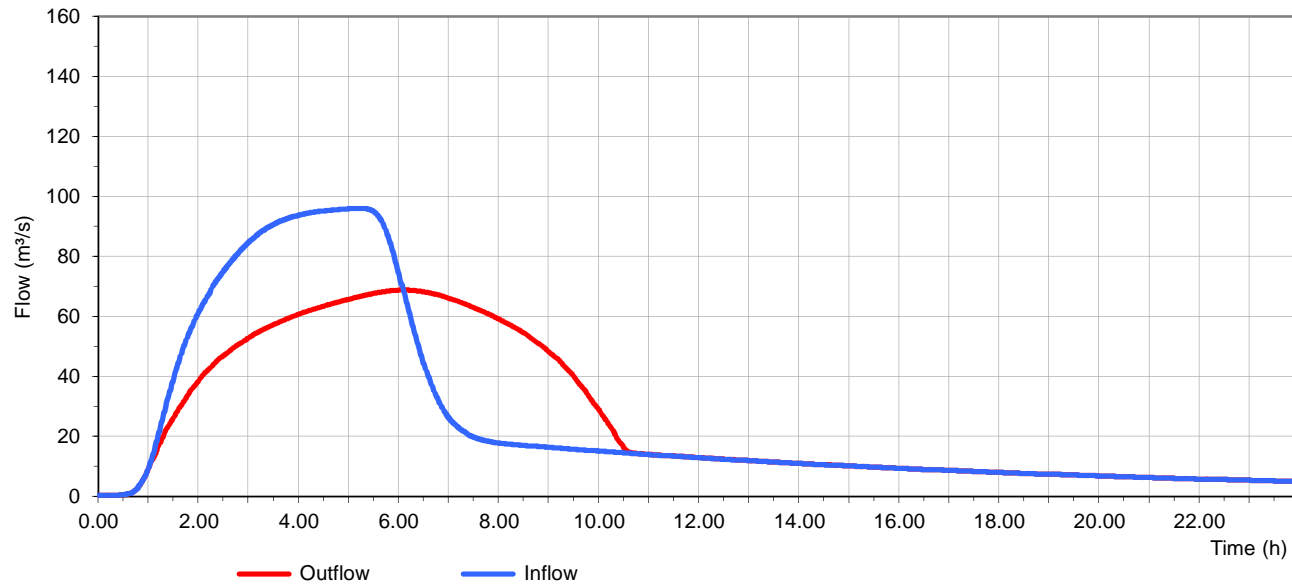
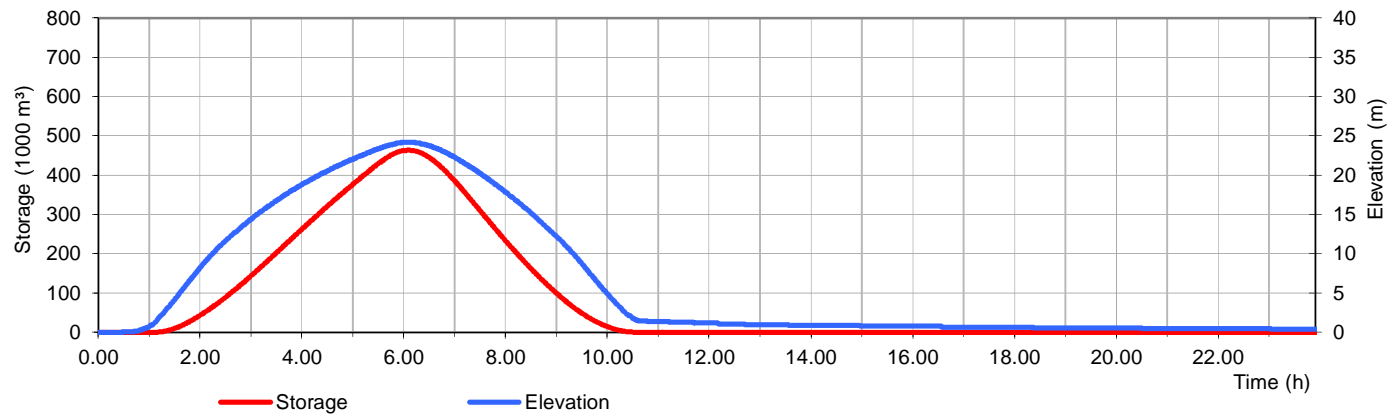


Flow **n300_2h**
 max. Inflow 125.20 m³/s
 max. Outflow 64.80 m³/s
 Elevation 26.40 m
 Storage 351 100 m³

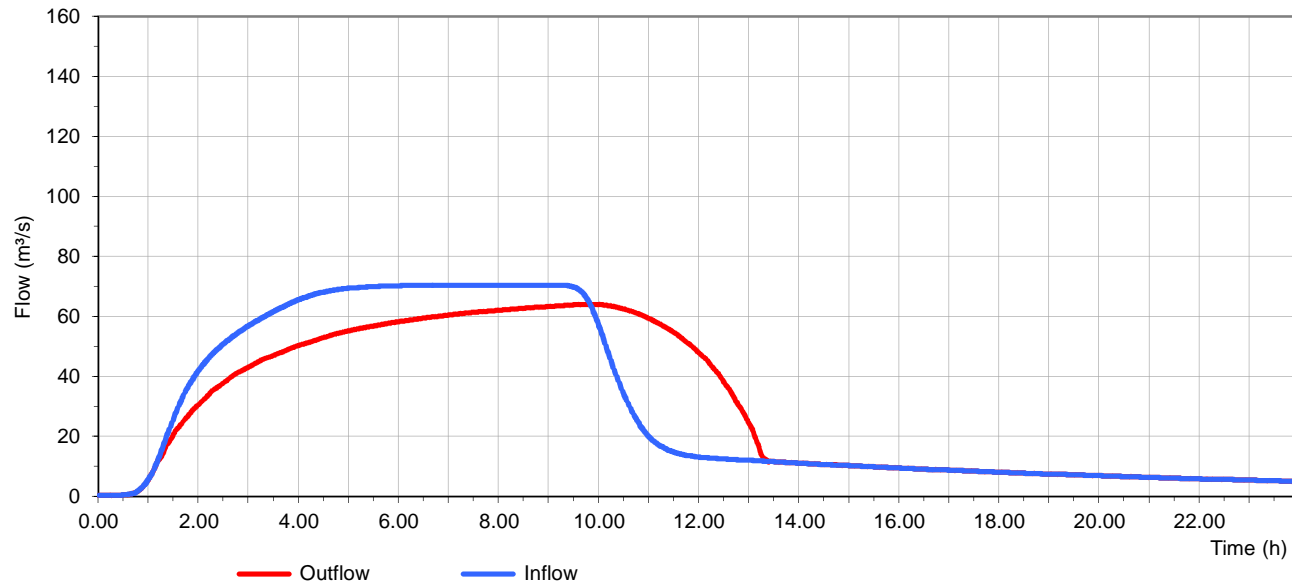
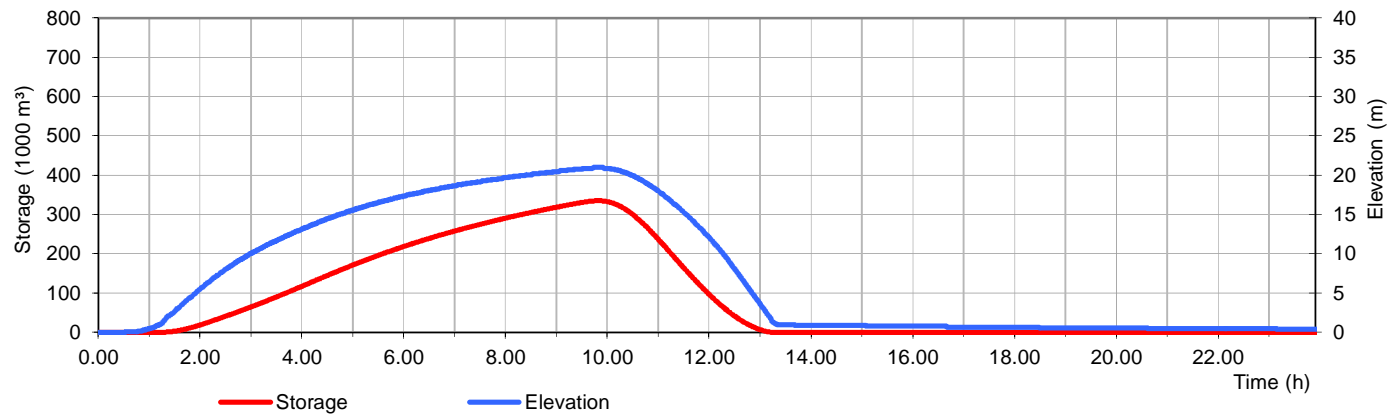
Dam high 25 m
 Bottom outlet 70 m³/s



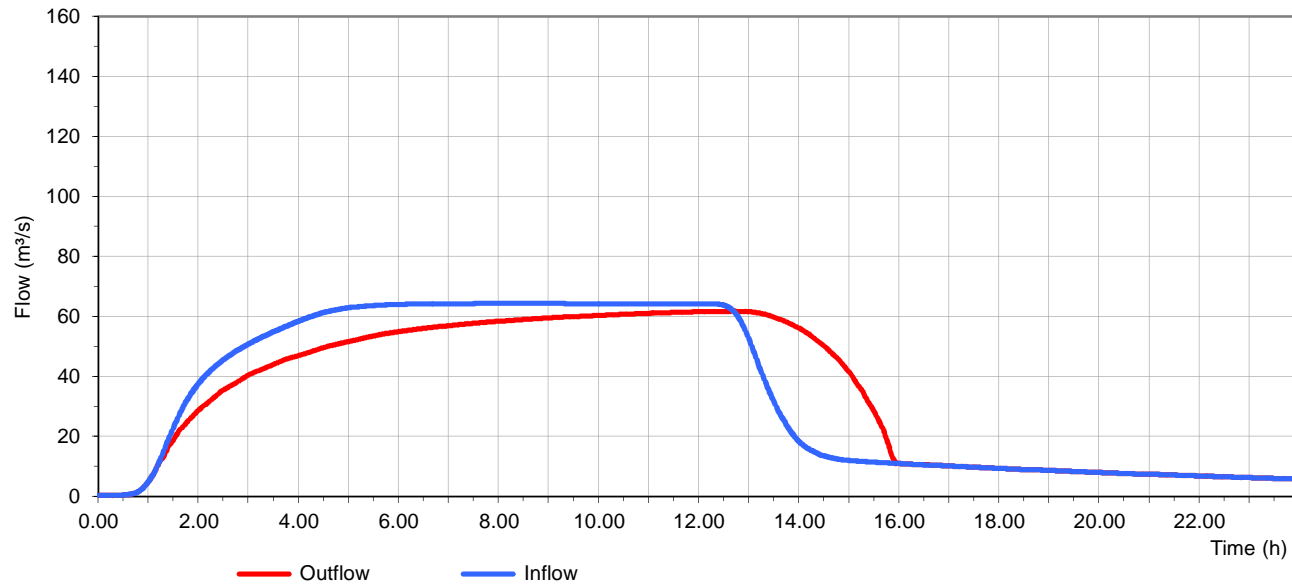
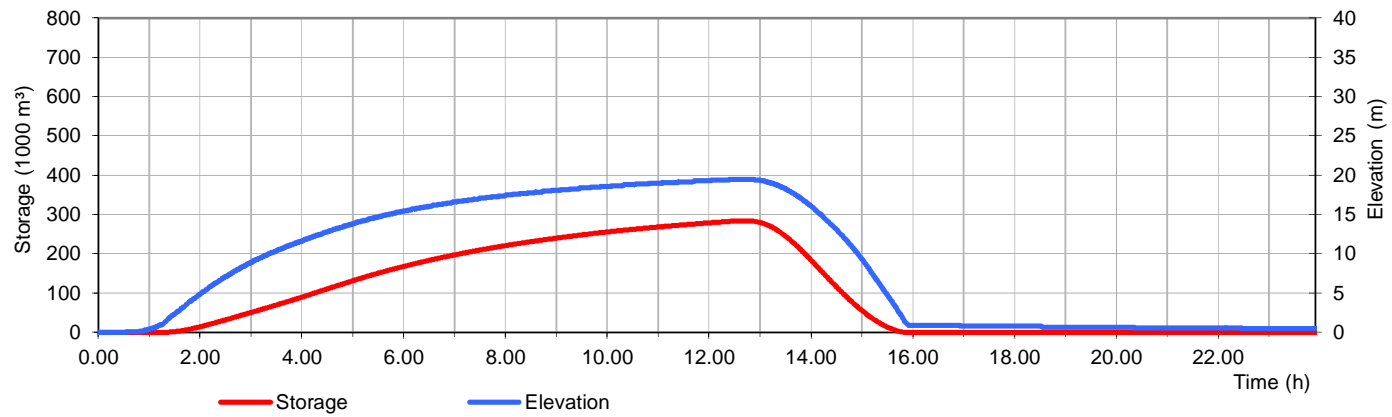
Flow	n300_3h	Dam high	25 m
max. Inflow	112.20 m ³ /s	Bottom outlet	70 m ³ /s
max. Outflow	66.50 m ³ /s		
Elevation	27.50 m		
Storage	395 100 m ³		



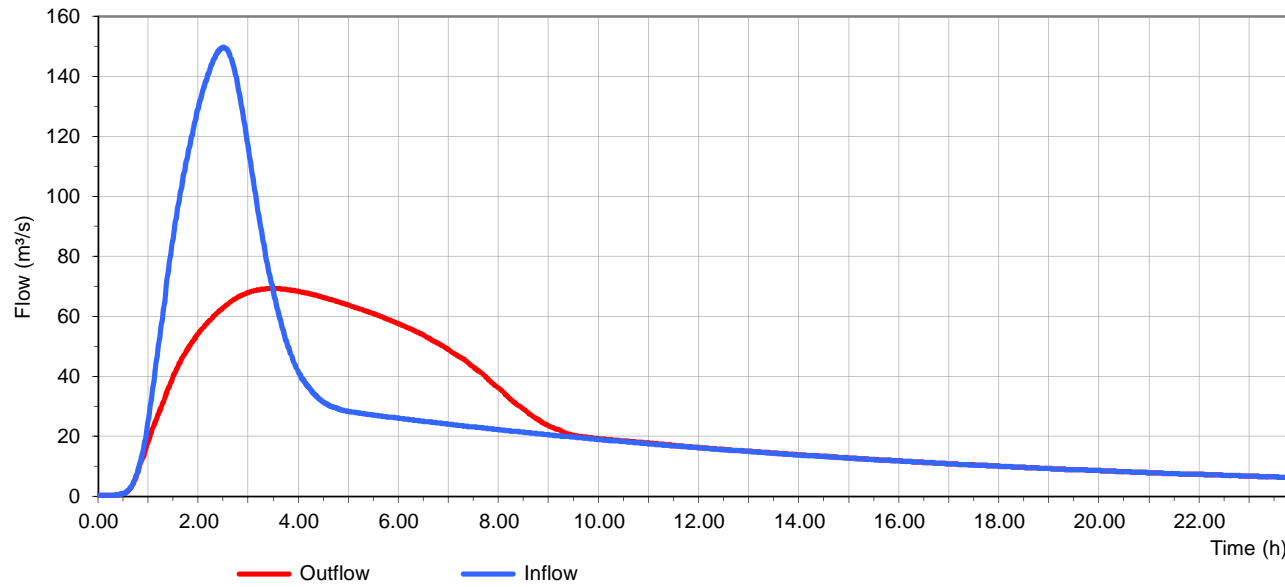
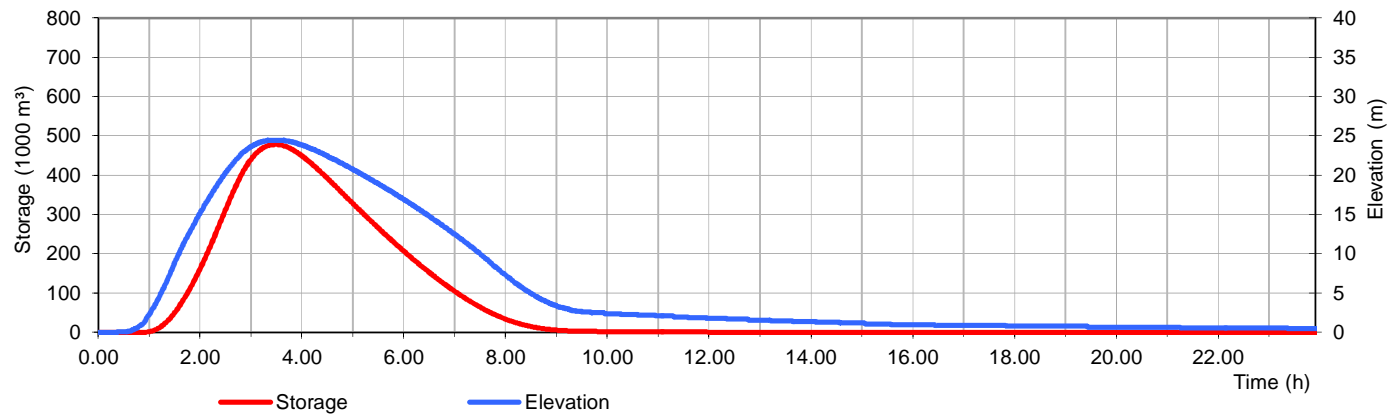
Flow	n300_5h	Dam high	25 m
max. Inflow	96.10 m³/s	Bottom outlet	70 m³/s
max. Outflow	68.90 m³/s		
Elevation	29.20 m		
Storage	464 100 m³		



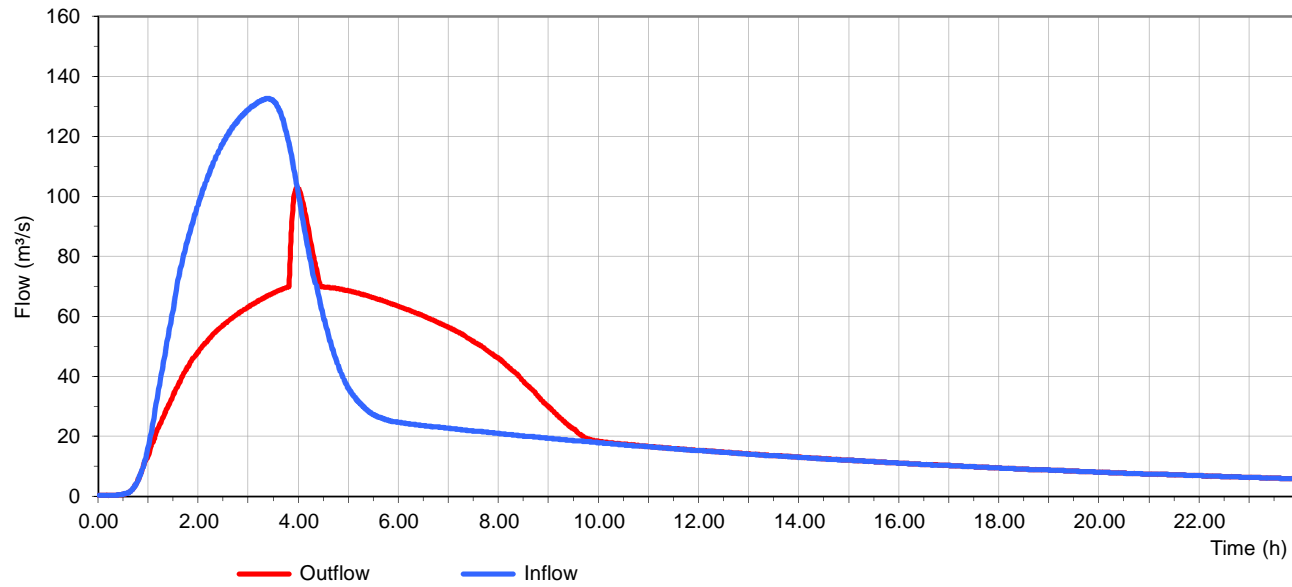
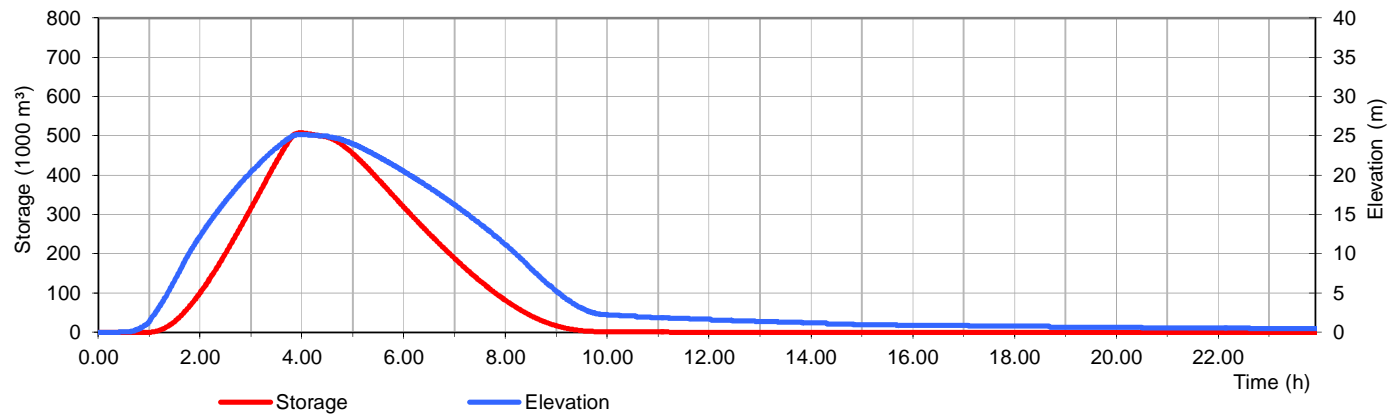
Flow	n300_9h	Dam high	25 m
max. Inflow	70.50 m³/s	Bottom outlet	70 m³/s
max. Outflow	64.10 m³/s		
Elevation	26.00 m		
Storage	335 400 m³		



Flow	n300_12h	Dam high	25 m
max. Inflow	64.40 m³/s	Bottom outlet	70 m³/s
max. Outflow	61.90 m³/s		
Elevation	24.50 m		
Storage	284 600 m³		



Flow	n1000_2h	Dam high	25 m
max. Inflow	149.80 m³/s	Bottom outlet	70 m³/s
max. Outflow	69.40 m³/s		
Elevation	29.50 m		
Storage	478 700 m³		



Flow **n1000_3h**

max. Inflow 132.70 m³/s

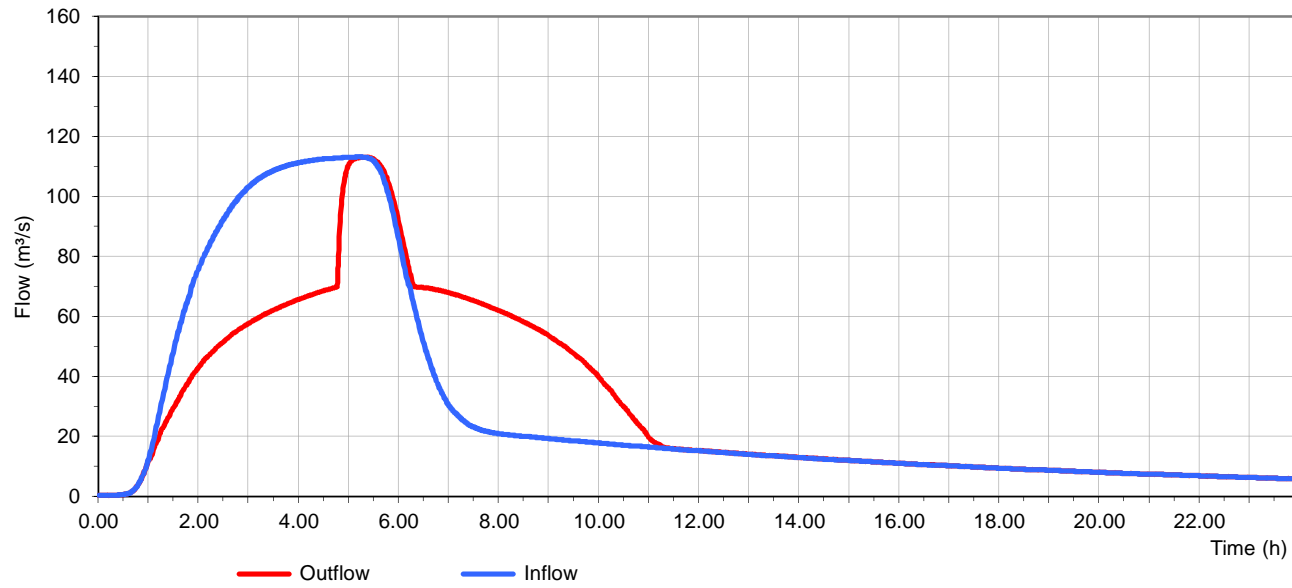
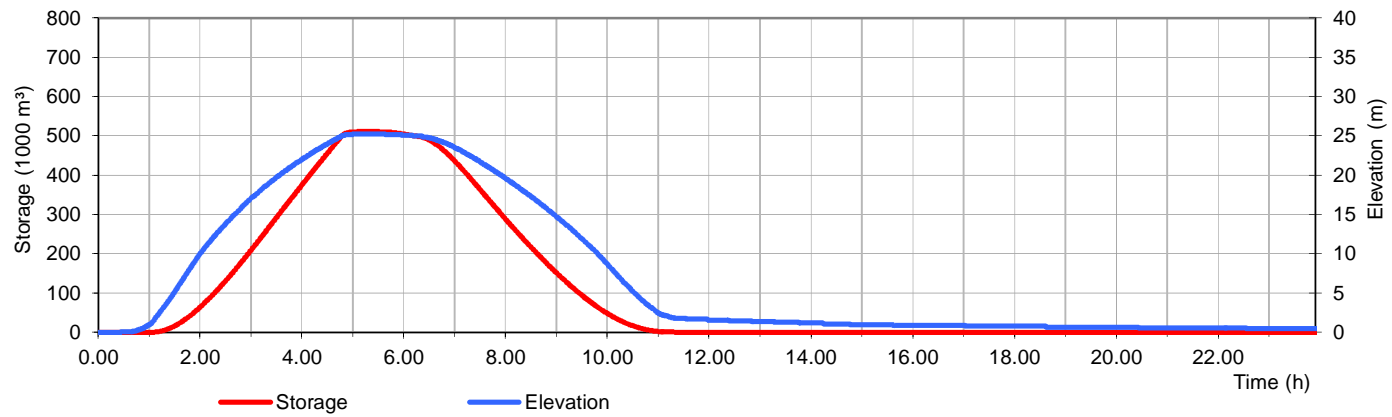
max. Outflow 103.10 m³/s

Elevation 30.20 m

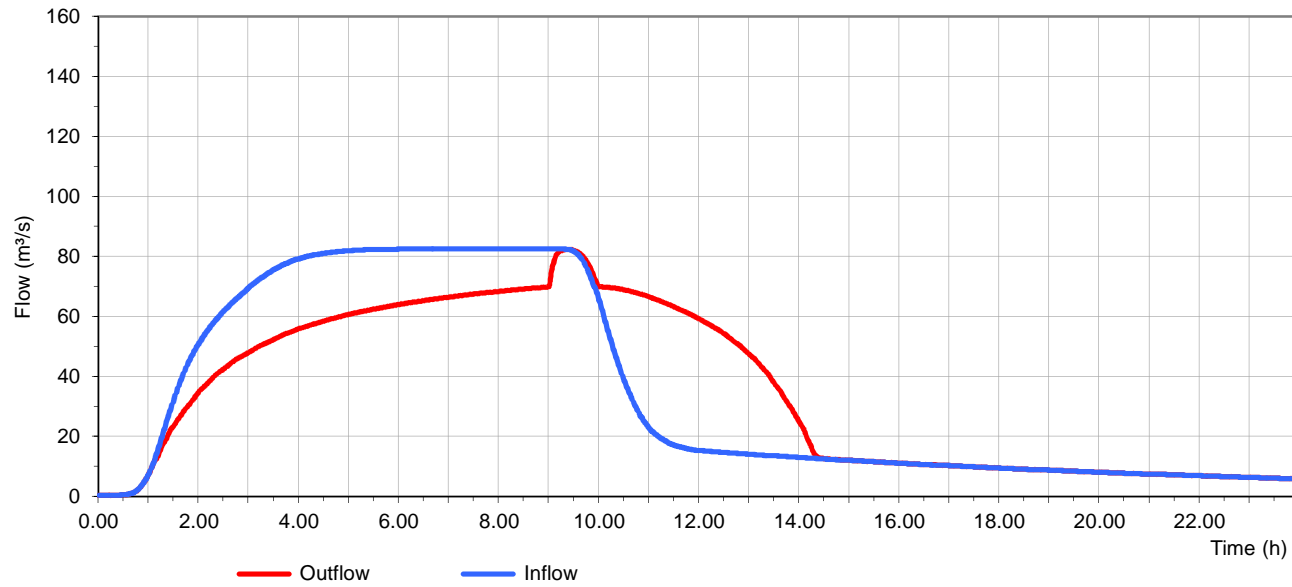
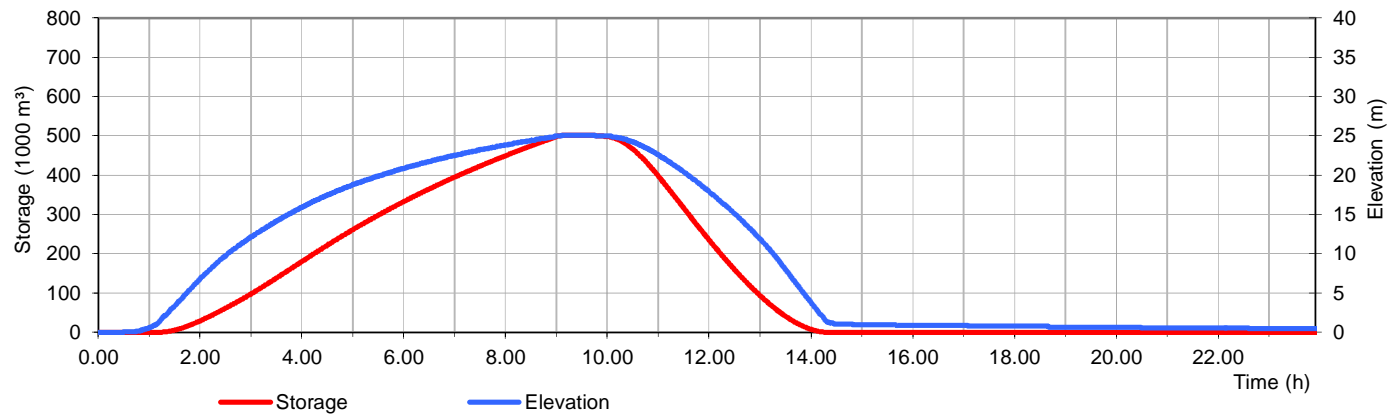
Storage 508 600 m³

Dam high 25 m

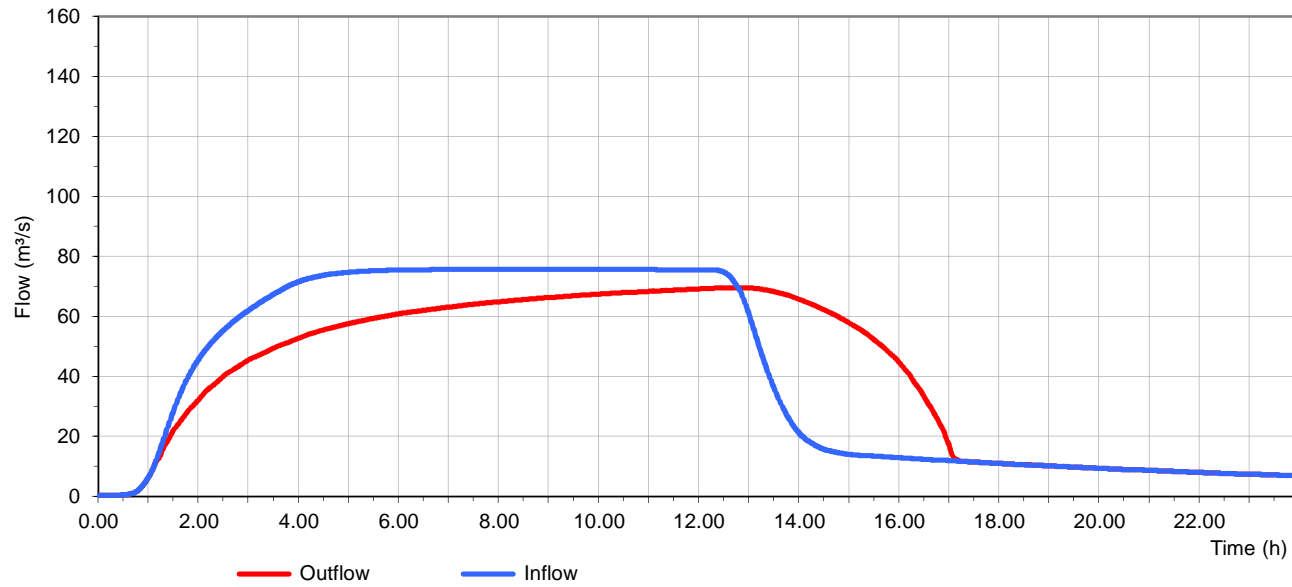
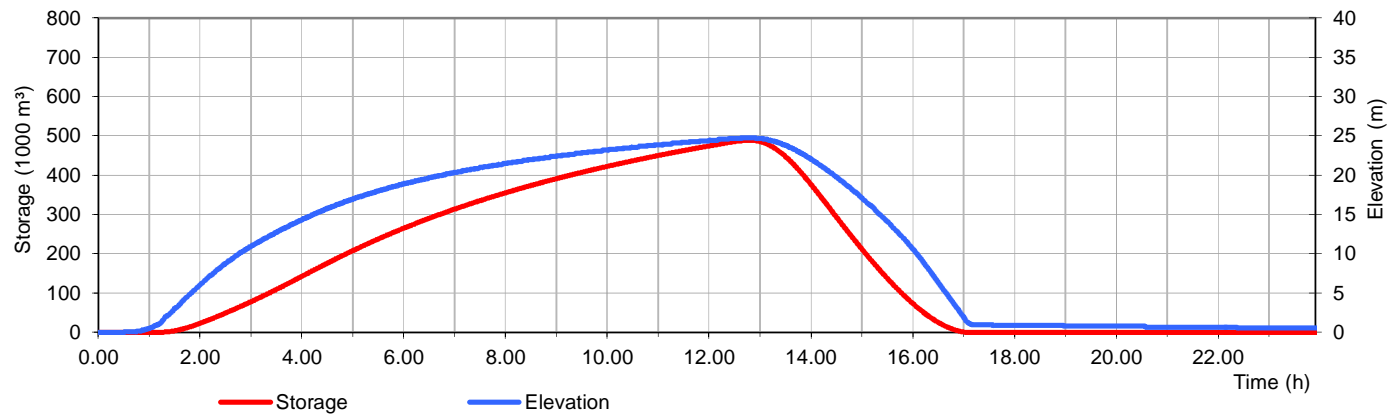
Bottom outlet 70 m³/s



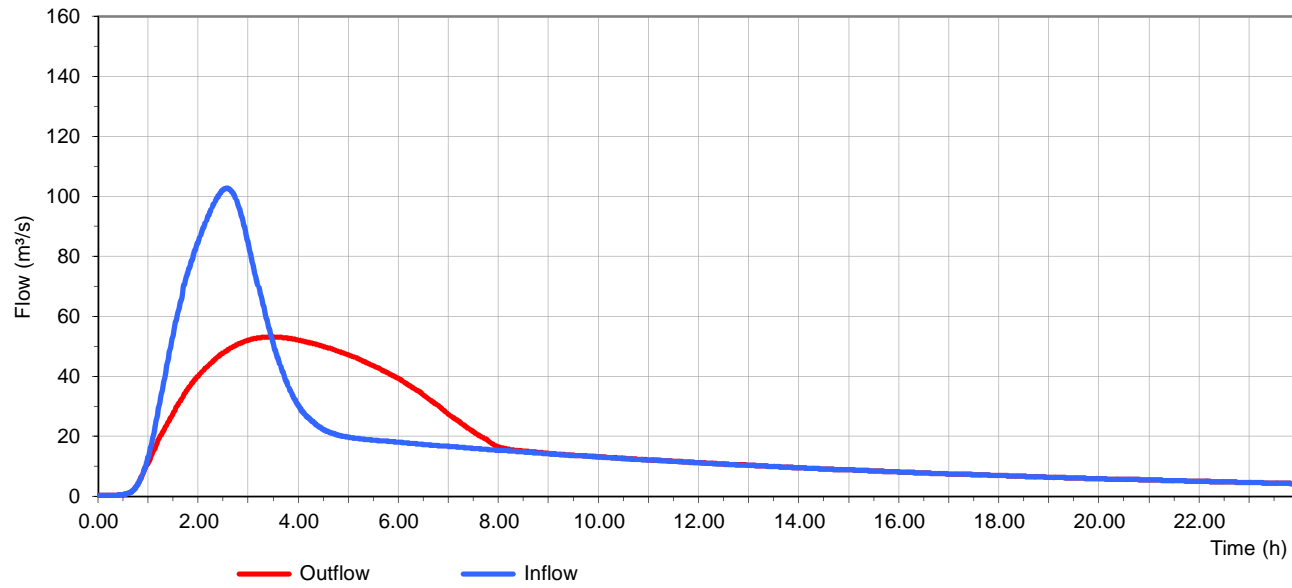
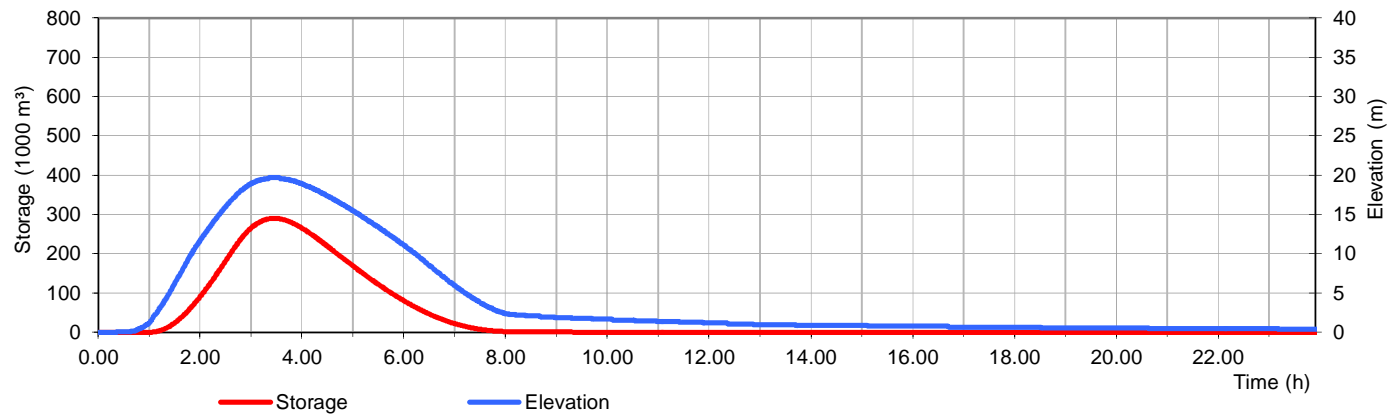
Flow	n1000_5h	Dam high	25 m
max. Inflow	113.30 m³/s	Bottom outlet	70 m³/s
max. Outflow	113.20 m³/s		
Elevation	30.30 m		
Storage	511 500 m³		



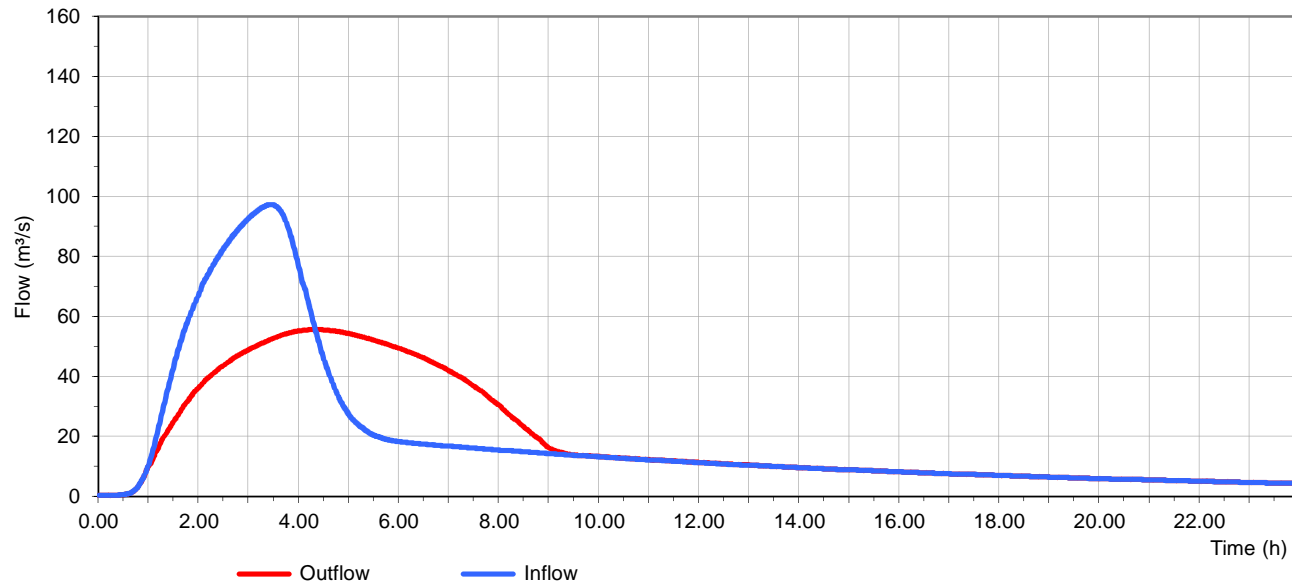
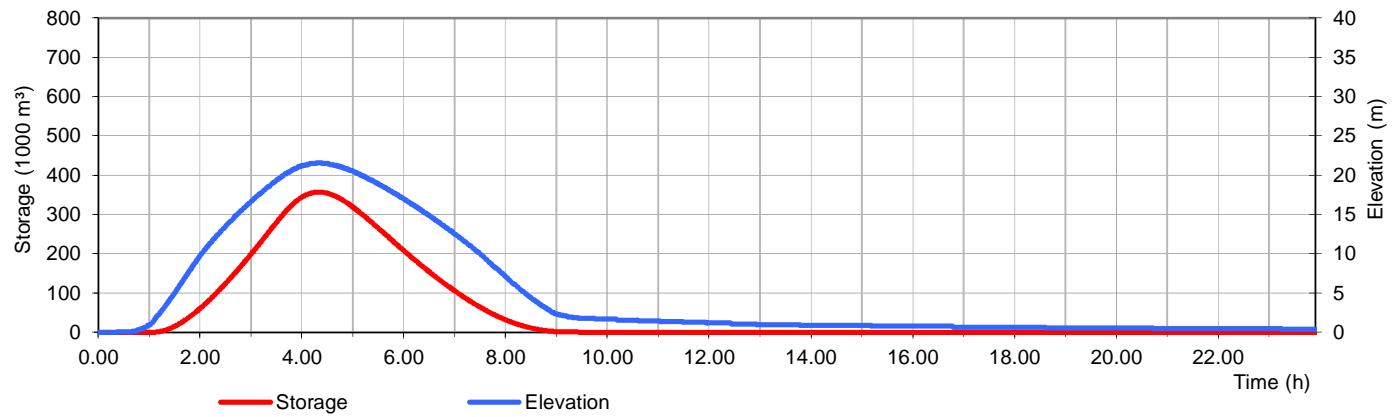
Flow	n1000_9h	Dam high	25 m
max. Inflow	82.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	82.40 m³/s		
Elevation	30.10 m		
Storage	502 700 m³		



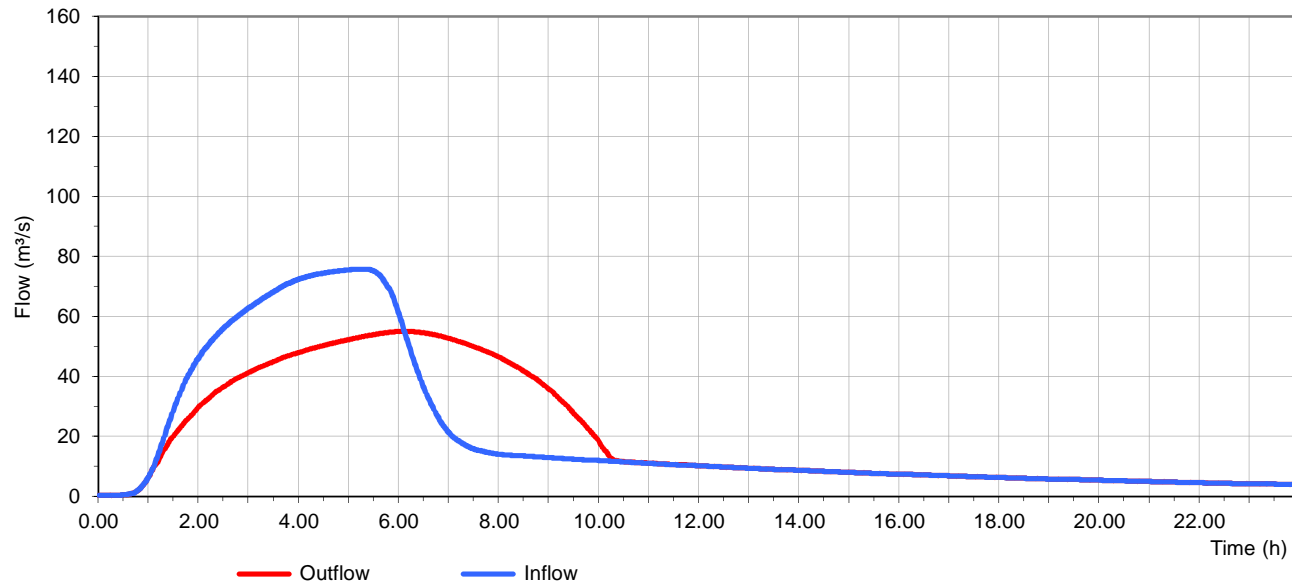
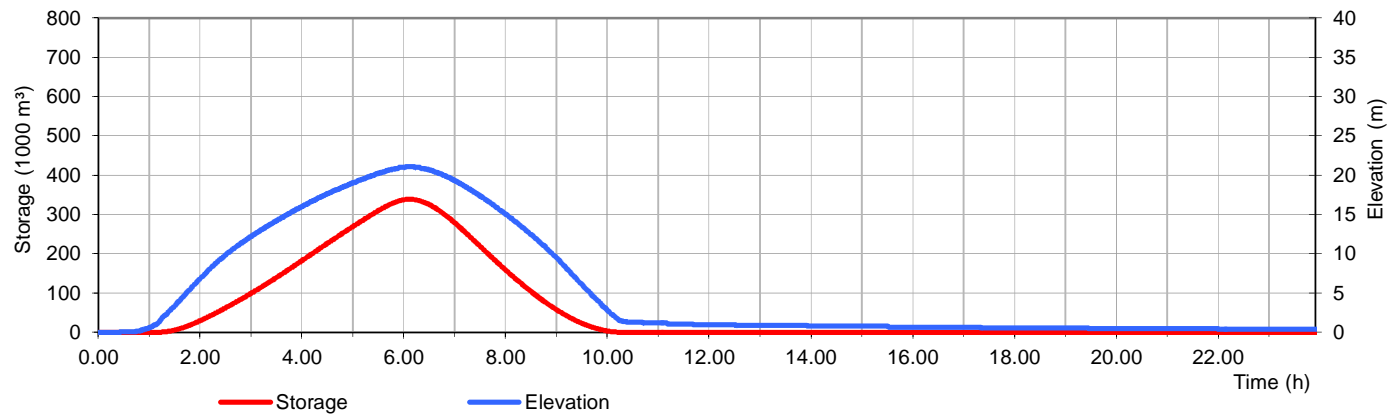
Flow	n1000_12h	Dam hight	25 m
max. Inflow	75.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	69.70 m³/s		
Elevation	29.80 m		
Storage	489 200 m³		



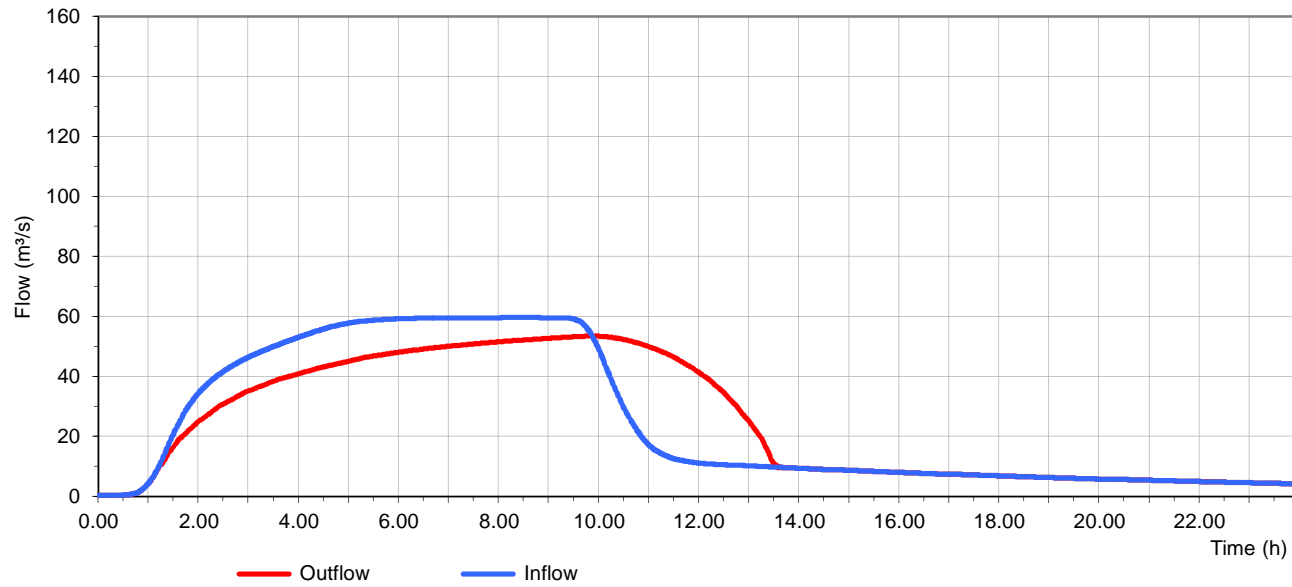
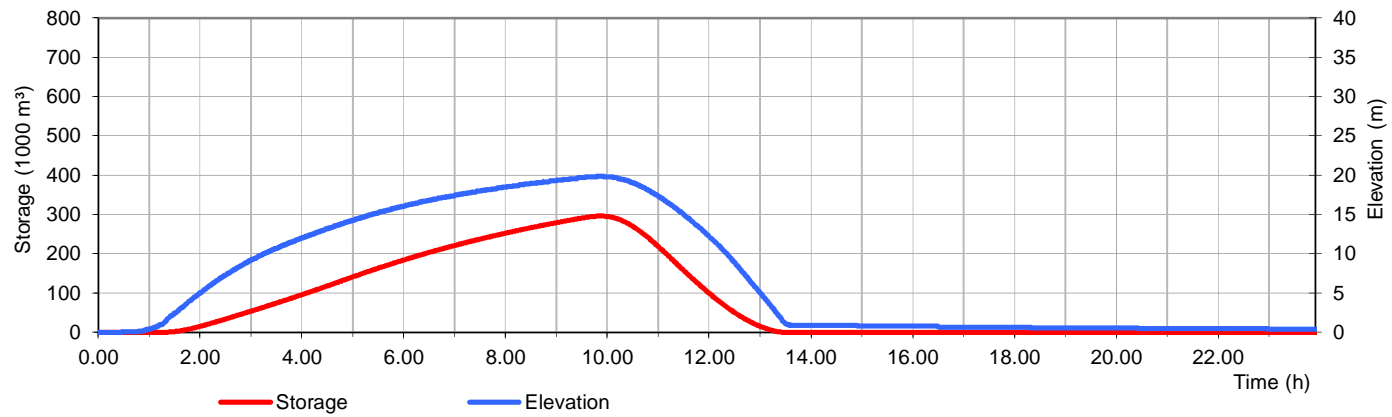
Flow	n100_2h	Dam high	25 m
max. Inflow	102.80 m³/s	Bottom outlet	60 m³/s
max. Outflow	53.30 m³/s		
Elevation	24.70 m		
Storage	290 700 m³		



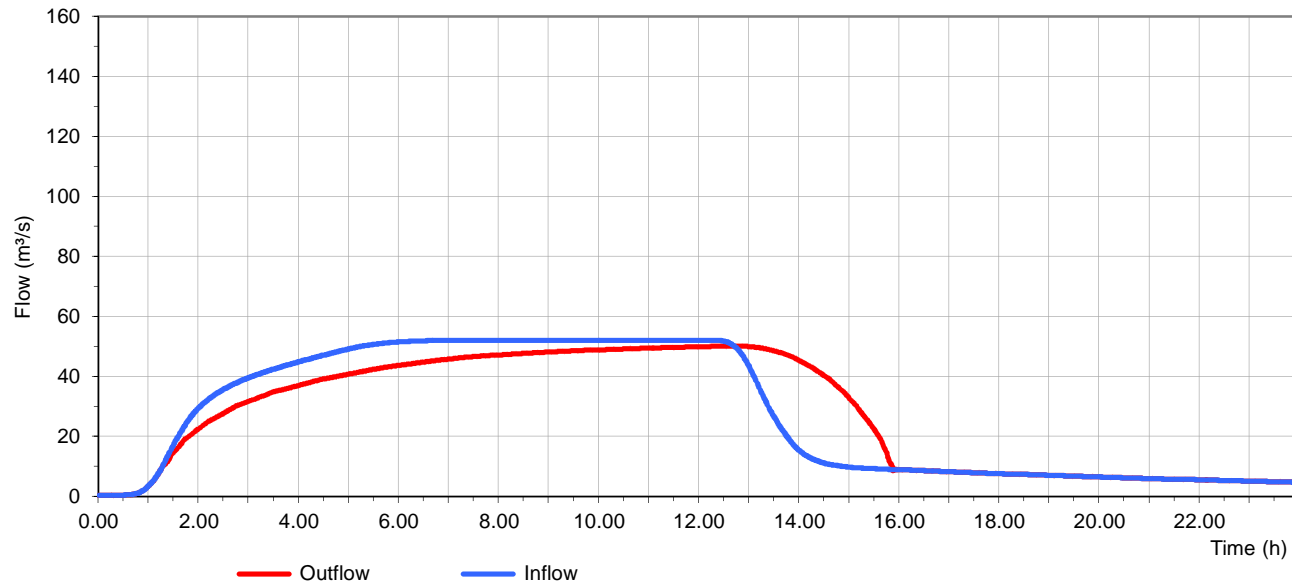
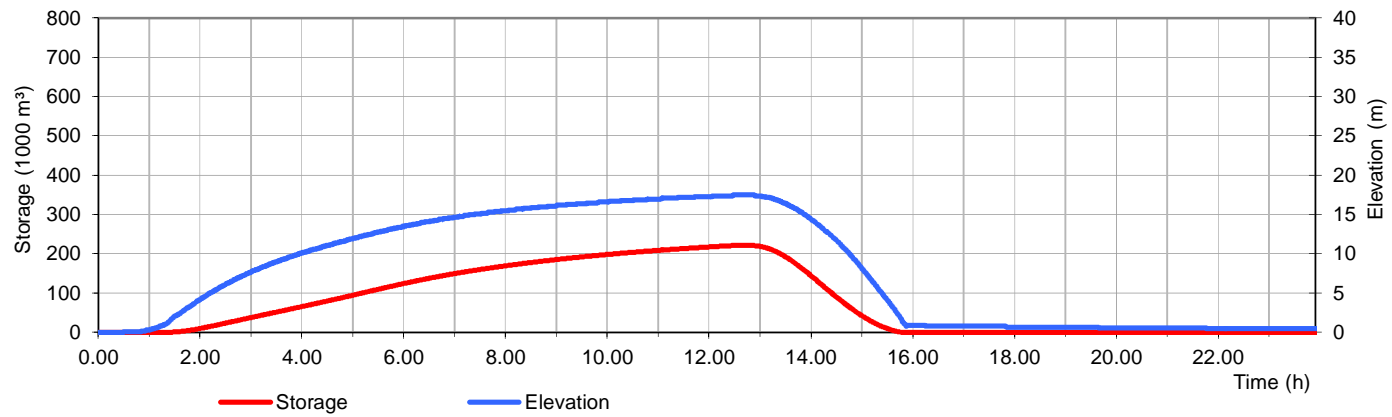
Flow	n100_3h	Dam high	25 m
max. Inflow	97.40 m³/s	Bottom outlet	60 m³/s
max. Outflow	55.70 m³/s		
Elevation	26.60 m		
Storage	357 500 m³		



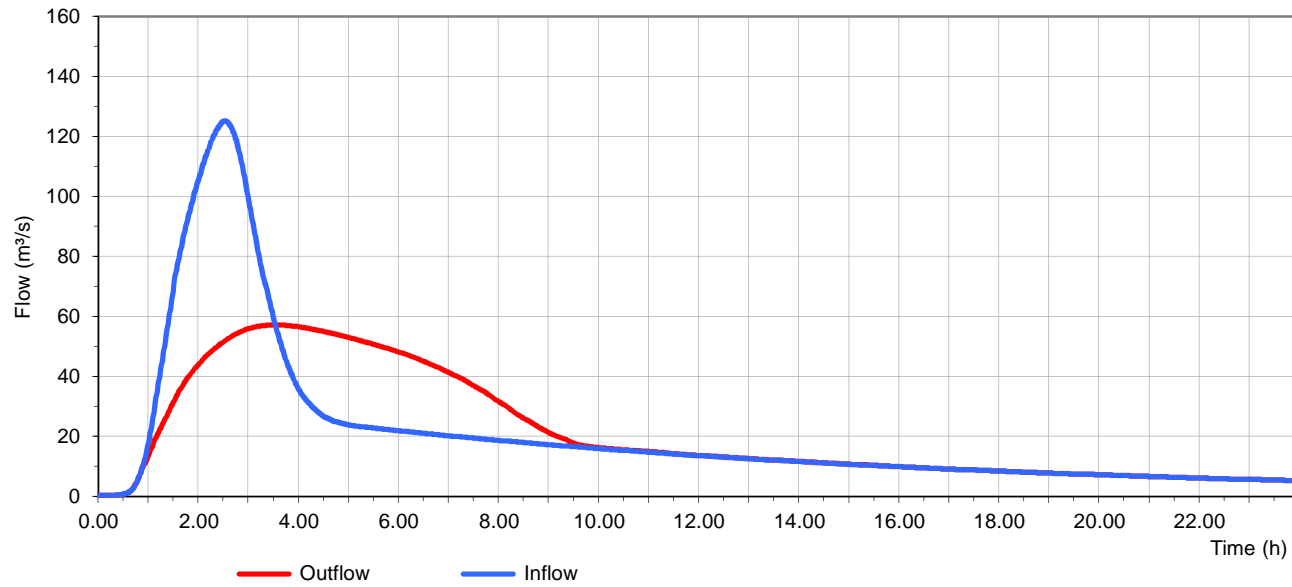
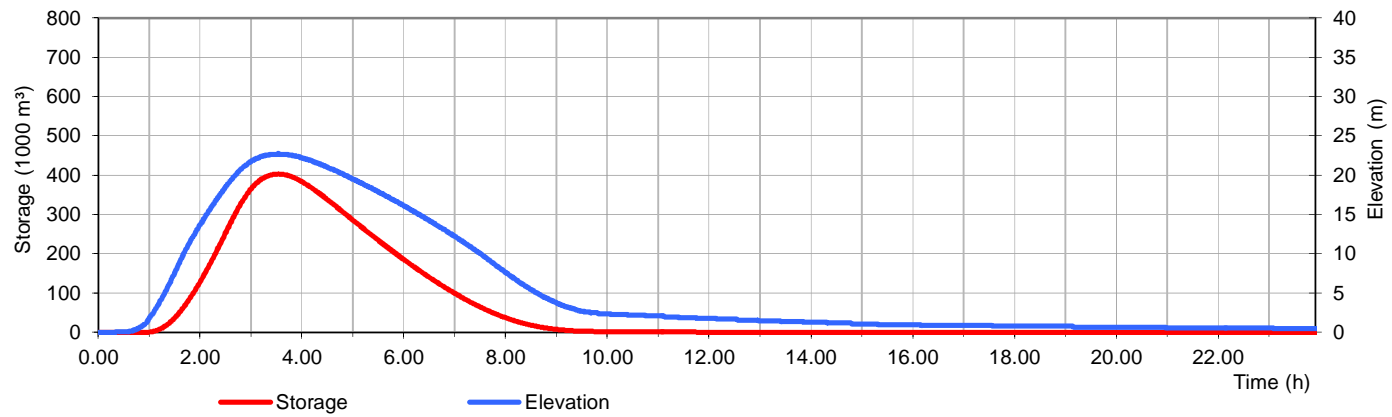
Flow	n100_5h	Dam high	25 m
max. Inflow	75.80 m³/s	Bottom outlet	60 m³/s
max. Outflow	55.10 m³/s		
Elevation	26.10 m		
Storage	339 200 m³		



Flow	n100_9h	Dam high	25 m
max. Inflow	59.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	53.50 m³/s		
Elevation	24.90 m		
Storage	296 400 m³		

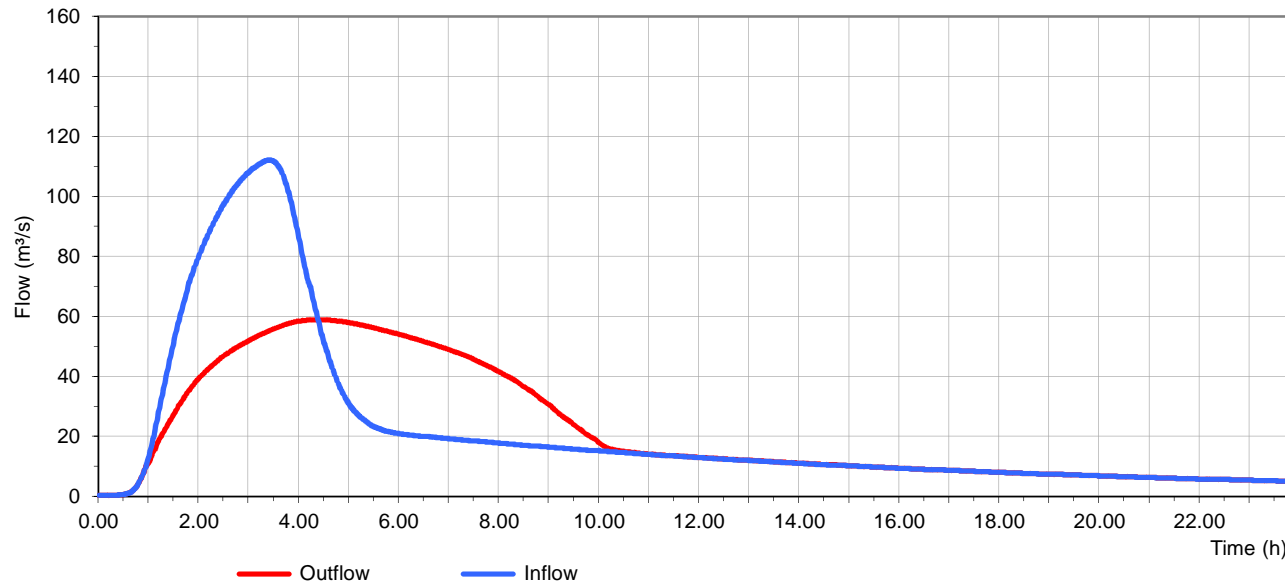
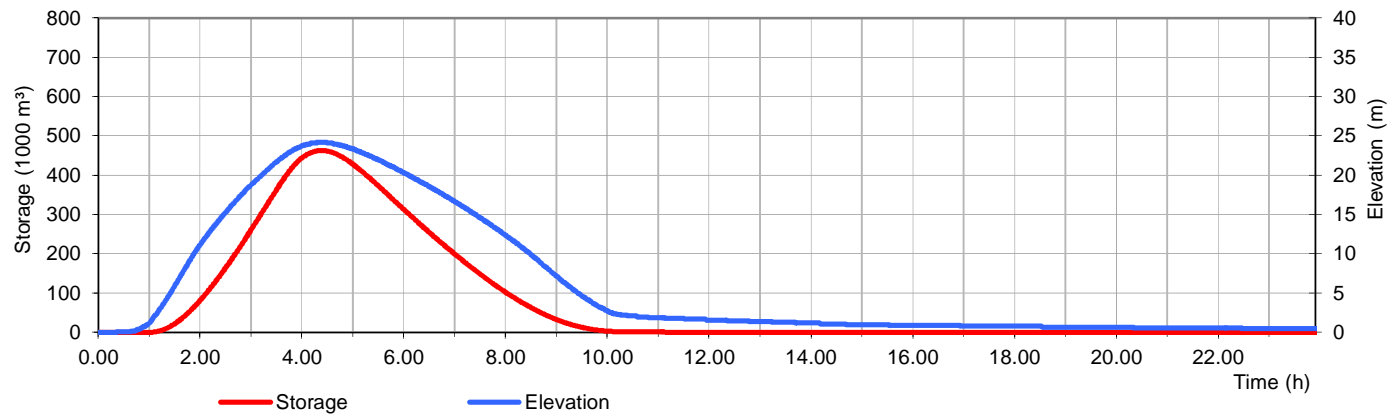


Flow	n100_12h	Dam high	25 m
max. Inflow	52.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	50.20 m³/s		
Elevation	22.50 m		
Storage	222 300 m³		

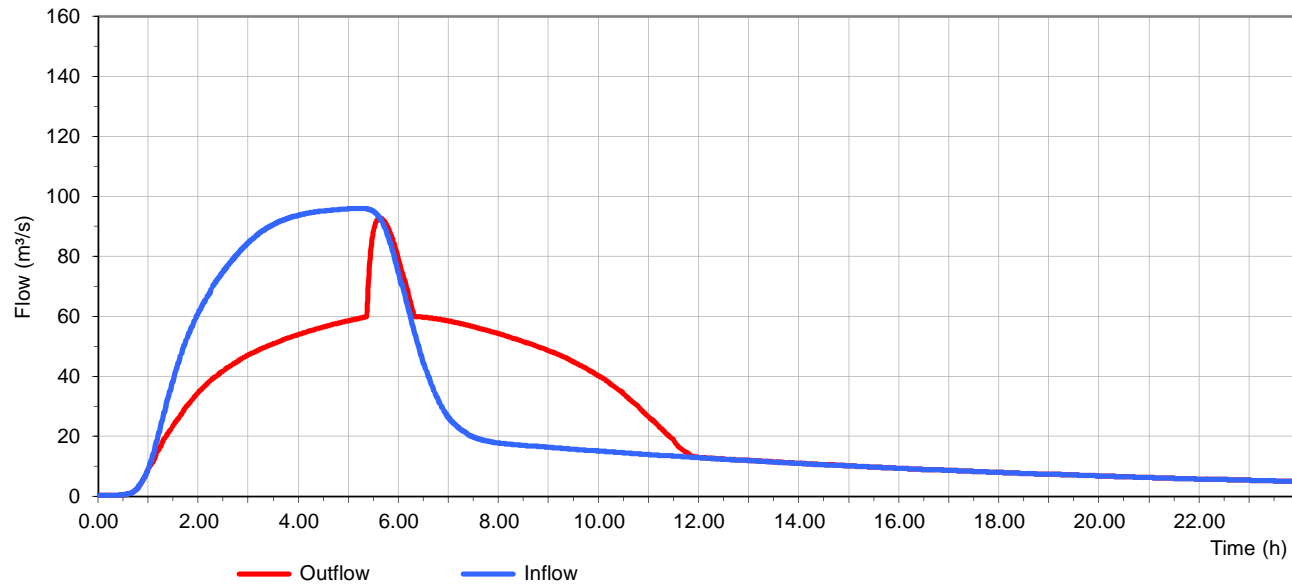
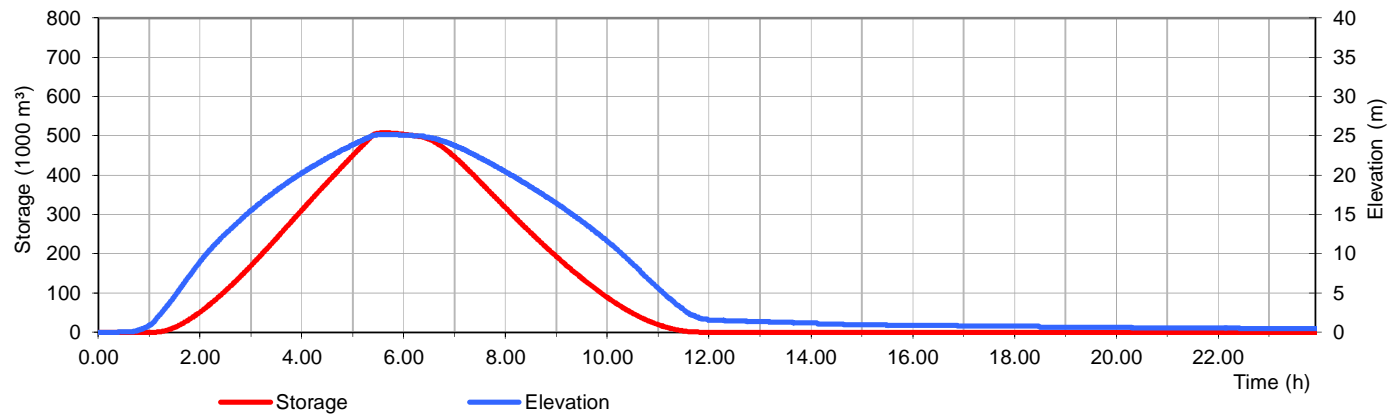


Flow	n300_2h
max. Inflow	125.20 m ³ /s
max. Outflow	57.30 m ³ /s
Elevation	27.80 m
Storage	403 700 m ³

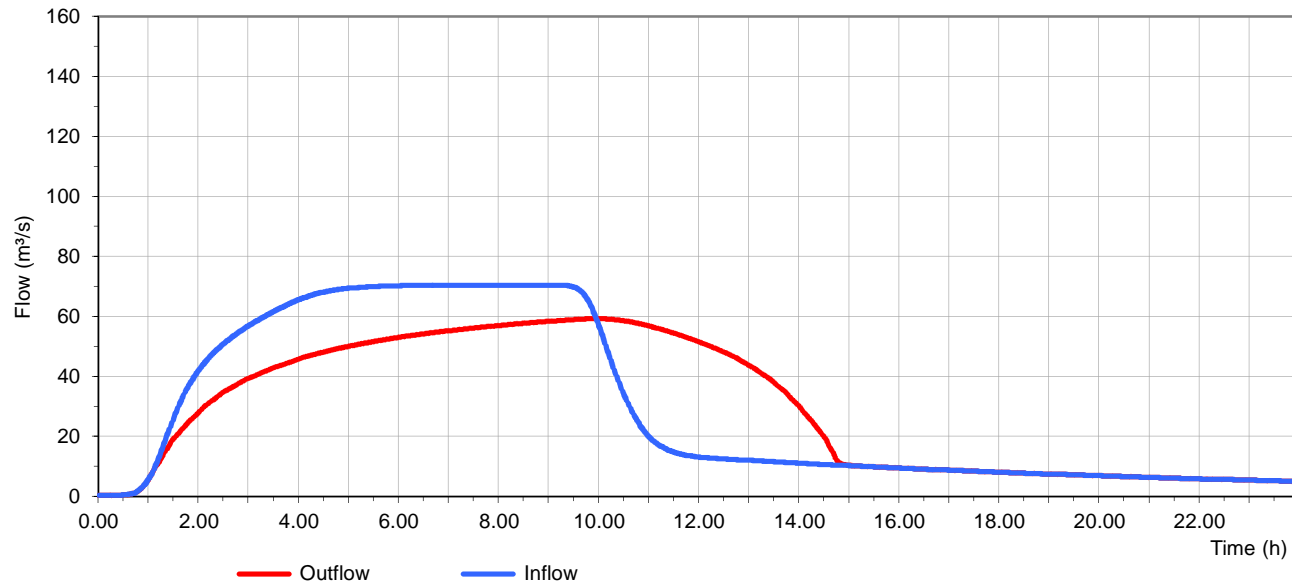
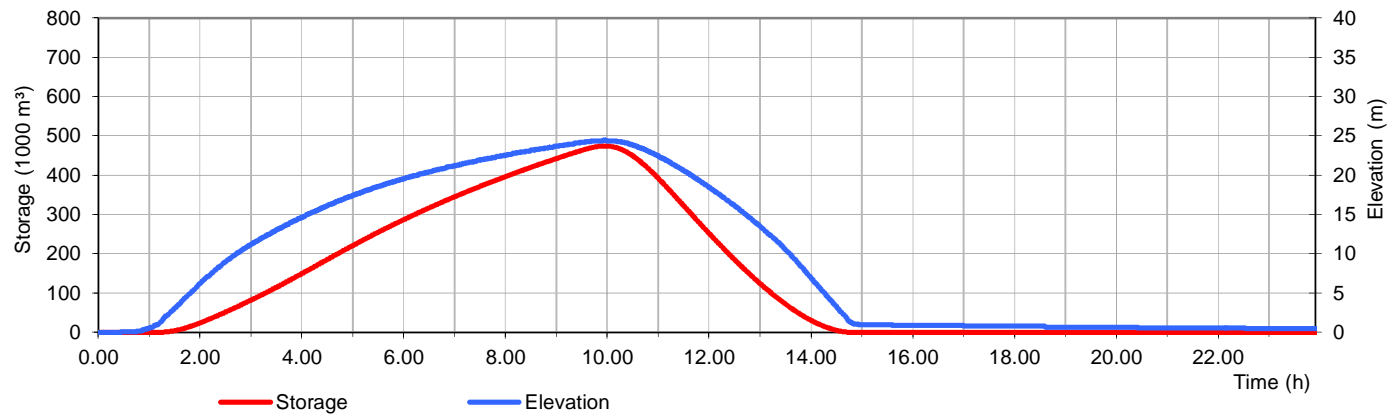
Dam high	25 m
Bottom outlet	60 m ³ /s



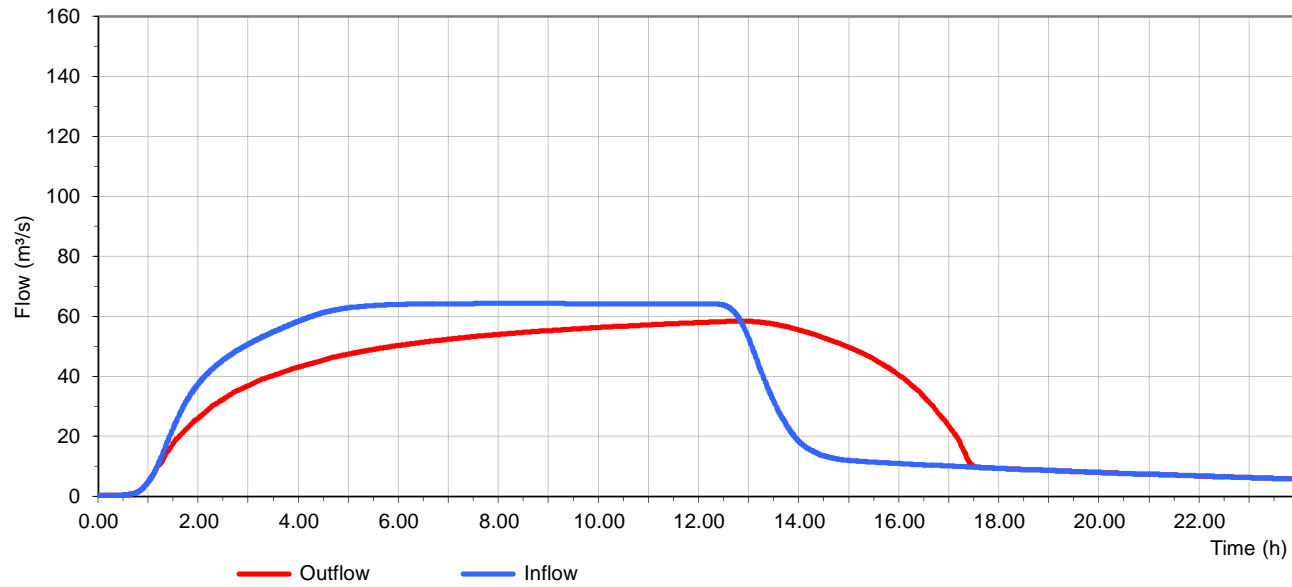
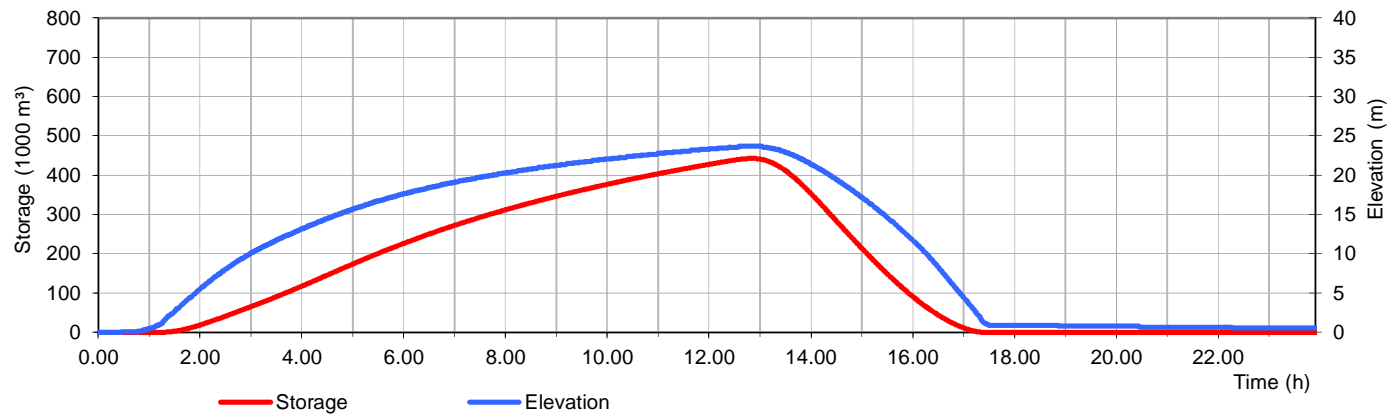
Flow	n300_3h	Dam high	25 m
max. Inflow	112.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	59.00 m³/s		
Elevation	29.20 m		
Storage	463 400 m³		



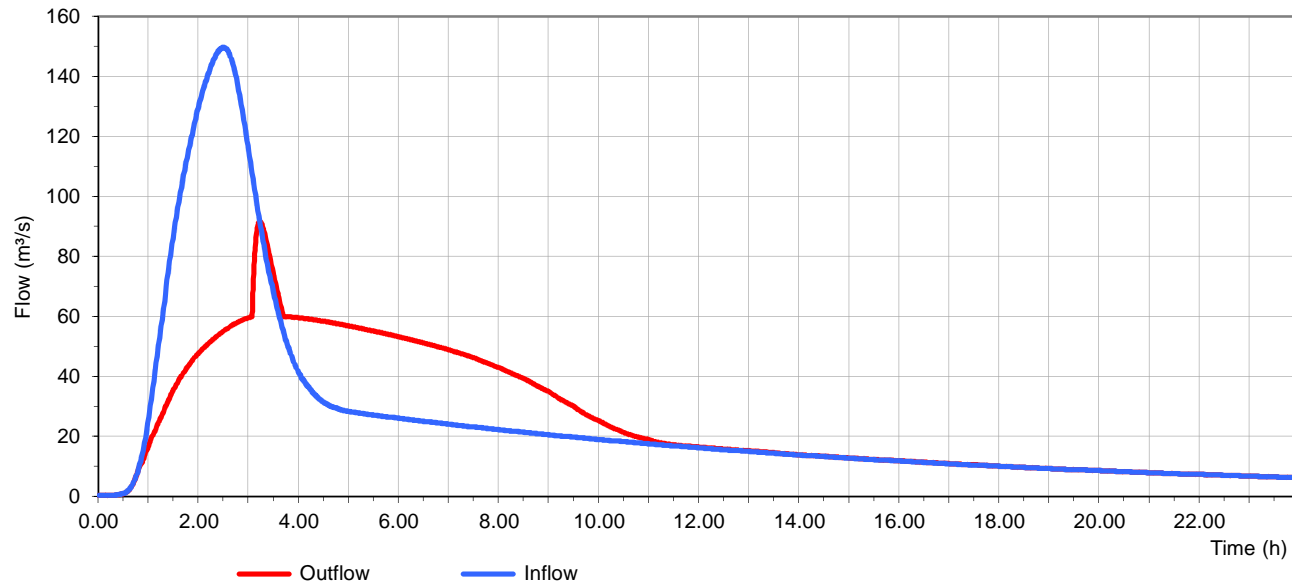
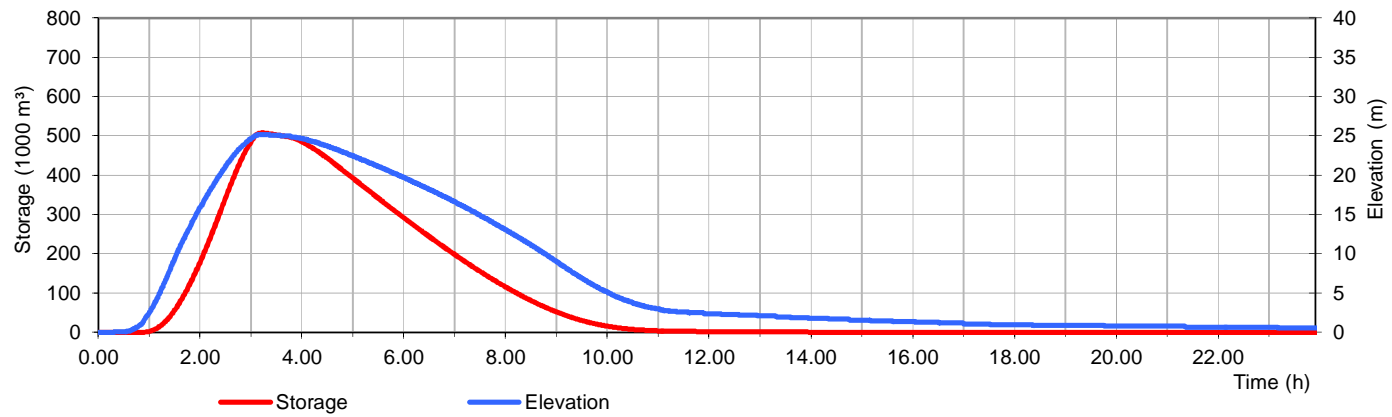
Flow	n300_5h	Dam high	25 m
max. Inflow	96.10 m ³ /s	Bottom outlet	60 m ³ /s
max. Outflow	92.80 m ³ /s		
Elevation	30.20 m		
Storage	508 600 m ³		



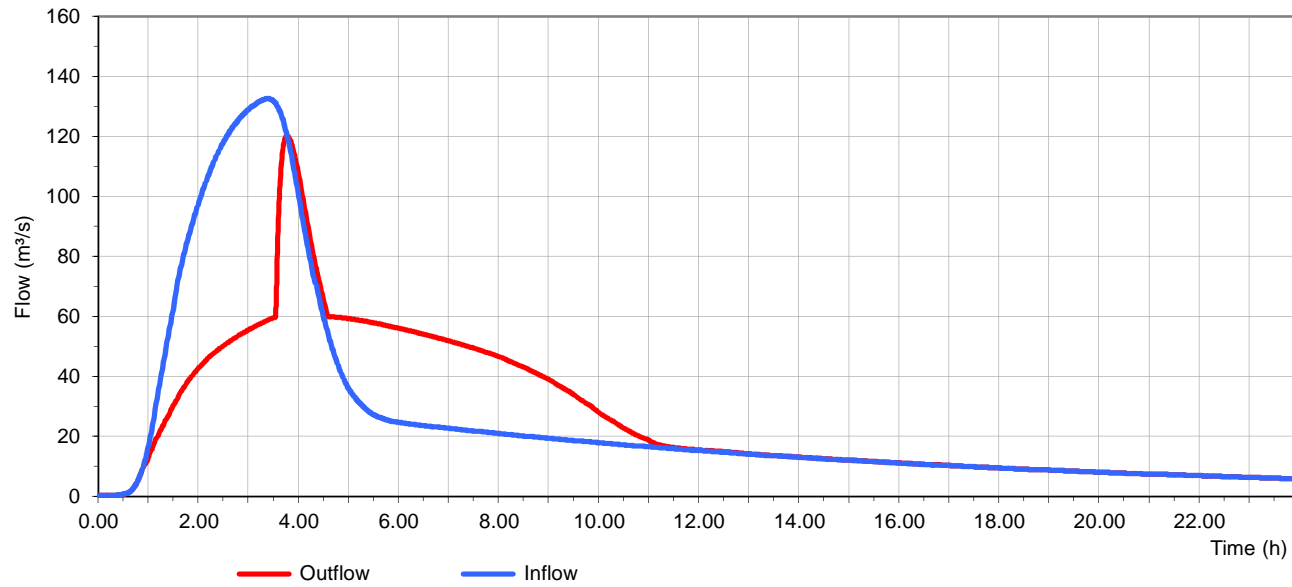
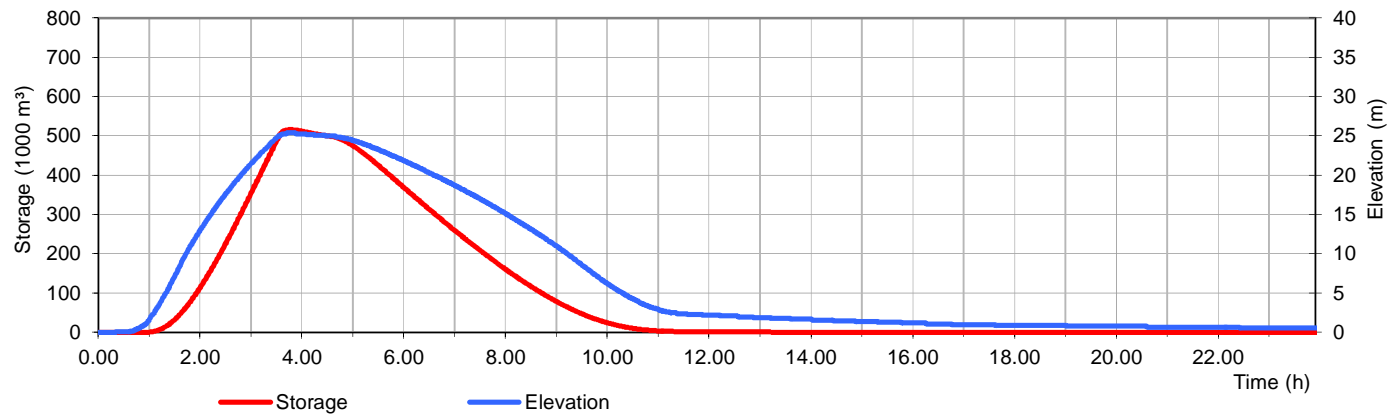
Flow	n300_9h	Dam high	25 m
max. Inflow	70.50 m³/s	Bottom outlet	60 m³/s
max. Outflow	59.30 m³/s		
Elevation	29.50 m		
Storage	475 100 m³		



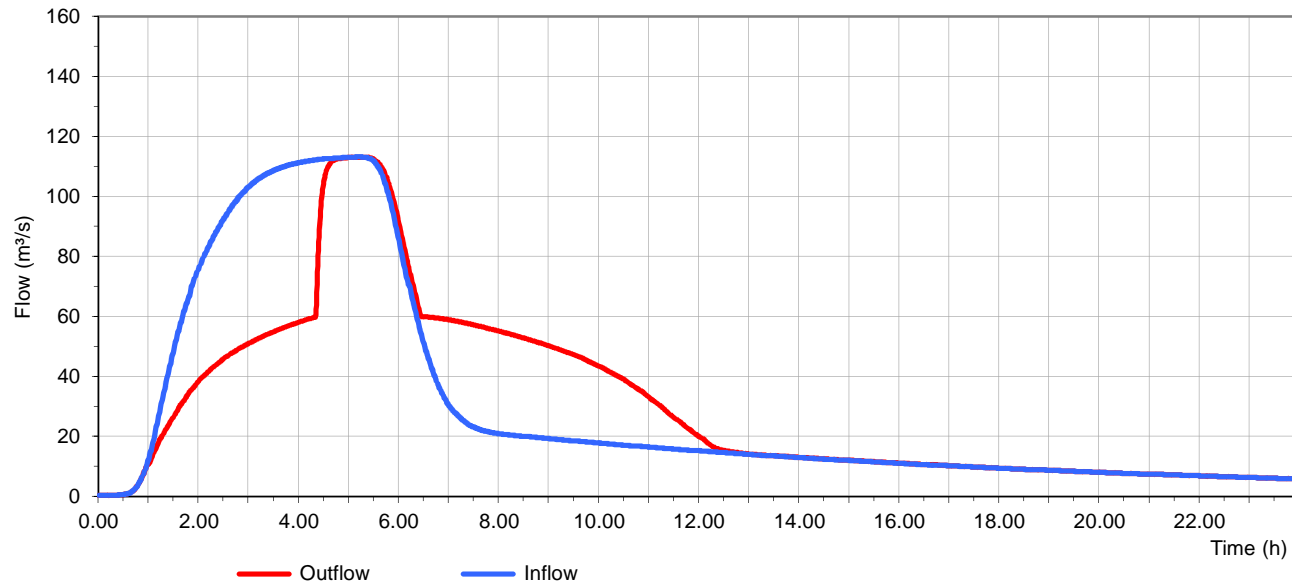
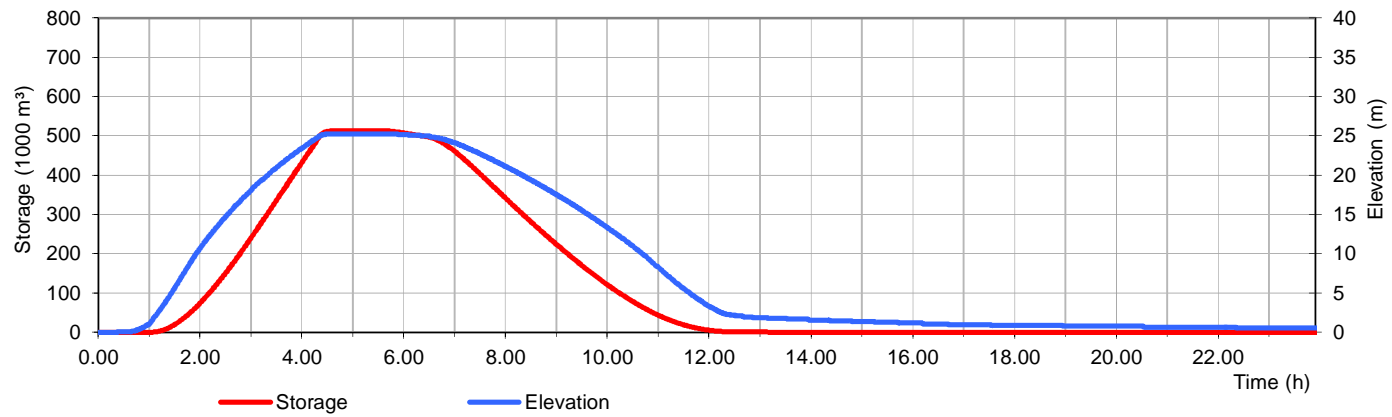
Flow	n300_12h	Dam high	25 m
max. Inflow	64.40 m³/s	Bottom outlet	60 m³/s
max. Outflow	58.50 m³/s		
Elevation	28.70 m		
Storage	443 200 m³		



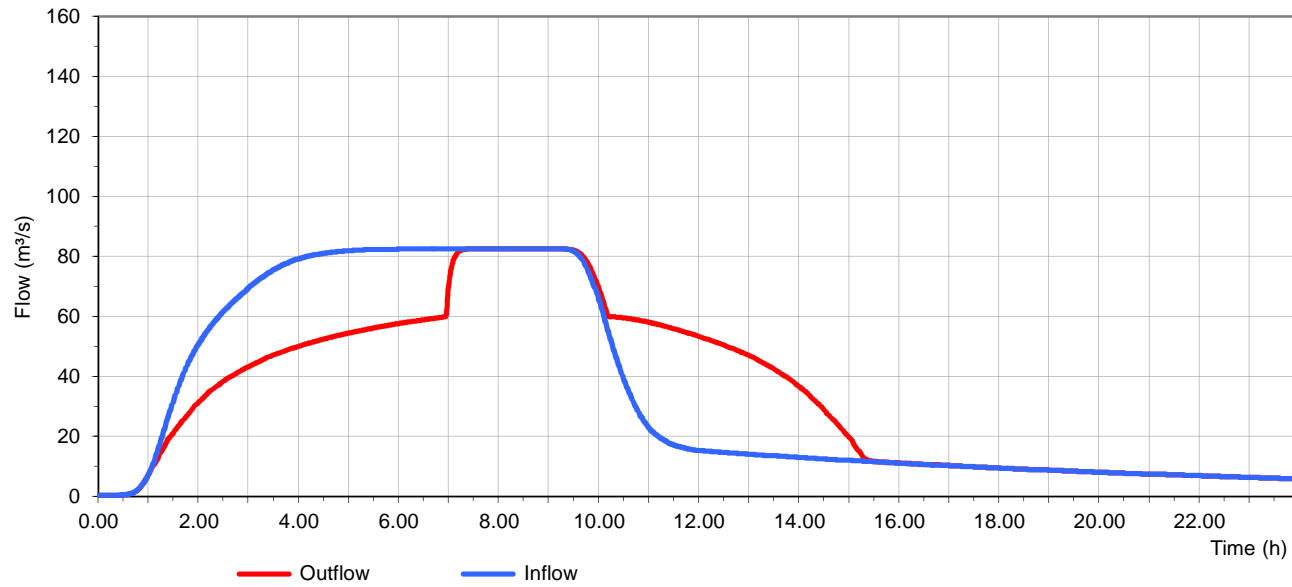
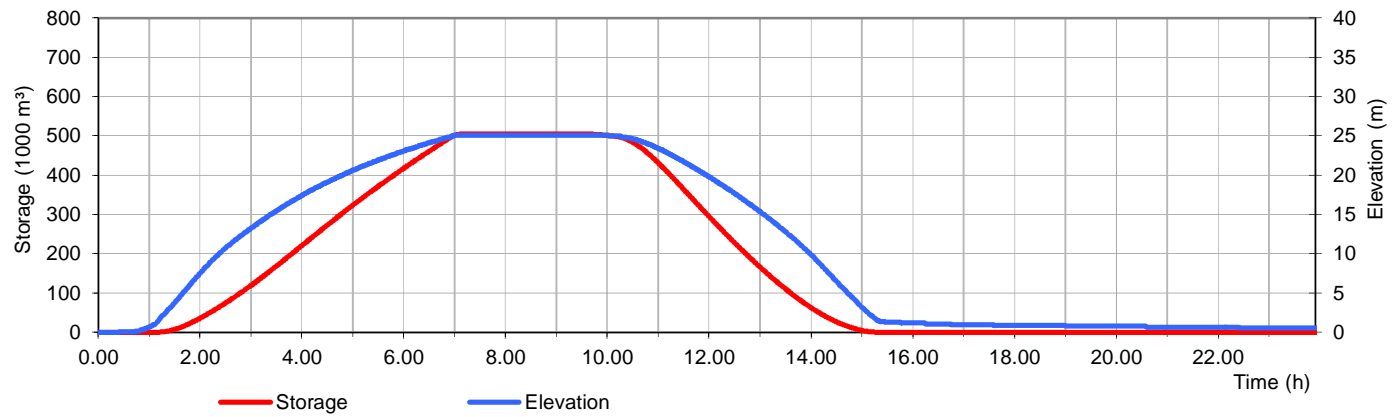
Flow	n1000_2h	Dam high	25 m
max. Inflow	149.80 m ³ /s	Bottom outlet	60 m ³ /s
max. Outflow	91.70 m ³ /s		
Elevation	30.20 m		
Storage	508 200 m ³		



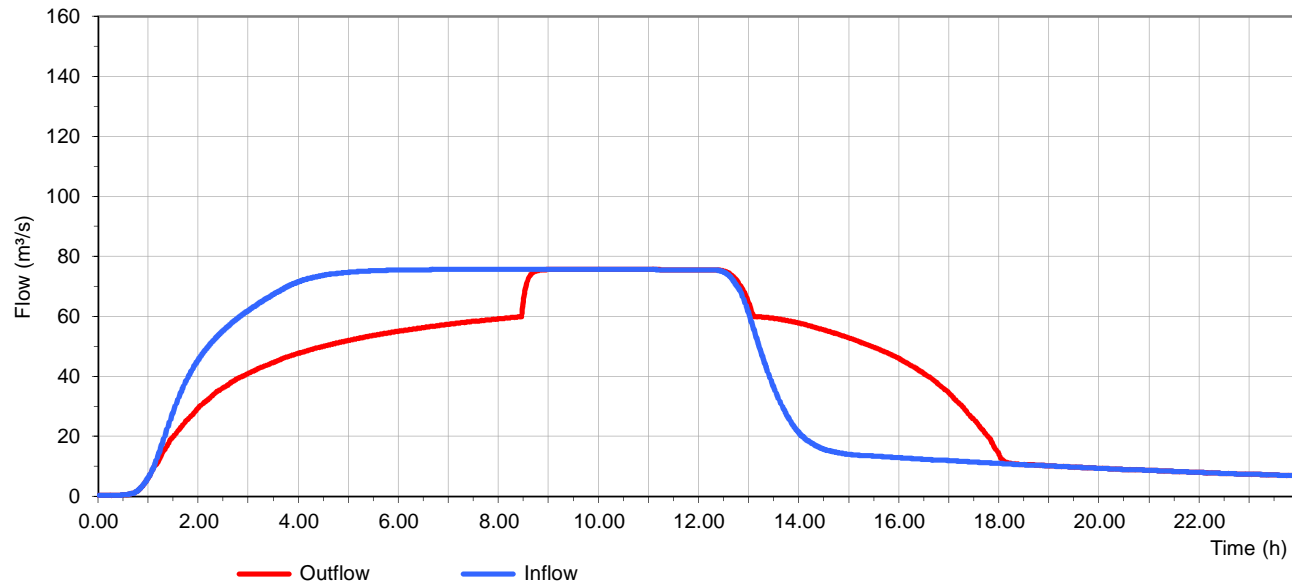
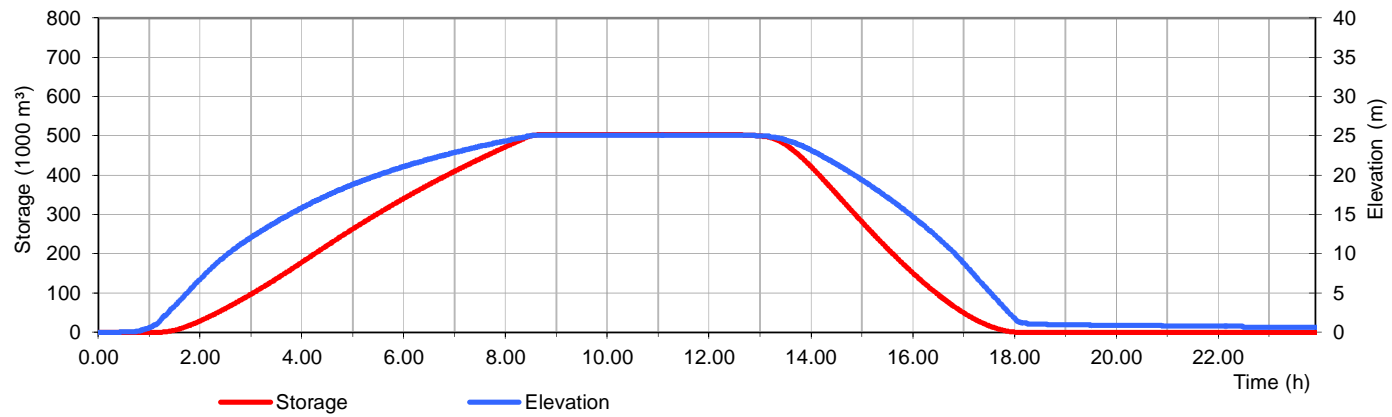
Flow	n1000_3h	Dam high	25 m
max. Inflow	132.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	120.30 m³/s		
Elevation	30.40 m		
Storage	516 500 m³		



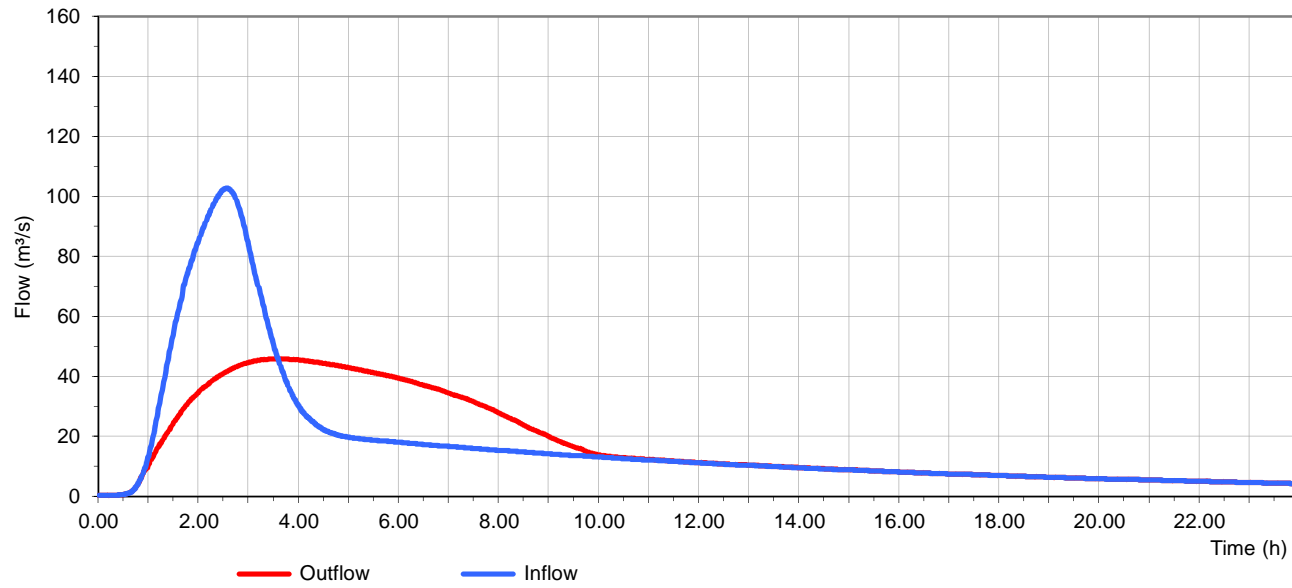
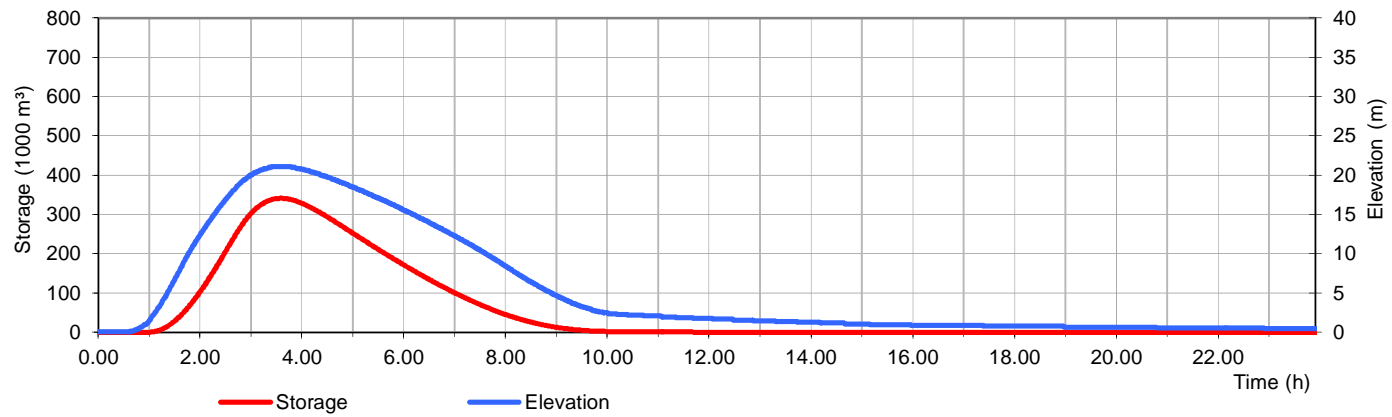
Flow	n1000_5h	Dam high	25 m
max. Inflow	113.30 m³/s	Bottom outlet	60 m³/s
max. Outflow	113.20 m³/s		
Elevation	30.30 m		
Storage	514 400 m³		



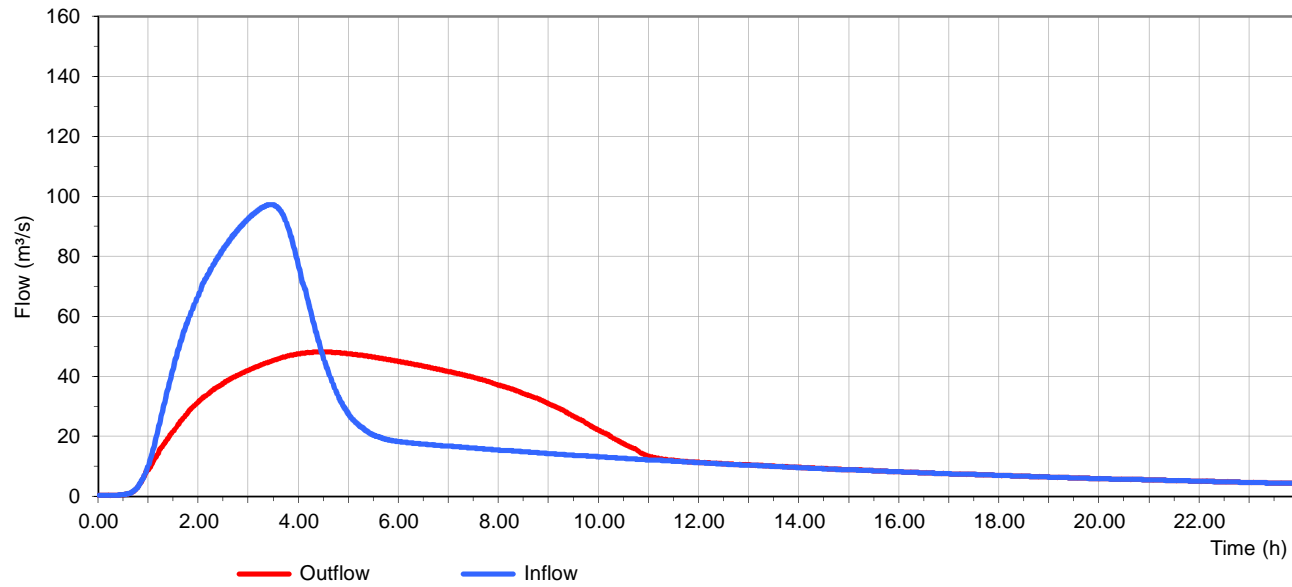
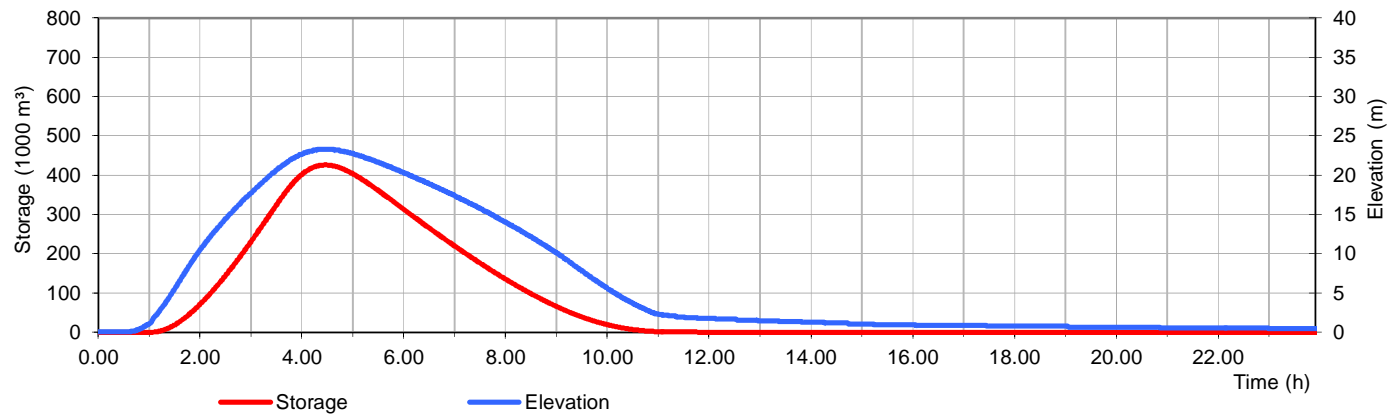
Flow	n1000_9h	Dam hight	25 m
max. Inflow	82.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	82.70 m³/s		
Elevation	30.10 m		
Storage	505 700 m³		



Flow	n1000_12h	Dam hight	25 m
max. Inflow	75.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	75.70 m³/s		
Elevation	30.10 m		
Storage	503 600 m³		

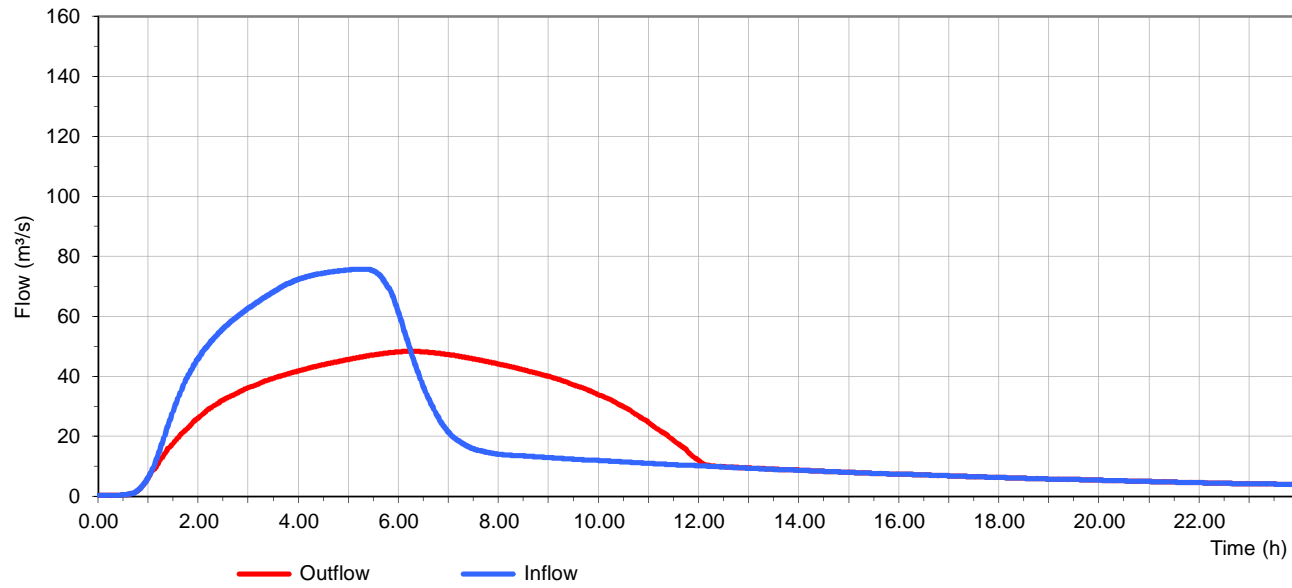
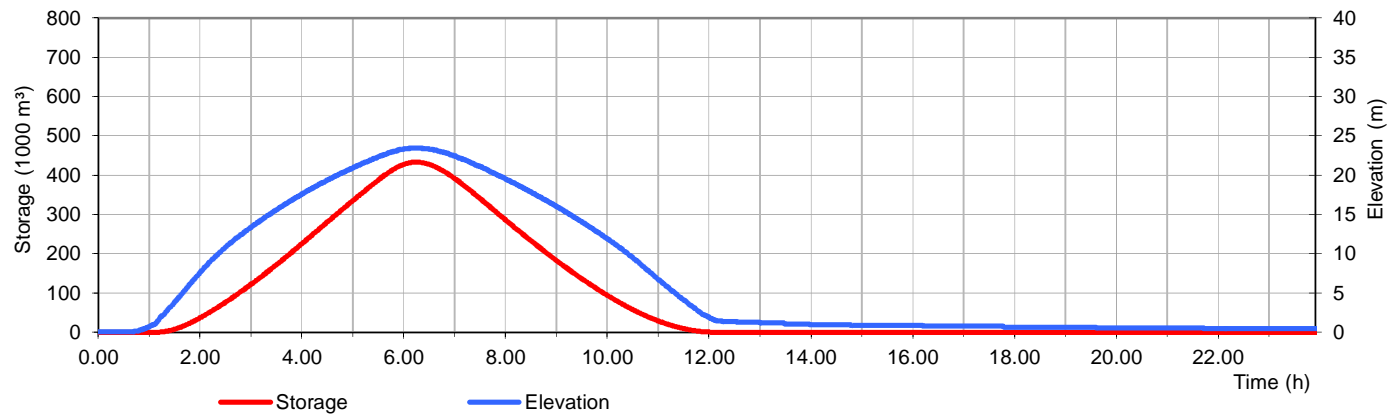


Flow	n100_2h	Dam high	25 m
max. Inflow	102.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	46.00 m³/s		
Elevation	26.10 m		
Storage	341 800 m³		

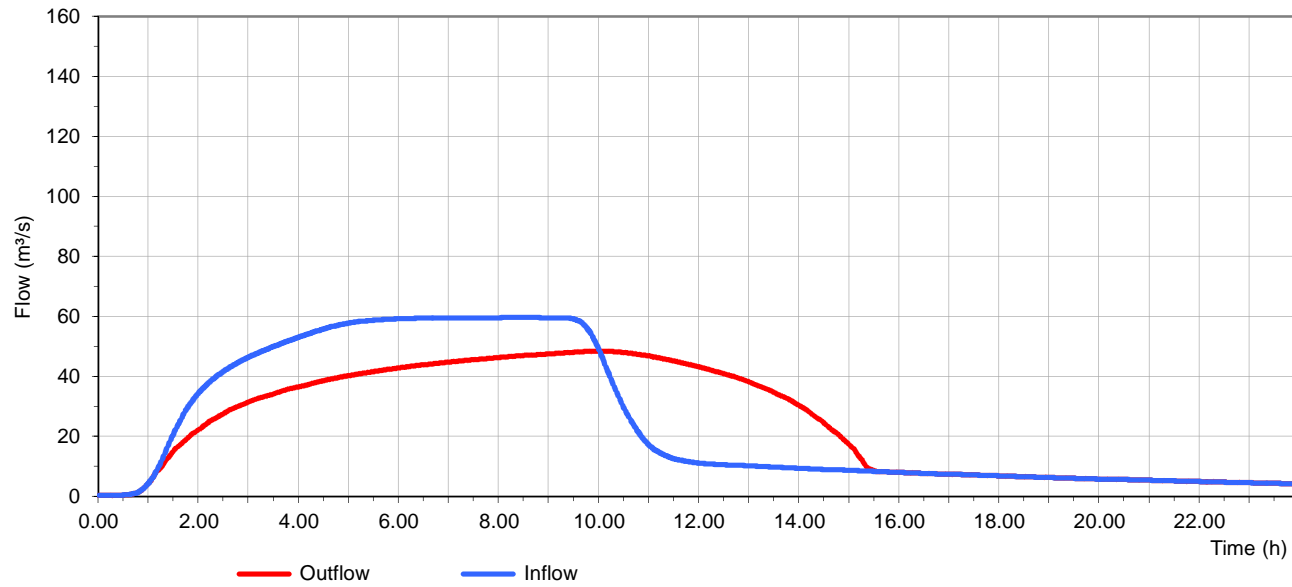
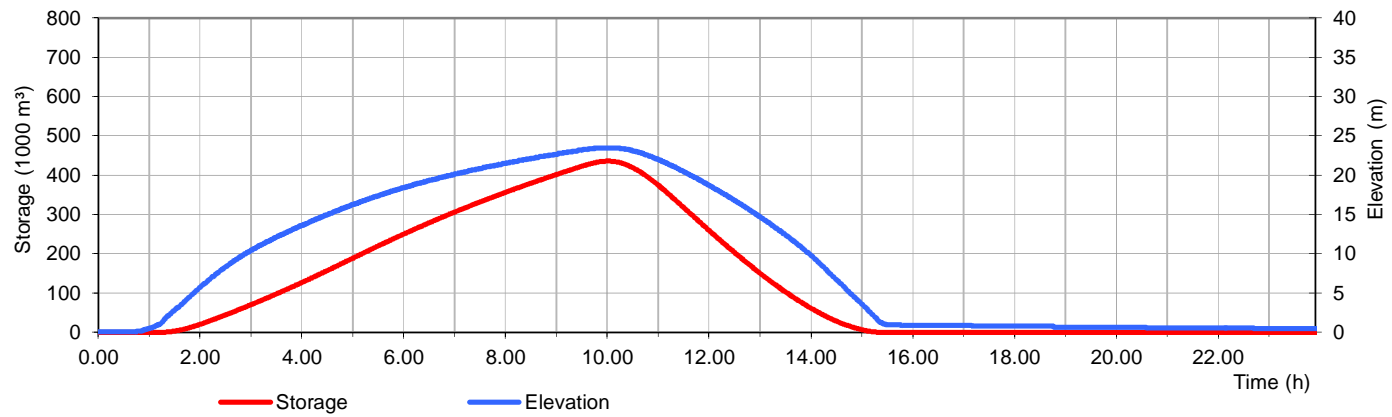


Flow **n100_3h**
 max. Inflow 97.40 m³/s
 max. Outflow 48.20 m³/s
 Elevation 28.30 m
 Storage 426 600 m³

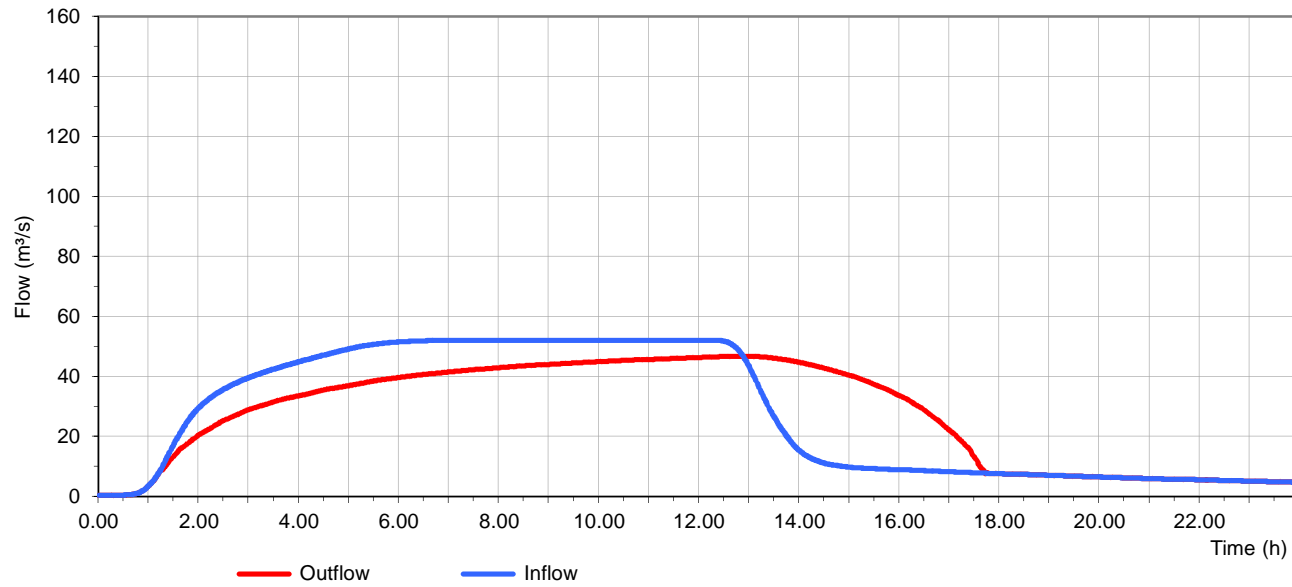
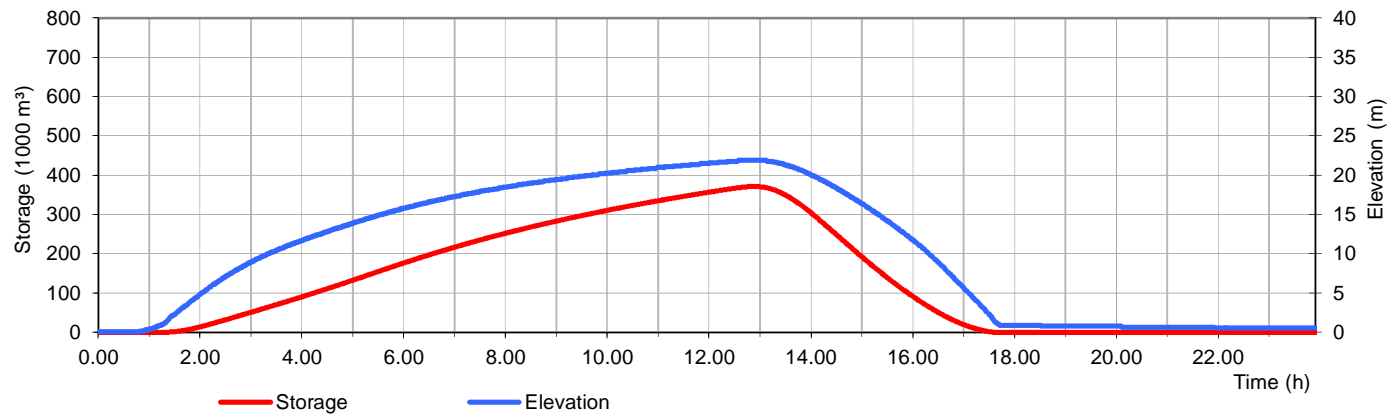
Dam high 25 m
 Bottom outlet 50 m³/s



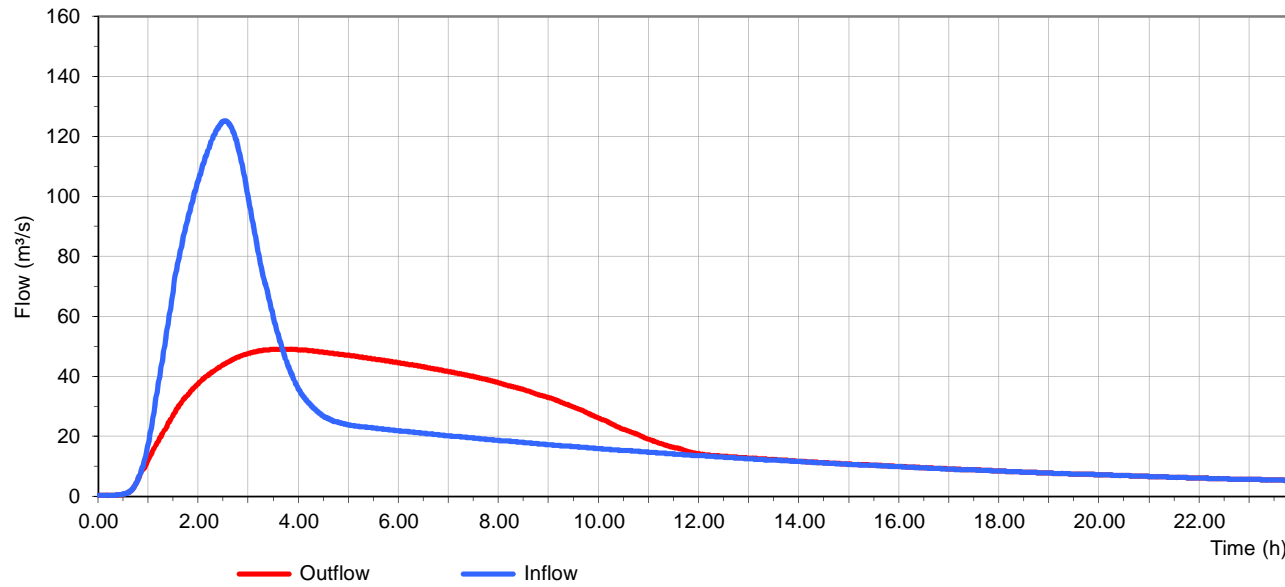
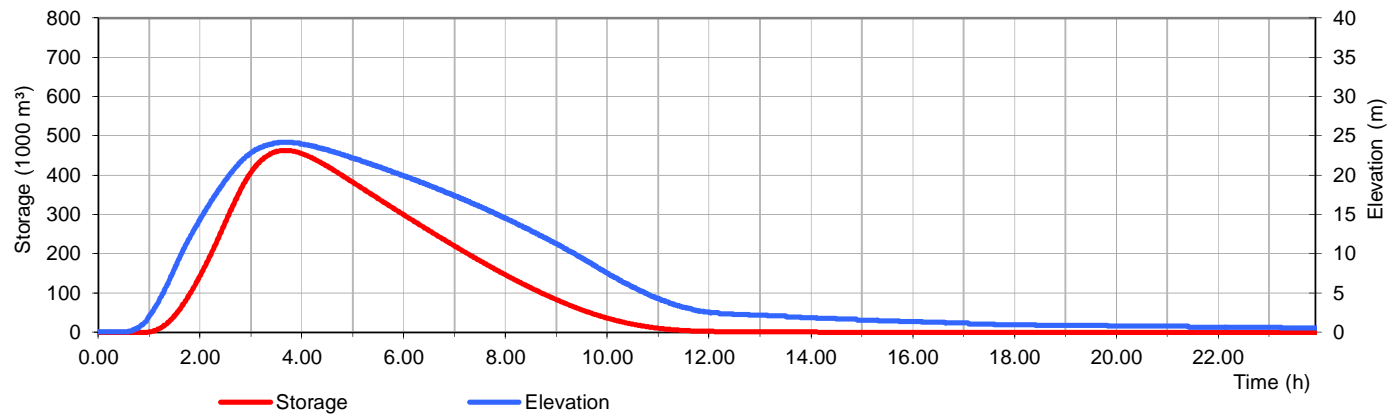
Flow	n100_5h	Dam high	25 m
max. Inflow	75.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	48.40 m³/s		
Elevation	28.50 m		
Storage	433 800 m³		



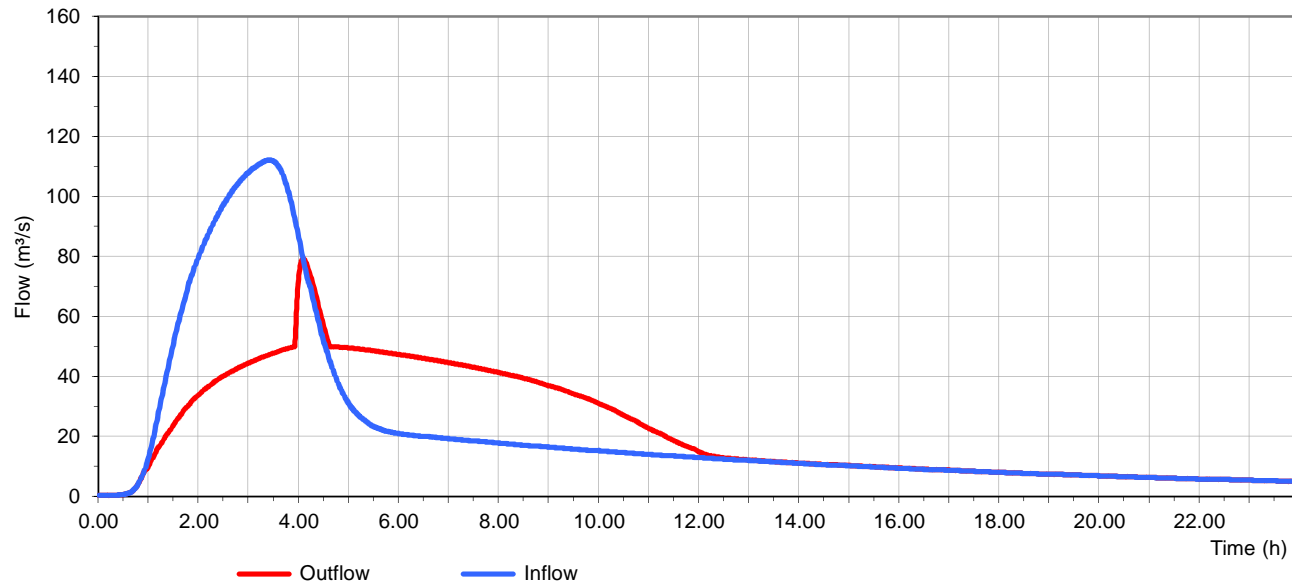
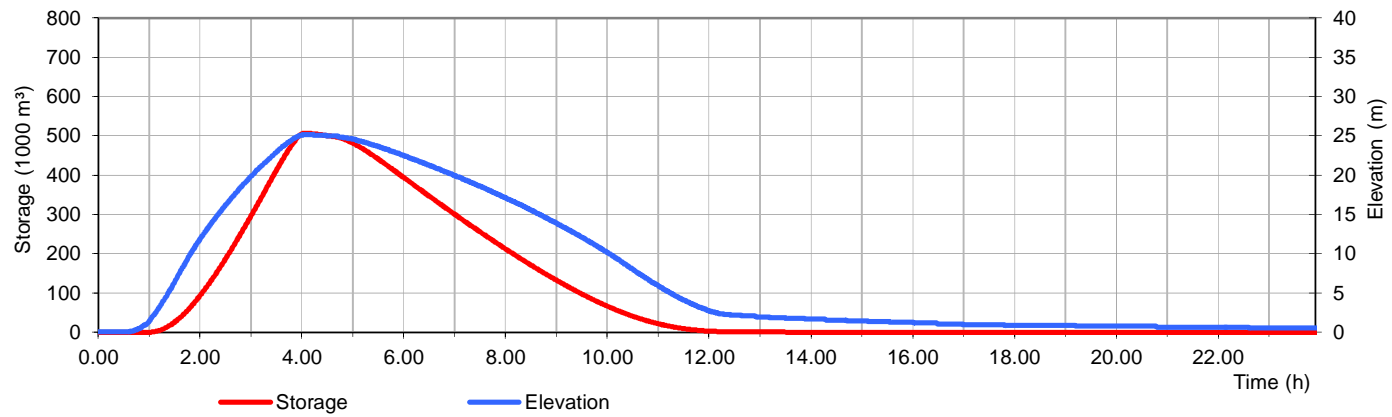
Flow	n100_9h	Dam hight	25 m
max. Inflow	59.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	48.50 m³/s		
Elevation	28.50 m		
Storage	436 400 m³		



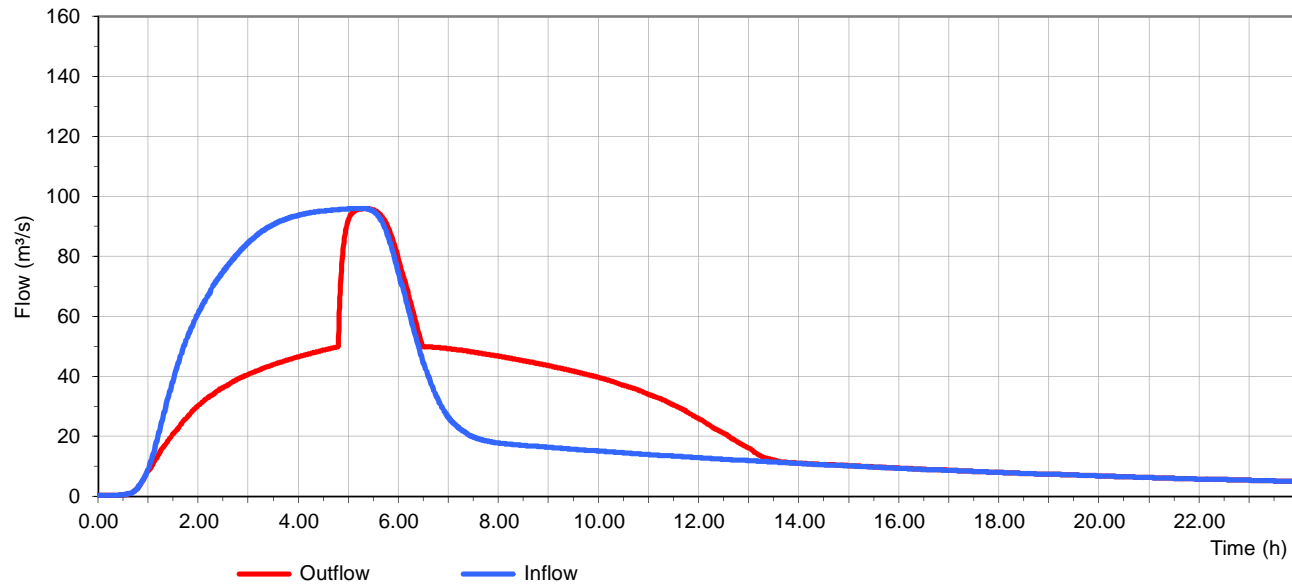
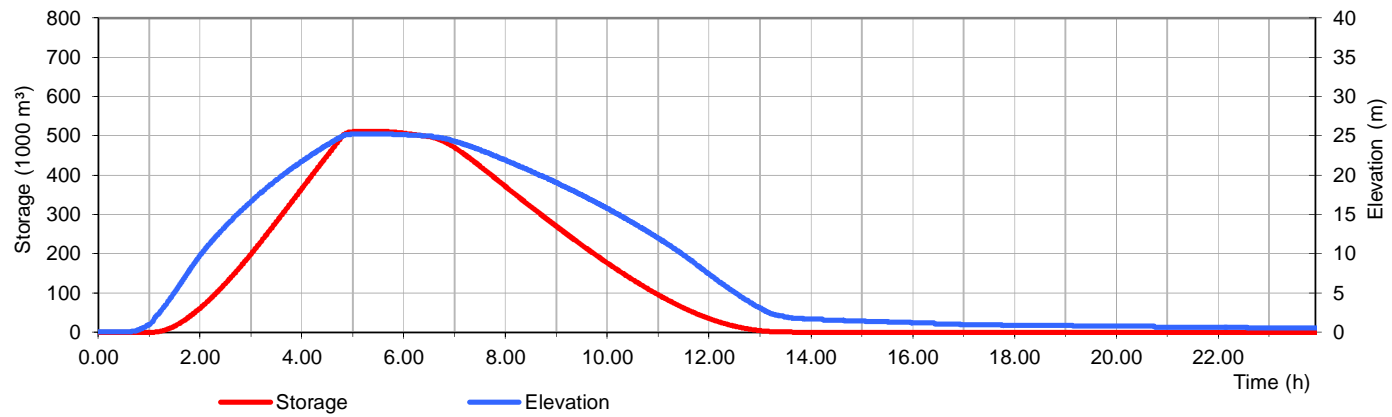
Flow	n100_12h	Dam high	25 m
max. Inflow	52.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	46.80 m³/s		
Elevation	26.90 m		
Storage	371 800 m³		



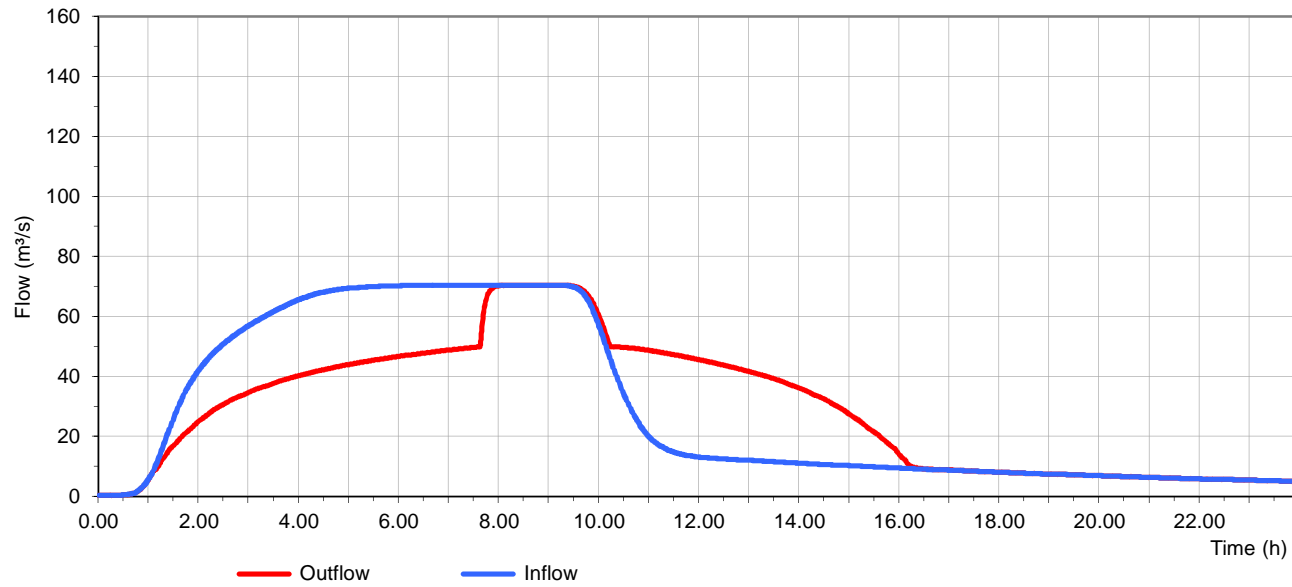
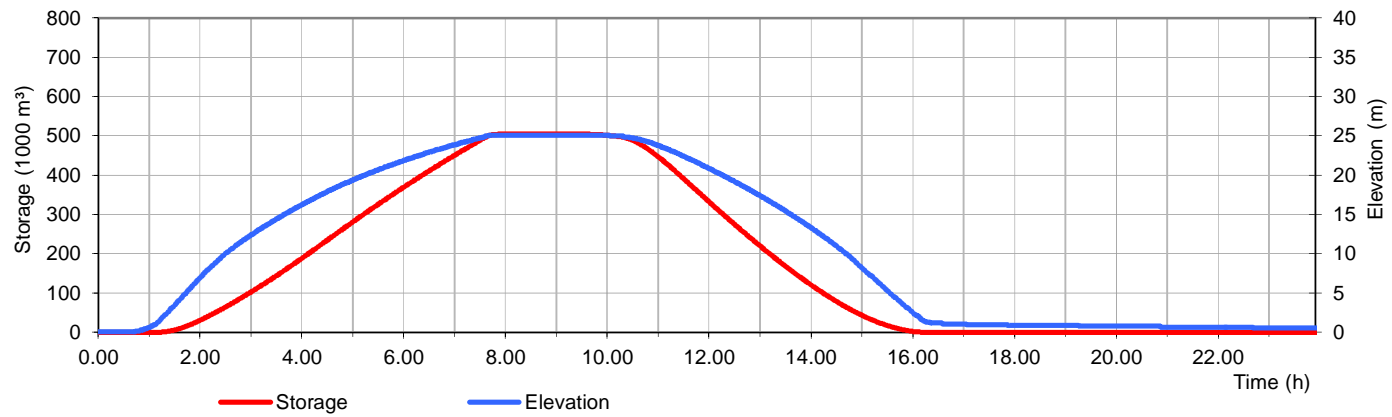
Flow	n300_2h	Dam high	25 m
max. Inflow	125.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	49.20 m³/s		
Elevation	29.20 m		
Storage	463 900 m³		



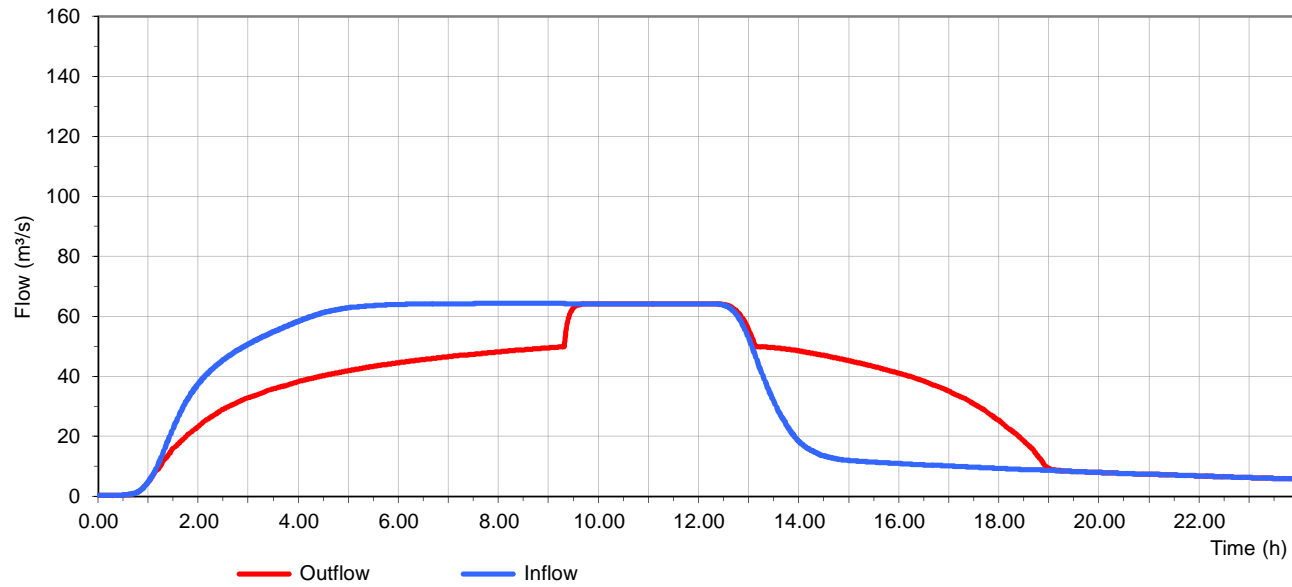
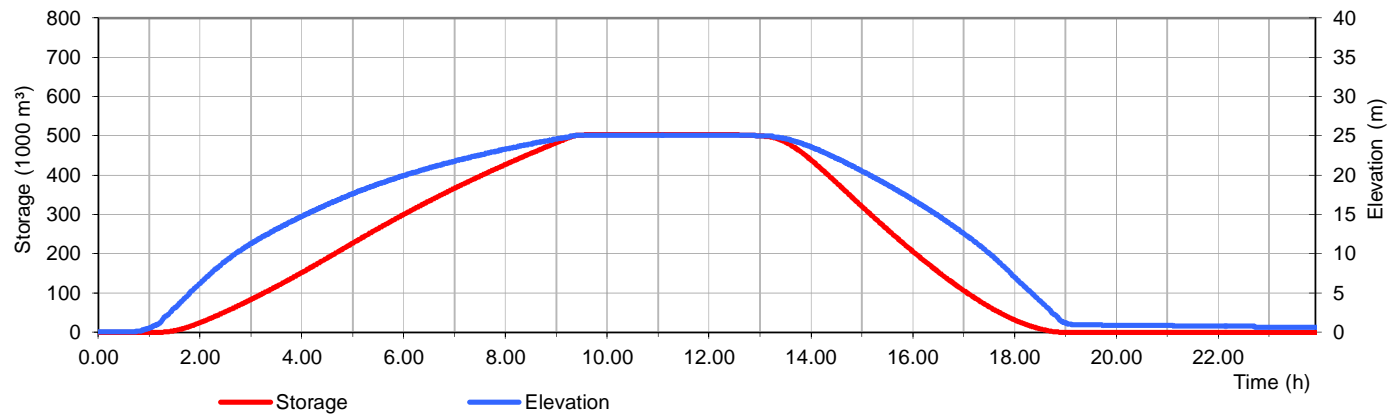
Flow	n300_3h	Dam high	25 m
max. Inflow	112.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	79.30 m³/s		
Elevation	30.20 m		
Storage	507 600 m³		



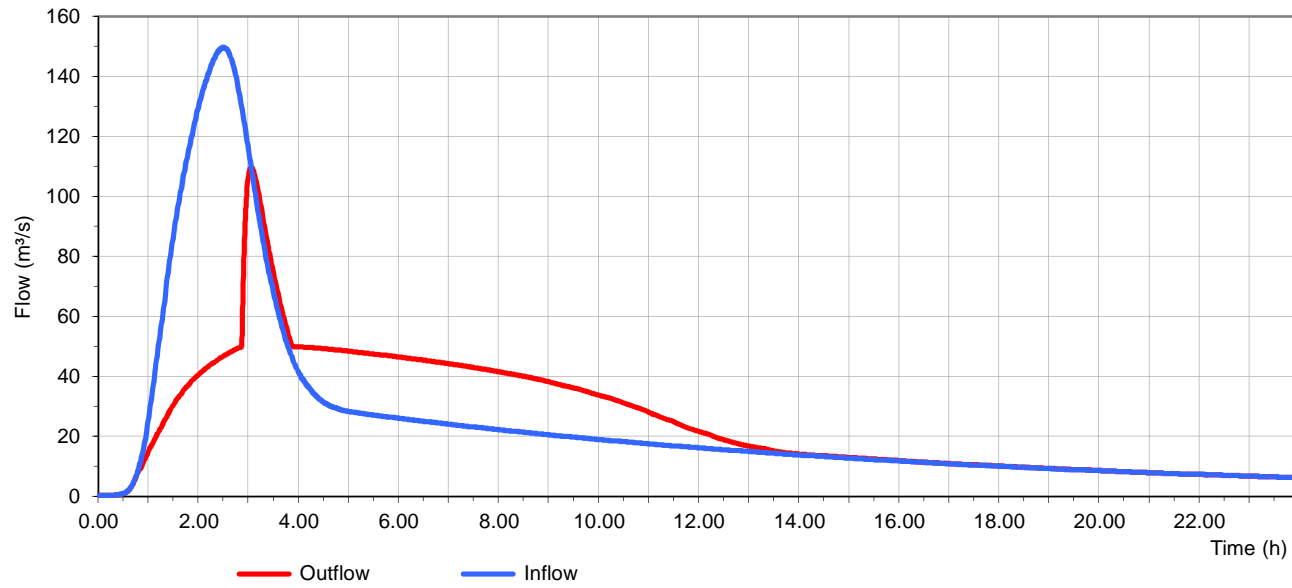
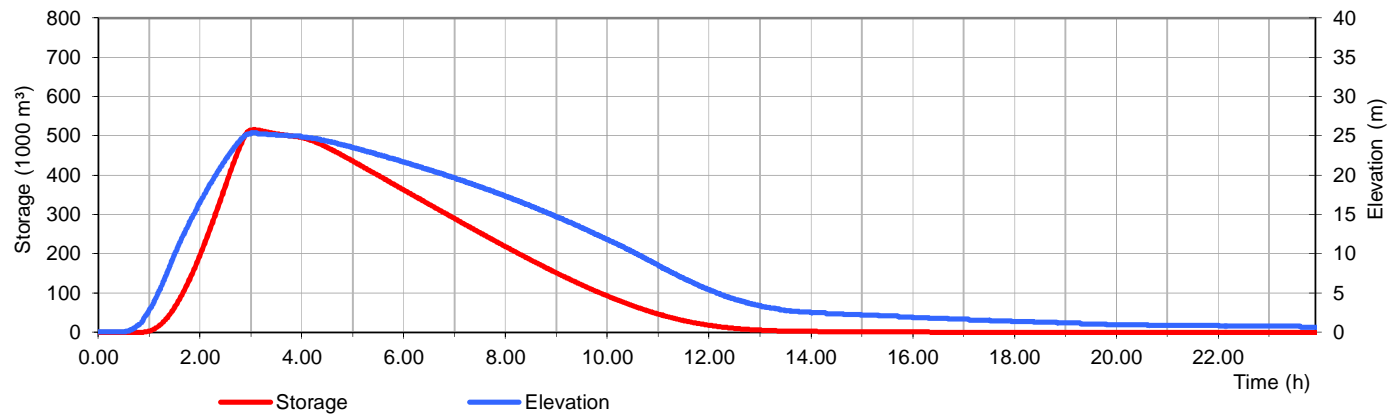
Flow	n300_5h	Dam high	25 m
max. Inflow	96.10 m³/s	Bottom outlet	50 m³/s
max. Outflow	96.00 m³/s		
Elevation	30.30 m		
Storage	512 400 m³		



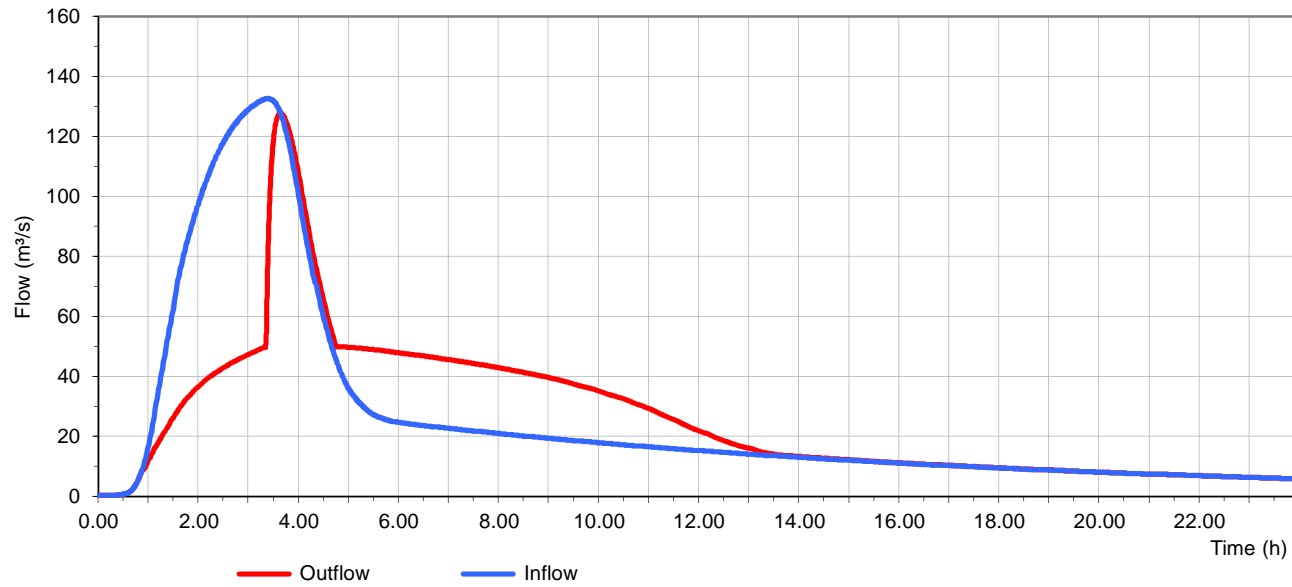
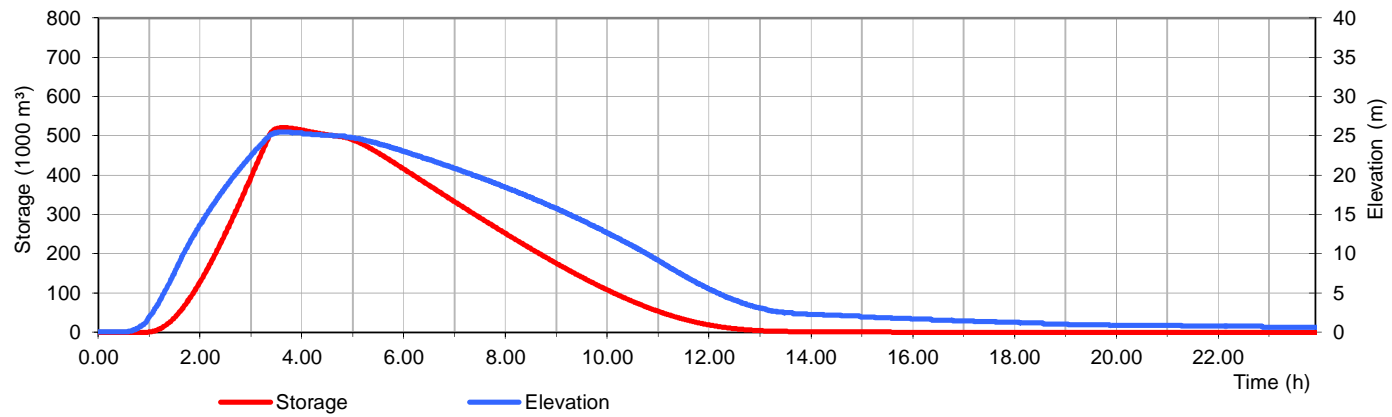
Flow	n300_9h	Dam high	25 m
max. Inflow	70.50 m³/s	Bottom outlet	50 m³/s
max. Outflow	70.50 m³/s		
Elevation	30.10 m		
Storage	505 000 m³		



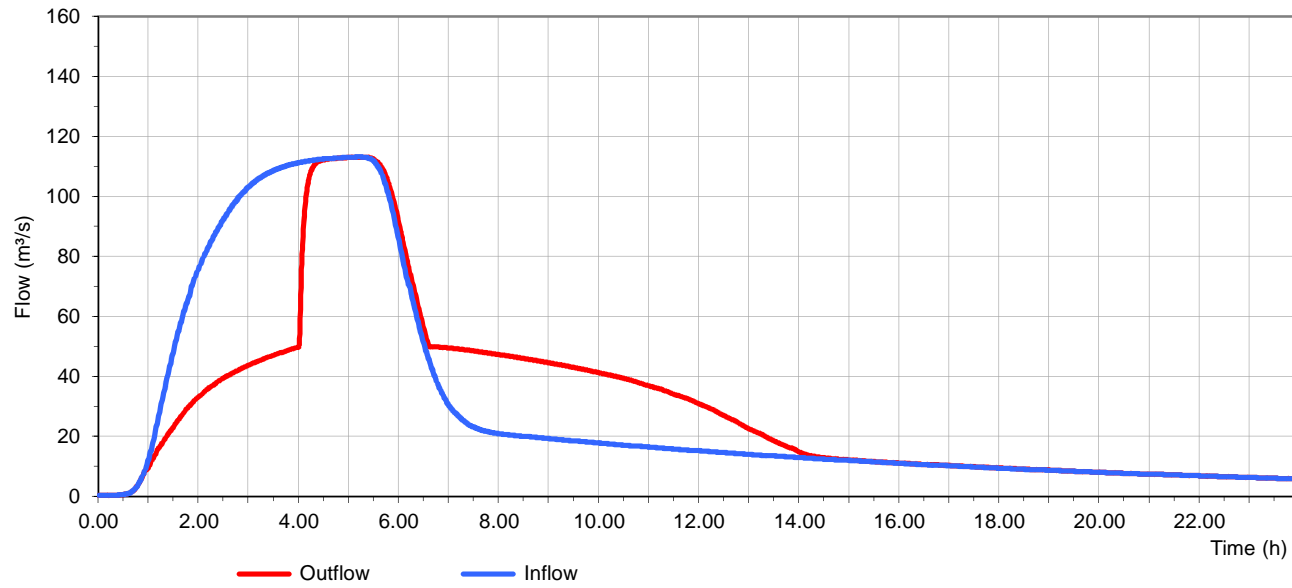
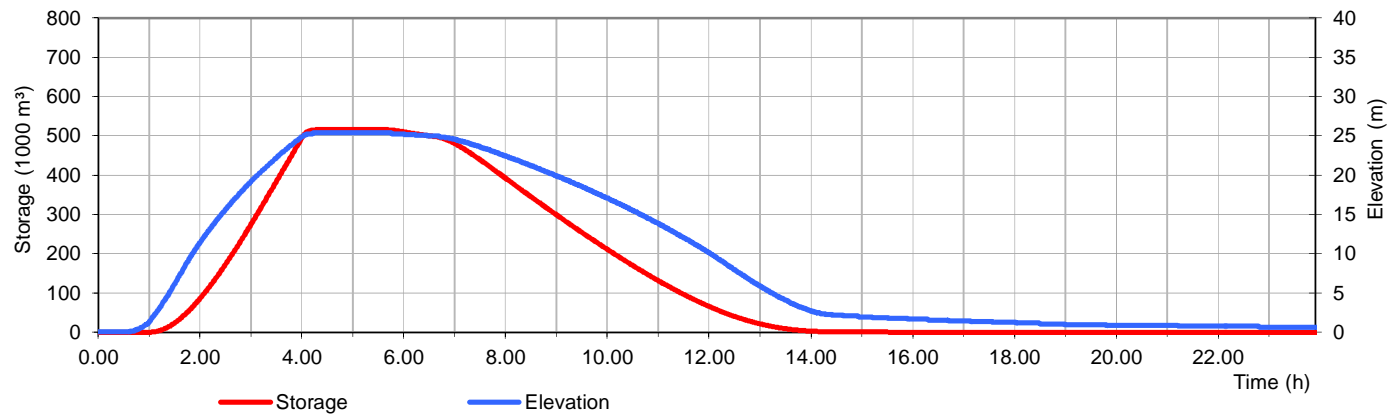
Flow	n300_12h	Dam high	25 m
max. Inflow	64.40 m³/s	Bottom outlet	50 m³/s
max. Outflow	64.30 m³/s		
Elevation	30.10 m		
Storage	503 300 m³		



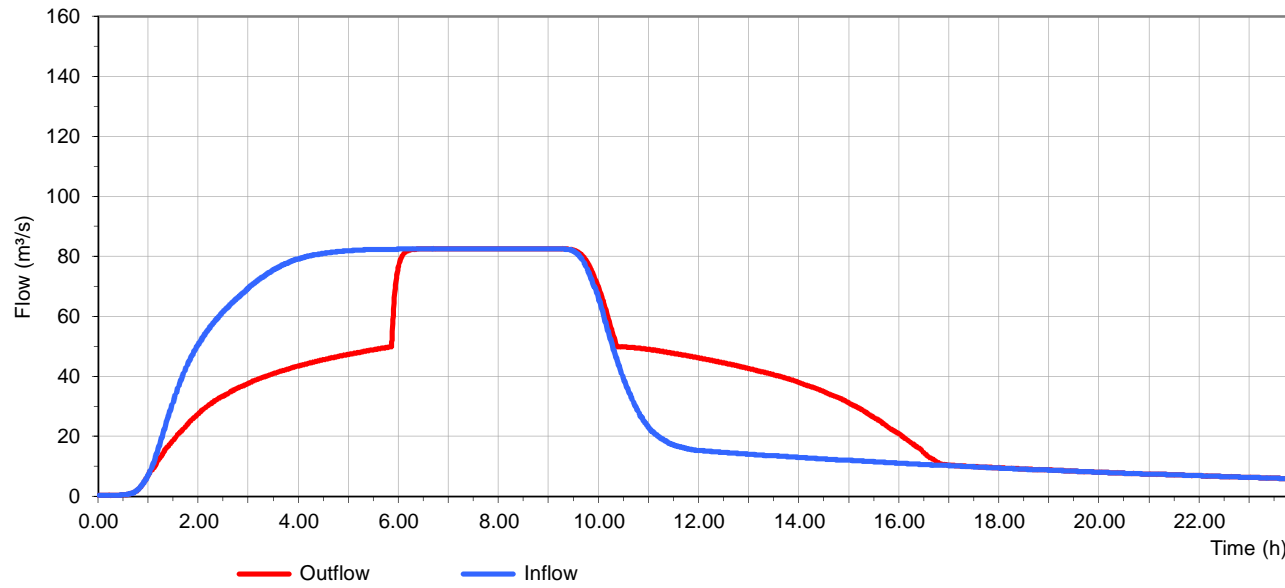
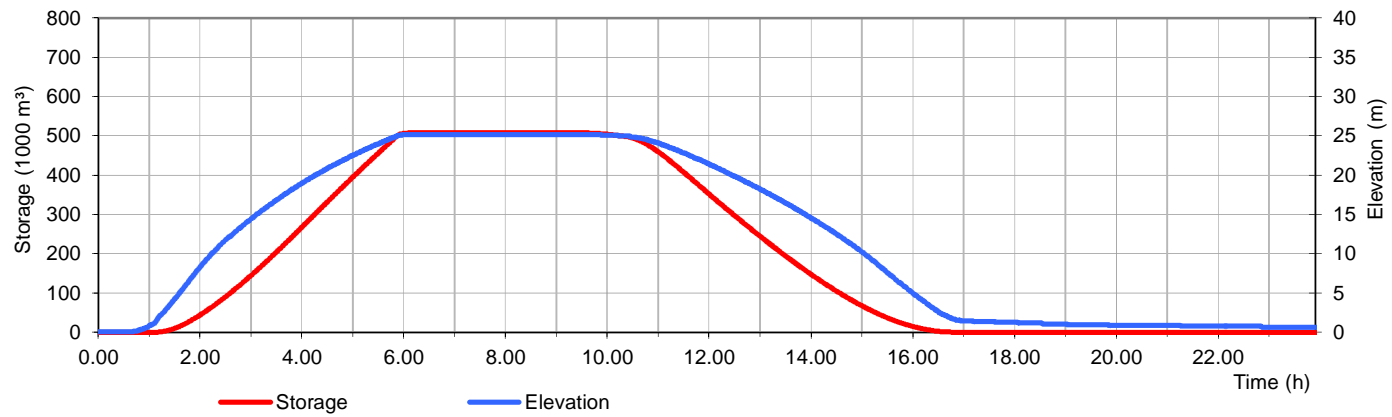
Flow	n1000_2h	Dam high	25 m
max. Inflow	149.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	109.80 m³/s		
Elevation	30.40 m		
Storage	516 300 m³		



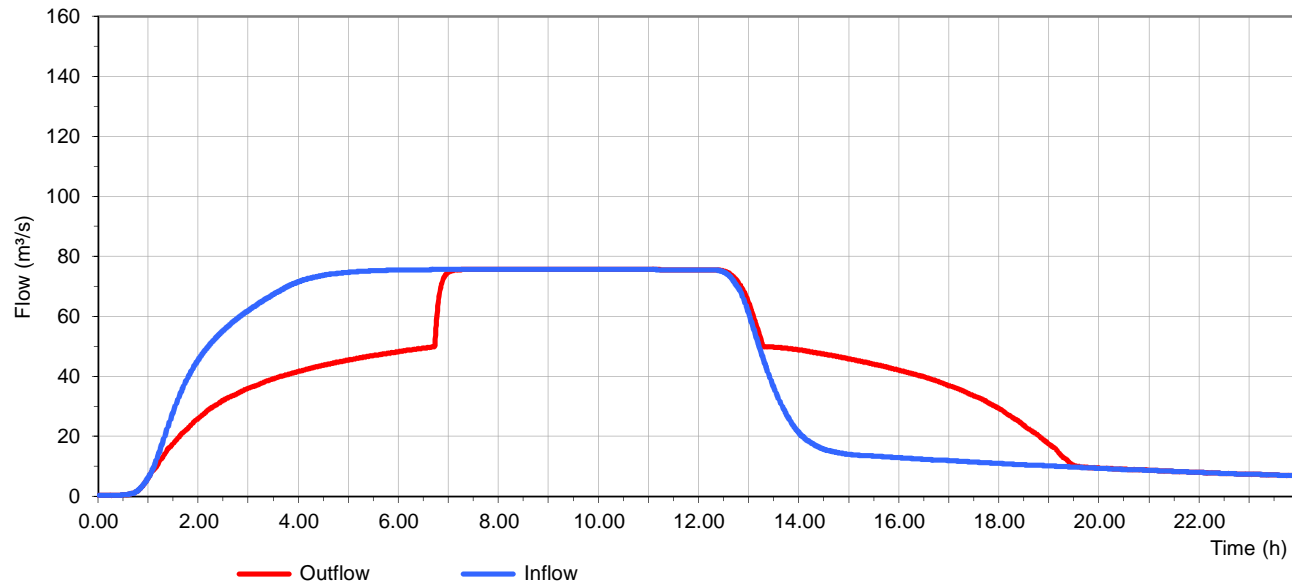
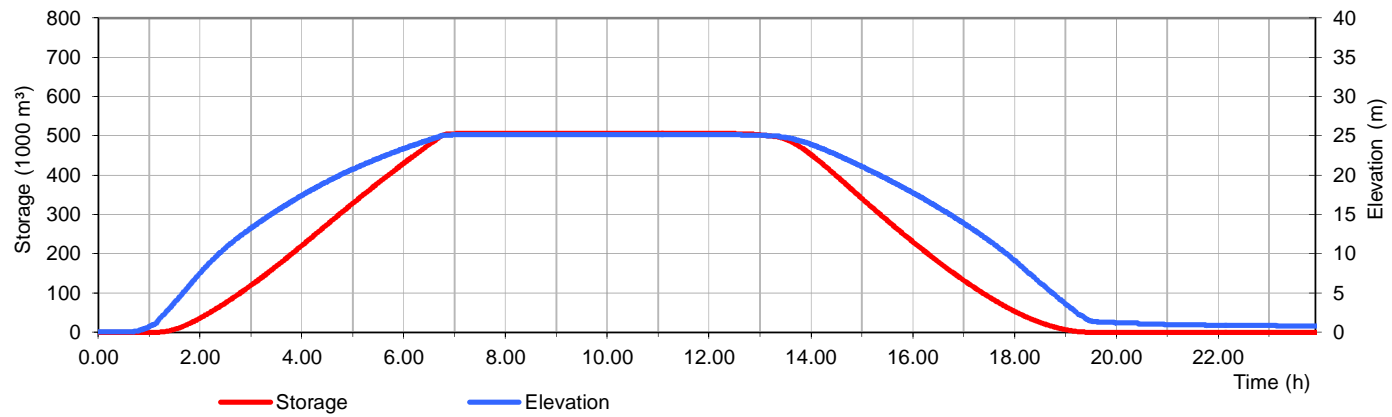
Flow	n1000_3h	Dam high	25 m
max. Inflow	132.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	127.90 m³/s		
Elevation	30.50 m		
Storage	521 600 m³		



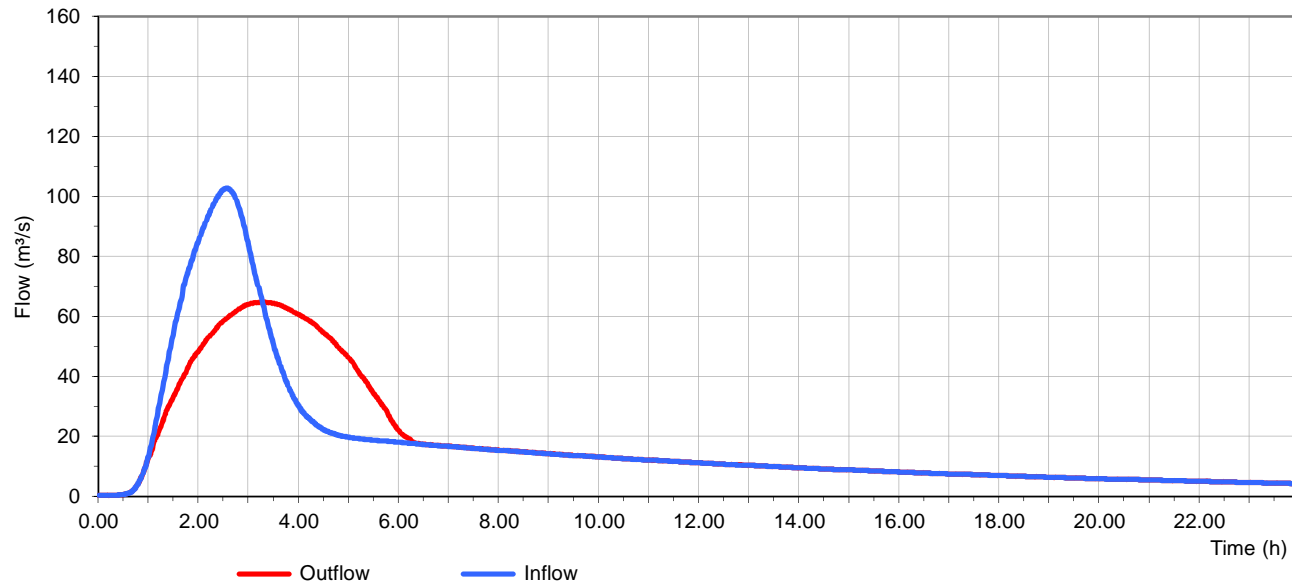
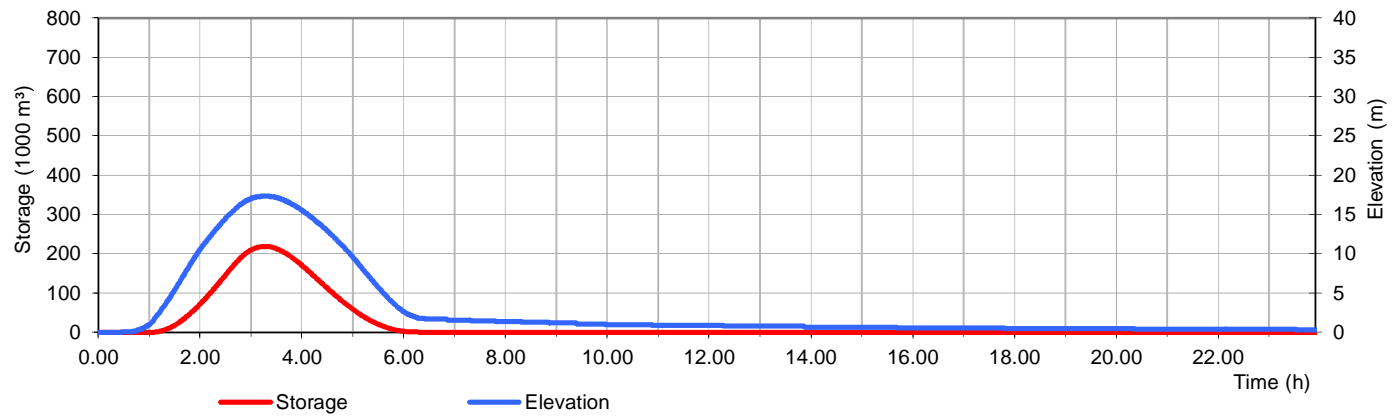
Flow	n1000_5h	Dam high	25 m
max. Inflow	113.30 m³/s	Bottom outlet	50 m³/s
max. Outflow	113.20 m³/s		
Elevation	30.40 m		
Storage	517 300 m³		



Flow	n1000_9h	Dam high	25 m
max. Inflow	82.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	82.70 m³/s		
Elevation	30.20 m		
Storage	508 500 m³		

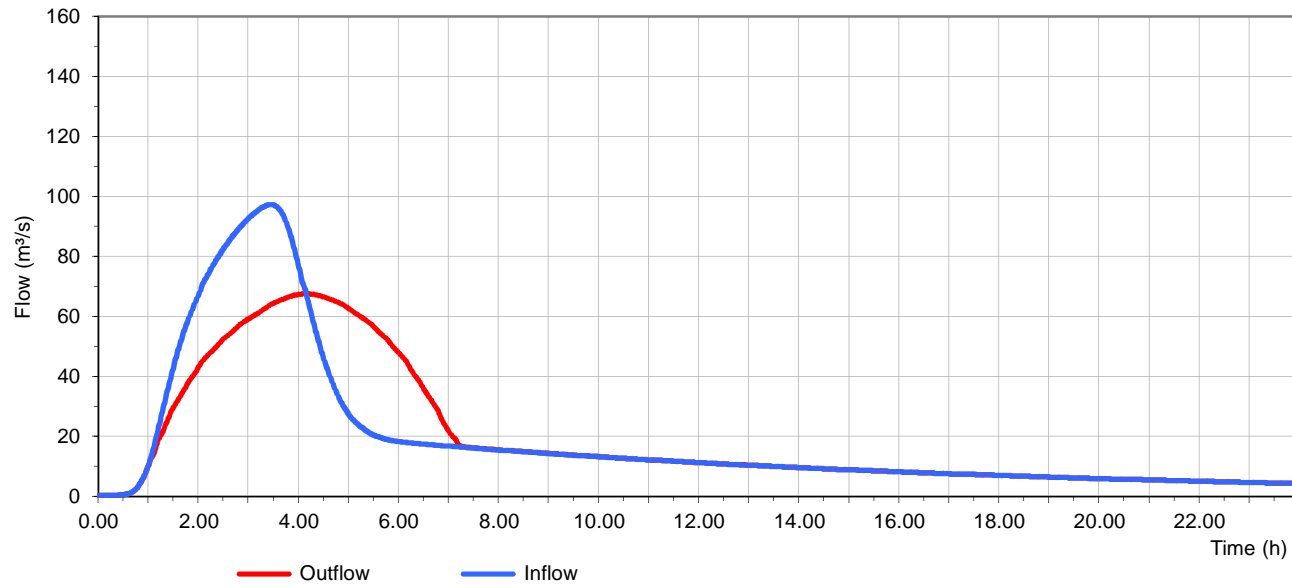
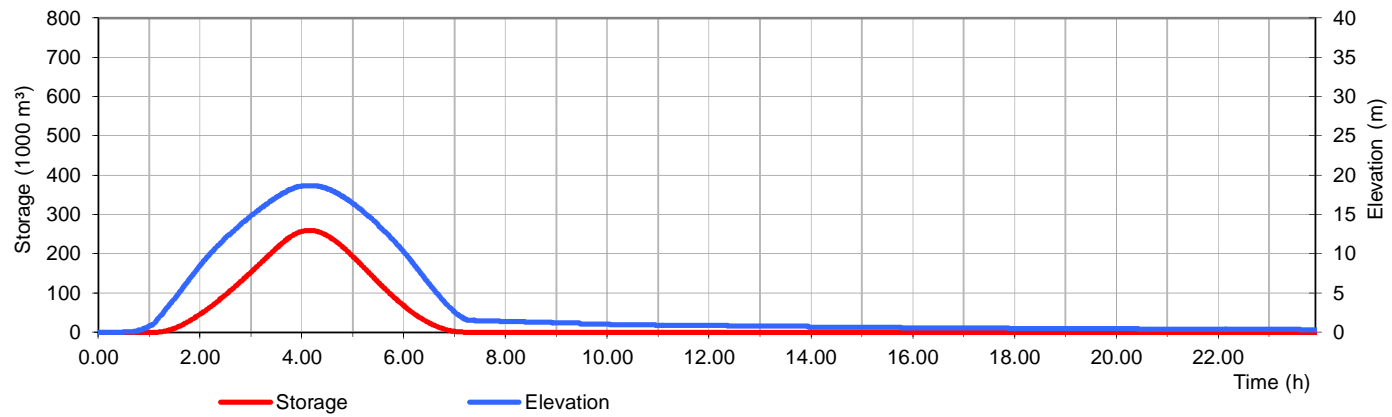


Flow	n1000_12h	Dam hight	25 m
max. Inflow	75.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	75.70 m³/s		
Elevation	30.20 m		
Storage	506 500 m³		



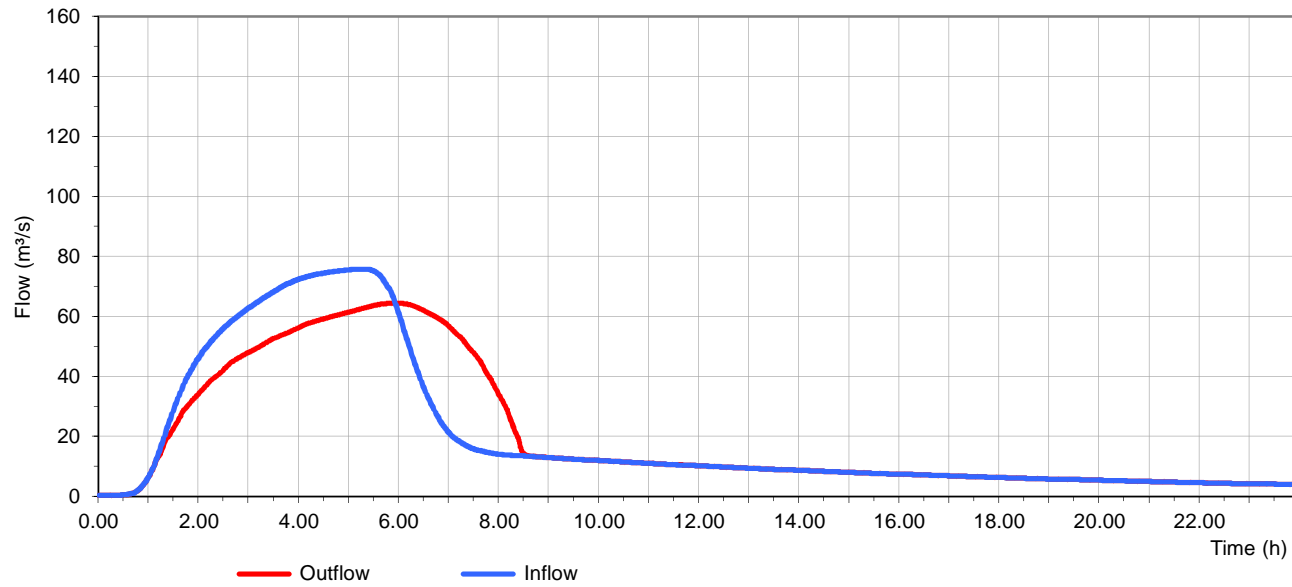
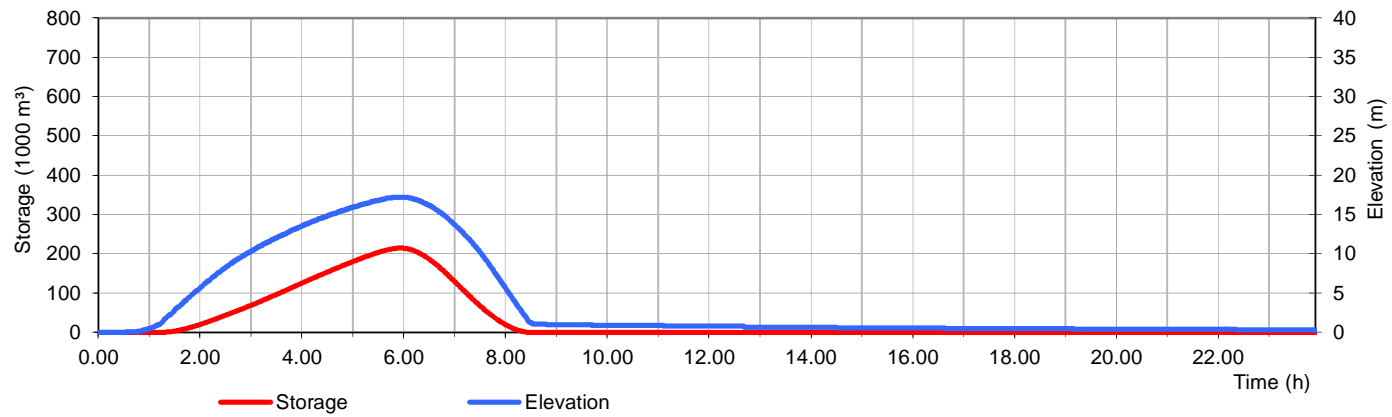
Flow **n100_2h**
 max. Inflow 102.80 m³/s
 max. Outflow 64.80 m³/s
 Elevation 22.40 m
 Storage 219 300 m³

Dam high 20 m
 Bottom outlet 70 m³/s

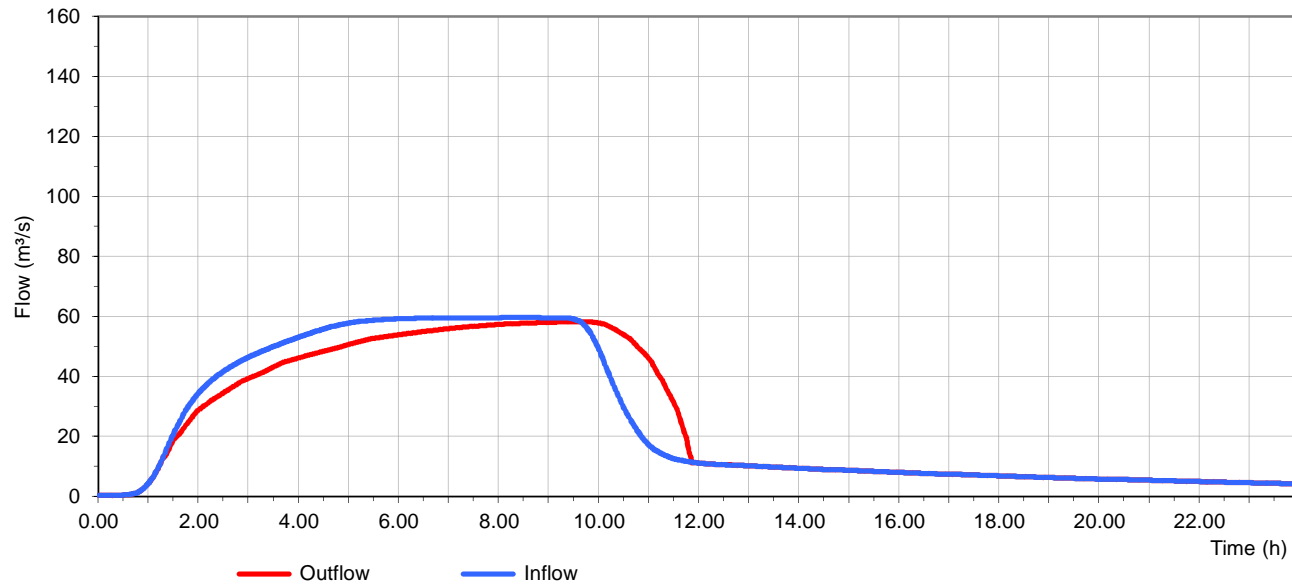
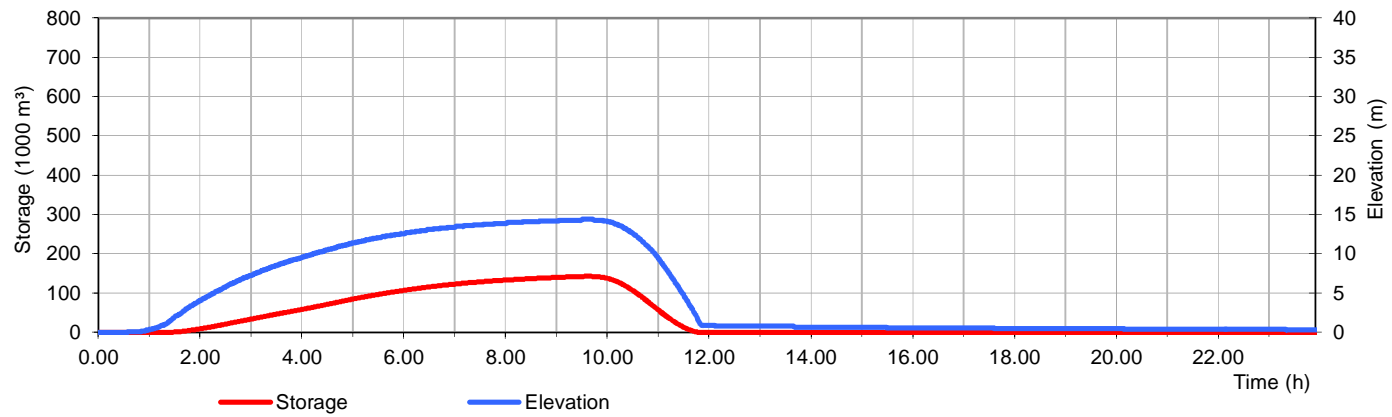


Flow **n100_3h**
 max. Inflow 97.40 m³/s
 max. Outflow 67.60 m³/s
 Elevation 23.70 m
 Storage 260 000 m³

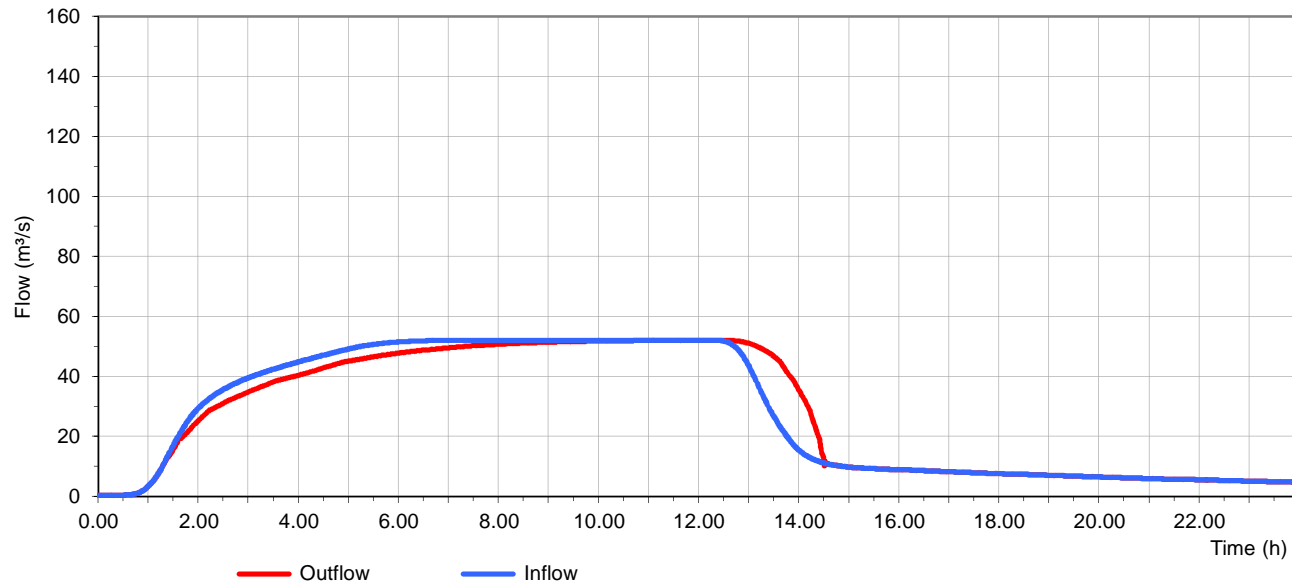
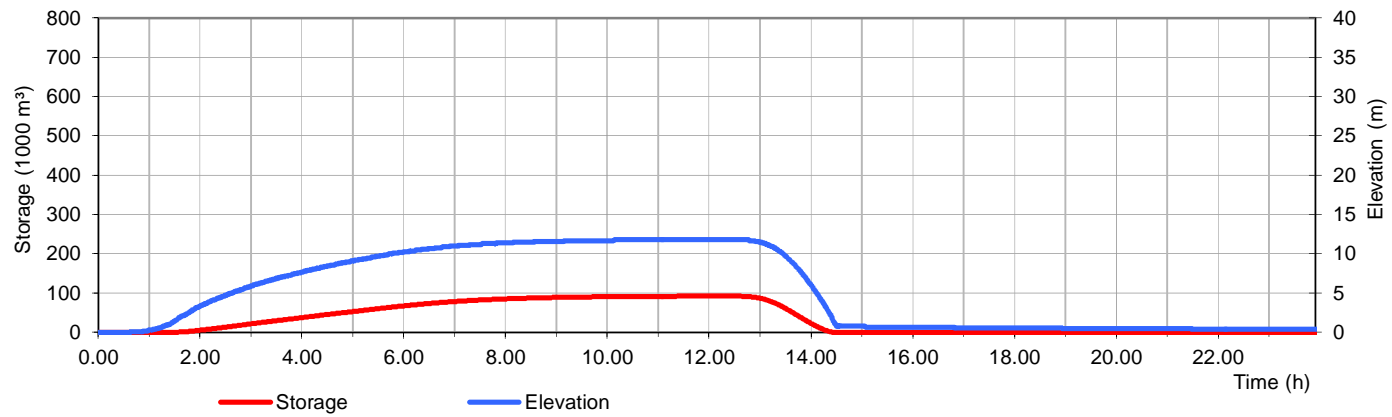
Dam high 20 m
 Bottom outlet 70 m³/s



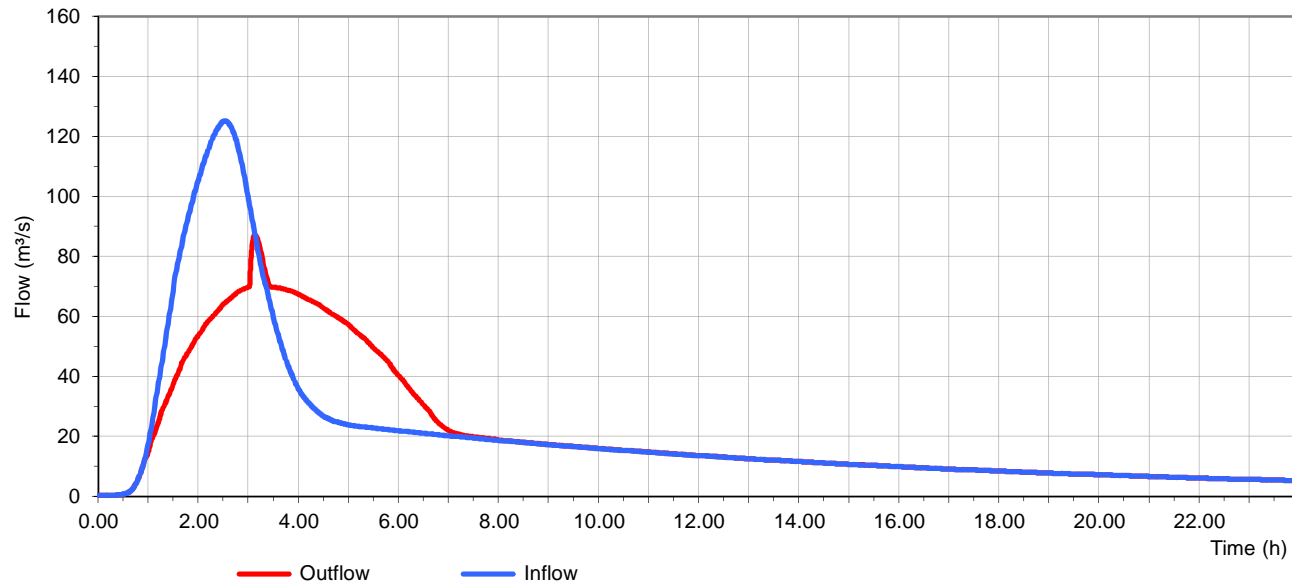
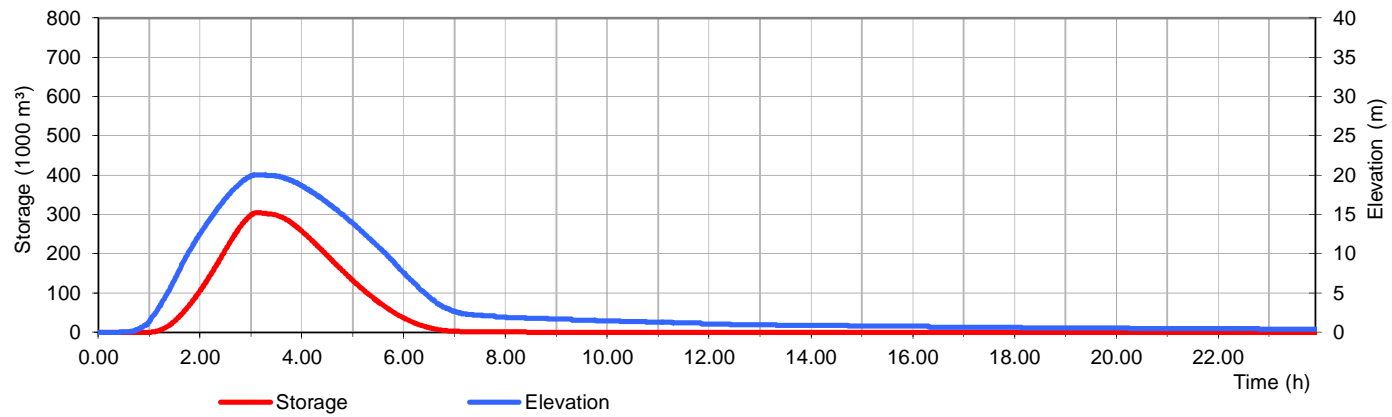
Flow	n100_5h	Dam high	20 m
max. Inflow	75.80 m³/s	Bottom outlet	70 m³/s
max. Outflow	64.50 m³/s		
Elevation	22.20 m		
Storage	214 900 m³		



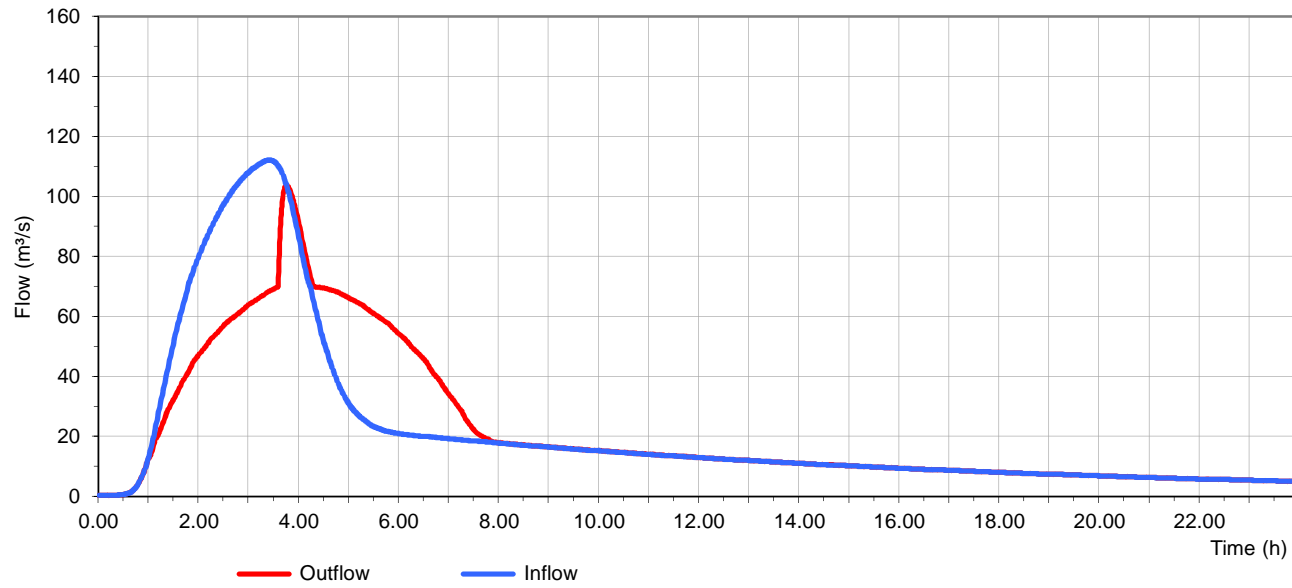
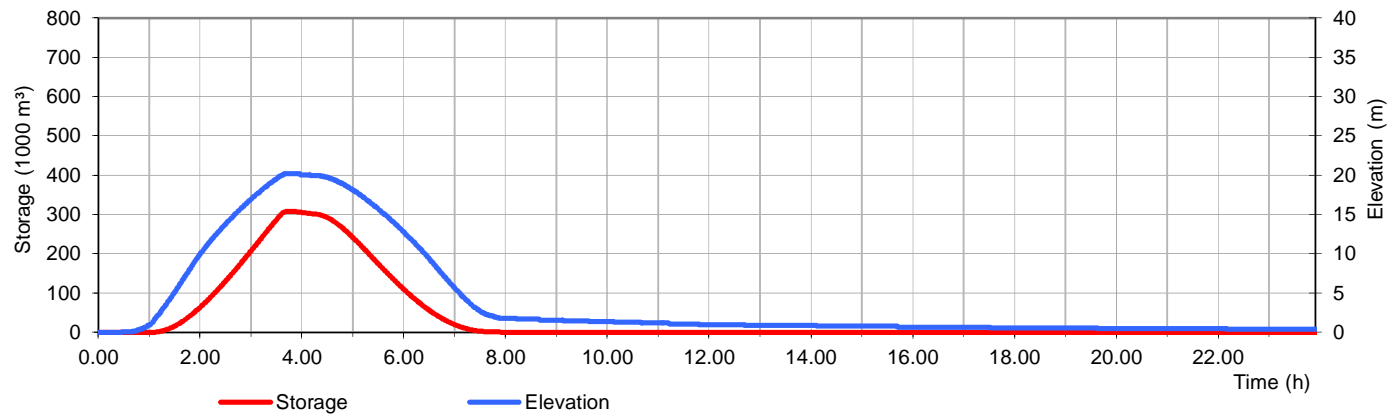
Flow	n100_9h	Dam high	20 m
max. Inflow	59.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	58.30 m³/s		
Elevation	19.40 m		
Storage	142 900 m³		



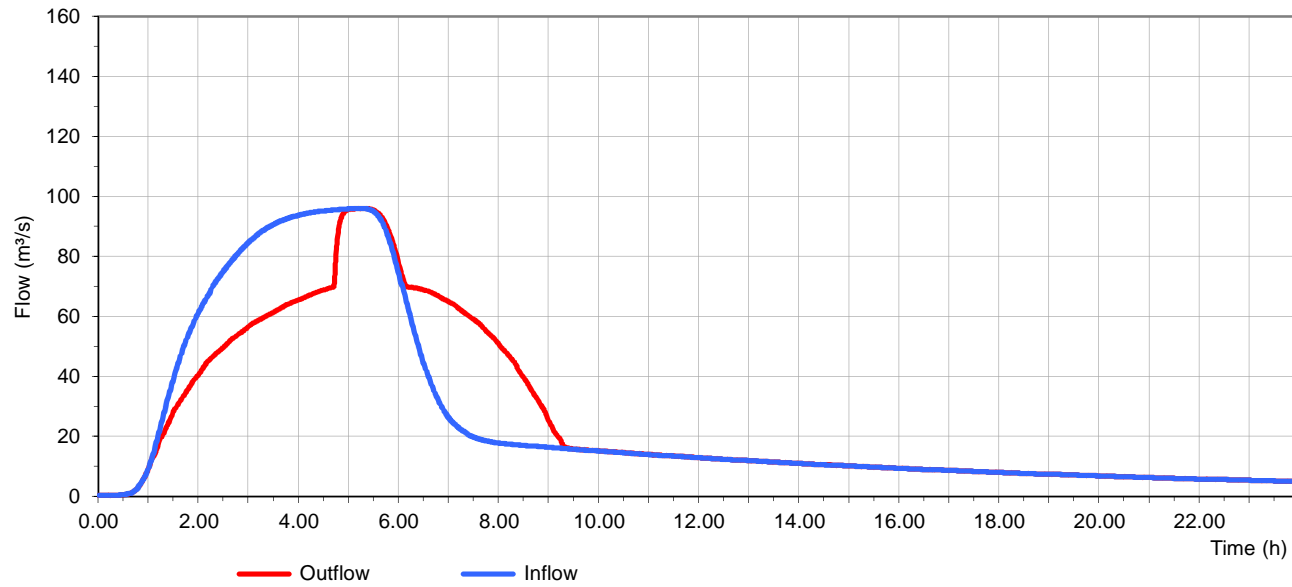
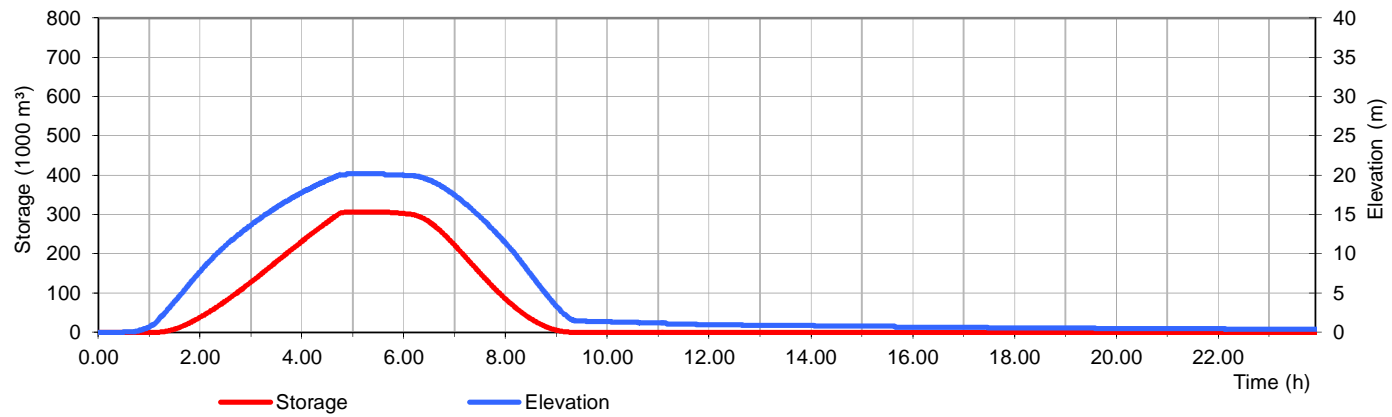
Flow	n100_12h	Dam hight	20 m
max. Inflow	52.20 m³/s	Bottom outlet	70 m³/s
max. Outflow	52.10 m³/s		
Elevation	16.80 m		
Storage	92 700 m³		



Flow	n300_2h	Dam high	20 m
max. Inflow	125.20 m ³ /s	Bottom outlet	70 m ³ /s
max. Outflow	87.30 m ³ /s		
Elevation	25.10 m		
Storage	304 900 m ³		

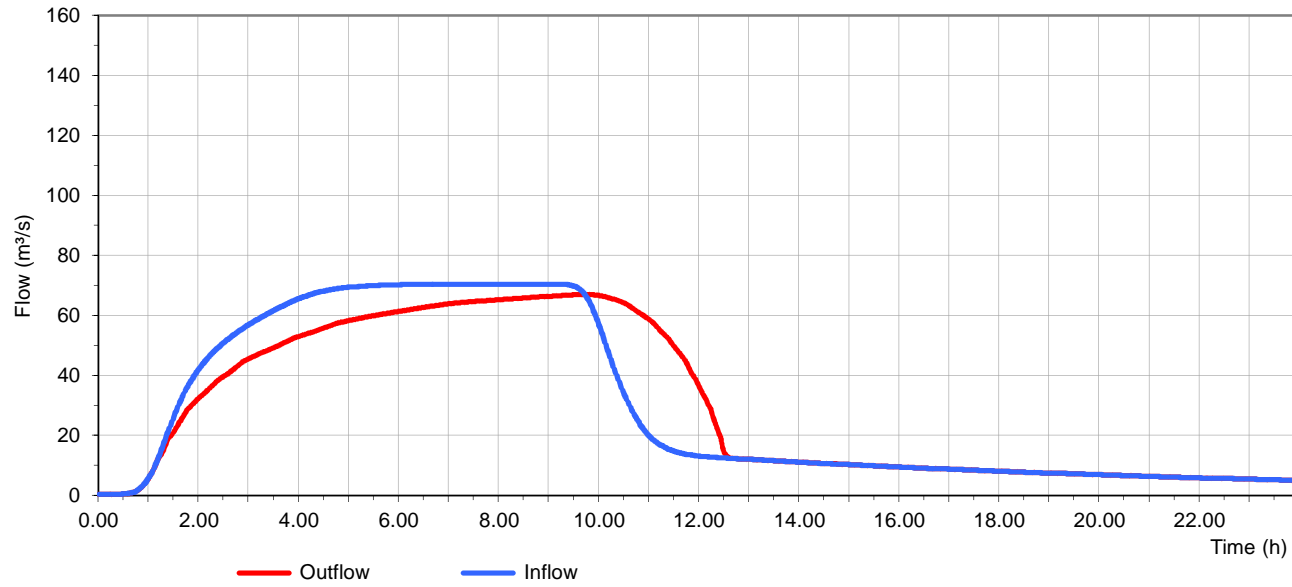
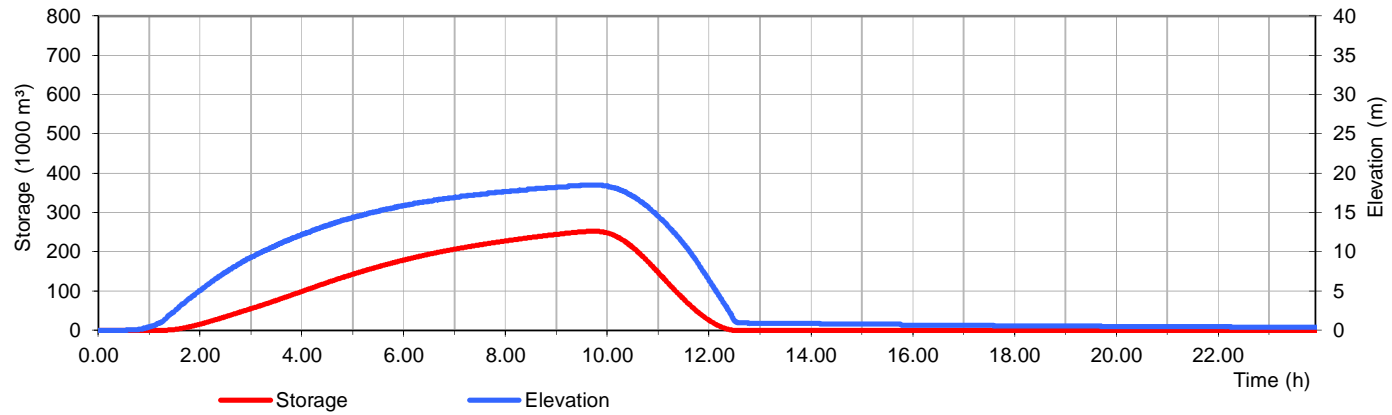


Flow	n300_3h	Dam high	20 m
max. Inflow	112.20 m³/s	Bottom outlet	70 m³/s
max. Outflow	103.80 m³/s		
Elevation	25.20 m		
Storage	308 600 m³		

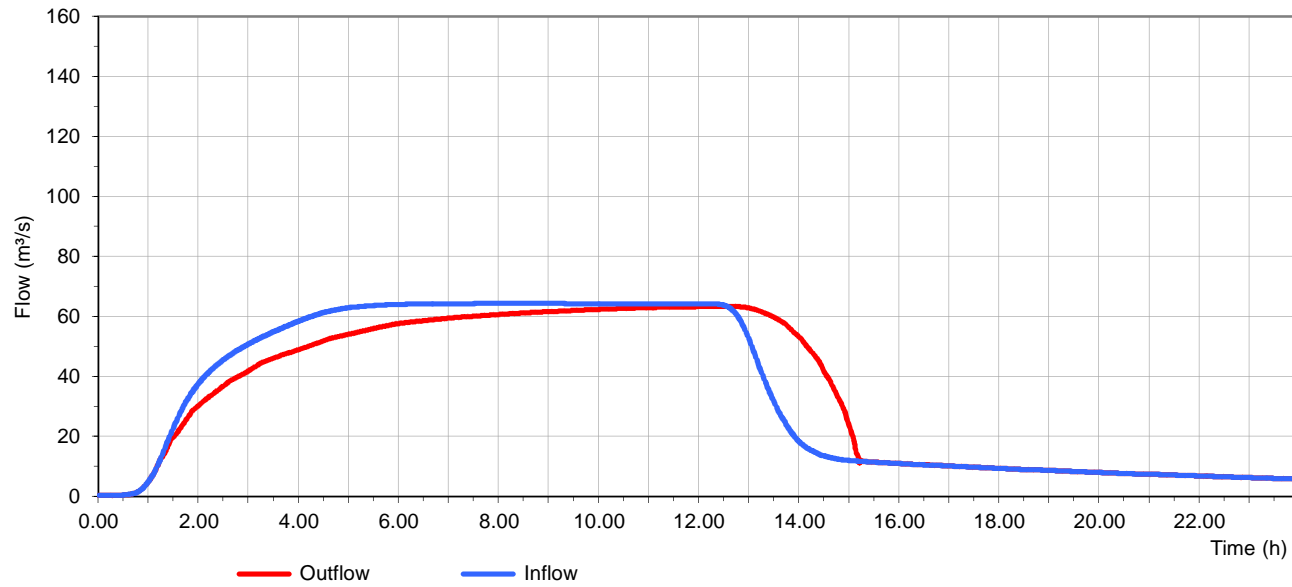
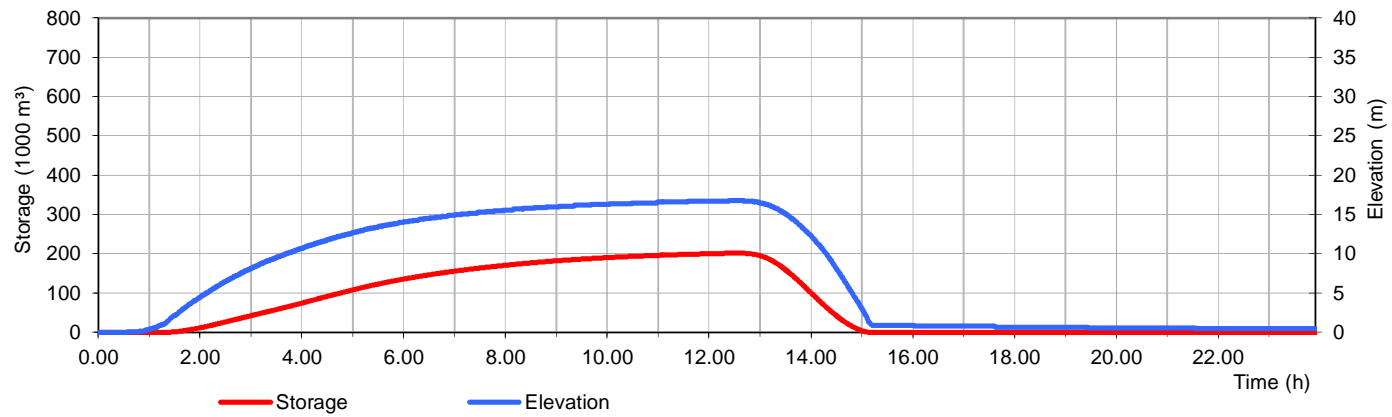


Flow **n300_5h**
 max. Inflow 96.10 m³/s
 max. Outflow 96.10 m³/s
 Elevation 25.20 m
 Storage 306 900 m³

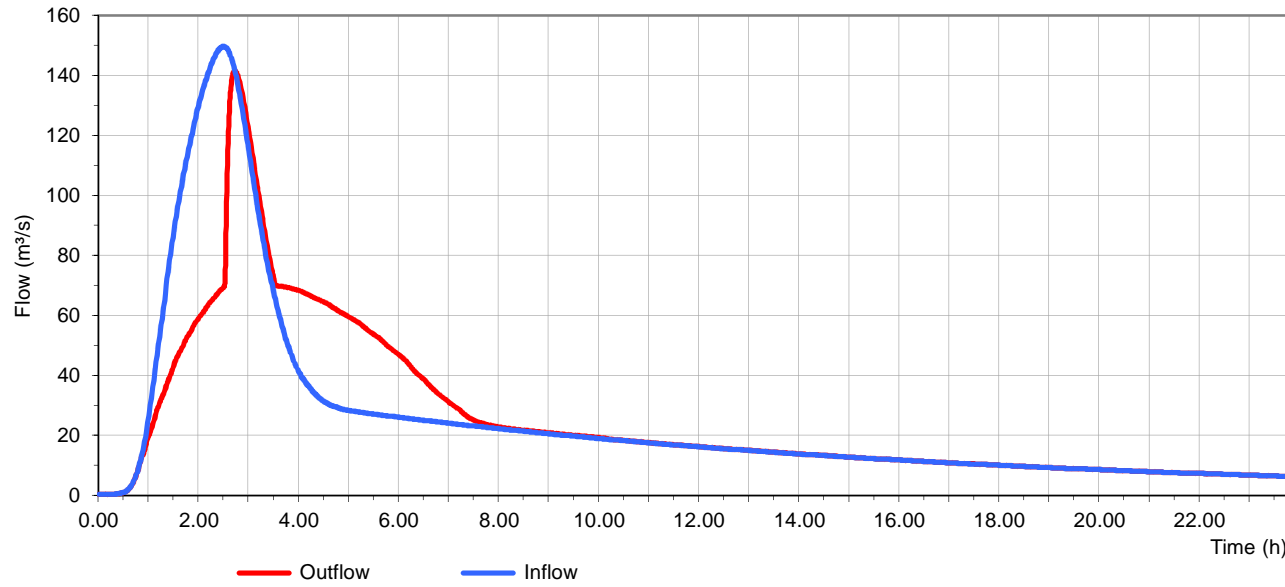
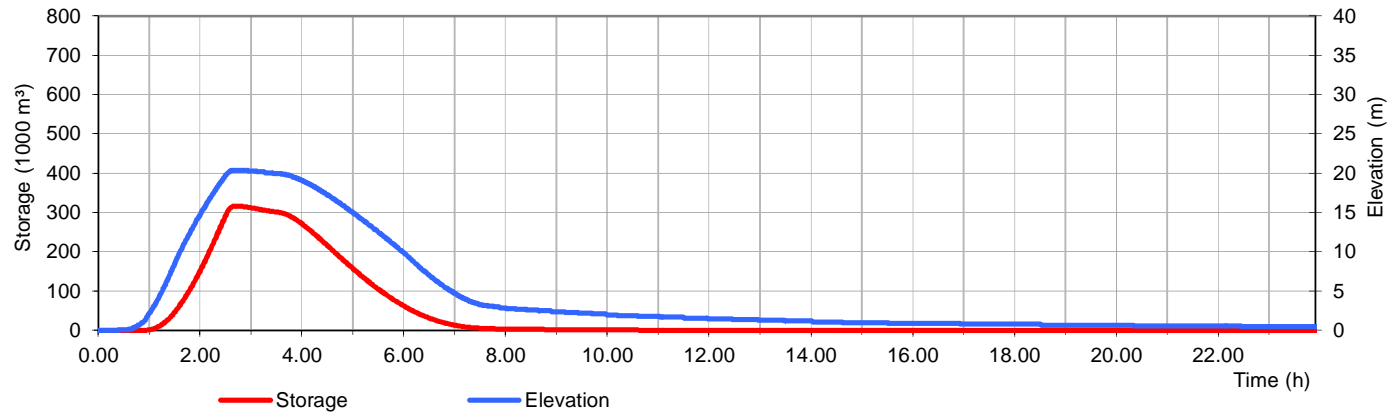
Dam high 20 m
 Bottom outlet 70 m³/s



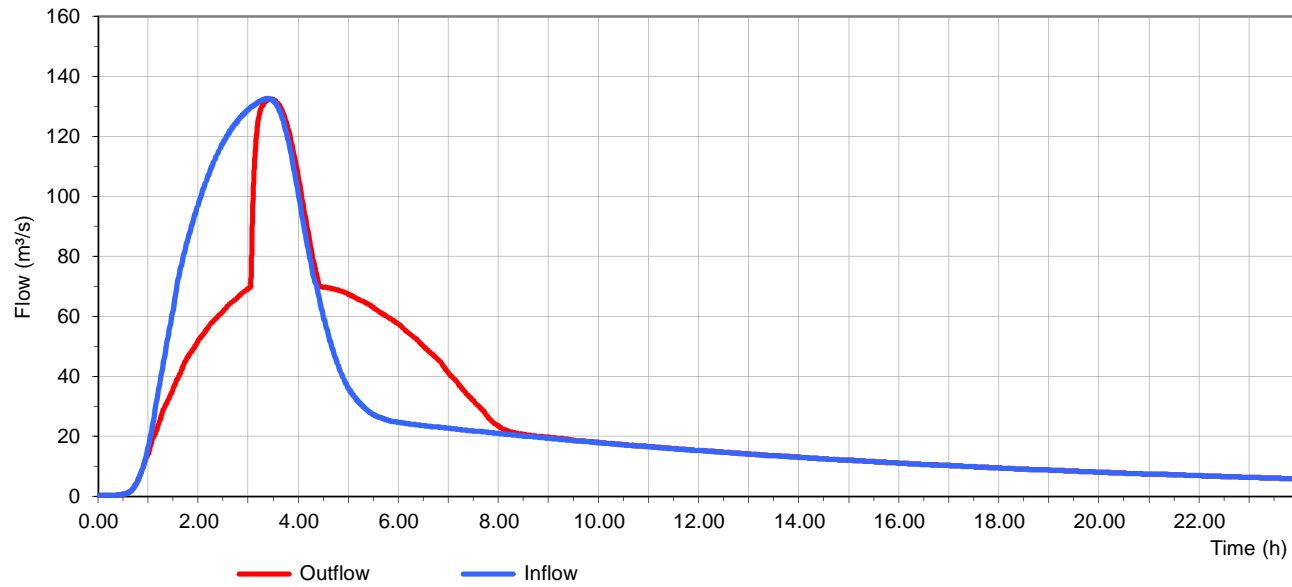
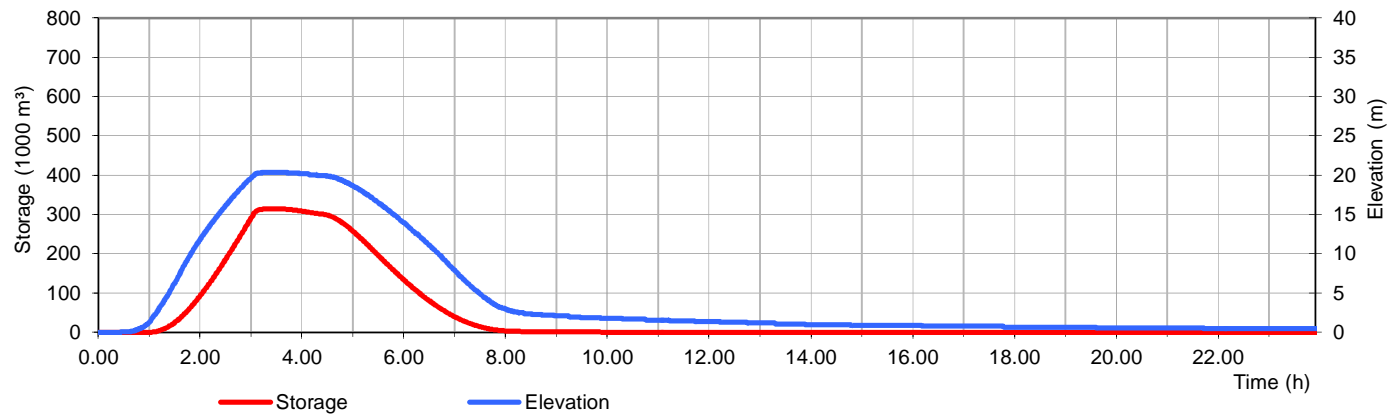
Flow	n300_9h	Dam high	20 m
max. Inflow	70.5 m³/s	Bottom outlet	70 m³/s
max. Outflow	67.1 m³/s		
Elevation	23.5 m		
Storage	252 800 m³		



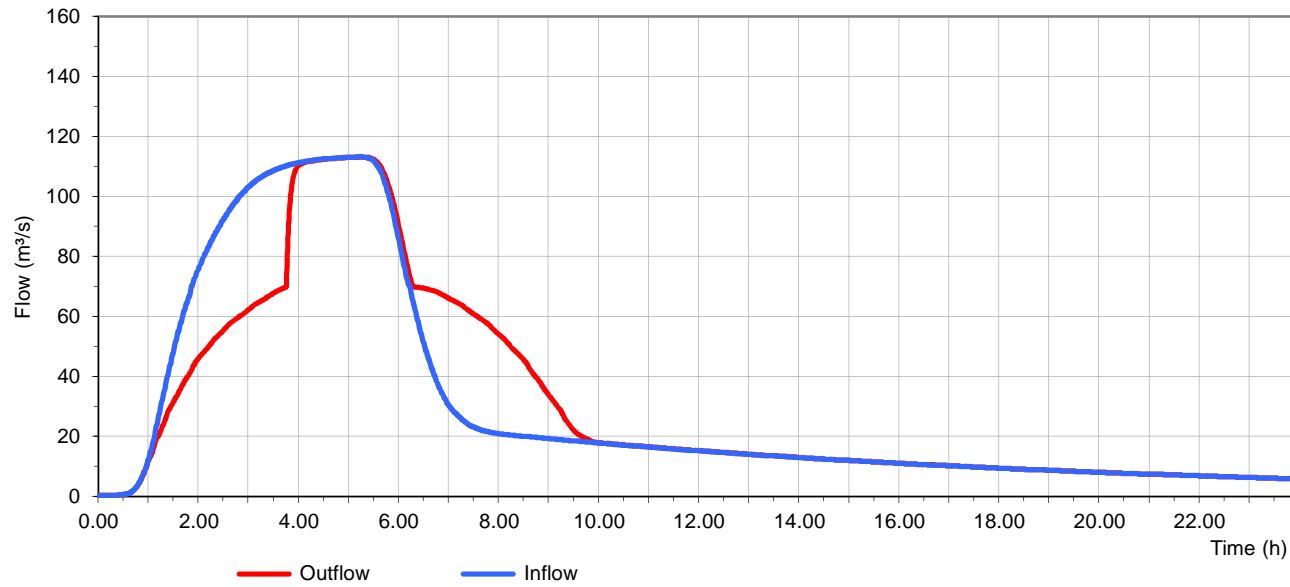
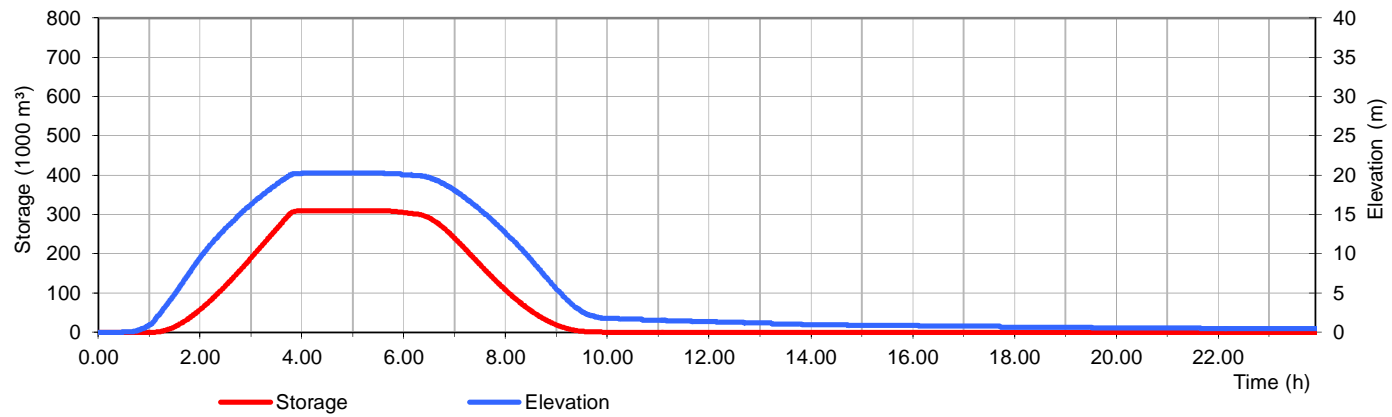
Flow	n300_12h	Dam hight	20 m
max. Inflow	64.40 m³/s	Bottom outlet	70 m³/s
max. Outflow	63.50 m³/s		
Elevation	21.80 m		
Storage	202 000 m³		



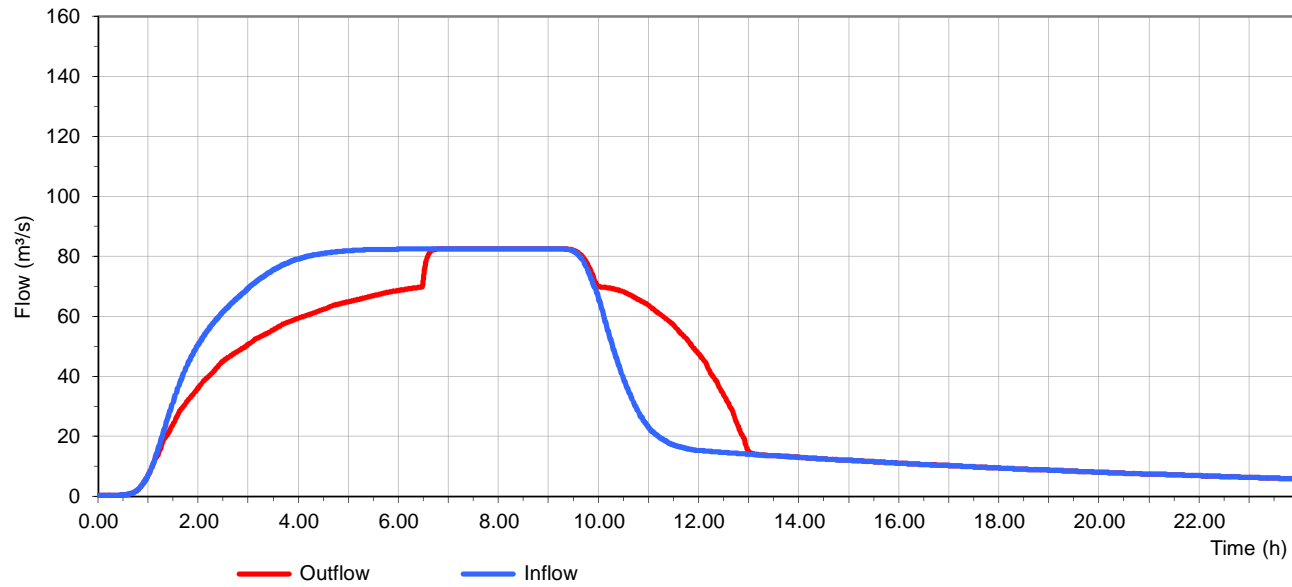
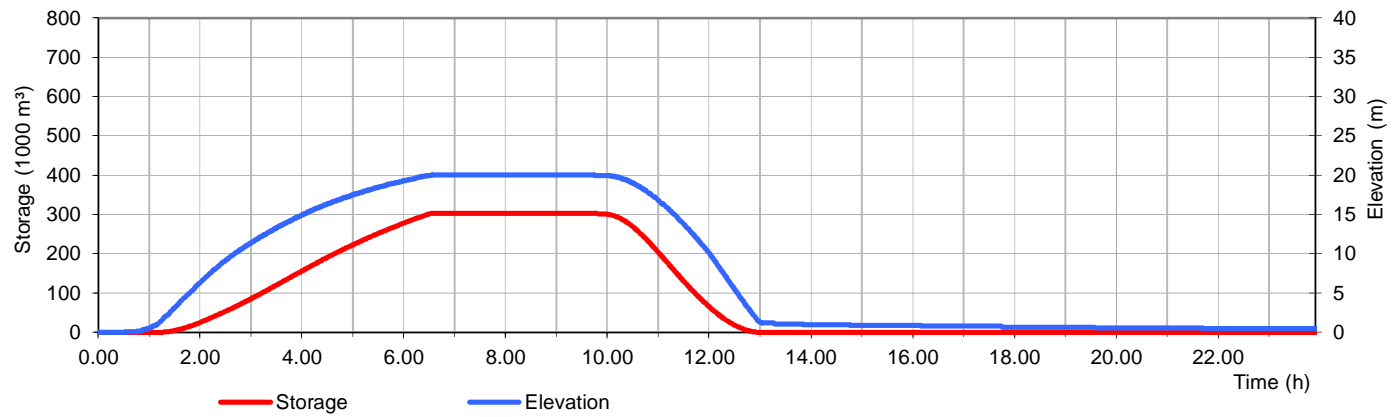
Flow	n1000_2h	Dam high	20 m
max. Inflow	149.80 m³/s	Bottom outlet	70 m³/s
max. Outflow	141.60 m³/s		
Elevation	25.40 m		
Storage	316 800 m³		



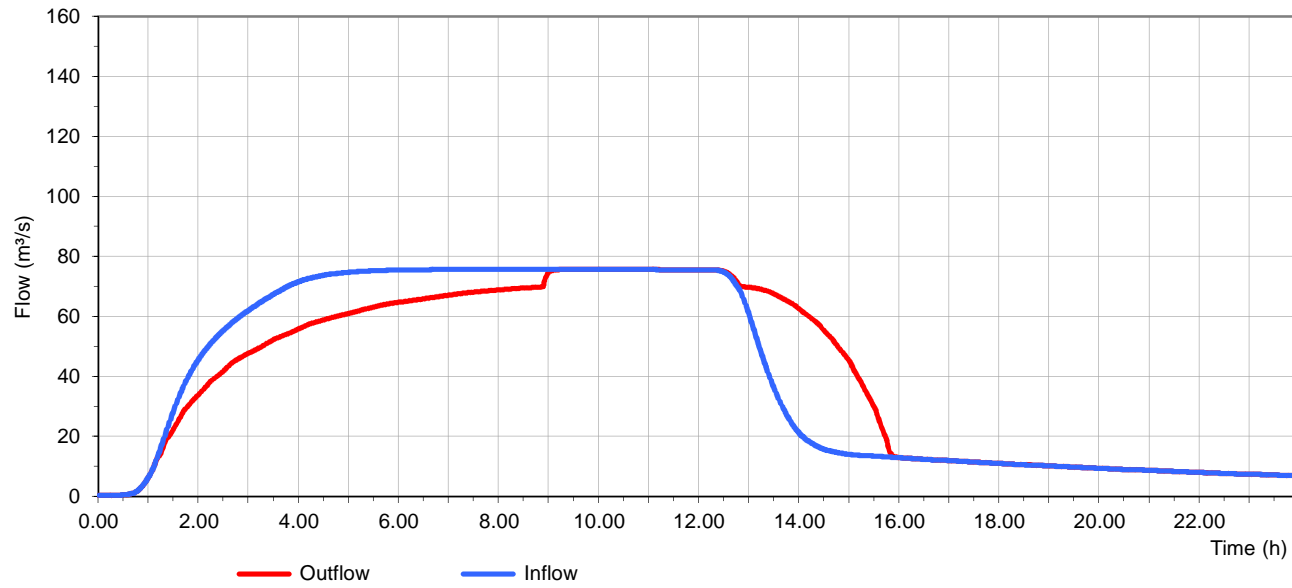
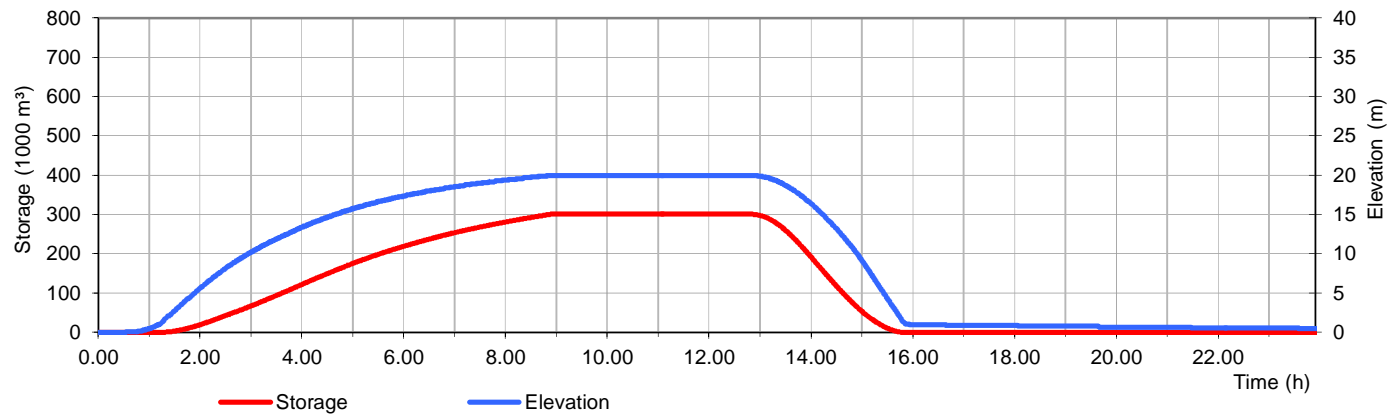
Flow	n1000_3h	Dam high	20 m
max. Inflow	132.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	132.50 m³/s		
Elevation	25.40 m		
Storage	314 800 m³		



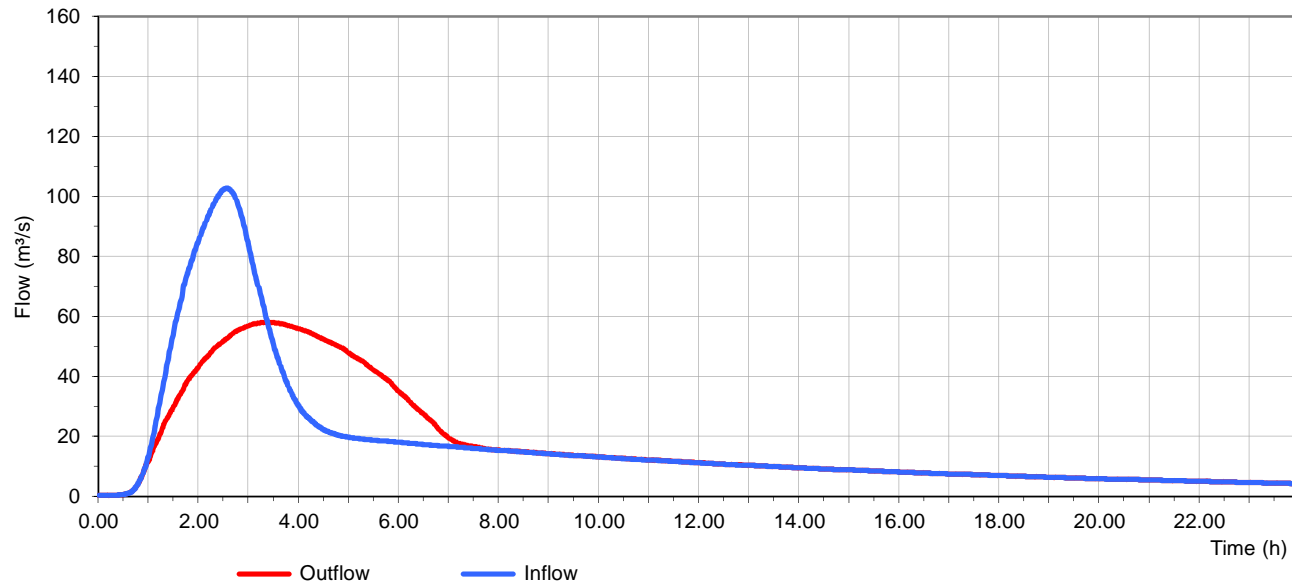
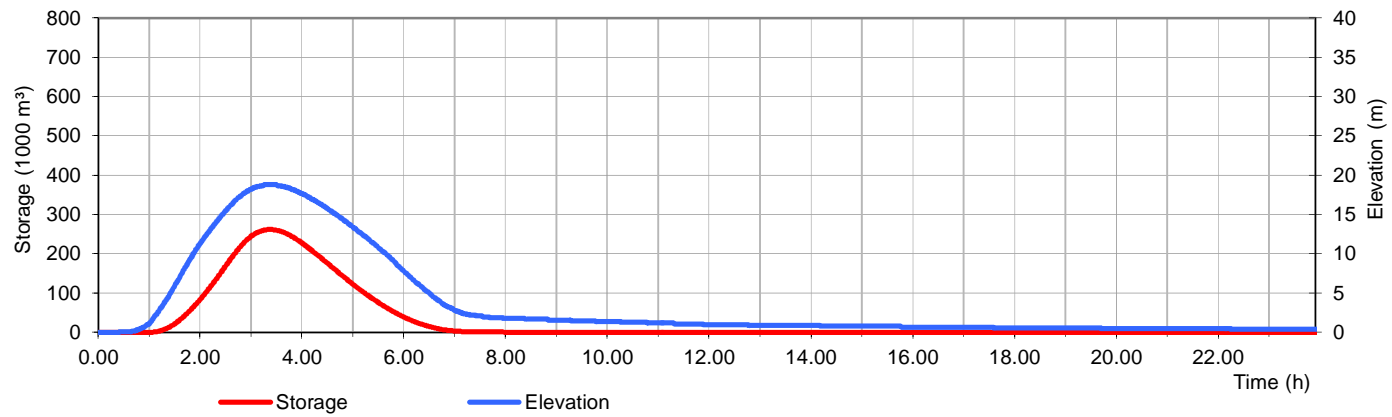
Flow	n1000_5h	Dam high	20 m
max. Inflow	113.30 m³/s	Bottom outlet	70 m³/s
max. Outflow	113.30 m³/s		
Elevation	25.30 m		
Storage	310 600 m³		



Flow	n1000_9h	Dam high	20 m
max. Inflow	82.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	82.70 m³/s		
Elevation	25.10 m		
Storage	303 900 m³		

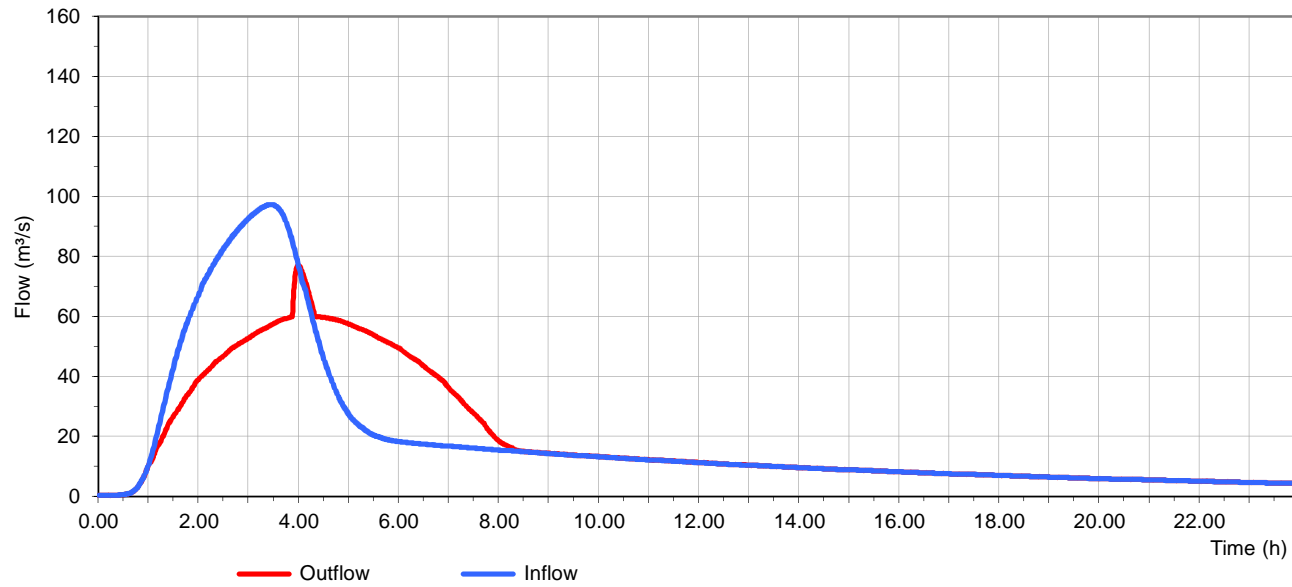
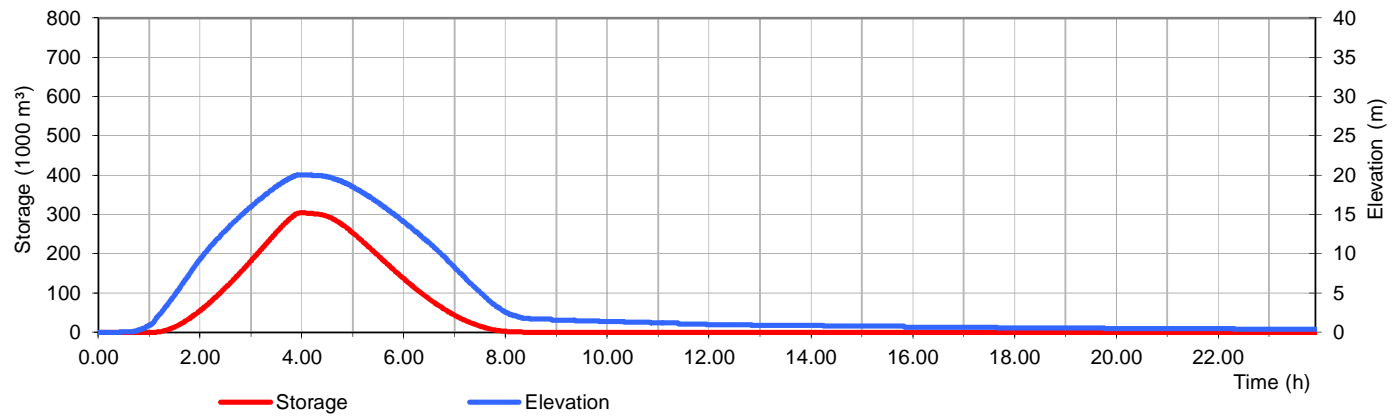


Flow	n1000_12h	Dam hight	20 m
max. Inflow	75.70 m³/s	Bottom outlet	70 m³/s
max. Outflow	75.70 m³/s		
Elevation	25.00 m		
Storage	302 400 m³		

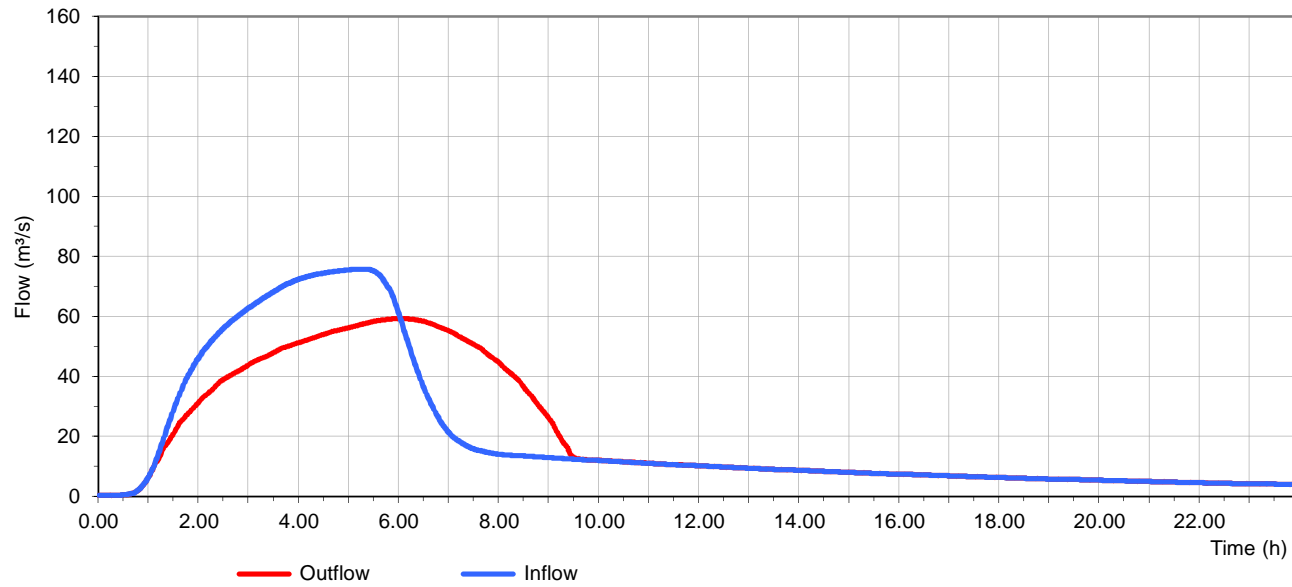
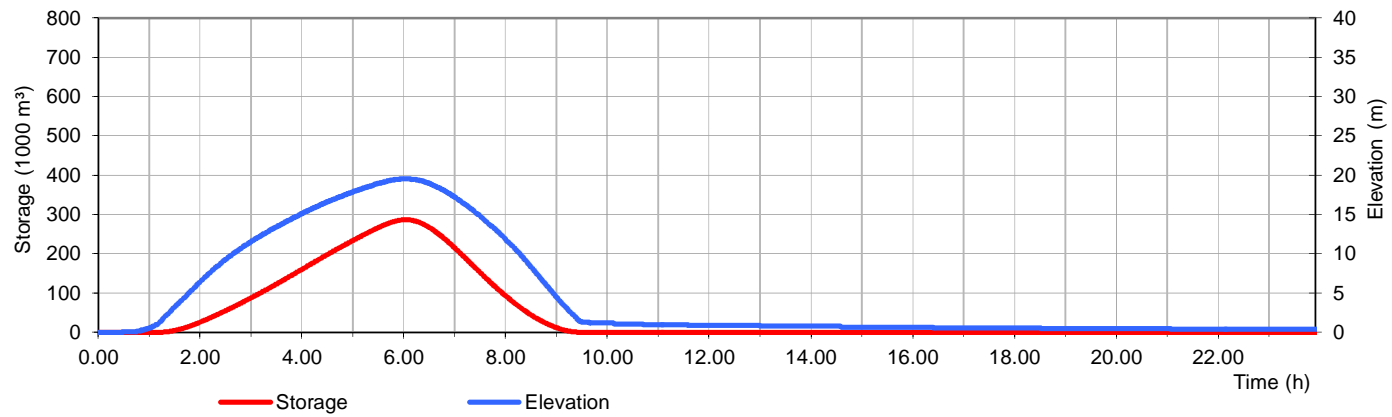


Flow	n100_2h
max. Inflow	102.80 m ³ /s
max. Outflow	58.10 m ³ /s
Elevation	23.80 m
Storage	262 300 m ³

Dam high	20 m
Bottom outlet	60 m ³ /s

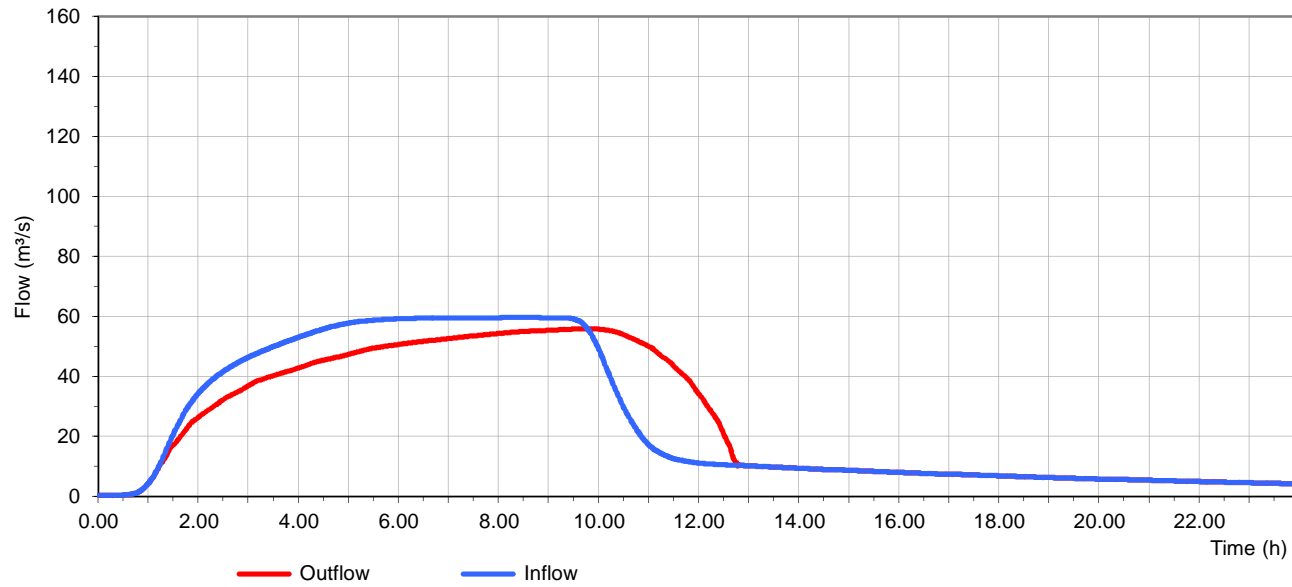
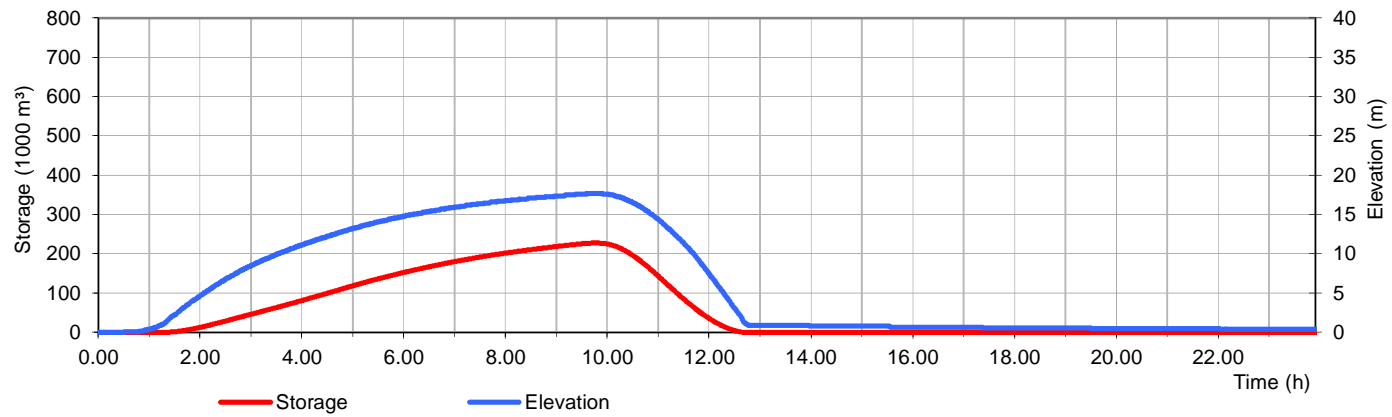


Flow	n100_3h	Dam high	20 m
max. Inflow	97.40 m³/s	Bottom outlet	60 m³/s
max. Outflow	77.00 m³/s		
Elevation	25.10 m		
Storage	304 900 m³		

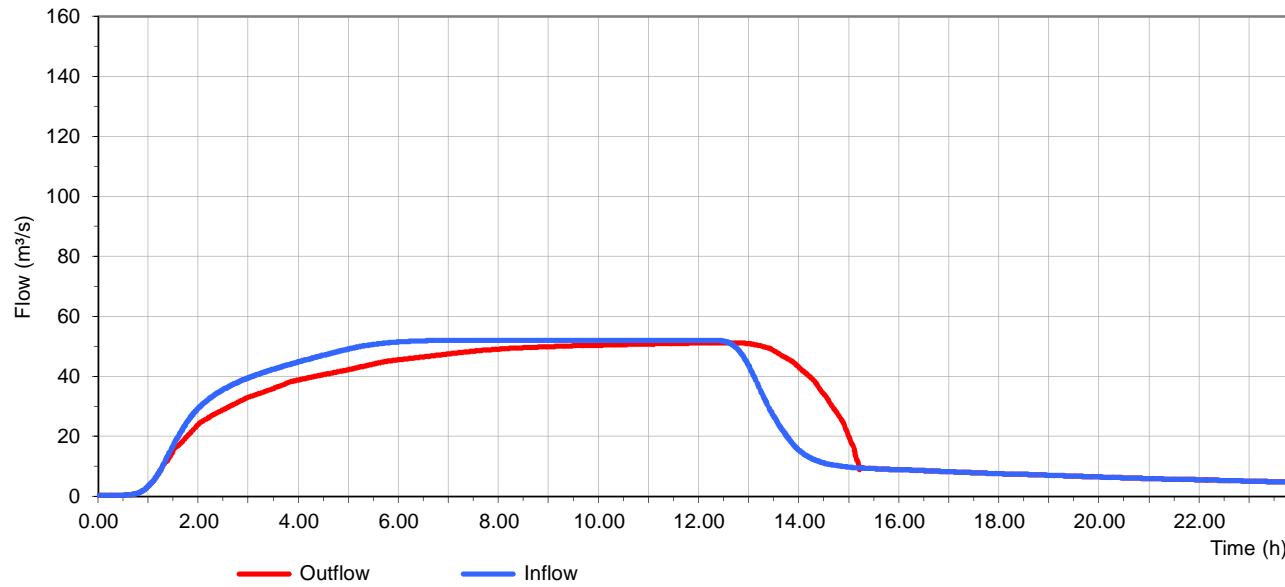
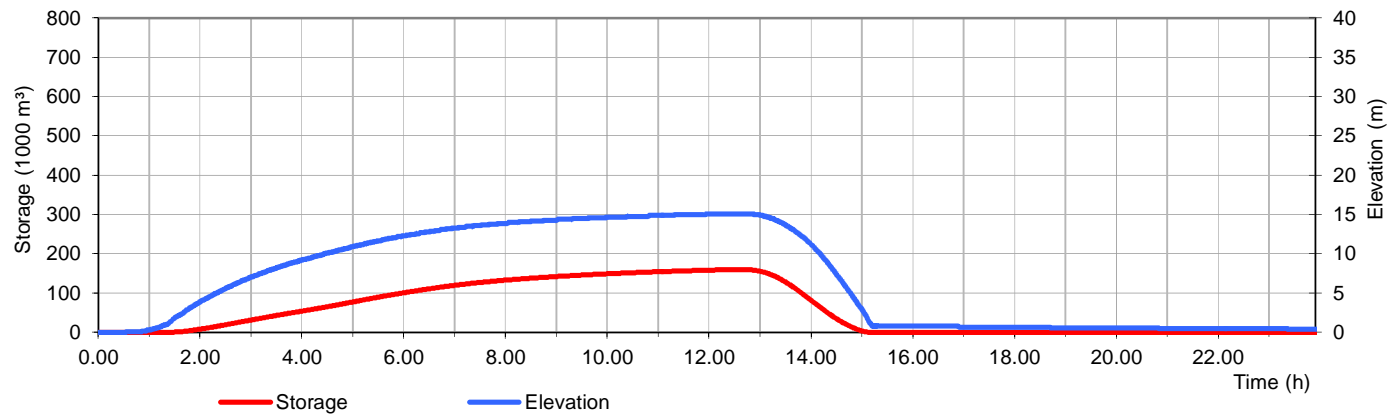


Flow **n100_5h**
 max. Inflow 75.80 m³/s
 max. Outflow 59.40 m³/s
 Elevation 24.60 m
 Storage 287 200 m³

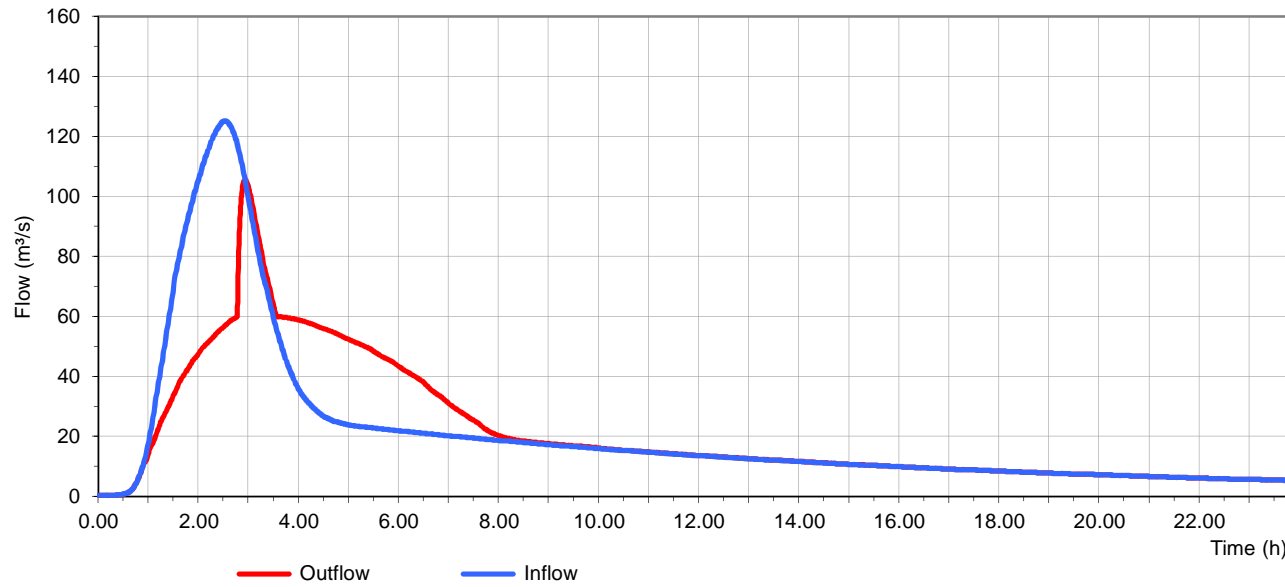
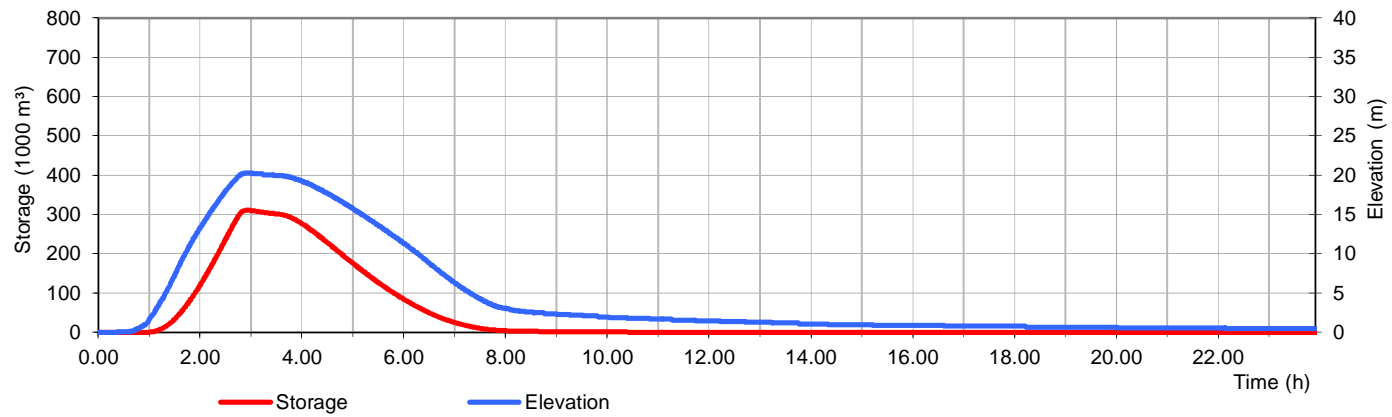
Dam high 20 m
 Bottom outlet 60 m³/s



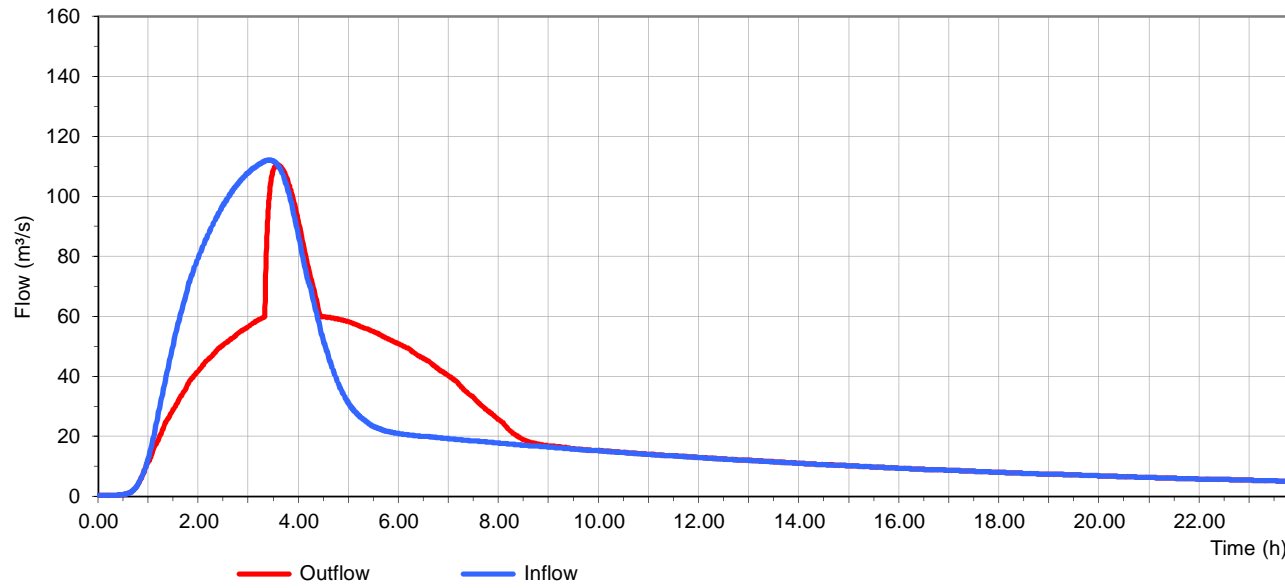
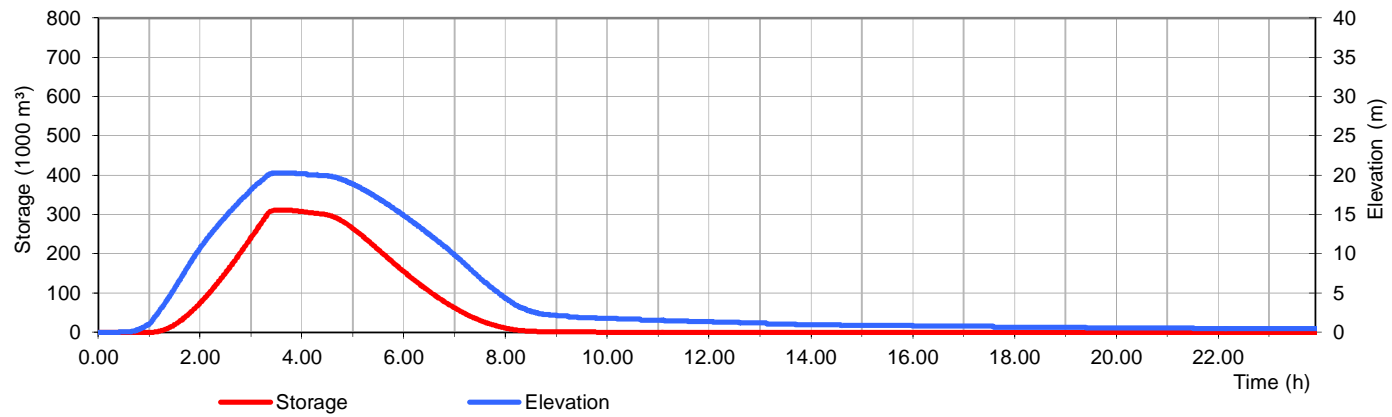
Flow	n100_9h	Dam high	20 m
max. Inflow	59.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	56.00 m³/s		
Elevation	22.70 m		
Storage	227 900 m³		



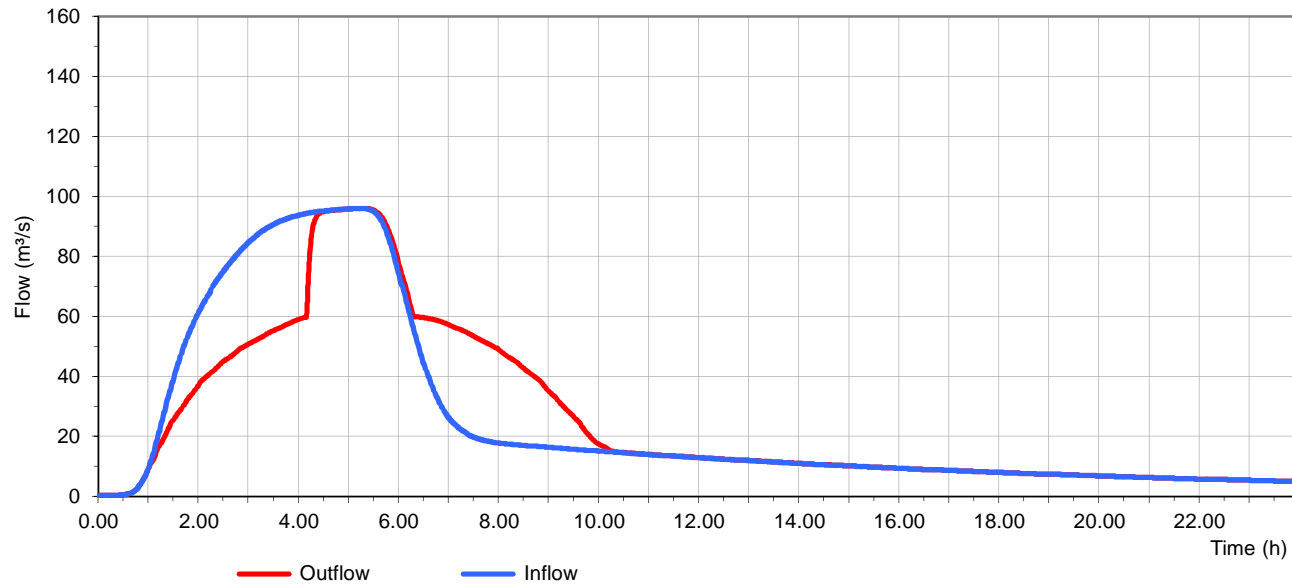
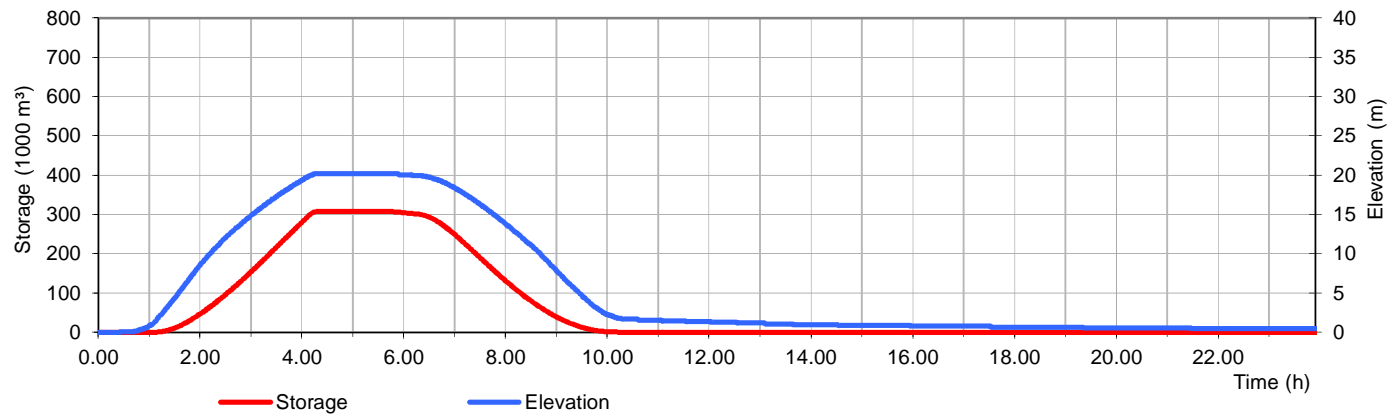
Flow	n100_12h	Dam hight	20 m
max. Inflow	52.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	51.30 m³/s		
Elevation	20.10 m		
Storage	160 400 m³		



Flow	n300_2h	Dam high	20 m
max. Inflow	125.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	105.60 m³/s		
Elevation	25.30 m		
Storage	311 200 m³		

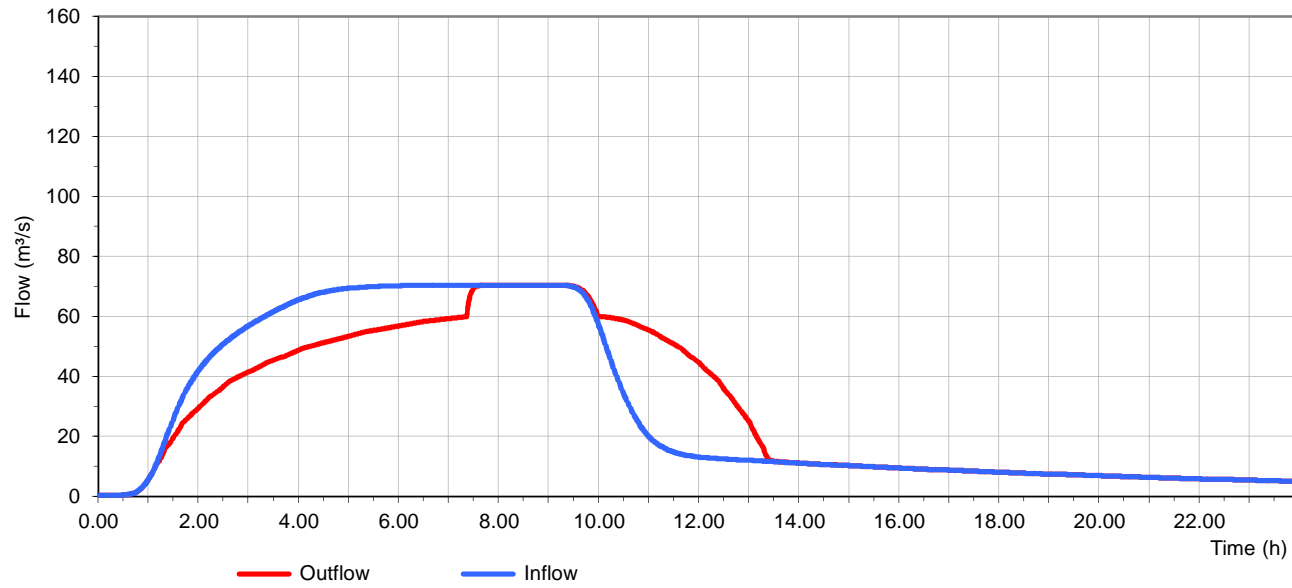
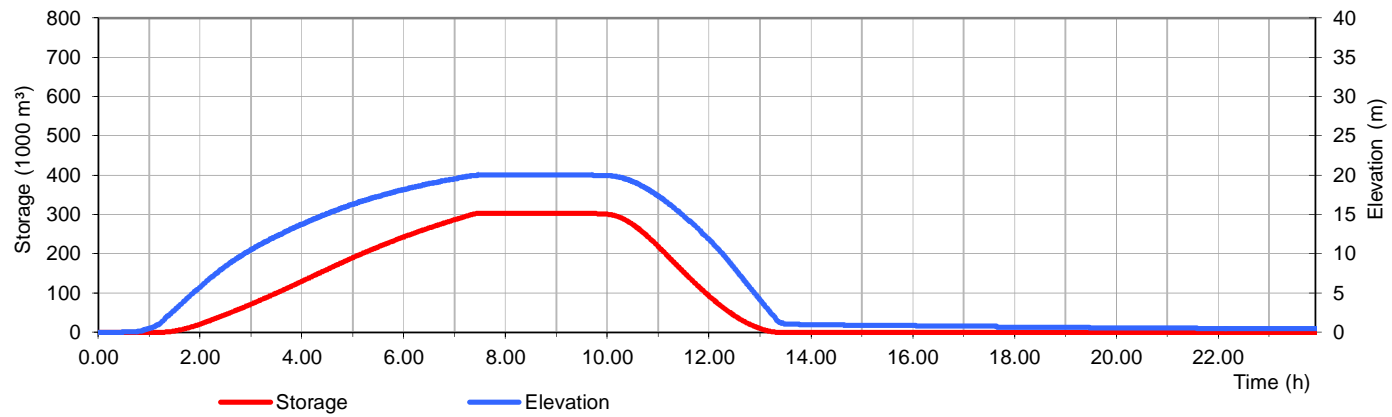


Flow	n300_3h	Dam high	20 m
max. Inflow	112.20 m³/s	Bottom outlet	60 m³/s
max. Outflow	110.70 m³/s		
Elevation	25.30 m		
Storage	312 300 m³		

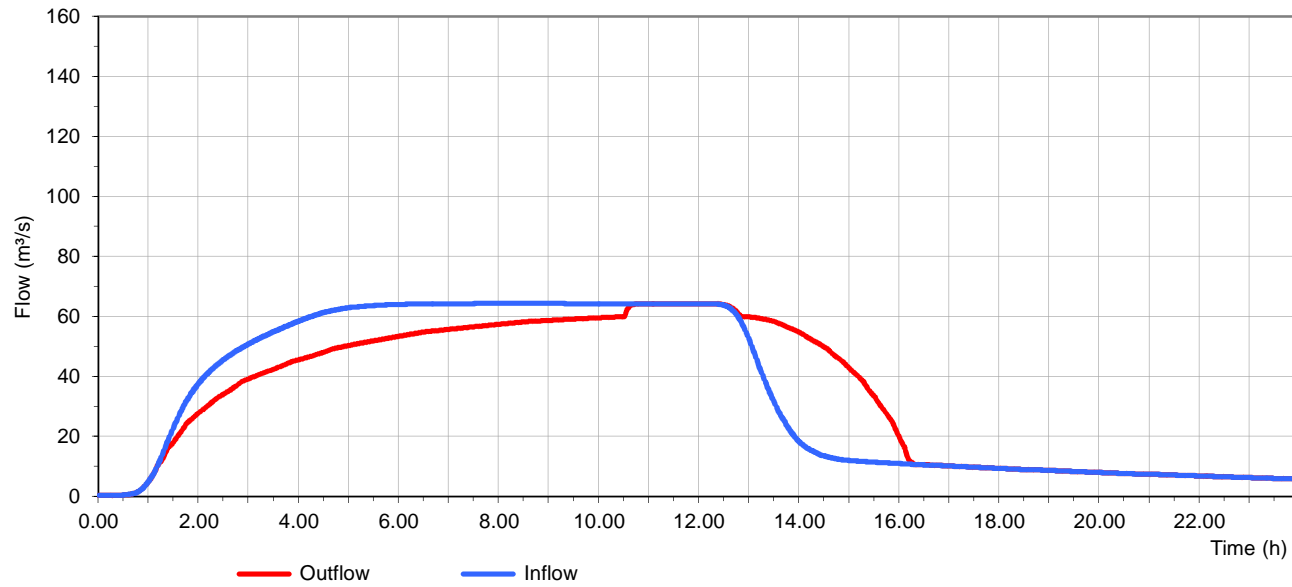
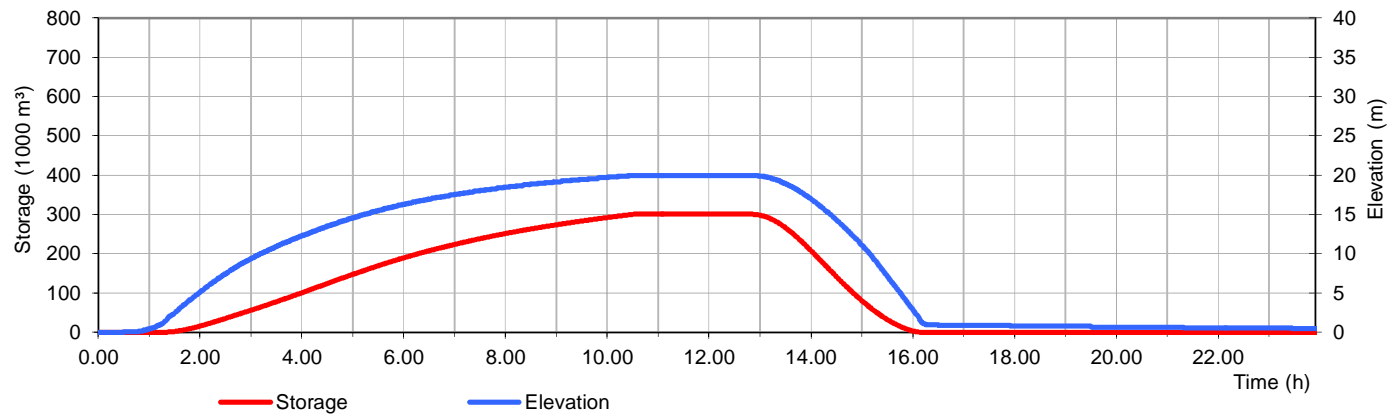


Flow **n300_5h**
 max. Inflow 96.10 m³/s
 max. Outflow 96.10 m³/s
 Elevation 25.20 m
 Storage 309 100 m³

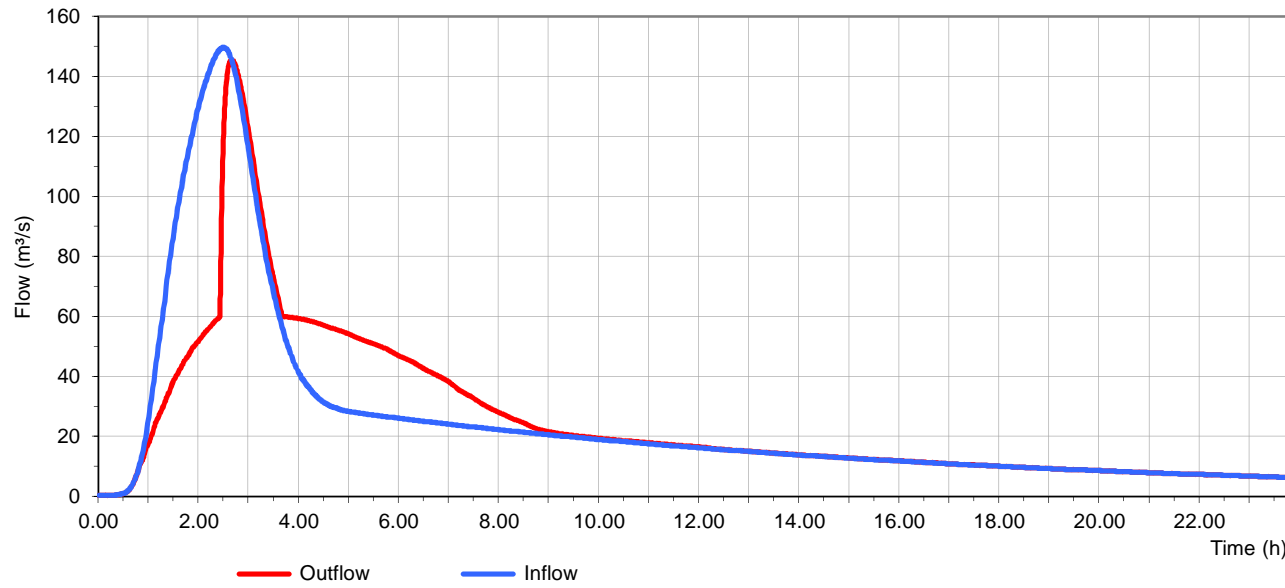
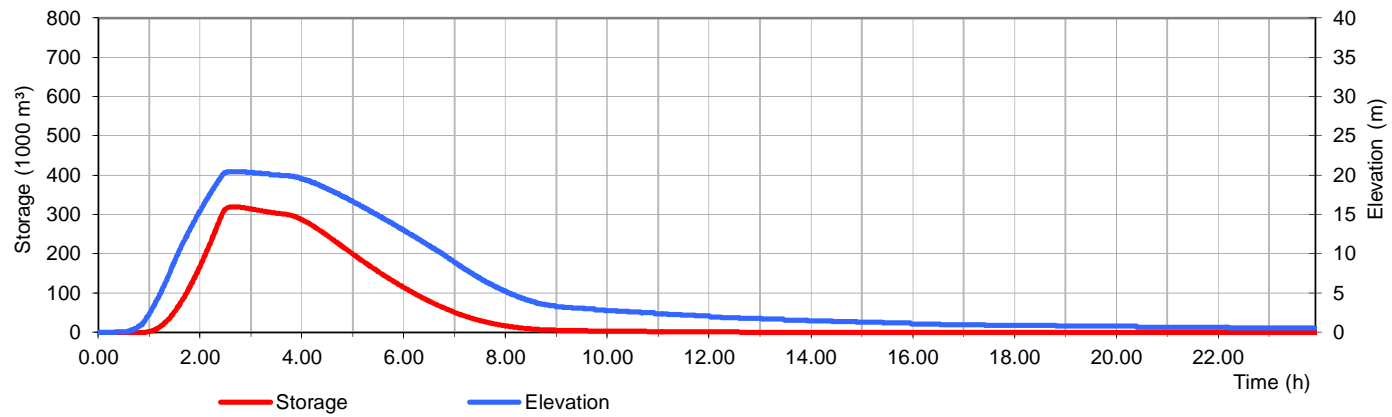
Dam high 20 m
 Bottom outlet 60 m³/s



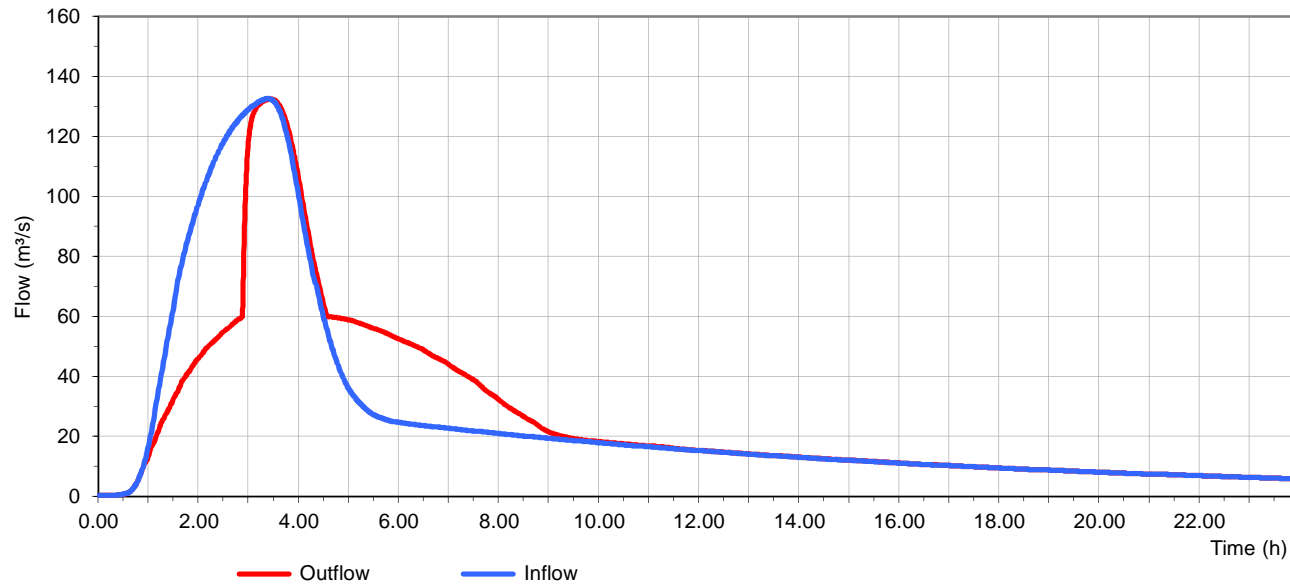
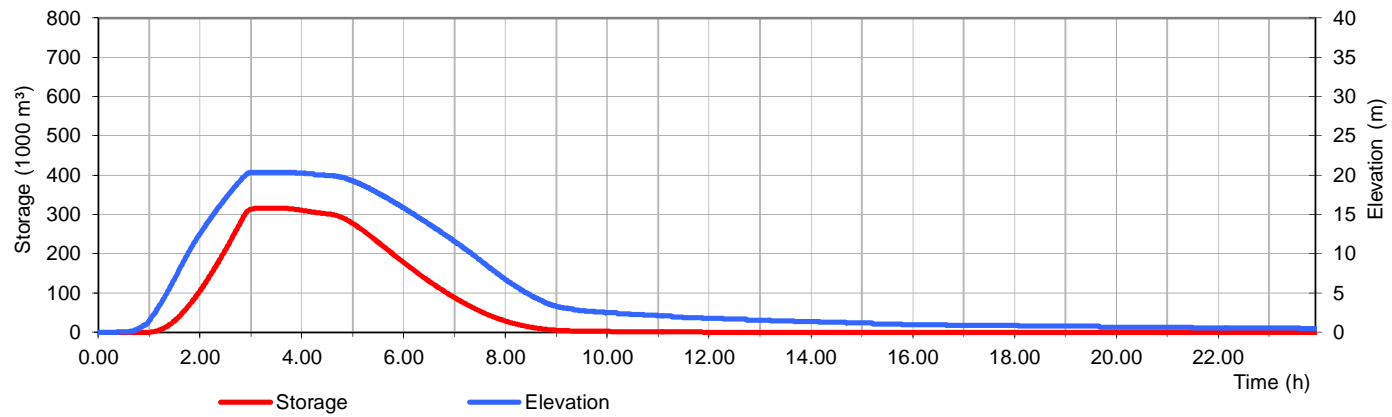
Flow	n300_9h	Dam high	20 m
max. Inflow	70.50 m³/s	Bottom outlet	60 m³/s
max. Outflow	70.50 m³/s		
Elevation	25.10 m		
Storage	303 500 m³		



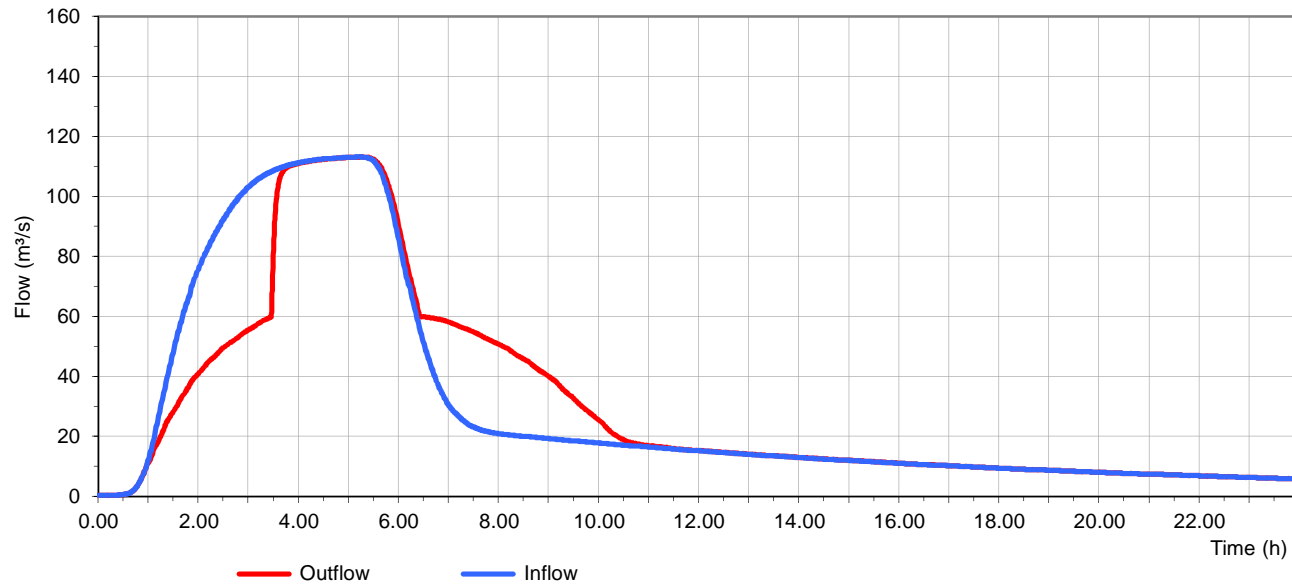
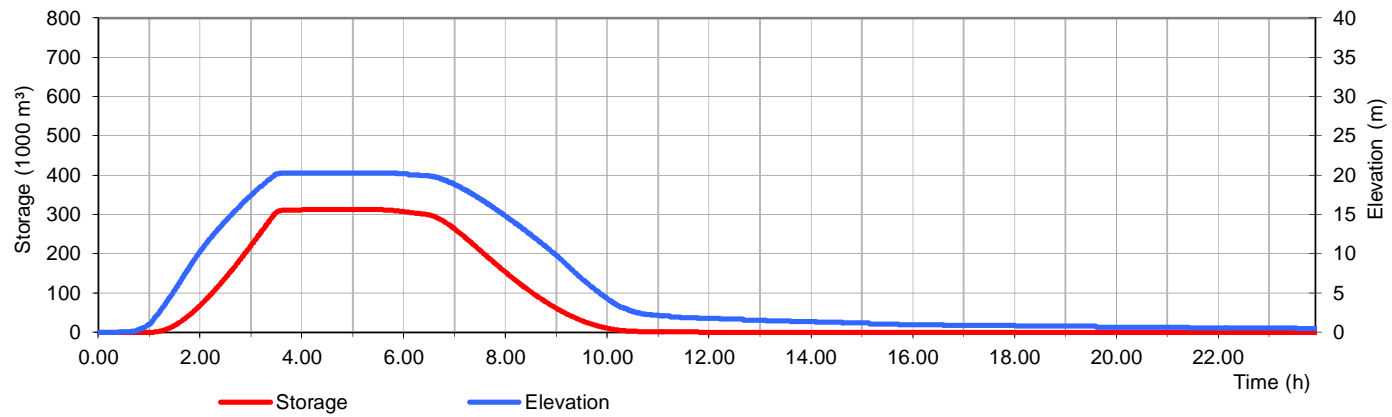
Flow	n300_12h	Dam high	20 m
max. Inflow	64.40 m³/s	Bottom outlet	60 m³/s
max. Outflow	64.30 m³/s		
Elevation	25.00 m		
Storage	302 100 m³		



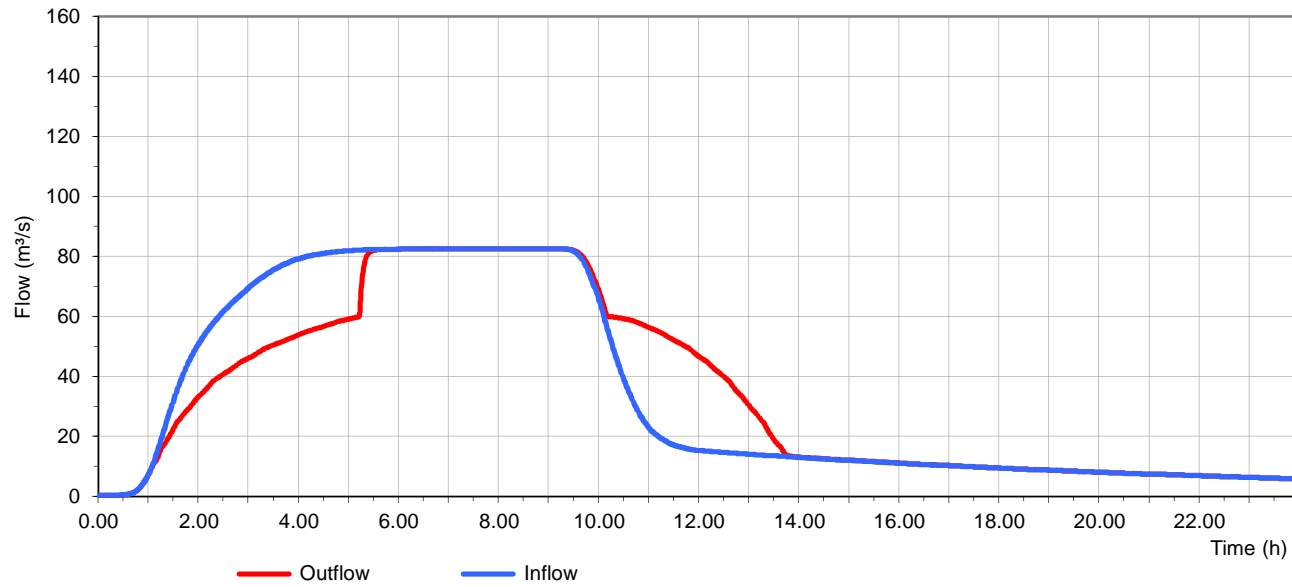
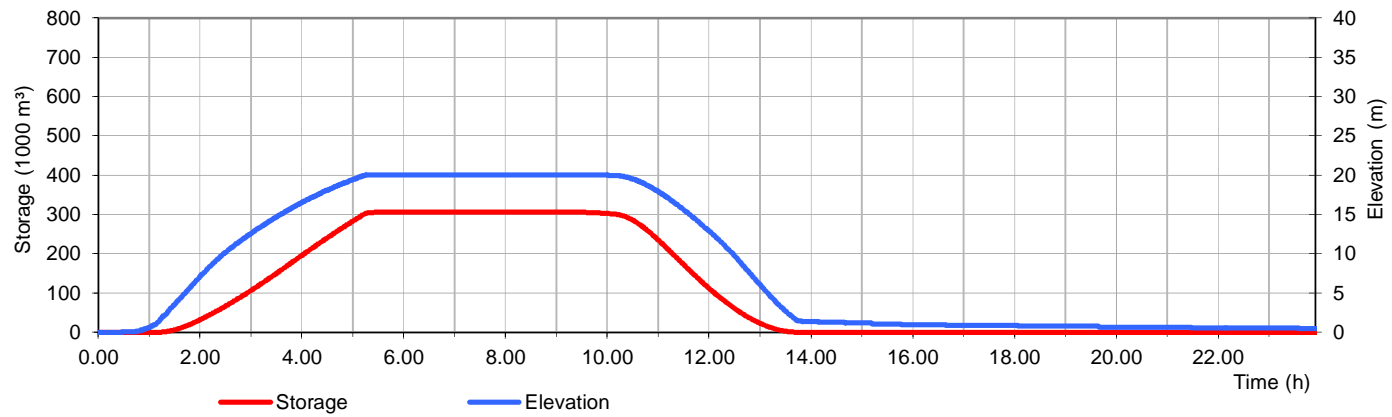
Flow	n1000_2h	Dam high	20 m
max. Inflow	149.80 m³/s	Bottom outlet	60 m³/s
max. Outflow	145.60 m³/s		
Elevation	25.50 m		
Storage	319 900 m³		



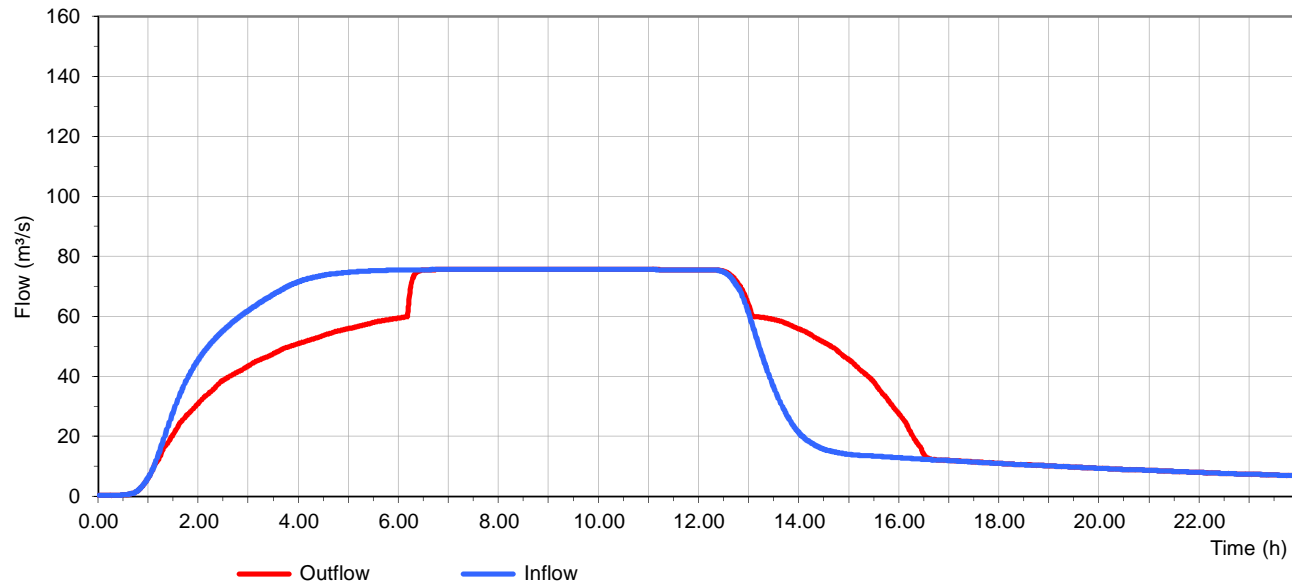
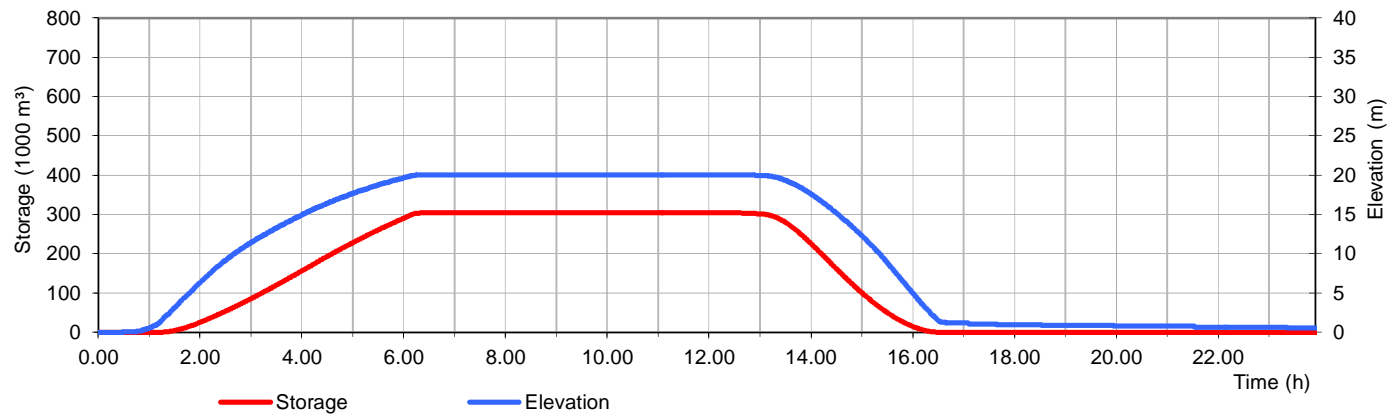
Flow	n1000_3h	Dam high	20 m
max. Inflow	132.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	132.60 m³/s		
Elevation	25.40 m		
Storage	317 100 m³		



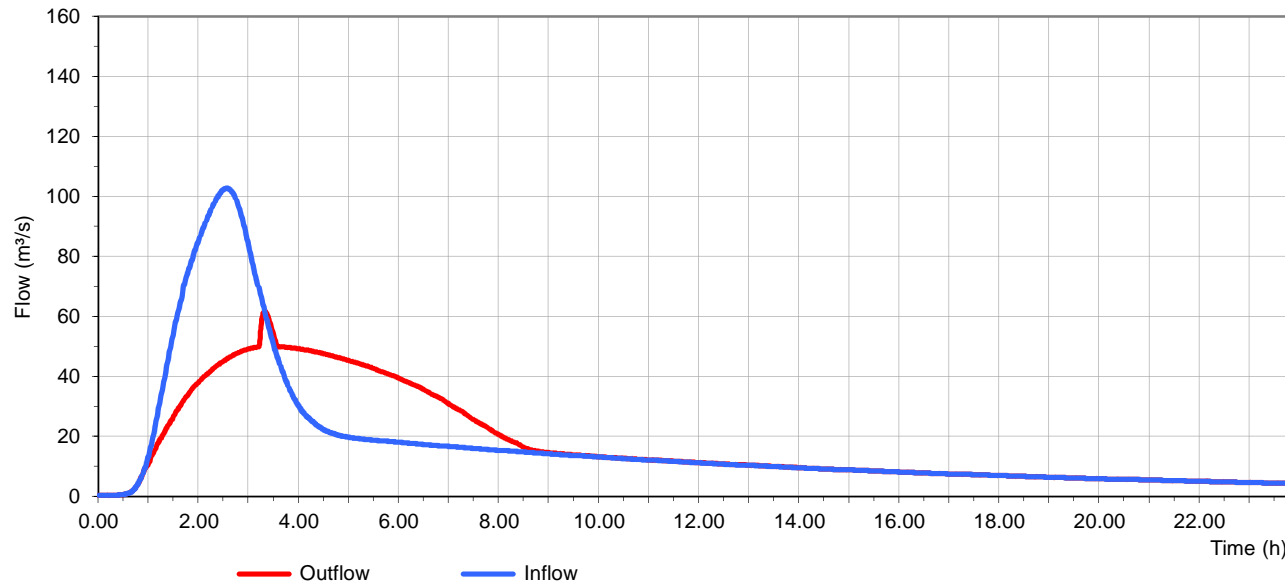
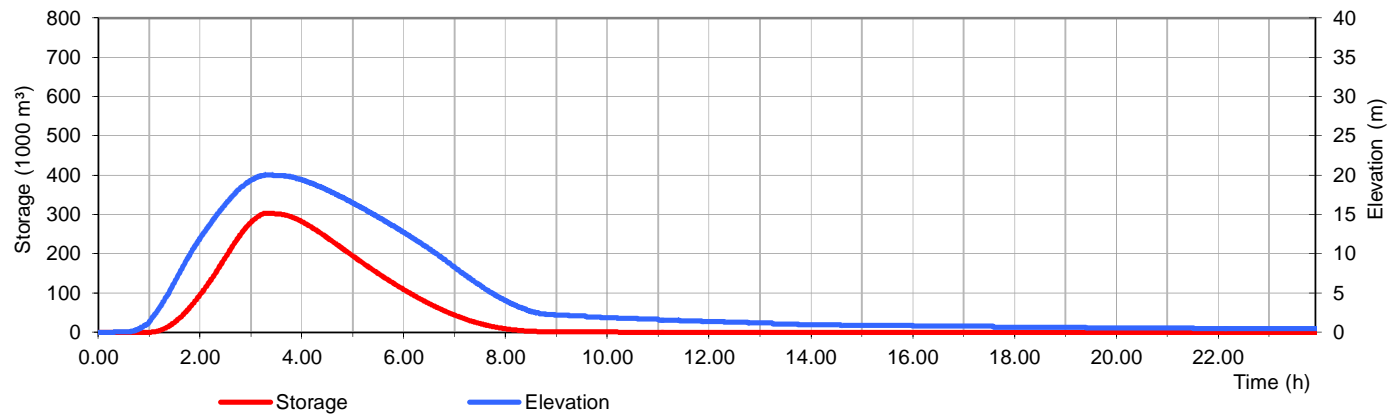
Flow	n1000_5h	Dam high	20 m
max. Inflow	113.30 m³/s	Bottom outlet	60 m³/s
max. Outflow	113.30 m³/s		
Elevation	25.30 m		
Storage	312 800 m³		



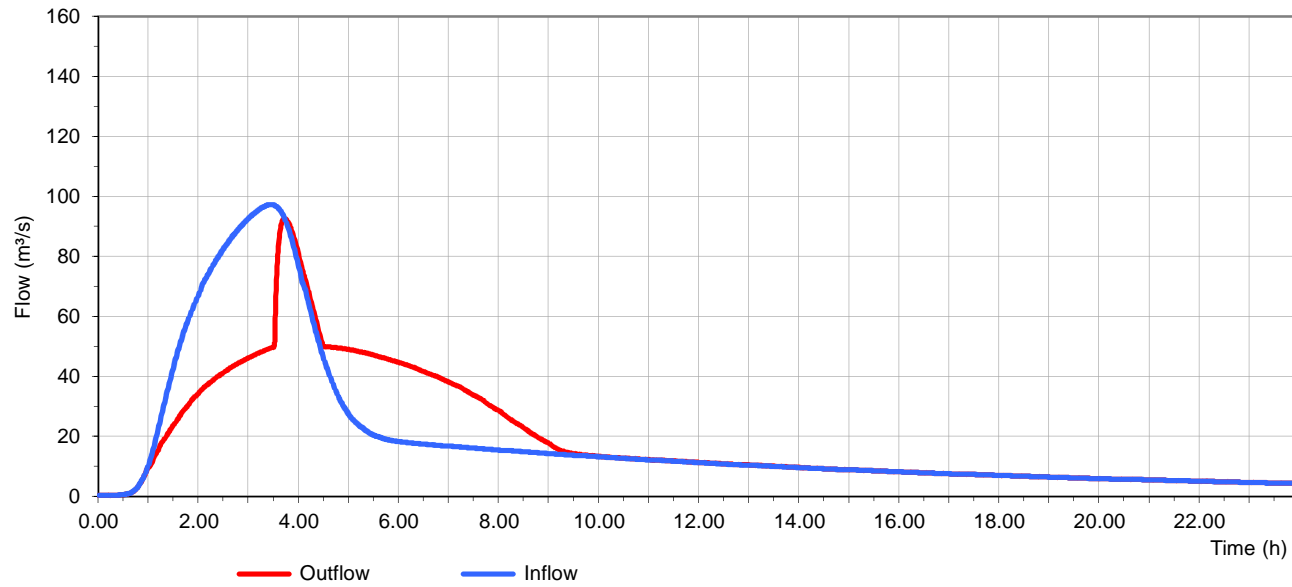
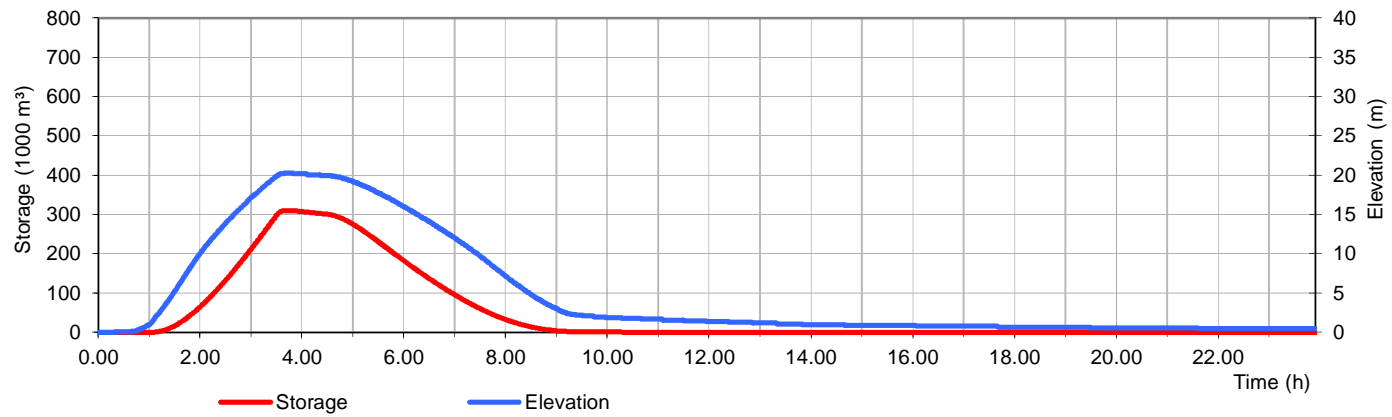
Flow	n1000_9h	Dam high	20 m
max. Inflow	82.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	82.70 m³/s		
Elevation	25.10 m		
Storage	306 100 m³		



Flow	n1000_12h	Dam hight	20 m
max. Inflow	75.70 m³/s	Bottom outlet	60 m³/s
max. Outflow	75.70 m³/s		
Elevation	25.10 m		
Storage	304 600 m³		

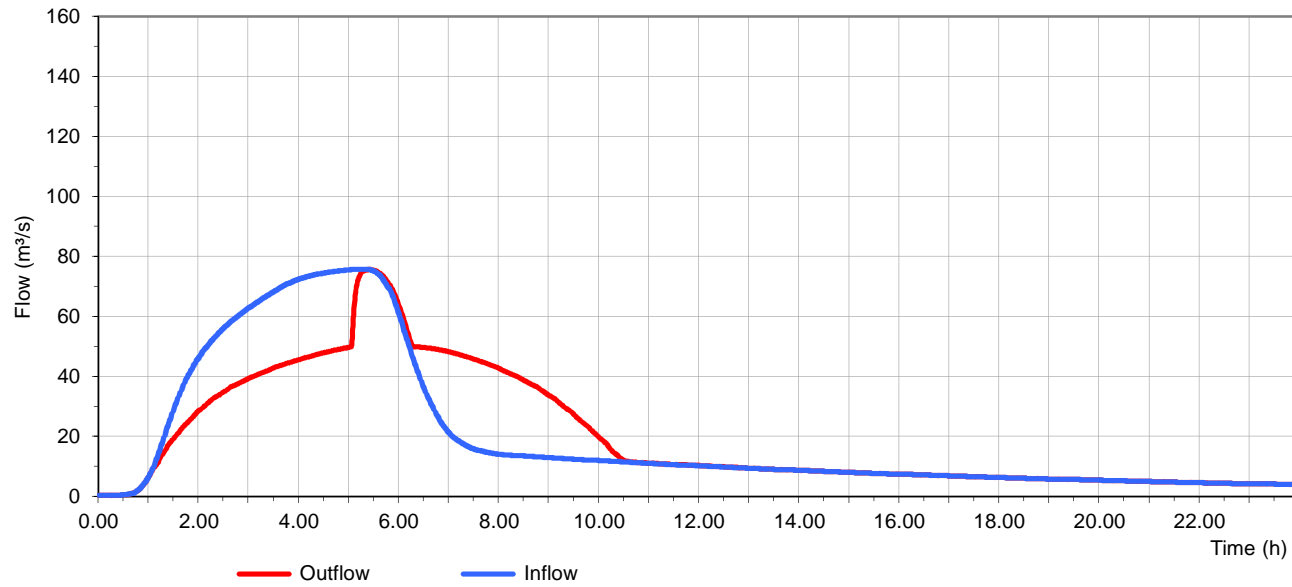
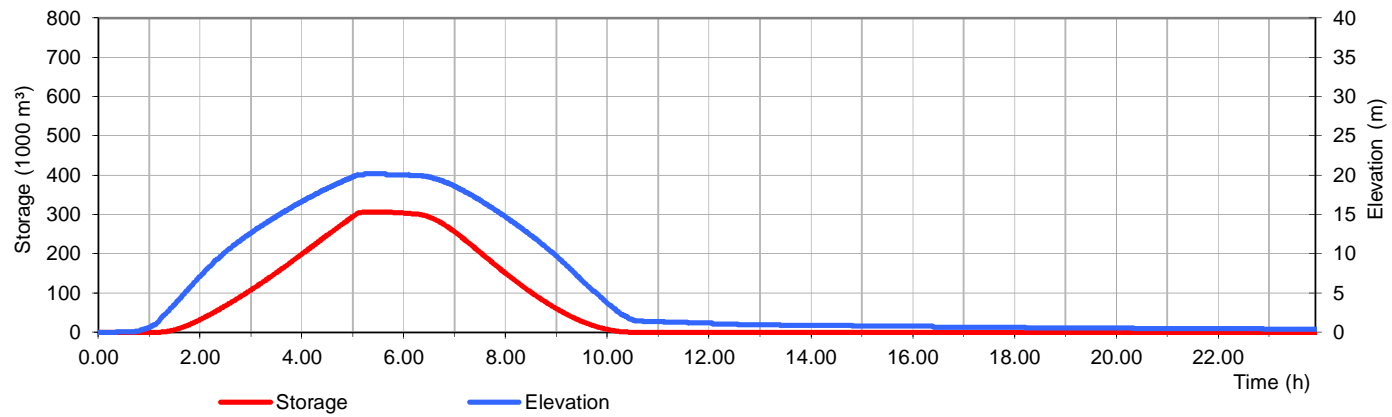


Flow	n100_2h	Dam high	20 m
max. Inflow	102.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	61.80 m³/s		
Elevation	25.10 m		
Storage	303 800 m³		

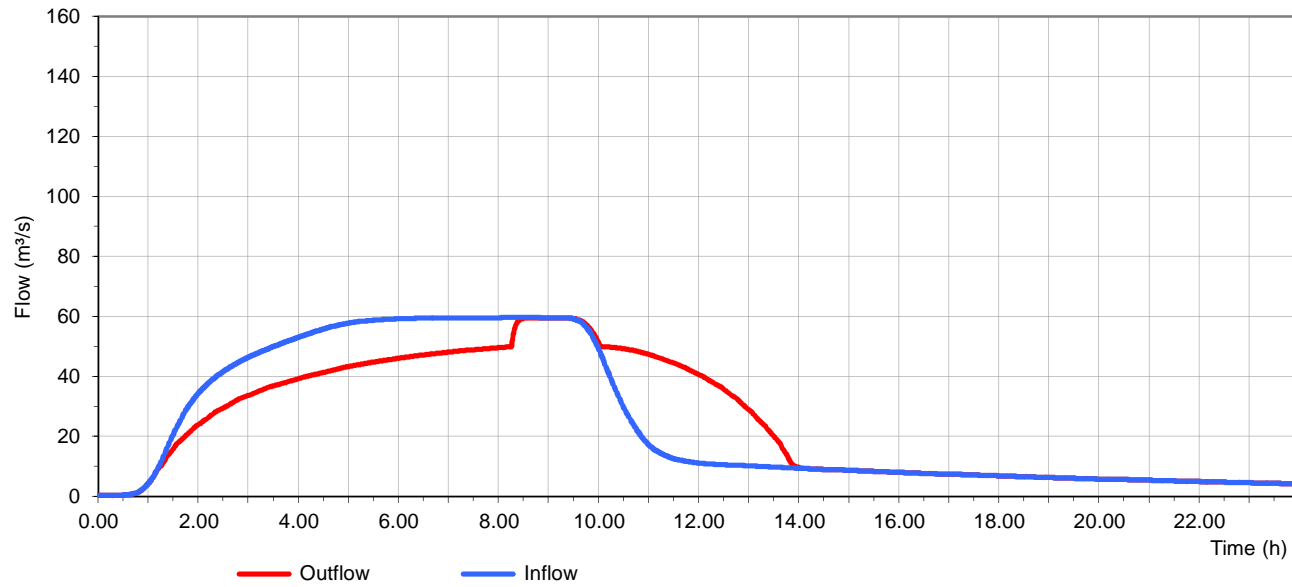
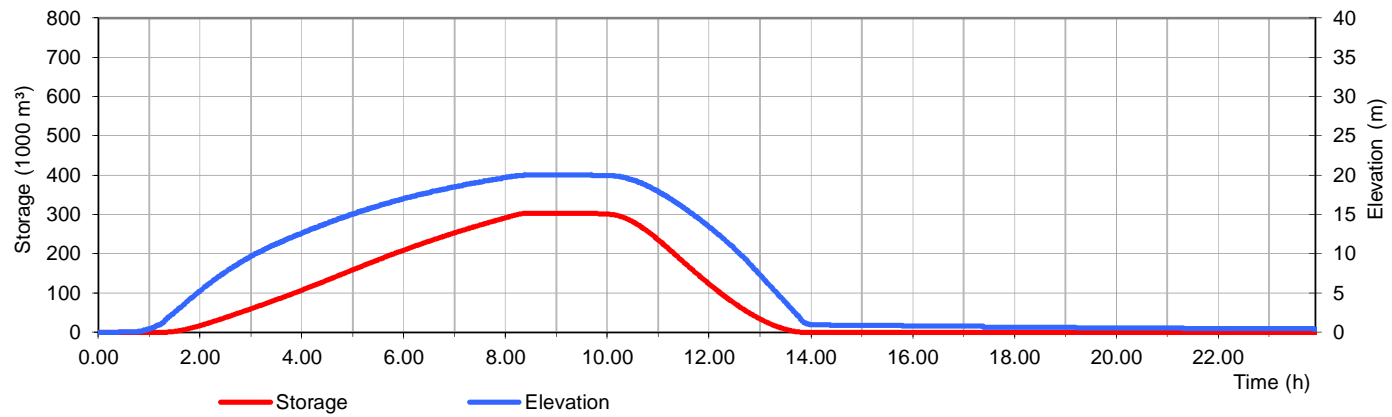


Flow **n100_3h**
 max. Inflow 97.40 m³/s
 max. Outflow 92.70 m³/s
 Elevation 25.30 m
 Storage 310 500 m³

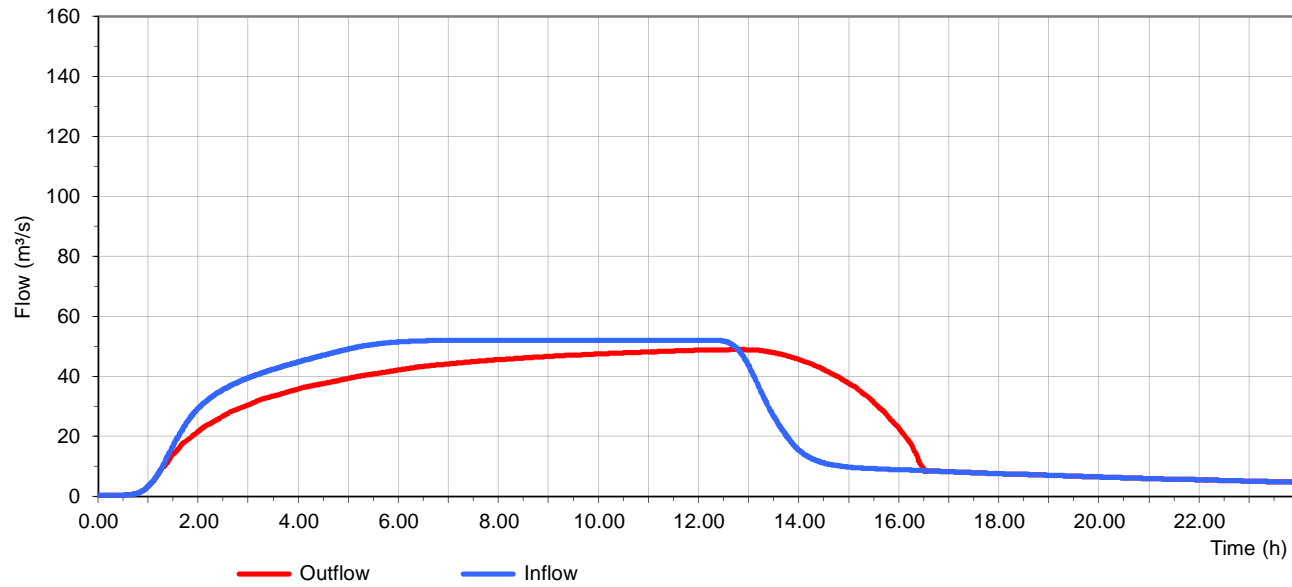
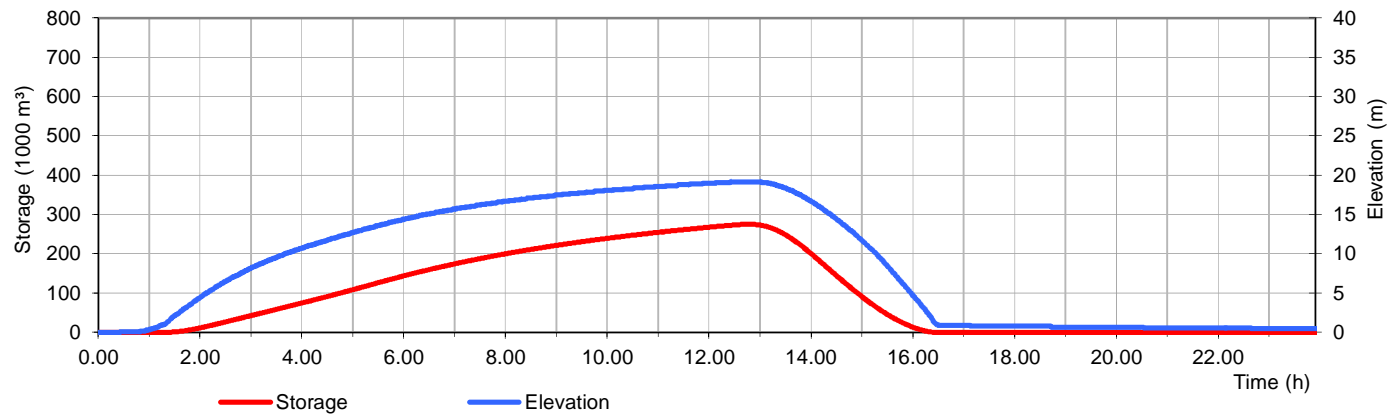
Dam high 20 m
 Bottom outlet 50 m³/s



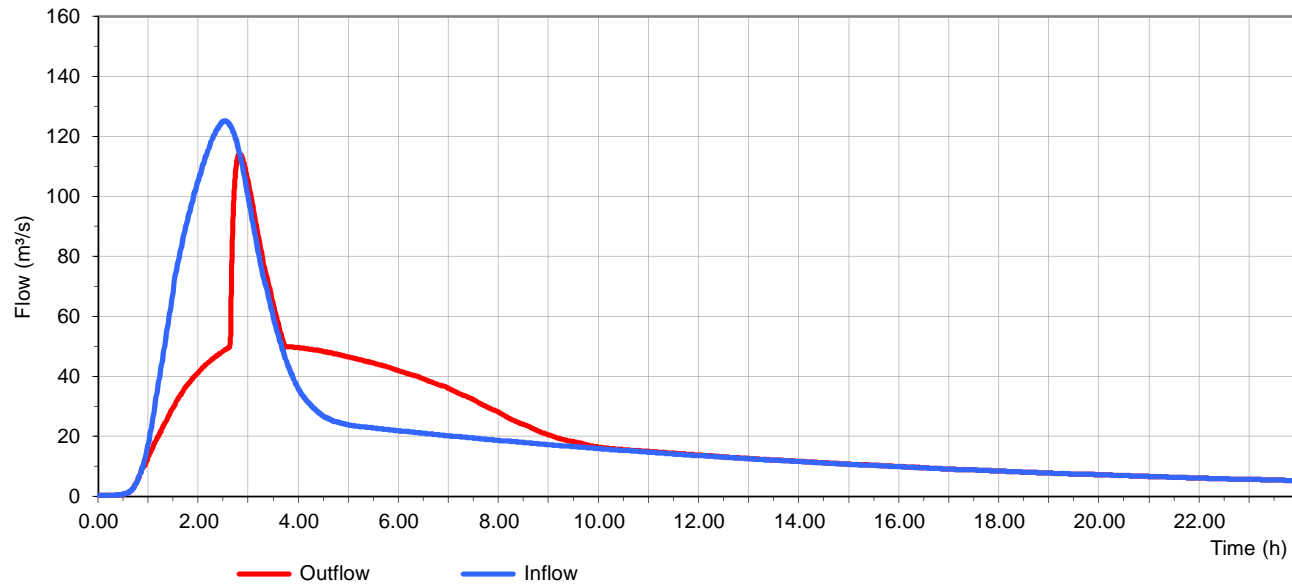
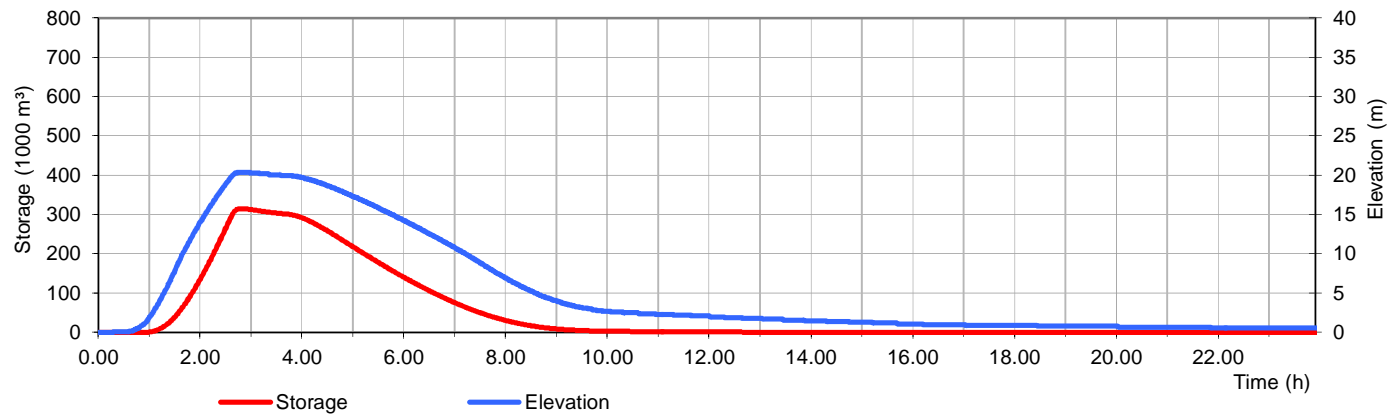
Flow	n100_5h	Dam high	20 m
max. Inflow	75.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	75.70 m³/s		
Elevation	25.20 m		
Storage	306 800 m³		



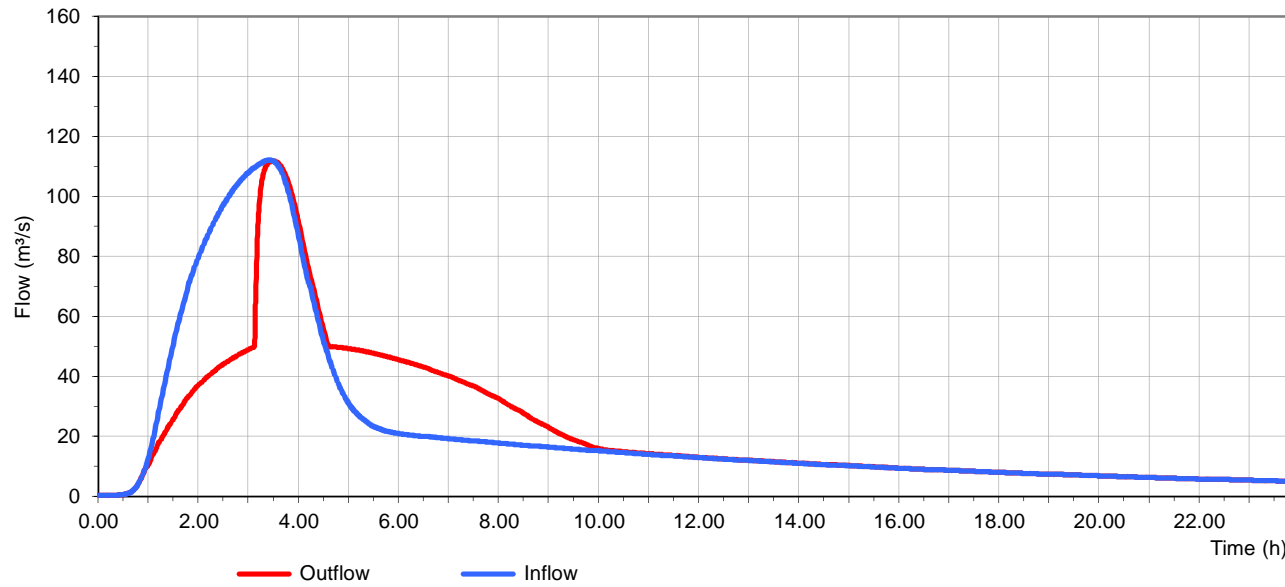
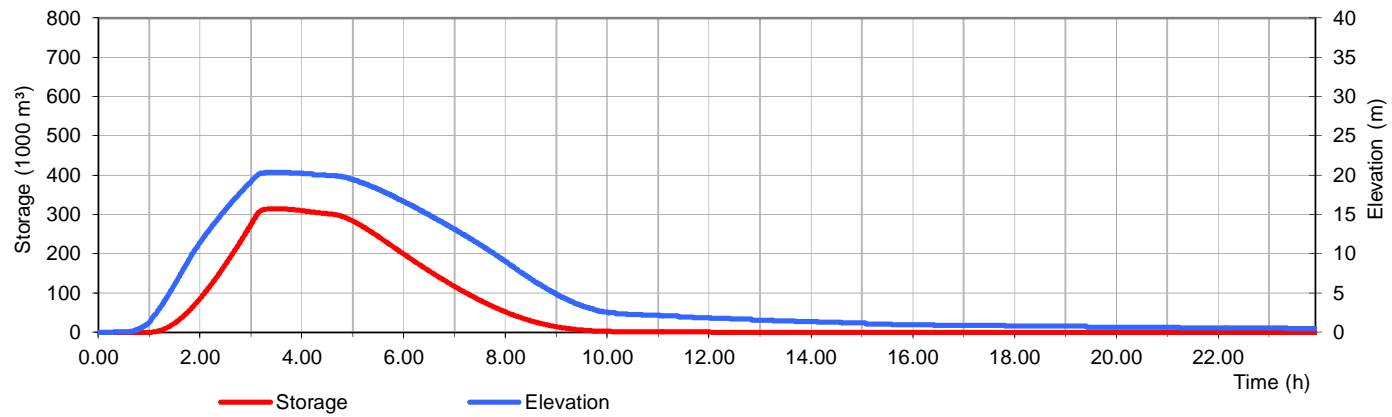
Flow	n100_9h	Dam high	20 m
max. Inflow	59.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	59.60 m³/s		
Elevation	25.10 m		
Storage	303 300 m³		



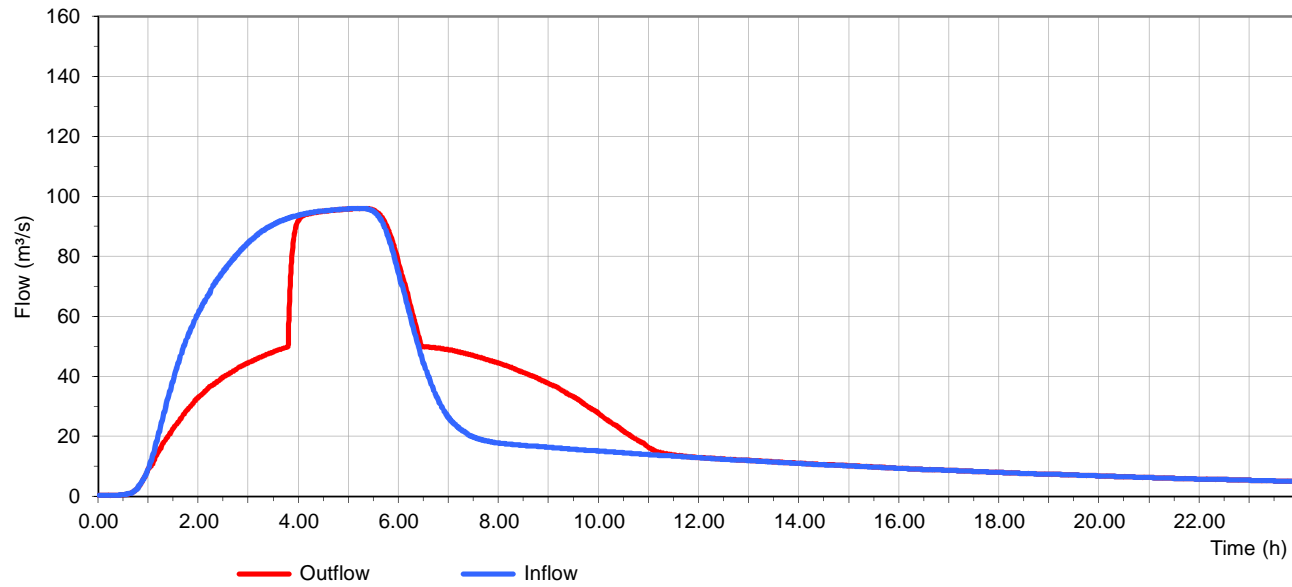
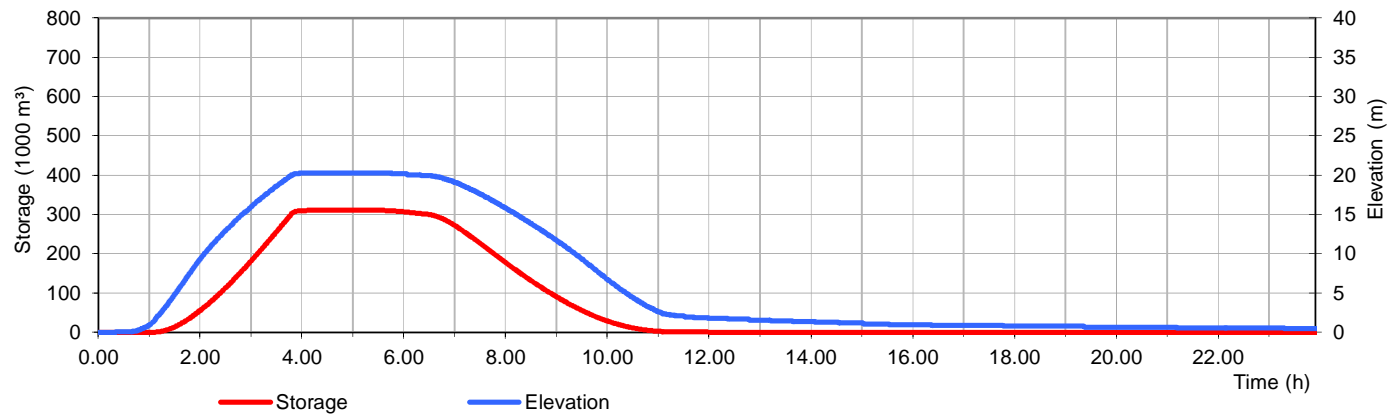
Flow	n100_12h	Dam high	20 m
max. Inflow	52.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	49.10 m³/s		
Elevation	24.20 m		
Storage	275 600 m³		



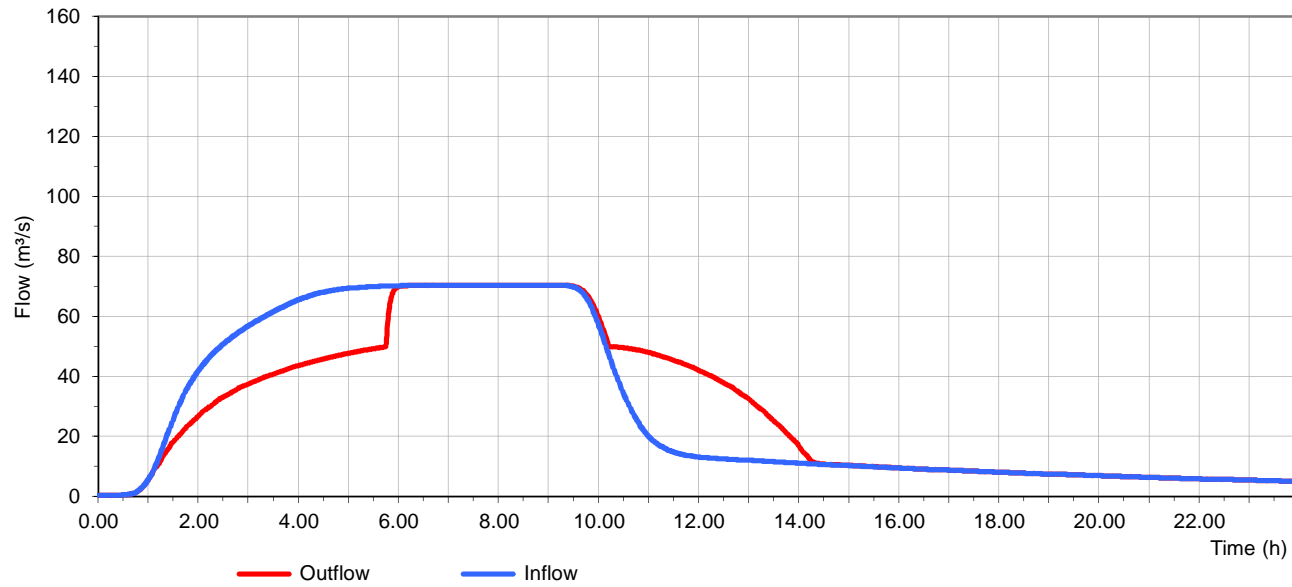
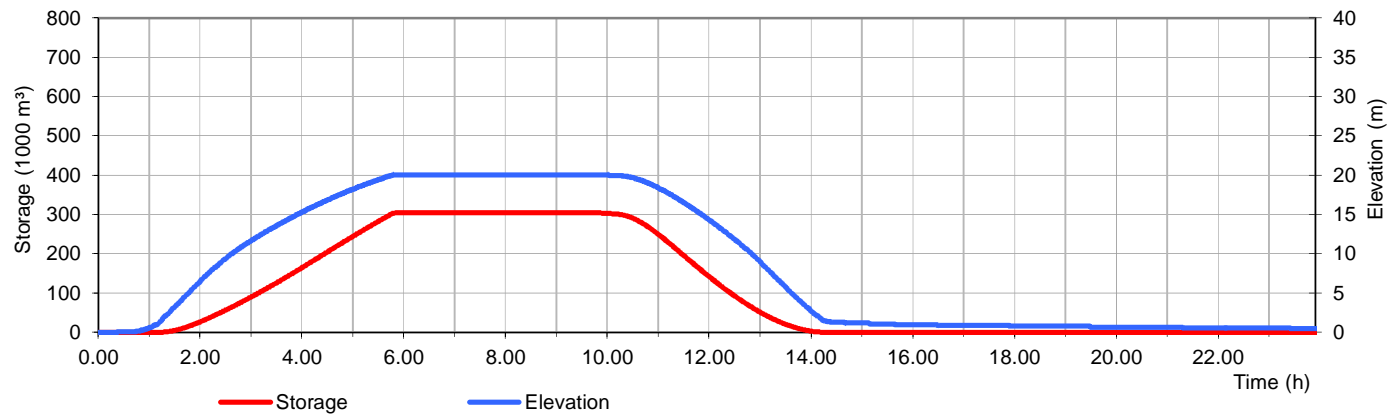
Flow	n300_2h	Dam high	20 m
max. Inflow	125.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	114.40 m³/s		
Elevation	25.40 m		
Storage	315 300 m³		



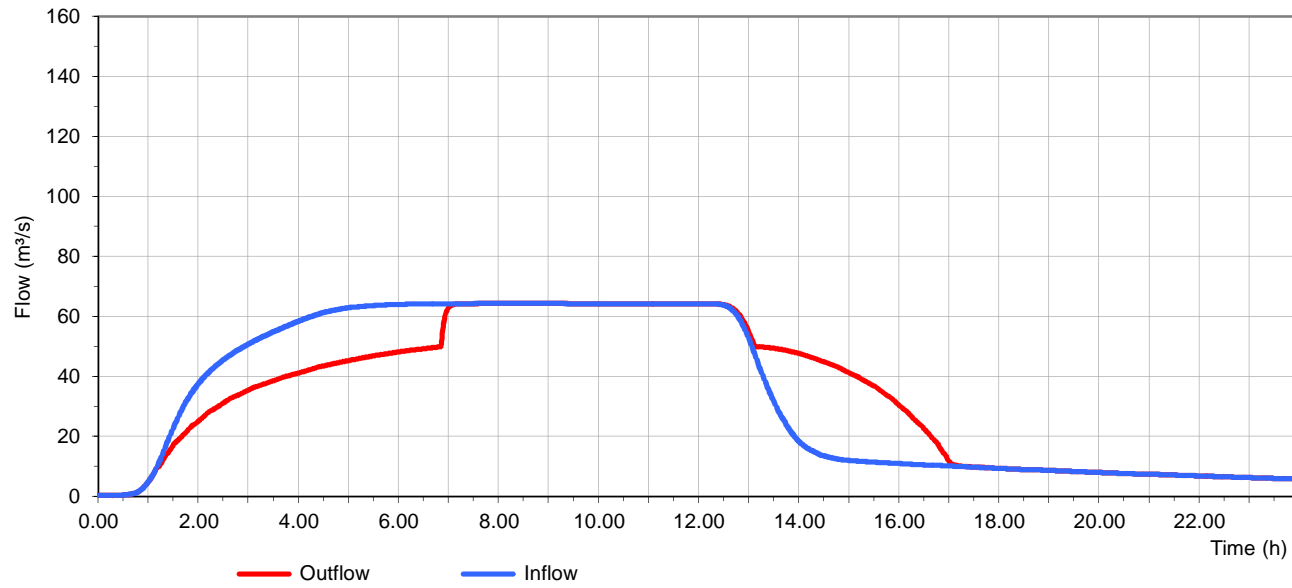
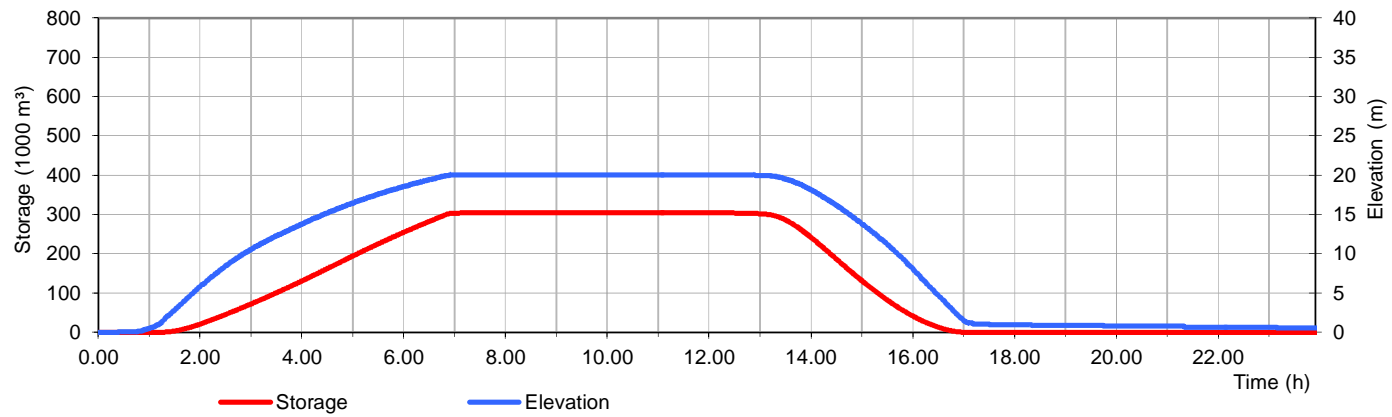
Flow	n300_3h	Dam high	20 m
max. Inflow	112.20 m³/s	Bottom outlet	50 m³/s
max. Outflow	111.90 m³/s		
Elevation	25.40 m		
Storage	314 700 m³		



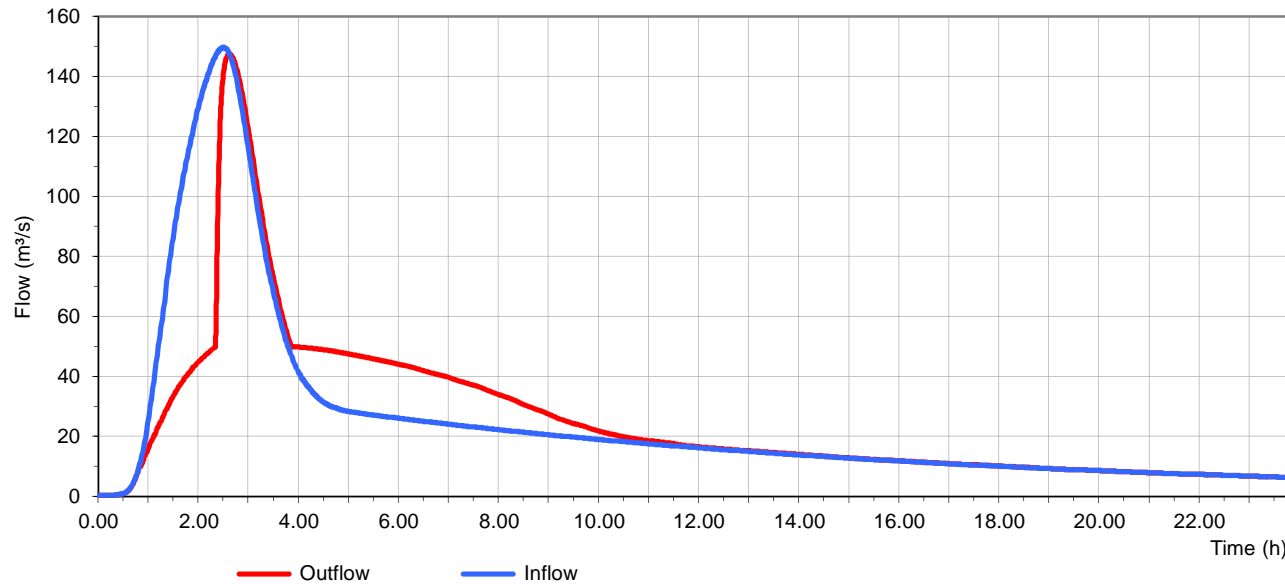
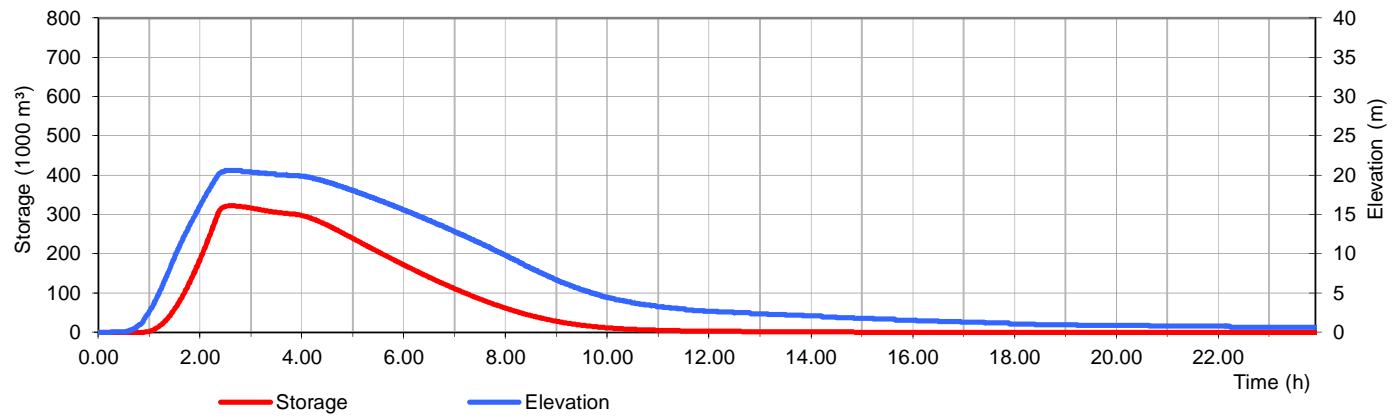
Flow	n300_5h	Dam high	20 m
max. Inflow	96.10 m³/s	Bottom outlet	50 m³/s
max. Outflow	96.10 m³/s		
Elevation	25.30 m		
Storage	311 300 m³		



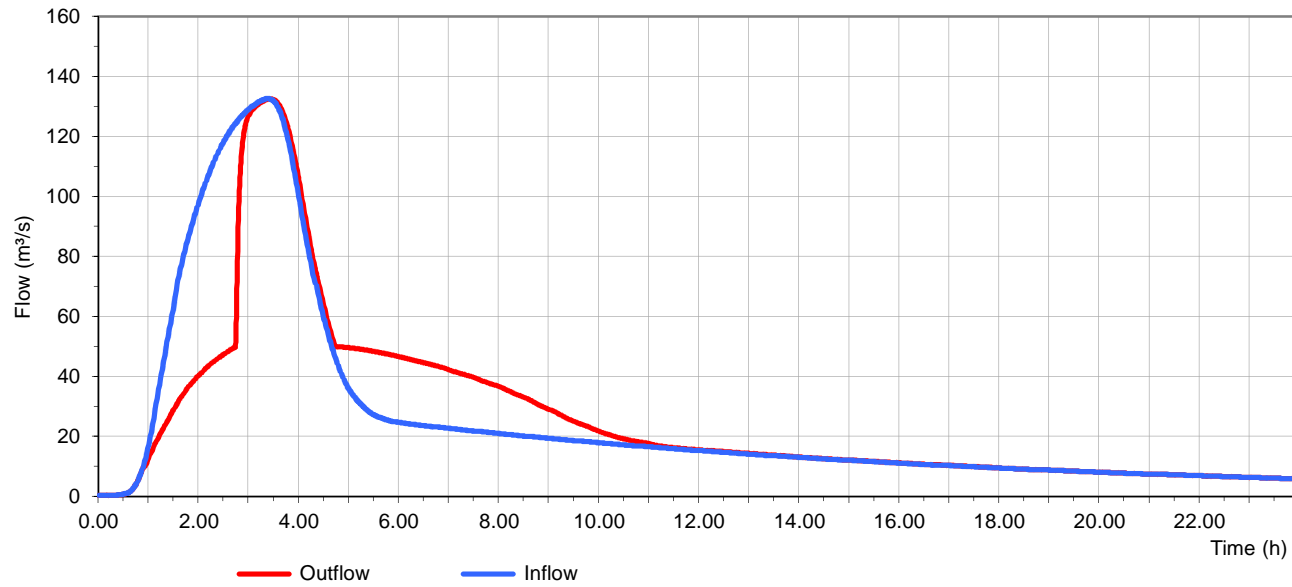
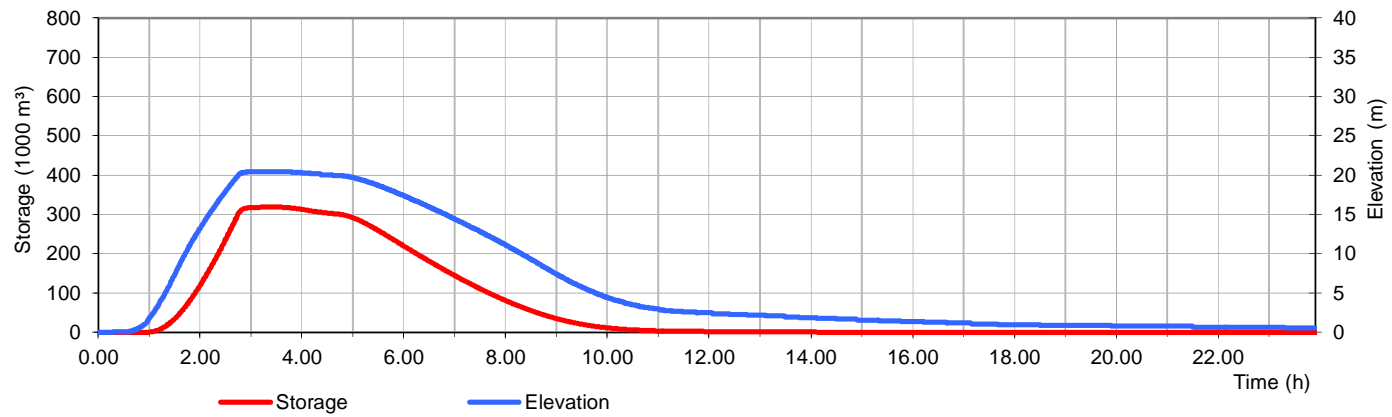
Flow	n300_9h	Dam high	20 m
max. Inflow	70.50 m³/s	Bottom outlet	50 m³/s
max. Outflow	70.50 m³/s		
Elevation	25.10 m		
Storage	305 700 m³		



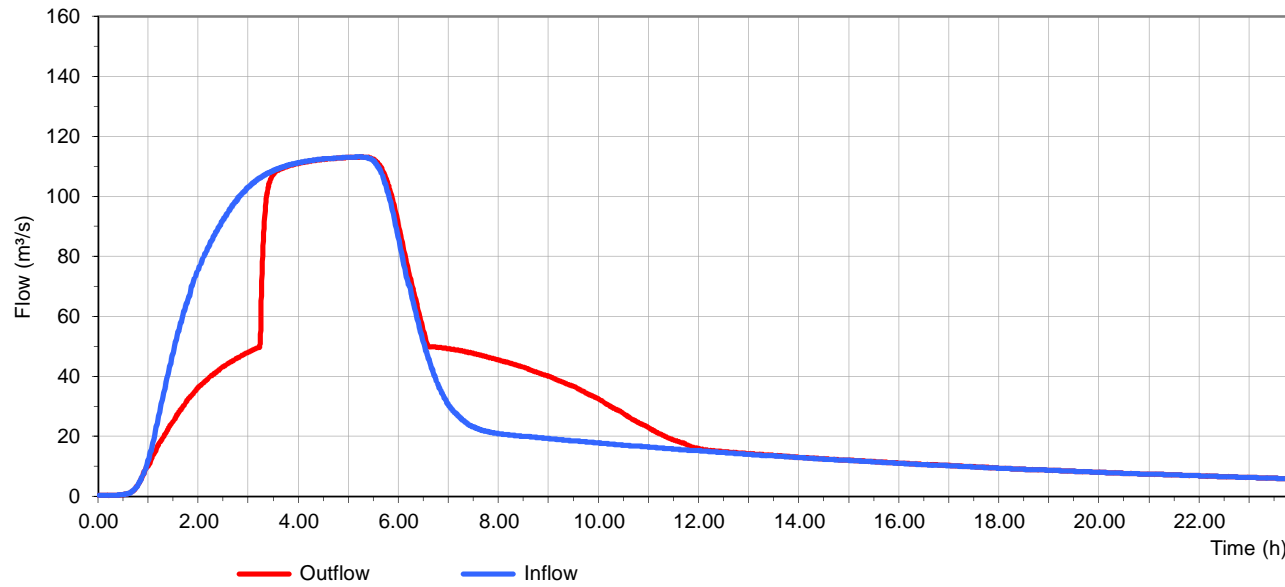
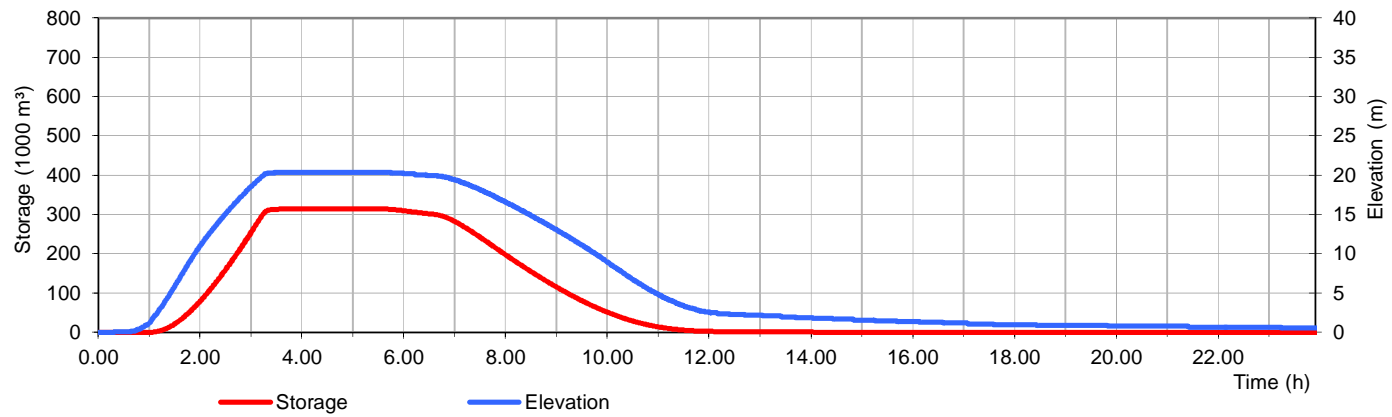
Flow	n300_12h	Dam high	20 m
max. Inflow	64.40 m³/s	Bottom outlet	50 m³/s
max. Outflow	64.40 m³/s		
Elevation	25.10 m		
Storage	304 300 m³		



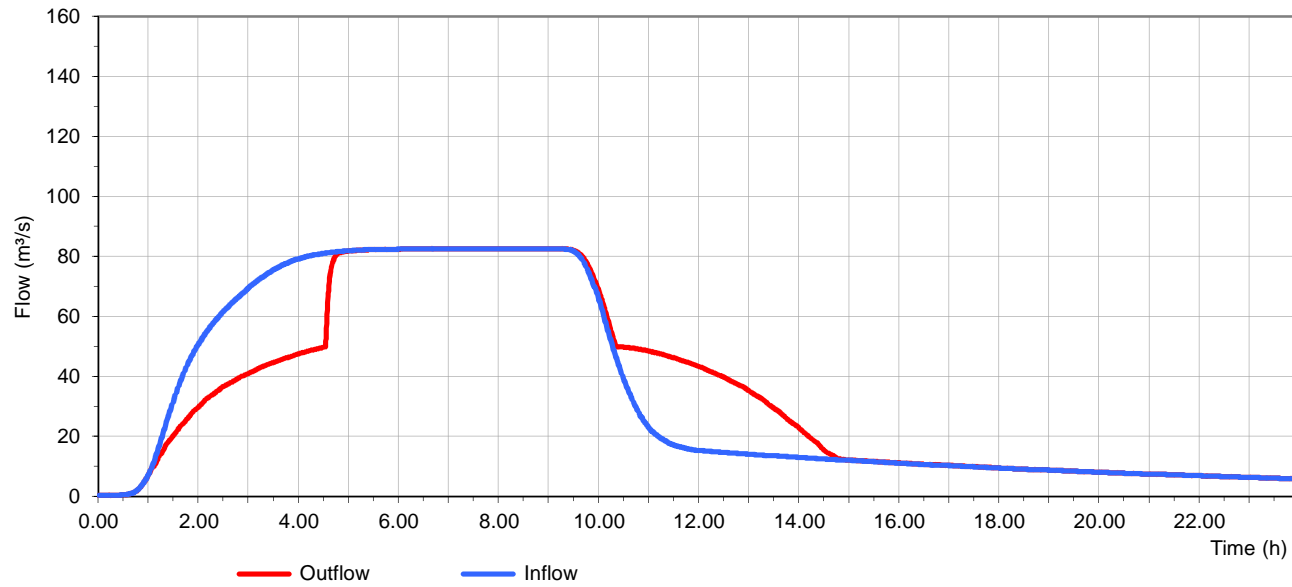
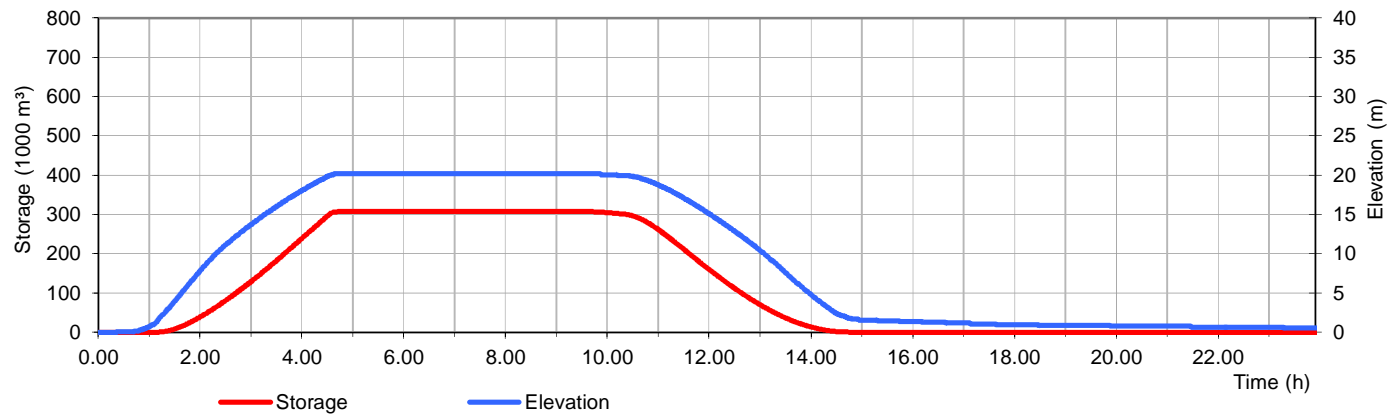
Flow	n1000_2h	Dam high	20 m
max. Inflow	149.80 m³/s	Bottom outlet	50 m³/s
max. Outflow	147.60 m³/s		
Elevation	25.60 m		
Storage	322 600 m³		



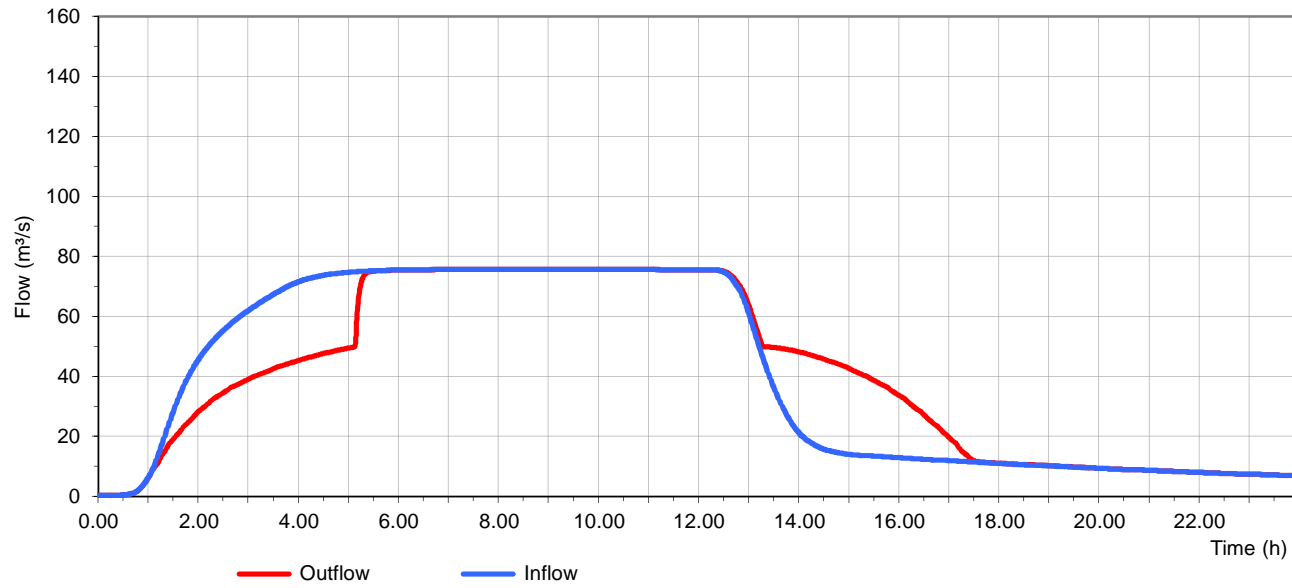
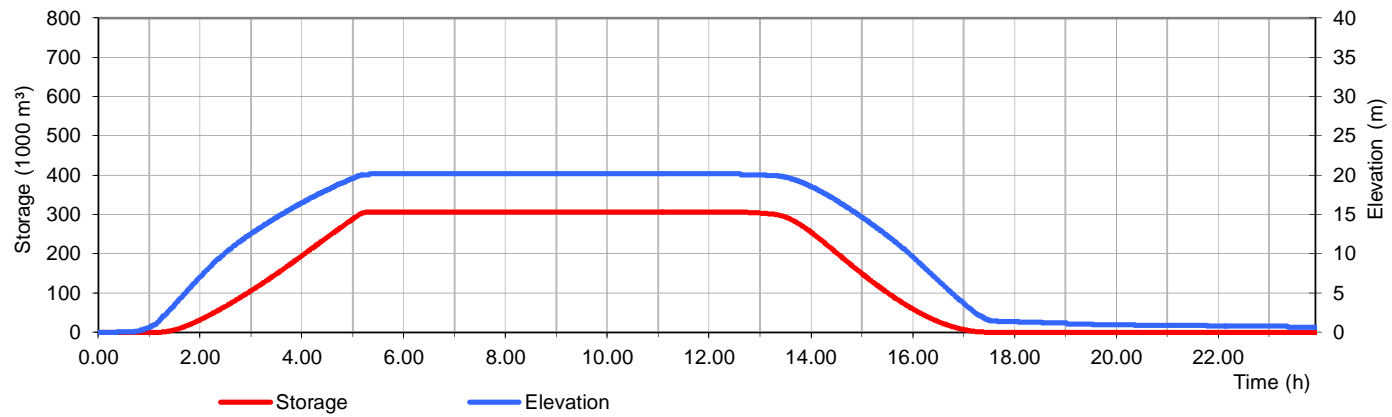
Flow	n1000_3h	Dam high	20 m
max. Inflow	132.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	132.60 m³/s		
Elevation	25.50 m		
Storage	319 300 m³		



Flow	n1000_5h	Dam high	20 m
max. Inflow	113.30 m³/s	Bottom outlet	50 m³/s
max. Outflow	113.30 m³/s		
Elevation	25.40 m		
Storage	315 000 m³		



Flow	n1000_9h	Dam high	20 m
max. Inflow	82.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	82.70 m³/s		
Elevation	25.20 m		
Storage	308 300 m³		



Flow	n1000_12h	Dam hight	20 m
max. Inflow	75.70 m³/s	Bottom outlet	50 m³/s
max. Outflow	75.70 m³/s		
Elevation	25.20 m		
Storage	306 800 m³		