



EF-170 TRECHO SINOP/MT - ITAITUBA/PA

RELATÓRIO IV

ESTUDOS DEFINITIVOS DE ENGENHARIA



ANEXO B | DRENAGEM
PARTE 6

JUNHO DE 2019

DRENAGEM PROFUNDA

O hidrograma é o gráfico que relaciona a vazão ao tempo e é resultado da interação de todos os componentes do ciclo hidrológico.

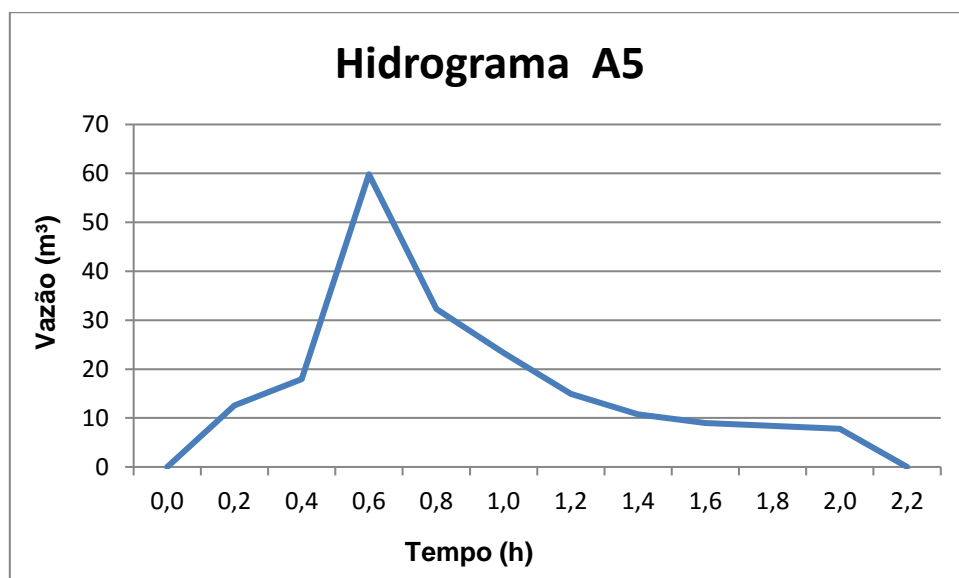
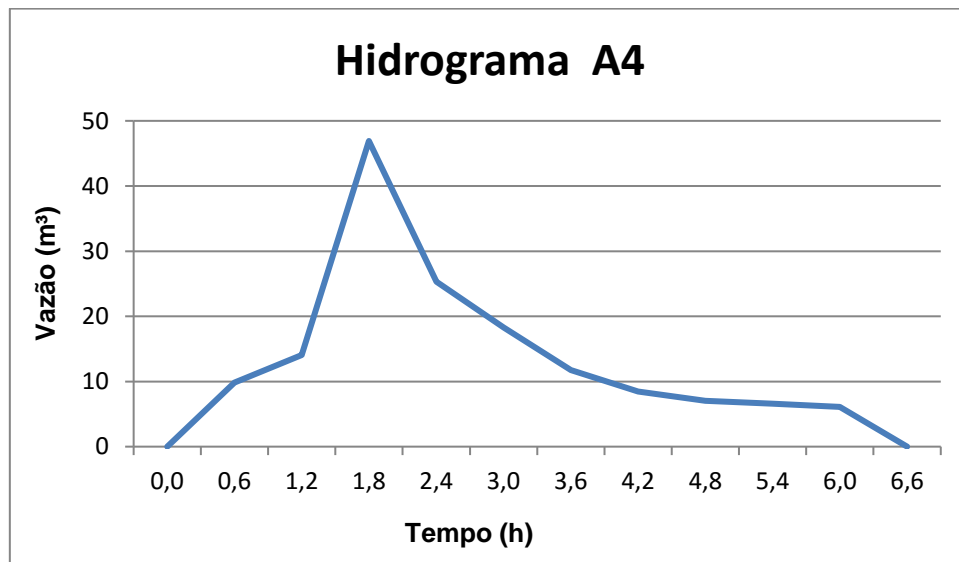
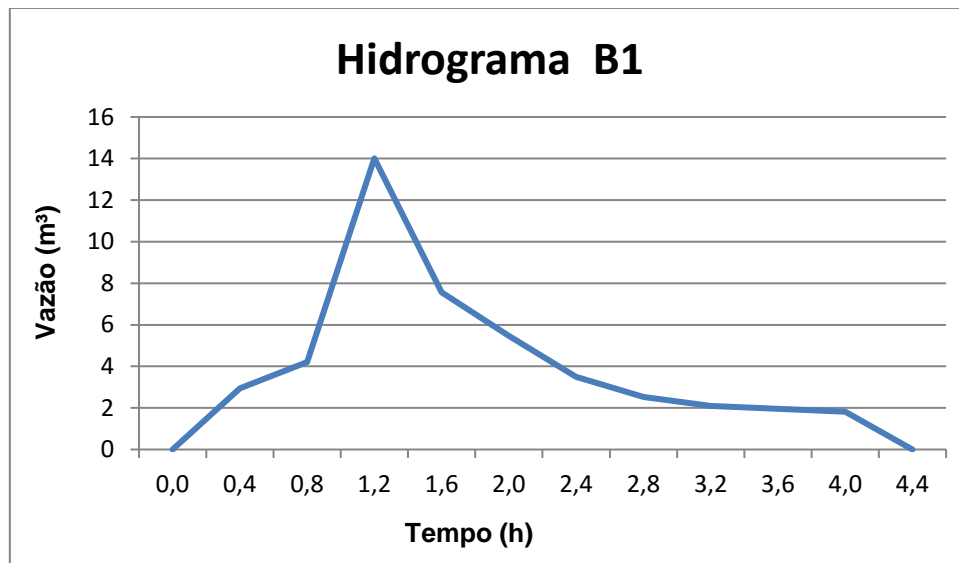
Os hidrogramas das bacias do projeto foram divididos por áreas, como esta a seguir:

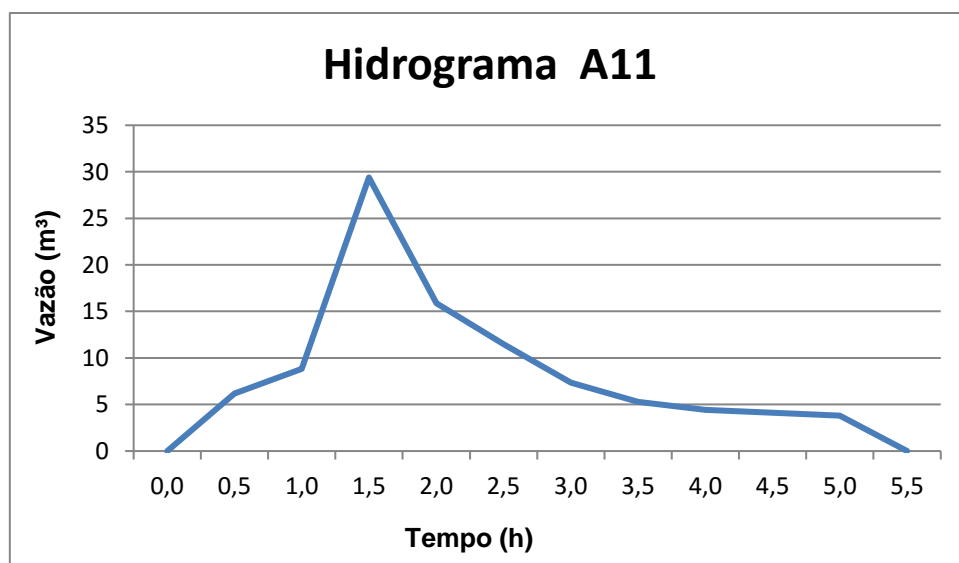
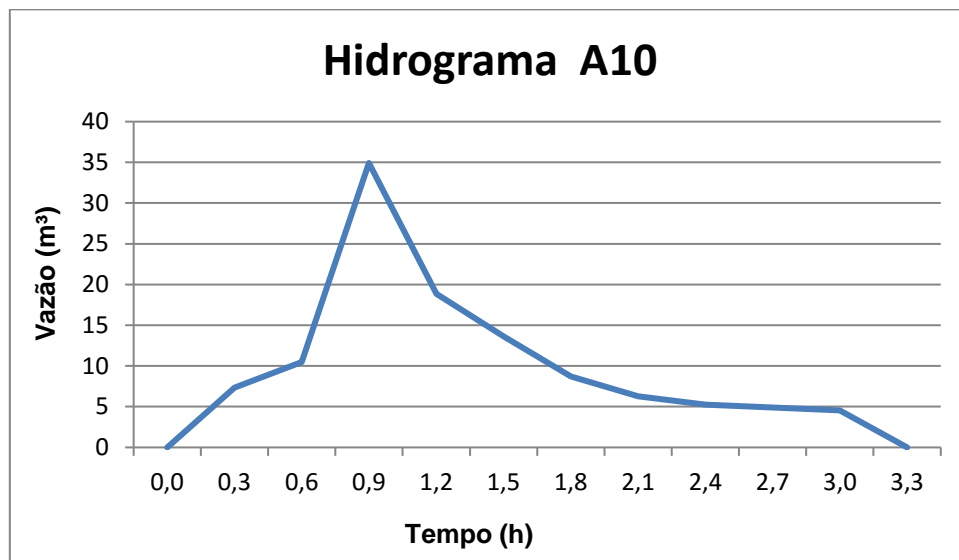
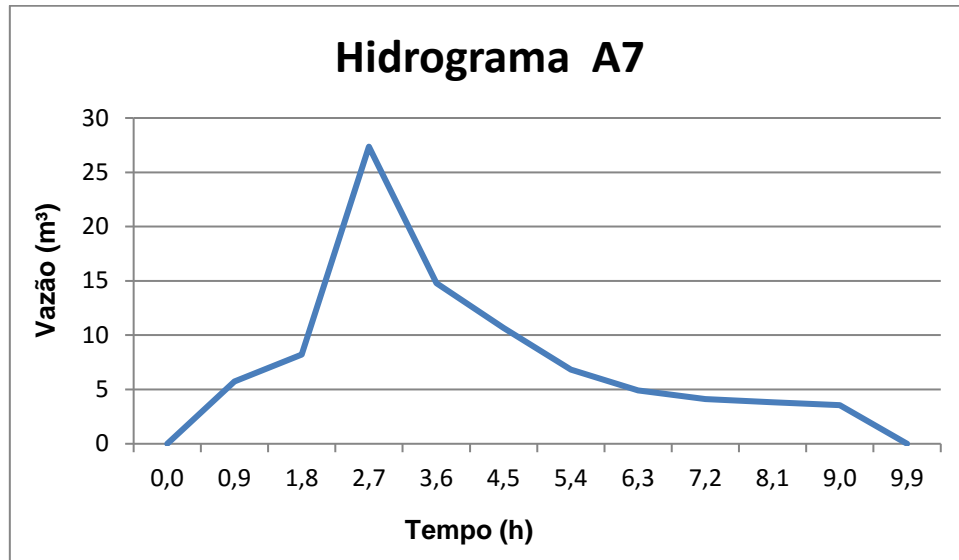
- Bacia de até 10 km² (Hidrograma do Método Racional);
- Bacia entre 10 km² a 20 km² (Hidrograma pelo Método Triangular Sintético);
- Bacia maior que 20 km² (Hidrograma pelo Método Unitário Triangular);

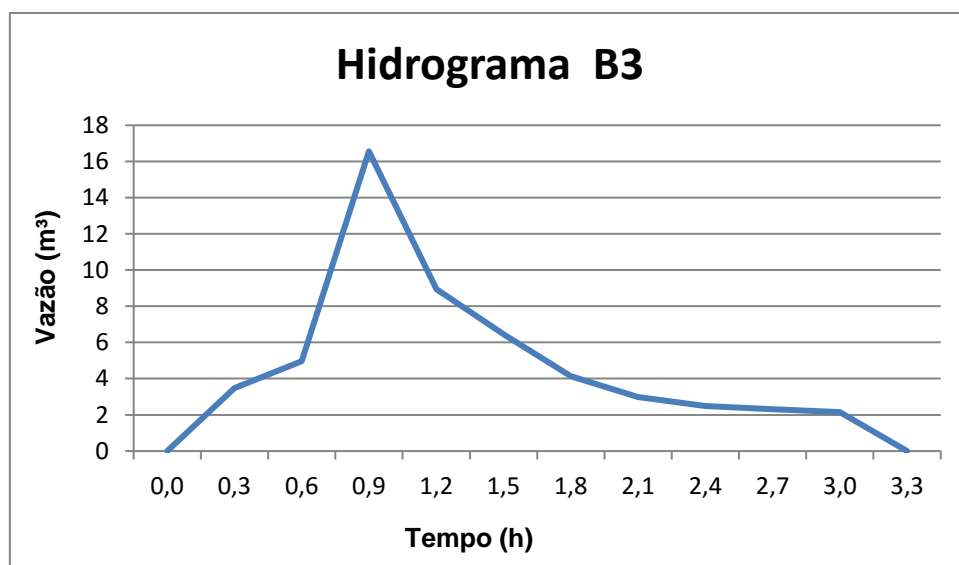
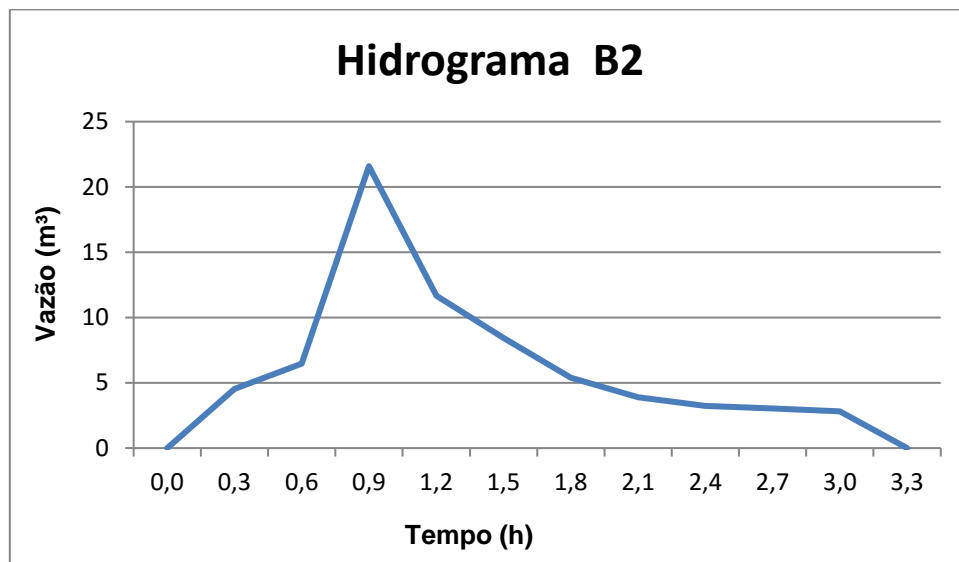
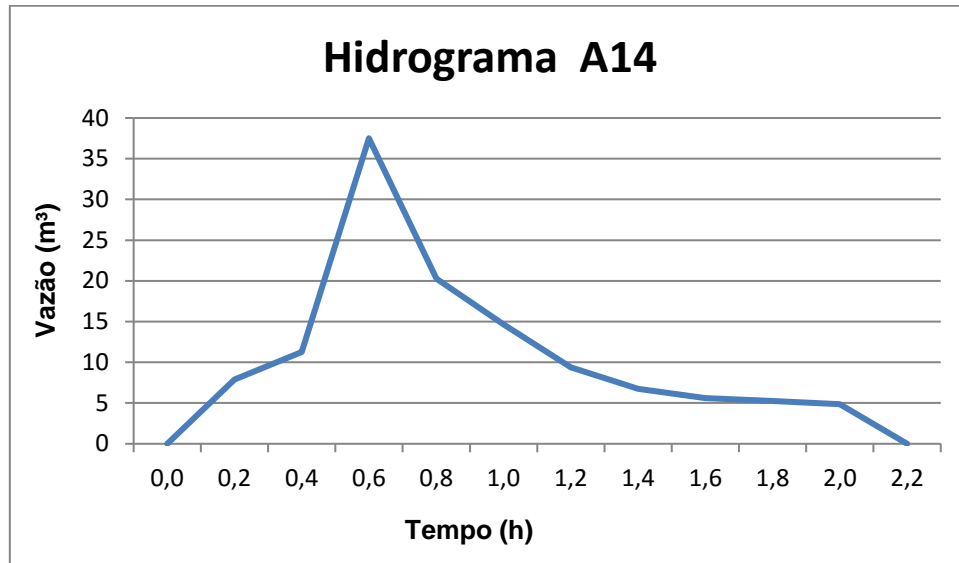
Tabela 1 - Tabela das bacias divididas por área.

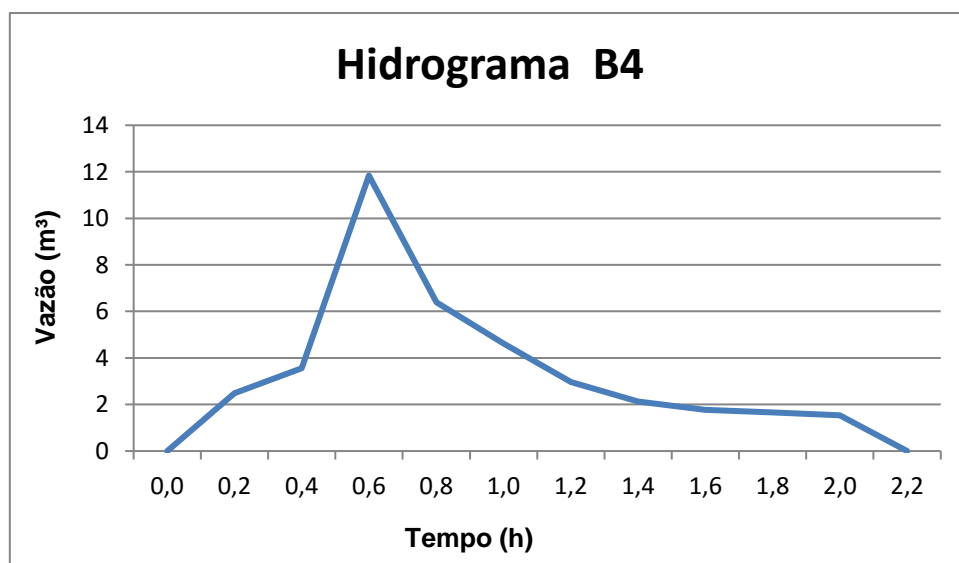
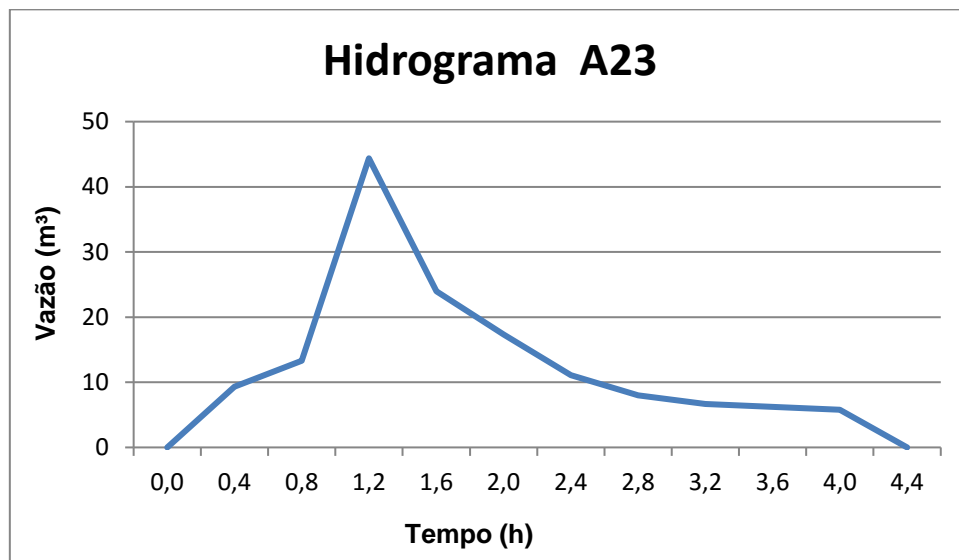
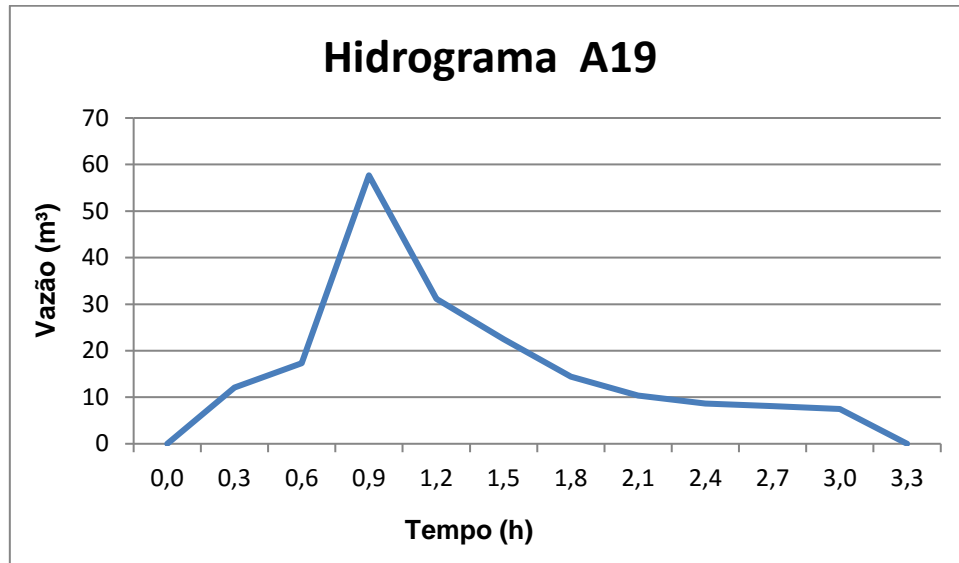
<10 km ²							Entre 10 ≤ 20 km ²	> 20 km ²	
B 1	B 17	A 70b	B 66	A 117	B 105	A 170a	A 1	A 3	A 110
A 4	B 18	A 73b	B 67	B 92	A 144	A 170c	A 12	A 6	A 111
A 5	A 51	B 53	B 69	A 119	A 144a	A 170d	A 24	A 8	A 113
A 7	B 19	A 74b	B 70	A 119a	A 145	A 170e	A 27	A 9	A 114
A 10	B 20	B 54	B 71	A 119b	A 149b	B 119	A 29	A 13	A 115
A 11	B 21	A 75	B 72	A 120	A 150a	B 120	A 34	A 16	A 116
A 14	B 22	B 55	A 95	A 120a	A 150b	B 121	A 41	A 17	A 118
A 15	B 23	A 76	A 95a	B 93	A 150c	B 123	A 49	A 18	A 124
B 2	A 55	A 77	A 96	B 94	A 150d	A 171	A 65	A 20	A 125
B 3	B 24	A 77a	A 96a	B 95	A 151a	A 173	A 66	A 21	A 128
A 19	B 25	A 78	A 98	B 96	A 153	A 174	A 69a	A 31	A 129
A 23	A 57	B 56	A 98a	A 121	A 153a	A 175	A 71	A 33	A 131
B 4	B 26	B 57	A 99	A 121a	A 154a	A 176	A 73c	A 42	A 132
A 25	B 27	A 79	B 74	A 122	A 154b	A 176a	A 81	A 44	A 133
A 26	B 28	B 58	A 101	A 122a	A 156	A 177b	A 84a	A 45	A 134
A 28	B 29	A 80	A 102	B 96	A 156a	A 180a	A 89a	A 47	A 135
A 30	B 31	A 82	B 77	A 125a	A 105a	A 180b	A 92	A 50	A 136
A 32	B 32	A 82a	B 78	A 126a	B 106	A 180c	A 106	A 52	A 137
B 5	A 60	A 83	B 80	A 127a	B 107	A 180z	A 112	A 53	A 139
B 6	A 61	A 85	A 104	A 128a	B 108	B 124	A 123	A 54	A 140
B 7	B 33	A 85a	A 106a	A 129a	B 109	A 181b	A 126	A 56	A 142
A 35	B 34	A 86a	A 107	A 129b	B 110	A 181d	A 127	A 58	A 143
A 36	B 35	A 86	B 81	A 129c	B 111	B 125	B 97	A 59	A 146
A 37	B 36	A 87a	B 81a	A 129d	B 113	B 126		A 62	A 147
A 38	B 37	A 88	B 82	A 129e	B 114	B 127		A 63	A 149a
A 39	B 38	A 88a	A 108	B 98	B 115	A 182	A 148	A 64	A 157
A 40	B 39	A 90a	A 108a	B 99	B 116	A 183a	A 151	A 67	B 112a
A 43	B 40	A 90	A 108b	B 100	B 117	A 184	A 152	A 68	
B 8	B 41	A 90b	A 108c	B 101	A 160	A 184a	A 154	A 69	A 165
A 46	B 42	A 91a	A 111a	B 102	A 160a	A 185	A 155	A 72	A 167
A 48	B 45	A 91	A 112a	B 103	A 162a	A 186	A 159	A 73	A 168a
B 9	B 46	A 94	A 112b	B 104	A 163	A 187	A 161a	A 74a	A 170
B 10	B 47	B 59	B 84	A 131a	A 163a	A 188	A 164	A 74	A 172
B 11	B 48	B 60	B 85	A 131b	A 165a	A 235	A 170b	A 87	A 180
A 49a	B 49	B 61	B 86	A 131c	A 166	A 236	A 177	A 89	A 181
B 12	B 50	B 62	B 87	A 135a	A 166a	A 237		A 93	A 181a
B 13	B 51	B 62a	B 88	A 136a	A 167a			A 97	A 181c
B 14	B 52	B 63	B 89	A 136b	A 168			A 100	
B 15	A 70a	B 64	B 90	A 141	A 168b			A 103	
B 16	A 70	B 65	B 91	A 141a	A 169			A 109	

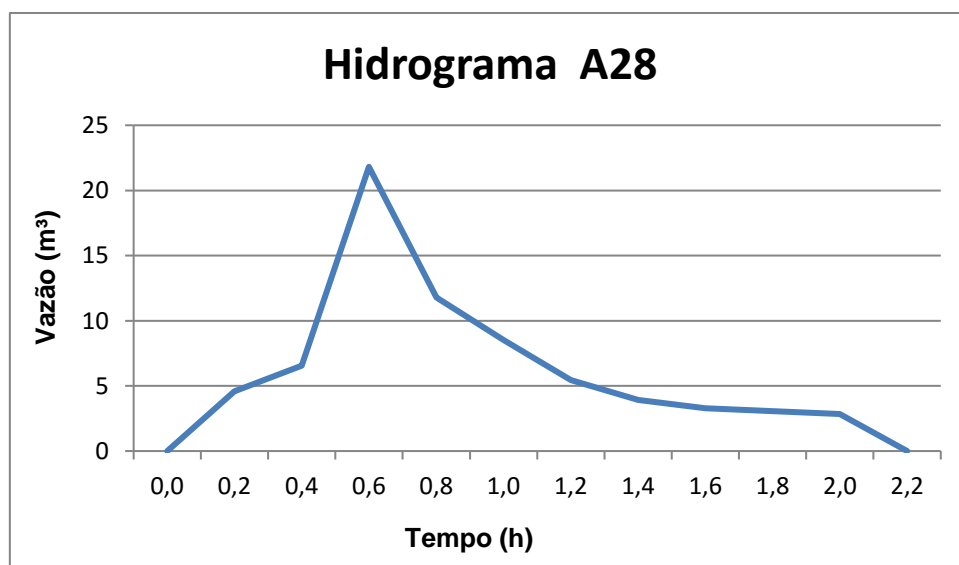
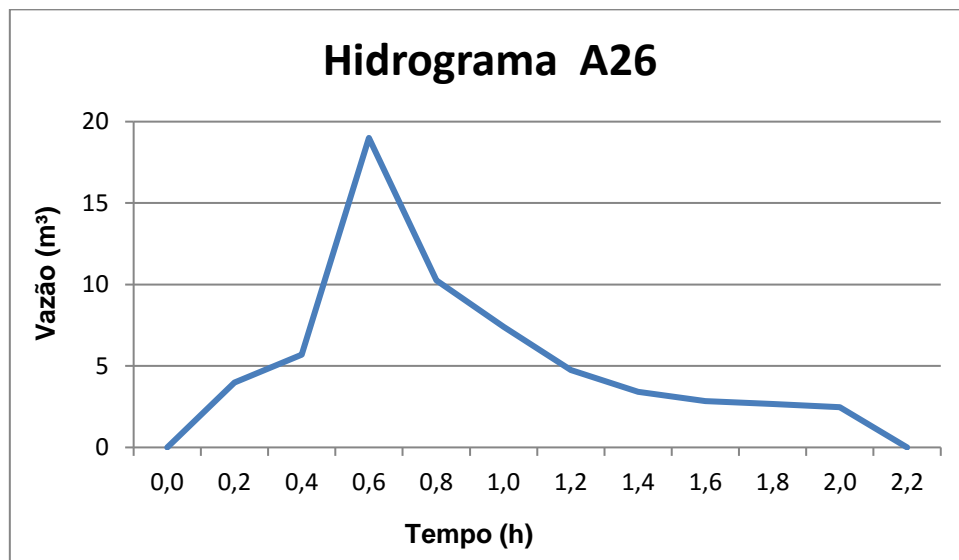
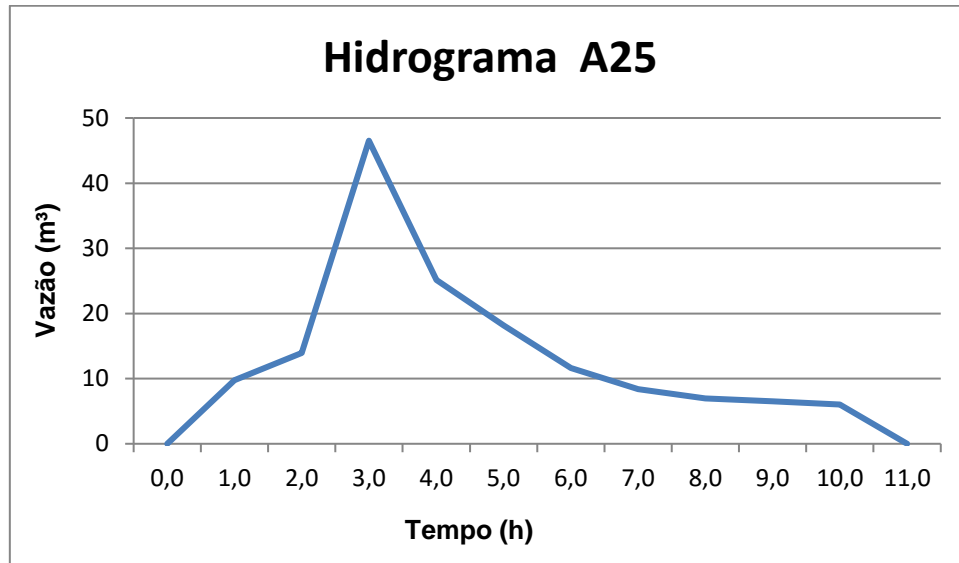
1. Bacia de até 10 km² (Hidrograma do Método Racional)

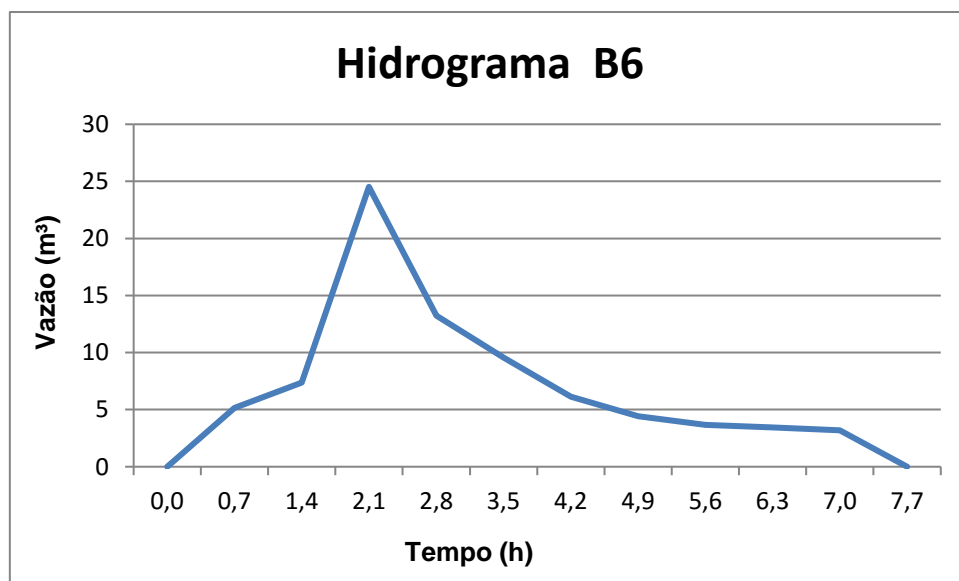
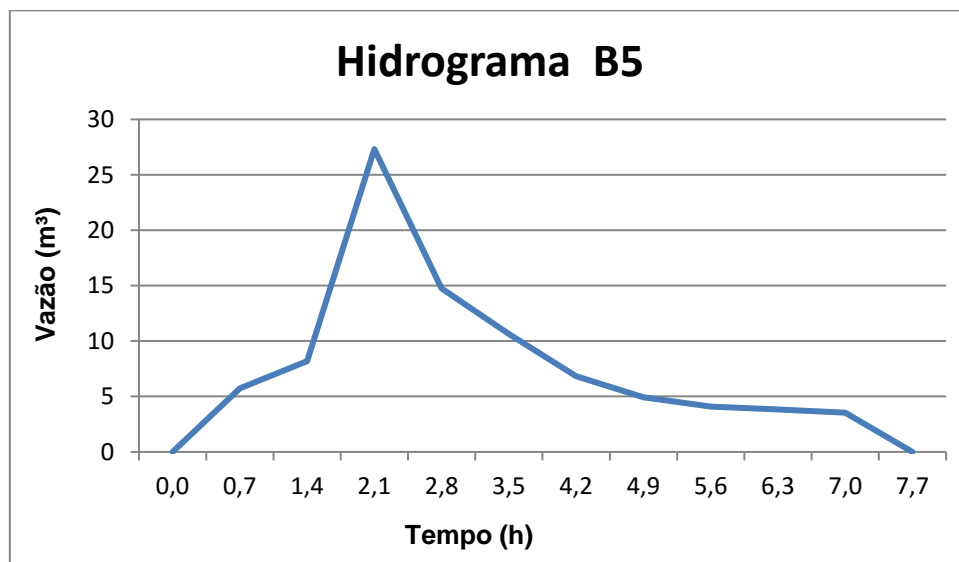
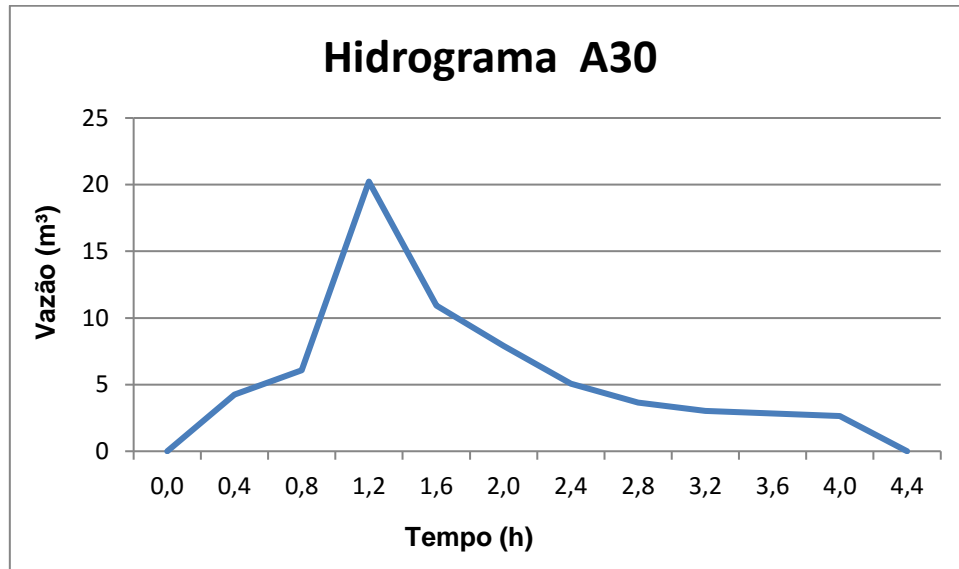


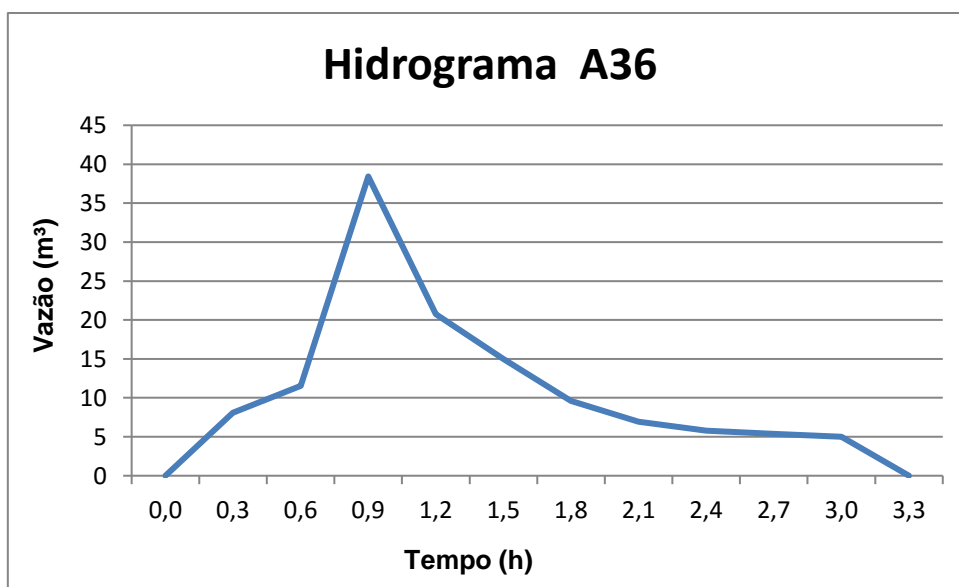
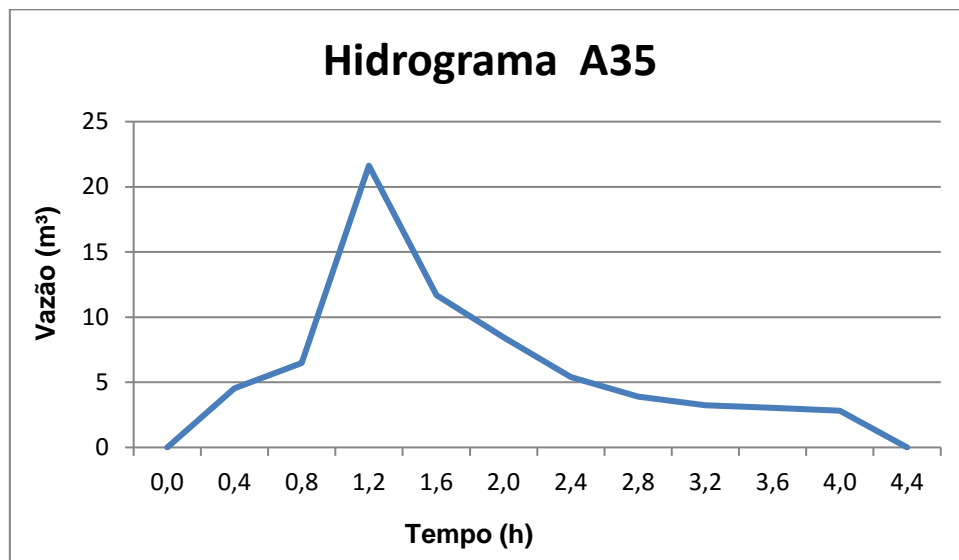
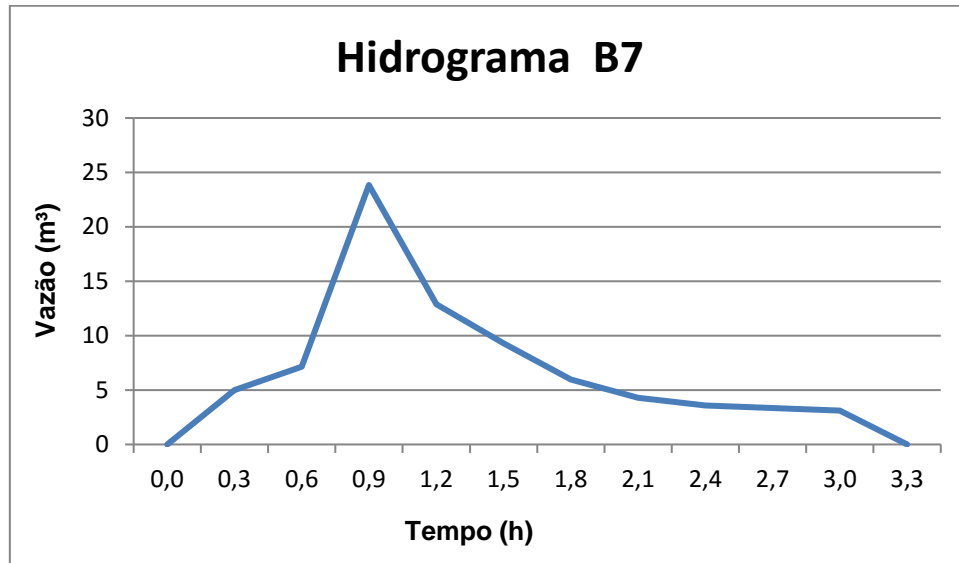


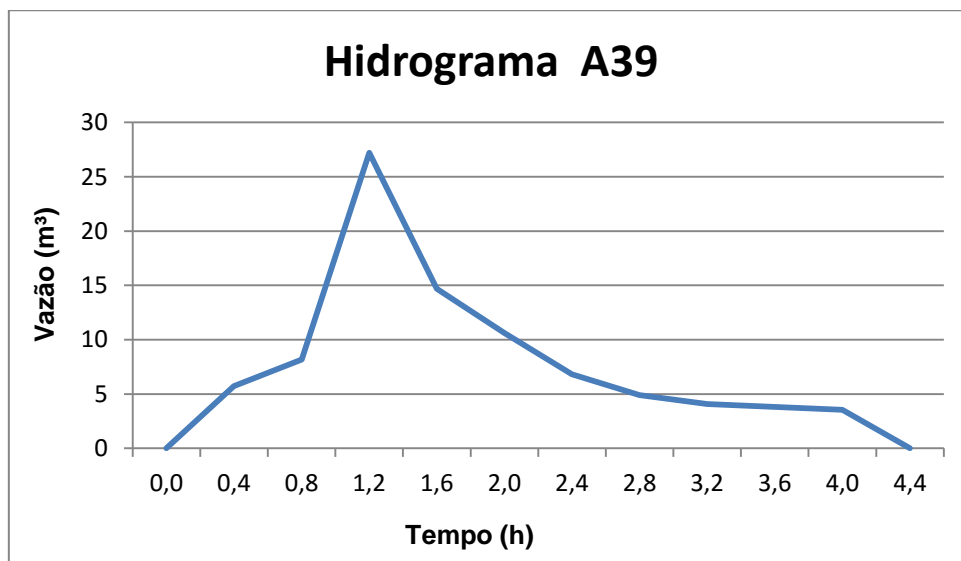
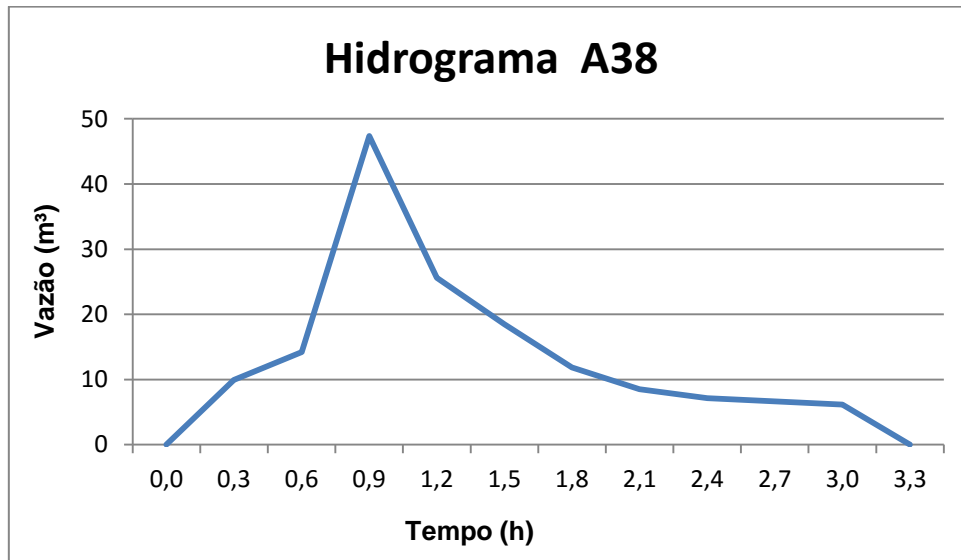
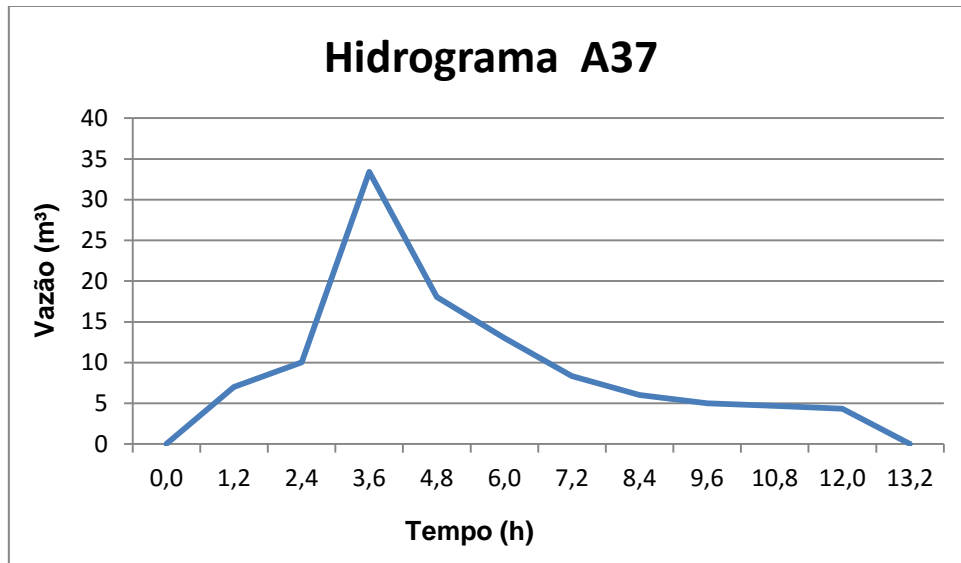


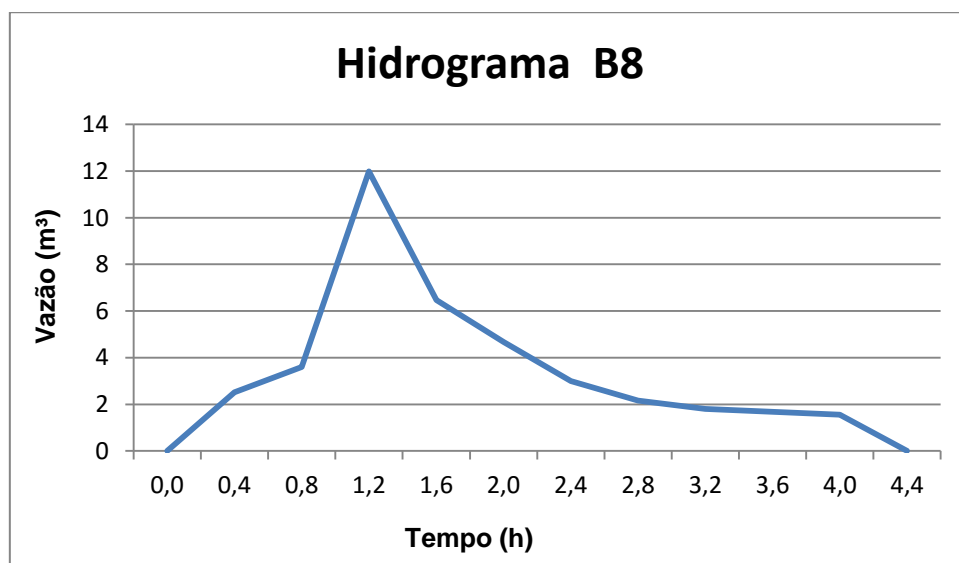
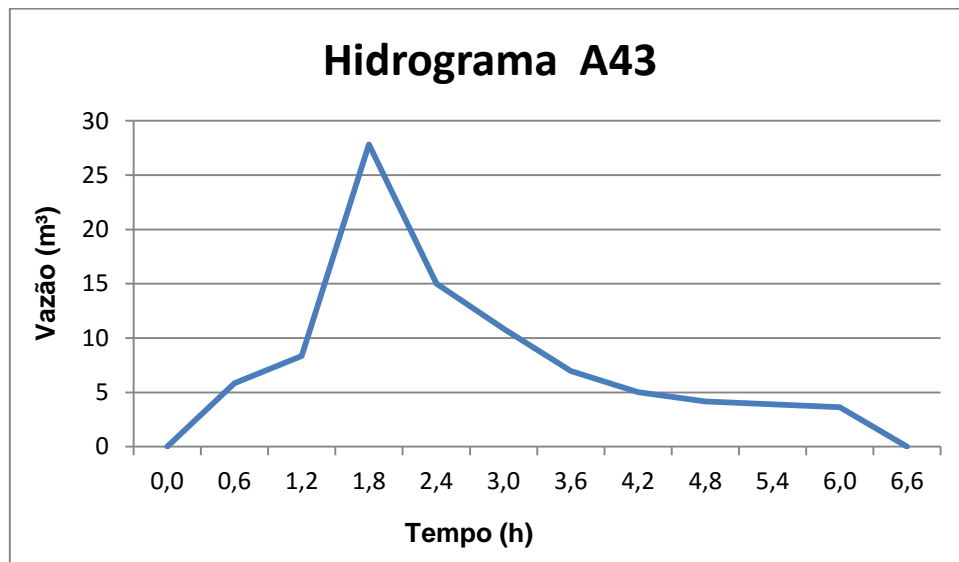
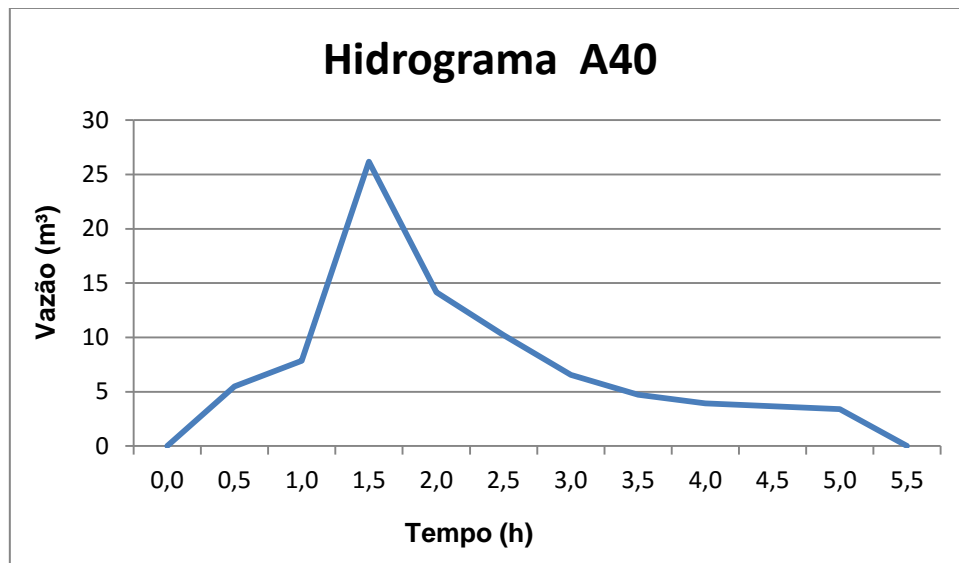


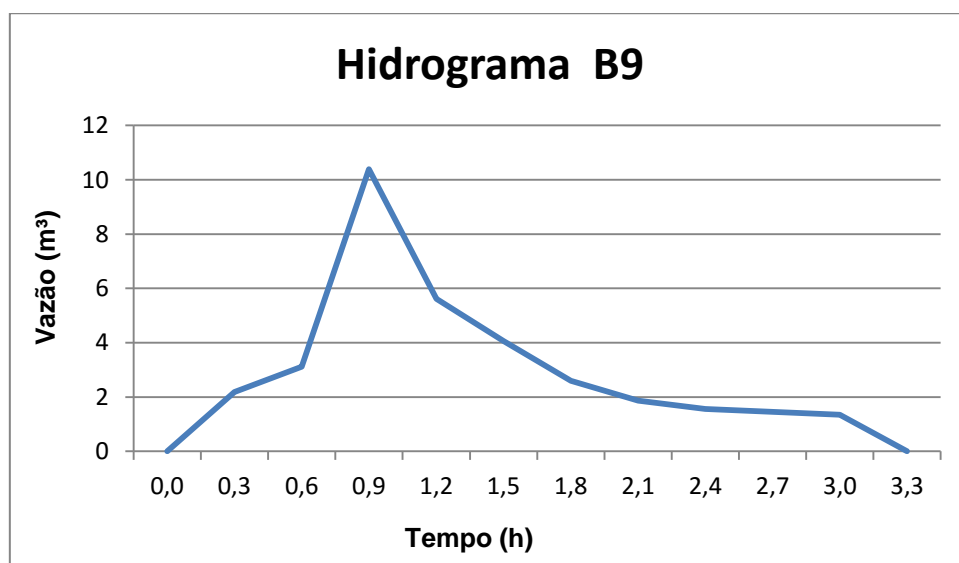
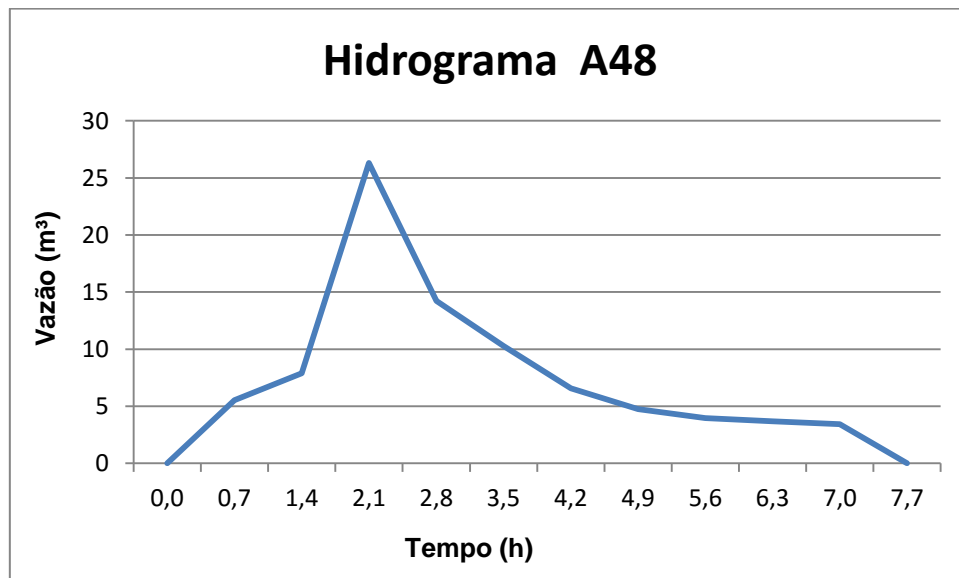
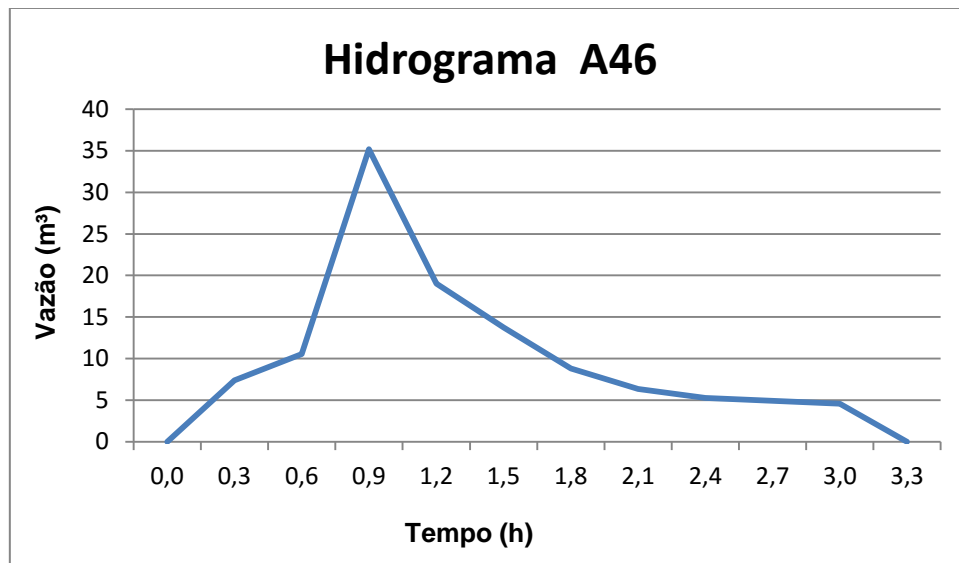


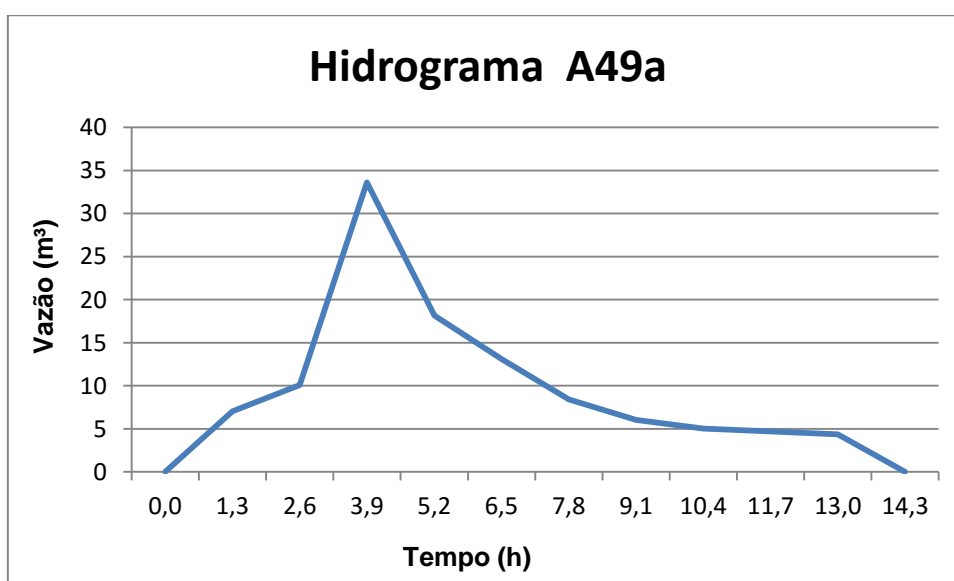
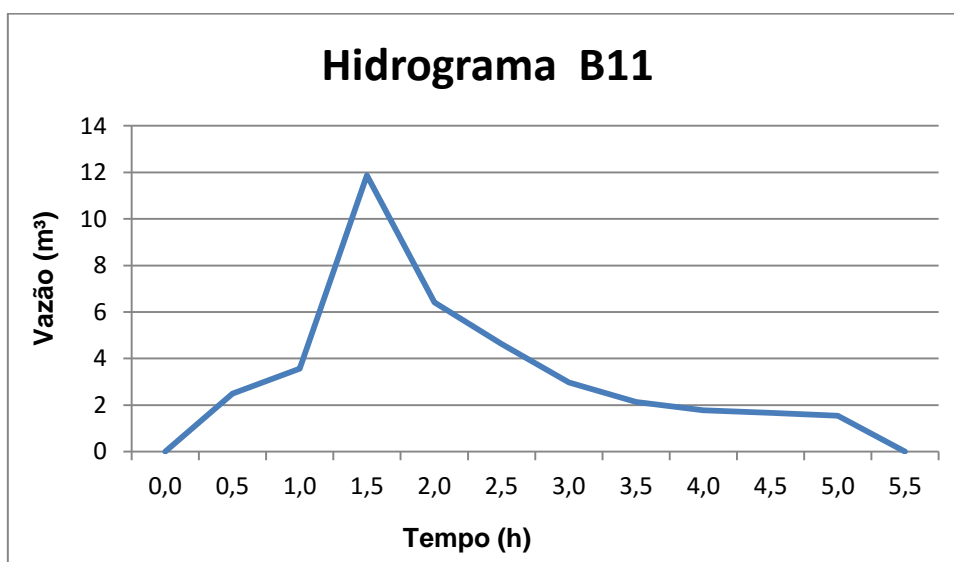
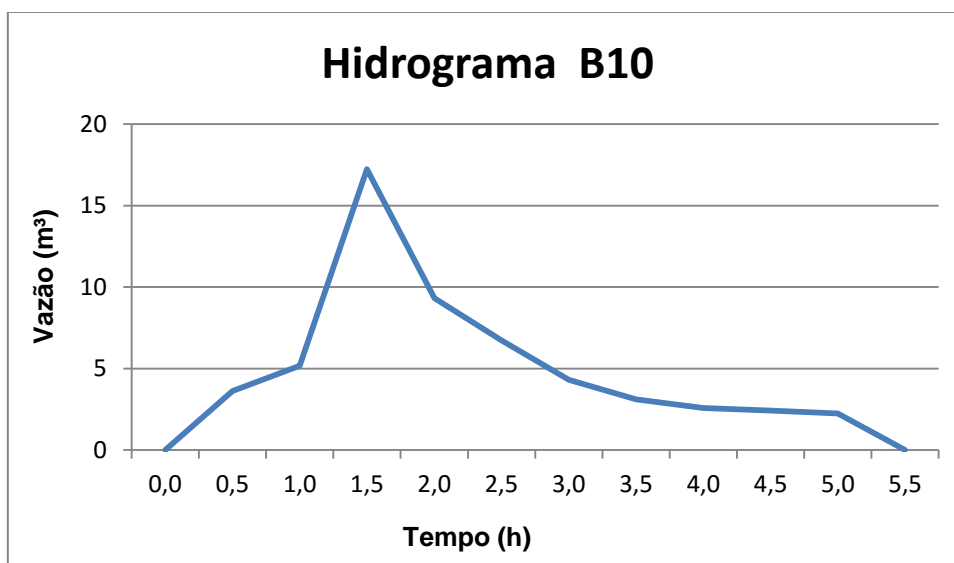


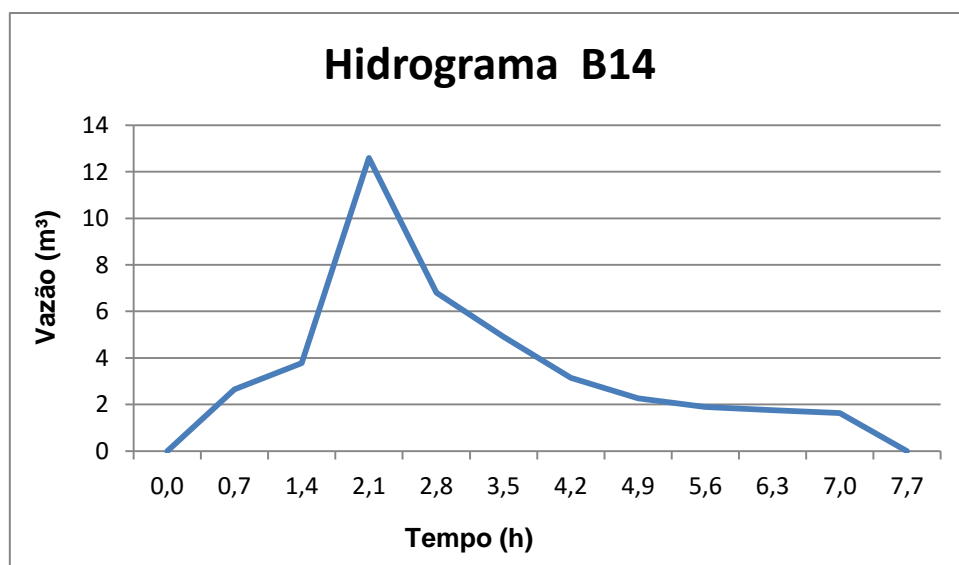
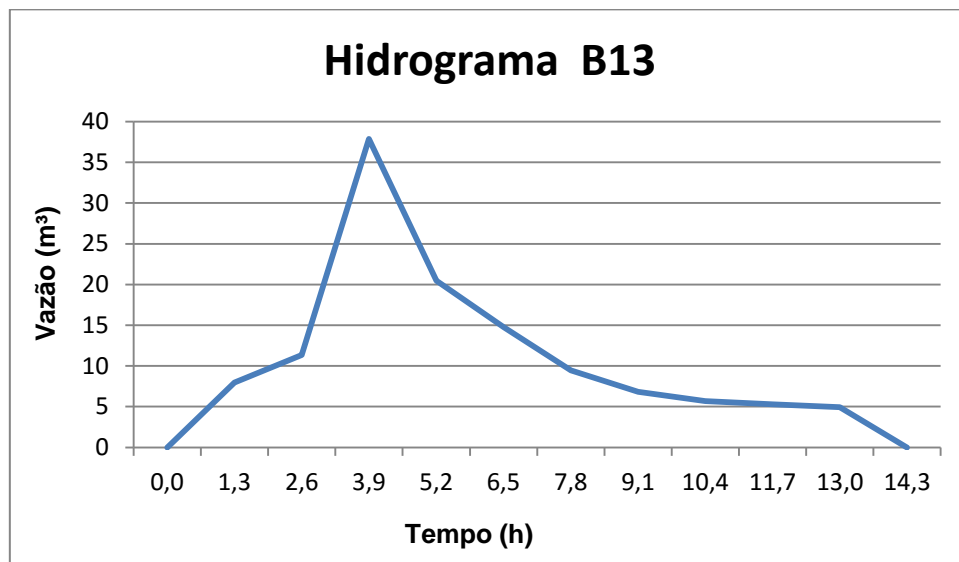
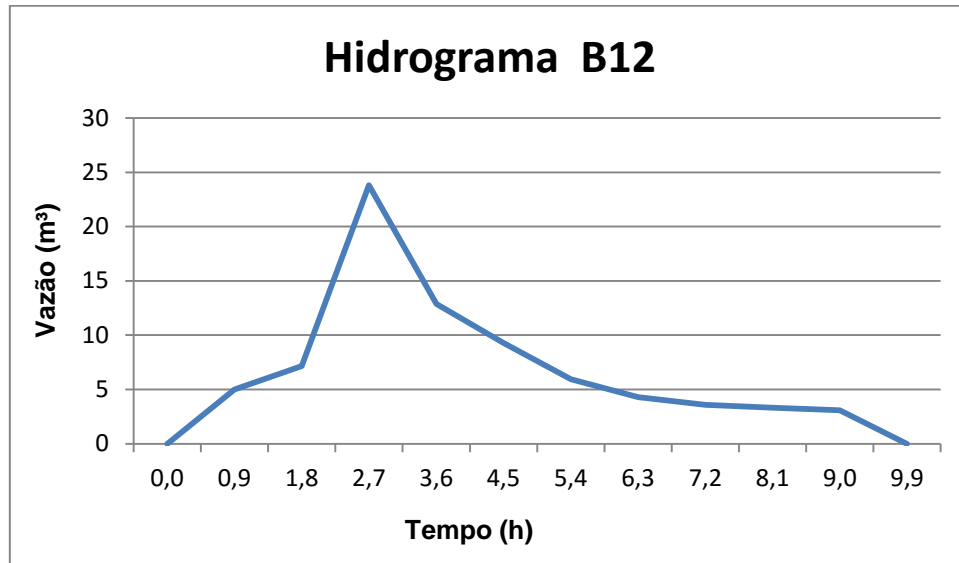


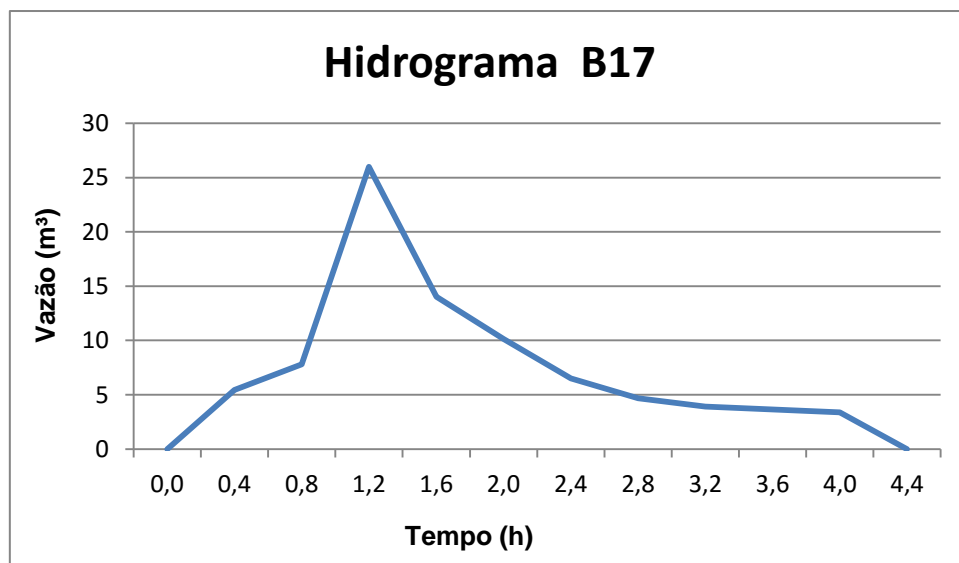
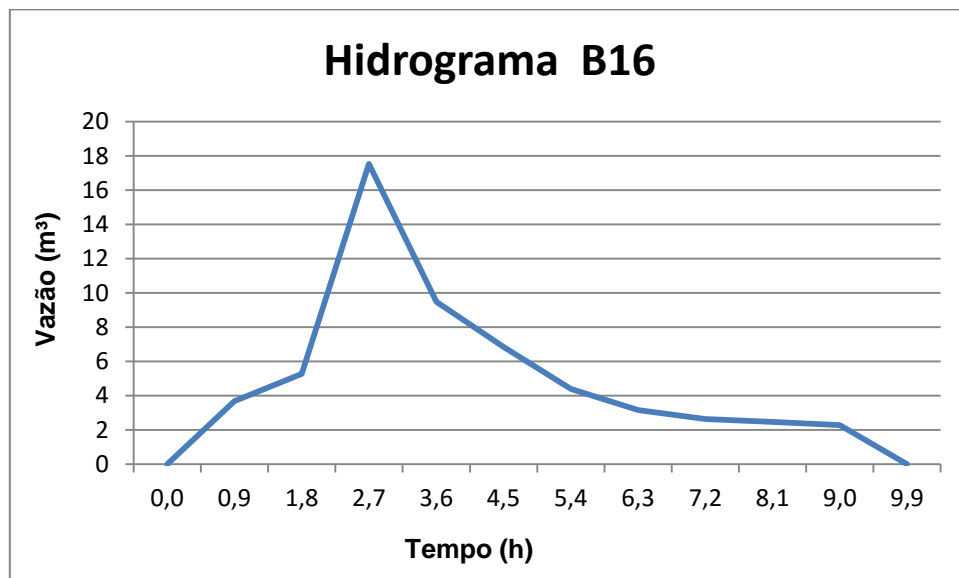
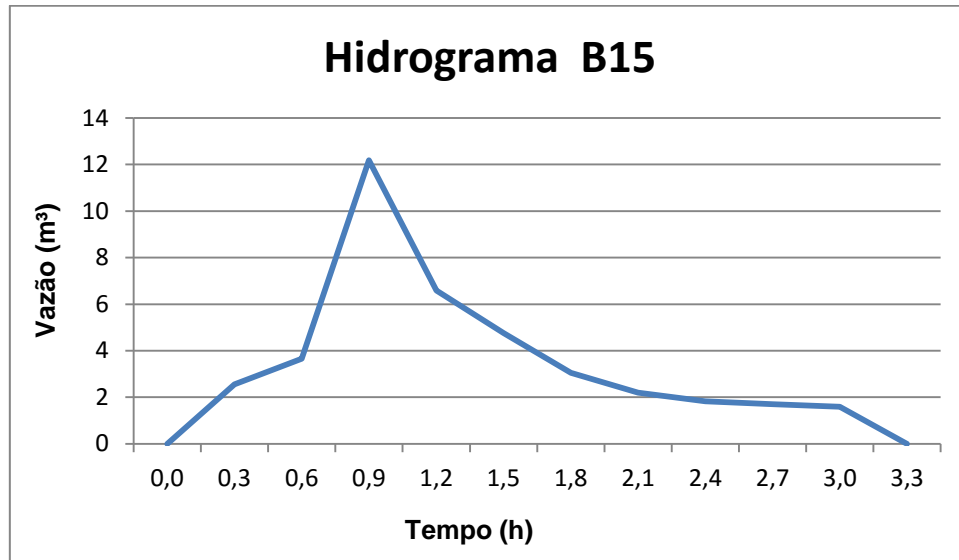


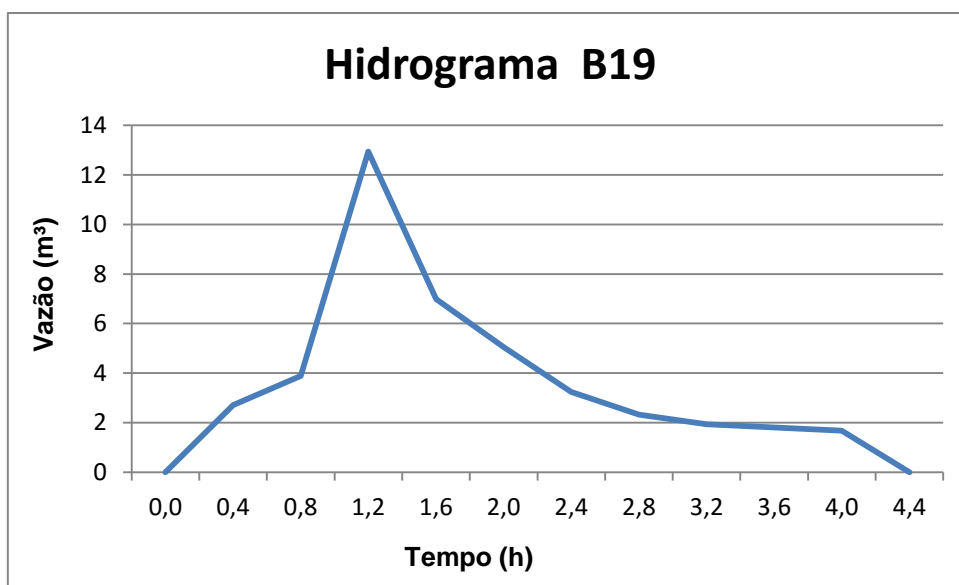
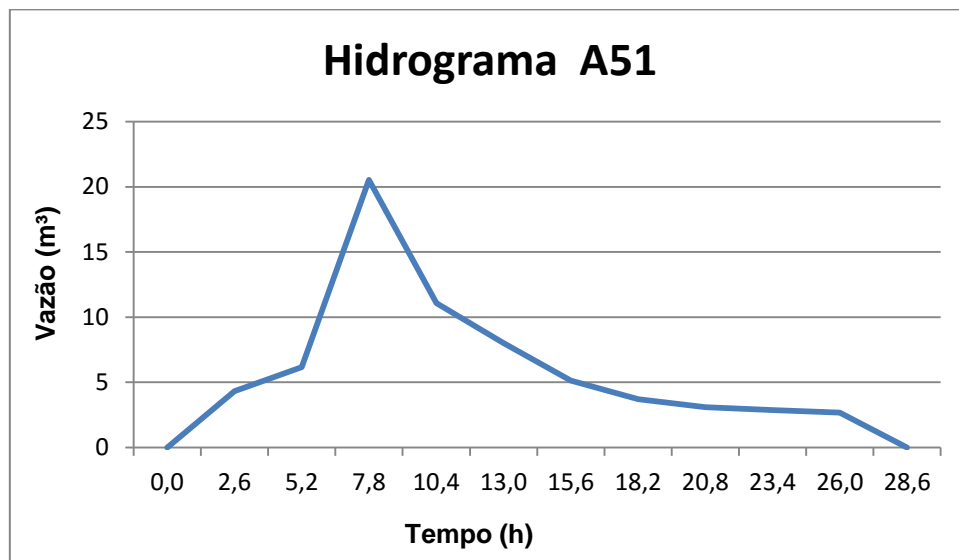
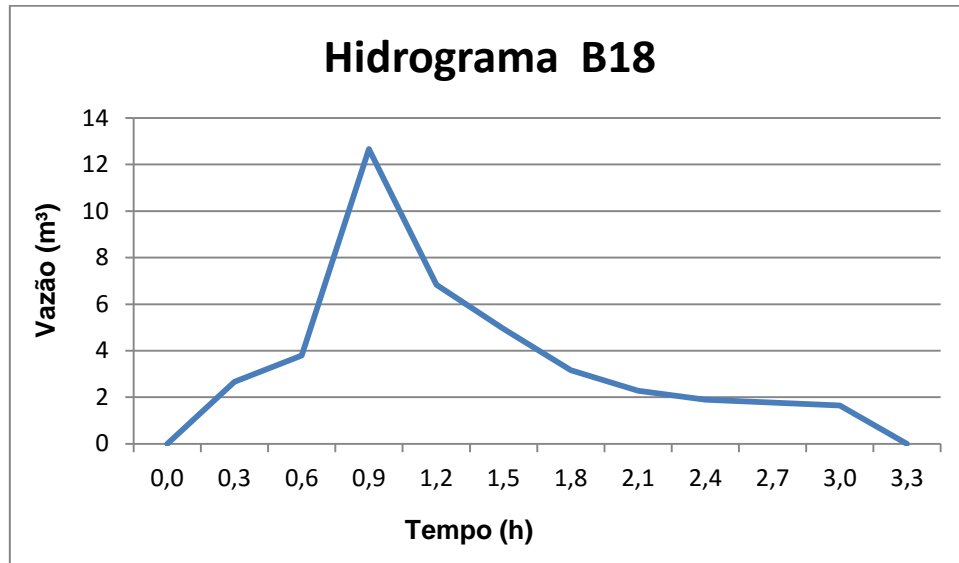


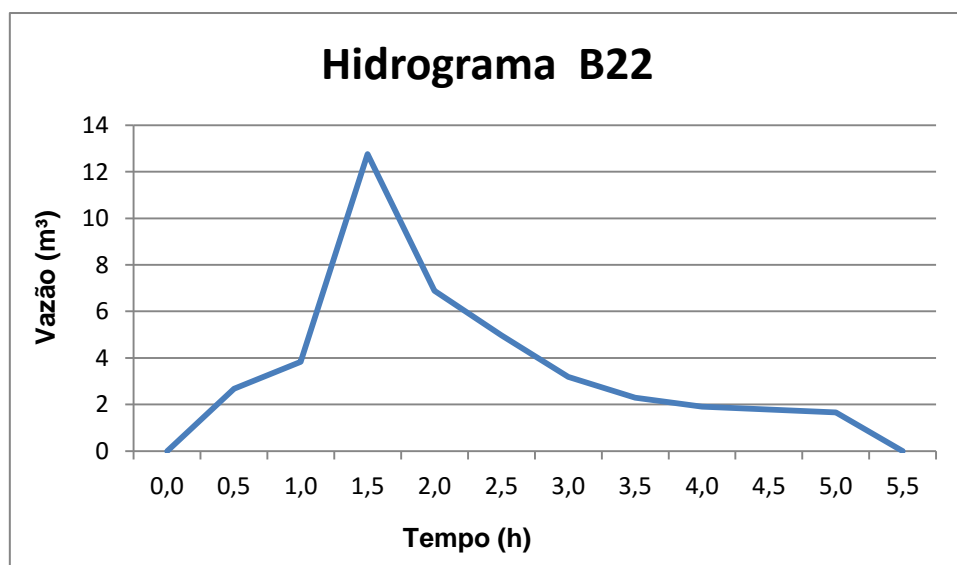
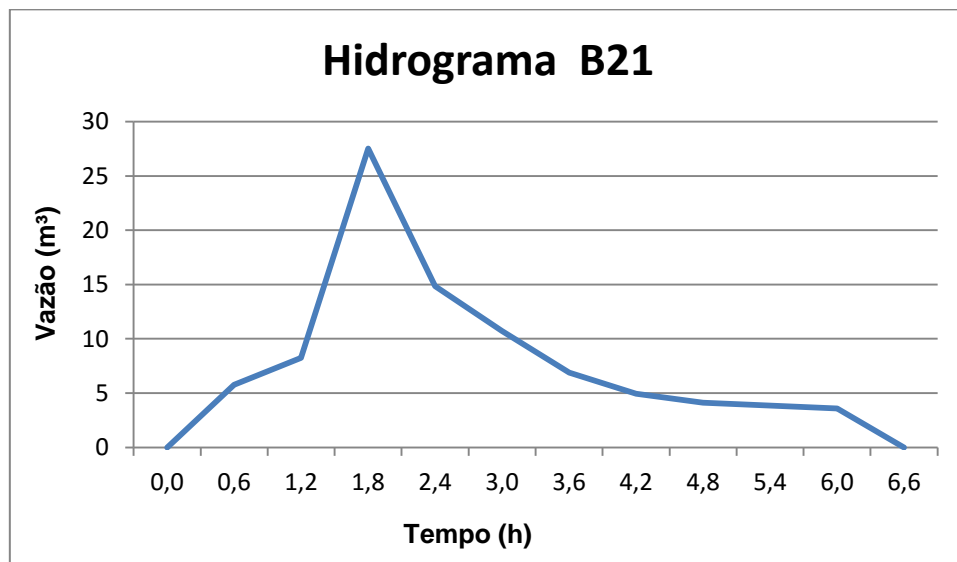
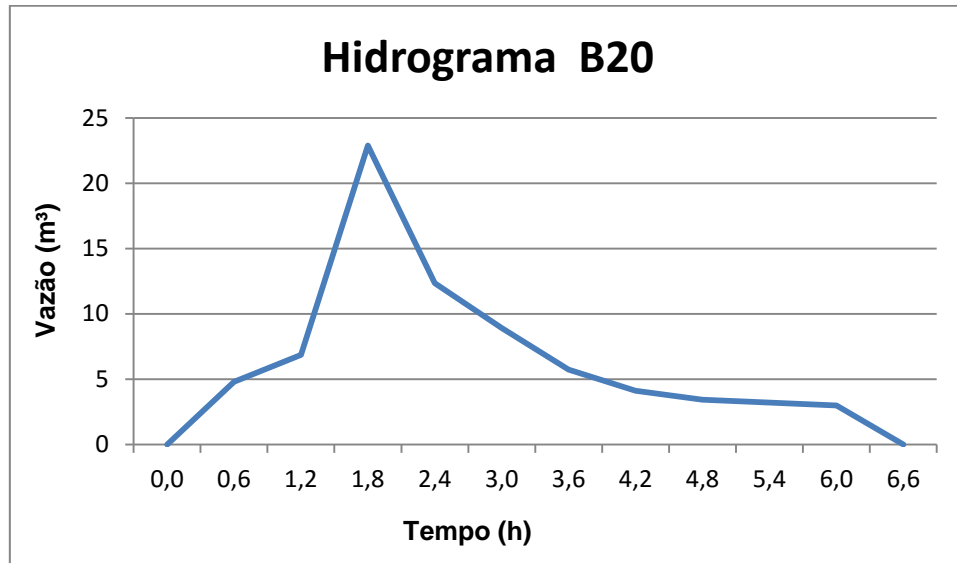


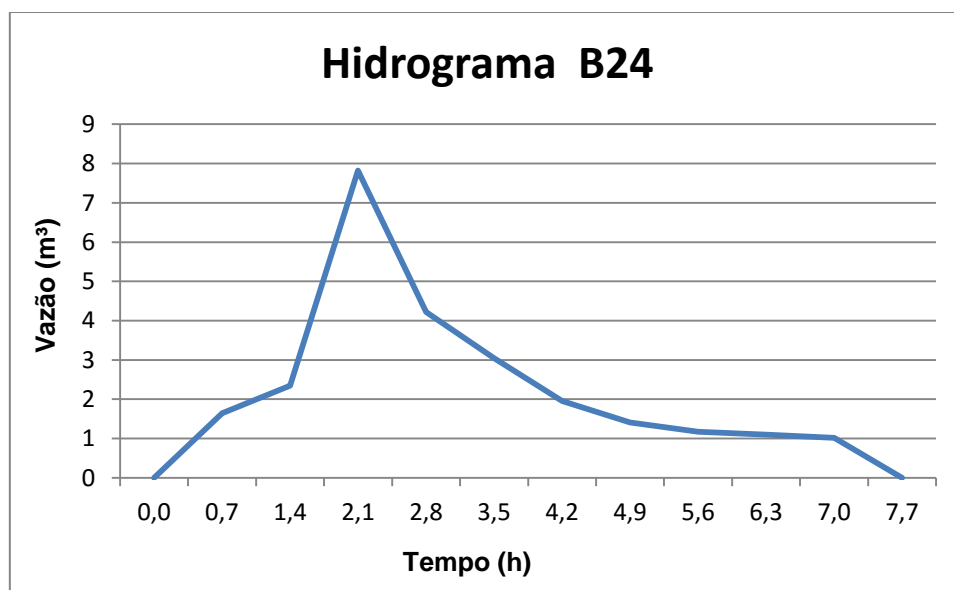
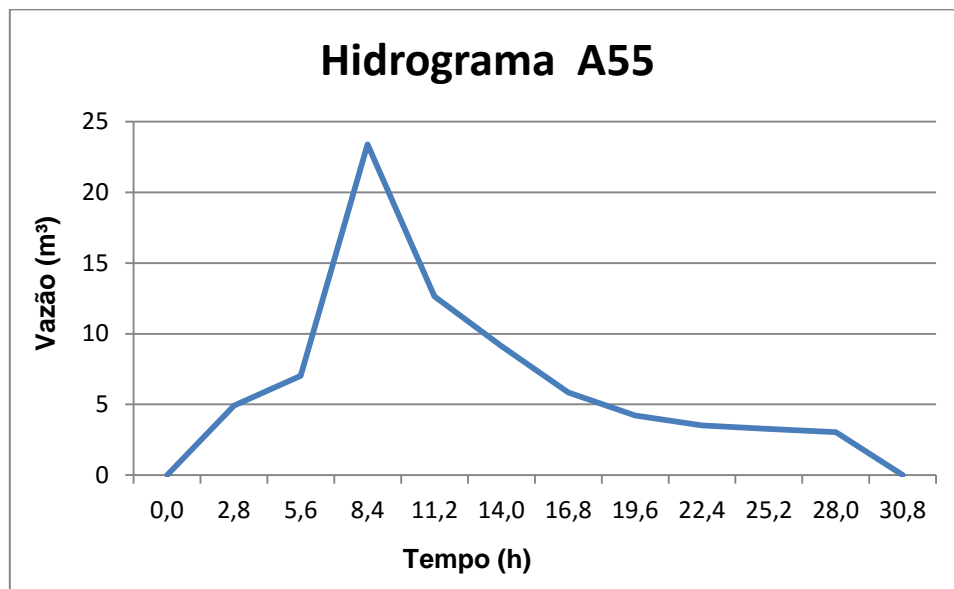
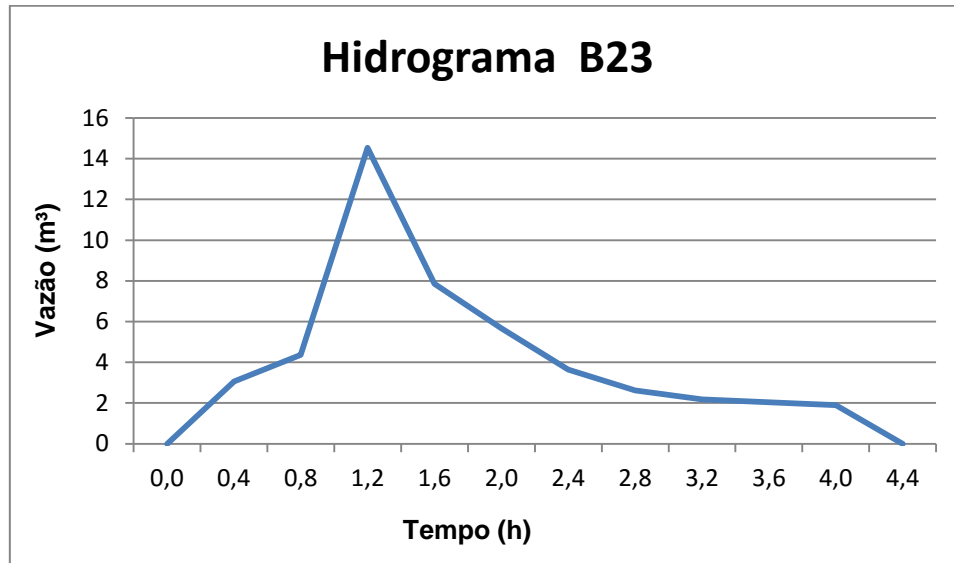


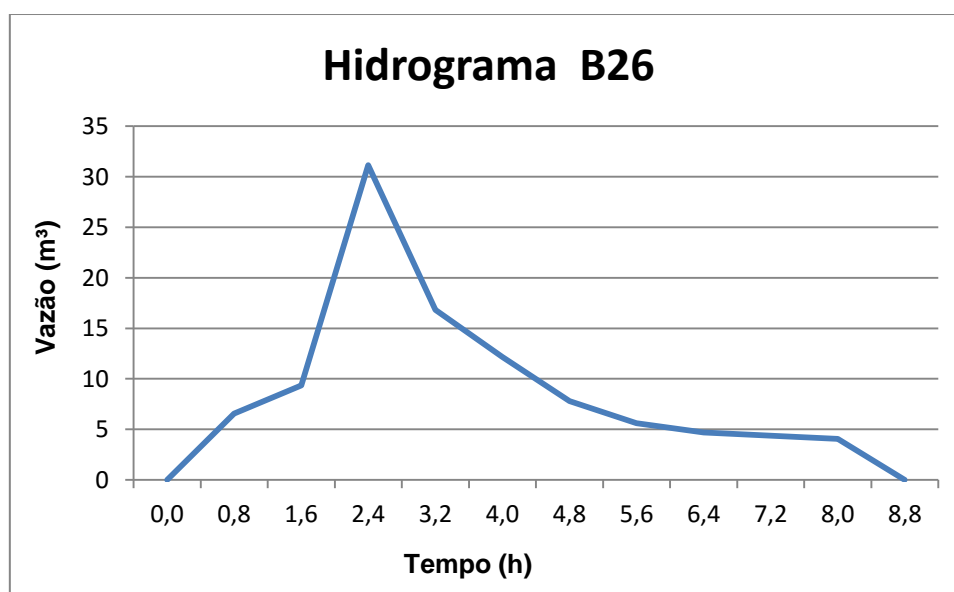
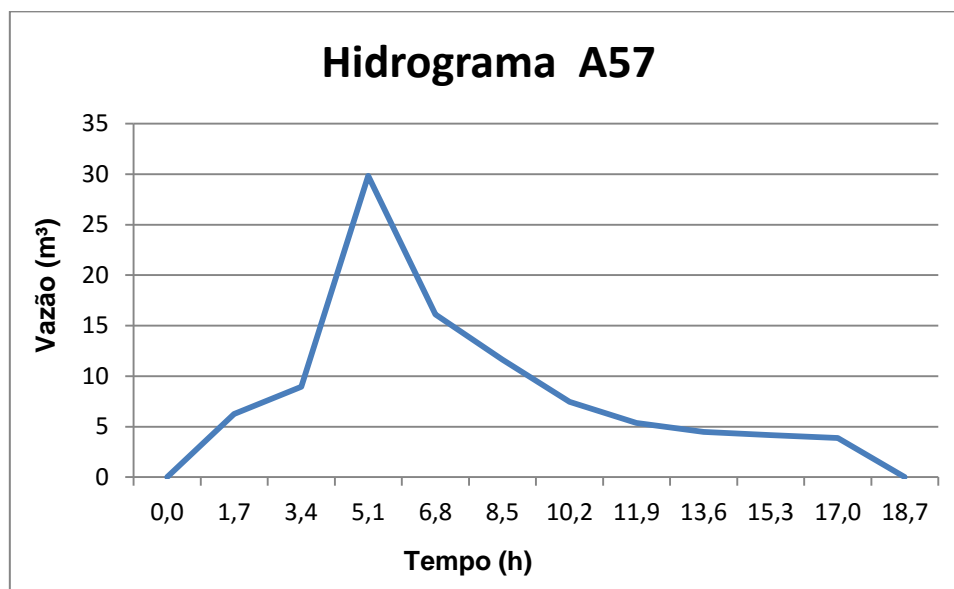
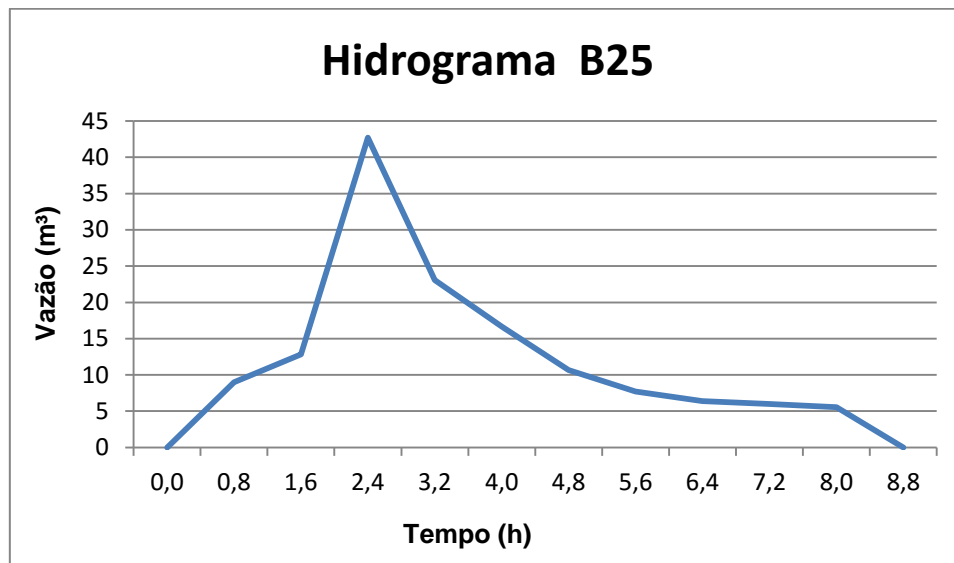


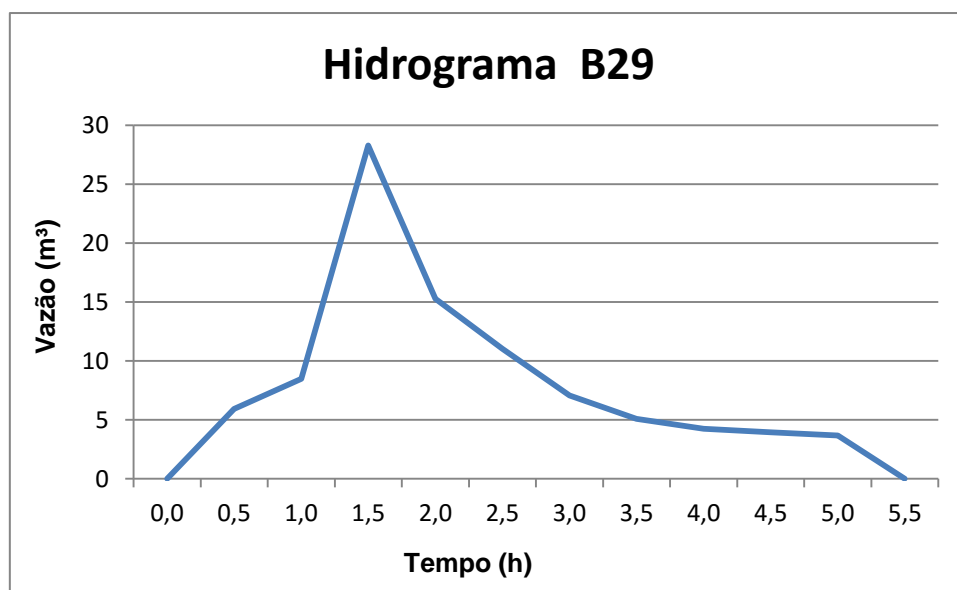
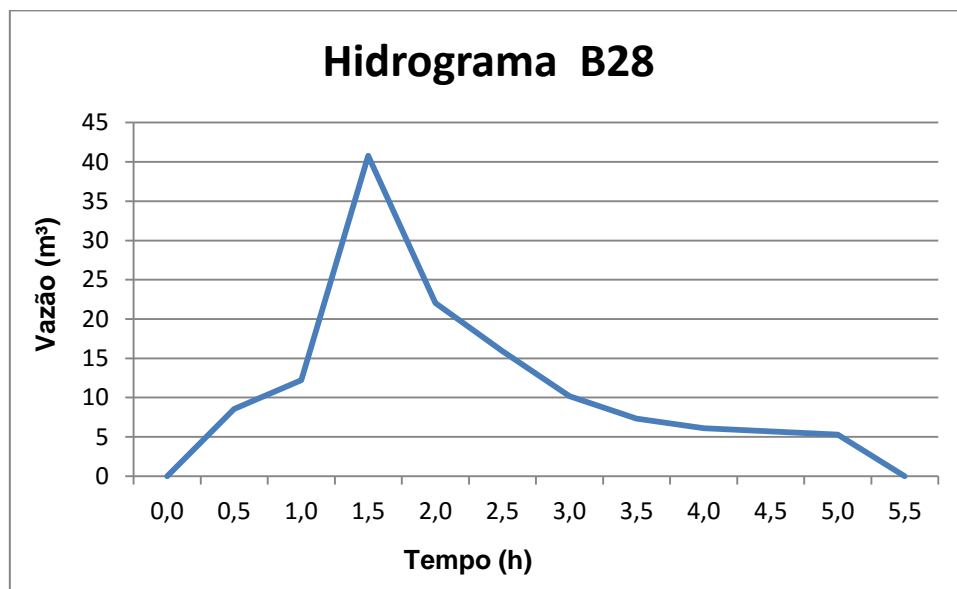
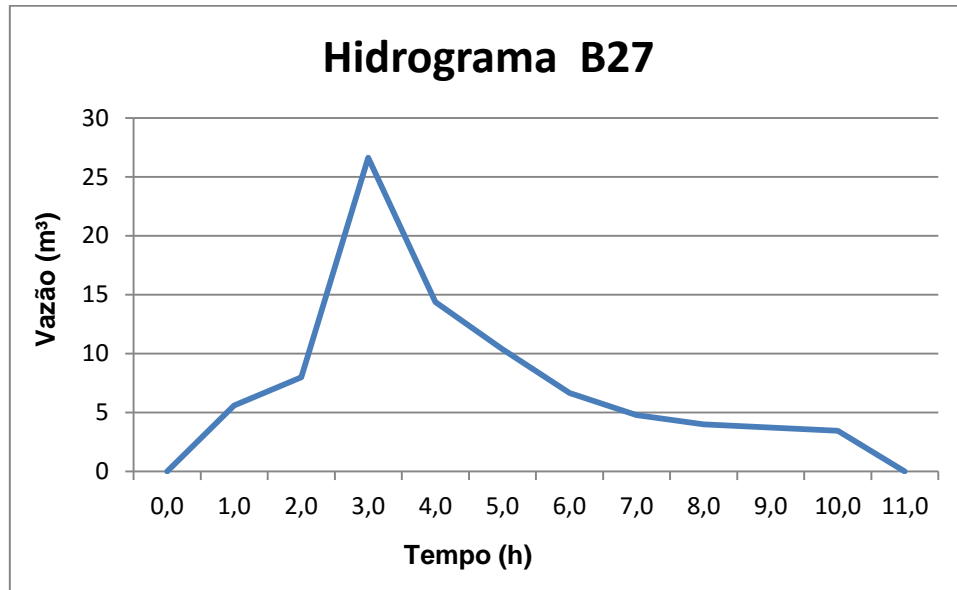


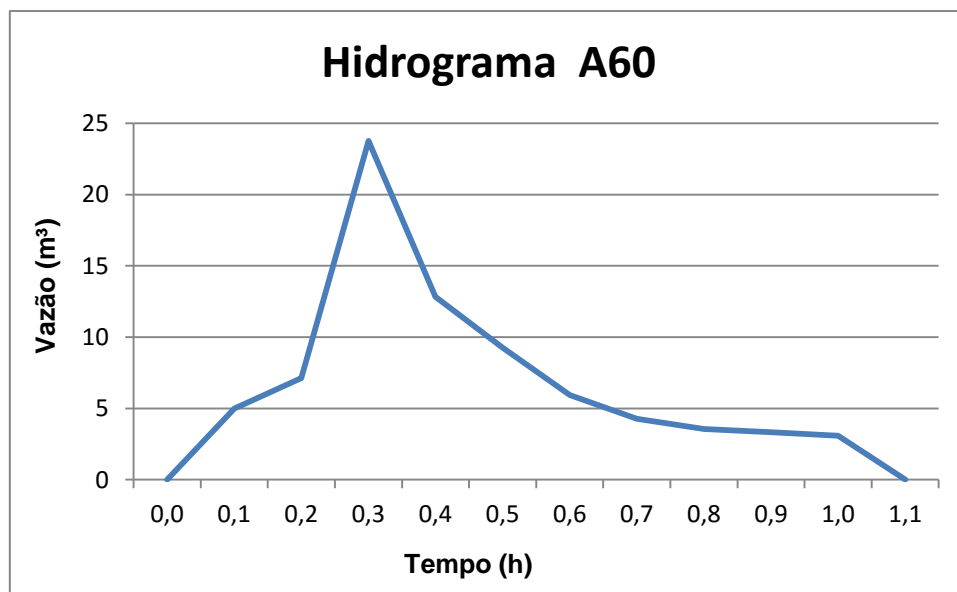
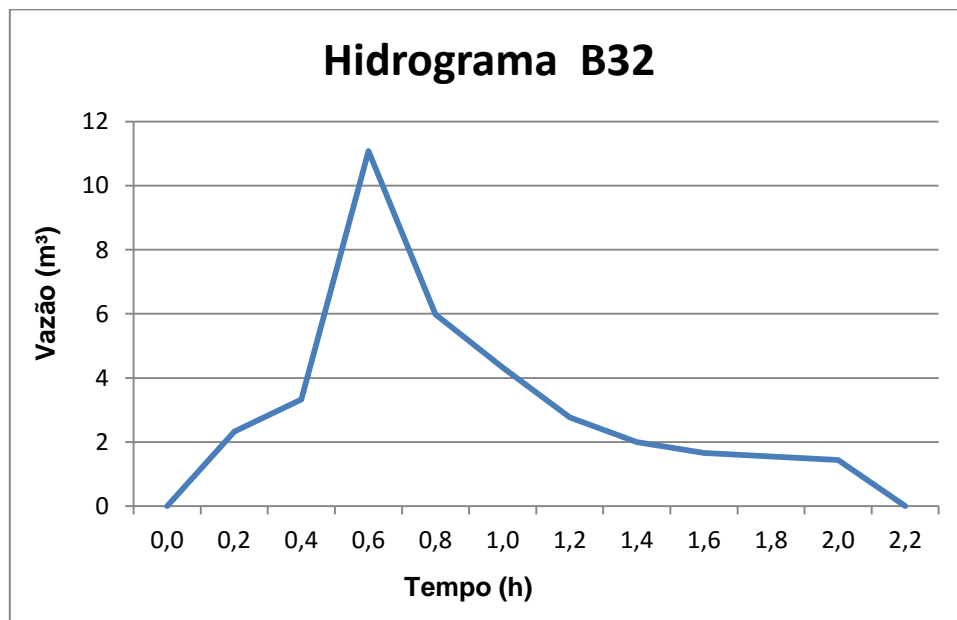
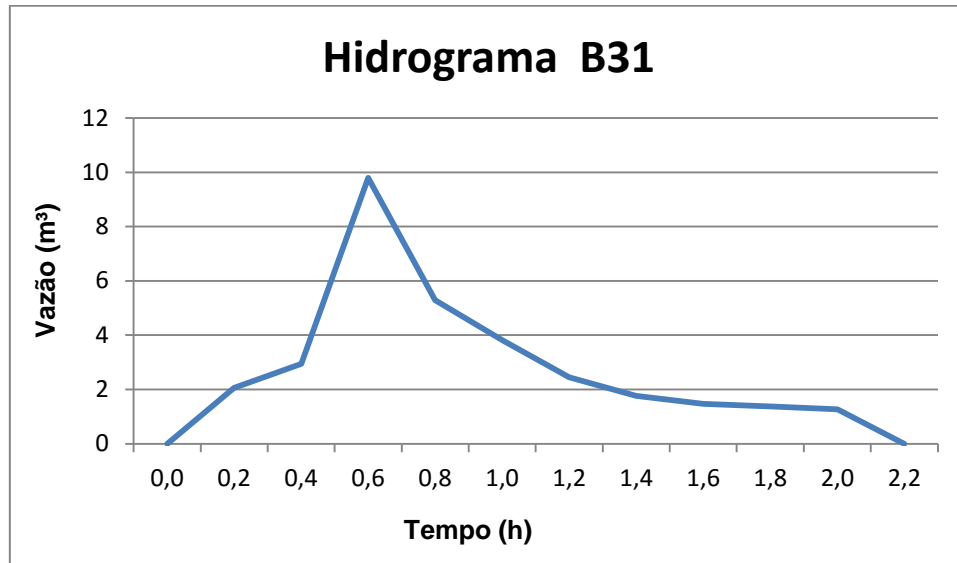


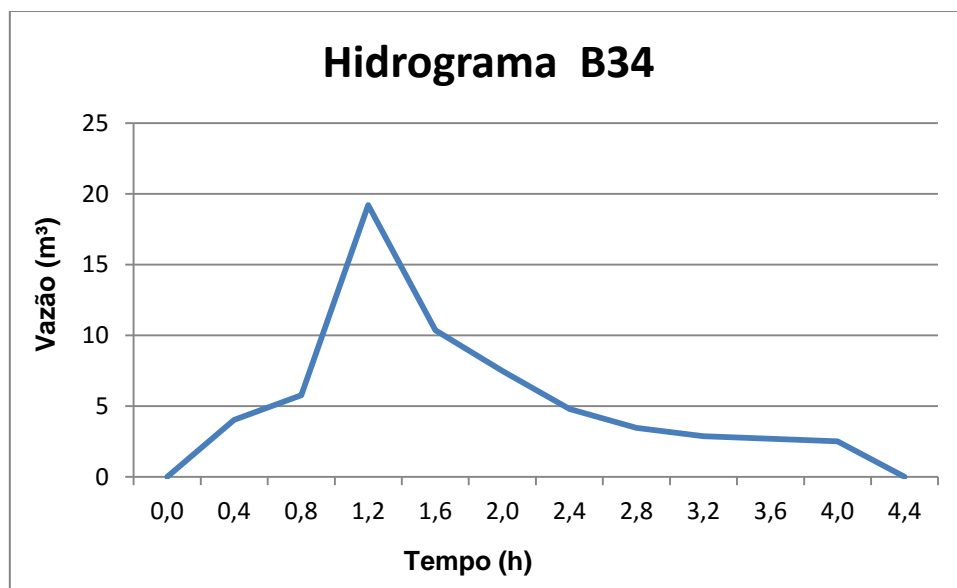
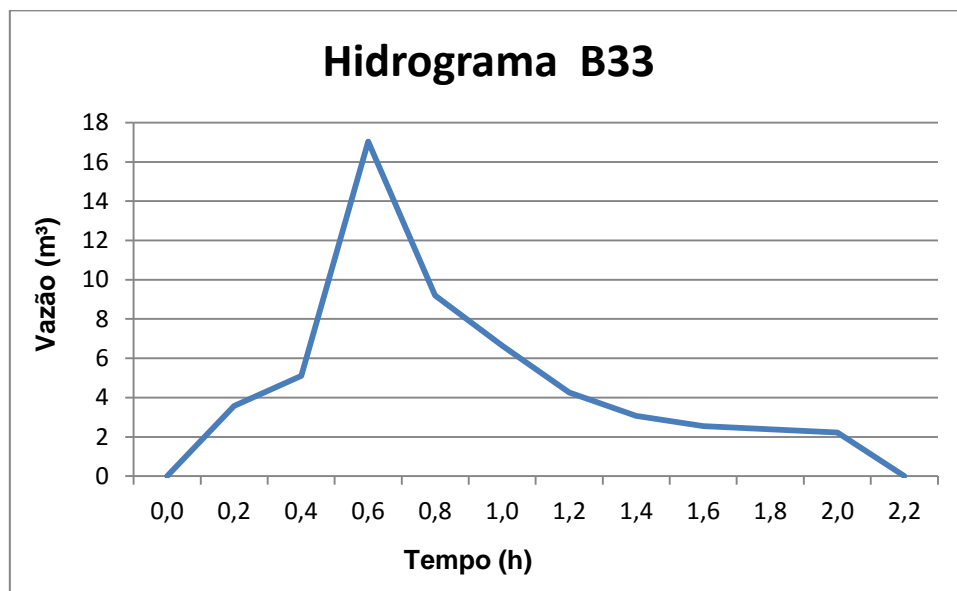
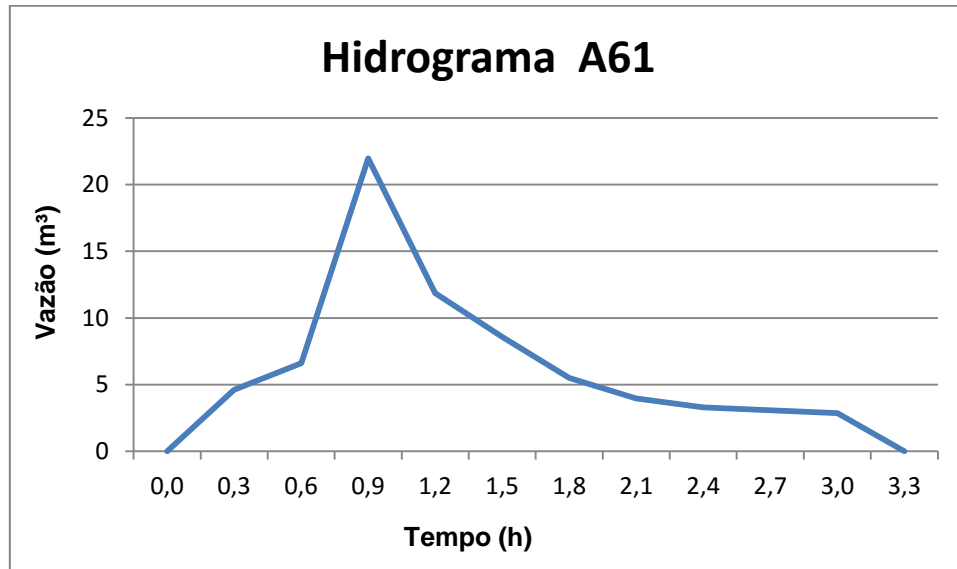


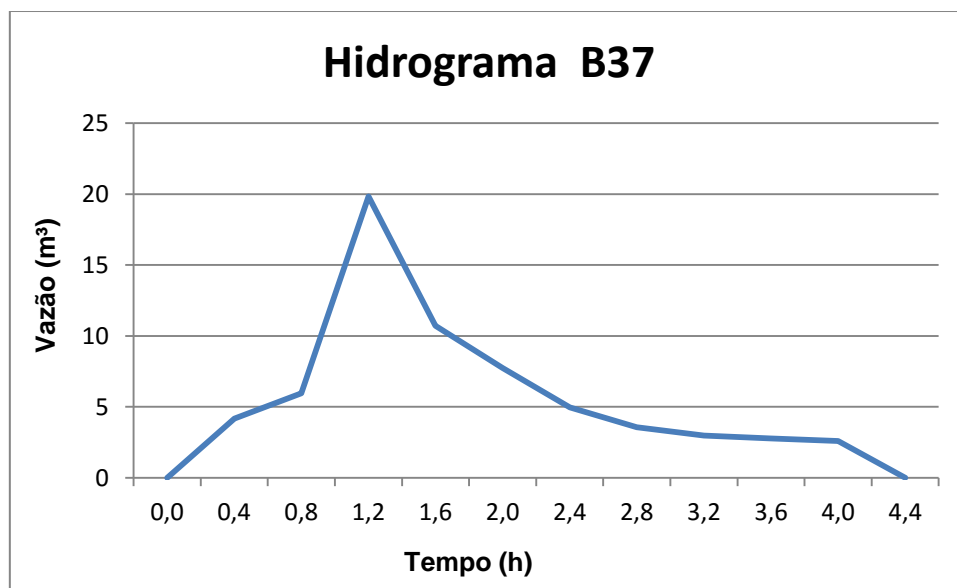
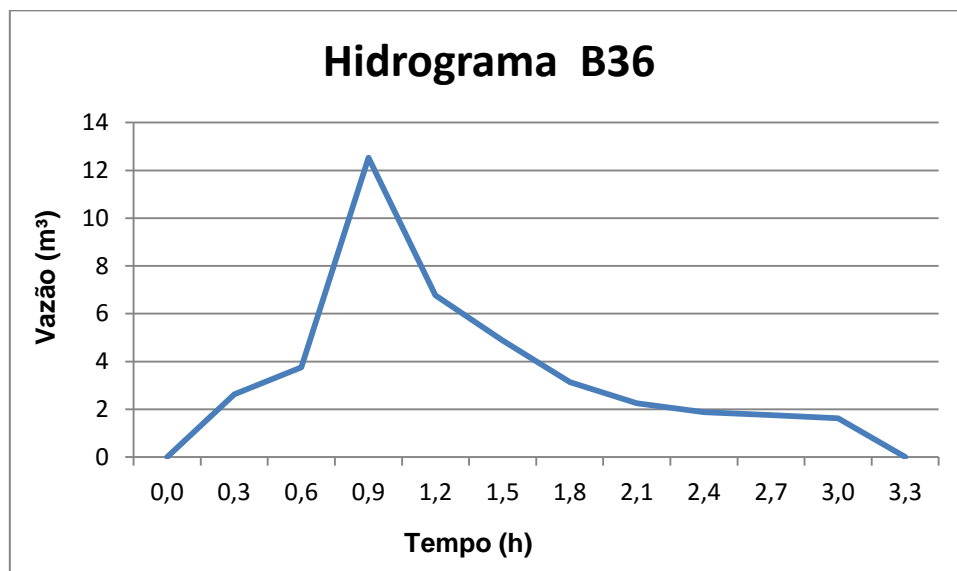
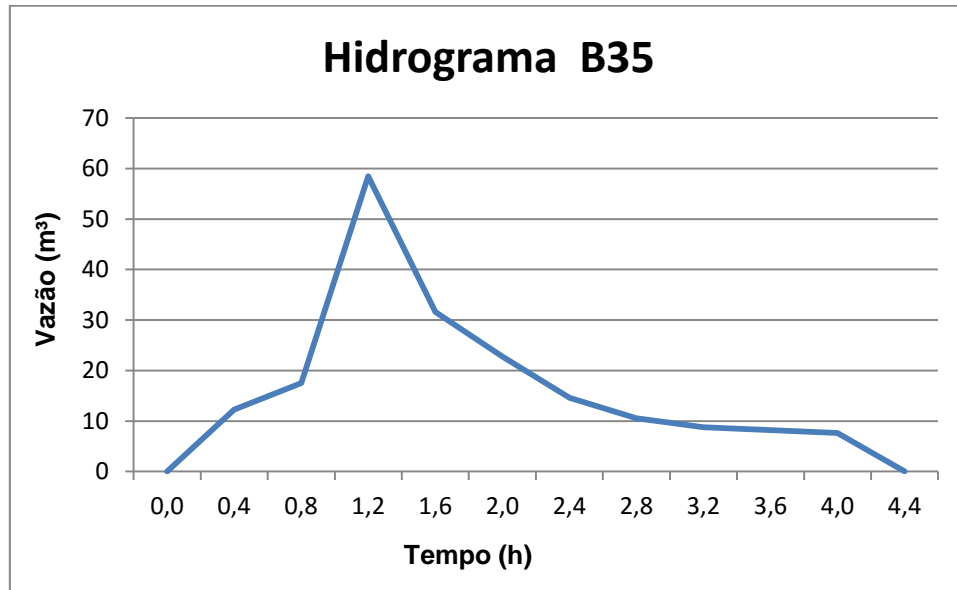


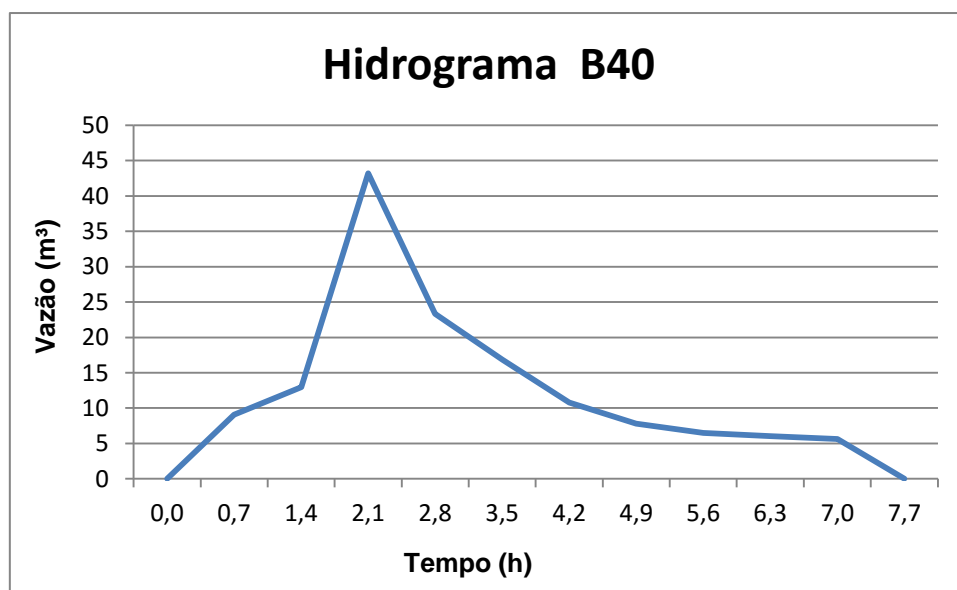
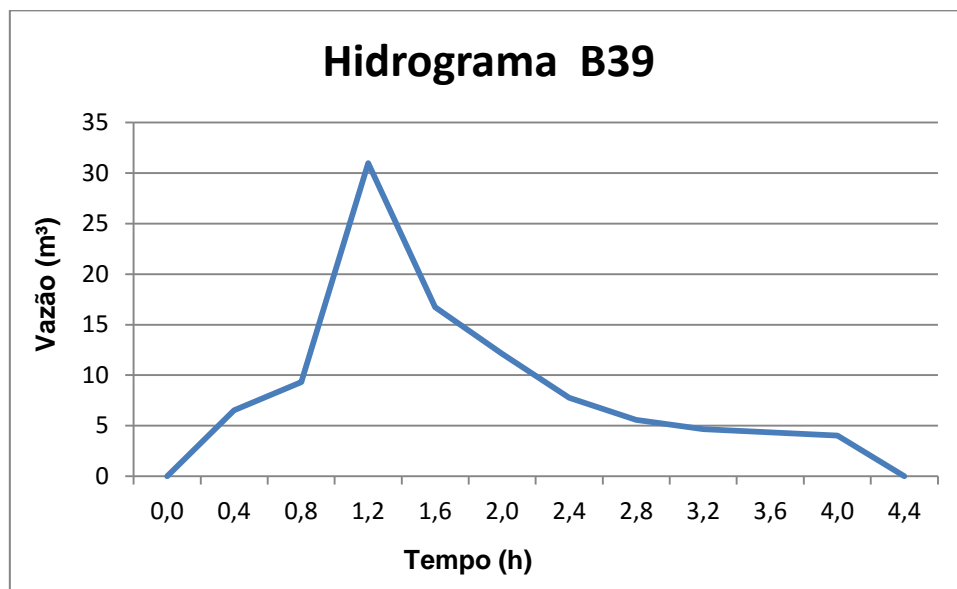
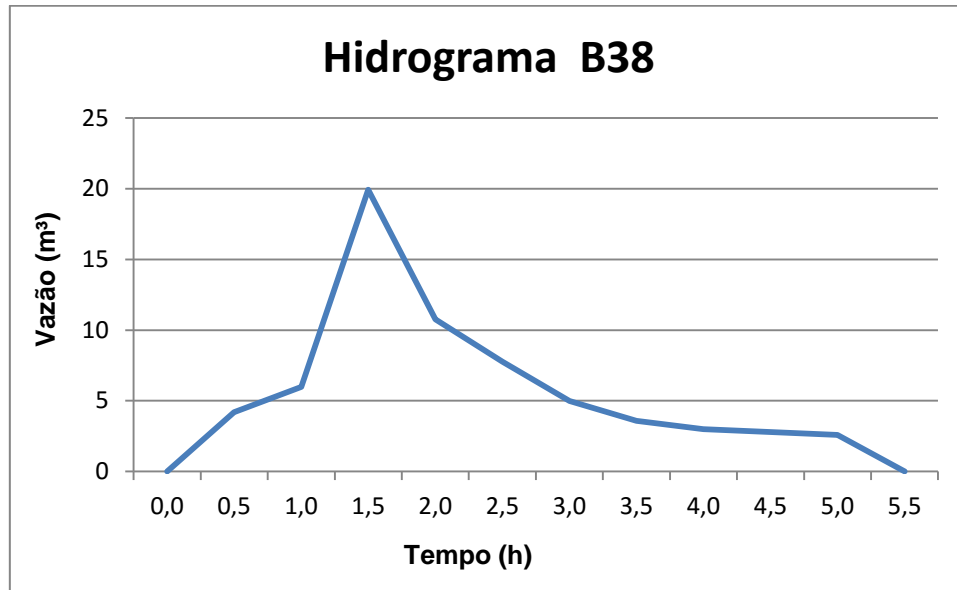


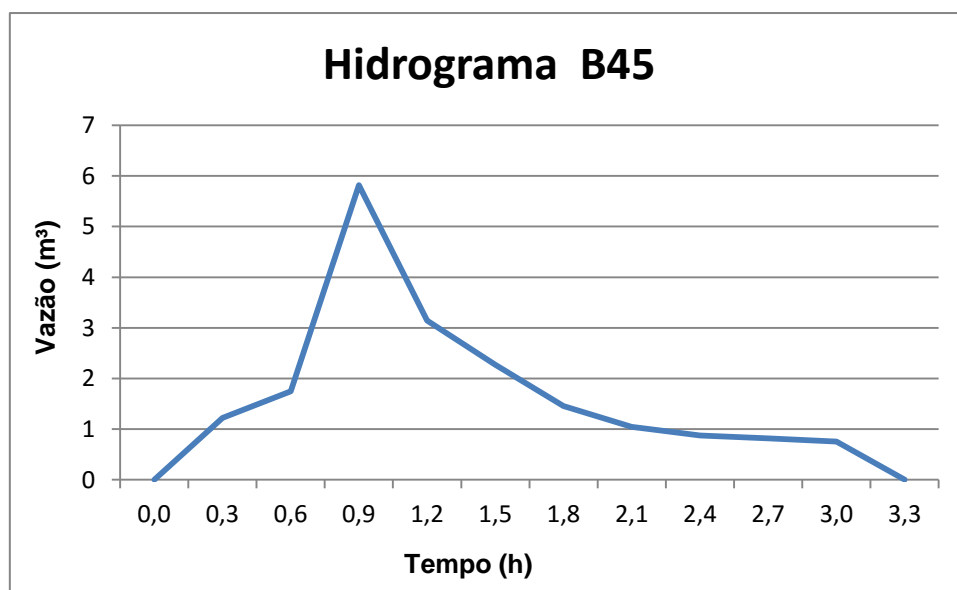
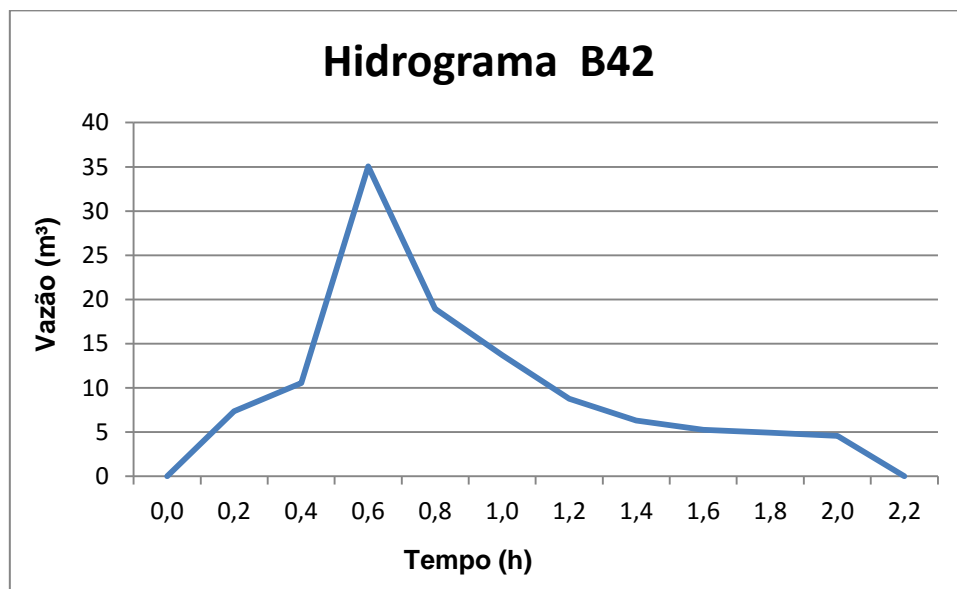
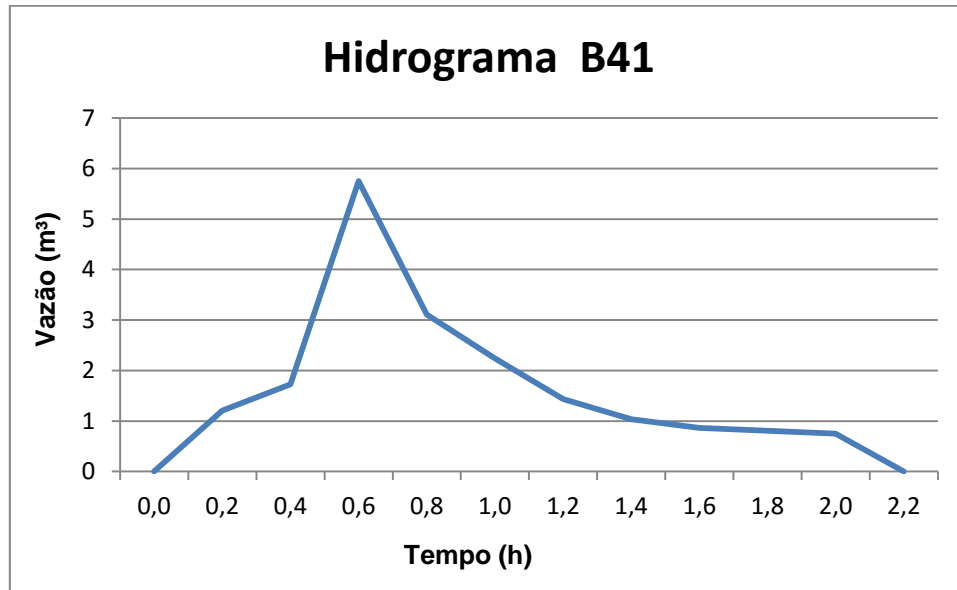


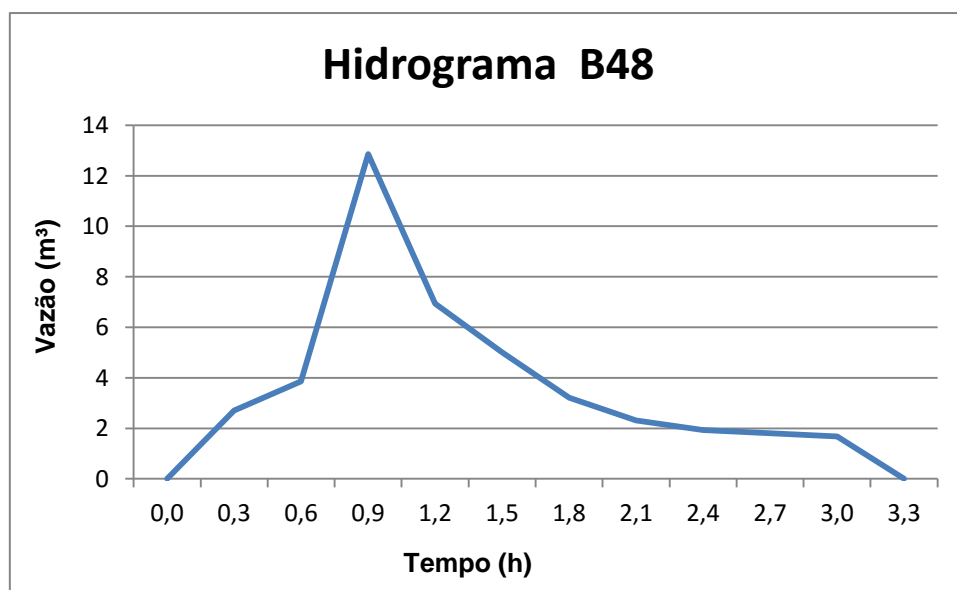
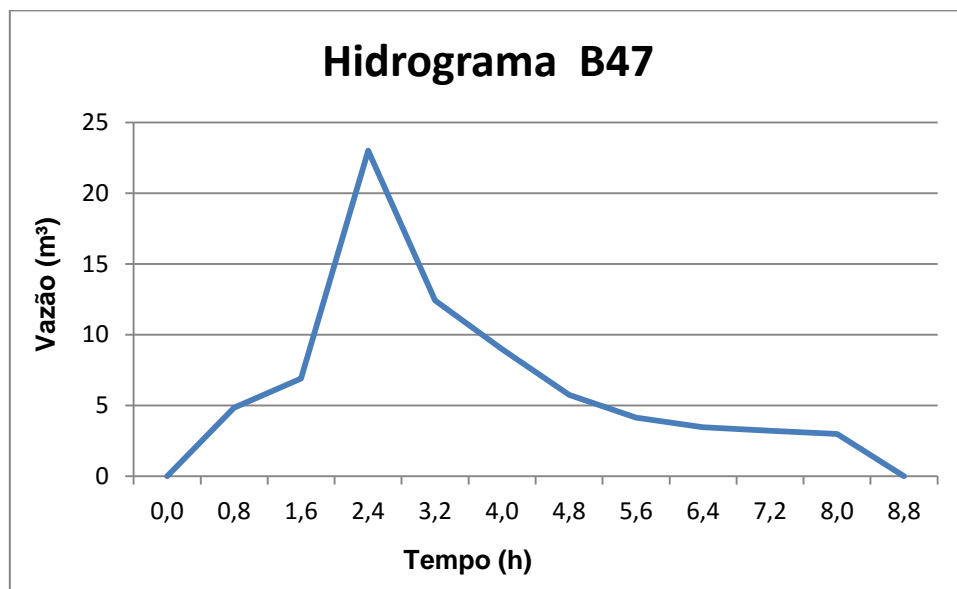
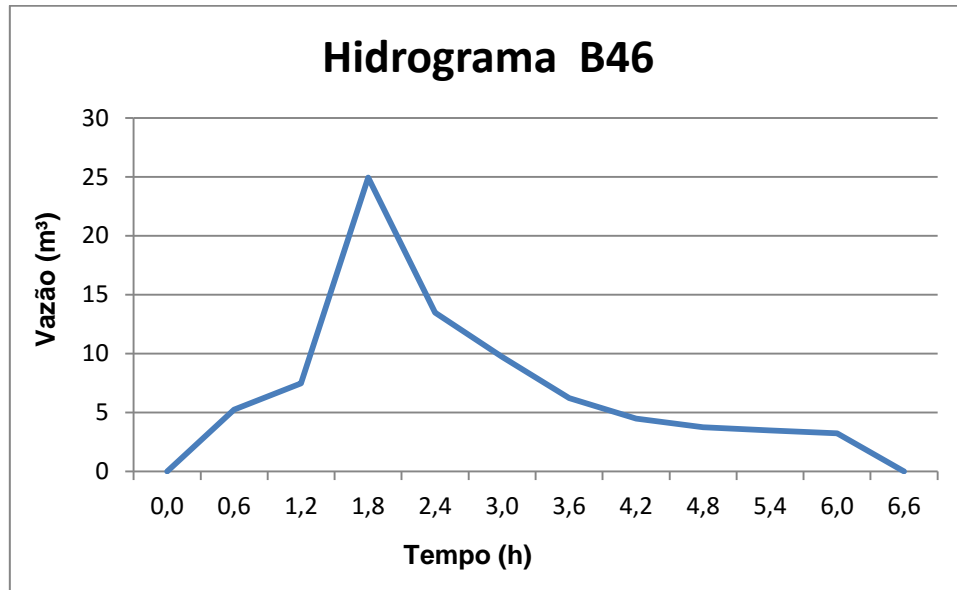


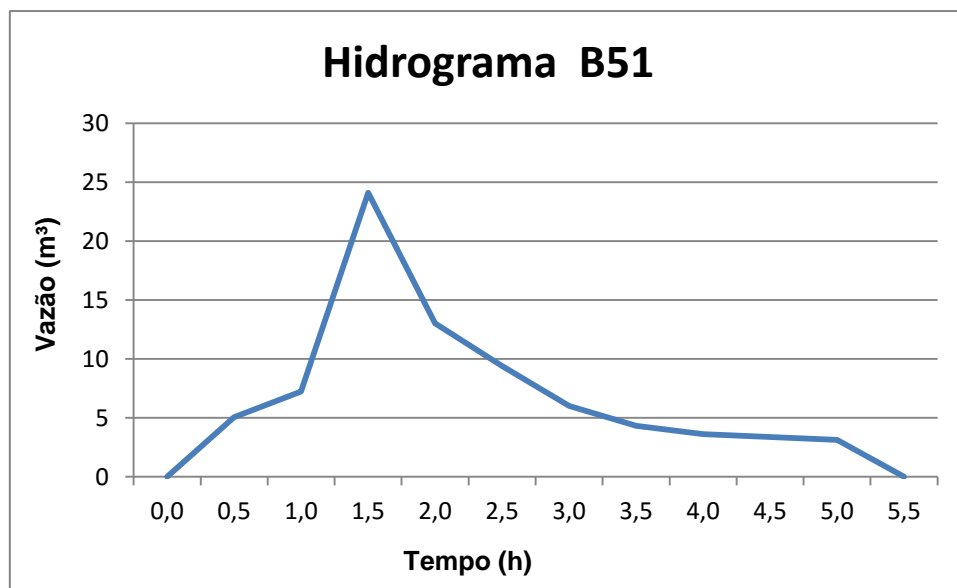
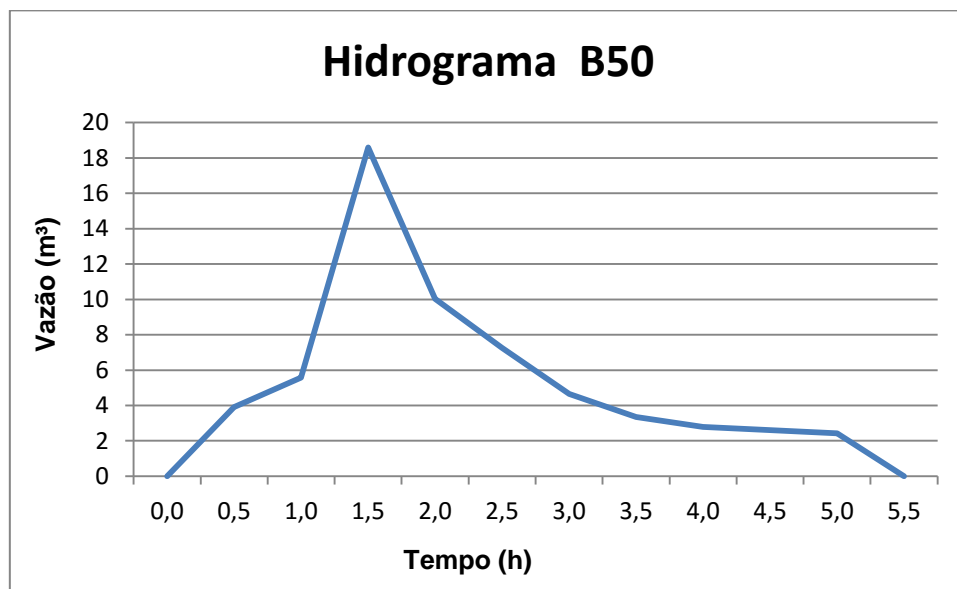
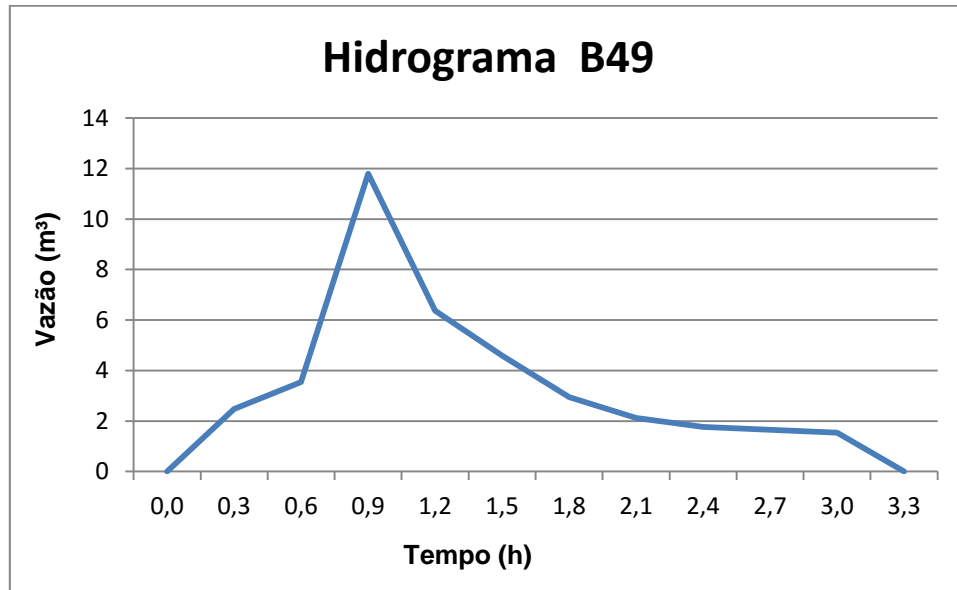


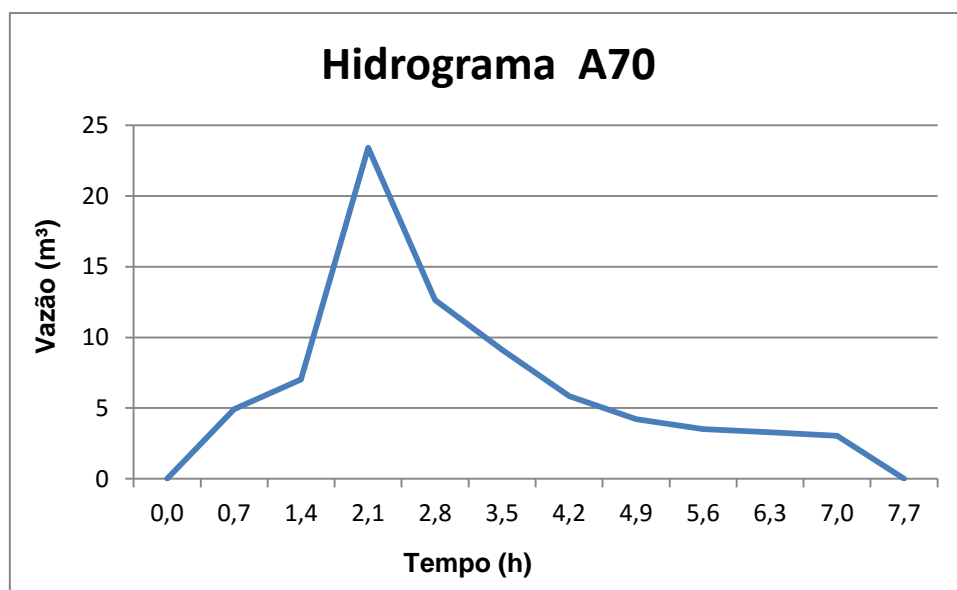
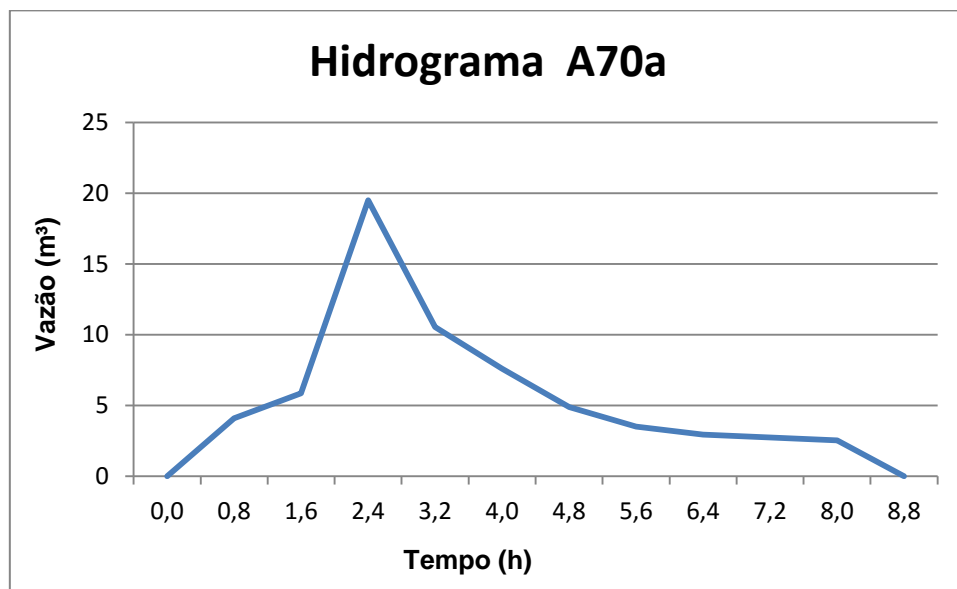
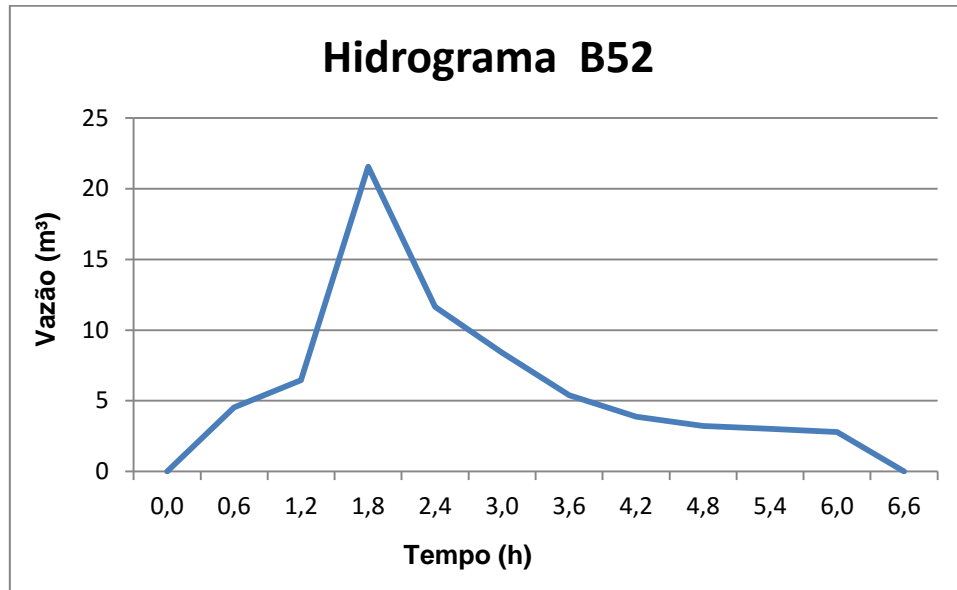


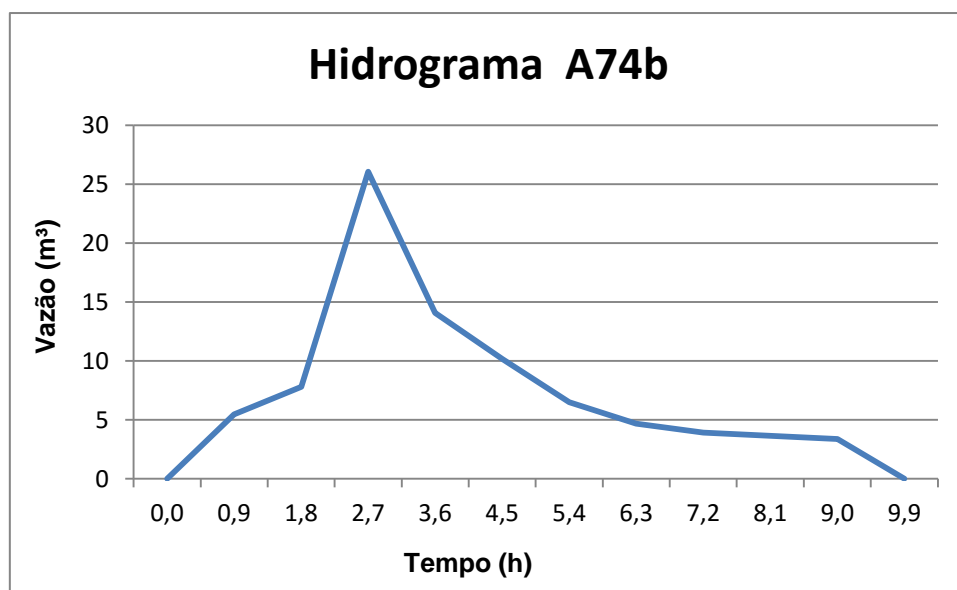
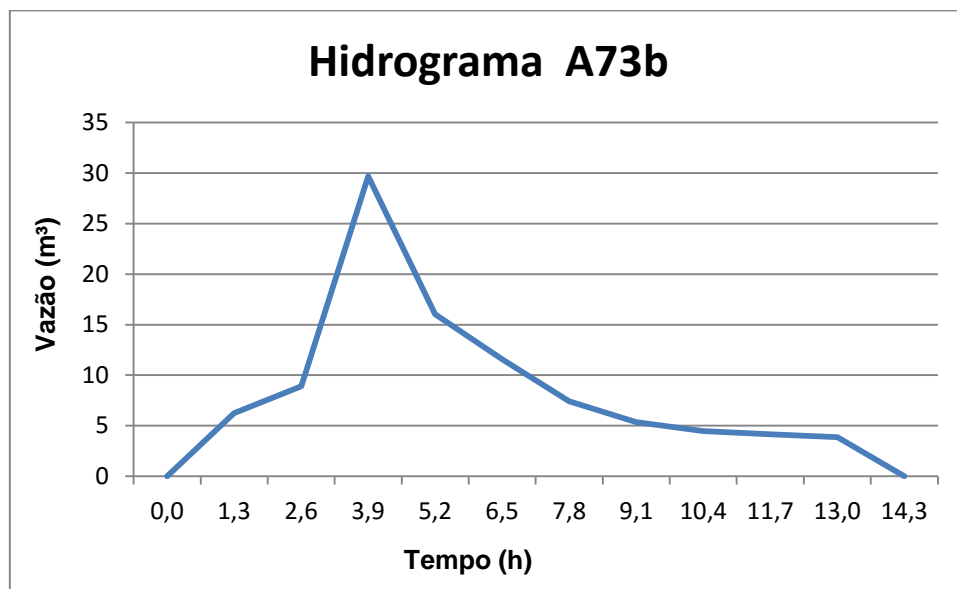
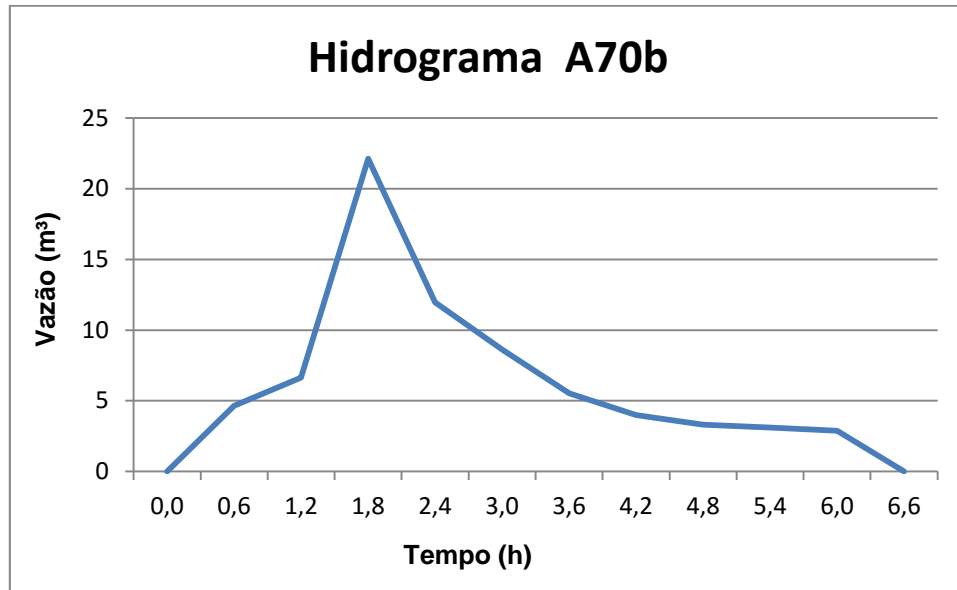


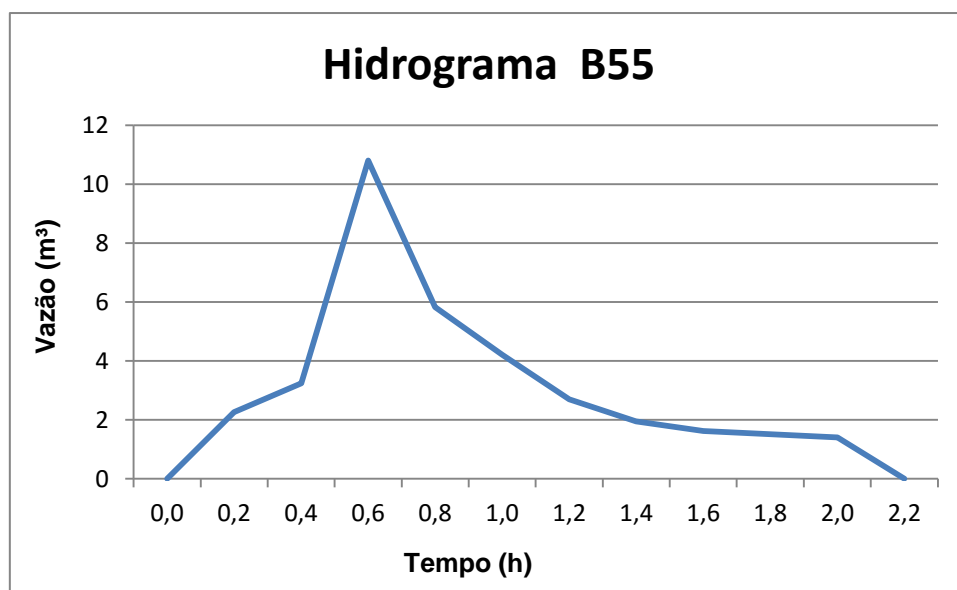
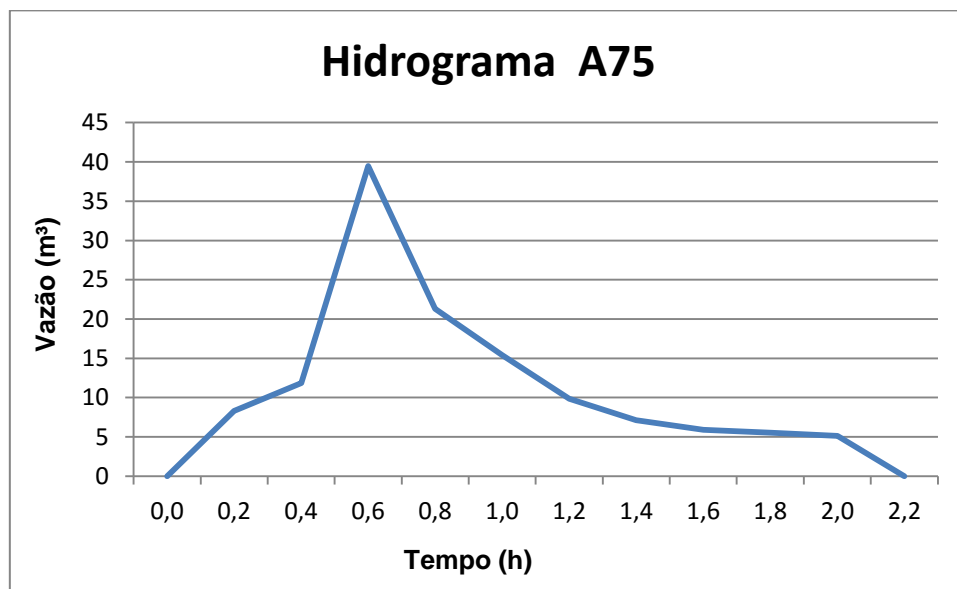
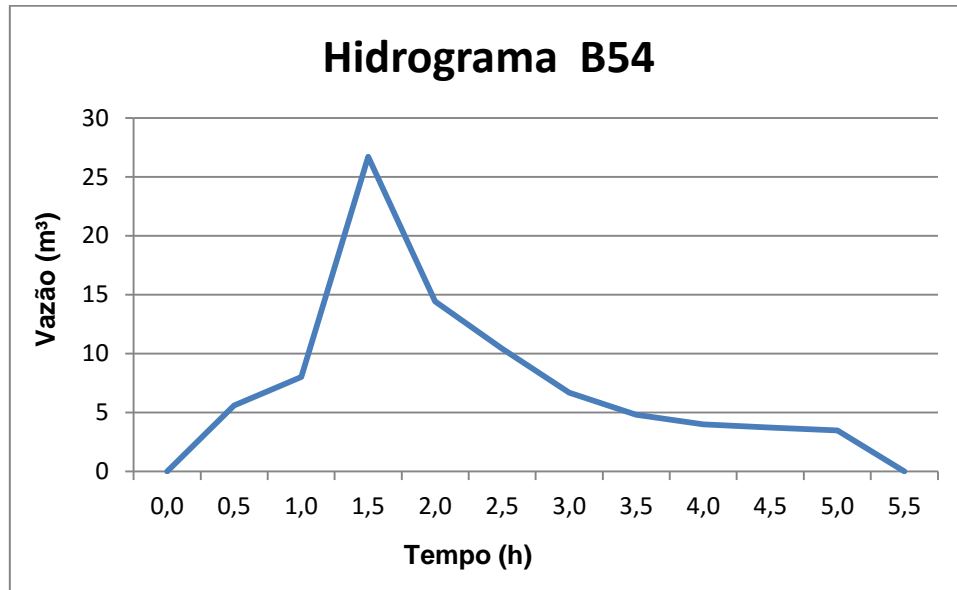


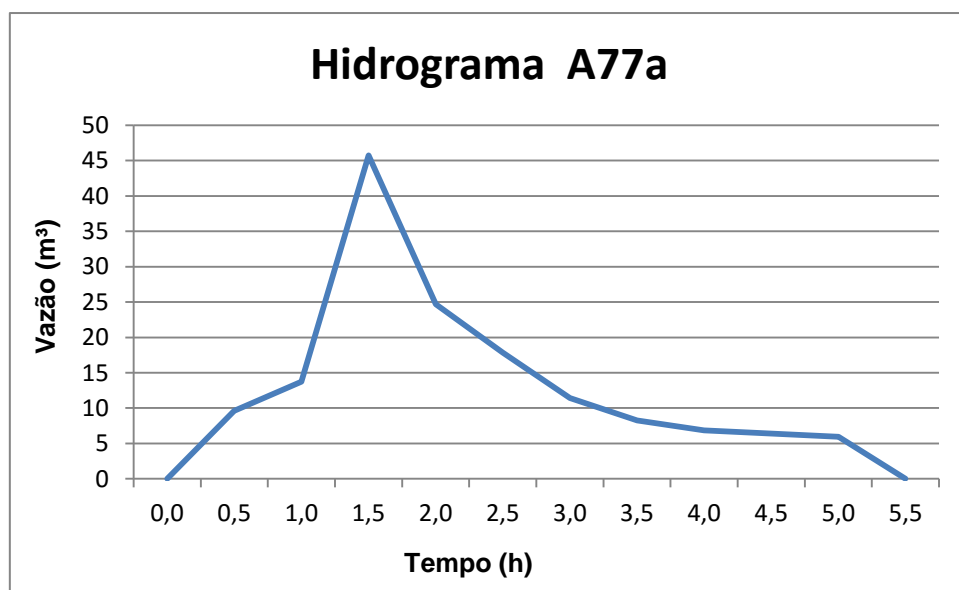
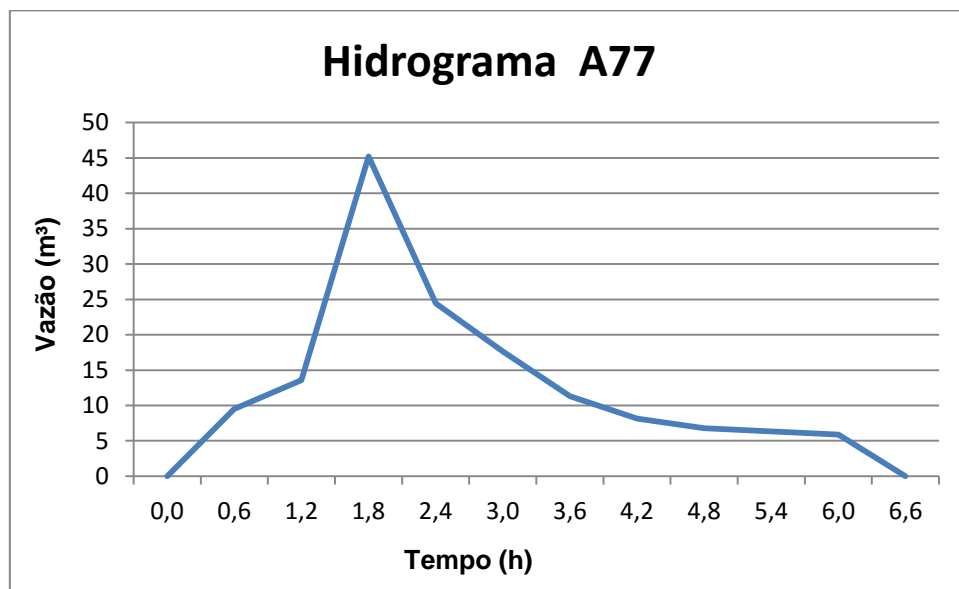
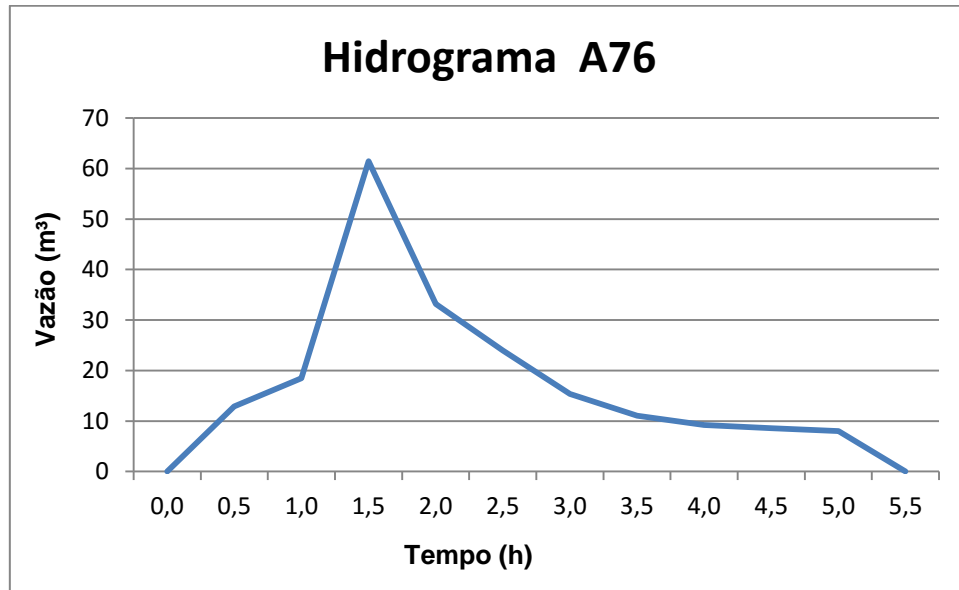


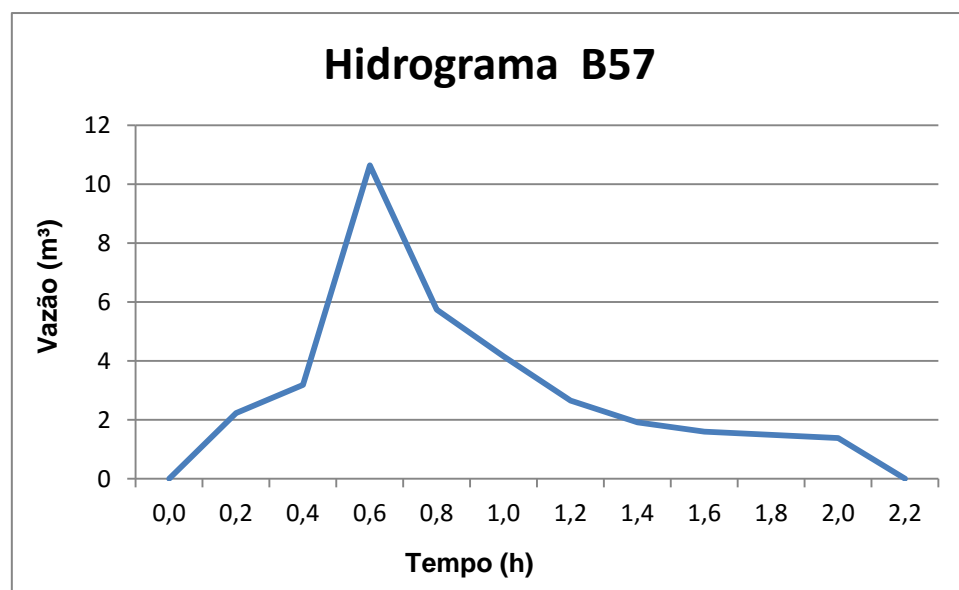
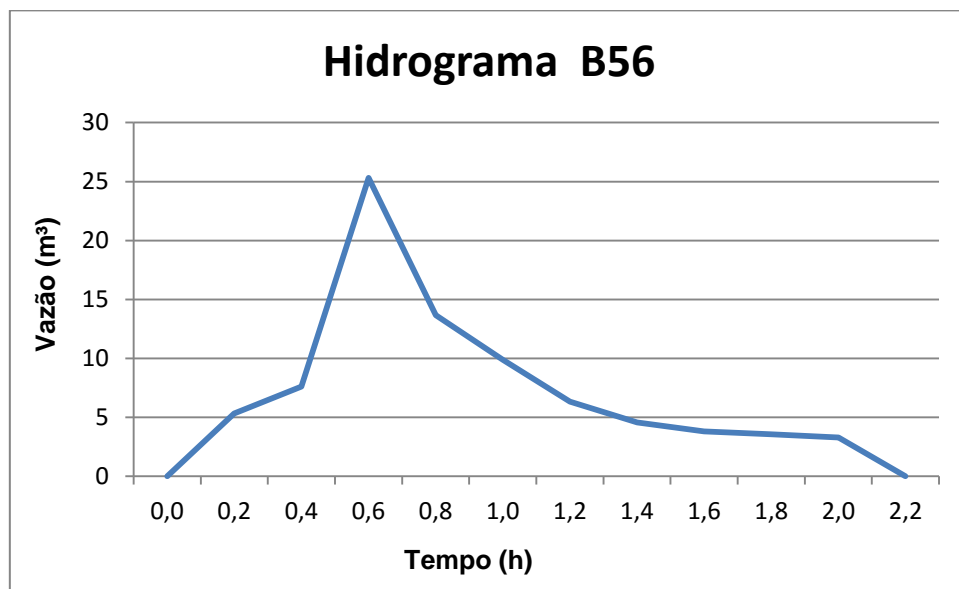
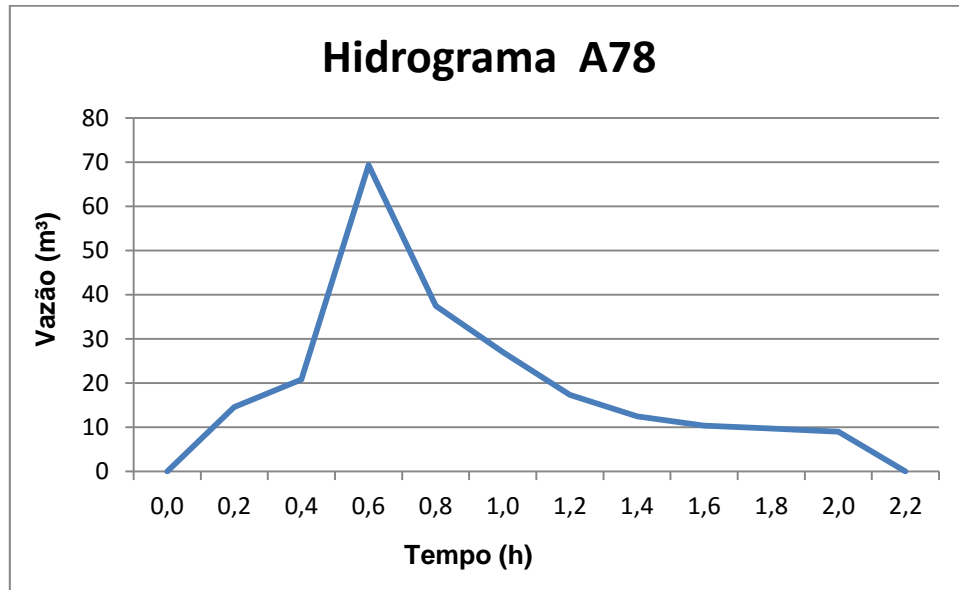


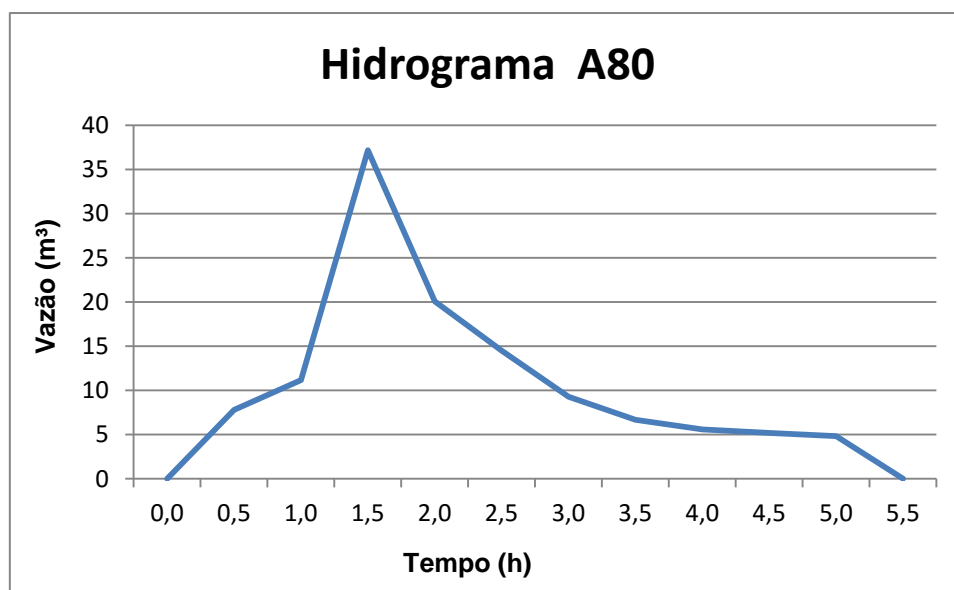
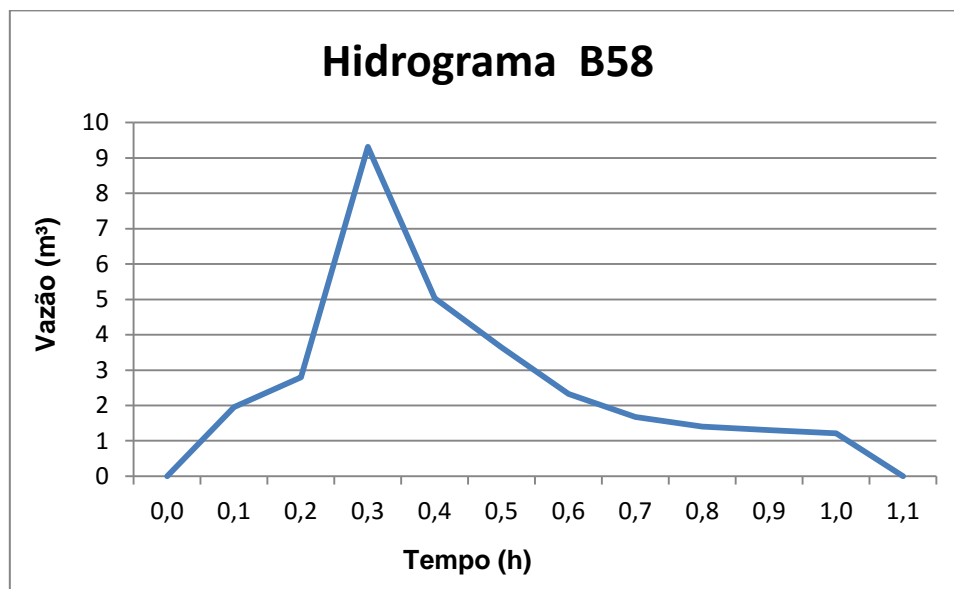
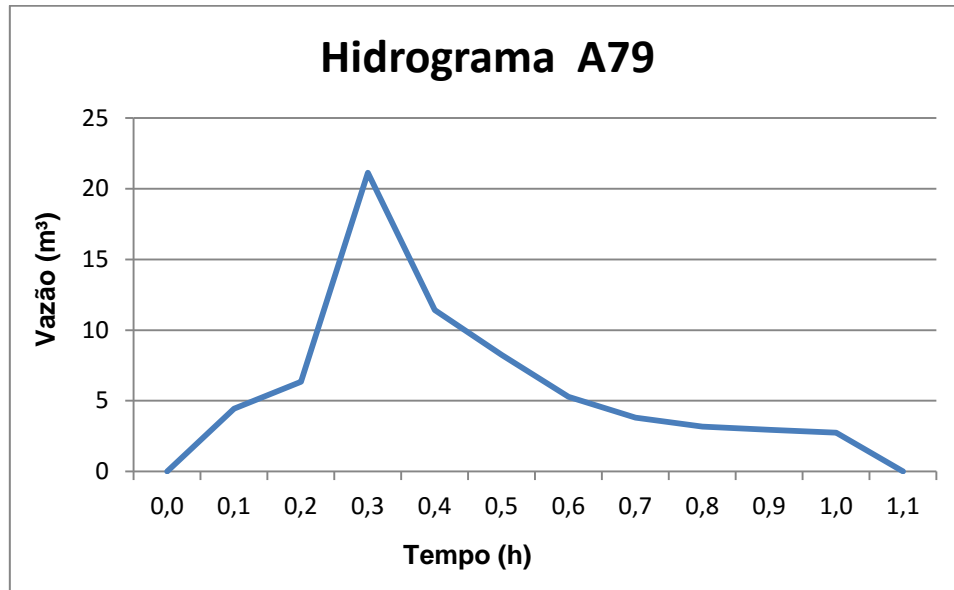


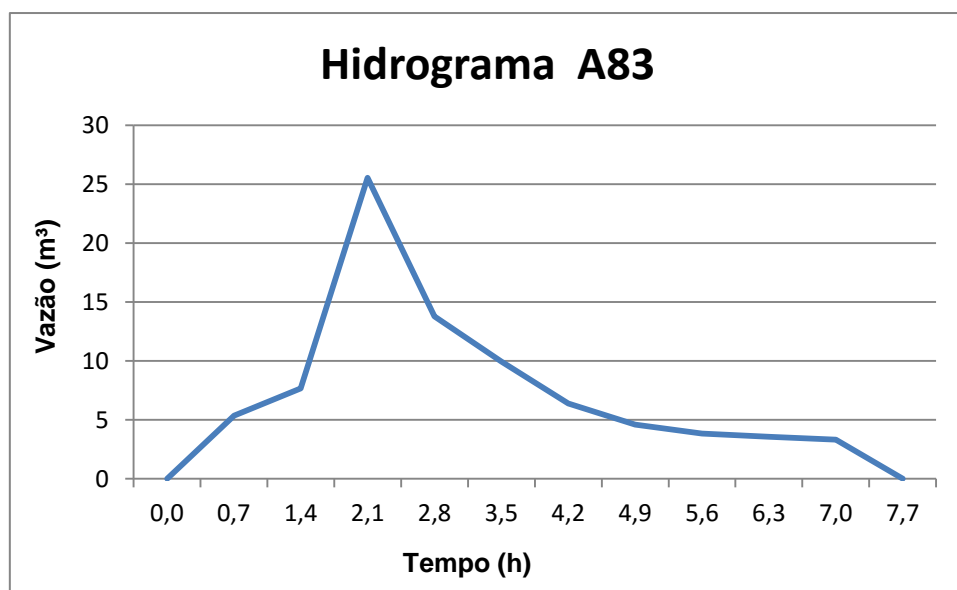
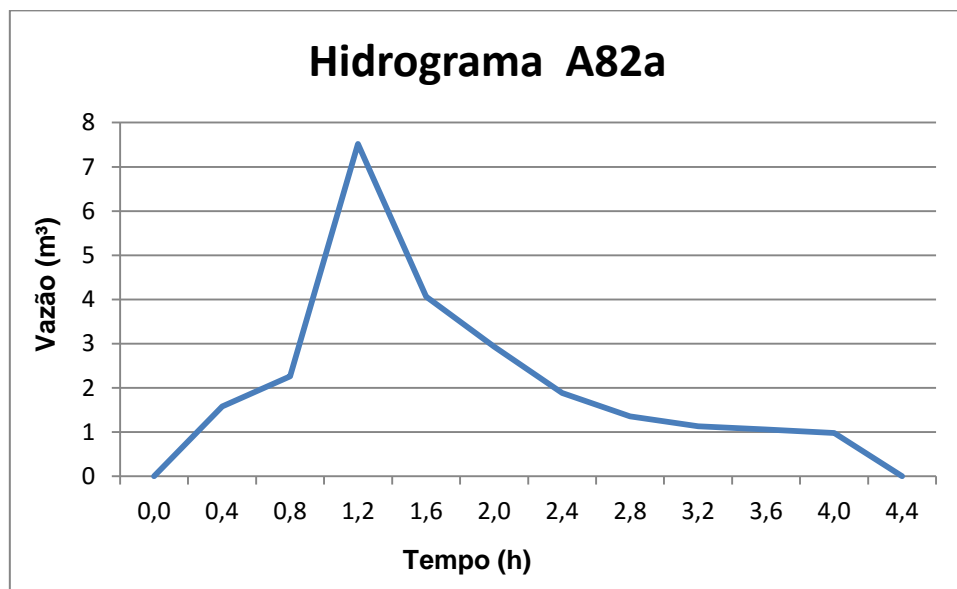
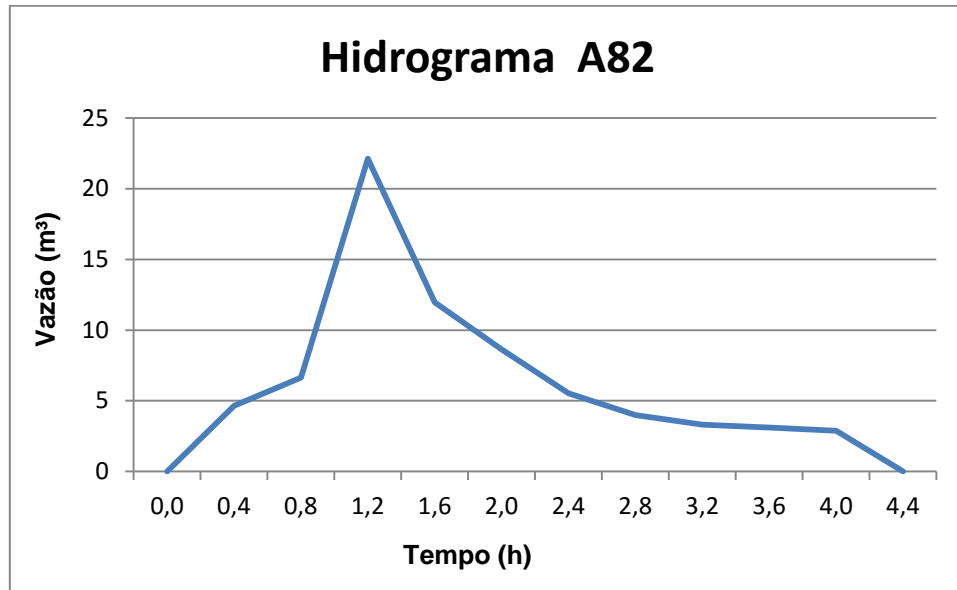


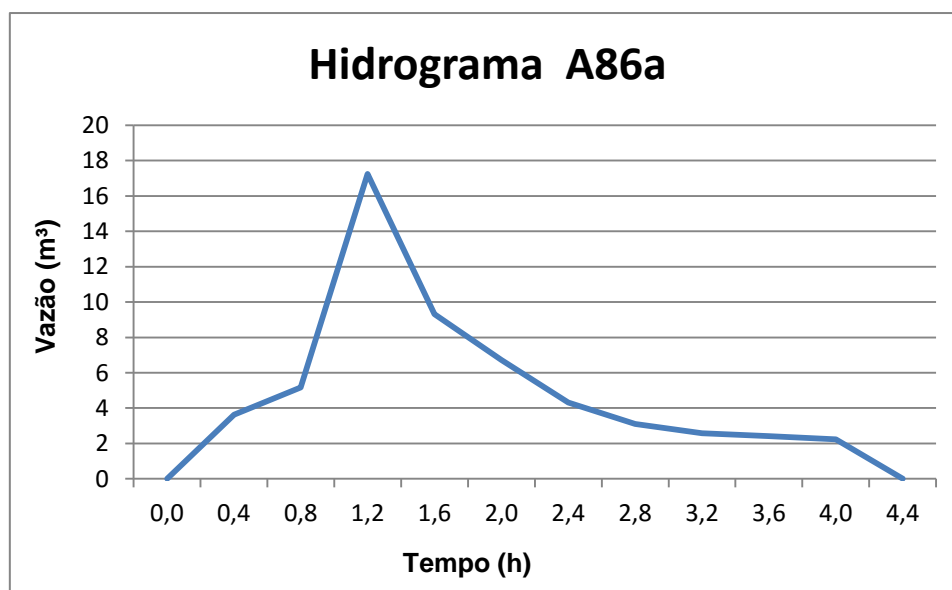
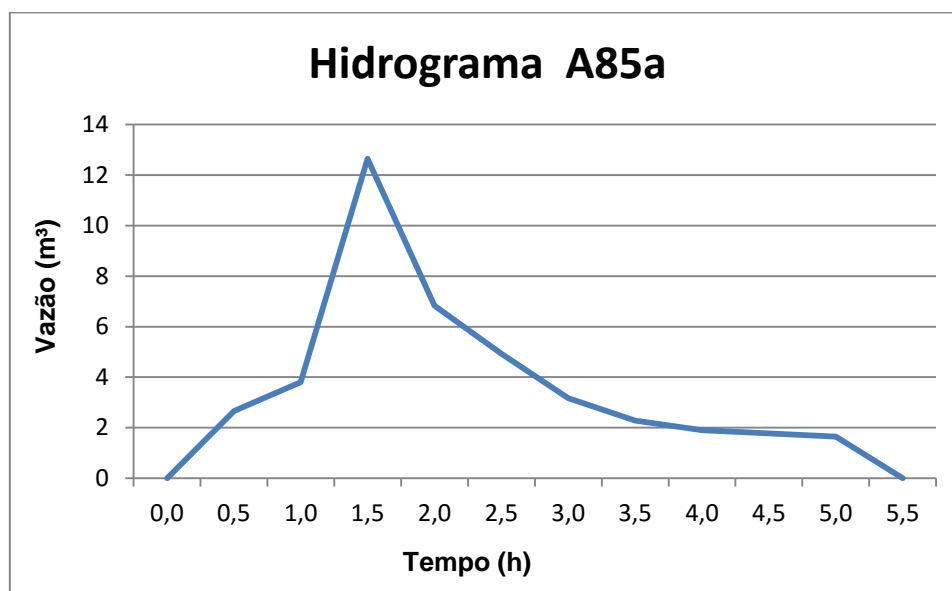
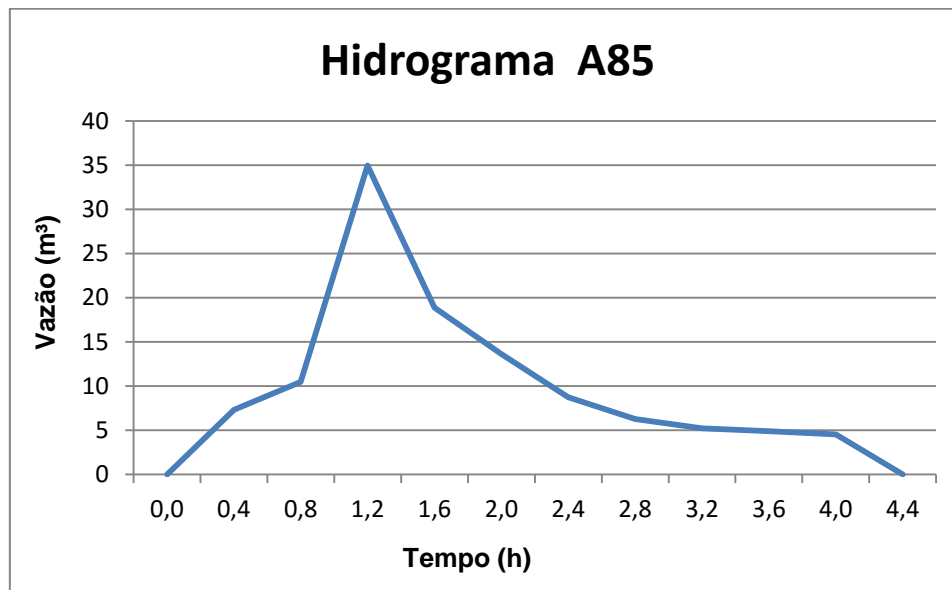


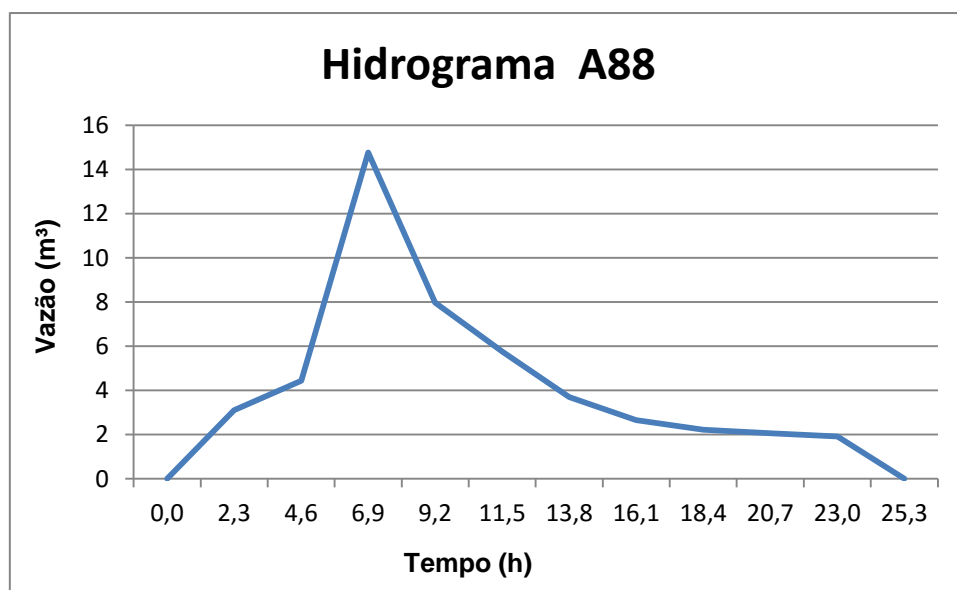
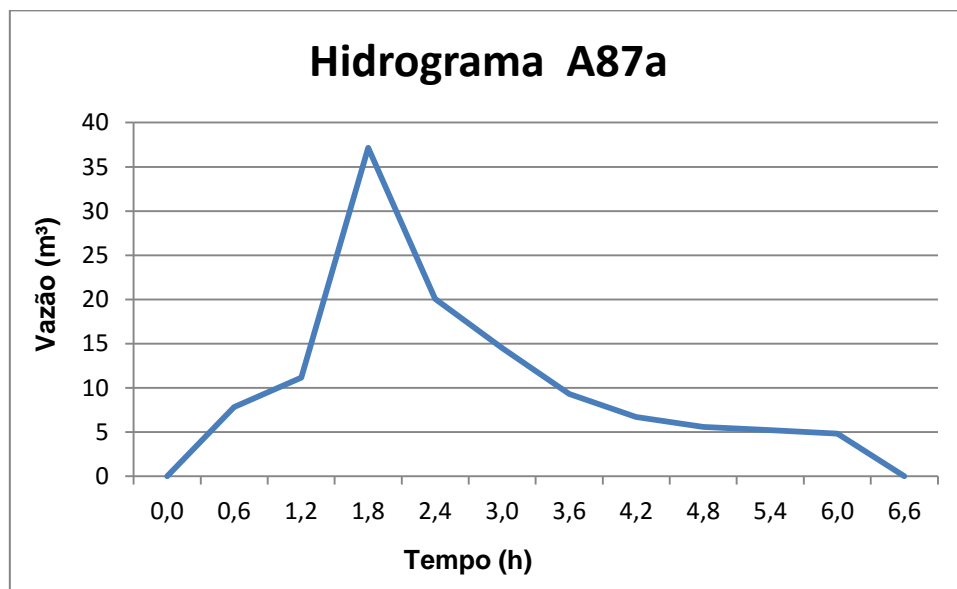
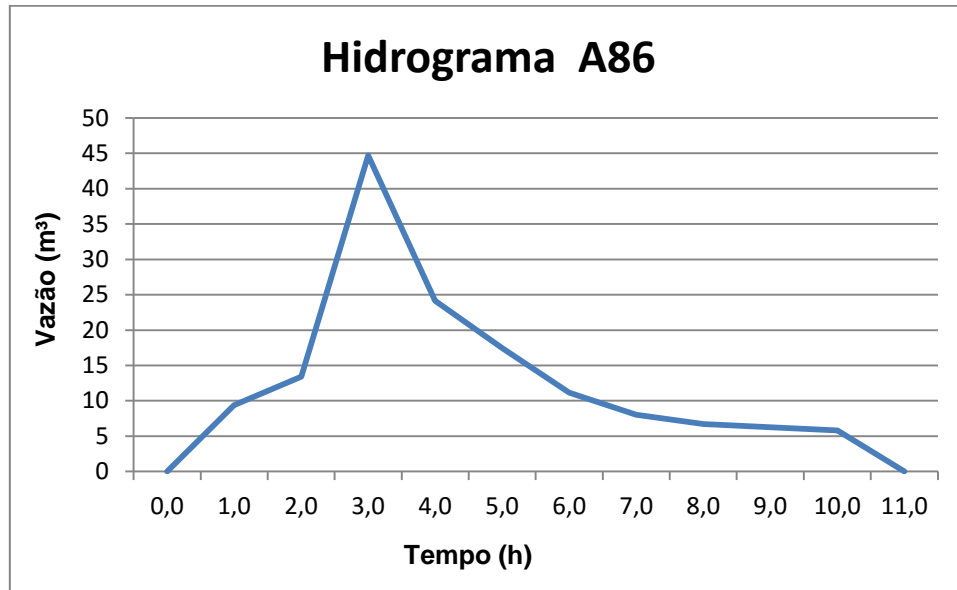


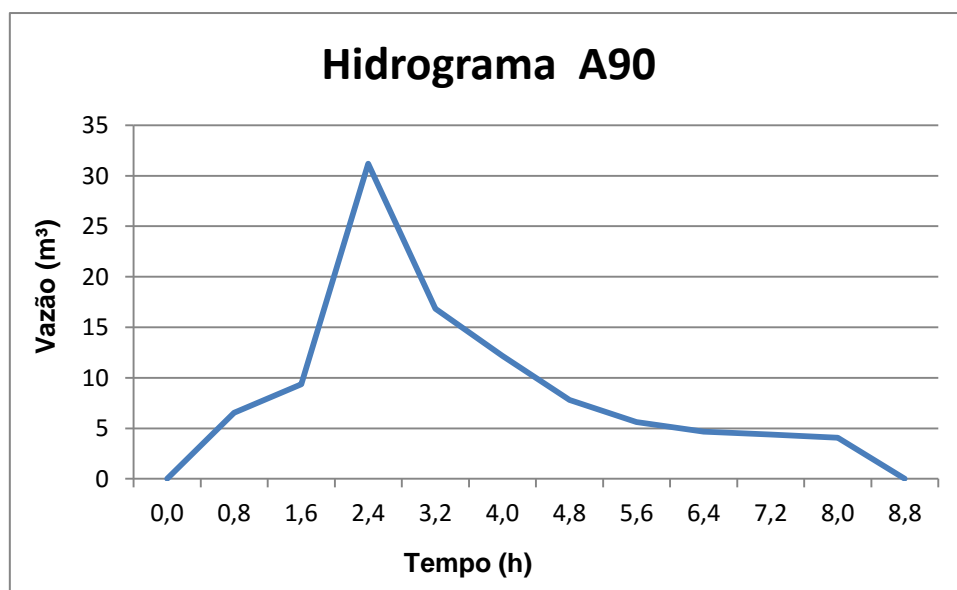
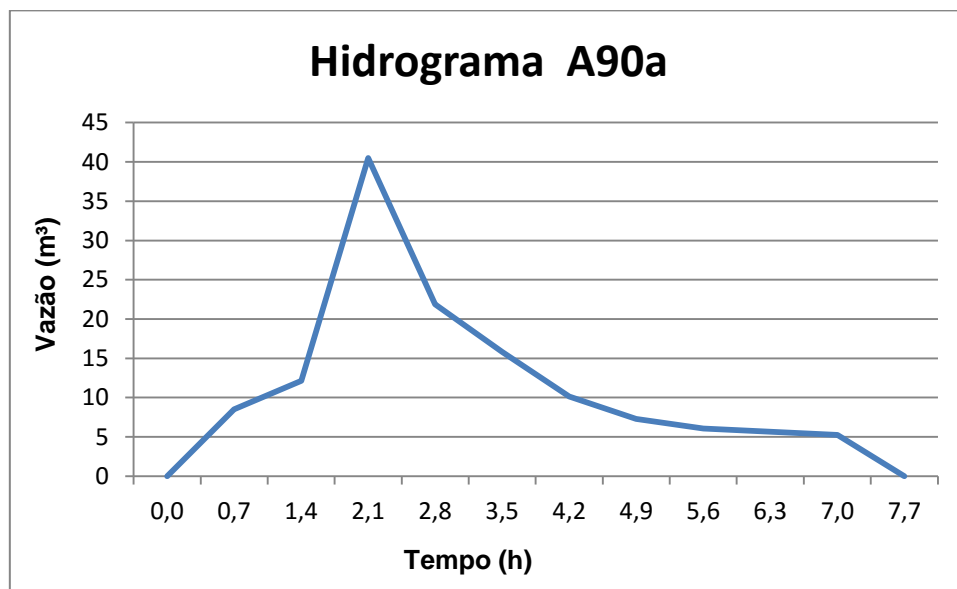
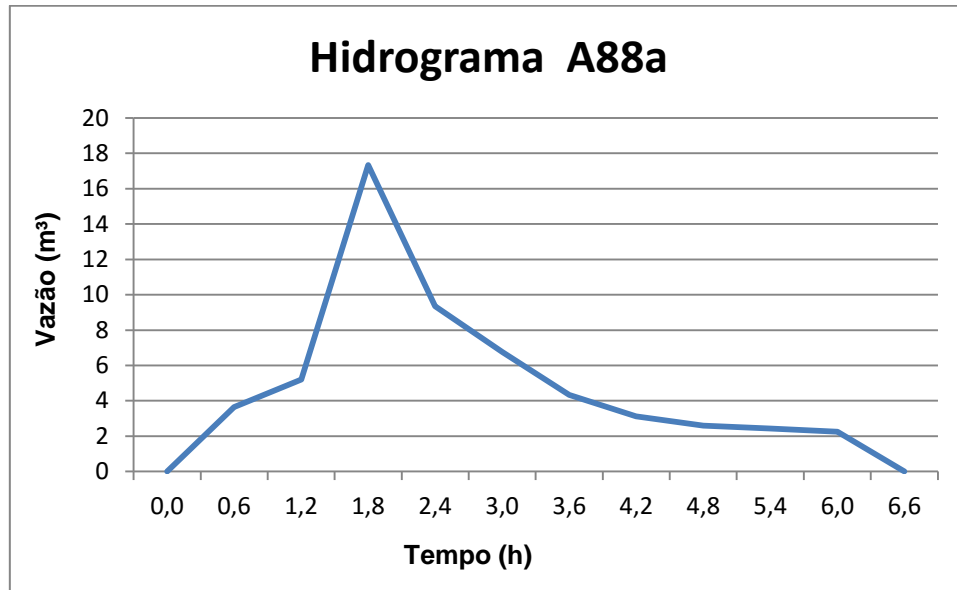


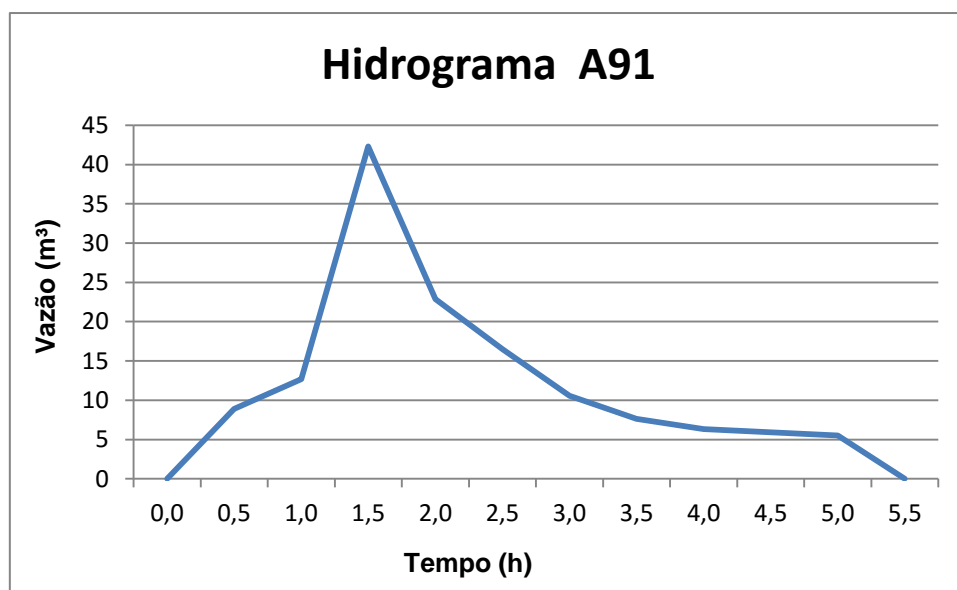
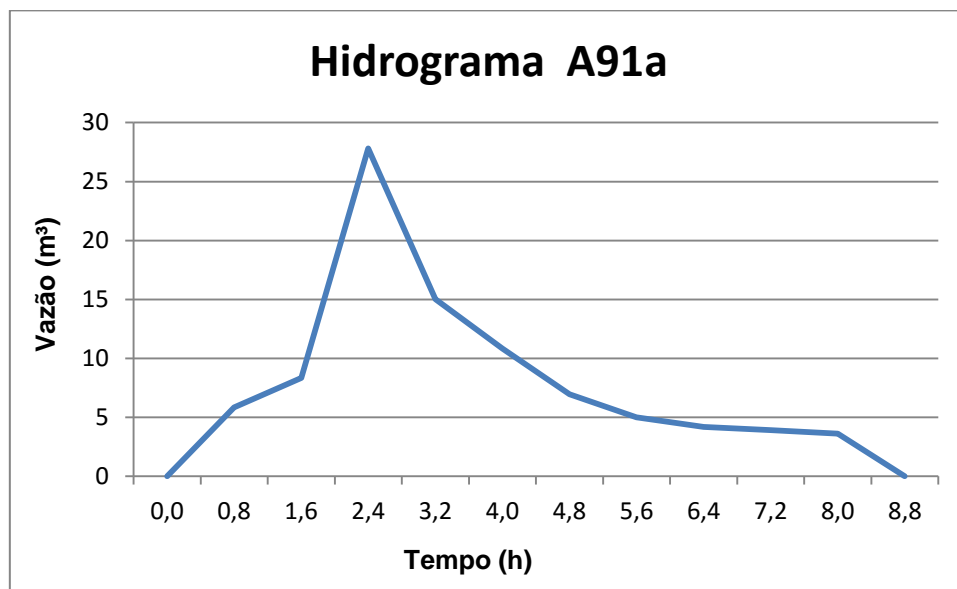
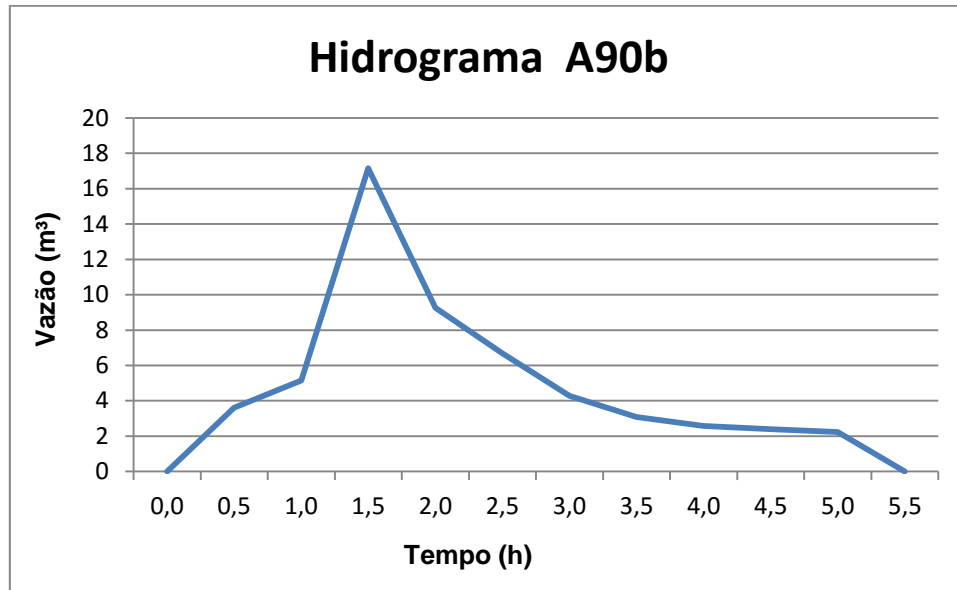


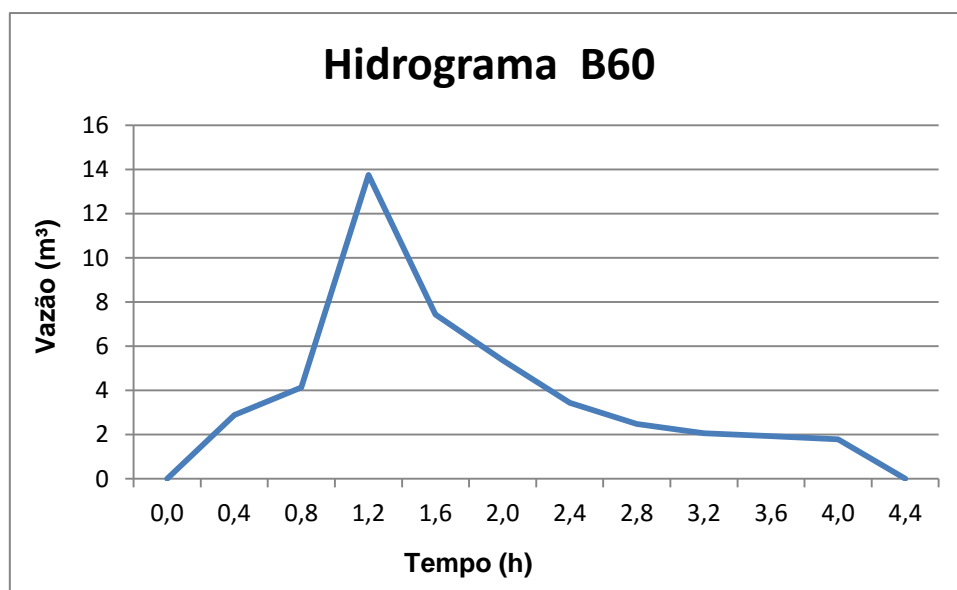
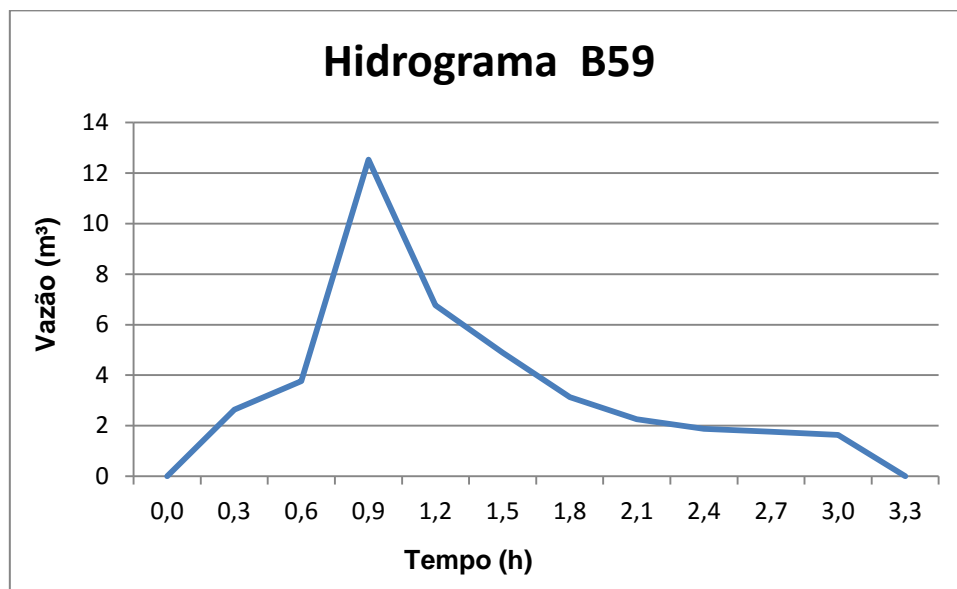
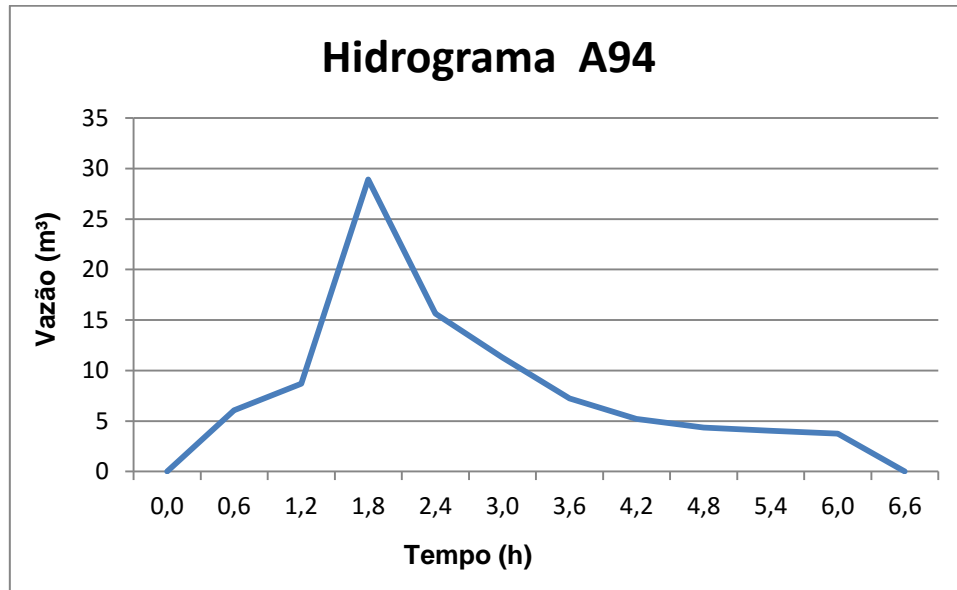


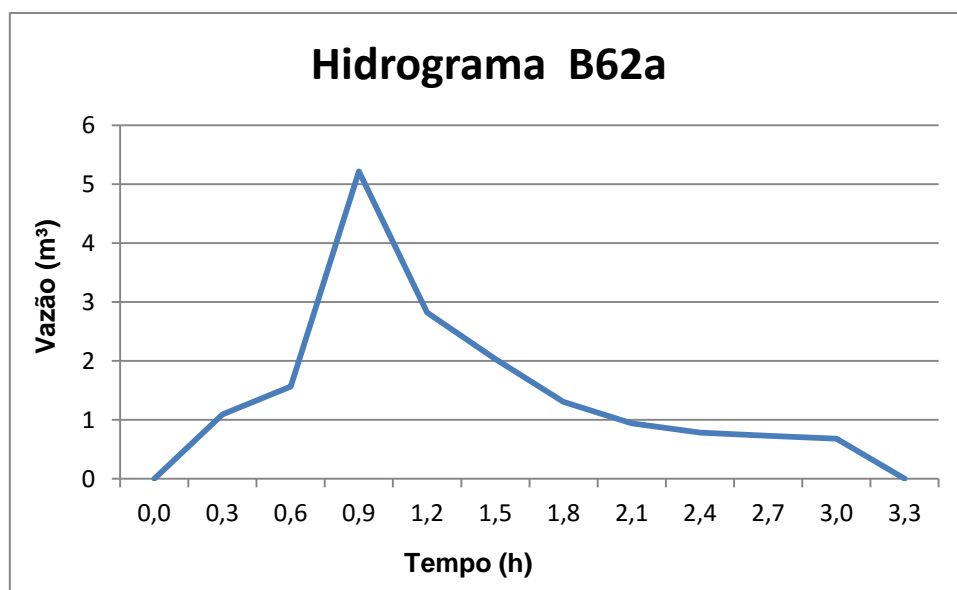
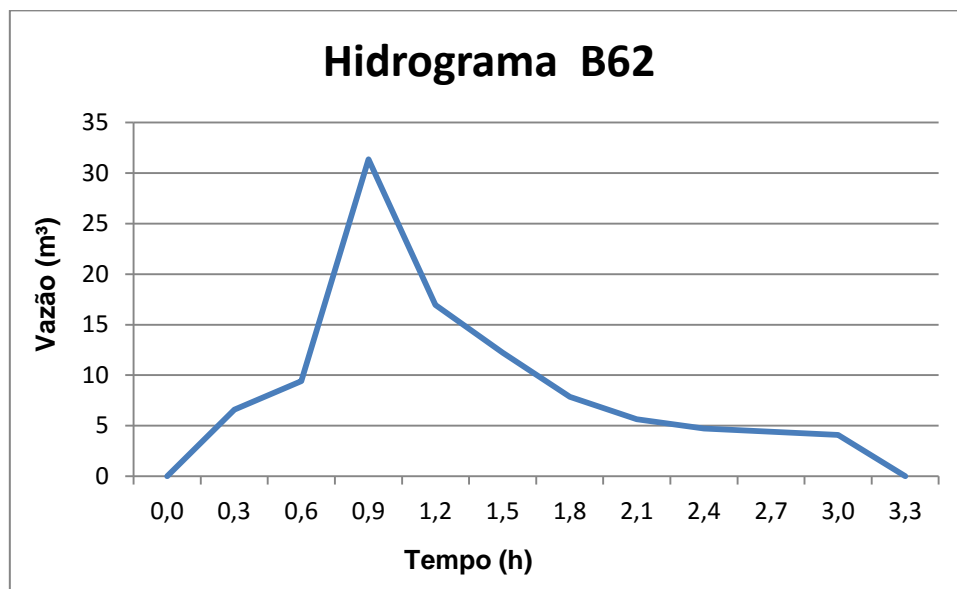
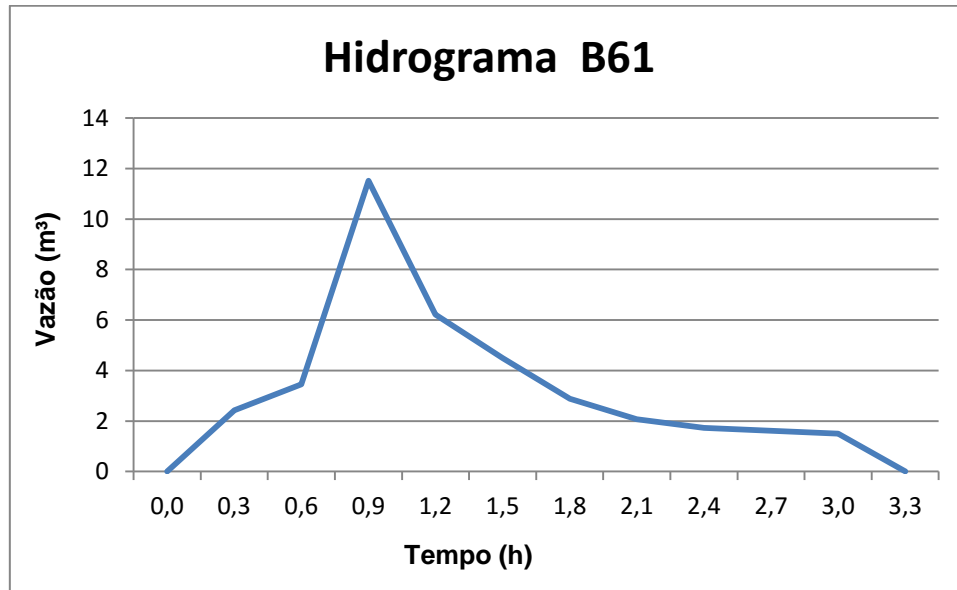


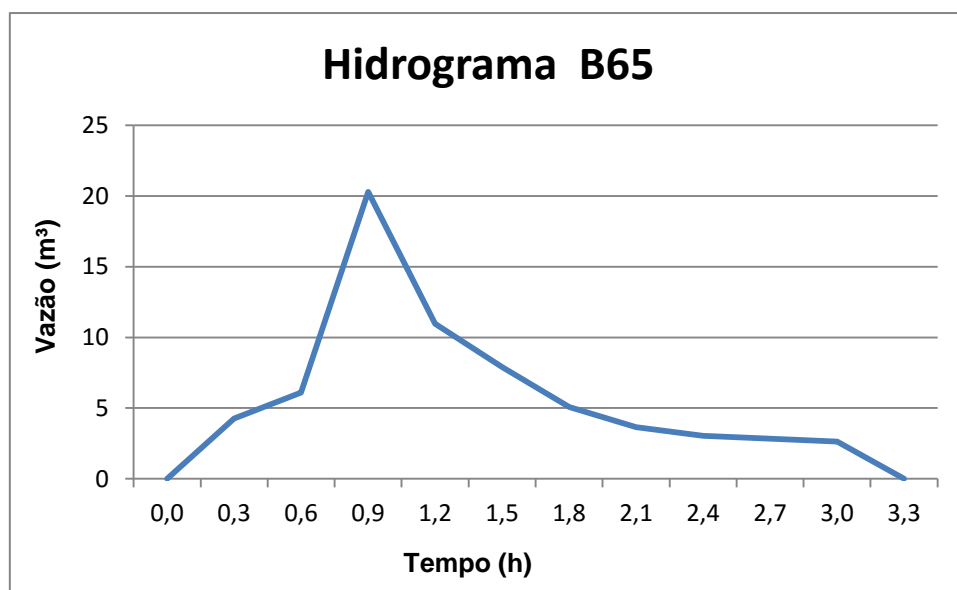
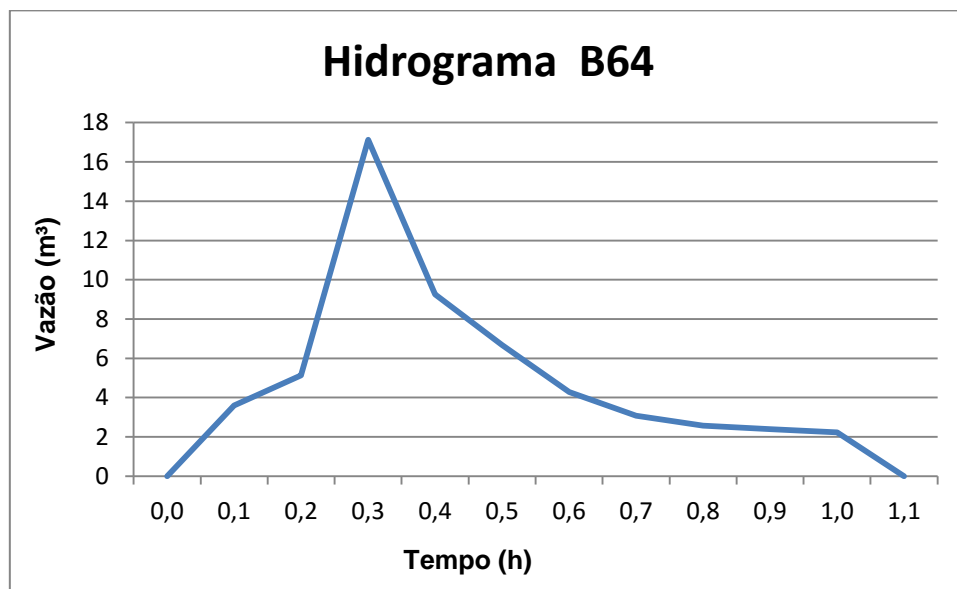
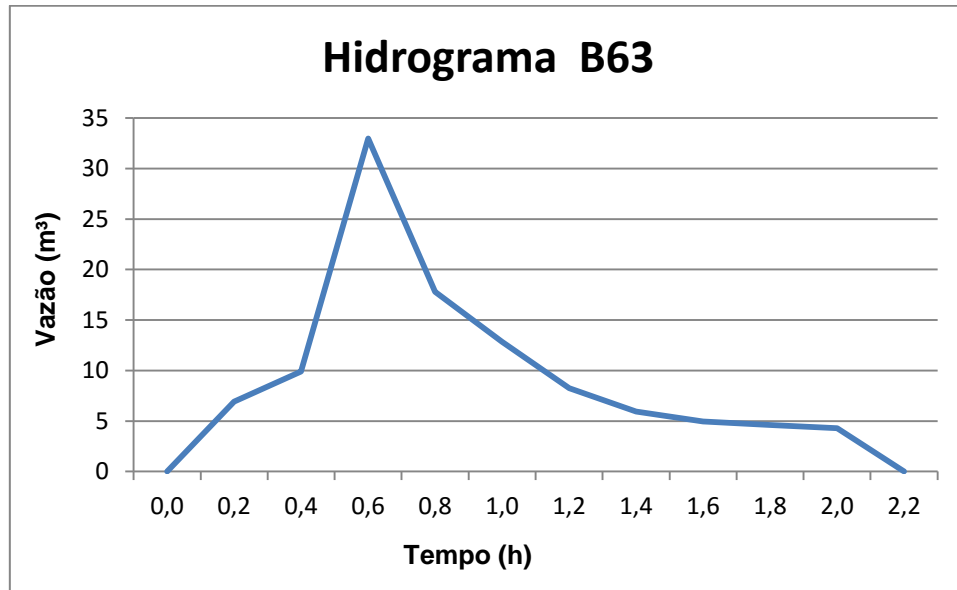


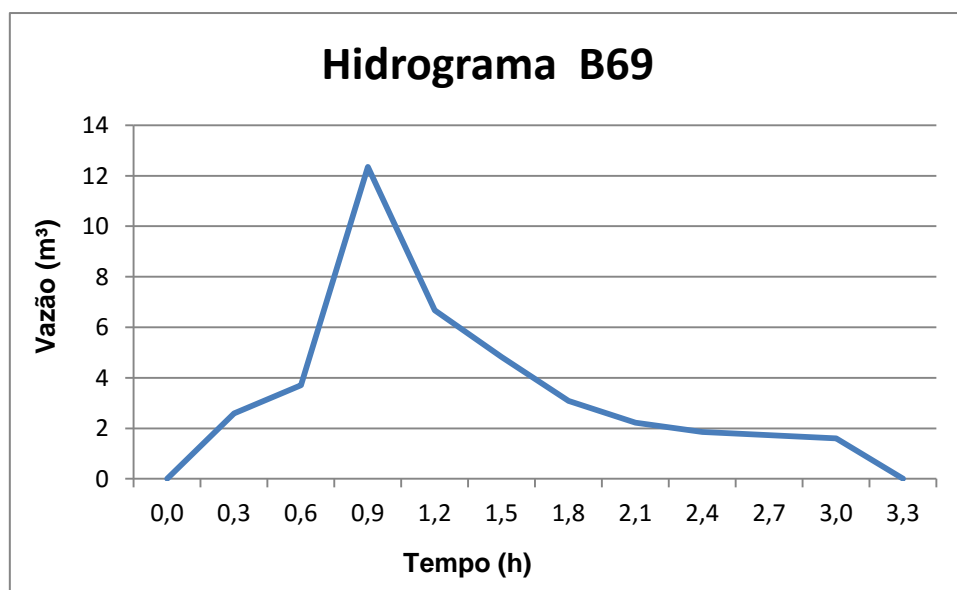
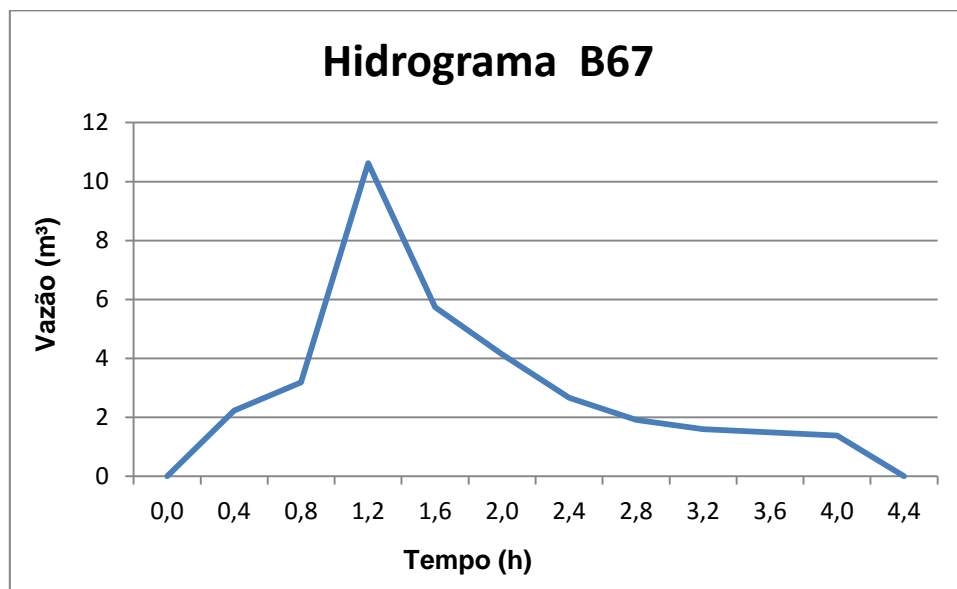
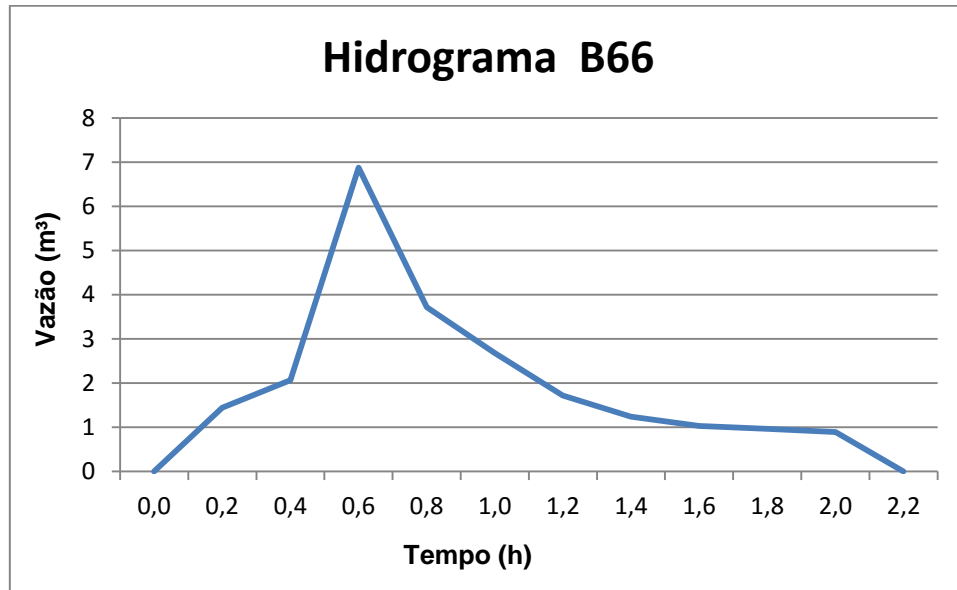


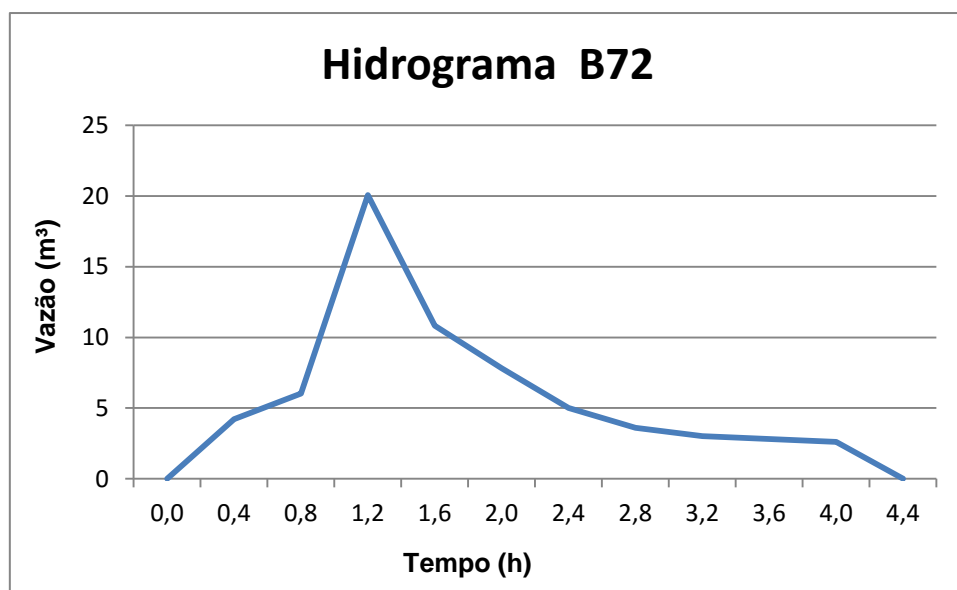
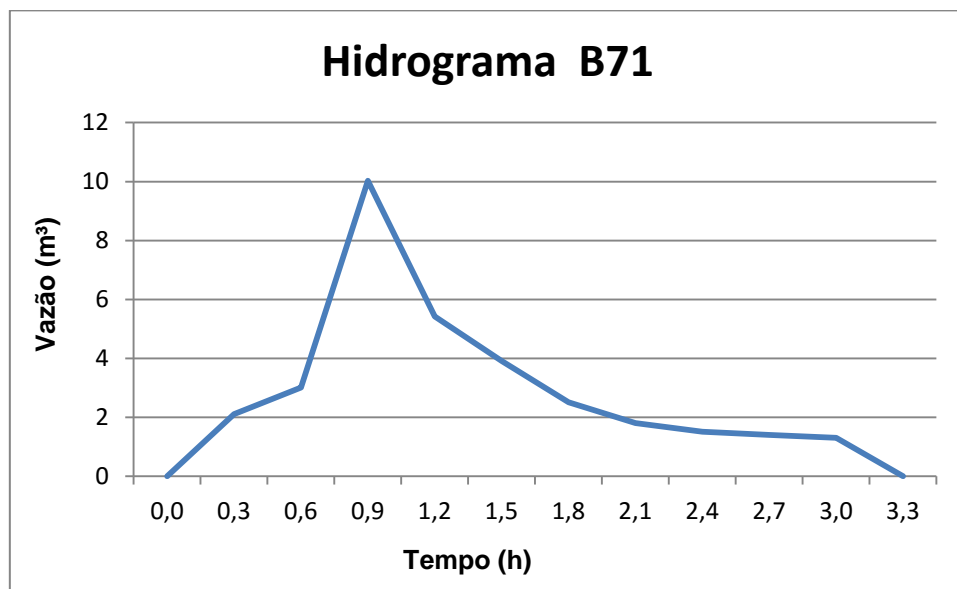
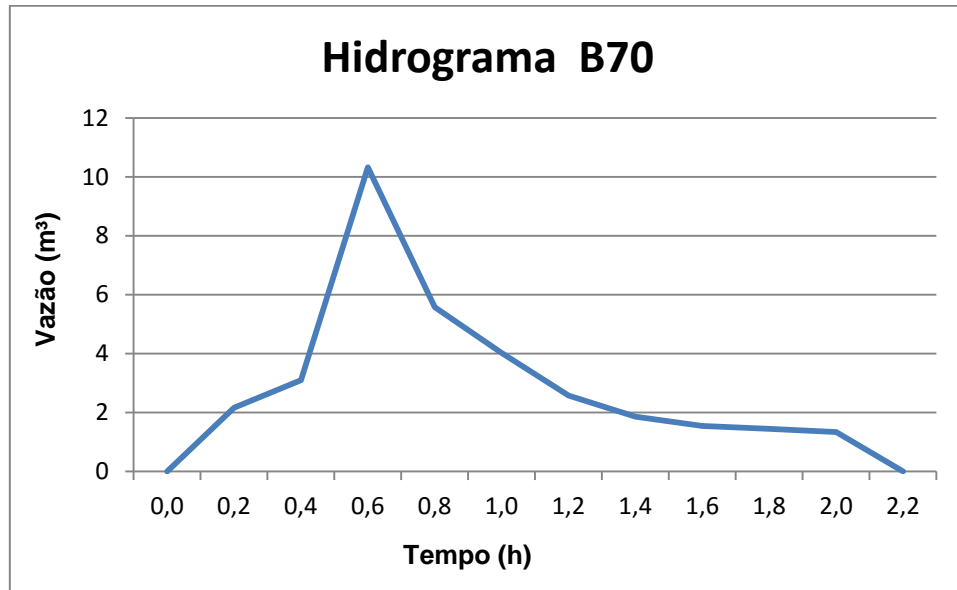


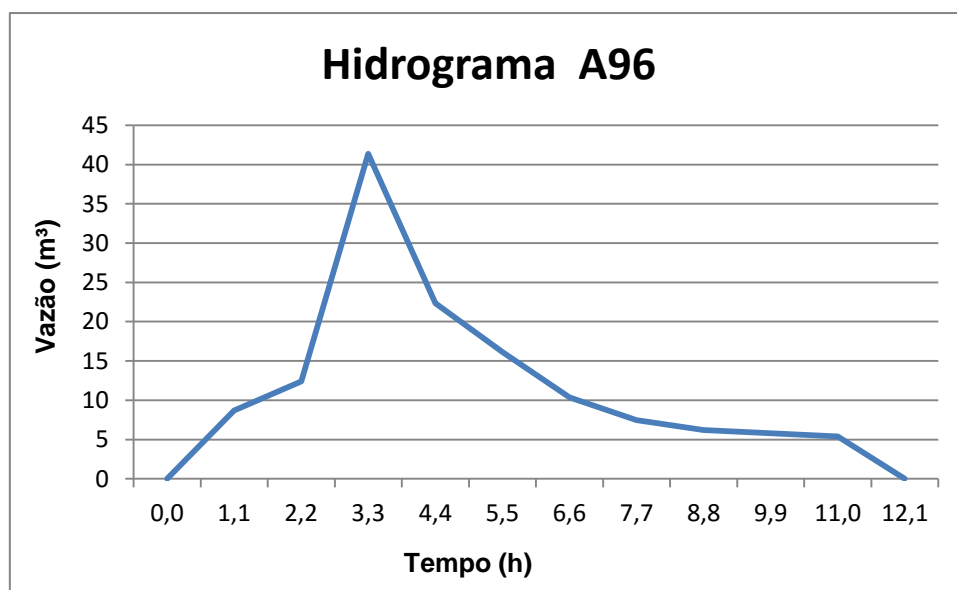
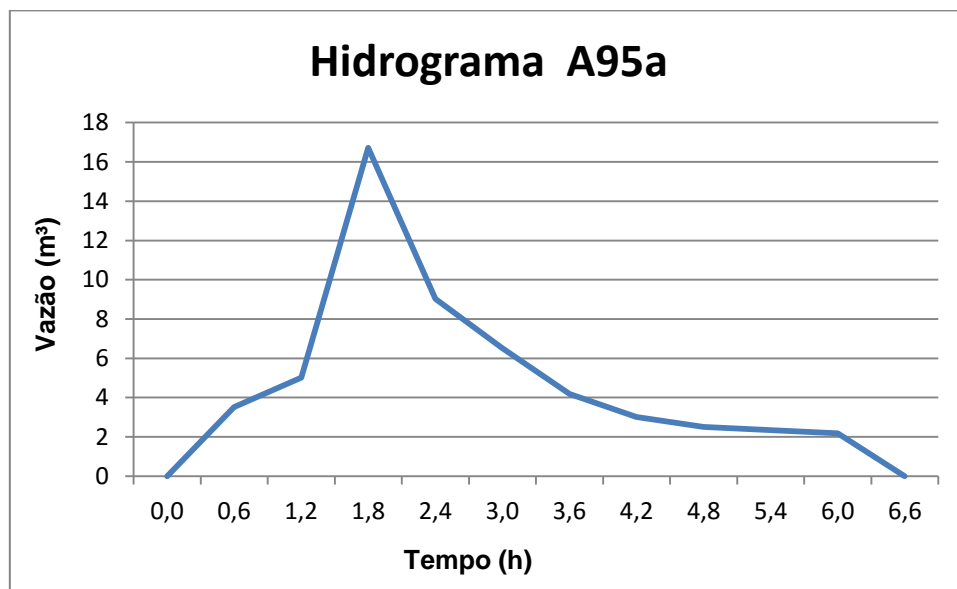
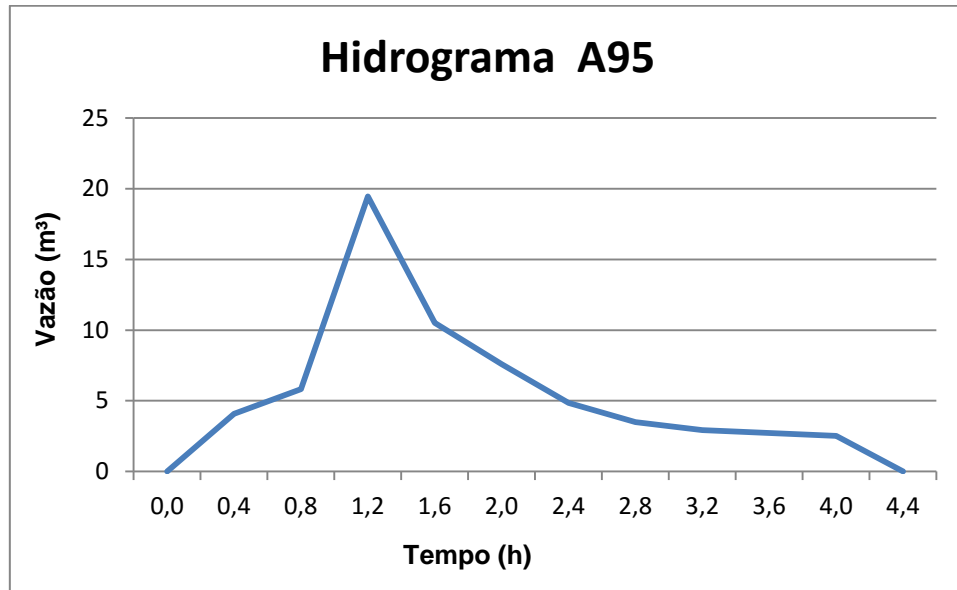


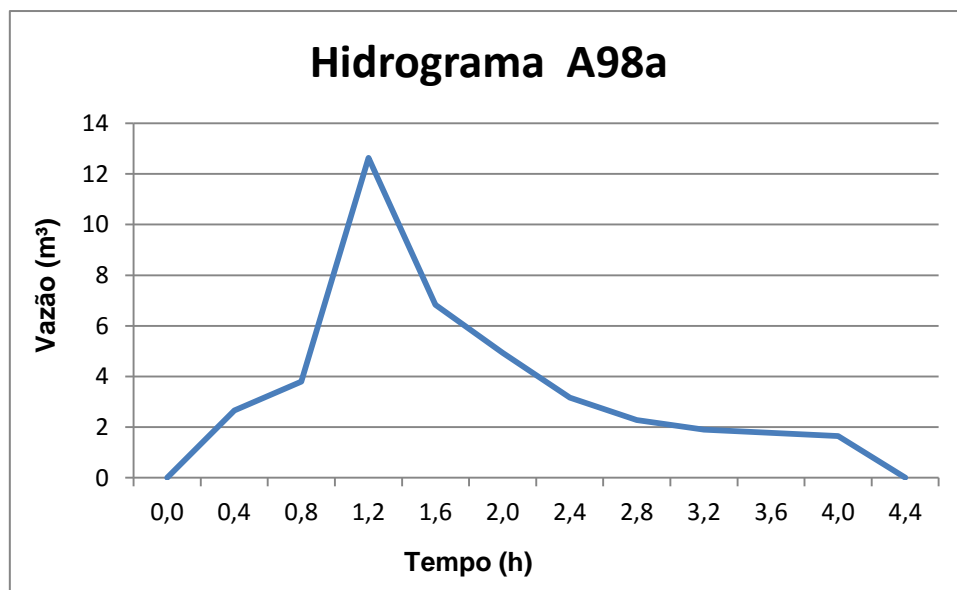
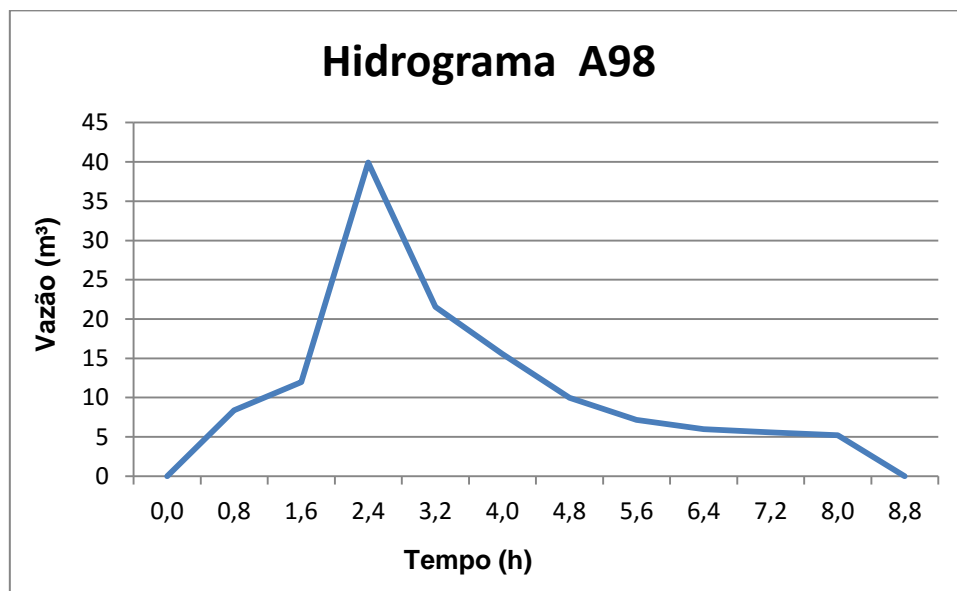
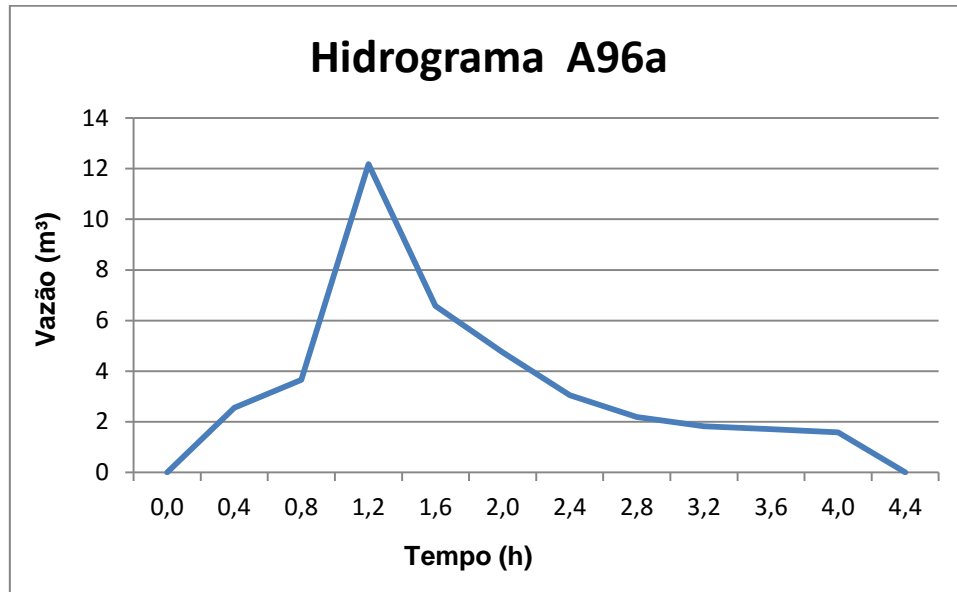


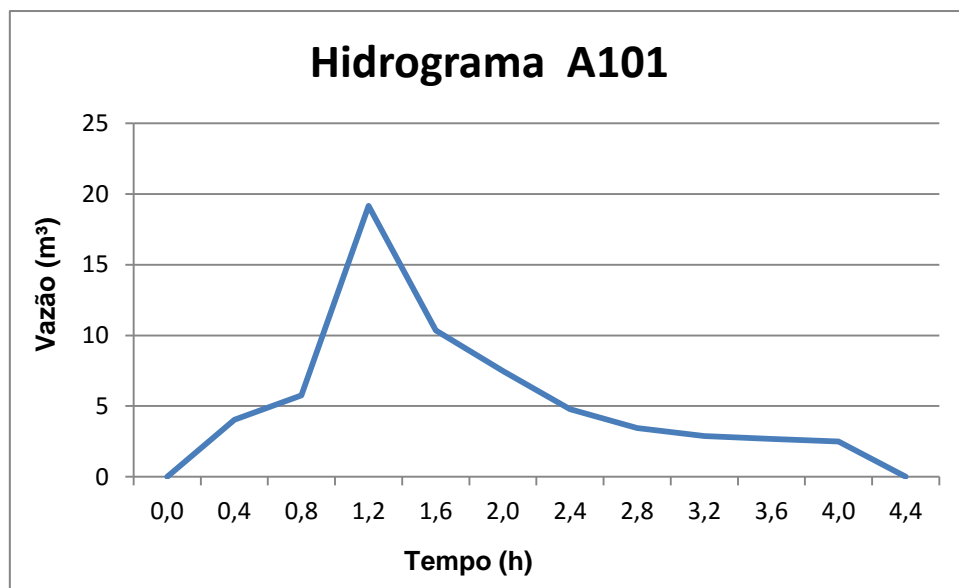
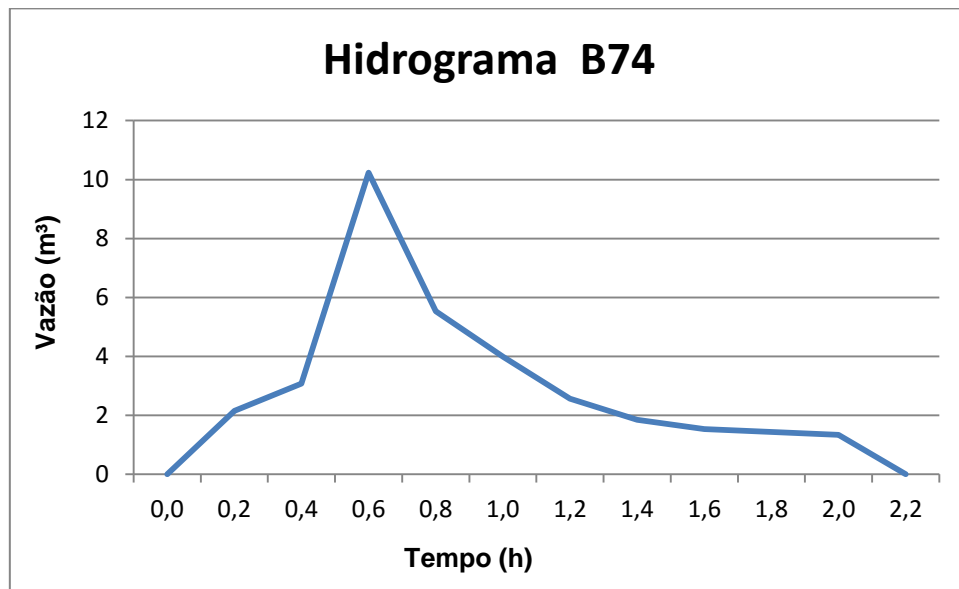
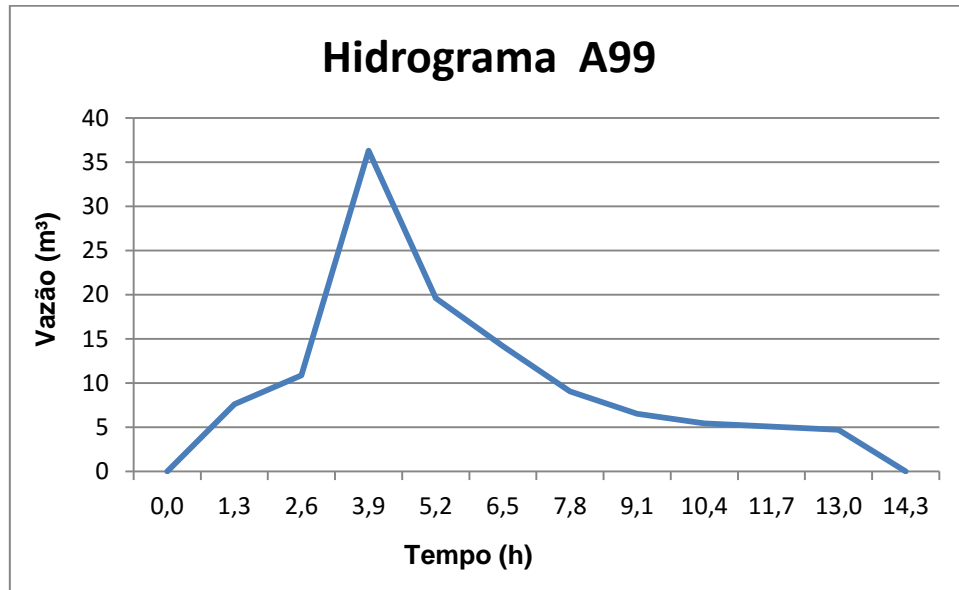


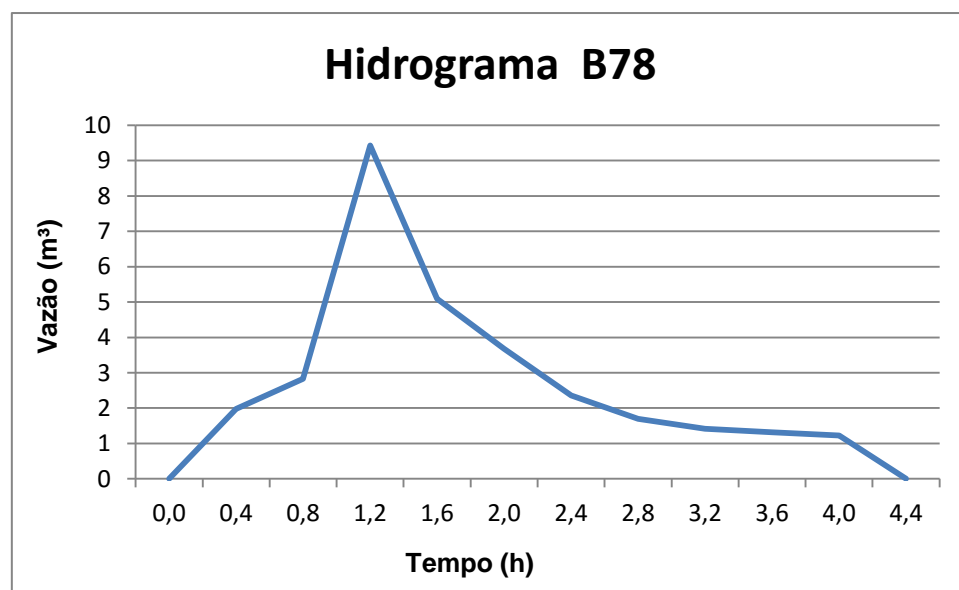
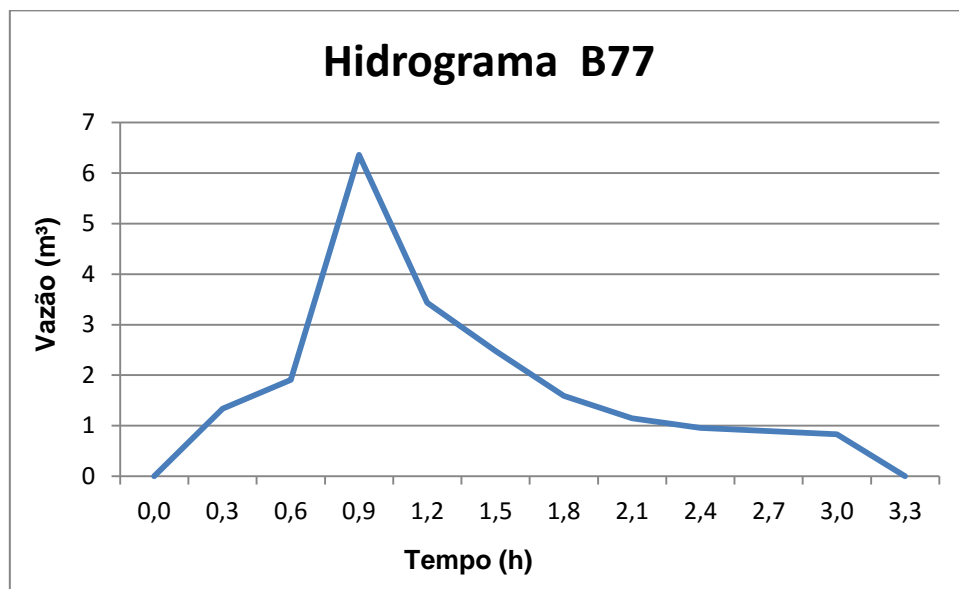
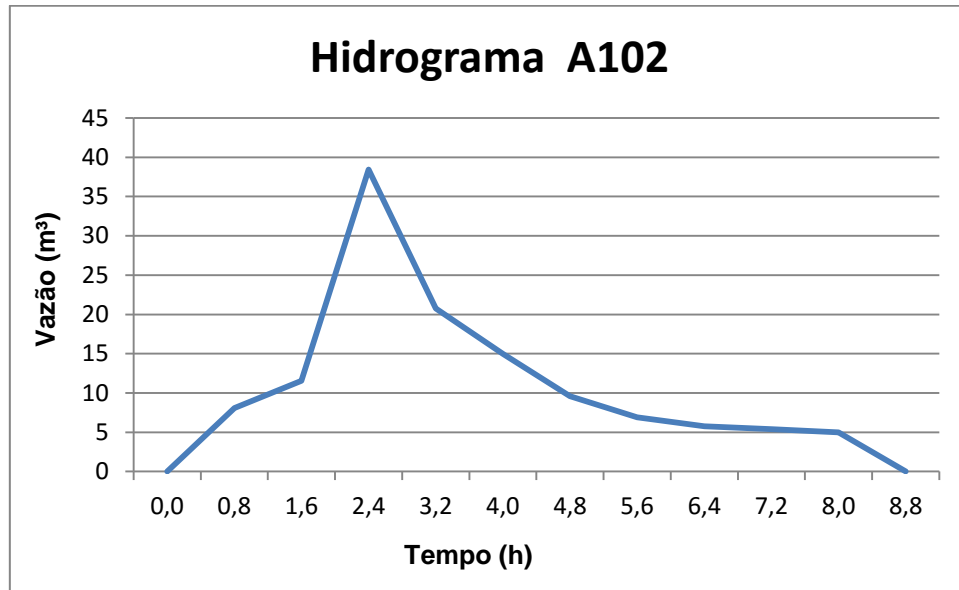


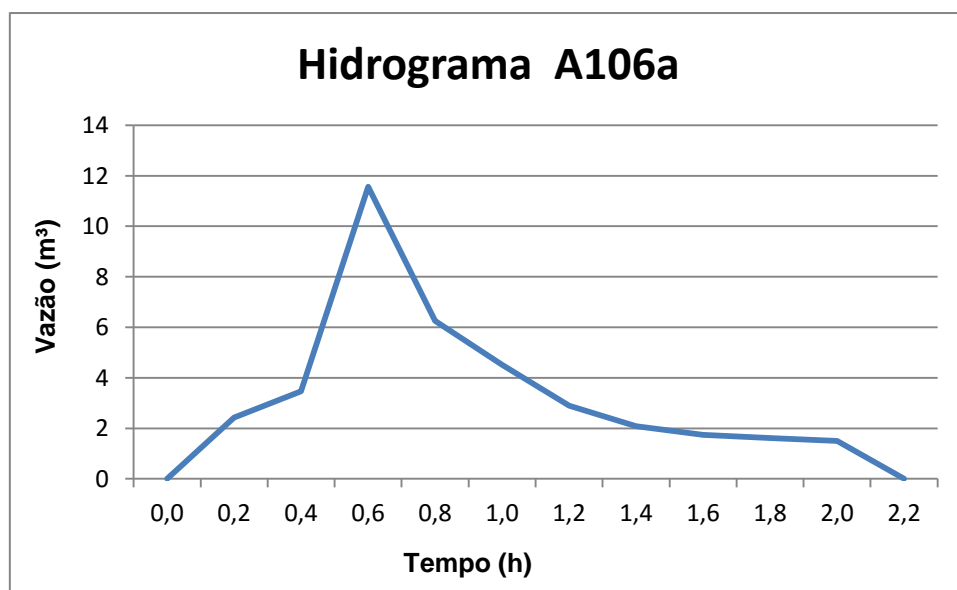
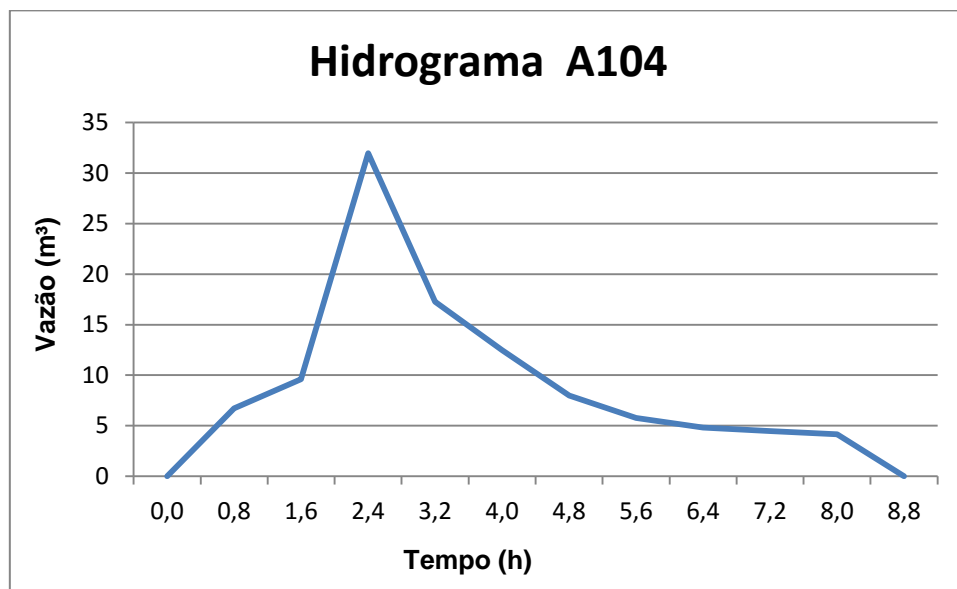
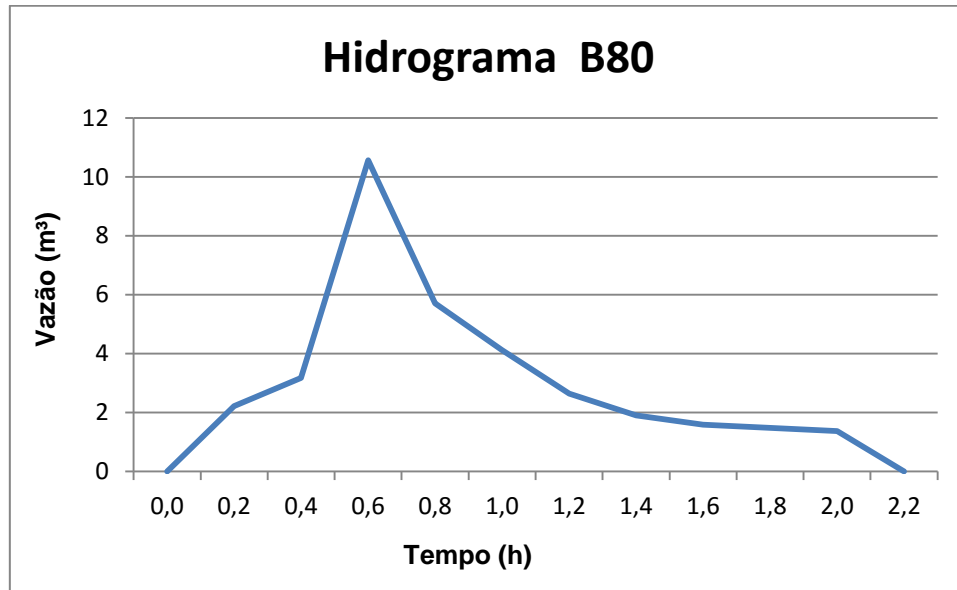


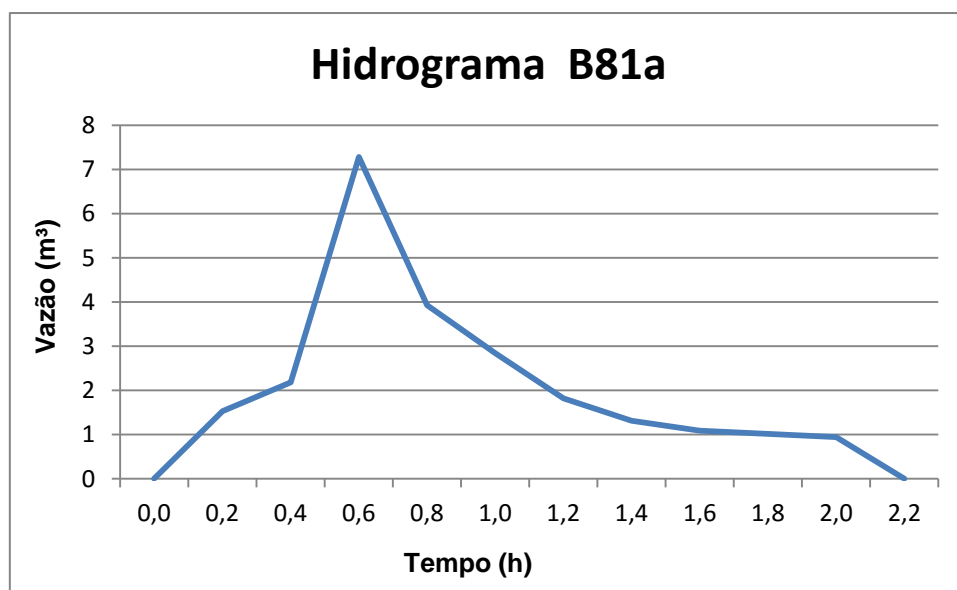
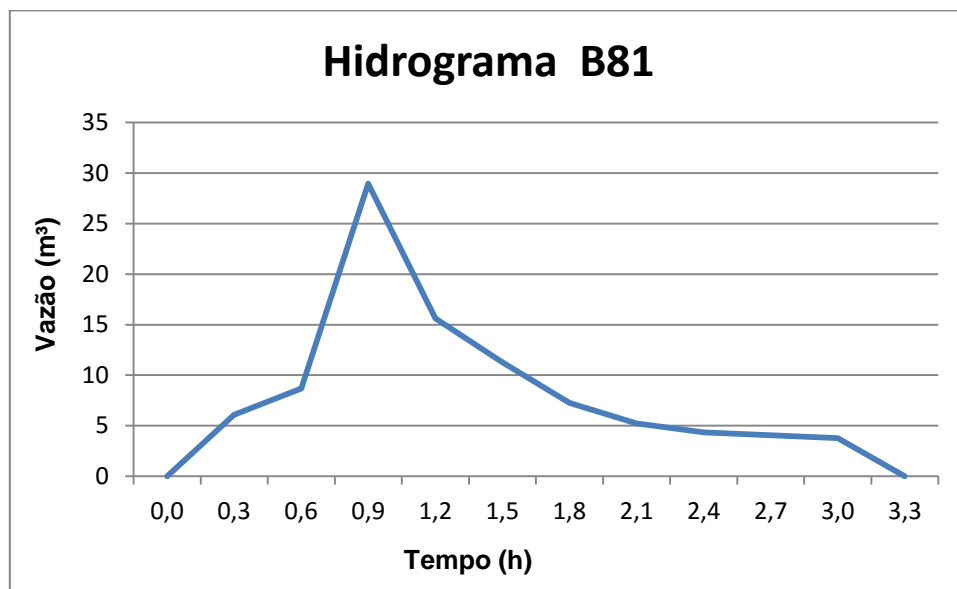
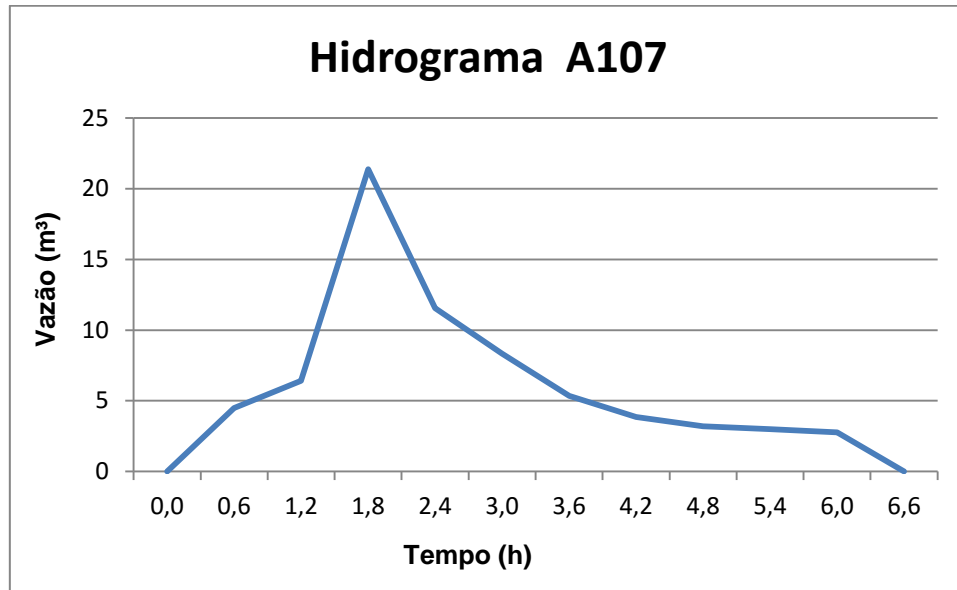


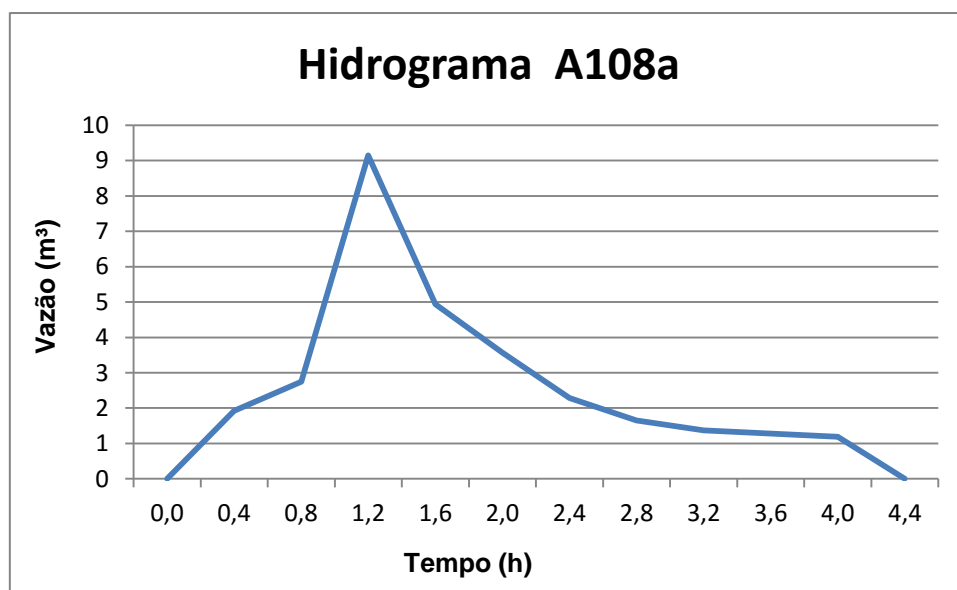
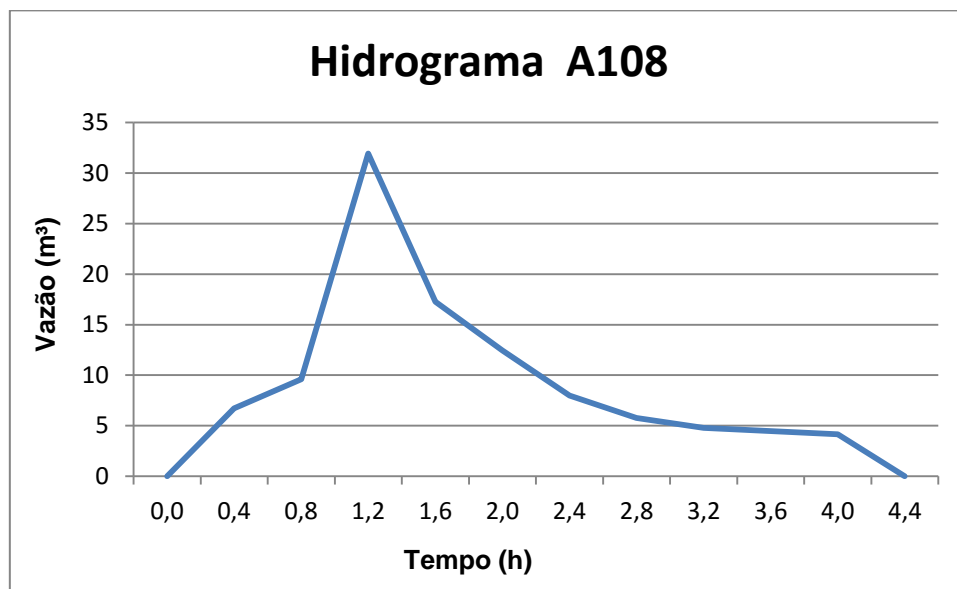
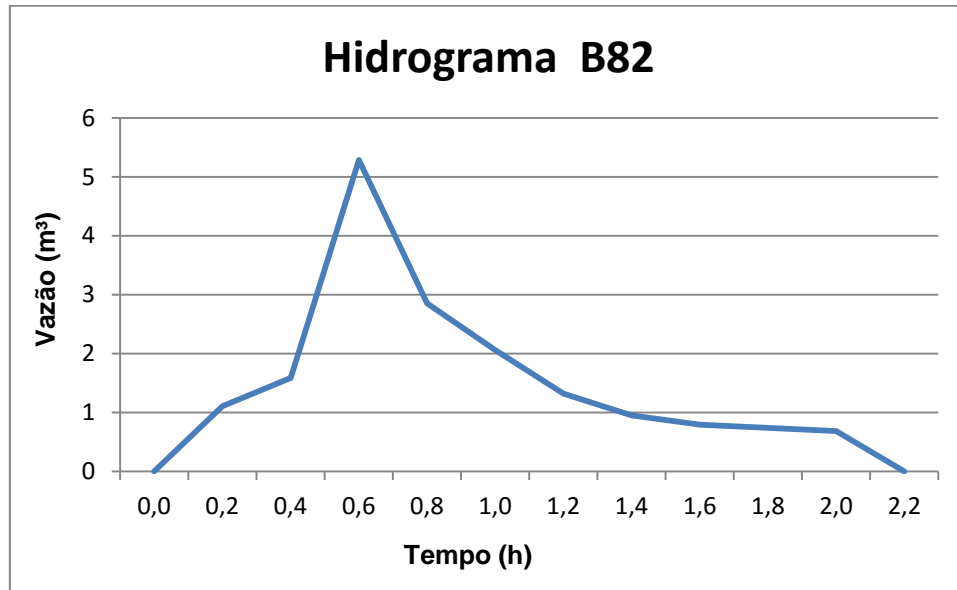


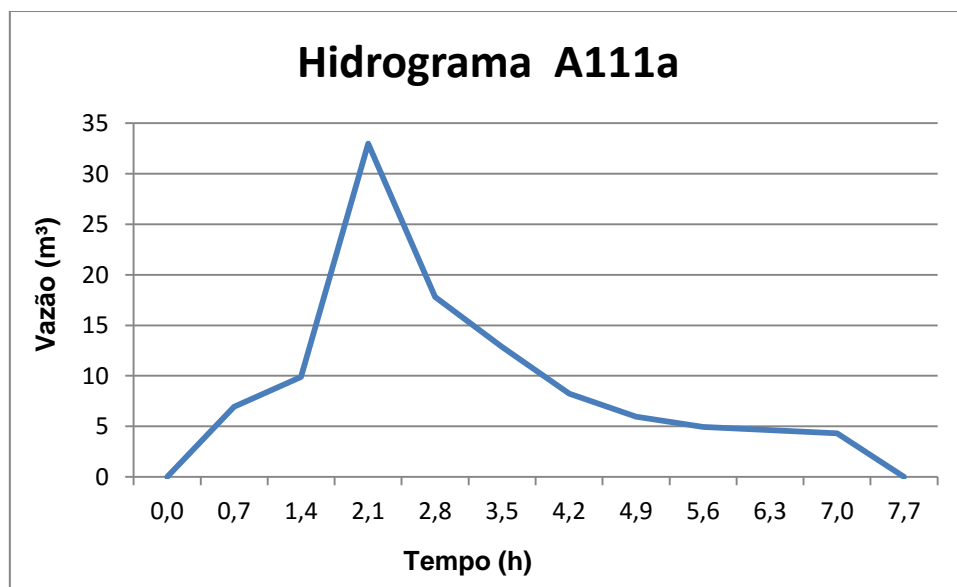
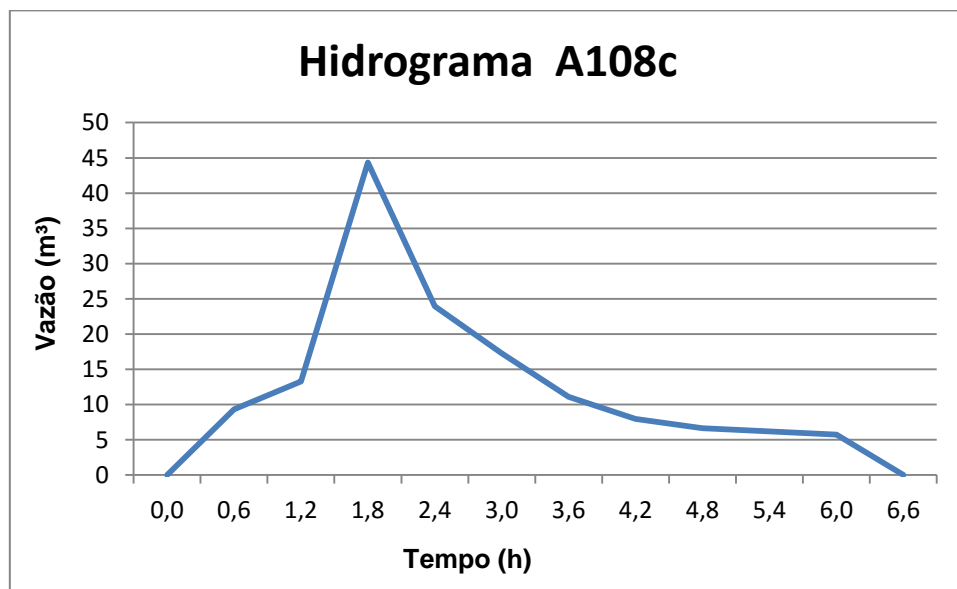
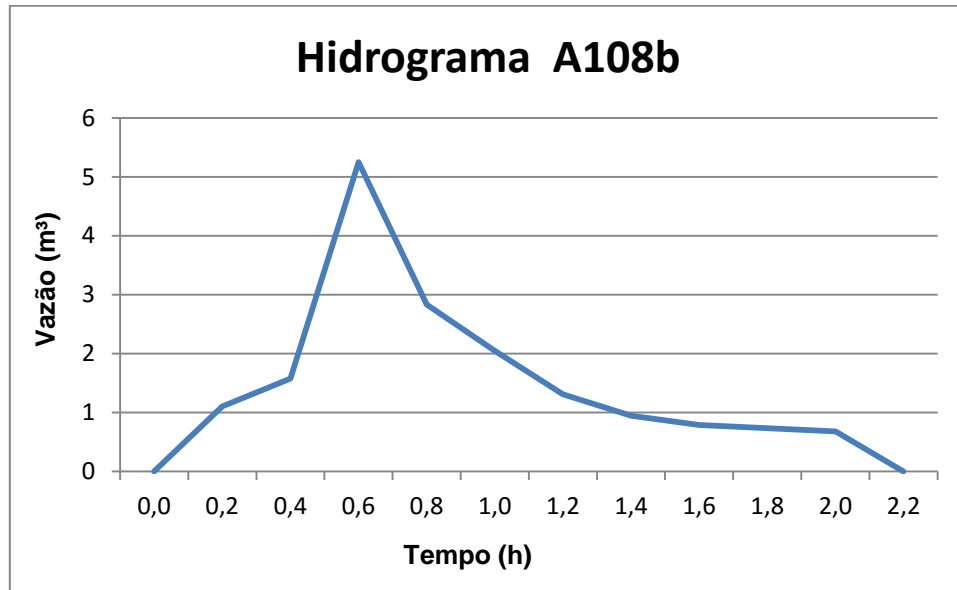


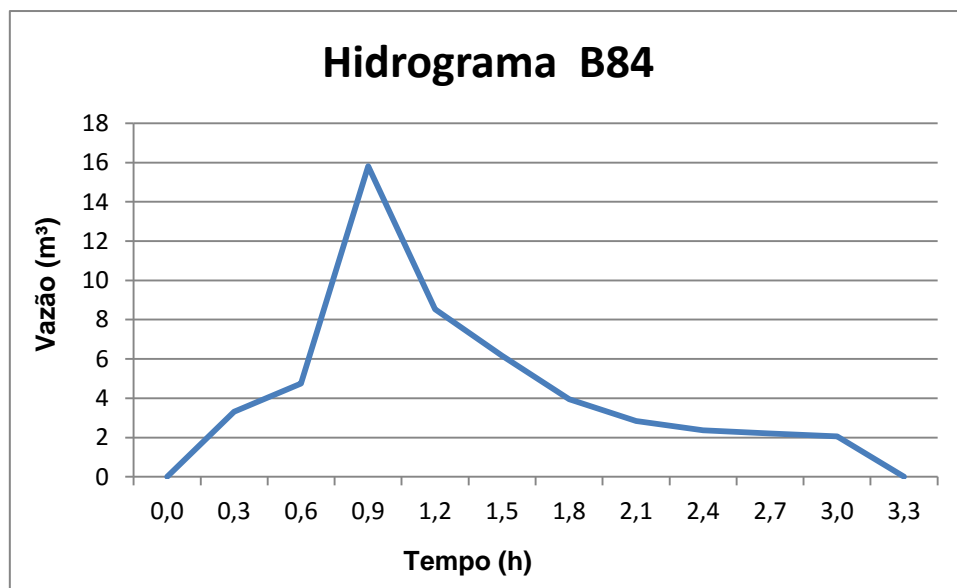
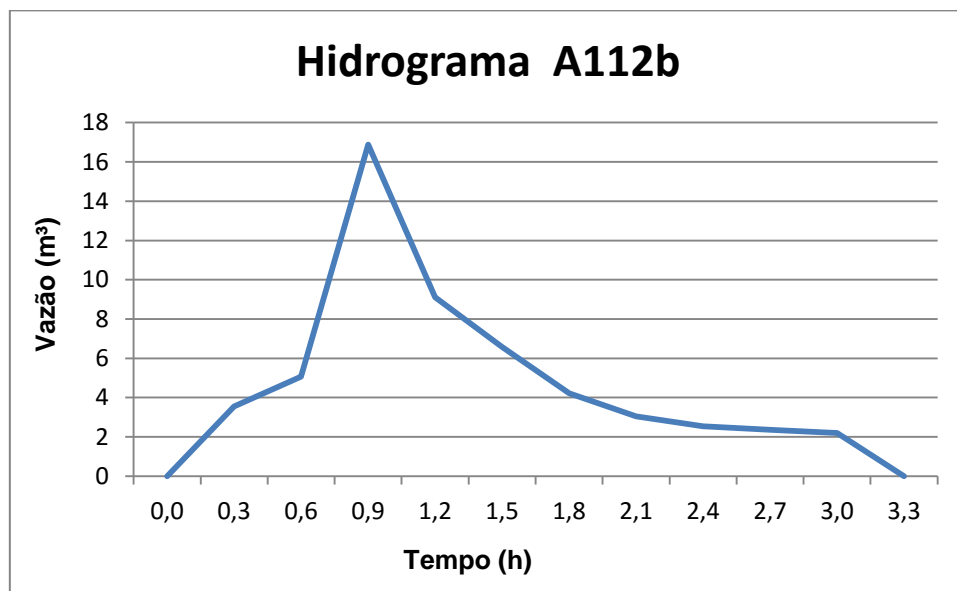
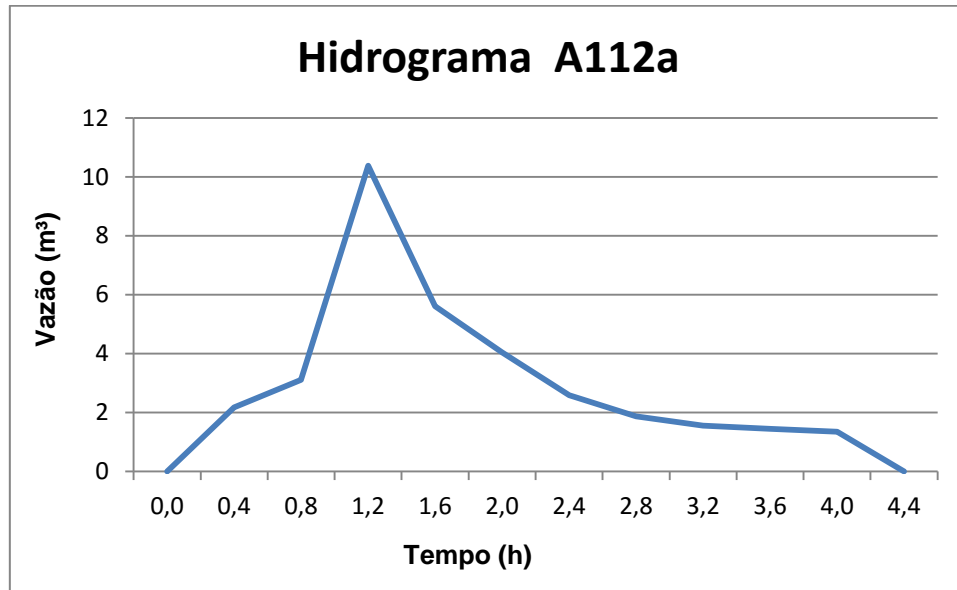


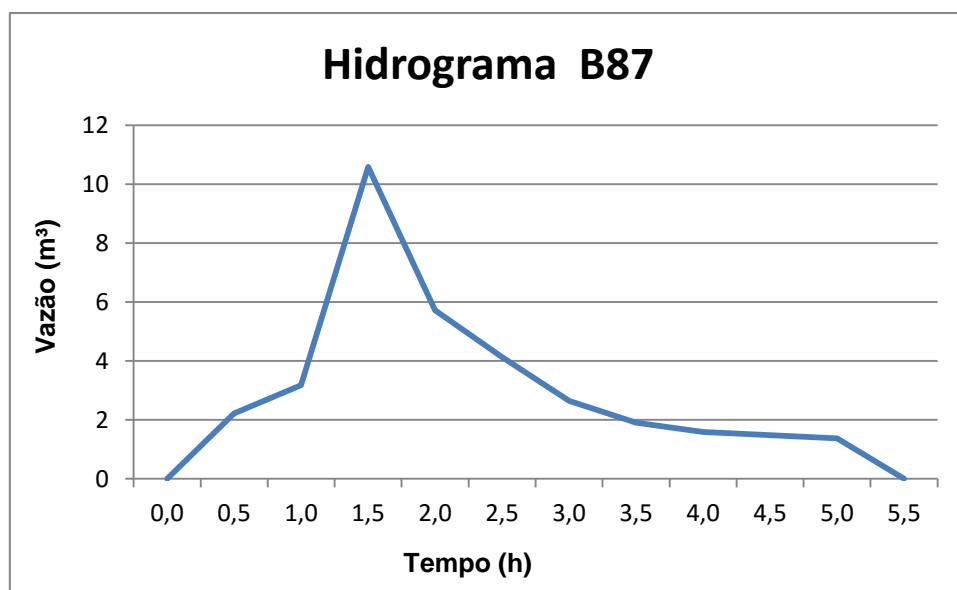
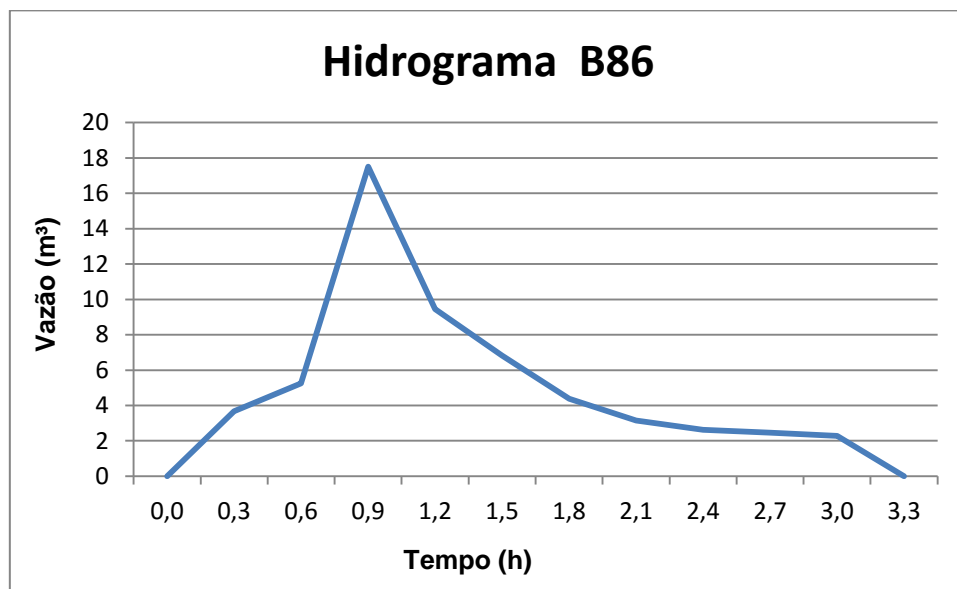
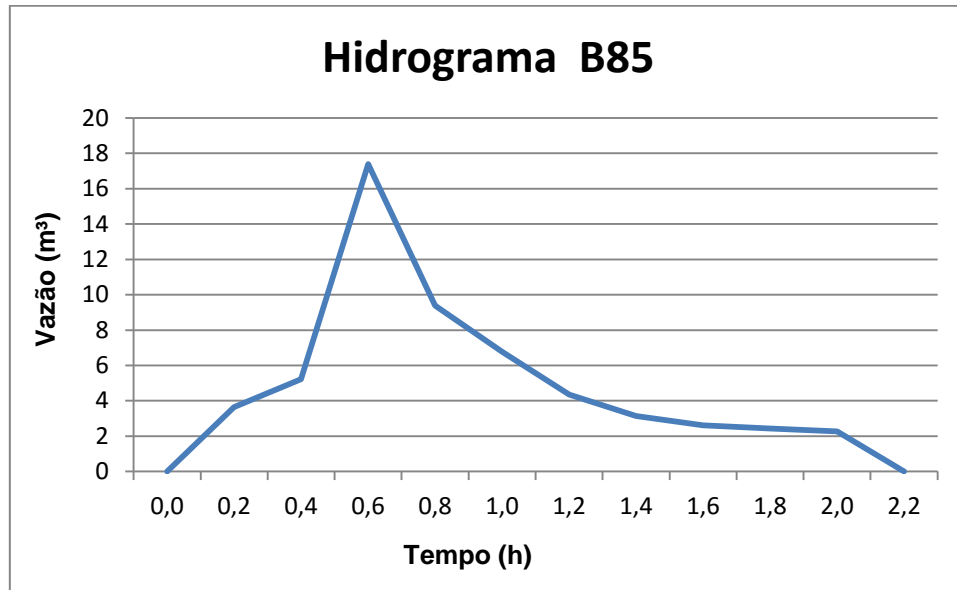


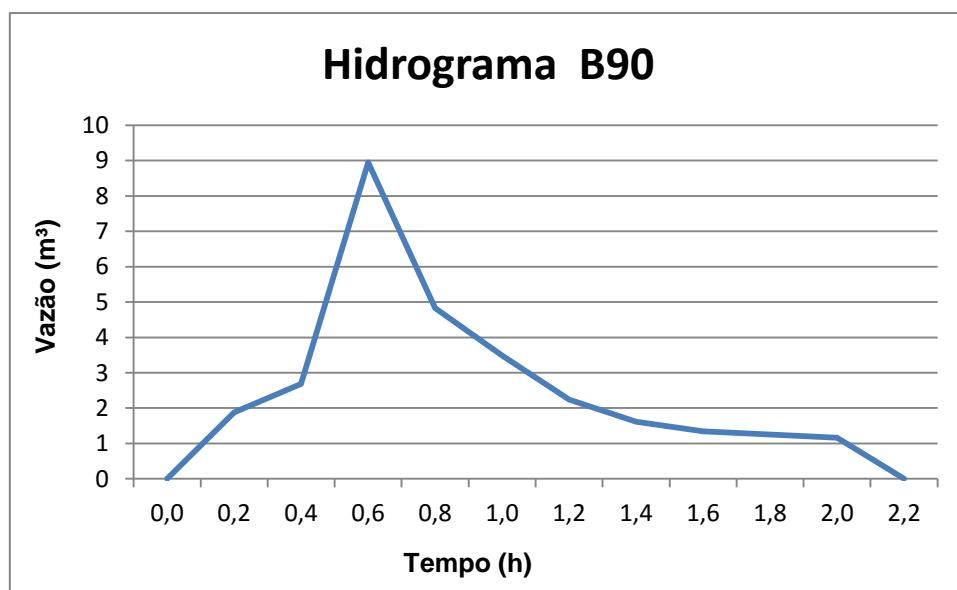
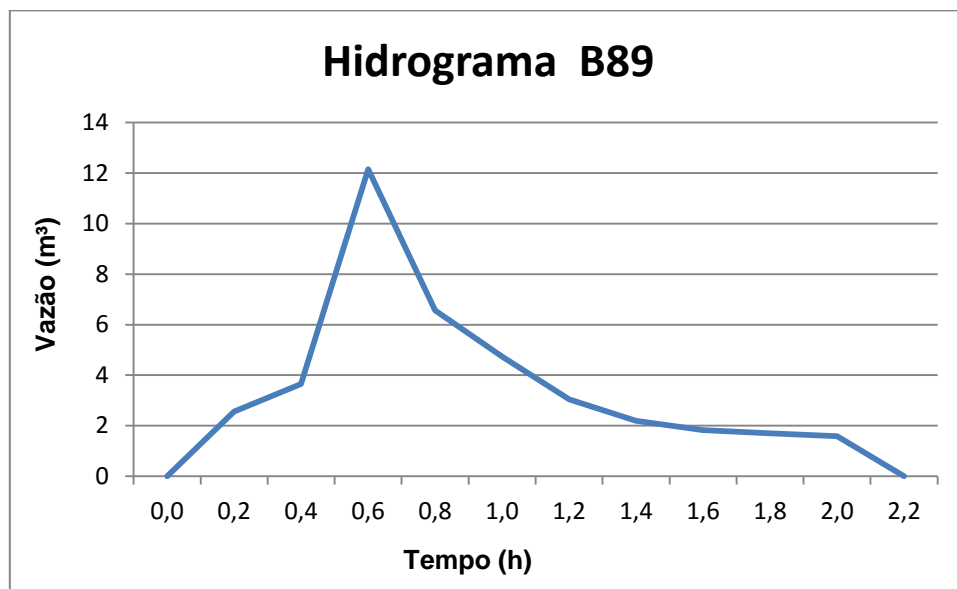
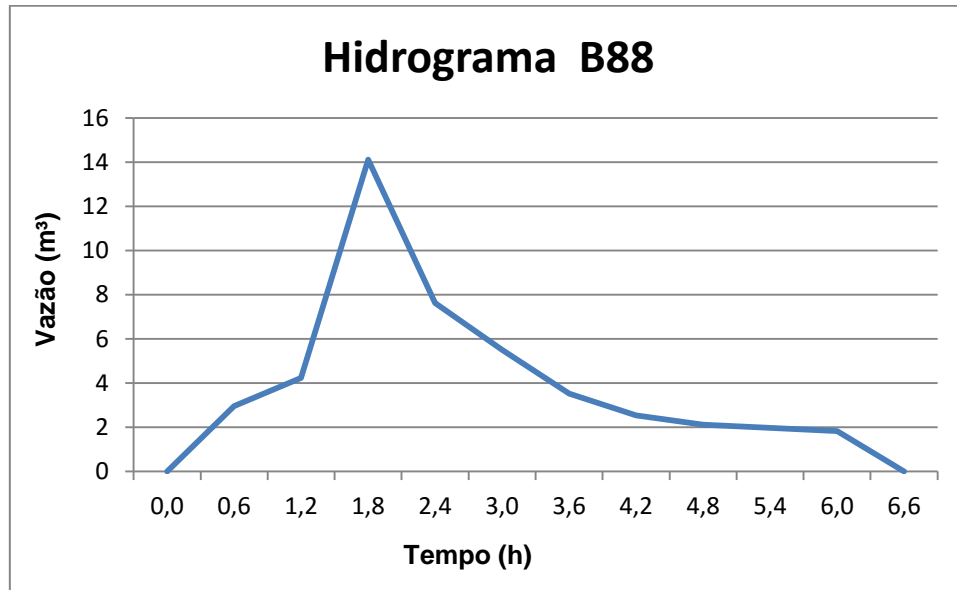


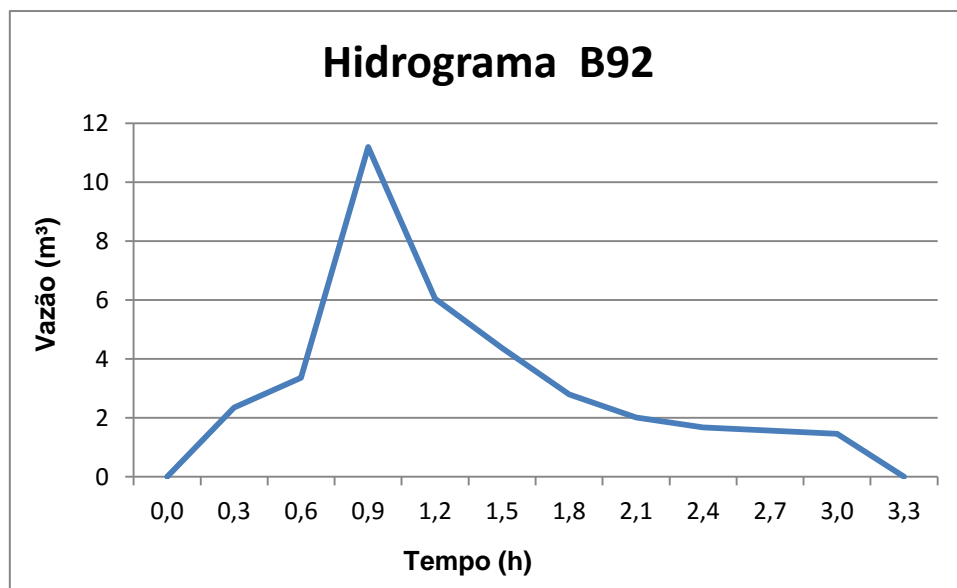
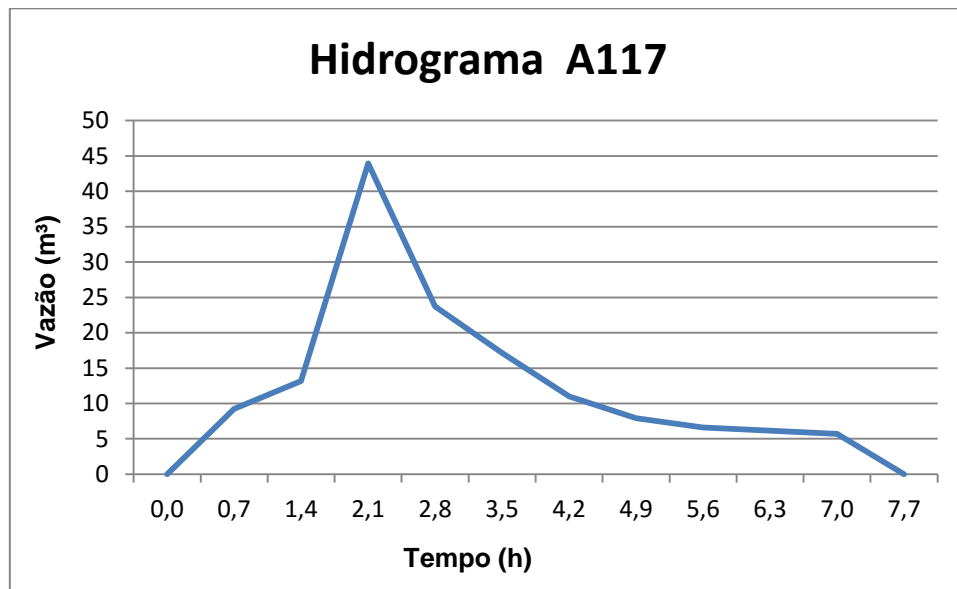
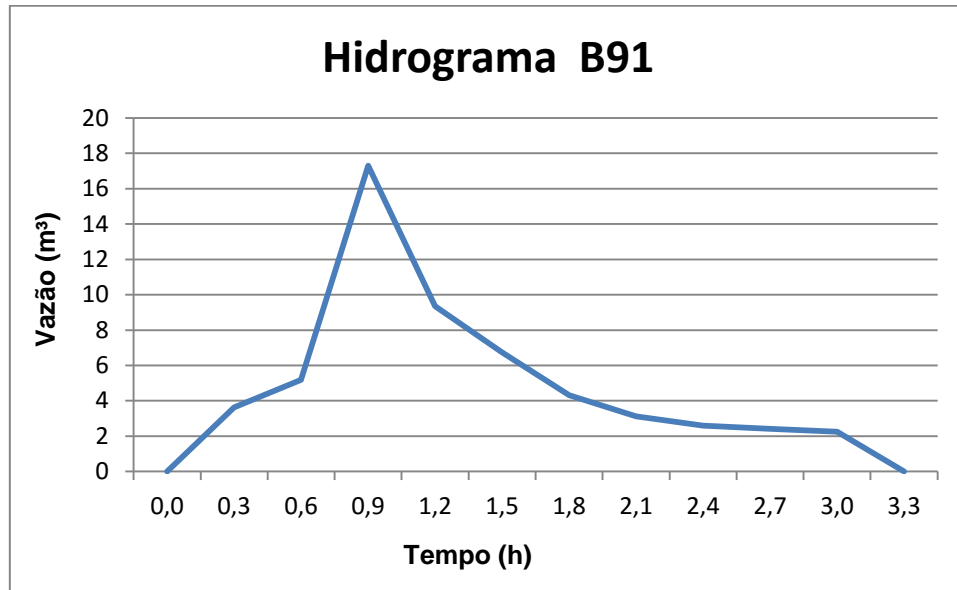


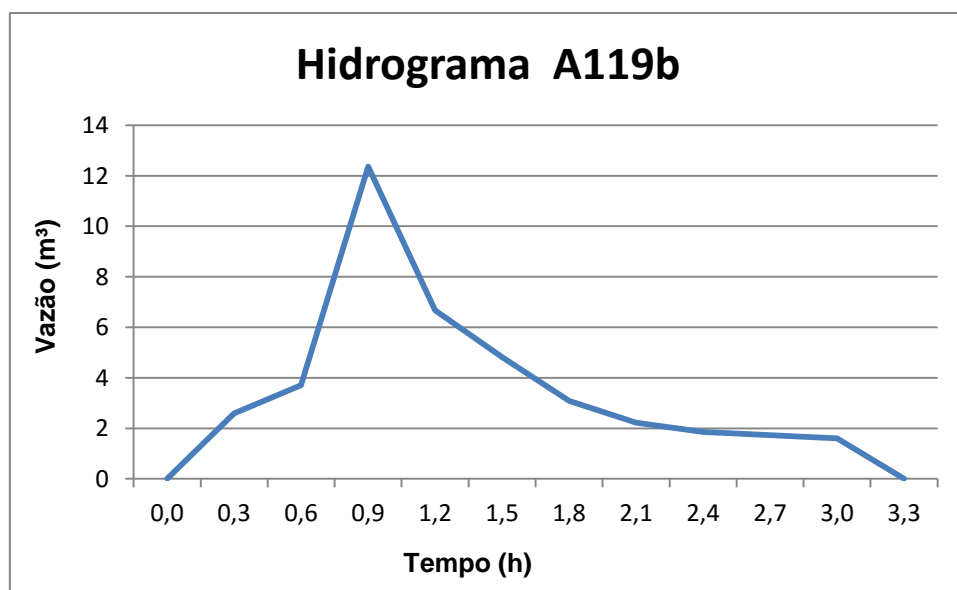
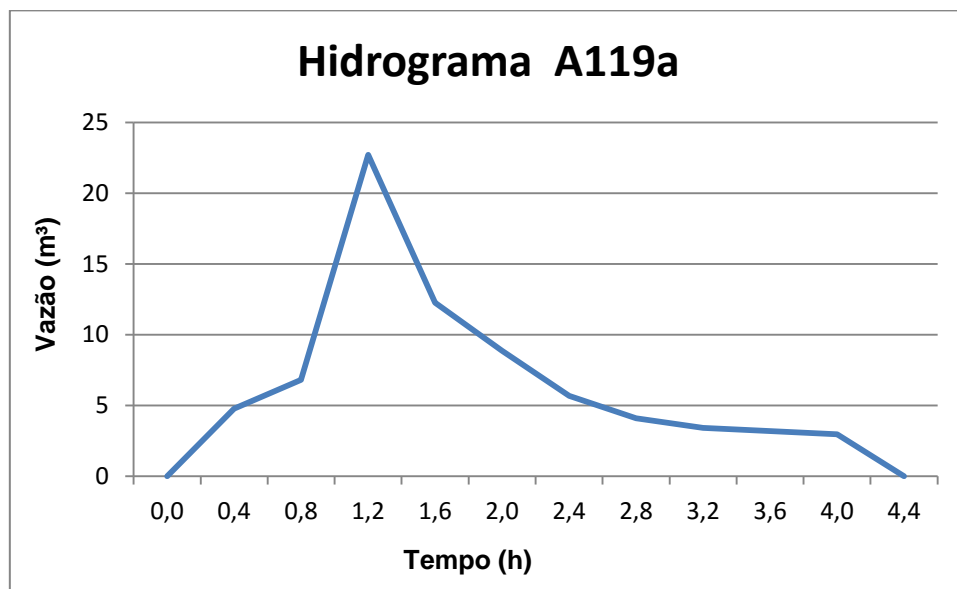
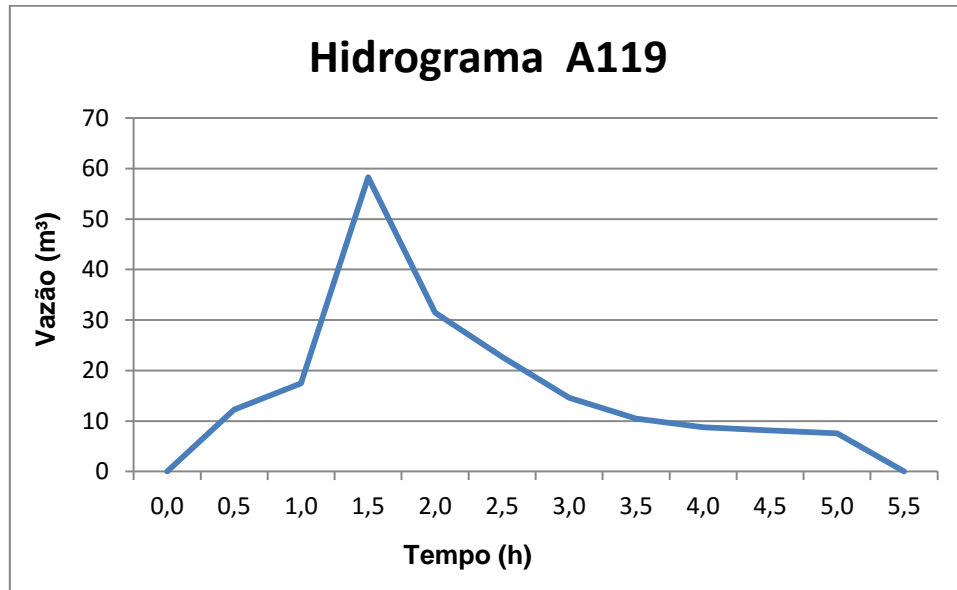


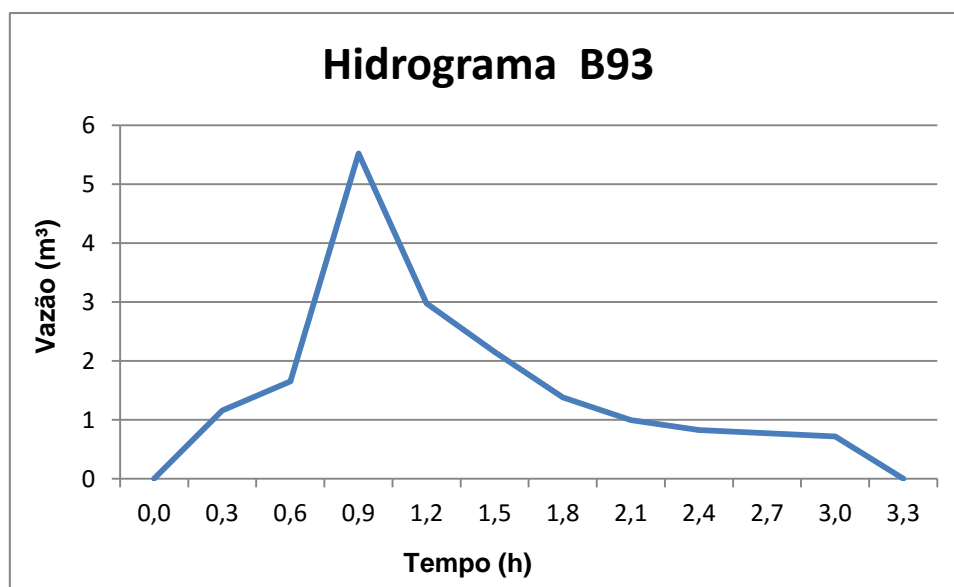
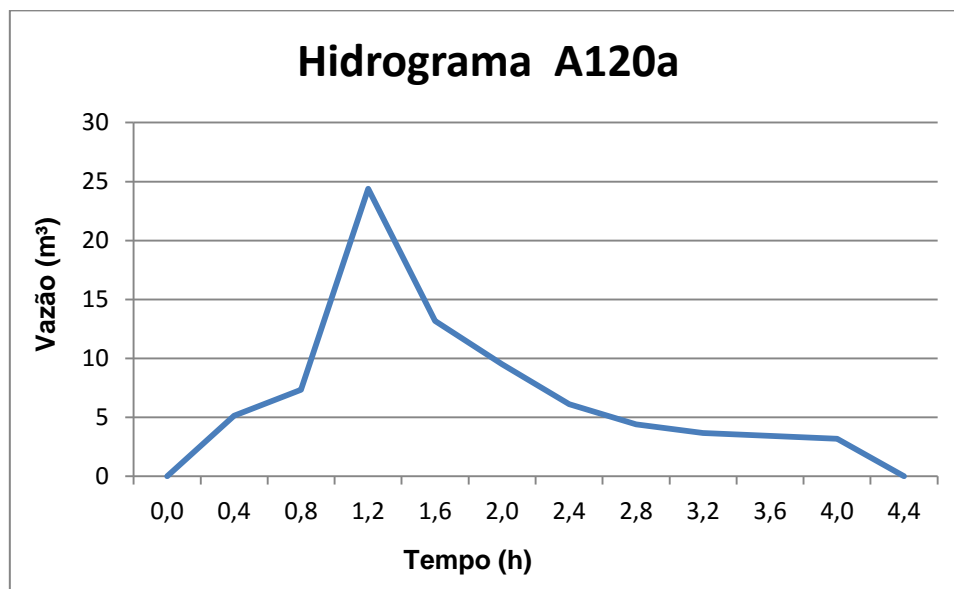
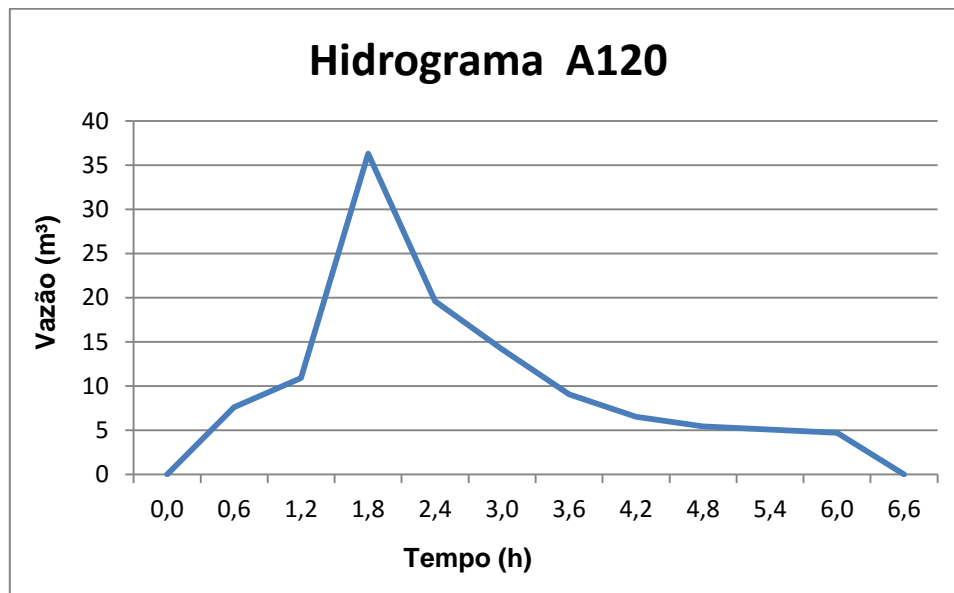


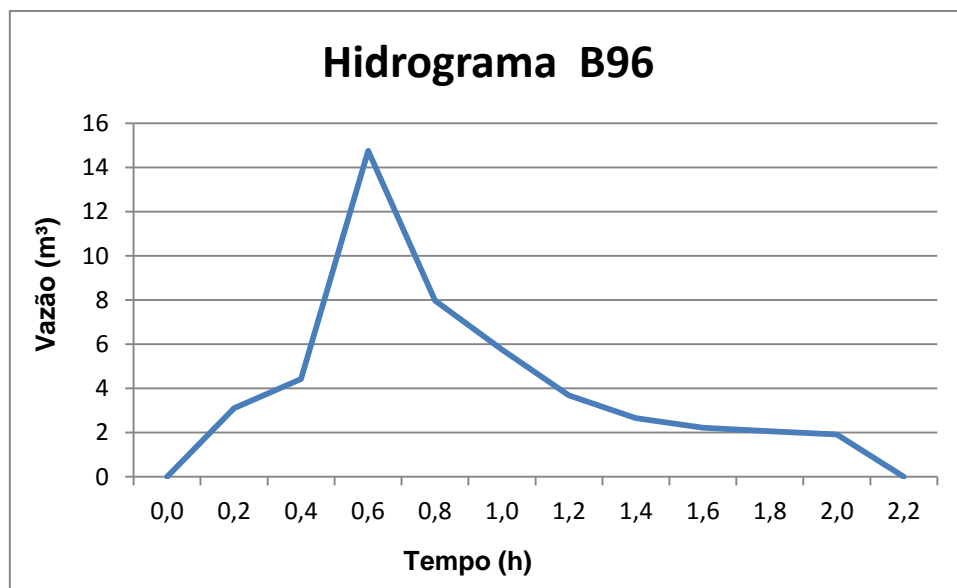
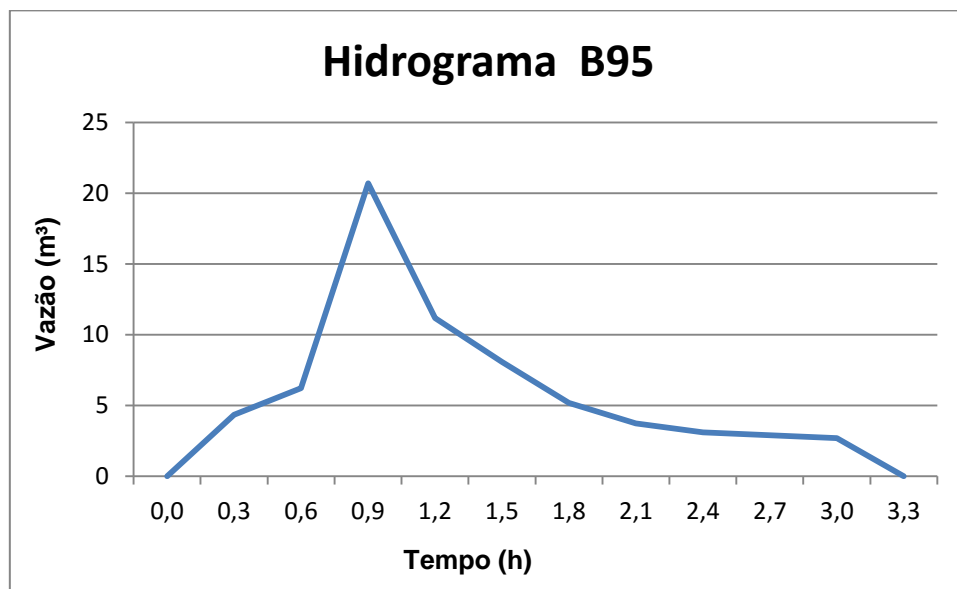
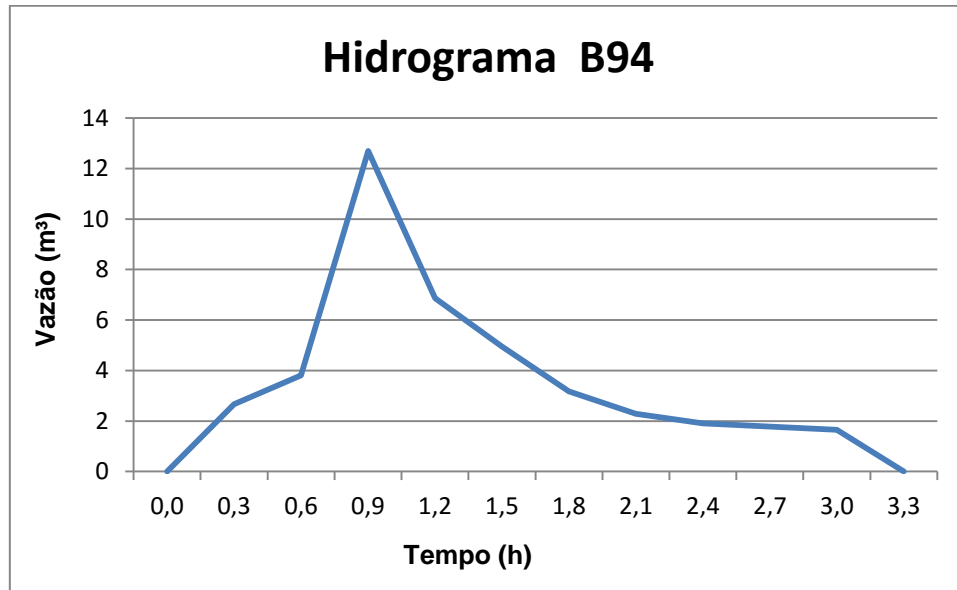


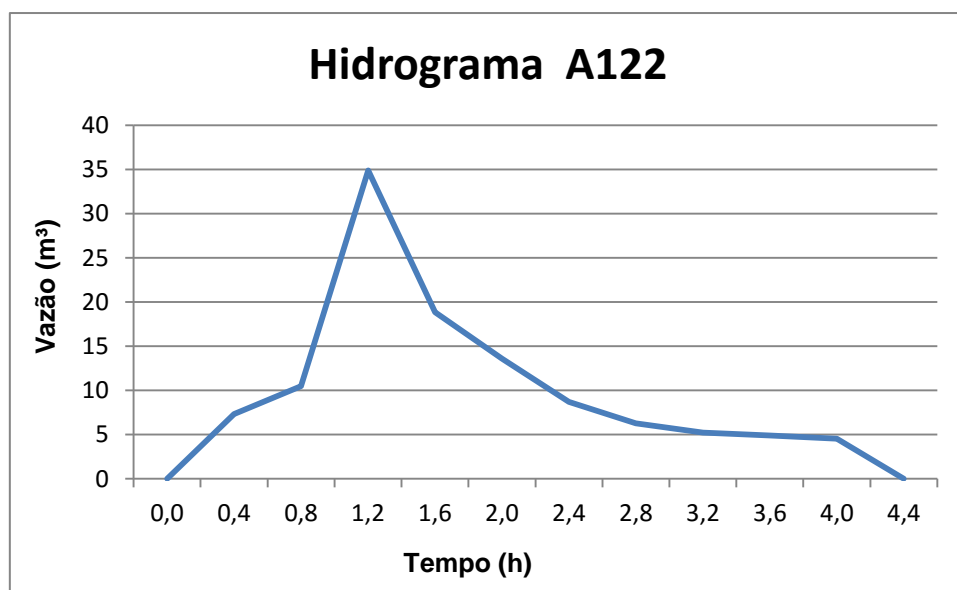
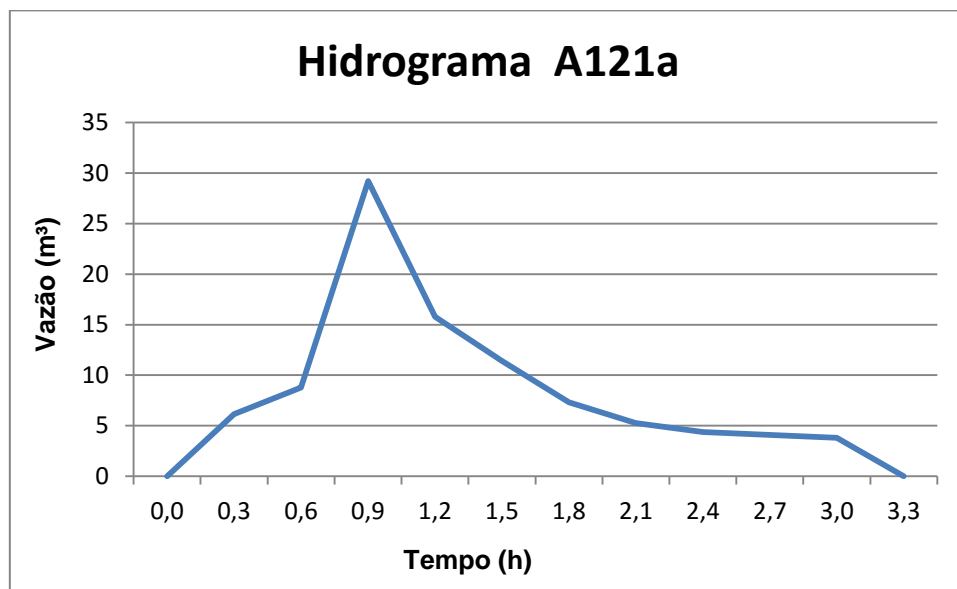
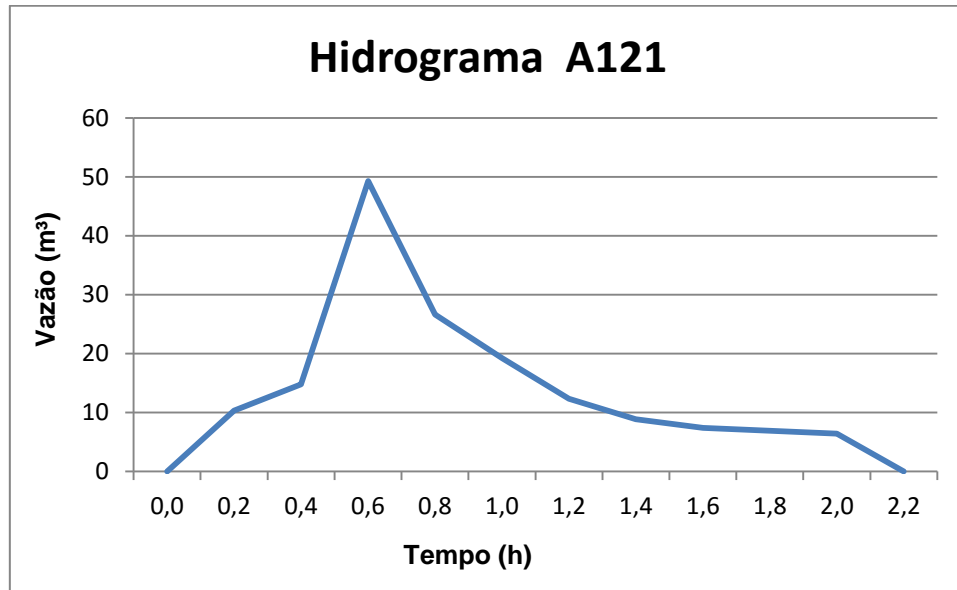


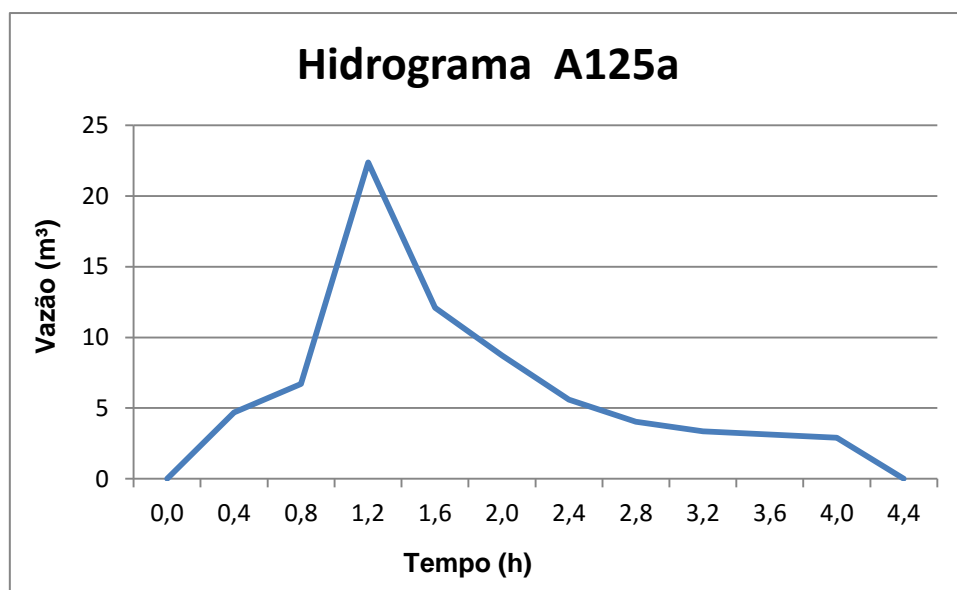
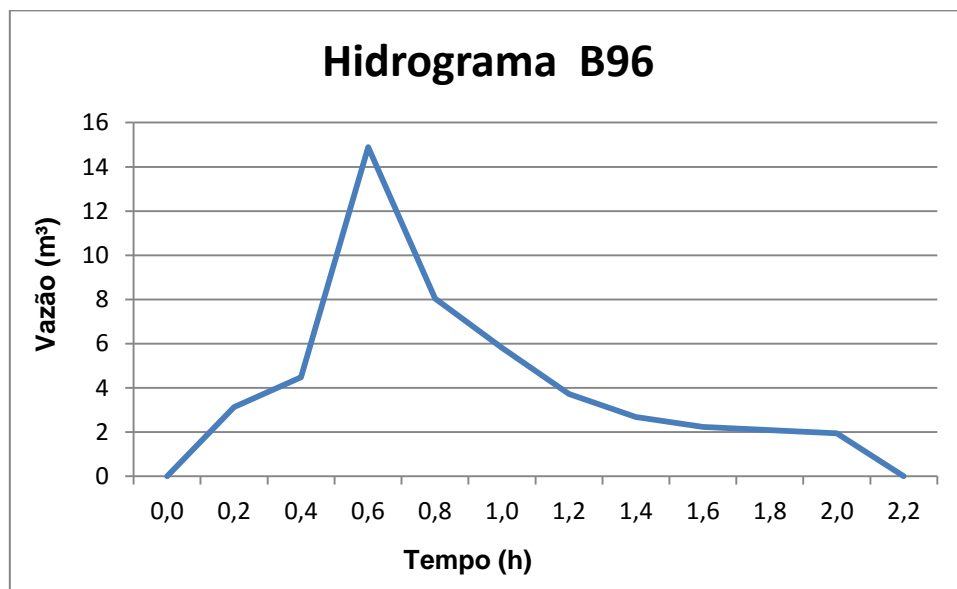
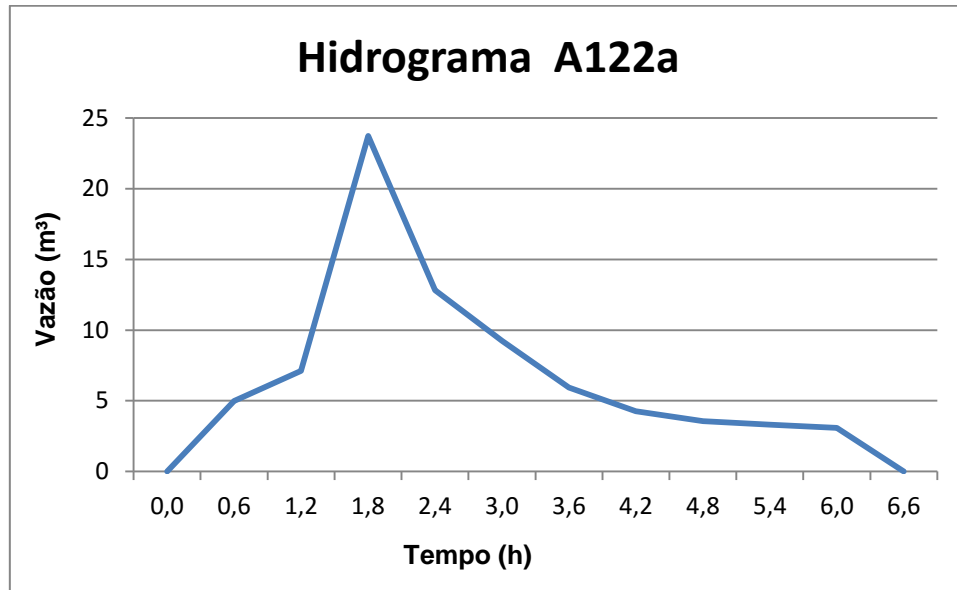


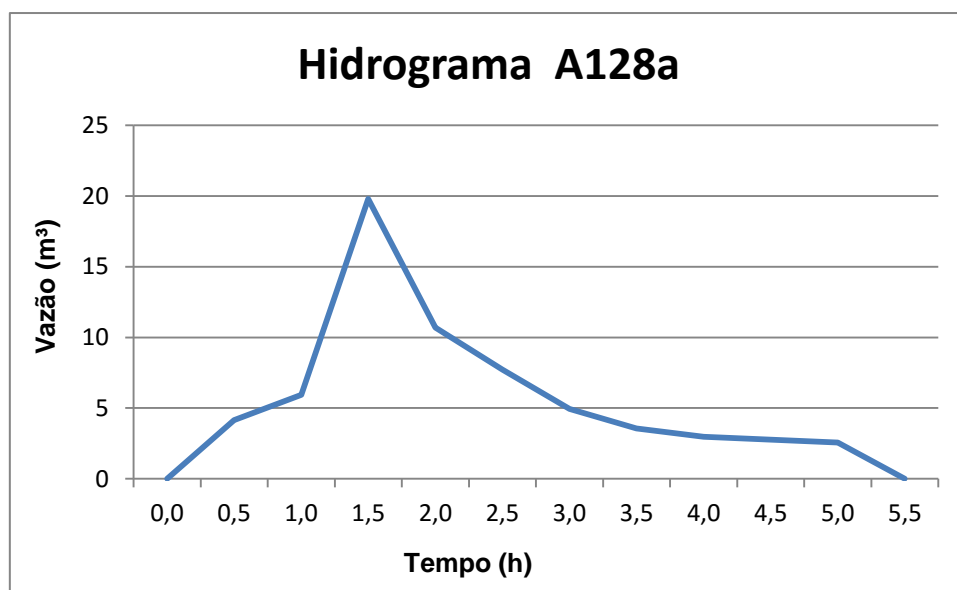
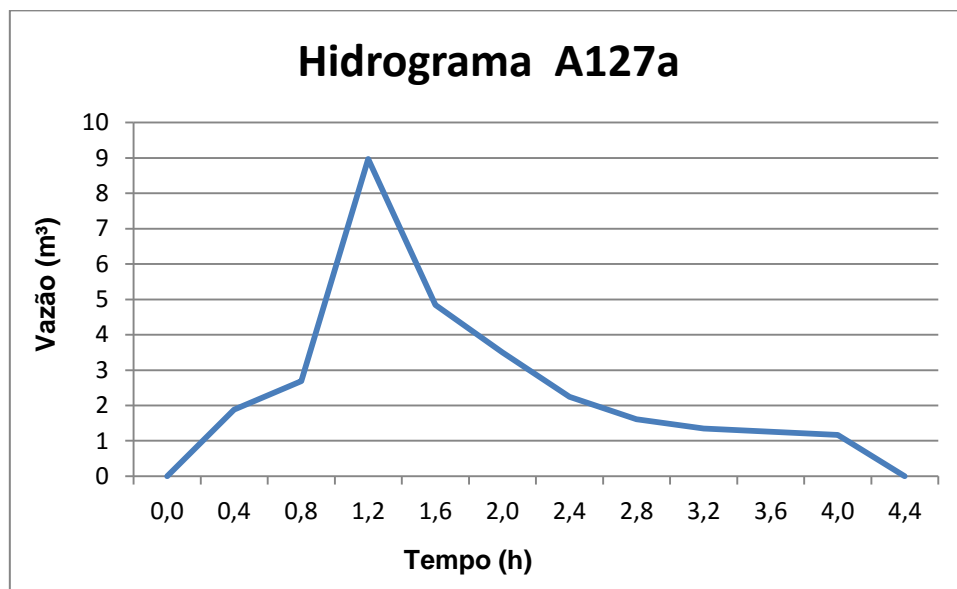
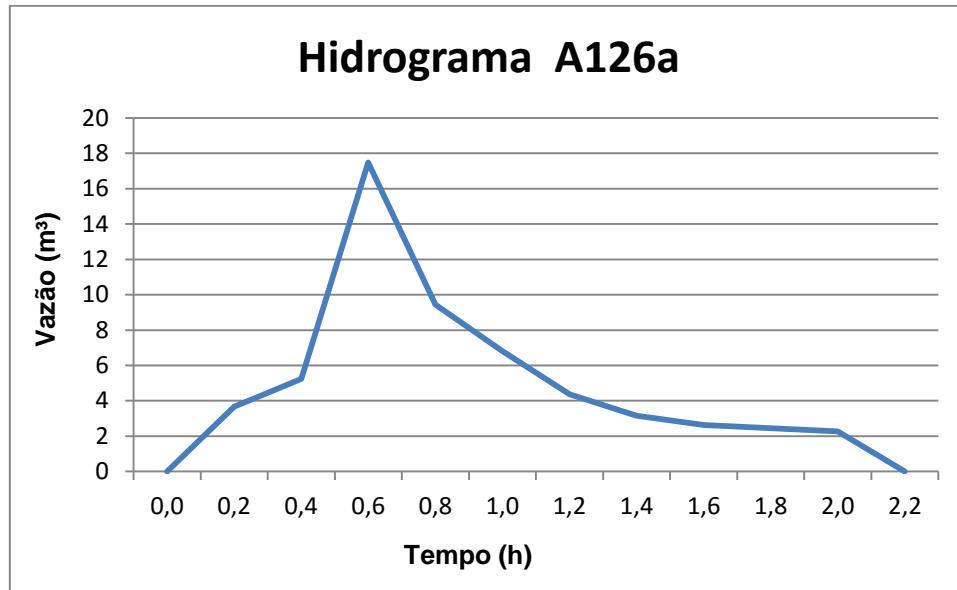


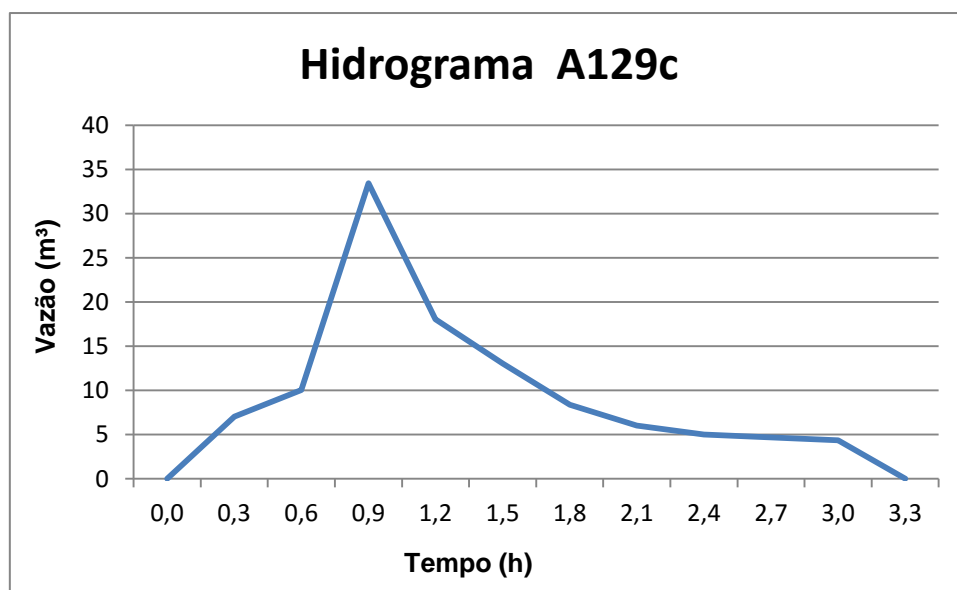
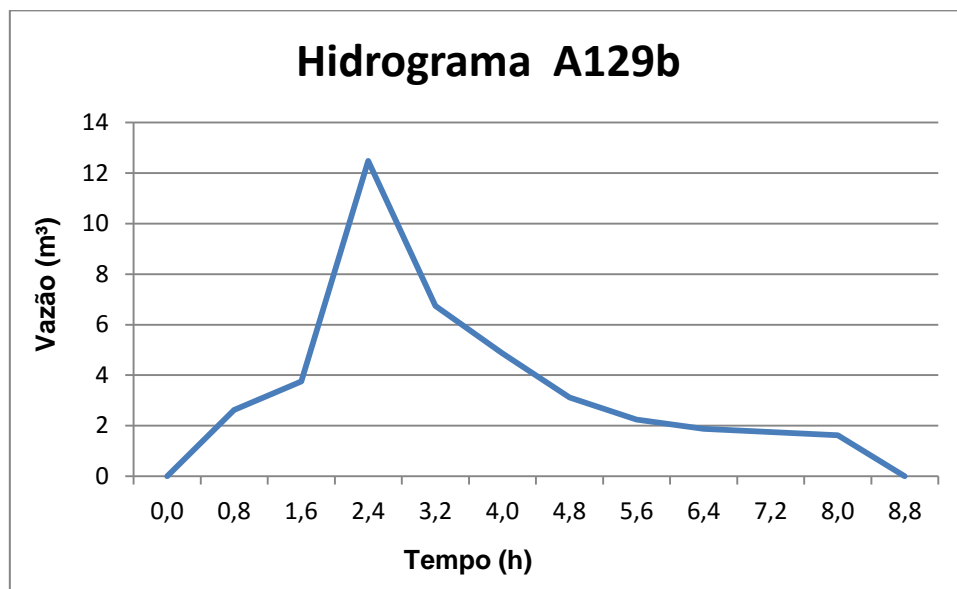
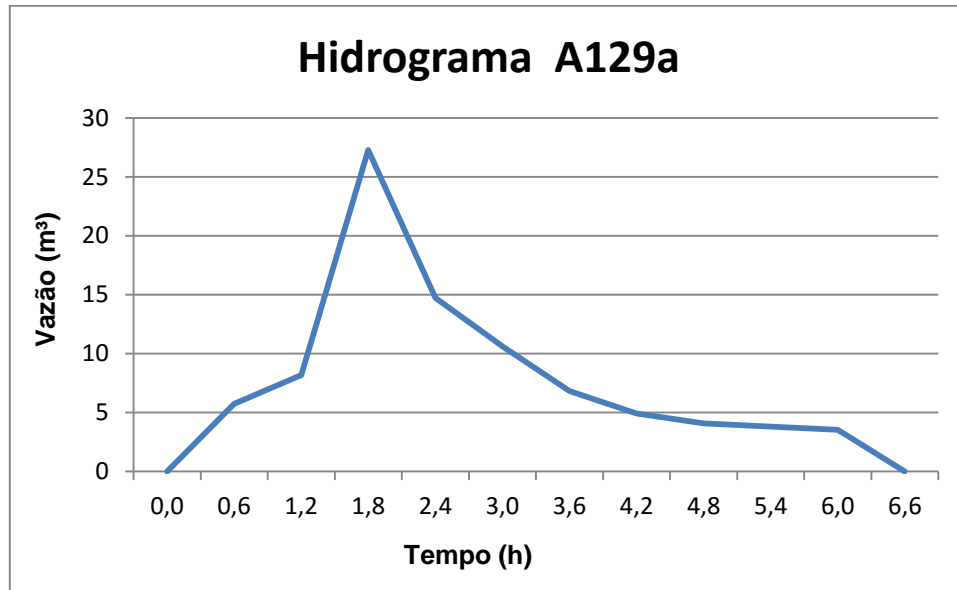


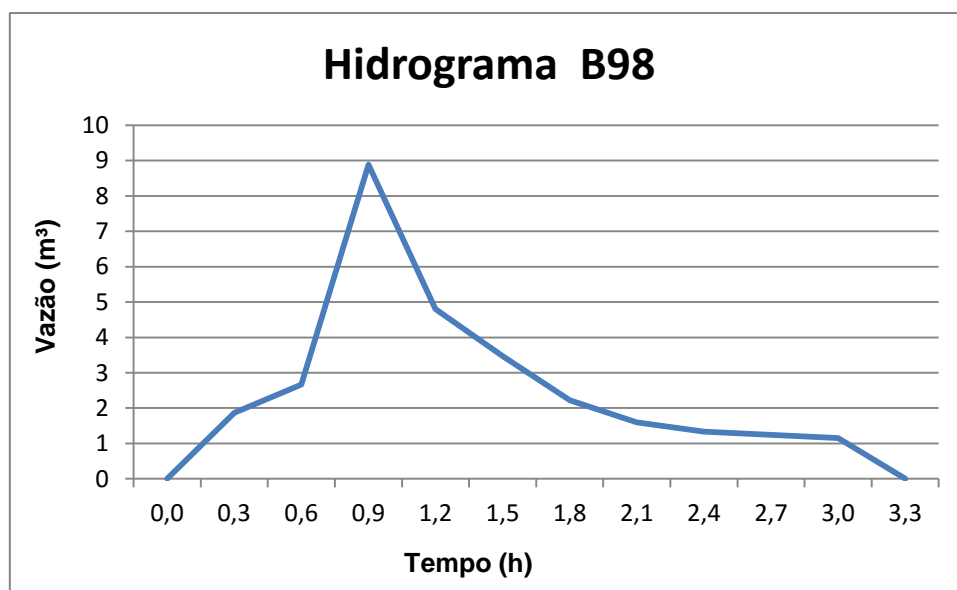
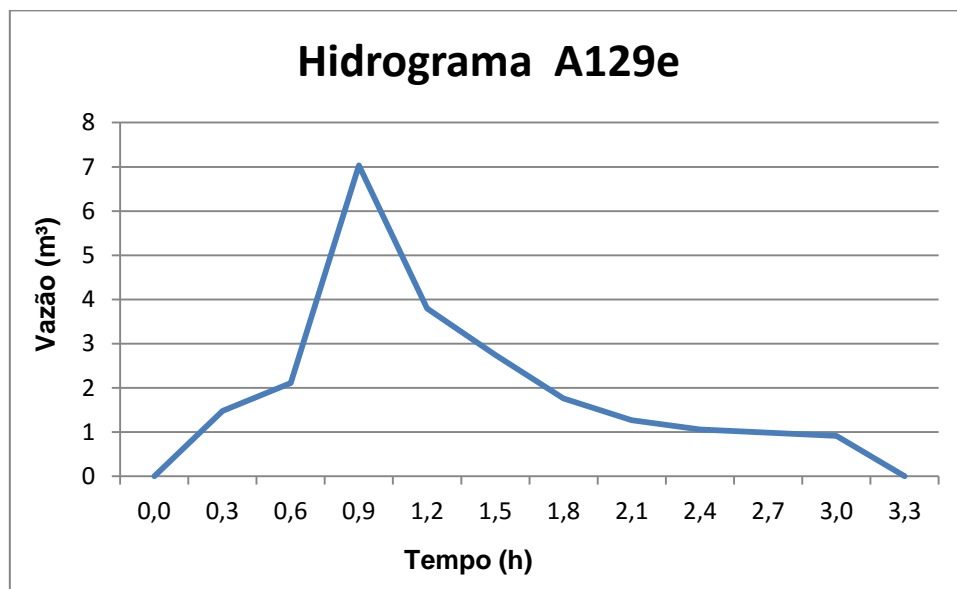
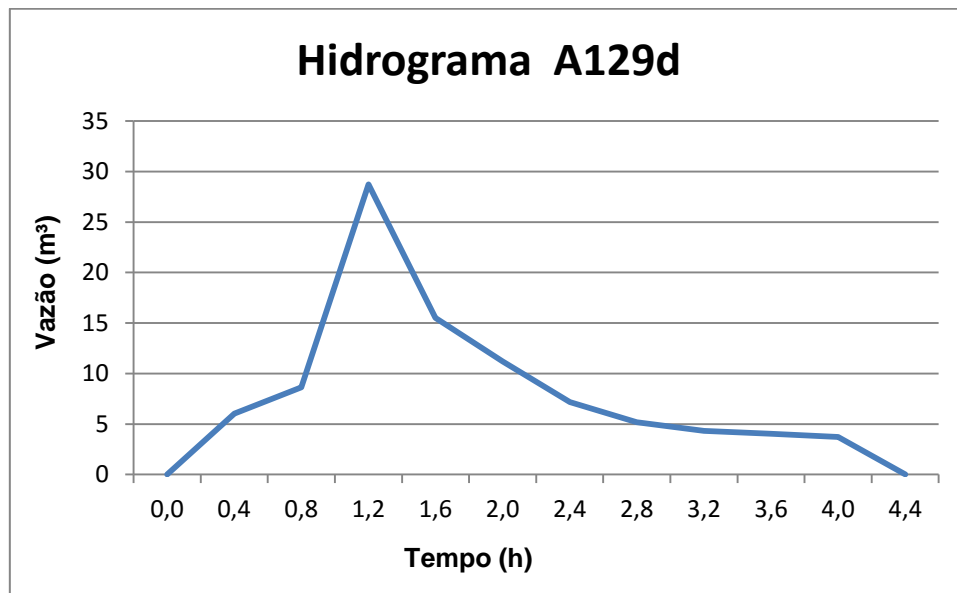


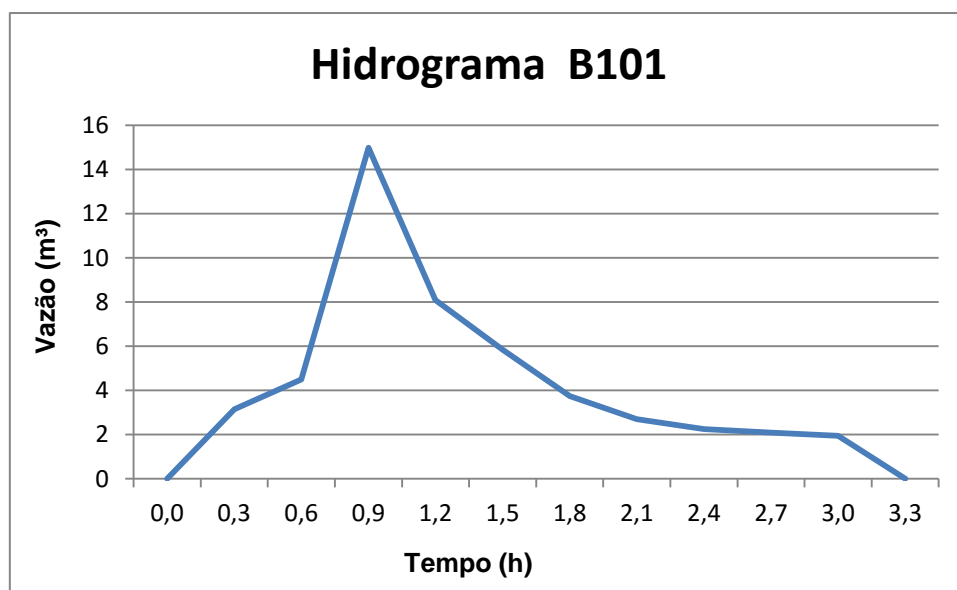
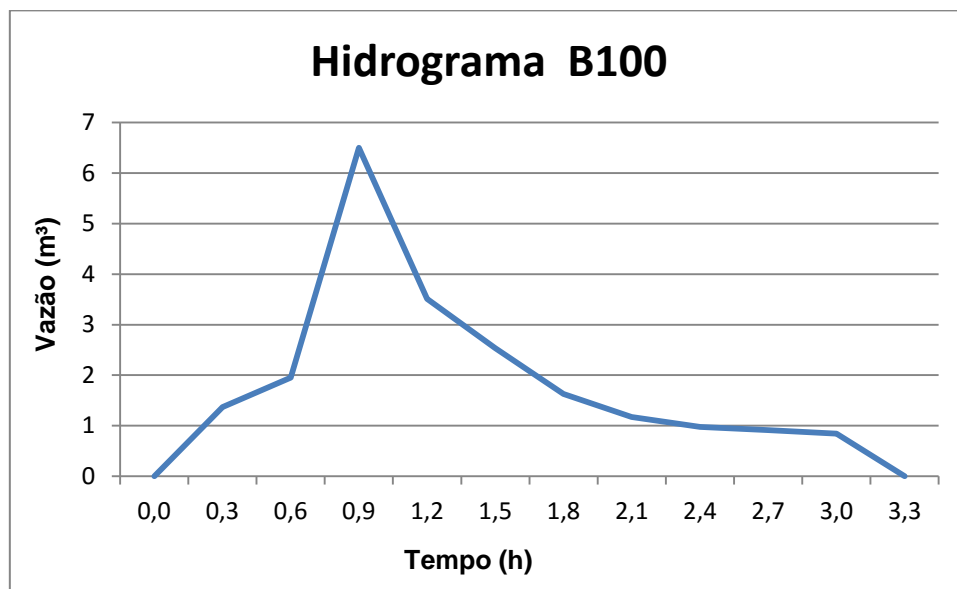
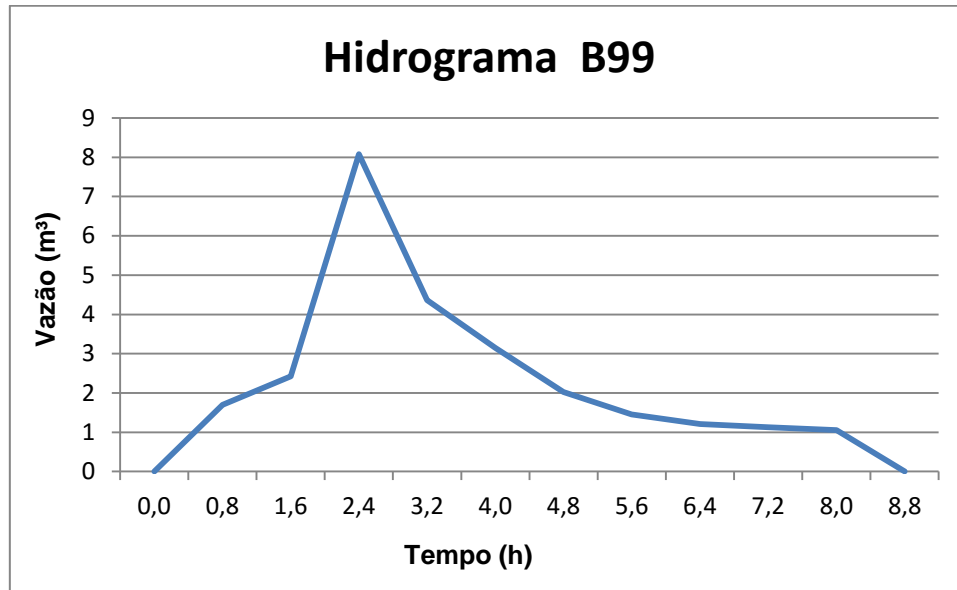


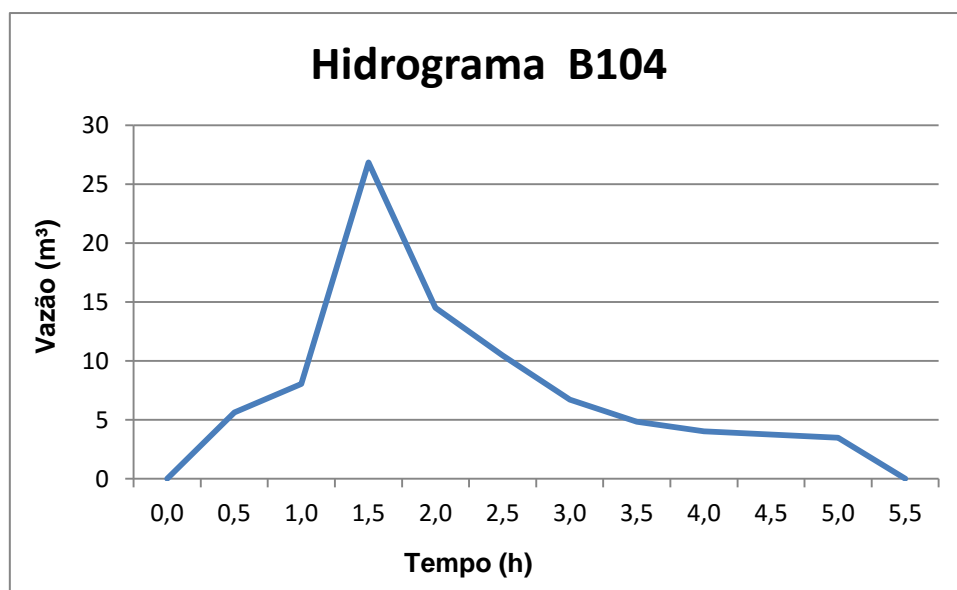
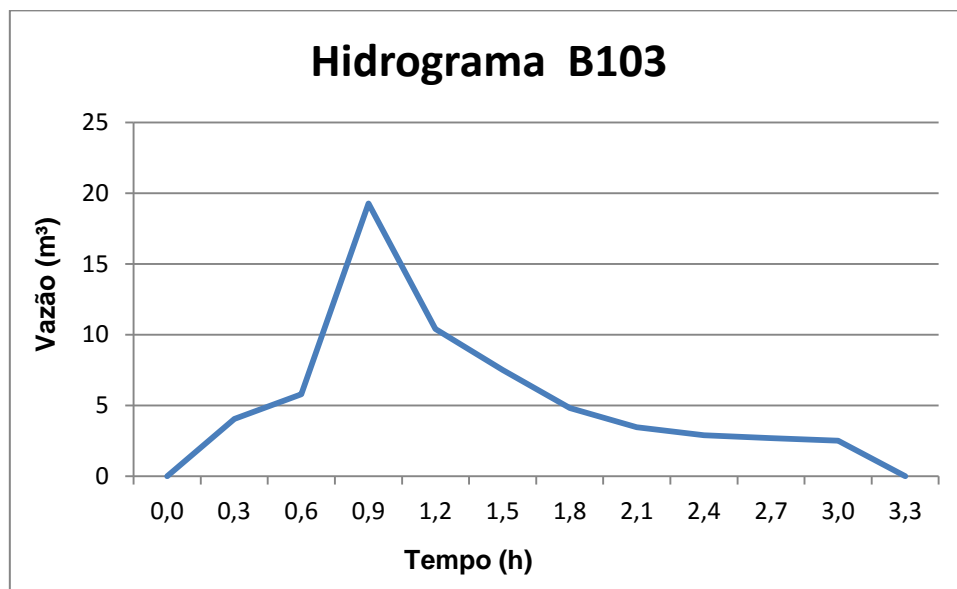
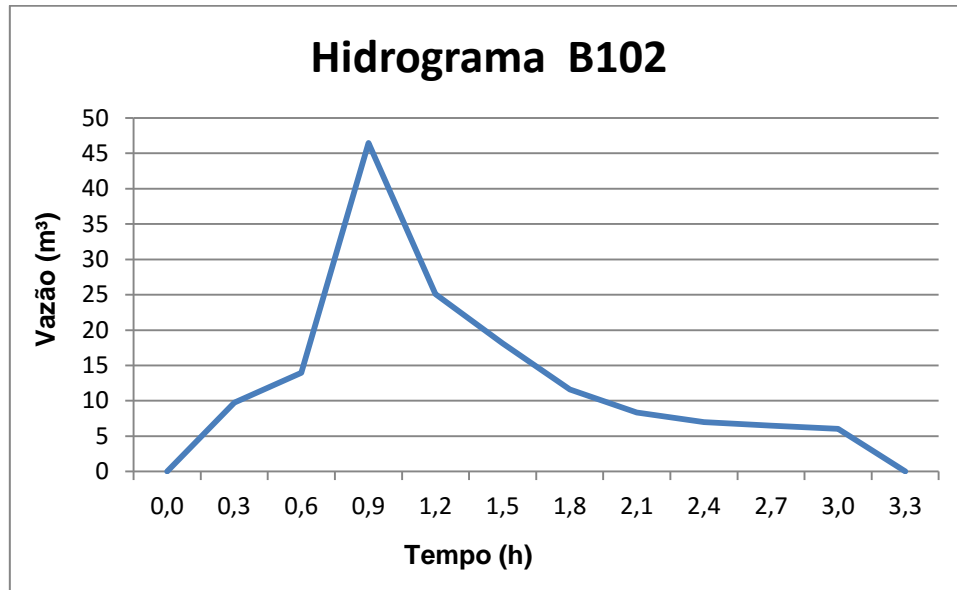


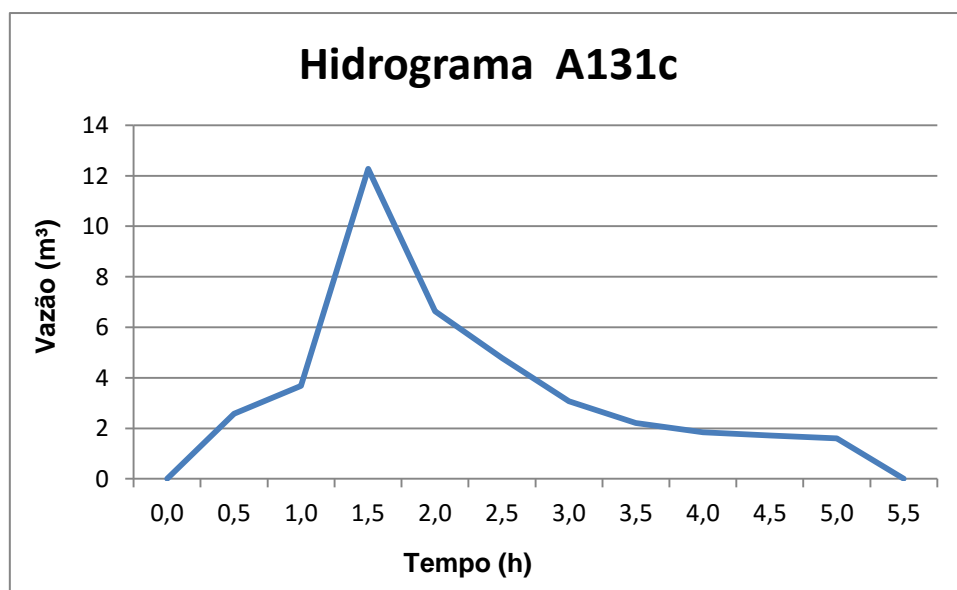
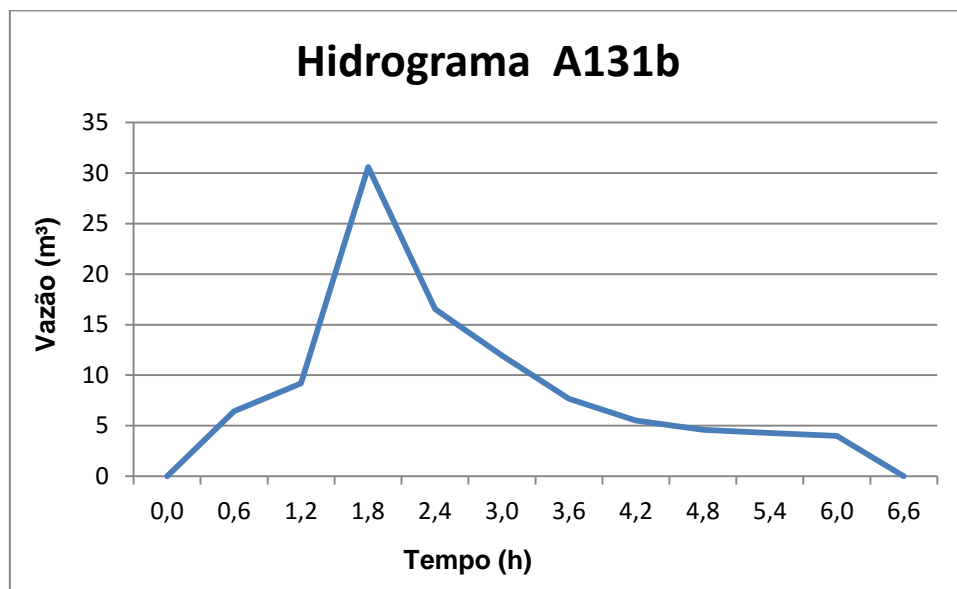
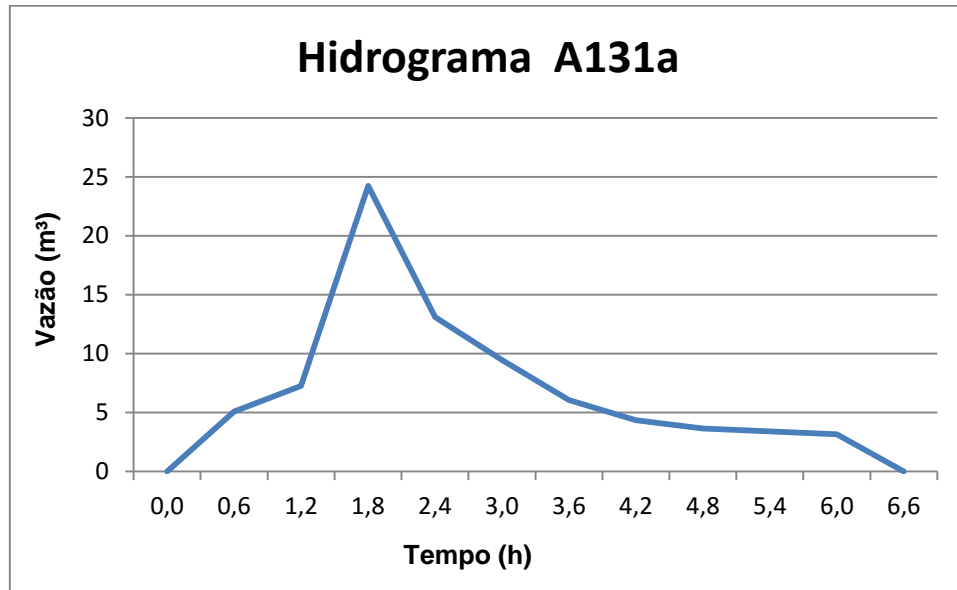


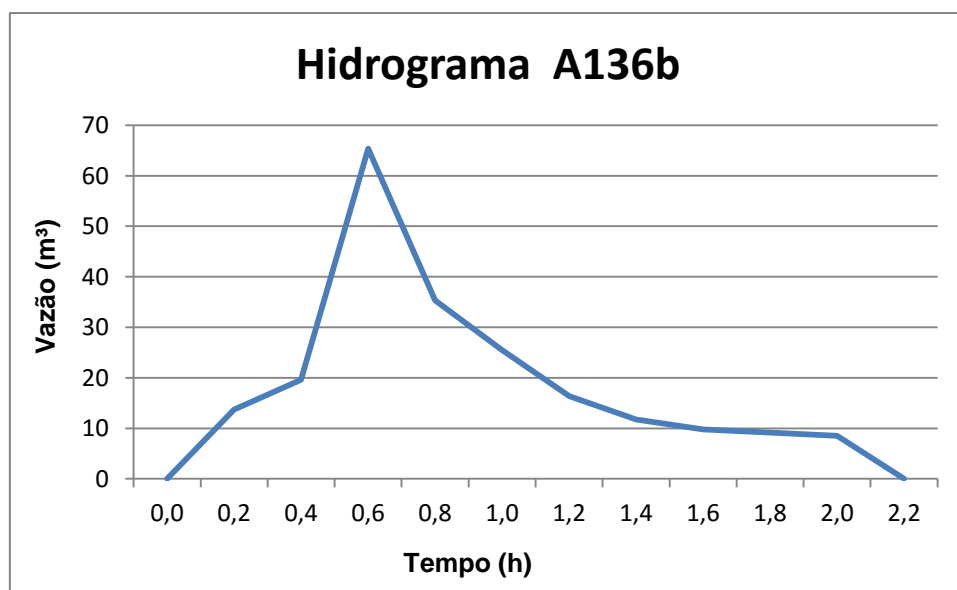
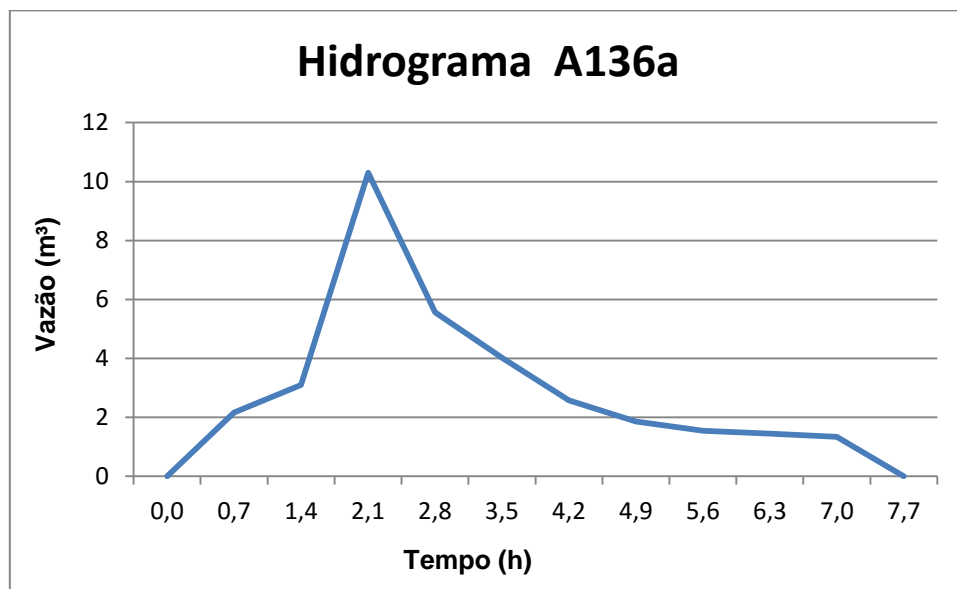
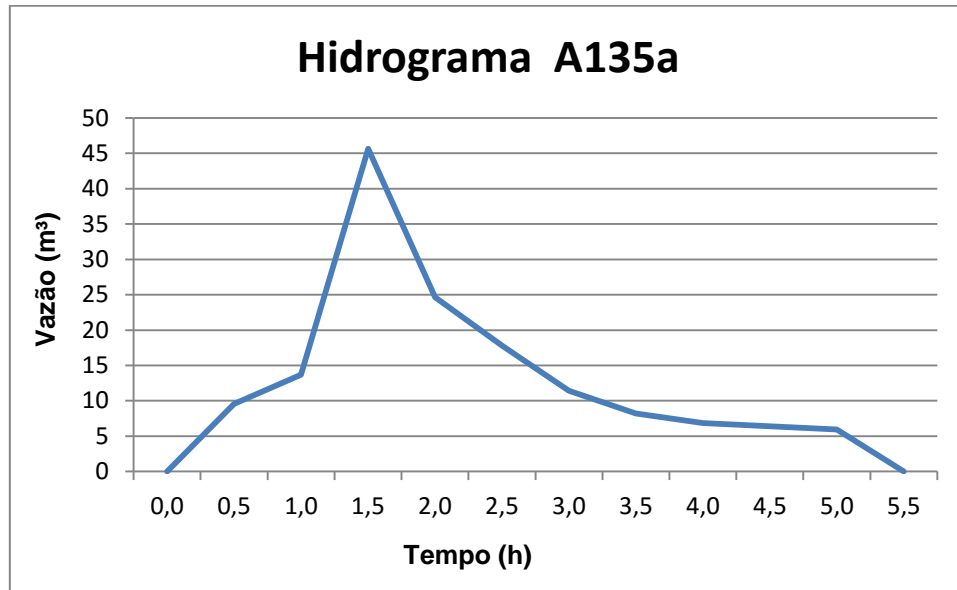


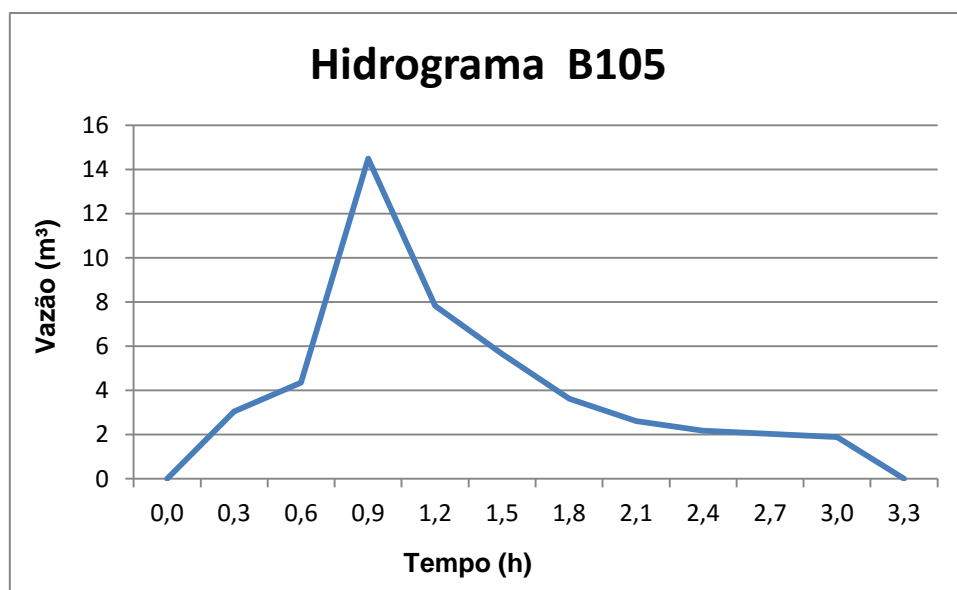
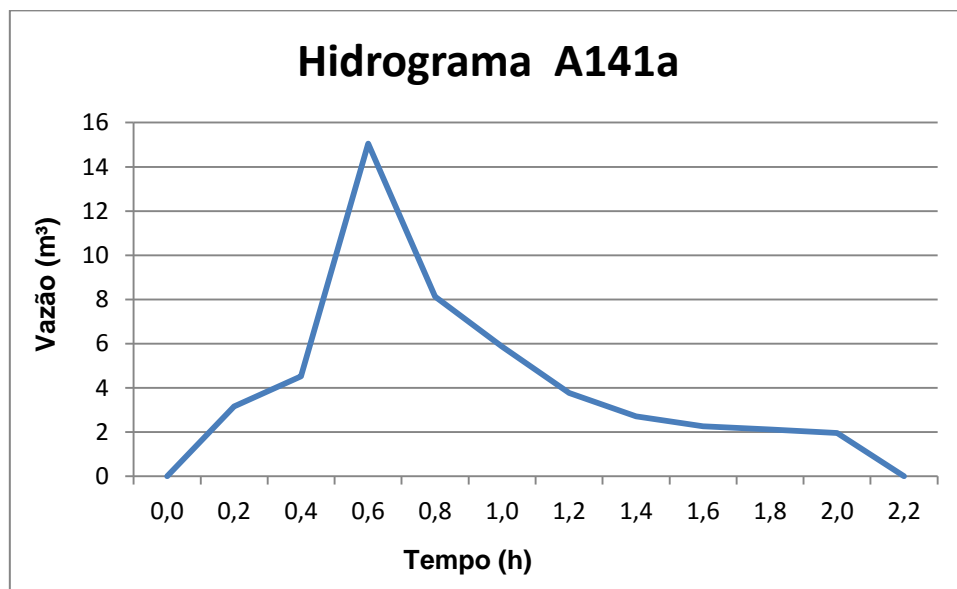
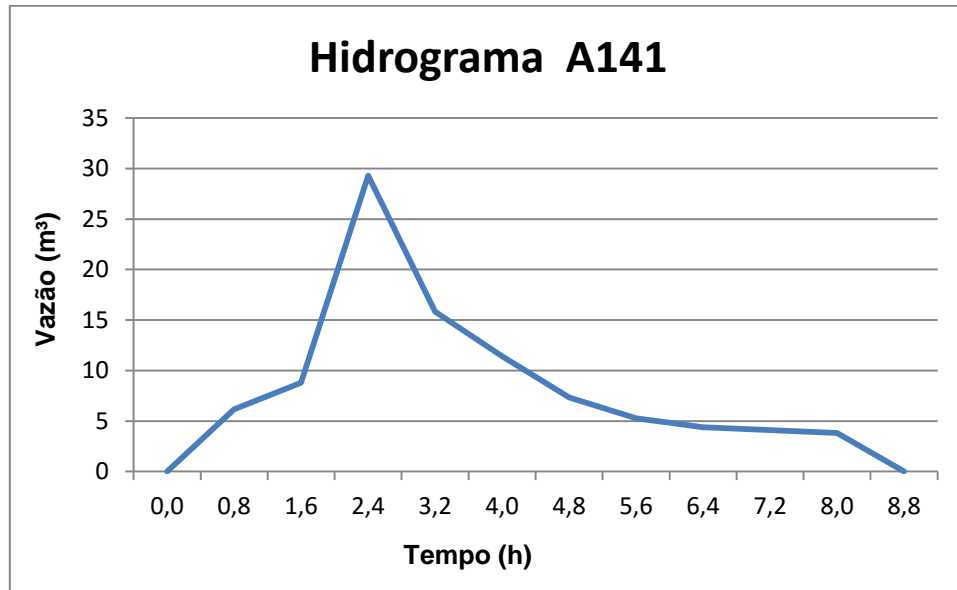


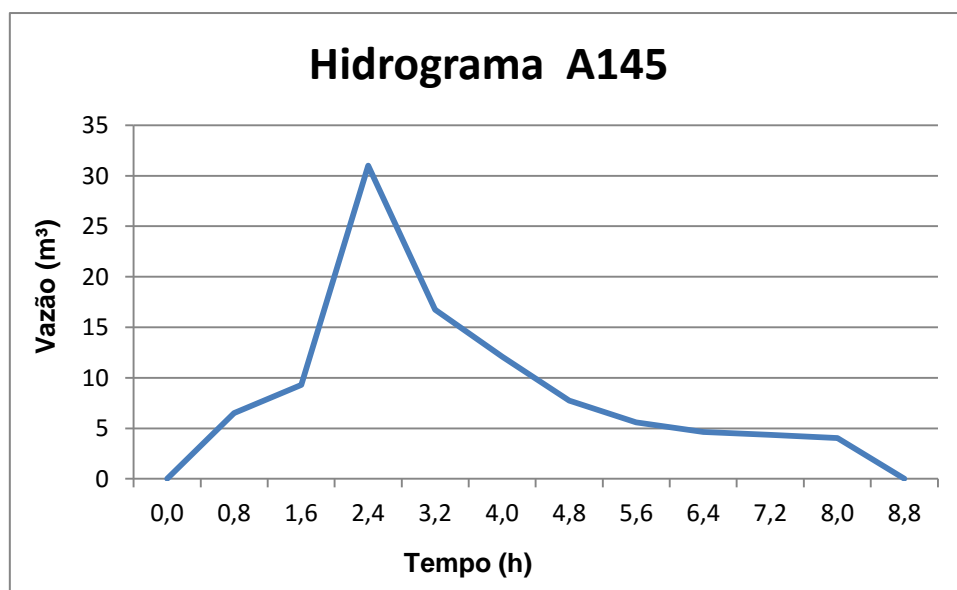
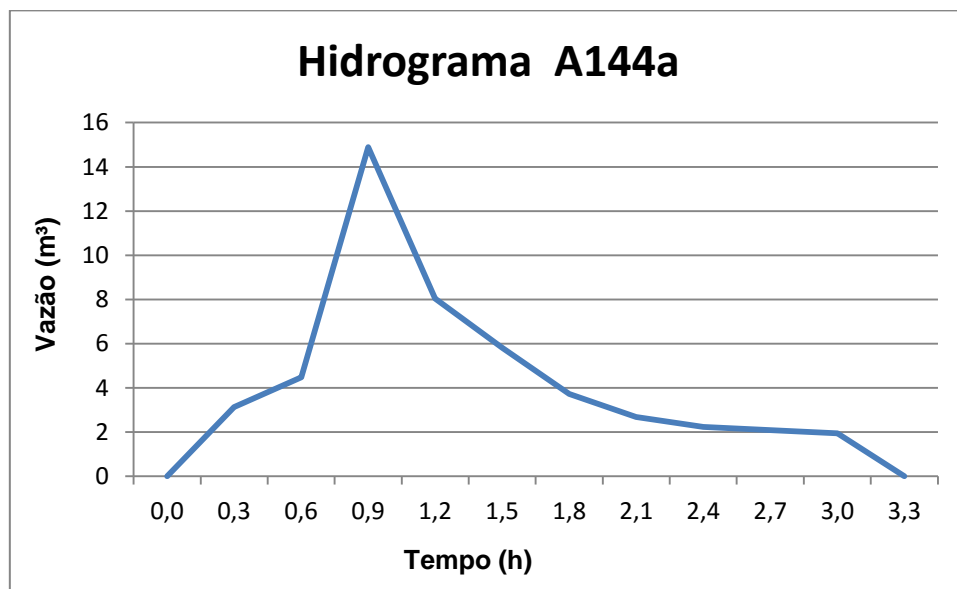
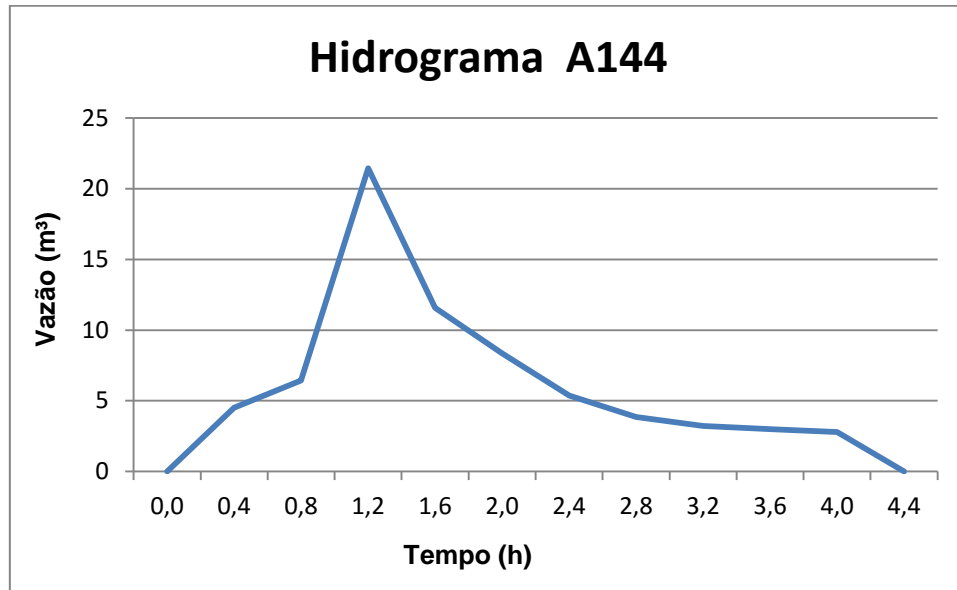


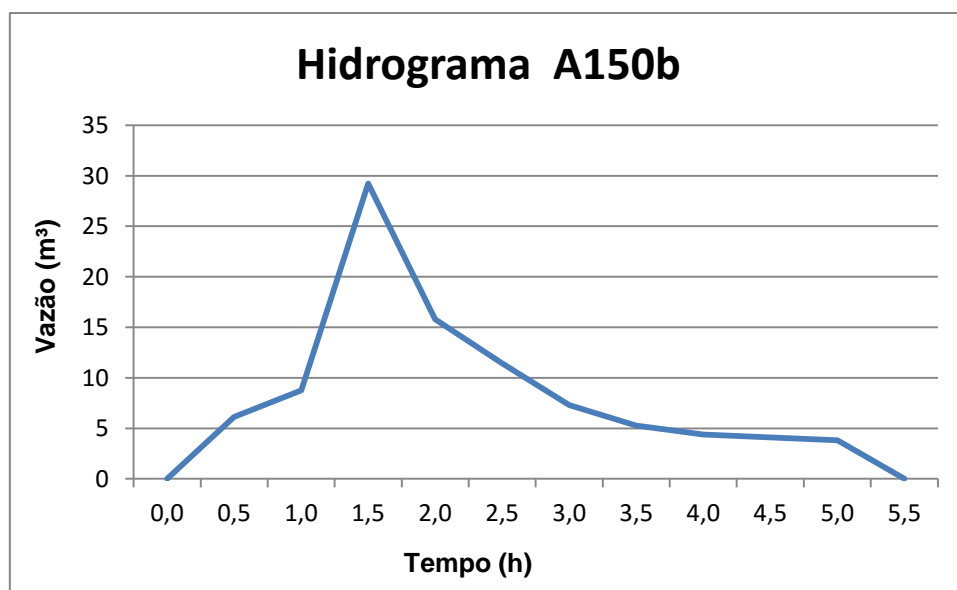
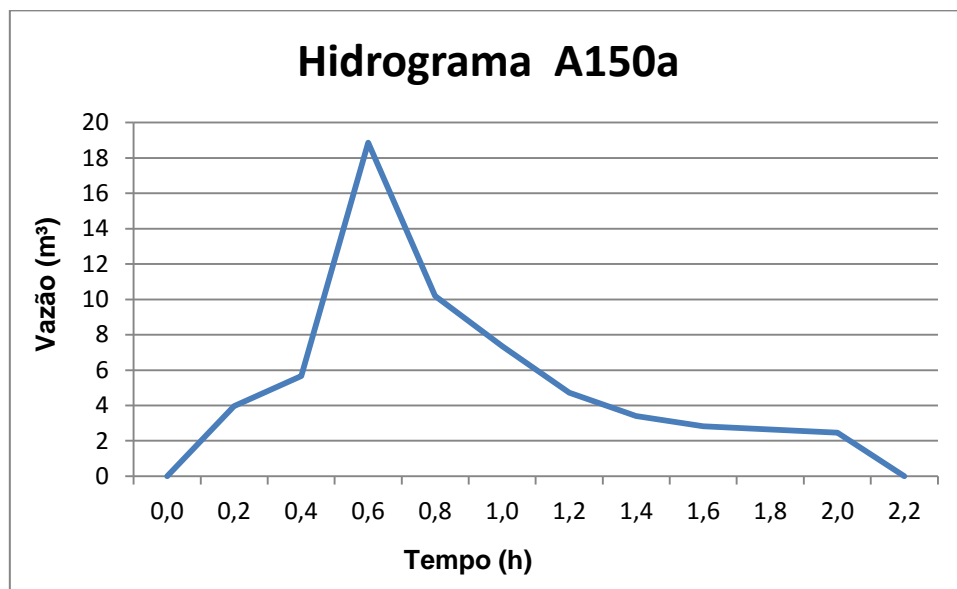
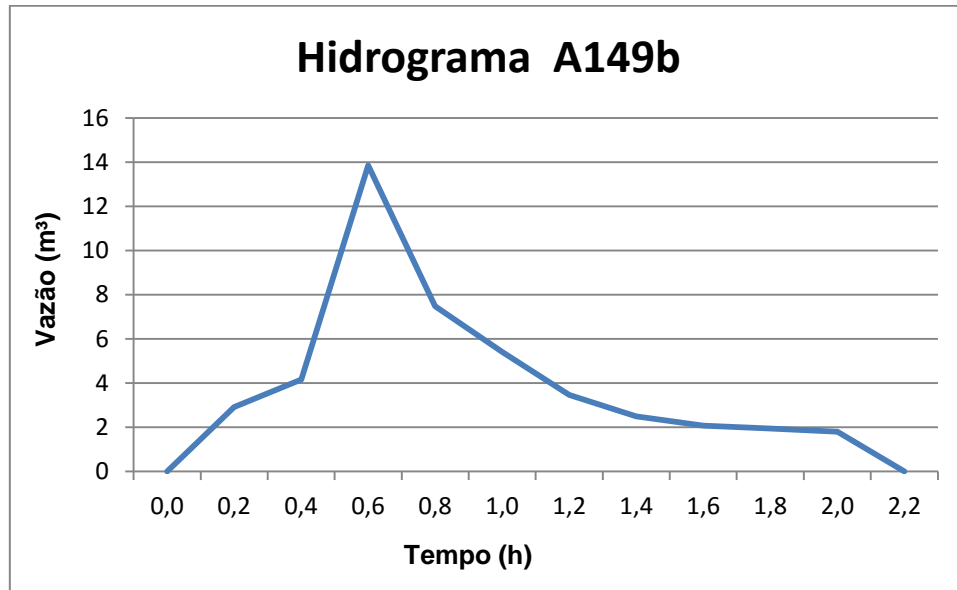


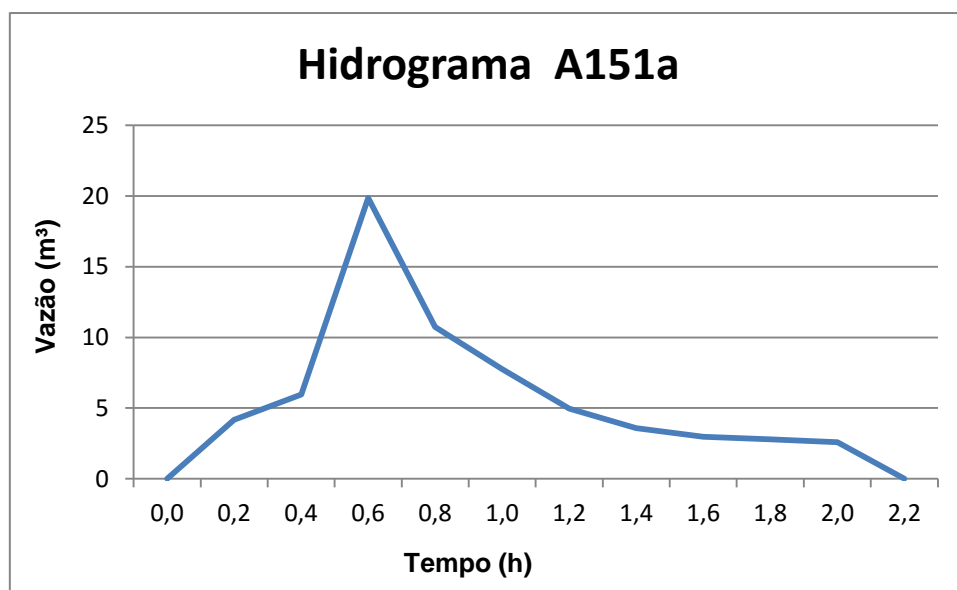
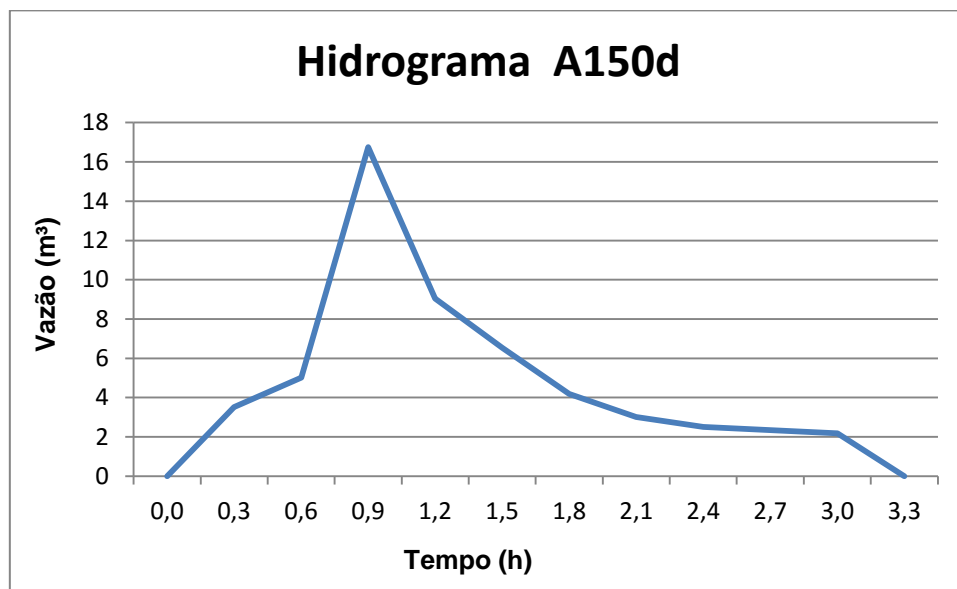
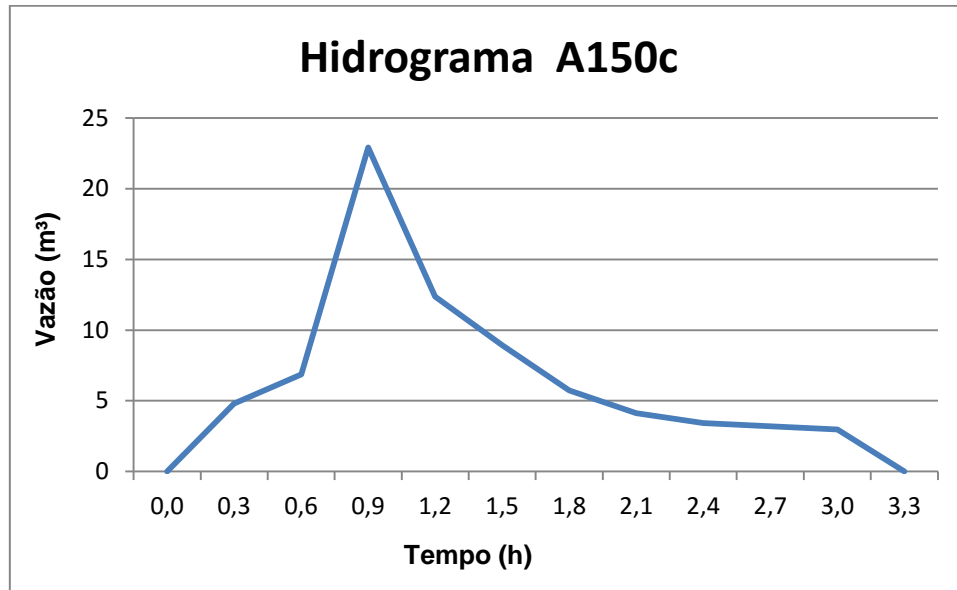


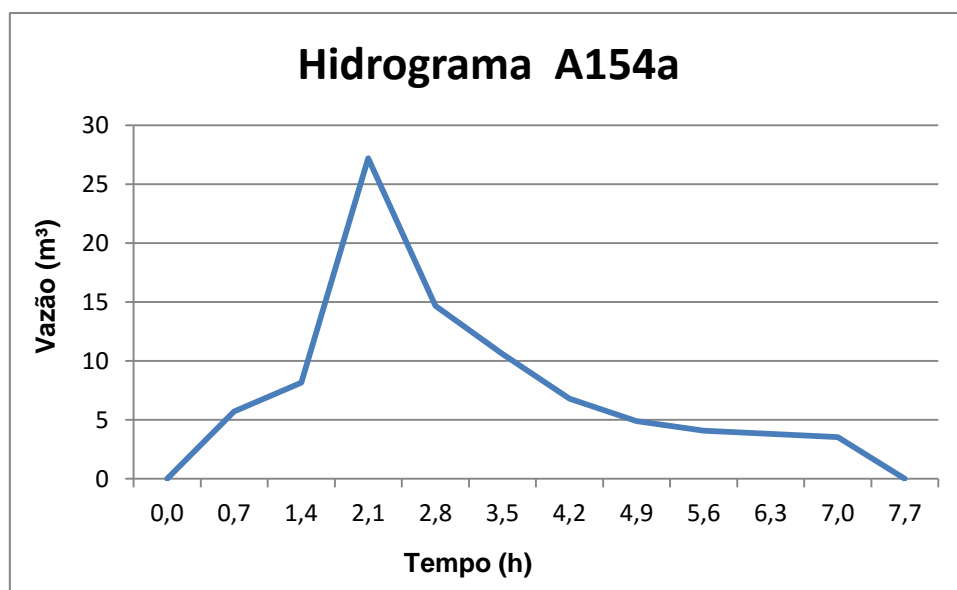
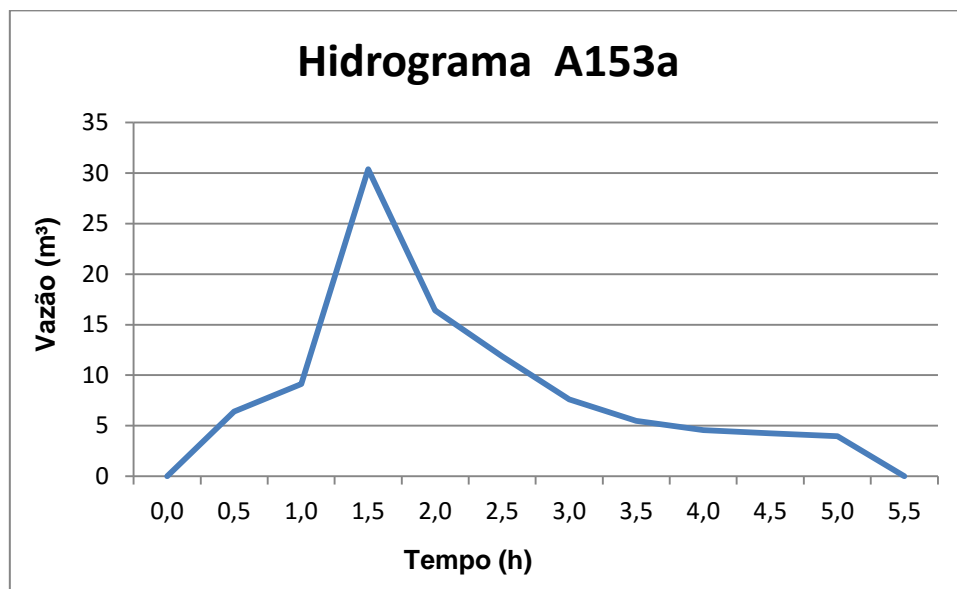
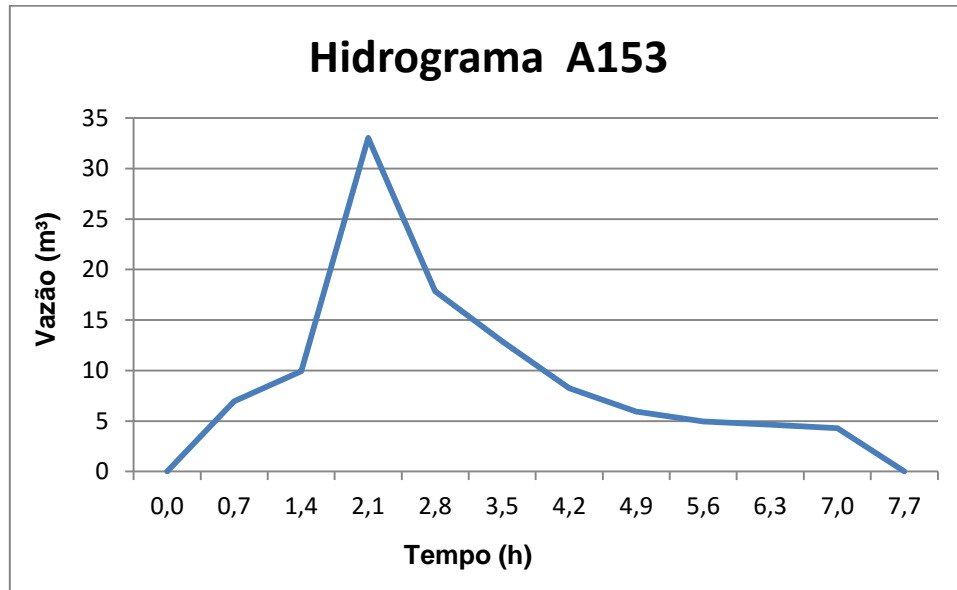


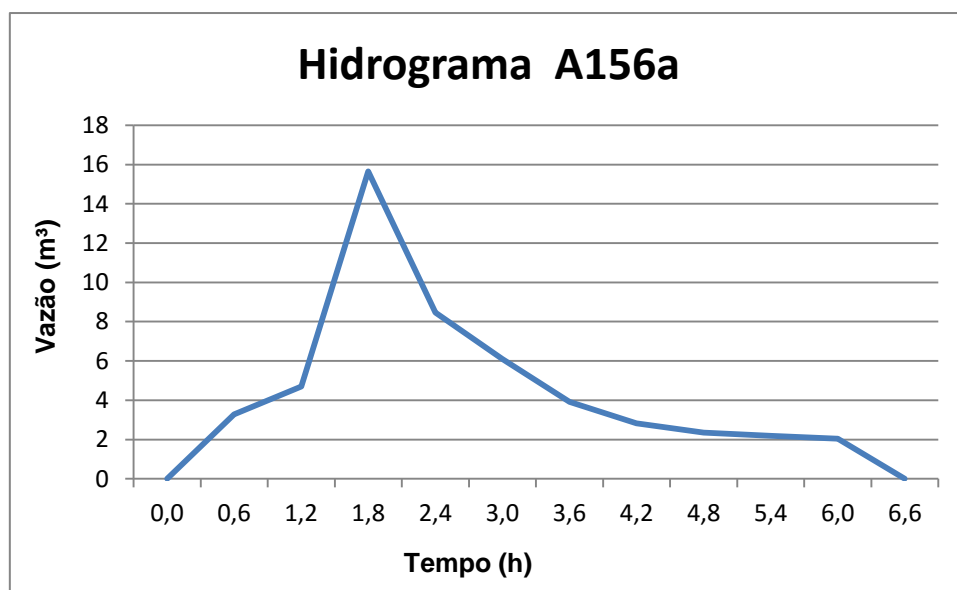
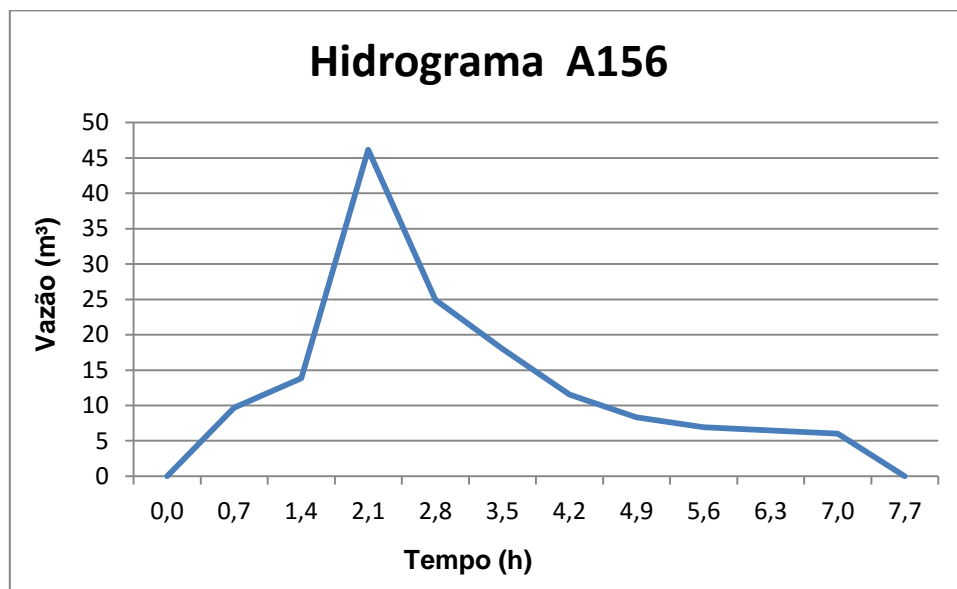
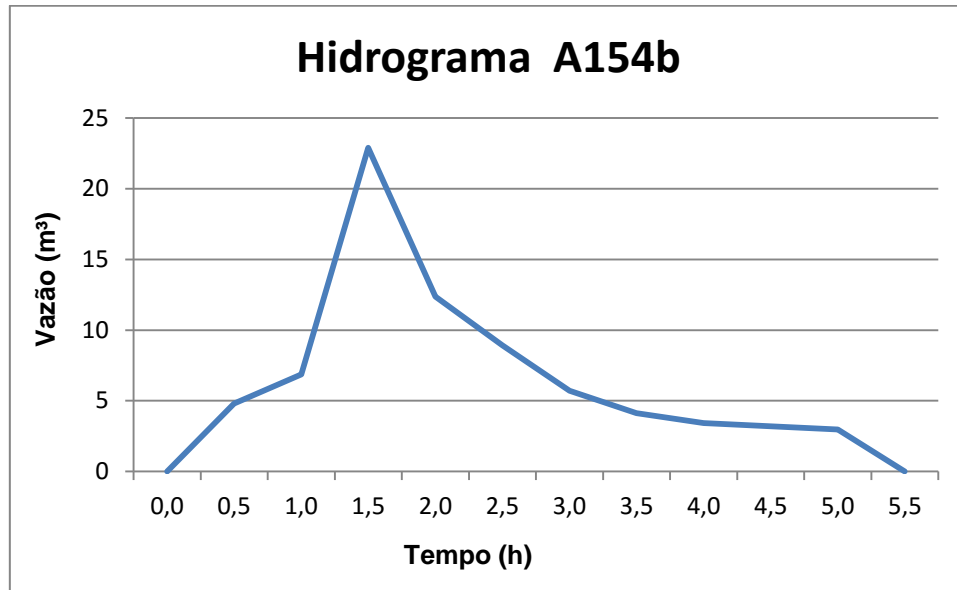


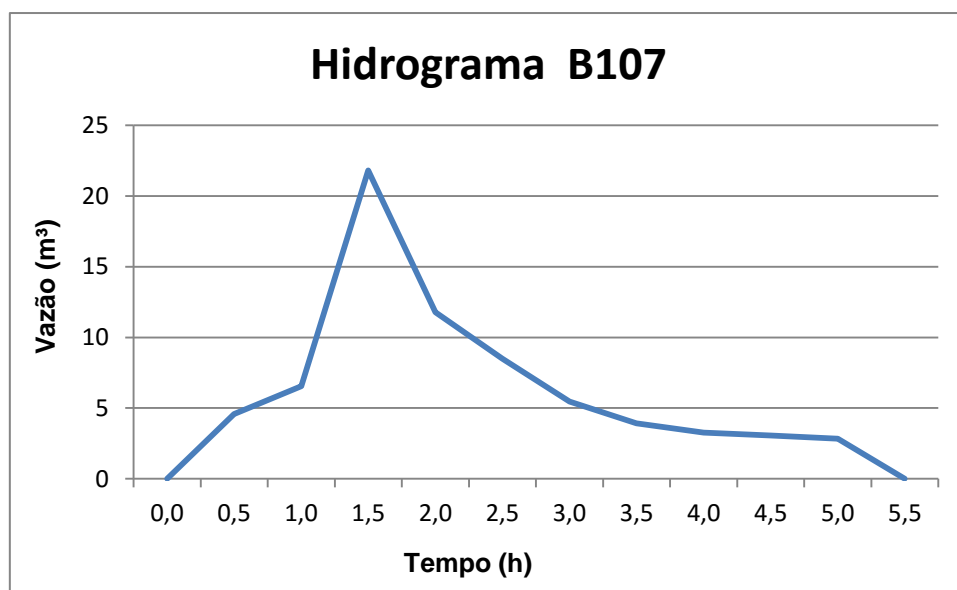
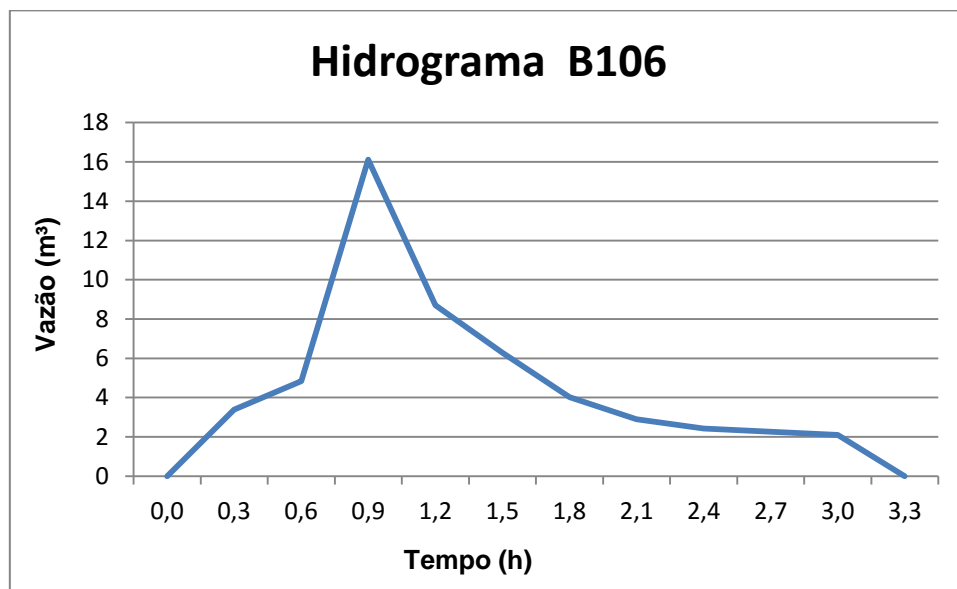
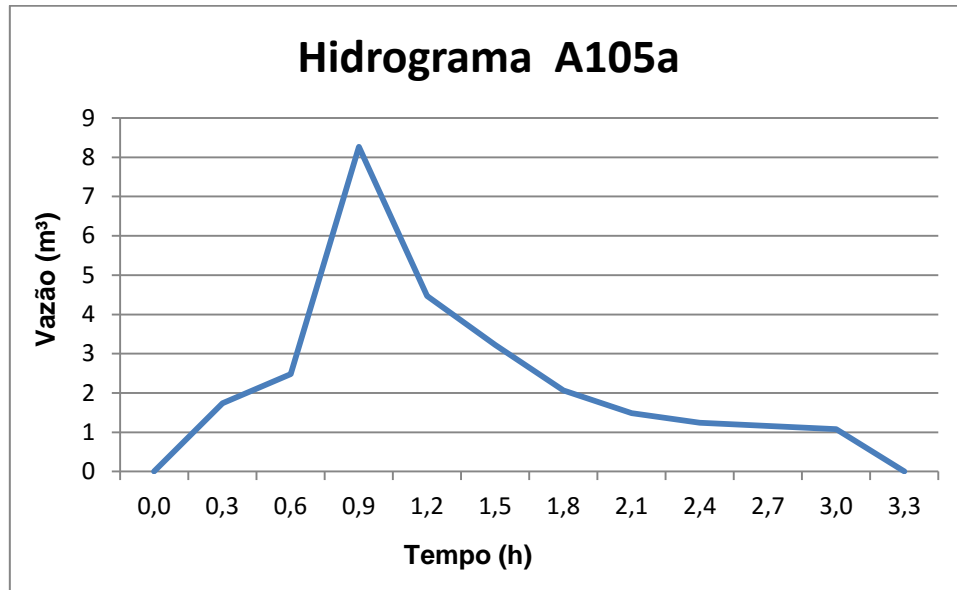


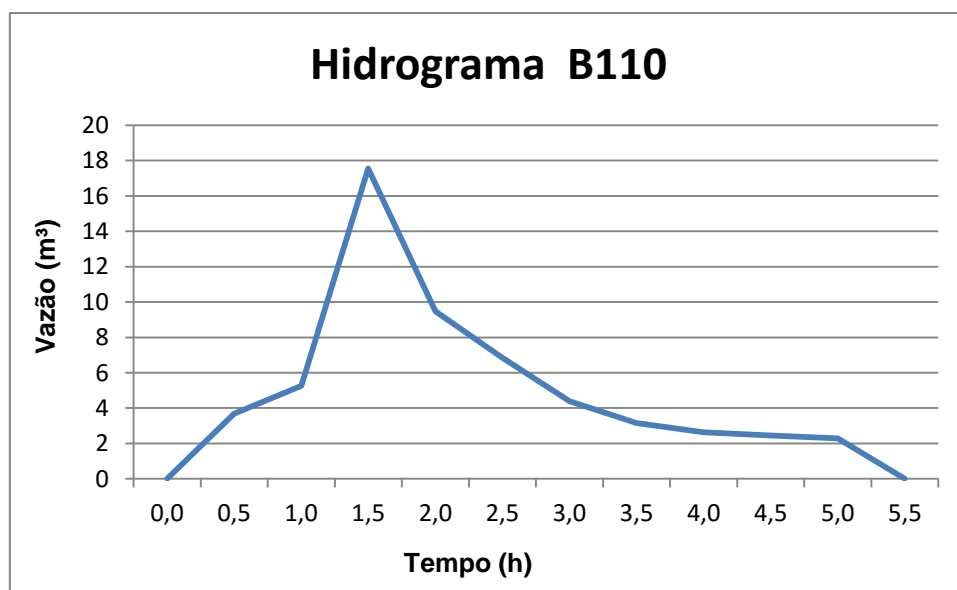
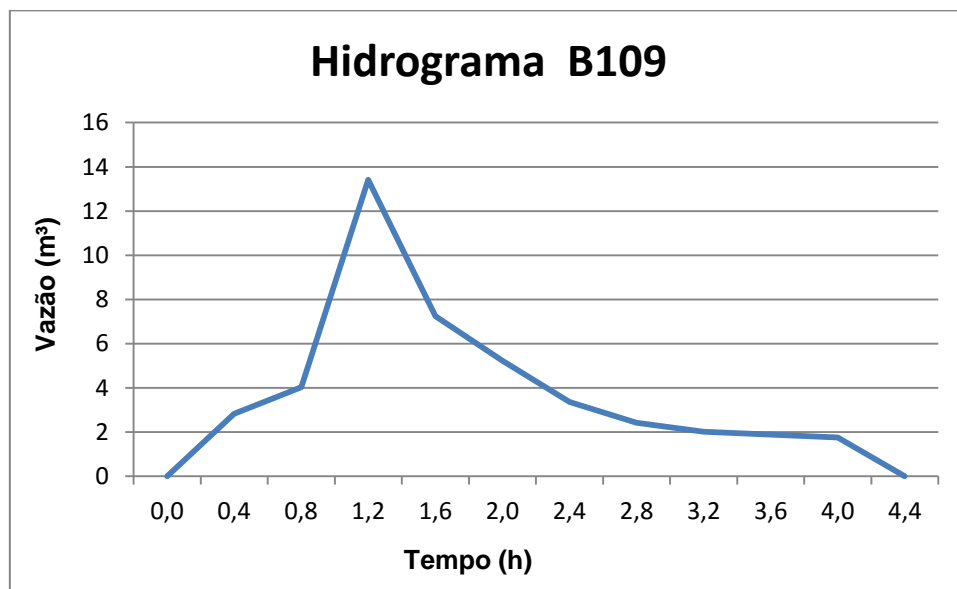
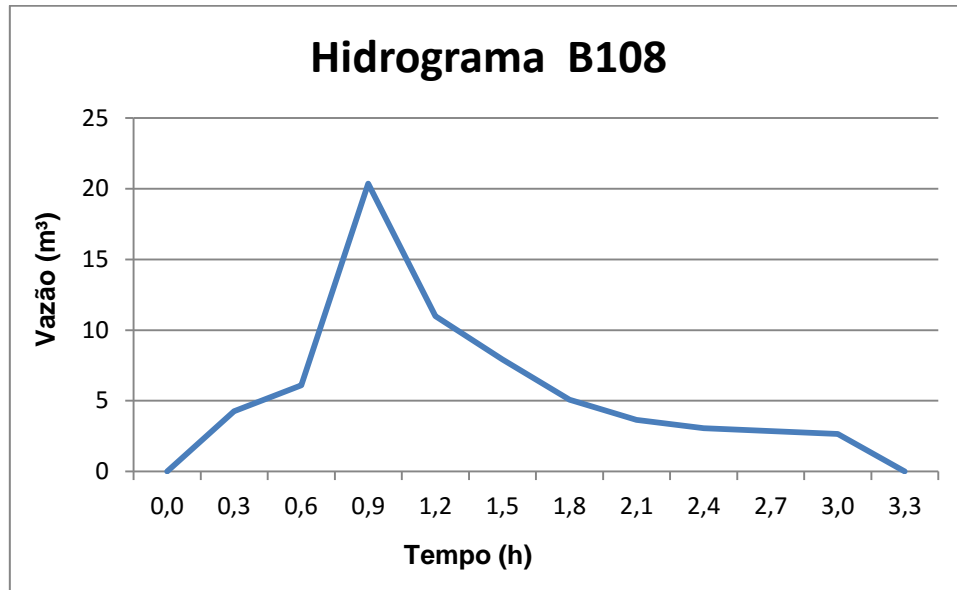


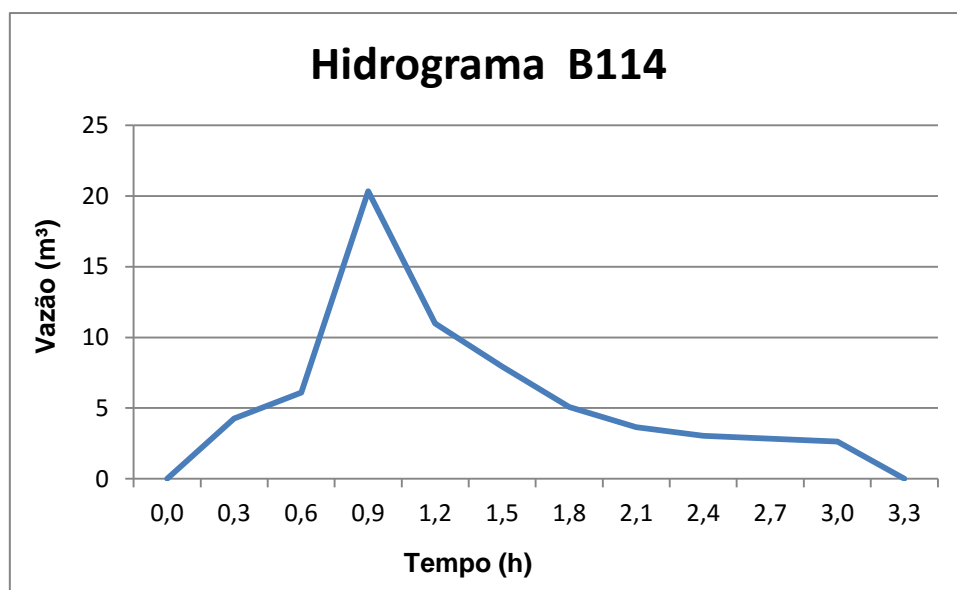
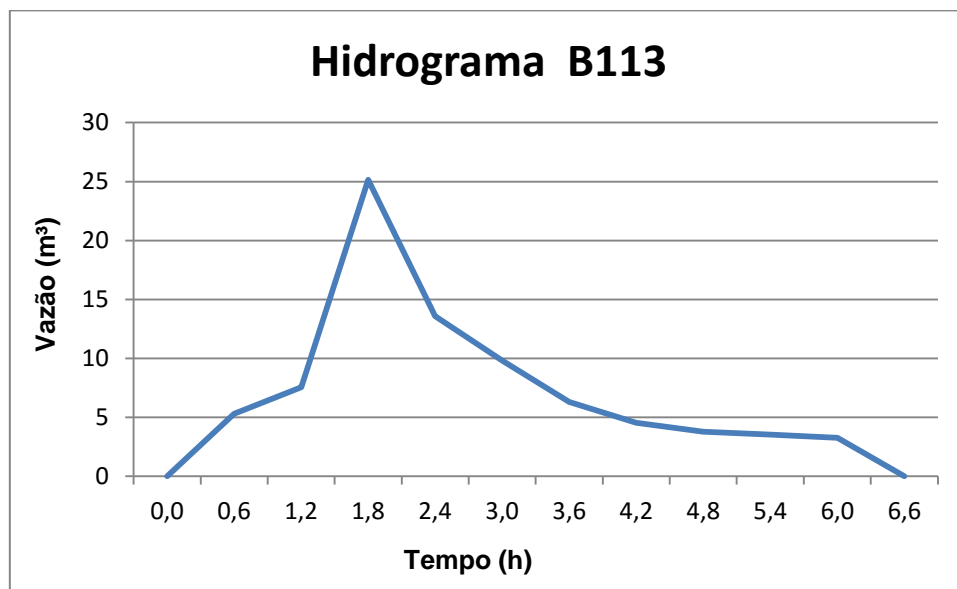
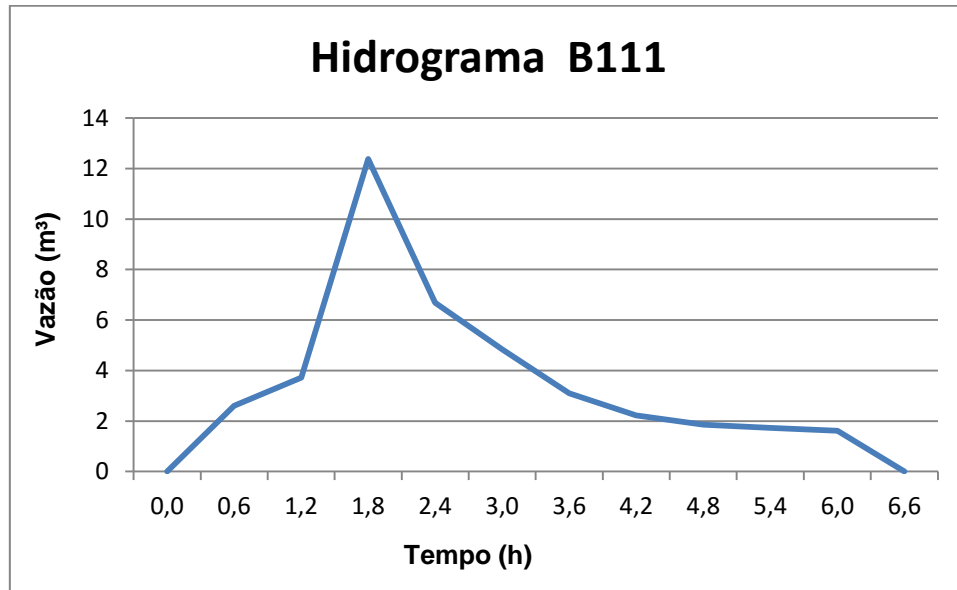




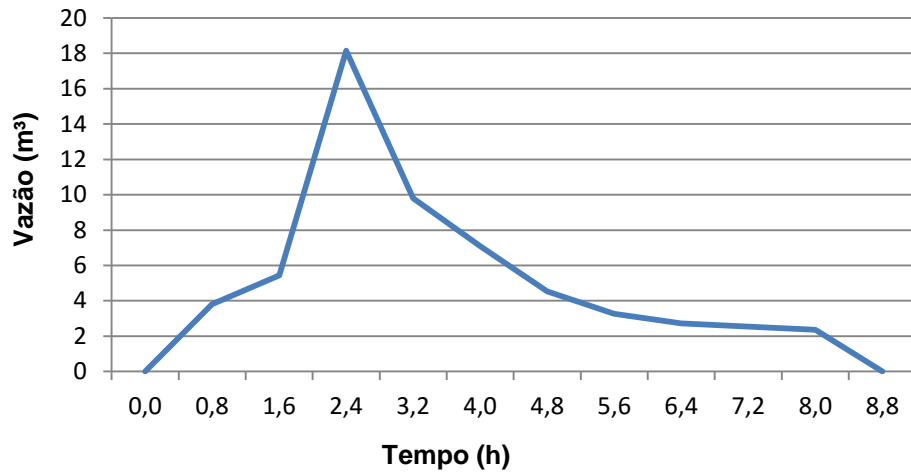




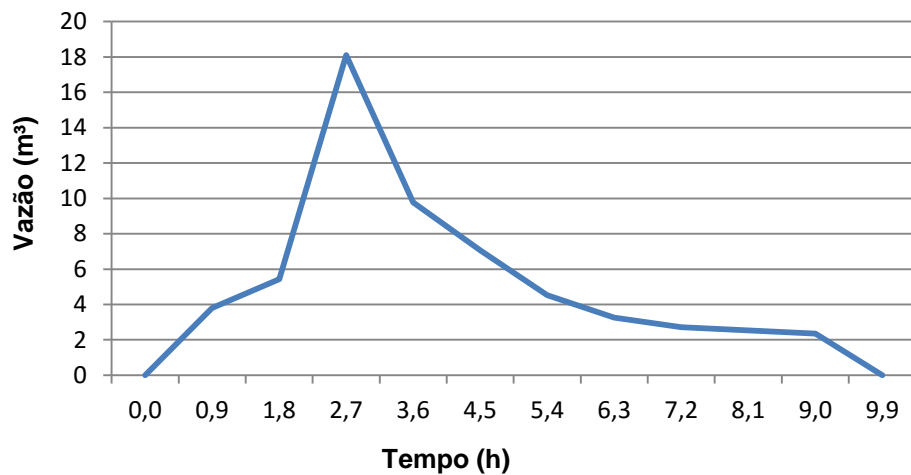




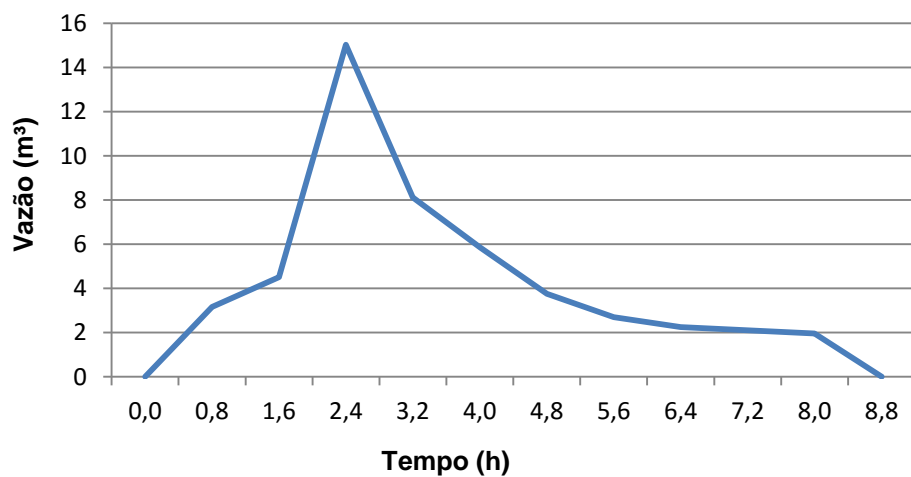
Hidrograma B115

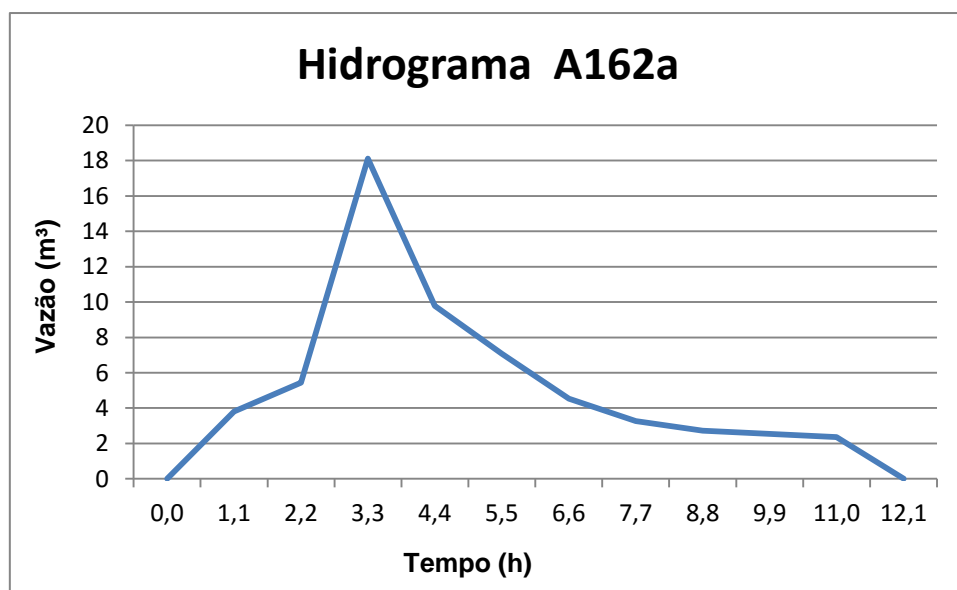
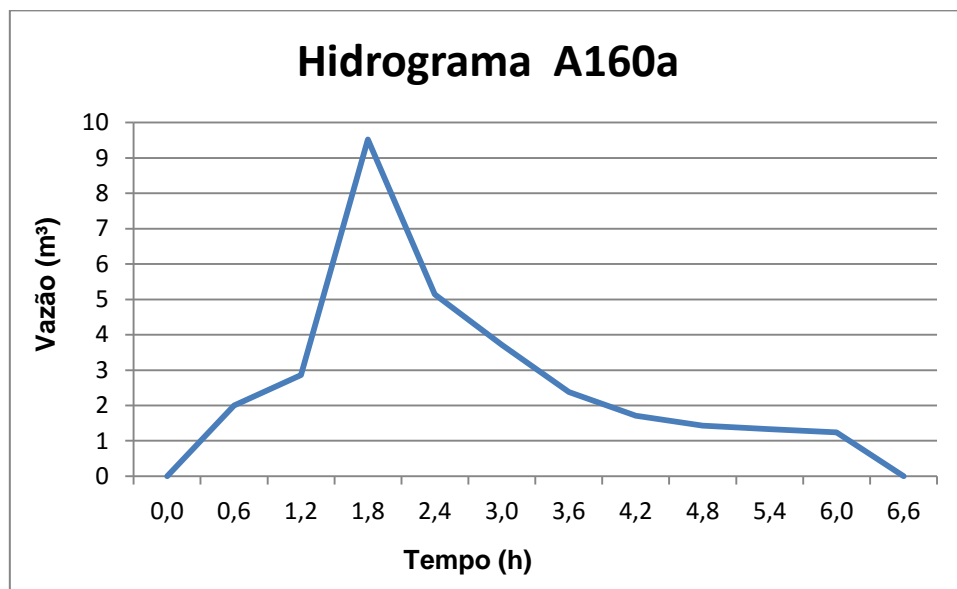
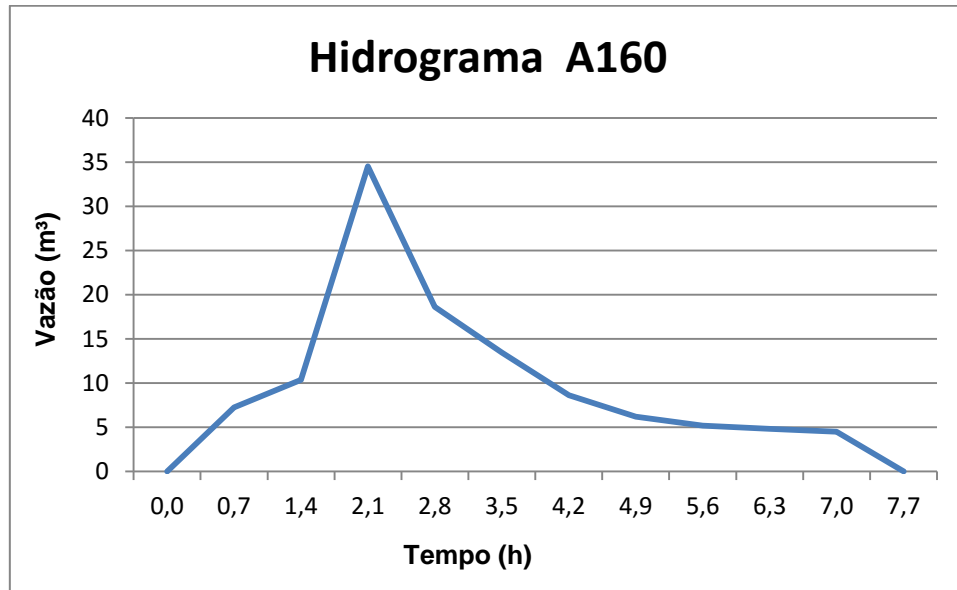


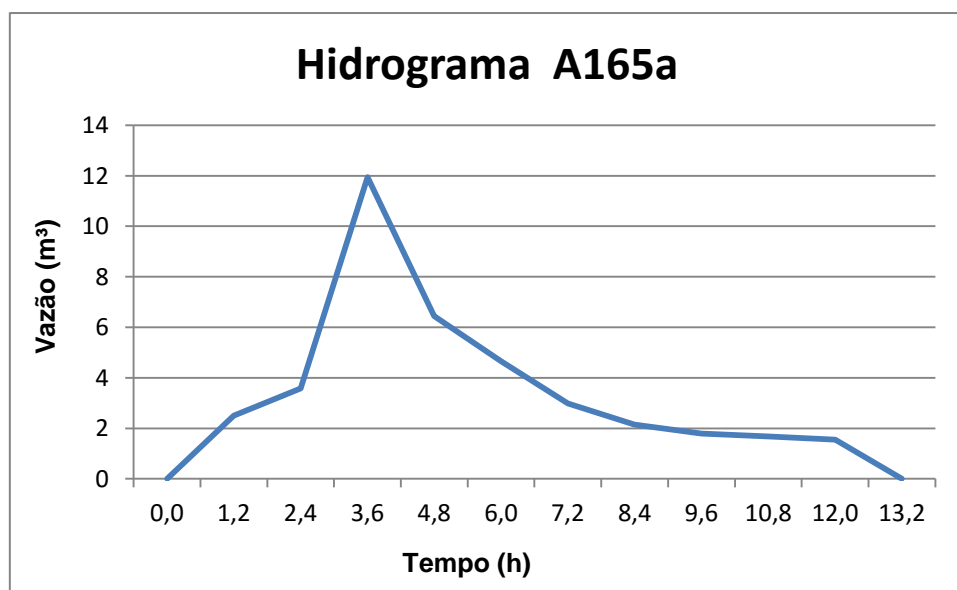
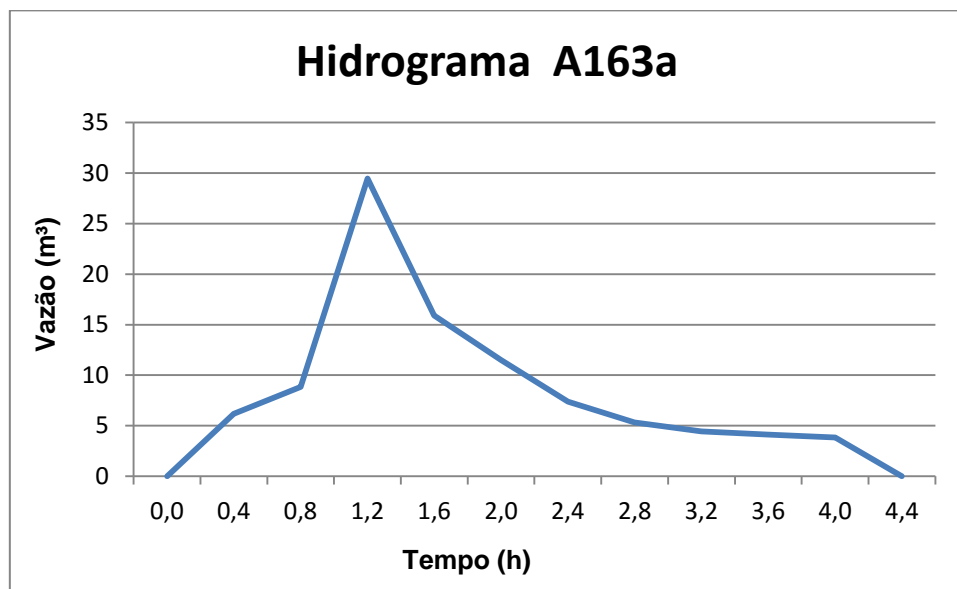
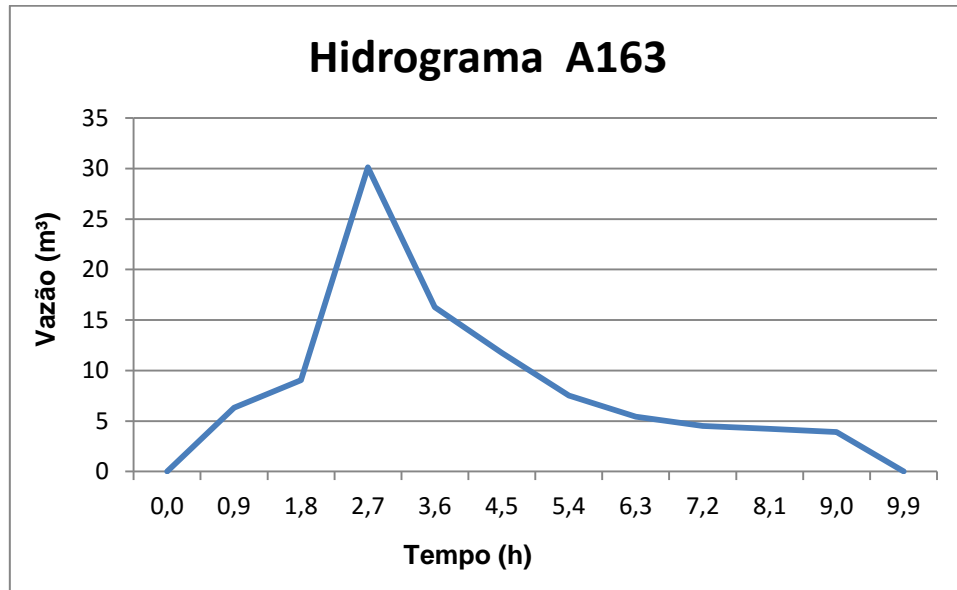
Hidrograma B116

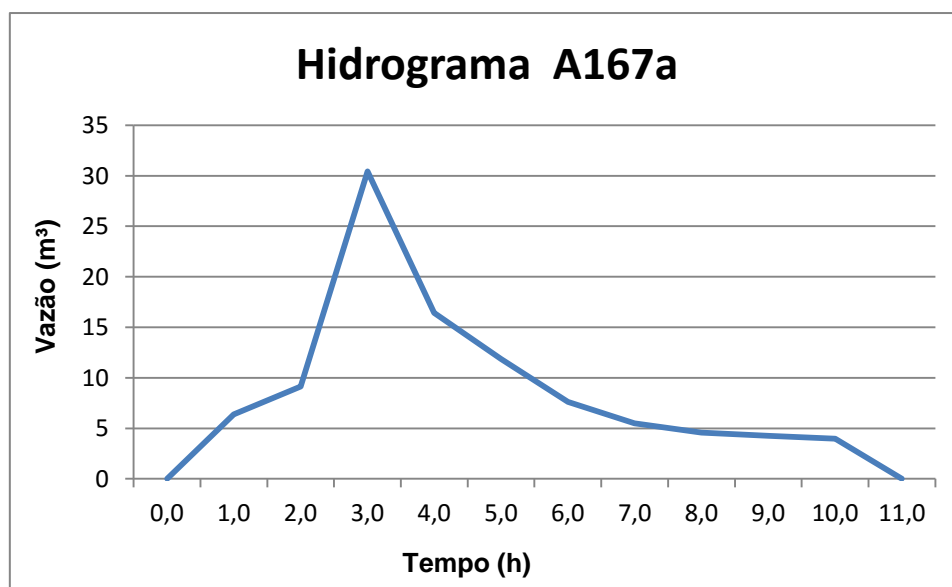
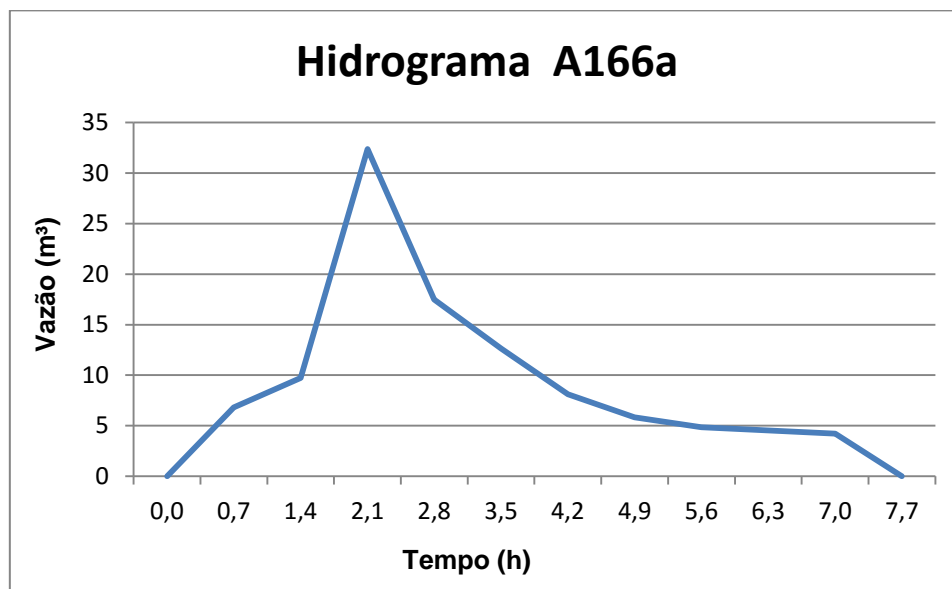
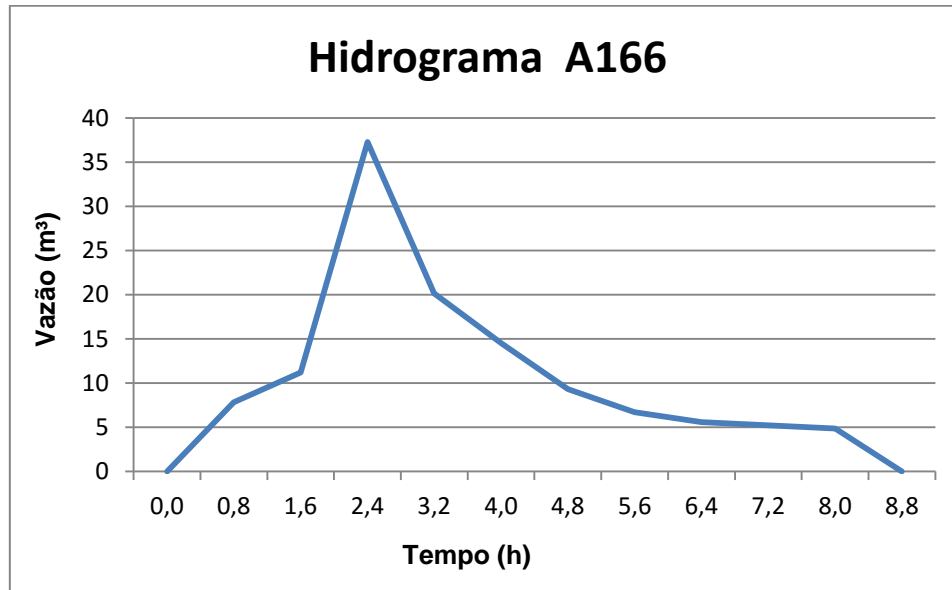


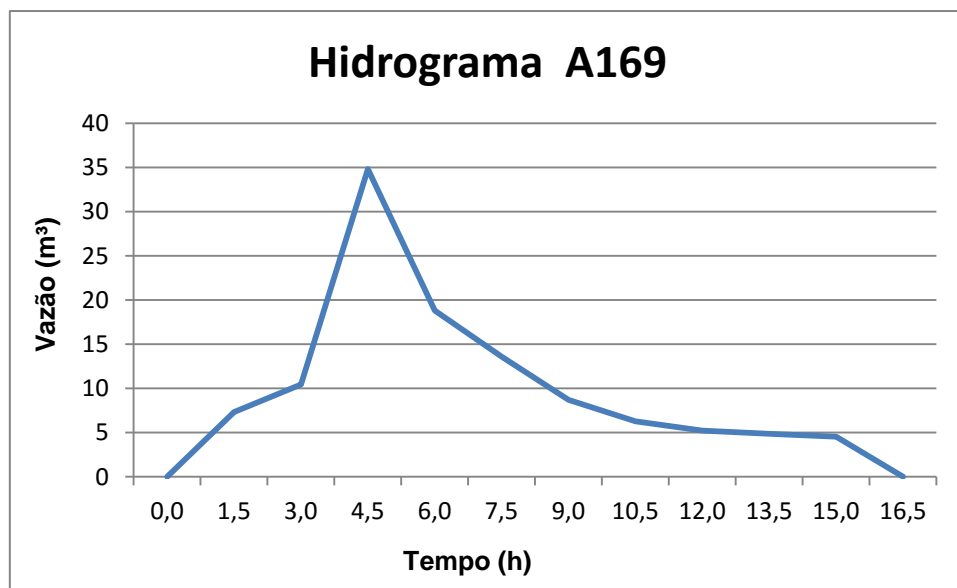
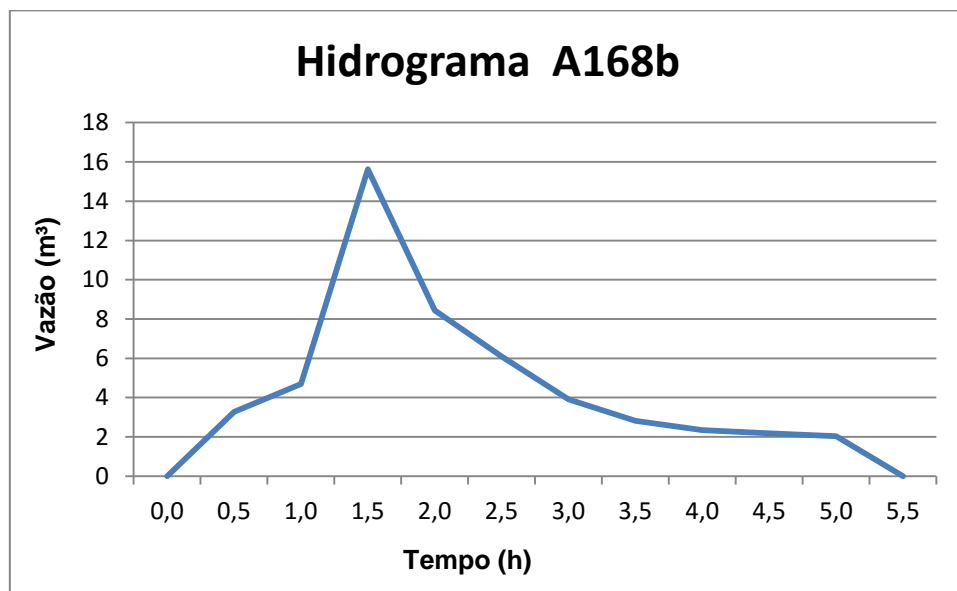
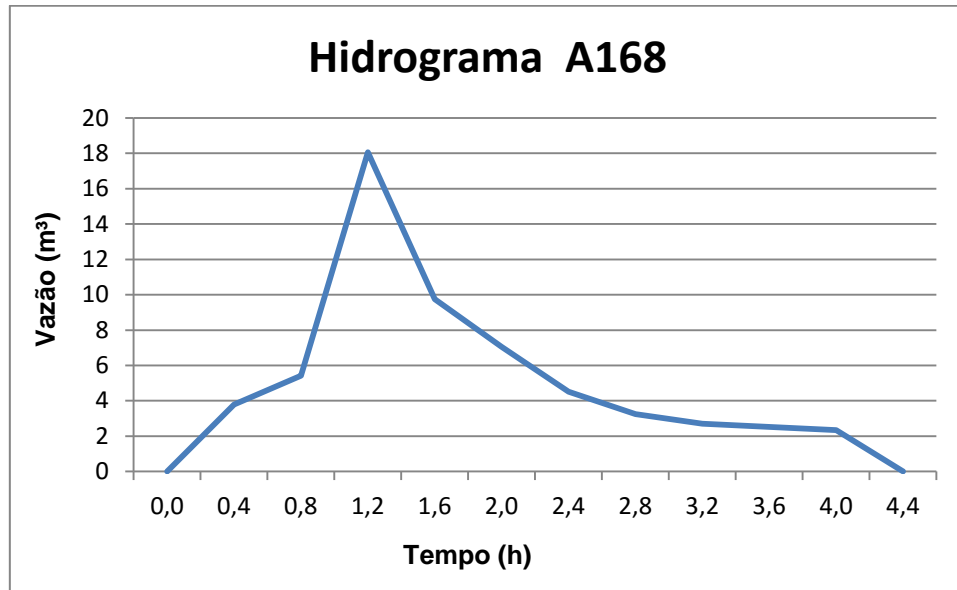
Hidrograma B117

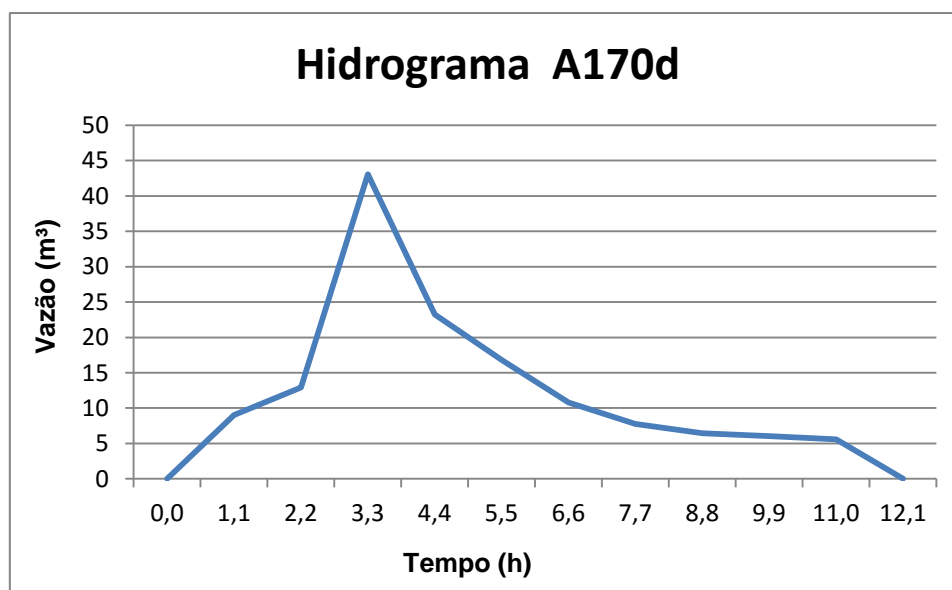
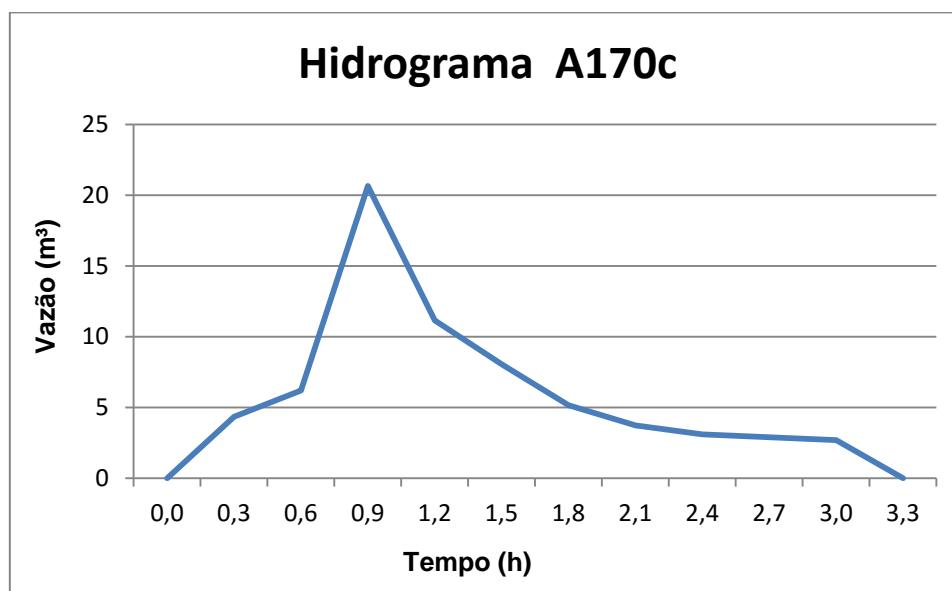
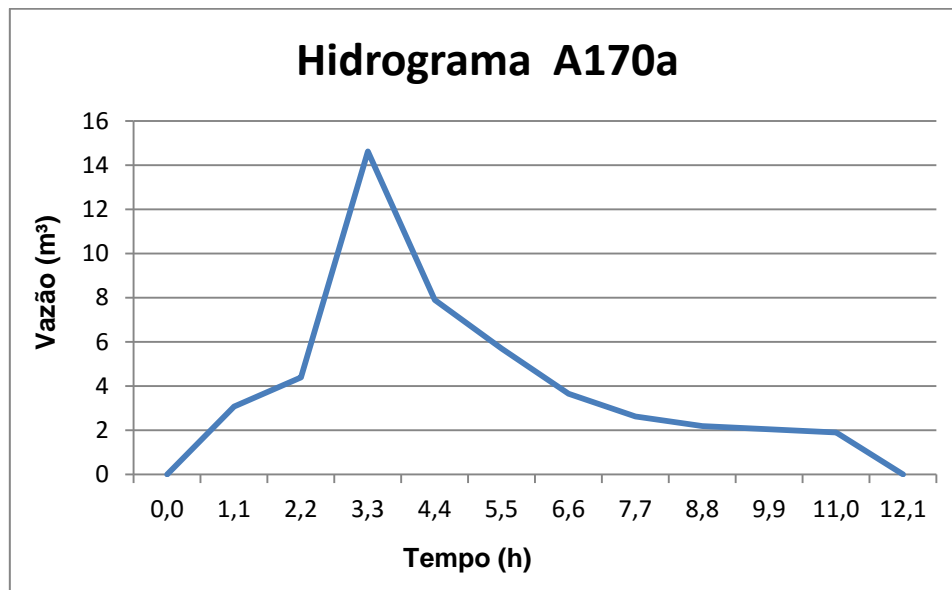


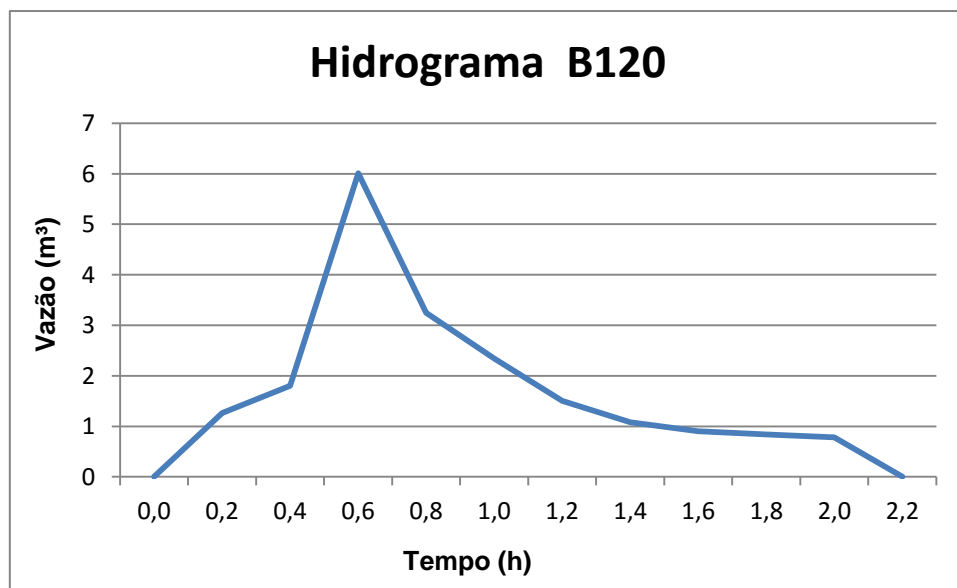
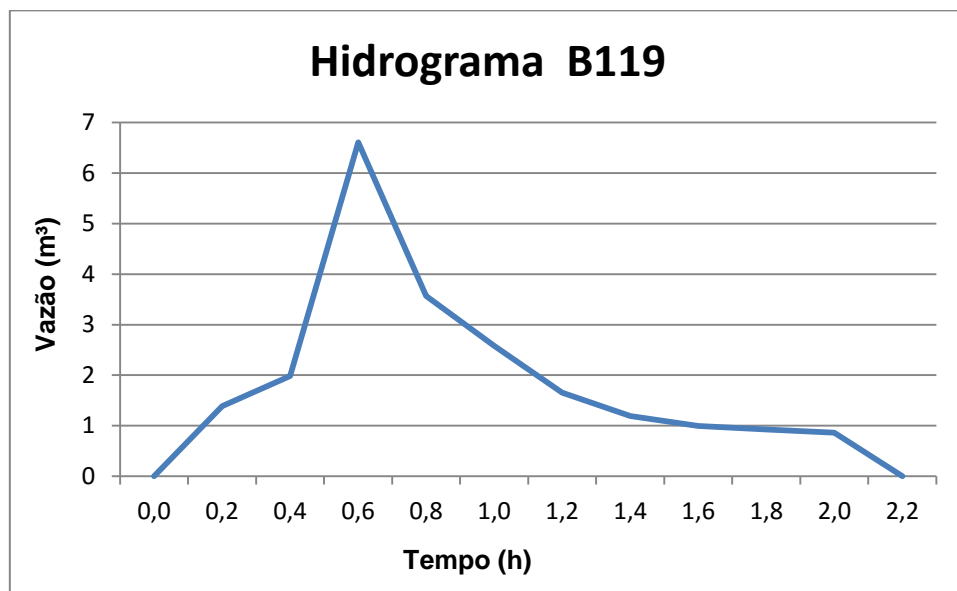
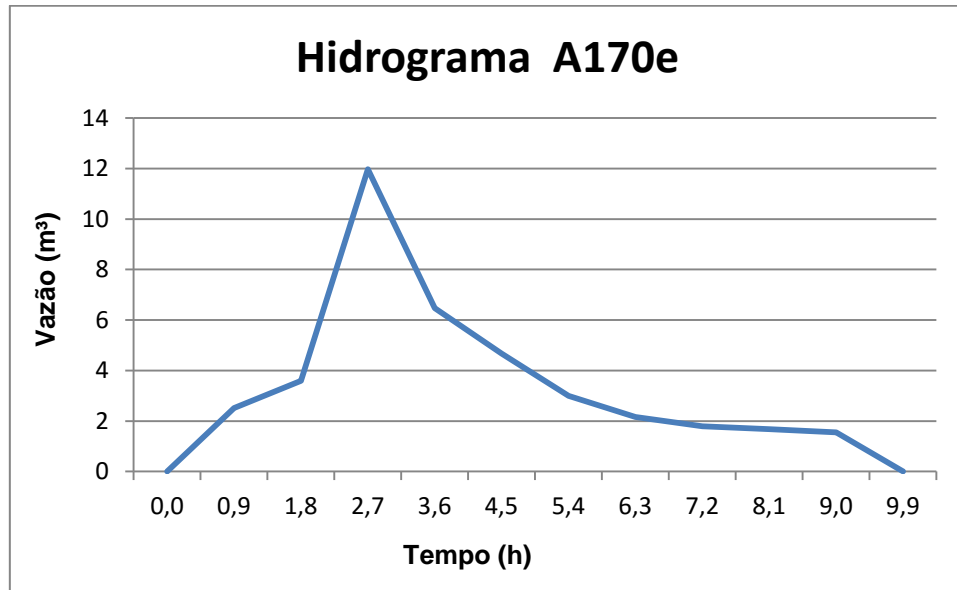


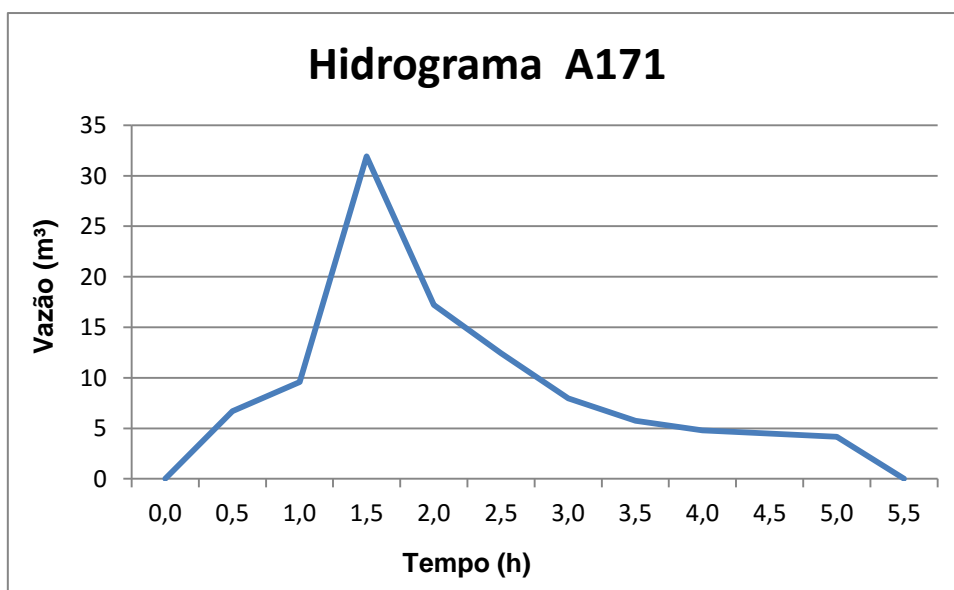
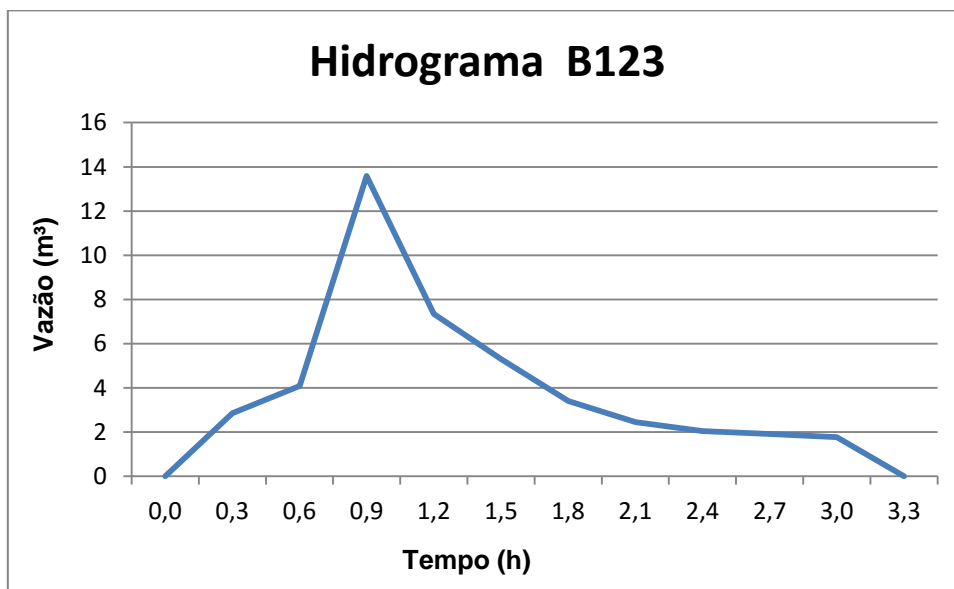
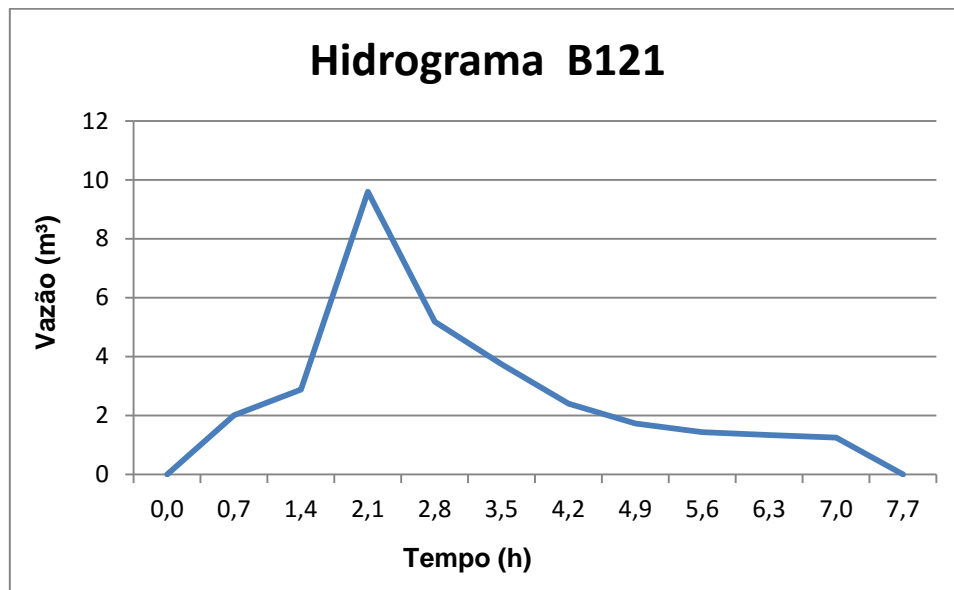


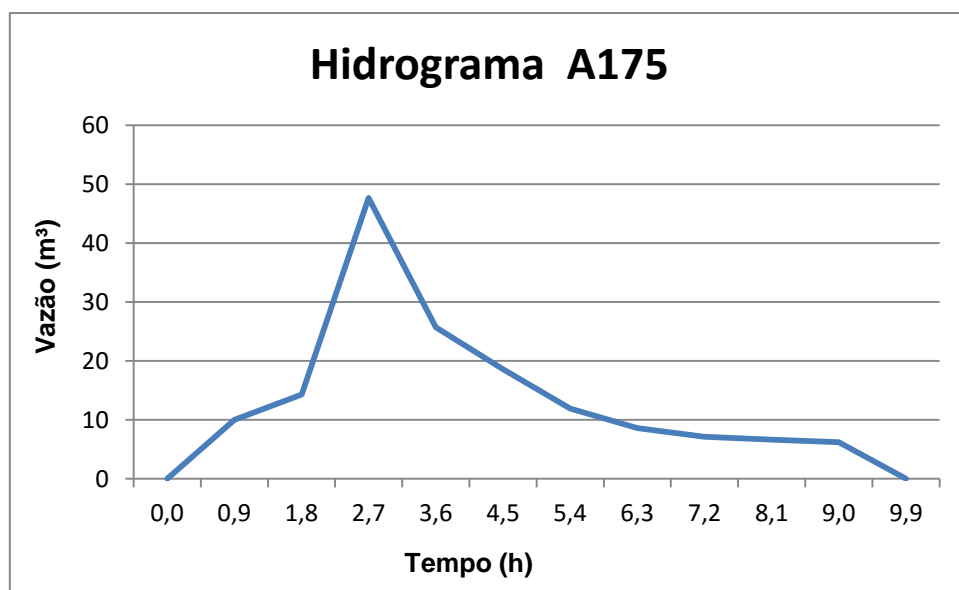
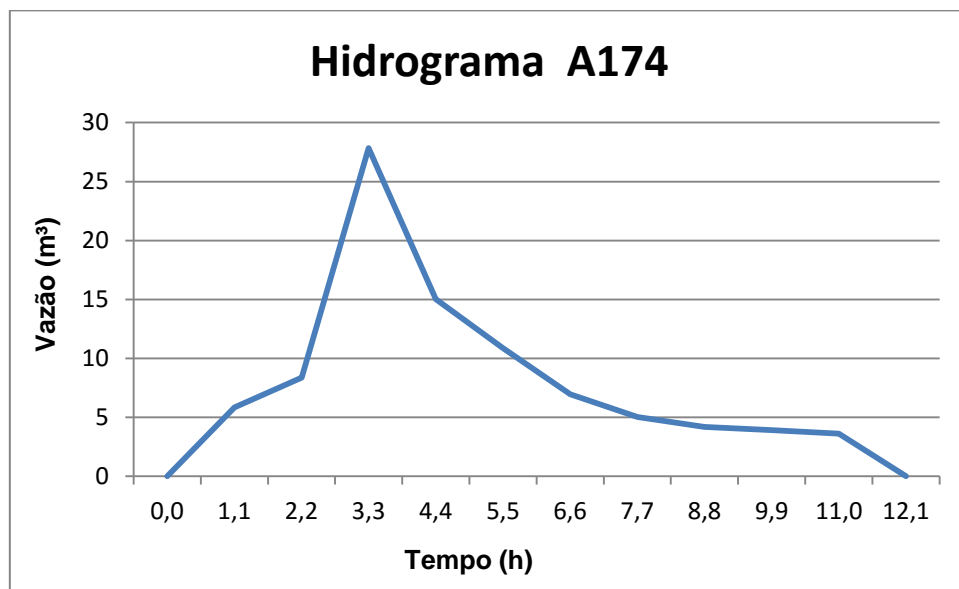
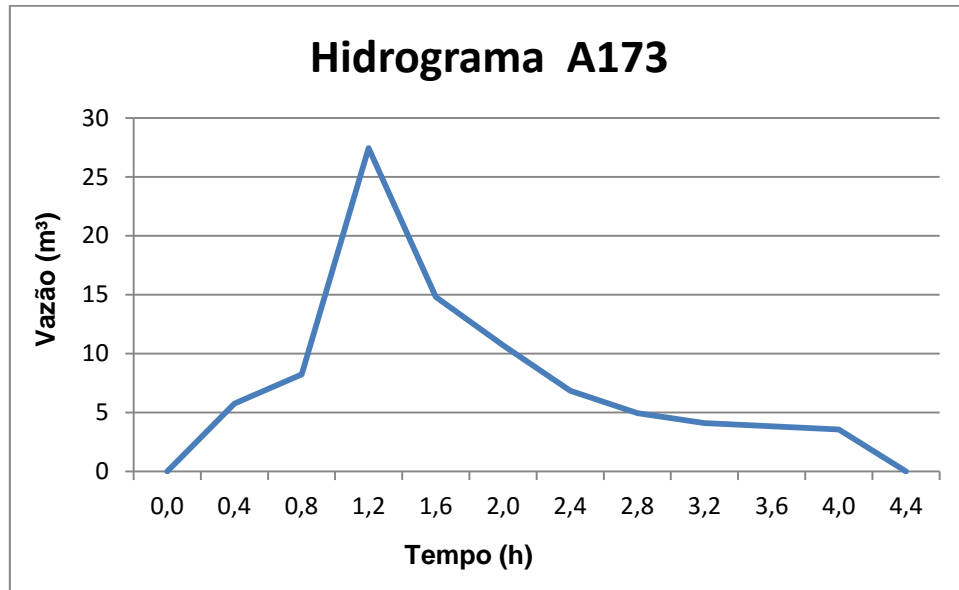


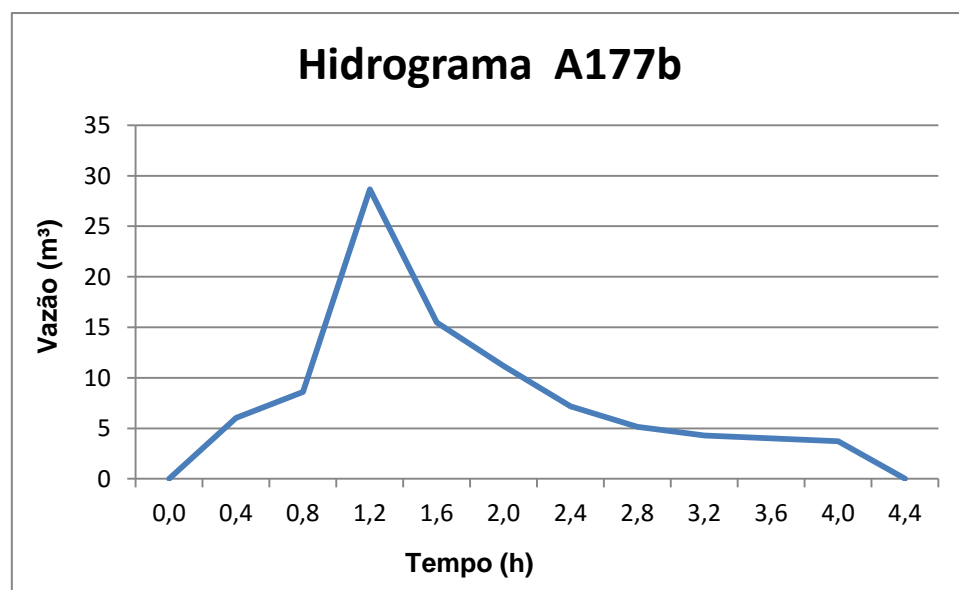
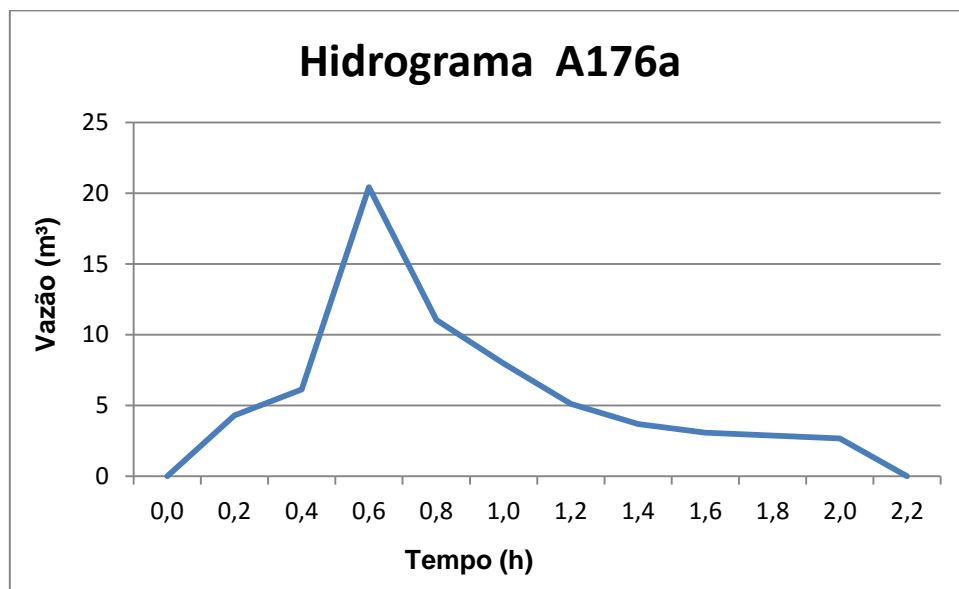
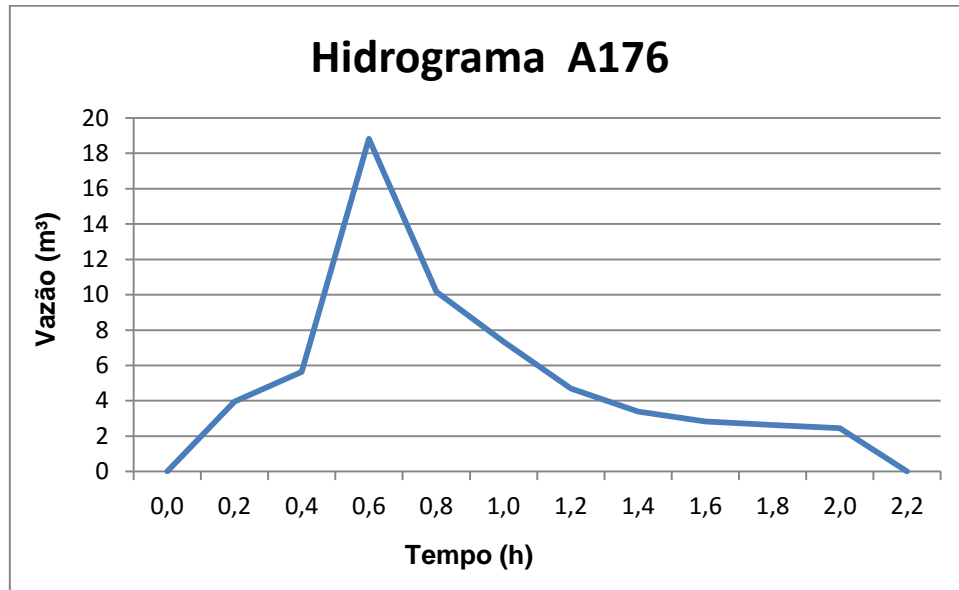


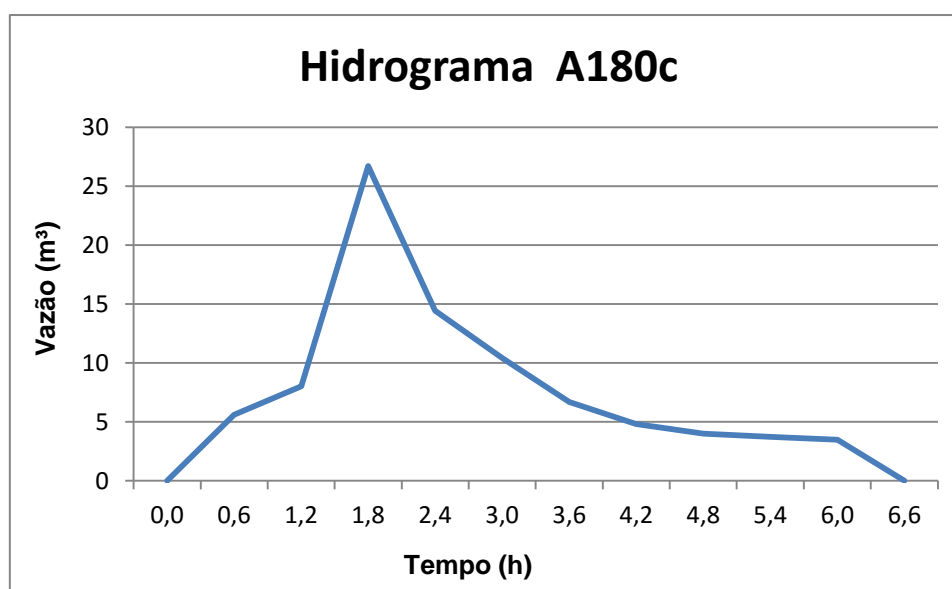
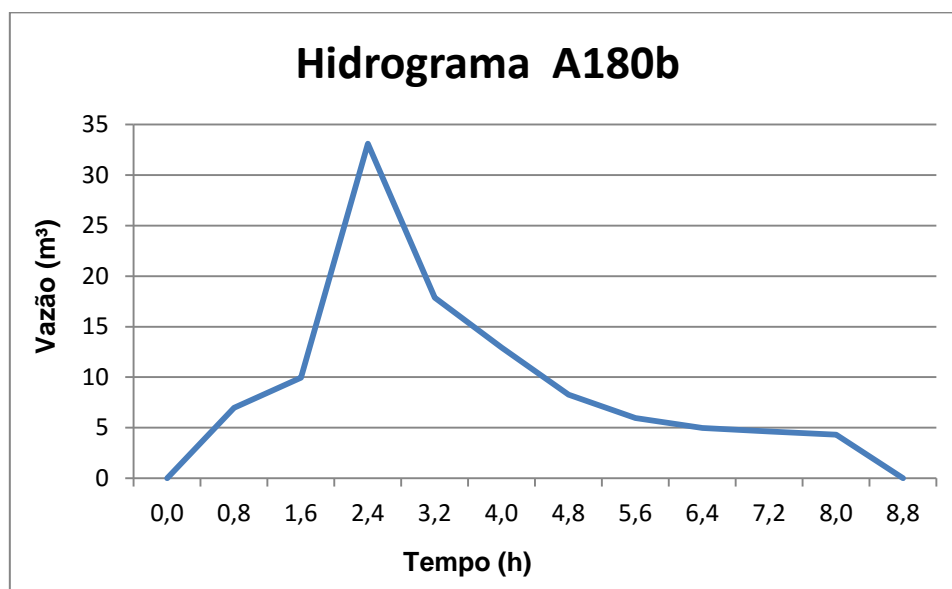
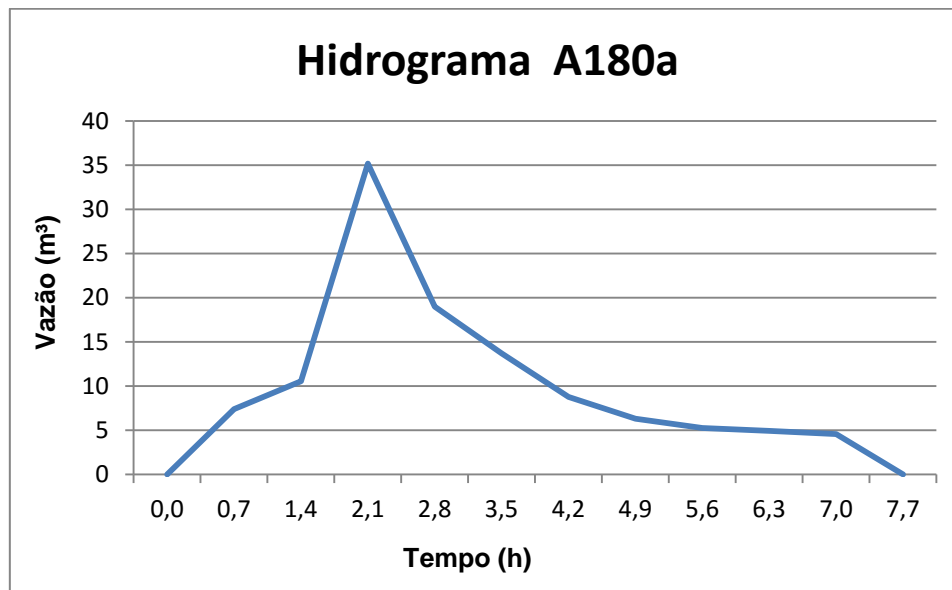


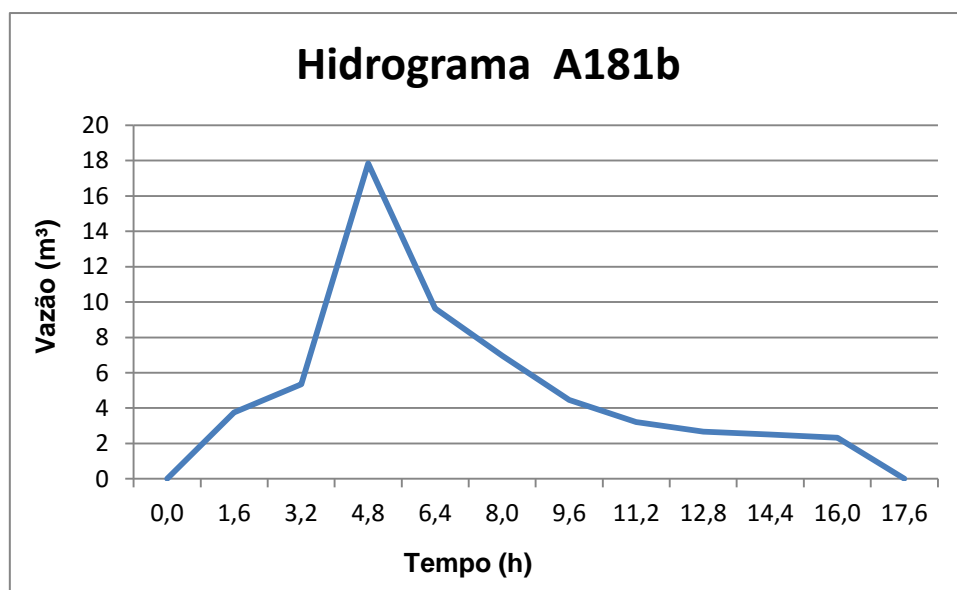
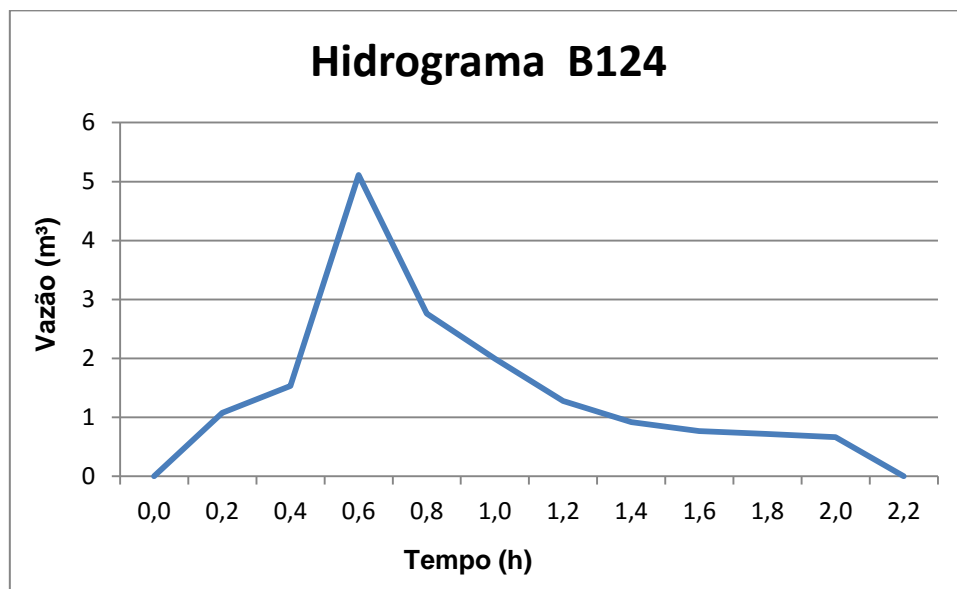
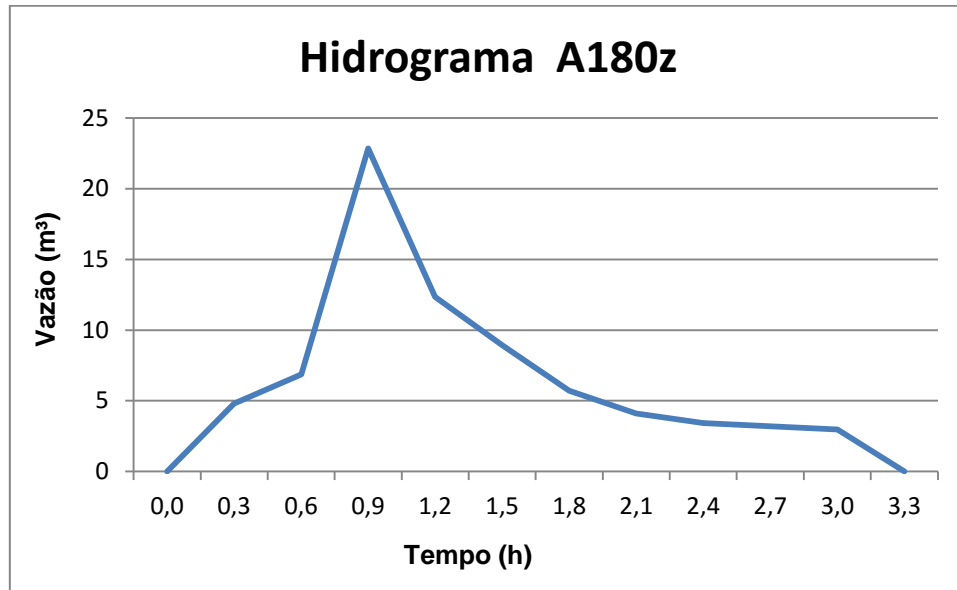


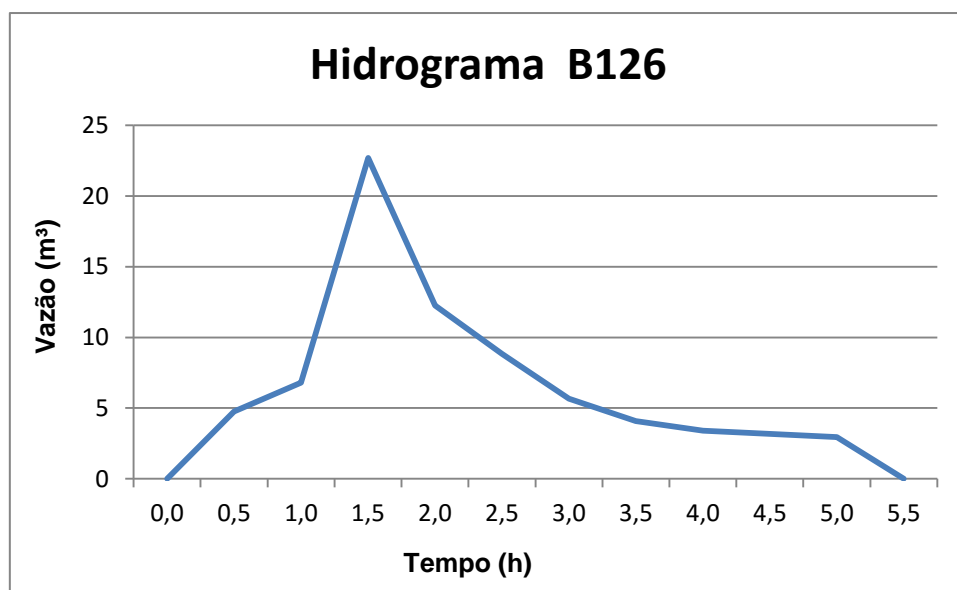
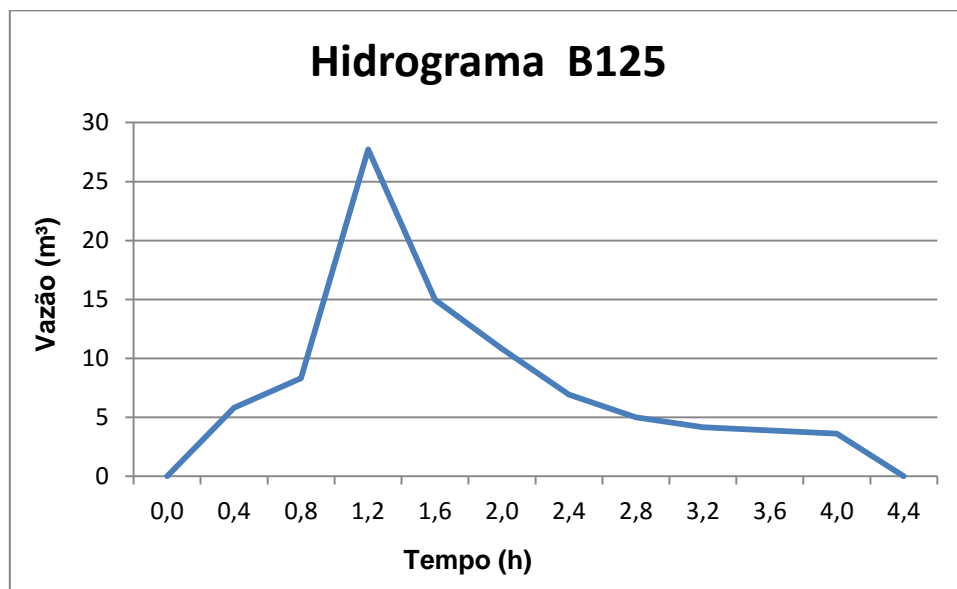
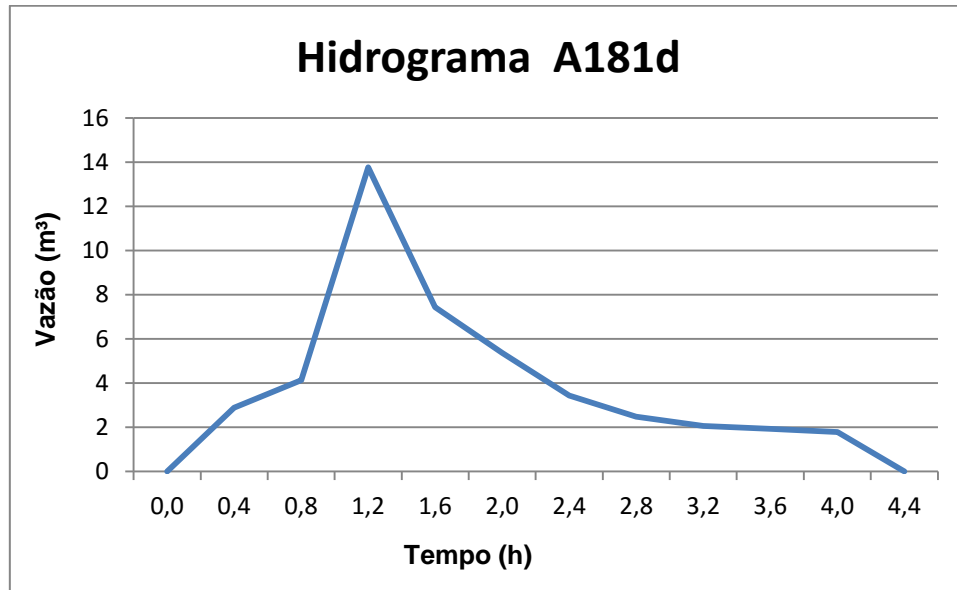


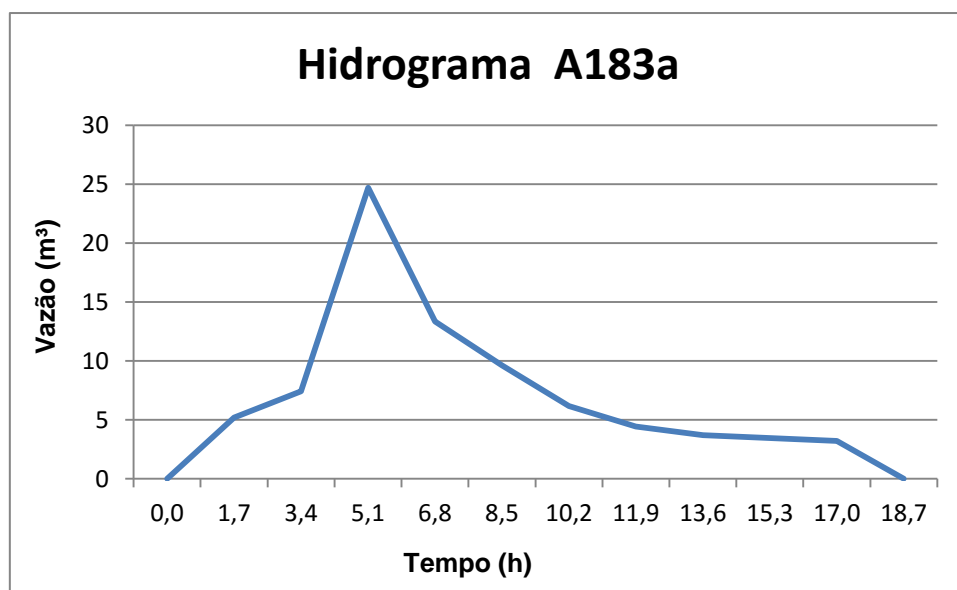
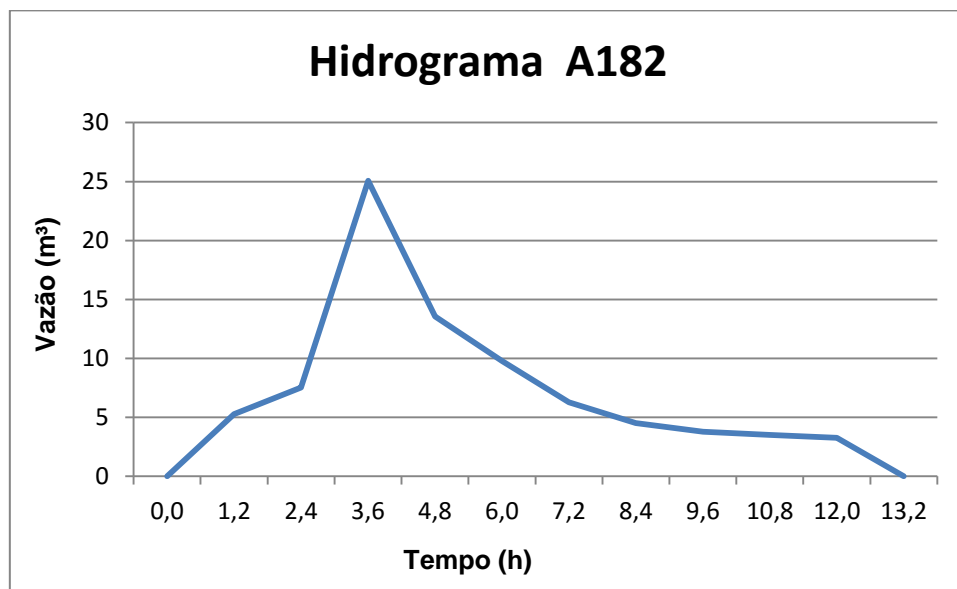
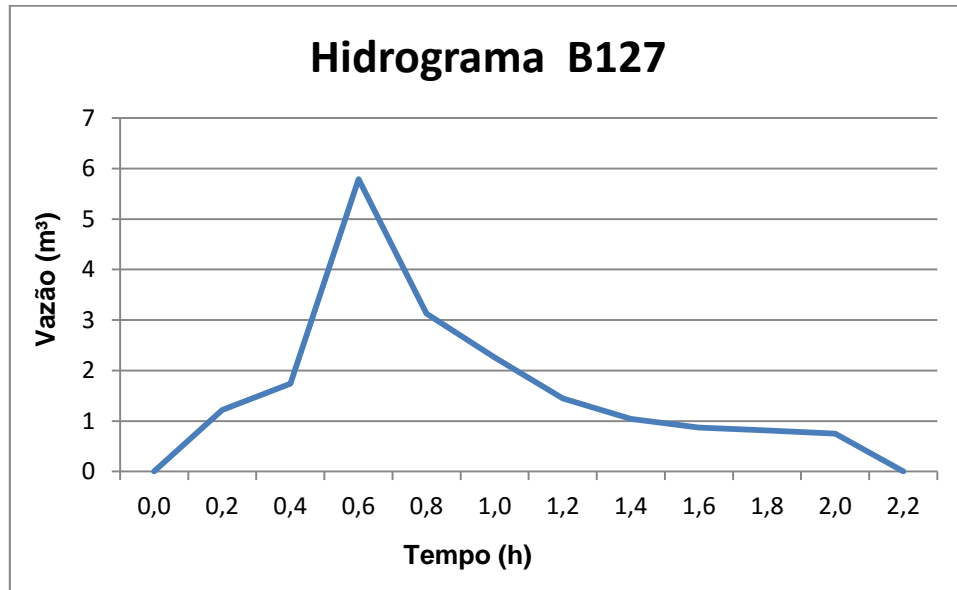


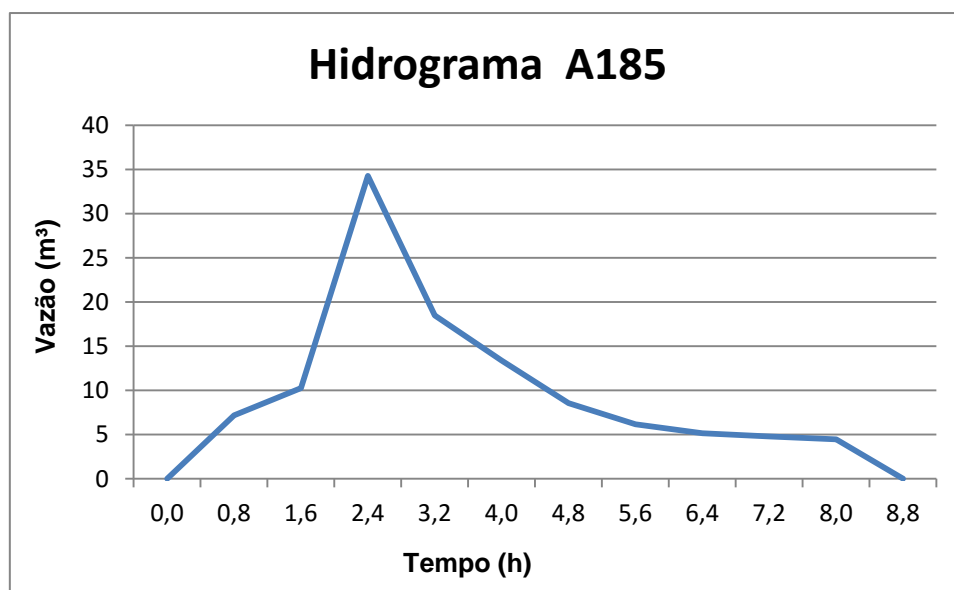
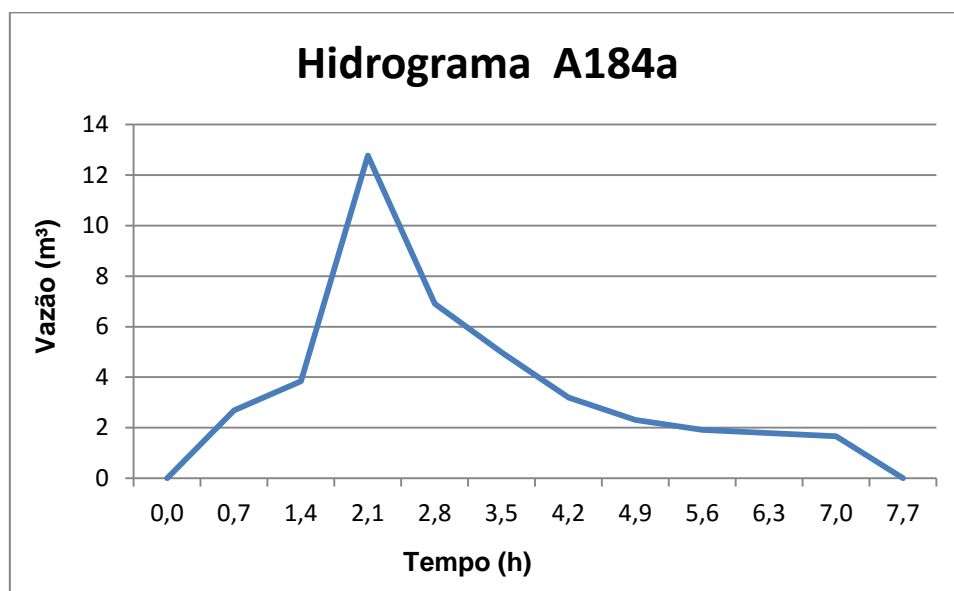
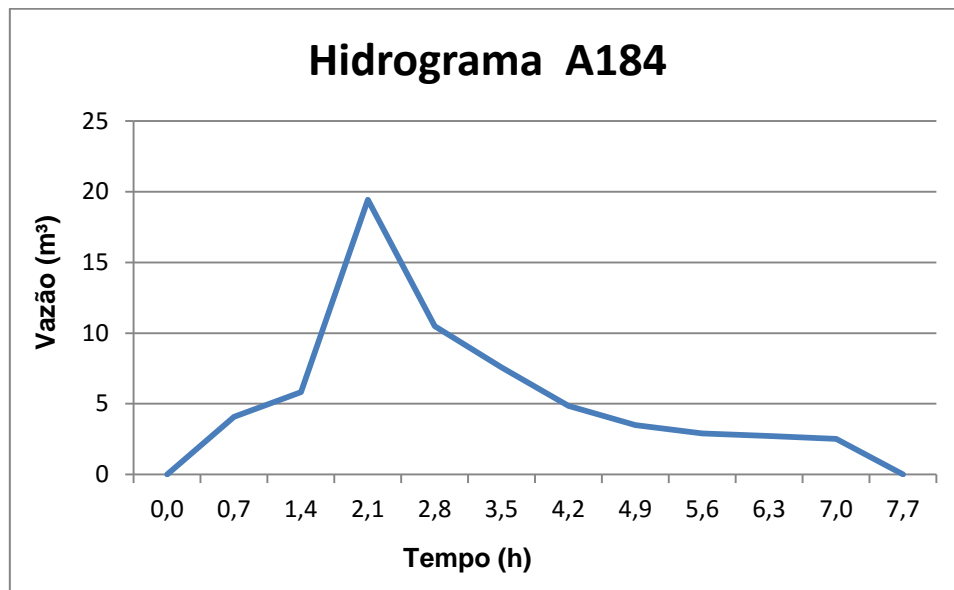


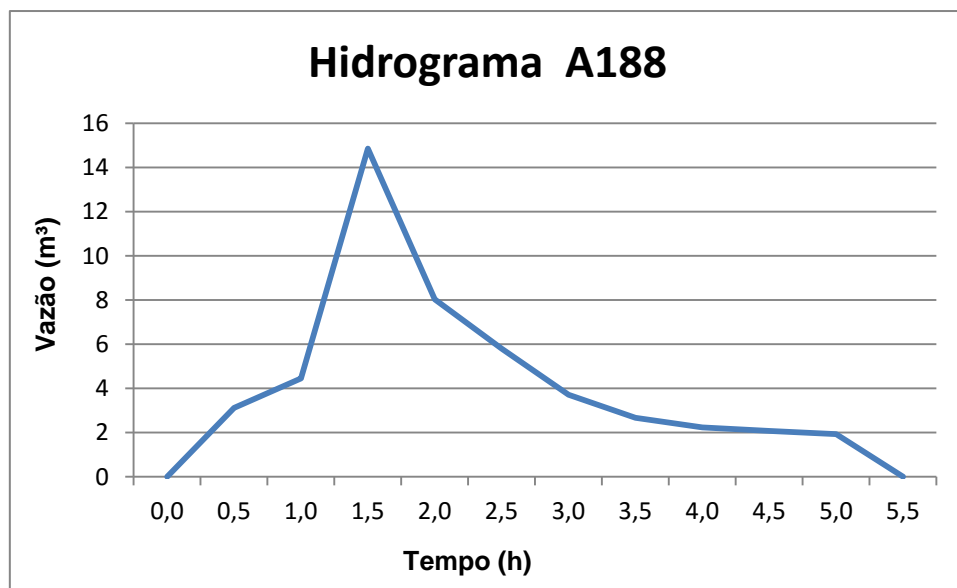
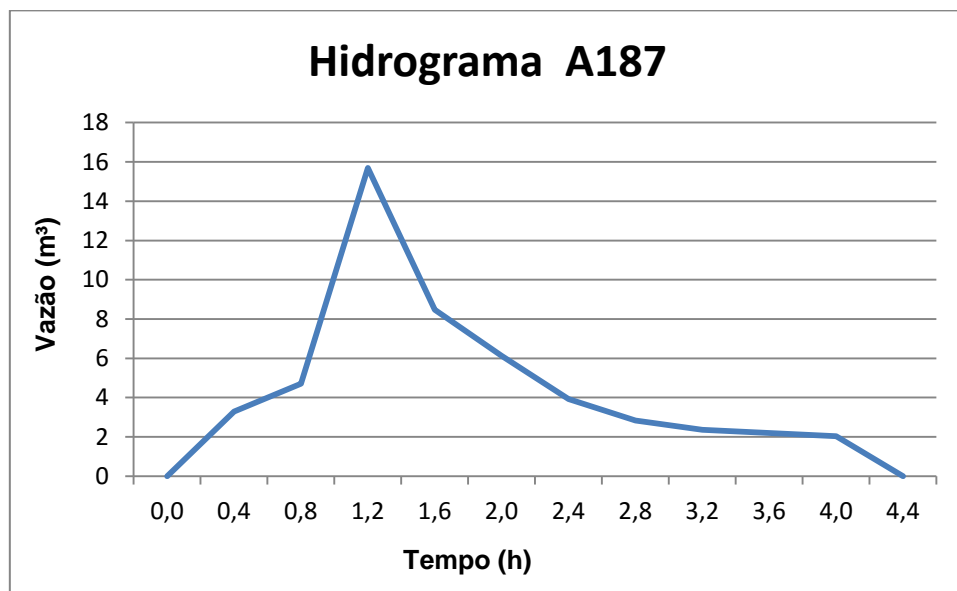
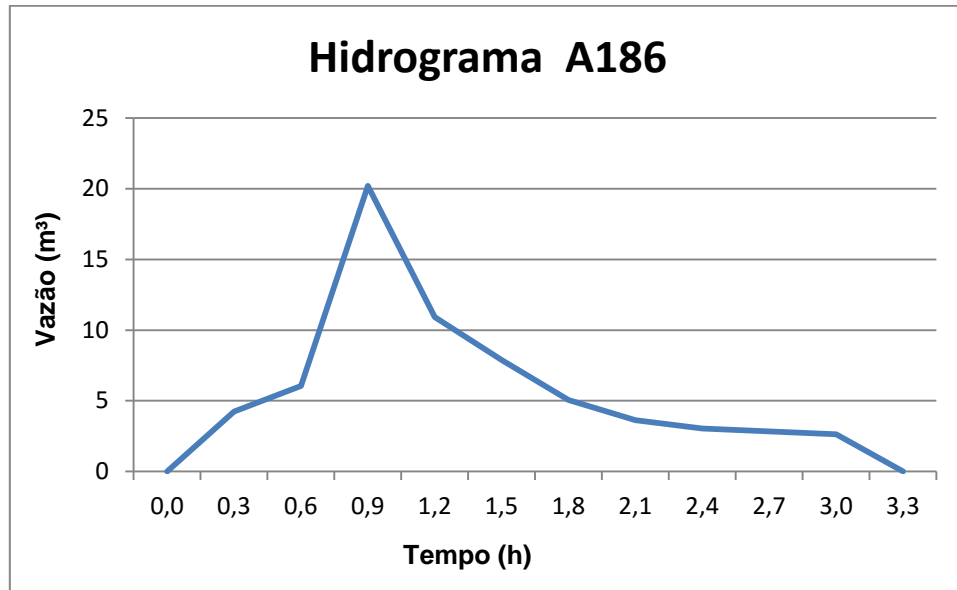




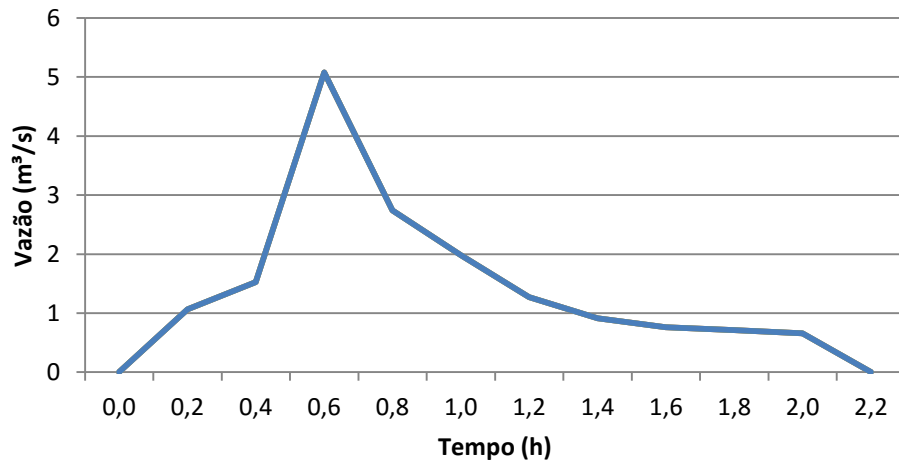




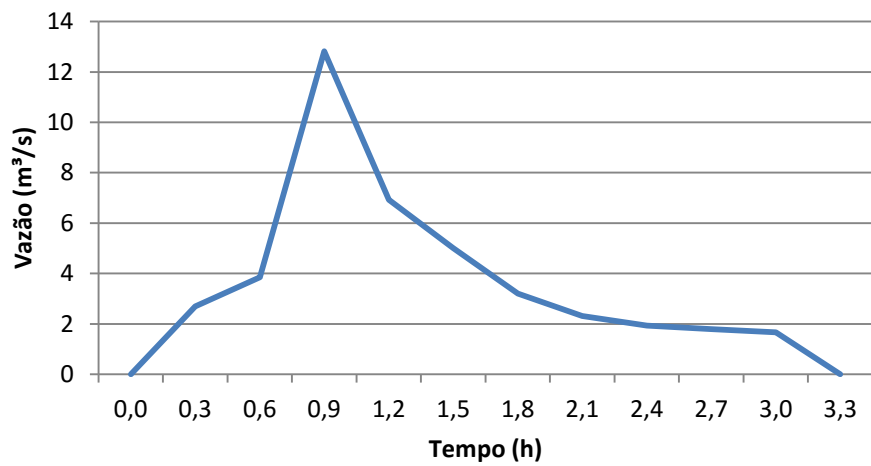




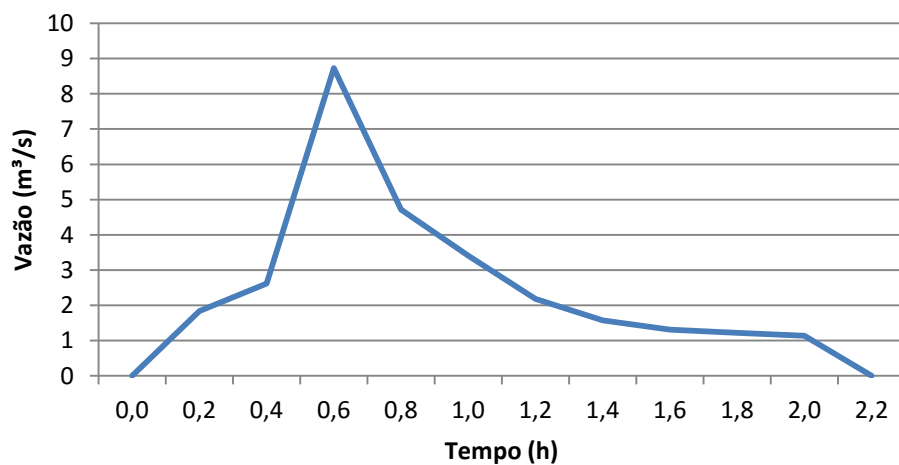
Hidrograma A235



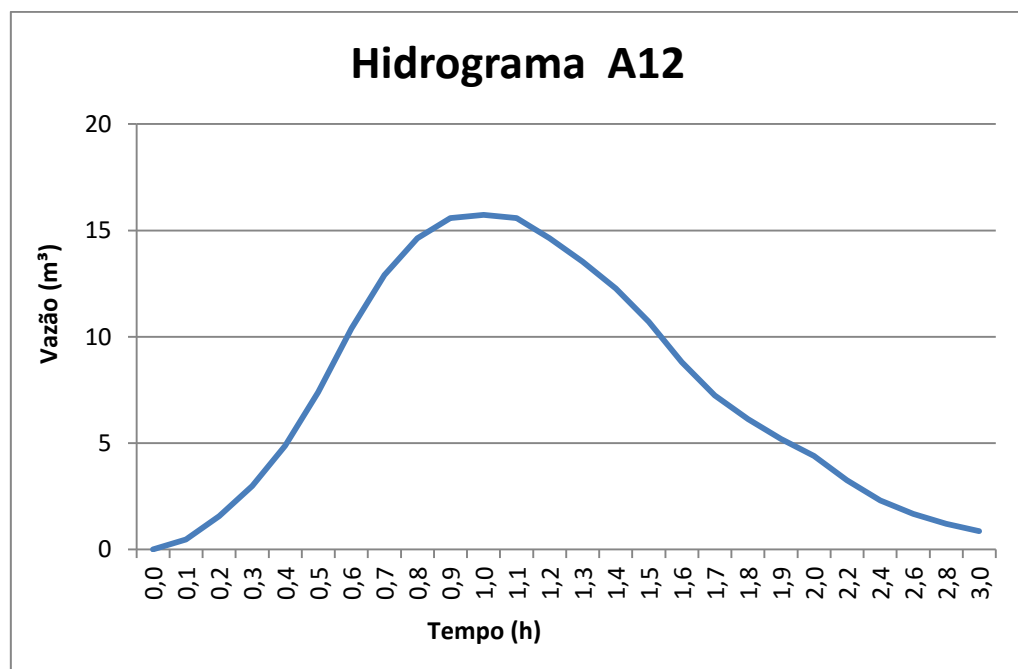
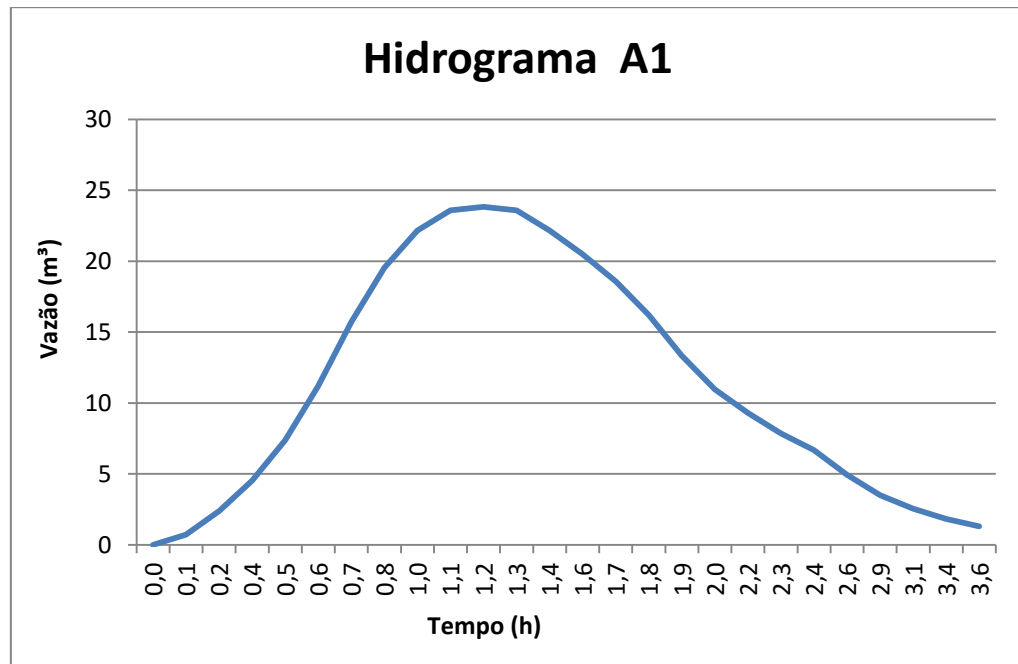
Hidrograma A236



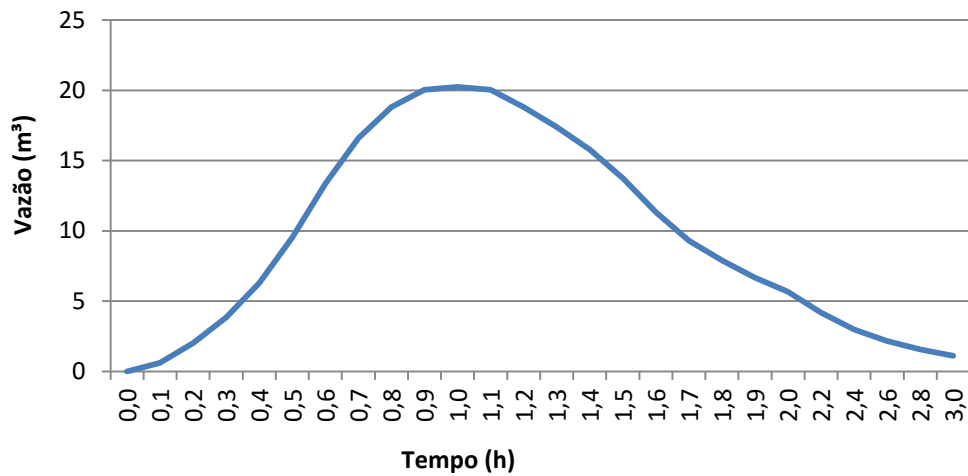
Hidrograma A237



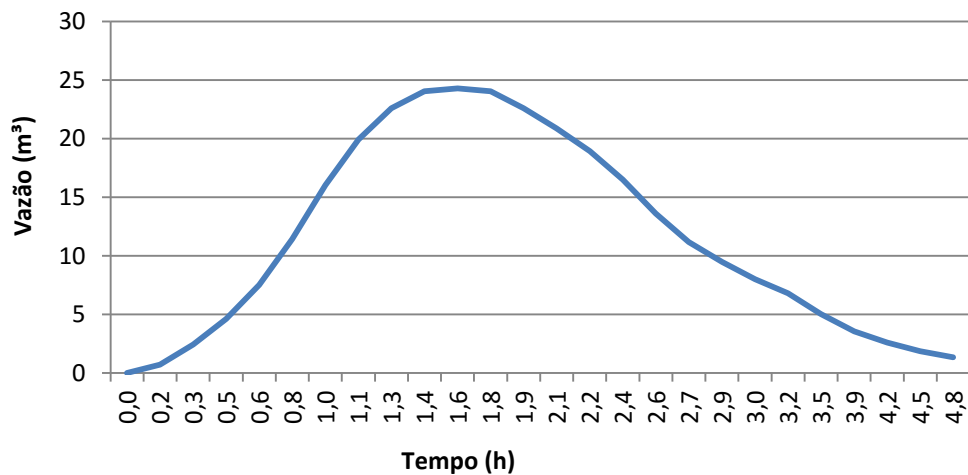
2. Bacia entre 10 km² a 20 km² (Hidrograma pelo Método Triangular Sintético)



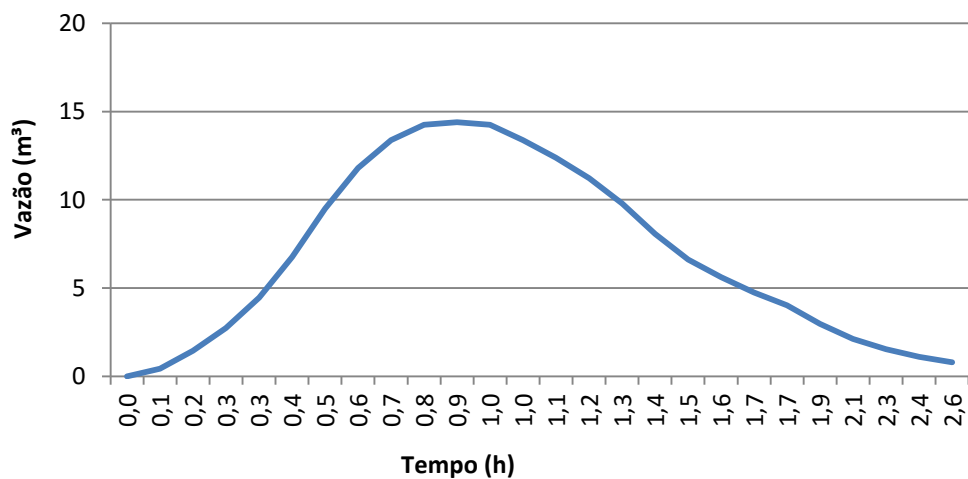
Hidrograma A24



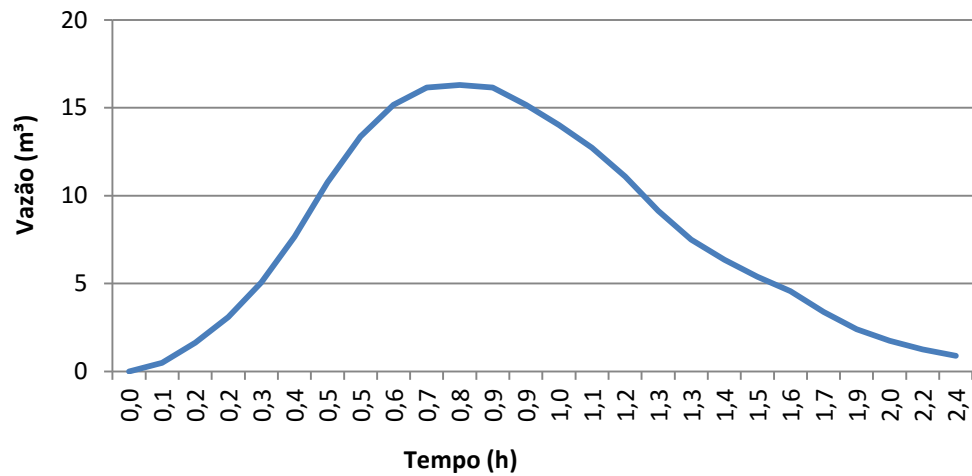
Hidrograma A27



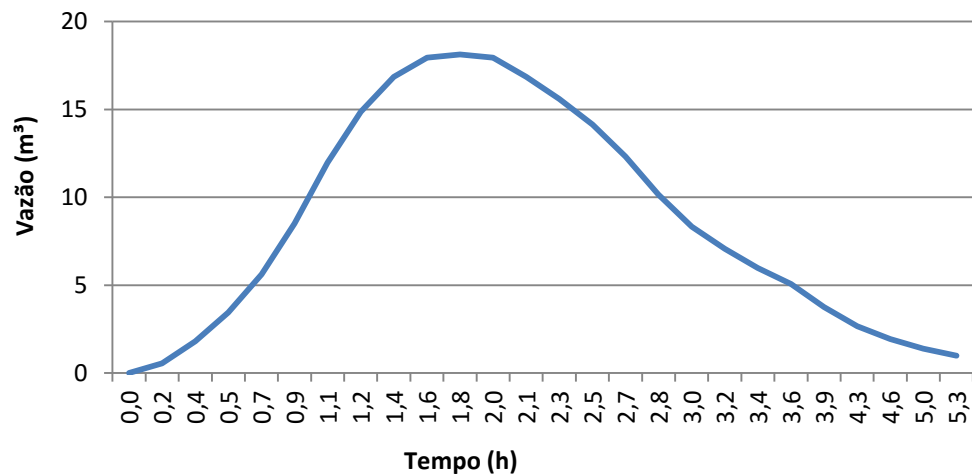
Hidrograma A29



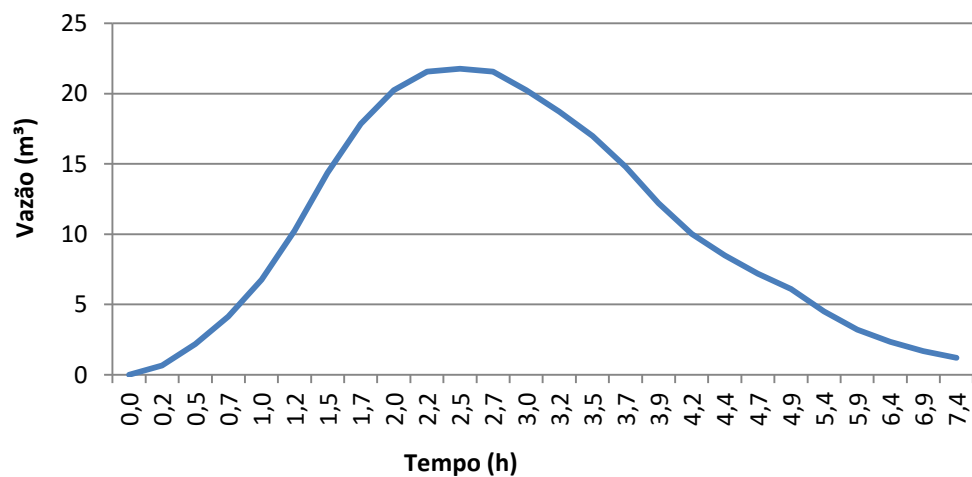
Hidrograma A34



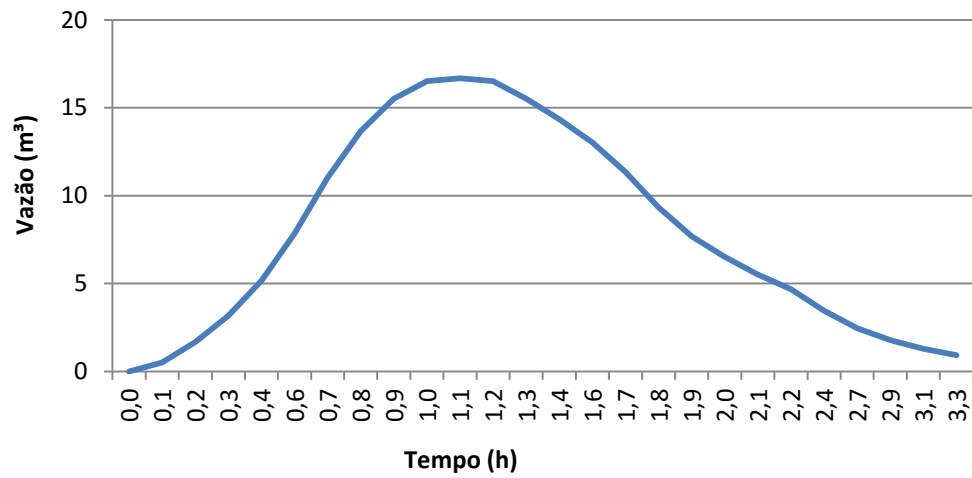
Hidrograma A41



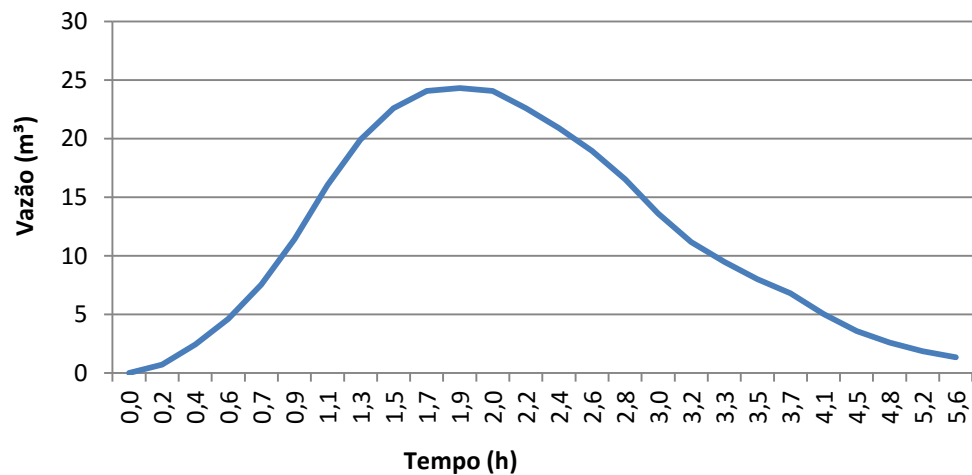
Hidrograma A49



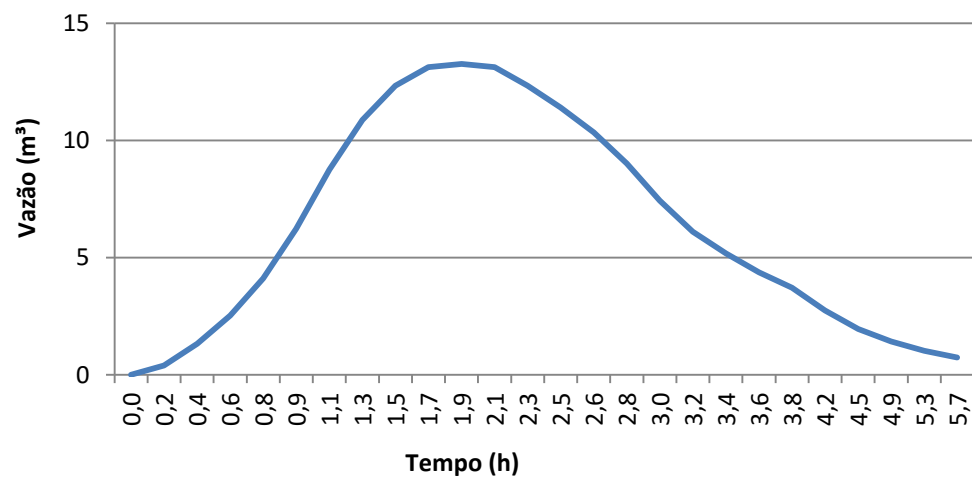
Hidrograma A65



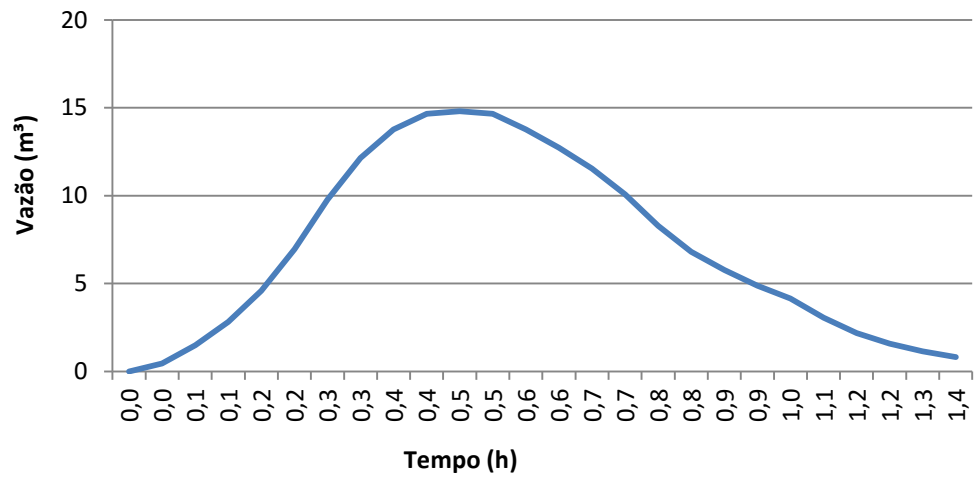
Hidrograma A66



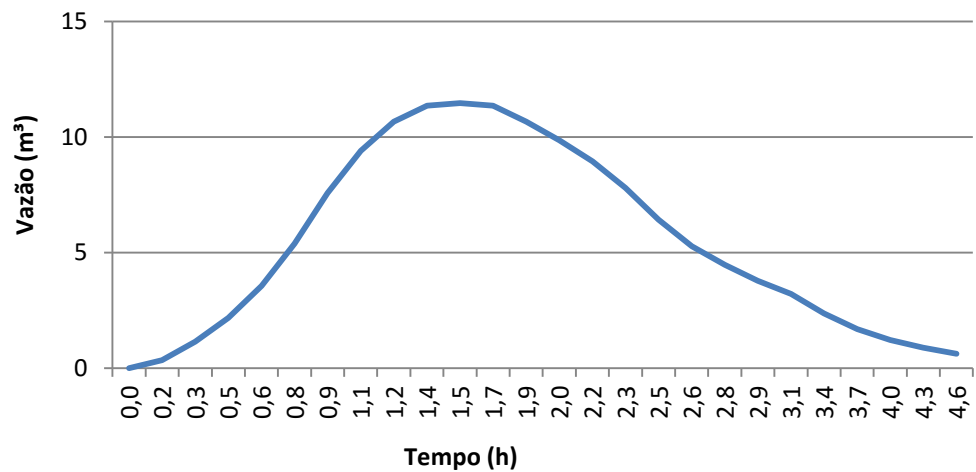
Hidrograma A69a



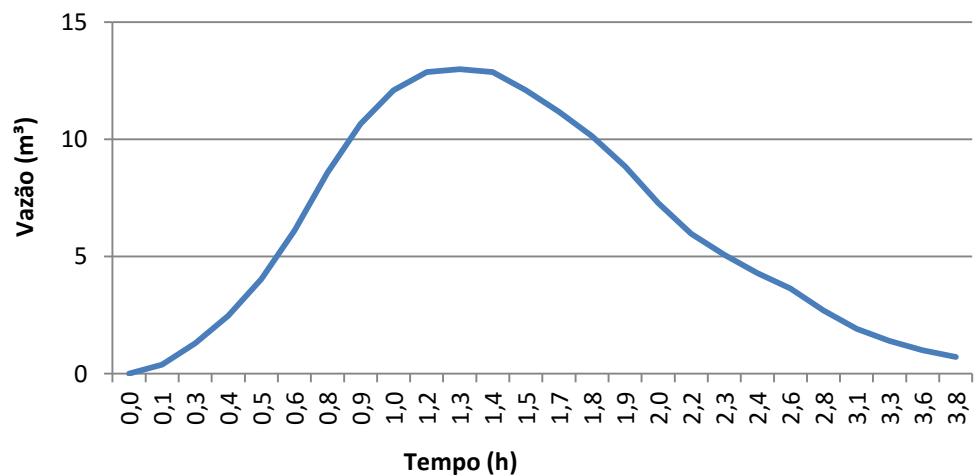
Hidrograma A71

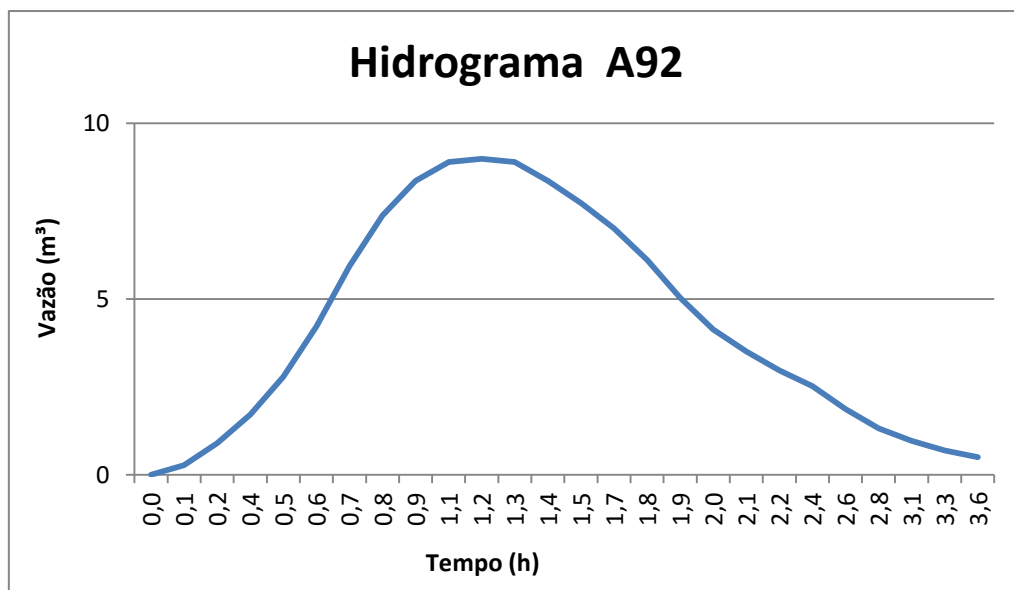
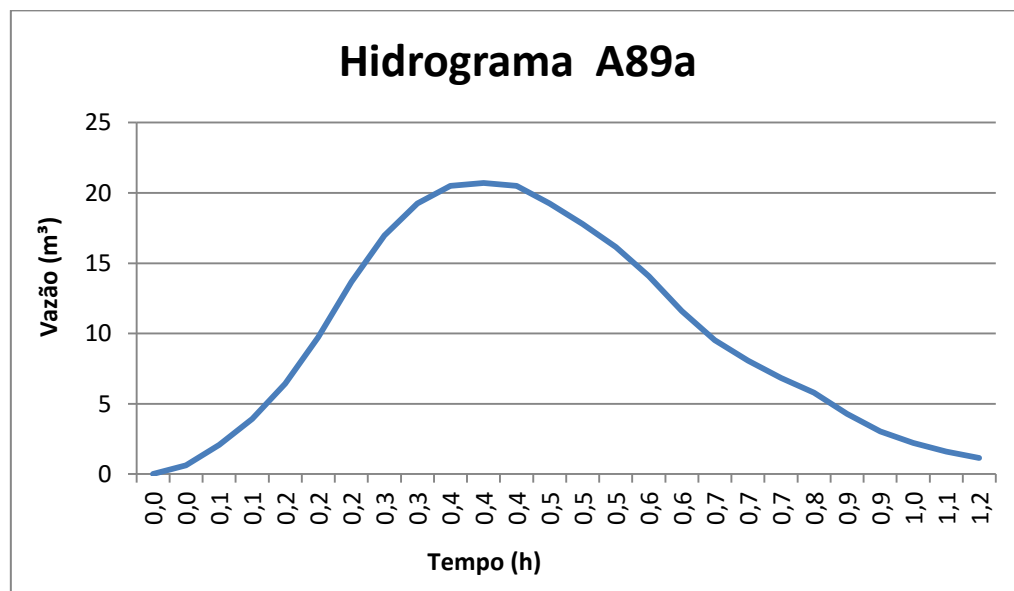
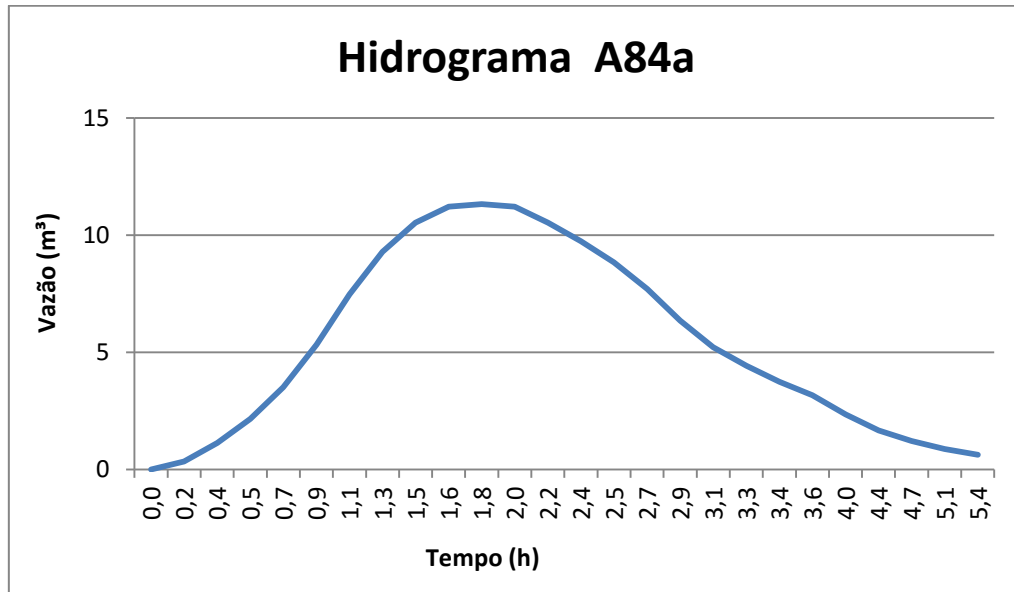


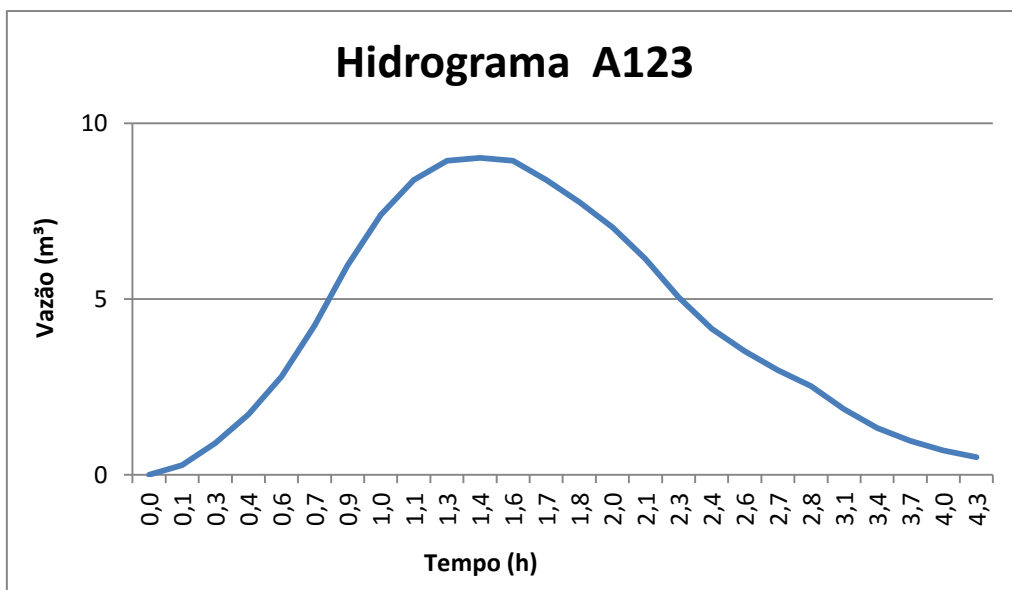
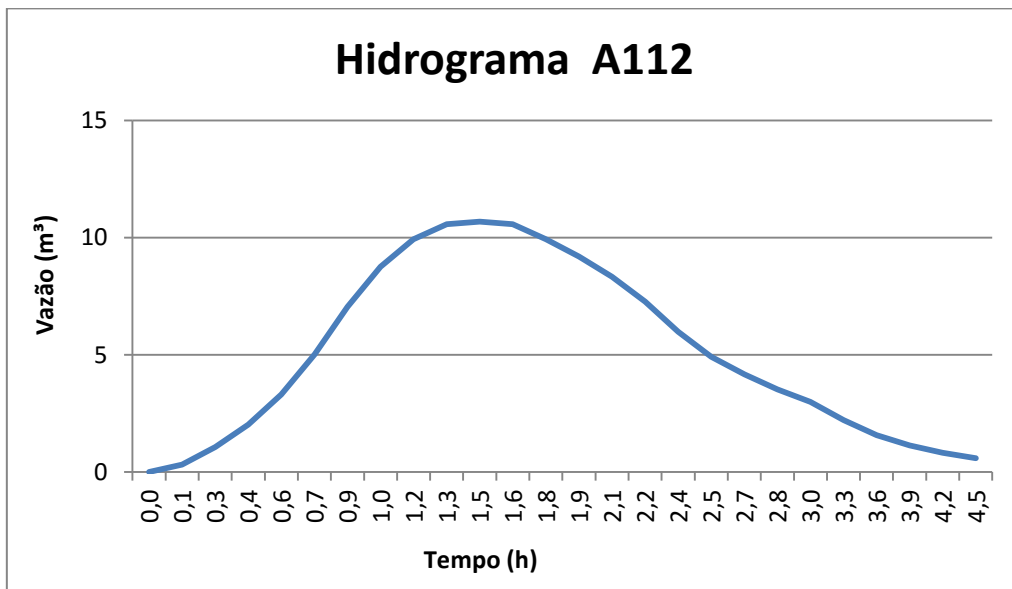
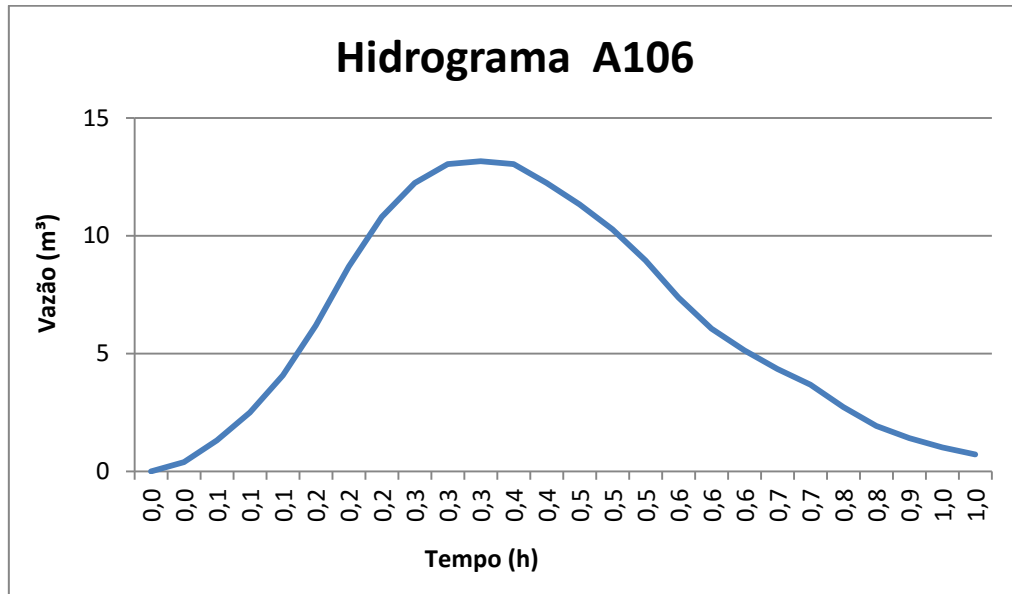
Hidrograma A73c



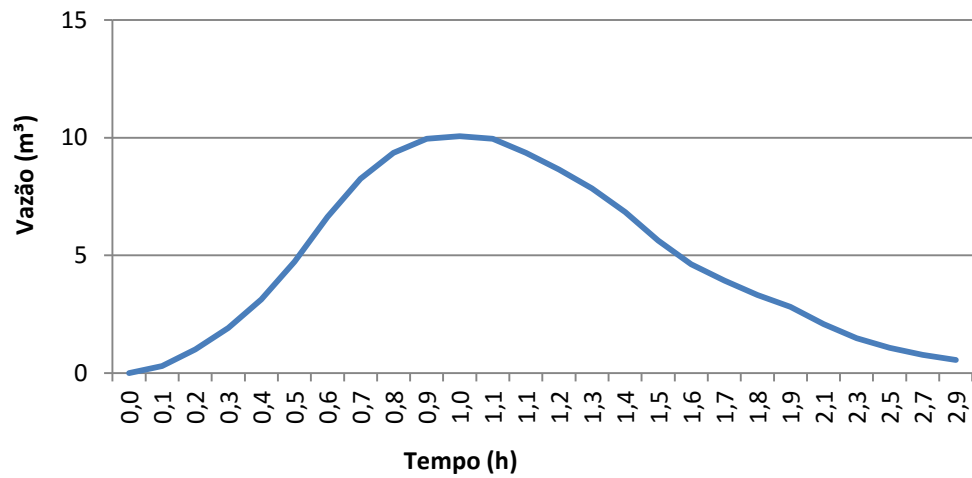
Hidrograma A81



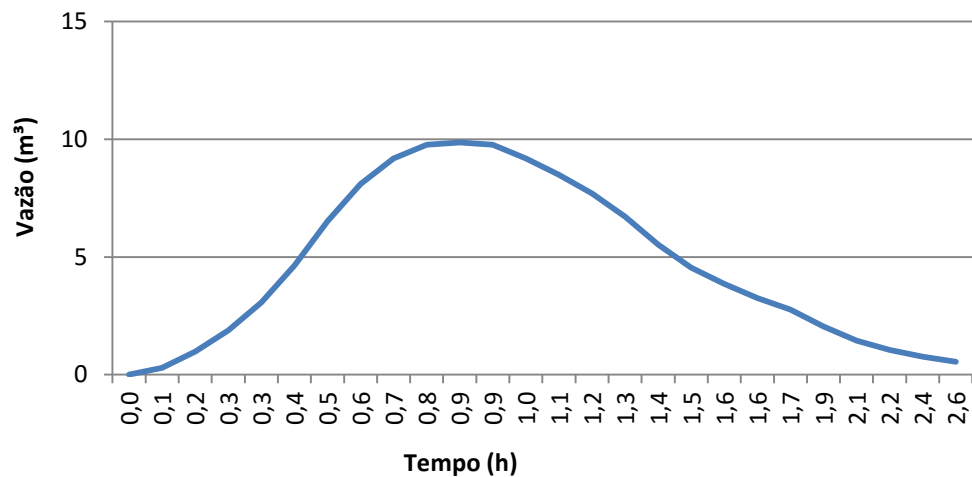




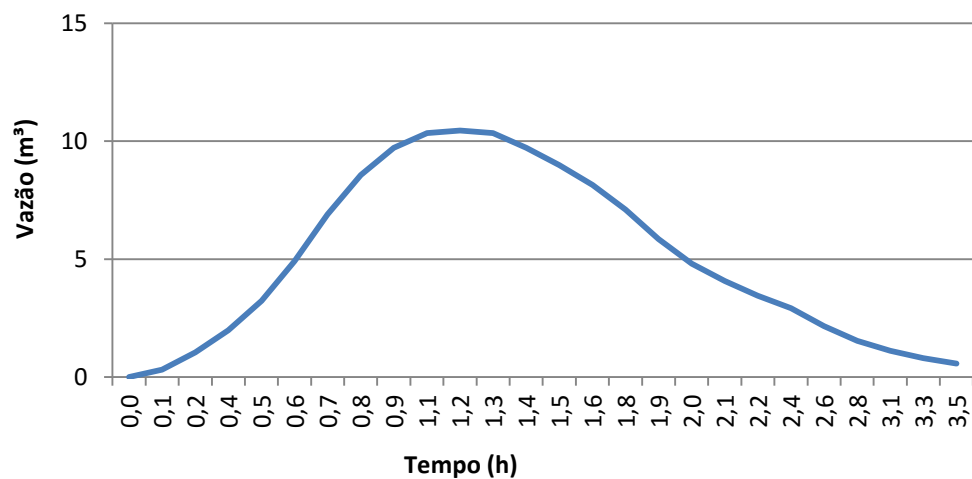
Hidrograma A126

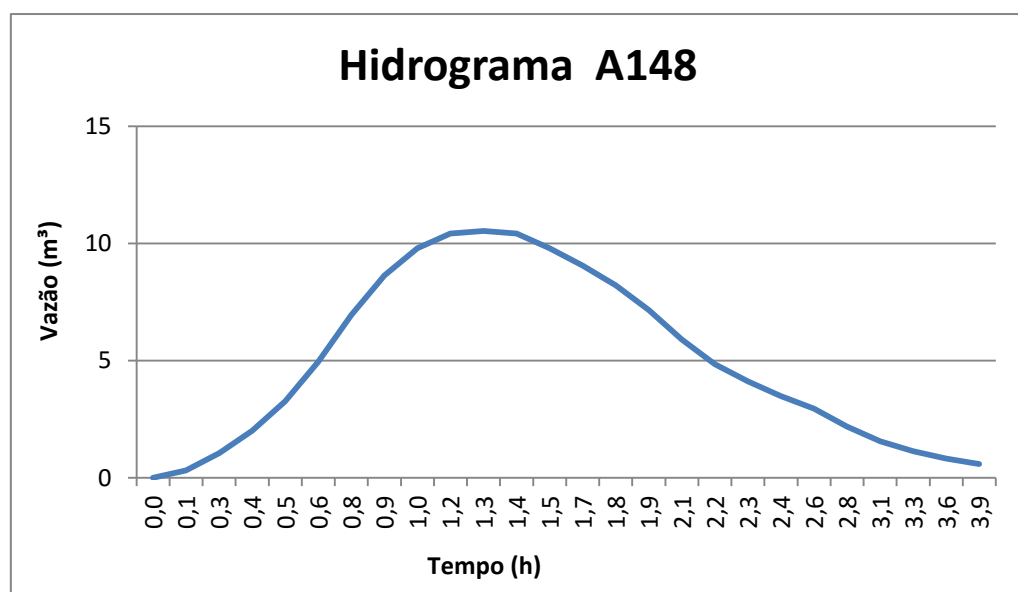
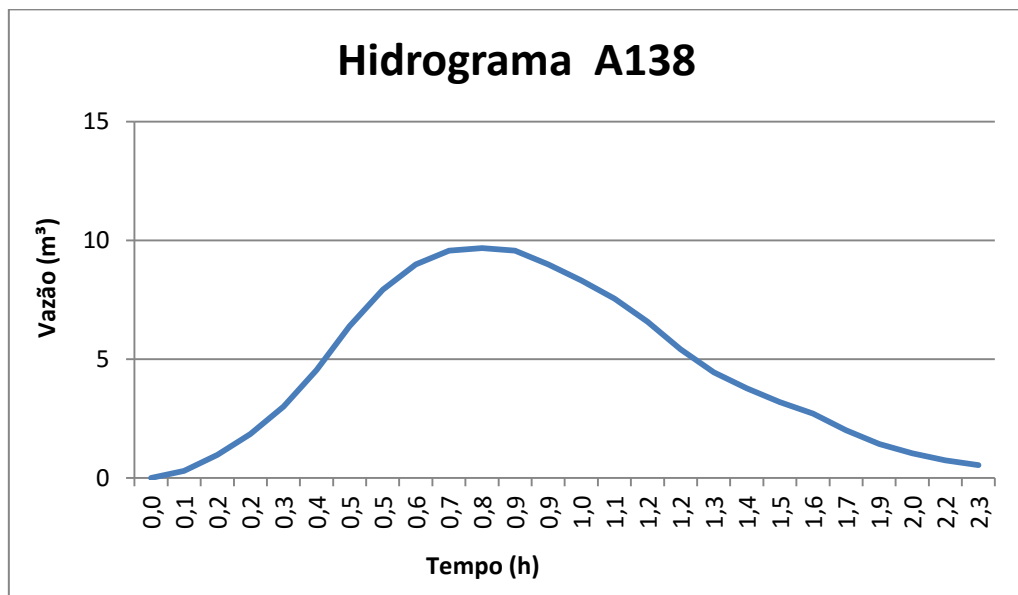
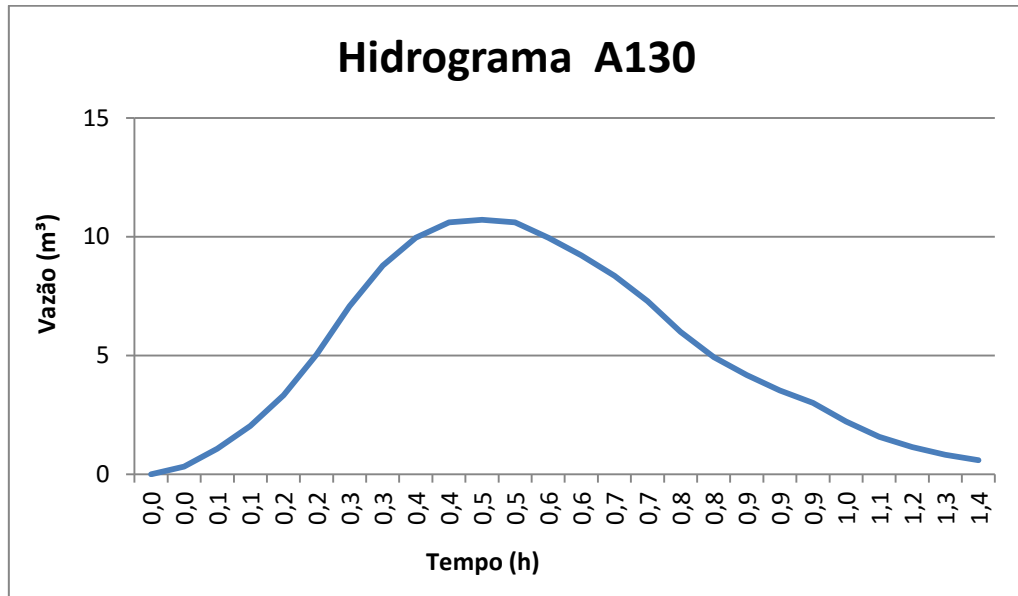


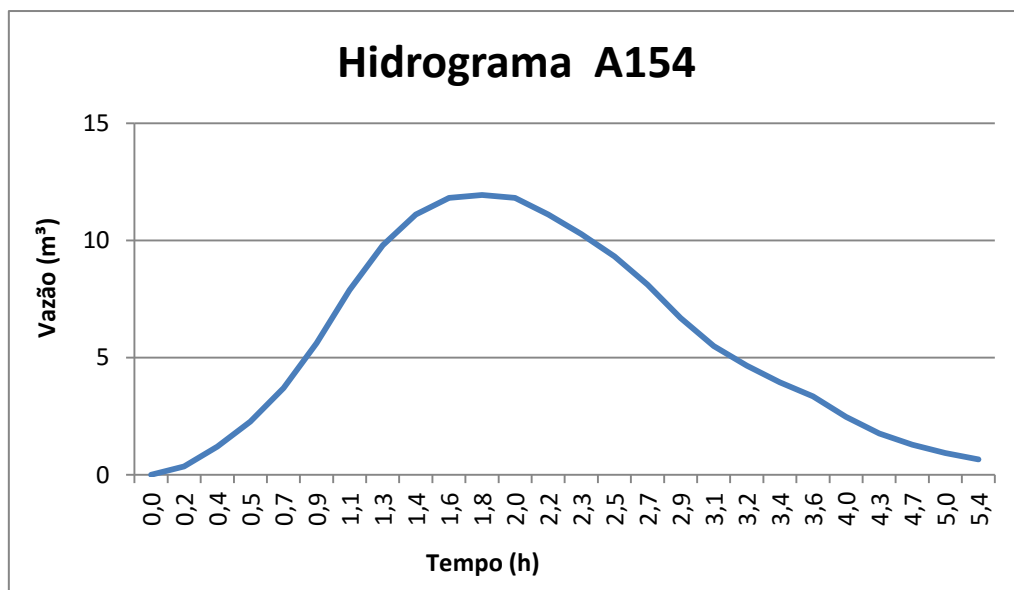
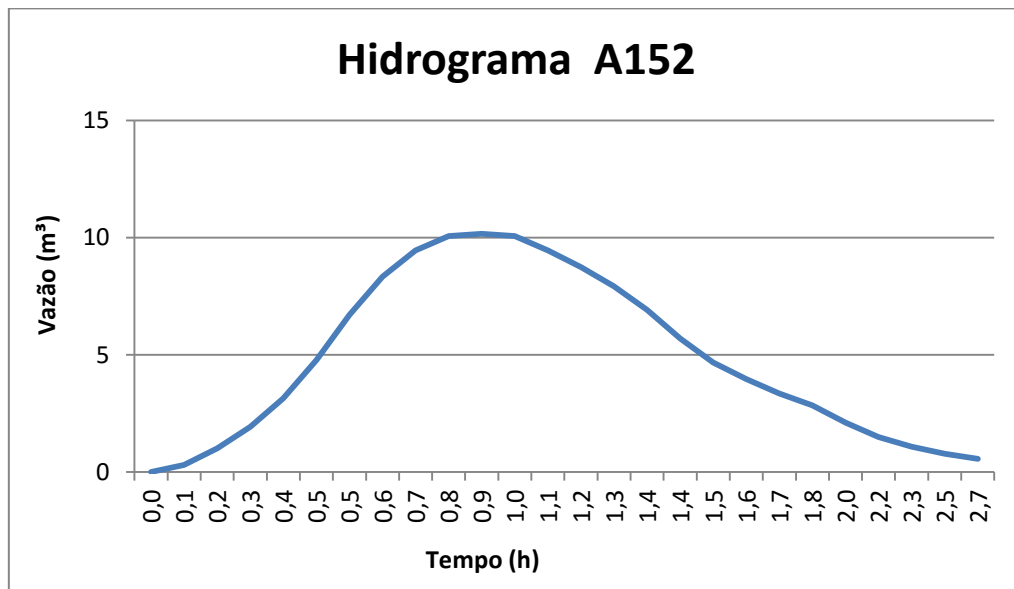
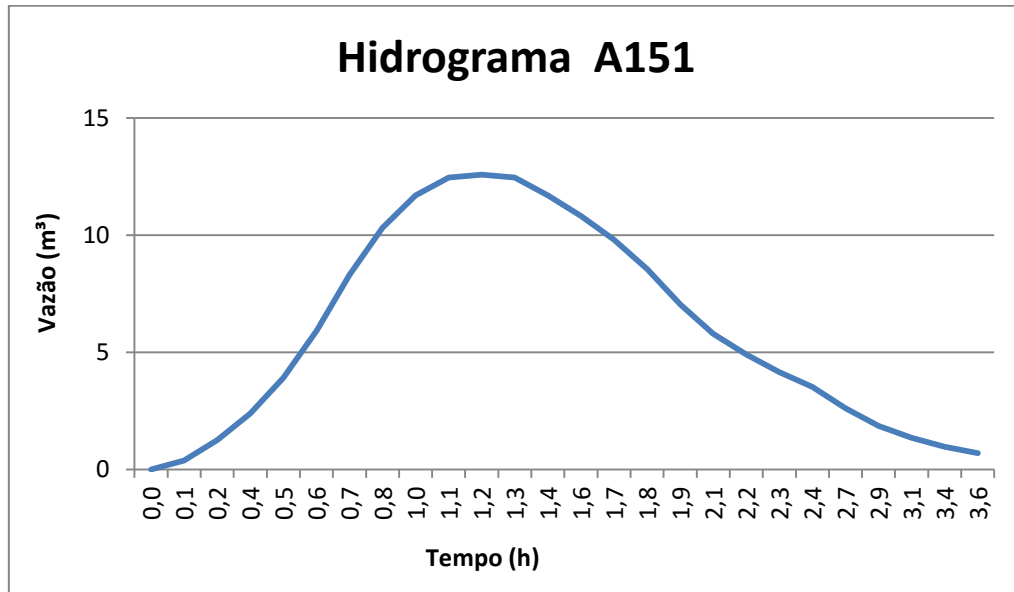
Hidrograma A127

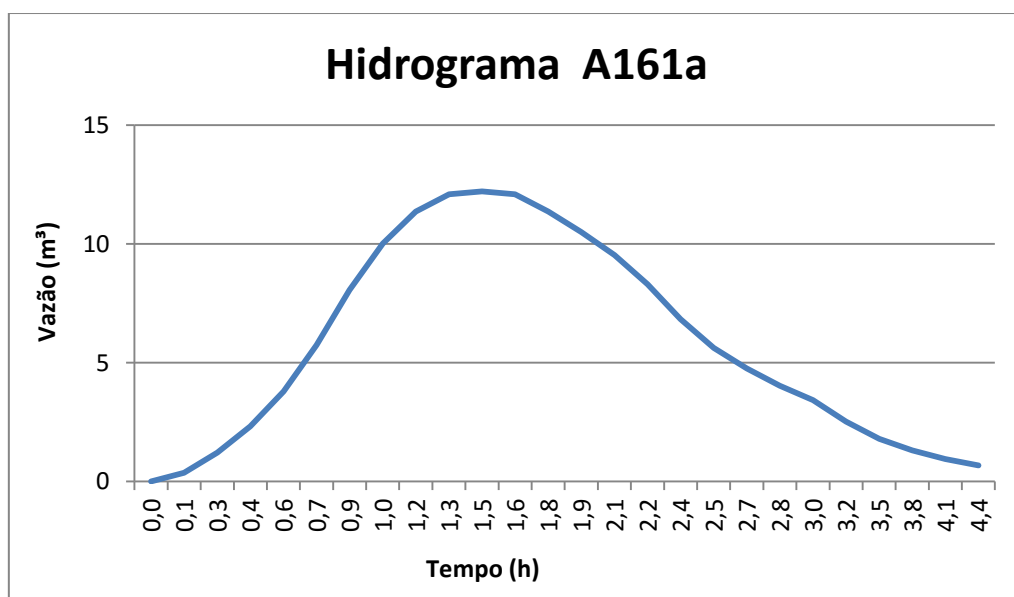
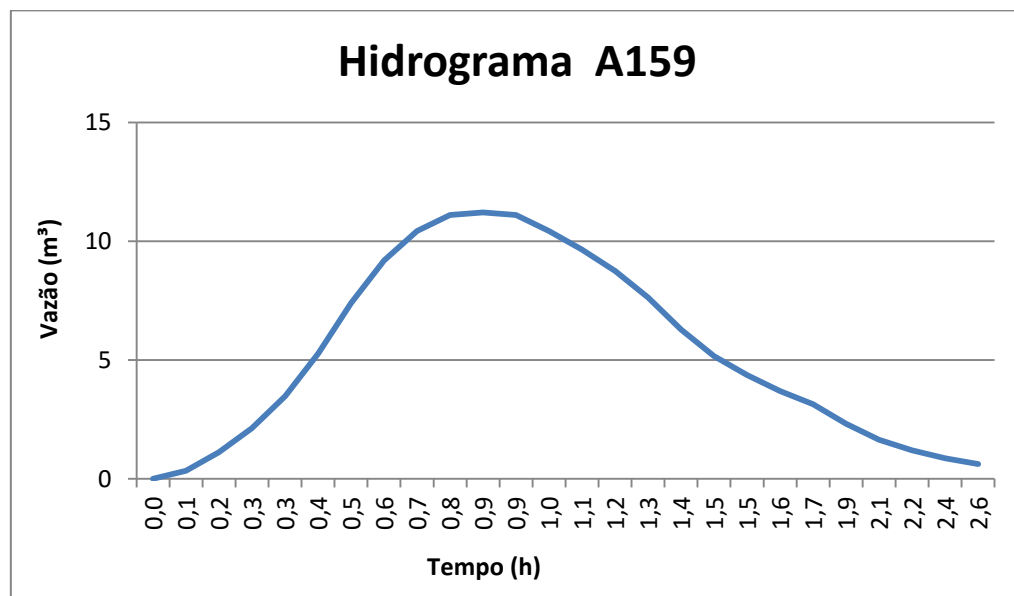
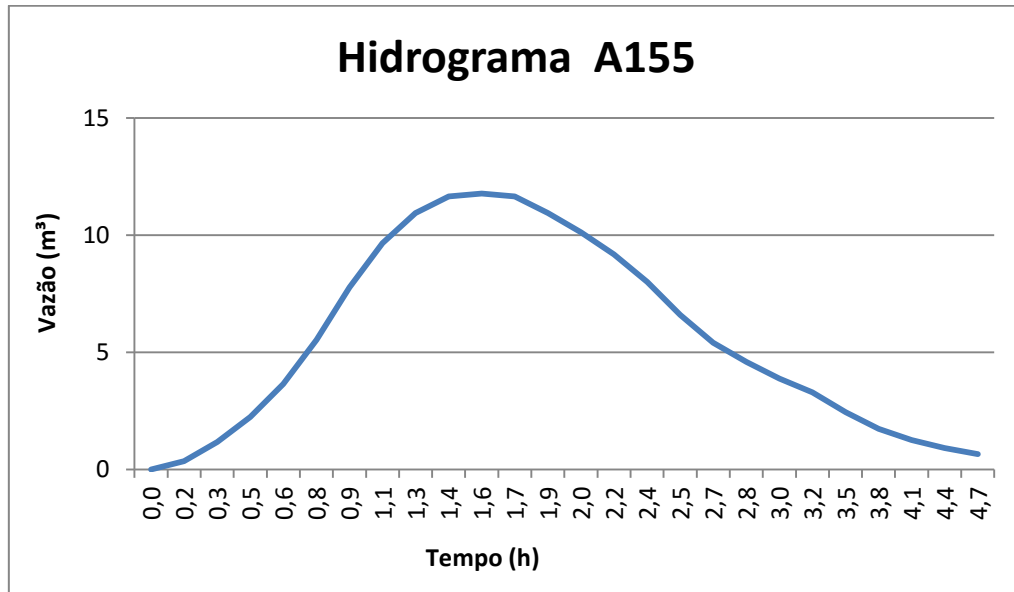


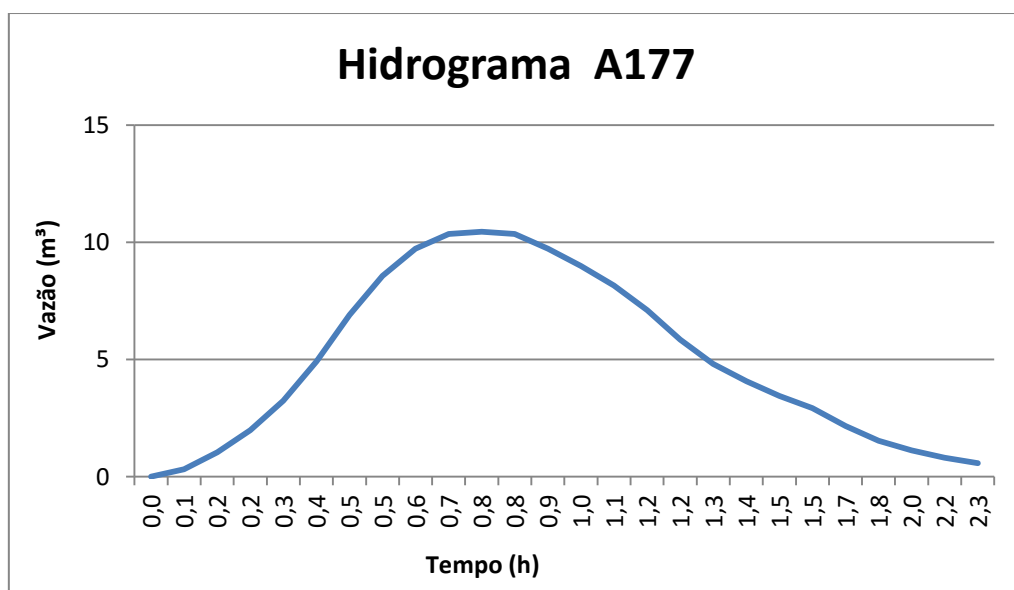
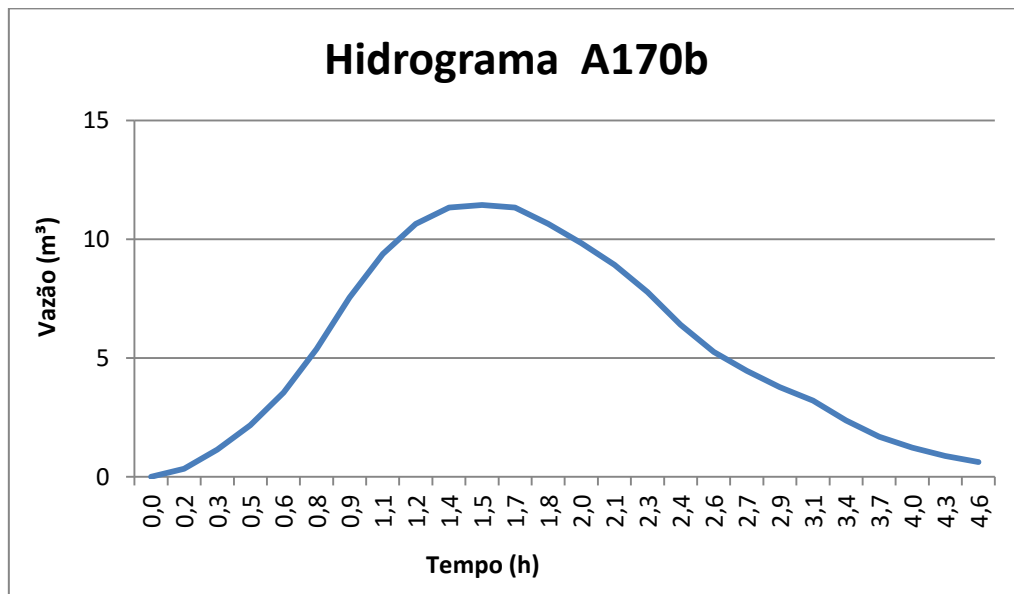
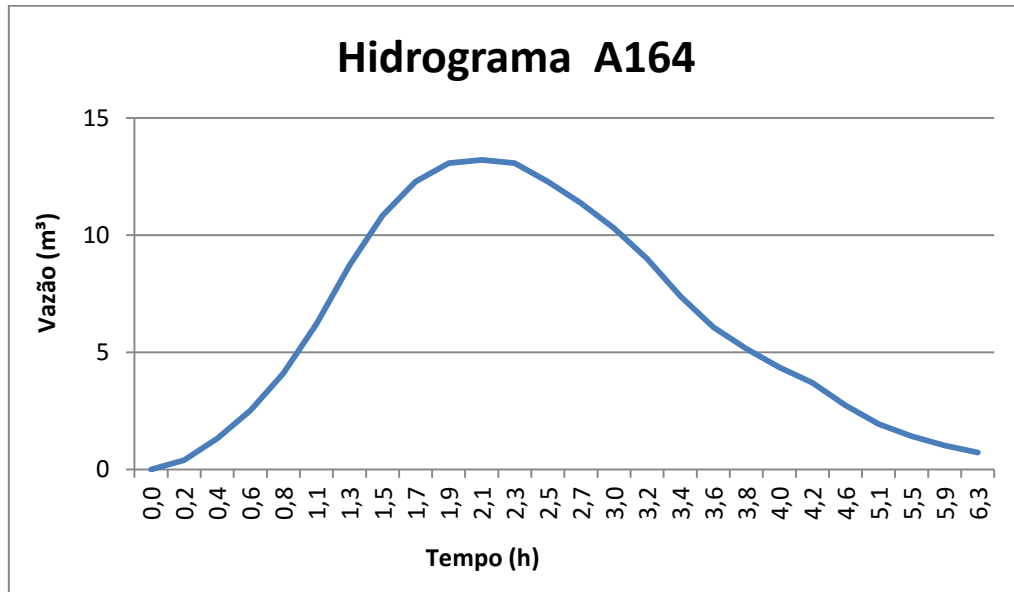
Hidrograma B97



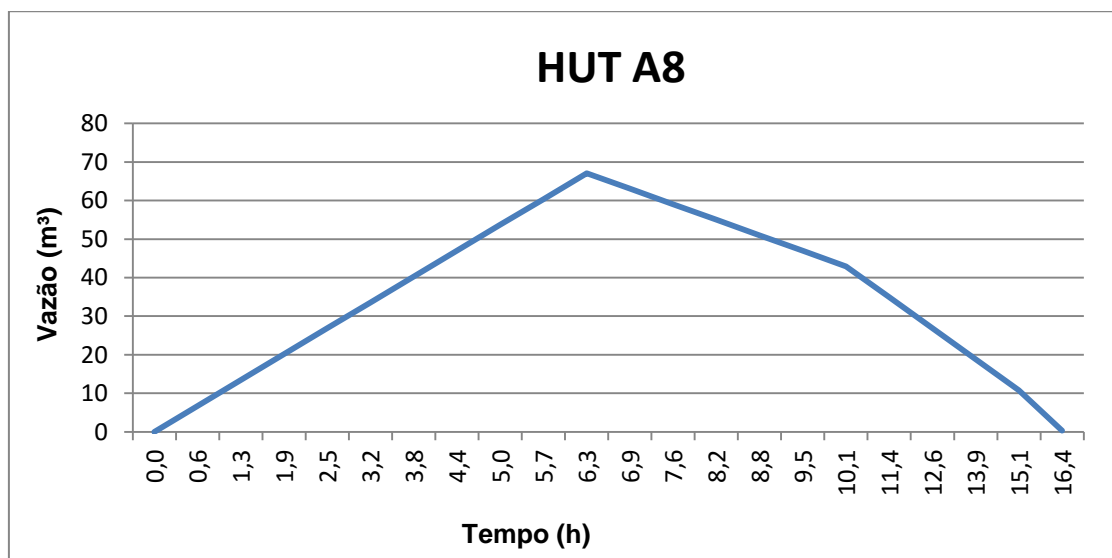
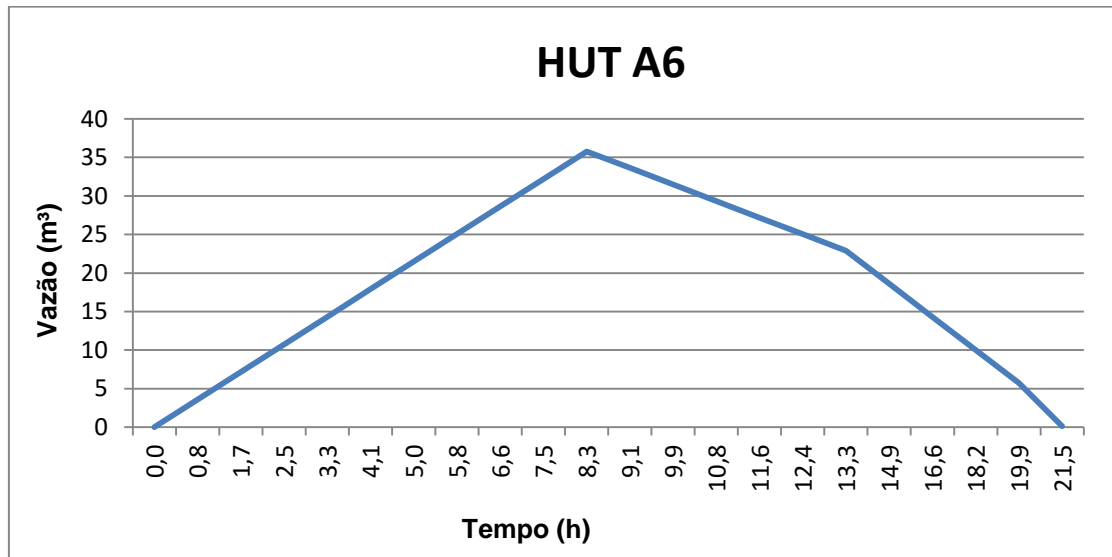
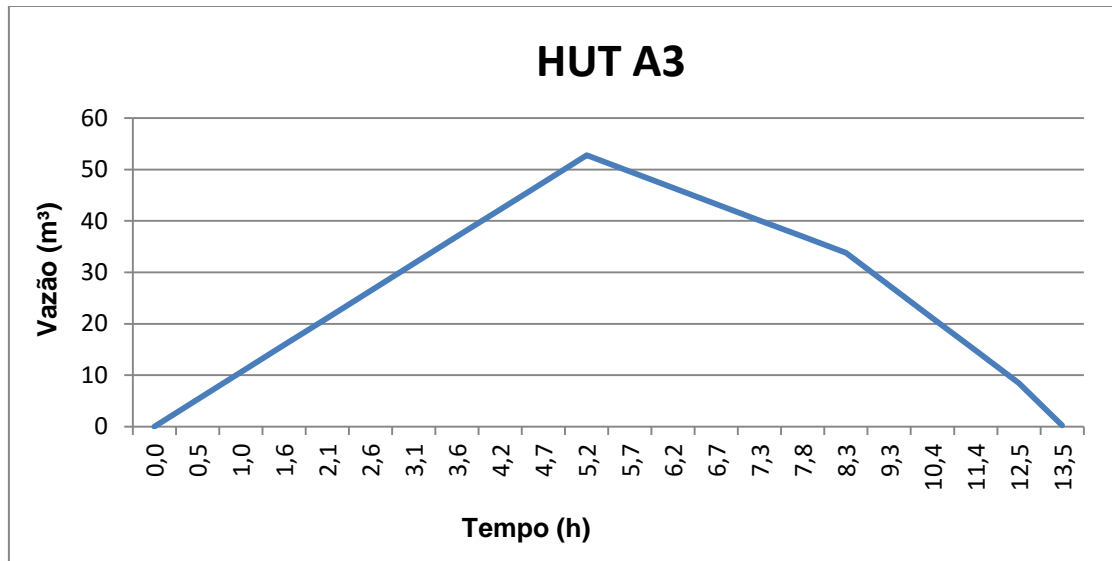


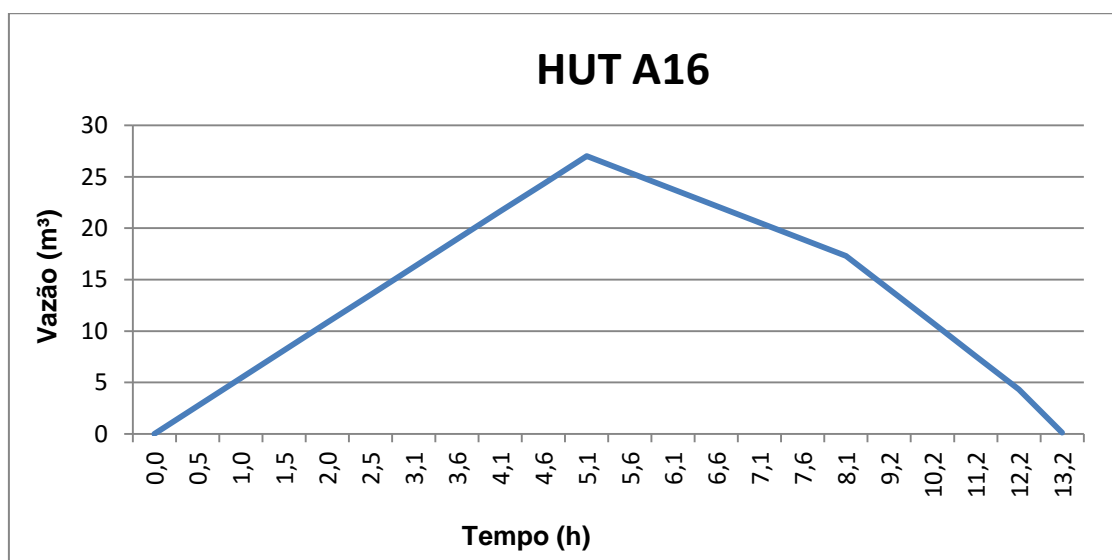
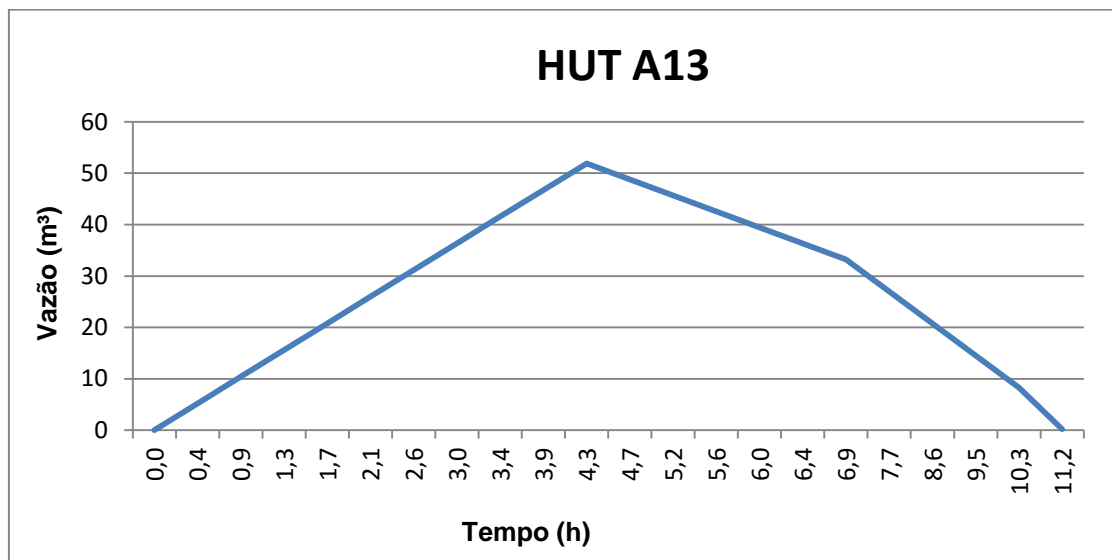
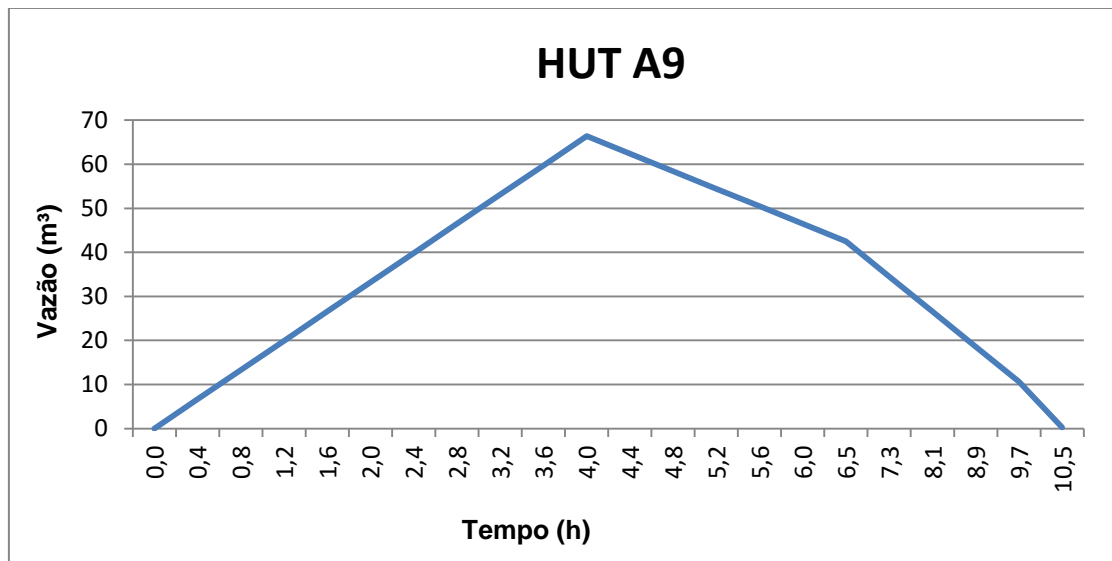


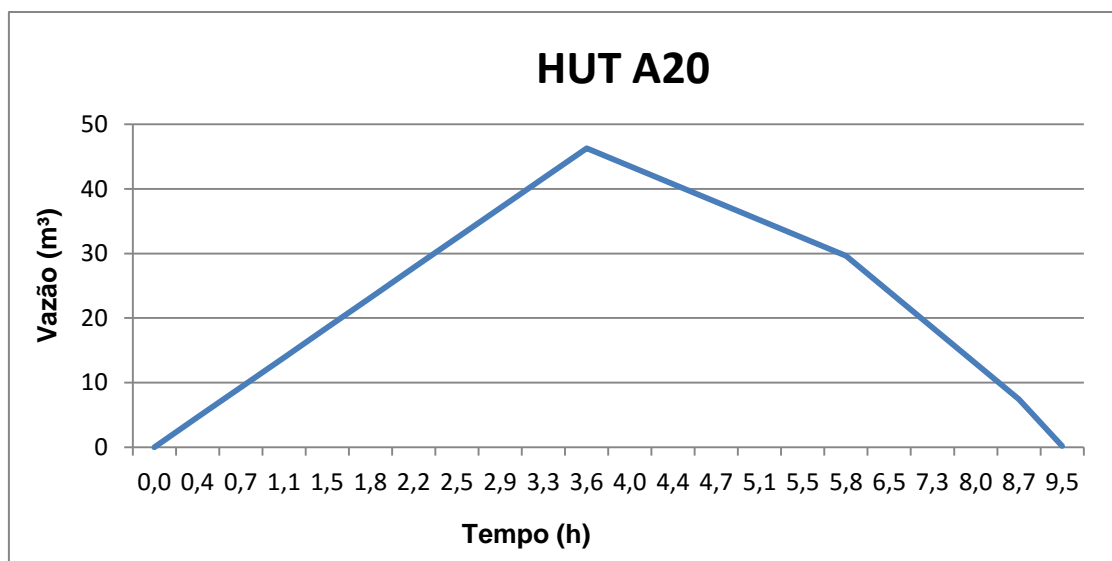
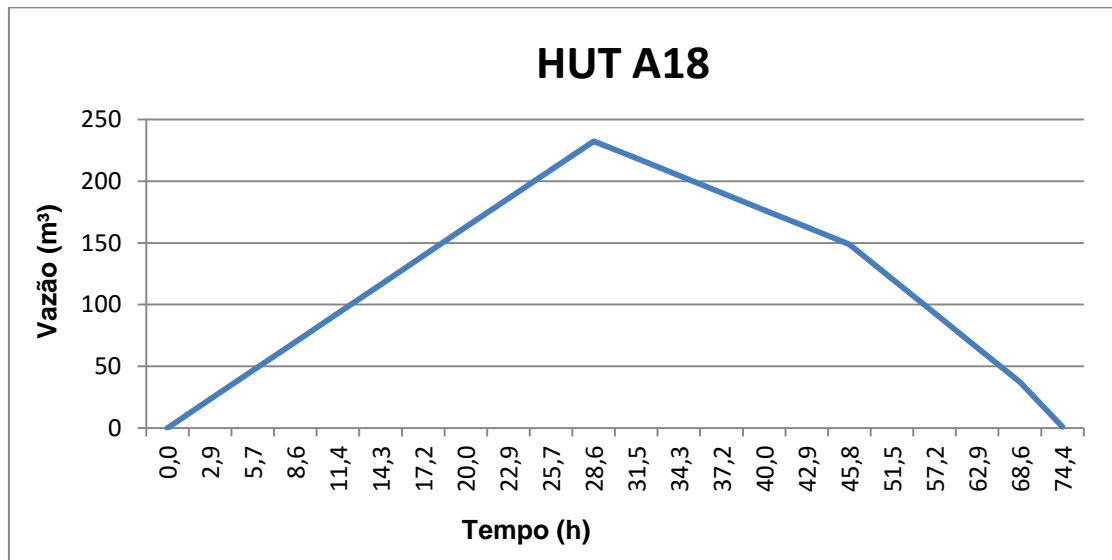
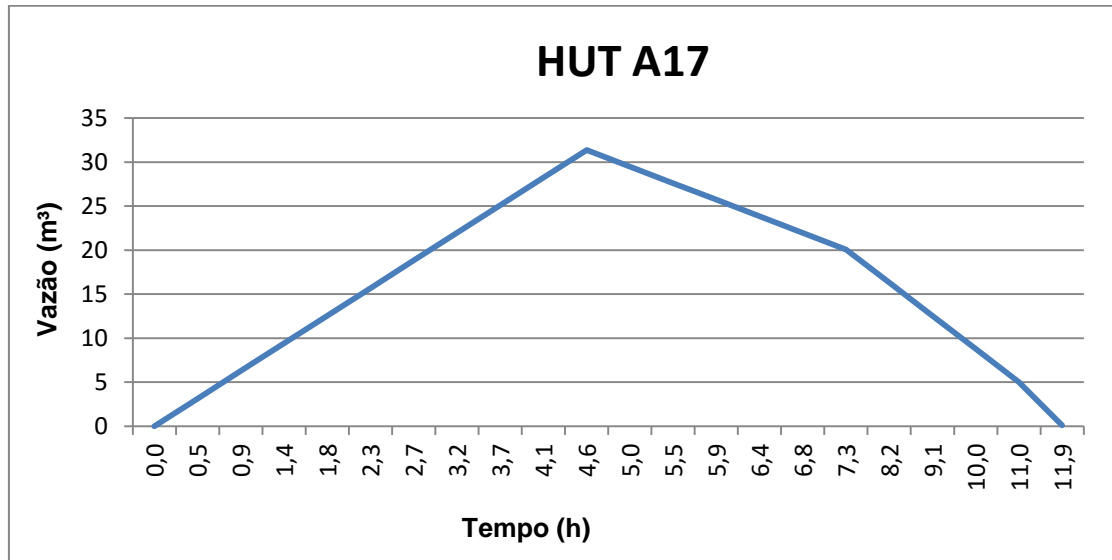


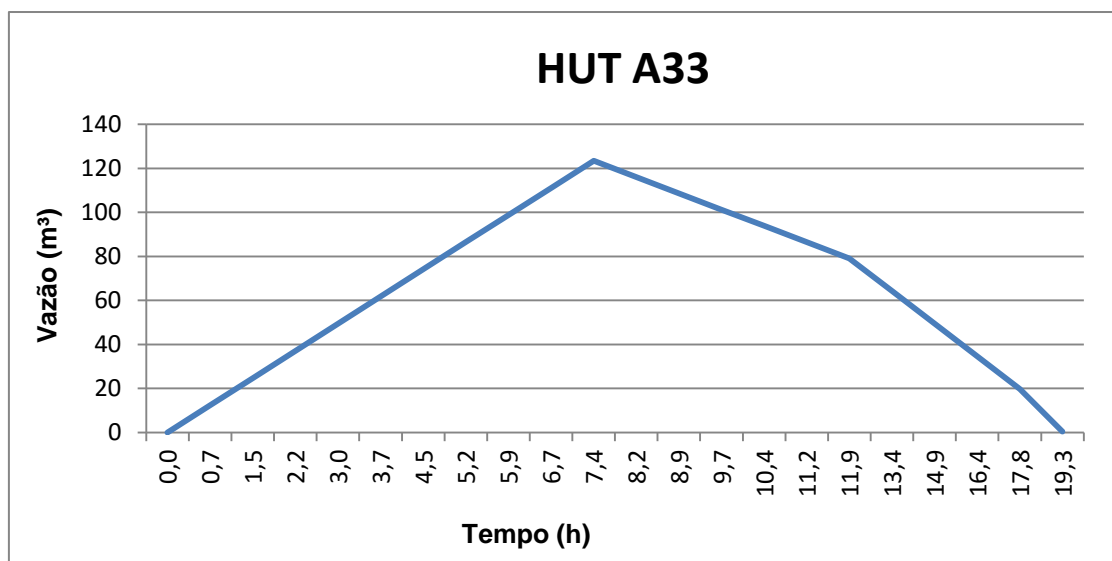
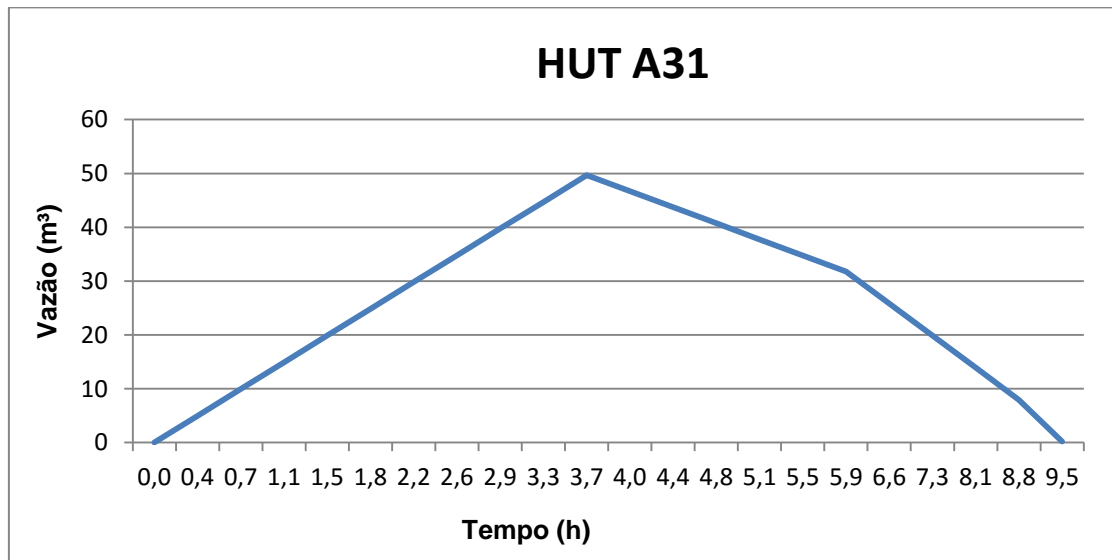
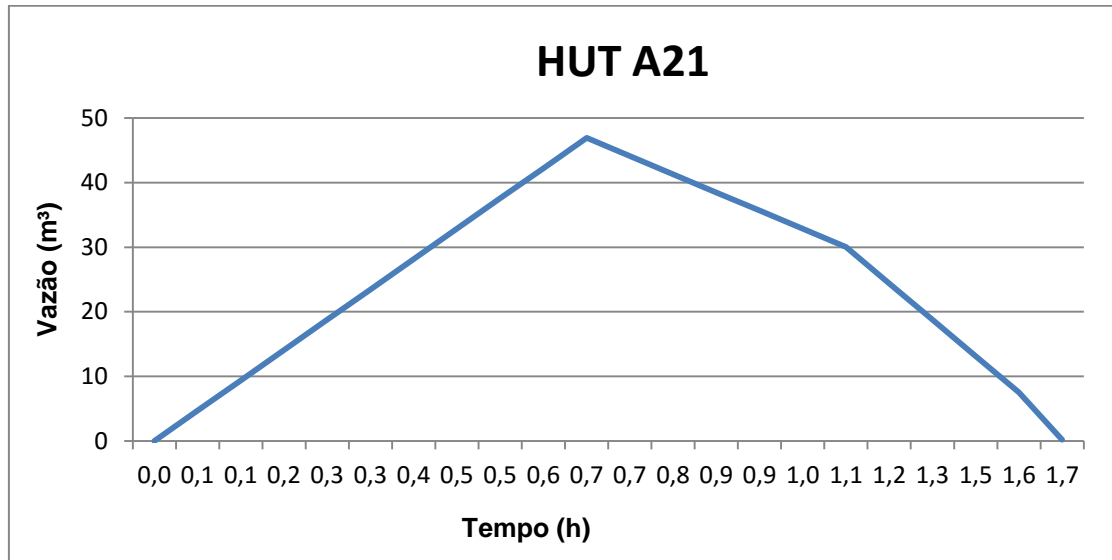


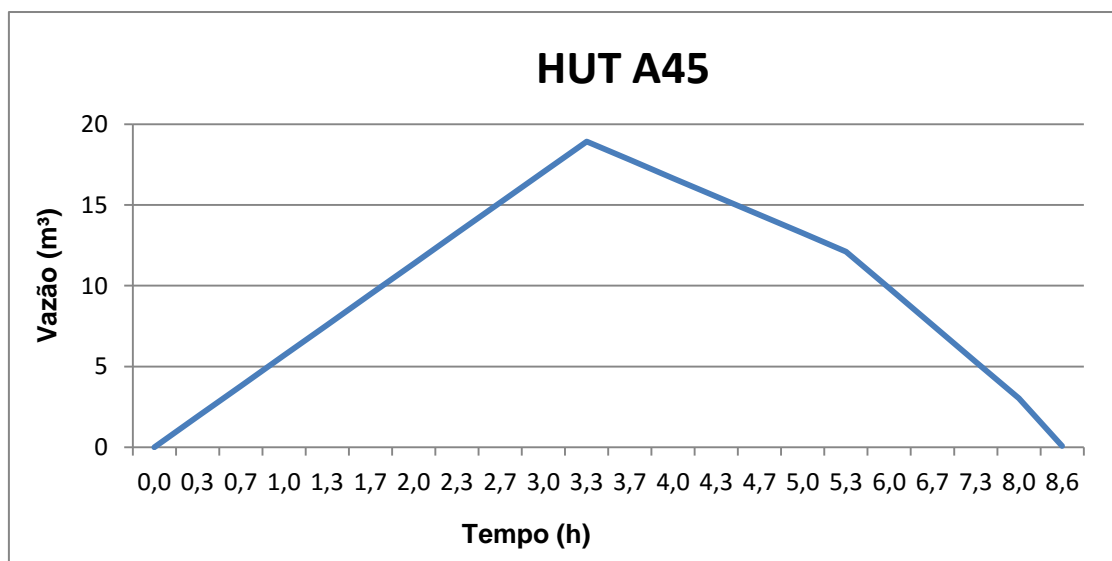
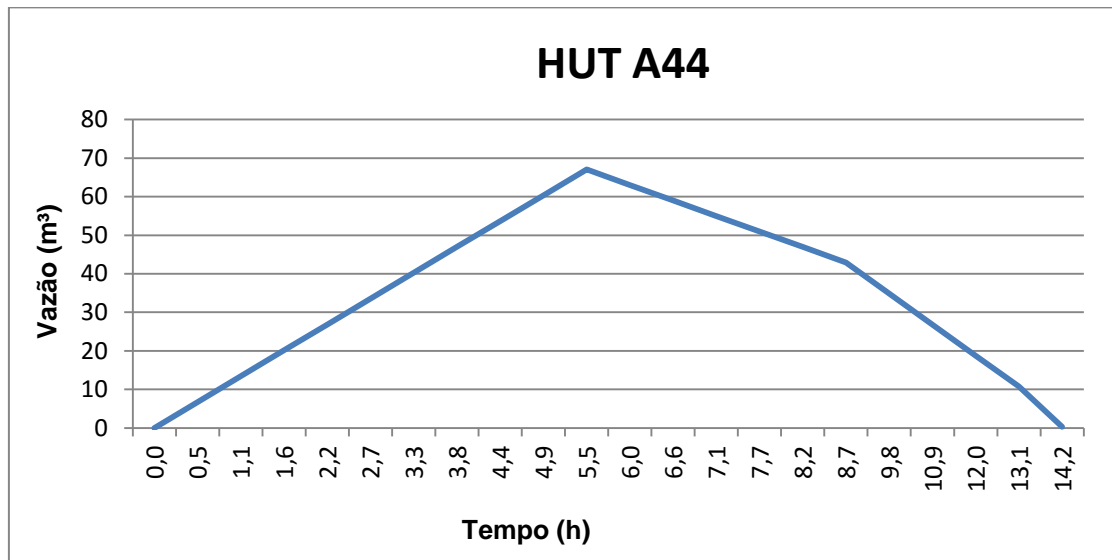
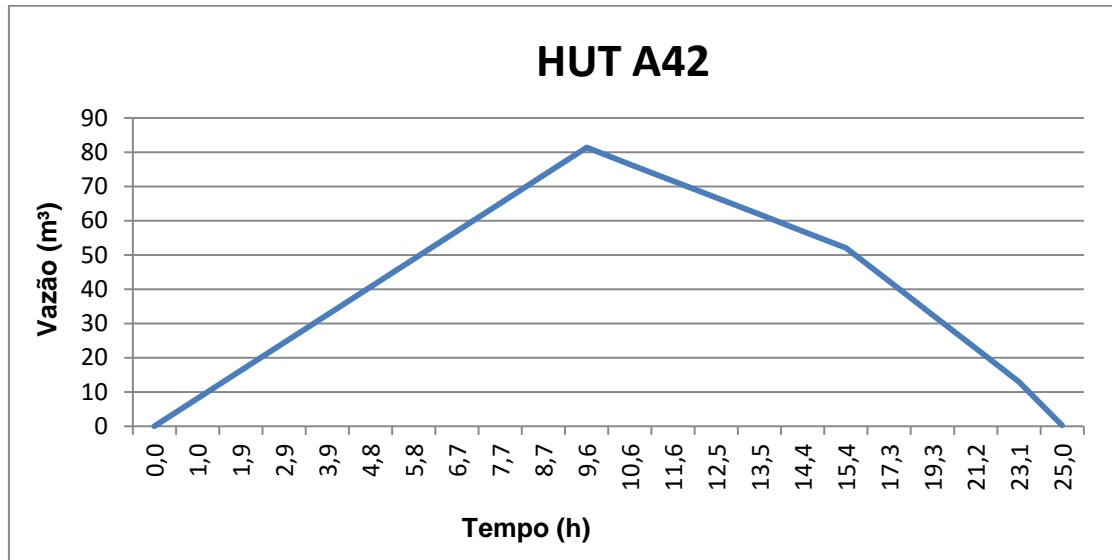
3. Bacia maior que 20km² (Hidrograma pelo Método Unitário Triangular)

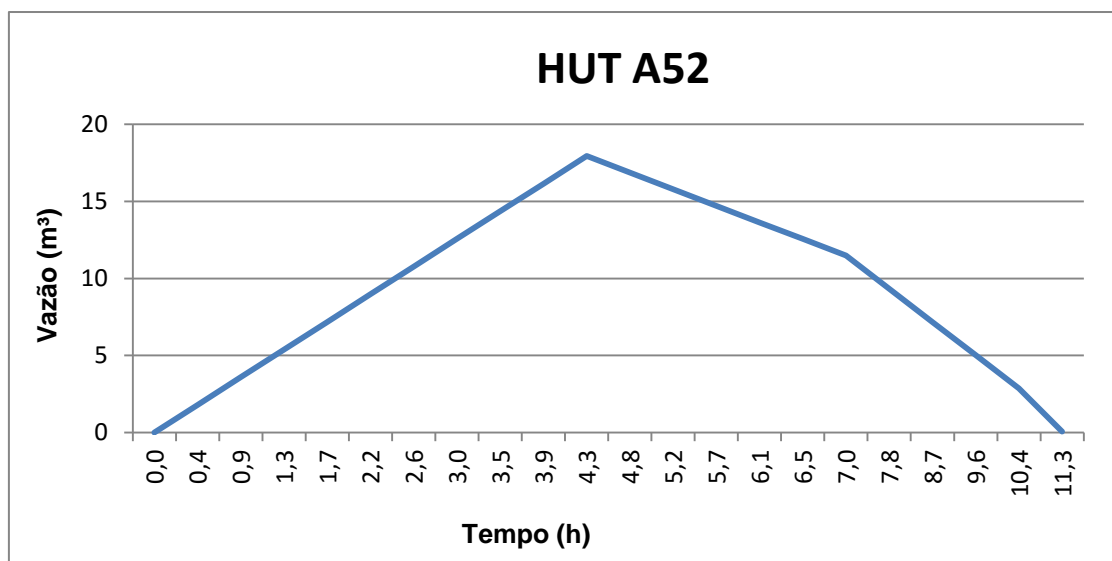
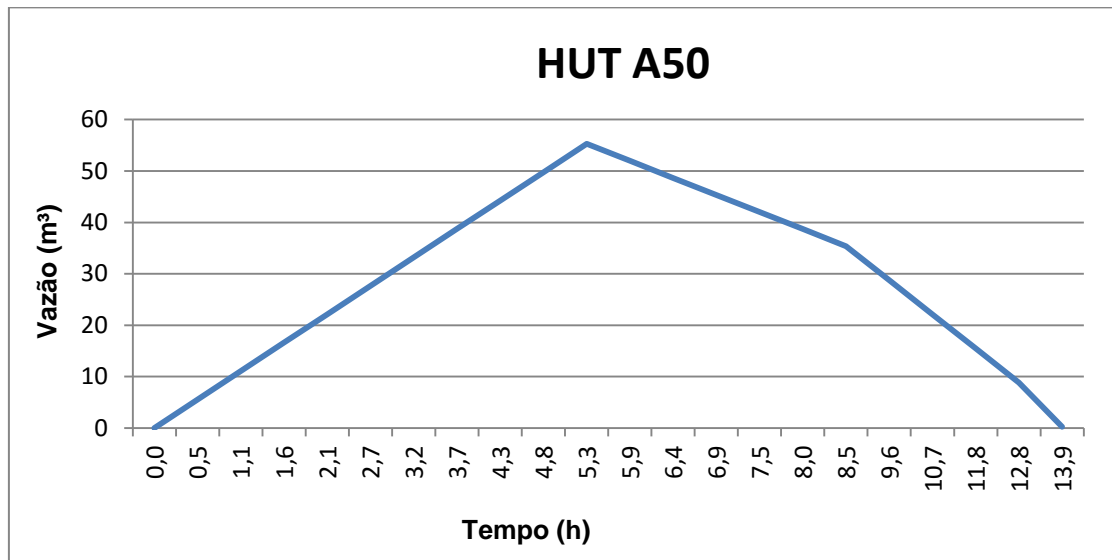
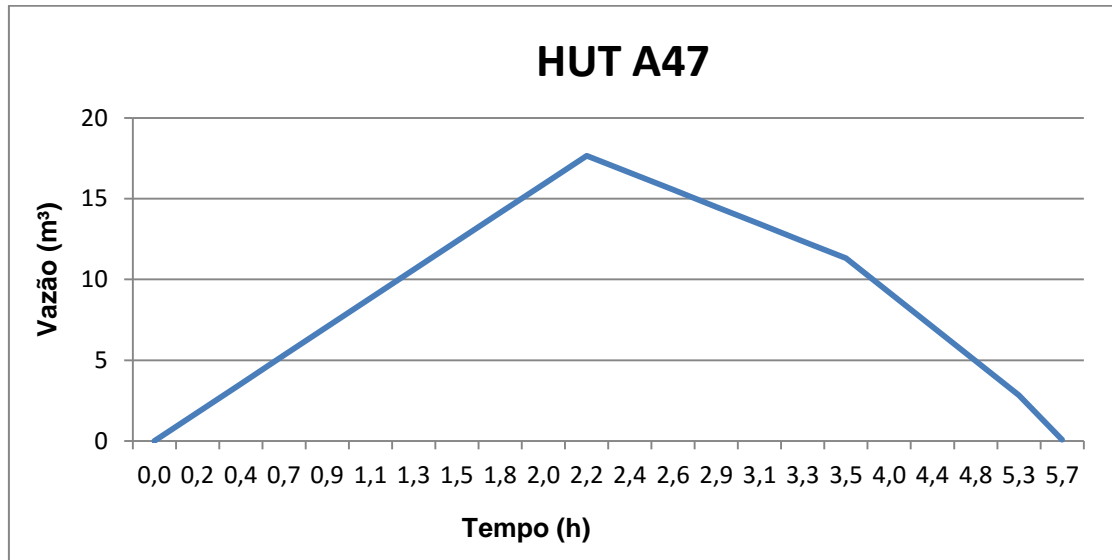


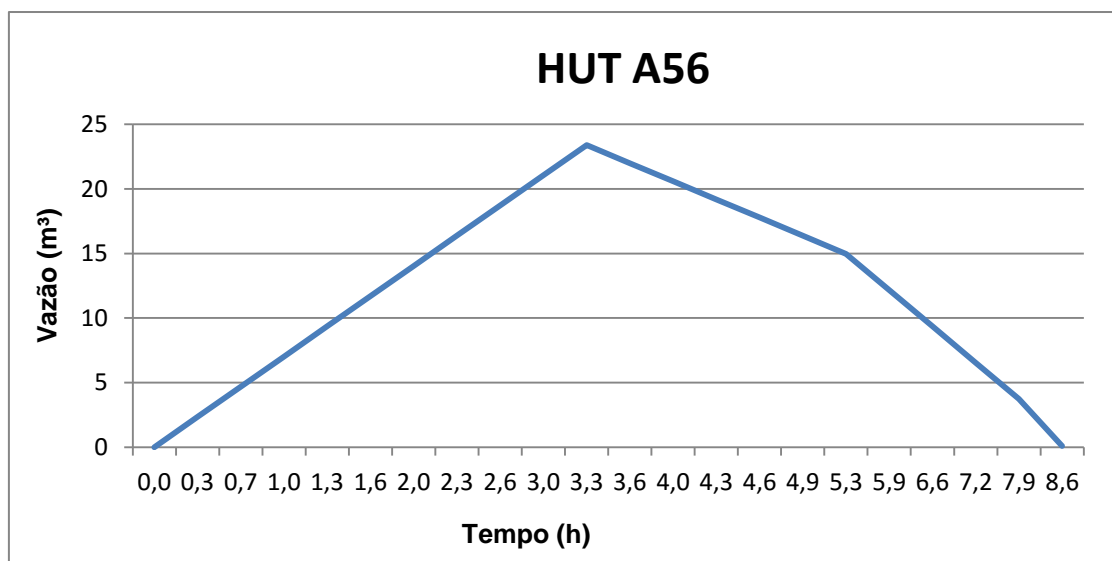
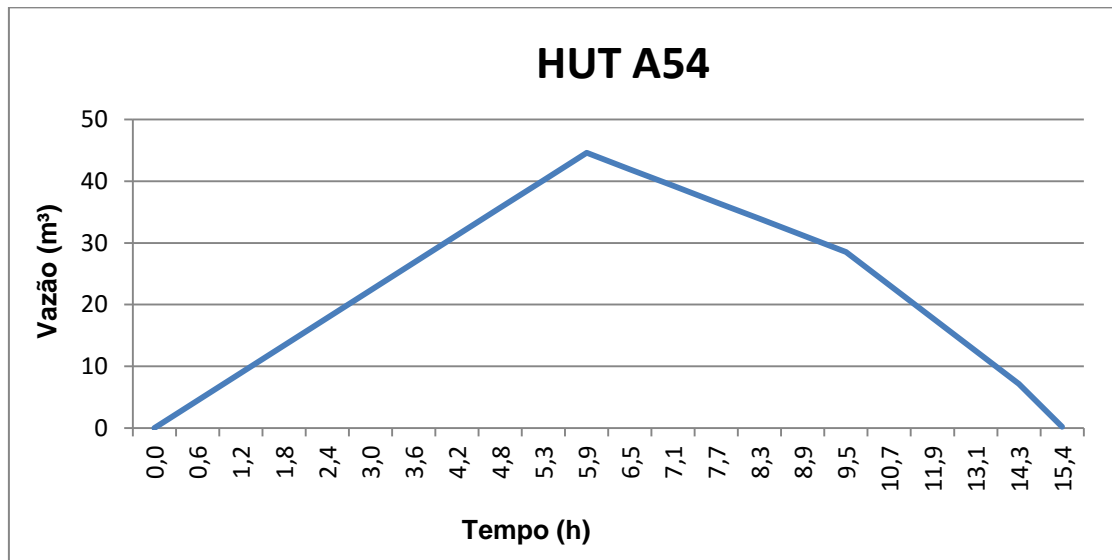
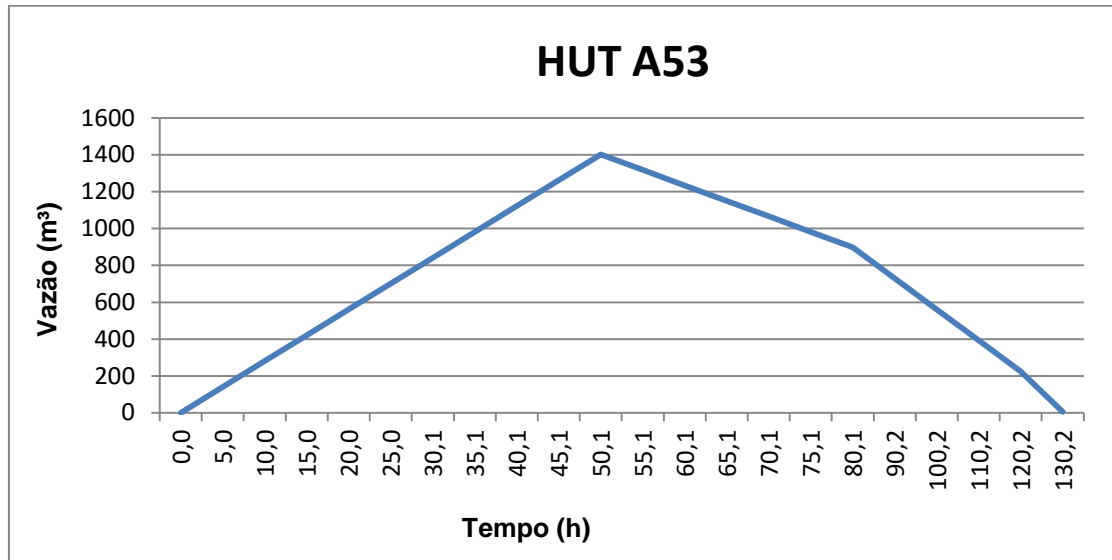


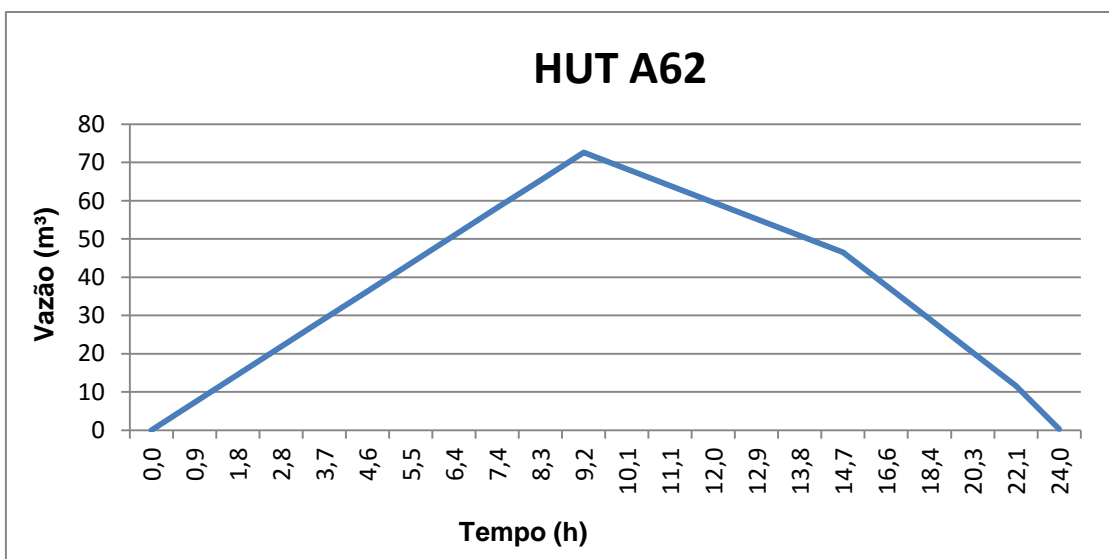
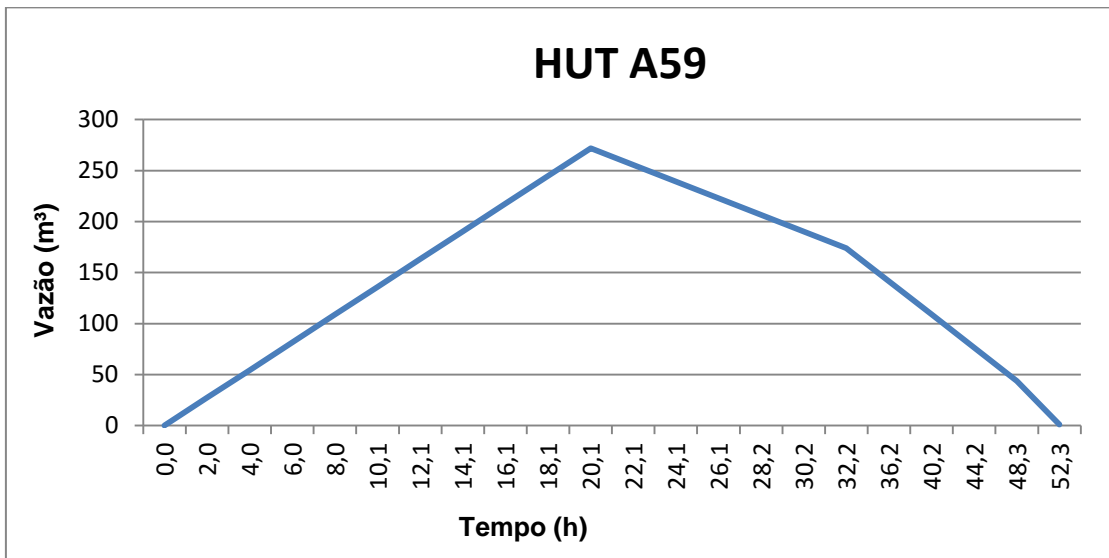
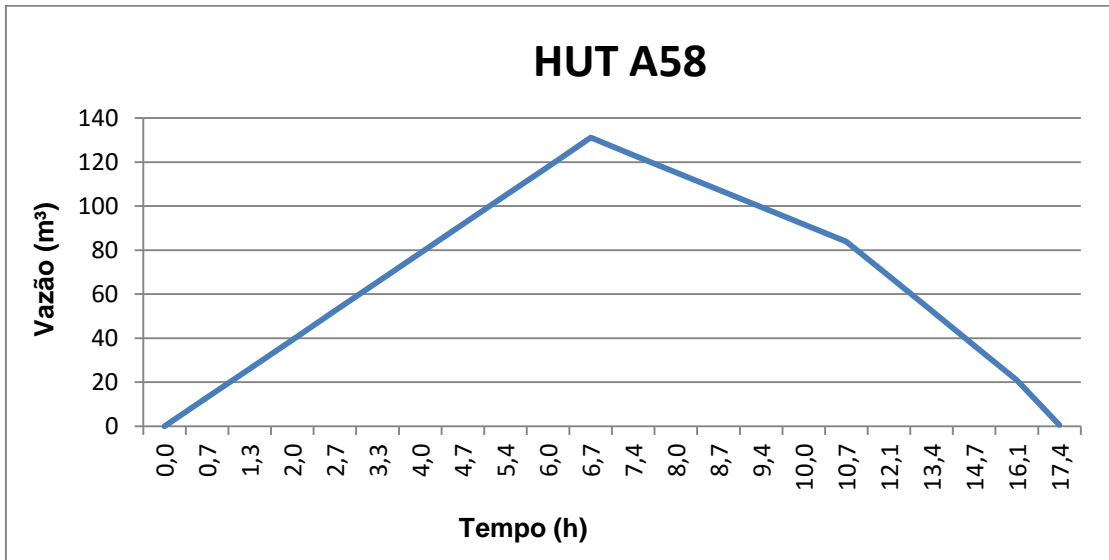


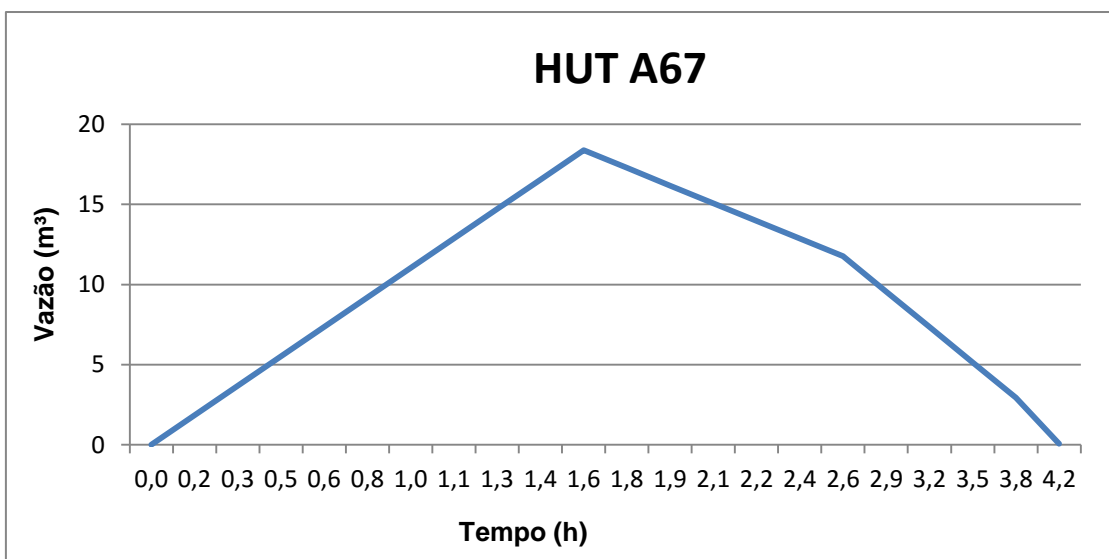
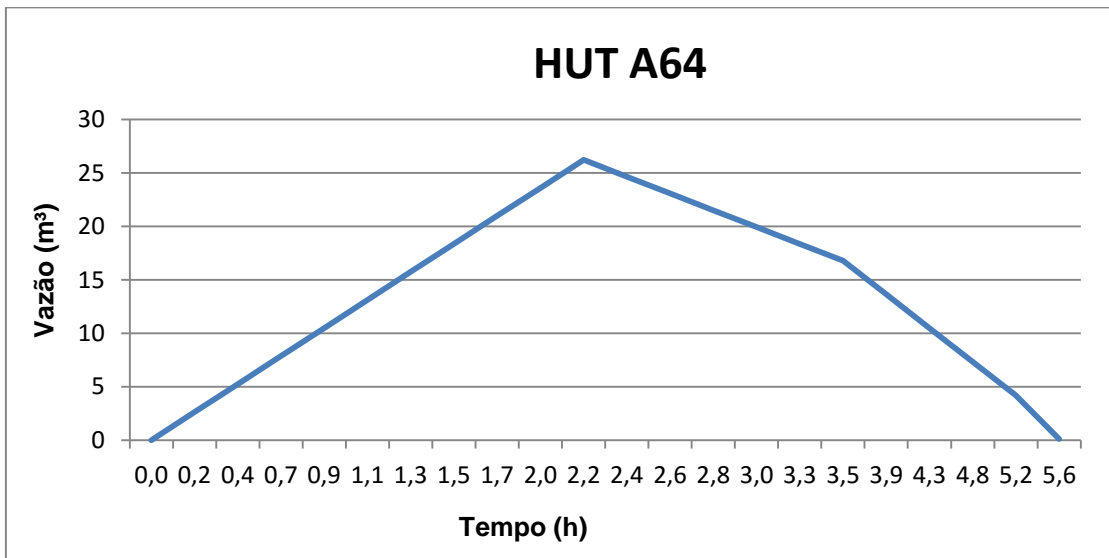
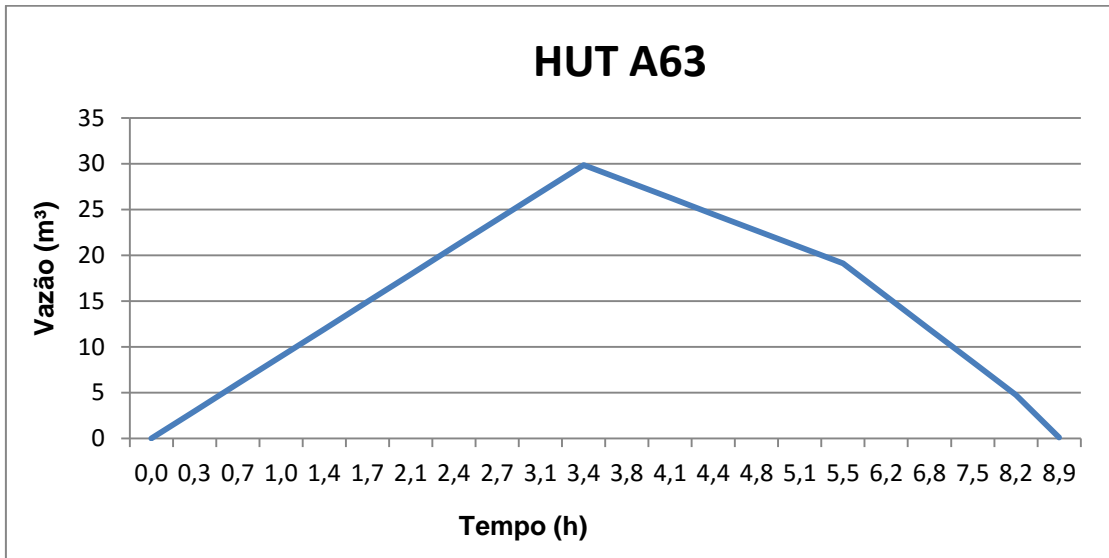


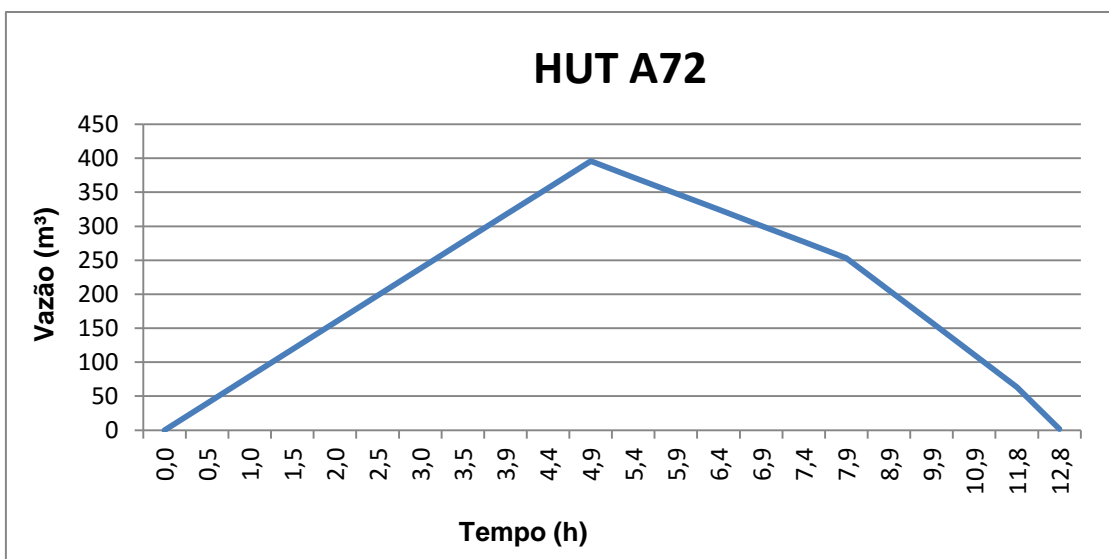
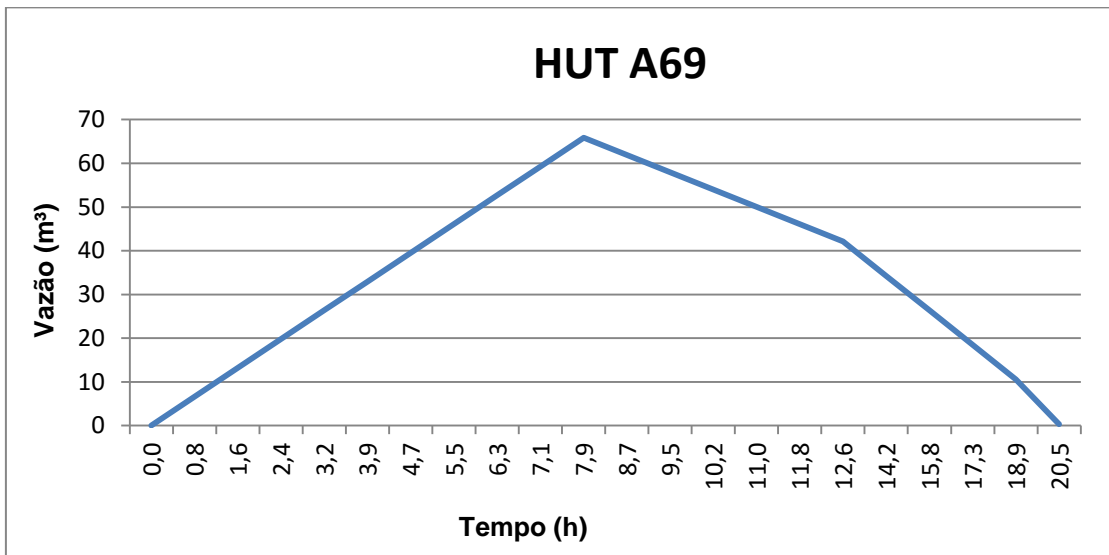
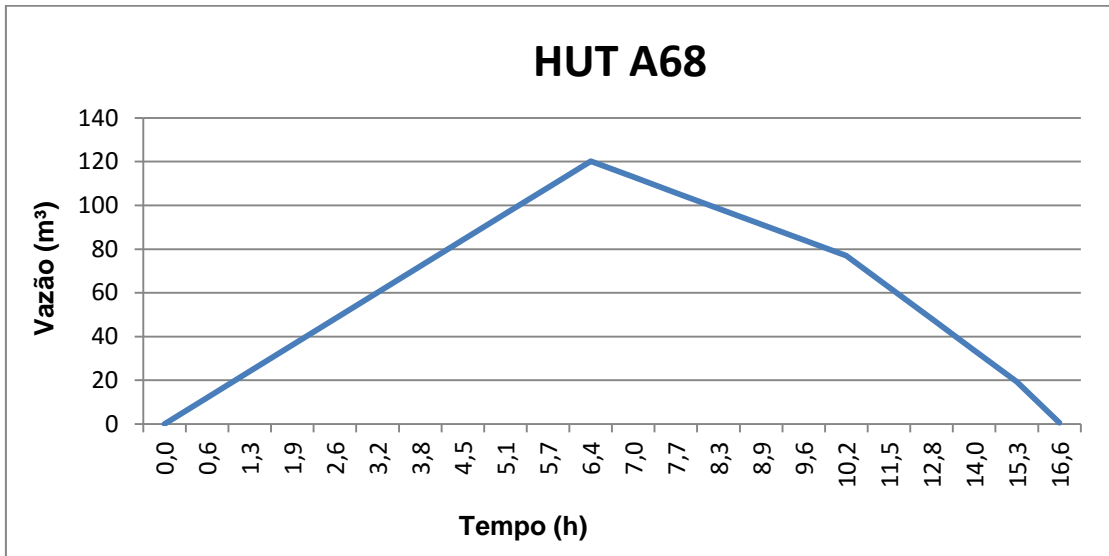


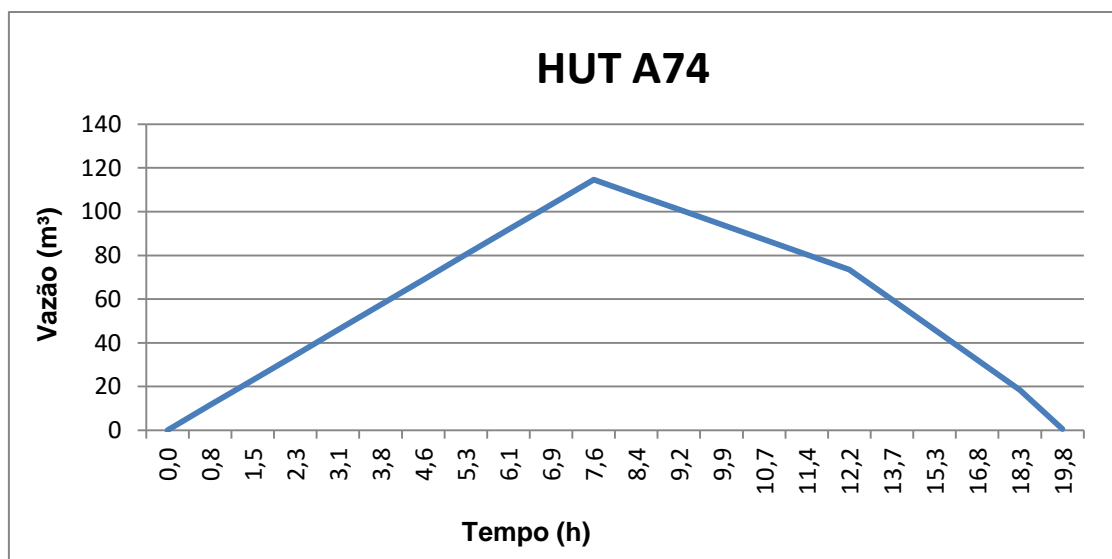
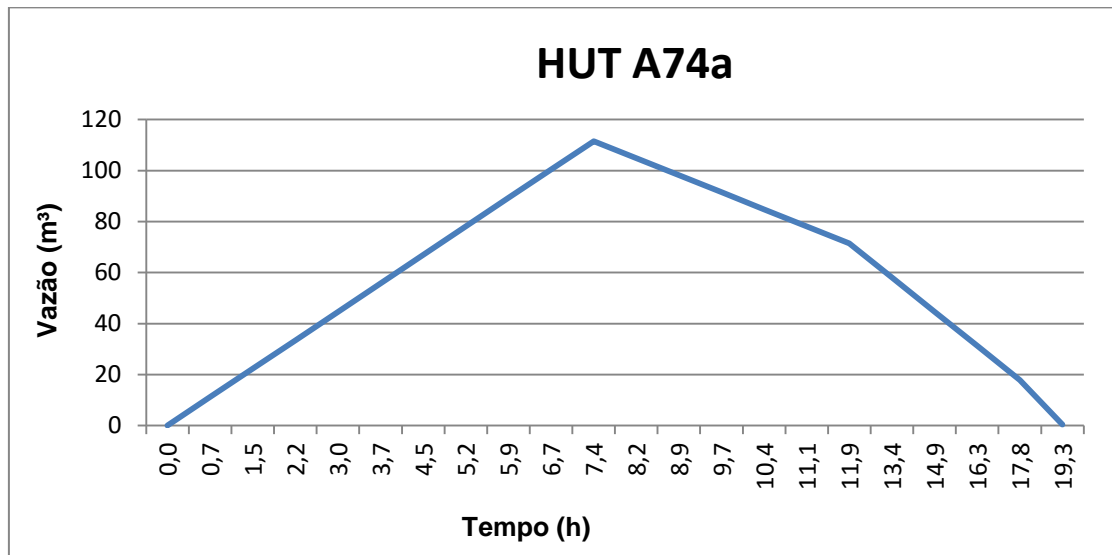
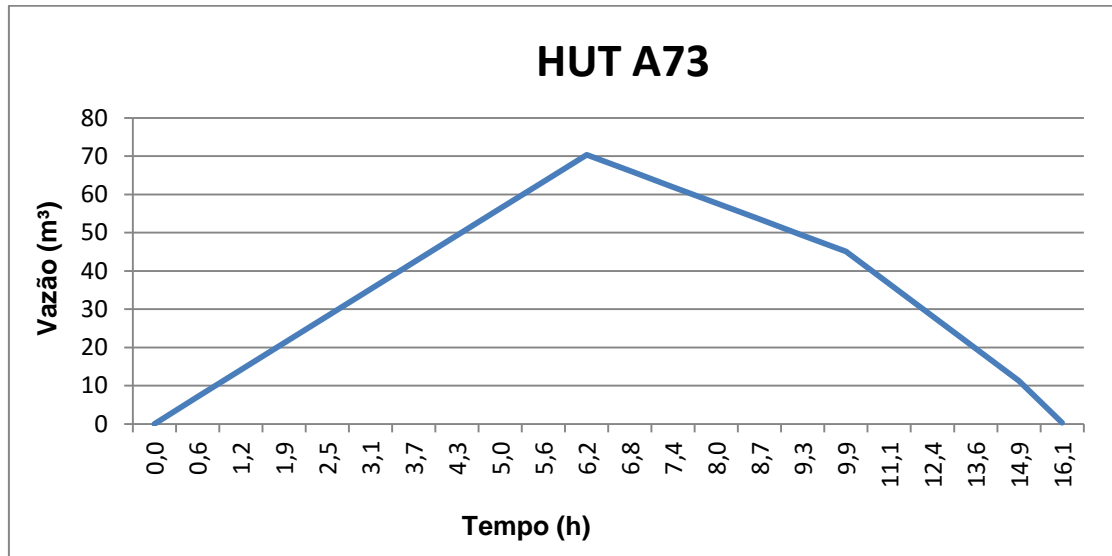


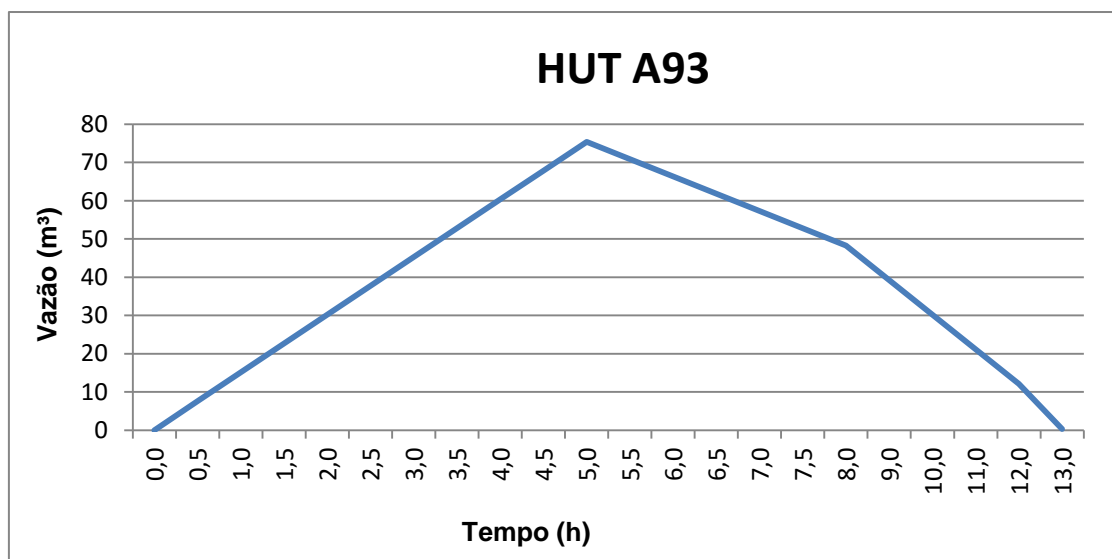
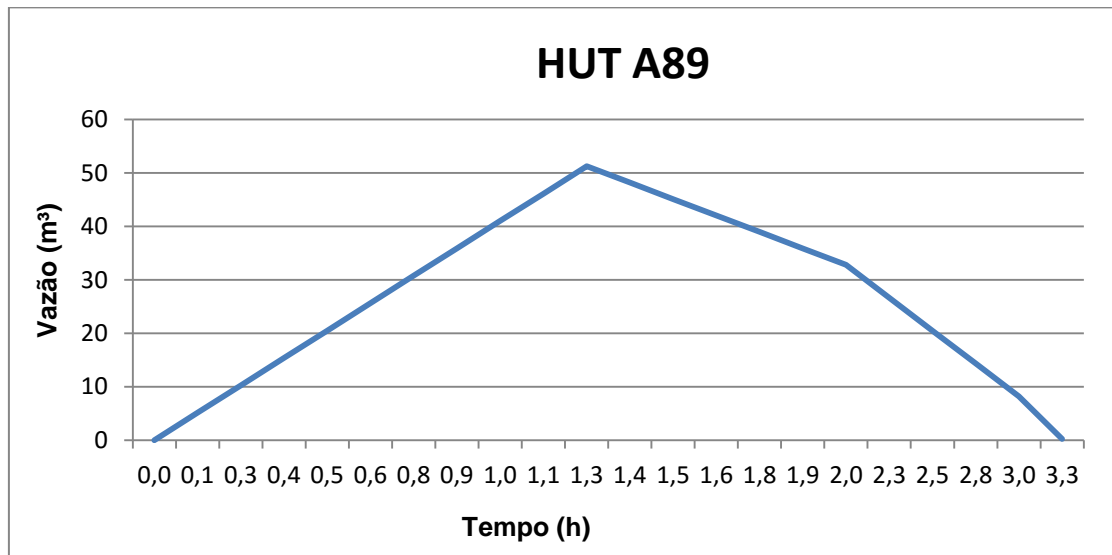
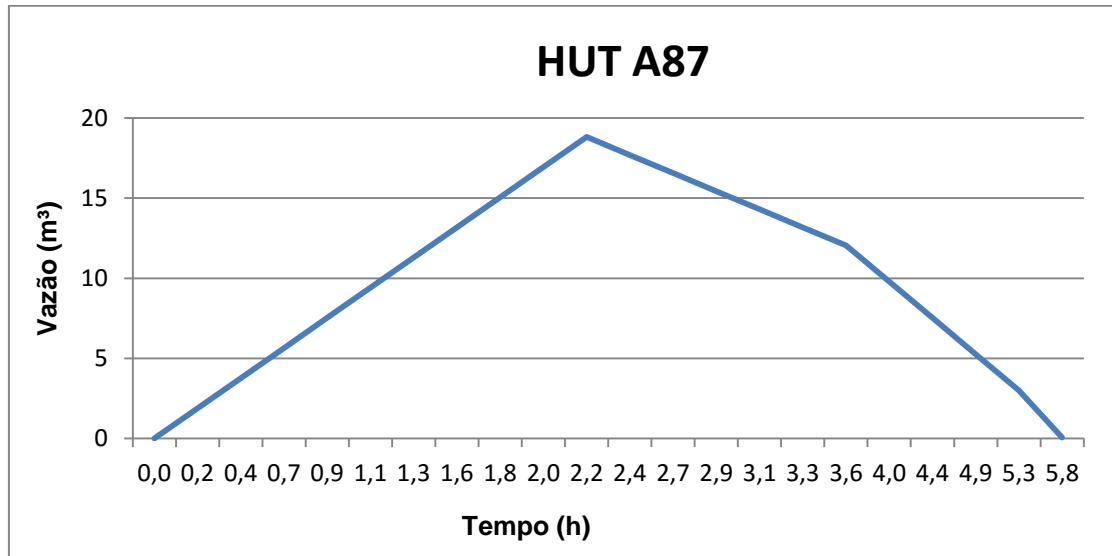


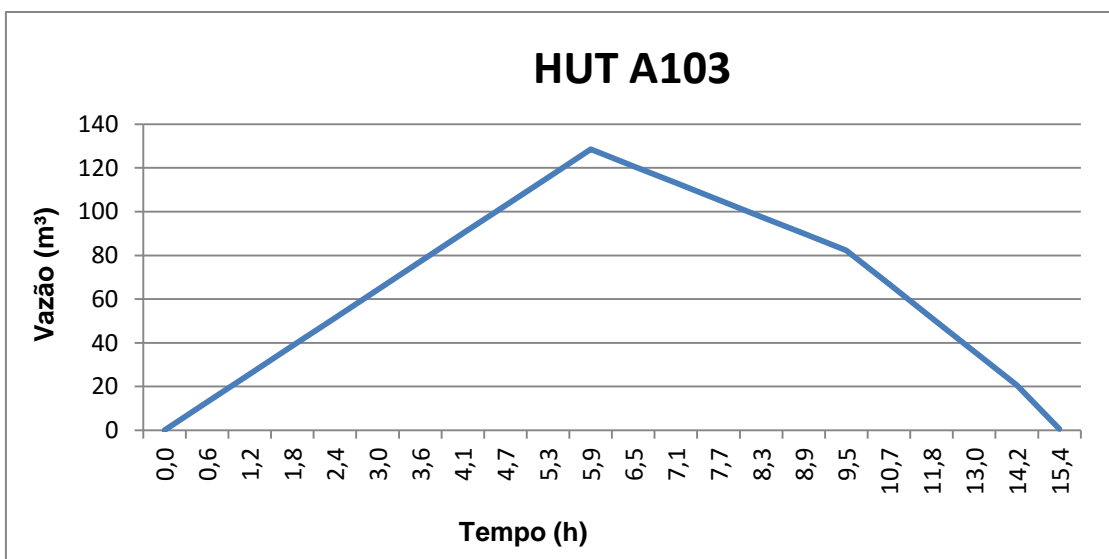
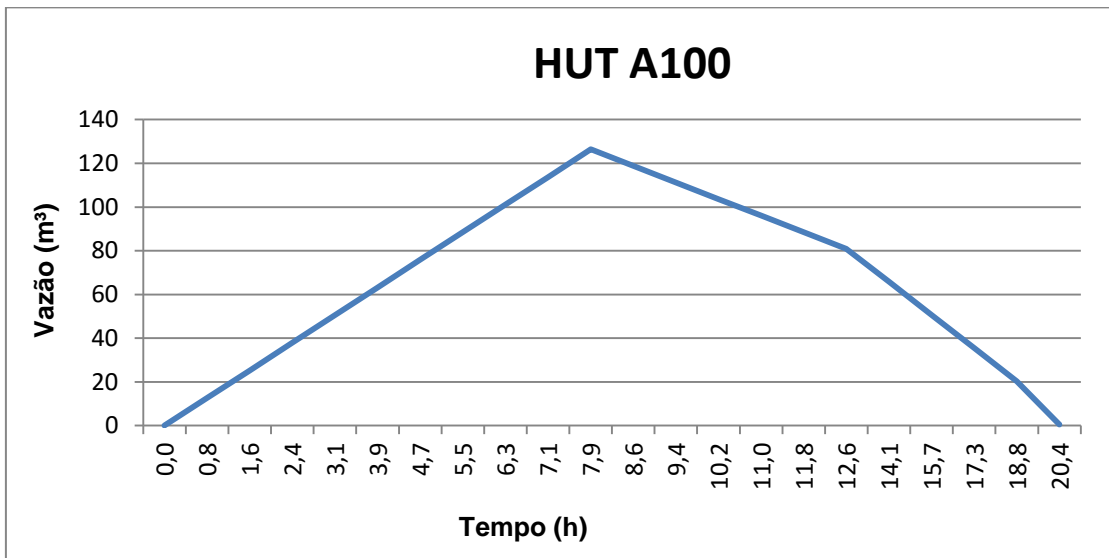
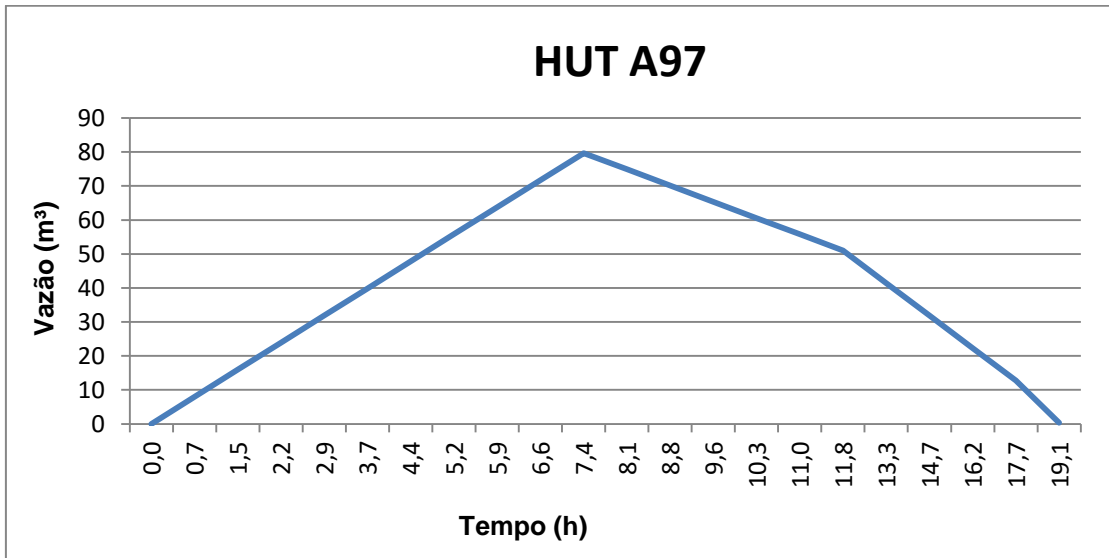


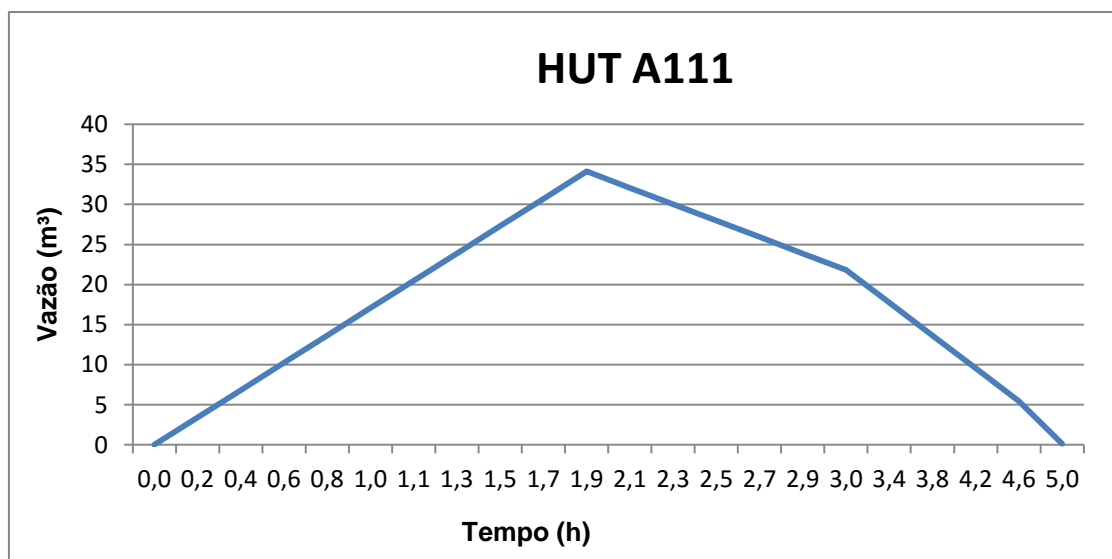
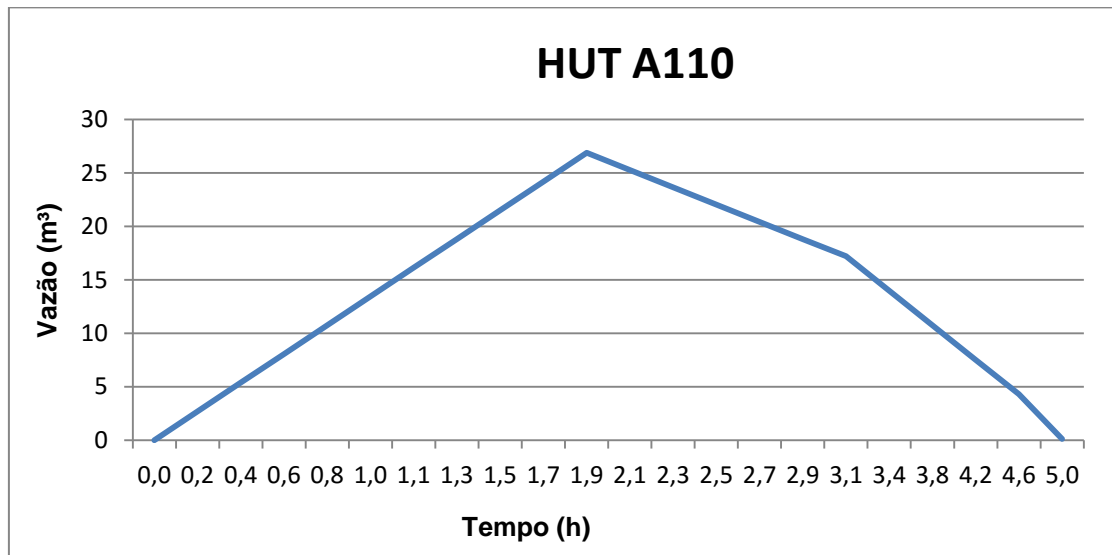
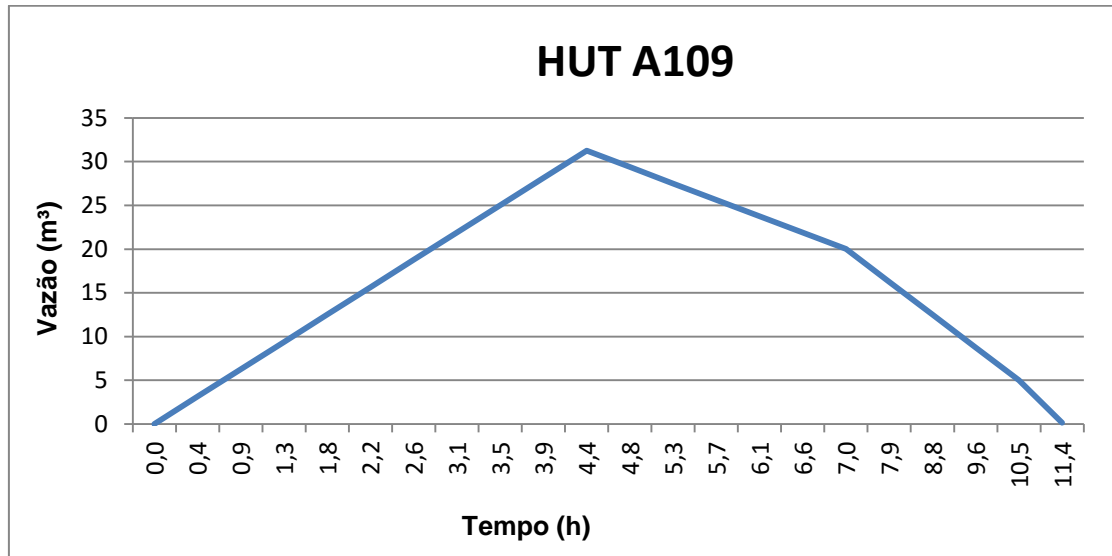




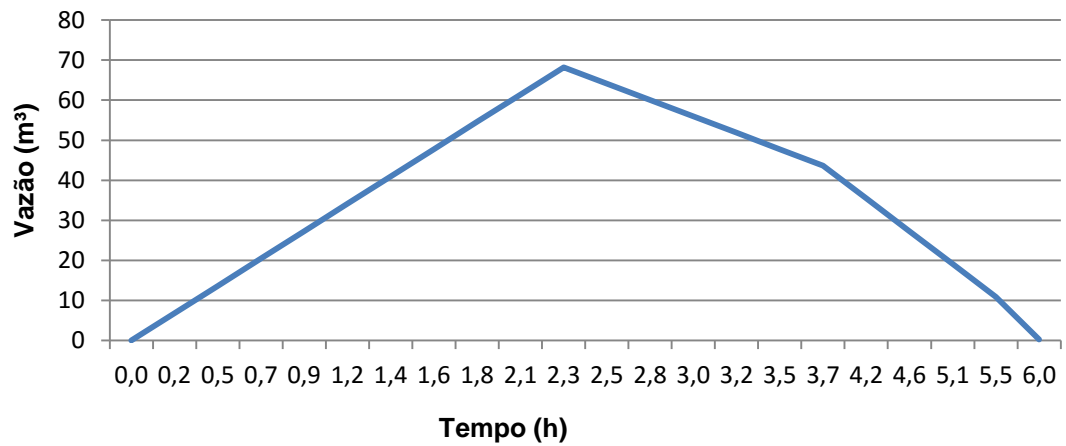




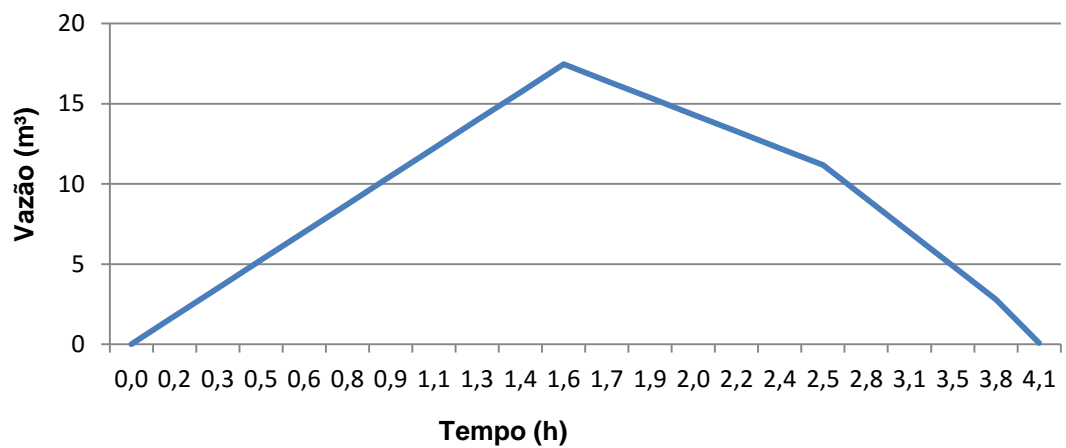




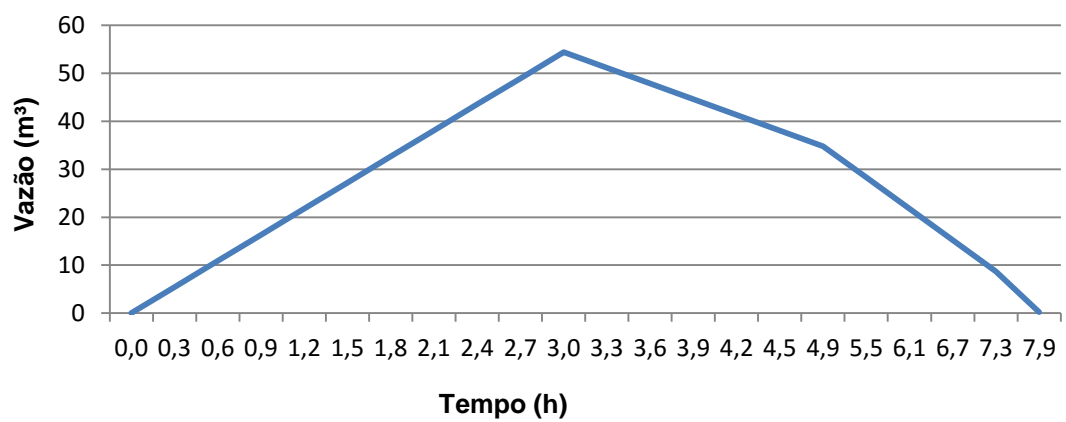
HUT A 113

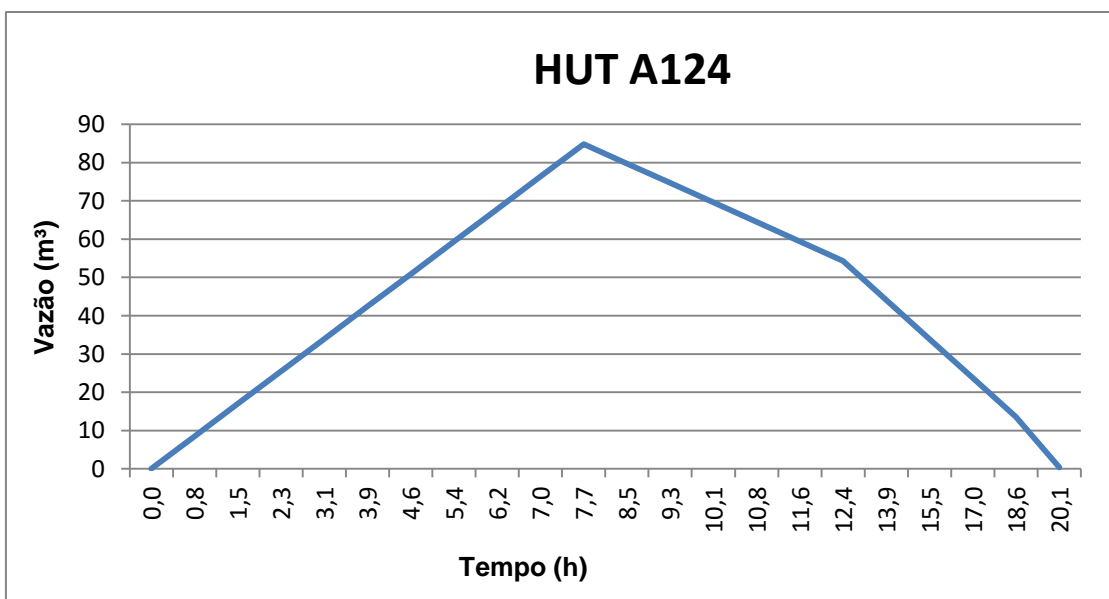
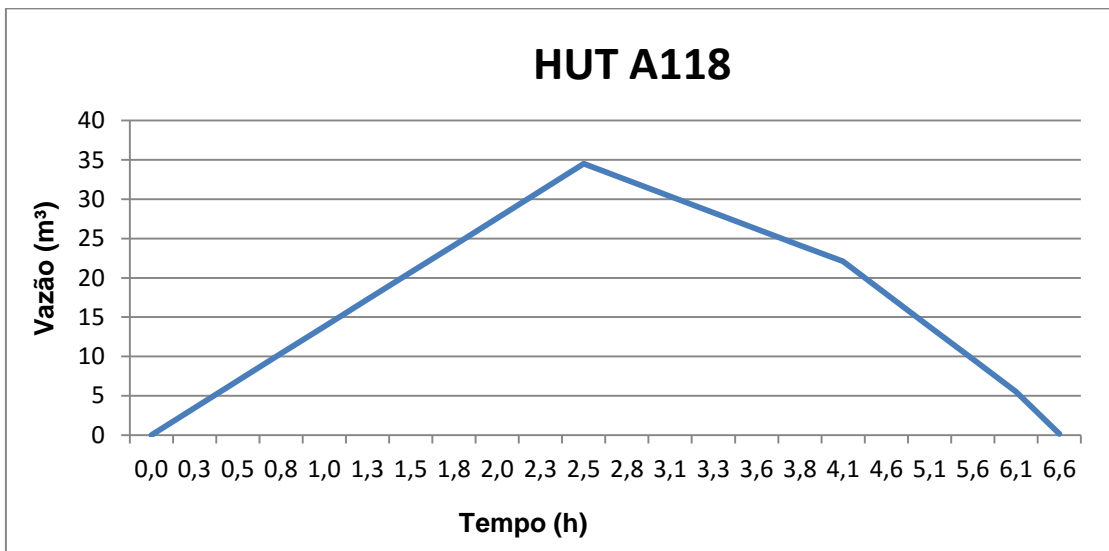
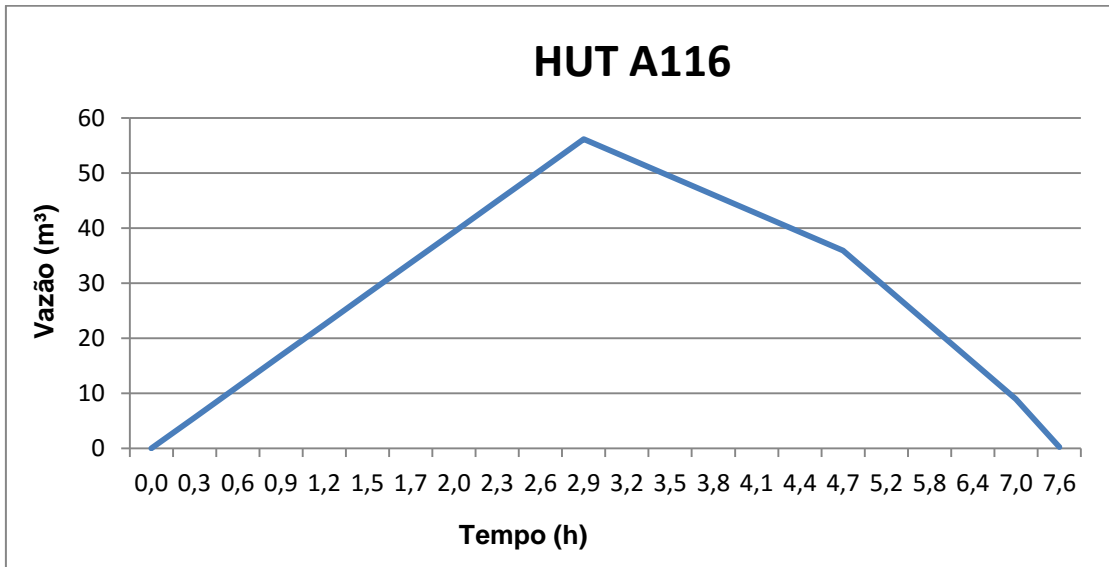


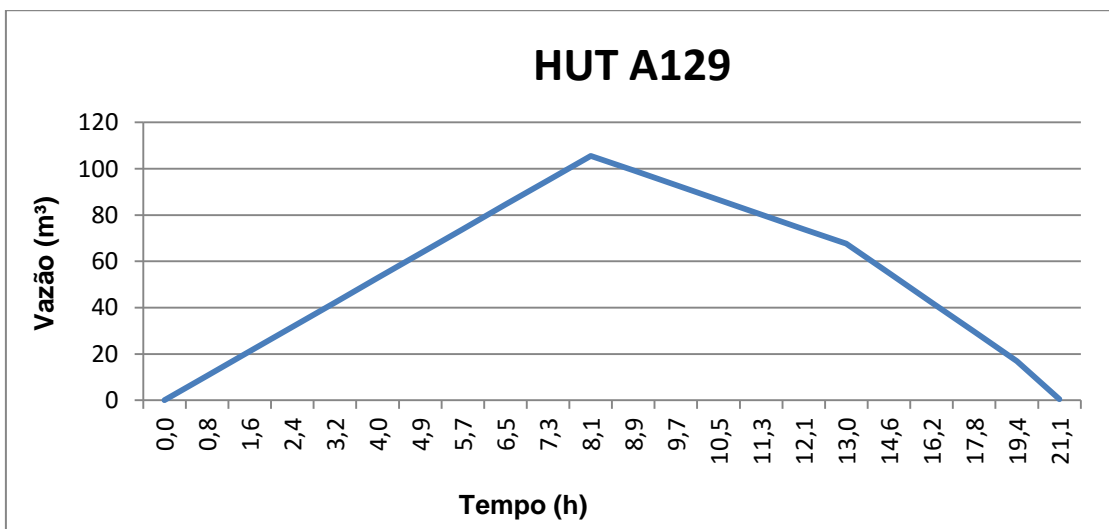
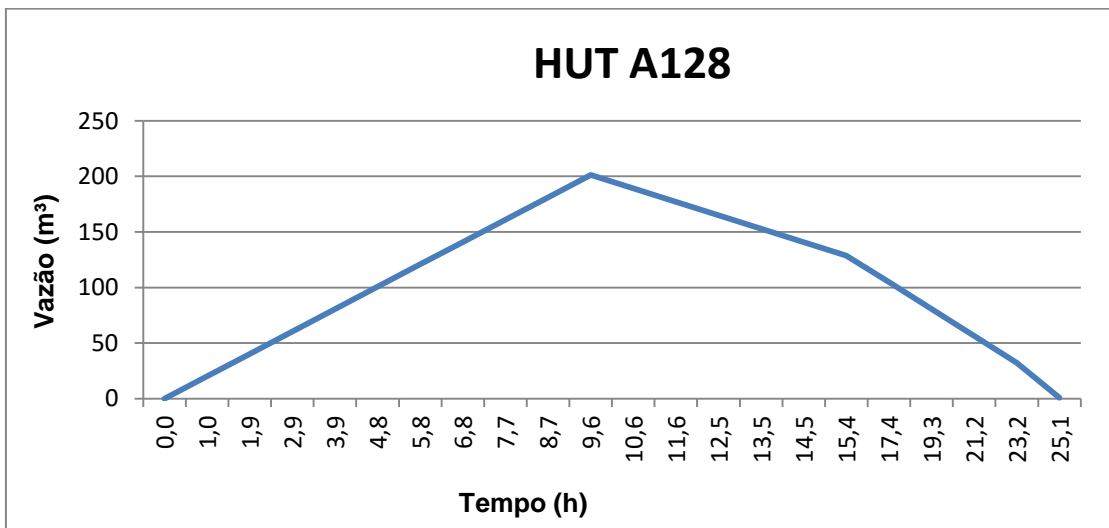
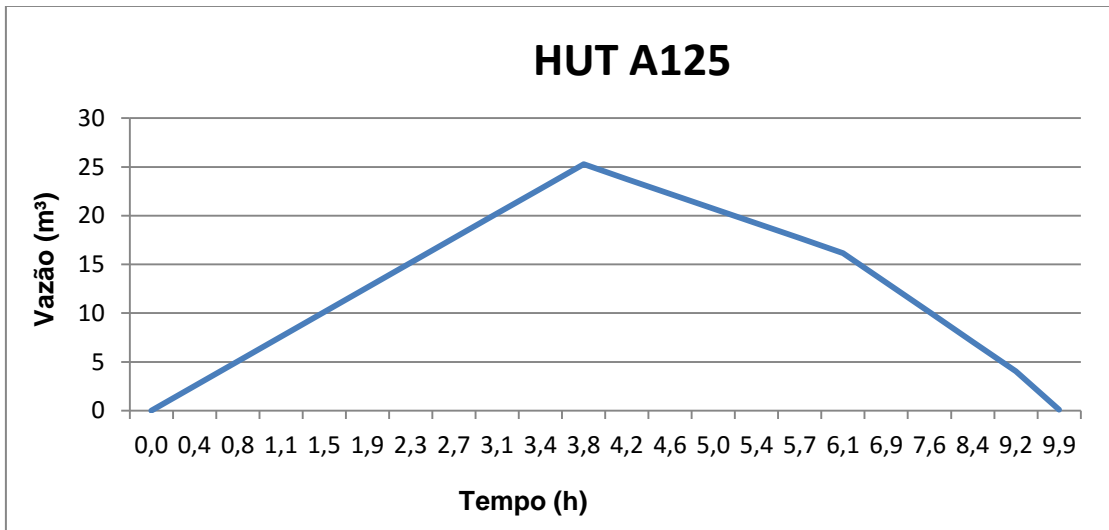
HUT A114

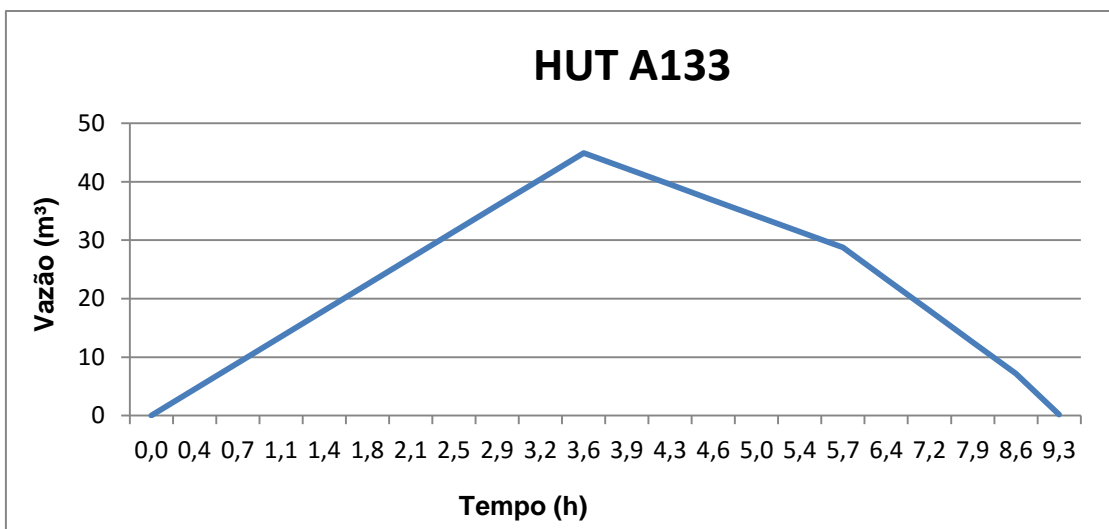
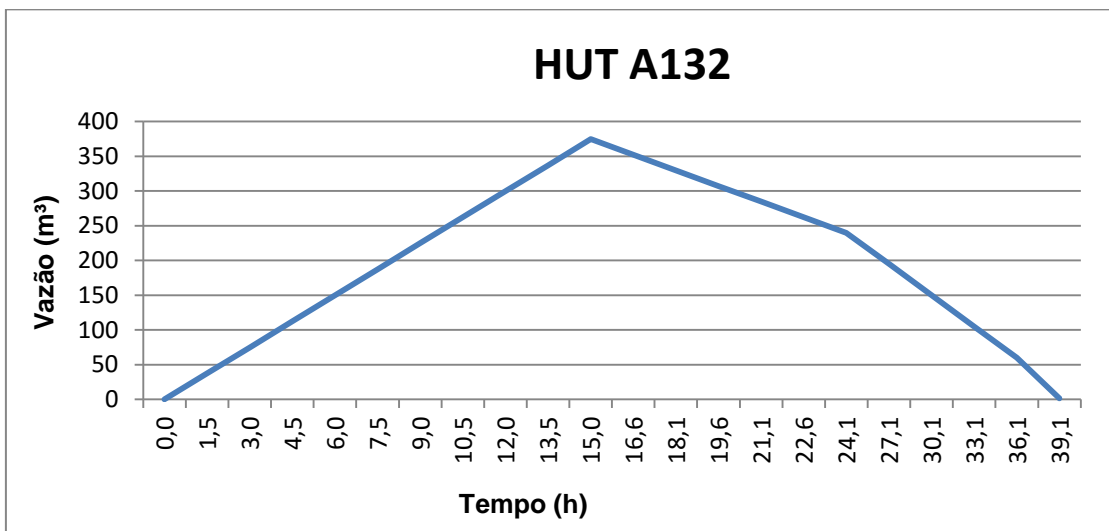
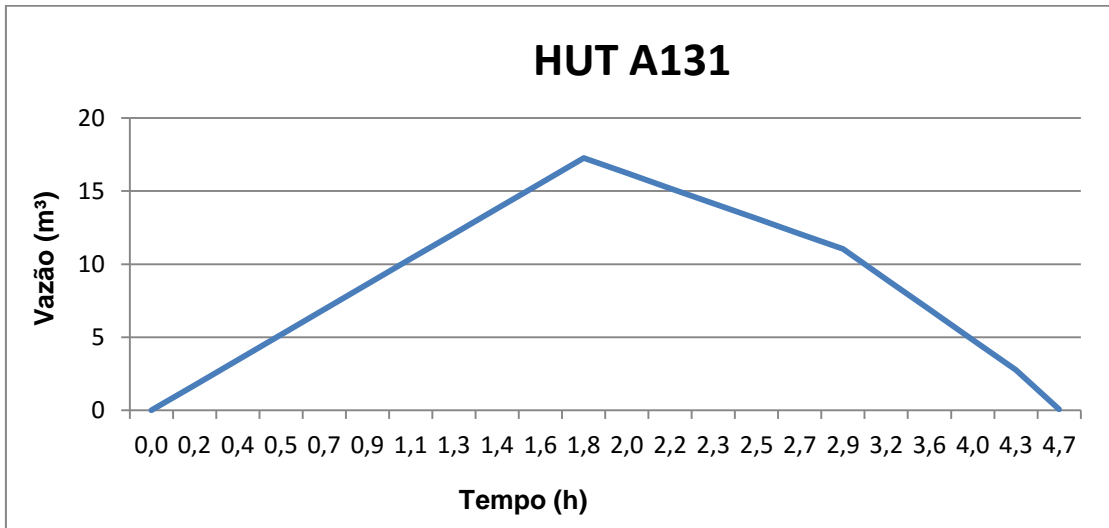


HUT A115

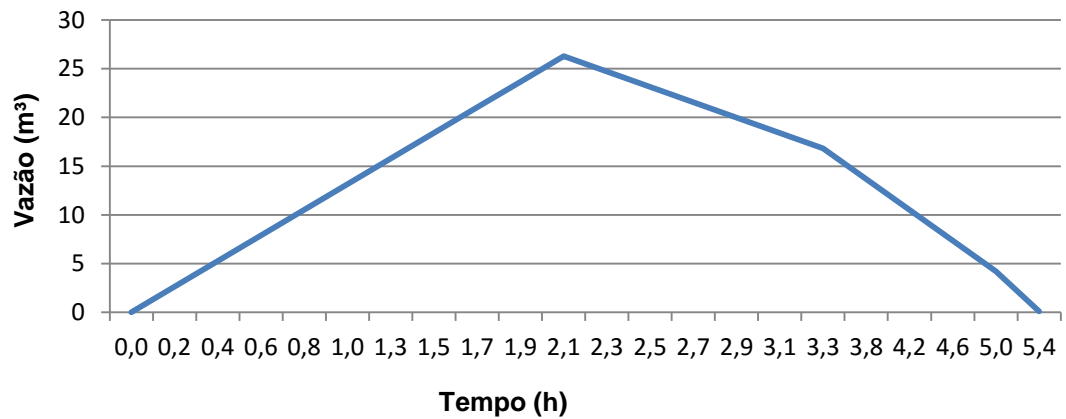




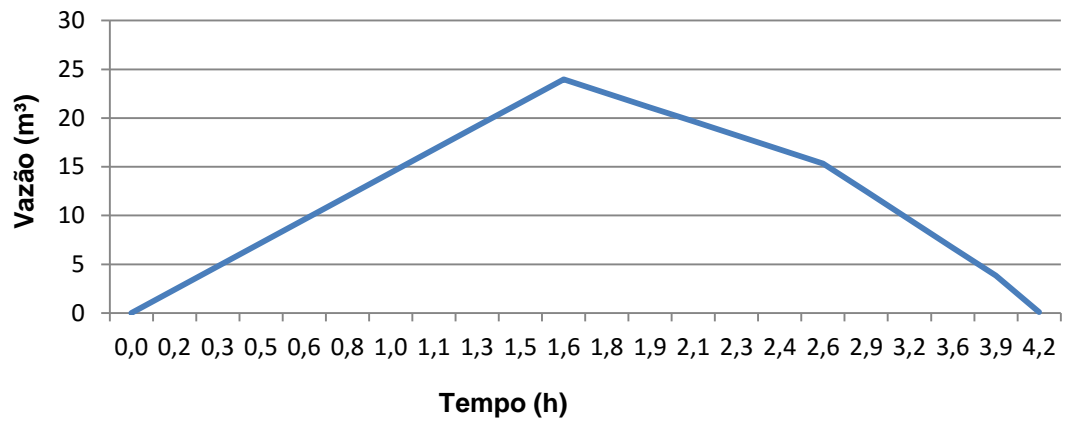




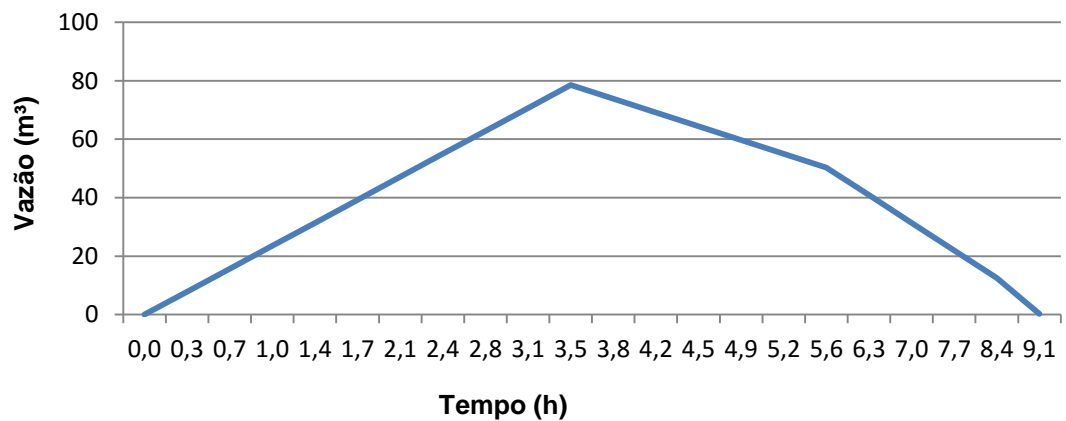
HUT A134



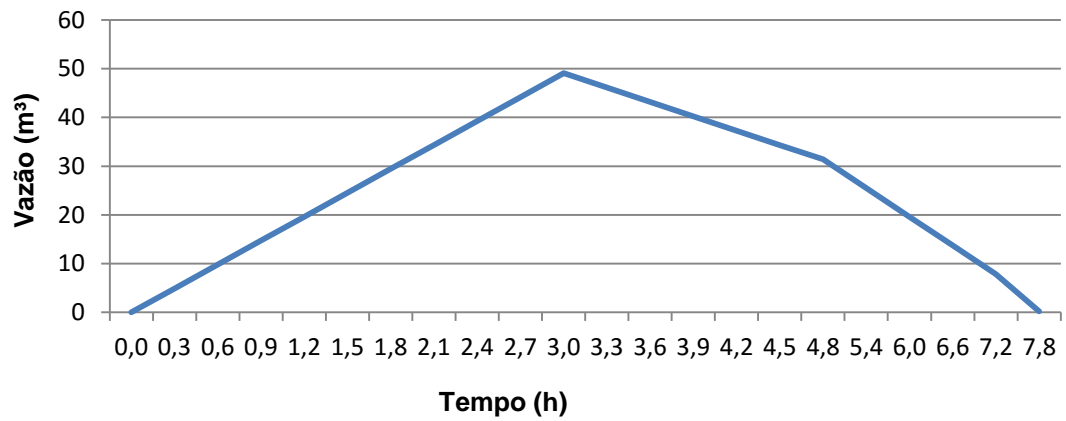
HUT A135



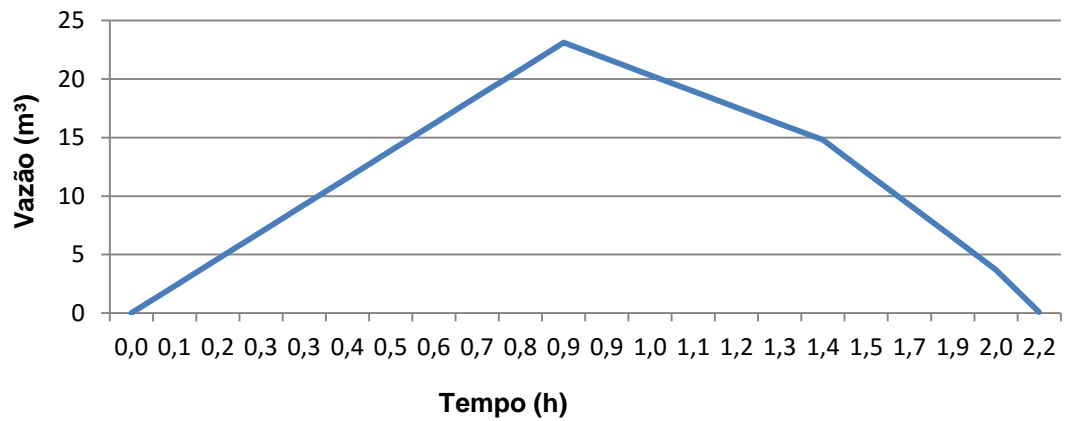
HUT A136



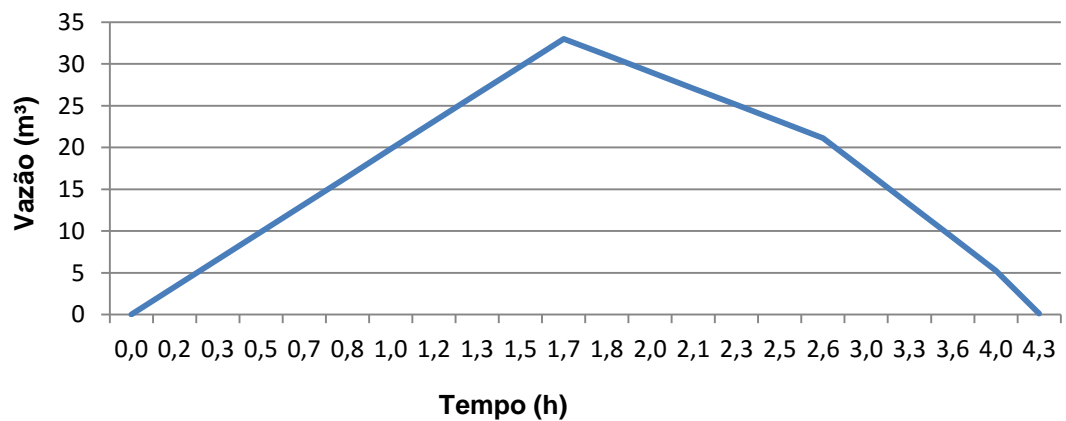
HUT A137

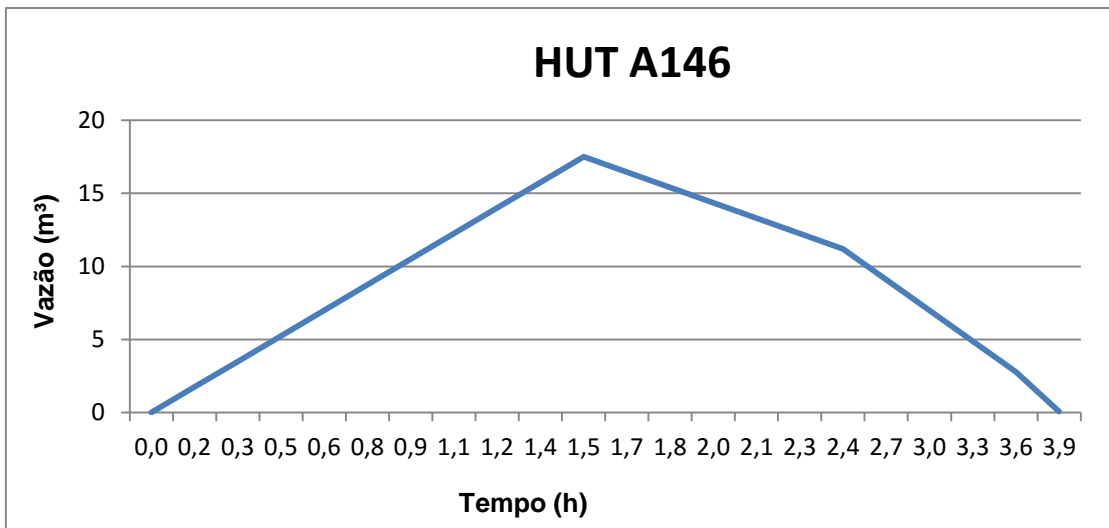
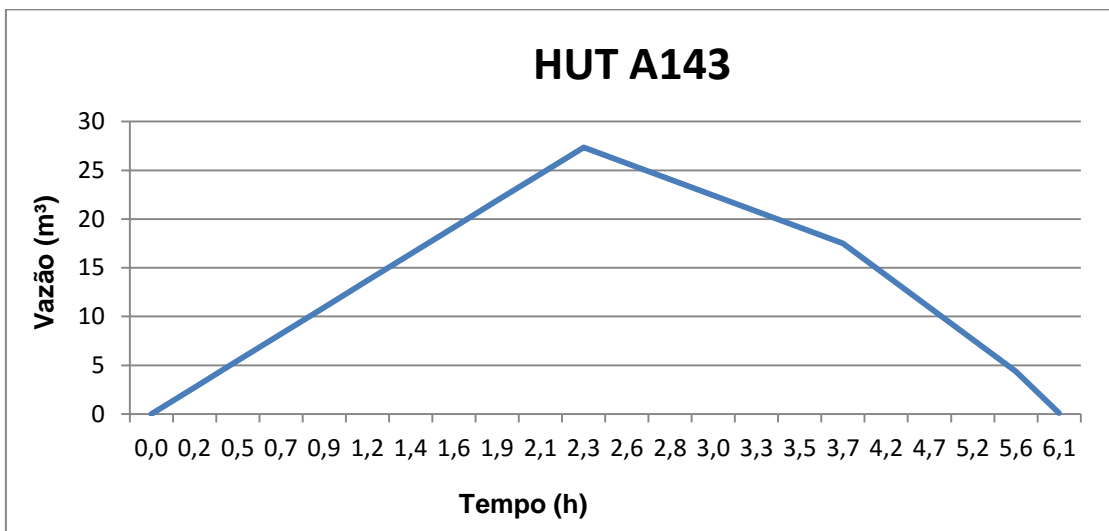
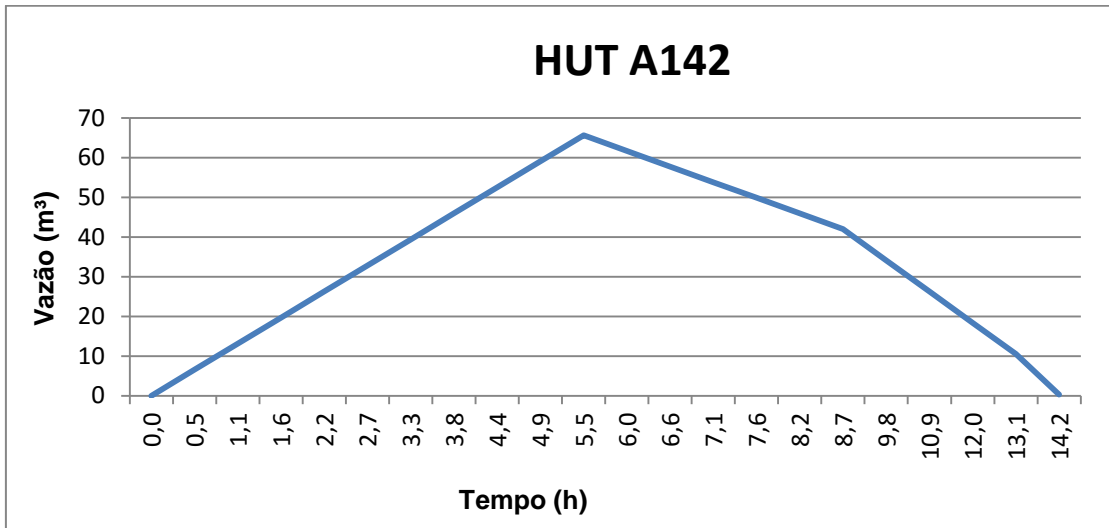


HUT A139

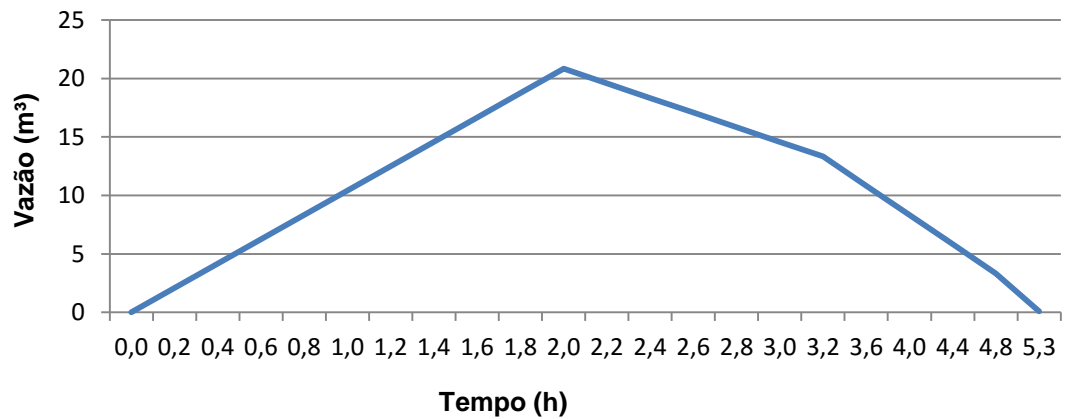


HUT A140

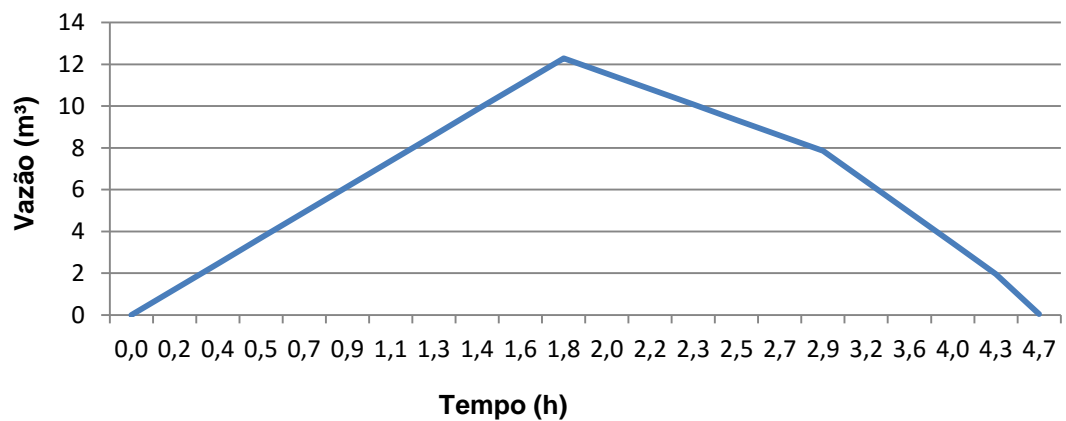




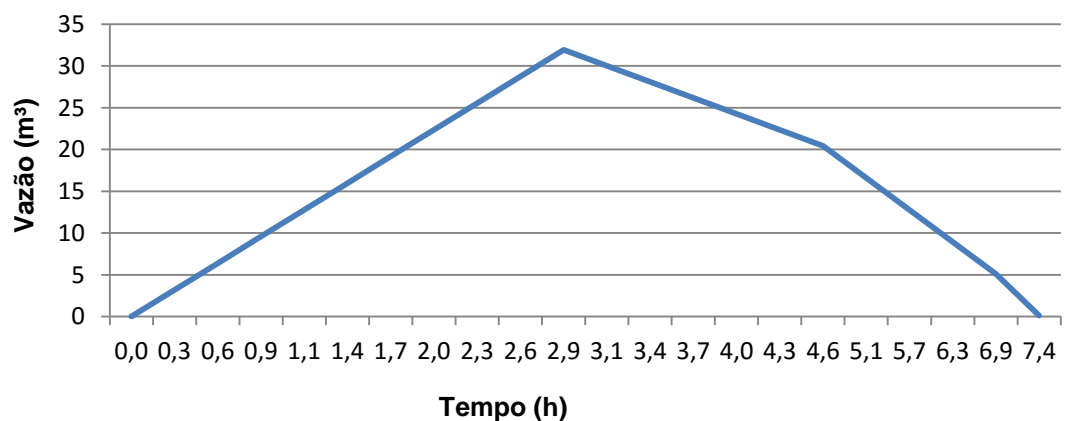
HUT A147

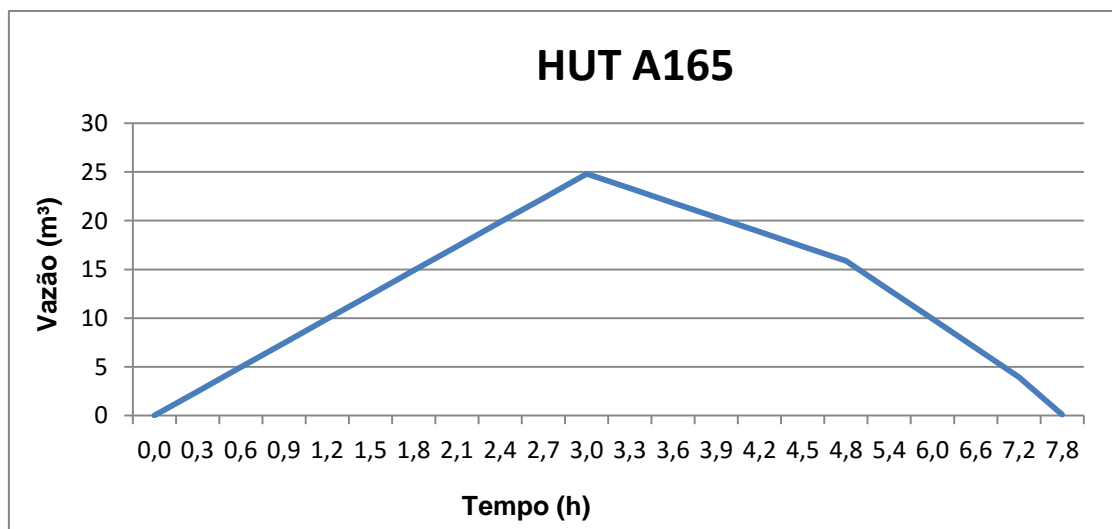
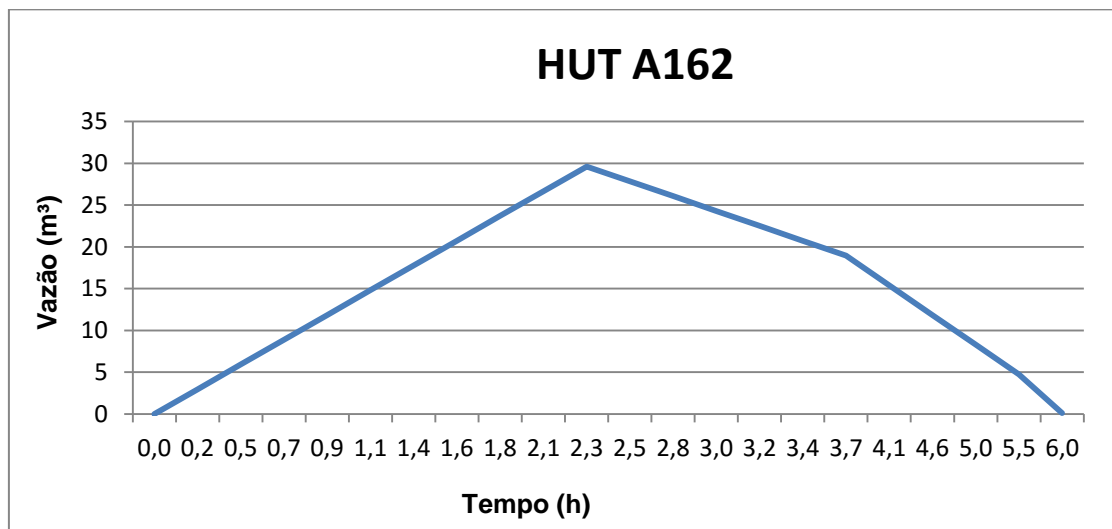
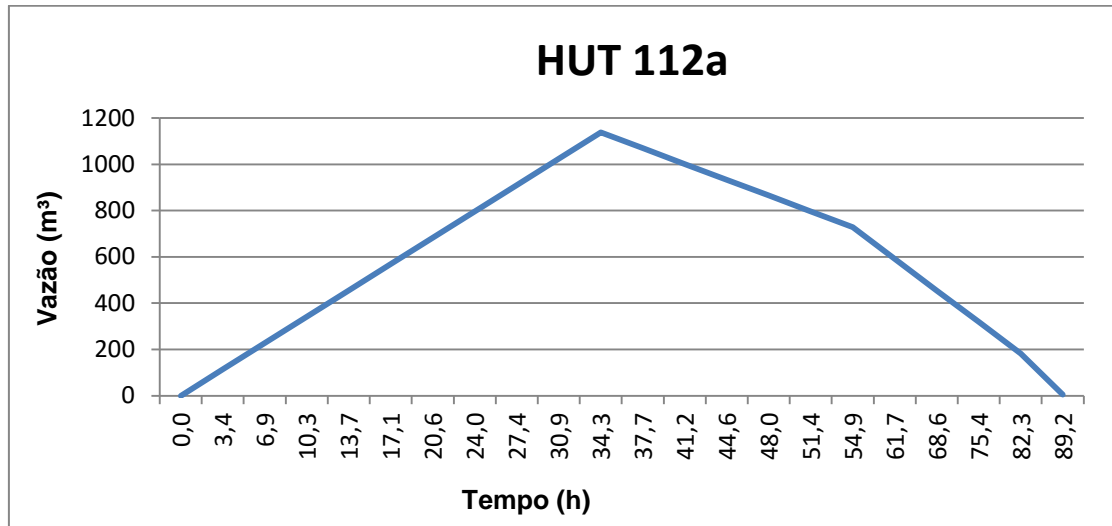


HUT A149a

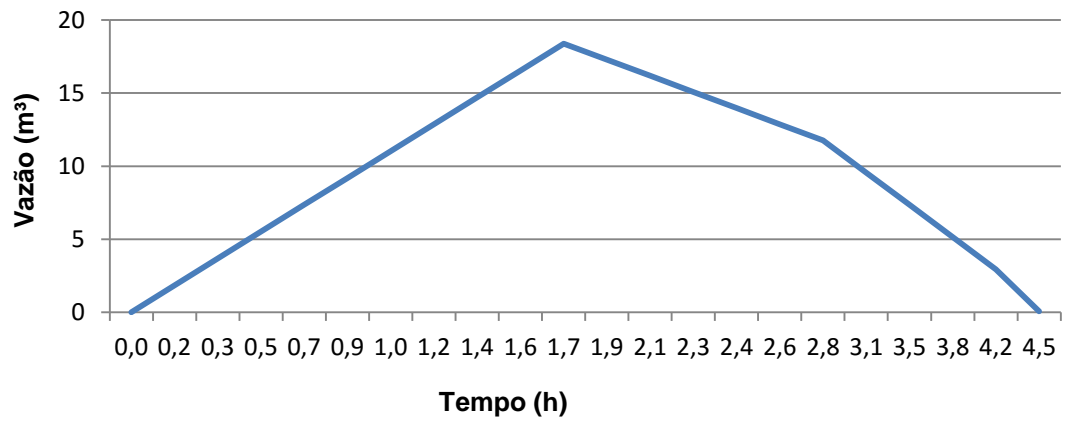


HUT A157

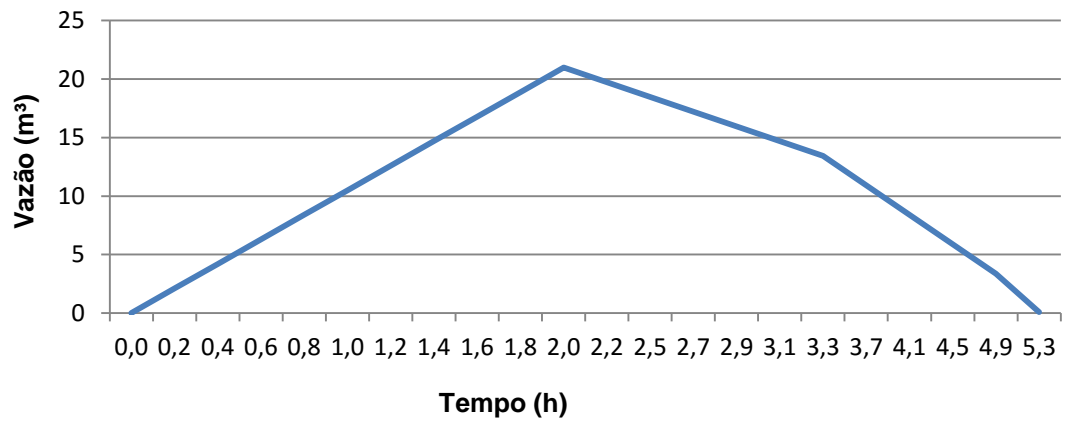




HUT A167



HUT A168a



HUT A170

