* MONTHLY OUTFLOW (M3/S) * **CASE 1 (AVAILABLE DRAWDOWN = 65 m)**

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	165.00	175.00	102.00	1472.00
2	2	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	102.00	102.00	1308.00
3	3	120.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	175.00	102.00	102.00	1427.00
4	4	130.00	130.00	130.00	130.00	102.00	130.00	130.00	130.00	175.00	175.00	120.00	102.00	1584.00
5	5	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
6	6	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
7	7	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
8	8	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
9	9	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
10	10	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
11	11	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
12	12	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
13	13	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	102.00	1308.00
14	14	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
15	15	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
16	16	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
17	17	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
18	18	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
19	19	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
20	20	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
21	21	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
22	22	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
23	23	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
24	24	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
25	25	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
26	26	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
27	27	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
28	28	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
29	29	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
30	30	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
31	31	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
32	32	102.00	130.00	102.00	130.00	130.00	102.00	102.00	102.00	130.00	120.00	102.00	102.00	1354.00
33	33	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	102.00	1252.00
34	34	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
35	35	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	135.00	180.00	102.00	1419.00
36	36	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	130.00	1364.00
37	37	120.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	160.00	175.00	130.00	120.00	1615.00
38	38	130.00	130.00	130.00	102.00	102.00	102.00	102.00	120.00	130.00	175.00	185.00	102.00	1510.00
39	39	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	160.00	102.00	102.00	1394.00
40	40	130.00	130.00	102.00	130.00	110.00	102.00	130.00	130.00	130.00	130.00	155.00	102.00	1481.00
41	41	120.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	140.00	180.00	102.00	1414.00
42	42	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	120.00	102.00	102.00	1242.00
43	43	130.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	175.00	155.00	102.00	1490.00
44	44	120.00	130.00	102.00	130.00	102.00	130.00	130.00	130.00	155.00	130.00	102.00	120.00	1481.00
45	45	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	110.00	102.00	1288.00
46	46	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
47	47	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	102.00	1280.00
48	48	120.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	130.00	175.00	130.00	130.00	1511.00
49	49	130.00	130.00	130.00	130.00	102.00	130.00	130.00	130.00	130.00	130.00	175.00	130.00	1577.00
50	50	130.00	130.00	175.00	130.00	130.00	130.00	130.00	170.00	185.00	175.00	180.00	130.00	1795.00
TOTAL		5358.00	5324.00	5285.00	5296.00	5220.00	5380.00	5436.00	5578.00	5787.00	6063.00	5863.00	5248.00	65838.00
AVE		107.16	106.48	105.70	105.92	104.40	107.60	108.72	111.56	115.74	121.26	117.26	104.96	1316.76
MAX		130.00	130.00	175.00	130.00	130.00	130.00	130.00	170.00	185.00	175.00	185.00	130.00	1795.00
MIN		102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00

* MONTHLY TOTAL ENERGY (GWH) * **CASE 1 (AVAILABLE DRAWDOWN = 65 m)**

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	102.47	93.81	102.28	97.28	98.59	131.00	135.85	133.75	132.29	181.87	190.26	103.44	1502.88
2	2	102.49	93.88	102.42	97.40	98.96	95.50	100.60	140.54	138.32	141.16	100.35	103.31	1314.94
3	3	129.80	93.18	101.61	96.72	98.67	132.26	138.14	138.67	137.69	196.86	100.26	103.22	1467.09
4	4	143.33	126.93	137.37	129.63	95.72	128.91	137.61	140.43	188.18	195.76	121.19	103.17	1648.24
5	5	104.51	92.99	101.29	96.37	98.04	93.43	95.55	96.01	93.60	97.60	94.97	97.06	1161.42
6	6	95.45	87.37	94.94	90.07	91.24	87.26	90.47	91.05	89.96	96.35	93.99	95.78	1103.92
7	7	94.51	83.98	91.23	86.32	87.23	82.77	84.05	83.56	83.97	91.37	90.10	92.76	1051.85
8	8	91.43	81.15	88.02	83.10	84.03	80.61	82.89	82.21	80.74	86.85	85.48	87.55	1014.08
9	9	86.43	76.56	82.74	78.25	78.80	75.50	77.69	77.60	76.82	82.34	82.48	85.13	960.33
10	10	83.24	73.25	79.34	74.41	74.95	74.05	78.09	78.37	78.53	84.52	84.25	87.25	950.24
11	11	85.65	75.61	81.44	76.98	77.26	74.96	79.96	81.85	83.30	91.62	91.65	94.73	995.02
12	12	93.38	82.87	89.88	84.98	86.00	83.54	88.89	92.45	93.28	97.29	96.20	98.90	1087.66
13	13	97.40	86.50	97.01	92.13	93.70	90.06	93.71	94.66	127.56	140.42	135.85	103.33	1252.36
14	14	102.27	93.53	101.94	96.98	98.79	95.31	99.13	100.07	97.89	103.71	99.61	102.32	1191.56
15	15	103.67	92.24	100.40	95.38	97.18	93.61	96.95	97.18	94.56	99.96	98.31	101.11	1170.57
16	16	100.13	89.20	97.09	92.09	96.40	92.20	95.07	94.38	91.82	97.07	94.46	96.64	1136.54
17	17	95.17	84.44	91.56	86.49	87.22	84.09	87.11	85.58	83.13	89.63	89.48	92.48	1056.38
18	18	91.31	81.10	87.95	83.06	84.22	79.72	81.60	82.37	82.17	88.81	88.04	91.31	1021.64
19	19	90.41	80.38	87.19	82.36	82.84	80.12	84.42	84.89	84.88	92.14	90.76	93.42	1033.80
20	20	92.33	82.06	89.08	84.31	85.39	82.74	85.65	84.07	80.36	83.49	80.95	82.58	1013.00
21	21	81.09	72.09	77.75	73.01	73.50	72.41	77.95	82.02	86.87	96.10	93.76	97.42	983.96
22	22	95.80	87.66	95.26	90.25	91.23	88.40	92.27	91.96	89.51	93.29	89.26	90.23	1095.11
23	23	88.43	78.06	84.07	78.71	79.60	78.25	82.13	81.14	78.49	81.55	80.15	82.48	973.05
24	24	80.88	71.79	77.31	72.30	72.24	72.05	79.32	82.62	84.79	92.35	92.16	95.54	973.36
25	25	94.06	83.44	90.55	85.74	86.97	82.54	83.24	80.80	78.41	85.13	85.66	88.82	1025.35
26	26	87.38	77.33	83.51	78.59	80.13	80.49	88.85	92.57	94.33	99.60	98.97	102.34	1064.10
27	27	101.35	90.33	98.36	93.46	94.75	93.32	95.63	94.94	93.71	98.47	97.93	101.25	1153.49
28	28	100.26	89.33	97.22	92.23	96.54	92.74	95.81	96.12	94.06	95.45	92.50	97.16	1139.42
29	29	95.27	84.30	91.25	86.17	87.00	84.21	87.84	87.60	86.33	92.69	91.31	93.53	1067.51
30	30	91.95	81.43	88.14	83.16	84.40	81.48	86.31	89.55	89.30	94.99	92.57	94.31	1057.61
31	31	92.72	82.08	88.83	83.79	84.90	85.89	94.34	96.98	94.17	100.52	99.93	104.05	1108.21
32	32	102.89	125.32	99.34	128.94	132.85	93.00	97.29	97.58	134.23	129.73	99.86	102.27	1343.30
33	33	103.69	92.28	100.44	95.37	96.95	92.53	95.64	97.50	97.12	103.80	136.57	102.98	1214.86
34	34	104.34	92.82	101.04	96.01	97.44	93.50	96.18	96.40	94.54	99.18	96.19	97.99	1165.61
35	35	96.38	88.18	95.82	90.77	92.35	90.47	130.48	133.07	130.30	145.81	195.54	103.53	1392.70
36	36	102.74	94.15	102.73	97.77	99.32	94.90	97.43	133.20	130.29	138.60	138.81	140.97	1370.91
37	37	129.71	127.74	138.75	131.28	132.42	127.43	133.44	136.90	170.55	196.57	136.53	129.57	1690.87
38	38	141.05	124.79	134.98	93.09	97.40	92.91	94.57	114.01	128.26	190.60	199.45	103.39	1514.49
39	39	102.43	93.72	102.15	97.12	98.40	131.37	137.43	136.58	135.22	175.55	99.52	104.12	1413.60
40	40	140.69	124.55	98.67	128.24	107.18	93.98	132.41	132.76	130.01	141.86	166.67	103.33	1500.36
41	41	129.84	93.27	101.75	96.76	98.21	94.39	97.83	135.39	133.40	151.21	195.61	103.34	1430.99
42	42	102.30	93.57	101.96	96.90	98.75	95.05	98.11	99.31	98.34	129.61	100.36	103.35	1217.61
43	43	143.60	93.10	101.53	96.62	98.30	130.42	136.28	137.69	135.78	196.06	166.79	103.20	1539.36
44	44	129.65	127.30	100.91	131.08	96.76	131.60	141.88	143.55	164.24	141.58	99.90	129.83	1538.28
45	45	103.07	91.64	99.71	94.64	95.96	93.38	97.94	98.00	132.25	141.21	109.06	103.37	1260.23
46	46	102.36	93.73	102.27	97.30	99.27	95.69	98.65	98.02	94.99	99.57	96.56	98.24	1176.64
47	47	96.42	88.15	95.85	90.99	92.06	91.06	97.15	95.24	101.78	140.54	135.79	103.27	1228.30
48	48	129.84	93.32	101.83	96.86	134.75	131.27	138.85	141.04	139.05	197.17	136.54	143.58	1584.10
49	49	141.19	125.16	135.59	127.97	97.45	127.45	131.76	132.77	130.07	141.84	190.11	143.31	1624.67
50	50	140.66	124.47	184.83	128.64	130.22	125.87	131.39	173.38	189.26	194.20	195.59	141.49	1860.01
TOTAL		5237.40	4636.09	4977.18	4738.08	4722.50	4775.65	5061.79	5268.39	5458.66	6123.58	5718.32	5123.72	61841.46
AVE		104.75	92.72	99.54	94.76	94.45	95.51	101.24	105.37	109.17	122.47	114.37	102.47	1236.83
MAX		143.60	127.74	184.83	131.28	134.75	132.26	141.88	173.38	189.26	197.17	199.45	143.58	1860.01
MIN		80.88	71.79	77.31	72.30	72.24	72.05	77.69	77.60	76.82	81.55	80.15	82.48	950.24

* MONTHLY PEAK POWER (MW) * **CASE 1 (AVAILABLE DRAWDOWN = 65 m)**

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	137.73	139.60	137.47	135.12	132.51	181.94	182.59	179.77	183.73	244.44	264.25	139.04	2058.19
2	2	137.76	139.70	137.67	135.28	133.01	132.64	135.21	188.90	192.12	189.73	139.38	138.86	1800.25
3	3	174.47	138.66	136.58	134.34	132.62	183.69	185.67	186.39	191.24	264.59	139.25	138.74	2006.23
4	4	192.64	188.89	184.64	180.05	128.66	179.04	184.96	188.75	261.37	263.12	168.32	138.67	2259.10
5	5	140.47	138.38	136.14	133.85	131.77	129.76	128.43	129.05	130.00	131.18	131.91	130.46	1591.40
6	6	128.29	130.01	127.61	125.10	122.63	121.19	121.60	122.38	124.94	129.50	130.54	128.73	1512.53
7	7	127.03	124.98	122.63	119.89	117.25	114.96	112.97	112.31	116.62	122.81	125.14	124.68	1441.25
8	8	122.89	120.76	118.31	115.42	112.95	111.96	111.41	110.50	112.15	116.73	118.72	117.67	1389.48
9	9	116.17	113.92	111.20	108.68	105.91	104.86	104.42	104.30	106.70	110.68	114.55	114.43	1315.82
10	10	111.88	109.00	106.65	103.34	100.74	102.84	104.96	105.33	109.07	113.60	117.02	117.27	1301.69
11	11	115.12	112.51	109.46	106.92	103.85	104.11	107.47	110.02	115.69	123.15	127.30	127.33	1362.93
12	12	125.51	123.31	120.81	118.03	115.59	116.03	119.47	124.26	129.56	130.76	133.62	132.93	1489.88
13	13	130.92	128.72	130.39	127.96	125.94	125.09	125.96	127.24	177.17	188.74	188.68	138.89	1715.70
14	14	137.46	139.18	137.02	134.70	132.78	132.38	133.24	134.50	135.95	139.39	138.35	137.53	1632.50
15	15	139.34	137.27	134.95	132.47	130.62	130.02	130.31	130.62	131.34	134.36	136.54	135.90	1603.73
16	16	134.59	132.74	130.49	127.91	129.56	128.05	127.78	126.85	127.53	130.47	131.19	129.89	1557.06
17	17	127.92	125.66	123.06	120.12	117.23	116.80	117.08	115.03	115.46	120.46	124.28	124.29	1447.40
18	18	122.73	120.68	118.21	115.36	113.19	110.72	109.67	110.71	114.13	119.36	122.28	122.73	1399.78
19	19	121.51	119.61	117.19	114.39	111.34	111.28	113.47	114.10	117.89	123.84	126.05	125.56	1416.24
20	20	124.09	122.11	119.73	117.10	114.77	114.92	115.12	112.99	111.61	112.22	112.44	111.00	1388.08
21	21	109.00	107.27	104.50	101.40	98.79	100.57	104.77	110.25	120.65	129.16	130.23	130.94	1347.52
22	22	128.76	130.45	128.04	125.34	122.62	122.78	124.02	123.60	124.31	125.38	123.98	121.28	1500.56
23	23	118.85	116.16	112.99	109.32	106.99	108.68	110.38	109.06	109.02	109.60	111.32	110.86	1333.25
24	24	108.71	106.83	103.91	100.42	97.09	100.07	106.61	111.05	117.77	124.13	128.01	128.42	1333.02
25	25	126.42	124.16	121.71	119.09	116.89	114.63	111.88	108.60	108.90	114.42	118.98	119.39	1405.06
26	26	117.45	115.07	112.24	109.16	107.70	111.80	119.42	124.42	131.02	133.88	137.46	137.55	1457.16
27	27	136.22	134.42	132.21	129.80	127.35	129.61	128.53	127.61	130.16	132.35	136.01	136.08	1580.35
28	28	134.76	132.93	130.67	128.10	129.76	128.81	128.77	129.20	130.64	128.29	128.47	130.60	1560.98
29	29	128.05	125.45	122.65	119.69	116.94	116.96	118.06	117.74	119.90	124.59	126.82	125.71	1462.55
30	30	123.59	121.18	118.47	115.50	113.45	113.17	116.01	120.37	124.03	127.68	128.57	126.76	1448.77
31	31	124.63	122.15	119.40	116.38	114.11	119.29	126.80	130.35	130.79	135.10	138.79	139.86	1517.65
32	32	138.29	186.49	133.52	179.08	178.57	129.17	130.76	131.16	186.43	174.37	138.69	137.46	1843.99
33	33	139.37	137.31	135.01	132.46	130.31	128.52	128.55	131.05	134.88	139.52	189.68	138.41	1665.05
34	34	140.24	138.12	135.81	133.35	130.96	129.85	129.28	129.57	131.30	133.30	133.59	131.71	1597.08
35	35	129.55	131.23	128.79	126.07	124.12	125.66	175.38	178.86	180.97	195.98	271.59	139.15	1907.33
36	36	138.10	140.10	138.08	135.79	133.49	131.81	130.95	179.04	180.95	186.29	192.79	189.47	1876.87
37	37	174.34	190.08	186.49	182.33	177.99	176.98	179.36	184.00	236.88	264.21	189.62	174.15	2316.42
38	38	189.58	185.71	181.42	129.29	130.92	129.04	127.11	153.24	178.13	256.18	277.02	138.97	2076.59
39	39	137.67	139.46	137.30	134.88	132.26	182.46	184.72	183.58	187.80	235.95	138.22	139.95	1934.25
40	40	189.11	185.34	132.62	178.10	144.06	130.53	177.98	178.45	180.57	190.67	231.49	138.89	2057.80
41	41	174.52	138.80	136.76	134.39	132.00	131.09	131.49	181.98	185.27	203.24	271.68	138.90	1960.11
42	42	137.51	139.24	137.05	134.58	132.73	132.01	131.87	133.48	136.59	174.20	139.39	138.91	1667.55
43	43	193.00	138.54	136.46	134.20	132.13	181.14	183.17	185.06	188.59	263.52	231.66	138.71	2106.16
44	44	174.27	189.43	135.64	182.05	130.06	182.77	190.70	192.95	228.11	190.30	138.75	174.50	2109.52
45	45	138.54	136.36	134.02	131.45	128.98	129.70	131.63	131.72	183.68	189.80	151.47	138.94	1726.29
46	46	137.58	139.47	137.46	135.14	133.43	132.90	132.60	131.74	131.93	133.83	134.11	132.04	1612.23
47	47	129.60	131.18	128.83	126.38	123.73	126.47	130.58	128.02	132.52	188.90	188.60	138.80	1673.61
48	48	174.52	138.87	136.87	134.53	181.11	182.31	186.63	189.57	193.13	265.01	189.65	192.98	2165.18
49	49	189.77	186.25	182.24	177.74	130.98	177.02	177.10	178.46	180.65	190.64	264.05	192.62	2227.51
50	50	189.06	185.22	248.43	178.67	175.02	174.82	176.61	233.04	262.86	261.02	271.65	190.17	2546.59
TOTAL		7039.52	6898.92	6689.74	6580.66	6347.44	6632.84	6803.47	7081.18	7572.64	8230.62	7942.11	6886.71	84705.81
AVE		140.79	137.98	133.79	131.61	126.95	132.66	136.07	141.62	151.45	164.61	158.84	137.73	1694.12
MAX		193.00	190.08	248.43	182.33	181.11	183.69	190.70	233.04	262.86	265.01	277.02	192.98	2546.59
MIN		108.71	106.83	103.91	100.42	97.09	100.07	104.42	104.30	106.70	109.60	111.32	110.86	1301.69

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
1	1	1	31	282.9	46075.1	1288.8(41.57)	3162.0(102.00)	0.0	138.46	103.01	24.0	0.808	193.57	102.00	6.35	283.82
2		2	28	280.3	43310.9	875.8(31.28)	3640.0(130.00)	0.0	191.99	129.01	24.0	0.891	196.53	130.00	6.35	281.61
3		3	31	277.8	40798.6	649.7(20.96)	3162.0(102.00)	0.0	137.54	102.33	24.0	0.825	198.69	102.00	6.35	279.04
4		4	30	275.4	38440.4	701.8(23.39)	3060.0(102.00)	0.0	135.19	97.34	24.0	0.823	200.85	102.00	6.35	276.61
5		5	31	272.4	35541.6	263.2(8.49)	3162.0(102.00)	0.0	132.59	98.64	24.0	0.821	203.43	102.00	6.35	273.90
6		6	30	275.8	38850.2	7208.6(240.29)	3900.0(130.00)	0.0	182.04	131.07	24.0	0.884	203.23	130.00	6.35	274.11
7		7	31	273.4	36478.1	1657.9(53.48)	4030.0(130.00)	0.0	182.69	135.92	24.0	0.885	202.75	130.00	6.35	274.60
8		8	31	271.5	34752.4	2304.3(74.33)	4030.0(130.00)	0.0	179.87	133.82	24.0	0.883	204.88	130.00	6.35	272.46
9		9	30	279.4	42401.1	11548.7(384.96)	3900.0(130.00)	0.0	183.83	132.36	24.0	0.886	201.92	130.00	6.35	275.47
10		10	31	282.6	45707.0	8730.9(281.64)	5425.0(175.00)	0.0	261.11	194.26	24.0	0.905	197.04	175.00	6.33	280.99
11		11	30	284.8	48023.8	7566.8(252.23)	5250.0(175.00)	0.0	263.87	189.99	24.0	0.900	193.79	175.00	6.33	283.69
12		12	31	283.7	46901.9	2040.1(65.81)	3162.0(102.00)	0.0	138.84	103.30	24.0	0.808	192.92	102.00	6.35	284.25
						3736.4(123.20)	3823.6(125.83)	0.0	177.33	129.25		0.860	6057.	3824.	6.35	278.38
13	2	1	31	281.9	45002.5	1262.6(40.73)	3162.0(102.00)	0.0	137.56	102.34	24.0	0.807	195.56	102.00	6.35	282.82
14		2	28	280.2	43193.4	1047.0(37.39)	2856.0(102.00)	0.0	139.48	93.73	24.0	0.827	197.00	102.00	6.35	281.05
15		3	31	277.7	40711.1	679.7(21.93)	3162.0(102.00)	0.0	137.44	102.26	24.0	0.825	198.77	102.00	6.35	278.94
16		4	30	275.2	38239.5	588.4(19.61)	3060.0(102.00)	0.0	135.05	97.23	24.0	0.823	200.99	102.00	6.35	276.46
17		5	31	273.0	36100.7	1023.2(33.01)	3162.0(102.00)	0.0	132.77	98.78	24.0	0.821	203.24	102.00	6.35	274.09
18		6	30	274.4	37502.2	4461.5(148.72)	3060.0(102.00)	0.0	132.41	95.33	24.0	0.821	203.62	102.00	6.35	273.71
19		7	31	278.3	41341.2	7001.0(225.84)	3162.0(102.00)	0.0	134.98	100.43	24.0	0.823	201.05	102.00	6.35	276.39
20		8	31	279.8	42794.3	5483.1(176.87)	4030.0(130.00)	0.0	188.59	140.31	24.0	0.889	198.78	130.00	6.35	279.06
21		9	30	283.2	46335.1	7440.8(248.03)	3900.0(130.00)	0.0	191.81	138.11	24.0	0.891	196.64	130.00	6.35	281.49
22		10	31	284.6	47847.3	5542.2(178.78)	4030.0(130.00)	0.0	189.44	140.94	24.0	0.868	193.46	130.00	6.35	283.90
23		11	30	284.7	47903.9	3116.6(103.89)	3060.0(102.00)	0.0	139.18	100.21	24.0	0.808	192.49	102.00	6.35	284.64
24		12	31	283.4	46603.0	1861.1(60.04)	3162.0(102.00)	0.0	138.66	103.16	24.0	0.808	193.22	102.00	6.35	284.05
						3292.3(107.90)	3317.2(109.00)	0.0	149.78	109.40		0.834	6020.	3317.	6.35	279.72
25	3	1	31	280.9	43986.3	1103.3(35.59)	3720.0(120.00)	0.0	174.19	129.59	24.0	0.873	196.07	120.00	6.35	282.19
26		2	28	279.0	42010.4	880.1(31.43)	2856.0(102.00)	0.0	138.44	93.03	24.0	0.826	197.89	102.00	6.35	279.97
27		3	31	276.6	39617.4	769.0(24.81)	3162.0(102.00)	0.0	136.35	101.44	24.0	0.824	199.76	102.00	6.35	277.81
28		4	30	274.3	37406.6	849.2(28.31)	3060.0(102.00)	0.0	134.10	96.55	24.0	0.822	201.90	102.00	6.35	275.48
29		5	31	273.0	36148.3	1903.7(61.41)	3162.0(102.00)	0.0	132.38	98.49	24.0	0.821	203.64	102.00	6.35	273.69
30		6	30	277.2	40204.4	7956.1(265.20)	3900.0(130.00)	0.0	183.37	132.03	24.0	0.885	202.25	130.00	6.35	275.12
31		7	31	276.0	39043.8	2869.4(92.56)	4030.0(130.00)	0.0	185.35	137.90	24.0	0.887	200.85	130.00	6.35	276.62
32		8	31	278.3	41291.0	6277.2(202.49)	4030.0(130.00)	0.0	186.07	138.44	24.0	0.887	200.35	130.00	6.35	277.16
33		9	30	283.4	46514.2	9123.2(304.11)	3900.0(130.00)	0.0	190.94	137.48	24.0	0.890	197.18	130.00	6.35	280.83
34		10	31	285.0	48246.6	6537.4(210.88)	4805.0(155.00)	0.0	231.03	171.89	24.0	0.887	193.04	155.00	6.34	284.17
35		11	30	284.4	47595.5	3248.9(108.30)	3900.0(130.00)	0.0	190.47	137.14	24.0	0.868	192.43	130.00	6.35	284.68
36		12	31	283.0	46186.4	1753.0(56.55)	3162.0(102.00)	0.0	138.36	102.94	24.0	0.808	193.75	102.00	6.35	283.71
						3605.9(118.47)	3640.6(119.58)	0.0	168.42	123.08		0.857	6030.	3641.	6.35	279.29
37	4	1	31	280.3	43314.4	1158.0(37.35)	4030.0(130.00)	0.0	192.06	142.89	24.0	0.891	196.49	130.00	6.35	281.67
38		2	28	277.4	40382.9	708.5(25.30)	3640.0(130.00)	0.0	188.29	126.53	24.0	0.889	198.97	130.00	6.35	278.84
39		3	31	273.8	36916.7	563.8(18.19)	4030.0(130.00)	0.0	184.02	136.91	24.0	0.886	201.78	130.00	6.35	275.61
40		4	30	270.4	33678.3	661.6(22.05)	3900.0(130.00)	0.0	179.41	129.18	24.0	0.882	205.24	130.00	6.35	272.11
41		5	31	268.2	31689.0	1172.7(37.83)	3162.0(102.00)	0.0	128.19	95.37	24.0	0.817	208.26	102.00	6.35	269.29
42		6	30	274.5	37531.2	9742.2(324.74)	3900.0(130.00)	0.0	178.40	128.45	24.0	0.882	206.04	130.00	6.35	271.33
43		7	31	277.2	40234.2	6733.0(217.19)	4030.0(130.00)	0.0	184.34	137.15	24.0	0.886	201.55	130.00	6.35	275.86
44		8	31	280.2	43254.3	7050.1(227.42)	4030.0(130.00)	0.0	188.15	139.99	24.0	0.889	198.95	130.00	6.35	278.73
45		9	30	281.8	44870.4	6266.1(208.87)	4650.0(155.00)	0.0	230.92	166.26	24.0	0.903	197.02	155.00	6.34	281.01
46		10	31	285.0	48242.3	8796.9(283.77)	5425.0(175.00)	0.0	263.36	195.94	24.0	0.900	194.26	175.00	6.33	283.39
47		11	30	285.0	48263.9	3722.5(124.08)	3700.9(123.36)	0.0	175.90	126.65	24.0	0.843	191.94	123.36	6.35	284.99
48		12	31	283.2	46346.3	1244.4(40.14)	3162.0(102.00)	0.0	138.70	103.19	24.0	0.808	193.15	102.00	6.35	284.10
						3985.0(130.58)	3971.7(130.61)	0.0	185.98	135.71		0.873	6067.	3972.	6.35	278.08

*** OPTIMAL SCHEDULE *** **CASE 2 (AVAILABLE DRAWDOWN = 20 m)**

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
49	5	1	31	281.0	44061.2	876.9(28.29)	3162.0(102.00)	0.0	140.51	104.54	24.0	0.828	196.14	102.00	6.35	282.11
50		2	28	278.9	41910.2	705.0(25.18)	2856.0(102.00)	0.0	138.43	93.02	24.0	0.826	197.90	102.00	6.35	279.96
51		3	31	276.4	39383.6	635.4(20.50)	3162.0(102.00)	0.0	136.19	101.32	24.0	0.824	200.00	102.00	6.35	277.64
52		4	30	274.1	37217.9	894.3(29.81)	3060.0(102.00)	0.0	133.89	96.40	24.0	0.822	202.11	102.00	6.35	275.26
53		5	31	272.0	35210.8	1154.9(37.25)	3162.0(102.00)	0.0	131.81	98.07	24.0	0.820	204.24	102.00	6.35	273.09
54		6	30	269.9	33272.4	1121.6(37.39)	3060.0(102.00)	0.0	129.80	93.46	24.0	0.819	206.41	102.00	6.35	270.99
55		7	31	269.3	32643.7	2533.3(81.72)	3162.0(102.00)	0.0	128.48	95.59	24.0	0.817	207.92	102.00	6.35	269.60
56		8	31	271.2	34468.7	4987.0(160.87)	3162.0(102.00)	0.0	129.10	96.05	24.0	0.818	207.21	102.00	6.35	270.25
57		9	30	271.2	34466.7	3058.0(101.93)	3060.0(102.00)	0.0	130.04	93.63	24.0	0.819	206.15	102.00	6.35	271.24
58		10	31	273.7	36804.2	5499.5(177.40)	3162.0(102.00)	0.0	131.22	97.63	24.0	0.820	204.86	102.00	6.35	272.48
59		11	30	272.8	35887.6	2143.5(71.45)	3060.0(102.00)	0.0	131.95	95.00	24.0	0.821	204.09	102.00	6.35	273.23
60		12	31	270.7	33959.4	1233.8(39.80)	3162.0(102.00)	0.0	130.50	97.09	24.0	0.819	205.64	102.00	6.35	271.72
						2070.3(67.63)	3102.5(102.00)	0.0	132.66	96.82		0.821	6192.	3102.	6.35	273.96
61	6	1	31	268.2	31696.9	899.5(29.02)	3162.0(102.00)	0.0	128.33	95.48	24.0	0.817	208.08	102.00	6.35	269.45
62		2	28	265.7	29493.4	652.5(23.30)	2856.0(102.00)	0.0	130.05	87.39	24.0	0.842	214.40	102.00	6.35	266.96
63		3	31	265.0	28877.3	626.7(20.22)	1242.8(40.09)	0.0	50.24	37.38	24.0	0.832	214.40	40.09	6.38	265.36
64		4	30	265.0	28877.3	794.8(26.49)	794.8(26.49)	0.0	33.30	23.97	24.0	0.835	214.40	26.49	6.39	265.00
65		5	31	265.0	28877.3	878.0(28.32)	878.0(28.32)	0.0	35.57	26.46	24.0	0.835	214.40	28.32	6.39	265.00
66		6	30	265.0	28877.3	2728.9(90.96)	2728.9(90.96)	0.0	112.51	81.01	24.0	0.826	214.40	90.96	6.36	265.00
67		7	31	266.2	29950.3	4235.0(136.61)	3162.0(102.00)	0.0	128.87	95.88	24.0	0.841	214.40	102.00	6.35	265.62
68		8	31	266.6	30273.8	3485.5(112.44)	3162.0(102.00)	0.0	129.58	96.41	24.0	0.841	214.40	102.00	6.35	266.42
69		9	30	271.5	34744.1	7530.3(251.01)	3060.0(102.00)	0.0	127.97	92.14	24.0	0.817	208.50	102.00	6.35	269.07
70		10	31	276.1	39075.8	7493.7(241.73)	3162.0(102.00)	0.0	132.49	98.57	24.0	0.821	203.53	102.00	6.35	273.80
71		11	30	273.7	36793.9	778.1(25.94)	3060.0(102.00)	0.0	133.53	96.14	24.0	0.822	202.47	102.00	6.35	274.88
72		12	31	272.3	35445.3	1813.4(58.50)	3162.0(102.00)	0.0	131.72	98.00	24.0	0.820	204.33	102.00	6.35	272.99
						2659.7(87.04)	2535.9(83.49)	0.0	106.18	77.40		0.829	6406.	2536.	6.36	268.29
73	7	1	31	270.2	33474.5	1191.2(38.43)	3162.0(102.00)	0.0	130.03	96.74	24.0	0.819	206.16	102.00	6.35	271.22
74		2	28	268.0	31541.9	923.4(32.98)	2856.0(102.00)	0.0	128.00	86.02	24.0	0.817	208.47	102.00	6.35	269.10
75		3	31	265.3	29149.0	769.1(24.81)	3162.0(102.00)	0.0	129.80	96.57	24.0	0.842	214.40	102.00	6.35	266.67
76		4	30	265.0	28877.3	594.6(19.82)	866.3(28.88)	0.0	36.30	26.13	24.0	0.835	214.40	28.88	6.39	265.16
77		5	31	265.0	28877.3	1112.5(35.89)	1112.5(35.89)	0.0	44.94	33.43	24.0	0.833	214.40	35.89	6.38	265.00
78		6	30	265.0	28877.3	1353.5(45.12)	1353.5(45.12)	0.0	56.29	40.53	24.0	0.831	214.40	45.12	6.38	265.00
79		7	31	265.0	28877.3	1723.2(55.59)	1723.2(55.59)	0.0	69.08	51.39	24.0	0.828	214.40	55.59	6.37	265.00
80		8	31	265.5	29280.2	3564.9(115.00)	3162.0(102.00)	0.0	128.54	95.63	24.0	0.841	214.40	102.00	6.35	265.23
81		9	30	272.9	35985.8	9765.6(325.52)	3060.0(102.00)	0.0	128.06	92.21	24.0	0.817	208.40	102.00	6.35	269.16
82		10	31	276.8	39849.2	7025.4(226.63)	3162.0(102.00)	0.0	133.50	99.32	24.0	0.822	202.50	102.00	6.35	274.85
83		11	30	277.2	40229.2	3440.0(114.67)	3060.0(102.00)	0.0	135.60	97.64	24.0	0.824	200.46	102.00	6.35	277.04
84		12	31	276.0	38992.1	1924.9(62.09)	3162.0(102.00)	0.0	135.19	100.58	24.0	0.823	200.85	102.00	6.35	276.60
						2782.4(91.38)	2486.8(81.79)	0.0	104.61	76.35		0.828	6371.	2487.	6.36	269.17
85	8	1	31	273.9	36954.7	1124.6(36.28)	3162.0(102.00)	0.0	133.57	99.38	24.0	0.822	202.43	102.00	6.35	274.93
86		2	28	272.0	35158.9	1060.2(37.86)	2856.0(102.00)	0.0	131.65	88.47	24.0	0.820	204.40	102.00	6.35	272.93
87		3	31	269.4	32737.2	740.3(23.88)	3162.0(102.00)	0.0	129.50	96.35	24.0	0.818	206.75	102.00	6.35	270.67
88		4	30	266.7	30363.1	685.9(22.86)	3060.0(102.00)	0.0	130.99	94.32	24.0	0.842	213.68	102.00	6.35	268.03
89		5	31	265.0	28877.3	1594.7(51.44)	3080.5(99.37)	0.0	126.39	94.04	24.0	0.846	214.40	99.37	6.35	265.85
90		6	30	265.0	28913.7	3096.4(103.21)	3060.0(102.00)	0.0	128.35	92.41	24.0	0.841	214.40	102.00	6.35	265.02
91		7	31	265.0	28877.3	2295.8(74.06)	2332.2(75.23)	0.0	92.33	68.69	24.0	0.819	214.40	75.23	6.36	265.02
92		8	31	265.0	28877.3	2656.0(85.68)	2656.0(85.68)	0.0	105.23	78.29	24.0	0.820	214.40	85.68	6.36	265.00
93		9	30	268.4	31916.0	6098.7(203.29)	3060.0(102.00)	0.0	129.85	93.49	24.0	0.842	214.40	102.00	6.35	266.72
94		10	31	273.1	36232.8	7478.8(241.25)	3162.0(102.00)	0.0	129.61	96.43	24.0	0.818	206.63	102.00	6.35	270.78
95		11	30	272.0	35175.5	2002.7(66.76)	3060.0(102.00)	0.0	131.30	94.54	24.0	0.820	204.78	102.00	6.35	272.56
96		12	31	271.2	34442.9	2429.4(78.37)	3162.0(102.00)	0.0	130.39	97.01	24.0	0.819	205.76	102.00	6.35	271.60
						2605.3(85.41)	2984.4(98.19)	0.0	124.93	91.12		0.827	6379.	2984.	6.35	269.09

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
97	9	1	31	269.3	32692.5	1411.6(45.54)	3162.0(102.00)	0.0	129.11	96.06	24.0	0.818	207.19	102.00	6.35	270.26
98		2	28	267.2	30836.3	999.8(35.71)	2856.0(102.00)	0.0	131.21	88.17	24.0	0.842	213.38	102.00	6.35	268.27
99		3	31	265.0	28877.3	826.9(26.67)	2785.9(89.87)	0.0	112.36	83.60	24.0	0.829	214.40	89.87	6.36	266.12
100		4	30	265.0	28877.3	714.5(23.82)	714.5(23.82)	0.0	29.96	21.57	24.0	0.836	214.40	23.82	6.39	265.00
101		5	31	265.0	28877.3	1069.2(34.49)	1069.2(34.49)	0.0	43.21	32.15	24.0	0.833	214.40	34.49	6.38	265.00
102		6	30	265.5	29334.2	3516.9(117.23)	3060.0(102.00)	0.0	128.56	92.57	24.0	0.841	214.40	102.00	6.35	265.26
103		7	31	265.0	28877.3	2050.4(66.14)	2507.3(80.88)	0.0	99.47	74.01	24.0	0.820	214.40	80.88	6.36	265.26
104		8	31	266.1	29797.4	4082.1(131.68)	3162.0(102.00)	0.0	128.80	95.82	24.0	0.841	214.40	102.00	6.35	265.53
105		9	30	269.2	32616.2	5878.8(195.96)	3060.0(102.00)	0.0	130.65	94.07	24.0	0.842	214.16	102.00	6.35	267.64
106		10	31	273.8	36926.7	7472.5(241.05)	3162.0(102.00)	0.0	130.32	96.96	24.0	0.819	205.83	102.00	6.35	271.53
107		11	30	275.5	38536.3	4669.6(155.65)	3060.0(102.00)	0.0	133.33	96.00	24.0	0.822	202.67	102.00	6.35	274.68
108		12	31	273.6	36729.0	1354.7(43.70)	3162.0(102.00)	0.0	133.23	99.13	24.0	0.822	202.77	102.00	6.35	274.57
						2837.2(93.14)	2646.7(87.09)	0.0	110.85	80.84		0.830	6418.	2647.	6.36	268.26
109	10	1	31	271.3	34570.0	1003.0(32.35)	3162.0(102.00)	0.0	131.24	97.64	24.0	0.820	204.84	102.00	6.35	272.49
110		2	28	269.0	32414.5	700.5(25.02)	2856.0(102.00)	0.0	129.03	86.71	24.0	0.818	207.29	102.00	6.35	270.17
111		3	31	266.2	29909.0	656.5(21.18)	3162.0(102.00)	0.0	130.61	97.17	24.0	0.842	214.22	102.00	6.35	267.59
112		4	30	265.0	28877.3	527.7(17.59)	1559.4(51.98)	0.0	64.95	46.76	24.0	0.829	214.40	51.98	6.38	265.59
113		5	31	265.0	28877.3	1938.5(62.53)	1938.5(62.53)	0.0	77.50	57.66	24.0	0.826	214.40	62.53	6.37	265.00
114		6	30	269.9	33206.6	7389.3(246.31)	3060.0(102.00)	0.0	130.47	93.94	24.0	0.842	214.40	102.00	6.35	267.43
115		7	31	268.5	31919.3	1874.7(60.47)	3162.0(102.00)	0.0	128.06	95.28	24.0	0.817	208.40	102.00	6.35	269.16
116		8	31	270.5	33787.3	5030.0(162.26)	3162.0(102.00)	0.0	128.36	95.50	24.0	0.817	208.05	102.00	6.35	269.48
117		9	30	274.9	37952.4	7225.1(240.84)	3060.0(102.00)	0.0	131.44	94.64	24.0	0.820	204.62	102.00	6.35	272.71
118		10	31	278.5	41506.4	6716.0(216.65)	3162.0(102.00)	0.0	135.29	100.65	24.0	0.824	200.76	102.00	6.35	276.71
119		11	30	280.4	43425.5	4979.1(165.97)	3060.0(102.00)	0.0	137.93	99.31	24.0	0.826	198.34	102.00	6.35	279.45
120		12	31	278.9	41926.4	1662.9(53.64)	3162.0(102.00)	0.0	138.13	102.77	24.0	0.826	198.16	102.00	6.35	279.66
						3308.6(108.73)	2875.5(94.54)	0.0	121.92	89.00		0.826	6306.	2875.	6.36	271.29
121	11	1	31	276.9	39903.3	1138.9(36.74)	3162.0(102.00)	0.0	136.45	101.52	24.0	0.825	199.68	102.00	6.35	277.91
122		2	28	274.8	37817.4	770.1(27.50)	2856.0(102.00)	0.0	134.45	90.35	24.0	0.823	201.57	102.00	6.35	275.84
123		3	31	272.1	35310.3	654.9(21.13)	3162.0(102.00)	0.0	132.16	98.33	24.0	0.821	203.87	102.00	6.35	273.45
124		4	30	269.5	32892.5	642.2(21.41)	3060.0(102.00)	0.0	129.66	93.35	24.0	0.819	206.58	102.00	6.35	270.83
125		5	31	267.0	30582.7	852.2(27.49)	3162.0(102.00)	0.0	131.18	97.60	24.0	0.842	213.42	102.00	6.35	268.24
126		6	30	269.7	33060.2	5777.5(192.58)	3300.0(110.00)	0.0	144.05	103.72	24.0	0.857	213.31	110.00	6.35	268.33
127		7	31	272.4	35547.8	5649.6(182.25)	3162.0(102.00)	0.0	129.86	96.62	24.0	0.819	206.34	102.00	6.35	271.05
128		8	31	274.0	37052.4	5534.6(178.54)	4030.0(130.00)	0.0	180.82	134.53	24.0	0.883	204.14	130.00	6.35	273.18
129		9	30	279.8	42852.5	9700.2(323.34)	3900.0(130.00)	0.0	185.73	133.73	24.0	0.887	200.58	130.00	6.35	276.91
130		10	31	284.9	48157.9	9335.4(301.14)	4030.0(130.00)	0.0	192.99	143.59	24.0	0.892	195.92	130.00	6.35	282.37
131		11	30	284.8	48048.4	4540.5(151.35)	4650.0(155.00)	0.0	232.14	167.14	24.0	0.888	192.16	155.00	6.34	284.85
132		12	31	283.5	46627.7	1741.3(56.17)	3162.0(102.00)	0.0	138.73	103.22	24.0	0.808	193.10	102.00	6.35	284.13
						3861.4(126.64)	3469.7(114.08)	0.0	155.69	113.64		0.847	6161.	3470.	6.35	275.59
133	12	1	31	280.7	43716.4	1118.7(36.09)	4030.0(130.00)	0.0	192.60	143.29	24.0	0.892	196.16	130.00	6.35	282.07
134		2	28	278.7	41664.7	804.3(28.72)	2856.0(102.00)	0.0	138.15	92.83	24.0	0.826	198.15	102.00	6.35	279.67
135		3	31	275.3	38356.3	721.6(23.28)	4030.0(130.00)	0.0	185.85	138.27	24.0	0.887	200.50	130.00	6.35	277.00
136		4	30	272.0	35164.9	708.6(23.62)	3900.0(130.00)	0.0	181.44	130.64	24.0	0.884	203.67	130.00	6.35	273.66
137		5	31	269.2	32589.3	1454.4(46.92)	4030.0(130.00)	0.0	177.42	132.00	24.0	0.881	206.84	130.00	6.35	270.59
138		6	30	270.9	34179.2	5489.9(183.00)	3900.0(130.00)	0.0	176.73	127.24	24.0	0.881	207.41	130.00	6.35	270.06
139		7	31	273.6	36697.7	6548.5(211.24)	4030.0(130.00)	0.0	179.62	133.64	24.0	0.883	205.07	130.00	6.35	272.27
140		8	31	278.1	41082.9	8415.2(271.46)	4030.0(130.00)	0.0	184.33	137.14	24.0	0.886	201.56	130.00	6.35	275.85
141		9	30	282.1	45182.5	7999.6(266.65)	3900.0(130.00)	0.0	189.96	136.77	24.0	0.890	197.79	130.00	6.35	280.09
142		10	31	284.9	48129.8	8372.3(270.07)	5425.0(175.00)	0.0	263.53	196.06	24.0	0.900	194.10	175.00	6.33	283.48
143		11	30	284.5	47685.5	3455.7(115.19)	3900.0(130.00)	0.0	190.46	137.13	24.0	0.868	192.45	130.00	6.35	284.67
144		12	31	282.0	45046.6	1391.1(44.87)	4030.0(130.00)	0.0	188.53	140.26	24.0	0.867	192.92	130.00	6.35	283.21
						3873.3(126.76)	4005.1(131.42)	0.0	187.38	137.11		0.879	6075.	4005.	6.34	277.72

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
145	13	1	31	279.0	41960.5	943.9(30.45)	4030.0(130.00)	0.0	190.45	141.69	24.0	0.890	197.48	130.00	6.35	280.46
146		2	28	276.1	39121.4	800.9(28.60)	3640.0(130.00)	0.0	186.56	125.37	24.0	0.887	200.01	130.00	6.35	277.53
147		3	31	272.7	35801.5	710.1(22.91)	4030.0(130.00)	0.0	182.41	135.71	24.0	0.885	202.96	130.00	6.35	274.39
148		4	30	269.2	32573.1	671.6(22.39)	3900.0(130.00)	0.0	177.85	128.05	24.0	0.881	206.49	130.00	6.35	270.92
149		5	31	267.5	31065.2	1654.2(53.36)	3162.0(102.00)	0.0	131.26	97.66	24.0	0.842	213.30	102.00	6.35	268.34
150		6	30	266.4	30106.5	2941.3(98.04)	3900.0(130.00)	0.0	177.13	127.53	24.0	0.900	214.40	130.00	6.35	266.95
151		7	31	267.4	31014.3	4937.8(159.28)	4030.0(130.00)	0.0	177.09	131.76	24.0	0.900	214.40	130.00	6.35	266.93
152		8	31	267.2	30816.5	3832.2(123.62)	4030.0(130.00)	0.0	177.57	132.11	24.0	0.900	214.40	130.00	6.35	267.33
153		9	30	279.3	42316.5	15400.0(513.33)	3900.0(130.00)	0.0	180.93	130.27	24.0	0.884	204.06	130.00	6.35	273.26
154		10	31	282.8	45891.8	9155.3(295.33)	5580.0(180.00)	0.0	268.46	199.73	24.0	0.905	197.00	180.00	6.33	281.04
155		11	30	285.0	48263.9	7347.5(244.92)	4975.4(165.85)	0.0	243.88	175.59	24.0	0.877	193.48	165.85	6.34	283.88
156		12	31	283.7	46876.5	1774.6(57.25)	3162.0(102.00)	0.0	138.93	103.36	24.0	0.808	192.95	102.00	6.35	284.35
						4180.8(137.46)	4028.3(132.49)	0.0	186.04	135.74		0.880	6213.	4028.	6.34	274.61
157	14	1	31	281.8	44878.9	1164.4(37.56)	3162.0(102.00)	0.0	137.50	102.30	24.0	0.807	195.62	102.00	6.35	282.75
158		2	28	279.8	42782.9	760.0(27.14)	2856.0(102.00)	0.0	139.22	93.56	24.0	0.827	197.21	102.00	6.35	280.79
159		3	31	277.3	40324.2	703.3(22.69)	3162.0(102.00)	0.0	137.06	101.97	24.0	0.825	199.12	102.00	6.35	278.55
160		4	30	275.0	37999.6	735.4(24.51)	3060.0(102.00)	0.0	134.74	97.01	24.0	0.823	201.28	102.00	6.35	276.14
161		5	31	273.3	36444.9	1607.3(51.85)	3162.0(102.00)	0.0	132.83	98.82	24.0	0.821	203.18	102.00	6.35	274.15
162		6	30	274.1	37189.8	3804.9(126.83)	3060.0(102.00)	0.0	132.42	95.35	24.0	0.821	203.60	102.00	6.35	273.73
163		7	31	275.1	38171.7	4143.9(133.67)	3162.0(102.00)	0.0	133.29	99.16	24.0	0.822	202.72	102.00	6.35	274.63
164		8	31	276.7	39749.2	4739.5(152.89)	3162.0(102.00)	0.0	134.55	100.10	24.0	0.823	201.47	102.00	6.35	275.94
165		9	30	278.1	41141.3	4452.1(148.40)	3060.0(102.00)	0.0	136.00	97.92	24.0	0.824	200.18	102.00	6.35	277.45
166		10	31	283.9	47047.3	9068.1(292.52)	3162.0(102.00)	0.0	139.43	103.74	24.0	0.827	197.03	102.00	6.35	281.00
167		11	30	283.6	46809.5	2822.2(94.07)	3060.0(102.00)	0.0	138.39	99.64	24.0	0.808	193.69	102.00	6.35	283.75
168		12	31	282.0	45108.9	1461.4(47.14)	3162.0(102.00)	0.0	137.57	102.35	24.0	0.807	195.56	102.00	6.35	282.83
						2955.2(96.61)	3102.5(102.00)	0.0	136.08	99.33		0.820	6060.	3102.	6.35	278.48
169	15	1	31	279.9	42891.8	944.9(30.48)	3162.0(102.00)	0.0	139.38	103.70	24.0	0.827	197.08	102.00	6.35	280.95
170		2	28	277.7	40730.4	694.6(24.81)	2856.0(102.00)	0.0	137.31	92.27	24.0	0.825	198.89	102.00	6.35	278.81
171		3	31	275.1	38108.3	539.9(17.42)	3162.0(102.00)	0.0	134.99	100.43	24.0	0.823	201.04	102.00	6.35	276.40
172		4	30	272.6	35722.1	673.8(22.46)	3060.0(102.00)	0.0	132.51	95.41	24.0	0.821	203.50	102.00	6.35	273.82
173		5	31	271.2	34431.4	1871.3(60.36)	3162.0(102.00)	0.0	130.66	97.21	24.0	0.819	205.46	102.00	6.35	271.89
174		6	30	271.3	34540.5	3169.1(105.64)	3060.0(102.00)	0.0	130.06	93.64	24.0	0.819	206.12	102.00	6.35	271.26
175		7	31	271.8	35012.6	3634.1(117.23)	3162.0(102.00)	0.0	130.36	96.99	24.0	0.819	205.80	102.00	6.35	271.57
176		8	31	272.0	35142.0	3291.4(106.17)	3162.0(102.00)	0.0	130.67	97.21	24.0	0.819	205.46	102.00	6.35	271.89
177		9	30	273.3	36427.3	4345.3(144.84)	3060.0(102.00)	0.0	131.38	94.59	24.0	0.820	204.69	102.00	6.35	272.64
178		10	31	278.3	41254.7	7989.4(257.72)	3162.0(102.00)	0.0	134.40	99.99	24.0	0.823	201.61	102.00	6.35	275.79
179		11	30	277.9	40847.5	2652.8(88.43)	3060.0(102.00)	0.0	136.58	98.34	24.0	0.825	199.55	102.00	6.35	278.06
180		12	31	276.9	39933.6	2248.1(72.52)	3162.0(102.00)	0.0	135.94	101.14	24.0	0.824	200.23	102.00	6.35	277.39
						2671.2(87.34)	3102.5(102.00)	0.0	133.69	97.58		0.822	6159.	3102.	6.35	275.04
181	16	1	31	275.1	38157.9	1386.3(44.72)	3162.0(102.00)	0.0	134.63	100.16	24.0	0.823	201.39	102.00	6.35	276.03
182		2	28	273.1	36204.7	902.8(32.24)	2856.0(102.00)	0.0	132.78	89.23	24.0	0.821	203.23	102.00	6.35	274.10
183		3	31	270.4	33714.3	671.6(21.66)	3162.0(102.00)	0.0	130.54	97.12	24.0	0.819	205.60	102.00	6.35	271.75
184		4	30	267.7	31218.9	564.6(18.82)	3060.0(102.00)	0.0	127.95	92.13	24.0	0.817	208.53	102.00	6.35	269.05
185		5	31	265.2	29080.7	1023.8(33.03)	3162.0(102.00)	0.0	129.61	96.43	24.0	0.841	214.40	102.00	6.35	266.45
186		6	30	265.0	28877.3	2195.7(73.19)	2399.1(79.97)	0.0	98.25	70.74	24.0	0.819	214.40	79.97	6.36	265.12
187		7	31	265.4	29209.2	3493.9(112.71)	3162.0(102.00)	0.0	128.50	95.60	24.0	0.841	214.40	102.00	6.35	265.19
188		8	31	265.0	28877.3	1042.4(33.63)	1374.3(44.33)	0.0	55.40	41.22	24.0	0.831	214.40	44.33	6.38	265.19
189		9	30	268.9	32340.3	6523.0(217.43)	3060.0(102.00)	0.0	130.05	93.64	24.0	0.842	214.40	102.00	6.35	266.96
190		10	31	271.5	34681.0	5502.7(177.51)	3162.0(102.00)	0.0	129.04	96.01	24.0	0.818	207.26	102.00	6.35	270.19
191		11	30	270.5	33787.1	2166.1(72.20)	3060.0(102.00)	0.0	129.80	93.46	24.0	0.819	206.41	102.00	6.35	270.98
192		12	31	268.6	32064.6	1439.5(46.44)	3162.0(102.00)	0.0	128.44	95.56	24.0	0.817	207.96	102.00	6.35	269.56
						2242.7(73.63)	2898.4(95.36)	0.0	121.25	88.44		0.826	6369.	2898.	6.36	269.21

*** OPTIMAL SCHEDULE *** **CASE 2 (AVAILABLE DRAWDOWN = 20 m)**

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
193	17	1	31	266.2	29893.2	990.6(31.95)	3162.0(102.00)	0.0	130.43	97.04	24.0	0.842	214.40	102.00	6.35	267.39
194		2	28	265.0	28877.3	666.1(23.79)	1682.0(60.07)	0.0	74.82	50.28	24.0	0.827	214.40	60.07	6.37	265.58
195		3	31	265.0	28877.3	542.4(17.50)	542.4(17.50)	0.0	22.07	16.42	24.0	0.838	214.40	17.50	6.39	265.00
196		4	30	265.0	28877.3	435.0(14.50)	435.0(14.50)	0.0	18.31	13.18	24.0	0.839	214.40	14.50	6.39	265.00
197		5	31	265.0	28877.3	842.5(27.18)	842.5(27.18)	0.0	34.15	25.40	24.0	0.835	214.40	27.18	6.39	265.00
198		6	30	266.8	30459.0	4641.7(154.72)	3060.0(102.00)	0.0	129.13	92.97	24.0	0.841	214.40	102.00	6.35	265.91
199		7	31	265.5	29335.6	2038.6(65.76)	3162.0(102.00)	0.0	129.36	96.24	24.0	0.841	214.40	102.00	6.35	266.17
200		8	31	265.0	28877.3	953.8(30.77)	1412.1(45.55)	0.0	56.93	42.36	24.0	0.831	214.40	45.55	6.38	265.26
201		9	30	268.3	31794.7	5977.4(199.25)	3060.0(102.00)	0.0	129.79	93.45	24.0	0.842	214.40	102.00	6.35	266.66
202		10	31	274.4	37429.6	8796.9(283.77)	3162.0(102.00)	0.0	130.14	96.82	24.0	0.819	206.04	102.00	6.35	271.34
203		11	30	275.5	38552.0	4182.4(139.41)	3060.0(102.00)	0.0	133.59	96.19	24.0	0.822	202.41	102.00	6.35	274.95
204		12	31	274.4	37454.5	2064.5(66.60)	3162.0(102.00)	0.0	133.61	99.40	24.0	0.822	202.40	102.00	6.35	274.96
						2677.7(87.93)	2228.5(73.23)	0.0	93.53	68.31		0.833	6439.	2228.	6.37	267.77
205	18	1	31	272.5	35686.2	1393.7(44.96)	3162.0(102.00)	0.0	132.17	98.34	24.0	0.821	203.86	102.00	6.35	273.47
206		2	28	270.5	33787.9	957.7(34.20)	2856.0(102.00)	0.0	130.31	87.57	24.0	0.819	205.85	102.00	6.35	271.52
207		3	31	267.9	31431.1	805.2(25.97)	3162.0(102.00)	0.0	128.10	95.31	24.0	0.817	208.35	102.00	6.35	269.20
208		4	30	265.2	29067.8	696.7(23.22)	3060.0(102.00)	0.0	129.71	93.39	24.0	0.841	214.40	102.00	6.35	266.56
209		5	31	265.0	28877.3	2060.3(66.46)	2250.8(72.61)	0.0	89.70	66.74	24.0	0.824	214.40	72.61	6.37	265.11
210		6	30	265.0	28877.3	407.4(13.58)	407.4(13.58)	0.0	17.15	12.35	24.0	0.839	214.40	13.58	6.39	265.00
211		7	31	266.2	29943.1	4227.8(136.38)	3162.0(102.00)	0.0	128.87	95.88	24.0	0.841	214.40	102.00	6.35	265.61
212		8	31	266.8	30422.6	3641.5(117.47)	3162.0(102.00)	0.0	129.65	96.46	24.0	0.841	214.40	102.00	6.35	266.50
213		9	30	272.2	35335.5	7972.9(265.76)	3060.0(102.00)	0.0	128.36	92.42	24.0	0.817	208.06	102.00	6.35	269.47
214		10	31	276.0	39018.9	6845.4(220.82)	3162.0(102.00)	0.0	132.77	98.78	24.0	0.821	203.25	102.00	6.35	274.09
215		11	30	277.4	40425.6	4466.7(148.89)	3060.0(102.00)	0.0	135.29	97.41	24.0	0.824	200.75	102.00	6.35	276.72
216		12	31	276.8	39828.0	2564.4(82.72)	3162.0(102.00)	0.0	135.69	100.95	24.0	0.824	200.38	102.00	6.35	277.13
						3003.3(98.37)	2805.5(92.18)	0.0	118.15	86.30		0.827	6343.	2806.	6.36	270.03
217	19	1	31	275.2	38250.1	1584.1(51.10)	3162.0(102.00)	0.0	134.62	100.16	24.0	0.823	201.39	102.00	6.35	276.02
218		2	28	273.4	36481.3	1087.2(38.83)	2856.0(102.00)	0.0	132.97	89.35	24.0	0.821	203.04	102.00	6.35	274.30
219		3	31	270.9	34155.3	836.0(26.97)	3162.0(102.00)	0.0	130.90	97.39	24.0	0.820	205.20	102.00	6.35	272.14
220		4	30	268.4	31914.6	819.3(27.31)	3060.0(102.00)	0.0	128.55	92.56	24.0	0.818	207.83	102.00	6.35	269.67
221		5	31	265.6	29424.9	672.3(21.69)	3162.0(102.00)	0.0	130.12	96.81	24.0	0.842	214.40	102.00	6.35	267.04
222		6	30	268.3	31818.6	5453.7(181.79)	3060.0(102.00)	0.0	130.08	93.65	24.0	0.842	214.40	102.00	6.35	266.99
223		7	31	269.4	32768.2	4111.6(132.63)	3162.0(102.00)	0.0	127.78	95.07	24.0	0.817	212.66	102.00	6.35	268.86
224		8	31	269.4	32815.5	3209.3(103.53)	3162.0(102.00)	0.0	128.30	95.46	24.0	0.817	208.12	102.00	6.35	269.42
225		9	30	276.2	39164.1	9408.6(313.62)	3060.0(102.00)	0.0	131.53	94.70	24.0	0.820	204.53	102.00	6.35	272.80
226		10	31	280.2	43193.1	7191.1(231.97)	3162.0(102.00)	0.0	136.69	101.69	24.0	0.825	199.46	102.00	6.35	278.16
227		11	30	280.2	43236.7	3103.6(103.45)	3060.0(102.00)	0.0	138.65	99.83	24.0	0.826	197.71	102.00	6.35	280.19
228		12	31	279.3	42269.1	2194.4(70.79)	3162.0(102.00)	0.0	138.21	102.83	24.0	0.826	198.09	102.00	6.35	279.74
						3305.9(108.64)	3102.5(102.00)	0.0	132.37	96.63		0.825	6253.	3102.	6.35	272.94
229	20	1	31	277.5	40502.1	1395.0(45.00)	3162.0(102.00)	0.0	136.90	101.85	24.0	0.825	199.26	102.00	6.35	278.38
230		2	28	275.6	38651.9	1005.8(35.92)	2856.0(102.00)	0.0	135.15	90.82	24.0	0.823	200.89	102.00	6.35	276.57
231		3	31	273.2	36295.1	805.2(25.97)	3162.0(102.00)	0.0	133.07	99.01	24.0	0.822	202.93	102.00	6.35	274.41
232		4	30	270.9	34174.2	939.1(31.30)	3060.0(102.00)	0.0	130.82	94.19	24.0	0.820	205.29	102.00	6.35	272.05
233		5	31	269.1	32485.3	1473.1(47.52)	3162.0(102.00)	0.0	128.86	95.87	24.0	0.818	207.47	102.00	6.35	270.00
234		6	30	271.2	34418.9	4993.6(166.45)	3060.0(102.00)	0.0	128.99	92.87	24.0	0.818	207.33	102.00	6.35	270.13
235		7	31	269.4	32800.4	1543.5(49.79)	3162.0(102.00)	0.0	129.15	96.09	24.0	0.818	207.14	102.00	6.35	270.30
236		8	31	267.5	31057.0	1418.6(45.76)	3162.0(102.00)	0.0	127.39	94.78	24.0	0.816	213.16	102.00	6.35	268.46
237		9	30	267.0	30655.7	2658.7(88.62)	3060.0(102.00)	0.0	130.32	93.83	24.0	0.842	214.40	102.00	6.35	267.26
238		10	31	268.5	32003.8	4510.1(145.49)	3162.0(102.00)	0.0	130.78	97.30	24.0	0.842	213.98	102.00	6.35	267.79
239		11	30	267.4	30982.8	2039.0(67.97)	3060.0(102.00)	0.0	130.95	94.28	24.0	0.842	213.75	102.00	6.35	267.97
240		12	31	266.1	29816.5	1995.7(64.38)	3162.0(102.00)	0.0	129.86	96.62	24.0	0.842	214.40	102.00	6.35	266.74
						2064.8(67.85)	3102.5(102.00)	0.0	131.02	95.63		0.827	6338.	3102.	6.35	270.84

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
241	21	1	31	265.0	28877.3	1358.8(43.83)	2298.0(74.13)	0.0	91.80	68.30	24.0	0.823	214.40	74.13	6.36	265.54
242		2	28	265.0	28877.3	987.8(35.28)	987.8(35.28)	0.0	44.19	29.69	24.0	0.833	214.40	35.28	6.38	265.00
243		3	31	265.0	28877.3	736.9(23.77)	736.9(23.77)	0.0	29.91	22.25	24.0	0.836	214.40	23.77	6.39	265.00
244		4	30	265.0	28877.3	949.3(31.64)	949.3(31.64)	0.0	39.69	28.58	24.0	0.834	214.40	31.64	6.39	265.00
245		5	31	265.0	28877.3	1669.9(53.87)	1669.9(53.87)	0.0	66.98	49.84	24.0	0.828	214.40	53.87	6.37	265.00
246		6	30	268.6	32049.8	7072.5(235.75)	3900.0(130.00)	0.0	176.94	127.40	24.0	0.900	214.40	130.00	6.35	266.80
247		7	31	268.5	31942.9	5163.1(166.55)	5270.0(170.00)	0.0	234.30	174.32	24.0	0.903	213.06	170.00	6.34	268.54
248		8	31	273.8	36919.0	10866.1(350.52)	5890.0(190.00)	0.0	265.73	197.70	24.0	0.902	206.18	190.00	6.33	271.16
249		9	30	280.8	43821.4	12302.4(410.08)	5400.0(180.00)	0.0	262.55	189.03	24.0	0.905	200.22	180.00	6.33	277.31
250		10	31	284.4	47568.5	9637.1(310.87)	5890.0(190.00)	0.0	285.65	212.52	24.0	0.904	191.81	190.00	6.33	282.57
251		11	30	285.0	48263.9	6377.1(212.57)	5681.7(189.39)	0.0	284.38	204.75	24.0	0.892	192.45	189.39	6.33	284.68
252		12	31	283.2	46309.9	1208.0(38.97)	3162.0(102.00)	0.0	138.69	103.18	24.0	0.808	193.17	102.00	6.35	284.08
						4860.7(159.48)	3486.3(114.17)	0.0	160.07	117.30		0.864	6293.	3486.	6.35	271.72
253	22	1	31	281.0	44043.1	895.2(28.88)	3162.0(102.00)	0.0	140.48	104.52	24.0	0.828	196.16	102.00	6.35	282.08
254		2	28	278.8	41819.9	632.8(22.60)	2856.0(102.00)	0.0	138.37	92.99	24.0	0.826	197.95	102.00	6.35	279.91
255		3	31	276.2	39257.8	599.9(19.35)	3162.0(102.00)	0.0	136.08	101.24	24.0	0.824	200.10	102.00	6.35	277.53
256		4	30	273.6	36646.4	448.6(14.95)	3060.0(102.00)	0.0	133.55	96.15	24.0	0.822	202.46	102.00	6.35	274.90
257		5	31	271.0	34227.7	743.3(23.98)	3162.0(102.00)	0.0	131.02	97.48	24.0	0.820	205.07	102.00	6.35	272.26
258		6	30	273.9	36943.6	5775.9(192.53)	3060.0(102.00)	0.0	131.17	94.44	24.0	0.820	204.92	102.00	6.35	272.42
259		7	31	273.4	36464.1	2682.5(86.53)	3162.0(102.00)	0.0	132.31	98.44	24.0	0.821	203.72	102.00	6.35	273.61
260		8	31	273.0	36166.8	2864.7(92.41)	3162.0(102.00)	0.0	131.92	98.15	24.0	0.821	204.12	102.00	6.35	273.20
261		9	30	274.7	37796.2	4689.4(156.31)	3060.0(102.00)	0.0	132.59	95.46	24.0	0.821	203.43	102.00	6.35	273.90
262		10	31	275.1	38162.7	3528.6(113.83)	3162.0(102.00)	0.0	133.58	99.39	24.0	0.822	202.42	102.00	6.35	274.94
263		11	30	272.0	35199.5	96.8(3.23)	3060.0(102.00)	0.0	132.28	95.24	24.0	0.821	203.75	102.00	6.35	273.57
264		12	31	269.9	33256.7	1219.2(39.33)	3162.0(102.00)	0.0	129.79	96.56	24.0	0.819	206.43	102.00	6.35	270.97
						2014.7(66.16)	3102.5(102.00)	0.0	133.59	97.51		0.822	6161.	3102.	6.35	274.94
265	23	1	31	267.4	30973.4	878.7(28.35)	3162.0(102.00)	0.0	127.59	94.92	24.0	0.817	212.91	102.00	6.35	268.66
266		2	28	265.0	28877.3	621.3(22.19)	2717.4(97.05)	0.0	124.30	83.53	24.0	0.849	214.40	97.05	6.35	266.20
267		3	31	265.0	28877.3	363.1(11.71)	363.1(11.71)	0.0	14.80	11.01	24.0	0.839	214.40	11.71	6.39	265.00
268		4	30	265.0	28877.3	293.4(9.78)	293.4(9.78)	0.0	12.37	8.91	24.0	0.840	214.40	9.78	6.40	265.00
269		5	31	265.0	28877.3	1311.9(42.32)	1311.9(42.32)	0.0	52.86	39.33	24.0	0.831	214.40	42.32	6.38	265.00
270		6	30	270.2	33554.2	7736.9(257.90)	3060.0(102.00)	0.0	130.64	94.06	24.0	0.842	214.18	102.00	6.35	267.62
271		7	31	268.8	32220.6	1828.4(58.98)	3162.0(102.00)	0.0	128.40	95.53	24.0	0.817	208.00	102.00	6.35	269.52
272		8	31	268.1	31588.8	2530.2(81.62)	3162.0(102.00)	0.0	127.37	94.76	24.0	0.816	213.18	102.00	6.35	268.43
273		9	30	267.7	31282.4	2753.6(91.79)	3060.0(102.00)	0.0	130.89	94.24	24.0	0.842	213.83	102.00	6.35	267.91
274		10	31	270.0	33346.9	5226.5(168.60)	3162.0(102.00)	0.0	127.80	95.08	24.0	0.817	212.63	102.00	6.35	268.88
275		11	30	270.6	33837.3	3550.4(118.35)	3060.0(102.00)	0.0	129.14	92.98	24.0	0.818	207.16	102.00	6.35	270.29
276		12	31	269.3	32644.5	1969.2(63.52)	3162.0(102.00)	0.0	128.77	95.81	24.0	0.818	207.58	102.00	6.35	269.90
						2422.0(79.59)	2473.0(81.41)	0.0	102.91	75.01		0.829	6456.	2473.	6.36	267.70
277	24	1	31	267.0	30668.6	1186.1(38.26)	3162.0(102.00)	0.0	131.10	97.54	24.0	0.842	213.53	102.00	6.35	268.15
278		2	28	265.0	28877.3	872.2(31.15)	2663.5(95.12)	0.0	117.02	78.64	24.0	0.817	214.40	95.12	6.35	266.02
279		3	31	265.0	28877.3	674.3(21.75)	674.3(21.75)	0.0	27.39	20.38	24.0	0.837	214.40	21.75	6.39	265.00
280		4	30	265.0	28877.3	528.0(17.60)	528.0(17.60)	0.0	22.19	15.98	24.0	0.838	214.40	17.60	6.39	265.00
281		5	31	265.0	28877.3	1250.6(40.34)	1250.6(40.34)	0.0	50.43	37.52	24.0	0.832	214.40	40.34	6.38	265.00
282		6	30	270.9	34141.2	9163.9(305.46)	3900.0(130.00)	0.0	178.29	128.37	24.0	0.900	213.79	130.00	6.35	267.94
283		7	31	273.5	36604.8	6493.6(209.47)	4030.0(130.00)	0.0	179.53	133.57	24.0	0.883	205.15	130.00	6.35	272.20
284		8	31	277.2	40232.5	7657.7(247.02)	4030.0(130.00)	0.0	183.71	136.68	24.0	0.885	202.01	130.00	6.35	275.37
285		9	30	282.6	45688.5	9356.0(311.87)	3900.0(130.00)	0.0	189.71	136.59	24.0	0.890	197.95	130.00	6.35	279.91
286		10	31	285.0	48263.9	8012.8(258.48)	5425.0(175.00)	12.4	264.05	196.45	24.0	0.900	193.63	175.00	6.33	283.79
287		11	30	285.0	48263.9	5524.1(184.14)	5524.1(184.14)	0.0	278.18	200.29	24.0	0.895	191.94	184.14	6.33	285.00
288		12	31	283.4	46592.8	1490.9(48.09)	3162.0(102.00)	0.0	138.81	103.27	24.0	0.808	192.97	102.00	6.35	284.22
						4350.8(142.80)	3187.5(104.83)	1.0	146.70	107.11		0.861	6255.	3187.	6.36	273.13

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
289	25	1	31	281.3	44404.5	973.7(31.41)	3162.0(102.00)	0.0	137.17	102.06	24.0	0.807	195.91	102.00	6.35	282.39
290		2	28	279.3	42333.6	785.1(28.04)	2856.0(102.00)	0.0	138.79	93.27	24.0	0.827	197.59	102.00	6.35	280.34
291		3	31	276.9	39939.8	768.2(24.78)	3162.0(102.00)	0.0	136.66	101.67	24.0	0.825	199.48	102.00	6.35	278.13
292		4	30	274.7	37734.4	854.6(28.49)	3060.0(102.00)	0.0	134.42	96.78	24.0	0.823	201.59	102.00	6.35	275.81
293		5	31	273.1	36220.9	1648.5(53.18)	3162.0(102.00)	0.0	132.58	98.64	24.0	0.821	203.44	102.00	6.35	273.89
294		6	30	270.8	34068.3	907.4(30.25)	3060.0(102.00)	0.0	130.73	94.12	24.0	0.819	205.39	102.00	6.35	271.96
295		7	31	268.4	31913.5	1007.2(32.49)	3162.0(102.00)	0.0	128.51	95.61	24.0	0.817	207.88	102.00	6.35	269.63
296		8	31	265.4	29189.2	437.7(14.12)	3162.0(102.00)	0.0	130.00	96.72	24.0	0.842	214.40	102.00	6.35	266.90
297		9	30	269.0	32370.3	6241.1(208.04)	3060.0(102.00)	0.0	130.23	93.76	24.0	0.842	214.40	102.00	6.35	267.16
298		10	31	274.7	37702.4	8494.1(274.00)	3162.0(102.00)	0.0	130.58	97.15	24.0	0.819	205.55	102.00	6.35	271.80
299		11	30	276.8	39776.7	5134.4(171.15)	3060.0(102.00)	0.0	134.33	96.72	24.0	0.823	201.68	102.00	6.35	275.71
300		12	31	275.4	38397.1	1782.4(57.50)	3162.0(102.00)	0.0	134.67	100.20	24.0	0.823	201.35	102.00	6.35	276.07
						2419.5(79.45)	3102.5(102.00)	0.0	133.22	97.23		0.824	6208.	3102.	6.35	274.15
301	26	1	31	273.4	36496.0	1260.9(40.67)	3162.0(102.00)	0.0	133.05	98.99	24.0	0.822	202.96	102.00	6.35	274.38
302		2	28	271.3	34491.4	851.4(30.41)	2856.0(102.00)	0.0	131.08	88.09	24.0	0.820	205.01	102.00	6.35	272.33
303		3	31	268.6	32052.7	723.3(23.33)	3162.0(102.00)	0.0	128.80	95.82	24.0	0.818	207.55	102.00	6.35	269.93
304		4	30	266.1	29856.5	863.8(28.79)	3060.0(102.00)	0.0	130.41	93.89	24.0	0.842	214.40	102.00	6.35	267.36
305		5	31	265.0	28877.3	2103.8(67.86)	3083.0(99.45)	0.0	126.23	93.91	24.0	0.845	214.40	99.45	6.35	265.56
306		6	30	272.3	35464.3	11687.0(389.57)	5100.0(170.00)	0.0	234.47	168.82	24.0	0.903	212.92	170.00	6.34	268.65
307		7	31	273.5	36625.0	6585.7(212.44)	5425.0(175.00)	0.0	248.94	185.21	24.0	0.906	204.42	175.00	6.33	272.92
308		8	31	276.8	39839.9	8794.9(283.71)	5580.0(180.00)	0.0	259.18	192.83	24.0	0.905	202.19	180.00	6.33	275.18
309		9	30	281.7	44757.6	10317.7(343.92)	5400.0(180.00)	0.0	265.64	191.26	24.0	0.905	198.50	180.00	6.33	279.26
310		10	31	285.0	48263.9	9262.9(298.80)	5735.0(185.00)	21.6	276.17	205.47	24.0	0.893	194.33	185.00	6.33	283.34
311		11	30	285.0	48263.9	4240.9(141.36)	4240.9(141.36)	0.0	204.37	147.14	24.0	0.856	191.93	141.36	6.34	285.00
312		12	31	284.1	47267.3	2165.4(69.85)	3162.0(102.00)	0.0	139.09	103.48	24.0	0.808	192.66	102.00	6.35	284.53
						4904.8(160.89)	4163.8(136.73)	1.8	189.79	138.74		0.860	6187.	4164.	6.34	274.87
313	27	1	31	282.4	45491.0	1385.7(44.70)	3162.0(102.00)	0.0	137.92	102.61	24.0	0.808	192.90	102.00	6.35	283.23
314		2	28	280.5	43570.7	935.7(33.42)	2856.0(102.00)	0.0	139.88	94.00	24.0	0.828	196.66	102.00	6.35	281.46
315		3	31	278.1	41055.8	647.1(20.87)	3162.0(102.00)	0.0	137.78	102.51	24.0	0.826	198.47	102.00	6.35	279.30
316		4	30	275.8	38838.7	842.9(28.10)	3060.0(102.00)	0.0	135.51	97.57	24.0	0.824	200.55	102.00	6.35	276.94
317		5	31	273.3	36362.0	685.3(22.11)	3162.0(102.00)	0.0	133.20	99.10	24.0	0.822	202.81	102.00	6.35	274.54
318		6	30	272.2	35332.5	2030.5(67.68)	3060.0(102.00)	0.0	131.45	94.64	24.0	0.820	204.62	102.00	6.35	272.71
319		7	31	271.0	34233.0	2062.5(66.53)	3162.0(102.00)	0.0	130.36	96.99	24.0	0.819	205.79	102.00	6.35	271.57
320		8	31	270.2	33519.7	2448.7(78.99)	3162.0(102.00)	0.0	129.43	96.30	24.0	0.818	206.83	102.00	6.35	270.60
321		9	30	276.4	39386.1	8926.5(297.55)	3060.0(102.00)	0.0	132.01	95.05	24.0	0.821	204.03	102.00	6.35	273.29
322		10	31	282.5	45623.8	9399.7(303.22)	3162.0(102.00)	0.0	137.93	102.62	24.0	0.826	198.34	102.00	6.35	279.45
323		11	30	283.5	46700.4	4136.6(137.89)	3060.0(102.00)	0.0	137.74	99.17	24.0	0.807	191.72	102.00	6.35	283.03
324		12	31	282.7	45774.3	2235.9(72.13)	3162.0(102.00)	0.0	137.80	102.53	24.0	0.807	191.65	102.00	6.35	283.10
						2978.1(97.76)	3102.5(102.00)	0.0	135.08	98.59		0.819	6070.	3102.	6.35	277.43
325	28	1	31	281.0	43997.5	1385.2(44.68)	3162.0(102.00)	0.0	140.21	104.32	24.0	0.828	196.38	102.00	6.35	281.80
326		2	28	279.1	42058.5	917.0(32.75)	2856.0(102.00)	0.0	138.47	93.05	24.0	0.826	197.87	102.00	6.35	280.00
327		3	31	276.5	39539.7	643.2(20.75)	3162.0(102.00)	0.0	136.33	101.43	24.0	0.824	199.78	102.00	6.35	277.80
328		4	30	274.0	37069.4	589.7(19.66)	3060.0(102.00)	0.0	133.90	96.41	24.0	0.822	202.11	102.00	6.35	275.26
329		5	31	271.7	34937.5	1030.1(33.23)	3162.0(102.00)	0.0	131.60	97.91	24.0	0.820	204.46	102.00	6.35	272.87
330		6	30	272.0	35161.4	3283.9(109.46)	3060.0(102.00)	0.0	130.64	94.06	24.0	0.819	205.49	102.00	6.35	271.86
331		7	31	271.7	34870.1	2870.7(92.60)	3162.0(102.00)	0.0	130.60	97.17	24.0	0.819	205.53	102.00	6.35	271.82
332		8	31	272.9	36006.4	4298.3(138.65)	3162.0(102.00)	0.0	131.03	97.49	24.0	0.820	205.07	102.00	6.35	272.27
333		9	30	274.7	37764.0	4817.6(160.59)	3060.0(102.00)	0.0	132.49	95.39	24.0	0.821	203.53	102.00	6.35	273.80
334		10	31	276.2	39198.7	4596.7(148.28)	3162.0(102.00)	0.0	134.08	99.75	24.0	0.822	201.93	102.00	6.35	275.45
335		11	30	275.1	38111.7	1973.0(65.77)	3060.0(102.00)	0.0	134.25	96.66	24.0	0.823	201.76	102.00	6.35	275.63
336		12	31	272.4	35589.8	640.1(20.65)	3162.0(102.00)	0.0	132.45	98.54	24.0	0.821	203.57	102.00	6.35	273.76
						2253.8(73.92)	3102.5(102.00)	0.0	133.84	97.68		0.822	6154.	3102.	6.35	275.19

*** OPTIMAL SCHEDULE *** **CASE 2 (AVAILABLE DRAWDOWN = 20 m)**

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
337	29	1	31	269.7	33041.8	614.0(19.81)	3162.0(102.00)	0.0	129.88	96.63	24.0	0.819	206.33	102.00	6.35	271.06
338		2	28	267.0	30595.1	409.3(14.62)	2856.0(102.00)	0.0	131.26	88.21	24.0	0.842	213.31	102.00	6.35	268.33
339		3	31	265.0	28877.3	429.7(13.86)	2147.5(69.27)	0.0	86.21	64.14	24.0	0.825	214.40	69.27	6.37	265.98
340		4	30	265.0	28877.3	532.6(17.75)	532.6(17.75)	0.0	22.39	16.12	24.0	0.838	214.40	17.75	6.39	265.00
341		5	31	265.0	28877.3	1024.1(33.04)	1024.1(33.04)	0.0	41.41	30.81	24.0	0.834	214.40	33.04	6.38	265.00
342		6	30	267.5	31046.0	5228.7(174.29)	3060.0(102.00)	0.0	129.42	93.18	24.0	0.841	214.40	102.00	6.35	266.24
343		7	31	267.1	30698.1	2814.1(90.78)	3162.0(102.00)	0.0	130.33	96.97	24.0	0.842	214.40	102.00	6.35	267.28
344		8	31	266.9	30498.5	2962.4(95.56)	3162.0(102.00)	0.0	130.06	96.77	24.0	0.842	214.40	102.00	6.35	266.97
345		9	30	271.2	34474.0	7035.5(234.52)	3060.0(102.00)	0.0	127.96	92.13	24.0	0.817	208.52	102.00	6.35	269.05
346		10	31	275.9	38956.9	7644.9(246.61)	3162.0(102.00)	0.0	132.29	98.43	24.0	0.821	203.73	102.00	6.35	273.59
347		11	30	275.6	38636.5	2739.6(91.32)	3060.0(102.00)	0.0	134.39	96.76	24.0	0.823	201.62	102.00	6.35	275.78
348		12	31	273.8	36846.5	1372.0(44.26)	3162.0(102.00)	0.0	133.34	99.21	24.0	0.822	202.66	102.00	6.35	274.69
						2733.9(89.70)	2629.2(86.51)	0.0	110.74	80.78		0.830	6393.	2629.	6.36	269.08
349	30	1	31	271.5	34672.8	988.3(31.88)	3162.0(102.00)	0.0	131.35	97.73	24.0	0.820	204.72	102.00	6.35	272.61
350		2	28	269.1	32504.2	687.4(24.55)	2856.0(102.00)	0.0	129.13	86.77	24.0	0.818	207.17	102.00	6.35	270.28
351		3	31	266.2	29960.5	618.3(19.95)	3162.0(102.00)	0.0	130.68	97.23	24.0	0.842	214.12	102.00	6.35	267.67
352		4	30	265.0	28877.3	675.5(22.52)	1758.7(58.62)	0.0	73.07	52.61	24.0	0.827	214.40	58.62	6.37	265.62
353		5	31	265.0	28877.3	2241.1(72.29)	2241.1(72.29)	0.0	89.26	66.41	24.0	0.824	214.40	72.29	6.37	265.00
354		6	30	265.6	29360.8	3543.5(118.12)	3060.0(102.00)	0.0	128.58	92.57	24.0	0.841	214.40	102.00	6.35	265.28
355		7	31	270.2	33507.6	7308.8(235.77)	3162.0(102.00)	0.0	130.86	97.36	24.0	0.842	213.87	102.00	6.35	267.88
356		8	31	273.6	36700.8	6355.2(205.01)	3162.0(102.00)	0.0	130.68	97.22	24.0	0.819	205.45	102.00	6.35	271.90
357		9	30	277.1	40108.7	6467.9(215.60)	3060.0(102.00)	0.0	133.99	96.47	24.0	0.822	202.02	102.00	6.35	275.36
358		10	31	280.3	43375.3	6676.6(215.37)	3410.0(110.00)	0.0	150.69	112.11	24.0	0.840	198.96	110.00	6.35	278.73
359		11	30	278.6	41583.5	1268.2(42.27)	3060.0(102.00)	0.0	137.95	99.32	24.0	0.826	198.32	102.00	6.35	279.47
360		12	31	276.8	39844.0	1422.5(45.89)	3162.0(102.00)	0.0	136.25	101.37	24.0	0.824	199.85	102.00	6.35	277.71
						3187.8(104.10)	2938.0(96.58)	0.0	125.21	91.43		0.829	6306.	2938.	6.35	271.46
361	31	1	31	274.5	37557.8	875.8(28.25)	3162.0(102.00)	0.0	134.29	99.91	24.0	0.823	201.72	102.00	6.35	275.67
362		2	28	272.1	35297.4	595.6(21.27)	2856.0(102.00)	0.0	132.03	88.72	24.0	0.821	204.01	102.00	6.35	273.31
363		3	31	269.3	32708.2	572.8(18.48)	3162.0(102.00)	0.0	129.55	96.39	24.0	0.818	206.69	102.00	6.35	270.72
364		4	30	266.5	30214.6	566.4(18.88)	3060.0(102.00)	0.0	130.91	94.25	24.0	0.842	213.81	102.00	6.35	267.93
365		5	31	265.2	29015.9	1963.3(63.33)	3162.0(102.00)	0.0	129.08	96.03	24.0	0.841	214.40	102.00	6.35	265.85
366		6	30	275.4	38435.6	13319.8(443.99)	3900.0(130.00)	0.0	177.02	127.46	24.0	0.881	207.17	130.00	6.35	270.28
367		7	31	277.5	40539.7	6134.1(197.87)	4030.0(130.00)	0.0	185.16	137.76	24.0	0.886	200.99	130.00	6.35	276.48
368		8	31	279.3	42324.2	7209.5(232.56)	5425.0(175.00)	0.0	257.25	191.40	24.0	0.906	199.22	175.00	6.33	278.43
369		9	30	281.7	44726.3	7652.1(255.07)	5250.0(175.00)	0.0	260.35	187.45	24.0	0.905	197.46	175.00	6.33	280.49
370		10	31	283.6	46804.0	7192.7(232.02)	5115.0(165.00)	0.0	247.07	183.82	24.0	0.899	191.71	165.00	6.34	282.64
371		11	30	285.0	48252.9	6698.9(223.30)	5250.0(175.00)	0.0	264.95	190.77	24.0	0.901	192.91	175.00	6.33	284.31
372		12	31	283.7	46863.5	1772.6(57.18)	3162.0(102.00)	0.0	138.92	103.35	24.0	0.808	192.96	102.00	6.35	284.34
						4546.1(149.35)	3961.2(130.17)	0.0	182.21	133.11		0.861	6141.	3961.	6.35	275.87
373	32	1	31	281.0	44053.3	1219.8(39.35)	4030.0(130.00)	0.0	192.97	143.57	24.0	0.892	195.94	130.00	6.35	282.35
374		2	28	278.3	41292.8	879.5(31.41)	3640.0(130.00)	0.0	189.37	127.26	24.0	0.889	198.16	130.00	6.35	279.65
375		3	31	275.0	38055.6	792.8(25.57)	4030.0(130.00)	0.0	185.40	137.94	24.0	0.887	200.82	130.00	6.35	276.66
376		4	30	271.5	34705.6	550.0(18.33)	3900.0(130.00)	0.0	180.92	130.26	24.0	0.884	204.07	130.00	6.35	273.25
377		5	31	267.8	31309.0	633.4(20.43)	4030.0(130.00)	0.0	176.17	131.07	24.0	0.880	207.88	130.00	6.35	269.63
378		6	30	266.2	29901.5	2492.5(83.08)	3900.0(130.00)	0.0	177.15	127.55	24.0	0.900	214.40	130.00	6.35	266.97
379		7	31	270.4	33706.5	6967.0(224.74)	3162.0(102.00)	0.0	131.23	97.63	24.0	0.842	213.35	102.00	6.35	268.30
380		8	31	274.5	37577.5	7901.0(254.87)	4030.0(130.00)	0.0	179.88	133.83	24.0	0.883	204.87	130.00	6.35	272.47
381		9	30	279.6	42561.0	8883.5(296.12)	3900.0(130.00)	0.0	185.91	133.85	24.0	0.887	200.46	130.00	6.35	277.04
382		10	31	284.4	47597.4	8756.4(282.46)	3720.0(120.00)	0.0	173.90	129.38	24.0	0.872	196.25	120.00	6.35	281.96
383		11	30	283.1	46205.7	1668.3(55.61)	3060.0(102.00)	0.0	138.37	99.62	24.0	0.808	193.73	102.00	6.35	283.72
384		12	31	281.6	44685.0	1641.3(52.95)	3162.0(102.00)	0.0	140.73	104.71	24.0	0.828	195.95	102.00	6.35	282.34
						3532.1(115.41)	3713.7(122.17)	0.0	171.00	124.72		0.871	6150.	3714.	6.35	276.20

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
385	33	1	31	279.5	42503.1	980.1(31.62)	3162.0(102.00)	0.0	139.00	103.42	24.0	0.827	197.41	102.00	6.35	280.55
386		2	28	277.4	40353.1	706.0(25.21)	2856.0(102.00)	0.0	136.94	92.02	24.0	0.825	199.23	102.00	6.35	278.43
387		3	31	274.7	37735.6	544.5(17.56)	3162.0(102.00)	0.0	134.62	100.16	24.0	0.823	201.40	102.00	6.35	276.02
388		4	30	272.0	35201.1	525.6(17.52)	3060.0(102.00)	0.0	132.07	95.09	24.0	0.821	203.97	102.00	6.35	273.35
389		5	31	270.2	33482.5	1443.4(46.56)	3162.0(102.00)	0.0	129.91	96.65	24.0	0.819	206.29	102.00	6.35	271.10
390		6	30	268.2	31732.3	1309.8(43.66)	3060.0(102.00)	0.0	128.11	92.24	24.0	0.817	208.35	102.00	6.35	269.21
391		7	31	270.2	33544.9	4974.6(160.47)	3162.0(102.00)	0.0	128.14	95.34	24.0	0.817	208.31	102.00	6.35	269.24
392		8	31	273.5	36603.6	6220.7(200.67)	3162.0(102.00)	0.0	130.65	97.20	24.0	0.819	205.48	102.00	6.35	271.87
393		9	30	278.3	41276.3	7732.7(257.76)	3060.0(102.00)	0.0	134.50	96.84	24.0	0.823	201.51	102.00	6.35	275.89
394		10	31	283.1	46278.9	8164.6(263.37)	3162.0(102.00)	0.0	139.15	103.53	24.0	0.827	197.28	102.00	6.35	280.71
395		11	30	285.0	48263.9	5126.2(170.87)	3141.2(104.71)	0.0	141.58	101.94	24.0	0.804	193.20	104.71	6.35	284.07
396		12	31	283.2	46381.6	1279.7(41.28)	3162.0(102.00)	0.0	138.72	103.21	24.0	0.808	193.12	102.00	6.35	284.12
						3250.7(106.38)	3109.3(102.23)	0.0	134.45	98.14		0.819	6123.	3109.	6.35	276.21
397	34	1	31	281.1	44181.9	962.3(31.04)	3162.0(102.00)	0.0	140.58	104.59	24.0	0.828	196.08	102.00	6.35	282.18
398		2	28	278.9	41881.2	555.3(19.83)	2856.0(102.00)	0.0	138.47	93.05	24.0	0.826	197.87	102.00	6.35	280.01
399		3	31	276.4	39368.2	649.0(20.94)	3162.0(102.00)	0.0	136.16	101.31	24.0	0.824	200.02	102.00	6.35	277.62
400		4	30	273.8	36868.9	560.7(18.69)	3060.0(102.00)	0.0	133.71	96.27	24.0	0.822	202.29	102.00	6.35	275.07
401		5	31	271.4	34624.6	917.7(29.60)	3162.0(102.00)	0.0	131.34	97.72	24.0	0.820	204.74	102.00	6.35	272.59
402		6	30	271.5	34684.4	3119.8(103.99)	3060.0(102.00)	0.0	130.23	93.77	24.0	0.819	205.93	102.00	6.35	271.44
403		7	31	270.2	33511.4	1989.0(64.16)	3162.0(102.00)	0.0	129.66	96.47	24.0	0.819	206.57	102.00	6.35	270.84
404		8	31	272.1	35251.7	4902.3(158.14)	3162.0(102.00)	0.0	129.95	96.68	24.0	0.819	206.25	102.00	6.35	271.14
405		9	30	273.8	36900.2	4708.5(156.95)	3060.0(102.00)	0.0	131.67	94.81	24.0	0.820	204.38	102.00	6.35	272.95
406		10	31	276.2	39248.8	5510.7(177.76)	3162.0(102.00)	0.0	133.67	99.45	24.0	0.822	202.33	102.00	6.35	275.03
407		11	30	274.4	37474.3	1285.5(42.85)	3060.0(102.00)	0.0	133.96	96.45	24.0	0.822	202.05	102.00	6.35	275.33
408		12	31	272.3	35481.3	1169.0(37.71)	3162.0(102.00)	0.0	132.08	98.27	24.0	0.821	203.96	102.00	6.35	273.37
						2194.1(71.81)	3102.5(102.00)	0.0	133.46	97.40		0.822	6167.	3103.	6.35	274.80
409	35	1	31	269.9	33249.9	930.6(30.02)	3162.0(102.00)	0.0	129.93	96.67	24.0	0.819	206.27	102.00	6.35	271.12
410		2	28	267.5	31054.9	661.0(23.61)	2856.0(102.00)	0.0	127.63	85.76	24.0	0.817	212.86	102.00	6.35	268.70
411		3	31	265.0	28877.3	473.5(15.27)	2651.1(85.52)	0.0	105.92	78.81	24.0	0.820	214.40	85.52	6.36	266.24
412		4	30	265.0	28877.3	467.5(15.58)	467.5(15.58)	0.0	19.67	14.16	24.0	0.838	214.40	15.58	6.39	265.00
413		5	31	265.0	28877.3	2076.5(66.98)	2076.5(66.98)	0.0	82.87	61.66	24.0	0.825	214.40	66.98	6.37	265.00
414		6	30	268.6	32057.5	7080.2(236.01)	3900.0(130.00)	0.0	176.95	127.40	24.0	0.900	214.40	130.00	6.35	266.80
415		7	31	270.7	33956.8	5929.3(191.27)	4030.0(130.00)	0.0	176.19	131.08	24.0	0.880	207.86	130.00	6.35	269.65
416		8	31	272.8	35906.4	7374.6(237.89)	5425.0(175.00)	0.0	247.15	183.88	24.0	0.907	205.63	175.00	6.33	271.73
417		9	30	277.3	40283.5	9627.1(320.90)	5250.0(175.00)	0.0	252.13	181.53	24.0	0.906	202.34	175.00	6.33	275.03
418		10	31	283.5	46661.4	11802.9(380.74)	5425.0(175.00)	0.0	260.20	193.59	24.0	0.905	197.54	175.00	6.33	280.39
419		11	30	284.9	48105.1	6693.7(223.12)	5250.0(175.00)	0.0	264.72	190.60	24.0	0.901	193.03	175.00	6.33	284.18
420		12	31	284.1	47326.1	2383.0(76.87)	3162.0(102.00)	0.0	139.05	103.45	24.0	0.808	192.73	102.00	6.35	284.49
						4625.0(151.52)	3637.9(119.51)	0.0	165.20	120.72		0.861	6274.	3638.	6.35	272.36
421	36	1	31	282.5	45610.0	1445.9(46.64)	3162.0(102.00)	0.0	138.00	102.67	24.0	0.808	194.38	102.00	6.35	283.31
422		2	28	280.7	43697.0	943.0(33.68)	2856.0(102.00)	0.0	139.99	94.08	24.0	0.828	196.56	102.00	6.35	281.58
423		3	31	278.3	41306.0	771.0(24.87)	3162.0(102.00)	0.0	137.96	102.65	24.0	0.826	198.31	102.00	6.35	279.49
424		4	30	275.9	38931.9	685.9(22.86)	3060.0(102.00)	0.0	135.67	97.69	24.0	0.824	200.39	102.00	6.35	277.11
425		5	31	273.5	36622.1	852.3(27.49)	3162.0(102.00)	0.0	133.37	99.23	24.0	0.822	202.63	102.00	6.35	274.72
426		6	30	272.4	35559.0	1996.9(66.56)	3060.0(102.00)	0.0	131.69	94.82	24.0	0.820	204.36	102.00	6.35	272.96
427		7	31	271.7	34920.0	2523.0(81.39)	3162.0(102.00)	0.0	130.83	97.34	24.0	0.820	205.28	102.00	6.35	272.06
428		8	31	271.7	34873.5	3983.5(128.50)	4030.0(130.00)	0.0	178.87	133.08	24.0	0.882	205.66	130.00	6.35	271.70
429		9	30	274.6	37694.2	6720.7(224.02)	3900.0(130.00)	0.0	180.79	130.17	24.0	0.883	204.17	130.00	6.35	273.16
430		10	31	279.8	42786.5	9122.3(294.27)	4030.0(130.00)	0.0	186.13	138.48	24.0	0.887	200.31	130.00	6.35	277.21
431		11	30	284.4	47663.7	8777.2(292.57)	3900.0(130.00)	0.0	192.64	138.70	24.0	0.892	196.13	130.00	6.35	282.11
432		12	31	283.2	46334.6	2700.9(87.13)	4030.0(130.00)	0.0	189.33	140.86	24.0	0.868	193.59	130.00	6.35	283.81
						3376.9(110.83)	3459.5(113.67)	0.0	156.27	114.15		0.847	6088.	3460.	6.35	277.44

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
433	37	1	31	281.2	44262.2	1647.6(53.15)	3720.0(120.00)	0.0	174.19	129.60	24.0	0.873	196.06	120.00	6.35	282.20
434		2	28	278.9	41934.2	1312.0(46.86)	3640.0(130.00)	0.0	189.93	127.63	24.0	0.890	197.81	130.00	6.35	280.07
435		3	31	275.8	38805.9	901.7(29.09)	4030.0(130.00)	0.0	186.33	138.63	24.0	0.887	200.17	130.00	6.35	277.36
436		4	30	272.6	35769.3	863.4(28.78)	3900.0(130.00)	0.0	182.17	131.16	24.0	0.884	203.13	130.00	6.35	274.21
437		5	31	269.2	32561.2	821.9(26.51)	4030.0(130.00)	0.0	177.82	132.30	24.0	0.881	206.51	130.00	6.35	270.89
438		6	30	271.1	34328.9	5667.7(188.92)	3900.0(130.00)	0.0	176.81	127.31	24.0	0.881	207.34	130.00	6.35	270.12
439		7	31	272.8	35928.3	5629.4(181.59)	4030.0(130.00)	0.0	179.19	133.32	24.0	0.882	205.41	130.00	6.35	271.94
440		8	31	276.2	41152.0	9253.7(298.51)	4030.0(130.00)	0.0	183.84	136.78	24.0	0.886	201.91	130.00	6.35	275.48
441		9	30	282.6	45763.2	9411.3(313.71)	4800.0(160.00)	0.0	236.70	170.42	24.0	0.900	197.53	160.00	6.34	280.40
442		10	31	284.9	48166.6	7828.4(252.53)	5425.0(175.00)	0.0	264.03	196.44	24.0	0.900	193.65	175.00	6.33	283.78
443		11	30	283.0	46110.9	1844.3(61.48)	3900.0(130.00)	0.0	189.50	136.44	24.0	0.868	193.39	130.00	6.35	283.94
444		12	31	281.2	44218.9	1828.0(58.97)	3720.0(120.00)	0.0	174.04	129.48	24.0	0.873	196.16	120.00	6.35	282.07
						3917.4(128.34)	4093.7(134.58)	0.0	192.88	140.79		0.884	6081.	4094.	6.34	277.71
445	38	1	31	279.1	42120.2	1063.3(34.30)	3162.0(102.00)	0.0	138.60	103.12	24.0	0.826	197.75	102.00	6.35	280.14
446		2	28	276.8	39776.6	736.4(26.30)	3080.0(110.00)	0.0	149.86	100.70	24.0	0.840	199.65	110.00	6.35	277.95
447		3	31	274.2	37247.7	633.1(20.42)	3162.0(102.00)	0.0	134.10	99.77	24.0	0.822	201.91	102.00	6.35	275.48
448		4	30	271.4	34641.0	453.3(15.11)	3060.0(102.00)	0.0	131.54	94.71	24.0	0.820	204.53	102.00	6.35	272.80
449		5	31	269.3	32696.3	1217.3(39.27)	3162.0(102.00)	0.0	129.21	96.13	24.0	0.818	207.08	102.00	6.35	270.37
450		6	30	267.3	30858.3	1222.0(40.73)	3060.0(102.00)	0.0	131.22	94.48	24.0	0.842	213.36	102.00	6.35	268.29
451		7	31	265.0	28920.1	1223.8(39.48)	3162.0(102.00)	0.0	129.35	96.23	24.0	0.841	214.40	102.00	6.35	266.16
452		8	31	265.1	28922.3	4032.2(130.07)	4030.0(130.00)	0.0	174.89	130.12	24.0	0.900	214.40	130.00	6.35	265.05
453		9	30	273.3	36452.5	12780.2(426.01)	5250.0(175.00)	0.0	243.33	175.20	24.0	0.907	208.36	175.00	6.33	269.20
454		10	31	282.7	45847.3	15284.8(493.06)	5890.0(190.00)	0.0	277.73	206.63	24.0	0.903	199.57	190.00	6.33	278.04
455		11	30	285.0	48249.8	7952.5(265.08)	5550.0(185.00)	0.0	277.15	199.55	24.0	0.894	193.52	185.00	6.33	283.86
456		12	31	283.9	47130.3	2042.5(65.89)	3162.0(102.00)	0.0	139.03	103.44	24.0	0.808	192.77	102.00	6.35	284.46
						4053.4(132.98)	3810.8(125.33)	0.0	171.33	125.01		0.852	6204.	3811.	6.35	274.32
457	39	1	31	282.1	45176.2	1207.9(38.96)	3162.0(102.00)	0.0	137.73	102.47	24.0	0.807	191.74	102.00	6.35	283.01
458		2	28	280.1	43137.8	817.6(29.20)	2856.0(102.00)	0.0	139.53	93.76	24.0	0.827	196.95	102.00	6.35	281.10
459		3	31	277.6	40617.9	642.1(20.71)	3162.0(102.00)	0.0	137.37	102.20	24.0	0.825	198.84	102.00	6.35	278.87
460		4	30	275.1	38147.7	589.9(19.66)	3060.0(102.00)	0.0	134.96	97.17	24.0	0.823	201.07	102.00	6.35	276.37
461		5	31	272.2	35333.5	347.8(11.22)	3162.0(102.00)	0.0	132.34	98.46	24.0	0.821	203.69	102.00	6.35	273.64
462		6	30	276.8	39850.3	8416.8(280.56)	3900.0(130.00)	0.0	182.57	131.45	24.0	0.885	202.84	130.00	6.35	274.51
463		7	31	275.6	38607.8	2787.5(89.92)	4030.0(130.00)	0.0	184.82	137.51	24.0	0.886	201.22	130.00	6.35	276.22
464		8	31	275.1	38153.6	3575.8(115.35)	4030.0(130.00)	0.0	183.68	136.66	24.0	0.885	202.03	130.00	6.35	275.35
465		9	30	282.0	45051.6	10798.0(359.93)	3900.0(130.00)	0.0	187.90	135.29	24.0	0.888	199.11	130.00	6.35	278.54
466		10	31	285.0	48252.9	8161.3(263.27)	4960.0(160.00)	0.0	236.07	175.63	24.0	0.882	194.11	160.00	6.34	283.48
467		11	30	282.3	45358.9	166.0(5.53)	3060.0(102.00)	0.0	138.28	99.56	24.0	0.808	193.88	102.00	6.35	283.63
468		12	31	280.9	43987.9	1791.0(57.77)	3162.0(102.00)	0.0	140.02	104.17	24.0	0.828	196.54	102.00	6.35	281.60
						3275.1(107.67)	3537.0(116.17)	0.0	161.27	117.86		0.847	6038.	3537.	6.35	278.86
469	40	1	31	278.1	41098.5	1140.6(36.79)	4030.0(130.00)	0.0	189.20	140.77	24.0	0.889	198.27	130.00	6.35	279.52
470		2	28	275.3	38293.1	834.6(29.81)	3640.0(130.00)	0.0	185.44	124.61	24.0	0.887	200.80	130.00	6.35	276.68
471		3	31	271.8	35035.0	771.9(24.90)	4030.0(130.00)	0.0	181.31	134.89	24.0	0.884	203.77	130.00	6.35	273.55
472		4	30	269.6	32945.1	970.1(32.34)	3060.0(102.00)	0.0	129.54	93.27	24.0	0.818	206.70	102.00	6.35	270.71
473		5	31	267.2	30803.6	1268.5(40.92)	3410.0(110.00)	0.0	144.11	107.22	24.0	0.857	213.23	110.00	6.35	268.39
474		6	30	267.9	31419.4	3675.8(122.53)	3060.0(102.00)	0.0	130.57	94.01	24.0	0.842	214.28	102.00	6.35	267.55
475		7	31	267.6	31118.3	3728.9(120.29)	4030.0(130.00)	0.0	178.04	132.46	24.0	0.900	214.06	130.00	6.35	267.72
476		8	31	268.7	32139.2	5050.9(162.93)	4030.0(130.00)	0.0	178.51	132.81	24.0	0.900	213.57	130.00	6.35	268.13
477		9	30	277.4	40382.6	12143.5(404.78)	3900.0(130.00)	0.0	180.64	130.06	24.0	0.883	204.29	130.00	6.35	273.04
478		10	31	284.0	47141.6	10789.0(348.03)	4030.0(130.00)	0.0	190.73	141.90	24.0	0.890	197.31	130.00	6.35	280.67
479		11	30	285.0	48263.9	5807.6(193.59)	4650.0(155.00)	35.3	231.55	166.70	24.0	0.887	192.76	155.00	6.34	284.48
480		12	31	283.6	46807.3	1705.4(55.01)	3162.0(102.00)	0.0	138.90	103.34	24.0	0.808	193.00	102.00	6.35	284.32
						3990.6(130.99)	3752.7(123.42)	2.9	171.54	125.17		0.871	6216.	3753.	6.35	274.56

*** OPTIMAL SCHEDULE ***

CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
481	41	1	31	281.3	44353.8	1266.5(40.85)	3720.0(120.00)	0.0	174.53	129.85	24.0	0.873	195.85	120.00	6.35	282.47
482		2	28	279.4	42426.4	928.6(33.16)	2856.0(102.00)	0.0	138.81	93.28	24.0	0.827	197.57	102.00	6.35	280.36
483		3	31	277.1	40078.7	814.3(26.27)	3162.0(102.00)	0.0	136.77	101.76	24.0	0.825	199.38	102.00	6.35	278.25
484		4	30	274.5	37553.3	534.6(17.82)	3060.0(102.00)	0.0	134.40	96.77	24.0	0.823	201.61	102.00	6.35	275.79
485		5	31	272.1	35271.2	879.9(28.38)	3162.0(102.00)	0.0	132.01	98.22	24.0	0.821	204.03	102.00	6.35	273.30
486		6	30	272.6	35741.3	3530.1(117.67)	3060.0(102.00)	0.0	131.10	94.39	24.0	0.820	204.99	102.00	6.35	272.35
487		7	31	272.9	36049.2	3469.9(111.93)	3162.0(102.00)	0.0	131.50	97.83	24.0	0.820	204.57	102.00	6.35	272.76
488		8	31	275.2	38259.2	6240.0(201.29)	4030.0(130.00)	0.0	182.00	135.41	24.0	0.884	203.26	130.00	6.35	274.07
489		9	30	277.9	40907.8	6548.6(218.29)	3900.0(130.00)	0.0	185.29	133.41	24.0	0.887	200.90	130.00	6.35	276.57
490		10	31	283.5	46615.1	10512.4(339.11)	4805.0(155.00)	0.0	228.54	170.03	24.0	0.895	197.30	155.00	6.34	280.68
491		11	30	284.6	47881.8	6516.7(217.22)	5250.0(175.00)	0.0	264.50	190.44	24.0	0.901	193.23	175.00	6.33	284.05
492		12	31	283.4	46573.1	1853.3(59.78)	3162.0(102.00)	0.0	138.64	103.15	24.0	0.808	193.26	102.00	6.35	284.03
						3591.2(117.65)	3610.7(118.67)	0.0	164.84	120.38		0.849	6073.	3611.	6.35	277.89
493	42	1	31	281.3	44347.8	1184.7(38.22)	3410.0(110.00)	0.0	154.57	115.00	24.0	0.844	195.94	110.00	6.35	282.35
494		2	28	279.2	42239.3	747.5(26.70)	2856.0(102.00)	0.0	138.72	93.22	24.0	0.827	197.65	102.00	6.35	280.26
495		3	31	276.7	39735.1	657.8(21.22)	3162.0(102.00)	0.0	136.51	101.57	24.0	0.825	199.62	102.00	6.35	277.98
496		4	30	274.1	37156.8	481.7(16.06)	3060.0(102.00)	0.0	134.04	96.51	24.0	0.822	201.97	102.00	6.35	275.41
497		5	31	272.9	35984.4	1989.6(64.18)	3162.0(102.00)	0.0	132.18	98.34	24.0	0.821	203.86	102.00	6.35	273.47
498		6	30	272.6	35715.0	2790.6(93.02)	3060.0(102.00)	0.0	131.45	94.64	24.0	0.820	204.62	102.00	6.35	272.71
499		7	31	272.6	35709.0	3156.0(101.81)	3162.0(102.00)	0.0	131.31	97.70	24.0	0.820	204.77	102.00	6.35	272.57
500		8	31	276.0	38967.7	6420.7(207.12)	3162.0(102.00)	0.0	132.93	98.90	24.0	0.821	203.08	102.00	6.35	274.26
501		9	30	279.1	42063.6	6155.9(205.20)	3060.0(102.00)	0.0	136.05	97.96	24.0	0.824	200.13	102.00	6.35	277.51
502		10	31	284.8	48064.9	9163.3(295.59)	3162.0(102.00)	0.0	140.34	104.41	24.0	0.828	196.27	102.00	6.35	281.94
503		11	30	284.9	48199.1	3194.2(106.47)	3060.0(102.00)	0.0	139.40	100.37	24.0	0.808	192.12	102.00	6.35	284.88
504		12	31	283.7	46901.9	1864.8(60.15)	3162.0(102.00)	0.0	138.91	103.35	24.0	0.808	192.98	102.00	6.35	284.33
						3150.6(102.98)	3123.2(102.67)	0.0	137.20	100.16		0.822	6066.	3123.	6.35	278.14
505	43	1	31	281.0	44088.0	1216.1(39.23)	4030.0(130.00)	0.0	193.01	143.60	24.0	0.892	195.91	130.00	6.35	282.38
506		2	28	279.1	42126.1	894.1(31.93)	2856.0(102.00)	0.0	138.54	93.10	24.0	0.826	197.80	102.00	6.35	280.08
507		3	31	276.7	39749.9	785.8(25.35)	3162.0(102.00)	0.0	136.47	101.53	24.0	0.825	199.66	102.00	6.35	277.94
508		4	30	274.4	37477.9	788.0(26.27)	3060.0(102.00)	0.0	134.20	96.63	24.0	0.823	201.81	102.00	6.35	275.58
509		5	31	272.4	35589.1	1273.2(41.07)	3162.0(102.00)	0.0	132.13	98.31	24.0	0.821	203.90	102.00	6.35	273.43
510		6	30	274.4	37477.0	5787.9(192.93)	3900.0(130.00)	0.0	181.14	130.42	24.0	0.884	203.90	130.00	6.35	273.43
511		7	31	275.5	38544.1	5097.1(164.42)	4030.0(130.00)	0.0	183.17	136.28	24.0	0.885	202.39	130.00	6.35	274.97
512		8	31	277.3	40285.1	5771.0(186.16)	4030.0(130.00)	0.0	185.07	137.69	24.0	0.886	201.05	130.00	6.35	276.40
513		9	30	280.8	43882.2	7497.2(249.91)	3900.0(130.00)	0.0	188.59	135.79	24.0	0.889	198.78	130.00	6.35	279.06
514		10	31	284.4	47583.2	9126.0(294.39)	5425.0(175.00)	0.0	263.53	196.06	24.0	0.905	191.76	175.00	6.33	282.60
515		11	30	284.8	47997.5	5064.3(168.81)	4650.0(155.00)	0.0	231.67	166.80	24.0	0.887	192.63	155.00	6.34	284.56
516		12	31	283.5	46633.2	1797.7(57.99)	3162.0(102.00)	0.0	138.71	103.20	24.0	0.808	193.13	102.00	6.35	284.11
						3758.2(123.20)	3780.6(124.17)	0.0	175.52	128.28		0.861	6040.	3781.	6.35	278.71
517	44	1	31	281.1	44098.9	1185.7(38.25)	3720.0(120.00)	0.0	174.27	129.66	24.0	0.873	196.01	120.00	6.35	282.26
518		2	28	279.1	42132.7	889.8(31.78)	2856.0(102.00)	0.0	138.55	93.11	24.0	0.826	197.80	102.00	6.35	280.09
519		3	31	276.6	39611.5	640.8(20.67)	3162.0(102.00)	0.0	136.40	101.48	24.0	0.824	199.72	102.00	6.35	277.87
520		4	30	273.3	36370.1	658.6(21.95)	3900.0(130.00)	0.0	183.13	131.85	24.0	0.885	202.43	130.00	6.35	274.93
521		5	31	270.9	34195.4	987.3(31.85)	3162.0(102.00)	0.0	130.87	97.37	24.0	0.820	205.24	102.00	6.35	272.10
522		6	30	280.0	43035.4	12740.0(424.67)	3900.0(130.00)	0.0	183.85	132.37	24.0	0.886	201.91	130.00	6.35	275.48
523		7	31	282.8	45938.3	6932.9(223.64)	4030.0(130.00)	0.0	191.72	142.64	24.0	0.891	196.69	130.00	6.35	281.41
524		8	31	282.5	45580.4	4602.1(148.45)	4960.0(160.00)	0.0	240.23	178.73	24.0	0.902	191.71	160.00	6.34	282.64
525		9	30	285.0	48263.9	6612.1(220.40)	3900.0(130.00)	28.6	189.22	136.24	24.0	0.868	193.71	130.00	6.35	283.74
526		10	31	285.0	48263.9	4214.6(135.95)	4185.0(135.00)	29.6	196.89	146.48	24.0	0.863	191.93	135.00	6.34	285.00
527		11	30	284.0	47237.5	2033.6(67.79)	3060.0(102.00)	0.0	139.08	100.14	24.0	0.808	192.68	102.00	6.35	284.52
528		12	31	282.1	45231.4	1155.9(37.29)	3162.0(102.00)	0.0	137.80	102.52	24.0	0.807	191.66	102.00	6.35	283.09
						3554.4(116.89)	3666.4(120.42)	4.8	170.17	124.38		0.854	5985.	3666.	6.35	280.26

*** OPTIMAL SCHEDULE *** CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
529	45	1	31	279.9	42887.0	817.6(26.37)	3162.0(102.00)	0.0	139.44	103.74	24.0	0.827	197.03	102.00	6.35	281.01
530		2	28	277.7	40676.1	645.1(23.04)	2856.0(102.00)	0.0	137.28	92.25	24.0	0.825	198.92	102.00	6.35	278.78
531		3	31	275.0	38084.8	570.7(18.41)	3162.0(102.00)	0.0	134.95	100.41	24.0	0.823	201.08	102.00	6.35	276.36
532		4	30	272.4	35535.4	510.6(17.02)	3060.0(102.00)	0.0	132.41	95.33	24.0	0.821	203.61	102.00	6.35	273.71
533		5	31	269.9	33269.8	896.4(28.92)	3162.0(102.00)	0.0	129.97	96.69	24.0	0.819	206.23	102.00	6.35	271.16
534		6	30	273.9	36945.9	6736.1(224.54)	3060.0(102.00)	0.0	130.68	94.09	24.0	0.819	205.45	102.00	6.35	271.90
535		7	31	273.9	37027.3	3243.4(104.63)	3162.0(102.00)	0.0	132.59	98.65	24.0	0.821	203.42	102.00	6.35	273.91
536		8	31	274.0	37123.5	3258.2(105.10)	3162.0(102.00)	0.0	132.68	98.72	24.0	0.821	203.33	102.00	6.35	274.00
537		9	30	278.6	41598.7	8375.3(279.18)	3900.0(130.00)	0.0	184.97	133.17	24.0	0.886	201.12	130.00	6.35	276.33
538		10	31	283.2	46350.6	8781.9(283.29)	4030.0(130.00)	0.0	191.04	142.13	24.0	0.891	197.11	130.00	6.35	280.90
539		11	30	285.0	48263.9	6184.5(206.15)	4271.2(142.37)	0.0	204.26	147.06	24.0	0.854	193.14	142.37	6.34	284.10
540		12	31	283.7	46917.1	1815.2(58.55)	3162.0(102.00)	0.0	138.94	103.37	24.0	0.808	192.92	102.00	6.35	284.37
						3486.2(114.60)	3345.8(110.03)	0.0	149.10	108.80		0.835	6092.	3346.	6.35	277.21
541	46	1	31	281.9	45031.5	1276.4(41.17)	3162.0(102.00)	0.0	137.58	102.36	24.0	0.807	195.55	102.00	6.35	282.84
542		2	28	280.1	43164.0	988.5(35.30)	2856.0(102.00)	0.0	139.47	93.73	24.0	0.827	197.00	102.00	6.35	281.04
543		3	31	277.8	40782.7	780.7(25.18)	3162.0(102.00)	0.0	137.46	102.27	24.0	0.825	198.76	102.00	6.35	278.96
544		4	30	275.3	38359.0	636.3(21.21)	3060.0(102.00)	0.0	135.14	97.30	24.0	0.823	200.90	102.00	6.35	276.56
545		5	31	274.2	37287.9	2090.9(67.45)	3162.0(102.00)	0.0	133.43	99.27	24.0	0.822	202.58	102.00	6.35	274.77
546		6	30	274.2	37295.4	3067.5(102.25)	3060.0(102.00)	0.0	132.90	95.69	24.0	0.821	203.11	102.00	6.35	274.22
547		7	31	273.6	36687.0	2553.6(82.37)	3162.0(102.00)	0.0	132.60	98.65	24.0	0.821	203.42	102.00	6.35	273.91
548		8	31	272.4	35592.0	2067.0(66.68)	3162.0(102.00)	0.0	131.74	98.02	24.0	0.820	204.31	102.00	6.35	273.02
549		9	30	274.0	37061.8	4529.8(150.99)	3060.0(102.00)	0.0	131.93	94.99	24.0	0.821	204.11	102.00	6.35	273.21
550		10	31	276.4	39414.6	5514.8(177.90)	3162.0(102.00)	0.0	133.83	99.57	24.0	0.822	202.17	102.00	6.35	275.20
551		11	30	274.6	37626.9	1272.3(42.41)	3060.0(102.00)	0.0	134.11	96.56	24.0	0.822	201.89	102.00	6.35	275.49
552		12	31	272.1	35251.4	786.6(25.37)	3162.0(102.00)	0.0	132.04	98.24	24.0	0.821	204.00	102.00	6.35	273.32
						2130.4(69.86)	3102.5(102.00)	0.0	134.35	98.05		0.821	6129.	3102.	6.35	276.05
553	47	1	31	269.5	32838.4	749.0(24.16)	3162.0(102.00)	0.0	129.60	96.42	24.0	0.818	206.64	102.00	6.35	270.77
554		2	28	267.0	30639.5	657.1(23.47)	2856.0(102.00)	0.0	131.18	88.15	24.0	0.842	213.42	102.00	6.35	268.24
555		3	31	265.0	28877.3	639.8(20.64)	2402.0(77.48)	0.0	95.74	71.23	24.0	0.819	214.40	77.48	6.36	266.01
556		4	30	265.0	28877.3	820.3(27.34)	820.3(27.34)	0.0	34.35	24.73	24.0	0.835	214.40	27.34	6.39	265.00
557		5	31	265.0	28877.3	433.8(13.99)	433.8(13.99)	0.0	17.67	13.15	24.0	0.839	214.40	13.99	6.39	265.00
558		6	30	273.9	36964.7	11147.4(371.58)	3060.0(102.00)	0.0	128.33	92.40	24.0	0.817	208.09	102.00	6.35	269.44
559		7	31	272.7	35862.3	2927.6(94.44)	4030.0(130.00)	0.0	180.98	134.65	24.0	0.884	204.02	130.00	6.35	273.30
560		8	31	275.0	38051.8	6219.5(200.63)	4030.0(130.00)	0.0	181.73	135.20	24.0	0.884	203.46	130.00	6.35	273.87
561		9	32	279.9	42957.1	9065.3(283.29)	4160.0(130.00)	0.0	186.49	143.22	24.0	0.887	200.06	130.00	6.35	277.48
562		10	31	283.4	46510.7	8978.7(289.64)	5425.0(175.00)	0.0	262.09	195.00	24.0	0.905	192.93	175.00	6.33	281.65
563		11	30	285.0	48253.5	7142.8(238.09)	5400.0(180.00)	0.0	271.26	195.31	24.0	0.897	193.04	180.00	6.33	284.17
564		12	31	283.8	46983.3	1891.8(61.03)	3162.0(102.00)	0.0	138.97	103.39	24.0	0.808	192.88	102.00	6.35	284.40
						4222.7(137.36)	3245.1(105.99)	0.0	146.53	107.74		0.853	6261.	3245.	6.35	273.28
565	48	1	31	281.2	44248.5	1295.2(41.78)	4030.0(130.00)	0.0	193.17	143.72	24.0	0.892	195.82	130.00	6.35	282.50
566		2	28	279.4	42451.8	1059.3(37.83)	2856.0(102.00)	0.0	138.77	93.25	24.0	0.827	197.60	102.00	6.35	280.32
567		3	31	277.0	40035.2	745.4(24.05)	3162.0(102.00)	0.0	136.76	101.75	24.0	0.825	199.39	102.00	6.35	278.24
568		4	30	274.6	37638.6	663.4(22.11)	3060.0(102.00)	0.0	134.42	96.78	24.0	0.823	201.59	102.00	6.35	275.81
569		5	31	272.9	36043.0	1566.4(50.53)	3162.0(102.00)	0.0	132.44	98.54	24.0	0.821	203.58	102.00	6.35	273.75
570		6	30	277.3	40282.6	8139.6(271.32)	3900.0(130.00)	0.0	183.35	132.01	24.0	0.885	202.27	130.00	6.35	275.10
571		7	31	279.4	42410.2	6157.6(198.63)	4030.0(130.00)	0.0	187.64	139.60	24.0	0.888	199.29	130.00	6.35	278.34
572		8	31	281.7	44753.4	6373.2(205.59)	4030.0(130.00)	0.0	190.56	141.78	24.0	0.890	197.41	130.00	6.35	280.54
573		9	30	283.7	46889.5	7086.1(236.20)	4950.0(165.00)	0.0	247.15	177.95	24.0	0.899	191.65	165.00	6.34	282.70
574		10	31	285.0	48263.9	6195.9(199.87)	4805.0(155.00)	16.5	231.34	172.11	24.0	0.887	192.95	155.00	6.34	284.36
575		11	30	284.5	47710.4	2506.5(83.55)	3060.0(102.00)	0.0	139.28	100.28	24.0	0.808	192.33	102.00	6.35	284.74
576		12	31	282.4	45523.8	1843.4(59.46)	4030.0(130.00)	0.0	188.84	140.50	24.0	0.867	194.16	130.00	6.35	283.45
						3636.0(119.24)	3756.2(123.33)	1.4	175.31	128.19		0.859	6002.	3756.	6.35	279.99

*** OPTIMAL SCHEDULE *** **CASE 2 (AVAILABLE DRAWDOWN = 20 m)**

NO.	YEAR	MON	DAY	H (M)	S (M3/SD)	QIN (M3/SD)	QQ (M3/SD)	QOUT (M3/SD)	P (MW)	E (GWH)	T (H)	ETG	QCR (M3/S)	QUP (M3/S)	LOSS (M)	SUII (M)
577	49	1	31	279.7	42739.2	1245.4(40.17)	4030.0(130.00)	0.0	191.26	142.30	24.0	0.891	196.97	130.00	6.35	281.07
578		2	28	277.2	40164.9	1065.7(38.06)	3640.0(130.00)	0.0	187.77	126.18	24.0	0.888	199.20	130.00	6.35	278.45
579		3	31	273.7	36826.7	691.8(22.32)	4030.0(130.00)	0.0	183.81	136.76	24.0	0.886	201.93	130.00	6.35	275.45
580		4	30	270.4	33693.4	766.7(25.56)	3900.0(130.00)	0.0	179.36	129.14	24.0	0.882	205.28	130.00	6.35	272.07
581		5	31	267.2	30800.2	1136.8(36.67)	4030.0(130.00)	0.0	175.08	130.26	24.0	0.879	212.74	130.00	6.35	268.80
582		6	30	267.2	30775.6	3875.4(129.18)	3900.0(130.00)	0.0	177.40	127.73	24.0	0.900	214.40	130.00	6.35	267.18
583		7	31	267.3	30919.7	4174.1(134.65)	4030.0(130.00)	0.0	177.48	132.04	24.0	0.900	214.40	130.00	6.35	267.25
584		8	31	269.5	32843.0	5953.3(192.04)	4030.0(130.00)	0.0	178.83	133.05	24.0	0.901	213.23	130.00	6.35	268.40
585		9	30	277.2	40223.7	11280.8(376.03)	3900.0(130.00)	0.0	181.04	130.35	24.0	0.884	203.98	130.00	6.35	273.35
586		10	31	284.5	47763.6	11569.9(373.22)	4030.0(130.00)	0.0	191.01	142.11	24.0	0.891	197.13	130.00	6.35	280.88
587		11	30	283.6	46738.7	4225.1(140.84)	5250.0(175.00)	0.0	264.51	190.44	24.0	0.901	193.22	175.00	6.33	284.05
588		12	31	281.1	44199.7	1491.0(48.10)	4030.0(130.00)	0.0	192.98	143.58	24.0	0.892	195.93	130.00	6.35	282.36
						3956.3(129.74)	4066.7(133.75)	0.0	190.04	138.66		0.891	6207.	4067.	6.34	274.94
589	50	1	31	278.2	41240.6	1070.9(34.55)	4030.0(130.00)	0.0	189.43	140.94	24.0	0.889	198.13	130.00	6.35	279.70
590		2	28	275.4	38403.9	803.3(28.69)	3640.0(130.00)	0.0	185.61	124.73	24.0	0.887	200.67	130.00	6.35	276.81
591		3	31	271.9	35075.3	701.4(22.63)	4030.0(130.00)	0.0	181.41	134.97	24.0	0.884	203.70	130.00	6.35	273.63
592		4	30	268.3	31825.3	650.0(21.67)	3900.0(130.00)	0.0	176.80	127.30	24.0	0.881	207.35	130.00	6.35	270.12
593		5	31	265.8	29593.2	1797.9(58.00)	4030.0(130.00)	0.0	177.28	131.90	24.0	0.900	214.40	130.00	6.35	267.09
594		6	30	268.0	31527.1	5833.9(194.46)	3900.0(130.00)	0.0	177.09	127.50	24.0	0.900	214.40	130.00	6.35	266.92
595		7	31	267.4	30980.3	4723.2(152.36)	5270.0(170.00)	0.0	233.02	173.36	24.0	0.903	214.08	170.00	6.34	267.71
596		8	31	269.0	32438.4	6728.1(217.04)	5270.0(170.00)	0.0	233.80	173.94	24.0	0.903	213.46	170.00	6.34	268.21
597		9	30	278.0	40959.8	14636.4(487.88)	6115.0(203.83)	0.0	288.31	207.59	24.0	0.899	203.83	203.83	6.33	273.50
598		10	31	283.7	46836.4	11301.7(364.57)	5425.0(175.00)	0.0	260.84	194.06	24.0	0.905	197.19	175.00	6.33	280.81
599		11	30	284.9	48165.0	6728.6(224.29)	5400.0(180.00)	0.0	271.46	195.45	24.0	0.897	193.04	180.00	6.33	284.29
600		12	31	283.8	46993.8	2858.8(92.22)	4030.0(130.00)	0.0	190.05	141.40	24.0	0.868	192.93	130.00	6.35	284.36
						4819.5(158.19)	4586.7(150.74)	0.0	213.76	156.10		0.893	6219.	4587.	6.34	274.43
						40058.8(******)	40075.1(******)	2.9	1786.90	1304.84		0.844	74327.	40075.	6.35	274.53

* MONTHLY INFLOW (M3/S) * **CASE 2 (AVAILABLE DRAWDOWN = 20 m)**

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	41.57	31.28	20.96	23.39	8.49	240.29	53.48	74.33	384.96	281.64	252.23	65.81	1478.43
2	2	40.73	37.39	21.93	19.61	33.01	148.72	225.84	176.87	248.03	178.78	103.89	60.04	1294.83
3	3	35.59	31.43	24.81	28.31	61.41	265.20	92.56	202.49	304.11	210.88	108.30	56.55	1421.64
4	4	37.35	25.30	18.19	22.05	37.83	324.74	217.19	227.42	208.87	283.77	124.08	40.14	1566.95
5	5	28.29	25.18	20.50	29.81	37.25	37.39	81.72	160.87	101.93	177.40	71.45	39.80	811.59
6	6	29.02	25.30	20.22	26.49	28.32	90.96	136.61	112.44	251.01	241.73	25.94	58.50	1044.54
7	7	38.43	32.98	24.81	19.82	35.89	45.12	55.59	115.00	325.52	226.63	114.67	62.09	1096.53
8	8	36.28	37.86	23.88	22.86	51.44	103.21	74.06	85.68	203.29	241.25	66.76	78.37	1024.94
9	9	45.54	35.71	26.67	23.82	34.49	117.23	66.14	131.68	195.96	241.05	155.65	43.70	1117.64
10	10	32.35	25.02	21.18	17.59	62.53	246.31	60.47	162.26	240.84	216.65	165.97	53.64	1304.81
11	11	36.74	27.50	21.13	21.41	27.49	192.58	182.25	178.54	323.34	301.14	151.35	56.17	1519.63
12	12	36.09	28.72	23.28	23.62	46.92	183.00	211.24	271.46	266.65	270.07	115.19	44.87	1521.11
13	13	30.45	28.60	22.91	22.39	53.36	98.04	159.28	123.62	513.33	295.33	244.92	57.25	1649.48
14	14	37.56	27.14	22.69	24.51	51.85	126.83	133.67	152.89	148.40	292.52	94.07	47.14	1159.28
15	15	30.48	24.81	17.42	22.46	60.36	105.64	117.23	106.17	144.84	257.72	88.43	72.52	1048.08
16	16	44.72	32.24	21.66	18.82	33.03	73.19	112.71	33.63	217.43	177.51	72.20	46.44	883.57
17	17	31.95	23.79	17.50	14.50	27.18	154.72	65.76	30.77	199.25	283.77	139.41	66.60	1055.20
18	18	44.96	34.20	25.97	23.22	66.46	13.58	136.38	117.47	265.76	220.82	148.89	82.72	1180.44
19	19	51.10	38.83	26.97	27.31	21.69	181.79	132.63	103.53	313.62	231.97	103.45	70.79	1303.67
20	20	45.00	35.92	25.97	31.30	47.52	166.45	49.79	45.76	88.62	145.49	67.97	64.38	814.18
21	21	43.83	35.28	23.77	31.64	53.87	235.75	166.55	350.52	410.08	310.87	212.57	38.97	1913.70
22	22	28.88	22.60	19.35	14.95	23.98	192.53	86.53	92.41	156.31	113.83	3.23	39.33	793.93
23	23	28.35	22.19	11.71	9.78	42.32	257.90	58.98	81.62	91.79	168.60	118.35	63.52	955.09
24	24	38.26	31.15	21.75	17.60	40.34	305.46	209.47	247.02	311.87	258.48	184.14	48.09	1713.64
25	25	31.41	28.04	24.78	28.49	53.18	30.25	32.49	14.12	208.04	274.00	171.15	57.50	953.43
26	26	40.67	30.41	23.33	28.79	67.86	389.57	212.44	283.71	343.92	298.80	141.36	69.85	1930.73
27	27	44.70	33.42	20.87	28.10	22.11	67.68	66.53	78.99	297.55	303.22	137.89	72.13	1173.18
28	28	44.68	32.75	20.75	19.66	33.23	109.46	92.60	138.65	160.59	148.28	65.77	20.65	887.07
29	29	19.81	14.62	13.86	17.75	33.04	174.29	90.78	95.56	234.52	246.61	91.32	44.26	1076.41
30	30	31.88	24.55	19.95	22.52	72.29	118.12	235.77	205.01	215.60	215.37	42.27	45.89	1249.21
31	31	28.25	21.27	18.48	18.88	63.33	443.99	197.87	232.56	255.07	232.02	223.30	57.18	1792.21
32	32	39.35	31.41	25.57	18.33	20.43	83.08	224.74	254.87	296.12	282.46	55.61	52.95	1384.93
33	33	31.62	25.21	17.56	17.52	46.56	43.66	160.47	200.67	257.76	263.37	170.87	41.28	1276.56
34	34	31.04	19.83	20.94	18.69	29.60	103.99	64.16	158.14	156.95	177.76	42.85	37.71	861.67
35	35	30.02	23.61	15.27	15.58	66.98	236.01	191.27	237.89	320.90	380.74	223.12	76.87	1818.27
36	36	46.64	33.68	24.87	22.86	27.49	66.56	81.39	128.50	224.02	294.27	292.57	87.13	1329.99
37	37	53.15	46.86	29.09	28.78	26.51	188.92	181.59	298.51	313.71	252.53	61.48	58.97	1540.09
38	38	34.30	26.30	20.42	15.11	39.27	40.73	39.48	130.07	426.01	493.06	265.08	65.89	1595.72
39	39	38.96	29.20	20.71	19.66	11.22	280.56	89.92	115.35	359.93	263.27	5.53	57.77	1292.10
40	40	36.79	29.81	24.90	32.34	40.92	122.53	120.29	162.93	404.78	348.03	193.59	55.01	1571.92
41	41	40.85	33.16	26.27	17.82	28.38	117.67	111.93	201.29	218.29	339.11	217.22	59.78	1411.79
42	42	38.22	26.70	21.22	16.06	64.18	93.02	101.81	207.12	205.20	295.59	106.47	60.15	1235.73
43	43	39.23	31.93	25.35	26.27	41.07	192.93	164.42	186.16	249.91	294.39	168.81	57.99	1478.45
44	44	38.25	31.78	20.67	21.95	31.85	424.67	223.64	148.45	220.40	135.95	67.79	37.29	1402.69
45	45	26.37	23.04	18.41	17.02	28.92	224.54	104.63	105.10	279.18	283.29	206.15	58.55	1375.19
46	46	41.17	35.30	25.18	21.21	67.45	102.25	82.37	66.68	150.99	177.90	42.41	25.37	838.29
47	47	24.16	23.47	20.64	27.34	13.99	371.58	94.44	200.63	283.29	289.64	238.09	61.03	1648.30
48	48	41.78	37.83	24.05	22.11	50.53	271.32	198.63	205.59	236.20	199.87	83.55	59.46	1430.92
49	49	40.17	38.06	22.32	25.56	36.67	129.18	134.65	192.04	376.03	373.22	140.84	48.10	1556.83
50	50	34.55	28.69	22.63	21.67	58.00	194.46	152.36	217.04	487.88	364.57	224.29	92.22	1898.34
TOTAL		1841.54	1479.36	1093.29	1107.35	2062.09	8527.61	6336.79	7850.02	13098.58	12855.16	6612.44	2818.39	65682.81
AVE		36.83	29.59	21.87	22.15	41.24	170.55	126.74	157.00	261.97	257.10	132.25	56.37	1313.66
MAX		53.15	46.86	29.09	32.34	72.29	443.99	235.77	350.52	513.33	493.06	292.57	92.22	1930.73
MIN		19.81	14.62	11.71	9.78	8.49	13.58	32.49	14.12	88.62	113.83	3.23	20.65	793.93

* MONTHLY OUTFLOW (M3/S) * CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	102.00	130.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	175.00	175.00	102.00	1510.00
2	2	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	102.00	102.00	1308.00
3	3	120.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	155.00	130.00	102.00	1435.00
4	4	130.00	130.00	130.00	130.00	102.00	130.00	130.00	130.00	155.00	175.00	123.36	102.00	1567.36
5	5	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
6	6	102.00	102.00	40.09	26.49	28.32	90.96	102.00	102.00	102.00	102.00	102.00	102.00	1001.87
7	7	102.00	102.00	102.00	28.88	35.89	45.12	55.59	102.00	102.00	102.00	102.00	102.00	981.47
8	8	102.00	102.00	102.00	102.00	99.37	102.00	75.23	85.68	102.00	102.00	102.00	102.00	1178.28
9	9	102.00	102.00	89.87	23.82	34.49	102.00	80.88	102.00	102.00	102.00	102.00	102.00	1045.05
10	10	102.00	102.00	102.00	51.98	62.53	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1134.51
11	11	102.00	102.00	102.00	102.00	102.00	110.00	102.00	130.00	130.00	130.00	155.00	102.00	1369.00
12	12	130.00	102.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	175.00	130.00	130.00	1577.00
13	13	130.00	130.00	130.00	130.00	102.00	130.00	130.00	130.00	130.00	180.00	165.85	102.00	1589.85
14	14	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
15	15	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
16	16	102.00	102.00	102.00	102.00	102.00	79.97	102.00	44.33	102.00	102.00	102.00	102.00	1144.30
17	17	102.00	60.07	17.50	14.50	27.18	102.00	102.00	45.55	102.00	102.00	102.00	102.00	878.80
18	18	102.00	102.00	102.00	102.00	72.61	13.58	102.00	102.00	102.00	102.00	102.00	102.00	1106.18
19	19	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
20	20	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
21	21	74.13	35.28	23.77	31.64	53.87	130.00	170.00	190.00	180.00	190.00	189.39	102.00	1370.08
22	22	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
23	23	102.00	97.05	11.71	9.78	42.32	102.00	102.00	102.00	102.00	102.00	102.00	102.00	976.86
24	24	102.00	95.12	21.75	17.60	40.34	130.00	130.00	130.00	130.00	175.00	184.14	102.00	1257.95
25	25	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
26	26	102.00	102.00	102.00	102.00	99.45	170.00	175.00	180.00	180.00	185.00	141.36	102.00	1640.82
27	27	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
28	28	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
29	29	102.00	102.00	69.27	17.75	33.04	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1038.06
30	30	102.00	102.00	102.00	58.62	72.29	102.00	102.00	102.00	102.00	110.00	102.00	102.00	1158.92
31	31	102.00	102.00	102.00	102.00	102.00	130.00	130.00	175.00	175.00	165.00	175.00	102.00	1562.00
32	32	130.00	130.00	130.00	130.00	130.00	130.00	102.00	130.00	130.00	120.00	102.00	102.00	1466.00
33	33	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	104.71	102.00	1226.71
34	34	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
35	35	102.00	102.00	85.52	15.58	66.98	130.00	130.00	175.00	175.00	175.00	175.00	102.00	1434.09
36	36	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	130.00	1364.00
37	37	120.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	160.00	175.00	130.00	120.00	1615.00
38	38	102.00	110.00	102.00	102.00	102.00	102.00	102.00	130.00	175.00	190.00	185.00	102.00	1504.00
39	39	102.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	160.00	102.00	102.00	1394.00
40	40	130.00	130.00	130.00	102.00	110.00	102.00	130.00	130.00	130.00	130.00	155.00	102.00	1481.00
41	41	120.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	155.00	175.00	102.00	1424.00
42	42	110.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1232.00
43	43	130.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	130.00	175.00	155.00	102.00	1490.00
44	44	120.00	102.00	102.00	130.00	102.00	130.00	130.00	160.00	130.00	135.00	102.00	102.00	1445.00
45	45	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	130.00	130.00	142.37	102.00	1320.37
46	46	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	102.00	1224.00
47	47	102.00	102.00	77.48	27.34	13.99	102.00	130.00	130.00	130.00	175.00	180.00	102.00	1271.82
48	48	130.00	102.00	102.00	102.00	102.00	130.00	130.00	130.00	165.00	155.00	102.00	130.00	1480.00
49	49	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	175.00	130.00	1605.00
50	50	130.00	130.00	130.00	130.00	130.00	130.00	170.00	170.00	203.83	175.00	180.00	130.00	1808.83
TOTAL		5404.12	5211.52	4842.96	4423.98	4500.67	5473.62	5662.70	5939.56	6226.83	6601.00	6312.18	5257.99	65857.06
AVE		108.08	104.23	96.86	88.48	90.01	109.47	113.25	118.79	124.54	132.02	126.24	105.16	1317.14
MAX		130.00	130.00	130.00	130.00	130.00	170.00	175.00	190.00	203.83	190.00	189.39	130.00	1808.83
MIN		74.13	35.28	11.71	9.78	13.99	13.58	55.59	44.33	102.00	102.00	102.00	102.00	878.80

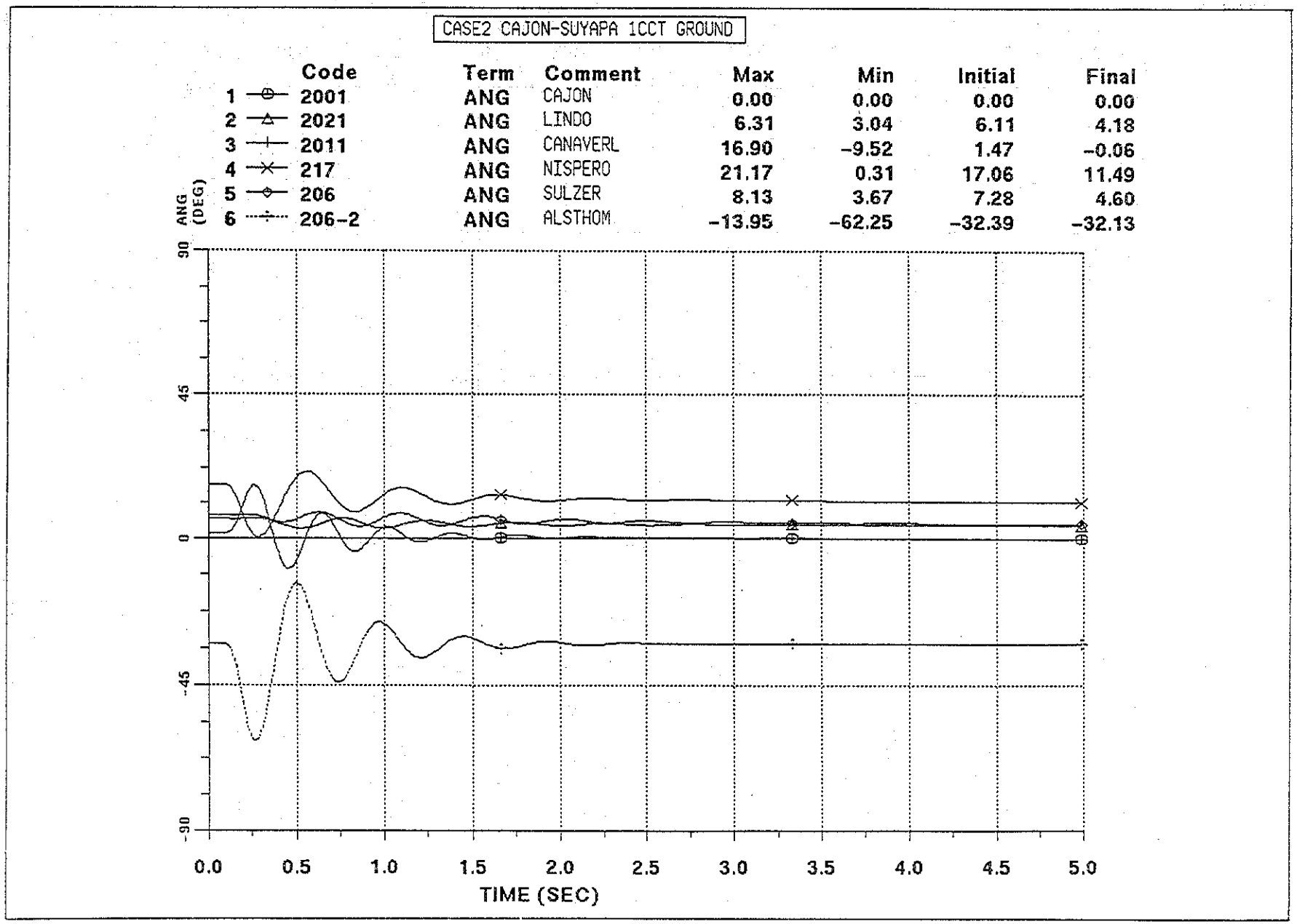
* MONTHLY TOTAL ENERGY (GWH) * **CASE 2 (AVAILABLE DRAWDOWN = 20 m)**

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	103.01	129.01	102.33	97.34	98.64	131.07	135.92	133.82	132.36	194.26	189.99	103.30	1551.06
2	2	102.34	93.73	102.26	97.23	98.78	95.33	100.43	140.31	138.11	140.94	100.21	103.16	1312.84
3	3	129.59	93.03	101.44	96.55	98.49	132.03	137.90	138.44	137.48	171.89	137.14	102.94	1476.92
4	4	142.89	126.53	136.91	129.18	95.37	128.45	137.15	139.99	166.26	195.94	126.65	103.19	1628.51
5	5	104.54	93.02	101.32	96.40	98.07	93.46	95.59	96.05	93.63	97.63	95.00	97.09	1161.80
6	6	95.48	87.39	37.38	23.97	26.46	81.01	95.88	96.41	92.14	98.57	96.14	98.00	928.85
7	7	96.74	86.02	96.57	26.13	33.43	40.53	51.39	95.63	92.21	99.32	97.64	100.58	916.19
8	8	99.38	88.47	96.35	94.32	94.04	92.41	68.69	78.29	93.49	96.43	94.54	97.01	1093.40
9	9	96.06	88.17	83.60	21.57	32.15	92.57	74.01	95.82	94.07	96.96	96.00	99.13	970.10
10	10	97.64	86.71	97.17	46.76	57.66	93.94	95.28	95.50	94.64	100.65	99.31	102.77	1068.04
11	11	101.52	90.35	98.33	93.35	97.60	103.72	96.62	134.53	133.73	143.59	167.14	103.22	1363.68
12	12	143.29	92.83	138.27	130.64	132.00	127.24	133.64	137.14	136.77	196.06	137.13	140.26	1645.29
13	13	141.69	125.37	135.71	128.05	97.66	127.53	131.76	132.11	130.27	199.73	175.59	103.36	1628.84
14	14	102.30	93.56	101.97	97.01	98.82	95.35	99.16	100.10	97.92	103.74	99.64	102.35	1191.92
15	15	103.70	92.27	100.43	95.41	97.21	93.64	96.99	97.21	94.59	99.99	98.34	101.14	1170.94
16	16	100.16	89.23	97.12	92.13	96.43	70.74	95.60	41.22	93.64	96.01	93.46	95.56	1061.29
17	17	97.04	50.28	16.42	13.18	25.40	92.97	96.24	42.36	93.45	96.82	96.19	99.40	819.75
18	18	98.34	87.57	95.31	93.39	66.74	12.35	95.88	96.46	92.42	98.78	97.41	100.95	1035.58
19	19	100.16	89.35	97.39	92.56	96.81	93.65	95.07	95.46	94.70	101.69	99.83	102.83	1159.51
20	20	101.85	90.82	99.01	94.19	95.87	92.87	96.09	94.78	93.83	97.30	94.28	96.62	1147.51
21	21	68.30	29.69	22.25	28.58	49.84	127.40	174.32	197.70	189.03	212.52	204.75	103.18	1407.56
22	22	104.52	92.99	101.24	96.15	97.48	94.44	98.44	98.15	95.46	99.39	95.24	96.56	1170.06
23	23	94.92	83.53	11.01	8.91	39.33	94.06	95.53	94.76	94.24	95.08	92.98	95.81	900.16
24	24	97.54	78.64	20.38	15.98	37.52	128.37	133.57	136.68	136.59	196.45	200.29	103.27	1285.27
25	25	102.06	93.27	101.67	96.78	98.64	94.12	95.61	96.72	93.76	97.15	96.72	100.20	1166.70
26	26	98.99	88.09	95.82	93.89	93.91	168.82	185.21	192.83	191.26	205.47	147.14	103.48	1664.93
27	27	102.61	94.00	102.51	97.57	99.10	94.64	96.99	96.30	95.05	102.62	99.17	102.53	1183.08
28	28	104.32	93.05	101.43	96.41	97.91	94.06	97.17	97.49	95.39	99.75	96.66	98.54	1172.17
29	29	96.63	88.21	64.14	16.12	30.81	93.18	96.97	96.77	92.13	98.43	96.76	99.21	969.34
30	30	97.73	86.77	97.23	52.61	66.41	92.57	97.36	97.22	96.47	112.11	99.32	101.37	1097.18
31	31	99.91	88.72	96.39	94.25	96.03	127.46	137.76	191.40	187.45	183.82	190.77	103.35	1597.30
32	32	143.57	127.26	137.94	130.26	131.07	127.55	97.63	133.83	133.85	129.38	99.62	104.71	1496.67
33	33	103.42	92.02	100.16	95.09	96.65	92.24	95.34	97.20	96.84	103.53	101.94	103.21	1177.62
34	34	104.59	93.05	101.31	96.27	97.72	93.77	96.47	96.68	94.81	99.45	96.45	98.27	1168.82
35	35	96.67	85.76	78.81	14.16	61.66	127.40	131.08	183.88	181.53	193.59	190.60	103.45	1448.59
36	36	102.67	94.08	102.65	97.69	99.23	94.82	97.34	133.08	130.17	138.48	138.70	140.86	1369.76
37	37	129.60	127.63	138.63	131.16	132.30	127.31	133.32	136.78	170.42	196.44	136.44	129.48	1689.51
38	38	103.12	100.70	99.77	94.71	96.13	94.48	96.23	130.12	175.20	206.63	199.55	103.44	1500.07
39	39	102.47	93.76	102.20	97.17	98.46	131.45	137.51	136.66	135.29	175.63	99.56	104.17	1414.33
40	40	140.77	124.61	134.89	93.27	107.22	94.01	132.46	132.81	130.06	141.90	166.70	103.34	1502.04
41	41	129.85	93.28	101.76	96.77	98.22	94.39	97.83	135.41	133.41	170.03	190.44	103.15	1444.53
42	42	115.00	93.22	101.57	96.51	98.34	94.64	97.70	98.90	97.96	104.41	100.37	103.35	1201.96
43	43	143.60	93.10	101.53	96.63	98.31	130.42	136.28	137.69	135.79	196.06	166.80	103.20	1539.41
44	44	129.66	93.11	101.48	131.85	97.37	132.37	142.64	178.73	136.24	146.48	100.14	102.52	1492.59
45	45	103.74	92.25	100.41	95.33	96.69	94.09	98.65	98.72	133.17	142.13	147.06	103.37	1305.62
46	46	102.36	93.73	102.27	97.30	99.27	95.69	98.65	98.02	94.99	99.57	96.56	98.24	1176.64
47	47	96.42	88.15	71.23	24.73	13.15	92.40	134.65	135.20	143.22	195.00	195.31	103.39	1292.85
48	48	143.72	93.25	101.75	96.78	98.54	132.01	139.60	141.78	177.95	172.11	100.28	140.50	1538.28
49	49	142.30	126.18	136.76	129.14	130.26	127.73	132.04	133.05	130.35	142.11	190.44	143.58	1663.95
50	50	140.94	124.73	134.97	127.30	131.90	127.50	173.36	173.94	207.59	194.06	195.45	141.40	1873.14
TOTAL		5499.68	4720.55	4799.43	4198.73	4327.08	5204.21	5606.98	5990.09	6201.32	6976.11	6423.80	5293.97	65242.11
AVE		109.99	94.41	95.99	83.97	86.54	104.08	112.14	119.80	124.03	139.52	128.48	105.88	1304.84
MAX		143.72	129.01	138.63	131.85	132.30	168.82	185.21	197.70	207.59	212.52	204.75	143.58	1873.14
MIN		68.30	29.69	11.01	8.91	13.15	12.35	51.39	41.22	92.13	95.08	92.98	95.56	819.75

* MONTHLY PEAK POWER (MW) * CASE 2 (AVAILABLE DRAWDOWN = 20 m)

NO.	YEAR	< JAN >	< FEB >	< MAR >	< APR >	< MAY >	< JUN >	< JUL >	< AUG >	< SEP >	< OCT >	< NOV >	< DEC >	<TOTAL>
1	1	138.46	191.99	137.54	135.19	132.59	182.04	182.69	179.87	183.83	261.11	263.87	138.84	2128.01
2	2	137.56	139.48	137.44	135.05	132.77	132.41	134.98	188.59	191.81	189.44	139.18	138.66	1797.38
3	3	174.19	138.44	136.35	134.10	132.38	183.37	185.35	186.07	190.94	231.03	190.47	138.36	2021.06
4	4	192.06	188.29	184.02	179.41	128.19	178.40	184.34	188.15	230.92	263.36	175.90	138.70	2231.75
5	5	140.51	138.43	136.19	133.89	131.81	129.80	128.48	129.10	130.04	131.22	131.95	130.50	1591.92
6	6	128.33	130.05	50.24	33.30	35.57	112.51	128.87	129.58	127.97	132.49	133.53	131.72	1274.17
7	7	130.03	128.00	129.80	36.30	44.94	56.29	69.08	128.54	128.06	133.50	135.60	135.19	1255.32
8	8	133.57	131.65	129.50	130.99	126.39	128.35	92.33	105.23	129.85	129.61	131.30	130.39	1499.16
9	9	129.11	131.21	112.36	29.96	43.21	128.56	99.47	128.80	130.65	130.32	133.33	133.23	1330.23
10	10	131.24	129.03	130.61	64.95	77.50	130.47	128.06	128.36	131.44	135.29	137.93	138.13	1463.02
11	11	136.45	134.45	132.16	129.66	131.18	144.05	129.86	180.82	185.73	192.99	232.14	138.73	1868.23
12	12	192.60	138.15	185.85	181.44	177.42	176.73	179.62	184.33	189.96	263.53	190.46	188.53	2248.61
13	13	190.45	186.56	182.41	177.85	131.26	177.13	177.09	177.57	180.93	268.46	243.88	138.93	2232.51
14	14	137.50	139.22	137.06	134.74	132.83	132.42	133.29	134.55	136.00	139.43	138.39	137.57	1632.99
15	15	139.38	137.31	134.99	132.51	130.66	130.06	130.36	130.67	131.38	134.40	136.58	135.94	1604.25
16	16	134.63	132.78	130.54	127.95	129.61	98.25	128.50	55.40	130.05	129.04	129.80	128.44	1455.00
17	17	130.43	74.82	22.07	18.31	34.15	129.13	129.36	56.93	129.79	130.14	133.59	133.61	1122.31
18	18	132.17	130.31	128.10	129.71	89.70	17.15	128.87	129.65	128.36	132.77	135.29	135.69	1417.77
19	19	134.62	132.97	130.90	128.55	130.12	130.08	127.78	128.30	131.53	136.69	138.65	138.21	1588.41
20	20	136.90	135.15	133.07	130.82	128.86	128.99	129.15	127.39	130.32	130.78	130.95	129.86	1572.25
21	21	91.80	44.19	29.91	39.69	66.98	176.94	234.30	265.73	262.55	285.65	284.38	138.69	1920.78
22	22	140.48	138.37	136.08	133.55	131.02	131.17	132.31	131.92	132.59	133.58	132.28	129.79	1603.14
23	23	127.59	124.30	14.80	12.37	52.86	130.64	128.40	127.37	130.89	127.80	129.14	128.77	1234.92
24	24	131.10	117.02	27.39	22.19	50.43	178.29	179.53	183.71	189.71	264.05	278.18	138.81	1760.40
25	25	137.17	138.79	136.66	134.42	132.58	130.73	128.51	130.00	130.23	130.58	134.33	134.67	1598.66
26	26	133.05	131.08	128.80	130.41	126.23	234.47	248.94	259.18	265.64	276.17	204.37	139.09	2277.43
27	27	137.92	139.88	137.78	135.51	133.20	131.45	130.36	129.43	132.01	137.93	137.74	137.80	1621.01
28	28	140.21	138.47	136.33	133.90	131.60	130.64	130.60	131.03	132.49	134.08	134.25	132.45	1606.04
29	29	129.88	131.26	86.21	22.39	41.41	129.42	130.33	130.06	127.96	132.29	134.39	133.34	1328.94
30	30	131.35	129.13	130.68	73.07	89.26	128.58	130.86	130.68	133.99	150.69	137.95	136.25	1502.48
31	31	134.29	132.03	129.55	130.91	129.08	177.02	185.16	257.25	260.35	247.07	264.95	138.92	2186.56
32	32	192.97	189.37	185.40	180.92	176.17	177.15	131.23	179.88	185.91	173.90	138.37	140.73	2052.00
33	33	139.00	136.94	134.62	132.07	129.91	128.11	128.14	130.65	134.50	139.15	141.58	138.72	1613.38
34	34	140.58	138.47	136.16	133.71	131.34	130.23	129.66	129.95	131.67	133.67	133.96	132.08	1601.48
35	35	129.93	127.63	105.92	19.67	82.87	176.95	176.19	247.15	252.13	260.20	264.72	139.05	1982.40
36	36	138.00	139.99	137.96	135.67	133.37	131.69	130.83	178.87	180.79	186.13	192.64	189.33	1875.29
37	37	174.19	189.93	186.33	182.17	177.82	176.81	179.19	183.84	236.70	264.03	189.50	174.04	2314.56
38	38	138.60	149.86	134.10	131.54	129.21	131.22	129.35	174.89	243.33	277.73	277.15	139.03	2055.99
39	39	137.73	139.53	137.37	134.96	132.34	182.57	184.82	183.68	187.90	236.07	138.28	140.02	1935.25
40	40	189.20	185.44	181.31	129.54	144.11	130.57	178.04	178.51	180.64	190.73	231.53	138.90	2058.51
41	41	174.53	138.81	136.77	134.40	132.01	131.10	131.50	182.00	185.29	228.54	264.50	138.64	1978.08
42	42	154.57	138.72	136.51	134.04	132.18	131.45	131.31	132.93	136.05	140.34	139.40	138.91	1646.41
43	43	193.01	138.54	136.47	134.20	132.13	181.14	183.17	185.07	188.59	263.53	231.67	138.71	2106.24
44	44	174.27	138.55	136.40	183.13	130.87	183.85	191.72	240.23	189.22	196.89	139.08	137.80	2042.01
45	45	139.44	137.28	134.95	132.41	129.97	130.68	132.59	132.68	184.97	191.04	204.26	138.94	1789.20
46	46	137.58	139.47	137.46	135.14	133.43	132.90	132.60	131.74	131.93	133.83	134.11	132.04	1612.23
47	47	129.60	131.18	95.74	34.35	17.67	128.33	180.98	181.73	186.49	262.09	271.26	138.97	1758.38
48	48	193.17	138.77	136.76	134.42	132.44	183.35	187.64	190.56	247.15	231.34	139.28	188.84	2103.72
49	49	191.26	187.77	183.81	179.36	175.08	177.40	177.48	178.83	181.04	191.01	264.51	192.98	2280.54
50	50	189.43	185.61	181.41	176.80	177.28	177.09	233.02	233.80	288.31	260.84	271.46	190.05	2565.10
	TOTAL	7392.03	7024.60	6450.84	5831.54	5815.96	7228.08	7536.26	8051.19	8600.52	9376.49	8921.95	7115.54	89345.06
	AVE	147.84	140.49	129.02	116.63	116.32	144.56	150.73	161.02	172.01	187.53	178.44	142.31	1786.90
	MAX	193.17	191.99	186.33	183.13	177.82	234.47	248.94	265.73	288.31	285.65	284.38	192.98	2565.10
	MIN	91.80	44.19	14.80	12.37	17.67	17.15	69.08	55.40	127.96	127.80	129.14	128.44	1122.31

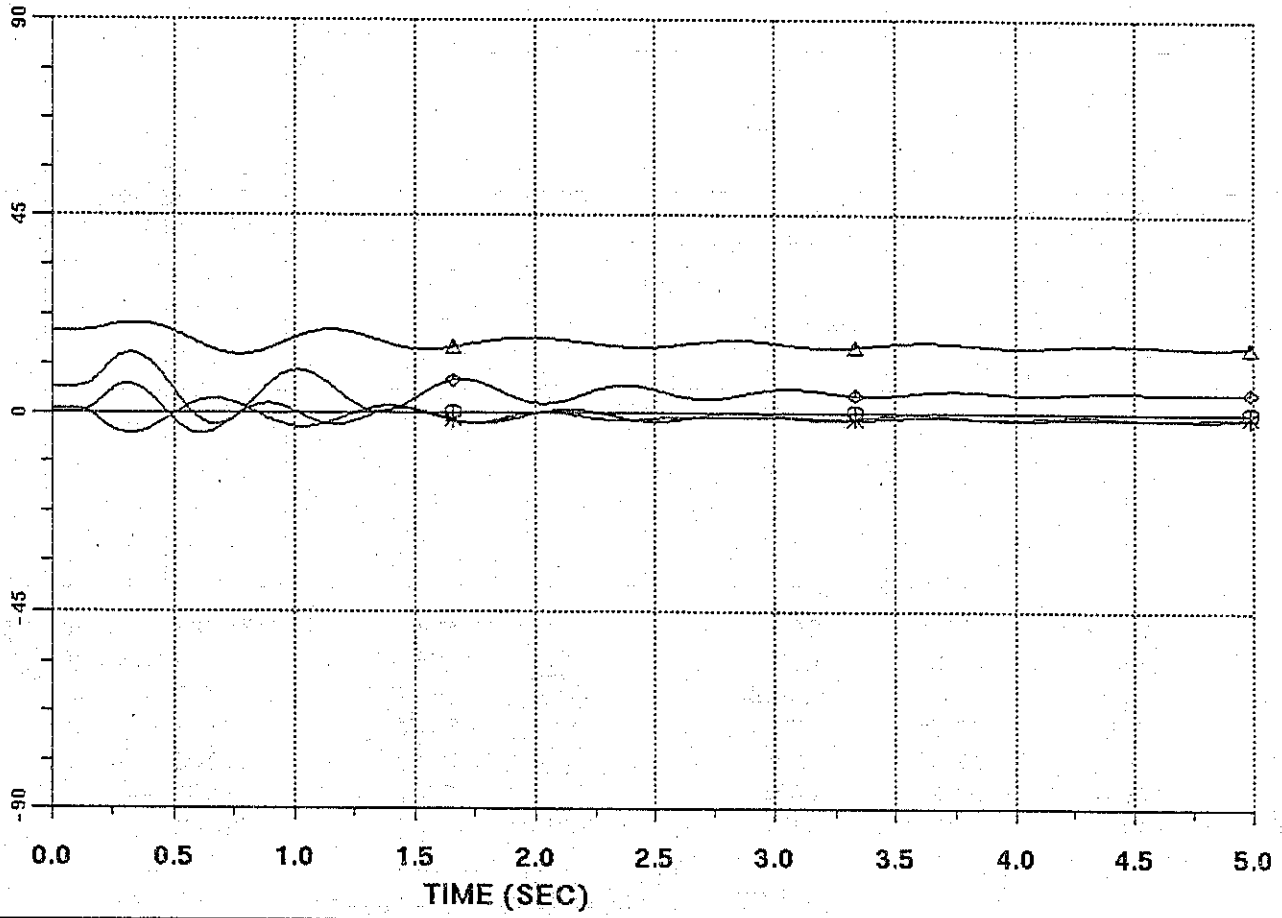
AP-5 POWER TRANSMISSION PLAN AND POWER SYSTEM ANALYSIS



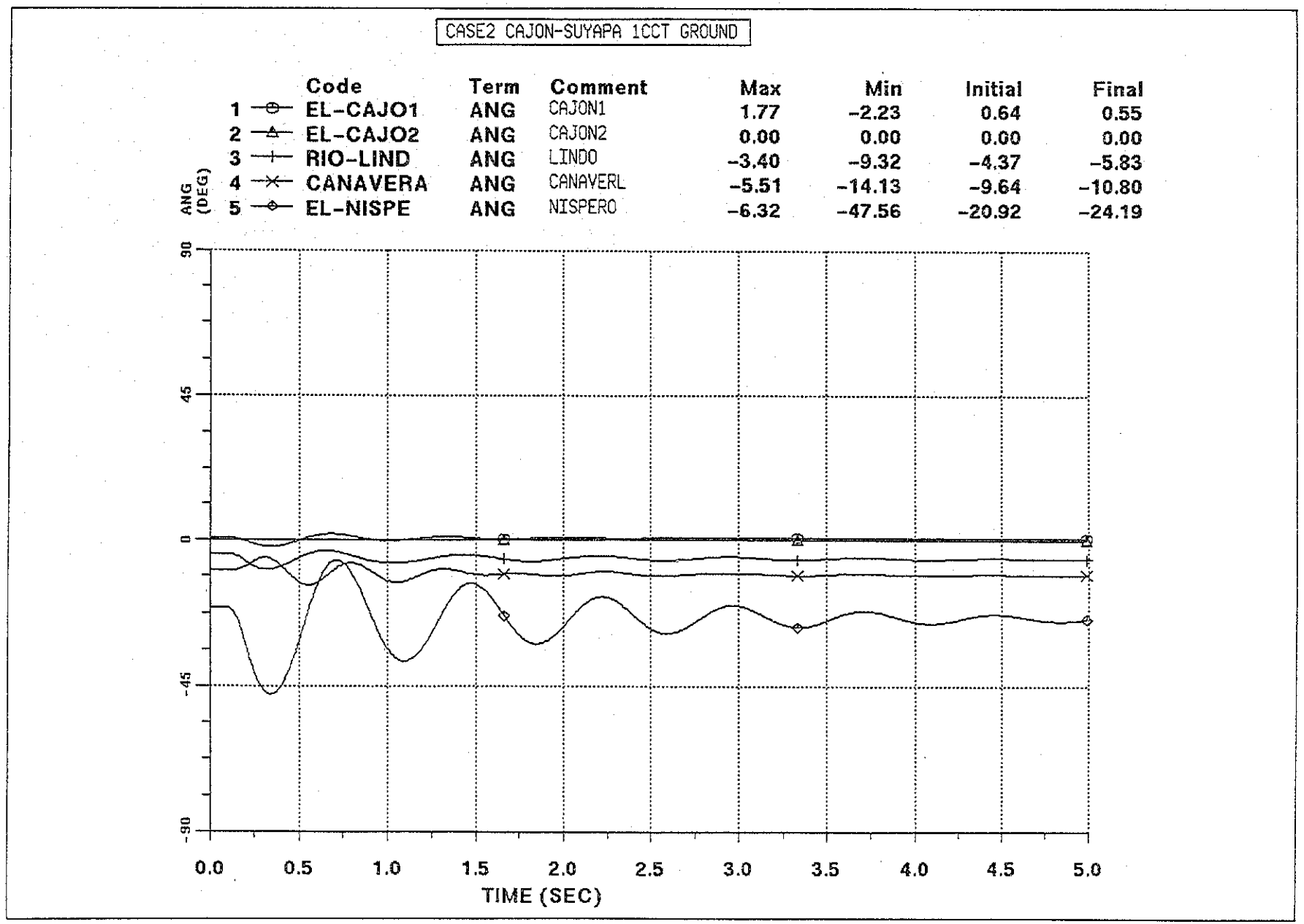
Result of Stability Study (1992)

CASE2 CAJON-SUYAPA 1CCT GROUND

	Code	Term	Comment	Max	Min	Initial	Final
1	EL-CAJO2	ANG	CAJON2	0.00	0.00	0.00	0.00
2	SULZER2	ANG	SULZER2	20.47	13.41	18.80	15.26
3	ALSTHOM	ANG	ALSTHOM	6.71	-4.95	0.25	-1.56
4	LA-CEIBA	ANG	LA-CEIBA	3.23	-4.82	1.01	-1.10
5	PAVANA	ANG	PAVANA	13.85	-2.82	6.09	4.72



Result of Stability Study (2006)



Result of Stability Study (2006)

AP-6 FEASIBILITY DESIGN

4 Units Amplification Version

1. Outline of Civil Structures

The El Cajón Hydroelectric Power Plant started operation in 1985 with the maximum output of 292 MW (73 MW x 4 units) as the first stage of the project. Considering the future amplification (292 MW : 73 MW x 4 units), the water intake, ground for the switchyard, part of the penstock and powerhouse were arranged in advance at the time of the first stage construction.

The amplification project is made for 292 MW (73 MW x 4 units) the same as the original plan and the penstock, powerhouse and tailrace were designed using the channel route (C and D routes) in the original amplification plan.

The outline of civil structures related to the amplification is described below.

Intake (constructed)

Type	:	Inclined type with gate shaft
Number of lines	:	2
Maximum capacity	:	107.20 m^3/sec
Inside diameter	:	4.20 m (Tunnel section)

Penstock (Partly constructed)

Type	:	Underground type
Number of lines	:	Two Four after branch (C and D routes)
Maximum capacity	:	107.20 m^3/sec, 53.60 m^3/sec after branch
Diameter	:	4.20 to 3.00 m

Length	:	(C route) One line part 293.821 m (94.945 m constructed) Two lines part 24.910 m and 37.767 m (D route) One line part 254.831 m (74.612 m constructed) Two lines part 27.216 m and 14.260 m
Plate thickness	:	24 to 51 mm (C route) 24 to 49 mm (D route)
Branch type	:	T type branch

Powerhouse (Partly constructed)

Type	:	Underground type
Width	:	29.50 m
Height	:	41.40 m
Length	:	72.75 m
Turbine type	:	Vertical shaft Francis
Unit number	:	4
Turbine center EL.	:	96.00 m

Tailrace

Type	:	Circular and semi-circular pressure tunnel
Number of lines	:	4
Inside diameter	:	4.20 m (circular section) (Height) 5.10 - 6.35 m x (Width) 5.10 m (semi-circular section)
Length	:	88.00 ~ 91.00 m (circular section: 81.50 m, semi-circular section: 6.50 ~ 9.50 m "without lining")
Gradient	:	1 : 7.913
Maximum capacity	:	53.60 m^3/sec

Tailrace (Service gallery)

Type	:	Semi-circular
Height	:	7.00 m

Width : 3.00 m

Length : 45.00 m

Tailrace (Gate shaft)

Type : Elliptic (vertical shaft)

Sectional dimension : 3.00 x 7.00 m

Height : 24.28 m

Outdoor switchyard site (Constructed)

Width : 39.85 m

Length : 148.50 m

2. Outline of Design (4 Units Amplification Version)

2.1 Design of Penstock

The horizontal and vertical routes for the amplification project was set out at the time of the first stage construction and the intake gate shaft joint to the curved pipe part at the start end of the inclined shaft was already constructed in the first stage work. In designing the amplification, the route, inside diameter, concrete thickness, geology, etc. were studied and the original design was adopted with no change in consideration of economy and workability.

That is, the route D is used as the penstock route for 2 units in the existing powerhouse side and the route C for 2 units in the downstream side. The penstock route is the inclined shaft from the end of the constructed part (from the intake gate shaft joint to the curved pipe part at the start end of the inclined shaft) to the lower horizontal shaft (EL. 961.00 m). It is connected to two turbines by providing the branch pipe in the horizontal shaft part at the end of the penstock. The inclined shaft is 38 degrees in relation to the branch pipe and T type branch pipe is used because the penstock and powerhouse shaft are parallel. As for length of the penstock of the route C, one line part is 293.821 m (94.945 m constructed) and two lines part is 24.910 m and 37.767 m, and as for length of the penstock of the route D, one line part is

254.831 m (74.162 m constructed) and two lines part is 14.162 m and 27.162 m. As for the inside diameter of the penstock, the one line part is 4.20 m and two line part is 3.00 m. The penstock is installed at underground and a void space between penstock and ground is filled with concrete.

The pipe shell material uses SM41 (JIS standards) and pipe thickness was decided by calculating the water hammer pressure. The result is shown in **Fig. 5,6.** The water hammer pressure of the route C at the inlet of the turbine is 44.8% of hydrostatic pressure and that of the route D is 37.7%.

2.2 Design of Powerhouse

The intake and part of the penstock were constructed in the first stage work to make installation of a maximum of four amplification turbines possible. Excavation of the joint to the existing powerhouse (7.50 m) was completed in the first stage work.

The amplification project proposes four turbines and generators and the position of the turbine axis, shape of the cavity, etc. were studied in designing the amplification. As a result, they will be united with the first stage work (73 MW × 4 turbines) as planned originally and will be installed in a column on the downstream side of the existing powerhouse. The cavern section dimension (width 29.50 m, height 41.40 m), turbine center elevation (EL. 96.00 m) and distance of turbine axis (15.00 m) is the same as the first stage work. The length of the amplification of cavern is 72.75 m.

Four Francis turbines with vertical shaft, generators, main transformer room, control board room, cable processing room, overhead crane supports are provided in the cavern.

Because the amplification powerhouse uses the same cavity as the first stage work and the assembly room, overhead crane, drain pit and access tunnel (serving also as cable tunnel) are shared.

2.3 Design of Tailrace

(1) Tailrace tunnel

One tailrace tunnel is constructed for one turbine in the same way as the first stage work. The route is at a right angle to the powerhouse center in the first stage work but amplification routes (two lines) are set 4°30' upstream from the normal direction in consideration of topography of the outlet. The elevation of the starting point is EL.88.20 m the same as the first stage work. The tunnel length is 91.00 m for the most downstream tunnel and 88.00 m for the other 3 tunnels. The gradient of the tunnel rises toward the outlet by 1:7.913.

The circular cross section (with inside diameter of 4.20 m, concrete lined) has been selected for the section of the tailrace tunnel down to 81.50 m from the powerhouse, similarly to the first stage work. The 6.50 m length from the outlet (9.00 m for the most downstream tunnel) has the cross section which is upper half is circular and lower half is rectangular. This reason is that, while it is customary to construct the tailrace by providing the cofferdam, the tailrace in this project is planned to be constructed by starting from the power plant all the way, because the coffering is difficult in this case, and the operation of the existing power plant will have to be shut down for a long period if cofferdam is provided. (The detail is shown in Construction Planning)

(2) Service Gallery

The service gallery is provided for the maintenance work management of the tailrace tunnel and gates, and it will be provided by expanding the existing Santa Barbara Horizontal Shaft (the access tunnel to the service gallery of the first stage work) for the 77.00 m section from the joint made in the first stage work. The cross sectional geometry and dimensions are similar to those of first stage work, and the service gallery will have the cross

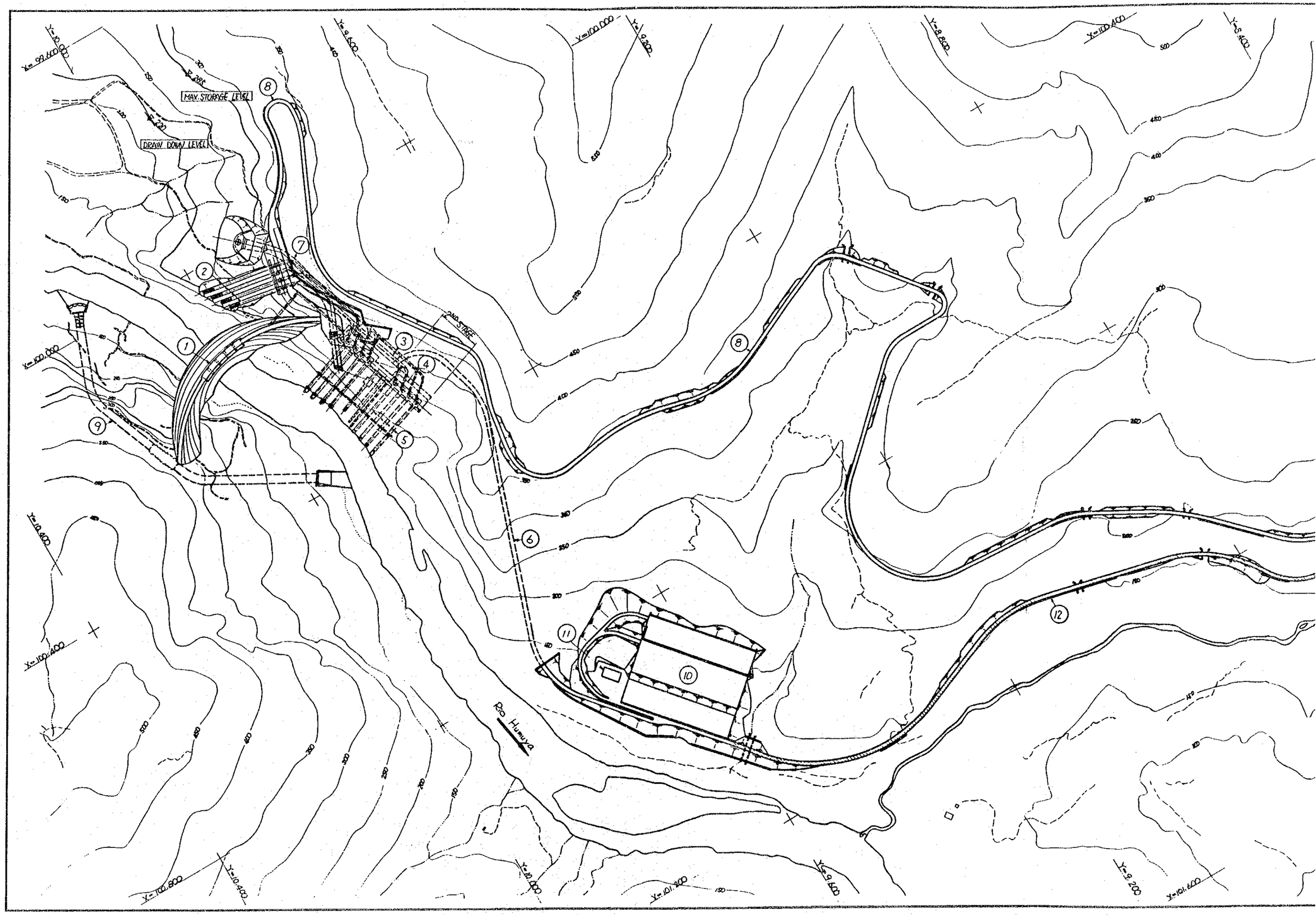
section which upper part is a circular arch and the lower part is rectangular, being 3.00 m wide and 7.00 m high.

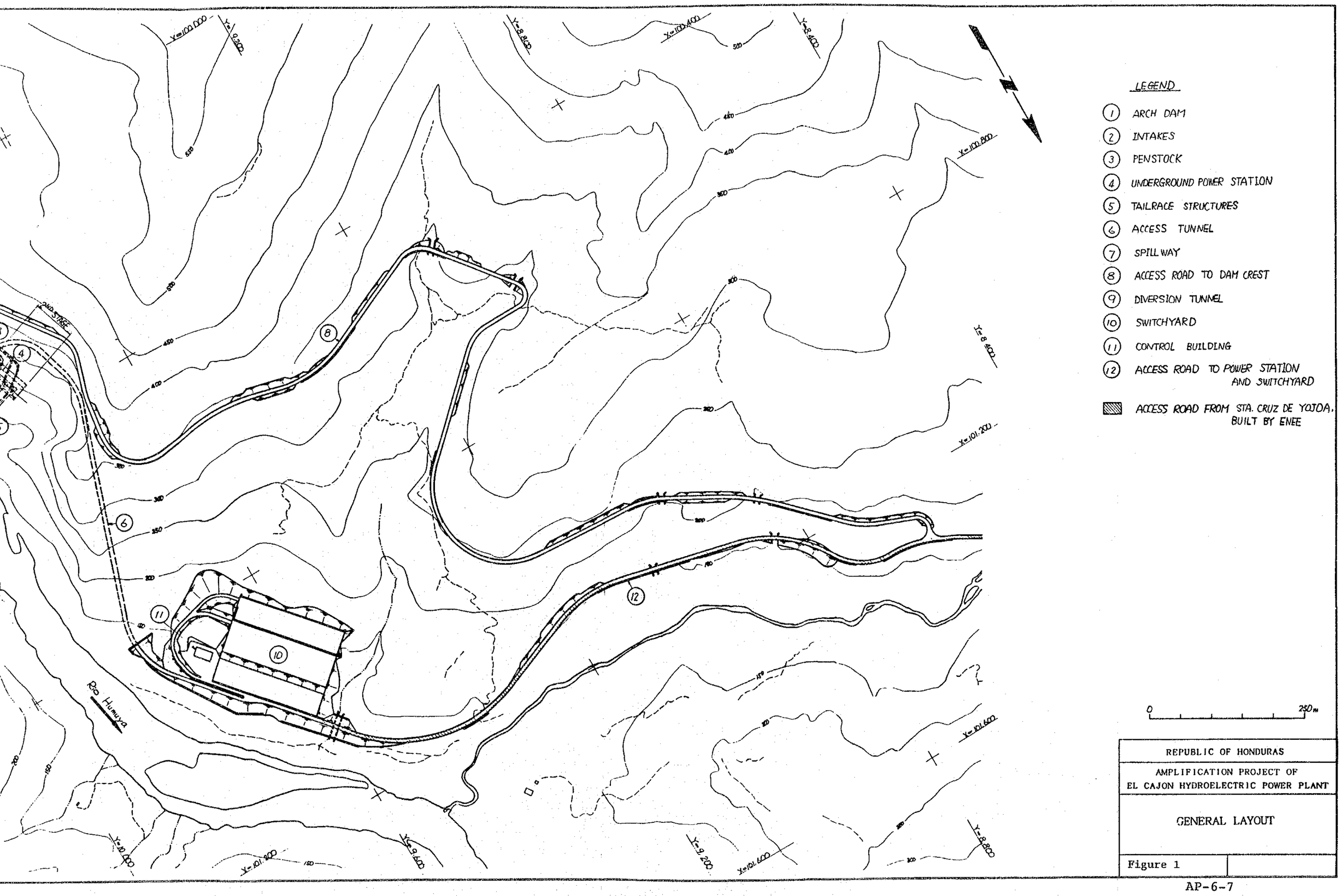
(3) Service Shaft

The service shaft is a vertical shaft used for opening and closing of the tailrace gate, and it is directly connected to the service gallery. The position of the service shaft was selected at a point which is 53.24 m from the starting point of the tailrace tunnel, in view of the relative position of the service gallery. The cross sectional geometry is an ellipse (3.00 m x 7.00 m), similarly to the first stage work and the height is 24.28 m.

(4) Outdoor Switchyard Site

The amplification site (for four turbines) was arranged in the first stage work. The size of the site is 39.85 m wide and 148.50 m long.


MAY. STORAGE LEVEL
DRAW DOWN LEVEL
DAM STAGE
Río Humuya
1
2
3
4
5
6
7
8
9
10
11
12

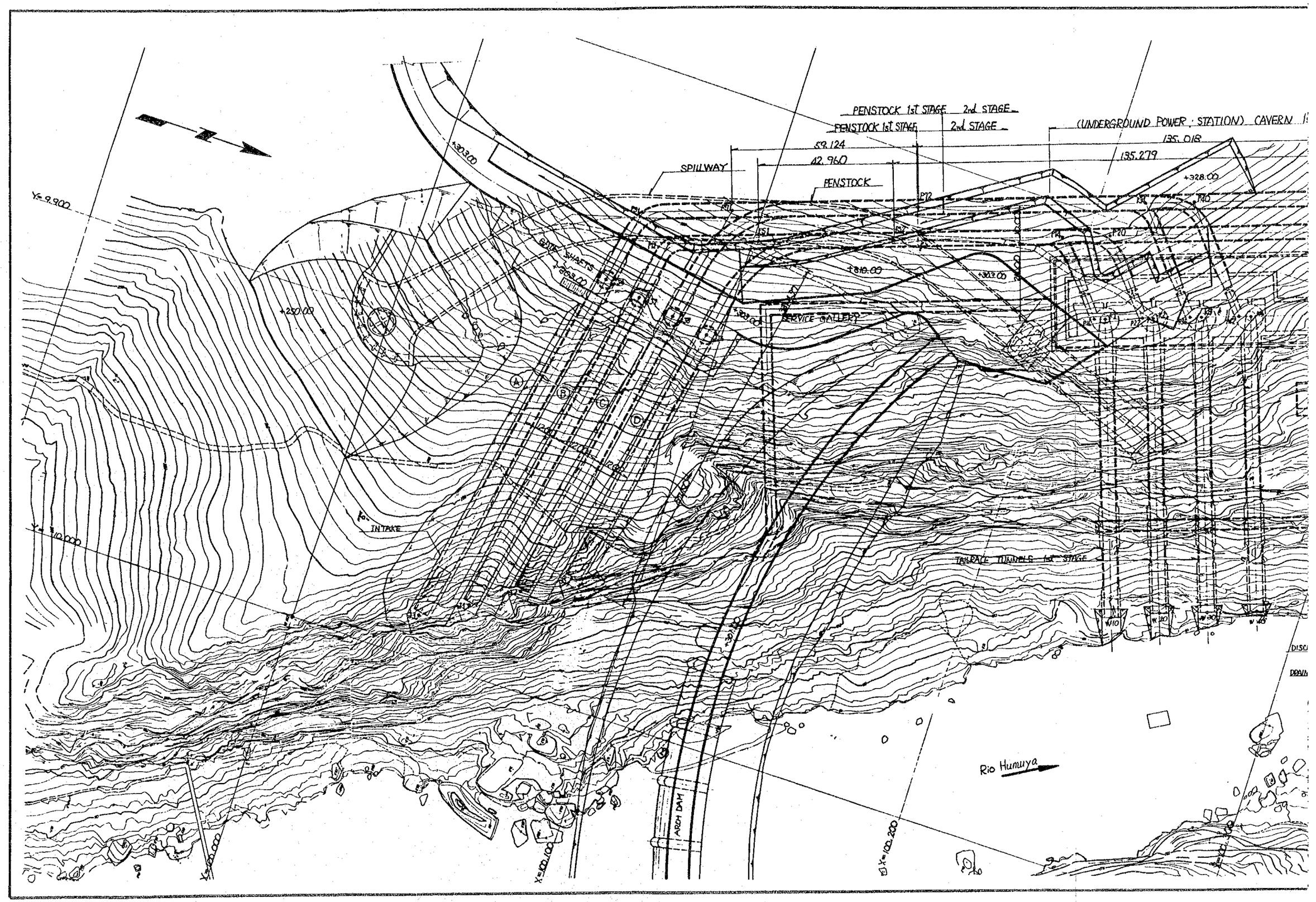


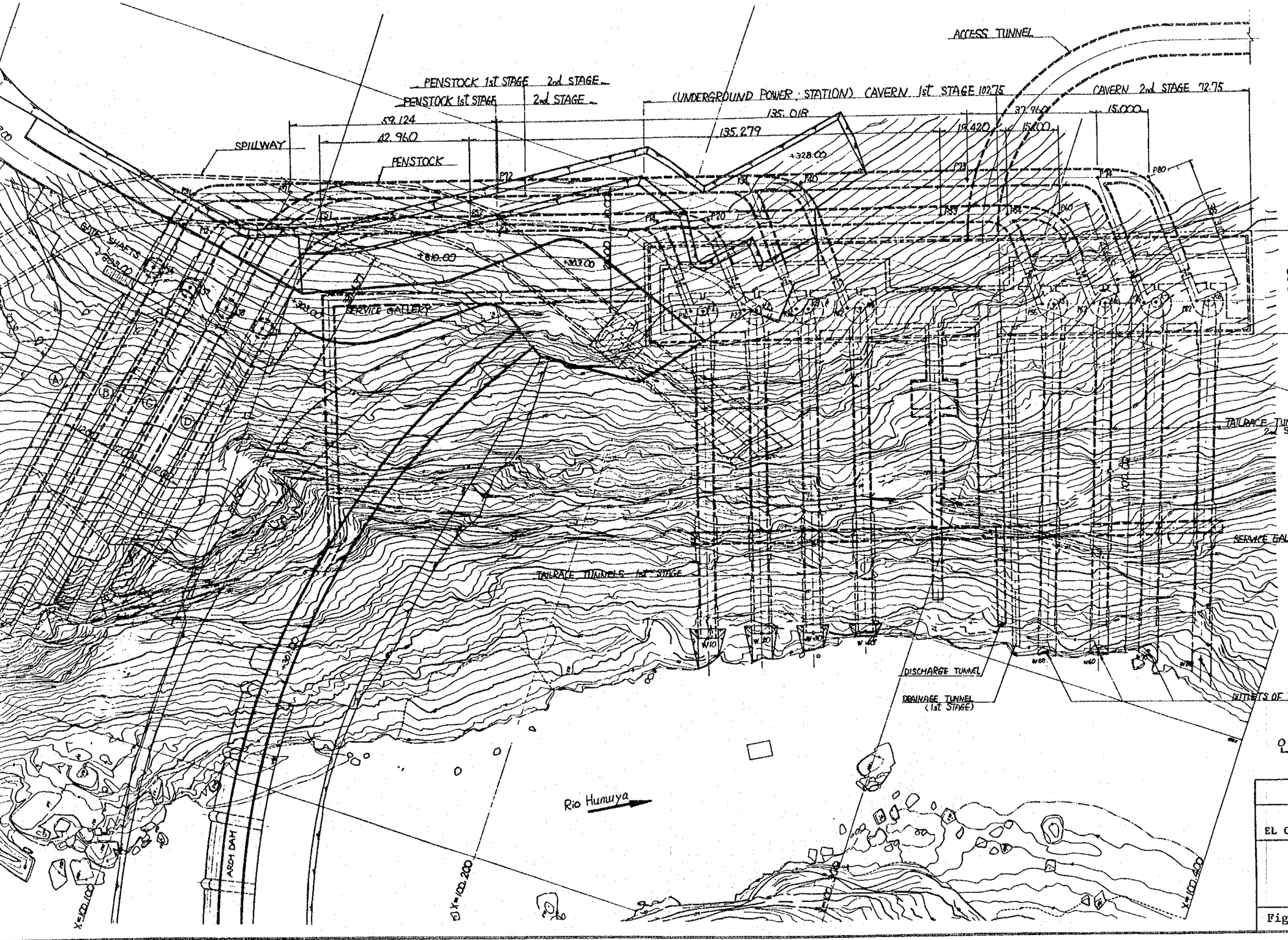
REPUBLIC OF HONDURAS

AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

GENERAL LAYOUT

Figure 1


PENSTOCK 1st STAGE
2nd STAGE
PENSTOCK 1st STAGE
2nd STAGE
(UNDERGROUND POWER STATION) CAVERN
59.124
42.960
135.018
135.279
SPILLWAY
PENSTOCK
+328.00
+310.00
+303.00
+300.00
+250.00
GATE SHAFTS
+283.00
SERVICE GALLERY
INTAKE
TAILRACE TUNNELS 1st STAGE
ARCH DAM
Rio Humuya
Y=9.900
X=100.000
X=100.100
X=100.200



COORDINATES

POINT	X	Y
J5	100,079,289	9,961,080
J6	100,095,461	9,875,087
J7	100,065,462	9,969,673
J8	100,083,667	9,872,869
P51	100,101,641	9,842,226
P52	100,142,174	9,827,991
P53	100,269,811	9,783,168
P54	100,288,134	9,776,733
P56	100,305,677	9,798,128
P60	100,302,287	9,771,763
P62	100,319,830	9,793,158
P71	100,090,701	9,835,469
P72	100,146,485	9,815,879
P73	100,273,876	9,771,142
P74	100,309,672	9,758,564
P16	100,333,982	9,788,188
P80	100,323,845	9,753,594
P82	100,348,135	9,783,218
K5	100,309,030	9,796,951
K6	100,323,183	9,791,981
K7	100,337,335	9,787,010
K8	100,351,488	9,782,040
W50	100,338,852	9,892,401
W60	100,353,005	9,887,431
W70	100,347,157	9,882,460
W80	100,382,206	9,880,353

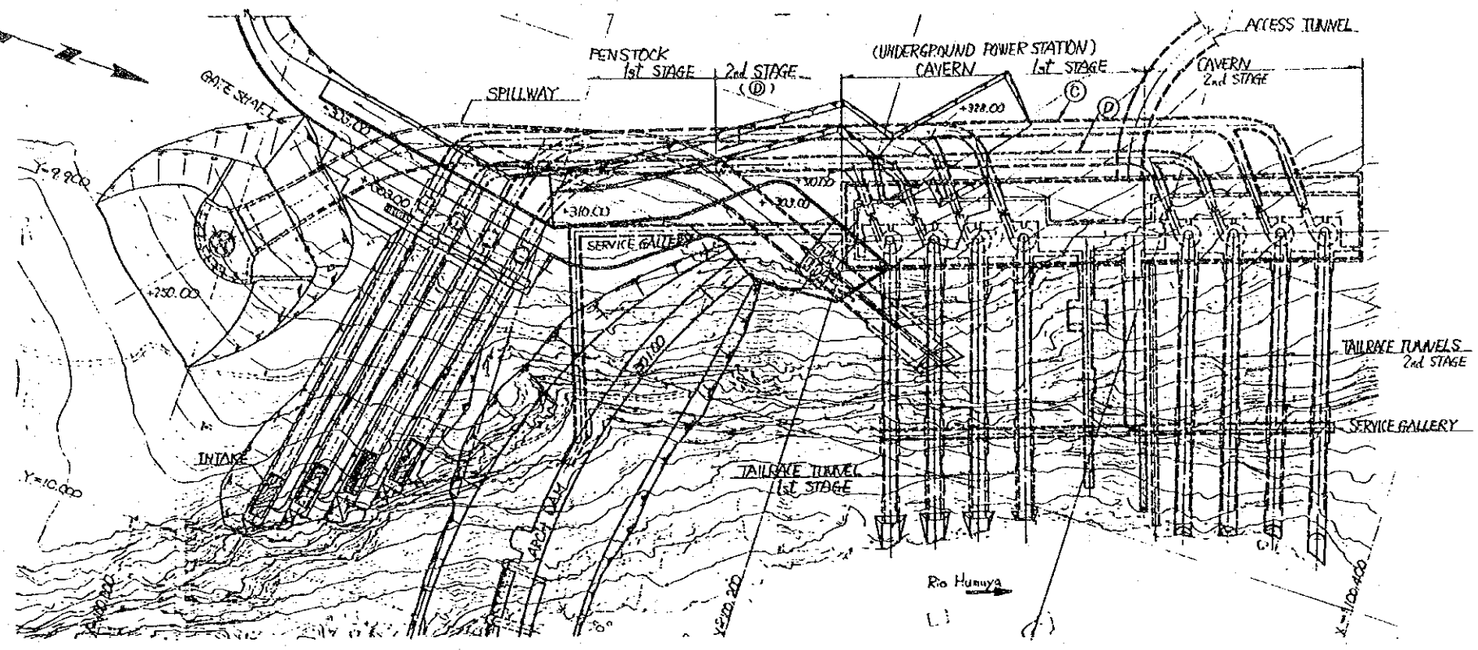
REPUBLIC OF HONDURAS

AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

GENERAL PLAN

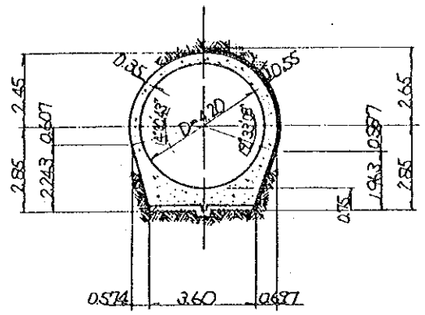
Figure 2

PLAN

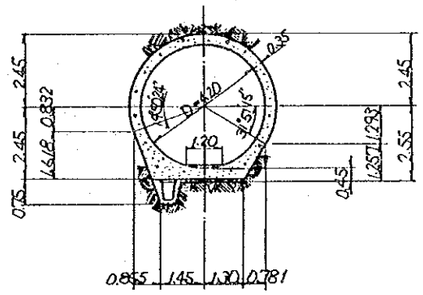


TYPICAL SECTION OF PENSTOCK

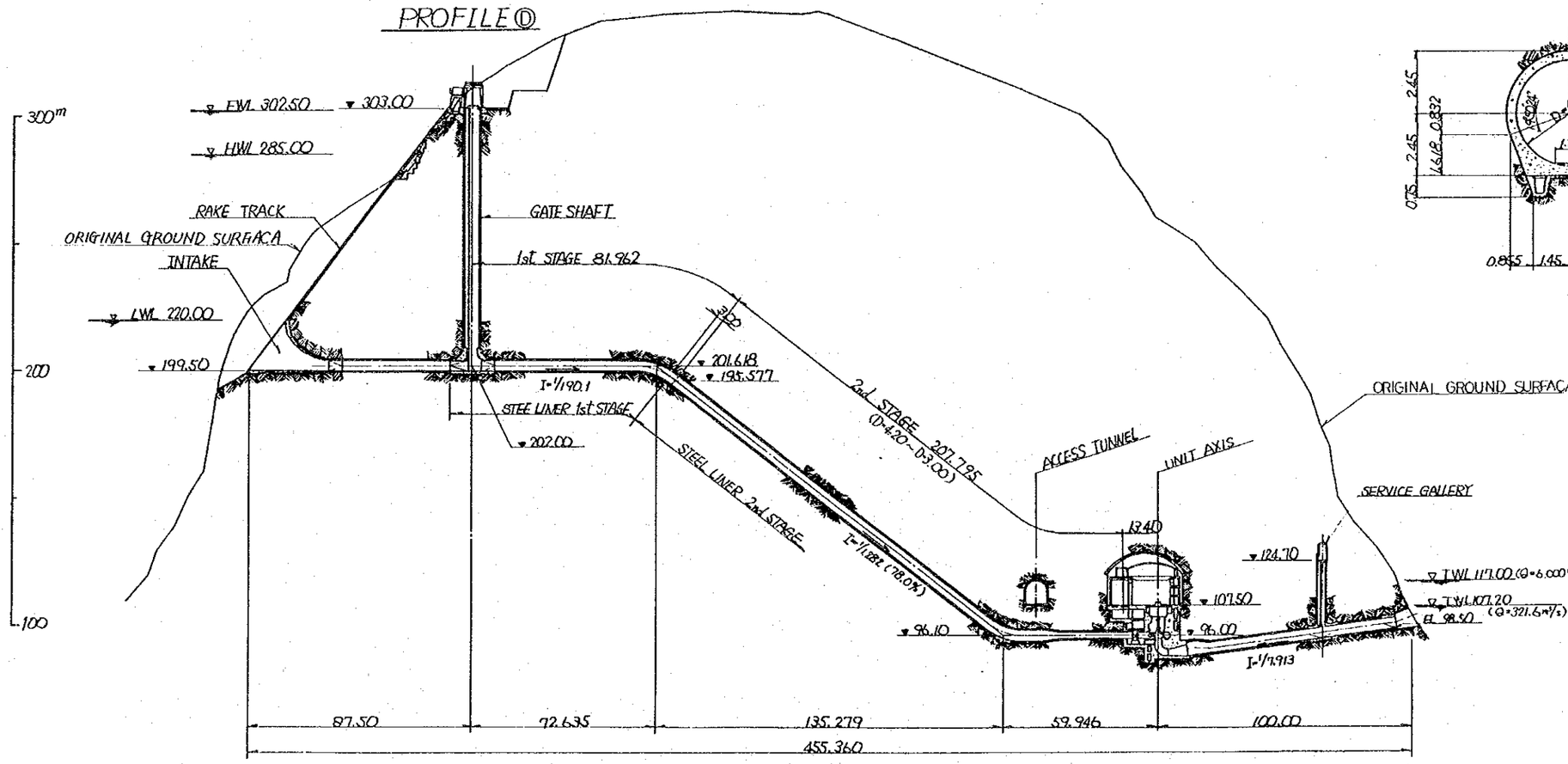
TYPE I TYPE II



TYPICAL SECTION OF TAILRACE TUNNEL



PROFILE Ⓓ



0 100m (PLAN, PROFILE)

0 10m (SECTIONS)

REPUBLIC OF HONDURAS

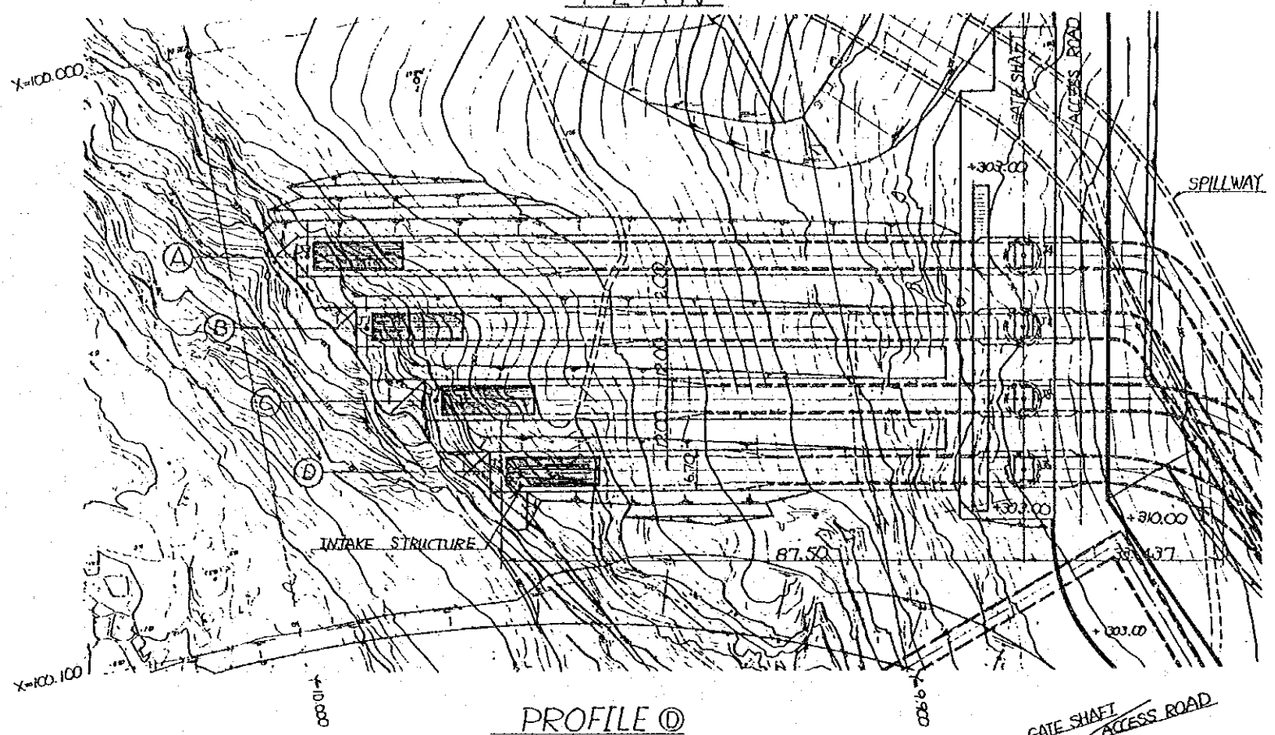
AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

WATER WAY

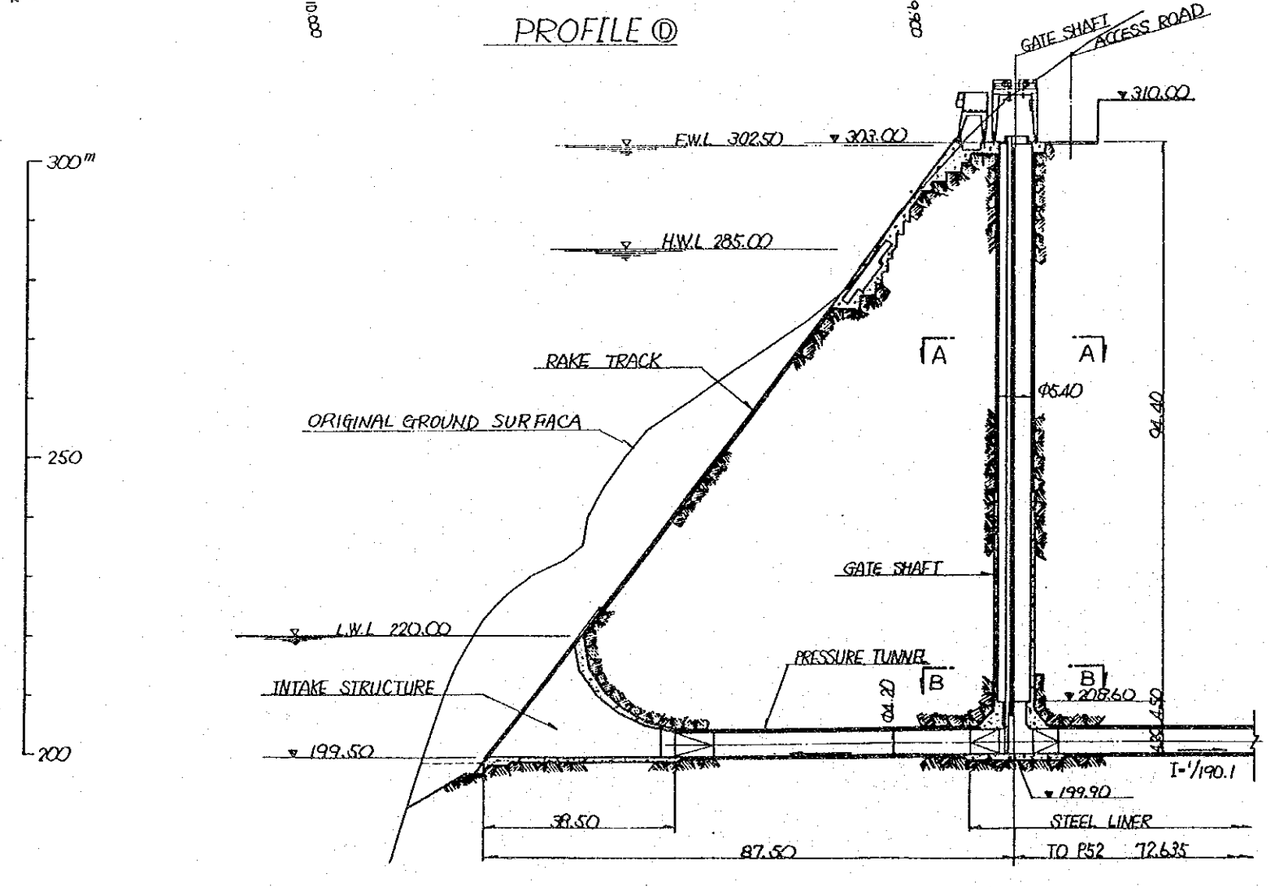
PLAN, PROFILE AND SECTIONS

Figure 3

PLAN



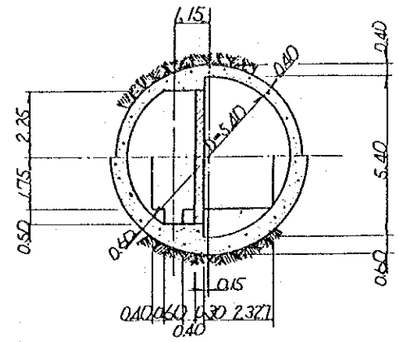
PROFILE ⓓ



GATE SHAFT

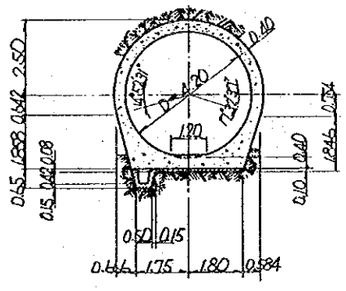
SECTION A-A

SECTION B-B

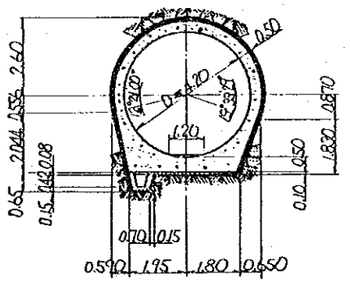


TYPICAL SECTIONS OF PRESSURE TUNNEL

TYPE A



TYPE B



0 50m (PLAN . PROFILE)

0 10m (SECTIONS)

REPUBLIC OF HONDURAS

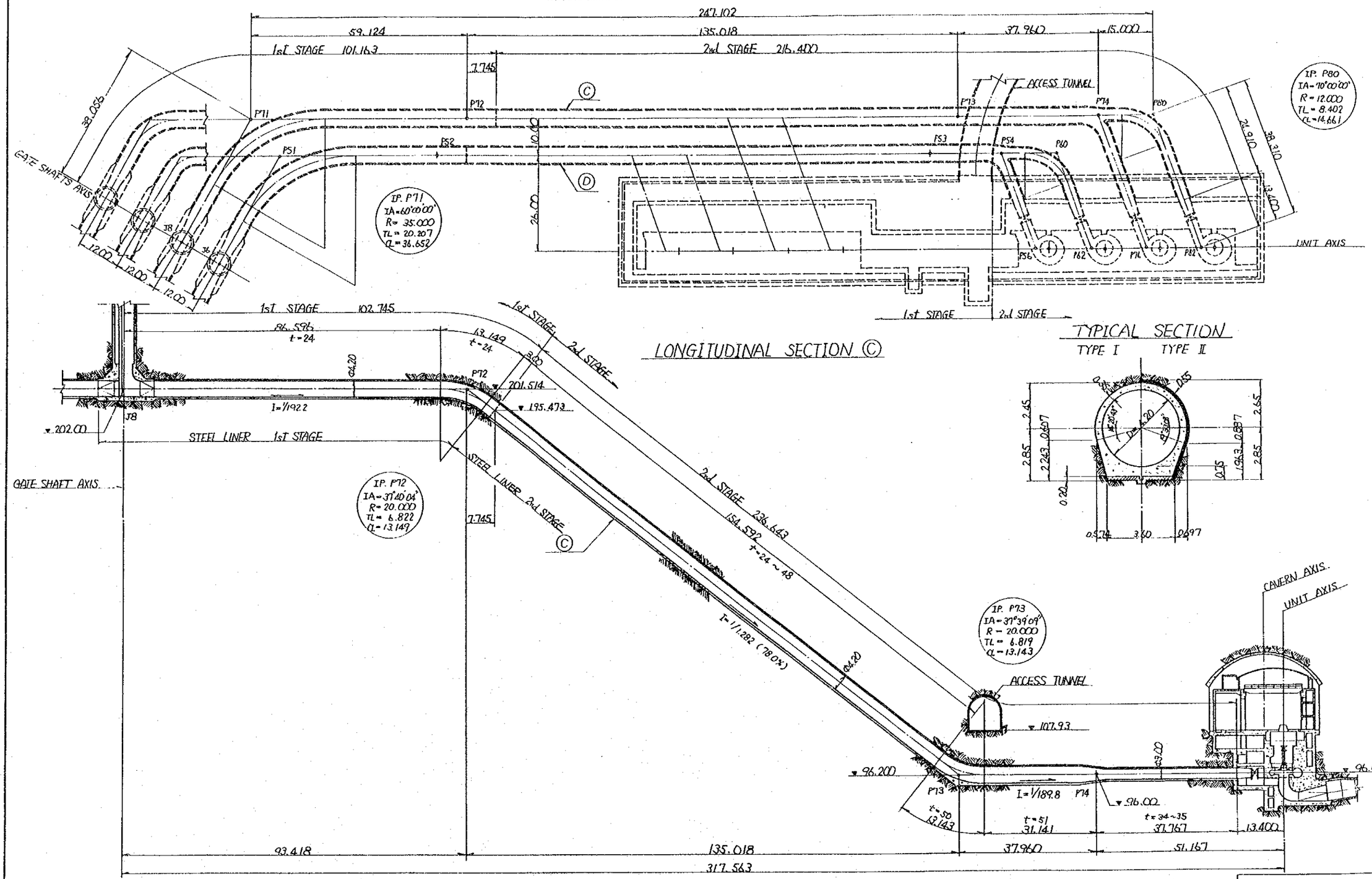
AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

INTAKE

PLAN, PROFILE AND SECTIONS

Figure 4

PLAN



LONGITUDINAL SECTION Ⓒ

TYPICAL SECTION

TYPE I TYPE II

t : PLATE THICKNESS

0 10m (TYPICAL SECTION)

0 50m (PLAN, LONGITUDINAL SECTION)

REPUBLIC OF HONDURAS

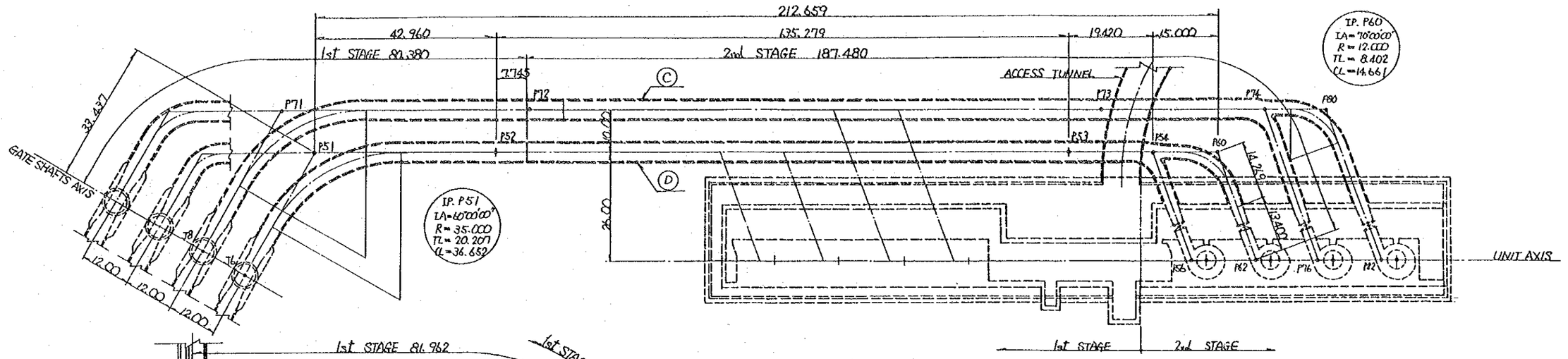
AMPLIFICATION PROJECT OF EL CAJON HYDROELECTRIC POWER PLANT

PENSTOCK

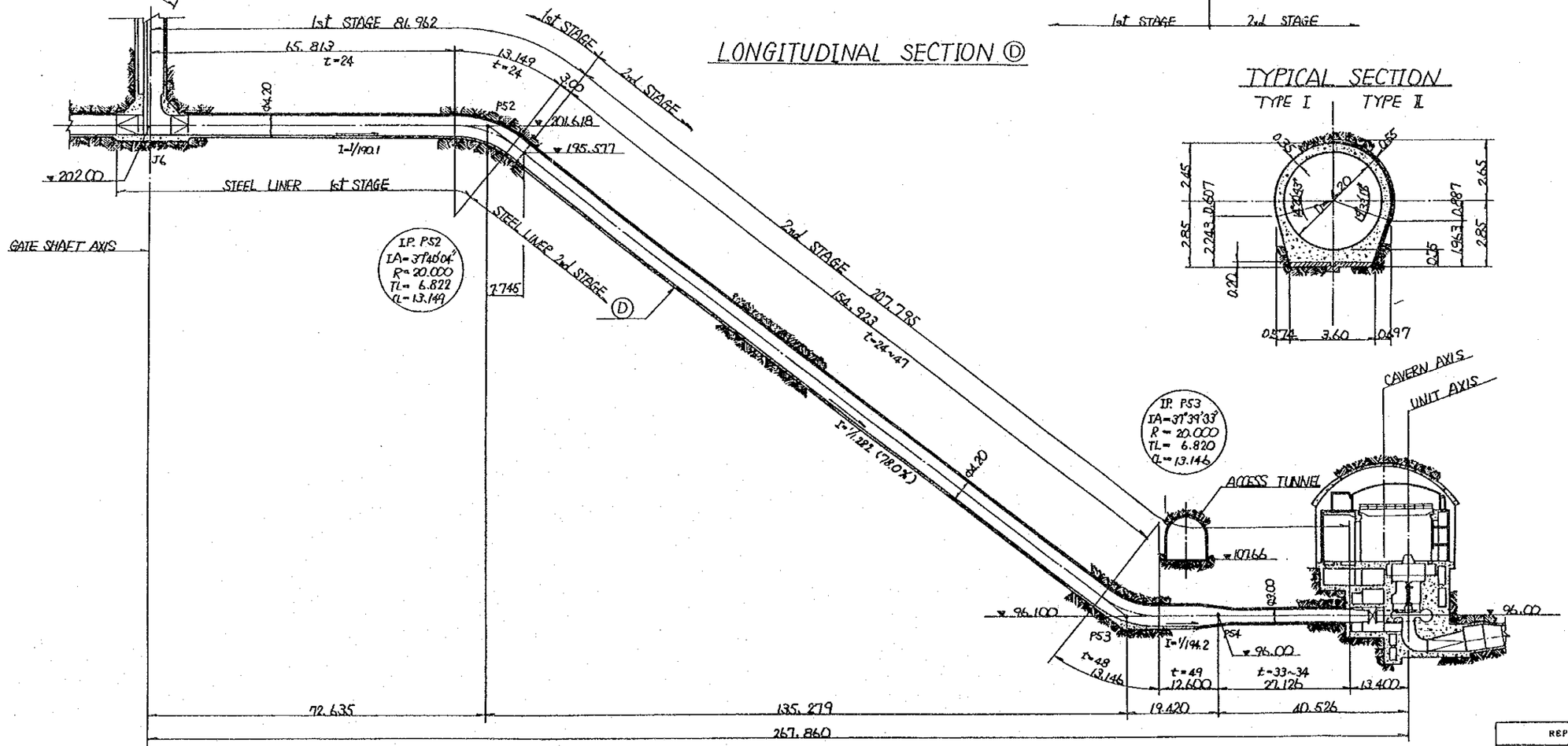
PLAN, PROFILE AND SECTIONS (1)

Figure 5

PLAN



LONGITUDINAL SECTION Ⓓ



TYPICAL SECTION

t : PLATE THICKNESS

0 10m (TYPICAL SECTION)

0 50m (PLAN, LONGITUDINAL SECTION)

REPUBLIC OF HONDURAS

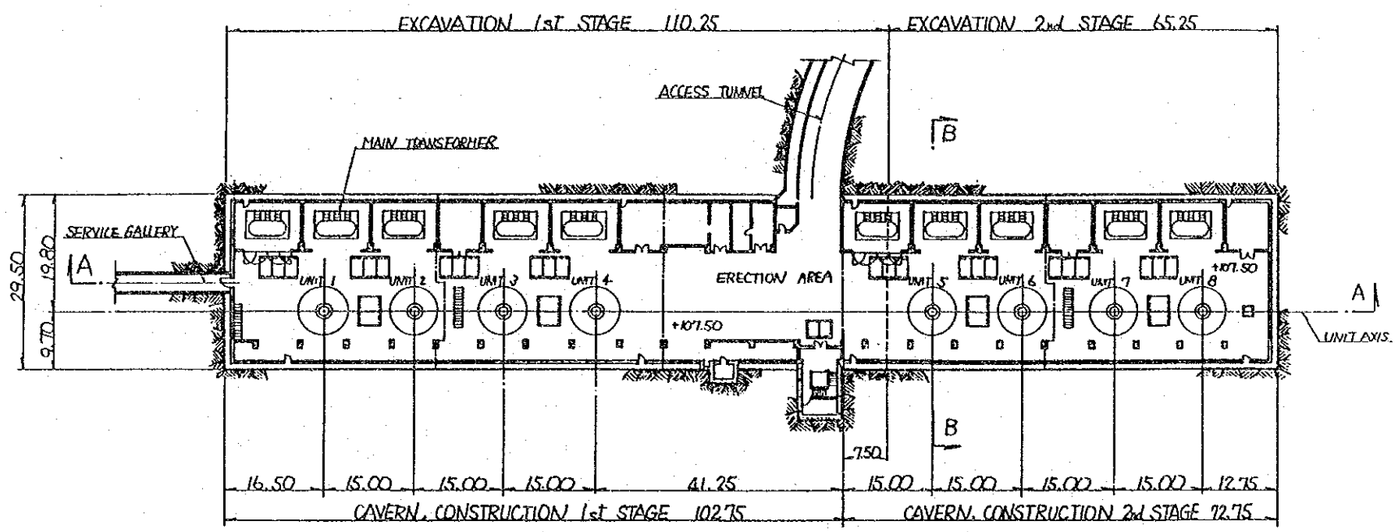
AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

PENSTOCK

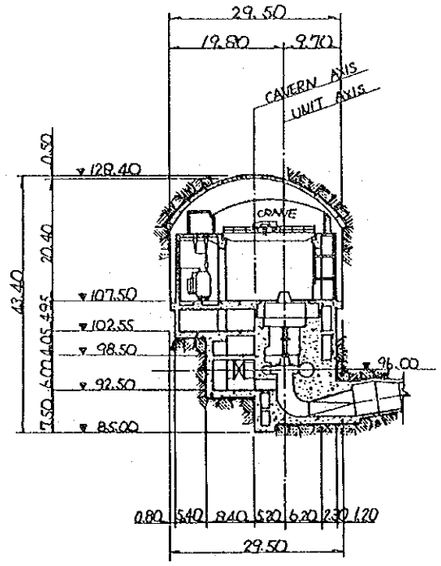
PLAN, PROFILE AND SECTIONS (2)

Figure 6

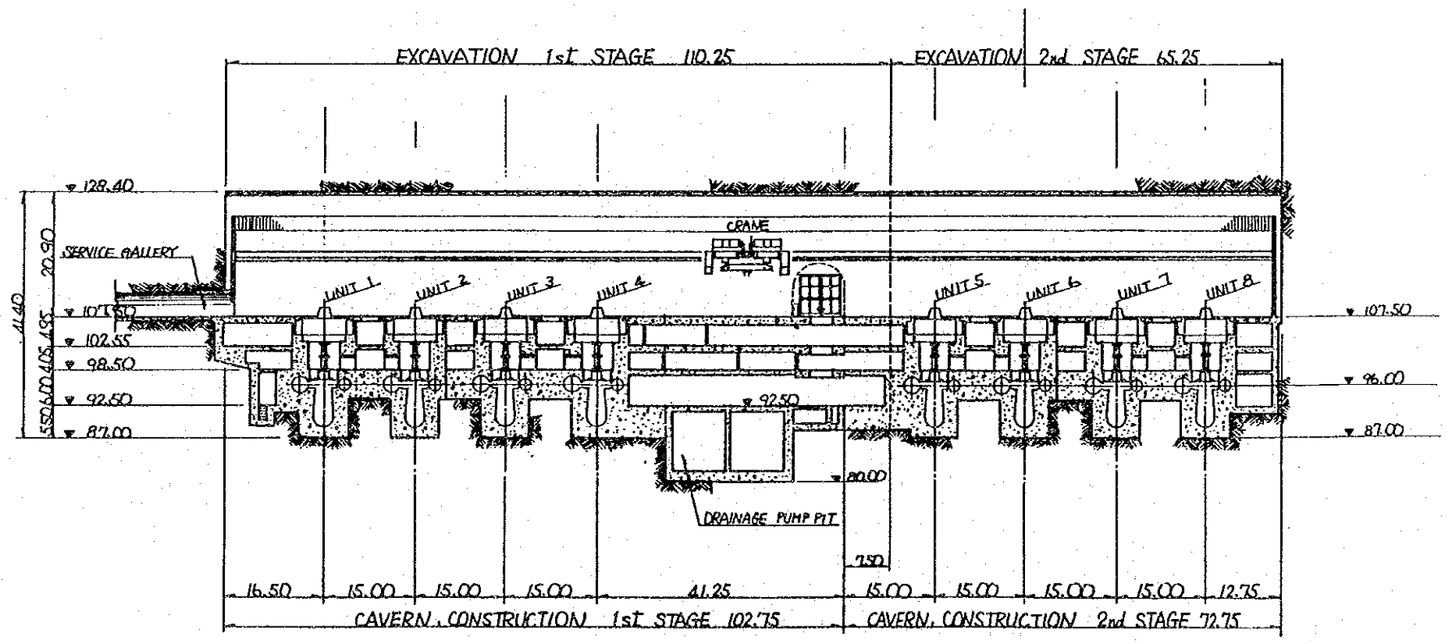
PLAN AT EL 107.50



B - B



A - A



0 50m

REPUBLIC OF HONDURAS

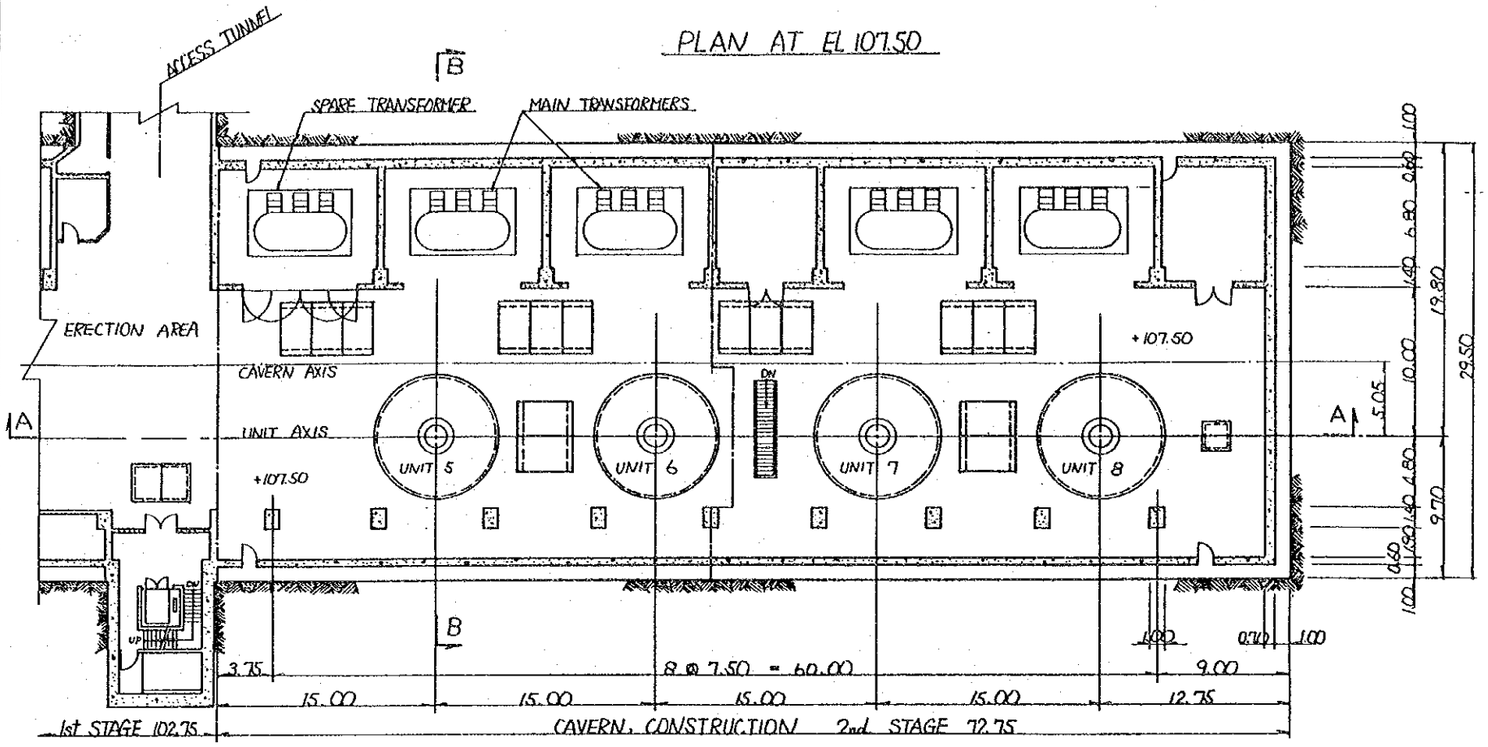
AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

POWERHOUSE

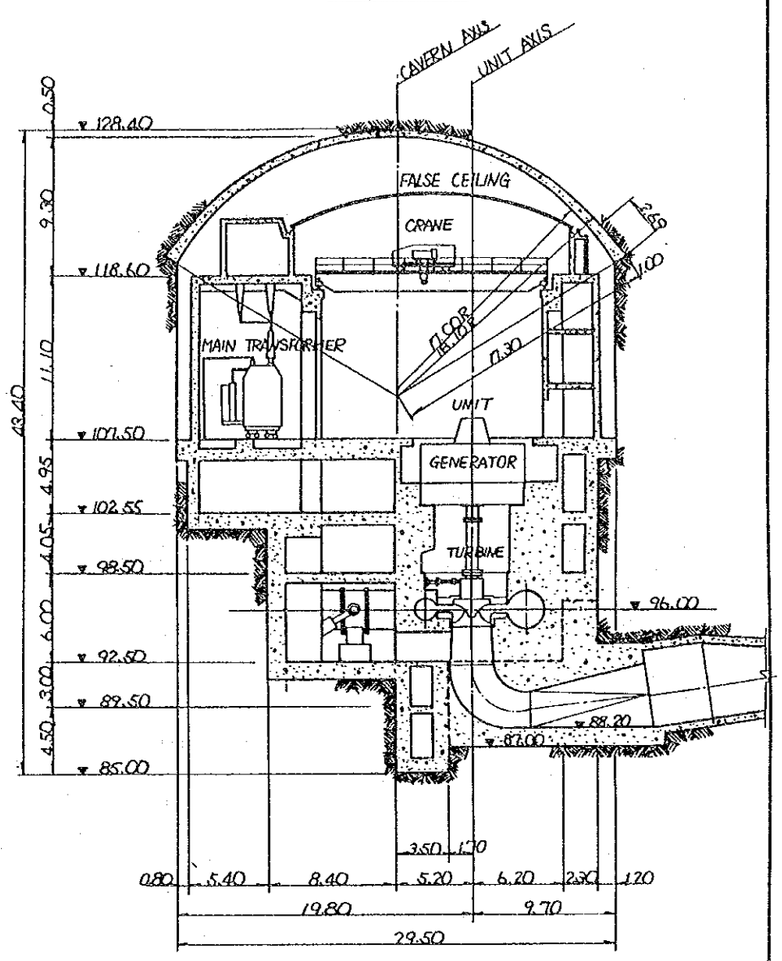
PLAN, PROFILE AND SECTIONS (1)

Figure 7

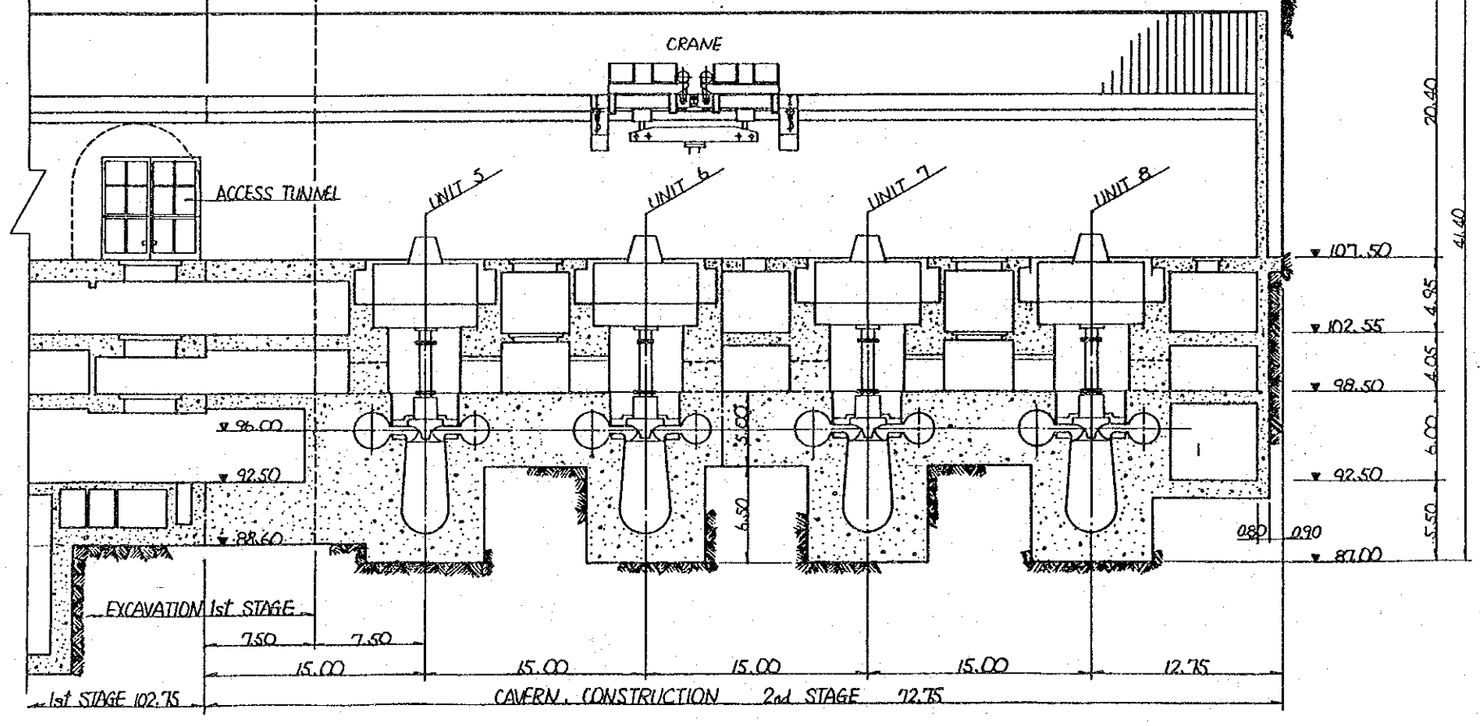
PLAN AT EL 107.50



B - B



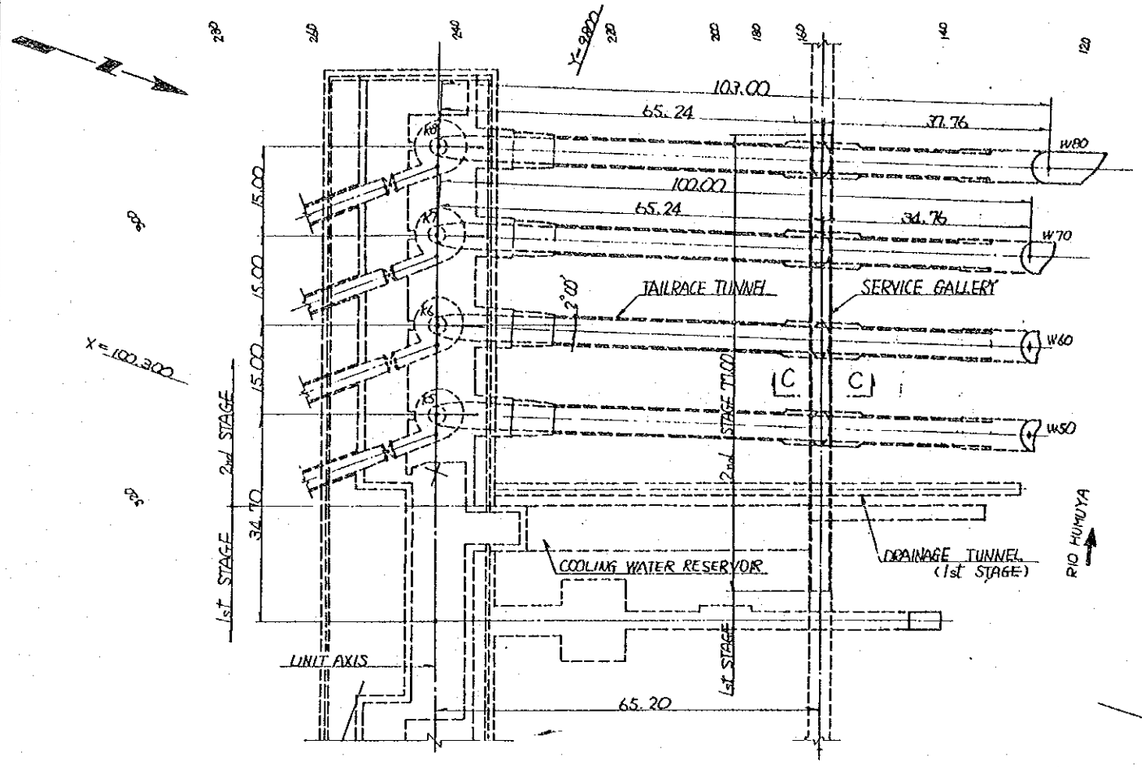
A - A



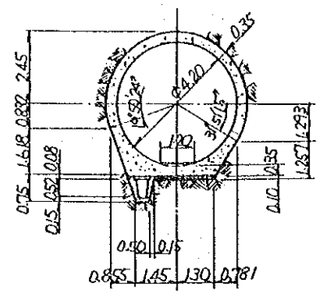
0 20 m

REPUBLIC OF HONDURAS
AMPLIFICATION PROJECT OF EL CAJON HYDROELECTRIC POWER PLANT
POWERHOUSE PLAN, PROFILE AND SECTIONS (2)
Figure 8

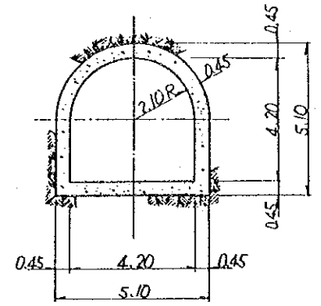
PLAN



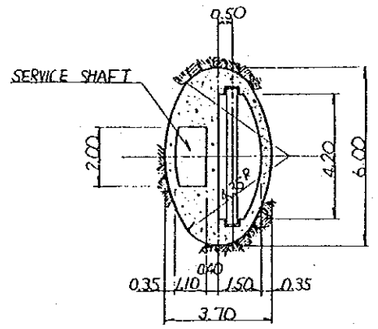
TYPICAL SECTION OF TAILRACE TUNNEL



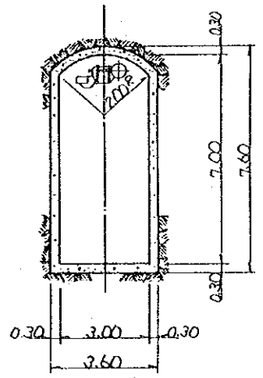
A - A



B - B

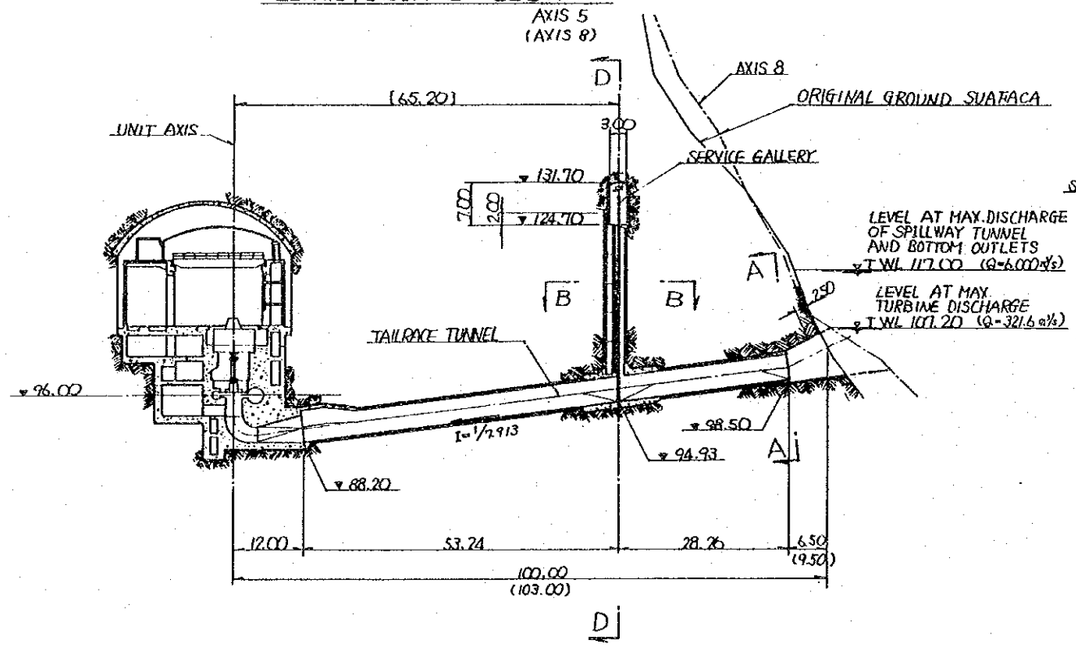


C - C

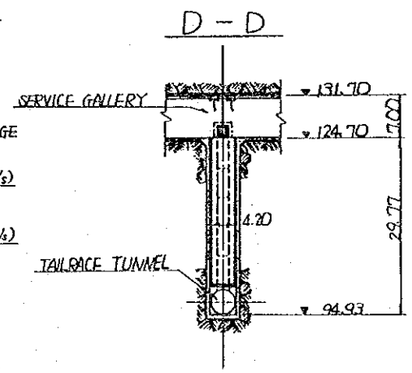


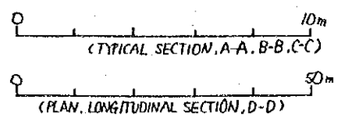
LONGITUDINAL SECTION

AXIS 5
(AXIS 8)



D - D





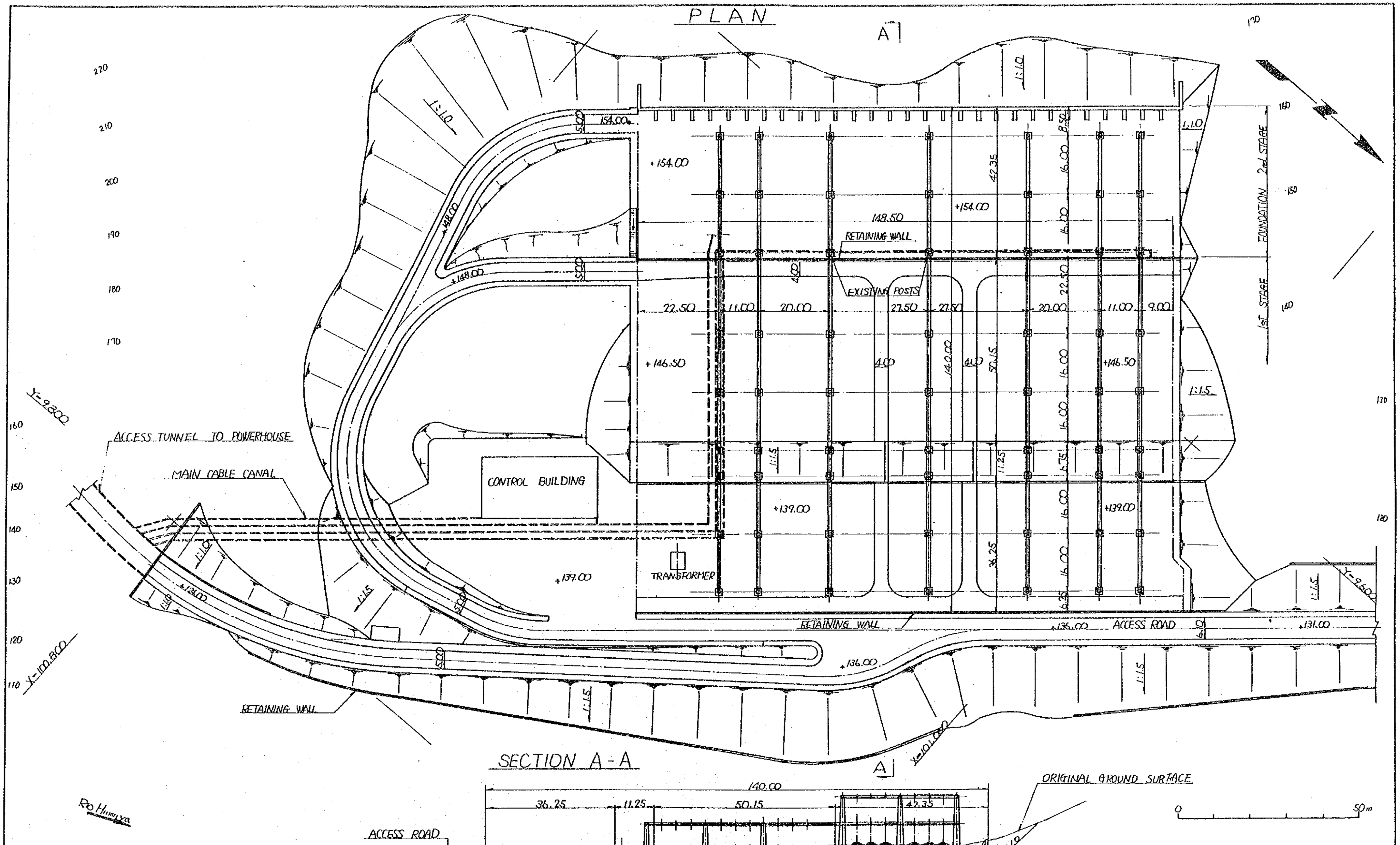
REPUBLIC OF HONDURAS

AMPLIFICATION PROJECT OF
EL CAJON HYDROELECTRIC POWER PLANT

TAILRACE

PLAN, PROFILE AND SECTIONS

Figure 9



REPUBLIC OF HONDURAS
AMPLIFICATION PROJECT OF EL CAJON HYDROELECTRIC POWER PLANT
SWITCHYARD
PLAN AND SECTION
Figure 10