

CHAPTER 9

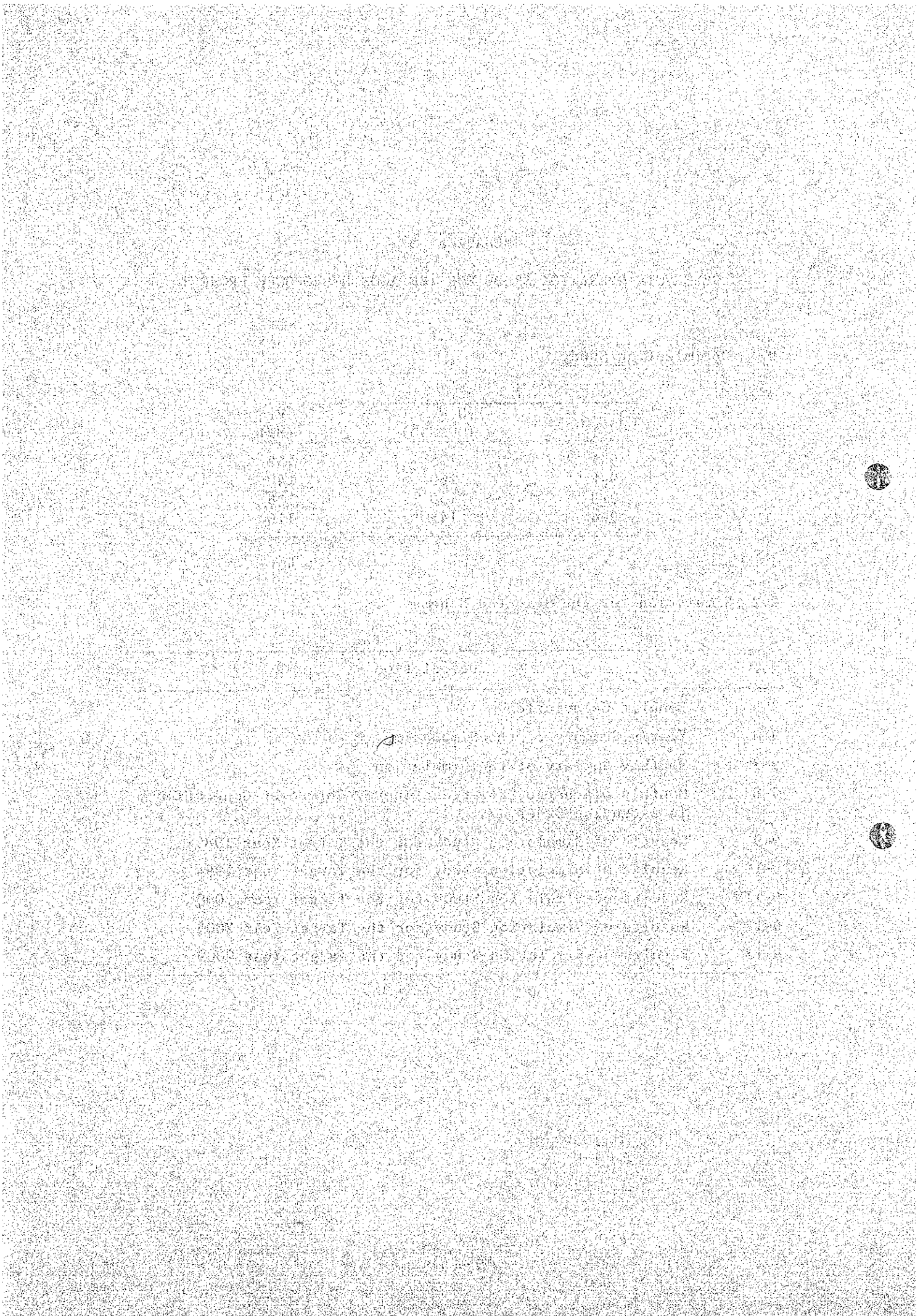
RESERVOIR OPERATION STUDY FOR THE AGOS HYDROPOWER PROJECT

9.1 Optimization Study

Case No.	H.W.L. (m AMSL)	Pr (MW)
9-1	175	152
9-2	165	140
9-3	155	128
9-4	145	116

9.2 Simulation for the Selected Scheme

No.	Description
9-5	Benefit Calculation
9-6	Yearly Summary of the Simulation
9-7	Monthly Summary of the Simulation
9-8	Monthly Discharge, Power and Energy for Power Generation in Ascending Order
9-9	Results of Simulation Study for the Target Year 1989
9-10	Results of Simulation Study for the Target Year 1994
9-11	Results of Simulation Study for the Target Year 2000
9-12	Results of Simulation Study for the Target Year 2005
9-13	Results of Simulation Study for the Target Year 2009



NIPPON KOEI TOKYO/JAPAN

DAM ** PLAN A-2 KANAN HML 295

** RESERVOIR OPERATION STUDY OF AROS

HIGH WATER LEVEL IN METER 175,000 LOW WATER LEVEL IN METER 135,000 RATED HEAD IN METR 116,070
 INSTALLED CAPACITY IN MW 152,000 DEPENDABLE CAPACITY IN MW 113,168 TANGET OPERATION HOUR A DAY 6,20
 RATED DISCHARGE IN CMS 163,851 TYPE OF RULE CURVE 1. VARIABLE MASS CURVE
 RULE CURVE IN MWH JAN: FEB: MAR: APR: MAY: JUNE: JULY: AUG: SEP: OCT: NOV: DEC:
 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625

LENGTH OF INFLOW SERIES IN YEAR 26

*** BENEFIT CALCULATION ***
 DISCOUNT RATE 10.0 POWER DEPENDABILITY 95.0 %
 O. HOUR / YEAR KH VALUE IN US D. KWH VALUE IN US D.
 2550.0 160.25 0.0234
 1950.0 111.76 0.0125
 0. 63.35 0.0082

YEAR	DEPENDABLE POWER (MW)	ANNUAL ENERGY (GWH)	POWER (M US D)	BENEFIT ENERGY (M US D)	TOTAL ENERGY (M US D)	P.M.F.	PRESENT WORTH (M US D)	PRESENT OPERATION HOUR
1989	152.0	770.13	24.30	17.02	42.38	0.90709	30.70	5080
1990	151.5	750.93	24.27	17.37	41.64	0.82645	34.98	4934
1991	150.9	731.74	24.18	17.12	41.31	0.75301	31.03	4628
1992	150.4	712.54	24.10	16.67	40.77	0.68301	27.85	4208
1993	149.8	693.35	24.01	16.22	40.23	0.62092	24.98	4577
1994	149.3	674.16	23.92	15.78	39.70	0.56447	22.11	4451
1995	149.7	646.08	23.99	15.12	39.11	0.51316	20.57	4266
1996	150.2	618.01	24.07	14.46	38.53	0.46651	17.97	4080
1997	150.6	599.93	24.14	13.80	37.94	0.42410	16.09	3894
1998	151.1	581.86	24.21	13.15	37.36	0.38554	14.10	3708
1999	151.5	563.79	24.29	12.49	36.78	0.35019	12.09	3522
2000	152.0	545.71	24.36	11.83	36.19	0.31863	11.53	3337
2001	151.7	493.94	24.31	11.56	35.87	0.28966	10.39	3259
2002	151.4	482.17	24.27	11.28	35.55	0.26303	9.56	3182
2003	151.1	470.39	24.22	11.01	35.23	0.23939	8.43	3104
2004	150.8	458.62	24.18	10.73	34.91	0.21763	7.60	3026
2005	150.6	446.85	24.13	10.46	34.59	0.19784	6.84	2949
2006	150.9	441.57	24.19	10.33	34.52	0.17986	6.21	2814
2007	151.3	436.30	24.24	10.21	34.45	0.16351	5.63	2791
2008	151.6	431.03	24.30	10.09	34.39	0.14864	5.11	2644
2009	152.0	425.76	24.36	9.96	34.32	0.13513	4.64	2609
2010	152.0	425.76	24.36	9.96	34.32	0.12285	4.22	2609
2037	152.0	425.76	24.36	9.96	34.32	0.00937	0.32	2609
2038	152.0	425.76	24.36	9.96	34.32	0.00852	0.29	2609
SUMMARY	151.6	484.44	24.29	11.34	35.63	9.1481	380.01	3196

*** RESULTS OF THE CASE HML=175,000 INSTALLED CAPACITY=152.0 STORED IN DISK FILE AROS-A02 NO. 38

**** RESERVOIR OPERATION STUDY OF AGCS DAM ** PLAN #2 KANAN HHL 295 NIPPON KOEI TOKYO/JAPAN**
 HIGH WATER LEVEL IN METER 175,000 LOW WATER LEVEL IN METER 139,000 RATED HEAD IN METER 110,070
 INSTALLED CAPACITY IN MW 152,000 DEPENDABLE CAPACITY IN MW 113,468 TARGET OPERATION HOUR A DAY 8,120
 RATED DISCHARGE IN CMS 163,851 TYPE OF RULE CURVE 1 VARIABLE MASS CURVE
 RULE CURVE IN MW JAN, FEB, MAR, APR, MAY, JUN, JULY, AUG, SEP, OCT, NOV, DEC
 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625

*** SUMMARY OF RESERVOIR OPERATION STUDY FOR EACH TARGET YEAR ***

YEAR	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q2 (CMS)	S2 (CMS)	F.MILL. (M)	T.MILL. (M)	E.MILL. (M)	EFFICI. (%)	POWER (MW)	O.HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
1989	100,74	1,09	18,37	81,28	141,73	605,29	171,247	41,600	127,101	0,860	151,3	2079,7	463,20	306,63	770,13
1994	82,82	1,08	10,17	71,58	142,68	584,95	170,277	41,600	126,112	0,860	151,2	4421,4	419,63	254,53	674,16
2000	80,79	1,07	6,26	53,46	142,72	582,91	170,228	41,600	126,063	0,860	151,3	3336,7	251,75	248,26	500,71
2005	53,05	1,06	4,98	47,41	143,29	574,09	169,793	41,600	125,596	0,860	151,3	2948,8	247,88	198,87	446,65
2009	50,28	1,06	3,98	45,24	143,54	571,17	169,670	41,600	125,461	0,860	151,4	2808,8	244,13	181,63	425,76

*** DEPENDABLE DISCHARGE & POWER OUTPUT AND ENERGY OUTPUT ***

YEAR	100.0% (CMS)	95.0% (CMS)	90.0% (CMS)	85.0% (CMS)	80.0% (CMS)	75.0% (CMS)	70.0% (CMS)	65.0% (CMS)	60.0% (CMS)	55.0% (CMS)	50.0% (CMS)	45.0% (CMS)	40.0% (CMS)	35.0% (CMS)	30.0% (CMS)	25.0% (CMS)	20.0% (CMS)
1989	47,04	116,34	116,34	38,62	48,42	152,00	38,63	48,42	152,00	38,63	48,42	152,00	38,63	48,42	152,00	38,63	48,42
1994	45,58	115,98	115,98	34,97	43,72	152,00	34,97	43,72	152,00	34,97	43,72	152,00	34,97	43,72	152,00	34,97	43,72
2000	24,58	114,87	114,87	21,81	27,94	152,00	21,81	27,94	152,00	21,81	27,94	152,00	21,81	27,94	152,00	21,81	27,94
2005	23,16	114,03	114,03	20,66	25,94	152,00	20,66	25,94	152,00	20,66	25,94	152,00	20,66	25,94	152,00	20,66	25,94
2009	24,83	114,51	114,51	20,34	25,46	152,00	20,34	25,46	152,00	20,34	25,46	152,00	20,34	25,46	152,00	20,34	25,46

*** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KANAN HWL 295 NIPPON KOEI TOKYO/JAPAN

HIGH WATER LEVEL IN METER 175,000 LOW WATER LEVEL IN METER 135,000 RATED HEAD IN METER 110.070
 INSTALLED CAPACITY IN MW 152,000 DEPENDABLE CAPACITY IN MW 113,468 TARGET OPERATION HOUR A DAY 8.20
 RATED DISCHARGE IN CMS 165,851 TYPE OF RULE CURVE // VARIABLE MASS CURVE

RULE CURVE IN MHW JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC
 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1969 ***

MONTH	INFLOW (CMS)	EVAPORATION (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (MCM)	R.W.H.L. (M)	T.W.L. (M)	E-HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	143.95	1.07	20.91	118.51	138.09	682.73	174.656	41,600	130,624	0.860	639.6	38.63	38.63	97.22
FEB	99.15	1.39	3.18	95.28	137.92	661.04	174.802	41,600	130,773	0.860	464.6	38.63	31.99	70.42
MAR	72.95	1.61	0.66	74.88	138.22	669.81	174.552	41,600	130,490	0.860	403.6	38.63	22.72	61.85
APR	45.88	1.82	0.01	55.68	139.21	657.66	173.652	41,600	129,575	0.860	288.4	38.63	5.23	43.83
MAY	40.06	1.46	0.52	53.57	141.04	658.19	172.085	41,600	127,941	0.860	283.3	38.63	4.43	42.06
JUNE	39.60	1.73	1.74	54.74	143.57	651.74	170.028	41,600	125,789	0.860	278.4	38.63	3.74	41.86
JULY	48.03	0.73	7.26	58.27	146.55	657.39	167.588	41,600	123,174	0.860	251.7	38.63	6.66	45.29
AUG	48.03	0.68	4.94	61.47	147.06	633.66	166.357	41,600	122,010	0.860	330.7	38.63	11.24	49.87
SEP	82.15	0.82	1.40	73.68	145.90	627.35	166.893	41,600	122,569	0.860	370.6	38.63	17.10	55.72
OCT	140.51	0.82	26.46	113.23	143.39	597.08	169.097	41,600	125,009	0.860	460.0	38.63	30.80	69.42
NOV	191.28	0.80	83.23	118.21	140.30	631.84	171.846	41,600	127,801	0.860	612.9	38.63	34.11	92.75
DEC	224.28	0.88	89.14	121.24	139.38	673.49	173.734	41,600	129,173	0.860	658.2	38.63	40.52	99.14
MEAN	100.74	1.09	18.97	81.28	141.73	609.29	171.247	41,600	127,101	0.860	5078.7	468.50	308.83	770.13

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURRED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH
 LOWEST POWER 116.13 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1994 ***

MONTH	INFLOW (CMS)	EVAPORATION (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (MCM)	R.W.H.L. (M)	T.W.L. (M)	E-HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	134.21	1.07	15.80	112.33	138.88	679.43	174.047	41,600	129,983	0.860	604.9	34.97	56.98	91.95
FEB	96.02	1.38	2.97	92.86	138.43	672.01	174.379	41,600	130,331	0.860	452.0	34.97	33.73	68.70
MAR	70.22	1.60	0.55	71.64	138.68	662.44	174.194	41,600	130,096	0.860	385.4	34.97	23.82	58.59
APR	42.96	1.81	0.44	51.39	139.54	655.88	173.384	41,600	129,294	0.860	265.7	34.97	5.41	40.38
MAY	37.40	1.46	0.44	48.94	141.11	659.89	172.028	41,600	127,881	0.860	258.7	34.97	4.36	39.33
JUNE	36.73	1.03	1.43	50.40	143.33	658.88	170.229	41,600	125,998	0.860	258.1	34.97	3.66	38.83
JULY	29.87	0.80	0.1	51.25	146.15	659.47	167.787	41,600	123,449	0.860	282.9	34.97	4.89	39.86
AUG	38.90	0.61	0.59	51.63	148.32	652.16	165.292	41,600	120,876	0.860	260.9	34.97	4.33	39.30
SEP	45.00	0.77	0.1	51.90	149.45	642.30	163.633	41,600	119,151	0.860	251.2	34.97	2.53	37.50
OCT	112.11	0.77	11.47	63.59	146.49	634.11	165.835	41,600	121,396	0.860	338.9	34.97	15.79	50.78
NOV	160.42	0.77	27.83	141.67	141.67	621.36	170.158	41,600	126,259	0.860	507.8	34.97	41.71	76.68
DEC	189.81	0.87	61.29	113.46	139.85	658.36	173.884	41,600	128,914	0.860	609.1	34.97	37.51	92.48
MEAN	82.82	1.08	10.17	71.58	142.68	587.45	170.227	41,600	126,112	0.860	4451.4	419.83	284.53	674.16

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 6 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURRED 6 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 12-TH MONTH
 LOWEST POWER 116.0 MW

NIPPON KOEI TOKYO/JAPAN

**** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN #2 KAMAN HML 295**
 HIGH WATER LEVEL IN METER 175,000 LOW WATER LEVEL IN METER 135,000 RATED HEAD IN METER ***** 110,070
 INSTALLED CAPACITY IN MW 12,000 DEPENDABLE CAPACITY IN MW 113,468 TARGET OPERATION HOUR A DAY 8,120
 RATED DISCHARGE IN CMS 163,851 TYPE OF HOLE CURVE : VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC
 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2000 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	GG (CMS)	S2 (MCM)	R.W.L. (M)	T.W.L. (M)	E-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.E. (GMH)	S.E. (GMH)	T.E. (GMH)
JAN	109.97	1.08	8.07	139.43	600.75	173.593	41,600	199.506	0.860	132.0	224.3	21.81	57.59
FEB	74.08	1.37	0.1	139.22	656.24	173.752	41,600	129.674	0.860	132.0	358.3	21.81	32.45
MAR	48.91	1.56	0.1	139.67	643.20	173.168	41,600	129.232	0.860	132.0	284.0	21.81	21.36
APR	23.52	1.78	0.1	140.82	617.68	172.376	41,600	128.288	0.860	132.0	171.4	21.81	4.24
MAY	20.26	1.43	0.1	142.48	577.35	170.928	41,600	128.739	0.860	131.9	168.6	21.81	3.83
JUNE	19.68	1.01	0.28	144.25	536.91	169.160	41,600	124.867	0.860	131.6	166.6	21.81	3.44
JULY	23.83	0.79	0.1	145.76	510.42	167.530	41,600	123.210	0.860	131.1	173.0	21.81	4.32
AUG	32.95	0.63	0.103	146.33	501.74	166.372	41,600	122.237	0.860	130.4	179.2	21.81	5.15
SEP	31.83	0.70	0.1	146.46	498.83	166.139	41,600	121.792	0.860	130.0	162.8	21.81	24.37
OCT	62.57	0.79	4.41	145.42	329.93	166.923	41,600	121.683	0.860	149.9	238.9	21.81	35.94
NOV	120.07	0.77	12.82	142.68	814.18	169.944	41,600	126.001	0.860	151.1	351.2	21.81	57.78
DEC	161.59	0.87	48.51	139.93	851.66	172.592	41,600	126.754	0.860	151.5	358.3	21.81	58.43
MEAN	60.79	1.07	6.26	142.72	582.91	170.228	41,600	126.043	0.860	151.3	336.7	21.81	50.71

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 6 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 2 TIMES
 LONGEST DURATION FROM 21-TH YEAR 5-TH MONTH TO 21-TH YEAR 10-TH MONTH
 LOWEST POWER 114.9 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2005 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	GG (CMS)	S2 (MCM)	R.W.L. (M)	T.W.L. (M)	E-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.E. (GMH)	S.E. (GMH)	T.E. (GMH)
JAN	98.32	1.05	6.41	84.73	140.02	173.082	41,600	126.995	0.860	132.0	435.5	20.66	48.58
FEB	64.62	1.36	0.1	84.93	138.66	173.177	41,600	129.282	0.860	132.0	315.0	20.66	27.82
MAR	41.95	1.57	0.1	44.88	140.08	173.019	41,600	128.908	0.860	132.0	230.2	20.66	15.85
APR	19.00	1.77	0.1	30.39	141.30	171.994	41,600	127.837	0.860	132.0	154.7	20.66	21.96
MAY	16.59	1.42	0.1	39.62	143.07	170.371	41,600	126.133	0.860	131.8	154.7	20.66	23.44
JUNE	16.93	1.00	0.1	31.70	145.04	168.469	41,600	124.175	0.860	131.3	158.4	20.66	31.4
JULY	21.13	0.79	0.1	30.75	146.46	166.932	41,600	122.599	0.860	131.0	157.3	20.66	31.0
AUG	32.95	0.62	0.103	32.27	146.68	166.225	41,600	121.881	0.860	150.3	155.3	20.66	41.9
SEP	31.83	0.80	0.1	31.54	146.48	166.054	41,600	121.706	0.860	149.9	156.0	20.66	21.70
OCT	50.42	0.79	21.25	39.00	145.62	166.890	41,600	125.376	0.860	150.0	203.6	20.66	9.81
NOV	92.70	0.76	31.84	62.53	140.86	168.858	41,600	125.176	0.860	151.3	320.7	20.66	27.98
DEC	144.58	0.85	41.50	87.21	140.92	172.005	41,600	128.046	0.860	151.7	467.8	20.66	50.41
MEAN	53.05	1.06	4.58	47.41	143.29	169.793	41,600	125.596	0.860	151.3	2948.8	247.88	198.97

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 7 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 3 TIMES
 LONGEST DURATION FROM 21-TH YEAR 5-TH MONTH TO 21-TH YEAR 11-TH MONTH
 LOWEST POWER 114.0 MW

** RESERVOIR OPERATION STUDY OF AGUS DAM ** PLAN A+2 KANAN HML 295 NIPPON KOEI TOKYO/JAPAN

HIGH WATER LEVEL IN METER 175,000 LOW WATER LEVEL IN METER 139,000 MATED HEAD IN METER 110,070
 INSTALLED CAPACITY IN MW 152,000 DEPENDABLE CAPACITY IN MW 119,468 TARGET OPERATION HOUR A DAY 5.20
 MATED DISCHARGE IN CMS 163,851 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MWH JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625 38,625

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2009 ***

MONTH	INFLOW (CMS)	FYAPD (CMS)	SPILL (CMS)	QG (CMS)	S2 (CMS)	H.W.L. (M)	T.W.L. (M)	R.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	PIE (GWH)	SE (GWH)	T.E. (GWH)
JAN.	90.52	1.05	5.62	79.96	647.42	172,940	41,600	128,925	0.860	152.0	20.34	44.71	65.03
FEB.	59.66	1.36	0.	59.10	645.48	173,215	41,600	129,141	0.860	152.0	20.34	23.10	43.92
MAR.	39.16	1.57	0.	42.63	635.00	174,837	41,600	128,718	0.860	152.0	20.34	1.28	34.83
APR.	17.87	1.77	0.	29.98	614.56	174,766	41,600	127,600	0.860	152.0	20.34	2.60	22.94
MAY	15.61	1.41	0.	28.56	559.15	170,139	41,600	125,912	0.860	151.8	20.34	2.25	22.40
JUNE	16.67	1.00	0.	31.84	518.27	168,259	41,600	123,957	0.860	151.5	20.34	3.20	23.54
JULY	23.13	0.78	0.	29.99	445.78	166,796	41,600	122,452	0.860	151.1	20.34	2.79	23.13
AUG.	32.95	0.62	0.03	31.99	499.39	166,145	41,600	121,791	0.860	150.6	20.34	4.28	24.63
SEP.	31.83	0.80	0.	31.00	446.83	166,039	41,600	121,672	0.860	150.1	20.34	2.60	22.94
OCT.	52.53	0.79	2.13	49.18	531.15	166,917	41,600	122,155	0.860	150.3	20.34	9.15	29.90
NOV.	84.06	0.76	1.58	77.72	599.87	169,298	41,600	125,119	0.860	151.4	20.34	24.48	44.62
DEC.	138.44	0.85	37.71	84.04	630.19	174,940	41,600	127,928	0.860	151.9	20.34	48.12	68.16
MEAN.	50.28	1.06	3.98	45.24	573.17	169,670	41,600	125,461	0.860	151.4	2008.8	183.63	425.76

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION 7 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 4 TIMES
 LONGEST DURATION FROM 21ST YEAR 5TH MONTH TO 21ST YEAR 11TH MONTH LOWEST POWER 114.9 MW

**** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KANAN HML 295 NIPPON KOEI TOKYO/JAPAN**
 HIGH WATER LEVEL IN METER 165,000 LOW WATER LEVEL IN METER 128,000 RATED HEAD IN METER 103,630
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 104,500 TARGET OPERATION HOUR A DAY 7,30
 RATED DISCHARGE IN CMS 153,449 TYPE OF RULE CURVE 1 VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688

LENGTH OF INFLOW SERIES IN YEAR 26

***** BENEFIT CALCULATION *** POWER DEPENDABILITY 95.0 %**
 DISCOUNT RATE 10.0 POWER DEPENDABILITY 95.0 %
 0.1 HOUR / YEAR KH VALUE IN US D KMH VALUE IN US D
 2550.0 160.25 0.0234
 1950.0 111.76 0.0425
 0 63.35 0.0682

YEAR	DEPENDABLE POWER (MW)	ANNUAL ENERGY (GWH)	POWER (M US D)	BENEFIT ENERGY (M US D)	TOTAL BENEFIT (M US D)	P, W, F	PRESENT WORTH (M US D)	PRESENT OPERATION HOUR (H)
1989	140.0	708.67	22.43	19.58	39.02	0.00909	35.47	5074.
1990	140.0	691.25	22.43	18.18	38.61	0.02645	31.91	4949.
1991	140.0	673.83	22.43	16.77	38.20	0.07431	28.70	4824.
1992	140.0	656.42	22.43	15.36	37.80	0.08801	25.81	4700.
1993	140.0	639.00	22.43	14.95	37.39	0.02092	23.21	4575.
1994	140.0	621.58	22.43	14.54	36.98	0.05647	20.87	4450.
1995	140.0	593.86	22.43	13.94	36.58	0.13116	18.67	4266.
1996	140.0	570.14	22.43	13.34	36.17	0.16851	16.69	4085.
1997	140.0	544.42	22.43	12.74	35.77	0.14210	14.92	3899.
1998	140.0	518.70	22.43	12.14	34.57	0.13854	13.33	3715.
1999	140.0	492.98	22.43	11.54	33.97	0.13049	11.91	3532.
2000	140.0	467.26	22.43	10.93	33.37	0.11863	10.43	3348.
2001	139.7	454.93	22.38	10.40	33.06	0.26966	9.58	3271.
2002	139.3	443.85	22.33	10.43	32.76	0.26333	8.63	3195.
2003	139.0	435.14	22.27	10.18	32.46	0.23939	7.77	3118.
2004	138.7	424.43	22.22	9.93	32.15	0.21763	7.00	3041.
2005	138.3	413.73	22.17	9.68	31.85	0.19784	6.40	2965.
2006	138.0	404.99	22.12	9.57	31.78	0.17986	5.72	2890.
2007	138.0	404.24	22.23	9.46	31.71	0.16351	5.18	2815.
2008	139.1	399.50	22.29	9.35	31.64	0.14864	4.70	2662.
2009	139.4	394.76	22.33	9.24	31.57	0.13510	4.27	2627.
2010	139.4	394.76	22.33	9.24	31.57	0.12285	3.88	2627.
1								
1								
1								
2037	139.4	394.76	22.33	9.24	31.57	0.00937	0.30	2827.
2038	139.4	394.76	22.33	9.24	31.57	0.00852	0.27	2827.
SUMMARY	139.4	448.23	22.35	10.49	32.84	9.91481	351.24	3210.

*** RESULTS OF THE CASE HML= 165,000 INSTALLED CAPACITY= 140,0 STORED IN DISK FILE A3A18-02 NO. 39

**** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KAMAN HHL 205 NIPPON KOEI TOKYO/JAPAN**
 HIGH WATER LEVEL IN METER 145,000 LOW WATER LEVEL IN METER 128,000 RATED HEAD IN METER 101.630
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 104,500 TARGET OPERATION HOUR A DAY 7,30
 RATED DISCHARGE IN CMS 103,449 TYPE OF RULE CURVE **, VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688

*** SUMMARY OF RESERVOIR OPERATION STUDY FOR EACH TARGET YEAR ***

YEAR	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	DO (CMS)	S2 (CMS)	H.W.L. (M)	T.W.L. (M)	F. HEAD EFFICI. (%)	POWER (MW)	D. HOUR (H)	P. E. (GWH)	SIL. (GWH)	T. E. (GWH)		
1989	500,74	0,92	19,22	80,59	140,64	485,21	161,980	41,600	117,921	0,860	339,5	5074,0	380,25	328,42	708,67
1994	82,82	0,92	13,04	70,86	141,26	477,34	161,560	41,600	117,468	0,860	339,5	4650,0	340,50	281,06	621,58
2000	60,79	0,90	6,42	53,48	142,82	454,76	160,287	41,600	116,141	0,860	339,3	3348,0	227,25	240,01	467,26
2005	53,05	0,89	4,70	47,48	142,93	451,02	160,079	41,600	115,926	0,860	339,3	2964,3	214,50	199,23	413,73
2009	50,28	0,89	4,07	45,32	143,03	450,98	160,097	41,600	115,937	0,860	339,4	2827,4	211,50	183,26	394,76

*** DEPENDABLE DISCHARGE , POWER OUTPUT AND ENERGY OUTPUT ***

YEAR	100.0% (CMS)	DEPENDABLE P (MW)	E (GWH)	G (CMS)	90.0% (CMS)	DEPENDABLE P (MW)	E (GWH)	G (CMS)	85.0% (CMS)	DEPENDABLE P (MW)	E (GWH)	80.0% (CMS)	DEPENDABLE P (MW)	E (GWH)
1989	41,77	105,199	31,69	42,33	140,00	31,69	45,82	140,00	31,69	140,00	31,69	140,00	140,00	31,69
1994	37,40	104,91	28,37	37,75	140,00	28,37	38,36	140,00	28,37	140,00	28,37	140,00	140,00	28,37
2000	25,00	105,27	19,94	25,35	140,00	19,94	25,74	140,00	19,94	140,00	19,94	140,00	140,00	19,94
2005	23,64	104,02	17,88	23,91	138,52	17,88	23,40	140,00	17,88	140,00	17,88	140,00	140,00	17,88
2009	23,24	105,82	17,62	23,51	139,56	17,63	23,97	140,00	17,63	140,00	17,63	140,00	140,00	17,63

*** RESERVOIR OPERATION STUDY OF AGCS DAM ** PLAN A-2 KANAN HML 295 NIPPON KOEI TOKYO/JAPAN

HIGH WATER LEVEL IN METER 185,000 LOW WATER LEVEL IN METER 125,000 RATED HEAD IN METER ***** 101,630
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 104,500 TARGET OPERATION HOUR A DAY 7,30
 RATED DISCHARGE IN CMS 133,489 TYPE OF RULE CURVE : VARIABLE MASS CURVE
 RULE CURVE IN MHW JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC. DFC.
 31,686 31,686 31,686 31,686 31,686 31,686 31,686 31,686 31,686 31,686 31,686 31,686

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1989 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	G24 (CMS)	GG (CMS)	S2 (MCM)	R.H.L. (M)	T.W.L. (M)	E HEAD EFFICI. (%)	POWER (MW)	O HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	143.21	0.91	21.18	120.24	137.80	540.42	164.942	41,600	120.989	0.860	140.0	651.7	31.69	59.55
FEB.	99.15	1.17	3.90	95.39	137.31	538.70	164.937	41,600	120.979	0.860	140.0	466.9	31.69	65.37
MAR.	72.88	1.35	0.68	72.72	137.09	531.19	164.725	41,600	120.786	0.860	140.0	399.0	31.69	59.86
APR.	45.88	1.53	0.04	52.89	136.48	510.24	163.999	41,600	119.977	0.860	140.0	272.8	31.69	38.19
MAY	40.06	1.23	0.58	49.36	140.14	479.14	162.674	41,600	118.600	0.860	140.0	265.5	31.69	37.17
JUNE	39.60	0.87	1.77	50.39	142.62	444.33	160.816	41,600	116.843	0.860	140.0	255.5	31.69	35.77
JULY	46.03	0.67	7.36	53.99	145.46	401.49	158.535	41,600	114.258	0.860	139.7	279.0	31.69	35.98
AUG.	74.66	0.53	4.39	69.79	145.51	417.43	157.674	41,600	113.458	0.860	138.5	331.7	31.69	46.05
SEP.	82.15	0.70	1.68	74.54	144.47	430.99	158.221	41,600	114.005	0.860	138.1	378.6	31.69	20.80
OCT.	140.51	0.70	27.96	91.25	141.62	486.17	160.510	41,600	116.527	0.860	138.0	486.8	31.69	67.74
NOV.	188.28	0.68	67.88	120.52	139.27	510.04	162.598	41,600	118.316	0.860	138.9	628.5	31.69	87.70
DEC.	224.28	0.74	93.17	131.84	137.93	538.08	164.328	41,600	120.482	0.860	140.0	697.9	31.69	60.42
MEAN	100.74	0.92	19.22	80.99	140.66	485.21	161.980	41,600	117.921	0.860	139.5	5074.0	380.25	328.42

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 3 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH

LOWEST POWER 106.0 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1994 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	G24 (CMS)	GG (CMS)	S2 (MCM)	R.H.L. (M)	T.W.L. (M)	E HEAD EFFICI. (%)	POWER (MW)	O HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	134.21	0.90	15.43	114.24	137.74	537.47	164.619	41,600	120.655	0.860	140.0	618.0	28.38	58.14
FEB.	96.02	1.17	2.47	92.21	137.42	537.91	164.863	41,600	120.681	0.860	140.0	451.2	28.38	34.79
MAR.	70.22	1.35	0.58	70.22	137.54	532.72	164.758	41,600	120.773	0.860	140.0	380.2	28.38	24.86
APR.	42.96	1.54	0.14	48.92	138.30	511.32	164.143	41,600	120.129	0.860	140.0	253.0	28.38	7.04
MAY	37.40	1.24	0.49	46.11	139.75	486.37	162.976	41,600	118.915	0.860	140.0	246.2	28.38	6.10
JUNE	36.73	0.88	1.15	46.08	141.67	456.87	161.368	41,600	117.223	0.860	140.0	234.9	28.38	4.51
JULY	29.87	0.68	0.11	42.93	144.67	412.28	159.247	41,600	114.997	0.860	139.9	237.5	28.38	4.84
AUG.	38.90	0.53	0.31	46.50	146.74	388.90	157.190	41,600	112.865	0.860	139.1	237.8	28.38	4.72
SEP.	45.00	0.67	0.11	47.59	147.33	381.24	156.079	41,600	111.746	0.860	138.2	232.7	28.38	3.77
OCT.	112.11	0.67	13.58	69.27	144.05	457.80	158.358	41,600	114.293	0.860	138.2	364.8	28.38	22.23
NOV.	160.42	0.66	34.23	109.74	140.39	499.73	161.672	41,600	117.691	0.860	138.8	570.6	28.38	51.20
DEC.	189.81	0.74	62.88	115.16	138.99	527.47	163.669	41,600	119.700	0.860	140.0	625.1	28.38	56.87
MEAN	82.62	0.92	11.04	70.66	141.26	477.34	161.560	41,600	117.468	0.860	139.5	4450.0	340.50	281.08

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH

LOWEST POWER 106.0 MW

NIPPON KOEI TOKYO/JAPAN

DAM ** PLAN A-2 KANAN HWL 294

** RESERVOIR OPERATION STUDY OF ADDS

HIGH WATER LEVEL IN METER 105,000 LOW WATER LEVEL IN METER 128,000 RATED HEAD IN METER 101,630
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 104,500 TARGET OPERATION HOUR A DAY 7,130
 RATED DISCHARGE IN CMS 103,449 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MWH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2000 ***

MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q3 (CMS)	S2 (MCH)	R.W.L. (M)	T.W.L. (M)	F.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	107.07	0.89	8.19	97.48	139.07	521.35	163.876	41,600	119,162	0.860	140.0	326.8	18.94	73.72
FEB.	174.08	1.15	0.00	73.72	139.74	519.46	163.894	41,600	119,163	0.860	140.0	339.5	18.94	50.12
MAR.	48.91	1.33	0.00	52.31	139.19	506.77	163.923	41,600	119,175	0.860	140.0	281.7	18.94	39.43
APR.	20.52	1.50	0.00	32.124	140.45	480.90	162.910	41,600	118,137	0.860	140.0	166.0	18.94	23.24
MAY	20.26	1.20	0.00	30.866	142.40	488.89	160.991	41,600	118,828	0.860	140.0	152.2	18.94	22.71
JUNE	19.68	0.84	0.30	31.75	144.58	414.43	159.108	41,600	114,864	0.860	139.7	159.3	18.94	22.28
JULY	23.83	0.66	0.00	32.41	146.25	359.67	157.348	41,600	114,053	0.860	139.0	167.7	18.94	23.19
AUG.	32.93	0.52	0.00	35.97	148.86	335.40	156.898	41,600	112,061	0.860	138.4	174.4	18.94	24.15
SEP.	31.83	0.67	0.00	31.83	149.85	304.28	156.071	41,600	111,747	0.860	137.9	166.9	18.94	21.54
OCT.	62.57	0.66	4.74	46.13	149.52	413.83	157.038	41,600	112,824	0.860	137.9	241.6	18.94	38.46
NOV.	120.07	0.64	13.00	78.05	141.86	485.68	160.325	41,600	116,502	0.860	138.8	404.3	18.94	37.46
DEC.	161.56	0.73	49.11	101.81	135.44	522.50	162.813	41,600	118,917	0.860	139.4	519.4	18.94	57.90
MEAN	80.79	0.90	6.32	53.18	143.62	434.76	160.277	41,600	116,161	0.860	139.3	338.0	227.25	467.26

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION & CONTINUOUS MONTH.***
 THESE DEFICITS OCCURRED 3 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 12-TH MONTH
 LOWEST POWER 105.3 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2005 ***

MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q3 (CMS)	S2 (MCH)	R.W.L. (M)	T.W.L. (M)	F.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	98.32	0.86	6.70	86.22	139.32	517.97	163.443	41,600	119,394	0.860	140.0	485.4	17.88	65.16
FEB.	64.62	1.15	0.00	64.63	138.93	515.20	163.713	41,600	119,176	0.860	140.0	314.8	17.88	44.08
MAR.	41.95	1.32	0.00	41.88	139.39	503.81	163.372	41,600	119,346	0.860	140.0	241.3	17.88	33.78
APR.	19.06	1.49	0.00	29.05	140.82	474.06	162.245	41,600	118,137	0.860	140.0	149.1	17.88	20.67
MAY	16.93	1.19	0.00	28.26	143.04	439.64	160.544	41,600	116,357	0.860	140.0	147.8	17.88	20.69
JUNE	16.93	0.84	0.00	30.13	145.17	403.26	158.524	41,600	114,258	0.860	139.5	150.6	17.88	21.02
JULY	25.13	0.65	0.00	29.59	146.71	334.21	156.910	41,600	112,600	0.860	138.9	151.4	17.88	21.04
AUG.	32.95	0.52	0.00	31.97	148.83	368.65	156.129	41,600	111,977	0.860	138.2	161.4	17.88	22.33
SEP.	31.83	0.67	0.00	30.61	148.45	388.06	156.245	41,600	111,948	0.860	137.8	157.7	17.88	20.89
OCT.	53.42	0.66	2.66	39.28	145.42	477.88	157.270	41,600	116,021	0.860	138.0	205.0	17.88	28.40
NOV.	92.70	0.84	4.32	63.54	142.82	480.81	160.079	41,600	118,021	0.860	139.2	327.9	17.88	45.78
DEC.	144.58	0.72	42.30	92.41	140.06	505.34	162.573	41,600	118,607	0.860	139.7	498.1	17.88	69.69
MEAN	53.05	0.89	4.70	47.16	142.93	431.02	160.074	41,600	115,926	0.860	139.3	299.5	214.50	413.73

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION & CONTINUOUS MONTH ***
 THESE DEFICITS OCCURRED 3 TIMES
 LONGEST DURATION FROM 21-TH YEAR 5-TH MONTH TO 21-TH YEAR 10-TH MONTH
 LOWEST POWER 106.10 MW

**** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KAMAN HHL 295 NIPPON KOEI TOKYO/JAPAN**
 HIGH WATER LEVEL IN METER 165,000 LOW WATER LEVEL IN METER 128,000 RATED HEAD IN METER 105,680
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 104,500 TARGET OPERATION HOUR A DAY 7,130
 RATED DISCHARGE IN CMS 163,449 TYPE OF RULE CURVE 1 VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688 31,688

LENGTH OF INFLOW SERIES IN YEAR 24

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2009 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	Q24 (CMS)	MG (CMS)	S2 (CMS)	R.M.L. (M)	T.M.L. (M)	E.HEAD EFFICI. (%)	POWER (MW)	POWER O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	90.52	0.78	5.72	80.47	139.23	216.87	163.841	41,600	119,446	0.860	140.0	484.3	17.63	43.18
FEB.	90.66	1.14	0.	80.41	139.09	212.07	163.293	41,600	119,390	0.860	140.0	294.1	17.63	23.95
MAR.	17.87	1.32	0.	41.70	139.57	201.73	163.208	41,600	119,147	0.860	140.0	223.9	17.63	13.73
APR.	15.81	1.19	0.	28.04	140.94	171.48	162.137	41,600	118,025	0.860	140.0	143.8	17.63	2.51
MAY	16.67	1.18	0.	27.24	143.11	137.88	160.143	41,600	118,255	0.860	140.0	142.3	17.63	2.29
JUNE	23.15	0.83	0.	29.60	143.31	102.02	158.154	41,600	118,183	0.860	139.6	177.8	17.63	3.01
JULY	32.95	0.65	0.	26.93	146.91	384.74	156.921	41,600	118,611	0.860	139.1	147.8	17.63	2.94
AUG.	31.83	0.67	0.05	31.06	146.98	388.28	156.369	41,600	118,061	0.860	139.5	159.2	17.63	4.43
SEP.	52.53	0.66	2.33	35.21	146.56	390.74	151.399	41,600	118,066	0.860	138.0	149.7	17.63	3.02
OCT.	84.06	0.65	1.57	38.17	145.45	421.59	157.178	41,600	118,106	0.860	139.4	199.0	17.63	10.00
NOV.	138.41	0.72	38.31	89.61	140.03	507.41	162.705	41,600	118,752	0.860	139.8	484.1	17.63	24.48
DEC.	50.28	0.69	4.07	45.32	143.03	450.98	160.037	41,600	118,937	0.860	139.4	2827.4	211.50	183.26
MEAN														

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION 6 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 3 TIMES
 LONGEST DURATION FROM 21-TH YEAR 5-TH MONTH TO 21-TH YEAR 10-TH MONTH
 LOWEST POWER 105.8 MW

**** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A=2 KAMAN HML 295 NIPPON KOEI TOKYO/JAPAN**
 HIGH WATER LEVEL IN METER 155,000 LOW WATER LEVEL IN METER 121,000 RATED HEAD IN METER 93,190
 INSTALLED CAPACITY IN MW 128,000 DEPENDABLE CAPACITY IN MW 95,532 TARGET OPERATION HOUR A DAY 6.55
 RATED DISCHARGE IN CMS 162,973 TYPE OF RULE CURVE .. VARIABLE MASS CURVE
 RULE CURVE IN MWH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000

LENGTH OF INFLOW SERIES IN YEAR 26

***** BENEFIT CALCULATION *****
 DISCOUNT RATE 10.0 POWER DEPENDABILITY 99.0 %
 O, HOUR / YEAR KW VALUE IN US D KWH VALUE IN US D
 2950,0 160,25 0,0234
 1950,0 111,76 0,0425
 0, 63,35 0,0692

YEAR	DEPENDABLE POWER (MW)	ANNUAL ENERGY (10WH)	ANNUAL ENERGY (M US D)	ANNUAL ENERGY (M US D)	TOTAL ENERGY (M US D)	P.M.F.	PRESENT WORTH (M US D)	OPERATION HOUR (H)
1989	128,0	649,01	20,51	15,19	35,70	0,20909	32,45	5082,
1990	128,0	653,21	20,51	14,82	35,33	0,182645	29,20	4956,
1991	128,0	617,40	20,51	14,45	34,96	0,175131	26,27	4834,
1992	128,0	601,59	20,51	14,08	34,59	0,168301	23,42	4710,
1993	128,0	585,78	20,51	13,71	34,22	0,162032	21,25	4586,
1994	128,0	569,97	20,51	13,34	33,85	0,156447	19,13	4462,
1995	127,6	546,35	20,45	12,78	33,23	0,151356	17,05	4276,
1996	127,2	522,72	20,38	12,23	32,62	0,146651	15,12	4093,
1997	126,8	499,09	20,32	11,68	32,00	0,142410	13,57	3908,
1998	126,4	475,46	20,25	11,13	31,38	0,138554	12,10	3724,
1999	126,0	451,83	20,19	10,57	30,76	0,135044	10,78	3539,
2000	125,6	428,20	20,13	10,02	30,15	0,131843	9,61	3354,
2001	124,9	404,57	20,02	9,79	29,81	0,128966	8,64	3279,
2002	124,3	406,65	19,91	9,56	29,47	0,126333	7,76	3208,
2003	123,6	398,88	19,80	9,33	29,14	0,123939	6,98	3127,
2004	122,9	389,10	19,70	9,10	28,80	0,121763	6,27	3051,
2005	122,2	379,33	19,59	8,88	28,47	0,119784	5,63	2975,
2006	123,0	375,12	19,71	8,78	28,49	0,117986	5,12	2941,
2007	123,8	370,92	19,83	8,68	28,51	0,116351	4,66	2906,
2008	124,5	366,72	19,96	8,58	28,54	0,114864	4,24	2874,
2009	125,3	362,52	20,08	8,48	28,56	0,113513	3,86	2841,
2010	125,3	362,52	20,08	8,48	28,56	0,112265	3,51	2811,
2011								
2012								
2013								
2014								
2015								
2016								
2017								
2018								
2019								
2020								
2021								
2022								
2023								
2024								
2025								
2026								
2027								
2028								
2029								
2030								
SUMMARY	125,3	451,27	20,11	9,62	29,74	9,191461	319,54	3222,

*** RESULTS OF THE CASE HML= 159,000 INSTALLED CAPACITY= 128,0 STORED IN DISK FILE A81818-02 NO. 40

NIPPON KOEI TOKYO/JAPAN

DAM ** PLAN A-2 KARAN IHL 295

** RESERVOIR OPERATION STUDY OF AGOS

HIGH WATER LEVEL IN METER 125,000 LOW WATER LEVEL IN METER 121,000 RATED HEAD IN METER 93,190
 INSTALLED CAPACITY IN MW 128,000 DEPENDABLE CAPACITY IN MW 95,532 TARGET OPERATION HOUR A DAY 6,55
 RATED DISCHARGE IN CMS 102,973 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000
 LENGTH OF INFLOW SERIES IN YEAR 26

*** SUMMARY OF RESERVOIR OPERATION STUDY FOR EACH TARGET YEAR ***

YEAR	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	Q24 (CMS)	GG (CMS)	S2 (CMS)	R.W.L.Y (M)	T.H.L.L (M)	E.HEAD EFFICI (M)	POWER (MW)	O.HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)	
1989	100.74	0.77	37.79	60.17	339.66	383.95	152.237	41,600	108.238	0.860	427.5	3082.2	312.00	337.01	649.01
1994	82.02	0.77	13.53	70.52	140.12	379.28	152.237	41,600	108.234	0.860	427.5	4462.3	277.13	292.85	569.97
2000	60.79	0.74	6.68	53.56	142.34	354.12	150.559	41,600	106.476	0.860	427.1	3354.5	195.00	233.20	428.20
2005	53.05	0.74	4.83	47.48	142.85	347.17	150.043	41,600	105.937	0.860	427.1	2975.1	166.00	195.53	379.33
2009	50.28	0.74	4.17	45.36	142.91	349.40	150.225	41,600	106.119	0.860	427.3	2840.8	183.58	179.14	362.52

*** DEPENDABLE DISCHARGE , POWER OUTPUT AND ENERGY OUTPUT ***

YEAR	100.0% O(CMS)	DEPENDABLE P(MW)	95.0% O(CMS)	DEPENDABLE E(GWH)	90.0% O(CMS)	DEPENDABLE P(MW)	85.0% O(CMS)	DEPENDABLE E(GWH)	80.0% O(CMS)	DEPENDABLE P(MW)	DEPENDABLE E(GWH)
1989	37.36	95.99	26.00	37.85	128.00	26.00	38.68	128.00	39.12	128.00	26.00
1994	33.18	96.86	23.09	33.48	128.00	23.09	34.19	128.00	34.55	128.00	23.09
2000	23.35	96.31	16.25	23.61	125.60	16.25	24.08	128.00	24.33	128.00	16.25
2005	22.39	97.39	15.50	22.52	122.24	15.50	23.08	128.00	23.23	128.00	15.50
2009	21.96	96.14	15.28	22.16	125.29	15.28	22.63	123.00	22.85	128.00	15.28

** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A=2 KANAN HML 295 NIPPON KOEI TOKYO/JAPAN

HIGH WATER LEVEL IN METER 155,000 LOW WATER LEVEL IN METER 121,000 RATED HEAD IN METER ***** 93.190
 INSTALLED CAPACITY IN MW 128,000 DEPENDABLE CAPACITY IN MW 95,532 TARGET OPERATION HOUR A DAY 6.155
 RATED DISCHARGE IN CMS 162,973 TYPE OF HULL CURVE 1 VARIABLE MASS CURVE

JAN, 26,000 FEB, 26,000 MAR, 26,000 APR, 26,000 MAY, 26,000 JUNE, 26,000 JULY, 26,000 AUG, 26,000 SEP, 26,000 OCT, 26,000 NOV, 26,000 DEC, 26,000

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1989 ***

MONTH	INFLW (CMS)	EVAP0 (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (M)	T.W.L. (M)	E HEAD EFFICI.	POWER (MW)	O HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN,	145.95	0.75	21.99	121.70	139.74	421.78	155,000	41,600	111,070	0.840	128.0	662.2	26.00	58.76
FEB,	99.15	0.97	3.44	95.25	136.72	422.24	154,963	41,600	111,031	0.840	128.0	465.0	26.00	33.91
MAR,	72.95	1.13	0.71	72.67	137.00	416.36	154,799	41,600	110,859	0.840	128.0	395.0	26.00	24.56
APR,	45.88	1.28	0.07	49.90	137.74	402.46	154,245	41,600	110,277	0.840	128.0	261.3	26.00	7.44
MAY,	40.06	1.03	0.63	47.21	139.31	378.85	153,100	41,600	109,078	0.840	128.0	253.0	26.00	6.39
JUNE,	39.60	0.73	1.79	46.19	141.72	353.26	151,488	41,600	107,337	0.840	128.0	239.8	26.00	4.69
JULY,	44.03	0.97	7.41	50.63	144.41	319.58	149,349	41,600	105,143	0.860	127.6	263.9	26.00	7.89
AUG,	74.66	0.45	4.48	64.15	144.09	314.57	148,659	41,600	104,517	0.860	126.4	337.6	26.00	16.81
SEP,	82.13	0.59	1.71	74.27	142.82	319.04	149,395	41,600	105,243	0.840	126.1	381.6	26.00	22.36
OCT,	140.51	0.97	29.57	96.174	140.00	385.49	151,576	41,600	109,741	0.860	126.8	520.8	26.00	40.33
NOV,	198.28	0.97	69.28	120.36	138.26	406.39	153,208	41,600	109,142	0.860	127.2	631.3	26.00	54.61
DEC,	224.28	0.62	95.12	122.79	136.87	421.78	154,791	41,600	110,974	0.840	126.0	667.7	26.00	59.46
MEAN	100.74	0.77	19.79	80.17	139.66	383.95	152,535	41,600	108,538	0.840	127.5	508.2	312.00	337.31

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 2 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH

LOWEST POWER 96.0 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1994 ***

MONTH	INFLW (CMS)	EVAP0 (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (M)	T.W.L. (M)	E HEAD EFFICI.	POWER (MW)	O HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN,	134.21	0.75	15.99	115.99	136.81	421.78	154,906	41,600	111,015	0.860	128.0	630.4	26.00	80.69
FEB,	94.02	0.97	2.98	92.90	136.78	420.74	154,949	41,600	111,038	0.840	128.0	486.5	26.00	35.34
MAR,	70.22	1.13	0.61	69.71	136.95	417.44	154,808	41,600	110,900	0.840	128.0	379.0	26.00	25.42
APR,	42.96	1.28	0.1	46.31	137.57	405.43	154,371	41,600	110,409	0.840	128.0	242.7	26.00	7.98
MAY,	37.40	1.04	0.53	43.53	139.92	384.60	153,377	41,600	109,166	0.860	128.0	234.0	26.00	6.85
JUNE,	36.73	0.74	1.18	43.22	140.94	363.02	151,974	41,600	107,892	0.840	128.0	222.0	26.00	5.33
JULY,	26.87	0.97	4.91	41.91	143.64	339.22	150,008	41,600	105,876	0.840	127.8	218.9	26.00	4.69
AUG,	38.90	0.45	0.63	43.40	145.33	314.30	148,301	41,600	104,046	0.860	127.0	224.5	26.00	5.14
SEP,	47.00	0.57	0.1	44.80	145.47	313.35	147,581	41,600	103,134	0.860	126.1	223.9	26.00	5.17
OCT,	115.11	0.97	75.15	145.09	145.09	371.42	149,809	41,600	106,036	0.840	126.4	401.1	26.00	27.09
NOV,	161.42	0.96	36.48	113.70	139.14	396.28	152,304	41,600	105,594	0.840	127.0	595.2	26.00	52.07
DEC,	189.61	0.62	64.73	116.79	137.58	416.76	154,242	41,600	110,452	0.840	126.0	684.0	26.00	58.06
MEAN	88.82	0.77	11.93	70.12	140.12	379.28	152,237	41,600	108,234	0.840	127.5	446.3	277.13	292.83

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH

LOWEST POWER 96.9 MW

NIPPON KOEI TOKYO/JAPAN

DAM ** PLAN A-2 KANAN HML 295

** RESERVOIR OPERATION STUDY OF AGOS

HIGH WATER LEVEL IN METER 155,000 LOW WATER LEVEL IN METER 121,000 RATED HEAD IN METER 93,190
 INSTALLED CAPACITY IN MW 129,000 DEPENDABLE CAPACITY IN MW 99,532 TARGET OPERATION HOUR A DAY 6,55
 RATED DISCHARGE IN CMS 162,973 TYPE OF RULE CURVE 1) VARIABLE MASS CURVE
 RULE CURVE IN MW JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC, DFC, 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2000 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	Q24 (CMS)	Q2 (CMS)	GG (CMS)	S2 (CMS)	R.W.L. (M)	T.H.L. (M)	E. HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	109,97	0,74	0,33	138,16	407,92	153,883	41,600	109,181	0,860	127,8	528,1	16,25	51,32	67,57	
FEB	74,106	0,96	0,03	137,93	408,70	153,192	41,600	110,178	0,860	127,9	560,6	16,25	29,90	44,15	
MAR	48,91	1,11	0,1	136,43	398,44	153,819	41,600	109,626	0,860	128,0	279,3	16,25	19,50	35,75	
APR	23,52	1,25	0,1	139,75	375,78	153,817	41,600	108,778	0,860	128,0	160,5	16,25	4,30	20,55	
MAY	20,28	1,00	0,1	143,91	348,25	153,255	41,600	107,141	0,860	128,0	152,6	16,25	3,71	19,96	
JUNE	19,68	0,70	0,33	144,95	317,76	149,280	41,600	105,059	0,860	127,4	159,5	16,25	3,28	19,93	
JULY	23,83	0,55	0,1	147,03	294,86	147,436	41,600	103,133	0,860	127,4	159,5	16,25	4,09	20,94	
AUG	32,95	0,43	0,07	147,69	289,90	146,532	41,600	102,123	0,860	126,8	168,1	16,25	5,09	21,14	
SEP	31,83	0,56	0,1	147,29	289,90	146,483	41,600	102,123	0,860	126,3	152,5	16,25	3,01	19,26	
OCT	62,57	0,55	0,08	149,84	324,86	147,609	41,600	103,407	0,860	126,2	241,0	16,25	14,33	30,58	
NOV	120,07	0,54	15,61	140,51	377,70	150,842	41,600	107,138	0,860	126,5	439,3	16,25	39,73	55,98	
DEC	161,56	0,61	19,73	102,78	400,32	152,933	41,600	109,101	0,860	127,2	531,0	16,25	54,95	71,20	
MEAN	60,79	0,75	6,88	142,84	351,12	150,559	41,600	106,476	0,860	127,3	335,5	198,00	233,20	428,20	

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 6 CONTINUOUS MONTH ***

THESE DEFICITS OCCURED 5 TIMES

LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 12-TH MONTH

LOWEST POWER 96,13 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2005 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	Q24 (CMS)	Q2 (CMS)	GG (CMS)	S2 (CMS)	R.W.L. (M)	T.H.L. (M)	E. HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	98,32	0,74	6,80	136,77	406,96	153,614	41,600	109,610	0,860	128,0	468,5	15,50	44,46	59,96	
FEB	64,62	0,96	0,1	138,23	408,03	153,949	41,600	109,185	0,860	128,0	315,5	15,50	24,88	40,58	
MAR	41,95	1,10	0,1	139,80	392,99	153,584	41,600	109,564	0,860	128,0	244,9	15,50	15,85	31,35	
APR	29,06	1,24	0,1	142,41	368,55	152,305	41,600	108,241	0,860	127,9	144,3	15,50	2,94	18,46	
MAY	16,59	0,98	0,1	142,87	335,39	150,470	41,600	106,320	0,860	127,8	140,6	15,50	2,94	18,46	
JUNE	14,93	0,69	0,1	145,66	302,40	148,257	41,600	104,005	0,860	127,4	144,5	15,50	2,92	18,42	
JULY	23,13	0,54	0,1	147,46	285,70	146,501	41,600	102,191	0,860	126,7	147,1	15,50	3,15	18,65	
AUG	32,95	0,43	0,07	147,52	289,92	145,897	41,600	101,600	0,860	125,9	188,1	15,50	4,44	19,94	
SEP	31,83	0,55	0,1	146,95	292,73	145,973	41,600	101,667	0,860	125,5	189,6	15,50	3,27	18,77	
OCT	55,42	0,55	2,63	149,65	321,78	147,213	41,600	102,169	0,860	125,9	206,1	15,50	10,58	26,08	
NOV	92,70	0,54	4,76	141,92	375,74	150,377	41,600	106,160	0,860	127,0	345,4	15,50	28,57	44,07	
DEC	141,58	0,60	42,98	139,65	394,77	152,653	41,600	108,726	0,860	127,6	508,3	15,50	49,50	65,00	
MEAN	51,05	0,74	4,63	142,65	347,47	150,043	41,600	105,193	0,860	127,1	297,5	186,00	193,33	379,53	

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 7 CONTINUOUS MONTH ***

THESE DEFICITS OCCURED 3 TIMES

LONGEST DURATION FROM 9-TH YEAR 4-TH MONTH TO 9-TH YEAR 10-TH MONTH

LOWEST POWER 97,4 MW

NIPPON KOEI TOKYO/JAPAN

DAM ** PLAN A=2 KANAN HML 295

HIGH WATER LEVEL IN METER 195,000 LOW WATER LEVEL IN METER 124,000 RATED HEAD IN METER 71,000 93,190
 INSTALLED CAPACITY IN MW 126,000 DEPENDABLE CAPACITY IN MW 95,582 TARGET OPERATION HOUR A DAY 6,55
 RATED DISCHARGE IN CMS 162,973 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MHW JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000 26,000

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2009 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	G24 (CMS)	OG (CMS)	S2 (MCM)	N.W.L. (M)	T.W.L. (M)	E-HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.L.E. (GWH)	S.I.E. (GWH)	T.E. (GWH)
JAN.	90,52	0,74	5,82	81,16	138,10	406,14	153,720	41,600	109,722	128,10	440,1	15,28	41,05	56,33
FEB.	59,66	0,96	0,	60,94	138,14	408,90	153,880	41,600	109,562	128,0	293,7	15,28	22,31	37,59
MAR.	39,10	1,10	0,	41,72	138,60	398,11	153,514	41,600	109,378	128,0	225,1	15,28	19,54	28,62
APR.	17,67	1,24	0,	26,97	140,48	366,58	152,328	41,600	108,242	128,0	138,2	15,28	2,41	17,69
MAY	15,81	0,98	0,	26,21	142,95	338,10	150,518	41,600	108,166	127,9	137,2	15,28	2,97	17,95
JUNE	16,67	0,69	0,	28,40	145,68	309,90	148,362	41,600	102,408	127,6	141,7	15,28	2,80	16,98
JULY	23,13	0,54	0,	28,18	147,51	281,94	146,706	41,600	102,399	127,0	143,7	15,28	2,98	18,26
AUG.	32,95	0,43	0,07	30,95	147,50	291,02	146,203	41,600	101,805	126,3	156,5	15,28	4,52	19,90
SEP.	31,83	0,56	0,	29,90	146,89	297,84	146,357	41,600	102,074	125,9	147,7	15,28	3,32	18,61
OCT.	22,53	0,55	2,49	38,27	145,93	32,88	147,665	41,600	103,958	126,3	200,2	15,28	10,12	25,40
NOV.	84,06	0,54	1,97	81,94	141,67	380,27	150,742	41,600	106,934	127,3	318,2	15,28	25,34	40,62
DEC.	138,41	0,61	36,86	92,08	139,44	398,66	152,953	41,600	109,033	127,8	498,5	15,28	48,51	63,79
MEAN	50,20	0,74	4,17	45,36	142,81	349,40	150,225	41,600	106,119	127,3	2840,8	153,58	179,14	302,52

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 6 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 3 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 12-TH MONTH

LOWEST POWER 98,1 MW

** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KANAN HML 205 NIPPON KOEI TOKYO/JAPAN
 HIGH WATER LEVEL IN METER 145,000 LOW WATER LEVEL IN METER 114,000 WATER HEAD IN METER ***** 45,200
 INSTALLED CAPACITY IN MW 116,000 DEPENDABLE CAPACITY IN MW 85,838 TARGET OPERATION HOUR A DAY 5,45
 RATED DISCHARGE IN CMS 161,375 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC
 RULE CURVE IN MW 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031

LENGTH OF INFLOW SERIES IN YEAR 26

*** BENEFIT CALCULATION ***
 DISCOUNT RATE 10.0 POWER DEPENDABILITY 95.0 %
 O/HOUR / YEAR KWH VALUE IN US D KWH VALUE IN US D
 2550.0 140.25 0.0234
 1920.0 111.74 0.0425
 0. 63.35 0.0682

YEAR	DEPENDABLE POWER		ANNUAL ENERGY		POWER		REVENUE		TOTAL		P.M.F.		PRESENT OPERATION	
	(MW)	(M US D)	(GWH)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)	(M US D)
1989	116.0	589.95	18.80	32.39	0.90909	29.45	5095.1	26.90	4849.1	0.90909	29.45	5095.1	26.90	4849.1
1990	116.0	579.46	18.59	32.06	0.82643	26.90	4849.1	23.94	4726.1	0.82643	26.90	4849.1	23.94	4726.1
1991	116.0	561.37	18.39	31.73	0.75131	23.94	4726.1	21.44	4603.1	0.75131	23.94	4726.1	21.44	4603.1
1992	116.0	547.08	18.19	31.40	0.68301	19.28	4403.1	17.34	4480.1	0.68301	19.28	4403.1	17.34	4480.1
1993	116.0	532.79	18.00	31.06	0.62092	17.34	4480.1	15.18	4298.1	0.62092	17.34	4480.1	15.18	4298.1
1994	116.0	518.50	17.81	30.72	0.56447	15.18	4298.1	13.62	4111.1	0.56447	15.18	4298.1	13.62	4111.1
1995	115.7	497.16	17.54	30.17	0.51316	13.62	4111.1	12.33	3927.1	0.51316	13.62	4111.1	12.33	3927.1
1996	115.3	479.86	17.28	29.62	0.46651	12.33	3927.1	11.09	3743.1	0.46651	12.33	3927.1	11.09	3743.1
1997	115.0	464.54	17.03	29.07	0.42410	11.09	3743.1	10.00	3559.1	0.42410	11.09	3743.1	10.00	3559.1
1998	114.7	453.22	16.78	28.52	0.38554	10.00	3559.1	9.00	3375.1	0.38554	10.00	3559.1	9.00	3375.1
1999	114.4	441.90	16.53	27.97	0.35049	9.00	3375.1	8.14	3201.1	0.35049	9.00	3375.1	8.14	3201.1
2000	114.0	430.58	16.28	27.42	0.31863	8.14	3201.1	7.45	3027.1	0.31863	8.14	3201.1	7.45	3027.1
2001	113.4	419.40	16.03	26.87	0.28966	7.45	3027.1	6.90	2853.1	0.28966	7.45	3027.1	6.90	2853.1
2002	112.9	408.43	15.78	26.32	0.26333	6.90	2853.1	6.48	2679.1	0.26333	6.90	2853.1	6.48	2679.1
2003	112.3	397.65	15.53	25.77	0.23939	6.48	2679.1	6.14	2505.1	0.23939	6.48	2679.1	6.14	2505.1
2004	111.7	387.07	15.28	25.22	0.21763	6.14	2505.1	5.89	2331.1	0.21763	6.14	2505.1	5.89	2331.1
2005	111.1	376.69	15.03	24.67	0.19784	5.89	2331.1	5.70	2157.1	0.19784	5.89	2331.1	5.70	2157.1
2006	111.3	366.84	14.78	24.12	0.17986	5.70	2157.1	5.52	1983.1	0.17986	5.70	2157.1	5.52	1983.1
2007	111.5	357.99	14.53	23.57	0.16351	5.52	1983.1	5.35	1809.1	0.16351	5.52	1983.1	5.35	1809.1
2008	111.7	349.14	14.28	23.02	0.14864	5.35	1809.1	5.18	1635.1	0.14864	5.35	1809.1	5.18	1635.1
2009	111.9	340.29	14.03	22.47	0.13513	5.18	1635.1	5.00	1461.1	0.13513	5.18	1635.1	5.00	1461.1
2010	111.9	330.29	13.78	21.92	0.12285	5.00	1461.1	4.82	1287.1	0.12285	5.00	1461.1	4.82	1287.1
2037	111.9	330.29	13.78	21.92	0.12285	5.00	1461.1	4.82	1287.1	0.12285	5.00	1461.1	4.82	1287.1
2038	111.9	330.29	13.78	21.92	0.12285	5.00	1461.1	4.82	1287.1	0.12285	5.00	1461.1	4.82	1287.1
SUMMARY	112.4	374.59	14.07	24.84	0.191481	280.73	240.0	8.77	24.84	0.191481	280.73	240.0	8.77	24.84

*** RESULTS OF THE CASE HML= 145,000 INSTALLED CAPACITY= 116.0 STORED IN DISK FILE: A1818-02 NO. 41

** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN #2 KANAN HUL 295 NIPPON KOEI TOKYO/JAPAN

HIGH WATER LEVEL IN METER 145,000 LOW WATER LEVEL IN METER 124,000 RATED HEAD IN METER 11,000 TARGET OPERATION HOUR A DAY 5,290
 INSTALLED CAPACITY IN MW 118,000 DEPENDABLE CAPACITY IN MW 85,833
 RATED DISCHARGE IN CMS 161,375 TYPE OF RULE CURVE VARIABLE MASS CURVE
 RULE CURVE IN MW: JAN, FEB, MAR, APR, MAY, JUN, JULY, AUG, SEP, OCT, NOV, DEC
 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031

LENGTH OF INFLOW SERIES IN YEAR 26

*** SUMMARY OF RESERVOIR OPERATION STUDY FOR EACH TARGET YEAR ***

YEAR	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	GG (CMS)	52 (CMS)	R.M.L. (M)	T.W.L. (M)	E.HEAD EFFICI. (%)	POWER (MW)	Q/HOUR (M)	P.E. (GWH)	S.E. (GWH)	T.S. (GWH)
1989	107.74	0.64	20.10	138.93	303.06	143.114	41,600	99.172	115.6	5095.1	282.38	337.57	889.95
1994	82.82	0.64	11.89	159.06	297.84	142.704	41,600	99.757	115.5	4479.7	226.50	292.00	518.90
2000	67.76	0.63	6.97	140.93	282.81	141.498	41,600	97.473	115.4	3374.7	156.00	236.58	390.58
2005	59.05	0.62	5.00	122.35	270.90	140.514	41,600	96.494	115.2	2991.3	156.00	189.69	345.69
2009	50.28	0.62	4.29	112.17	270.75	140.491	41,600	96.430	115.2	2858.8	154.88	175.42	330.29

*** DEPENDABLE DISCHARGE, POWER OUTPUT AND ENERGY OUTPUT ***

YEAR	100.0% DEPENDABLE (CMS)	P(MW)	E(GWH)	95.0% DEPENDABLE (CMS)	P(MW)	E(GWH)	90.0% DEPENDABLE (CMS)	P(MW)	E(GWH)	85.0% DEPENDABLE (CMS)	P(MW)	E(GWH)	80.0% DEPENDABLE (CMS)	P(MW)	E(GWH)
1989	33.37	84.39	21.03	33.84	116.00	21.03	34.86	116.00	21.03	35.34	116.00	21.03	36.38	116.00	21.03
1994	29.81	84.53	16.87	30.34	116.00	18.87	30.83	116.00	18.88	31.32	116.00	18.88	31.82	116.00	18.88
2000	20.52	86.69	13.00	20.82	114.04	13.00	21.24	116.00	13.00	21.46	116.00	13.00	21.78	116.00	13.00
2005	20.41	86.69	13.00	20.82	111.07	13.00	21.32	116.00	13.00	21.49	116.00	13.00	21.79	116.00	13.00
2009	20.26	86.28	12.91	20.63	111.93	12.91	21.32	116.00	12.91	21.30	116.00	12.91	21.53	116.00	12.91

**** RESERVOIR OPERATION STUDY OF AGDS DAM ** PLAN A-2 KAMAN HML 295 NIPPON KOEI TOKYO/JAPAN**
 HIGH WATER LEVEL IN METER 145,000 LOW WATER LEVEL IN METER 114,000 RATED HEAD IN METER ***** 85,290
 INSTALLED CAPACITY IN MW 116,000 DEPENDABLE CAPACITY IN MW 85,933 TARGET OPERATION HOUR A DAY 5,65
 RATED DISCHARGE IN CMS 151,373 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1989 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	OG (CMS)	S2 (MCM)	R.W.L. (M)	T.H.L. (M)	E-HEAD EFFICI. (%)	POWER (MW)	O-HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	143.95	0.62	11.84	136.12	327.71	145.000	41,600	101.117	0.860	116.0	654.0	58.00	77.03
FEB	92.15	0.81	3.59	136.16	326.93	144.971	41,600	101.087	0.860	116.0	459.4	21.03	54.45
MAR	72.95	0.93	0.77	136.31	324.53	144.867	41,600	100.977	0.860	116.0	393.4	21.03	45.64
APR	49.88	1.06	0.10	136.91	315.98	144.852	41,600	100.940	0.860	116.0	254.2	21.03	29.49
MAY	40.06	0.86	0.67	141.59	299.87	143.516	41,600	99.854	0.860	116.0	210.8	21.03	27.93
JUNE	39.60	0.91	1.82	140.54	280.76	142.126	41,600	99.085	0.860	116.0	228.3	21.03	26.48
JULY	46.00	0.48	7.47	142.98	254.55	140.282	41,600	96.163	0.860	115.5	252.4	21.03	29.18
AUG	74.66	0.38	4.57	142.24	268.31	139.874	41,600	98.180	0.860	115.4	344.2	21.03	39.57
SEP	82.15	0.50	1.73	140.88	285.03	140.793	41,600	98.652	0.860	115.3	351.9	21.03	43.92
OCT	140.51	0.70	31.02	138.40	307.68	142.732	41,600	98.897	0.860	115.1	421.1	21.03	63.14
NOV	197.26	0.17	70.36	137.18	321.91	144.103	41,600	100.238	0.860	115.8	653.7	21.03	53.59
DEC	224.28	0.52	97.82	136.14	327.31	144.960	41,600	100.102	0.860	116.0	676.6	21.03	57.48
MEAN	101.74	0.84	20.30	138.53	303.06	143.114	41,600	99.172	0.860	115.6	505.1	252.38	337.57

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 2 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH LOWEST POWER 86.4 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1994 ***

MONTH	INFLOW (CMS)	EVAPOR (CMS)	SPILL (CMS)	OG (CMS)	S2 (MCM)	R.W.L. (M)	T.H.L. (M)	E-HEAD EFFICI. (%)	POWER (MW)	O-HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	134.21	0.62	15.96	136.12	327.31	144.997	41,600	101.115	0.860	116.0	641.1	18.86	55.49
FEB	96.02	0.81	2.70	136.16	326.74	144.976	41,600	101.092	0.860	116.0	458.1	18.86	34.23
MAR	70.22	0.93	0.64	136.31	324.90	144.885	41,600	100.996	0.860	116.0	378.8	18.86	25.06
APR	49.96	1.06	0.10	136.84	316.30	144.500	41,600	100.990	0.860	116.0	248.3	18.86	27.64
MAY	37.40	0.86	0.56	141.53	301.42	143.537	41,600	99.681	0.860	116.0	224.6	18.86	26.05
JUNE	36.73	0.81	1.82	140.09	285.23	142.402	41,600	98.378	0.860	116.0	233.0	18.86	24.70
JULY	29.87	0.48	0.10	142.70	259.93	140.663	41,600	98.539	0.860	115.8	252.1	18.86	23.76
AUG	34.90	0.37	0.68	141.46	249.92	139.147	41,600	94.996	0.860	115.8	217.0	18.86	24.94
SEP	41.00	0.48	0.10	143.54	250.97	138.654	41,600	94.926	0.860	115.8	224.0	18.86	25.56
OCT	110.11	0.48	15.41	140.83	294.30	140.947	41,600	97.129	0.860	115.5	421.5	18.86	30.88
NOV	160.42	0.47	37.77	138.01	312.78	143.117	41,600	99.1250	0.860	115.2	606.0	18.86	51.28
DEC	189.81	0.51	66.95	137.60	326.46	144.673	41,600	100.906	0.860	116.0	632.2	18.86	55.62
MEAN	82.82	0.84	11.89	138.53	303.06	143.104	41,600	98.757	0.860	115.5	449.7	226.50	292.00

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH LOWEST POWER 86.3 MW

NIPPON KOEI TOKYO/JAPAN

DAM ** PLAN #2 KANAN HML 295

** RESERVOIR OPERATION STUDY OF AGOS

HIGH WATER LEVEL IN METER 145,000 LOW WATER LEVEL IN METER 114,000 RATED HEAD IN METER 85,290
 INSTALLED CAPACITY IN MW 116,000 DEPENDABLE CAPACITY IN MW 85,833 TARGET OPERATION HOUR A DAY 5.85
 RATED DISCHARGE IN CMS 191,375 TYPE OF RULE CURVE * VARIABLE MASS CURVE
 RULE CURVE IN MMH JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2000 ***

MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	GG (CMS)	S2 (MCM)	R.M.L. (M)	T.M.L. (M)	E HEAD (M)	EFFICI. (%)	POWER (MW)	O HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN,	109,97	0.62	0.91	96.76	137.22	321,006	144,326	41,600	100,451	0.860	116.0	538.9	13.00	49.51	62.51
FEB,	74.08	0.80	0.10	73.25	136.79	321,000	144,492	41,600	100,579	0.860	116.0	361.0	13.00	26.87	41.67
MAR,	48.91	0.92	0.1	50.44	137.21	314,422	144,268	41,600	100,346	0.860	116.0	274.0	13.00	18.87	31.87
APR,	23.42	1.04	0.1	28.77	138.44	298.11	143,426	41,600	99,403	0.860	116.0	150.3	13.00	4.43	17.43
MAY	20.26	0.84	0.1	27.18	140.76	277,133	142,038	41,600	98,003	0.860	116.0	143.5	13.00	3.64	16.64
JUNE	19.48	0.59	0.136	26.30	143.62	252,152	140,147	41,600	96,937	0.860	116.0	148.5	13.00	4.16	17.16
JULY	31.93	0.46	0.1	28.46	145.93	238,366	138,469	41,600	94,234	0.860	114.8	161.8	13.00	5.62	18.62
AUG,	37.95	0.57	0.110	35.11	145.91	242,023	137,957	41,600	93,733	0.860	114.4	147.8	13.00	3.93	16.93
SEP,	31.83	0.48	0.1	29.37	144.84	247,116	138,233	41,600	94,075	0.860	114.4	252.9	13.00	16.13	29.13
OCT,	67.97	0.47	0.169	47.37	143.73	271,137	139,453	41,600	95,332	0.860	114.6	282.9	13.00	43.02	56.02
NOV,	120.07	0.46	0.17	92.17	139.08	297,469	141,673	41,600	98,048	0.860	113.6	565.7	13.00	92.97	105.97
DEC,	181.56	0.50	0.24	103.80	137.93	315,474	143,512	41,600	99,667	0.860	115.4	3374.7	13.00	234.38	247.38
MEAN	60.79	0.63	0.197	53.20	140.93	282,811	141,498	41,600	97,473	0.860	115.4	3374.7	13.00	234.38	247.38

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 7 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURRED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 6-TH MONTH TO 20-TH YEAR 12-TH MONTH

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2005 ***

MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	GG (CMS)	S2 (MCM)	R.M.L. (M)	T.M.L. (M)	E HEAD (M)	EFFICI. (%)	POWER (MW)	O HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN,	98.32	0.61	6.72	86.99	137.45	321,006	144,313	41,600	100,223	0.860	116.0	474.3	13.00	42.02	55.02
FEB,	64.42	0.80	0.1	64.92	137.14	318,411	144,381	41,600	100,460	0.860	116.0	319.7	13.00	24.08	37.08
MAR,	41.95	0.92	0.1	45.22	137.86	307,201	143,849	41,600	99,918	0.860	116.0	253.7	13.00	15.90	28.90
APR,	19.06	1.03	0.1	26.54	139.62	288,116	142,907	41,600	98,158	0.860	115.8	155.5	13.00	2.69	15.69
MAY	16.59	0.82	0.1	25.73	142.38	258,116	140,747	41,600	96,642	0.860	115.6	155.8	13.00	2.69	15.69
JUNE	16.93	0.57	0.1	27.20	145.88	230,391	138,477	41,600	94,246	0.860	115.6	155.8	13.00	2.74	15.74
JULY	23.13	0.55	0.1	27.58	148.00	217,971	136,718	41,600	92,413	0.860	115.9	140.8	13.00	3.20	16.20
AUG,	32.95	0.56	0.110	27.95	147.88	224,023	136,827	41,600	92,047	0.860	116.1	135.9	13.00	4.61	17.61
SEP,	31.83	0.46	0.1	29.36	144.81	229,116	136,881	41,600	92,442	0.860	116.1	148.4	13.00	3.66	16.66
OCT,	51.42	0.46	0.169	36.49	144.81	259,116	138,168	41,600	93,988	0.860	116.2	208.4	13.00	10.93	23.93
NOV,	92.70	0.45	0.174	72.16	139.49	294,422	141,346	41,600	97,473	0.860	114.6	378.0	13.00	30.63	43.63
DEC,	144.98	0.50	0.24	103.80	137.93	310,422	143,120	41,600	99,246	0.860	114.6	515.4	13.00	46.72	59.72
MEAN	53.05	0.62	0.197	47.44	142.13	270,701	140,514	41,600	96,454	0.860	115.2	2921.3	13.00	189.69	204.69

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 8 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURRED 6 TIMES
 LONGEST DURATION FROM 9-TH YEAR 3-TH MONTH TO 9-TH YEAR 10-TH MONTH

LOWEST POWER 86.7 MW

LOWEST POWER 86.7 MW

NIPPON KOEI TOKYO/JAPAN

JAM ** PLAN #2 KANAN HML 295

** RESERVOIR OPERATION STUDY OF AGOS

HIGH WATER LEVEL IN METER 145,000 LOW WATER LEVEL IN METER 114,000 RATED HEAD IN METER 85,200
 DEPENDABLE CAPACITY IN MM 110,000 TARGET OPERATION HOUR A DAY 5.85
 RATED DISCHARGE IN CMS 161,375 TYPE OF RULE CURVE 1 VARIABLE MASS CURVE
 RULE CURVE IN MM JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC
 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031 21,031

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2009 ***

MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	OS2 (CMS)	OG (CMS)	S2 (CMS)	R.M.L. (M)	T.H.L. (M)	E HEAD EFFICI. (%)	POWER (MW)	POWER (HOUR)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN	90.52	0.81	5.94	80.92	137.61	319.94	144.079	41,600	100.141	0.860	116.0	441.1	38.28	51.17
FEB	59.66	0.80	0	60.04	137.24	316.98	144.301	41,600	100.378	0.860	116.0	295.7	21.40	34.130
MAR	39.16	0.82	0	42.16	136.03	306.83	143.774	41,600	99.824	0.860	116.0	239.4	13.71	26.61
APR	19.87	1.03	0	25.145	135.85	283.94	142.525	41,600	98.508	0.860	116.0	131.5	2.82	15.25
MAY	15.81	0.81	0	24.86	142.66	297.52	140.958	41,600	96.544	0.860	115.9	130.5	2.52	15.13
JUNE	20.67	0.57	0	27.34	147.87	277.83	136.871	41,600	92.173	0.860	115.6	134.0	2.39	15.30
JULY	21.13	0.45	0	27.34	147.87	277.83	136.871	41,600	92.173	0.860	115.6	134.0	3.14	16.05
AUG	32.95	0.38	0.10	29.88	147.95	274.11	138.295	41,600	92.019	0.860	115.0	133.7	4.66	17.57
SEP	31.83	0.46	0	29.13	146.35	299.61	136.670	41,600	92.430	0.860	115.5	145.4	3.62	16.52
OCT	52.53	0.46	2.70	56.64	144.56	258.83	134.913	41,600	94.049	0.860	114.0	204.0	10.50	23.40
NOV	84.06	0.45	2.80	66.49	139.85	286.27	141.334	41,600	97.688	0.860	114.7	326.1	27.29	40.19
DEC	134.41	0.50	39.26	92.66	138.19	311.77	143.242	41,600	99.408	0.860	115.5	505.6	41.89	58.60
MEAN	50.28	0.62	4.29	45.37	142.17	270.75	140.491	41,600	96.430	0.860	115.2	2898.8	175.42	330.29

*** THESE ARE POWER DEFICIT OF THE LONGEST DURATION 7 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 6 TIMES
 LONGEST DURATION FROM 20-TH YEAR 6-TH MONTH TO 20-TH YEAR 12-TH MONTH

LOWEST POWER 84.3 MW

** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KANAN HHL 295 NIPPON KOEI TOKYO/JAPAN
 HIGH WATER LEVEL IN METER 165,000 LOW WATER LEVEL IN METER 128,000 KATED HEAD IN METER 102.020
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 106,499 TARGET OPERATION HOUR A DAY 7.32
 RATED DISCHARGE IN CMS 162.824 TYPE OF RULE CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MW JAN, FEB, MAR, APR, MAY, JUNE, JULY, AUG, SEP, OCT, NOV, DEC,
 31,781 31,781 31,781 31,781 31,781 31,781 31,781 31,781 31,781 31,781 31,781 31,781

LENGTH OF INFLOW SERIES IN YEAR 26

*** BENEFIT CALCULATION ***
 DISCOUNT RATE 10.0 POWER DEPENDABILITY 95.0 %
 O, HOUR / YEAR KW VALUE IN US D KWH VALUE IN US D
 2550,0 100,25 0,0254
 1950,0 111,76 0,0423
 D, 63,65 0,0682

YEAR	DEPENDABLE POWER (MW)	ANNUAL ENERGY (GWH)	ANNUAL POWER (M US D)	BENEFIT ENERGY (M US D)	TOTAL (M US D)	P, M, F,	PRESENT OPERATION MONTH (M US D)	PRESENT OPERATION HOUR
1989	140,0	707,66	22,43	16,81	39,04	0,90909	39,49	5081,
1990	140,0	692,24	22,43	16,20	38,53	0,82645	35,93	4856,
1991	140,0	674,82	22,43	15,79	38,23	0,75131	28,72	4852,
1992	140,0	657,40	22,43	15,38	37,82	0,68303	23,83	4707,
1993	140,0	639,98	22,43	14,98	37,41	0,62042	23,23	4582,
1994	140,0	622,56	22,43	14,57	37,00	0,56447	20,89	4457,
1995	140,0	596,82	22,43	13,97	36,40	0,51316	19,68	4273,
1996	140,0	571,07	22,43	13,36	35,80	0,46651	19,70	4089,
1997	140,0	545,33	22,43	12,76	35,20	0,42410	19,93	3906,
1998	140,0	519,58	22,43	12,16	34,59	0,38554	13,34	3722,
1999	140,0	493,84	22,43	11,56	33,99	0,35049	11,91	3536,
2000	140,0	468,10	22,43	10,95	33,39	0,31864	10,64	3354,
2001	139,3	457,37	22,38	10,70	33,08	0,29266	9,58	3277,
2002	139,3	446,65	22,32	10,45	32,77	0,26533	8,63	3200,
2003	138,9	435,92	22,26	10,20	32,46	0,24939	7,77	3124,
2004	138,5	425,20	22,20	9,95	32,15	0,23763	7,00	3047,
2005	138,2	414,48	22,14	9,70	31,84	0,22784	6,30	2970,
2006	138,1	409,73	22,18	9,59	31,77	0,21986	5,71	2906,
2007	138,7	404,98	22,23	9,48	31,70	0,21351	5,18	2901,
2008	139,0	400,24	22,27	9,37	31,64	0,214864	4,70	2857,
2009	139,3	395,49	22,31	9,25	31,57	0,21313	4,27	2833,
2010	139,3	395,49	22,31	9,25	31,57	0,21285	3,89	2833,
2037	139,3	395,49	22,31	9,25	31,57	0,00937	0,50	2833,
2038	139,3	395,49	22,31	9,25	31,57	0,00892	0,27	2833,
SUMMARY	139,4	449,01	22,33	10,51	32,84	9,94481	351,39	3216,

*** RESULTS OF THE CASE HHL= 165,000 INSTALLED CAPACITY= 140,0 STORED IN DISK FILE A1818=02 NO, 42

RESERVOIR OPERATION STUDY OF AGOS DAM AA PLAD A-2 KANAW HWL 295 NIPPON KOEI TOKYO/JAPAN

HIGH-WATER LEVEL IN MIHIR 145,000 LOW-WATER LEVEL IN MIHIR 124,000 RATED HEAD IN MIHIR 106.020
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 106,699 TARGET OPERATION HOUR A DAY 7.52
 RATED DISCHARGE IN CMS 162.824 TYPE OF PULF CURVE .. VARIABLE MASS. CURVE
 RULE CURVE IN MWH JAN. 51.781 FEB. 51.781 MAR. 51.781 APR. 51.781 MAY 51.781 JUNE 51.781 JULY 51.781 AUG. 51.781 SEP. 51.781 OCT. 51.781 NOV. 51.781 DEC. 51.781

LENGTH OF INFLOW SERIES IN YEAR 20

*** SUMMARY OF RESERVOIR OPERATION STUDY FOR EACH TARGET YEAR ***

YEAR	INFLOW (CMS)	EVAP. (CMS)	SPIII (CMS)	Q24 (CMS)	QC (CMS)	S2 (CMS)	P-W.L. (CM)	T-W.L. (CM)	F-HEAD EFFICI. (CM)	POWER (MW)	O-HOUR (H)	P.E. (CGWH)	S.F. (CGWH)	T.S. (CGWH)
1989	108.74	0.97	19.40	80.57	160.57	475.16	161.977	41,600	116.203	0.860	139.4	5041.1	541.34	528.24
1994	82.82	0.92	11.09	70.81	140.91	477.29	161.552	41,600	117.725	0.860	139.5	4437.1	541.63	280.94
2000	60.79	0.90	6.44	53.65	107.27	454.57	160.276	41,600	116.441	0.860	139.5	3334.1	228.00	240.10
2005	53.05	0.89	4.72	47.64	102.58	450.25	160.062	41,600	116.202	0.860	139.5	2970.0	215.25	199.25
2009	50.24	0.89	4.09	45.10	102.64	440.82	160.075	41,600	116.204	0.860	139.4	2832.4	212.25	185.24

*** DEPENDABLE DISCHARGE / POWER OUTPUT AND ENERGY OUTPUT ***

YEAR	Q (CMS)	H (MW)	% DEPENDABLE	95.0 (CMS)	F (CGWH)	% DEPENDABLE	90.0 (CMS)	F (CGWH)	% DEPENDABLE	85.0 (CMS)	F (CGWH)	% DEPENDABLE	80.0 (CMS)	F (CGWH)	% DEPENDABLE
1989	41.81	106.04	51.78	42.55	140.00	51.74	43.55	140.00	51.74	43.55	140.00	51.74	44.43	140.00	51.74
1994	37.45	106.45	28.47	37.29	140.00	28.47	38.54	140.00	28.47	38.54	140.00	28.47	38.54	140.00	28.47
2000	23.67	105.02	19.00	25.28	140.00	19.00	25.76	140.00	19.00	26.04	140.00	19.00	26.28	140.00	19.00
2005	23.67	105.64	17.94	23.94	134.15	17.94	24.43	140.00	17.94	24.56	140.00	17.94	24.77	140.00	17.94
2009	23.27	105.41	17.69	25.54	139.25	17.69	24.00	140.00	17.69	24.19	140.00	17.69	24.38	140.00	17.69

NIPPON-KOJI TOKYO/JAPAN

DAM ** PLAN A-2 YAMAN HWL '295

** RESERVOIR OPERATION STUDY OF AGOS

HIGH WATER LEVEL IN METER 165,000 LOW WATER LEVEL IN METER 128,000 RATIO HEAD IN METER 102.020
 INSTALLED CAPACITY IN MW 160,000 DEPENDABLE CAPACITY IN MW 104,499 TARGET OPERATION HOUR A DAY 7.32
 RATED DISCHARGE IN CMS 162,824 TYPE OF RULF CURVE ** VARIABLE MASS CURVE
 RULF CURVE IN MHW JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 51.781 51.781 51.781 51.781 51.781 51.781 51.781 51.781 51.781 51.781 51.781 51.781

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1989 ***

MONTH	INFLOW (CMS)	EVAP. (CMS)	SPILL (CMS)	0.74 (CMS)	0.74 (CMS)	0.6 (CMS)	SZ (CMS)	R.W.L. (M)	T.W.L. (M)	F.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	143.95	0.91	21.52	120.11	156.99	560.42	164.967	41.600	121.257	0.860	140.0	652.4	31.78	59.55	91.33
FEB.	99.95	1.17	3.56	95.33	117.00	538.69	164.957	41.600	121.247	0.860	140.0	652.4	31.78	33.70	65.48
MAR.	72.95	1.15	0.69	74.71	157.28	531.16	164.725	41.600	121.005	0.860	140.0	599.9	31.78	26.21	55.99
APR.	45.88	1.25	0.05	52.40	198.11	510.17	163.996	41.600	120.247	0.860	140.0	273.4	31.78	6.50	38.28
MAY	39.60	0.87	1.78	50.59	142.27	664.19	160.809	41.600	116.927	0.860	140.0	266.1	31.78	5.48	37.26
JUNE	46.05	0.67	7.58	55.97	145.08	403.35	158.527	41.600	114.552	0.860	139.7	279.7	31.78	7.29	39.07
JULY	74.66	0.53	4.62	83.74	145.11	417.54	157.665	41.600	113.756	0.860	138.5	332.2	31.78	14.34	46.12
AUG.	82.15	0.70	1.69	74.57	144.09	650.95	158.217	41.600	114.802	0.860	138.1	379.5	31.78	20.82	52.60
SEP.	160.51	0.70	28.06	91.11	141.26	686.20	160.510	41.600	116.815	0.860	138.6	487.2	31.78	36.02	67.80
OCT.	198.28	0.68	68.10	120.29	138.94	510.67	162.600	41.600	118.695	0.860	139.0	628.7	31.78	53.95	87.73
NOV.	224.28	0.74	92.41	121.41	137.67	536.09	164.329	41.600	120.753	0.860	140.0	658.1	31.78	60.36	92.16
DEC.	100.74	0.97	19.50	80.57	160.47	685.16	161.977	41.600	118.201	0.860	139.5	504.1	31.78	32.28	70.66

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 3 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH
 LOWEST POWER 106.0 MW

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 1994 ***

MONTH	INFLOW (CMS)	EVAP. (CMS)	SPILL (CMS)	0.74 (CMS)	0.6 (CMS)	SZ (CMS)	R.W.L. (M)	T.W.L. (M)	F.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)	
JAN.	154.21	0.90	15.55	134.02	157.65	537.66	164.618	41.600	120.904	0.860	140.0	618.7	28.47	58.15	86.62
FEB.	96.02	1.17	2.51	72.10	157.17	537.89	164.662	41.600	121.344	0.860	140.0	652.0	28.47	36.81	63.28
MAR.	70.27	1.15	0.59	70.97	147.24	537.69	164.757	41.600	121.041	0.860	140.0	581.0	28.47	24.87	53.16
APR.	42.96	1.24	0.00	38.54	157.99	514.25	164.140	41.600	120.598	0.860	140.0	253.7	28.47	7.04	35.51
MAY	37.40	1.24	0.50	66.12	159.65	686.22	162.920	41.600	119.848	0.860	140.0	246.8	28.47	6.09	34.56
JUNE	36.73	0.84	7.16	66.10	141.53	456.66	161.358	41.600	117.500	0.860	140.0	235.5	28.47	4.51	32.98
JULY	29.87	0.64	0.00	65.86	144.50	411.09	159.233	41.600	115.283	0.860	139.9	238.2	28.47	4.65	33.52
AUG.	38.90	0.53	0.62	65.50	146.36	388.58	157.172	41.600	115.157	0.860	139.1	238.4	28.47	4.71	33.18
SEP.	45.00	0.67	0.00	67.29	146.95	380.90	156.059	41.600	112.038	0.860	138.2	253.4	28.47	3.77	32.24
OCT.	112.11	0.67	13.62	69.16	143.67	657.63	158.142	41.600	114.575	0.860	138.2	365.1	28.47	22.18	50.65
NOV.	140.42	0.66	34.40	109.57	140.05	498.68	161.667	41.600	117.969	0.860	138.8	570.8	28.47	31.13	79.60
DEC.	149.83	0.74	41.06	115.27	158.67	527.45	163.667	41.600	119.974	0.860	140.0	623.5	28.47	58.83	87.29
MEAN	82.82	0.92	11.09	70.81	160.91	477.20	161.552	41.600	117.745	0.860	139.5	445.7	341.63	280.94	522.56

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 5 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 11-TH MONTH
 LOWEST POWER 106.9 MW

NIPPON KOEI TOKYO/JAPAN

RESERVOIR OPERATION STUDY OF AGOS

PLAN A-2 YAMAN HWL 295
 HIGH WATER LEVEL IN METER 102.000 LOW WATER LEVEL IN METER 174.000 RATED HEAD IN METER 102.020
 INSTALLED CAPACITY IN MW 140.000 DEPENDABLE CAPACITY IN MW 104.499 TARGTY OPERATION HOUR A DAY 7.32
 RATED DISCHARGE IN CMS 162.824 TYPE OF RULF CURVF ** VARIABLE MASS CURVE
 RULF CURVE IN MWH JAN. 31.781 FEB. 31.781 MAR. 31.781 APR. 31.781 MAY 31.781 JUNE 31.781 JULY 31.781 AUG. 31.781 SEP. 31.781 OCT. 31.781 NOV. 31.781 DEC. 31.781

LENGTH OF INTIUM SPIELS IN YEAR 76

MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2000 ***

MONTH	INFLOW (CMS)	EVAPRO. (CMS)	SPELL (CMS)	Q74 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (M)	T.W.L. (M)	F-HEAD EFFICI. (CM)	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	109.97	0.89	0.01	148.75	571.29	165.672	41.600	119.906	0.860	140.0	577.4	19.00	54.84	73.84
FEB.	76.08	1.15	0.01	138.72	519.59	161.690	41.600	120.154	0.860	140.0	560.2	19.00	51.65	50.45
MAR.	48.91	1.45	0.0	138.67	406.88	163.618	41.600	119.767	0.860	140.0	282.4	19.00	20.35	39.55
APR.	23.52	1.50	0.0	140.17	406.35	162.503	41.600	118.692	0.860	140.0	166.5	19.00	4.10	23.50
MAY	20.26	1.20	0.0	142.06	448.50	160.981	41.600	117.108	0.860	140.0	162.7	19.00	3.78	22.78
JUNE	19.68	0.86	0.51	144.21	414.19	159.895	41.600	115.151	0.860	139.7	159.7	19.00	3.51	22.31
JULY	23.84	0.66	0.0	142.43	380.45	157.547	41.600	112.544	0.860	139.0	167.2	19.00	4.28	23.26
AUG.	32.95	0.52	0.06	146.44	315.10	156.569	41.600	112.353	0.860	138.5	174.9	19.00	5.21	24.21
SEP.	51.85	0.07	0.0	146.44	243.75	156.050	41.600	112.036	0.860	137.9	166.9	19.00	2.60	21.60
OCT.	62.57	0.66	4.75	145.13	175.53	157.018	41.600	115.109	0.860	137.9	242.1	19.00	16.53	55.53
NOV.	126.07	0.66	13.67	141.51	465.49	160.510	41.600	116.777	0.860	138.8	404.5	19.00	37.84	56.64
DEC.	161.56	0.73	49.25	139.11	512.13	162.808	41.600	119.190	0.860	139.4	549.7	19.00	57.87	76.87
MEAN	60.79	0.90	6.64	142.27	454.57	160.276	41.600	116.441	0.860	139.3	535.1	228.00	240.10	468.10

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION A CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 5 TIMES
 LONGEST DURATION FROM 20-TH YEAR 7-TH MONTH TO 20-TH YEAR 12-TH MONTH
 LOWEST POWER 105.0 MW

MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2005 ***

MONTH	INFLOW (CMS)	EVAPRO. (CMS)	SPELL (CMS)	Q74 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (M)	T.W.L. (M)	F-HEAD EFFICI. (CM)	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)	
JAN.	98.52	0.88	6.55	166.17	139.01	517.85	163.436	41.600	112.601	0.860	140.0	466.2	17.94	47.33	65.27
FEB.	64.62	1.15	0.0	146.63	138.62	515.06	163.703	41.600	112.943	0.860	140.0	312.6	17.94	26.24	44.18
MAR.	41.95	1.32	0.0	144.88	139.03	503.67	163.563	41.600	119.615	0.860	140.0	241.8	17.94	15.92	33.85
APR.	19.06	1.49	0.0	140.50	478.86	162.215	41.600	118.410	0.860	140.0	149.5	17.94	3.00	20.95	
MAY	16.59	1.19	0.0	142.68	439.38	160.530	41.600	116.637	0.860	140.0	148.3	17.94	2.82	20.75	
JUNE	16.93	0.84	0.0	144.79	407.94	158.505	41.600	114.545	0.860	139.5	151.1	17.94	3.15	21.09	
JULY	23.13	0.65	0.0	146.51	385.85	156.890	41.600	112.888	0.860	138.9	151.9	17.94	3.17	21.11	
AUG.	32.95	0.52	0.06	146.44	380.25	156.253	41.600	112.261	0.860	138.2	161.8	17.94	4.44	22.38	
SEP.	51.85	0.67	0.0	146.03	315.10	156.217	41.600	112.227	0.860	137.7	152.2	17.94	3.01	20.35	
OCT.	62.57	0.66	2.47	145.03	175.53	157.262	41.600	115.523	0.860	138.0	203.4	17.94	10.52	28.66	
NOV.	126.07	0.66	4.19	141.51	465.49	160.055	41.600	116.289	0.860	139.7	328.1	17.94	27.88	45.82	
DEC.	144.58	0.72	42.43	139.73	505.20	162.559	41.600	118.878	0.860	139.7	498.1	17.94	51.75	69.69	
MEAN	53.05	0.89	4.72	147.44	450.75	160.062	41.600	116.202	0.860	139.3	2970.0	215.25	199.23	414.48	

*** THERE ARE POWER DEFICIT OF THE LONGEST DURATION 6 CONTINUOUS MONTH ***
 THESE DEFICITS OCCURED 5 TIMES
 LONGEST DURATION FROM 21-TH YEAR 5-TH MONTH TO 21-TH YEAR 10-TH MONTH
 LOWEST POWER 105.6 MW

NIPPON KOEI TOKYO/JAPAN

PLAN A-2 KANAN HWL 295

STUDY OF AGUS

HIGH WATER LEVEL IN METER 165.000 LOW WATER LEVEL IN METER 129.000 RATED HEAD IN METER ***** 102.070
 INSTALLED CAPACITY IN MW 140.000 DEPENDABLE CAPACITY IN MW 106.409 TARGET OPERATION HOUR A DAY 7.32
 RATED DISCHARGE IN CMS 162.924 TYPE OF PUMP CURVE ** VARIABLE MASS CURVE
 RULE CURVE IN MW JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY SUMMARY OF RESERVOIR OPERATION STUDY FOR THE TARGET YEAR 2009 ***

MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SHILL (CMS)	Q24 (CMS)	G6 (CMS)	S2 (CMS)	R.W.L. (CM)	T.W.L. (M)	E.HEAD (FFICI.) (CM)	POWER (MW)	O. HOUR (HR)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
JAN.	90.52	0.88	5.76	80.40	158.94	516.53	163.472	41.600	119.713	140.0	434.9	17.69	43.20	60.89
FEB.	59.66	1.14	0.	60.42	138.78	511.90	163.584	41.600	119.816	140.0	294.8	17.69	23.58	41.27
MAR.	39.16	1.32	0.	41.72	139.26	401.51	161.197	41.600	119.913	140.0	274.5	17.69	13.75	31.44
APR.	17.87	1.49	0.	28.07	140.67	471.19	162.122	41.600	118.294	140.0	144.3	17.69	2.51	20.20
MAY	15.81	1.18	0.	29.62	146.97	481.60	158.437	41.600	116.529	140.0	142.8	17.69	2.29	19.98
JUNE	16.67	0.85	0.	24.95	140.57	581.27	156.893	41.600	112.893	139.1	148.3	17.69	3.01	20.70
JULY	23.13	0.65	0.06	31.06	146.58	387.78	156.337	41.600	112.340	138.6	159.6	17.69	4.42	22.11
AUG.	32.95	0.52	0.	30.72	146.17	390.21	156.566	41.600	112.370	138.0	150.1	17.69	3.02	20.70
SEP.	31.83	0.67	0.	30.72	146.17	390.21	156.566	41.600	112.370	138.0	150.1	17.69	3.02	20.70
OCT.	52.53	0.66	2.33	58.16	145.10	420.67	157.443	41.600	113.526	138.3	199.5	17.69	9.99	27.68
NOV.	84.06	0.65	1.00	88.62	142.54	481.37	140.174	41.600	114.568	139.4	301.8	17.69	24.47	42.16
DEC.	138.41	0.72	38.43	89.59	139.71	507.21	162.689	41.600	119.018	139.8	484.0	17.69	50.05	67.74
MEAN	50.28	0.89	4.09	45.30	142.68	450.62	160.075	41.600	116.204	139.4	2852.8	212.25	183.24	395.49

*** THERE ARE POWER DEFICIT OF THE (LONGEST DURATION: 6 CONTINUOUS MONTH) ***

THESE DEFICITS OCCURED 3 TIMES

LONGEST DURATION FROM 71-TH YEAR 5-TH MONTH TO 71-TH YEAR 10-TH MONTH

LOWEST POWER 105.4 MW

HIGH WATER LEVEL IN METER 165,000 LOW WATER LEVEL IN METER 128,000 RATED HEAD IN METER ***** 107.020
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 104,499 TARGET OPERATION HOUR A DAY 7.32
 RATED DISCHARGE IN CMS 162.824 TYPE OF RULF CURVE .. VARIABLE MASS CURVE
 RULF CURVE IN MWH JAN. 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781 31.781
 FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY DISCHARGE IN ASCENDING ORDER ***

0	41.81	41.80	41.87	41.92	41.96	41.96	41.97	41.99	42.01	42.01	42.17
10	42.21	42.22	42.25	42.31	42.31	42.34	42.37	42.38	42.42	42.43	42.53
20	42.65	42.77	42.78	42.80	43.04	43.21	43.22	43.23	43.26	43.29	43.29
30	43.31	43.35	43.35	43.37	43.38	43.38	43.39	43.40	43.40	43.45	43.45
40	43.68	43.51	43.52	43.66	43.67	43.75	43.82	43.83	43.85	43.86	43.86
50	43.97	43.99	43.99	44.00	44.07	44.08	44.10	44.13	44.18	44.24	44.24
60	44.30	44.34	44.43	44.44	44.54	44.54	44.55	44.55	44.58	44.64	44.64
70	44.65	44.69	44.72	44.73	44.74	44.74	44.80	44.81	44.88	44.97	44.97
80	45.10	45.33	45.39	45.43	45.53	45.53	45.57	45.61	45.87	45.89	45.89
90	45.95	46.08	46.12	46.29	46.56	46.45	46.55	46.71	46.80	46.83	46.83
100	46.89	46.90	47.02	47.12	47.20	47.22	47.34	47.77	47.96	48.00	48.00
110	48.27	48.29	48.41	48.57	48.73	48.90	49.46	49.47	49.49	49.70	49.70
120	49.85	50.11	50.20	50.81	51.15	51.23	51.35	51.48	51.89	52.50	52.50
130	52.51	53.00	53.32	53.51	53.60	53.71	54.56	54.59	54.61	55.14	55.14
140	55.43	55.82	56.11	56.33	56.40	56.47	59.06	59.51	59.79	60.33	60.33
150	60.61	60.66	60.80	60.91	60.96	61.13	61.72	62.10	62.10	63.07	63.07
160	65.17	65.64	66.22	66.40	66.44	66.44	68.16	68.55	68.70	69.85	69.85
170	67.77	68.49	68.11	69.97	72.71	75.85	76.58	77.25	77.87	77.89	77.89
180	78.41	79.05	79.57	79.90	80.38	81.46	81.73	84.65	87.93	88.38	88.38
190	89.02	89.52	89.65	92.02	92.39	92.39	92.46	95.31	96.12	97.67	97.67
200	98.54	98.74	99.36	99.60	99.66	99.53	99.69	99.97	100.09	102.40	102.40
210	102.88	106.19	106.39	106.92	108.62	108.42	111.95	112.30	112.73	113.65	113.65
220	113.96	115.97	116.52	116.68	116.60	117.24	117.86	122.36	122.45	124.49	124.49
230	125.03	125.75	126.68	127.72	128.58	129.09	129.12	131.41	132.49	133.45	133.45
240	134.65	134.87	135.16	136.01	136.27	136.95	136.95	136.95	136.95	136.95	136.95
250	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
260	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
270	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
280	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
290	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
300	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
310	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95

*** MONTHLY POWER IN ASCENDING ORDER ***

0	106.04	108.35	117.75	118.65	125.64	125.61	131.10	137.82	139.91	139.91	139.91
10	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
20	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
30	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
40	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
50	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
60	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
70	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
80	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
90	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00

	1	2	3	4	5	6	7	8	9	10
100	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
110	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
120	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
130	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
140	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
150	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
160	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
170	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
180	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
190	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
200	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
210	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
220	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
230	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
240	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
250	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
260	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
270	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
280	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
290	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
300	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
310	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00

*** MONTHLY ENERGY IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
100	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
110	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
120	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
130	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
140	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
150	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
160	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
170	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
180	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
190	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
200	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
210	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
220	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
230	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
240	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
250	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
260	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
270	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
280	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
290	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
300	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
310	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
0	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
10	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
20	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
30	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
40	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
50	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
60	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
70	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
80	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
90	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
100	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
110	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
120	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
130	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
140	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47	28.47
150	30.40	30.45	30.64	31.13	32.22	32.44	32.80	33.40	33.52	34.82
160	34.87	35.03	35.46	35.69	35.93	36.09	36.32	36.47	36.50	36.81
170	36.90	37.29	37.53	37.98	38.04	38.30	38.56	39.01	40.10	40.79
180	41.64	42.54	42.67	42.71	42.79	42.86	43.71	44.07	44.17	44.27
190	45.15	45.41	46.56	47.27	47.40	47.40	48.82	49.45	50.98	51.51
200	52.17	53.19	55.64	54.43	55.16	55.64	56.74	57.61	57.99	58.32
210	58.96	59.18	59.60	61.03	63.66	64.17	64.55	66.62	68.92	68.39
220	69.27	69.36	72.95	73.52	74.04	75.15	76.27	76.51	78.69	80.29
230	80.38	81.17	81.17	81.84	83.73	84.59	84.78	85.74	85.74	86.00
240	84.18	87.60	87.82	87.99	89.05	89.54	91.83	91.85	91.93	92.46
250	93.56	94.08	94.08	94.04	94.08	94.67	94.58	95.06	95.68	95.79
260	96.01	96.75	97.22	97.60	99.55	99.89	100.38	100.80	100.80	100.80
270	100.80	100.80	100.80	100.80	100.80	100.80	100.80	100.80	100.80	100.80
280	101.56	101.71	102.79	103.16	104.16	104.16	104.16	104.16	104.16	104.16
290	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16
300	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16
310	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16	104.16

*** MONTHLY ENERGY IN ASCENDING ORDER ***

1994

NIPPON KOLEI TOKYO/JAPAN

PLAN A-2 SAHAR HSI 2/5

RESERVOIR OPERATION STUDY DE AGOS

HIGH WATER LEVEL IN METER 165.000 LOW WATER LEVEL IN METER 128.000 RATED HEAD IN METER ***** 102.070
 INSTALLED CAPACITY IN MW 140.000 DEPENDABLE CAPACITY IN MW 104.499 TARGET OPERATION HOUR A DAY 6.56
 RATED DISCHARGE IN CFS 107,824 TYP OF BULL CURVE .. VARIABLE MASS CURVE

RULE CURVE IN MWH JAN. 28,469 FEB. 28,469 MAR. 28,469 APR. 28,469 MAY 28,469 JUNE 28,469 JULY 28,469 AUG. 28,469 SEP. 28,469 OCT. 28,469 NOV. 28,469 DEC. 28,469

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY DISCHARGE IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
0	37.45	37.44	37.47	37.50	37.50	37.52	37.55	37.55	37.55	37.56
10	37.57	37.61	37.74	37.74	37.77	37.78	37.79	37.80	37.86	37.88
20	37.99	37.91	37.94	37.99	38.02	38.09	38.10	38.20	38.27	38.27
30	38.36	38.37	38.45	38.51	38.53	38.65	38.68	38.73	38.74	38.76
40	38.79	38.79	38.80	38.81	38.82	38.83	38.83	38.85	38.92	38.94
50	39.02	39.04	39.04	39.05	39.05	39.08	39.13	39.16	39.17	39.19
60	39.20	39.20	39.21	39.26	39.34	39.39	39.39	39.45	39.46	39.56
70	39.56	39.58	39.61	39.66	39.66	39.70	39.72	39.72	39.74	39.74
80	39.76	39.76	39.84	39.86	39.90	39.91	39.92	39.98	40.07	40.07
90	40.14	40.27	40.34	40.36	40.42	40.46	40.47	40.48	40.53	40.56
100	40.60	40.60	40.71	40.90	40.95	41.10	41.19	41.25	41.41	41.44
110	41.58	41.69	41.77	41.79	42.00	42.05	42.18	42.26	42.32	42.32
120	42.35	42.35	42.36	42.39	42.41	42.49	42.65	42.74	43.02	43.02
130	43.13	43.26	43.34	43.44	43.46	43.71	43.78	43.88	43.91	44.07
140	44.15	44.33	44.30	44.32	44.43	44.57	44.74	44.85	44.96	44.96
150	46.00	46.11	46.34	46.47	46.88	47.06	47.27	47.45	47.64	47.81
160	48.06	48.51	48.52	49.00	49.50	49.59	49.65	50.07	50.69	50.99
170	51.60	51.69	51.70	52.23	52.47	53.20	53.29	54.24	56.26	56.33
180	57.40	57.95	58.03	58.10	59.57	59.58	60.15	60.61	62.02	62.02
190	62.04	62.15	62.16	62.45	63.26	64.29	64.97	64.99	66.24	66.94
200	70.55	70.88	73.16	73.95	74.61	74.70	74.95	75.75	76.68	77.82
210	79.69	80.25	84.62	85.85	86.76	89.02	91.28	92.96	94.21	96.67
220	96.88	96.90	96.98	97.36	97.41	100.29	103.46	105.57	106.81	107.13
230	107.61	109.59	109.63	110.10	111.23	111.41	112.74	115.28	115.54	115.70
240	117.08	117.23	117.85	120.74	120.77	121.57	123.01	123.81	124.98	125.20
250	125.95	126.24	127.21	127.87	127.84	128.32	128.36	128.51	129.75	131.34
260	131.89	133.53	133.75	135.83	135.15	135.25	136.95	136.95	136.95	136.95
270	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
280	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
290	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
300	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
310	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95

*** MONTHLY POWER IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
0	106.95	109.29	114.10	124.76	124.79	131.75	133.39	135.10	135.23	136.57
10	136.95	132.82	139.95	140.00	140.00	140.00	140.00	140.00	140.00	140.00
20	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
30	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
40	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
50	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
60	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
70	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
80	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
90	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00

2000

NIPPON KOFI TOKYO/JAPAN

PLAN A-2 BANAN-HW 295

RESERVOIR OPERATION STUDY OF AGDS

HIGH WATER LEVEL IN METER 105.000 LOW WATER LEVEL IN METER 124.000 RATED HEAD IN METER ***** 102.020
 INSTALLED CAPACITY IN MW 140.000 DEPLENABLE CAPACITY IN MW 104.499 TARGET OPERATION HOUR A DAY 4.38
 RATED DISCHARGE IN CMS 162.824 TYPE OF RULI CURVE ** VARIABLE MASS CURVE
 RULF CURVE IN MW: JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
 19.000 19.000 19.000 19.000 19.000 19.000 19.000 19.000 19.000 19.000 19.000 19.000

LENGTH OF INFLOW SERIES IN YEAR 26

*** MONTHLY DISCHARGE IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
0	25.02	25.03	25.04	25.05	25.06	25.11	25.13	25.14	25.18	25.19
10	25.20	25.21	25.22	25.23	25.24	25.25	25.26	25.27	25.40	25.42
20	25.45	25.46	25.47	25.48	25.49	25.50	25.51	25.52	25.71	25.72
30	25.74	25.76	25.78	25.80	25.82	25.84	25.86	25.87	25.92	25.94
40	25.95	25.96	25.98	26.00	26.02	26.04	26.06	26.07	26.04	26.05
50	26.08	26.09	26.10	26.11	26.12	26.13	26.14	26.15	26.20	26.20
60	26.24	26.25	26.26	26.27	26.28	26.29	26.30	26.31	26.34	26.34
70	26.42	26.44	26.46	26.47	26.48	26.49	26.50	26.51	26.52	26.53
80	26.63	26.64	26.65	26.66	26.67	26.68	26.69	26.70	26.71	26.72
90	26.84	26.85	26.86	26.87	26.88	26.89	26.90	26.91	26.92	26.93
100	27.02	27.03	27.04	27.05	27.06	27.07	27.08	27.09	27.10	27.11
110	27.30	27.31	27.32	27.33	27.34	27.35	27.36	27.37	27.38	27.39
120	27.57	27.58	27.59	27.60	27.61	27.62	27.63	27.64	27.65	27.66
130	27.85	27.86	27.87	27.88	27.89	27.90	27.91	27.92	27.93	27.94
140	28.16	28.17	28.18	28.19	28.20	28.21	28.22	28.23	28.24	28.25
150	28.72	28.73	28.74	28.75	28.76	28.77	28.78	28.79	28.80	28.81
160	29.28	29.29	29.30	29.31	29.32	29.33	29.34	29.35	29.36	29.37
170	30.19	30.20	30.21	30.22	30.23	30.24	30.25	30.26	30.27	30.28
180	32.56	32.57	32.58	32.59	32.60	32.61	32.62	32.63	32.64	32.65
190	35.09	35.10	35.11	35.12	35.13	35.14	35.15	35.16	35.17	35.18
200	38.56	38.57	38.58	38.59	38.60	38.61	38.62	38.63	38.64	38.65
210	42.89	42.90	42.91	42.92	42.93	42.94	42.95	42.96	42.97	42.98
220	48.29	48.30	48.31	48.32	48.33	48.34	48.35	48.36	48.37	48.38
230	54.84	54.85	54.86	54.87	54.88	54.89	54.90	54.91	54.92	54.93
240	62.53	62.54	62.55	62.56	62.57	62.58	62.59	62.60	62.61	62.62
250	71.33	71.34	71.35	71.36	71.37	71.38	71.39	71.40	71.41	71.42
260	81.23	81.24	81.25	81.26	81.27	81.28	81.29	81.30	81.31	81.32
270	92.23	92.24	92.25	92.26	92.27	92.28	92.29	92.30	92.31	92.32
280	104.43	104.44	104.45	104.46	104.47	104.48	104.49	104.50	104.51	104.52
290	118.83	118.84	118.85	118.86	118.87	118.88	118.89	118.90	118.91	118.92
300	135.43	135.44	135.45	135.46	135.47	135.48	135.49	135.50	135.51	135.52
310	154.23	154.24	154.25	154.26	154.27	154.28	154.29	154.30	154.31	154.32

*** MONTHLY POWER IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
0	105.02	109.82	110.76	111.29	113.06	119.00	121.09	125.53	125.49	131.76
10	132.44	139.84	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
20	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
30	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
40	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
50	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
60	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
70	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
80	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
90	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
100	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
110	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
120	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
130	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
140	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
150	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
160	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
170	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
180	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
190	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
200	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
210	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
220	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
230	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
240	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
250	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
260	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
270	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
280	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
290	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
300	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
310	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00

2009

NIPPON KOKI TOKYO/JAPAN

PLAN A-2 KARAH MI 295

RESERVOIR OPERATION STUDY OF AGOS

HIGH WATER LEVEL IN METER 165.000 LOW WATER LEVEL IN METER 128.000 RATED HEAD IN METER ***** 102.020
 INSTALLED CAPACITY IN MW 140.000 DEPENDABLE CAPACITY IN MW 104.499 TARGET OPERATION HOUR A DAY 6.08
 RATED DISCHARGE IN CMS 102.424 TYPE OF RULF CURVE .. VARIABLE MASS CURVE

RULE CURVE IN MW JAN. 17.000 FEB. 17.000 MAR. 17.000 APR. 17.000 MAY. 17.000 JUNE 17.000 JULY 17.000 AUG. 17.000 SEP. 17.000 OCT. 17.000 NOV. 17.000 DEC. 17.000

LENGTH OF INFLOW SERIES IN YEAR 20

*** MONTHLY DISCHARGE IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
0	23.27	23.31	23.31	23.38	23.43	23.44	23.44	23.44	23.44	23.44
10	23.45	23.45	23.47	23.47	23.50	23.50	23.50	23.50	23.50	23.50
20	23.63	23.67	23.67	23.71	23.74	23.76	23.77	23.79	23.80	23.81
30	23.86	23.99	24.04	24.07	24.07	24.08	24.08	24.09	24.10	24.11
40	24.11	24.13	24.13	24.16	24.16	24.19	24.19	24.20	24.20	24.20
50	24.21	24.21	24.22	24.24	24.24	24.27	24.27	24.29	24.32	24.33
60	24.34	24.37	24.37	24.38	24.39	24.39	24.40	24.41	24.41	24.45
70	24.40	24.47	24.48	24.48	24.49	24.50	24.50	24.51	24.53	24.53
80	24.56	24.59	24.62	24.63	24.63	24.66	24.67	24.70	24.72	24.73
90	24.75	24.75	24.81	24.82	24.82	24.83	24.84	24.86	24.87	24.87
100	24.89	24.90	24.91	24.93	24.95	24.98	24.99	24.99	25.03	25.05
110	25.06	25.06	25.08	25.08	25.09	25.10	25.12	25.14	25.14	25.16
120	25.21	25.22	25.28	25.28	25.36	25.38	25.40	25.44	25.47	25.59
130	25.50	25.51	25.53	25.55	25.57	25.59	25.71	25.75	25.75	25.77
140	25.79	25.79	25.80	25.80	25.81	25.81	25.84	25.84	25.85	25.86
150	25.87	25.90	25.92	25.93	25.94	25.95	25.97	25.98	26.01	26.03
160	26.05	26.13	26.13	26.13	26.29	26.39	26.40	26.46	26.49	26.50
170	26.53	26.57	26.59	26.63	26.73	26.83	27.19	27.19	27.26	27.28
180	27.30	27.38	27.39	27.58	27.64	27.67	27.67	27.78	27.80	27.81
190	27.87	28.00	28.02	28.06	28.21	28.27	28.28	28.37	28.64	28.98
200	29.07	29.28	29.77	30.09	30.10	31.07	31.36	31.59	31.59	32.42
210	32.24	32.36	32.72	33.23	33.40	34.52	36.59	37.24	38.24	39.80
220	41.10	41.70	42.47	43.23	43.94	47.54	48.28	49.12	49.31	49.31
230	50.05	50.15	52.04	53.37	55.24	59.95	60.17	60.27	60.64	60.70
240	61.52	62.47	63.42	63.57	65.32	66.57	66.75	69.78	70.04	70.90
250	72.68	72.89	73.56	74.51	74.69	74.70	75.23	75.82	77.22	77.56
260	80.18	82.57	83.81	86.50	86.70	88.27	88.61	89.24	91.15	91.15
270	91.61	94.63	96.82	97.17	98.56	104.93	108.85	111.60	112.21	112.35
280	114.95	115.59	115.58	116.05	116.06	117.91	117.94	119.51	119.59	122.56
290	122.60	126.75	128.19	130.00	130.47	130.88	136.95	136.95	136.95	136.95
300	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95
310	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95	136.95

*** MONTHLY POWER IN ASCENDING ORDER ***

	1	2	3	4	5	6	7	8	9	10
0	105.41	110.55	112.55	120.50	125.74	125.01	129.67	129.51	135.30	135.59
10	135.39	135.86	137.72	138.69	139.67	139.98	139.67	140.00	140.00	140.00
20	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
30	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
40	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
50	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
60	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
70	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
80	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
90	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00

HIGH WATER LEVEL IN METER 105,000 LOW WATER LEVEL IN METER 128,000 RATED HEAD IN METER ***** 102,020
 INSTALLED CAPACITY IN MW 140,000 DEPENDABLE CAPACITY IN MW 106,497 TARGET OPERATION HOUR A DAY 2.52
 RATED DISCHARGE IN CMS 162,824 TYPE OF RULF CURVE ** VARIABLE MASS CURVE

RULF CURVE IN MW

YEAR MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
1	51.781	51.781	51.781	51.781	51.781	51.781	51.781	51.781	51.781	51.781	51.781	51.781

LENGTH OF INFLOW SERIES IN YEAR 26

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (MCM)	F.W.L. (M)	H.W.L. (M)	T.W.L. (M)	L.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
1 JAN.	204.23	0.91	66.37	136.95	156.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
1 FEB.	101.14	1.17	0.	99.97	136.95	540.42	165.000	41.600	121.292	0.860	140.0	490.5	31.78	36.89	68.07
1 MAR.	115.52	1.56	0.	113.96	136.95	540.42	165.000	41.600	121.292	0.860	140.0	419.1	31.78	54.89	86.67
1 APR.	44.95	1.50	0.	43.45	130.95	540.42	165.000	41.600	121.292	0.860	140.0	228.1	31.78	0.15	31.93
1 MAY	24.59	1.26	0.	23.33	138.46	489.75	165.734	41.600	119.975	0.860	140.0	227.0	31.78	0.	31.78
1 JUNE	21.40	0.87	0.	20.53	142.08	426.85	160.787	41.600	116.913	0.860	140.0	227.0	31.78	0.	31.78
1 JULY	24.73	0.66	0.	24.07	146.81	371.76	157.564	41.600	115.513	0.860	140.0	227.0	31.78	0.	31.78
1 AUG.	40.58	0.52	0.	39.06	140.84	412.59	157.139	41.600	113.110	0.860	140.0	227.0	31.78	0.	31.78
1 SEP.	44.03	0.69	0.	43.34	145.56	405.98	158.107	41.600	114.120	0.860	140.0	227.0	31.78	45.25	77.55
1 OCT.	180.17	0.71	26.80	180.40	137.58	540.42	165.739	41.600	120.755	0.860	140.0	720.0	31.78	69.02	100.80
1 NOV.	191.38	0.70	51.73	136.95	156.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	72.58	104.16
1 DEC.	242.63	0.76	104.92	136.95	156.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.58	104.16
ANNUAL TOTAL	1959.32	11.14	254.95	995.25	1674.79	5886.60	1950.860	499.200	1425.975	10.520	1680.0	5234.5	381.58	551.45	732.83
ANNUAL MEAN	164.94	0.93	21.25	82.77	139.50	490.55	162.572	41.600	118.831	0.860	140.0	436.2	31.78	29.29	61.07

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (MCM)	F.W.L. (M)	H.W.L. (M)	T.W.L. (M)	L.HEAD EFFICI.	POWER (MW)	O. HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
2 JAN.	169.46	0.91	31.60	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
2 FEB.	100.70	1.17	0.	99.53	136.95	540.42	165.000	41.600	121.292	0.860	140.0	488.4	31.78	36.59	68.57
2 MAR.	37.03	1.55	0.	35.48	137.00	525.29	166.625	41.600	120.898	0.860	140.0	227.0	31.78	0.	31.78
2 APR.	29.70	1.51	0.	28.19	139.07	484.69	163.222	41.600	119.443	0.860	140.0	227.0	31.78	0.	31.78
2 MAY	74.56	1.25	0.	73.31	137.87	540.42	164.065	41.600	120.491	0.860	140.0	227.0	31.78	0.	31.78
2 JUNE	54.94	0.93	0.	53.01	137.07	516.16	164.598	41.600	118.498	0.860	140.0	227.0	31.78	0.	31.78
2 JULY	21.94	0.72	0.	21.22	140.16	458.45	162.332	41.600	121.037	0.860	140.0	227.0	31.78	0.	31.78
2 AUG.	142.94	0.58	34.77	108.07	137.25	540.42	165.568	41.600	121.292	0.860	140.0	585.6	31.78	50.20	81.98
2 SEP.	55.34	0.78	0.	54.56	136.95	540.42	165.000	41.600	121.292	0.860	140.0	246.8	31.78	8.37	40.15
2 OCT.	64.98	0.76	0.	64.22	136.95	540.42	165.000	41.600	121.292	0.860	140.0	246.8	31.78	17.06	48.85
2 NOV.	583.55	0.70	275.89	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	69.02	100.80
2 DEC.	344.70	0.76	206.49	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.58	104.16
ANNUAL TOTAL	1641.80	11.59	669.40	961.70	1681.21	6307.72	1972.957	499.200	1444.755	10.370	1680.0	5109.0	381.38	333.89	715.26
ANNUAL MEAN	170.15	0.95	59.11	80.19	142.60	525.60	166.611	41.600	120.774	0.860	140.0	425.8	31.78	27.87	59.61

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (CM)	T.W.L. (CM)	E.HEAD (M)	EFFICI.	POWER (KW)	O.HOUR (HR)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
5 JAN.	207.06	0.91	09.18	136.96	136.95	540.42	145.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
5 FEB.	115.14	1.17	0.	115.97	136.95	540.42	165.000	41.600	121.292	0.860	140.0	559.2	31.78	46.51	78.79
5 MAR.	42.45	1.16	0.	41.81	136.95	540.42	165.000	41.600	121.292	0.860	140.0	227.0	31.78	0.	31.78
5 APR.	38.42	1.15	0.	41.37	137.57	541.59	164.480	41.600	120.748	0.860	140.0	227.0	31.78	0.	31.78
5 MAY.	25.85	1.24	0.	42.38	139.95	543.79	162.830	41.600	119.056	0.860	140.0	227.0	31.78	0.	31.78
5 JUNE	39.45	0.87	0.	44.65	141.42	547.74	161.156	41.600	117.298	0.860	140.0	227.0	31.78	0.	31.78
3 JULY	20.40	0.68	0.	44.07	144.43	592.04	158.960	41.600	115.011	0.860	140.0	424.5	31.78	27.65	59.45
3 AUG.	135.01	0.56	0.	79.05	138.95	540.42	162.698	41.600	119.916	0.860	140.0	486.1	31.78	36.27	68.05
3 SEP.	93.74	0.78	0.	92.66	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	71.38	104.16
5 OCT.	178.98	0.70	0.	146.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	485.7	31.78	36.22	68.00
5 NOV.	93.09	0.70	0.	92.59	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
3 DEC.	281.10	0.76	125.59	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	3459.28	11.30	446.20	3084.28	3660.81	6162.61	1964.934	499.200	1440.870	10.120	1680.0	5272.6	81.58	365.78	745.16
ANNUAL MEAN	121.65	0.39	57.02	85.69	118.98	515.55	163.745	41.600	120.072	0.860	140.0	443.5	31.78	30.32	62.10
YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (CM)	T.W.L. (CM)	F.HEAD (M)	EFFICI.	POWER (KW)	O.HOUR (HR)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
4 JAN.	153.21	0.91	15.55	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
4 FEB.	162.86	1.17	26.74	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	672.0	31.78	62.50	94.08
4 MAR.	46.75	1.16	0.	45.39	136.95	540.42	165.000	41.600	121.292	0.860	140.0	246.6	31.78	2.74	36.52
4 APR.	48.54	1.15	0.	45.82	136.95	540.42	165.000	41.600	121.292	0.860	140.0	230.4	31.78	0.47	32.25
4 MAY	22.07	1.25	0.	62.31	148.07	482.85	165.559	41.600	119.794	0.860	140.0	227.0	31.78	0.	31.78
4 JUNE	59.59	0.88	0.	64.41	140.92	488.40	161.776	41.600	117.876	0.860	140.0	227.0	31.78	0.	31.78
4 JULY	13.95	0.68	0.	44.00	144.22	388.50	159.126	41.600	115.164	0.860	140.0	227.0	31.78	0.	31.78
4 AUG.	80.92	0.55	0.	85.83	143.66	484.56	159.553	41.600	115.628	0.860	140.0	227.0	31.78	0.	31.78
4 SEP.	38.53	0.74	0.	46.54	140.96	466.89	161.702	41.600	117.865	0.860	140.0	227.0	31.78	0.	31.78
4 OCT.	154.68	0.73	12.61	136.95	136.95	540.42	164.544	41.600	121.118	0.860	140.0	616.5	31.78	54.53	86.51
4 NOV.	166.36	0.70	28.90	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	69.02	100.80
4 DEC.	365.81	0.76	228.10	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1289.45	11.26	512.28	985.91	1666.67	6069.18	1990.034	499.200	1445.050	10.320	1680.0	5108.5	381.38	335.81	715.19
ANNUAL MEAN	107.45	0.94	26.02	80.49	138.98	505.76	163.336	41.600	119.588	0.860	140.0	425.7	31.78	27.82	59.60
YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (CM)	T.W.L. (CM)	F.HEAD (M)	EFFICI.	POWER (KW)	O.HOUR (HR)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
5 JAN.	135.77	0.91	0.	136.87	136.95	540.42	165.000	41.600	121.292	0.860	140.0	732.7	31.78	70.79	102.57
5 FEB.	90.69	1.17	0.	89.32	136.95	540.42	165.000	41.600	121.292	0.860	140.0	438.3	31.78	29.58	41.36
5 MAR.	36.88	1.16	0.	36.07	136.95	540.42	165.000	41.600	121.292	0.860	140.0	244.0	31.78	2.74	36.52
5 APR.	38.04	1.15	0.	37.58	137.57	541.59	164.480	41.600	120.748	0.860	140.0	227.0	31.78	0.	31.78
5 MAY.	25.45	1.24	0.	42.45	139.95	543.79	162.830	41.600	119.056	0.860	140.0	227.0	31.78	0.	31.78
5 JUNE	18.85	0.85	0.	45.33	143.79	598.75	159.456	41.600	115.528	0.860	140.0	227.0	31.78	0.	31.78
5 JULY	15.26	0.63	0.	45.75	146.95	509.53	156.909	41.600	110.777	0.860	140.0	227.0	31.78	0.	31.78
5 AUG.	25.67	0.66	0.	47.96	147.37	262.72	150.067	41.600	105.688	0.860	140.0	227.0	31.78	0.	31.78
5 SEP.	40.10	0.66	0.	41.23	147.88	212.64	148.803	41.600	102.734	0.860	140.0	227.0	31.78	0.	31.78
5 OCT.	48.24	0.62	0.	50.20	141.97	205.22	145.505	41.600	100.936	0.860	140.0	230.6	31.78	0.	31.78
5 NOV.	105.77	0.55	0.	69.69	136.98	350.25	150.190	41.600	105.817	0.860	140.0	227.0	31.78	0.	31.78
5 DEC.	369.83	0.69	121.54	136.95	136.95	540.42	163.929	41.600	120.892	0.860	140.0	631.2	31.78	56.59	86.57
ANNUAL TOTAL	1084.96	10.43	203.43	859.09	1395.66	4859.63	1892.578	499.200	1344.931	10.320	1672.8	4365.8	381.38	229.34	610.71
ANNUAL MEAN	89.08	0.87	16.95	71.26	116.26	404.97	157.715	41.600	113.746	0.860	139.8	363.8	31.78	19.11	50.89

RESERVOIR OPERATIVE STUDY OF AGUS BA** PLAN A-2 KANAR HUL 295

RESERVOIR OPERATIVE STUDY OF AGUS

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPIILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	M.W.L. (CM)	T.W.L. (M)	L.HEAD (CM)	POWER (MW)	O.HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
6 JAN.	290.51	0.91	152.63	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	104.16	104.16
6 FEB.	63.11	1.17	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	309.9	31.78	10.76	42.55
6 MAR.	40.05	1.56	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 APR.	40.35	1.56	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 MAY	25.30	1.23	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 JUNE	46.24	0.88	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 JULY	22.79	0.69	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 AUG.	21.71	0.57	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 SEP.	59.10	0.66	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
6 OCT.	134.81	0.70	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	410.7	31.78	25.71	57.69
6 NOV.	250.90	0.70	113.24	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	69.02	100.80
6 DEC.	166.96	0.76	29.75	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.58	104.16
ANNUAL TOTAL	1166.87	11.09	227.09	1569.50	1569.50	5404.20	165000.00	416000.00	1212920.00	8600.00	4511.6	381.38	250.23	651.05
ANNUAL MEAN	97.24	0.92	18.92	130.79	130.79	450.35	13750.00	34666.67	101160.00	716.67	375.97	31.78	20.85	52.58

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPIILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	M.W.L. (CM)	T.W.L. (M)	L.HEAD (CM)	POWER (MW)	O.HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
7 JAN.	158.41	0.91	0.25	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	104.16	104.16
7 FEB.	100.61	1.17	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	487.9	31.78	36.53	48.31
7 MAR.	129.08	1.56	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	693.8	31.78	65.55	97.14
7 APR.	159.74	1.56	1.22	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	69.02	100.80
7 MAY	60.71	1.24	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	320.1	31.78	19.03	44.81
7 JUNE	51.94	0.94	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	380.1	31.78	21.44	53.22
7 JULY	70.73	0.76	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	459.9	31.78	32.60	64.56
7 AUG.	85.25	0.60	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	710.6	31.78	61.70	92.48
7 SEP.	155.94	0.78	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	76.38	104.16
7 OCT.	224.56	0.70	86.65	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	69.02	100.80
7 NOV.	244.59	0.70	106.94	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.58	104.16
7 DEC.	493.76	0.76	586.05	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.58	104.16
ANNUAL TOTAL	1985.80	11.55	589.65	1569.50	1569.50	5404.20	165000.00	416000.00	1212920.00	8600.00	4001.0	381.38	250.23	651.05
ANNUAL MEAN	156.98	0.94	46.54	130.79	130.79	450.35	13750.00	34666.67	101160.00	716.67	333.42	31.78	20.85	52.58

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPIILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	M.W.L. (CM)	T.W.L. (M)	L.HEAD (CM)	POWER (MW)	O.HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
8 JAN.	219.40	0.91	0.54	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	104.16	104.16
8 FEB.	68.07	1.17	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	328.0	31.78	16.14	45.92
8 MAR.	55.08	1.55	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 APR.	25.52	1.49	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 MAY	17.14	1.15	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 JUNE	16.83	0.77	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 JULY	16.05	0.57	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 AUG.	51.89	0.63	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 SEP.	50.21	0.55	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 OCT.	71.74	0.56	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 NOV.	89.67	0.57	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
8 DEC.	59.52	0.67	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	227.0	31.78	0.	31.78
ANNUAL TOTAL	721.98	10.16	43.10	1569.50	1569.50	5404.20	165000.00	416000.00	1212920.00	8600.00	3462.4	381.38	86.52	467.89
ANNUAL MEAN	60.17	0.85	3.59	130.79	130.79	450.35	13750.00	34666.67	101160.00	716.67	288.53	31.78	7.21	38.99

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	42% (CMS)	66 (CMS)	SZ (MCM)	H.W.L. (M)	T.W.L. (M)	I-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GMH)	S.E. (GMH)	T.E. (GMH)
9 JAN.	122.80	0.86	0.	79.90	156.95	540.42	165.486	41.600	120.386	0.860	430.8	31.78	28.53	60.31
9 FEB.	66.87	1.17	0.	65.70	156.95	540.42	165.000	41.600	121.292	0.860	322.4	31.78	13.55	45.13
9 MAR.	67.49	1.56	0.	61.15	156.95	540.42	165.000	41.600	121.292	0.860	352.1	31.78	14.71	46.49
9 APR.	67.45	1.56	0.	67.89	156.95	540.42	165.000	41.600	121.292	0.860	358.9	31.78	18.10	49.97
9 MAY	61.89	1.28	0.	60.61	156.95	540.42	165.000	41.600	121.292	0.860	323.3	31.78	14.31	46.10
9 JUNE	52.83	0.94	0.	51.69	156.95	540.42	165.000	41.600	121.292	0.860	275.8	31.78	6.41	38.19
9 JULY	55.90	0.76	0.	55.16	156.95	540.42	165.000	41.600	121.292	0.860	299.4	31.78	10.16	41.94
9 AUG.	54.20	0.60	0.	55.60	156.95	540.42	165.000	41.600	121.292	0.860	291.2	31.78	8.98	40.76
9 SEP.	76.01	0.78	0.	75.85	156.95	540.42	165.000	41.600	121.292	0.860	348.6	31.78	24.03	55.81
9 OCT.	175.64	0.76	55.95	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.58	104.16
9 NOV.	166.76	0.70	79.10	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	69.02	100.80
9 DEC.	55.54	0.76	0.	56.59	156.95	540.42	165.000	41.600	121.292	0.860	796.6	31.78	9.74	41.52
ANNUAL TOTAL	1019.72	11.51	65.35	900.04	1644.51	6485.00	1978.454	499.200	1454.578	10.320	4794.2	381.58	289.81	671.19
ANNUAL MEAN	84.98	0.96	5.44	75.00	137.04	540.42	165.871	41.600	121.215	0.860	399.5	31.78	24.15	55.93

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	42% (CMS)	66 (CMS)	SZ (MCM)	H.W.L. (M)	T.W.L. (M)	I-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GMH)	S.E. (GMH)	T.E. (GMH)
10 JAN.	118.18	0.91	0.	117.24	156.95	540.42	165.000	41.600	121.292	0.860	437.1	31.78	57.41	89.19
10 FEB.	78.52	1.17	0.	77.75	156.95	540.42	165.000	41.600	121.292	0.860	379.1	31.78	21.29	53.07
10 MAR.	116.84	1.56	0.	115.67	156.95	540.42	165.000	41.600	121.292	0.860	627.3	31.78	56.04	87.85
10 APR.	77.05	1.53	0.	43.67	158.54	491.50	161.829	41.600	120.073	0.860	227.0	31.78	0.	31.78
10 MAY	16.80	1.19	0.	43.59	142.22	419.11	160.680	41.600	116.802	0.860	227.0	31.78	0.	31.78
10 JUNE	18.77	0.80	0.	46.55	147.65	345.02	158.558	41.600	112.503	0.860	227.0	31.78	0.	31.78
10 JULY	16.95	0.59	0.	47.12	154.44	265.62	151.843	41.600	107.358	0.860	227.0	31.78	0.	31.78
10 AUG.	57.64	0.54	0.	46.90	161.10	231.26	148.130	41.600	103.641	0.860	227.0	31.78	0.	31.78
10 SEP.	57.50	0.56	0.	50.84	161.10	247.16	147.603	41.600	103.674	0.860	227.0	31.78	0.	31.78
10 OCT.	69.17	0.57	0.	48.00	157.52	302.50	169.976	41.600	105.591	0.860	227.0	31.78	0.	31.78
10 NOV.	194.55	0.63	71.68	156.95	156.95	540.42	165.000	41.600	119.099	0.860	414.6	31.78	26.27	58.05
10 DEC.	179.51	0.76	61.67	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.38	104.16
ANNUAL TOTAL	951.59	10.48	65.86	857.75	1644.51	6092.73	1899.261	499.200	1477.957	10.520	4591.2	381.58	233.59	614.77
ANNUAL MEAN	77.65	0.87	5.49	71.64	145.79	419.02	158.270	41.600	114.611	0.860	365.9	31.78	19.45	51.25

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	42% (CMS)	66 (CMS)	SZ (MCM)	H.W.L. (M)	T.W.L. (M)	I-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GMH)	S.E. (GMH)	T.E. (GMH)
11 JAN.	150.02	0.91	0.	149.17	156.95	540.42	165.000	41.600	121.292	0.860	701.4	31.78	66.42	98.20
11 FEB.	158.46	1.17	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	672.0	31.78	67.30	94.08
11 MAR.	67.24	1.56	0.	43.67	156.95	540.42	165.000	41.600	121.292	0.860	249.2	31.78	5.10	34.88
11 APR.	57.77	1.54	0.	63.95	157.50	571.96	165.561	41.600	120.612	0.860	227.0	31.78	0.	31.78
11 MAY	55.97	1.27	0.	47.20	157.24	560.42	164.759	41.600	121.043	0.860	255.9	31.78	6.04	35.82
11 JUNE	62.66	0.94	0.	61.72	156.95	540.42	165.000	41.600	121.292	0.860	324.5	31.78	13.65	45.43
11 JULY	45.09	0.76	0.	46.56	156.95	540.42	165.000	41.600	121.292	0.860	240.9	31.78	1.94	33.72
11 AUG.	216.20	0.60	76.65	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.38	104.16
11 SEP.	175.14	0.74	74.80	156.95	156.95	540.42	165.000	41.600	121.292	0.860	643.3	31.78	58.28	90.06
11 OCT.	217.57	0.76	74.80	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.38	104.16
11 NOV.	166.10	0.70	79.45	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	69.02	100.80
11 DEC.	167.56	0.76	79.45	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1418.98	11.55	741.62	1179.85	1644.51	6466.77	1979.281	499.200	1454.774	10.320	6266.1	381.58	495.88	877.25
ANNUAL MEAN	118.25	0.96	61.80	97.99	137.04	538.90	164.940	41.600	121.215	0.860	522.2	31.78	41.32	73.10

AA RESERVOIR OPERATIONAL STUDY OF AGHS DATA PLAN A-2 KANAN HWI 2/5

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	SZ (CMS)	H.W.L. (CM)	T.W.L. (CM)	E HEAD EFFICI.	POWER (MW)	O HOUR (H)	P.E.F. (CGWH)	S.E. (CGWH)	T.E. (CGWH)
12 JAN.	167.59	0.91	29.73	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	581.38	104.16
12 FEB.	156.58	1.17	0.	156.95	156.95	540.42	165.000	41.600	121.292	0.860	644.8	31.78	581.38	90.77
12 MAR.	101.45	1.36	0.	108.02	156.95	540.42	165.000	41.600	121.292	0.860	545.7	31.78	581.38	76.17
12 APR.	67.52	1.56	0.	60.96	156.95	540.42	165.000	41.600	121.292	0.860	320.5	31.78	581.38	44.86
12 MAY.	79.69	1.28	0.	78.41	156.95	540.42	165.000	41.600	121.292	0.860	426.0	31.78	581.38	59.63
12 JUNE	54.26	0.96	0.	53.32	156.95	540.42	165.000	41.600	121.292	0.860	280.3	31.78	581.38	39.25
12 JULY	50.02	0.75	0.	44.80	137.24	540.75	164.761	41.600	121.039	0.860	227.0	31.78	581.38	31.78
12 AUG.	49.01	0.60	0.	46.80	137.10	540.42	164.868	41.600	121.159	0.860	243.1	31.78	581.38	27.35
12 SEP.	96.90	0.78	0.	96.12	156.95	540.42	165.000	41.600	121.292	0.860	505.3	31.78	581.38	58.96
12 OCT.	168.09	0.76	10.38	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	581.38	70.74
12 NOV.	257.26	0.70	119.61	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	581.38	100.80
12 DEC.	99.50	0.76	0.	98.74	156.95	540.42	165.000	41.600	121.292	0.860	536.4	31.78	581.38	75.10
ANNUAL TOTAL	1506.39	11.55	179.25	1115.61	1645.88	6475.15	179.621	499.200	1455.108	10.320	5955.1	581.38	581.38	449.54
ANNUAL MEAN	108.70	0.96	16.94	92.80	156.99	539.60	164.968	41.600	121.259	0.860	496.6	31.78	37.46	69.24
YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	SZ (CMS)	H.W.L. (CM)	T.W.L. (CM)	E HEAD EFFICI.	POWER (MW)	O HOUR (H)	P.E.F. (CGWH)	S.E. (CGWH)	T.E. (CGWH)
14 JAN.	141.76	0.91	5.90	136.95	136.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	581.38	104.16
14 FEB.	113.12	1.17	0.	111.95	156.95	540.42	165.000	41.600	121.292	0.860	549.3	31.78	581.38	76.90
14 MAR.	66.24	1.56	0.	64.98	156.95	540.42	165.000	41.600	121.292	0.860	352.5	31.78	581.38	49.35
14 APR.	61.89	1.56	0.	60.55	156.95	540.42	165.000	41.600	121.292	0.860	317.1	31.78	581.38	44.40
14 MAY.	27.59	1.26	0.	42.17	138.21	497.98	163.942	41.600	120.190	0.860	222.0	31.78	581.38	31.78
14 JUNE	74.76	0.88	0.	46.55	141.22	444.47	161.472	41.600	117.625	0.860	222.0	31.78	581.38	31.78
14 JULY	58.86	0.70	0.	45.23	141.60	484.46	161.114	41.600	117.254	0.860	227.0	31.78	581.38	31.78
14 AUG.	66.99	0.59	0.	45.51	158.30	540.42	161.787	41.600	120.114	0.860	244.8	31.78	581.38	24.9
14 SEP.	181.75	0.76	44.00	156.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	581.38	100.80
14 OCT.	92.77	0.76	0.	92.02	156.95	540.42	165.000	41.600	121.292	0.860	499.9	31.78	581.38	69.98
14 NOV.	181.66	0.70	44.00	136.95	156.95	540.42	165.000	41.600	121.292	0.860	720.0	31.78	581.38	100.80
14 DEC.	161.78	0.76	74.07	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	581.38	104.16
ANNUAL TOTAL	1175.62	11.40	115.50	1049.11	1651.11	6290.09	1970.285	499.200	1455.447	10.320	5572.7	581.38	581.38	780.18
ANNUAL MEAN	97.98	0.95	9.61	87.43	157.93	526.17	166.187	41.600	120.454	0.860	466.4	31.78	35.23	65.01
YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	SZ (CMS)	H.W.L. (CM)	T.W.L. (CM)	E HEAD EFFICI.	POWER (MW)	O HOUR (H)	P.E.F. (CGWH)	S.E. (CGWH)	T.E. (CGWH)
14 JAN.	124.40	0.91	0.	123.49	156.95	540.42	165.000	41.600	121.292	0.860	672.0	31.78	581.38	93.92
14 FEB.	138.97	1.17	0.86	136.95	156.95	540.42	165.000	41.600	121.292	0.860	672.0	31.78	581.38	94.08
14 MAR.	69.08	1.36	0.	67.72	156.95	540.42	165.000	41.600	121.292	0.860	567.9	31.78	581.38	40.19
14 APR.	56.17	1.56	0.	54.61	156.95	540.42	165.000	41.600	121.292	0.860	283.1	31.78	581.38	8.41
14 MAY	19.82	1.25	0.	42.77	138.85	476.69	163.403	41.600	119.631	0.860	227.0	31.78	581.38	31.78
14 JUNE	54.53	0.87	0.	44.72	141.83	447.49	160.988	41.600	117.123	0.860	227.0	31.78	581.38	31.78
14 JULY	27.50	0.68	0.	44.08	144.47	400.73	158.931	41.600	114.961	0.860	227.0	31.78	581.38	31.78
14 AUG.	88.98	0.56	0.	45.29	141.89	521.61	160.919	41.600	117.072	0.860	227.0	31.78	581.38	31.78
14 SEP.	125.87	0.77	0.	117.94	156.99	540.42	165.000	41.600	121.292	0.860	619.3	31.78	581.38	86.21
14 OCT.	95.15	0.76	0.	92.59	156.95	540.42	165.000	41.600	121.292	0.860	501.9	31.78	581.38	70.57
14 NOV.	90.35	0.70	0.	89.65	156.95	540.42	165.000	41.600	121.292	0.860	471.3	31.78	581.38	65.99
14 DEC.	167.78	0.76	50.07	156.95	156.95	540.42	165.000	41.600	121.292	0.860	744.0	31.78	581.38	104.16
ANNUAL TOTAL	1032.28	11.32	51.42	989.54	1662.91	6360.87	1966.051	499.200	1458.932	10.320	5242.5	581.38	581.38	755.96
ANNUAL MEAN	86.02	0.94	2.62	87.46	158.58	516.91	165.671	41.600	119.911	0.860	436.9	31.78	29.58	61.16

*** RESERVOIR OPERATION STUDY OF AGOS DAM ** PLAN A-2 KANAW HML 295

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	OG (CMS)	S2 (CMS)	R.W.L. (CM)	T.H.L. (CM)	E-HEAD (CM)	EFFICI.	POWER (MW)	O-HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
15 JAN.	150.00	0.91	0.	127.09	150.95	540.42	165.000	41.600	121.292	0.860	140.0	701.3	31.78	66.40	98.18
15 FEB.	129.75	1.17	0.	128.58	156.95	540.42	165.000	41.600	121.292	0.860	140.0	650.9	31.78	56.55	80.33
15 MAR.	107.55	1.36	0.	106.19	156.95	540.42	165.000	41.600	121.292	0.860	140.0	576.9	31.78	48.98	68.76
15 APR.	64.63	1.56	0.	61.07	156.95	540.42	165.000	41.600	121.292	0.860	140.0	331.6	31.78	14.64	44.47
15 MAY	35.98	1.27	0.	41.96	157.95	528.93	166.516	41.600	120.768	0.860	140.0	227.0	31.78	0.	51.78
15 JUNE	46.86	0.92	0.	45.48	157.95	527.76	164.918	41.600	120.445	0.860	140.0	227.0	31.78	0.	31.78
15 JULY	62.20	0.75	0.	56.35	157.95	540.42	165.000	41.600	121.292	0.860	140.0	306.9	31.78	11.18	42.97
15 AUG.	98.74	0.60	0.	97.67	156.95	540.42	165.000	41.600	121.292	0.860	140.0	530.6	31.78	47.50	74.28
15 SEP.	100.16	0.78	0.	97.36	156.95	540.42	165.000	41.600	121.292	0.860	140.0	522.4	31.78	41.55	75.13
15 OCT.	99.30	0.76	0.	98.54	156.95	540.42	165.000	41.600	121.292	0.860	140.0	535.3	31.78	43.16	76.95
15 NOV.	281.74	0.70	146.13	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	69.02	100.80
15 DEC.	283.59	0.76	125.88	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1618.74	11.55	270.43	1350.77	1565.06	6052.15	1978.621	499.200	454.074	10.320	1680.0	8053.9	381.38	466.17	647.55
ANNUAL MEAN	138.19	0.96	22.54	96.69	131.09	557.68	164.885	41.600	121.173	0.860	140.0	504.5	31.78	38.85	53.96

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	OG (CMS)	S2 (CMS)	R.W.L. (CM)	T.H.L. (CM)	E-HEAD (CM)	EFFICI.	POWER (MW)	O-HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
16 JAN.	165.55	0.91	26.67	156.95	156.95	540.42	165.000	41.600	121.292	0.860	140.0	764.0	31.78	72.38	104.16
16 FEB.	96.64	1.17	0.	95.51	156.95	540.42	165.000	41.600	121.292	0.860	140.0	468.7	31.78	35.83	65.61
16 MAR.	60.42	1.36	0.	59.06	156.95	540.42	165.000	41.600	121.292	0.860	140.0	320.8	31.78	15.14	44.92
16 APR.	25.19	1.54	0.	45.67	156.95	540.42	165.000	41.600	119.944	0.860	140.0	227.0	31.78	0.	31.78
16 MAY	21.04	1.19	0.	45.38	162.16	625.67	168.724	41.600	116.847	0.860	140.0	227.0	31.78	0.	31.78
16 JUNE	19.59	0.81	0.	46.56	167.05	553.66	156.995	41.600	117.960	0.860	140.0	227.0	31.78	0.	31.78
16 JULY	27.00	0.61	0.	46.45	162.23	501.71	155.327	41.600	109.118	0.860	140.0	227.0	31.78	0.	31.78
16 AUG.	46.67	0.47	0.	47.72	154.77	298.76	151.623	41.600	107.377	0.860	140.0	227.0	31.78	0.	31.78
16 SEP.	60.07	0.62	0.	48.61	155.55	327.57	152.455	41.600	108.181	0.860	140.0	227.0	31.78	0.	31.78
16 OCT.	120.45	0.88	0.	43.97	166.11	550.59	159.205	41.600	115.268	0.860	140.0	207.8	31.78	0.	31.78
16 NOV.	197.50	0.70	58.16	174.05	156.97	540.42	164.994	41.600	121.292	0.860	140.0	707.8	31.78	67.31	99.09
16 DEC.	271.75	0.76	154.02	156.95	156.95	540.42	164.994	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1116.04	10.77	222.15	891.12	1717.64	5625.62	1922.653	499.200	395.710	10.320	1680.0	4574.4	381.38	259.04	640.41
ANNUAL MEAN	92.84	0.90	18.51	74.43	143.14	461.95	160.219	41.600	116.309	0.860	140.0	381.2	31.78	21.59	53.37

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	OG (CMS)	S2 (CMS)	R.W.L. (CM)	T.H.L. (CM)	E-HEAD (CM)	EFFICI.	POWER (MW)	O-HOUR (H)	P.E. (GWH)	S.E. (GWH)	T.E. (GWH)
17 JAN.	82.36	0.91	0.	81.46	156.95	540.42	165.000	41.600	121.292	0.860	140.0	462.5	31.78	30.17	61.95
17 FEB.	64.54	1.17	0.	63.17	156.95	540.42	165.000	41.600	121.292	0.860	140.0	309.9	31.78	11.61	45.59
17 MAR.	25.63	1.35	0.	47.27	156.95	540.42	165.000	41.600	120.045	0.860	140.0	227.0	31.78	0.	31.78
17 APR.	18.87	1.44	0.	46.88	162.36	416.07	160.560	41.600	116.687	0.860	140.0	227.0	31.78	0.	31.78
17 MAY	58.60	1.16	0.	45.86	163.74	457.44	159.488	41.600	115.561	0.860	140.0	227.0	31.78	0.	31.78
17 JUNE	27.44	0.66	0.	45.26	164.67	390.21	158.777	41.600	116.820	0.860	140.0	227.0	31.78	0.	31.78
17 JULY	13.77	0.62	0.	45.95	159.60	302.36	156.454	41.600	110.301	0.860	140.0	227.0	31.78	0.	31.78
17 AUG.	15.02	0.45	0.	48.57	159.20	211.36	168.795	41.600	106.145	0.860	140.0	227.0	31.78	0.	31.78
17 SEP.	65.86	0.56	0.	51.15	162.25	247.96	166.945	41.600	102.585	0.860	140.0	227.0	31.78	0.	31.78
17 OCT.	106.59	0.66	7.40	53.74	164.45	540.42	165.000	41.600	115.339	0.860	140.0	277.4	31.78	7.05	38.83
17 NOV.	252.54	0.70	115.68	156.95	156.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	69.02	100.80
17 DEC.	250.58	0.76	97.79	156.95	156.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1015.48	10.56	210.54	794.58	1755.62	5809.12	1919.045	499.200	384.275	10.320	1680.0	4087.9	381.38	190.23	571.61
ANNUAL MEAN	84.62	0.88	17.54	66.20	146.27	484.09	159.205	41.600	115.456	0.860	140.0	340.2	31.78	15.85	47.63

AA RESERVOIR OPERATION STUDY OF AGPS DAM #2 PLAN A-2 KAHAN HILL 295

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	RG (CMS)	S2 (MG)	R.W.L. (CM)	T.W.L. (CM)	I-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
18 JAN.	172.53	0.91	56.67	136.95	136.95	540.42	165.000	41.600	171.292	0.860	744.0	31.78	72.38	104.16
18 FEB.	65.77	1.17	0.	64.60	156.95	540.42	165.000	41.600	171.292	0.860	317.0	31.78	12.59	44.37
18 MAR.	65.46	1.56	0.	62.90	156.95	540.42	165.000	41.600	171.292	0.860	337.4	31.78	15.45	47.23
18 APR.	64.82	1.56	0.	63.26	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.06	31.84
18 MAY	55.00	1.27	0.	53.73	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
18 JUNE	46.46	0.97	0.	45.49	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
18 JULY	20.72	0.72	0.	20.00	156.95	540.42	165.000	41.600	171.292	0.860	312.7	31.78	11.99	43.77
18 AUG.	86.93	0.58	0.	86.35	156.95	540.42	165.000	41.600	171.292	0.860	345.1	31.78	16.54	48.52
18 SEP.	60.54	0.78	0.	59.76	156.95	540.42	165.000	41.600	171.292	0.860	268.7	31.78	5.84	37.62
18 OCT.	60.27	0.78	0.	59.49	156.95	540.42	165.000	41.600	171.292	0.860	720.0	31.78	69.02	100.80
18 NOV.	196.42	0.70	54.76	136.95	156.95	540.42	165.000	41.600	171.292	0.860	744.0	31.78	72.38	104.16
18 DEC.	159.41	0.74	21.70	136.95	156.95	540.42	165.000	41.600	171.292	0.860	4697.3	31.78	276.25	457.62
ANNUAL TOTAL	1009.98	11.64	115.41	885.09	1649.02	6171.79	175.000	499.200	1450.679	10.370	1680.0	381.58	276.25	457.62
ANNUAL MEAN	84.16	0.96	9.62	74.59	137.42	510.99	144.584	41.600	120.886	0.860	591.4	31.78	25.07	36.80

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	RG (CMS)	S2 (MG)	R.W.L. (CM)	T.W.L. (CM)	I-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
19 JAN.	125.95	0.91	0.	125.04	156.95	540.42	165.000	41.600	171.292	0.860	679.2	31.78	65.31	95.09
19 FEB.	127.85	1.17	0.	126.68	156.95	540.42	165.000	41.600	171.292	0.860	621.6	31.78	55.24	81.02
19 MAR.	70.45	1.36	0.	69.09	156.95	540.42	165.000	41.600	171.292	0.860	683.1	31.78	63.86	93.64
19 APR.	70.45	1.56	0.	68.89	156.95	540.42	165.000	41.600	171.292	0.860	409.4	31.78	25.54	51.51
19 MAY	26.01	1.16	0.	24.85	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
19 JUNE	20.89	0.87	0.	20.02	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
19 JULY	19.81	0.66	0.	19.15	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
19 AUG.	75.82	0.53	0.	75.29	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
19 SEP.	79.08	0.74	0.	78.34	156.95	540.42	165.000	41.600	171.292	0.860	558.8	31.78	46.46	78.24
19 OCT.	106.23	0.75	0.	105.48	156.95	540.42	165.000	41.600	171.292	0.860	590.4	31.78	50.87	86.65
19 NOV.	115.00	0.70	0.	114.30	156.95	540.42	165.000	41.600	171.292	0.860	345.9	31.78	16.65	48.43
19 DEC.	64.44	0.76	0.	63.68	156.95	540.42	165.000	41.600	171.292	0.860	5025.5	31.78	521.92	705.29
ANNUAL TOTAL	962.48	11.74	0.	951.24	1671.97	6059.40	175.000	499.200	1451.542	10.370	1680.0	381.58	276.25	457.62
ANNUAL MEAN	80.21	0.96	0.	79.27	139.53	505.29	144.584	41.600	119.295	0.860	418.6	31.78	26.65	36.81

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	RG (CMS)	S2 (MG)	R.W.L. (CM)	T.W.L. (CM)	I-HEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
20 JAN.	66.04	0.91	0.	65.16	156.95	540.42	165.000	41.600	171.292	0.860	354.0	31.78	17.77	49.55
20 FEB.	29.41	1.15	0.	28.26	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 MAR.	38.74	1.29	0.	37.45	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 APR.	27.11	1.43	0.	25.68	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 MAY	17.29	1.08	0.	16.21	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 JUNE	8.96	0.70	0.	8.26	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 JULY	15.19	0.49	0.	14.70	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 AUG.	24.29	0.54	0.	23.75	156.95	540.42	165.000	41.600	171.292	0.860	227.0	31.78	0.	31.78
20 SEP.	56.80	0.60	0.	56.20	156.95	540.42	165.000	41.600	171.292	0.860	299.7	31.78	0.	31.78
20 OCT.	54.88	0.58	0.	54.30	156.95	540.42	165.000	41.600	171.292	0.860	281.9	31.78	0.	31.78
20 NOV.	94.92	0.58	0.	94.34	156.95	540.42	165.000	41.600	171.292	0.860	349.4	31.78	17.14	48.92
20 DEC.	266.29	0.60	50.48	215.81	156.95	540.42	165.000	41.600	171.292	0.860	5228.1	31.78	34.91	416.29
ANNUAL TOTAL	692.36	9.15	51.07	641.20	1273.04	3259.45	175.000	499.200	1253.803	10.370	1556.5	381.58	276.25	457.62
ANNUAL MEAN	57.68	0.76	4.26	53.43	106.08	271.62	144.584	41.600	104.484	0.860	129.5	31.78	2.91	36.69

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AA RESERVOIR OPERATION STUDY OF AGON DAM ** PLAN A-2 KANAN DAM 205

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (CM)	T.W.L. (M)	L-HEAD (M)	E-FHEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
21 JAN.	123.55	0.91	0.	122.43	136.95	540.42	105.000	41.600	121.292	0.860	140.0	685.2	31.78	61.33	93.13
21 FEB.	44.06	1.17	0.	46.69	136.95	540.42	105.000	41.600	121.292	0.860	140.0	240.1	31.78	0.43	32.21
21 MAR.	20.95	1.32	0.	42.36	136.95	540.42	105.000	41.600	119.708	0.860	140.0	227.0	31.78	0.	31.78
21 APR.	33.51	1.45	0.	44.69	141.75	546.81	111.668	41.600	117.184	0.860	140.0	227.0	31.78	0.	31.78
21 MAY	11.04	1.15	0.	44.35	140.02	539.40	137.759	41.600	115.758	0.860	140.0	227.0	31.78	0.	31.78
21 JUNE	17.32	0.75	0.	48.27	151.08	717.26	132.750	41.600	108.512	0.860	140.0	227.0	31.78	0.	31.78
21 JULY	15.21	0.56	0.	49.47	162.13	104.06	147.016	41.600	102.657	0.860	140.0	227.0	31.78	0.	31.78
21 AUG.	30.88	0.37	0.	51.61	157.06	89.16	139.277	41.600	94.905	0.860	125.6	253.0	31.78	0.	31.78
21 SEP.	90.05	0.47	0.	55.82	150.15	156.65	138.168	41.600	93.828	0.860	123.5	257.4	31.78	0.	31.78
21 OCT.	179.06	0.61	0.	46.29	151.70	510.62	153.690	41.600	109.499	0.860	140.0	227.0	31.78	0.	31.78
21 NOV.	350.50	0.69	204.46	133.45	136.95	540.42	164.972	41.600	121.282	0.860	140.0	701.5	31.78	66.43	98.21
21 DEC.	200.61	0.76	62.91	134.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1102.79	10.16	260.17	876.48	1759.28	4636.29	1872.521	499.200	344.346	10.320	1640.0	4213.2	381.38	200.58	581.96
ANNUAL MEAN	91.90	0.85	22.18	08.87	146.27	386.19	156.043	41.600	112.029	0.860	137.4	351.1	31.78	16.72	48.50

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (M)	T.W.L. (M)	E-HEAD (M)	E-FHEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
22 JAN.	107.50	0.91	0.	106.59	136.95	540.42	105.000	41.600	121.292	0.860	140.0	578.0	31.78	49.13	80.92
22 FEB.	151.49	1.17	0.	150.63	136.95	540.42	105.000	41.600	121.292	0.860	140.0	572.0	31.78	62.50	94.08
22 MAR.	137.63	1.36	0.	136.27	136.95	540.42	105.000	41.600	121.292	0.860	140.0	780.3	31.78	71.86	103.64
22 APR.	39.47	1.54	0.	43.51	137.37	526.43	164.633	41.600	120.928	0.860	140.0	227.0	31.78	0.	31.78
22 MAY	154.52	1.24	15.36	152.69	136.95	540.42	104.944	41.600	121.280	0.860	140.0	719.7	31.78	68.98	100.76
22 JUNE	184.11	0.94	66.76	156.95	136.95	540.42	105.000	41.600	121.292	0.860	140.0	729.0	31.78	69.02	100.80
22 JULY	272.23	0.76	84.52	156.95	136.95	540.42	105.000	41.600	121.292	0.860	140.0	749.0	31.78	72.38	104.16
22 AUG.	86.53	0.60	0.	87.93	136.95	540.42	105.000	41.600	121.292	0.860	140.0	477.7	31.78	35.09	66.87
22 SEP.	42.38	0.78	0.	43.22	137.08	536.23	104.896	41.600	121.180	0.860	140.0	227.0	31.78	0.	31.78
22 OCT.	206.15	0.75	81.82	156.01	136.95	540.42	104.999	41.600	121.291	0.860	140.0	738.9	31.78	71.86	103.64
22 NOV.	226.75	0.70	89.07	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	69.02	100.80
22 DEC.	504.77	0.76	167.06	136.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1863.63	11.51	640.80	1171.50	1643.98	6467.07	1979.538	499.200	455.026	10.320	1680.0	7308.5	381.38	641.81	1023.19
ANNUAL MEAN	155.30	0.96	40.07	114.28	137.00	538.92	164.961	41.600	121.252	0.860	140.0	609.0	31.78	53.48	85.27

YEAR MONTH	INFLOW (CMS)	EVAPOR. (CMS)	SPILL (CMS)	Q24 (CMS)	Q6 (CMS)	S2 (CMS)	R.W.L. (M)	T.W.L. (M)	E-HEAD (M)	E-FHEAD EFFICI.	POWER (MW)	O-HOUR (H)	P.F. (GWH)	S.E. (GWH)	T.E. (GWH)
23 JAN.	115.47	0.91	0.	114.52	136.95	540.42	105.000	41.600	121.292	0.860	140.0	622.1	31.78	55.31	87.10
23 FEB.	56.60	1.17	0.	55.43	136.95	540.42	105.000	41.600	121.292	0.860	140.0	272.0	31.78	6.29	38.08
23 MAR.	66.25	1.36	0.	64.29	136.95	540.42	105.000	41.600	121.292	0.860	140.0	358.5	31.78	17.57	49.35
23 APR.	54.07	1.56	0.	52.51	136.95	540.42	105.000	41.600	121.292	0.860	140.0	276.1	31.78	6.87	38.65
23 MAY	51.40	1.24	0.	50.11	136.95	540.42	105.000	41.600	121.292	0.860	140.0	272.2	31.78	6.33	38.11
23 JUNE	47.06	0.94	0.	46.12	136.95	540.42	105.000	41.600	121.292	0.860	140.0	246.5	31.78	2.16	33.94
23 JULY	245.13	0.76	107.62	156.95	136.95	540.42	105.000	41.600	121.292	0.860	140.0	746.0	31.78	72.38	104.16
23 AUG.	172.06	0.60	54.94	156.95	136.95	540.42	105.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
23 SEP.	113.51	0.74	0.	112.73	136.95	540.42	105.000	41.600	121.292	0.860	140.0	592.6	31.78	51.19	82.97
23 OCT.	89.74	0.76	0.	89.02	136.95	540.42	105.000	41.600	121.292	0.860	140.0	485.6	31.78	35.92	67.71
23 NOV.	108.68	0.70	31.02	156.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	720.0	31.78	69.02	100.80
23 DEC.	205.23	0.76	65.12	156.95	136.95	540.42	165.000	41.600	121.292	0.860	140.0	744.0	31.78	72.38	104.16
ANNUAL TOTAL	1391.51	11.55	262.00	1157.95	1643.44	6485.00	1980.000	499.200	455.501	10.320	1680.0	6065.6	381.38	647.81	849.18
ANNUAL MEAN	115.96	0.96	20.17	94.83	136.95	540.42	165.000	41.600	121.292	0.860	140.0	503.5	31.78	58.98	70.77