FEASIBILITY STUDY ON SIHANOUKVILLE CCGT PROJECT

DATE	计子语用		GROUN	VDWATER .	LEVEL OF OB	SERVATI	and the second se	CAR IN	10-10-
	BH-1	BH-2	BH-3	BH-4	BH-5	BH-6	BH-7	BH-8	BH-9
Top Pipe Level	6.844	10.298	6.165	4.815	3.500		11.674		8.448
Ground Level	6.184	9.707	5.357	3.975	3.013		11.007		8.123
21/09/00					-				
22/09/00							9.584 (DR)		
23/09/00							9.584 (DR)		
24/09/00							10.034 (DR)		
25/09/00							8.834 (DR)		
26/09/00							8.864 (DR)		
27/09/00							8.884 (DR)		
28/09/00									
29/09/00									
30/09/00		9.707 (DR)							
01/10/00		9.707 (DR)							
02/10/00		9.707 (DR)							
03/10/00									
04/10/00									7.008 (DR
05/10/00				******					7.008 (DR
06/10/00			+					0000000	7.008 (DR
07/10/00									
08/10/00						1			
09/10/00					1.560 (DR)	*******			
10/10/00					1.510 (DR)				
11/10/00					1.460 (DR)				
12/10/00		**********			0.960 (DR)				
13/10/00					1.110 (DR)				
14/10/00									
15/10/00									
16/10/00			5.357 (DR)						
17/10/00	********		5.357 (DR)						
18/10/00			5.357 (DR)						
19/10/00	5.484	9.668	5.357 (DR)		1.710		8.584		7.258
20/10/00	5.564	9.668	5.357 (DR)		1.810		8.574		7.308
21/10/00	5.604	9.648	5.357 (DR)		1.870	***********	8.564		7.328
22/10/00	5.634	9.628	4.985	1.655	1.450		8.554		7.368
23/10/00	5.594	9.498	4.865	2.053	1.430		8.474		7.418
24/10/00	5.584	9.548	5.005	1.955	1.450		8.374		7.428
25/10/00	5.674	9.528	5.095	2.355	1.450		8.294		7.418
26/10/00	5.764	9.518	4.975	1.465	1.440		8.294		7.338

Table 2.3-4 (1) GROUND WATER LEVEL MEASUREMENT FROM OBSERVATION WELL

FEASIBILITY STUDY ON SIHANOUKVILLE CCGT PROJECT

	ALC: NOT THE REAL PROPERTY OF		GROU	NDWATER L	EVEL OF OB	SERVATIO	N (MSL)	新胆汁和	
DATE	BH-1	BH-2	BH-3	BH-4	BH-5	BH-6	BH-7	BH-8	BH-9
27/10/00	5.584	9.488	4.895	1.075	1.430		8.264		7.298
28/10/00	3.614	9.498	4.935	1.045	1.430		8.194		7.308
29/10/00	5.644	9.508	4.985	1.015	1.440		8.124		7.308
30/10/00	5.634	9,508	4.995	1.055	1.450		8.054		7.348
31/10/00	5.624	9.518	5.025	1.165	1.480	1.1.1	8.064		7.358
01/11/00	5.654	9.458	4.975	1.115	1.450		8.004		7.298
02/11/00	5.634	9.418	4.925	1.385	1.450		8.014		7.278
03/11/00	5.624	9.368	4.775	1.635	1.440		8.024		7.248
04/11/00	5.614	9.338	4.715	1.385	1.420		7.964		7.238
05/11/00	5.604	9.298	4.645	1.105	1.400		7.904		7.228
06/11/00	5.594	9.228	4.635	1.065	1.400		7.874		7.178
07/11/00	5.374	9.158	4.615	1.005	1.350		7.834		7.238
14/11/00	5,434	8.808	4.665	1.015	1.300		7.494		7.138
21/11/00	5.294	8.298	4.485	0.955	1.290		7.254		7.028
28/11/00	5.224	7.968	4.465	0.945	1.280		6.884		6.898
05/12/00	5.084	7.718	4.415	0.925	1.280		6.774		6.788
12/12/00	5.394	7.878	4.720	1.480	1.620		6.964		6.998
19/12/00	5.124	7.678	4.665	1.485	1.600		6.844		6.848
26/12/00	5.004	7.458	4.691	1.455	1.607		6.654		6.488
02/01/01	4.214	6.878	4.515	1.295	1.220		6.134		6.198
09/01/01	4.184	6.738	4.335	0.995	1.080		6.014		6.048
16/01/01	4.344	6.848	4.480	0.845	1.300		5.949		5.108
23/01/01	3.924	6.418	4.335	0.835	1.280		5.824		4.758
31/01/01	3.944	6.498	4.245	0.915	1.250	Surger stores	5.764		4.868
06/02/01	3.934	6.458	4.225	0.875	1.250		5.724		5.208
13/02/01	3.914	6.418	4.215	0.925	1.240		5.694		5.448
20/02/01	3.904	6.388	4.185	0.985	1.240		5.574		5.698
28/02/01	3.724	6.278	4.005	0.905	1.230		5.454		5.608

Table 2.3-4 (2) GROUND WATER LEVEL MEASUREMENT FROM OBSERVATION WELL

Remarks : (DR) = Measurement during drilling time.

RP-CCGT XLS

Table 2.3-5 Detailed Survey Result of Hun Sen Spillway Dam Crest Elevation

DIST.(M)	SURVEY ELEV. (M.MSL)	SURVEY ELEV. (M.MSL) REARANGE ELEV. (M.MSL)
0,000	1.278	1.267
5.000	1.267	1.273
10.000	1.273	1.278
15.000	1.294	1.294
20.000	1.302	1.299
25,000	1.311	1.302
30.000	1.313	1.309
35,000	1.312	1.311
40.000	1.299	1.311
45.000	1.309	1.312
50.000	1.311	1.313
55,000	1.343	1,343
60,000	1.347	1.347
65,000	1.351	1.347
70.000	1.347	1.351
75.000	1.371	1.371
75.320	1.371	1.371

	HUN SE	HUN SEN WEIR CREST ELEVATION
	IL DEED II	USED IN CALCULATION
DEL_DIST	DIST	ELEV. FOR CALCULATION
0.000	0.000	1,267
2.500	2.500	1,267
5.000	7,500	1,273
5.000	12.500	1,282
17.500	30.000	1,296
20.000	50.000	1.311
15.000	65.000	1.346
5.000	70.000	1.351
5.320	75.320	1.371

REMARK : IN ORDER TO EASE THE DISCHARGE	CALCULATION, THE WHOLE IS SUBDIVIDED	INTO B SUB-SECTIONS

	M.MSL. M.MSL. M.																		
	HUNSEN WEIR 1.009 75.32	-	%ERROR	6.704	0.629	3.554	17.415	13.697	10.970	2.776	6.937	5.220	8.377	21.776	24.917	24.429	16.179	2398.320	171.293
		M.	Q CALCULATE	2.640	2.640	3.458	13.106	15.055	12.130	8.342	6.751	6.593		0.667	0.564	0.210	0.210	0.125	
CALCULATED DISCHARGE AT HUN SEN WEIR USING ANOTHER FORMULAE	STATION : ZERO GAUGE : WEIR CREST ELEV. : WEIR LENGTH :	ELEV)^1.5] 75.320	Q MEASURE	2.830	2.657	3.339	11.162	13.241	10.931	8.580	7.254	6.956	AVERAGE ERROR % =	0.853	0.751	0.169	0.181	0.005	OVERALL AVG ERR %=
USING ANOT	-	M. Q CALCULATE = SUM[(1.24+1.64*DEL H / W)*DEL_L*(WATER LEVEL-CREST_ELEV)^1.5] 3.000 3.000 3.000 6.320 3.000 51.000 SUM_DEL_L = 75.3 1.270 1.272 1.275 1.290 1.315 1.320											_ < _						-0
EN WEIR		L*(WATER 51.000 1.320	1.5]	0.302	1.302	1.795	7.819	9.055	7.202	4.817	3.823	3.725		0.172	0.120	0.000	0.000	0.000	RMULAE
T HUN S		/ W)*DEL_ 3.000 1.315	ST ELEV/1.5	0.086	0.086	0.116	0.482	0.556	0.445	0.300	0.240	0.234		0.014	0.011	0.000	0.000	0.000	DF THE FOI
HARGEA		.64*DEL H 6.320 1.290	L*(WATER LEVEL-CREST	0.294	0.294	0.373	1.265	1./84	1.176	0.829	0.682	0.667		0.094	0.082	0.029	0.029	0.011	ICATION (
ED DISCI		JM[(1.24+1 3.000 1.275	(WATER L	0.178	0.178	0.219	0.680	0.770	0.635	0.457	0.381	0.373		0.068	0.062	0.030	0.030	0.017	FOR VERIF
TCULAT		JLATE = SI 3.000 1.272		0.186	0.186	0.228	0.696	0.788	0.651	0.470	0.393	0.385		0.074	0.067	0.034	0.034	0.021	REMARK : THE LAST FIVE DATA ARE USED FOR VERIFICATION OF THE FORMULAE
			Qi = [(1.24+1.64*DEL H / W)*DEL	د 191.0	0.191	0.235	0.708	0.800	0.661	0.479	0.401	0.393		0.077	0.070	0.036	0.036	0.023	VE DATA A
Table 2.3-6		(CREST ELEV 0.65) 3.000 3.000 1.265 1.268	[(1.24+1.6	0.197	0.197	0.241	0.719	0.812	0.672	0.488	0.409	0.401		0.081	0.074	0.039	0.039	0.025	E LAST FI
	AN.	(CREST E1 3.000 1.265	ö.	0.206	0.206	0.250	0.736	0.831	0.689	0.502	0.422	0.414		0.087	0.079	0.043	0.043	0.029	I MARK : TH
	1 0	DEL_L (M.)= (M.)=	WATER LEVEL (M)	(M-MSL) 1.389	1.389	1.404	1.519	1 536	1.510	1.471	1.452	1.450		1.339	1.335	1.313	1.313	1.302	REA
		DEL_I TERT RI RI	WATERI	(M.AD.) 0.380	0.380	0.395	0.510	0.557	0.501	0.462	0.443	0.441		0.330	0.326	0.304	0.304	0.293	
	RIVER : CODE : MONTH : YEAR :		DATE	Sen-30	Oct-01	Oct-02	Oct-14	Oct-15	Oct-16	Oct-17	Oct-18	Oct-18		Nov-29	Nov-30	Dec-25	Dec-25	Jan-30	

CALCULATED DISCHARGE AT HIN SEN WEID DISING ANOTHER FORMULAE Tahlo 2 3.6

PROJECT : SIHANOUKVILLE CCGT Table 2.3-7 (1) CALCULATED DISCHARGE SEPTEMBER 2000

LOCATION : HUN SEN SPILLWAY DAM

199 美国	公然的基本	DISCHAR	RGE AT TIM	E (CMS.)			REMARI	¢.,
DATE	6:00	9:00	12.00	15:00	18:00	RAIN	NO RAIN	TIME
16/09/00	4.020	5.233	5.879	8.699	10.241	1		9:40 - 12:00
17/09/00	5.879	5.233	4.613	4.313	4.313			
18/09/00	4.313	4.313	4.313	4.020	4.020			
19/09/00	4.313	4.254	4.136	4.078	4.078	1		5:00 - 6:00
20/09/00	4.920	4.920	4.613	4.613	4.613			
21/09/00	4.613	4.613	4.613	4.613	4.920	1		15:00 - 18:00
22/09/00	4.020	3.733	3.454	3.182	2.918	1		21:00 - 01:00
23/09/00	7.172	6.893	6.686	6.413	6.211	1		
2 (/00/00	5.424	4.858	5.044	4.858	4.613	1		12:00 - 14:00
24/09/00	0.000							21:00 - 24:00
25/09/00	6.011	5.748	5.748	5.360	5.360			
26/09/00	4.920	4.492	4.020	3.454	2.918			
27/09/00	2.918	3.182	3.454	3.733	4.313	1		11:00 - 16:10
28/09/00	6.211	5.879	5.553	4.920	4.613			
29/09/00	4.492	4.372	4.313	4.020	3.733			
30/09/00	3.454	3.182	3.182	2.918	2.918			

PROJECT : SIHANOUKVILLE CCGT Table 2.3-7 (2) CALCULATED DISCHARGE OCTOBER 2000

LOCATION : HUN SEN SPILLWAY DAM

D. ITT	Mill Section	DISCHAI	RGE AT TIM	IE (CMS.)		ga Phil	REMARK	c
DATE	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/10/00	2.918	2.814	3.182	3.399	3.904	1		11:00 - 14:00
02/10/00	3.733	3.399	3.399	3.454	3.904	/		14:00 - 16:00
03/10/00	3.847	3.454	3.733	2.918	4.313	/		16:00 - 19:00
04/10/00	4.136	4.020	3.904	3.733	3.454			
05/10/00	3.621	3.344	3.182	3.904	4.313	1		9:00 - 16:00
06/10/00	6.011	5.748	5.553	4.920	4.492			
07/10/00	5.233	4.920	4.920	4.613	4.613			
08/10/00	4.552	4.432	4.313	4.313	4.313			
09/10/00	4.313	4.020	10.881	13.134	14.268	1		11:00 - 15:00
10/10/00	17.378	18.139	17.947	16.257	15.797	/	· · ·	6:00 - 9:00
11/10/00	11.699	11.865	12.536	12.706	13.134	/		5:00 - 7:00
12/10/00	12.536	13.134	13.392	11.699	11.205	/		6:00 - 9:00
13/10/00	12.283	13.134	13.740	14.445	13.566	1		8:00 - 12:00
14/10/00	12.536	12.283	11.781	11.451	11.205	1.		15:00 - 24:00
15/10/00	17.001	16.257	15.342	14.445	13.566			
16/10/00	12.706	11.865	11.043	10.639	10.241			
17/10/00	8.699	8.326	7.960	7.742	7.243			
18/10/00	6.893	6.549	6.211	5.879	5.553	1		21:00 - 01.00
19/10/00	11.043	10.241	9.459	8.699	8.326	/		18:00 - 22:00
20/10/00	7.243	6.549	6.211	5.879	5.553			
21/10/00	5.553	5.233	5.107	4.920	4.920	/		15:00 - 18:00
22/10/00	5.553	5.553	5.233	5.233	4.920	/		21:00 - 01:00
23/10/00	5.107	4.920	4.735	4.613	4.313			
24/10/00	4.313	4.136	4.020	4.020	3.904	/		12:00 - 14:00
25/10/00	3.733	3.733	3.733	3.454	3.454	/		21:00 - 24:00
26/10/00	3.344	3.182	3.454	3.733	4.020	/		12:00 - 14:00
27/10/00	3.733	60.501	3.182	2.918	2.918	/		15:00 - 18:00
28/10/00	2.661	2.661	3.182	3.454	5.233	/		15:00 - 18:00
29/10/00	5.553	5.233	5.233	6.211	6.211			
30/10/00	5.233	4.920	4.613	4.313	4.313	/		18:00 - 20:00
31/10/00	5.233	4.920	4.920	4.613	4.313			

PROJECT : SIHANOUKVILLE CCGT Tabel 2.3-7 (3) CALCULATED DISCHARGE NOVEMBER 2000

LOCATION : HUN SEN SPILLWAY DAM

DATE		DISCHAI	RGE AT TIM	IE (CMS.)			REMARI	<
DATE	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/11/00	4.020	3.733	4.313	4.552	4.613	. /		9:00 - 15:00
02/11/00	4.020	3.904	3.733	3.733	3.733			
03/11/00	3.344	3.182	3.182	2.918	2.918	/		18:00 - 20:00
04/11/00	3.182	3.182	3.129	3.023	3.023			
05/11/00	3.023	3.023	2.918	2.814	2.661			
06/11/00	3.023	2.918	2.661	2.661	2.511			
07/11/00	2.315	2.172	2.172	2.172	2.078			
08/11/00	2.078	2.032	2.032	1.940	1.940			
09/11/00	1.940	1.850	1.761	1.718	1.718			
10/11/00	1.674	1.631	1.588	1.504	1.504			
11/11/00	1.462	1.462	1.421	1.340	1.340			
12/11/00	1.340	1.340	1.300	1.300	1.300			
13/11/00	1.300	1.300	1.300	1.300	1.300			
14/11/00	1.260	1.260	1.260	1.221	1.221			
15/11/00	1.221	1.182	1.182	1.182	1.182			
16/11/00	1.182	1.182	1.106	1.032	1.032			
17/11/00	1.032	1.032	0.959	0.959	0.959			
18/11/00	0.923	0.923	0.819	1.106	1.106			
19/11/00	1.718	1.588	1.588	1.504	1.504			
20/11/00	1.380	1.380	1.300	1.182	1.182			
21/11/00	1.182	1.182	1.106	1.106	1.106			
22/11/00	0.686	0.686	0.592	0.592	0.592			
23/11/00	0.592	0.592	0.592	0.532	0.532			
24/11/00	0.502	0.502	0.502	0.474	0.474			
25/11/00	0.474	0.474	0.474	0.623	0.623			
26/11/00	0.853	0.853	0.853	0.751	0.751			
27/11/00	3.733	3.129	3.182	2.918	2.918			
28/11/00	1.421	1.421	1.421	1.300	1.300			
29/11/00	0.888	0.888	0.888	0.888	0.888			
30/11/00	0.819	0.819	0.819	0.785	0.785			

PROJECT : SIHANOUKVILLE CCGT Table 2.3-7 (4) CALCULATED DISCHARGE DECEMBER 2000

LOCATION : HUN SEN SPILLWAY DAM

DATE	Materilian	DISCHAI	RGE AT TIM	IE (CMS.)	- This		REMARI	
DATE	6:00	9.00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/12/00	0.866	0.866	0.866	0.866	0.866			
02/12/00	0.839	0.839	0.839	0.839	0.839			
03/12/00	0.735	0.735	0.735	0.735	0.735			
04/12/00	0.735	0.735	0.735	0.735	0.735			
05/12/00	0.660	0.660	0.660	0.660	0.660			
06/12/00	0.589	0.589	0.589	0.589	0.589			
07/12/00	0.566	0.566	0.566	0.566	0.566			
08/12/00	0.543	0.543	0.543	0.543	0.543			
09/12/00	0.543	0.543	0.543	0.543	0.543			
10/12/00	0.543	0.543	0.543	0.543	0.543			
11/12/00	0.499	0.499	0.499	0.499	0.499			
12/12/00	0.499	0.499	0.499	0.499	0.499			
13/12/00	0.477	0.477	0.477	0.477	0.477			
14/12/00	0.477	0.477	0.477	0.435	0.435			
15/12/00	0.435	0.435	0.435	0.435	0.456		-	
16/12/00	0.395	0.395	0.395	0.395	0.395			
17/12/00	0.395	0.395	0.395	0.395	0.395			
18/12/00	0.357	0.357	0.357	0.357	0.357			
19/12/00	0.320	0.320	0.320	0.320	0.320			
20/12/00	0.303	0.303	0.303	0.395	0.395	/		15:00 - 24:0
21/12/00	0.612	0.612	0.612	0.612	0.612			
22/12/00	0.566	0.566	0.566	0.566	0.566			
23/12/00	0.499	0.499	0.499	0.499	0.499			
24/12/00	0.376	0.376	0.376	0.376	0.376			
25/12/00	0.338	0.338	0.338	0.338	0.338			
26/12/00	0.320	0.320	0.320	0.320	0.320	/		15:00 - 24:0
27/12/00	0.286	0.286	0.286	0.286	0.286			
28/12/00	0.254	0.254	0.254	0.254	0.254			
29/12/00	0.254	0.254	0.254	0.254	0.254			-
30/12/00	5.056	0.254	0.254	0.320	0.320			
31/12/00	0.376	0.376	0.376	0.376	0.376			

PROJECT : SIHANOUKVILLE CCGT Table 2.3-7 (5) CALCULATED DISCHARGE JANUARY 2001

LOCATION : HUN SEN SPILLWAY DAM

0.175	CONTRACTOR OF	DISCHAI	RGE AT TIM	E (CMS.)			REMARN	c
DATE	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/01/01	0.395	0.395	0.395	0.395	0.395			
02/01/01	0.286	0.286	0.286	0.286	0.286	/		18:00-20:00
03/01/01	0.338	0.338	0.338	0.338	0.338			
04/01/01	0.303	0.303	0.303	0.303	0.303			
05/01/01	0.270	0.270	0.270	0.270	0.270			
06/01/01	0.254	0.254	0.254	0.254	0.254			
07/01/01	0.254	0.254	0.254	0.254	0.254			
08/01/01	0.286	0.286	0.286	0.286	0.286			
09/01/01	0.286	0.286	0.286	0.376	0.376	/		13:00-18:00
10/01/01	0.376	0.376	0.376	0.376	0.376			
11/01/01	0.376	0.376	0.376	0.376	0.376			
12/01/01	0.357	0.357	0.357	0.357	0.357			
13/01/01	0.286	0.286	0.286	0.376	0.376	/		13:00-00:00
14/01/01	0.920	0.920	0.920	1.723	2.157	1		13:00-18:"00
15/01/01	1.682	1.130	1.130	1.130	1.130			
16/01/01	0.920	0.786	0.786	0.786	0.786			
17/01/01	0.660	0.660	0.660	0.543	0.543			
18/01/01	0.435	0.435	0.435	0.338	0.338			
19/01/01	0.338	0.338	0.338	0.338	0.338			
20/01/01	0.286	0.286	0.286	0.286	0.286			
21/01/01	0.286	0.286	0.286	0.521	0.521	/		13:00-18:00
22/01/01	0.415	0.415	0.415	0.415	0.415	1		18:00-23:00
23/01/01	0.660	0.660	0.521	0.521	0.521			
24/01/01	0.320	0.320	0.320	0.320	0.320			
25/01/01	0.286	0.286	0.286	0.286	0.286			
26/01/01	0.254	0.254	0.254	0.254	0.254			
27/01/01	0.254	0.254	0.254	0.254	0.254			
28/01/01	0.225	0.225	0.225	0.225	0.225			
29/01/01	0.225	0.225	0.189	0.189	0.189			
30/01/01	0.189	0.189	0.189	0.189	0.189			
31/01/01	0.189	0.189	0.189	0.189	0.189			

PROJECT : SIHANOUKVILLE CCGT Table 2.3-7 (6) CALCULATED DISCHARGE FEBUARY 2001

LOCATION : HUN SEN SPILLWAY DAM

0.475		DISCHAR	RGE AT TIM	E (CMS.)		REALE	REMARK	
DATE	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/02/01	0.189	0.189	0.189	0.189	0.189			
02/02/01	0.167	0.167	0.167	0.167	0.167			
03/02/01	0.146	0.146	0.146	0.146	0.146			_
04/02/01	0.127	0.127	0.127	0.118	0.118			
05/02/01	0.061	0.061	0.061	0.061	0.061			
06/02/01	0.039	0.039	0.039	0.039	0.039			
07/02/01	0.039	0.039	0.039	0.039	0.039			
08/02/01	0.031	0.031	0.031	0.031	0.031			
09/02/01	0.020	0.020	0.020	0.020	0.020			
10/02/01	0.010	0.010	0.010	0.010	0.010			
11/02/01	0.010	0.010	0.010	0.010	0.010			
12/02/01	0.010	0.010	0.010	0.010	0.010			
13/02/01	0.010	0.010	0.010	0.010	0.010			
14/02/01	0.010	0.010	0.010	0.010	0.010			
15/02/01	01 0.010 0.01	0.010	0.010	0.010	0.010			
16/02/01	0.010	0.010	0.010	0.010	0.010			
17/02/01	0.010	0.010	0.010	0.010	0.010			
18/02/01	0.010	0.010	0.010	0.010	0.010			
19/02/01	0.010	0.010	0.010	0.039	0.010			
20/02/01	0.010	0.010	0.010	0.010	0.010			
21/02/01	0.010	0.010	0.010	0.010	0.010			
22/02/01	0.010	0.010	0.010	0.020	0.020	/		12:00-18:0
23/02/01	0.020	0.020	0.020	0.020	0.020			
24/02/01	0.020	0.020	0.020	0.020	0.020			
25/02/01	0.015	0.015	0.015	0.015	0.015		-	
26/02/01	0.015	0.015	0.015	0.015	0.015			
27/02/01	0.010	0.010	0.010	0.010	0.010			
28/02/01	0.010	0.010	0.010	0.010	0.010			