

PROJECT : SIHANOUKVILLE CCGT

Table 2.3-1 (1) READING WATER LEVEL

SEPTEMBER 2000

LOCATION : HUN SEN SPILLWAY DAM

ELEVATION OF ZERO = 1.009 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE	WATER LEVEL AT TIME (M.S.L.)					REMARK		
	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
16/09/00	1.409	1.429	1.439	1.479	1.499	/		9:40 - 12:00
17/09/00	1.439	1.429	1.419	1.414	1.414			
18/09/00	1.414	1.414	1.414	1.409	1.409			
19/09/00	1.414	1.413	1.411	1.410	1.410	/		5:00 - 6:00
20/09/00	1.424	1.424	1.419	1.419	1.419			
21/09/00	1.419	1.419	1.419	1.419	1.424	/		15:00 - 18:00
22/09/00	1.409	1.404	1.399	1.394	1.389	/		21:00 - 01:00
23/09/00	1.438	1.454	1.451	1.447	1.444	/		
24/09/00	1.432	1.423	1.426	1.423	1.419	/		12:00 - 14:00
	1.009							21:00 - 24:00
25/09/00	1.441	1.437	1.437	1.431	1.431			
26/09/00	1.424	1.417	1.409	1.399	1.389			
27/09/00	1.389	1.394	1.399	1.404	1.414	/		11:00 - 16:10
28/09/00	1.444	1.439	1.434	1.424	1.419			
29/09/00	1.417	1.415	1.414	1.409	1.404			
30/09/00	1.399	1.394	1.394	1.389	1.389			

PROJECT : SIHANOUKVILLE CCGT

Table 2.3-1 (2) READING WATER LEVEL

OCTOBER 2000

LOCATION : HUN SEN SPILLWAY DAM

ELEVATION OF ZERO = 1.009 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE	WATER LEVEL AT TIME (M.S.L.)					REMARK		
	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/10/00	1.389	1.387	1.394	1.398	1.407	/		11:00 - 14:00
02/10/00	1.404	1.398	1.398	1.399	1.407	/		14:00 - 16:00
03/10/00	1.406	1.399	1.404	1.389	1.414	/		16:00 - 19:00
04/10/00	1.411	1.409	1.407	1.404	1.399			
05/10/00	1.402	1.397	1.394	1.407	1.414	/		9:00 - 16:00
06/10/00	1.441	1.437	1.434	1.424	1.417			
07/10/00	1.429	1.424	1.424	1.419	1.419			
08/10/00	1.418	1.416	1.414	1.414	1.414			
09/10/00	1.414	1.409	1.507	1.534	1.547	/		11:00 - 15:00
10/10/00	1.581	1.589	1.587	1.569	1.564	/		6:00 - 9:00
11/10/00	1.517	1.519	1.527	1.529	1.534	/		5:00 - 7:00
12/10/00	1.527	1.534	1.537	1.517	1.511	/		6:00 - 9:00
13/10/00	1.524	1.534	1.541	1.549	1.539	/		8:00 - 12:00
14/10/00	1.527	1.524	1.518	1.514	1.511	/		15:00 - 24:00
15/10/00	1.577	1.569	1.559	1.549	1.539			
16/10/00	1.529	1.519	1.509	1.504	1.499			
17/10/00	1.479	1.474	1.469	1.466	1.459			
18/10/00	1.454	1.449	1.444	1.439	1.434	/		21:00 - 01:00
19/10/00	1.509	1.499	1.489	1.479	1.474	/		18:00 - 22:00
20/10/00	1.459	1.449	1.444	1.439	1.434			
21/10/00	1.434	1.429	1.427	1.424	1.424	/		15:00 - 18:00
22/10/00	1.434	1.434	1.429	1.429	1.424	/		21:00 - 01:00
23/10/00	1.427	1.424	1.421	1.419	1.414			
24/10/00	1.414	1.411	1.409	1.409	1.407	/		12:00 - 14:00
25/10/00	1.404	1.404	1.404	1.399	1.399	/		21:00 - 24:00
26/10/00	1.397	1.394	1.399	1.404	1.409	/		12:00 - 14:00
27/10/00	1.404	1.399	1.394	1.389	1.389	/		15:00 - 18:00
28/10/00	1.384	1.384	1.394	1.399	1.429	/		15:00 - 18:00
29/10/00	1.434	1.429	1.429	1.444	1.444			
30/10/00	1.429	1.424	1.419	1.414	1.414	/		18:00 - 20:00
31/10/00	1.429	1.424	1.424	1.419	1.414			

PROJECT : SIHANOUKVILLE CCGT

Table 2.3-1 (3) READING WATER LEVEL

NOVEMBER 2000

LOCATION : HUN SEN SPILLWAY DAM

ELEVATION OF ZERO = 1.009 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE	WATER LEVEL AT TIME (M.S.L.)					REMARK		
	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/11/00	1.409	1.404	1.414	1.418	1.419	/		9:00 - 15:00
02/11/00	1.409	1.407	1.404	1.404	1.404			
03/11/00	1.397	1.394	1.394	1.389	1.389	/		18:00 - 20:00
04/11/00	1.394	1.394	1.393	1.391	1.391			
05/11/00	1.391	1.391	1.389	1.387	1.384			
06/11/00	1.391	1.389	1.384	1.384	1.381			
07/11/00	1.377	1.374	1.374	1.374	1.372			
08/11/00	1.372	1.371	1.371	1.369	1.369			
09/11/00	1.369	1.367	1.365	1.364	1.364			
10/11/00	1.363	1.362	1.361	1.359	1.359			
11/11/00	1.358	1.358	1.357	1.355	1.355			
12/11/00	1.355	1.355	1.354	1.354	1.354			
13/11/00	1.354	1.354	1.354	1.354	1.354			
14/11/00	1.353	1.353	1.353	1.352	1.352			
15/11/00	1.352	1.351	1.351	1.351	1.351			
16/11/00	1.351	1.351	1.349	1.347	1.347			
17/11/00	1.347	1.347	1.345	1.345	1.345			
18/11/00	1.344	1.344	1.341	1.349	1.349	/		15:00-18:00
19/11/00	1.364	1.361	1.361	1.359	1.359			
20/11/00	1.356	1.356	1.354	1.351	1.351			
21/11/00	1.351	1.351	1.349	1.349	1.349			
22/11/00	1.337	1.337	1.334	1.334	1.334			
23/11/00	1.334	1.334	1.334	1.332	1.332			
24/11/00	1.331	1.331	1.331	1.330	1.330			
25/11/00	1.330	1.330	1.330	1.335	1.335	/		15:00-24:00
26/11/00	1.342	1.342	1.342	1.339	1.339	/		18:00-24:00
27/11/00	1.404	1.393	1.394	1.389	1.389			
28/11/00	1.357	1.357	1.357	1.354	1.354			
29/11/00	1.343	1.343	1.343	1.343	1.343			
30/11/00	1.341	1.341	1.341	1.340	1.340			

JANUARY 2001

Established on 15th Sept. 2000

[illegible]

Table 2.3-1 (6) READING WATER LEVEL

FEBUARY 2001

LOCATION : HUN SEN SPILLWAY DAM

ELEVATION OF ZERO = 1.009 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE						REMARK		
		9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/02/01	1.309	1.309	1.309	1.309	1.309			
02/02/01	1.307	1.307	1.307	1.307	1.307			
03/02/01	1.305	1.305	1.305	1.305	1.305			
04/02/01	1.303	1.303	1.303	1.302	1.302			
05/02/01	1.294	1.294	1.294	1.294	1.294			
06/02/01	1.289	1.289	1.289	1.289	1.289			
07/02/01	1.289	1.289	1.289	1.289	1.289			
08/02/01	1.287	1.287	1.287	1.287	1.287			
09/02/01	1.284	1.284	1.284	1.284	1.284			
10/02/01	1.279	1.279	1.279	1.279	1.279			
11/02/01	1.279	1.279	1.279	1.279	1.279			
12/02/01	1.279	1.279	1.279	1.279	1.279			
13/02/01	1.279	1.279	1.279	1.279	1.279			
14/02/01	1.279	1.279	1.279	1.279	1.279			
15/02/01	1.279	1.279	1.279	1.279	1.279			
16/02/01	1.279	1.279	1.279	1.279	1.279			
17/02/01	1.279	1.279	1.279	1.279	1.279			
18/02/01	1.279	1.279	1.279	1.279	1.279			
19/02/01	1.279	1.279	1.279	1.289	1.279			
20/02/01	1.279	1.279	1.279	1.279	1.279			
21/02/01	1.279	1.279	1.279	1.279	1.279			
22/02/01	1.279	1.279	1.279	1.284	1.284	/		12:00-18:00
23/02/01	1.284	1.284	1.284	1.284	1.284			
24/02/01	1.284	1.284	1.284	1.284	1.284			
25/02/01	1.282	1.282	1.282	1.282	1.282			
26/02/01	1.282	1.282	1.282	1.282	1.282			
27/02/01	1.279	1.279	1.279	1.279	1.279			
28/02/01	1.279	1.279	1.279	1.279	1.279			

PROJECT : SIHANOUKVILLE CCGT

**Table 2.3-2 (1) READING WATER LEVEL
SEPTEMBER 2000**

LOCATION : PREY TRENG (POND)

ELEVATION OF ZERO = -0.294 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE	WATER LEVEL AT TIME (M.S.L.)					REMARK		
	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
16/09/00	1.156	1.226	1.286	1.326	1.306	/		9:40 - 12:00
17/09/00	1.266	1.261	1.256	1.251	1.251			
18/09/00	1.246	1.241	1.241	1.241	1.236			
19/09/00	1.236	1.236	1.236	1.231	1.231			
20/09/00	1.227	1.226	1.224	1.224	1.221			
21/09/00	1.216	1.216	1.214	1.212	1.216	/		15:00 - 18:00
22/09/00	1.226	1.224	1.221	1.246	1.306	/		12:40 - 14:30
23/09/00	1.296	1.286	1.281	1.296	1.326	/		12:00 - 20:00
24/09/00	1.364	1.361	1.351	1.346	1.326			
25/09/00	1.296	1.286	1.276	1.266	1.266			
26/09/00	1.264	1.256	1.256	1.186	1.156	/		18:00 - 20:00
27/09/00	1.281	1.276	1.266	1.271	1.281	/		12:00 - 14:00
28/09/00	1.274	1.271	1.266	1.261	1.256			
29/09/00	1.251	1.248	1.246	1.241	1.236			
30/09/00	1.236	1.231	1.226	1.254	1.256	/		12:00 - 15:00

PROJECT : SIHANOUKVILLE CCGT

Table 2.3-2 (2) READING WATER LEVEL

OCTOBER 2000

LOCATION : PREY TRENG (POND)

ELEVATION OF ZERO = -0.294 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE	WATER LEVEL AT TIME (M.S.L.)					REMARK		
	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/10/00	1.236	1.254	1.254	1.286	1.284	/		11:00 - 14:00
02/10/00	1.274	1.268	1.261	1.256	1.256			
03/10/00	1.251	1.246	1.246	1.244	1.238	/		18:00 - 19:00
04/10/00	1.254	1.251	1.247	1.242	1.241	/		18:00 - 19:00
05/10/00	1.266	1.261	1.259	1.256	1.251	/		18:00 - 24:00
06/10/00	1.354	1.334	1.324	1.314	1.311			
07/10/00	1.301	1.296	1.294	1.291	1.286			
08/10/00	1.281	1.278	1.274	1.278	1.271	/		12:00 - 14:00
09/10/00	1.266	1.266	1.356	1.506	1.486	/		8:00 - 10:00
10/10/00	1.396	1.386	1.366	1.366	1.406	/		12:00 - 15:00
11/10/00	1.386	1.406	1.426	1.416	1.406	/		8:00 - 12:00
12/10/00	1.356	1.336	1.336	1.336	1.336	/		18:00 - 22:00
13/10/00	1.536	1.526	1.506	1.466	1.496			
14/10/00	1.406	1.396	1.386	1.386	1.396			
15/10/00	1.438	1.429	1.416	1.396	1.386			
16/10/00	1.406	1.396	1.386	1.356	1.346			
17/10/00	1.326	1.321	1.316	1.316	1.311			
18/10/00	1.306	1.306	1.306	1.296	1.336	/		15:00 - 18:00
19/10/00	1.306	1.301	1.296	1.291	1.286			
20/10/00	1.286	1.286	1.281	1.276	1.266			
21/10/00	1.256	1.256	1.256	1.251	1.246			
22/10/00	1.246	1.246	1.241	1.241	1.236			
23/10/00	1.232	1.232	1.236	1.251	1.271	/		12:00 - 20:00
24/10/00	1.231	1.231	1.246	1.251	1.251			
25/10/00	1.246	1.241	1.241	1.241	1.241			
26/10/00	1.226	1.226	1.226	1.226	1.226			
27/10/00	1.221	1.221	1.216	1.216	1.214			
28/10/00	1.211	1.211	1.209	1.206	1.231			
29/10/00	1.228	1.226	1.226	1.231	1.236	/		12:00 - 14:00
30/10/00	1.216	1.216	1.221	1.226	1.234	/		12:00 - 15:00
31/10/00	1.246	1.246	1.244	1.241	1.236			

PROJECT : SIHANOUKVILLE CCGT

Table 2.3-2 (3) READING WATER LEVEL

NOVEMBER 2000

LOCATION : PREY TRENG (POND)

ELEVATION OF ZERO = -0.294 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE	WATER LEVEL AT TIME (M.S.L.)					REMARK		
	6:00	9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/11/00	1.231	1.226	1.226	1.226	1.226			
02/11/00	1.226	1.226	1.225	1.224	1.221			
03/11/00	1.216	1.216	1.214	1.211	1.211			
04/11/00	1.206	1.206	1.206	1.206	1.206			
05/11/00	1.206	1.207	1.207	1.208	1.209	/		10:00 - 12:00
06/11/00	1.201	1.196	1.196	1.194	1.192			
07/11/00	1.191	1.191	1.189	1.188	1.188			
08/11/00	1.186	1.186	1.186	1.185	1.184			
09/11/00	1.184	1.184	1.183	1.183	1.183			
10/11/00	1.181	1.181	1.181	1.179	1.176			
11/11/00	1.174	1.174	1.171	1.171	1.171			
12/11/00	1.166	1.166	1.166	1.166	1.156	/		18:00-20:00
13/11/00	1.191	1.189	1.188	1.186	1.184			
14/11/00	1.173	1.173	1.171	1.171	1.169			
15/11/00	1.168	1.168	1.168	1.166	1.166			
16/11/00	1.166	1.166	1.166	1.166	1.166			
17/11/00	1.166	1.166	1.166	1.166	1.166	/		18:00-20:00
18/11/00	1.168	1.168	1.168	1.167	1.167			
19/11/00	1.167	1.166	1.166	1.166	1.166			
20/11/00	1.164	1.164	1.161	1.158	1.156			
21/11/00	1.154	1.154	1.152	1.151	1.151			
22/11/00	1.149	1.149	1.148	1.148	1.146			
23/11/00	1.232	1.232	1.236	1.251	1.271			
24/11/00	1.146	1.146	1.146	1.146	1.146			
25/11/00	1.146	1.146	1.146	1.146	1.148	/		15:00-17:00
26/11/00	1.148	1.146	1.146	1.146	1.146	/		19:00-24:00
27/11/00	1.178	1.178	1.178	1.178	1.214			
28/11/00	1.156	1.156	1.155	1.154	1.152			
29/11/00	1.146	1.146	1.146	1.144	1.144			
30/11/00	1.144	1.144	1.144	1.143	1.143			

JANUARY 2001

Established on 15th Sept. 2000

[illegible]

PROJECT : SIHANOUKVILLE CCGT

Table 2.3-2 (6) READING WATER LEVEL

FEBUARY 2001

LOCATION : PREY TRENG (POND)

ELEVATION OF ZERO = -0.294 M. (M.S.L.)

MEAN SEA LEVEL HA TIEN DATUM (VIETNAM)

Established on 15th Sept. 2000

DATE						REMARK		
		9:00	12:00	15:00	18:00	RAIN	NO RAIN	TIME
01/02/01	1.116	1.116	1.116	1.116	1.114			
02/02/01	1.112	1.112	1.112	1.112	1.158	/		14:00-18:00
03/02/01	1.158	1.158	1.158	1.156	1.186			
04/02/01	1.138	1.136	1.134	1.132	1.131			
05/02/01	1.128	1.128	1.128	1.126	1.124			
06/02/01	1.122	1.122	1.120	1.120	1.118			
07/02/01	1.118	1.118	1.118	1.116	1.116			
08/02/01	1.116	1.116	1.114	1.114	1.114			
09/02/01	1.114	1.114	1.112	1.112	1.110			
10/02/01	1.110	1.110	1.108	1.108	1.108			
11/02/01	1.106	1.106	1.106	1.104	1.102			
12/02/01	1.102	1.102	1.102	1.102	1.101			
13/02/01	1.100	1.100	1.100	1.100	1.099			
14/02/01	1.098	1.098	1.098	1.098	1.098			
15/02/01	1.106	1.106	1.106	1.106	1.106	/		03:00-06:00
16/02/01	1.104	1.103	1.103	1.103	1.102			
17/02/01	1.102	1.102	1.099	1.099	1.099			
18/02/01	1.096	1.096	1.096	1.096	1.096			
19/02/01	1.096	1.096	1.096	1.096	1.096			
20/02/01	1.096	1.096	1.096	1.096	1.096			
21/02/01	1.093	1.093	1.093	1.093	1.093			
22/02/01	1.091	1.091	1.091	1.091	1.091			
23/02/01	1.089	1.089	1.089	1.089	1.089			
24/02/01	1.089	1.089	1.089	1.089	1.088			
25/02/01	1.086	1.086	1.086	1.086	1.086			
26/02/01	1.086	1.086	1.086	1.086	1.086			
27/02/01	1.086	1.086	1.086	1.086	1.086			
28/02/01	1.086	1.086	1.086	1.086	1.086			

Table 2.3-3 (1) CALIBRATION OF DISCHARGE COEFFICIENT (Cd) AT HUN SEN WEIR

CALL-B-CREST

Cd = 0.9968

RIVER :

STATION :

HUNSEN WEIR

CODE :

ZERO GAUGE :

1.009

MONTH :

WEIR CREST ELEV. :

M.MSL.

YEAR :

WEIR LENGTH :

M

30 SEP. - 31 JAN.

2000-2001

CONST = $(2/3 \cdot \sqrt{2g}) \cdot (2/3 \cdot \sqrt{2g}) = 1.705$

Q CALCULATE = $C_d \cdot (2/3 \cdot \sqrt{2g}) \cdot (H^3 - H_c^3) \cdot \text{SUM}(\text{DEL}_L \cdot (\text{WATER LEVEL} - \text{CREST ELEV})^{1.5})$

DEL_L (M.) = 7.500 5.000 2.500

SUM_DEL_L = 75.320

M

REST ELEV. (M.MSL.)

1.267 1.273 1.282 1.296 1.311 1.346 1.351 1.371

DATE	WATER LEVEL (M) (M.A.D.) (M.MSL.)	1	2	3	4	5	6	7	8	SUM(DEL_L * DEL_H^1.5) CONST * SUM_ALL	Q MEASURE Qm (CMS.)	Q CALCULATE Qc (CMS.)	ERROR ABSOLUTE
Sep-30	0.380	1.389	0.107	0.198	0.263	0.425	0.436	0.134	0.037	0.013	2.747	2.830	3.239
Oct-01	0.380	1.389	0.107	0.198	0.263	0.425	0.436	0.134	0.037	0.013	2.747	2.738	3.061
Oct-02	0.395	1.404	0.127	0.237	0.320	0.532	0.567	0.210	0.061	0.032	3.556	3.544	6.143
Oct-14	0.510	1.519	0.316	0.610	0.865	1.580	1.897	1.079	0.344	0.303	11.926	11.888	6.501
Oct-15	0.557	1.566	0.409	0.793	1.135	2.104	2.575	1.548	0.498	0.458	16.232	16.180	0.471
Oct-15	0.527	1.536	0.349	0.674	0.960	1.764	2.135	1.242	0.398	0.357	13.431	13.388	1.113
Oct-16	0.501	1.510	0.299	0.577	0.817	1.485	1.775	0.996	0.317	0.276	11.154	11.118	1.711
Oct-17	0.462	1.471	0.230	0.441	0.616	1.098	1.280	0.663	0.208	0.168	8.020	7.995	6.823
Oct-18	0.443	1.452	0.199	0.379	0.526	0.924	1.059	0.518	0.160	0.123	6.627	6.606	8.932
Oct-18	0.441	1.450	0.196	0.372	0.516	0.907	1.036	0.503	0.156	0.118	6.486	6.465	7.053
AVERAGE ERROR % =													
Nov-29	0.330	1.339	0.048	0.085	0.102	0.134	0.094	0.000	0.000	0.000	0.789	0.853	7.836
Nov-30	0.326	1.335	0.044	0.077	0.092	0.116	0.074	0.000	0.000	0.000	0.687	0.751	8.823
Dec-25	0.304	1.313	0.025	0.040	0.041	0.033	0.002	0.000	0.000	0.000	0.240	0.169	41.423
Dec-25	0.304	1.313	0.025	0.040	0.041	0.033	0.002	0.000	0.000	0.000	0.240	0.239	32.047
Jan-30	0.293	1.302	0.016	0.025	0.021	0.007	0.000	0.000	0.000	0.000	0.118	0.118	73.060
OVERALL AVERAGE ERROR % =											13.883		

REMARK : THE LAST FIVE DATA ARE USED FOR VERIFICATION OF THE FORMULAE

