

A-3：土木関連資料

Appendix 3-1: 自己評価シート

Appendix 3-2: アクションプランシート

Appendix 3-3: パトロール記録の一例

(ផ្នែកសំណង់ស៊ីវិល)

Annex -2 ទំនាក់ទំនងការងាររវាងប្រតិបត្តិការសំណង់ស៊ីវិល

ផ្នែក: តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, អនុប្រធានក្រុមស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position O'Moleng Hydropower Station, Sub Group Chief of O'Moleng P/S

ឈ្មោះ: អេង រិទ្ធិ (Eng Rithy)

ម៉ោងពេល និងទីកន្លែង: 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Katahito OIKAWA

ចំនុចនិយ្យនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		✓ ✓
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C D E Ⓐ B C D E		✓ ✓ ✓
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E	Manual was not distributed.	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	Ⓐ B ③ D E Ⓐ B ③ D E	do not know the check sheet	✓ ✓

សំគាល់: ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ។

Annex -2 ទំរង់តារាងសំរាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, អនុប្រធានក្រុមស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position O'Moleng Hydropower Station, Sub Group Chief of O'Moleng P/S

ឈ្មោះ : អេង រិទ្ធី (Eng Rithy)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំណុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	A B C D E A B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	A B C D E A B C D E A B C D E A B C D E		
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	A B C D E A B C D E A B C D E A B C D E		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B C D E A B C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ផែនការការងារសំរាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, សមាជិកក្រុមអ្នកប្រតិបត្តិការនៅស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position: O'Moleng Hydropower Station, Group member Operator of O'Moleng P/S

ឈ្មោះ : អ៊ូ មុនីចិត្រា (Um Monychettra)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: T. P. Katahito OIKAWA

ចំនុចនិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		✓ ✓
2) ការថែទាំលើសំភារៈឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C D E Ⓐ B C D E		✓ ✓ ✓ ✓
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែនៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E	Manual was not distributed.	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈឧបករណ៍សំណង់ (TM 7)	① ②	Ⓐ B C D E Ⓐ B C D E	do not know the check sheet.	✓ ✓

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 តំបន់នៃការងារសំរាប់ធ្វើការវាយតម្លៃទូទៅ

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, សមាជិកក្រុមអ្នកប្រតិបត្តិការនៅស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position: O'Moleng Hydropower Station, Group member Operator of O'Moleng P/S

ឈ្មោះ : អ៊ូ ម៉ូនីចិត្រា (Um Monychetra)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: **Takahito OIKAWA**

ចំនួននិយ័យនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	(A) B C D (A) B C D	ស្ថិត្យល្អណាស់ក្នុងការ ធ្វើការងារ/ទំនប់ទឹក សំ ភារៈឧបករណ៍	
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	(A) B C D (A) B C D A B C (D) (A) B C D	ការយល់ដឹងខ្ពស់ណាស់ ទៅលើការងារសំភារៈ ថែទាំ (ថែទាំសម្រាប់ការ ថែទាំ និង ការយល់ដឹងខ្ពស់)	
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	(A) B C D (A) B C D (A) B C D A B (C) D	ស្ថិត្យល្អណាស់ក្នុងការ វាយតម្លៃលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល ក្នុងការ ធ្វើការងារថែទាំ និង ការយល់ដឹងខ្ពស់ណាស់ ទៅលើការងារសំភារៈ ថែទាំ (ថែទាំសម្រាប់ការ ថែទាំ និង ការយល់ដឹងខ្ពស់)	
4) ធ្វើតំរូវការផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B (C) D A B (C) D		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងសំរាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, សមាជិកក្រុមអ្នកប្រតិបត្តិការនៅស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position: O'Moleng Hydropower Station, Group member Operator of O'Moleng P/S

ឈ្មោះ : អ៊ុំ មុនីចិត្រា (Um Monychetra)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំណុចការងារ និងលេខកូដការងារ	ចំនួននៃការងារលំអិត	ចំណាត់ថ្នាក់នៃការវាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើសំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈឧបករណ៍សំណង់ ស៊ុរវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C D E Ⓐ B C D E		
3) ការដឹកជញ្ជូនមើលជាប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និងប្រចាំខែទៅលើឧបករណ៍សំណង់ស៊ុរវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
4) ធ្វើតំរោងផែនការនៃការជួសជុលលើសំភារៈឧបករណ៍សំណង់ (TM 7)	① ②	A Ⓑ C D E A Ⓑ C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសម្រាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរ៉ែមូល, សមាជិកក្រុមអ្នកប្រតិបត្តិការនៅស្ថានីយ៍ថាមពលអូរ៉ែមូល

Division: Position: O'Moleng Hydropower Station, Group member Operator of O'Moleng P/S

ឈ្មោះ : ឈឿម កុសល (Cheoum Kosal)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: ^{T.K} Katahito OIKAWA

ចំនុចនិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		✓ ✓
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C D E Ⓐ B C D E		✓ ✓ ✓ ✓
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E	Manual was not distributed	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	Ⓐ B C D E Ⓐ B C D E	do not know the check sheet	

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, គ្មានទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, សមាជិកក្រុមអ្នកប្រតិបត្តិការនៅស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position: O'Moleng Hydropower Station, Group member Operator of O'Moleng P/S

ឈ្មោះ : ឈឿម កុសល (Cheoum Kosal)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: **Takahito OIKAWA**

ចំនួននិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D Ⓐ B C D	ខ្ញុំអាចធ្វើបានល្អបំផុត	
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ុរិល (TM 5)	① ② ③ ④	Ⓐ B C D Ⓐ B C D A B C D Ⓐ B C D	ខ្ញុំមិនខ្លាំងប៉ុន្មានទេ គ្រប់លំដាប់ដំណើរការល្អ	
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ុរិល (TM 6)	① ② ③ ④	Ⓐ B C D Ⓐ B C D Ⓐ B C D A B ③ D	ខ្ញុំមិនធ្វើការបានល្អបំផុត ទេ	
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B ③ D A B ③ D	ខ្ញុំមិនធ្វើការបានល្អបំផុត ទេ	

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, សមាជិកក្រុមអ្នកប្រតិបត្តិការនៅស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position: O'Moleng Hydropower Station, Group member Operator of O'Moleng P/S

ឈ្មោះ : ឈឿម គុសល (Cheoum Kosal)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំនុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារសម្រេច	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ សុវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C D E Ⓐ B C D E		
3) ការងាររក្សាទុកមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់សុវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B ③ D E		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A ② C D E A ② C D E		

សំគាល់ : ចំពោះចំនួននៃការងារសម្រេចមើលទៅតារាងវាយតម្លៃ ។

Annex -2 តំបន់នៃការពិនិត្យស្ថានភាពសំណង់ស៊ីវិល

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរ៉ូម៉ុង, ប្រធានក្រុមស្ថានីយ៍ថាមពលអូរ៉ូម៉ុង

Division: Position O'Moleng Hydropower Station, Group Chief of O'Moleng P/S

ឈ្មោះ : យ៉ាង ស៊ុយែន (Yang Soyen)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Katahito OIKAWA

ចំនុចនីមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃការងារលំអិត	ចំណាត់ថ្នាក់នៃការវាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើសំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		✓ ✓
2) ការថែទាំលើសំភារៈឧបករណ៍សំណង់ ស៊ុវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C D E Ⓐ B C D E		✓ ✓ ✓ ✓
3) ការដើរល្បាតមើលជាប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និងប្រចាំខែទៅលើឧបករណ៍សំណង់ស៊ុវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E	Manual app not attached	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃការជួសជុលលើសំភារៈឧបករណ៍សំណង់ (TM 7)	① ②	Ⓐ B C D E Ⓐ B C D E	do not know the plant chart	✓ ✓

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំរង់នៃការវាយតម្លៃការងារសំខាន់ៗ

ផ្នែក: គុណាមី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលង, ប្រធានក្រុមស្ថានីយ៍ថាមពលអូរម៉ូលង

Division: Position O'Moleng Hydropower Station, Group Chief of O'Moleng P/S

ឈ្មោះ : យ៉ាង សុយ៉ែន (Yang Soyen)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takabito OIKAWA

ចំណុចនីមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D Ⓐ B C D	គ្រឹះស្ថានប្រតិបត្តិការសំណង់ បញ្ជាក់ទំនប់ថែទាំគ្រឹះស្ថានលើក គ្រឹះស្ថានប្រតិបត្តិការសំណង់ ដ៏មិនទាន់យកចិត្តទុកដាក់	
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ សុវិធាន (TM 5)	① ② ③ ④	Ⓐ B C D Ⓐ B C D A B C D Ⓐ B C D	គ្រឹះស្ថានថែទាំឧបករណ៍សំណង់ គ្រឹះស្ថានថែទាំលើសំណង់ ប្រតិបត្តិការសំណង់ ប្រតិបត្តិការសំណង់	
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់សុវិធាន (TM 6)	① ② ③ ④	Ⓐ B C D Ⓐ B C D Ⓐ B C D A B ③ D	ដំណើរការថែទាំឧបករណ៍ សំណង់សុវិធាន គ្រឹះស្ថានថែទាំ ប្រតិបត្តិការសំណង់ គ្រឹះស្ថានថែទាំ ប្រតិបត្តិការសំណង់ ប្រតិបត្តិការសំណង់	
4) ធ្វើតំរូវការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B ③ D A B ③ D		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនប់នៃការវិនិយោគសំរាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរម៉ូលេង, ប្រធានក្រុមស្ថានីយ៍ថាមពលអូរម៉ូលេង

Division: Position O'Moleng Hydropower Station, Group Chief of O'Moleng P/S

ឈ្មោះ : យ៉ាង សុយ៉ែន (Yang Soyen)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំណុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិនិត្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E A B C Ⓓ E Ⓐ B C D E		
3) ការដើរព្យួរតមើលថា ប្រថាប់ថ្លៃ, ប្រថាប់ស្តុក និង ប្រថាប់ទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B Ⓒ D E		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A Ⓑ C D E A Ⓑ C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរូម៉ូម៉ិស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូម៉ូម៉ិស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : ស៊ីន ស៊ីម៉េង (Sin Simeng)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: ^{J k} Kazahito OIKAWA

ចំនុចនិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារសំរិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	A B C D E A B C D E	Only operation of the gate	✓ ✓
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	A B C D E A B C D E A B C D E A B C D E	with director's commands	✓ ✓ ✓ ✓
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	A B C D E A B C D E A B C D E A B C D E	Manual was not distributed	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B C D E A B C D E	does not know the check sheet	✓ ✓

សំគាល់ : ចំពោះចំនួននៃការងារសំរិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការងារតំបន់ខ្ពង់រាប

ផ្នែក, គុណាមី: ស្ថានីយ៍ផលិតថាមពលអូរូម៉ិស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូម៉ិស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : ស៊ីន ស៊ីម៉ង់ (Sin Simeng)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: **Takahito OIKAWA**

ចំនុចនិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	(A) B C D (A) B C D		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	(A) B C D (A) B C D (A) B C D A (B) C D		
3) ការដើរឈ្លាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	(A) B C D (A) B C D (A) B C D A (B) C D		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A (B) C D A (B) C D		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំរង់នៃការវាយតម្លៃការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ជលិតថាមពលអូរូមីស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូមីស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : ស៊ីន ស៊ីម៉ង់ (Sin Simeng)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: **Takahito OIKAWA**

ចំណុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E A Ⓑ C D E		
3) ការដើរព្យាបាលមើលថា ប្រថាប់ថ្លៃ, ប្រថាប់តួហ្គេ និង ប្រថាប់ទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E A Ⓑ C D E		
4) ធ្វើគំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A Ⓑ C D E A Ⓑ C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនប់នៃការងារសំរាប់ធ្វើការងារវាយតម្លៃខ្លួនឯង

ផ្នែក. តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរូមីស. អនុប្រធានក្រុមស្ថានីយ៍ថាមពលអូរូមីស

Division: Position O’Romis Hydropower Station, Sub Group Chief of O’Romis P/S

ឈ្មោះ : ហេង សុខហុន (Heng Sokhon)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: ^{Tk} ~~K~~afahito OIKAWA

ចំនុចនិយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈសុបករណ៍សំណង់ (TM 4)	① ②	(A) B C D E (A) B (C) D E	Only operation of the gate	✓ ✓
2) ការថែទាំលើសំភារៈសុបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	(A) B C D E (A) B C D E (A) B C D E A B C (D)	with director's commands	✓ ✓ ✓ ✓
3) ការដើរព្យាបាលមើលជា ប្រចាំថ្ងៃ. ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើសុបករណ៍សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	A (B) C D (E) (A) B C D (E) (A) B C D (E) A B (C) D (E)	Manual was not distributed	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈសុបករណ៍សំណង់ (TM 7)	① ②	A B (C) D E A B (C) D E	does not know the plan sheet	✓

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 តំរូវការការងារសំរាប់ធ្វើការងារវាយតម្លៃទូទៅ

ផ្នែក, តួនាទី: ស្ថានីយ៍ទំនើបថាមពលអូរូម៉ិស, អនុប្រធានក្រុមស្ថានីយ៍ថាមពលអូរូម៉ិស

Division: Position O’Romis Hydropower Station, Sub Group Chief of O’Romis P/S

ឈ្មោះ : ហេង សុខហួន (Heng Sokhon)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំនុចនិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D Ⓐ B C D		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ សុរិល (TM 5)	① ② ③ ④	Ⓐ B C D Ⓐ B C D Ⓐ B C D Ⓐ B C D		
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់សុរិល (TM 6)	① ② ③ ④	Ⓐ B C D Ⓐ B C D Ⓐ B C D Ⓐ B C D		
4) ធ្វើគំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	Ⓐ B C D Ⓐ B C D		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងាររវាងការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ផលិតថាមពលអូរ៉ូមិស, អនុប្រធានក្រុមស្ថានីយ៍ថាមពលអូរ៉ូមិស

Division: Position O’Romis Hydropower Station, Sub Group Chief of O’Romis P/S

ឈ្មោះ : ហេង សុខហៀង (Heng Sokhon)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: **Takahito OIKAWA**

ចំណុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
3) ការដើរព្យាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
4) ធ្វើតំរូវផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A Ⓑ C D E A Ⓑ C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំរង់នៃការវាយតម្លៃការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ទំនើបថាមពលអូរូម៉ូមីស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូម៉ូមីស

Division: Position O'Romis Hydropower Station, Group member Operator of O'Romis P/S

ឈ្មោះ : សរ សុរាន់ដា (Sor Soranda)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Katahito OIKAWA

ចំនុចនីមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B Ⓒ D E	Copy operation of the report	✓ ✓
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ុវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E A B Ⓒ D E	with director's comment	✓ ✓ ✓ ✓
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ុវិល (TM 6)	① ② ③ ④	A Ⓑ C D E Ⓐ B C D E Ⓐ B C D E A B Ⓒ D E	Manual was not distributed	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B Ⓒ D E A B Ⓒ D E	we do not know the check sheet	✓ ✓

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ទំនើបថាមពលអូរូម៉ូមីស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូម៉ូមីស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : សរ សុរិន្ទា (Sor Soranda)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំណុចនិមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E A B C ④ E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ុវិល (TM 5)	① ② ③ ④	Ⓐ B C D E A ② C D E A ② C D E Ⓐ B C D E		
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ុវិល (TM 6)	① ② ③ ④	Ⓐ B ③ D E Ⓐ B C D E Ⓐ B C D E A ② C D ④		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B ③ D E Ⓐ B C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ជំនិតថាមពលអូរូម៉ូម៉ីស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូម៉ូម៉ីស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : សរ សរ៉ាន់ដា (Sor Soranda)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំនុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារសម្រេច	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E A B ③ D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E A ② C D E		
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	A ② C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B ③ D E A B ③ D E		

សំគាល់ : ចំពោះចំនួននៃការងារសម្រេចសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទិន្នន័យការងារសំរាប់ធ្វើការងាររបស់ប្រធានប្រតិបត្តិ

ផ្នែក, តួនាទី: ស្ថានីយ៍ទំលិតថាមពលអូរូម៉ិស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូម៉ិស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : តូច ផល្លី (Toch Phally)

ម៉ោងពេល និងទីកន្លែង : 22nd May 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Katahito OIKAWA

ចំនួននិយមៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B ③ D E	Only operations of the gate	✓ ✓
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E A B ③ D E	With director's commands	✓ ✓ ✓ ✓
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E A B ③ D E	Manual was not distributed	✓ ✓ ✓ ✓
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B ③ D E A B ③ D E	does not know the check sheet	✓ ✓

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំនាក់ទំនងការងារសំរាប់ធ្វើការងារតំលៃខ្ពង់ខ្ពស់

ផ្នែក, តួនាទី: ស្ថានីយ៍វារីទេសចរណ៍អូរ៉ូមីស, សមាជិកក្រុមស្ថានីយ៍វារីទេសចរណ៍អូរ៉ូមីស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : តូច ផល្លី (Toch Phally)

ម៉ោងពេល និងទីកន្លែង : 22nd September 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំណុចនីមួយៗនៃការងារ និង លេខកូដ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	បញ្ជាក់
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ុវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
3) ការដើរណ្តាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ុវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
4) ធ្វើតំរូវការផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	Ⓐ B C D E Ⓐ B C D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -2 ទំរង់នៃការវាយតម្លៃការងារវាយតម្លៃខ្លួនឯង

ផ្នែក, តួនាទី: ស្ថានីយ៍ជលិតថាមពលអូរូមីស, សមាជិកក្រុមស្ថានីយ៍ថាមពលអូរូមីស

Division: Position O’Romis Hydropower Station, Group member Operator of O’Romis P/S

ឈ្មោះ : ទូច ផល្លី (Toch Phally)

ម៉ោងពេល និងទីកន្លែង : 07th December 2010, JICA room of EUMP

ឈ្មោះនៃក្រុមប្រឹក្សាជំនាញការ JICA: Takahito OIKAWA

ចំនុចការងារ និង លេខកូដការងារ	ចំនួននៃ ការងារលំអិត	ចំណាត់ថ្នាក់នៃការ វាយតម្លៃលើការងារ	ហេតុផល និងយោបល់	ពិន្យដោយ JICA
1) ការប្រតិបត្តិការលើ សំភារៈឧបករណ៍សំណង់ (TM 4)	① ②	Ⓐ B C D E Ⓐ B C D E		
2) ការថែទាំលើសំភារៈ ឧបករណ៍សំណង់ ស៊ីវិល (TM 5)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
3) ការដើរល្បាតមើលជា ប្រចាំថ្ងៃ, ប្រចាំសប្តាហ៍ និង ប្រចាំខែទៅលើឧបករណ៍ សំណង់ស៊ីវិល (TM 6)	① ② ③ ④	Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E Ⓐ B C D E		
4) ធ្វើតំរោងផែនការនៃ ការជួសជុលលើសំភារៈ ឧបករណ៍សំណង់ (TM 7)	① ②	A B ③ D E A B ③ D E		

សំគាល់ : ចំពោះចំនួននៃការងារលំអិតសូមមើលទៅតារាងវាយតម្លៃ ។

Annex -3 Format of Action Plan

1 st Interview for setting Action Plan	2 nd Interview for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 及川 隆仁	Date: 24 th Sep 2010 Sign: 及川 隆仁	Date: 9 th Dec 2010 Sign: 及川 隆仁

Division and Position	Name
Group Member Operator of O'Romis P/S	Toch Phally

0. Action Plan

Objective item	Achievement Level		Measures	Interim Result	Final Result	Rating	Evaluation
	Current Level	Target Level					
Task Code TR1 Patrol, Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	<p>What? Periodical patrol and checking</p> <p>By When? By the end of September</p> <p>Achievement Level To be able to conduct by myself based on O & M manual.</p>	<p>How? To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA Advisor</p> <p>To read through O & M manual</p>	<p>I have already read through O & M manual</p> <p>- I can do patrol with check sheet</p>		<p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p>	<p>He can conduct a periodical patrol properly by himself. Result was recorded on the check sheet with certainty.</p>
Task Code: TR7 Repairing	I cannot make repairing plan	<p>What? Repairing Plan</p> <p>By When: By the end of December</p> <p>How Far? To make small plan by myself</p>	<p>How? To watch another repairing work and study</p>	<p>I can make a plan for small repairing.</p>		<p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p>	<p>He did some small repairing work through his work, but he does not have enough experience.</p>

Annex -3 Format of Action Plan

Division and Position	Name
Sub Group Chief of O'Romis P/S	Heng Sokhon

1 st Interview for setting Action Plan	2 nd Interview for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 蔭川 隆仁	Date: 24 th Sep 2010 Sign: 蔭川 隆仁	Date: 9 th Dec 2010 Sign: 蔭川 隆仁

① Action Plan

Objective item	Achievement Level		Measures	Interim Result	Final Result	JICA Advisor Team	
	Current Level	Target Level				Rating	Evaluation
Task Code: TR6 Patrol, Checkings	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	<p>What? Periodical checking and patrol</p> <p>By When? By the end of September</p> <p>Achievement Level To be able to conduct by myself based on O & M manual.</p>	<p>How? To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA Advisor</p> <p>To read through O & M manual</p>	<p>- I have already read through O & M manual</p> <p>- I can do patrol with check sheet</p>		<p>①</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p>	<p>He can conduct a periodical patrol properly by himself.</p> <p>Result was recorded on the check sheet with certainty.</p>
Task Code: TR7 Repairing	I cannot make repairing plan	<p>What? Repairing Plan</p> <p>By When? By the end of December</p> <p>How Far? To make small plan by myself</p>	<p>How? To watch another repairing work and study</p>	<p>I can make a plan for small repairing.</p>		<p>A</p> <p>ⓑ</p> <p>C</p> <p>D</p> <p>E</p>	<p>He did work through his work, but he does not have enough experience.</p>

Annex -3 Format of Action Plan

Division and Position	Name
Group Member Operator of O'Romis P/S	Sin Siemeng

1 st Interview for setting Action Plan	2 nd Interview for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 及川 隆仁	Date: 24 th Sep 2010 Sign: 及川 隆仁	Date: 9 th Dec 2010 Sign: 及川 隆仁

o Action Plan

Objective item	Achievement Level			Measures	Interim Result	Final Result	JICA Advisor Team	
	Current Level	Target Level	How?				Rating	Evaluation
Task Code: TR7 Patrol Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	Periodical patrol and checking By When? By the end of September	How? To explain the checking items and the importance of daily patrol to keep the level facilities good condition by JICA Advisor To read through O & M manual	- I have already read through O & M manual - I can do patrol with check sheet			A B C D E	He can conduct a periodical patrol properly by himself. Result was recorded on the check sheet with certainty.
Task Code: TR7 Repairing	I cannot make repairing plan	Repairing Plan By When? By the end of December How Far? To make small plan by myself	How? To watch another repairing work and study To make small plan by myself	- I can make a plan for small repairing.			A B C D E	He did some small repairing work through his work, but he does not have enough experience.

Annex -3 Format of Action Plan

1 st Intervention for setting Action Plan	2 nd Intervention for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 石川 隆仁	Date: 24 th Sep 2010 Sign: 石川 隆仁	Date: 9 th Dec 2010 Sign: 石川 隆仁

Division and Position	Name
Group Member Operator of O'Romis P/S	Sor Soranda

9 Action Plan

Objective item	Achievement Level		Measures	Interim Result	Final Result	Rating	Evaluation
	Current Level	Target Level					
Task Code: TR5 Patrol, Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	Periodical patrol and checking. By When? By the end of September Achievement Level To be able to conduct by myself based on O & M manual.	How? - To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA-Advisor - To read through O & M manual	- I have already read through O & M manual - I can do patrol with check sheet		A B C D E	He can conduct a periodical patrol properly by himself, but he does not seem to have enough confidence because he is a new comer.
Task Code: TR7 Repairing	I cannot make repairing plan	Repairing Plan By When? By the end of December How Far? To make small plan by myself	How? - To watch another repairing work and study	I can make a plan for small repairing but I don't have enough confidence.		A B C D E	He may be able to make a small repairing plan. As he is new comer, some assistance from his colleague is necessary.

Annex -3 Format of Action Plan

Division and Position	Name
Group Member Operator of O'Moleng P/S	Um Monychettra

1 st Interview for setting Action Plan	2 nd Interview for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 蔭川 隆仁	Date: 23 rd Sep 2010 Sign: 蔭川 隆仁	Date: 8 th Dec 2010 Sign: 蔭川 隆仁

o Action Plan

Objective Item	Achievement Level		Measures	Interim Result	Final Result	Rating	Evaluation
	Current Level	Target Level					
Task Code: TM6 Patrol, Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	What? Periodical patrol and checking By When? By the end of September Achievement Level To be able to conduct by myself based on O & M manual	How? - To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA Advisor - To read through O & M manual	- I have already read through O & M manual - I can do patrol with check sheet		③ B C D E	He can conduct a periodical patrol properly by himself. Result was recorded on the check sheet with certainty.
Task Code: TM7 Repairing By When: TM7 By How Far: 蔭川 隆仁	I cannot make repairing plan By When: 蔭川 隆仁 By How Far: 蔭川 隆仁	What? Repairing Plan By When: By the end of September How Far? To make small plan by myself By When: 蔭川 隆仁 By How Far: 蔭川 隆仁	How? - To watch another repairing work and study - To repair by myself	- I can make small repairing plan if necessary, but I don't have enough experience.		A ② C D E	I think that he can make a small repairing plan. More experience is necessary for upskilling.

Annex -3 Format of Action Plan

1 st Interview for setting Action Plan	2 nd Interview for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 及川 隆仁	Date: 23 rd Sep 2010 Sign: 及川 隆仁	Date: 8 th Dec 2010 Sign: 及川 隆仁

Division and Position	Name
Group Member Operator of O'Moleng P/S	Cheoum Kosal

o. Action Plan

Objective item	Achievement Level		Measures	Interim Result	Final Result	Rating	Evaluation
	Current Level	Target Level					
Task Code: TM6 Panel Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	<p>What? Periodical checking</p> <p>By When? By the end of September</p> <p>Achievement Level To be able to conduct by myself based on O & M manual.</p>	<p>How? To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA-Advisor</p> <p>To read through O & M manual</p>	<p>- I have already read through O & M manual</p> <p>- I can do patrol with check sheet</p>		<p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p>	<p>He can conduct a periodical patrol properly by himself.</p> <p>Result was recorded on the check sheet with certainty.</p>
Task Code: TM7 Repairing generator. TMA. Failure of in fire.	I cannot make repairing plan generator is not repairing preferential	<p>What? Repairing Plan</p> <p>By When? By the end of this month December</p> <p>How Far? To make small plan by myself</p>	<p>How? To watch another repairing work and study</p> <p>To make small plan by myself</p>	<p>- I can make a small repairing plan if necessary, but I don't have enough experience.</p>		<p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p>	<p>I think that he can make a small repairing plan.</p> <p>More experience is necessary for upskilling.</p>

Annex -3 Format of Action Plan

1 st Interview for setting Action Plan	2 nd Interview for Interim	3 rd Interview for Final
Date: 24 th May 2010 Sign: 石川 隆仁	Date: 23 rd Sep 2010 Sign: 石川 隆仁	Date: 8 th Dec 2010 Sign: 石川 隆仁

Division and Position	Name
Group Chief of O'Moleng P/S	Yang Soyen

o Action Plan

Objective item	Achievement Level		Measures	Interim Result	Final Result	Rating	Evaluation
	Current Level	Target Level					
Task Code: TM6 Patrol, Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	What? Periodical checking and patrol By When? By the end of September Achievement Level To be able to conduct by myself based on O & M manual	How? To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA Advisor To read through O & M manual	- I have already read through O & M manual - I can do patrol with check sheet		A B C D E	He can conduct a periodical patrol properly by himself. Result was recorded on the check sheet with certainty.
Task Code: TM7 Repairing	I cannot make repairing plan	What? Repairing Plan By When? By the end of September How Far? To make small plan by myself	How? To watch another repairing work and study. To discuss with repairer	- I can make a small repairing plan if necessary, but I don't have enough experience.		A B C D E	I think that he can make a small repairing plan. More experience is necessary for upskilling.

1 st Interview for sitting Action Plan		2 nd Interview for Interim		3 rd Interview for Final	
Date: 24 th May 2010	Date: 23 rd Sep 2010	Date: 8 th Dec 2010			
Sign: 及川 隆仁	Sign: 及川 隆仁	Sign: 及川 隆仁			

Division and Position	Name
Sub Group chief of O'Moleng P/S	Eng Rithy

o Action Plan

Objective Item	Achievement Level		Measures	Interim Result	Final Result	Rating	JICA Advisor Team	
	Current Level	Target Level					Evaluation	
Task Code: TM6 Patrol, Checking	I do not know the contents of O & M manual because it was not yet distributed to all of the staff.	<p>What? Periodical patrol and checking</p> <p>By When? By the end of September</p> <p>Achievement Level To be able to conduct by myself based on O & M manual.</p>	<p>How? - To explain the checking items and the importance of daily patrol to keep the civil facilities good condition by JICA-Advisor - To read through O & M manual</p>	<p>- I have already read through O & M manual - I can do patrol with check sheet</p>		<p>A B C D E</p>	<p>He can conduct a periodical patrol properly by himself. Result was recorded on the check sheet with certainty.</p>	
Task Code: TM7 Repairing problems: TM7 tasks: TM7	I cannot make repairing plan because of lack of experience.	<p>What? Repairing Plan</p> <p>By When By the end of December</p> <p>How? To make small plan by myself</p>	<p>How? - To watch another repairing work and study - To ask for help from experienced staff</p>	<p>- I can make a small repairing plan if necessary, but I don't have enough experience.</p>		<p>A B C D E</p>	<p>I think that he can make a small repairing plan. More experience is necessary for upskilling.</p>	
						<p>A B C D E</p>		

ការវាយតម្លៃហានិភ័យបច្ចេកទេសសំណង់ស្ថិតិសំណង់ការងារសម្រាប់ផ្ទៃ

(សម្រាប់ការអង្កេតស្ថិតិសម្រាប់ផ្ទៃ)

ថ្ងៃទី 14 ខែ 02 ឆ្នាំ 2011

ឈ្មោះ ខ្យល់

ឈ្មោះមធ្យោបាយ	ចំណុច	ស្ថិតិសម្រាប់ផ្ទៃ		ស្ថានភាព ប្រសិទ្ធភាព - មិនល្អ	កំណត់សំគាល់
		OK	មិនល្អ		
ផ្លូវបំបែក	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
ទំនប់យកទឹក	រចនាសំណង់រចនាបញ្ជីបញ្ជី	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
	ការបិទ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
អាងរក្សាទឹក	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
	រចនាសំណង់	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
ផ្លូវលំប្រើទឹក	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
ដុំដី/អាងស្តុកទឹក	រចនាសំណង់	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
ផ្លូវបង្ហាញ	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
បំពង់ស្តុកទឹក	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		
រោងម៉ាស៊ីនជលិកម្មស្ថិតិ	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		Vibration Occurrence while change V ₁
ប្រកបទឹកចេញពីទូប៊ូន	ការលេចចេញបរាងក្រៅ	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> មិនល្អ		2" បំពង់ស្តុកទឹក 3" បំពង់ស្តុកទឹក

ការពិនិត្យស្ថានភាពប្រព័ន្ធស្រូបយន្តប្រតិបត្តិការស្រាវជ្រាវ
(ស្ថានភាពប្រព័ន្ធស្រូបយន្ត)

ថ្ងៃទី 14 ខែ Feb ឆ្នាំ 2011

ឈ្មោះ Um Moneychaeta

ឈ្មោះប្រព័ន្ធស្រាវ	ជំនាញ	លទ្ធផល	ស្ថានភាពប្រព័ន្ធស្រូបយន្ត	ប្រព្រឹត្តិកម្ម
ផ្លូវថ្នល់	ការលេចចេញបរាងក្រៅ	OK	<input type="checkbox"/> មិនល្អ	
	រចនាសម្ព័ន្ធប្រព័ន្ធស្រាវ	OK	<input type="checkbox"/> មិនល្អ	
	ការបិទ	OK	<input type="checkbox"/> មិនល្អ	
មន្ទីរពេទ្យ	ការលេចចេញបរាងក្រៅ	OK	<input type="checkbox"/> មិនល្អ	
	រចនាសម្ព័ន្ធប្រព័ន្ធស្រាវ	OK	<input type="checkbox"/> មិនល្អ	
អាងទឹក	ការលេចចេញបរាងក្រៅ	OK	<input type="checkbox"/> មិនល្អ	
	រចនាសម្ព័ន្ធប្រព័ន្ធស្រាវ	OK	<input type="checkbox"/> មិនល្អ	
បំពង់ទឹកស្អាត	ការលេចចេញបរាងក្រៅ	OK	<input type="checkbox"/> មិនល្អ	
	រចនាសម្ព័ន្ធប្រព័ន្ធស្រាវ	OK	<input type="checkbox"/> មិនល្អ	
រោងចក្រប្រតិបត្តិការ	ការលេចចេញបរាងក្រៅ	OK	<input checked="" type="checkbox"/> មិនល្អ	មានបញ្ហាប្រតិបត្តិការ Some Small Crack
	រចនាសម្ព័ន្ធប្រព័ន្ធស្រាវ	OK	<input checked="" type="checkbox"/> មិនល្អ	មានបញ្ហាប្រតិបត្តិការ at 08:30
ប្រព័ន្ធស្រាវ	ការលេចចេញបរាងក្រៅ	OK	<input type="checkbox"/> មិនល្អ	
	រចនាសម្ព័ន្ធប្រព័ន្ធស្រាវ	OK	<input type="checkbox"/> មិនល្អ	The corner near the wind out of power house has some Small Crack

A-4：発電関連資料

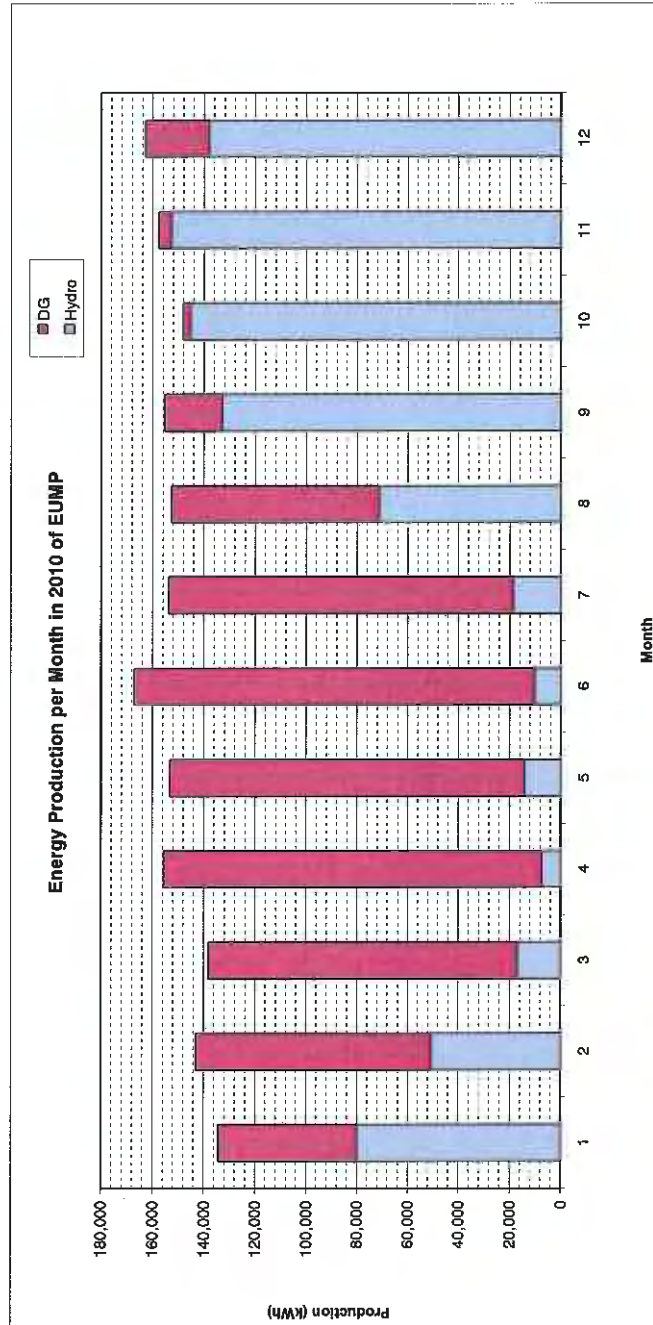
- Appendix 4-1 年間電力消費量グラフ（2010年度）
- Appendix 4-2 年間電力消費量記録（2010年度）
- Appendix 4-3 月間電力消費バランス(2010年度 雨季、乾季)
- Appendix 4-4 日負荷カーブ（2010年度 最大値）
- Appendix 4-5 事故記録（2010年度）
- Appendix 4-6 定期点検計画（2010年度 第3回、第4回）
- Appendix 4-7 定期点検記録（2010年度 第3回、第4回）
- Appendix 4-8 技術移転に関する自己評価（2011年2月）
- Appendix 4-9 小水力セミナー資料（2011年2月）
- Appendix 4-10 一般防災予防計画（案）（2011年2月）
- Appendix 4-11 ベトナム連系に関する EDC との会議メモ（No.1, 2, 3）
- Appendix 4-12 ベトナム連系に関する技術仕様書（案）

Energy production per Month in 2010 of EUMP

	kWh		kWh		Total Running Hours		
	Hydro	DG	Load	Load	O'Moleng	O'Romis	D/G
1	80,034	54,310	134,344	741	482	741	124.3
2	50,569	92,427	142,996	317.6	758.9	587.4	587.4
3	16,822	121,319	138,141	177.6	284.1	643.0	643.0
4	7,238	148,293	155,531	132.9	27.2	738.7	738.7
5	14,153	139,035	153,188	214.7	72.5	707.0	707.0
6	10,126	156,904	167,030	190.7	15.1	720.0	720.0
7	18,584	135,136	153,720	169	155.5	706.7	706.7
8	71,277	81,332	152,609	474.4	567.2	465.9	465.9
9	132,957	22,394	155,351	688.3	744.1	177.9	177.9
10	145,302	2,865	148,167	719	720.8	59.9	59.9
11	152,743	4,884	157,627	736	730.9	88.1	88.1
12	138,083	24,758	162,841	664	719.8	194.5	194.5
Total	837,888	983,657	1,821,545	4966.2	5537.1	5213.4	5213.4

Accumulated energy production of EUMP during 2008-2010

Year	kWh		kWh		Total Running Hours		
	Hydro	DG	Load	Load	O'Moleng	O'Romis	D/G
2008-09	1,211,535	214,630	1,426,165	8,454.9	9,666.3	1,785.9	1,785.9
2010	837,888	983,657	1,821,545	4966.2	5537.1	5213.4	5213.4
2011							
2012							
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							
Accumulated	2,049,423	1,198,287	3,247,710	13,421	15,203	6,999	6,999



Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Jan. 2010	21-Dec	1188	327	85	173	53%	4,146	3,490	1,428.76	124.38	105
	22-Dec	1189	320	90	173	54%	4,141	3,483	1,432.91	124.23	104
	23-Dec	1189	312	80	171	55%	4,103	3,451	1,437.01	123.08	104
	24-Dec	1190	303	95	172	57%	4,128	3,469	1,441.14	123.84	104
	25-Dec	1190	303	90	173	57%	4,163	3,498	1,445.30	124.88	105
	26-Dec	1190	313	85	170	54%	4,090	3,437	1,449.39	122.70	103
	27-Dec	1190	344	90	176	51%	4,231	3,555	1,453.62	126.93	107
	28-Dec	1191	326	85	178	55%	4,271	3,586	1,457.89	128.12	108
	29-Dec	1191	338	80	175	52%	4,189	3,517	1,462.08	125.67	106
	30-Dec	1191	330	80	171	52%	4,096	3,439	1,466.18	122.88	103
	31-Dec	1191	355	85	186	52%	4,469	3,752	1,470.64	134.06	113
	1-Jan	1191	342	110	199	58%	4,785	4,018	1,475.43	143.55	121
	2-Jan	1194	390	100	202	52%	4,856	4,067	1,480.29	145.68	122
	3-Jan	1194	324	110	193	60%	4,642	3,888	1,484.93	139.26	117
	4-Jan	1194	319	100	181	57%	4,336	3,631	1,489.26	130.08	109
	5-Jan	1194	329	100	183	56%	4,399	3,684	1,493.66	131.97	111
	6-Jan	1194	320	90	178	56%	4,266	3,573	1,497.93	127.98	107
	7-Jan	1194	325	90	188	58%	4,501	3,770	1,502.43	135.03	113
	8-Jan	1196	302	85	185	61%	4,449	3,720	1,506.88	133.47	112
	9-Jan	1197	296	90	185	63%	4,442	3,711	1,511.32	133.26	111
10-Jan	1197	302	110	184	61%	4,415	3,688	1,515.73	132.44	111	
11-Jan	1198	312	100	182	58%	4,366	3,644	1,520.10	130.98	109	
12-Jan	1198	316	95	187	59%	4,478	3,738	1,524.58	134.34	112	
13-Jan	1200	370	90	194	52%	4,648	3,873	1,529.23	139.44	116	
14-Jan	1200	327	100	193	59%	4,634	3,862	1,533.86	139.02	116	
15-Jan	1200	353	90	193	55%	4,622	3,852	1,538.48	138.66	116	
16-Jan	1200	350	100	191	54%	4,577	3,814	1,543.06	137.30	114	
17-Jan	1200	365	100	197	54%	4,727	3,939	1,547.79	141.80	118	
18-Jan	1200	320	105	192	60%	4,608	3,840	1,552.39	138.24	115	
19-Jan	1201	343	90	196	57%	4,710	3,922	1,557.10	141.30	118	
20-Jan	1201	319	95	186	58%	4,472	3,723	1,561.58	134.16	112	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Feb. 2010	21-Jan	1201	310	85	187	60%	4,490	3,738	1,566.07	134.70	112
	22-Jan	1203	303	90	182	60%	4,368	3,631	1,570.43	131.04	109
	23-Jan	1203	339	95	185	55%	4,438	3,689	1,574.87	133.13	111
	24-Jan	1203	331	100	194	59%	4,656	3,870	1,579.53	139.68	116
	25-Jan	1203	337	95	182	54%	4,367	3,630	1,583.89	131.00	109
	26-Jan	1204	347	85	188	54%	4,510	3,746	1,588.40	135.30	112
	27-Jan	1204	325	100	191	59%	4,594	3,815	1,593.00	137.82	114
	28-Jan	1204	322	90	188	58%	4,503	3,740	1,597.50	135.09	112
	29-Jan	1204	316	105	192	61%	4,612	3,830	1,602.11	138.36	115
	30-Jan	1204	337	100	196	58%	4,697	3,901	1,606.81	140.90	117
	31-Jan	1204	330	100	192	58%	4,617	3,835	1,611.43	138.51	115
	1-Feb	1204	320	105	184	58%	4,426	3,676	1,615.85	132.78	110
	2-Feb	1204	321	100	190	59%	4,564	3,791	1,620.42	136.92	114
	3-Feb	1204	324	100	186	57%	4,464	3,708	1,624.88	133.92	111
	4-Feb	1205	350	110	195	56%	4,682	3,885	1,629.56	140.46	117
	5-Feb	1205	319	100	189	59%	4,540	3,768	1,634.10	136.20	113
	6-Feb	1205	330	95	195	59%	4,678	3,882	1,638.78	140.34	116
	7-Feb	1205	335	100	193	58%	4,638	3,849	1,643.42	139.14	115
	8-Feb	1205	346	95	194	56%	4,647	3,856	1,648.06	139.41	116
	9-Feb	1206	325	105	194	60%	4,651	3,857	1,652.72	139.53	116
10-Feb	1207	330	110	194	59%	4,658	3,859	1,657.37	139.74	116	
11-Feb	1207	329	110	192	58%	4,607	3,817	1,661.98	138.20	115	
12-Feb	1207	342	105	192	56%	4,616	3,824	1,666.60	138.48	115	
13-Feb	1207	320	115	192	60%	4,612	3,821	1,671.21	138.36	115	
14-Feb	1207	402	105	202	50%	4,842	4,012	1,676.05	145.26	120	
15-Feb	1207	376	145	219	58%	5,258	4,366	1,681.31	157.74	131	
16-Feb	1207	355	140	217	61%	5,197	4,306	1,686.50	155.91	129	
17-Feb	1207	355	126	212	60%	5,087	4,214	1,691.59	152.60	126	
18-Feb	1208	336	120	203	60%	4,860	4,023	1,696.45	145.80	121	
19-Feb	1209	327	110	199	61%	4,786	3,959	1,701.24	143.58	119	
20-Feb	1209	326	100	201	62%	4,831	3,996	1,706.07	144.93	120	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Mar. 2010	21-Feb	1209	325	128	188	58%	4,505	3,726	1,710.57	135.14	112
	22-Feb	1209	336	120	184	55%	4,425	3,660	1,715.00	132.75	110
	23-Feb	1209	322	112	193	60%	4,637	3,835	1,719.63	139.10	115
	24-Feb	1209	334	100	194	58%	4,645	3,842	1,724.28	139.35	115
	25-Feb	1209	315	110	200	64%	4,805	3,974	1,729.08	144.14	119
	26-Feb	1209	321	108	197	61%	4,733	3,915	1,733.82	141.98	117
	27-Feb	1209	332	105	190	57%	4,570	3,780	1,738.39	137.10	113
	28-Feb	1209	319	123	193	61%	4,632	3,831	1,743.02	138.96	115
	1-Mar	1210	340	105	198	58%	4,748	3,924	1,747.77	142.44	118
	2-Mar	1212	326	110	202	62%	4,836	3,990	1,752.60	145.08	120
	3-Mar	1212	336	130	204	61%	4,905	4,047	1,757.51	147.15	121
	4-Mar	1213	325	115	214	66%	5,132	4,231	1,762.64	153.96	127
	5-Mar	1213	334	130	213	64%	5,120	4,221	1,767.76	153.60	127
	6-Mar	1214	381	130	225	59%	5,395	4,444	1,773.15	161.85	133
	7-Mar	1214	376	160	240	64%	5,760	4,745	1,778.91	172.80	142
	8-Mar	1215	364	157	229	63%	5,485	4,514	1,784.40	164.55	135
	9-Mar	1215	343	125	206	60%	4,954	4,077	1,789.35	148.62	122
	10-Mar	1215	355	109	206	58%	4,934	4,061	1,794.29	148.02	122
	11-Mar	1215	342	110	209	61%	5,012	4,125	1,799.30	150.36	124
	12-Mar	1215	308	113	204	66%	4,889	4,024	1,804.19	146.66	121
13-Mar	1215	328	119	212	65%	5,078	4,179	1,809.27	152.34	125	
14-Mar	1215	339	135	213	63%	5,105	4,201	1,814.37	153.14	126	
15-Mar	1215	330	131	212	64%	5,096	4,194	1,819.47	152.88	126	
16-Mar	1215	346	134	216	62%	5,189	4,271	1,824.66	155.66	128	
17-Mar	1215	341	129	210	62%	5,041	4,149	1,829.70	151.23	124	
18-Mar	1215	339	125	209	62%	5,027	4,137	1,834.72	150.80	124	
19-Mar	1216	333	122	214	64%	5,147	4,233	1,839.87	154.40	127	
20-Mar	1217	350	130	219	62%	5,248	4,312	1,845.12	157.44	129	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Apr. 2010	21-Mar	1220	351	138	210	60%	5,028	4,121	1,850.15	150.84	124
	22-Mar	1220	370	141	232	63%	5,560	4,557	1,855.71	166.80	137
	23-Mar	1220	367	153	237	65%	5,696	4,669	1,861.40	170.88	140
	24-Mar	1220	337	152	223	66%	5,349	4,384	1,866.75	160.47	132
	25-Mar	1220	315	140	214	68%	5,145	4,217	1,871.90	154.35	127
	26-Mar	1221	308	140	220	72%	5,290	4,332	1,877.19	158.70	130
	27-Mar	1222	315	104	194	62%	4,650	3,805	1,881.84	139.50	114
	28-Mar	1222	320	110	199	62%	4,785	3,916	1,886.62	143.55	117
	29-Mar	1222	332	117	202	61%	4,853	3,971	1,891.47	145.58	119
	30-Mar	1222	376	113	214	57%	5,131	4,199	1,896.60	153.93	126
	31-Mar	1223	351	133	226	65%	5,434	4,443	1,902.04	163.02	133
	1-Apr	1224	333	133	216	65%	5,184	4,235	1,907.22	155.52	127
	2-Apr	1225	312	137	211	68%	5,059	4,130	1,912.28	151.77	124
	3-Apr	1225	300	130	193	64%	4,639	3,787	1,916.92	139.17	114
	4-Apr	1226	315	119	190	60%	4,557	3,717	1,921.48	136.71	112
	5-Apr	1226	315	119	199	63%	4,770	3,891	1,926.25	143.10	117
	6-Apr	1228	344	127	209	61%	5,018	4,086	1,931.27	150.54	123
	7-Apr	1228	353	134	216	61%	5,175	4,214	1,936.44	155.25	126
	8-Apr	1228	339	132	213	63%	5,116	4,166	1,941.56	153.48	125
	9-Apr	1229	333	140	216	65%	5,177	4,212	1,946.73	155.30	126
10-Apr	1230	341	135	208	61%	5,001	4,066	1,951.73	150.03	122	
11-Apr	1231	329	133	208	63%	4,982	4,047	1,956.72	149.46	121	
12-Apr	1231	334	143	209	63%	5,020	4,078	1,961.74	150.60	122	
13-Apr	1231	356	137	208	58%	4,983	4,048	1,966.72	149.49	121	
14-Apr	1232	400	148	198	50%	4,759	3,863	1,971.48	142.77	116	
15-Apr	1233	375	174	234	62%	5,610	4,550	1,977.09	168.30	136	
16-Apr	1233	349	170	226	65%	5,433	4,406	1,982.52	162.99	132	
17-Apr	1234	331	159	208	63%	5,003	4,054	1,987.52	150.09	122	
18-Apr	1234	312	148	194	62%	4,660	3,776	1,992.18	139.80	113	
19-Apr	1234	314	124	190	61%	4,562	3,697	1,996.75	136.86	111	
20-Apr	1234	301	108	186	62%	4,473	3,625	2,001.22	134.19	109	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	21-Apr	1234	332	112	196	59%	4,684	3,796	2,005.90	140.52	114
	22-Apr	1234	336	125	203	60%	4,866	3,943	2,010.77	145.98	118
	23-Apr	1235	320	130	205	64%	4,913	3,978	2,015.68	147.38	119
	24-Apr	1235	348	125	204	58%	4,885	3,955	2,020.57	146.55	119
	25-Apr	1236	341	132	209	61%	5,027	4,067	2,025.59	150.80	122
	26-Apr	1237	335	142	218	65%	5,223	4,222	2,030.82	156.69	127
	27-Apr	1237	336	139	220	66%	5,291	4,277	2,036.11	158.72	128
	28-Apr	1237	347	142	215	62%	5,169	4,179	2,041.28	155.07	125
	29-Apr	1237	311	144	208	67%	4,985	4,030	2,046.26	149.54	121
	30-Apr	1239	328	122	200	61%	4,795	3,870	2,051.06	143.85	116
	1-May	1240	338	118	204	60%	4,890	3,944	2,055.95	146.70	118
	2-May	1240	344	130	207	60%	4,978	4,014	2,060.92	149.34	120
	3-May	1240	305	120	196	64%	4,712	3,800	2,065.64	141.36	114
	4-May	1240	314	120	201	64%	4,824	3,890	2,070.46	144.72	117
	5-May	1241	330	110	205	62%	4,926	3,969	2,075.39	147.78	119
	6-May	1241	352	126	211	60%	5,061	4,078	2,080.45	151.83	122
	7-May	1242	306	110	200	65%	4,799	3,864	2,085.25	143.96	116
	8-May	1242	358	124	205	57%	4,924	3,964	2,090.17	147.72	119
	9-May	1242	367	148	219	60%	5,251	4,228	2,095.42	157.53	127
	10-May	1242	360	139	215	60%	5,170	4,163	2,100.59	155.10	125
	11-May	1242	376	132	209	56%	5,016	4,039	2,105.61	150.48	121
	12-May	1242	361	135	218	60%	5,237	4,216	2,110.84	157.10	126
	13-May	1242	380	147	235	62%	5,634	4,536	2,116.48	169.02	136
	14-May	1242	421	181	249	59%	5,982	4,816	2,122.46	179.46	144
	15-May	1242	371	150	237	64%	5,680	4,573	2,128.14	170.40	137
	16-May	1242	353	149	223	63%	5,353	4,310	2,133.49	160.59	129
	17-May	1243	335	140	208	62%	4,985	4,010	2,138.48	149.54	120
	18-May	1244	382	135	217	57%	5,199	4,179	2,143.68	155.97	125
	19-May	1244	387	139	225	58%	5,399	4,340	2,149.07	161.96	130
	20-May	1244	390	146	235	60%	5,636	4,530	2,154.71	169.08	136

May, 2010

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
June, 2010	21-May	1244	381	155	228	60%	5,474	4,400	2,160.18	164.22	132
	22-May	1244	330	142	216	65%	5,178	4,162	2,165.36	155.34	125
	23-May	1244	389	150	130	33%	3,123	2,510	2,168.48	93.69	75
	24-May	1245	393	155	237	60%	5,685	4,566	2,174.17	170.55	137
	25-May	1245	382	157	225	59%	5,400	4,337	2,179.57	162.00	130
	26-May	1245	351	138	215	61%	5,165	4,148	2,184.73	154.94	124
	27-May	1245	355	124	214	60%	5,138	4,127	2,189.87	154.14	124
	28-May	1245	347	130	212	61%	5,091	4,089	2,194.96	152.73	123
	29-May	1245	375	134	215	57%	5,150	4,136	2,200.11	154.50	124
	30-May	1245	364	109	222	61%	5,333	4,283	2,205.45	159.98	129
	31-May	1245	360	144	223	62%	5,351	4,298	2,210.80	160.52	129
	1-Jun	1247	367	136	216	59%	5,184	4,157	2,215.98	155.52	125
	2-Jun	1247	370	137	227	61%	5,448	4,369	2,221.43	163.44	131
	3-Jun	1248	375	145	224	60%	5,376	4,308	2,226.80	161.28	129
	4-Jun	1249	361	138	222	61%	5,328	4,266	2,232.13	159.84	128
	5-Jun	1249	393	141	216	55%	5,184	4,151	2,237.32	155.52	125
	6-Jun	1249	333	144	213	64%	5,112	4,093	2,242.43	153.36	123
	7-Jun	1249	383	132	220	57%	5,280	4,227	2,247.71	158.40	127
	8-Jun	1249	350	142	224	64%	5,376	4,304	2,253.08	161.28	129
	9-Jun	1249	357	126	216	61%	5,184	4,151	2,258.27	155.52	125
10-Jun	1250	352	135	216	61%	5,184	4,147	2,263.45	155.52	124	
11-Jun	1250	371	146	229	62%	5,496	4,397	2,268.95	164.88	132	
12-Jun	1250	405	153	233	58%	5,592	4,474	2,274.54	167.76	134	
13-Jun	1250	350	159	228	65%	5,472	4,378	2,280.01	164.16	131	
14-Jun	1250	376	144	223	59%	5,352	4,282	2,285.36	160.56	128	
15-Jun	1250	350	134	221	63%	5,304	4,243	2,290.67	159.12	127	
16-Jun	1250	311	134	214	69%	5,136	4,109	2,295.80	154.08	123	
17-Jun	1250	361	131	223	62%	5,352	4,282	2,301.16	160.56	128	
18-Jun	1251	345	137	217	63%	5,208	4,163	2,306.36	156.24	125	
19-Jun	1251	414	140	225	54%	5,400	4,317	2,311.76	162.00	129	
20-Jun	1251	345	136	213	62%	5,112	4,086	2,316.88	153.36	123	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
	21-Jun	1251	323	122	208	64%	4,992	3,990	2,321.87	149.76	120
	22-Jun	1251	340	121	207	61%	4,968	3,971	2,326.84	149.04	119
	23-Jun	1252	325	120	209	64%	5,016	4,006	2,331.85	150.48	120
	24-Jun	1253	345	120	213	62%	5,112	4,080	2,336.96	153.36	122
	25-Jun	1253	362	137	221	61%	5,304	4,233	2,342.27	159.12	127
	26-Jun	1253	350	140	216	62%	5,184	4,137	2,347.45	155.52	124
	27-Jun	1253	381	133	219	57%	5,256	4,195	2,352.71	157.68	126
	28-Jun	1253	363	139	227	63%	5,448	4,348	2,358.16	163.44	130
	29-Jun	1253	380	139	231	61%	5,544	4,425	2,363.70	166.32	133
	30-Jun	1253	363	148	234	64%	5,616	4,482	2,369.32	168.48	134
	1-Jul	1253	340	142	217	64%	5,208	4,156	2,374.52	156.24	125
	2-Jul	1254	313	125	206	66%	4,944	3,943	2,379.47	148.32	118
	3-Jul	1254	338	119	203	60%	4,872	3,885	2,384.34	146.16	117
	4-Jul	1254	329	130	203	62%	4,872	3,885	2,389.21	146.16	117
	5-Jul	1254	320	125	203	63%	4,872	3,885	2,394.08	146.16	117
	6-Jul	1254	319	110	207	65%	4,968	3,962	2,399.05	149.04	119
	7-Jul	1254	326	125	211	65%	5,064	4,038	2,404.12	151.92	121
	8-Jul	1254	408	129	231	57%	5,544	4,421	2,409.66	166.32	133
	9-Jul	1254	350	140	232	66%	5,568	4,440	2,415.23	167.04	133
	10-Jul	1254	370	134	223	60%	5,352	4,268	2,420.58	160.56	128
	11-Jul	1255	371	135	225	61%	5,400	4,303	2,425.98	162.00	129
	12-Jul	1256	375	126	221	59%	5,304	4,223	2,431.28	159.12	127
	13-Jul	1256	353	117	214	61%	5,136	4,089	2,436.42	154.08	123
	14-Jul	1256	343	119	219	64%	5,256	4,185	2,441.68	157.68	126
	15-Jul	1258	348	132	216	62%	5,184	4,121	2,446.86	155.52	124
	16-Jul	1259	305	119	210	69%	5,040	4,003	2,451.90	151.20	120
	17-Jul	1259	327	123	205	63%	4,920	3,908	2,456.82	147.60	117
	18-Jul	1259	386	115	212	55%	5,088	4,041	2,461.91	152.64	121
	19-Jul	1259	360	100	215	60%	5,160	4,088	2,467.07	154.80	123
	20-Jul	1259	322	128	202	63%	4,848	3,851	2,471.92	145.44	116

July, 2010

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Aug-10	21-Jul	1259	369	110	215	58%	5,160	4,098	2,477.08	154.80	123
	22-Jul	1259	352	120	219	62%	5,256	4,175	2,482.33	157.68	125
	23-Jul	1259	350	115	213	61%	5,112	4,060	2,487.44	153.36	122
	24-Jul	1259	373	130	211	57%	5,064	4,022	2,492.51	151.92	121
	25-Jul	1259	363	110	204	56%	4,896	3,889	2,497.40	146.88	117
	26-Jul	1259	346	110	198	57%	4,752	3,774	2,502.16	142.56	113
	27-Jul	1259	362	110	204	56%	4,896	3,889	2,507.05	146.88	117
	28-Jul	1260	336	115	204	61%	4,896	3,886	2,511.95	146.88	117
	29-Jul	1260	334	100	204	61%	4,896	3,886	2,516.84	146.88	117
	30-Jul	1260	341	105	206	60%	4,944	3,924	2,521.79	148.32	118
	31-Jul	1260	341	100	202	59%	4,848	3,848	2,526.64	145.44	115
	1-Aug	1261	345	130	201	58%	4,819	3,822	2,531.46	144.57	115
	2-Aug	1261	342	110	206	60%	4,948	3,924	2,536.40	148.44	118
	3-Aug	1261	375	120	215	57%	5,166	4,097	2,541.57	154.98	123
	4-Aug	1262	374	60	174	47%	4,184	3,315	2,545.75	125.52	99
	5-Aug	1262	389	90	182	47%	4,369	3,462	2,550.12	131.07	104
	6-Aug	1263	350	75	177	51%	4,246	3,362	2,554.37	127.38	101
	7-Aug	1263	372	130	210	56%	5,036	3,987	2,559.40	151.08	120
	8-Aug	1263	350	125	204	58%	4,905	3,884	2,564.31	147.15	117
	9-Aug	1263	364	100	213	59%	5,122	4,055	2,569.43	153.66	122
	10-Aug	1263	346	115	210	61%	5,039	3,990	2,574.47	151.16	120
11-Aug	1266	316	105	203	64%	4,880	3,855	2,579.35	146.40	116	
12-Aug	1266	375	110	220	59%	5,283	4,173	2,584.63	158.49	125	
13-Aug	1266	369	130	228	62%	5,460	4,313	2,590.09	163.80	129	
14-Aug	1268	371	130	224	60%	5,371	4,236	2,595.46	161.13	127	
15-Aug	1269	382	130	220	57%	5,268	4,151	2,600.73	158.04	125	
16-Aug	1269	353	120	214	61%	5,131	4,043	2,605.86	153.93	121	
17-Aug	1269	384	105	213	55%	5,104	4,022	2,610.97	153.12	121	
18-Aug	1270	372	110	212	57%	5,082	4,002	2,616.05	152.46	120	
19-Aug	1271	362	125	212	59%	5,088	4,003	2,621.14	152.64	120	
20-Aug	1271	364	115	213	58%	5,104	4,016	2,626.24	153.12	120	
21-Aug	1271	374	125	215	57%	5,149	4,051	2,631.39	154.47	122	

Month	Date	Number of Customer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Customer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Customer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Sep-10	22-Aug	1271	355	110	200	56%	4,798	3,775	2,636.19	143.94	113
	23-Aug	1271	332	120	206	62%	4,952	3,896	2,641.14	148.56	117
	24-Aug	1271	372	120	206	55%	4,947	3,892	2,646.09	148.41	117
	25-Aug	1272	346	130	215	62%	5,150	4,049	2,651.24	154.50	121
	26-Aug	1272	365	110	211	58%	5,069	3,985	2,656.31	152.06	120
	27-Aug	1273	356	125	216	61%	5,195	4,081	2,661.50	155.84	122
	28-Aug	1273	362	125	208	57%	4,984	3,915	2,666.48	149.52	117
	29-Aug	1273	342	120	204	60%	4,889	3,840	2,671.37	146.66	115
	30-Aug	1273	365	110	209	57%	5,010	3,936	2,676.38	150.30	118
	31-Aug	1275	345	125	213	62%	5,106	4,005	2,681.49	153.18	120
	1-Sep	1275	355	125	221	62%	5,311	4,165	2,686.80	159.33	125
	2-Sep	1275	334	130	215	64%	5,162	4,049	2,691.96	154.86	121
	3-Sep	1275	345	125	220	64%	5,283	4,144	2,697.24	158.49	124
	4-Sep	1275	365	135	213	58%	5,116	4,012	2,702.36	153.48	120
	5-Sep	1275	370	150	218	59%	5,227	4,100	2,707.59	156.81	123
	6-Sep	1275	323	130	213	66%	5,109	4,007	2,712.70	153.27	120
	7-Sep	1275	345	130	214	62%	5,134	4,027	2,717.83	154.02	121
	8-Sep	1275	349	135	221	63%	5,315	4,168	2,723.14	159.44	125
	9-Sep	1275	359	140	220	61%	5,288	4,147	2,728.43	158.64	124
	10-Sep	1275	350	125	216	62%	5,189	4,070	2,733.62	155.66	122
11-Sep	1275	372	130	209	56%	5,013	3,932	2,738.63	150.39	118	
12-Sep	1275	374	140	216	58%	5,185	4,067	2,743.82	155.55	122	
13-Sep	1275	370	130	218	59%	5,220	4,094	2,749.04	156.60	123	
14-Sep	1275	375	140	232	62%	5,559	4,360	2,754.60	166.77	131	
15-Sep	1276	356	130	217	61%	5,206	4,080	2,759.80	156.18	122	
16-Sep	1278	385	130	222	58%	5,332	4,172	2,765.14	159.96	125	
17-Sep	1278	370	130	223	60%	5,350	4,186	2,770.49	160.50	126	
18-Sep	1278	395	130	219	55%	5,247	4,106	2,775.73	157.41	123	
19-Sep	1278	370	125	215	58%	5,170	4,045	2,780.90	155.10	121	
20-Sep	1278	370	130	221	60%	5,308	4,154	2,786.21	159.25	125	

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Oct-10	21-Sep	1280	365	140	224	61%	5,368	4.194	2,791.58	161.04	126
	22-Sep	1280	349	125	222	64%	5,328	4.163	2,796.91	159.84	125
	23-Sep	1281	359	130	222	62%	5,328	4.159	2,802.23	159.84	125
	24-Sep	1281	365	130	219	60%	5,256	4.103	2,807.49	157.68	123
	25-Sep	1282	390	130	227	58%	5,448	4.250	2,812.94	163.44	127
	26-Sep	1282	350	145	210	60%	5,040	3.931	2,817.98	151.20	118
	27-Sep	1282	365	120	215	59%	5,160	4.025	2,823.14	154.80	121
	28-Sep	1282	362	125	221	61%	5,304	4.137	2,828.44	159.12	124
	29-Sep	1284	385	135	216	56%	5,184	4.037	2,833.63	155.52	121
	30-Sep	1284	387	120	214	55%	5,136	4.000	2,838.76	154.08	120
	1-Oct	1284	370	110	211	57%	5,064	3.944	2,843.83	151.92	118
	2-Oct	1286	355	125	203	57%	4,872	3.788	2,848.70	146.16	114
	3-Oct	1286	384	120	199	52%	4,776	3.714	2,853.47	143.28	111
	4-Oct	1286	360	125	205	57%	4,920	3.826	2,858.39	147.60	115
	5-Oct	1286	342	115	194	57%	4,656	3.621	2,863.05	139.68	109
	6-Oct	1286	345	115	198	57%	4,752	3.695	2,867.80	142.56	111
	7-Oct	1286	380	125	214	56%	5,136	3.994	2,872.94	154.08	120
	8-Oct	1286	412	160	238	58%	5,712	4.442	2,878.65	171.36	133
	9-Oct	1286	385	183	244	63%	5,856	4.554	2,884.51	175.68	137
	10-Oct	1286	365	135	209	57%	5,016	3.900	2,889.52	150.48	117
11-Oct	1286	361	130	202	56%	4,848	3.770	2,894.37	145.44	113	
12-Oct	1286	361	115	207	57%	4,968	3.863	2,899.34	149.04	116	
13-Oct	1286	380	115	203	53%	4,872	3.788	2,904.21	146.16	114	
14-Oct	1286	405	125	209	52%	5,016	3.900	2,909.23	150.48	117	
15-Oct	1286	392	115	207	53%	4,968	3.863	2,914.19	149.04	116	
16-Oct	1287	384	110	210	55%	5,040	3.916	2,919.23	151.20	117	
17-Oct	1288	383	120	206	54%	4,944	3.839	2,924.18	148.32	115	
18-Oct	1289	380	120	208	55%	4,992	3.873	2,929.17	149.76	116	
19-Oct	1289	380	125	212	56%	5,088	3.947	2,934.26	152.64	118	
20-Oct	1289	390	115	217	56%	5,208	4.040	2,939.47	156.24	121	

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Nov-10	21-Oct	1289	380	115	218	57%	5,232	4,059	2,944.70	156.96	122
	22-Oct	1289	380	125	212	56%	5,088	3,947	2,949.79	152.64	118
	23-Oct	1289	390	125	207	53%	4,968	3,854	2,954.76	149.04	116
	24-Oct	1289	393	115	208	53%	4,992	3,873	2,959.75	149.76	116
	25-Oct	1289	403	115	218	54%	5,232	4,059	2,964.98	156.96	122
	26-Oct	1289	400	120	217	54%	5,208	4,040	2,970.19	156.24	121
	27-Oct	1289	385	115	214	56%	5,136	3,984	2,975.32	154.08	120
	28-Oct	1289	382	110	213	56%	5,112	3,966	2,980.43	153.36	119
	29-Oct	1289	410	110	217	53%	5,208	4,040	2,985.64	156.24	121
	30-Oct	1289	410	130	235	57%	5,640	4,375	2,991.28	169.20	131
	31-Oct	1290	415	110	218	53%	5,232	4,066	2,996.51	156.96	122
	1-Nov	1291	415	110	218	53%	5,232	4,053	3,001.75	156.96	122
	2-Nov	1291	463	125	242	52%	5,808	4,499	3,007.55	174.24	135
	3-Nov	1291	405	115	237	59%	5,688	4,406	3,013.24	170.64	132
	4-Nov	1291	295	120	195	66%	4,680	3,625	3,017.92	140.40	109
	5-Nov	1291	275	80	189	69%	4,536	3,514	3,022.46	136.08	105
	6-Nov	1291	300	110	201	67%	4,824	3,737	3,027.28	144.72	112
	7-Nov	1291	305	125	208	68%	4,992	3,867	3,032.27	149.76	116
	8-Nov	1291	415	130	222	53%	5,328	4,127	3,037.60	159.84	124
	9-Nov	1291	405	120	217	54%	5,208	4,034	3,042.81	156.24	121
10-Nov	1293	425	110	213	50%	5,112	3,954	3,047.92	153.36	119	
11-Nov	1293	430	115	222	52%	5,328	4,121	3,053.25	159.84	124	
12-Nov	1293	405	120	210	52%	5,040	3,898	3,058.29	151.20	117	
13-Nov	1293	404	120	222	55%	5,328	4,121	3,063.62	159.84	124	
14-Nov	1293	414	125	230	56%	5,520	4,269	3,069.14	165.60	128	
15-Nov	1293	405	115	235	58%	5,640	4,362	3,074.78	169.20	131	
16-Nov	1293	440	120	224	51%	5,376	4,158	3,080.15	161.28	125	
17-Nov	1293	420	115	232	55%	5,568	4,306	3,085.72	167.04	129	
18-Nov	1293	423	130	222	52%	5,328	4,121	3,091.05	159.84	124	
19-Nov	1294	415	120	224	54%	5,376	4,155	3,096.43	161.28	125	
20-Nov	1294	480	120	244	51%	5,856	4,526	3,096.91	175.68	136	

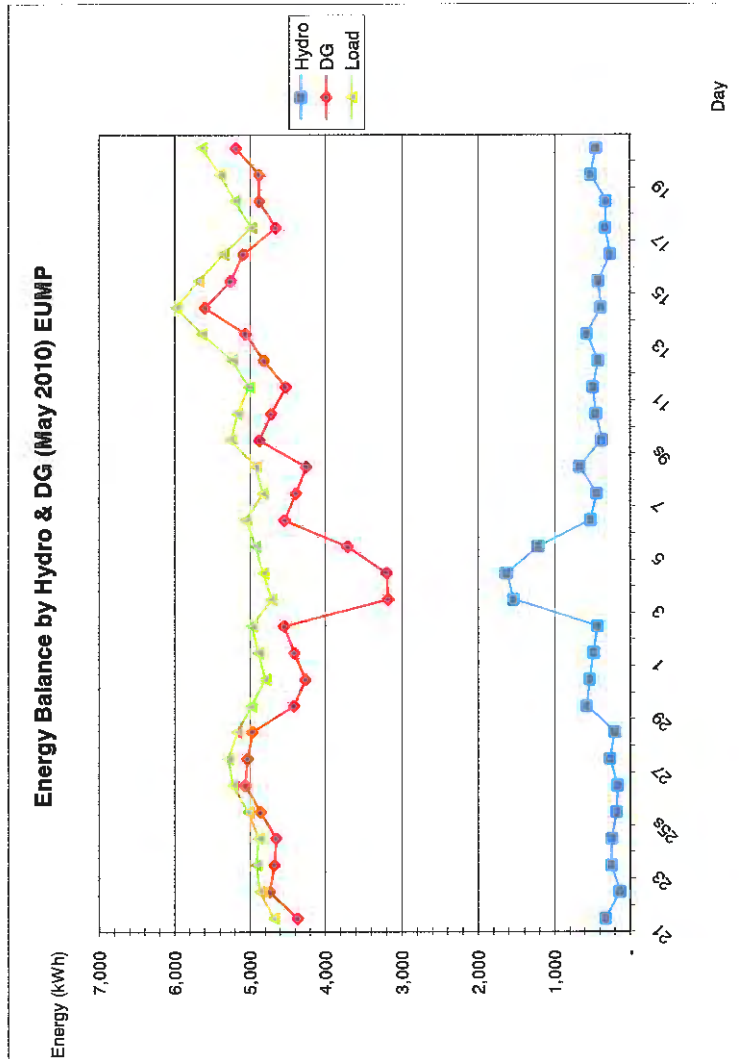
Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Dec-10	21-Nov	1294	490	165	274	56%	6,576	5,082	3,103.00	197.28	152
	22-Nov	1295	451	170	249	55%	5,976	4,615	3,102.88	179.28	138
	23-Nov	1295	410	140	224	55%	5,376	4,151	3,108.38	161.28	125
	24-Nov	1295	415	120	231	56%	5,976	4,615	3,108.86	179.28	138
	25-Nov	1295	395	110	221	55%	5,376	4,151	3,113.75	161.28	125
	26-Nov	1295	427	120	224	56%	5,544	4,281	3,114.40	166.32	128
	27-Nov	1296	420	130	223	56%	5,304	4,093	3,119.06	159.12	123
	28-Nov	1296	435	120	235	52%	5,376	4,148	3,119.78	161.28	124
	29-Nov	1297	420	125	231	53%	5,352	4,126	3,124.41	160.56	124
	30-Nov	1297	420	125	231	54%	5,640	4,348	3,125.42	169.20	130
Dec-10	1-Dec	1297	445	125	227	55%	5,544	4,274	3,129.95	166.32	128
	2-Dec	1297	412	125	227	55%	5,544	4,274	3,130.96	166.32	128
	3-Dec	1297	404	135	235	51%	5,448	4,200	3,135.40	163.44	126
	4-Dec	1297	427	135	234	55%	5,448	4,200	3,136.41	163.44	126
	5-Dec	1297	415	130	227	58%	5,640	4,348	3,141.04	169.20	130
	6-Dec	1297	405	130	236	58%	5,664	4,367	3,142.07	169.92	131
	7-Dec	1301	412	125	230	56%	5,520	4,243	3,146.56	165.60	127
	8-Dec	1301	417	125	223	53%	5,352	4,114	3,147.43	160.56	123
	9-Dec	1301	403	120	220	55%	5,280	4,058	3,151.84	158.40	122
	10-Dec	1303	450	120	236	52%	5,664	4,347	3,153.09	169.92	130
Dec-10	11-Dec	1303	440	130	251	57%	6,024	4,623	3,157.87	180.72	139
	12-Dec	1305	440	130	245	56%	5,880	4,506	3,158.97	176.40	135
	13-Dec	1305	456	130	245	54%	5,880	4,506	3,163.75	176.40	135
	14-Dec	1305	420	130	244	58%	5,856	4,487	3,164.83	175.68	135
	15-Dec	1305	440	125	248	56%	5,952	4,561	3,169.70	178.56	137
	16-Dec	1305	433	110	241	56%	5,784	4,432	3,170.61	173.52	133
	17-Dec	1305	440	140	240	55%	5,760	4,414	3,175.46	172.80	132
	18-Dec	1306	440	140	240	55%	5,760	4,410	3,176.37	172.80	132
	19-Dec	1307	425	135	235	55%	5,640	4,315	3,181.10	169.20	129
	20-Dec	1307	425	135	236	56%	5,664	4,334	3,182.03	169.92	130

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Jan-11	21-Dec	1307	410	125	240	59%	5,760	4,407	3,186.86	172.80	132
	22-Dec	1309	445	130	240	54%	5,760	4,400	3,187.79	172.80	132
	23-Dec	1309	406	130	251	62%	6,024	4,602	3,192.88	180.72	138
	24-Dec	1309	435	145	245	56%	5,880	4,492	3,193.67	176.40	135
	25-Dec	1309	413	150	241	58%	5,784	4,419	3,198.67	173.52	133
	26-Dec	1309	420	135	231	55%	5,544	4,235	3,199.22	166.32	127
	27-Dec	1309	416	135	242	58%	5,808	4,437	3,204.47	174.24	133
	28-Dec	1310	450	135	245	54%	5,880	4,489	3,205.10	176.40	135
	29-Dec	1311	445	130	250	56%	6,000	4,577	3,210.47	180.00	137
	30-Dec	1311	440	140	254	58%	6,096	4,650	3,211.19	182.88	139
	31-Dec	1311	442	135	252	57%	6,048	4,613	3,216.52	181.44	138
Jan-11	1-Jan	1311	431	150	260	60%	6,243	4,762	3,217.44	187.29	143
	2-Jan	1311	438	145	251	57%	6,031	4,600	3,222.55	180.93	138
	3-Jan	1311	422	140	241	57%	5,791	4,417	3,223.23	173.73	133
	4-Jan	1312	412	135	244	59%	5,860	4,466	3,228.41	175.80	134
	5-Jan	1312	435	135	253	58%	6,083	4,636	3,229.31	182.49	139
	6-Jan	1312	413	130	242	59%	5,811	4,429	3,234.22	174.33	133
	7-Jan	1312	471	130	249	53%	5,975	4,554	3,235.29	179.25	137
	8-Jan	1312	450	170	267	59%	6,403	4,880	3,240.63	192.09	146
	9-Jan	1312	405	130	251	62%	6,013	4,583	3,241.30	180.39	137
	10-Jan	1312	420	120	247	59%	5,922	4,514	3,246.55	177.66	135
	11-Jan	1312	420	125	243	58%	5,820	4,436	3,247.12	174.60	133
12-Jan	1312	442	130	257	58%	6,176	4,707	3,252.73	185.28	141	
13-Jan	1313	401	125	249	62%	5,967	4,545	3,253.09	179.01	136	
14-Jan	1313	412	125	243	59%	5,829	4,439	3,258.55	174.87	133	
15-Jan	1313	450	125	244	54%	5,854	4,458	3,258.94	175.62	134	
16-Jan	1313	428	135	249	58%	5,970	4,547	3,264.52	179.10	136	
17-Jan	1313	415	135	241	58%	5,776	4,399	3,264.72	173.28	132	
18-Jan	1314	429	130	238	56%	5,722	4,355	3,270.25	171.66	131	
19-Jan	1314	440	136	250	57%	6,005	4,570	3,270.72	180.15	137	
20-Jan	1314	420	135	253	60%	6,066	4,616	3,276.31	181.98	138	

Month	Date	Number of Costumer	Demand			Daily Load Factor %	Energy Daily Consumption (kwh)	per Costumer (kwh)	Cumulative Energy (MWh)	Assumed Monthly Energy (MWh)	per Costumer (kwh/Month)
			Max (kw)	Min (kw)	Ave (kw)						
Feb-11	21-Jan	1314	414	137	243	59%	5,832	4,438	3,276.55	174.96	133
	22-Jan	1314	419	130	245	59%	5,887	4,480	3,282.20	176.61	134
	23-Jan	1314	417	140	250	60%	6,000	4,566	3,282.55	180.00	137
	24-Jan	1314	431	120	244	57%	5,864	4,463	3,288.06	175.92	134
	25-Jan	1314	417	130	245	59%	5,874	4,470	3,288.43	176.22	134
	26-Jan	1314	390	130	246	63%	5,894	4,486	3,293.96	176.82	135
	27-Jan	1314	412	147	247	60%	5,917	4,503	3,294.34	177.51	135
	28-Jan	1314	426	134	251	59%	6,012	4,575	3,299.97	180.36	137
	29-Jan	1314	399	140	241	60%	5,775	4,395	3,300.12	173.25	132
	30-Jan	1314	416	138	244	59%	5,864	4,463	3,305.83	175.92	134
	31-Jan	1314	415	134	244	59%	5,855	4,456	3,305.97	175.65	134

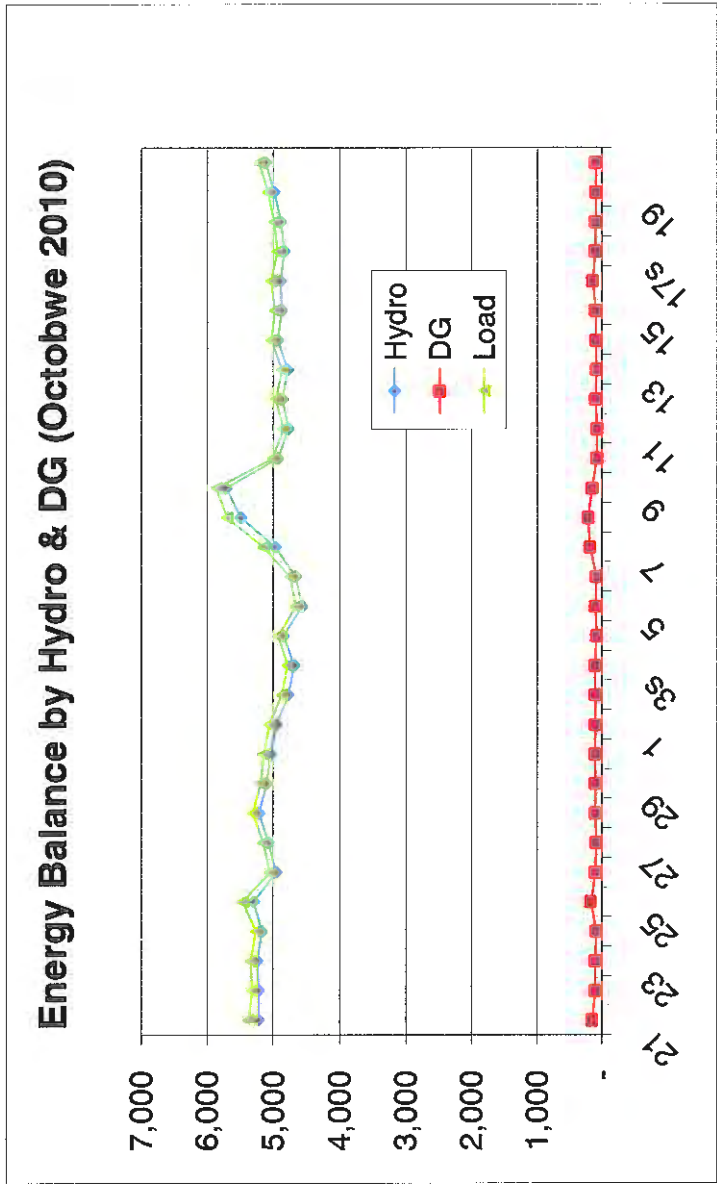
Energy Consumption for Mondul Kiri Power System May 2010

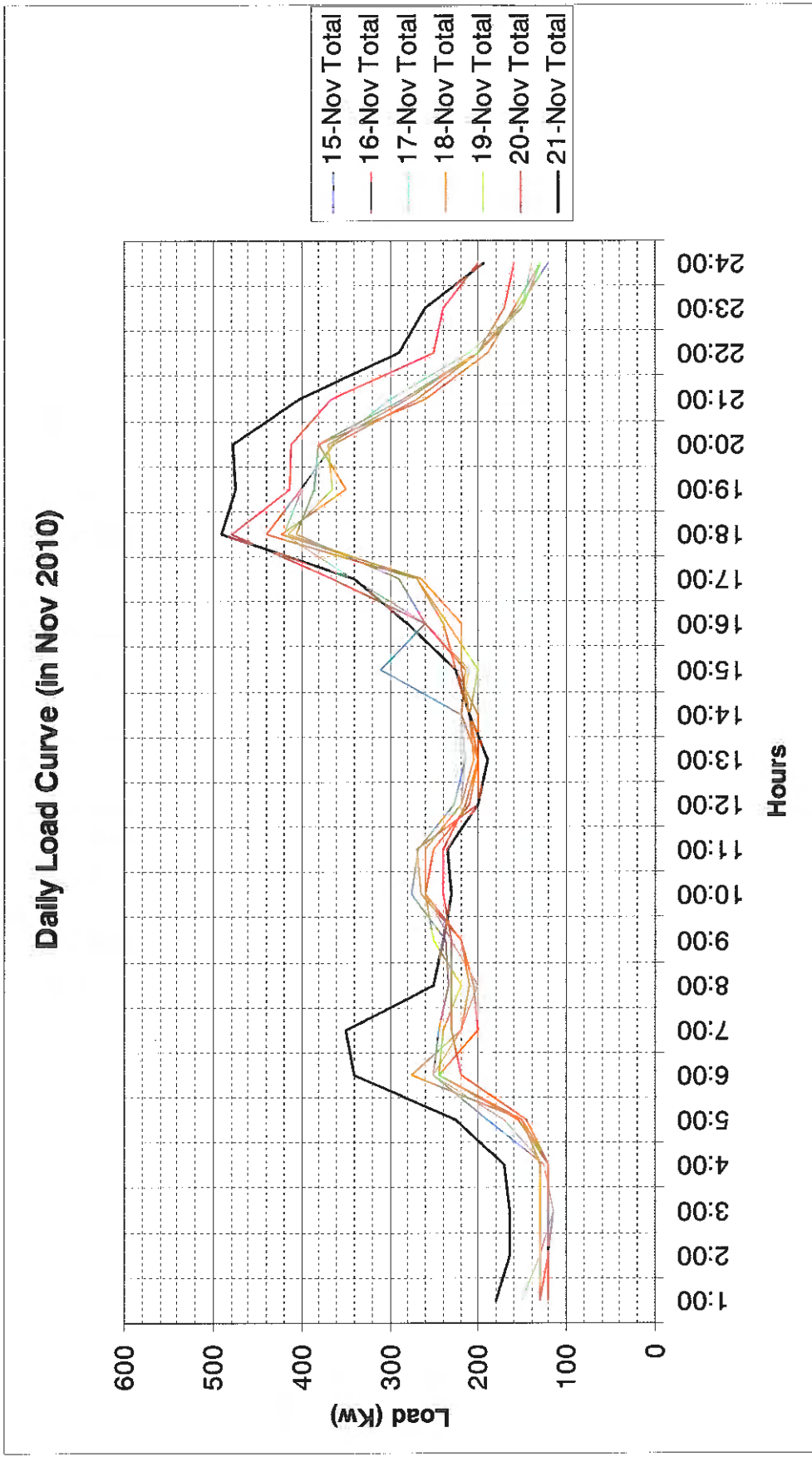
	kWh		kWh	
	Hydro	DG	Load	Load
21	320	4,364	4,684	4,684
22	130	4,736	4,866	4,866
23	240	4,673	4,913	4,913
24	235	4,650	4,885	4,885
25s	170	4,857	5,027	5,027
26	160	5,063	5,223	5,223
27	260	5,031	5,291	5,291
28	200	4,969	5,169	5,169
29	570	4,415	4,985	4,985
30	530	4,265	4,795	4,795
1	480	4,410	4,890	4,890
2s	430	4,548	4,978	4,978
3	1,535	3,177	4,712	4,712
4	1,625	3,199	4,824	4,824
5	1,215	3,711	4,926	4,926
6	520	4,541	5,061	5,061
7	440	4,390	4,830	4,830
8	670	4,254	4,924	4,924
9s	375	4,876	5,251	5,251
10	450	4,720	5,170	5,170
11	490	4,526	5,016	5,016
12	420	4,817	5,237	5,237
13	570	5,064	5,634	5,634
14	385	5,597	5,982	5,982
15	420	5,260	5,680	5,680
16s	260	5,093	5,353	5,353
17	330	4,655	4,985	4,985
18	320	4,879	5,199	5,199
19	520	4,879	5,399	5,399
20	450	5,186	5,636	5,636
Total	14,720	138,805	153,525	153,525
Average	491	4,627	5,118	5,118



Energy Consumption for Mondul Kiri Power System October 2010

	kWh		kWh	kWh	
	Hydro	DG		Load	DG
21	5,220	148	5,368		
22	5,215	102	5,317		
23	5,235	99	5,334		
24	5,165	89	5,254		
25	5,285	171	5,456		
26s	4,950	99	5,049		
27	5,060	90	5,150		
28	5,205	99	5,304		
29	5,090	100	5,190		
30	5,030	107	5,137		
1	4,950	102	5,052		
2	4,765	105	4,870		
3s	4,675	109	4,784		
4	4,835	85	4,920		
5	4,555	102	4,657		
6	4,655	90	4,745		
7	4,960	185	5,145		
8	5,485	212	5,697		
9	5,708	152	5,860		
10s	4,925	80	5,005		
11	4,765	81	4,846		
12	4,855	101	4,956		
13	4,775	90	4,865		
14	4,930	95	5,025		
15	4,870	102	4,972		
16	4,885	146	5,031		
17s	4,830	103	4,933		
18	4,880	100	4,980		
19	4,980	96	5,076		
20	5,110	99	5,209		
Total	149,848	3,339	153,187		
Average	4,995	111	5,106		





Daily Load Curve, report

In November 2010

	15-Nov			16-Nov			17-Nov			18-Nov			19-Nov			20-Nov			21-Nov		
	Hydro	D/G	Total	Hydro	D/G	Total	Hydro	D/G	Total	Hydro	D/G	Total	Hydro	D/G	Total	Hydro	D/G	Total	Hydro	D/G	Total
1:00	120		120	120		120	150		150	130		130	130		130	130		130	180		180
2:00	120		120	120		120	130		130	130		130	120		120	120		120	165		165
3:00	115		115	120		120	115		115	130		130	120		120	120		120	165		165
4:00	125		125	120		120	125		125	130		130	120		120	120		120	170		170
5:00	190		190	155		155	170		170	150		150	150		150	145		145	225		225
6:00	250		250	245		245	250		250	275		275	245		245	220		220	340		340
7:00	245		245	200		200	220		220	220		220	240		240	230		230	320	30	350
8:00	110	123	233	205		205	200		200	210		210	220		220	230		230	250		250
9:00	170	67	237	220		220	230		230	220		220	250		250	230		230	240		240
10:00	170	105	275	260		260	260		260	265		265	260		260	240		240	230		230
11:00	170	98	268	250		250	260		260	270		270	260		260	240		240	235		235
12:00	170	57	227	210		210	220		220	200		200	220		220	215		215	200		200
13:00	160	55	215	200		200	215		215	200		200	205		205	200		200	190		190
14:00	170	50	220	200		200	220		220	210		210	210		210	220		220	210		210
15:00	310		310	225		225	210		210	220		220	200		200	215		215	225		225
16:00	260		260	240		240	260		260	220		220	235		235	260		260	280		280
17:00	290		290	270		270	290	52	342	265		265	270		270	290	75	365	290	50	340
18:00	355	50	405	360	80	440	355	65	420	355	68	423	350	65	415	340	140	480	345	145	490
19:00	345	40	385	350	51	401	355	45	400	310	40	350	320	45	365	340	73	413	345	130	475
20:00	340	40	380	320	43	363	320	45	365	345	35	380	340	30	370	340	72	412	345	133	478
21:00	285		285	270		270	300		300	260		260	280		280	310	56	366	325	77	402
22:00	200		200	200		200	210		210	190		190	200		200	250		250	290		290
23:00	155		155	170		170	150		150	160		160	150		150	240		240	260		260
24:00	120		120	160		160	140		140	130		130	130		130	200		200	195		195
Maximum		123	405	360	80	440	355	65	420	355	68	423	350	65	415	340	140	480	345	145	490
Minimum	110	40	115	120	43	120	115	45	115	130	35	130	120	30	120	120	56	120	165	30	165
Average	206	69	235	216	0	224	223	0	232	216	48	222	218	47	224	227	83	244	251	94	274
Energy	4945	685	5630	5190	174	5364	5355	207	5562	5195	143	5338	5225	140	5365	5445	416	5861	6020	565	6585
Daily Load Factor	88%	12%	100%	97%	3%	100%	96%	4%	100%	97%	3%	100%	97%	3%	100%	93%	7%	100%	91%	9%	100%
User No			58%			51%			55%			53%			54%			51%			56%
Monthly Assumed /C			1293			1293			1293			1293			1294			1294			1294
Monthly Assumed Total			131			124			129			124			124			136			153
			94,051			89,607			92,915			89,173			89,555			97,834			109,920

Electricite du Cambodge
Electricity of Mondulokiri

Fault Record of 2010 (Power station & Line)

No.	Date	Trouble (what kind of)	Reason	Countermeasure	Duration of stopping time	Remarks	Stop(H)
1	22-Feb-10	External trouble on 22kV lines	The building constructor take wood to dragged the MV cable to be separate to put the stair for concreting the new building	To provide a protection cover on the MV cable and confirm no damage the MV cable	14:00 ~15:00		1.0
2	24-Mar-10	External trouble on 22kV lines	EUMP staffs saw the Chinese constructor tight the MV cable together with Optic cable, and then EUMP staff reported to their director to cut off the feeder for take out the light of those cable.	Repairing of cables	10:00 ~14:00		2.0
3	25-Mar-10	External trouble on 22kV lines	The group of T&D staffs go to the scene on 24-Mar-10 to cut MV cable over the national road due to the big truck could not have a trip across the road	Change of the 22kV line	10:00 ~14:00		4.0
4	14-Apr-10	DG trouble	DG Starting air valve (failure) was not operated. During national festival, the load has rapidly increased and power stations could not control the load, then power system was blackout.	To clean and adjust the DG Starting air valve.	20:30 ~22:30	Re-start of the power system	2.0
5	18-Apr-10	Failure of 22kV transmission line	The main meter at P-01 broken due to the thunder	Replacement of parts	14:00 ~15:00		1.0
6	27-Jun-10	External trouble on 22kV lines	The people who are rental the land for build the small cottage at O'Klong restaurant (near O'Romis restaurant) has been through his cable across the MV 22kv at pole OR-047, and cause the serious injured to whole body	Inspection of trouble point	10:00 ~11:00		1.0
7	29-Jun-10	Failure of 400V distribution line	Some peoples was cut the tree drop on LV cable, make the LV cable drop out from the pole No. P07-120 to P07-121	Replacement of parts	14:00 ~15:00		1.0
8	16-Dec-10	DG trouble	Release of Exhaust-Temperature Measurement of DG	Checking exhaust pipe line	10:08-10:30	Re-start of the power system	0.3
9	19-Dec-10	DG trouble	Fuel oil flow meter trouble	Checking flow meter and request spare parts	9:00-10:30	Change bypass line	0
Total Stoppage							12.3

Electricite du Cambodge
Electricity of Mondulkiri

Fault Record of 2009 (Power station & Line)

No.	Date	Trouble (what kind of)	Reason	Countermeasure	Duration of stopping time	Remarks
1	29-Jan-09		The Pin of P15-107 broken cause by the thunder at O'Romis		15:25 ~16:30	55 mns
2	13-Feb-09		Both hydropower generator stop automatically. After line and transformer inspection, it's has been found that, the fuse of P-25 was broken.		15:25 ~08:00	Repairing on 14-Feb-09
3	7-Mar-09		Both hydropower generator stop automatically due to there was a big truck crush to the pole number P17-115 and it cause the metter box was broken		8:30 ~9:45	Repairing on 8-Mar-09
4	18/20-Mar-09		Replacement of transformer capacity 10kVA to 25 kVA at P-12			Date of replacement work 18-Mar to 20-Mar (2days)
5	20/23-Mar-09		Installation a new transformer 10kVA at Lay Sokkha's house along the road to O'Romis			Date of Installation work 20-Mar to 23-Mar (3days)
6	24-Mar-09		LV cable suspension assembly at P19-103		15:15 ~16:30	1.15hrs
7	25-Mar-09		LV cable suspension assembly at P19-103		8:30 ~9:30	1 hr
8	1-Apr-09		LV cable suspension assembly at P19-103		14:30 ~15:20	0.50hrs

A-4-20A

9	4-Apr-09		Both hydropower shutdown automatically by the thunder, it cause the Pin at P OR-071 was broken		15:30 ~17:50	
10	24-Apr-09		Both hydropower shutdown automatically by the thunder. it cause the Pin at P OR-097 was broken		15:10 ~16:50	1.50hrs
11	5-May-09		LV cable suspension assembly at P25-105		10:00 ~10:50	0.50hrs
12	1-Jun-09		The fuse of transformer at DG broken cause both hydropower stop		17:20 ~18:30	1.10hrs
13	20-Aug-09		Ground cable of MV dropped on Cross Arm cause both hydro generator stop		14:50 ~16:20	1.30hrs
14	20-Aug-09		The main metter at P20 broken by the thunder of the veavy rain		13:00 ~14:30	1.30hrs
15	29-Sep-09		The under ground cable of MV and sub-station near Market was burned.	Temporary repaired by disconnection overhead line of MV under ground wire and wait for supporting of repairation from JICA team	11:20	
16	13-Oct-09		LV cable suspension assembly at P23-203		09:00 ~10:30	1.30hrs
17	25/27-10-2009		Repairing of MV under ground cable at sub-station			Date of repairing work from 25-May to 27-Oct (2days)
18	7-Dec-09		P19 F03, LV cable was suspension assembly, cause short curcuit and N phase touch with A phase		8:00 ~8:40	0.40hr

Work Plan

O'Moleng P.S./Romis P.S		Work No. OM-G001/OR-001	Approval (Signature)			
			Director	Deputy Director	Chief	Work Manager
Preparation:	2010/6/1	K. Pisith	C. Sokhun	T. Khin	Y. Soyen	
Work Name	Periodic inspection for turbine	Slip No.				
Equipment	Hydropower generating equipment	Shutdown	No.			
Purpose	Periodic inspection for htdropower station	Work	No.			
Schedule	2010/6/2 at 8:00 - 2010/6/8 by 16:00 (56 Hrs)	Grounding	No.			
Shutdown	2010/6/4 at 8:00 - 2010/6/5 by 16:00 (7 Hrs, every day)	Daily:	at 8:30	by 15:30		
Work Items		Relative Work				
1)Disassembly inspection of turbine and bearing 2)Runner inside inspection 3)Generator inspection 4)Dummy load inspection 5)Contorol panel inspection		1)Waterway and intake inspection 2)Transmision line inspection and others				
Safety Measure						
Prohavited operation	#1 Control SW, #52-1,2 CB, Inlet valve	Grounding	Non			
Locking	Inlet valve	Protection	Pad lock key for Control panel			
Work Organization						
Work order	1) Own work 2) Contract 3) Consignment	Safety manager	Mr. Chin Sokhun			
Work manager	Mr. Thai Khin	Site manager	Mr. Yang Soyen			
Work preparator	Mr. Thai Khin	Assitant	Mr. Eng Rithy			
Assistant	Mr. Yang Soyen	Operator	Mr. Um Monichetra			
Work leader	Mr. Yang Soyen	Workers	Mr. Um Monichetra			
Safety inspector	Mr. Eng Rithy	Workers	Mr. Chheoum Kosal			
Maker' SV	Tnaka Hydro	Total worker	(9)			
Praparatory meeting	Date	2010/6/2 at 8:00	Attendants	1)K. Pisith 2)Se 3)Khin		
	Place	Technical Devision		4)Sokhom 5)Other staff		
Work Standards (Print numbers of (1, 2, 3 ----) are attached.)						
()	Work contents	Instruction				
()	Work manage sheet	1)				
()	Shutdown, Locking & Grounding area	2)				
()	Work organization	3)				
()	Work schedule	4)				
()	Work safety procedure	5)				
()	Tools and Material list					
()	Safety indicators					
()	Safety check list					

General Work Plan

O'Moleng P.S/O'Romis P.S		Work No. OM-G001/OR-001		Approval (Signature)			
				Director	Deputy Director	Chief	Work Manager
Preparation:		2010/6/1		K. Pisith	C. Sokhun	T. Khin	Y. Soyen
Work Name		Periodic inspection for turbine					
Equipment		Hydropower generating equipment					
Total Work		2010/6/4 at 8:00 - 2010/6/5 by 16:00 (Daily 8 Hrs X 2 dys · continuous)					
	Work Item	Work Content	Method	Schedule	Actual	Name of Leader	Confirmed
1	Periodic inspection for turbine	1)Inspection of turbine & generator, inletvalve, control panel 2)Dummy load, etc.	Contract	Frm: 6/4 To: 6/5		Mr. Thai Khin	
2	Inspection of civil facilities	Inspection of waterway and intake	EUMP	Frm: 6/4 To: 6/5		Mr. Chin Sokhun	
3	Inspection of transmission line	1)Inspection of 22kV T/L 2)Inspection of 400V D/L, etc.	EUMP	Frm: 6/4 To: 6/5		Mr. Thai Khin	
4				Frm: To:			
5				Frm: To:			
Head of wok		Work manager	Safety manager	Lock & Grounding	Leader	Worker	Confirmed
Meeting		Schedule	2010/6/2 at 8:00	Place	EUPM room	Atendant	1)K. Pisith 2)Se
		Actual					
R e m a r k s	Scope of work			Instruction			
	1) Refer to Single diagram 2) Refer to Block diagram			1) 2) 3) 4) 5)			

Confirmation Table of Locking and Grounding

Work Name:		Periodic Inspection for Turbine				Name of P.S: O'Moleng/O'Romis			
Work Period		2010/6/2 at 8:00 - 2010/6/8 by 16:00 (56 Hrs)				Date: 2010/6/1		Approved	
Shutdown Date:		2010/6/4 at 8:00 - 2010/6/5 by 16:00 (7 Hrs, even				OM-G001/OR-001		Mr. Thai Khin	
No.	Lock operation for Parts	Condition before lock	Lock date	Unlock date	Lock level		No. and Place		Remark
					Panel	Local	Commo n	Level No.	
1	Turbine Stop #1	Stop	6/4	6/4	O			1	
2	InletValve CLOSED	Closed	6/4	6/4		O		2	
3	52-1 OFF	Off	6/4	6/4	O			3	
4	52-2 OFF	Off	6/4	6/4	O			4	
5	NFB-1 & 1A OFF	On	6/4	6/4	O			5	
6	NFB-2 OFF	On	6/4	6/4	O			5	
7	NFB-3 OFF	On	6/4	6/4	O			5	
8	Servo Moter MCCB OFF	On	6/4	6/4	O			5	
9									
10									
11									
12									
13									
14									
15									
Scope of Shutdown and Work ares									
<p>1) Refer to Single diagram 2) Refer to Block diagram 3) Lock level shall be provided at power ststion.</p>									

Work Plan

Appendix 4-6

Diesel P.S		Work No. DG-001		Approval (Signature)			
				Director	Deputy Director	Chief	Work Manager
Preparation:	2010/8/2	Chin Sokhun	Khin	Setha	Setha		
Work Name	Periodic inspection for Diesel Power Station			Slip No.			
Equipment	Diesel generating equipment			Shutdown	No.		
Purpose	Periodic inspection for Diesel Power Station			Work	No.		
Schedule	2010/8/3 at 8:00 - 2010/8/9 by 16:00 (48 Hrs)			Grounding	No.		
Shutdown	2010/8/3 at 8:00 - 2010/8/9 by 17:00 (8 Hrs, every day)			Daily:	at 8:30	by 16:30	
Work Items				Relative Work			
1)Disassembly inspection of Diesel engin 2)Engin body inside inspection 3)Generator inspection 4)Auxiliary equipment inspection 5)Contorol panel inspection				1)Step up Transformer (400kVA) 2)Zero phase (Vo) Transformer and others			
Safety Measure							
Prohaviged operation	#3-1E Engine Control SW, #52G CB, #88E Start preparation SW			Grounding	Non		
Locking	DC 24V Control source"OFF", 43A "MANUAL", Air Tank Valve "CLOSE"			Protection	Pad lock key for Control panel		
Work Organization							
Work order	① Own work 2) Contract 3) Consignment			Safety manager	Mr. Chin Sokhun		
Work manager	Mr. Thai Khin			Site manager	Mr. Yim Thav		
Work nraparator	Mr. Thai Khin			Assitant	Mr. Som Dara		
Assistant	Mr. Then Setha			Operator	Mr. Eng Tola		
Work leader	Mr. Yim Thav			Workers	Mr. Nol Nin		
Safety inspector	Mr. Then Setha			Workers	Mr. Hang Vuthy		
Maker' SV	Daihatsu (Mr. Bono & Hojo)			Total worker	(9)		
Praparatory meeting	Date	2010/8/3 at 8:00		Attendants	1) Se	2)Khin	3)Setha
	Place	Technical Devision			4)Thav	5)Other staff	6) SV
Work Standards (Print numbers of (1, 2, 3 ----) are attached.)							
()	Work contents			Instruction			
()	Work manage sheet			1)			
()	Shutdown, Locking & Grounding area			2)			
()	Work organization			3)			
()	Work schedule			4)			
()	Work safety procedure			5)			
()	Tools and Material list						
()	Safety indicators						
()	Safety check list						

General Work Plan

Diesel P.S		Work No. DG-001		Approval (Signature)			
				Director	Deputy Director	Chief	Work Manager
Preparation:	2010/8/2		Chin Sokhun	Khin	Setha	Setha	
Work Name	Periodic inspection for Diesel Power Station						
Equipment	Diesel generating equipment						
Total Work	2010/8/3 at 8:00 - 2010/8/9 by 17:00 (Daily 8 Hrs X 7 dys · every day)						
	Work Item	Work Content	Method	Schedule	Actual	Name of Leader	Confirmed
1	Periodic inspection for Diesel Power Station	1)Disassembly inspection of Diesel engin 2)Engin body inside inspection 3)Generator inspection 4)Auxiliary equipment inspection 5)Contorol panel	Contract	From: 8/3		Mr. Thai Khin	
				To: 8/9			
2	Inspection of transmission line	1)Step up Transformer (400kVA) 2)Zero phase (Vo) Transformer and others	Own work	From: 8/3		Mr. Savuth Sothea	
				To: 8/3			
3	Postponed to next inspection						
4				From:			
				To:			
Head of wok		Work manager	Safety manager	Lock & Grounding	Leader	Worker	Confirmed
Meeting		Schedule	2010/6/2 at 8:00	Place	EUPM room	Atendant	1)K. Pisith 2)Se 3)Khin 4)Other staff
		Actual					
a	Scope of work 1) Refer to Single diagram 2) Refer to Block diagram		Instruction 1) 2) 3) 4) 5)				

Confirmation Table of Locking and Grounding

Work Name:		Periodic inspection for Diesel Power Station				Name of P.S: Diesel			
Work Period		2010/8/3 at 8:00 - 2010/8/9 by 17:00 (48 Hrs)				Date: 2010/8/2		Approved	
Shutdown Date:		2010/8/3 at 8:00 - 2010/8/9 by 17:00 (8 Hrs, every				DG-001		Mr. Thai Khin	
No.	Lock operation for Parts	Status	Lock date	Unlock date	Lock level		No. and Place		Status before lock
					Panel	Local	Commo n	Level No.	
1	Diesel Engine	Stop	8/4	8/4		O		1	Stop
2	Air tank valve "CLOSED"	Closed	8/4	8/4		O		2	Open
3	Fuel oil valve "CLOSED"	Closed	8/4	8/4		O		3	Open
4	52G CB " OFF"	Off	8/4	8/4	O			4	Off
5	DC24V "OFF"	Off	8/4	8/4	O			5	On
6	43A "MANUAL"	Manual	8/4	8/4	O			6	AUTO
7	All NFB "OFF"	Off	8/4	8/4	O			7	On
Relative Work									
8	Step up Transformer	No Charge	8/3	8/3		O		8	Charge
9	Vo Transformer	No Charge	8/3	8/3		O		8	Charge
10	Cut out power fuse	Off	8/3	8/3		O		8	On
11									
12									
13									
14									
Scope of Shutdown and Work are									
<p>1) Refer to Single diagram</p> <p>2) Refer to Block diagram</p> <p>3) Lock level shall be provided at power ststion.</p>									

OUTAGE SCHEDULE

DATE OF WORK		8/4/2010 to 8/6/2010		
WORK Number DG-001		Diesel inspection		
Place		Diesel		
Purpose		Diesel inspection		
Responsible person at the site		Mr THENG SETHA		
Deenergized MV Line		From	LBS 2	
		To	PMT29, PMT30, PMT31,PMT33,PMT34,PMT35	
Outage PMT		PMT29, PMT30, PMT31,PMT33,PMT34,PMT35		
PROCEDURE		Outage PMT	TIME	
			Scheduled	Result
1	O'Romis P/S MCB Operation		7:30	
2	O'Moleng P/S MCB Operation		7:30	
3	Diesel P/S MCB Stop Operation		8:00	
4	LBS 2 Open for reducing load			
5	PMT-16 Off for reducing load			
Result of outage period**				

Work Plan

Form 3

O'Moleng P.S./Romis P.S		Work No.	Approval (Signature)			
			Director	Deputy Director	Chief	Work Manager
Preparation:	2010/6/1	OM-001	K. Pisith	C. Sokhun	T. Khin	Y. Soyen
Work Name	Periodic inspection for turbine		Slip No.			
Equipment	Hydropower generating equipment		Shutdown	No.		
Purpose	Periodic inspection for htdropower station		Work	No.		
Schedule	2010/6/2 at 8:00 - 2010/6/8 by 16:00 (56 Hrs)		Grounding	No.		
Shutdown	2010/6/4 at 8:00 - 2010/6/5 by 16:00 (7 Hrs, every day)		Daily:	at 8:30	by 15:30	
Work Items			Relative Work			
1)Disassembly inspection of turbine and bearing 2)Runner inside inspection 3)Generator inspection 4)Dummy load inspection 5)Contorol panel inspection			1)Waterway and intake inspection 2)Transmission line inspection and others			
Safety Measure						
Prohavigited operation	#1 Control SW, #52-1,2 CB, Inlet valve		Grounding	Non		
Locking	Inlet valve		Protection	Pad lock key for Control panel		
Work Organization						
Work order	1) Own work 2) Contract 3) Consignment		Safety manager	Mr. Chin Sokhun		
Work manager	Mr. Thai Khin		Site manager	Mr. Yang Soyen		
Work preparator	Mr. Thai Khin		Assitant	Mr. Eng Rithy		
Assistant	Mr. Yang Soyen		Operator	Mr. Um Monichetra		
Work leader	Mr. Yang Soyen		Workers	Mr. Um Monichetra		
Safety inspector	Mr. Eng Rithy		Workers	Mr. Chheoum Kosal		
Maker' SV	Tnaka Hydro		Total worker	(9)		
Preparatory meeting	Date	2010/6/2 at 8:00	Attendants	1)K. Pisith 2)Se 3)Khin		
	Place	Technical Devision		4)Sokhom 5)Other staff		
Work Standards (Print numbers of (1, 2, 3 ----) are attached.)						
()	Work contents		Instruction			
()	Work manage sheet		1)			
()	Shutdown, Locking & Grounding area		2)			
()	Work organization		3)			
()	Work schedule		4)			
()	Work safety procedure		5)			
()	Tools and Material list					
()	Safety indicators					
()	Safety check list					

General Work Plan

Form-4

O'Moleng P.S/O'Romis P.S		Work No. OM-G001		Approval (Signature)			
		Director	Deputy Director	Chief	Work Manager		
Preparation:	2010/6/1		K. Pisith	C. Sokhun	T. Khin	Y. Soyen	
Work Name	Periodic inspection for turbine						
Equipment	Hydropower generating equipment						
Total Work	2010/6/4 at 8:00 - 2010/6/5 by 16:00 (Daily 8 Hrs X 2 dys · continuous)						
	Work Item	Work Content	Method	Schedule	Actual	Name of Leader	Confirmed
1	Periodic inspection for turbine	1)Inspection of turbine & generator, inletvalve, control panel 2)Dummy load, etc.	Contret	Frm: 6/4 To: 6/5		Mr. Thai Khin	
2	Inspection of civil facilities	Inspection of waterway and intake	EUMP	Frm: 6/4 To: 6/5		Mr. Chin Sokhun	
3	Inspection of transmission line	1)Inspection of 22kV T/L 2)Inspection of 400V D/L, etc.	EUMP	Frm: 6/4 To: 6/5		Mr. Thai Khin	
4				Frm: To:			
5				Frm: To:			
Head of wok		Work manager	Safety manager	Lock & Grounding	Leader	Worker	Confirmed
Meeting		Schedule	2010/6/2 at 8:00	Place	EUPM room	Atendant	1)K. Pisith 2)Se 3)Khin 4)Other staff
		Actual					
R e m a r k s	Scope of work 1) Refer to Single diagram 2) Refer to Block diagram		Instruction 1) 2) 3) 4) 5)				

Confirmation Table of Locking and Grounding

Form-5

Work Name:		Periodic Inspection for Turbine			Name of P.S: O'Moleng				
Work Period		2010/6/2 at 8:00 - 2010/6/8 by 16:00 (56 Hrs)			Date: 2010/6/1		Approved		
Shutdown Date:		2010/6/4 at 8:00 - 2010/6/5 by 16:00 (7 Hrs, even			OM-G001/OR-001		Mr. Thai Khin		
No.	Lock operation for Parts	Condition before lock	Lock date	Unlock date	Lock level		No. and Place		Remark
					Panel	Local	Commo n	Level No.	
1	Turbine Stop #1	Stop	6/4	6/4	O			1	
2	InletValve CLOSED	Closed	6/4	6/4		O		2	
3	52-1 OFF	Off	6/4	6/4	O			3	
4	52-2 OFF	Off	6/4	6/4	O			4	
5	NFB-1 & 1A OFF	On	6/4	6/4	O			5	
6	NFB-2 OFF	On	6/4	6/4	O			5	
7	NFB-3 OFF	On	6/4	6/4	O			5	
8	Servo Moter MCCB OFF	On	6/4	6/4	O			5	
9									
10									
11									
12									
13									
14									
15									
Scope of Shutdown and Work ares									
<p>1) Refer to Single diagram 2) Refer to Block diagram 3) Lock level shall be provided at power ststion.</p>									

Work Plan

Form-3

Diesel P.S		Work No. DG-002		Approval (Signature)			
				Director	Deputy Director	Chief	Work Manager
Preparation:	2010/8/2	Chin Sokhun	Khin	Setha	Setha		
Work Name	Periodic inspection for Diesel Power Station			Slip No.			
Equipment	Diesel generating equipment			Shutdown	No.		
Purpose	Periodic inspection for Diesel Power Station			Work	No.		
Schedule	2010/8/3 at 8:00 - 2010/8/9 by 16:00 (48 Hrs)			Grounding	No.		
Shutdown	2010/8/3 at 8:00 - 2010/8/9 by 17:00 (8 Hrs, every day)			Daily:	at 8:30	by 16:30	
Work Items				Relative Work			
1)Disassembly inspection of Diesel engin 2)Engin body inside inspection 3)Generator inspection 4)Auxiliary equipment inspection 5)Contorol panel inspection				1)Step up Transformer (400kVA) 2)Zero phase (Vo) Transformer and others			
Safety Measure							
Prohavited operation	#3-1E Engine Control SW, #52G CB, #88E Start preparation SW			Grounding	Non		
Locking	DC 24V Control source"OFF", 43A "MANUAL", Air Tank Valve "CLOSE"			Protection	Pad lock key for Control panel		
Work Organization							
Work order	① Own work 2) Contract 3) Consignment			Safety manager	Mr. Chin Sokhun		
Work manager	Mr. Thai Khin			Site manager	Mr. Yim Thav		
Work preparator	Mr. Thai Khin			Assitant	Mr. Som Dara		
Assistant	Mr. Then Setha			Operator	Mr. Eng Tola		
Work leader	Mr. Yim Thav			Workers	Mr. Nol Nin		
Safety inspector	Mr. Then Setha			Workers	Mr. Hang Vuthy		
Maker' SV	Daihatsu (Mr. Bono & Hojo)			Total worker	(9)		
Preparatory meeting	Date	2010/8/3 at 8:00		Attendants	1) Se	2)Khin	3)Setha
	Place	Technical Devision			4)Thav	5)Other staff	6) SV
Work Standards (Print numbers of (1, 2, 3 ----) are attached.)							
()	Work contents			Instruction			
()	Work manage sheet			1)			
()	Shutdown, Locking & Grounding area			2)			
()	Work organization			3)			
()	Work schedule			4)			
()	Work safety procedure			5)			
()	Tools and Material list						
()	Safety indicators						
()	Safety check list						

General Work Plan

Form-4

Diesel P.S		Work No. DG-002		Approval (Signature)			
				Director	Deputy Director	Chief	Work Manager
Preparation:	2010/8/2		Chin Sokhun	Khin	Setha	Setha	
Work Name	Periodic inspection for Diesel Power Station						
Equipment	Diesel generating equipment						
Total Work	2010/8/3 at 8:00 - 2010/8/9 by 17:00 (Daily 8 Hrs X 7 dys · every day)						
	Work Item	Work Content	Method	Schedule	Actual	Name of Leader	Confirmed
1	Periodic inspection for Diesel Power Station	1)Disassembly inspection of Diesel engin 2)Engin body inside inspection 3)Generator inspection 4)Auxiliary equipment inspection 5)Contorol panel	Contract	From: 8/3		Mr. Thai Khin	
				To: 8/9			
2	Inspection of transmission line	1)Step up Transformer (400kVA) 2)Zero phase (Vo) Transformer and others	Own work	From: 8/3		Mr. Savuth Sothea	
				To: 8/3			
3	Postponed to next inspection						
4				Frm:			
				To:			
Head of wok		Work manager	Safety manager	Lock & Grounding	Leader	Worker	Confirmed
Meeting	Schedule	2010/6/2 at 8:00		EUPM room	Atendant	1)K. Pisith 2)Se	
	Actual			Place		3)Khin 4)Other staff	
Remarks	Scope of work		Instruction				
	1) Refer to Single diagram		1)				
	2) Refer to Block diagram		2)				
			3)				
			4)				
		5)					

Confirmation Table of Locking and Grounding

Form-5

Work Name:		Periodic inspection for Diesel Power Station				Name of P.S: Diesel			
Work Period		2010/8/3 at 8:00 - 2010/8/9 by 17:00 (48 Hrs)				Date: 2010/8/2		Approved	
Shutdown Date:		2010/8/3 at 8:00 - 2010/8/9 by 17:00 (8 Hrs, every				Mr. Thai Khin			
No.	Lock operation for Parts	Status	Lock date	Unlock date	Lock level		No. and Place		Status before lock
					Panel	Local	Commo n	Level No.	
1	Diesel Engine	Stop	8/4	8/4		O		1	Stop
2	Air tank valve "CLOSED"	Closed	8/4	8/4		O		2	Open
3	Fuel oil valve "CLOSED"	Closed	8/4	8/4		O		3	Open
4	52G CB " OFF"	Off	8/4	8/4	O			4	Off
5	DC24V "OFF"	Off	8/4	8/4	O			5	On
6	43A "MANUAL"	Manual	8/4	8/4	O			6	AUTO
7	All NFB "OFF"	Off	8/4	8/4	O			7	On
Relative Work									
8	Step up Transformer	No Charge	8/3	8/3		O		8	Charge
9	Vo Transformer	No Charge	8/3	8/3		O		8	Charge
10	Cut out power fuse	Off	8/3	8/3		O		8	On
11									
12									
13									
14									
Scope of Shutdown and Work ares									
<p>1) Refer to Single diagram 2) Refer to Block diagram 3) Lock level shall be provided at power ststion.</p>									

OUTAGE SCHEDULE

WORK PERIOD		11/3/2010 to 11/9/2010			
OUTAGE PERIOD:	Date	From: Nov/4 8:00		to: Nov/7 16:00	
	Total hours	Continuous : 88 hours			
WORK Number	DG-002				
Place	Diesel				
Purpose	DG Overhaul Work after 8,000 hours				
Responsible person at the site	Mr THENG SETHA				
Deenergized MV Line	From	LBS 2			
	To	PMT29, PMT30, PMT31,PMT33,PMT34,PMT35			
Outage PMT	PMT29, PMT30, PMT31,PMT33,PMT34,PMT35				
PROCEDURE		Outage PMT	TIME		
			Scheduled	Result	
1	O'Romis P/S MCB	Operation	7:30		
2	O'Moleng P/S MCB	Operation	7:30		
3	Diesel P/S MCB	Stop Operation	8:00		
4	LBS 2	Open for reducing load			
5	PMT-16	Off for reducing load			
Note)					
Result of outage period		Total:			
Consumed total system load must be less 300kW supplied from O'Romis and O'Moleng hydropower stations.					

Summary Report for Periodic Inspection (3rd)

on

Project for Operation and Maintenance

of the Rural Electrification on

Micro-hydropower in Mondul Kiri

September, 2010

JICA Study Team

Electric Power Development Co., Ltd. (J-Power) and

Chugoku Electric Power Co., Inc.(Energia)

1. Introduction

We would like to report you that the Periodic Inspection (3rd) for Hydropower stations (O'Moleng and O'Romis) was carried out on June 2 to June 8, 2010 by the staff of EOM (Electricity of Mondul Kiri) under the supervising of Japanese engineer (Tanaka Suiryoku). And Diesel power station was also carried out on August 3 to 9, 2010 by the staff of EOM under the supervising of Japanese engineers from Daihatsu. The inspection of Diesel power station was postponed in August 2010 due to the drought in the river condition and the difficulty of DG stopping. The summary report of the inspection is described as follows.

2. Activities of the Schedule

2.1 Inspection of Hydropower station

- 1) Pre meeting for inspection: 2010/06/02
- 2) Periodic inspection for O'Moleng P.S : 2010/06/04 to 2010/06/05
- 3) Periodic inspection for O'Romis P.S : 2010/06/02 to 2010/06/03
- 4) Post meeting for inspection : 2010/06/07

2.2 Inspection of Diesel power station

- 1) Pre meeting for inspection: 2010/08/03
- 2) Periodic inspection for Diesel P.S : 2010/08/03 to 2010/08/09
- 3) Post meeting for inspection : 2010/08/09

2.3 On-the-job training for EOM staff

- 1) On-the-job training for Hydropower station : 2010/06/02 to 2010/06/05
- 2) On-the-job training for Manual in Hydropower: 2010/06/06 to 2010/06/07
- 3) On-the-job training for diesel power staff: 2010/08/07 to 2010/08/09
- 4) On-the-job training for Manual in Diesel engine: 2010/08/08 to 2010/08/09

3. The summary of the inspection results

3.1 Hydropower station for O'Moleng and O'Romis

Check results : Good

- 1) Turbine/Generator appearance inspection and cleaning
- 2) Inlet valve appearance inspection and cleaning
- 3) Speed changer appearance inspection and cleaning
- 4) G/V servomotor appearance inspection and stroke adjustment
- 5) Generator panel appearance inspection and cleaning
- 6) Bearing inspection and cleaning

The detailed inspection results should be referred "Inspection Report of Hydropower Station" as attached.

3.2 Results for Diesel power station

Check results : Good

- 1) Check and clean for Fuel oil filters and Lubricating oil filters
- 2) Check the Cam room and Crank room
- 3) Check and clean the Air compressor.
- 4) Check the Auxiliary equipment
- 5) Top haul maintenance for Cylinder head
- 6) Maintenance for Fuel oil nozzle tips
- 7) Check the Lubricating oil for Engine, Generator and Air compressor
- 8) Check and clean the A.C Generator inside

Replaced parts list over 4,000 hours running is attached in Table-1, and Table-2 is shown for Consumable parts & Tools for overhaul work, and Table-3 is shown the results of fuel nozzle test, respectively. The detailed "Inspection Report of Diesel Power Station" is attached.

4. Training for EOM Staff and Operators

4.1 Hydropower generating facilities

On the Job Training was carried out by the Japanese supervisor (Tanaka Suiryoku) and JICA Project team as follows.

- 1) Turbine/generator outside inspection and cleaning
- 2) Disassembly inspection of dummy load heater unit and cleaning
- 3) Inspection of inlet valve, servomotor and speed changer unit
- 4) Inspection of control panel and cleaning
- 5) Confirmation of operation method
- 6) Explanation of sequence control and diagram

4.2 O&M Manual in Hydropower

On the job Training for manual was also carried out by the Japanese supervisor (Tanaka Suiryoku/ Mr. Iwahana) and JICA study team on the desk and using power point as follows.

Lecture of Sequence numbers for block diagram and connection diagrams,

- 1) Lecture of symbols, parts name and function for block diagram and connection diagrams,

- 2) Lecture of connection diagram and protection relays and circuit

4.3 Diesel power generating facilities

On the Job Training was carried out by the Japanese supervisor (Daihatsu diesel/ Mr. Bono) and JICA study team as follows.

- 1) For assembly and disassembly in accordance with Instruction manual of Air compressor (Hasegawa Iron Works Co.)

- 2) Adjustment of Valve clearance

- 3) Fuel Nozzle Test

Nozzle test using by special tools and pressure test pump were carried out.

A way of judgment for testing nozzle was instructed to operators.

- 4) Daily operation and maintenance.

In accordance with [O&M Manual for Diesel Engine] , following items were instructed to operators.

- 5) Assembly and disassembly method for turbine covers, inspection cover

- (1) Lecture of trouble shooting

- (2) Lecture of Sequence diagram and drawings

- (3) Lecture of cleaning for fuel and lub. oil filters

Observation: The result was good in order.

- 1) EOM staff carried out the OJT together with supervisor according to all training items.
- 2) Inspection method for electrical portion (other than mechanical portion) has been transferred and data collection by EOM staff during periodic inspection.
- 3) Lecture for electrical portion like soft ware engineering such as reading connection diagram and block diagram for sequence was carried out, the JICA study team expects to continue further study and understanding it.
- 4) EOM could not provide the budget and consumable goods for inspection, after transferring the EUMP to EDC, because it is so complicated the procedure and application of the budget after transferring EDC organization. JICA study team has led EOM staff to discuss with EDC head office, and provide the budget for next inspection.
- 5) Spare lubricating oil for replacement has been procured from EDC head office before inspection starting in accordance with the oil list.
- 6) EOM provided a scheduled stoppage plan of the power system for customers due to the shortage of supplied power from hydropower stations in dry season.

5. Comments on the O & M management

- 1) The 3 power stations, EOM have been contributed to supply the power continuously into Mondul Kiri power system in normal conditions since 2008.October 21.
- 2) Since the running hours were; O'Moleng 10,186 hours, O'Romis 11,631 hours in June 2nd, 2010, and Diesel 6,600 hours in 3rd August 2010, respectively from initial operation on October 21, 2008. It means that continuous operation of the power station would be stressed to the rotating machines and will be required timely inspection for maintenances.
- 3) As a result of inspection, there is no problem with any defect or malfunction such as machine trouble or electrical failure, so on.
- 4) It is good managed that the spare parts have been registered with Inventory book by the EOM staff, and they have trained to procure the spare parts from original manufacturer during 3rd Periodic inspection.
- 5) The plan of periodic inspection, EOM staff has made Work plan for periodic inspection in accordance with O&M manual as attached papers (Form-1, 3, 4, and 5).
EOM staff has to make a plan of next periodic inspection and submit it to EDC head office to procure the spare parts and consumable parts as well as stoppage schedule for approval.
- 6) The next periodic inspection will be planned in December for O'Moleng, O'Romis Hydropower stations, and Diesel power stations will carry out in November 2010 after 8,000 running hours. That inspection will be a final inspection in consultation with JICA study team.

Attachment:

- 1) Photo of inspection and OJT
- 2) Inspection report for Hydropower & Diesel generating facility
- 3) Work Plan for periodic inspection
- 4) Reference data

-End-

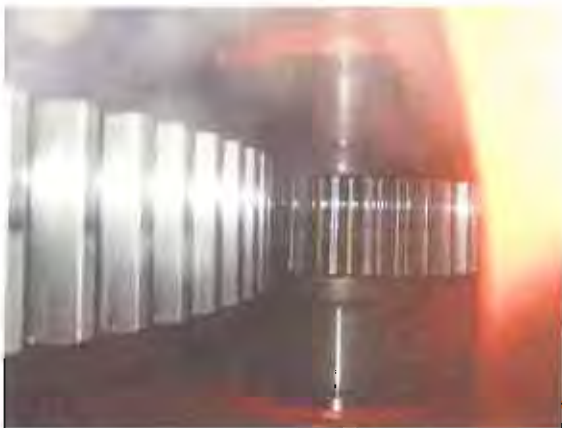
Periodic Inspection (3rd) of O'Romis Hydropower Station,
June 2 to 3, 2010



Drought condition at O'Romis Hydropower station (Head Tank)



Adjustment of Servo-motor stroke for Guide-vane



Inside inspection of Speed changer gear



Inspection and cleaning of Generator inside



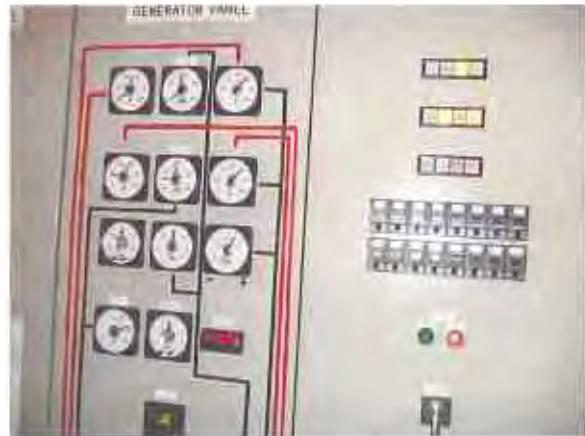
Disassembly inspection of Dummy load



Cleaning of Dummy load



Inspection of Panel inside (Switches, meters and parts)



Trial operation after inspection of plant

Periodic Inspection (3rd) of O'Moleng Hydropower Station, June 4 to 5, 2010



Drought condition at O'Moleng Hydropower station



Adjustment of Servo-motor stroke for Guide-vane



Grease up for turbine bearings



Inside inspection and cleaning of generator



Disassembly inspection of Dummy load



Cleaning of Dummy load



Assembly of Dummy load after cleaning



Measuring Insulation resistance of Generator



Measuring Insulation resistance of dummy load



Inspection of cables connection and terminals at Control panels



Trial Operation after Inspection



OJT for protection relays and manual on the control panel at O'Moleng.



OJT for Electrical theory and manual inside control panel at O'Moleng.



Lecture of Electrical theory and manual for sequence diagrams (using project supplied material and tools)

Periodic Inspection (3rd) of Dieselpower Station,
August 3 to 9, 2010



Administration and Diesel Generating
Facility Buildings



Disassembly of Engine Head
and cover



Inspection of inside Engine Room
and Crank shaft



Disassembly of Engine head



Assembly of Engine head



Cleaning of Engine parts



Cleaning of Engine Lubricating oil filter



Inspection of inside Generator and cleaning



Trial Operation after Inspection



On-the-job Training for recording of Engine data



Meeting after DG Periodic Inspection

A-4-46

Summary Report for Periodic Inspection (4th)

on

Project for Operation and Maintenance

of the Rural Electrification on

Micro-hydropower in Mondul Kiri

November, 2010

JICA Study Team

Electric Power Development Co., Ltd. (J-Power) and

Chugoku Electric Power Co., Inc.(Energia)

1. Introduction

We would like to report you that the Periodic Inspection (4th) for Hydropower stations (O'Moleng and O'Romis) was carried out on November 13 to 19, 2010 by the staff of EOM (Electricity of Mondul Kiri) under the supervising of Japanese engineer (Tanaka Suiryoku). And Diesel power station was also carried out on November 3 to 9, 2010 by the staff of EOM under the supervising of Japanese engineers from Daihatsu. The summary report of the inspection is described as follows.

2. Activities of the Schedule

2.1 Inspection of Hydropower station

- 1) Pre meeting for inspection: 2010/11/13
- 2) Periodic inspection for O'Moleng P.S : 2010/11/15 to 2010/11/16
- 3) Periodic inspection for O'Romis P.S : 2010/11/13 to 2010/11/14
- 4) Post meeting for inspection : 2010/11/19

2.2 Inspection of Diesel power station

- 1) Pre meeting for inspection: 2010/11/03
- 2) Periodic inspection for Diesel P.S : 2010/11/03 to 2010/11/08
- 3) Post meeting for inspection : 2010/11/09

2.3 On-the-job training for EOM staff

- 1) On-the-job training for Hydropower station: 2010/11/13 to 2010/11/16
- 2) On-the-job training for Manual in Hydropower: 2010/11/18
- 3) On-the-job training for diesel power staff: 2010/11/03 to 2010/11/08
- 4) On-the-job training for Manual in Diesel engine: 2010/11/08 to 2010/11/09

3. The summary of the inspection results

3.1 Hydropower station for O'Moleng and O'Romis

Check results: Good in operation

- 1) Turbine/Generator appearance inspection and cleaning
- 2) Disassembly and inside inspection of turbine runner
- 3) Turbine ground packing change (2 pieces)
- 4) Bearing grease change and cleaning (both side of turbine)
- 5) Inlet valve appearance inspection and cleaning
- 6) Speed changer appearance inspection and cleaning
- 7) G/V servomotor and stroke appearance inspection
- 8) Generator panel appearance inspection and cleaning

- 9) Bearing grease up with 100 times for generator (both side of generator)

The detailed inspection results should be referred “Inspection Report of Hydropower Station by Tanaka Hydro” as attached.

- (1) Photo of hydropower station
- (2) Inspection records at O’Romis and O’Moleng
- (3) Measurement of gaps on turbine shaft at O’Romis and O’Moleng
- (4) Meter check records at O’Romis and O’Moleng

3.2 Results for Diesel power station

Check results: Good in operation

- (1) Check and clean for all (four (4) kinds) of fuel oil filters
- (2) Check and clean for all (four (4) kinds) of lubrication oil filters
Replaced one casing packing (Teflon) due to leakage
- (3) Check and cleaning of Air starting valve due to rust of inside
- (4) Check the Cam room and Crank room
- (5) Fuel nozzle injection testing, and also cleaning of pressure tester due to rust
- (6) Change of lubricating oil for engine and rocker arm (280 liters)
- (7) Check of crank-shaft deflection
- (8) Inspection and cleaning of generator
- (9) Inspection of auxiliary equipment
Cleaning and test run for radiator, C.W pump, F.O transfer pump, F.O unloading pump, F.O drain pump, but pit drain pump was disassembled due to malfunction with wasted materials and many rubbish.
- (10) Disassembly inspection of turbo-charger
Replaced three (3) kind of seal rings
- (11) Overhaul work for diesel engine
Replaced all of valve stem seals, also replaced all of piston rings and oil rings due to reach to life span.
- (12) Replaced cooling water (J.W line 100 liters and Cooler water line 400 liters)

The detailed inspection results should be referred “Inspection Report of Diesel Power Station by Daihatsu Mfg.” as attached. Refer to tables as follows.

- Photos for overhaul work
- Table-1: Work schedule

Table-2: Test results for fuel nozzle tip

Table-3: Measurement record of piston rings and cylinder liners

Table-4: Measurement record of crank-shaft deflection

Table-5: Record of test running

Table-6: Requirement of Supervisor engineer and parts procurement procedure

Table-7: Replaced parts and consumable parts for overhaul work

Maintenance schedule for diesel engine

4. Training for EOM Staff and Operators

4.1 Hydropower generating facilities

On the Job Training was carried out by the Japanese supervisor (Tanaka Suiryoku) and JICA Project team as follows.

Disassembly of turbine outside/inside inspection and cleaning

- 1) Disassembly inspection of dummy load heater unit
- 2) Inspection of inlet valve, servomotor and speed changer unit
- 3) Inspection of generator & control panel and cleaning
- 4) Confirmation of operation method
- 6) Explanation of sequence control and diagram

4.2 O&M Manual in Hydropower

On the job Training for manual was also carried out by the JICA study team on the desk and using power point as follows.

Lecture of Sequence numbers for block diagram and connection diagrams,

- 1) Lecture of symbols, parts name and function for block diagram and connection diagrams,
- 2) Lecture of connection diagram and protection relays and circuit

4.3 Diesel power generating facilities

On the Job Training was carried out by the Japanese supervisor (Daihatsu diesel/ Mr. Bono) and JICA study team as follows.

- 1) For assembly and disassembly of overhaul work in accordance with Instruction manual and actual overhaul works
- 2) Adjustment of Valve clearance
- 3) Fuel nozzle test

Nozzle test using by special tools and pressure test pump were carried out.

A way of judgment for testing nozzle was instructed to operators.

- 4) Cooling water control and rust inhibitor
- 5) Measurement of maximum pressure for engine
- 6) Daily operation and maintenance.

In accordance with [O&M Manual for Diesel Engine] , following items were instructed to operators.

- (1) Lecture of trouble shooting
- (2) Lecture of Sequence diagram and drawings
- (3) Lecture of cleaning for fuel and lub. oil filters
- (4) Lecture of procurement of spare parts

The commercial staff of spare parts agent (from Singapore was dispatched to the site and explained how to proceeding the parts procurement and supervisor for overhaul work.

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5. Observation

As a result of inspection, there is no problem both hydro and diesel power stations with any defect or malfunction such as machine trouble or electrical failure, so on.

- 1) The 3 power stations, EOM have been contributed to supply the power continuously into Mondul Kiri power system in normal conditions since 2008.October 21 up to now.
- 2) Since the running hours were; O'Moleng 12,914 hours, O'Romis 14,439 hours and Diesel 7,156 hours in November 15th , 2010, respectively from initial operation.
- 3) EOM staff carried out the OJT together with supervisor according to all training items.
- 4) Inspection method for mechanical & electrical equipment has been transferred and data collection by EOM staff during periodic inspection. However, the staff of EOM shall study the O&M manual and final drawings/document for the future.
- 5) Lecture for electrical portion like soft ware engineering such as reading connection diagram and block diagram for sequence was carried out, the JICA study team expects to continue further study and understanding it.
- 6) EOM provided the budget and consumable goods for inspection work in accordance with the list of last periodic inspection. However, EOM/EDC shall quickly progress the procurement of overhaul parts for diesel engine, because it will take a month at least from new order.
- 7) Spare lubricating oil for replacement has been procured from EDC head office before

inspection starting in accordance with the oil list.

- 8) EOM provided a scheduled stoppage plan of the power system for customers due to the shortage of supplied power from hydropower stations in dry season.

Also, EOM staff has announced the outage plan to the all customers in Senmonorom city.

6. Comments on the O & M management

- 1) EOM staff has a good management for the spare parts registered with Inventory book, but using spare parts such as periodic inspection with overhaul work, shall procure and record into the inventory book for next inspection.

So, EOM staff has to make a plan of next periodic inspection and submit it to EDC head office to procure the spare parts and consumable parts as well as stoppage schedule for approval.

- 2) The plan of periodic inspection, EOM staff has made Work plan and outage plan for periodic inspection in accordance with O&M manual (Form-1, 3, 4, and 5).

- 3) The next periodic inspection shall be carried out

(1) As for hydropower station, the periodic inspection shall be planned once a year, however small inspection has to check a weekly and monthly in accordance with O&M Manual.

Inspection Item	Interval	Kind of Inspection
Weekly inspection	Every 2 weeks	Patrol and cleaning, etc.
Monthly inspection	Every 3 months	Visual inspection and grease up for generator bearing every 6 month, etc.
Periodic inspection	Once a year	1) Turbine disassembly and inside inspection 2) Change of turbine bearing grease every year. 3) Check lub. oil for speed changer every year, but if oil dirty, to change lub. oil. Normally, lub. oil shall be changed every 2 years. 4) Cleaning dummy load 5) Check of control panels

(2) As for Diesel power stations, the periodic inspection shall be carried out in accordance with running hours in the following table, and interval of filters cleaning/change shall be every 2,000 hours running of diesel engine.

Interval	Running Hours (h)	Kind of Inspection	Kind of Inspection
1 st Inspection	4,000-5,000	Top haul work	Check F.O nozzles and cleaning, etc. Change of water J.W line: 100l And to fill rust inhibitor: 4ml/litter = 400ml
2 nd Inspection	8,000-10,000	Overhaul work	Check piston/cylinder and cleaning, change lub. Oil and cooling water, etc. Change of water J.W line: 100l And to fill rust inhibitor: 4ml/litter = 400ml Change of Cooler water line: 400l and to fill rust inhibitor: 2ml/litter = 800ml
3 rd Inspection	12,000-14,000	Top haul work	Same as 1 st Inspection
4 th Inspection	16,000-18,000	Overhaul work	Same as 2 nd Inspection

4) This is a point and normal way for the periodic inspection in Japan that EOM/EDC shall arrange the supervisor from agent or original manufacture in order to overhaul work both hydro and diesel power stations, respectively. EOM/EDC must provide the budget for the supervisor fee in the yearly financial plan, 2011 in accordance with Chapter 3 Long & Medium Term Plan, Volume I in the O&M Manual.

Even if, EOM/EDC staff is able to carry out for small inspection such as weekly, monthly check without supervisor, but when overhaul work it is necessary to arrange the supervisor to prevent the trouble or damage of equipment during the work and in the future.

Attachment:

- 1) Photo of inspection and OJT
- 2) 4th Inspection report for Hydropower & Diesel generating facility
- 3) Work Plan for periodic inspection

-End-

**Photo of 4th Periodic Inspection (November 3 to 19, 2010, at EOM/EDC)
O'Romis Hydropower Station (Date: 13/11/2010)**



1. Disassembly work of turbine cover and



2. Cleaning of turbine bearings



3. Speed changer gear



4. Used ground packing



5. Cleaning of generator inside



6. Cleaning of flywheel cover

O'Moleng Hydropower Station (Date: 15 - 16/11/2010)



1. Disassembly work of turbine cover



2. Bending portions on runner vanes



3. Grease change for turbine bearings



4. Used turbine ground packing



5. Cleaning of speed changer



6. Inspection inside of speed gear



7. Change lub. oil for speed gear



8. Inside of generator (dirty condition)



7. Dummy load unit



8. Trial operation after inspection

Diesel Power Station (Date: 3 - 9/11/2010)



1. Preparation of spare parts



2. Disassembly of engine head cover



3. Disassembled engine parts



4. Disassembly of piston



5. Disassembled pistons



6. Disassembled connecting rods



7. Insertion of pistons



8. Assembled diesel engine



9. Inspection of cooler unit



10. Cleaning of oil filters



11. Trial operation after overhaul work



12. Post meeting of overhaul work



13. Training for inspection procedure/manual



14. On-the-job training