SHWE TAUNG CEMENT COMPANY LIMITED

BIANNUAL ENVIRONMENTAL MONITORING REPORT FOR WASTE HEAT RECOVERY SYSTEM

(11th June 2025 to 10th December 2025)

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၁.၁ အကျဉ်းချုပ်အစီရင်ခံစာ

မြန်မာနိုင်ငံတွင် စီးပွားရေးကဏ္ဍအမျိုးမျိုးကို ပိုင်ဆိုင်လုပ်ကိုင်လည်ပတ်လျက်ရှိသည့် Shwe Taung Group (STG) ၏ အစိတ်အပိုင်းတစ်ရပ်ဖြစ်သော Shwe Taung Cement Company Ltd. (STC) သည် မြန်မာနိုင်ငံ၊ မန္တလေးတိုင်းဒေသကြီး၊ သာစည်မြို့နယ်၊ ပြည်ညောင်ကျေးရွာတွင် တည်ရှိနေပြီးသော ဘိလပ်မြေစက်ရုံ၌ ဘိလပ်မြေတိုးချဲ့ထုတ်လုပ်မှုတစ်ရပ်ကို ဆောင်ရွက်ရန် စီစဉ်လျက်ရှိပါသည်။ ၎င်းသည် STC ၏ မီးသင့်ကျောက် ထုတ်လုပ်နိုင်စွမ်းကို တစ်ရက်ထုတ်လုပ်နိုင်မှု တန် ၁,၅၀၀ (tpd) မှ တန် ၅,၅၀၀ (tpd) ထိ တိုးချဲ့ပြီး ဘိလပ်မြေထုတ်လုပ်နိုင်စွမ်းကို တစ်ရက်ထုတ်လုပ်နိုင်မှု တန်ချိန် ၂,၈၀၀ (tpd) မှ တန် ၇,၂၀၀ (tpd) ထိ ပထမလိုင်းနှင့် ဒုတိယလိုင်းတို့၏ လည်ပတ်မှုတို့ဖြင့် တိုးချဲ့ထုတ်လုပ်နိုင်ရန် ရည်ရွယ်ပါသည်။ စုစုပေါင်းတပ်ဆင်မည့်စွမ်းအား ၈.၈ မီဂါဝပ်ရှိ စွန့်ပစ်အပူသုံးလျှပ်စစ်ဓာတ်အားထုတ်လုပ်ခြင်း (WHR) ယူနစ်နှစ်ခုကို STC ဘိလပ်မြေစက်ရုံ (WHR ယူနစ်များ တပ်ဆင်မည့်နေရာ) နှင့် ၎င်း၏ အထောက်အကူပြုနေရာ အဆောက်အအုံများ၏ တည်နေရာကို ပုံ ၁ တွင် ဖော်ပြထားပါသည်။

STC သည် စွန့်ပစ်အပူသုံး လျှပ်စစ်ဓာတ်အားထုတ်လုပ်ခြင်း စီမံကိန်းအတွက် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း အစီရင်ခံစာကို ၂၀၂၂ ခုနှစ်၊ ဇွန်လ ၁၀ ရက်နေ့တွင် ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်၊ သယံဇာတနှင့်သဘာဝ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန (MONREC) ၏ အတည်ပြုချက် ရရှိထားပြီး ၂၀၂၃ ခုနှစ်၊ မတ်လ၊ ၃၁ ရက်နေ့တွင် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ လိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ်ကို ရရှိထားပြီးဖြစ်ပါသည်။

သို့ဖြစ်ပါ၍ STC သည် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ဖော်ပြထားသော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ် (EMP) နှင့်အညီ ပတ်ဝန်းကျင်နှင့်လူမှုရေးဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးမှုကိစ္စရပ်များ (Environmental & Social Monitoring Program) ကို လိုက်နာဆောင်ရွက်ခဲ့ပြီး ယခုအခါတွင် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေနှင့် နည်းဥပဒေများ၊ ပတ်ဝန်းကျင် ထိန်းသိမ်းရေးဦးစီးဌာနမှ ချမှတ်ထားသော လုပ်ထုံးလုပ်နည်းများအတိုင်း ၁၁.၆.၂၀၂၅ ရက်နေ့မှ ၁၀.၁၂.၂၀၂၅ ရက်နေ့အထိ ဆောင်ရွက်ခဲ့သော ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်းအစီရင်ခံစာကို တင်ပြခြင်းဖြစ်ပါသည်။

STC သည် စီမံကိန်းကို ၂၀၁၉ ခုနှစ် ဇူလိုင်လမှ ၂၀၂၀ ခုနှစ် ဒီဇင်ဘာလအတွင်း ဆောက်လုပ်ခဲ့ပါသည်။ WHR သည် ၂၀၂၀ ခုနှစ် ဒီဇင်ဘာလမှ စတင်ကာ ဘိလပ်မြေထုတ်လုပ်မှုအတွက် လျှပ်စစ်ဓာတ်အားထုတ်လုပ်ပေးခဲ့ပြီး အစီရင်ခံသည့်ကာလ အတွင်း စုစုပေါင်း ၁၃,၃၇၂.၆၉ MWh ထုတ်ပေးနိုင်ခဲ့ပါသည်။

၁.၂ ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုခြင်း၏ ရည်ရွယ်ချက်

ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုခြင်းသည် ရွှေတောင်ဘိလပ်မြေစက်ရုံ၏ ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ဖော်ပြထားသော ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်များအတွင်း ပါရှိသော စီမံခန့်ခွဲမှုနှင့်လျော့ပါးရေး အစီအမံများ၏ ထိရောက်မှုကို အတည်ပြုနိုင်သော နည်းလမ်းတစ်ခု ဖြစ်ပါသည်။

(၁) ရွှေတောင်ဘိလပ်မြေစက်ရုံမှ ကျန်းမာရေး၊ လူမှုရေးနှင့် ပတ်ဝန်းကျင်ဌာန (HSE Department) ရှိ ပတ်ဝန်းကျင်ဆိုင်ရာ အင်ဂျင်နီယာများသည် အောက်ပါအတိုင်း ဆောင်ရွက်ရမည်။

- ပတ်ဝန်းကျင်နှင့်လူမှုရေးရာစီမံခန့်ခွဲမှုအစီအစဉ်များအတိုင်း လက်တွေ့အကောင်အထည်ဖော် လိုက်နာ ဆောင်ရွက်ရန်။
- ပတ်ဝန်းကျင်ဆိုင်ရာ စစ်ဆေးမှုများကို Checklist များဖြင့် လစဉ်ဆောင်ရွက်ရန်။
- ဓာတ်ခွဲခန်းတွင် ရေနမူနာနှင့် စမ်းသပ်မှုနည်းလမ်းများ လုပ်ဆောင်နေချိန်အတွင်း စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးရန်။
- စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှုကို အကောင်အထည်ဖော်ရာတွင် ကူညီစောင့်ကြပ်ကြည့်ရှုခြင်းနှင့်
- လေထုအရည်အသွေးစမ်းသပ်မှုရလဒ်များကို စောင့်ကြပ်ကြည့်ရှုခြင်းနှင့် လမ်းညွှန်ချက်များအတိုင်း လိုက်နာ ဆောင်ရွက်မှု ရှိမရှိ ပြန်လည်သုံးသပ်ရန်။

(၂) ပြန်လည်ပြင်ဆင်ရန်လိုအပ်သော တွေ့ရှိချက်များအားလုံးကို Environmental and Social tracker တွင် မှတ်တမ်းတင် ထားမည်ဖြစ်ပြီး ပြန်လည်ပြင်ဆင်ရန်အတွက် Environmental Manager မှ သက်ဆိုင်ရာဌာန အကြီးအကဲများထံသို့ အကြောင်း ကြားမည်ဖြစ်သည်။

(၃) ပတ်ဝန်းကျင်အရည်အသွေး (ရေထု၊ စွန့်ပစ်ရေနှင့် လေထု) စမ်းသပ်မှုရလဒ်များအားလုံးကို Environmental Manager မှ ပြန်လည်သုံးသပ်ခွဲခြမ်းစိတ်ဖြာရန်အတွက် စုစည်း၍ HSE ဌာနမှူးမှ အတည်ပြုမည် ဖြစ်သည်။

(၄) စွန့်ပစ်ပစ္စည်းအမျိုးအစားခွဲခြင်းနှင့် နောက်ဆုံးစွန့်ပစ်မှုအရစွန့်ပစ်အမှိုက်အားလုံးကို လစဉ်အစီရင်ခံစာအတွက် စွန့်ပစ်ပစ္စည်းစီမံခန့်ခွဲမှု matrix ထဲသို့ ထည့်သွင်းဖော်ပြသွားမည်ဖြစ်ပါသည်။

၁.၃ ကျန်းမာရေး၊ လူမှုရေးနှင့် ပတ်ဝန်းကျင် (HSE) ဌာန

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီရှိ HSE ဌာန၏ တာဝန်များမှာ အောက်ပါအတိုင်းဖြစ်သည်။

(၁) ရွှေတောင်ဘိလပ်မြေစက်ရုံ၏ အတည်ပြုထားသော ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာ၏ ပတ်ဝန်းကျင်ဆိုင်ရာ စီမံခန့်ခွဲမှုအစီအစဉ်များကို အကောင်အထည်ဖော်ရန်၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ စည်းမျဉ်းစည်းကမ်းများကို လိုက်နာဆောင်ရွက်ရန်၊ ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုခြင်း အစီရင်ခံစာ ရေးသားပြုစုရန်။

(၂) ပတ်ဝန်းကျင်ဆိုင်ရာ စောင့်ကြပ်ကြည့်ရှုခြင်းအစီအစဉ်အတွက် တတိယအဖွဲ့အစည်းများ၊ ကန်ထရိုက်တာများနှင့် အခြားအဖွဲ့အစည်းများအား ကြီးကြပ်ရန်။

(၃) ပတ်ဝန်းကျင်ထိခိုက်မှုကို စောင့်ကြည့်လေ့လာပြီး သက်ဆိုင်ရာစာရွက်စာတမ်းများကို အစီရင်ခံတင်ပြရန်။

(၄) သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာ အသိပညာများ မျှဝေခြင်းနှင့် သင်တန်းပေးခြင်းများ ပြုလုပ်ခြင်းဖြင့် ဝန်ထမ်းများ၏ စွမ်းဆောင်ရည်ကို မြှင့်တင်ရန်။

၁.၄ ပတ်ဝန်းကျင်ဆိုင်ရာ စွမ်းဆောင်ရည် အညွှန်းကိန်းများနှင့် စောင့်ကြပ်ကြည့်ရှုခြင်း အချိန်ဇယား

ရုပ်ပိုင်းဆိုင်ရာ၊ ဇီဝဗေဒနှင့် လူမှုပတ်ဝန်းကျင် စီမံခန့်ခွဲမှုအစိတ်အပိုင်းများကို စွမ်းဆောင်ရည်ညွှန်းကိန်းများအဖြစ် ခွဲခြားသတ်မှတ်ထားပါသည်။ စွမ်းဆောင်ရည်ညွှန်းကိန်းတစ်ခုစီအတွက် ပြီးပြည့်စုံသော စောင့်ကြပ်ကြည့်ရှုရေး အစီအစဉ်အား စီမံကိန်းအဆင့်အားလုံးအတွက် ပြင်ဆင်ထားပြီး ဇယား ၁ နှင့် ၂ တွင်ဖော်ပြထားပါသည်။

ထိုဇယားတွင် တိုင်းတာရမည့် သတ်မှတ်ချက်များ၊ အသုံးပြုရမည့် နည်းလမ်းများ၊ နမူနာကောက်ယူရမည့် တည်နေရာများ၊ တိုင်းတာမှု အကြိမ်ရေ၊ ဖော်ထုတ်မှု ကန့်သတ်ချက်များ၊ အကောင်အထည်ဖော်မှုနှင့် ကြီးကြပ်မှုအတွက် တာဝန်ဝတ္တရားများ ပါဝင်သည်။

စီမံကိန်း၏ ကျန်ရှိနေသော အကျိုးသက်ရောက်မှုများ၏ ခန့်မှန်းအဆင့်များ၊ စီမံခန့်ခွဲမှုအစီအစဉ်များနှင့် လျော့ပါးရေးအစီအမံများ၏ ထိရောက်မှုများကို အတည်ပြုနိုင်ရန် သက်ရောက်မှုစောင့်ကြပ်ကြည့်ရှုခြင်းကို စီမံကိန်းကာလအတွင်း ဆောင်ရွက်မည်ဖြစ်ပါသည်။

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီသည် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းလုပ်ထုံးလုပ်နည်းပါ သတ်မှတ်ချက်များအရ (၆)လလျှင် တစ်ကြိမ် သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန (MONREC) သို့ တင်ပြနိုင်ရန် ပတ်ဝန်းကျင်စောင့်ကြပ်ကြည့်ရှုမှုအစီရင်ခံစာကို ပြင်ဆင်ရမည်ဖြစ်သည်။

ဇယား၁ - စီမံခန့်ခွဲမှုလုပ်ငန်းများ (ကတိကဝတ်ဆိုင်ရာ ဇယား)

စဉ်	EIA အပိုင်း	ဖြစ်ပေါ်လာနိုင်သော သက်ရောက်မှုများ	လျှော့ချရေး အစီအမံများ	တာဝန်ရှိသည့် အုပ်စု	အစီရင်ခံခြင်း
တည်ဆောက်ရေးအဆင့်					
C1.1	6.3.2	ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများ	တည်ဆောက်ရေးလုပ်သားများမှ ထွက်ရှိသော စွန့်ပစ်ရေကို ဘိလပ်မြေစက်ရုံအတွင်းရှိ ရှိနေပြီးသော စွန့်ပစ်ရေသိုလှောင်မှု နှင့် သန့်စင်မှုဆိုင်ရာ အဆောက်အအုံများဖြင့် စနစ်တကျ ကိုင်တွယ်သွားမည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ ကန်ထရိုက်တာ HSE မန်နေဂျာ	ပတ်ဝန်းကျင် စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးမှု အစီရင်ခံစာ
C1.2	6.3.2	ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများ	လုပ်ငန်းခွင်အတွင်း စီးကျမှု နှင့် စွန့်ပစ်ရေ စွန့်ထုတ်မှုတို့နှင့်စပ်လျဉ်း၍ သန့်စင်ထားသည့် စွန့်ပစ်ရေကို အမျိုးသားပတ်ဝန်းကျင်အရည်အသွေး (ထုတ်လွှတ်မှုများ) ဆိုင်ရာ လမ်းညွှန်များနှင့်အညီ လစဉ် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးသွားမည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ ကန်ထရိုက်တာ HSE မန်နေဂျာ	ပတ်ဝန်းကျင် စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးမှု အစီရင်ခံစာ
C1.3	6.3.2	ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများ	ဖြစ်ပေါ်လာနိုင်သည့် ယိုဖိတ်မှုများကို ထိန်းထားနိုင်မည့် ကွန်ကရိတ်ခင်းပြီး ကာရံထားသည့် ရွေးချယ်သတ်မှတ်ထားသော ဓရိယာတွင် လောင်စာသိုလှောင်မှု နှင့် လောင်စာဖြည့်သွင်းမှုတို့ကို ဆောင်ရွက်သင့်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ ကန်ထရိုက်တာ HSE မန်နေဂျာ	ပတ်ဝန်းကျင် စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးမှု အစီရင်ခံစာ ယိုဖိတ်မှု တုံ့ပြန်ရေး အစီအစဉ်
လည်ပတ်ရေးအဆင့်					
O1.1	6.3.2	ရပ်ရွာမှ ရေအသုံးပြုမှုအပေါ် သက်ရောက်မှုများ	စွန့်ပစ်အပူသုံး လျှပ်စစ်ဓါတ်အား ထုတ်လုပ်ရေးစနစ်အတွက် ရေအသုံးပြုမှု လိုအပ်ချက်လျော့ချရန် လေဖြင့်အေးစေမှုကို အသုံးပြုပါသည်။	STC HSSE ဌာနခေါင်းဆောင် WHR ယူနစ်ဒီဇိုင်းအဖွဲ့	WHR ယူနစ် အသေးစိတ် ဖော်ပြချက်
O1.2	6.3.2	ရပ်ရွာမှ ရေအသုံးပြုမှုအပေါ်	STC သည် ဒေသခံရပ်ရွာလူထုတို့ အသုံးပြုသည့် ကူပြင်ချောင်း သို့မဟုတ်	STC HSSE	လစဉ် အစီရင်ခံစာ

စဉ်	EIA အပိုင်း	ဖြစ်ပေါ်လာနိုင်သော သက်ရောက်မှုများ	လျှော့ချရေး အစီအမံများ	တာဝန်ရှိသည့် အုပ်စု	အစီရင်ခံခြင်း
		သက်ရောက်မှုများ	အနီးအနားရေအရင်းအမြစ်နေရာများမှ ရေကို မယူရန် ကတိကဝတ် ထားရှိပါ သည်။ အကယ်၍ ကူပြင်ချောင်း သို့မဟုတ် အနီးအနားရေအရင်း အမြစ်နေရာများမှ ရေရယူရန်လိုအပ်လာပါက၊ ၎င်းကဲ့ သို့ ရယူမှုမပြုလုပ်မီ၊ STC သည် ကူပြင်ချောင်း နှင့် အနီးအနား ရေအရင်းအမြစ်နေရာများ၏ နှစ်စဉ် နှင့် ရာသီလိုက် ရေစီးဆင်းမှုပမာဏ နှင့် ရေစီးနှုန်းတို့ကို ဆန်းစစ် ရန် နှင့် ဒေသခံရပ်ရွာလူထုအပေါ် သက်ရောက်နိုင်မှုအပေါ် ထည့် ထွက်ရန် ကတိကဝတ်ပြုပါသည်။	ဌာနခေါင်းဆောင် STC ပတ်ဝန်းကျင် မန်နေဂျာ	
01.3	6.3.2	ရပ်ရွာမှ ရေအသုံးပြုမှုအပေါ် သက်ရောက်မှုများ	STC သည် နယ်မြေဧရိယာရှိ ထောက်ပံ့ရေအရည်အသွေးကို တိုးတက် ကောင်းမွန်စေရန် ကူပြင်ကျေးရွာ၌ ရေသန့်စင်ရေးစနစ်များကို ပံ့ပိုးကူညီ တပ်ဆင်ပေးထားပါသည်။	STC HSSE ဌာနခေါင်းဆောင် STC ပတ်ဝန်းကျင် မန်နေဂျာ	လစဉ် အစီရင်ခံစာ
01.4	6.3.2	ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများ	WHR ယူနစ်များလည်ပတ်မှုမှ ထွက်ရှိသော စွန့်ပစ်ရေကို ဘိလပ်မြေ စက်ရုံ၏ စွန့်ပစ်ရေသန့်စင်ရေး အဆောက်အအုံတို့တွင် သန့်စင်သွားမည် ဖြစ်ပါသည်။ စွန့်ပစ်ရေသန့်စင်မှုစနစ်များအား လုံးကို စွန့်ပစ်ရေ၊ စီးကျရေ၊ ရေဆိုး နှင့် မိလ္လာရေဆိုးစွန့်ထုတ်ခြင်း (အထွေထွေအသုံးပြုမှု) တို့အတွက် မြန်မာနိုင်ငံ အမျိုးသား ပတ်ဝန်းကျင် အရည်အသွေး (ထုတ်လွှတ်မှု) လမ်းညွှန်များနှင့်အညီ ဒီဇိုင်းဆင်သွားမည် ဖြစ်ပါသည်။	STC HSSE ဌာနခေါင်းဆောင် STC ပတ်ဝန်းကျင် မန်နေဂျာ	လစဉ် အစီရင်ခံစာ
01.5	6.3.2	ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများ	BOD၊ COD၊ pH၊ SS၊ ဆီ နှင့် ကြေးဆီ၊ TN၊ TP နှင့် ကြွင်းကျန် ကလိုရင်း တို့နှင့်ပတ်သက်၍ သန့်စင်ထားသော စွန့်ပစ်ရေတို့ကို NEQ နှင့် ကိုက်ညီမှု ရှိစေရန်အတွက် ဗဟိုသိုလှောင်ကန်တွင် လစဉ် စောင်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်းကို ဆောင်ရွက်သွားမည်ဖြစ်ပြီး၊ စွန့်ပစ်ရေ၊ စီးကျရေ၊ ရေဆိုး နှင့် မိလ္လာရေဆိုး စွန့်ထုတ်ခြင်း (အထွေထွေအသုံးပြုမှု) တို့နှင့်ပတ်သက်၍ NEQ ၏ ပါရာမီတာစာရင်းအပြည့်အစုံနှင့် ကိုက်ညီမှုရှိစေရန်အတွက် နှစ်စဉ် စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးသွားမည် ဖြစ်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ	လစဉ် အစီရင်ခံစာ

စဉ်	EIA အပိုင်း	ဖြစ်ပေါ်လာနိုင်သော သက်ရောက်မှုများ	လျော့ချရေး အစီအမံများ	တာဝန်ရှိသည့် အုပ်စု	အစီရင်ခံခြင်း
O1.6	6.3.2	ရေအရည်အသွေးအပေါ် သက်ရောက်မှုများ	ဇီဝအစိုင်အခဲများ နှင့် အနှစ်စွန့်ထုတ်မှုတို့အတွက် အန္တရာယ်မရှိသော အစိုင်အခဲ စွန့်ပစ်ပစ္စည်း စီမံခန့်ခွဲမှုအဆောက်အအုံသို့ မစွန့်ထုတ်မီ မြန်မာနိုင်ငံ NEQ နှင့် ကိုက်ညီမှုရှိစေရန် ယူနစ်များမှ ထွက်သည့် အနှစ်များကို ရေခန်းခြောက်အောင်ဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။ ဇီဝအစိုင်အခဲများ နှင့် အနှစ်စွန့်ထုတ်မှုတို့အတွက် NEQ နှင့်ကိုက်ညီမှုရှိစေရန် သိုလှောင်ကန်တစ်ခုချင်းမှ အနှစ်များကို နှစ်စဉ် စစ်ဆေးသွားမည် ဖြစ်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ	လစဉ် အစီရင်ခံစာ

ဇယား ၂ - စီမံကိန်းအတွက် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးမှုအစီအစဉ်

စီမံကိန်းလုပ်ငန်း / ပတ်ဝန်းကျင်ရှုထောင့်	စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးရေး အစီအမံများ	ကြိမ်နှုန်း	တာဝန်ရှိသူ
တည်ဆောက်ရေးအဆင့်			
မြေပေါ်ရေ အရည်အသွေး	လုပ်ငန်းခွင်အတွင်း စီးကျရေ နှင့် စွန့်ပစ်ရေ စွန့်ထုတ်မှုများနှင့်ပတ်သက်၍ အမျိုးသား ပတ်ဝန်းကျင် အရည်အသွေး (ထုတ်လွှတ်မှုများ) လမ်းညွှန်များနှင့် ကိုက်ညီမှုရှိစေရန် တည်ဆောက်ရေးလုပ်ငန်းများမှ သန့်စင်ထားသော စွန့်ပစ်ရေများကို လစဉ် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးသွားမည်ဖြစ်ပါသည်။ ပါရာမီတာတို့တွင် အောက်တို့ ပါဝင်သည် - • ဇီဝအောက်ဆီဂျင်ပါဝင်မှု - 30 mg/l • ဓာတုအောက်ဆီဂျင်ပါဝင်မှု - 125 mg/l • ဆီနှင့်ကြေးဆီ - 10 mg/l • pH - 6-9 (စံယူနစ်များ) • ဘက်တီးရီးယားပါဝင်မှု - 400 ml • နိုက်ထရိုဂျင်ပါဝင်မှု - 10 mg/l • ဖော့စဖရတ်ပါဝင်မှု - 2 mg/l • အစိုင်အခဲပါဝင်မှု - 50 mg/l	သန့်စင်ထားသော စွန့်ပစ်ရေများကို လစဉ် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးသွားမည် မည်ဖြစ်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ ကန်ထရိုက်တာ HSE မန်နေဂျာ

စီမံကိန်းလုပ်ငန်း / ပတ်ဝန်းကျင်ရှုထောင့်	စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးရေး အစီအမံများ	ကြိမ်နှုန်း	တာဝန်ရှိသူ
စွန့်ပစ်ပစ္စည်း	HSSE အဖွဲ့သည် ကန်ထရိုက်တာထံမှ လက်ခံရရှိသော လစဉ်စွန့်ပစ်ပစ္စည်း အစီရင်ခံစာများ (MWR) နှင့် MONREC သို့ စွန့်ပစ်ပစ္စည်းထွက်ရှိမှု နှင့် စွန့်ထုတ်မှု များဆိုင်ရာအစီရင်ခံစာတို့ကို ပြန်လည်သုံးသပ်သွားမည် ဖြစ်ပါသည်။	စွန့်ပစ်ပစ္စည်းများကို လစဉ် စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးသွားမည် ဖြစ်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ ကန်ထရိုက်တာ HSE မန်နေဂျာ
လည်ပတ်ရေးအဆင့်			
မြေပေါ်ရေ အရည်အသွေး	BOD၊ COD၊ pH၊ SS၊ ဆီ နှင့် ကြေးဆီ၊ TN၊ TP နှင့် ကြွင်းကျန် ကလိုရင်း တို့နှင့် ပတ်သက်၍ သန့်စင်ထားသော စွန့်ပစ်ရေတို့ကို NEQ နှင့် ကိုက်ညီမှု ရှိစေရန် အတွက် ဗဟိုတိုင်ကီတွင် လစဉ် စောင်ကြပ်ကြည့်ရှုစစ်ဆေးခြင်းကို ဆောင်ရွက်သွား မည်ဖြစ်ပြီး၊ စွန့်ပစ်ရေ၊ စီးကျရေ၊ ရေဆိုး နှင့် မိလ္လာရေဆိုး စွန့်ထုတ်ခြင်း (အထွေထွေအသုံးပြုမှု) တို့နှင့်ပတ်သက်၍ NEQ ၏ ပါရာမီတာစာရင်းအပြည့်အစုံနှင့် ကိုက်ညီမှုရှိစေရန်အတွက် နှစ်စဉ် စောင့်ကြပ်ကြည့်ရှု စစ်ဆေးသွားမည် ဖြစ်ပါသည်။ ပါရာမီတာတို့တွင် အောက်တို့ ပါဝင်သည် - • ဇီဝဓာတုအောက်ဆီဂျင်ပါဝင်မှု - 50 mg/l • အမိုးနီးယား – 10 mg/l • အာဆင်နစ် - 0.1 mg/l • ကက်ဒမီယံ - 0.1 mg/l • ဓာတုအောက်ဆီဂျင်ပါဝင်မှု - 250 mg/l • ကလိုရင်း (ကြွင်းကျင်ပါဝင်မှု) - 0.2 mg/l • ခရိုမီယမ် (ဟက်ဆာဗေးလင့်) - 0.1 mg/l • ခရိုမီယမ် (ပါဝင်မှု) - 0.5 mg/l • ကြေးနီ - 0.5 mg/l • ဆိုင်ယာနိုက် (မပါဝင်မှု) - 0.1 mg/l • ဆိုက်ယာနိုက် (ပါဝင်မှု) - 1 mg/l • ဖလူအိုရိုက်(ဒ်) mg/l – 20 mg/l • ကြေခဲသော သတ္တုများ (ပါဝင်မှု) – 10 mg/l • သံ - 3.5 mg/l • ခဲ - 0.1 mg/l	BOD၊ COD၊ pH၊ SS၊ ဆီ နှင့် ကြေးဆီ၊ TN၊ TP နှင့် ကြွင်းကျန်ကလိုရင်းတို့အတွက် သန့်စင်ထားသော စွန့်ပစ်ရေကို လစဉ် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးသွားမည် ဖြစ်ပါသည်။ စွန့်ပစ်ရေ၊ စီးကျရေ၊ ရေဆိုး နှင့် မိလ္လာရေဆိုး စွန့်ထုတ်ခြင်း (အထွေထွေအသုံးပြုမှု) တို့နှင့် ပတ်သက်၍ NEQ ၏ ပါရာမီတာစာရင်းအပြည့် အစုံနှင့် ကိုက်ညီမှုရှိစေရန်အတွက် သန့်စင်ထား သော စွန့်ပစ်ရေများကို နှစ်စဉ် စောင့်ကြပ် ကြည့်ရှု စစ်ဆေးသွားမည် ဖြစ်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ

စီမံကိန်းလုပ်ငန်း / ပတ်ဝန်းကျင်ရှုထောင့်	စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးရေး အစီအမံများ	ကြိမ်နှုန်း	တာဝန်ရှိသူ
	• ပြဒါး - 0.01 mg/l • နိကယ် - 0.5 mg/l • ဆီ နှင့် ကြေးဆီ – 10 mg/l • pH - 6-9 mg/l • ဖီးနော့ - 0.5 mg/l • ဆလီနီယံ - 0.1 mg/l • ဇွေ - 0.5 mg/l • ဆာလဖိုက် - 1 mg/l • အပူချိန်မြင့်တက်မှု - <3 °C • ဘက်တီးရီးယားပါဝင်မှု - 400 / 100 ml • ဖော့စဖရတ်ပါဝင်မှု - 2 mg/l • အစိုင်အခဲပါဝင်မှု – 50 • သွပ် – 2 mg/l		
မြေပေါ်ရေ အရည်အသွေး	ဇီဝအစိုင်အခဲများ နှင့် အနှစ်စွန့်ထုတ်မှုတို့အတွက် NEQ နှင့် ကိုက်ညီမှုရှိစေရန် အတွက် သိုလှောင်ကန်တခုချင်းမှ အနှစ်နမူနာများကို နှစ်စဉ်စစ်ဆေးသွားမည် ဖြစ်ပါ သည်။ ပါရာမီတာတို့တွင် အောက်တို့ ပါဝင်သည် - • အာဆင်နစ် – 75 mg/kg • ကက်ဒမီယံ – 85 mg/kg • ခရိုမီယံ (ပါဝင်မှု) - 3,000 mg/kg • ကြေးနီ - 4,300 mg/kg • ခဲ – 840 mg/kg • ပြဒါး – 57 mg/kg • မာလိဒီနမ် – 75 mg/kg • နိကယ် – 420 mg/kg • ဆလီနီယံ – 100 mg/kg	၌.နှစ်ကို နှစ်စဉ် စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးသွားမည် ဖြစ်ပါသည်။	STC ပတ်ဝန်းကျင် မန်နေဂျာ

စီမံကိန်းလုပ်ငန်း / ပတ်ဝန်းကျင်ရှုထောင့်	စောင့်ကြပ်ကြည့်ရှုစစ်ဆေးရေး အစီအမံများ	ကြိမ်နှုန်း	တာဝန်ရှိသူ
	• ဘက်တီးရီးယားပါဝင်မှု - 1,000 g • သွပ် - 7,500 mg/kg		
ရေအသုံးပြုမှု	STC သည် ဒေသခံရပ်ရွာလူထုတို့ အသုံးပြုသည့် ကူပြင်ချောင်း သို့မဟုတ် အနီးအနား ရေအရင်းအမြစ်နေရာများမှ ရေကို မယူရန် ကတိကဝတ် ထားရှိပါ သည်။ အကယ်၍ ကူပြင်ချောင်း သို့မဟုတ် အနီးအနားရေအရင်း အမြစ်နေရာများမှ ရေရယူရန်လိုအပ်လာပါက၊ ၎င်းကဲ့ သို့ ရယူမှုမပြုလုပ်မီ၊ STC သည် ကူပြင်ချောင်း နှင့် အနီးအနား ရေအရင်းအမြစ်နေရာများ၏ နှစ်စဉ် နှင့် ရာသီလိုက် ရေစီးဆင်းမှု ပမာဏ နှင့် ရေစီးနှုန်းတို့ကို ဆန်းစစ် ရန် နှင့် ဒေသခံရပ်ရွာလူထုအပေါ် သက် ရောက် နိုင်မှုအပေါ် ထည့် ထွက်ရန် ကတိကဝတ်ပြုပါသည်။	လိုအပ်မှသာ။	STC ပတ်ဝန်းကျင် မန်နေဂျာ

1. Introduction

1.1 Executive Summary

Shwe Taung Cement Company Ltd. (STC), part of the Shwe Taung Group (STG) which owns and operates a variety of businesses across various sectors in Myanmar, is planning a brownfield expansion of cement production at its existing cement plant in Pyi Nyaung Village, Thazi Township in the Mandalay region of Myanmar. It aims to expand STC's clinker production capacity from 1,500 tonnes per day (tpd) to 5,500 tpd and cement capacity from 2,800 tpd to 7,200 tpd. Two waste heat recovery (WHR) units with a total installed capacity of 8.8 MW, are installed respectively in both the first line and second line of the STC cement plant ("the WHR Project"). The location of the WHR Project is shown in Figure 1.

STC received the approval for the project of Waste Heat Recovery System on 10th June 2022, and received Environmental Compliance Certificate (ECC) on 31st March 2023 from Ministry of Natural Resources and Environmental Conservation (MONREC).Therefore, STC conducted environmental monitoring program in line with Environmental Management Plan and comply Environmental Conservation Law and Rules, the Procedure of ECD and submit this biannual environmental monitoring report for 11th June 2025 to 10th December 2025.

STC constructed the Project during July 2019 to December 2020. The WHR generated electricity for cement production since December 2020 and total 13,372.69 MWh was generated during the reporting period.

1.2 Purpose of Environmental Monitoring

Monitoring is a means of verifying the effectiveness of the management and mitigation measures contained within the management plans listed in STC IEE for WHR project.

1) The Environmental Engineers from HSE department of Cement Plant shall do the following:
   - Monitor and implement the this ESMP at site;
   - Conduct Environmental monthly inspection checklist audit;
   - Monitor laboratory personnel while conducting their water sampling and testing method;
   - Assist and monitor the implementation of Waste Management; and
   - Monitor and review the air emission test result for compliance recommendation.
2) All inspection checklist audit finding that needs rectification shall be recorded in Environmental and Social tracker and will be assigned by Environmental Manager to concerned department head for rectification.
3) All water, effluent and air emission test results will be compiled for review and analyses by Environmental Manager and approved by Head of HSE Department.
4) All generated waste according to their classification and final disposal will be entered to waste management matrix for monthly report.

1.3 Health, Social and Environment (HSE) Department

Shwe Taung Cement Co., Ltd. established HSE Department and responsibility of HSE Department are as follows.

1) Implementation of Environmental Management Plans of approved IEE report of STC WHR system, Comply Rules and Regulations of Environmental Conservation, report Environmental Monitoring
2) Supervise third party stakeholders, contractors and other organizations for environmental monitoring program
3) Monitoring environmental impact and report the relevant documents
4) Promote the ability of employees by conducting knowledge sharing training and awareness on environmental conservation.

1.4 Environmental Performance Indicators and Monitoring Schedule

Physical, biological and social environmental management components of particular significance have been identified as performance indicators. A comprehensive monitoring plan for each performance indicator has been prepared for all phases of the Project, presented in Table 1 and 2.

This includes the parameters to be measured, methods to be utilized, sampling locations, frequency of measurements, detection limits and responsibilities for implementation and supervision.

Impact monitoring will be undertaken during the life of the Project to verify the predicted levels of residual impacts from the Project and the effectiveness of the various management plans and mitigation measures.

STC will prepare an environmental monitoring report and submit to the Ministry of Natural Resources and Environmental Conservation, MONREC in every six months as per the EIA Procedure requirements.

Table 1 – Management Action (Commitment Table)

No.	EIA Section	Potential Impacts	Mitigation Measures	Responsible Party	Reporting
Construction Phase					
C1.1	6.3.2	Impacts to water quality	Wastewater generated from the construction workers will be handled properly by the existing wastewater storage and treatment facilities within the cement plant.	STC Environmental Manager Contractor HSE Manager	Environmental Monitoring Report
C1.2	6.3.2	Impacts to water quality	Treated wastewater will be monitored monthly for compliance with the National Environmental Quality (Emissions) Guidelines for site runoff and wastewater discharges.	STC Environmental Manager Contractor HSE Manager	Environmental Monitoring Report
C1.3	6.3.2	Impacts to water quality	Fuel storage and refuelling should be undertaken at designated area which are concrete-paved and bunded to contain any potential spill.	STC Environmental Manager Contractor HSE Manager	Environmental Monitoring Report Spill Response Plan
Operation Phase					
O1.1	6.3.1	Impacts on water use by community	The waste heat recovery system is air-cooled to reduce the requirement of water usage.	STC HSSE Department Head WHR Unit Design Team	WHR Unit Specification
O1.2	6.3.1	Impacts on water use by community	STC is committed not to extract any water from the Kubyin Stream or any nearby water bodies used by the local communities for use by the Project. If it is required to extract water from the Kubyin Stream or any water bodies, STC is committed to assess the annual and seasonal water flow volume and speed of Kubyin Stream or any water bodies and	STC HSSE Department Head STC Environmental Manager	Monthly Report

No.	EIA Section	Potential Impacts	Mitigation Measures	Responsible Party	Reporting
			address potential impacts to the local community before such extraction.		
O1.3	6.3.1	Impacts on water use by community	STC has sponsored and installed water purification systems in Kubyin Village to improve the water supply quality at the area.	STC HSSE Department Head STC Environmental Manager	Monthly Report
O1.4	6.3.2	Impacts to water quality	Wastewater generated from the operation of the WHR units will be treated by the wastewater treatment facilities of the cement plant. All wastewater treatment systems will be designed to comply with Myanmar National Environmental Quality (Emissions) Guidelines for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application).	STC HSSE Department Head STC Environmental Manager	Monthly Report
O1.5	6.3.2	Impacts to water quality	Treated wastewater will be monitored monthly at the centralized tank for compliance with the NEQ on BOD, COD, pH, SS, oil and grease, TN, TP and residual chlorine and monitored annually for compliance with the full list of parameters on the NEQ for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application).	STC Environmental Manager	Monthly Report
O1.6	6.3.2	Impacts to water quality	Sludge generated from the units will be dewatered to meet with the Myanmar NEQ for Biosolids and Sludge Disposal before disposal to the non-hazardous solid waste management facility. Sludge samples from each modular tank will be checked yearly for compliance with the NEQ for Biosolids and Sludge Disposal.	STC Environmental Manager	Monthly Report

Table 2 - Monitoring Programme for Project

Project Activity/ Environmental Aspect	Monitoring Measures	Frequency	Responsibility
Construction Phase			
Surface Water Quality	Treated wastewater from construction activities will be monitored monthly for compliance with the National Environmental Quality (Emissions) Guidelines for site runoff and wastewater discharges. The parameters will include: • Biological oxygen demand - 30 mg/l • Chemical oxygen demand - 125 mg/l • Oil and grease - 10 mg/l • pH - 6-9 (standard units) • Total coliform bacteria - 400 ml • Total nitrogen - 10 mg/l • Total phosphorus - 2 mg/l • Total suspended solids - 50 mg/l	Treated wastewater will be monitored monthly.	STC Environmental Manager Contractor HSE Manager
Waste	The HSSE team will review the Monthly Waste Reports (MWR) received from the contractor and report waste generation and disposal to MONREC.	Waste will be monitored monthly.	STC Environmental Manager Contractor HSE Manager
Operational Phase			
Surface Water Quality	Treated wastewater will be monitored monthly at the centralized tank for compliance with the NEQ on BOD, COD, pH, SS, oil and grease, TN, TP and residual chlorine and monitored annually for compliance with the full list of parameters on the NEQ for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application). The parameters will include: • Biochemical oxygen demand- 50 mg/l • Ammonia – 10 mg/l • Arsenic - 0.1 mg/l	Treated wastewater will be monitored monthly for BOD, COD, pH, SS, oil and grease, TN, TP and residual chlorine. Treated wastewater will be monitored annually for the full list of parameters on the NEQ for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application)	STC Environmental Manager

Project Activity/ Environmental Aspect	Monitoring Measures	Frequency	Responsibility
	• Cadmium - 0.1 mg/l • Chemical oxygen demand - 250 mg/l • Chlorine (total residual) - 0.2 mg/l • Chromium (hexavalent) - 0.1 mg/l • Chromium (total) - 0.5 mg/l • Copper - 0.5 mg/l • Cyanide (free) - 0.1 mg/l • Cyanide (total) - 1 mg/l • Fluoride mg/l – 20 mg/l • Heavy metals (total) – 10 mg/l • Iron - 3.5 mg/l • Lead - 0.1 mg/l • Mercury - 0.01 mg/l • Nickel - 0.5 mg/l • Oil and grease – 10 mg/l • pH - 6-9 mg/l • Phenols - 0.5 mg/l • Selenium - 0.1 mg/l • Silver - 0.5 mg/l • Sulphide - 1 mg/l • Temperature increase - <3 °C • Total coliform bacteria - 400 / 100 ml • Total phosphorus - 2 mg/l • Total suspended solids – 50 • Zinc – 2 mg/l		
Surface Water Quality	Sludge samples from each modular tank will be checked yearly for compliance with the NEQ for Biosolids and Sludge Disposal. The parameters will include: • Arsenic – 75 mg/kg • Cadmium – 85 mg/kg	Sludge will be monitored annually.	STC Environmental Manager

Project Activity/ Environmental Aspect	Monitoring Measures	Frequency	Responsibility
	• Chromium (total) - 3,000 mg/kg • Copper - 4,300 mg/kg • Lead – 840 mg/kg • Mercury – 57 mg/kg • Molybdenum – 75 mg/kg • Nickel – 420 mg/kg • Selenium – 100 mg/kg • Total coliform bacteria - 1,000 g • Zinc - 7,500 mg/kg		
Water Use	STC is committed not to extract any water from the Kubyin Stream or any nearby water bodies used by the local communities for use by the Project. If it is required to extract water from the Kubyin Stream or any water bodies, STC is committed to assess the annual and seasonal water flow volume and speed of Kubyin Stream or any water bodies and address potential impacts to the local community before such extraction.	If required.	STC Environmental Manager

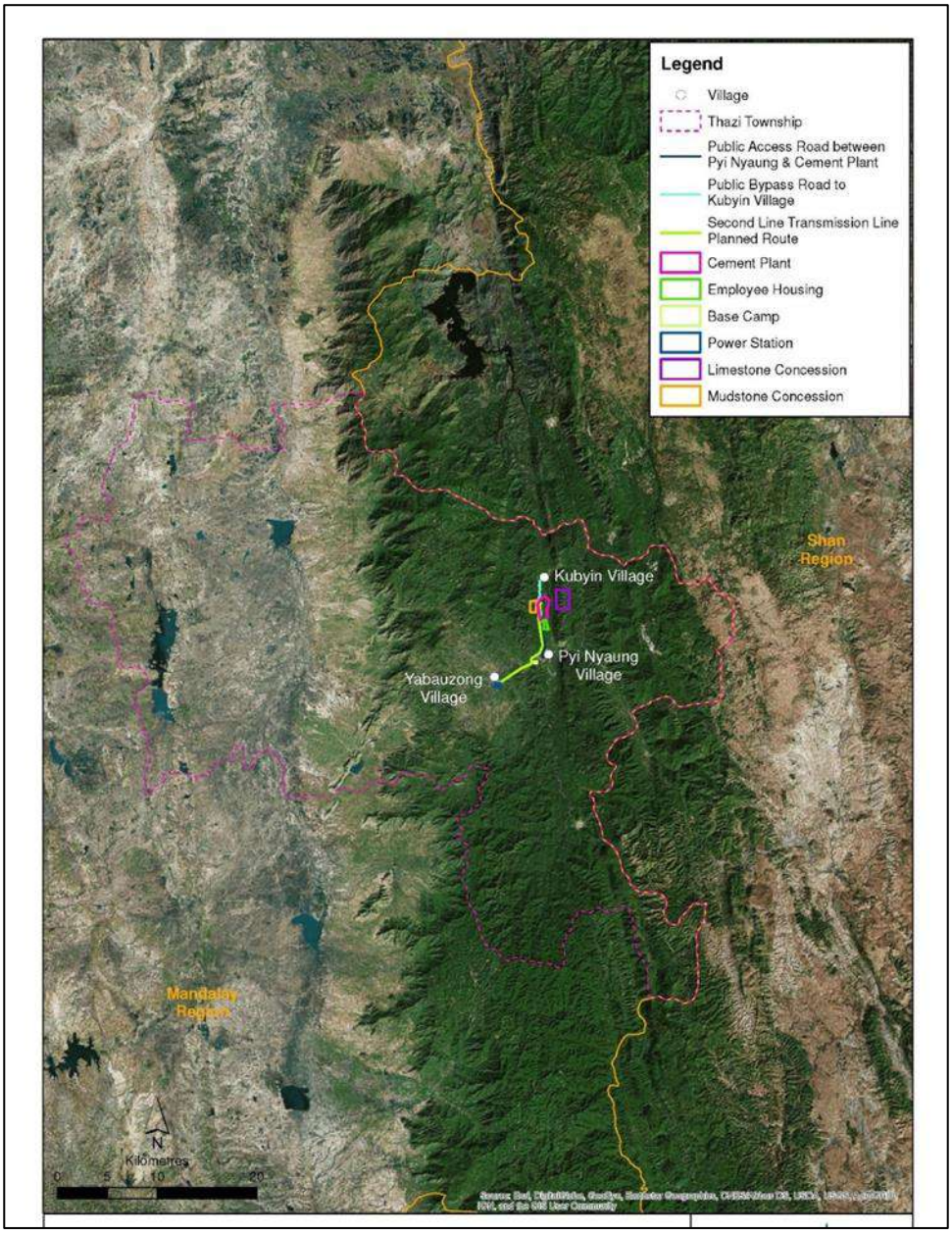
2. Project Information

2.1 Project Location

The STC WHR system is installed at the STC cement plant, which is located in a brownfield area of 455 acres in Thazi Township, Pyi Nyaung Village and Kupyin Area within the Mandalay Region.

The cement plant is situated in a valley surrounded by a mudstone quarry to the west and a limestone quarry to the east, which falls within the Tha Pyae mountain range (Figure 1).

Figure 1. Location of STC Cement Plant



2.2 Project Description

In the dry process clinker production line of the STC cement plant, there is a great quantity of waste heat in preheater and cooler exhaust gas which can be recovered via special WHR boiler. It can further generate steam to drive turbine to transfer heat energy to mechanical energy, finally driving the power generator to produce electricity used for the clinker production line. The WHR system STC is used the Steam Rankine Cycle (SRC). The system uses water as the working fluid and involves generating steam in a waste heat boiler, which then drives a steam turbine. shows the flow diagram and Figure 2 shows the general layout of WHR System installed in STC's cement plant. The steam produced by the PH and AQC boilers is utilized by the steam turbine to generate electric power. Two waste heat recovery units will be respectively installed on the first line and second line of the STC cement plan. The units have a total installed capacity of 8.8 MW. The WHR Project adopted pure low temperature waste heat to generate electricity without additional fuel furnace. As such, there is no air emission source. The boiler is static equipment and will not generate noise. Main noise source is dynamic equipment like turbine, generator and pumps, etc.

During the reporting period of 11th June 2025 to 10th December 2025, WHR system is operating stage.

Figure - 2: Flow Diagram of WHR System in STC Cement Plant

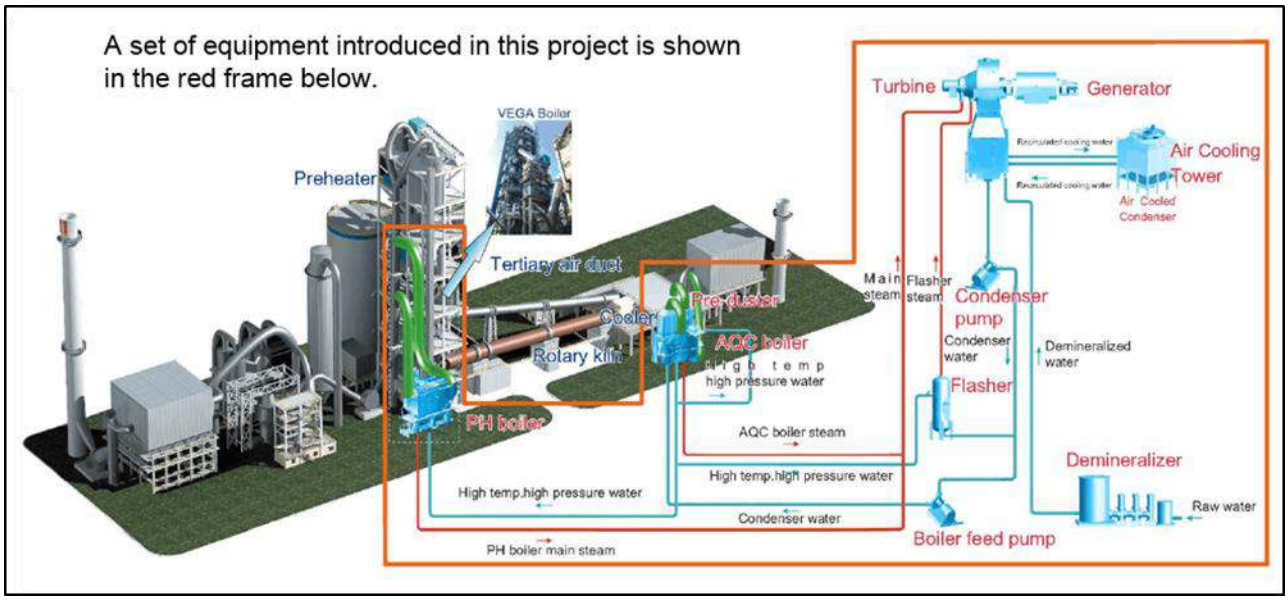


Figure – 3: WHR System in STC Cement Plant

3. Environmental Monitoring Program

3.1 Water Quality Monitoring

Monitoring of water quality regularly is quite necessary for the assessment of water quality for beneficial purposes. Operation is dry process and do not generate wastewater. Sanitary wastewater from office and household are discharged to bio tank and treated wastewater are monitored in compliance with the NEQEG on BOD, COD, pH, SS, oil & grease, TN & TP.

3.1.1 Monitoring Location

As part of the monitoring program, STC conducts monthly water quality monitoring of WHR wastewater, Sedimentation Pond 7 effluent, and biotank effluent to assess the quality of treated wastewater discharge. STC also monitors the quality of supply water from the lower reservoir to ensure occupational health and safety. Figure 4 presents the locations of the water quality sampling points. Monitoring parameters are based on the WHO Drinking Water Guidelines, IFC Effluent Discharge Standards, and the National EQEG.

In addition, Sedimentation Pond 7 and biotank effluent are subject to annual monitoring for the full list of parameters specified in the National Environmental Quality (Emission) Guidelines for wastewater, stormwater, runoff, effluent, and sanitary discharges (General Application). For this purpose, water samples have been collected and analyzed by an accredited external laboratory. The detailed results are provided in Appendix B5 and Appendix B7.

In accordance with commitments outlined in the ECC, STC also monitors the pH level of the first rainwater (first flush) at the onset of the rainy season to address community concerns regarding potential environmental impacts of the project. The pH level is 6 which is in line with national surface water quality guideline for class III. The monitoring results is available in Appendix B8.

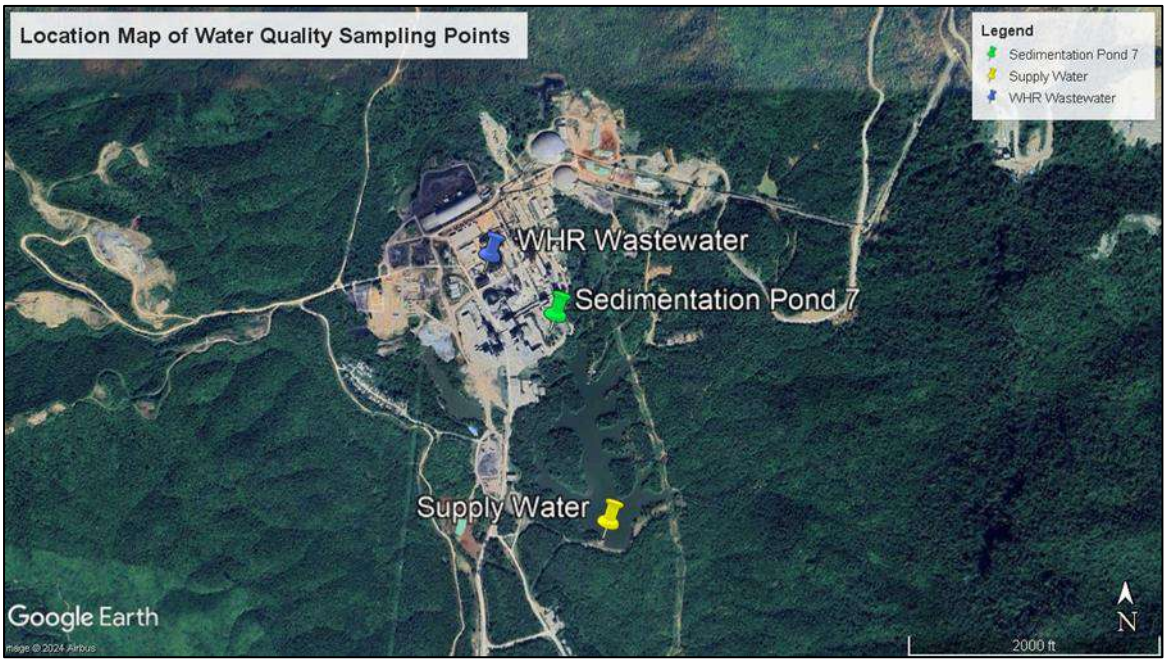
Furthermore, sludge samples from bio tank are tested annually to ensure compliance with NEQEG standards for biosolids and sludge disposal. The corresponding test results are included in Appendix B9.

Table – 3: Water Quality Sampling locations

No	Sampling Location	Latitude	Longitude
1	Supply Water	20°51'35.3"N	96°23'37.7"E
2	WHR Waste Water	20°52'2.13"N	96°23'24.95"E
3	Sedimentation Pond 7 Effluent	20°51'56.21"N	96°23'32.01"E
4	Biotank Effluent	20°50'51.17"N	96°23'45.02"E

3.1.1.1 Location Map of Water Quality Sampling Points

Figure – 4: Overview Map of sampling point for Supply Water and Sedimentation Pond Water Quality



3.1.2 Monitoring Result for Water Quality

Table – 4: Supply Water Quality Monitoring Result

Lower Reservoir Supply Water Analysis									
ITEM	**WHO Drinking Water Guideline**	**EQEG Guide line**	**Baseline Results**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Nov 2025**
pH	6.5 – 8.5	6 - 9	7.6	7.6	7.7	7.8	7.6	7.3	7.3
Color	15 PCU	-	-	**45**	**25**	15	15	**25**	15
Turbidity	5 NTU	-	-	**6.17**	**5.38**	1.48	**5.22**	**10.1**	2.87
Calcium hardness	500 mg/l	-	-	*	*	*	*	*	*
Chloride (Cl)	250 mg/l	-	-	*	*	*	*	*	*
Sulphate (SO4)	200 mg/l	-	-	*	*	*	*	*	*
TSS	50 mg/l	50 mg/l	11	19	17	15	16	26	10
Nitrate	50 mg/l	-	-	3.3	*	*	*	*	*
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. During the rainy season, heavy rainfall increases surface runoff, carrying soil and sediments into the reservoir. This causes higher turbidity, and color levels.									

** Not for drinking water. No effect for Health & Environment.*

Table – 5: WHR Wastewater Test Results

WHR Wastewater Test Results									
Parameters	**IFC Waste Water Guideline**	**EQEG Guide line**	**Baseline Results**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Nov 2025**
pH	6 ~ 9	6 ~ 9	-	7.5	7.3	7.2	7.1	7.6	7.4
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	-	*	*	*	*	*	*
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	-	*	*	*	*	*	*
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	-	7.0	8.0	3.0	20	24	23
Total Nitrogen	10 mg/l	10 mg/l	-	1.54	*	*	*	*	*
Total Nitrate	44.29 mg/l	-	-	6.8	*	*	*	*	*
Total Phosphorous	2 mg/l	2	-	*	*	*	*	*	*
Oil and grease	10 mg/l	10 mg/l	-	*	*	*	*	*	*
Remark: According to the current situation in Myanmar, there is an issue to buy some chemical reagent to analyze some water quality parameters. Therefore, we express as "*" for "No stock of chemical reagents"									

** Not for drinking water. No effect for Health & Environment.*

Table – 6: Sedimentation Pond Effluent Test Result

Sedimentation Pond 7 Effluent Water Test Result									
Parameters	**IFC Waste Water Guideline**	**EQEG Guide line**	**Baseline Results**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Nov 2025**
pH	6 ~ 9	6 ~ 9	-	8.8	8.1	7.6	7.6	8.3	7.6
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	-	*	*	*	*	*	*
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	-	*	*	*	*	*	*
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	-	17	13	15	18	8	5
Total Nitrogen	10 mg/l	10 mg/l	-	0.34	*	*	*	*	*
Total Nitrate	44.29 mg/l	-	-	1.5	*	*	*	*	*
Total Phosphorous	2 mg/l	2	-	*	*	*	*	*	*
Oil and grease	10 mg/l	10 mg/l	-	*	*	*	*	*	*
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. Sedimentation Pond 7 effluent results from external laboratory are attached in Appendix-B5.									

Table – 7: Bio Tank Effluent Discharge to Sedimentation Pond 9

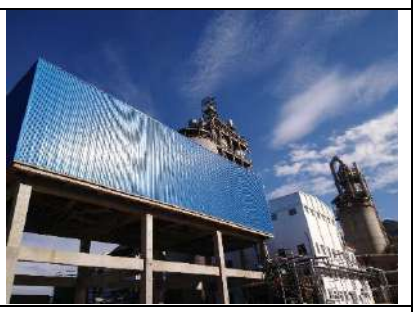
Bio Tank Effluent Discharge to Sedimentation Pond 9									
Parameters	**IFC Waste Water Guideline**	**EQEG Guide line**	**Baseline Results**	**Jun 2025**	**Jul 2025**	**Aug 2025**	**Sep 2025**	**Oct 2025**	**Nov 2025**
pH	6 ~ 9	6 ~ 9	-	6.9	7.6	7.9	7.5	8.3	8.5
Chemical Oxygen Demand (COD)	0~125 mg/l	125 mg/l	-	*	*	*	*	*	*
Biological Oxygen Demand (BOD)	0~30 mg/l	30 mg/l	-	*	*	*	*	*	*
Total Suspended Solid (TSS)	Max 50 mg/l	50 mg/l	-	**113**	29	24	22	**106**	**145**
Total Nitrogen	10 mg/l	10 mg/l	-	*	*	*	*	*	*
Total Nitrate	44.29 mg/l	-	-	*	*	*	*	*	*
Total Phosphorous	2 mg/l	2	-	*	*	*	*	*	*
Oil and grease	10 mg/l	10 mg/l	-	*	*	*	*	*	*
Remark: The symbol "*" express as **unavailability of chemical reagents** in Myanmar. Occasional high TSS values were observed due to sludge carryover and operational fluctuations. Biotank Effluent water results from external laboratory are attached in Appendix-B7 and Sludge results from external laboratory are attached in Appendix-B9.									

** Not for drinking water. No effect for Health & Environment.*

Laboratory results for water quality are attached in Appendix-B.

3.1.3 Water Quality Mitigation Measures

Table – 8: Water Quality Management

Affected Aspect	Mitigation Measures	Action Taken	Photos
Surface Water Quality and Quantity	• The waste heat recovery system is air-cooled to reduce the requirement of water usage.	Installed and operating air-cooled system.	
	• STC is committed not to extract any water from the Ku Pyin Stream or any nearby water bodies used by the local communities for use by the Project. If it is required to extract water from the Ku Pyin Stream or any water bodies, STC is committed to assess the annual and seasonal water flow volume and speed of Ku Pyin Stream or any water bodies and address potential impacts to the local community before such extraction.	Water is currently sourced from two reservoirs situated within the cement plant area, with capacities of 6 million US gallons (equivalent to approximately 22,712 m3) and 45 million US gallons (equivalent to approximately 170,343 m3), respectively.	
	• STC has sponsored and installed water purification systems in Ku Pyin Village to improve the water supply quality at the area.	STC has supported the Drinking Water Purification Plant of Ku Pyin village in 2017, inspects and maintains the plant every month.	

	• Wastewater generated from the operation of the WHR units will be treated by the wastewater treatment facilities of the cement plant. All wastewater treatment systems will be designed to comply with Myanmar National Environmental Quality (Emissions) Guidelines for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application).		
	• Treated wastewater will be monitored monthly at the centralized tank for compliance with the NEQ on BOD, COD, pH, SS, oil and grease, TN, TP and residual chlorine and monitored annually for compliance with the full list of parameters on the NEQ for Wastewater, Storm Water Runoff, Effluent and Sanitary Discharges (General Application).	Please see the water monitoring results of external lab in Appendix-B.	
	• Sludge generated from the units will be dewatered to meet with the Myanmar NEQ for Biosolids and Sludge Disposal before disposal to the non-hazardous solid waste management facility. Sludge samples from each modular tank will be checked yearly for compliance with the NEQ for Biosolids and Sludge Disposal.	There is no sludge generated from WHR units.	

3.1.4 Evaluation

The establishment of sewage and sanitary waste management and storm water management is executing in plant site. Since the dry process is used for the cement production and the second line is also adopted a similar dry process as the first line, do not generate wastewater from first line and second line production. Discharge sanitary wastewater from plant office and household accommodation are diverted for treatment at the wastewater treatment plant. Treated wastewater from water treatment plant are monitored monthly in compliance with the NEQEG guideline.

Elevated color and turbidity levels were mainly associated with increased runoff during the rainy season. Mitigation measures include regular cleaning and maintenance of storage tanks and distribution pipelines to prevent sediment accumulation. Continuous monitoring and operational adjustments are implemented to ensure compliance with surface water quality standards. Occasional high TSS values in biotank effluent were observed due to sludge carryover and operational fluctuations. Mitigation measures include optimization of biotank operating conditions, regular sludge removal, routine inspection and cleaning of settling tanks, and increased monitoring with timely corrective actions.

3.2 Noise Monitoring

The nearest representative noise sensitive receptors (NSRs) that may potentially affect by the noise impact due to the Project are identified as 55 Acre Worker Accommodation area. STC operate noise monitoring twice a year and results are shown in Table-9 below:

3.2.1 Location Map of Noise Quality Monitoring Points

Figure – 5: Noise Quality Sampling Points

Table – 9: Noise Monitoring Results in Worker Accommodation

Noise Monitoring Results								
Machine Name: KIMO LDB 23						Operator: Nay Hlaing Oo		
Location	ECD/ WHO / IFC Guideline					Test Result		Remark
	NEQEG and IFC Noise Level Guideline, dB(A)		Baseline Noise Levels, dB(A)		Receptor	Day (07:00 – 22:00 hrs), dB (A)	Night (22:00 – 07:00 hrs) dB (A)	
	Day	Night	Day	Night				
Worker Accommodation	55	45	-	-	Residential	52.81	50.21	-

3.2.2 Evaluation

Noise monitoring was conducted at 55 Acre worker accommodation area using a calibrated Sound Level Meter (Model: KIMO LDB 23). The monitoring aimed to assess compliance with the Myanmar National Environmental Quality (Emission) Guidelines for both residential and industrial areas. Noise monitoring at the Worker Accommodation area shows that the daytime noise level remains within the NEQEG/IFC guideline limit of 55 dB(A). However, the nighttime noise level exceeds the guideline limit of 45 dB(A), this increase may be linked to heavy rainfall in monitoring period.

3.3 Waste Management Monitoring

3.3.1 Generation of Non- Hazardous Waste

In Shwe Taung Cement Factory, collect non-hazardous waste generated from plant site and accommodation area every day and dispose them to Temporary Non-hazardous Storage Area. For kitchen wastes, compost or use as animal feed in nearby villages. On the other hand, dispose laboratory and clinical wastes to Meikhtila Incinerator, Meikhtila District, Mandalay Region, approved by Meikhtila City Development Committee and have plan to dispose hazardous wastes to Golden Dowa Eco-system Myanmar Co., Ltd., Accredited Waste Management Company. Figure 7 and 8 show location map of waste disposal area and waste collection points.

Figure – 6: Location Map of Collection Points of All Generated Wastes from Plant Site and Accommodation Area

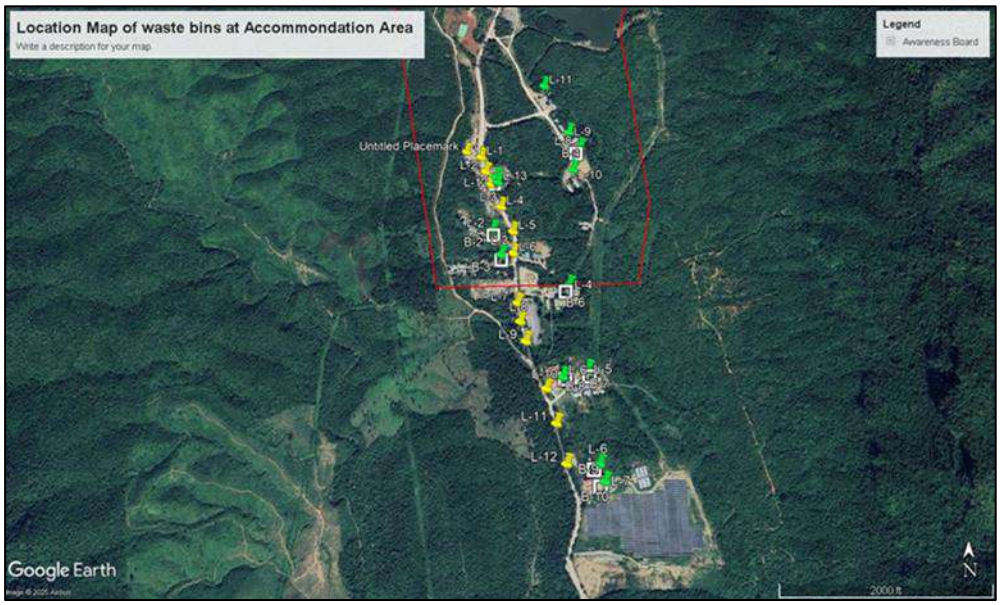


Figure – 7: Location Map of Disposal Sites for Waste from Plant and Accommodation Area

Figure – 8: Location Map of Site Waste Dumping Area (Scrap Yard)

Table – 10: Generated Non-Hazardous Waste

STC Non-hazardous Waste Generated from November 2024 to April 2025				
Month	**Generated Waste (kg)**	**Reduction waste (kg)**	**Landfill Waste (kg)**	**Remark**
June 2025	20,780	3,179	17,601	Disposed to Temporary Non-hazardous Solid Waste Storage Area
July 2025	23,840	3,062	20,778	
August 2025	25,100	3,864	21,236	
September 2025	16,000	4,747	11,254	
October 2025	22,060	2,746	19,314	
November 2025	14,560	3,550	11,010	

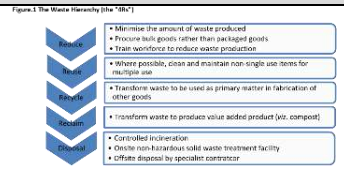
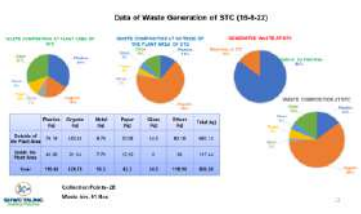
3.3.2 Generation of Hazardous Waste

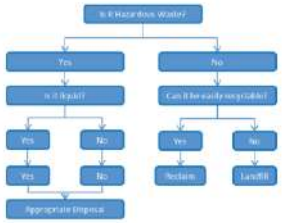
Table – 11: Generated Hazardous Waste

STC Generated Hazardous Waste						
Sr.	**Date**	**Type of Waste**	**Quantity**	**Amount (kg)**	**Treatment Facility**	**Remarks**
1	26 June 2025	Clinical, Laboratory and Contaminated Oil rags	-	1480 kg	Meikhtila Municipal Incinerator	Disposal
2	5 Dec 2025	Clinical, Laboratory and Contaminated Oil rags	-	400 kg	Meikhtila Municipal Incinerator	Disposal

3.3.3 Waste Management Mitigation Measures

Table – 12: Waste Management Mitigation Measures

Affected Aspect	Mitigation Measures	Action Taken	Photos
Waste Management	A waste management plan (WMP) for the project has been developed that include the following as a minimum:	Approved waste management plan	
	• A waste inventory should be created to establish the types of wastes;	Established (dispose Non-hazardous waste to Temporary N-H Solid Waste Storage area whereas Hazardoous waste will be disposed to DOWA, accredited waste management company. Clinical and Laboratory waste are disposed to Meikhtila Incinerator, approved for disposal by Meikhtila City Development Committee)	 

	• Identify disposal routes (including transport options and disposal sites) for all wastes generated;	Identified waste streams (See Figure-11 & 12 for waste collection point and disposal site)	
	• Segregate wastes and recycle wherever possible;	Segregated scrap materials for resale and reuse (See Figure-13 for Scrap Yard Area)	 
	• Hazardous wastes should be segregated and disposed separately from non-hazardous wastes using a license contractor;	Hazardous waste treatment by DOWA and non-hazardous waste, municipal waste disposed at Temporary Non-hazardous solid waste storage area. Medical and laboratory waste dispose to Meikhtila Incinerator, approved by Meikhtila City Development Committee)	
	• Hazardous wastes shall be labelled and stored in sealed containers that are stored on bunded hardstand. Hazardous wastes that are unsuitable for disposal in the cement kiln (such as waste oil drums) shall be returned to the manufacturer or trucked to Mandalay for appropriate disposal at a hazardous waste facility;	Hazardous waste is collected and deposed to dispose to Meikhtila Incinerator, approved by Meikhtila City Development Committee.	 
	• Waste oil should be used for kiln start-up;	Resale by Warehouse Department (WHS)	
	• Organic waste for composting or use as animal feed in nearby villages;	Organic waste (vegetables waste) are collected and composed to use as a fertilizer. Organic waste (food waste) are collected by locals for as animal feed.	

	• Waste suitable for use as fuel should be considered; and	Used waste oil resale to local merchant	
	• The existing landfill is not lined and should be only used for inert (non-reactive) and non-hazardous waste only.	Implemented (Constructed Old Temporary Non-hazardous solid storage area for disposing Non-hazardous waste and operated it from 2012 to June 2019. Replantation in old place after closure. After inspection of New Temporary Non-hazardous solid storage area from ECD and governmental organizations in 5 July 2019, operate that one until now.)	 Constructed Temporary Solid Non-hazardous wastes storage equipped with clay liner.  Temporary Solid Non-hazardous wastes storage inspected by ECD and other government entities for the approval of EIA.

3.3.4 Evaluation

Implementing principles of the waste hierarchy in the most responsible manner (reduce, reuse, recycle, reclaim, dispose) in the plant site by conducting in-house training for hazardous and non-hazardous waste management, tool box talk, delivering pamphlet, offering waste bin in each plant site department and accommodation area, undertaking simultaneous mass housekeeping campaigns occasionally, using waste manifest form, daily conducting housekeeping in the site and surrounding area to get awareness on waste reduction, segregation, collection and disposal practices that avoid impacts on the physical, biophysical and social environments.

Figure – 9: Training Record

4. Corporate Social Responsibility

STC cement plant implements Corporate Social Responsibility (CSR) to communities and release newsletter in quarterly, see in Appendix-C.

5. Occupational Health and Safety

Workers are at risk of occupational health and safety incidents. Such incidents may be linked to the physical environment in which they operate, the procedures they have to abide by or the on-site health and safety culture.

Shwe Taung has existing occupational health and safety policies and procedures in place at the mudstone quarry and these are applicable for the expansion project. These procedures include requirements in terms of operational safety (blasting, excavator, ladder, crane and forklift management, working at height, personal protective equipment use, lifting operation, emergency management, etc.). With the support of the IFC, STC has retained international consultants to assist with the review, update and implementation of its occupational health and safety procedures.

5.1 Fire Safety Measures

In compliance with the directives of the Myanmar Fire Services Department, STC has implemented a series of fire safety measures to mitigate fire hazards in the workplace. These measures include conducting regular fire drills and maintaining firefighting equipment.

The main objective of regular fire drills is to ensure all staff are familiar with fire safety protocols and the use of firefighting equipment. Training were conducted to familiarize staff with the operation of a fire truck in case of an emergency. Moreover, all employees were trained on the correct procedures to follow upon hearing the fire alarm. This includes how to safely evacuate to the nearest assembly area within a short timeframe. Staff were also trained to identify and use firefighting facilities such as fire hydrants, fire extinguishers, and other related equipment. Activities during the drill were meticulously documented, and photographs were taken to provide a visual record of the procedures and participation. Please see the updated “Emergency Preparedness Fire Drill Exercise Reports” in “Appendix – D”

5.2 Occupational Hazard Prevention and First Aid Training

Ensuring the safety and well-being of our employees is paramount. STC conducts comprehensive training programs focused on occupational hazard prevention and first aid. These programs are meticulously documented with detailed procedures and photographic evidence to uphold high standards of health and safety compliance.

OHS training at STC encompasses a broad spectrum of critical safety topics. Employees receive training on energy isolation to prevent accidental startups, and on confined space and rescue equipment to ensure safe operations in restricted areas. Office safety training covers best practices for maintaining a safe work environment, while working at height training emphasizes the use of proper safety measures and equipment. Training for riggers and signalmen ensures safe rigging practices and effective communication during lifting operations. Hot work training covers procedures and precautions for tasks involving open flames or heat, and safety inductions provide new employees with essential safety knowledge.

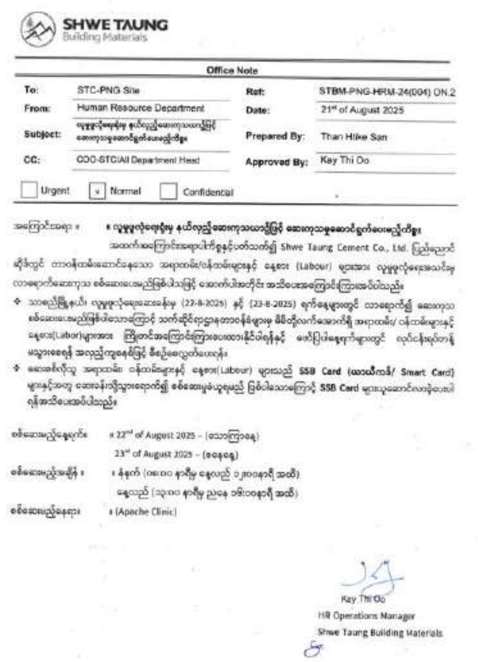
Additional training includes belt conveyor guarding and machine cover to enhance machinery safety, first aid for immediate response to injuries, and scaffolding safety for the proper erection and use of scaffolds. Programs such as "Take 2 Minutes" encourage employees to assess risks before starting tasks, and safety interaction and observation promote proactive safety discussions. Electrical safety training addresses procedures for working with electrical systems, while manual handling training teaches proper techniques to prevent injuries. Risk management training focuses on identifying, assessing, and mitigating workplace risks.

Internally, STC conduct annual employee safety inductions to refresh safety protocols, permit to work training to ensure understanding of the permit system for hazardous tasks, and safe work procedure training. Risk assessment training is provided to develop techniques for evaluating and mitigating risks.

Lototo (Lock Out, Tag Out, Try Out) training ensures the safe de-energization of equipment, and specific electrical training addresses managing electrical hazards. Regular office safety training and fire drills are also conducted to reinforce these practices.

A key component of STC's training is first aid. First aid training program equips employees with the skills necessary to provide immediate assistance in the event of an injury or health emergency. This includes basic first aid techniques, CPR, and the use of first aid equipment. Employees learn how to respond to a variety of medical situations, ensuring that they are prepared to act swiftly and effectively. This training is crucial in minimizing the impact of workplace injuries and can be life-saving in critical situations. Moreover, to safeguard occupational health, STC collaborates with the Social Security Board to conduct health check-ups using a mobile medical unit and arranges necessary medical care for employees as needed.

Figure –10: OHS, First Aid Trainings Records and Medical check-ups from Ministry of Health



SHWE TAUNG
Building Materials

Office Note

To:	STC-PNG Site	**Ref:**	STBM-PNG-HRM-24(004) ON.2
From:	Human Resource Department	**Date:**	21st of August 2025
Subject:	[illegible]	**Prepared By:**	Than Htike San
CC:	COO-STC/All Department Head	**Approved By:**	Key Thi Oo

☐ Urgent ☑ Normal ☐ Confidential

[illegible] Shwe Taung Cement Co., Ltd. [illegible] (Labour) [illegible]

- [illegible] (22-8-2025) [illegible] (23-8-2025) [illegible] (Labor) [illegible]
- [illegible] (Labour) [illegible] SSB Card ([illegible]/ Smart Card) [illegible] SSB Card [illegible]

[illegible] : 22nd of August 2025 – ([illegible])
23rd of August 2025 – ([illegible])

[illegible] : [illegible]

[illegible] : (Apache Clinic)

Kay Thi Oo
HR Operations Manager
Shwe Taung Building Materials

6. Conclusion and Recommendation

STC cement plant demonstrates the implementation of Environment Monitoring Plan in which they are operating and has properly assessed the key potential environmental and social impacts associated with the cement plant operation. It is ensuring that the Myanmar environmental legislative compliance and IFC standards of good practice during the cement plant expansion project and operations in Thazi Township, Mandalay Region.

Mitigation measures are properly implemented as per stated in EMP, it is expected that the environmental and social impacts are managed by STC with robust environmental management system that is implemented by a well-resourced, integrated and competent HSE staffs as per Environmental Compliance Certificates of STC Cement Plant EIA and WHR IEE reports.

The Environment Management Plan concludes that no major direct impacts are anticipated from this Project and all environmental impacts have been properly and progressively mitigated. These monitoring results will be properly communicated to stakeholders, especially local community, as per Stakeholders Engagement Plan. Moreover, biannual environmental monitoring reports are disclosed to community at Information Centers in Pyi Nyaung and Ku Pyin villages and has uploaded in Apache Cement Website https://www.apachecement.com/. The “Status of WHR Biannual Environmental Monitoring Reports Submission to ECD” can be seen in the Appendix-A. Monitoring photo records can be seen in the Appendix-E.

7. Appendix

APPENDIX- A

Status of WHR Biannual Environmental Monitoring Reports Submission to ECD

Table: Status of WHR Biannual Environmental Monitoring Reports Submission to ECD

ဝန်ကြီးရုံး အတည်ပြုချက် ရရှိသည့် ရက်စွဲ	(၆) လပတ် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ တင်ပြသည့် ရက်စွဲ	(၆) လပတ် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ တင်ပြသည့် အကြိမ်အရေအတွက်	စောင့်ကြပ်ကြည့်ရှုမှုအစီရင်ခံစာ တင်ပြသည့် အချိန်ကာလ အပိုင်းအခြား	မှတ်ချက်
၁၀.၆.၂၀၂၂	၂၉.၂.၂၀၂၄	ပထမအကြိမ်	၂၀၂၂ ခုနှစ် ဇူလိုင်လ မှ ၂၀၂၂ ခုနှစ် ဒီဇင်ဘာလအထိ	
		ဒုတိယအကြိမ်	၂၀၂၃ ခုနှစ် ဇန်နဝါရီလ မှ ၂၀၂၃ ခုနှစ် ဇွန်လအထိ	
		တတိယအကြိမ်	၂၀၂၃ ခုနှစ် ဇူလိုင်လ မှ ၂၀၂၃ ခုနှစ် ဒီဇင်ဘာလအထိ	
	၁၂.၇.၂၀၂၄	စတုတ္ထအကြိမ်	၂၀၂၃ ခုနှစ် ဒီဇင်ဘာလမှ ၂၀၂၄ ခုနှစ် မေလအထိ	ဝန်ကြီးရုံးအတည်ပြုသည့် ရက်စွဲအရ ပြန်လည်ညှိနှိုင်း ပြင်ဆင်တင်ပြခဲ့ပါသည်။
	၁၈.၁၂.၂၀၂၄	ပဉ္စမအကြိမ်	၂၀၂၄ ခုနှစ် ဇွန်လမှ ၂၀၂၄ ခုနှစ် နိုဝင်ဘာလအထိ	
	၁၇.၆.၂၀၂၅	ဆဋ္ဌမအကြိမ်	၂၀၂၄ ခုနှစ် ဒီဇင်ဘာလမှ ၂၀၂၅ ခုနှစ် မေလအထိ	
	၂၀၂၅ ခုနှစ် ဒီဇင်ဘာလ	***သတ္တမအကြိမ်***	***၁၁.၆.၂၀၂၅ ရက်နေ့မှ ၁၀. ၁၂. ၂၀၂၅ ရက်နေ့အထိ***	
	ဆက်လက်တင်ပြရန်	***အဋ္ဌမအကြိမ်***	***၁၁.၁၂.၂၀၂၅ ရက်နေ့မှ ၁၀.၆.၂၀၂၆ ရက်နေ့အထိ***	***၂၀၂၆ ခုနှစ် ဇွန်လအတွင်း တင်ပြရန်***

APPENDIX-B

APPENDIX- B1

(Supply Water (Lower Reservoir))

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Lower Reservoir/Non Potable Water**
Location	**Infront of Pump Station.**
Date of sample collection	**18.06.2025**
Date of sample examination	**19.06.2025**
Date of completing	**21.06.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.6	6.5 ~ 8.5	
Colour(True)	45	15 PCU	
Turbidity	6.17	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	19	50mg/l	
Nitrate	3.3	50mg/l	

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APACHE PORTLAND CEMENT
THE STRENGTH TO BUILD

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Lower Reservoir/Non Potable Water**
Location	**Infront of Pump Station.**
Date of sample collection	**18.08.2025**
Date of sample examination	**20.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.8	6.5 - 8.5	
Colour(True)	15	15 PCU	
Turbidity	1.48	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	15	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Lower Reservoir/Non Potable Water**
Location	**Infront of Pump Station.**
Date of sample collection	**17.09.2025**
Date of sample examination	**18.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.6	6.5 ~ 8.5	
Colour(True)	15	15 PCU	
Turbidity	5.22	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	16	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Lower Reservoir/Non Potable Water**
Location	**Infront of Pump Station.**
Date of sample collection	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.3	6.5 - 8.5	
Colour(True)	25	15 PCU	
Turbidity	10.1	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	26	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Lower Reservoir/Effluent water**
Location	**Infront of Pump Station.**
Date of sample collection	**07.11.2025**
Date of sample examination	**20.11.2025**
Date of completing	**21.11.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.7	6.5 ~ 8.5	
Colour(True)	5	15 PCU	
Turbidity	2.78	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	7	50mg/l	
Nitrate	-	50mg/l	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye` Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX- B2

(Supply Water (Lower Reservoir))

Tested by External Laboratories

GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
Lot No E1. Thilawa SEZ Zone A, Yangon Region, Myanmar.
Phone No Fax No: (+95) 1 2309051

motivate our planet

Report No. : GEM-LAB-202408095
Revision No. : 1
Report Date : 22 August, 2024
Application No. : 0235-C001

Test Report

Client Name : Shwe Taung Cement Co.,Ltd
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name : Shwe Taung Cement Water Quality Test
Sample Description
Sample Name : Supply Water
Sample No. : W-2408079
Waste Profile No. : -

Sampling Date : 7 August, 2024
Sampling By : Withdraw GEM
Sample Received Date : 7 August, 2024
Analytical Date : 7-22/08/2024

No.	Parameter	Method	Unit	Result	LOQ
1	Temperature	Instrument Analysis Method	°C	26.8	0.0
2	pH	APHA 4500 H+ B (Electrometric Method)	_	8.31	0.00
3	SS	APHA 2540D (Dry at 103-105'C Method)	mg/l	12	_
4	BOD (5)	HACH Method 10099 (Respirometric Method)	mg/l	10.35	0.00
5	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	30.7	0.7
6	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	3.1
7	Total Phosphorous	APHA 4500-P E (Ascorbic Acid Method)	mg/l	<0.05	0.05
8	Ammonia	HACH Method 10205 (Silicylate TNT Plus Method)	mg/l	<0.02	0.02
9	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
10	Zinc	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
11	Arsenic	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.010
12	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
13	Cadmium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
14	Selenium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.010
15	Lead	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
16	Copper	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
17	Nickel	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
18	Silver	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
19	Iron	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	0.274	0.002
20	Cyanide	HACH 8027 (Pyridine -Pyrazalone Method)	mg/l	<0.002	0.002
21	Total Cyanide	Distillation Process: APHA 4500-CN- C. Total Cyanide after Distillation, Determine Cyanide Concentration Process: HACH 8027 (Pyridine -Pyrazalone Method)	mg/l	<0.002	0.002
22	Hexavalent Chromium (Cr6+)	ISO 11083: 1994 (Determination of chromium(VI) Spectrometric method using 1, 5-diphenylcarbazide)	mg/l	<0.05	0.05

Report No. : GEM-LAB-202408095
Revision No. : 1
Report Date : 22 August, 2024
Application No. : 0235-C001

Test Report

Client Name : Shwe Taung Cement Co.,Ltd
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name : Shwe Taung Cement Water Quality Test
Sample Description
Sample Name : Supply Water
Sample No. : W-2408079
Waste Profile No. : -

Sampling Date : 7 August, 2024
Sampling By : Withdraw GEM
Sample Received Date : 7 August, 2024
Analytical Date : 7-22/08/2024

No.	Parameter	Method	Unit	Result	LOQ
23	Fluoride	USEPA SPANDS 2 Method	mg/l	0.227	0.014
24	Total Chlorine	APHA 4500 CL G (DPD Colorimetric Method)	mg/l	0.1	0.1
25	Sulphide	HACH 8131 (USEPA Methylene Blue Method)	mg/l	0.019	0.005
26	Phenols	USEPA Method 420.1 (Phenolics (Spectrophotometric, Manual 4AAP With Distillation))	mg/l	0.006	0.002
27	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	mg/l	54000.0	1.8

Remark : LOQ - Limit of Quantitation
APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

Analysed By :

Cherry Myint Thein
Assistant Manager

LAB
Aug 22, 2024
GEM

Approved By :

Ni Ni Aye Lwin Aug 22, 2024
Manager

***** End Of Document *****

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C). LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0824 167

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement
Nature of Water	ဆည်ရေ
Location	ပြည်ညောင်ကျေးရွာ၊ သာစည်မြို့နယ်။
Date and Time of collection	6.8.2024 (10:30 AM)
Date and Time of arrival at Laboratory	7.8.2024
Date and Time of commencing examination	8.8.2024
Date and Time of completing	9.8.2024

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
pH			6.5 - 8.5
Colour (True)		TCU	15 TCU
Turbidity		NTU	5 NTU
Conductivity		micro S/cm	
Total Hardness		mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness		mg/l as $CaCO_3$	
Magnesium Hardness		mg/l as $CaCO_3$	
Total Alkalinity		mg/l as $CaCO_3$	
Phenolphthalein Alkalinity		mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)		mg/l as $CaCO_3$	
Bicarbonate (HCO_3)		mg/l as $CaCO_3$	
Iron	0.88	mg/l	0.3 mg/l
Chloride (as CL)		mg/l	250 mg/l
Sodium Chloride (as NaCL)		mg/l	
Sulphate (as SO_4)		mg/l	500 mg/l
Total Solids		mg/l	1500 mg/l
Total Suspended Solids		mg/l	
Total Dissolved Solids		mg/l	1000 mg/l
Manganese		mg/l	0.05 mg/l
Phosphate		mg/l	
Phenolphthalein Acidity		mg/l	
Methyl Orange Acidity		mg/l	
Salinity		ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 2 of 2

W0824 167

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement
Nature of Water	ဆည်ရေ
Location	ပြည်ညောင်ကျေးရွာ၊ သာစည်မြို့နယ်။
Date and Time of collection	6.8.2024 (10:30 AM)
Date and Time of arrival at Laboratory	7.8.2024
Date and Time of commencing examination	8.8.2024
Date and Time of completing	9.8.2024

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)		°C	
Fluoride (F)	0.4	mg/l	1.5 mg/l
Lead (as Pb)		mg/l	0.01 mg/l
Arsenic (As)	0.005	mg/l	0.01 mg/l
Nitrate ($N.NO_3$)		mg/l	50 mg/l
Chlorine (Residual)	Nil	mg/l	
Ammonia Nitrogen (NH_3)	0.15	mg/l	
Ammonium Nitrogen (NH_4)		mg/l	
Dissolved Oxygen (DO)		mg/l	
Chemical Oxygen Demand (COD)		mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)		mg/l	
Cyanide (CN)	0.011	mg/l	0.07 mg/l
Zinc (Zn)		mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO_2)		mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

APPENDIX- B3

(WHR Wastewater Results)

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**WHR**
Date of sample collection	**16.06.2025**
Date of sample examination	**17.06.2025**
Date of completing	**20.06.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.5	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	7.0	Max 50mg/L	
Total Nitrogen	1.54	10mg/L	
Total Nitrate	6.8	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**WHR**
Date of sample collection	**22.07.2025**
Date of sample examination	**24.07.2025**
Date of completing	**25.07.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.3	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	8.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**WHR**
Date of sample collection	**20.08.2025**
Date of sample examination	**21.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.2	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	3.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APACHE
PORTLAND CEMENT
THE STRENGTH TO BUILD

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**WHR Waste Tank**
Date of sample collection	**18.09.2025**
Date of sample examination	**19.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.1	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	20.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**WHR Waste Tank**
Date of sample collection	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	24.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**WHR Waste Tank**
Date of sample collection	**17.11.2025**
Date of sample examination	**18.11.2025**
Date of completing	**19.11.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.4	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	23.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX- B4

(Sedimentation Pond 7 Effluent Water)

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**16.06.2025**
Date of sample examination	**17.06.2025**
Date of completing	**20.06.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.7	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	16	Max 50mg/L	
Total Nitrogen	0.56	10mg/L	
Total Nitrate	2.5	44.29mg/L	
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	Surface Water(Effluent Water)
Location	Between 401 & 405
Date of sample collection	22.07.2025
Date of sample examination	24.07.2025
Date of completing	25.07.2025

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.0	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	9.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**20.08.2025**
Date of sample examination	**21.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	18.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**18.09.2025**
Date of sample examination	**19.09.2025**
Date of completing	**20.09.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	19.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**17.10.2025**
Date of sample examination	**18.10.2025**
Date of completing	**19.10.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.4	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	7.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Surface Water(Effluent Water)**
Location	**Between 401 & 405**
Date of sample collection	**17.11.2025**
Date of sample examination	**18.11.2025**
Date of completing	**19.11.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	5.0	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Department
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX- B5

(Sedimentation Pond 7 Effluent Water)

Tested by External Laboratories

GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
Lot No E1. Thilawa SEZ Zone A, Yangon Region, Myanmar.
Phone No Fax No: (+95) 1 2309051

motivate our planet

Report No. : GEM-LAB-202505107
Revision No. : 1
Report Date : 30 May, 2025
Application No. : 0235-C001

Test Report

Client Name : Shwe Taung Cement Co.,Ltd
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name : Shwe Taung Cement Water Quality Test
Sample Description
Sample Name : Pond-7 Effluent Water
Sample No. : W-2505100
Waste Profile No. : -

Sampling Date : 23 May, 2025
Sampling By : Withdraw GEM
Sample Received Date : 23 May, 2025
Analytical Date : 23-30/05/2025

No.	Parameter	Method	Unit	Result	LOQ
1	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	3.1
2	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
3	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
4	Cadmium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
5	Selenium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.010
6	Lead	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
7	Nickel	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
8	Silver	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
9	Cyanide	HACH 8027 (Pyridine -Pyrazalone Method)	mg/l	<0.002	0.002
10	Hexavalent Chromium (Cr6+)	ISO 11083:1994 (Determination of chromium(VI) Spectrometric method using 1,5-diphenylcarbazide)	mg/l	<0.05	0.05
11	Sulphide	HACH 8131 (USEPA Methylene Blue Method)	mg/l	<0.005	0.005
12	Phenols	USEPA Method 420.1 (Phenolics (Spectrophotometric, Manual 4AAP With Distillation))	mg/l	<0.002	0.002

Remark : LOQ - Limit of Quantitation
APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

Analysed By :

Ni Ni Aye Lwin
Senior Manager

LAB
May 30, 2025
GEM

*** End Of Document ***

Approved By :

Hideki Yomo May 30, 2025
Managing Director

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0525 425

WATER QUALITY TEST RESULTS FORM

Client: Shwe Taung Cement
Nature of Water: Pond - 7 Effluent Water
Location: Thazi Township, Mandalay.
Date and Time of collection: 14.5.2025
Date and Time of arrival at Laboratory: 15.5.2025
Date and Time of commencing examination: 16.5.2025
Date and Time of completing: 21.5.2025

Results of Water Analysis			WHO Drinking Water Guideline (Geneva - 1993)
pH	7.8		6.5 - 8.5
Colour (True)	-	TCU	15 TCU
Turbidity	-	NTU	5 NTU
Conductivity	-	micro S/cm	
Total Hardness	-	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	-	mg/l as $CaCO_3$	
Magnesium Hardness	-	mg/l as $CaCO_3$	
Total Alkalinity	-	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	-	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	-	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	-	mg/l as $CaCO_3$	
Iron	0.48	mg/l	0.3 mg/l
Chloride (as CL)	-	mg/l	250 mg/l
Sodium Chloride (as NaCL)	-	mg/l	
Sulphate (as SO_4)	-	mg/l	500 mg/l
Total Solids	-	mg/l	1500 mg/l
Total Suspended Solids	40	mg/l	
Total Dissolved Solids	-	mg/l	1000 mg/l
Manganese	-	mg/l	0.05 mg/l
Phosphate	-	mg/l	
Phenolphthalein Acidity	-	mg/l	
Methyl Orange Acidity	-	mg/l	
Salinity	-	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
(a division of WEG Co., Ltd.) ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

No.18. Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 2 of 2

W0525 425

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement
Nature of Water	Pond - 7 Effluent Water
Location	Thazi Township, Mandalay.
Date and Time of collection	14.5.2025
Date and Time of arrival at Laboratory	15.5.2025
Date and Time of commencing examination	16.5.2025
Date and Time of completing	21.5.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)	25.0	°C	
Fluoride (F)	0.5	mg/l	1.5 mg/l
Lead (as Pb)	-	mg/l	0.01 mg/l
Arsenic (As)	Nil	mg/l	0.01 mg/l
Nitrate ($N.NO_3$)	-	mg/l	50 mg/l
Chlorine (Residual)	Nil	mg/l	
Ammonia Nitrogen (NH_3)	0.70	mg/l	
Ammonium Nitrogen (NH_4)	-	mg/l	
Dissolved Oxygen (DO)	-	mg/l	
Chemical Oxygen Demand (COD)	64	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	10	mg/l	
Cyanide (CN)	Nil	mg/l	0.07 mg/l
Zinc (Zn)	Nil	mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO_2)	-	mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

M0525 040

WATER QUALITY TEST (MICROBIOLOGY) RESULTS FORM

Client	Shwe Taung Cement
Nature of Water	Pond - 7 Effluent Water
Location	Thazi Township, Mandalay.
Date and Time of collection	14.5.2025
Date and Time of arrival at Laboratory	15.5.2025
Date and Time of commencing examination	15.5.2025
Date and Time of completing	16.5.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Total Coliform Count	20	CFU/100ml	Not detected
Thermotolerant (fecal) Coliform Count	6	CFU/100ml	Not detected
pH	7.8		6.5 - 8.5
Turbidity	55	NTU	5 NTU
Colour (True)	40	TCU	15 TCU
Free Chlorine	Nil	mg/l	
Total Chlorine	Nil	mg/l	

***Sample Collection Error.**

: This certificate is issued only for the receipt of the test sample.

: < - Less than

Tested by

Signature:

Name: Zaw Hein Oo
~~B.Sc (Chemistry)~~
Sr.Chemist
ISO Tech Laboratory

Approved by

Signature:

Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

APPENDIX- B6

(Bio Tank Effluent Water)

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**16.06.2025**
Date of sample examination	**17.06.2025**
Date of completing	**20.06.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	6.9	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	**113**	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Manager
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**28.07.2025**
Date of sample examination	**29.07.2025**
Date of completing	**29.07.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.6	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	**29**	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Manager
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**20.08.2025**
Date of sample examination	**21.08.2025**
Date of completing	**22.08.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.9	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	24	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye Naing Soe
Manager
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**23.09.2025**
Date of sample examination	**23.09.2025**
Date of completing	**23.09.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	7.5	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	22	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Waste Water Test Report

Nature of water	**Waste Water**
Location	**55 Acre (Bio Tank)**
Date of sample collection	**17.11.2025**
Date of sample examination	**18.11.2025**
Date of completing	**19.11.2025**

Description of Analysis	Analysis Results	IFC Waste Water Guideline	Remark
pH	8.5	6-9	
Chemical Oxygen Demand(COD)	-	0-125mg/L	no stock chemical
Biologycal Oxygen Demand(BOD)	-	0-30mg/L	no stock chemical
Total Suspended Solid(TSS)	145	Max 50mg/L	
Total Nitrogen	-	10mg/L	no stock chemical
Total Nitrate	-	44.29mg/L	no stock chemical
Total Phosphorous	-	2mg/L	no stock chemical

Tested by,

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

Ye' Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX- B7

(Bio Tank Effluent Water)

Tested by External Laboratories

GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
Lot No E1. Thilawa SEZ Zone A, Yangon Region, Myanmar.
Phone No Fax No: (+95) 1 2309051

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Report No. : GEM-LAB-202505108
Revision No. : 1
Report Date : 30 May, 2025
Application No. : 0235-C001

Test Report

Client Name : Shwe Taung Cement Co.,Ltd
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name : Shwe Taung Cement Water Quality Test
Sample Description
Sample Name : Bio-Tank Effluent Water
Sample No. : W-2505101
Waste Profile No. : -

Sampling Date : 23 May, 2025
Sampling By : Withdraw GEM
Sample Received Date : 23 May, 2025
Analytical Date : 23-30/05/2025

No.	Parameter	Method	Unit	Result	LOQ
1	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	3.1
2	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
3	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
4	Cadmium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
5	Selenium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.010
6	Lead	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
7	Nickel	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
8	Silver	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.002
9	Cyanide	HACH 8027 (Pyridine -Pyrazalone Method)	mg/l	<0.002	0.002
10	Hexavalent Chromium (Cr6+)	ISO 11083:1994 (Determination of chromium(VI) Spectrometric method using 1,5-diphenylcarbazide)	mg/l	<0.05	0.05
11	Sulphide	HACH 8131 (USEPA Methylene Blue Method)	mg/l	0.013	0.005
12	Phenols	USEPA Method 420.1 (Phenolics (Spectrophotometric, Manual 4AAP With Distillation))	mg/l	0.009	0.002

Remark : LOQ - Limit of Quantitation
APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

Analysed By :

Ni Ni Aye Lwin
Senior Manager

LAB GEM

Approved By :

Hideki Yomo
Managing Director

*** End Of Document ***

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0525 426

WATER QUALITY TEST RESULTS FORM

Client: Shwe Taung Cement
Nature of Water: Bio - Tank Effluent Water
Location: Thazi Township, Mandalay.
Date and Time of collection: 14.5.2025
Date and Time of arrival at Laboratory: 15.5.2025
Date and Time of commencing examination: 16.5.2025
Date and Time of completing: 21.5.2025

Results of Water Analysis			WHO Drinking Water Guideline (Geneva - 1993)
pH	7.7		6.5 - 8.5
Colour (True)	-	TCU	15 TCU
Turbidity	-	NTU	5 NTU
Conductivity	-	micro S/cm	
Total Hardness	-	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	-	mg/l as $CaCO_3$	
Magnesium Hardness	-	mg/l as $CaCO_3$	
Total Alkalinity	-	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	-	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	-	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	-	mg/l as $CaCO_3$	
Iron	0.79	mg/l	0.3 mg/l
Chloride (as CL)	-	mg/l	250 mg/l
Sodium Chloride (as NaCL)	-	mg/l	
Sulphate (as SO_4)	-	mg/l	500 mg/l
Total Solids	-	mg/l	1500 mg/l
Total Suspended Solids	77	mg/l	
Total Dissolved Solids	-	mg/l	1000 mg/l
Manganese	-	mg/l	0.05 mg/l
Phosphate	-	mg/l	
Phenolphthalein Acidity	-	mg/l	
Methyl Orange Acidity	-	mg/l	
Salinity	-	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zăw Hein Oo
B.Sc (Chemistry)
~~Sr.Chemist~~
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
~~B.E (Civil)~~
Assistant Technical Officer
ISO Tech Laboratory

(a division of WEG Co., Ltd.)
No.18. Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO-TECH LABORATORY

ISO 9001:2015 Cert. No.688283

W0525 426

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement
Nature of Water	Bio - Tank Effluent Water
Location	Thazi Township, Mandalay.
Date and Time of collection	14.5.2025
Date and Time of arrival at Laboratory	15.5.2025
Date and Time of commencing examination	16.5.2025
Date and Time of completing	21.5.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)	25.0	°C	
Fluoride (F)	0.9	mg/l	1.5 mg/l
Lead (as Pb)	-	mg/l	0.01 mg/l
Arsenic (As)	Nil	mg/l	0.01 mg/l
Nitrate ($N.NO_3$)	-	mg/l	50 mg/l
Chlorine (Residual)	Nil	mg/l	
Ammonia Nitrogen (NH_3)	6.11	mg/l	
Ammonium Nitrogen (NH_4)	-	mg/l	
Dissolved Oxygen (DO)	-	mg/l	
Chemical Oxygen Demand (COD)	64	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	18	mg/l	
Cyanide (CN)	Nil	mg/l	0.07 mg/l
Zinc (Zn)	Nil	mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO_2)	-	mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-1-2016
Effective Date - 01-1-2016
Issue No - 1.0/Page 1 of 1

M0525 041

WATER QUALITY TEST (MICROBIOLOGY) RESULTS FORM

Client: Shwe Taung Cement

Nature of Water: Bio - Tank Effluent Water

Location: Thazi Township, Mandalay.

Date and Time of collection: 14.5.2025

Date and Time of arrival at Laboratory: 15.5.2025

Date and Time of commencing examination: 15.5.2025

Date and Time of completing: 16.5.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Total Coliform Count	40	CFU/100ml	Not detected
Thermotolerant (fecal) Coliform Count	10	CFU/100ml	Not detected
pH	7.7		6.5 - 8.5
Turbidity	150	NTU	5 NTU
Colour (True)	90	TCU	15 TCU
Free Chlorine	Nil	mg/l	
Total Chlorine	Nil	mg/l	

***Sample Collection Error.**

: This certificate is issued only for the receipt of the test sample.

: < - Less than

Tested by

Signature:

Name: Zaw Hein Oo
~~B.Sc (Chemistry)~~
Sr.Chemist
ISO Tech Laboratory

Approved by

Signature:

Name: Thinzar Theint Theint
B.E (Civil)
Assistant Technical Officer
ISO Tech Laboratory

APPENDIX- B8

pH Level of first rainwater

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Rain Water**
Location	**-**
Date of sample collection	**12.05.2025**
Date of sample examination	**12.05.2025**
Date of completing	**12.05.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	6	6.5 ~ 8.5	

Tested by,

Han Ko Win
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By,

12/05/2025.

Ye' Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX- B9

Biotank Sludge Results

Tested by External Laboratory

GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
Lot No E1. Thilawa SEZ Zone A, Yangon Region, Myanmar.
Phone No Fax No: (+95) 1 2309051

motivate our planet

Report No. : GEM-LAB-202505109
Revision No. : 1
Report Date : 30 May, 2025
Application No. : 0235-C002

Analysis Report

Client Name : Shwe Taung Cement Co.,Ltd.
Address : No.108, Corner of Min Ye Kyaw Swar Road & Hnin Si Gone Street, Saw Yan Paing (East) Ward, Alone
Project Name :
Sample Description

Sample Name : Bio-tank - Biosolids and Sludge Disposal
Sample No. : S-2505104
Waste Profile No : -

Sampling Date : 23 May, 2025
Sampling By : Withdraw GEM
Sample Received Date : 23 May, 2025
Analytical Date : 23-30/05/2025

No.	Parameter	Method For Liquid Sample Preparation	Method of Measurement	Unit	Result	LOQ
1	Arsenic	EPA Method 3050 B (Acid Digestion of Sediments, Sludges, and Soils)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/kg	≤0.340	0.340
2	Selenium			mg/kg	≤0.340	0.340
3	Zinc			mg/kg	51.680	0.068
4	Nickel			mg/kg	≤0.068	0.068
5	Copper			mg/kg	3.026	0.068
6	Cadmium			mg/kg	≤0.068	0.068
7	Mercury			mg/kg	≤0.068	0.068
8	Lead			mg/kg	≤0.068	0.068
9	Chromium			mg/kg	≤0.068	0.068

Remark : LOQ - Limit of Quantitation

APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

EPA- The United States Environmental Protection Agency

Analysed By :

Ni Ni Aye Lwin
Senior Manager

LAB
May 30, 2025
GEM

Approved By :

Hideki Yomo May 30, 2025
Managing Director

*** End of Document ***

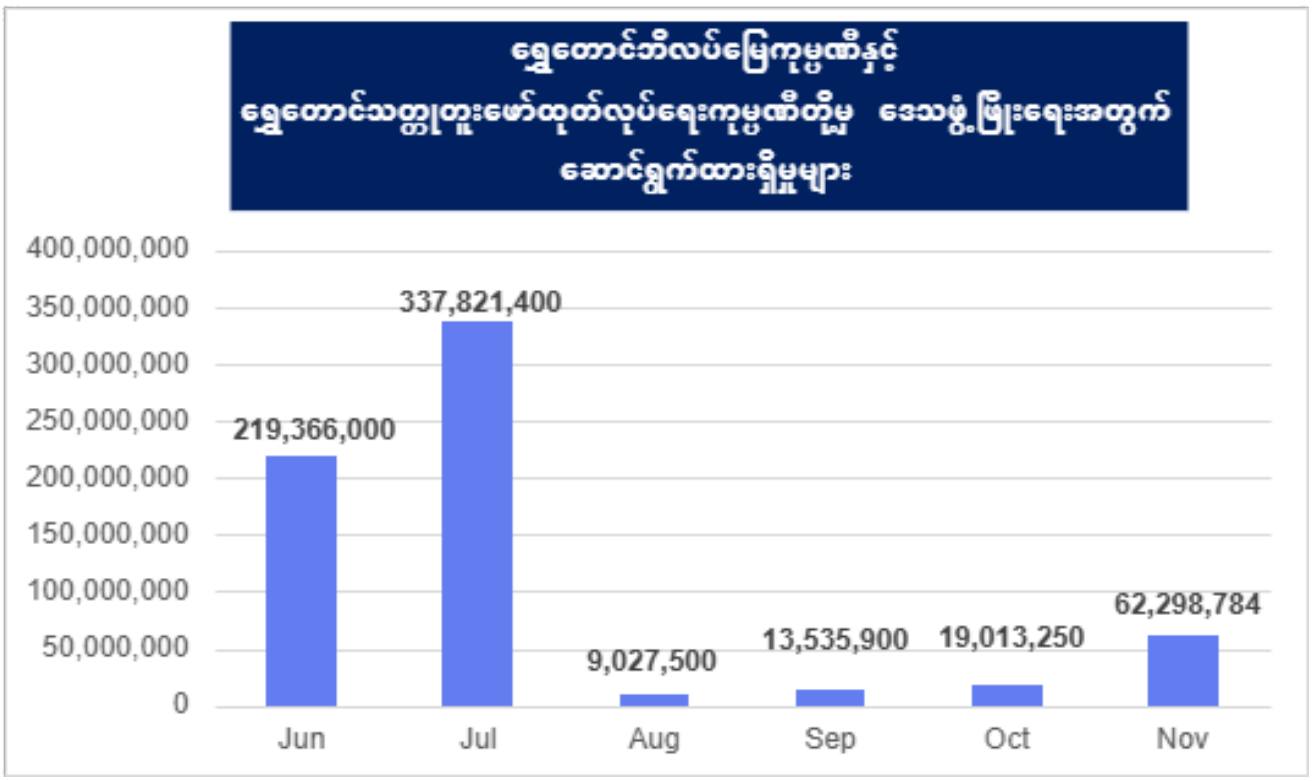
APPENDIX- C

Corporate Social Responsibility

Corporate Social Responsibility(CSR)

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီနှင့် ရွှေတောင်သတ္တုတူးဖော်ထုတ်လုပ်ရေးကုမ္ပဏီတို့မှ ဒေသဖွံ့ဖြိုးရေးအတွက် ဆောင်ရွက်ထားရှိမှုများ

စဉ်	အကြောင်းအရာ	Jun - 2025	Jul - 2025	Aug - 2025	Sep - 2025	Oct - 2025	Nov - 2025	Total
၁	လမ်းပန်းဆက်သွယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	2,352,000	691,200	2,519,600			33,383,445	38,946,245
၂	သန့်ရှင်းသောရေ ရရှိရေးအတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း							0
၃	လျှပ်စစ်မီးလင်းရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း						2,305,000	2,305,000
၄	ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	1,913,600	2,494,600	2,110,300	2,055,200	3,235,150	3,541,000	15,349,850
၅	ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	540,000	72,000		3,838,300		349,339	4,799,639
၆	လူမှုရေးနှင့် ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	2,778,400	1,359,600	781,600	3,862,400	738,400	4,006,400	13,526,800
၇	ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း		1,208,000	876,000	200,000	15,039,700	4,433,600	21,757,300
၈	သဘာဝဘေးအန္တရာယ်ကျရောက် ပျက်စီးမှုများတွင် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	211,782,000	331,996,000	2,740,000	3,580,000		14,280,000	564,378,000
စုစုပေါင်း		219,366,000	337,821,400	9,027,500	13,535,900	19,013,250	62,298,784	661,062,834



Corporate Social Responsibility(CSR)

လမ်းပန်းဆက်သွယ်ရေးဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅ခုနှစ်၊ ဇွန်လအတွင်း သာစည်မြို့နယ်၊ ယင်းမာပင်ကျေးရွာအုပ်စု၊ ယင်းမာပင်ကျေးရွာ၊ ညောင်ပင်သာရပ်ကွက်၊ အနောက်ဝိုင်းရှိ အလျား(၁၁၀၀)၊ အနံ(၁၈) ပေရှိသော ကျေးရွာလမ်းအား ကွန်ကရစ်လမ်းခင်းရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ- ၂၀၂၅ခုနှစ်၊ ဩဂုတ်လ နှင့် အောက်တိုဘာလ အတွင်း ကူပြင်ကျေးရွာရှိ ဒေသနေ ပြည်သူများ အသုံးပြုနေသည့် ကျေးရွာလမ်းမအား စက်ယန္တရားကြီးများအသုံးပြု၍ ပြုပြင်ပေးခြင်း။

ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅-၂၆ ပညာသင်နှစ်အတွက် ပြည်ညောင်နှင့် ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများတွင် လိုအပ်လျက်ရှိသော ဆရာမ(၆)ဦးအား လစာငွေများ ထောက်ပံ့ပေးခြင်း။

ပုံ- ၂၀၂၅-၂၆ ပညာသင်နှစ်အတွက် ပြည်ညောင်နှင့်ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများမှ ကျောင်းသား/ကျောင်းသူ (၁၀)ဦးအား ပညာသင် ထောက်ပံ့ကြေး ပေးအပ်ခြင်း။

ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ပြည်ညောင်ကျေးရွာရှိ Information Center & Library နှင့် ကူပြင်ကျေးရွာရှိ ထာဝရအလင်းတန်း စာကြည့်တိုက်များတွင် လစဉ်စာအုပ်များဝယ်ယူထားပေးခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းမှ ယင်းမာပင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းသို့ G12 ကျောင်းသား/သူများ စာမေးပွဲ သွားရောက်ဖြေဆိုနိုင်ရန်အတွက် အကြိုအပို့ ကားစီစဉ် ဆောင်ရွက်ပေးခြင်း။

ပုံ- မိတ္ထီလာမြို့နယ်၊ ညောင်ကိုင်းကျေးရွာရှိ အခြေခံပညာအထက်တန်းကျောင်းအား သန့်ရှင်း၍ စိမ်းလန်းစိုပြည်သောကျောင်း ဖြစ်မြောက်လာရေးအတွက် ပျိုးပင်များ၊ မျိုးစေ့များ၊ ပန်းအိုး၊ ရေဖြန်းပုံး၊ စိုက်ပျိုးရေးသုံးပစ္စည်းများ ထောက်ပံ့ပေးခြင်း။

ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ပြည်ညောင်ကျေးရွာအုပ်စုအတွင်းရှိ ဒေသနေပြည်သူများအတွက် ခွေးရူးပြန်ကာကွယ်ဆေး(၃)ဦးစာ ကနဦးမတည် လှူဒါန်းခြင်း။

ပုံ - ပြည်ညောင်ကျေးရွာရှိ ဖြူစင်လူငယ်ပရဟိတအသင်းမှ အောက်စီဂျင်(၆) အိုး ကို အောက်စီဂျင်ဖြည့်ပေးခြင်း။

Corporate Social Responsibility(CSR)

ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ပြည်ညောင်ကျေးရွာအုပ်စု၊ ကူပြင်ကျေးရွာရှိ ဒေသနေ ပြည်သူများ၊ ကျောင်းသား၊ ကျောင်းသူများနှင့် ဆရာမများအတွက် မိုးကာအင်္ကျီ (၁၅၉)ထည် ပံ့ပိုးကူညီခြင်း။

ပုံ- မိတ္ထီလာမြို့နယ်၊ ညောင်ကိုင်းကျေးရွာရှိ အခြေခံပညာအထက်တန်းကျောင်းရှိ ကျောင်းသား၊ ကျောင်းသူများအား သန့်ရှင်းကျန်းမာစေရန် ရည်ရွယ်၍ လက်ဆေးဆပ်ပြာရည်များ ကူညီပံ့ပိုးပေးခြင်း။

လူမှုရေးနှင့်ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ -၂၀၂၄ ခုနှစ်၊ အောက်တိုဘာလမှ စတင်၍ လစဉ် ကူပြင်ကျေးရွာရှိ အသက်အရွယ်ကြီးရင့်သော အဖိုးအဖွားများအား ကူညီထောက်ပံ့ပေးခြင်း။

ပုံ - သာစည်မြို့နယ်၊ မြန်မာ့မီးရထား၊ သွားလာပို့ဆောင်ရေးဌာန၊ သာစည်ဘူတာရုံအတွက် (၁၂၀)လီတာဆံ့ အမှိုက်ပုံး အကြီး (၄)ပုံး ကူညီပံ့ပိုးခြင်း။

Corporate Social Responsibility(CSR)

ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ကူပြင်ကျေးရွာ (၁၂)ကြိမ်မြောက် မဟာပဋ္ဌာန်းရွတ်ဖတ်ပူဇော်ပွဲနှင့် ဆွမ်းဆန်စိမ်းလောင်းလှူသည့်ပွဲတွင် ဆန်နှင့် ဝတ္ထုငွေ လောင်းလှူခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာရှိ အမှတ်(၅)ရပ်ကွက်၌ ဓမ္မာရုံဆောက်လုပ်ရာတွင် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ - ယင်းမာပင်ကျေးရွာ၊ ရွာဦးဘုန်းတော်ကြီးကျောင်းတွင် ညဏ်တော်အမြင့် (၁၈) တောင်ရှိ ဂျစ်ဆံတော်ဆုတောင်းပြည့်စေတီတော်မြတ်ကြီး ပြုပြင်ဆောက်လုပ်ရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပုံ - ပြည်ညောင်ကျေးရွာ၊ စုပေါင်းမဟာဘုံကထိန်ပွဲတွင် အလှူငွေ ထည့်ဝင်လှူဒါန်းခြင်း။

ပုံ - ကူပြင်ကျေးရွာ၊ စုပေါင်းမဟာဘုံကထိန်ပွဲတွင် အလှူငွေ ထည့်ဝင်လှူဒါန်းခြင်း။

သဘာဝဘေးအန္တရာယ်ကျရောက်ပျက်စီးမှုများအတွက် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ပင်းတယမြို့၊ သိမ်ကုန်းကျေးရွာအုပ်စု၊ ကုန်းစောင်းကျေးရွာတွင် ငလျင်ဒဏ်ကြောင့် ပျက်စီးသွားသော လူနေအိမ်များကို ပြုပြင်ရန်အတွက် ဘိလပ်မြေအိတ်များနှင့် အလှူငွေ လှူဒါန်းခြင်း။

လျှပ်စစ်မီးလင်းရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ကူပြင်ကျေးရွာ၊ လျှပ်စစ်မီးလင်းရေးတွင် လျှပ်စစ်ဘေးအန္တရာယ်ကင်းရှင်းရေးအတွက် တပ်ဆင်ထားသော auto recloser အား စစ်ဆေးခြင်းနှင့် လိုအပ်သည့်ပစ္စည်းများလဲလှယ်၍ ပြုပြင်ပေးခြင်း။

APPENDIX- D

Emergency Preparedness Fire Drill Exercise Report

EMERGENCY PREPAREDNESS

FIRE DRILL REPORT

(14 Aug 2025, APACHE CEMENT FACTORY)

Prepare by : Nay Soe Naing

Position : HOD

Department : OHS

Contact No : 09255112704

SHWE TAUNG
CEMENT CO.,LTD.

Title: Fire Outbreak in Coal hopper tunnel (CPP)

Contents

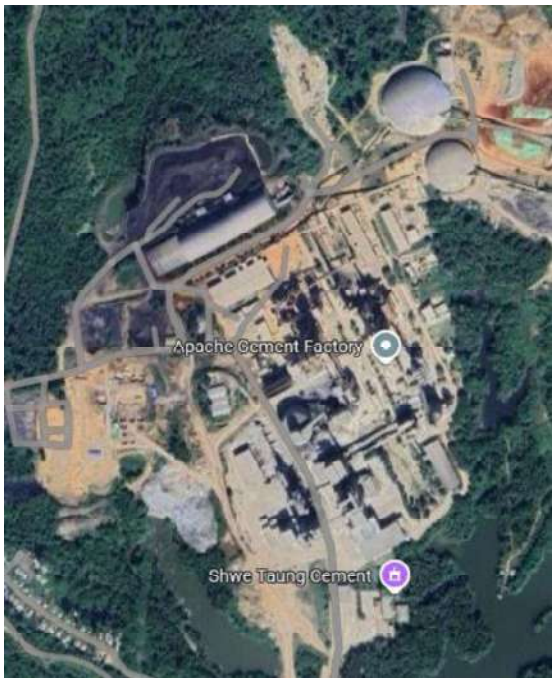
Introduction

Apache Cement Plant is situated at Pyi Nyaung Village, Thazi Township, Meiktila District, Mandalay Division.

This is recommended that ERT Emergency Response Team is prepared for any type of emergency that may occur.

Location of Apache Cement Factory

Name	**: Pyi Nyaung**
Company Name	**: Shwe Taung Cement Co.Ltd (Apache Cement)**
City	**: Tharzi Township**
State	**: Mandalay Devision**
Country	**: Myanmar**



Objective

- To ensure that everyone knows what to do in case of emergency
- To ensure all individuals in the workplace familiar with escape routes, emergency exits and safety protocols
- To practices everyone safety evacuate the nearest AA in an orderly manner
- Trained person aware on how to rescue injury person who trap inside the fire
- To familiarize on the usage of fire truck & firefighting such as Fire Hose Reel and fire extinguisher

Table Talk Exercise

The below is the key information to be discussed and concluded:

- The date/time of the exercise was confirmed. The proposed date/time were to be scheduled on
- 14 Aug 2025 at approximately 3:00 am.
- All personnel involved in the premises are encouraged to participate promptly.
- The passing time criterion is 15 minutes sharp.
- Identification of the premises key roles/responsibilities.

    a) ERT commander
    b) Firefighter and Reserve firefighter Team
    c) Rescue and Medical & First Aid Team
    d) Traffic Control & Security Team
    e) Warden and Evaluation Team
    f) Communication and CCTV Watcher Team
    g) Vehicle & Machinery Support Team

- The purpose of this exercise is to permit the contractors/staffs to understand the procedures and response as accordingly.
- To have a basic knowledge on how to operate a fire extinguisher/raw meal correctly.
- To have a basic knowledge on how to assist fire truck.

Emergency response team role and responsibilities

ERD Manager

- The ERD manager shall be a senior member of the management and in charge of liasing with Company Management as per crisis management.
- He is person who is the overall in-charge of the emergency response operations and liaises with senior officials of government agencies such as MFBD, FGLLID etc.
- Direct all counter measures and emergency procedure to control and decide on the evacuation of the plant area site.

Firefighter and Reserve firefighter Team

- Conduct firefighting in the event of a fire emergency
- Coordinate the rescue of personnel with Rescue Team member from the scene of fire
- Remove any flammable fire

Rescue and Medical & First Aid Team

- Coordinating the evacuation & rescue of personnel
- Cooperating with firefighting team on the rescue of personnel
- Cooperating with respective person in charge of the personnel on the rescue of missing personnel from their working areas
- Reporting to ERT Lead on the status of their rescue

Traffic Control & Security Team

- Security shall control the crowd
- To clear the access and egress for firetruck and Ambulance path
- To point the incident place to firetruck driver

Warden and Evaluation Team

- Counting and make sure that all personnel are accountable at assembly area.
- If anyone is missing, immediately report to evacuation team
- Liaise with the respective person in charge from work group and collate the headcounts

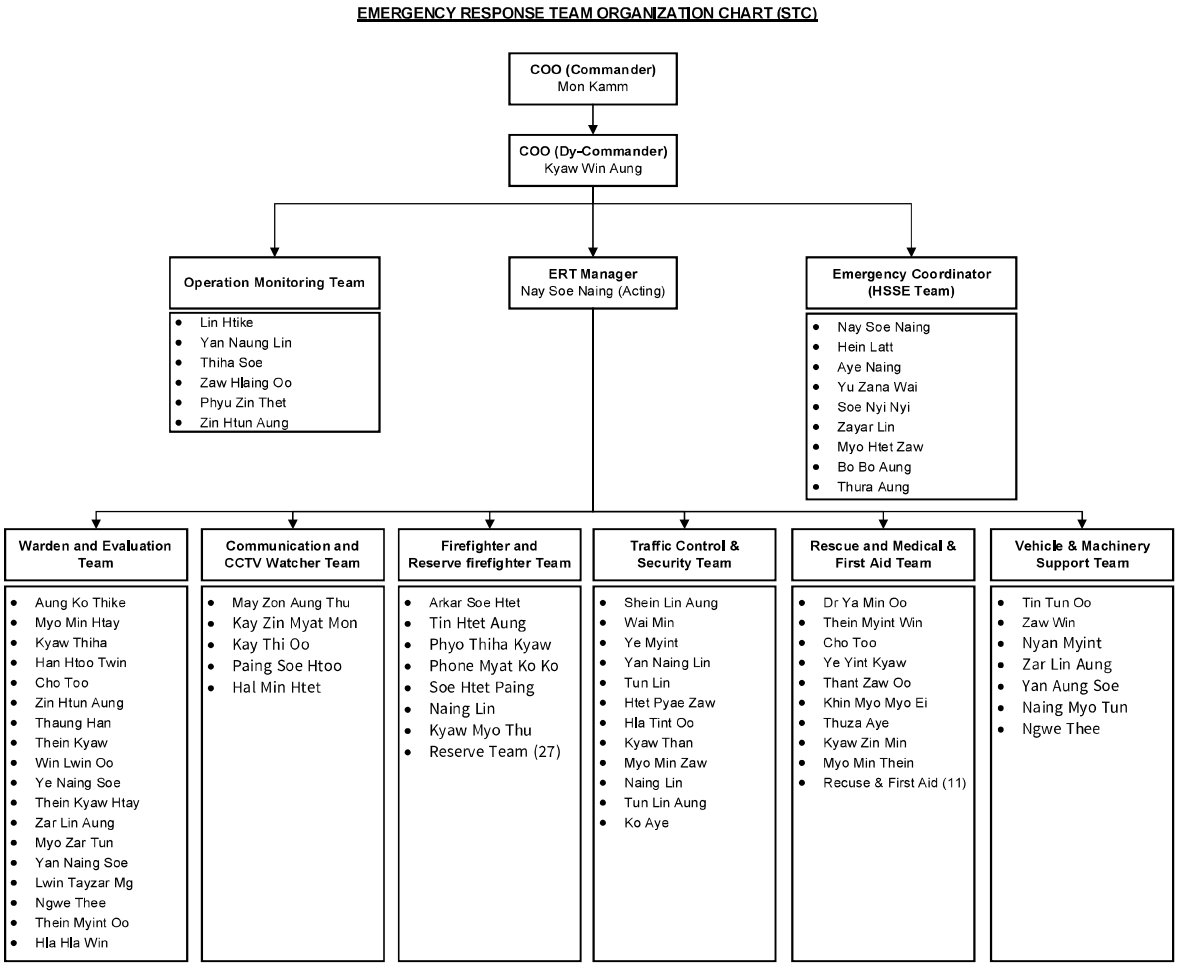
Communication and CCTV Watcher Team

- To monitor CCTV scream
- To arrange the ambulance
- To inform the Clinic
- To arrange the budget

Vehicle & Machinery Support Team

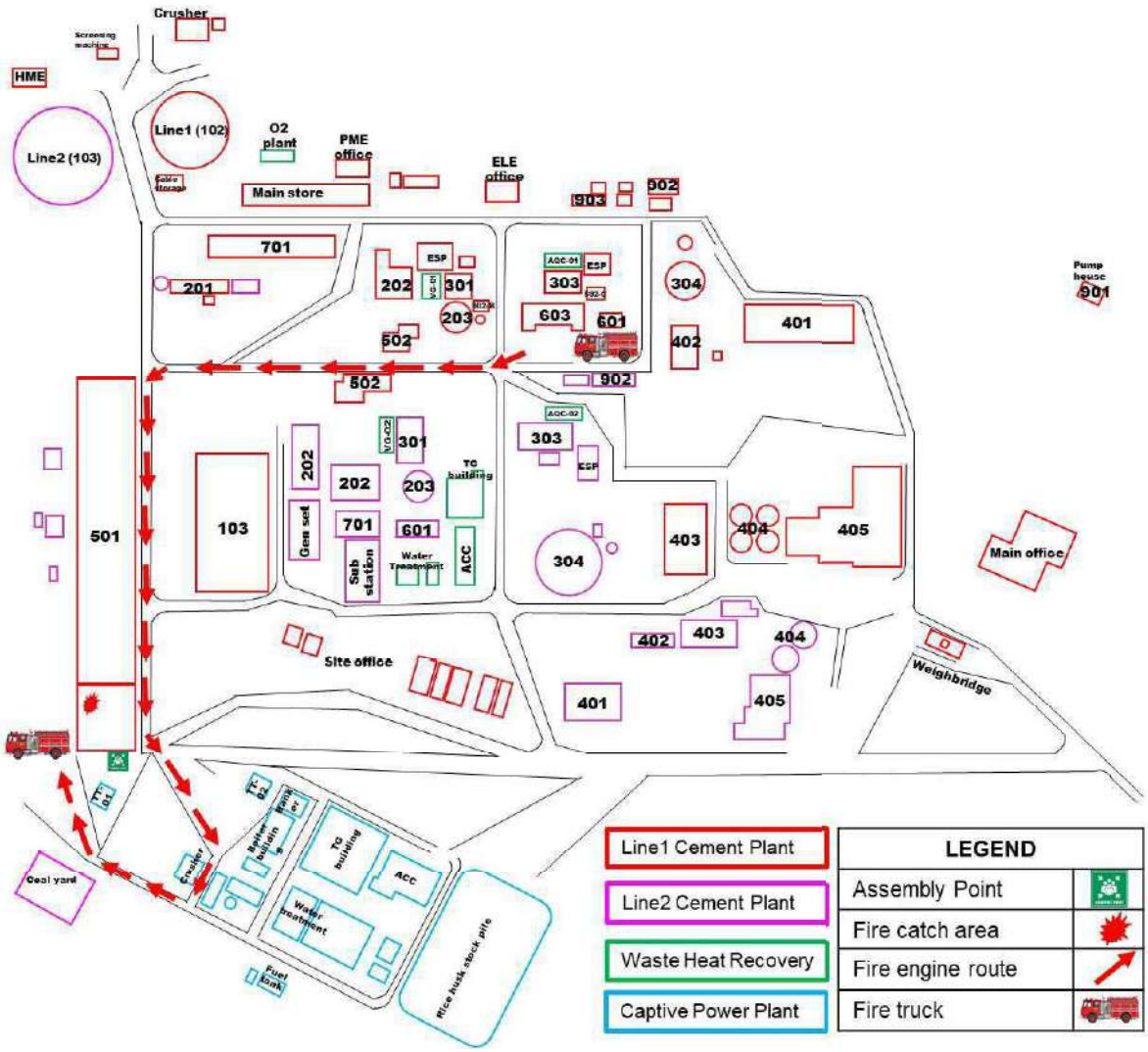
- To arrange ambulance and vehicle
- To arrange require heavy machinery such as Excavator, Mobile crane, Wheel loader etc…

Emergency response team flow chart



Scenario

- About 02:45 pm, one of CPP staff was found coal smoldering in coal hopper tunnel (CPP).
- He tries to extinguish coal smoldering fire using by raw meal
- Site supervisor call STC hotline number



Event

The events are recorded and listed below:

Estimated Time	Events(s)
2:45 PM	Coal smoldering inside coal hopper tunnel
2:46 pm	CPP stie operator try to extinguish coal smoldering using by raw meal
3:00 pm	CPP site supervisor call emergency hot line
3:03 pm	ERT was activated and move to emergency location
3:10 pm	Fire truck arrived emergency location
3:15 pm	Fire was put up and evaluated injury person
3:20 pm	Medical team was given treatment to injury person
3:30 pm	Debrief

Coal hopper inside fire drill result

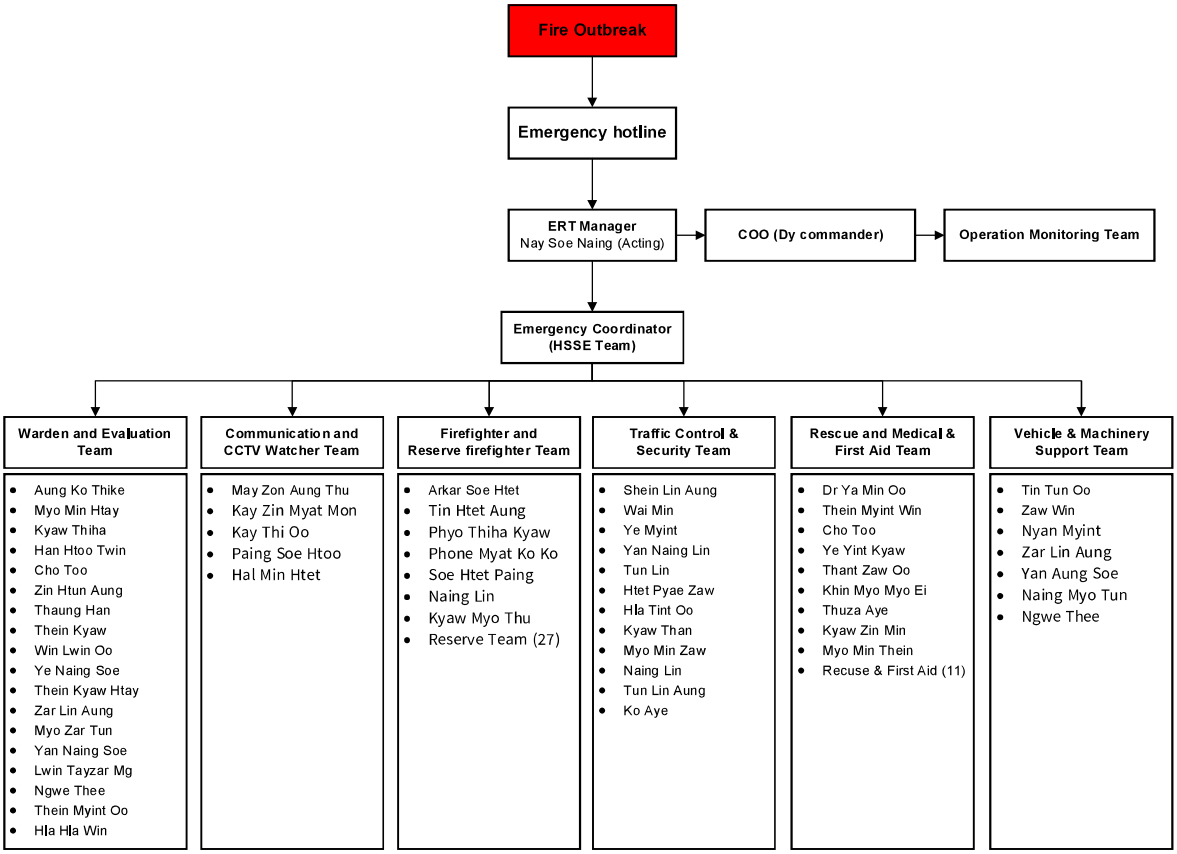
1. Total participation : 15
    a. Firefighting team : 6
    b. Rescue team : 5
    c. Traffic control team : 3
    d. Medical team : 6
    e. Communication team : 2
    f. CPP staff : 10
    g. CPP construction contractor/ workers : 45
2. Assemble Time Record : Approximately 10 ~ 15 minutes

Debrief

1. Recap on the basic procedures when occurred:
    a. Call to emergency hot line - 09255113060, 09 985525338
    b. If need, turn off the electrical supply in building
    c. If need, turn off the equipment and machinery on site
    d. Move to the assembly area; fast and slowly
    e. At the assembly area, respective dept-in-charge will act as head count officer to take head count and register in the attendance sheet
    f. Wait for further instructions by ERD Manager

Appendixes

a. Process details flow chart



b. Emergency contact list

Key Personnel	Pager / Hand phone
Police	199
Ambulance (Phyu Sin Myitta)	09968014931/ 09976897934
Rescue dept	0673404666/ 0673404777
Factory and general labour law inspection dept	095032471
Fire Service (Yin Mar Pin Station)	09445921400 /191
Meiktala General Hospital	095 84497
Fire Service (Thar Zi Station)	0642069131

STC Contact Numbers		
Name	Position	Contact numbers
Mon Kham	COO (STC)	09255112909
Kyaw Win Aung	Head of ERT	09255112052
Lin Htike	HOD	09255112918
Nan Maw Maw Aye	Head of ADM	09255112651
Nay Soe Naing	Head of OHS	09255112704
Zaw Tint	Head of MNE	09255112674
Myo Min Htay	Head of HME	09255112914
Zaw Hlaing Oo	Head of ELE	09255111988
Thiha Soe	Head of PME	09255112897
Phyu Zin Thet	Head of PRD	09255112923
Nyan Myint	Head of LGS	09255113244
Yan Naung Lin	Head of CPP	09255113364
Kyaw Thiha	SMD manager	09255112644
Daw Khin Nwei Nwei Lynn	FME manager	09255112028
Hla Hla Win	FNA manager	09255112645
May Zon Aung Thu	HSSE manager	09255113015
Hein Latt	HSSE manager	09255113077
Kay Zin Myat Mon	RSM manager	09255112940
Tin Tun Oo	ADM manager	09255112032
Ngwe Thee	ADM manager	09255113023
Aung Htoo Min	PCM manager	09255112892
Kay Thi Oo	HR manager	09883002034
Myo Aung Hlaing	ICT manager	09255112996

c. CPP site operator try to extinguish coal smoldering using by raw meal


d. Site supervisor stop belt conveyor using pull cord and inform to emergency hot line


e. After received emergency information report to ERT manager and communication team


f. Firefighter team and rescue team was activated and move to emergency location


g. Security control the incoming vehicles


h. firefighting team extinguished fire


i. Rescue team try to evaluate injury person

j. Medical team was given treatment and relocate injury person to the clinic

k. Management team & worker are move to Assembly Area


l. Debrief by Head of OHS Department


APPENDIX- E

Monitoring Photo Records

Water Quality Monitoring Photo Records

Supply Water (Lower Reservoir)

Sedimentation Pond 7 Effluent

Biotank Effluent

WHR Wastewater

Noise Monitoring Photo Record

Worker Accommodation (55 Acre)