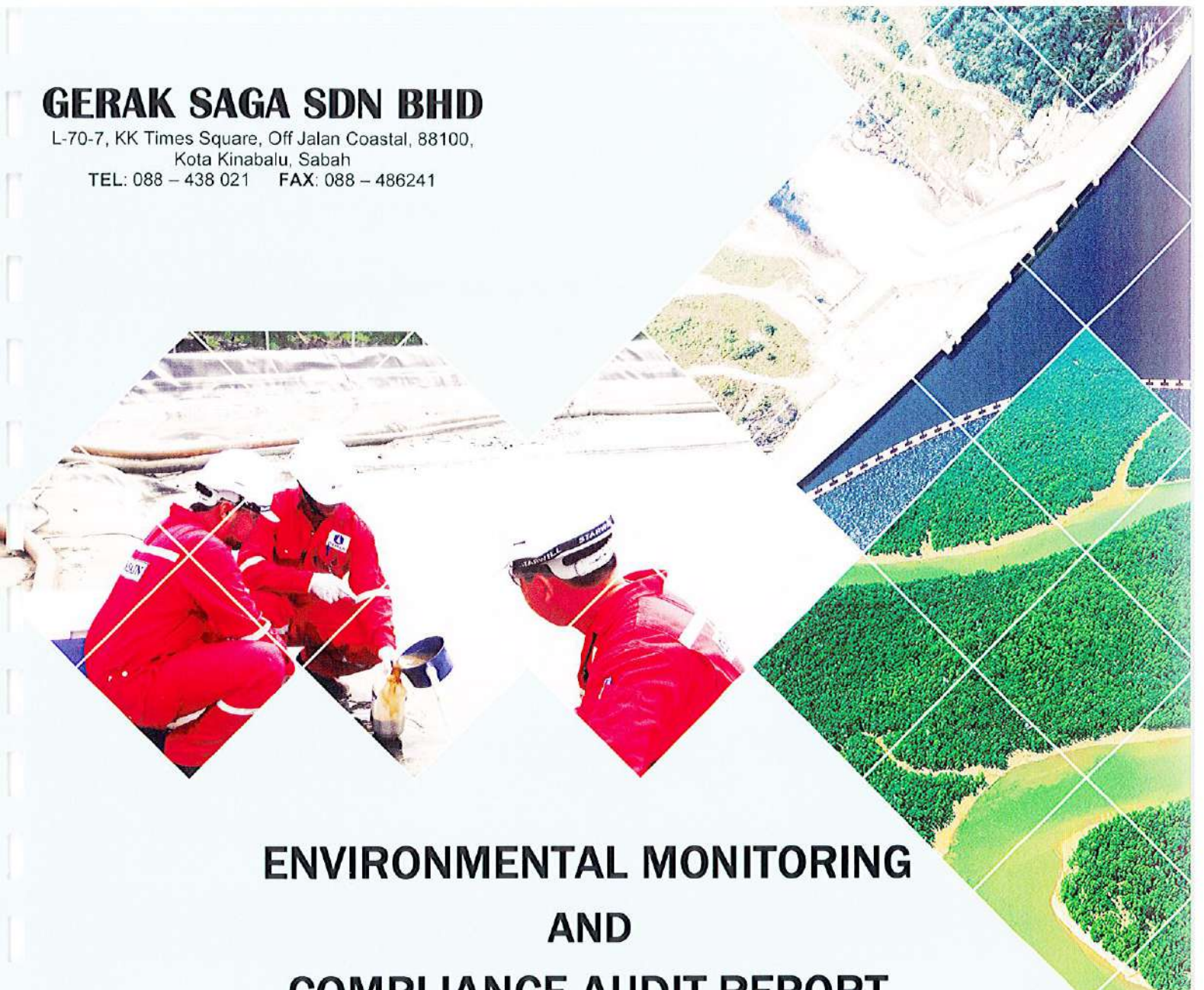


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ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT REPORT

For

**FOREST MANAGEMENT OF BENGKOKA AND TAMBALUGU
FOREST RESERVES (6,467 HA), PITAS, SABAH**

3rd REPORT OF YEAR 2021

| APRIL | AUGUST | DECEMBER |
|-------|--------|----------|
| | | ✓ |

AEC Ref. No. : JPAS/PP/15/600-1/01/3/60(36)
Report Reference : CK/MO411/1197-3/21
Date of Report : 31st December 2021
Report No. : 9



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GERAK SAGA SDN BHD

ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT REPORT

1.0 INTRODUCTION

The Project site covers an area of approximately 6,467 Ha comprising the 6,270 Ha Bengkoka Forest Reserve and the 197 Ha Tambalugu Forest Reserve. For operational purposes, the two forest reserves are managed as a single Forest Management Unit (FMU) and divided into 4 coupes. Coupes 1-3 (Bengkoka) and Coupe 4 (Tambalugu). The Project Proponent holds the license for management operation in both forests for Industrial Tree Plantation (TPP).

1.1 Monitoring Information

Project Title : Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah

EIA Letter Approval Ref. : JPAS/PP/15/600-1/01/3/60(36) dated 1st November 2017

Monitoring Period : September – December 2021

Date of Monitoring : Compliance Audit : 12th November 2021
Water Sampling : 12th November 2021

EIA Consultant : Chemsain Konsultant Sdn. Bhd.

1.2 Monitoring Information

Project Proponent : Gerak Saga Sdn. Bhd.

Contact Person : Mr. Guy Thornton

Tel. No. : 088 – 663 492

Fax No. : 088 – 662 494

Environmental Officer : Ms. Wilvia Olivia William

Contact No. : 019 – 822 6958 (Mobile)

E-mail : w.william@forestsolutions.com.my

1.3 Post-EIA Consultant Information

Post-EIA Consultant : Chemsain Konsultant Sdn. Bhd.

Tel. No. : Office : 088 – 381 277 / 278

Fax No. : 088 – 381 280

Contact Person : Jessica Malagkas / Valentine Abbie

Email : jessica.malagkas@chemsain.com/valentine.abbie@chemsain.com

1.4 Other Approvals

| | |
|-----------------------|-------|
| Development Plan Ref. | : NIL |
| Earthwork Plan Ref. | : NIL |
| Drainage Plan Ref. | : NIL |
| ESCP Ref. | : NIL |

1.5 Project Status

| | | | |
|--------------------|---|--------------------|---------------|
| Project Completion | : | Total planted area | : 1,652.20 Ha |
| | | Harvested | : 2,015.50 Ha |

**Project progress status as of 29/11/2021.*

Chronology of Events :

Table 1.0: Chronology of events

| No. | Event | Date |
|-----|--|-------------------------------|
| 1.0 | Signing of AEC Ref. No.: JPAS/PP/15/600-1/01/3/18 | 23 rd October 2007 |

2.0 LEGAL REQUIREMENT

The Project is classified as a prescribed activity under the **Second Schedule** of the **Environment Protection Enactment (Prescribed Activities) (Environmental Impact Assessment) Order 2005** under **Item 2 (i) & 2 (ii)**.

Environmental Monitoring and Compliance Audit (EMCA) is a requirement by the Environment Protection Department (EPD) and to be carried out every four (4) months, and reported in accordance to the Approval Conditions as specified in the **Syarat-Syarat Alam Sekitar [Seksyen 12(1) dan 20, Enakmen Perlindungan Alam Sekitar 2002]** of the EPD ref: JPAS/PP/15/600-1/01/3/60 (36) dated **1st November 2017**.

3.0 CHANGES TO PROJECT CONCEPT / ENVIRONMENT

3.1 Project Concept

| No. | Item | Changes |
|-----|---------------------|---------|
| 1. | Project Component | Nil |
| 2. | Changes to Land Lot | Nil |
| 3. | Land Area | Nil |

3.2 Surrounding Environment

| No. | Item | Changes |
|-----|----------------------------|---------|
| 1. | Land Use | Nil |
| 2. | River / Coastal Morphology | Nil |

4.0 MONITORING LOCATIONS

Designated monitoring and sampling location are shown in **Figure 1.0** with details tabulated in **Table 2.0**.

Table 2.0: Environmental monitoring and sampling particulars

| Monitoring Component | Key | GPS Coordinates (Datum: Timbalai) | Location Description |
|----------------------|-----|-------------------------------------|---|
| Water Quality | W1 | N 06° 51' 18.9" E 117° 06' 41.1" | Unnamed stream downstream of Bengkoka Forest Reserve at Kg. Kandang |
| | W2 | N 06° 50' 40.6" E 117° 09' 18.6" | Unnamed stream downstream of Bengkoka Forest Reserve at Kg. Gumpa. |
| | W3 | N 06° 50' 40.1" E 117° 10' 38.2" | Sg. Bongkol of Safoda Dam within Bengkoka Forest Reserve. |
| | W4 | N 06° 51' 10.4" E 117° 08' 52.6" | Sg. Kakarangan downstream of Bengkoka Forest Reserve. |
| | W5 | N 06° 52' 39.3" E 117° 09' 49.8" | Unnamed stream downstream of Bengkoka Forest Reserve. |

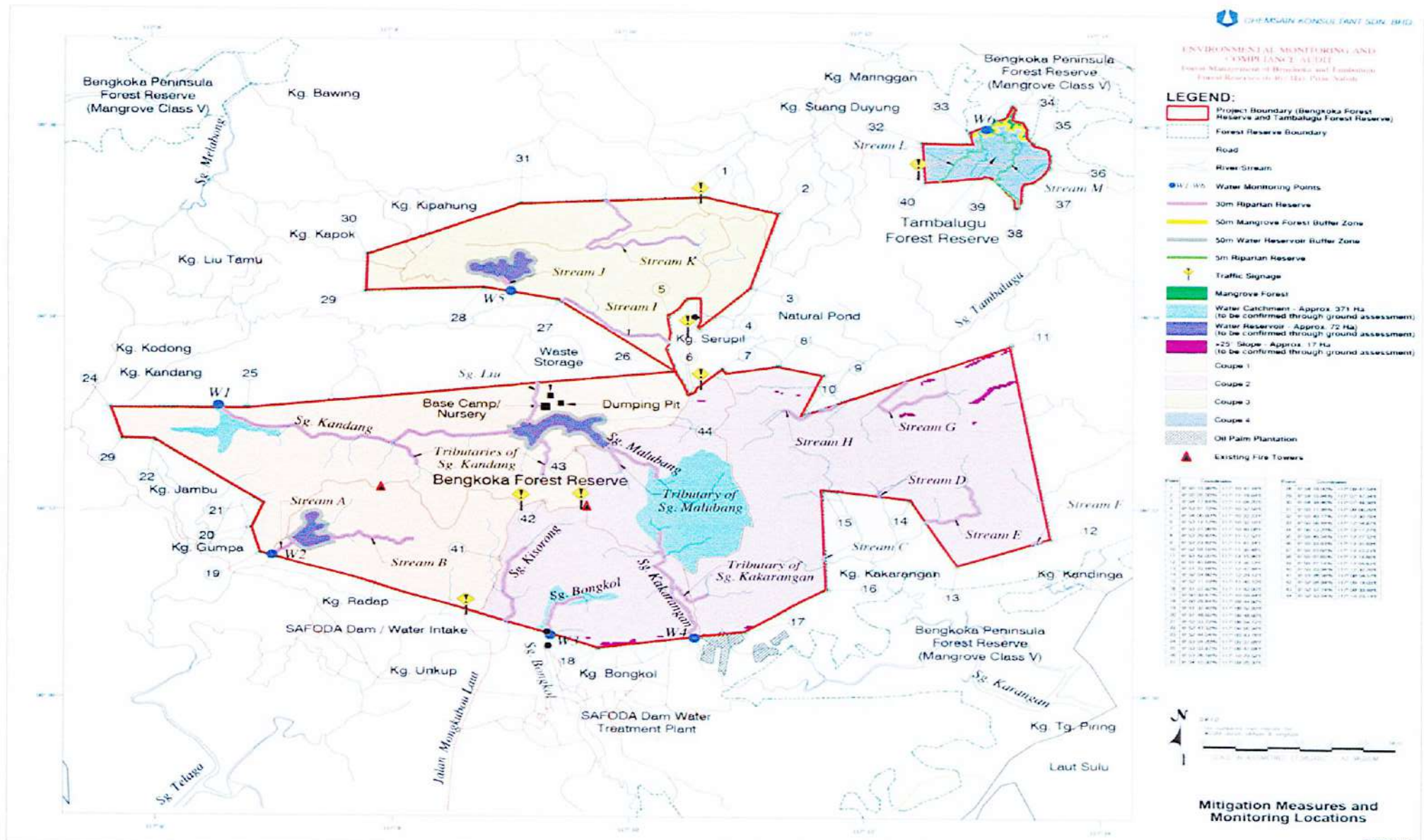


Figure 1.0

Figure 1.0: Mitigation Measures and Monitoring Locations

5.0 COMPLIANCE STATUS, COMMENTS & RECOMMENDATIONS

| | |
|----------------------------------|--|
| Nama Projek | : Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah |
| Nama Pemaju | : Gerak Saga Sdn Bhd |
| Rujukan fail jabatan ini | : JPAS/PP/15/600-1/01/3/60 (36) |
| Tarikh Akujanji | : 1 st November 2017 |
| Penyedia laporan pematuhan ini | : Chemsain Konsultant Sdn. Bhd. |
| Tempoh diliputi oleh laporan ini | : September – December 2021 |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|--------------|---|--------|---|------------------|---------------------------------------|
| 5.1 | <u>Kawalan Tapak Pembangunan</u> | | | | |
| 5.1.1 | <u>Kawalan Kawasan Perladangan Hutan</u> | | | | |
| i. | Satu (1) salinan pelan penyukatan sempadan kawasan projek seluas 6,467 hektar dalam kawasan Hutan Simpan Bengkoka dan Tambalugu, Daerah Pitas sebagaimana ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini hendaklah dikemukakan ke JPAS sebelum aktiviti perladangan hutan dimulakan. | Comply | <ul style="list-style-type: none"> Project Demarcation Plan submitted to EPD via the 1st EMCAR of 2019 as Appendix D. | - | - |
| ii. | Sempadan kawasan projek yang telah diukur hendaklah ditanda di lapangan serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti perladangan hutan dimulakan. | Comply | <ul style="list-style-type: none"> Signboard, entrance (barrier) gate, and coloured pegs in place sighted demarcating Project boundary. Signboard sighted in place demarcating boundary of coupes/blocks. | Plates 3 to 6 | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|---------|--|--------|---|---------------|---------------------------------------|
| iii | Semua tanda sempadan tapak projek hendaklah tidak ditimbus, dihalang, dirosakkan atau diganggu daripada kedudukan asal. | Comply | <ul style="list-style-type: none"> Signboard and pegs are in good condition as sighted during the site visit. | Plates 3 to 6 | - |
| iv | Aktiviti perladangan hutan adalah tidak dibenarkan di dalam kawasan tadahan air, takungan air dan "water intake point" sebagaimana dinyatakan dan masing-masing ditandakan sebagai "Water Catchment", "Water Reservoir" dan "Water Intake" dalam maklumat tambahan rujukan CK/EV403-4278/0199/17 bertarikh 13 April 2017 dan ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini. | Comply | <ul style="list-style-type: none"> Development within the water catchments, water reservoir, and water intake was not sighted. In addition, the Project Proponent has conducted enrichment planting using local species trees along the Riparian Reserve of the water reservoir area. | Plates 7 & 8 | - |
| v | Zon penampian dengan kelebaran tidak kurang 50 meter hendaklah disediakan di sempadan kawasan projek yang bersempadan dengan Hutan Simpan Bengkoka dan ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini. | Comply | <ul style="list-style-type: none"> 50m width buffer zone adjacent to the Bengkoka Forest Reserves was provided for, prior to Project development. | - | - |
| vi | Sebarang aktiviti perladangan hutan tidak dibenarkan dalam kawasan zon penampian. | Comply | <ul style="list-style-type: none"> The Project Proponent has given assurance that the 50m width buffer zone shall be excluded from Project development. | - | - |
| vii | Sebarang aktiviti perladangan hutan tidak dibenarkan dalam kawasan berkecurunan 25 darjah atau lebih | Comply | <ul style="list-style-type: none"> Development within the steep (protected) area ($\geq 25^\circ$ slopes) was not sighted. | - | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|--------------|---|--------|---|-----------|---------------------------------------|
| | <i>sebagaimana ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini.</i> | | | | |
| viii | <i>Sempadan kawasan tadahan air, takungan air dan "water intake point", zon penampungan dan kawasan berkecurunan 25 darjah atau lebih yang dilindungi hendaklah ditanda di lapangan dan dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti perladangan hutan dimulakan.</i> | Comply | <ul style="list-style-type: none"> • Signboard in place demarcating onsite buffer zone. | - | - |
| 5.1.2 | <u>Kawalan Pembinaan Jalan</u> | | | | |
| i | <i>Jalan sedia ada hendaklah digunakan bagi mengurangkan gangguan terhadap tanah.</i> | Comply | <ul style="list-style-type: none"> • Existing access road was fully utilized as sighted during the site visit. | Plate 10 | - |
| ii | <i>Sistem perparitan hendaklah disediakan bagi mengalirkan air keluar dari struktur jalan dan dilencongkan ke kawasan yang mempunyai tumbuhan.</i> | Comply | <ul style="list-style-type: none"> • Existing access road sighted equipped with earth drainage, channelling surface runoff towards the nearest vegetated area. | Plate 10 | - |
| iii | <i>Aktiviti pelupusan atau pembuangan bahan tanah berlebihan <u>tidak dibenarkan</u> dalam parit, sungai atau alur air.</i> | Comply | <ul style="list-style-type: none"> • Disposal of overburden into the nearest natural waterways was not sighted. | - | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|---------|--|----------------|--|-----------------|---------------------------------------|
| 5.1.3 | <u>Pembinaan Rumah Pekerja, Kem Pekerja Atau Bengkel</u> | | | | |
| i | Sebarang aktiviti kerja tanah dan pembersihan kawasan bagi pembinaan rumah pekerja, kem pekerja atau bengkel hendaklah diminimakan. | Comply | <ul style="list-style-type: none"> Staff quarters, workers' quarters, and nursery at the base camp are fully utilized. No workshop sighted constructed within the Project site. According to the Project Proponent, maintenance of Project vehicles will be carried out using an external workshop. | Plates 11 to 13 | - |
| ii | Sistem perparitan yang berkesan hendaklah disediakan bagi mengawal larian air permukaan dan air buangan dari kawasan rumah pekerja, kem pekerja atau bengkel dan hendaklah dilencongkan ke kawasan yang mempunyai tumbuhan dan tidak dibenarkan dialir terus ke dalam sungai atau alur air. | Comply | <ul style="list-style-type: none"> Staff quarters, workers' quarters, and nursery sighted equipped with perimeter concrete drainage, diverting surface runoff towards the nearest vegetated area. | Plates 11 to 13 | - |
| iii | Kedudukan rumah pekerja atau kem pekerja hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari tebing sungai atau alur air. | Comply | <ul style="list-style-type: none"> Staff quarters and workers' quarters are located more than 30m away from the nearest natural waterways. | Plates 11 & 13 | - |
| iv | Kedudukan bengkel hendaklah terletak pada jarak mendatar tidak kurang 50 meter dari tebing sungai atau alur air. | Not Applicable | <ul style="list-style-type: none"> Refer to the comments in AEC 5.1.3 (i). | - | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|--------------|--|--------|--|-----------------|---------------------------------------|
| v | <i>Semua rumah pekerja, kem pekerja atau bengkel sedia ada yang tidak mematuhi peraturan-peraturan yang dinyatakan dalam Perjanjian Syarat-syarat Alam Sekitar ini hendaklah dipindahkan dan dikawal sebagaimana ditetapkan.</i> | Comply | <ul style="list-style-type: none"> These buildings located within the Project site is in compliance with the AEC. | - | - |
| 5.1.4 | <u>Rehabilitasi Tanah Yang Terdedah</u> | | | | |
| i | <i>Semua kawasan tanah dan cerun yang terdedah hendaklah distabilkan dan direhabilitasi dengan menanam spesies tumbuhan yang diluluskan oleh Jabatan Perhutanan Negeri Sabah.</i> | Comply | <ul style="list-style-type: none"> Cover crops planted at exposed Project areas to reduce the risk of soil erosion. Existing vegetation on inactive and idle Project areas were retained and remain undisturbed. | <i>Plate 14</i> | - |
| 5.2 | <u>Perlindungan Sungai</u> | | | | |
| i | <i>Sebarang aktiviti pembersihan dan perladangan hutan adalah tidak dibenarkan dalam simpanan sungai sebagaimana ditunjukkan pada "Figure 6.2.1" dalam Perjanjian Syarat-syarat Alam Sekitar ini.</i> | Comply | <ul style="list-style-type: none"> Development within the riparian reserves was not sighted. | <i>Plate 15</i> | - |
| ii | <i>Sempadan simpanan sungai hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti pembersihan dan perladangan hutan dimulakan.</i> | Comply | <ul style="list-style-type: none"> Tree trunks along the belt of the riparian reserves were painted in blue for demarcation purposes. Signboard sighted in place demarcating Project's riparian reserve. | <i>Plate 15</i> | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|------------|---|--------|--|-------------|---------------------------------------|
| iii | Sebarang pembinaan rumah pekerja, kem pekerja, bengkel, tandas atau struktur bangunan lain tidak dibenarkan dalam simpanan sungai. | Comply | <ul style="list-style-type: none"> Construction of structures within the riparian reserve was not sighted. | - | - |
| iv | Sebarang penyimpanan bahan minyak atau bahan toksik tidak dibenarkan dalam simpanan sungai. | Comply | <ul style="list-style-type: none"> Storage of oils and toxic material within the riparian reserve was not sighted. | - | - |
| v | Sebarang bahan tanah lebihan, sisa pepejal, sisa biomas, kumbahan, bahan minyak, kimia atau bahan-bahan toksik tidak dibenarkan dilupuskan dalam simpanan sungai. | Comply | <ul style="list-style-type: none"> Disposal of overburden, biomass or any types of wastes (i.e. sewage, oil and chemical, etc.) along the riparian reserve was not sighted. | - | - |
| 5.3 | <u>Bahan Minyak Dan Sisa Toksik</u> | | | | |
| i | Bahan minyak dan sisa toksik adalah tidak dibenarkan dilupuskan atau dibiarkan mengalir ke dalam parit, sungai atau alur air. | Comply | <ul style="list-style-type: none"> Disposal of oils and toxic material into natural waterways was not sighted. | - | - |
| ii | Bahan minyak dan sisa toksik hendaklah dikumpul dan disimpan dalam bekas yang kukuh dan tidak mudah bocor. Bekas-bekas penyimpanan tersebut hendaklah dilabel. | Comply | <ul style="list-style-type: none"> Skid tank containing diesel sighted in place. | Plate 16 | - |
| iii | Kawasan penyimpanan bahan minyak dan sisa toksik tersebut hendaklah terlindung dari hujan dan terletak pada jarak mendatar tidak kurang 50 meter dari tebing sungai atau alur air. | Comply | <ul style="list-style-type: none"> The skid tank's shed is equipped with concrete flooring, bunded, sheltered from weather exposure, and situated more than 50 m away from the nearest natural waterways. | Plate 16 | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|------------|--|--------|---|------------------------|---------------------------------------|
| iv | <i>Kawasan penyimpanan bahan minyak dan sisa toksik hendaklah disediakan dengan sistem saliran serta perangkap minyak.</i> | Comply | <ul style="list-style-type: none"> The skid tank shed is equipped with an oil trap. The fuel dispensing nozzle is affixed just above the containment chamber, filled with sand to prevent oil from seeping directly into the ground. | <i>Plates 18 to 20</i> | - |
| v | <i>Bahan minyak dan sisa toksik tersebut hendaklah dilupuskan mengikut keperluan Peraturan-peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 2005.</i> | Comply | <ul style="list-style-type: none"> According to the Project Proponent, scheduled waste generated onsite will be handled by DOE licensed contractor, Petrojadi Sdn. Bhd. | - | - |
| 5.4 | <u>Kawalan Sisa Pepejal Dan Biomas</u> | | | | |
| i | <i>Sebarang aktiviti pelupusan sisa pepejal dan biomas tidak dibenarkan dalam parit, sungai atau alur air.</i> | Comply | <ul style="list-style-type: none"> Disposal of solid waste and biomass into natural waterways was not sighted. | - | - |
| ii | <i>Kemudahan mengumpul dan mengutip sisa pepejal dan biomas hendaklah disediakan. Lokasi kawasan pengumpulan hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari tebing sungai atau alur air.</i> | Comply | <ul style="list-style-type: none"> Garbage bins sighted provided at the staff and workers' quarter's area at the contractor base camp. Dumping pit was provided onsite and located more than 30m away from the nearest natural waterways. | <i>Plates 26 to 27</i> | - |
| iii | <i>Semua sisa pepejal seperti botol, tin, plastik dan besi hendaklah dikumpul secara berasingan dan dikitar semula.</i> | Comply | <ul style="list-style-type: none"> Recycling bins provided to facilitate onsite solid waste segregation. | <i>Plate 28</i> | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|------------|---|--------|--|------------------------|---------------------------------------|
| iv | <i>Sekiranya tiada kawasan pelupusan yang sesuai dalam kawasan projek, sisa pepejal dan biomas hendaklah dilupuskan di kawasan yang diluluskan oleh pihak berkuasa tempatan yang berkaitan.</i> | Comply | <ul style="list-style-type: none"> Refer to the comments in AEC 5. (ii). | - | - |
| 5.5 | <u>Kawalan Sisa Kumbahan / Sisa Cecair</u> | | | | |
| i | <i>Kemudahan sistem sanitasi dan sistem perawatan kumbahan / sisa cecair hendaklah disediakan di kawasan projek.</i> | Comply | <ul style="list-style-type: none"> Toilets are equipped with septic tank. | <i>Plates 29 to 31</i> | - |
| ii | <i>Sebarang pelepasan atau pelupusan terus sisa kumbahan / sisa cecair tidak dibenarkan dalam sungai atau alur air.</i> | Comply | <ul style="list-style-type: none"> Direct discharge of sewage into the natural waterways was not sighted. | - | - |
| iii | <i>Sebarang effluen kumbahan yang dihasilkan hendaklah mematuhi sekurang-kurangnya Piawai B, Peraturan –Peraturan Kualiti Alam Sekeliling (Kumbahan) 2009.</i> | Comply | <ul style="list-style-type: none"> Refer to the comments in AEC 5.5 (i). | - | - |
| 5.6 | <u>Kawalan Kualiti Udara Dan Kebakaran</u> | | | | |
| i | <i>Pembakaran terbuka adalah tidak dibenarkan.</i> | Comply | <ul style="list-style-type: none"> The Project Proponent had given assurance to adhere to zero open burning policy during Project development activities. Signboard pertaining to prohibition of open burning in place, for notification purposes. Firefighting equipment provided onsite | <i>Plate 32</i> | - |

| AEC No. | Approved Environmental Conditions | Status | Observations / Comments | Photo No. | Corrective Action and Completion Date |
|------------|--|----------------|---|-----------|---------------------------------------|
| ii | <i>Pelan pengurusan dan pencegahan kebakaran kawasan projek hendaklah disediakan dan dilaksanakan serta satu (1) salinan pelan tersebut hendaklah dikemukakan ke JPAS.</i> | Comply | <ul style="list-style-type: none"> Fire Management and Prevention Plan was attached in the previous report (3rd EMCAR of 2019) as Appendix C. | - | - |
| 5.7 | <u>Penghentian Atau Penamatan Projek</u> | | | | |
| i | <i>Semua struktur binaan yang tidak digunakan hendaklah dibuka secara teratur apabila berlaku penghentian atau penamatan projek tersebut.</i> | Not Applicable | <ul style="list-style-type: none"> Not applicable at the current stage of development as the Project is still on-going. | - | - |
| ii | <i>Semua struktur binaan yang didapati tidak selamat atau yang tidak dapat dipastikan selamat hendaklah dibuka.</i> | Not Applicable | <ul style="list-style-type: none"> Not applicable at the current stage of development as the Project is still on-going. | - | - |
| iii | <i>Satu Laporan Pematuhan Alam Sekitar dengan format dan kandungan laporan sebagaimana dinyatakan dalam Lampiran 1 hendaklah dikemukakan apabila berlaku penghentian atau penamatan projek tersebut.</i> | Not Applicable | <ul style="list-style-type: none"> Not applicable at the current stage of development as the project is still ongoing. | - | - |

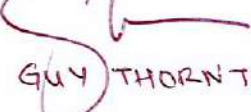
6.0 CONCLUSION

6.1 Overall Compliance

For the Environmental Compliance period of September - December 2021 for the *Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah*, generally complied with the EIA approval conditions, no **non-compliance** was recorded.

PERAKUAN PAS

Dengan ini saya mengaku telah turut serta dalam odit yang dijalankan oleh perunding alam sekitar dan telah meneliti dan bersetuju dengan isi kandungan Laporan Pematuhan Alam Sekitar bagi projek ini.

Tandatangan : 
Nama : GUY THORNTON
Jawatan : FORESTRY DIRECTOR
Tarikh : 26th JANUARY 2022

Cop Rasmi :
Syarikat :



PERAKUAN PERUNDING ALAM SEKITAR

Dengan ini saya mengaku dan mengesahkan semua kenyataan dan butir-butir dalam Laporan Pematuhan Alam Sekitar yang dikemukakan adalah benar.

Tandatangan : 
Nama : Jessica Malagkas
Tarikh : 31st December 2021
Cop Rasmi :
Syarikat :



APPENDIX B

Environmental Monitoring Report



1.0 WATER QUALITY ANALYSIS

1.1 MONITORING LOCATION

Water sampling was scheduled to be carried out on the 12th November 2021 at five (5) monitoring locations, **W1**, **W2**, **W3**, **W4**, and **W5** as shown in **Figure 1.0**. However, no sampling was carried out at locations **W1**, **W2** and **W5** (inaccessible during the site visit), and **W4** (Project has not progressed into these locations yet).

The weather was cloudy and drizzling throughout the sampling exercise.

1.2 ANALYTICAL RESULTS

Laboratory reports of the sample analyses are presented in **Appendix C**. Results of water quality analysis for monitoring stations **W3** and **W6** are summarized in **Tables 3.0** and compared to the respective limit of **Class IIB of National Water Quality Standards for Malaysia (NWQSM)**.

Table 3.0: Surface Water Quality Monitoring Results

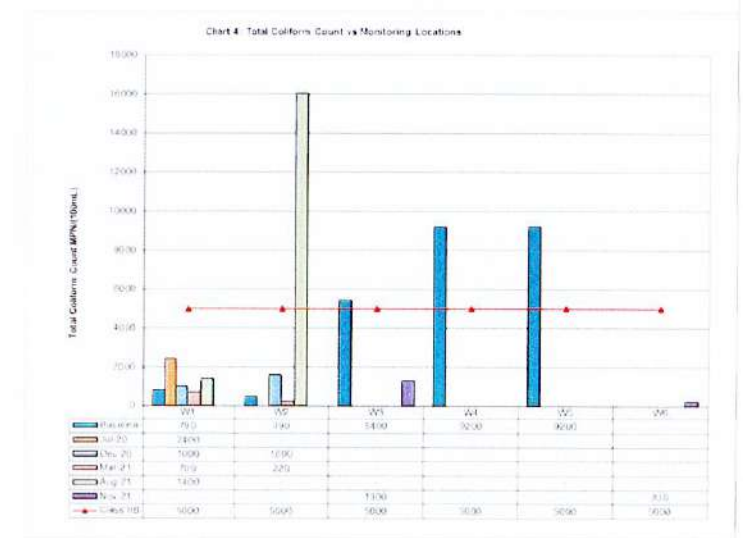
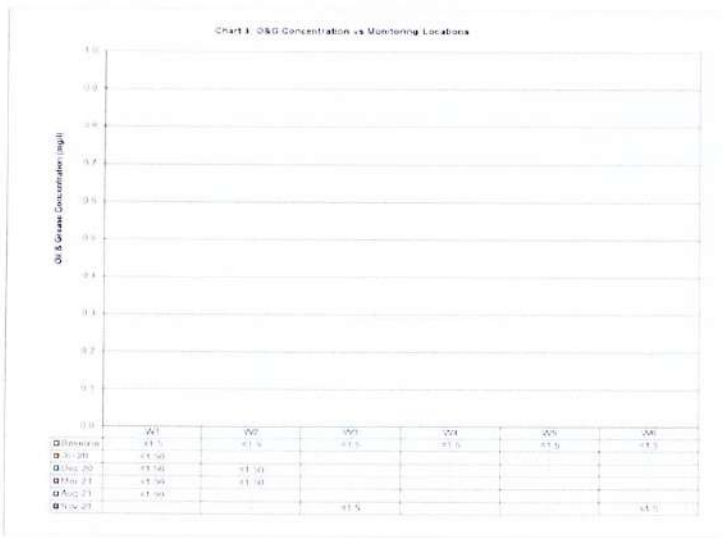
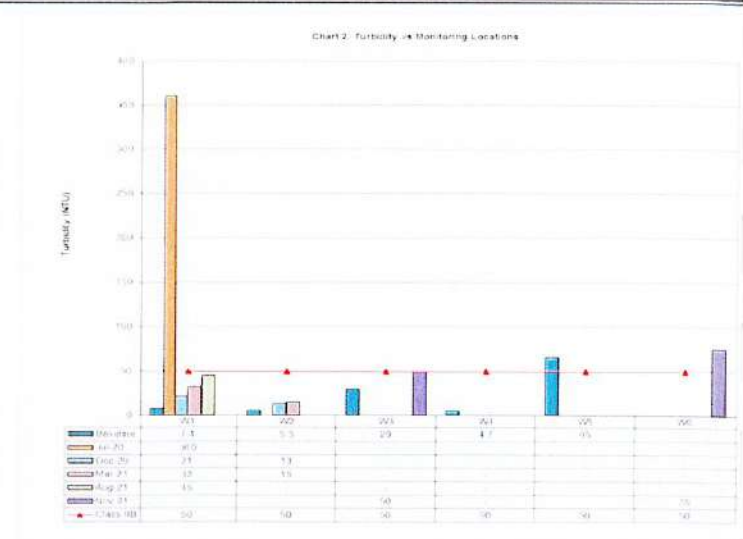
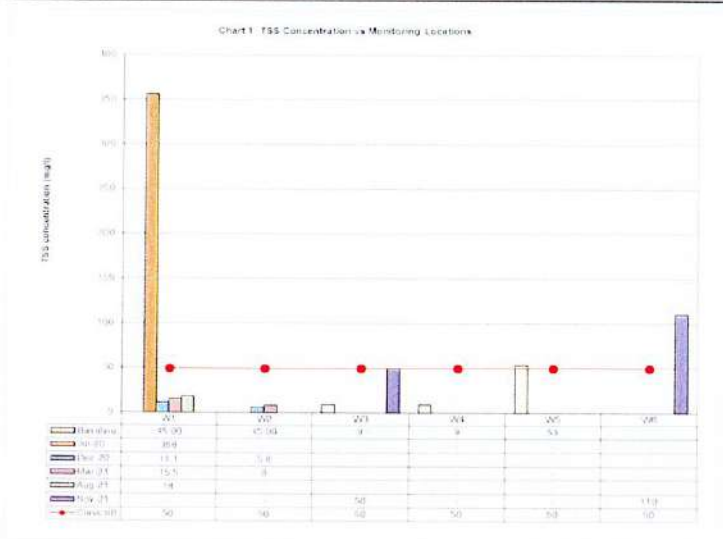
| Monitoring Location | W3 | W6 | 'LIMITS (Class III) |
|--|-------------------------|-------------------------|------------------------|
| Monitoring Date Time | 12/11/2021 12:55 Hrs | 12/11/2021 11:00 Hrs | |
| <u>Physical / Chemical Analysis</u> | | | |
| Total Suspended Solids (TSS), mg/L | 50 | <u>110</u> | 50.0 |
| Turbidity | 50.0 | 75.0 | - |
| Oil & Grease, mg/L | <1.50 | <1.5 | 50.0 |
| <u>Microbiological Analysis</u> | | | |
| Total Coliform Count (TCC), MPN/100mL | 1300 | 230 | 5000 |

Notes: < > Below / above detection limit; NA-Sampling point Not Accessible

¹ National Water Quality Standards for Malaysia, Malaysia Environmental Quarry Report (DOE, 2006)



HISTORICAL SURFACE WATER QUALITY GRAPHICAL REPRESENTATION



Note: * Baseline data extracted from EIA for Forest Management of Bengkoka and Tambalugu Forest Reserves (6,467 Ha), Pitas, Sabah.

1.3 DISCUSSION

Surface water quality analysis shows that all the parameters measured are **below** the recommended limit of **Class IIB** except for Total Suspended Solid (TSS). The elevated level of TSS may be due to rain event prior to sampling activity.

1.4 RECOMMENDED MITIGATION MEASURES

- Construction of sedimentation pond or drainage system within existing waterway or river reserve is strictly prohibited.
- Vegetation clearing shall be carried out in stages and confined to areas that are essential for Project development. Existing vegetation shall be retained to reduce runoff velocity and act as a natural barrier to minimize soil erosion.
- Re-vegetation or planting of cover crops shall be carried out in tandem with the field establishment works. This is to avoid prolonged and unnecessary exposure of bare ground elements such as rainfall, wind, and surface runoffs.
- Usage of agro-chemical is minimized and strictly adhered to the rules and regulations as stipulated under the Pesticides Act 1974. Disposal of agrochemicals such as pesticides and herbicides into existing streams or any waterway is strictly prohibited.

APPENDIX C

Surface Water Test Reports
National Water Quality Standards for Malaysia (NWQSM)





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BERSEKUTU
BERKUALITI



TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Customer : Gerak Saga Sdn Bhd
L-70-7, KK Times Square,
Off Jalan Coastal,
88450 Kota Kinabalu, Sabah

Lab No. : CK/CL405/4677-21
Type (No.) of Sample : River Water (2)
Date Received : 15th November 2021
Date of Report : 01st December 2021
Project Code : CK/MO411/1197/21

| Lab No. | 4677-1 | 4677-2 | Test Method | * Standard Limit |
|------------------------------|--|--|-------------------|------------------|
| Parameter(s) | W3 Date: 12/11/21 Time: 12.55 pm | W6 Date: 12/11/21 Time: 11.00 am | | |
| Turbidity, NTU | 50 | 75 | APHA 2130 B, 2017 | 50 |
| Total Suspended Solids, mg/L | 50.0 | 110 | APHA 2540 D, 2017 | 50 |
| Oil & Grease, mg/L | <1.5 | <1.5 | APHA 5520 B, 2017 | - |

* Class IIB National Water Quality Standards Malaysia.

----- End -----

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SENIOR CHEMIST





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TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Customer : Gerak Saga Sdn Bhd
L-70-7, KK Times Square,
Off Jalan Coastal,
88450 Kota Kinabalu, Sabah

Lab No. : CK/ML405-4678-21
Type (No.) of Sample : River Water (2)
Date Received : 15th November 2021
Date of Report : 24th November 2021
Project Code : CK/MO411/1197/21

| Lab No.: | 4678-1 | 4678-2 | <i>Test Method</i> | <i>* Standard Limit</i> |
|--|--|--|--------------------|-------------------------|
| Parameter(s) | W3 Date: 12.11.21 Time: 12.55 pm | W6 Date: 12.11.21 Time: 11.00 am | | |
| Total Coliform Count MPN/100ml. 35±0.5°C/48 h | 1.3 x 10 ³ | 2.3 x 10 ² | APIA 9221 B, 2017 | 5,000 |

** Class IB National Water Quality Standards Malaysia.*

----- End -----

STEPHANIE EVERETT
M. Sc.
MUMM0369
MICROBIOLOGIST



NATIONAL WATER QUALITY STANDARDS FOR MALAYSIA

| Parameters | Unit | Classes | | | | | |
|------------------|--------------|-----------|-----------|-----------|------------------------------|------------------------------|--------|
| | | I | IIA | IIB | III | IV | V |
| Ammoniacal-N. | mg/l | 0.1 | 0.3 | 0.3 | 0.9 | 2.7 | >2.7 |
| BOD | mg/l | 1 | 3 | 3 | 6 | 12 | >12 |
| COD | mg/l | 10 | 25 | 25 | 50 | 100 | >100 |
| DO | mg/l | 7.0 | 5.0 – 7.0 | 5.0 – 7.0 | 3.0 – 5.0 | <3.0 | <1.0 |
| pH | | 6.5 – 8.5 | 6.0 – 9.0 | 6.0 – 9.0 | 5.0 – 9.0 | 5.0 – 9.0 | - |
| Colour | TCU | 15 | 150 | 150 | - | - | - |
| Elec. Cond* | µS/cm | 1000 | 1000 | - | - | 6000 | - |
| Floatables | | N | N | N | - | - | - |
| Odour | | N | N | N | - | - | - |
| Salinity* | % | 0.5 | 1 | - | - | 2 | - |
| Taste | | N | N | N | - | - | - |
| Tot. Diss. Sol.* | mg/l | 500 | 1000 | - | - | 4000 | - |
| Tot. Susp. Sol. | mg/l | 25 | 50 | 50 | 150 | 300 | >300 |
| Temperature | °C | - | Normal±2 | - | Normal±2 | - | - |
| Turbidity | NTU | 5 | 50 | 50 | - | - | - |
| F. Coliform** | counts/100ml | 10 | 100 | 400 | 5000 (20000) ^a | 5000 (20000) ^a | - |
| Total Coliform | counts/100ml | 100 | 5000 | 5000 | 50000 | 50000 | >50000 |

N = No visible floatable material / debris; or no objectionable odour; or no objectionable taste.

* = Related parameters, only one recommended for use

** = Geometric mean

± = Maximum not to be exceeded

CLASS USES

- I represent water body of excellent quality. Standards are set for the conservation of natural environment in its undisturbed state. Water bodies such as those in the national park areas, fountainheads, and in high land and undisturbed areas come under this category where strictly no discharge of any kind is permitted. Water bodies in this category meet the most stringent requirements for human health and aquatic life protection.
- IIA / IIB represents water bodies of good quality. Most existing raw water supply sources come under this category. In practice, no body contact activity is allowed in this water for prevention of probable human pathogens. There is a need to introduce another class for water bodies not used for water supply but of similar quality which may be referred to as **Class IIB**. The determination of **Class IIB** standard is based on criteria for recreational use and protection of sensitive aquatic species.
- III is defined with the primary objective of protecting common and moderately tolerant aquatic species of economic value. Water under this classification may be used for water supply with extensive / advance treatment. This class of water is also defined to suit livestock drinking needs.
- IV defines water quality required for major agricultural irrigation activities which may not cover minor applications to sensitive crops.
- V represents other waters which do not meet any of the above uses.