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## LAMPIRAN

**Tabel Lampiran 1.1 Pengujian Ammonia Titik Sampling Floating**

| Titik Sampling Floating |       |             |         |
|-------------------------|-------|-------------|---------|
| Hari ke                 | Abs   | Konsentrasi | Ammonia |
| 0                       | 0.709 | 0.558       | 0.558   |
| 6                       | 0.727 | 0.573       | 0.543   |
|                         | 0.654 | 0.514       |         |
| 11                      | 0.053 | 0.025       | 0.023   |
|                         | 0.047 | 0.020       |         |
| 16                      | 0.132 | 0.089       | 0.078   |
|                         | 0.105 | 0.067       |         |
| 21                      | 0.033 | 0.009       | 0.004   |
|                         | 0.021 | -0.001      |         |
| 26                      | 0.029 | 0.006       | 1.119   |
|                         | 2.767 | 2.232       |         |

**Tabel Lampiran 1.2 Pengujian Ammonia Titik Sampling Constructed 1**

| Titik Sampling Constructed 1 |       |             |         |
|------------------------------|-------|-------------|---------|
| Hari ke                      | Abs   | Konsentrasi | Ammonia |
| 0                            | 0.709 | 0.558       | 0.558   |
| 6                            | 0.631 | 0.495       | 0.477   |
|                              | 0.587 | 0.459       |         |
| 11                           | 0.072 | 0.040       | 0.029   |
|                              | 0.043 | 0.017       |         |
| 16                           | 0.123 | 0.082       | 0.064   |
|                              | 0.079 | 0.046       |         |
| 21                           | 0.035 | 0.010       | 0.007   |
|                              | 0.026 | 0.003       |         |
| 26                           | 0.025 | 0.002       | 0.008   |
|                              | 0.039 | 0.014       |         |

**Tabel Lampiran 1.3 Pengujian Ammonia Titik Sampling Constructed 2**

| Titik Sampling Constructed 2 |       |             |         |
|------------------------------|-------|-------------|---------|
| Hari ke                      | Abs   | Konsentrasi | Ammonia |
| 0                            | 0.709 | 0.558       | 0.558   |
| 6                            | 0.361 | 0.275       | 0.264   |
|                              | 0.332 | 0.252       |         |

| Titik Sampling Constructed 2 |       |             |         |
|------------------------------|-------|-------------|---------|
| Hari ke                      | Abs   | Konsentrasi | Ammonia |
| 11                           | 0.028 | 0.005       | 0.004   |
|                              | 0.027 | 0.004       |         |
| 16                           | 0.033 | 0.009       | 0.018   |
|                              | 0.056 | 0.027       |         |
| 21                           | 0.028 | 0.005       | 0.004   |
|                              | 0.026 | 0.003       |         |
| 26                           | 0.059 | 0.030       | 0.025   |
|                              | 0.046 | 0.019       |         |

**Tabel Lampiran 1.4 Pengujian COD Titik Sampling Floating**

| Titik Sampling Floating |       |             |       |
|-------------------------|-------|-------------|-------|
| Hari ke                 | Abs   | Konsentrasi | COD   |
| 0                       | 0.240 | 617.5       | 6175  |
| 6                       | 0.120 | 317.5       | 3650  |
|                         | 0.158 | 412.5       |       |
| 11                      | 0.015 | 55.0        | 4625  |
|                         | 0.008 | 37.5        |       |
| 16                      | 0.015 | 55.0        | 5375  |
|                         | 0.014 | 52.5        |       |
| 21                      | 0.027 | 85.0        | 7500  |
|                         | 0.019 | 65.0        |       |
| 26                      | 0.047 | 135.0       | 10250 |
|                         | 0.021 | 70.0        |       |

**Tabel Lampiran 1.5 Pengujian COD Titik Sampling Constructed 1**

| Titik Sampling Constructed 1 |       |             |      |
|------------------------------|-------|-------------|------|
| Hari ke                      | Abs   | Konsentrasi | COD  |
| 0                            | 0.240 | 618         | 6175 |
| 6                            | 0.072 | 198         | 3113 |
|                              | 0.163 | 425         |      |
| 11                           | 0.008 | 38          | 4250 |
|                              | 0.012 | 48          |      |
| 16                           | 0.043 | 125         | 8250 |
|                              | 0.009 | 40          |      |
| 21                           | 0.033 | 100         | 8750 |
|                              | 0.023 | 75          |      |

| Titik Sampling Constructed 1 |       |             |       |
|------------------------------|-------|-------------|-------|
| Hari ke                      | Abs   | Konsentrasi | COD   |
| 26                           | 0.062 | 172.5       | 13375 |
|                              | 0.031 | 95          |       |

**Tabel Lampiran 1.6 Pengujian COD Titik Sampling Constructed 2**

| Titik Sampling Constructed 2 |       |             |       |
|------------------------------|-------|-------------|-------|
| Hari ke                      | Abs   | Konsentrasi | COD   |
| 0                            | 0.240 | 618         | 6175  |
| 6                            | 0.084 | 228         | 2138  |
|                              | 0.073 | 200         |       |
| 11                           | 0.033 | 100         | 9125  |
|                              | 0.026 | 83          |       |
| 16                           | 0.025 | 80          | 7250  |
|                              | 0.019 | 65          |       |
| 21                           | 0.029 | 90          | 8250  |
|                              | 0.023 | 75          |       |
| 26                           | 0.074 | 203         | 17000 |
|                              | 0.048 | 138         |       |

**Tabel Lampiran 1.7 Pengujian BOD Titik Sampling Floating**

| Parameter     | Sampel       | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD    |        |
|---------------|--------------|--|----------------|--------------------|--------|--------|
| DO0           | sampel 1 (a) | 2.6  | 2.5            | 12.10              | 119.75 | 1197.5 |
|               | sampel 1 (b) | 2.4  |                |                    |        |        |
|               | Blanko (a)   | 2.2  | 2.25           | 10.89              |        |        |
|               | Blanko (b)   | 2.3  |                |                    |        |        |
| Parameter (6) | Sampel       | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD    |        |
| DO0           | Floating (a) | 2.6  | 2.45           | 11.85              | 96.77  | 967.68 |
|               | Floating (b) | 2.3  |                |                    |        |        |
|               | Blanko (a)   | 2.3  | 2.25           | 10.89              |        |        |
|               | Blanko (b)   | 2.2  |                |                    |        |        |
| DO5           | Floating (a) | 2.4  | 2.25           | 10.89              | 96.77  | 967.68 |
|               | Floating (b) | 2.1  |                |                    |        |        |
|               | Blanko (a)   | 2.3  | 2.25           | 10.89              |        |        |
|               | Blanko (b)   | 2.2  |                |                    |        |        |



| Parameter      | Sampel       | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
|----------------|--------------|--|----------------|--------------------|-------|--------|
| Parameter (21) | Sampel       | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
| DO0            | Floating (a) | 1.4  | 1.35           | 6.53               | 24.19 | 2419.2 |
|                | Floating (b) | 1.3  |                |                    |       |        |
|                | Blanko (a)   | 2.4  | 2.35           | 11.37              |       |        |
|                | Blanko (b)   | 2.3  |                |                    |       |        |
| DO5            | Floating (a) | 1.3  | 1.3            | 6.29               |       |        |
|                | Floating (b) | 1.3  |                |                    |       |        |
|                | Blanko (a)   | 2.4  | 2.35           | 11.37              |       |        |
|                | Blanko (b)   | 2.3  |                |                    |       |        |
| Parameter (26) | Sampel       | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
| DO0            | Floating (a) | 1.2  | 1.1            | 5.32               | 23.95 | 2395   |
|                | Floating (b) | 1  |                |                    |       |        |
|                | Blanko (a)   | 2.1  | 2.15           | 10.40              |       |        |
|                | Blanko (b)   | 2.2  |                |                    |       |        |
| DO5            | Floating (a) | 1  | 1.1            | 5.32               |       |        |
|                | Floating (b) | 1.2  |                |                    |       |        |
|                | Blanko (a)   | 2.2  | 2.2            | 10.64              |       |        |
|                | Blanko (b)   | 2.2  |                |                    |       |        |

**Tabel Lampiran 1.8 Pengujian BOD Titik Sampling Constructed 1**

| Parameter     | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD    |        |
|---------------|-------------------|--|----------------|--------------------|--------|--------|
| DO0           | sampel 1 (a)      | 2.6  | 2.5            | 12.10              | 119.75 | 1197.5 |
|               | sampel 1 (b)      | 2.4  |                |                    |        |        |
|               | Blanko (a)        | 2.2  | 2.25           | 10.89              |        |        |
|               | Blanko (b)        | 2.3  |                |                    |        |        |
| Parameter (6) | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD    |        |
| DO0           | Constructed 1 (a) | 2.3  | 2.2            | 10.64              | 48.38  | 483.84 |
|               | Constructed 1 (b) | 2.1  |                |                    |        |        |
|               | Blanko (a)        | 2.3  | 2.25           | 10.89              |        |        |
|               | Blanko (b)        | 2.2  |                |                    |        |        |
| DO5           | Constructed 1 (a) | 2.2  | 2.1            | 10.16              |        |        |
|               | Constructed 1 (b) | 2  |                |                    |        |        |
|               | Blanko (a)        | 2.3  | 2.25           | 10.89              |        |        |
|               | Blanko (b)        | 2.2  |                |                    |        |        |

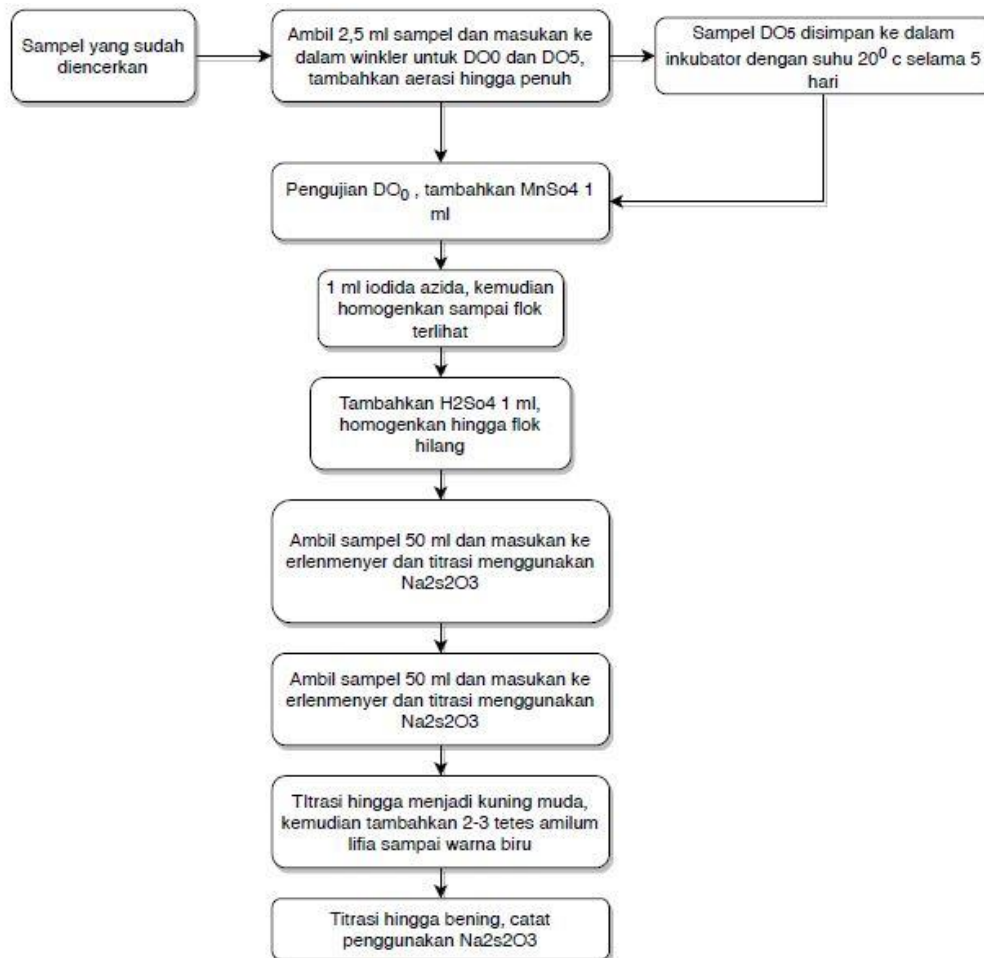
| Parameter (21) | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
|----------------|-------------------|--|----------------|--------------------|-------|--------|
| DO0            | Constructed 1 (a) | 1.1  | 1.05           | 5.08               | 48.38 | 4838.4 |
|                | Constructed 1 (b) | 1  |                |                    |       |        |
|                | Blanko (a)        | 2.4  | 2.35           | 11.37              |       |        |
|                | Blanko (b)        | 2.3  |                |                    |       |        |
| DO5            | Constructed 1 (a) | 1  | 0.95           | 4.60               | 48.38 | 4838.4 |
|                | Constructed 1 (b) | 0.9  |                |                    |       |        |
|                | Blanko (a)        | 2.4  | 2.35           | 11.37              |       |        |
|                | Blanko (b)        | 2.3  |                |                    |       |        |
| Parameter (26) | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
| DO0            | Constructed 1 (a) | 1  | 1              | 4.84               | 23.95 | 2395   |
|                | Constructed 1 (b) | 1  |                |                    |       |        |
|                | Blanko (a)        | 2.1  | 2.15           | 10.40              |       |        |
|                | Blanko (b)        | 2.2  |                |                    |       |        |
| DO5            | Constructed 1 (a) | 1.1  | 1              | 4.84               | 23.95 | 2395   |
|                | Constructed 1 (b) | 0.9  |                |                    |       |        |
|                | Blanko (a)        | 2.2  | 2.2            | 10.64              |       |        |
|                | Blanko (b)        | 2.2  |                |                    |       |        |

**Tabel Lampiran 1.9 Pengujian BOD Titik Sampling Constructed 2**

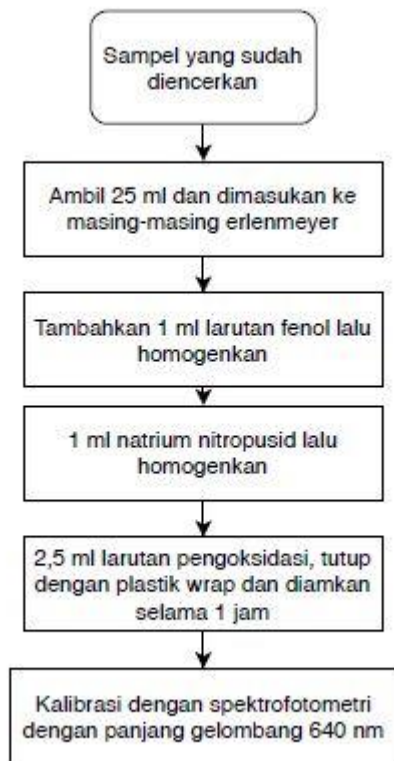
| Parameter | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD    |        |
|-----------|-------------------|--|----------------|--------------------|--------|--------|
| DO0       | sampel 1 (a)      | 2.6  | 2.5            | 12.10              | 119.75 | 1197.5 |
|           | sampel 1 (b)      | 2.4  |                |                    |        |        |
|           | Blanko (a)        | 2.2  | 2.25           | 10.89              |        |        |
|           | Blanko (b)        | 2.3  |                |                    |        |        |
| Parameter | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD    |        |
| DO0       | Constructed 2 (a) | 2.4  | 2.2            | 10.64              | 72.58  | 725.76 |
|           | Constructed 2 (b) | 2  |                |                    |        |        |
|           | Blanko (a)        | 2.3  | 2.25           | 10.89              |        |        |
|           | Blanko (b)        | 2.2  |                |                    |        |        |
| DO5       | Constructed 2 (a) | 2.1  | 2.05           | 9.92               | 72.58  | 725.76 |
|           | Constructed 2 (b) | 2  |                |                    |        |        |
|           | Blanko (a)        | 2.3  | 2.25           | 10.89              |        |        |
|           | Blanko (b)        | 2.2  |                |                    |        |        |

| Parameter | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
|-----------|-------------------|--|----------------|--------------------|-------|--------|
| DO0       | Constructed 2 (a) | 1.3  | 1.15           | 5.56               | 48.38 | 4838.4 |
|           | Constructed 2 (b) | 1  |                |                    |       |        |
|           | Blanko (a)        | 2.4  | 2.35           | 11.37              |       |        |
|           | Blanko (b)        | 2.3  |                |                    |       |        |
| DO5       | Constructed 2 (a) | 1.1  | 1.05           | 5.08               |       |        |
|           | Constructed 2 (b) | 1  |                |                    |       |        |
|           | Blanko (a)        | 2.4  | 2.35           | 11.37              |       |        |
|           | Blanko (b)        | 2.3  |                |                    |       |        |
| Parameter | Sampel            | Vol . Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (ml) | Rata-Rata (ml) | Konsentrasi (mg/l) | BOD   |        |
| DO0       | Constructed 2 (a) | 1.1  | 1              | 4.84               | 24.19 | 2419.2 |
|           | Constructed 2 (b) | 0.9  |                |                    |       |        |
|           | Blanko (a)        | 2.2  | 2.2            | 10.64              |       |        |
|           | Blanko (b)        | 2.2  |                |                    |       |        |
| DO5       | Constructed 2 (a) | 1  | 0.95           | 4.60               |       |        |
|           | Constructed 2 (b) | 0.9  |                |                    |       |        |
|           | Blanko (a)        | 2.2  | 2.2            | 10.64              |       |        |
|           | Blanko (b)        | 2.2  |                |                    |       |        |

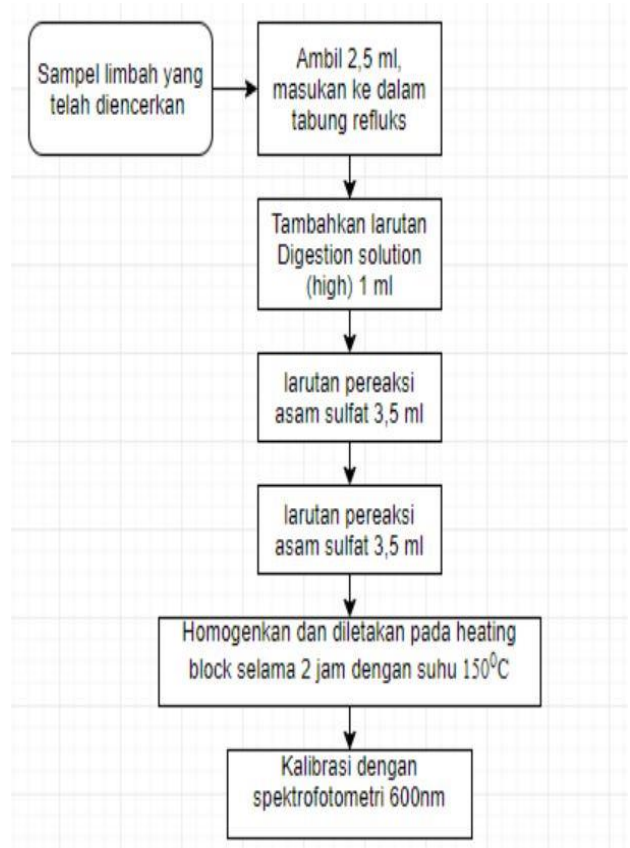
**LAMPIRAN**  
**PROSES PENGUJIAN SETIAP PARAMETER**



**Gambar Lampiran 1.1** Pengujian BOD



**Gambar Lampiran 4.2** Pengujian Amonia



**Gambar Lampiran 4.3** Pengujian COD

**LAMPIRAN**  
**BAKU MUTU AIR LIMBAH PERGUB DIY NO.7 TAHUN 2010**



SALINAN

GUBERNUR DAERAH ISTIMEWA YOGYAKARTA  
PERATURAN GUBERNUR DAERAH ISTIMEWA YOGYAKARTA

NOMOR 7 TAHUN 2010

TENTANG

BAKU MUTU LIMBAH CAIR BAGI KEGIATAN INDUSTRI,  
PELAYANAN KESEHATAN, DAN JASA PARIWISATA

50. BAKU MUTU LIMBAH CAIR UNTUK KEGIATAN TERMINAL / STASIUN / BANDARA

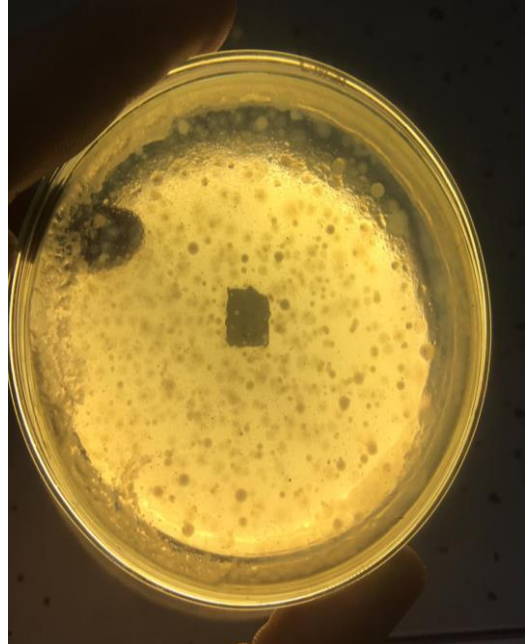
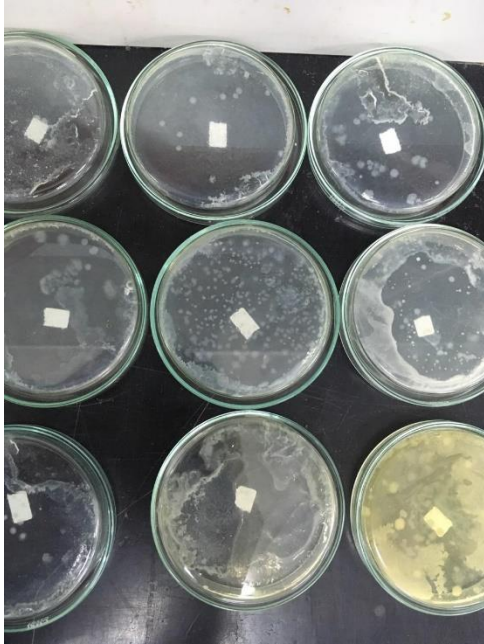
| PARAMETER                      | SATUAN   | KADAR & BEBAN PENCEMARAN |                      |
|--------------------------------|----------|--------------------------|----------------------|
|                                |          | KADAR MAX                | BEBAN PENCEMAR MAX   |
|                                |          | (mg/L)                   | (gr/m <sup>3</sup> ) |
| pH                             |          | 6.0-9.0                  |                      |
| Suhu                           |          | ± 3°C thd suhu udara     |                      |
| Konduktivitas                  | µmhos/cm | 1,5625                   |                      |
| BOD                            | mg/L     | 75                       | 11,25                |
| COD                            | mg/L     | 200                      | 30                   |
| TSS                            | mg/L     | 75                       | 11,25                |
| TDS                            | mg/L     | 1000                     | 150                  |
| Detergen                       | mg/L     | 5                        | 0,75                 |
| Minyak & Lemak Nabati          | mg/L     | 5                        | 0,75                 |
| Minyak Bumi                    | mg/L     | 2                        |                      |
| Debit / volume limbah maksimum | 150      |                          |                      |
| Ammonia                        | mg/L     | 1                        | 0,5                  |

## LAMPIRAN DOKUMENTASI

### PEMBUATAN REAKTOR



## KULTURISASI BAKTERI





## SAMPLING





## **RIWAYAT HIDUP**



### **BIODATA**

Nama : Dino Rinaldi  
Alamat : Jl. Pumorow, banjer lingkungan III (belakang kantor depnaker), Kecamatan Tikala, Manado. Sulawesi Utara.  
TTL : Manado, 30 Januari 1998

### **Riwayat Pendidikan**

SD : SD Kartika Wirabuana 3, Manado  
SMP : SMP 1 Manado  
SMA : SMA 9 Binsus Manado  
Perguruan Tinggi : Universitas Islam Indonesia

### **Orang Tua**

Ayah : Sarwidi  
Ibu : Asri Abubakar

### **Pengalaman Organisasi**

- Staff Dalam Negeri Himpunan Mahasiswa Teknik Lingkungan Periode 2017/2018