



Earth Creative

Our future insights will save our earth.

株式会社アースクリエイティブ

1. Introduction

2. Wastewater treatment System in Indonesia

3. Future Work



1. Introduction

Earth Creative Co., Ltd is a waste and wastewater service company with the purpose of collecting, transporting and maintaining waste, especially sludge from wastewater treatment facility. Currently, our business involved in recycling business and play a role in contributing to a waste recycling society

- Established : 1968
- Profits : 530 Million JPY (2017)
- Total Employee : More than 40
- Average Age : 39 Years Old
- Business Description : Waste Collection, Transportation & disposal, Wastewater treatment plant Operational & Maintenance, Drainage Cleaning & Maintenance, Drinking Water



Ube City, Yamaguchi Prefecture

Yamaguchi Prefecture is located at the westernmost tip of Honshu island, 800 km from Tokyo. Population is approximately 1.2 million people

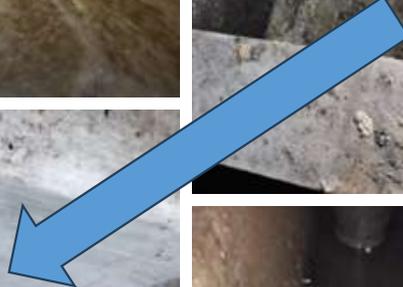


2. Wastewater treatment system in Indonesia



Case 1 : Hotel



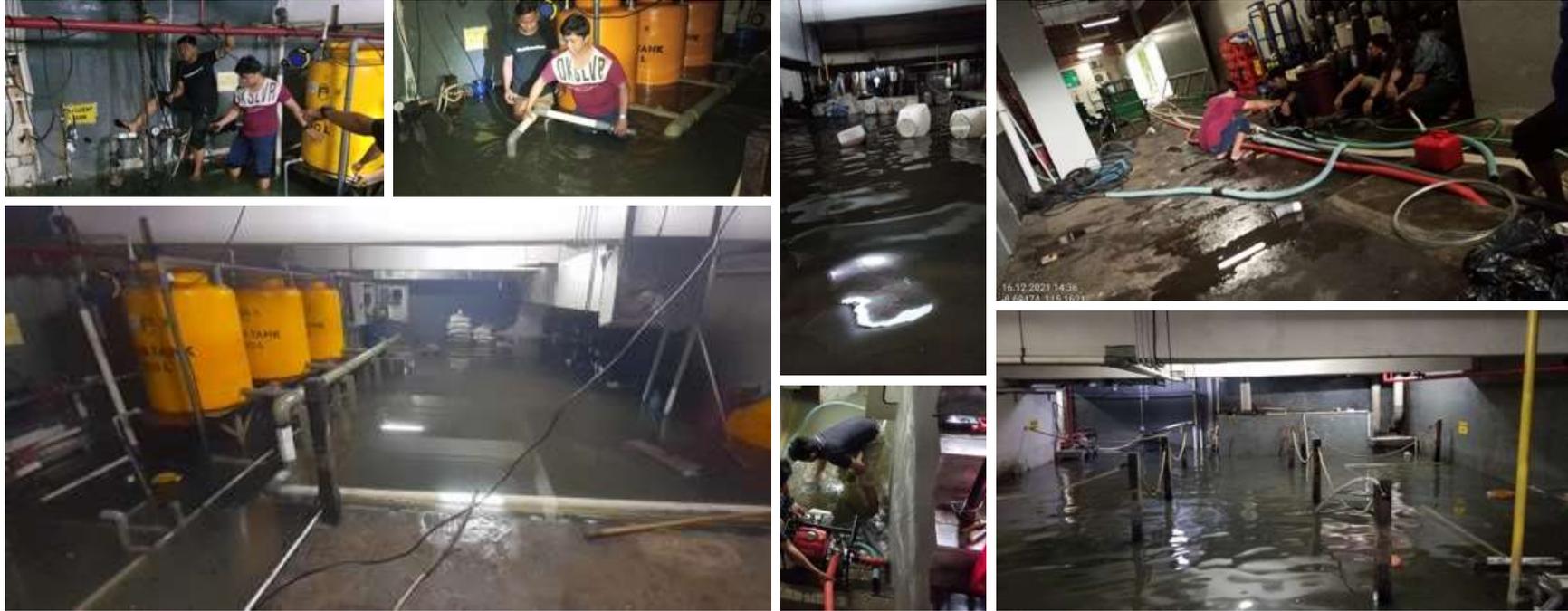


浄化槽内清掃





Case 2 : STP Before Maintenance Contract



Flooded Wastewater treatment Plant



Blocked Submersible Pump (Equalization Pump)

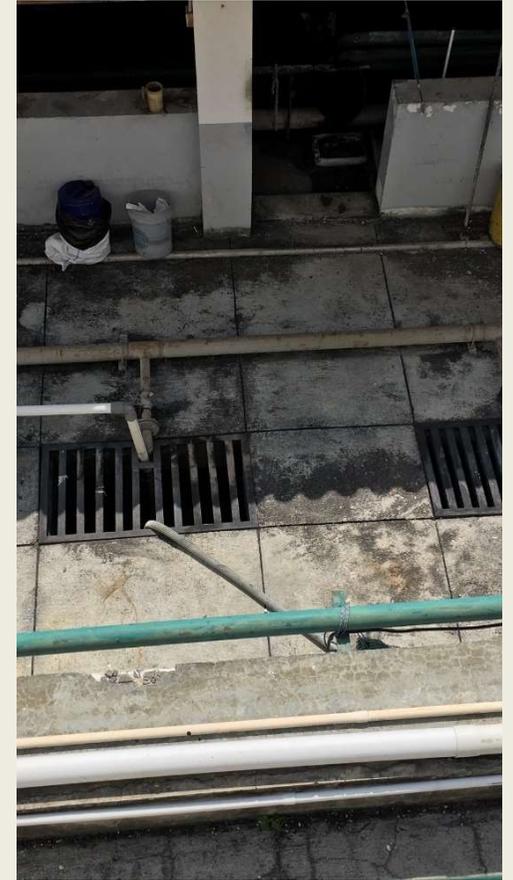


Case 3 Hotel Survey and Investigation

Case 5 Hotel



Case 6 Hotel



Case 7 Food Processing Factory

2016



2018



Case 8 Hotel



Case 9 Restaurant (60 Seat)



Case 10 Laundry Wastewater





3. Future Project Initiative

Operational & Maintenance of Wastewater Treatment Plant & Sewage Treatment Plant

Work Detail

•Inspection & Maintenance

Water quality status by hand device , pipe drainages, Operational unit cleaning, Mechanical and electrical unit operational check, sludge and scum degeneration

•Adjustment

Water volume adjustment, air blower adjustment, etc.

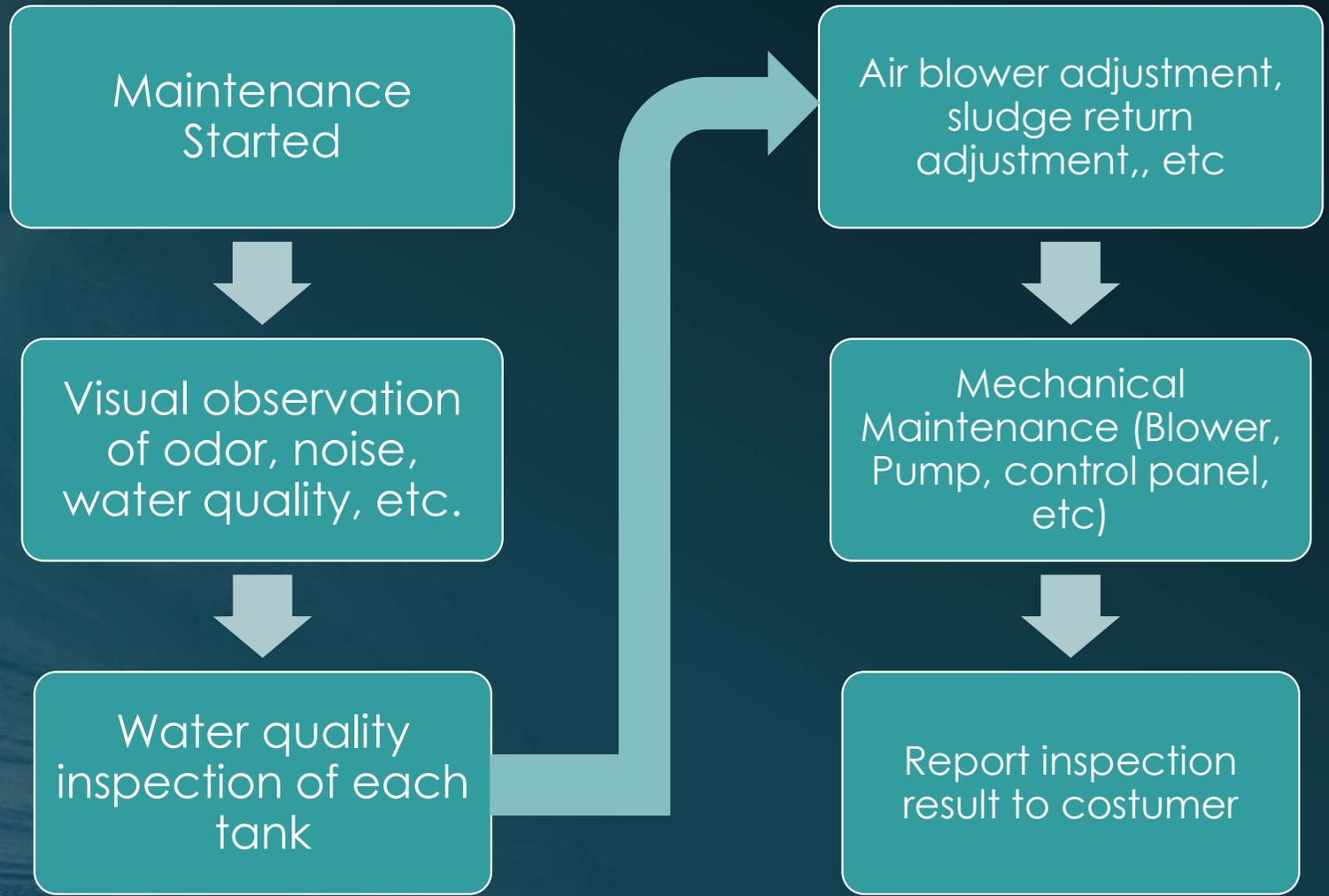
•Mechanical, Electrical and Biological System Repair, Restart and Reconditioning

Such as air blower, pumps, screens, crushers, manhole cover, control panel, etc.

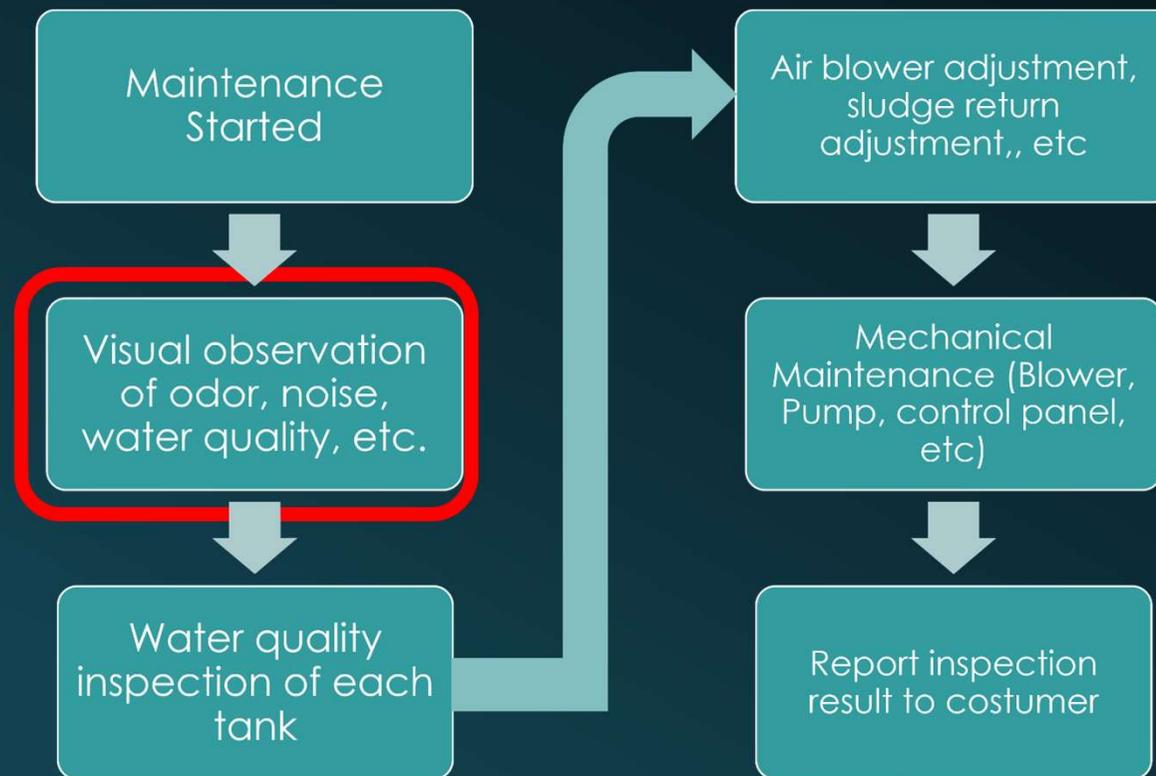
Tools used during inspection



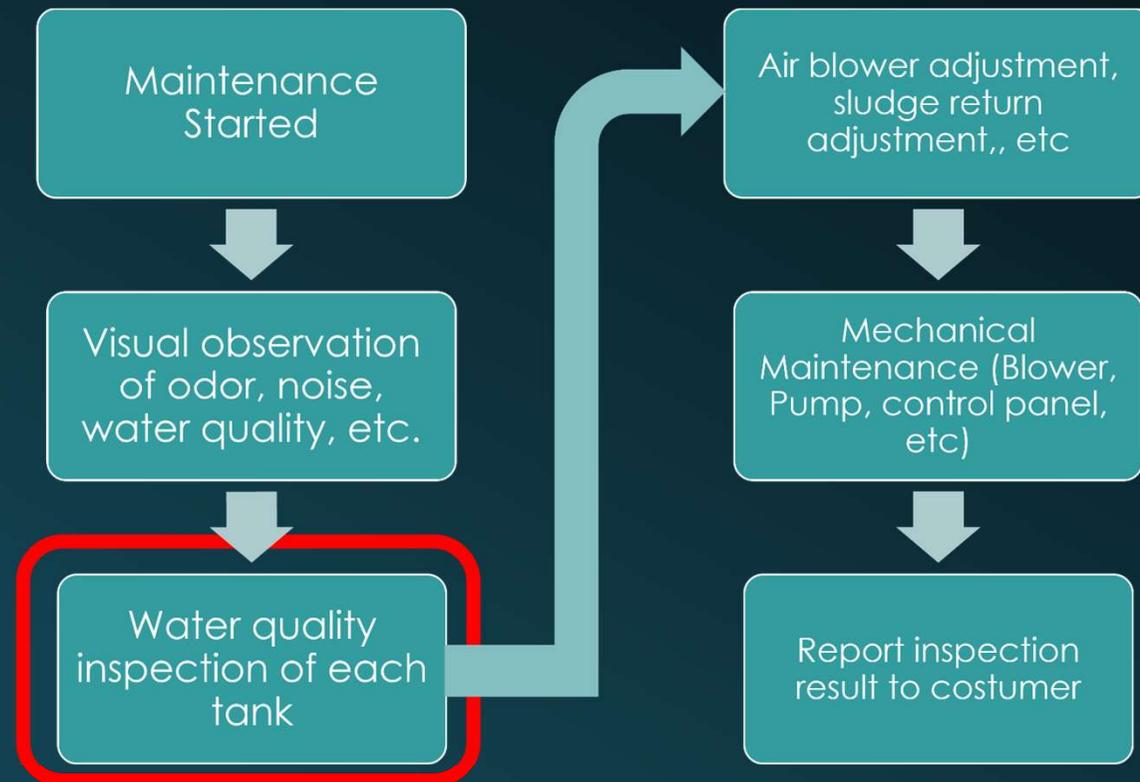
| No | 名称 |
|----|--------------------------------|
| 1 | pH Meter |
| 2 | DO Meter |
| 3 | Chlorine Ion Meter |
| 4 | Residual Chlorine Meter |
| 5 | Nitrit, Nitrat & Ammonia Meter |
| 6 | SV Meter |
| 7 | Fluorometer |
| 8 | Disinfectant |
| 9 | Cleaning Tools |



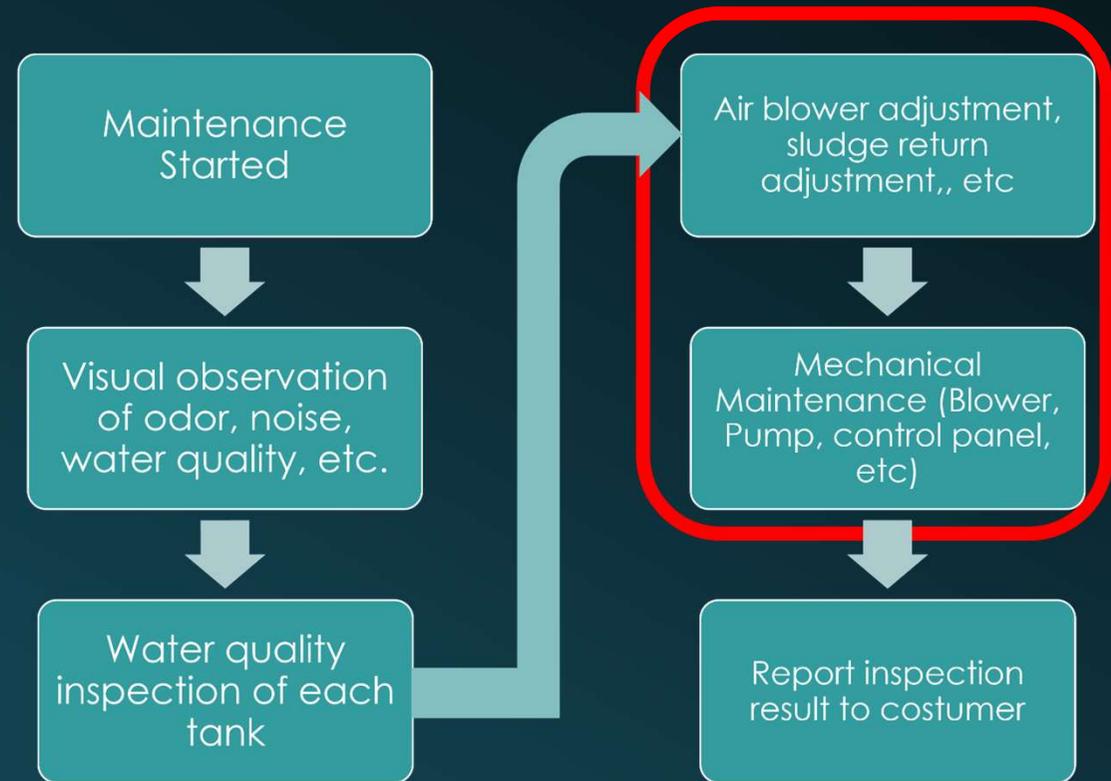
WWTP/STP Inspection Process



WWTP/STP Inspection Process



WWTP/STP Inspection Process



Large Scale WWTP/STP

合併処理施設点検報告書

〒759-0204 宇部市大字東枝区新土手1
アースクリエティブ
 電話 0836-4170322
 FAX 0836-4170322

| | | | |
|------|------------|------|-----------|
| 施設番号 | 5011 | 施設種別 | 504010 |
| 新築年度 | 東枝波瀬管住宅 | | |
| 管理年度 | 東枝波瀬管住宅 | | |
| 設置場所 | 宇部市東枝区新土手 | | |
| 用地種別 | 団地 | 面積 | 1.500 ㎡ |
| 人口 | 300 人 | 日排水量 | 300 ㎥/日 |
| 設計年度 | 1993/04/01 | | |
| メーカー | IN-5075K2 | 機種 | 281QH-561 |
| 処理方式 | 三次処理付 | | |
| 清掃頻度 | 三好 清 | | |

| 項目 | 規定値 | 測定値 | 電圧値 | 電流値 | 回転数 | その他 |
|-----------------|-----|-----|-----|-----|-----|-----|
| スクリーン(No.1.76) | A | A | 大 | 普通 | 少 | 正常 |
| 送風機(No.1.76) | A | A | 大 | 普通 | 少 | 正常 |
| 曝気ポンプ(No.1.76) | A | A | 大 | 普通 | 少 | 正常 |
| 脱脂ポンプ(No.1.76) | A | A | 大 | 普通 | 少 | 正常 |
| 汚泥ポンプ(No.1.76) | A | A | 大 | 普通 | 少 | 正常 |
| エアーリフト(No.1.76) | A | A | 大 | 普通 | 少 | 正常 |

(点検内容)

| 区別 | 点検箇所 | 点検項目 | 点検結果 | 備考 |
|--------|-------|----------|------|----|
| マンホール等 | マンホール | 汚泥の有無 | なし | |
| | 送風機 | 回転の有無 | あり | |
| | 脱脂機 | 油分の有無 | なし | |
| | ポンプ | 動作の有無 | あり | |
| 一次処理装置 | スクリーン | スクリーンの清掃 | 済 | |
| | 脱脂機 | 脱脂機の清掃 | 済 | |
| 二次処理装置 | 曝気機 | 曝気機の清掃 | 済 | |
| | 汚泥ポンプ | 汚泥ポンプの清掃 | 済 | |

| 項目 | 測定値 | 規定値 | 単位 |
|-------|------|-----|-----|
| 送風機 | 27.5 | 1.4 | 7.2 |
| 脱脂機 | 26.9 | 6 | 6.3 |
| ポンプ | 26.8 | 0 | 6.7 |
| スクリーン | 26.7 | 0 | 6.6 |
| 汚泥ポンプ | 26.7 | 0 | 6.8 |

測定日時: 2017/09/21 測定回数: 2017/06/17 測定回数: 20.00 測定回数: 9月

注意事項: 1. 4. 7. 10月写真

| 年月 | 項目 | 内容 | 数量 |
|------------|------|----|----|
| 2017/09/21 | 通常点検 | | 1 |
| 2017/09/20 | 通常点検 | | 1 |
| 2017/09/19 | 通常点検 | | 1 |

作業履歴

| 年月 | 項目 | 内容 | 数量 |
|------------|----------------|----|----|
| 2017/07/25 | No.1ばっ気ブロブ取替工事 | | 1 |
| 2017/06/27 | ポンプ取替工事 | | 1 |
| 2017/03/22 | 浄化槽内清掃工事 | | 1 |
| 2016/11/30 | 合併処理浄化槽修繕工事 | | 1 |

Home Scale Wastewater Treatment System

浄化槽清掃記録表

〒759-0204 宇部市大字東枝区新土手1
アースクリエティブ
 電話 0836-4170322
 FAX 0836-4170322

| | | | |
|------|----------------|-------|--------|
| 施設番号 | 50001-00 | 施設種別 | 500100 |
| 清掃年度 | 12月 | | |
| 清掃場所 | 小川 実家 | 住宅 | 053354 |
| 清掃日時 | 小川 実家 | 単独浄化槽 | 分譲ハウス |
| 清掃内容 | 宇部市大字東枝区丁字1-37 | | |
| 清掃者 | 小川 実家 | 作業時間 | 10 人 |
| 清掃費用 | 2,300 円 | | |

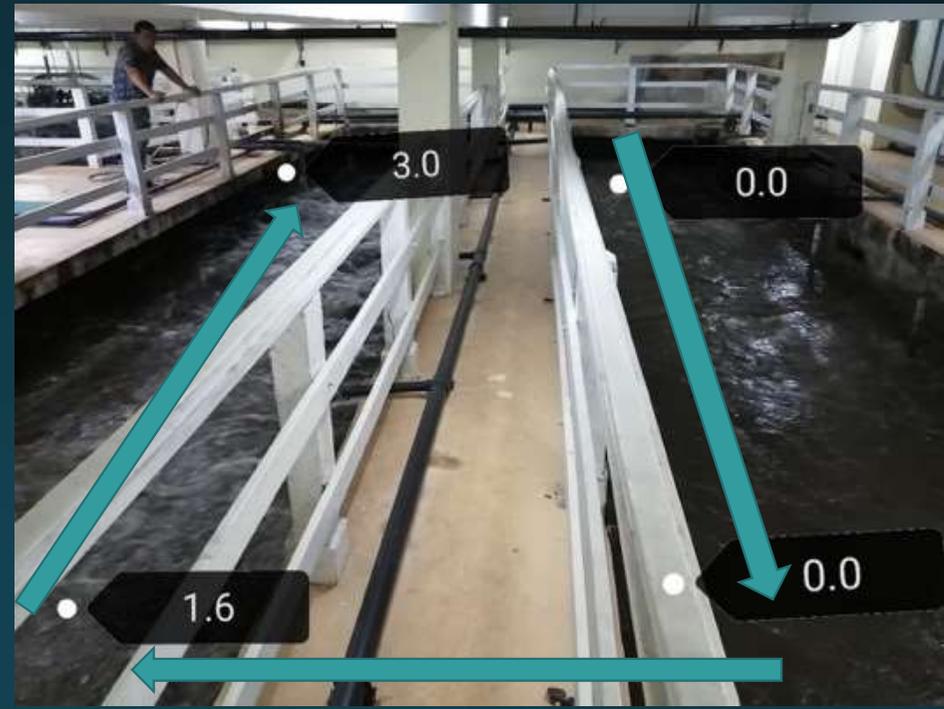
| 区分 | 点検箇所 | 点検項目 | 点検結果 | 備考 |
|--------|-------|----------|------|----|
| マンホール等 | マンホール | 汚泥の有無 | なし | |
| | 送風機 | 回転の有無 | あり | |
| | 脱脂機 | 油分の有無 | なし | |
| | ポンプ | 動作の有無 | あり | |
| 一次処理装置 | スクリーン | スクリーンの清掃 | 済 | |
| | 脱脂機 | 脱脂機の清掃 | 済 | |
| 二次処理装置 | 曝気機 | 曝気機の清掃 | 済 | |
| | 汚泥ポンプ | 汚泥ポンプの清掃 | 済 | |

注意事項: 汚泥の有無を確認し、清掃を行う。汚泥が溜まっている場合は、スクリーンを清掃する。脱脂機の油分を回収し、適切に処理する。曝気機の回転を確認し、正常に動作していることを確認する。汚泥ポンプの動作を確認し、正常に動作していることを確認する。

| 年月 | 項目 | 内容 | 数量 |
|------------|--------|----|-------|
| 2017/06/20 | 清掃 | | 2,300 |
| 2016/12/12 | (本誌)清掃 | | 2,300 |
| 2016/12/08 | (本誌)清掃 | | 2,300 |
| 2014/12/02 | (本誌)清掃 | | 2,300 |

(3年更新)

Example 1. Inspection of WWTP/STP in Hotel A



Flow rate Adjustment Box ; too little water return and excessive water flow



After Adjustment



Water quality, equipment maintenance



WWTP changes in water quality before and after maintenance

Inlet Water



BOD
200mg/ℓ

No
Maintenance

Aeration Tank
SV

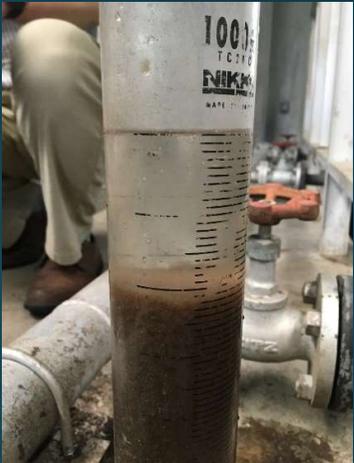


Effluent Water



BOD
40mg/ℓ

After
Maintenance







Liquid Film Aeration System(液膜曝気システム)

Test Result of Liquid Film Aerator System on site

- At the Hotel X, we installed 3-series and 5-series liquid film units in an aeration tank and conducted a demonstration experiment. We collected basic information for the long-term demonstration test next year.
- Only the liquid film unit part was brought in from Japan, and the blowers and pipes were procured locally, and two sets of 3 units and 2 sets of 5 units were put into the aeration tank. (I changed the set in the middle to see the effect of unit size.)
- The table below shows the results of blowing air by directly connecting existing 200W and 240W blowers to each device. (See the next page for the detailed layout and flow of treated water.)

Change in DO value due to the introduction of a liquid membrane device

| February 8, 2020 Installed 2 units of triple liquid membrane | February 12, 2020 Replaced with 2 units of 5 consecutive liquid membranes | March 2, 2020 Switched to AS-25 (no liquid film unit: control experiment) |
|---|---|---|
| Before introduction: DO from 1.7mg/L (4 days later) 2/12 DO increased to 3.1mg/L | From 2/12 DO 3.1mg/L (7 days later)2/19 DO increased to 4.4mg/L | From 3/2 DO 5.2mg/L (2 days later) 3/4 DO decreased to 3.9mg/L |



The effect of the liquid film aeration system was confirmed.



Set of 5-unit and 3-unit



Changing to a 5-consecutive liquid membrane device



AS-25

IoT Sensor

Improved / Upgraded Device Version

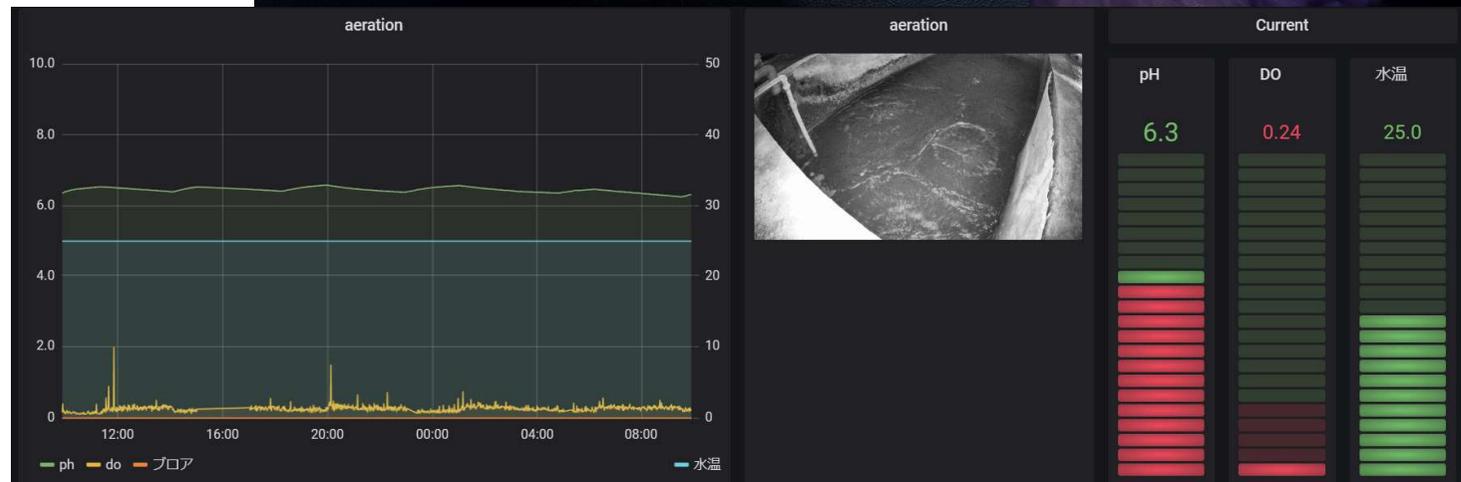
WWTP Remote Monitoring System

Equalization Tank : pH and Temperature Sensor

Aeration Tank : pH, DO and Temperature Sensor

Effluent Tank : pH and Temperature Sensor

Early Model





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