**Issued on 18 September 2023**

## Licensing Requirements for Aquatic Facility (AF)

The design criteria for aquatic facilities address only public health concerns. The AF shall be designed such that the water quality will always remain safe for users. Whilst landscaping to enhance the appearance of the AF is encouraged, it shall not be done in such a way or to such an extent that it can contaminate the water in the AF or create a problem for the maintenance.

### Steps for Applying New Licence

1. Depending on the type of AF licence to be applied for, fill up the relevant sections of Aquatic Facility Format.

2. Submit Temporary Occupation Permit (TOP) from Building Construction Authority (BCA) or approval note for change of use from Urban Redevelopment Authority (URA).

3. Submit relevant plan of each AF

    a) Overview layout plan
        i. Orientation of each AF;
        ii. Details of the toilet facilities; and
        iii. Location of rinse showers.

    b) Overall schematic diagram consisting of
        i. Water circulation (includes overflow perimeter drain or skimmers, flow meters);
        ii. Filtration (sampling taps at the inlet and outlet pipes of the filter); and
        iii. Disinfection systems.

4. Submit Aquatic Facility Format for each AF endorsed by professional engineer.

5. Arrange for a pre-licensing inspection.

6. Submit latest water quality report before pre-licensing inspection.

***References:***

***Minimum Design Criteria for AF***

*For the minimum design criteria for AF, please refer to the section on Aquatic Facility in the Code of Practice on Environmental Health (COPEH).*

***Minimum Design Criteria for Toilet***

*For the minimum design criteria for toilet, please refer to the section on Public Toilet in the COPEH.*

**Other requirements to be complied with BEFORE the issuance of licences:**

☐ Notices/signboards to direct every user to use a rinse shower or take shower before entering the AF.

**Other requirements to be complied with AFTER the issuance of licences:**

1. Samples of the water in the AF shall be submitted to a testing laboratory accredited by the Singapore Accreditation Council for the chemical, physical and bacteriological analysis at least once a month. The licensee shall ensure the test results on the chemical, physical and bacteriological quality of the water in the AF are displayed at all times in any conspicuous and accessible position within the licensed premises.

2. The AF water should be maintained at all times in an alkaline condition as indicated by pH value of 7.2 to 7.8 when chlorine is used as disinfectant; or pH value of 7.2 to 8.0 when bromine is used as disinfectant.

3. The licensee shall keep a daily record of information regarding the operations, including readings of disinfectant, pH value and maintenance procedures such as cleaning of filters, and quantity of chemicals used, and such other data as may be required by the Director-General of Public Health.

4. Testing kits for measuring the concentration of the disinfectant and the pH value of the AF water shall be provided and maintained in working condition.

5. All records of test taken at least once daily on the pH value and the disinfectant of the water shall be made available for inspection by the NEA Officer.

6. The bottom and side walls of the AF shall be cleansed as often as necessary to keep it in a clean condition.

7. Walls, ceiling and equipment shall be painted as often as necessary to keep them in good condition.

8. All parts of the AF and AF complex including all auxiliary equipment shall be maintained in good condition.

9. The water in AF shall be maintained at the following quality standards at all times. The testing frequencies and limits for the parameters for various AF are indicated below in **Tables 1, 2 and 3**.

**Table 1**: Water quality parameters to be tested daily on-site

| **Parameter** | **Swimming Pools** | **Water Playgrounds** | **Spa Pools** |
|---|---|---|---|
| pH value (for chlorine) | 7.2 – 7.8 | 7.2 – 7.8 | 7.2 – 7.8 |
| Free chlorine (ppm) | 1 – 3 | 1 – 3 | 3 – 5 |
| pH value (for bromine) | 7.2 – 8.0 | 7.2 – 8.0 | 7.2 – 8.0 |
| Total bromine (ppm) | 2 – 4 | 2 – 4 | 4 – 6 |

**Table 2**: Water quality parameters to be tested monthly

| **Parameter** | **Swimming Pools** | **Water Playgrounds** | **Spa Pools** |
|---|---|---|---|
| pH value (for chlorine) | 7.2 – 7.8 | 7.2 – 7.8 | 7.2 – 7.8 |
| Free chlorine (ppm) | 1 – 3 | 1 – 3 | 3 – 5 |
| pH value (for bromine) | 7.2 – 8.0 | 7.2 – 8.0 | 7.2 – 8.0 |
| Total bromine (ppm) | 2 – 4 | 2 – 4 | 4 – 6 |
| Turbidity (NTU) | ≤ 0.5 | ≤ 0.5 | Not required |
| Heterotrophic Plate Count (HPC) (cfu/ml) at 35°C, 48 h | ≤ 200 | ≤ 200 | ≤ 200 |
| *E. Coli* Count (cfu/100ml) | < 1 | < 1 | < 1 |

**Table 3**: Water quality parameters to be tested quarterly

| **Parameter** | **Limit** | **Swimming Pools** | **Water Playgrounds** | **Spa Pools** |
|---|---|---|---|---|
| *Legionella* Bacteria Count (cfu/100ml) | < 1 | Quarterly (if aerosol generating features are present) | Quarterly (if aerosol generating features are present) | Quarterly |
| *Pseudonomas aeruginosa* Count (cfu/100ml) | < 10 | Not required | Quarterly | Quarterly |

**Aquatic Facility (AF) Format** (per filtration system)

Please fill in the required information and mark a tick or indicate Yes/No below.

## A. Details of aquatic facility (AF) to be Licensed

| | |
|---|---|
| 1. Select the type of AF to be licensed | *An Aerosol-generating (AG) feature is a fitting/fixture located within the AF that sprays out water.*<br>☐ Swimming pool without AG features<br>☐ Swimming pool with AG features<br>☐ Multi-use spa pool<br>☐ Water playground/Interactive water fountains |
| 2. AF address | |
| 3. Building plan (BP) number | |
| 4. Company Name/MCST No. | |
| 5. Location<br>*(Please tick if applicable)* | a. Level: ☐ Roof-top<br>☐ Others (Specify level: _____)<br><br>b. ☐ Outdoor ☐ Indoor (Select 1 below)<br>☐ with air-condition<br>☐ non air-conditioned<br><br>c. Premises type: ☐ Association ☐ Club<br>☐ SportSG ☐ Condo ☐ Hotel<br>☐ School (Select 1 below)<br>☐ government<br>☐ government-aided<br>☐ private<br>☐ Others (Specify: _____) |

| | |
|---|---|
| 6. Approved water source | ☐ PUB potable water<br>☐ Other water sources:<br>_____<br><br>*(If other water sources are used, please contact NEA to obtain and complete the form for 'Application to Use Alternative Water as Water Source for Aquatic Facilities')* |
| 7. Number of rinse showers per AF | Is the biggest pool within this premises declared in this application? ☐ Yes ☐ No<br><br>Number of additional pools: _____<br><br>Total number of rinse shower per AF: _____ |
| 8. Does the rinse shower water drain directly into the sewer system and not into the AF? | ☐ Yes ☐ No |
| 9. Is there at least 1m buffer so that there is no overflow of water or run-off from the planting strip(s)/ area(s) into the pool water? | ☐ Yes ☐ No |

10. Calculation of flow rate(s):

| Name and type of AF sharing the same filtration system | Total volume of water ($m^3$) | Flow rate of pump ($m^3$/hour) | Turnover rate of AF (hr) | Shallowest depth (m) | Deepest depth (m) | Average depth (m) |
|---|---|---|---|---|---|---|
| | | | | | | |
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| | | | | | | |
| | | | | | | |

Turnover (hrs) = (Total volume, $m^3$) / (flow rate, $m^3$/hour)

Please provide the turnover rate calculations for all AF sharing the same filtration system.

## B. AF System, AF Equipment and Accessories

| a. For All AF Type | |
|---|---|
| 1. Location of equipment room: | Level: ☐ Roof-top<br>☐ Others (Specify level: _____) |
| 2. Filter type used: | ☐ Rapid Sand (Media type used: ☐ Sand ☐ Glass<br>☐ Other (Specify: _____))<br>☐ Diatomaceous Earth (D.E.)<br>☐ Cartridge<br>☐ Zeolite<br>☐ Other filter types (Specify: _____) |
| 3. Sampling taps are provided at the inlet and outlet pipes of the filter. | ☐ Yes ☐ No |
| 4. Number of standby pumps | |
| 5. Flow meters are installed on all recirculation systems and shall be capable of measuring water flow of 1.5 times the designed flow rate. | ☐ Yes ☐ No |
| 6. Backwash opening is properly screened with corrosion-resistant stainless-steel mosquito-proof netting of aperture size not exceeding 0.65mm. | ☐ Yes ☐ No |
| 7. Provide easy access to the balancing tanks and surge tanks for maintenance and inspection. | ☐ Yes ☐ No |
| 8. Type of recirculation system used | ☐ Perimeter overflow system (for water surface area ≥ 450 $m^2$); surface area: _____ $m^2$<br>☐ Surface skimmers (for water surface area <450 $m^2$);<br>i. Surface area: _____ $m^2$<br>ii. Number of skimmers (13.5$m^2$/skimmer): _____<br>☐ If skimmer systems are used, provide devices that top up water automatically.<br>☐ Others (Please specify: _____) |

| b. Water Playground/Interactive Water Fountain | |
|---|---|
| 9. No overflow or run-off water from planting/adjacent areas should flow into water playground | ☐ Yes ☐ No |
| 10. All foggers or misters are supplied directly from a potable water source and not re-cycled from the balancing/surge tank. | ☐ Yes ☐ No |
| 11. Aeration or jet systems are completely separated from the recirculation system. | ☐ Yes ☐ No |
| 12. Aeration or jet systems are not inter-connected with any other AF. | ☐ Yes ☐ No |
| 13. Water features pumps and water recirculation system pump shall be interconnected so that when recirculation pumps are off, the water features pumps are also off. | ☐ Yes ☐ No |
| c. Multi-use Spa Pool | |
| 14. The air intake source of air induction system shall be positioned or designed to minimise contamination of the multi-use spa pool. | ☐ Yes ☐ No |

**C. Water Treatment (for all AF types)**

| | |
|---|---|
| 1. Primary disinfectants used: | <u>Approved disinfectants</u><br>☐ Sodium hypochlorite<br>☐ Calcium hypochlorite<br>☐ Chlorinated isocyanurate<br>☐ Salt chlorinator<br>☐ Bromo-chloro-dimethylhydantoin (BCDMH) (for indoor use only)<br>☐ Sodium bromide with an oxidiser (hypochlorite) (for indoor use only)<br>☐ Other bromine/chlorine-based disinfectants (Please specify: _____) |

| | |
|---|---|
| | ☐ Others: _____<br>(If used, please contact NEA to obtain and complete 'Application for Approval of Alternative Disinfectant Systems to Be Used in Aquatic Facilities') |
| 2. Chemical containers are labelled to indicate the identity of the chemicals, the hazards involved and the precautions to be taken to prevent incompatible mixing | ☐ Yes ☐ No |
| 3. Automated chemical feeders are capable of supplying sufficient disinfectant to disinfect 100% of AF's daily water capacity | ☐ Yes ☐ No |
| 4. Is a device to determine rate of flow provided for each disinfectant feeder? | ☐ Yes<br>☐ Provided a device to determine rate of flow for manual disinfectant dosing<br>☐ Provided a device to determine rate of flow by an auto-dosing system<br><br>☐ No<br>☐ Solid disinfectant used<br>☐ Others (Please specify: _____) |

**D. Shower & Toilet Facilities at AF (if applicable)**

| | No. of changing rooms | No. of showers | No. of water closets (WC) | No. of wash basins | No. of urinals |
|---|---|---|---|---|---|
| Male: | | | | | |
| Female: | | | | | |
| Handicapped: | | | | | |

Name of Mechanical Professional Engineer with endorsement:_____

Tel No:_____

Date:_____