

## **REQUIREMENTS FOR BSL/ABSL-3 AND ABOVE FACILITIES**

The discharge of used water into public sewers is regulated by PUB under the Sewerage and Drainage Act and its subsidiary legislation. The owner, developer, Qualified Person (QP), Professional Engineer (PE), and/or facility operator of a BSL/ABSL-3 and above facility is required to submit an application to PUB on all matters relating to the discharge of used water into public sewers. This includes complying with PUB's requirements as summarised in this document, and obtaining PUB's written approval for the discharge of used water into public sewers.

**New BSL/ABSL-3 and above facilities (Planning Consultation and Building Plan stage)**

<b>Purpose</b>	To seek in-principle no objection to develop a new facility.
<b>Mode of submission</b>	<p><u>For government agencies:</u> Submit via Planning Consultation Checking System (PCCS) at <a href="https://pccs.pub.gov.sg">https://pccs.pub.gov.sg</a></p> <p><u>For non-government agencies:</u> Email application to all of the email addresses below:</p> <ul style="list-style-type: none"> <li>• <a href="mailto:PHUA_Sow_Lin@pub.gov.sg">PHUA Sow Lin@pub.gov.sg</a></li> <li>• <a href="mailto:GOH_Lek_Chong@pub.gov.sg">GOH Lek Chong@pub.gov.sg</a></li> <li>• <a href="mailto:Ervia_HUANG@pub.gov.sg">Ervia_HUANG@pub.gov.sg</a></li> <li>• <a href="mailto:Darren_TAN@pub.gov.sg">Darren TAN@pub.gov.sg</a></li> <li>• cc <a href="mailto:MOH_Biosafety@moh.gov.sg">MOH Biosafety@moh.gov.sg</a></li> </ul>
<b>Information required (applicant to provide)</b>	<ul style="list-style-type: none"> <li>• Location</li> <li>• Overall site area</li> <li>• Facility classification</li> <li>• Facility gross floor area</li> <li>• Animals to be used in research (to specify estimated number and type of animals)</li> <li>• Biological agents/toxins to be handled in the facility</li> <li>• Expected date of commencement of operations</li> <li>• Expected discharge rate</li> <li>• Site plans (cadastral plan and street map) showing the proposed site boundary (pdf and shape file in SVY21 format)</li> <li>• Proposed floor plan of facility, including proposed sampling point(s)</li> <li>• Proposed flow schematics of used water</li> <li>• Waste management proposal (incl. effluent decontamination method and systems in place to ensure that used water is fully decontaminated prior to discharge into sewers, connection points of decontamination system to sewers, and response plans)</li> </ul>

	<ul style="list-style-type: none"> <li>• Design of treatment system for decontamination of liquid waste from the facility, including proposed online real-time monitoring system</li> <li>• Any other document as required by PUB</li> </ul>
<b>PUB's requirements</b>	<ol style="list-style-type: none"> <li>1. PUB's written approval must be obtained for the discharge of used water into public sewers.</li> <li>2. The facility must pass an audit inspection by PUB, as part of the application for PUB's written approval or as part of the yearly renewal of PUB's written approval, unless advised otherwise by PUB.</li> <li>3. The facility must inform PUB of any design/structural changes or operational issues that need to be rectified, such as those relating to the treatment or online monitoring systems for the liquid waste discharge.</li> <li>4. The facility must submit for PUB's approval, the design of the treatment system to decontaminate the liquid waste from the BSL/ABSL-3 facility.</li> <li>5. The facility must have a system in place to ensure that liquid waste is fully decontaminated prior to discharge into public sewers. The facility must install an appropriate online real-time monitoring system that is approved by PUB, to monitor and ensure that the decontamination processes have been effective. The system must monitor appropriate surrogate parameters (e.g. cycle recording and use of indicators in autoclaves) or concentrations of disinfectant (e.g. residual chlorine if sodium hypochlorite is used for decontamination) where applicable, and send real-time alerts to the facility personnel should there be any abnormality/error/failure in the decontamination process.</li> <li>6. In the event that the decontamination process is not carried out properly, the system must automatically trigger an interlock (e.g. penstock) to stop discharge into sewers immediately.</li> <li>7. The facility must inform PUB should there be a change in treatment or online monitoring systems for the liquid waste discharge.</li> <li>8. The facility must install suitable sampling point(s) for ad-hoc sampling of effluent and verification of accuracy of online monitoring system etc. from BSL/ABSL-3 facility. The sampling point must be located outside of the area with restricted access. The proposed location of the sampling point is subject to PUB's approval.</li> <li>9. Solid waste generated from the BSL/ABSL-3 facility must be decontaminated and collected by NEA-licensed toxic industrial waste collectors for incineration. The solid waste must not be transported to any of PUB's facilities for disposal.</li> <li>10. Liquid waste generated from the BSL/ABSL-3 facility must be decontaminated before discharge into the public sewers.</li> <li>11. Animal waste (both solid and liquid, including digested animal tissues) must not be discharged into sewers unless approved by PUB. PUB may impose treatment requirements in granting such approval.</li> </ol>

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|  | <ol style="list-style-type: none"><li>12. Animal carcasses, tissues and waste from surgeries or autopsies performed on animals (including digested animal tissues) must be disposed of separately by NEA-licensed toxic industrial waste collectors for incineration. The animal carcasses, tissues and waste from surgeries or autopsies performed on animals (including digested animal tissues) must not be transported to any of PUB's facilities for disposal.</li><li>13. Solid animal excreta must be disposed of separately by NEA-licensed toxic industrial waste collectors for incineration. The solid animal excreta must not be transported to any of PUB's facilities for disposal.</li><li>14. The facility must keep decontamination records of solid and liquid waste, and records of solid waste collected by NEA-licensed toxic industrial waste collectors for at least 3 years for PUB's audits.</li><li>15. The facility must keep records of animal waste disposal for at least 3 years for PUB's audits.</li><li>16. In granting the written approval, PUB may, in its discretion, impose any additional requirements or conditions as it deems fit.</li></ol> |
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### New or existing BSL/ABSL-3 and above facilities applying for MOH's certification/re-certification

<b>Purpose</b>	To seek PUB's written approval to discharge used water into public sewers, for facilities applying for MOH's certification/re-certification to commence or continue operations.
<b>Mode of submission</b>	<p>Written Approval forms on PUB's website at <a href="https://www.pub.gov.sg/compliance/qualifiedpersonsportal/eservices/application">https://www.pub.gov.sg/compliance/qualifiedpersonsportal/eservices/application</a>:</p> <ul style="list-style-type: none"> <li>• New application for PUB's Written Approval: Submit electronic form on LicenceOne</li> <li>• Renewal of PUB's Written Approval: Submit form via email to <a href="mailto:PUB_WA@pub.gov.sg">PUB_WA@pub.gov.sg</a></li> </ul>
<b>Information required (applicant to provide)</b>	<ul style="list-style-type: none"> <li>• PUB reference number (if previously pre-consulted, or already certified and going for re-certification)</li> <li>• Particulars of facility operator</li> <li>• Location</li> <li>• Overall site area</li> <li>• Facility classification</li> <li>• Facility gross floor area</li> <li>• Animals used in research (to specify estimated number and type of animals)</li> <li>• Biological agents/toxins handled in the facility</li> <li>• Expected date of commencement of operations (for new facility)</li> <li>• Expected discharge rate</li> <li>• Site plans (cadastral plan and street map) showing the site boundary (pdf and shape file in SVY21 format)</li> <li>• Floor plan clearly indicating BSL/ABSL-3 facility, sanitary fittings (sinks, showers, toilets, floor traps, etc) and sampling point(s)</li> <li>• Sanitary drainage and plumbing plans (including connection of decontamination system to sanitary line, connection of facility sanitary line to building sanitary line, sampling point(s))</li> <li>• Waste management protocols and policies</li> <li>• Emergency response plan for spillage, fire or process failures/errors</li> <li>• Design of treatment system for decontamination of liquid waste from the facility, including online real-time monitoring system</li> <li>• Validation reports on effectiveness of disinfectants and decontamination procedures</li> <li>• Incident reports of laboratory incidents, e.g. spills and accidents involving infectious materials, and of process failures/errors, e.g. of the treatment system or online real-time monitoring system (for existing facility)</li> </ul>

	<ul style="list-style-type: none"> <li>• Usage and maintenance records of decontamination system (e.g. autoclave/tissue digester/effluent decontamination system) (for existing facility)</li> <li>• Records and/or consignment notes of animal and/or toxic industrial waste disposal (e.g. biological, chemical, radiological, and mixed waste) by NEA-licensed toxic industrial waste collectors (for existing facility)</li> <li>• Records of system alerts in the event of process failures/errors (for existing facility)</li> <li>• Any other document as required by PUB</li> </ul>
<b>PUB's requirements</b>	<ol style="list-style-type: none"> <li>1. PUB's written approval must be obtained for the discharge of used water into public sewers.</li> <li>2. The facility must pass an audit inspection by PUB, as part of the application for PUB's written approval or as part of the yearly renewal of PUB's written approval, unless advised otherwise by PUB.</li> <li>3. The facility must inform PUB of any design/structural changes or operational issues that need to be rectified, such as those relating to the treatment or online monitoring systems for the liquid waste discharge.</li> <li>4. The facility must submit for PUB's approval, the design of the treatment system to decontaminate the liquid waste from the BSL/ABSL-3 facility.</li> <li>5. The facility must have a system in place to ensure that liquid waste is fully decontaminated prior to discharge into public sewers. The facility must install an appropriate online real-time monitoring system that is approved by PUB, to monitor and ensure that the decontamination processes have been effective. The system must monitor appropriate surrogate parameters (e.g. cycle recording and use of indicators in autoclaves) or concentrations of disinfectant (e.g. residual chlorine if sodium hypochlorite is used for decontamination) where applicable, and send real-time alerts to the facility personnel should there be any abnormality/error/failure in the decontamination process.</li> <li>6. In the event that the decontamination process is not carried out properly, the system must automatically trigger an interlock (e.g. penstock) to stop discharge into sewers immediately.</li> <li>7. The facility must inform PUB should there be a change in treatment or online monitoring systems for the liquid waste discharge.</li> <li>8. The facility must install suitable sampling point(s) for ad-hoc sampling of effluent and verification of accuracy of online monitoring system etc. from BSL/ABSL-3 facility. The sampling point must be located outside of the area with restricted access. The proposed location of the sampling point is subject to PUB's approval.</li> <li>9. Solid waste generated from the BSL/ABSL-3 facility must be decontaminated and collected by NEA-licensed toxic industrial waste collectors for incineration. The solid waste must not be transported to any of PUB's facilities for disposal.</li> </ol>

	<p>10. Liquid waste generated from the BSL/ABSL-3 facility must be decontaminated before discharge into the public sewers.</p> <p>11. Animal waste (both solid and liquid, including digested animal tissues) must not be discharged into sewers unless approved by PUB. PUB may impose treatment requirements in granting such approval.</p> <p>12. Animal carcasses, tissues and waste from surgeries or autopsies performed on animals (including digested animal tissues) must be disposed of separately by NEA-licensed toxic industrial waste collectors for incineration. The animal carcasses, tissues and waste from surgeries or autopsies performed on animals (including digested animal tissues) must not be transported to any of PUB's facilities for disposal.</p> <p>13. Solid animal excreta must be disposed of separately by NEA-licensed toxic industrial waste collectors for incineration. The solid animal excreta must not be transported to any of PUB's facilities for disposal.</p> <p>14. The facility must keep decontamination records of solid and liquid waste, and records of solid waste collected by NEA-licensed toxic industrial waste collectors for at least 3 years for PUB's audits.</p> <p>15. The facility must keep records of animal waste disposal for at least 3 years for PUB's audits.</p> <p>16. In granting the written approval, PUB may, in its discretion, impose any additional requirements or conditions as it deems fit.</p>
<p><b>Remarks</b></p>	<ul style="list-style-type: none"> <li>• Before submitting the application for PUB's Written Approval, the applicant is advised to pre-consult PUB. Applicants may email PUB at all of the following email addresses for enquiries or to request for pre-consultation: <ul style="list-style-type: none"> <li>○ <a href="mailto:GOH_Lek_Chong@pub.gov.sg">GOH Lek Chong@pub.gov.sg</a></li> <li>○ <a href="mailto:Ervia_HUANG@pub.gov.sg">Ervia HUANG@pub.gov.sg</a></li> <li>○ <a href="mailto:Darren_TAN@pub.gov.sg">Darren TAN@pub.gov.sg</a></li> <li>○ cc <a href="mailto:MOH_Biosafety@moh.gov.sg">MOH Biosafety@moh.gov.sg</a></li> </ul> </li> <li>• The processing time is 14 working days upon receipt of a complete submission of all required documents and information as stipulated above.</li> </ul>