Water Pollution Prevention Policy

1. DOCUMENT METADATA

Title	Water Pollution Prevention Policy	Document ID	SRMAP-SDG-2024-PLCY-003
Hierarchy Level	L4 – University Policy	Status	Approved
Policy Owner	CLM Office	Effective Date	06-05-2024
Version	1.0	Next Review Date	06-05-2026

2. POLICY FRAMEWORK

2.1. Purpose & Objective

SRM University-AP is committed to preventing pollution of surface water, groundwater, stormwater systems and other receiving water bodies arising from university activities. This Policy establishes the institutional requirements for preventing contamination, managing wastewater, controlling hazardous liquids, protecting drainage systems, responding to incidents and monitoring compliance. The Policy defines the standards and processes that the University shall establish and maintain; infrastructure, equipment and operational arrangements shall be developed, maintained or upgraded as necessary to meet these requirements.

Preventing water system pollution: This Policy sets out the processes the University follows to prevent polluted water from entering the water system, including pollution caused by accidents and incidents at the University. The "water system" includes drinking-water sources and supply, groundwater and borewells, stormwater drains, sewers, ponds, lakes, canals and any receiving water body. The processes cover source control, containment, treatment, monitoring, emergency preparedness, spill and incident response, notification, clean-up, investigation and corrective action. The Policy supports UN Sustainable Development Goal 6 (Clean Water and Sanitation), Target 6.3 on improving water quality by reducing pollution, and is aligned with the requirements of the Central Pollution Control Board (CPCB) and the Andhra Pradesh Pollution Control Board (APPCB).

The objectives of this Policy are to:

- Establish and maintain appropriate wastewater collection and treatment arrangements for sewage generated on campus, including sewage treatment plant(s) or an authorised equivalent system as required by applicable law and campus needs
- Ensure that untreated sewage and contaminated wastewater are not released to stormwater drains, open ground, groundwater or receiving water bodies



- Establish operational procedures for wastewater treatment, including preliminary screening, biological treatment where applicable, filtration/disinfection where required, sludge management and safe handling of treatment residuals
- Require risk-based water-quality monitoring, routine inspections, preventive maintenance and documented corrective action
- Prevent contamination from laboratories, workshops, kitchens, maintenance activities, chemical storage, construction and landscaping
- Promote treated-wastewater reuse for suitable non-potable applications, subject to treatment quality, risk assessment and applicable requirements
- Define and maintain processes to prevent polluted water from entering the water system, including pollution caused by accidents and incidents such as spills, leaks, sewage overflows, treatment-plant failure, fire-fighting run-off and flooding
- Identify water-pollution risks through a documented risk assessment and risk register, and apply preventive controls at the source
- Maintain emergency preparedness for pollution accidents and incidents, including spill kits, drain protection, trained responders, drills, notification and clean-up arrangements
- Protect drinking-water sources, borewells, storage tanks and groundwater from contamination
- Establish clear accountability, training, incident reporting, record retention and periodic review

2.2. Scope of Application

This Policy applies to all University-controlled premises, facilities and activities that may affect water quality, including:

- Academic, administrative, residential, hostel, dining, laboratory, workshop, utility, landscaping, sports and construction/renovation areas
- Sewage and wastewater collection networks, treatment systems, storage tanks, pumps, drainage channels, stormwater systems, and treated-water distribution/reuse infrastructure
- Chemical and reagent storage, laboratory operations, equipment washing, vehicle/equipment maintenance, fuel and oil storage, housekeeping, pest control and landscaping
- Drinking-water sources and storage (borewells, overhead and underground tanks), diesel generator sets and fuel/oil tanks, transformers, parking and vehicle-washing areas, waste-storage areas, medical/health-centre facilities and sports and swimming facilities, where present
- Faculty, researchers, students, administrative and technical staff, outsourced personnel, contractors, service providers, vendors, visitors and event organisers

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The Policy is technology neutral. The University shall select and provide systems appropriate to wastewater quantity and characteristics, site conditions, applicable standards, risk and lifecycle cost. Existing facilities may be used where they meet these requirements; facilities shall not be treated as sufficient merely because they exist. The Policy also covers pollution that may leave University premises and affect neighbouring land, drains or water bodies because of university activities, events or accidents.

2.3. Definitions & Glossary

- Water pollution: Introduction of physical, chemical, biological or other contaminants into water, soil or drainage systems that may cause harm or breach applicable requirements.
- Wastewater: Water discharged from toilets, washrooms, kitchens, laboratories, workshops, cleaning, utilities or other campus activities.
- Sewage Treatment Plant (STP): A facility designed and operated to treat sewage before reuse or authorised discharge.
- Stormwater: Rainfall runoff from roofs, roads, parking areas, landscaped areas and other surfaces.
- Treated-water reuse: Use of adequately treated wastewater for an appropriate non-potable purpose.
- Pollution incident: A spill, leak, overflow, treatment-system failure or other event that causes or may cause contamination.
- Water system: The drinking-water sources and supply network, groundwater and borewells, sewers, stormwater drains and channels, ponds, lakes, canals, streams and any receiving water body that may be affected by water leaving University premises.
- Accident or incident (water-pollution context): Any unplanned event such as a chemical, fuel or oil spill, pipe burst, tank failure, sewage overflow, treatment-plant breakdown, fire-fighting run-off, flood or transport/vehicle accident that may allow polluted water or contaminants to enter the water system.
- Secondary containment: A bund, tray, sump or equivalent barrier that holds leaked liquid from a tank or container so that it cannot reach drains, soil or groundwater.
- Spill kit: A set of absorbents, drain covers or booms, containment barriers, protective equipment and disposal bags kept ready for first response to a liquid spill.
- Competent authority: The University office or designated official authorised to approve actions under this Policy and applicable law.

2.4. Policy Statements

1. Institutional commitment and planning: The University shall identify activities and locations that could cause water pollution and establish appropriate preventive controls. Water-pollution prevention shall be incorporated into facilities planning,

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Andhra Pradesh, India-522240

procurement, laboratory management, construction, maintenance and contractor oversight.

2. Processes to prevent polluted water entering the water system: The University shall maintain a layered set of processes to prevent polluted water from entering the water system: (i) source control, by segregating, labelling, storing and handling liquids and wastes safely; (ii) containment, using secondary containment, drain protection and separation of sanitary and stormwater systems; (iii) treatment, by treating wastewater in STP(s) or an authorised equivalent before reuse or discharge; (iv) monitoring and inspection of systems, drains, outfalls and water quality; (v) emergency preparedness and response for accidents and incidents; and (vi) investigation, corrective action and continual improvement.

3. Pollution risk assessment: The University shall carry out a documented water-pollution risk assessment at least once a year and after any significant incident or change in activities. The assessment shall cover the STP and sewer network, laboratories, chemical and fuel stores, diesel generator sets, kitchens and food-service areas, hostels, workshops, parking and vehicle-washing areas, waste-storage areas, construction sites, landscaping chemicals and pesticides, and drinking-water sources.

4. Wastewater collection and treatment infrastructure: The University shall provide, operate and maintain adequate wastewater collection and treatment infrastructure, including STP(s) or an authorised equivalent, based on campus needs and applicable requirements. Capacity, treatment technology and redundancy shall be determined through engineering assessment. The system shall be sufficient to manage sewage generated under normal operating conditions and foreseeable variations and shall be reviewed when campus demand or infrastructure changes.

5. Treatment process and operational SOP: The University shall establish and maintain a written SOP for each wastewater-treatment system. Depending on the selected technology and wastewater characteristics, the process shall address preliminary screening, pumping and equalisation/settling, biological treatment where applicable, clarification, filtration and disinfection where required, and management of sludge or other residuals. The SOP shall identify operator responsibilities, operating checks, safe start-up/shutdown, maintenance, abnormal conditions and escalation procedures.

6. Treatment technology and performance: Treatment technologies may include conventional biological treatment, aeration-based systems, tertiary filtration, disinfection, compact or modular biological systems, or other suitable technologies. Technology selection shall be based on demonstrated suitability, applicable standards, operational capacity, safety, resource use and maintainability. No single technology shall be mandatory where an alternative meets the University's performance and legal requirements.

7. Prevention of untreated or unauthorised discharge: Untreated sewage or contaminated wastewater shall not be discharged to stormwater drains, open ground, soil, groundwater or receiving water bodies. Discharge, where permitted,

SRM UNIVERSITY-AP
Andhra Pradesh, India-522240

shall comply with applicable consent conditions and standards. If treatment fails or water quality is unsuitable, the University shall take prompt action to contain the risk, suspend affected reuse or discharge where appropriate, and arrange a safe and authorised alternative.

8. Treated wastewater reuse: The University shall assess opportunities to reuse treated wastewater for suitable non-potable purposes, such as toilet flushing, gardening, landscape irrigation or other approved uses, where the treatment quality and distribution arrangements are appropriate. Reuse systems shall be designed to prevent cross-connections with potable-water systems, clearly identified and maintained. Reuse shall be supported by water-quality checks and records.

9. Water-quality monitoring and assurance: The University shall establish a documented monitoring plan for wastewater-treatment performance and treated-water quality. The plan shall specify sampling locations, parameters, frequency, acceptance criteria, responsible personnel, testing methods and action when results are outside criteria. Routine operational checks may include pH, turbidity, total dissolved solids, residual disinfectant, hardness or other parameters relevant to the selected process and intended reuse. External laboratory testing shall be undertaken at risk-based intervals and whenever required by law, consent conditions or technical assessment. Stormwater outfalls, drainage channels and nearby water bodies shall be inspected for visible pollution, particularly after rainfall, and drinking-water, borewell and treated-wastewater quality shall be tested by a NABL-accredited or government-recognised laboratory at least once a year, in addition to routine in-house checks. Test results shall be compared with applicable standards and deviations shall trigger corrective action.

10. Preventive maintenance and inspection: Treatment units, pumps, blowers, filters, dosing equipment, tanks, valves, pipelines and related controls shall be inspected and maintained according to documented schedules and manufacturer instructions. Operating parameters shall be recorded at the intervals specified in the plant SOP. Breakdowns, leaks, overflows, unusual odour/colour, abnormal pressures and test failures shall be logged, investigated and corrected.

11. Sludge and treatment residual management: Sludge, screenings, filter backwash and other treatment residuals shall be collected, stored, handled, transported and disposed of or reused through appropriate authorised routes. The University shall maintain records of removal and handover where applicable. Residuals shall not be dumped into stormwater drains, open ground or water bodies.

12. Laboratory and hazardous-liquid controls: Laboratory chemicals, solvents, oils, concentrated reagents, hazardous liquids and other contaminants shall not be discharged into sinks or drains unless a documented assessment and applicable requirements expressly permit it. Departments shall segregate and label such wastes and arrange authorised collection, treatment or disposal. Wastewater from medical or health-centre facilities, if any, and any wastewater expected to carry biomedical or microbial contamination shall be managed in line with the Bio-Medical Waste Management Rules, 2016.

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13. Stormwater, kitchens and outdoor activities: Sanitary wastewater and stormwater systems shall be kept separate wherever practicable. Drainage inlets shall be protected from chemicals, oils, cement slurry, sediment, litter and wash water. Grease traps or equivalent controls shall be provided where appropriate for kitchens and food-service areas and cleaned at planned intervals. Construction and landscaping work shall include erosion, sediment and spill controls.

14. Chemical, fuel and oil storage: High-risk liquids shall be stored in compatible, labelled and secure containers. Secondary containment and protection from rainfall/runoff shall be provided where risk assessment indicates. Refuelling, equipment servicing and vehicle washing shall occur only in designated areas with suitable collection and treatment arrangements. This includes diesel and other fuel tanks for generator sets, transformer oil, and pesticide and fertiliser stores. Storage areas shall be inspected regularly for leaks, and tanks and containers shall be checked for damage and corrosion.

15. Protection of drinking-water sources and groundwater: Borewells, drinking-water sources, storage tanks and distribution points shall be protected from contamination through sanitary protection, secure covers, safe separation from soak pits, septic systems, chemical stores and sewers, backflow prevention, and scheduled cleaning of storage tanks. Drinking-water and borewell quality shall be tested at least annually by an accredited laboratory, and more often after any contamination event.

16. Sewer network, hostel and residential wastewater: Sewer lines, manholes, septic tanks, grease traps and pumping stations serving academic buildings, hostels and residential areas shall be inspected on a scheduled basis, leaks and blockages shall be repaired promptly, and sewage overflows shall be treated as pollution incidents.

17. Solid waste, landscaping chemicals and outdoor areas: Waste-storage areas and compost or waste leachate shall be arranged so that they do not drain into stormwater drains or soil. Fertilisers, pesticides and herbicides shall be stored, handled and applied so that they do not run off into drains or water bodies, and application shall be avoided before heavy rain.

18. Spill and pollution incident response: The University shall establish a documented response process for spills, leaks, sewage overflow, treatment failure and suspected water contamination. Personnel shall report incidents immediately, protect drains and contain releases where safe, notify the responsible office, arrange appropriate clean-up and disposal, and document the incident and corrective actions. Statutory notifications shall be made where required.

19. Emergency preparedness for accidents and incidents: The University shall maintain a written Emergency Response and Spill Contingency Plan that names the responsible persons and 24x7 contact numbers, and the actions to be taken for chemical, fuel and oil spills, pipe or tank failures, sewage overflows, treatment-plant failure, fire-fighting run-off and flooding. Spill kits, drain covers or sand/absorbent material, and protective equipment shall be kept at identified high-risk locations, including laboratories, chemical and fuel stores, diesel generator areas, workshops, kitchens and the STP, and inspected at least monthly. Mock drills

SRM UNIVERSITY-AP
Andhra Pradesh, India-522240

shall be conducted at least once a year, and drill findings shall be recorded and acted on.

20. Treatment-plant failure, overflow and flood contingency: The University shall maintain contingency arrangements to prevent untreated or partly treated wastewater from reaching the water system when the STP or sewer network fails or during heavy rain or flooding. These arrangements shall include standby pumps or blowers, power back-up, high-level alarms or equivalent checks, an equalisation or emergency holding capacity where feasible, removal of wastewater by an authorised service provider when needed, sealing or protection of manholes before heavy rain, and suspension of treated-water reuse until quality is confirmed.

21. Fire-fighting run-off and construction/maintenance incidents: Where it is safe and practicable, contaminated fire-fighting water and washes water from accidents shall be contained and kept out of stormwater drains and water bodies and shall be removed for treatment or authorised disposal. Construction, repair and maintenance activities shall include spill control, sediment control and washout arrangements for concrete, paint and other pollutants.

22. Contractor and supplier requirements: Contractors, vendors and service providers whose activities may affect water quality shall be informed of relevant requirements and shall implement appropriate controls. Contracts and work permits shall specify drain protection, waste handling, spill response, incident notification and compliance obligations where relevant.

23. Training and awareness: Personnel responsible for STP operation, maintenance, laboratories, housekeeping, food services, construction and chemical handling shall receive role-appropriate training. Training records and current SOPs shall be maintained and made accessible to relevant personnel. Role-appropriate induction, refresher training and mock drills shall cover spill response, use of spill kits, protection of drains, emergency contacts and reporting. Awareness material, such as signs prohibiting disposal of chemicals, oils and wash water into drains, shall be displayed at relevant locations, and awareness activities shall be extended to the wider campus community and nearby communities.

24. Documentation, review and continual improvement: The University shall maintain records of infrastructure, SOPs, operating logs, monitoring results, maintenance, incidents, sludge/residual handling, training, inspections and corrective actions. Policy implementation shall be reviewed periodically and updated when campus activities, infrastructure, risks or legal requirements change. After every significant incident, drill or audit, the process shall be reviewed and the Emergency Response and Spill Contingency Plan, risk register and SOPs shall be updated where needed.

2.5. Nodal Department and Responsibility

- The competent University authority shall designate an operational nodal unit, such as Campus Life Management, to coordinate implementation. The Campus Life Management (CLM) Office is hereby designated as the nodal unit. Estate/Facilities acts as the accountable operational function under the CLM Office.

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- Nodal unit (Campus Life Management Office): Assess infrastructure needs; ensure wastewater collection/treatment systems are provided and maintained; coordinate SOPs, monitoring, maintenance, incident response and records. Also maintain the Emergency Response and Spill Contingency Plan and organise drills and awareness activities.
- STP operators or authorised service providers: operate systems under approved SOPs; record checks; carry out sampling and report abnormal conditions.
- Safety/environmental function, where designated: advise on risk assessment, incident response, compliance and corrective action. Also lead pollution risk assessment, drills and incident investigation.
- Laboratories and academic departments: prevent improper liquid-waste disposal, maintain chemical-waste controls and report incidents.
- Procurement and Stores: support safe chemical procurement, storage and required documentation.
- Food services, housekeeping, maintenance and construction teams: implement applicable grease, cleaning, drain-protection, sediment and spill controls.
- All campus users and contractors: comply with instructions and report actual or potential pollution.

3. COMPLIANCE AND EXCEPTIONS

- Regulatory Compliance: The University shall identify and comply with applicable environmental legislation, authorisations, consent conditions and directions issued by competent authorities. Relevant requirements may include the Water (Prevention and Control of Pollution) Act, 1974; the Environment (Protection) Act, 1986 and applicable rules; applicable CPCB/APPCB standards and directions; and waste-management rules relevant to the waste stream. The designated compliance office shall verify applicability and maintain current approvals and records. Applicable requirements may also include the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989, the Bio-Medical Waste Management Rules, 2016, and the Consent to Establish/Operate conditions issued by the APPCB for the STP.
- Reporting and Investigation: Any person who observes a spill, leakage, unauthorised discharge, blocked drain, sewage overflow, abnormal wastewater or treatment failure shall promptly notify the designated operational contact. Incidents shall be logged and investigated proportionately, with the cause, affected location, immediate actions, notifications, test results where relevant, corrective action owner and closure evidence recorded. The incident register shall be maintained by the nodal unit, and the timelines in the emergency response process (immediate reporting, notification within one hour, entry in the incident register within 24 hours, investigation within seven days) shall apply.



- Exceptions: No exception may authorise an unlawful discharge or breach a statutory consent or standard. Any temporary operational exception permitted by law shall be risk-assessed, documented and approved by the competent authority, with mitigation measures and a review date.
- Non-Compliance: Failure to comply may result in corrective instructions, retraining, suspension of an unsafe activity, contractor action or disciplinary measures in accordance with university rules and applicable law.

4. ROLES & RESPONSIBILITIES (RACI MATRIX)

Activity	Estate / Facilities	STP Operator / Vendor	Safety / EHS	Departments
Infrastructure planning and adequacy	A	C	C	I
SOP and system operation	A	R	C	I
Monitoring and testing	A	R	C	I
Maintenance and breakdown response	A	R	C	I
Incident response and corrective action	A	R	R	C
Pollution risk assessment and risk register	C	C	A	R
Spill-kit readiness, emergency drills and incident notification	A	R	R	R
Drain protection and contractor compliance	A	C	R	C
Laboratory/chemical waste controls	C	I	C	A
Training and awareness	R	R	C	R
Evidence, KPIs and reporting	C	C	C	R



Activity	Estate / Facilities	STP Operator / Vendor	Safety / EHS	Departments
Policy review	R	C	C	C

(R = Responsible, A = Accountable, C = Consulted, I = Informed).

5. DATA COLLECTION & MONITORING

Records to be Maintained:

- Campus wastewater infrastructure assessment and treatment-system inventory.
- Approved SOPs, operating logs, inspections and maintenance schedules.
- Routine water-quality monitoring data and external laboratory test reports.
- Sludge, screenings, filter backwash and other residuals handling records, as applicable.
- Treated-water reuse records and evidence of safeguards against cross-connections.
- Chemical-waste records, incident reports, spill-response records and corrective actions.
- Emergency Response and Spill Contingency Plan, spill-kit inspection logs, mock-drill records and incident notifications to the competent authority.
- Training records, contractor declarations, audit findings and applicable regulatory approvals.

Key Performance Indicators (KPIs):

- Percentage of identified wastewater sources connected to an appropriate collection and treatment or authorised disposal route.
- Percentage of scheduled operational inspections and maintenance activities completed.
- Percentage of scheduled wastewater and treated-water tests completed and documented.
- Percentage of test results meeting applicable criteria, with deviations and actions recorded.
- Number of pollution incidents, overflows, leaks, treatment failures and unauthorised discharge events.
- Percentage of incidents investigated and corrective actions closed within the agreed timeline.
- Percentage of relevant personnel and contractors trained in applicable pollution-prevention procedures.

SRM UNIVERSITY-AP * Andhra Pradesh, India-522240 *

- Volume or proportion of treated wastewater reused for suitable non-potable purposes, where metering/data are available.
- Number of pollution incidents or spills that reached a drain, borewell or water body (target: zero), and number contained before reaching the water system
- Percentage of spill kits inspected monthly and found fully stocked
- Number of emergency/spill mock drills conducted each year, and percentage of identified actions closed
- Percentage of incidents reported to the nodal unit within one hour and logged within 24 hours.
- Availability of current SOPs, monitoring reports, maintenance records and public policy documentation.
- Internal Review and Audit: The nodal unit shall coordinate a documented review at least annually and more frequently for higher-risk systems or following an incident. Reviews shall assess infrastructure adequacy, treatment performance, monitoring completeness, maintenance, reuse, contractor compliance and closure of corrective actions. The Policy shall be reviewed formally at least once every three years, and the nodal unit shall also review it after any significant incident.
- Record Retention and Public Reporting: Records shall be retained for at least five years or longer where required by law, consent conditions or University rules. The approved policy and suitable non-confidential evidence of implementation shall be made publicly accessible through the University website to support transparent sustainability reporting. The Policy shall be hosted on the University website.

6. VERSION HISTORY

Version	Date	Author/Editor	Summary of Changes
1.0	06-05-2024	CLM Office	Initial policy

SRM UNIVERSITY-AP * Andhra Pradesh, India-522240 *

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SOP for Spill Prevention and Response

Title	SOP for Spill Prevention and Response	Document ID	003/2024
Hierarchy Level	L10 – SOP / Guideline	Status	Approved
Policy Owner	CLM Office	Effective Date	06-05-2024
Version	1.0	Next Review Date	06-05-2027

1. OBJECTIVE:

To implement a Standard Operating Procedure for safe & proper operations of Spill Prevention and Response

2. SCOPE:

This SOP covers Operation and Maintenance of Spill Prevention and Response SOP available at SRM University, Andhra Pradesh.

3. ROLE DEFINITIONS:

- **/Engineer -** Shall be responsible for ensuring proper operation and maintenance of Chemical spillage prevention
- **Manager- O&M -** Shall be responsible for ensuring all equipment's operation and maintenance to be carried out as per SOP and to monitor the PPM to be done as per schedule. He shall also maintain computerized tracking of the related activities of the equipment. He shall also be responsible for put up the required material indent for approval.
- **AGM-O&M/GM- MEP** - Shall be responsible for monitoring of all activities carried out in a week and to fetch the approval from concern authorities for material and Maintenance related activities.
- **Director -CLM-** Shall manage this SOP and direct proper implementation of this SOP without deviations.

4. PROCEDURE

1. Spill Response: a. As soon as a spill is discovered the subsequent procedures should be followed so long as doing so does not present any personal danger to the responder:

i. If possible, to do safely, stop the release.

ii. Contain the spill. Use available materials including spill kits supplies, mulch, dirt, sand, etc. to dam up the spill and prevent further flow of the material from the spill area

iii. Try to prevent spill material from reaching storm water drop inlets using any available means to minimize the amount of substance flowing to the drain and contain the substance at the discharge point.

iv. Warn other employees and onsite personnel of the spill as needed or if assistance is required.

v. As needed, notify the FM Academic Customer Support Center or EHS or ask another employee to do so. For any petroleum or hazardous chemical discharge, release, or spill, EHS or the FM Academic Custom

vi. For oil or other floating materials use a floating boom from a spill kit to confine the spillage or contact EHS for assistance.

vii. EHS should be consulted regarding the proper disposal of saturated materials resulting from a spill as certain materials, including chemicals and petroleum products, may require special handling

viii. Environmental Resources should be consulted prior to initiating any clean-up activities that involve efforts beyond using a spill kit to ensure remediation efforts do not result in additional impacts to the environment.

ix. Under no circumstance should the spilled material be hosed down

5. IMPORTANT INSTRUCTIONS

a) Do not operate without supervision of Engineer/FM and notify in case of any deviations / deficiencies observed in the system / equipment.

b) Please remember “safety first” always, hence follow the safety norms without any deviation.

6. DISCLAIMER:

This SOP has been framed to provide the basic procedure to operate Spill Prevention and Response in a safe way. Any update time-to-time in the system shall be updated accordingly.

7. RECORDS:

Operational Readings Register

8. REVISION GUIDE:

Any change in the systems will need a change in the SOP.

9. REFERENCE:

OEM guidelines& Site requirement.

End of the Document

SOP for Chemical storage & Handling

Title	SOP for Chemical storage & Handling	Document ID	003/2024
Hierarchy Level	L10 – SOP / Guideline	Status	Approved
Policy Owner	CLM Office	Effective Date	06-05-2024
Version	1.0	Next Review Date	06-05-2027

1. OBJECTIVE:

To implement a Standard Operating Procedure for safe & proper operations of Chemical storage & Handling

2. SCOPE:

This SOP covers Operation and Maintenance of Chemical spillage prevention available at SRM University, Andhra Pradesh.

3. ROLE DEFINITIONS:

- **/Engineer -** Shall be responsible for ensuring proper operation and maintenance of Chemical spillage prevention
- **Manager- O&M -** Shall be responsible for ensuring all equipment's operation and maintenance to be carried out as per SOP and to monitor the PPM to be done as per schedule. He shall also maintain computerized tracking of the related activities of the equipment. He shall also be responsible for put up the required material indent for approval.
- **AGM-O&M/GM- MEP** - Shall be responsible for monitoring of all activities carried out in a week and to fetch the approval from concern authorities for material and Maintenane related activities.
- **Director -CLM-** Shall manage this SOP and direct proper implementation of this SOP without deviations.

4. PROCEDURE

Chemical spillage Prevention:

4.1. Personal Protective Equipment

The purpose for personal protective equipment (PPE) is to shield the individual in the event of a release of vapor, a spill or other incident. PPE is not a substitute for safe work practices.

- Eye protection must be used during handling and cleanup of any chemical spill. The following eye protection will be used: Chemical safety goggles and full-face shields are required. These are available in the lab at the chemical hood.
- Thick Neoprene or Nitrile gloves or other chemical-resistant gloves should be worn. Chemical burns can be extremely painful and difficult to treat.
- It is also required that an acid-resistant suit or apron be used since clothing can absorb chemical solutions and maintain it close to the

4.2. Supplies

Recommended Spill Kit Supplies:

Standard/Universal Kit: Should contain the following items- Goggles, chemically resistant gloves, Absorbent materials (booms, pads, pillows), Acid neutralizer, Base neutralizer, pH test strips/paper, Solvent suppressant, Plastic bags for waste materials, Plastic scoop and scraper

If the lab has HF ADD:

- HF-neutralizing agent (calcium carbonate, commercial neutralizer)
- Calcium gluconate topical gel (2.5%) skin.

4.3. Spill Procedures

MAJOR SPILL

Consider a spill to be a 'major spill' if:

- you are not comfortable proceeding with cleanup
- it involves more than 5L of a hazardous material
- there is a risk of fire or explosion
- the material creates a respiratory hazard (toxic/noxious Oduors e.g., ammonia, concentrated hydrochloric acid, mercaptothion)
- the spill involves unknown or incompatible chemicals
- spills of oxidizing acids (conc nitric acid, perchloric acid, chromic acid etc.)
- spills of unstable, air or water reactive materials

In the event of a major spill:

- If you have an opportunity to extinguish nearby ignition sources or contain the spill at the source without risk of injury, please do so.
- Notify everyone in the lab and evacuate to the hall. Administer first aid if necessary.
- Dial 911 on a campus phone or use a nearby emergency call box to notify emergency authorities.

- If there is a risk to the remainder of the building, activate the nearest alarm pull station to trigger a building evacuation.
- When emergency responders arrive, provide them with all relevant information on the type and quantity of material spilled.

MINOR SPILL

In the event of a minor spill:

- If you have an opportunity to extinguish nearby ignition sources or contain the spill at the source without risk of injury, please do so.
- If any hazardous material has spilled on you, remove affected clothing immediately and flush the area with water.
- Alert others in the lab and cordon off the affected area.
- Retrieve the spill kit. Stop and think about your plan to clean the spill. Do you have the right materials to clean the material up safely? If not, retrieve the appropriate items from an alternate source (e.g., neighboring lab, chemical stores), or call the ECE Shop 5-5233 to get assistance.
- Remove the gloves and goggles and from the kit, put them an appropriate PPE on before approaching the spill.

For organic solvents –

- Ensure there are no ignition sources in the area. If you feel there is risk of fire or explosion, evacuate the lab and treat as a major spill. If the spill can be cleaned up safely, proceed with the following.
- If there are drains in the area, use a boom, sock, or other material to prevent the hazardous material from reaching the drain.
- Gently pour solvent vapor suppressant (activated carbon) over the spill, working from the outer edge to the middle.
- Using the absorbent pads from the spill kit, carefully wipe up the spilled liquid, again working from the outside in.
- Place all waste materials in a plastic bag. Once the spill has been fully cleaned, place the waste bag within the fume hood temporarily. Label the bag as hazardous waste and submit a Chemical Waste Disposal Request form to ORCBS.
- Remove PPE and thoroughly wash hands.
- Use soap and water to wash the affected area and remove any minor residues that may be left.
- Report the spill using the ECE Incident Report form.

For acids –

- If there are drains in the area, use a boom, sock, or other material to prevent the hazardous material from reaching the drain.
- Gently pour acid neutralizing agent (e.g, sodium bicarbonate, calcium carbonate, etc.) over the spill, working from the outside in.
- Allow several minutes for acid to mix with neutralizer, then test a representative area with pH paper.
- When the spill has been neutralized, use the available absorbent pads or paper towel to wipe up the spilled material.
- Place all waste into a plastic bag and label as hazardous. Place in a suitable location and submit a Chemical Waste Disposal Request to ORCBS.
- Remove PPE and thoroughly wash hands.
- Use soap and water to wash the affected area and remove any minor residues that may be left.
- Report the spill using the ECE Incident Report form.

For bases –

- If there are drains in the area, use a boom, sock, or other material to prevent the hazardous material from reaching the drain.
- Gently pour base neutralizing agent (e.g, citric acid, sodium bisulfate), etc.) over the spill, working from the outside in.
- Allow several minutes for the base to mix with neutralizer, then test a representative area with pH paper.
- When the spill has been neutralized, use the available absorbent pads or paper towel to wipe up the spilled material.
- Place used materials into plastic bag and label as hazardous waste. Label the bag as hazardous waste and place in a suitable location and submit a Chemical Waste Disposal Request to ORCBS.
- Remove PPE and thoroughly wash hands.
- Use soap and water to wash the affected area and remove any minor residues that may be left.
- Report the spill using the ECE Incident Report form.

For dry chemicals –

- For materials that are highly corrosive, toxic, or reactive, treat as a major spill. A hazardous materials team, with specialized HEPA vacuums may be needed in these circumstances.

- For materials of limited hazard, the powder or crystals can be cleaned up using the scoop and dustpan. Place waste material in a suitable container or bag and submit a Chemical Waste Disposal Request to ORCBS.
- Remove PPE and thoroughly wash hands.
- Use soap and water to wash the affected area and remove any minor residues that may be left.
- Report the spill using the ECE Incident Report form.

5. IMPORTANT INSTRUCTIONS

a) Do not operate without supervision of Engineer/FM and notify in case of any deviations / deficiencies observed in the system / equipment.

b) Please remember “safety first” always, hence follow the safety norms without any deviation.

6. DISCLAIMER:

This SOP has been framed to provide the basic procedure to operate Chemical storage & Handling in a safe way. Any update time-to-time in the system shall be updated accordingly.

7. RECORDS:

Operational Readings Register

8. REVISION GUIDE:

Any change in the systems will need a change in the SOP.

9. REFERENCE:

OEM guidelines & Site requirement.

End of the Document