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Specification
for

Lift Stations

REVISION

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1	DCN1000	Initial Release	11-13-13	K. Brust	R. Segura

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1 PURPOSE

The purpose of this document is to establish the minimum requirements/specifications for lift stations installed at the College of Nanoscale Science and Engineering, to standardize equipment and to prevent leaks, spills and chemical reactions from occurring. Existing units will be upgraded when systems or tools supported require a hardware modification be made.

2 SCOPE

This specification is limited to clean rooms, labs and chemical support rooms and does not cover facility support areas, such as waste water treatment or where fire water retention is required.

3 DEFINITIONS

Chemical Dispense Unit (CDU): A fully enclosed, noncombustible enclosure used to provide an isolated environment for liquid chemical in storage or in use.

Chemical Valve Manifold Box (CVMB): A fully enclosed, noncombustible enclosure with branch valving used to provide multiple outputs from a single-supply chemistry.

Make-Up Air Unit (MAU): A HVAC unit used to control temperature, humidity, and, as required, cleanroom pressurization air and replenish outside air lost through exhaust systems.

4 RESPONSIBILITIES

4.1 Environmental Health and Safety is responsible for program development, advice, and counsel to management, employees, professors, students, tenants, contractors and vendor employees.

4.2 Designers, installation contractors, installation engineers, supervisors, managers and professors are responsible for the implementation and oversight of this program.

5 DESIGN

Lift stations will be designed to meet one of three options. The options are based upon the function and material expected to be collected in the lift station. For ease of understanding the three design choices that have been identified as A, B or C, the design criteria for each option are listed in Figure 1.

5.1 **Design A** is the simplest unit designed for just water applications. Typically Design A is used for condensation from equipment such as a MAU (make-up air unit) or janitorial slop sink.

5.2 **Design B** is used for single chemistry (only one specific chemical drain system) or drain from a point of use (POU) abatement unit where all the chemistries are compatible with one another.

5.3 **Design C** is used for multiple chemical drain systems where there is a potential of incompatible chemicals mixing in the lift station.

6 OPERATION AND OWNERSHIP

6.1 EHS will maintain a master listing of lift stations on site (External Appendix A) that will be updated annually based on green book signoffs.

6.2 Lift station ownership is based upon the equipment to which the lift station is attached. Ownership can be by a CNSE tenant or any department within CNSE (see External Appendix A).

7 SERVICE AND MAINTENANCE

7.1 Each owner is required to establish service and maintenance requirements for the lift stations they own. At least annually, EHS requires the units be tested, flushed and visually inspected by the owner. External Appendixes B, C, D, & E are owner-specific inspection checklists to be used for meeting this annual EHS requirement.

8 RECORDS

8.1 All completed annual inspections of lift stations shall be sent and kept on file in the EHS office.

9 FIGURES

9.1 **Figure 1** – Requirements for Lift Station Designs A, B, and C

10 EXTERNAL APPENDICES

External Appendix A – Complete Lift Station List
External Appendix B – Equipment Support Team Annual Inspection Sheet
External Appendix C – FOG Annual Inspection Sheet
External Appendix D – TEL Annual Inspection Sheet
External Appendix E – Sematech Annual Inspection Sheet

Figure 1 – Requirements for Lift Station Designs A, B, and C

REQUIREMENTS	LIFT STATION DESIGN		
	A	B	C
UNITS SHALL BE LABELED WITH: Tool they support Name and number of primary owner Name and number of secondary owner Contents and HMIS if other than water	x	x	x
LIFT STATION MUST HAVE A PREVENTATIVE MAINTENANCE PLAN FOR SERVICE AND TESTING	x	x	x
LIFT STATION MUST BE INSPECTED AND TESTED *AT LEAST* ANNUALLY INSPECTION TO INCLUDE AS A MINIMUM: Draining the unit Cleaning the sediment, debris, etc. from the sump. Cleaning the float assemblies for: Pump activation, Alarm activation and Makeup water fill	x	x	x
Unit has double containment		x	x
Leak detection in the outer containment that: Is tied to stopping the source of fluid to the lift station Is tied to AAC or BMS Pages ERT for response to overflow condition		x	x
Has a HI-HI alarm that: Notifies the system owner Is tied to AAC or BMS Is tied to stopping the source of fluid to the lift station		x	x
Station has a capacity that exceeds the maximum quantity of fluid draining to the unit during a system upset such as a power failure. Lift stations and containment must be capable of holding 110% of the total retention volume of the system (i.e. Suspended water in exhaust and flow to tank)		x	x
Industrial City Water (ICW) is plumbed to the unit to allow: Manual flushing Cycling of the fill/empty cycle of the unit		x	x
Local Exhaust Connected		x	x
Plumbing Vent	x	x	x
Double check valves on pump discharge line	x	x	x
Incompatibles cannot be combined in the lift station.	x	x	x
Secondary containment on pump discharge	x	x	x
All parts are NRTL (Nationally Recognized Testing Laboratory) listed (ex. UL Listed)and used as intended by the manufacturer	x	x	x