香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

HSEO Meeting with DSCI

13 April 2023

Agenda

- HSEO current organization and strategic goal
- Recent safety messages by Senior Management Team
- Research Safety Management System e-Platform
- CLS Procurement & Inventory e-Platform
- Lab safety management due to research space shortage
- Discussions

HSEO Organization Chart

Prof Samuel Yu
Director

Christine Chiu
Assoc Director

K Y Ho
Sr Officer

Susanne Leung
Manager

Chem Safety/ Occ Hygiene/ Emergency Preparedness
Sam Tung
Sr Manager

Engr Safety/ Info Management
May Chan
Sr Manager

Bio & Rad Safety / Health Services
Angie Tang
Sr Manager

Haz Materials/ Non – Ion Rad
Pak Ip
Sr Manager

Admin Team

HSEO Lab

HSE Field Team

Center of Laboratory Supplies

Health, Safety and Environment Field Team – Organization Chart (Mar 2023)

								
WP Yip **Senior HSE Officer**	**WM Chan** **Senior HSE Officer**	**Andy Fong** **HSE Officer**	**Cell Wong** **HSE Officer**	**Woo Chun Fai** **HSE Officer**	**Ken Chiang** **HSE Officer**	**Shirley Ng** **HSE Officer**	**Bertha Shum** **HSE Officer**	**Kennedy Wong** **Senior HSE Officer**
DSCI MATHS PHYS CHEM SUST CLS ENVR/ENVS/ IENV OP, PRVST, VPABO, VPIAO, VPRDO	LIFS LAF BRI BioCRF DHSS HUMA SOSC LANG/CEI	CMO (BS, BM, Housing) CIVL IAS, FO, HRO, HSEO, EMIA, DBM ACCT, ECON, FINA, ISOM, MARK, MGMT	DENG CBE, MAE EI MCPF, NFF FSC HKUSTGZ, FYTRI/FYTGS, FRISM, SHCIRI, SRI EPACK	ECE CKSRI GCF, AAF BDI, ITSC, LIB, MTPC, OKT, OIR, PURO IEMS, IPP, PPOL	LAF BRI OCES OCRF HKBGML IPO Staff/Student Dental Clinics; Staff Medical Clinic	OCES OCRF HKBGML ACESS NAMI HKCND HKCCR IPO Staff/Student Dental Clinics; Staff Medical Clinic	CDO CSE DSTO,SHRLO, ARO,PGSO, URAO E2I, IEDA, ITC, ISD PAO, PO, RDC, RO	CMO (FS, Landscape, Security) CSO MDMF SAU GCSI, CCSS, DAO, EC, LEGAL, IAO, ISO, OMA

HSEO's Mission, Vision and Values

MISSION

- To promote and support health, safety and environmental protection in teaching, research, and other activities at HKUST.

VISION

- We sustain a healthy, safe and environmentally friendly culture at the HKUST campus, and our graduates bring forth the same into the wider society with pride.

VALUES

- We *care* about the well-being of our campus community and put Health, Safety and Environment (HSE) at the heart of everything we do.
- We perform our duties with *professionalism* and *integrity*.
- We take the lead in *proactive* and preventive management of HSE risks.
- We strive to *advance* our knowledge and expertise to face novel challenges and support *cross-cutting* solutions.

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Red Cross Blood Donation Campaign

21 October 2022

Eng 粵語 普通话

QUICK LINKS

- COVID-19 Info @HKUST
- Heads and DSO Meeting 29 Nov 2021 video (Internal access only)
- List of DSOs, updated 29 Sept 2022 (Internal access only)
- HSEO Field Team Organization Chart
- Requirements for hazardous operations
- Hazardous Material Inventory (Authorized users access only)
- Forms / Warning labels and signs
- Chemical Waste Collection | Radioactive Waste Collection
- Emergency procedures (English / Chinese)
- Medical and Student Dental Services (Go to the HRO website for information about the Staff Dental Clinic)
- Occupational Health Assessment and Medical Surveillance Enrollment eForm and supporting Forms (See user manuals for applicants, Principal Investigators and DSO) Paper Form has been superseded.

Research Integrity and Safety Message by VPRD

1. Research integrity is a fundamental requirement for all research activities
2. Safety and Ethics are crucial, covered by Committee on Research Practices (CRP)
3. Launching of Tick@Lab in Feb 2021 enables a more effective research safety and ethics management throughout the course of research projects
4. University senior management agreed in principle there should be a **closure** to the CRP safety and ethics declaration and review process
5. HSEO is developing an IT-enabled, supervisor-driven safety management system to facilitate an objective and well-documented **assurance of research safety and ethics**
6. We expect all researchers and supervisors to contribute and to own this process, and fully cooperate with HSEO in research safety management

HSEO Strategic Goal 2021-2028

Develop and implement an **IT-enabled** and **supervisor-driven** safety management system to increase efficiency of safety management, including

- updating existing health and safety (H&S) databases and IT tools to ensure efficient capture and analysis of key H&S data;
- establish / reorganize databases and IT tools following the main themes of personnel, workplace hazards, hazardous materials, and projects; and build necessary linkages among them;
- develop new IT tools to allow real-time and use-friendly access to H&S information;
- develop a H&S scoring system for more effective safety performance monitoring, and integration of H&S into regular performance evaluation, including research project safety and ethics completion reports

Research safety management system

Dr. Angie Tang


Research Safety Management
Research Group Profile
1) Project
2) Location
3) Personnel
Manage all info. in a single platform
Update Placard based on project hazards
Info. are easily to track, manage and access
Inspection
1) Self-inspection
2) HSEO inspection
Customize self-checklist to meet specific needs
Utilize smart e-forms for all reporting
Assign corrective actions and action due dates
Track corrective actions in real time to ensure compliance
Generate automatic emails
Analyze inspection data
Safety Training Management
Manage record of all completed & expired training
Link training requirements to Medical Surveillance & Personnel Profile
Send automatic reminders to users about overdue trainings
CRF managers and PIs can view the training status
Medical Surveillance
Link current BPM e-form
CRF managers and PIs can view the medical exam status
Send automatic reminders to users for periodic exam
Track and analyze data
Risk Assessment
Perform risk assessment of hazards and required control measures via e-form based on the PI Hazard Profile
Send automatic email to lab members, accept their acknowledgement of the assessment
SOP Library
Manage SOP
Remind periodic review
Allow to share to others
Generate QR code label
Accident/Incident Reporting
Efficiently capture the data via e-form
Receive instant automatic email alerts
Integrate with Inspection module for accident investigations if needed
Analyze data to identify the trend

Implementation

1. Qualtrics Self-inspection Checklist roll out in May 2023

- Biannual; in Apr-May and Oct-Nov every year
- 1 location 1 checklist
- PI with funded project(s) should receive an email notification in May

2. Phase I RSMS target to launch in Q1 2024

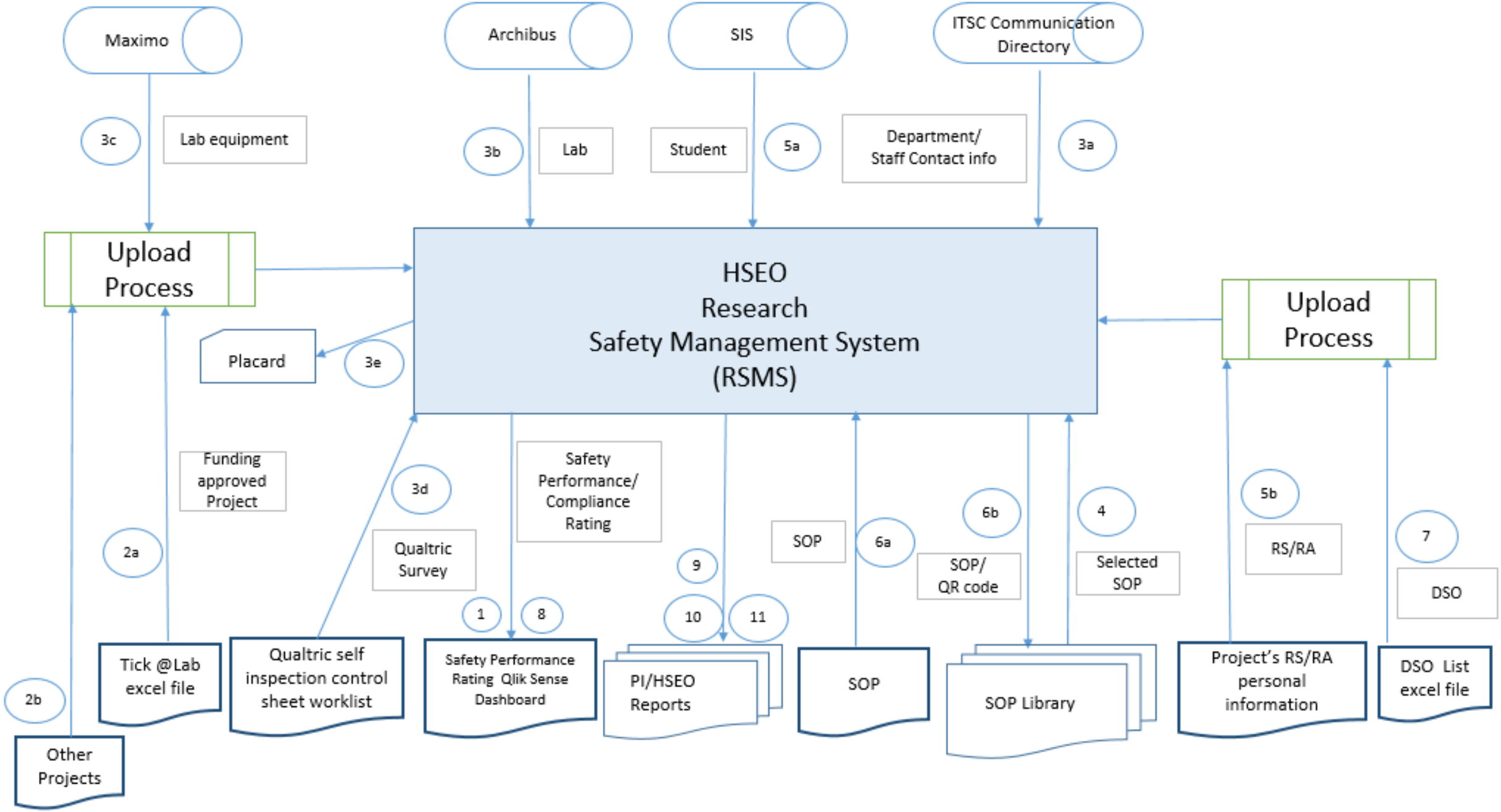
- 1 research group 1 profile (location, funded projects, personnel)
- Update location profile by PI
- Update personnel profile by Dept Admin delegate (e.g. DSO, EO)

(Student personnel is auto retrieved from SIS; Staff personnel is retrieved from Dept employment list)

PI Support and Input

Phase 1 (Q1 2024)

- Assign authority and tasks to research group delegates
- Build the research group profile by adding the lab locations
- Update the staff personnel profile via Dept Admin delegate
- Conduct biannual self-inspection checklist via Qualtrics
- Approve SOP and/or establish SOP


Maximo
Archibus
SIS
ITSC Communication Directory
3c
Lab equipment
3b
Lab
Student
5a
Department/ Staff Contact info
3a
Upload Process
HSEO Research Safety Management System (RSMS)
Upload Process
Placard
3e
Funding approved Project
3d
Safety Performance/ Compliance Rating
Qualtric Survey
SOP
6a
6b
SOP/ QR code
4
Selected SOP
5b
RS/RA
7
DSO
2a
9
10
11
1
8
2b
Tick @Lab excel file
Qualtric self inspection control sheet worklist
Safety Performance Rating Qlik Sense Dashboard
PI/HSEO Reports
SOP
SOP Library
Project's RS/RA personal information
DSO List excel file
Other Projects

My Profile
Dashboards
Tick@Lab Projects
Other Projects
Location
Personnel (CITI 2023)
SOP Library
Administration
Report

No. of Location
4

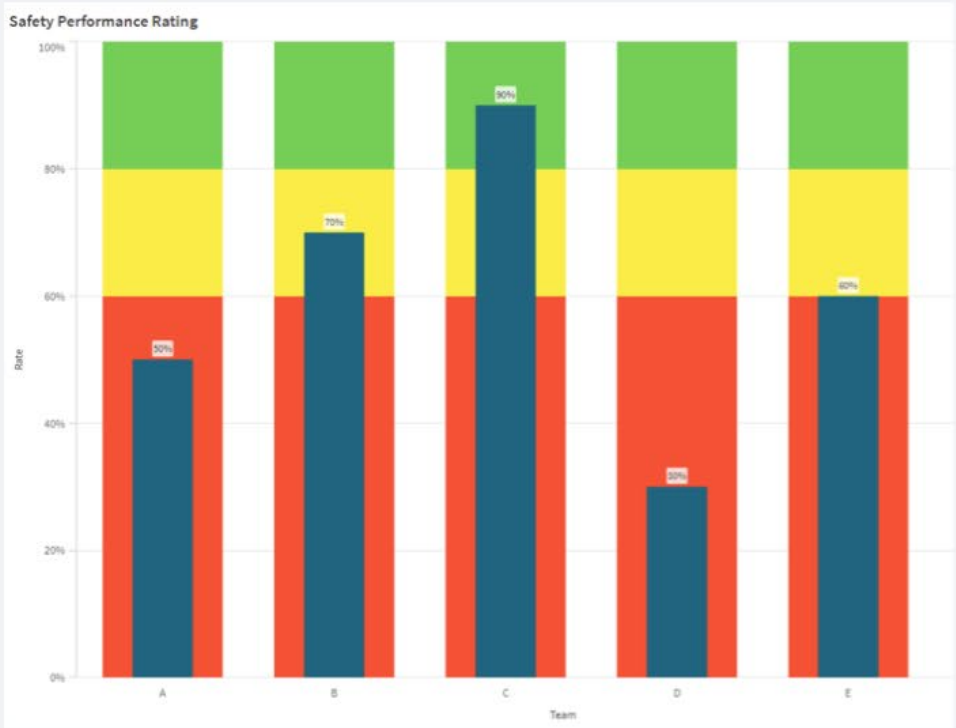
No. of Team Members
20

No. of Projects
12

No. of Findings in PI Self-Inspection
10
PI Self-inspections
4

Safety Training Completion Rate (%)
70%

Medical Exam Completion Rate
83%



PI Self-Inspection Findings

Room No.	Conducted by	Conducted Date	Findings	Rating	Action
	Lily McCoy	2022-08-01	3	80	Download
6329	Nell Lee	2022-01-06	3	90	Download
3183	Gerald McGuire	2022-03-09	15	70	Download

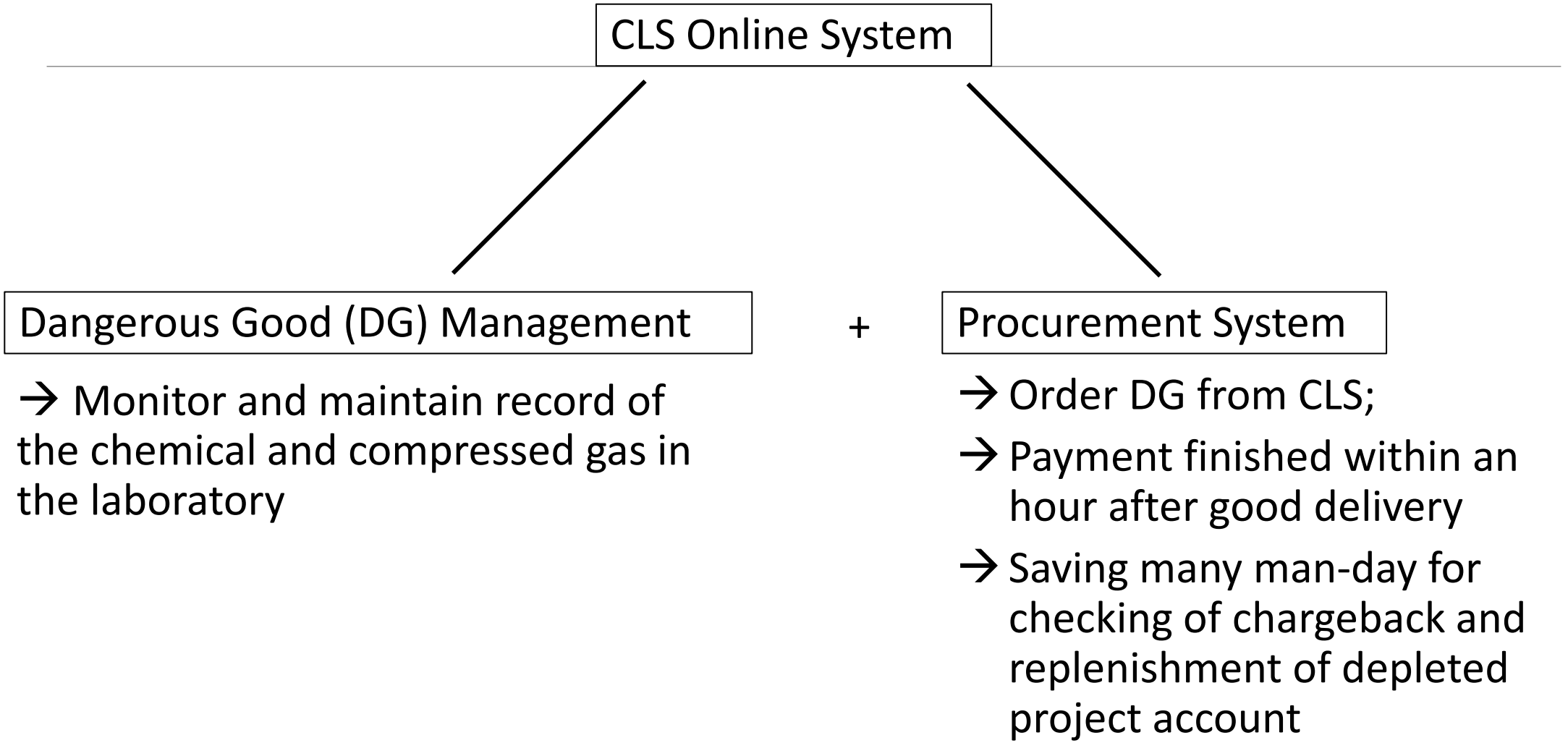
Safety Performance Rating

Module	Requirement (on time)	Weighting %
Personnel Profile (Research Group)	Add Location Add group member	5
Self-inspection	Completion	10
HSEO Inspection	Compliance (# of findings) Rectification	30 10
SOP Library	Review and update SOP Upload new as request	5 5
Safety Training	Required training Refresher training	5 5
Medical Surveillance	Completion	5
Risk Assessment	Review and update Upload new as request	5 5
Accident/Incident Reporting	# of accident out of total # accident Severity	5 5

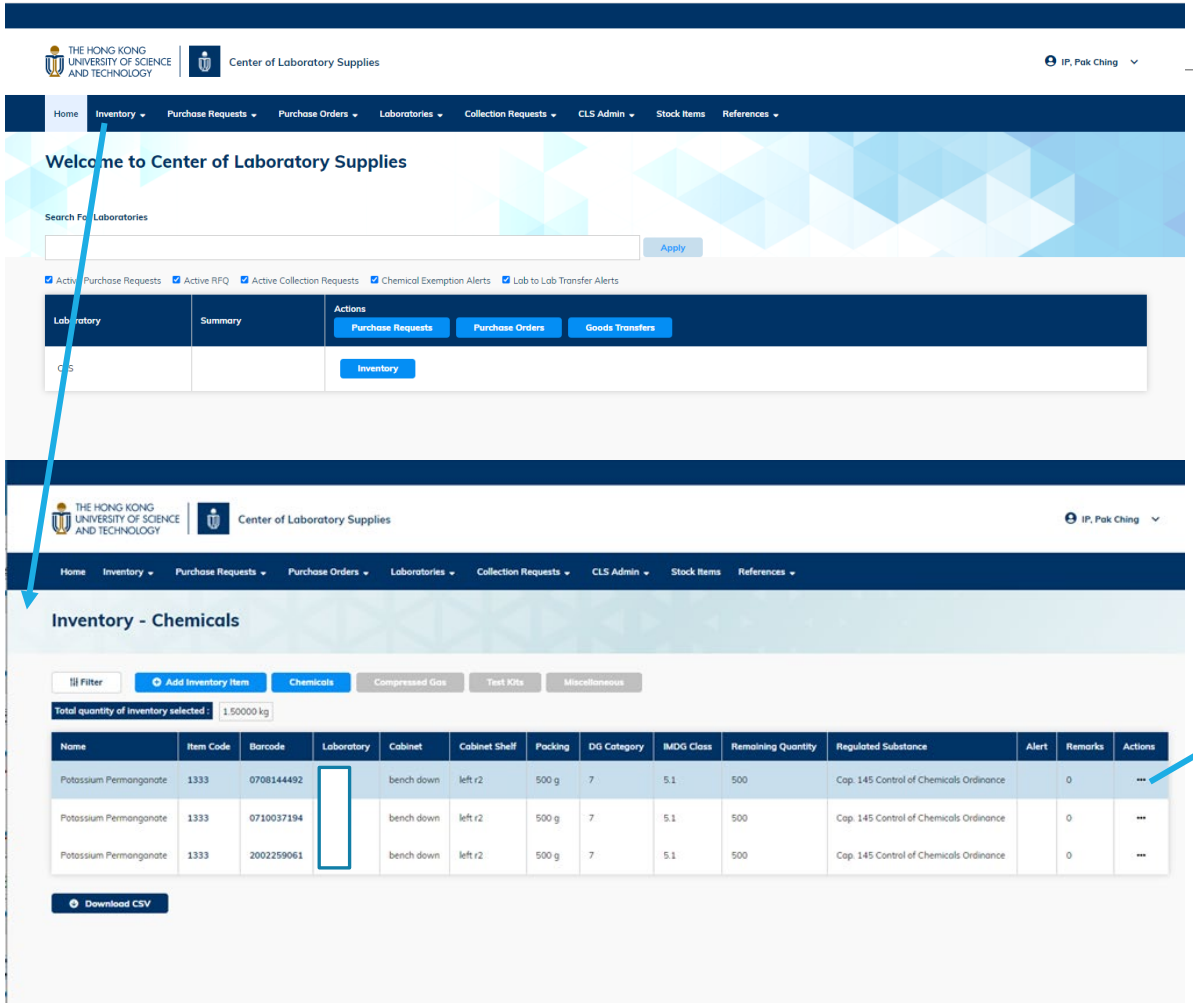
CLS Procurement & Inventory Platform

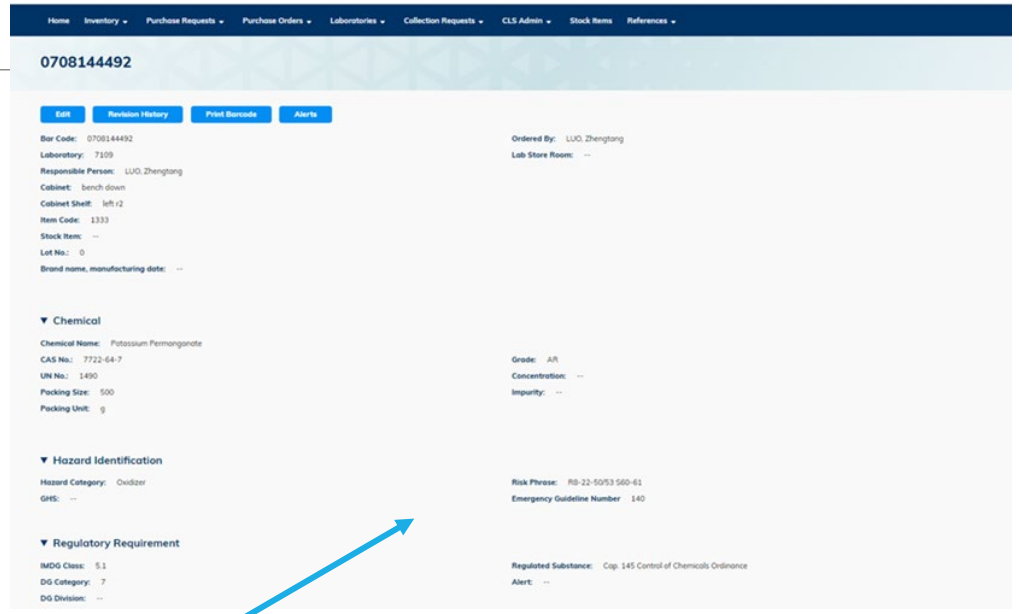
Mr. Sam Tung

Aim


CLS Online System
Dangerous Good (DG) Management
+
Procurement System
→ Monitor and maintain record of the chemical and compressed gas in the laboratory
→ Order DG from CLS;
→ Payment finished within an hour after good delivery
→ Saving many man-day for checking of chargeback and replenishment of depleted project account

Chemical Inventory

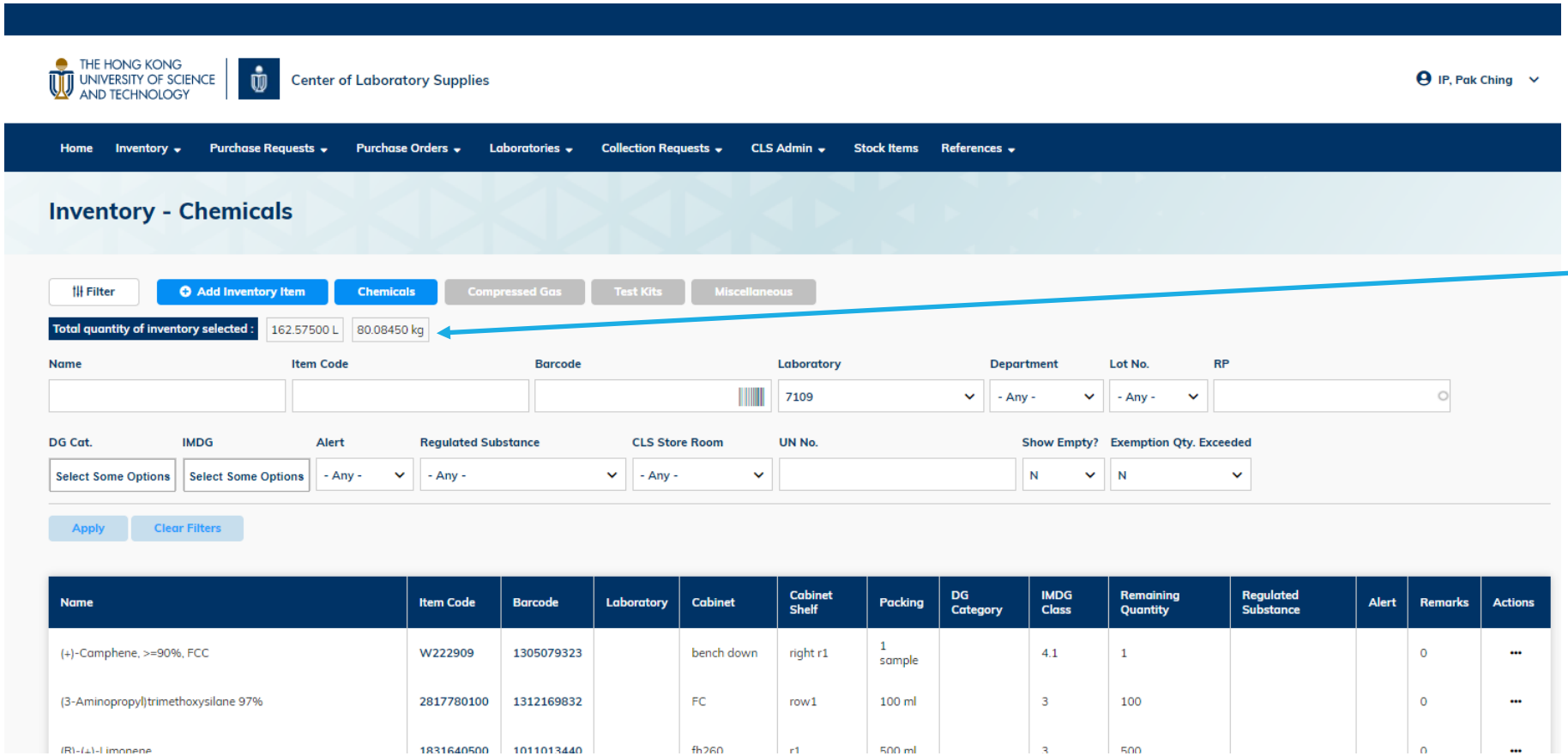




Details Information page

With an aim to assist compliance with the amended DG Ordinance

Storage Quantity



Checking for quantities of chemicals stored in specified location

Laboratory with large holding will be restricted for further chemical purchasa

Chemical Storage

With the amended DG Ordinance came into effect last year with a grace period ending in March 2024, the University has the responsibility and duty to demonstrate compliance.

Approach:

Restricting the quantities of chemical stored in laboratories and monitoring procurement.

The procurement platform has designed features to help fulfill this approach

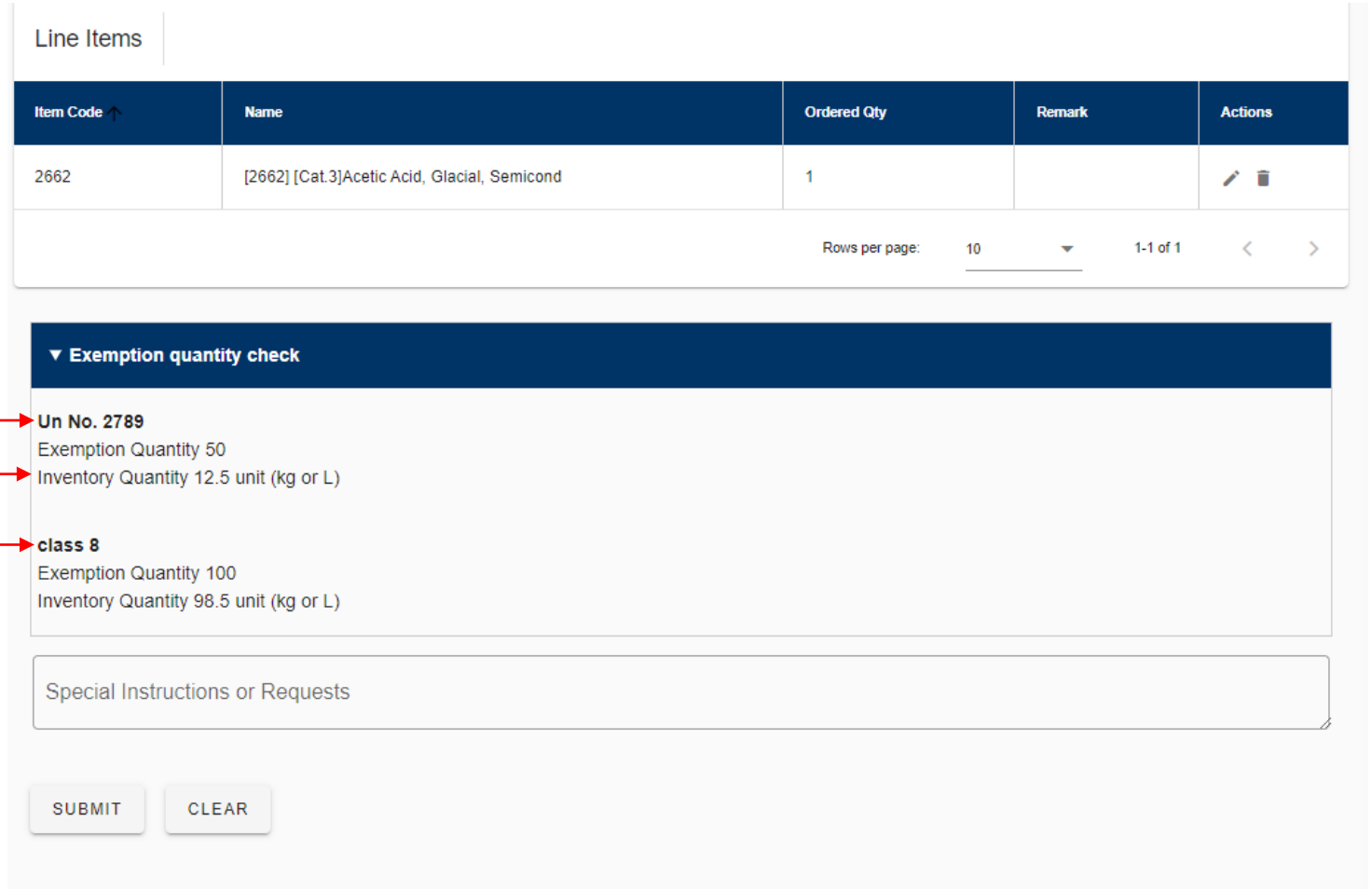
Chemical Storage Quantity Restriction

The system will check against the chemical quantity held by a RP with the regulation (CAP. 295)
Users cannot purchase chemicals more than the exempt quantity

Exempt quantity check of individual item (according to UN No.)

Total amount of the item held by the RP (Amount in the inventory + amount added in the PR)

Aggregate Exempt quantity check of a IMDG class



Chemical Holding Restriction and Exception

The Exempt Quantity of chemicals listed in the DG Ordinance will be used as reference for the quantity of chemicals allowed in laboratories.

For any needs/request of storing chemicals exceeding the Exempt Quantity listed in the DG Ordinance, the request will be considered on a case-by-case basis and the preset quantity restrictions for the laboratory concerned will be adjusted accordingly.

Crowded CHEM lab on CYT 6/F

Original design focused on providing more fume hoods, but it apparently led to insufficient bench space and storage space to support research work involving many hazardous chemicals

Many synthetic chemistry work requires large quantities of solvents, even with daily delivery of new solvents and daily pick up of chemical waste, chemical storage conditions are still unsatisfactory

Safety practice of some research groups has also become lax especially through the pandemic period. HSEO is working closely with CHEM to reinstate safety measures.

Ultimately, additional lab space is needed to accommodate this group of heaviest users of hazardous chemicals.

LAF / CHEM
Obstruction of Corridors

Photos and emails sent to William Chau and Siva Tsang between 06 to 17 June 2022

Emergency call on 17 Nov 2022, unintentional activation and damage of the EV button as the storage nearly prevented a contractor from getting through the corridor, Ref SN 22111736

Safety Improvement Reminder SIR Ref 20221215-LAF issued to William on 15 Dec 2022

Photos and emails sent to William and Siva again since 16 Mar 2023

These are long-term problems.

CHEM and LAF storage of goods at the 7/F lab corridor

LAF storage of goods along the G/F passageway outside the NFF entrance and near Lift # 23

We need your Support

- In achieving the HSEO Strategic Goal of developing an IT-enabled, supervisor-driven safety management system
- Encourage SSCI departments to collaborate with HSEO in development of Research Safety Management System
  - Building research group profile
  - Follow through on safety comments provided to research proposal, including establishing and implementing Safe Operating Procedures
  - Use online self-inspection checklist and document self-initiated safety efforts
- Encourage SSCI departments to use online chemical purchase
  - Give feedbacks to CLS about the new system
  - When centralized chemical purchase is rolled out, require departments to comply
- Resolve research space shortage issues with priority given to those affecting safety

Discussions

Thank you!

Recaps of Discussions at the Meeting

Q1: What is the Research Safety Management System (RSMS)?

It is an online system for managing health and safety information of research laboratories, being developed by HSEO and ISO. It is the main tool to realize the HSEO strategic goal of establishing an **IT-enabled, supervisor-driven** safety management system.

Q2: How can RSMS help PI in managing research safety?

RSMS provides an e-platform for researchers (PI or delegate) with easy access to their research group's safety information and enables researchers to take on a more effective role in managing safety and compliance of their research group.

Recaps of Discussions at the Meeting

Q3: When will the RSMS be launched?

RSMS Phase I is targeted to be launched in Q1 of 2024

Q4: What are researchers required to do in Phase I?

- Building research group profile by confirming and updating members
- Follow through on safety comments provided to funded research proposals, including establishing and implementing Safe Operating Procedures
- Use online self-inspection checklist to complete regular inspections (2 times per year)

Q5: Is the RSMS research project-based?

RSMS is research group-based, it covers all PIs with active research activities. It generates safety performance records of research groups, which can fulfil the new VPRD requirement of **safety and ethics completion report** for research projects that have gone through safety and ethics review at proposal stage.

Recaps of Discussions at the Meeting

Q6: What are the significances of the Chemical Procurement and Inventory Platform?

A: This chemical procurement system goes live on 20 March 2023, from now on chemical order placement and payment are handled on this online platform. This system is also built for compliance management of the amended Dangerous Good (DG) Regulations.

Q7: What about the amended DG regulations?

A: The amended DG Regulations, which extended coverage to laboratories, came into effect last year with a grace period ending in March 2024. The University has the legal responsibility to ensure that all DG chemicals exceeding the exempt quantities are covered by DG licenses, and there are sufficient DG stores for chemicals that are not in use. This requires an accurate inventory of chemicals and effective management of chemical acquisition and disposal.

Recaps of Discussions at the Meeting

Q8: What can the system do for compliance of DG Regulations?

A: The system is able to monitor the quantities of DG chemical in specific locations, and help researchers control the quantities of chemicals acquired and stored in laboratories below the exempt quantities.

Q9: What is the impact on current chemical procurement practice?

A: Since compliance is closely linked with procurement, storage, and use, it is crucial to establish a **centralized chemical procurement process**, which will be fundamental for compliance with the amended DG regulations. CLS is committed to order chemicals from sources specified by users, enter the chemicals into the inventory before delivering to users. Centralized procurement is planned to be launched in Q4 2023. HSEO/CLS will explain and consult with users in Q2 and Q3.