

# The Success of Chemishield at Pfizer Grange Castle





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The inspiration for Chemishield was brought about by a chemical accident that happened over 12 years ago whilst I was a student working in a lab. From that point forward I vowed to create a solution that would prevent the incompatible mixing of waste streams. Chemishield went into development in 2017. June 2019 saw the commercialization of Chemishield, and not long after Chemishield was deployed in September 2019 in Pfizer Grange Castle where it continues to be used to great affect to this very day. This document is to serve as an instrument to portray its success to date.

**KEVIN WALSH**



# The Story So Far

**Waste management is a complicated issue not just across life sciences, but also petrochemical, agricultural and advanced manufacturing settings to name a few.**

Problems posed by improper waste management include the likes of accidents happening, violation of environmental law, and contamination of the environment.

Chemishield is the only waste management solution that acts as 'Digital PPE' removing the uncertainty and human error associated with waste disposal.

As a software solution, we understand the criticality of adhering to all applicable environmental regulations, which is why Chemishield captures all data inputted into the system without the need for onerous paper logs.

Chemishield has evolved vastly over the course of the past few years, factoring into account the user experience, client feedback, that has allowed us to turn our attention to developing the product further which we will demonstrate as part of this presentation.

## Providing EHS Waste Management Software to Pfizer for 6 Years

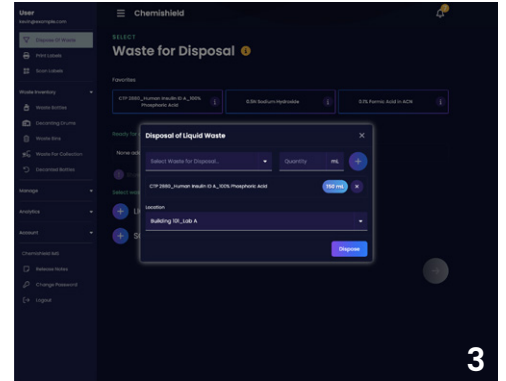
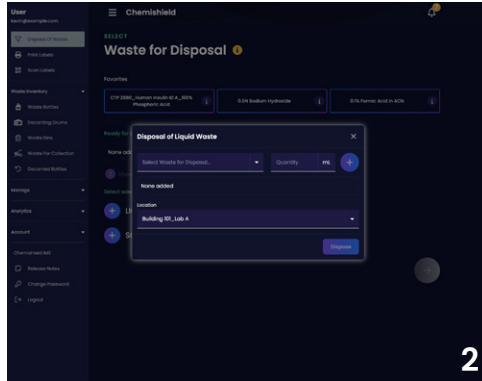
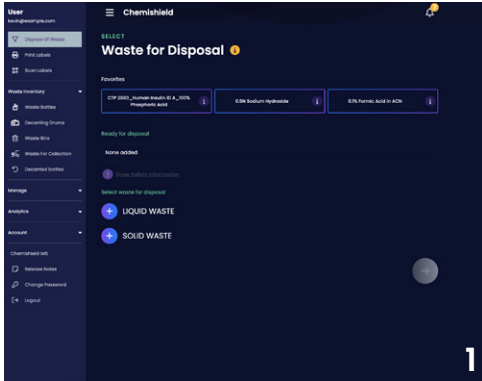


# How Chemishield Works

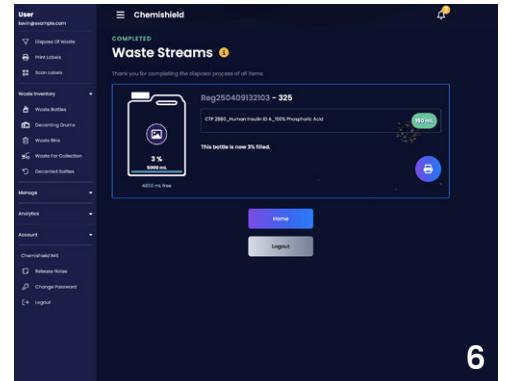
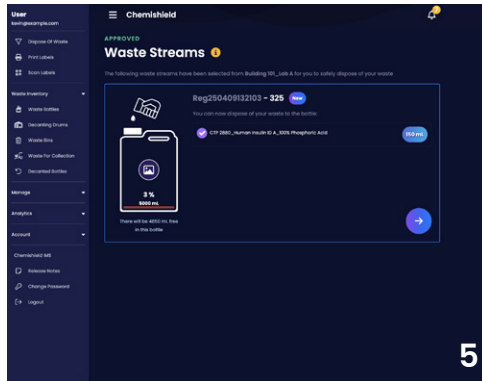
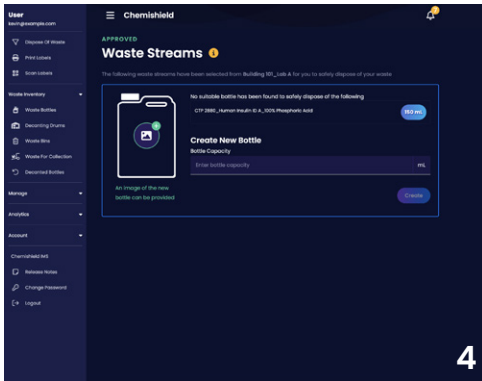
## How A Technician Uses Chemishield

### Disposing Of Liquid Waste

In 8 easy steps a technician disposes of their waste.



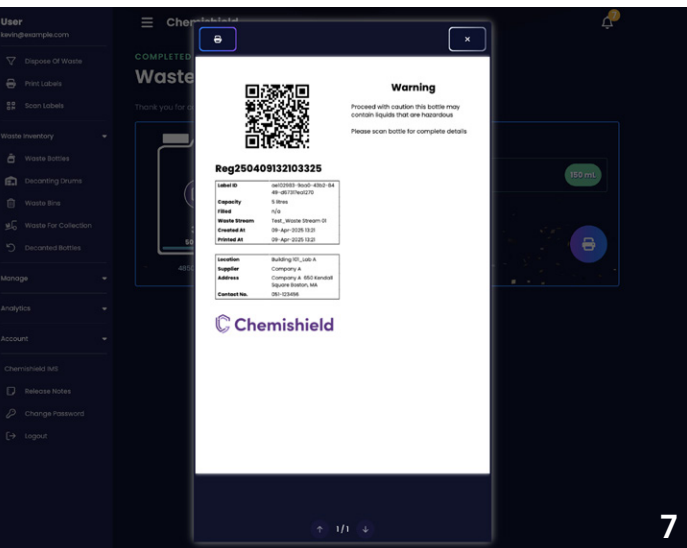
1-3 The Technician identifies their waste, quantities and their location.



Chemishield has determined that a new waste bottle has to be created. The Technician tells Chemishield the capacity of the bottle.

Technician pours waste into the new bottle.

The disposal process is complete.



The Technician prints a label with a QR code that can be scanned to identify what's in the bottle at any time.

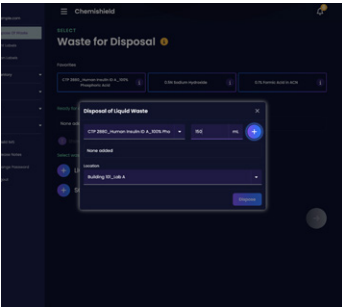
This process took less than 90 seconds to complete.

# How Chemishield Works

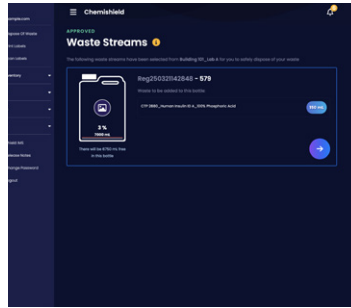
## How A Technician Uses Chemishield

### Disposing Of Liquid Waste (cont.)

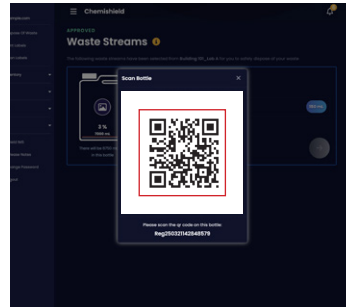
The technician then wished to dispose of more waste used on the previous page. When there are bottles available for a technician's waste Chemishield identifies the correct bottle and asks the technician to scan the QR code to validate they have selected the correct bottle - **a critical step in ensuring that waste goes where it should.**



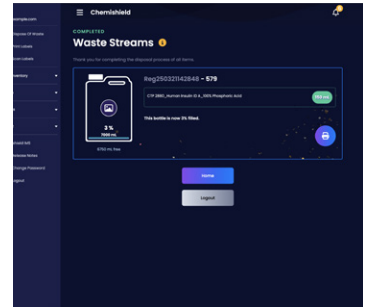
Technician identifies their waste, quantities and their location again.



Chemishield identifies the correct bottle.



Chemishield asks the technician to scan the QR code.



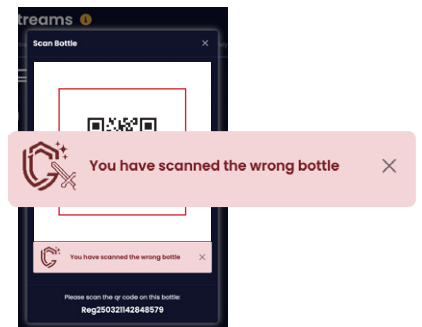
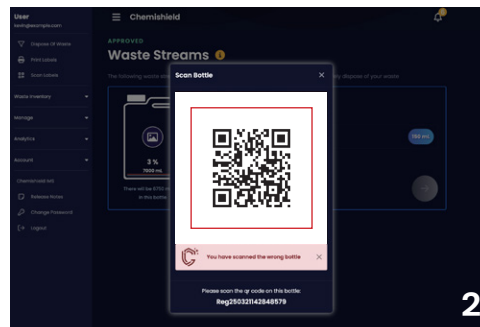
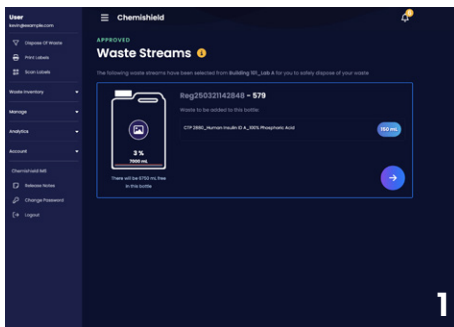
The technician pours waste into the correct bottle.

**This process took less than 30 seconds to complete.**

## 2 Step Validation

Chemishield eliminates the risk of putting waste where it shouldn't go.

For every disposal, a technician must scan the QR code on either a bottle, or at a sink to validate the disposal.



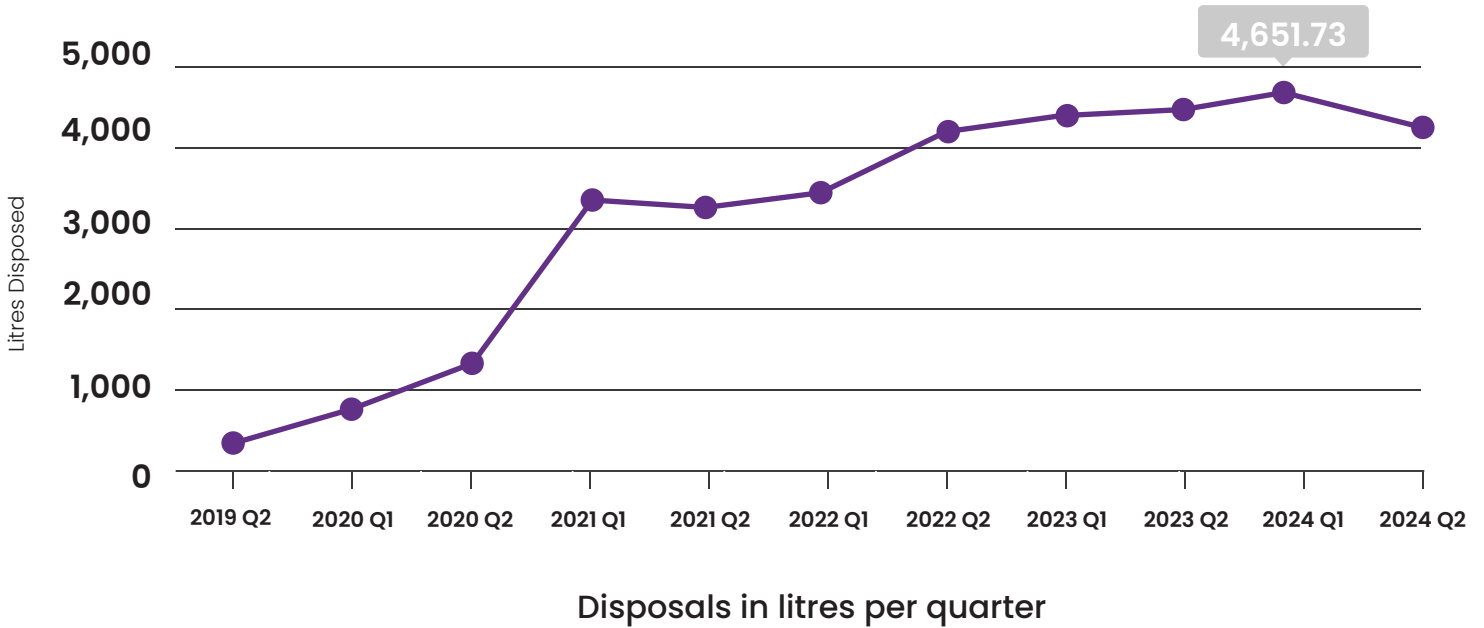
The technician believed they could dispose of waste in a bottle. However, when they scanned the bottle Chemishield would not permit the disposal.

A serious accident was potentially avoided here. If waste goes where it shouldn't go i.e. into the incorrect bottle you are contaminating waste streams, potentially increasing your waste disposal costs.

# How Chemishield Works

## The Results

In the 5 years Chemishield has been in operation at Pfizer Grange Castle.



**82** Average Disposal Time (seconds)

**5** Average Disposal Time Without Chemishield (minutes)

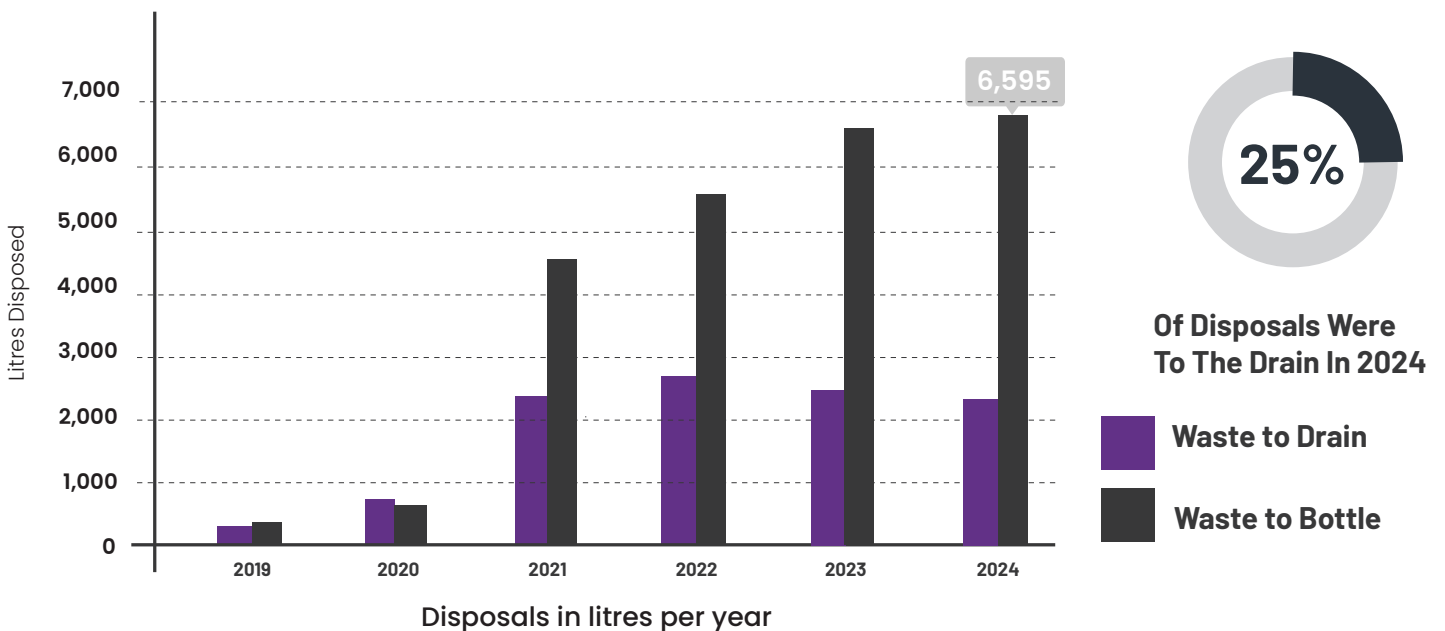
**177** Disposal Time A Year (hours)

**647** Disposal Time A Year Without Chemishield (hours)

\*7,772 Disposals we're made in 2024  
 $82 \text{ Seconds} \times 7,772 \text{ Disposals} = 177.03 \text{ Hours}$

\*7,772 Disposals we're made in 2024  
 $5 \text{ Minutes} \times 7,772 \text{ Disposals} = 647.67 \text{ Hours}$

Refer to page 5 for money saved  
**Time saved using Chemishield**



# How Chemishield Works

## The Results

In the 6 years Chemishield has been in operation at Pfizer Grange Castle (cont.)



**548** Bottles or Sinks have been scanned incorrectly

**0** Accidents have occurred in labs with Chemishield

## We can break that 100% success rate down to what it means financially to Pfizer Grange Castle

### No Accidents

There have been no waste disposal accidents related to Chemishield in over 37,000 recorded disposals at our client's site. 548 accidents have been prevented since Chemishield launched at our client's facility. Chemishield estimated a conservative saving of \$5,000 per accident avoided.

**Estimated Annual Saving**  
**\$548,000\***

### Improved Disposal Times

On average it takes a Chemishield user 82 seconds to dispose of waste. Time studies carried out in 2019 and 2020 showed an average disposal time of ~5 minutes when not using Chemishield, saving ~3 minutes per disposal. In 2024, 674 working hours have been saved through using Chemishield.

**Estimated Annual Saving**  
**\$15,000**

### Improved Bottle Management

Chemishield has allowed Pfizer to gain insight into how bottles are managed and has assisted in identifying efficiencies with regards to storage space and cabinets required in labs. Bottle lifespan and bottle disposal numbers offer a clear view of weekly and monthly bottle creation and removal figures.

**Estimated Annual Saving**  
**\$11,000**

### Improved Disposal Costs

Chemishield has streamlined liquid waste management and in doing so has reduced the overall cost to have waste removed from Pfizer. By being fully informed of the contents of the bottles along with the ability to dispose of fewer pallets for removal, Chemishield provides confidence that the contents are correct and as described on the label. This inevitably has led to strong savings for Pfizer.

**Estimated Annual Saving**  
**\$10,000**

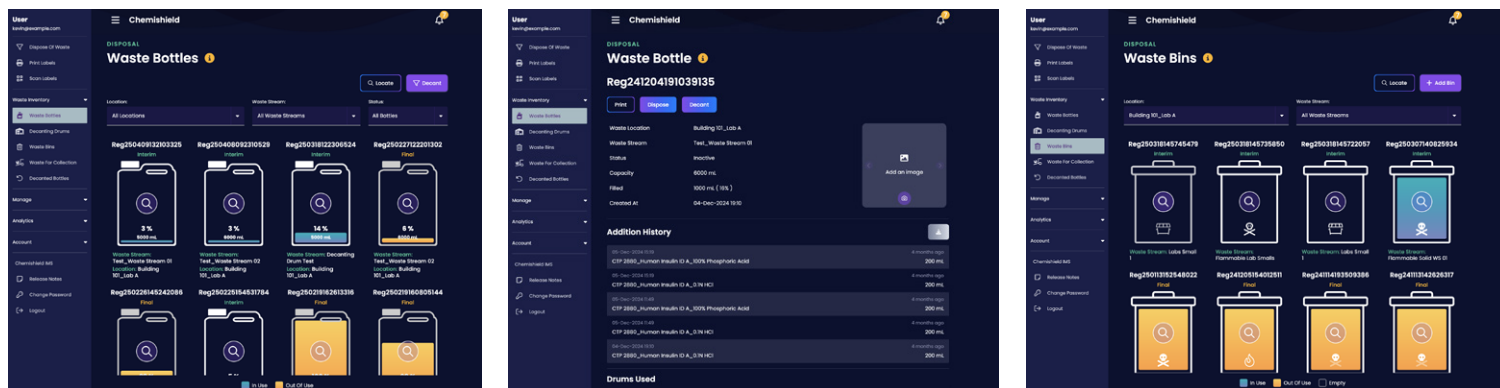
\*Chemishield estimates a conservative, average cost saving of \$5,000 per accident prevented. A serious accident can cost a facility between 250-500K depending on its severity



# How Chemishield Works

## How A Disposal Operator Uses Chemishield

### Full Overview Of Waste



Chemishield allows the disposal operator to monitor the quantity of waste in any given location, allowing them to organise collections and order replacement container/bottles.

Similar to the technician, the disposal operator has the ability to scan any bottle and see its contents.

The disposal operator's role with Chemishield maintains a clean, organised and safe facility. They are also able to monitor the disposals made to each bottle, creating a full track and trace system.

In 6 years of operation

# 2,844

Bottles have been disposed of





# How Chemishield Works

## How A Manager Uses Chemishield

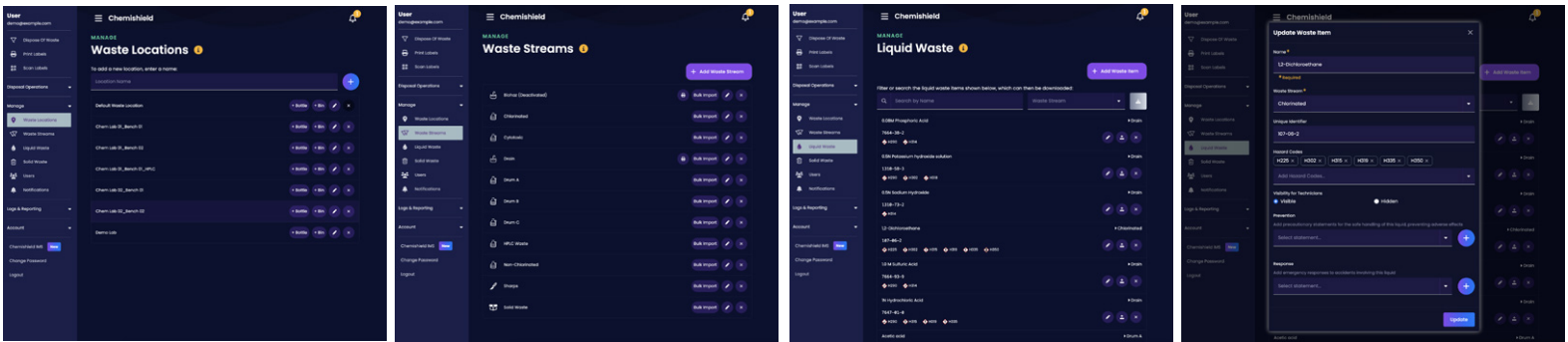
Complete Control Of Waste At A Facility

A manager can operate Chemishield remotely from anywhere. That may be in the lab itself or on a beach.

That decision is up to you!



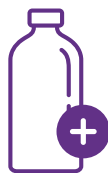
The Chemishield Dashboard



Chemishield allows managers to:



Define Waste Streams



Create Waste Bottles



Access Reporting & Analytics



Control Access



Import Waste Lists



Setup New Waste Locations



Access Audit Trails

# How Chemishield Works

## How A Manager Uses Chemishield

### Logs and Reporting

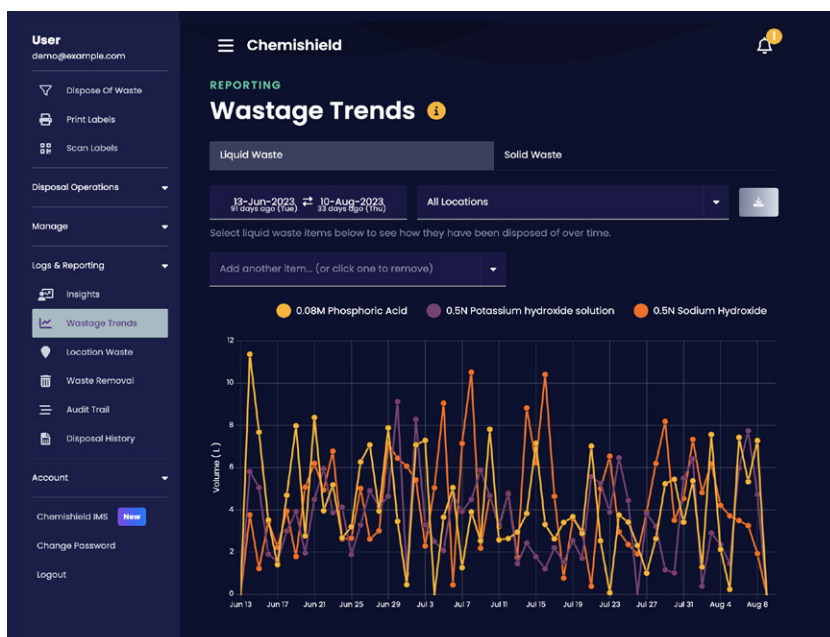
Logs & Reporting gives management a bird's eye view of all waste operations that allows for better, more informed decision making.

The Manager dashboard has 6 displays of user activity. It shows **Insights, Wastage Trends, Location Waste, Waste Removal, Audit Trail and Disposal History**.



### Insights

This display allows a manager to specify location and waste type disposed of and choose specific dates to show clearly how often and how much of the waste type has been disposed of.



### Wastage Trends

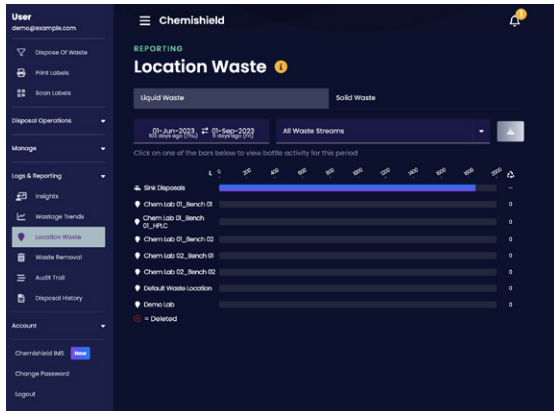
This dashboard quickly identifies the busiest locations and chemicals being disposed at Pfizer Grange Castle.

This data also has highlighted the need for more waste bottles and also that the area is high risk as there is more chemical waste present here. This data can also be very useful should there be an adverse event in an area. Chemishield will be able to identify all of the waste in the area, which can be passed onto the ERT Team.

# How Chemishield Works

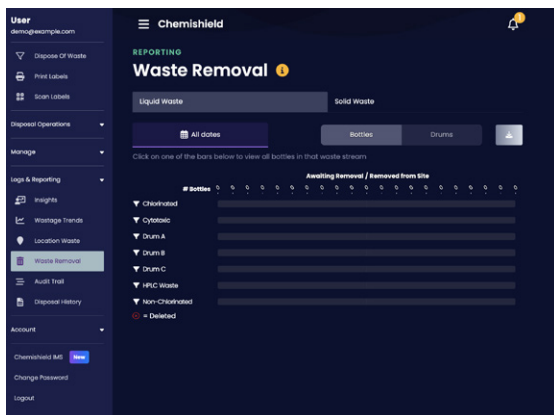
## How A Manager Uses Waste Chemishield

### Logs and Reporting



#### Location Waste

Here we see the volume of waste generated at each location for the specified time period. It can be further refined by selecting a single waste stream



#### Waste Removal

View a breakdown of the amount of disposed containers that are awaiting removal from your site at the end of the time period, and those that were removed during the time period, for each waste stream. Ensure disposed waste does not build up excessively at your site, and is being removed regularly.

The screenshot shows the 'Audit Trail' report, which is a table of user actions. The table has columns for 'Time', 'User', 'Action', 'Location', and 'Role'. The data includes login and logout events for 'demo@example.com' and disposal actions like 'Drain had 500ml of 10 M Sulfuric Acid added to it'.

Time	User	Action	Location	Role
Sep-12-2023 10:56:04	demo@example.com	demo@example.com logged in	Default Waste Location	Account Owner
Sep-12-2023 10:29:38	demo@example.com	demo@example.com logged out	Default Waste Location	Account Owner
Sep-12-2023 10:27:07	demo@example.com	demo@example.com logged in	Default Waste Location	Account Owner
Sep-12-2023 10:17:57	demo@example.com	demo@example.com logged out	Default Waste Location	Account Owner
Sep-12-2023 10:19:51	demo@example.com	Drain had 500ml of 10 M Sulfuric Acid added to it	Default Waste Location	Account Owner
Sep-12-2023 10:19:27	demo@example.com	MS-SCANNED: scanned 8909652c-b789-474c-9a85-2656a68b7c expected it to be 80981928-5ef8-476c-977c-2ef24c1983a2	Default Waste Location	Account Owner
Sep-12-2023 10:19:27	demo@example.com	MS-SCANNED: scanned 8909652c-b789-474c-9a85-2656a68b7c expected it to be 80981928-5ef8-476c-977c-2ef24c1983a2	Default Waste Location	Account Owner

#### Audit Trail

View all the actions taken by users at your Chemishield site. The logs can be searched by entering any text that may be found in the table such as a user id, location name, or any other identifier. The range of dates can be adjusted.

The screenshot shows the 'Disposal History' report, which is a table of disposal events. The table has columns for 'Time', 'User', 'Name', 'Volume', 'Location', and 'Stream'. The data includes disposals of '10 M Sulfuric Acid', 'Triethylamine', 'Trypan blue', 'Trifluoroacetic acid', and 'Water'.

Time	User	Name	Volume	Location	Stream
Sep-12-2023 10:56:01	demo@example.com	10 M Sulfuric Acid	500 mL	N/A	Drain
Sep-12-2023 10:56:03	demo@example.com	Triethylamine	250 mL	Default Waste Location	Drum B
Sep-12-2023 10:56:09	demo@example.com	Triethylamine	500 mL	Default Waste Location	Drum B
Sep-12-2023 10:57:46	demo@example.com	Trypan blue	500 mL	Default Waste Location	Drum C
Sep-12-2023 10:57:27	demo@example.com	Trifluoroacetic acid	200 mL	Default Waste Location	Drum A
Sep-12-2023 10:58:54	demo@example.com	Water	100 mL	N/A	Drain

#### Disposal History

View a history of disposals, by applying multiple filters (waste stream, location) to display all the disposals that match those criteria during a time period. The custom report can then be download for future reference.





# How Chemishield Works

## The Results

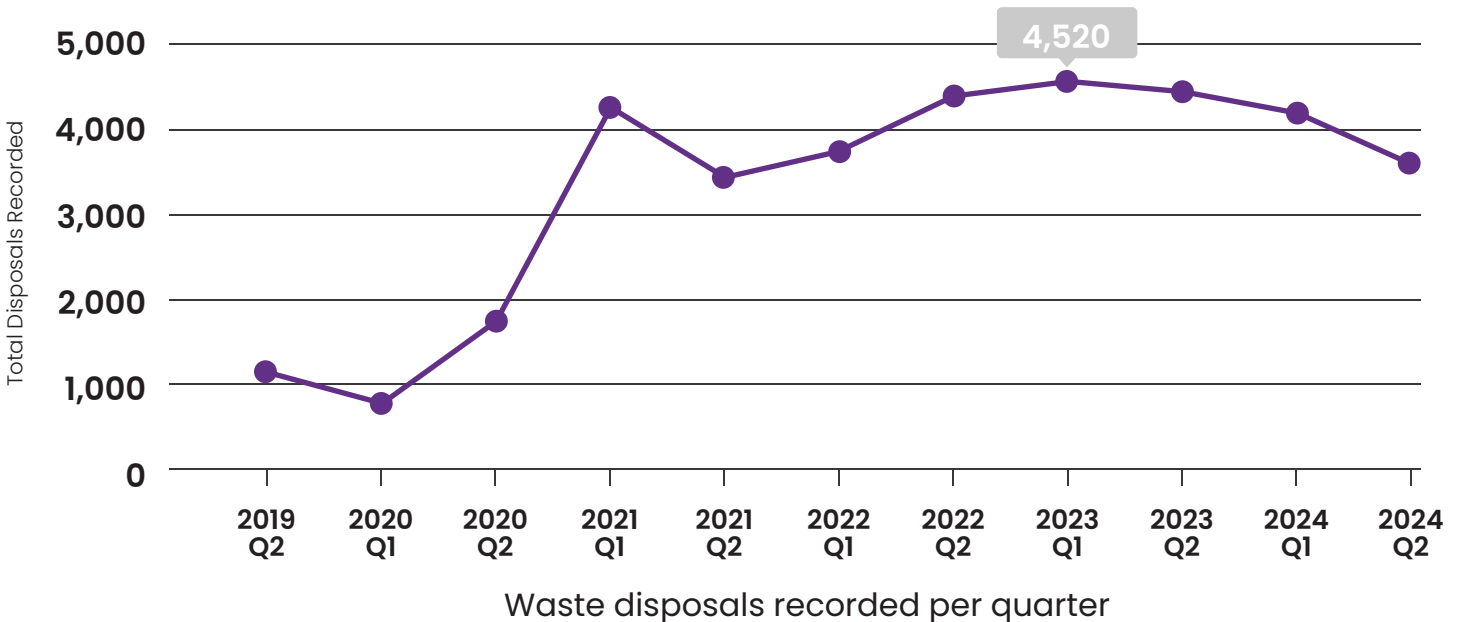
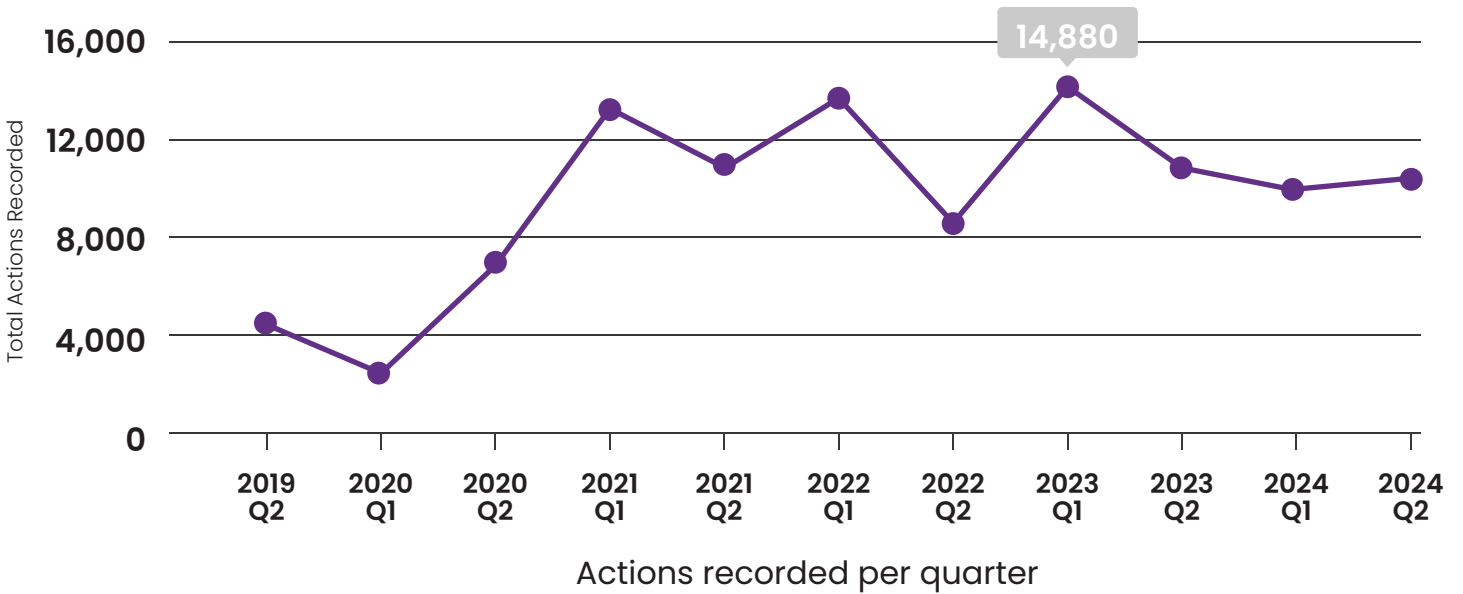
In the 6 years Chemishield has been in operation at Pfizer Grange Castle

**706** Total User Accounts

**88** Total Waste Streams

**107,895** Total Actions Recorded

**184** Total Waste Locations



# Chemishield and Pfizer

## A Strong Partnership

### Success and Development

As Chemishield continues to evolve the team at Grange Castle have been instrumental in the further development of Chemishield. Such enhancements are communicated to Chemishield users through our weekly newsletter.

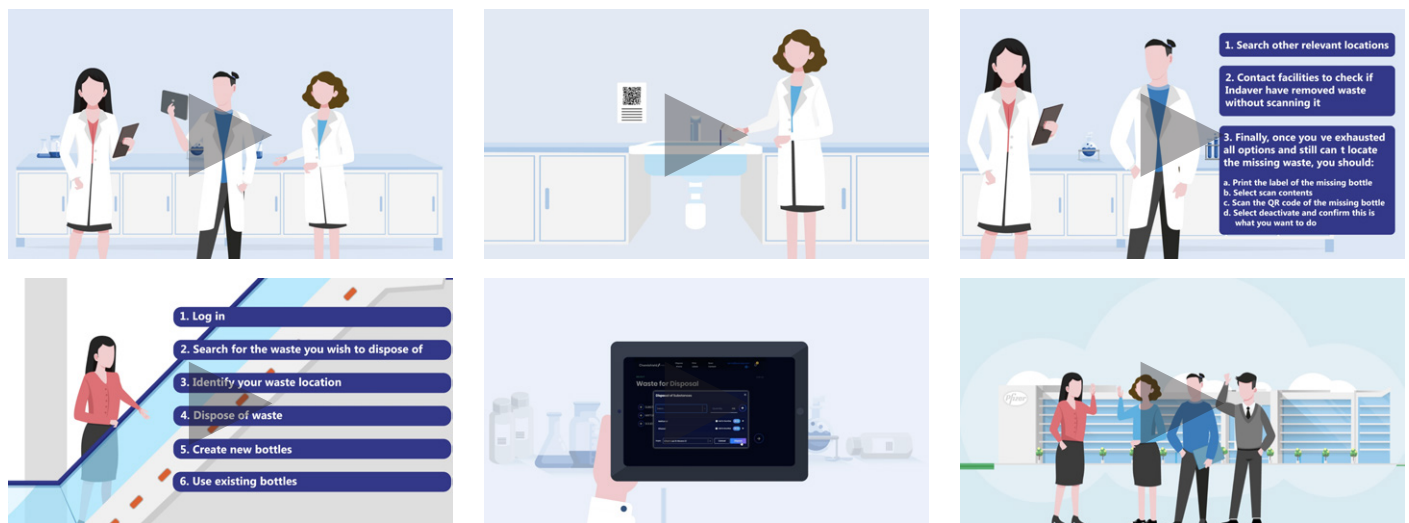


The Chemishield statistics newsletter is sent out to each facility using Chemishield with a breakdown of the previous week.

The statistics newsletter is a weekly update targeted at the manager, disposal operators and technicians of the site.

The development of e-learning collateral has created an introduction to the software to any new member of the team.

An informative and educational module was created which could train in a technician in a matter of hours.



The e-learning content was made specifically for Grange Castle and featured some familiar faces a new recruit would instantly recognise.

# Chemishield and Pfizer

## A Strong Partnership

### Success and Development

At Chemishield we seek ways of improving at all times. We have numerous developments currently in testing that we aim to be added to the Chemishield platform. Below is a quick look and description on these developments.

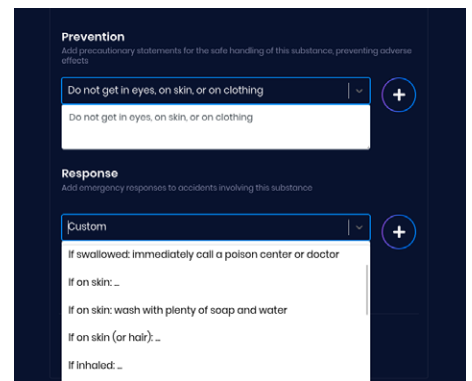
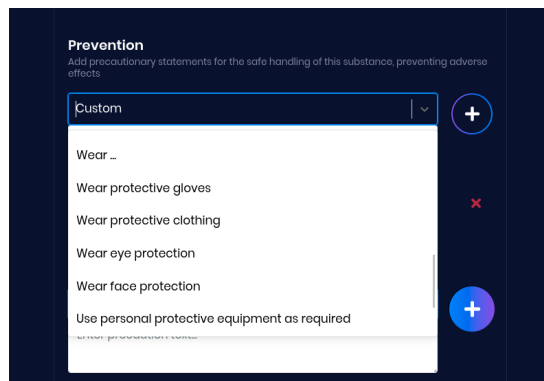
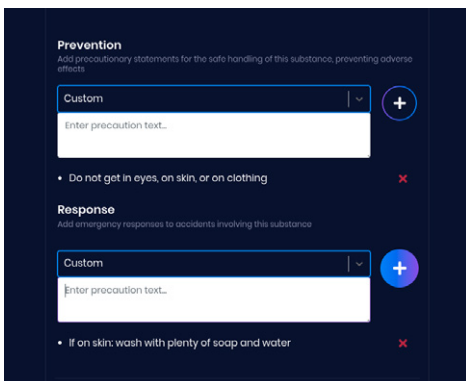
## Chemishield PPE Requirements

Increasing the level of safety in a facility is always a priority for us and the addition of PPE Requirements along with the warnings associate with each waste type is a development to the software we are delighted to add.

Below is a series of screenshots of the addition in development.



When a waste type is scanned which would require the technician or disposal operator to wear PPE, a warning will appear alongside the waste type. A small addition to the interface but an important alert to increase safety.

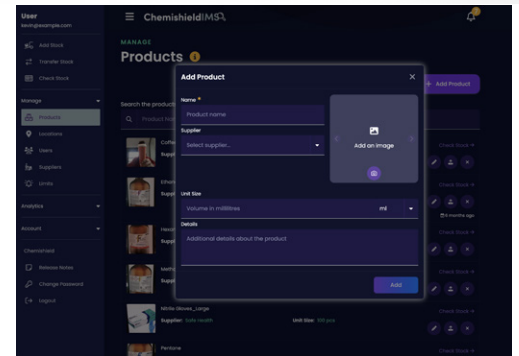
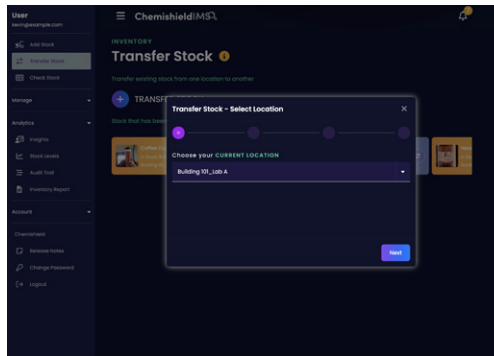
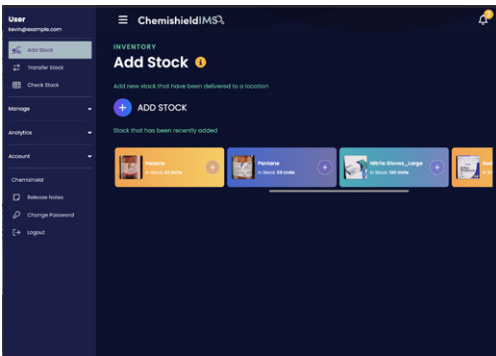




# Success and Development

## ChemishieldIMS Inventory Management System

The IMS module allows facilities to address all of the challenges of inventory management without the headaches of using barcode scanners and label printers.

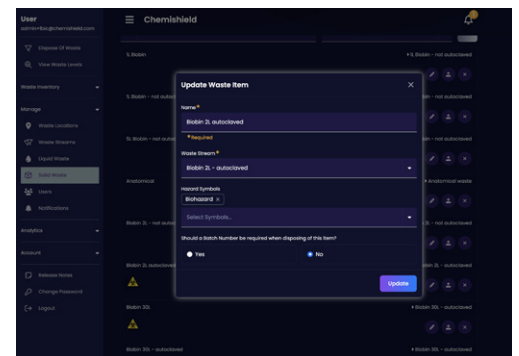
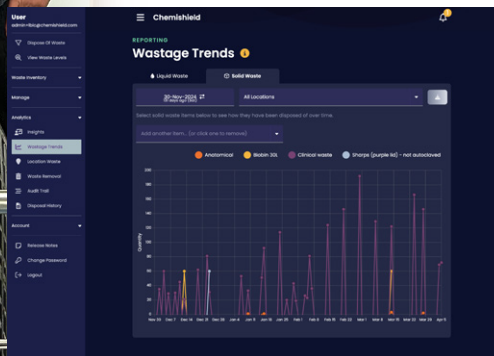


## Chemishield Paperless Waste Management System

For facilities who prefer not to print interim labels and instead utilise our image recognition technology, our paperless waste management module is perfect.

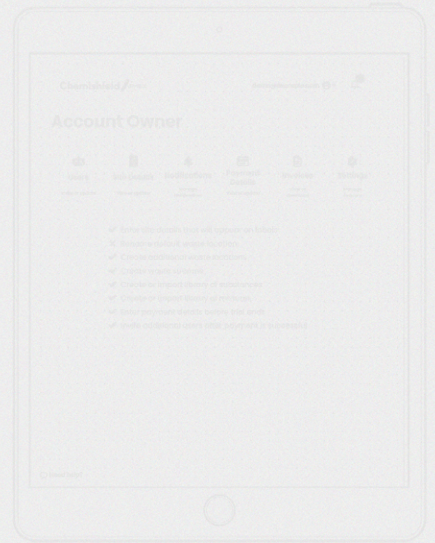
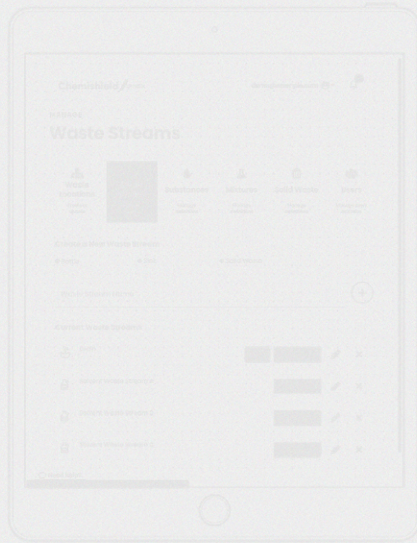
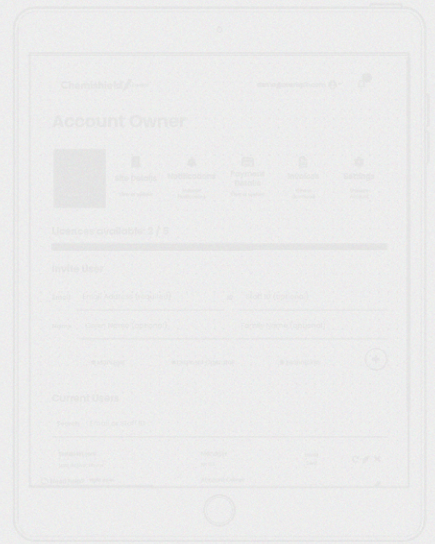
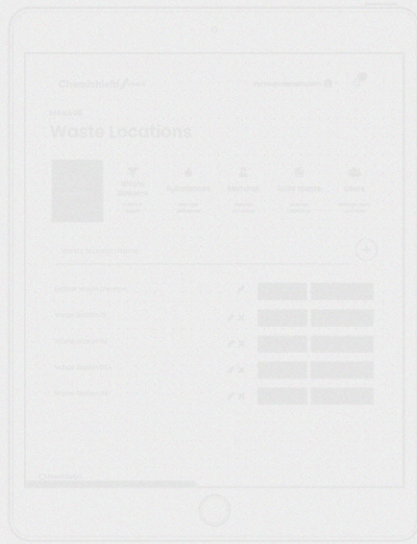


London BioScience Innovation Centre (LBIC) is a premier hub for life sciences in London, offering top-tier laboratory and office facilities.



Chemishield ensures correct segregation of waste for LBIC and has built in prompts/alerts to ensure that waste streams remain fully segregated.





Chemishield has shown continuing success at Pfizer Grange Castle and will do so into the future

**Thank You**



Visit [chemishield.com](https://chemishield.com) to get a recorded or live demo

