

Using Palm Technology to Improve Environmental Compliance at Your College or University



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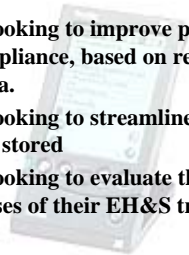
Overview

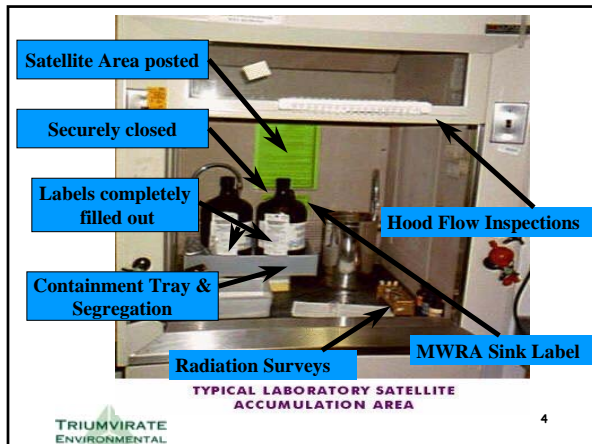
- ◆ Why PDA Technology?
- ◆ Program Challenges
- ◆ Background
- ◆ Using technology to drive compliance
- ◆ How Does this System Work
- ◆ Benefits
- ◆ What We Do Now
- ◆ What Does The Future Hold?



Why Use PDA Technology?

- ◆ Institutions looking to improve performance levels, in compliance, based on real-time and historical data.
- ◆ Institutions looking to streamline how data is collected and stored
- ◆ Institutions looking to evaluate the strengths and weaknesses of their EH&S training programs





EH&S Compliance Program Challenges

<p><u>Research Staff and Faculty</u></p> <ul style="list-style-type: none"> ◆ New EH&S programs ◆ Mostly non-employees ◆ Numerous small impacts ◆ Non-hierarchical mgt.. ◆ Higher turnover ◆ Many chemicals ◆ Smaller chemical batches ◆ High diversity ◆ Inconsistent responsibility/authority 	<p><u>Administration</u></p> <ul style="list-style-type: none"> ◆ Paper programs ◆ Mostly employees ◆ Larger-scale impacts ◆ Hierarchical mgt.. ◆ Lower turnover ◆ No chemicals ◆ Some laboratory experience/diversity ◆ Established/consistent responsibility/authority
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TRIUMVIRATE ENVIRONMENTAL 5

Using technology to drive compliance

- ◆ Using Innovation To Improve EH&S Programs
- ◆ Consistent Assessments To Help Develop Programs
- ◆ Helping Evolve Training Programs
- ◆ Implementation On The Move
- ◆ Assessment Reports

TRIUMVIRATE ENVIRONMENTAL 6

How Does It Work?

- ◆ Data Gathered In The Field By TEI Chemists Or Onsite EH&S Staff.
- ◆ Data Is Uploaded From The PDA To A Desktop Computer, Where The eComply Database Lives
- ◆ The Data Is Sent To The Report Writing Software, Where TEI Staff Will Choose What Report The Client Has Requested

Benefits To Using eComply

- ◆ Key Benefits
 - Getting Faculty Staff and Hierarchy to Buy-in
 - Continuous Program Improvement
 - Efficiency - Data Collection/Transfer (Ability to Streamline Data Tracking)
 - Meeting The Needs of Required Regulatory Compliance (ex. Weekly SAA and MAA Inspections)
 - Easily Identify Issues Within The Institution
 - Analyzing Trends, by Room/Lab, Dept and Faculty, Helps Improve Overall Training Protocols

Benefits To Using eComply

- ◆ Reduced Overall Inspection Time
- ◆ Assessment Reports Can Measure Detailed Performances Within The Lab, Facility or Management Areas
- ◆ Training Protocol Development Tool
- ◆ Historical Reports Can Be Used To Measure Continuous Program Improvement

Benefits To Using eComply

- ◆ Ensure Compliance & Corrective Action Responsibility
- ◆ Reducing Paperwork & Costs
- ◆ Improve Overall EH&S Management.



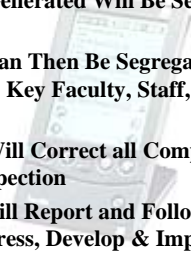
What can we do now?

- ◆ SAA and MAA Daily, Weekly, or Monthly Inspections (Depending on the State)
- ◆ Compliance Assessments of SAA's and MAA's
- ◆ Detailed Reports
- ◆ Historical Reports
- ◆ Web-based Access



How Does It Work (Continued)

- ◆ The Reports Generated Will Be Sent To The Client Via email
- ◆ Information Can Then Be Segregated and Distributed To Key Faculty, Staff, and Other Key Personnel
- ◆ Triumvirate Will Correct all Compliance Issues during the Inspection
- ◆ Triumvirate will Report and Follow Up With The Client To Address, Develop & Implement Solutions





Background

- ◆ Harvard HW program info/metrics
 - over 30,000 personnel/staff/students
 - over 1,700 labs
 - over 1,000 HW storage areas (satellite & main)
- ◆ EH&S HW Operational Services (~4 FTEs)
 - Waste Pickup Service, Monthly SAA Inspections, Weekly MAA Inspections
- ◆ PDA HW Inspection Program initiated in 1997
 - Fume Hoods, Ergonomics, Biosafety, ER

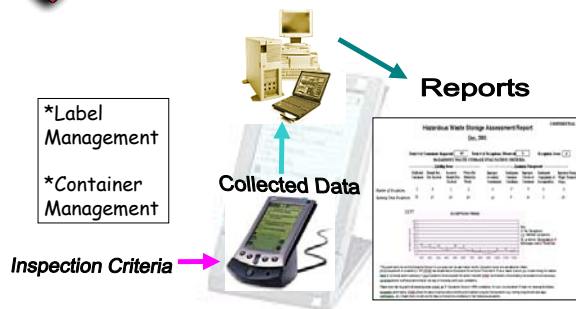


Objectives

- ◆ Collect Data
- ◆ Create Reports Using Data
- ◆ Analyze Data
- ◆ Modify and Improve Deliverables.
- ◆ Program Tools, Communication and Training.



The Process





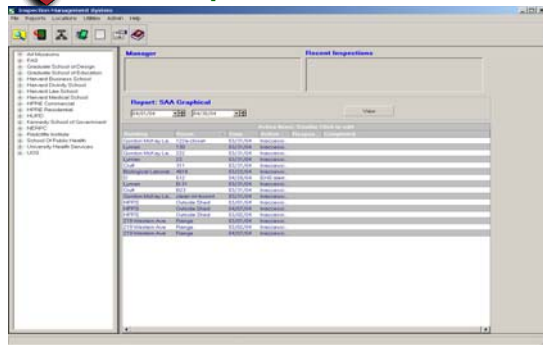
OUTPUT - The Reports

- ◆ Graphical Summary Report
- ◆ Department Tracking Report
- ◆ Room Detail Report
 - Each report provides clarification
 - Ability to hone in on root causes
 - Different Reports for different audiences
- ◆ Monthly Distribution to key stakeholders



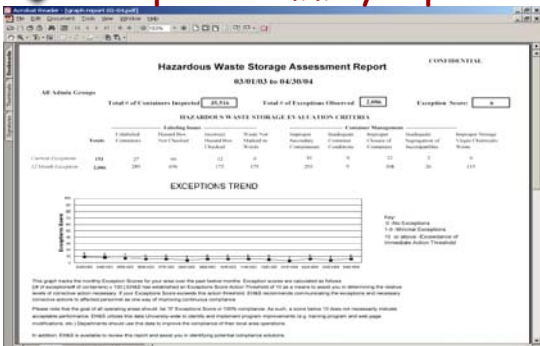


Report Generator





Graphical Summary Report





Department Tracking Report

Department XXXXXXXX	Running 12 Month Totals			Current Month Totals			
	Containers	Exceptions	Exception Rate	Containers	Exceptions	Exception Rate	Exception Indicator
PT's	0	0	0	0	0	0	-
PT Name	154	8	4	17	2	12	-
	155	0	0	1	0	0	-
	0	0	0	0	0	0	-
	0	0	0	0	0	0	-
	30	0	0	0	0	0	-
	215	3	1	12	0	0	-
	75	13	16	12	2	25	-
	30	9	30	1	0	0	-
	80	7	8	4	0	0	-
	90	19	21	11	1	9	-
	21	2	10	0	0	0	-
	142	4	3	11	0	0	-
	0	0	0	0	0	0	-
	41	0	0	3	0	0	-
	0	0	0	0	0	0	-
	110	8	7	9	0	0	-
	16	0	0	0	0	0	-
	4	0	0	0	0	0	-
	297	55	19	36	8	22	-
	71	1	1	0	0	0	-
	43	3	7	13	3	17	-
Totals	1549	143	9	139	17	12	-

This report tracks the 12 month volume performance of Department (Pilot/Project) and compares it to the present month's compliance performance. This report is designed to assist Lab Directors and Administrative Managers to identify areas of their operations where the most improvements in necessary, as well as help OHSU to target its assistance efforts.

The Exception Indicator serves as a Trend Indicator

* indicates that the PI Manager's performance score for this month is better than their 12 month average.

** indicates that the PI Manager's performance score for this month is worse than their 12 month average.

** indicates that the PI Manager's performance score for this month is equal to their 12 month average.



Room Detail Reports

Room	Date	PI	Containers Impaired	Violations	Fined
Room 207	April 13, 2004 1:32 pm		0	0	0
Room 223	April 13, 2004 1:30 pm		14	0	0
Room 333	April 13, 2004 1:29 pm		2	0	0
Room 361	April 13, 2004 1:28 pm		6	0	0
Room 365	April 13, 2004 1:28 pm		1	0	0
Assessment Summary					
Report Totals	Containers Impaired	33	Total Violations	0	0
Unlabeled Containers	0	Impaired Secondary Containers	0		
Missing Bins Not Checked	0	Impaired Containers	0		
Inventory Record Not Checked	0	Improper Closure of Containers	0		
Waste not Marked as Waste	0	Improper Segregation of Chemicals	0		
		Improper Storage of Toxic Chemicals/Waste	0		

Web Page Available Tools

HAZARDOUS WASTE LABELING REFERENCE TOOL - Environmental Affairs
Environmental Health & Safety

Chemical Waste Name or Mixture Component:

Search [] Reset

Introduction

This reference tool is designed to assist laboratory and other personnel to accurately label their chemical hazardous wastes. Specifically, this tool provides you with the appropriate HAZARDS to be checked off on Harvard's Hazardous Waste Label.

Instructions

Type in the chemical waste name or mixture component in the search box above. Use full chemical name or part of chemical name (e.g. acetone). Do not type in formulas or abbreviations. The search engine will find your waste (and/or wastes).

For additional container management guidance:

Harvard Hazardous Waste Label
Life and Biotech Operations Guidelines for Safe/Correct Disposal

Web Page Available Tools

HAZARDOUS WASTE LABELING REFERENCE TOOL - Environmental Health & Safety

Search Results:

Total of 58 records of "Sodium Hydroxide" were found. If you have any questions or comments regarding the results, please send an email to the hsa@hsa.harvard.edu or hsa@hsa.harvard.edu.

Chemicals are "PROHIBITED" in "On-Site Disposal" column, please refer to the [On-Site Disposal Guide for Laboratories and Building Operations](#) for additional information.

Chemical Waste Designation	Hazardous Waste Designation	Site Disposal	Additional Info
Sodium hydroxide / Hydrochloric acid	Corrosive, Toxic	PROHIBITED*	Corrosive. The pH must be +2 or +12
Sodium hydroxide / Ethyl acetate	Corrosive, Ignitable	PROHIBITED*	Corrosive. The pH must be +2 or +12
Sodium hydroxide / Tetrahydrofuran	Corrosive, Ignitable	PROHIBITED*	Corrosive. The pH must be +2 or +12
Hydroxyacetic acid / Sodium hydroxide / Dichloromethane	Ignitable, Corrosive, Toxic	PROHIBITED*	Corrosive. The pH must be +2 or +12
Potassium permanganate / Sodium hydroxide	Oxidizer, Corrosive	PROHIBITED*	Corrosive. The pH must be +2 or +12
Sodium hydroxide / Sodium fluoride	Corrosive, Toxic	PROHIBITED*	Corrosive. The pH must be +2 or +12

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Hazardous Waste Storage Assessment Report

CONFIDENTIAL

63-91-91 to 64-38-92

All Mobile Groups: Total # of Containers Inspected: **3248** Total # of Exceptions Observed: **167** Exception Score: **11**

HAZARDOUS WASTE STORAGE EVALUATION CRITERIA

Mobile Group	Labeling Issues				Container Management				Inspection Storage
	Unlabeled	Missing Data	Missing	Wrong Use	Inspection	Inspection	Inspection	Inspection	
Count	Count	Count	Count	Count	Count	Count	Count	Count	
Current Exception	588	60	27	27	60	1	14	2	
OT Stand Compliance	1688	831	147	147	207	0	494	106	

EXCEPTIONS TREND

Key:
 6 - All Exceptions
 1 - All Exceptions
 18 - All Exceptions
 18 - All Exceptions of Immediate Action Required

The graph tracks the monthly Exception Score for your area over the past twelve months. Exception scores are calculated as follows:
 1) All exceptions of compliance's 100 (100) are weighted as Exception Score Action Treatment (10) as a means to assist you in determining the relative risk of various types of exceptions. 2) All Exceptions Score across the entire facility. 3) Each score is calculated as the sum of the number of exceptions observed and the number of exceptions observed in all other mobile groups in your area.
 Please note that the goal of opening your area for 100% compliance is 100% compliance. As such, a score below 10 does not necessarily indicate compliance performance. 4) Each score is used to identify and implement program improvements by a training program and on-site inspections. 5) Exceptions should not be used to ignore the compliance of that area operations.
 In addition, 4) is available to review the report and assist you in identifying potential compliance solutions.

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Hazardous Waste Storage Assessment Report

CONFIDENTIAL

63-91-92 to 64-38-93

All Mobile Groups: Total # of Containers Inspected: **3304** Total # of Exceptions Observed: **124** Exception Score: **8**

HAZARDOUS WASTE STORAGE EVALUATION CRITERIA

Mobile Group	Labeling Issues				Container Management				Inspection Storage
	Unlabeled	Missing Data	Missing	Wrong Use	Inspection	Inspection	Inspection	Inspection	
Count	Count	Count	Count	Count	Count	Count	Count	Count	
Current Exception	198	26	16	17	18	0	13	1	
OT Stand Compliance	1208	199	114	114	186	12	972	118	

EXCEPTIONS TREND

Key:
 6 - All Exceptions
 1 - All Exceptions
 18 - All Exceptions
 18 - All Exceptions of Immediate Action Required

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 1) All exceptions of compliance's 100 (100) are weighted as Exception Score Action Treatment (10) as a means to assist you in determining the relative risk of various types of exceptions. 2) All Exceptions Score across the entire facility. 3) Each score is calculated as the sum of the number of exceptions observed and the number of exceptions observed in all other mobile groups in your area.
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 In addition, 4) is available to review the report and assist you in identifying potential compliance solutions.

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Hazardous Waste Storage Assessment Report
639193 to 643694

CONFIDENTIAL

All Active Groups

Total # of Containers Inspected 3,826

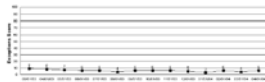
Total # of Exceptions Observed 1,266

Exception Score 4

HAZARDOUS WASTE STORAGE EVALUATION CRITERIA

Basic	Leaking Lines				Container Management				Inspection Rating Major/Minor/None	
	Inspected Containers	Inspected Next Checked	Inspected Containers Checked	Minor Leaks Inspected Checked	Improper Labeling Inspected Checked	Improper Closure Inspected Checked	Improper Segregation Inspected Checked	Improper Storage Inspected Checked		
Current Inspection	3826	27	26	12	3	31	3	23	2	4
Of total Inspected	100%	0.7%	0.7%	0.3%	0.1%	0.8%	0.1%	0.6%	0.1%	0.1%

EXCEPTIONS TREND



Key:
12 to 16 Exceptions
17 to 20 Exceptions
21 or above - Escalation of
Inspection Action Required

This graph tracks the monthly Exception Scores for your area over the past twelve months. Exception scores are calculated as follows:
0-10 = Exceptional Compliance (0-10) (100% compliance)
11-15 = Good Compliance (11-15) (90% compliance)
16-20 = Fair Compliance (16-20) (75% compliance)
21 or above = Poor Compliance (21 or above) (50% compliance)
The graph shows the monthly Exception Scores for your area over the past twelve months. Exception scores are calculated as follows:
0-10 = Exceptional Compliance (0-10) (100% compliance)
11-15 = Good Compliance (11-15) (90% compliance)
16-20 = Fair Compliance (16-20) (75% compliance)
21 or above = Poor Compliance (21 or above) (50% compliance)

Please note that the goal of reducing your Exception Score to 10 or below is not a guarantee. In fact, an increasing score does not necessarily indicate
exceptional performance. ESDS allows the data to provide a clear and consistent picture of your program and work site
performance. An increasing score does not indicate that you are not doing well. It simply indicates that you are not doing well.

In addition, ESDS is available to access the report and assist you in identifying possible compliance solutions.

