PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Schools Chemical Cleanout Campaign

Integrated Chemical Management

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Objective: To introduce the Integrated Chemical Management approach by providing answers to six important questions.

I. **What is Integrated Chemical Management?**

II. **Why is developing an Integrated Chemical Management Plan is so important?**

III. **When should a school get started with developing an integrated plan for the management of chemicals?**

IV. **Who should be involved in the process?**

V. **How does a school get started with the process?**

VI. **Where can a school find additional information and guidance?**

What is Integrated Chemical Management?

Integrated Chemical Management is a coordinated system for handling and storage of chemicals in order to minimize risk. It is a ‘live’ system - continuously changing and improving.

The key components of Integrated Chemical Management

- Establishment of a centralized chemical storage area where all chemicals are housed safely in a ventilated and are secure space
- Development of a real-time chemical database
- Commitment to becoming mercury free
- Commitment ongoing training and education

Why is developing an Integrated Chemical Management Plan is so important?

Because of the hazards associated with the chemicals present in schools, …

Examples of recent incidents related to chemical handling in schools.

An introduction to Hazard Recognition and Classification

Recent Lab Incidents

They are occurring everyday . What can be learned from them?

LEHIGH VALLEY'S FIRST SOURCE FOR NEWS

THE MORNING CALL

Friday, February 24, 2012

Fire Erupts in Hamburg High Chemistry Lab

By Frank Warner

HAMBURG - A chemistry lab at Hamburg High School caught fire after classes Thursday, prompting an evacuation and sending eight people to a hospital. Steven P. Keifer, superintendent, said only a few people were in the building at 4:15 p.m., when the fire broke out…

The Daily Item

Thursday, November 10, 2011

Chemical spill clears the Line Mountain High School

Teacher burned when acid jug breaks

By Evamarie Socha

MANDATA -- Classes are to resume today at Line Mountain Junior-Senior High School, following Wednesday morning's evacuation after a glass container of hydrochloric acid broke, spilling in the chemistry lab, burning the teacher and sending about 600 students and 60 faculty members outdoors to the football stadium….

HERALD-Standard

Friday, October 19, 2012

Albert Gallatin Teacher Hospitalized After Chemical Burns

By Carla DeStefano

An Albert Gallatin School District teacher remains hospitalized after she was injured in a chemical spill in her classroom last week….

HAZARD RECOGNITION AND CLASSIFICATION

Laboratory operations are inherently hazardous. The hazards can be classified into two main groups.

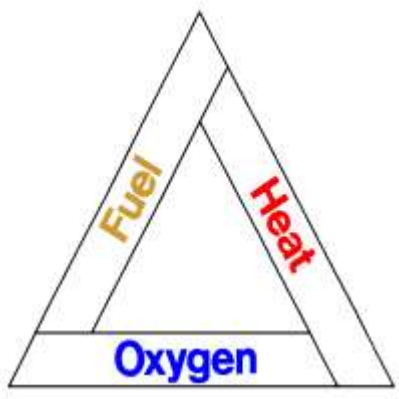
- Physical Safety Hazards
- Chemical Health Hazards

Physical Safety Hazards

Include fire, explosion, skin cuts and abrasions, and extreme temperature.

Examples

- Compressed Gases
- Explosives
- Flammables
- Organic Peroxides
- Oxidizers
- Unstable Substances
- Water-reactive Substances



Chemical Health Hazards

Are substances that are hazardous to health when they enter the human body in sufficient quantity.

Examples

- Carcinogens
- Corrosives
- Highly Toxic Substances
- Irritants
- Sensitizers

The four main routes by which chemical substances can enter the body:

i. Inhalation

ii. Ingestion

iii. Absorption

iv. Injection

Chemical Substance Classes and Their Effects

The following potential health effects are indicated by chemical class.

Acids: corrosive to skin and mucous membranes.

Alcohols: alcohols depress the central nervous system by ingestion or prolonged inhalation.

Aldehydes and ketones: are irritants and have narcotic effects via inhalation, absorption, or ingestion.

Aliphatics: are central nervous system depressants and asphyxiants. Some are neurotoxins.

Alkalies: specifically the hydroxides, can cause severe tissue burns and bronchial spasms.

Asphyxiants: reduce the oxygen carrying capacity of the blood or displace atmospheric oxygen

Compounds of sulfur, phosphorus, nitrogen: are corrosive to the skin and destructive to respiratory tissues

Halogens: are corrosive and highly irritating to tissues

Metal fumes/vapors: Metal fumes and vapors can cause systemic poisoning via ingestion and inhalation

It is important to note that while some chemical classes have similar toxicological characteristics, the vast majority of chemicals have their own unique toxic properties.

…, a well developed chemical management plan raises awareness and minimizes risk.

When should a school get started with developing an integrated plan for the management of chemicals?

There is no better time than the present to develop an Integrated Chemical Management Plan at your school. No one wants their school to make the evening news because improper management of chemicals led to an evacuation of the building or worse, such as injury to students or staff.

Who should be involved in the process?

Development of an Integrated Chemical Management Plan is a process that requires participation, cooperation and support from the entire school community. Each stake holder group has an important role in the process, and with each role comes specific responsibilities which should be identified in the plan.

Stakeholder Groups and Roles

Groups	Roles
Administration(Principal)	Recognize the need and provide support for changes necessary to ensure a safe and healthful learning environment
Faculty(Teachers)	Identify and implement class room changes necessary to ensure a safe and healthful learning environment and mentor students
Operations(Maintenance, Building/grounds, Facilities)	Implement operational changes necessary to ensure a safe and healthful learning environment
Student Body	Follow the rules and respect the principal, teachers, and operations staff in their efforts to provide a safe and healthful learning environment

Chemical Management Responsibilities

- Since the presence of chemicals in schools comes with a hazard potential, each group, cognizant of the goal to maintain a safe and healthful learning environment, will have written responsibilities as part of an Integrated Chemical Management Plan.

- Since each school's specific circumstances are unique, specific responsibilities of the individuals within each group should be identified and assigned at the school level.

- Key to the successful development and implementation of an Integrated Chemical Management Plan is the appointment of a **Chemical Coordinator**.

Typical Responsibilities of the Chemical Coordinator

- Develop and/or review SOP's
- Review and order safety supplies
- Oversee the chemical inventory process
- Review orders for chemicals
- Establish and enforce disposal of waste chemicals

How does a school get started with the process?

Suggested First Steps in the Development of an Integrated Chemical Management Plan

- Designate a Chemical Coordinator
- Perform a thorough chemical inventory
- Make decisions on items to retain or dispose
- Make any necessary improvements to the chemical storage area (security, compatibility , containment, lighting and ventilation)

NOTE: Integrated Chemical Management is not a chemical cleanout project in and of itself. In the process of executing the plan, there is a chemical cleanout component. This is integrated management of chemicals from cradle to grave.

Where can a school find additional information and guidance?

Links to Additional Resources

PA DEP Schools Chemical Cleanout (SC3) web page

http://www.portal.state.pa.us/portal/server.pt?open=514&objID=589603&mode=2

Chemical Safety Manual for Pennsylvania Schools

http://files.dep.state.pa.us/Waste/Bureau%20of%20Waste%20Management/WasteMgtPortalFiles/SolidWaste/HazardousWaste/School_Chemical_Safety_Manual.pdf

US EPA Safe Chemical Management in Schools

http://www.epa.gov/schools/chemicals.html

EPA's central website for SC3 resources. Includes a SC3 Tool Kit as well as other useful school resources.

National Research Council. Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards, Updated Version. Washington, DC: The National Academies Press, 2011

http://www.nap.edu/catalog.php?record_id=12654

Developed by experts from academia and industry, with specialties in such areas as chemical sciences, pollution prevention, and laboratory safety, this valuable resource provides guidance on planning procedures for the handling, storage, and disposal of chemicals.

Flinn Scientific http://www.flinnsci.com/
Free on-line School Laboratory Safety Courses include: High School Safety, Middle School Safety, GHS Training, Chemical Storage Area Clean Up Plan, Laboratory Design, and Science Classroom Safety and the Law.

Beyond Benign: Green Chemistry Education http://www.beyondbenign.org/
Rehab the Lab: Creating Safer School Labs
http://www.lhwmp.org/home/educators/rehabthelab.aspx
Offers downloadable lesson plans for least toxic chemistry labs, a database of school chemicals and training videos to help schools safely store, handle and dispose of their chemicals.

EPA Environmental Management Guide for Small Laboratories
http://infohouse.p2ric.org/ref/16/15829.pdf

Hazardous Waste Fact Sheet (2510-FS-DEP1961)
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-98344/2510-FS-DEP1961.pdf

Hazardous Waste Regulation Compliance Guide: Hazardous Waste Identification
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-89410/2510-BK-DEP2528%20combined.pdf

2013 Schools Chemical Cleanout Project Summary

School Designation	County	DEP Region	Dates of Removal	Removed Chemicals (lbs.)
ALBERT GALLATIN HS	Fayette	SW	08/15/13	16
ALTOONA AREA HS	Blair	SC	07/23/13	31
CONEMAUGH TOWNSHIP AREA SD	Somerset	SW	08/16/13	47
COUNCIL ROCK HS	Bucks	SE	08/13/13	250
CUMBERLAND VALLEY HS	Cumberland	SC	08/05/13	173
DERRY AREA SD	Westmoreland	SW	08/15/13	224
ELK COUNTY CATHOLIC HS	Elk	NW	07/24/13	47
HARRY S TRUMAN HS	Bucks	SE	08/09/13	226
JUNIATA VALLEY HS	Huntingdon	SC	07/24/13	247
LEBANON CATHOLIC SCHOOL	Lebanon	SC	08/07/13	280
LOWER DAUPHIN SD	Dauphin	SC	08/06/13	760
MECHANICSBURG AREA SENIOR HS	Cumberland	SC	08/05/13	72
MUHLENBURG SD	Berks	SE	08/07/13	69
PITTSON AREA SENIOR HS	Luzerne	NE	08/02/13	2,302
ROCKY GROVE JR SR HS	Venango	NW	07/25/13	44
SOUTH ALLEGHENY MS/HS	Allegheny	SW	08/14/13	20
STEELTON HIGHSPIRE HS	Dauphin	SC	08/06/13	38
TYRONE AREA HS	Blair	SC	07/23/13	12
UPPER MORELAND HS	Montgomery	SE	08/08/13	343
WILKES-BARRE AREA CTC	Luzerne	NE	08/02/13	3,118
TOTAL AMOUNT OF MANIFESTED CHEMICALS				**8,319**

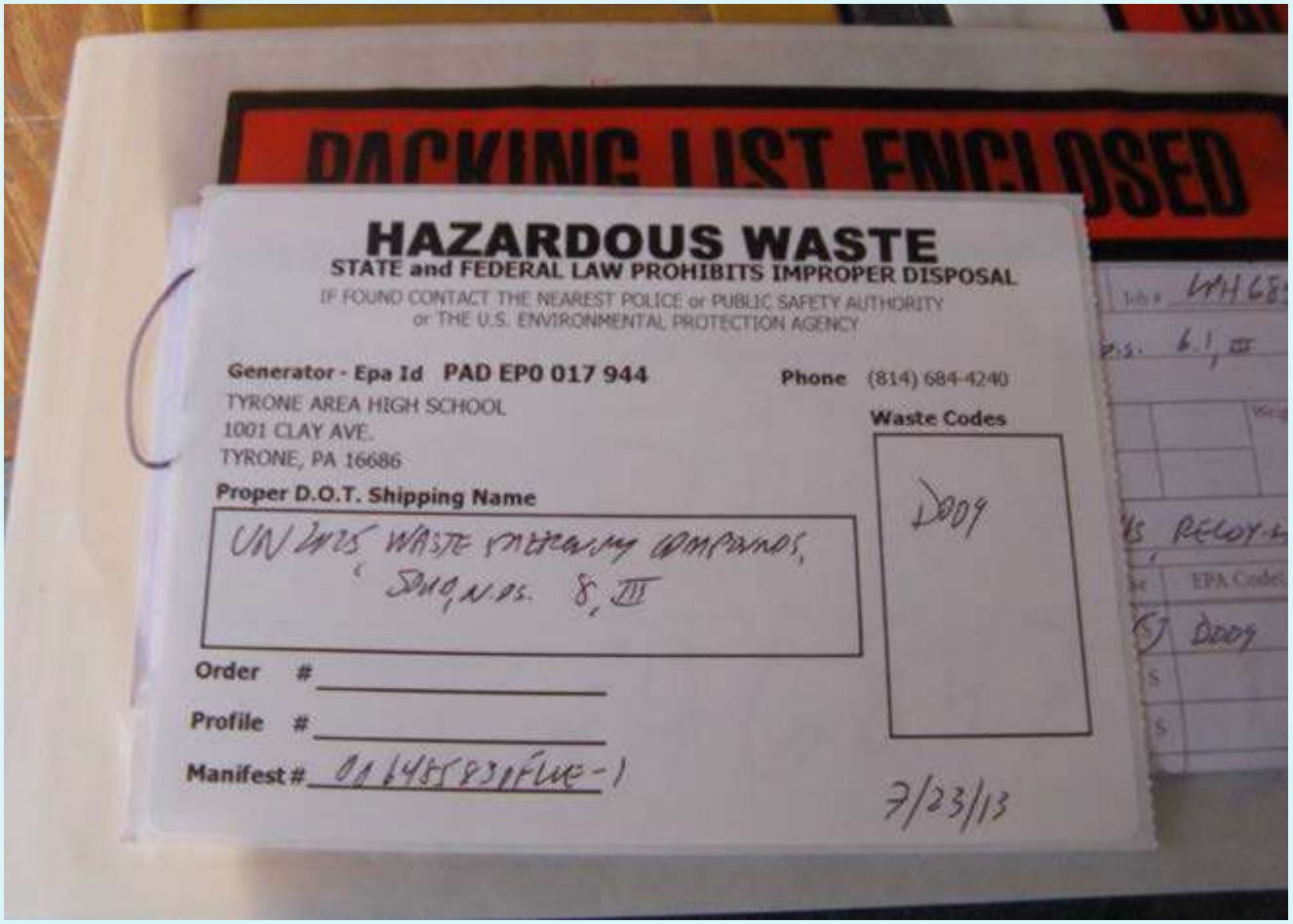
Disposal contractor (PSC) segregating chemicals for disposal

Placing chemicals into transportation container

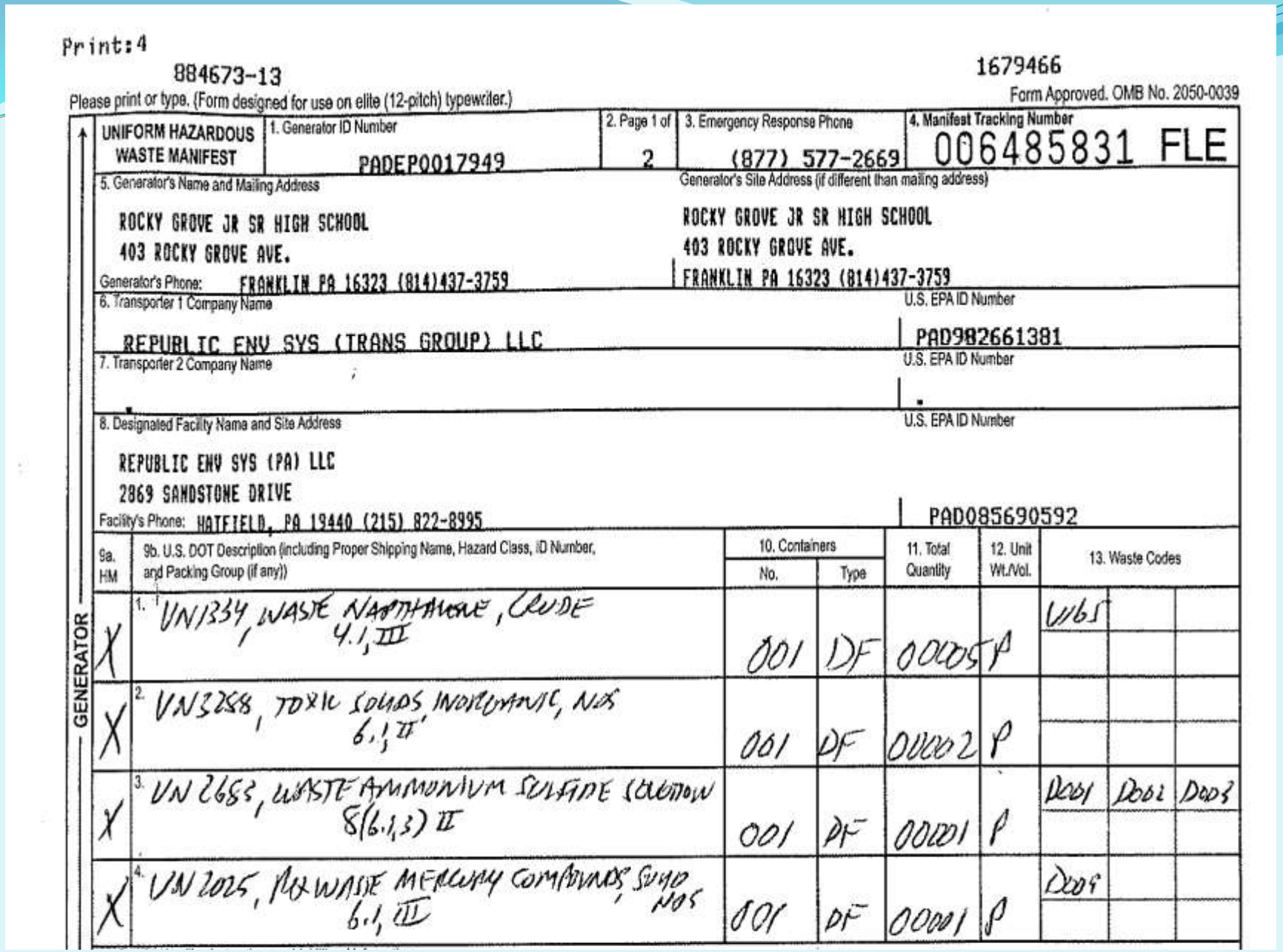
Absorbent material being added to transportation container

Lab pack container with absorbent material added

Transportation containers with Hazardous Materials warning labels



Hazardous Waste container label



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Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: PADEP0017949

2. Page 1 of: 2

3. Emergency Response Phone: (877) 577-2669

4. Manifest Tracking Number: 006485831 FLE

5. Generator's Name and Mailing Address

ROCKY GROVE JR SR HIGH SCHOOL
403 ROCKY GROVE AVE.
FRANKLIN PA 16323 (814)437-3759

Generator's Phone:

Generator's Site Address (if different than mailing address)

ROCKY GROVE JR SR HIGH SCHOOL
403 ROCKY GROVE AVE.
FRANKLIN PA 16323 (814)437-3759

6. Transporter 1 Company Name: REPUBLIC ENV SYS (TRANS GROUP) LLC

U.S. EPA ID Number: PAD982661381

7. Transporter 2 Company Name:

U.S. EPA ID Number:

8. Designated Facility Name and Site Address

REPUBLIC ENV SYS (PA) LLC
2869 SANDSTONE DRIVE
HATFIELD, PA 19440 (215) 822-8995

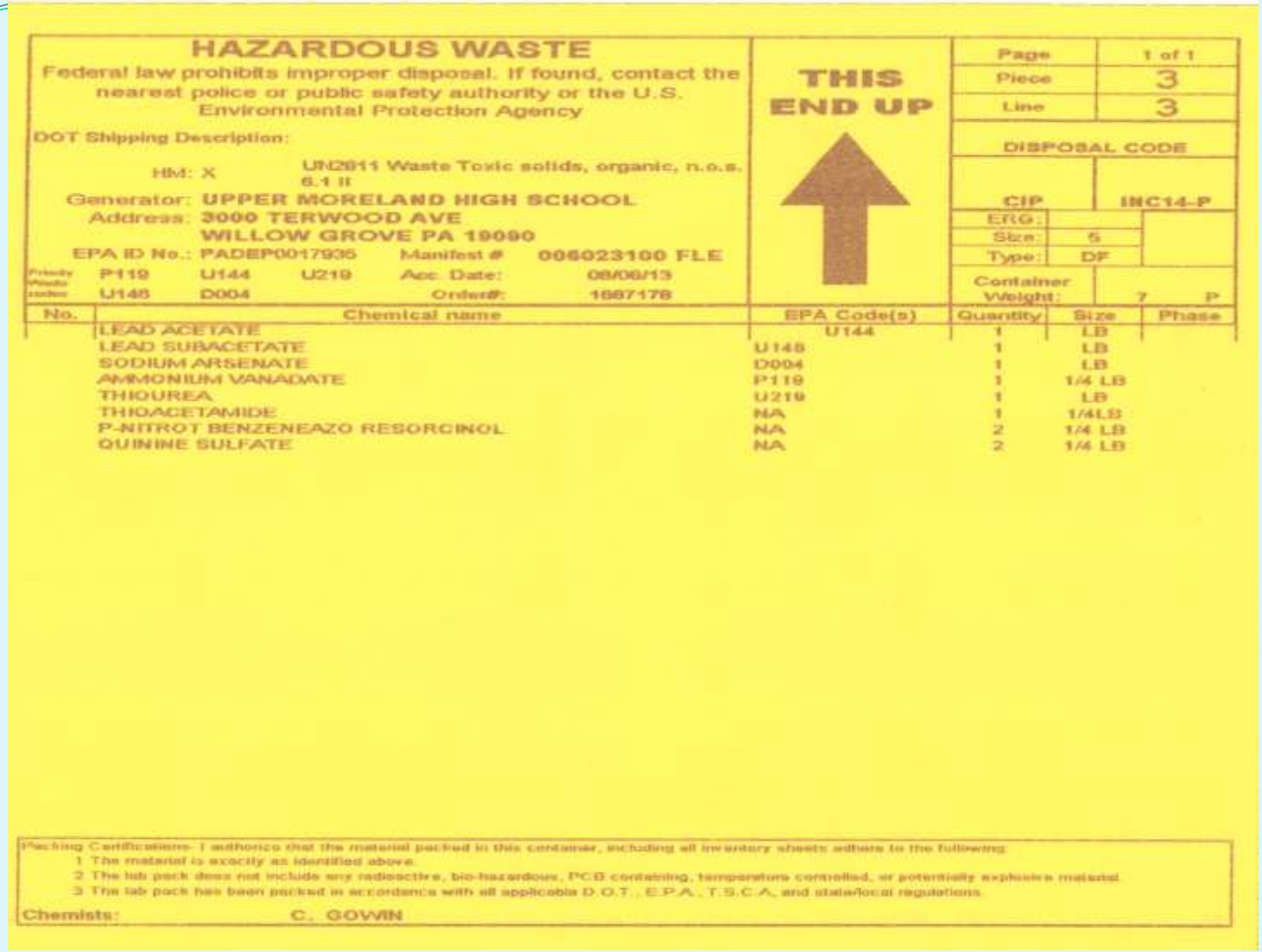
Facility's Phone:

U.S. EPA ID Number: PAD085690592

GENERATOR

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN1334, WASTE NAPHTHALENE, CRUDE 4.1, III	001	DF	00005	P	D001		
X	2. UN3288, TOXIC SOLIDS, INORGANIC, NOS 6.1, II	001	DF	00002	P			
X	3. UN 2683, WASTE AMMONIUM SULFIDE (CORROSIVE) 8(6.1,3) II	001	DF	00001	P	D001	D002	D003
X	4. UN 2025, NA WASTE MERCURY COMPOUNDS, SOLID, NOS 6.1, III	001	DF	00001	P	D009		

Uniform Hazardous Waste Manifest



HAZARDOUS WASTE

Federal law prohibits improper disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency

DOT Shipping Description:

HM: X — UN2811 Waste Toxic solids, organic, n.o.s. 6.1 II

Generator: UPPER MORELAND HIGH SCHOOL

Address: 3000 TERWOOD AVE
WILLOW GROVE PA 19090

EPA ID No.: PADEP0017935 Manifest #: 006023100 FLE

Priority Waste codes: P119 U144 U219 Acc. Date: 08/06/13
U148 D004 Order#: 1687178

THIS END UP

Page	1 of 1
Piece	3
Line	3

DISPOSAL CODE

CIP — INC14-P

ERG:
Size: 5
Type: DF

Container Weight: 7 P

No.	Chemical name	EPA Code(s)	Quantity	Size	Phase
	LEAD ACETATE	U144	1	LB	
	LEAD SUBACETATE	U148	1	LB	
	SODIUM ARSENATE	D004	1	LB	
	AMMONIUM VANADATE	P119	1	1/4 LB	
	THIOUREA	U219	1	LB	
	THIOACETAMIDE	NA	1	1/4LB	
	P-NITROT BENZENEAZO RESORCINOL	NA	2	1/4 LB	
	QUININE SULFATE	NA	2	1/4 LB	

Packing Certification: I authorize that the material packed in this container, including all inventory sheets adhere to the following:
1. The material is exactly as identified above.
2. The lab pack does not include any radioactive, bio-hazardous, PCB containing, temperature controlled, or potentially explosive material.
3. The lab pack has been packed in accordance with all applicable D.O.T., E.P.A., T.S.C.A. and state/local regulations.

Chemists: C. GOWIN

Lab pack inventory and Packing Certification

High Hazard Stabilization - Setup

High Hazard Stabilization - Equipment

High Hazard Stabilization - Cap Removal

High Hazard Stabilization – Peroxide Testing

High Hazard Stabilization – Addition of Hydroquinone

High Hazard Stabilization – Lab Pack

Low level radioactive materials staged on cart

Low-level radioactive material in transport container

Joint Purchasing

Lincoln Intermediate Unit No. 12

SAVING SCHOOLS MONEY

TO: IU 15 School Districts

FROM: Lynn Kraus, Manager, Management Services

RE: Chemical Disposal Program

DATE: MARCH 18, 2013

The attached documents are being provided to Intermediate Unit 15 school districts by the LIU 12 Joint Purchasing Board as an invitation to participate in the chemical disposal program on a fee basis.

If your district is interested in participating in this program, there is a $100.00 per district fee plus a 1% administrative fee based on the total dollar amount expended for chemical disposal.

To participate in the bid process, your district needs to submit the $100.00 fee along with your substance listing form by April 12, 2013. Since there is no requirement to contract with the vendors on this bid, the 1% fee will only be charged if an order is placed for disposal.

Please contact me at lkraus@iu12.org or Deb Kane at dekane@iu12.org or 717-624-6530 if you have any questions on the enclosed information.

TIMELINE:

Friday, April 12	Substance Listing Forms due back to LIU
Thursday, May 23	Bid opening / tabulation
Friday, June 10	JPB meeting – bid award
June - July - August	Pickup/disposal conducted

65 Billerbeck Street, P. O. Box 70, New Oxford PA 17350
Phone: (717) 624-6408 Fax: (717) 624-6604 lkraus@iu12.org

Joint Purchasing

Lincoln Intermediate Unit No. 12

SAVING SCHOOLS MONEY

The below listed school district will participate in the 2013 Chemical Disposal bidding process. Districts <u>are not required</u> to contract with disposal vendors if the pricing is not acceptable.

District Name _____

Street Address _____

City, State, Zip _____

Phone _____

Fax _____

Contact Person _____

Will there be more than one pick-up location? Yes ☐ No ☐

If more than one pickup location, list the locations and the number of Substance Listing Forms submitted for each location:

_____ # of pages ____

_____ # of pages ____

_____ # of pages ____

_____ # of pages ____

_____ # of pages ____

_____ # of pages ____

_____ # of pages ____

_____ # of pages ____

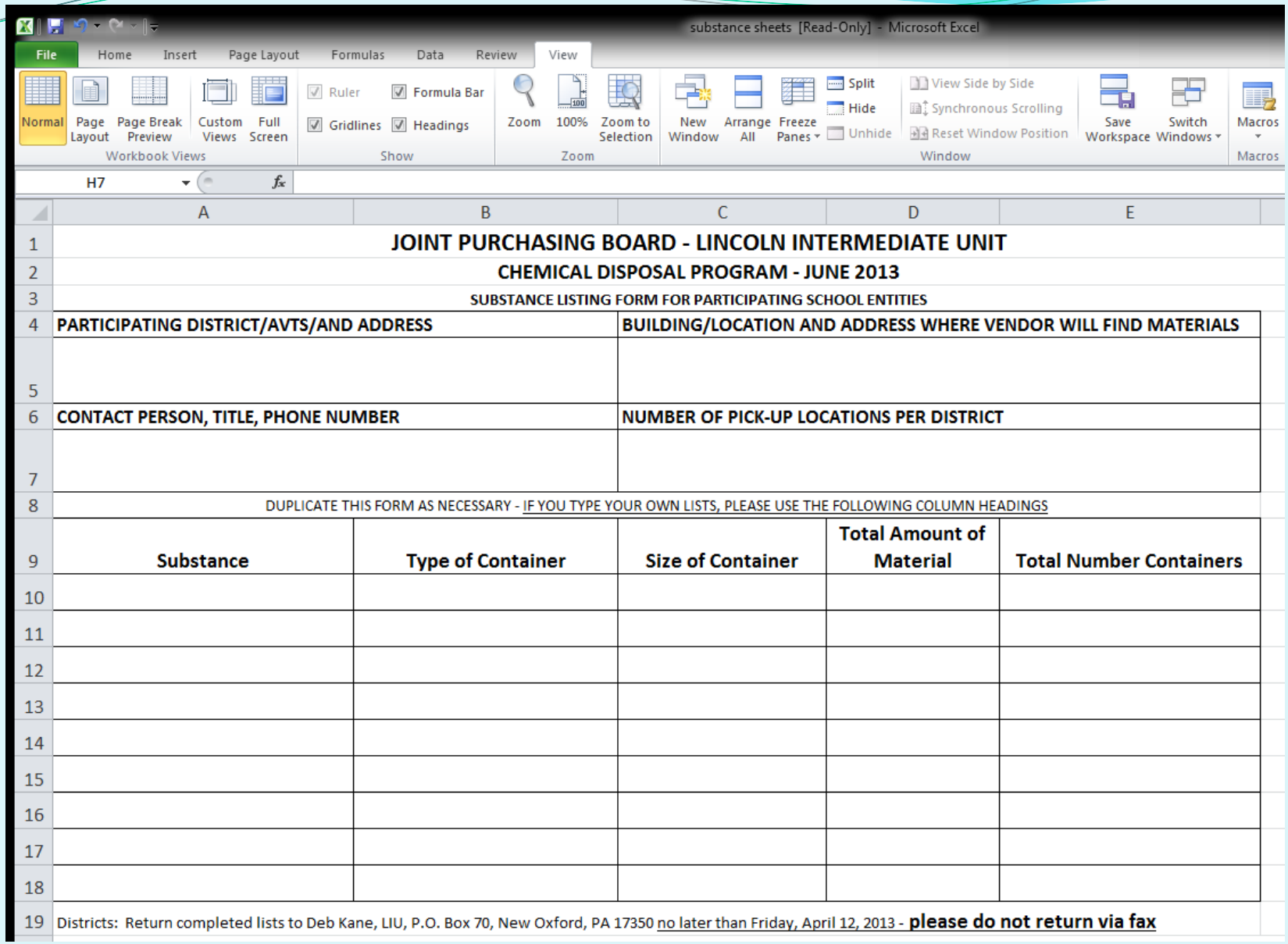
_____ # of pages ____

What is the total number of Substance Listing Forms being submitting? _____

Return this form, payment and Substance Listing Forms no later than <u>April 12th</u> to:

LIU 12 Joint Purchasing Board
Attn: Deb Kane
P. O. Box 70
New Oxford PA 17350
Email: dekane@iu12.org

65 Billerbeck Street, P. O. Box 70, New Oxford PA 17350
Phone: (717) 624-6408 Fax: (717) 624-6604 lkraus@iu12.org


substance sheets [Read-Only] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Normal Page Layout Page Break Preview Custom Views Full Screen — Workbook Views
Ruler Formula Bar Gridlines Headings — Show
Zoom 100% Zoom to Selection — Zoom
New Window Arrange All Freeze Panes Split Hide Unhide View Side by Side Synchronous Scrolling Reset Window Position — Window
Save Workspace Switch Windows — Macros

H7

	A	B	C	D	E
1	JOINT PURCHASING BOARD - LINCOLN INTERMEDIATE UNIT				
2	CHEMICAL DISPOSAL PROGRAM - JUNE 2013				
3	SUBSTANCE LISTING FORM FOR PARTICIPATING SCHOOL ENTITIES				
4	PARTICIPATING DISTRICT/AVTS/AND ADDRESS		BUILDING/LOCATION AND ADDRESS WHERE VENDOR WILL FIND MATERIALS		
5					
6	CONTACT PERSON, TITLE, PHONE NUMBER		NUMBER OF PICK-UP LOCATIONS PER DISTRICT		
7					
8	DUPLICATE THIS FORM AS NECESSARY - IF YOU TYPE YOUR OWN LISTS, PLEASE USE THE FOLLOWING COLUMN HEADINGS				
9	Substance	Type of Container	Size of Container	Total Amount of Material	Total Number Containers
10					
11					
12					
13					
14					
15					
16					
17					
18					
19	Districts: Return completed lists to Deb Kane, LIU, P.O. Box 70, New Oxford, PA 17350 no later than Friday, April 12, 2013 - **please do not return via fax**				