TEXAS STATE UNIVERSITY
SAN MARCOS

The rising STAR *of Texas*

RCRA CONTINGENCY PLAN
&
EMERGENCY RESPONSE PROCEDURES

November 2005
Updated August 2007
Updated November 2009
Updated October 2012

TABLE OF CONTENTS

1.0 PURPOSE

This document (Resource Conservation & Recovery Act (RCRA) Contingency Plan and Emergency Response Procedures) has been prepared for Texas State University-San Marcos (hereinafter referred to as "University) to comply with federal regulations as required by 40CFR 265 Subpart C (Preparedness and Prevention) and 40CFR 265 Subpart D (Contingency Plan). The federal regulations are incorporated by reference in Title 30 of the Texas Administrative Code (TAC) 30TAC §335.112(a). This plan describes the actions that University personnel will take in response to fires, explosions, or any planned or unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the Container Accumulation Area (CAA).

Excerpts from the federal regulations are presented in **Attachment A**.

2.0 INTRODUCTION

2.1 FACILITY DESCRIPTION

Texas State University – San Marcos is a four-year accredited university located at 601 University Drive in San Marcos, Texas. The University is the sixth largest university in the state with a student population of more than 34,000. **Figure 2.1** provides an area map showing the University's location. Details concerning the location and general operations for the University are in **Table 2.1**.

Hazardous wastes generated at the University include: acids, bases, spent solvents, lab packs, photographic wastes and aqueous solutions of heavy metals and other inorganics, primarily from campus labs. Other wastes that are managed include: universal waste, fluorescent and metal halide bulbs, batteries, mercury thermostats, paint waste and waste oil.

The University operates three RCRA-permit exempt Container Accumulation Areas (CAAs) for management of hazardous waste. The CAAs do not require a RCRA permit because they are used to store waste for less than 90 days (an exclusion allowed by 40CFR §262.30). The CAAs on campus are located in the service yard of the Roy F. Mitte Building and Room 205 of the Chemistry Building (see **Figure 2.2**). A third CAA began operations in the Fall of 2012 and is located at the STAR park on McCarty lane and Hunter Road (off campus).

2.2 SOURCES OF HAZARDOUS WASTE GENERATION

Hazardous wastes are generated as a result of teaching, research and operational activities at the University. The University is responsible for proper handling and ultimate disposal of hazardous wastes from the CAA. This responsibility is executed by the Environmental Health Safety and Risk Management Office (EHSRM). The Resource Conservation and Recovery Act (RCRA) hazardous wastes are generated at the following departments:

Facilities (Physical Plant) Shops and Garage	Engineering and Technology
Print Shop	Edwards Aquifer Research and Data Center
Art Department and Photo Labs	Theater
Chemistry and Biochemistry	Family and Consumer Science
Aquatic Biology	LBJ Student Center
Biology	Residence Life Shops
Physics	Health Professions
Agriculture	Utility Plants
STAR Park	

These departments accumulate waste in Satellite Accumulation Areas (SAA). The satellite accumulation areas can store up to 55 gallons of hazardous waste before being moved to the less than 90-day Container Accumulation Area. As an internal policy, the University uses a trigger volume of 30 gallons or less for waste to be moved to the CAA.

The satellite accumulation areas are listed on **Table 2.2** and shown on **Figure 2.3**.

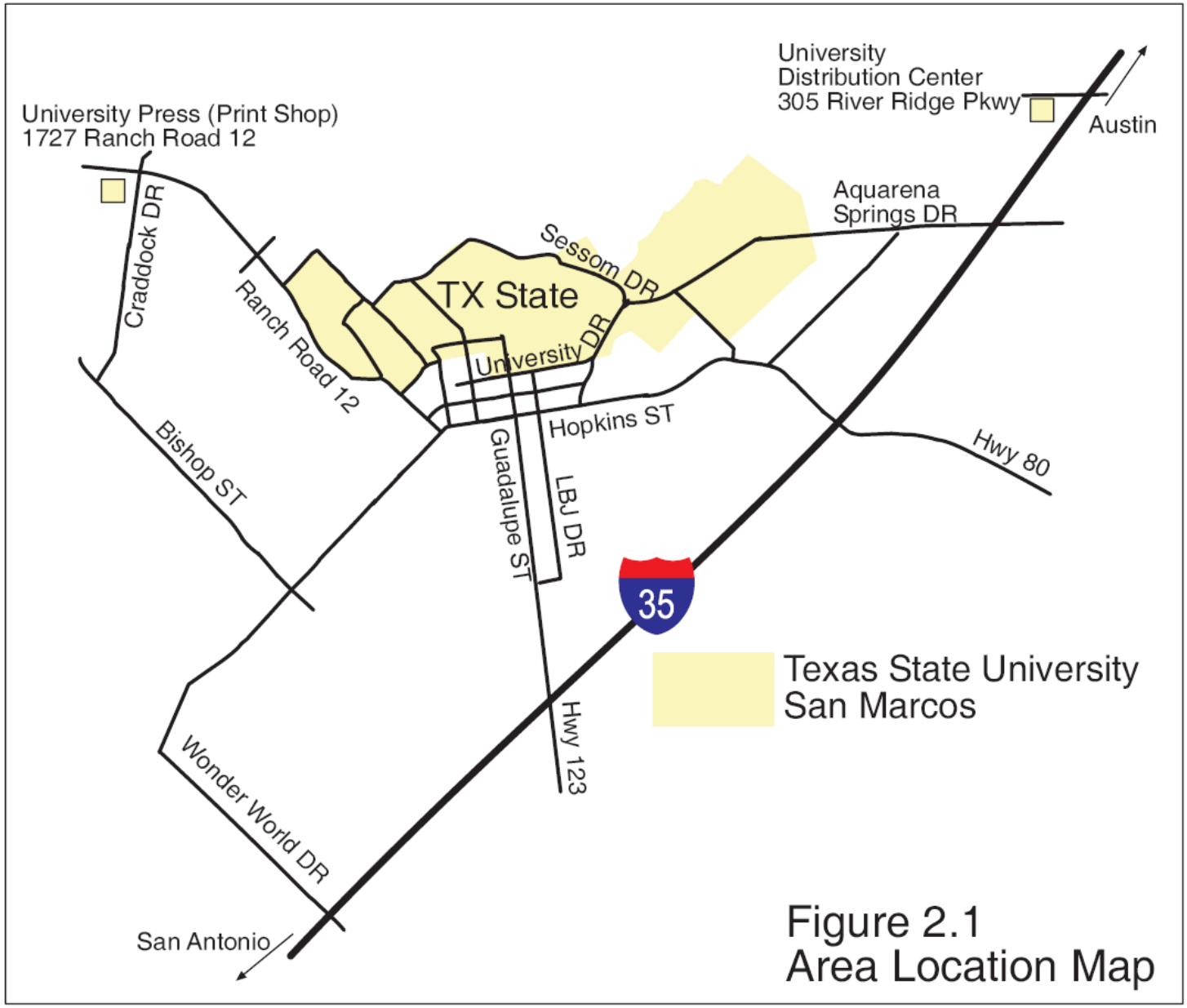


Figure 2.1
Area Location Map

Table 2.1
Facility Description

GENERAL DATA	
Facility Name:	Texas State University – San Marcos
Facility Address:	601 University Drive San Marcos, Texas 78666
Owner Address:	Same
Telephone/FAX:	512/245-3616 (Environmental Health, Safety & Risk Management) 512/245-8277 (fax) (Environmental Health, Safety & Risk Management)
Primary NAICS Code:	61131
EPA I.D. No.:	TXD980812168
Solid Waste Reg. No.:	66137

FACILITY LOCATION	
County/State:	Hays County, Texas
Latitude:	29.8888216 N (Container Accumulation Area)
Longitude:	97 .9469765 W (Container Accumulation Area)
Map:	Figures 1.1, 1.2
Landside directions:	From the intersection of IH-35 and Aquarena Springs Drive (Exit 206), travel west on Aquarena Springs to the intersection of Sessoms Drive. Turn right onto Sessoms Drive and follow it to Comanche St. Turn left on Comanche and turn right into the first parking lot (service yard) of the Roy F. Mitte building located on the right. The Container Accumulation Area is located on the east side of the service yard near Comanche.

Table 2.1
Facility Description (cont'd)

GENERAL OPERATION

Description Of Operation:

This is a State-supported public university offering undergraduate and graduate level programs.

Products Handled:

- Diesel, Sulfuric Acid, Laboratory Chemicals

Note: Material Safety Data Sheets are maintained by each department using chemicals.

Hazardous Wastes Handled:

- Spent acids, bases, solvents, inorganic metals in aqueous solutions, photographic waste, and universal wastes such as batteries, bulbs, mercury thermostats, and paints. Also manages waste oil, antifreeze and automobile batteries.

Substantial Expansions:

STAR Park for research and product development completed construction in the Fall 2012. No other expansion beyond the property boundaries, but new buildings &/or renovations are constantly under construction on campus.

PHYSICAL DESCRIPTION – Container Accumulation Area (NOR 007)

Operation:	Less than 90-day Container Accumulation Area for containerized waste.
Location:	East side of the Roy F. Mitte building service yard, facing Comanche St.
Size:	40 feet x 12 feet x 9 feet (L x W x H).
Discharge Prevention:	The containment building provides secondary containment for spills that might occur within the building. The floor consists of a rectangular grate covering a sump that is lined with HDPE synthetic liner. The floor sump is designed to store the maximum inventory within the building.

Table 2.1
Facility Description (cont'd)

PHYSICAL DESCRIPTION – Container Accumulation Area (NOR 008)	
Operation:	Less than 90-day Container Accumulation Area for containerized waste.
Location:	Room 205 of the Chemistry Building.
Size:	22 feet x 25 feet x 20 feet (L x W x H).
Discharge Prevention:	This room is designed like a vault. There are no floor drains and it is has a fire suppression system.

PHYSICAL DESCRIPTION – Container Accumulation Area (NOR 009)	
Operation:	Less than 90-day Container Accumulation Area for containerized waste.
Location:	Room 142 of the STAR One Park Building in the STAR Park. STAR Park is on 3055 Hunter Road, San Marcos, Texas 78666
Size:	15 feet x 11 feet x 9 feet (L x W x H).
Discharge Prevention:	There are no floor drains.

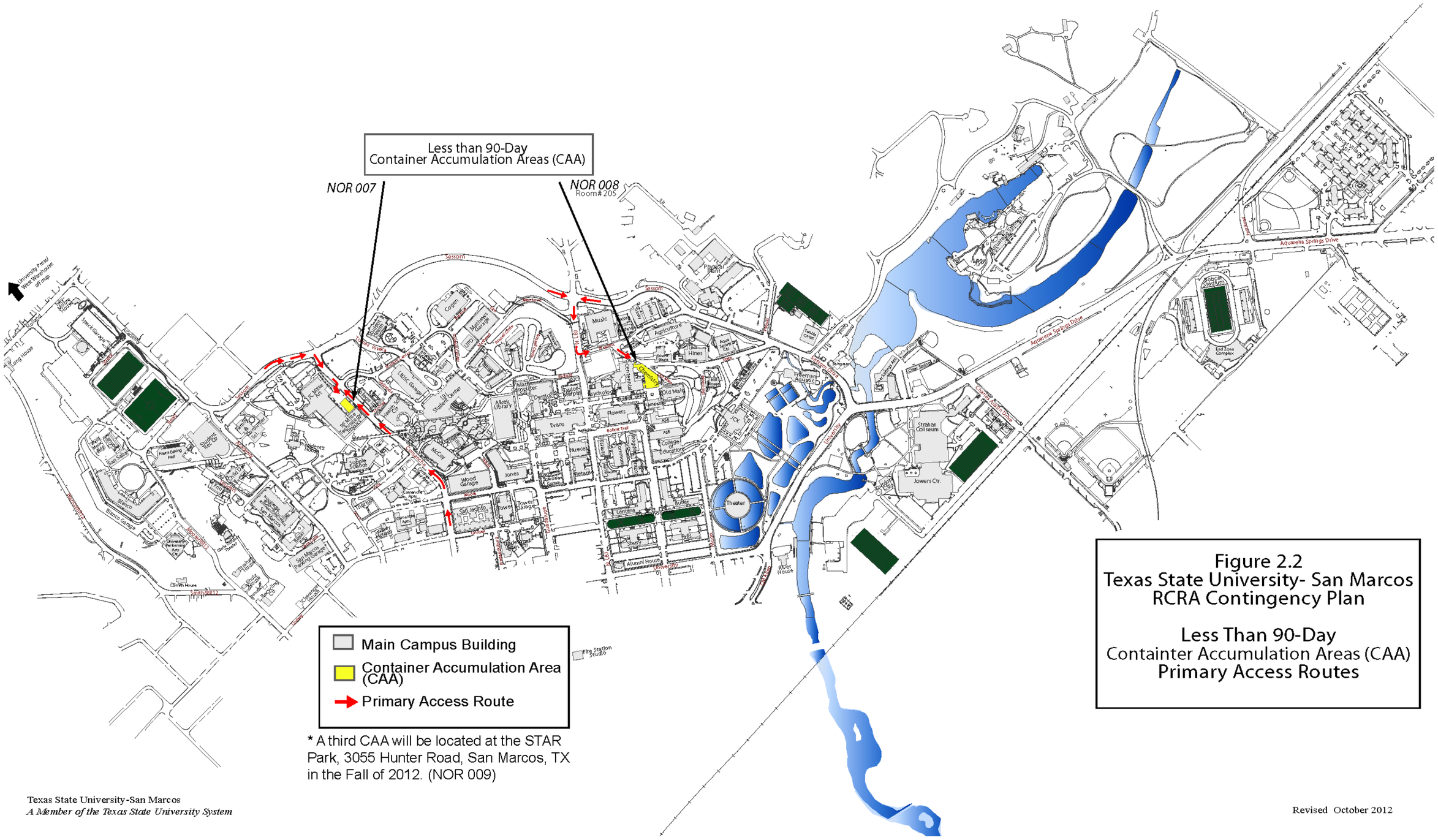

Less than 90-Day
Container Accumulation Areas (CAA)
NOR 007
NOR 008
Room# 205
Main Campus Building
Container Accumulation Area (CAA)
Primary Access Route
* A third CAA will be located at the STAR Park, 3055 Hunter Road, San Marcos, TX in the Fall of 2012. (NOR 009)
Figure 2.2
Texas State University- San Marcos
RCRA Contingency Plan
Less Than 90-Day
Containter Accumulation Areas (CAA)
Primary Access Routes
Texas State University-San Marcos
A Member of the Texas State University System
Revised October 2012

Table 2.2
Satellite Hazardous Waste Accumulation Areas
Texas State University – San Marcos

Generating department	Building and address
1. Facilities (Physical Plant) Shops and Garage	Physical Plant Garage 151-5 Sessoms Drive San Marcos, Texas 78666
2. Print Shop	1727 Ranch Road 12 San Marcos, Texas 78666
3. Art Department	Joann Cole Mitte Art 749 Comanche Street San Marcos, Texas 78666 Sabinal Hall (photography) 205 Pleasant Street San Marcos, Texas 78666
4. Chemistry and Biochemistry	Chemistry/Centennial Hall 202 Old Main Dr. /120 Old Main Dr. San Marcos, Texas 78666
5. Aquatic Biology	Freeman Aquatic Biology 220 E. Sessom Drive San Marcos, Texas 78666
6. Biology	Jerome & Catherine Supple Science Building 310 Vista Drive San Marcos, Texas 78666
7. Physics	Roy F. Mitte 749 Comanche Street San Marcos, Texas 78666
8. Agriculture and Garage	Agriculture 206 Pleasant Street San Marcos, Texas 78666
9. Engineering Technology	Roy F. Mitte Room 2240E Office 749 Comanche Street San Marcos, Texas 78666
10. Ingram School of Engineering	Roy F. Mitte Room 2240E Office 749 Comanche Street San Marcos, Texas 78666

Table 2.2
Satellite Hazardous Waste Accumulation Areas
Texas State University – San Marcos

Generating department	Building and address
11.Edwards Aquifer Research and Data Center	Freeman Aquatic Biology 220 E. Sessom Drive San Marcos, Texas 78666
12. Theater	Theater 430 Moon Street San Marcos, Texas 78666
13. LBJ Student Center	LBJ Student Center 301 Student Center Drive San Marcos, Texas 78666
14. Family and Consumer Science	Family and Consumer Science 245 W. Sessoms Dr. San Marcos, Texas 78666
15. Residence Life Shops	Dept. of Housing and Residential Life 515 North Comanche San Marcos, Texas 78666
16. Health Professions Building	Health Professions Building 712 N. Comanche San Marcos, Texas 78666
17. Central Utility Plant (formally referred to as CoGen)	Central Utility Plant 150 Buckner St. San Marcos, Texas 78666
18. STAR Park	STAR Park 3055 Hunter Road San Marcos, TX 78666

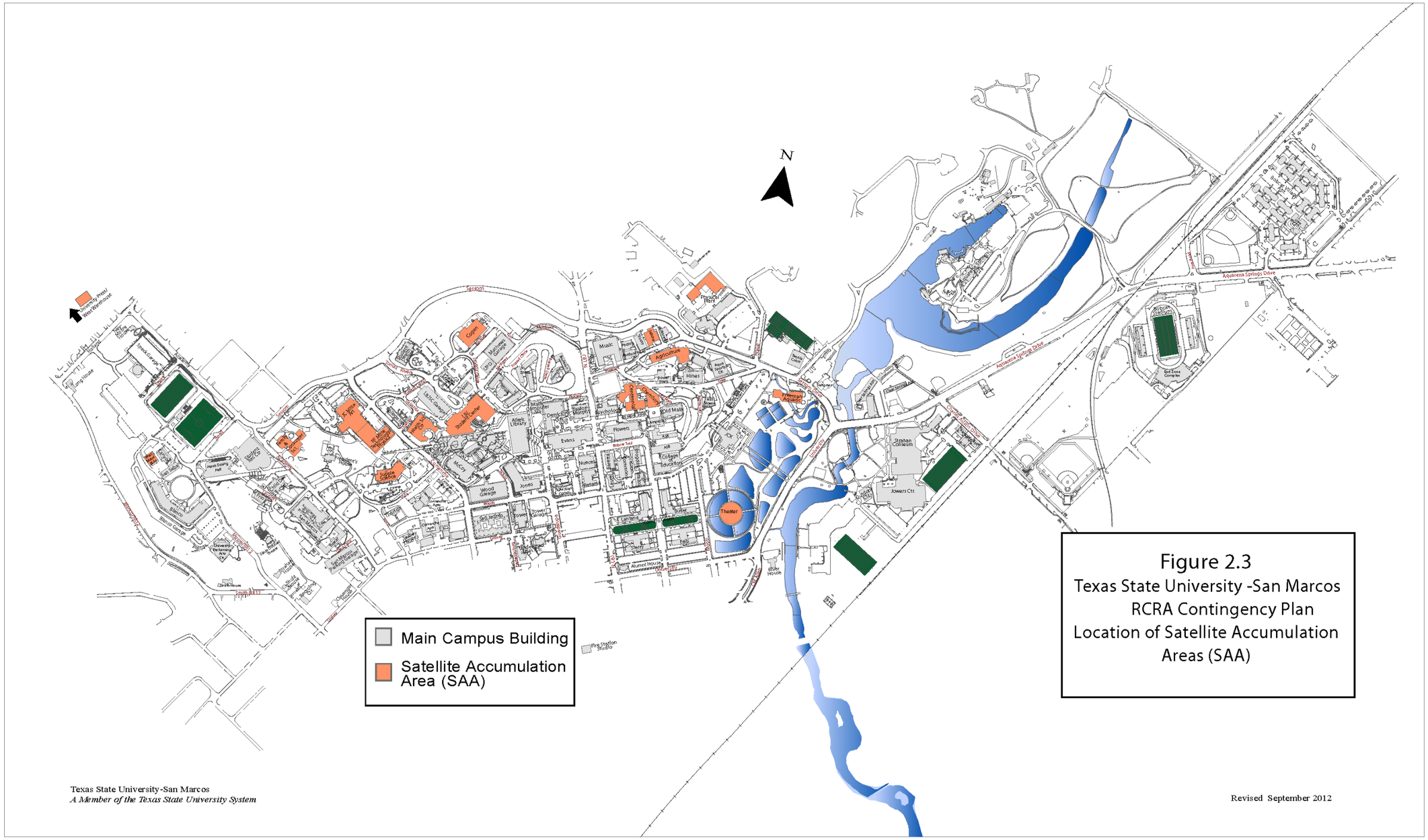


Figure 2.3
Texas State University -San Marcos
RCRA Contingency Plan
Location of Satellite Accumulation Areas (SAA)

3.0 AGREEMENTS WITH LOCAL SERVICE PROVIDERS

The University will distribute to the local service providers a copy of this plan and request a written agreement to provide service to the University. If agreements are secured from the local service providers, they will be maintained at the EHSRM and the University Police Department (UPD). A refusal to provide services will also be kept in the EHSRM and UPD along with copies of contracts with emergency response contractors and equipment suppliers.

The local hospital will be advised on the properties of the hazardous wastes managed at the university **(Attachment B)** and the potential injuries or illnesses that could result from fires, explosions or releases at the facility. In general, the waste streams consist of a combination of many chemicals; thus, MSDS sheets do not exist for these mixtures. Each department maintains copies of individual MSDSs for chemicals used in their area. The department contacts and Waste Analysis Plan (WAP) will be consulted to determine the specific constituents possible in a waste stream if a release occurs. Copies of the WAP are on file in the EHSRM.

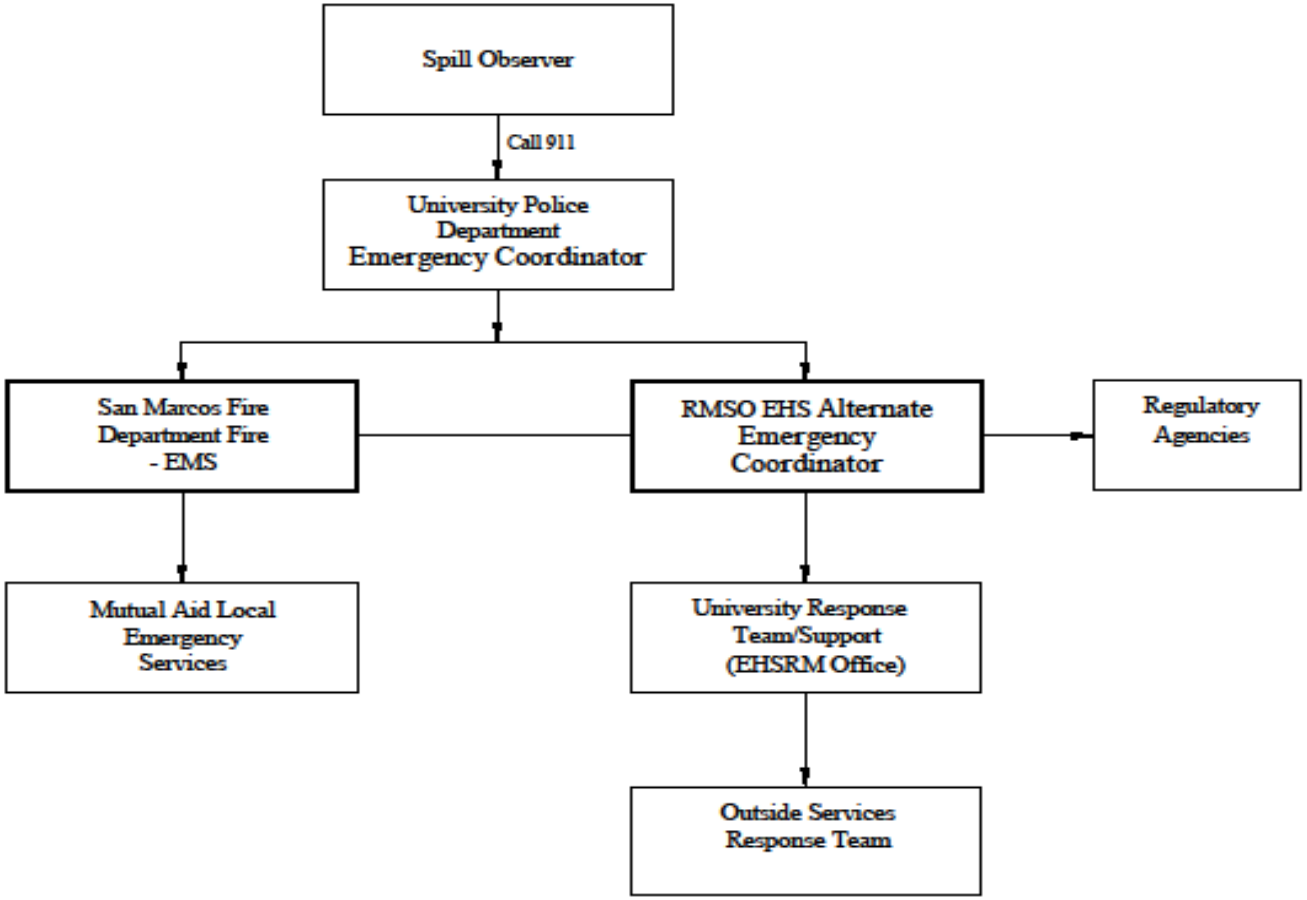
Chemicals needing special attention (e.g., hydrofluoric acid, ethidium bromide) will have a section in **Attachment B** with specific first aid procedures.

4.0 EMERGENCY COORDINATOR/CALL SEQUENCE

Table 4.1 lists the names of the Emergency Coordinator and the designated alternate at the University along with contact information. The Emergency Coordinator is familiar with all aspects of the Contingency Plan, all operations and activities at the University, the location and characteristics of waste handled the location of records within the facility and the facility layout. In addition the Emergency Coordinator has the authority to commit the resources needed to carry out the Contingency Plan.

Figure 4.1 shows the sequence of spill notification and the coordination that will occur in the event that assistance from outside emergency responders (city or contract) is requested.

Table 4.1 also shows the internal University notification requirements and the regulatory and outside responder contacts. If the spill occurs within the Satellite Accumulation Areas (see **Figure 2.3**) and is larger than 5-gallons, the Dean and Chair for that department may be contacted as part of the local response team.



DATE: 9/26/12	FILE NAME: TSU-SpillNS.dwg	DWG NO: --

FIGURE 4.1
Spill Notification Sequence
RCRA Contingency Plan and Emergency Response Procedures
Texas State University - San Marcos

Table 4.1
Hazardous Waste Spill Notification References
Texas State University – San Marcos

GENERAL FACILITY			
FACILITY AREA	**ADDRESS**	**OFFICE**	**FAX NUMBER**
Texas State University – San Marcos	601 University Drive San Marcos, Texas 78666	(512) 245-3616	(512) 245-8277

LOCAL RESPONSE TEAM						
POSITION/TITLE	**NAME**	**RESPONSE TIME**	**TRAINING LEVEL**	**OFFICE**	**HOME**	**CELL**
Emergency Coordinator **University Police (receives all 911 calls made from campus)**	Chief of Police	15 minutes	● Contingency Plan reviewed ● University safe operating procedures	On campus dial 911 (512) 245-2805 (512) 245-8336		
Emergency Coordinator Alternate	On Call Environmental Health and Safety Specialist	30 minutes	● Contingency Plan reviewed ● University safe operating procedures	(512) 245-3616	(512) 738-6650 (On Call)	(512) 738-6650 (On Call)
Additional Resources/Support **(maintains list of University Contacts and home numbers)**	**Central Utilities Plant**	15 minutes	● Contingency Plan reviewed ● University safe operating procedures	(512) 245-2108		

Table 4.1 (cont.)
Hazardous Waste Spill Notification References
Texas State University – San Marcos

REQUIRED EXTERNAL NOTIFICATIONS			
AGENCY	**LOCATION**	**OFFICE**	**ALTERNATE**
National Response Center (NRC)	Washington, D.C.	(800) 424-8802	(202) 267-2675
TCEQ 24-hour Environmental Release Hotline (Chem-Tel, Inc.)	Tampa, FL	(800) 832-8224	
San Marcos Fire Department Emergency Management Coordinator (LEPC)	San Marcos, TX	911	(512) 393-8460 (512) 393-7301
Texas Commission on Environmental Quality Region 11	Austin, TX	(512) 339-2929	
Texas Commission on Environmental Quality - Central Office	Austin, TX	(512) 463-7727 (512) 239-2507	(800) 832-8224 (24 Hrs. Chem-Tel, see above)

REGULATORY NOTIFICATIONS - ASSISTANCE/ADVISORY (outside resources)			
AGENCY	**LOCATION**	**OFFICE**	**ALTERNATE**
U.S. Fish and Wildlife Service (USFWS)	Austin, TX	(512) 490-0057	
U.S. Environmental Protection Agency (EPA) – Region VI	Dallas, TX	(800)887-6063	(214) 665-2200
Texas Parks and Wildlife Department (TPWD)	Austin, TX	(800) 792-1112	(512) 389-4800
Texas Department of Health	Austin, TX	(512) 458-7111	
Texas Highway Patrol (Department of Public Safety)	San Marcos, TX	911	(512) 353-7000

Table 4.1 (cont.)
Hazardous Waste Spill Notification References
Texas State University – San Marcos

OUTSIDE EMERGENCY RESPONSE ORGANIZATIONS			
COMPANY	**LOCATION**	**OFFICE**	**ALTERNATE**
Phillips (PCS) Environmental Services (Disposal Only)	Buda, TX Houston, TX Austin, TX	(281) 788-8801 (713) 674-2406 (512) 374-9862	 (713) 672-0733 (210) 872-5587
Eagle SWS (Eagle Construction and Env. Services)	Cibolo, TX	1-800-336-0909	
TAS Environmental	San Antonio, TX	1-888-654-0111	
San Antonio Testing Laboratory	San Antonio, TX	(210) 229-9920	(210) 836-8936

LOCAL EMERGENCY SERVICES			
DIAL 911 **for All Police, Fire, and Ambulance Emergencies**			
SERVICE	**LOCATION**	**PRIMARY**	**ALTERNATE**
Hays County Sheriff	San Marcos, TX	911	(512) 393-7896
Police Department	San Marcos, TX	911	(512) 753-2108
Fire Department	San Marcos, TX	911	(512) 393-8460
Parks and Recreation (Environmental Dept)	San Marcos, TX	(512) 393-8400	(512) 393-8410
Wastewater Treatment Plant	San Marcos, TX	(512) 393-8010	(512) 393-8344
San Marcos Hays County EMS./Ambulance Service	San Marcos	911	(512) 353-5115
Central Texas Medical Center	San Marcos, TX	911	(512) 353-8979

5.0 REPORTING REQUIREMENTS

Release reporting is the responsibility of the Environmental Health Safety and Risk Management Office. The EHSRM staff will report on all releases of hazardous waste, chemicals or utility related releases (primarily aqueous streams involving sumps or chill water lines). Outside regulatory contacts must be notified if:

- the quantity of chemical spilled to the environment exceeds the reportable quantity in 40CFR §302.4 (numerous chemicals with chemical-specific limits);

- the release reaches Sessoms Creek or the San Marcos River (waters of the State) in excess of 100 pounds (per 30TAC §327.4(a)(2)) or

- the release is an oil and reaches Sessoms Creek or the San Marcos River and has a visible sheen, or it is spilled onto land in excess of 25 gallons.

Notification will be made within 24-hours of the release. The release will be reported to the following departments by phone call or fax:

- TCEQ 24-Hour Emergency Spill Reporting (**1-800-832-8224**)
- TCEQ 24-Hour Alternate Reporting numbers **(1-512-239-2507 or 512-463-7727)**
- Region 11 TCEQ office at **(512 339-2929)** if the spill occurs during normal business hours
- National Response Center (**1-800-424-8802**).

The initial report will provide, to the extent known, the information listed in 30TAC §327.3(d) and shown below:

1. the name, address and telephone number of the person making the telephone report;
2. the date, time, and location of the spill or discharge;
3. a specific description or identification of the oil, petroleum product, hazardous substances or other substances discharged or spilled;
4. an estimate of the quantity discharged or spilled;
5. the duration of the incident;
6. the name of the surface water or a description of the waters in the state affected or threatened by the discharge or spill;
7. the source of the discharge or spill;
8. a description of the extent of actual or potential water pollution or harmful impacts to the environment and an identification of any environmentally sensitive areas or natural resources at risk;
9. if different from paragraph (1) of this subsection, the names, addresses, and telephone numbers of the responsible person and the contact person at the location of the discharge or spill;
10. a description of any actions that have been taken, are being taken, and will be

11. taken to contain and respond to the discharge or spill;
12. any known or anticipated health risks;
13. the identity of any governmental representatives, including local authorities or third parties, responding to the discharge or spill; and
14. any other information that may be significant to the response action.

In accordance with 30TAC §327.5, EHSRM will submit a written report within 30 days to the Regional TCEQ office. The written report will contain all the elements 1-13 shown above and one of the following items, as applicable:

1. A statement that the discharge or spill response action has been completed and a description of how the response action was conducted.

2. A request for an extension of time to complete the response action, along with the reasons for the request. The request will also include a projected work schedule outlining the time required to complete the response action. The TCEQ may grant an extension of up to 6 months from the date of the spill or discharge was reported. Unless otherwise notified, by the appropriate regional manager, the University will proceed according to the terms of the projected work schedule.

3. A statement that the discharge or spill response action has not been completed nor is it expected to be completed within the maximum allowable six month extension. The statement shall explain why completion of the response action is not feasible and include a projected work schedule outlining the remaining tasks to complete the response action. This information will also serve as notification that the response actions will be conducted under the Texas Risk Reduction Program rules in 30TAC Chapter 350.

In addition, any time that the Contingency Plan is activated (regardless of the size of the release) the University will document in their files the following information:

(1) Name, address, and telephone number of the department with the release;
(2) Date, time, and type of incident (e.g. fire, explosion);
(3) Name and quantity of material(s) involved;
(4) The extent of injuries, if any;
(5) An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
(6) Estimated quantity and disposition of recovered material that resulted from the incident.

6.0 EMERGENCY EQUIPMENT

The University maintains safety equipment to respond to small releases of hazardous waste (5-gallons or less). The University will rely on the San Marcos Fire Department or outside contractors to respond to releases larger than 5-gallons. The equipment on-site includes those items required by 40CFR 265.32 and 40CFR 265.52(e) with the exception of the internal alarm system. The University personnel stay in contact with one another and outside emergency services through the use of land-based phones, radios and cell phones.

Table 6.1 lists the emergency response equipment maintained at the University. The location and capability of the equipment is also included in **Table 6.1**. The University waste pickup vehicle is equipped to respond to small releases at the Satellite Accumulation Areas (see **Figure 2.3**) while most of the same supplies are also kept at the less than 90-day Container Accumulation Area (NOR 007).

The equipment is tested and maintained by EHSRM as applicable, to assure its proper operation in time of an emergency. Aisle space is maintained in the Container Accumulation Area to allow sufficient unobstructed movement of personnel and equipment in the event of an emergency. A fire hydrant is located directly across from the Container Accumulation Area on Comanche Street.

Table 6.1
List of Emergency Response Equipment
For Spills of 5-Gallons or Less
Texas State University
San Marcos, Texas

Name of Equipment	Located in Emergency Response Truck	Located at the Container Accumulation Area (NOR) 007	Located in Garage of EHSRM Office (Smith House)
1. Sorbent Pads – Universal and Oil Only	**X**	**X**	**X**
2. Granular Sorbent	**X**	**X**	**X**
3. Shovel or broom and dust pan	**X**	**X**	**X**
4. Container for debris	Bags	55-gallon drum, 5-gallon DOT buckets	30-gallon, 55-gallon drums and 5-gallon DOT buckets
5. Booms – Universal and Oil Only		**X**	**X**
6. Rubber gloves	**X**	**X**	**X**
7. Goggles or safety glasses	**X**	**X**	**X**
8. Fire extinguishers	**X**	**X**	**X**
9. Eye wash station		**X**	
10. Phone and emergency contact list	Carry on-call phone Contact list in 3-ring binder in response box	Land phone and cell phone, list in phone box outside	

EHSRM will inspect and replenish the truck and CAA with supplies on a monthly basis and after use. Additional bulk supplies of pads and booms are located at the Thorton House garage, Central Plant, East Plant, West Plant, and South Plant.

7.0 EMERGENCY PROCEDURES

For spills or releases of hazardous waste from the Container Accumulation Areas, the procedures in **Table 7.1** will be followed.

Table 7.1
Specific Hazardous Waste and Spill Incident Response Checklist

The person functioning as **Emergency Coordinator** during the initial response period has the authority to take whatever steps are necessary to control the emergency situation. This plan provides general guidelines but is not intended to be all-inclusive for every emergency. The Emergency Coordinator is authorized to use their judgment in responding.

INITIAL RESPONSE ACTIONS - SUMMARY
● Personnel and Public Safety are first priorities ● Eliminate sources of ignition or potential source of ignition ● Close the isolation plate in the storm water drain at the Roy F. Mitte Loading Dock (if the release is at this CAA) ● Isolate the source of the discharge, minimize further flow ● Make internal notifications (i.e., University Police Department, [UPD], first) ● Emergency Coordinator (UPD) will make external notifications (if deemed necessary) ● Emergency Coordinator or Alternate Emergency Coordinator (EHSRM) will evacuate the affected building(s) as necessary. ● Emergency Coordinator or Alternate Emergency Coordinator will activate the Local Response Team (EHSRM Office) as necessary. ● Emergency Coordinator or Alternate Emergency Coordinator will activate response contractors and other external resources as necessary ● Emergency Coordinator or Alternate Emergency Coordinator will monitor and control the containment and clean-up effort.

Table 7.1
Specific Hazardous Waste Release Checklist

Remember, Without Exception, Personnel Safety is First Priority. Excessive Exposure to the Vapor and Liquid Stages of the Spilled Product Should Be Avoided.

INITIAL RESPONSE

- _____ Restrict access to the spill site and adjacent area as the situation demands. Take any other steps necessary to minimize any threat to health and safety.
- _____ Eliminate possible sources of ignition in the near vicinity of the spill.
- _____ Take appropriate personal protective measures.
- _____ Use testing and sampling equipment to determine potential safety hazards, as the situation demands.
- _____ Identify/Isolate the source and minimize the loss of product.
- _____ Verify the type of product and quantity released (Waste Analysis Plan and MSDS sheets if available).
- _____ Advise personnel in the area of any potential threat and/or initiate evacuation procedures.
- _____ Take necessary fire response actions.
- _____ Call for medical assistance if an injury has occurred.

Table 7.1
Specific Hazardous Waste Release Checklist

SPILL/RELEASE REMEDIATION MEASURES

- _____ Emergency Coordinator, or his designee, notifies appropriate University personnel via hand-held radios or cell phones, as applicable.
- _____ Direct cleanup operations using appropriate spill response equipment and supplies (i.e., absorbents, booms, pumps, shovels, etc.)
- _____ Prevent the spill from entering the water &/or drainage system to the greatest extent possible.
- _____ Contain spilled material in a new drum as well as any spill response material.
- _____ EHSRM will characterize the drummed material and coordinate disposal.

Table 7.1
Specific Hazardous Waste Release Checklist

FOLLOWUP ACTIONS

The EHSRM, unless noted otherwise below, will conduct these follow-up actions:

- _____ Sample and classify the wastes generated from spill cleanup in accordance with the University's Waste Analysis Plan. Dispose of the waste appropriately as hazardous or non-hazardous, based on the characterization and classification (within 30 days). Keep copies of the laboratory data with the Waste Analysis Plan.

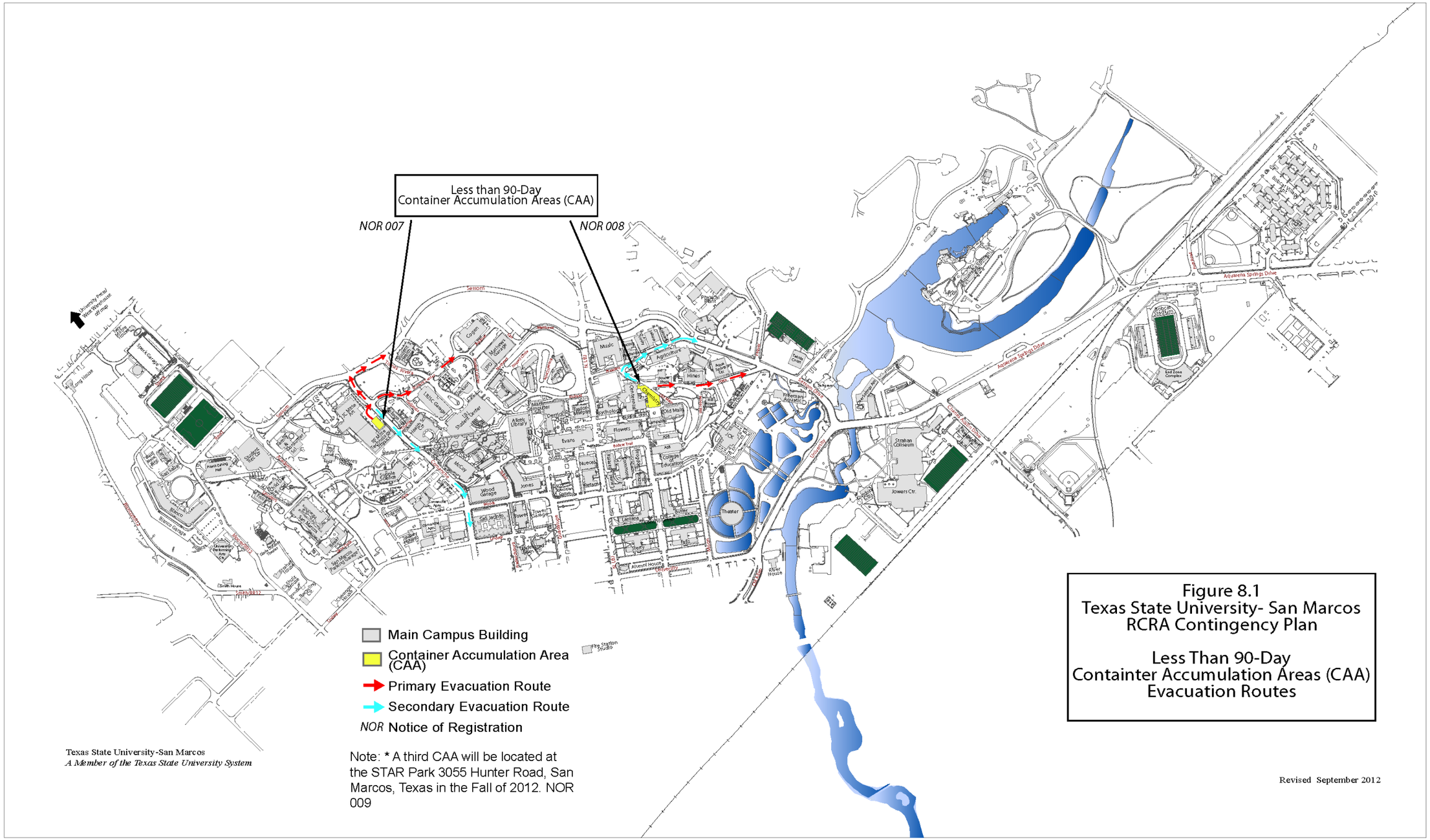
- _____ Notify the State and local authorities if the spill exceeds reporting thresholds (within 24-hours). EHSRM will notify and maintain copies of the reports (see Section 5.0).

- _____ Clean and restock the spill response equipment and decontamination equipment (within 7 days).

- _____ Note in the Operating Record (Hazardous Waste Files) the time, date and details of the spill. If necessary, submit a written report to the TCEQ in compliance with 40CFR 265.56(j) (within 15 days). EHSRM will notify and maintain copies of the reports (see Section 5.0).

8.0 EVACUATION PLAN

The evacuation routes for the Container Accumulation Areas are shown in **Figure 8.1**. If one route is blocked by the spill or for other reasons, the alternate route will be used. All responders will enter the University by either Comanche Street or Sessom Drive. **Figure 2.2** shows the typically-used access routes to the Container Accumulation Areas.


Less than 90-Day
Container Accumulation Areas (CAA)
NOR 007
NOR 008
Main Campus Building
Container Accumulation Area (CAA)
Primary Evacuation Route
Secondary Evacuation Route
NOR Notice of Registration
Note: * A third CAA will be located at the STAR Park 3055 Hunter Road, San Marcos, Texas in the Fall of 2012. NOR 009
Texas State University-San Marcos
A Member of the Texas State University System
Figure 8.1
Texas State University- San Marcos
RCRA Contingency Plan
Less Than 90-Day
Containter Accumulation Areas (CAA)
Evacuation Routes
Revised September 2012

9.0 AMENDMENTS OF THE CONTINGENCY PLAN

The Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

- the applicable regulations are revised;
- the plan fails in an emergency;
- the emergency coordinator changes or
- the list of emergency equipment changes.

Amendments to the plan will be noted on the Revision Record and will be sent to those listed on the distribution list (**Attachment C**)

Revisions to this document are the responsibility of the EHSRM of Texas State University-San Marcos and are to be prepared in accordance with the applicable federal regulations (as presented in **Attachment A**).

10.0 DISTRIBUTION OF THE CONTINGENCY PLAN

The Contingency Plan will be distributed by EHSRM to the list of local emergency response providers and local service providers shown in **Attachment C.** The distribution list also shows internal university recipients of the plan as well as City offices that may respond in a support role. A letter submitting the plan will request a signature from the provider if the entity agrees to provide services to the University in the event of an emergency. These signed written agreements will be maintained at the University in compliance with Federal Regulations.

ATTACHMENT A

Excerpt of Federal Regulations For Contingency Plan and Emergency Response Procedures

Texas State University – San Marcos

TITLE 40--PROTECTION OF ENVIRONMENT

PART 265--INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

Subpart C—Preparedness and Prevention

§ 265.30 Applicability.
The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as §265.1 provides otherwise.

§265.31 Maintenance and operation of facility.
Facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil or surface water which could threaten human health or the environment.

§265.32 Required equipment
All facilities must be equipped with the following, *unless* none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

(a) An internal communication or alarm system capable of providing immediate emergency instructions (voice or signal) to facility personnel;

(b) A device, such as a telephone (immediately available at the scene of operations) or a hand-held two way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;

(c) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and

(d) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.

§ 265.33 Testing and maintenance of equipment.
All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.

§ 265.34 Access to communications or alarm system.

(a) Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operations must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, *unless* such a device is not required under §265.32.

(b) If there is ever just one employee on the premises while the facility is operating, he must have immediate access to a device such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio capable of summoning external emergency assistance, unless such a device is not required under §265.32.

§ 265.35 Required aisle space.

The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in an emergency, *unless* aisle space is not needed for any of these purposes.

§ 265.36 [Reserved]

§ 265.37 Arrangements with local authorities.

(a) The owner or operator must attempt to make the following arrangements, as appropriate for the type of waste handled at his facility and the potential need for the services of these organizations:

(1) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes;

(2) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and specific fire department, and agreements with any others to provide support to the primary emergency authority;

(3) Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and

(4) Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(b) Where State or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

Subpart D--Contingency Plan and Emergency Procedures

§ 265.50 Applicability.

The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as § 265.1 provides otherwise.

§265.51 Purpose and implementation of contingency plan.

(a) Each owner or operator must have a contingency plan for his facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

(b) The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

[45 FR 33232, May 19, 1980, as amended at 50 FR 4514, Jan. 31, 1985]

§262.52. Content of the plan.

(a) The contingency plan must describe the actions facility personnel must take to comply with §265.51 and §265.56 in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

(b) If the owner or operator has already prepared a Spill Prevention Control and Countermeasures (SPCC) Plan in accordance with part 112 of this chapter or part 1510 of chapter V or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this part.

(c) The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors and State and local emergency response teams to coordinate emergency services pursuant to §265.37

(d) The plan must list names, addresses and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see §265.55), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates.

(e) The plan must include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment, where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and physical description of each item on the list, and a brief outline of its capabilities.

(f) The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by release of hazardous waste or fires).

[45 FR 33232, May 19, 1980, as amended at 46 FR 27480, May 20, 1981; 50 FR 4514, Jan. 31, 1985]

§ 265.53 Copies of contingency plan.

A copy of the contingency plan and all revisions to the plan must be:

(a) Maintained at the facility; and

(b) Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.

[45 FR 33232, May 19, 1980, as amended at 50 FR 4514, Jan. 31, 1985]

§ 265.54 Amendment of contingency plan.

The contingency plan must be reviewed, and immediately amended, if necessary, whenever:

(a) Applicable regulations are revised;

(b) The plan fails in an emergency;

(c) The facility changes--in its design, construction, operation, maintenance, or other circumstances--in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

(d) The list of emergency coordinators changes; or

(e) The list of emergency equipment changes.

[45 FR 33232, May 19, 1980, as amended at 50 FR 4514, Jan. 31, 1985]

§ 265.55 Emergency coordinator.

At all times, there must be at least one employee either on the facility premises or on call (i.e. available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

[*Comment:* The emergency coordinator's responsibilities are more fully spelled out in §265.56. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of waste(s) handled by the facility, and type and complexity of the facility.]

§ 265.56 Emergency procedures.

(a) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately:

(1) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and

(2) Notify appropriate State or local agencies with designated response roles if their help is needed.

(b) Whenever there is a release, fire or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and a real extent of any released materials. He may do this by observation or review of facility records or manifests and, if necessary, by chemical analysis.

(c) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-offs from water or chemical agents used to control fire and heat-induced explosions.

(d) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment, outside the facility, he must report his findings as follows:

(1) If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and

(2) He must immediately notify either the government official designated as the on-scene coordinator for that geographical area (in the applicable regional contingency plan under part 1510 of this title), or the National Response Center (using their 24-hour toll free number 800/434-8802). The report must include:

(i.) Name and telephone number of reporter;
(ii) Name and address of facility;
(iii) Time and type of incident (e.g. release, fire);
(iv) Name and quantity of material(s) involved to the extent known;
(v) The extent of injuries, if any; and
(vi) The possible hazards to human health, or the environment, outside the facility.

(e) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and released do not occur, recur, or spread to other hazardous waste at the facility. These measures include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

(f) If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure, buildup, gas generation, or ruptures in valves, pipes, or other equipment, whenever this is appropriate.

(g) Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any material that result from a release, fire, or explosion at the facility.

[*Comment:* Unless the owner or operator can demonstrate, in accordance with §261.3(c) or (d) of this chapter, that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of parts 262, 263, and 265 of this chapter].

(h) The emergency coordinator must ensure that, in the affected area(s) of the facility:

(1) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

(2) All emergency equipment listed in the contingency plan is cleaned and fit for the intended use before operations are resumed.

(i) The owner or operator must notify the Regional Administrator, and appropriate State and local authorities that the facility is in compliance with paragraph (h) of this section before operations are resumed in the affected area of the facility.

(j) The owner or operator must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report to the Regional Administrator. The report must include:

(1) Name, address, and telephone number of the owner or operator;
(2) Name, address, and telephone number of the facility;
(3) Date, time, and type of incident (e.g. fire, explosion);
(4) Name and quantity of material(s) involved;
(5) The extent of injuries, if any;
(6) An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
(7) Estimated quantity and disposition of recovered material that resulted from the incident.

[45 FR 33232, May 19, 1980, as amended at 50 FR 4514, Jan. 31, 1985]

ATTACHMENT B

Properties of Hazardous Wastes Managed

Texas State University – San Marcos

TABLE 1

Hazardous and Class 1 Non-hazardous Wastes Generated
Texas State University
San Marcos, Texas

TCEQ Waste Code	*Waste Description*	EPA Waste Code	Most Common Method of Disposal
Hazardous			
0001204H	Mixed halogenated/non-halogenated solvents from labs throughout campus and solvents consolidated at the storage facility.	D001, F001, F002, F003, F005	Incineration or fuel blending
0002103H	Acids with metals from campus labs	D002,D005, D006, D007, D008, D009, D011	Wastewater treatment
0003003H	Mixed lab packs containing hazardous chemicals from campus labs.	D001, D002, F001, F002, F003, F005, U057, U196, U239	Incineration
0004198H	Photographic waste may contain silver, may be reactive	D002, D003, D011	Silver recovery and wastewater treatment
0007119H	Laboratory waste – inorganic, may contain oxidizers.	D001, D002, D005, D006, D007, D008, D009, D011	Wastewater treatment
0010117H	Mercury waste or aqueous mercuric salt solutions	D009, D002	Mercury recovery and wastewater treatment
0016219H	Caustic liquids from consolidating lab wastes, flammable caustics	D001, D002, F002, F003	Incineration

TABLE 1 (continued)

Hazardous and Class 1 Non-hazardous Wastes Generated
Texas State University
San Marcos, Texas

TCEQ Waste Code	*Waste Description*	EPA Waste Code	Most Common Method of Disposal
0017219H	Lab waste consolidation, flammable acids	D001, D002, F002, F003	Incineration
0020310H	Activated carbon filters, spent or out of date	D001	Regenerate
0021202H	Spent halogenated solvents and aqueous mixtures	D001, F001, F002	Incineration or Fuel blending
0022203H	Spent non-halogenated solvents and aqueous mixtures	D001, F003, F005	Incineration or Fuel blending
0025207H	Organic solutions with aquatic organisms. May be formaldehyde, ethanol or formalin.	D001	Incineration or Fuel blending
0029310H	Waste Rags containing F003 and/or F005 solvents.	D001, F003, F005, D035	Incineration or Fuel blending
0030310H	Waste Sorbents, may contain gasoline and oil	D018	Incineration or Fuel blending
0034119H	Aqueous waste containing sodium azide from a laboratory analysis	P105	Incineration
0035110H	Caustic Aqueous Waste from Labs and Shops	D002	Wastewater treatment or hazardous waste landfill
0036319H	Old sodium hydroxide pellets in drums	D002	Hazardous waste landfill
0037310H	Solids that fail one or more TCLP metal	D004-D011	Hazardous waste landfill
0038219H	Old glycolic acid in drums	D002	Neutralization/Incineration
0040403H	Acid bed water softener resin	D002	Neutralization/Incineration

TCEQ Waste Code	*Waste Description*	EPA Waste Code	Most Common Method of Disposal
0041110H	Old chemical in drums, caustic/aqueous	D002	Hazardous waste landfill
0044202H	Old Freon no longer in use	U121	Incineration
Class 1			
00080091	Lab waste from campus.	NA	Class 1 landfill
00193081	Empty metal drums or containers	NA	Recycle or Class 1 landfill
00231191	Aqueous solutions with organics and inorganics.	N/A	Wastewater treatment
00245011	Limestone sludge from cleanout of neutralization/filtration sumps (waiting on laboratory analyses).	N/A	Class 1 landfill
00264961	Electrical ballasts with PCBs >50 ppm	N/A	Class 1 landfill or recycle
00273101	Waste rags with total petroleum hydrocarbon concentration greater than 1500 ppm.	NA	Class 1 Landfill
00282091	Waste latex and acrylic paint and paint related substances (nonhazardous) including paint rinsewater	NA	Wastewater treatment or Class 1 landfill.
00313091	Alkaline Batteries	NA	Recycle
00323111	Asbestos Materials	NA	Class 1 Landfill
00423191	Old soda ash used for spill response	NA	Class 1 landfill
00432092	Paint Rinse Water Acrylic or Latex	NA	Class 2 landfill
00455012	Limestone and water slurry sludge	NA	Class 2 landfill
00462191	Combustible liquid or solid from discarded material or labs	NA	Fuel blending

TCEQ Waste Code	*Waste Description*	EPA Waste Code	Most Common Method of Disposal
00474031	Nano particle waste mixed with resins or other organics for research	NA	Hazardous waste landfill
00482191	Nonhazardous aqueous waste with organic generated from labs and shops	NA	Waste water treatment

CHEMICALS NEEDING SPECIAL ATTENTION

1. **ACRYLONITRILE – MSDS ATTACHED**
2. **ETHIDIUM BROMIDE – MSDS ATTACHED**
3. **FORMALDEHYDE – MSDS ATTACHED**
4. **HYDROFLUORIC ACID – MSDS ATTACHED**
5. **PHENOL – MSDS ATTACHED**

(THIS LIST WILL BE AMENDED AS NECESSARY)

Health	3
Fire	3
Reactivity	1
Personal Protection	H

Material Safety Data Sheet
Acrylonitrile MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acrylonitrile

Catalog Codes: SLA2566

CAS#: 107-13-1

RTECS: Not available.

TSCA: TSCA 8(b) inventory: Acrylonitrile

CI#: Not available.

Synonym: Vinyl Cyanide; Propenitrile

Chemical Name: Acrylonitrile

Chemical Formula: C3-H3-N

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acrylonitrile	1017-13-1	>99

Toxicological Data on Ingredients: Acrylonitrile: ORAL (LD50): Acute: 78 mg/kg [Rat]. 27 mg/kg [Mouse]. DERMAL (LD50): Acute: 63 mg/kg [Rabbit]. VAPOR (LC50): Acute: 333 ppm 4 hours [Rat]. >90 ppm 4 hours [Monkey].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator), of eye contact (irritant). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. The substance may be toxic to blood, kidneys, liver, cardiovascular system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 481.11°C (898°F)

Flash Points: CLOSED CUP: -1.1111°C (30°F). OPEN CUP: 0°C (32°F).

Flammable Limits: LOWER: 3.1% UPPER: 17%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of oxidizing materials, of acids, of alkalis.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:
In the presences of catalysts, or when the substance is confined, the polymerization rate may be accelerated leading to explosion. Acrylonitrile forms explosive mixtures with air based on its low flash point. It easily forms violently explosive polymerides when exposed to heat, light, strong bases, strong acids, strong oxidizers, azoisobuytronitrile, dibenzoyl peroxide, di-tert-butylperoxide, bromine or silver nitrate. Acrylonitrile may explosive reactions with benzyltrimethylammonium hydroxide + pyrrole. It may also have explosive reactions with tetrahydrocarbazole + benzyltrimethylammonium hydroxide.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage:
Light Sensitive. Store in light-resistant containers. Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 2 (ppm) from ACGIH (TLV) [United States] TWA: 4.3 (mg/m3) TWA: 1 CEIL: 10 from NIOSH TWA: 2 STEL: 10 (ppm) from OSHA (PEL) [United States] TWA: 2 (ppm) [United Kingdom (UK)] TWA: 4.3 (mg/m3) [United Kingdom (UK)] TWA: 2 STEL: 4 (ppm) [Canada] TWA: 4.3 STEL: 8.6 (mg/m3) [Canada]3 Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: mild Peach kernels. (Slight.)

Taste: Not available.

Molecular Weight: 53.06 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 77.3°C (171.1°F)

Melting Point: -82°C (-115.6°F)

Critical Temperature: 262.78°C (505°F)

Specific Gravity: 0.806(Water = 1)

Vapor Pressure: 11.1 kPa (@ 20°C)

Vapor Density: 1.8 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 0.3

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Soluble in diethyl ether, acetone. Very slightly soluble in cold water, hot water. Soluble in all common organic substances and Isopropyl alcohol. Soluble in benzene and alcohol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability:
Heat, ignition sources, light, loss of inhibitor. Polymerization may occur, especially when exposed to visible light or in the absence of oxygen

Incompatibility with various substances:
Highly reactive with oxidizing agents, acids, alkalis. Reactive with metals.

Corrosivity: Highly corrosive in presence of aluminum, of copper.

Special Remarks on Reactivity:
Light Sensitive. Incompatible with strong oxidizers, strong acids (nitric acid, sulfuric acid, chlorosulfonic acid), strong bases (potassium hydroxide, sodium hydroxide), amines, 2-aminoethanol, bromine, ethylene diamine, oleum. Unless inhibited (usually with methylhydroquinone), this material may spontaneously polymerize, or it may spontaneously polymerization under certain conditions. Polymerization reactions are usually highly exothermic. Small amounts of acids (nitric or sulfuric) may neutralize the ammonia used to inhibit acrylonitrile and create unhibited, unstable acrylonitrile. Strong bases will cause acrylonitrile to violently polymerize. It may spontaneously polymerize when heated, or exposed to light.

Special Remarks on Corrosivity: It attacks copper, copper alloys, and aluminum in high concentrations.

Polymerization: Yes.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 27 mg/kg [Mouse]. Acute dermal toxicity (LD50): 63 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): >90 4 hours [Monkey].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. May cause damage to the following organs: blood, kidneys, liver, cardiovascular system, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (fetotoxicity, maternal effects on fertility, paternal effects on fertility). May affect genetic material (mutagenic). May cause cancer (tumorigenic) based on animal data. It is a suspect human carcinogen. May cause birth defects (musculoskeletal, central nervous system, cardiovascular)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes severe skin irritation. Prolonged skin contact may cause formation of large vesicles after a latent period of several hours. The burns resemble second degree thermal burns, but with little pain or inflammation. May be absorbed through skin. May be harmful if absorbed through skin. May affect behavior/central nervous system, respiration and gastrointestinal tract is absorbed through skin. Eyes: Causes moderate eye irritation. Lachrymator. Inhalation: May be harmful if inhaled. Inhalation of high concentrations may affect behavior/central nervous system with symptoms including central nervous system depression, seizures, weakness in the limbs, dizziness, impaired judgement, irritabilitiy, apprehension, weakness, lightheadedness, headache, anxiety, agitation, stupor, seizures, ataxia, confusion, coma. May also affect cardiovascular system (palpitations, arrhythmias, cardiac conduction defects, rapid heartbeat), respiration (hyperventillation, dyspnea), gastrointestinal system (nausea, vomiting). Inhalation may cause cyanosis (a bluish discoloration of the skin due to deficient oxygenation of the blood). Ingestion: Harmful if swallowed. Causes digestive tract irritation with nausea, and vomiting. May affect behavior/central nervous system, and respiration with symptoms similar to inhalation. Chronic Potential Health Effects: Repeated contact by inhalation or ingestion may affect the liver (jaundice), urinary system (kidneys), metabolism. Repeated contact by ingestion may also affect the blood (anemia).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:
CLASS 3: Flammable liquid. CLASS 6.1: Poisonous material.

Identification: : Acrylonitrile, inhibited UNNA: 1093 PG: I

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Acrylonitrile California prop. 65:

This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Acrylonitrile Connecticut hazardous material survey.: Acrylonitrile Illinois toxic substances disclosure to employee act: Acrylonitrile Illinois chemical safety act: Acrylonitrile

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
R11- Highly flammable. R16- Explosive when mixed with oxidizing substances. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R36/38- Irritating to eyes and skin. R40- Possible risks of irreversible effects. R62- Possible risk of impaired fertility. R63- Possible risk of harm to the unborn child. S1/2- Keep locked up and out of the reach of children. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 3

Reactivity: 1

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 4

Flammability: 3

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 03:37 PM

Last Updated: 06/09/2012 12:00 PM

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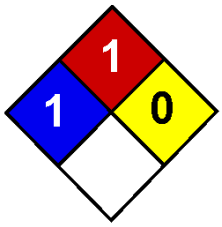


Health	1
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet

Ethidium bromide MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ethidium bromide

Catalog Codes: SLE1144

CAS#: 1239-45-8

RTECS: SF7950000

TSCA: TSCA 8(b) inventory: No products were found.

CI#: Not available.

Synonym: Homidium bromide

Chemical Formula: C21H20BrN3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ethidium bromide	1239-45-8	100

Toxicological Data on Ingredients: Not applicable.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation.

Potential Chronic Health Effects:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Section 4: First Aid Measures

Eye Contact: Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...), halogenated compounds.

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks. Slightly flammable to flammable in presence of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust.

Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 394.33 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: Decomposes. (261°C or 501.8°F)

Melting Point: 239°C (462.2°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: No products were found.

Other Regulations: Not available..

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
This product is not classified according to the EU regulations.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

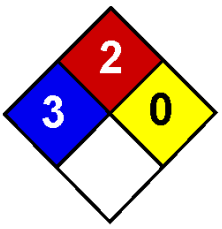
Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 01:15 PM

Last Updated: 06/09/2012 12:00 PM



Health	3
Fire	2
Reactivity	0
Personal Protection	G

Material Safety Data Sheet

Formaldehyde 37% solution MSDS

Section 1: Chemical Product and Company Identification

Product Name: Formaldehyde 37% solution

Catalog Codes: SLF1426

CAS#: Mixture.

RTECS: LP8925000

TSCA: TSCA 8(b) inventory: Formaldehyde; Methyl alcohol; Water

CI#: Not applicable.

Synonym: Formalin

Chemical Name: Formaldehyde

Chemical Formula: HCHO

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Formaldehyde	50-00-0	36.5-38
Methyl alcohol	67-56-1	10-15
Water	7732-18-5	47-53.5

Toxicological Data on Ingredients: Formaldehyde: ORAL (LD50): Acute: 100 mg/kg [Rat]. 42 mg/kg [Mouse]. 260 mg/kg [Guinea pig]. MIST (LC50): Acute: 454000 mg/m 4 hours [Mouse]. Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive). Slightly hazardous in case of skin contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
Hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl

alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 430°C (806°F)

Flash Points: CLOSED CUP: 50°C (122°F). OPEN CUP: 60°C (140°F).

Flammable Limits: The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME (Methyl alcohol)

Special Remarks on Explosion Hazards:
Reaction with peroxide, nitrogen dioxide, and permformic acid can cause an explosion. (Formaldehyde gas)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Formaldehyde gas STEL: 0.3 (ppm) from ACGIH (TLV) [United States] STEL: 0.37 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.75 STEL: 2 (ppm) from OSHA (PEL) [United States] TWA: 2 STEL: 2 (ppm) [United Kingdom (UK)] TWA: 2.5 STEL: 2.5 (mg/m3) [United Kingdom (UK)] Methyl alcohol TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Suffocating. (Strong.)

Taste: Not available.

Molecular Weight: 30.02

Color: Clear Colorless.

pH (1% soln/water): 3 [Acidic.] pH of the solution as is.

Boiling Point: 98°C (208.4°F)

Melting Point: -15°C (5°F)

Critical Temperature: The lowest known value is 240°C (464°F) (Methyl alcohol).

Specific Gravity: 1.08 (Water = 1)

Vapor Pressure: 2.4 kPa (@ 20°C)

Vapor Density: 1.03 (Air = 1)

Volatility: 100% (w/w).

Odor Threshold: The highest known value is 100 ppm (Methyl alcohol)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone, alcohol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

Incompatibility with various substances:
Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with metals.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Also incompatible with urea, phenol, isocyanates, anhydrides, amines, AZO compounds, carbonyl compounds, oxides(e.g. nitrogen dioxide), performic acid, dithiocarbmates, or peroxides. Polymerization can be inhibited by the addition of methanol or stabilizers such as hydorxypropyl methyl cellulose, methyl ethyl celluloses, or isophthalobisguanamine.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 42 mg/kg [Mouse]. (Formaldehyde) Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol). Acute toxicity of the mist(LC50): 454000 mg/m 4 hours [Mouse]. (Formaldehyde) 3

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive).

Special Remarks on Toxicity to Animals:
Formaldehyde: LD50 [Rabbit] - Route: Skin; Dose: 270 ul/kg

Special Remarks on Chronic Effects on Humans:
Exposure to Formaldehyde and Methanol may affect genetic material (mutagenic). Exposure to Formaldehyde and Methanol may cause adverse reproductive effects and birth defects(teratogenic). Adverse reproductive effects of Formaldehyde as well as Methanol are primarily based on animal studies. Very few human studies have been done on the adverse reproductive effects from exposure to Formaldehyde. Studies produced a weak association (limited evidence) between advese human female reproductive effects and occupational exposure. Furthermore, no human data could be found on adverse reproductive effects from occupational exposure to Methanol. Exposure to Formaldehyde may cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Corrosive. Causes skin irritation which may range from mild to severe with possible burns depending on the extent of exposure and concentration of solution. Other symptoms may include brownish discoloration of the skin, urticaria, and pustulovesicffular eruptions. May be absorbed through skin with symptoms paralleling those of ingestion. Eyes: Corrosive. Contact with liquid causes severe eye irritation and burns. It may cause irreversible eye damage (severe corneal Solutions containing low formaldehyde concentrations may produce transient discomfort and irritation. Inhalation: Causes irrititation of the respiratory tract (nose, throat, airways). Symptoms may include dry and sore mouth and throat, thirst, and sleep disturbances, difficulty breathing, shortness of breath, coughing, sneezing, wheezing rhinitis, chest tightness, pulmonary edema, bronchitis, tracheitis, laryngospasm, pneumonia, palpitations. It may also affect metabolism weight loss, metabolic acidosis), behavior/central nervous system (excitement, central nervous system depression, somnolence, convulsions, stupor, aggression, headache, weakness, dizziness, drowsiness, coma), peripheral nervous system, and blood. Ingestion: Harmful if swallowed. May be fatal. Causes gastrointestinal irritation with nausea, vomiting (possibly with blood), diarrhea, severe pain in mouth, throat and stomach, and possible corrosive injury to the gastrointestinal mucosa/ulceration or bleeding from stomach. May also affect the liver(jaundice), urinary system/kidneys (difficulty urinating, albuminuria, hematuria, anuria), blood, endocrine system, respiration (respiratory obstruction, pulmonary edema, bronchiolar obstruction), cardiovascular system (hypotension), metabolism (metabolic acidosis), eyes (retinal changes, visual field changes), and behavior/central nervous system (symptoms similar to those for inhalation). Contains Methanol which may cause blindness if swallowed. Chronic Potential Health Effects: Skin: Prolonged or repeated exposure may cause contact dermatits both irritant and allergic. It may also cause skin discoloration. Inhalation: Although there is no clear evidence, prolonged or repeated exposure may induce allergic asthma. Other effects are similar to that of acute exposure. Ingestion: Prolonged or repeated ingestion may cause gastrointestinal tract irritation and ulceration or bleeding from the stomach. Other effects may be similar to that of acute ingestion.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:
Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in pollulted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air. (Methyl alcohol)

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:
CLASS 3: Flammable liquid. Class 8: Corrosive material

Identification: : Formaldehyde Solution, flammable (Methyl alcohol) UNNA: 1198 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Formaldehyde California prop. 65 (no significant risk level): Formaldehyde: 0.04 mg/day (inhalation) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Formaldehyde Solution Connecticut hazardous material survey.: Formaldehyde; Methyl alcohol Illinois toxic substances disclosure to employee act: Formaldehyde; Methyl alcohol Illinois chemical safety act: Formaldehyde; Methyl alcohol New York release reporting list: Formaldehyde; Methyl alcohol Rhode Island RTK hazardous substances: Formaldehyde; Methyl alcohol Pennsylvania RTK: Formaldehyde; Methyl alcohol Minnesota: Formaldehyde gas; Methyl alcohol Massachusetts RTK: Formaldehyde; Methyl alcohol Massachusetts spill list: Formaldehyde; Methyl alcohol New Jersey: Formaldehyde; Methyl alcohol New Jersey spill list: Formaldehyde; Methyl alcohol Louisiana RTK reporting list: Formaldehyde Louisiana spill reporting: Formaldehyde; Methyl alcohol California Director's List of Hazardous Substances: Formaldehyde; Methyl alcohol TSCA 8(b) inventory: Formaldehyde gas; Methyl alcohol; Water TSCA 4(f) priority risk review: Formaldehyde, Reagnt, ACS SARA 302/304/311/312 extremely hazardous substances: Formaldehyde SARA 313 toxic chemical notification and release reporting: Formaldehyde; Methyl alcohol CERCLA: Hazardous substances.: Formaldehyde: 100 lbs. (45.36 kg); Methyl alcohol: 5000 lbs. (2268 kg);

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: G

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:35 PM

Last Updated: 06/09/2012 12:00 PM

Health	3
Fire	0
Reactivity	0
Personal Protection	

Material Safety Data Sheet
Hydrofluoric Acid, 48% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrofluoric Acid, 48%

Catalog Codes: SLH2227

CAS#: 7664-39-3

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Hydrofluoric acid

CI#: Not available.

Synonym: Hydrogen Fluoride; Hydrofluoride

Chemical Name: Hydrofluoric acid

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	52
Hydrogen fluoride	7664-39-3	48

Toxicological Data on Ingredients: Hydrofluoric acid: VAPOR (LC50): Acute: 1276 ppm 1 hours [Rat]. 342 ppm 1 hours [Mouse]. 1774 ppm 1 hours [Monkey]. 4327 ppm 0.5 hours [Guinea pig].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to lungs, mucous membranes, skin, eyes, bones,

teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15-30 minutes. Cold water may be used. Keep the eyelids apart and away from the eyeballs during irrigation. Do not use oily drops or ointment or HF skin burn treatments on the eyes. Get medical attention immediately, preferrably an eye specialist. If a physician is not immediately available, apply one or two drops of ophthalmic anesthetic (e.g. 0.5% Pontocaine Hydrochloride solution). Place ice pack on eyes until reaching emergency room.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately. While waiting for medical attention, it has been shown that flushing the affected area with water for one minute and then massaging HF Antidote Gel into the wound until there is a cessation of pain is a most effective first aid treatment. HF Antidote Gel contains Calcium Gluconate which combines with HF for insoluble Calcium Fluoride, thus preventing the extraction of calcium from the body tissue and bones. Another alternative first aid treatment, after thorough washing of the burned area, is to immerse the burned area in a solution of 0.2% iced aqueous Hyamine 1622 or 0.13% iced aqueous Zephiran Chloride. If immersion is inpractical, towels should be soaked with one of the above solutions and used as compresses for the burn area. Hyamine 1622 is a trade name for Tetracaine Benzethonium Chloride. Zephiran is a trade name for Benzalkonium Chloride. Again, seek medical attention as soon as possible for all burns regardless of how minor they may appear initially.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Explosive in presence of metals. Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Hazardous decompostion: May form acid vapors, hydrogen fluoride.

Special Remarks on Explosion Hazards:
It's corrosive action on metals can result in formation of hydrogen gas in containers and piping to create explosion hazard. Reacts explosively with Cyanogen fluoride (polymerizes explosively), glycerol plus nitric acid (evolves gas from oxidation), methanesulfonic acid (evolves oxygen difluoride). Hydrofluoric acid reacts with most metals to release hydrogen gas which can form explosive mixtures with air.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as organic materials, metals, alkalis, moisture. May corrode metallic surfaces and glass. Store in a polyethylene container.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Synthetic (impervious) apron or full suit. A full impervious suit is recommended if exposure is possible to a large portion of the body. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious - neoprene, nitrile). Impervious Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit (impervious). Vapor respirator. Impervious Boots. Gloves (impervious).. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Hydrogen fluoride STEL: 2.3 (mg/m3) from ACGIH (TLV) [United States] STEL: 3 (ppm) from ACGIH (TLV) [United States] CEIL: 6 from NIOSH CEIL: 5 (mg/m3) from NIOSH TWA: 3 STEL: 6 (ppm) from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Acrid (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless. Clear

pH (1% soln/water): <2 [Acidic.]

Boiling Point: 108°C (226.4°F)

Melting Point: <-36.111°C (-33°F)

Critical Temperature: Not available.

Specific Gravity: 1.15 - 1.18 (Water = 1)

Vapor Pressure: 3.3 kPa (@ 20°C)

Vapor Density: 1.97 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.5-3 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:
Easily soluble in cold water, hot water. Partially soluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:
Highly reactive with metals. Reactive with organic materials, alkalis.

Corrosivity:
Extremely corrosive in presence of glass, of aluminum, of stainless steel(304), of stainless steel(316). Slightly corrosive in presence of copper.

Special Remarks on Reactivity:
Incompatible with glass, ceramics, concrete, alkali materials, and will generate hydrogen gas on contact with metals, leather, rubber, common metals, carbonates, sulfides, cyanides, oxides of silicon, fluorine. Reacts violently with: Acetic anhydride, 2-amino ethanol, Ammonium hydroxide, Arsenic trioxide, Bismuthic acid (produces oxygen), Calcium oxide, Chlorosulfonic acid, Dialuminum octavanadium tridecasilicide, Ethylene diamine, Ethyleneimine, Fluorine, Mercuric oxide, Mercury (II) oxide plus organic materials(above zero degree C), Nitric acid plus lactic acid (mixtures are unstable), Nitric acid plus propylene glycol, Olen-Phenylazopiperidine, Phosphoric anhydride (Phosphorus pentoxide unites with hydrogen fluoride vigorously, even at 19.5 degrees C, HSDB 1990), Potassium permanganate, Potassium tetrafluorosilicate(2-) (evolves silicon tetrafluoride gas), Propriolactone (beta-), Propylene glycol and silver nitrate (gas evolution and formation of silver fulminate), Propylene oxide, Sodium, Sodium hydroxide, Sodium tetrafluorosilicate, Sulfuric acid, Vinyl acetate.

Special Remarks on Corrosivity:
It corrodes most substances except lead, wax, polyethylene, and platinum. It will attack some forms of plastics, rubber and coatings. It attacks glass or stoneware, dissolving the silica. Minor corrosive effect on bronze.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute toxicity of the vapor (LC50): 342 1 hours [Mouse].

Chronic Effects on Humans: May cause damage to the following organs: lungs, mucous membranes, skin, eyes, bones, teeth.

Other Toxic Effects on Humans:
Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (Fetotoxicity) based on animal data. May affect genetic material based on animal data. (Hydrogen fluoride)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes severe irritation and burns/irreversible destruction of skin. Readily penetrates skin and mucous membranes. Eyes: Causes severe irritation and burns/irreversible destruction of eyes. Inhalation: Causes severe irritation and burns/irreversible destruction of respiratory tract/lungs. May also affect behavior (change in motor activity, coma), blood, metabolism, sense organs, cardiovascular system (lowering of blood pressure, arrythmia), urinary system, gastrointestinal tract, respiration, and urinary system. Symptoms may inclulde severe throat irritation, cough, dyspnea, cyanosis, lung injury, and noncardiogenic pulmonary edema. Acute inhalation also depletes calcium levels in the body when can lead to hypocalcemia. Inhalation exposure of 50 ppm for 5 min. may be fatal. Ingestion: Causes severe irritation and burns/irreversible destruction of digestive tract/stomach. Serious gastrointestinal effects may include hematemesis, nausea, and severe abdominal pain, painful necrotic leisons, hemorrhagic gastris, pancreatitis, local caustic effects to mouth and gastrointestinal tract. Severe systemic toxicity including hypocalcemia, hypomagnesemia, hyperkalemia, ventricular dysrhythmia and death may also occur. Chronic Potential Health Effects: Repeated exposure to airborne concentrations of 3 ppm or less could be tolerated with no apparent ill effects for 6 hours/day for up to 50 days; redness of the skin and irritation and burning of the eyes and nose were noted at airborne concentrations between 3 ppm and 4.7 ppm (ACGIH, 1992). No significant changes in pulmonary function occurred with occupational exposure to airborne levels averaging 1.03 ppm (ACGIH). Effects of chronic exposure by inhalation and ingestion include systemic fluoride toxicity (FLUOROSIS), skeletal/ bone structure abnormalties (osteosclerosis, and mottling of the teeth (Clayton & Clayton, 1994; White, 1980; Waldbott & Lee, 1978). Hypocalcemia), metabolic acidosis, chronic bronchitis, pulmonary edema, and death can occur from high-level chronic exposure.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:
CLASS 6.1: Poisonous material. Class 8: Corrosive material

Identification: : Hydrofluoric Acid solution (Hydrogen fluoride) UNNA: 1790 PG: II

Special Provisions for Transport: Not available

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Listed as Hydrofluoric acid or Hydrogen fluoride Illinois toxic substances disclosure to employee act: Listed as Hydrofluoric acid or Hydrogen fluoride Illinois chemical safety act: Listed as Hydrofluroic or Hydrogen fluoride New York release reporting list: Listed as Hydrofluoric acid Rhode Island RTK hazardous substances: Listed as Hydrofluoric acid or Hydrogen fluoride Pennsylvania RTK: Listed as Hydrofluoric acid Minnesota: Hydrogen fluoride Massachusetts RTK: Listed as Hydrogen fluoride Massachusetts spill list: Listed as Hydrofluoric acid or Hydrogen fluoride New Jersey: Listed as Hydrofluoric acid or Hydrogen fluoride New Jersey spill list: Listed as Hydrofluoric acid or Hydrogen fluoride Louisiana RTK reporting list: Listed as Hydrogen fluoride Louisiana spill reporting: Listed as Hydrogen fluoride Califoria Director's List of Hazardous substances: Listed as Hydrofluoric acid or Hydrogen Fluoride TSCA 8(b) inventory: Water; Hydrofluoric acid TSCA 4(a) proposed test rules: Listed as Hydrogen fluoride SARA 302/304/311/312 extremely hazardous substances: Listed as Hydrofluoric acid or Hydrogen fluoride SARA 313 toxic chemical notification and release reporting: Listed as Hydrogen fluoride CERCLA: Hazardous substances.: Listed as Hydrofluoric acid or Hydrogen fluoride: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances. INTERNATIOINAL LISTS: China (National Inventory): Listed as Hydrofluoric acid; Japan (ENCS - National Inventory): Listed as Hydrogen Fluoride; Korea (KECI - National Inventory): Listed as Hydrofluoric acid; Philippines (PICCS - National Inventory): Listed as Hydrofluoric acid

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed. R35- Causes severe burns. S7/9- Keep container tightly closed and in a well-ventilated place. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 4

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Synthetic apron. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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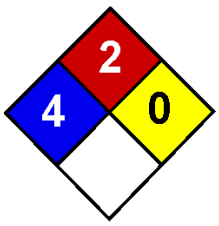

Health	3
Fire	2
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
Phenol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Phenol

Catalog Codes: SLP4453, SLP5251

CAS#: 108-95-2

RTECS: SJ3325000

TSCA: TSCA 8(b) inventory: Phenol

CI#: Not available.

Synonym: Monohydroxybenzene; Benzenol; Phenyl hyroxide; Phenylic acid

Chemical Name: Carbolic Acid

Chemical Formula: C6H5OH

Contact Information:

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International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Phenol	108-95-2	100

Toxicological Data on Ingredients: Phenol: ORAL (LD50): Acute: 317 mg/kg [Rat]. 270 mg/kg [Mouse]. DERMAL (LD50): Acute: 630 mg/kg [Rabbit]. 669 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (sensitizer, permeator). The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated

exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 715°C (1319°F)

Flash Points: CLOSED CUP: 79°C (174.2°F). OPEN CUP: 85°C (185°F).

Flammable Limits: LOWER: 1.7% UPPER: 8.6%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Phenol + nitrides results in heat and flammable gas generation. Phenol + mineral oxdizing acids results in fire. Phenol + calcium hypochlorite is an exothermic reaction producing toxic fumes which may ignite.

Special Remarks on Explosion Hazards:
Phenol + sodium nitrite causes explosion on heating. Peroxydisulfuric acid + phenol causes explosion.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:
Air Sensitive. Sensitive to light. Store in light-resistant containers. Moisture sensitive. Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 5 (ppm) from ACGIH (TLV) [United States] SKIN TWA: 19 (mg/m3) from ACGIH (TLV) [United States] SKIN TWA: 5 from NIOSH [United States] TWA: 19 (mg/m3) from NIOSH [United States] TWA: 5 (ppm) from OSHA (PEL) [United States] TWA: 19 (mg/m3) from OSHA (PEL) [United States] TWA: 5 (ppm) [Canada] TWA: 19 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor:
Distinct, aromatic, somewhat sickening sweet and acrid

Taste: Burning.

Molecular Weight: 94.11 g/mole

Color: Colorless to light pink

pH (1% soln/water): Not available.

Boiling Point: 182°C (359.6°F)

Melting Point: 42°C (107.6°F)

Critical Temperature: 694.2 (1281.6°F)

Specific Gravity: 1.057 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 3.24 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.048 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 1.5

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:
Easily soluble in methanol, diethyl ether. Soluble in cold water, acetone. Solubility in water: 1g/15 ml water. Soluble in benzene. Very soluble in alcohol, chloroform, glycerol, petroleum, carbon disulfide, volatile and fixed oils, aqueous alkali hydroxides, carbon tetrachloride, acetic acid, liquid sulfur dioxide. Almost insoluble in petroleum ether. Miscible in acetone. Sparingly soluble in mineral oil.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), light, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity:
Extremely corrosive in presence of copper. Slightly corrosive in presence of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass, of aluminum.

Special Remarks on Reactivity:
Air and light sensitive. Prone to redden on exposure to light and air. Incompatible with aluminum chloride, peroxydisulfuirc acid, acetaldehyde, sodium nitrite, boron trifluoride diethyl ether + 1,3-butadiene, isocyanates, nitrides, mineral oxidizing acids, calcium hypochlorite, halogens, formaldehyde, metals and alloys, lead, zinc, magnesium and their alloys, plastics, rubber, coatings, sodium nitrate + trifluoroacetic acid. Phenol + isocyanates results in heat generation, and violent polymerization. Phenol + 1,3-butadiene and boron trifluoride diethyl ether complex results in intense exothermic reaction. Phenol + acetaldehyde resultes in violent condensation.

Special Remarks on Corrosivity:
Minor corrosive effect on bronze. Severe corrosive effect on brass.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 270 mg/kg [Mouse]. Acute dermal toxicity (LD50): 630 mg/kg [Rabbit].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (corrosive, irritant), of ingestion, . Hazardous in case of skin contact (sensitizer, permeator), of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose: LDL [Human] - Route: Oral; Dose: 140 mg/kg LDL [Infant] - Route: Oral; Dose: 10,000 mg/kg

Special Remarks on Chronic Effects on Humans:
Animal: passes through the placental barrier. May cause adverse reproductive effects and birth defects (teratogenic) Embryotoxic and/or foetotoxic in animal. May affect genetic material (mutagenic).

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 125 mg/l 24 hours [Fish (Goldfish)]. >50 mg/l 1 hours [Fish (Fathead minnow)]. >50 mg/l 24 hours [Fish (Fathead minnow)]. >33 mg/l 72 hours [Fish (Fathead minnow)]. >33 ppm 96 hours [Fish (Fathead minnow)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Phenol, solid UNNA: 1671 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Phenol Illinois toxic substances disclosure to employee act: Phenol Illinois chemical safety act: Phenol New York release reporting list: Phenol Rhode Island RTK hazardous substances: Phenol Pennsylvania RTK: Phenol Minnesota: Phenol Massachusetts RTK: Phenol Massachusetts spill list: Phenol New Jersey: Phenol New Jersey spill list: Phenol Louisiana RTK reporting list: Phenol Louisiana spill reporting: Phenol TSCA 8(b) inventory: Phenol TSCA 4(a) proposed test rules: Phenol TSCA 8(a) IUR: Phenol TSCA 8(d) H and S data reporting: Phenol: effective: 6/1/87; sunset:

6/01/97 SARA 302/304/311/312 extremely hazardous substances: Phenol SARA 313 toxic chemical notification and release reporting: Phenol CERCLA: Hazardous substances.: Phenol: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive solid.

DSCL (EEC):
R24/25- Toxic in contact with skin and if swallowed. R34- Causes burns. R40- Possible risks of irreversible effects. R43- May cause sensitization by skin contact. R52- Harmful to aquatic organisms. S1/2- Keep locked up and out of the reach of children. S24- Avoid contact with skin. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of water S37/39- Wear suitable gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label. S56- Dispose of this material and its container at hazardous or special waste collection point.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 4

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 11:17 AM

Last Updated: 06/09/2012 12:00 PM

TREATMENT OF HYDROFLUORIC ACID (HF) EXPOSURE

QUICK REFERENCE[1]

NOTE: In addition to the usual medical history, the physician will find it helpful to obtain the following information: concentration of HF, date and time of exposure, duration of exposure, how exposure occurred, body parts exposed/affected, first aid measures instituted (what, when, how long). Injuries due to dilute HF solutions or low concentrations of vapors may result in delays in clinical presentation up to 24 hours following exposure.

SKIN BURNS		EYE EXPOSURE	INHALATION		INGESTION
FIRST AID					
CONCENTRATED HF	**DILUTE HF**	**ALL HF**	**CONCENTRATED HF**	**DILUTE HF**	**ALL HF**
Water Wash THEN Iced Benzalkonium Chloride* 0.13% Soaks OR Calcium Gluconate 2.5% Gel	Water Wash THEN Iced Benzalkonium Chloride* 0.13% Soaks OR Calcium Gluconate 2.5% Gel	Water Wash OR Saline Wash	Oxygen AND 2.5% Calcium Gluconate[4] by Nebulizer	Oxygen THEN Consider 2.5% Calcium Gluconate[4] by Nebulizer	Do Not Induce Vomiting Milk or Water THEN Milk of Magnesia OR Mylanta®+
MEDICAL TREATMENT					
CONCENTRATED HF	**DILUTE HF**	**ALL HF**	**CONCENTRATED HF**	**DILUTE HF**	**ALL HF**
Debride (if necessary) THEN Continue Soaks OR Calcium Gluconate 5% Injection[2,4] AND Observe for/Treat Systemic Effects[3] (especially if > 25 sq. in.)	Debride (if necessary) THEN Continue Soaks OR Calcium Gluconate 2.5% Gel OR Calcium Gluconate 5% Injection[2,4] Systemic Effects[3] Unlikely	Topical Tetracaine Hydrochloride THEN 1% Calcium Gluconate Irrigation[4] AND Consult Ophthalmologist	Observe AND Prophylactic Inhalational Steroids THEN Treat (if necessary) Bronchoconstriction, Pulmonary Edema, Systemic Effects[3]	Observe Serious Effects Unlikely Inhalation of HF Fumes from Diluted Acid is Uncommon	Lavage with Calcium Chloride or Calcium Gluconate AND Treat Systemic Effects[3]

[1] This is a brief summary of First Aid and Medical Treatment measures. The text of the brochure "RECOMMENDED MEDICAL TREATMENT FOR HYDROFLUORIC ACID EXPOSURE" must be consulted for more complete information.

[2] 5% calcium gluconate injections must be used if the soaks or gel do not significantly relieve pain in 30-40 minutes. Injections may also be used as the primary treatment, especially for larger and/or deeper burns.

[3] Systemic effects include hypocalcemia, hypomagnesemia, hyperkalemia, cardiac arrhythmias, and altered pulmonary hemodynamics. TREATMENT includes cardiac monitoring, monitoring serum calcium, magnesium, and electrolytes; administration of IV calcium gluconate, correcting magnesium and electrolyte imbalance, and, in extreme cases, hemodialysis.

[4] Calcium gluconate is normally supplied in ampules containing 10% calcium gluconate. Concentrations less than 10% are obtained by diluting with normal saline.

* Benzalkonium chloride is a high molecular weight quaternary ammonium compound available as Zephiran® a Registered Trademark of Sanofi Pharmaceuticals, New York, NY 10016 + Registered trademark Johnson & Johnson - Merck Fort Washington, PA 19034

For additional reference charts or infomation on properties, storage and handling, or medical treatment for hydrofluoric acid, contact:

Honeywell
Industrial Fluorines
P.O. Box 1053
Morristown, NJ 07962-1053

In the event of an emergency with this product, call the 24-hour Honeywell emergency telephone number: **800-707-4555 or 602-365-4980**

This foldout chart is also available as a laminated 15" x 23" wall poster.

Honeywell

ATTACHMENT C

Plan Amendment Form and Plan Distribution List

Texas State University – San Marcos

REVISION RECORD

It is the responsibility of the Environmental Health, Safety and Risk Management office to ensure that all changes and updates are distributed to the distribution list. The holder of the plan must make the following changes:

- Remove and discard obsolete pages.
- Replace obsolete pages with the updated pages.
- Initial once completed.

Change date	Affected page Number(s)	Description of Change(s)	Initial
8-30-2007	3, 6, 11, 13, 14,17, 18, 19, 20, 22, 24, 25, 28, 29	• Office Name Change and added On-Call number	
	Table 1	• Added new waste codes	
November 2009	3,7,7a,9a,15,16,17, 19,20,26,28	• Added a second container accumulation area and several more satellite accumulation areas	
	Table 1	• Added new waste codes	
September 2012	All pages	Small changes to most pages to update contacts, procedures, waste storage locations, and spill response locations.	

DISTRIBUTION LIST

PLAN HOLDER (Entire Plan)	LOCATION
Environmental Health, Safety and Risk Management Texas State University – San Marcos 601 University Drive. San Marcos, Texas 78666	San Marcos, Texas
Office of the President Texas State University – San Marcos 601 University Drive. San Marcos, Texas 78666	San Marcos, Texas
Campus Police Texas State University – San Marcos 601 University Drive. San Marcos, Texas 78666	San Marcos, Texas
Local Emergency Planning Committee (LEPC) Fire Marshal 630 E. Hopkins San Marcos, Texas 78666	San Marcos, Texas
City of San Marcos Police Department 2300 I.H. 35 South San Marcos, Texas 78666	San Marcos, Texas
Hays County Sheriff Department 1307 Uhland Road San Marcos, Texas 78666	San Marcos, Texas
City of San Marcos Watershed Protection Manager Attn: Melani Howard 630 E. Hopkins San Marcos, Texas 78666	San Marcos, Texas
Central Texas Medical Hospital Attn: Bill Johnson 1301 Wonder World Drive San Marcos, Texas 78666	San Marcos, Texas
Hays County EMS/Ambulance Service Attn: Tom Partin P.O. Box 641 San Marcos, Texas 78666	San Marcos, Texas

DISTRIBUTION LIST

PLAN HOLDER (Entire Plan)	LOCATION
City of San Marcos Wastewater Treatment System Attn: Tom Taggart 630 E. Hopkins San Marcos, Texas 78666	San Marcos, Texas
Physical Plant AC Shop 151-5 Sessom Drive San Marcos, Texas 78666	San Marcos, Texas
Physical Plant Paint Shop 151-5 Sessom Drive San Marcos, Texas 78666	San Marcos, Texas
Print Shop 1727 Ranch Road 12 San Marcos, Texas 78666	San Marcos, Texas
Art Department Joann Cole Mitte Art 749 Comanche Street San Marcos, Texas 78666	San Marcos, Texas
Sabinal Hall (photography) 205 Pleasant Street San Marcos, Texas 78666	San Marcos, Texas
Chemistry/Centennial Hall 202 Old Main Dr. /120 Old Main Dr. San Marcos, Texas 78666	San Marcos, Texas
Freeman Aquatic Biology 220 E. Sessom Drive San Marcos, Texas 78666	San Marcos, Texas

DISTRIBUTION LIST

PLAN HOLDER (Entire Plan)	LOCATION
Jerome & Catherine Supple Science Building 310 Vista Drive San Marcos, Texas 78666	San Marcos, Texas
Roy F. Mitte – Engineering Technology 749 Comanche Street San Marcos, Texas 78666	San Marcos, Texas
Roy F. Mitte – Physics (2 Copies) 749 Comanche Street San Marcos, Texas 78666	San Marcos, Texas
Roy F. Mitte – Ingram School of Engineering 749 Comanche Street San Marcos, Texas 78666	San Marcos, Texas
Agriculture 206 Pleasant Street San Marcos, Texas 78666	San Marcos, Texas
Fire Chief – San Marcos Fire Dept. 114 E. Hutchison St. San Marcos, Texas 78666	San Marcos, Texas
Freeman Aquatic Building – EARDC 220 E. Sessoms Dr. San Marcos, Texas 78666	San Marcos, Texas
CoGeneration Power and Chiller Plant 150 Buckner St. San Marcos, Texas 78666	San Marcos, Texas

DISTRIBUTION LIST

PLAN HOLDER (Entire Plan)	LOCATION
Family and Consumer Science 245 W. Sessoms Dr. San Marcos, Texas 78666	San Marcos, Texas
STAR Park 3055 Hunter Road San Marcos, TX 78666	San Marcos, Texas