POLLUTION PREVENTION (P2) PLAN

FOR

TEXAS STATE UNIVERSITY®

601 UNIVERSITY DRIVE
SAN MARCOS, TEXAS 78666

DECEMBER 2024

1.0 INTRODUCTION

This Pollution Prevention (P2) Plan was prepared for Texas State University (the University) to comply with Senate Bill 1099. This bill requires generators of hazardous wastes (large and small quantity) to prepare a P2 plan. This plan includes the components required by the Texas Commission of Environmental Quality in 30 TAC335 Subchapter Q.

1.1 FACILITY DESCRIPTION

Texas State University is a four-year accredited university located at 601 University Drive in San Marcos, Texas. Texas State University is a national research university on the path to achieve R1 Carnegie classification by 2027. The University has an enrollment of approximately 40,600 students on a campus of 517 acres. Undergraduate and graduate programs are offered in over 200 degree programs, including the following areas of study: Agriculture and Food Sciences, Business Administration, Communication, Education, Health Professions and Human Services, Humanities and Social Sciences, Science, Technology, Engineering, and Math, and Visual and Performing Arts.

The University generates hazardous and non-hazardous waste from various maintenance activities and routine laboratory practices. The University is registered with the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) as a large quantity generator. The Texas solid waste registration number is 66137 and the EPA I.D. number is TXD980812168.

1.2 SOURCES OF HAZARDOUS WASTE GENERATION

Hazardous wastes are generated as a result of academic, research and operational activities at the University. The Environmental, Health, Safety, Risk, & Emergency Management Office (EHSREM) is responsible for proper handling and ultimate disposal of these wastes.

Laboratory waste from academic and research labs accounts for the majority of the hazardous waste generated on campus. Laboratories typically have several small scale processes operating simultaneously. Due to the small amount of waste generally produced by individual laboratory processes and the impracticality of listing each process, the University's waste minimization and source reduction program looks at the similarities in laboratory management and treats lab-generated waste as a single process in most cases.

The University's support operations also generate hazardous waste from a variety of processes and activities, including utility operations (power, water, stormwater, and heating and cooling), facility maintenance, fleet maintenance, custodial operations, and grounds maintenance.

1.3 Waste Identification/Waste Volume

Table 1 lists the hazardous wastes generated at the University. Hazardous waste is managed by an offsite permitted treatment, storage and disposal facility (TSDF) that is allowed to bulk waste and send it with wastes from multiple generators to appropriate disposal facilities.

Table 2 summarizes the volume of hazardous waste disposed of offsite by the University for the base year, 2023. The top waste streams are shown in bold based on volume and toxicity. These hazardous waste streams will be targeted for reduction by the University and addressed by this plan. Because the University's SIC code is 8221, Texas State is not required to report emissions through SARA Section 313 Toxic Release Inventory Reports. This plan addresses hazardous waste reduction only.

1.4 Commitment to the Environment

Texas State University's mission and shared values statement includes the commitment to responsible stewardship of our resources and the environment. This commitment is demonstrated in the Environmental Health and Safety Policy signed by the president, Dr. Kelly Damphousse.

2.0 Source Reduction/Waste Minimization Goals

The University strives to reduce the risk to human health and the environment, and to reduce the cost of offsite disposal of hazardous waste through our pollution prevention program. The program is implemented through the use of policy, continual training and awareness, and through projects targeting source reduction and waste minimization.

The proposed projects for this five year cycle of the P2 Plan (calendar year 2025 -2030) will target reduction of the top six waste streams identified in bold in Table 2. These proposed projects and affected waste streams are listed in Table 3.

2.1 POLICY

The Hazardous Materials and Hazardous Waste Management Policy establishes the hazardous materials and hazardous waste management program and ensures compliance with applicable federal and state regulations. The policy establishes an initiative to reduce the quantity of hazardous waste generated on campus. All waste minimization and source reduction programs are rooted in this policy. The Environmental, Health, Safety, Risk, & Emergency Management (EHSREM) Office has the primary responsibility for managing these programs.

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2.2 TRAINING AND AWARENESS

In a university environment, there is an ever-changing population of faculty, staff, and students. Generally speaking, numerous waste streams are generated in small volumes. Changes in research, class focuses, and university growth present challenges to minimizing specific waste streams. EHSREM focuses on bringing awareness of the University's waste minimization and source reduction goals in all communications with generators on campus.

Currently, the University provides Hazardous Waste training and Hazard Communication training for all employees working with chemicals and hazardous waste. Waste minimization and source reduction principles are included in this training. In addition, specific, in-person training is provided to new labs when a lab check-in form is submitted.

In addition to formal training, EHSREM uses other methods to communicate waste minimization and source reduction goals to generators, including face-to-face communication during lab inspections and use of the EHSREM website.

2.4 PRIORITIZED LIST OF POLLUTION PREVENTION PROJECTS

The University has identified the following projects to pursue during the current P2 Plan cycle (calendar year 2025 - 2030). These projects are designed to reduce the bolded waste streams identified in Table 2.

2.4.1 Source Reduction Projects

- **Continue improving methods and patterns of hazardous material purchases throughout campus.** EHSREM encourages departments and laboratories to purchase chemicals only in amounts that will be used within the budget year. Chemical purchases are reviewed through the Marketplace approval process. Excessive volumes may be flagged and additional information requested prior to approval. Communication will focus on educating faculty and staff about the need to order only what is needed for the immediate future.

- **Improve laboratory chemical inventories**. EHSREM uses an on-line lab management software which is used for maintaining chemical inventory. Inventories will be spot checked during inspections. Discrepancies will be addressed in inspection reports requiring updating of lab inventories for accuracy.

- **Encourage more environmentally sound lab practices.** Continue providing resources to promote sustainable lab practices. The resources will focus on reduction of scale, the American Chemical Society's "Less is Better" guidance, and product substitution for hazardous chemicals, particularly dichloromethane (DCM).

2.4.2 Waste Minimization Projects

- **Continue implementing elementary neutralization processes.** The University has successfully operated an elementary neutralization process using an EHSREM-approved protocol for non-metal bearing corrosive wastes from academic labs in the Chemistry and Biochemistry department for several years. The University will continue expanding this process to other departments and research laboratories where possible.

- **Continue expanding reuse and recycling programs.** The University will continue expanding the recycling programs already in place by improving pick-up locations and investigating additional materials eligible for recycling. Currently, the University manages a recycling program on campus for the collection of batteries, cell phones, and ink jet cartridges.

  The University will also continue efforts to expand and improve the effectiveness of the campus Chem-Swap Program.

- **Decrease the amount of non-hazardous waste being disposed of as hazardous waste.** A large volume of wastes collected during lab cleanouts such as unused chemical products, chemical samples, contaminated glassware, and unlabeled materials, are likely over-classified as hazardous waste at the point of generation due to the lack of knowledge of the person conducting the cleanout. EHSREM will continue improving the laboratory closure process to facilitate reduce the amount of non-hazardous wastes classified as hazardous waste.

- **Increase segregation of trash from hazardous wastes.** Hazardous waste collection containers for contaminated lab debris often receive non-hazardous wastes which become hazardous wastes when mixed in the container. EHSREM will continue exploring new methods to decrease non-hazardous trash placed in hazardous waste containers.

2.2 SCHEDULE OF IMPLEMENTATION AND MEASURABLE GOALS

The proposed schedule of implementation covers the period of time from 2025 to 2030. The University's continual growth, increase in laboratory spaces, and expanded focus on research will most likely result in an increase in overall volume of hazardous waste generated on campus; therefore, the effectiveness of this plan must be measured by metrics that take this into consideration.

The following metrics will be used to determine the effectiveness of this plan:

1) A net zero increase in the overall volume of hazardous waste generated.
2) A 1% increase in non-hazardous waste removed from hazardous waste disposal annually through 2030.
3) A 1% increase in recycling during annually through 2030.

2.3 Certificate of Completion

This document certifies that the Pollution Prevention Plan has been completed and meets the specific requirements of the Waste Reduction Policy Act of 1991, the Solid Waste Disposal Act, and 30 TAC Sections 335.471 – 335.480, and that the information provided herein is true, correct and complete.

This document also certifies that the person whose signature appears below has the authority to commit the resources necessary to implement the plan.

Name: Mr. Eric Algoe_____

Title: Vice President, Division of Finance and Support Services

Signature:_____

Date: _____

Tables

Pollution Prevention Plan

TABLE 1

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

TCEQ Waste Code	*Waste Description*	EPA Waste Code	Most Common Method of Disposal
0038219H	Old glycolic acid in drums	D002	Neutralization/Incineration
0040403H	Acid bed water softener resin	D002	Neutralization/Incineration
0041110H	Old chemical in drums, caustic/aqueous	D002	Hazardous waste landfill
0049103H	Aqueous waste from labs that contain RCRA and Non RCRA metals.	D005, D006, D007, D008, D011	Wastewater Treatment
0053119H	Aqueous inorganic waste with metals and nitrates	D001, D002, D005, D006, D007, D008	Wastewater Treatment
0054403H	Nanoparticle lab debris	D001, D035	Incineration
0055319H	Broken fluorescent & mercury-containing lamps	D009	Reclamation
0056801H	Expired organic gas cylinders not returnable to vendor	D001, D003	Incineration
0057319H	Lab debris with metals	D006, D007, D008, D011	Encapsulation & Landfill

TABLE 2

Base Year Hazardous Waste Generation

TCEQ Waste Code	Waste Description	Base Year 2023 (lbs)
0001204H	Water w/spent solvents	252
0002103H	**Acid waste with or without metals**	**8983**
0003003H	**Non-acute hazardous waste lab packs**	**6977**
0004198H	**Bulk fixer waste, may contain silver or be reactive**	**1419**
0007119H	**Inorganic laboratory waste with oxidizing characteristic.**	**2296**
0010117H	Aqueous waste with mercury	216
0016219H	Caustic (basic) liquids, flammable bases	418
0017219H	**Flammable acids**	**1880**
0021202H	Spent halogenated solvents	1226
0022203H	**Spent non-halogenated solvents**	**4297**

TCEQ Waste Code	Waste Description	Base Year 2023 (lbs)
0025207H	Organic solutions mixed with specimens	172
0029310H	Waste Rags with Solvents	1214
0030310H	Waste Sorbents with gasoline and oil	197
0035110H	Caustic Aqueous Waste with or without metals	1371
0036319H	Old sodium hydroxide pellets in drums	0
0049103H	Aqueous Waste from labs that contain RCRA and Non RCRA metals.	1173
0053119H	Aqueous inorganic waste with metals and nitrates	0
0054403H	Lab Debris with Nanoparticles	56
0055319H	Broken fluorescent & mercury-containing lamps	0
0056801H	Expired Organic gas cylinders not returnable to vendors	0
0057319H	Lab Debris with Metals	339
Total (lbs)	(not including Universal Waste)	32,486
Total (tons)		16.24

Note: **Bold** entries are those wastes targeted for reduction by this plan.

Table 3.
Proposed Source Reduction/Waste Minimization Projects

Waste Min/Source Reduction Activity	Resulting Waste Eliminated or Reduced
Continue improving methods and patterns of hazardous material purchases throughout campus.	• Non-acute hazardous lab pack wastes (0003003H)
Improve laboratory chemical inventories.	• Non-acute hazardous lab pack wastes (0003003H)
Encourage more environmentally sound lab practices.	• Non-acute hazardous lab pack wastes (0003003H) • Bulk fixer waste (0004198H) • Acid wastes with or without metals (0002103H) • Caustic wastes with or without metals (0035110H) • Flammable acids (0017219H) • Inorganic laboratory waste with oxidizing characteristic (0007119H)
Continue elementary neutralization processes.	• Acid wastes with or without metals (0002103H)
Increase reuse and recycling.	• Hazardous Waste Lab Packs (0003003H)
Decrease the amount of non-hazardous waste being disposed of as hazardous waste.	• Non-acute hazardous lab pack wastes (0003003H) • All other waste streams
Increase segregation of trash from hazardous wastes.	• Non-acute hazardous lab pack wastes (0003003H)