Permit by Rule Recordkeeping System
University of Houston Campus Units

A Project Presented to
The Faculty of the Internship Program in
Environmental Engineering University of Houston

By
Monica Stiggins
April 27, 2004

Permit by Rule Recordkeeping System
University of Houston Campus Units

Monica Stiggins

Project Advisor
Theodore G. Cleveland, Associate Professor
Environmental Engineering Program
Civil and Environmental Engineering

Deborah Roberts, Associate Professor
Civil and Environmental Engineering

Technical Advisor
Emmett Sullivan, Environmental Safety Manager
Environmental Health and Risk Management

Osman I. Ghazzaly, Associate Chairman
Civil and Environmental Engineering

Table of Contents

Abstract

The Environmental Health and Risk Management (EHRM) department of the University of Houston needs a recordkeeping system to demonstrate compliance with Texas Administrative Code (TAC) 30 Chapter 106, Permits by Rule (PBR). The recordkeeping system requires the querying and reporting capability of a computer database as well as a supporting paper file system. Specifically, this PBR recordkeeping system enables air emissions enforcement authorities to quickly determine that EHRM is in compliance with state air emissions regulations. The database must be amenable to frequent changes in the form of rule updates and monthly record updates. A PBR recordkeeping system assures EHRM that the university will not incur fines due to PBR non-compliance.

Introduction

It has been eight years since the Texas Commission on Environmental Quality (TCEQ)[1], transferred the Standard Exemptions rules of TAC 30 §116.21 into a new section §106 in order to facilitate amending these rules. Standard Exemptions originated in 1980 from the Texas Clean Air Act (1965) and allowed the Texas Air Control Board[2] to exempt "certain facilities and types of facilities from the requirements of the Construction Permit and Operating Permit if it is found upon investigation that such facilities will not make a significant contribution of air contaminants to the atmosphere" (www.tnrcc.state.tx.us, "Standard Exemption Preamble"). In 1996 the TCEQ needed to amend a number of the exemptions in §116.21, but the Texas Register prohibits changing separate rules in the same section at the same time. By transferring the standard exemptions into a new chapter, the TCEQ could place each rule in its own section and thus streamline rewriting air quality permitting.

1. In 1996, the responsible agency was the Texas Natural Resource Conservation Commission, TNRCC. The TNRCC changed its name to the Texas Commission for Environmental Quality (TCEQ) in September 2003.
2. The Texas Air Control Board was the agency responsible for Texas air quality before TNRCC took over in 1993.

Over the years the PBR rules have undergone many changes, including a significant change in recordkeeping requirements in November 2001. Prior to November 2001, facilities simply identified the PBR they were claiming and if asked for proof, the facility and the regulatory agency would have to figure out how to prove compliance. The new recordkeeping requirements (TAC 30 §106.8) outline specific procedures for proving compliance. If no quantitative measure was needed for a permit, the facility simply needed to state that the air emissions source exists and is permitted. However, if any sort of quantitative measure is needed to determine whether the source qualifies under a specific permit, the facility is responsible for maintaining monthly rolling records. In addition, the recordkeeping requirements change slightly from permit to permit making the issue of compliance all the more challenging.

In the summer of 2003, civil engineering students Otis Dickinson and Kim Nguyen (Dickinson and Nguyen, 2003) began this project of compiling an accurate database of air emissions sources which qualify for a permit by rule. For any PBR requiring recordkeeping, they would set up a system. They were able to initiate the database framework, compile a nearly complete database and complete a portion of the site visits. My role is to complete the database and site visits, set up a recordkeeping system and document the experience and procedures in this report.

Recordkeeping

The University of Houston (UH) has 20 Permits by Rule. Some permits simply state that a source is permitted by rule while others demand proof that emissions do not exceed the limits of the permit. One simple permit is Air Conditioning and Ventilation Systems (TAC 30 §106.103):

> Comfort air conditioning systems or comfort ventilating systems which are not used to remove air contaminants generated by or released from specific units of equipment are permitted by rule.

EHRM need only visit the air conditioner, confirm and record that it exists and that it does not have a secondary purpose of removing air contaminants. The chart on the

following page displays the permit and how EHRM will prove compliance without significant physical recordkeeping.

Table 1: Permits that do not require significant recordkeeping

Permit No.	Permit Name	Compliance Criteria
§106. 122	Bench Scale Laboratory Equipment	Confirmed that labs must be used exclusively for chemical and physical analysis.
§106.412	Fuel Dispensing	Confirmed that tanks exclusively store and dispense motor fuels.
§106.415	Laundry Dryers	Confirmed that equipment are laundry dryers.
§106.242	Food Preparation	Confirmed that equipment in the eating establishment was for preparing food for human consumption.
§106.244	Ovens, BBQ Pits and Cookers	Confirmed that products cooked are intended for human consumption.
§106.419	Photographic Process Equipment	Confirmed that the photographic process equipment was such that an image is reproduced upon material sensitized to radiant energy.
§106.102	Comfort Heating	Confirmed that the heater is used only for comfort heating, that natural gas is the fuel and that the combination of heaters at any location does not exceed 1.0 Million BTUs.
§106.227	Soldering, Brazing, Welding	Confirmed that welders do not use lead when welding.
§106.371	Cooling Water Units	Confirmed water cooling towers were not used in direct contact with chemicals.
§106.373	Refrigeration Systems	Confirmed that refrigeration systems use industry standard refrigerants.
§106.472	Organic and Inorganic Liquid Loading and Unloading	Confirmed that all chemicals arrive in pre-packaged containers.

Some permits articulate quantitative air emissions limits as in the case of Portable and Emergency Engines and Turbines (TAC 30 §106.511):

> Internal combustion engine and gas turbine driven compressors, electric generator sets, and water pumps, used only for portable, emergency, and/or standby services are permitted by rule, provided that the maximum annual operating hours shall not exceed 10% of the normal annual operating schedule of the primary equipment; and all electric motors. For purposes of this section, "standby" means to be used as a "substitute for" and not "in addition to" other equipment.

Because the rule specifically states that operating hours shall not exceed 10% of normal operating hours, then it is up to the facility to provide documentation supporting the fact that their generators do not exceed that limit. The permit itself does not provide instructions for recordkeeping, so the recordkeeping rules of TAC 30 §106.8 govern. In the case of UH generators, UH Building Maintenance were already in the habit of sending EHRM a list of all the runtimes of all the generators, so that documentation is used to prove the percentage of time units are used.

The kiln is powered by natural gas and has a maximum heat input of 600,000 BTUs. Professor Olivier, the ceramics professor and supervisor of the kiln, says the kiln is generally operated at 350,000 BTUs and lower, but is run fairly constantly. The maximum heat input upper limit in the permit is 10 million BTUs per hour, so the UH kiln is well under the limit. The permit also restricts the emission of lead, beryllium and fluoride, contaminants that may be found in ceramic glazes. In this ceramics studio, glazes are carefully examined for toxins before use.

Finally, the PBR requests proof that sulfur dioxide and particulate matter air contaminants from the kiln do not exceed 25 tons per year (TPY). EHRM decided to handle kiln compliance with a logic test instead of tedious recordkeeping. The chart below, taken from the website Naturalgas.org (www.naturalgas.org, 2004), provides emission levels of contaminants from natural gas.

Table 2: Emissions Levels from Natural Gas

Pollutant	Natural Gas (lbs per billions of energy input)
Nitrogen Oxides	92
Sulfur Dioxides	1
Particulates	7

The following calculations are for the 600,000 BTUH kiln at UH burning 8 hours per day continuously:

Burn time: 8 hr * 365 days/yr = 2920 hrs/yr

Conversion: 600,000 BTUH/ 1,000,000,000 = 0.0006 billion BTUH

BTU per year: 0.0006 billion BTUH * 2920 hrs/yr = 1.752 billion BTU/yr

Sulfur Dioxide: 1.75 billion BTU/yr * 1 lb SO_2/billion BTU = 1.75 lbs/yr of SO_2

Particulate Matter: 1.75 billion BTU/yr * 7 lb PM/billion BTU = 12.2 lbs/yr of PM

Both sulfur dioxide and particulate matter fall below the 25 TPY limit, so low that it is impossible for this kiln to exceed 25 TPY while burning natural gas. If the kiln were run continuously 24 hours per day, using the same calculations as above, sulfur dioxide emissions would be 5.256 lbs per year and particulate matter would be 36.8 lbs per year. EHRM concluded that it would not be logical to maintain records when the kiln is not capable of exceeding the permit limit.

Woodshop facilities covered under permit, §106.231 (Manufacturing, Refinishing and Restoring Wood Products) found several options to prove compliance. Apart from properly venting and cleaning up sawdust, the permit regulating wood products is mostly concerned with VOCs (volatile organic compounds) from stripping solvents and coatings. UH woodworking operations are relatively small and use very little product. Each woodworking shop selected a means of compliance which seemed the easiest to maintain. All UH woodworking shops use sawdust vents and keep the workspace clean. Moody

Towers and the Wortham Theater agreed that EHRM will send them a form each month for reporting any solvent or coating purchases. Each shop only buys as much as they need and usually opts for a non-toxic coating when available. However, because they occasionally do require a toxic solvent or coating, they consented to monthly reporting procedures (see Appendix B).

The architecture woodshop has a strict policy against all toxic coatings and is able to present a photocopy of the rule from the Dean of Architecture. A copy of that memo is in the woodworking file. The carpentry shop in the physical plant buys its solvents through the university store. Emmett Sullivan, Chemical and Biological Safety Manager for EHRM, is able to query the plant accounting system for all purchases from the carpentry shop. In the event of a PBR audit, Mr. Sullivan will simply query the carpentry purchases for solvents and coatings for the last 24 months. This procedure saves the carpentry shop from monthly reporting. These processes are outlined and filed in the woodworking PBR folder and a copy can also be found in Appendix C. Accommodating each woodshop's operational differences, builds better rapport between EHRM and the facility and thus contributes to more accurate reporting.

A few Permits by Rule stipulate a large number of very detailed requirements and UH has five such permits.

§106.124	Pilot Plants
§106.183	Boilers, Heaters and other Combustion Devices
§106.454	Degreasing Units
§106.433	Surface Coating Facility
§106.418	Printing Press

The degreasers and printing operation have additional regulations under TAC 30 §115 relating to the control of VOCs. The regulations contain detail about the amount of emissions on an hourly and yearly basis, the amount of time a facility operates and the types of contaminants in the emissions. Each of these emissions sources has its individual impact on air quality and thus an individual plan for compliance.

However, if any one of the air emissions sources requiring detailed records is not used frequently or does not release significant contaminants into the air, the facility may claim a De Minimis exemption. The De Minimis Facilities or Sources permit can be found in TAC 30 §116.119 Subchapter B, Division 1 and is designed to exempt new construction or modifications of facilities from air permitting if their emissions meet the criteria in the rule. Claiming a De Minimis permit will not preclude recordkeeping, but it may reduce the work involved in proving compliance with state codes. UH has a few such examples.

The PBRs for Degreasing Units and Surface Coating Facility are enormous rules, requiring detailed investigation into each operation. After visiting the paint booth and all the degreasing units, we determined that the paint booth was seldom used and one of the degreasers was almost never used. By claiming a De Minimis permit for each of these two air emissions sources, we properly characterized the insignificance of the air contaminant sources and simplified the compliance measure. The paint booth facility only has to prove it uses less than 100 gallons per year of paint while the facility with the degreaser has to prove it uses less than 50 gallons of stripping solvent per year. This represents a significant work reduction in proving compliance. An actual Surface Coating Facility permit would inquire into how waste solvents and paints are removed, the maximum heat of the paint booth, and the fuel used in the paint booth. Also, the VOCs released from the coatings would have to be calculated per job. The actual degreaser permit explores the ventilation, the size of the drain opening and the type of solvent spray, among other details. Identifying De Minimis air emissions sources is a valuable compliance tool.

Because the Pilot Plant, located on the top floor of SR-1, has an on-site specialist ensuring compliance with all state and federal codes, EHRM is not responsible for maintaining records for the facility. Prior to 2004, the UH power plant had a boiler small enough to warrant a permit by rule, but the boiler is now out of service and will be removed next year. Because the boiler is physically on the premises, EHRM will open a file and record that it emitted no emissions on a monthly basis.

Boilers larger than 1 million BTUs and smaller than 40 million BTUs can claim a PBR under TAC 30 §106.183, Boilers, Heaters and Other Combustion Devices. UH has two 7 million BTU boilers, and a few less than 5 million BTUs. EHRM is in the process of proving that these can be categorized as comfort heaters despite their size because their emissions are as low as comfort heaters. Comfort heaters fall under PBR TAC 30 §106.102, and do not require recordkeeping. EHRM feels this is a reasonable expectation because natural gas air contaminant emissions are quite low. Using the same calculations that were used for the kiln, the numbers below assume an 8 hour per day continuous burn time for the 7 million BTUH boiler.

Burn time: 8 hr * 365 days/yr = 2920 hrs/yr

Conversion: 7,000,000 BTUH/ 1,000,000,000 = 0.007 billion BTUH

BTU per year: 0.007 billion BTUH * 2920 hrs/yr = 20.44 billion BTU/yr

Sulfur Dioxide: 20.44 billion BTU/yr * 1 lb SO_2/billion BTU = 20.44 lbs/yr of SO_2

Particulate Matter: 20.44 billion BTU/yr * 7 lb PM/billion BTU = 143.08 lbs/yr of PM

Nitrous Oxides: 20.44 billion BTU/yr * 92 lb NO_x /billion BTU = 1880.48 lbs/yr of NO_x

The PBR, TAC 30 §106.183, Boilers, Heaters and Other Combustion Devices, does not give any upper limits for contaminant emissions so EHRM will consult an expert in air quality compliance before instituting this compliance procedure.

As it turns out, the only detailed PBRs needed at UH are the Printing Press and the other four degreasers. The PBR for the printing press is short and precise. Printing presses potentially emit large volumes of VOCs and so are stringently regulated. In addition, because Houston is in an ozone non-attainment area, additional regulations must also be considered from Chapter 115, subchapters B and E. An air quality consultant previously calculated the VOCs and other contaminants emitted into the air from each of the

chemical products used in printing. EHRM requests from the printing facility the amount of each product used each month by emailing a form to be filled out. An example of this form can be found in Appendix A. The print shop returns the completed form via interdepartmental mail. From the percentage of VOC per product and the amount of product used, the amount of VOCs emitted into the air each month can be calculated.

Chapter 15 subchapter B details properly storing chemicals, and we found that the print shop properly stores their chemicals. Subchapter E Division 4 discusses offset lithographic printing and, in particular, the control requirements for printing operations in this area. I brought a summarized version of these rules (see Appendix B) to Nalan Giannukos, the manager of the UH printing operation. He confirmed that his operation is in compliance with each of these regulations.

The PBR for Degreasing Units is among the longest and most detailed of all the Permits by Rule. Fortunately, upon closer inspection, items #2-5 apply to specific types of degreasers. The UH degreasers are the #2 type, the remote reservoir system, and #3-5 are not applicable at UH. The remote reservoir degreaser is sometimes called a sink-on-a-drum cleaner, because that's exactly what they look like. They are a sink with a brush and a drain, mounted on or near a container of cleaner solvent. The cleaner is recycled, reused and eventually replaced as needed.

Degreasing Units PBR item #1 asks that the user fix all leaks immediately, not degrease porous material, store and remove waste properly, post proper operating procedures and, most importantly, keep monthly records of solvent used. PBR item #2 ascertains that the drain be less than 3% of the sink area, the solvent sprays shall be a fluid stream (not a mist) at a pressure not to exceed 10 psi, the solvent should not be heated and finally that the vapor pressure of the solvent not exceed 0.6 psi. UH degreasers easily meet these requirements.

Degreasers also have additional rules under Chapter 115.412, which apply to Houston while it is considered a non-attainment zone. These rules specify that the cleaner's cover

shall be designed for "easy one-handed operation" and able to drain with the lid closed. This is also the case for UH degreasers. In addition, UH uses environmentally friendly solvent with a low vapor pressure and EHRM confirmed that the spray pressure is under 10 psi. In order to prove compliance, EHRM will send out a monthly form to each facility with a degreaser. Facility managers simply have to write in how much degreaser they used in that month and send back the form to EHRM via interdepartmental mail.

Field Work

Much of the field work involved visiting sites indicated in a database and confirming or denying the existence of a source. Each visit had the simple goal of gathering evidence to prove the air emissions source would indeed meet the requirements of its PBR.
In some cases I would jot down information from a face plate of a refrigeration system in order to research the type of refrigerant, or the maximum heat input of a boiler or the amount of solvent used monthly and yearly in a machine shop greaser.

Facility staff were able to confirm if the non-quantitative requirements of the PBR were understood and in practice. For instance, whether the ventilation system was functional, describe the type of fuel being burned or know whether equipment was used little or not at all. The facility managers were familiar with common safety procedures and were conscientious about the environmental impact of their facility. At the South Park Annex welding shop, supervisor Brett Smith voluntarily removed the improperly stored chemicals two years ago. The machine shop supervisor, Randy Clark, demonstrated an elaborate venting system designed especially for the welding operation. All facilities with degreasers stored only enough degreaser solvent as was needed. I found that all degreasers at UH use an environmentally-friendly solvent and that the paint shop voluntarily uses VOC-free paints much of the time. In all cases, the contacts I met with were ready to demonstrate eco-friendly procedures already in place and happy to do whatever was necessary to meet government compliance measures.

File System

The file system has two parts: a Microsoft Access database and a paper file system. The Access database is simply a table containing all the individual emissions sources with the PBR number, its location and whether the source still exists. Over the years some of the sources have been removed. The database has an easy input/update form, and some preset reports for easy viewing. It is possible for a user to create individual queries and forms. The monthly records are not recorded electronically. Each of the twenty PBRs has its own physical paper file, but the ones requiring monthly records are red folders for easy filing. When EHRM receives a PBR monthly report from a facility, the report is simply placed in a file and kept for a consecutive 12 or 24 month period, depending on the individual PBR.

Impact on the University of Houston and EHRM

Since the TCEQ instituted recordkeeping requirements for Permits by Rule in November 2001, EHRM struggled to maintain existing environmental protection procedures while adding this new mandate to their program. This new recordkeeping system provides a database that is up to date and accurate to the best of my knowledge. Knowing what PBRs are on campus, whether facilities are complying with environmental codes and which emissions sources require recordkeeping procedures is also valuable information. EHRM did not have records for the new 7 million BTU boilers in the newly constructed Wellness Center or the smaller boilers that exceeded the heat input limits for a comfort heating PBR. The kiln was classified as nonexistent as were two of the degreasers. Numerous refrigeration systems and generators were recorded which were removed long ago. Finally the simplified recordkeeping system requires only minutes per month:

1. EHRM manager sends out an email with the attached recordkeeping form (see Appendix C.
2. Facility fills out form and sends it back to EHRM.
3. EHRM files the form.

If UH ever finds itself audited for air quality compliance, EHRM can feel confident that this system effectively demonstrates compliance for Permits by Rule.

References

Texas Natural Resources Conservation Commission (TNRCC), 2001. Permit by Rules Regulations, Texas Administrative Code, Title 30, Part 1, Chapter 106.

Texas Natural Resources Conservation Commission (TNRCC), 2001. Control of Air Pollution from Volatile Organic Compounds, Texas Administrative Code, Title 30, Part 1, Chapter 115.

Adair, Jennifer. 2002. Air Quality Reference Guide for the Houston-Galveston Area. Regional Air Quality Planning Committee. http://www.cleanairaction.org/pubs/pdfs/2002/2002aqrg.pdf (11 Jan, 2004).

1993. The Plain English Guide to the Clean Air Act. Environmental Protection Agency. http://www.epa.gov/oar/oaqps/peg_caa/pegcaain.html (21 Mar. 2004).

Kaspprisin, Julee E., 2004. State Industrial Products. Personal Communication, 10 February.

Ngo, Louise, 2004. Texas Commission on Environmental Quality. Personal Communication, 26 January.

Spokane County Air Pollution Control Authority. 2004. Understanding Solvent Cleaning and Air Quality. http://www.scapa.org/solvent.html (21 Mar. 2004).

Texas Commission on Environmental Quality History. TCEQ. http://www.tceq.state.tx.us/ about/tceqhistory.html (20 Mar. 2004).

Adoption of Permits by Rule in the Texas Register. 1996. University of North Texas Libraries. http://texinfo.library.unt.edu/texasregister/text/1996/1105adop.txt (19 Mar. 2004).

Dickinson, O., and Nguyen, K. 2003. "Permit by Rule Recordkeeping System." Project report to EPSD and Department of Civil and Environmental Engineering, University of Houston, TX. 29p.

2003. Natural Gas and the Environment. Naturalgas.org. http://www.naturalgas.org/environment/naturalgas.asp .(April 25, 2004).

add copy of table from ↑ to appendix

Appendices

Appendix A

Forms used for PBR Recordkeeping

Printing Operations Records – General Service Building

The Texas Commission on Environmental Quality strictly regulates Volatile Organic Compound (VOC) emissions from printing operations in the Houston air shed. In order to prove compliance with the permit-by-rule TAC 30 §106.418, which limits uncontrolled emissions of VOCs and solvents to 10 tons per year, we are maintaining monthly records of VOC and solvent use.

Please fill in the quantity of each material used during this past month mail the form back to EHRM, mail code 1005, via interdepartmental mail.

Material Name	Quantity	Units	Density (lbs/gal)
Ink-sheet fed offset		Lbs	11
Ink-black non heatset offset web		Lbs	8.3
Ink-colored no heatset offset web		Lbs	10
Kerosene		Gallons	6.7
Isopropyl alcohol		Gallons	6.8
Colorwash #1		Gallons	7.1
Colorwash #2		Gallons	6.9
Glaze remover		Gallons	6.7
Gum Arabic		Gallons	8.8
Blanket and roller wash		Gallons	6.7
Other material – (specify and include MSDS)			
Other material – (specify and include MSDS)			
Other material – (specify and include MSDS)			

Fill in the table below with the number of impressions for this month.

Month	No. of Impressions (Millions)

Name (printed) _____ Signature _____ Date _____

Paint Booth Log – General Services Building

Date _____ **For the month of** _____

Date	**Time** start/stop	**Manufacturer**	**Trade Name**	**Amount Used** (gal)	**Lb/Gal VOC** (if known)

Degreaser Solvent Records – Building 571

The Texas Commission on Environmental Quality strictly regulates degreasers in the Houston air shed. In order to prove compliance with the permit-by-rule TAC 30 §116.119 (De Minimis Facilities or Sources), which limits total cleaning and stripping solvents to 50 gallons per year or less, we are maintaining monthly records of solvent use.

Simply fill in the amount of solvent used for this month, sign and return to Environmental Health and Risk Management via interdepartmental mail, mail code 1005.

Amount (in gallons) of degreaser solvent used

for the month of _____ is _____.

_____	_____	_____
Name (printed)	Signature	Date

Degreaser Solvent Records

Building/Location _____

The Texas Commission on Environmental Quality strictly regulates degreasers in the Houston air shed. In order to prove compliance with the permit-by-rule TAC 30 §106.454 (Degreasing Units), EHRM must maintain monthly records of solvent use.

Simply fill in the amount of solvent used for this month, sign and return to Environmental Health and Risk Management via interdepartmental mail, mail code 1005.

Amount (in gallons) of degreaser solvent used for the month of _____ is _____.

_____	_____	_____
Name (printed)	Signature	Date

Woodshop Solvent Form

Building/Location _____

The Texas Commission on Environmental Quality regulates woodshops in the Houston air shed. In order to prove compliance with the permit-by-rule TAC 30 §106.231 (Manufacturing, Refinishing and Restoring Wood Products), a woodshop must maintain records of the amount of solvent, coatings and stripping agents purchased.

Simply fill in the amount of solvent, coatings and stripping agents purchased for this month, sign and return to EHRM via interdepartmental mail, mail code 1005.

Month _____

	Amount (in gallons)
Solvents	
Coatings (non-water-based paints)	
Stripping agents	

Appendix B

Memos Regarding New Recordkeeping Procedures

DRAFT

Memo

To: Craig Brodd, Moody Towers – cbrodd@uh.edu
Joe Trujillo, Grounds Maint. – jtrujillo2@uh.edu
Neal Smith, Auto Maint. – nsmith10@uh.edu
Randy Clark, HSCA – rclark3@uh.edu

From: Monica Stiggins, Environmental Health and Risk Management (EHRM)

CC: Emmett Sullivan, EHRM

Date: April 25, 2004

Re: Degreaser Solvent Use

The Texas Commission on Environmental Quality strictly regulates degreasers in the Houston air shed. Proving compliance with the permit-by-rule TAC 30 §116.454 (Degreasing Units) requires documenting the amount of solvent used each month (gross usage minus waste disposal).

In meeting with personnel at the Auto Shop, Grounds Maintenance, Moody Towers and the HSCA Machine Shop, we discussed starting a system of monthly reports. EHRM will send a form once a month requesting the amount of degreaser solvent used that month. The facility personnel will fill in the amount and mail the form via interdepartmental mail back to EHRM (mail code 1005).

We also agreed that the facility already meets the following regulations summarized from TAC 30 §116.454:

- Store degreaser solvent in covered container and waster removed by a licensed disposal service or emptied into an authorized on-site waste management facility.
- Do not degrease porous material.
- Repair leaks immediately.
- Proper operating procedures shall be posted on or near the degreaser.
- Degreaser reservoir should be covered, except for the drain.

- Drain opening shall be no larger than 3.0% of the area of the sink.
- Solvent spray should be a stream not a mist.
- Vapor pressure of the solvent shall not exceed 0.6 psia (absolute psia calculated at an operating temperature of 100 degrees Fahrenheit.)
- Solvent shall not be heated.
- There are no additional requirements for remote reservoir degreasers in §115.412.

Draft

Memo

To: Jerry Clifton, Y-building – jclifton@uh.edu

From: Monica Stiggins, Environmental Health and Risk Mgmt (EHRM)

CC: Emmett Sullivan, EHRM

Date: April 25, 2004

Re: Degreaser Solvent Use

The Texas Commission on Environmental Quality strictly regulates degreasers in the Houston air shed. In order to prove compliance with the permit TAC 30 §116.119 (De Minimis Facilities or Sources), which limits total cleaning and stripping solvents to 50 gallons per year or less, the office of Environmental Health and Risk Management (EHRM) needs to maintain records of solvent use.

After visiting with you on February 26th, 2004, we confirmed that it is unlikely that the engineering laboratory will use more than 1 gallon of solvent in any given month. Therefore, the engineering laboratory meets air emissions De Minimis guidelines and simply has to prove solvent usage never exceeds 50 gallons per year.

EHRM will email a form to the Engineering Laboratory Machinist each month. Simply confirm on the form that solvent use is less than 1 gallon for this month, sign and return to Environmental Health and Risk Management via interdepartmental mail, mail code 1005.

DRAFT

Memo

To: Eliberto Mendoza, emendoza@bayou.uh.edu

From: Monica Stiggins, Environmental Health and Risk Management (EHRM)

CC: Emmett Sullivan, EHRM

Date: April 25, 2004

Re: Paint Booth Recordkeeping

After visiting the paint shop on February 24th, 2004, Emmett and I learned that the paint booth is seldom used and thus will qualify for a De Minimis air emissions permit (TAC 30 §116.19). The permit is for facilities which use less than 100 gallons of paint or solvent per month. The state will still need proof that the paint booth is seldom used so EHRM would like the paint shop to restart keeping records of paint booth use. I took an example your old form and typed it into the computer and that is the form you will receive every month. EHRM will send out this form every month via email. The paint shop will be responsible for maintaining the form through the month and mailing the form via interdepartmental mail back to mail code 1005 at the end of each month.

Memo

To: Nalan Giannukos

From: Monica Stiggins, Environmental Health and Risk Management (EHRM)

CC: Emmett Sulllivan, EHRM

Date: April 25, 2004

Re: Monthly records of VOC/solvent use

Per out meeting February 19, 2004, this memo is a reminder that EHRM will be sending out a recordkeeping form each month for you to fill out and return. The form will be similar to the annual air emissions form and simply needs to be filled out and mailed to mail code 1005 via interdepartmental mail.

Purpose of Form:

EHRM needs to maintain monthly records of VOC air contaminants to prove compliance with TAC 30 §106.418, which limits uncontrolled emissions of VOCs and solvents to 10 tons per year. EHRM also must prove compliance with TAC 30 §115 Subchapter E which is summarized below. In our meeting you confirmed your operation meets these guidelines:

- You do only offset lithographic printing, not flexographic/rotogravure printing.
- Each of your machines meets the following guidelines:
    - Heatset web offset lithographic printing press which uses alcohol in the fountain solution shall maintain total fountain solution alcohol to 5.0% or less by volume (there are alternatives – see rules).
    - Non-heatset web offset lithographic printing press which prints newspapers and uses alcohol in the fountain solution: eliminate the use of alcohol in the fountain solution.
    - Non-heatset web offset lithographic printing press which does not print newspapers and uses alcohol in the fountain solution: fountain solution shall maintain 5.0% alcohol by volume. (Alternative exist – see rules.)
    - Sheetfed offset lithographic printing press: shall maintain use of alcohol at 10.0% or less by volume. (Alternatives exist – see rules.)
    - Offset lithographic presses fountain solutions VOC concentrations are 3.0% or less and no isopropyl alcohol.
- Reduce emissions by:
    - Using cleaning solutions with less VOCs – preferably VOCs of 50% or less.
- Reduce press dryer exhaust emissions 90% or have a maximum dryer exhaust outlet concentration of 20 parts per million by volume (whichever is less stringent).

DRAFT

Memo

To: Nathan Wernig, Wortham Theater, nwernig@yahoo.com
Javier Hidalgo, Moody Towers Shop, jhidalgo@uh.edu

From: Monica Stiggins, Environmental Health and Risk Management (EHRM)

CC: Emmett Sullivan, EHRM

Date: April 25, 2004

Re: Permit-by-Rule for Woodworking Shops

The Permit-by-Rule (PBR) for woodworking shops is 106.227 (Manufacturing, Refinishing and Restoring Wood Products). The following bullet list summarizes the PBR:

- A pneumatic sawdust collection system be in place
- Waste materials stored and disposed of properly
- If total coatings, solvents and stripping agents exceed 6 gallons then
    - Area must be ventilated
    - If spraying the paint, vent must have a filter
- Records of purchases for the most recent 24 months of total coatings, solvents and stripping agents

Because this rule requires purchase records of total coatings, solvents and stripping agents for the most recent 24 months, EHRM will send out an email every month requesting the amount of coatings, solvents and stripping agents purchased each month. The facility simply needs to fill out the form and mail it back to EHRM at mail code 1005 via interdepartmental mail.

Appendix C

Woodshop Compliance

Process for proving compliance with Woodworking operations:

The Permit-by-Rule for woodworking shops is 106.227 (Manufacturing, Refinishing and Restoring Wood Products). This rule requires that

- A pneumatic sawdust collection system be in place
- Waste materials stored and disposed of properly
- If total coatings, solvents and stripping agents exceed 6 gallons then
    - Area must be ventilated
    - If spraying the paint, vent must have a filter
- Want records of purchases for the most recent 24 months of total coatings, solvents and stripping agents

Woodworking shops and their contact:

- Carpentry Shop in Physical Plant, Conrad Murphy, 713-743-5692
- Wortham Theater, Nathan Wernig, nwernig@yahoo.com
- Architecture Wood Shop, Tommy Joe, 713-743-2370
- Moody Towers Shop, Javier Hidalgo, jhidalgo@uh.edu

Each woodshop facility handles its own purchasing so each facility tracks its coatings, solvents and stripping agent purchases differently.

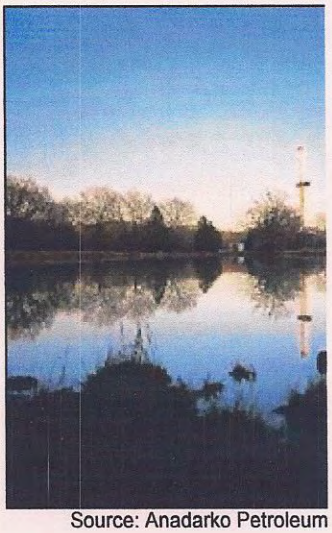
- The **carpentry shop** orders their products through the Physical Plant accounting database and therefore EHRM can run a query of their purchases. In the event of a state audit, EHRM will simply run a report for the most recent 24 months.
- The **architecture wood shop** has an official policy against using solvents and a copy of that policy is in their file.
- The **Wortham Theater set design** and **Moody Towers shop** prefer to be sent a form in which they fill in their purchases for the month. A copy of the form to send them is attached.

NaturalGas.

Natural Gas and the Envi

> Home
> Overview of Natural Gas
> Natural Gas - From Wellhead to Burner Tip
> Business Overview
> Natural Gas Regulations
> Environment & Technology
> Natural Gas and the Environment
> Natural Gas and Technology
> Focus on LNG

Natural gas is an extremely important source of energy for reducing pollution and maintaining a clean and healthy environment. In addition to being a domestically abundant and secure source of energy, the use of natural gas also offers a number of environmental benefits over other sources of energy, particularly other fossil fuels. This section will discuss the environmental effects of natural gas, in terms of emissions as well as the environmental impact of the natural gas industry itself. Scroll down, or click on the links below to be transported ahead.



Source: Anadarko Petroleum

Emissions from the Combustion of Natural Gas

Natural gas is the cleanest of all the fossil fuels. Composed primarily of methane, th products of the combustion of natural gas are carbon dioxide and water vapor, the s compounds we exhale when we breathe. Coal and oil are composed of much more molecules, with a higher carbon ratio and higher nitrogen and sulfur contents. This r when combusted, coal and oil release higher levels of harmful emissions, including of carbon emissions, nitrogen oxides (NO_x), and sulfur dioxide (SO_2). Coal and fuel release ash particles into the environment, substances that do not burn but instead into the atmosphere and contribute to pollution. The combustion of natural gas, on tl releases very small amounts of sulfur dioxide and nitrogen oxides, virtually no ash c matter, and lower levels of carbon dioxide, carbon monoxide, and other reactive hyc

Fossil Fuel Emission Levels - Pounds per Billion Btu of Energy Input

Pollutant	Natural Gas	Oil	Coal
Carbon Dioxide	117,000	164,000	208,000
Carbon Monoxide	40	33	208
Nitrogen Oxides	92	448	457
Sulfur Dioxide	1	1,122	2,591
Particulates	7	84	2,744
Mercury	0.000	0.007	0.016

Source: EIA - Natural Gas Issues and Trends 1998

The use of fossil fuels for energy contributes to a number of environmental problem:

as the cleanest of the fossil fuels, can be used in many ways to help reduce the emi pollutants into the atmosphere. Burning natural gas in the place of other fossil fuels harmful pollutants into the atmosphere, and an increased reliance on natural gas ca reduce the emission of many of these most harmful pollutants.

For more information on statistics related to emissions from fossil fuel sources, visit Information Administration's environment page here.

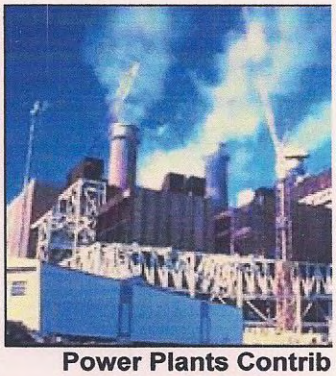
Pollutants emitted in the United States, particularly from the combustion of fossil fue the development of many pressing environmental problems. Natural gas, emitting fe chemicals into the atmosphere than other fossil fuels, can help to mitigate some of t environmental issues. These issues include:

- Greenhouse Gas Emissions
- Smog, Air Quality and Acid Rain
- Industrial and Electric Generation Emissions
- Pollution from the Transportation Sector - Natural Gas Vehicles

Greenhouse Gas Emissions

Global warming, or the 'greenhouse effect' is an environmental issue that deals with for global climate change due to increased levels of atmospheric 'greenhouse gases certain gases in our atmosphere that serve to regulate the amount of heat that is ke Earth's surface. Scientists theorize that an increase in these greenhouse gases will increased temperatures around the globe, which would result in many disastrous en effects. In fact, the Intergovernmental Panel on Climate Change (IPCC) predicts in i Assessment Report' released in February 2001 that over the next 100 years, global temperatures will rise by between 2.4 and 10.4 degrees Fahrenheit.

The principle greenhouse gases include water vapor, carbon dioxide, methane, nitrogen oxides, and some engineered chemicals such as cholorofluorocarbons. While most of these gases occur in the atmosphere naturally, levels have been increasing due to the widespread burning of fossil fuels by growing human populations. The reduction of greenhouse gas emissions has become a primary focus of environmental programs in countries around the world.



Power Plants Contrib Emission of Greenhou
Source: API

One of the principle greenhouse gases is carbon dioxide. Although carbon dioxide does not trap heat as effectively as other greenhouse gases (making it a less potent greenhouse gas), the sheer volume of carbon dioxide emissions into the atmosphere is very high, particularly from the burning of fossil fuels. In fact, according to the EIA in its report ' Greenhouse Gases in the United States 2000', 81.2 percent of greenhouse gas emi United States in 2000 came from carbon dioxide directly attributable to the combust fuels.

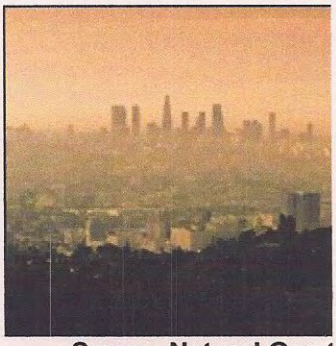
Because carbon dioxide makes up such a high proportion of U.S. greenhouse gas e reducing carbon dioxide emissions can play a huge role in combating the greenhou global warming. The combustion of natural gas emits almost 30 percent less carbon oil, and just under 45 percent less carbon dioxide than coal.

One issue that has arisen with respect to natural gas and the greenhouse effect is tl methane, the principle component of natural gas, is itself a very potent greenhouse methane has an ability to trap heat almost 21 times more effectively than carbon dic According to the Energy Information Administration, although methane emissions ac

1.1 percent of total U.S. greenhouse gas emissions, they account for 8.5 percent of greenhouse gas emissions based on global warming potential. Sources of methane the U.S. include the waste management and operations industry, the agricultural inc as leaks and emissions from the oil and gas industry itself. A major study performed Environmental Protection Agency (EPA) and the Gas Research Institute (GRI) in 19 discover whether the reduction in carbon dioxide emissions from increased natural g be offset by a possible increased level of methane emissions. The study concluded reduction in emissions from increased natural gas use strongly outweighs the detrim of increased methane emissions. Thus the increased use of natural gas in the place dirtier fossil fuels can serve to lessen the emission of greenhouse gases in the Unite

For more information on the Greenhouse Effect, visit the EPA's Global Warming Sit

Smog, Air Quality and Acid Rain



Smog - Natural Gas
Source: EPA

Smog and poor air quality is a pressing environmental problem, particularly for large metropolitan cities. Smog, the primary constituent of which is ground level ozone, is formed by a chemical reaction of carbon monoxide, nitrogen oxides, volatile organic compounds, and heat from sunlight. As well as creating that familiar smoggy haze commonly found surrounding large cities, particularly in the summer time, smog and ground level ozone can contribute to respiratory problems ranging from temporary discomfort to long-lasting, permanent lung damage. Pollutants contributing to smog come from a variety of sources, including vehicle em smokestack emissions, paints, and solvents. Because the reaction to create smog r smog problems are the worst in the summertime.

The use of natural gas does not contribute significantly to smog formation, as it emit nitrogen oxides, and virtually no particulate matter. For this reason, it can be used to smog formation in those areas where ground level air quality is poor. The main sour nitrogen oxides are electric utilities, motor vehicles, and industrial plants. Increased use in the electric generation sector, a shift to cleaner natural gas vehicles, or increa natural gas use, could all serve to combat smog production, especially in urban cen needed the most. Particularly in the summertime, when natural gas demand is lowe problems are the greatest, industrial plants and electric generators could use natura their operations instead of other, more polluting fossil fuels. This would effectively re emissions of smog causing chemicals, and result in clearer, healthier air around urb For instance, a 1995 study by the Coalition for Gas-Based Environmental Solutions the Northeast, smog and ozone-causing emissions could be reduced by 50 to 70 pe the seasonal switching to natural gas by electric generators and industrial installatio

For more information on smog, including the major contributors to smog formation a currently being done to combat smog levels, visit the EPA's smog information site h

Particulate emissions also cause the degradation of air quality in the United States. particulates can include soot, ash, metals, and other airborne particles. A study by t Concerned Scientists in 1998, entitled 'Cars and Trucks and Air Pollution', showed t premature death for residents in areas with high airborne particulate matter was 26 greater than for those in areas with low particulate levels. Natural gas emits virtually particulates into the atmosphere: in fact, emissions of particulates from natural gas are 90 percent lower than from the combustion of oil, and 99 percent lower than bur Thus increased natural gas use in place of other dirtier hydrocarbons can help to re particulate emissions in the U.S.

Acid rain is another environmental problem that affects much of the Eastern United damaging crops, forests, wildlife populations, and causing respiratory and other illne

humans. Acid rain is formed when sulfur dioxide and nitrogen oxides react with wate other chemicals in the presence of sunlight to form various acidic compounds in the principle source of acid rain causing pollutants, sulfur dioxide and nitrogen oxides, a power plants. Since natural gas emits virtually no sulfur dioxide, and up to 80 percer nitrogen oxides than the combustion of coal, increased use of natural gas could pro acid rain causing emissions.

For more information on acid rain, its causes, effects, and current strategies for dec rain, visit the EPA's acid rain information site here.

Industrial and Electric Generation Emissions

Pollutant emissions from the industrial sector and electric utilities contribute greatly t environmental problems in the United States. The use of natural gas to power both i boilers and processes and the generation of electricity can significantly improve the profiles for these two sectors.

Natural gas is becoming an increasingly important fuel in the generation of electricit providing an efficient, competitively priced fuel for the generation of electricity, the ir of natural gas allows for the improvement in the emissions profile of the electric gen industry. According to the National Environmental Trust (NET) in their 2002 publicat 'Cleaning up Air Pollution from America's Power Plants', power plants in the U.S. ac percent of sulfur dioxide emissions, 40 percent of carbon dioxide emissions, 25 perc nitrogen oxide emissions, and 34 percent of mercury emissions. Coal fired power pl greatest contributors to these types of emissions. In fact, only 3 percent of sulfur dic emissions, 5 percent of carbon dioxide emissions, 2 percent of nitrogen oxide emiss percent of mercury emissions come from non-coal fired power plants.

Natural gas fired electric generation, and natural gas powered industrial applications, offer a variety of environmental benefits and environmentally friendly uses, including:

Emissions from Smokesta
Source: EP.

- **Fewer Emissions** - combustion of natural gas, used in the generation of electricity, industrial boilers, and other applications, emits lower levels of NO_x, CO_2, and particulate emissions, and virtually no SO_2 and mercury emissions. Natural gas can be used in place of, or in addition to, other fossil fuels, including coal, oil, or petroleum coke, which emit significantly higher levels of these pollutants.
- **Reduced Sludge** - coal fired power plants and industrial boilers that use scrubbers to reduce SO_2 emissions levels generate thousands of tons of harmful sludge. Combustion of natural gas emits extremely low levels of SO_2, eliminating the need for scrubbers, and reducing the amounts of sludge associated with power plants and industrial processes.
- **Reburning** - This process involves injecting natural gas into coal or oil fired b addition of natural gas to the fuel mix can result in NO_x emission reductions c percent, and SO_2 emission reductions of 20 to 25 percent.
- **Cogeneration** - the production and use of both heat and electricity can incre efficiency of electric generation systems and industrial boilers, which translat the combustion of less fuel and the emission of fewer pollutants. Natural gas preferred choice for new cogeneration applications.
- **Combined Cycle Generation** - Combined cycle generation units generate e

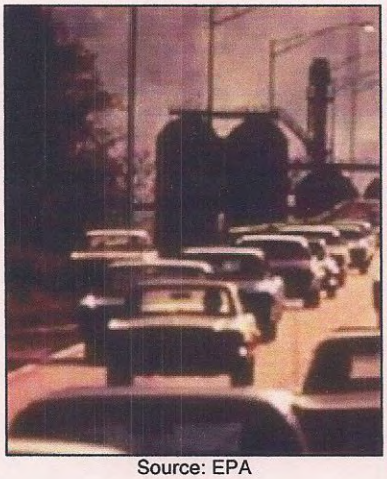
capture normally wasted heat energy, using it to generate more electricity. Lil cogeneration applications, this increases energy efficiency, uses less fuel, ar produces fewer emissions. Natural gas fired combined cycle generation units 60 percent energy efficient, whereas coal and oil generation units are typicall percent efficient.

- **Fuel Cells** - Natural gas fuel cell technologies are in development for the ger electricity. Fuel cells are sophisticated devices that use hydrogen to generate much like a battery. No emissions are involved in the generation of electricity cells, and natural gas, being a hydrogen rich source of fuel, can be used. Alth under development, widespread use of fuel cells could in the future significar emissions associated with the generation of electricity.

Essentially, electric generation and industrial applications that require energy, partic heating, use the combustion of fossil fuels for that energy. Because of its clean burr use of natural gas wherever possible, either in conjunction with other fossil fuels, or them, can help to reduce the emission of harmful pollutants.

Pollution from the Transportation Sector - Natural Gas Vehicles

The transportation sector (particularly cars, trucks, and buses) is one of the greatest to air pollution in the United States. Emissions from vehicles contribute to smog, low various greenhouse gas emissions. According to the Department of Energy (DOE), all air pollution and more than 80 percent of air pollution in cities are produced by ca in the United States.



Source: EPA

Natural gas can be used in the transportation secto on these high levels of pollution from gasoline and powered cars, trucks, and buses. In fact, according compared to traditional vehicles, vehicles operating compressed natural gas have reductions in carbon emissions of 90 to 97 percent, and reductions in ca emissions of 25 percent. Nitrogen oxide emissions reduced by 35 to 60 percent, and other non-methar hydrocarbon emissions could be reduced by as mu percent. In addition, because of the relatively simpl natural gas in comparison to traditional vehicle fuel fewer toxic and carcinogenic emissions from nature and virtually no particulate emissions. Thus the env friendly attributes of natural gas may be used in the sector to reduce air pollution. To learn more about vehicles, click here.

Natural gas is the cleanest of the fossil fuels, and thus its many applications can ser decrease harmful pollution levels from all sectors, particularly when used together w replacing other fossil fuels. The natural gas industry itself is also committed to ensu process of producing natural gas is as environmentally sound as possible. To learn natural gas industry and the environmental effects of natural gas production, click h

Appendix Ø E

All Permit by Rule Units

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
1	106.102	HEATERS.electric	505	ROOM 3313	Marc Eaton	184,248 btu	☑
269	106.102	BOILER	505	3RD FLOOR MECH.	Marc Eaton	1,260,000 btu	☑
10	106.102	HEATER NATL.GAS	542	BOILER ROOM	David Graevy		☑
4	106.102	HEATERS.natl.gas	585	BOILER ROOM	Conrad Murphy		☑
211	106.102	BOILER - NATL GAS	599		Gary Crosby	women's softball fieldhouse	☑
16	106.102	BOILER NATL.GAS	586	MR1A	Conrad Murphy		☑
15	106.102	HEATERS	583	Ticket Booth	Earl Mcdonald	Ticket Booth	☑
14	106.102	HEATERS	582		Earl Mcdonald		☑
242	106.102	HEATER natl. gas	585	Boiler Room	Conrad Murphy		☑
241	106.102	HEATER natl. gas	585	Boiler Room	Conrad Murphy		☑
237	106.102	HEATERS.electric	582	110	Earl Mcdonald	Small electric heater	☑
230	106.102	BOILER NATL.GAS	522	2012B	Reggie Riley	Heats entire building * 7M btu	☑
229	106.102	BOILER NATL.GAS	522	2012B	Reggie Riley	heats entire building * 7M btu	☑
228	106.102	HEATERS ELECTRIC	522	3rd floor	Reggie Riley	heats water for showers	☑
13	106.102	HEATERS	582		Earl Mcdonald		☑
6	106.102	BOILER NATL.GAS	510	BLDB. 2	Javier Hidalgo	runs laundry room only	☑
227	106.102	HEATERS ELECTRIC	522	3rd floor	Reggie Riley	heats water for showers	☑
338	106.103	FREON COMPRESSORS	596	RM 210	Jesse Gonzalez	ac computer ac pcu2-1	☑
330	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
331	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
332	106.103	COMPUTER CENTER	596	RM 102	Jesse Gonzalez	ac computer ac pcu1-4	☑
333	106.103	COMPUTER CENTER	596	RM 102	Jesse Gonzalez	ac computer ac pcu1-3	☑
334	106.103	COMPUTER CENTER	596	RM 219	Jesse Gonzalez	ac computer ac pcu2-3	☑
335	106.103	COMPUTER CENTER	596	RM 219	Jesse Gonzalez	ac computer ac pcu2-2e	☑
337	106.103	FREON COMPRESSORS	596	RM 210	Jesse Gonzalez	ac computer ac pcu2-2	☑
329	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
320	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
336	106.103	FREON COMPRESSORS	596	RM 210	Jesse Gonzalez	ac computer ac pcu2-3e	☑
328	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
327	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
326	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
325	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
324	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
323	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
339	106.103	FREON COMPRESSORS	596	RM201	Jesse Gonzalez	ac computer ac pcu2-1e	☑
321	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
349	106.103	FREON COMPRESSORS	530	WEST PRESS BOX	Jesse Gonzalez	ac window unit	☑
319	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
322	106.103	FREON COMPRESSORS	598	ROOF	Jesse Gonzalez	ac package cooling/heating	☑
350	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
361	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
360	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
359	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
358	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
357	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
356	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
355	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
354	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
353	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
347	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
351	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
340	106.103	FREON COMPRESSORS	530	PERSONNEL TM RM	Jesse Gonzalez	ac carrier cond	☑
303	106.103	FREON COMPRESSOR	515	ROOM 1	Jesse Gonzalez	Chiller No. 3; CFC-12; 4500 tons	☑
348	106.103	FREON COMPRESSORS	530	WEST PRESS BOX	Jesse Gonzalez	ac window unit	☑
316	106.103	FREON COMPRESSOR	118	WORTHAM COAC	Jesse Gonzalez	AC Unit; HCFC-22; 15 tons	☑
346	106.103	FREON COMPRESSORS	530	ROOF WESTSIDE	Jesse Gonzalez	ac carrier cond	☑
345	106.103	FREON COMPRESSORS	530	ROOF WESTSIDE	Jesse Gonzalez	ac carrier cond	☑
344	106.103	FREON COMPRESSORS	530	ROOF WESTSIDE	Jesse Gonzalez	ac carrier cond	☑
343	106.103	FREON COMPRESSORS	530	ROOF WESTSIDE	Jesse Gonzalez	ac carrier cond	☑
342	106.103	FREON COMPRESSORS	530	RM 101	Jesse Gonzalez	ac package unit	☑
341	106.103	FREON COMPRESSORS	530	RM 101	Jesse Gonzalez	ac package unit	☑
352	106.103	FREON COMPRESSORS	530	LOWER BOX WEST SI	Jesse Gonzalez	ac window unit	☑
276	106.103	FREON COMPRESSORS	586	ROOM 3	Jesse Gonzalez	HCFC-22; 90 tons; 230 V	☑
305	106.103	FREON COMPRESSOR	530	WEIGHT ROOM	Jesse Gonzalez	AC Unit No 2; HCFC-22; 8 tons	☑
287	106.103	FREON COMPRESSOR	106	OUTSIDE	Jesse Gonzalez	AC 001; HCFC-22; 25 tons	☑
285	106.103	FREON COMPRESSOR	106	ROOM 164	Jesse Gonzalez	Chiller No. 1; R-113; 150 tons	☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
284	106.103	FREON COMPRESSOR	585	OUTDOORS, EAST	Jesse Gonzales	Chiller No. 4; HCFC-22 (Cryol 15	☑
283	106.103	FREON COMPRESSOR	585	ROOM 164	Jesse Gonzalez	Chiller No. 2; R-113 (non-syntheti	☑
282	106.103	FREON COMPRESSOR	572	OUTSIDE, EAST	Jesse Gonzalez	AC Unit; HCFC - 22; 5 tons	☑
281	106.103	FREON COMPRESSOR	571	ROOF	Jesse Gonzalez	AC Unit no. 1; HCFC-22; 5 tons;	☑
280	106.103	FREON COMPRESSOR	571	ROOF	Jesse Gonzalez	AC Unit; 10 tons; HCFC-22; 230	☑
279	106.103	FREON COMPRESSOR	504	DIRECTORS OFFICE	Jesse Gonzalez	AC006; HCFC-22; 3 tons	☑
289	106.103	FREON COMPRESSOR	106	OUTSIDE	Jesse Gonzalez	AC003; HCFC-22; 4 tons	☑
277	106.103	FREON COMPRESSORS	586	ROOM 1A	Jesse Gonzalez	HCFC-22; 100 tons; 230 V	☑
290	106.103	FREON COMPRESSOR	106	OUTSIDE	Jesse Gonzalez	AC004; HCFC-22; 25 tons	☑
275	106.103	FREON COMPRESSORS	552	OUTSIDE, SO	Jesse Gonzalez	HCFC-22; 10 tons; 230 V	☑
274	106.103	FREON COMPRESSORS	552	OUTSIDE, NORTH	Jesse Gonzalez	HCFC-22; 10 tons; 230V	☑
273	106.103	FREON COMPRESSORS	523	OUTSIDE, NORTH	Jesse Gonzalez	Ref: HCFC-22; 15 tons; 230V	☑
272	106.103	FREON COMPRESSORS	523	OUTSIDE	Jesse Gonzalez	Ref: HCFC-22; 5 tons; 460/1/60	☑
271	106.103	FREON COMPRESSORS	523	OUTSIDE	Jesse Gonzales	Ref: HCHC-22	☑
103	106.103	FREON COMPRESSORS	762	OUTSIDE	Jesse Gonzalez	Chiller No 1; HCFC-22; 70 tons	☑
70	106.103	FREON COMPRESSORS	505	Chiller Animal	Marc Eaton		☑
69	106.103	FREON COMPRESSORS	505	Chiller2	Marc Eaton		☑
68	106.103	FREON COMPRESSORS	505	Chiller1	Marc Eaton		☑
278	106.103	FREON COMPRESSOR	504	ROOM 101 OUTSIDE	Jesse Gonzalez	AC001; HCFC-22; 1 tons	☑
300	106.103	FREON COMPRESSOR	515	ROOM 1	Jesse Gonzalez	Chiller no. 5; CFC-12; 3000 tons	☑
314	106.103	FREON COMPRESSOR	542	OUTSIDE	Jesse Gonzalez	Chiller, HCFC-22; 50 tons	☑
313	106.103	FREON COMPRESSOR	542	RM 105	Jesse Gonzalez	AC Unit No 1 AHU; HCFC-22; 5 t	☑
312	106.103	FREON COMPRESSOR	561	SE CORNER	Jesse Gonzalez	Chiller No. 3; HCFC-22; 4 tons	☑
311	106.103	FREON COMPRESSOR	561	ROOM 146Q	Jesse Gonzalez	Chiller No. 2; HCFC-22; 70 tons	☑
310	106.103	FREON COMPRESSOR	561	RM 146Q	Jesse Gonzalez	Chiller No. 1; HCFC-22; 70 tons	☑
306	106.103	FREON COMPRESSOR	561	ROOM 146Q	Jesse Gonzalez	Chiller No. 1; HCFC-22; 70 tons	☑
362	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
304	106.103	FREON COMPRESSOR	530	WEIGHT ROOM	Jesse Gonzalez	AC Unit No 1; HCFC-22; 13 tons	☑
288	106.103	FREON COMPRESSOR	106	ROOFTOP	Jesse Gonzales	AC002; HCFC-22; 5 tons	☑
471	106.103	FREON COMPRESSOR	762	OUTDOOR RM 148	Jesse Gonzalez	ac ruud condenser	☑
301	106.103	FREON COMPRESSOR	515	ROOM 1	Jesse Gonzalez	Chiller No. 1; CFC-12; 2050 tons	☑
315	106.103	FREON COMPRESSOR	762	OUTSIDE	Jesse Gonzalez	Chiller No. 2; HCFC-22; 70 tons	☑
299	106.103	FREON COMPRESSOR	515	ROOM 1	Jesse Gonzalez	Chiller No. 4; CFC-12; 4500 tons	☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
298	106.103	FREON COMPRESSOR	560	SOUTHSIDE OUTSIDE	Jesse Gonzalez	Chiller; HCFC-22; 60 BTUH	☑
297	106.103	FREON COMPRESSOR	505	ROOF, 3RD FL	Jesse Gonzalez	Chiller No. 3; HCFC-22; 210 tons	☑
296	106.103	FREON COMPRESSOR	104	BRICK BLDG	Jesse Gonzalez	AC001; HCFC-22; 5 tons	☑
295	106.103	FREON COMPRESSOR	106	QUASI HUT	Jesse Gonzalez	AC 009; HCFC-22; 5 tons	☑
294	106.103	FREON COMPRESSOR	106	QUASI HUT	Jesse Gonzalez	AC 008; HCFC-22; 8 tons	☑
293	106.103	FREON COMPRESSOR	106	QUASI HUT	Jesse Gonzalez	AC007; HCFC-22; 8 tons	☑
292	106.103	FREON COMPRESSOR	106	OUTSIDE	Jesse Gonzalez	AC 006; HCFC-22; 20 tons	☑
291	106.103	FREON COMPRESSOR	106	OUTSIDE	Jesse Gonzalez	AC005; HCFC-22; 15 tons	☑
302	106.103	FREON COMPRESSOR	515	ROOM 1	Jesse Gonzalez	Chiller No. 2; CFC-12; 4500 tons`	☑
428	106.103	FREON COMPRESSOR	535	WEST WALL	Jesse Gonzalez	ac carrier package unit	☑
440	106.103	FREON COMPRESSOR	547	OUT ACCESS BSMT	Jesse Gonzalez	ac condenser unit	☑
439	106.103	FREON COMPRESSOR	547	OUT ACCESS BSMT	Jesse Gonzalez	ac condenser unit	☑
438	106.103	FREON COMPRESSOR	543	MECH RM 320	Jesse Gonzalez	ac liebert unit	☑
437	106.103	FREON COMPRESSOR	543	MECH RM 117	Jesse Gonzalez	ac liebert unit	☑
436	106.103	FREON COMPRESSOR	542	RM 163	Jesse Gonzalez	ac package unit	☑
435	106.103	FREON COMPRESSOR	542	RM 163	Jesse Gonzalez	ac package unit	☑
469	106.103	FREON COMPRESSOR	593	RM 115	Jesse Gonzalez	ac dx unit #peu-4	☑
434	106.103	FREON COMPRESSOR	542	RM 163	Jesse Gonzalez	ac package unit	☑
433	106.103	FREON COMPRESSOR	542	RM 157B	Jesse Gonzalez	ac liebert unit	☑
432	106.103	FREON COMPRESSOR	542	COMPUTER RM 157C	Jesse Gonzalez	ac liebert unit	☑
431	106.103	FREON COMPRESSOR	542	RM 163A	Jesse Gonzalez	ac window unit	☑
416	106.103	FREON COMPRESSOR	506	NO. COMMUNICATIO	Jesse Gonzalez	ac package unit	☑
429	106.103	FREON COMPRESSOR	542	OUTSIDE E. RM 117	Jesse Gonzalez	ac condenser unit	☑
460	106.103	FREON COMPRESSOR	571	RM 245	Jesse Gonzalez	ac window unit	☑
427	106.103	FREON COMPRESSOR	531	RM 120 CEIL	Jesse Gonzalez	ac liebert unit	☑
426	106.103	FREON COMPRESSOR	531	RM 120 CEIL	Jesse Gonzalez	ac liebert unit	☑
425	106.103	FREON COMPRESSOR	528	RM 278A	Jesse Gonzalez	ac liebert unit	☑
424	106.103	FREON COMPRESSOR	528	RM BO3.2 CEIL	Jesse Gonzalez	ac liebert unit	☑
423	106.103	FREON COMPRESSOR	516		Jesse Gonzalez	ac condenser unit #2	☑
422	106.103	FREON COMPRESSOR	516		Jesse Gonzalez	ac condenser unit #1	☑
421	106.103	FREON COMPRESSOR	509	RM 112E COMP RM	Jesse Gonzalez	ac liebert unit	☑
420	106.103	FREON COMPRESSOR	509	RM 112E COMP RM	Jesse Gonzalez	ac liebert unit	☑
419	106.103	FREON COMPRESSOR	509	RM B49	Jesse Gonzalez	ac window unit	☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
418	106.103	FREON COMPRESSOR	507	RM 100M CEIL	Jesse Gonzalez	ac liebert unit	☑
417	106.103	FREON COMPRESSOR	506	SO. COMMUNICATIO	Jesse Gonzalez	ac package unit	☑
430	106.103	FREON COMPRESSOR	542	OUTSIDE WEST	Jesse Gonzalez	ac condenser carrier	☑
454	106.103	FREON COMPRESSOR	564	ROOF	Jesse Gonzalez	package unit	☑
461	106.103	FREON COMPRESSOR	572	RM 101A	Jesse Gonzalez	ac window unit	☑
462	106.103	FREON COMPRESSOR	578	ROOF	Jesse Gonzalez	ac roof top unit	☑
463	106.103	FREON COMPRESSOR	578	FREIGHT ELEV RM	Jesse Gonzalez	ac roof top unit	☑
286	106.103	FREON COMPRESSOR	106	OUTDOORS, EAST	Jesse Gonzales	Chiller No. 3; HCFC-22; 150 tons	☑
464	106.103	FREON COMPRESSOR	585	OUTSIDE AREA 17	Jesse Gonzalez	ac carrier cond	☑
363	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
459	106.103	FREON COMPRESSOR	571	RM 129	Jesse Gonzalez	ac window unit	☑
465	106.103	FREON COMPRESSOR	585	LUNCH RM AREA 21	Jesse Gonzalez	ac window unit	☑
466	106.103	FREON COMPRESSOR	585	AUTO SHOP	Jesse Gonzalez	scottsman ice machine	☑
458	106.103	FREON COMPRESSOR	571	RM 127	Jesse Gonzalez	ac window unit	☑
457	106.103	FREON COMPRESSOR	571	OUTSIDE BLDG	Jesse Gonzalez	ac package unit	☑
441	106.103	FREON COMPRESSOR	547	ROOF AHU RM 547	Jesse Gonzalez	ac trane condenser unit #1	☑
455	106.103	FREON COMPRESSOR	571	OUTSIDE S EAST	Jesse Gonzalez	ac condenser unit	☑
443	106.103	FREON COMPRESSOR	547	ROOF AHU RM 575	Jesse Gonzalez	ac trane condenser unit #3	☑
453	106.103	FREON COMPRESSOR	564	RM 70	Jesse Gonzalez	ac computer	☑
452	106.103	FREON COMPRESSOR	550	ROOF	Jesse Gonzalez	ac carrier package unit	☑
451	106.103	FREON COMPRESSOR	550	OBSERVATORY RM	Jesse Gonzalez	ac window unit	☑
467	106.103	FREON COMPRESSOR	589	ROOF	Jesse Gonzalez	ac package carrier	☑
468	106.103	FREON COMPRESSOR	589	ROOF	Jesse Gonzalez	ac package carrier	☑
450	106.103	FREON COMPRESSOR	550	RM 234	Jesse Gonzalez	ac liebert unit	☑
449	106.103	FREON COMPRESSOR	550	RM 104C CEIL	Jesse Gonzalez	ac liebert unit	☑
448	106.103	FREON COMPRESSOR	550	SERV. RM 55A	Jesse Gonzalez	ac liebert unit	☑
447	106.103	FREON COMPRESSOR	550	RM 26A	Jesse Gonzalez	ac liebert unit	☑
446	106.103	FREON COMPRESSOR	547	ROOF AHU RM 650	Jesse Gonzalez	ac trane condenser unit #6	☑
445	106.103	FREON COMPRESSOR	547	ROOF AHU RM 650	Jesse Gonzalez	ac trane condenser unit #5	☑
442	106.103	FREON COMPRESSOR	547	ROOF AHU RM 547	Jesse Gonzalez	ac trane condenser unit #2	☑
456	106.103	FREON COMPRESSOR	571	OUTSIDE S WEST	Jesse Gonzalez	ac condenser unit	☑
375	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
389	106.103	FREON COMPRESSOR	523		Jesse Gonzalez	ac package unit ruud	☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
388	106.103	FREON COMPRESSOR	523	OUTSIDE SO.	Jesse Gonzalez	ac package unit payne	☑
387	106.103	FREON COMPRESSOR	523	OUTSIDE	Jesse Gonzalez	ac condenser unit carrier	☑
386	106.103	FREON COMPRESSOR	523		Jesse Gonzalez	ac condenser unit #2	☑
385	106.103	FREON COMPRESSOR	523		Jesse Gonzalez	ac condenser unit #1	☑
470	106.103	FREON COMPRESSOR	593	RM 115	Jesse Gonzalez	ac dx unit	☑
381	106.103	FREON COMPRESSORS	530	RM 402	Jesse Gonzalez	ac window unit	☑
415	106.103	FREON COMPRESSOR	505	2ND FLOOR LIB. ARE	Jesse Gonzalez	ac package unit	☑
379	106.103	FREON COMPRESSORS	530	RM 402	Jesse Gonzalez	ac window unit	☑
444	106.103	FREON COMPRESSOR	547	ROOF AHU RM 586	Jesse Gonzalez	ac trane condenser unit #4	☑
378	106.103	FREON COMPRESSORS	530	RM 402	Jesse Gonzalez	ac window unit	☑
390	106.103	FREON COMPRESSOR	523	RM 108	Jesse Gonzalez	ac window unit	☑
376	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
380	106.103	FREON COMPRESSORS	530	RM 402	Jesse Gonzalez	ac window unit	☑
374	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
373	106.103	ROBERTSON STADIUM	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
372	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
371	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
370	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
369	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
368	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
367	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
366	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
365	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
364	106.103	FREON COMPRESSORS	530	PRESIDENT BOX EAS	Jesse Gonzalez	ac window unit	☑
377	106.103	FREON COMPRESSORS	530	RM 402	Jesse Gonzalez	ac window unit	☑
408	106.103	FREON COMPRESSOR	519	OUTSIDE	Jesse Gonzalez	ac condenser unit #4	☑
414	106.103	FREON COMPRESSOR	505	TRAILER	Jesse Gonzalez	ac window unit	☑
413	106.103	FREON COMPRESSOR	505	TRAILER	Jesse Gonzalez	ac window unit	☑
412	106.103	FREON COMPRESSOR	505	TRAILER	Jesse Gonzalez	ac window unit	☑
411	106.103	FREON COMPRESSOR	505	TRAILER	Jesse Gonzalez	ac window unit	☑
409	106.103	FREON COMPRESSOR	519	RM 111	Jesse Gonzalez	venmar ventilation system #1	☑
407	106.103	FREON COMPRESSOR	519	OUTSIDE	Jesse Gonzalez	ac condenser unit #3	☑
406	106.103	FREON COMPRESSOR	519	OUTSIDE	Jesse Gonzalez	ac condenser unit #2	☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
405	106.103	FREON COMPRESSOR	523	OUTSIDE	Jesse Gonzalez	ac condenser unit #1	☑
404	106.103	FREON COMPRESSOR	523	RM 120H	Jesse Gonzalez	ac window unit	☑
403	106.103	FREON COMPRESSOR	523	RM 121	Jesse Gonzalez	ac window unit	☑
402	106.103	FREON COMPRESSOR	523	RM 121	Jesse Gonzalez	ac window unit	☑
401	106.103	FREON COMPRESSOR	523	RM 121	Jesse Gonzalez	ac window unit	☑
400	106.103	FREON COMPRESSOR	523	RM 119	Jesse Gonzalez	ac window unit	☑
399	106.103	FREON COMPRESSOR	523	RM 118	Jesse Gonzalez	ac window unit	☑
391	106.103	FREON COMPRESSOR	523	RM 108	Jesse Gonzalez	ac window unit	☑
410	106.103	FREON COMPRESSOR	519	RM 111 MECH	Jesse Gonzalez	venmar ventilation system #2	☑
392	106.103	FREON COMPRESSOR	523	RM 109	Jesse Gonzalez	ac window unit	☑
393	106.103	FREON COMPRESSOR	523	RM 110A	Jesse Gonzalez	ac window unit	☑
394	106.103	FREON COMPRESSOR	523	RM 110B	Jesse Gonzalez	ac window unit	☑
395	106.103	FREON COMPRESSOR	523	RM 131	Jesse Gonzalez	ac window unit	☑
396	106.103	FREON COMPRESSOR	523	RM 131	Jesse Gonzalez	ac window unit	☑
397	106.103	FREON COMPRESSOR	523	RM 114	Jesse Gonzalez	ac window unit	☑
398	106.103	FREON COMPRESSOR	523	RM 117	Jesse Gonzalez	ac window unit	☑
169	106.122	FUME HOODS				see file for records	☑
189	106.124	PILOT PLANT	550	SVEC	Robert Keith		☑
262	106.182	KILNS	124	EXTERIOR PATIO	Prof Olivier		☑
263	106.182	KILNS	124	EXTERIOR PATIO		does not work	☑
178	106.227	WELDING EQPT.	584		Craig Brodd		☑
308	106.227	WELDING EQPT.	507	RM 143	Nathan Wernig	Wortham Set Shop	☑
309	106.227	WELDING EQPT.	543	Rm 144	Tommy Joe	Arch Model Shop	☑
170	106.227	WELDING EQPT.	585	ROOM 185	Conrad Murphy		☑
171	106.227	WELDING EQPT.	542		David Graevy	Sculpting shop	☑
172	106.227	WELDING EQPT.	571		Jerry Clifton	Engineering Y Blg	☑
173	106.227	WELDING EQPT.	593			uh science ctr	☑
174	106.227	WELDING EQPT.	564	Rm. 44	Matt Turner		☑
259	106.227	WELDING EQUIP.	542	CIVIL WELDING	Brett Smith		☑
216	106.231	WOODWORKING SHOPS	507	ROOM 143	Nathan Wernig		☑
218	106.231	WOODWORKING SHOPS	543	ROOM 144	Tommy Joe		☑
220	106.231	WOODWORKING SHOPS	542	Sculpture Shop	David Graevy		☑
222	106.231	WOODWORKING SHOPS	584	ROOM 7	Craig Brodd		☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
214	106.231	WOODWORKING SHOPS	585	ROOM 170	Conrad Murphy		☑
136	106.242	EATING ESTABLISHMENT	584	First floor	Javiar Hidalgo	Pizza Hut, Fresh Grill, Kim Son, S	☑
134	106.242	EATING ESTABLISHMENT	565	Basement	William Cuellar	Harlon's	☑
143	106.242	EATING ESTABLISHMENT	573	Room 110	Earl McDonald	Kitchen	☑
142	106.242	EATING ESTABLISHMENT	538	Basement		Subway	☑
141	106.242	EATING ESTABLISHMENT	590	2nd Floor	Henry Anderson		☑
140	106.242	EATING ESTABLISHMENT	590	3rd Floor	Henry Anderson		☑
139	106.242	EATING ESTABLISHMENT	590	First Floor	Henry Anderson		☑
131	106.242	EATING ESTABLISHMENT	504	1st Floor	Sherry Howard		☑
137	106.242	EATING ESTABLISHMENT	584	First floor	Javiar Hidalgo	C-Store	☑
135	106.242	EATING ESTABLISHMENT	567		William Cuellar	Paws-N-Go, Tejanitas, Starbucks	☑
132	106.242	EATING ESTABLISHMENT	559	First Floor	Javiar Hidalgo	C-store and Cafeteria	☑
231	106.242	EATING ESTABLISHMENT	522	First Floor	Reggie Riley	Smoothie King and Paws-n-Go	☑
138	106.242	EATING ESTABLISHMENT	586	Room 111	Mr. Rorschach	Industrial size kitchen for teachin	☑
133	106.242	EATING ESTABLISHMENT	565	First Floor	William Cuellar	Wendy's, Pasta-n-More, Minh, Na	☑
148	106.244	BARBECUE PITS	559	REC. AREA	Craig Brodd		☑
158	106.244	BARBECUE PITS	510	REC. AREA	Craig Brodd		☑
153	106.244	BARBECUE PITS	555	REC. AREA			☑
152	106.244	BARBECUE PITS	556	REC. AREA			☑
151	106.244	BARBECUE PITS	557	REC. AREA			☑
225	106.244	BARBECUE PITS	522	Leisure Pool	Reggie Riley	portable grill	☑
226	106.244	BARBECUE PITS	522	Leisure Pool	Reggie Riley	portable grill	☑
150	106.244	BARBECUE PITS	558	REC. AREA			☑
146	106.244	BARBECUE PITS	584	REC. AREA			☑
144	106.244	BARBECUE PITS	584	REC. AREA			☑
145	106.244	BARBECUE PITS	584	REC. AREA			☑
116	106.371	COOLING TOWERS	515	COOLING 2B	Gary Crosby		☑
120	106.371	COOLING TOWERS	515	COOLING 3D	Gary Crosby		☑
123	106.371	COOLING TOWERS	515	COOLING 4A	Gary Crosby		☑
119	106.371	COOLING TOWERS	515	COOLING 3C	Gary Crosby		☑
124	106.371	COOLING TOWERS	515	COOLING 4B	Gary Crosby		☑
118	106.371	COOLING TOWERS	515	COOLING 3B	Gary Crosby		☑
117	106.371	COOLING TOWERS	515	COOLING 3A	Gary Crosby		☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
270	106.371	COOLING TOWER	596	OUTSIDE	Jim Savage		☑
113	106.371	COOLING TOWERS	515	COOLING 1B	Gary Crosby		☑
114	106.371	COOLING TOWERS	515	Cooling 1C	Gary Crosby		☑
121	106.371	COOLING TOWERS	515	COOLING 3E	Gary Crosby		☑
112	106.371	COOLING TOWERS	515	COOLING 1A	Gary Crosby		☑
115	106.371	COOLING TOWERS	515	COOLING 2A	Gary Crosby		☑
122	106.371	COOLING TOWERS	515	COOLING 3F	Gary Crosby		☑
210	106.373	REFRIGERATION SYSTEMS	590	ROOM S126J	Henry Anderson		☑
234	106.373	REFRIGERATION SYSTEMS	522	1st floor lobby	Reggie Riley	Paws-n-Go (walk-in cooler)	☑
235	106.373	REFRIGERATION SYSTEMS	522	1st floor lobby	Reggie Riley	Paws-n-Go walk-in freezer	☑
203	106.373	REFRIGERATION SYSTEMS	590	ROOM S126J	Henry Anderson		☑
192	106.373	REFRIGERATION SYSTEMS	586	BASEMENT		uses R-134a	☑
197	106.373	REFRIGERATION SYSTEMS	574	Room 110	Earl Mcdonald		☑
208	106.373	REFRIGERATION SYSTEMS	590	ROOM S235L	Henry Anderson		☑
199	106.373	REFRIGERATION SYSTEMS	590	Room 167C	Henry Anderson		☑
200	106.373	REFRIGERATION SYSTEMS	590	ROOM S126F	Henry Anderson		☑
190	106.373	REFRIGERATION SYSTEMS	505	ROOF (NORTH)	Marc Eaton	R-22 gas used	☑
202	106.373	REFRIGERATION SYSTEMS	590	ROOM S126H	Henry Anderson		☑
195	106.373	REFRIGERATION SYSTEMS	585	Room 164		R12 used - chiller on printer	☑
204	106.373	REFRIGERATION SYSTEMS	590	ROOM S126K	Henry Anderson		☑
205	106.373	REFRIGERATION SYSTEMS	590	Room S126L	Henry Anderson		☑
206	106.373	REFRIGERATION SYSTEMS	590	ROOM S235J	Henry Anderson		☑
207	106.373	REFRIGERATION SYSTEMS	590	ROOM S235K	Henry Anderson		☑
209	106.373	REFRIGERATION SYSTEMS	590	ROOM S128A	Henry Anderson		☑
212	106.373	REFRIGERATION SYSTEMS	505	3RD FLOOR	Marc Eaton		☑
201	106.373	REFRIGERATION SYSTEMS	590	ROOM S126G	Henry Anderson		☑
198	106.373	REFRIGERATION SYSTEMS	590	Room 167C	Henry Anderson		☑
181	106.412	GASOLINE TANKS	585	UNV. STORES	Conrad Murphy		☑
180	106.412	GASOLINE TANKS	585	UNV. STORES	Conrad Murphy		☑
179	106.412	GASOLINE TANKS	560	UNV. POLICE		Unleaded	☑
186	106.415	LAUNDROMAT	590	ROOM 169	Henry Anderson		☑
184	106.415	LAUNDROMAT	510	LAUNDRY Rm.	Craig Brodd		☑
238	106.415	LAUNDROMAT	574	1111D	Earl Mcdonald		☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
236	106.415	LAUNDROMAT	582	117	Earl Mcdonald	one washer, one dryer	☑
224	106.415	LAUNDRY DRYERS	522	1008E	Reggie Riley	two Dryers	☑
185	106.415	LAUNDROMAT	574	LAUNDRY Rm.	Earl Mcdonald		☑
243	106.418	PRINT SHOP	585	DOCK 3	Nalen Giannukos		☑
264	106.419	PHOTOGRAPHIC PROCESS	589	206			☑
266	106.419	PHOTOGRAPHIC PROCESS	589	224A			☑
267	106.419	PHOTOGRAPHIC PROCESS	589	226			☑
164	106.419	PHOTOGRAPHIC PROCESS	509	BASEMENT		where lectures are recorded	☑
166	106.419	PHOTOGRAPHIC PROCESS	543	435B			☑
167	106.419	PHOTOGRAPHIC PROCESS	503	ROOM 102	Jerry Waite	Room 102 is the Graphics Hallwa	☑
168	106.419	PHOTOGRAPHIC PROCESS	574	1023	Earl Mcdonald	Cougar Video Room	☑
265	106.419	PHOTOGRAPHIC PROCESS	589	218B			☑
382	106.454	DEGREASERS	584	ROOM 7	Craig Brodd		☑
383	106.454	DEGREASERS	585	AUTO SHOP	Neal Smith		☑
260	106.454	DEGREASERS	585	GROUND MAINT.	Joe Trujillo		☑
384	106.454	DEGREASERS	593	MACHINE SHOP	Randy Clark		☑
268	106.472	ORGANIC/INORG. LIQUID LO	585	UNIV STORE	Conrad Murphy		☑
213	106.472	ORGANIC/INORG. LIQUID LO	585	Dock 3		Print Shop	☑
250	106.511	DIESEL	564		Conrad Murphy		☑
255	106.511	DIESEL	587		Conrad Murphy		☑
256	106.511	DIESEL	589		Conrad Murphy		☑
254	106.511	NATURAL GAS	586		Conrad Murphy		☑
253	106.511	NATURAL GAS	584		Conrad Murphy		☑
252	106.511	DIESEL	579		Conrad Murphy		☑
251	106.511	NATURAL GAS	578		Conrad Murphy		☑
249	106.511	DIESEL	560		Conrad Murphy		☑
248	106.511	DIESEL	550		Conrad Murphy		☑
247	106.511	DIESEL	539		Conrad Murphy		☑
246	106.511	DIESEL	538	BATES TEACHING UN	Conrad Murphy		☑
245	106.511	DIESEL	531		Conrad Murphy		☑
40	106.511	DIESEL	596	Exterior Unit			☑
257	106.511	NATURAL GAS	516		Conrad Murphy		☑
36	106.511	DIESEL	581	Exterior Unit			☑

ID	PBR Number	Unit Name	Building	Location	Contact	Comments	Active
41	106.511	DIESEL	701	Exterior Unit			☑
244	106.511	NATURAL GAS	508		Conrad Murphy		☑
27	106.511	DIESEL	534	ROOM 13			☑
25	106.511	DIESEL	524	ROOM 1A			☑
24	106.511	DIESEL	520	EXTERIOR UNIT			☑
23	106.511	NATURAL GAS	515	EXTERIOR UNIT	Gary	not receiving reports - power plan	☑
22	106.511	NATURAL GAS	510	EXTERIOR UNIT	Craig Brodd		☑
21	106.511	NATURAL GAS	509	ROOM 114B			☑
20	106.511	DIESEL	507	EXTERIOR UNIT			☑
19	106.511	DIESEL	505	EXTERIOR UNIT	Marc Eaton		☑
18	106.511	DIESEL	505	ROOM 1216	Marc Eaton		☑
17	106.511	DIESEL	501	EXTERIOR UNIT			☑
43	106.511	DIESEL	MOBILE	PORTABLE		EX 5	☑
44	106.511	GASOLINE	MOBILE	PORTABLE		EM 1	☑
45	106.511	NATURAL GAS	530	EXTERIOR UNIT			☑
38	106.511	NATURAL GAS	590	EXTERIOR	Henry Anderson		☑
46	106.511	DIESEL	520	EXTERIOR UNIT			☑
258	106.511	NATURAL GAS	536		Conrad Murphy		☑
28	106.511	DIESEL	543	EXTERIOR UNIT			☑
42	106.511	DIESEL	MOBILE	PORTABLE		EM 2	☑
29	106.511	DIESEL	547	ROOM 6			☑
30	106.511	DIESEL	549	Exterior Unit			☑
31	106.511	DIESEL	551	Exterior Unit			☑
32	106.511	DIESEL	551	DIESEL			☑
33	106.511	NATURAL GAS	559	Exterior Unit			☑
34	106.511	DIESEL	567	ROOM 17			☑
35	106.511	DIESEL	574	ROOM 1A	Roland Sparks	not receiving reports - athletics	☑
26	106.511	DIESEL	528	ROOM 007C			☑
37	106.511	DIESEL	590	Exterior Unit	Henry Anderson		☑
39	106.511	DIESEL	593	Exterior Unit			☑
261	116.119	DEGREASERS	571	ENGINEERING LAB	Jerry Clifton		☑
187	116.119	PAINT BOOTHS	585	ROOM 172	Conrad Murphy		☑