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By Linell Carter at 2:41 pm, Jan 05, 2010



**U. S. Department of Energy
National Nuclear Security Administration
Pantex Site Office
P. O. Box 30030
Amarillo, TX 79120-0030**



JAN - 4 2010

FEDERAL EXPRESS

Attn: Dana Johnson
Texas Commission on Environmental Quality
P.O. Box 13087, MC-163
Austin, TX 78711-3087

Re: RN100210756: U.S. Department of Energy/National Nuclear Security Administration (DOE/NNSA), Pantex Plant
Texas Commission on Environmental Quality (TCEQ) Air Account No. CF-0019-W
CN600125009: U. S. Department of Energy
CN603275801: Babcock and Wilcox Technical Services Pantex, LLC
Certification of Potential Emissions, Update

Dear Ms. Johnson:

Please reference the Pantex Site Office letter from Jerry S. Johnson to you dated June 22, 2006, subject "Updated Certification of Potential to Emit."

On February 3, 2003, the DOE/NNSA, Pantex Site Office, and its contractor, BWXT Pantex LLC (now re-organized as Babcock and Wilcox Technical Services Pantex LLC and here after referred to jointly with the Department of Energy as the Pantex Plant), submitted documentation to support a Certification of Potential to Emit (PTE) to your office, in accordance with the requirements of Title 30 of the Texas Administrative Code Chapter 122, Section 122. On several dates since that time, the Pantex Plant has submitted updates of that Certification to your office; we reference the last of these updates above.

On July 20, 2009, Mr. Jack Zanger and Bob Roulston of the Pantex Plant, discussed with you our submission to update that certification. Please find enclosed an update to that certification, maintaining our demonstration that the Pantex Plant continues to operate as a "Synthetic" Minor source.

This update provides:

- TCEQ Form OP-CRO2: Updated information on the Responsible Official for both the Department of Energy, National Nuclear Security Administration, Pantex Site Office, and Babcock & Wilcox Technical Services Pantex LLC
- TCEQ Form OP-DEL: Updated information on persons delegated to act for the Responsible Official for both of these organizations
- Form APD-CERT: Identifying the Facilities, Point Names, applicable New Source Review-related authorizations, and Maximum Certified Emission Rates for the Pantex Plant
- Process Descriptions: These include the terms and conditions of the recently issued Flexible Air Permit, and process descriptions for those activities that have been certified in the past

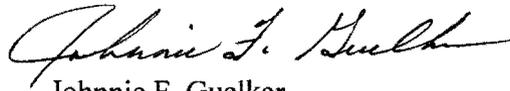
We have continued with a practice discussed with your office and with the TCEQ Region 1 office of referring to application or registration material previously filed with your agency where ever appropriate and possible, to minimize the volume of material included in this submittal.

For Emission Inventory purposes, we have implemented an indexing system that no longer provides information that is considered as meeting the definition of "CONFIDENTIAL" by Texas Government Code §§ 418.75 through 418.182. That information is also designated as "OFFICIAL USE ONLY" by the Atomic Energy Act and must be protected from public disclosure and disclosure to persons that do not have a need to know, pursuant to the Texas Government Code and the Atomic Energy Act.

A cross-reference table will be provided under separate cover for your agency's use, with the required markings. As site drawings and maps have been provided previously, and as there are no changes, we have not provided them with this submission.

If you have any questions, please contact Jack Zanger of my staff at (806) 477-3638.

Sincerely,



Johnnie F. Guelker
Assistant Manager for Environmental
& Site Engineering Programs

Enclosure

cc w/enclosure:
B. Jones, TCEQ, Amarillo

Dana Johnson, TCEQ

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JAN -4 2010

bcc w/enclosure (via email):

D. Riekenberg, SC, PXSO

C. Snider, EC, PXSO

J. Zanger, EC, PXSO

W. Mairson, ESH, B&W

J. Bidwell, Contracts, B&W

J. Flowers, RCD, B&W

R. Roulston, RCD, B&W

RCD, Records, B&W



UNCLASSIFIED

Index No. PX-2209
Page No. 1 of 1
Issue No. 014

Release of Sensitive Unclassified Information
Document Review Process

(Reference WI 02.02.04.06.01)

Document Title: Certification of Potential Emissions, Update

Date: November 17, 2009

Document Author: Robert Roulston

Type of Doc: Letter with certification document

Document Audience: Texas Commission on Environmental Quality; other Stakeholders

(Who is this document being released to or presented to)

Date Required: _____ Blanket Release Expires: N/A

This review must be completed prior to release of information, in any form, to public domain.

Activity (Review) Mail Drop	Responsible Officer/Reviewer	Release Decision	Reviewer Signature	Date
Division Concurrence	Division Manager or Designee <small>(Note: Division Manager or designee must sign before Classification Office review)</small>	Release Approved Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>[Signature]</i> 11-25-09	11-30-09
Classification Review 12-5 CLS Office	Classification Office	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>George Weather</i>	12-01-09
UCNI Review 12-5 CLS Office		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
ECI Review 12-5 ECC Office	Export Control Compliance Office	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>[Signature]</i>	12-1-09
Critical Tech. Review 12-5 ECC Office		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
OPSEC 16-12 OPSEC	OPSEC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>[Signature]</i>	12-1-09
Legal 12-72 Legal	Legal	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<i>[Signature]</i>	12-1-09
Work is within Scope of M&O Contract		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Final Approval for Release 12-36 NNSA S&S	NNSA/PXSO <small>(Note: Deliver PX-2209 to PXSO Mail Room)</small>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>[Signature]</i>	12/3/09
After all signatures are obtained, forward copy of the PX-2209 and the document being released via e-mail (pdf file) to the OPSEC Security Awareness Coordinator.				

Comments: Contact Bob Roulston (x6675) or Connie Pierson (x3244) for document movement.

UNCLASSIFIED



Texas Commission on Environmental Quality
Form APD – CERT
Certification of Emission Limits

I. Company and Site Information			
A. Company Name: U.S. Department of Energy, Babcock & Wilcox Technical Services Pantex, LLC			
B. Responsible Official Name: Steven Erhart / J. Greg Meyer		Responsible Official's Title: Site Manager / General Manager	
Mailing Address: P. O. Box 30030 / P.O. Box 30020			
City: Amarillo	County: Potter	State: Texas	Zip Code: 79120-0030 / 79120-0020
Telephone No.: 806-477-3180 / 806-477-6200	Fax No.: 806-477-6972 / 806-477-6776	E-mail Address: serhart@pantex.doe.gov / gmeyer@pantex.com	
C. Site Name: National Nuclear Security Administration, Pantex Plant			
Street Address: <i>(if different from above)</i> 955 FM 2373 (north of US 60)			
If "NO," street address describe physical location with driving directions:			
City or nearest city: Panhandle		County: Carson	Zip Code: 79068
D. TCEQ Account Identification Number <i>(leave blank if unknown)</i> : CF – 0019 - W			
E. TCEQ Customer Reference Number <i>(leave blank if unknown)</i> : CN600125009 ; CN603275801			
TCEQ Regulated Entity Number <i>(leave blank if unknown)</i> : RN100210756			
Does the site have a Title V Permit?			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
G. Title V Permit Number:			
H. Is this a small business?			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
II. Attach the Following Documentations			
A. Copies of a previously completed Form PI-7 or Form PI-1S and all supporting documentation. PI-8 used previously			
B. A list of each source of air emissions at the site. ATTACHED			
C. A summary of the certified emission rates. ATTACHED			
D. A process description. ATTACHED			
III. Maintain Records On Site to Demonstrate Continuing Compliance and Make the Records Available on Request			
IV. Purpose of this Certification <i>(choose and complete all that are appropriate)</i>			
This certification is intended to establish emission rates below state and federal rule thresholds and triggers for:			
<input type="checkbox"/> 30 TAC § 106.4 for Permits by Rule	<input type="checkbox"/> Permit by Rule Number: _____		
<input type="checkbox"/> HR VOC Emissions Cap and Trade Program	<input type="checkbox"/> Emissions Banking and Trading Program (other than HRVOC)		
<input type="checkbox"/> 30 TAC § 115 for Volatile Organic Compounds	<input type="checkbox"/> 30 TAC § 117 for Nitrogen Oxides		
<input type="checkbox"/> 40 CFR Part 60, Subpart _____	<input type="checkbox"/> 40 CFR Part 61, Subpart _____		
<input type="checkbox"/> 40 CFR Part 63, Subpart _____	<input checked="" type="checkbox"/> Title V Permit Major Source Applicability		
<input type="checkbox"/> Standard Permit: _____	<input type="checkbox"/> Other: _____		



**Texas Commission on Environmental Quality
Form APD – CERT
Certification of Emission Limits (Page 2)**

V. Requests Associated with this Certification	
A. Are you requesting to withdraw your Title V operating permit application? <i>If "YES," submit the original of this certification directly to the assigned Title V permit reviewer and send a copy to the locations indicated in the Mailing Instruction below.</i>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
B. Are you requesting to void an issued Title V operating permit or authorization to operate under a general operating permit? <i>If "YES," submit this certification to the locations indicated in the Mailing Instructions below.</i>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
C. For issued Title V permits, are you subject to Title V permitting requirements, but are submitting this certification to demonstrate that you are not subject to MACT requirements? <i>If "YES," submit this certification to the locations indicated in the Mailing Instructions below.</i>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
D. For pending Title V permits, are you subject to Title V permitting requirements, but are submitting this certification to demonstrate that you are not subject to MACT requirements? <i>If "YES," submit the original of this certification directly to the assigned Title V permit reviewer and send a copy to the locations indicated in the Mailing Instructions below.</i>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
E. Are you establishing maximum allowable emission rates for HRVOC emissions? <i>If yes, submit originals of the Form ECT-3H and this certification directly c/o Cory Chism, Team Leader, Emissions Banking and Trading Team, Air Permits Division, MC163 and send a copy to the locations indicated in the Mailing Instructions below.</i>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
VI. Certification by Responsible Official(s)	
All representations in this certification of emissions are conditions upon which the stationary source shall operate. This certification reflects the maximum emission rates for the operation of this facility. The facility will operate in compliance with all regulations of the Texas Commission on Environmental Quality and with federal U.S. Environmental Protection Agency regulations governing air pollution. It shall be unlawful for any person to vary from such representation unless the certification is first revised. The signature below indicates that, based on information and belief formed after reasonable inquiry, the statements and information contained in the attached documents are true, accurate, and complete.	
NAME and TITLE: <u>Johnnie F. Guelker, Assistant Manager for Environmental & Site Engineering Programs, DOE/NNSA/Pantex Site Office</u>	
SIGNATURE: <u></u> <small>ORIGINAL SIGNATURE REQUIRED</small>	DATE: <u>12/18/09</u>
NAME and TITLE: <u>W. R. Mairson, Manager, Environment, Safety & Health, B&W Pantex</u>	
SIGNATURE: <u></u>	DATE: <u>12-8-09</u>

Reminder: The original of this certification must be sent to the TCEQ in Austin and copies sent to the appropriate TCEQ Regional office and any local air pollution control programs with jurisdiction. A copy must also be maintained on site or, for sites that normally operate unattended, at an office within Texas having day-to-day operational control of the site.

Emission Rate Data

TAB	FIN	Facility Name	EPN	Point Name	Authorization Type	Authorization Date	Permit or Registration Number (if applicable)	Air Contaminant Name	Maximum Certified Emission Rates	
									Pounds/ Hour	Tons/ Year
1		Flex Cap	CAP1	Flex Cap	NSR permit	May 5, 2009	84802	NO _x	670	92.88
		Flex Cap	CAP1	Flex Cap				CO	5119	28.33
		Flex Cap	CAP1	Flex Cap				VOC	407	25.72
		Flex Cap	CAP1	Flex Cap				SO ₂	109	5.14
		Flex Cap	CAP1	Flex Cap				PM ₁₀	179	18.24
		Flex Cap	CAP1	Flex Cap				HF	114	2
		Flex Cap	CAP1	Flex Cap				HAP	--	13.15
2	Site-wide	Welding & Cutting	WELD-FUG	N/A	Standard Exemption /PBR	PI - 8 of Feb. 13, 2004	N/A	NO _x	<0.01	<0.1
								CO	<0.01	<0.1
								PM ₁₀	<0.3	<0.6
								HAP _{PM}	<0.01	<0.1
3	N034	Sanitizing Press	O003-001	E017-001	PBR	July 7, 1999	41577	PM ₁₀	<0.01	<0.1
								HAP	<0.01	<0.1

TCEQ 10489 (Revised 11/06) APD-CERT Form
 This form for use by facilities subject to air quality permits requirements and may be revised periodically. (APDG 5375 v7)

Emission Rate Data

TAB	FIN	Facility Name	EPN	Point Name	Authorization Type	Authorization Date	Permit or Registration Number (if applicable)	Air Contaminant Name	Maximum Certified Emission Rates			
									Pounds/ Hour	Tons/ Year		
4	E017	Material Transfer and Pressing	E017-001	E017-001	PBR	PI-8 of Jan 29, 2003	N/A	PM ₁₀	<0.05	<0.1		
	N034		O003-001	O003-001				HAP _{PM}	<0.05	<0.1		
5	O017	Tooling	O017-001	Anodal Cleaning	Standard Exemption; PBR	PI-8 of Jan. 29, 2003	N/A	NO _x	<0.01	<0.1		
			O017-002	Abrasive Blast				CO	<0.01	<0.1		
			O017-FUG	Tooling				VOC	2.5e-01	2.6e-01		
								PM ₁₀	<0.01	<0.1		
								HAP	<0.01	<0.1		
6	M016	Paint Shops	M016-001	Paint Shops	PBR	July 2, 1996	32764	VOC	<24.0	1.65		
	R015		M016-002								Oct. 4, 2002	52638
	R025		R015-001					Oct 4, 2002	52639	HAP		
			R025-001									
		R025-FUG										

Emission Rate Data

TAB	FIN	Facility Name	EPN	Point Name	Authorization Type	Authorization Date	Permit or Registration Number (if applicable)	Air Contaminant Name	Maximum Certified Emission Rates	
									Pounds/ Hour	Tons/ Year
7	R032	Repackaging	R032-001 R032-002 R032-003 R032-004 R032-005 R032-006	R032-001 R032-002 R032-003 R032-004 R032-005 R032-006	PBR; De minimis	July 7, 2004	72373	VOC	4.2	0.3
8	Sitewide	Chemical Operations (N.O.S.)	SITEWIDE-FUG	N/A	De Minimis; PBR	PI-8 of Jan. 29, 2003	N/A	VOC	<6.0	5.0
	Sitewide	Chemical Operations (N.O.S.)	SITEWIDE-FUG	N/A	De Minimis; PBR		N/A	HAP	<6.0	5.0
9	BG	Burning Ground Soil Vapor Extraction	BGSVE		30TAC§106.533	N/A	N/A	VOC	<0.01	<0.1
								HAP	<0.01	<0.1

Summary of Potential Emissions – Pantex Plant

U. S. Department of Energy, National Nuclear Security Administration, Pantex Plant RN1002140756	Air Contaminant Name	Maximum Certified Emission Rate (Tons/Year)
	NO _x	93.08
	CO	28.53
	VOC	33.03
	SO ₂	5.14
	PM ₁₀	19.14
	HAP	20.6



Form OP-CRO2
Change of Responsible Official Information
Federal Operating Permit Program

The Texas Commission on Environmental Quality (TCEQ) shall be notified of a new appointment or administrative information change (e.g., address, phone number, title) for a Responsible Official (RO), Designated Representative (DR), or Alternate Designated Representative (ADR) in the next submittal. This form satisfies the requirements for notification (a revised Certificate of Representation must also be submitted to the U.S. Environmental Protection Agency for changes in the DR and ADR). *After the initial submittal, if there is a change of Duly Authorized Representative (DAR) appointment or an administrative information change for the DAR, include a revised Form OP-DEL (Delegation of Responsible Official) with the next submittal to the TCEQ.*

I. IDENTIFYING INFORMATION

A. Account No. CF-0019-W	B. RN100210756	C. CN600125009
D. Permit No. N/A	E. Area Name: Pantex Plant	
F. Company Name: U.S. Department of Energy		

II. CHANGE TYPES

A. Action Type: New Appointment: <input checked="" type="checkbox"/> Administrative Information Change: <input type="checkbox"/>		
B. Contact Type (<i>only one response can be accepted per form</i>)		
Responsible Official: <input checked="" type="checkbox"/> Designated Representative: <input type="checkbox"/> Alternate Designated Representative: <input type="checkbox"/>		

III. RESPONSIBLE OFFICIAL/DESIGNATED REPRESENTATIVE/ALTERNATE DESIGNATED REPRESENTATIVE INFORMATION

A. Name: (<u>X</u> Mr. ___ Mrs. ___ Ms. ___ Dr.) Steven C. Erhart		
B. Title: Manager, Pantex Site Office	C. Appointment Effective Date: March 3, 2008	
D. Telephone: 806/ 477- 3180	E. Fax: 806/477-5894	
F. Company Name: U.S. Department of Energy, National Nuclear Security Administration, Pantex Site Office		
G. Mailing Address: P.O. Box 30030, Building 12-36		
City: Amarillo	State: TX	Zip Code: 79120-0030
H. Delivery Address: 955 FM 2373		
City: Panhandle	State: TX	Zip Code: 79068

IV. CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS

This certification does not extend to information which is designated by the TCEQ as information for reference only.

I, Steven C. Erhart, certify that, based on information and belief formed after reasonable inquiry, (*Name printed or typed*) the statements and information stated above are true, accurate, and complete.

Signature: *Steven C. Erhart* Signature Date: 12/28/09
 Title: Manager, Pantex Site Office



Form OP-DEL
Delegation of Responsible Official Authority
Federal Operating Permit Program

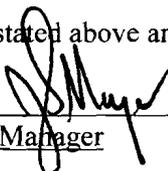
A Responsible Official (RO) representing a corporation or military base may choose to delegate signature authority to a Duly Authorized Representative (DAR). Such delegation may be made to an individual that has responsibility for the overall operation of one or more manufacturing, production, or operating facilities applying for, or subject to, a federal operating permit. This Form OP-DEL must bear the original signature of the RO and the DAR. Electronic submittals of this form will not be accepted by the Texas Commission on Environmental Quality (TCEQ). After the initial permit application submittal, if there is a new delegation or information change for the RO, Designated Representative (DR), or Alternate Designated Representative (ADR), include a completed Form OP-CRO2 (Change of Responsible Official) with the next submittal to the TCEQ.

I. IDENTIFYING INFORMATION		
A. Account No. CF0019-W	B. RN100210756	C. CN600125009
D. Permit No.: N/A		
E. Area Name: National Nuclear Security Administration (DOE/NNSA) Pantex Plant		
F. Company Name: U.S. Department of Energy		
G. Action Type: <input type="checkbox"/> New DAR Identification <input checked="" type="checkbox"/> Administrative Information Change		
II. DULY AUTHORIZED REPRESENTATIVE INFORMATION		
A. Name: (X Mr. ___ Mrs. ___ Ms. ___ Dr.) Steven C. Erhart		
B. Title: Manager, Pantex Site Office	C. Delegation Effective Date: N/A	
D. Telephone: 806/ 477- 3180	E. Fax: 806 / 477- 5894	
F. Mailing Address: : P.O. Box 30030, Building 12-36		
City: Amarillo	State: TX	Zip Code: 79120-0030
G. Delivery Address: 955 FM 2373		
City: Panhandle	State: TX	Zip Code: 79068
III. CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS		
I, <u>Steven C. Erhart</u> , certify that, based on information and belief formed after reasonable inquiry, (RO or DAR name printed or typed) the statements and information stated above are true, accurate, and complete.		
Responsible Official Signature: <u><i>Steven C. Erhart</i></u>		Signature Date: <u>12/28/09</u>
Title: <u>Steven C. Erhart, Manager, DOE/NNSA/Pantex Site Office</u>		
Duly Authorized Representative Signature: <u><i>Geoffrey L. Beausoleil</i></u>		Signature Date: <u>21 DEC 2009</u>
Title: <u>Geoffrey L. Beausoleil, Deputy Manager, DOE/NNSA/Pantex Site Office</u>		
Duly Authorized Representative Signature: <u><i>Johnnie F. Guelker</i></u>		Signature Date: <u>12/17/09</u>
Title: <u>Johnnie F. Guelker, Assistant Manager for Environmental & Site Engineering Programs, DOE/NNSA/Pantex Site Office</u>		
Duly Authorized Representative Signature: <u><i>Craig A. Snider</i></u>		Signature Date: <u>12/16/09</u>
Title: <u>Craig A. Snider, Supervisor of Environmental Compliance, DOE/NNSA/Pantex Site Office</u>		



Change of Responsible Official Information Federal Operating Permit Program

The Texas Commission on Environmental Quality (TCEQ) shall be notified of a new appointment or administrative information change (e.g., address, phone number, title) for a Responsible Official (RO), Designated Representative (DR), or Alternate Designated Representative (ADR) in the next submittal. This form satisfies the requirements for notification (a revised Certificate of Representation must also be submitted to the U.S. Environmental Protection Agency for changes in the DR and ADR). *After the initial submittal, if there is a change of Duly Authorized Representative (DAR) appointment or an administrative information change for the DAR, include a revised Form OP-DEL (Delegation of Responsible Official) with the next submittal to the TCEQ.*

I. IDENTIFYING INFORMATION			
A. Account No. CF-0019-W	B. RN100210756	C. CN603275801	
D. Permit No.: N/A	E. Area Name: Pantex Plant		
F. Company Name: Babcock & Wilcox Technical Services Pantex LLC			
II. CHANGE TYPES			
A. Action Type:		New Appointment: <input checked="" type="checkbox"/>	Administrative Information Change: <input type="checkbox"/>
B. Contact Type (<i>only one response can be accepted per form</i>)			
Responsible Official: <input checked="" type="checkbox"/>		Designated Representative: <input type="checkbox"/>	Alternate Designated Representative: <input type="checkbox"/>
III. RESPONSIBLE OFFICIAL/DESIGNATED REPRESENTATIVE/ALTERNATE DESIGNATED REPRESENTATIVE INFORMATION			
A. Name: (<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Dr.) J. G. Meyer			
B. Title: President & General Manager		C. Appointment Effective Date: April 11, 2008	
D. Telephone: 806 / 477- 6200		E. Fax: 806/477-6202	
F. Company Name: Babcock & Wilcox Technical Services Pantex, LLC			
G. Mailing Address: P.O. Box 30020, Building 12-69			
City: Amarillo		State: TX	Zip Code: 79120-0020
H. Delivery Address: 955 FM 2363			
City: Panhandle		State: TX	Zip Code: 79068
IV. CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS			
<p>This certification does not extend to information which is designated by the TCEQ as information for reference only.</p> <p>I, <u>J. G. Meyer</u>, certify that, based on information and belief formed after reasonable inquiry, the (<i>Name printed or typed</i>) statements and information stated above are true, accurate, and complete.</p> <p>Signature: <u></u> 12/11/09 Signature Date:</p> <p>Title: <u>President & General Manager</u></p>			



**Form OP-DEL
Delegation of Responsible Official Authority
Federal Operating Permit Program**

A Responsible Official (RO) representing a corporation or military base may choose to delegate signature authority to a Duly Authorized Representative (DAR). Such delegation may be made to an individual that has responsibility for the overall operation of one or more manufacturing, production, or operating facilities applying for, or subject to, a federal operating permit. This Form OP-DEL must bear the original signature of the RO and the DAR. Electronic submittals of this form will not be accepted by the Texas Commission on Environmental Quality (TCEQ). After the initial permit application submittal, if there is a new delegation or information change for the RO, Designated Representative (DR), or Alternate Designated Representative (ADR), include a completed Form OP-CRO2 (Change of Responsible Official) with the next submittal to the TCEQ.

I. IDENTIFYING INFORMATION			
A. Account No.: CF0019-W	B. RN100210756	C. CN6003275801	
D. Permit No.: N/A			
E. Area Name: Pantex Plant			
F. Company Name: Babcock & Wilcox Technical Services Pantex, LLC			
G. Action Type: <input type="checkbox"/> New DAR Identification <input checked="" type="checkbox"/> Administrative Information Change			
II. DULY AUTHORIZED REPRESENTATIVE INFORMATION			
A. Name: (<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Dr.) J. G. Meyer			
B. Title: President & General Manager		C. Delegation Effective Date: N/A	
D. Telephone: 806/ 477-6200		E. Fax: 806 / 477-6202	
F. Mailing Address: : P. O. Box 30020, Building 12-69			
City: Amarillo	State: TX	Zip Code: 79120-0020	
G. Delivery Address: 955 FM 2373			
City: Panhandle	State: TX	Zip Code: 79068	
III. CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS			
I, <u>J. G. Meyer</u> , certify that, based on information and belief formed after reasonable inquiry, (RO or DAR name printed or typed) the statements and information stated above are true, accurate, and complete.			
Responsible Official Signature: <u>[Signature]</u>		Signature Date: <u>12/11/09</u>	
Title: <u>President & General Manager, Babcock & Wilcox Technical Services Pantex, LLC</u>			
Duly Authorized Representative Signature: <u>[Signature]</u>		Signature Date: <u>12-10-09</u>	
Title: <u>Deputy General Manager, Babcock & Wilcox Technical Services Pantex, LLC</u>			
Duly Authorized Representative Signature: <u>[Signature]</u>		Signature Date: <u>Dec. 9, 2009</u>	
Title: <u>Chief Counsel, Babcock & Wilcox Technical Services Pantex, LLC</u>			
Duly Authorized Representative Signature: <u>[Signature]</u>		Signature Date: <u>12-8-09</u>	
Title: <u>Manager, Environment, Safety & Health, Babcock & Wilcox Technical Services Pantex, LLC</u>			
Duly Authorized Representative Signature: <u>[Signature]</u>		Signature Date: <u>12/9/09</u>	
Title: <u>Manager, Applied Technology/Research & Development, Babcock & Wilcox Technical Services Pantex, LLC</u>			
Duly Authorized Representative Signature: <u>[Signature]</u>		Signature Date: <u>12-9-09</u>	
Title: <u>Manager, Projects, Babcock & Wilcox Technical Services Pantex, LLC</u>			

Process Description(s)
Contents:

1. Flexible Air Permit
2. Welding & Cutting
3. Sanitizing Press
4. Material Transfer and Pressing
5. Tooling
6. Paint Shops
7. Repackaging
8. Chemical Operations, Not Otherwise Specified (N.O.S.)
9. Burning Ground – Soil Vapor Extraction

1. Flexible Air Permit No. 84802

- 1.1. Operational Description: Please refer to the application submitted in support of this Permit. See: Letter; Johnnie Guelker to Texas Commission on Environmental Quality; Air Quality Permit Application for a Flexible Air Permit; Date: May 2, 2008.
- 1.2. Means of Verifying Emission Rates: Please refer to the application submitted in support of this Permit. See: Letter; Johnnie Guelker to Texas Commission on Environmental Quality; Air Quality Permit Application for a Flexible Air Permit; Date: May 2, 2008.
- 1.3. Method of Calculation of Maximum Emission Rates: Please refer to the application submitted in support of this Permit. See: Letter; Johnnie Guelker to Texas Commission on Environmental Quality; Air Quality Permit Application for a Flexible Air Permit; Date: May 2, 2008.

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers 84802

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA				
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
CAP1	Flex Cap (4)	NO _x	670	92.88
		CO	5,119	28.53
		VOC	407	25.72
		SO ₂	109	5.14
		PM ₁₀	179	18.24
		HF	114	2.00
		HAP		13.15

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.

(2) Specific point source name. For fugitive sources use area name or fugitive source name.

(3) NO_x - total oxides of nitrogen

CO - carbon monoxide

VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1.

SO₂ - sulfur dioxide

PM₁₀ - it shall be assumed that all particulate matter emitted will be particulate matter less than 10 microns.

HF - hydrogen fluoride

HAP - hazardous Air Pollutants

(4) Includes the sources listed in special conditions, Table 1.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

24 Hrs/day 7 Days/week 52 Weeks/year or 8,760 Hrs/year

** Compliance with annual emission limits is based on a rolling 12-month period.

Dated: May 5, 2009

2. Welding and Cutting

2.1. Operational Description:

FIN G019 was built in 1964. This building serves as the primary welding and cutting facility. Three task exhaust hoods vent into two emissions points for welding/cutting operations; however, one of the hoods (and one of the emission points) is for a Welding operation that is conducted under water, it has no regulated emissions. Welding equipment used consists of Shielded Metal Arc Welding (SMAW) and Oxyacetylene Cutting (Oxy). The main part of G019 is used for general metal fabrication. The facility is equipped with typical workbenches, tool storage, and cabinets. Welding/cutting is performed in the area using stationary/portable equipment.

FIN F009 was built in 1966. The building serves as a satellite maintenance shop for basic equipment repairs. The shop contains no process ventilation and consequently no emission points, other than a fugitive potential. Periodic welding is performed in the area using portable equipment with a maximum historical welding rate of one hour per month. Welding equipment used consists of SMAW and Oxy.

Welding/cutting may be conducted at various other locations plant-wide using portable equipment. Plant-wide welding/cutting operations may be conducted 8 hrs per day, 5 days per week, 52 weeks per year. This equals a total of 2080 hours of welding/cutting per year Plant-wide.

2.2. Conformance with referenced Standard Exemption or Permit by Rule

Standard Exemption (SE) No. 39; "Brazing, soldering, or welding equipment, except those which emit 0.6 ton per year or more of lead" (Reference date August 11, 1989) applies to the entire site. This is a historical "one-liner" authorization. Emissions are not to exceed 0.6 tons per year of lead (there is no lead in the welding rods used) or 0.6 tons per year total PM.

2.3. Means of Verifying Emission Rates

The Maintenance supervisor, or designee, keeps records of welding rod consumption and acetylene consumption. Monthly, the Maintenance supervisor enters these values into an Excel workbook that calculates for the month and for a rolling 12 months.

2.4. Method of Calculation of Maximum Emission Rates

Various welding and cutting tasks that are performed plant-wide may happen at the same time, but not continuously during the day. In order to provide Plant-wide Welding/Cutting with sufficient operational flexibility while establishing a federally enforceable limit, it is assumed that welding/cutting operations can be performed concurrently by 2 separate welding teams.

To calculate the NO_x & CO emissions for Oxy, USEPA AP-42, "Compilation of Air Pollutant Emission Factors", Section 13.5-2 (flares) and Table 13.5-1 (Issue 1995) was used. The factor for NO_x is 0.068 lb per million Btu and CO is 0.37 lb per million Btu.

Table 1: Maximum Activity Rates

Welding Operation	Maximum Operations	Maximum Rod Weight	Maximum Acetylene Use
	hr/yr	lb/yr	lb/yr
Arc	5,000	3,600	
Oxy-acetyl.	5,000		3,250

$$\begin{aligned}
 \text{Emission Rate (ER)}_{(\text{NOx hourly})} &= \left[\frac{(0.068 \text{ lb/MMBTU})(20,747 \text{ BTU/lb acetylene})}{1,000,000 \text{ BTU/MMBTU}} \right] [\text{Process Rate } \text{lb/hr}] \\
 &= \left[\frac{(0.068 \text{ lb/MMBTU})(20,747 \text{ BTU/lb acetylene})}{1,000,000 \text{ BTU/MMBTU}} \right] \left[\frac{3250 \text{ lb/yr}}{5000 \text{ hr/yr}} \right] \\
 &= [1.41 \times 10^{-3} \text{ lb/lb}] [0.65 \text{ lb/hr}] \\
 &= 9.2 \times 10^{-4} \text{ lb/hr} \\
 \text{ER}_{(\text{NOx annual})} &= (\text{ER}_{(\text{NOx hourly})} \text{ lb/hr})(\text{Process Rate } \text{hr/yr}) / 2000 \text{ lb/ton} \\
 &= (9.2 \times 10^{-4} \text{ lb/hr})(5000 \text{ hr/yr}) / 2000 \text{ lb/ton} \\
 &= 2.3 \times 10^{-3} \text{ TPY}
 \end{aligned}$$

PM from Oxy was calculated using the worst-case emission factor from Fumes and Gases in the Welding Environment, published by the American Welding Society. The worst-case factor of 1.78g/min Fume Generation Rate was used to determine the PM rate for Oxy cutting.

$$\begin{aligned}
 \text{ER}_{\text{hourly}} &= (1.78 \frac{\text{g}}{\text{min}} \times 60 \frac{\text{min}}{\text{hr}}) / 454.59 \frac{\text{g}}{\text{lb}} \\
 &= 0.23 \frac{\text{lb}}{\text{hr}}
 \end{aligned}$$

$$\begin{aligned}
 \text{ER}_{\text{annual}} &= (0.23 \frac{\text{lb}}{\text{hr}} \times 5,000 \frac{\text{hr}}{\text{yr}}) / 2000 \frac{\text{lb}}{\text{ton}} \\
 &= 0.59 \frac{\text{ton}}{\text{yr}}
 \end{aligned}$$

The USEPA provides more data for Arc welding processes. The welding rods most commonly used are shown in Table 2. Also in Table 2 are the Emission Factors for HAP_{PM} from ARC. The sum of the worst-case factors will be used.

Table 2
Speciated Emission Factors¹ for Welding Rod (lb/1000 lb-rod)

Welding Rod	Cr	Cr(VI)	Co	Mn	Ni	Pb	Total HAP
308	3.93e-1	3.59 e-1	1.00 e-3	2.52 e-1	4.30 e-2	ND	1.05e+0
316	5.22 e-1	3.32 e-1	ND	5.44 e-1	5.50 e-2	ND	1.45e+0
6010	3.00 e-3	1.00 e-3	ND	9.91 e-1	4.00 e-3	ND	1.00e-00
7018	6.00 e-3	ND	1.00 e-3	1.03e+0	2.00 e-3	ND	1.04e-1
7024	1.00 e-3	ND	ND	6.29 e-1	ND	ND	6.30e-1
Worse Case	5.22 e-1	3.59 e-1	1.00 e-3	9.91 e-1	5.50 e-2	ND	1.93 e+0

¹ Emission Factors from AP-42, Table 12.19-2 dated January 1995.

$$\begin{aligned}
 ER_{annual} &= EF \times \text{Welding Rod Usage} \left(\frac{\text{lb}}{\text{yr}} \right) \\
 &= 1.93 \frac{\text{lb}}{1000\text{lb}} \times 3,600 \frac{\text{lb}}{\text{yr}} \\
 &= 6.95 \frac{\text{lb}}{\text{yr}} \\
 &= 3.51 \times 10^{-3} \frac{\text{ton}}{\text{yr}}
 \end{aligned}$$

$$\begin{aligned}
 ER_{hourly} &= ER_{annual} \div 5,000 \frac{\text{hr}}{\text{yr}} \\
 &= 6.95 \frac{\text{lb}}{\text{yr}} \div 5,000 \frac{\text{hr}}{\text{yr}} \\
 &= 1.4 \times 10^{-3} \frac{\text{lb}}{\text{hr}}
 \end{aligned}$$

Table 3
Summary of Calculated Emission Rates

Welding Operation	Maximum Emissions Rates							
	NO _x		CO		PM		HAP _{PM}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Arc					1.4e-03	3.5e-03	1.4e-03	3.5e-03
Oxy.	9.2e-04	2.3e-03	5.0e-3	1.3e-02	2.3e-01	5.8e-01		
Total:	9.2e-04	2.3e-03	5.0e-03	1.3e-02	2.3e-01	5.9e-01	1.4e-03	3.5 e-03

Table 4 Summary of Certified Emission Rates

Welding Operation	Maximum Emissions Rates							
	NO _x		CO		PM		PM _{HAP}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Arc					<0.01	<0.1	<0.01	<0.1
Oxy	<0.01	<0.1	<0.01	<0.1	<0.3	<0.6		
Total:	<0.01	<0.1	<0.01	<0.1	<0.3	<0.6	<0.01	<0.1

3. Sanitizing Press

3.1. Operational Description:

FIN N034 consists of three reinforced concrete bays designed for the processing of explosives. The facility consists of three work bays, a control room, and three equipment rooms/bays.

Two mutually exclusive processes are performed in this facility: 1) Preparing energetic (explosives) and mock explosives for pressing, using an isostatic yoke press; and 2) Sanitizing parts from dismantlement operations via a mechanical press (Bay 3). This discussion refers only to the second process; the preparation-related emissions are discussed in a following section (please refer to Section 4 [Material Transfer & Pressing]).

Sanitization is authorized by Registration No. 41577. The following process description is provided from the registration:

"This registration is for the installation of an additional air collection system with two (collection points) and an air emission control device, which will result in releases to the ambient air from sanitization activities."

"The sanitization process includes receiving components and, when necessary, performing disassembly (in) a vent hood, and sanitizing them by crushing with the (existing) 800-ton press. Two new capture points will be created, one at the vent hood, and one as an enclosure for the 800-ton press. Exhaust from these two (collection points) will be routed through a new 99.97 percent efficient High Efficiency Particulate Air (HEPA) filter before reaching [a countercurrent air/water scrubber] and stack (located at E017-001). The scrubber removes particulate matter (dust) that might be generated."

3.2. Conformance with referenced Standard Exemption or Permit by Rule

Conformance is based on issuance of TCEQ Registration No. 41577, issued July 2, 1999.

3.3. Means of Verifying Emission Rates

Facility or Operations Managers submit monthly activity reports, meeting the requirements of 30 TAC §106.8, to the Regulatory Compliance Department, indicating the total number of operating hours and the total monthly feed rate, verifying that operation rates had not exceeded the rates represented in the application for No. 41577, which were certified using a form PI-8, signed on July 23, 2003.

3.4. Method of Calculation of Emission Rates

This information was provided in the registration notice that served as the basis for issuance of Registration No. 41577. The following description is provided from that registration:

“Emission estimates were developed from actual dust concentrations (measured for worker exposure controls), process knowledge of constituents, exhaust air flow rates, and (removal) efficiencies determined by engineering designs and vendor information.”

“Dust loadings into the process exhaust were determined from measurements made by Pantex Plant’s Occupational Safety & Health Department. The highest particulate measurements were 2.3 and 6.4 milligrams per cubic meter (mg/m^3); with all other readings being much lower. To be conservative, the highest value measured was chose for the basis of emission calculations.”

“Particulate matter concentrations were converted into parts per million by weight (ppm_{wt}) to calculate mass emission rates. Thus, the maximum particulate concentration ($6.4 \text{ mg}/\text{m}^3$) has an equivalent weight fraction of $5.33 \text{ ppm}_{\text{wt}}$.”

“The maximum hourly emission rate, based on a flow of 2,000 cubic feet per minute (cfm) and a dust concentration of $5.33 \text{ ppm}_{\text{wt}}$, after the 99.97 percent reduction by the HEPA filter, is 1.44×10^{-05} pounds per hour. Based on an assumption of 1,000 hours of sanitization operations per year, the annual calculated emission rate will be 7.19×10^{-06} tons.”

Table
Summary of Certified Emission Rates

Sanitization Operation	Maximum Emissions Rates			
	PM		PM_{HAP}	
	lb/hr	tpy	lb/hr	tpy
Total:	<0.01	<0.1	<0.01	<0.1

4. Material Transfer and Pressing

4.1. Operational Description

Energetic and non-energetic materials are frequently received in bulk (granular or powder form). In FIN N034 and in FIN E017, the bulk containers may be emptied onto an inspection table, screened and sifted to remove undesired materials that may have become blended into the materials during prior processing. This sifting and inspecting may generate dust, which can be captured by an air handling system at the table. Additionally, the particulate material may be heated in electrically or steam heated ovens in order to remove any water that may have become entrained in earlier processes. Air flow through the ovens has a potential for suspending some dust in the air stream.

In FIN N034, the inspected and dried granular material may be transferred into enclosed pressing mandrels, a process that has the potential for generating small quantities of airborne particulate.

Both air handling systems are vented through counter-current (air/water) scrubbers (roto-clones) to remove particulate prior to release outside of the buildings. The scrubbers are assumed to have a removal efficiency of 95 percent.

4.2. Conformance with referenced Standard Exemption or Permit by Rule

Both operations were evaluated during April of 1990 and were found to meet the conditions of Standard Exemption No. 106 (List effective September 12, 1989).

106. Facilities, or physical or operational changes to a facility, provided that all of the following conditions are satisfied:

(a) This exemption shall not be used to authorize construction of or any change to a facility authorized in another standard exemption (See Exemption 118(a)). The persons conducting the review could find no more applicable authorization.

(b) The facilities or changes shall be located at least 100 feet from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located.'

Both facilities are located more than 1000 feet from the nearest fence-line.

(c) Total new or increased emissions, including fugitives, shall not exceed 6.0 pounds per hour (lb/hr) and 10 tons per year of the following materials: Acetylene, argon, butane, crude oil, refinery petroleum fractions (except for pyrolysis naphthas and pyrolysis gasolines) containing less than 10 volume percent benzene, carbon monoxide, cyclohexane, cyclohexene, cyclopentane, ethyl acetate, ethanol, ethyl ether, ethylene, fluorocarbons Numbers 11, 12, 13, 14, 21, 22, 23, 113, 114, 115, and 116, helium, hydrogen, isohexane, isopropyl alcohol, methyl acetylene, methyl chloroform, methyl cyclohexane, neon, nonane, oxides of nitrogen, propane, propyl alcohol, propylene, propyl ether, sulfur dioxide, alumina, calcium carbonate, calcium silicate, cellulose fiber, cement dust, emery dust, glycerin mist, gypsum, iron oxide dust, kaolin, limestone, magnesite, marble, pentaerythritol, plaster of paris, silicon, silicon carbide,

starch, sucrose, zinc stearate, zinc oxide. No new or increased emissions were involved in the 1990 review.

(d) Total new or increased emissions, including fugitives, shall not exceed 1.0 lb/hr of any chemical having a limit value (L) greater than 200 milligrams per cubic meter (mg/m³) as listed and referenced in Table 118A of the Standard Exemption List or of any other chemical not listed or referenced in Table 118A. Emissions of a chemical with a limit value of less than 200 mg/m³ are not allowed under this exemption.

No new or increased emissions were involved in the 1990 review.

(e) For physical changes or modifications to existing facilities, there shall be no changes to or additions of any air pollution abatement equipment.

No physical changes or modifications were involved in the 1990 review.

(f) Visible emissions, except uncombined water, to the atmosphere from any point or fugitive source shall not exceed 5.0% opacity in any five-minute period.

No visible emission readings were attempted; however, based on the projected rate of emissions, and the use of water-based control technology, visible emissions were considered to be compliant.

4.3. Means of Verifying Emission Rates

Operations or building managers provide, on a monthly basis, verification that neither facility has been operated for more than 3000 hours in the past 12 months. These verification reports also provide data on the weight of particulate material prepared for pressing in the month and in the last 12 months.

4.4. Method of Calculation of Maximum Emission Rates

In 1990, operators estimated that any batch of material (which could involve sorting or no sorting, heating or no heating in any combination) would experience a loss of 1×10^{-4} lb/lb. Hourly and annual emission rates were based on the assumptions:

- Both facilities might operate at the same time;
- FIN E017 will manage no more than 50 lb/day; 3,000 lb/annum of material;
- FIN N034 will manage no more than 9,000 lb/hour; 3,000 hours/annum;
- Both facilities emissions are routed through passive scrubbers with 95 per cent control efficiencies.

Thus, hourly emissions can be estimated as not exceeding 0.05 lb/hr, and annual emissions as less than 0.1 tons per year.

Sample Calculations :

Hourly Emissions

$$\begin{aligned} \text{Emission Rate}_{(PM\text{ hourly})} &= (\text{Emission Factor } \frac{\text{lb}}{\text{lb powder}})(\text{Process Rate } \frac{\text{lb}}{\text{hr}})(\text{Filter Efficiency}\%) \\ &= (1 \times 10^{-4} \frac{\text{lb}}{\text{lb}})(9,000 \frac{\text{lb}}{\text{hr}})(1 - .95) \\ &= 4.5 \times 10^{-2} \frac{\text{lb}}{\text{hr}} \end{aligned}$$

$$\begin{aligned} \text{Emission Rate}_{(PM\text{ annual})} &= (\text{Emission Rate}_{(PM\text{ hourly})})(\text{Process Rate } \frac{\text{hr}}{\text{yr}}) / (2,000 \frac{\text{lb}}{\text{ton}}) \\ &= (4.5 \times 10^{-2} \frac{\text{lb}}{\text{hr}})(3,000 \frac{\text{hr}}{\text{yr}}) / (2,000 \frac{\text{lb}}{\text{ton}}) \\ &= 6.75 \times 10^{-2} \text{ TPY} \end{aligned}$$

Table
Summary of Certified Emission Rates

Material Transfer & Pressing	Maximum Emissions Rates			
	PM		PM _{HAP}	
	lb/hr	tpy	lb/hr	tpy
E017	<0.01	<0.1	<0.01	<0.1
N034	<0.05	<0.1	<0.01	<0.1

5. Tooling

5.1. Operational Description

FIN O017 was constructed in 1977. This facility fabricates and repairs equipment and tooling in support of other plant operations. There are several processes that are used at FNO017. These processes are listed below and in Table 1. For all processes involving tanks, the tanks are vented to the outside.

Welding is conducted at the machine shop on a small scale. Oxy-acetylene welding is the type of welding conducted. Standard Exemption 39 applies to this procedure.

Dry Grinding is conducted on parts on a regular basis; however, there are no emissions to the outside.

Anodal stripping is done at the Machine Shop. Standard Exemption 41 applies this process.

Chemical cleaning/stripping was conducted in this facility, using a 21 percent HCl solution at ambient temperature to remove scale. This process was discontinued, and the tank was removed, in 2005.

Heat Treating is conducted in an electric oven; there are no combustion emissions.

Oxide Coating is a Black Oxide process. This process uses eight tanks. All the tanks, with the exception of tank 8, are 250-gallon tanks. Tank 8 is a 147-gallon tank. Tank 1 contains a 10 percent solution of inorganic caustics, heated to 150°F. Tank 4 contains a 5 percent solution of a commercially available mixture of inorganic acids heated to 120°F. Tank 6 contains a 10 percent solution of the Black Oxide treatment at ambient temperature. Tank 8 contains a petroleum based rust inhibitor (source of VOC emissions). Tanks 2, 3, 5, and 7 are water rinse tanks.

The Dry Abrasive Blaster is an enclosed unit that is vented to the outside. It contains a 5 bag filter system with approximately 99 percent removal efficiency. The emissions are PM only. Permit by Rule §106.452 applies to this unit.

Machining is conducted at the Machine Shop using a liquid coolant. The small amount of emissions from the process is not vented to the outside, therefore, not discussed further in our PTE demonstration.

Table 1
Machine Shop Processes and Exemptions

Emission Point Number	Source Activity	SE/PBR	List of / Effective
O017-001	Welding	SE 39	Aug 11, 1989
O017-002	Anodal Stripping	SE 41*	April 5, 1995
O017-004	Oxide Coating	PBR 433	Apr 7, 1998
O017-005	Dry Abrasive Blasting	PBR 452	Aug 4, 1998

- These are historical one-liner exemptions, thus, no reporting requirements established under 30 TAC106.8.

5.2. Conformance with referenced Standard Exemption or Permit by Rule

Standard Exemption 39: *Brazing, soldering, or welding equipment, except those which emit 0.6 ton per year or more of lead.* Emissions of lead from the oxy-acetylene welding are less than 0.6 tons per year.

Standard Exemption 40: *Hand-held or manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding, or turning of ceramic art work, ceramic precision parts, leather, metals, plastics, fiber board, masonry, carbon, glass, graphite, or wood.* The dry grinder is a manually operated machine.

Standard Exemption 41: *Equipment using aqueous solutions for anodizing, electrodeposition, electroless plating, electrolytic polishing, and stripping of brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc, and precious metals; and for cleaning, stripping, etching, or other surface preparation; but not including chemical milling or electrolytic metal recovery and reclaiming systems.* Anodal stripping uses an aqueous solution to clean the metal that does not include chemical milling or electrolytic metal recovery, or a reclaiming system.

Standard Exemption 57: *Electrically heated or sweet natural gas or liquid petroleum gas fueled equipment used exclusively for heat treating, soaking, case hardening, or surface conditioning of metal objects, such as carbonizing, cyaniding, nitriding, carbonitriding, siliconizing, or diffusion treating.* Heat treating at O017 is conducted in an electric oven using no petroleum fuels.

Permit-by-Rule §106.433: Oxide coating is a dip-coat process that generates less than 0.25 lb/hr VOC, due to the small surface area of the tank and the low volatility of the coating material.

Permit-by-Rule §106.452: The dry abrasive blaster has a mechanical cleaned fabric filter with a maximum filtering velocity of 3.0 feet per minute.

5.3. Means of Verifying Emission Rates

FIN O017 personnel keep records on the amount of acetylene and Dri-Touch Plus used and the number of hours of abrasive blasting. Monthly, the Maintenance supervisor enters these values into an Excel workbook, which generates an emissions report for both the month and the preceding 12 months.

5.4. Method of Calculation of Maximum Emission Rates

In order to provide FIN O017 with sufficient operational flexibility while establishing a federally enforceable limit, process limits were set according to Table 2.

Welding: To calculate the emissions for the welding, USEPA AP-42, "Compilation of Air Pollutant Emission Factors", Section 13.5-2 (flares) and Table 13.5-1 (Issue 1995) was used. The factor for NO_x is 0.068 lb per million Btu and CO is 0.37 lb per million Btu.

For PM and VOC the factor is 2 percent the weight of acetylene. The operational limit is 26 lb of acetylene and assumed 40 hours of actual operation. Acetylene has a heat content of 20,747 Btu per pound.

Table 2
Operational Limits and Requirements

Emission Point Number	Source Activity	Operational Limits	Record Keeping Requirements	Reporting Requirements
O017-001	Welding/Cutting	26 lb/yr Acetylene	Amount of Acetylene used.	Amount of Acetylene used in the month in pounds.
O017-002	Anodal Stripping	NA	NA	NA
O017-004	Oxide Coating	110 gal/yr	Amount of Dri-Touch Plus® used.	Amount of Dri-Touch Plus® used in the month in gallons.
O017-005	Dry Abrasive Blasting	4 hr/day 250 days/yr	Hours of abrasive blasting.	Hours of abrasive blasting in the month.

Sample Calculations :

Welding/Cutting

$$\begin{aligned}
 \text{Emission Rate}_{(\text{NOx hourly})} &= \left[\frac{(0.068 \text{ lb/MMBTU})(20,747 \text{ BTU/lb acetylene})}{1,000,000 \text{ BTU/MMBTU}} \right] [\text{Process Rate } \text{lb/hr}] \\
 &= \left[\frac{(0.068 \text{ lb/MMBTU})(20,747 \text{ BTU/lb acetylene})}{1,000,000 \text{ BTU/MMBTU}} \right] \left[\frac{26 \text{ lb/yr}}{40 \text{ hr/yr}} \right] \\
 &= [1.41 \times 10^{-3} \text{ lb/lb}] [0.65 \text{ lb/hr}] \\
 &= 9.17 \times 10^{-4} \text{ lb/hr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Emission Rate}_{\text{NOX annual}} &= (\text{Emission Rate}_{(\text{NOx hourly})} \text{ lb/hr})(\text{Process Rate } \text{hr/yr}) / 2000 \text{ lb/ton} \\
 &= (9.17 \times 10^{-4} \text{ lb/hr})(40 \text{ hr/yr}) / 2000 \text{ lb/ton} \\
 &= 1.834 \times 10^{-5} \text{ TPY}
 \end{aligned}$$

Oxide Coating

Emission Rate_{VOC hourly} = 4.714 lb/gal (Published information on the Dri - Touch)

$$\begin{aligned} \text{Emission Rate}_{\text{VOC annual}} &= (\text{Emission Rate}_{\text{VOC hourly}} \text{ lb/gal})(\text{Process Rate} \text{ gal/yr}) / 2000 \text{ lb/ton} \\ &= (4.714 \text{ lb/gal})(110 \text{ gal/yr}) / 2000 \text{ lb/ton} \\ &= 2.59 \times 10^{-1} \text{ TPY} \end{aligned}$$

Dry Abrasive Blasting

Emission Rate_{PM hourly} = 1.513 × 10⁻² lb/hr (From Industrial Hygiene testing)

$$\begin{aligned} \text{Emission Rate}_{\text{PM annual}} &= (\text{Emission Rate}_{\text{PM hourly}} \text{ lb/hr})(\text{Process Rate} \text{ hr/yr}) / 2000 \text{ lb/ton} \\ &= (1.513 \times 10^{-2} \text{ lb/hr})(4 \text{ hr/day})(250 \text{ days/yr}) / 2000 \text{ lb/ton} \\ &= 7.565 \times 10^{-3} \text{ TPY} \end{aligned}$$

**Table 2
Maximum Calculated Emission Rates**

FIN/EPN	NO _x		CO		VOC		PM	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
O017-001	9.2e-04	1.8e-05	5.0e-03	1.0e-4				
O017-004					2.5e-01	2.6e-01		
O017-005							1.5e-02	7.6e-03

**Table 3
Maximum Certified Emission Rates**

O017	NO _x		CO		VOC		PM	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
	>.01	> 0.1	> .01	> 0.1	<2.5e-01	2.6e-01	> 0.01	> 0.1

6. Paint Shops

6.1. Operational Description

The Pantex Plant had four large painting facilities (see Table 1 below). These facilities have been fully described in the referenced registration packages. Facility T013's registration was cancelled on January 19, 2006.

Table 1
Pantex Painting Facilities

Facility ID	Registration Number	Exemption	List of
M016	52639	SE 75	August 11, 1989
R015	32674	SE 75	June 7, 1996
R025	52638	SE 75	August 11, 1989
T013*	52664	SE 75	August 11, 1989

* This facility has been shut-down

6.2. Conformance with referenced Standard Exemptions or Permit by Rule

TCEQ issued the noted registrations, indicating that the facilities, as represented, conformed to the requirements of the noted Standard Exemptions.

6.3. Means of Verifying Emission Rates

Verification that the painting facilities have not exceeded their emissions limit shown in Table 2 will be accomplished by using the plant's PAINTBAY Air Emission software (PBAE). Planners and Painters enter pertinent painting data into the PBAE. All emissions and the running 12-month total are calculated in the software and stored in a database. A monthly report is generated, which provides daily, weekly and monthly emission summaries by building, and 12-month emission summary for the site.

6.4. Method of Calculation of Maximum Emission Rates

In order to provide the painting facilities with sufficient operational flexibility while establishing a federally enforceable limit, historical records were reviewed for the most material used and a limit was set above this value (see Table 2 below).

Table 2
Certified Emission Rates (VOC & HAP)

Facility	Emission Rate ¹ lb/hr	For any single paint booth lb/wk	tpy
M016	6.0 ²	500	0.900
R015	6.0 ³	500	
R025	6.0 ²	500	0.750
Total for Plant:	6.0 ²	500	1.650

1. While each building is limited to the standard exemption limits, the entire plant is limited to the standard exemption limits using PBAE.
2. Averaged over 4 hours.
3. Averaged over 5 hours

Sample calculations for the emission rates are shown below. The total time for the activity (preparation, application, clean-up and drying) is assumed to be 4 hours.

Table 3
Material for Sample Calculations

Material	Density lb/gal	%VOC	%VOCHAP	%HAP	%NonVOC	Amount used
Automotive Paint B9842A	7.92	60.26	47.0	47.0	None	1 pint
Safety Kleen Lacquer Thinner	7.00	100	100	100	None	Thinner 0.25 pint Cleaner 2.35 fl oz

$$\text{Emissions} = (\text{Wt}_{\text{Material}} \text{ lb}) \times \text{Pollutant}\%$$

Paint

$$\begin{aligned} \text{Emissions}_{\text{VOC}} &= (1 \text{ pt} / 8 \frac{\text{pt}}{\text{gal}}) \times (7.92 \frac{\text{lb}}{\text{gal}}) \times 60.26\% \\ &= 0.5966 \text{ lb} \end{aligned}$$

$$\text{Emissions}_{\text{HAP}} = 0.4653 \text{ lb}$$

Thinner and Cleaner

$$\begin{aligned} \text{Emissions}_{\text{VOC}} &= [(2.35 \text{ fl oz} / 128 \frac{\text{fl oz}}{\text{gal}}) + (0.25 \text{ pt} / 8 \frac{\text{pt}}{\text{gal}})] \times (7.0 \frac{\text{lb}}{\text{gal}}) \times 100\% \\ &= (0.01836 \text{ lb} + 0.03125 \text{ lb}) \times (7.0 \frac{\text{lb}}{\text{gal}}) \times 100\% \\ &= 0.3473 \text{ lb} \end{aligned}$$

Emission Rate (ER) Calculation

$$\begin{aligned} \text{ER}_{\text{VOC hourly}} &= [(\text{Paint Emissions lb}) + (\text{Thinner Emissions lb}) + (\text{Cleaner Emissions lb})] / 4 \text{ hr} \\ &= [(0.5966 \text{ lb}) + (0.3473 \text{ lb})] / 4 \text{ hr} \\ &= 0.2360 \frac{\text{lb}}{\text{hr}} \end{aligned}$$

$$\text{ER}_{\text{HAP hourly}} = 0.2033 \frac{\text{lb}}{\text{hr}}$$

7. Repackaging

This activity is authorized under Permit by Rule Authorization No. 72373, issued July 7, 2004. The following discussion is taken, in large part, from the registration notice for that authorization.

7.1. Operational Description

The following chemical handling processes will be conducted in Facility R032:

- (1) **Repackaging:** Bulk materials are transferred to smaller containers. Transfer may be aided with a pump, but may also be done by pouring.
- (2) **Blending:** These are also repackaging jobs but require blending/mixing of chemicals. Bulk materials are mixed and repackaged into kits for use in operations.

Additionally, some containers are manually (dip) cleaned within the control areas. Cleaning solvents are in the same families of chemicals that are repackaged.

7.2. Conformance with referenced Standard Exemption or Permit by Rule

The operation is authorized by Permits by Rule §106.472, §473, and §262. Cleaning is performed as authorized by the de Minimis list of August 8, 2009. Demonstration of conformance with the permits by rule was confirmed by the issuance of the authorization.

7.3. Means of Verifying Emission Rates

Emissions will be calculated based on the number of hours each hood is operated. On a monthly basis, the log of operations will be provided by the supervisor of this operation will enter the total time (hours, minutes) operated for each PBR into an Excel workbook, which generates an emissions report for both the month and the preceding 12 months.

7.4. Method of Calculation of Maximum Emission Rates

Emissions are based on evaporative losses due to repackaging and blending of chemicals within the fume hoods. Due to the variation among the variety of bulk chemicals handled, and the different sizes of bulk, transfer, and repackaged containers that may be used, emissions were calculated assuming a scenario that will generate maximum emissions. Past studies of the rate of acetone evaporation under typical fume hood conditions were used as the basis to calculate emissions of Volatile Organic Chemicals (VOCs) and Hazardous Air Pollutants (HAPs).

In the past studies an amount of acetone was evaporated under conditions representative of the operations conducted in the fume hoods. It was determined from this test that the maximum emission rate of acetone (not excluded as a VOC at the time of testing and chosen due to its volatility) was approximately 0.01-lb/hr/square inch of transfer container opening.

To establish an emission rate for HAPs, methylene chloride was selected due to the frequency of its use at the time of evaluation. Methylene chloride has a Vapor Pressure (VP) of 7.389 psi at 70° F, compared to acetone's 3.77 psi at the same temperature. To estimate evaporation loss of methylene chloride, VP values and Molecular Weights (MWs) of methylene chloride and acetone were ratioed and the result was multiplied by the acetone emission rate (See Equation 3). Chemical Abstract Service (CAS) Number of methylene chloride is 75-09-2.

Since raw materials used for Blending jobs do not contain Methylene chloride as a constituent, emission rate is calculated based on Methyl ethyl ketone (MEK). MEK is selected to establish emissions from the Blending jobs since it represents worst case due to its volatility and concentration. MEK is also commonly known as 2-Butanone and its CAS number is 78-93-3.

Given the potential that some non-HAP VOC solvents may have similar high VP value, the annual PTE for VOC was set to equal that for HAP.

Hourly emission rates will be kept below maximum permitted by 30 TAC §106.262 for chemicals referenced in Table 262. Otherwise, the hourly emissions will be limited by 30 TAC §106.261. The following assumptions and calculations are performed to establish maximum hourly and annual emission rates to assure compliance with Permit by Rules 30 TAC §106.261 and 106.262.

(1) Assumptions:

- a. All packaging jobs are divided into the following two categories:
 - i. Repackaging Jobs: Under worst case, requires keeping open three containers simultaneously with a total surface area of all openings not to exceed 91.2 in² (e.g. three containers each with 8", 6", and a 4" diameter opening). Also, under worst case, all three containers are assumed to contain pure methylene chloride (CAS# 75-09-2). Maximum emissions are based on methylene chloride due to its high VP (volatility) and results in most strict limit on number and size of opening of containers and length of time they can be kept opened. The limit on number of containers and size of their openings are such that emission of all chemical constituents used during processing will be less than allowable maximum hourly emissions under 30 TAC §106.261 and .262.
 - ii. Blending Jobs: Under worst case, requires keeping open four containers simultaneously with a total surface area of all openings not to exceed 267.1 in² (e.g. two containers with 12", third with a 6" opening, and the fourth with 4" diameter opening). Also, under worst case, all containers are assumed to contain pure MEK. MEK was chosen to establish maximum emissions that will occur during worst case.
- b. Maximum of only one Blending job and one Straight Packaging job performed at the same time.
- c. For each rolling 12-month period, each job category, i.e., Blending jobs and Repackaging jobs, will be limited to a maximum 2,000 hours of fume hood operating time.

Table 1: Information on Job category		
	Maximum Number of Containers can be kept opened	
Maximum Diameter of opening size of container	Repackaging Job	Blending Job
12" diameter	None	2
8" diameter	1	None
6" diameter	1	1
4" diameter	1	1
Total surface area of all openings, in ²	91.2	267.1
Chemical used to establish worst case emissions	Methylene Chloride (CAS# 75-09-2)	Methyl Ethyl Ketone (MEK) (CAS# 78-93-3).

- (2) Establishing Maximum allowable hourly emissions: For planning purpose, maximum hourly allowable emission rates for both MEK and methylene chloride are calculated.

The emission rates for both Methylene chloride and MEK are subject to Permit-By-Rule (PBR) 30TAC 106.262 as both chemicals have TLV value either listed or referenced in Table 262 of 30 TAC 106.262. The maximum hourly emissions allowed can be calculated using following equation provided by 30 TAC 106.262:

$$E = L/K \dots \dots \dots \text{Equation 1}$$

Where:

E = maximum allowable hourly emission, and never to exceed 6 lbs/hr

L = value (in Milligrams Per Cubic Meter, mg/m³) as listed or referenced in Table 262

K = value from the Table 262

(Note: K varies with distance to the nearest off-plant receptor)

Since Building 12-118 is greater than 3,000 feet from the nearest off-plant receptor, value of K = 8 (from Table 262 in 30 TAC 106.262)

For,

Methylene chloride: L = 26 mg/m³ (from Table 262 of 30 TAC 106.262)

MEK: L = 590 mg/m³ (from 1997 ACGIH TLV and BEIs Guide book)

Using Equation 1, for Methylene Chloride, E = L/K
 = 26/8
 = 3.25 lbs/hr maximum allowable emission.

Also, using Equation 1, for MEK, E = L/K
 = 590/8
 = 73.75 lbs/hr maximum calculated emission.

Since, 30 TAC 106.262 limits maximum allowable emission for any chemical to 6 lbs/hr, emissions for MEK will be by default the permitted maximum emission rate of 6 lbs/hr.

Chemical Name	CAS Number	Molecular Weight, gm/mole	Vapor Pressure, mm Hg	Evaporation Rate (using Equation 3 & 4), lb/hr/in ²	TLV Value, mg/m ³	Maximum allowable hourly emission, lb/hr
methylene chloride	75-09-2	84.9	382	0.0286	26	3.25
2-Butanone	78-93-3	72.1	95.3	0.00607	590	6

(3) Hourly emissions during Repackaging jobs:

Surface area of container openings are calculated using following equation:

$$\text{Surface area} = (\pi/4) * (D) \dots \dots \dots \text{Equation 2}$$

Where: D is the diameter of the container opening in inches

$$\begin{aligned} \text{Using Equation 2, Surface area of 8" diameter opening} &= (\pi/4) * (D)^2 \\ &= (3.142/4) * (8)^2 \\ &= 50.3 \text{ in}^2 \end{aligned}$$

Acetone evaporation rate = 0.01 lb/hr/in² (lab study submitted with PI-7 in 1992)

VP of acetone = 195 mm Hg

VP of Methylene chloride = 382 mm Hg

MW of acetone = 58.1 gm/mole

MW of Methylene chloride = 84.9 gm/mole

Evaporation Rate of methylene chloride, lb/hr/in².....Equation 3

$$\begin{aligned} &= (0.01 \text{ lb/hr/in}^2 \text{ acetone evaporation rate}) * (382 \text{ mm Hg, VP of Methylene chloride} / 195 \\ &\text{mm Hg, VP of acetone}) * (84.9 \text{ gm/mole, MW of Methylene chloride} / 58.1 \text{ gm/mole, MW of} \\ &\text{acetone}) \\ &= 0.0286 \text{ lb/hr/in}^2 \end{aligned}$$

Diameter (D) of Opening, inches	Surface Area of Opening, in ² ($\pi/4$) * (D) ²	Methylene Chloride lost due to Evaporation, lb/hr
8"	50.3 in ²	1.44
6"	28.3 in ²	0.81
4"	12.6 in ²	0.36
Total	91.2 in ²	2.61

(4) Hourly emissions during Blending jobs order

$$\begin{aligned} \text{Using Equation 2, Surface area of 12" diameter (D) opening} &= (\pi/4) * (D)^2 \\ &= (3.142/4) * (12)^2 \\ &= 113.1 \text{ in}^2 \end{aligned}$$

Acetone evaporation rate = 0.01 lb/hr/in² (lab study submitted with PI-7 in 1992)

VP of acetone = 195 mm Hg
 VP of MEK = 95.3 mm Hg

MW of acetone = 58.1 gm/mole
 MW of MEK = 72.1 gm/mole

Evaporation Rate of MEK, lb/hr/in²..... *Equation 4*
 = (0.01 lb/hr/in² acetone evaporation rate) * (95.3, VP of MEK /195 mm Hg, VP of acetone) *
 (72.1 gm/mole, MW of MEK /58.1 gm/mole, MW of acetone) *
 = 0.00607 lb/hr/in²

Diameter (D) of Opening, inches	Number of Containers	Total Surface Area of Opening, in ² ($\pi/4$) * (D) ²	MEK lost due to Evaporation, lb/hr
12"	2	226.2 in ²	1.373
6"	1	28.3 in ²	0.172
4"	1	12.6 in ²	0.077
Total		267.1	1.622

Each job category performed under fume hood will be limited to 2,000 hours in any 12-month rolling period. Number of hours for each category will be tracked by keeping a log of fume hood operating hours.

	Maximum Allowable Hourly Emissions under 30 TAC 106.262, lb/hr	Estimated Maximum Actual Emissions, lb/hr	Estimated Maximum Actual Emissions, lb/yr
Repackaging Jobs	3.25	2.6	5,220
Blending Jobs	6	1.6	3,244
Total		4.2	8,464

Annual emissions calculated using worst-case hourly emissions are not realistic. A self-imposed maximum annual emission rate of 600 lbs/yr, from both job categories, was judged to be more realistic. This self-imposed annual emission limit is established for Potential-to-Emit (PTE) for these processes for Title V of Clean Air Act and for TCEQ air permit certification. Actual operations constitute use of several hundred different chemical constituents with considerable ranges in volatility and concentrations. Also, hourly emissions for worst-case are calculated assuming all containers with maximum size openings are kept open throughout the job. This is unrealistic, since in practice the containers are kept open only as long as required during the process step. Actual annual emissions will be determined more accurately using records of processing time for repackaging and blending jobs.

Contaminant	lbs/hr	tons/yr
VOC _{Total}	4.2	3.0e-01
HAP _{Total}	4.2	3.0e-01

8. Miscellaneous Chemical Operations (N.O.S.)

8.1. Operational Description

Federal operating permit regulations require that a site consider all potential emission sources of HAP chemicals when determining if a site is a "Major Source." Pantex identified activities which had the potential for generating emissions of HAP chemicals, but are individually performed at either such low rates of emissions or frequency as to make recording of individual events problematic.

Certain chemicals are used across the site for a variety of purposes. Chemicals are used in laboratories both in standards, solvent, and other functions. Paints are used, both aerosol sprays and brush application, on roadways, walkways, and other surfaces to mark crossings, and maintain signs, structures, or equipment. Some office and commercial products are used by numerous groups across the site. All of these chemical activities have actual or potential for containing, and thus generating emissions, of HAP.

8.2. Conformance with referenced Standard Exemption or Permit by Rule authorizations

As noted in the process discussion, some uses of products containing HAP chemicals are not required to qualify for either a Standard Exemption or Permit by Rule: e.g., uses of biocides to control noxious or nuisance insects or plants, touch-up painting performed on plant roadways, walkways and other surfaces.

Laboratories where chemicals are emitted from bench scale operations, involved in performing chemical or physical analyses, have been authorized historically by Standard Exemption No. 34, and more recently by Permit by Rule §106.122 and §106.123.

Fugitive emissions from office products are not subject to any permit, permit by rule, or standard exemption. Emissions from such materials is authorized as an "Unconditional Facility/Source", provided in the May 2008 issue of the TCEQ's De Minimis Facilities or Sources list. Similar, potential sources of HAP air emissions that are identified in this list include:

- Application of lubricants, including greases and oils without aerosol propellants¹ for maintaining equipment and other facilities;
- Manual application [with brushes, cloth, pads, sponges, droppers, spray bottles (without aerosol propellant¹), or tube dispensing equipment, only] of cleaning or stripping solutions or coatings;
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analyses (excluding pilot plants).

The reviewer should note that some of these facilities/activities have been authorized in the past under other regulatory mechanisms relative to authorization of new or modified sources.

8.3. Means of Verifying Maximum Emission Rates

B&W Pantex will continue to use the historic assumption that approximately 5 tons per 12 month period of VOC and HAP were removed from inventory and are assumed to have been emitted to the atmosphere, after noted adjustments for laboratory use and low material volatility (thus not considered to be an air contaminant, based on a TCEQ guidance memo on this subject).

8.4. Method of Calculation of Emission Rates

On a monthly basis, B&W Pantex reviews the hazardous chemical inventory for the site. If a container has been removed from the site's inventory during that time, it will be assumed that the entire volatile HAP components of the contents of the containers removed from inventory were emitted, with the exception of:

- Containers used to support laboratory operations,
- Containers used for mobile sources (e.g., motor vehicle anti-freeze), or
- Containers that were expended from locations which already account for their HAP emissions (e.g., Paint Shops).

Emissions from laboratories will be reduced by 90 percent (remainder included in the solid waste stream); the other two groups are excludable, based on agency guidance for determining a site's potential to emit.

9. Burning Ground Soil Vapor Extraction

9.1. Operational Description

The goal of this project has been to reduce the mass of contaminants in the soil gas by use of soil gas extraction wells. The wells are connected to a liquid knock-out tank, a blower which creates a slight negative relative to ambient conditions air pressure in the collection line, then connected to two serially connected vessels containing activated charcoal (a Carbon Absorption System or CAS). This system has operated under the authorization of Texas Commission of Environmental Quality Permit by Rule 30 TAC §106.533.

9.2. Conformance with referenced Standard Exemption or Permit by Rule authorizations

This system was most recently registered with the Region 1 office on April 7, 2006, when a change in the method of emission control was implemented.

The registration covered all equipment involved in the remediation activity and met all the requirements for non-petroleum, non-dry cleaning compound remediation. All emissions would be extracted and processed through the treatment system described above, which was located more than 100 feet from any off-site receptor. Emission rates met the requirements for Permits by Rule §106.261 and §106.262. The CAS would be operated to minimize the potential for breakthrough. Adequate replacement vessels would be maintained to assure that, when breakthrough was detected, the gas flow would (a) be directed to pass through the second canister, (b) the primary canister would be replaced within four hours of breakthrough detection, and become the secondary canister, and (c) monitoring of the canisters would be performed as required (within two hours of start-up and thereafter on a frequency established by the potential for carbon replacement, at the required locations.

9.3. Means of Verifying Maximum Emission Rates

The Maximum emission rates were estimated from historical data collected during the pilot and testing phases of this activity.

9.4. Method of Calculation of Emission Rates

Emissions will be calculated using the design air flow for the system (50 Cfm) and the measured concentration of volatile gases as determined from system monitoring. Example calculations for the maximum hourly and annual emission rate for toluene (at 1150 ppm_v in influent) are shown below.

$$\frac{1150 \text{ cu ft Toluene}}{10^6 \text{ cu ft Air}} \times \frac{1 \text{ mole gas}}{379.5 \text{ cu ft}} \times \frac{92.14 \text{ lb Toluene}}{1 \text{ mole of Toluene}} = 2.792e^{-4} \frac{\text{lb Toluene}}{\text{cu ft Air}}$$

$$2.792e^{-4} \frac{\text{lb Toluene}}{\text{cu ft Air}} \times \frac{100 \text{ cu ft Air}}{\text{min}} \times \frac{60 \text{ min}}{\text{hr}} = 1.676 \frac{\text{lb}}{\text{hr}} \text{ Toluene in Influent}$$

$$1.676 \frac{\text{lb}}{\text{hr}} \text{ Toluene in Influent} \times \frac{99.9}{100} \text{ GAC removal efficiency} = 1.674324 \frac{\text{lb}}{\text{hr}} \text{ Toluene removed by GAC}$$

$$1.676 \frac{\text{lb}}{\text{hr}} \text{ Toluene in Influent} - 1.674324 \frac{\text{lb}}{\text{hr}} \text{ Toluene removed by GAC} = 1.676e^{-3} \frac{\text{lb}}{\text{hr}} \text{ Toluene in Effluent}$$

$$1.676e^{-3} \frac{\text{lb}}{\text{hr}} \times 24 \frac{\text{hrs}}{\text{day}} \times 365 \frac{\text{days}}{\text{yr}} \times \frac{\text{tons}}{2,000 \text{ lbs}} = 7.34e^{-3} \frac{\text{tons}}{\text{year}} \text{ Toluene in Effluent}$$