April 13, 2017 Reference No. 11135230

Mr. William Durham
Director, Division of Air Quality
WV Department of Environmental Protection
601 57th Street, SE
Charleston, West Virginia 25304

Dear Mr. Durham:

**Re: G50-B General Permit Registration Modification Application**
**Jane Lew**
**General Permit Registration G50-B060**
**Plant ID Number: 041-00061**
**C&J Energy Services**

On behalf of C&J Energy Services, GHD would like to submit this G50-B General Permit Modification application that we prepared for a concrete batch plant identified as Jane Lew.

On January 31, 2017, a Notice of Violation (NOV) was issued to the facility for exceeding the maximum annual production permit limit and installation of new storage silos and associated equipment. In reference to the NOV response letter dated March 3, 2017 from C&J Energy Services, this submittal addresses the non-compliances cited in the NOV including the projected increase in annual throughput.

Enclosed are the following documents:

- Original copy of the G50-B General Permit Application.
- Two CD copies of the G50-B General Permit Application.
- The application fee with check no. 474807 in the amount of $ 500.00.

Please let us know if you have any questions or require additional information.

Sincerely,

GHD Services Inc.

Manuel Bautista

MB/ma/1

Encl.

cc: John Srock – C&J Energy Services
Les Teague – C&J Energy Services

**GHD**
6320 Rothway Street Suite 100 Houston Texas 77040 USA
**T** 713 734 3090 **F** 713 734 3391 **W** www.ghd.com

# General Permit G50-B Modification Application

Jane Lew Facility

C&J Energy Services

**GHD** | 6320 Rothway Suite 100 Houston Texas 77040
11135230 | Report No 1 | April 2017

WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475 • *www.dep.wv.gov/daq*

# APPLICATION FOR GENERAL PERMIT REGISTRATION

*CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE*
*A STATIONARY SOURCE OF AIR POLLUTANTS*

CONSTRUCTION X MODIFICATION RELOCATION CLASS I ADMINISTRATIVE UPDATE
CLASS II ADMINISTRATIVE UPDATE

**CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:**

**G10-D –** Coal Preparation and Handling

**G20-B –** Hot Mix Asphalt

**G33-A –** Spark Ignition Internal Combustion Engines

**G40-C –** Nonmetallic Minerals Processing

**X G50-B –** Concrete Batch

**G60-C** - Class II Emergency Generator

**G65-C –** Class I Emergency Generator

## SECTION I. GENERAL INFORMATION

1. Name of applicant (as registered with the WV Secretary of State's Office):

C&J Spec-Rent Services, Inc., DBA C&J Energy Services

2. Federal Employer ID No. **(FEIN):**

87-0750712

3. Applicant's mailing address:

3990 Rogerdale, Houston, TX 77042

4. Applicant's physical address:

3990 Rogerdale, Houston, TX 77042

5. If applicant is a subsidiary corporation, please provide the name of parent corporation:

6. **WV BUSINESS REGISTRATION.** Is the applicant a resident of the State of West Virginia? **YES** **X NO**

- IF **YES,** provide a copy of the Certificate of **Incorporation/ Organization / Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A**.
- IF **NO,** provide a copy of the **Certificate of Authority / Authority of LLC / Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A**.

## SECTION II. FACILITY INFORMATION

7. Type of plant or facility (stationary source) to be constructed, modified, relocated or administratively updated (e.g., coal preparation plant, primary crusher, etc.):

Installation of silos and storage tank

8a. Standard Industrial Classification (SIC) code: 3273

8b. North American Industry System (NAICS) code: 327320

9. DAQ Plant ID No. (for existing facilities only):

041-00061

10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only):

G50-B060

***A: PRIMARY OPERATING SITE INFORMATION***

| 11A. Facility name of primary operating site: | 12A. Address of primary operating site: |
|---|---|
| Jane Lew | Mailing: 1650 Hackers Creek Rd., Jane Lew, WV 26378 Physical:_____ |

13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? **X YES** **NO**

– IF **YES**, please explain: Lease

– IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14A. – For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

– For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP** as **Attachment F**.

From the intersection of US-119 and I-79, head north toward Clarksburg for 6 miles. Take exit 105 for County Rd 7 toward Jane Lew for 0.3 mile. Turn right onto Hackers Creek Rd. Destination will be on the right.

| 15A. Nearest city or town: | 16A. County: | 17A. UTM Coordinates: |
|---|---|---|
| Jane Lew | Lewis County | Northing (KM): 4326.628 Northing<br>Easting (KM): 552.986 Easting<br>Zone: 17 |

| 18A. Briefly describe the proposed new operation or change (s) to the facility: | 19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): |
|---|---|
| Installation of additional silos and storage tank; increase in production throughput | Latitude: 39.087164<br>Longitude: -80.387344 |

***B: 1ST ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)***

| 11B. Name of 1st alternate operating site: | 12B. Address of 1st alternate operating site: |
|---|---|
| | Mailing:_____ Physical:_____ |

13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? **YES** **NO**

– IF **YES**, please explain: _____

– IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14B. – For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

– For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP** as **Attachment F**.

| 15B. Nearest city or town: | 16B. County: | 17B. UTM Coordinates:<br>Northing (KM): _____<br>Easting (KM): _____<br>Zone: _____ |
|---|---|---|
| 18B. Briefly describe the proposed new operation or change (s) to the facility: | | 19B. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):<br>Latitude: _____<br>Longitude: _____ |

***C: 2ND ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits):***

| 11C. Name of 2nd alternate operating site:<br>_____<br>_____ | 12C. Address of 2nd alternate operating site:<br>Mailing:_____ Physical:_____<br>_____ |
|---|---|

13C**.** Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? **YES** **NO**

- IF **YES**, please explain: _____

  _____

- IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14C. – For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

– For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP** as **Attachment F**.

_____

_____

_____

| 15C. Nearest city or town: | 16C. County: | 17C. UTM Coordinates:<br>Northing (KM): _____<br>Easting (KM): _____<br>Zone: _____ |
|---|---|---|
| 18C. Briefly describe the proposed new operation or change (s) to the facility: | | 19C. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):<br>Latitude: _____<br>Longitude: _____ |

| 20. Provide the date of anticipated installation or change:<br>_____/_____/_____<br>□ If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: :<br>03/25/2015 | 21. Date of anticipated Start-up if registration is granted:<br>_____/_____/_____ |
|---|---|

22. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application if other than 8760 hours/year. (Note: anything other than 24/7/52 may result in a restriction to the facility's operation).

Hours per day 24 Days per week 7 Weeks per year 52 Percentage of operation _____

## SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

23. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

24. Include a **Table of Contents** as the first page of your application package.

All of the required forms and additional information can be found under the Permitting Section (General Permits) of DAQ's website, or requested by phone.

25. Please check all attachments included with this permit application. Please refer to the appropriate reference document for an explanation of the attachments listed below.

- **X** ATTACHMENT A : CURRENT BUSINESS CERTIFICATE
- **X** ATTACHMENT B: PROCESS DESCRIPTION
- **X** ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS
- **X** ATTACHMENT D: PROCESS FLOW DIAGRAM
- **X** ATTACHMENT E: PLOT PLAN
- ATTACHMENT F: AREA MAP
- **X** ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM
- **X** ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS
- **X** ATTACHMENT I: EMISSIONS CALCULATIONS
- **X** ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT
- ATTACHMENT K: ELECTRONIC SUBMITTAL
- **X** ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE
- ATTACHMENT M: SITING CRITERIA WAIVER
- ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)
- ATTACHMENT O: EMISSIONS SUMMARY SHEETS
- OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.)

Please mail an original and two copies of the complete General Permit Registration Application with the signature(s) to the DAQ Permitting Section, at the address shown on the front page of this application. Please DO NOT fax permit applications. For questions regarding applications or West Virginia Air Pollution Rules and Regulations, please refer to the website shown on the front page of the application or call the phone number also provided on the front page of the application.

## SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

G I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation

FOR A PARTNERSHIP

G I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

G I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

G I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

G I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

G I certify that I am the Owner and Proprietor

G *I hereby certify that* (please print or type) Les Teague, Director of Environmental

*is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Office of Air Quality immediately, and/or,*

*I hereby certify that all information contained in this General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible.*

Signature _____ 5-APR-2017
(please use blue ink) Responsible Official Date

Name & Title John Srock, Vice-President, QHSE
(please print or type)

Signature _____ 5 APR 2017
(please use blue ink) Authorized Representative (if applicable) Date

Applicant's Name C&J Spec-Rent DBA C&J Energy Services

Phone & Fax 713-325-6000
Phone Fax

Email John.Srock@cjes.com; les.teague@cjes.com

## Table of Contents

# Attachment A
# Current Business Certificate

# State of West Virginia

# Certificate

***I, Mac Warner, Secretary of State of the State of West Virginia, hereby certify that***

**C&J SPEC-RENT SERVICES, INC.**

a corporation formed under the laws of Indiana filed an application to be registered as a foreign corporation authorizing it to transact business in West Virginia. The application was found to conform to law and a "Certificate of Authority" was issued by the West Virginia Secretary of State on July 26, 2013.

I further certify that the corporation has not been revoked by the State of West Virginia nor has a Certificate of Withdrawal been issued to the corporation by the West Virginia Secretary of State.

Accordingly, I hereby issue this

## CERTIFICATE OF AUTHORIZATION

**Validation ID:3WV5H_3HN79**

***Given under my hand and the Great Seal of the State of West Virginia on this day of***

***April 04, 2017***

Mac Warner

***Secretary of State***

# Attachment B
# Process Description

Process Description

Jane Lew Facility

Lewis County, West Virginia

Cement, fly ash, and rock dusts are stored in fully enclosed silos (BS-1 to BS-6). These materials are unloaded pneumatically into their respective storage silos from delivery trucks.

Cement, fly ash, and rock dust are conveyed into the weigh hopper (scale tank). Small amount of additives are added manually into the scale tank. Mixed raw materials from the scale tank are then transferred to the weight batch blender and finally to the mixer truck for delivery to customers.

To minimize fugitive emissions, materials are conveyed to the scale tank and weight batch blender via fully enclosed conveyors. Emissions from unloading of materials into the silos are controlled by the dust collector (APCD-1) installed on the reclaim silo. .

All emissions/ materials captured by the dust collector are stored in the reclaim silo and used for lower grade cement mix products.

The facility has two 6500-gal storage tanks for 35% hydrochloric acid. The hydrochloric acid is delivered via trucks and is further diluted prior to delivery to customers. HCl emissions from the storage tanks are controlled by a water scrubber.

# Attachment C
# Description of Fugitive Emissions

Description of Fugitive Emissions

Jane Lew Facility

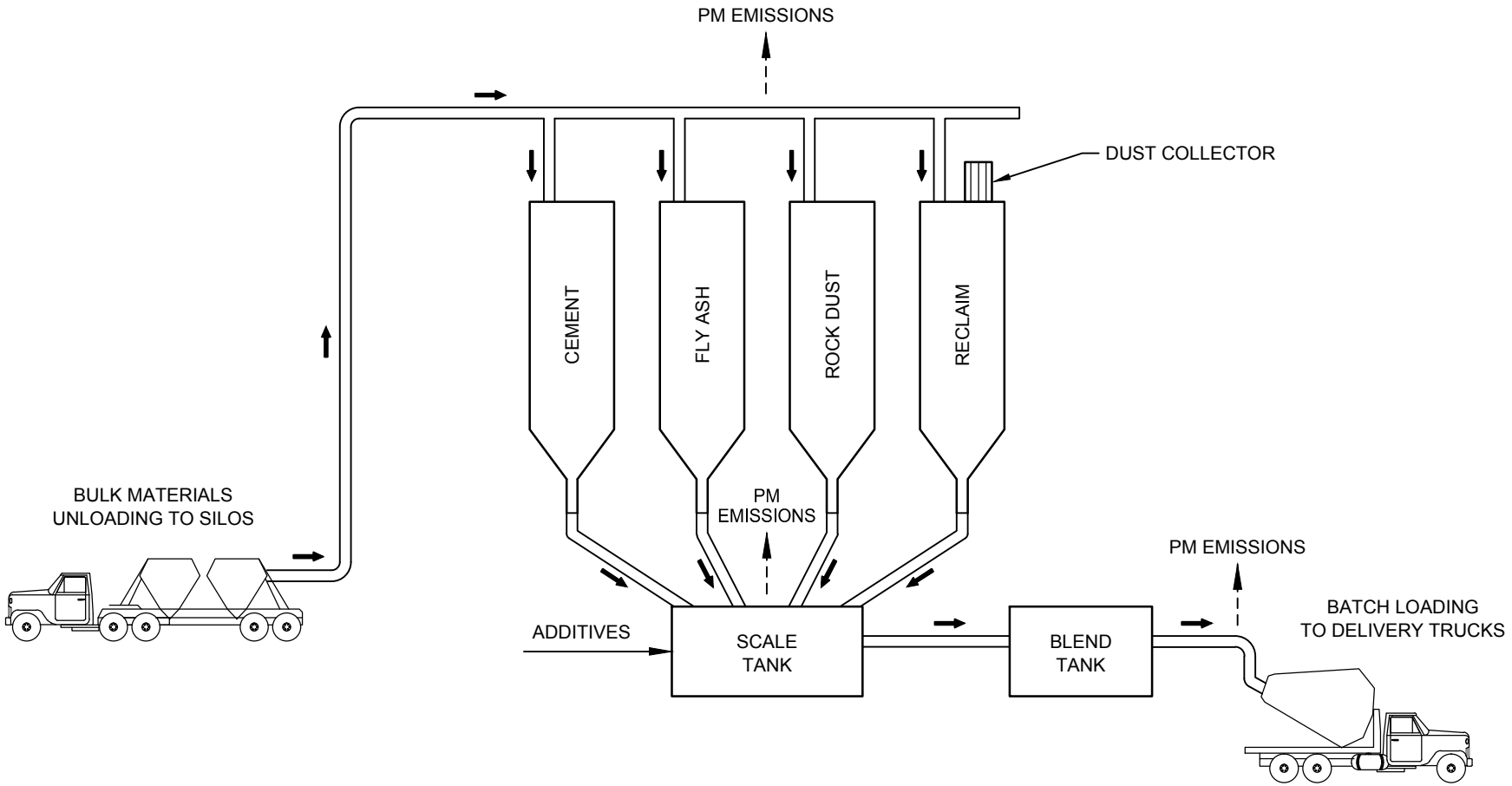
Lewis County, West Virginia

Fugitive emissions occur during the transfer of raw materials (cement, fly ash, and rock dust) from the bulk delivery trucks into their respective storage silos. These fugitive emissions are controlled by dust collectors with an efficiency of 99%.

Fugitive emissions also occur during the transfer of raw materials from their respective storage silos to the scale tank and weight batch blender via conveyor. The fugitive emissions from the conveyor will be minimized by providing full enclosure.

Haul roads are sources of fugitive emissions which occur when bulk delivery trucks and mixer trucks travel in and out of the facility. Haul road emissions are controlled by a water truck spraying water on an as-needed basis.

# Attachment D
# Process Flow Diagram




JANE LEW FACILITY
LEWIS COUNTY, WEST VIRGINIA

11135230-01

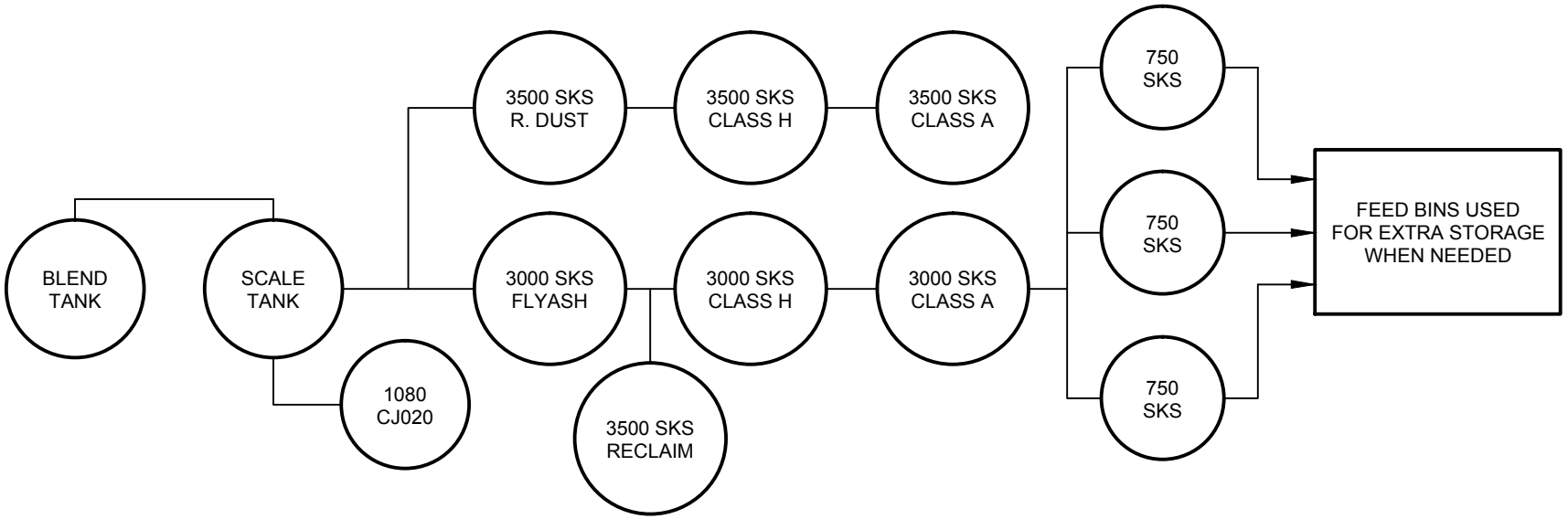
Apr 7, 2017

PROCESS FLOW DIAGRAM

FIGURE X

CAD File: P:\drawings\11135000s\11135230\11135230-reports\11135230-01(001)\11135230-01(001)GN\11135230-01(001)GN-WA001.dwg

# Attachment E
# Plot Plan




JANE LEW FACILITY
LEWIS COUNTY, WEST VIRGINIA

11135230-01

Apr 4, 2017

PLOT PLAN

FIGURE Y

CAD File: P:\drawings\11135000s\11135230\11135230-reports\11135230-01(001)\11135230-01(001)GN\11135230-01(001)GN-WA001.dwg

# Attachment G
# Affected Source Sheets

# CBP PRODUCTION AFFECTED SOURCE SHEET

| | | | |
|---|---|---|---|
| CBP Production Information | Source Identification Number[1] | WH-1 | |
| | Manufacturer & Model Number | | |
| | Date of Manufacture | | |
| | Maximum Design Production Rate[2] | 25 | tons per hour |
| | Maximum Annual Production[3] | 22,000 | tons per year |
| | Daily Operation | 24 | hours/day |
| | Annual Operation | 365 | days/year |
| | | 8760 | hours/year |
| | Approximate Percentage of Operation from: | 25 | Jan - Mar |
| | | 25 | April - June |
| | | 25 | July - Sept |
| | | 25 | Oct - Dec |

1. Enter the appropriate Source Identification Number for each concrete batch plant production weigh hopper or central mixer. Batch plant weigh hopper should be designated WH-1, WH-2, etc. Batch plant central mixer should be designated CM-1, CM-2, etc.

2. Enter the manufacturer's Maximum Design Production Rate of the concrete batch plant production equipment. Specify units in tons/hour.

3. Enter the Maximum Annual Production of the concrete batch plant. Specify units of cubic yards per year or tons per year. To calculate Maximum Annual Production, multiply the Maximum Design Production Rate (tons/hr) by the Annual Operation (hrs/yr).

# CBP PARTICULATE MATTER CAPTURE SYSTEM
# AFFECTED SOURCE SHEET

Pursuant to Section 2.2.4 of General Permit G50-B, the registrant shall not cause, suffer, allow, or permit any registered concrete batch plant to operate that is not equipped with an effective particulate matter capture system(s) and associated air pollution control device(s) to minimize the emission of particulate matter from production equipment, storage structures and silos. The particulate matter capture system shall ensure the lowest fugitive particulate emissions reasonably achievable.

A particulate matter capture system shall be used to confine, collect, and transport displaced particulate matter from production weigh hoppers, cement and flyash storage structures and/or silos to an air pollution control device. Particulate matter capture systems may include but not be limited to: hoods, bins, ductwork, enclosures and air pollution control devices such as fabric filter baghouses, associated fans, discharge socks and filter vents.

**Provide a written description of the concrete batch plant's particulate matter capture system below:**

| |
|---|
| The particulate matter capture system consists of a dust collector/ filter house. The dust collector is located on top of the reclaim silo and captures the PM emissions during unloading of cement, fly ash, and rock dust from the bulk delivery trucks.<br><br>All PM emissions from material tranfers to the scale tanks and weigh batch blender are also captured by the dust collection system. PM emissions are minimized through usd of fully enclosed conveyors.<br><br>The dust collector has cartridge type filters which are cleaned by jet pulse. Pressure drop across the filter cartridges are monitored regularly and are replaced when the pressure drop is below the manufacturer's recommended operating parameters. |
| |
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# CBP MATERIAL STORAGE & HANDLING
# AFFECTED SOURCE SHEET

| Source Identification Number[1] | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Material Stored[2] | Cement | Cement | Cement | Cement | Fly Ash | Rock Dust |
| Maximum Yearly Throughput (tons/year)[3] | 4000 | 4000 | 4000 | 4000 | 3000 | 3000 |
| Typical Moisture Content (%)[4] | 0% | 0% | 0% | 0% | 0% | 0% |
| Average % of Material Passing Through 200 Mesh Sieve[5] | 100 | 100 | 100 | 100 | 99 | |
| Maximum Stockpile Base Area ($ft^2$)[6] | - | - | - | - | - | - |
| Maximum Stockpile Height (ft)[7] | - | - | - | - | - | - |
| Maximum Storage Capacity (tons)[8] | 240 | 240 | 210 | 180 | 145 | 240 |
| Dust Control Method Applied to Storage[9] | FE | FE | FE | FE | FE | FE |
| Method of Material Load-in to Bin or Stockpile[10] | ST | ST | ST | ST | ST | ST |
| Dust Control Method Applied During Load-in[11] | FE | FE | FE | FE | FE | FE |
| Method of Material Load-out from Bin or Stockpile[10] | ST | ST | ST | ST | ST | ST |
| Dust Control Method Applied During Load-out[11] | FE | FE | FE | FE | FE | FE |

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes four open stockpiles and one storage silo, the Source Identification Numbers should be OS-1, OS-2, OS-3, and OS-4; and BS-1, respectively.

OS Open Stockpile E3 Enclosure (three-sided enclosure)
BS Bin or Storage Silo (full enclosure) SB Storage Building (full enclosure)
SF Stockpiles with wind fences OT Other _____ (please specify)

2. Describe the type of material stored or stockpiled.

3. Enter the maximum yearly storage throughput for each storage activity.

4. Enter the average percent moisture content of the stored material.

5. Enter the average percent of material that will pass through a 200 mesh sieve.

6. For stockpiles, enter the maximum stockpile base area.

7. For stockpiles, enter the maximum stockpile height.

8. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.).

9. Enter the dust control method applied to storage activity using the following codes:

CA Crusting Agent WS Water Spray
FE Full Enclosure NO None
OT Other _____ (please specify)

10. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:

FE Front Endloader SS Stationary Conveyor/Stacker
ST Stacking Tube MC Mobile Conveyor/Stacker
CS Clamshell TD Truck Dump
OT Other _____ (please specify)

11. Enter the dust control method applied during load-in or load-out using the following codes:

CA Crusting Agent WS Water Spray
FE Full Enclosure MD Minimize Drop Height
ST Stacking Tube NO None
OT Other _____ (please specify)

# CBP STORAGE TANK AFFECTED SOURCE SHEET

| Source Identification Number[1] | Content[2] | Length[3] (ft) | Dia[4] (ft) | Volume[5] (gallons) | Throughput[6] (gal/yr) | Orientation[7] | Liquid Height[8] (ft) |
|---|---|---|---|---|---|---|---|
| T-1 | 35% HCl | 14 | 10 | 6500 | 140000 | VERT | 10 |
| T-2 | 35% HCl | 14 | 10 | 6500 | 140000 | VERT | 10 |
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1.Enter the appropriate Source Identification Number for each storage tank located at the concrete batch plant.
Storage tanks should be designated T-1, T-2, T-3, etc.

2.Enter storage tank content (#2 fuel oil, asphaltic cement, water, etc.)

3.Enter storage tank length in feet.

4.Enter storage tank diameter in feet.

5. Enter storage tank volume in gallons. Storage tank volume may be calculated using the following mathematical relationship:
(length of tank) X (area conversion) X (tank diameter)$^2$ X (liquid volume conversion) or,
($L_{tank}$ ft) X (3.14/4) X ($d^2_{tank}$ ft$^2$) X (7.48 gallons/ft$^3$)

6. Enter storage tank throughput in gallons per year.

7. Enter storage tank orientation using the following codes:
VERT Vertical Tank HORZ Horizontal Tank

8. Enter storage tank average liquid height in feet.

9. Storage tank emissions may be calculated using TANKS emission calculation program.

# Attachment H
# Air Pollution Control Device Data Sheet

# AIR POLLUTION CONTROL DEVICE AFFECTED SOURCE SHEET

| | | | | |
|---|---|---|---|---|
| CBP Air Pollution Control Device Data Sheet | | Fabric Filter Baghouse | Filter Vent | Fabric Filter Discharge Sock |
| General | APCD Identification Number[1] | APCD-1 | | |
| Information | Manufacturer & Model Number | Donaldson Torit CPV-8 | | |
| | Number of Compartments | 1 | | |
| | Gas Inlet Area ($ft^2$) | 2.18 | | |
| | Gas Outlet Area ($ft^2$) | 1.4 | | |
| | Fabric Filter Cleaning Mechanism[2] | Pulse Jet with timer | | |
| | Total Cloth (fabric) Area ($ft^2$) | 1584 | | |
| | Draft Fan HP | - | | |
| | Outlet Stack Area ($ft^2$) | - | | |
| Operational | Minimum Design PD (in $H_2O$) | TBD | | |
| Parameters | Maximum Design PD (in $H_2O$) | TBD | | |
| | Inlet Gas Flow Rate (ACFM) | 10200 | | |
| | Inlet Gas Temperature ($^oF$) | ambient | | |
| | Inlet Gas Pressure (PSIA) | - | | |
| | Inlet Gas Velocity (ft/sec) | - | | |
| | PM Inlet Rate (grains/scf) | TBD | | |
| | PM Outlet Rate (grains/scf) | TBD - Capture efficiency is >99% | | |
| | Operating Air/Cloth Ratio (ft/min) | - | | |

1. Enter the appropriate Air Pollution Control Device Identification Number for each fabric filter baghouse, filter vent or discharge sock. The devices should be designated APCD-1, APCD-2, APCD-3, etc.

2. Enter method used to clean bags: shaker, pulse jet, reverse jet or other.

3. Complete more than one CBP Air Pollution Control Device Data Sheet if necessary.

4. Enter the fractional efficiency of the fabric filter baghouse.

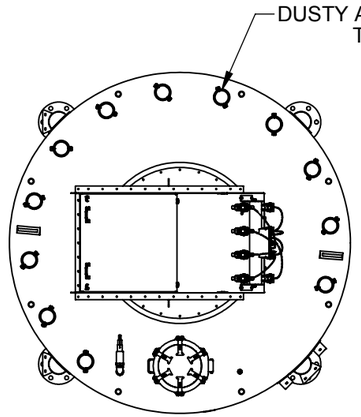
DONALDSON-TORIT CPV-8 DUST COLLECTOR
3000-SCFM
8X POWER-CORE ULTRA WEB CARTRIDGES

CLEAN AIR EXHAUST

WILCO 2560 WASTE SILO
400250 OR SIMILAR

$\left[34'2\frac{1}{8}"\right]$
410.13

WASTE MATERIAL OUTLET




UNLESS OTHERWISE SPECIFIED

TOLERANCES
FABRICATION
.X ±.25
.XX ±.125
.XXX ±.060
ANGLES ±3°
MACHINE
.X ±.030
.XX ±.015
.XXX ±.005
.XXXX ±.001
ANGLES

1. DO NOT SCALE DRAWING
2. DIMENSIONS ARE IN INCHES
3. REMOVE ALL BURRS AND SHARP CORNERS

THIRD ANGLE PROJECTION

| | Name | Date |
|---|---|---|
| Drawn | A WILLIAMS | 4/4/2017 |
| Checked | - | - |
| Eng. Appr. | - | - |

WILCO MACHINE AND FAB, INC.

TITLE
GENERAL ARRANGEMENT-
2560 WASTE WITH CPV-3 DUST COLLECTOR

| SIZE | DWG. NO. | REV |
|---|---|---|
| B | 2560WCPV8 | 01 |

SCALE: 1:64 | WEIGHT: 20622.26 | SHEET 1 OF 1

REFERENCE



Tuesday, April 04, 2017 1:13:58 PM FORM REVISION B

Donaldson
Torit®

# POWERCORE® CP FILTER PACK

## ENGINEERED FOR DUST COLLECTION

- Ultra-Web® nanofiber media ensures longer filter life at a significantly lower pressure drop
- Superior particle release due to surface filtration
- Fluted media construction prevents bridging in fibrous or agglomerative applications
- Smaller and lightweight filter pack design with built-in handles
- Easy filter changeout for quicker maintenance — no tools required
- MERV* 13 filtration efficiency rating per ASHRAE 52.2-2007

PowerCore®
A Donaldson Filtration Technology

**PowerCore® CP Filter Pack**
(Available in Standard, Spunbond and Anti-Static)

## PROVEN TECHNOLOGY THAT PERFORMS

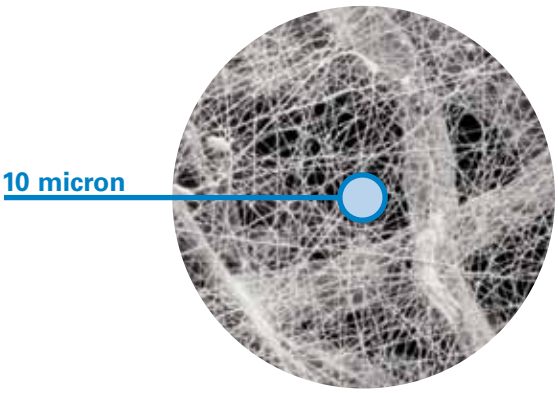
Proven and proprietary Ultra-Web® filter media delivers longer filter life, cleaner air and greater cost savings than other traditional filter media. It is made with an electrospinning process that produces a very fine, continuous, resilient fiber of 0.2-0.3 microns in diameter.

PowerCore filter packs with Ultra-Web media keep dust on the surface of the fluted channels where it is easily cleaned off unlike conventional filter bag material that depth loads, like 16 oz. (453.6 g) polyester.

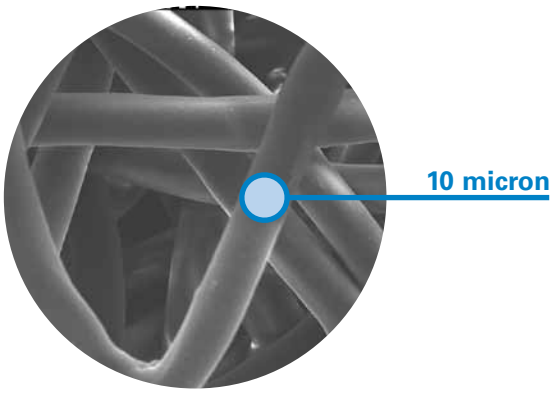
- Surface loading promotes filter cleaning and longer life
- Better pulse cleaning lowers operational pressure drop and energy use

## SEM† IMAGES

1 micron = 1/25,400 of an inch (1/1,000 millimeters)




**Ultra-Web Nanofiber Technology** (600x)




**16 oz. Polyester** (600x)

† Scanning Electron Microscope.
* Refer to Technical Information on page 2.

## APPLICATIONS

- Premium performance on fine, dry, fibrous and/or abrasive dust
- Longer life in aggressive/challenging applications
- Optional Spunbond or Anti-Static (AS) media available
- Spunbond version has excellent moisture and chemical resistance

### MEDIA COMPATIBILITY DATA

| | |
|---|---|
| Temperature Resistance | 150°F<br>65°C |
| Moisture Absorption** | Maximum 14%<br>@ 70°F (21°C) and 65% RH |
| Chemical Tolerance*** | Acids→Poor Oxidants→Poor<br>Bases→Fair Solvents→Fair |
| Abrasion Resistance | Excellent per TAPPI 476<br>(Taber Method) |
| Moisture Absorption** for Spunbond | 0.2–0.5%<br>@ 70°F (21°C) and 65% RH |
| Chemical Tolerance*** for Spunbond | Acids→Good Oxidants→Good<br>Bases→Good Solvents→Good |

## SPECIFICATIONS

### MEDIA COMPOSITION

| | |
|---|---|
| Nanofiber Technology | Durable proprietary synthetic filter media fiber and polymer<br>Mean fiber diameter of 0.2 µm |
| Substrates | • Proprietary blend of cellulose fibers<br>• Spunbond Polyester<br>• Anti-static (AS) version per ESD STM 11.11-2001 Resistance less than $10^8$ OHM |

### MEDIA EFFICIENCY

| | |
|---|---|
| U.S. Efficiency Rating | MERV* 13 per ASHRAE 52.2-2007 |

### FILTER PACK CONSTRUCTION

| | |
|---|---|
| Standard Construction | Obround design<br>Fluted media configuration<br>Urethane gasket<br>Built-in handle |

## CURRENT AVAILABLE CONFIGURATIONS

| Collector Models | Dimensions | | PowerCore | | |
|---|---|---|---|---|---|
| | in | mm | Standard | Spunbond | Anti-Static |
| CPC | 22.3 x 7.5 x 7.0 | 566.42 x 190.50 x 177.80 | • | • | • |
| CPV | 22.3 x 7.5 x 7.0 | 566.42 x 190.50 x 177.80 | • | • | • |

* The Minimum Efficiency Reporting Value (MERV) of this filter cartridge has been determined through independent laboratory testing using ASHRAE 52.2 (2007) test standards. The MERV rating was determined at a face velocity of 118 feet per minute (36.0 meters per minute) and loading up to four inches (101.6 millimeters) water gauge. Actual efficiency of any filter cartridge will vary according to the specific application parameters. Dust concentration, airflow, particle characteristics, and pulse cleaning methods all affect filtration efficiency.

** Environmental conditions involving combinations of high temperature, corrosive material, and moisture can reduce media strength. Reduction in media strength may compromise cartridge integrity and performance.

*** A combination of chemicals may alter fiber resistance to the specified performance level. Chemical attack may compromise cartridge integrity and performance.

Significantly improve the performance of your collector with genuine Donaldson Torit replacement filters and parts. **Call Donaldson Torit today 800-365-1331.**

Donaldson FILTRATION SOLUTIONS

Tel 800-365-1331 (USA)
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Donaldson Company, Inc.
Torit
P.O. Box 1299
Minneapolis, MN
55440-1299 U.S.A.

**EXACTLY WHAT YOU NEED.™**

**Powercore CP Filter Pack (11/12)**

# Attachment I
# Emissions Calculations

**Attachment I**
**Emission Calculations**
**Jane Lew, Lewis County, WV**

# G50-B Emission Calculation Spreadsheets

*For purposes of the General Permit for concrete batch plants, the following emission calculation methods will provide an adequate estimate of facility emissions from point sources and fugitive emission sources. However, where source (facility) specific tests are available, such information is preferable. Other emission factors may be acceptable provided documentation as to accuracy and appropriateness are provided by the applicant.*

*Completely fill out the following pages with all requested facility specific information.*

Applicant Name C&J Spec-Rent Services, Inc DBA C&J Energy Services

Facility Name Jane Lew

Please print out all pages of the completed spreadsheet and submit with Registration Application.

***Revised 06/11/2007***

**General Permit G50-B Emission Calculation Spreadsheet G50ECALC for Concrete Batch Plants**

| TRANSFER POINT | TRANSFER RATE TPH | TPY | TYPE OF CONTROL | CONTROL EFFICIENCY | PM lb/hour | PM-10 lb/hour | PM TPY | PM-10 TPY |
|---|---|---|---|---|---|---|---|---|
| **BATCH DROP/CONTINUOUS DROP OPERATIONS** | | | | | | | | |
| TRANSFER POINT | TRANSFER RATE TPH | TPY | TYPE OF CONTROL | CONTROL EFFICIENCY | PM lb/hour | PM-10 lb/hour | PM TPY | PM-10 TPY |
| **CEMENT UNLOADING TO ELEVATED STORAGE SILO (PNEUMATIC)** | | | | | | | | |
| e= 0.7200 lb/ton (PM emission factor) | | | | e= | 0.4600 lb/ton (PM-10 emission factor) | | | |
| truck to cement silo | 25 | 16,000 | UL-BH | 99.00 | 0.1800 | 0.1150 | 0.0576 | 0.0368 |
| **CEMENT SUPPLEMENT UNLOADING TO ELEVATED STORAGE SILO (PNEUMATIC)** | | | | | | | | |
| e= 3.1400 lb/ton (PM emission factor) | | | | e= | 1.1000 lb/ton (PM-10 emission factor) | | | |
| truck to cement silo | 25 | 6,000 | UL-BH | 99.00 | 0.7850 | 0.2750 | 0.0942 | 0.0330 |
| **WEIGH HOPPER/ SCALE TANK LOADING** | | | | | | | | |
| e= 0.0051 lb/ton (PM emission factor) | | | | e= | 0.0024 lb/ton (PM-10 emission factor) | | | |
| silo to scale tank | 25 | 22,000 | TC-BH | 99.00 | 0.0013 | 0.0006 | 0.0006 | 0.0003 |
| **BATCH BLENDER LOADING** | | | | | | | | |
| e= 0.0051 lb/ton (PM emission factor) | | | | e= | 0.0024 lb/ton (PM-10 emission factor) | | | |
| scale tank to batch blender | 25 | 22,000 | TC-BH | 99.00 | 0.0013 | 0.0006 | 0.0006 | 0.0003 |
| **TRUCK LOADING (TRUCK MIX)** | | | | | | | | |
| e= 0.9950 lb/ton (PM emission factor) | | | | e= | 0.2780 lb/ton (PM-10 emission factor) | | | |
| batch blender to truck | 25 | 22,000 | LR-TC | 75.00 | 6.2188 | 1.7375 | 2.7363 | 0.7645 |
| TOTAL CEMENT TRANSFER EMISSIONS | | | | | 7.1863 | 2.1287 | 2.8892 | 0.8348 |
| **TOTAL TRANSFER EMISSIONS** | | | | | **7.1863** | **2.1287** | **2.8892** | **0.8348** |

**UNPAVED HAULROADS - Cement Tanker**

| PM EMISSIONS | | | PM-10 EMISSIONS | | |
|---|---|---|---|---|---|
| k | 4.9 | particle size multiplier (assumed) | k | 1.5 | particle size multiplier (assumed) |
| s | 10 | silt in road surface (%) | s | 10 | silt in road surface (%) |
| a | 0.7 | equation constant | a | 0.9 | equation constant |
| b | 0.45 | equation constant | b | 0.45 | equation constant |
| S | 5 | mean vehicle speed (mph) | S | 5 | mean vehicle speed (mph) |
| W | 65 | mean vehicle weight (tons) | W | 65 | mean vehicle weight (tons) |
| w | 18 | mean number of wheels | w | 18 | mean number of wheels |
| p | 150 | days of precipitation (assumed) | p | 150 | days of precipitation (assumed) |
| e | 17.2138 | LB/VMT | e | 5.0808 | LB/VMT |
| TRAVEL | 0.6800 | VMT/HOUR | TRAVEL | 0.6800 | VMT/HOUR |
| TRAVEL | 598.4000 | VMT/YR | TRAVEL | 598.4000 | VMT/YR |
| CONTROLS | 70.0 | control efficiency (%) | CONTROLS | 70.0 | control efficiency (%) |
| | | | | | |
| **EMISSIONS** | **3.5116** | **lb/hour** | **EMISSIONS** | **1.0365** | **lb/hour** |
| **EMISSIONS** | **1.5451** | **TPY** | **EMISSIONS** | **0.4561** | **TPY** |

**UNPAVED HAULROADS - Concrete Mixer**

| PM EMISSIONS | | | PM-10 EMISSIONS | | |
|---|---|---|---|---|---|
| k | 4.9 | particle size multiplier (assumed) | k | 1.5 | particle size multiplier (assumed) |
| s | 10 | silt in road surface (%) | s | 10 | silt in road surface (%) |
| a | 0.7 | equation constant | a | 0.9 | equation constant |
| b | 0.45 | equation constant | b | 0.45 | equation constant |
| S | 5 | mean vehicle speed (mph) | S | 5 | mean vehicle speed (mph) |
| W | 65 | mean vehicle weight (tons) | W | 65 | mean vehicle weight (tons) |
| w | 18 | mean number of wheels | w | 18 | mean number of wheels |
| p | 150 | days of precipitation (assumed) | p | 150 | days of precipitation (assumed) |
| e | 17.2138 | LB/VMT | e | 5.0808 | LB/VMT |
| TRAVEL | 0.6800 | VMT/HOUR | TRAVEL | 0.6800 | VMT/HOUR |
| TRAVEL | 598.4000 | VMT/YR | TRAVEL | 598.4000 | VMT/YR |
| CONTROLS | 70.0 | control efficiency (%) | CONTROLS | 70.0 | control efficiency (%) |
| | | | | | |
| **EMISSIONS** | **3.5116** | **lb/hour** | **EMISSIONS** | **1.0365** | **lb/hour** |
| **EMISSIONS** | **1.5451** | **TPY** | **EMISSIONS** | **0.4561** | **TPY** |

## EMISSIONS SOURCE SUMMARY

| | PM EMISSIONS | | PM-10 EMISSIONS | |
|---|---|---|---|---|
| **Point Source Emissions** | **lb/hour** | **TPY** | **lb/hour** | **TPY** |
| Transfer Point Emissions | 7.19 | 2.89 | 2.13 | 0.83 |
| **Point Source Emissions Total** | **7.19** | **2.89** | **2.13** | **0.83** |
| | | | | |
| **Fugitive Emissions** | **lb/hour** | **TPY** | **lb/hour** | **TPY** |
| Unpaved Haulroad Emissions | 7.02 | 3.09 | 2.07 | 0.91 |
| **Fugitive Emissions Total** | **7.02** | **3.09** | **2.07** | **0.91** |
| | | | | |
| **FACILITY EMISSIONS TOTAL** | **14.21** | **5.98** | **4.20** | **1.75** |

# Attachment I
# HCl Emission Calculations
# Jane Lew, Lewis County, WV

| Uncontrolled HCl Loading Emissions | |
|---|---|
| Annual Average Temp (F) | 72.0 |
| S (saturation factor) | 0.6 |
| P (true vapor pressure) | 2.70 |
| M (MW of vapor) | 36.60 |
| Total Loading Loss (lb/10^3 gal)* | 1.39 |
| Maximum Throughput (gallons/hr)** | 4,800 |
| Annual Throughput (gallons/yr) | 275,000 |
| Total Loading Emissions (lbs/hr) | 6.67 |
| Total Loading Emissions (tpy) | 0.19 |

| HCl Emissions based on 35% concentration | | |
|---|---|---|
| Hourly Emisisons (lbs) = total loading emissions X 35% | = 6.67 X 35% | 2.33 |
| Annual Emissions (tons) = total loading emissions X 35% | =0.19 X 35% | 0.07 |

**Enter any notes here**

*Using equation $L_L$ = 12.46* SPM/T from AP-42, Chapter 5, Section 5.2-4

MW and TVP obtained from HCl physical properties

Annual Average Temp (F) obtained from Charleston, WV

S (saturation factor) is based on submerged loading

** Maximum throughput in gallons per hour obtained from actual transfer rate.

Loading emissions are vented to the atmosphere.

| | Hourly (lbs per tank) | Annual (ton per tank |
|---|---|---|
| Uncontrolled Storage Tanks Working and Breathing HCl Emissions * | 0.040 | 0.175 |

* - from Tanks 4.09d report

**TANKS 4.0.9d**
**Emissions Report - Detail Format**
**Individual Tank Emission Totals**

**Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December**

**Jane Lew HCl ST - Vertical Fixed Roof Tank**
**Charleston, West Virginia**

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| Hydrochloric Acid 35% | 165.70 | 184.13 | 349.82 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Tank Indentification and Physical Characteristics

**Identification**

| | |
|---|---|
| User Identification: | Jane Lew HCl ST |
| City: | Charleston |
| State: | West Virginia |
| Company: | C&J Energy |
| Type of Tank: | Vertical Fixed Roof Tank |
| Description: | 6500 gal tank |

**Tank Dimensions**

| | |
|---|---|
| Shell Height (ft): | 14.00 |
| Diameter (ft): | 10.00 |
| Liquid Height (ft) : | 10.00 |
| Avg. Liquid Height (ft): | 8.00 |
| Volume (gallons): | 5,875.21 |
| Turnovers: | 23.83 |
| Net Throughput(gal/yr): | 140,000.00 |
| Is Tank Heated (y/n): | N |

**Paint Characteristics**

| | |
|---|---|
| Shell Color/Shade: | Gray/Medium |
| Shell Condition | Good |
| Roof Color/Shade: | Gray/Medium |
| Roof Condition: | Good |

**Roof Characteristics**

| | |
|---|---|
| Type: | Dome |
| Height (ft) | 2.00 |
| Radius (ft) (Dome Roof) | 6.00 |

**Breather Vent Settings**

| | |
|---|---|
| Vacuum Settings (psig): | -0.03 |
| Pressure Settings (psig) | 0.03 |

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Liquid Contents of Storage Tank

**Jane Lew HCl ST - Vertical Fixed Roof Tank**
**Charleston, West Virginia**

| Mixture/Component | Month | Daily Liquid Surf. Temperature (deg F) Avg. | Min. | Max. | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) Avg. | Min. | Max. | Vapor Mol. Weight. | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrochloric Acid 35% | Jan | 50.00 | 43.75 | 56.26 | 58.06 | 0.8006 | 0.6496 | 1.0218 | 36.4600 | | | 36.46 | Option 1: VP50 = .8005 VP60 = 1.1542 |
| Hydrochloric Acid 35% | Feb | 52.70 | 45.13 | 60.28 | 58.06 | 0.8961 | 0.6829 | 1.1673 | 36.4600 | | | 36.46 | Option 1: VP50 = .8005 VP60 = 1.1542 |
| Hydrochloric Acid 35% | Mar | 59.05 | 49.51 | 68.60 | 58.06 | 1.1207 | 0.7886 | 1.5594 | 36.4600 | | | 36.46 | Option 1: VP50 = .8005 VP60 = 1.1542 |
| Hydrochloric Acid 35% | Apr | 64.76 | 53.23 | 76.29 | 58.06 | 1.3787 | 0.9149 | 2.0243 | 36.4600 | | | 36.46 | Option 1: VP60 = 1.1542 VP70 = 1.6254 |
| Hydrochloric Acid 35% | May | 70.02 | 57.22 | 82.81 | 58.06 | 1.6266 | 1.0560 | 2.4918 | 36.4600 | | | 36.46 | Option 1: VP70 = 1.6254 VP80 = 2.2592 |
| Hydrochloric Acid 35% | Jun | 74.22 | 60.93 | 87.51 | 58.06 | 1.8927 | 1.1980 | 2.8800 | 36.4600 | | | 36.46 | Option 1: VP70 = 1.6254 VP80 = 2.2592 |
| Hydrochloric Acid 35% | Jul | 75.41 | 62.83 | 87.98 | 58.06 | 1.9680 | 1.2874 | 2.9195 | 36.4600 | | | 36.46 | Option 1: VP70 = 1.6254 VP80 = 2.2592 |
| Hydrochloric Acid 35% | Aug | 74.03 | 62.28 | 85.79 | 58.06 | 1.8810 | 1.2615 | 2.7379 | 36.4600 | | | 36.46 | Option 1: VP70 = 1.6254 VP80 = 2.2592 |
| Hydrochloric Acid 35% | Sep | 69.64 | 59.11 | 80.18 | 58.06 | 1.6085 | 1.1226 | 2.2738 | 36.4600 | | | 36.46 | Option 1: VP60 = 1.1542 VP70 = 1.6254 |
| Hydrochloric Acid 35% | Oct | 62.86 | 53.56 | 72.16 | 58.06 | 1.2891 | 0.9265 | 1.7624 | 36.4600 | | | 36.46 | Option 1: VP60 = 1.1542 VP70 = 1.6254 |
| Hydrochloric Acid 35% | Nov | 56.75 | 49.74 | 63.77 | 58.06 | 1.0394 | 0.7943 | 1.3317 | 36.4600 | | | 36.46 | Option 1: VP50 = .8005 VP60 = 1.1542 |
| Hydrochloric Acid 35% | Dec | 51.66 | 45.88 | 57.44 | 58.06 | 0.8592 | 0.7011 | 1.0635 | 36.4600 | | | 36.46 | Option 1: VP50 = .8005 VP60 = 1.1542 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Detail Calculations (AP-42)

**Jane Lew HCl ST - Vertical Fixed Roof Tank**
**Charleston, West Virginia**

| Month: | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standing Losses (lb): | 5.1004 | 6.2767 | 11.3472 | 16.5985 | 22.9052 | 27.0549 | 27.4474 | 24.4600 | 17.7779 | 12.7278 | 7.4020 | 5.0289 |
| Vapor Space Volume (cu ft): | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 |
| Vapor Density (lb/cu ft): | 0.0053 | 0.0059 | 0.0073 | 0.0089 | 0.0104 | 0.0120 | 0.0125 | 0.0120 | 0.0103 | 0.0084 | 0.0068 | 0.0057 |
| Vapor Space Expansion Factor: | 0.0723 | 0.0909 | 0.1277 | 0.1694 | 0.2056 | 0.2308 | 0.2220 | 0.2026 | 0.1659 | 0.1310 | 0.0904 | 0.0678 |
| Vented Vapor Saturation Factor: | 0.7697 | 0.7491 | 0.7047 | 0.6599 | 0.6219 | 0.5856 | 0.5761 | 0.5871 | 0.6245 | 0.6748 | 0.7202 | 0.7569 |
| Tank Vapor Space Volume: | | | | | | | | | | | | |
| Vapor Space Volume (cu ft): | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 | 553.9675 |
| Tank Diameter (ft): | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 |
| Vapor Space Outage (ft): | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 |
| Tank Shell Height (ft): | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 | 14.0000 |
| Average Liquid Height (ft): | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 | 8.0000 |
| Roof Outage (ft): | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 |
| Roof Outage (Dome Roof) | | | | | | | | | | | | |
| Roof Outage (ft): | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 | 1.0533 |
| Dome Radius (ft): | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 | 6.0000 |
| Shell Radius (ft): | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 | 5.0000 |
| Vapor Density | | | | | | | | | | | | |
| Vapor Density (lb/cu ft): | 0.0053 | 0.0059 | 0.0073 | 0.0089 | 0.0104 | 0.0120 | 0.0125 | 0.0120 | 0.0103 | 0.0084 | 0.0068 | 0.0057 |
| Vapor Molecular Weight (lb/lb-mole): | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.8006 | 0.8961 | 1.1207 | 1.3787 | 1.6266 | 1.8927 | 1.9680 | 1.8810 | 1.6085 | 1.2891 | 1.0394 | 0.8592 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 509.6722 | 512.3732 | 518.7236 | 524.4342 | 529.6887 | 533.8872 | 535.0758 | 533.7023 | 529.3110 | 522.5328 | 516.4248 | 511.3288 |
| Daily Average Ambient Temp. (deg. F): | 32.1000 | 35.5000 | 45.8500 | 54.8000 | 63.5000 | 71.4500 | 75.0500 | 73.9000 | 67.6500 | 56.2000 | 46.8000 | 37.0000 |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R)): | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 | 10.731 |
| Liquid Bulk Temperature (deg. R): | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 | 517.7333 |
| Tank Paint Solar Absorptance (Shell): | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 |
| Tank Paint Solar Absorptance (Roof): | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 | 0.6800 |
| Daily Total Solar Insulation Factor (Btu/sqft day): | 625.9737 | 850.2836 | 1,184.6862 | 1,514.6470 | 1,780.2020 | 1,910.5999 | 1,836.9933 | 1,675.5029 | 1,369.9719 | 1,046.0392 | 678.9578 | 533.0136 |
| Vapor Space Expansion Factor | | | | | | | | | | | | |
| Vapor Space Expansion Factor: | 0.0723 | 0.0909 | 0.1277 | 0.1694 | 0.2056 | 0.2308 | 0.2220 | 0.2026 | 0.1659 | 0.1310 | 0.0904 | 0.0678 |
| Daily Vapor Temperature Range (deg. R): | 25.0225 | 30.3014 | 38.1804 | 46.1189 | 51.1750 | 53.1538 | 50.3124 | 47.0216 | 42.1403 | 37.1966 | 28.0474 | 23.1086 |
| Daily Vapor Pressure Range (psia): | 0.3722 | 0.4844 | 0.7707 | 1.1094 | 1.4358 | 1.6820 | 1.6321 | 1.4764 | 1.1512 | 0.8359 | 0.5374 | 0.3624 |
| Breather Vent Press. Setting Range(psia): | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.8006 | 0.8961 | 1.1207 | 1.3787 | 1.6266 | 1.8927 | 1.9680 | 1.8810 | 1.6085 | 1.2891 | 1.0394 | 0.8592 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 0.6496 | 0.6829 | 0.7886 | 0.9149 | 1.0560 | 1.1980 | 1.2874 | 1.2615 | 1.1226 | 0.9265 | 0.7943 | 0.7011 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 1.0218 | 1.1673 | 1.5594 | 2.0243 | 2.4918 | 2.8800 | 2.9195 | 2.7379 | 2.2738 | 1.7624 | 1.3317 | 1.0635 |
| Daily Avg. Liquid Surface Temp. (deg R): | 509.6722 | 512.3732 | 518.7236 | 524.4342 | 529.6887 | 533.8872 | 535.0758 | 533.7023 | 529.3110 | 522.5328 | 516.4248 | 511.3288 |
| Daily Min. Liquid Surface Temp. (deg R): | 503.4166 | 504.7978 | 509.1785 | 512.9044 | 516.8950 | 520.5988 | 522.4977 | 521.9469 | 518.7759 | 513.2336 | 509.4130 | 505.5517 |
| Daily Max. Liquid Surface Temp. (deg R): | 515.9278 | 519.9485 | 528.2687 | 535.9639 | 542.4825 | 547.1757 | 547.6539 | 545.4577 | 539.8460 | 531.8319 | 523.4367 | 517.1060 |
| Daily Ambient Temp. Range (deg. R): | 18.2000 | 19.6000 | 21.7000 | 24.0000 | 24.0000 | 23.3000 | 21.3000 | 21.0000 | 22.3000 | 24.0000 | 21.0000 | 18.0000 |
| Vented Vapor Saturation Factor | | | | | | | | | | | | |
| Vented Vapor Saturation Factor: | 0.7697 | 0.7491 | 0.7047 | 0.6599 | 0.6219 | 0.5856 | 0.5761 | 0.5871 | 0.6245 | 0.6748 | 0.7202 | 0.7569 |
| Vapor Pressure at Daily Average Liquid: Surface Temperature (psia): | 0.8006 | 0.8961 | 1.1207 | 1.3787 | 1.6266 | 1.8927 | 1.9680 | 1.8810 | 1.6085 | 1.2891 | 1.0394 | 0.8592 |
| Vapor Space Outage (ft): | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 | 7.0533 |
| Working Losses (lb): | 8.1081 | 9.0756 | 11.3505 | 13.9630 | 16.4737 | 19.1687 | 19.9317 | 19.0500 | 16.2903 | 13.0557 | 10.5270 | 8.7015 |
| Vapor Molecular Weight (lb/lb-mole): | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 | 36.4600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.8006 | 0.8961 | 1.1207 | 1.3787 | 1.6266 | 1.8927 | 1.9680 | 1.8810 | 1.6085 | 1.2891 | 1.0394 | 0.8592 |
| Net Throughput (gal/mo.): | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 | 11,666.6667 |
| Annual Turnovers: | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 | 23.8290 |
| Turnover Factor: | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Maximum Liquid Volume (gal): | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 | 5,875.2057 |
| Maximum Liquid Height (ft): | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 |
| Tank Diameter (ft): | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 | 10.0000 |
| Working Loss Product Factor: | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total Losses (lb): | 13.2084 | 15.3524 | 22.6976 | 30.5616 | 39.3789 | 46.2236 | 47.3791 | 43.5100 | 34.0683 | 25.7834 | 17.9290 | 13.7304 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Individual Tank Emission Totals

## Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

### Jane Lew HCl ST - Vertical Fixed Roof Tank
### Charleston, West Virginia

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| Hydrochloric Acid 35% | 165.70 | 184.13 | 349.82 |

# Attachment J
# Class I Legal Advertisement

**Attachment J**

**Air Quality Permit Notice**
**Notice of Application**
**Jane Lew Facility**
**C&J Energy Services**
**Lewis County, West Virginia**

Notice is given that C&J Energy Services has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a G50-B General Permit Modificationfor a concrete batch plant located at 1650 Hackers Creek Road, Jane Lew in Lewis County, West Virginia 26378.

The latitude and longitude coordinates are: 39.08716 and -80.38734

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

| Pollutants | TOTALS (tpy): |
|---|---|
| PM | 5.9794 |
| PM10 | 1.7469 |
| HCl | 0.01 |

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the __ day of _____, 2017

By: C&J Energy Services
John Srock
Vice-President, QHSE
3990 Rogerdale
Houston, TX 77042

# Attachment L
# General Permit Registration Application Fee

# Attachment O
# Emissions Summary Sheets

# CBP EMISSION SUMMARY SHEET

| Source | PM | | $PM_{10}$ | |
|---|---|---|---|---|
| | PTE (lb/hr) | PTE (ton/yr) | PTE (lb/hr) | PTE (ton/yr) |
| Total Aggregate Transfer Emissions[1] | - | - | - | - |
| Total Sand Transfer Emissions[1] | - | - | - | - |
| Cement Unloading to Elevated Storage Silo (Pneumatic)[2] | 0.180 | 0.058 | 0.115 | 0.037 |
| Pneumatic Cement Additive Unloading to Silo[2] | 0.785 | 0.094 | 0.275 | 0.033 |
| Weigh Hopper/Scale Tank Loading[3] | 0.001 | 0.001 | 0.001 | 0.000 |
| Batch Blender Loading | 0.001 | 0.001 | 0.001 | 0.000 |
| Mixer Loading (Central)[3] | - | - | - | - |
| Truck Mix Loading[3] | 6.219 | 2.736 | 1.738 | 0.765 |
| Paved Haulroads[4] | - | - | - | - |
| Unpaved Haulroads[4] | 7.023 | 3.090 | 2.073 | 0.912 |
| Wind Erosion from Storage Piles[5] | - | - | - | - |
| | | | | |
| Total | 14.210 | 5.979 | 4.202 | 1.747 |

1. Enter the potential to emit of PM and PM10 associated with the transfer of sand and aggregrate from stockpiles to elevated bins. Use appropriate emission factors and/or equations from the CBP Emission Factor Sheet. Emission calculations may also be determined using spreadsheet G50ECALC.

2. Enter the potential to emit of PM and PM10 associated with the pneumatic transfer of cement and cement additive to storage structures or silos. Use appropriate emission factors and/or equations from the CBP Emission Factor Sheet. Emission calculations may also be determined using spreadsheet G50ECALC.

3. Enter the potential to emit of PM and PM10 associated with loading of weigh hopper(s), central mixer and trucks. Use appropriate emission factors and/or equations from the CBP Emission Factor Sheet. Emission calculations may also be determined using spreadsheet G50ECALC.

4. Enter the potential to emit of PM and PM10 associated with vehicle activity on paved or unpaved haulroad(s). Use appropriate emission factors and/or equations from the CBP Emission Factor Sheet. Emission calculations may also be determined using spreadsheet G50ECALC.

5. Enter the potential to emit of PM and PM10 associated with wind erosion from sand and aggregate stockpiles. Use appropriate emission factors and/or equations from the CBP Emission Factor Sheet. Emission calculations may also be determined using spreadsheet G50ECALC.

6. Attach all potential emission calculations/spreadsheet output to this CBP Emission Summary Sheet.

# Attachment O
# HCl Emission Calculations
# Jane Lew, Lewis County, WV

| | Uncontrolled Emissions | | Controlled Emissions | |
|---|---|---|---|---|
| | Hourly (lbs) | Annual (tons) | Hourly (lbs) | Annual (tons) |
| HCl Loading Emissions [1] | 2.33 | 0.07 | 0.047 | 0.001 |
| HCl Working and Breathing Emissions [2] | 0.08 | 0.35 | 0.002 | 0.007 |
| Total HCl Emissions | 2.41 | 0.42 | 0.05 | 0.01 |

1 - Maximum hourly loading emissions based on one tank loading at anytime

2 - Obtained from Tanks 4.09d report. Emission quantities in this table are based on two storage tanks

3- A 98% control efficiency is assumed for HCl scrubber.

# Attachment O

## Emissions Summary

## Jane Lew, Lewis County, WV

| | Controlled Emissions | |
|---|---|---|
| | Hourly (lbs) | Annual (tons) |
| PM | 14.210 | 5.979 |
| PM10 | 4.202 | 1.747 |
| HCl | 0.05 | 0.01 |

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