



State of Utah

GARY R. HERBERT  
Governor

SPENCER J. COX  
Lieutenant Governor

Department of  
Environmental Quality

L. Scott Baird  
Executive Director

DIVISION OF AIR QUALITY  
Bryce C. Bird  
Director

RN103410007

June 29, 2020

Erik Diehl  
DuBois Chemicals, Inc. - Western Briquette  
2320 West Indiana Avenue  
Salt Lake City, UT 84104

Dear Erik Diehl,

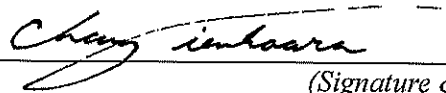
Re: Engineer Review:  
Modification to Approval Order DAQE-AN103410006-16 to Add and Replace Baghouses  
Project Number: N103410007

The DAQ requests a company representative (Title V Responsible Official for enhanced Approval Order application) review and sign the attached Engineer Review (ER). This ER identifies all applicable elements of the New Source Review permitting program. DuBois Chemicals, Inc. - Western Briquette should complete this review within **10 business days** of receipt.

DuBois Chemicals, Inc. - Western Briquette should contact **Mr. Enqiang He** at (801) 536-4010 if there are questions or concerns with the review of the draft permit conditions. Upon resolution of your concerns, please email [eh@utah.gov](mailto:eh@utah.gov) the signed cover letter to Mr. Enqiang He. Upon receipt of the signed cover letter, the DAQ will prepare an ITA for a 30-day public comment period. At the completion of the comment period, the DAQ will address any comments and will prepare an AO for signature by the DAQ Director.

If DuBois Chemicals, Inc. - Western Briquette does not respond to this letter within **10 business days**, the project will move forward without source concurrence. If DuBois Chemicals, Inc. - Western Briquette has concerns that cannot be resolved and the project becomes stagnant, the DAQ Director may issue an Order prohibiting construction.

Approval Signature



29 June 2020

(Signature & Date)



20 August 2019

Subject: DuBois Chemicals Air Permit Modification  
Description of Permit/Process Change  
2320 W. Indiana Ave, SLC, UT, 84104  
DAQE-AN10341006-16

From: Chancy Tienhaara  
Environmental Health, Safety & Security Coordinator  
DuBois Chemicals, Nampa ID, 83687  
208-466-8437 / Chancy.Tienhaara@DuBoischemicals.com

**Description of Permit Modification:**

1. Modification to change IIbB.3.a indication from 2-3 inches of water to state > or = 7 inches of water column.

2. Update/additions of Equipment on permit

II.A.1.1 Baghouse on SBC Silo 1  
Type: Reverse Jet Pulse Dust Collector  
Capacity: 1,000 acfm  
Model: CBBV-219-23-4.8-8-AL

II.A.1.2 Baghouse on SBC Silo 2  
Type: Reverse Jet Pulse Bin Dust Collector  
Capacity: 1,000 acfm  
Model: CBBV-219-23-4.8-8-AL

II.A.12 24 Bag Mikro Pul Baghouse (old but not listed on current permit)  
Capacity: 1,356 ACFM  
Model: Reverse Jet 24-8-160

Plant Manager  
Erik Diehl  
[Erik.diehl@duboischemicals.com](mailto:Erik.diehl@duboischemicals.com)  
801-973-8232

EHS&S  
Chancy Tienhaara  
[Chancy.Tienhaara@DuBoischemicals.com](mailto:Chancy.Tienhaara@DuBoischemicals.com)  
208-475-2590

Process & Design Engineer  
Mark Monsen  
North Monsen Company  
[mark@northmensen.com](mailto:mark@northmensen.com)  
801-322-1343

## Permit Review Comments and Questions

Inbox



**Enqiang He** <ehe@utah.gov>

to chancy.tienhaara, Erik.Diehl

May 21, 2020, 7:00 PM (7 days ago)

Hi Chancy,

Condition II.B.3.a - The pressure drop range of 2 to 3 inches of water is usually used to monitor the performance of baghouses, and usually in the range, say between 2 to 6 inches of water column. When the pressure drop nears the lower end of the range, it usually reflects the bags are just being cleaned. However, it could also indicate ruptured bags, blower problems, or other systems or even other issues. When the pressure drop reaches the upper end of the pressure drop range, it usually indicates the cakes formed on the bags accumulate to a point when a shake is needed to remove the cakes. High-pressure is not an ideal situation either because it could damage the bags. Because of these reasons, baghouse manufacturers usually set the pressure drop range between 2 and 6 inches of water column. Therefore, you need to consult with the baghouse manufacturers to see what a pressure drop range that the baghouse was designed for where the baghouse removes particulate matter safely and efficiently.

2. I understand you are trying to add three baghouses. II.A.1.1 and II.A.1.2 are new and their emissions need to be accounted for. If II.A.12 baghouse was never listed in the AO, and emissions have never been accounted for in the total site-wide emissions, then you need to estimate particulate emissions (PM10 and PM2.5) from the baghouse.

Please provide the above-requested information asap but within two weeks from today. Let me know if you have any questions. Thanks,



EQ He, CPM

Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality

1950 West 195 North, Salt Lake City, UT 84116

**P:** (801) 536-4010

ehe@[utah.gov](mailto:ehe@utah.gov)



**Chancy Tienhaara**

to me, Erik

May 22, 2020, 7:27 AM (6 days ago)

Good morning He

I would like to have a phone call with you this morning if that is feasible.  
My cell is 208-590-3767

Thank you  
Chancy Tienhaara  
EHS&S Coordinator

**From:** Enqiang He <[ehe@utah.gov](mailto:ehe@utah.gov)>

**Sent:** Thursday, May 21, 2020 7:00 PM

**To:** Chancy Tienhaara <[Chancy.Tienhaara@duboischchemicals.com](mailto:Chancy.Tienhaara@duboischchemicals.com)>; Erik Diehl  
<[Erik.Diehl@duboischchemicals.com](mailto:Erik.Diehl@duboischchemicals.com)>

**Subject:** Permit Review Comments and Questions

[EXTERNAL SENDER]

This email originated from outside of DuBois Chemicals organization.

---

Hi Chancy,

Condition II.B.3.a - The pressure drop range of 2 to 3 inches of water is usually used to monitor the performance of baghouses, and usually in the range, say between 2 to 6 inches of water column. When the pressure drop nears the lower end of the range, it usually reflects the bags are just being cleaned. However, it could also indicate a problem with the bags or the filter media.

indicate ruptured bags, blower problems, or other systems or even clogging issues. When the pressure drop reaches the upper end of the pressure drop range, it usually indicates the cakes formed on the bags accumulated to a point when a shake is needed to remove the cakes. High-pressure drop is not ideal situation either because it could damage the bags. Because of these reasons, baghouse manufacturers usually set the pressure drop range between 2 and 6 inches of water column. Therefore, you need to consult with the baghouse manufacturers to see what a pressure drop range that the baghouse was designed for where the baghouse removes particulate matter safely and efficiently.

2. I understand you are trying to add three baghouses. II.A.1.1 and II.A.1.2 are new and their emissions need to be accounted for. If II.A.12 baghouse was never listed in the AO, and emissions have never been accounted for in the total site-wide emissions, then you need to estimate particulate emissions (PM10 and PM2.5) from the baghouse.

Please provide the above-requested information asap but within two weeks from today. Let me know if you have any questions. Thanks,

EQ He, CPM  
Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality  
1950 West 195 North, Salt Lake City, UT 84116  
**P:** (801) 536-4010  
[ehc@utah.gov](mailto:ehc@utah.gov)

---

---

DuBois Chemicals places a high priority on the security of our customer's data and communications with our companies. We have in place a number of best practice safeguards and screening activities to ensure your message is error and virus-free. Despite our best efforts, full security of the information included in this

cannot be guaranteed as the data included in emails can be infected, intercepted, or corrupted. The recipient should check this email for threats with updated software, as the sender does not accept liability for any damage incurred by viewing the content of this email. DuBois Chemicals will never solicit financial information or any financial or banking information changes in an email.



**Chancy Tienhaara**

to me

May 26, 2020, 11:08 AM (2 days ago)

Chancy Tienhaara  
EHS&S Coordinator

**From:** Enqiang He <[ehe@utah.gov](mailto:ehe@utah.gov)>

**Sent:** Thursday, May 21, 2020 7:00 PM

**To:** Chancy Tienhaara <[Chancy.Tienhaara@duboischchemicals.com](mailto:Chancy.Tienhaara@duboischchemicals.com)>; Erik Diehl <[Erik.Diehl@duboischchemicals.com](mailto:Erik.Diehl@duboischchemicals.com)>

**Subject:** Permit Review Comments and Questions

[EXTERNAL SENDER]

This email originated from outside of DuBois Chemicals organization.

---

Hi Chancy,

Condition II.B.3.a - The pressure drop range of 2 to 3 inches of water column is used to monitor the performance of baghouses, and usually in the range, say between 2 to 6 inches of water column. When the pressure drop nears the lower end of the range, it usually reflects the bags are just being cleaned. However, it could also indicate ruptured bags, blower problems, or other systems or even clogging issues. When the pressure drop reaches the upper end of the pressure drop range, it usually indicates the cakes formed on the bags accumulate to a point when a shake is needed to remove the cakes. High-pressure drop is not ideal situation either because it could damage the bags. Because of these reasons, baghouse manufacturers usually set the pressure drop range between 2 and 6 inches of water column. Therefore, you need to consult with the baghouse manufacturers to see what a pressure drop

range that the baghouse was designed for where the baghouse removes particulate matter safely and efficiently.

2. I understand you are trying to add three baghouses. II.A.1.1 and II.A.1.2 are new and their emissions need to be accounted for. If II.A.12 baghouse was never listed in the AO, and emissions have never been accounted for in the total site-wide emissions, then you need to estimate particulate emissions (PM10 and PM2.5) from the baghouse.

Please provide the above-requested information asap but within two days from today. Let me know if you have any questions. Thanks,

EQ He, CPM  
Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality  
1950 West 195 North, Salt Lake City, UT 84116  
P: (801) 536-4010  
ehe@[utah.gov](mailto:ehe@utah.gov)

## 2 Attachments



**Enqiang He** <ehe@utah.gov>  
to Chancy

10:48 AM (12 hours ago)

Hi Chancy,

Regarding the baghouse, 24-bag baghouse, that was left out in the equipment list with emissions already accounted for in the plant-wide totals. Do you have any previous NOIs that show the baghouse was

included in the emission estimates? I just want to make sure its emissions are actually reflected in the plant-wide totals. Please let me know. T



EQ He, CPM

Permitting Engineer, Minor NSR Section, Permitting Branch | Division of Air Quality

1950 West 195 North, Salt Lake City, UT 84116

P: (801) 536-4010

ehe@[utah.gov](mailto:ehe@utah.gov)



**Chancy Tienhaara**

10:50 AM (12 hours ago)

to me

Unfortunately there is no other information on this. That baghouse has probably been operating at the years

Chancy Tienhaara  
EHS&S Coordinator

**From:** Enqiang He <[ehe@utah.gov](mailto:ehe@utah.gov)>

**Sent:** Thursday, May 28, 2020 10:48 AM

**To:** Chancy Tienhaara <[Chancy.Tienhaara@duboischemicals.com](mailto:Chancy.Tienhaara@duboischemicals.com)>

**Subject:** Re: Permit Review Comments and Questions

Hi Chancy,

Regarding the baghouse, 24-bag baghouse, that was left out in the equipment list with emissions already accounted for in the plant-wide totals. Do you have any previous NOIs that show the baghouse was included in the emission estimates? I just want to make sure its emissions are actually reflected in the plant-wide totals. Please let me know. T

| EQ He, CPM

Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality

1950 West 195 North, Salt Lake City, UT 84116

**P:** (801) 536-4010

[ehe@utah.gov](mailto:ehe@utah.gov)



**Enqiang He** <[ehe@utah.gov](mailto:ehe@utah.gov)>

11:31 AM (11 hours ago)

to Chancy

What does this baghouse control? Is the air stream close to room temperature?



EQ He, CPM

Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality

1950 West 195 North, Salt Lake City, UT 84116

**P:** (801) 536-4010

[ehe@utah.gov](mailto:ehe@utah.gov)



**Chancy Tienhaara**

11:44 AM (11 hours ago)

to me

This baghouse collects from soda ash packaging/storage system. There is no heating or air conditioning plant so everything is ambient temperature

Chancy Tienhaara  
EHS&S Coordinator

**From:** Enqiang He <[ehe@utah.gov](mailto:ehe@utah.gov)>

**Sent:** Thursday, May 28, 2020 11:31 AM

**To:** Chancy Tienhaara <[Chancy.Tienhaara@duboischemicals.com](mailto:Chancy.Tienhaara@duboischemicals.com)>

**Subject:** Re: Permit Review Comments and Questions

What does this baghouse control? Is the air stream close to room temperature?

EQ He, CPM  
Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality  
1950 West 195 North, Salt Lake City, UT 84116  
**P:** (801) 536-4010  
[ehe@utah.gov](mailto:ehe@utah.gov)



**Enqiang He** <[ehe@utah.gov](mailto:ehe@utah.gov)>  
to Chancy

11:56 AM (11 hours ago)

How many hours the does baghouse operate a year?



EQ He, CPM  
Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality  
1950 West 195 North, Salt Lake City, UT 84116  
**P:** (801) 536-4010  
[ehe@utah.gov](mailto:ehe@utah.gov)



**Chancy Tienhaara**  
to me

12:02 PM (11 hours ago)

At most about 1900 hrs, but realistically probably closer to 1100-1200

Chancy Tienhaara  
EHS&S Coordinator

**From:** Enqiang He <[ehe@utah.gov](mailto:ehe@utah.gov)>  
**Sent:** Thursday, May 28, 2020 11:57 AM  
**To:** Chancy Tienhaara <[Chancy.Tienhaara@duboischchemicals.com](mailto:Chancy.Tienhaara@duboischchemicals.com)>  
**Subject:** Re: Permit Review Comments and Questions

How many hours the does baghouse operate a year?

EQ He, CPM  
Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality  
1950 West 195 North, Salt Lake City, UT 84116  
**P:** (801) 536-4010  
[ehe@utah.gov](mailto:ehe@utah.gov)



**Enqiang He** <[ehe@utah.gov](mailto:ehe@utah.gov)>  
to Chancy

12:03 PM (11 hours ago)

Ok, thanks.



EQ He, CPM  
Permitting Engineer, Minor NSR Section, Permitting  
Branch | Division of Air Quality  
1950 West 195 North, Salt Lake City, UT 84116  
**P:** (801) 536-4010  
[ehe@utah.gov](mailto:ehe@utah.gov)



ReplyForward

### Salt Lake City Air Permit Output Calculation

Date of particulate testing	9/5/2018	Tested output in Tons per year: <u>0.665231883</u>
Tested by	Chancy Tienhaara	

Estimated deviation 20% for non-uniformity in particulate size potential tons per year	0.79827826
--	------------

#### Point Source - Silo 1- Sodium Bicarb Raw Material Baghouse Exhaust - Top of Silo

												date of testing
Volume of particulate in um <sup>3</sup>	density of material in g/cm <sup>3</sup>	weight of single particle in g/um <sup>3</sup>	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m <sup>3</sup>	lb/m <sup>3</sup>	Total Stack Output tons/year	Output in lb/hour	Diameter of stack meters	Velocity of stack in m/sec	Hours of operations/year	9/5/2018
<b>PM2.5</b>	Sodium Bicarbonate		Enter particulate count #						Enter stack diamter #	Enter output velocity		
8.177083333	1.2	9.8125E-11	25980	2.54929E-06	0.002549288	5.62022E-06	0.044758483	0.021518502	0.254	21	4160	
<b>PM10</b>	Sodium Bicarbonate		Enter particulate count #						Enter stack diamter #	Enter output velocity		
523.3333333	1.2	6.28E-09	1560	9.7968E-06	0.0097968	2.15983E-05	0.172004888	0.082694658	0.254	21	4160	

#### Point Source - Silo 2 - Sodium Bicarb Finished Goods Baghouse Exhaust - Top of Silo

												date of testing
Volume of particulate in um <sup>3</sup>	density of material in g/cm <sup>3</sup>	weight of single particle in g/um <sup>3</sup>	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m <sup>3</sup>	lb/m <sup>3</sup>	Total Stack Output tons/year	Output in lb/hour	Diameter of stack inches	Velocity of stack in m/sec	Hours of operations/year	9/5/2018
<b>PM2.5</b>	Sodium Bicarbonate		Enter particulate count #						Enter stack diamter #	Enter output velocity		
8.177083333	1.2	9.8125E-11	31520	3.0929E-06	0.0030929	6.81868E-06	0.054302825	0.026107128	0.254	21	4160	
<b>PM10</b>	Sodium Bicarbonate		Enter particulate count #						Enter stack diamter #	Enter output velocity		
523.3333333	1.2	6.28E-09	1720	1.08016E-05	0.0108016	2.38135E-05	0.189646415	0.091176161	0.254	21	4160	

#### Point Source - Sodium Bicarb Grinder Exhaust - Noth Wall

												date of testing
Volume of particulate in um <sup>3</sup>	density of material in g/cm <sup>3</sup>	weight of single particle in g/um <sup>3</sup>	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m <sup>3</sup>	lb/m <sup>3</sup>	Total Stack Output tons/year	Output in lb/hour	Diameter of stack meters	Velocity of stack in m/sec	Hours of operations/year	9/5/2018
<b>PM2.5</b>	Sodium Bicarbonate		Enter particulate count #						Enter stack diamter #	Enter output velocity		
8.177083333	1.2	9.8125E-11	1012	9.93025E-08	9.93025E-05	2.18925E-07	0.002905798	0.001397018	0.254	35	4160	

<b>PM10</b>	Sodium Bicarbonate		Enter particulate count #						Enter stack diameter #	Enter output velocity	
523.3333333	1.2	6.28E-09	84	5.2752E-07	0.00052752	1.16298E-06	0.015436336	0.007421315	0.254	35	4160

**Point Source - Primary 320 bag Baghouse Stack exhaust - Northwest Corner**

											date of testing
Volume of particulate in um^3	density of material in g/cm^3	weight of single particle in g/um^3	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m^3	lb/m^3	Total Stack Output tons/year	Output in lb/hour	Diameter of stack meters	Velocity of stack in m/sec	Hours of operations/year
<b>PM2.5</b>	Soda Ash		Enter particulate count #						Enter stack diameter #	Enter output velocity	
8.177083333	0.77	6.29635E-11	4968	3.12803E-07	0.000312803	6.89612E-07	0.040535969	0.019488446	1	10	4160
<b>PM10</b>	Soda Ash		Enter particulate count #						Enter stack diameter #	Enter output velocity	
523.3333333	0.77	4.02967E-09	475	1.91409E-06	0.001914092	4.21985E-06	0.248046185	0.119252973	1	10	4160

**Point Source -Outside Red Tank Baghouse Exhaust (Green Machine Feed) - Northeast Corner Facility**

											Date of testing
Volume of particulate in um^3	density of material in g/cm^3	weight of single particle in g/um^3	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m^3	lb/m^3	Total Stack Output tons/year	Output in lb/hour	Diameter of stack meters	Velocity of stack in m/sec	Hours of operations/year
<b>PM2.5</b>	Soda Ash		Enter particulate count #						Enter stack diameter #	Enter output velocity	
8.177083333	0.77	6.29635E-11	7451	4.69141E-07	0.000469141	1.03428E-06	0.002188649	0.001052235	0.3	4	4160
<b>PM10</b>	Soda Ash		Enter particulate count #						Enter stack diameter #	Enter output velocity	
523.3333333	0.77	4.02967E-09	586	2.36138E-06	0.002361385	5.20596E-06	0.011016384	0.005296338	0.3	4	4160

**Point Source - Grandma Briquieter 50 bag Baghouse Exhaust - South Wall**

											date of testing
Volume of particulate in um^3	density of material in g/cm^3	weight of single particle in g/um^3	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m^3	lb/m^3	Total Stack Output tons/year	Output in lb/hour	Diameter of stack meters	Velocity of stack in m/sec	Hours of operations/year
<b>PM2.5</b>	Soda Ash		Enter particulate count #						Enter stack diameter #	Enter output velocity	
8.177083333	0.77	6.29635E-11	6511	4.09956E-07	0.000409956	9.03798E-07	0.003984446	0.001915599	0.25	12	4160
<b>PM10</b>	Soda Ash		Enter particulate count #						Enter stack diameter #	Enter output velocity	
523.3333333	0.77	4.02967E-09	235	9.46972E-07	0.000946972	2.08772E-06	0.009203819	0.004424913	0.25	12	4160

Point Source - 49 bag Baghouse, on inside Tank (feed primary Briquetter) - Roof Exhaust

											date of testing	
Volume of particulate in um <sup>3</sup>	density of material in g/cm <sup>3</sup>	weight of single particle in g/um <sup>3</sup>	Count of particulates in 1 Liter	weight of particles in sample g/L	g/m <sup>3</sup>	lb/m <sup>3</sup>	Total Stack Output tons/year	Output in lb/hour	Diameter of stack meters	Velocity of stack in m/sec	Hours of operations/year	9/5/2018
<b>PM2.5</b>	Soda Ash		Enter particulate count #						Enter stack diamter #	Enter output velocity		
8.177083333	0.77	6.29635E-11	19489	1.2271E-06	0.001227096	2.70529E-06	0.026529873	0.012754747	0.66	3.83	4160	
<b>PM10</b>	Soda Ash		Enter particulate count #						Enter stack diamter #	Enter output velocity		
523.3333333	0.77	4.02967E-09	2408	9.70344E-06	0.009703437	2.13924E-05	0.019877857	0.052399451	0.66	3.83	4160	

Equations

Source	Volume rating	type
Silo 1	1000	ACFM
Silo 2	1000	ACFM
Grinder Exhaust	1000	ACFM
Red Tank	1356	DSCFM
Inside tank	1413	DSCFM
Grandma	2769	DSCFM
Primary Baghouse	22617	DSCFM
Ambient in Building	1	N/A

Temperature

hours of operation

Date checked

Source	January	February	March	April	Me
Silo 1	0.051750315		0	0	0
Silo 2	0.011290978		0	0	0
Grinder Exhaust	0.005957036		0	0	0
Red Tank	0.007968582		0	0	0
Inside tank	0.013080927		0	0	0
Grandma	0	0	0	0	0
Primary Baghouse	0.318618926		0	0	0
Ambient in Building					
<b>monthly total</b>	<b>0.408666765</b>		<b>0</b>	<b>0</b>	<b>0</b>

DSCFM Calculator

ACFM	pressure	tempuratur (F)	DSCFM
	1000	6	696.7459666

**Measurement taken P**

January	February	March	April	May	June	July
825						
180						
148						
146						
230						
0						
350						
2187	0	0	0	0	0	0
40						
160	160	160	160	160	160	160

22-Jan-20

**tric Output PM10 (lb/DCFM) per month**

May	June	July	August	September	October	November
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Annual t**

