

Facility Name:_	HERCULES, INC.		Date:	10-9-85	
Address:	WEST 7TH STREET .				
***	P. O. BOX 1937			- The state of the	
· · · · · · · · · · · · · · · · · · ·	HATTIESBURG, MS. 39401			DATA	CODEN
Inspected By:	HEIDI MOWERY			The state of the s	
Person Contacte	d: RICHARD VAN BEEK		rf		
Facility No:	110-0800-00001				
Is facility majo	or or minor? MAJOR				
Purpose of Inspe	ection:				··
( ) Performance		,	<b>-</b> sr		
Current Permit S	tatus: PTO EXPIRES MAY	l; 1986.			<del></del>
	on: PINE RESINS MANUFACT		TY.	.15.	
	A.			-	
Applicable Regul	ations:				<del></del>
) SIP ) PSD ) NSPS ) NESHAPS		2 2			
ite regulation	by description or regulator	ry section n	ımber:		
	conditions not being compl				omplience
NONE, TO MY	KNOWLEDGE.				ompilance:
	•	883			
	+				
		·			

Facility Name:	HERCULES, INC.	Date:	10-9-85	
	o./Name:			
Description of P				
Raw Materials:	RESINS, ADDITIVES		and the second s	r's fireliance
	tions: HYDROGENATION,			e de la companya de l
	ts: RESINS & PIGMENTS		RESIDUES	
NO CONTROLS		E BOILERS WITH 1		
	not being complied with a KNOWLEDGE.		of noncompliance	:
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the analysis south which are no up all relations on the		attendo esta esta esta esta esta esta esta esta	Proc. of control of control of the c	<u>-</u>

Facility Name: HERCULES, INC.	Date: 10-9-85
Emission Point No./Name: 004/BOILER #4	5
Rated Boiler Size:MMBTUH OR 100,000 lbs steam/hr@	300 psig
Operating Rate @ Insp: MMBTUH  OR  34,000 lbs steam/hr @  Fuel(s) Being Used: ( ) Natural Gas @	MCFH  @ Gal/hr ons/hr; type; %  Ifur Sawdust @ tons/hr Shavings @ tons/hr Hogged Fuel @ 5000 tons/hr Bark @ tons/hr
For Solid Fuels, Describe Fuel Stoking Method:	
Schedule: (X) Periodic (X) Manual () Continuous () Automa () Schedule: ONCE/SHIFT, 3 TIMES DAIL	
Air Pollution Controls: ( ) None ( )	Baghouse ESP rticulate)
Stack Emissions: Opacity 6 % By (X) VE Sulfur Dioxide N/A lbs/N Nitrogen Oxides N/A lbs/N	EE ( ) CEM IMBTU by CEM 'MMBTU by CEM

Facility Name: HERCULES, INC. Date: 10-9-85
Emission Point No./Name: 005/BOILER #5
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@ 300 psig
Operating Rate @ Insp: MMBTUH OR 50,000 lbs steam/hr @ 285 psig
Fuel(s) Being Used:  (X) Natural Gas @ 2000 MOFF MCFD  () Fuel Oil, No. @ Gal/hr () Coal @ tons/hr; type;
For Solid Fuels, Describe Fuel Stoking Method:
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automatic  Schedule: ONCE/SHIFT, 3 TIMES DAILY
Air Pollution Controls: ( ) None ( ) Baghouse
Stack Emissions: Opacity O % By ( ) VEE ( ) CEM Sulfur Dioxide N/A lbs/MMBTU by CEM Nitrogen Oxides N/A lbs/MMBTU by CEM



Facility Name: HERCULES, INC.	Date: 11-22-85
Address: WEST 7TH STREET	
P. O. BOX 1937	
HATTIESBURG, MS. 39401	at William
Inspected By: DETRICH B. ALLEN	
Person Contacted: RICHARD VANBECK	The state of the s
Facility No: 110-0800-00001	
Is facility major or minor? MAJOR	
Purpose of Inspection:	e <sup>e</sup> a
( ) Compliance Verification (X ) O&M ( ) Performance Evaluation (X ) VEE ( ) Complaint Investigation ( ) Annual ( ) Surveillance ( ) Follow-weight ( ) Other (Explain):	ıp
Current Permit Status: PTO EXPIRES NAY 1; 1986.	
Source Description: PINE RESINS MANUFACTURING FAC	TT TTV
TIME RESIDENCE TRANSPACIONING PAC	1 T T T T 0
TIME RESERVE TRAVELACIONING PAC	TULITO
Applicable Regulations:	· ·
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS	•
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section	number:
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section	number:
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section state any permit conditions not being complied with a NONE, TO MY KNOWLEDGE.	number:
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section state any permit conditions not being complied with a NONE, TO MY KNOWLEDGE.	number:
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section  State any permit conditions not being complied with an NONE, TO MY KNOWLEDGE.	number:nd describe noncompliance:
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section state any permit conditions not being complied with a NONE, TO MY KNOWLEDGE.	number:  nd describe noncompliance:
Applicable Regulations:  ( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS  Cite regulation by description or regulatory section  State any permit conditions not being complied with an NONE, TO MY KNOWLEDGE.	number:  nd describe noncompliance:

Facility Name: HERCULES, INC.	Date: 11-22-85
Emission Point No./Name:	
Description of Process:  Raw Materials: RESINS, ADDITIVES	
Processing Operations: HYDROGENATION, STEARIFIC	
Products / Ruproducts - Products - Products	
Products/ByProducts: RESINS AND PIGMENTS/LIGHT	OILS AND RESIDUES
Emissions & Control Devices: 4 WOODWASTE BOILE	RS WITH TWO STACKS; NO CONTROLS
(Complete Appropriate Control Device Sheets)	
Permit conditions not being complied with and des	
- Company and the separate of	ľ

Facility Name: HERCULES, INC. Date: 11-22-85
Emission Point No./Name: 003/BOILER #3
Rated Boiler Size: MMBTUH  OR  100,000 lbs steam/hr@ 300 psig  Operating Rate @ Insp: MMBTUH
OR 30,000 lbs steam/hr @ 285 psig
Fuel(s) Being Used: ( ) Natural Gas @MCFH
For Solid Fuels, Describe Fuel Stoking Method:
Soot Blowing: (X) Periodic (X) Manual () Continuous () Automatic  Schedule: ONCE/SHIFT, 3 TIMES DAILY
Air Pollution Controls: ( ) None ( ) Baghouse
Stack Emissions: Opacity 12 % By (X) VEE ( ) CEM Sulfur Dioxide N/A lbs/MMBTU by CEM Nitrogen Oxides N/A lbs/MMBTU by CEM

racility Name: HERCULES, INC.	Date:	11-22-85
Emission Point No./Name: 005/BOILER	<b>#</b> 5	
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@	300 psig	
Operating Rate @ Insp:    MMBTUH     OR     42,000   lbs steam/hr	285 NOT VAILABLEMOTE  tons/hr; sulfur Sawdust @ Shavings @ Hogged Fuel Bark @	MCFD Gal/hr type: %
For Solid Fuels, Describe Fuel Stoking Metho	od:	
Soot Blowing: (X) Periodic (X) Manua () Continuous () Auto Schedule: ONCE/SHIFT, 3 TIMES DAILY	l matic	
Air Pollution Controls: ( ) None ( )	) Baghouse ) ESP Particulate)	
Stack Emissions: Opacity 0 % By ( ) Sulfur Dioxide N/A 1bs Nitrogen Oxides N/A 1b	VEE ( ) CE: /MMBTU by CEI	M M EM

) Jonasl

#### INSPECTION REPORT FORM - GENERAL

Facility Name: Hercules Incorporated Date: December 18, 1985

Address: West 7th Street
Hattiesburg, Mississippi

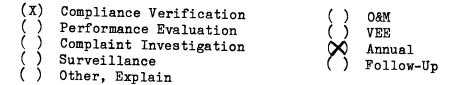
Inspected By: Don Watts

Person Contacted: Charles Jordan

Facility Number: 110-0800-00001

Is Facility Major or Minor: Major

Purpose of Inspection:



Current Permit Status: PTO expires September 1, 1986.

Source Description:

Applicable Regulations:

(X) SIP () PSD () NSPS () NESHAPS

Cite regulation by description or regulatory section number: APC-S-1

State any permit conditions not being complied with and describe noncompliance:

None.

The Hard Resin Area (Emission Point 015) which is currently under a PEP was not in operation. Construction of the new Gas-fired Boiler (Emission Point 037) is almost complete.

DW:els

Facility Name: Hercules Incorporated	Date: December 18, 1985
Emission Point No./Name: 010/Boiler No. 4	
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr @	psig
Operating Rate @ Insp: MMBTUH OR 32,000 lbs steam/hr	·@psig
	MCFH @ Gal/hr r; type;% ash; Sawdust @ tons/hr Shavings @ tons/hr Hogged Fuel @ tons/hr Bark @ tons/hr
( ) Other Fuels, Explain:	
For Solid Fuels, Describe Fuel Stoking Method	
Soot Blowing: ( ) Periodic ( ) Manual ( ) Continuous ( ) Automati	Le
Schedule: Grates cleaned once per shift	; <b>.</b>
Air Pollution Controls: ( ) None ( )	Baghouse ESP
Complete Appropriate Control Device Sheets	
Stack Emissions: Opacity 7.1 % By (X) VEE Sulfur Dioxide lbs/MMBT Nitrogen Oxides lbs/MMB	( ) CEM U by CEM TU by CEM

DW:els

Jonest

Facility Name:	HERCULES, INC.	Date:	9-16-85
Address:	WEST 7TH STREET	_	
-	P. O. BOX 1937		
	HATTIESBURG, MS. 39401	de	
Inspected By:	HEIDI MOWERY	S. M.	·
Person Contacted:	RICHARD VAN BEEK	11 6	M.
Facility No: 110	-0800-00001		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Is facility major	or minor? MAJOR		
Purpose of Inspect	ion:		
( ) Compliance V ( ) Performance ( ) Complaint In ( ) Surveillance ( ) Other (Expla	vestigation ( ) Annual ( ) Follow-ur	)	
Current Permit Sta	tus: PTO EXPIRES MAY 1, 1986.		
Source Description	PINE RESINS MANUFACTURING FACI	LITY.	
Applicable Regulati	ions:		192
( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS			
Cite regulation by	description or regulatory section m	amber:	
State any permit co	onditions not being complied with an	d descri	be noncompliance:
NONE, TO MY K			-
		<del></del>	

Facility Name: HERCULES, INC.	Date: _	9-16-85
Emission Point No./Name:		
Description of Description		8
Description of Process:		
Raw Materials: RESINS, ADDITIVES		
Processing Operations: HYDROGENATION, STEARIF	ICATION	
	<del></del>	
Products/ByProducts: RESINS & PIGMENTS/LIGHT	OILS & F	RESIDUES
Emissions & Control Devices: 4 WOODWASTE BOILER	RS WITH T	WO STACKS;
NO CONTROLS.		
(Complete Appropriate Control Device Sheets)	<del></del>	
Permit conditions not being complied with and de	scription	n of noncompliance:
NONE, TO MY KNOWLEDGE.		-
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	<del></del>	
	<del></del>	
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	<del></del>	

racility Name: H	ERCULES, INC.	Date:	.6–85
Emission Point No.	/Name: 004/BOILER #4	4	
Rated Boiler Size:	MMBTUH OR .00,000 lbs steam/hr@	300 psig	
Operating Rate @ In	$\frac{\overline{OR}}{34,000}$ 1bs steam/hr		
	( ) Natural Gas @ ( ) Fuel Oil, No ( ) Coal @	Sawdust @ Shavings @ Hogged Fuel Bark @	tons/hr tons/hr 4200 tons/hr tons/hr
For Solid Fuels, De	scribe Fuel Stoking Method	d:	
	Periodic (X) Manual Continuous () Auton NCE/SHIFT, THREE TIMES DAI		
	ols: (X) None () () Cyclone () () Multiclone () Scrubber (For P		
complete Appropriate	Control Device Sheets	·	
S <sup>-</sup>	pacity 5 % By $(X)$ ulfur Dioxide N/A lbs itrogen Oxides N/A lbs	/MMRTH by CEM	
NOTE: BOILER #3	IS STILL OFF-LINE.		

O Forest

Facility Name: HERCULES, INC.	Date: 8-28-85
Address: WEST 7TH STREET	
P. O. BOX 1937	
HATTIESBURG, MS. 39401	
Inspected By: HEIDI MOWERY JU	DATA
Person Contacted: RICHARD VAN BEEK	
Facility No: 110-0800-00001	
Is facility major or minor? MAJOR	
Purpose of Inspection:	
( ) Compliance Verification (X) 0&M ( ) Performance Evaluation (X) VEE ( ) Complaint Investigation ( ) Annual ( ) Surveillance ( ) Follow-u ( ) Other (Explain):	p
Current Permit Status: PTO EXPIRES MAY 1, 1986.	
Source Description: PINE RESINS MANUFACTURING F	ACILITY.
Applicable Regulations:	
( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS Site regulation by description or regulatory section n	umber.
tate any permit conditions not being complied with an	
NONE, TO MY KNOWLEDGE.	
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Facility Name: HERCULES, INC.	Date: 8-28-85
Emission Point No./Name:	×
Description of Process:	a .
Raw Materials: RESINS, ADDITIVES	
Processing Operations: HYDROGENATION, STEARING	ETCATTON
Trocessing Operations: MIDNOGENATION, STEARING	FIGATION
Products/ByProducts: RESINS AND PIGMENTS/LIGHT	T OILS AND RESIDUES.
Emissions & Control Devices: FOUR WOODWASTE BOI	ILERS WITH 2 STACKS;
NO CONTROLS.  (Complete Appropriate Control Device Sheets)	
Permit conditions not being complied with and des	scription of noncompliance:

Facility 1	Mame: HERCU	LES, INC.	Date:	8-28-85
Emission H	Point No./Nam	ne: 004/BOILER		3
Rated Boil	ler Size:	MMBTUH	300 psig	*
Operating	Rate @ Insp:	OR 30,000 lbs steam/h		
	ing Used: Fuels, Expla		tons/hr; sulfur ) Sawdust @ ) Shavings @ () Hogged Fue ) Bark @	Gal/hr type;
For Solid H	Tuels, Descri	be Fuel Stoking Meth	nod:	
Soot Blowin		iodic (X) Manu tinuous () Aut		
Schedu	le: ONCE/S	SHIFT, 3 TIMES DAILY		
	on Controls: propriate Co	(X) None ( ( ) Cyclone ( ( ) Multiclone ( ) Scrubber (Foratrol Device Sheets	) Baghouse ) ESP Particulate	)
Stack Emiss	ions: Opac: Sulfi Nitro	ity 6 % By (X) or Dioxide N/A 1 ogen Oxides N/A	) VEE ( ) ( bs/MMBTU by ( lbs/MMBTU by	cem cem cem
NOTE:	BOILERS #1 A DUE TO FUEL BOILER #3 IS REPAIRED; #3	ND #2 HAVE BEEN TAKE SWITCH-OVER TO NATUE OFF-LINE WITH ECONG WILL COME BACK ON-I	EN OFF-LINE, RAL GAS. OMIZER TUBE L LINE AFTER RE	AS OF AUGUST 19, 1985

Facility Name: HERCULES,	INC.	Date:	8-28-85
Emission Point No./Name:	005/BOILER	#5	2
Rated Boiler Size: OR 100,000	MMBTUH  lbs steam/hr@	300 psig	
	00 lbs steam/hr		
_	( ) ( ) ( )	or AVAIIMCFH @ tons/hr; ulfur Sawdust @ Shavings @ Hogged Fuel @ Bark @	Gal/hr type;% tons/hr tons/hr tons/hr
( ) Other Fuels, Explain:			
For Solid Fuels, Describe F	uel Stoking Method	1:	
Schedule: ONCE/SH		7	
Air Pollution Controls: (X) ((Complete Appropriate Control	None () Cyclone () Multiclone Scrubber (For P	Baghouse ESP articulate)	
Stack Emissions: Opacity Sulfur Di Nitrogen	0 % By ( ) ioxide N/A lbs Oxides N/A lb	VEE ( ) CEM /MMBTU by CEM s/MMBTU by CEM	

Forest

Facility Nam	e: HERCULES, INC.	Date:7-10-85
Address:	WEST 7TH STREET	
	P. O. BOX 1937	- u
-	HATTIESBURG, MS. 39401	-
Inspected By	HEIDI MOWERY	Per
Person Contac	cted: RICHARD VANBECK	ME ALL
Facility No:	110-0800-00001	
Is facility :	major or minor? MAJOR	Market .
Purpose of Ir	aspection:	
( ) Perform ( ) Complai ( ) Surveil	ance Verification (X) 08M hance Evaluation (X) VEE ht Investigation () Annual hance () Follow-	up
Current Permi	t Status: PTO EXPIRES OCTOBER 1,	1986.
	ption: PINE RESINS MANUFACTURING F	<del></del>
pplicable Re	gulations:	
) SIP ) PSD ) NSPS ) NESHAPS		
ite regulatio	on by description or regulatory section	numhaw
	nit conditions not being complied with a	
	MY KNOWLEDGE.	md describe noncompliance:
	1	
		1

Facility Name: HERCULES, INC.	Date:	7–10–85
Emission Point No./Name:		
Description of Process:	ä	
Raw Materials: RESINS, ADDITIVES		
Processing Operations: HYDROGENATION, STEARING	FICATION	
Products/ByProducts: RESINS AND PIGMENTS/LIGHT	IT OILS AND	RESIDUES.
Emissions & Control Devices: FOUR WOODWASTE	BOILERS WIT	H TWO EMISSION
STACKS; NO CONTROLS. (Complete Appropriate Control Device Sheets)	<del></del>	
Permit conditions not being complied with and o	lescription	of noncompliance:
	····	

Facility Name: HERCULES,	INC.	Date:	7-10-85
Emission Point No./Name:_	010/BOILER #2		gi
OR	_ MMBTUH _ lbs steam/hr @ _	300 psig	
Operating Rate @ Insp: OR 40,0	MMBTUH  OOO lbs steam/hr	@ 285 psig	:
<pre>Fuel(s) Being Used: (</pre>	) Natural Gas @ ) Fuel Oil, No. ) Coal @ ash;	MCFH @ tons/hr; sulfur Sawdust @ Shavings @ Hogged Fuel @ Bark @  MIXED IN WITH W	Gal/hr type; %  tons/hr tons/hr 3800 tons/hr tons/hr
For Solid Fuels, Describe	Fuel Stoking Metho	od:	
Soot Blowing: (X) Period: ( ) Continu	HIFT, THREE SHIFTS	DAILY	
Air Pollution Controls: (X ( ( ( ( Complete Appropriate Control	/ Scrubber (For I	) Baghouse ) ESP Particulate)	
Sulfur D	8 % By (X) ioxide N/A lbs Oxides N/A lt	VEE ( ) CEM  S/MMBTU by CEM  DS/MMBTU by CEM	

Facility Name: HERCULES, INC. Date: 7-10-85
Emission Point No./Name: 009/BOILER #4
Rated Boiler Size: MMBTUH  OR  100,000 lbs steam/hr@ 300 psig
Operating Rate @ Insp: MMBTUH  OR  25,000 lbs steam/hr @ 285 psig
Fuel(s) Being Used:  ( ) Natural Gas @ MCFH  ( ) Fuel Oil, No. @ Gal/hr ( ) Coal @ tons/hr; type; % ash; % sulfur  (X) Woodwaste: ( ) Sawdust @ tons/hr ( ) Shavings @ tons/hr ( X) Hogged Fuel @ 3800 tons/hr ( ) Bark @ tons/hr  ( X) Other Fuels, Explain: SCRAP RESINS AND RESIDUES MIXED WITH WOOD FUEL.
For Solid Fuels, Describe Fuel Stoking Method:
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automatic  Schedule: ONCE PER SHIFT, THREE SHIFTS DAILY.
Air Pollution Controls: (X) None ( ) Baghouse
Stack Emissions: Opacity 11 % By (X) VEE ( ) CEM Sulfur Dioxide N/A 1bs/MMBTU by CEM Nitrogen Oxides N/A 1bs/MMBTU by CEM

Don W.

Facility Name:	HERCULES, INC.		_ Date:	6-20-85
Address:	WEST 7TH AVENUE		_	
	P. O. BOX 1937		g • 9	
* J	HATTIESBURG, MS. 3	9401	-	
Inspected By: HE	IDI MOWERY AL		-	
Person Contacted:	RICHARD VANBECK		_	
Facility No: 110	0-0800-00001		i 196	
Is facility major or			(5)	
Purpose of Inspectio	n:			
( ) Compliance Ver ( ) Performance Ev ( ) Complaint Inve ( ) Surveillance ( ) Other (Explain	rification (aluation (stigation (	X ) VEE ) Annual ) Follow-	up	
Current Permit Statu	B: PTO EXPIRES (	OCTOBER 1, 19	86.	
Source Description:_				
			<del></del>	
Applicable Regulation	as:		<del></del>	W <sup>E 8</sup>
( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS		e.		
Cite regulation by de	escription or regula	tory section	number:	
State any permit cond			_	**************************************
NOI		. =====================================		Tro Honcompilance:
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Facility Name: HERCULES, INC.	Date: 6-20-85
Emission Point No./Name:	
Description of Process:	¥
Raw Materials: RESINS, ADDITIVES	
Processing Operations: HYDROGENATION, STEAM	RIFICATION
Products/ByProducts: RESINS AND PIGMENTS/LI	IGHT OILS AND RESUDUES
Emissions & Control Devices: FOUR WOODWASTE E	BOILERS WITH TWO EMISSION
(Complete Appropriate Control Device Sheets)  Permit conditions not being complied with and de	escription of noncompliance:
NONE	

Facility Name: HERCULES, INC.	Date: 6-20-85
Emission Point No./Name: 010/BOILER	#3
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr @	300 psig
Operating Rate @ Insp: MMBTUH OR  44,000 lbs steam/hr @	285 psig
Fuel(s) Being Used:  ( ) Natural Gas @ ( ) Fuel Oil, No. ( ) Coal @ t ash; % su ( X) Woodwaste: ( )	MCFH  @ Gal/hr ons/hr; type; %  lfur  Sawdust @ tons/hr Shavings @ tons/hr Hogged Fuel @ 3895 tons/hr Bark @ tons/hr
(X) Other Fuels, Explain: SCRAP RESINS AND For Solid Fuels, Describe Fuel Stoking Method	RESIDUES MIXED IN WITH WOOD FUEL
, and a soluting he mou.	,
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automs	itic
Schedule:	
Air Pollution Controls: (X) None () ( ) Cyclone () ( ) Multiclone	Baghouse ESP
( ) Scrubber (For Pa Complete Appropriate Control Device Sheets	rticulate)
Stack Emissions: Opacity 11 % By (X ) V Sulfur Dioxide N/A lbs/ Nitrogen Oxides N/A lbs	MMBTU by CRW
NOTE: BOILER #1 IS OFF-LINE DUE TO FALLE BEING REPLACED. BOILER #2 IS OFF-LINE DUE TO ECONO	

Facility Name: HERCULES, INC.	Date: 6-	20-85
Emission Point No./Name: 010/BOILER #4	Y ,	
Rated Boiler Size:  OR  100,000 lbs steam/hr @ 3	00 psig	
Operating Rate @ Insp: MMBTUH OR 20,000 lbs steam/hr @		
(X ) 1	lfur Sawdust @ Shavings @	Gal/hr type; %  tons/hr tons/hr 3895 tons/hr tons/hr
(X) Other Fuels, Explain: SCRAP RESINS AND For Solid Fuels, Describe Fuel Stoking Method	RESIDUES MIXE	•
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automs Schedule:	tic	3
Air Pollution Controls: (X) None () () Cyclone () () Multiclone () Scrubber (For Pa	Baghouse ESP rticulate)	
	EE ( ) CEM MMBTU by CEM /MMBTU by CEM	

Facility Name: HERO	CULES, INC.	Date: 6	-20-85
Emission Point No./Na	me: 011/BOIL	ER #5	
Rated Boiler Size:  OR 100,	MMBTUH  1 bs steam/hr @	300 psig	
Operating Rate @ Insp:	OR 28,000 lbs steam/	hr @ psi	g
Fuel(s) Being Used:	ash;	tons/hr; sulfur ) Sawdust @ ) Shavings @ ) Hogged Fuel ( ) Bark @	tons/hr
( ) Other Fuels, Expl For Solid Fuels, Descr		thod:	
	riodic (X) Man ntinuous () Au	ual itomatic	8
Air Pollution Controls: Complete Appropriate Co	( ) Cyclone ( ) Multiclone ( ) Scrubber (Fo	) Baghouse ) ESP r Particulate)	
Stack Emissions: Opac Sulf Nitr	rity N/A % By ( Our Dioxide N/A cogen Oxides N/A	) VEE ( ) CEM lbs/MMBTU by CEM lbs/MMBTU by CE	

DON W.

Facility Name:	HERCULES, INC.	Date:	5-22-85
Address:	WEST 7TH AVENUE	-	50 B
	P. O. BOX 1937	<del></del>	
ra c	HATTIESBURG, MS. 39401	<del></del>	
Inspected By:	HEIDI MOWERY		
Person Contacted:	RICHARD VANBECK		
Facility No: 1	10-0800-00001	<del></del>	
Is facility major	or minor? MAJOR		
Purpose of Inspec	tion:		
( ) Performance			
Current Permit St	atus: PTO EXPIRES OCTOBER 1	l, 1986.	
Source Description			
		l l	
Applicable Regulat	tions:		
( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS			
Cite regulation by	description or regulatory sect	ion number:_	
State any permit o	conditions not being complied wi	th and descri	ibe noncompliance:
NONE, TO	MY KNOWLEDGE.		
		A STATE OF THE STA	Control of the contro
7		DATA	Committee of the same
		SH P	

Facility Name: HERCULES, INC.	Date:	5-22-85
Emission Point No./Name:		B
Description of Process:		¥
Raw Materials: RESINS, ADDITIVES	<del></del>	
Processing Operations: HYDROGENATION, STEARIF	'ICATION	
Products/ByProducts: RESINS AND PIGMENTS/LI	GHT OILS	S AND RESIDUES.
Emissions & Control Devices: FOUR WOODWASTE BOIL STACKS; NO CONTROL DEVICES.	ERS WITH	H TWO EMISSION
(Complete Appropriate Control Device Sheets)  Permit conditions not being complied with and dean NONE, TO MY KNOWLEDGE.	scriptio	on of noncompliance:

Facility Name: HERCULES, INC. Date: 5-22-85
Emission Point No./Name: 009/BOILER #1
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@ 300 psig
Operating Rate @ Insp: MMBTUH  OR  10,000 lbs steam/hr @ 285 psig
Fuel(s) Being Used: ( ) Natural Gas @ MCFH ( ) Fuel Oil, No. @ Gal/hr ( ) Coal @ tons/hr; type; % ash; % sulfur ( X) Woodwaste: ( ) Sawdust @ tons/hr ( ) Shavings @ tons/hr ( X) Hogged Fuel @ 5000 tons/hr ( ) Bark @ tons/hr ( ) Other Fuels, Explain: SCRAP RESIN MIXED IN WITH WOOD FUEL.
For Solid Fuels, Describe Fuel Stoking Method:
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automatic  Schedule:
Air Pollution Controls: (X ) None ( ) Baghouse
Stack Emissions: Opacity 10 % By ( X) VEE ( ) CEM Sulfur Dioxide N/A lbs/MMBTU by CEM Nitrogen Oxides N/A lbs/MMBTU by CEM

Facility 1	Name: HERCU	LES, INC.	Date:	5-22-85	
Emission 1	Point No./Nam	ne: 009/BOILER	#2	9	
Rated Boi	OR	MMBTUH  000 lbs steam/hi	- @ 300 nai	-	
Operating	Rate @ Insp:				
Fuel(s) Be	eing Used:	(X) Natural Ga ( ) Fuel Oil, ( ) Coal @ ash; (X) Woodwaste:	% sulfur ( ) Sawdust @	Gal/hr type;  tons/hr el @ 5000 tons/hr tons/hr	_% r
		in: SCRAP RESI	N MIXED IN WITH		
Soot Blowin		iodic (X) M	Ianual Automatic		
Schedu	ile:				
	on Controls:	( ) Cyclone ( ) Multiclone	For Particulate		
Stack Emiss		ty 10 % By ar Dioxide N/A ogen Oxides N/A	(X) VEE ( ) _ lbs/MMBTU by _ lbs/MMBTU by	CEM CEM CEM	
NOTE:	IN THE FIREW PROCESS CONS PROBLEM THAT SCRAP RESIN	PERLY CURE THE RE ALL; ALSO A COUPI IDERABLY. MR. VA OCCURRED ABOUT 1 MIXED INTO THE WO	PLACEMENT REFRAGE  BREAKDOWNS HA  NBECK DID MENT:  0:00-10:30 A.M.  OD FUEL: THE PR	AVE SLOWED THIS	Y

GAS FUEL UNTIL ANOTHER BATCH OF WOOD FUEL COULD BE INTRODUCED.

Facility Name: HERCULES, INC.	Date: _5	<b>-22-85</b>
Emission Point No./Name: 010/BOILER #4		
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@	300 psig	
Operating Rate @ Insp: MMBTUH OR 30,000 lbs steam/hr @	285	osig
Fuel(s) Being Used:  ( ) Natural Gas @ ( ) Fuel Oil, No. ( ) Coal @ to ash;	MCFH @ ons/hr; fur awdust @ havings @ ogged Fue ark @	Gal/hr type; %  tons/hr tons/hr  1 @ 5000 tons/hr tons/hr
( ) Other Fuels, Explain: SCRAP RESIN MIXED		
For Solid Fuels, Describe Fuel Stoking Method:		
Soot Blowing: (X) Periodic (X) Manual (Continuous (Automa)	tic	
Schedule:		
Air Pollution Controls: (X) None () () Cyclone () () Multiclone () Scrubber (For Par Complete Appropriate Control Device Sheets	Baghouse ESP ticulate)	
Stack Emissions: Opacity $\frac{5}{}$ % By (X ) VE Sulfur Dioxide N/A lbs/M Nitrogen Oxides N/A lbs/	MBTH by C	P.M.

NOTE: BOILER #3 OFF-LINE DURING INSPECTION, DUE TO ECOMIZER TUBE LEAK.

Forest

Facility Name: Hercules Incorporated Date: May 1, 1985
Address: West 7th Street Hattiesburg, Mississippi 39401
Inspected By: Don Watts
Person Contacted: Charles Jordan
Facility Number: 110-0800-00001
Is Facility Major or Minor: Major
Purpose of Inspection:
( ) Compliance Verification ( ) O&M ( ) Performance Evaluation ( ) VEE ( ) Complaint Investigation ( ) Annual ( ) Surveillance ( ) Follow-Up (X) Other, Explain Stack Test Observation
Current Permit Status: Permit to Operate expires September 1, 1986
Source Description: Pine rosins and resins manufacturing facility
Applicable Regulations:
(X) SIP () PSD () NSPS () NESHAPS
Cite regulation by description or regulatory section number: APC-S-1
State any permit conditions not being complied with and describe noncompliance:
None



Hercules Incorporated May 1, 1985, Stack Test Observation

As required by PART III, No. 1, of the Operating Permit, stack testing of the woodwaste boilers at Hercules was being performed by Environmental Monitoring Laboratories (Danny Russell & Harry Little). This is the second of three annual tests required by the Permit.

The pertinent details of the testing are summarized below:

Boiler No.	Date	Run No.	Start	Stop	Leak Check, cfm	Steam Production, #/hr
4	4/30	See J	esse Thompson	n's memo.		
3	4/30	1	2:38 pm	3:43 pm	.003 (ok)	*
	5/1	2	8:53 am	9:54 am	.011 (ok)	*
		3	10:07 am	11:08 am	.005 (ok)	30,000
1	5/1	1	11:44 am	12:45 pm	.008 (ok)	25,000
		2	1:12 pm	2:13 pm	.009 (ok)	24,000
		3	2:34 pm		.004 (ok)	12,000
2	Postponed	because	Boiler down	for refra	ctory repairs.	,

\*These runs were not observed.

A 4x6 matrix was used, i.e., 24 points, with 2.5 minutes/point. All data appeared to be recorded properly, and sampling was done in accordance with Reference Methods 1-5. Proper clean-up procedures were employed. A Fyrite gas analysis was conduct during each run.

Boilers No. 1 and 2 vent through the South Stack (Emission Point 009), while Boilers No. 3 and 4 vent through the North Stack (Emission Point 010).

The opacity of the North Stack during Run 3 of the test on Boiler No. 3 was 5-10%. The opacity of the South Stack was 5-10% during the entire sampling period. A VEE (attached) was done from 1:41 pm to 1:59 pm; the average opacities were 7.9%, 5.4%, and 5.6%.

Grate cleaning occurred from 9-9:45 am on Boiler No. 3 and began at 3:25 pm on Boiler No. 1.

A mixture of chips and sawdust was being fed to the boilers as fuel. The steam production strip charts were not inking, so steam flow was read by me 2-3 times during each run.

No problems were noted during the sampling; therefore, the resultant report should provide a valid representation of the boiler emissions.

DW: cm

: DON W.

Forest

Facility Name:	HERCULES, IN	C.	<u> </u>	Date:	4-9-85
Address:	P. O. BOX 19	37	21		
	VEST 7TH AVE	NUE			
4 <u>I</u>	HATTIESBURG,	MS. 39401		t 9	
Inspected By:	HEIDI MOWERY	WH	W		
Person Contacted:	RICHARD VAN	BEEK			
Facility No:	110-0800-000	001			
Is facility major o	r minor?	MAJOR			
Purpose of Inspecti	.on:				
( ) Compliance Ve ( ) Performance E ( ) Complaint Inv ( ) Surveillance ( ) Other (Explai	valuation estigation	(x) (x) ()	O&M VEE Annual Follow-up		
Current Permit Stat	us: PTO E	EXPIRES SEPTEM	BER 1, 198	6.	8
Source Description:	WOOD RESI	INS PRODUCTION	FACILITY.		
Applicable Regulation	ons:	2/ •			a *
( ) SIP ( ) PSD ( ) NSPS ( ) NESHAPS			9 ,		
ite regulation by	lescription (	or regulatory	section nu	mber:	
tate any permit cor	ditions not	being complie	ed with and	descr	ibe noncompliance:
NOTE: ALL SMOR	CE ALARMS HAY	VE BEEN OUT F	OR ONE WEER	, AND	THEY HAVE
BEEN REI	YING ON THE	CAMERA MONIT	ORS IN THE	CONTRO	L ROOM.
			-		
	.50				DATA GUDED
		# (PAS)			

Facility Name: HERCULES, INC.	Date: 4-9-85
Emission Point No./Name:	
Description of Process:	
Raw Materials: RESINS, ADDITIVES	
Processing Operations: HYDROGENATION, STEA	ARIFICATION
Products/ByProducts: RESINS AND PIGMENTS/LIGH	T OILS AND RESIDUES.
Emissions & Control Devices: FOUR (4) WOODWAS	TTE BOILERS WITH TWO (2)
EMISSION STACKS; NO CONTROL DEVICES.	
(Complete Appropriate Control Device Sheets)  Permit conditions not being complied with and one NONE	description of noncompliance:

Facility Name: HERCULES, INC. Date: 4-9-85
Emission Point No./Name: 010/BOILER #1
Rated Boiler Size: MMBTUH  OR  100,000 lbs steam/hr @ 300 psig
Operating Rate @ Insp: MMBTUH  OR  35,000 lbs steam/hr @ 285 psig
Fuel(s) Being Used:  ( ) Natural Gas @ MCFH  ( ) Fuel Oil, No. @ Gal/hr ( ) Coal @ tons/hr; type; % ash; % sulfur  (X ) Woodwaste: ( ) Sawdust @ tons/hr ( ) Shavings @ tons/hr ( X ) Hogged Fuel @ 2.8 tons/hr ( ) Bark @ * tons/hr ( X) Other Fuels, Explain: SCRAP RESINS AND RESIDUES @ 0.5 GAL/MIN.
For Solid Fuels, Describe Fuel Stoking Method:
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automatic
Schedule: ONCE PER SHIFT, THREE SHIFTS DAILY
Air Pollution Controls: (X) None ( ) Baghouse
Stack Emissions: Opacity 22 % Py (X) VEE ( ) CEM Sulfur Dioxide N/A lbs/MMBTU by CEM Nitrogen Oxides N/A lbs/MMBTU by CEM
*BOILER #2 OFF-LINE AT TIME OF INSPECTION.

Facility Name: HERCULES,	INC.	Date:	4-9-85
Emission Point No./Name:	009/BOILER #3	,	
OR	MMBTUH	300 psi	g
Operating Rate @ Insp: OR 35,70	MMBTUH  O lbs steam/hr	<b>@</b> 285	psig
(	ash; % (X) Woodwaste: (X) (X)	tons/hr; sulfur ) Sawdust ( ) Shavings ) Hogged Fo ) Bark @	Gal/hr type; % tons/hr tons/hr e tons/hr tons/hr
For Solid Fuels, Describe Fu	el Stoking Metho	od:	
	(X) Manua ous () Auto HIFT, THREE SHIFT	•	
Air Pollution Controls: (X) ( ) ( ) ( ) Complete Appropriate Control	None ( Cyclone ( Multiclone Scrubber (For )	) Baghous ) ESP	
Sulfur Die	21 % By (X)  pxide N/A lbs  pxides N/A li	VEE ( )  MMBTU by  MMBTU by	CEM CEM CEM

Facility Name:	HERCULES, INC.	Date:	4-9-85
Emission Point No	./Name: 009/BOILER	#4 -	
Rated Boiler Size	MMBTUH OR 100,000 lbs steam/hr @	300 psig	
Operating Rate @ 1	Insp: MMBTUH OR 40,000 lbs steam/hr	· @	ig
Fuel(s) Being Used	( ) Fuel Oil, No. ( ) Coal @ ash; % ( X) Woodwaste: (	tons/hr; sulfur ) Sawdust @ ) Shavings @	Gal/hr type; %  tons/hr tons/hr 2.8 tons/hr tons/hr
(X ) Other Fuels,	Explain: SCRAP RESINS AND	<del></del>	
For Solid Fuels, D	escribe Fuel Stoking Metho	od:	
	) Periodic (X ) Manus ) Continuous ( ) Auto E PER SHIFT, THREE SHIFTS I	•	,
Air Pollution Cont		) Baghouse ) ESP	
Stack Emissions:	Opacity 21 % By (X) Sulfur Dioxide N/A 1b Nitrogen Oxides N/A 1	s/MMBTU by CE	M.

Donw,



## INSPECTION REPORT FORM - GENERAL

Facility Name:	HERCULES, INC.		Date:	3-22-85
Address:	P. O. BOX 1937	1		
	WEST 7TH AVENUE			
	HATTIESBURG, MS.	39401	<u>5)</u>	
Inspected By:	HEIDI MOWERY			
Person Contacted:				
Facility No:	110-0800-00001			
Is facility major or	minor? MAJ	OR		
Purpose of Inspectio	n:		11	
( ) Compliance Ver ( ) Performance Ev ( ) Complaint Inve ( ) Surveillance ( ) Other (Explain	aluation stigation	( ) 08M (x) VEE ( ) Annual ( ) Follow-u	.p	
Current Permit Statu	s: PTO EXPIRES	SEPTEMBER 1, 1	986	
Source Description:_	WOOD RESINS PRO	DUCTION FACILI	TY	
		-		
Applicable Regulation		**		9.30
(X) SIP () PSD () NSPS () NESHALS	Y <sub>4</sub>	# % # =		
Cite regulation by de	escription or regul	atory section	ການໜ້າວະເ	APC-S-1
State any permit cond			_	
	t, TO MY KNOWLEDGE.	omparod aton a	nd desci	rive noncompilance:
The second secon	, I THE THEORET .		<del></del>	
er i 190 - Marshallandi isasi isasa saturuta ang isasi <u>isasi isasi ang isasi ing isasi ang isasi isasi ing isas</u>				
and the second of the second o	1	Engrasion Process Proc	DATA CO	The Control of the Co
	The state of the s		The same of the sa	
			,	

## INSPECTION REPORT FORM - MISCELLANEOUS PROCESSES

Facility Name: HERCULES, INC.	Date: 3-22-85
Emission Point No./Name:	
Description of Process:	
Raw Materials: RESINS, ADDITIVES	
Processing Operations: HYDROGENATION, ST	
	8
Products/ByFroducts: RESINS AND PIGMENTS/	LIGHT OILS AND RESIDUES
Emissions & Control Devices: FOUR (4) WOODWA	STE BOILERS WITH TWO (2)
EMISSION STACKS; NO CON (Complete Appropriate Control Device Sheets)	NTROL DEVICES.
Permit conditions not being complied with and  NONE, TO MY KNOWLEDGE.	description of noncompliance:
	e de servicio de la compansión de la compa
and the state of t	

Facility Name:	HERCULES, INC.	Date:	3-22-85
Emission Point No	./Name: 010/BOILER	. #1	
Rated Boiler Size	MMBTUH OR 100,000 lbs steam/h	@ 300 psig	
Operating Rate @ 1	OR	um/hr@ps:	lg
Fuel(s) Being Use	asn;	MCFH No.  tons/hr;  sulfur  Sawdust @  Shavings @  (X) Hogged Fuel  (Bark @	
(X ) Other Fuels,	Explain: SCRAP RESIN		
For Solid Fuels, I	escribe Fuel Stoking	Method:	
			·
Soot Blowing: (X	) Periodic (X) ) Continuous ()	Manual Automatic	
Schedule:	ONCE PER SHIFT, THREE	SHIFTS DAILY	
	rols: (X) None ( ) Cyclone ( ) Multiclon ( ) Scrubber te Control Device She	e (For Particulate)	
Stack Emissions:	Opacity 10 % By Sulfur Dioxide N/A Nitrogen Oxides N/A	lbs/MMBTU by CE	M

Facility Name:	HERCULES, INC.	Date: _	3-22-85		
Emission Point No./	Name: 010/BOILER #2				
Rated Boiler Size:	ŎÐ.	300 psi	g		
Operating Rate @ In	MMBTUH OR lbs steam/hr	·	psig		
Fuel(s) Being Used:	( ) Fuel Oil, No. ( ) Coal @ ( ) % su ( X ) Woodwaste: ( )	Mur Sawdust ( Shavin <i>e</i> s	<u> </u>	type;	f
( ) Other Fuels, E					
For Solid Fuels, De	scribe Fuel Stoking Method	!:	<del></del>		
		<del></del>		<del></del>	
	Periodic (X) Manual Continuous () Autor				
Schedule: ON	CE PER SHIFT, THREE SHIFTS	DAILI.	<del></del>	<del></del>	
Air Pollution Contro Complete Appropriate	ols: (X ) None ( )	Baghous ESP articulat			
\$	Opacity 10 % By (X) Sulfur Dioxide N/A lbs Nitrogen Oxides N/A lb	/MMBTU by	CEM		

\*BOILER #2 OFF-LINE AT TIME OF INSPECTION.

Facility Name: HERCULES, INC.	Date: 3-22-85
Emission Point No./Name: 009/BOILER #3	
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@	300 psig
Operating Rate @ Insp: MMBTUH OR 37,000 lbs steam/hr	@ psig
( X) Woodwaste: ( ) ( X)	Sawdust @ tons/hr Shavings @ tons/hr Hogged Fuel @ 2.8 tons/hr Bark @ tons/hr
For Solid Fuels, Describe Fuel Stoking Metho	d:
Schedule: ONCE PER SHIFT, THREE SHIFT	
Air Pollution Controls: (X) None ( ( ) Cyclone ( ( ) Multiclone ( ) Scrubber (For 1	) Baghouse ) ESP Particulate)
Stack Emissions: Opacity 12 % By (X) Sulfur Dioxide N/A lbs Nitrogen Oxides N/A 11	MMBTU by CEM

Facility Name: HERCULES,	INC.	Date:	3-22-85
Emission Point No./Name:_	009/BOILER #4	************	
Rated Boiler Size:  100,000	MMBTUH  1bs steam/hr@	300 psig	
Operating Rate @ Insp: OR 35,0	MMBTUH  OOO lbs steam/hr@	280 ps:	L <b>g</b>
Fuel(s) Being Used: ((	) Natural Gas @ ) Fuel Oil, No. ) Coal @ ash;	urur Sawdust @	
( ) Other Fuels, Explain:	SCRAP RESINS AND F	RESIDUES ARE	USED OCCASIONALLY.
For Solid Fuels, Describe	Fuel Stoking Method	:	
	1		
Soot Blowing: (X) Period ( ) Contin	lic (X) Manual mous () Autom	atic	
Schedule: ONCE PER	SHIFT, THREE SHIFTS	DAILY.	
Air Pollution Controls: () ( ( ( Complete Appropriate Contr	) Cyclone ( ) ) Multiclone ) Scrubber (For P	Baghouse ESP articulate)	
Sulfur :	12 % By (X) Dioxide N/A lbs n 0xides N/A lbs	MMBTU by CEI	K.

#### INSPECTION REPORT FORM - GENERAL

Facility Name:	HERCULES, INC.	Date:	2-22-85
Address:	P. O. BOX 1937		
	WEST 7TH STREET	a	
<u> </u>	HATTIESBURG, MS. 39401		
Inspected By:	HEIDI MOWERY fur		
Person Contacted:	RICHARD VAN BEEK		
Facility No: 110	)-0800-00001		
Is facility major	or minor? MAJOR	5	
Purpose of Inspect	tion:		
( ) Compliance V ( ) Performance ( ) Complaint In ( ) Surveillance ( ) Other (Expla	Verification ( ) 08M Evaluation ( X ) VEE Every extigation ( ) Annual Evaluation ( ) Follow Evaluation ( ) O8M  ( ) VEE  ( ) Follow Evaluation ( ) O8M  ( ) VEE  ( ) Follow Evaluation ( ) O8M  ( ) VEE  ( ) Follow Evaluation ( ) O8M  ( ) O		4
Current Permit Sta	tus: PTO EXPIRES SEPTEMBER 1,	1986.	
	WOOD RESINS PRODUCTION FA		
Applicable Regulat	ions:	lit	<u>,                                      </u>
(X) SIP () PSD () NSPS () NESHAPS		:: :::	
Cite regulation by	description or regulatory section	n number:	APC-S-1
	onditions not being complied with	and desci	ribe noncompliance:
		T	
T-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	TE, HOWEVER, THAT THE EMISSION PO		********
	HAS BEEN USING ON THEIR DAILY VE	E REPORTS	ARE. THE REVERSE
OF OURS.			
	PATAV	CED C	
		The second second	

Facility Name: HERCULES, INC. Date: 2-22-85
Emission Point No./Name: 009/BOILER #1
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@ 300 psig
Operating Rate @ Insp: MMBTUH OR 36,000 lbs steam/hr @ 285 psig
Fuel(s) Being Used:  ( ) Natural Gas @MCFH ( ) Fuel Oil, No @Gal/hr ( ) Coal @tons/hr;type;%
( ) Other Fuels, Explain: SCRAP RESINS AND RESIDUES ARE USED ON OCCASION
For Solid Fuels, Describe Fuel Stoking Method:
Soot Blowing: (X) Periodic (X) Manual () Continuous () Automatic  Schedule: ONCE PER SHIFT, THREE TIMES DAILY.
Air Pollution Controls: (X) None () Baghouse () Cyclone () ESP () Multiclone () Scrubber (For Particulate) Complete Appropriate Control Device Sheets
Stack Emissions: Opacity 10 % By (X) VEE ( ) CEM Sulfur Dioxide N/A lbs/MMBTU by CEM Nitrogen Oxides N/A lbs/MMBTU by CEM

Facility Name:	HERCULES, INC.	Date: 2-22-8	5
Emission Point No./	Name: 009/BOILER #2		
	MMBTUH OR 00,000 lbs steam/hr@	300 psig	
Operating Rate @ In			
Fuel(s) Being Used:	( ) Fuel Oil, No. ( ) Coal @	MCFH @ tons/hr;	_ Gal/hr _ type;%
	( X) Woodwaste: ( ) ( X) ( X )	Sawdust @ Shavings @ Hogged Fuel @ Bark @	tons/hr tons/hr tons/hr
( ) Other Fuels, Ex			
For Solid Fuels, Des	scribe Fuel Stoking Metho	d:	
Soot Blowing: (X)	Periodic (X) Manua Continuous () Auto	l matic	
Schedule: 0	NCE PER SHIFT, THREE TIM	ES DAILY.	
	cls: (X ) None (	) Baghouse ) ESP Particulate)	
Si	pacity 10 % By (X) ulfur Dioxide N/A 1be itrogen Oxides N/A 1	MMBTH by CRM	

Facility Name: HERCULES, I	NC.	Date: 2-2	2-85
Emission Point No./Name:	010/BOILER #3		<del></del>
Rated Boiler Size: OR 100,000	MMBTUH lbs steam/hr@ 30	0 psig	
Operating Rate @ Insp: OR 38,0	MMBTUH  00 lbs steam/hr@	285 <b>psig</b>	
	Natural Gas @ Fuel Oil, No. Coal @ to ash; % sul Woodwaste: ( ) S ( X ) H	iur awdust 0	
( ) Other Fuels, Explain:	SCRAP RESINS AND	RESIDUES ARE	
Schedule: (X) Periodic ( ) Continuo			
Air Pollution Controls: (X) ( ) ( ) ( ) Complete Appropriate Control	Cyclone () Multiclone Scrubber (For Pa	Baghouse ESP rticulate)	
Stack Emissions: Opacity Sulfur Dic Nitrogen (	13 % By (X) Vi oxide N/A lbs/i oxides N/A lbs/	MIDMIT has CIDM	

Facility Name: HERCULES, INC.	Date: 2-22-85
Emission Point No./Name: 010/BOILER #4	
Rated Boiler Size: MMBTUH  OR  100,000 lbs steam/hr @ 300	psig
Operating Rate @ Insp: MMBTUH OR * lbs steam/hr @	psig
Fuel(s) Being Used:  ( ) Natural Gas @ ( ) Fuel Oil, No. ( ) Coal @ to ash; % sull ( X) Woodwaste: ( ) S ( ) H	MCFH  @ Gal/hr  ons/hr; type; %  Lfur Sawdust @ tons/hr Shavings @ tons/hr  Logged Fuel @ tons/hr  Bark @ tons/hr
( ) Other Fuels, Explain:	
For Solid Fuels, Describe Fuel Stoking Method:	
Soot Blowing: (X) Periodic (X) Manual ( ) Continuous ( ) Automa	tic
Air Pollution Controls: (X) None () () Cyclone () () Multiclone () Scrubber (For Pa Complete Appropriate Control Device Sheets	Baghouse ESP rticulate)
Stack Emissions: Opacity $\star$ % By (X) V Sulfur Dioxide N/A lbs/Nitrogen Oxides $\frac{N/A}{N/A}$ lbs/	MMBTU by CEM

\*#4 BOILER IS OFF-LINE TO REPAIR SOME REFRACTORY MATERIAL THAT FELL OUT OF THE TOP OF THE FIREBOX; REPAIRS SHOULD BE COMPLETED BY THE END OF THIS DAY AND #4 WILL BE PUT BACK ON-LINE THEN.

Soviest

## INSPECTION REPORT FORM - GENERAL

Facility Name: Hercules Incorporated Date: January 29, 1985
Address: West 7th Street Hattiesburg, Mississippi
Inspected By: Don Watts
Person Contacted: Richard Van Beek
Facility Number: 110-0800-00001
Is Facility Major or Minor: Major
Purpose of Inspection:
(X) Compliance Verification ( ) O&M ( ) Performance Evaluation ( ) Complaint Investigation ( ) Surveillance ( ) Other, Explain ( ) Follow-Up
Current Permit Status: Operating Permit expires September 1, 1986.
Source Description: Wood Resins Production Facility
Applicable Regulations:
(X) SIP ( ) PSD ( ) NSPS ( ) NESHAPS
Cite regulation by description or regulatory section number: APC-S-1
State any permit conditions not being complied with and describe noncompliance
Opacity exceedance from North Stack (Boiler #1) is a violation of APC-S-1, Section 3.1 and 3.2, as referenced in the Operating Permit. Also, opacity information was not recorded on the daily boiler log sheet as required by Part III of the Operating Permit.



1/29/85 INSPECTION REPORT

Hercules Incorporated 110-0800-00001

The primary purpose of this inspection was to perform VEE's of the woodwaste boilers. The VEE's were done from outside the plant property prior to entering the plant. Results of the VEE's are discussed below for each stack. At about 11:30 a.m., I entered the plant. Mr. Charles Jordan, the Environmental Supervisor, could not be found, so I went to lunch from 11:50 - 12:30. Mr. Jordan still could not be found, so at about 1:00 p.m., I met with Mr. Richard Van Beek, who is the area supervisor for the boilers and several other areas. While talking with him, I learned that Heidi Mowery of the SRO had been in the plant doing a VEE at approximately the same time I had. Her report will be reviewed upon its receipt.

# South Stack - Emission Point 010 - Boilers 3 & 4

Three sets of six-minute readings were performed. The average opacities were 8, 19, and 25%. See Attachment 1. Opacity was consistent during the entire time I was in the area and observing the plant. According to the strip chart in the control room, Boiler #3 was producing 50,000 #/hour of steam and Boiler #4 was producing 35,000 #/hour of steam during the time of the VEE.

# North Stack - Emission Point 009 - Boilers 4 & 2

High opacity was observed from the North Stack for approximately 40 minutes prior to beginning the VEE. (Part of this time was while passing by Hercules on the way to Mississippi Power - Plant Eaton and part of it was while doing the VEE on the South Stack.) Six sets of six-minute readings were performed. The average opacities were 79, 69, 94, 79, 53, and 56%. See Attachment 2. Opacities of 40% or greater continued for several minutes after the conclusion of the VEE's.

Boiler #2 was not in operation, while Boiler #1 was shown as having the grates cleaned from 9:55 to 11:35 a.m. The steam output strip chart recorder was not inking so it was not possible to determine the steam output during the VEE's. At 1:00, Boiler #1 had a steam output of 55,000 #/hour. (The opacity at this time was less than 40%.) According to Mr. Van Beek, wet sawdust was being used as fuel during the time VEE's were done. There were no opacity exceedances recorded on the boiler compliance status log sheet. Also, there was no mention of the wet sawdust being used.

This is a definite violation of the regulations. While the regulations allow exceedances for 15 minutes due to start-up, Hercules had 36 minutes of documented exceedances.

DW: hdb

#### INSPECTION REPORT FORM - GENERAL

Facility Name: HERCULES, INC.	Date:	1-4-85
Address: P. O. BOX 1937		
HATTIESBURG, MS.		
Inspected By: HEIDI MOWERY		
Person Contacted: LARRY POLK		
Facility No: 0800-00001		
Is facility major or minor?	1	
Purpose of Inspection:	V T	
( ) Compliance Verification ( ) O&M ( ) Performance Evaluation ( X ) VEE ( ) Complaint Investigation ( ) Annual ( ) Surveillance ( ) Follow-u ( ) Other (Explain):	p	
Current Permit Status:		
Source Description: RESIN AND PIGMENT PRODUCTION FAC	CTLTTY	<del></del>
Applicable Regulations:	0	
(X) SIP () PSD () NSPS () NESHAPS		•
Cite regulation by description or regulatory section	number:	2
State any permit conditions not being complied with a	nd desc	ribe noncompliance:
NONE, TO THE BEST OF MY KNOWLEDGE.		
	*******	
	<del></del>	
	-	****

# INSPECTION REPORT FORM - MISCELLANEOUS PROCESSES

Facility Name: HERCULES, INC.	Date:	1-4-85
Emission Point No./Name:		
Description of Process:		
Raw Materials: RESINS, ADDITIVES		
Processing Operations: HYDROGENATION, STEA	RIFICATION	4
	- 10	
Products/ByProducts: RESINS AND PIGMENTS	/LIGHT OILS	2
	· C	
Emissions & Control Devices: 4 WOODWASTE BO	ILERS WITH 2	EMISSION STACKS/
NO CONTROLS. (Complete Appropriate Control Device Sheets)		
Permit conditions not being complied with and	description	of noncompliance:
NONE, TO THE BEST OF MY KNOWLEDGE.		
	4	

Facility Name: HERCULES, INC.	Date:	1-4-85
Emission Point No./Name: 009/BOILER #3		
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr @ 300	psig	
Operating Rate @ Insp: MMBTUH OR 40,900 lbs steam/hr @		sig
Fuel(s) Being Used: ( ) Natural Gas @ ( ) Fuel Oil, No. ( ) Coal @ to ash;	MCFH @ ons/hr; fur sawdust @ Shavings @ logged Fue Bark @	Gal/hr type; %  tons/hr tons/hr APP. 5000tons/hr tons/hr
(X) Other Fuels, Explain: SCRAP RESINS AND RE	SIDUES ARE	E ALSO USED ON OCCASION.
For Solid Fuels, Describe Fuel Stoking Method:	<del></del>	
Soot Blowing: (X) Periodic (X) Manual () Continuous () Automa	tic	•
Schedule: ONCE PER SHIFT, THREE TIME	S DAILY	
Air Pollution Controls: (X) None () () Cyclone () () Multiclone () Scrubber (For Pa Complete Appropriate Control Device Sheets	Baghouse ESP rticulate	)
Stack Emissions: Opacity $10$ % By (X) V Sulfur Dioxide N/A lbs/Nitrogen Oxides N/A lbs	MMBTU by	Jem

Facility Name: HE	RCULES, INC.	Date:1	-4-85
Emission Point No./N	ame: 010/BOILER #	<del>!</del> 4	
	MMBTUH R 0,000 lbs steam/hr @	300 psig	
Operating Rate @ Ins	OR		
Fuel(s) Being Used:	( ) Fuel Oil, No. ( ) Coal @	MCFH  tons/hr;	_
( ) Other Fuels, Ex			
For Solid Fuels, Des	cribe Fuel Stoking Met	thod:	
	Periodic (X ) Man Continuous ( ) Au PER SHIFT, THREE TIME		•
	ls: (X) None (     ( ) Cyclone (     ( ) Multiclone     ( ) Scrubber (Fo	r Particulate)	
Stack Emissions: Op Su Ni	eacity 10 % By (X) Ulfur Dioxide trogen Oxides	() VEE ( ) CH lbs/MMBTU by CH lbs/MMBTU by (	em em cem

NOTE: LEAK IN ECONOMIZER TUBE AFTER INDUCED-DRAFT FAN RE-INSTALLED; SHOULD BE BACK ON-LINE 1-6-85.

Facility Name: HERCULES, INC. Date: 1-4-85	
Emission Point No./Name: Q40/BOILER #1	
Rated Boiler Size: MMBTUH OR 100,000 lbs steam/hr@ 300 psig	
Operating Rate @ Insp: MMBTUH OR 38,112 lbs steam/hr @ 285 psig	
Fuel(s) Being Used: ( ) Natural Gas @ MCFH	
For Solid Fuels, Describe Fuel Stoking Method:	
Schedule: ONCE PER SHIFT, THREE TIMES DAILY	•
Air Pollution Controls: (X) None ( ) Baghouse ( ) Cyclone ( ) ESP ( ) Multiclone ( ) Scrubber (For Particulate) Complete Appropriate Control Device Sheets	
Stack Emissions: Opacity 11 % By ( X) VEE ( ) CEM Sulfur Dioxide N/A lbs/MMBTU by CEM Nitrogen Oxides N/A lbs/MMBTU by CEM	

Facility Name: HERCULES,	INC.	Date: 1-4-8	85
Emission Point No./Name:	010/BOILER #2		
OR	MMBTUH lbs steam/hr@ 30	o psig	
Operating Rate @ Insp: OR 31,93	MMBTUH  1 lbs steam/hr @	285 psig	
	( X) H	fur awdust @ havings @	tons/hr tons/hr
( ) Other Fuels, Explain:		<del></del>	
For Solid Fuels, Describe Fu	el Stoking Method:		
Soot Blowing: (X) Periodic ( ) Continuo  Schedule: ONCE PER SE	( X) Manual us ( ) Automa		4
Air Pollution Controls: ( ) ( ) ( )	None () Cyclone () Multiclone Scrubber (For Pa	Baghouse ESP	
Stack Emissions: Opacity Sulfur Dic		EE ( ) CEM MBTU by CEM MMBTU by CEM	

# Total = 68°F = 528°.

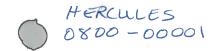
# HEKCULES 0800-0000 1



-1				
-	Particulate Test Calculation Review (Method	5)		
Ť	: Avg. stack temp: °R	RUN 1	RUN 2	RUN
T <sub>m</sub>	: Avg. meter temp; °R	823.6		
ΔH		556.3		
Y	pressure drop; in. H <sub>2</sub> 0	1.1396	***************************************	
	, gas meter calibration ractor; dimensionless	1:0		
Pbar	: Barometric pressure; in. Hg	30.16		
V	: Sample volume (volume metered) at meter conditions; ft			
V mstd	Dry gas volume, corrected to std. conditions; dscf	33.018		
	= V <sub>m</sub> Y (T <sub>std</sub> /T <sub>m</sub> )[(P <sub>nar</sub> + (\Delta H/13.6))/P <sub>std</sub> ]  (correct for leak if leak rate exceeds allowable)  See Meth 5 6 3 4 5 conditions; dscf			
<u> </u>	See Meth. 5, 6.3, if applicable	31.68		
V <sub>1c</sub>	: Vol. of water collected; ml	1-9 0		
vstd	: Vol. of water vapor at std. conditions; scf	69.0		
	1c' (std'std)	3.251		4
vs	: Moisture content; dimensionless  (V <sub>wstd</sub> ) / (V <sub>mstd</sub> + V <sub>wstd</sub> )			
- B	: Dry gas fraction	0.093	25 16	
р "	: Pitot tube cc fficient; dimensionless	0.907		
ν	check for proper design or calibration (see 4.1.3 Meth. 2	1000		
√AP) av	g: Average square root of AP	0.84		
	$(\Sigma\sqrt{\Delta P})/n$ [where n = no. of points]	0.7673	,	
3	: Stack pressure; in. Hg  Par + static pressure (in. Hg)			
	: Dry molecular wt. of stack gag: 15/15	30.13		
	= 29.0 or $(z co_2)(.44) + (z o_2)(.32) + (z N_2 + CU)(.28)$	29,32		
	Wet molecular wt. of stack and 12 /11	01130		
	ws 7 LOD ws	28.267		
	gas velocity; ft/sec. $(C_p)(\sqrt{\Delta P})$ avg. $\sqrt{T_s/(P_sM_s)}$			<del></del>
	Volumetric flow rooms to st	54,19		
	3600 (1 - B <sub>ws</sub> ) (V <sub>s</sub> ) (A) (T <sub>std</sub> /T <sub>s</sub> ) (P <sub>s</sub> /P <sub>std</sub> )	2428 55		
	Acetone wash blank; mg See Meth. 5 6.6 and 6.7 if applicable	2,438,515		
<del></del>				
	Particulate sample wt.; mg filter, wash, blank correction	1 1 0		<del></del>
	Particulate concentration; grains/dscf	64.0		
	- (0.0134 gr/mg) (M /V ) mstd	0.031		
version	to appropriate units:			
-5 4	s = #/hr	10.84	1	
	8		88	
:	Isokimetic variation:			
	$= \frac{100 \text{ T}}{\text{s}} \left[ (.002669) (V_{1c}) + (V_{m}/T_{m}) (P_{har} + \Delta H/13.6) \right]$	0.56		
	60 0 V <sub>s</sub> P <sub>s</sub> A <sub>n</sub>	911.8	B	

# Total = 68°F = 528°/

## BOILER NO. 2



		Particulate Test Calculation Review (Method 5)	DIIN 1	7	
Ts	:	Avg. stack temp: "R	RUN 1	RUN 2	RUN 3
T <sub>m</sub>	:	Avg. meter temp; °R		842	
ΔН	:	Avg. orifice pressure drop; in. H <sub>2</sub> 0		554.6	
Y	:	Dry gas meter calibration factor; dimensionless		1.435	
Pbar	:	Barometric pressure; in. Hg	<del></del>	1,0	
V <sub>m</sub>	:	Sample volume (volume metered) at meter conditions; ft <sup>3</sup>		30.18	<del></del>
Vmstd	:	Dry gas volume, corrected to std. conditions; dscf  VY (T <sub>std</sub> /T <sub>m</sub> )[(P <sub>par</sub> + (Δ H/13.6))/P <sub>std</sub> ]  (correct for leak if leak rate exceeds allowable)	ч 	36,686	
		See Meth. 5, 6.3, if applicable		35,35	
V <sub>1c</sub>	·	Vol. of water collected; ml		87	
Vwstd	d :	Vol. of water vapor at std. conditions; scf = (V <sub>1c</sub> ) (.00267) (T <sub>std</sub> /P <sub>std</sub> )		4.1	11.
Bws	:"	Moisture content; dimensionless  (V <sub>wstd</sub> ) / (V <sub>mstd</sub> + V <sub>wstd</sub> )		D. 104	ie ie
1 - B <sub>ws</sub>	:	Dry gas fraction		0.896	. <u> </u>
C <sub>P</sub>	:	Pitot tube cc fficient; dimensionless check for proper design or calibration (see 4.1.3 Meth. 2)		0.84	عم مماآحص
(√ <u>A</u> P) a	vg:	Average square root of $\Delta P$ ( $\Sigma / \Delta P$ )/n [where n = no. of points]		0.8649	
P <sub>s</sub>	60	Stack pressure; in. Hg  P <sub>bar</sub> + static pressure (in. Hg)		30. 15	
M <sub>d</sub>	:	Dry molecular wt. of stack gas; lb/lb mole = 29.0 or (% CO <sub>2</sub> )(.44) + (% O <sub>2</sub> )(.32) + (% N <sub>2</sub> + CU)(.28)	u u	29.52	
M s	: 	Wet molecular wt. of stac gas; 1b/lb mole = (M <sub>d</sub> )(1 - B <sub>ws</sub> )★(18B <sub>ws</sub> )		28,32	
v s		= $(85.49)$ (C <sub>p</sub> ) ( $\sqrt{\Delta P}$ ) avg. $\sqrt{T_s/(P_sM_s)}$	****	61.68	
Q <sub>s</sub>	:	Volumetric flow rate; dscf/hr 3600 (1 - B <sub>ws</sub> )(V <sub>s</sub> )(A)(T <sub>std</sub> /T <sub>s</sub> )(P <sub>s</sub> /P <sub>std</sub> )		2683761	<del></del>
Wa	:	Acetone wash blank; mg See Meth. 5 6.6 and 6.7 if applicable		0	<del></del>
M <sub>n</sub>	:	Particulate sample wt.; mg filter, wash, blank correction		158.2	
C <sub>B</sub>	:	Particulate concentration; grains/dscf = (0.0154 gr/mg)(M /V n mstd)			
Conversion	n to	Appropriate units:		0.07	
C <sub>S</sub> Q <sub>S</sub>	(*)	7000gr) = #/hr		26.42	
1	:	lsokimetic variation: = 100 T <sub>s</sub> [(.002669) (V <sub>1c</sub> ) + (V <sub>m</sub> /T <sub>m</sub> ) (P <sub>bar</sub> + ΔH/13.6)] 60 0 V <sub>s</sub> P <sub>s</sub> A <sub>n</sub>		99.18	s.

•	Particulate Test Calculation Review (Method 5)			*
Ť	: Avg. stack temp: *R	RUN 1	RUN 2	RUN 3
T <sub>m</sub>	: Avg. meter temp; "R			836.7
ΔН	: Avg. orifice pressure drop; in. H <sub>2</sub> 0			552.7
Y	Dry gas meter calibration factor; dimensionless	<del> </del>		1.475
Pbar	: Barometric pressure; in. Hg			1.0
V m	: Sample volume (volume metered) at meter conditions; ft <sup>3</sup>	<del> </del>		30.16
V mstd	<pre>Dry gas volume, corrected to std. conditions; dscf = V Y (T<sub>std</sub>/T<sub>m</sub>)[(P<sub>bar</sub> + (Δ H/13.6))/P<sub>std</sub>] (correct for leak if leak rate exceeds allowable) See Meth. 5, 6.3, if applicable</pre>		ı	36.56
	Vol. of water collected; ml		<del> </del>	0.11
V wstd	Vol. of water vapor at std. conditions; scf = (V <sub>1c</sub> ) (.00267) (T <sub>std</sub> /P <sub>std</sub> ) . Off [2]			4.43
B <sub>ws</sub> :	Moisture content; dimensionless $(v_{wstd}) / (v_{mstd} + v_{wstd})$			1,73
1 - B <sub>ws</sub> :			14 (4)	0.111
C <sub>p</sub> :	Pitot tube cc fficient; dimensionless check for proper design or calibration (see 4.1.3 Meth. 2)			0.889
(√AP) avg:	Average square root of $\Delta P$ ( $\Sigma \sqrt{\Delta P}$ )/n [where n = no. of points]	ZE# (1 8 = -		0,84
P <b>s</b>	Stack pressure; in. Hg  Pbar + static pressure (in. Hg)			0.8653
M <sub>d</sub> :	Dry molecular wt. of stack gas; 1b/lb mole = 29.0 or (% CO <sub>2</sub> )(.44) + (% O <sub>2</sub> )(.32) + (% N <sub>2</sub> + CU)(.28)		164	30.14
M <sub>8</sub> :	Wet molecular wt. of stac gas; lb/lb mole = (Md)(1 - Bws + 18Bws)			29.3
v <sub>s</sub> :	Avg. stack gas velocity; ft/sec. = $(85.49)(C_p)(\sqrt{\Delta P})$ avg. $\sqrt{T_s/(P_sM_s)}$			28.05
Q <sub>s</sub> :	Volumetric flow rate; $dscf/hr$ 3600 (1 - $B_{ws}$ ) ( $V_s$ ) (A) ( $T_{std}/T_s$ ) ( $P_s/P_{std}$ )			61.82
W <sub>a</sub> :	Acetone wash blank; mg See Meth. 5 6.6 and 6.7 if applicable			2684852
м <sub>п</sub> :	Particulate sample wt.; mg filter, wash, blank correction			969
C <sub>8</sub> :	Particulate concentration; grains/dscf = (0.0154 gr/mg)(M /V mstd)			0 04
	Isokimetic variation:			15.34
•	= 100 T <sub>s</sub> [(.002669) (V <sub>1c</sub> ) + (V <sub>m</sub> /T <sub>m</sub> ) (P <sub>bar</sub> + ΔH/13.6)] 60 0 V <sub>s</sub> P <sub>s</sub> A <sub>n</sub>			99.14

# Total = 68°F = 528°





		Particulate Test Calculation Review (Method 5)			
Ts	:	Avg. stack temp: °R	RUN 1	RUN 2	RUN 3
T <sub>m</sub>	:	Avg. meter temp; *R		847.83	
ΔН	:	Avg. orifice pressure drop; In. H <sub>2</sub> 0		563.40	
Y	:	Dry gas meter calibration factor; dimensionless		1.400	
Pbar	:	Barometric pressure; in. Hg		30.04	
V <sub>m</sub>	:	Sample volume (volume metered) at meter conditions; ft		30,24	
V mstd	:	Dry gas volume, corrected to std. conditions; dscf  V <sub>m</sub> Y (T <sub>std</sub> /T <sub>m</sub> )[(P <sub>par</sub> + (Δ H/13.6))/P <sub>std</sub> ]  (correct for leak if leak rate exceeds allowable)  See Meth. 5, 6.3, if applicable		37.628	
V <sub>1c</sub>	:	Vol. of water collected; ml	<del></del>	90 5	
V wstd	eto.	Vol. of water vapor at std. conditions; scf = (V <sub>1c</sub> ) (.00267) (T <sub>std</sub> /P <sub>std</sub> )		4 22	Э.
B <sub>vs</sub>	:	Moisture content; dimensionless (V <sub>wstd</sub> ) / (V <sub>mstd</sub> + V <sub>wstd</sub> )		0.106	
1 - B <sub>ws</sub>	:	Dry gas fraction	**************************************	0.894	ñ
C <sub>p</sub>	:	Pitot tube cc fficient; dimensionless check for proper design or calibration (see 4.1.3 Meth. 2)		0 911	سي اردواسسده
(√ <u>A</u> P) av	vg:	Average square root of $\Delta P$ ( $\Sigma / \Delta P$ )/n [where n = no. of points]	E C.	N 8731	
Ps	:	Stack pressure; in. Hg  Phar + static pressure (in. Hg)		30,18	
M <sub>d</sub>	:	Dry molecular wt. of stack gas; $1b/1b$ mole = 29.0 or $(\% CO_2)(.44) + (\% O_2)(.32) + (\% N_2 + CU)(.28)$		29 57	
M <sub>s</sub>	:	Wet molecular wt. of stac gas; lb/lb mole = (M <sub>d</sub> )(1 - B <sub>ws</sub> )(18B <sub>ws</sub> )	12	28.33	
v <sub>s</sub>	•	Avg. stack gas velocity; ft/sec. = $(85.49)(C_p)(\sqrt{\Delta P})$ avg. $\sqrt{T_s/(P_m)}$		62 44	
Q <sub>s</sub>	:	Volumetric flow rate; dscf/hr 3600 (1 - B <sub>ws</sub> )(V <sub>s</sub> )(A)(T <sub>std</sub> /T <sub>s</sub> )(P <sub>s</sub> /P <sub>std</sub> )		2694803	
W <sub>a</sub>	:	Acetone wash blank; mg See Meth. 5 6.6 and 6.7 if applicable			
м <sub>п</sub>	:	Particulate sample wt.; mg filter, wash, blank correction		304.4	
C <sub>g</sub>	:	Particulate concentration; grains/dscf - (0.0154 gr/mg)(M <sub>n</sub> /V <sub>mstd</sub> )		0.13	•
CsQ		#/nond gr) = #/hr		50.47	
I	:	Isokimetic variation: = 100 T <sub>s</sub> [(.002669)(V <sub>1c</sub> ) + (V <sub>m</sub> /T <sub>m</sub> )(P <sub>bar</sub> + ΔH/13.6)]  60 0 V <sub>s</sub> P <sub>s</sub> A <sub>n</sub>		99.87	\$1