

Note: This is a reference cited in AP 42, *Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

AP42 Section:	11.3
Background Chapter	4
Reference:	27
Title:	<i>Particulate Emissions Test, General Shale Products Corporation, Tunnel Kiln 10-B, Johnson City, Tenn., January 19, 1979, Guardian Systems, Inc., Birmingham, AL, January 19, 1979.</i>

AP-42 Section 11.3
Reference —
Report Sect. 4
Reference 27

PARTICULATE EMISSIONS TEST
GENERAL SHALE PRODUCTS CORP.

TUNNEL KILN 10-B
JOHNSON CITY, TENN.
JANUARY 19, 1979

Guardian SYSTEMS
INCORPORATED

2809 Central Avenue
Birmingham, Alabama 35209

I. INTRODUCTION AND PROCESS DESCRIPTION

On January 19, 1979, a series of three (3) particulate emission tests was conducted on the Tunnel Kiln 10-B discharge located in Johnson City, Tennessee. Individual bricks are formed and stacked onto kiln cars measuring approximately 9'x 9'. Cars are inserted on a regular bases into a long, continous-fired tunnel kiln. As one car is discharged another is inserted. This provides a constant moving mass inside the kiln. Cars are pushed through the 500 foot long kiln at a slow, methodical pace requiring almost three (3) days for the complete travel. By means of a coal firing process, heat is increased in each chamber until the total firing is complete. As the car continues through the kiln from the main firing zone the temperatures are reduced to provide necessary cooling.

Mr. Walt Banyas represented General Shale Products. Mr. Carl Koontz of the Tennessee Air Pollution Control Division observed these tests. Mr. David Daws and Mr. Ashley Riley of Guardian Systems, Inc. preformed these tests.

III. SUMMARY OF TEST RESULTS

The following is a table of the Emissions during the tests. The process weights were provided by General Shale Products Corporation.

Test Number	1	2	3
Process Weight ton/hr	8.95	8.95	8.95
Particulate Emission Rate lbs/hr	11.61	11.52	11.40
Allowable Emission Rate lbs/hr *	13.97	13.97	13.97

* This value was calibrated from the following equation found in Chapter 1200-3-7-.03 New Processes, Rules of Tennessee Department of Public Health, Bureau of Enviromental Health Services, Division of Air Pollution Control.

$$E = 3.59 p^{0.62}$$

$$p \leq 30 \text{ ton/hr}$$

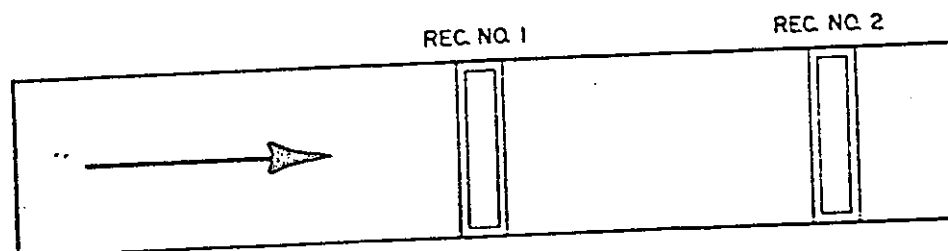
Where E= Emission per hour

P= Process weight rate in tons per hour

TABULAR TEST RESULTS

Test Number	1	2	3
Date	1/19/79	1/19/79	1/19/79
Time	9:05am	12:45pm	3:30pm
Moisture, %	8.60	8.00	8.56
Gas Temperature, °F	363	361	363
Stack Velocity, f/s	20.20	19.41	20.20
Volumetric Flow, ACFM	9697	9316	9697
Volumetric Flow, DSCFM	5714	5539	5716
Consentration, Grains /ACF	0.14	0.14	0.14
Consentration, Grains /DSCF	0.24	0.24	0.23
Particulate Mass Rate, lbs/hr	11.61	11.52	11.40
% Isokinetic	105.67	108.99	105.46

Test
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1	2	3	4	5	6	7	8	9
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KILN SCHEDULE								DRYER SUPPLY	STACK
COMMENTS	TIME	TIME-IN	BALANCE GAUGE	PUGGER PRESS	TO-20	SCH.	DRYER NO.	CAR	
	0700	—				9:45	Start	202	201
	0800	—				10:45		202	201
	0900					11:45		202	201
	1000					12:45		202	201
	1100					1:45		202	201
	12					2:45		202	201
	1300							202	201
	1400							202	201

	1500							202	201
	1600							202	201
	1700							202	201
	1800								
	1900								
	2000								
	2100								
	2200								

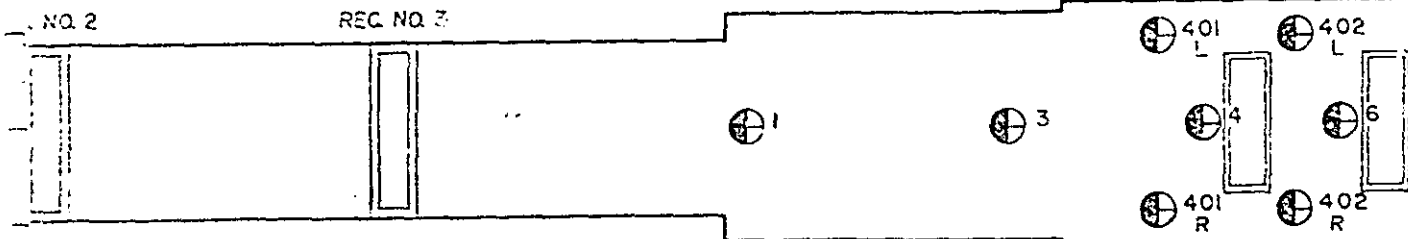
2300

Test Chart

GENERAL SHALE PRODUCTS CORPORATION PLANT NO. - 10B

DRYER SUPPLY
202

KILN EXHAUST
201



5	9	10	11	12	13	14	15	16	17	18	19	20
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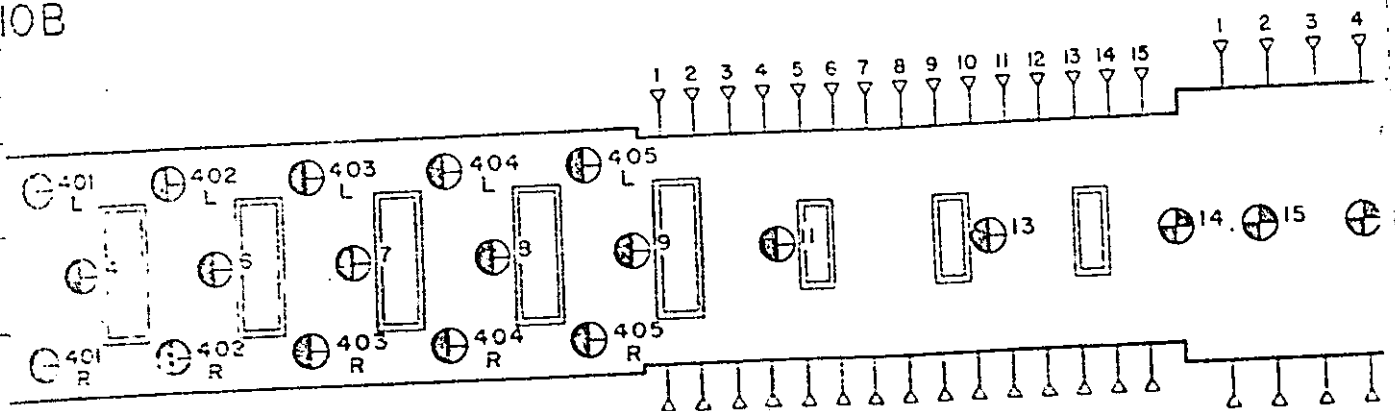
STACK	EXHAUST	RECIRCULATING											
201	1	3	401L	401R	402L	402R	403L	403R	404L	404R	405L	405R	
385	615	620	775	775	850	850	1010	990	1170	1170	1225	1225	1375
385	615	620	775	765	855	855	1005	975	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375
385	615	620	770	765	855	855	1005	970	1170	1175	1275	1275	1375

385	610	625	755	755	835	850	1000	965	1170	1180	1305	1415	
385	615	625	755	755	840	855	1000	970	1165	1195	1205	1415	
385	620	625	750	745	830	845	995	965	1175	1170	1215	1415	

7 3 6

TS CORPORATION

10B

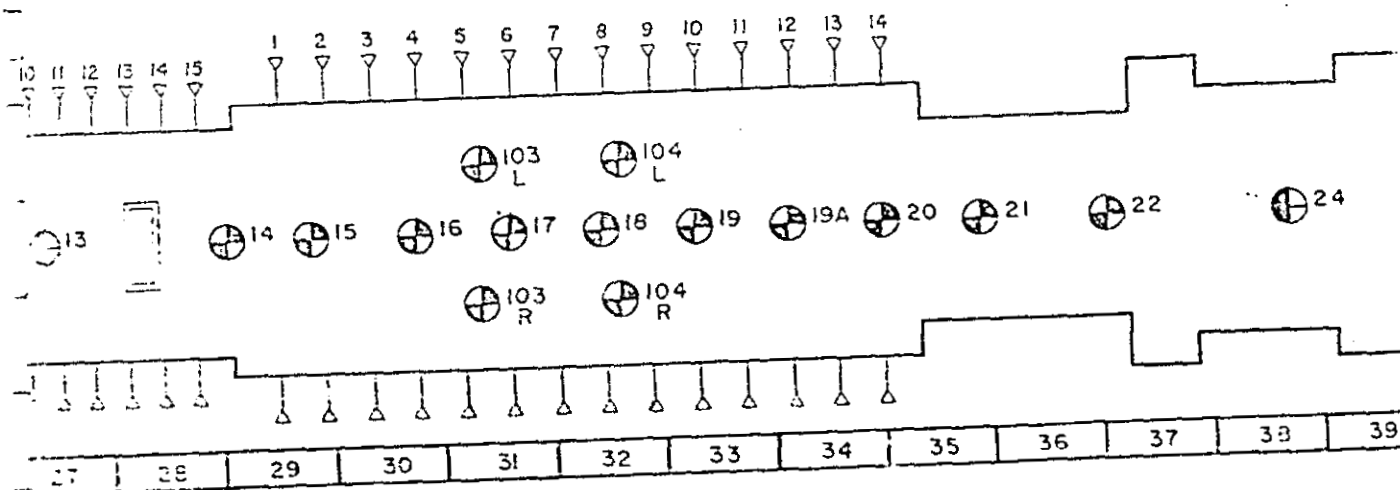


19	20	21	22	23	24	25	26	27	28	29	30
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RELATING							PREHEAT				
405L	405R	4	6	7	8	9	11	13	14	15	16
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830

1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830

1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830
1725	1725	725	725	725	1110	1110	1530	1685	1725	1765	1830

[illegible]

