



Air Products and Chemicals
INC.

ESCAMBIA PLANT
INTEROFFICE MEMORANDUM

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Escambia
IM

To: B. A. Gebbia

Date: 27 March 1979

From: W. J. Stueben

Copies: A. E. Greene¹
T. J. Regan
R. B. Chandler
R. L. Duggan
C. E. Good

Re: Sound Level Measurements -
Nitric Acid Plant

Sound levels were measured in the Nitric Acid Plant on 6, 7 and 23 March 1979 to determine the loudness of the 40 lb. steam vent when operating. Measurements were also taken on these same days with the vent off to determine background noise.

Instantaneous readings with the vent off averaged 93 dB on the A scale. The A scale reading with the vent on was 105.2 dB. A dosimeter left in the plant for four hours with the vent off registered an exposure of 95 dB (A), indicating that the cumulative noise exposure is greater than the 93 dB (A). No dosimeter readings were made for the period the vent was on but would probably indicate slightly higher cumulative exposure than the 105.2 dB average. The difference in sound levels, 12.2 dB (upwind), shows that the level measured was the noise from the vent and the background noise was not significant (ANSI Std. 1.2 - 1962).

The octave band analysis indicates that the predominant frequencies are at the most sensitive part of the hearing range.

Recommendation: Provide a muffler for the steam vent to reduce the noise level with the vent on to 70 dB (A) at 30 feet.

The following companies can provide a muffler for the appropriate noise level reduction:

- 1) IDE Processes Corporation - Noise Control Division
23-26 Broadway
Astoria, New York 11106 (212-278-6696)
- 2) The Aeroacoustic Corporation
4876 Victor Street
Jacksonville, Florida (904-731-3577)

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- 3) T. F. Hudgins & Associates, Inc. *
4405 Director's Row
P.O. Box 10946
Houston, Texas (713-682-3651)
Sales Engineer - David J. Montegut

* They are sales agents for VANEK, a leader in noise control and your recommended primary contact.

If an engineering request is written, I can assist the engineer assigned when dealing with any of these companies. If not, I can make the contacts for you. Flow information in terms of cubic feet per minute should be available.

WJ Stueben
W. J. Stueben

WJS:jst

Attachment (Noise Level Data Sheet)

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NOISE LEVEL DATA SHEET

DATE 3/6, 3/7, 3/23/79		TIME		DATA BY W. J. Stueben											
BUILDING Nitric Acid Plant		EQUIPMENT 40 lb. vent (Operating vs. background)		CONDITIONS Wind 6-8 mph S											
SOUND MEASURING EQUIPMENT General Radio Model 1982 Sound Level Analyzer		WEIGHTED SCALE As Indicated		CENTER FREQUENCY OCTAVE LEVELS - HERTZ SOUND PRESSURE LEVEL - DECIBELS re 0.0002 Microbars											
SAMPLE READING LOCATION	A*	B	C	ALL PASS	31.5	63	125	250	500	1000	2000	4000	8000	16000	
40 lb. Vent downwind 30' (Not on)	93			100	92	90	85	81	84	86	84.0	85	82.5	77	
40 lb. Vent upwind 40' (Not on)	91			98	90.5	90	86	79	80	80	80.5	83	83.5	81.5	
40 lb. Vent downwind ⁽¹⁾ 30' (ON)	105.2	⁽²⁾		107.5	99.7	90.9	87.7	85.4	85.3	90.6	95.6	106.4	101.0	97.9	
40 lb. Vent upwind ⁽¹⁾ 40' (ON)	99.6			104.1	91.0	89.1	88.1	82.4	82.9	85.1	89.6	97.0	89.4	87.4	
At ground level near flow meter (ON)	100.0														
ADDITIONAL INFORMATION															
10' in front of an intake No. 1 Plant. (No significant difference with vent on or off)	105			106	91.5	94	91	87.5	98	99.5	98.5	100	96.5	89	

OSHA REGULATIONS		Permissible hrs/day without Protection
Maximum Decibels		
> 115 dBA*		None
115 dBA		1/4
110 dBA		1/2
103 dBA		1
102 dBA		1 1/2
100 dBA		2
97 dBA		3
95 dBA		4
92 dBA		6
90 dBA		8
< 90 dBA		Any

REMARKS	
(1) Flow ~ 70% (2) Highest reading was 106.	
Sound levels are averages of 3 readings taken on the indicated dates. Exposure for a four hour period when the vent was off was 95 dBA. All measurements were taken using a windscreen. The sound level meter was calibrated before each measurement.	

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