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# INDUSTRIAL HYGIENE REPORT

INDUSTRIAL HYGIENE SURVEY  
GRAND BAYOU PROMIX PLANT  
LOUISIANA DIVISION

CRI NO. \_\_\_\_\_

FILE NO. LAD-1H-81.04

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## SUMMARY

The annual noise survey was conducted. The compressor building is the main high noise level at 94 - 97 dB(A). The labs fume hood was surveyed and found to be acceptable. It should be rechecked after it is moved into the new lab. A product injection pump was surveyed for build-up of radioactive deposits on the impellar and inside surface of the pump case but none was found. Personnel monitoring for benzene exposure will be conducted later in the year.

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## INTRODUCTION

On January 21, 1981, some industrial hygiene surveying was conducted at the Grand Bayou Promix Plant as part of their annual monitoring program. Included was an area noise survey, a hood survey and a survey of a product pump for internal build-up of radioactive deposits.

## DISCUSSION OF RESULTS

### Noise Survey

An area noise survey was conducted at the Grand Bayou Plant using a hand held B and K Type 2219 sound level meter. The results are shown in Figure 1. The area of most concern is the compressor building which had sound levels of 94 - 97 dB. The area between the heaters had the highest noise level in the plant. Anyone entering this area for more than a few minutes should wear hearing protection, although it appears unlikely that anyone would spend any time there. The new Federal Noise Standard which is scheduled to go into effect soon will probably require that hearing protection be worn in all areas that are 90 dB and above.

### Hood Survey

The laboratory fume hood at the Grand Bayou Plant was evaluated for air flow at the hood face using a Hastings Air Flow Meter. The hood was determined to be a Class B fume hood according to the air velocity requirements listed below:

|                                                                      |                                                                            |
|----------------------------------------------------------------------|----------------------------------------------------------------------------|
| Class A (high toxicity use)<br>Carcinogenic, toxic, highly flammable | 125 - 150 ft/min average hood face velocity.<br>100 ft/min minimum reading |
| Class B (normal lab use)<br>Toxic or flammable                       | 100 ft/min average face velocity<br>80 ft/min minimum reading              |
| Class C (low toxicity use)<br>Non-toxic or non-hazardous compound    | 75 ft/min average face velocity<br>50 ft/min minimum reading               |
| Class D (Inadequate                                                  | Does not meet minimum requirements                                         |

The hood survey data appears in Figure 2.

When the fume hood is moved into the new laboratory that is presently under construction, it should be rechecked to make sure the air flow is still adequate.

#### Radiation Survey

One of the product injection pumps that had been taken out of service for maintenance was surveyed for radiation. Radioactive decay products from the Radon 222 that occurs naturally in natural gas and natural gas products can build up on the internals of ethane and propane pumps. When this happens, it poses a potential hazard for someone performing maintenance on the pump. Such a build-up, when it occurs, is usually found on the impellar surface but can also form on the internal surface of the pump housing and inside the discharge pipe or elbows directly adjacent to the pump.

The pump which was surveyed appeared to be very clean with no visible build-up of scale inside it. No radiation of any type (Beta or Gamma) was detected on any part of the pump. Instruments used were a Texas Nuclear Cutie Pie Model 2592 (Beta and Gamma) with a detection limit of 0.5 mR/hr and a Victoreen Model 491 (Gamma) with a detection limit of 0.005 mR/hr. No measurements were made of Alpha radiation.

#### PLANS

Monitoring for personnel exposures to benzene will be conducted later in the year.

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FIGURE 1

1981 NOISE SURVEY  
GRAND BAYOU PROMIX PLANT  
SOUND LEVEL INDICATED IN DB(A)  
1-21-81  
W.E.L.

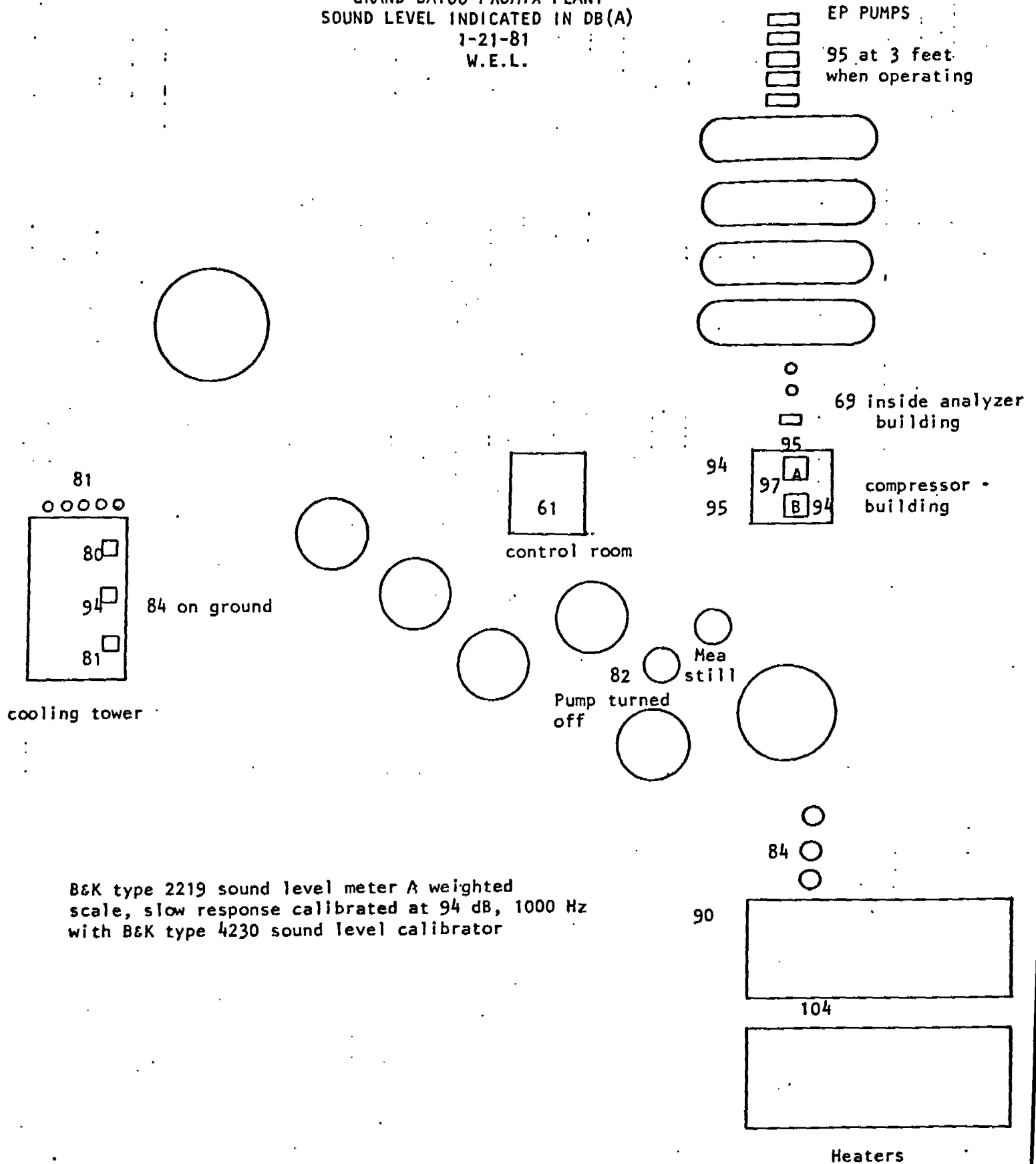
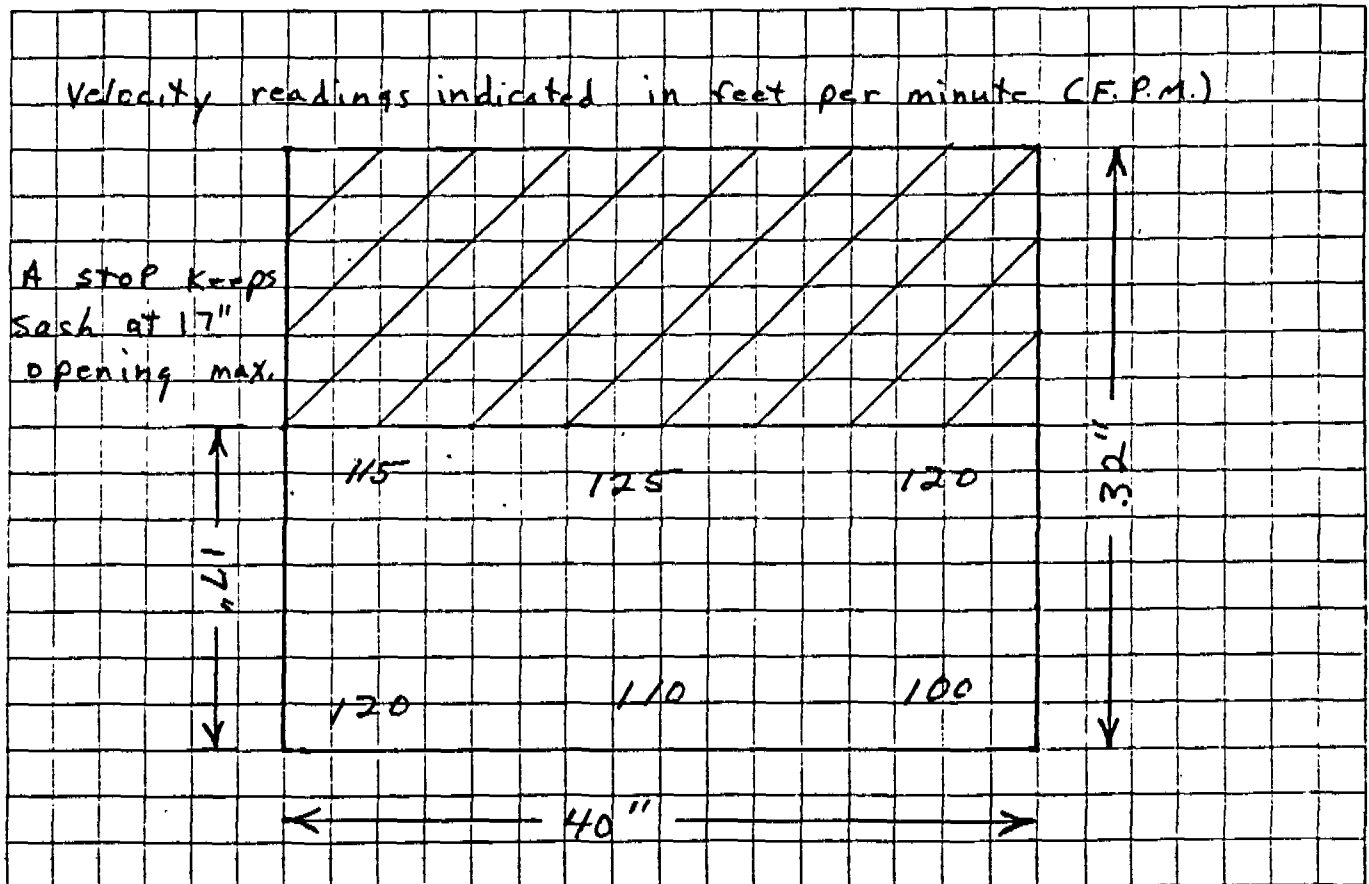


Figure 2.

## HOOD SURVEY DATA

|                                                  |                  |                                |              |
|--------------------------------------------------|------------------|--------------------------------|--------------|
| FILE NUMBER                                      | BUILDING NUMBER  | DATE                           | TYPE OF HOOD |
|                                                  |                  | 1-21-81                        | Lab bench    |
| HOOD LOCATION, DESIGNATION                       |                  |                                |              |
| Grand Bayou Promix Lab hood                      |                  |                                |              |
| INTERNAL BAFFLE?                                 | EXTERNAL BAFFLE? | CHEMICALS HANDLED IN THIS HOOD |              |
| Yes                                              | No               | LPG type hydrocarbons          |              |
| OTHER HOODS CONNECTED TO THE SAME EXHAUST SYSTEM |                  |                                |              |
| No                                               |                  |                                |              |
| SOURCES OF AIR DISTURBANCE EXTERNAL TO THIS HOOD |                  |                                |              |
| walkway in front of hood - very minor effect     |                  |                                |              |
| STATIC PRESSURE                                  |                  | REMARKS                        |              |
| not measured                                     |                  | IN. WATER                      |              |

RECOMMENDED MEAN FACE VELOCITY FOR THIS HOOD 100 F. P. M., DOOR OPEN 17 IN.  
 RECOMMENDED EXHAUST RATE FOR THIS HOOD 472 C. F. M.



## HOOD CONDITIONS DURING THE SURVEY

|                                                                                   | MAXIMUM             | MINIMUM           | MEAN              | VARIANCE<br>(s <sup>2</sup> ) |
|-----------------------------------------------------------------------------------|---------------------|-------------------|-------------------|-------------------------------|
| ACTUAL FACE VELOCITIES                                                            | <u>125</u> F.P.M.   | <u>100</u> F.P.M. | <u>115</u> F.P.M. |                               |
| HOOD FACE AREA DURING SURVEY                                                      | <u>4.72</u> SQ. FT. |                   |                   |                               |
| EXHAUST RATE DURING SURVEY                                                        | <u>543</u> C.F.M.   |                   |                   |                               |
| MAXIMUM OPENING: HEIGHT <u>17</u> IN., WIDTH <u>40</u> IN. MAXIMUM HOOD FACE AREA | <u>4.72</u> SQ. FT. |                   |                   |                               |

|                                               |               |            |
|-----------------------------------------------|---------------|------------|
| INSTRUMENT USED FOR AIR VELOCITY MEASUREMENTS | SERIAL NUMBER | SURVEYOR   |
| Hastings Air Flow Meter model AB-27           | 305           | W.F. - RCD |