



DISPLAYS, INC.

May 19, 1982

Mr. Thomas T. Martin
Nuclear Regulatory Commission
631 Park Ave.
King of Prussia, PA 19406

Dear Mr. Martin:

In reference to your letter of April 21, 1982 regarding Mr. J. Nicolosi's inspection visit of our facility, we have already taken the following action steps regarding the deficiencies noted by Mr. Nicolosi.

A) Our current operating mode has us making five (5) vacuum chamber runs per week. Each run requires us to discharge 70 liters of Ne-Ar gas with a radioactive concentration of 2 mc/l KR85.

Air Dispersion Model-Trinity Consultant Computer Program PTMPT/TRIN

Input Data 6-15-76

Stack Height	20 Ft.	6.1 Meters
Stack Diameter	1.5 Ft.	0.46 "
Stack Gas Temp. (Room Temp)	70 ^o F	294 ^o K
Stack Gas Flow	800 ACFM	0.378 M ³ /Min.
Stack Gas Concentration	2 x 10 ⁻⁶ Microcuries/ML	

Wind Speed (Annual Average)	3 MPH	1.32 Met.
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Pollutant Krypton - 85

Ambient Temp. (Annual Average in PA)	56 ^o F	287 ^o K
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Gas Concentration (Ne-Ar) 2 Millicuries per Liter

Calculations: Pollutant Concentration

This Study Input	Microcuries per Second
This Study Output	Micro-microcuries per Cubic Meter

$$\text{Input: } (2 \times 10^{-6} \frac{\text{Microcuries}}{\text{ML}}) (800 \frac{\text{Cu. Ft.}}{\text{Min.}}) (23,316 \frac{\text{ML}}{\text{Cu.Ft.}}) (\frac{1 \text{ min.}}{60 \text{ Sec.}})$$

$$= 0.755 \frac{\text{Microcuries}}{\text{Sec.}}$$

R.D. 4, BOX 6AAA, LEWISTOWN, PA. 17044 • 717-242-2541

$$\begin{aligned} \text{Output: } & (1990 \frac{\text{Micro-microcuries}}{\text{Cu. Meter}}) (10^{-6} \frac{\text{Microcuries}}{\text{Micro-microcuries}}) (10^{-6} \frac{\text{Cu. Meter}}{\text{MC}}) \\ & = 1.99 \times 10^{-9} \frac{\text{Microcuries}}{\text{ML}} \end{aligned}$$

Summation of Results:

The results of this program indicate the maximum ground-level concentration will be 1.99×10^{-9} Microcuries/ML and will occur at a distance of 57 meters or 187 feet downwind of the stack.

However, this concentration is calculated on a short-term basis, 15 minutes to 1 hour.

Over a period of one year, the wind will not remain constant at the same speed, or from the same direction, or at the same stability. With these ever-changing conditions, the pollutants will be dispersed over a greater area; thus having the effect of being more dilute over a long-term period, i.e. a year.

The U.S. EPA uses the following factor to convert to longer periods:

1 Hour	1.00
3 Hours	0.70
8 "	0.50
24 "	0.35

No conversion factor is given for annual; however, based on other estimations used in this field, Owens-Illinois uses a factor of 0.07 to convert hourly readings to annual readings. This is a very conservative factor.

Therefore, our maximum annual concentration is estimated to be 1.4×10^{-10} microcuries per milliliter.

This maximum amount occurs 57 meters (187 ft.) away from the stack. The further away from this point, toward or away from the stack, the lower the concentration level. (Note the attached iso-pleths sketch, which schematically shows the lines of constant concentration. Also note the coning plume figure attached.)

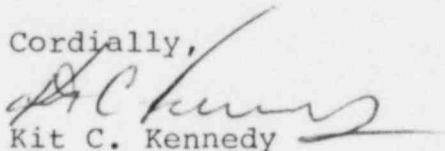
- B) 1. Two of our three Eberline E-530 survey meters were sent out to be checked and calibrated and are currently back in the plant and functional. These will be calibrated annually in the future.
2. With the survey meters operational, a radiation level survey was conducted on April 28, 1982 and will be done every time a new cylinder of the gas containing KR-85 is put into service. This should be approximately twice a month.

Mr. Thomas T. Martin
May 19, 1982
Page 3

C) A "Caution Radioactive Material" sign has been ordered for our block house door and is expected in the plant within the next several weeks. It will immediately be installed.

I am sorry these violations occurred and am glad Mr. J. Nicolosi brought them to my attention. If there are additional questions please let me know.

Cordially,


Kit C. Kennedy
President

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PANEL TECHNOLOGY AIR DISPERSION STUDY

— ISOPLETHS



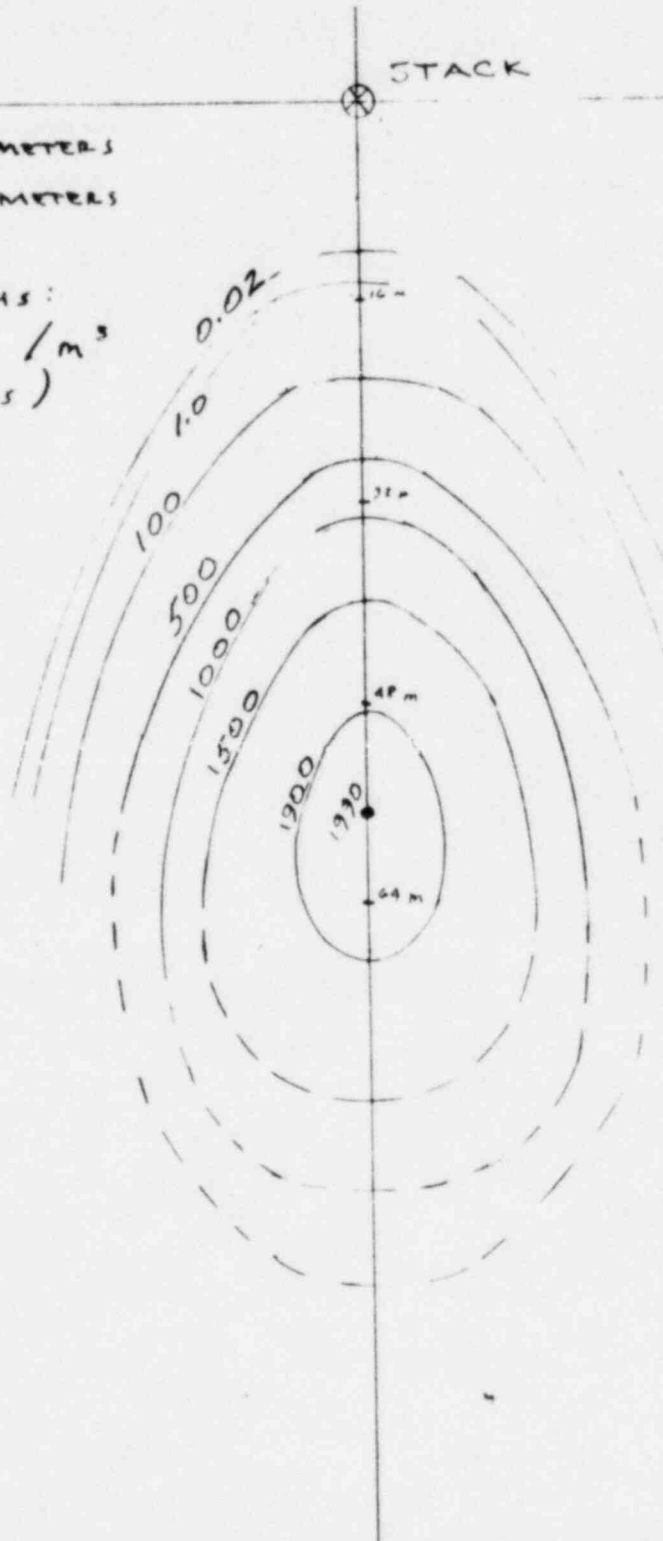
FROM COMPUTER MODEL
PTMTP
Hour = 3
"C" WIND STABILITY
CLASSIFICATION

WIND DIRECTION
(FROM THE NORTH)
3 MPH

SCALE:

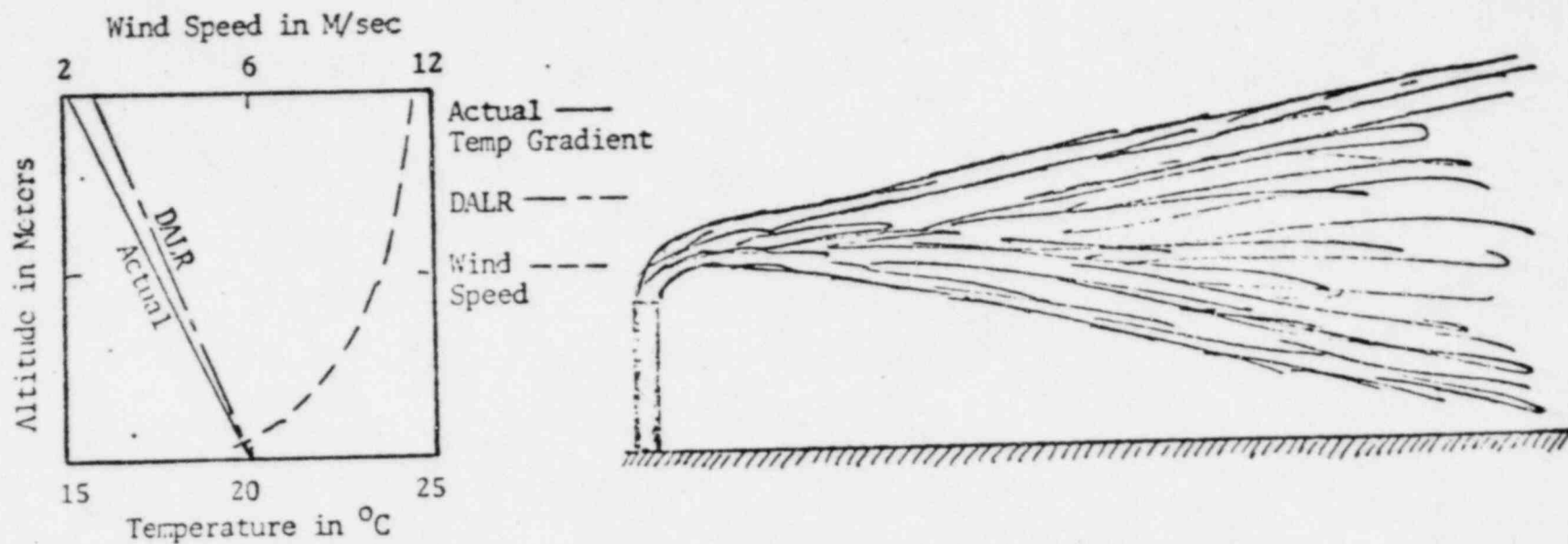
1 DIVISION = 4 METERS
1 INCH = 16 METERS

UNITS FOR ISOPLETHS:
MICRO-MICROCURIES / m³
(HOURLY AVERAGES)



PTMTP
6-17-76

Figure 26 - Coning Plume



Observed on Overcast Days
With Light Wind and no Strong
Thermal Current

Micrometeorological
Conditions

1. Slightly Unstable or Neutral Stability
2. Moderate Wind Speed
3. Dispersion Model Fits Best

