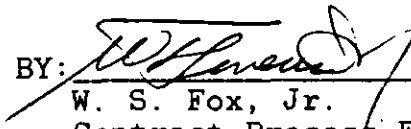


OXYGEN MONITORS

ABERDEEN CHEMICAL PLANT

FEBRUARY 8, 1988

WORK BY:


W. S. Fox, Jr.
Contract Process Engineer

REVIEWED BY:


J. E. Nickerson
Senior Process Engineer

APPROVED BY:


V. E. Messick
Chief Process Engineer

OXYGEN MONITORS
ABERDEEN CHEMICAL PLANT

TABLE OF CONTENTS

- I. PURPOSE OF DESIGN
- II. DESCRIPTION
- III. INSTRUMENT LIST

OXYGEN MONITORSABERDEEN CHEMICAL PLANTI. PURPOSE OF DESIGN

The purpose of this design is to provide continuous monitoring of ambient air oxygen concentrations. The areas to be monitored were identified in the inert gas/nitrogen system surveys. The survey report said that the following areas will be monitored:

- 1.- P-1 east side second floor.
- 2.- The inert gas generator room.
- 3.- Development Lab near liquid nitrogen storage room.
- 4.- The Development Lab storage room.
- 5.- Old Module GC room.
- 6.- V-11 dryer bldg. GC room.

OXYGEN MONITORSABERDEEN CHEMICAL PLANT**II. DESCRIPTION**

The Safety and the Mechanical Department recommend the oxygen analyzer manufactured by Teledyne Analytical Instruments. Several of these instruments have already been purchased as part of the RQIP program for this same purpose. This type of instrument uses a Micro-Fuel oxygen sensor which provides a linear output that is proportional to oxygen concentration. This sensor is an electrochemical design that at the end of its useful life is disposed of like a flashlight battery.

~~Two~~ ^{ONE} alarm levels are provided, ~~one~~ at 19.5 % oxygen. ~~and one at 19 % oxygen~~ per the recommendation of the Safety ² Department. At each entry into the monitored area ~~2~~ alarm lights will be provided. A green light will indicate a safe condition. A ~~yellow~~ ^{red} light will indicate an oxygen content of 19.5 %. ~~A red light will indicate an oxygen content of 19 % or below.~~ Also in each monitored area an audible alarm will be provided.

The instrument used will be a TAI Model 322/134²-2, which is identical to those purchased for RQIP, except that these racks only hold two instruments instead of three.

The areas in which the oxygen sensors will be installed are as follows:

- 1.- P-1 east side second floor.- Used to detect inert gas leakage when area is shut up due to cold weather.
- 2.- Inert gas generator room.- Used to detect leaks.

The rack with the instruments for the above two areas will be located in the P-1 Bldg. control room.

- 3.- Development Lab near liquid nitrogen system.- The liquid nitrogen cylinder is stored inside the lab. Relocating the cylinder and/or routing the relief valve discharge outside is not practical and in any case would not eliminate the need for the monitor. Release of nitrogen gas in the past has already occurred.

- 4.- **Development Lab storage room.**- This room has been provided with a carbon dioxide fog blanket fire protection system. It also contains a compressed nitrogen system. Both system can be a source of inert gases.

The rack with the instruments for the above two areas will be located in the Development Laboratory.

- 5.- **Old Module GC room.**- Nitrogen is used by the GC.
- 6.- **V-11 dryer bldg. GC room.**- Nitrogen is used by the GC.

The rack with the instruments for the above two areas will be located in the Vinyl Control Room.

OXYGEN MONITORS
ABERDEEN CHEMICAL PLANT

III. INSTRUMENT LIST

<u>_ITEM_</u>	<u>_____LOCATION_____</u>
AN-101	P-1 Bldg. Control Room
AN-102	Development Laboratory
AN-103	Vinyl Control Room