

To: J. D. Olson

From: W. B. Genetti
Date: December 19, 1991

Interoffice
Communication

Subject: VCM TANK FARM COMPRESSOR UPGRADE
NITROGEN PURGE TEST RUN REPORT

VISTA

A test run was conducted on December 17, to test the feasibility of purging the VCM compressors with nitrogen. The nitrogen purge system worked as intended, but there are several issues that should be investigated. It is recommended that the nitrogen purge system become a separate project. This will allow the VCM Tank Farm Compressor Upgrade project to be completed within a reasonable time frame.

A review meeting for the VCM Tank Farm Compressor Upgrade project will be held on ~~Thursday, December 19,~~ at ~~2:00~~ in the ~~auditorium~~. The results of the nitrogen purge test run will be discussed at this meeting.

A nitrogen cylinder was hooked to the bottom packing of the compressor (see attached P&I D). A line was run from the bottom packing to the top packing with a needle valve in the line to control flow. A line was run from the top packing to the emissions recovery system (ERS).

The nitrogen purge system worked as intended. The average nitrogen flow rate was 1.53 SCFM. This is consistent with the Corken recommended flow rate of between 1 and 5 SCFM. The system could be modified to further reduce flow if less volume were determined adequate.

Maintaining a constant pressure in the packing was a concern at the review meeting. The pressure in the lower packing was maintained at about 24 psig. A 20 psig minimum is recommended by Corken. The outlet stayed between 5 and 10 psig.

Ideas that come out of discussion with those involved in the test run include:

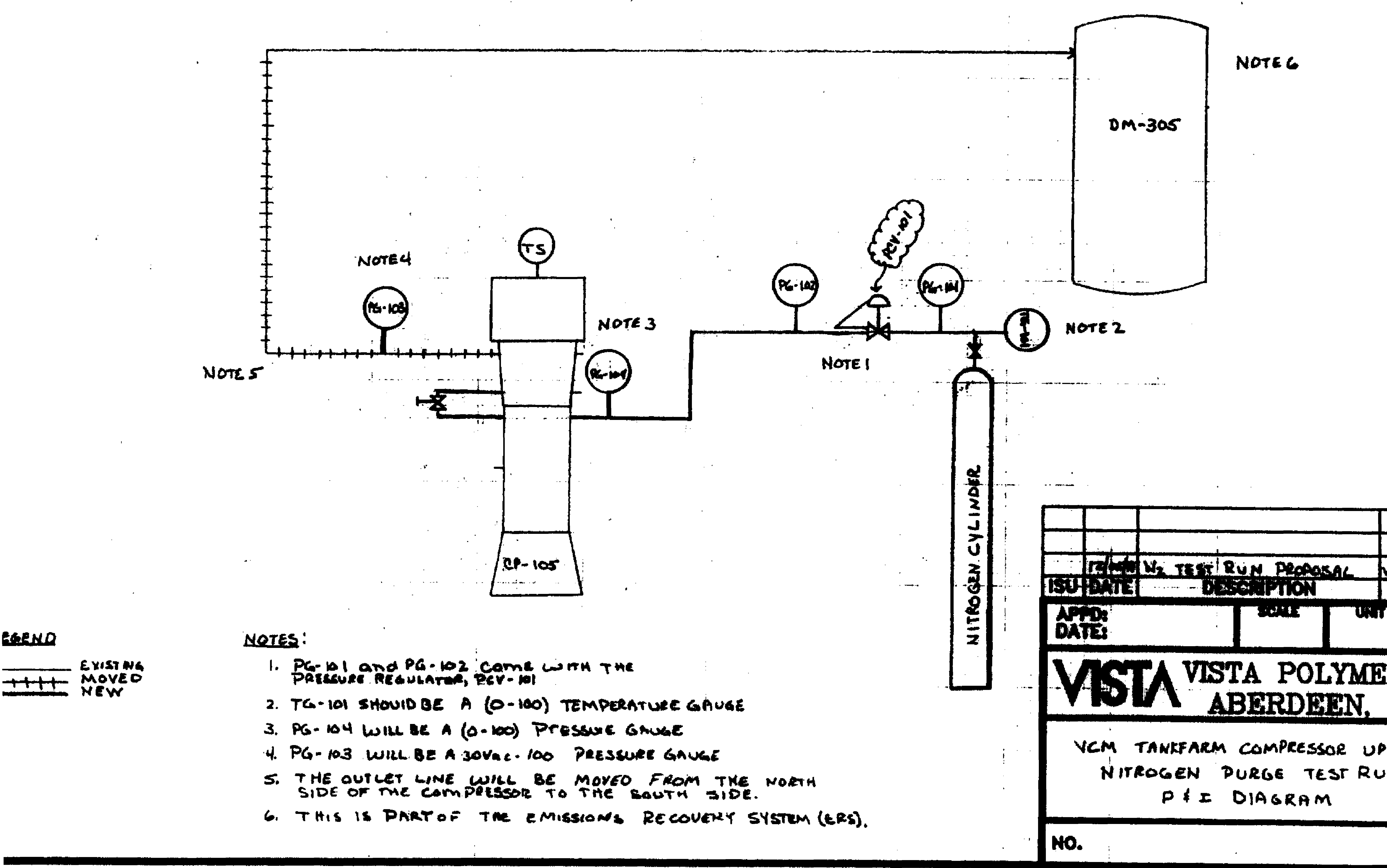
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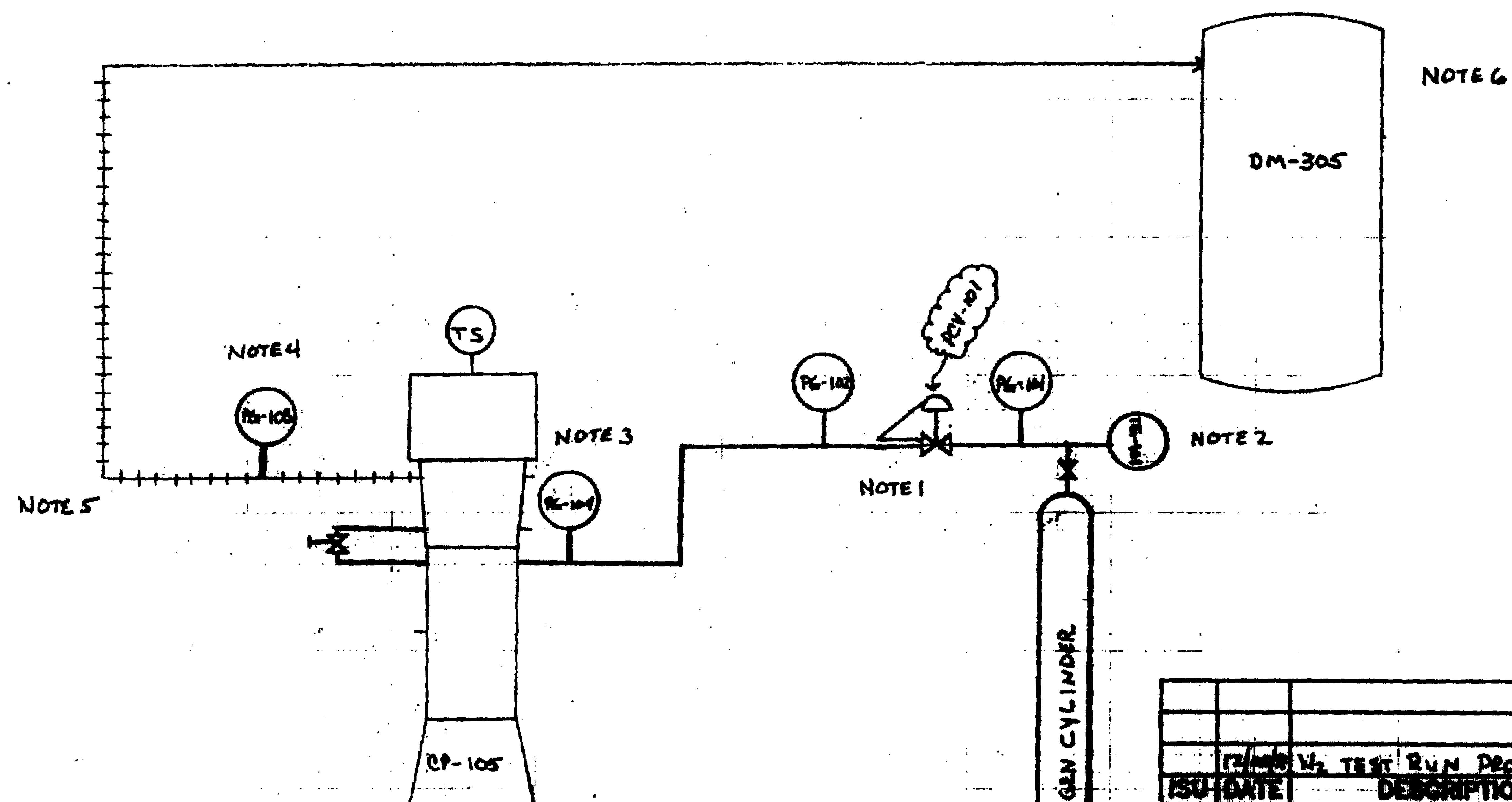
- 1. Installing a nitrogen purge system with a nitrogen sphere to store nitrogen. To store a months worth of nitrogen, at 1 SCFM per compressor, a 12 feet diameter sphere would be required at a maximum pressure of 2000 psi. The sphere would be constructed out of a high strength steel and with a thickness of about 2 inch (note that this calculation does not include stress concentration factors for nozzles, supports, welds, etc). Even with a flow rate of only 0.5 SCFM per compressor, a large storage tank would still be required.
- 2. One or both of the bullets could be used for nitrogen storage.
- 3. A nitrogen or inert gas generator could be purchased and installed. This seems more reasonable when other plant nitrogen users are considered (the Isonox storage, P-1, etc).
- 4. Other types of non-leaking packing could be installed.
- 5. Tying the vent lines together and attaching a GC or connecting them to the ERS.

Other options could also be available. This is clearly a good environmental, safety, and health project and deserves attention. It will be considered in a separate project.

If you have any questions please contact me at extension 2285.

Berlin





LEGEND

————— EXISTING
 - - - - - MOVED
 - x x x - NEW

NOTES:

1. PG-101 and PG-102 COME WITH THE PRESSURE REGULATOR, PCV-101
2. TG-101 SHOULD BE A (0-100) TEMPERATURE GAUGE
3. PG-104 WILL BE A (0-100) PRESSURE GAUGE
4. PG-103 WILL BE A 30vac-100 PRESSURE GAUGE
5. THE OUTLET LINE WILL BE MOVED FROM THE NORTH SIDE OF THE COMPRESSOR TO THE SOUTH SIDE.
6. THIS IS PART OF THE EMISSIONS RECOVERY SYSTEM (ERS).

12/18/83		N ₂ TEST RUN PROPOSAL		WBS	
ISSU	DATE	DESCRIPTION		BY	CKD/APD
APPD:		SCALE	UNIT	AREA	
DATE:					
VISTA VISTA POLYMERS, INC ABERDEEN, MS					
VCM TANKFARM COMPRESSOR UPGRADE NITROGEN PURGE TEST RUN P & I DIAGRAM					
NO.					ISSUE