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PRESSURE MEASUREMENTS ON
19-1/2 CROSSHEADER -- DR REACTOR

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PRESSURE MEASUREMENTS ON

19-1/2 CROSSHEADER -- DR REACTOR

June 12, 1963

By

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June 12, 1963

PRESSURE MEASUREMENTS ON 19-1/2 CROSSHEADER -- DR REACTOR

Equipment Laboratory and Testing Operation was requested to measure the pressure gradient developed across a nozzle and crossheader assembly used on the rear face during reactor operation. A nozzle and pigtail assembly with pressure taps was installed on process tube 2058, and pressure taps were located at the center, at tube 2058, and at the end of crossheader No. 19-1/2. Copper sensing lines were installed between the pressure taps and a tool storage area on zero level, near side of the reactor where our gage could be safely located. The following data was obtained:

Date	1-21-63	2-1-63	6-6-63	6-7-63
Time			1030	1400
Reactor Power Level (Mw)		1550	1650	1750
Total Reactor Flow (gpm)		86,000	87,000	88,000
Bulk Outlet Temperature (C)			87	91
Top of Riser Pressure (psig)			540	543
Tube 2058 Outlet Temperature (C)			96	106
Tube 2058 Panellit Pressure (psig)			317	313
No. 19 Front Header Pressure (psig)			525	525
Pressure at Taps (psig)				
Number 1	*	*	187	189
Number 2	148	148	154	154
Number 3	108	108	108	110.5
Number 4	78	78	79.5	83
Number 5	98	99	102	105
Number 6	77.5	78.5	82	85
Number 7	53	54.5	55.5	58.5

* Measurements taken on January 21, 1963 and February 1, 1963
are incomplete because the sensing line to pressure tap No. 1
was not connected properly.

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Pressure tap identification:

<u>Number</u>	<u>Location</u>
1	Nozzle barrel.
2	Nozzle outlet.
3	Connector tap No. 1.
4	Connector tap No. 2.
5	Center of crossheader.
6	On crossheader at tube 2058.
7	Near discharge end of crossheader.

All pressure measurements are in terms of pounds per square inch gage with the gage at zero elevation in the reactor building. The head correction between zero level and No. 19-1/2 crossheader should be subtracted to obtain pressure at the crossheader.

Accuracy of the measured pressures is estimated at ± 2 psi. A 500-pound Heise gage known to be accurate to ± 0.5 psi was used for all measurements. Fluctuation of the pointer due to minor pressure variations was about 2 psi.

J. L. Rand
Engineer
Equipment Laboratory and Testing
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