



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 22, 2000

FACILITY: R. E. GINNA NUCLEAR POWER PLANT

LICENSEE: ROCHESTER GAS AND ELECTRIC CORPORATION

SUBJECT: MEETING SUMMARY OF MAY 9, 2000, ON THE OPERABILITY OF THE MAIN STEAM LINE NON-RETURN CHECK VALVES AT THE R. E. GINNA NUCLEAR POWER PLANT (TAC NO. MA7271)

1.0 INTRODUCTION

On May 9, 2000, a meeting was held in the NRC White Flint Offices of Rockville, Maryland, with the staff of the NRC and the staff of the Rochester Gas and Electric Corporation (RG&E) to discuss the licensee's operability determination of the Main Steam Line Non-Return Check Valves at the R. E. Ginna Nuclear Power Plant. The question of operability of these valves was a result of modifications to these valves that converted them from free swinging check valves to valves that needed additional torque from the back flow to close the valves. This modification was supported by a 10 CFR 50.59 determination and a safety evaluation (SE) that indicated that there was acceptable closing torque to close the valves in the event of a steam line break between the steam generators and the valves. Subsequently, the 10 CFR 50.59 determination was reviewed by an NRC inspection team that determined an apparent violation concerning the adequacy of the SE and apparent unreviewed safety question. This meeting was for the purpose of discussing the analysis that supports the 10 CFR 50.59 determination and the NRC staff findings with regards to that analysis. Enclosure 1 provides the agenda of the meeting, Enclosure 2 provides the list of those in attendance to the meeting, Enclosure 3 provides the viewgraphs of the introduction presented by Larry Doerflein, NRC/RI, and Enclosure 4 provides the licensee's viewgraphs to support RG&E's discussion.

2.0 DISCUSSION

Larry Doerflein, RI, provided a chronology of the events related to this issue beginning with an License Event Report dated March 31, 1999, and the NRC Team Inspection on Corrective Action Effectiveness conducted May 10 - 28, 1999, with a report issued August 6, 1999. The Inspection Report listed questions in which the licensee responded by letter dated August 23, 1999, and a second response to questions and the Duke Engineering Analysis dated September 24, 1999. By memorandum dated December 8, 1999, the Region requested assistance from NRR, Task Interface Agreement (TIA). NRR provided a draft response dated April 17, 2000, which concluded that the valves were inoperable because there was not an agreement with the licensee's analysis.

The licensee's presentation and calculations illustrated that combined effect of frictional forces and the static pressure differences existing across the valve disk for the reverse flow condition following the limiting main steam line break (MSLB) was sufficient to develop a closure torque that would cause the valve to go closed. The static pressure above the valve disk increases due to the smaller velocity pressure associated with the flow above the top of the disk. Conversely, since the valve seat area is smaller than the valve inlet area, the static pressure under the valve disk decreases due to the higher velocity pressure that results from the

decreasing flow area as the steam flow approaches the valve seat area. The frictional pressure drop results from drag forces on the valve disk and the contraction/expansion losses associated with flow around the disk. The licensee concluded that the total pressure drop (drag forces and static pressures drop) across the valve disk would enable the valve to close during an MSLB and, thus, the valves are operable.

3.0 CONCLUSION

The NRC staff indicated that they would reconsider their original conclusions and provide a revised draft response to the TIA.

The licensee indicated that during the next refueling outage (October 2000) a modification will be made that will shift the counter weight 180 degrees, making it to be a force that closes the valve rather than forcing the valve to stay open. This would provide sufficient margin to assure the closure of the valve during a back flow during an MSLB.



Guy S. Vissing, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosures: 1. Agenda
2. Attendance List
3. Introduction
4. Licensee Presentation

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June 22, 2000

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/RA/

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DATE	6/19/00	6/19/00	6/19/00

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AGENDA

MAY 9, 2000

CONCERNING DISCUSSIONS REGARDING THE OPERABILITY
OF THE GINNA MAIN STEAM LINE NON-RETURN CHECK VALVES

1. INTRODUCTION by Larry Doerflein, RI
2. RG&E PRESENTATION by Jim Dunne, RG&E
3. NRC STAFF RESPONSE by J. Staudenmeier/F. Akstulewicz,
NRC/NRR
4. DISCUSSION
5. CONCLUSION

ATTENDANCE LIST

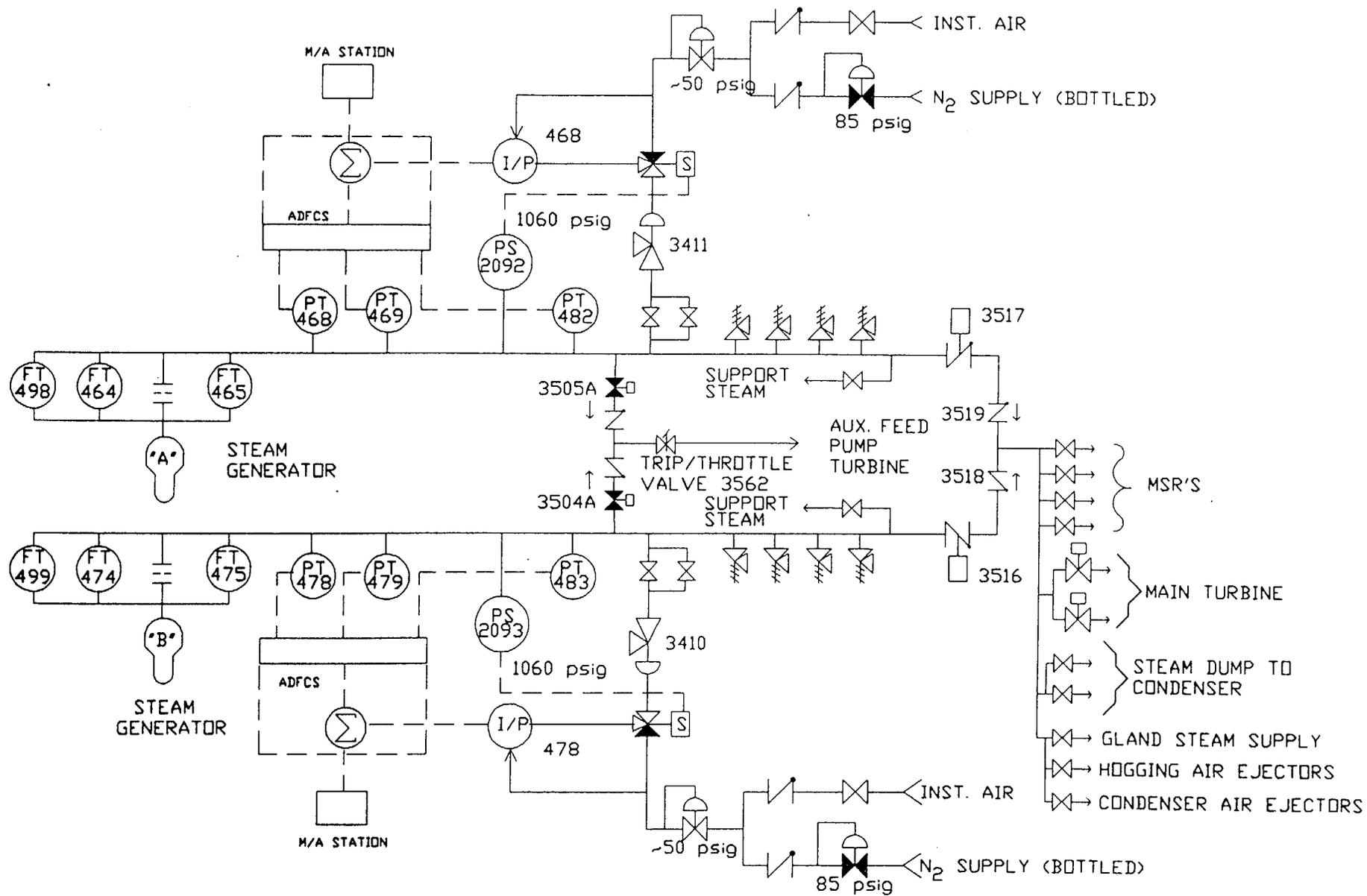
MAY 9, 2000

CONCERNING DISCUSSIONS REGARDING THE OPERABILITY
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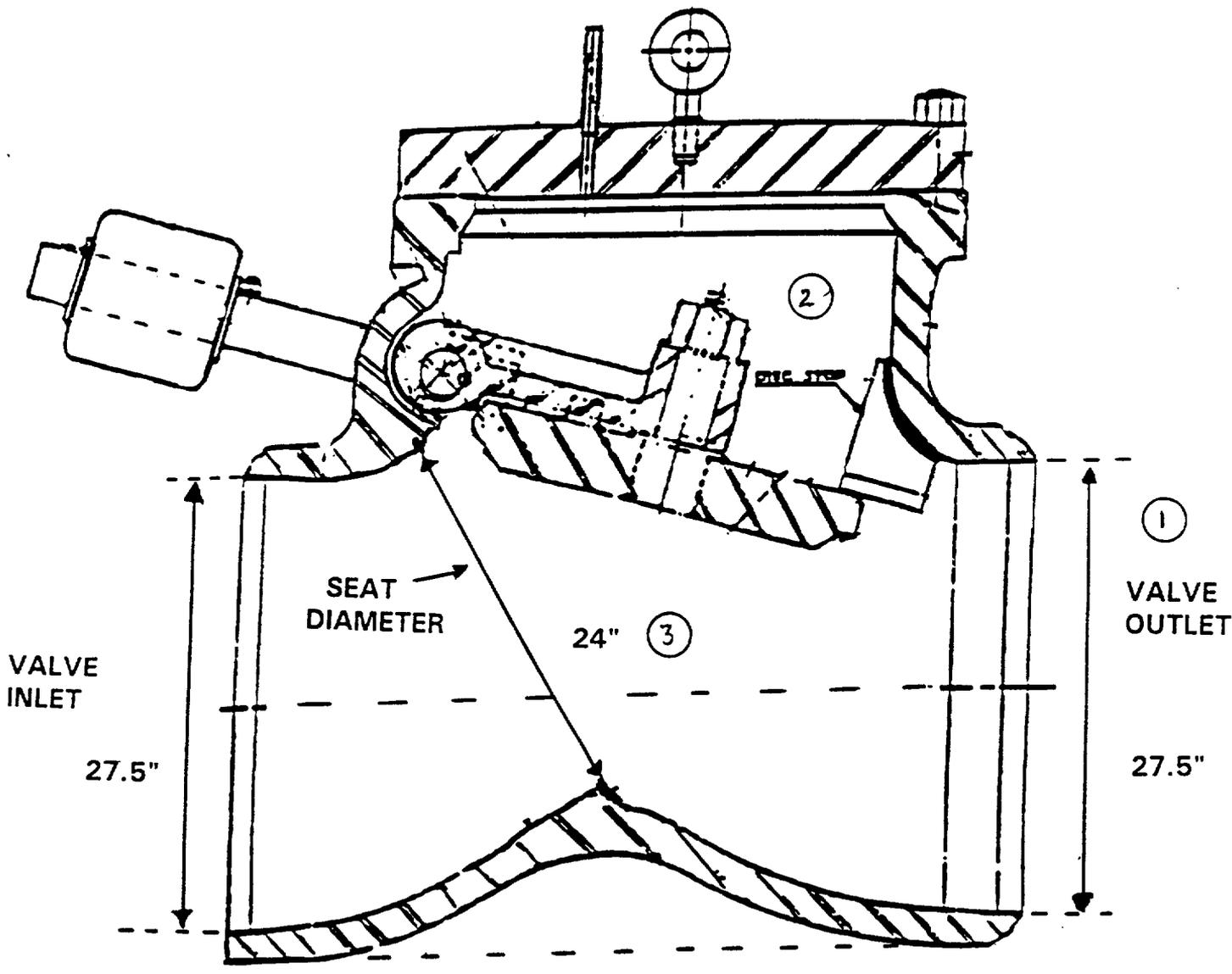
<u>Name</u>	<u>Organization</u>
George Wrobel	RG&E - NS&L
Jim Dunne	RG&E - RE&A
Peter Bamford	RG&E - RE&A
Larry Doerflein	NRC/RI
William Cook	NRC/RI
Francis Akstulewicz	NRC/NRR
Joseph Staudenmeier	NRC/NRR
Guy S. Vissing	NRC/NRR

GINNA NRV BACKGROUND

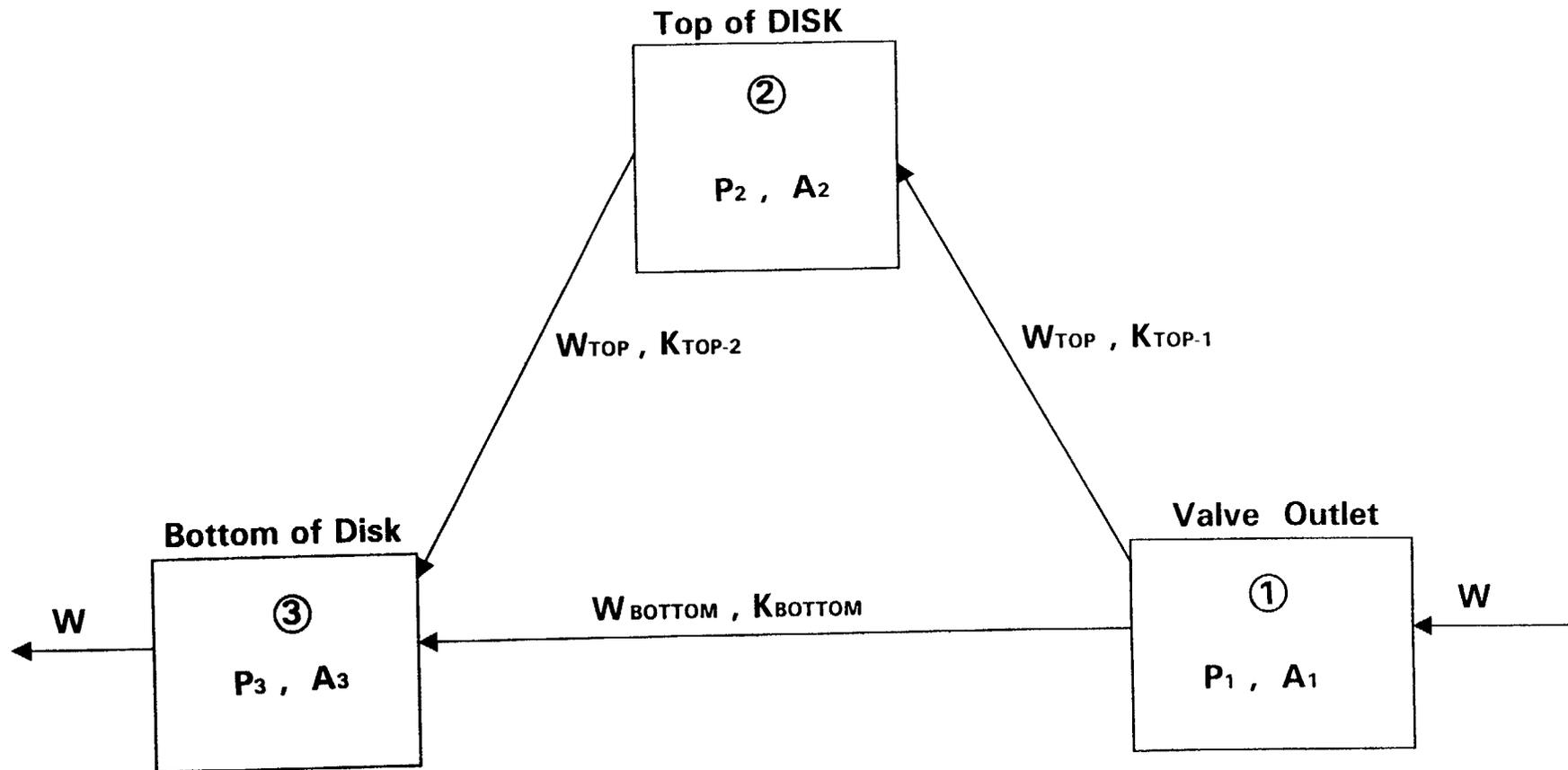
- LER 50-244/99-003, Two Valves Declared Inoperable Results in Condition Prohibited by Technical Specifications, dated March 31, 1999.
- NRC Team Inspection on Corrective Action Effectiveness conducted May 10 - 28, 1999; report issued August 6, 1999.
 - Inadequate 50.59 review, USQ
 - Initiated Action Report
 - List of Questions
- Initial Response to NRC Questions dated August 23, 1999.
- Response to Questions and Duke Engineering Analysis dated September 24, 1999.
- Task Interface Agreement dated December 8, 1999.



MAIN STEAM HEADER



SIMPLIFIED VALVE MODEL



NOMENCLATURE

1 - MAIN STEAM PIPING @ VALVE OUTLET

2 - TOP of BONNET AREA

3 - UNDER DISK AREA

P_s = STAGNATION PRESSURE

P = STATIC PRESSURE

P_v = VELOCITY PRESSURE

V = STEAM VELOCITY

ρ = STEAM DENSITY

PRESSURE RELATIONSHIP

BY DEFINITION

$$P_s = P + P_v$$

$$P_v = \rho * V^2 / (2 * g_c)$$

THEREFORE,

$$P_{1s} = P_1 + P_{1v}$$

$$P_{2s} = P_2 + P_{2v}$$

$$P_{3s} = P_3 + P_{3v}$$

FRICIONAL PRESSURE DROP EFFECTS

NEGLECTING ELEVATION HEAD DIFFERENCES,

$$P_{2S} = P_{1S} - DP_{FRIC-A}$$

$$P_{3S} = P_{1S} - DP_{FRIC-B}$$

$$P_{3S} = P_{2S} - DP_{FRIC-C}$$

WHERE,

DP_{FRIC-A} = PRESSURE DROP FOR ENTRANCE TO BONNET REGION

DP_{FRIC-B} = PRESSURE DROP FOR FLOW UNDER VALVE DISK

DP_{FRIC-C} = PRESSURE DROP FROM BONNET TO UNDER VALVE DISK

$$DP_{FRIC-B} = DP_{FRIC-A} + DP_{FRIC-C}$$

VALVE DISK PRESSURE DIFFERENCE

$$DP_{DISK} = P_2 - P_3$$

$$P_2 = P_{2S} - P_{2V}$$

$$P_3 = P_{3S} - P_{3V}$$

$$DP_{DISK} = (P_{2S} - P_{2V}) - (P_{3S} - P_{3V})$$

$$DP_{DISK} = (P_{2S} - P_{3S}) + (P_{3V} - P_{2V})$$

$$P_{3S} = P_{2S} - DP_{FRIC-C}$$

THEREFORE,

$$DP_{DISK} = P_{2S} - (P_{2S} - DP_{FRIC-C}) + (P_{3V} - P_{2V})$$

$$DP_{DISK} = DP_{FRIC-C} + (P_{3V} - P_{2V})$$

