

**CHAPTER 4 – DESIGN FLOW REQUIREMENTS AND PEAK EXPECTED FLOWS****4.1 Introduction**

This chapter presents an overview of the design flow requirements and the peak expected flow, as described in Section 2.6. In this Annual Plan, design flow requirements, will only be presented for those design areas where new mainline facilities are required. For this Annual Plan the only design area requiring new facilities is the North and East Project Area.

Design flow requirements are based on the June 2008 design forecast and the applicable design assumptions discussed in Section 2.6.1. The design area delivery assumption, storage assumption and downstream capacity assumption were applied in each design area. The FS productive capability assumption was applied to each of the areas shown in Figure 2.6.1.5.

The design flow requirements for the North and East Project Area are presented in Appendix 2. Figure(s) presented in this chapter illustrate both historical and forecast trends within the North and East Project Area.

An overview of the design flow requirements resulting from the June 2008 design forecast was presented at the TTFP meeting on November 18, 2008.

The peak expected flow determination, is included in the facility design process, and is described Section 2.6.2. Peak expected flows were determined for all design areas having a receipt dominant flow condition. No new mainline facilities are expected to be required within these areas based on the June 2008 design forecast.

Historical data is included to illustrate the correlation between design flow requirements and actual flows, including historical peak flows. Historical actual

flows and historical design flow requirements are shown for the 2002/03 Gas Year through the 2007/08 Gas Year. Historical design flow requirements represent the values that influenced the design for each Gas Year from 2002/03 to 2007/08.

The figure in Section 4.2 shows a comparison between winter and summer historical design flow requirements and historical actual flows for the 2002/03 Gas Year through to the 2007/08 Gas Year. The figure also shows the winter and summer design flow requirements from the June 2008 design forecast for the 2008/09 Gas Year through the 2012/13 Gas Year.

Based on the June 2008 design forecast, the projected design and peak expected flow conditions are not expected to result in any new mainline facility requirements for Peace River Design Area during the period covered by this Annual Plan.

#### **4.2 North and East Project Area**

Based on the June 2008 design forecast, the projected ‘flow through’ design and peak expected flow conditions are not expected to result in any new mainline facility requirements for this design area during the period covered by this Annual Plan.

The ‘flow within’ condition governs the design flow requirements in the North and East Project Area as described in Section 2.6.1. This design flow requirement is the net effect of localized minimum available supply less the maximum deliveries expected within the North and East Project Area. As outlined in Chapter 3, Alberta deliveries to the North and East Project Area are forecast to increase in the future. The FS productive capability required to meet the maximum day delivery draws from available FS productive capability in the North and East Project Area plus the FS productive capability that is brought into the area, via the North Central Corridor, the Marten Hills Design Area through the Slave Lake compressor, the Rimbey-Nevis

design area via the Gadsby crossover and the Eastern Alberta System Mainline Design Sub Area at the Princess Compressor Station.

Figure 4.2 illustrates the historical actual flows between November 2003 and December 2008, the historical design flow requirements between the 2005/06 and 2007/08 Gas Years and the design flow requirements currently forecast between the 2008/09 and 2012/13 Gas Years. The actual flows experienced during the recent cold snap in December 2008 show that the net flow shortfall within the North and East Project Area increased significantly over what was experienced in 2007/08.

**Figure 4.2**  
**North and East Project Area**  
**Flow Within Design Flow Requirements**

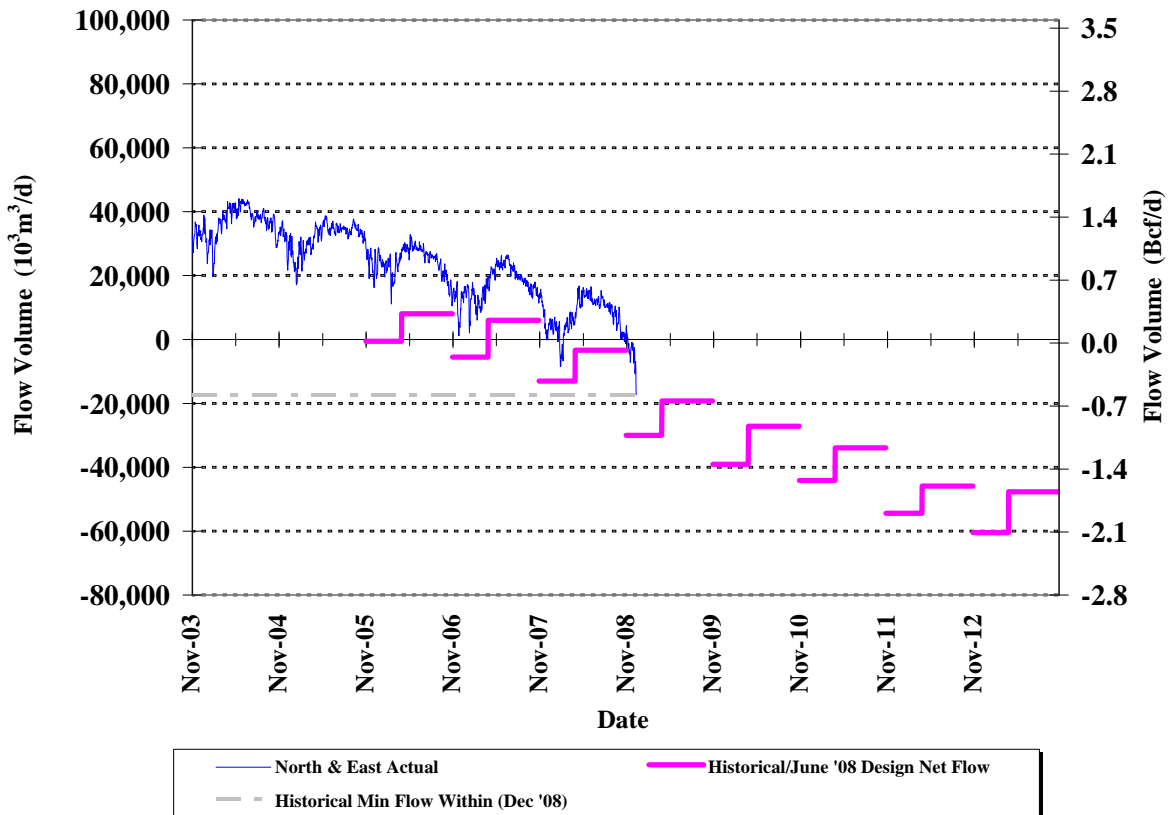


Table 4.2 shows the winter and summer design flow requirements for the Planning Period.

**Table 4.2**  
**North and East Project Area**  
**Flow Within Design Flow Requirements**  
**June 2008 Design Forecast**  
**Design Flow Requirements**

Gas Year and Season	Design Flow Requirements	
	Bcf/d	10 <sup>6</sup> m <sup>3</sup> /d
2009/10 Winter	-1.38	-39.0
2009/10 Summer	-0.96	-27.1