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. Design flow requirements, described in Section 2.6.1, for the 2007/08 Gas Year are presented for each of the design areas described in Section 2.3, and form the basis for the facilities requirements outlined in Chapter 5.

Design flow requirements for each design area are based on the June 2006 design forecast and the applicable design assumptions discussed in Section 2.6.1. The equal proration assumption, 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 2.6.5.

The design flow requirements for each design area are presented in Appendix 4. Figures presented in this chapter illustrate both historical and forecast trends within each design area.

An overview of the design flow requirements resulting from the June 2006 design forecast was presented at the TTFP meeting on November 21, 2006.

The peak expected flow determination, is included in the facility design process, and is described Section 2.6.2. The peak expected flow line is shown along with the design flow requirement line on all charts having a receipt dominant flow condition to illustrate the difference between the two flow levels.

Historical data have been included in this chapter to illustrate the correlation between design flow requirements and actual flows. Historical actual flows and historical design flow requirements are shown for the 2001/02 Gas Year through the 2005/06 Gas Year. Historical design flow requirements represent the values that influenced the design for each Gas Year from 2001/02 to 2005/06. The period of time that the design flow figures cover no longer include the historical peak flow achieved in many of the Design Areas. The introduction of the historical peak flow on the design flow figures is to continue to provide this information.

The vertical scale in the figures for the Upper Peace River, Central Peace River, Marten Hills, North of Bens Lake, South of Bens Lake, Western Alberta Mainline, Rimbey-Nevis, South and Alderson and Medicine Hat Design Areas have been set over a consistent range of values between 0 and 100,000 10^3m^3/d (0 and 3.5 Bcf/d). The Edson, Eastern Mainline and Lower Peace River Design Areas have been set over a consistent range of values between 0 and 300,000 10^3m^3/d (0 and 10 Bcf/d). The figures are presented in this manner to enable easy comparison of the relative impact of the design flow requirements.

The figures in Sections 4.2 to 4.4 show a comparison between winter and summer historical design flow requirements and historical actual flows for the 2001/02 Gas Year through to the 2005/06 Gas Year. The historic peak flows have been added for comparison purposes. The figures also show the winter and summer design flow requirements from the June 2006 design forecast for the 2006/07 Gas Year through the 2010/11 Gas Year. The peak expected flow, as described in Section 2.6.2, is also shown on these figures out to the 2010/11 Gas Year for the design areas where receipt dominant flow conditions exist.

There are two distinct flow conditions that are examined in assessing facilities requirements in the North and East Project Area. First, there is the “flow through” condition that is governed by the North and East Project Area design flow requirements assumption as described in Section 2.6.1. Second, there is the "flow within" condition that is governed by the maximum day delivery to the Fort McMurray area also described in Section 2.6.1. Currently, the flow within condition governs facilities requirements in the North and East Project Area.

The following approach is used as a basis for generating the design flow requirements through the North and East Project Area. First, the design will focus on maximizing the flow in the South of Bens Lake Design Area in order to maximize the utilization of existing facilities in this area. Second, if the design flow requirements in the South of Bens Lake Design Area have been maximized and there is a requirement to transport additional FS productive capability from the area, the design will focus on directing these volumes through the Marten Hills Design Area in order to maximize the utilization of existing facilities in the Marten Hills Design Area. Finally, if both the South of Bens Lake and the Marten Hills Design Areas are flowing at their existing capability and there is a requirement to transport additional FS Productive Capability then the design will focus on transporting these volumes through the Peace River Design Area. Currently, with actual flows below the capability of existing facilities in the South of Bens Lake Design Area, the flow through condition has no impact on facilities requirements in the North and East Project Area for the 2007/08 Gas Year. The flow through design approach is consistent with the development of the North Central Corridor which is described in Section 5.6.2.

4.2 Peace River Project Area

4.2.1 Peace River Design Area

4.2.1.1 Upper Peace River Design Sub Area

The design flow requirements for the Upper Peace River Design Sub Area is the flow out of the area at the Hidden Lake and Meikle River Compressor Stations.

Figure 4.2.1.1 illustrates that historical actual flows declined slightly between the 2001/02 and 2003/04 Gas Years. The historical actual flows were steady during the 2003/04 and 2004/05 Gas Years then declined slightly during the 2005/06 Gas Year.

For the 2002/03, 2003/04, 2004/05 and 2005/06 Gas Years the historical design flow requirements decreased relative to the design flow requirements for the 2001/02 Gas Year due to FS productive capability declines in the area.

For the 2006/07 and 2007/08 Gas Years, the June 2006 design forecast shows winter and summer design flow requirements are slightly lower than the winter and summer design flow requirements in the 2005/06 Gas Year. Beyond the 2007/08 Gas Year the design flow requirements are expected to increase slightly out to the 2010/11 Gas Year. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.2.1.1
Upper Peace River Design Sub Area
Design Flow Requirements and Peak Expected Flows

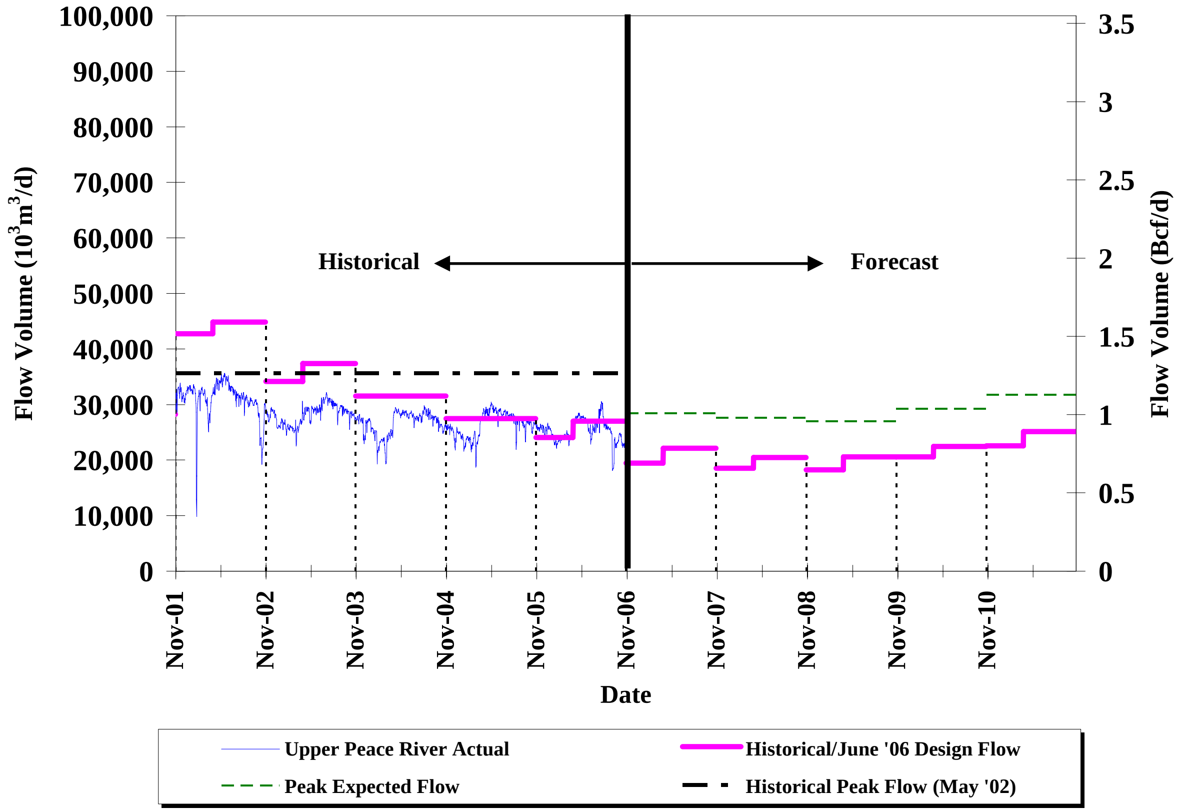

Table 4.2.1.1 shows winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.2.1.1
Upper Peace River Design Sub Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	0.66	18.5	0.98	27.6
2007/08 Summer	0.73	20.4	0.98	27.6

4.2.1.2 Central Peace River Design Sub Area

The design flow requirements for the Central Peace River Design Sub Area is the flow out of the area at the Saddle Hills, Clarkson Valley and Valleyview Compressor Stations. Flow into the area is the flow from the Upper Peace River Design Sub Area.

Figure 4.2.1.2 illustrates that both the historical design flow requirements and the historical actual flow for the 2002/03, 2003/04 and 2004/05 Gas Years decreased relative to the 2001/02 Gas Year due to FS productive capability declines in the area. The historical design flow requirements and the historical actual flow for the 2005/06 Gas Year are similar to those experienced in 2004/05.

The June 2006 design forecast shows a slight decline in winter and summer design flow requirements between the 2006/07 and 2008/09 Gas Years. Beyond 2008/09 the forecasted design flow requirements show slight increases out to the winter season of the 2009/10 Gas Year, then decreases during the summer season of the 2009/10 Gas Year and the 2010/11 Gas Year with the completion of the proposed North Central Corridor as described in Section 5.6.2. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.2.1.2
Central Peace River Design Sub Area
Design Flow Requirements and Peak Expected Flows

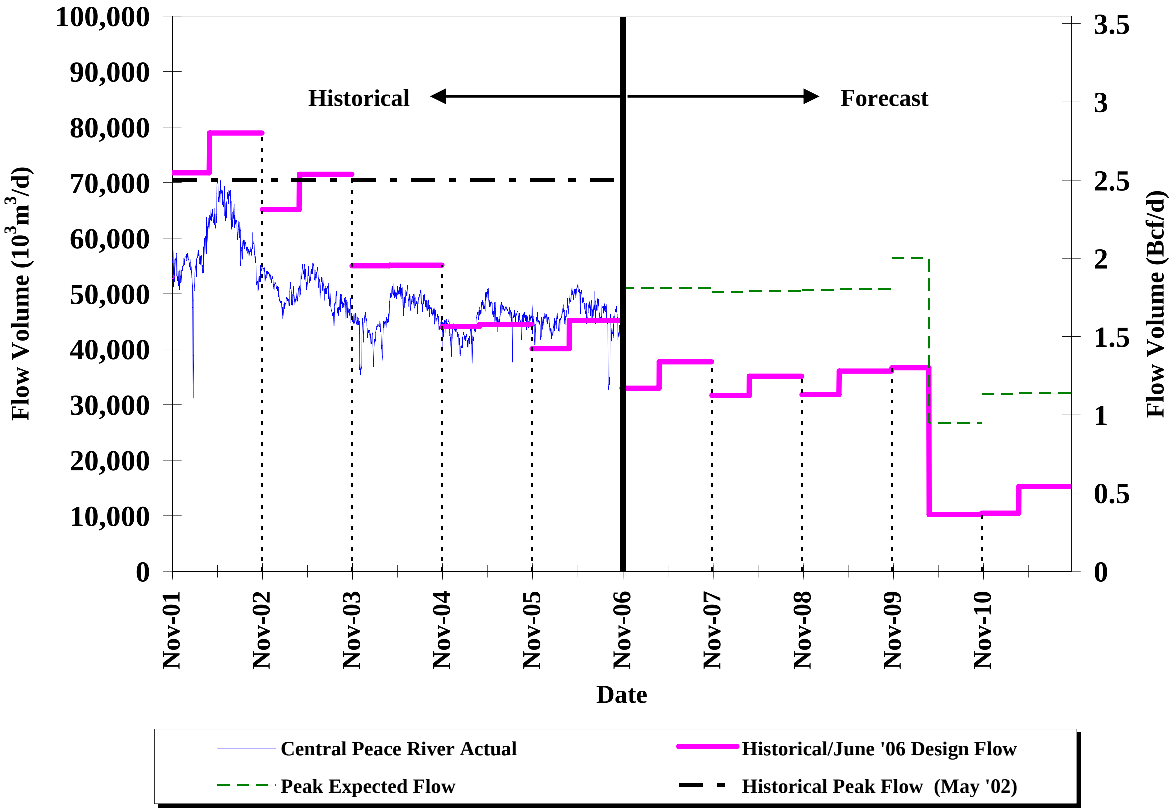

Table 4.2.1.2 shows winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.2.1.2
Central Peace River Design Sub Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	1.12	31.6	1.78	50.2
2007/08 Summer	1.25	35.1	1.79	50.4

4.2.1.3 Lower Peace River Design Sub Area

The design flow requirements for the Lower Peace River Design Sub Area is the flow out of the area from the Grande Prairie Mainline and the Edson Mainline Extension at the Edson Meter Station, excluding the Marten Hills Lateral flow. Flow into the area is the flow from the Central Peace River Design Sub Area.

Figure 4.2.1.3 illustrates that the historical actual and historical design flow requirements have followed similar trends during the 2001/02 and 2002/03 Gas Years. For the 2003/04 Gas Year the historical design flow requirements declined relative to 2002/03 while the historical actual flows increased in 2003/04 relative to 2002/03 due to increased FS productive capability being available from the Lower Peace River Design Sub Area. For the 2004/05 Gas Year both the historical actual flows and the historical design flow requirements were relatively flat. For the 2005/06 Gas Year the historical design flow requirements were down slightly in the winter and up slightly in the summer relative to the historical design flow requirements in 2004/05. The 2005/06 actual flows were up significantly over the 2004/05 actual flows due primarily to increased receipts coming onto the Alberta System within the Lower Peace River Design Area.

For the 2006/07 and 2007/08 Gas Years, the June 2006 design forecast shows a slight decrease in both winter and summer design flow requirements relative to the winter and summer design flow requirements in the 2005/06 Gas Year. For the 2008/09 Gas Year the winter and summer design flow requirements are similar to those projected for the 2007/08 Gas Year. The winter design flow requirements for 2009/10 decline slightly from the 2008/09 levels and decrease further during the summer season of the 2009/10 Gas Year as well as during the 2010/11 Gas Year with the completion of the proposed North Central Corridor as described in Section 5.6.2. The peak expected flows follow a similar trend as the design flow requirements but at somewhat higher flow levels.

Figure 4.2.1.3
Lower Peace River Design Sub Area
Design Flow Requirements and Peak Expected Flows

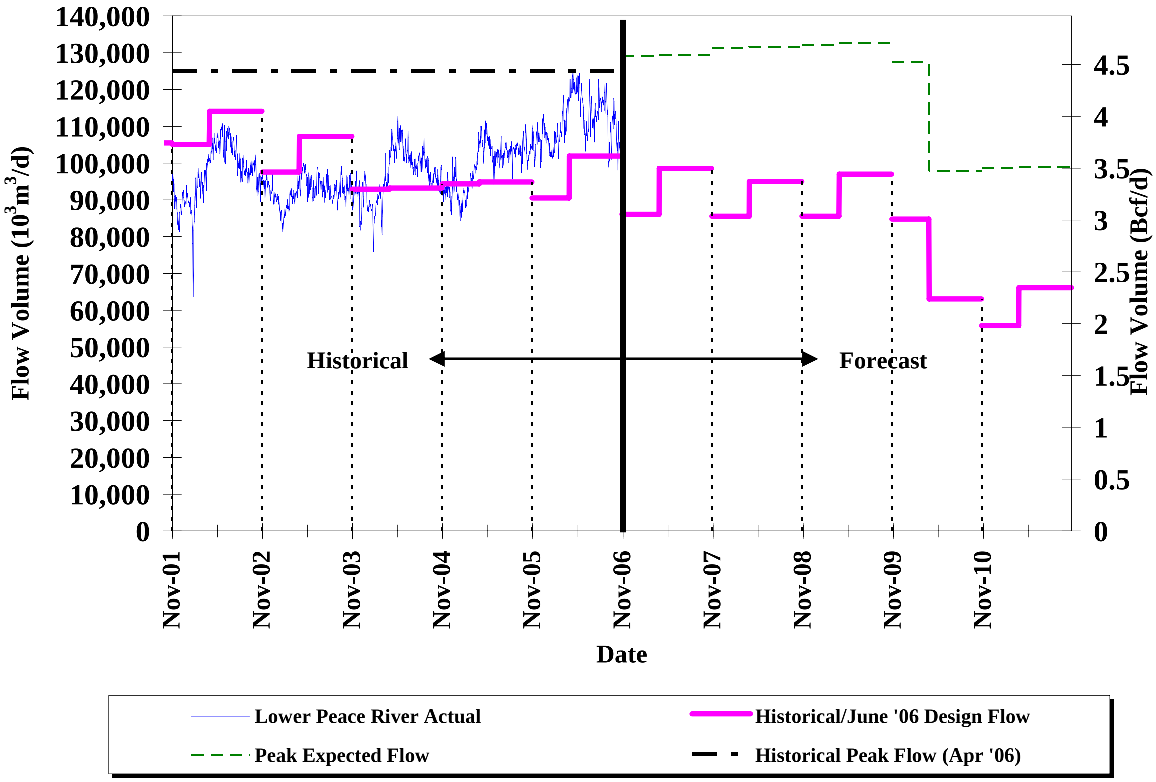

Table 4.2.1.3 shows winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.2.1.3
Lower Peace River Design Sub Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	Bcf/d	$10^6 m^3/d$	$10^6 m^3/d$
2007/08 Winter	3.04	85.5	4.66	131.3
2007/08 Summer	3.37	95.0	4.67	131.7

4.2.2 Marten Hills Design Area

The design flow requirements for the Marten Hills Design Area is the flow out of the area at the Edson Meter Station (excluding the Lower Peace River Design Sub Area flow), the flow across the Marten Hills Crossover and the northward flow, if any, through the Slave Lake Compressor. Design flow requirements in the Marten Hills Design Area will be determined as outlined in Section 4.1 and will be limited by the average winter and summer hydraulic capability of the existing facilities within the area. This is consistent with the long-range plans of maximizing the utilization of existing facilities and optimizing the use of the Marten Hills Design Area within the system. The flow into the area, if any, is the flow from the North of Bens Lake Design Area at the Slave Lake Compressor Station.

Figure 4.2.2.illustrates that historical design flow requirements were relatively flat between the 2001/02 Gas Year and the 2005/06 Gas Year.

The June 2006 design forecast shows the design flow requirements for the winter and summer seasons increase over the period 2006/07 to 2008/09 then remain steady out to 2010/11. This increase in design flow requirements results from increased FS Productive Capability in the area primarily associated with a coal bed methane development in the area. It is anticipated that a portion of these increased flow volumes will move toward the northeast into the North of Bens Lake design area and the remainder will move toward the southwest into the Edson Mainline design area. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.2.2
Marten Hills Design Area
Design Flow Requirements and Peak Expected Flows

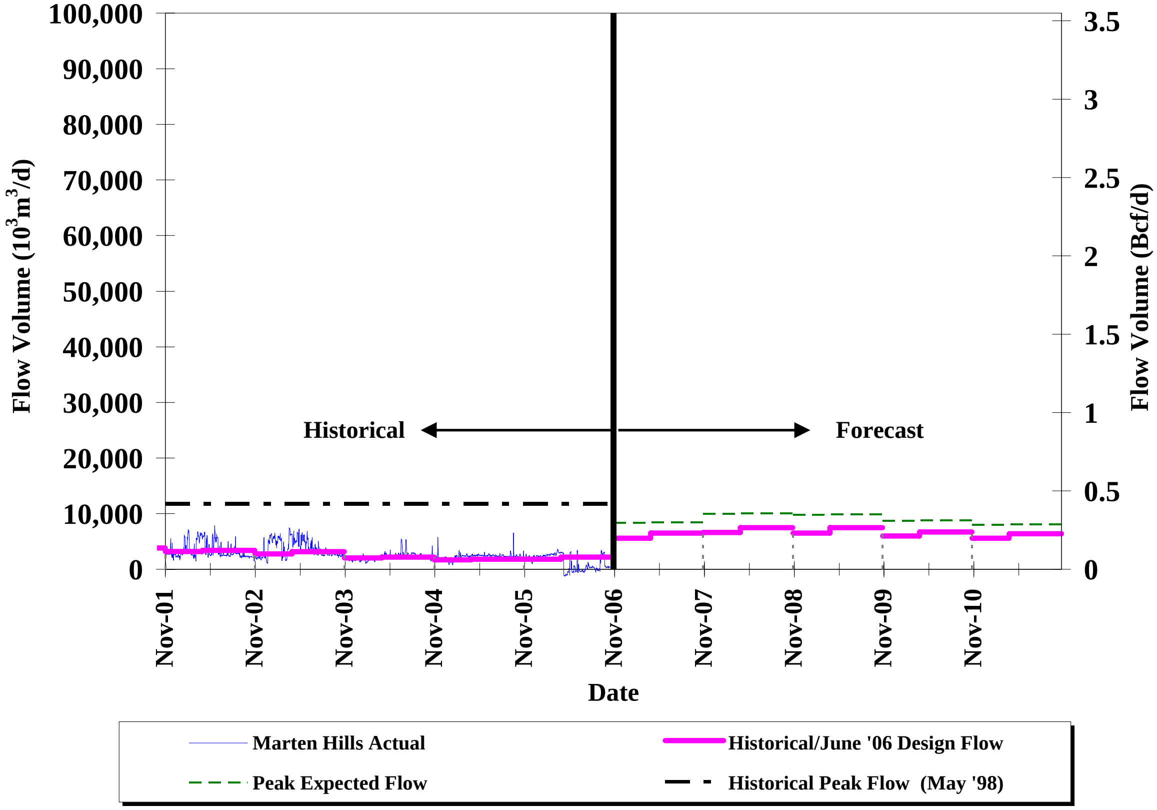

Table 4.2.2 shows the winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.2.2
Marten Hills Design Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	0.24	6.6	0.35	10.0
2007/08 Summer	0.27	7.5	0.36	10.1

4.3 North and East Project Area

4.3.1 North of Bens Lake Design Area

The design flow requirements for the North of Bens Lake Design Area is the flow out of the area at the Bens Lake Compressor Station. Design flow requirements for this area will be determined as outlined in Section 4.1. Flow into the area, if any, is the flow from the Peace River Design Area, via the Wolverine control valve, plus any flow passed from the Marten Hills Design Area at the Slave Lake Compressor Station.

Figure 4.3.1.1 illustrates that historical actual flows and historical design flow requirements follow a similar trend. In particular, historical design flow requirements and actual flows have exhibited a significant decline since the 2001/02 Gas Year.

For the 2006/07 Gas Year, the June 2006 design forecast shows a significant decrease in winter and summer design flow requirements relative to the winter and summer design flow requirements for the 2005/06 Gas Year. This decrease in design flow requirements is primarily due to a significant increase in the projected Alberta deliveries within the area, particularly to the Fort McMurray area, as well as the decrease in FS productive capability available within the design area.

The June 2006 design forecast projects the design flow requirements will continue to decline significantly for the 2007/08 Gas Year through to the winter season of the 2009/10 Gas Year resulting in negative design flow requirements. This signifies that the flow through design assumption will yield a flow condition that moves from south to north rather than the historical north to south flow pattern experienced in this area.

For the summer season of the 2009/10 Gas Year and the 2010/11 Gas Year, the design flow requirements increase with the completion of the proposed North Central

Corridor as described in Section 5.6.2. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.3.1.1
North of Bens Lake Design Area
Design Flow Requirements and Peak Expected Flows

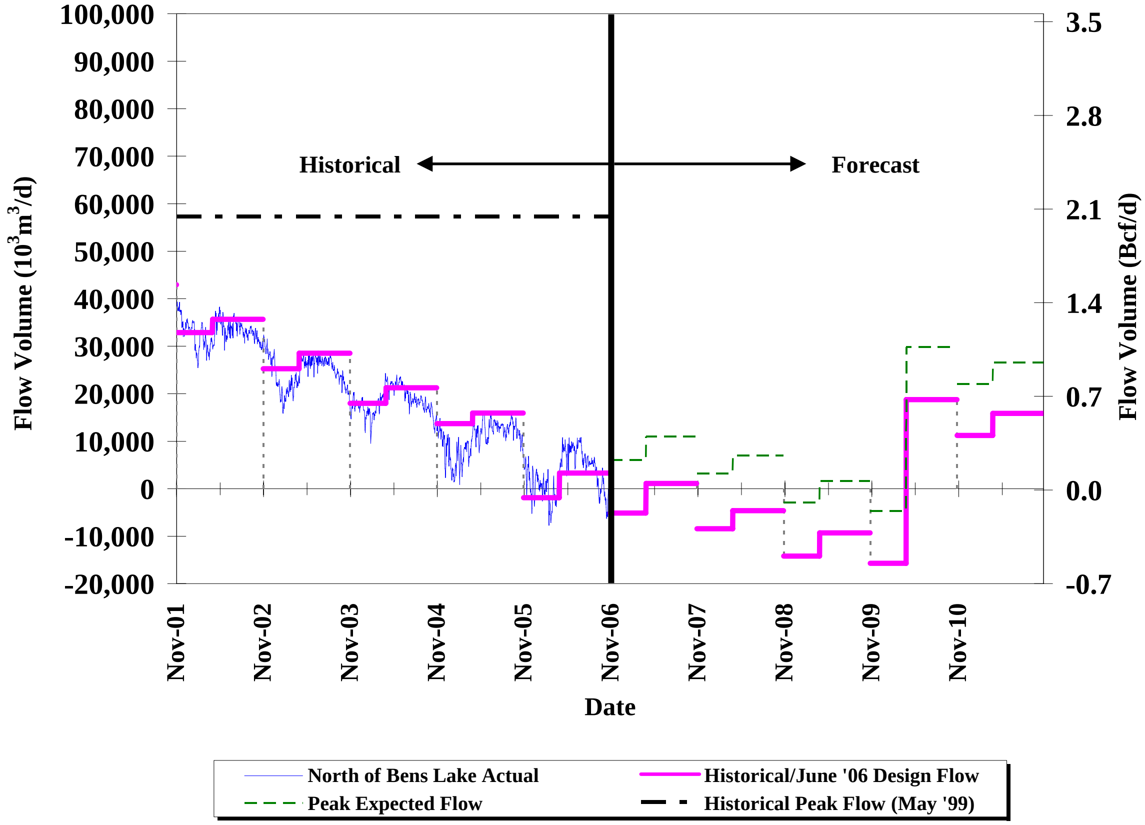

Table 4.3.1.1 shows the winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.3.1.1
North of Bens Lake Design Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	-0.30	-8.4	0.12	3.3
2007/08 Summer	-0.16	-4.6	0.25	7.0

A key consideration for the North of Bens Lake Design Area is the localized growth of Alberta deliveries within this area. As outlined in Chapter 3, Alberta deliveries to the Fort McMurray area are forecast to increase in the future. The FS productive capability required to meet the Fort McMurray maximum day delivery draws from available FS productive capability on the Liege, Logan, Conklin and Kirby Laterals plus the FS productive capability that is brought into the area from the Peerless Lake Lateral, via the North Central Corridor (Buffalo Creek Section).

For the 2007/08 Gas Year it is expected that additional FS productive capability will be transported northward along the Peerless Lake Lateral from the Marten Hills Lateral and the Paul Lake Crossover.

Figure 4.3.1.2 shows the June 2006 forecast winter and summer maximum day delivery to the Fort McMurray area for the 2006/07 Gas Year and the growth through to the 2010/11 Gas Year. The forecast for these area deliveries is a result of the growth in demand for oil sands and heavy oil production, and power generation in the area.

Figure 4.3.1.2
Maximum Day Delivery to the Fort McMurray Area

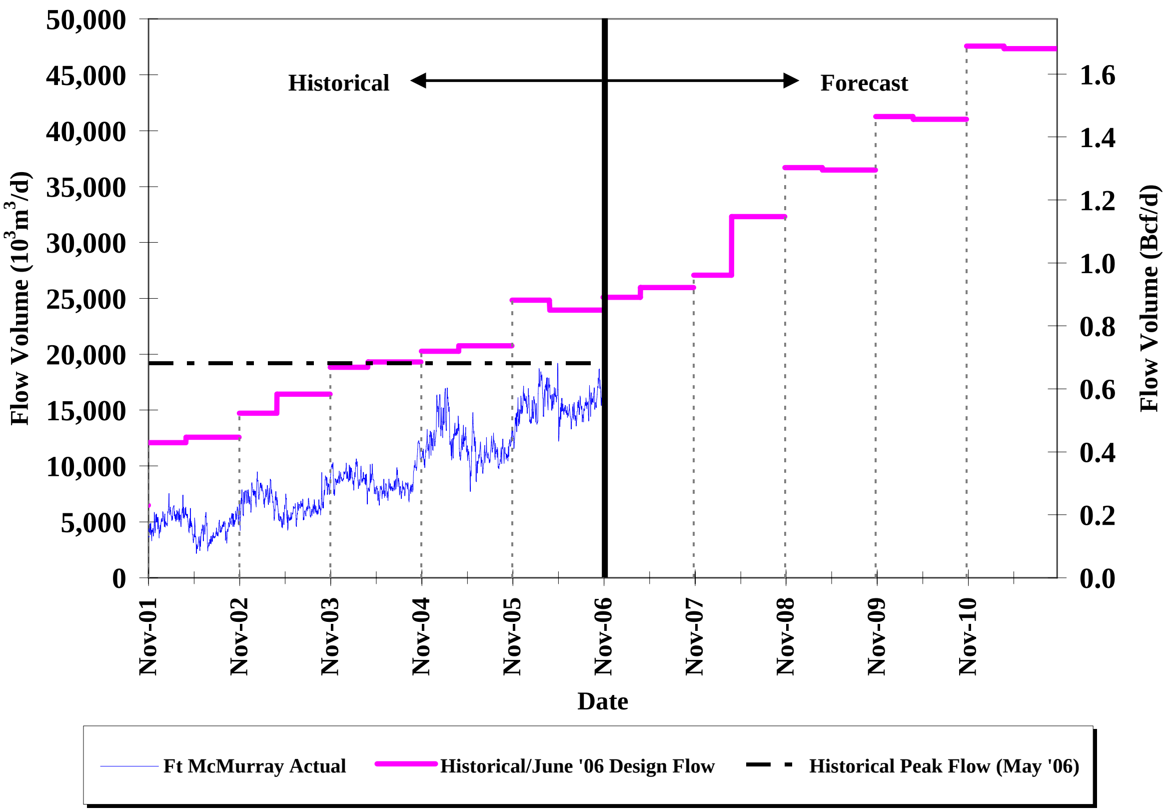

Table 4.3.1.2 shows the winter and summer design flow requirements for the 2007/08 Gas Year.

Table 4.3.1.2
Maximum Day Delivery to the Fort McMurray Area
June 2006 Design Forecast
Design Flow Requirements

Gas Year and Season	Design Flow Requirements	
	Bcf/d	$10^6 m^3/d$
2007/08 Winter	0.96	27.1
2007/08 Summer	1.15	32.3

4.3.2 South of Bens Lake Design Area

The design flow requirements for the South of Bens Lake Design Area is the sum of the flow out of the area at the Princess "A" and Oakland Compressor Stations on the North Lateral and at the Cavendish Compressor Station on the East Lateral. Flow into the area is the flow from the North of Bens Lake Design Area as well as from the Rimbey Nevis Design Area via the Nevis-Gadsby Crossover.

Figure 4.3.2 illustrates the historical design flow requirements show a declining trend between the 2001/02 Gas Year and 2005/06 Gas Year. As shown in the figure, actual flows have exhibited steady declines between the 2001/02 and 2005/06 Gas Years.

The June 2006 design forecast shows a continued decrease in winter and summer design flow requirements out to the winter season of the 2009/10 Gas Year relative to the 2005/06 Gas Year. For the summer season of the 2009/10 Gas Year and the 2010/11 Gas Year the design flow requirements increase with the completion of the proposed North Central Corridor as described in Section 5.6.2. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

The decrease in design flow requirements and peak expected flows prior to the 2010/11 Gas Year, is primarily due to the decrease in flow from the North of Bens Lake Design Area. There is a slight incremental flow contribution to this area from the Rimbey-Nevis Design Area via the Nevis-Gadsby Crossover, however, this contribution is more than offset by the decrease in design flow requirements being experienced from the North of Bens Lake Design Area.

Figure 4.3.2
South of Bens Lake Design Area
Design Flow Requirements and Peak Expected Flows

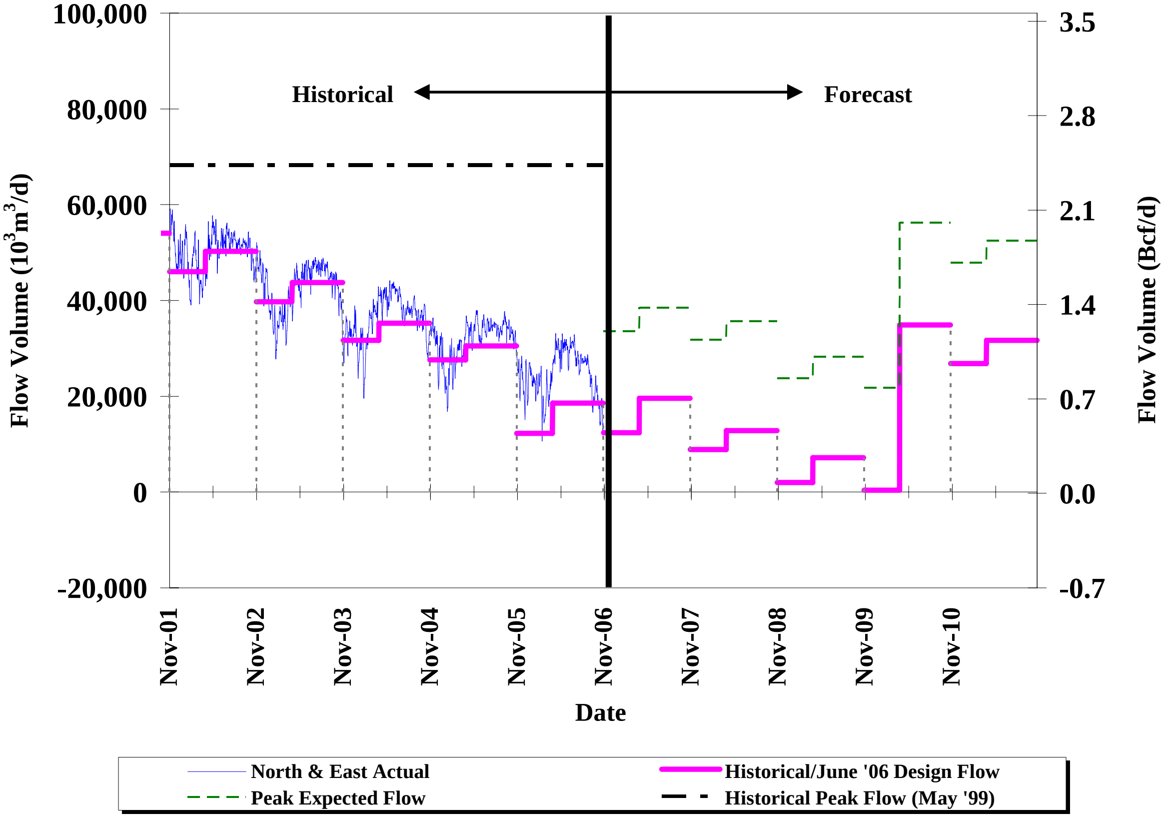

Table 4.3.2 shows winter and summer design flow requirements and the peak expected flows for the 2007/08 Gas Year.

Table 4.3.2
South of Bens Lake Design Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	10^6m^3/d	Bcf/d	10^6m^3/d
2007/08 Winter	0.32	8.9	1.13	31.9
2007/08 Summer	0.46	12.8	1.27	35.7

4.4 Mainline Project Area

4.4.1 Mainline Design Area

4.4.1.1 Edson Mainline Design Sub Area

The design flow requirements for the Edson Mainline Design Sub Area is the flow out of the area at the James River Interchange. Flow into the area is from the Peace River Design Area at the Knight Compressor Station and at the Edson Meter Station and from the Marten Hills Design Area at the Edson Meter Station.

Figure 4.4.1.1 illustrates that for the 2002/03 Gas Year, the historical design flow requirements declined slightly in both the winter and summer seasons relative to the design flow requirements for the 2001/02 Gas Year. The historical design flow requirements declined further in the 2003/04 Gas Year, remained steady for the 2004/05 Gas Year then increased slightly for the 2005/06 Gas Year. The historical actual flows declined during the 2002/03 Gas Year relative to the 2001/02 Gas Year then increased during the 2003/04, 2004/05 and 2005/06 Gas Years relative to the 2002/03 Gas Year due primarily to increased field receipts in the Lower Peace River design sub-area.

Beyond the 2005/06 Gas Year, design flow requirements are forecast to decrease slightly for the 2006/07 Gas Year, then remain steady out to the winter season of the 2009/10 Gas Year. For the summer season of the 2009/10 Gas Year and the 2010/11 Gas Year the design flow requirements decrease with the completion of the proposed North Central Corridor as described in Section 5.6.2. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.4.1.1
Edson Mainline Design Sub Area
Design Flow Requirements and Peak Expected Flows

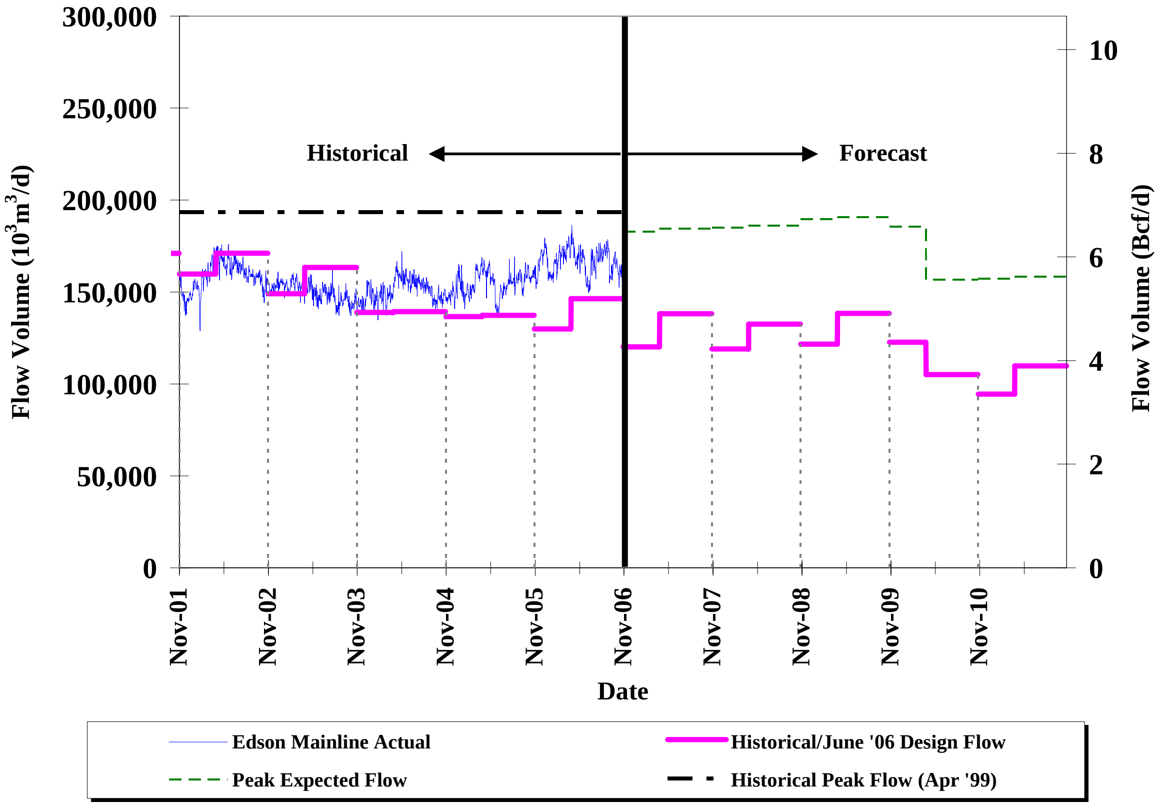

Table 4.4.1.1 shows the winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.4.1.1
Edson Mainline Design Sub Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	4.22	119.0	6.57	185.0
2007/08 Summer	4.70	132.5	6.61	186.3

4.4.1.2 Eastern Alberta Mainline Design Sub Area (James River to Princess)

The design flow requirements for the Eastern Alberta Mainline Design Sub Area (James River to Princess) is the flow out of the area at the Princess “B” Compressor Station and the flow on the Foothills Pipe Lines (Alberta) Ltd. eastern leg. Flow into the area is from the Edson Mainline Design Sub Area, the Rimbey-Nevis Design Area and the South and Alderson Design Area.

Figure 4.4.1.2 illustrates that for the 2002/03 and 2003/04 Gas Years, the historical design flow requirements declined significantly in both the winter and summer seasons. The decrease in design flow requirements was primarily due to a decrease in maximum day delivery expected at the Empress Export Delivery Point. For the 2004/05 and 2005/06 Gas Years the historical design flow requirements increased slightly relative to the 2003/04 Gas Year. The historical actual winter flows increased steadily between 2000/01 and 2002/03 and, decreased slightly in the winter of 2003/04 then increased again during the winters of 2004/05 and 2005/06. The historical actual summer flows decrease slightly in 2003 relative to the summer of 2002, and was about equal during the summer of 2004 relative to the summer of 2003. The actual summer flows increased significantly during 2005 and 2006 relative to 2004 due to strong market demands that were experienced in eastern North America. The difference between actual flows and design flow requirements over the past four gas years reflects shippers’ significant dependence on interruptible transportation at the Eastern Alberta Export Delivery Points.

Design flow requirements are forecast to increase slightly between the 2006/07 and 2007/08 Gas Years as FS productive capability upstream of the Edson Mainline Design Sub Area continues to grow and as the design flow requirements for the South of Bens Lake Design Area continue to decline. Beyond the 2007/08 Gas Year, design flow requirements are forecast to remain steady out to the winter season of the 2009/10 Gas Year, then decline in the summer season of the 2009/10 Gas Year and the 2010/11 Gas Year with the completion of the proposed North Central Corridor as described in Section 5.6.2.

Figure 4.4.1.2
Eastern Alberta Mainline Design Sub Area
(James River to Princess)
Design Flow Requirements

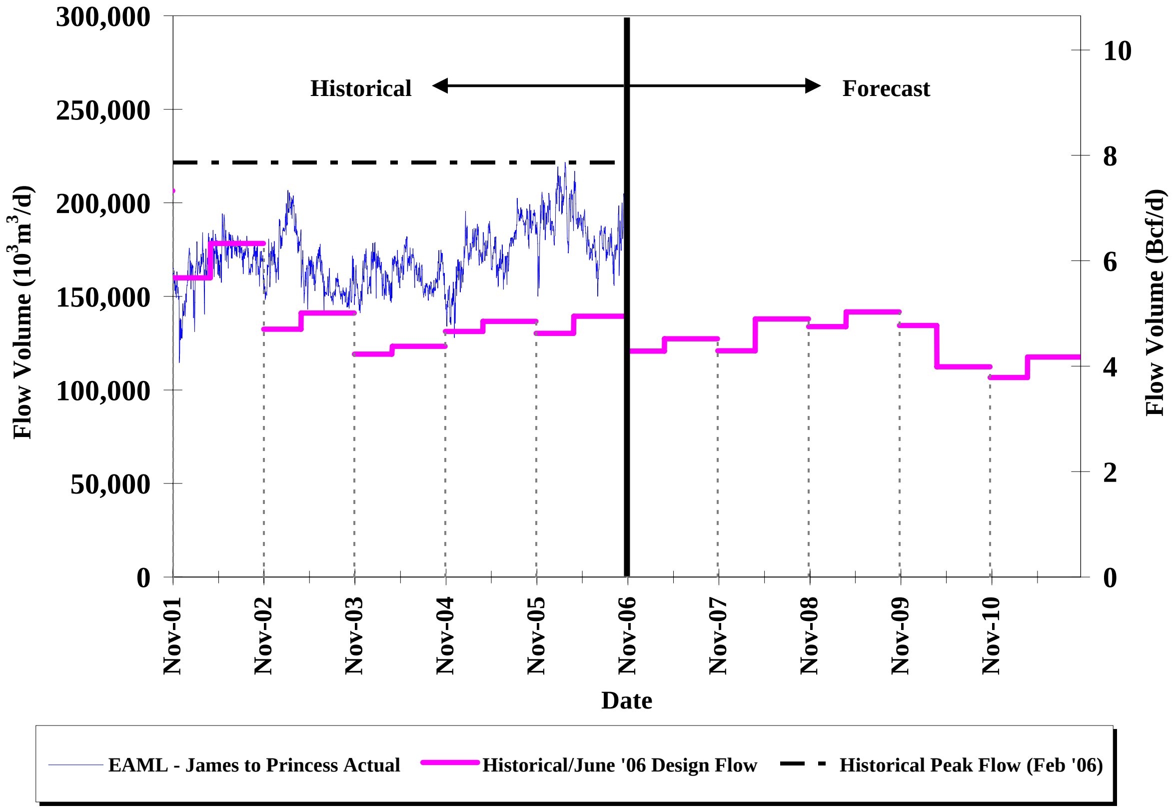

Table 4.4.1.2 shows the winter and summer design flow requirements for the 2007/08 Gas Year.

Table 4.4.1.2
Eastern Alberta Mainline Design Sub Area
(James River to Princess)
June 2006 Design Forecast
Design Flow Requirements

Gas Year and Season	Design Flow Requirements	
	Bcf/d	$10^6m^3/d$
2007/08 Winter	4.29	120.9
2007/08 Summer	4.90	137.9

4.4.1.3 Eastern Alberta Mainline Design Sub Area (Princess to Empress/McNeill)

The design flow requirements for the Eastern Alberta Mainline Design Sub Area (Princess to Empress/McNeill) is the flow out of the area at the Empress and McNeill Export Delivery Points. The flow into the area is from the North and East Project Area, the Eastern Alberta Mainline Design Sub Area (James River to Princess) and the Medicine Hat Design Area.

Figure 4.4.1.3 illustrates that for the 2002/03 and 2003/04 Gas Years the design flow requirements decreased significantly in both the winter and summer seasons. The decrease in design flow requirements is primarily due to a decrease in maximum day delivery expected at the Empress Delivery Point. For the 2004/05 winter and summer seasons the design flow requirements increased slightly relative to the 2003/04 winter and summer seasons. For the 2005/06 winter and summer seasons the design flow requirements decreased relative to the 2004/05 winter and summer seasons. The actual flows for 2002/03 were near historic peaks for a brief period in late February 2003 when demands in eastern North American markets were relatively high. Actual flows during the 2003 summer season, however, were well below those observed in the 2002 summer season. Actual flows during the 2003/04 winter season were slightly below those observed during the 2002/03 winter season while the 2004 summer flows were about the same as those observed during the 2003 summer season. Actual flows during the 2004/05 and 2005/06 Gas Years increased relative to the flows experienced during the 2003/04 Gas Year due to a return of strong demands in eastern North American markets. The difference between actual flows and design flow requirements over the past five gas years reflects shippers' significant dependence on interruptible transportation at the Eastern Alberta Export Delivery Points.

The June 2006 design forecast shows that winter and summer design flow requirements will decrease in the 2006/07 Gas Year relative to the design flow requirements for the 2005/06 Gas Year. The design flow requirements decline slightly during the 2007/08 Gas Year and will continue to decline out to 2010/11. This behaviour corresponds with the forecast of maximum day delivery at the Empress and McNeill Export Delivery Points.

Figure 4.4.1.3
Eastern Alberta Mainline Design Sub Area
(Princess to Empress/McNeill)
Design Flow Requirements

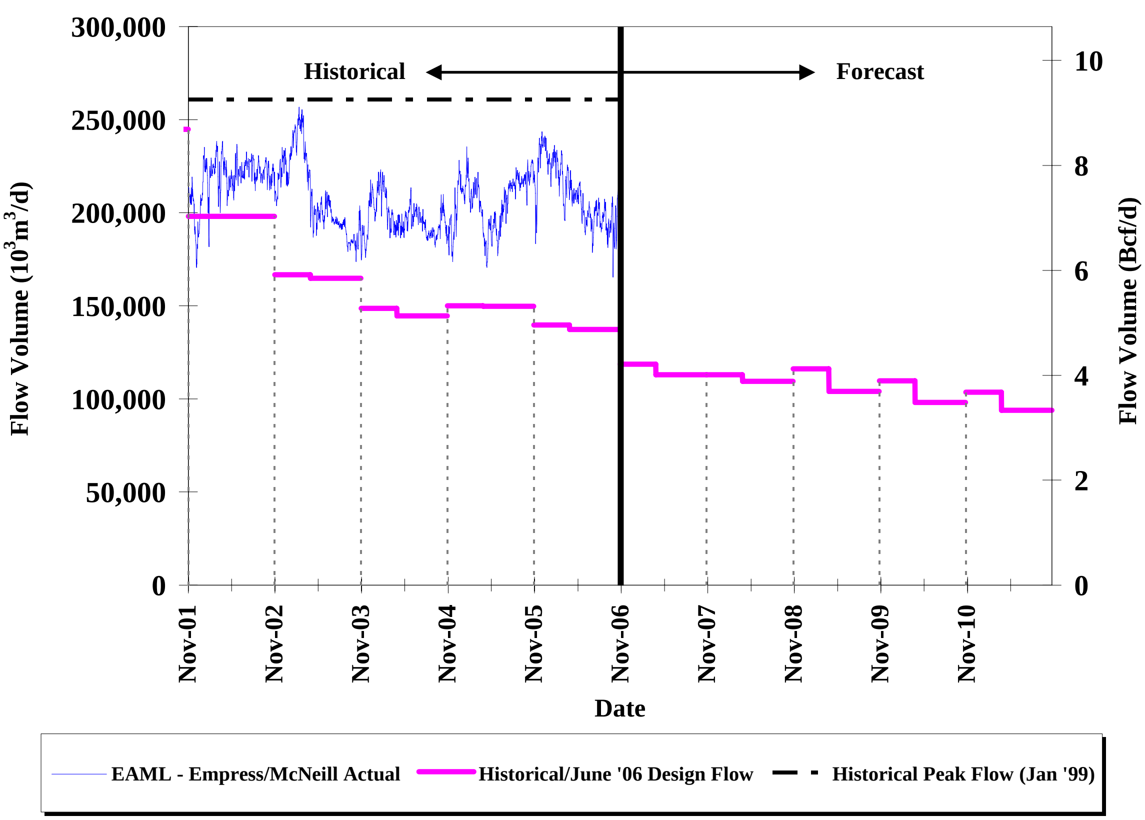

Table 4.4.1.3 shows the winter and summer design flow requirements for 2007/08 Gas Year.

Table 4.4.1.3
Eastern Alberta Mainline Design Sub Area
(Princess to Empress/McNeill)
June 2006 Design Forecast
Design Flow Requirements

Gas Year and Season	Design Flow Requirements	
	Bcf/d	$10^6m^3/d$
2007/08 Winter	4.01	113.0
2007/08 Summer	3.89	109.5

4.4.1.4 Western Alberta Mainline Design Sub Area

The design flow requirements for the Western Alberta Mainline Design Sub Area is the flow out of the area at the Alberta/British Columbia Export Delivery Point as well as the flow out of the area at the Alberta/Montana Export Delivery Point. Flow into the area is from the Edson Mainline Design Sub Area and the South and Alderson Design Area.

Figure 4.4.1.4 illustrates that in the Gas Years from 2001/02 to 2005/06 inclusive, actual flows were quite low as a result of low demand from the Pacific Northwest and California markets, and increased flow to the Eastern Alberta Export Delivery Points.

For the 2006/07 Gas Year, the June 2006 design forecast shows the winter and summer design flow requirements decrease relative to the winter and summer design flow requirements for the 2005/06 Gas Year. The design flow requirements continue to decrease out to the 2010/11 Gas Year. This behaviour corresponds to the forecast of maximum day delivery at the Alberta/British Columbia and Alberta/Montana Export Delivery Points.

Figure 4.4.1.4
Western Alberta Mainline Design Sub Area
Design Flow Requirements

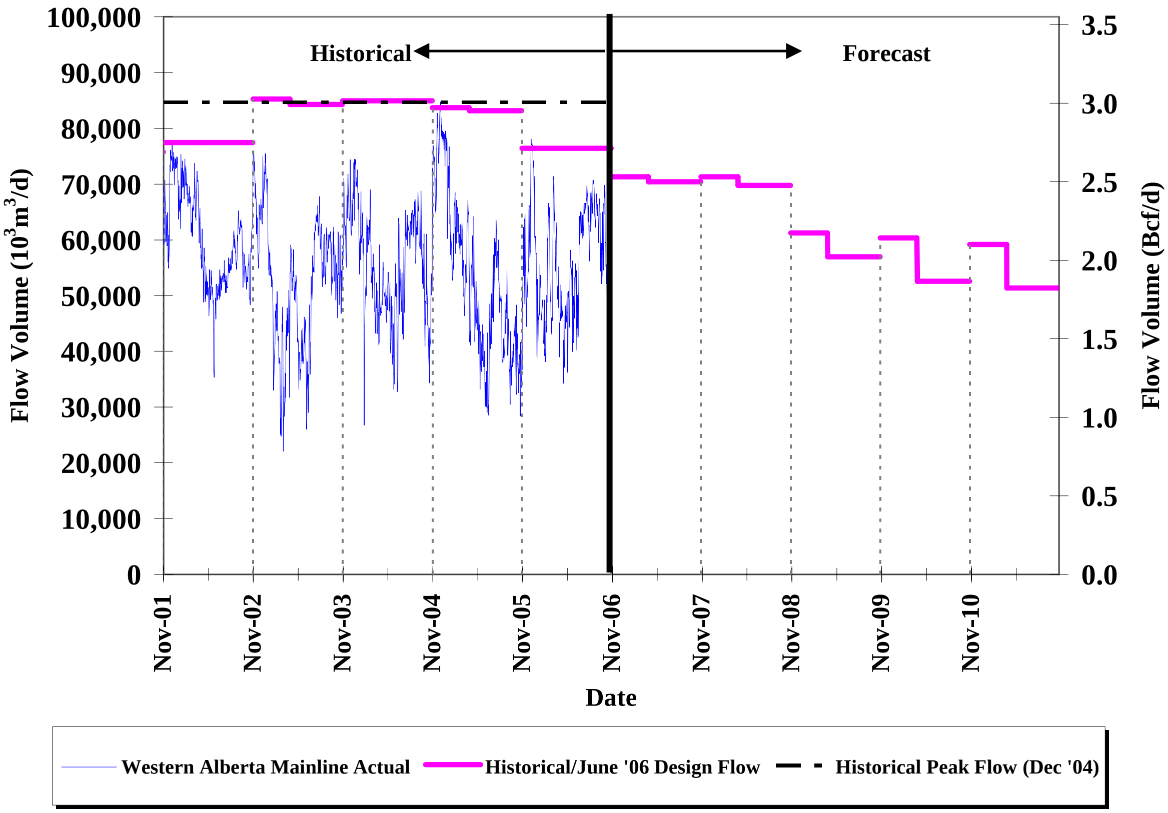

Table 4.4.1.4 shows the winter and summer design flow requirements for the 2007/08 Gas Year.

Table 4.4.1.4
Western Alberta Mainline Design Sub Area
June 2006 Design Forecast
Design Flow Requirements

Gas Year and Season	Flow	
	Bcf/d	10^6m^3/d
2007/08 Winter	2.53	71.3
2007/08 Summer	2.48	69.8

4.4.2 Rimbey-Nevis Design Area

The design flow requirements for the Rimbey-Nevis Design Area are the flow out of the area at the Hussar “A” Compressor Station and the Nevis-Gadsby Crossover.

Figure 4.4.2 illustrates that historical actual flows and historical design flow requirements follow a similar trend. The fluctuations between winter and summer actual flows are due to storage injections in the summer and storage withdrawals in the winter at the Carbon storage facility located within this design area.

The June 2006 design forecast shows an increase in winter and summer design flow requirements for the 2006/07 and 2007/08 Gas Years relative to the design flow requirements shown for the 2005/06 Gas Year. Beyond the 2007/08 Gas Year the design flow requirements decrease slightly each year to the 2010/11 Gas Year. This behaviour in design flow requirements is primarily due to the pattern of FS productive capability development expected to occur primarily on the Nevis lateral due to a number of existing and proposed coal bed methane projects. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.4.2
Rimbey-Nevis Design Area
Design Flow Requirements and Peak Expected Flows

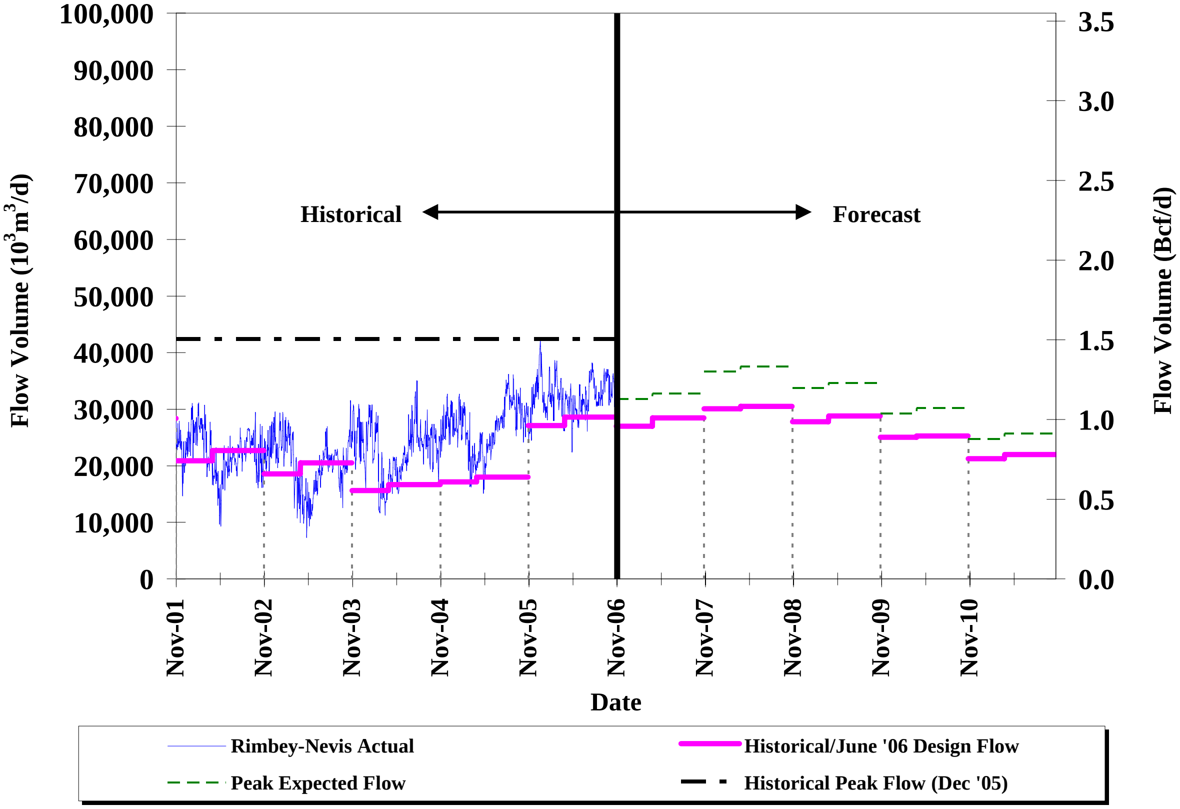

Table 4.4.2 shows the winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.4.2
Rimbey-Nevis Design Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flow	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	1.07	30.1	1.30	36.6
2007/08 Summer	1.08	30.5	1.33	37.6

4.4.3 South and Alderson Design Area

The design flow requirements for the South and Alderson Design Areas are the flow out of the area to the Princess Compressor Station and the flow out of the area to the Drywood Compressor Station.

A greater quantity of gas from the South Lateral can be directed towards the Western Alberta Mainline Design Sub Area via the Drywood Compressor Station, located on the Waterton Montana Lateral. The ability also exists to flow gas from the South Lateral to the Princess Compressor Station.

Figure 4.4.3 illustrates that the historical design flow requirements declined slightly during the 2002/03 and 2003/04 Gas Years then remain flat during the 2004/05 and 2005/06 Gas Years. The historical actual flows remained steady out to the 2004/05 Gas Year then declined slightly during the 2005/06 Gas Year.

The June 2006 design forecast shows that winter and summer design flow requirements will decrease slightly during the 2006/07 and 2007/08 Gas Years, increase slightly out to the 2009/10 Gas Year, then remain steady for the 2010/11 Gas Year. The peak expected flows follow a similar trend as the design flow requirements but at higher flow levels.

Figure 4.4.3
South and Alderson Design Area
Design Flow Requirements and Peak Expected Flows

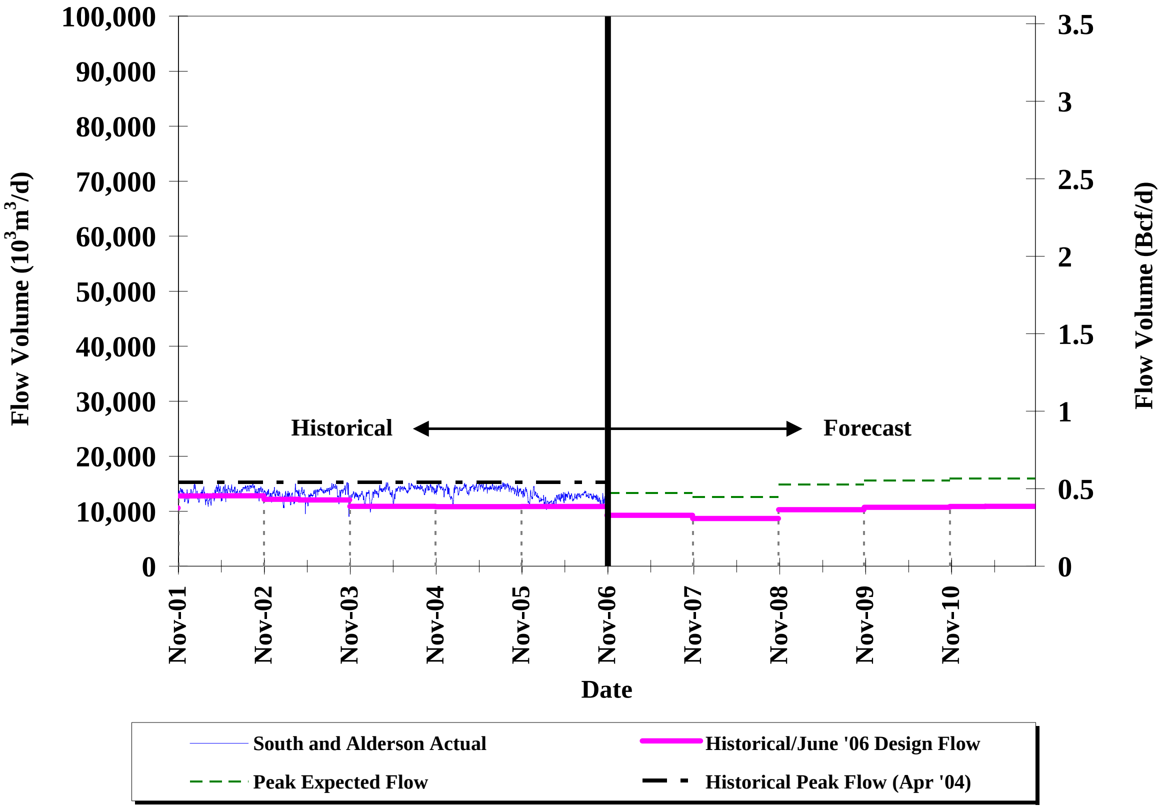

Table 4.4.3 shows the winter and summer design flow requirements and peak expected flows for the 2007/08 Gas Year.

Table 4.4.3
South and Alderson Design Area
June 2006 Design Forecast
Design Flow Requirements and Peak Expected Flows

Gas Year and Season	Design Flow Requirements		Peak Expected Flows	
	Bcf/d	$10^6m^3/d$	Bcf/d	$10^6m^3/d$
2007/08 Winter	0.31	8.7	0.45	12.6
2007/08 Summer	0.31	8.7	0.45	12.6

4.4.4 Medicine Hat Design Area

The Medicine Hat Design Area is unique in that most of the gas produced within this area is required to meet maximum day delivery within the area.

Average receipt flows under conditions of maximum day delivery within the area best describe the design condition most likely to occur in the Medicine Hat Design Area and are therefore used to represent a reasonable constraining design condition. The design flow requirements for the Medicine Hat Design Area is the net flow to the Alberta deliveries within this area. The maximum day delivery forecast is critical to the design of facilities for the Medicine Hat Design Area (see Section 2.6.2).

Figure 4.4.4 illustrates that historical actual flows and historical design flow requirements follow a similar trend.

The June 2006 design forecast shows that winter and summer design flow requirements will increase slightly out to the 2010/11 Gas Year reflecting a moderate growth of deliveries within the area.

Figure 4.4.4
Medicine Hat Design Area
Maximum Day Delivery

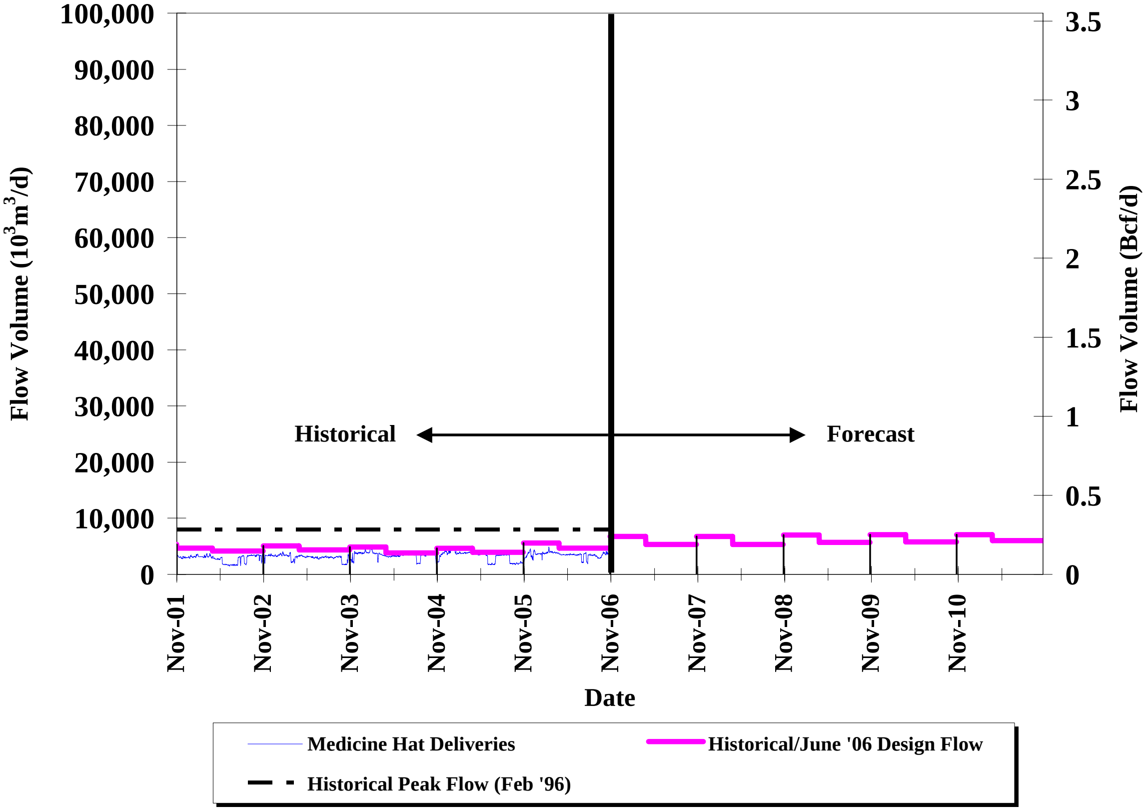

Table 4.4.4 shows the winter and summer maximum day delivery for the 2007/08 Gas Year.

Table 4.4.4
Medicine Hat Design Area
June 2006 Design Forecast
Maximum Day Delivery

Gas Year and Season	Flow	
	Bcf/d	$10^6m^3/d$
2007/08 Winter	0.24	6.7
2007/08 Summer	0.19	5.3