Prudhoe Bay Unit
Capacity Details

General

The PBU consists primarily of two major processing operations:

- The Initial Participating Areas (IPA) facilities that service the IPA (which produces the main Prudhoe field) and several PBU participating areas formed to produce satellite fields.

- The Lisburne Production Center (LPC) that services the Lisburne Participating Area and certain nearby Participating Areas, which produce to that facility.

To date, these two major processing operations have been essentially independent of each other in so far as oil and gas processing operations are concerned. However, in the first quarter of 2004, a field optimization project is planned for start-up that will allow some of the Pt. McIntyre production to be processed at IPA facilities. This change will not result in excess capacity at either field but will further optimize use of the processing capacity.

Within the IPA facilities, there are six separate major production processing centers that are operated in a coordinated manner with a central power station, a central gas processing facility, a central compressor (injection) facility, and a central sea water treatment plant. These IPA facilities operate as an integrated "system" and changes or constraints in any one part of the system generally affect operations in nearly any other part. In other words, the processing capacity of a particular facility is dependent not only upon the specific wells/production being processed by that facility, but also by the wells/production being processed by the other facilities at the same time.

The current oil processing capacity of both the IPA facilities and the LPC are generally limited by the amount of associated gas that can be processed and injected. In other words, some of the water and oil processing capacities cannot be used because of the inability to process and inject the increasingly higher quantity of gas that is produced with the oil and water.

Gas capacity is not constant, but varies substantially in relation to the ambient temperatures. This is because gas compressors are powered by gas turbines whose efficiency and power output vary significantly with the ambient air temperatures (colder ambient temperatures yield high horsepower outputs and increase gas compression capacities). Due to significant variations in gas handling capacity resulting from temperature fluctuations, it is difficult to achieve the capacity on any given day let alone on a monthly or annual average.

A significant factor that generally affects capacity is equipment downtime. Most of the production equipment utilized on the North Slope is large volume equipment, and any downtime in any of the integrated equipment will decrease overall capacity. This capacity impact is further aggravated by the fact that downtime is normally not a one day situation and may extend for several days due to the circumstances associated with the equipment. Wells are routinely choked back to

stay within the capacity confines of the overall system, despite the fact that the individual production processing centers may have surplus processing capacity. Conversely, if it is a processing center that is down, the other processing centers will increase the rates of production in an effort to mitigate the production impact. However, the impact cannot be entirely mitigated, because the incremental production would normally be from wells with higher Gas-Oil Ratios (GORs).

Similar to gas, the amount of associated water handled may limit pipeline and oil processing capacities in some cases.

Production Capacity Detail

As stated in the general section, there is not a single system capacity nor is there a single number that can be associated with the capacity of any single facility without regard to the quantities being processed by other facilities. The capacity of each major facility is shown in Table 1. Figures 1 - 8 show historical production of the major components.

Oil Production

- Most facilities are operating under their peak oil rates and might appear to have surplus oil treating and shipping capacity. However, this apparent surplus capacity cannot be used in practice because gas and water limits at the same facilities are generally realized, limiting ability to process additional well fluids.

- For oil treating considerations, GC 3 and FS 3 must be considered a single entity and only one capacity assigned to both.

Gas Production

- Gas production through separation facilities is governed by separation train, flare system and gas dehydration system limits that vary throughout the year and by facility. During warmer periods of the year, when gas turbines operate at lower efficiency, gas compression limits at the CGF and CCP generally restrict gas production on a field-wide basis. During colder periods of the year, the CGF and CCP gas compression capacity is roughly equal to the gas dehydration capacity of the FSs and GCs and each processing center operates close to its gas-handling limit. When this occurs, the FSs/GCs start to experience difficulties with their dehydration trains (increased carryover, high gas dewpoint). While this may not directly impact gas production, it adversely affects the CGF's ability to make NGLs and MI as some processing trains are bypassed or artificially warmed due to poor gas quality.

- The LP compression capacity of the FSs and GCs also limits LP production and imposes a further restraint on the ability of a single processing center to achieve its capacity.

Miscible Injectant

- The MI compressor capacity at the CGF is not fully loaded at this time since MI yields have dropped over time.

NGLs

- NGL production is limited by the demand for NGLs at Kuparuk and the amount that can be blended with the crude stream at PS1 to stay within TAPS vapor pressure limits.

Artificial Lift

- AL gas compression is not fully utilized, and currently has approximately 300 MMscfpd capacity available. However, because AL gas is processed through the FS and GC gas compression and dehydration systems, any increase in AL gas will reduce formation gas production due to the gas system limitations previously mentioned.

Water Handling

- Currently FS-1, FS-2, GC-2 and LPC are operating at water handling limits. GC-1 will soon be operating at its water-handling limit when some production from Pt. McIntyre is routed to GC-1.

Water Injection

- STP and SIP are currently operating at their limits on injection and processing capacity.

Electric Power

- There is currently spare electrical power generation capacity available at CPS, however current development plans are expected to utilize this power.
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Diesel

- Except during peak winter demand periods, the COTU normally does not run at capacity. The COTU is not capable of producing ultra-low sulfur diesel.

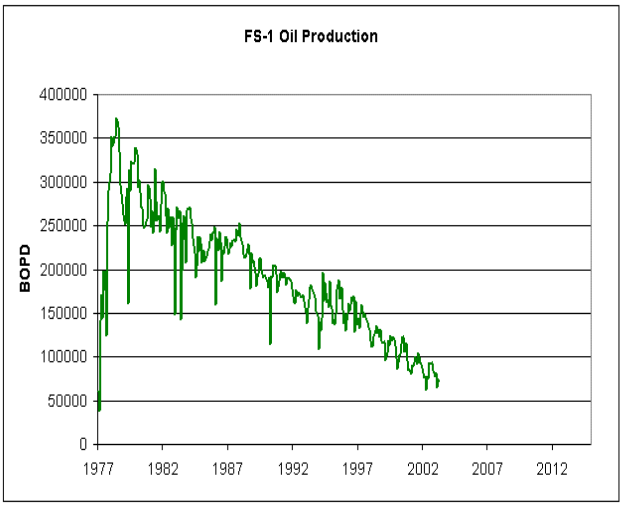
Table 1

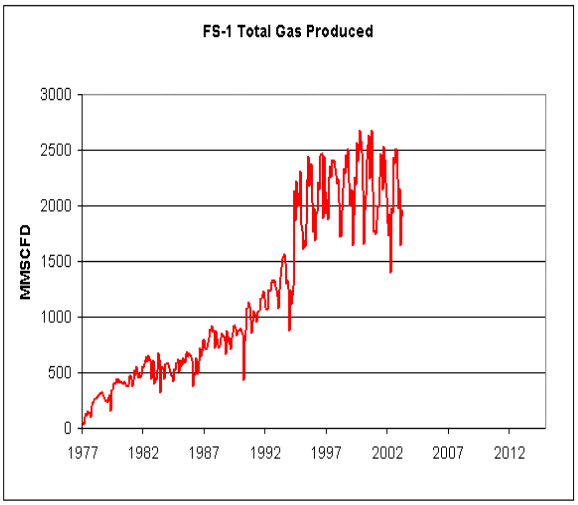
The capacity of each major facility is shown in the following table. However, in actual operations, the capacity of a single facility for a given component cannot be viewed in isolation and instead must be viewed in the context of the overall PBU system and other factors, such as weather and TAPS pro-rations. As such, rarely, if ever, can the capacity of more than one component (oil, water, or gas) be achieved simultaneously.

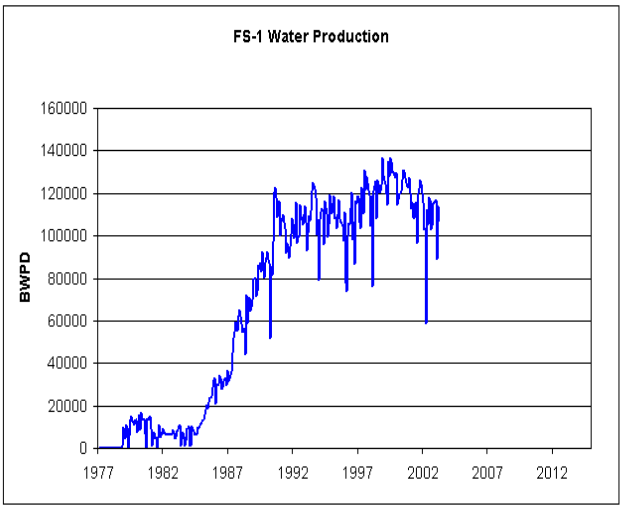
Facility	Oil Capacity MBD	Water Capacity MBD	Gas Capacity MMSCF	Gas Lift Gas Compression Capacity MMSCF
FS-1	360	130	2800	
FS-2	360	650	1150	
FS-3	360	240	1350	460
GC-1	330	150	2600	900
GC-2	250	300 *	1070	
GC-3	**	250	1100	
LPC	205	160	470	
CGF			8700	

* PW Tank currently out of service limits water to ~230 MBWPD
** GC-3 oil processing equipment was taken out of service; must consider GC-3 and FS-3 as single entity for oil processing capacity considerations

Figure 1
FS-1 Production History







Capacity footnote:
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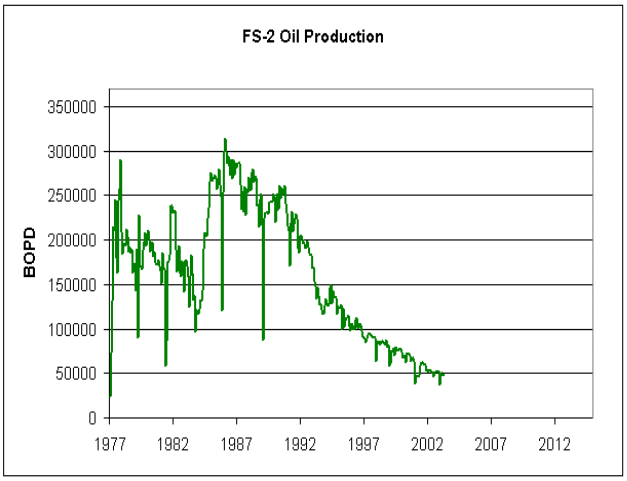
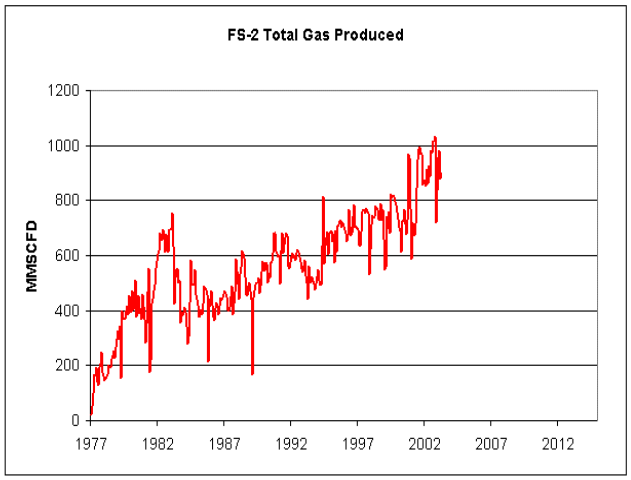
Figure 2
FS-2 Production History





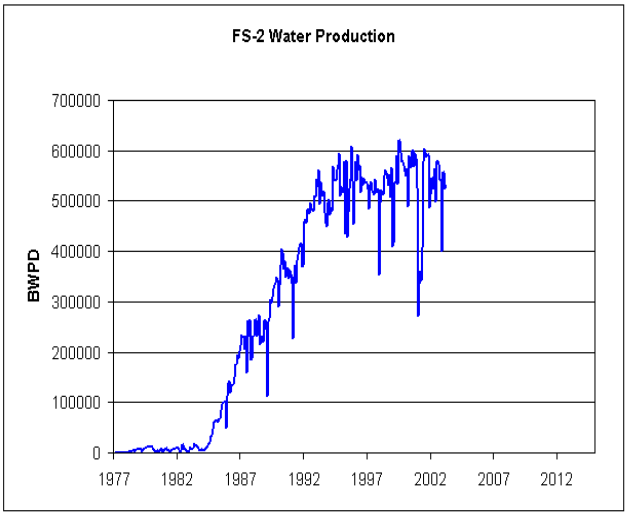


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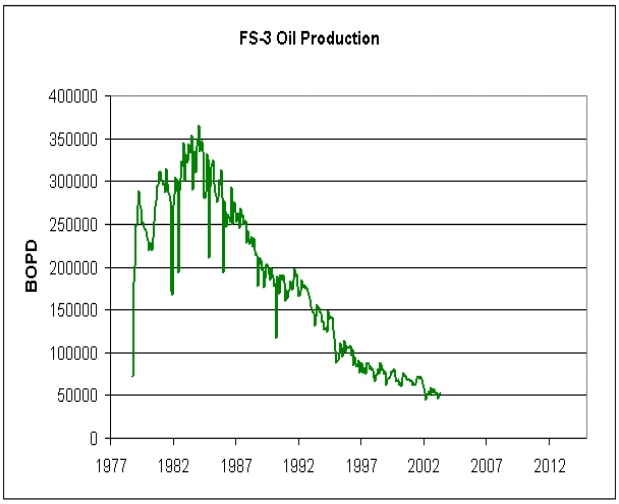
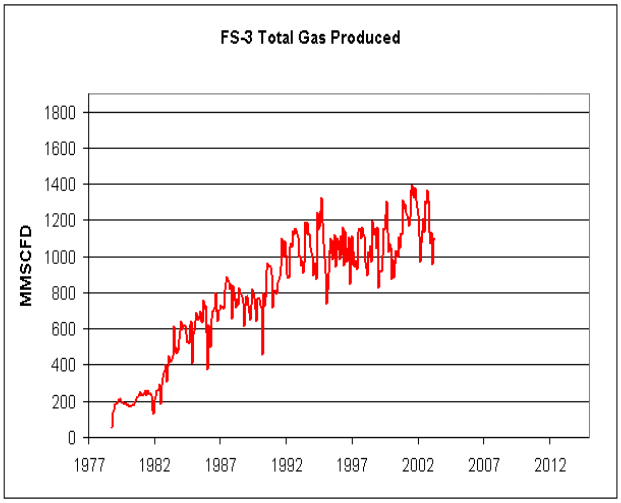
Figure 3
FS-3 Production History





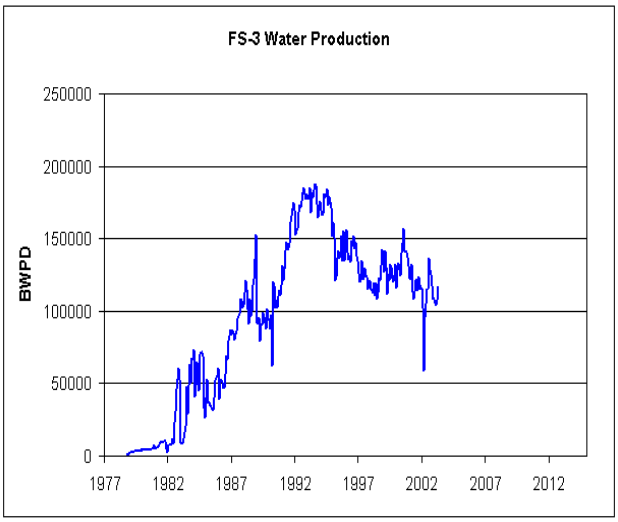


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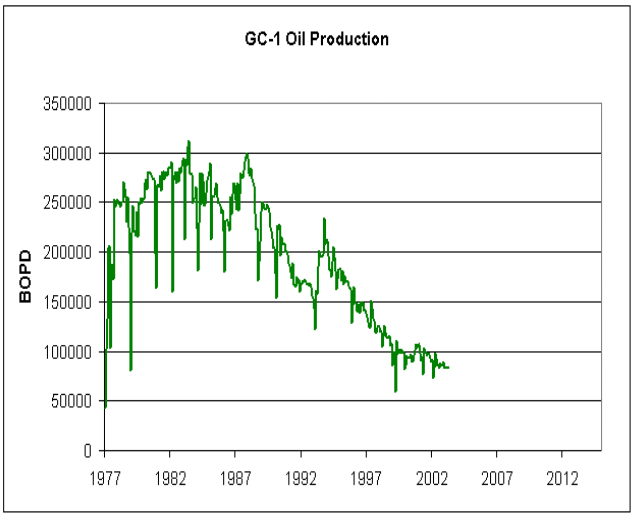
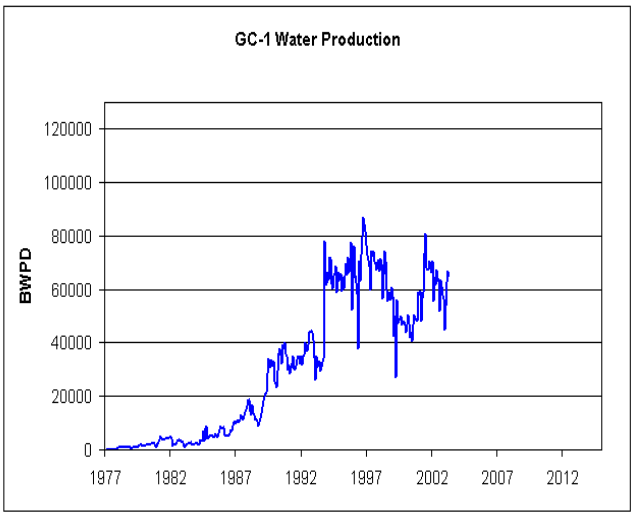
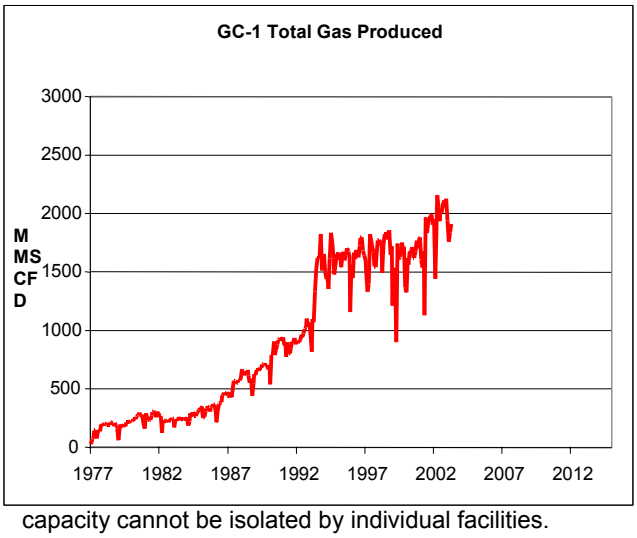
Figure 4
GC-1 Production History







capacity cannot be isolated by individual facilities.

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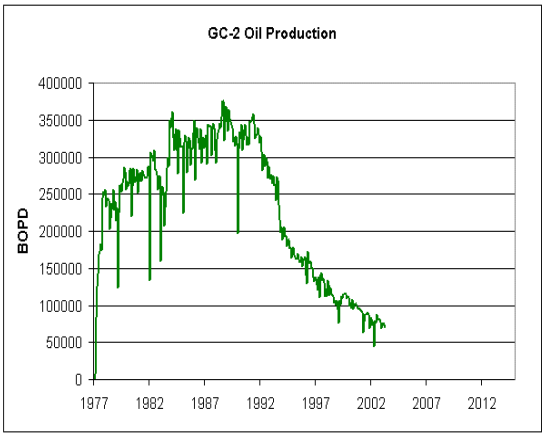
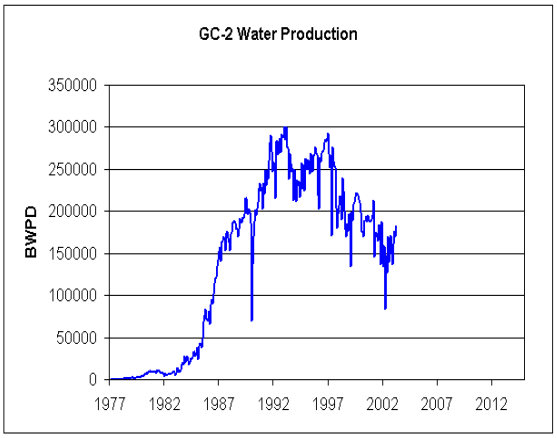
Figure 5
GC-2 Production History





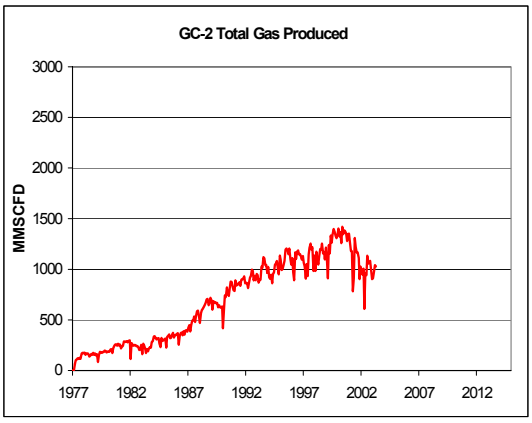


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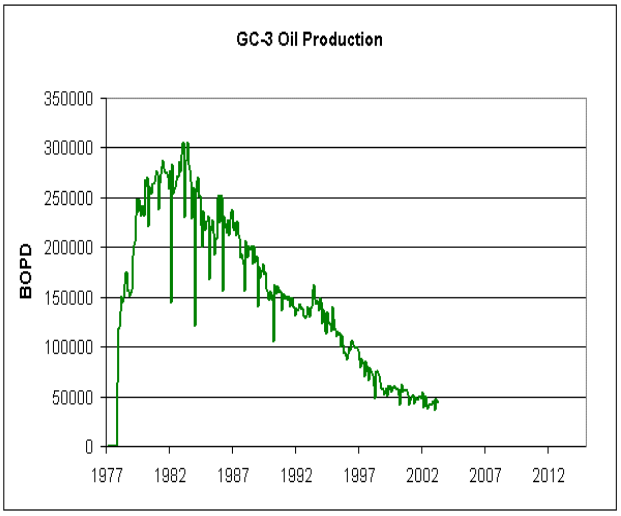
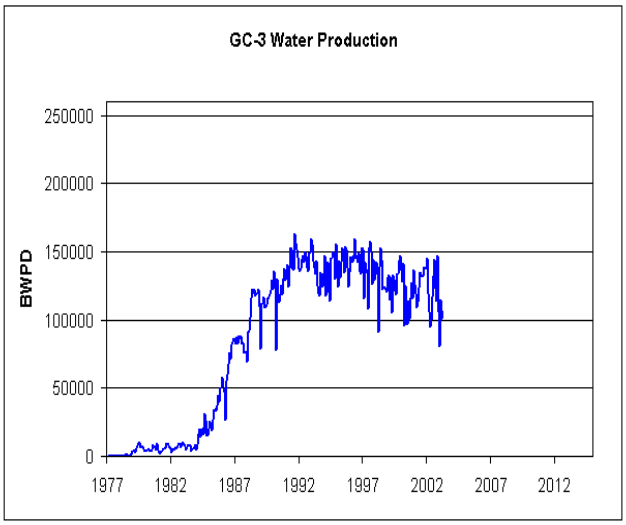
Figure 6
GC-3 Production History





* GC-3 has been converted to a partial processing facility. All finished oil is processed though FS-3.

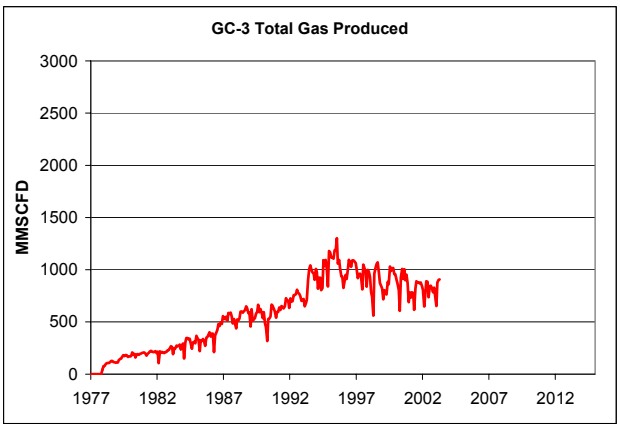


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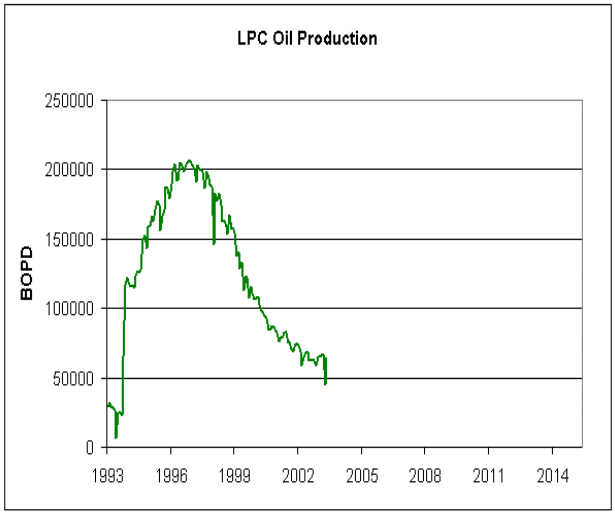
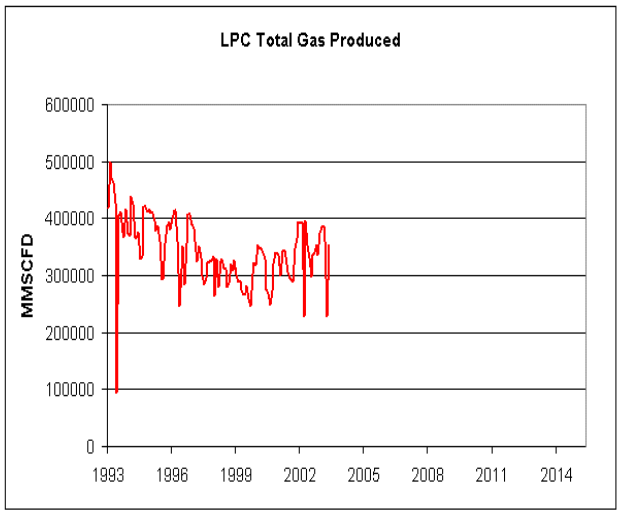
Figure 7
LPC Production History





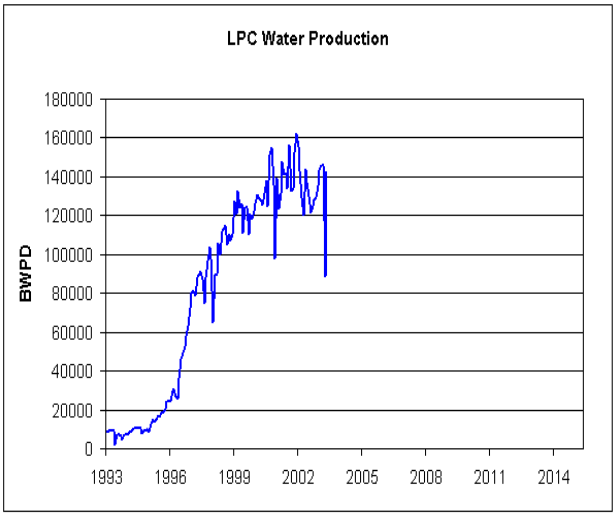


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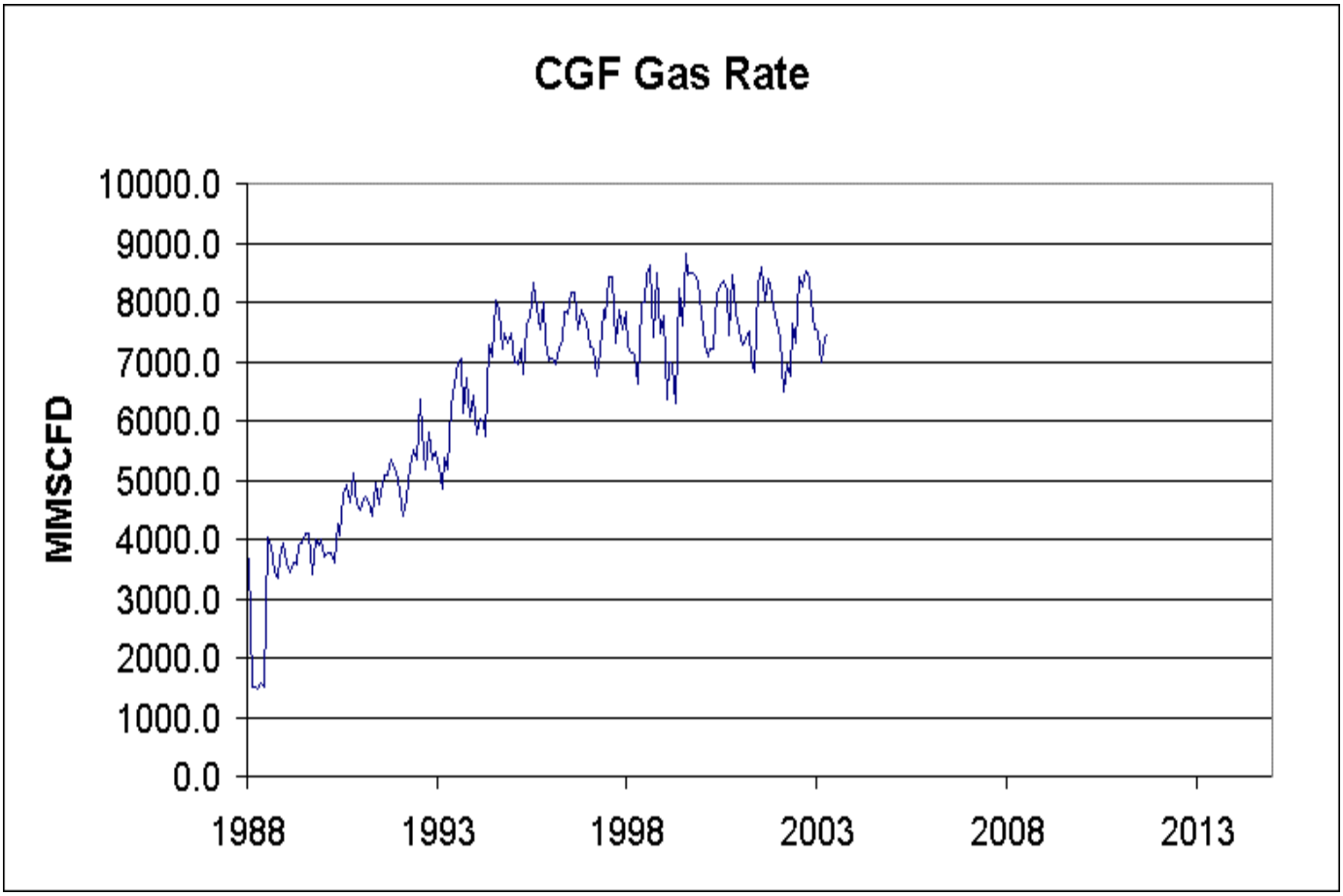
Figure 8
CGF Production History



Capacity is contingent on weather, downtime and injection compression. Field production is currently constrained based on total gas handling capacity through the CGF and CCP.