

The top of the slide features a blue and green geometric header. On the right, the word "devon" is written in a white, lowercase, serif font. Below the logo, a photograph shows two workers in dark blue uniforms and white hard hats walking on an industrial site.

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Dover

SAGD Progress Review

Thermal Heavy Oil

by
Devon Canada Corporation
(Project Operator)

April 28, 2005

(AEUB Approvals 9044, 9045 & 9862)

Global **VISION**. Community **VALUES**.

Outline

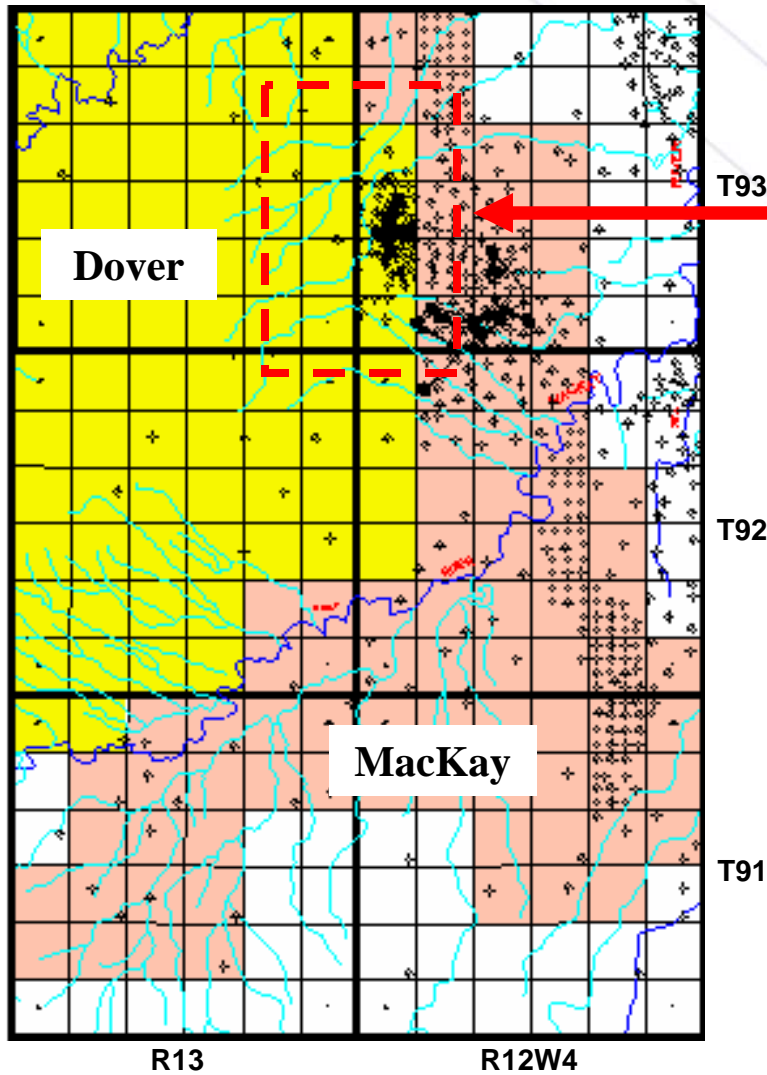
- **Introduction**
- SAGD Performance
- Facilities
- Regulatory
- Future Plans

Introduction

- Devon Canada Corporation has been operator of the Dover SAGD Facility since January 1, 1998.
- On February 28, 2005, Devon's interest was sold, and operatorship was transferred to Petro-Canada Oil and Gas.
- Devon continues to hold a working interest in the DOVAP Vapex Pilot (reported separately).
- Confidentiality of all Dover SAGD data was removed December 31, 2004.
- This progress report covers the 14 month period from January 1, 2004 to February 28, 2005.
- Future Plans as per ID 2002-03 will be presented by Petro-Canada.

Dover Project Area

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T93

T92

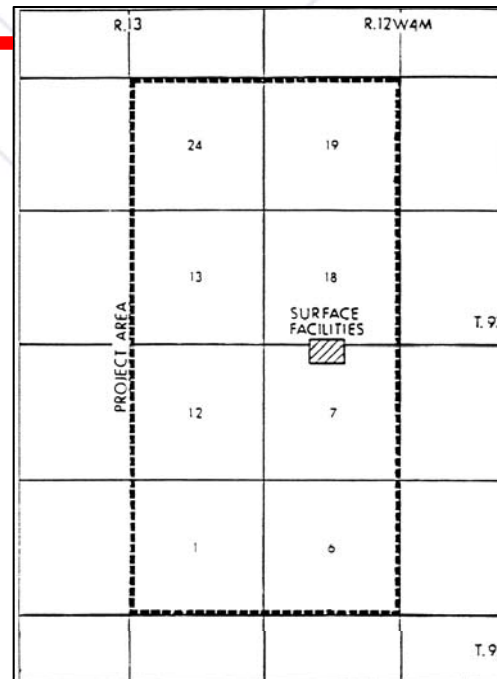
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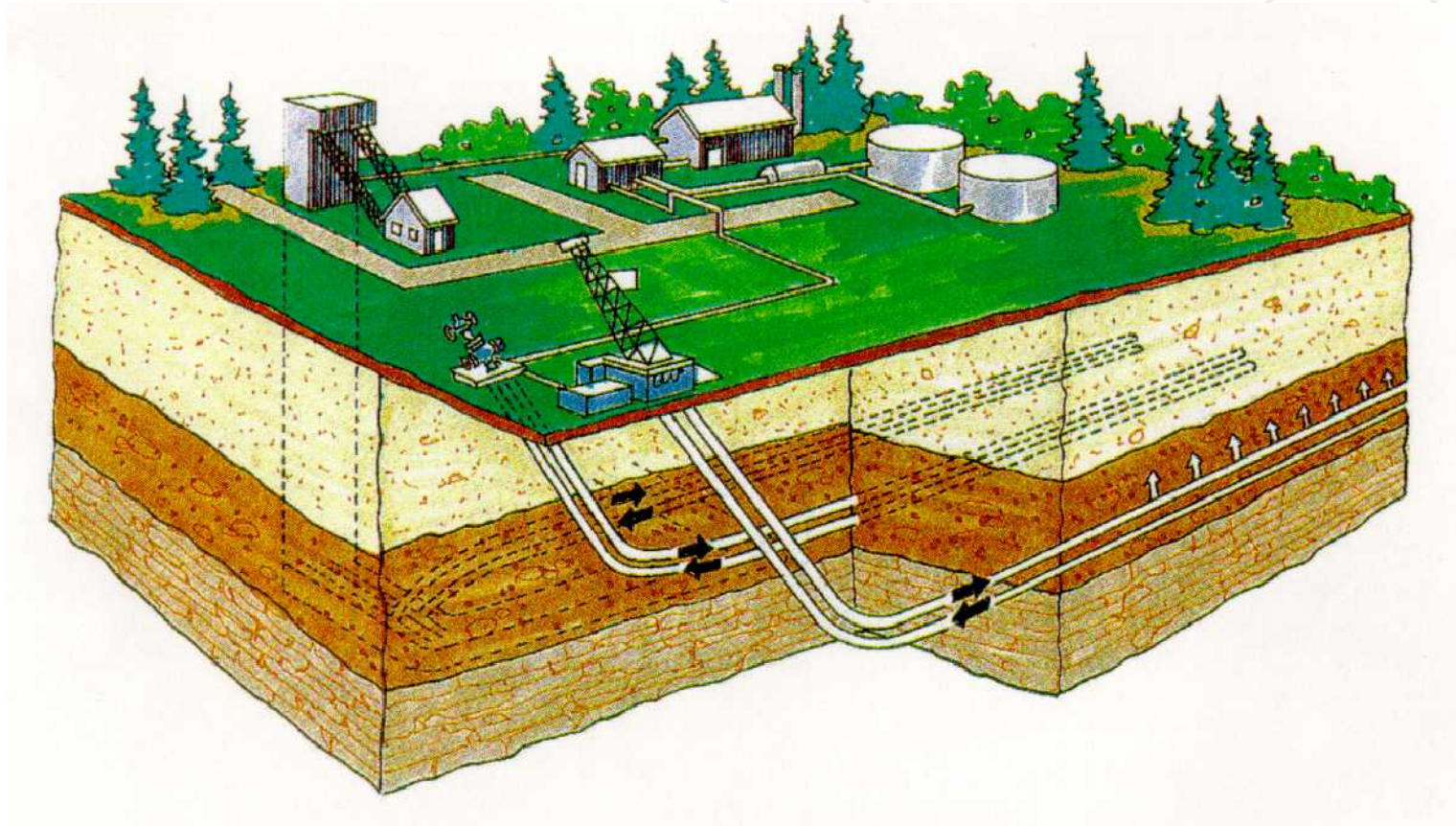
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MacKay



Dover SAGD Project

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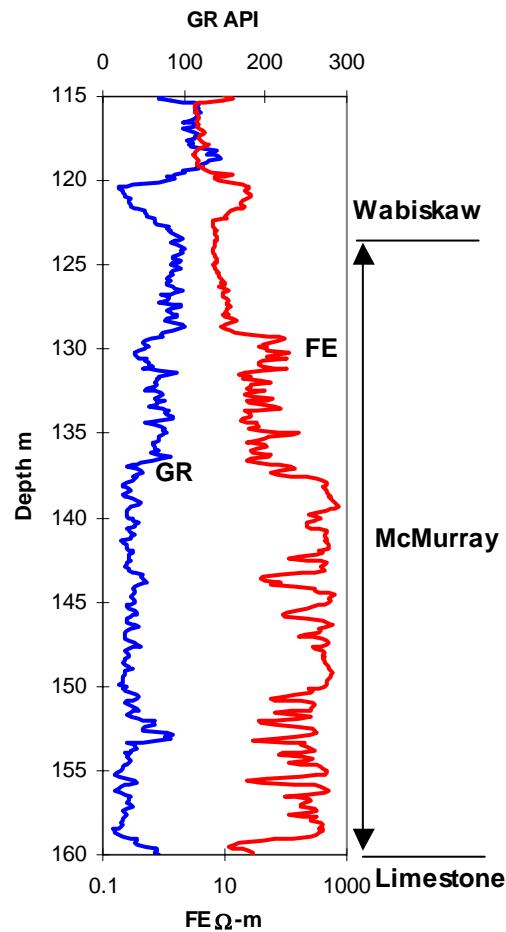


April 28, 2005

Geology

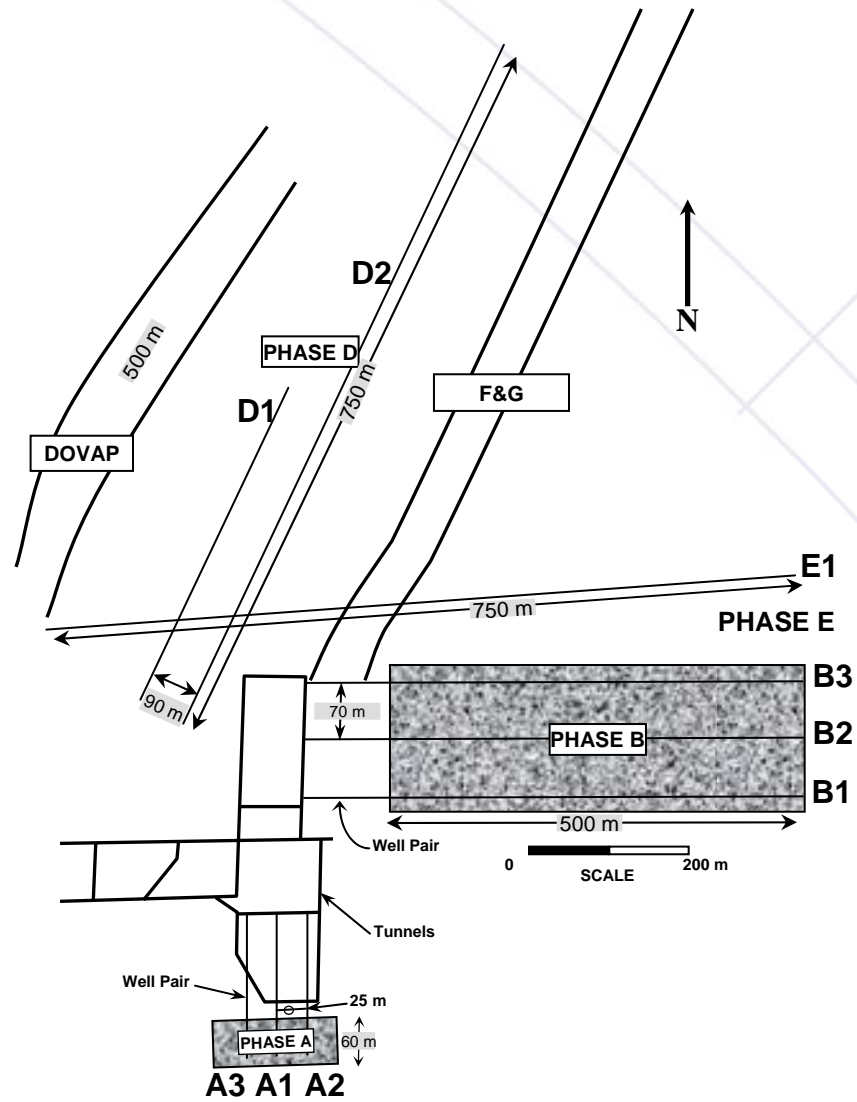


Typical Log of Good UTF Well



- North-South tidal channel sand deposit
- Channel width is about 500 to 800m
- Main target reservoir is the McMurray Formation
- Best quality at the base of reservoir (high porosity and S_o)
- Lower quality near the top of reservoir (bioturbated interbedded shales)
- No extensive bottom water and top gas/water

Dover Project Well Layout



Outline

- Introduction
- **SAGD Performance**
- Facilities
- Regulatory
- Future Plans

Overview

Phase B

- 3 SAGD pairs, drilled from underground, started in 1993.

Phase D

- 2 surface-drilled SAGD pairs started in mid 1996.
- Added new facilities to handle the increased production.

Phase E

- 1 surface-drilled SAGD pair started in late 1999.

Overview (cont'd)

Produced Water Recycle (PWR) Plant

- Started up in 2000. Increased recycle rates have ultimately reduced available boiler feed water for steam generation.

DOVAP Vapex Pilot

- Started up in September 2003 (reported separately).

Phases F & G

- Each is a 750m long surface-drilled SAGD pair, started-up in mid-November 2003. Additional surface facilities installed.

Overview

2004 Summary

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- Phase F and G wells commenced SAGD production in March.
- Production from Phases B, D and E was shut-in in August, though steam injection continued in an effort to increase steam chamber pressure. Limited production from November through February 2005.
- Abandoned 24 observation and 10 water disposal wells over Phases A and C. One cased well over each phase was retained for possible future use.

Dover Overall Performance

01Jan04 - 28Feb05




	Oil Produced (m ³)	Water Produced (m ³)	Steam Injected (m ³ cwe)	NCG Injected (e ³ m ³)	Oil Cut (%)	SOR (m ³ /m ³)
Phase B	10,552	24,135	11,461	0	30.4	1.09
Phase D	16,628	52,650	100,866	0	24.0	6.07
Phase E	13,872	44,638	79,380	261	23.7	5.72
Phases F & G	45,597	124,198	157,478	0	26.9	3.45
TOTAL	86,649	245,621	349,185	261	26.1	4.03

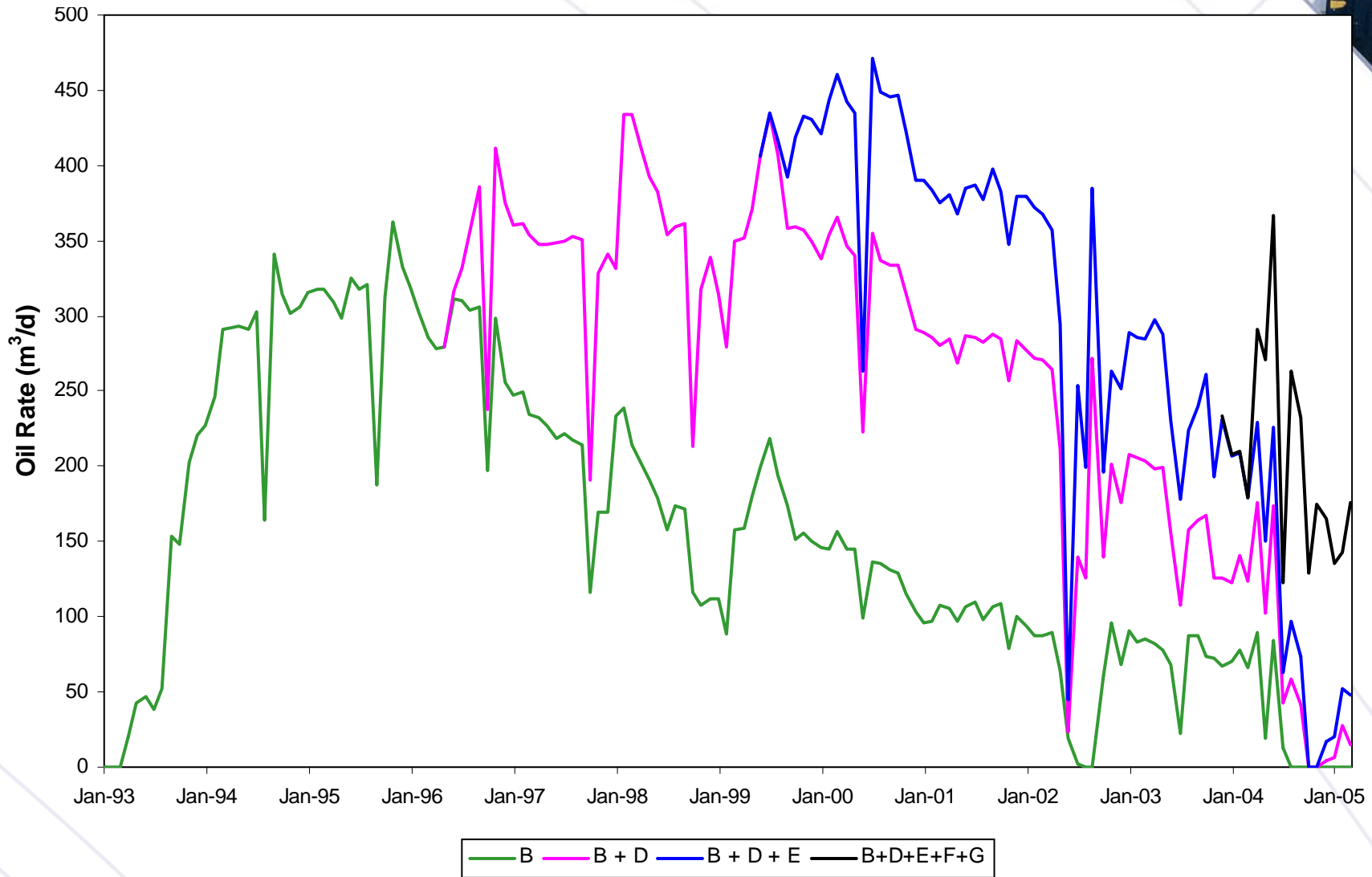
Dover Overall Performance Cumulative to 28Feb05




	Oil Produced (e ³ m ³)	Water Produced (e ³ m ³)	Steam Injected (e ³ m ³)	NCG Injected (e ³ m ³)	Oil Cut (%)	SOR (m ³ /m ³)	OOIP (e ³ m ³)	Oil Recovery (%)
Phase B	696.6	1,661.6	1,668.1	16,259	29.5	2.39	1,064.8	65.4
Phase D	439.8	1,019.6	1,248.4	0	30.1	2.84	850.6	51.7
Phase E	155.2	350.3	439.0	1,065	30.7	2.83	504.2	30.8
Phases F & G	45.6	125.3	170.0	0	26.7	3.73	930.0	4.9

Dover Site Oil Production

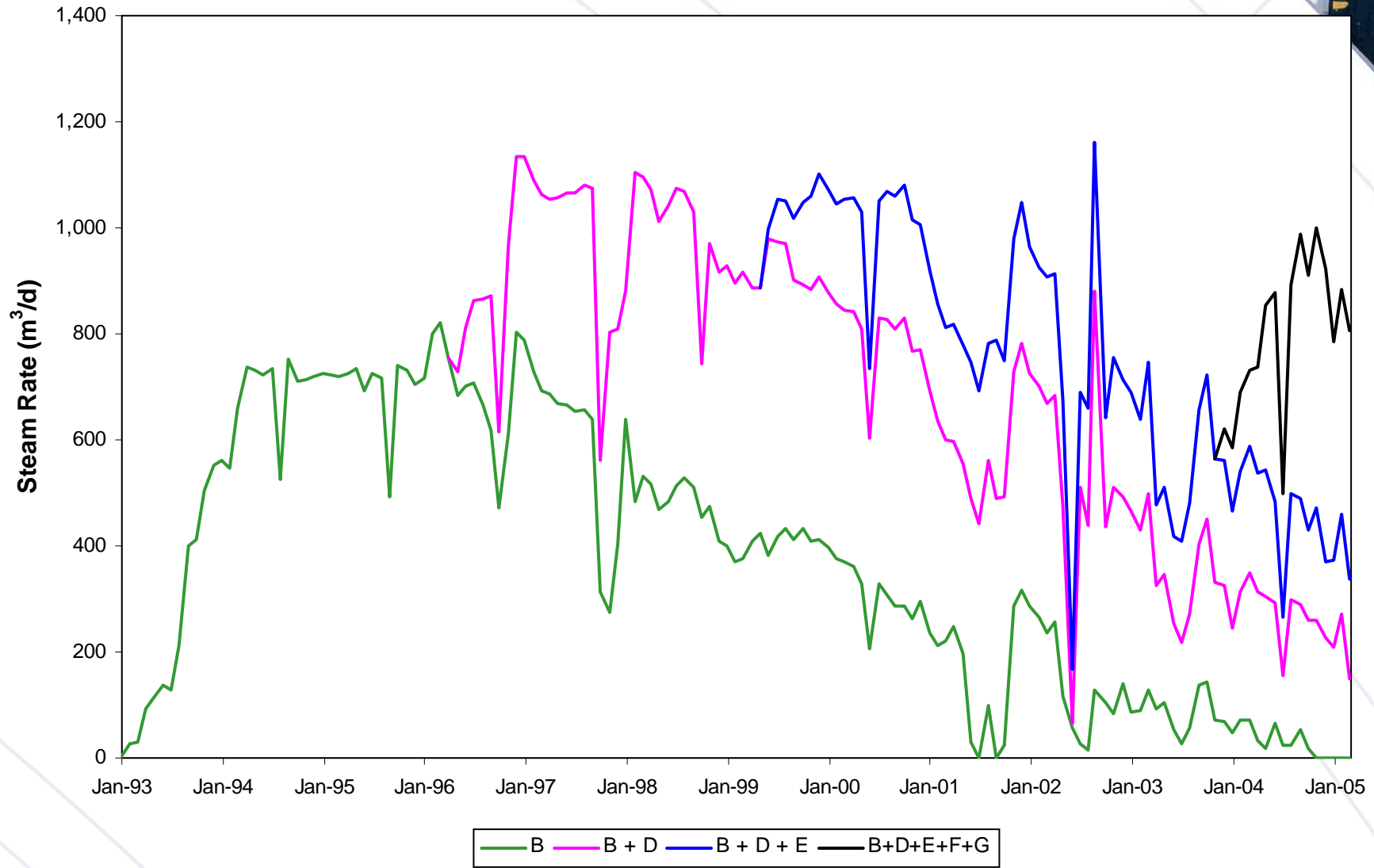
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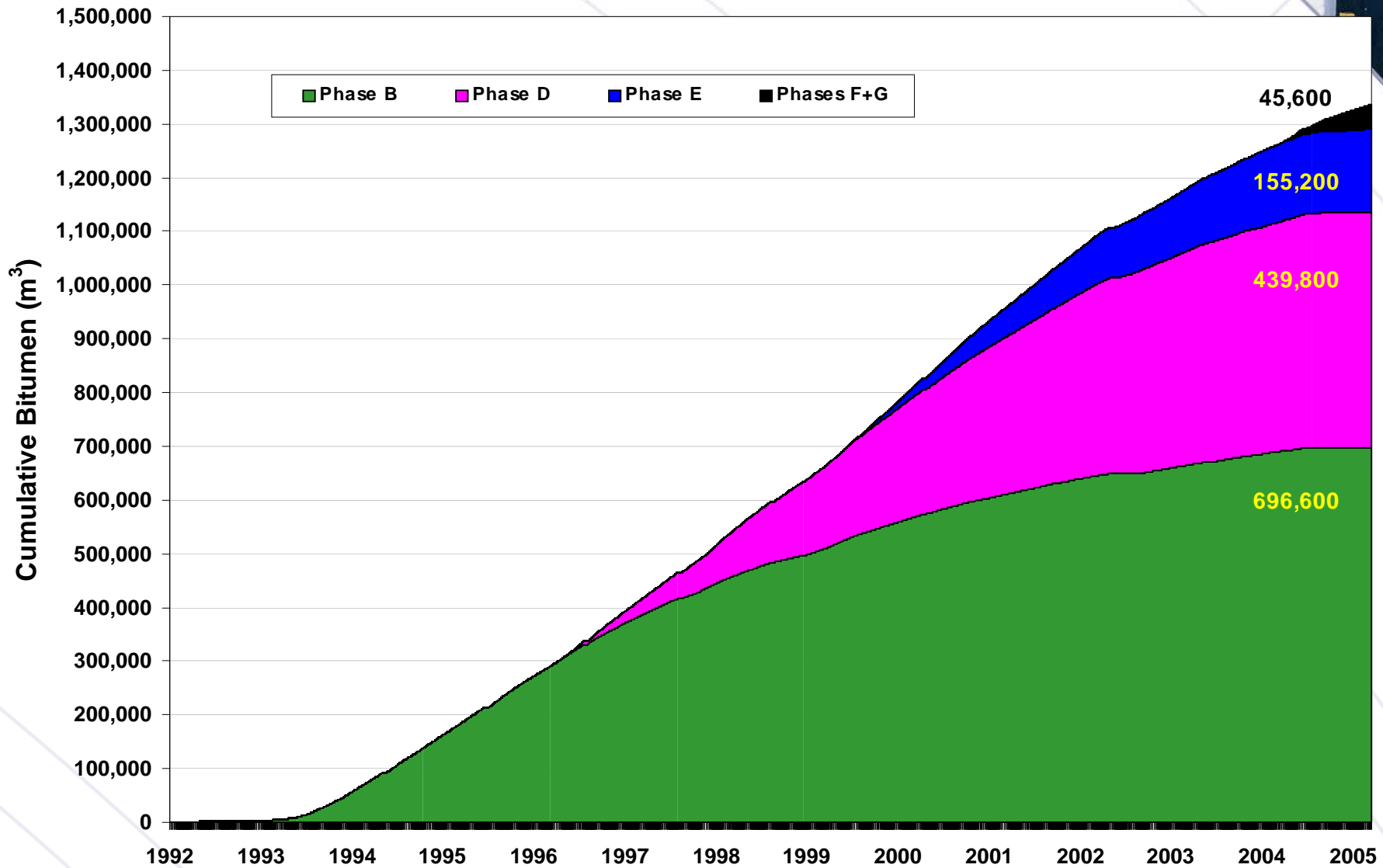
Dover Site Steam Injection

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Dover Cumulative Bitumen Production

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Phase B Performance

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- Production was shut-in in June 2004, as expected, due to insufficient steam available to maintain chamber pressure through 2003 and into 2004. Total days on production in 2004 was 136.
- Average producing day bitumen rate in 2004 was 77 m³/d at a 30% oil cut. Calendar day oil was 28.9 m³/d.
- Total 2004 days on steam injection was 176 at an average producing day rate of 70 T/d and a calendar day rate of 31.4 T/d. Steam shut-in in September. Overall 2004 SOR was 1.09.

Phase B

Performance (cont'd)

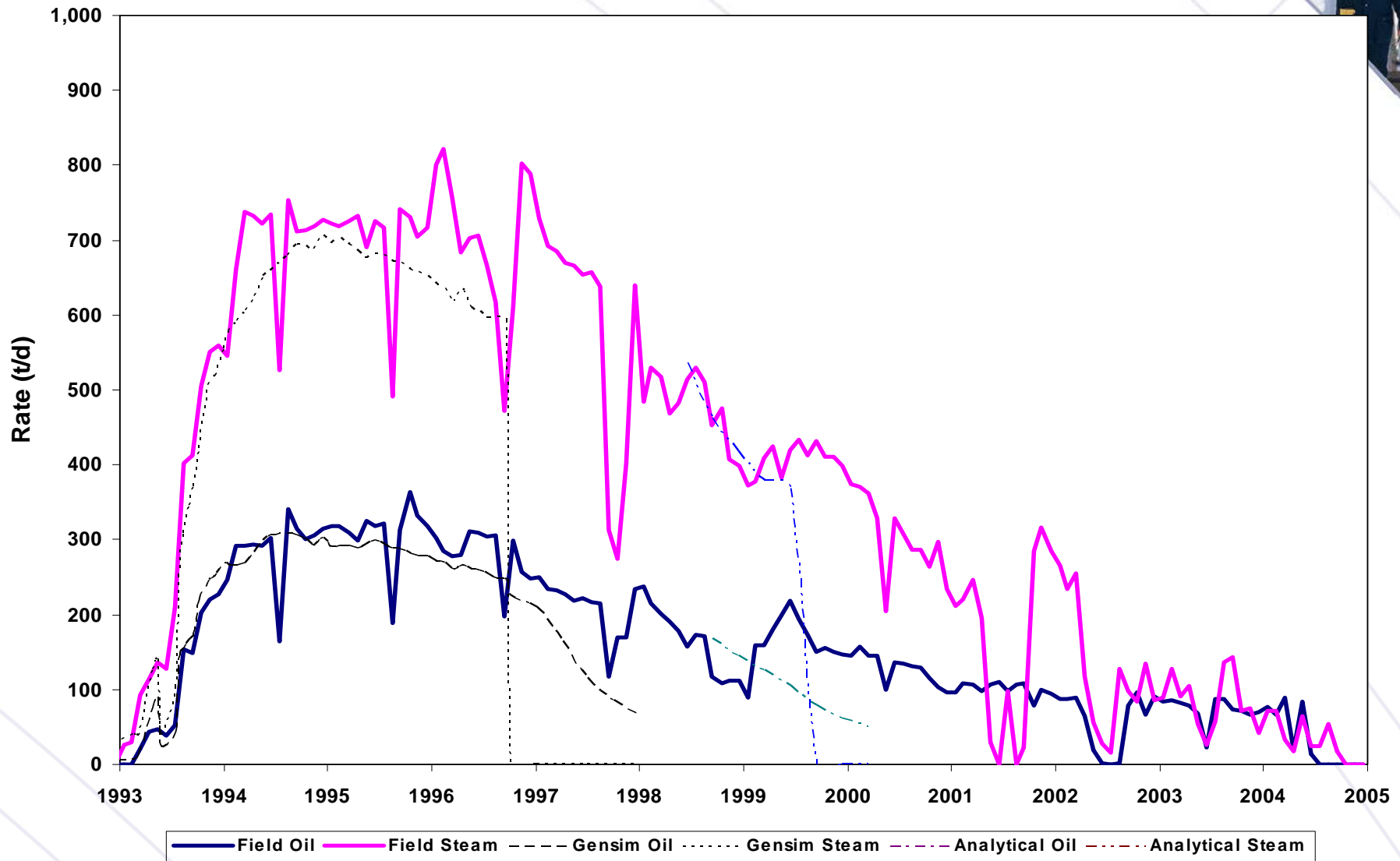
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- No methane injection in 2004.
- Steam chamber pressure fell to approximately 1,300 kPaa in August, but increased to about 1,400 kPaa by year end.
- Periodic steam injection could be used to maintain chamber pressure if desired.

Phase B Performance

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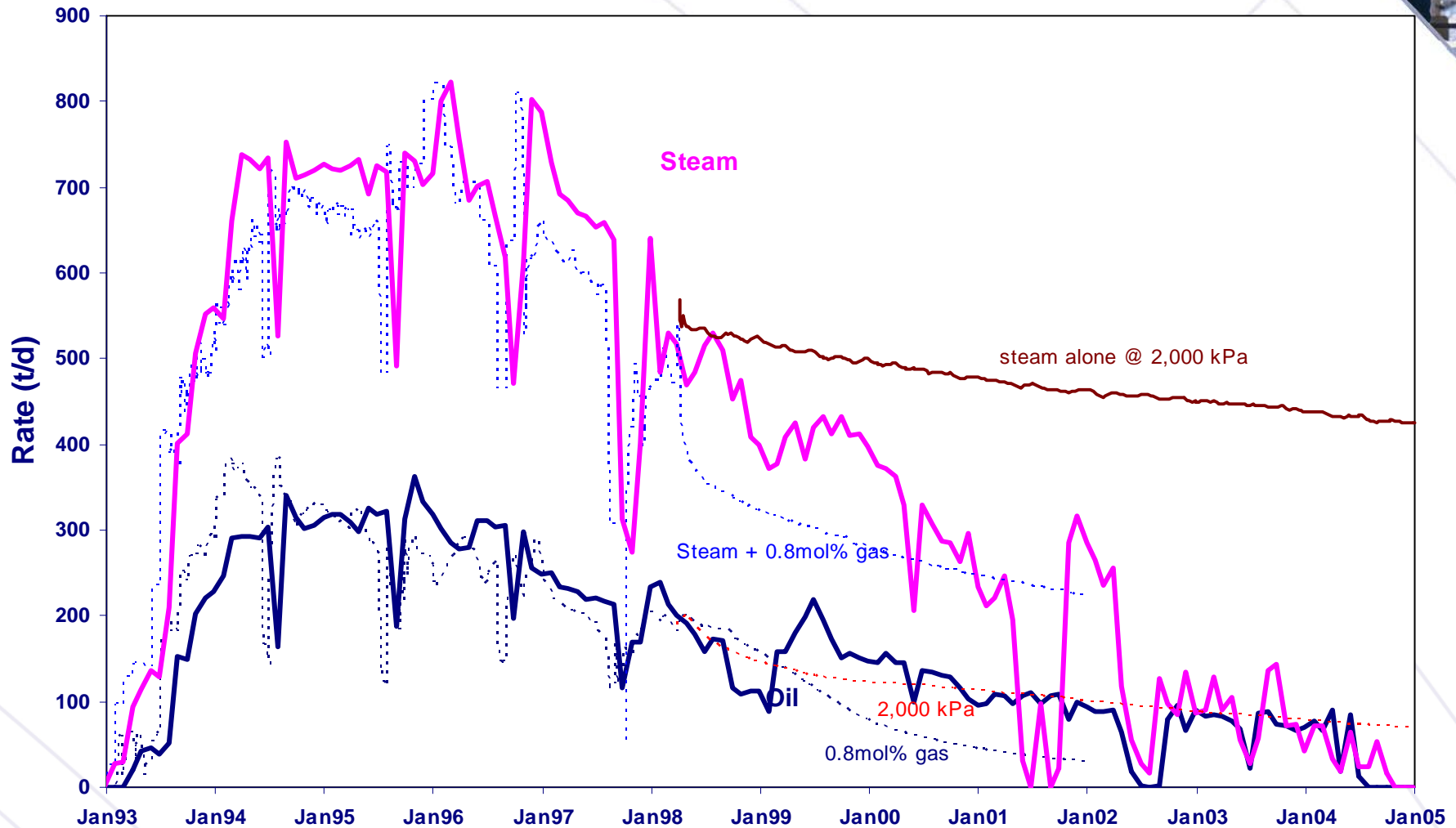


Phase B Performance Forecast

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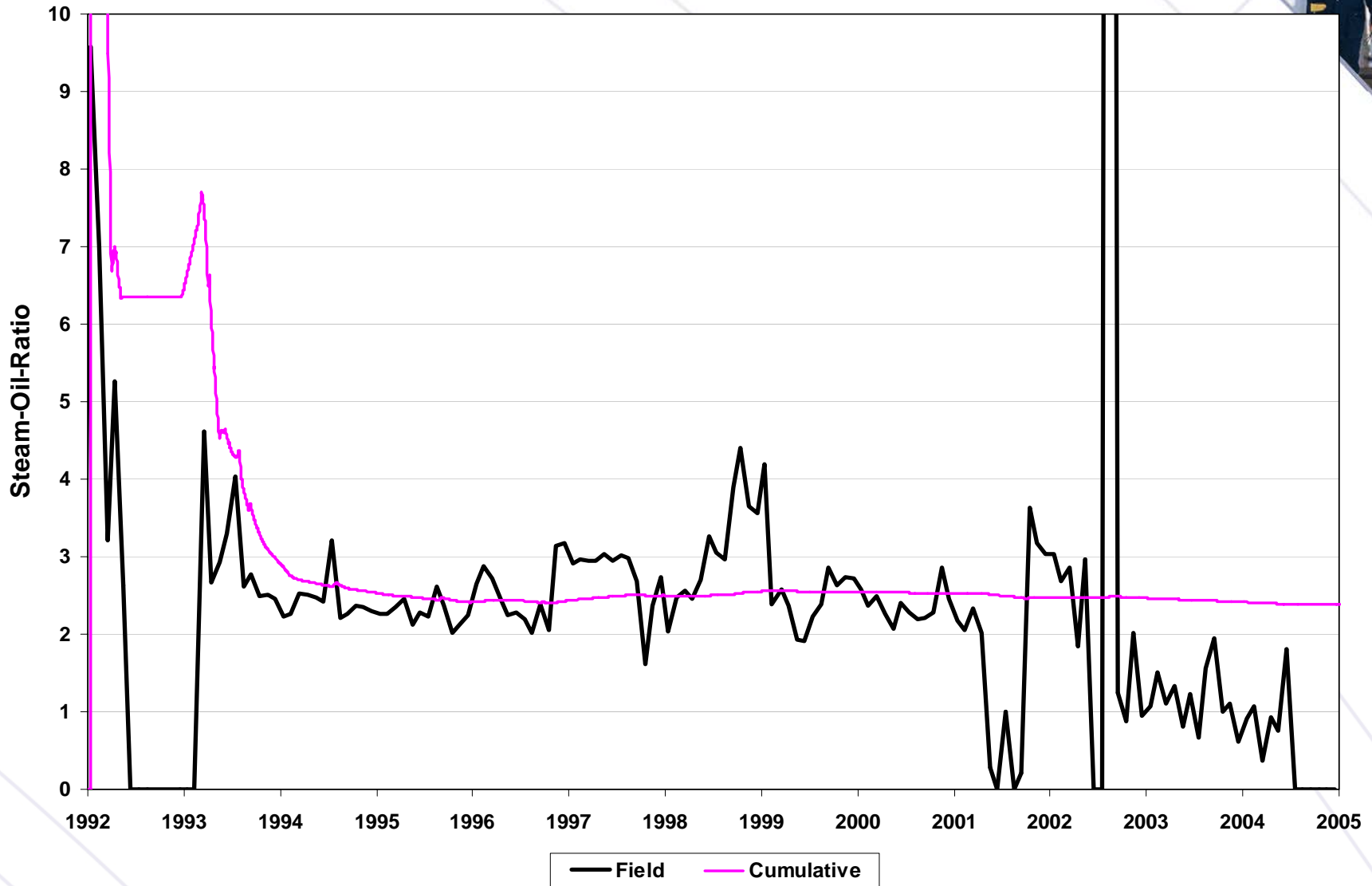
For 0.8 mole % of gas injection with steam and steam alone cases



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Phase B Steam-Oil Ratio

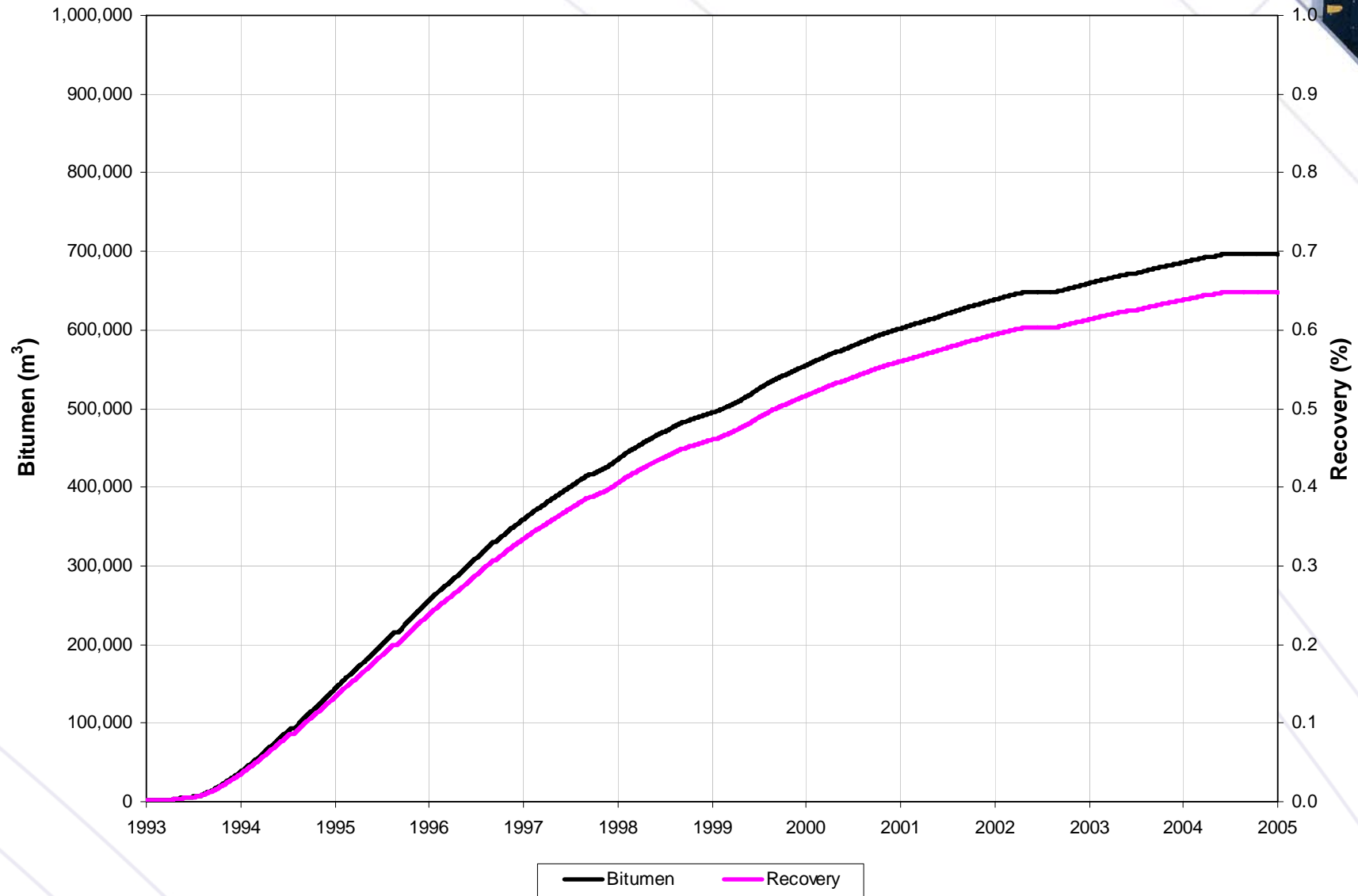
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Phase B Cumulative Oil Production

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Phase D Performance

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- Overall Phase D performance suffered from decreased steam chamber pressure due to insufficient steam available to maintain chamber pressure through 2003 and into 2004.
- D1 and D2 production was shut-in in August, steam injection continued in an effort to increase chamber pressure.
- Limited production from November through to February 2005. Phase D calendar day oil production in 2004 was 42.1 m³/d and steam injection was 250 T/d, for an overall SOR of 5.94.

Phase D Performance (cont'd)

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- Steam chamber pressure fell to about 1,250 kPaa in August, but increased to approximately 1,450 kPaa by year-end.
- Phase D cumulative recovery of 51.7% is based on reserves calculated for two 750m long well pairs.
- Actual well lengths for D1I = 186m and D1P = 293m. Well lengths for D2I = 748m and D2P = 740m.
- Oil recovery from Phase D equals that of Phase B when compared on a total effective production well length basis.

Phase D Performance



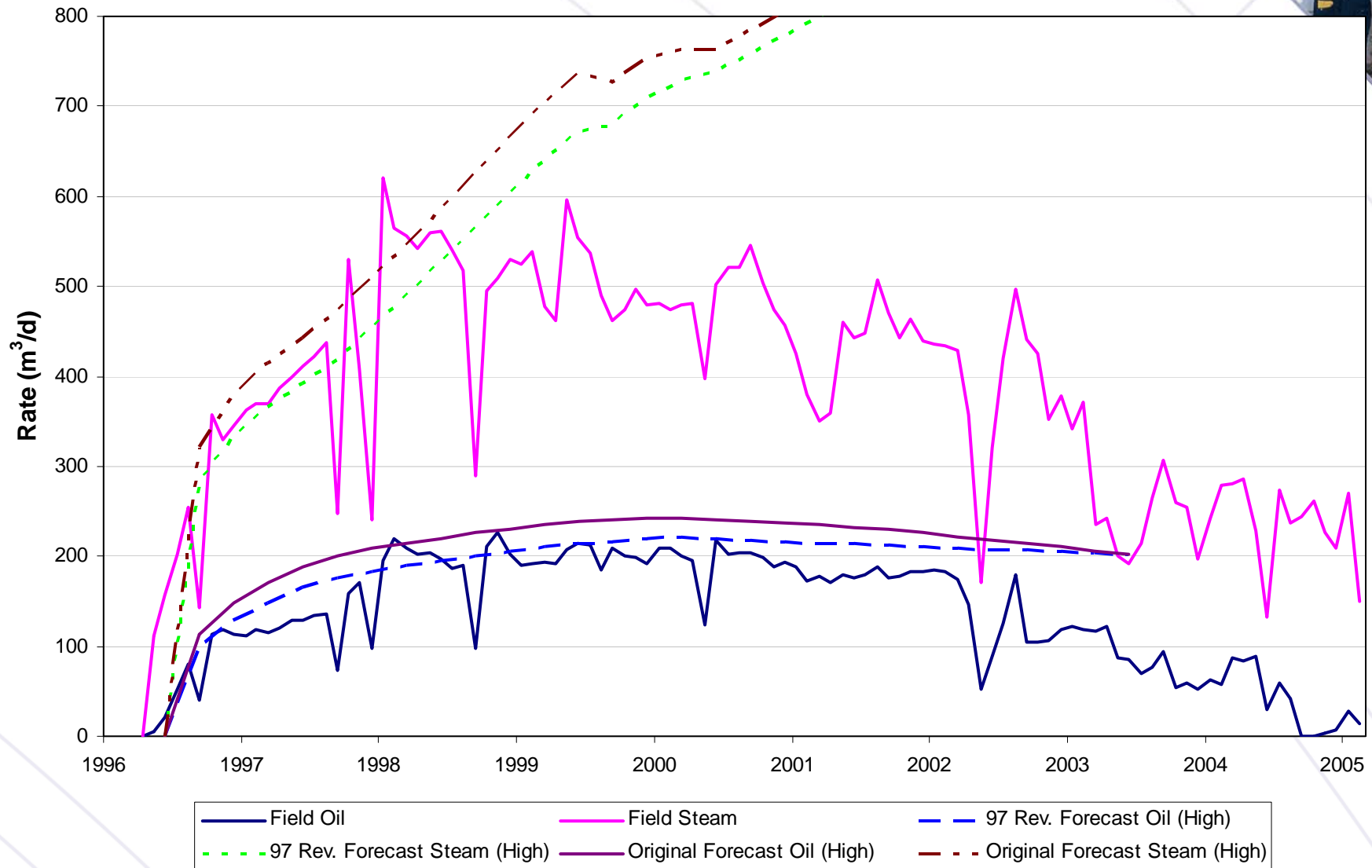
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	Effective Liner Length (m)	Cumulative Oil Produced to 31Dec04 (m ³)	Oil Production per Metre (m ³ /m)
D1P	240	193,100	804
D2P	740	245,400	332
Total Phase D	980	438,500	447
Total Phase B	1,565	696,600	445

Phase D Performance

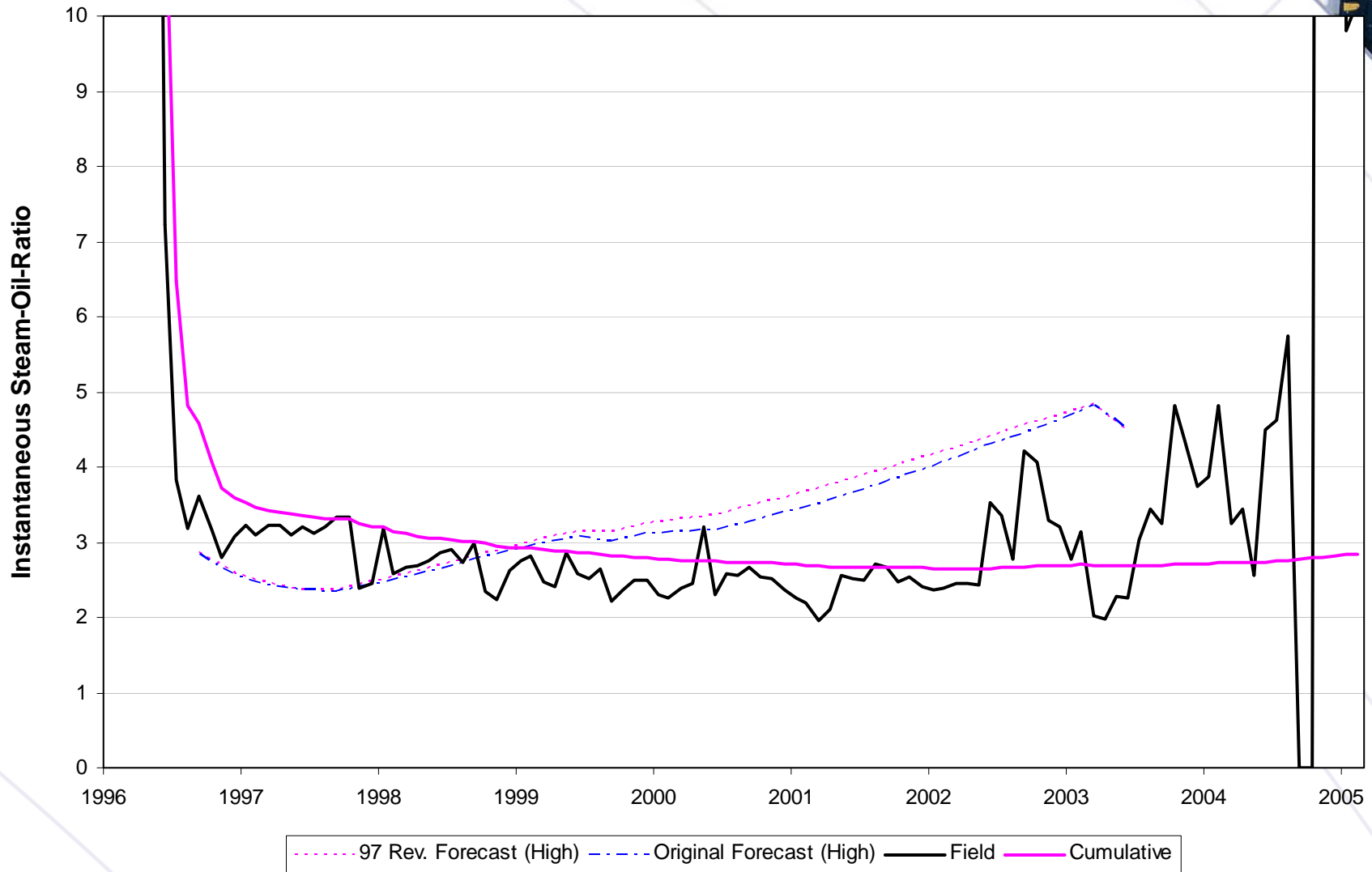
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Phase D Steam-Oil Ratio

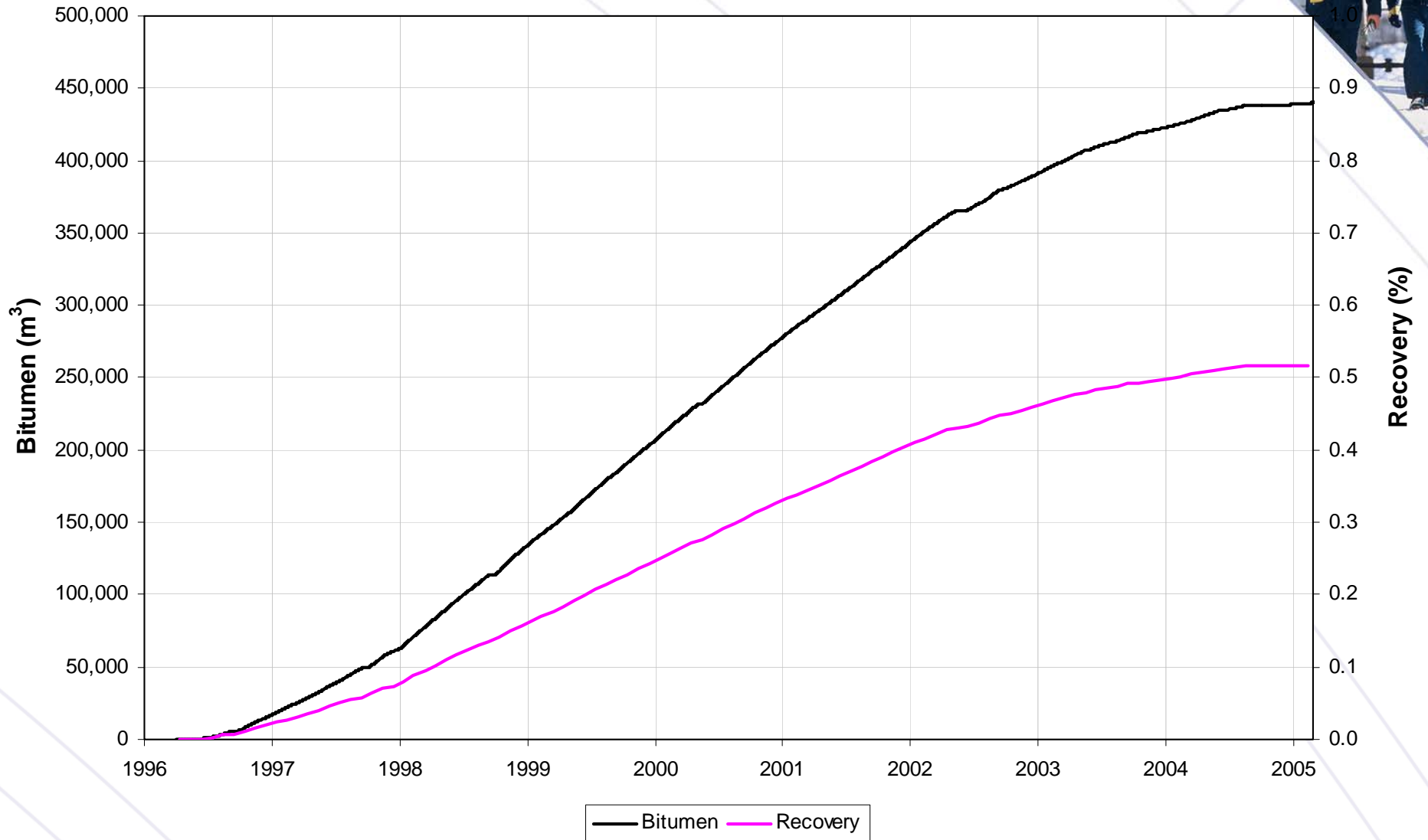
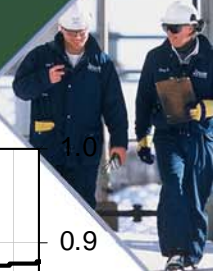
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Phase D Cumulative Oil Production

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Phase E Performance

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- Initially drilled proximal to Phase B in order to observe new chamber development next to a mature steam chamber. Overall recovery is expected to be negatively impacted.
- Wells started up in 1999 with SAGP.
- Phase E and B steam chambers believed to be in communication since early 2001.
- Steam chamber pressure negatively impacted by the drop in Phase B pressures.

Phase E Performance (cont'd)

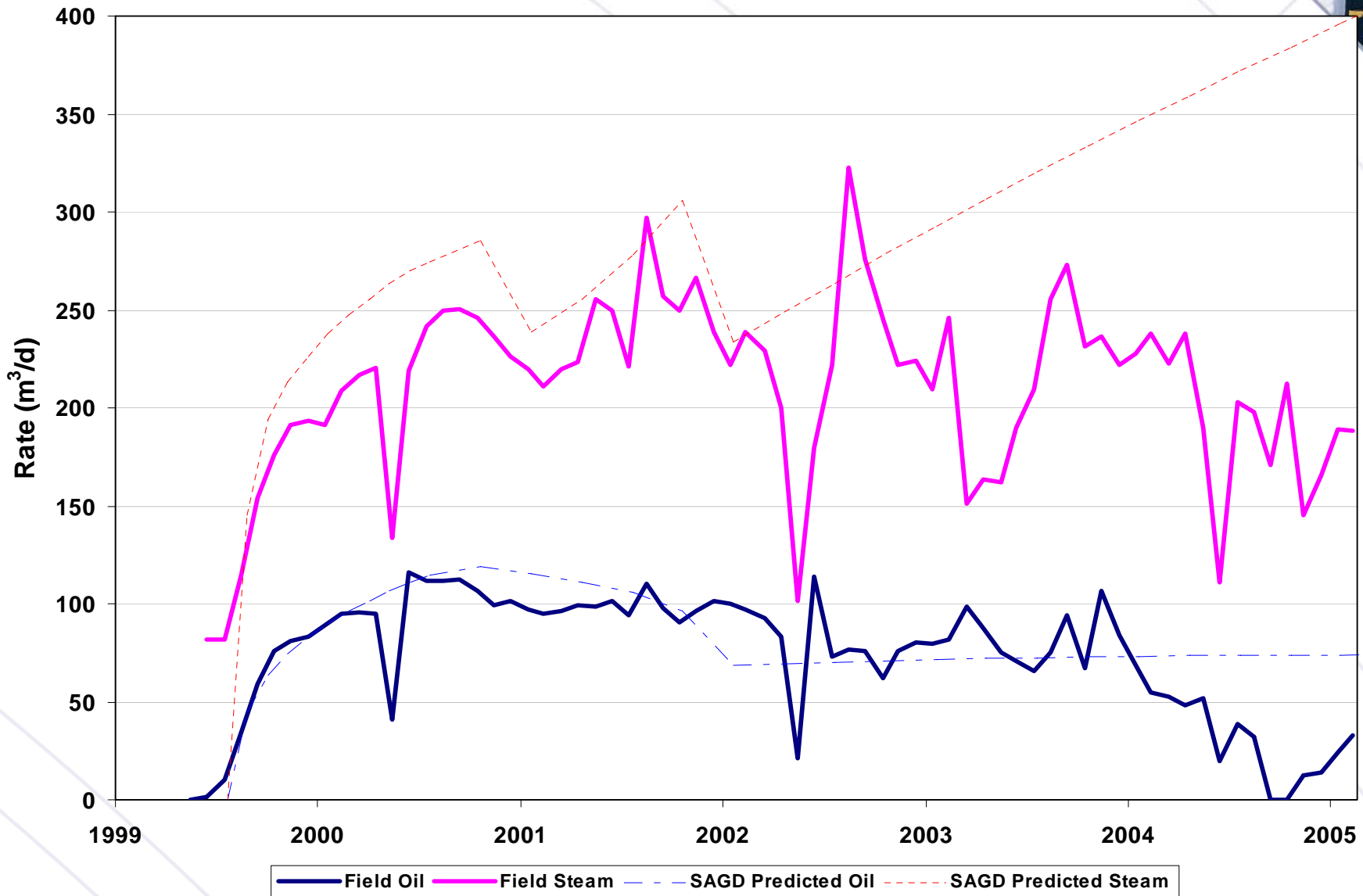
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- Production shut-in in August but steam injection continued through the year. Limited production resumed in November and continued through February 2005.
- 2004 calendar day oil was 33.4 m³/d and calendar day steam injection was 187 T/d.
- Steam chamber pressure fell to a low of approximately 1,300 kPaa in September but increased to 1,400 kPaa by year-end.

Phase E Performance

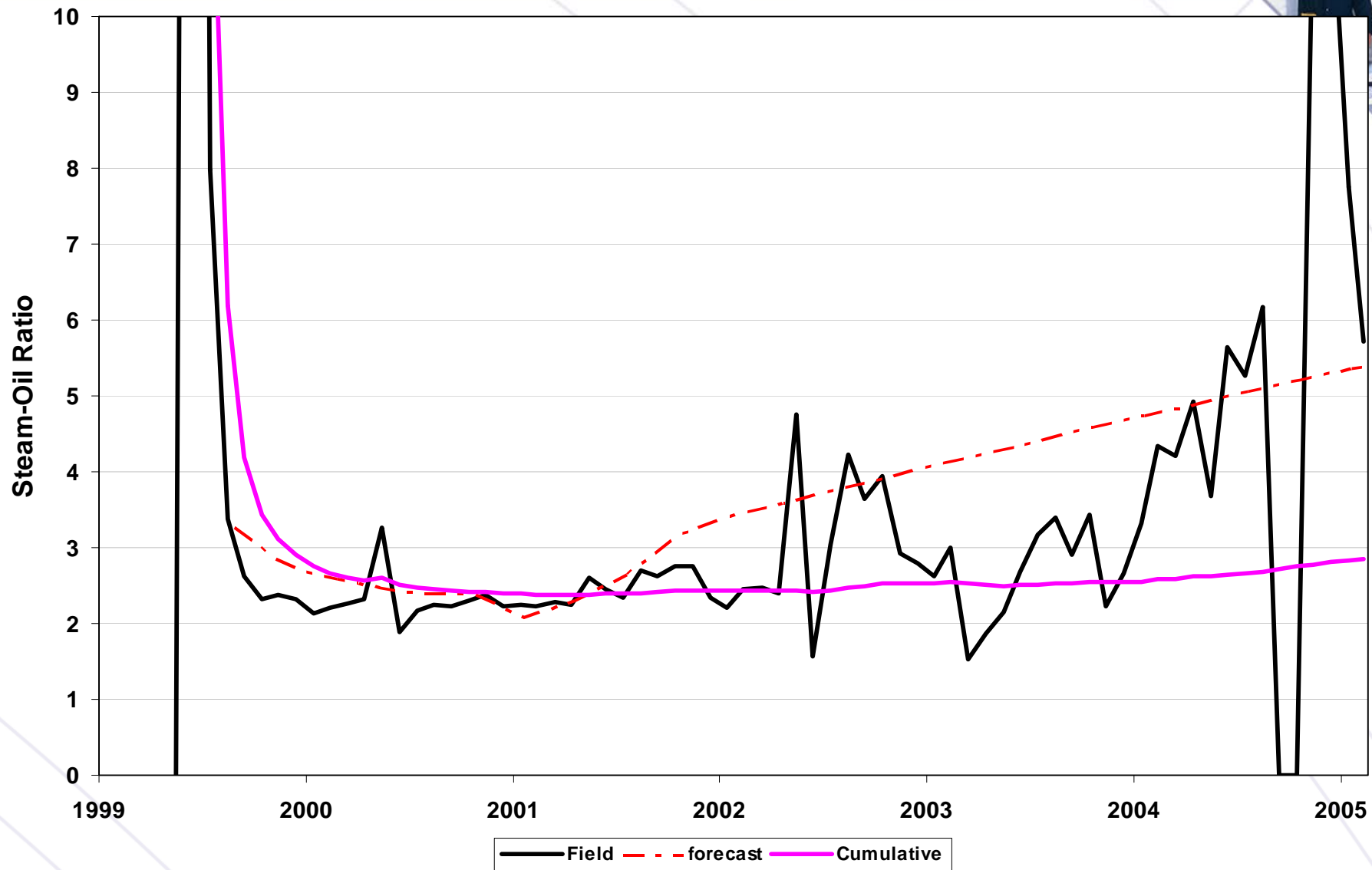
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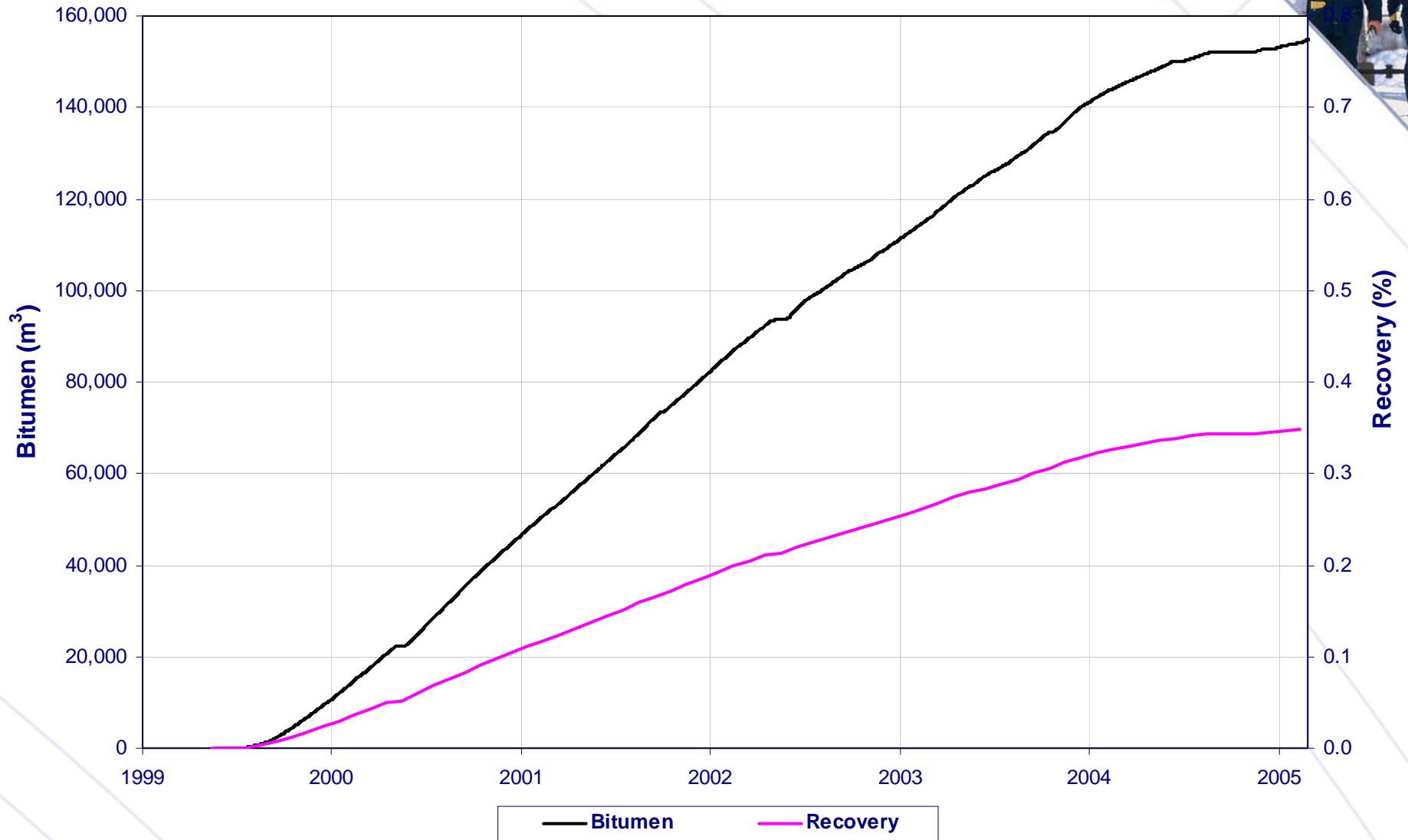
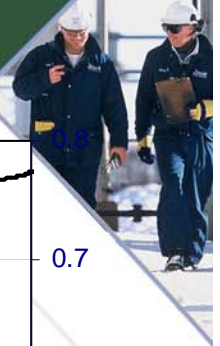
Phase E Steam-Oil-Ratio

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Phase E Cumulative Oil Production

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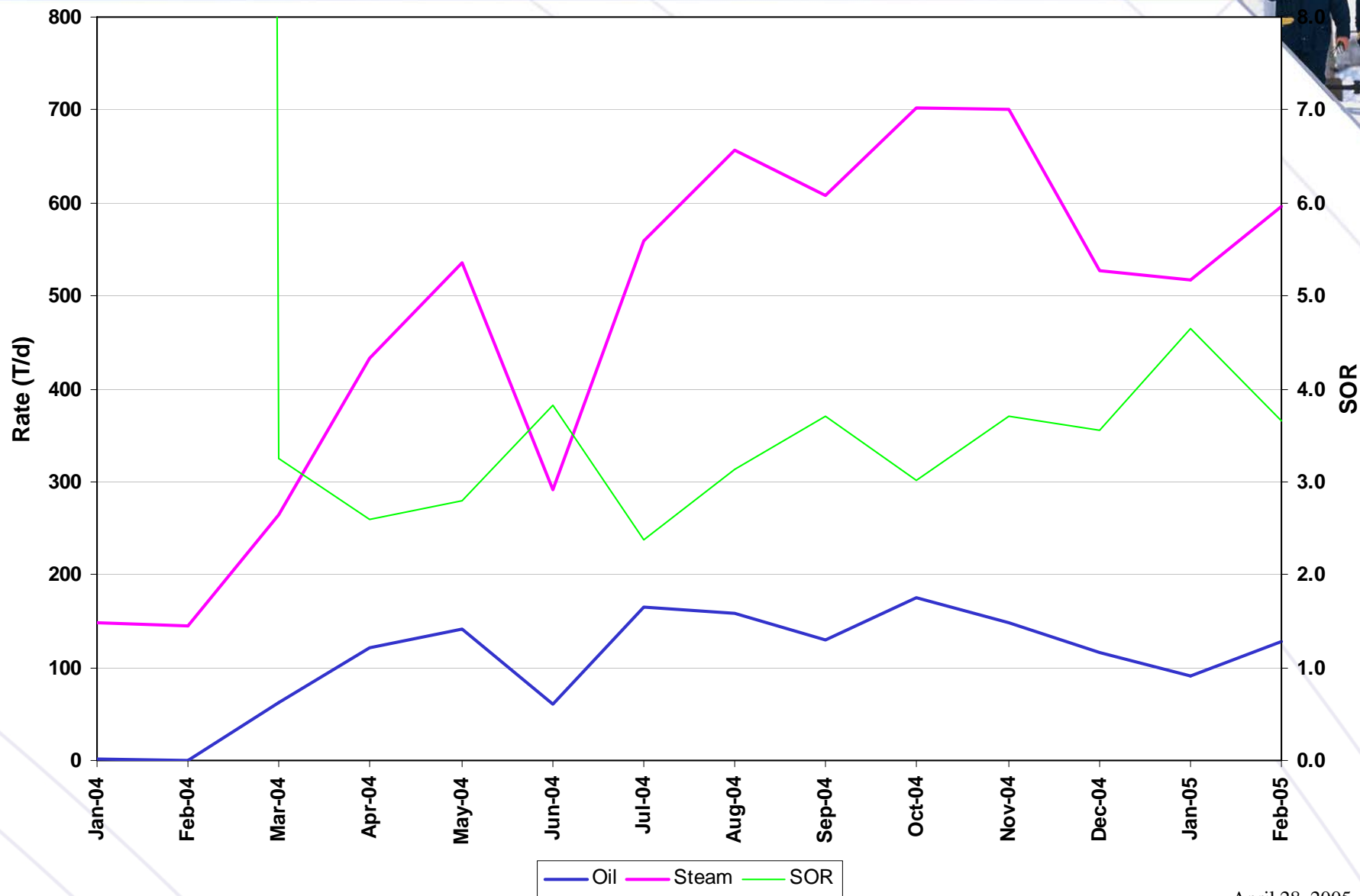


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Phases F & G

- Each phase consists of a 750m horizontal well pair.
- Injectors completed with 219mm slotted liners, producers with 178mm slotted liners.
- Initial circulation commenced in November 2003.
- SAGD production commenced March 2005.
- Post-start-up average 2004 production:
 - F1P 63 m³/d oil at 3.4 SOR
 - G1P 73 m³/d oil at 3.1 SOR
- Steam chamber pressures of approximately 2000 kPaa.

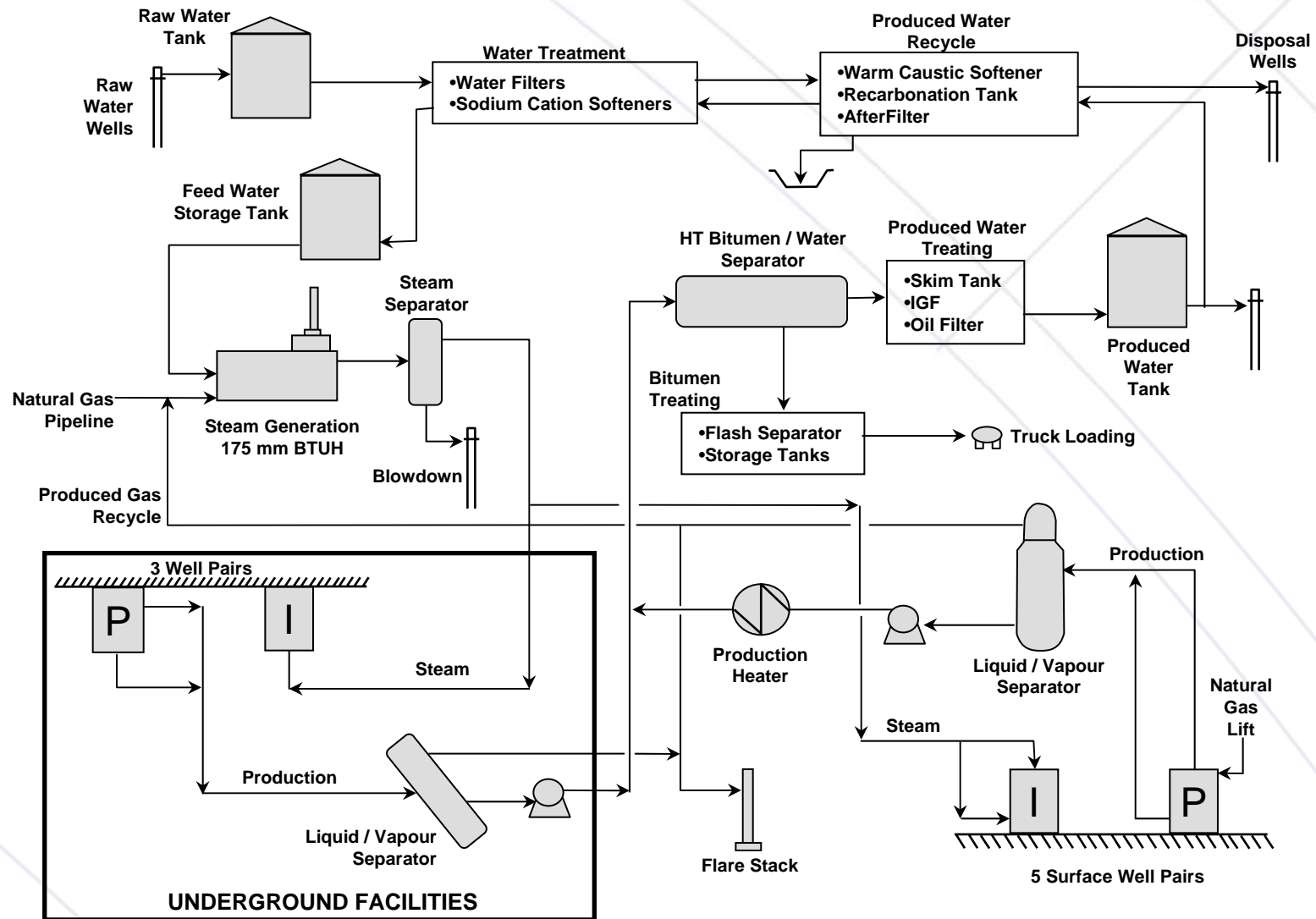
Phases F & G



Outline

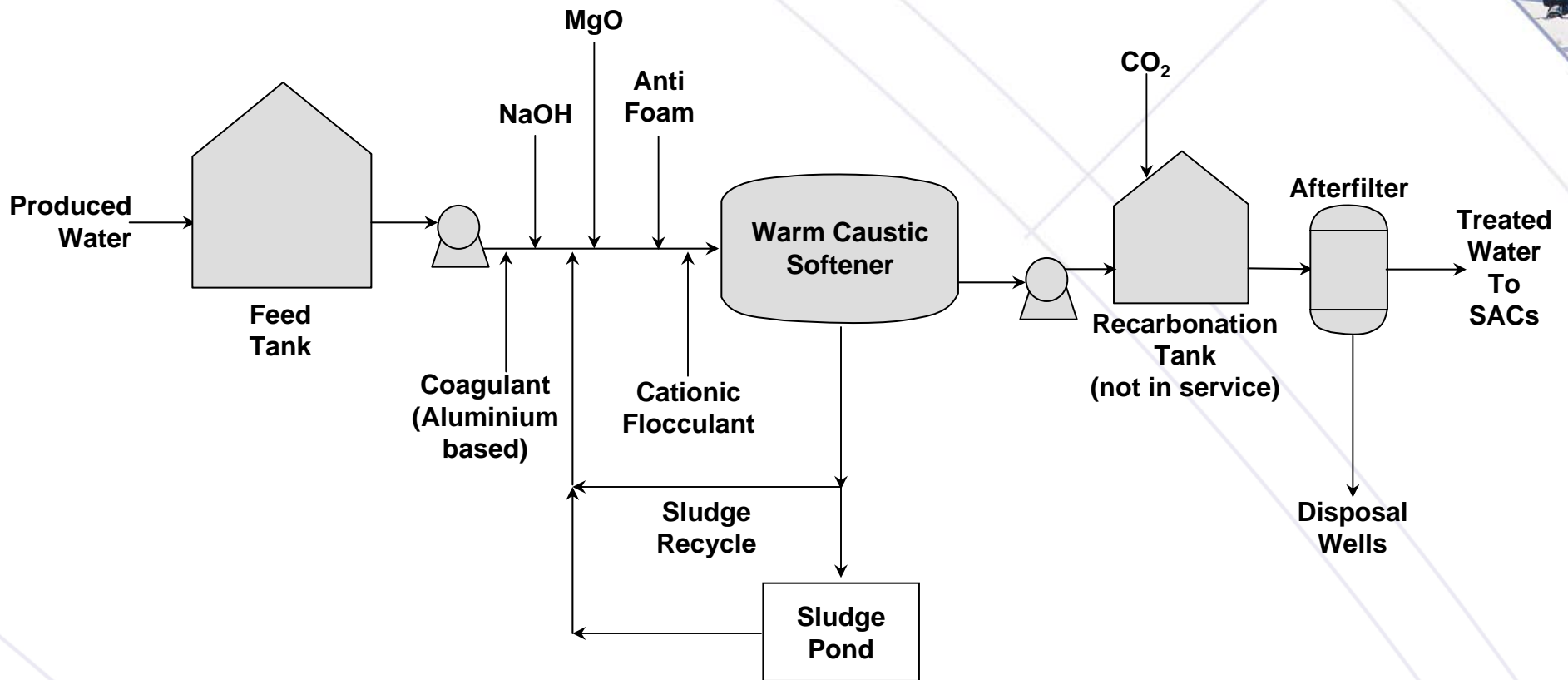
- Introduction
- SAGD Performance
- **Facilities**
- Regulatory
- Future Plans

Dover SAGD Process Schematic



Dover PWR Process Schematic

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Facilities

- Continued improvements in produced water recycle (PWR) rates through Warm Caustic Softener process continued through 2004.
- All produced water is processed through PWR for silica removal and added filtration.
- Average water recycle rate in 2004 was 32% (up from 29% in 2003) based on AEUB formula:

$$\text{Recycle \%} = \frac{(\text{Steam Injected} - \text{Raw Water})}{\text{Produced Water}} \times 100$$

Facilities (cont'd)

- Theoretical maximum with existing equipment is about 60%. Recycle limited due to:
 - Inability to recycle blowdown water (high TDS);
 - High TDS fouling of SAC resin in boiler feed water conditioning.
- Increased produced water recycle volumes have caused a reduction in overall available boiler feed water due to incompatibility of recycled water and raw water when combined upstream at softeners. Consequently, about 40% of steam injection capacity was lost in 2003 and early 2004.

Facilities (cont'd)

- A new raw water softener was installed and operational by April 2004.
- Mixing of re-cycled produced water with raw water downstream of softening has solved the softening problem.
- Raw water use increased in 2004 due to:
 - Addition of dedicated raw water filter;
 - Lower produced water volume available for re-use;
 - Maximum steam generation demanded for ongoing operations, re-pressurization and DOVAP.

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Source & Disposal Water



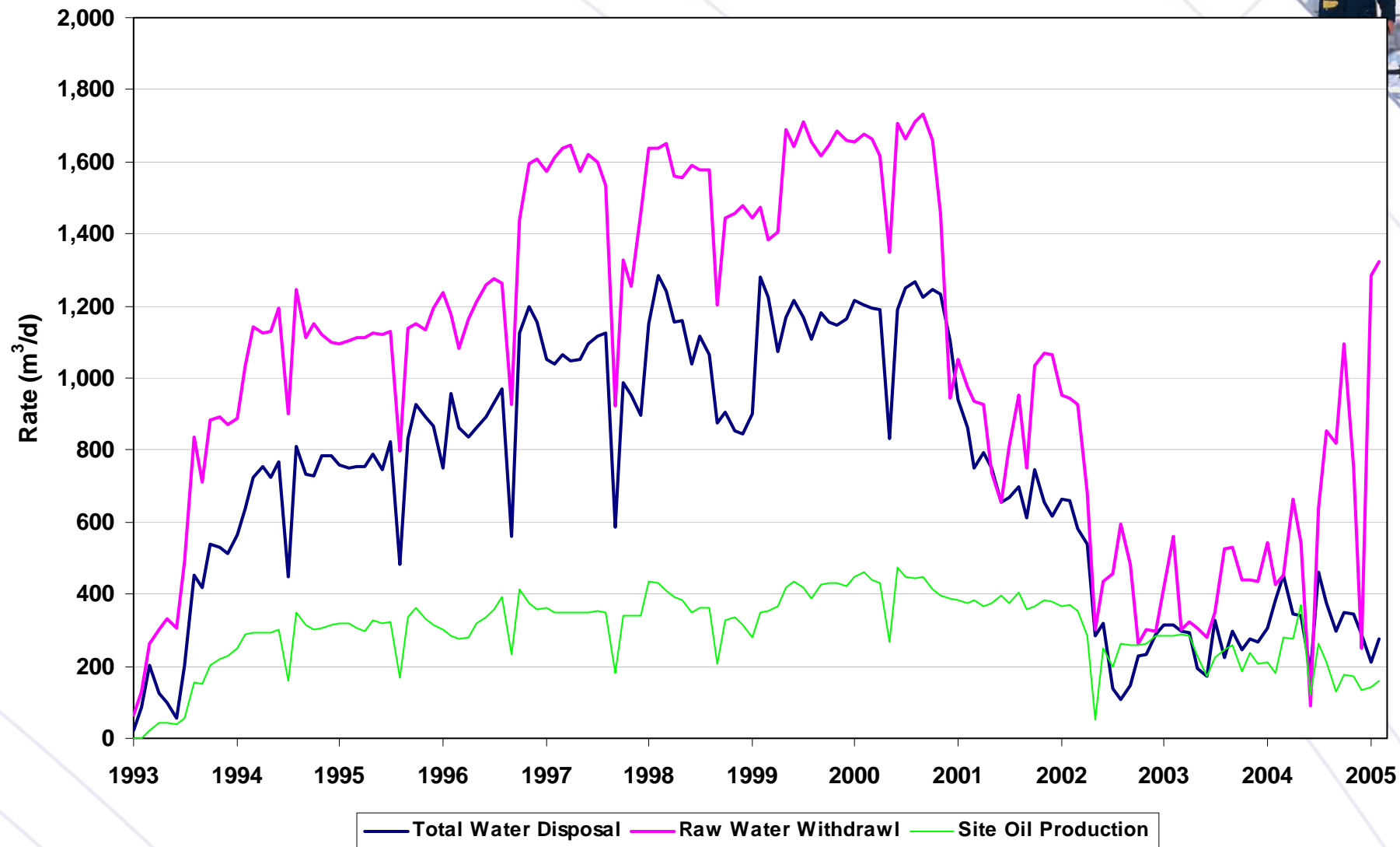
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	Raw Water (m ³)	Disposal Water (m ³)	<u>m³ Raw Water</u> <u>m³ Oil Produced</u>
1999	578,700	418,800	4.03
2000	574,000	449,500	3.72
2001	333,300	265,900	2.41
2002	200,800	126,200	2.07
2003	148,900	98,000	1.68
2004	230,500	126,300	2.98

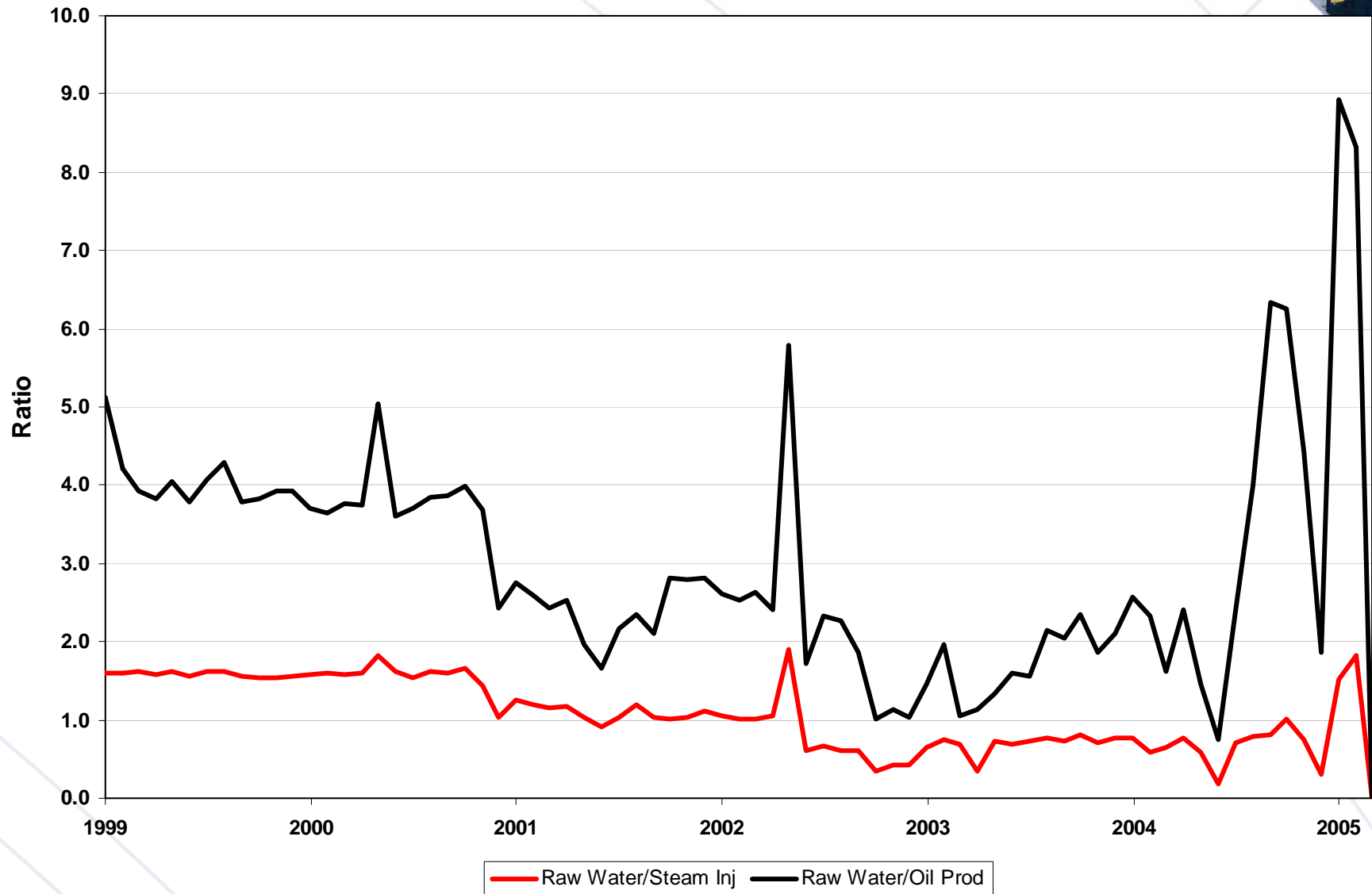
Dover Water Disposal & Fresh Water Withdrawal

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Dover Fresh Water Use

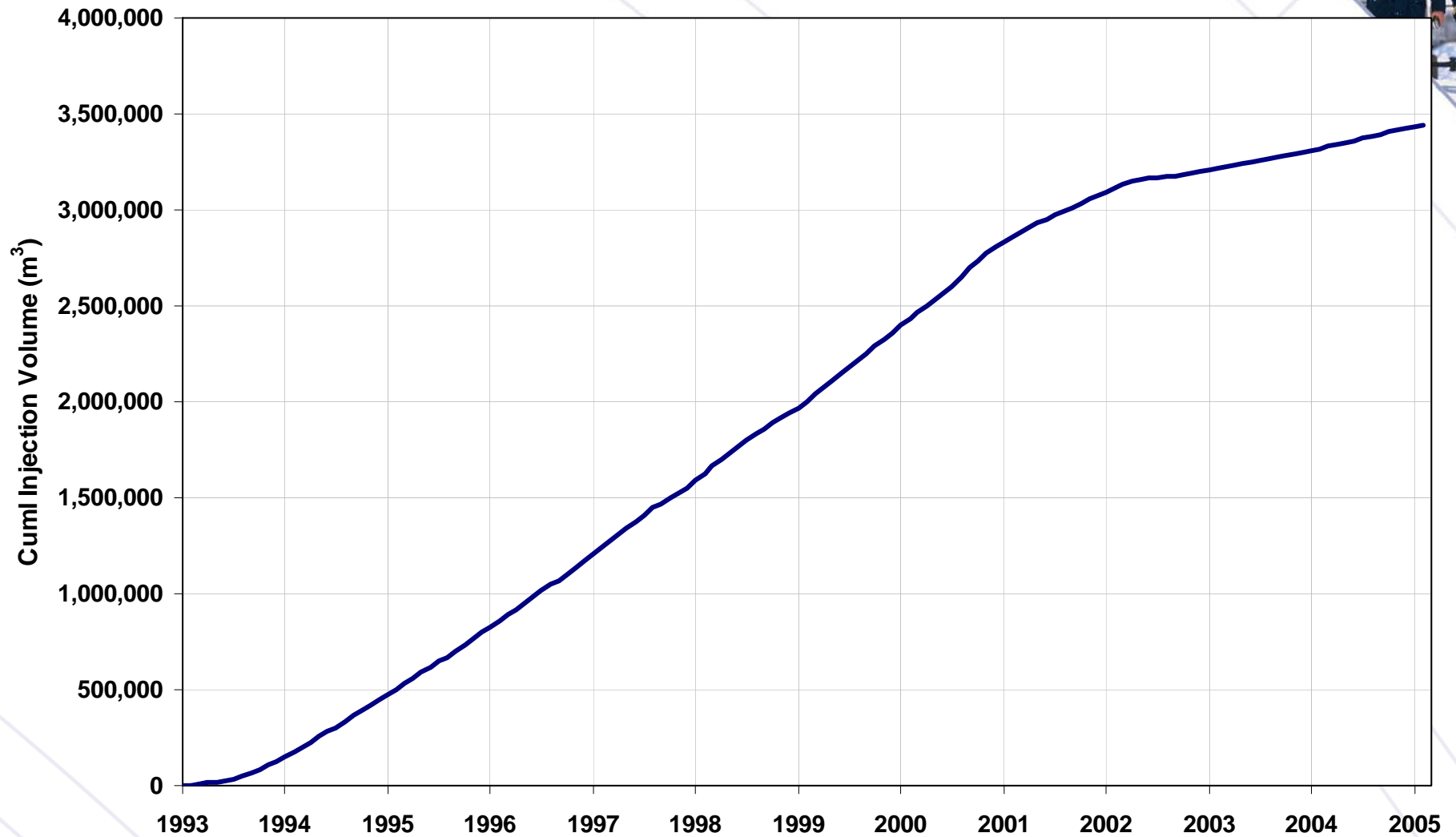
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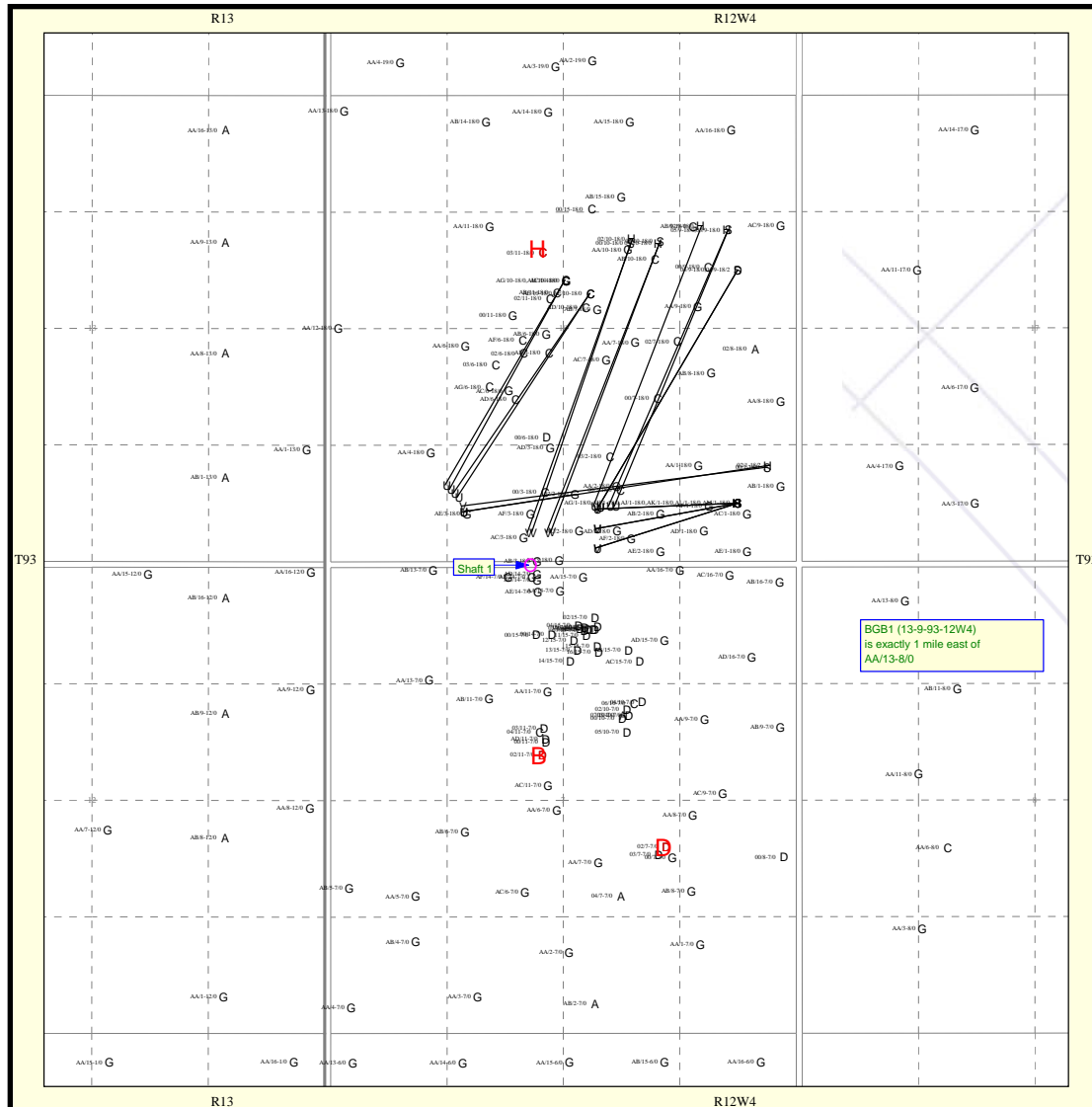
Cumulative Water Disposal into Wabiskaw

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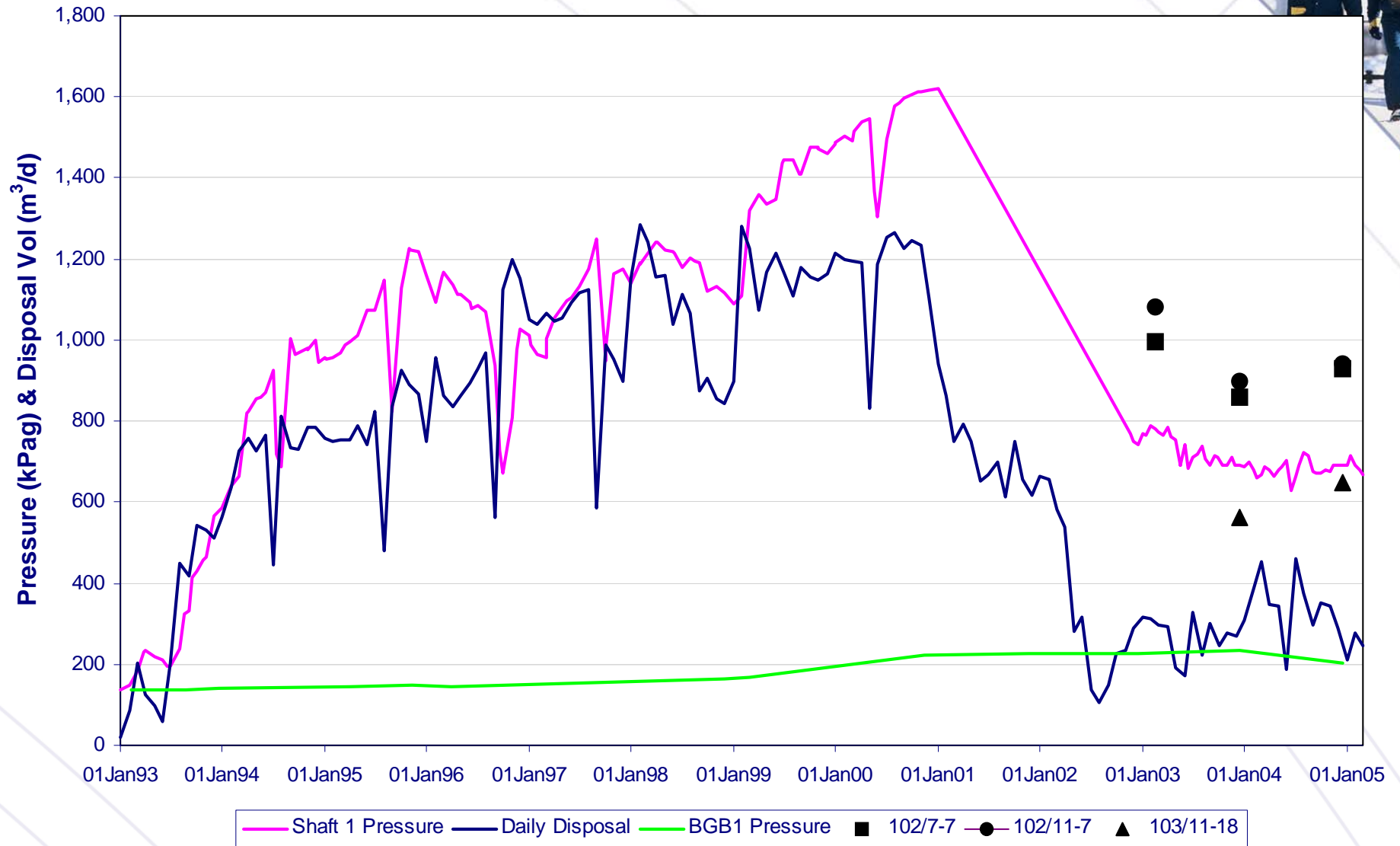
April 28, 2005

Wabiskaw Monitoring Program



Wabiskaw Pressure & Disposal Volume

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Outline

- Introduction
- SAGD Performance
- Facilities
- **Regulatory**
- Future Plans



AEUB Approvals

Approval	Expiry	Purpose
6809	31Dec1994	Construct Phase B
6809A	31Dec1997	Extend expiry to 31Jul99
6809B	31Dec1997	Add Phase D & facilities
6809C	31Dec1997	Add Phase E & PWR
6809D	31Dec1997	Inject NCG into Phase B
6809E	30Jun1998	Interim extension
6809F	30Jun2001	Continue piloting - rescinded
9044	30Jun2007	Commercial operating - experimental status removed. Add 3 SAGD well pairs (Phases F, G & H)
9045	30Jun2004	Removal of confidential status of Phase B & E data on 30Jun2004

AEUB Approvals

Approval	Expiry	Purpose
6865	Rescinded	Water disposal into Wabiskaw.
9139	Rescinded	Water disposal into Wabiskaw.
9552	Rescinded	Water disposal into Wabiskaw.
9862	30Jun2007	Water disposal into Wabiskaw. Well WDW 26 added in 2004

Dover Regulatory Alberta Environment Reporting

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- Dover AEPEA Approval No. 705-01-00
- Dover AEPEA Approval No. 705-01-01
- Air Emissions Reports filed monthly
 - Licensed maximums never exceeded
- Annual reporting for:
 - Air emissions
 - Ground water monitoring – expanded in 2003 to include annual water sampling and pressure monitoring of the Wabiskaw
 - Industrial waste water and run-off
- Temporary raw water diversion permit renewed in 2004

Regulatory Compliance

Devon Canada Corporation, to the best of its knowledge, was compliant with all applicable regulations and approvals pertaining to the Dover SAGD Facility in 2004.

Outline

- Introduction
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- **Future Plans**

The Devon logo is located in the top right corner of the slide. It consists of the word "devon" in a white, lowercase, serif font, set against a dark green triangular background that points towards the top right corner of the slide. The rest of the slide background is a light blue-grey color with a subtle grid pattern of thin white lines.

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DOVER

Operator Transition

Going Forward

April 28, 2005

Dover Plans - General

- Transitional Period
 - Smooth transfer of operatorship
 - Maintain status quo in 2005
 - Minor facility upgrades
 - Regulatory and safety compliance

Dover – Future Development

- Coordinated resource development plan for combined MacKay River/Dover area
- Evaluate technology options

Dover – Future Development

- Phases B, D, and E
 - Develop and test pressure maintenance methods that do not rely on methane or steam injection
 - Abandon Phase B wells and mine in 2006
 - Operate D and E wells to logical end
 - Retain most observation wells to monitor pressure maintenance schemes

Dover – Future Development

- F & G Well-Pairs Options
 - Priority for steam in 2005
 - Pilot Options
 - Low-pressure SAGD
 - In situ processes
 - Pump technology
 - Solvent co-injection

Dover – Future Development

- Solvent Co-Injection Pilot Options
 - F&G well pairs, or
 - New well pairs