

**HANGINGSTONE DEMONSTRATION PROJECT
2006**

Thermal In-Situ Scheme Progress Report
Approval No. 8788D

Presented On: Wednesday, April 4, 2007



Presentation Outline

1. Introduction

- Activity Summary & Key Learnings

2. Reservoir

- Production Performance
- Recovery Update

3. Geosciences

- Geology & Geophysics Update

4. Regulatory Approvals, Compliance, & Facility Performance

- Regulatory Approvals and Compliance
- Water Reuse
- Sulphur Dioxide Emissions
- Gas Conservation
- MARP

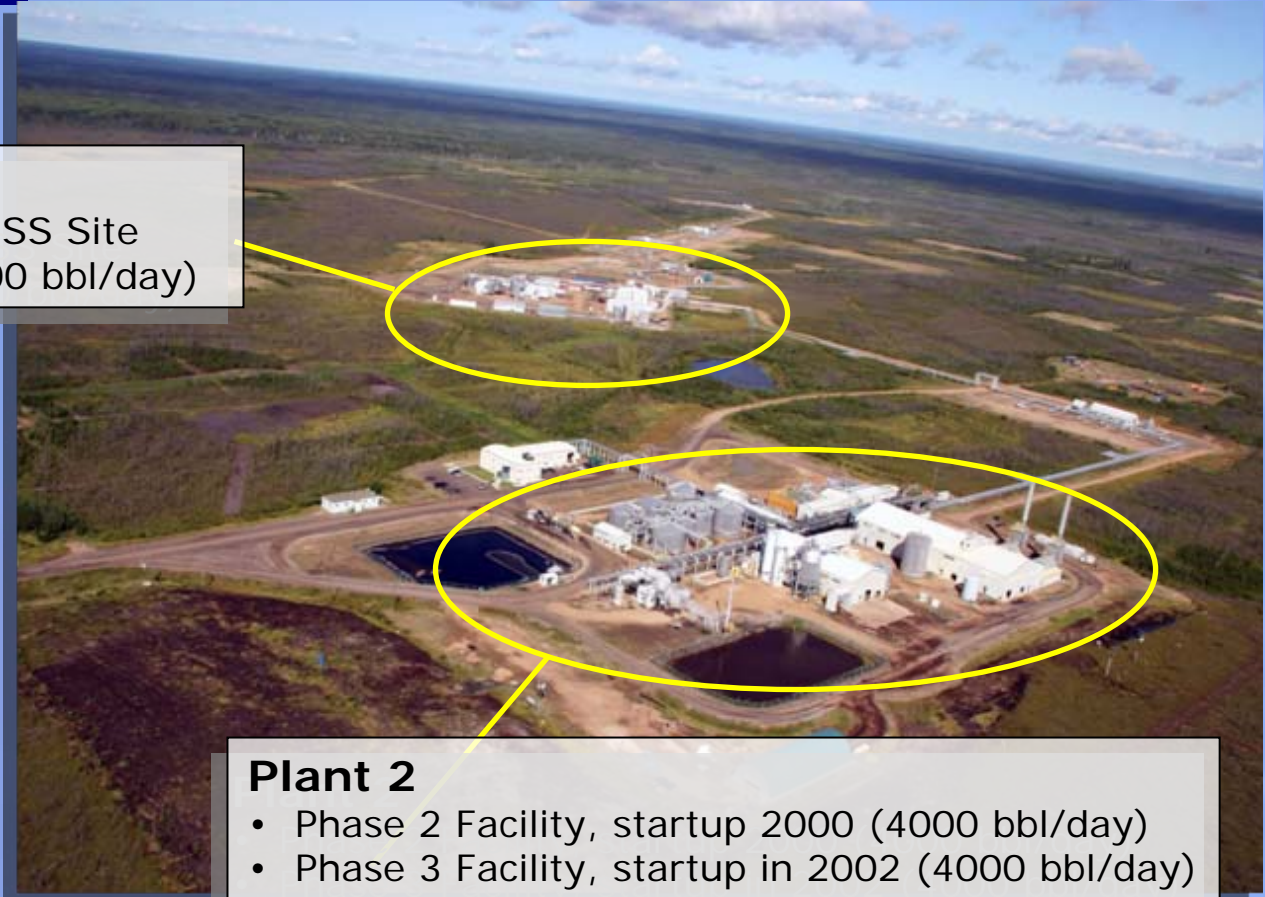
5. Future Plans & Activity

Introduction

Project Background

Plant 1

- On original PCEJ CSS Site
- Startup 1999 (2000 bbl/day)



Plant 2

- Phase 2 Facility, startup 2000 (4000 bbl/day)
- Phase 3 Facility, startup in 2002 (4000 bbl/day)

Wells

- Phase 1: A,B (startup 1999)
- Phase 2: C,D,E (startup 2000)
- Phase 3: F,H,I (startup 2002) (F shut down in 2003)
- Phase 4: J,K,L,M,N,O,P,Q (startup between 2003 – 2005)

- Lease located 50km south of Fort McMurray
- Approved demonstration project area: 3.75 sections
- Approved production capacity: 11,000 bbl/day

2006 Activity Summary

- Quaternary water source well & new water line started up.
- Piping installed to recover vapour from Plant 2 flash separators; no more flaring of SO₂ in Plant 2.
- Surface pump installed on O/P/Q well skid; to test lower pressure operation.
- Sanding of 'K' well; interrupted production, but eventually restarted.
- 'A' & 'B' well pairs remain economically viable and continue producing (no conversion to disposal as proposed last year)
- Completed field investigation for onsite landfill; application has been prepared
- Signed MOU with Hatch to develop N-Solv pilot at JACOS Hangingstone site

Key Findings



Sand production is increasing

- Increased sand in vessels and wear on valves.
- K-Well sanded off; production was interrupted but eventually restarted.
- Current completion strategy utilizes rolled slotted liners as opposed to wire wrap screen.
- Investigating root cause of increased sand production.



Surface heave not expected to be an issue to future operations at Hangingstone Demo

- Study completed to forecast impact of SAGD well operations beneath central surface facilities.
- 'Worst case' scenario used to predict maximum surface heave and slope over the project area
- Structural engineer's opinion is that predicted movement is minor and within design tolerances of facility



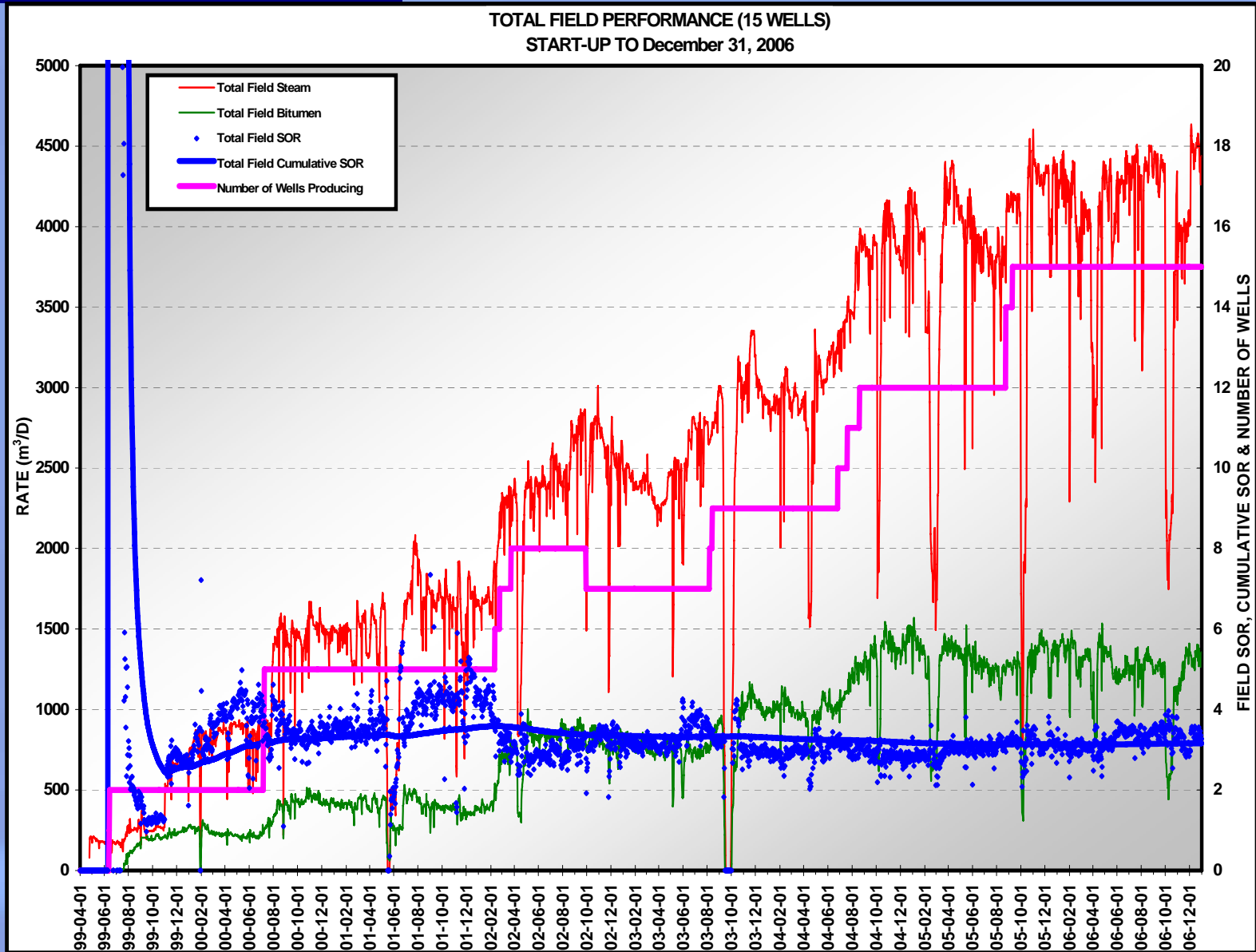
Continued operation of A & B well pairs will provide good performance data on mature well patterns

Reservoir

Reservoir Performance Summary

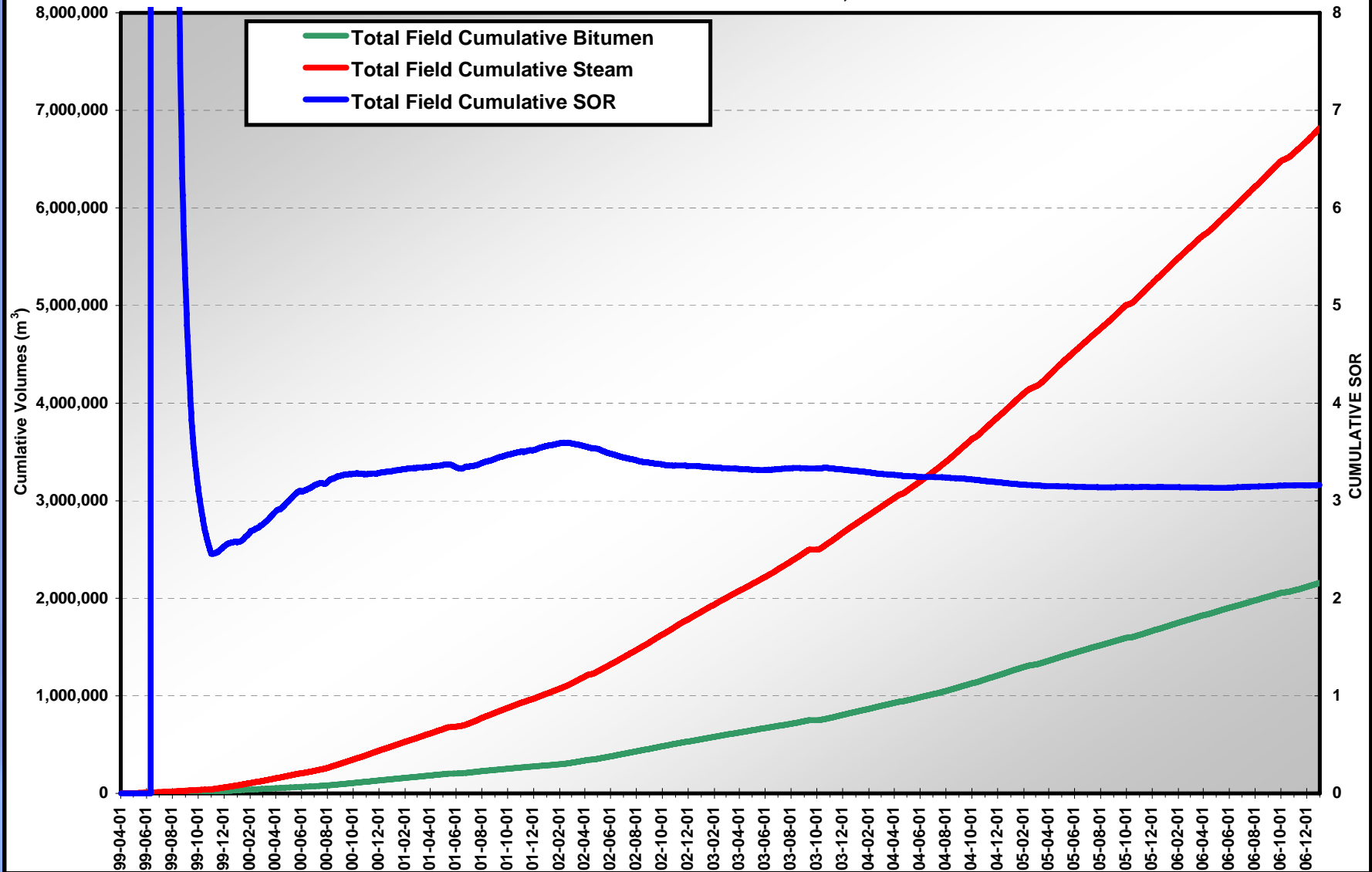
- Currently producing 15 SAGD well pairs
- 2006 average bitumen rate ~ 7700 bbl/day (1224 m³/day)
- Cumulative bitumen produced from project startup to 12/31/2006 ~ 13.5 million bbl (2.14 million m³)
- Cumulative SOR to 12/31/2006 ~ 3.17
- OBIP for the 3.75 section project area is 79 million bbl (12.6 million m³)
- Recoverable bitumen is estimated at 40 million bbl (6.4 million m³) (~51% Ultimate Recovery)

Performance: Rates



Performance: Cumulative

TOTAL FIELD Cumulative Volumes (Bitumen, Steam and SOR)
FROM START-UP TO December 31, 2006

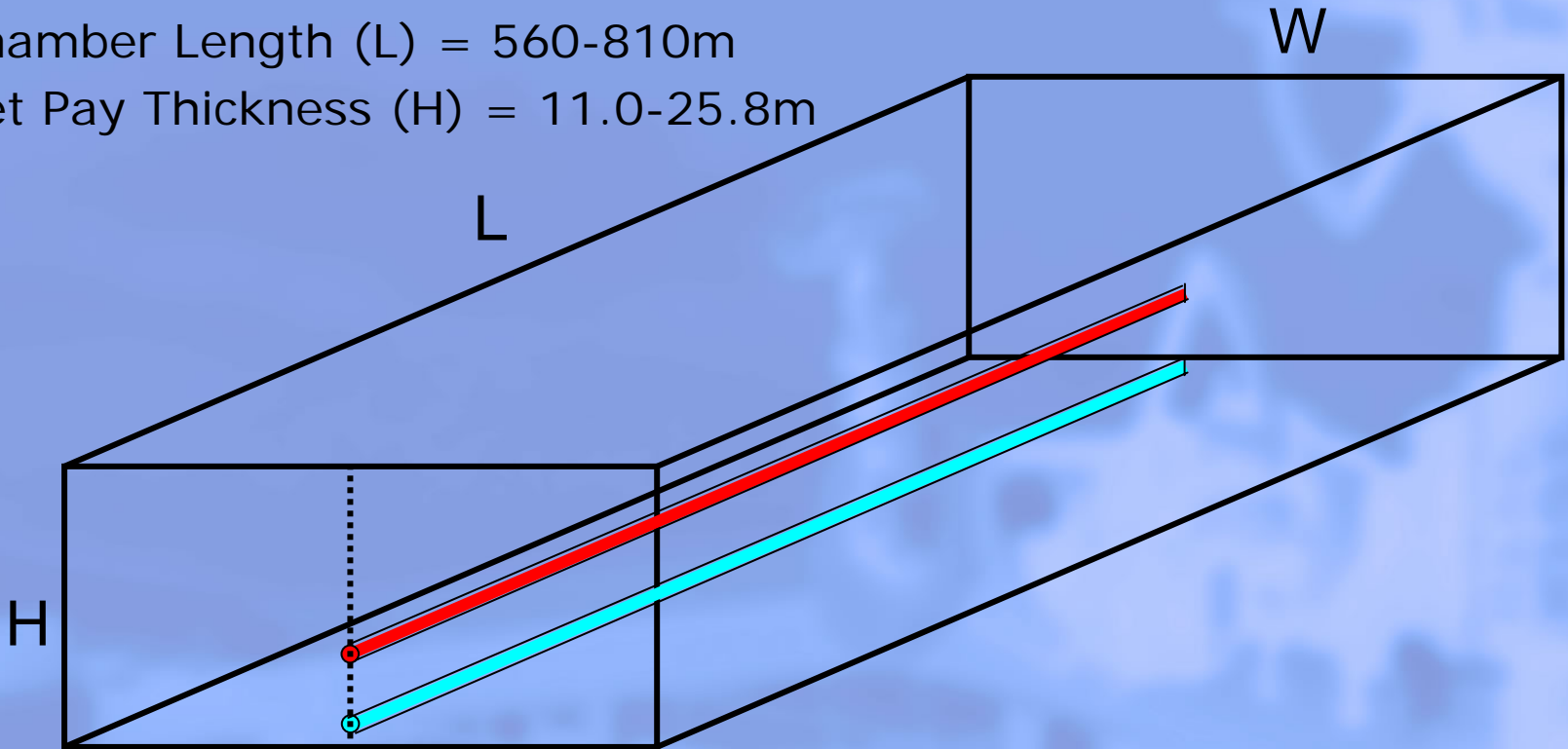


Cumulative Reservoir Statistics (to 12/31/2006)

Start Year	Well Pair	Cumulative Steam Injected (m3)	Cumulative Bitumen Produced (m3)	Cumulative Water Produced (m3)	Cumulative SOR	Cumulative WOR	Recovery wrt OBIP (%)
1999	A & B	1,907,237	555,850	1,848,497	3.43	3.33	73.3
2000	C, D & E	1,591,672	460,235	1,420,424	3.46	3.09	46.1
2002	F, H & I	1,445,402	469,900	1,299,317	3.08	2.77	49.4
2003	J & K	820,798	277,217	776,028	2.96	2.80	27.8
2004	L, M & N	727,962	280,355	662,651	2.60	2.36	23.0
2005	O, P & Q	314,218	101,162	298,339	3.11	2.95	12.5
	Field Total	6,807,289	2,144,718	6,305,255	3.17	2.94	37.4

OBIP Calculation methodology and assumptions

- $OBIP = \text{Bulk volume} \times \text{Porosity} \times \text{Oil Saturation (So)}$
- $\text{Bulk volume} = \text{Net Pay Thickness} \times \text{Chamber Width} \times \text{Chamber Length}$
- $\text{Chamber Length} = \text{Well Length} + 60\text{m at each end of well}$
- $\text{Average porosity} = 35\%$
- $\text{Average } So = 77\%$
- $\text{Chamber Width (W)} = 100\text{-}150\text{m}$
- $\text{Chamber Length (L)} = 560\text{-}810\text{m}$
- $\text{Net Pay Thickness (H)} = 11.0\text{-}25.8\text{m}$

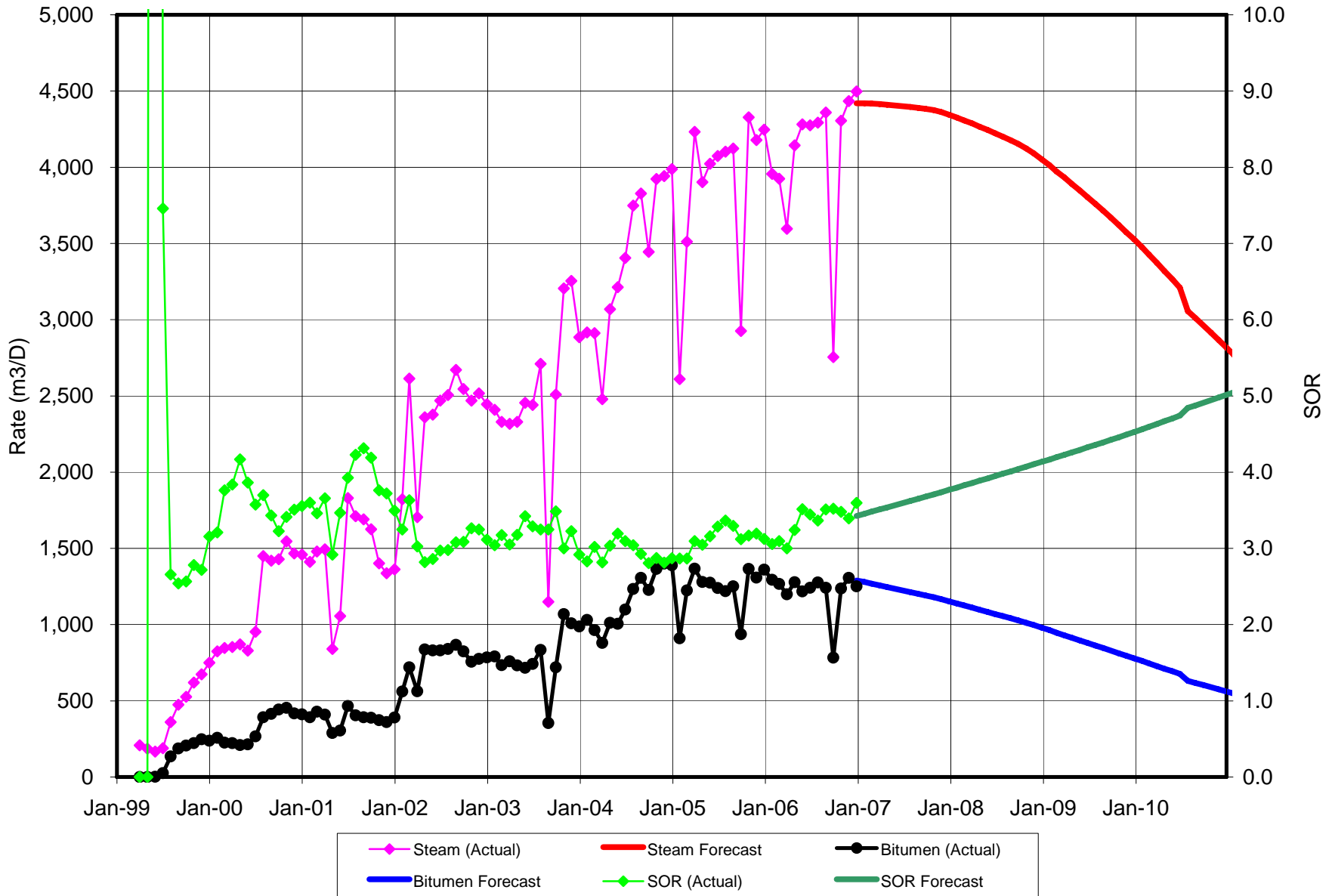


Reservoir Performance Statistics: 2006

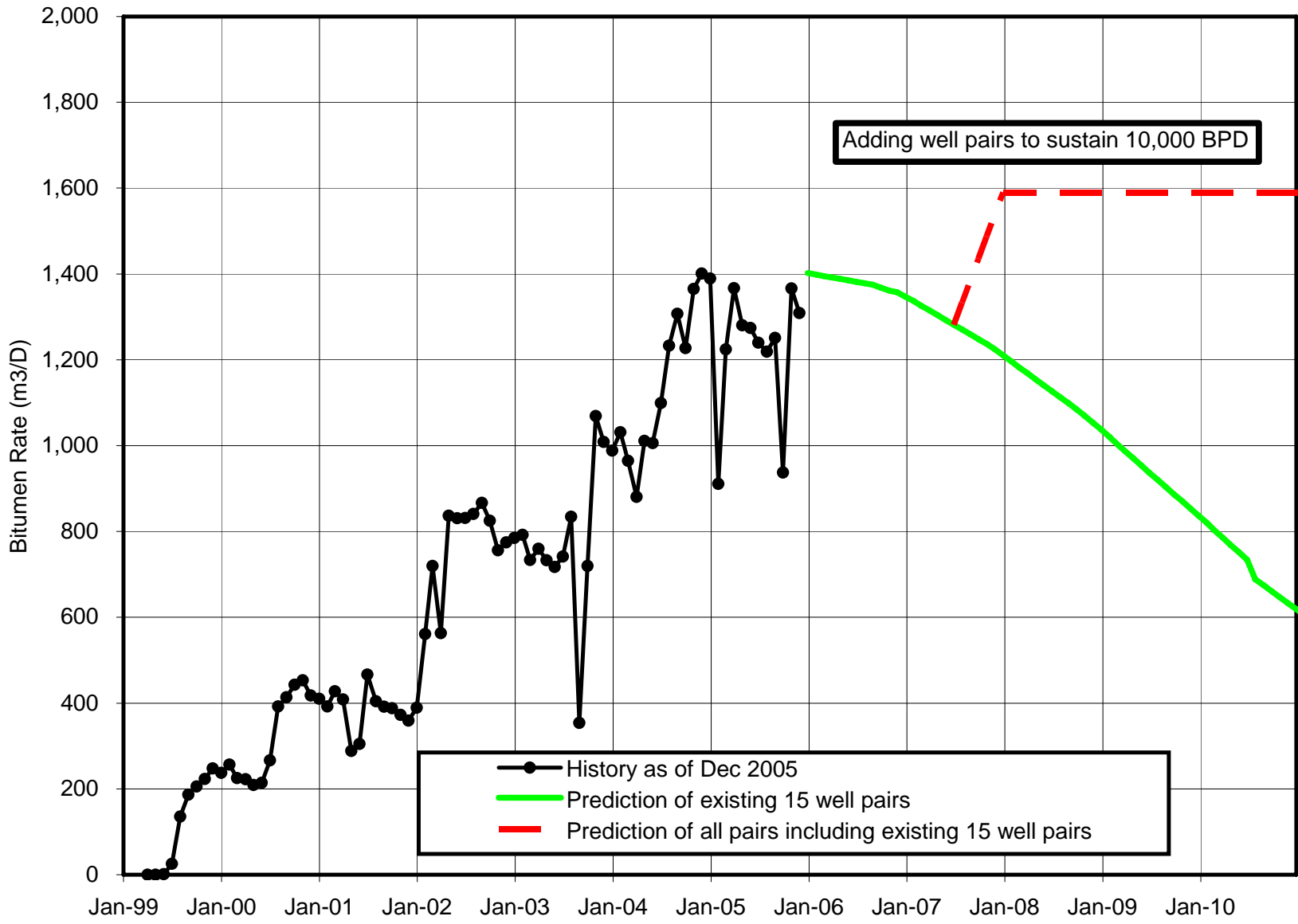
Well Pair	Annual Steam Injected (m3)	Annual Bitumen Produced (m3)	Annual Water Produced (m3)	Annual SOR	Annual WOR
A & B	246,198	60,689	237,660	4.06	3.92
C, D & E	250,902	70,609	226,117	3.55	3.20
F, H & I	232,766	67,031	228,833	3.47	3.41
J & K	209,961	60,595	198,107	3.46	3.27
L, M & N	311,182	102,613	277,405	3.03	2.70
O, P & Q	226,343	85,485	218,272	2.65	2.55
Field Total	1,477,352	447,022	1,386,394	3.30	3.10

1. Reservoir sweep occurring from B to A.
2. Reservoir sweep occurring from D to E.
3. Reservoir sweep occurring from H to I and K

Production Forecast: Existing 15 Well Pair



Planned Production Profile

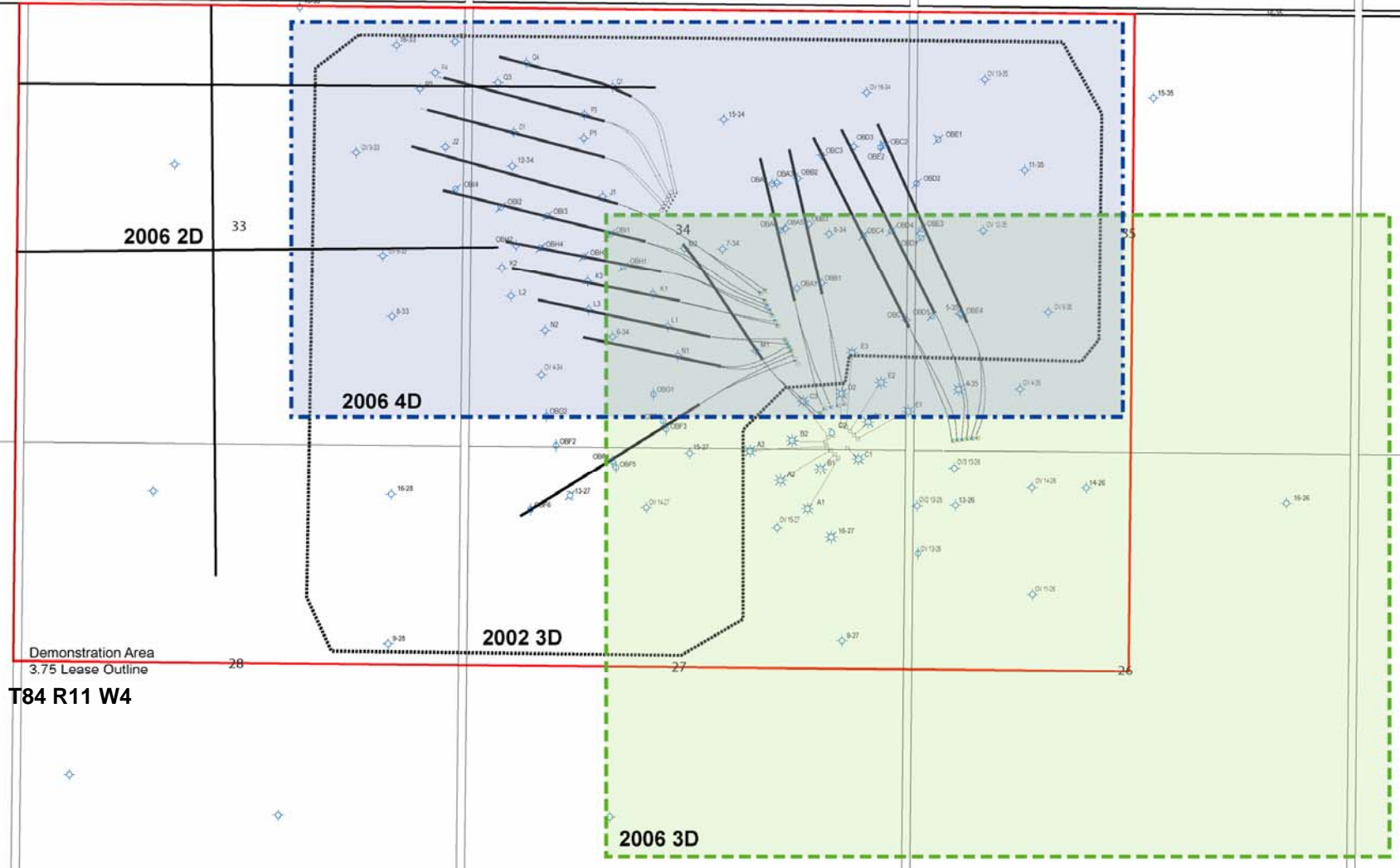


Geosciences

Winter 2005-2006

- 2D and 3D seismic acquired in early 2006
 - 8 km 2D to assess the bitumen resource extension into Section 33
 - 6.7 km² 3D survey in SE area
 - 4.3 km² 4D survey covering the existing development patterns
- No drilling activity

Winter 2005-2006 Seismic Programs



Winter 2006-2007

- 12 control wells drilled and cored
 - To position 9 SAGD well pairs (7 pairs drilled in 2007)
 - To confirm the absence of steam or pressure before drilling the SAGD well pairs
 - 3 locations completed with thermocouples for temperature observation
- 7 Horizontal SAGD Well Pairs to be drilled
 - HZR-U, HZX-Z will be drilled
 - HZV and HZW will be deferred to the future
- 4 appraisal wells in Section 33
 - To test the 2006 2D interpretation
 - To assess the bitumen resource potential in Section 33

Compliance & Facility Performance

Regulatory Approvals & Compliance

- Approvals:

- Permit for new water source pipeline granted February 6/06 (Approval No. 24616)
- Renewal of EUB approval granted March 7/06 (8788D)
- SO₂ limit increase to 1.63 tonne/day granted March 15/06 (AEPEA Approval No. 1604-01-09)
- Temporary diversion license for Quaternary aquifer granted May 4, 2006 (Licence No. 00230742-00-00)
- Filed amendment application for EUB Approval 8788D to add 'R' - 'Z' well pairs, in December 2006
- Submitted draft Measurement Accounting & Reporting Plan (MARP) for approval, with 'R' – 'Z' application

Regulatory Approvals & Compliance

- Compliance:
 - Registered with Alberta One Call; per new Pipeline Act & Regulations.
 - No violations of approval limits.
 - No reportable spills
 - Two spills (produced water; treated water) in Plant 1 containment area; called in to EUB Bonnyville field centre; no follow up report was required.
 - To the best of JACOS' knowledge we are in compliance with the terms & conditions of EUB Approval 8788A-D and AEPEA Approvals 1604-01-00 to 09.

Water Reuse Performance Data - 2006

Water		Injected Total Steam	Produced Water	Produced Water Reuse Ratio
Fresh Source	Injected Fresh			
(m ³) ^[1]	(m ³) (CWE) ^[2]	(m ³) (CWE)	(m ³)	%
245,820	207,322	1,471,823	1,386,397	91

Notes:

[1] Started water withdrawal from Quaternary aquifer in June 2007.

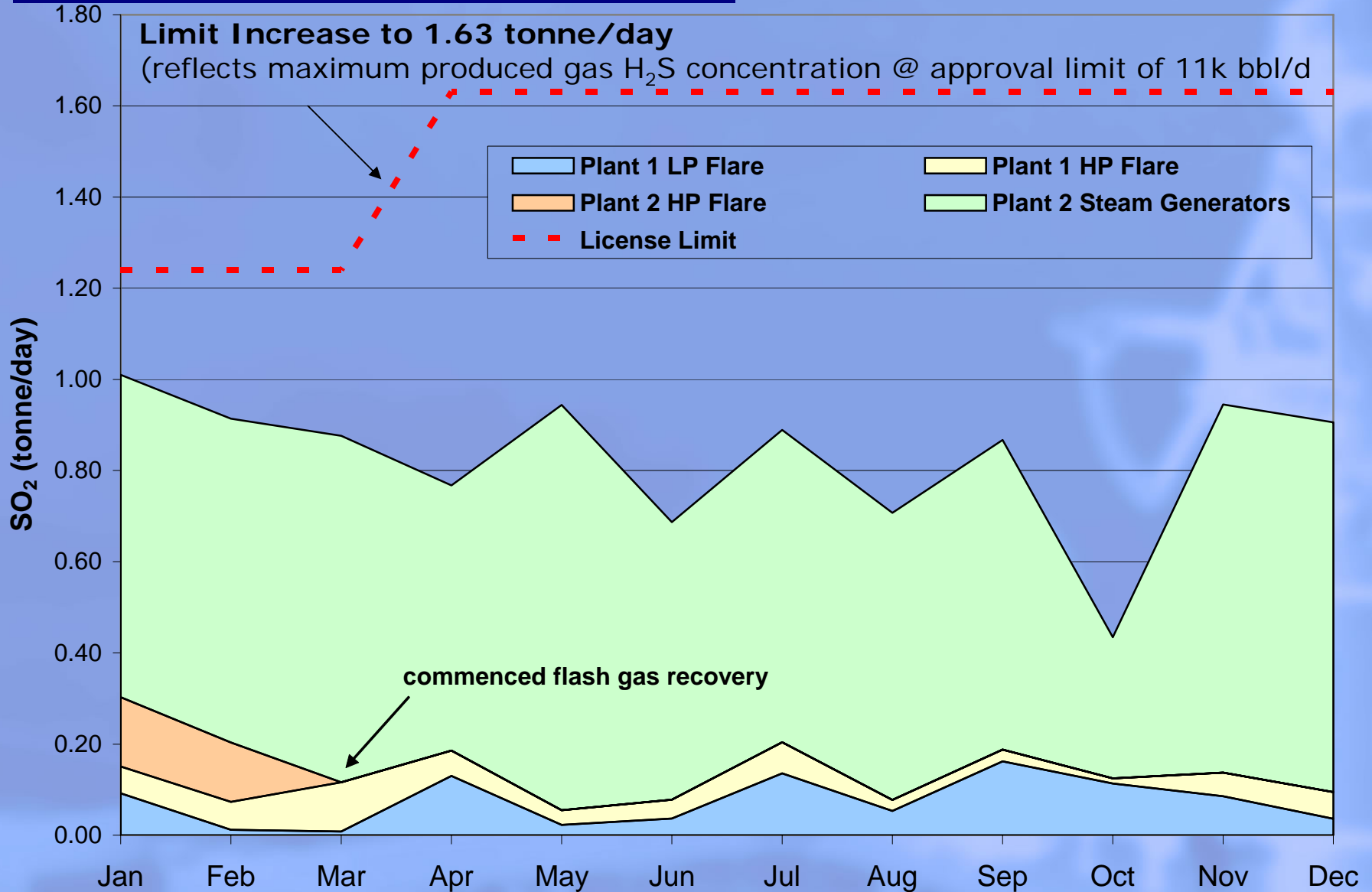
[2] Difference between total source fresh and injected fresh water is 38,498m³ of p/l loss; new fresh water pipeline was commissioned in June 2007

Disposal Total - 41,704 m³

[34,417 JACOS Disposal wells, 7,286 offsite disposal]

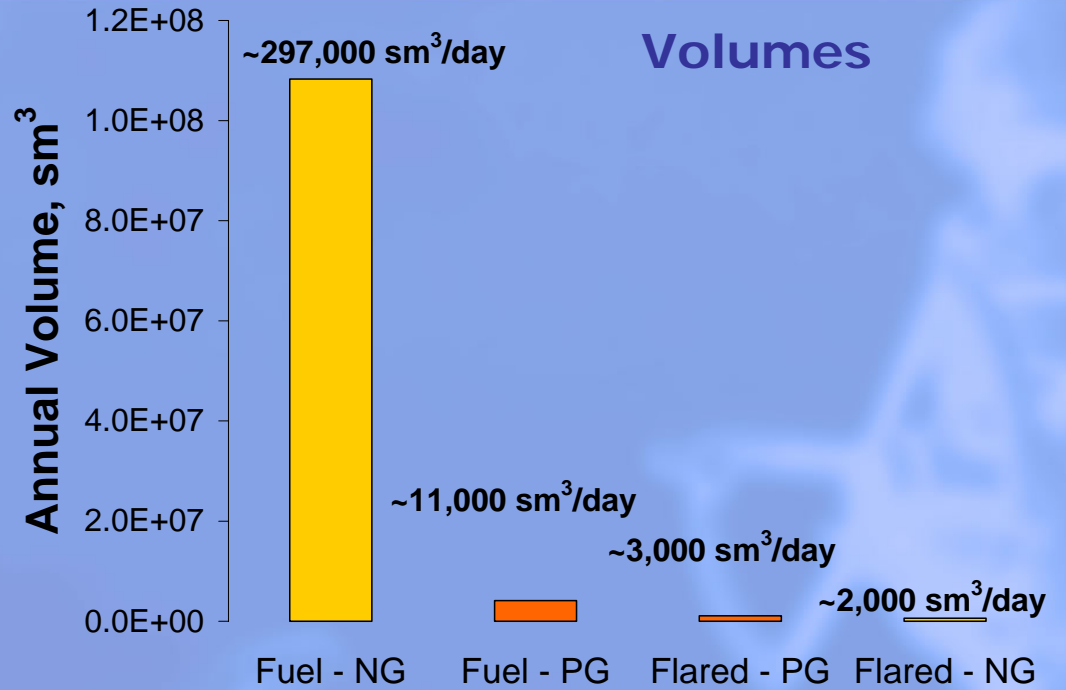
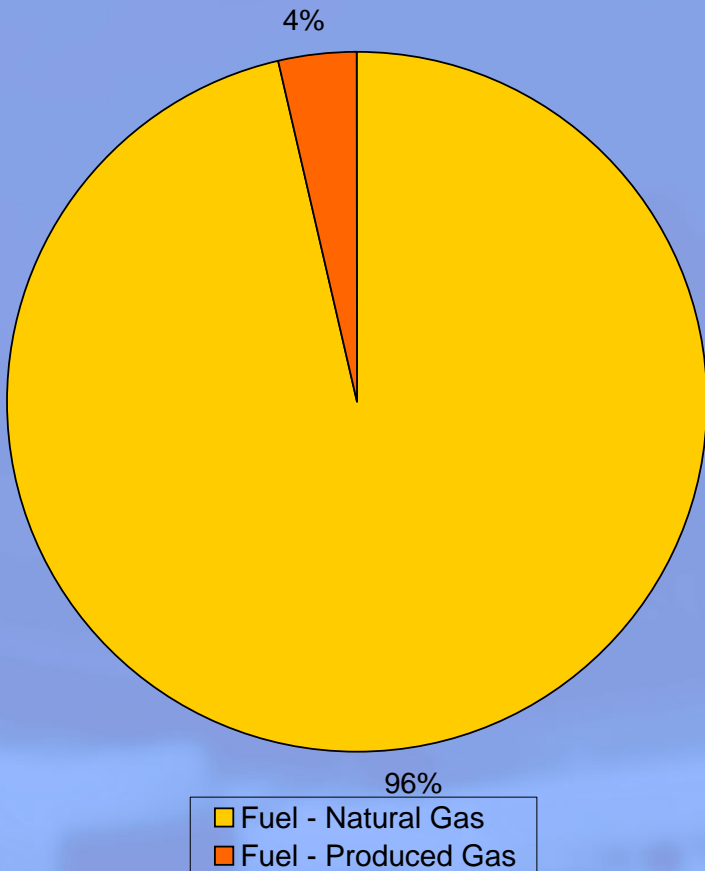
Produced Water Reuse Ratio = (Injected Total Steam - Injected Fresh Water) / Produced Water

2006 Sulphur Dioxide Emissions

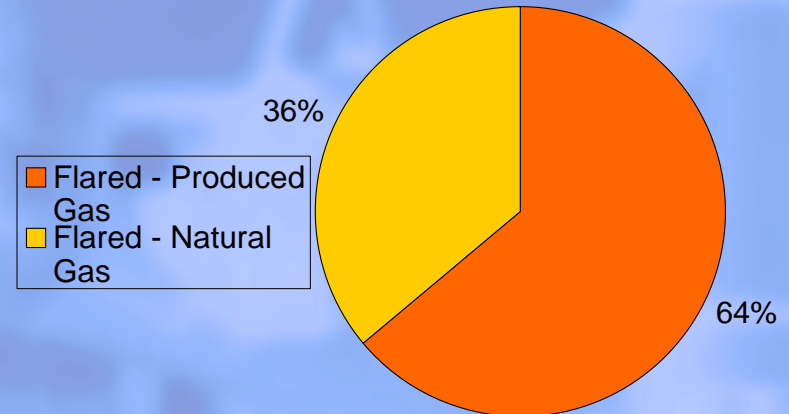


Gas Conservation

Lease Fuel Gas Balance



Flare Gas Balance

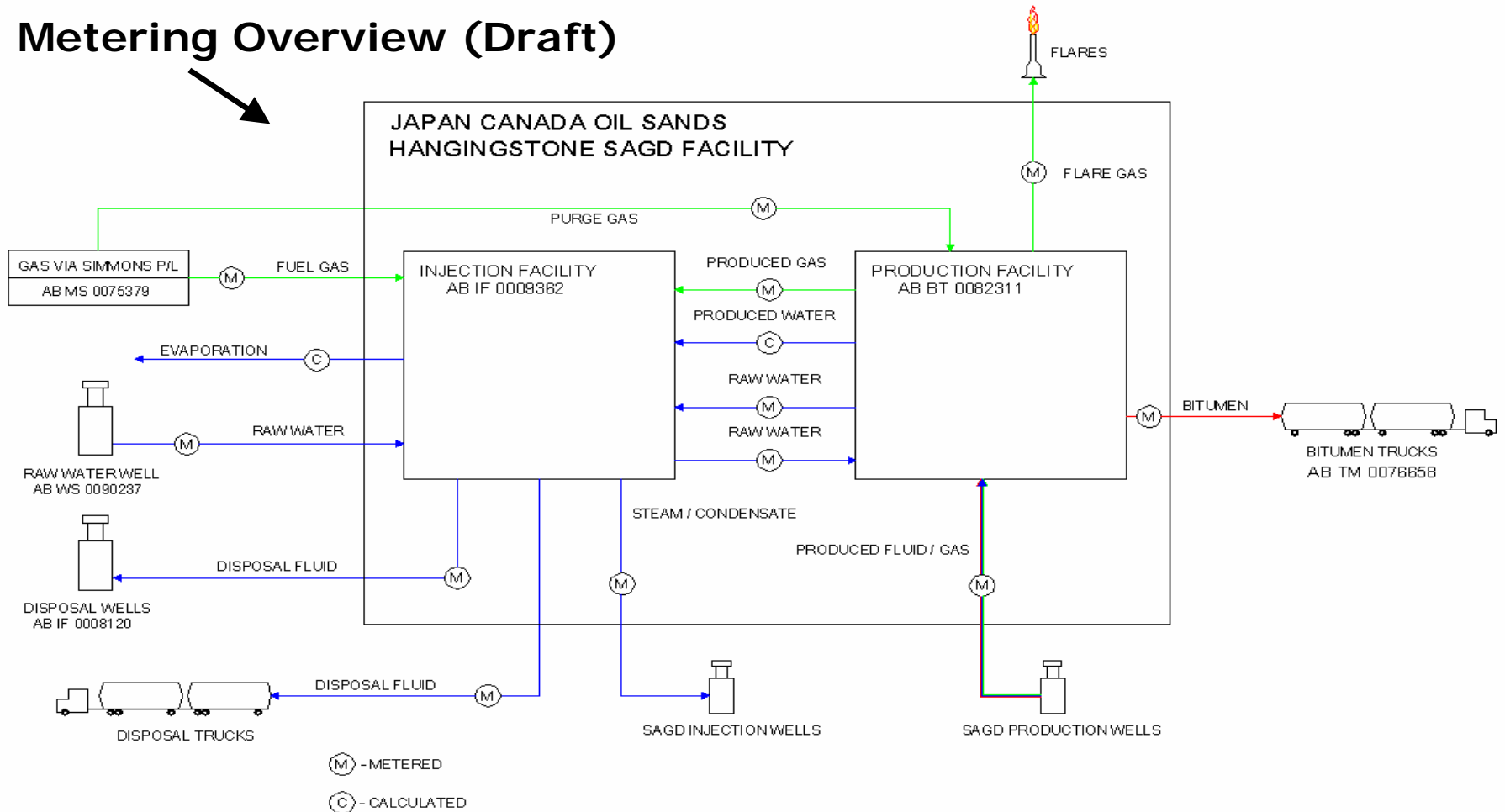


Measurement, Accounting and Reporting Plan (MARP)

Submitted Draft to EUB in December 2006

- Highlights of MARP:**
- Process and measurement details
 - Operating procedures
 - Accounting calculations and reporting

Metering Overview (Draft)



Bitumen Allocation Method

- Each SAGD well pair has individual metered wellhead separators; produced fluid rates are continuously measured and recorded
- The bitumen cut is determined during steady operation utilizing the following equations:
 - Bitumen Cut = Bitumen Production / Produced Fluid
 - Bitumen Production = Produced Fluid – (Steam – Loss)
 - Produced Fluid and Steam are metered values, plant wide loss (Steam – Produced Water) is determined daily and distributed to each well
- Total bitumen production (Σ Bitumen Cut X Produced Fluid) is prorated to plant production
- Details and an example of the bitumen allocation can be found in the MARP

Future Plans & Activity

Demonstration Project Future Plans & Activity

- Drill seven well pairs R-U; X-Z
 - U will not be completed in 2007; X or Y planned for N-Solv pilot
 - Tie-in and produce well pairs to plant's capability
- File application for 50 MMBtu/hour steam generator addition
 - Natural gas base fuel
 - Request 2-year temporary approval to test fire bitumen
 - Flue gas will be treated during bitumen test firing
- Disposal into depleted SAGD patterns (A&B well pairs) no longer in near-term plans
 - A&B pattern continues to be economically viable
- Try lower-pressure test on O,P,Q wells (3.5 – 4.0 MPa)
- Class II landfill application complete and ready to file
- Decision to proceed with N-Solv pilot – Q2 2007; application will be filed in Q2 2007
- Follow up on Section 33 drilling results
- Delineation programs on remainder of OSL 70 on-going