“Partner Experiences”

Pioneer Natural Resources, USA

Presented by James Meier

Processors Technology Transfer Workshop
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How Did Pioneer Get Involved?

- Pioneer formed in 1997 as a merger between Parker & Parsley Petroleum Co. and MESA Inc.
- Pioneer was originally contacted in 1998 by The Cadmus Group, Inc.
- In July 1999, Pioneer began reviewing benefits of membership in STAR

PIONEER
NATURAL RESOURCES

How Did Pioneer Get Involved?

- Weighing Pro's and Con's
  - Audit potential
  - Compliance with EPA regulations
- Pioneer contacted several member companies who expressed positive support for the program

How Did Pioneer Get Involved?

- In the end, there were only advantages:
  - Demonstrate Pioneer's commitment
  - Continue to identify and reduce air emissions
  - Share information with other companies
  - Reap financial rewards

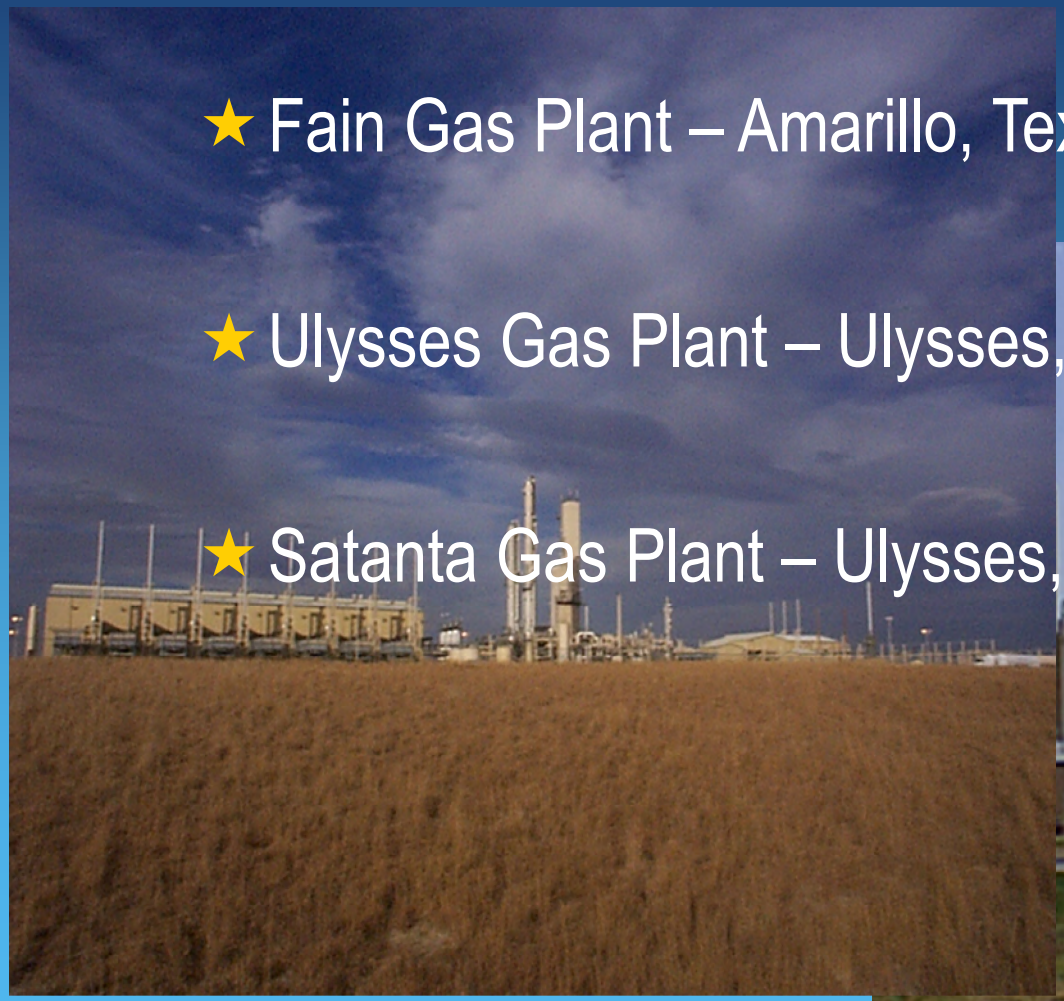
- **Total management support!**

How Did Pioneer Get Involved?

- July 25, 2000 – Pioneer Natural Resources USA signed Memorandum of Understanding for Production Companies

- September 18, 2000 – Pioneer Natural Resources USA signed Memorandum of Understanding for Gathering and Processing Companies, becoming a Charter Partner

Pioneer Natural Resources' Gas Facilities



- ★ Fain Gas Plant – Amarillo, Texas
- ★ Ulysses Gas Plant – Ulysses, Kansas
- ★ Satanta Gas Plant – Ulysses, Kansas

Best Management Practices (BMP's)

- Jointly identified by EPA and the industry as cost-effective options for reducing methane emissions
  - Replace gas pneumatics with instrument air systems
  - Install flash tank separators on glycol dehydrators
  - Implement directed inspection and maintenance at gas plants and booster stations

BMP Implementation at Pioneer Facilities

- Instrument air system already existed at Fain and Satanta. Instrument air compressor installed at Ulysses in September 2002
- Glycol flash tank separators already existed at Fain, Ulysses, and Satanta
- VOC detection performed at Fain, Ulysses, and Satanta. The results are used to repair leaks. Leaks at all sites have been reduced to less than 2% of all points tested

PRO's at Fain

- 1996
  - Installed turbine speed controllers (59 Mcf/yr)
  - Installed plant recycle valve (180 Mcf/yr)
  - DCS upgrade (13 Mcf/yr)
- 1997
  - Install heat tracing (58 Mcf/yr)

PRO's at Fain

- 1999
  - Install blowdown pipe to flare (12 Mcf/yr)
- 2000
  - Install condensate pipeline (31,238 Mcf/yr)
  - Switch to commercial power (180 Mcf/yr)
  - Adjust gas regulator (4,138 Mcf/yr)

PRO's at Fain

- 2001
  - Modify compressor logic (34 Mcf/yr)
  - Larger stabilizer reboiler (2,901 Mcf/yr)
  - Vapor recovery on slug catcher (3,796 Mcf/yr)
- 2002
  - BTEX removal (641 Mcf/yr)

PRO's at Ulysses

- 1990
  - Install separator (7,814 Mcf/yr)
- 1997
  - Flash separator piping (521 Mcf/yr)
  - Storage tank piping (260 Mcf/yr)

PRO's at Ulysses

- 2001
  - BTEX removal (398 Mcf/yr)
- 2002
  - Remove burn pit (4,721 Mcf/yr)
  - Convert to instrument air (588 Mcf/yr)

PRO's at Satanta

- 1995
  - Repair NRU (163,054 Mcf/yr)
- 1999
  - Install amine unit (78,300 Mcf/yr)

PRO's at Satanta

- 2000
  - Convert compressor blowdown (1,038 Mcf/yr)
  - Pipe TEG flash to amine flare header (2,365 Mcf/yr)
- 2001
  - BTEX removal (134 Mcf/yr)

Fain Starting Air System

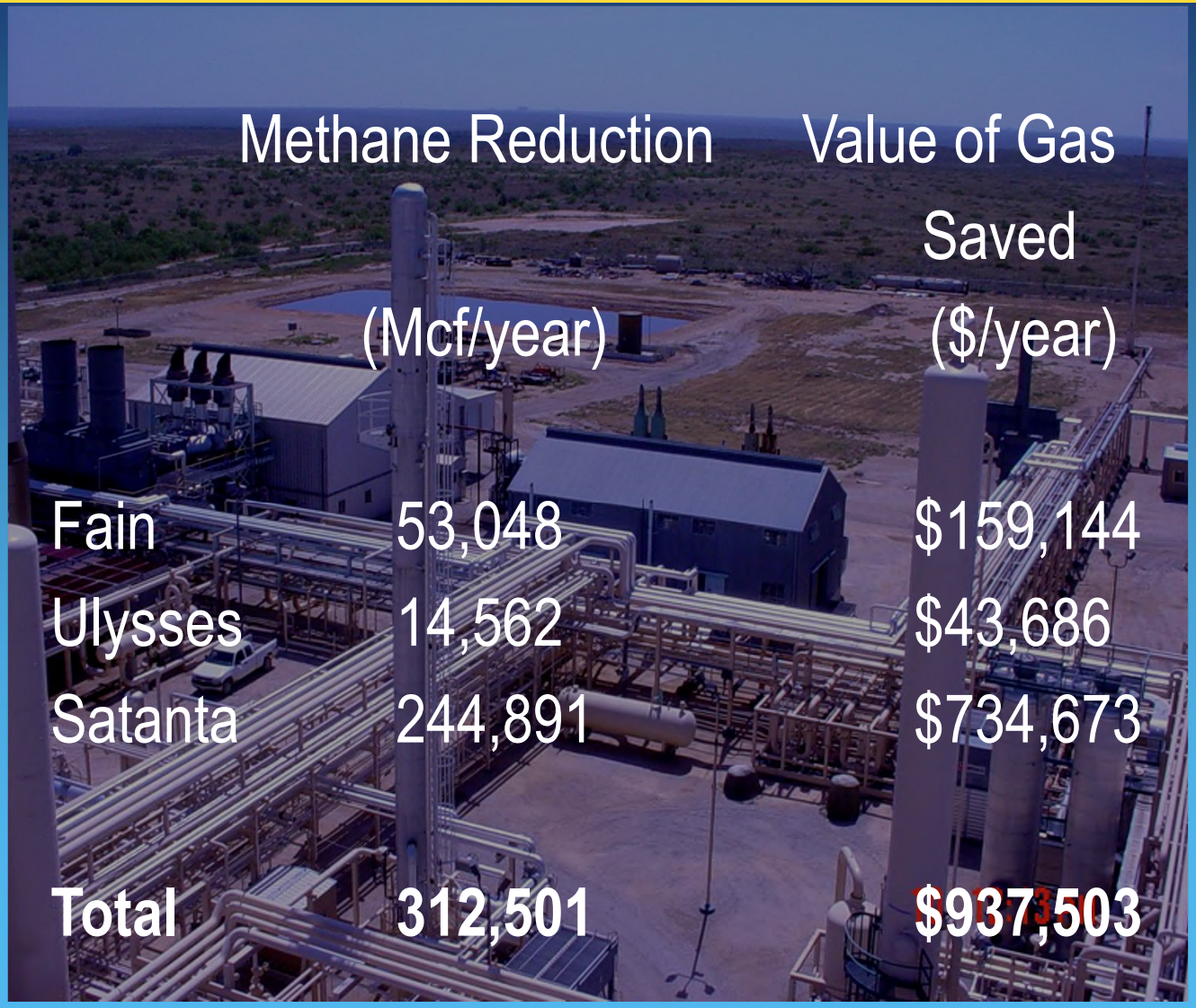
- ★ Convert starting gas to starting air.
- ★ Starting air system already existed for older reciprocating engines (small air users)
- ★ System would be expanded to include all engines at the plant, including large horsepower reciprocating engines and turbines
- ★ Project was presented to management and approved as a STAR project

Fain Starting Air System

- Capital Expenditures:
  - Air Compressor
  - Air Receiver
  - Piping
  - Regulator and PSV modifications as necessary

- Estimated Methane Reduction:
  - 9,798 Mcf/yr

STAR Results (1990-2004)



	Methane Reduction (Mcf/year)	Value of Gas Saved ($/year)
Fain	53,048	$159,144
Ulysses	14,562	$43,686
Satanta	244,891	$734,673
Total	**312,501**	**$937,503**

Additional Accomplishments

- ★ Earned STAR Rookie of the Year in 2001 for strong initial program implementation
- ★ Presented "Partner Experiences" at 9th Annual Implementation Workshop in October, 2002
- ★ Earned Processing Partner of the Year award for 2002
- ★ Host/Presenter for Methane Emissions Reduction Technology Transfer Workshop in 2003
- ★ Participated with EPA on Partner Profile published in February 2004

The Future of STAR at Pioneer

- Current projects include:
  - Converting starting gas to starting air for compressors at Satanta
  - Evaluating with manufacturers if additional compressors can avoid being blown down during trip/shut-down to prevent emissions to atmosphere