

Section 285.6100 Schedule F-4: Additions to Plant in Service Since the Last Rate Case

**b) Information for the top ten most costly additions**

1) WO number: 16397

a) Description of addition:

2007 AmerenIP Gas Vehicle Replacements

b) Date project started: 01/01/2007

c) Completion date: 04/01/2007

d) Completion cost: \$1,232,792

e) Reason for the project:

To replace AmerenIP gas vehicles that had reached the end of their life cycle.

f) Alternatives considered and the reasons for rejecting each:

The option to not replace equipment was rejected due to reliability issues and the costs associated with maintenance and downtime.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. ACQ-BCS-GEN Annual Replacement List.qry
2. ACQ-ED-EDTS Annual Replacement List.qry

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2) WO number: 16398

a) Description of addition:

2008 AmerenIP Gas Vehicle Replacements

b) Date project started: 03/01/2008

c) Completion date: 03/01/2008

d) Completion cost: \$3,025,728

e) Reason for the project:

To replace AmerenIP gas vehicles that had reached the end of their life cycle.

f) Alternatives considered and the reasons for rejecting each:

The option to not replace equipment was rejected due to reliability issues and the costs associated with maintenance and downtime.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. ACQ-BCS-GEN Annual Replacement List.qry
2. ACQ-ED-EDTS Annual Replacement List.qry

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3) WO number: 16399

a) Description of addition:

2009 AmerenIP Gas Vehicle Replacements

b) Date project started: 01/01/2009

c) Completion date: 01/01/2009

d) Completion cost: \$1,872,263

e) Reason for the project:

To replace AmerenIP gas vehicles that had reached the end of their life cycle.

f) Alternatives considered and the reasons for rejecting each:

The option to not replace equipment was rejected due to reliability issues and the costs associated with maintenance and downtime.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. ACQ-BCS-GEN Annual Replacement List.qry
2. ACQ-ED-EDTS Annual Replacement List.qry

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4) WO number: 16813

a) Description of addition:

2010 AmerenIP Gas Vehicle Replacements

b) Date project started: 01/01/2010

c) Completion date: 01/01/2010

d) Completion cost: \$6,765,491

e) Reason for the project:

To replace AmerenIP gas vehicles that will have reached the end of their life cycle.

f) Alternatives considered and the reasons for rejecting each:

The option to not replace equipment was rejected due to reliability issues and the costs associated with maintenance and downtime.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. ACQ-BCS-GEN Annual Replacement List.qry
2. ACQ-ED-EDTS Annual Replacement List.qry

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5) WO number: 20498

a) Description of addition:

Installation of 80,000 gallon produced water storage tank, pumps, filtration, electronic controls, building foundation, building, inter-well water collection pipeline system, drip tie-ins and regulation and pressure control equipment at well sites to collect water produced from storage wells during withdrawal. The stored water is then either free-flowed or injected into the Mathers #1 disposal well.

b) Date project started: 12/20/2006

c) Completion date: 11/01/2007

d) Completion cost: \$1,614,379

e) Reason for the project:

Produced water at Shanghai Storage Field was being separated from the gas stream at each well, ran through charcoal barrels for purification and then land-applied (NPDES permit) at each well site. The Environmental Protection Agency implemented more stringent permit requirements for allowable BTEX levels for fluids to be land-applied. The existing system for handling the fluids was going to be no longer acceptable. Additionally, the existing system restricted the flow from the wells due to the necessity to throttle individual well flows back to be able to pass produced fluids through additional charcoal barrels. These were the two primary reasons for the installation of the produced water collection system at Shanghai Storage Field.

f) Alternatives considered and the reasons for rejecting each:

Drilling a new well verses drilling deeper in an existing observation well were considered. Reusing the existing well saved significant amounts of money. Wells can now be flowed at their maximum potentials, and produced water can be more than adequately be handled and disposed of in a permitted disposal well.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. EN Engineering field assessment, cost estimates, design drawings, calculations, competitive bid analyses on major items (storage tank, pumps and filtration, etc).

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6) WO number: 20523

a) Description of addition:

The Installation of a Re-boiler and Dehydration Tower at Freeburg Storage Field.

b) Date project started: March 2009

c) Completion date: 07/01/2009

d) Completion cost: \$1,414,516.09

e) Reason for the project:

Presently, there is no back-up re-boiler or dehydration tower at Freeburg Storage Field. A second re-boiler and dehydration tower are needed to provide a redundant system to maintain operational reliability during the withdrawal season. Without the redundant system, should the existing re-boiler or dehydration tower malfunction during withdrawal, it is unlikely that the moisture content of the gas removed from storage would meet pipeline quality requirements and the field would have to be shut-in.

f) Alternatives considered and the reasons for rejecting each:

The use of a desiccant system to treat gas removed from the Freeburg Storage Field during withdrawal was considered, but it was found to be too expensive and not a cost-effective process for this particular application. EN Engineering developed design specifications for a re-boiler and dehydration tower and the specifications were sent to several vendors for bids. EN and Ameren Gas Storage Engineering evaluated the bids received and the low bidder has been awarded the work.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. EN Engineering design work, specification development, RFQs, quote evaluations, site visitations, cost estimating, final design drawing preparation; NATCO evaluation of the use of a desiccant system at Freeburg.

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7) WO number: 21556

a) Description of addition:

Installation of five (5) Sulfatreat vessels, inlet separator and dry gas filter at Hillsboro Storage Field to reduce hydrogen sulfide concentration from gas withdrawn from Hillsboro Storage Field.

b) Date project started: 04/03/2007

c) Completion date: 11/01/2007

d) Completion cost: \$3,257,328

e) Reason for the project:

Hydrogen sulfide concentration of natural gas withdrawn from the storage reservoir at Hillsboro Storage Field increased to levels unacceptable for introduction into the pipeline system as per the Illinois Administrative Code. It became necessary to treat the gas on withdrawal to meet pipeline quality requirements.

f) Alternatives considered and the reasons for rejecting each:

The alternatives considered: Helidor Solutions, Sulfatreat, CrystaTech, Nano Scale and treatment with H<sub>2</sub>S scavenger. The Helidor Solutions alternative proved to be not cost-effective due to the number of vessels required to treat the gas stream and the limited area available to install vessels. Nano Scale never responded to pricing requests; Helidor Solutions was too expensive and required too large of a footprint to install equipment; CrystaTech was also not cost effective. The installation of Sulfatreat vessels and support equipment along with the use of H<sub>2</sub>S scavenger at well sites was chosen as the optimum treatment method.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. EN Engineering Report dated February 14, 2007: "Hydrogen Sulfide removal Systems – Hillsboro Storage Field"

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8) WO number: 22145

a) Description of addition:

Installation of three (3) Sulfatreat vessels at Hillsboro Storage Field to reduce hydrogen sulfide concentration from gas withdrawn from Hillsboro Storage Field.

b) Date project started: 11/16/2007

c) Completion date: 03/31/2009

d) Completion cost: \$2,214,820

e) Reason for the project:

Hydrogen sulfide concentration of natural gas withdrawn from the storage reservoir at Hillsboro Storage Field increased to levels unacceptable for introduction into the pipeline system as per the Illinois Administrative Code. It became necessary to treat the gas on withdrawal to meet pipeline quality requirements.

f) Alternatives considered and the reasons for rejecting each:

The alternatives considered: Helidor Solutions, Sulfatreat, CrystaTech, Nano Scale and treatment with H<sub>2</sub>S scavenger. The Helidor Solutions alternative proved to be not cost-effective due to the number of vessels required to treat the gas stream and the limited area available to install vessels. Nano Scale never responded to pricing requests; Helidor Solutions was too expensive and required too large of a footprint to install equipment; CrystaTech was also not cost effective. The installation of Sulfatreat vessels and support equipment along with the use of H<sub>2</sub>S scavenger at well sites was chosen as the optimum treatment method.

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. EN Engineering Report dated February 14, 2007: "Hydrogen Sulfide Removal Systems – Hillsboro Storage Field"

Section 285.6100 Schedule F-4: Additions to Plant in Service Since the Last Rate Case

9) WO number: 25167

a) Description of addition:

The project was to meet the requirements of Docket #'s 07-0585 to 07-0590 consolidated. The addition was to transfer costs associated with gas loss previously charged to account 823 Gas losses and transfer the costs to unrecoverable cushion gas account 352.3 Nonrecoverable natural gas.

b) Date project started: 12/01/2008

c) Completion date: 12/01/2008

d) Completion cost: \$6,275,988

e) Reason for the project:

The project was to meet the requirements of Docket #'s 07-0585 to 07-0590 consolidated. In the Final Order of the rate case proceedings, for AmerenIP, gas that was previously accounted for as gas lost, it was found it should be accounted for as unrecoverable cushion gas.

f) Alternatives considered and the reasons for rejecting each: NA

g) List of reports relied upon by management when deciding to pursue the rate base addition:

1. Docket #'s 07-0585 to 07-0590 consolidated proceedings.