

LOW NOx STEAM FLOOD BURNER SUCCESS

SITUATION

Heightened demand for heavy oil recovery in Alberta spurred a significant increase in Steam Flood Heater installations. Canadian Council Ministers of the Environment (CCME) mandated low NOx emission legislation for implementation on all future Steam Flood units, including new idle units manufactured but not yet brought into service due to low oil prices. Alberta Energy Corporation (AEC) realized the idle units, in storage for 2 years, would not satisfy CCME emission requirements. As a result, the existing units needed to be retrofitted with Best Available Control Technology (BACT) for compliance.

AEC needed to meet a very short on-line target date and therefore decided to work with the Steam Flood manufacturer, TIW Western in Calgary, and Coen Company.

AEC is a major Hydrocarbon and Energy supplier in Alberta. The four units are located at Foster Creek, within the NATO's Cold Lake Air Missile Testing Range. The TIW Steam Flood Heaters are rated at 200,000 PPH and 176 mmBtu/hr input.

Name: AEC (Alberta Energy Corporation)

Location: Foster Creek, Alberta, Canada

Heaters: TIW Western

Capacity: 200,000 PPH, 80% Steam

Burner: Coen QLN 4.8 Low NOx Burner
176 mmBtu/hr

Fuel: Natural Gas

Guarantees: < 65 PPM NOx, actual 28 PPM

SOLUTION

The successful installation included **four Coen QLN 4.8 Low NOx Burners, precast QLN throat assembly and Pyroblock front wall assembly.**



2 of 4 Steam Flood Units in Alberta



Coen QLN 4.8 Burner, Inside Furnace

RESULTS

Start up results proved better than expected and included:

- LOW NOx** -- NOx remained below 28 PPM (corrected to 3% O₂) throughout a 4 to 1 turndown firing range without the use of expensive Flue Gas Recirculation
- LOW CO** -- CO remained below 50 PPM throughout the load, near "zero" CO in some cases.



Back End View of Steam Flood Unit



Coen QLN 4.8 with FD Fan and Controls

CUSTOMER NEEDS

- ✓ Reliable Installation
- ✓ Lowest Installed Cost
- ✓ Full Load Steam Capacity
- ✓ Meet Emission Regulations

OPERATIONS

- ✓ No FGR Required
- ✓ High Turndown Achieved
- ✓ Safe Continuous Operation
- ✓ 100% Capacity Achieved

AIR QUALITY

- ✓ < 28 PPM Nat. Gas NOx
- ✓ < 50 PPM CO
- ✓ Over 4:1 Turndown Range

Strict Federal air pollution regulations trickling down to the district level are creating great economic challenges to remain competitive in a fierce global environment. It is no longer an option, but a necessity for industry to pursue and implement the latest technology that provides economic and environmental benefits.

Coen Company, engineers and manufacturers of combustion equipment since 1912, understands this trend. Coen Company is committed to providing the latest in combustion and emission control technology to meet the needs of industry. We also offer sole source Turnkey responsibility.

