



CASE STUDY  
**HT-G1**

**NORDE® TECHNOLOGY  
EXTENDS THE LIFE OF AN  
UNDERGROUND GEAR BOX**

**NORDE > GO**  
GEAR OILS



# CASE STUDY HT-G1

## NORDE® TECHNOLOGY EXTENDS THE LIFE OF AN UNDERGROUND GEAR BOX

### INTRODUCTION

In 2008, NORDE® technology was introduced into a Faulk 4454A 60-inch Conveyor Gearbox in an underground coal mine in Utah. Since 1989, the gearbox has approximately moved 50,000,000 tons of coal. The gearbox was scheduled for replacement.

### MATERIALS AND METHOD

Prior to combining NORDE® technology with the existing oil, the gear box was cleaned eight (8) times to remove sludge and metal. Because the gearbox was never fully emptied before, a magnet was placed in the bottom to remove any metal shavings

from circulation and any potential of causing additional wear. As needed, the magnets were removed to allow the metal to be flushed from the gearbox as the oil was filtered. A base line was established prior to adding NORDE® technology.

## RESULTS

NORDE® technology lead to a decrease in temperature from 187°F to 146°F, a reduction of 41°F or 28.08%. The ambient mine temperature remained consistent at about 62°F. The ISO Cleanliness Particle Count taken at regular intervals was analyzed and report reduced wear on the gears. Similarly, vibration levels were reduced.

### CONCLUSION

NORDE® technology lead to the reduction of internal temperature, wear metals and component friction in the gearbox. Additionally, despite the gearbox's previous issues, it has remained in use and fully operational. By not having to replacing the gear box, NORDE® technology saved the mine approximately \$45,000 (U.S.) plus downtime and labor. Furthermore, owing to this study, the mine operators began implementing additional NORDE® technology for other applications in the mine.

## SUMMARY



28.08%

TEMPERATURE  
DROP



REDUCED

VIBRATION  
LEVELS



LOWERED

WEAR METALS &  
PARTICAL COUNT



EXTENDED

GEAR  
BOX LIFE

\$45,000

SAVED

GEARBOX  
REPLACEMENT  
AVOIDED



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