The QER Technology Demonstration Plant

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Outline:

1. Purpose of the TD Plant
2. Process Units and Technologies
3. Progress to date
Process Development Objectives

Technology demonstrator

Pilot selected technologies on fully-integrated process

Validate commercial design basis

Generate accurate data
  - e.g. support CFD-DEM studies

Produce fuels for testing
QER’s Technology Demonstration Plant

Pilot Plant - End to end processing
Shale feedrate c.3.5 tonnes per hour
Produce c.40 barrels per day of ULSD, aviation turbine fuel and other products
Shale Mining and Feed Preparation

- Mine adjacent to plant
- Mining, crushing/screening campaigns for target PSD
- First shale grade 120 LT0M
Drying, Fines Briquetting
The Retort
First new Paraho retort in 40 years
Paraho II™ technology selection

Two years of testing

10,000 tonnes of QLD oil shale

Process training

High availability

High oil yields

Energy & thermally efficient

Safe operation

Environmentally sound
Cold Flow Testing
Cold Flow Testing result for feedrate = x
Products

OIL

FUEL GAS

SOUR WATER

Diagram showing the processing of wastewater to produce fuel gas and sour water.
Skid fabrication modules
Mode 1 and 2 upgrading to fuels
Plant product slate

- **Ultra Low Sulphur Diesel (ULSD)**
  - Diesel engine testing in USA
  - Large, local transport fleet for real world testing

- **Kerosene (Jet Fuel)**
  - University of Sheffield engine testing facility
  - Test on Rolls Royce gas turbine

- **Low Sulphur Fuel Oil**
  - Fuel, power generation, metallurgical operations
    (composite mix or syncrude from TD Plant)
Fuel Gas Treatment

STL raw fuel gas:
- traces oxygen
- CO₂, CO
- sulphur species – reduced and SO₂, COS....
- ammonia
- mercaptans
- olefins
- light ends
Retort Water Processing

Steam stripping or alternative processes?
Commissioning

Briquetting

Dryer, baghouse, RTO

Retort

Adjustments:

- Analyser gas sample conditioning
- Spent shale moistening scrubber lines
TDP Dryer
For more information

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