Shell Albian Sands

Oil sands operations: from focused maintenance study to integrated operating decision support.

Maintenance on the slurry conditioning lines reduced redundancy and created exposure to production loss. The consequences depended on mine feed, crushing, inventories, upgrading, blending and pipeline movement. An initially focused bottleneck study expanded into an integrated model of the operating system.



Integrated production and maintenance analysis

Project objective

Understand the production exposure from conditioning-line maintenance and compare maintenance, operating and capital alternatives across the broader system.

DECISIONS AND OPERATIONAL CAPABILITIES

Maintenance

Compare outage timing and redundancy

Production exposure and recovery

Capital

Test configurations and expansions

Constraints and storage trade-offs

Planning

Configurable operating model

Forecasts and scenario testing

Decisions supported

Compared maintenance schedules, equipment arrangements, expansion options, tank capacity and operating rules. The model also examined product blending and pipeline batching so alternatives could be evaluated for their effect on total production.

Integrated operating scope

MINE → CRUSHING → CONDITIONING → UPGRADING → PIPELINE

Mining & feed

Mine rates, feed consistency and crushing conditions.

Conditioning & reliability

Line availability, maintenance, routing and redundancy.

Storage & upgrading

Feed buffers, surge capacity, upgrading and tank inventories.

Blending & movement

Product recipes, pipeline batches and transfer rules.

Understanding system-wide performance

From local constraint to operational planning tool

The model began at the conditioning-line bottleneck and expanded to capture upstream and downstream interactions. Calibrated against benchmark operating data, it became a configurable tool for maintenance planning, expansion studies, production forecasting and operating scenarios. It showed how constraints could shift as equipment availability, inventories and operating rules changed.

Transferable insight

Maintenance at a critical asset is a system decision. Upstream feed, available storage and downstream operating rules can absorb or amplify downtime. Evaluate the complete production response before changing maintenance plans or adding capacity.

KEY-PERSONNEL EXPERIENCE

Yes | Bryan Monk, P.Eng., modelling lead

MISIM CORPORATE ENGAGEMENT

No | prior-employer project

CLIENT

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Historical key-personnel project experience developed during employment at Wood.