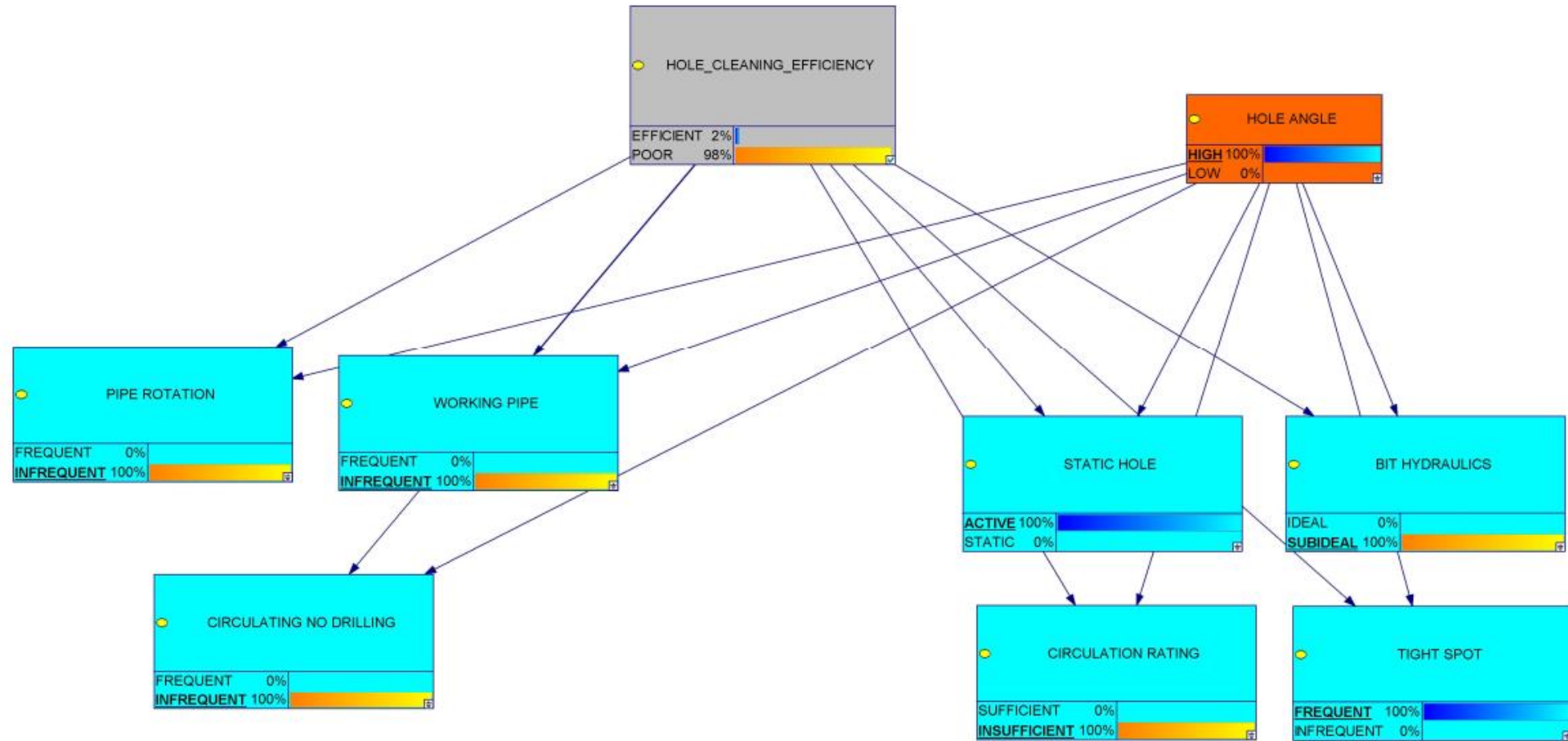


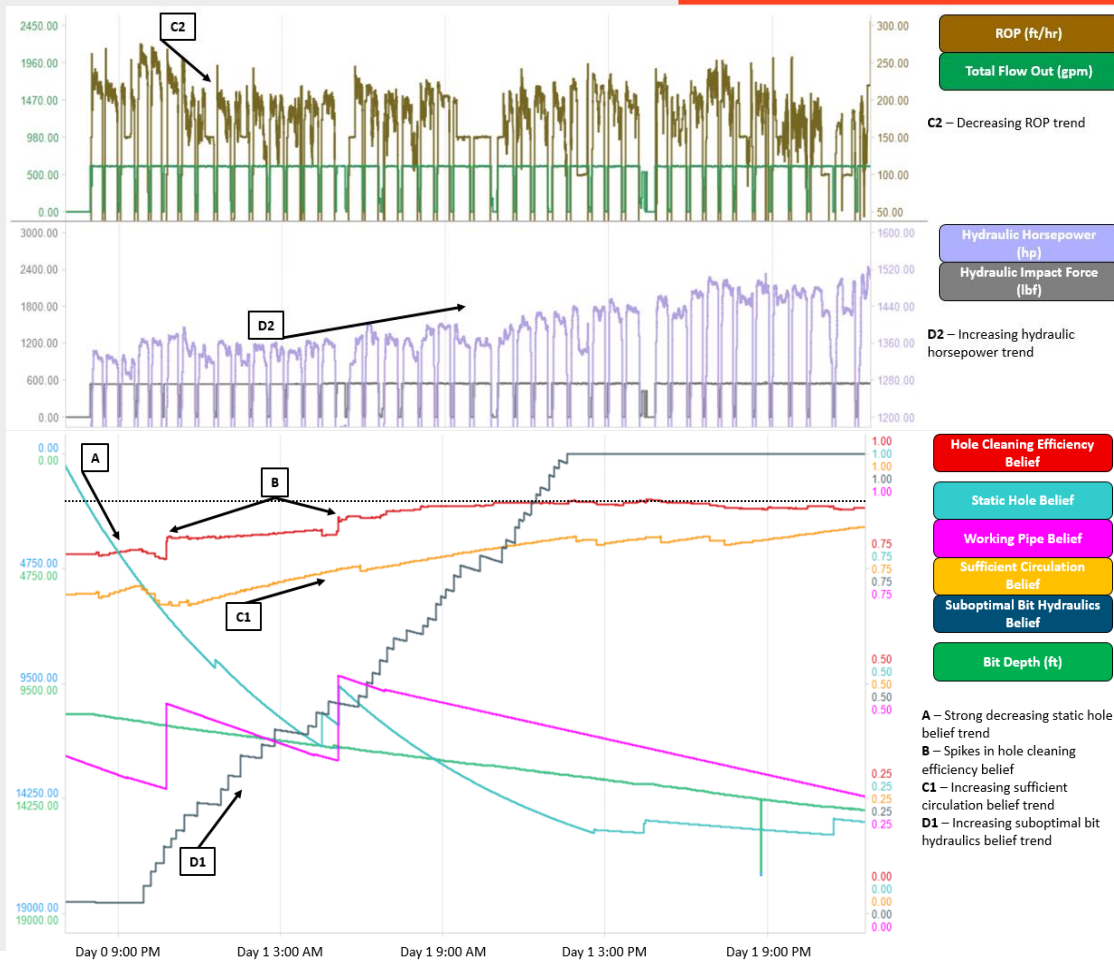
# Hole Cleaning Efficiency Belief



# Influential Features

Node	Feature Description	Node State Breakdown	State Conducive to Low Belief
Bit Hydraulics	Calculated hydraulic impact force over a long time window compared to a modeled threshold considered ideal for proper cuttings transport	<b>IDEAL:</b> Calculated hydraulic impact force meets ideal cuttings transport threshold <b>SUBIDEAL:</b> Calculated hydraulic impact force below ideal cuttings transport threshold	Subideal
Circulation Rating	Flowrate over a long time window compared to a modeled threshold is considered ideal for proper cuttings transport	<b>SUFFICIENT:</b> Flowrate meets or exceeds ideal cuttings transport threshold <b>INSUFFICIENT:</b> Flowrate below ideal cuttings transport threshold	Insufficient
Static Hole	Duration and recentness of static/out of hole conditions over a long time window	<b>ACTIVE:</b> Not enough recent static/out of hole conditions to impact hole cleaning <b>STATIC:</b> Enough recent static/out of hole conditions to impact hole cleaning	Static
Tight Spot	Prevalence and recentness of prior overpull/underpull events indicative of a tight spot over a long time window	<b>FREQUENT:</b> Frequent prior overpull/underpull events indicative of tight spots <b>INFREQUENT:</b> Little to no prior overpull/underpull events indicative of tight spots	Frequent
Circulating No Drilling	Duration and recentness over a long time window of circulating off bottom actions	<b>FREQUENT:</b> Significant recent circulation off bottom <b>INFREQUENT:</b> No significant recent circulation off bottom	Infrequent
Pipe Rotation	Duration and recentness of drillstring rotation actions over a long time window during which drillstring RPM is ideal for cuttings transport	<b>FREQUENT:</b> Significant recent rotation above ideal cuttings transport threshold <b>INFREQUENT:</b> No significant recent rotation above ideal cuttings transport threshold	Infrequent
Working Pipe	Duration and recentness over a long time window of reaming, backreaming, and circulation actions where block speed is nonzero	<b>FREQUENT:</b> Significant recent reaming, backreaming, and/or circulating with nonzero block speed <b>INFREQUENT:</b> No significant recent reaming, backreaming, and/or circulating with nonzero block speed	Infrequent
Hole Angle	Presence of significant deviation in the wellbore	<b>HIGH:</b> Significant deviation in the wellbore <b>LOW:</b> No significant deviation in the wellbore	High

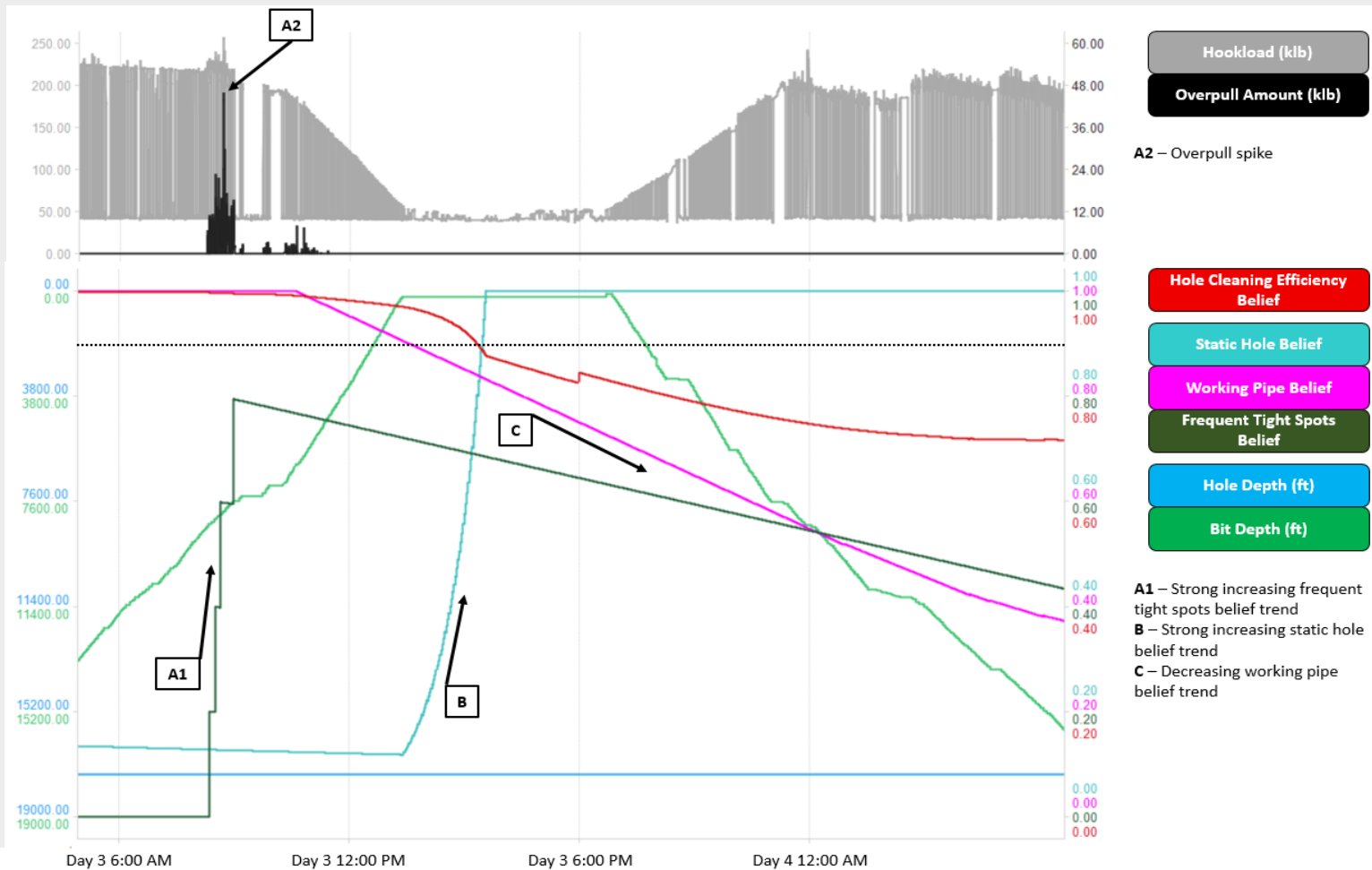
# Example 1 – Hole Cleaning Belief Trending



Increases in working pipe belief, sufficient circulation belief, and decreases in static hole belief work to raise the 'Efficient' belief of the Hole Cleaning Efficiency node

The increasing suboptimal bit hydraulics belief serves to raise the 'Poor' belief of the Hole Cleaning Efficiency node; however, this effect is outweighed by the multiple beliefs stated above

# Example 2 – Hole Cleaning Belief Trending



Increases in static hole belief, frequent tight spots belief activity, and decreases in working pipe belief work to decrease the 'Efficient' belief of the Hole Cleaning Efficiency node

# Hole Cleaning – Improved with Pro-active Action

