

Predator*

Opportunity Crude Processing

Benefits

Predator is designed to impact the biggest expense item in the refinery – feedstocks. The procurement of crude oil is a complex process that involves 80% of every dollar spent by the typical refinery. Obviously, a program that impacts that expense has value. Crude procurement decisions are the result of several factors for example:

- Price
- Availability
- Fit with refinery configuration and construction
- Storage capacity
- Flexibility from long term contracts

Additionally, the behavior of the crude during processing is an important consideration.

Crude pricing is often impacted by composition. A discount from some standard benchmark normally indicates that the crude is undesirable with respect to the products that it can yield or that it contains certain components that can be detrimental to the refining process or the physical plant.

Predator can have a positive impact on the refiner's ability to process crudes that create difficulties with respect to fouling, corrosion or phase separation (desalting). It is not designed to increase product yield other than that which results from an increase in operating efficiency.

Three separate but related technology platforms are used to create this capability. Detection is provided by unique Non Destructive Testing developed by GE. Prediction of performance and best

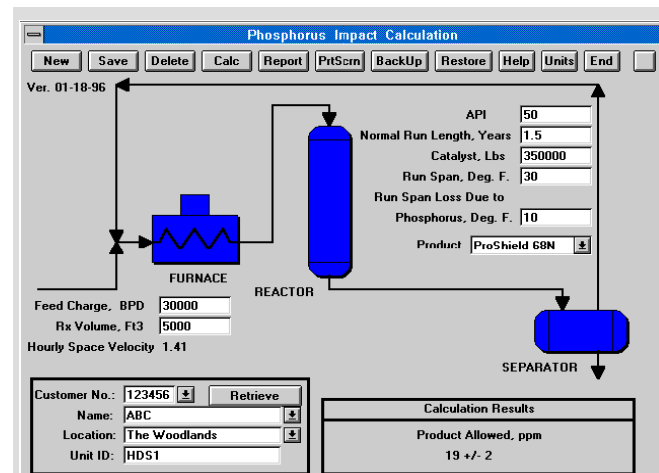
practice in processing is provided by an experiential Knowledge Base. Assurance is provided by patented and proven chemistry.

Predator Savings

Assume that a typical refinery processes an average of 150,000 barrels per day. Typically the percentage of discounted crudes represents less than 15% of the total crude oil diet. Most often, the value is zero. Predator can increase the limit of discounted crude by 30% or more assuming the other crude selection criteria are met. Assume:

- The value of the discount on the crude oil is \$0.50 per barrel
- The total amount of discounted crude processed becomes 45,000 barrels per day.

The discount per day becomes \$22,500 and the savings to the refiner in terms of feedstock costs exceeds \$8MM per year.



Predator Prediction – Example of Phosphorous Impact Calculation (screen shot)

