NETCO$TER

Onshore Drilling Module

Capability Overview

Today's economic environment demands tighter control of budgets and a greater understanding of project costs as early in the project development phase as possible. Bayphase, a leading international oil and gas consultancy, provides upstream field development solutions and decision support through rapid cost estimating.

Oil & Gas Cost Estimating Software

ISO 9001 Registered Firm
Certificate No. GB2003953
International Accreditation Board
Registration No. 0044/1

Eighth Edition October 2024

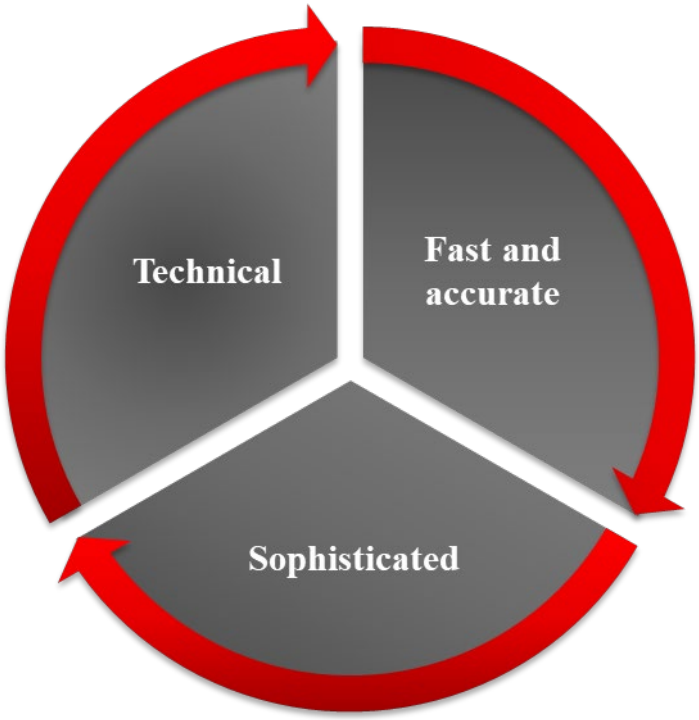
Est. 1986
Bayphase
Geologists, Engineers and Investment Analysts

NETCO$TER Onshore Drilling Module provides rapid and accurate cost estimates for oil and gas wells; including those for exploration, appraisal and development. It is a cutting-edge software tool developed and used by Bayphase to carry out technical definition and generate costs for all types of onshore well: vertical, deviated and horizontal.

The system is based on data gathered from a wide range of international projects executed by the company over the past 30 years. It is the result of an in-house programme to leverage this significant bank of knowledge and experience built up within Bayphase over numerous studies.

Onshore Drilling Module

NETCO$TER



Technical Capabilities

NETCO$TER is used worldwide in feasibility and concept selection studies to provide engineering definition and cost estimates for field development.

It has been developed to meet the constantly changing needs and challenges of the upstream market, it keeps Bayphase ahead of the opposition through delivering estimates consistently and efficiently.

The program's engineering algorithms are based on sound engineering principles and experience derived from the development of actual onshore production facilities in many of the world's oil and gas provinces.

Sophistication

NETCO$TER provides a consistent, global platform for concept screening and optimisation and cost-control. Apart from using it in-house, we have a global network of field development experts who use our NETCO$TER software platform to provide engineering definition and life-cycle cost estimates for field development concepts. This easy to use tool saves hundreds of hours of in-house research and analysis time.

Speed and Accuracy

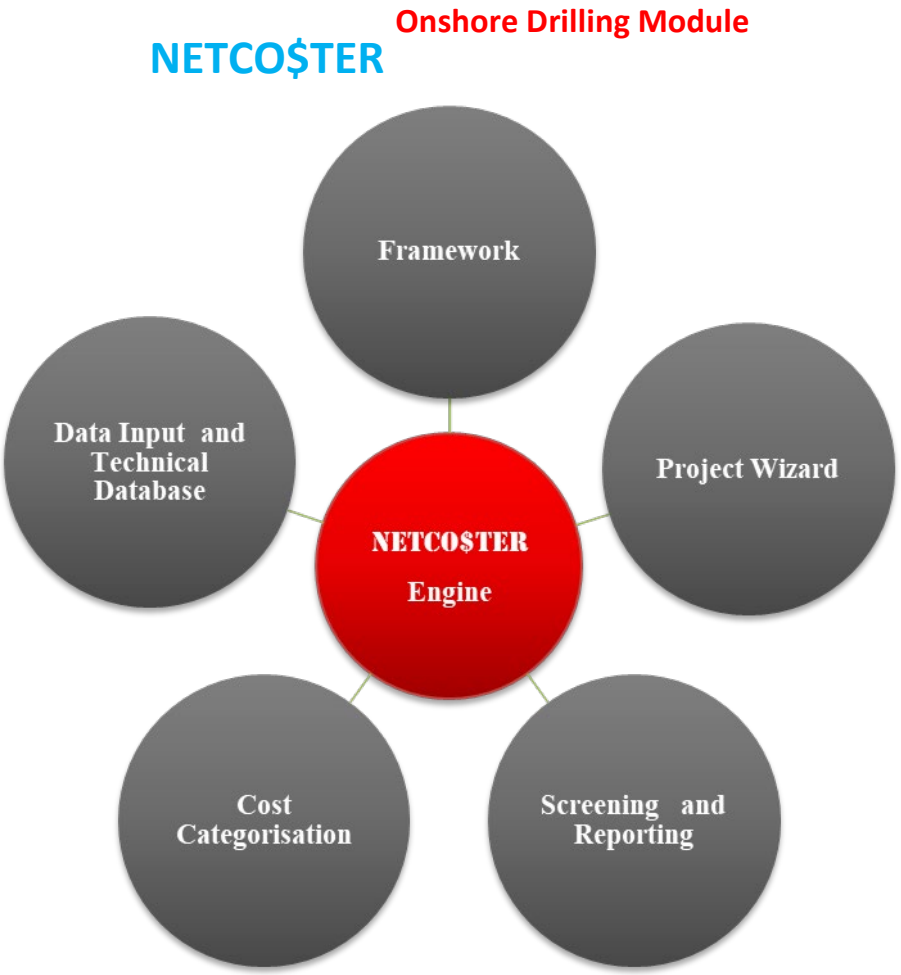
NETCO$TER also enables sound project cost modelling and evaluation. It allows our clients to make well-founded concept decisions for their development projects thereby increasing efficiency during execution and decreasing risk. It contributes greatly to successful project planning. It has been benchmarked against many actual projects – contact us for more details on this.

The NETCO$TER cost estimation system is modular in form and is used to estimate costs for the full range of oil and gas projects:

- Small, large and giant fields
- Oil, condensate and non-associated gas
- Any international location
- Sweet and sour fields

It has been deployed as a corporate modelling solution for large and small companies, and has proven to be invaluable in:

- Equity research
- Portfolio analysis
- Business development
- Mergers and acquisition
- Benchmarking
- Competitor analysis



Framework

The NETCO$TER framework delivers a powerful and intuitive functionality that is core to all the estimation modules. Bayphase's framework approach delivers a powerful solution to cost modelling by utilising a number of key features:

- Transparent models developed entirely in Microsoft Excel. This delivers a consistent and familiar user interface and experience. It also takes advantage of Microsoft Excel's more advanced features therefore minimising systems requirements for running the software. Only Microsoft Office 2007 or above is required.
- There are no significant memory disk space requirements.
- Use of first principles algorithms to automate design, sizing and weight estimating for facilities takes the guess work out of cost estimation and delivers accurate results rapidly.
- The cost modules are updated twice per year through reference to market databases, supplier quotations and cost trends identified by Bayphase. In addition, key cost rates are monitored on a quarterly basis and users are given access to this data to enable them to develop fully up-to-date estimates.

Data Input and Technical Database

NETCO$TER uses primary input data such as, reservoir depth, gas oil ratio and well prognosis. In addition, built in choices can be selected and customised to best fit user data. Once the well configuration data is input or chosen, a cost estimate is run.

What it does:

- It allows the user to estimate cost for virtually any type of well configuration determined by the user. The User inputs the well data – the more specific the data is the more accurate the estimate will be – and follows a series of steps to define the onshore drilling configuration. Well types covered include:
  - Exploration
  - Appraisal
  - Development
- The program provides a number of cost data bases for the world's key oil and gas provinces but users can customise these to generate their own databases (up to three) based on their own experience.
- Users can consider intricately tailored logging and testing programs for exploration drilling as well as completion methods and types. They can also add their own log types.
- Users can choose between these rig duties:
  - Heavy
  - Medium
  - Light

  Users can access vertical, deviated and horizontal wells and the system will generate a drilling profiles fully reflective of these considerations.
- Once the easy to follow steps have been completed, NetCo$ter provides a breakdown of the drilling costs.
- The cost database is driven by past data and as such uses a series of algorithms to determine cost of casing, completions, drilling durations and completion times.

Key benefits:

- The user can input actual observed field data to model real cases.
- The input data can be varied for sensitivity analysis and enable users to understand the key drivers of a well's cost.

Project Wizard

A powerful component of the NETCO$TER interface, the wizard guides the User through all steps required to create and estimate project costs.

What it does:

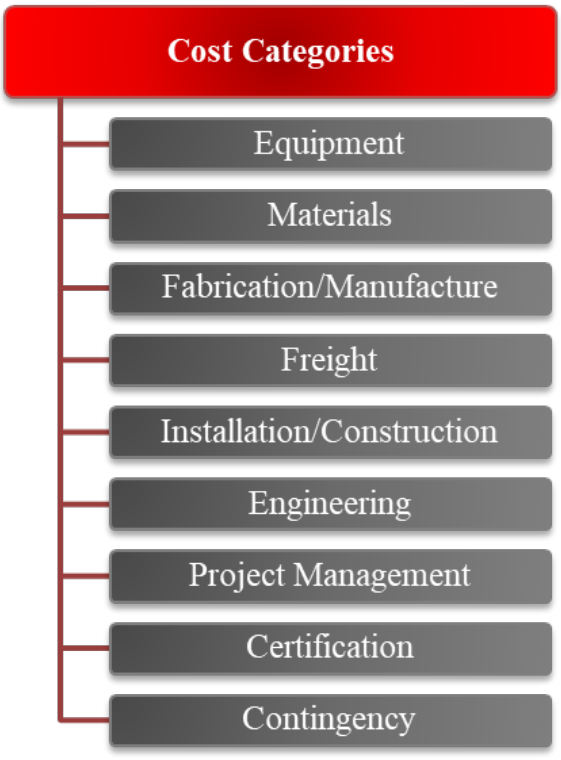
- The wizard provides step-by-step guide for creation of an asset case cost estimate through simple user dialogue screens
- The wizard enables the User to enter all data, with the assistance of additional intuitive messages

Key benefits:

- Quick and easy to use.
- Ease of navigation through the model.
- Useful for both expert and novice users alike.

Cost Categorisation

NETCO$TER provides a breakdown of the costs. The data base follows a categorisation that is applied to all modules. This categorisation is strictly maintained as all past projects have been analysed using this matrix to provide consistency. In addition, it broadly follows categorisations used by vendors and industrial cost data bases available in the market place.



Screening and Reporting

NETCO$TER powerful screening and reporting tools can be used to present the results of analysis, allowing users to easily compare findings from multiple wells calculated under different scenarios.

What it does:

- Produces reports including: Well Cost Breakdown, Technical Data, Drilling Profiles, Cost Schedule, and Investment Profile.
- A built-in scheduling tool allows the user to schedule costs to provide project cash flows.
- Reports can be printed or exported to spreadsheets

Key benefits

- Quick and easy to use.
- Enables users to use the output reports in other cost estimating programs.

An integrated cost estimating solution that improves reliability, optimises performance and reduces cost and cycle time during the concept appraisal and selection phases for oil and gas companies worldwide.

Total Project Cost: Onshore Drilling Module

Project Title:	A
Well Identifier:	A
User:	A
Country/Region:	Asia
Well Type:	Exploration
Rig Type Used	Heavy Duty
Total Number Of Wells In Campaign	4.00
Run Date:	5 November 2017
Currency:	USD

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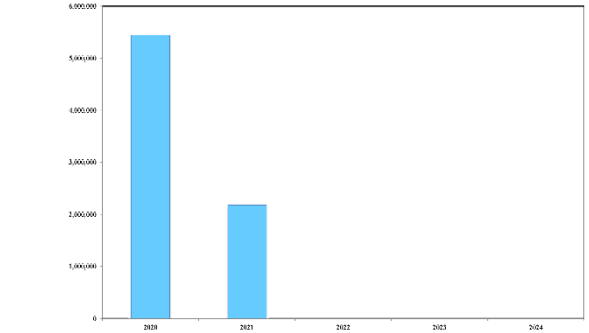
Cost Category	Number of Units	Unit Rate	Total Cost (USD)
Equipment			
User Defined Modifications:			
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
Enter Description	Enter Modification	Enter Cost USD/unit	Enter Cost
		Total Equipment Cost	
Materials			
Casing,Tubing	2,500 m	549 USD/m	1,372,500
Cementing	2,500 m	30 USD/m	75,000
Drilling Fluid	2,500 m	21 USD/m	52,500
Well Head & Completion Only	1 No	31,000 USD/unit	31,000
		Total Materials Cost	**1,531,000**
Fabrication/Manufacture			
Mobilisation	1.0 days allocated to the well	35,000 USD/day	35,000
Demobilisation	1.0 days allocated to the well	35,000 USD/day	35,000
		Total Fabrication/Manufacture Cost	**70,000**
Freight Costs			
Equipment(Modifications)	USD	8 %	
Material	1,531,000 USD	6 %	92,000
		Total Freight Cost	**92,000**
Installation/Construction			
Drilling:			
Rig Rate	77 days	35,000 USD/day	2,695,000
Rig Rate Break Down			
Rig		30600 USD/day	
Cementing Unit		1800 USD/day	
Mud Unit		1200 USD/day	
Directional Drilling Rig		1400 USD/day	
Logging	8 days	35,000 USD/day	280,000
Drill Stem Test	5 days	35,000 USD/day	175,000
Extended Well Test	5 days	35,000 USD/day	175,000
No Coring	2 days	35,000 USD/day	70,000
Set Production Casing	5 days	35,000 USD/day	175,000
		Sub Total Drilling Rig Cost	*3,570,000*
Logging, Sampling and Other:	**Operation (days)** / **Mob/Demobilisation (days)**		
Standard Logging	6 / 2	7,400 USD/day	59,000
Special Logging:			
Sonic	2 / 2	5,300 USD/day	21,000
Formation Micro Scanner		6,800 USD/day	
Formation Micro Imager		7,400 USD/day	
Nuclear Magnetic Resonance		3,700 USD/day	
Spectral Gamma Ray		5,300 USD/day	
Custom Logging:			
None		USD/day	
None		USD/day	
Drill Stem Test	5	55,000 USD/day	275,000
Extended Well Test	5	36,750 USD/day	184,000
No Coring	2	44,100 USD/day	88,000
Set Production Casing	5	10,500 USD/day	53,000
		Sub Total Logging, Sampling and Other Costs	*680,000*
Support:			
Helicopter	34 days	5,300 USD/day	180,200
Flights	7 days	26,000 USD/day	189,429
Supply Truck	26 days	210 USD/day	5,355
Cement Truck	39 days	420 USD/day	16,170
Consultants	39 days	1,100 USD/day	42,350
		Sub Total Support Costs	*433,504*
		Total Installation/Construction Cost	**4,250,000**
Engineering, Project Management, Certification and Contingency			
Engineering:			
Well Design	1,250 hrs	120 USD/hr	150,000
Modifications	$	5 %	
Project Management:			
Well Design	1,000 hrs	170 USD/hr	170,000
Modifications	$	10 %	
		Sub Total Engineering and Project Management Cost	*320,000*
Certification	6,263,000 $	1.5 %	94,000
Contingency	6,357,000 $	20 %	1,271,000
		Engineering, Project Management, Certification and Contingency Total	**1,685,000**
		Total Project Cost	**7,628,000**

Investment Profile Chart: Onshore Drilling Module

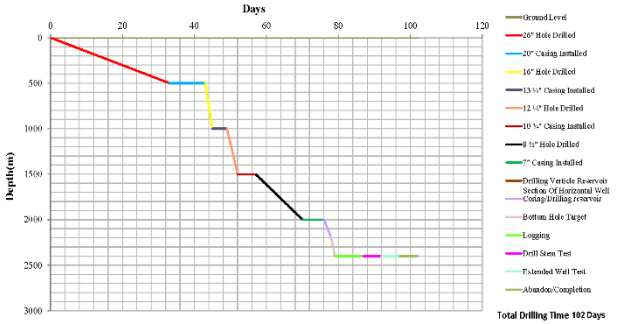
Project Title:	A
Well Identifier:	A
User:	A
Country/Region:	Asia
Well Type:	Exploration
Rig Type Used:	Heavy Duty
Total Number Of Wells In Campaign:	4
Run Date:	05 November 2017
Currency:	USD



YEAR	2020	2021	2022	2023	2024
Cost (US Dollars)	5,445,000	2,183,000			

Drilling Profile: Onshore Drilling Module

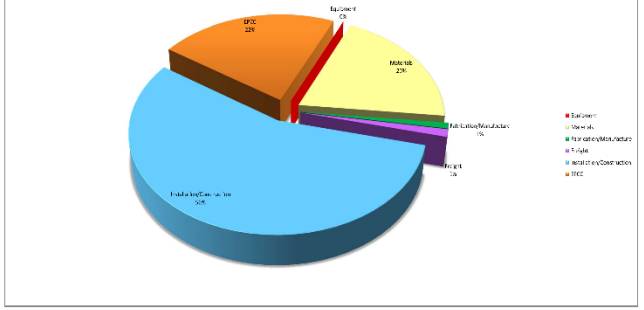
A
A



Total Drilling Time 102 Days

Cost Profile Chart: Onshore Drilling Module

Project Title:	A
Well Identifier:	A
User:	A
Country/Region:	Asia
Well Type:	Exploration
Rig Type Used:	Heavy Duty
Total Number Of Wells In Campaign:	4
Run Date:	05 November 2017
Currency:	USD



Cost Element	Equipment	Materials	Fabrication/Manufacture	Freight	Installation/Construction	EPCC
Cost (USD)		1,531,000	70,000	92,000	4,250,000	1,685,000
					Total	7,628,000

Cost Schedule: Offshore Drilling Module

Project Title:	x
Well Identifier:	y
User:	z
County/Region:	Europe
Run Date:	08 August 2013
Currency:	USD

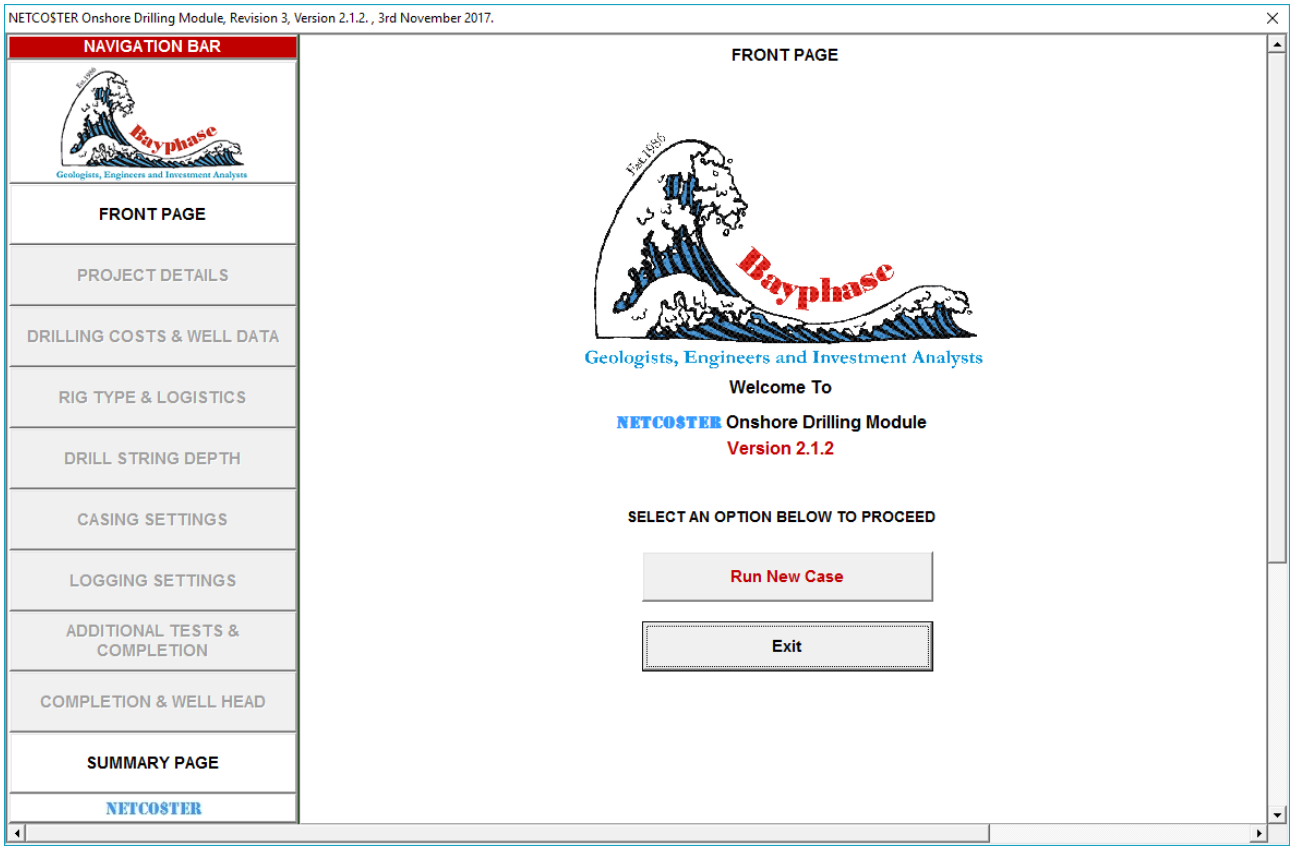
Year				2015				2016				2017				2018				2019			
Quarter				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cost (USD)	Element	Start	Duration (Quarters)	Capital Cost Profile (US Dollars)																			
	Equipment	***	***	1																			
4,435,750	Materials	***	***	4	1,108,938	1,108,938	1,108,938	1,108,938															
720,000	Fabrication/Manufacture	***	***	4		180,000	180,000	180,000	180,000														
266,000	Freight	***	***	4			66,500	66,500	66,500	66,500													
31,756,000	Installation/Construction	***	***	1						31,756,000													
8,556,000	EPCC	***	***	5	1,707,200	1,707,200	1,707,200	1,707,200	1,707,200														
45,713,750	Total		Quarterly	2,816,138	2,996,138	3,062,638	3,062,638	1,953,700	31,822,500														
			Annually				11,937,550				33,776,200												

Investment Schedule	Year	2015	2016	2017	2018	2019
	Cost (USD)	11,937,550	33,776,200			

NETCO$TER Offshore Drilling Module uses a Graphic User Interface that allows Users to input case data to arrive at their cost estimate. For illustrative purposes a number of screen shots from the program are provided below.

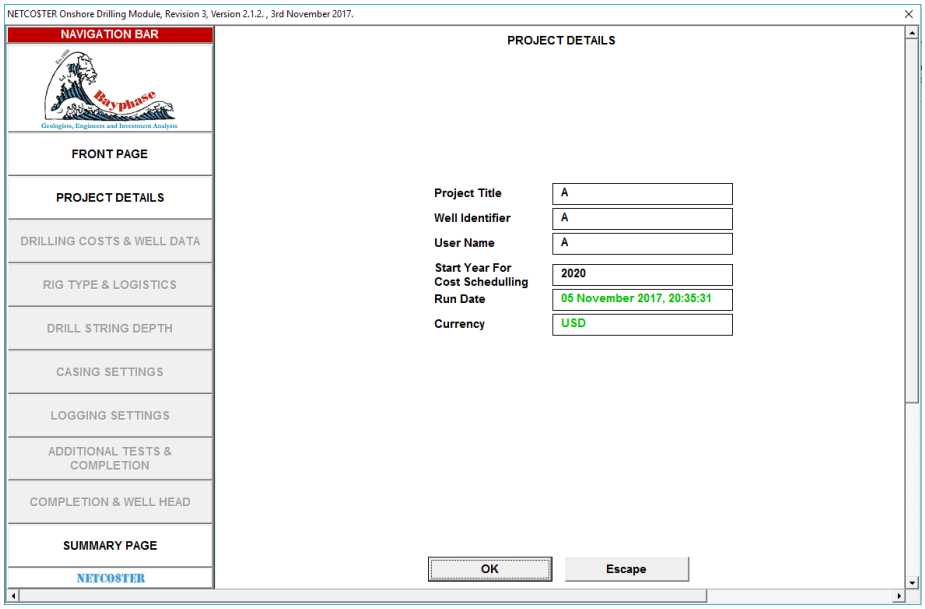
Opening User Form

This is the first form seen by the User when running a case allowing them to view the process units that can be handled by the program, it also provides the ability to access the results on completion of the cost estimating run.



Project Definition User Form

This form is used by the User to define the key parameters of the case for file accessing and cost scheduling purposes.



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