



Tigress Puma

PUMA (ProdUction Data Management & Analysis) is designed to be the E&P Industry's most advanced Field and Well Management IT Tool and is a joint project between PGS Tigress and Shell International. PUMA is used by the exploration and production industry for the analysis, manipulation and easy visualisation of recent and historical production data. It performs all of the typical objectives of reservoir performance analysis and forecasting, including estimation of original hydrocarbons in place, analysis of past and present performance, prediction of future performance under current conditions, estimation of reserves and recovery rates under various conditions and updating of analysis with new data during life of field. PUMA is a client server solution for both UNIX and NT servers and is fully integrated with the Tigress PDS and other Tigress applications.

PUMA helps with short-term production gains, for example identification of under producing wells and identification of candidate wells for stimulation treatment and workovers. It is also used for long-term reserves gains through early identification of inappropriate reservoir management studies including inadequate areal drainage and over/under injection. Puma benefits are:

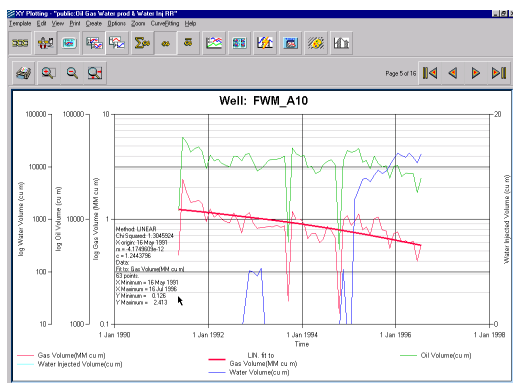
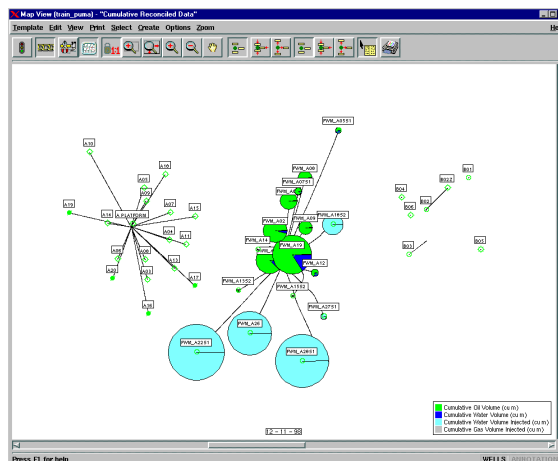
- Increased efficiency and time savings
- Easy management of large data volumes
- Quicker identification of production problems
- Increased production potential

Data Loading

- By PBAAscii or a generic data loader, utilising user-defined formats
- All data are stored to POSC Epicentre compliant tables
- Data can be loaded into any well hierarchy level (well, conduit, completion etc.)

Data Selection

- Map-based object selection and data display
- Well hierarchy selection
- List based object selection
- Sorting And Grouping
 - By physical items (wells, wellbores, wellbore conduits, wellbore completion intervals, reservoir elements, etc.)
 - By logical items (patterns, operators, concessions, etc.)
 - By groups of the above
- Queries / Filtering
 - Multi- level production/completion queries
 - Queries at any physical/logical hierarchy level

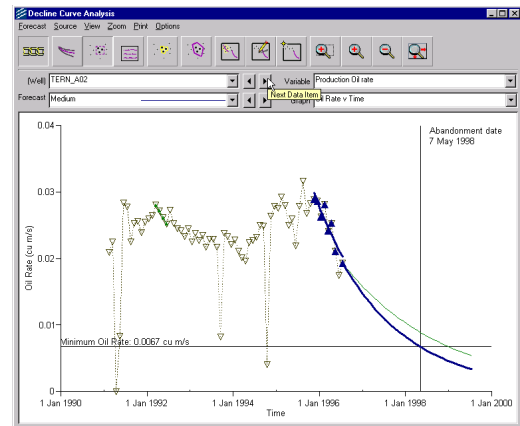


Data Visualisation

- XY Plots with multiple X and Y axes can display anything against anything
- Full control over crossplot design and the entire set-up can be saved to a template
- Up to 18 curves on a single plot
- Multiple plots (up to 16) per plot window
- Easy to create object comparison plots and normalised time plots
- Curve fitting (polynomial, linear, exponential)

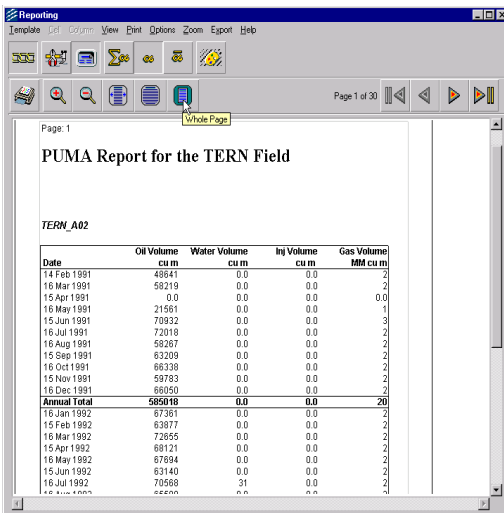
Decline Curve Analysis

- Decline curve analysis for oil, gas and water rate curves
- Designed to produce oil, gas and water rates, gross rates, oil water ratio and water cut forecasts
- The forecasts can be manually edited or projected to any start date in the future
- The decline curve can be forced through a specified technical reserve
- Calculates the technical reserves (or ultimate reserves) and the abandonment date for the curve
- Analysis can be performed on any level in the hierarchy
- Multiple forecasts can be created for each data item



Performance Indicators

- Pre-defined indicators:
 - Lift Performance Indicator (LPI)
 - Well Inflow Quality Index (WIQI)
 - Gas Utilisation Factor (GUF)
- User-defined indicators can be generated and stored
- Batch calculation of Well Performance indicators
- Link to other applications facilitate generation of IPR and VLP data



Date	Oil Volume cu m	Water Volume cu m	Inj Volume cu m	Gas Volume MM cu m
14 Feb 1991	68641	0.0	0.0	2
16 Mar 1991	58219	0.0	0.0	2
15 Apr 1991	0.0	0.0	0.0	0.0
16 May 1991	21561	0.0	0.0	1
15 Jun 1991	70932	0.0	0.0	3
16 Jul 1991	72018	0.0	0.0	2
16 Aug 1991	58267	0.0	0.0	2
15 Sep 1991	63209	0.0	0.0	2
16 Oct 1991	66338	0.0	0.0	2
15 Nov 1991	59783	0.0	0.0	2
15 Dec 1991	60550	0.0	0.0	2
Annual Total	589018	0.0	0.0	20
16 Jan 1992	67361	0.0	0.0	2
15 Feb 1992	63877	0.0	0.0	2
16 Mar 1992	72655	0.0	0.0	2
15 Apr 1992	68121	0.0	0.0	2
16 May 1992	67694	0.0	0.0	2
15 Jun 1992	63140	0.0	0.0	2
16 Jul 1992	70598	31	0.0	2
16 Aug 1992	66600	0.0	0.0	2

Reporting

- Design to report anything against anything
- Full control over report designs features (columns positions, fonts, types)
- Report designs saveable to templates
- Spreadsheet like background grid controls
- Easy to create object comparison reports

Macro Language

- Stores an entire analysis sequence including data selection, crossplot and report templates, and well performance indicators that were applied
- Record and replay stored procedures

Auto-sequenced Printing/Plotting

- Applying a selected plot / report template to a sequence of selected objects (wells, conduits, reservoir etc.)

Integrated by Design



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