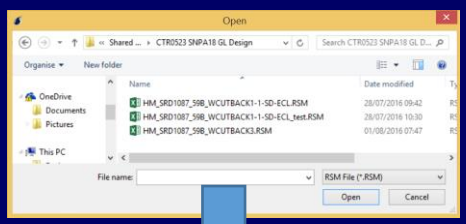
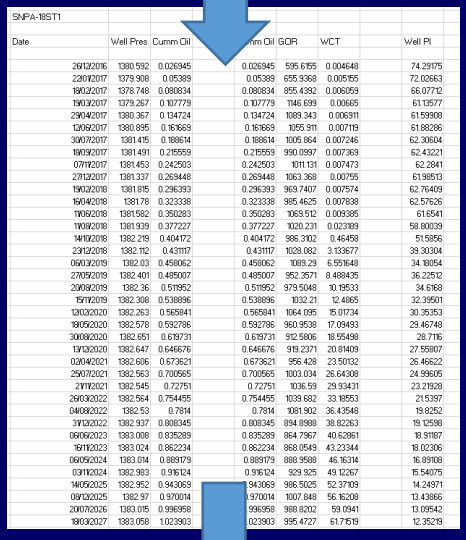
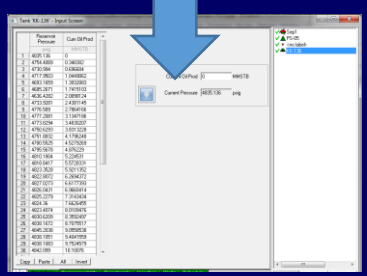
RSM IMPORTER

BUSINESS DRIVERS

- To set up a static link from GAP to Eclipse in fields with multiple reservoirs
- Used in forecasting models were Eclipse runtime would become an issue
- Typically used for large network models
- To increase certainty in the forecast







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OBJECTIVES

Production Optimisation and Forecasting in large complex networks is still a problem if the network back pressure and detailed optimisation parameters are of relevance. The field production outlook certainty can be increased if items such as detailed artificial lift, pipe and equipment hydraulics, and reservoir input parameters are matched in detail.

Eclipse does not complete complex surface pressure drop calculations, detailed artificial lift hydraulics and cannot handle many facilities constraints.

For large systems, a static link between the reservoir simulator can be used if GAP has to be used for forecasting (Oil models). A dynamic link between Eclipse or TNAV and GAP takes excessive run time, thus making detailed iterative matching too timely. The RSM importer helps the Production Technologist to set up such a static link. The same base data is used for artificial lift design (life of well data).

REQUIRED RSM SETTINGS

The preferred file format and key word for the Eclipse or TNAV output is in Excel format. Parameters that are required are

Date-DATE
Field cumalitive oil- FOPT (mstb)
Well cumalitive oil-WOPT (mstb)
Reservoir Pressure-FPR (psi)
9 well block pessure - WBP9 (9 block pressure aroung each well, psi)
Well water cut-WWCT (frac)
Well GOR-WGOR (scf/ stb)
Well PI-WPI (psi/stb/d)
Well oil production-WOPR (mstb)
Well gas production-WGPR (mmscf/d)
Well water production-WWPR (stb/d)

DESCRIPTION

The engineers save valuable time manually processing, cutting and pasting data from Eclipse/ TNAV in Excel. The tool imports the RSM file and extracts the data on a per well basis. The life of well relevant data for GAP, such as cumulative oil versus effective reservoir pressure, GOR and WCT development are extracted effectively.

Three sets of data are created:

1. Process Eclipse/ TNAV data to exclude unwanted points and shrink to 50 points. Data may include the production history that has been used for matching.
2. Process data and create 50 life of well reservoir performance curves from its current cumulative oil onwards.
3. The reservoir performance curve is matched to current production test data.

WHAT IS UNIQUE

The reservoir simulator key data that impacts well performance, artificial lift optimisation and back pressures can visually be QC'd.
Re-processing of data takes seconds Eclipse/ TNAV history matching is time intensive. The trend of the key reservoir parameters (RPCs) can be matched with the tool. The latest production test data is entered into the tool.

Eclipse Label	Well Label	IPR Label	Curr Cumm Oil	GOR	WCT	Pres	IPR shift	PI	Match Points
SW1-P1S1	SNP-P01		0.149	4185	2	3505		0.7	10
SW1-P2S1	SNP-P02		0.592	1558	2	3381		7.2	35
CN1-P3	SNP-P03		1.463	711	28	3306		0.6	15
CN1-P4	SNP-P04		0.776	1115	4	2000	-1346.0	1.6	15
CN2-P5S1	SNP-P05ST1		3.331	695	19	2722	-608	4.4	20
CN2-P6	SNP-P06		3.464	1686	1	1992	-1445	14	20
NE1-P7S1	SNP-P07		3.995	1605	44	3476		4.8	10
NE1-P8S1	SNP-P08ST1		0.265	1684	1	3480		18.0	20
SW1-P9	SNP-P09		1.023	1293	0	3119		13	10

Sapella Technologies Germany
Hoher Wall 15, D-44137 Dortmund, Germany
Inquiries: hm@sapella.eu
Tel: +49 (0) 2324 6864874

Sapella Technologies UK
London Representative, UK
Inquiries: info@sapella.eu

Sapella Technologies Sdn Bhd
A-21-1 Hampshire Park#6 –8 Persiaran Hampshire, 50490 Kuala Lumpur, Malaysia
Inquiries: dc@sapella.eu
Tel: + 60 (0)17 6933649

Web : www.sapella.eu