Examples of Field History Files

Example 1: General Layout of FHF

```
1995 11 10
'FIELD HISTORY (WELLS AND TOTAL FIELD)'

1988 01 01 data de medição?
'days'
  8
'Oil Rate SC'          'Gas Rate SC'          'Water Rate SC'
'Cumulative Oil SC'    'Cumulative Gas SC'    'Cumulative Water SC'     colunas?
'Gas Oil Ratio SC'     'Water Cut SC'
'm3/day'  'm3/day'  'm3/day'  'm3'  'm3'  'm3'  'm3/m3'  'fraction'  LOGUNITS?
12
'W-10'
    181.0   23.70   2553.   0.0002215   4164.   4.485e+05   0.02016   107.7   9.346e-06
    273.0   21.50   2316.   0.006748    6142.   6.616e+05   0.6410    107.7   0.0003138
    365.0   18.00   1939.   0.03496     7798.   8.399e+05   3.858     107.7   0.001939
```

Example 2: General Layout of FHF

```
* This data was entered by John Doe, Reservoir Eng. Dept. and was
* obtained from Sue Smith, Prod. Dept. The data was entered on:

'1987-02-15'
'POOLA WATER FLOOD PROJECT'

* Data start from May 6, 1979

'1979-05-06'

* The simulations will be done with time in DAYS, so the field
* data were converted to time in DAYS.

'days'    tempo em dias

* There are four data items per well (plus time):

4     4 colunas - 4 tipos de dados
'Oil Volume Rate SC'   'Gas Volume Rate SC'   'Water Volume Rate SC'  'Well Press'
'bbl/day'     ft3/day'    'bbl/day'    'psi'

* Data are available for two wells. The first column is the time
* in DAYS. The next columns contain the data items in the order
* given above. All the data for the first well are given, then
* the well name and the data for the second well. Note that data
* for all the wells must be given at the same times.

2
'PRODUCER-1'  o que é?
      0.0   210.0   1.2e3   10.4   2034
     30.0   205.0   1.5e3   11.0   2020
     60.0   206.0   1.4e3   10.5   2015
     90.0   202.4   1.7e3   13.0   1984
    120.0   195.0   2.3e3   14.0   1990
    150.0   193.0   3.2e3   16.0   1905

'PRODUCER-2'
      0.0   153.0   2.3e3   12.0   2100
     30.0   145.0   2.6e3   14.0   2034
```

```
      120.0     0.0     0.0    0.0     0
      150.0   152.0   1.1e3   15.0   2050
```

Example 3: Period Production Totals and the 'YYYY/MM/DD' Date Format

```
* This example shows how to use the 'YYYY/MM/DD' date format for the
* first column of the data tables, and also gives an example of how
* to enter the total monthly production. The single producer maintains
* a constant production rate of 100 bbl/D.

1995/10/18
'test'
1993/01/01
'YYYY/MM/DD'
     2
'Period Oil Production SC' 'Period Water Production SC'
'bbl'                      'bbl'
     1
'PROD 1'
1992/12/3        0.0    0.0
1992/01/31    3100.0    0.0
1993/02/28    2800.0    0.0
1993/03/31    3100.0    0.0
```

Example 4: Period Production Totals and the 'YYYY MM' Date Format

```
* This is the same as the example above, but using the 'YYYY MM'
* date format

1995/10/18
'test'
1993/01/01
'YYYY MM'
    2
'Period Oil Production SC' 'Period Water Production SC'
'bbl' 'bbl'
    1
'PROD 1'
1992  12     0.0  0.0
1993  01  3100.0  0.0
1993  02  2800.0  0.0
1993  03  3100.0  0.0
```

Example 5: Rate Production and the 'ISO_DATE_FORMAT' Date Format

```
* Rate values (e.g. oil rate) apply to the previous period. Non-Rate
Values (e.g. pressure) are instantaneous.

2011-10-24
'Production Data Field History File'
1999 8 1
'ISO_DATE_FORMAT'
4
'Fluid Rate SC - Instantaneous On-time' 'Gas Rate SC' 'Gas Rate SC -
Instantaneous On-time' 'Liquid Rate SC'
'bbl/day' 'ft3/day' 'ft3/day' 'bbl/day'
1
'Well-1'
1999-08-01T00:00:00    0   0   0   0   1999-09-01T00:00:00   674448   507038
2.2134e+006  2088.74
1999-10-01T00:00:00   816381   2.44158e+006   3.9399e+006   6870.45
```

Example 6: Including GROUP, SECTOR, and SPECIAL Information in the FHF

Group, Sector, and Special information is inserted at the end of the FHF, as shown in the following examples. In the following example, GROUP data has been added:

```
'W-8'
  1095.    16.00      1723.  1.389e-07     2935.   3.161e+05
  1185.    13.30      1433.  2.249e-07     4132.   4.451e+05
  1276.    13.90      1497.  1.848e-06     5397.   5.813e+05
  ...
  ...
  2646.    6.900      743.0     12.10   2.329e+04  2.509e+06
  2737.    5.700      614.1     12.32   2.381e+04  2.565e+06

'W-3'
  181.0    31.70      3415.  7.716e-08     5927.   6.384e+05
  273.0    17.40      1874.  3.588e-08     7528.   8.108e+05
  365.0    16.30      1756.  3.772e-08     9027.   9.724e+05
  ...
  ...
  2646.    6.000      645.0     7.783   3.423e+04  3.687e+06
  2737.    4.500      485.5     7.243   3.464e+04  3.731e+06

'All-WELLS-PRO' GROUP
  181.0    154.2  1.661e+04  0.0002228  2.727e+04  2.938e+06
  273.0    160.4  1.728e+04   0.006800  4.203e+04  4.527e+06
  365.0    154.1  1.660e+04    0.03566  5.621e+04  6.054e+06
  ...
  ...
  2646.    105.0  1.134e+04      103.7  4.493e+05  4.837e+07
  2737.    92.72      9909.      97.60  4.577e+05  4.928e+07
```

The following example illustrates the inclusion of SECTOR data in an FHF:

```
2008-07-14
'5-SPOT PATTERN'
1983-01-01
'ISO_DATE_FORMAT'
6
'Ave Pres HC POVO SCTR'  'Gas Oil Ratio SCTR'  'Gas Prod Cum SCTR'
'Gas Prod Rate SCTR'  'Oil Prod Cum SCTR'  'Oil Prod Rate SCTR'
'kPa'  'm3/m3'  'm3'  'm3/day'  'm3'  'm3/day'
1
'Field Sector 03'  SECTOR
1983-01-01   10982.5  0        0         0       0        0
1983-01-31   10779.2  32.6194  12134400  391433  371880   11996.1
1983-02-28   10599.8  32.6299  23098100  391559  707880   12000
1983-03-31   10404.6  32.6299  35236400  391559  1079880  12000
1983-04-30   10218.7  32.6299  46983200  391559  1439880  12000
1983-05-31   10029.8  32.6299  59121500  391559  1811880  12000
...
...
```

The following example illustrates the inclusion of SPECIAL data (temperature for a particular grid block) in the FHF:

```
2008-10-07
'Grid property match sample field history file'
2000-01-01
'day'
1
'Temperature'
'F'
```

```
     0.0000000000            100.00
     0.0020833334            100.05
     0.0041924417            100.22
     0.0063458458            100.66
     0.0085431505            101.45
...
...
```

Note: The special number *-99999* is used to represent missing data in columns other than the time column. FHF files that are generated by Builder use the ISO date format.