

Longwall Visual Analysis

Information Sheet

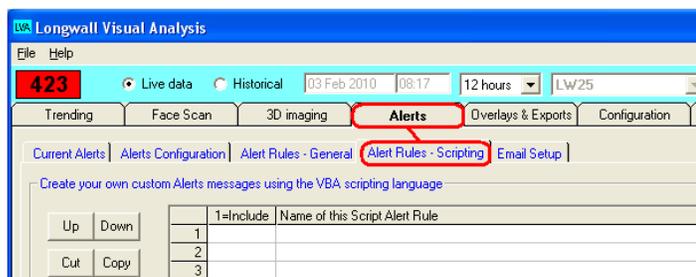


Add an Alert Script Rule

Revision 0, 3 Feb 2010

LVA Alerts are calculated periodically and displayed in LVA, and can optionally be emailed to a list of recipients. LVA has a number of standard Alerts rules built in. This information sheet describes how to add your own custom Alerts rules using LVA's Alerts Script feature.

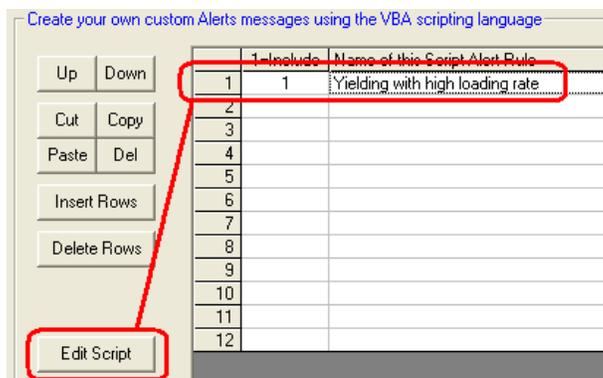
1. Start LVA and click to the tab Alerts | Alerts Rules – Scripting..



2. Enter a descriptive name for the Alerts Rule, for example “Yielding with high loading rate”, and enter a “1” in the include column to indicate that you want to include this script whenever Alerts are calculated. At any future stage you can delete the “1” and this Alert rule will be ignored when Alerts are calculated.

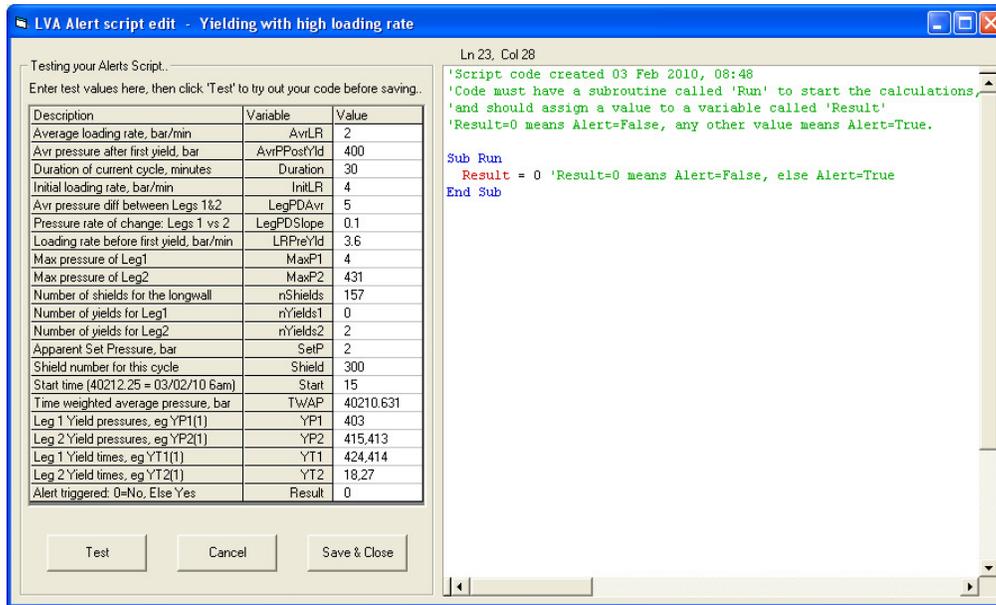
	1=Include	Name of this Script Alert Rule
1	1	Yielding with high loading rate
2		
3		

3. Make sure the rule you want to edit is selected (click on its name for example), and then click “Edit Script”

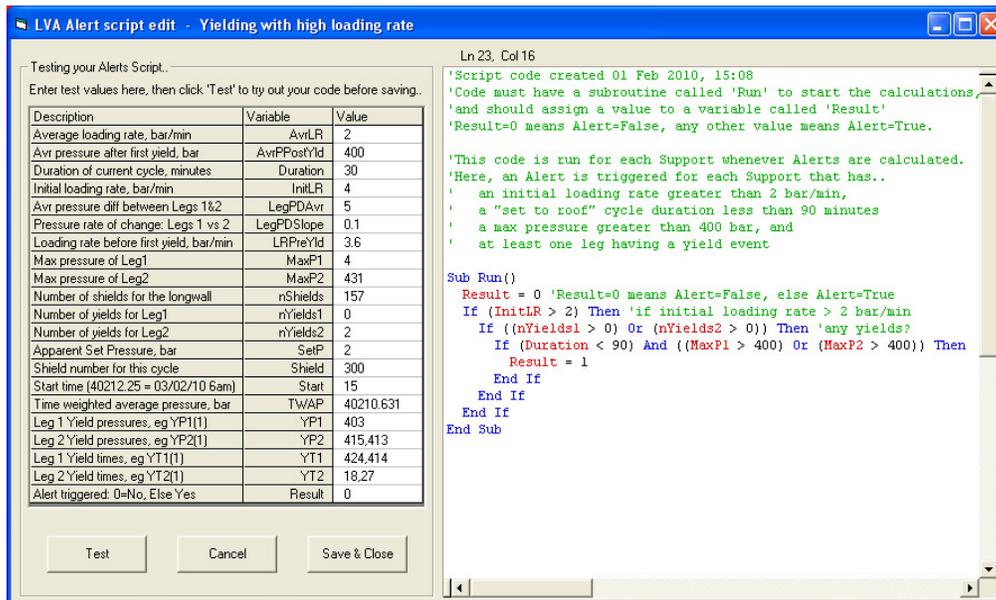


- Clicking “Edit Script” opens the LVA Alerts Script Editor. If it is a new script it will be started with a default code that simply returns a value of Result = 0, which indicates no Alert has been triggered. The programming language is Microsoft’s VB Script (Visual Basic Script language). The editor will automatically color the text as you type, which helps to ensure you have the right spelling and syntax. The editor colors are as follows:

- Green a comment, started with a single apostrophe
- Blue VB Script reserved words such as If .. Then .. Else
- Red LVA predefined words such as Result, InitLR etc
- Black all other text



- Now delete the sample script and replace it with your own script, or paste in the sample text from below. You can test your script by entering values into the “Value” column and clicking the “Test” button at lower left. Click “Save & Close” when done.



6. A sample script. This script will return an Alert for all shields having an initial loading rate greater than 2 bar/min, and at least one yield event on either leg during the last cycle, and the maximum pressure on either leg exceeded 400 bar.

```
'Script code created 01 Feb 2010, 15:08
'Code must have a subroutine called 'Run' to start the calculations,
'and should assign a value to a variable called 'Result'
'Result=0 means Alert=False, any other value means Alert=True.

'This code is run for each Support whenever Alerts are calculated.
'Here, an Alert is triggered for each Support that has..
'   an initial loading rate greater than 2 bar/min,
'   a "set to roof" cycle duration less than 90 minutes
'   a max pressure greater than 400 bar, and
'   at least one leg having a yield event

Sub Run()
  Result = 0 'Result=0 means Alert=False, else Alert=True
  If (InitLR > 2) Then 'if initial loading rate > 2 bar/min
    If ((nYields1 > 0) Or (nYields2 > 0)) Then 'any yields?
      If (Duration < 90) And ((MaxP1 > 400) Or (MaxP2 > 400)) Then
        Result = 1
      End If
    End If
  End If
End Sub
```

7. How does the script work, and what does it do?

Whenever LVA needs to calculate the Alerts, it will execute the script separately for each Shield based on values from the most recent set-to-roof cycle, and record those shields that have an Alert result of 1 (i.e. where the variable “Result” evaluated to 1).

8. LVA pre-defined variables

LVA assigns values to various pre-defined variables that can be used in your scripts. These values apply to the shield being evaluated, for the most recent roof setting cycle.

<i>Variable</i>	<i>Description</i>
AvrLR	Average loading rate, bar/min, during the most recent roof setting cycle.
AvrPPostYld	Average pressure after first yield, bar, during the cycle.
Duration	Duration of the most recent roof setting cycle, minutes.
InitLR	Initial loading rate, bar/min. Based on the first 10 minutes of the roof setting cycle.
LegPDAvr	Average pressure difference between Legs 1 and 2, which can help to identify sensor calibration issues. A positive value indicates Leg2 pressure is consistently > Leg1 pressure, negative means Leg1 > Leg2.
LegPDSlope	Pressure difference rate of change: Legs 1 vs 2, bar/min. This is the average rate at which Leg1 pressure diverges from Leg2 pressure, which may indicate leaking or some other issue if high enough. A positive value indicates Leg1 pressure is consistently falling with respect to Leg2 pressure, negative means vice versa.
LRPreYld	Loading rate before first yield, bar/min

MaxP1	Maximum pressure of Leg1
MaxP2	Max pressure of Leg2
nShields	Number of shields for the longwall
nYields1	Number of yields for Leg1 during the last roof setting cycle.
nYields2	Number of yields for Leg2
SetP	Apparent Set Pressure, bar
Shield	Shield number for this cycle
Start	Start time for this cycle as a number in whole days and fraction of a day. For example 4th Feb 2010 at 6:00am would be 40213.25 (this is a standard format of Microsoft VB Script).
TWAP	Time weighted average pressure, bar, for the cycle.
YP1	Leg 1 Yield pressures, eg YP1(1) to YP1(nYields1)
YP2	Leg 2 Yield pressures, eg YP2(1) to YP2(nYields2)
YT1	Leg 1 Yield times, in minutes since the start of the cycle, eg YT1(1) to YT1(nYields1)
YT2	Leg 2 Yield times, in minutes since the start of the cycle, eg YT2(1) to YT2(nYields2)
Result	Alert triggered: 0=No, Else Yes. You must have a subroutine called "Run" and it must assign a value to a variable called "Result". When the routine exits, the current shield & cycle combination being evaluated will have an alert triggered if the value of "Result" is not zero.

9. All done. After clicking "Save & Close" and returning to the LVA main program, the new Alert Rule should automatically run along with the standard Alerts Rules. You can switch it on and off using the "1" in the Include column of the Alert Scripts table.

	1=Include	Name of this Script Alert Rule
1	1	Yielding with high loading rate
2		
3		

10. How do you use the VB Script programming language?

See the Microsoft website for a full description of VB Script syntax, or search "VB Script" on the internet. For example

- http://www.devguru.com/technologies/vbscript/quickref/vbscript_intro.html
- [http://msdn.microsoft.com/en-us/library/d1wf56tt\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/d1wf56tt(VS.85).aspx)