

Plate Impact Testing with Instron CeastVIEW VisualIMPACT Software in MTIL

by David Farrow, Fall 2018

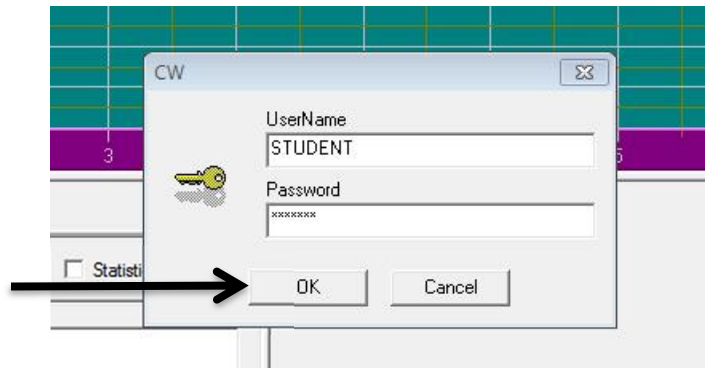
Staff - Power Up Dynatup Model 8200 System:

- Lab compressed air on
- Rebound brakes power on, brakes reset
- Tower box power on
- Clamp box power on, clamp functional
- DAQ box power on
- Safeties active (lit) and functional (door, clamp, brakes)
- Carriage in up position

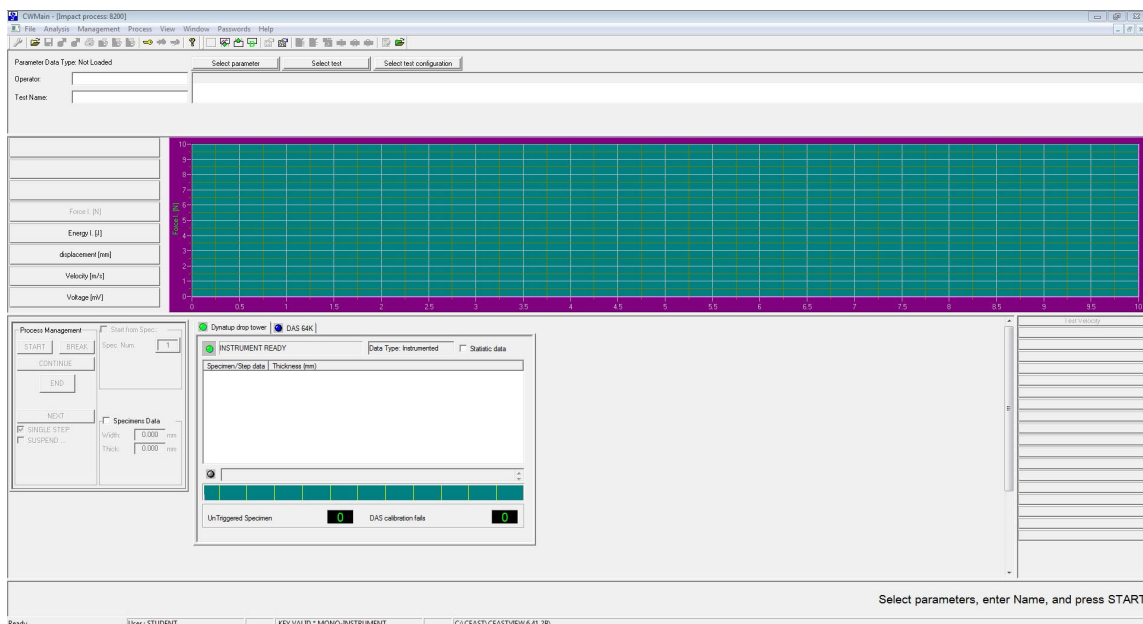


Students - Start Software:

- Start CeastVIEW software from desktop shortcut
- Login with student, student, OK

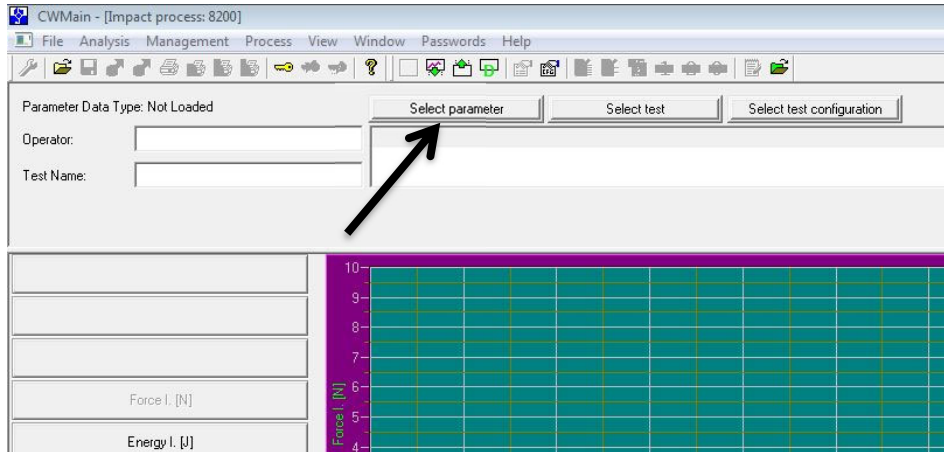


- Test Process screen looks like this:

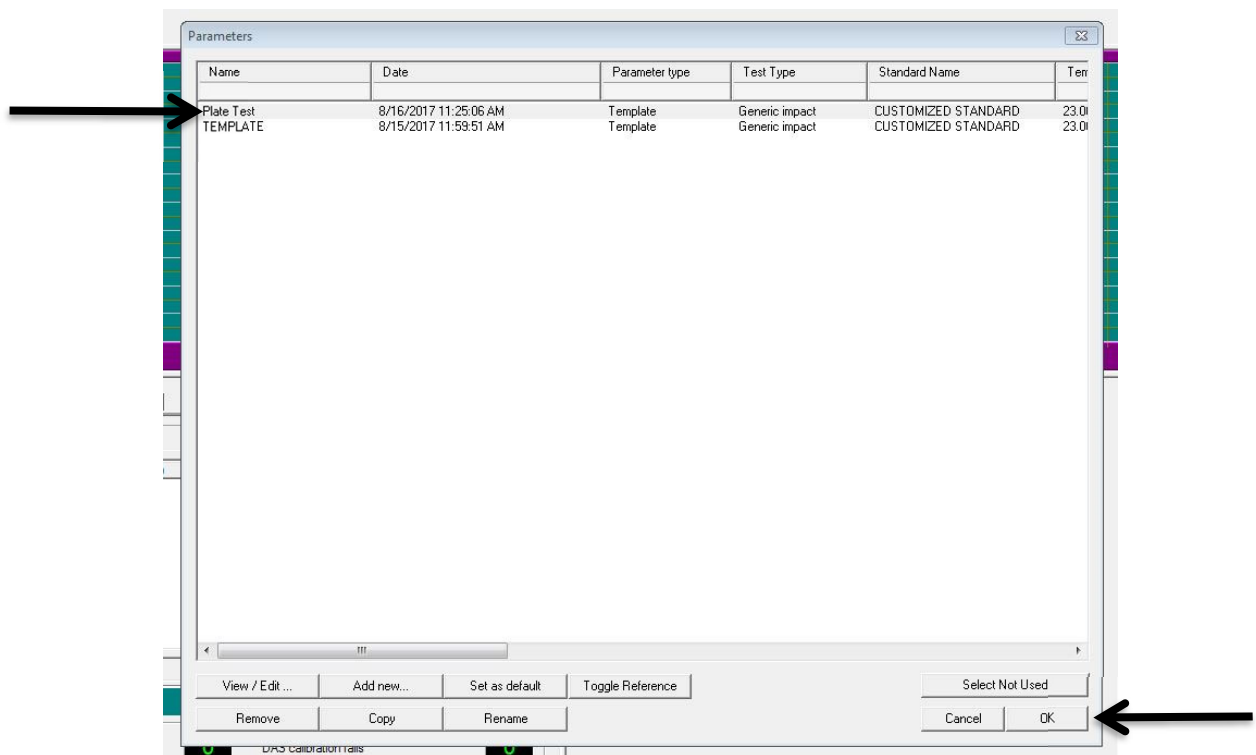


Initiate and Conduct a Test:

- Select parameter (test template)



- Choose Plate Test, OK



- Enter Operator (discipline-section-group) e.g. M07-CD
- Enter Test Name (discipline-section-group-material-temperature)
- Material = PMMA, PP, HDPE, ABS
- Temperature = RT, 0C, BW
- Example: M07-CD-PP-RT



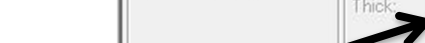
- START (first)



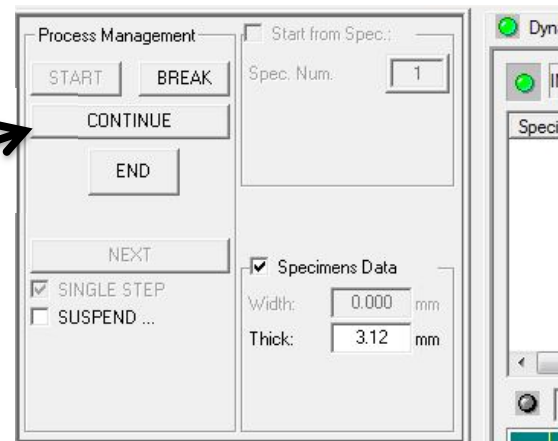
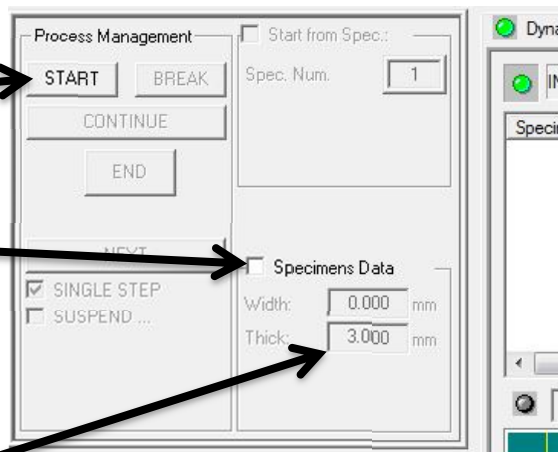
- Enable Specimens Data



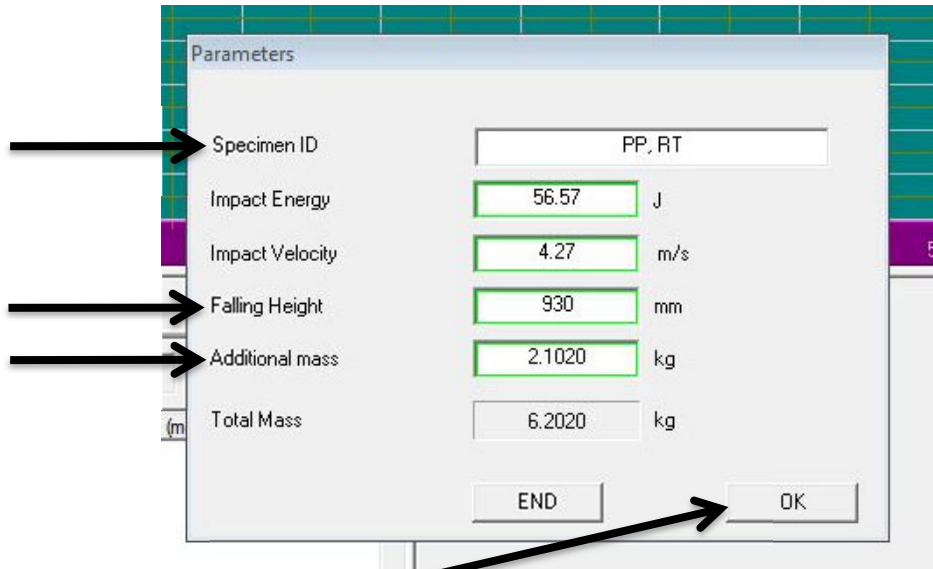
- Enter Plate Thickness



- CONTINUE (last)

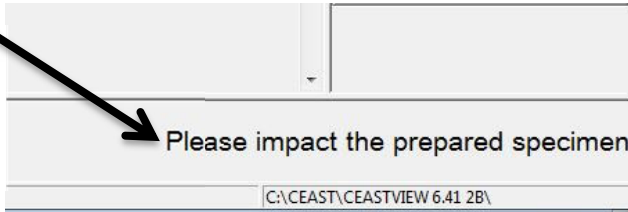


- Enter Specimen ID as material, temperature
- *Measure clamp diameter (will be recorded as 76mm in datafile)*
- *Measure and enter falling height (drop height)*
- Verify nominal added mass as 2.102 kg and total mass as 6.202 kg



- OK
- DAQ box green Trigger On lamp should illuminate (wait for this)



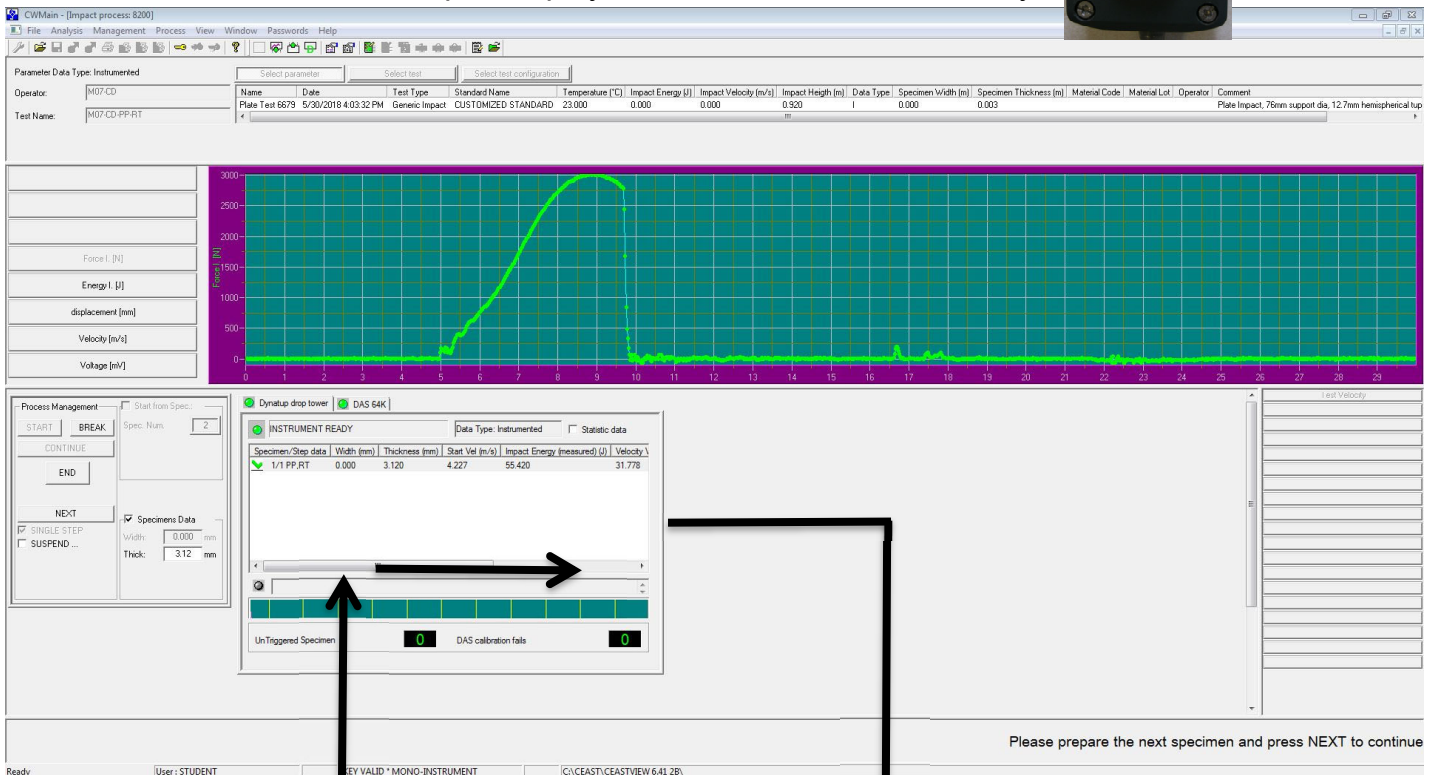
- Screen Message: 
- Prepare to load specimen



- Load specimen (load, clamp, door)



- 3 green safeties should now be illuminated on control box
 - Fire!
- Force vs. Time plot displays on screen after a short delay



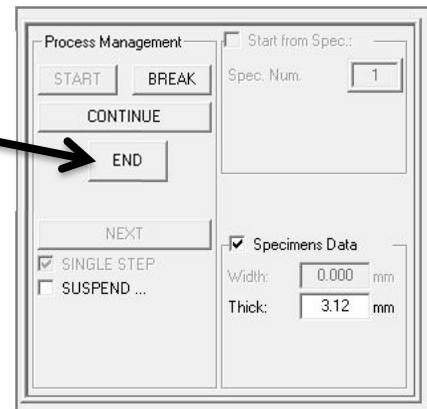
- Scroll right to note Peak Force and (tentative) Total Energy absorbed

mm	Start Vel (m/s)	Impact Energy (measured) (J)	Velocity Variation (%)	Peak Force (N)	Total Energy (J)
	4.227	55.420	31.778	3014.440	32.029

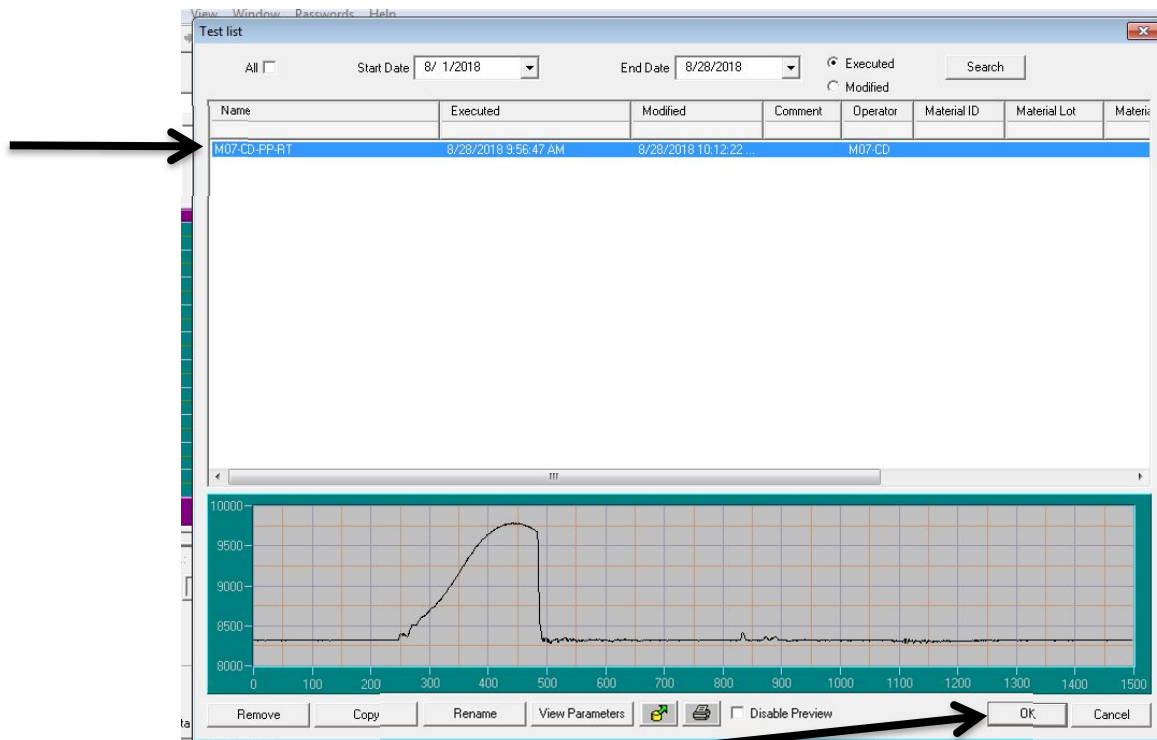
- Enter these data on whiteboard vs. test temperature

Critical step:

- END
- Raise carriage to top position
- Unload and collect specimen
- Reset brakes
- Mark specimen (temperature, peak load, total energy—which may need revision next)

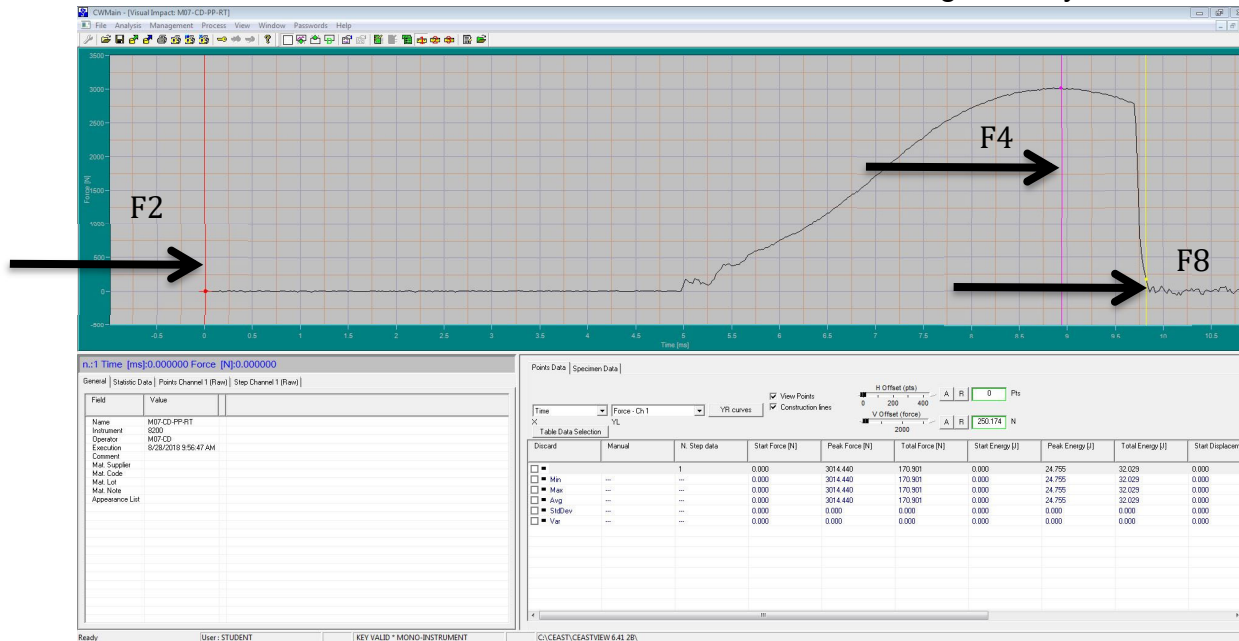
**Process and Export Data to File:**

- Pull down File menu, Open
- Choose test to process by filename

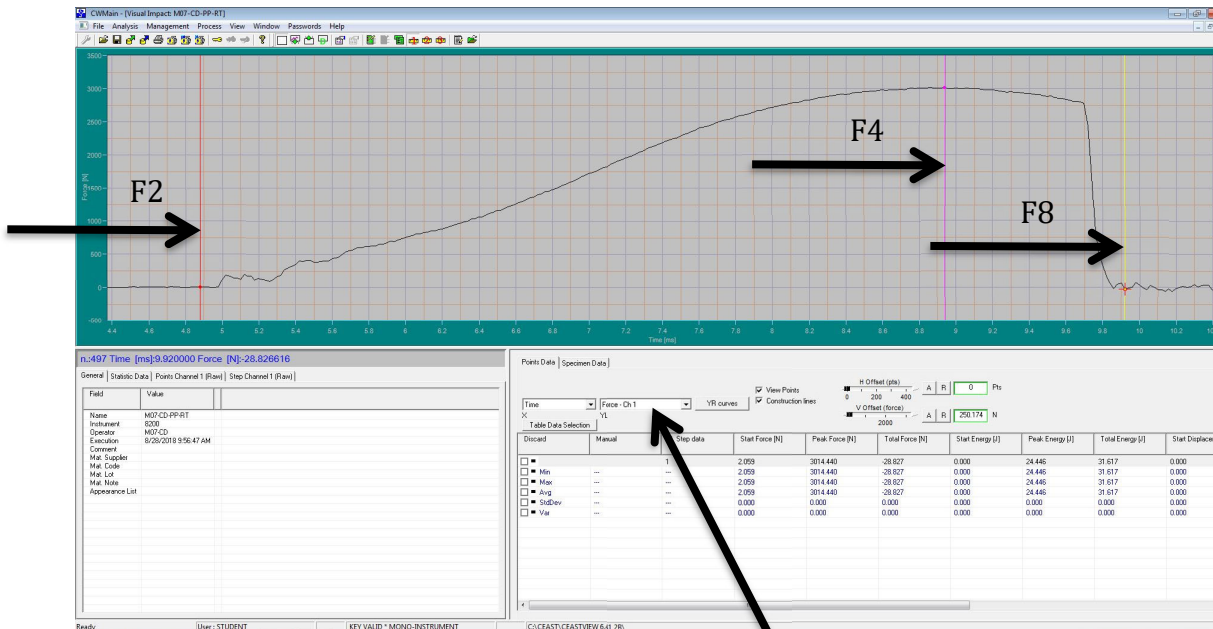


- OK

- Click on Force trace to locate red cursor, THEN drag it; F keys mark events

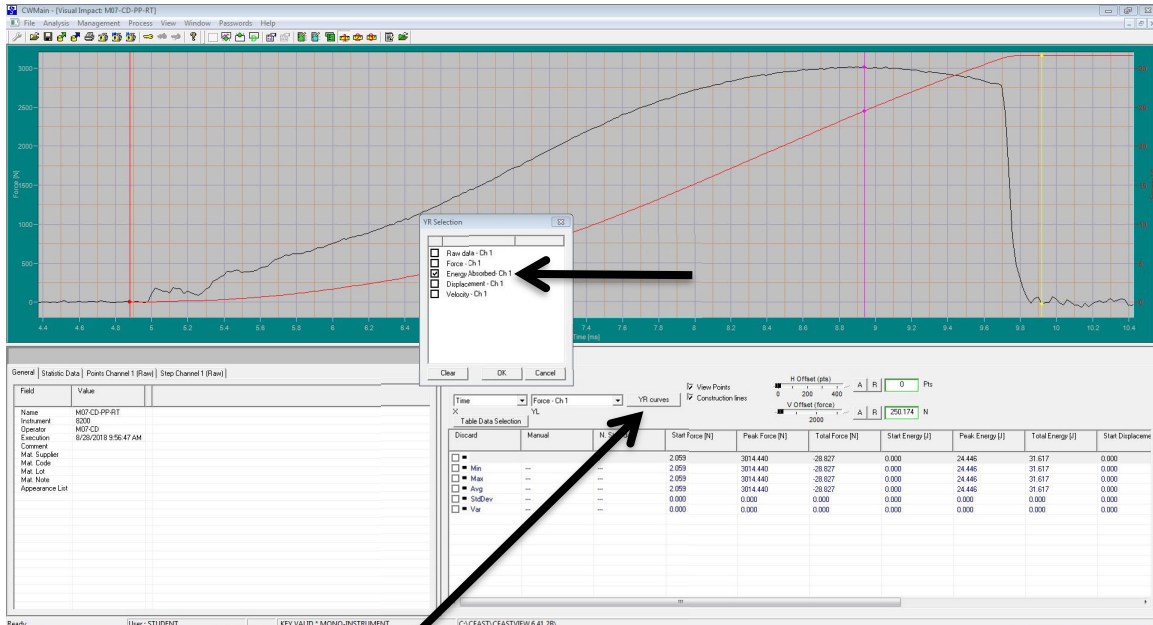


- F2 = Start Time (Red)
- F4 = Peak Force (Purple)
- F8 = End (Total) Time (Yellow---where Force returns to zero)
- CTRL F12 = Zoom out, CTRL F11 = Zoom in, CTRL F10 = Zoom Box
- Right click on plot for other plot options, if needed
- Ignore blue break cursor (F5) if it shows (can move off-screen)
- Mark three points of interest: Start (red), Peak (purple), and End (yellow)



- Can view other quantities, e.g. Energy, if desired
- Skip to page 9

- Optional - It is useful to plot Force and Energy together vs. Time:

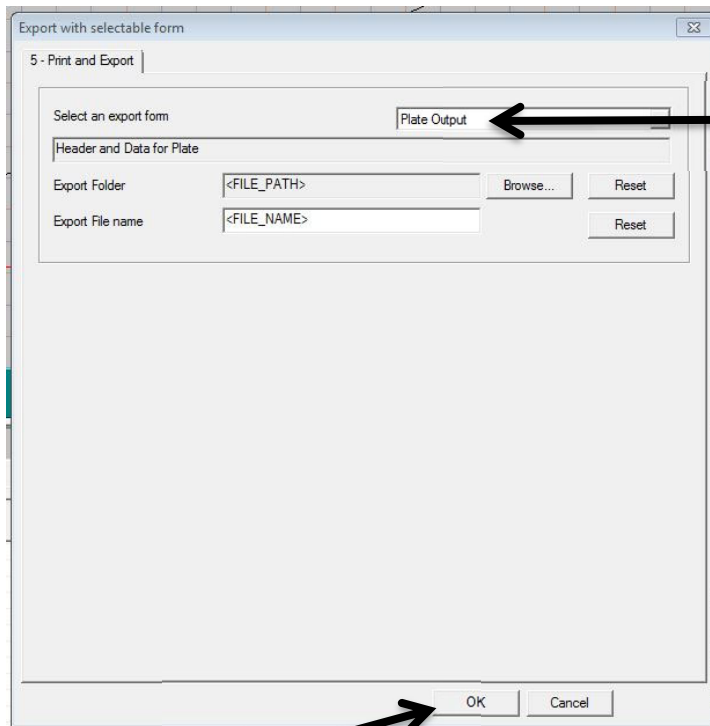


- Use YR curves to overlay Energy Absorbed plot
- Toggle large plot from toolbar with arrowed tool:

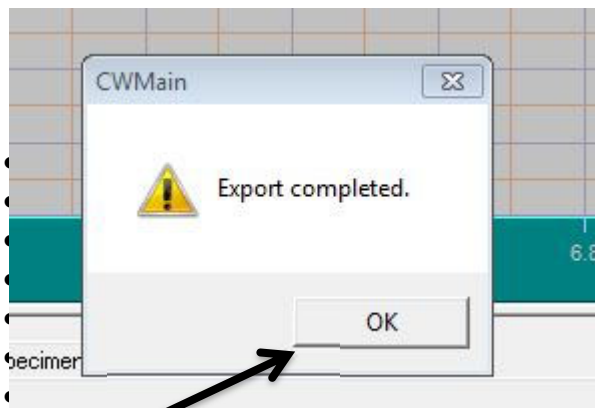


- Here are Force and Energy vs. Time plotted large for teaching

- Pull down File menu, Export Test Data, use Plate Output form

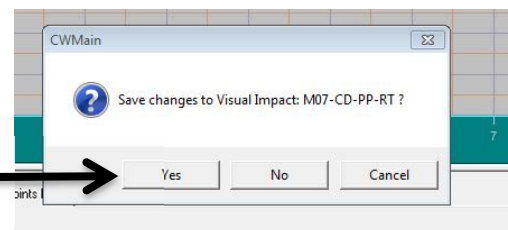


- OK



- OK
- Pull down File, Close

- Yes to Save changes



- **Initiate next test---with new filename, START (top of page 3)**
- **Engage clamp box safety and reset brakes when done**