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AFGROW.NET

AFGROW European Workshop 2026

AFGROW Web Based Post-Processing Application

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AFGROW Post-Processing Web Application

What is the AFGROW Post-processing Application?

- The AFGROW Post-processing Application is a web app that can be accessed from your browser which organizes data from AFGROW .xml output files. After uploading a file, the application generates several tables and plots that can assist the user in evaluating AFGROW crack growth prediction results.
- When you securely upload an AFGROW xml output file to our server, the web application processes the results to create helpful graphs and tables in your browser. We do not save any user submitted data or generated reports.
- Is not authorized for the storage, processing, or transmission of Controlled Unclassified Information (CUI).
- It is still in beta development stage

How To Access and Use the Post-processing Application

The AFGROW Post-processing Web Application is live now. You can access it at https://www.afgrow.net/post-processing. To upload your file, click *File Upload* or Drug and Drop your file in the upload designated area. Then, click *Choose File* and select the file you wish to upload and evaluate with the app. After selecting a file, its name will be visible next to the *Choose File* button. Finally, Click *Generate Report*. A page should now be loaded with your post-processing results.

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Post-processing: Application Features

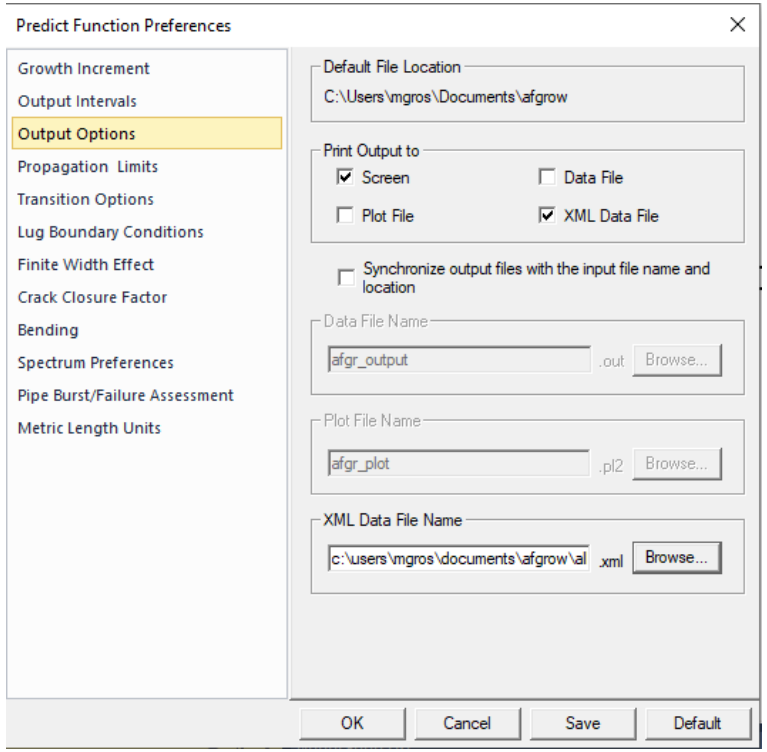
The Post-processing Application has several sections, each of which present information related to the different components of the analysis. All plots and data tables display the units of the reported data. All the reported data can be exported and a text of as a picture, when it is appropriate. The complete report page can be saved as pdf file.

You may see even more sections than those listed below. These sections can be used to give additional perspective about the prediction results. As we improve this tool, more sections will become available. It is still work in progress.

- Model Description
- Spectrum Information
- Crack Growth Output
- Crack Length vs Life Sections
- Beta vs Life Sections
- Multiple Pipeline Related sections including FAD diagram
- K vs Crack Length
- Beta vs Crack Length
- AoC vs Life (cycles or hours)
- AoT vs Life (cycles or hours)
- Crack Growth Rate Summary
- Damage Tag Summary
- Residual Strength Diagram

AFGROW Preferences

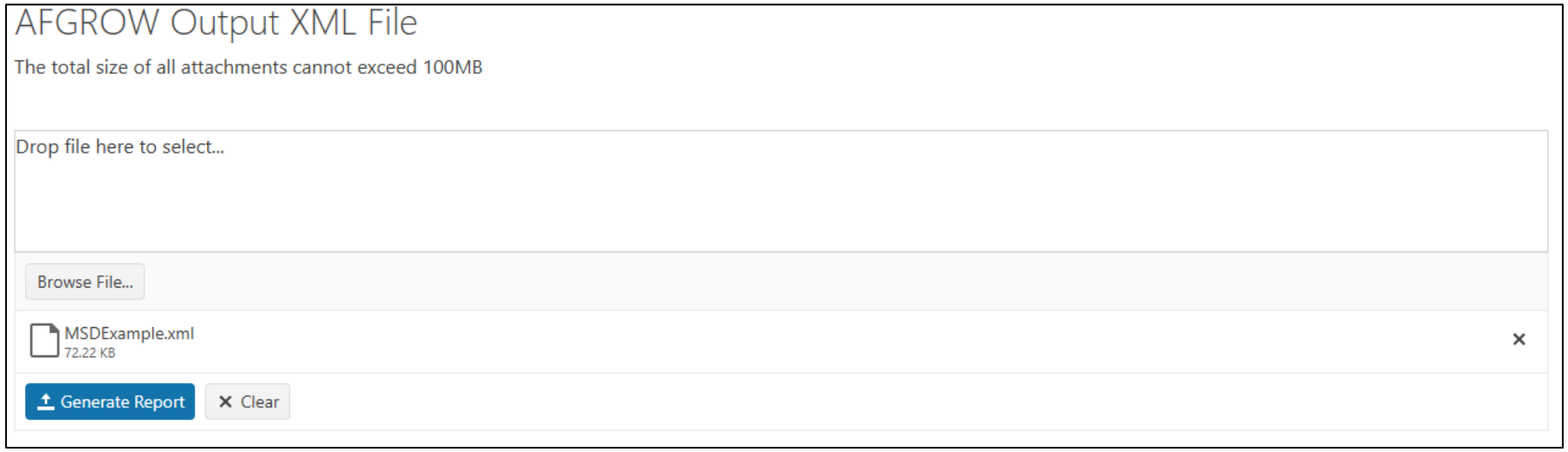
- Save your output from AFGROW to an XML file
  - Predict Preferences -> Output Options -> check the “XML Data File” box -> specify XML file name
  - After running the analysis, the xml file will be created in your designated location with the calculated results



Uploading XML File

- Visit the Post Processor page (https://www.afgrow.net/post-processing)

- Upload your .xml output file, then click “Generate Report”



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General Summary of AFGROW Results

Specimen (10000)

Name: Example Problem

Comments: This space for comments

Final Cycles: 34995

Final Crack Length A: 0.239079

Final Crack Length C: 0.597731

Status: Normal finish of the predict routine

Spectrum

Constant Amplitude

Stress Ratio: 0

Block Size: 100

Spectrum Multiplacation Factor: 14

Residual Strength Requirement: 0

Preload: 0

Levels: 1

Cycles: 100

Subspectra: 1

Max Value: 1

Min Value: 0

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Prediction results Output in a Table

Output

```
++++++Cycles 13700 Crack 5, Edge 1 touched 2
**********Crack[4] Dim[0] transitioned to a hole [3]

Crack #1
 C Length =   0.1576  Beta Tension= 1.0521 Beta Compression= 1.0521  R(k)= 0.0000  R(final)= 0.0000  Delta k=1.4728e+01   D()/DN=1.6468e-05
Crack #2
 C Length =  0.17377  Beta Tension= 1.0762 Beta Compression= 1.0762  R(k)= 0.0000  R(final)= 0.0000  Delta k=1.5809e+01   D()/DN=2
Crack #3
 C Length =   0.1834  Beta Tension= 1.1080 Beta Compression= 1.1080  R(k)= 0.0000  R(final)= 0.0000  Delta k=1.6710e+01   D()/DN=2.
Crack #4
 C Length =  0.21307  Beta Tension= 1.3067 Beta Compression= 1.3067  R(k)= 0.0000  R(final)= 0.0000  Delta k=2.1144e+01   D()/DN=4
Crack #5
 Left Tip C =   0.5625  Beta Tension= 2.9214 Beta Compression= 2.9214  R(k)= 0.0000  R(final)= 0.0000  Delta k=7.1645e+01   D()/DN=9
 Right Tip C=   0.5518  Beta Tension= 1.3854 Beta Compression= 1.3854  R(k)= 0.0000  R(final)= 0.0000  Delta k=3.5822e+01   D()/DN=
Crack #6
 C Length =  0.21979  Beta Tension= 1.3880 Beta Compression= 1.3880  R(k)= 0.0000  R(final)= 0.0000  Delta k=2.2761e+01   D()/DN=5
Crack #7
```

Crack Growth Output

Export to Excel

Crack Id	AoT	AoC	Direction Id	Length (in)	Beta Tension	Beta Compression	DeltaK (ksi/sqrt(in))	DID
0	0	0	CS1	0.05	1.76342	1.76342	15.7253	0.0(
1	0	0	CS2	0.05	1.82733	1.82733	16.2952	0.0(
2	0	0	C11	0.05	1.90916	1.90916	17.0249	0.0(
2	0	0	C12	0.1	1.24997	1.24997	15.7637	0.0(
3	0	0	CS4	0.05	1.82998	1.82998	16.3188	0.0(
4	0	0	CS5	0.05	1.76378	1.76378	15.7285	0.0(
0	0	0	CS1	0.058101	1.66162	1.66162	15.9728	0.0(
1	0	0	CS2	0.0592382	1.71082	1.71082	16.6059	0.0(
2	0	0	C11	0.0607358	1.75279	1.75279	17.227	0.0(

1 2 3 4 5 ... 10 items per page

1 - 10 of 618 items

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Notification Summary

Notification List

	Model	Condition	Cycle	Description
⚠	5101	0.03125 <= a/c <= 2.0	0	a/c ratio [0.01] is outside of the valid range
⚠	5101	0.01 < t/Do <= 1.0	0	t/Do ratio [0.075] is outside of the valid range for the MAT-8 Burst Model
⚠	5101	0.03125 <= a/c <= 2.0	100	a/c ratio [0.01] is outside of the valid range
⚠	5101	0.01 < t/Do <= 1.0	100	t/Do ratio [0.075] is outside of the valid range for the MAT-8 Burst Model
⚠	5101	0.03125 <= a/c <= 2.0	200	a/c ratio [0.013
⚠	5101	0.01 < t/Do <= 1.0	200	t/Do ratio [0.07
⚠	5101	0.03125 <= a/c <= 2.0	300	a/c ratio [0.018
⚠	5101	0.01 < t/Do <= 1.0	300	t/Do ratio [0.07
⚠	5101	0.03125 <= a/c <= 2.0	400	a/c ratio [0.026
⚠	5101	0.01 < t/Do <= 1.0	400	t/Do ratio [0.07

Notifications

Export to Excel

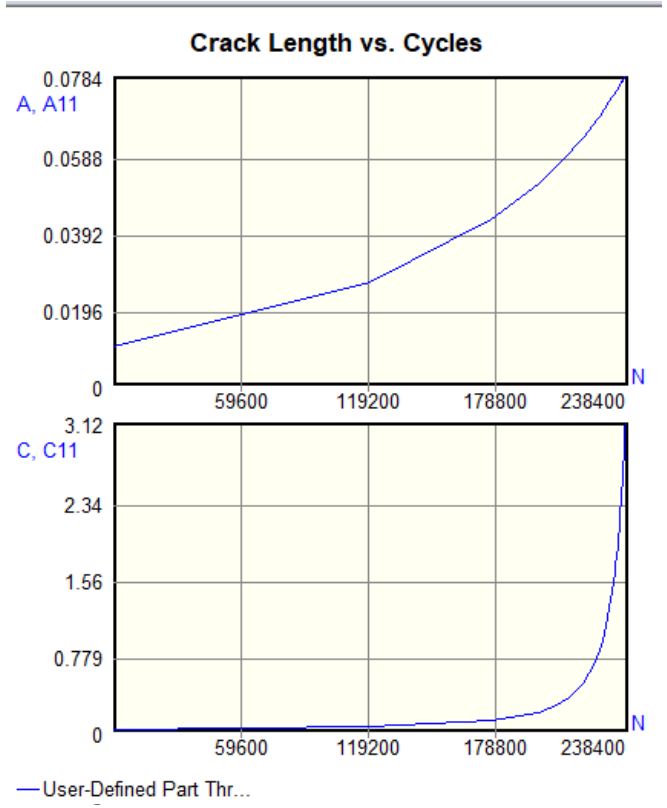
Search...

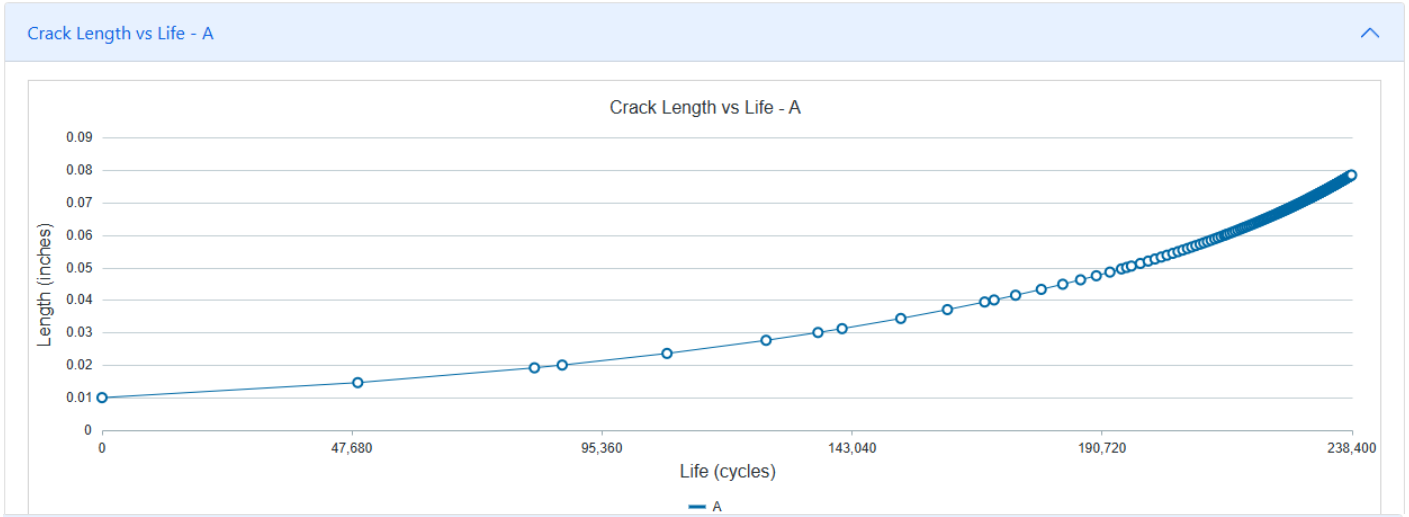
Model	Cycle	Message
5101	0	a/c ratio [0.01] is outside of the valid range (0.03125 <= a/c <= 2.0)
5101	0	t/Do ratio [0.075] is outside of the valid range for the MAT-8 Burst Model (0.01 < t/Do <= 1.0)
5101	100	a/c ratio [0.01] is outside of the valid range (0.03125 <= a/c <= 2.0)
5101	100	t/Do ratio [0.075] is outside of the valid range for the MAT-8 Burst Model (0.01 < t/Do <= 1.0)
5101	200	a/c ratio [0.0133856] is outside of the valid range (0.03125 <= a/c <= 2.0)
5101	200	t/Do ratio [0.075] is outside of the valid range for the MAT-8 Burst Model (0.01 < t/Do <= 1.0)
5101	300	a/c ratio [0.0185868] is outside of the valid range (0.03125 <= a/c <= 2.0)
5101	300	t/Do ratio [0.075] is outside of the valid range for the MAT-8 Burst Model (0.01 < t/Do <= 1.0)
5101	400	a/c ratio [0.026936] is outside of the valid range (0.03125 <= a/c <= 2.0)

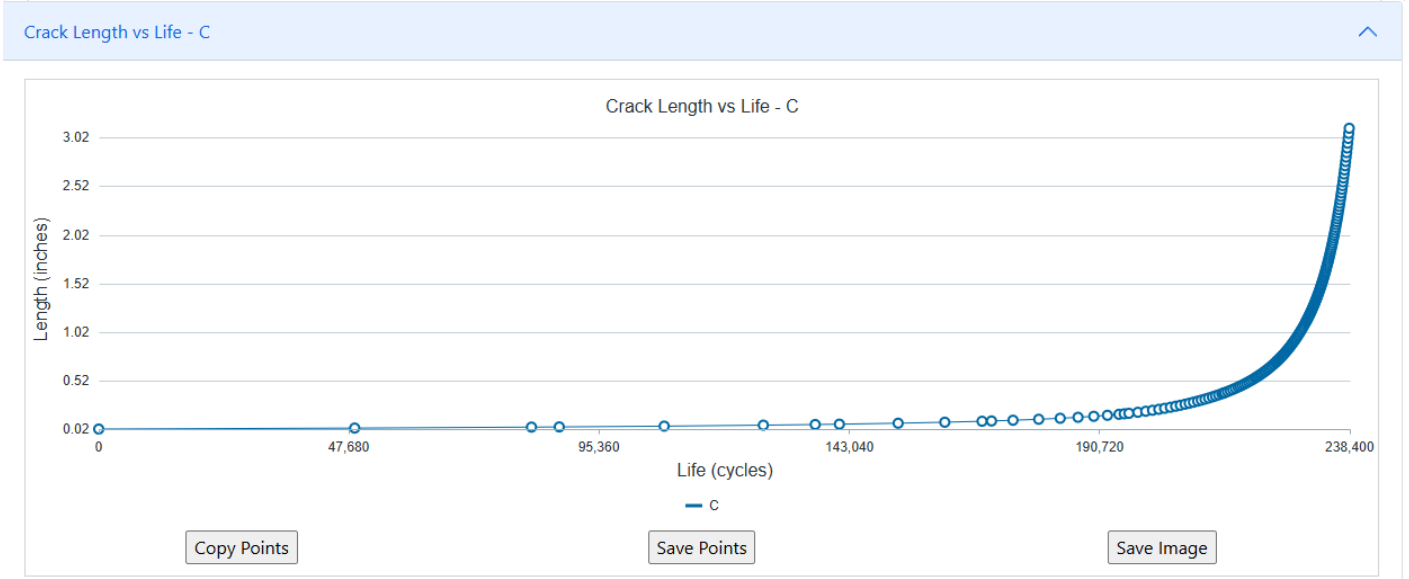
1 | 10 items per page | 1 - 10 of 10 items

Crack Length vs. Life

- A and C direction







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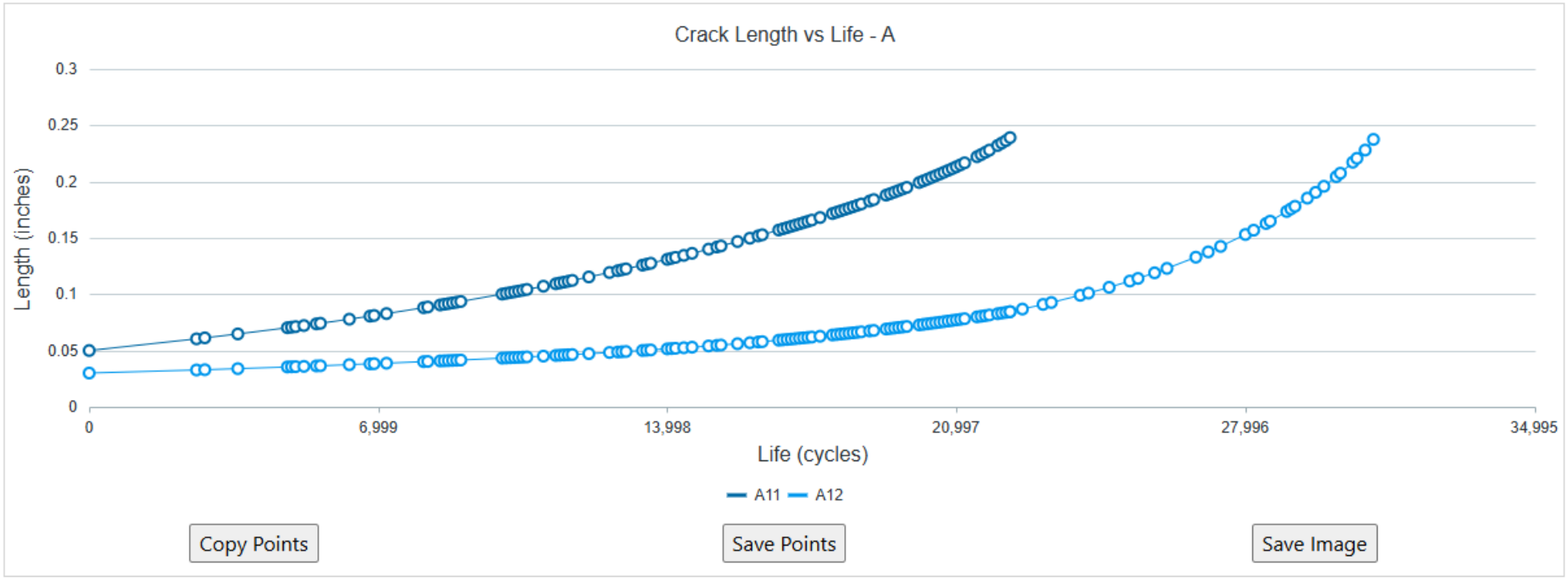
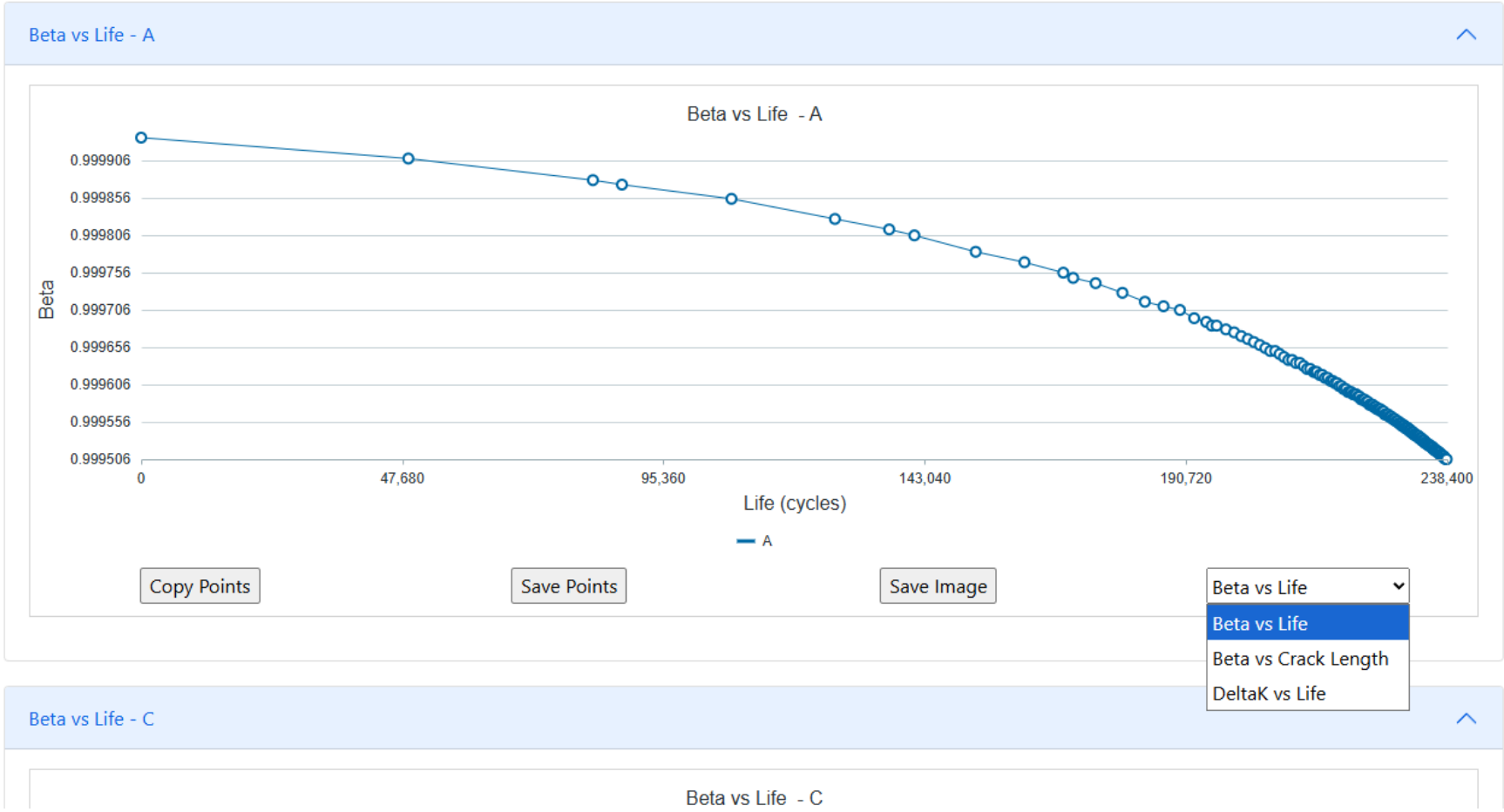
Advanced Model Output

Crack Length vs Life - A



Beta/ΔK Charts

- A and C direction
- Configurable for Beta vs Life, Beta vs Crack length, and delta K vs Life



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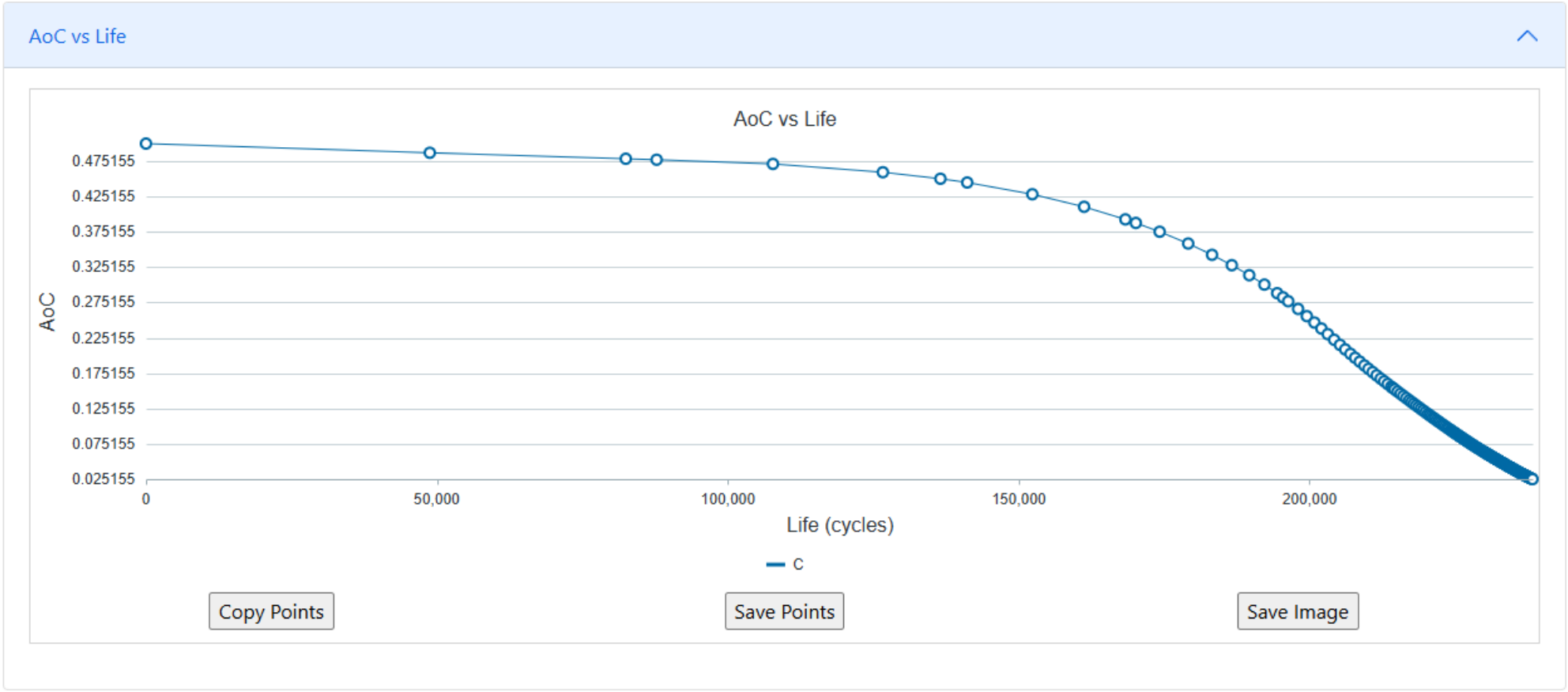
AoC vs Life



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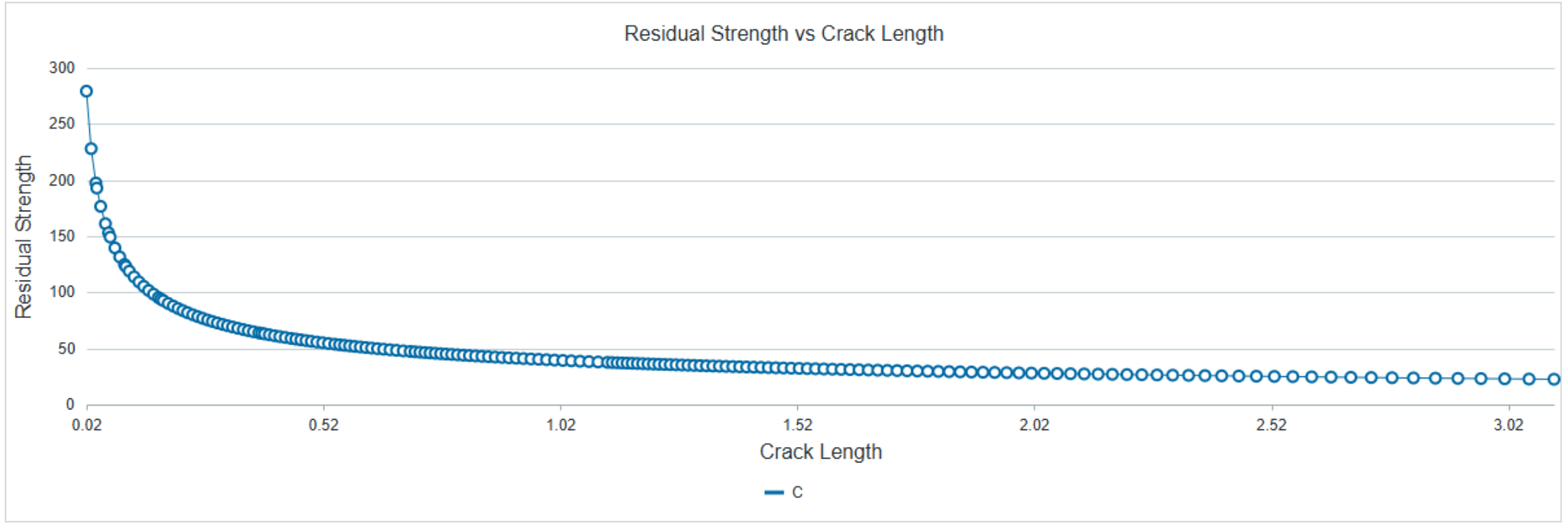
Residual Strength Plot

Residual Strength vs Crack Length



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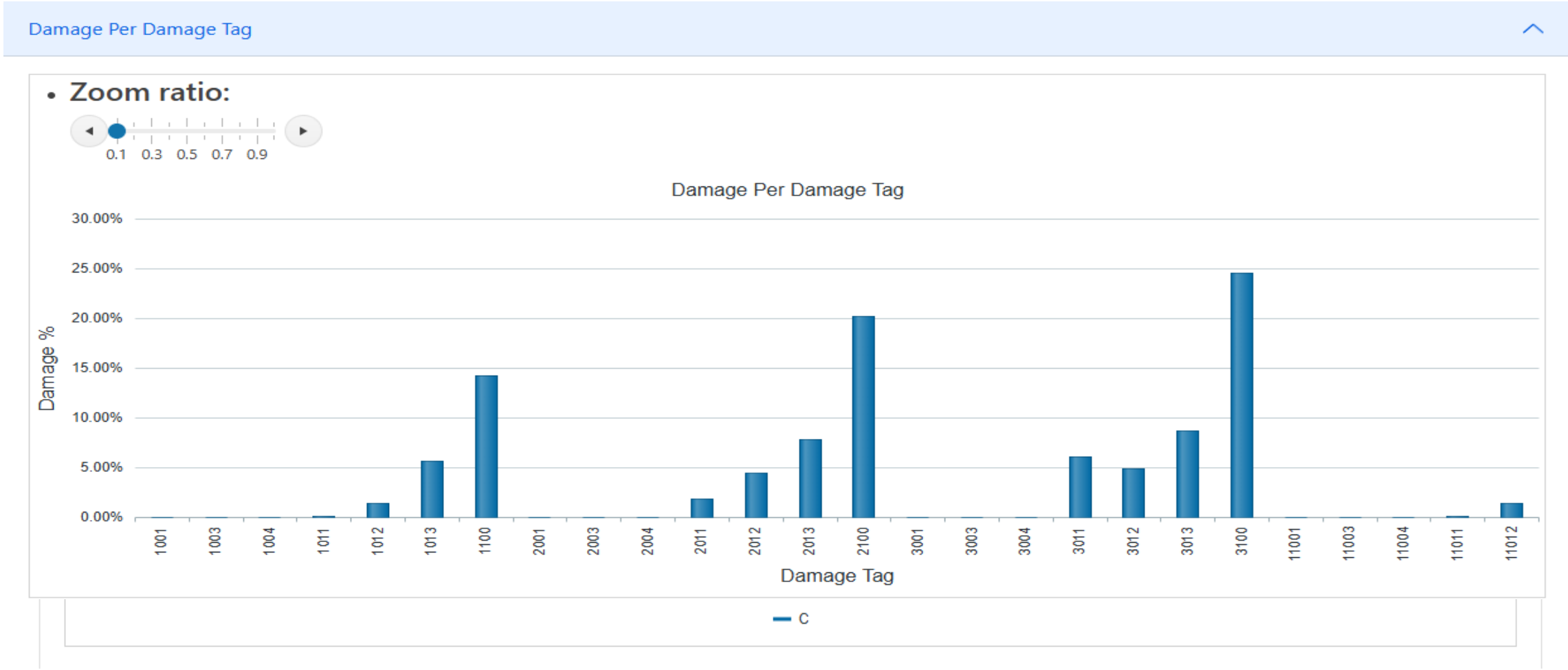
Damage Per Damage Tag

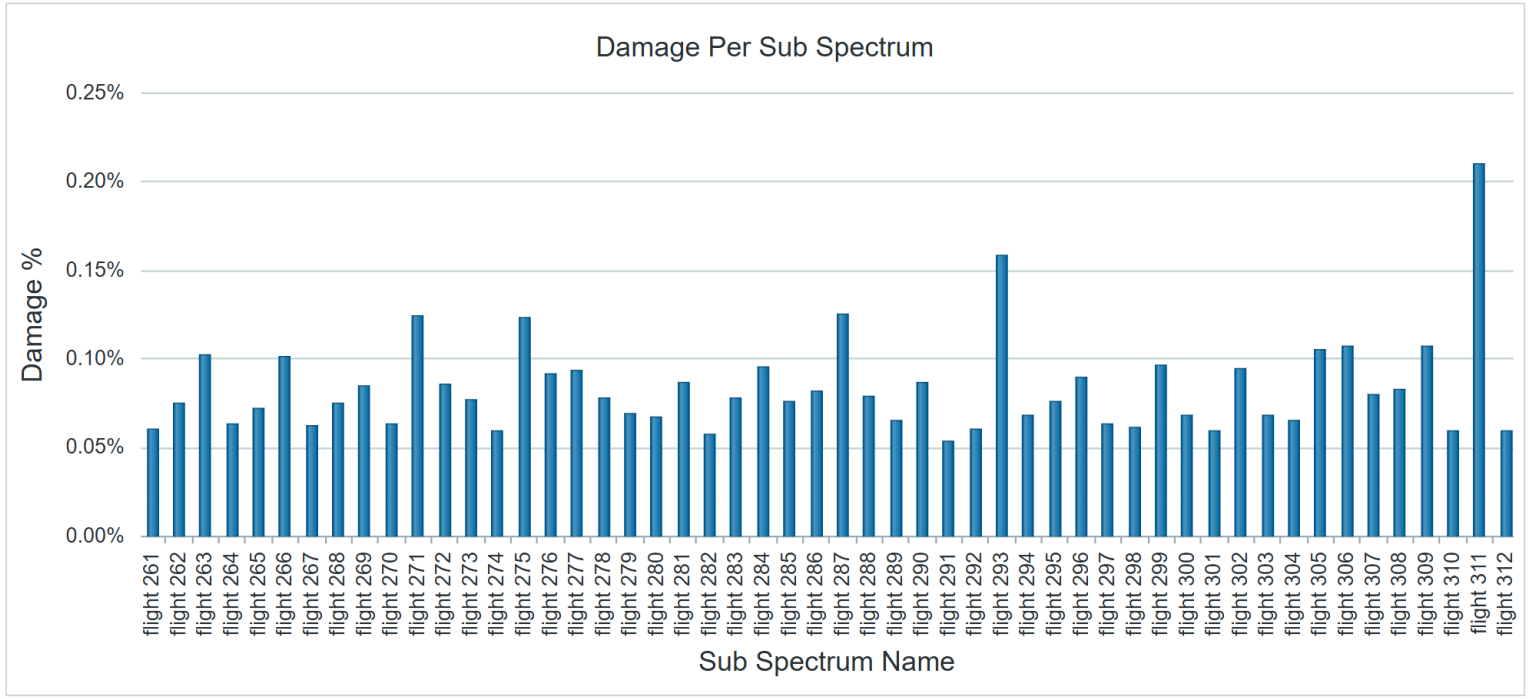


Damage Per Sub Spectrum

Damage Per Sub Spectrum

To zoom: Move the mouse over the chart and use the scroll wheel to zoom in and out.

To Pan Left and Right: Hold the left mouse button and drag the mouse left or right.



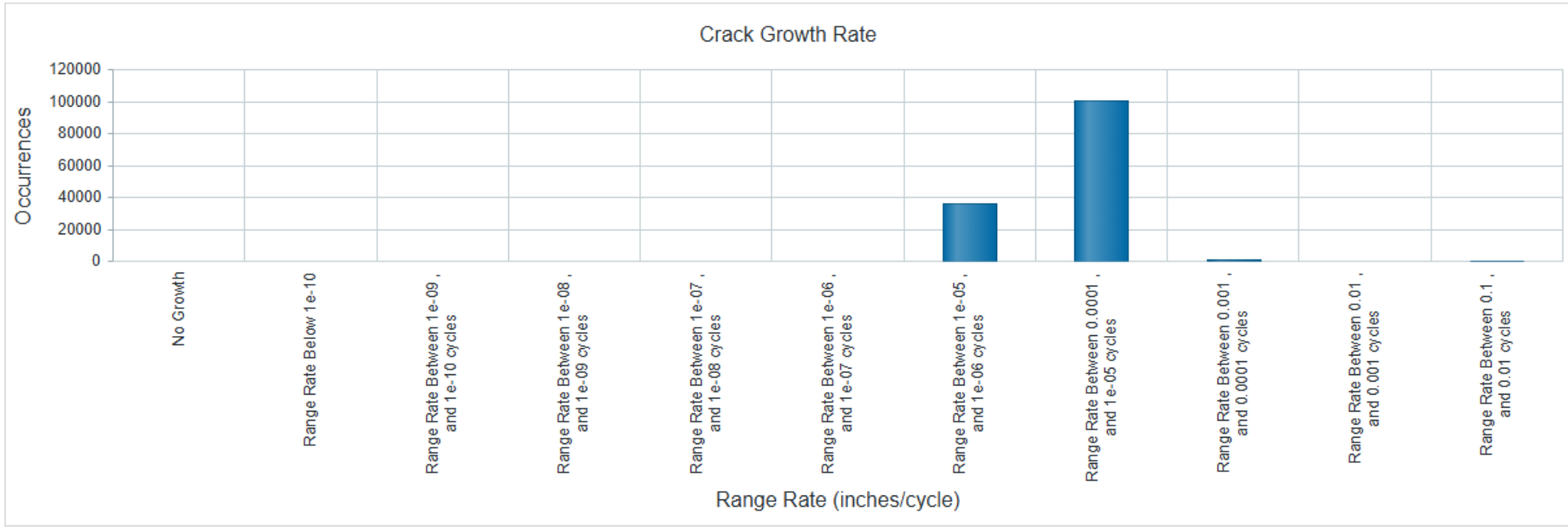
Zoom Position:

Zoom Percentage: 1735%

Reset Zoom

Crack Growth Rate Summary

Crack Growth Rate



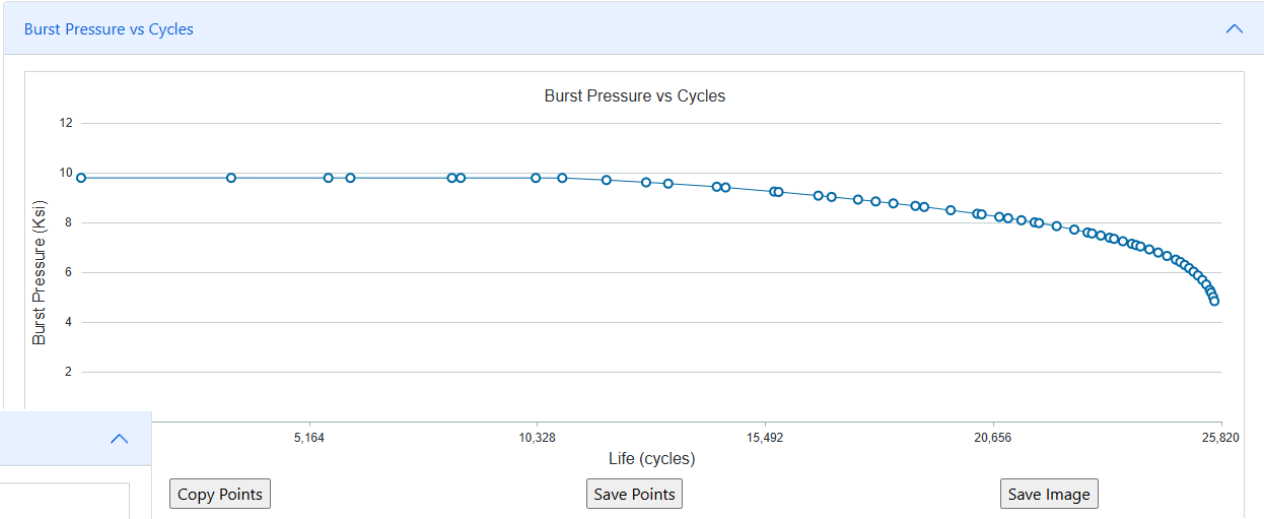
Output

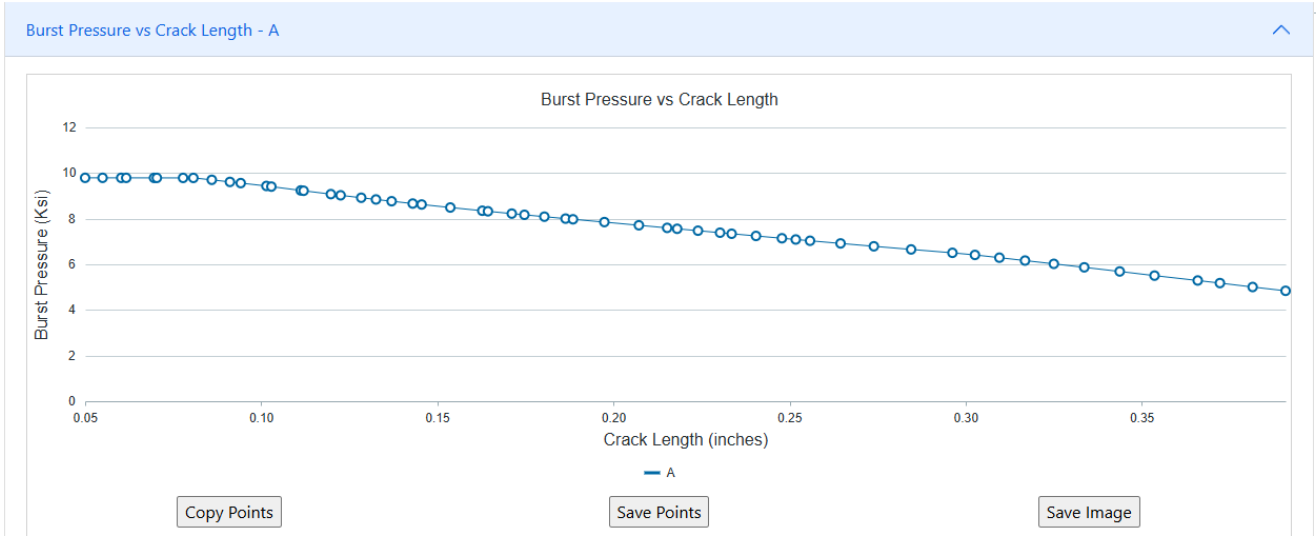
```
Stress State in the 'C' direction (PSC): 5.82271
Fracture has occurred- run time:  0 hour(s)  0 minute(s)  2 second(s)

Crack Growth Rate Bins
No growth:        0
Rate range bellow 1.0e-10 cycles:        0
Rate range between 1.0e-10 and 1.0e-09 cycles:       0
Rate range between 1.0e-09 and 1.0e-08 cycles:       0
Rate range between 1.0e-08 and 1.0e-07 cycles:       0
Rate range between 1.0e-07 and 1.0e-06 cycles:       0
Rate range between 1.0e-06 and 1.0e-05 cycles:    35700
Rate range between 1.0e-05 and 1.0e-04 cycles:   100100
Rate range between 1.0e-04 and 1.0e-03 cycles:     1100
Rate range between 1.0e-03 and 1.0e-02 cycles:       0
Rate range between 1.0e-02 and 1.0e-01 cycles:      100
```

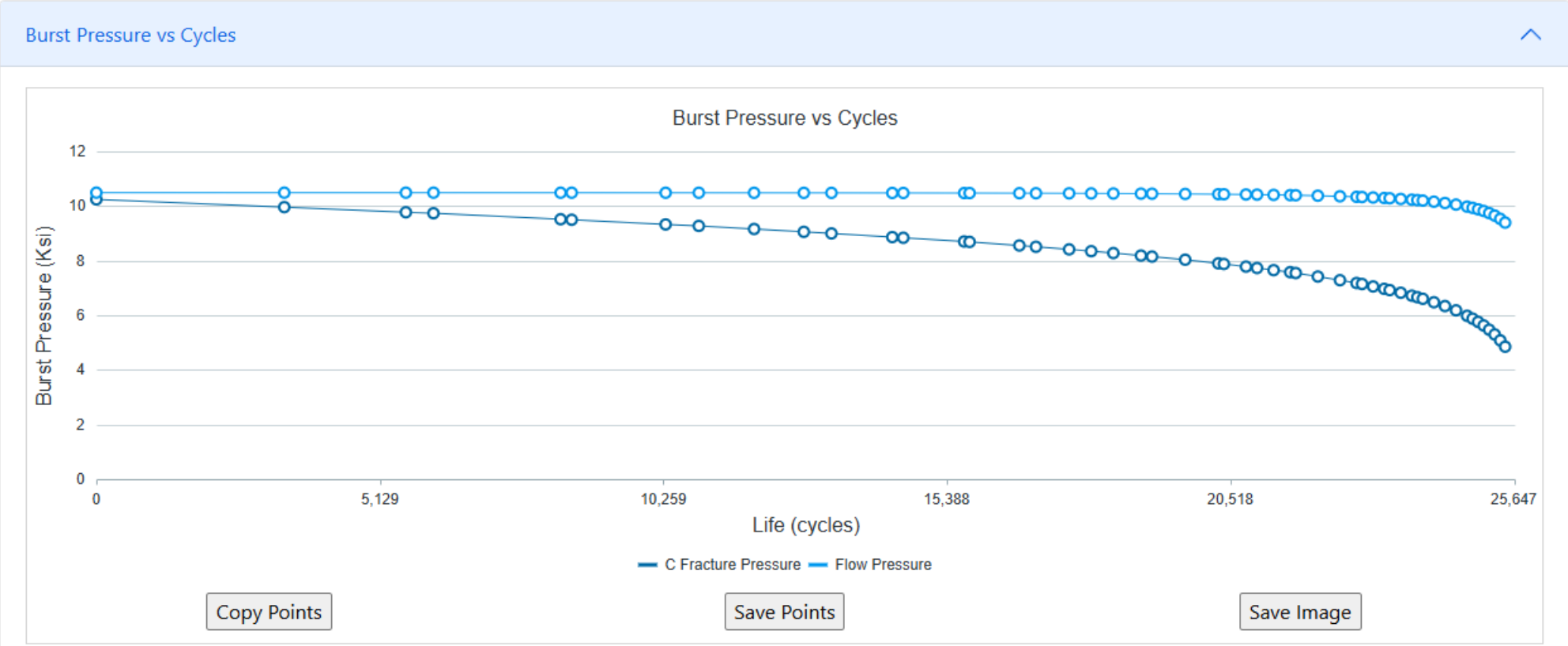
Burst Pressure - Pipeline

- Burst Pressure vs Cycles
- Burst Pressure vs Crack Length



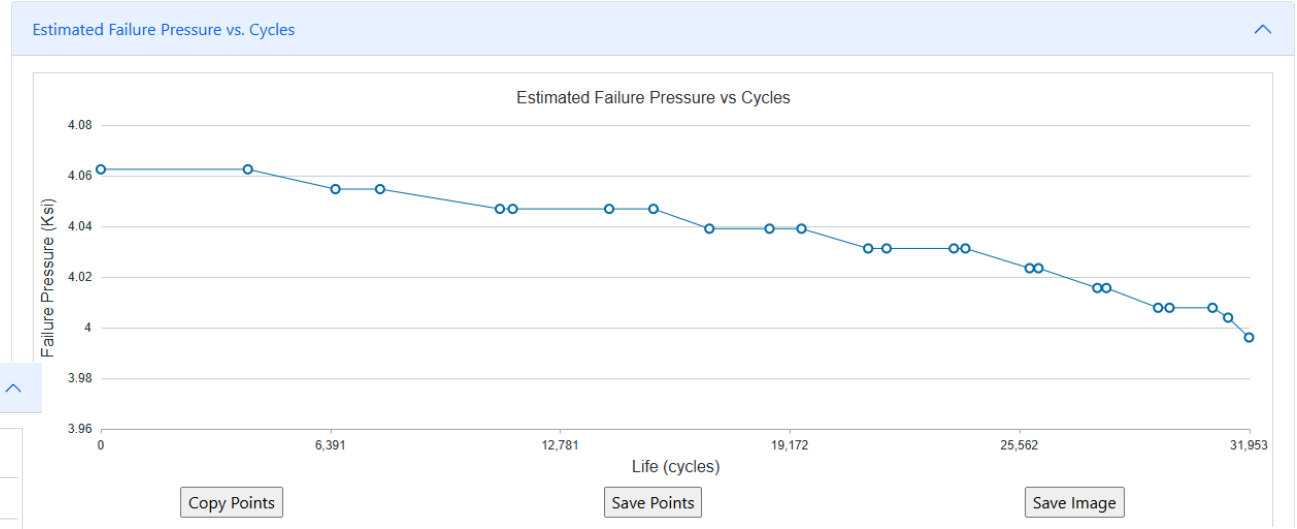


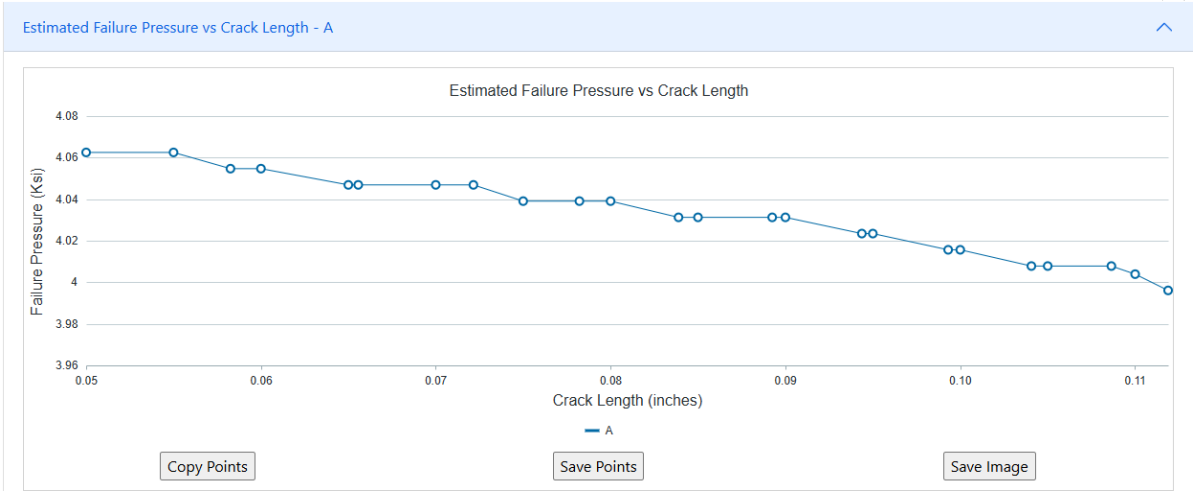
Flow Pressure and Fracture Pressure CorLAS Model



API 579 Failure Pressure - Pipeline

- vs Cycles
- vs Crack Length





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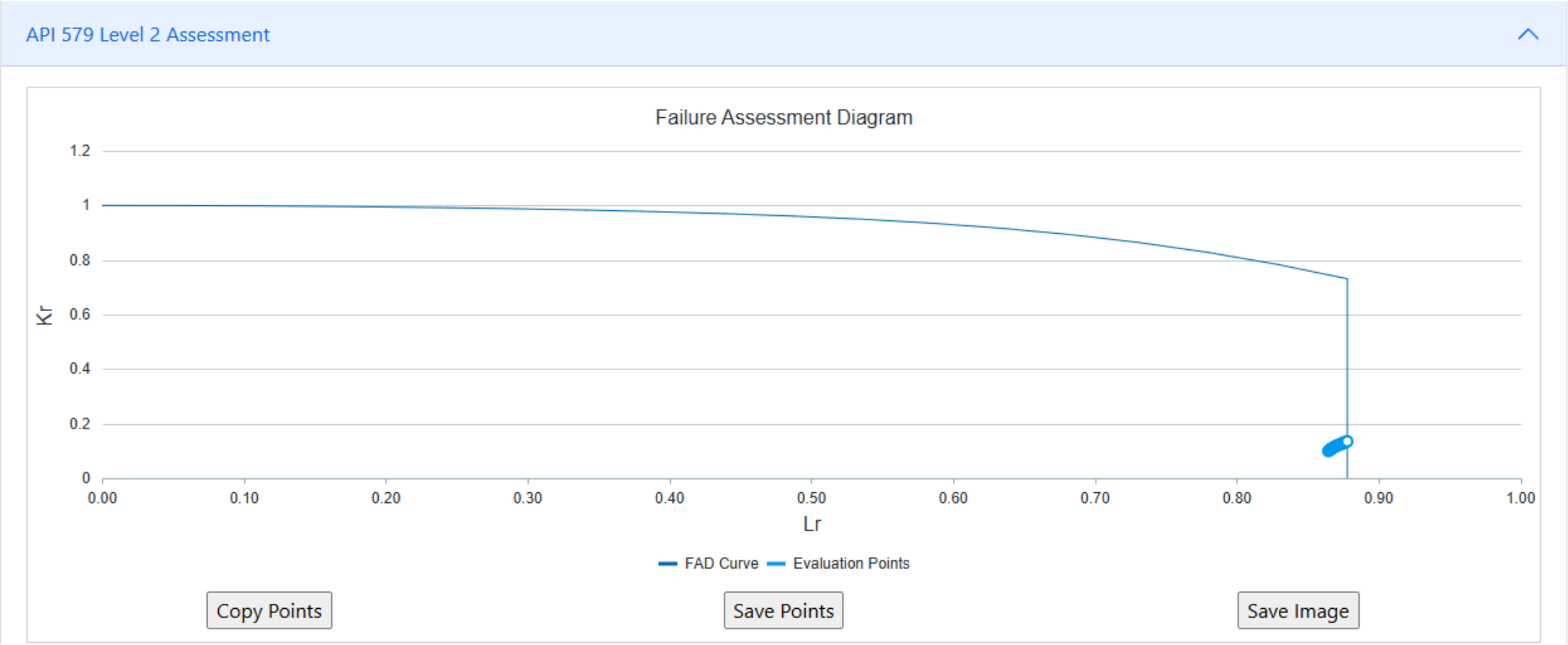
API 579 FAD Diagram - Pipeline



Export to PDF

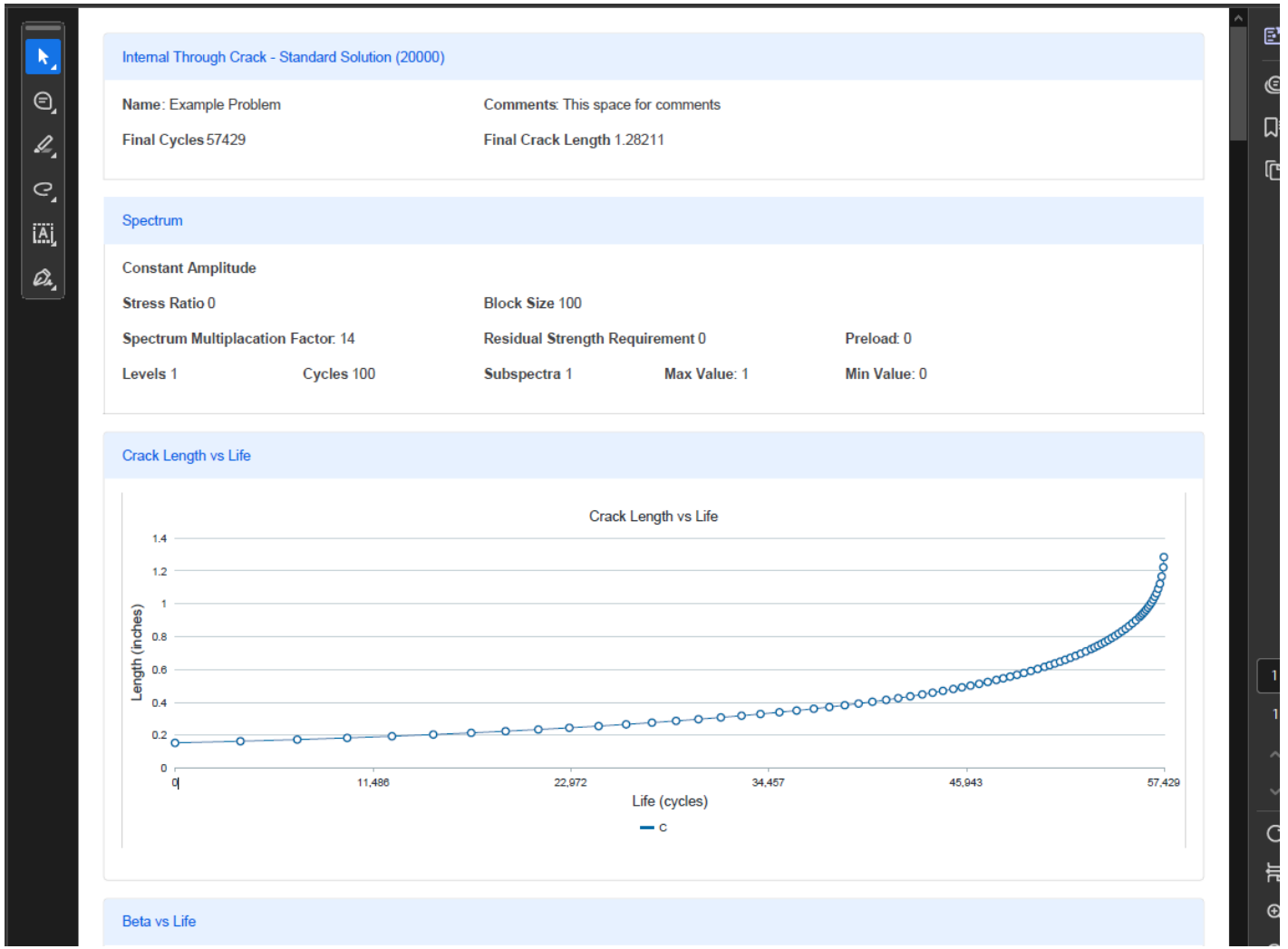
Prediction Report - stress-and-beta-modifiers.xml

Export as PDF

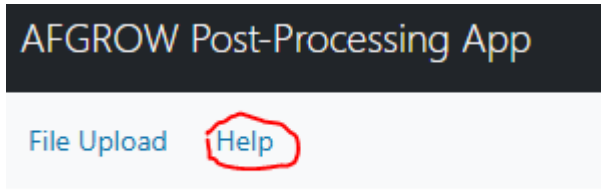
Internal Through Crack - Standard Solution (20000)

Name: Example Problem **Comments**: This space for cor

Final Cycles: 57429 **Final Crack Length**: 1.28211



Help



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Post-processing Application Features

The Post-processing Application has several sections, each of which present information related to the different components of the analysis.

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Summary

AFGROW.NET

- New Post-Processing tool available online at AFGROW.net

(https://www.afgrow.net/post-processing)

- Currently can use regardless of maintenance status to use/access
- Still a beta version, more features and capabilities to be added in the future
- Is not authorized for the storage, processing, or transmission of Controlled Unclassified Information (CUI).

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Questions?