

Cerberus v14.5 Modeling Software



Designed to meet today's design and monitoring challenges

Since 1995, Cerberus™ has been the leading intervention modeling software for planning and performing coiled tubing, wireline, and jointed pipe operations. Cerberus models provide advanced calculations for fatigue life, tubing forces, and hydraulics providing operational confidence. Featuring cloud connectivity, the entire organization now has access to the complete picture of operations and assets in real-time, enabling immediate process improvements, reduction of NPT, and unlocking opportunities to gain efficiencies for improving the bottom line.

Utilize Cerberus for the following:

- Tubing, jointed pipe, and wireline forces analysis
- Fatigue life tracking
- String design and selection
- Wireline weak point selection analysis
- Real-time string management
- Bottom hole assembly (BHA) configuration
- Local and cloud* real-time forces monitoring
- Hydraulics modeling

Project ID	Project Name	Project Type	Modified Date	Modified By	Checked Out By	Computer Name
1	Shuttle Job (Post-Tank Test)	Fatigue	9/18/2020 2:27:05 AM	District Admin - ANDREW		
2	Shuttle Job (Post-Tank)	Fatigue	9/17/2020 1:57:52 PM	District Admin - ANDREW		
3	Issue #6418 (Sheet/Pipe)	Fatigue	9/17/2020 11:59:59 AM	District Admin - ANDREW		
4	Issue #6418 (Sheet/Pipe)	Fatigue	9/16/2020 11:59:59 AM	Company Admin - A.		
5	JAPN-0491 C	Force	8/25/2020 1:44:34 PM	Company Admin - A.		
6	JAPN-0491 B	Force	8/25/2020 1:34:54 PM	Company Admin - A.		
7	Wireline Example 4 05 1 TS 1V	Force	8/25/2020 9:00:32 AM	CTES Admin - Dale		
8	Wireline Example 4 05 1	Force	8/25/2020 1:33:05 PM	CTES Admin - Dale		
9	Wireline Trailhead #22 3-24-20	Fatigue	11/21/2020 8:53:47 PM	YELLOW ROSE		
10	Wireline Trailhead #22 3-24-20	Fatigue	11/21/2020 7:59:55 PM	YELLOW ROSE		
11	Wireline Trailhead #25 3-20-20	Fatigue	11/21/2020 7:03:05 PM	YELLOW ROSE		
12	Wireline Trailhead #19 3-19-20	Fatigue	11/21/2020 6:53:53 PM	YELLOW ROSE		
13	Wireline Trailhead #19 3-19-20	Fatigue	11/21/2020 6:38:18 PM	YELLOW ROSE		
14	Wireline Trailhead #17 3-19-20	Fatigue	11/21/2020 6:23:29 PM	YELLOW ROSE		
15	lv 45718	Velocity/String	11/18/2020 6:18:46 AM	Company Admin - Siva	G4	DESKTOP-OC6309G
16	lv 45719	Velocity/String	10/20/2020 7:47:38 PM	Company Admin - Siva	CT 1212	USA-SC2043RPU7
17	VS 4617	Velocity/String	10/20/2020 10:42:48 AM	locatone	CT 1212	USA-SC2043RPU7
18	LECHV202025Connex_3-422	Force	6/23/2020 9:49:40 AM	Ahmed Yehia		USA-SC2043RPU7
19	Thomas Energy - G4669 2-10	Fatigue	10/13/2020 10:43:48 AM	Travis Thomas	ATL-1	USA-SC2043RPU7
20	Thomas Energy - Addison 1-21	Hydraulic	10/13/2020 10:52:27 AM	Travis Thomas	ATL-1	USA-SC2043RPU7
21	test1	Hydraulic	10/10/2020 8:56:26 AM	Line @ Oracle		GARY@VBLUNT

Cloud Connectivity

Live TFA Connection into CTES Live™

Push Orpheus™ projects directly from Cerberus to CTES Live, allowing for data-driven decisions.

Real-Time Fatigue Connection to CTES Live

Share real-time concurrent string views between field operations and remote users to make pipe management and operational decisions (cuts, pulls, pump rates, etc.).

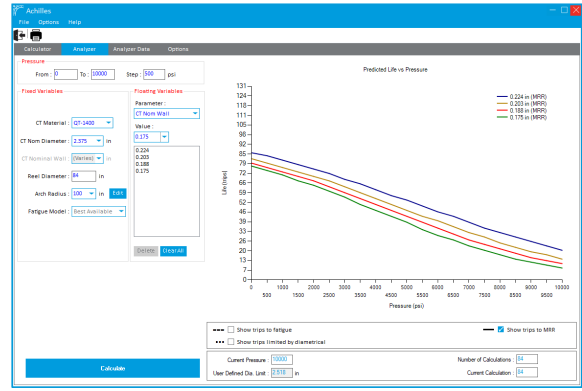
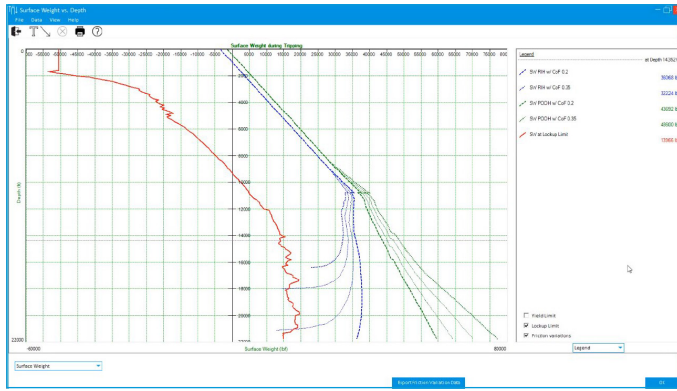
District Administration Functionality

Manage all connected company strings and projects with Cerberus. Designated district administrators can push projects, strings, and more to and from the unit's PC to remotely set up real-time jobs and verify post-job field results.

*Real-time monitoring through cloud connectivity is available through CTES Live.



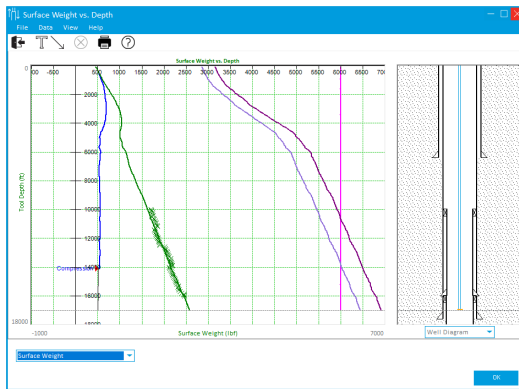
Forces, Fatigue, Hydraulics, and Inventory Management



Orpheus Coiled tubing, jointed pipe, wireline

Orpheus performs cumulative forces analysis to determine job feasibility and anticipate possible problems with extended-reach tubing and wireline limits with fluid dynamics.

- Navigate highly deviated wellbores or other obstacles by modeling BHAs in real time
- Analyze the surface weights acquired during a job, identify apparent friction, and help predict the expected friction factor to be used in future projects
- Model tubing forces analysis (TFA) with multiple coefficients of friction (CoF) to create your broomsticks and determine when issues are arising in the wellbore



Wireline Weak Point Analysis Wireline

Understanding your wireline and tools' parameters ensures a successful run. The wireline weak point analysis displays your project's simulated surface weight (RIH and POOH), allowing you to visualize the maximum overpull prior to activating the weak point or disconnect. It also allows you to visualize the maximum surface weight for the planned operation and check for potential cable tension to ensure you are working within the asset's limits.

Achilles and Hercules Coiled tubing

Achilles™ fatigue calculations remain the industry benchmark for coiled tubing life monitoring. Today's complex applications make it critical to track the fatigue life and diameter growth to avoid an expensive and potentially dangerous failure at the wellsite.

Hercules™ tubing limits plot is the widely accepted model that uses von Mises combined stress to predict tubing burst and collapse limits. The model considers helical buckling, maximum expected pressures, diameter growth, and torque.

String ID	Material	CT Dia	CT Wall	CT Nom Dia	CT Nom Wall	CT Annulus Dia	CT Annulus Wall	CT Root Dia	CT Root Wall	CT Arch Radius	CT Fatigue Model
1001	1500	2.000	0.125	1.875	0.125	1.750	0.125	1.625	0.125	150	Best Available
1002	1500	2.000	0.125	1.875	0.125	1.750	0.125	1.625	0.125	150	Best Available
1003	1500	2.000	0.125	1.875	0.125	1.750	0.125	1.625	0.125	150	Best Available

String Inventory Management Coiled tubing

With this central location, you can now view, analyze, and access your strings in real-time. This includes maximum and average fatigue life, running footage, job counts, and more.