Fatigue Modeling

Fatigue risk management would be simpler if we could predict the times when one would become fatigued before one becomes fatigued. One of the tools we use, as part of a Fatigue Risk Management System, is FAID® bio-mathematical fatigue modeling software. Although there are several different types of this software, I use FAID® for three reasons.

1. All I have to know are the hours of work of an individual or a group,
2. It is simple enough for a pipeliner to use compared to some of the other software,
3. It makes plain the times during a shift when a person is more likely to be fatigued.

Look at the fashion models in the drawing. Which one looks more fatigued? I think it is the one in the red dress. Generally, we cannot look at a person and declare him or her fatigued. FAID® displays, in the red zone, the times during a shift when a person is more likely to be fatigued. If an individual knows those times in advance, he or she can use fatigue countermeasures before those times arrive and decrease the risks of a fatigue-related error or other incident. Look at the example from the analysis of a DuPont schedule. The times in the red zone occur during night shift, on the third and fourth of four consecutive night shifts and on the second and third of three consecutive night shifts. Those times, in this example, are near the end of the shift.

In addition to Pipeline Performance Group LLC, there are a number of pipeline control rooms in the USA and Canada who use FAID®. The pipeline control rooms use the software to have a scientific analysis for their schedule, as indicated in the PHMSA CRM inspection guidance.

One of the other CRM requirements is to quantify the potential contribution of fatigue if a reportable accident occurs and a controller was involved in the incident. It is easy to use the FAID® score for the exact time in the shift when the accident occurred.

One of my recent projects using FAID® was for a control room who wanted to compare the potential fatigue risks of several shift schedules, since they were contemplating changing the schedule. FAID® can be used to provide an overall fatigue compliance "score" for a schedule.

Other clients have asked me to use FAID® to model a number of overtime scenarios. These scenarios can be used to select the "best" person to cover the overtime, based on their schedule before and after the overtime shift. Management and the employee can also use the visual depiction of the overtime shift to discuss the additional potential fatigue risks on the overtime shifts.

For more information about FAID®, visit Interdynamics.com or contact charles@pipelineperformancegroup.com

1	Aug 24 15 06:00	Aug 24 15 18:00	12hr 0min		
1	Aug 25 15 06:00	Aug 25 15 18:00	12hr 0min		
1	Aug 26 15 06:00	Aug 26 15 18:00	12hr 0min		
1	Aug 27 15 06:00	Aug 27 15 18:00	9hr 50min	2hr 10min	
1	Sep 4 15 18:00	Sep 5 15 06:00	12hr 0min		
1	Sep 5 15 18:00	Sep 6 15 06:00	12hr 0min		
1	Sep 6 15 18:00	Sep 7 15 06:00	8hr 58min	1hr 32min	1hr 29min
1	Sep 7 15 18:00	Sep 8 15 06:00	6hr 43min	1hr 44min	3hr 33min
1	Sep 11 15 06:00	Sep 11 15 18:00	12hr 0min		
1	Sep 12 15 06:00	Sep 12 15 18:00	12hr 0min		
1	Sep 13 15 06:00	Sep 13 15 18:00	12hr 0min		
1	Sep 15 15 18:00	Sep 16 15 06:00	10hr 30min	1hr 30min	
1	Sep 16 15 18:00	Sep 17 15 06:00	8hr 30min	1hr 36min	1hr 54min
1	Sep 17 15 18:00	Sep 18 15 06:00	6hr 47min	1hr 44min	3hr 29min

FAID Fatigue Assessment Tool Predicts the Effects of Fatigue

PIPELINE PERFORMANCE GROUP, LLC