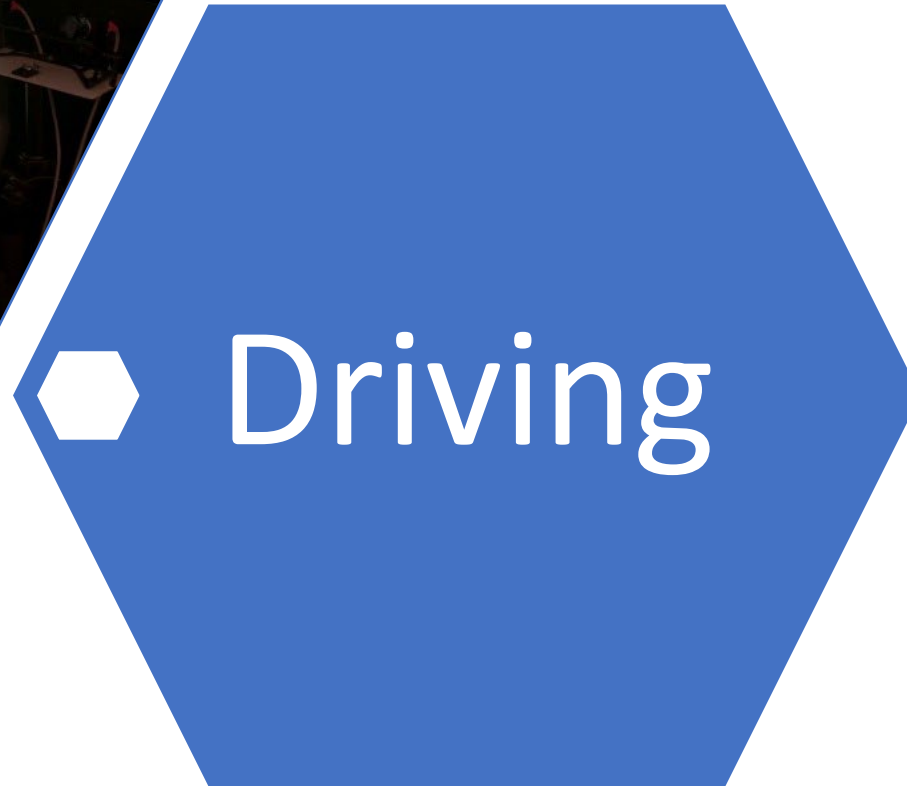


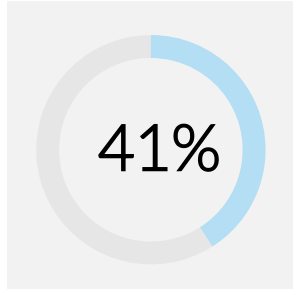
Operational Impact of Fatigue on First Responders



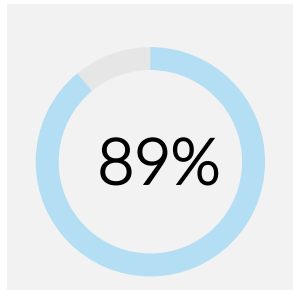
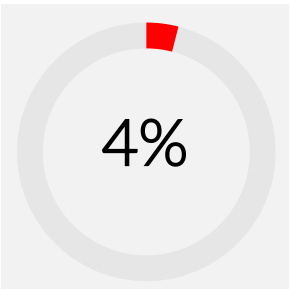
Stephen James PhD
Elson S. Floyd College of Medicine



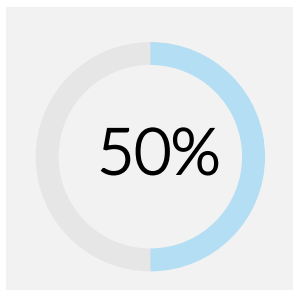
Driving Safety - *Drowsy Driving*



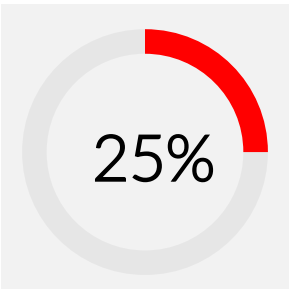
of general public have fallen asleep while driving
within the past month



of police believe drowsy driving is as dangerous as drunk
driving



of police have fallen asleep while driving
1 or 2 times per month



Officer-Involved Vehicle Collisions in California

- 80.7% clear weather conditions
- 89.3% dry road surface
- 59.0% during daylight hours
- 28.9% under streetlights
- 74.9% non-intersections
- 98.0% had not been drinking

- California Highway Patrol Form 555
- 2000 – 2009
- (N=35,840)

75.6% ruled officer's fault

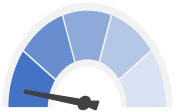
472 Roadway LODDs

2016-2025 data (10 years); NLEOMF

~34,700 transportation injuries

2012-2017 data; Tiesman et al., (2020)

Drowsy Driving Risk Factors



> one job

x 2



working nights

x 14



driving 1 to 2 hours

x 7



awake 15 to 19 hours

x 10



< 4 hours of sleep

x 20



awake 20 or more hours

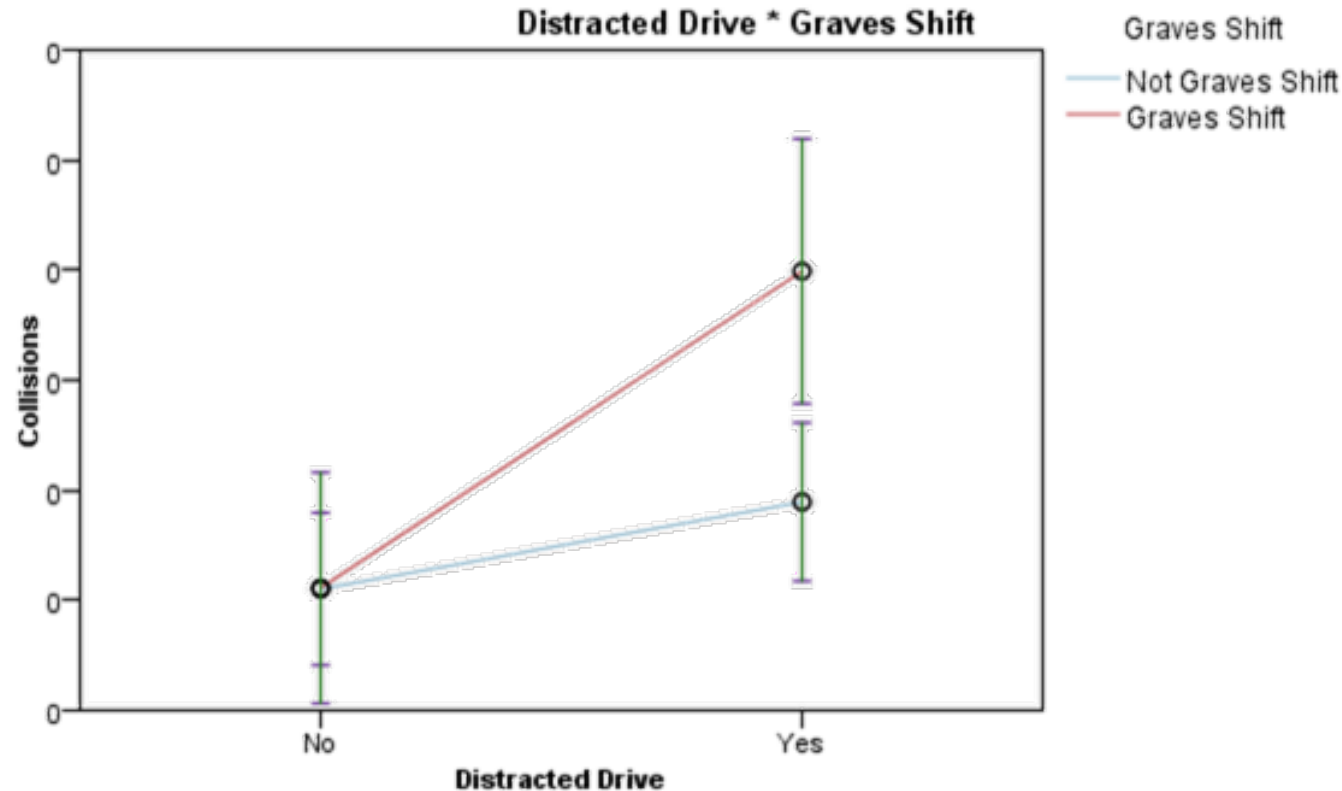
x 63



x 18

Epworth sleepiness scale score > 15

Distraction/Fatigue Interaction



- Distraction stronger predictor of collision than graves ($f=14.62$, $df=1,304$, $p<.001$)
- Graves-shift assignment still significant predictor ($f=4.85$, $df=1,304$, $p=.028$)
- Greatest risk of collision when distracted + graves ($f=4.76$, $df=1,304$, $p=.030$)



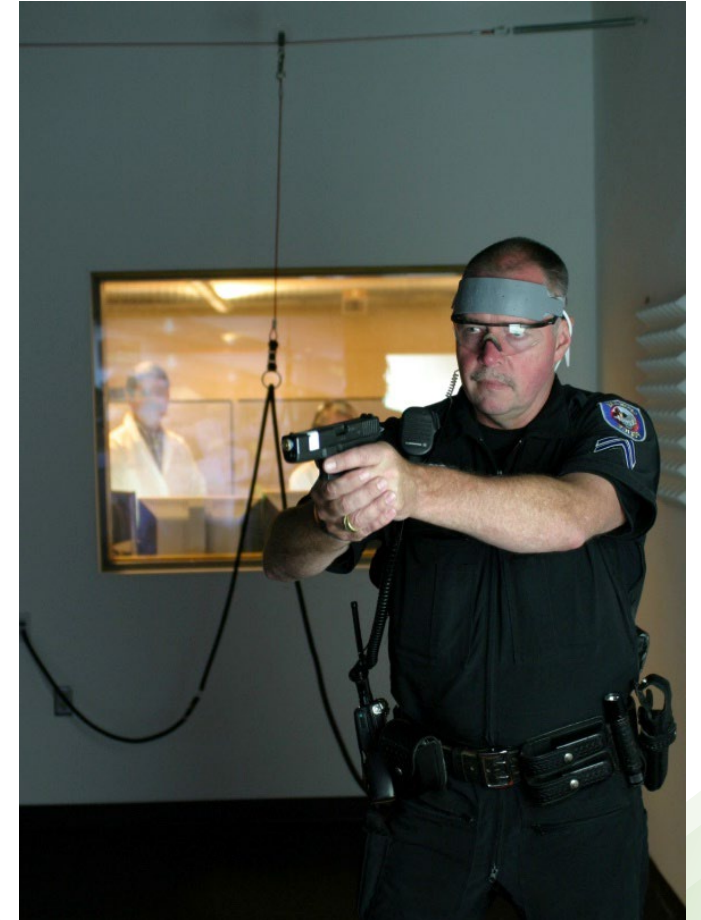
◀ Driving

Use of
Force



Use of Force Performance

- Compared to day shift officers, those on ***night shifts*** were:
 - Quicker to fire their weapons
($F=9.46$ $df=1,825$, $p=.002$)
 - Had faster reaction times to first hit
($F=8.91$ $df=1,814$, $p=.003$)
 - Fired more shots
($F=712.79$ $df=1,8254$, $p<.000$)
- Similar significant findings were found for officers during ***the fatigued condition***
- N = 80, patrol officers, 5 years +, 931 scenarios



Reports & Testimony

Use of Force

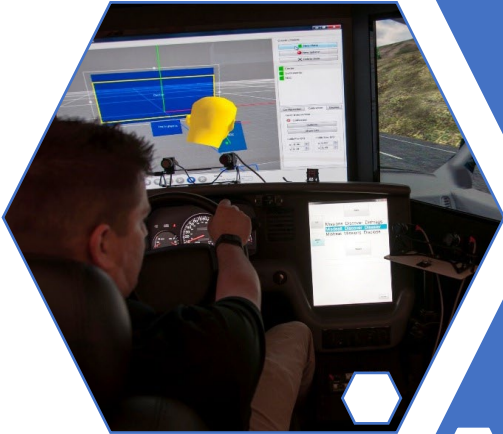
Driving





Effects of Fatigue on Memory

- Fatigue impairs memory sourcing during cognitive testing
 - (e.g. could remember what was said, but not who said it)
- Implications for report writing



Reports &
Testimony



Citizen
Complaints

 Citizen Complaint Form

Name of person making complaint _____ Address _____

Business _____ Address _____ Phone _____

_____ Date of Birth _____

..... PERSONNEL COMPLAINED ABOUT:

Name _____ Rank _____ Badge # _____

Description of officer (if identity not known) _____

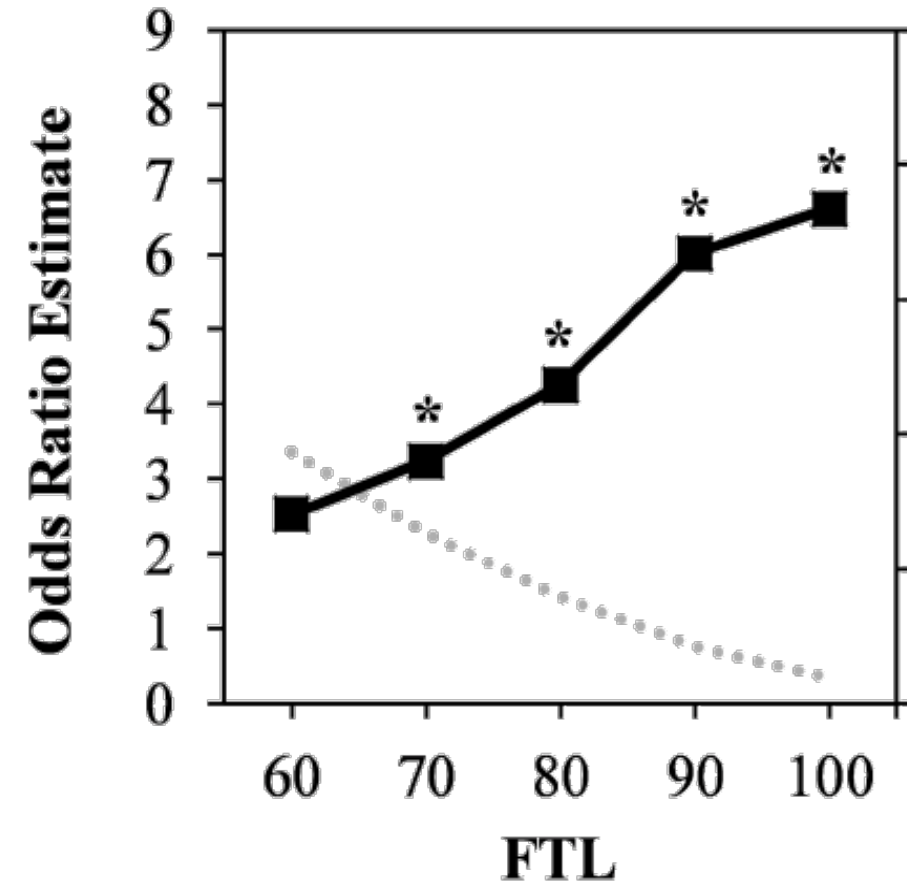
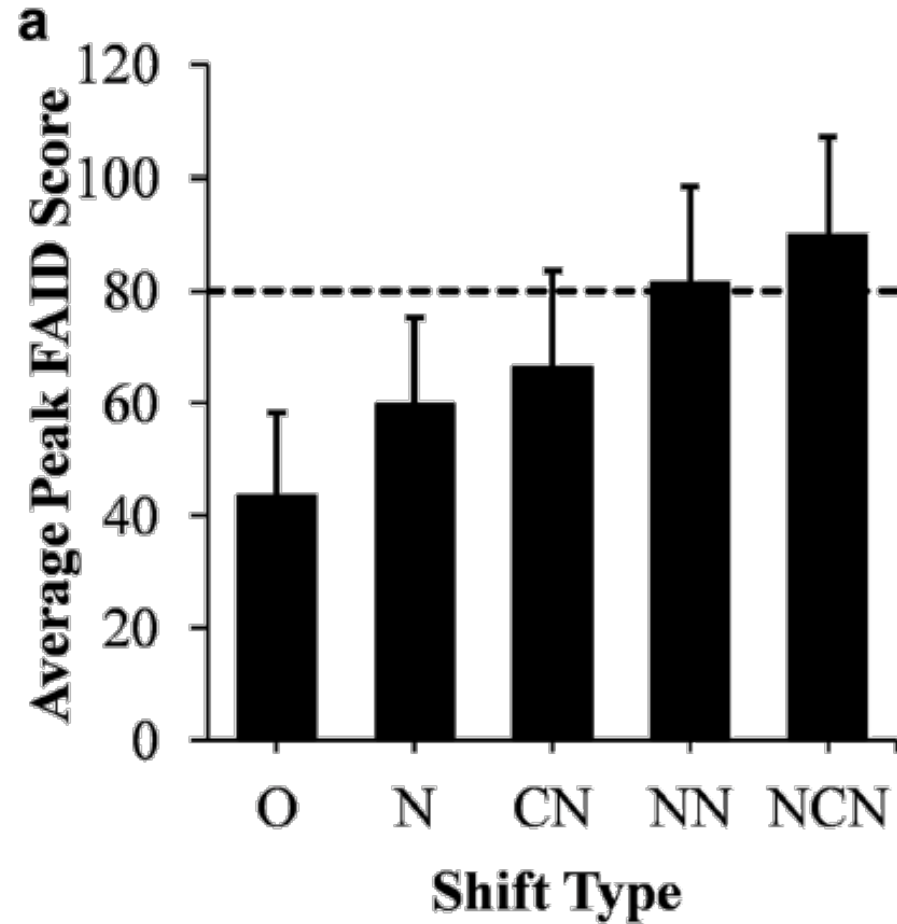
Nature of Complaint: (Describe in your own words everything you consider necessary to investigate your complaint. Use second sheet if necessary.) _____

Driving

Use of
Force



Night Shift and Citizen Complaints

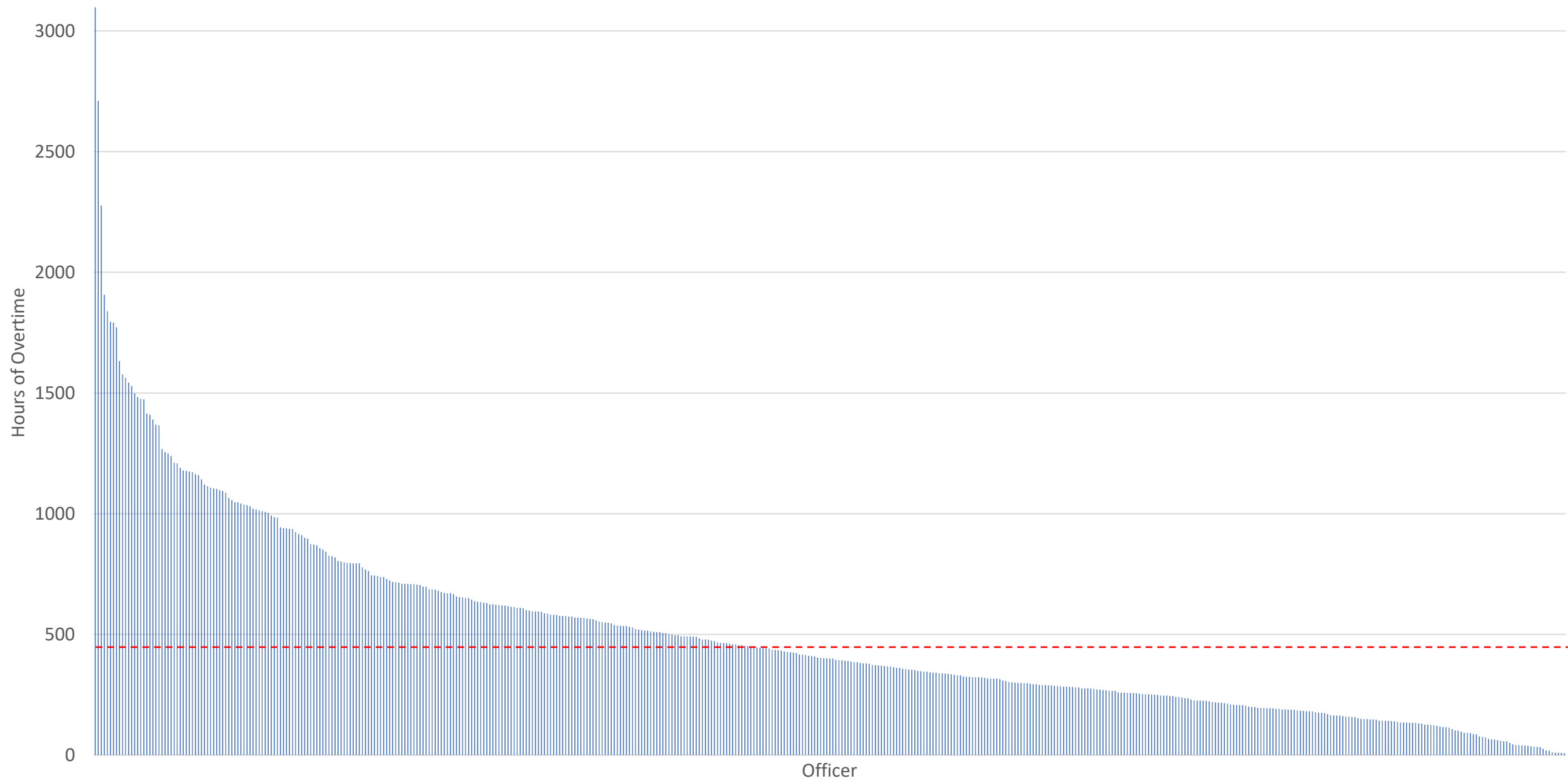




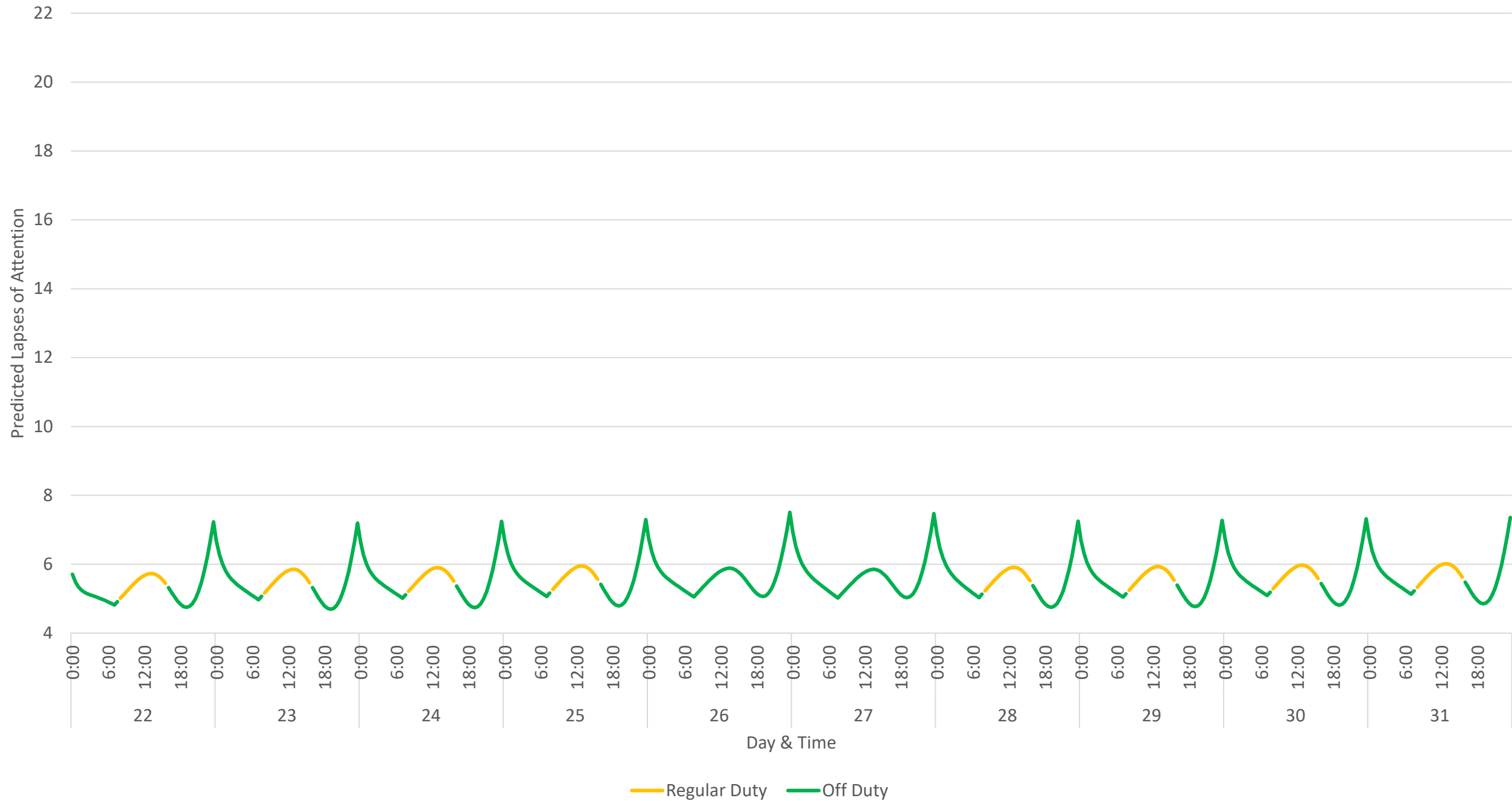
Overtime



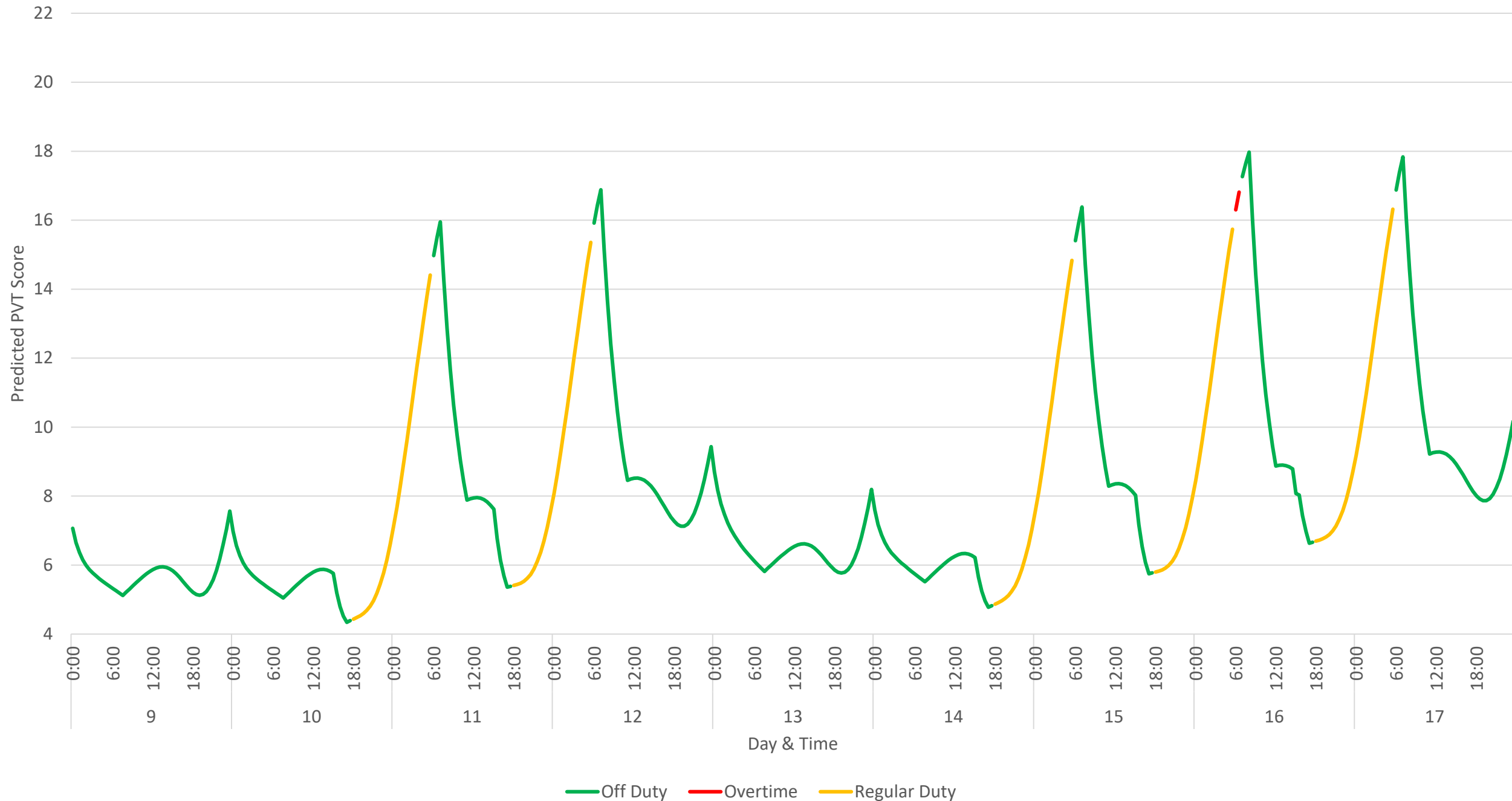
Overtime Distribution by Officer



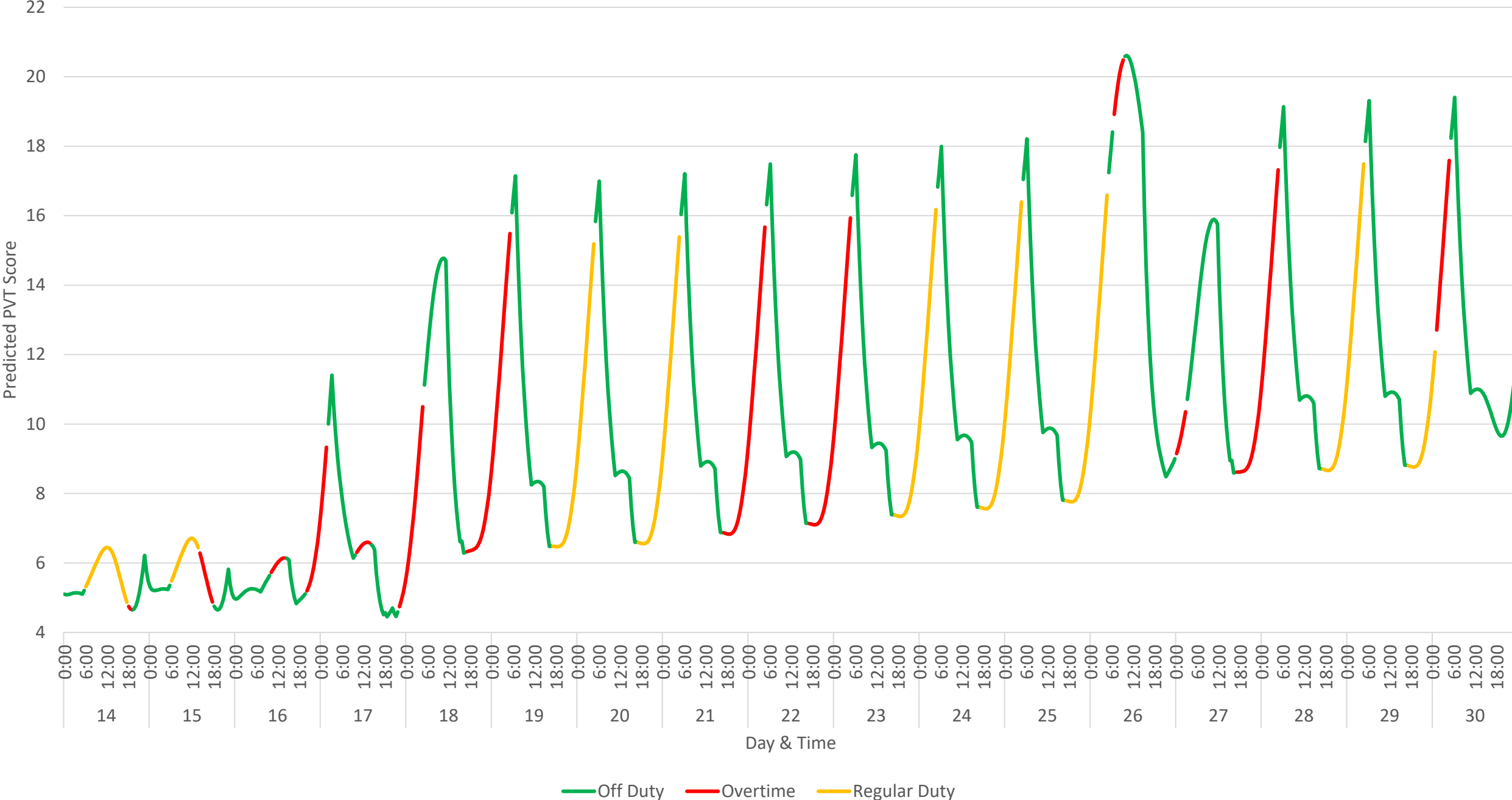
Effect of Day Shift with No OT on Attention



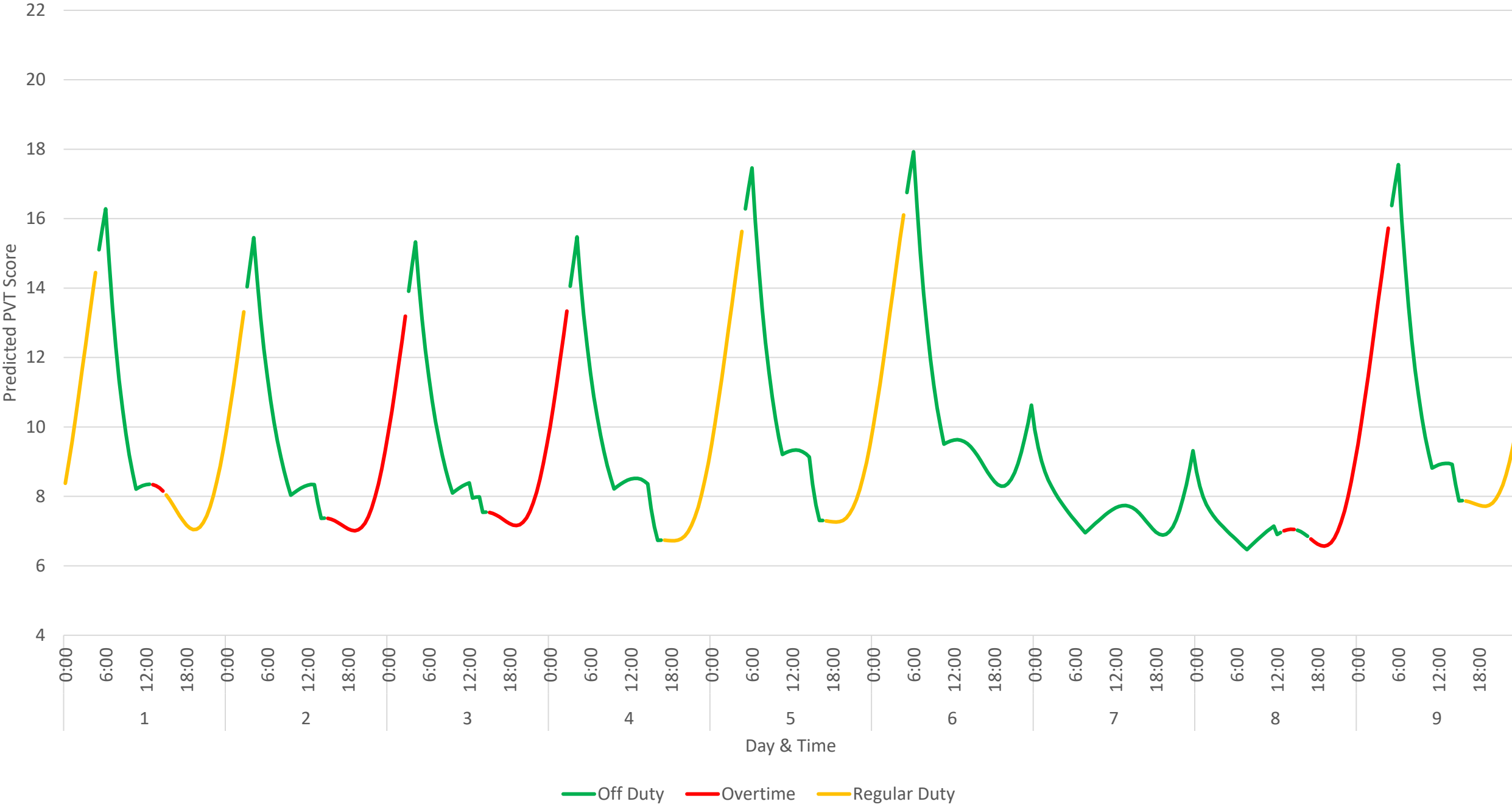
Effect of Night Shift with Minimal OT on PVT Score



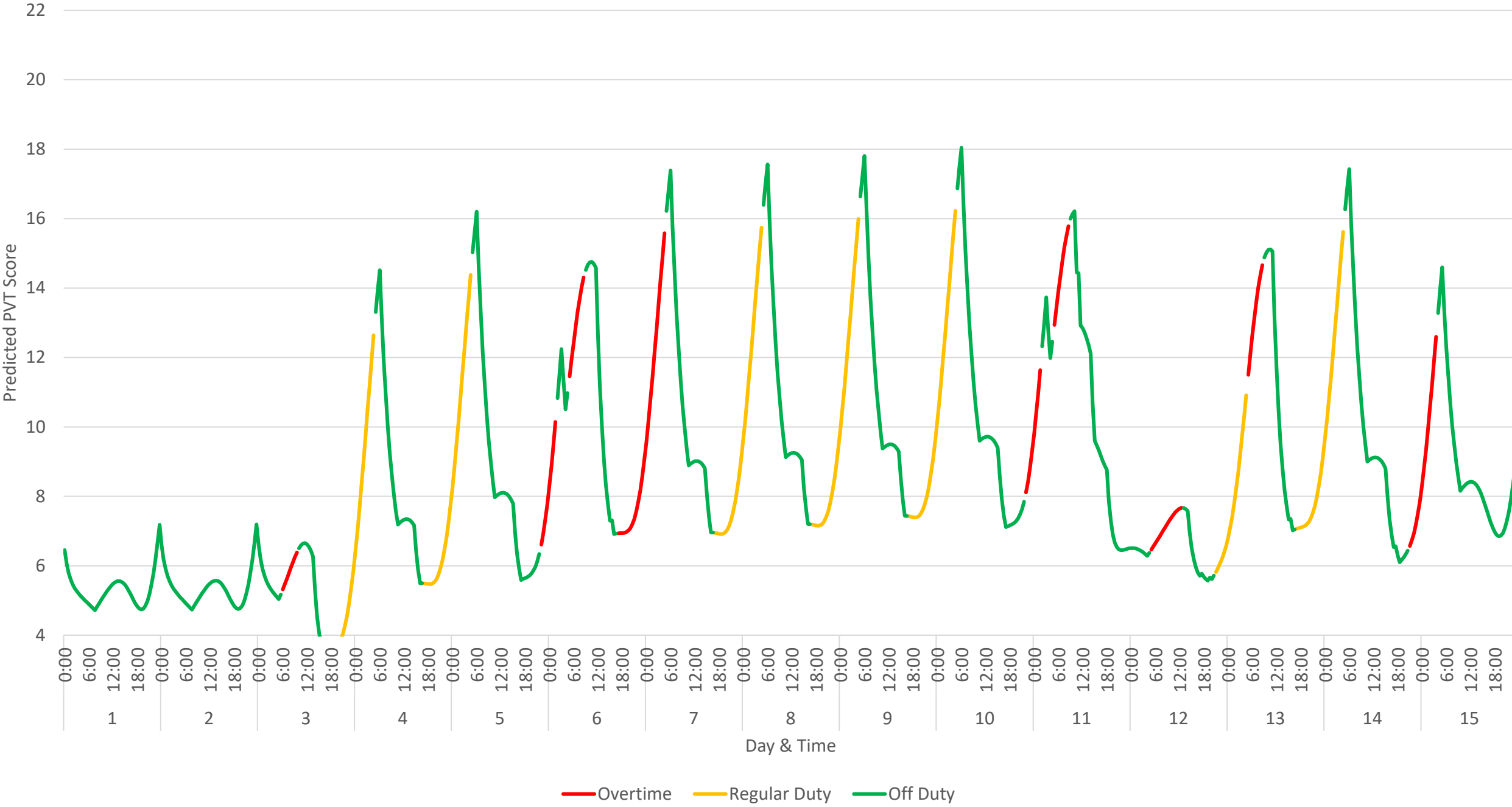
Effect of Consecutive Nights OT on PVT Score



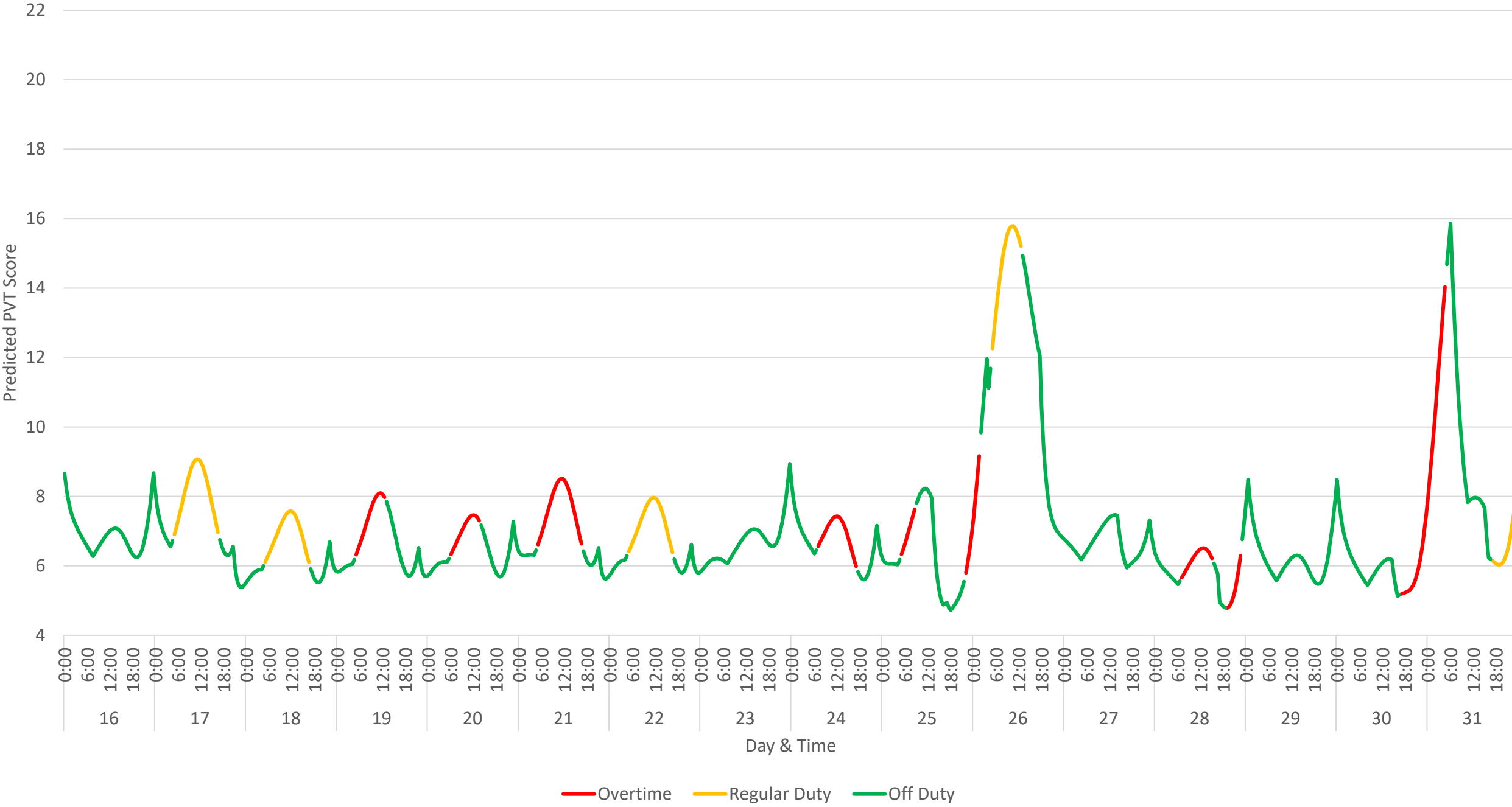
Effect of Break in Nights on PVT Score



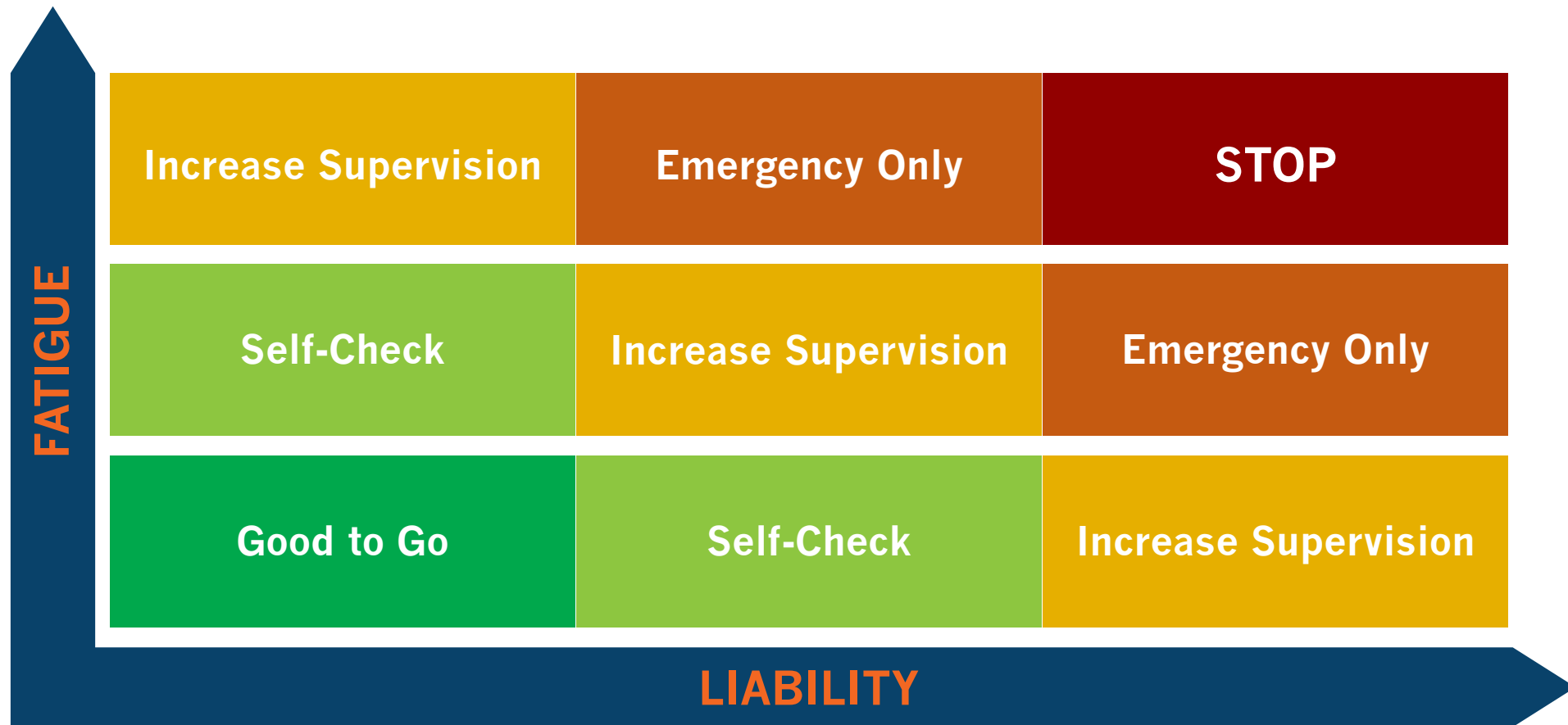
Effect of Excessive Overtime on PVT Score



Effect of Excessive Overtime on PVT Score



Liability - *Predicted Performance*



Liability - *Predicted Performance*



Sleep & Athletic Performance

Success Stories

Recovery



Success Stories



2014 Winter Olympics



Sleep Recovery in Athletes

- **Sleep extension** can positively affect:
 - reaction times,
 - mood,
 - sprint times,
 - tennis serve accuracy,
 - swim turns,
 - kick stroke efficiency, and
 - increased free throw and 3-point accuracy
- **Banking sleep** (sleep extension *prior* to night of intentional sleep deprivation before sporting event) is a new concept that may also improve performance

Napping

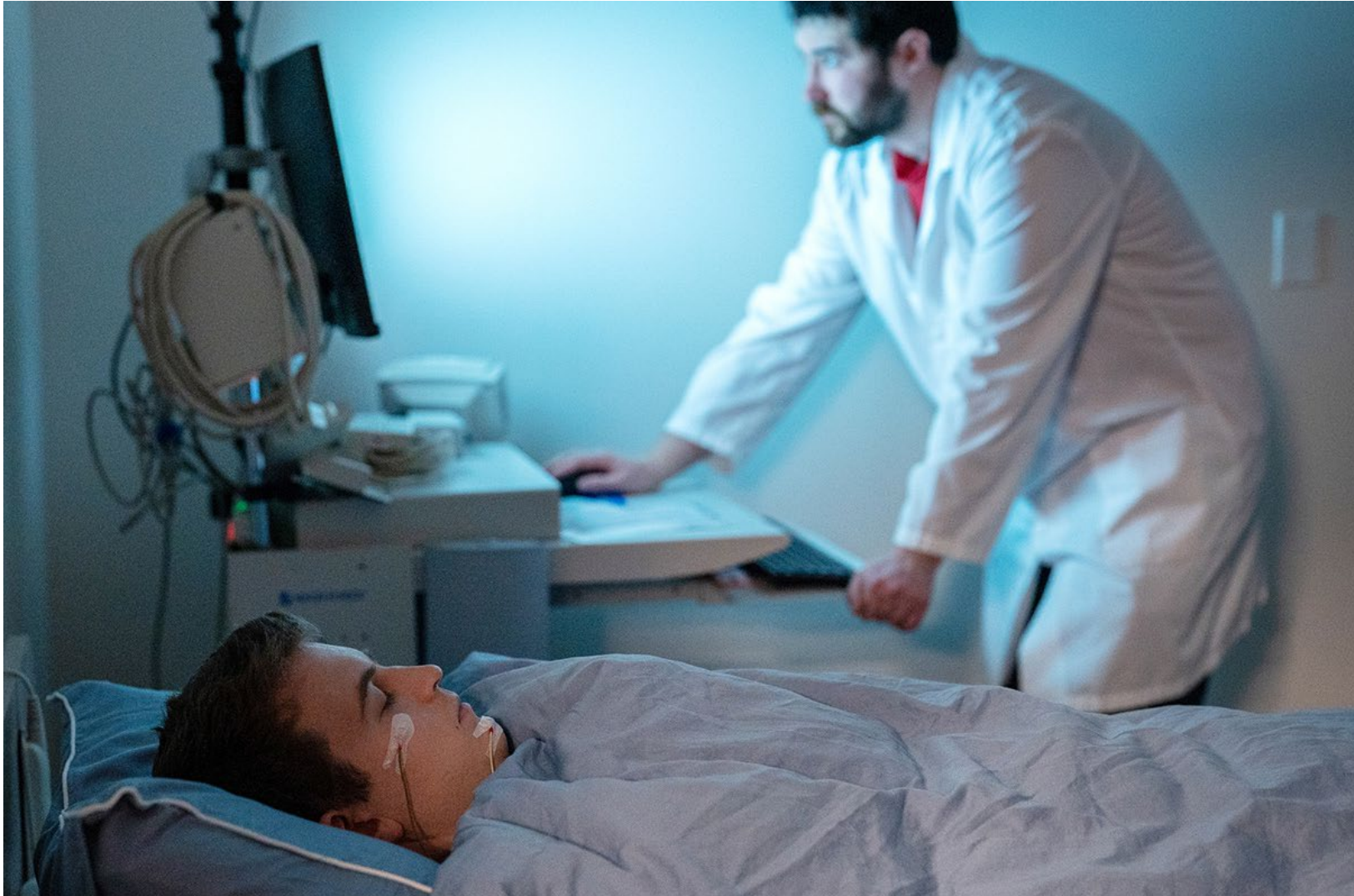


The Power of Napping – Duration



- Two types of Nap:
 - 20 minutes Power Nap
 - usually prevents going into deep sleep, good for a quick “top up” and will not interfere with your main sleep period
 - 90 minutes Restorative Nap
 - full sleep cycle, also should avoid being woken from deep sleep, better for restoring performance, but might interfere with your main sleep period

Screening



- Get screened by a sleep physician (via family doc referral) if you can't get enough sleep...
...or feel tired even after sleeping long enough to be rested
- Many shift workers screen positive for sleep disorders:
 - Obstructive Sleep Apnea
 - Moderate-severe insomnia
 - Shift work disorder



Get screened for sleep disorders

Fatigue Policy



Fatigue Management Policy

All employees are required to have eight (8) consecutive hours OFF within any and every calculable 24-hour period.



No employee may work more than forty (40) hours of voluntary overtime in a 7-day work week.

8-HOUR REST PERIOD



Fatigue Recovery Period (FRP)

- Time off from any assignment so that the employee may recuperate from a mandated Division related fatigue event and prepare for their next work assignment.
- Troopers provided EIGHT (8) hours to recover without having pay docked.
- Court continuations will be requested



Exemptions

- On-duty supervisors must be promptly notified and should arrange the relief of the employee as soon as practical.
- Employees activated for an emergency operation are required to notify the supervisor if they have not had adequate time off or finished fatigue recovery period as required in this policy.
- The OIC will assess the employee's fitness for duty based on the guidelines of this policy and contact the Executive Staff for a decision regarding the exemption.
- Employees assigned to the Aviation Section are exempt from this policy only while on Aviation duty, during which time they are required to comply with the Aviation Section and FAA restrictions.





Fatigue Status

- Troopers not able to achieve the 8 hours of consecutive time off within a 24-hour period due to mandatory assignments will be considered **fatigued**
 - Must begin FRP after completion of the mandatory assignment
- Troopers who have worked in excess of 19 *continuous mandatory hours* or have not slept for 24 or more hours as a result of mandatory assignments will be deemed **highly fatigued**
 - Must be removed from post as soon as practical to begin FRP
 - Not allowed to operate division vehicles; alternate transportation will be arranged

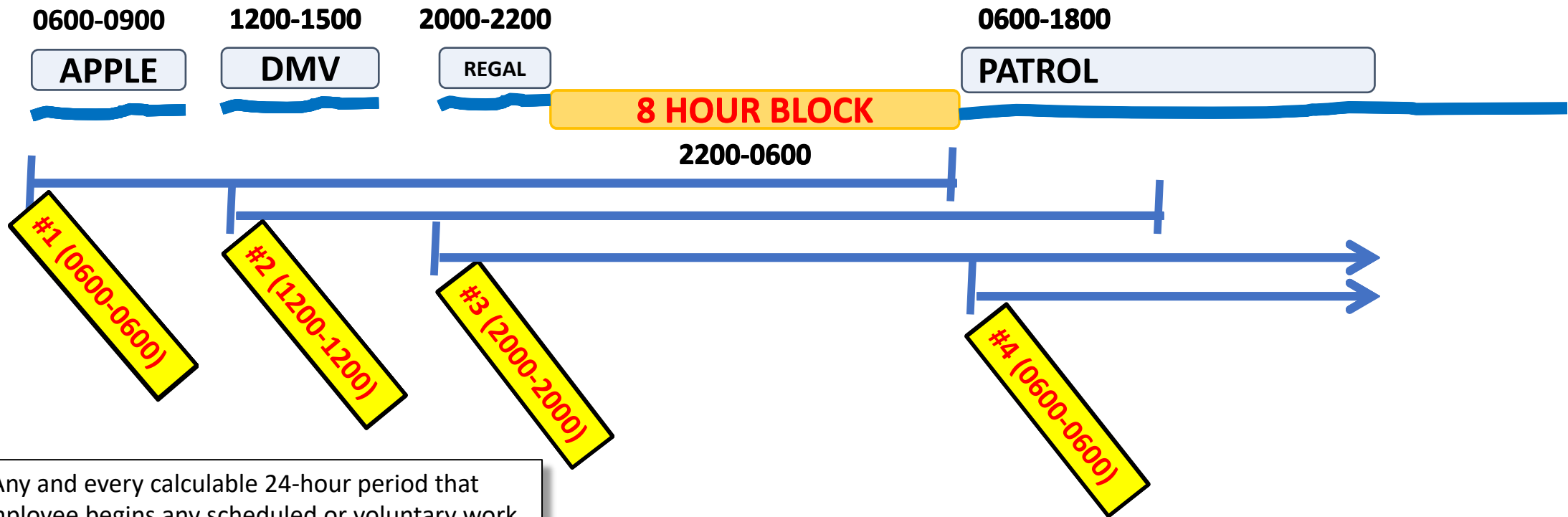
Exigent Situations

- Safe low-risk environments or assignments include, but are not limited to, preparing warrants, finishing required paperwork, or conducting interviews with a second employee present.
- Safe low-risk assignments **do not include** working any assignment where the employee will be making critical operational decisions or have direct interaction with the public, witnesses, or suspects/defendants such as working the front troop desk, monitoring detainees, or acting as the Officer-in-Charge at a remote location or command post.



Shift Example

All employees are required to have
eight consecutive hours OFF
within any and every calculable 24-hour period.

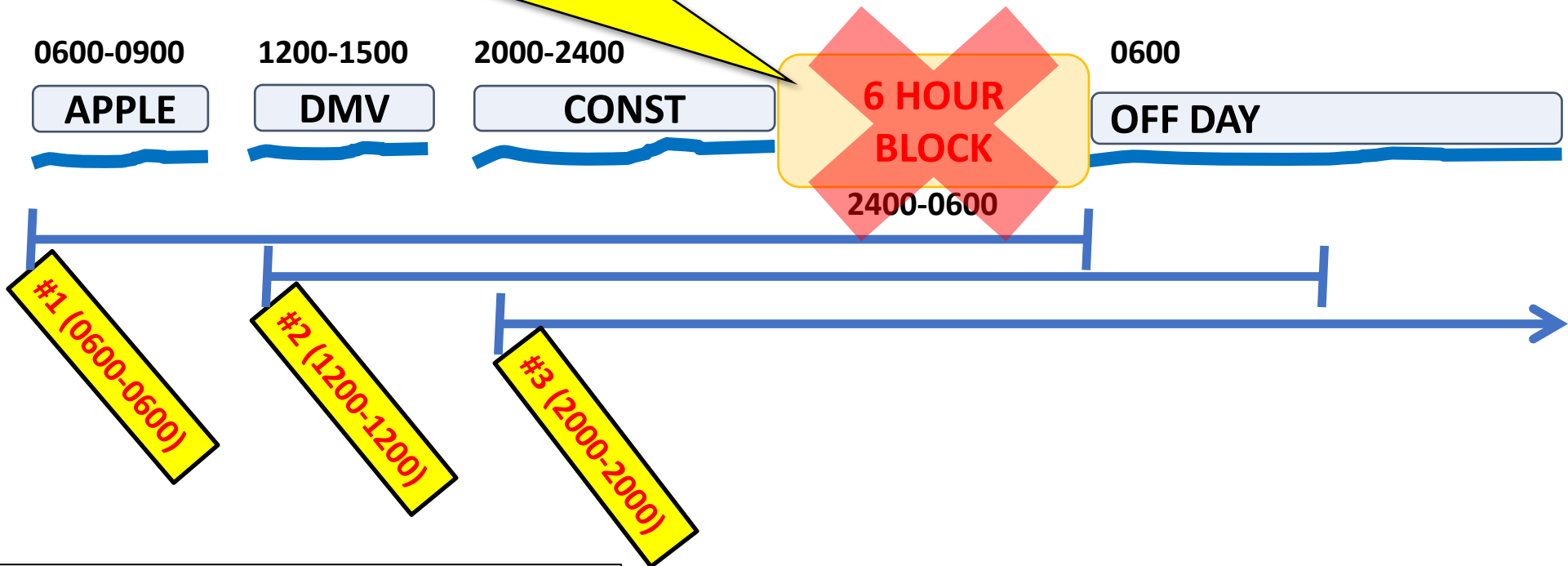


24-Hour Period – Any and every calculable 24-hour period that starts when the employee begins any scheduled or voluntary work assignment.

Violation Example

Although this Trooper has off the next day, a policy violation occurs !

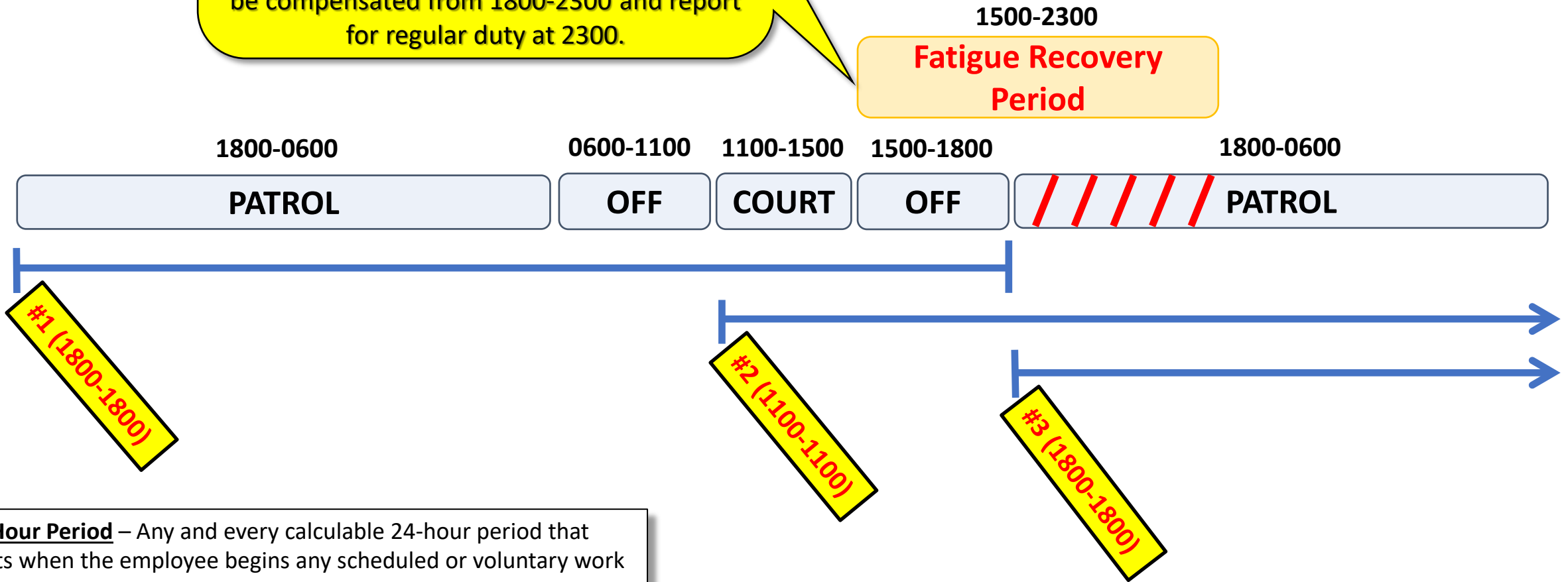
This is because there is no 8-hour block within the **24 Hour Calculable Period** that started at 0600 hrs. with the Apple Job.



24-Hour Period – Any and every calculable 24-hour period that starts when the employee begins any scheduled or voluntary work assignment.

FRP Example

This example shows how a mandatory court appearance between night shifts negatively impacts the 8-hour rest period. When this occurs, the trooper is permitted to remain in a rest period (FRP) until they have received 8 hours of **consecutive** rest. The trooper would be compensated from 1800-2300 and report for regular duty at 2300.



24-Hour Period – Any and every calculable 24-hour period that starts when the employee begins any scheduled or voluntary work assignment.

Trooper's FMP Log



DELAWARE STATE POLICE TROOPER'S FMP LOG																								
Name/IBM:																								
Month:				Location / Section:																				
DAY	M	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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Employee Signature: _____																								
Supervisor Signature: _____																								
Troop Commander: _____																								

Trooper's FMP L



Month:	Location / Section:																							
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Employee Signature: _____

Supervisor Signature: _____

Troop Commander: _____

Used to record last day of prior month.

Used to record first day of next month.

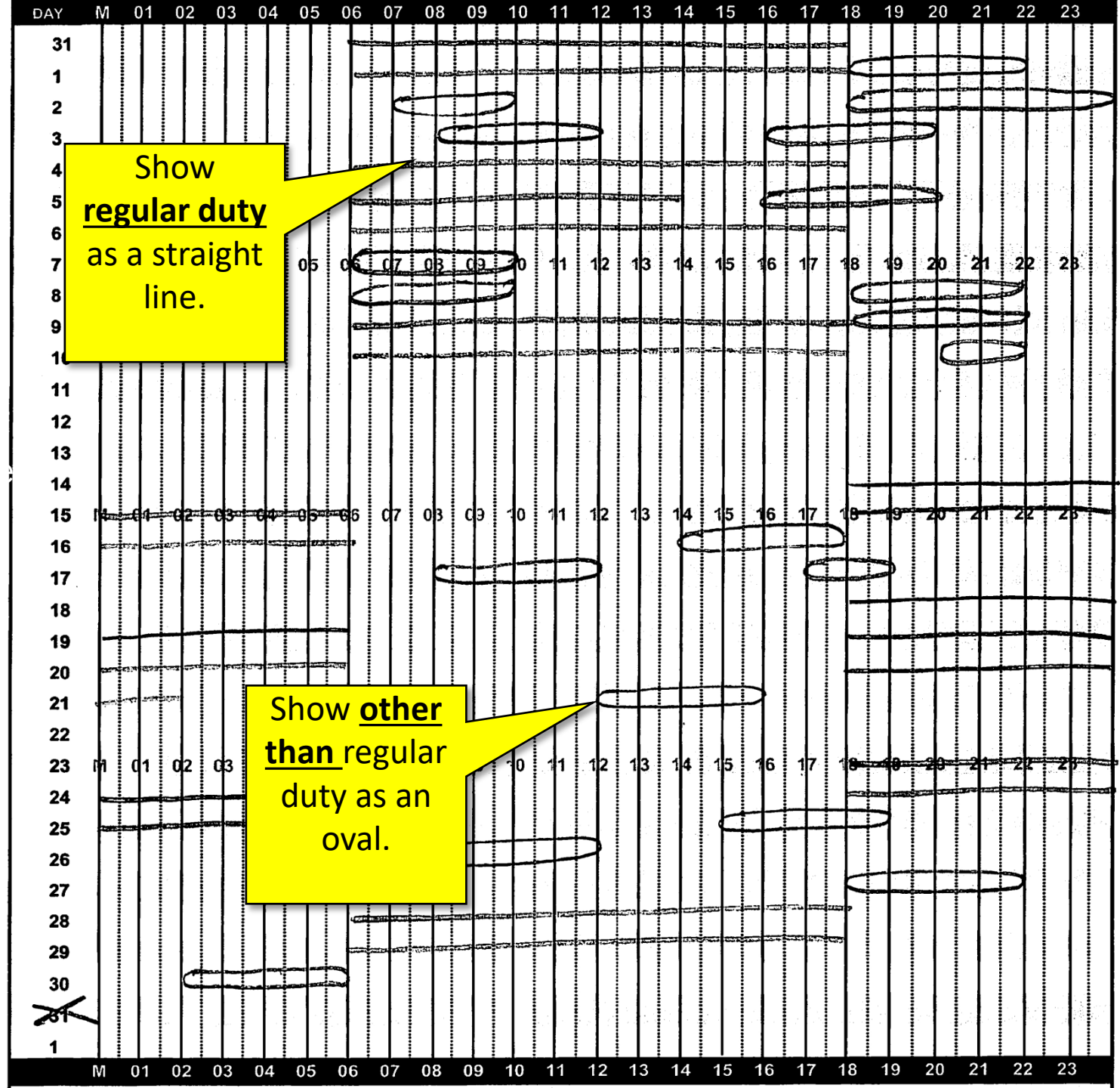
FMP Conformance



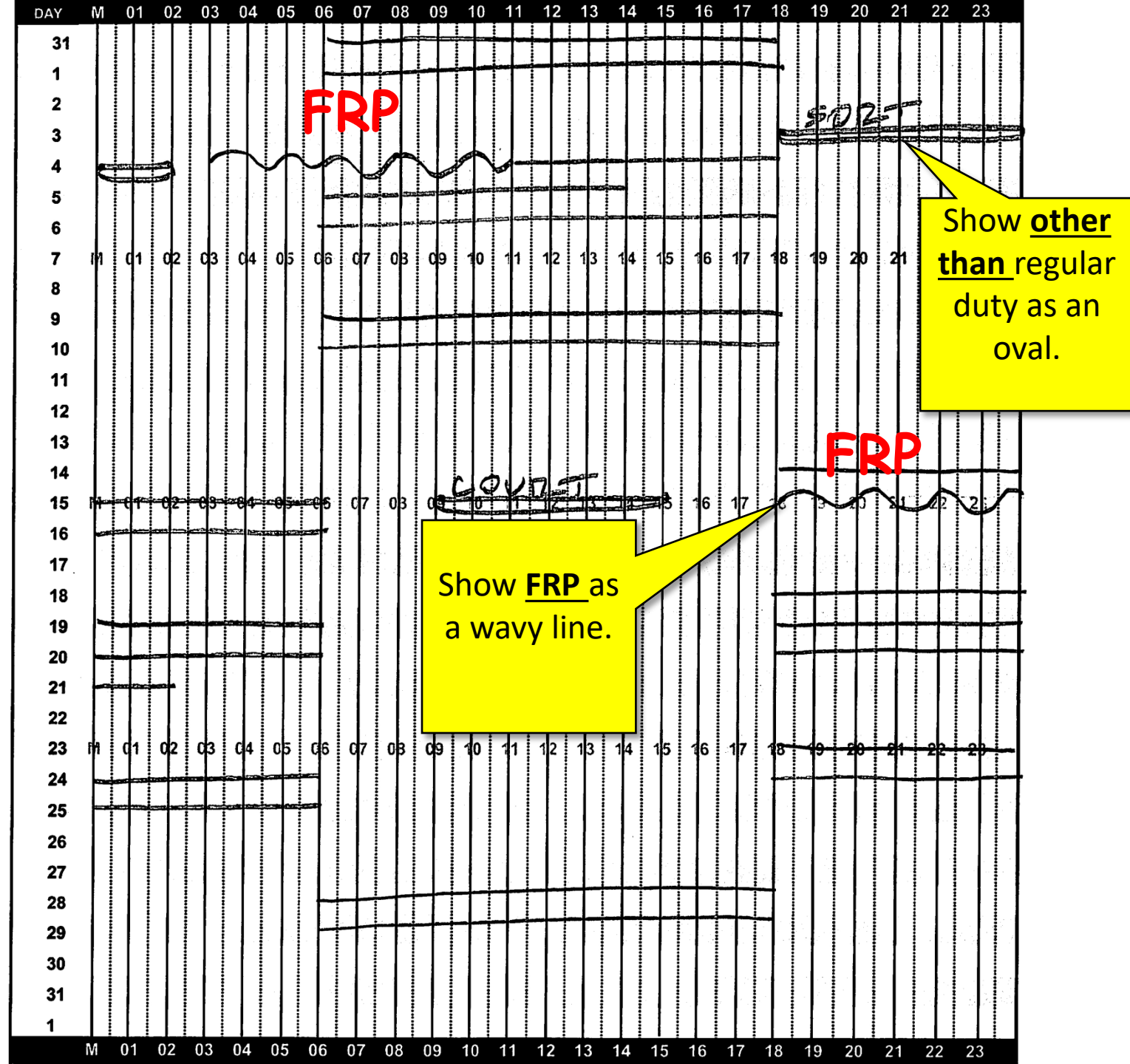
DELAWARE STATE POLICE TROOPER'S FMP LOG																								
Name/IBN:		Major Sean E. Moriarty, 896																						
Month:	January 2020			Location / Section:			HQ/Exec Staff																	
DAY	M	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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Ensign Signature: _____
 Sergeant Signature: _____
 Troop Commander: _____

FMP Conformance



FRP Documentation



FMP Violations

EXAMPLE:

