Enhanced Safety Screening for High-Risk Motor Carriers

Jennifer R. Walton, P.E. and David Leddy

Kentucky Transportation Center – University of Kentucky

Division of Motor Carriers

Commercial Vehicle Enforcement

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Kentucky Transportation Center

- Located within the College of Engineering at the University of Kentucky
- Designated Research Arm of the Kentucky Transportation Cabinet
- Eleven Program Areas
- The ITS Program has been an Integral Part of Kentucky's Innovated Technology Development (ITD) Team Since the Program's Inception (1996)

www.ktc.uky.edu

Intelligent Transportation Systems Program - Kentucky Transportation Center

- Plan Regular Team Meetings and Annual Strategic Planning Meeting
- Documentation of Performance Measures
- Preparation of Grant Applications
- Investigation and Evaluation of Technologies/Systems
- Monitor Data Quality and Work to Resolve Issues
- Training related to Screening Systems
- Implementation and Support of Various Commercial Vehicle-Related Technologies

Who are Our Partners?

2018 Strategic Planning Meeting

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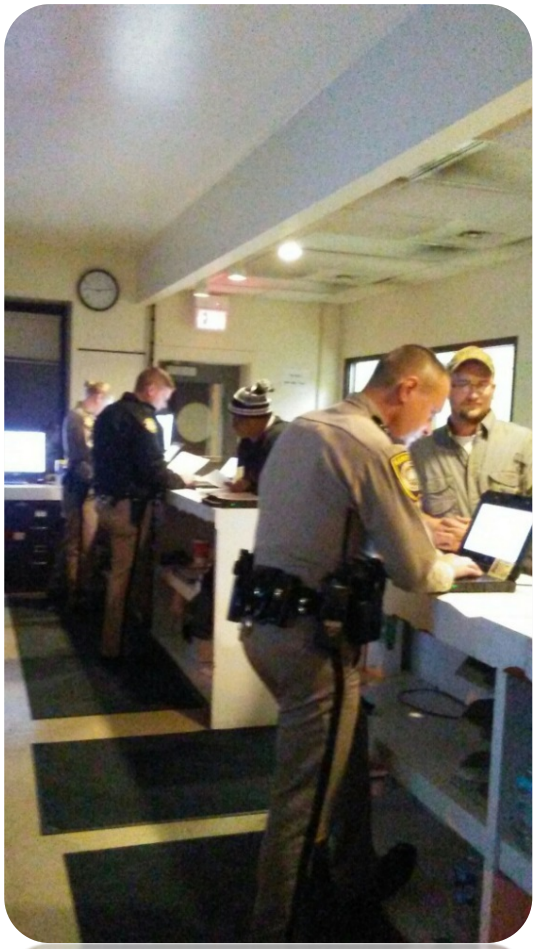
Enhanced Safety Screening for High-Risk Motor Carriers

- Funded through the 2017 High Priority Grant (HP-ITD)
- Goal: to incorporate FMCSA's BASIC scores into screening systems so that carriers with potential safety problems are more easily identified for inspection
- Timeline: 9/15/2018 – 12/31/2019



Enhanced Safety Screening for High-Risk Motor Carriers

- KTC's Role:
  - Facilitate the development of functional requirements with the Study Advisory Committee
  - Work with the programmer to implement the changes in CVIEW & KATS
  - Work with KSP-CVE to test these new features
  - Evaluate the benefits of the changes

Safety-Based Data & Screening in Kentucky

Kentucky CVIEW

Kentucky Automated Truck Screening (KATS) System

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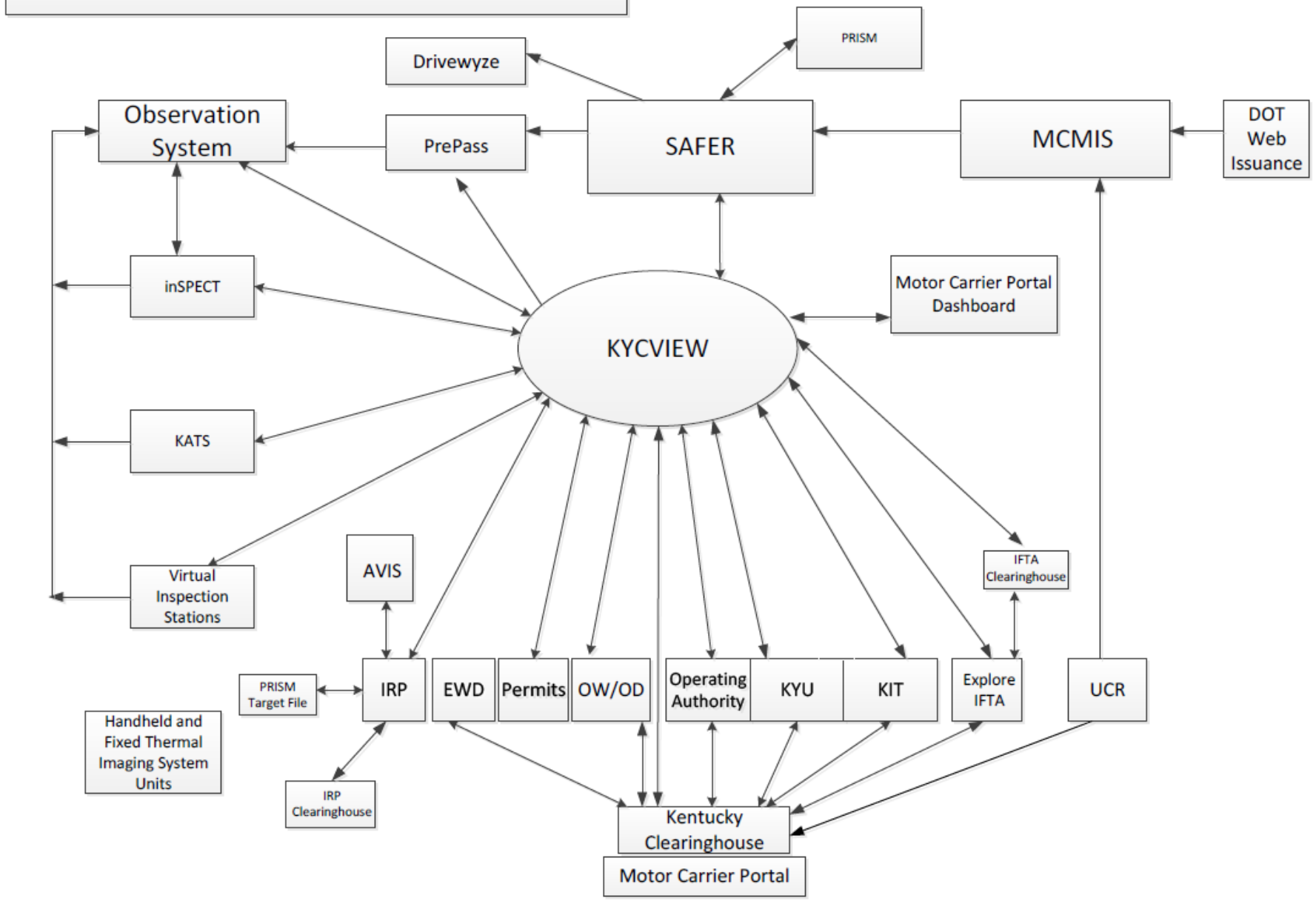
Kentucky CVIEW

- Commercial Vehicle Information Exchange Window (CVIEW)
  - FMCSA's Innovative Technology Deployment Program
- Houses data for carriers/vehicles.
  - Company-level information is available for all US and Canadian carriers.
- Can be utilized to verify screening information and find additional information not available through screening systems.

System Architecture for Kentucky



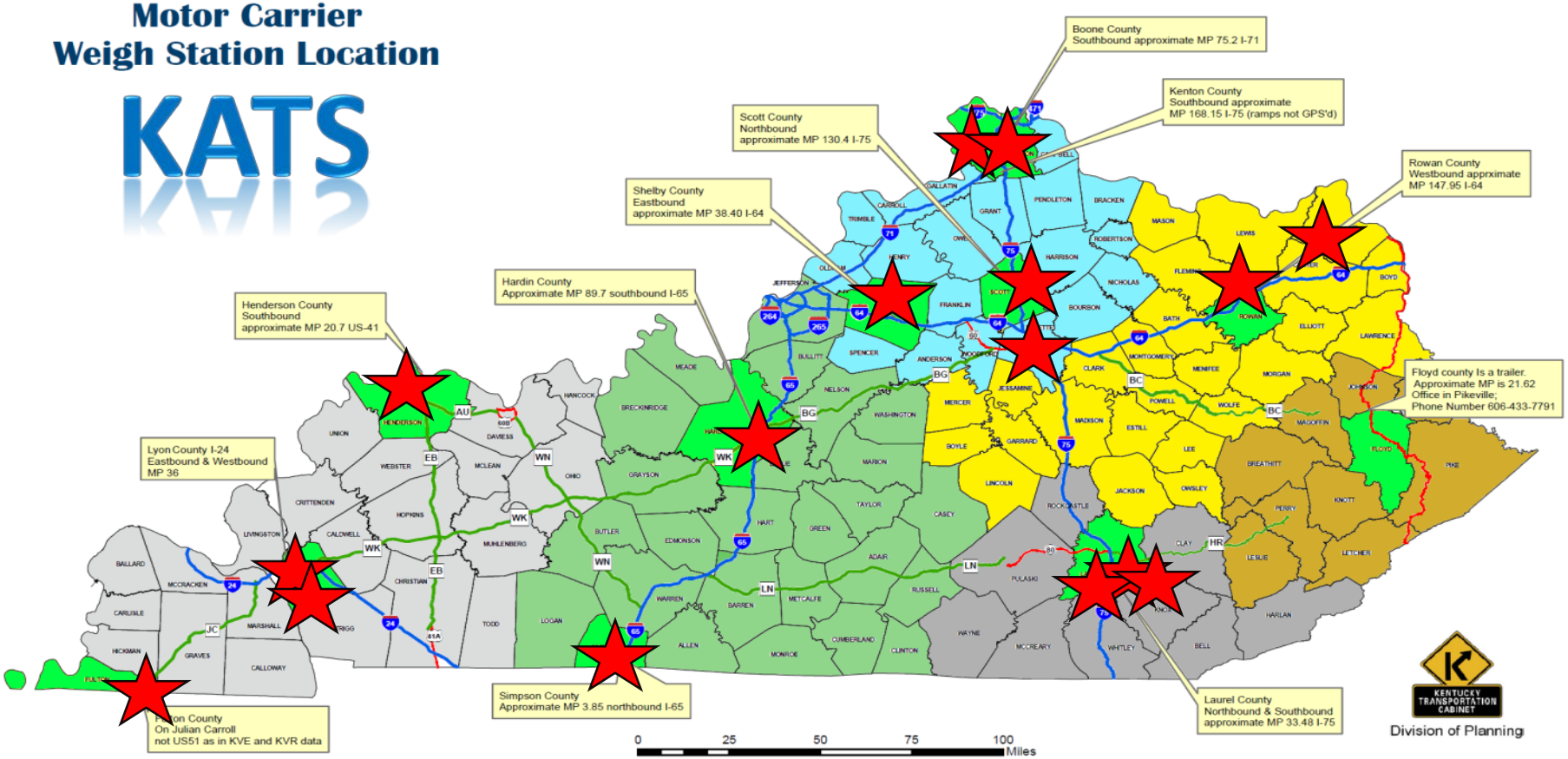
Kentucky Automated Truck Screening (KATS)

- Trucks are automatically identified using their license plate and USDOT number and then screened against Kentucky and national databases.
  - The goal is to be more efficient with available staffing and identify good candidates for inspection.
  - Improve safety and increase compliance.
  - Attempts to screen ALL vehicles.

Kentucky
UNBRIDLED SPIRIT

Motor Carrier Weigh Station Location

KATS



KENTUCKY TRANSPORTATION CABINET
Division of Planning

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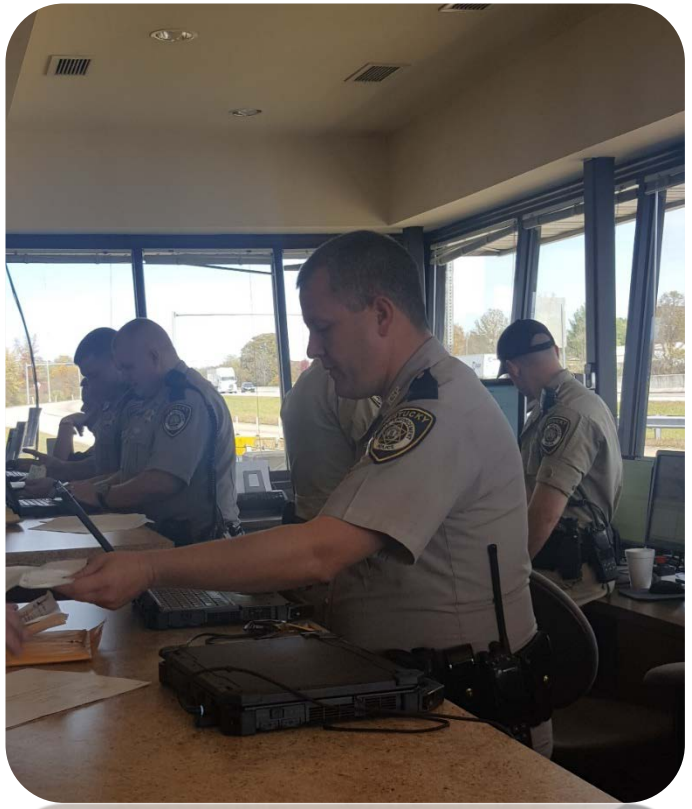
Safety-Related CV Screening in Kentucky

- Previously used PRISM A, B, and C carriers
- Currently using:
  - Federal OOS
  - USDOT Status
  - VOOS, DOOS, HOOS – Historical Info by Company
- Just added:
  - ISS and BASICs



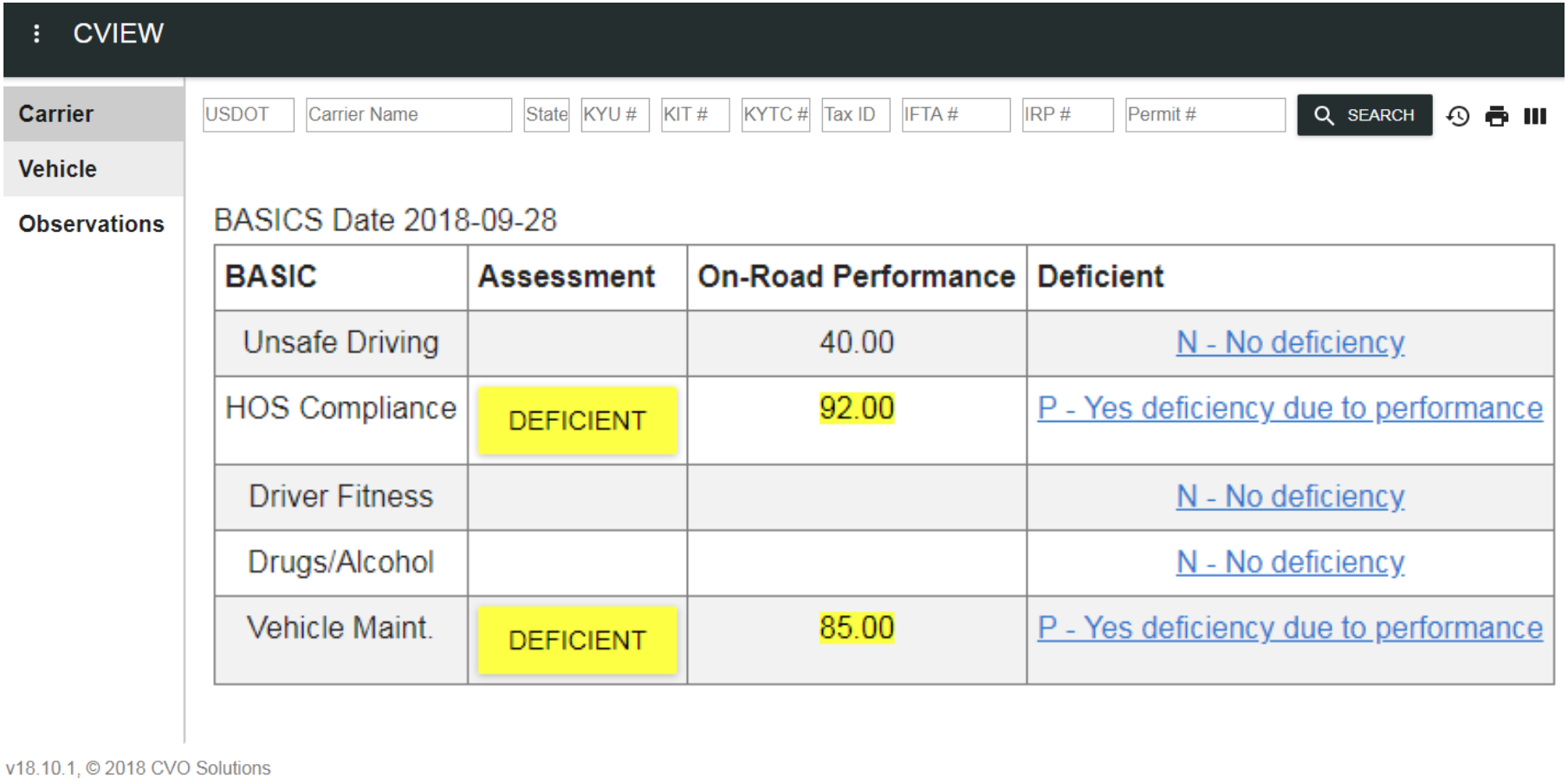
Safety-Related Data

- Data from SAFER to the Kentucky CVIEW
  - T0031 File – MCMIS Safety and Census
- Inspection Selection System (ISS) Score and Indicator
- Seven Behavior Analysis Safety Improvement Categories (BASICs)
  - Unsafe Driving
  - Crash Indicator
  - Driver Fitness
  - Controlled Substances/Alcohol
  - Vehicle Maintenance
  - Hazardous Materials Compliance
  - Hours-of-Compliance

ISS
Based on BASICs and sufficiency of data

BASICs
Based on driver/vehicle violations, crash reports, and investigation results

Kentucky's CVIEW – BASIC Scores & Flags



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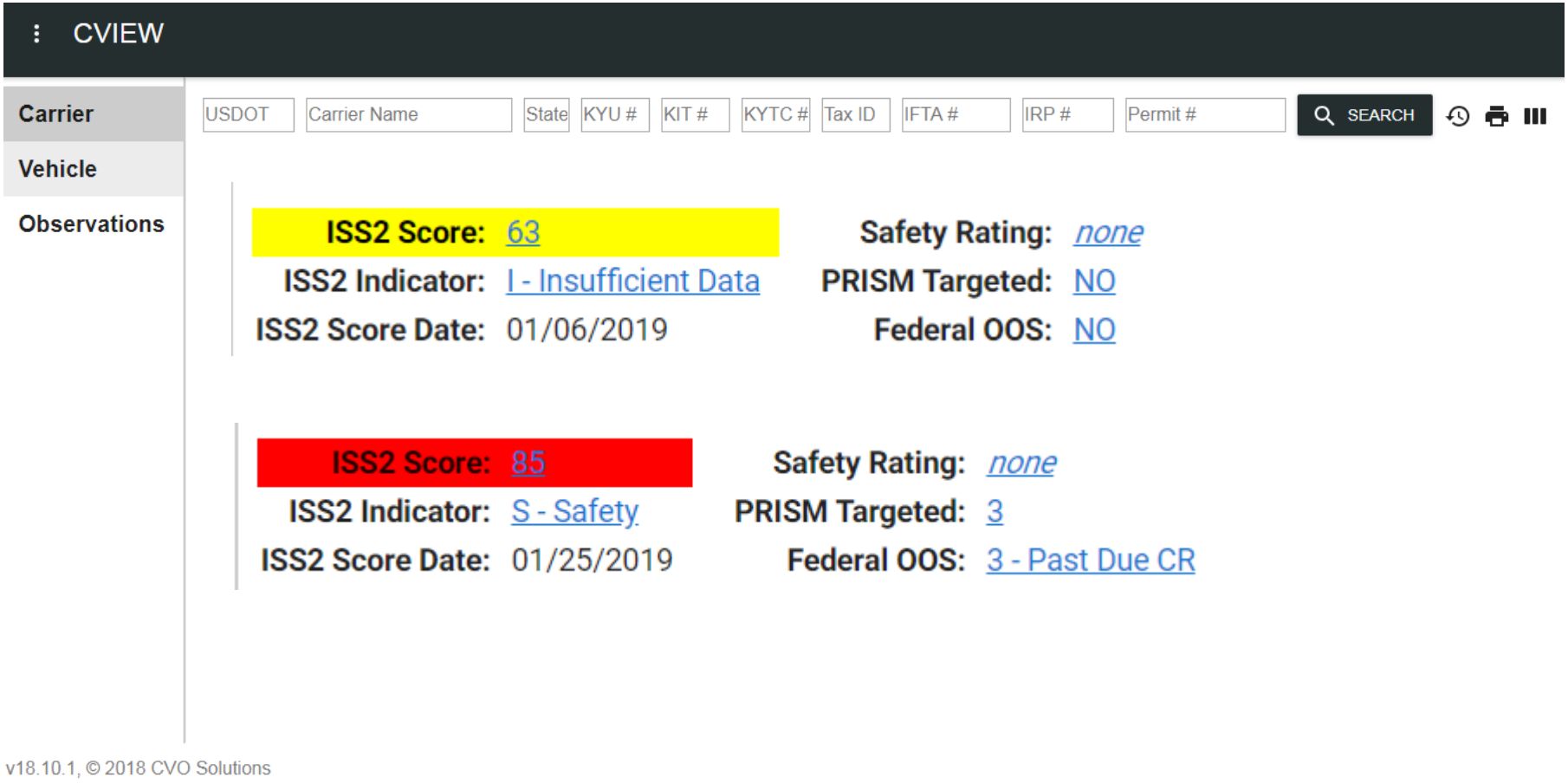
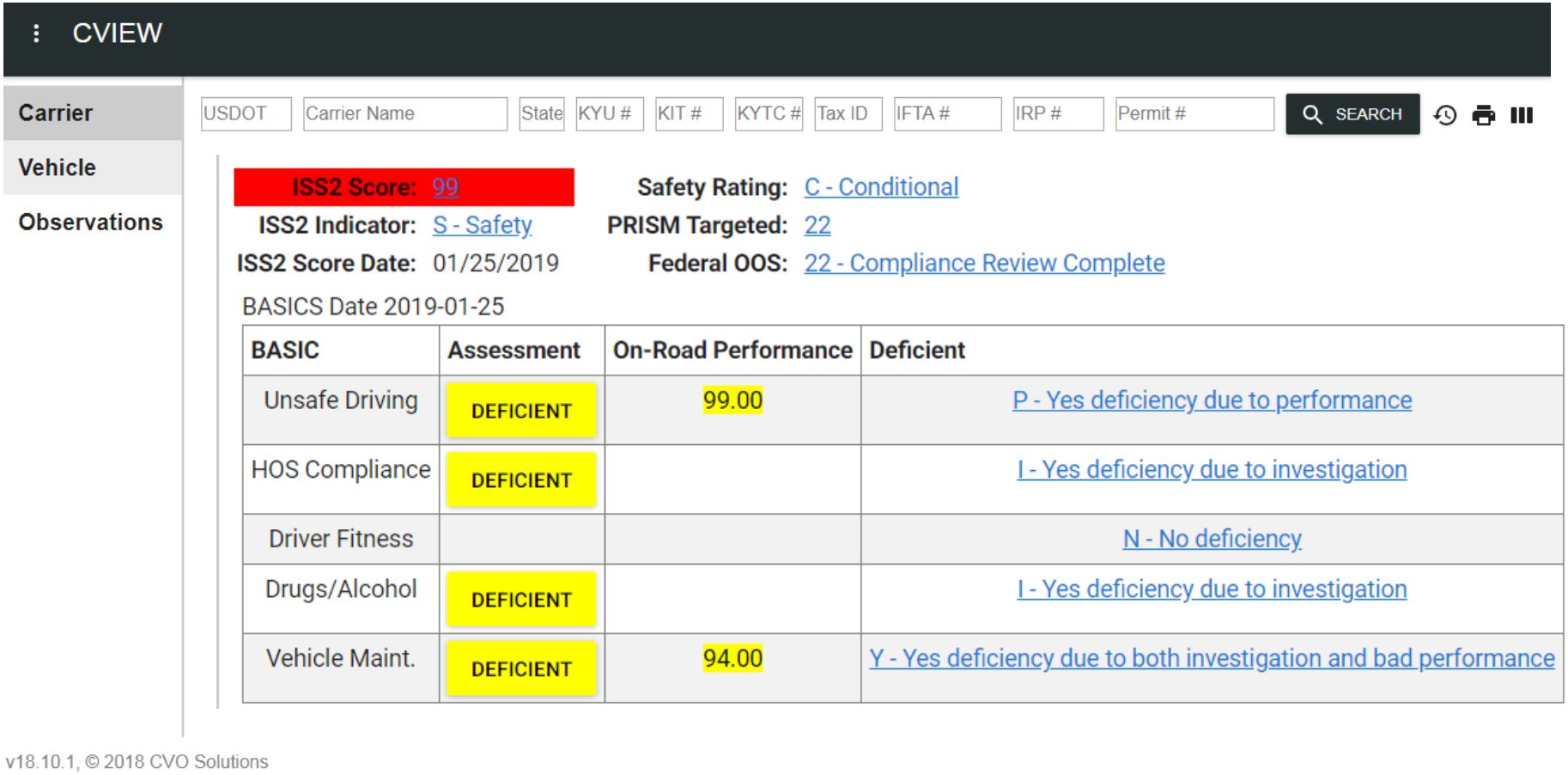
Kentucky's CVIEW



Kentucky's CVIEW



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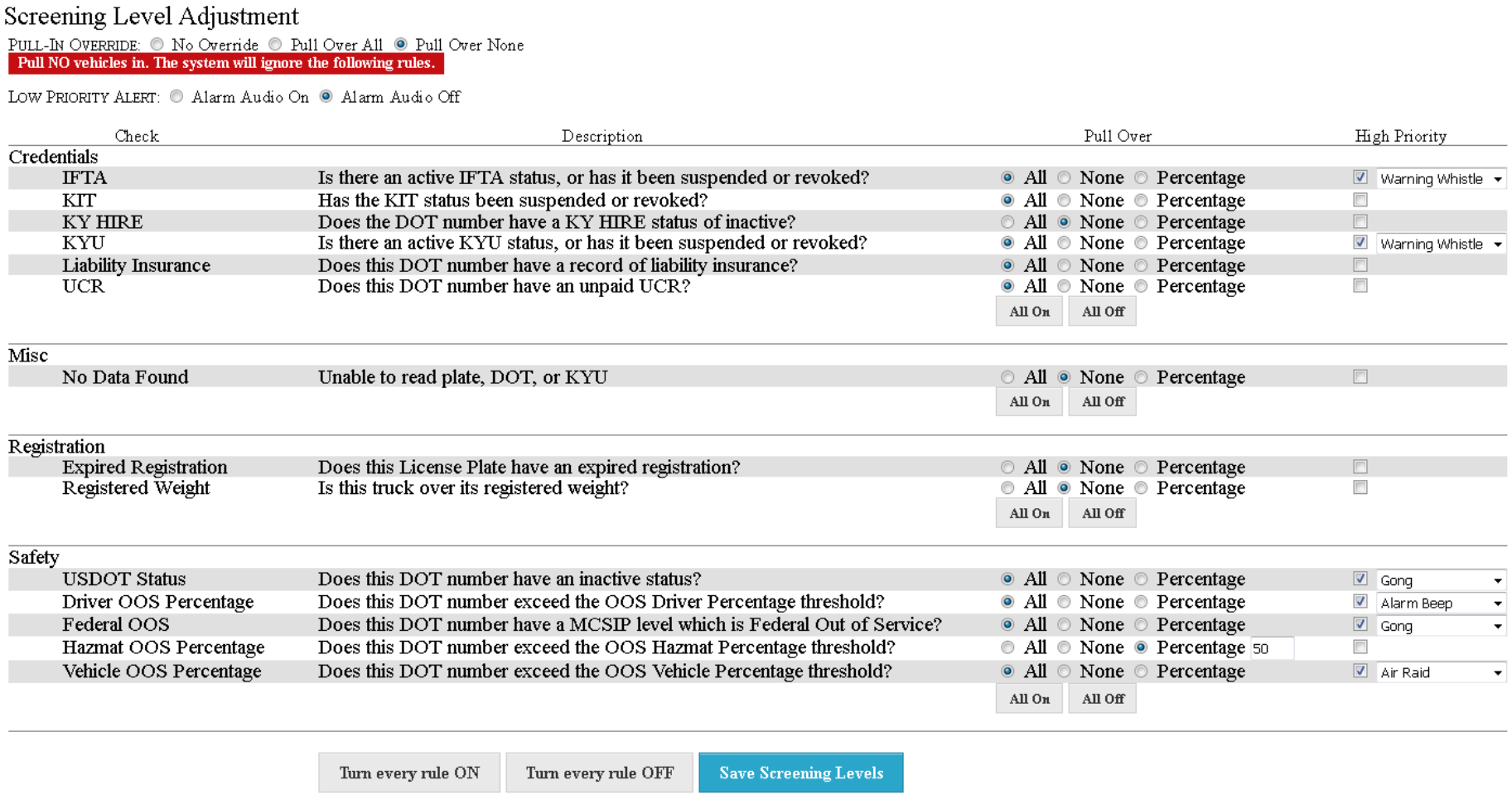
Screening Rules in KATS



Screening Level Adjustment

PULL-IN OVERRIDE: No Override | Pull Over All | Pull Over None

Pull NO vehicles in. The system will ignore the following rules.

LOW PRIORITY ALERT: Alarm Audio On | Alarm Audio Off

Check	Description	Pull Over	High Priority
Credentials			
IFTA	Is there an active IFTA status, or has it been suspended or revoked?	All	Warning Whistle
KIT	Has the KIT status been suspended or revoked?	All	
KY HIRE	Does the DOT number have a KY HIRE status of inactive?	None	
KYU	Is there an active KYU status, or has it been suspended or revoked?	All	Warning Whistle
Liability Insurance	Does this DOT number have a record of liability insurance?	All	
UCR	Does this DOT number have an unpaid UCR?	All	
		All On / All Off	
Misc			
No Data Found	Unable to read plate, DOT, or KYU	None	
		All On / All Off	
Registration			
Expired Registration	Does this License Plate have an expired registration?	None	
Registered Weight	Is this truck over its registered weight?	None	
		All On / All Off	
Safety			
USDOT Status	Does this DOT number have an inactive status?	All	Gong
Driver OOS Percentage	Does this DOT number exceed the OOS Driver Percentage threshold?	All	Alarm Beep
Federal OOS	Does this DOT number have a MCSIP level which is Federal Out of Service?	All	Gong
Hazmat OOS Percentage	Does this DOT number exceed the OOS Hazmat Percentage threshold?	Percentage 50	
Vehicle OOS Percentage	Does this DOT number exceed the OOS Vehicle Percentage threshold?	All	Air Raid
		All On / All Off	

Turn every rule ON | Turn every rule OFF | Save Screening Levels

Screening Related to Safety

Safety	
USDOT Status	Does this DOT number have an inactive status?
Driver OOS Percentage	Does this DOT number exceed the OOS Driver Percentage threshold?
Federal OOS	Does this DOT number have a MCSIP level which is Federal Out of Service?
Hazmat OOS Percentage	Does this DOT number exceed the OOS Hazmat Percentage threshold?
Vehicle OOS Percentage	Does this DOT number exceed the OOS Vehicle Percentage threshold?

Safety (BASICs)				
Crash Indicator	User threshold:	90	Default threshold:	☐
Driver Fitness	User threshold:	90	Default threshold:	☐
Drugs/Alcohol	User threshold:	90	Default threshold:	☐
HM Compliance	User threshold:	90	Default threshold:	☐
HOS Compliance	User threshold:	90	Default threshold:	☐
Unsafe Driving	User threshold:	90	Default threshold:	☐
Vehicle Maintenance	User threshold:	90	Default threshold:	☐

New Screening on BASICs

- Users may screen on default thresholds or user-established thresholds
- Default threshold checks for a BASIC alert on the carrier for an investigation or an on-road performance score than exceeds the default values
- User threshold checks for a BASIC score that is at or above the user-established threshold

Data We Captured

Lic. Plate: PAT0172 Minnesota
DOT: 0124813
KYU#: 073160
Weight:
Re-Screen / Verify | Queue for inspection

Overview

Inspection: 2142056 Date: 1:42:55 PM 10/26/18
Status: Fail Last Updated: 1:47:01 PM 10/26/18

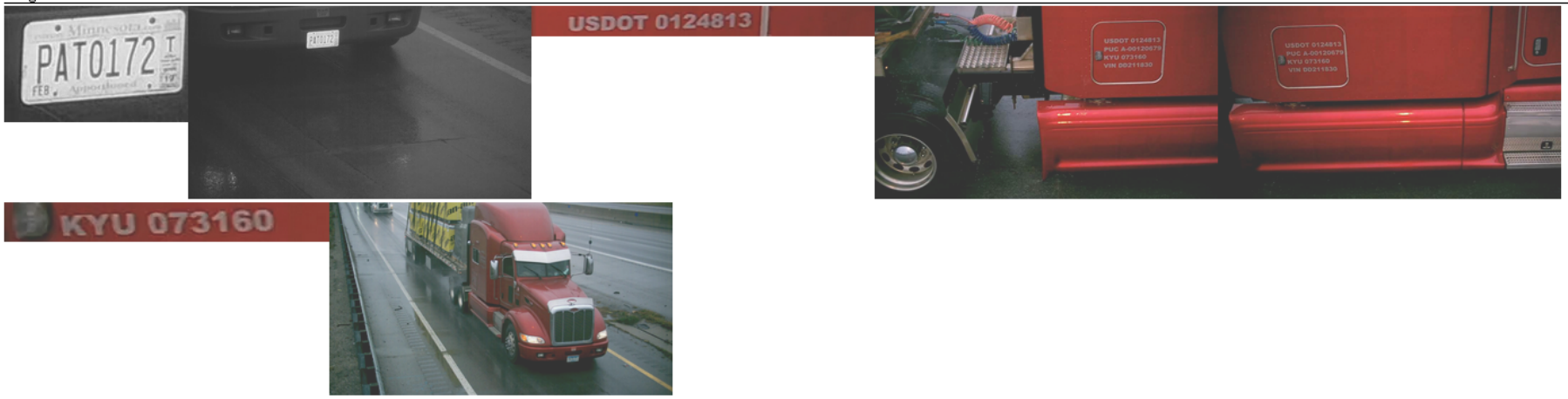
Data We Screened

KYUNUM: 073160
Registrant DOT: 124813
Safety DOT: 124813

Additional Data

Carrier Name: ADMIRAL MERCHANTS MOTOR FREIGHT INC
DBA Name: ADMIRAL MERCHANTS
ISS Score: 93

Images



Pass/Fail Results

BASIC: Vehicle Maintenance DOT# 124813 has an on-road performance score that meets or exceeds the user threshold (90.00)
Database Unable to find plate PAT0172/MN in CVIEW

Show log

FAIL for BASIC: Vehicle Maintenance

BASIC Data in CVIEW

BASICS Date 2018-09-28

BASIC	Assessment	On-Road Performance	Deficient
Unsafe Driving		34.00	N - No deficiency
HOS Compliance	DEFICIENT	72.00	P - Yes deficiency due to performance
Driver Fitness			N - No deficiency
Drugs/Alcohol		3.00	N - No deficiency
Vehicle Maint.	DEFICIENT	91.00	P - Yes deficiency due to performance
HM Compliance			N - No deficiency
Crash Indicator		18.00	N - No deficiency

Data We Captured

Lic. Plate: P996566 Illinois

DOT: 2439316

KYU#:

Weight:

Re-Screen / Verify | Queue for inspection

Overview

Inspection: 2142113 Date: 1:59:58 PM 10/26/18

Status: Fail Last Updated: 2:05:51 PM 10/26/18

Data We Screened

KYUNUM:

Lic. Plate: P996566/IL

Registrant DOT: 2439316

Safety DOT: 2439316

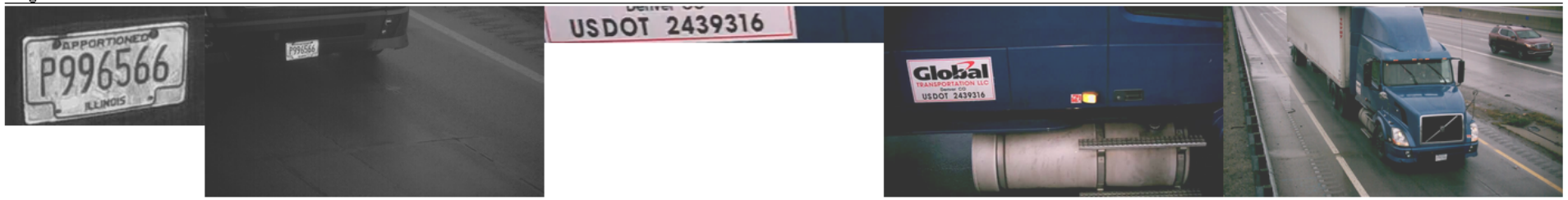
Additional Data

Carrier Name: GLOBAL TRANSPORTATION LLC

DBA Name: 463673743

ISS Score: 99

Images



Pass/Fail Results

BASIC: HOS Compliance	DOT# 2439316 has an on-road performance score that meets or exceeds the user threshold (90.00)
BASIC: Unsafe Driving	DOT# 2439316 has an on-road performance score that meets or exceeds the user threshold (90.00)
BASIC: Vehicle Maintenance	DOT# 2439316 has an on-road performance score that meets or exceeds the user threshold (90.00)

Show log

FAIL for:

BASIC: HOS Compliance

BASIC: Unsafe Driving

BASIC: Vehicle Maintenance

BASIC Data in CVIEW

BASICS Date 2018-09-28

BASIC	Assessment	On-Road Performance	Deficient
Unsafe Driving	DEFICIENT	99.00	P - Yes deficiency due to performance
HOS Compliance	DEFICIENT	91.00	Y - Yes deficiency due to both investigation and bad performance
Driver Fitness	DEFICIENT	40.00	I - Yes deficiency due to investigation
Drugs/Alcohol			N - No deficiency
Vehicle Maint.	DEFICIENT	92.00	Y - Yes deficiency due to both investigation and bad performance
Crash Indicator	DEFICIENT	85.00	P - Yes deficiency due to performance

Data We Captured

Lic. Plate:
DOT: 2303484
KYU#:
Weight:

Re-Screen / Verify | Queue for inspection

Overview

Inspection: 2142164 Date: 2:20:04 PM 10/26/18
Status: Fail Last Updated: 2:20:30 PM 10/26/18

Data We Screened

KYUNUM:
Lic. Plate: /
Registrant DOT: 2303484
Safety DOT: 2303484

Additional Data

Carrier Name: QUO VADIS LOGISTICS INC
ISS Score: 96

Images

Pass/Fail Results

BASIC: Driver Fitness	DOT# 2303484 has an on-road performance score that meets or exceeds the user threshold (95.00)
BASIC: HOS Compliance	DOT# 2303484 has an alert in HOS COMPLIANCE due to a high on-road performance score (89.00)
BASIC: Unsafe Driving	DOT# 2303484 has an on-road performance score that meets or exceeds the user threshold (95.00)
KYU	Unable to find active KYU record

Show log

FAIL for:

BASIC: Driver Fitness

BASIC: HOS Compliance

BASIC: Unsafe Driving

BASIC Data in CVIEW

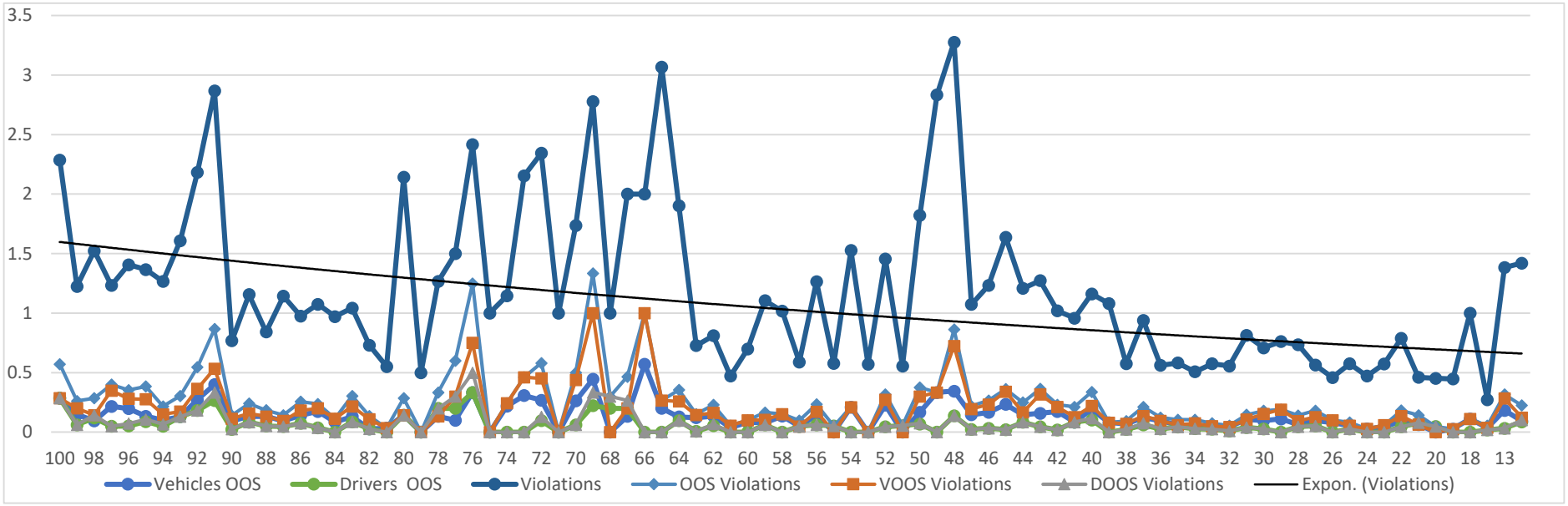
BASICS Date 2018-09-28

BASIC	Assessment	On-Road Performance	Deficient
Unsafe Driving	DEFICIENT	99.00	P - Yes deficiency due to performance
HOS Compliance	DEFICIENT	89.00	P - Yes deficiency due to performance
Driver Fitness	DEFICIENT	95.00	P - Yes deficiency due to performance
Drugs/Alcohol			N - No deficiency
Vehicle Maint.		39.00	N - No deficiency
Crash Indicator	DEFICIENT	66.00	P - Yes deficiency due to performance

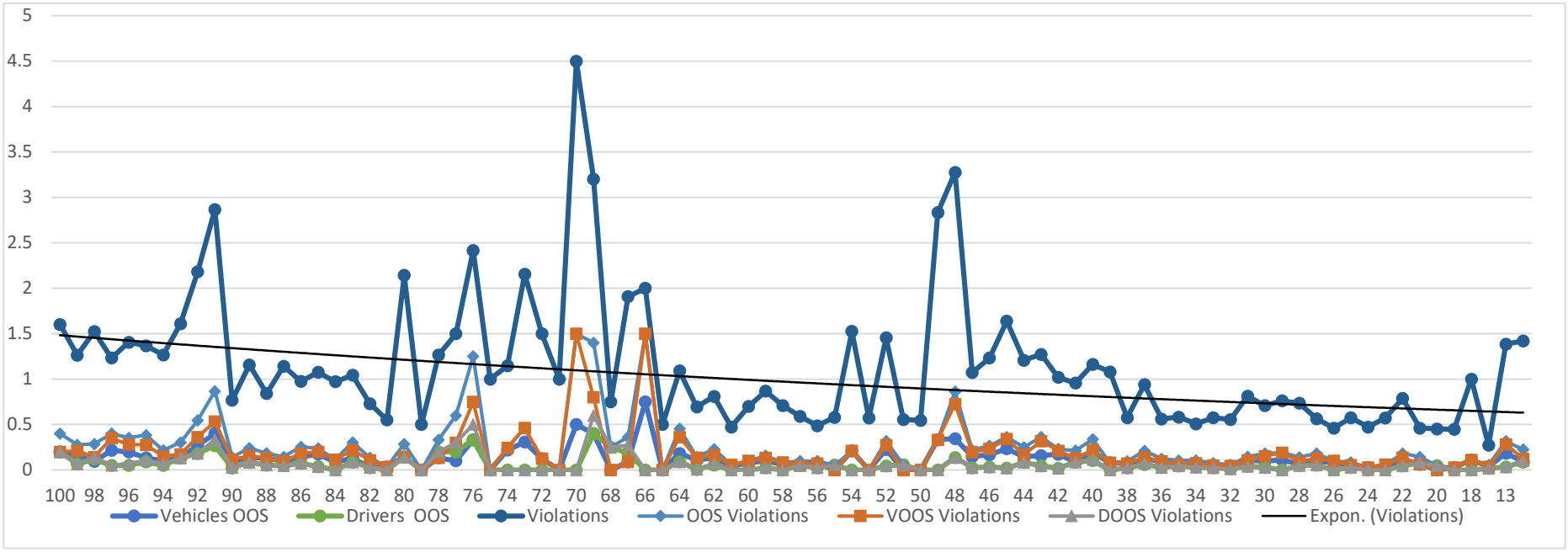
What are we doing now?

- Monitoring CVIEW and KATS and seeking feedback from KSP-CVE
- Collecting and Analyzing Data
  - Currently analyzing Kentucky's inspection data based on the ISS score and indicator as well as BASICs
  - Soon we will be analyzing observation data to determine the appropriate thresholds to use for screening

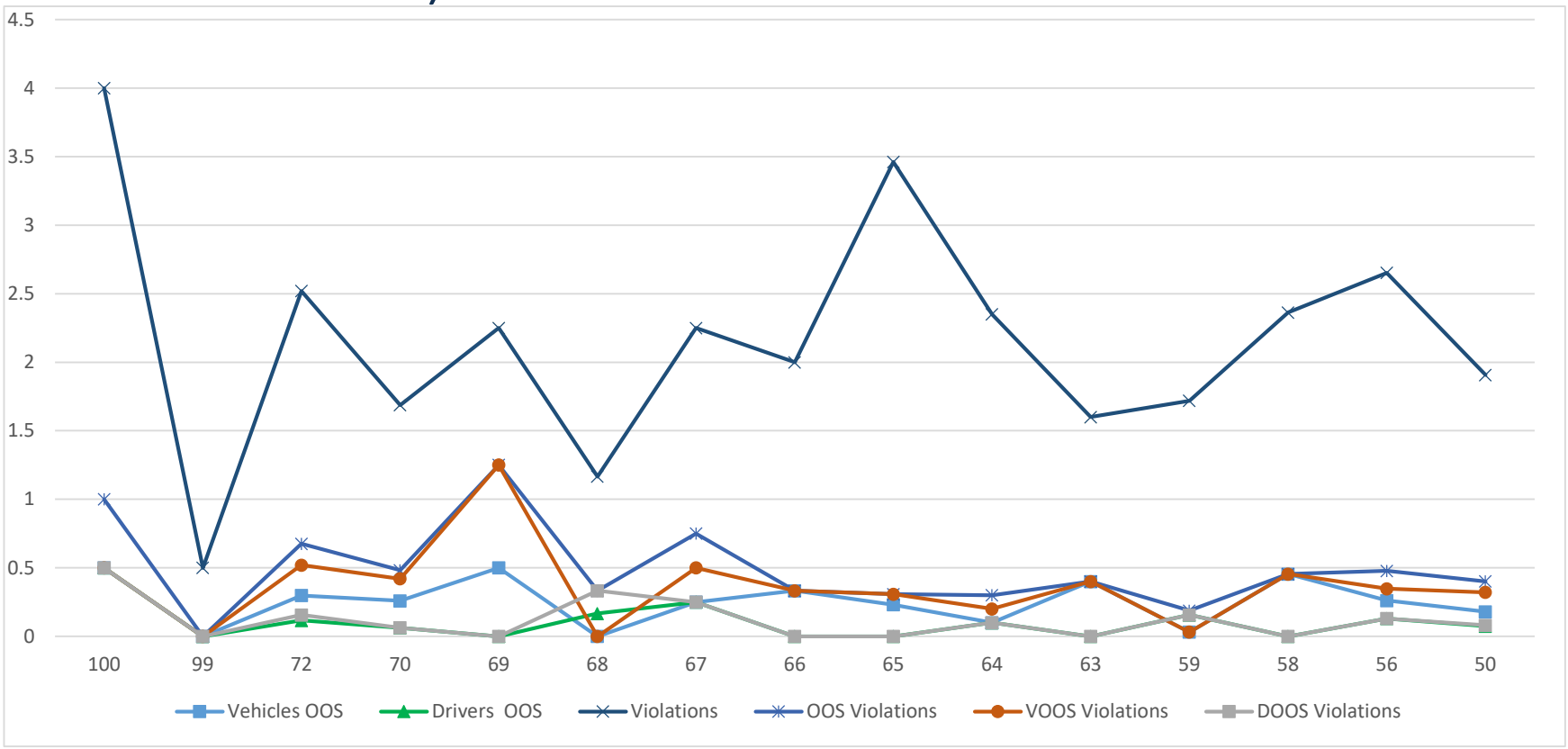
of Violations by ISS Score



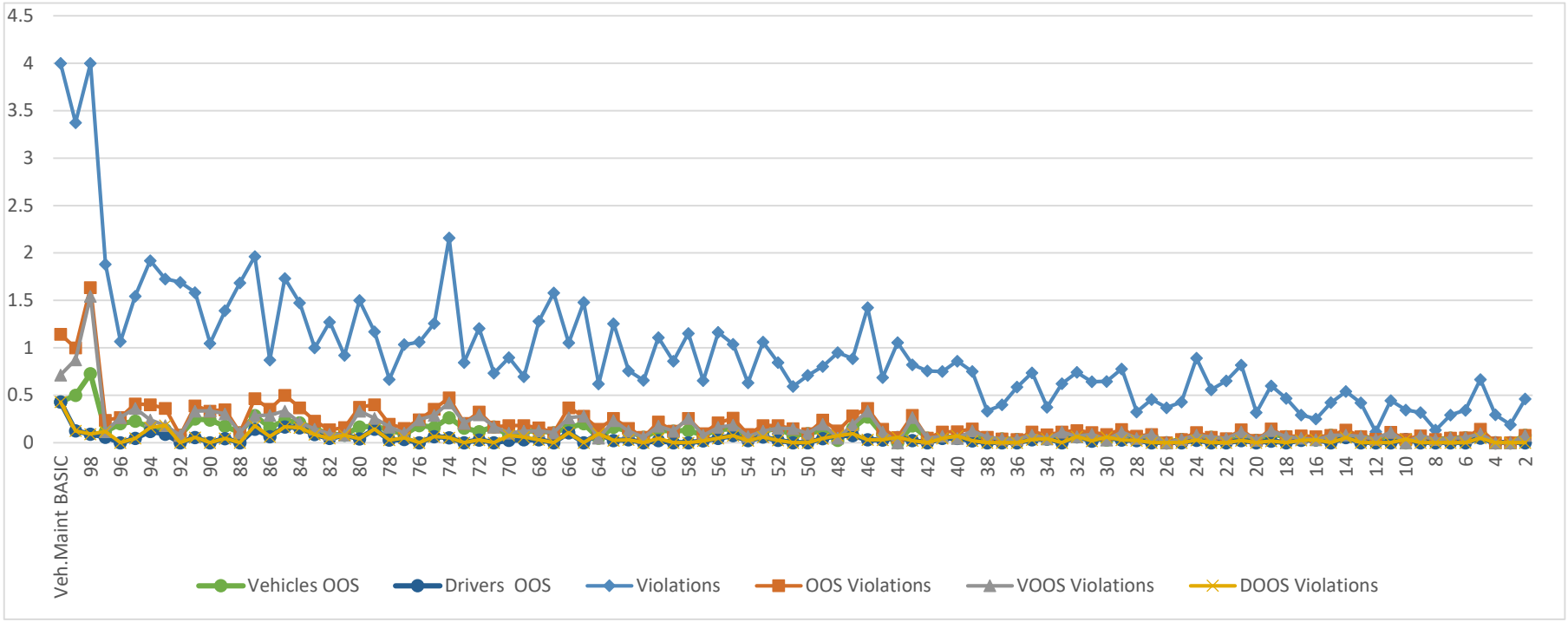
of Violations by ISS Score (Safety-based)



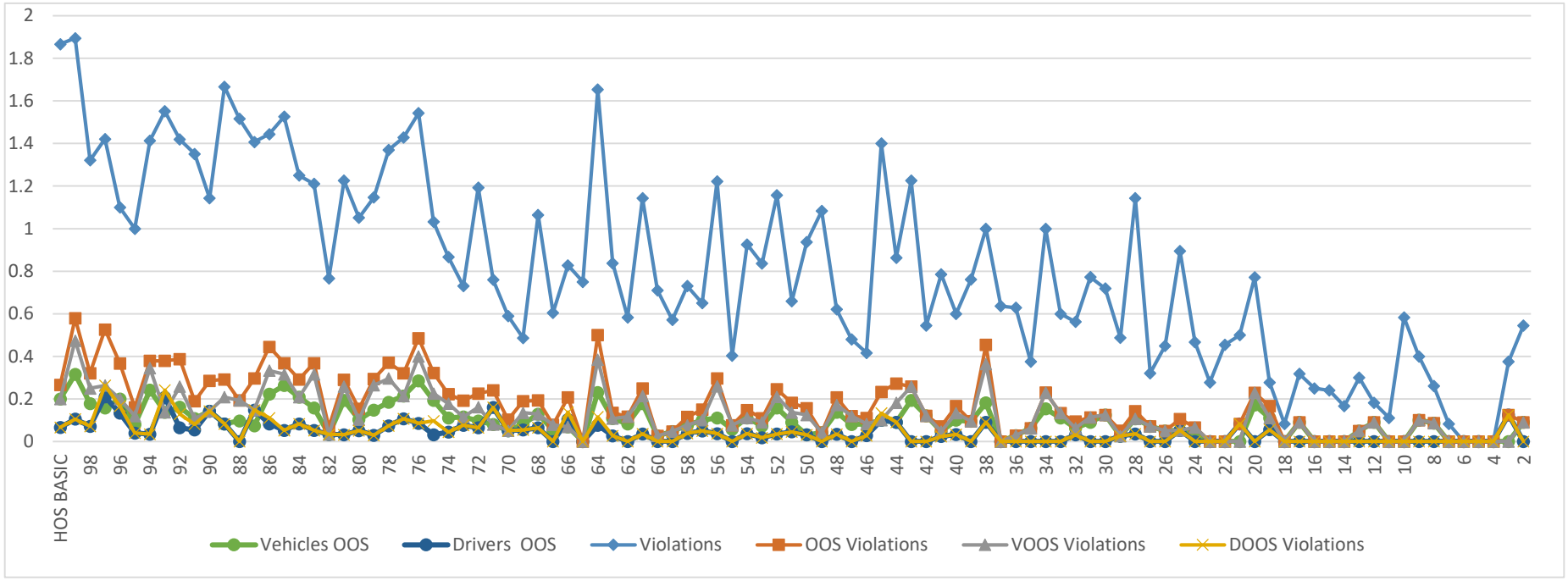
of Violations by ISS Score (Sufficiency of data-based)



of Violations by Vehicle Maintenance BASIC Score



of Violations by HOS BASIC Score



Early Findings

- The ISS indicator should be provided to KSP-CVE so that they can distinguish between carriers with high scores due to safety and high scores due to insufficient data.
- FMCSA default thresholds for deficient BASICs flag too many vehicles for screening purposes.
- KSP-CVE is interested in screening to identify carriers that are high-risk (in general) but they are also interested in screening on specific areas of safety concern (i.e., Vehicle Maintenance, Hours-of-Service, etc.).

Early Findings

- In general, the number of violations per inspection increased with an increased BASIC score (for Vehicle Maintenance and HOS).
- Average violation rates do not seem to correlate with the ISS categories of inspect, optional, and pass.
- Choosing a truck for inspection with an ISS score based on the sufficiency of data indicator may result in more violations per inspection.

What are we doing next?

- After collecting and analyzing 3 to 6 months of data, we will be incorporating changes to our screening systems.
- These changes will be tested and refined as necessary.
- The results and benefits will be documented and shared with other states and FMCSA.

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