VAAES LAB REVIEWS
Common Themes

Back To Basics Seminar
November 17-18, 2022

David Lee, P.E., Vice President
Virginia Asphalt Association

Jointly sponsored By VAA, VTRC and VDOT

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VAAES Lab Review Program

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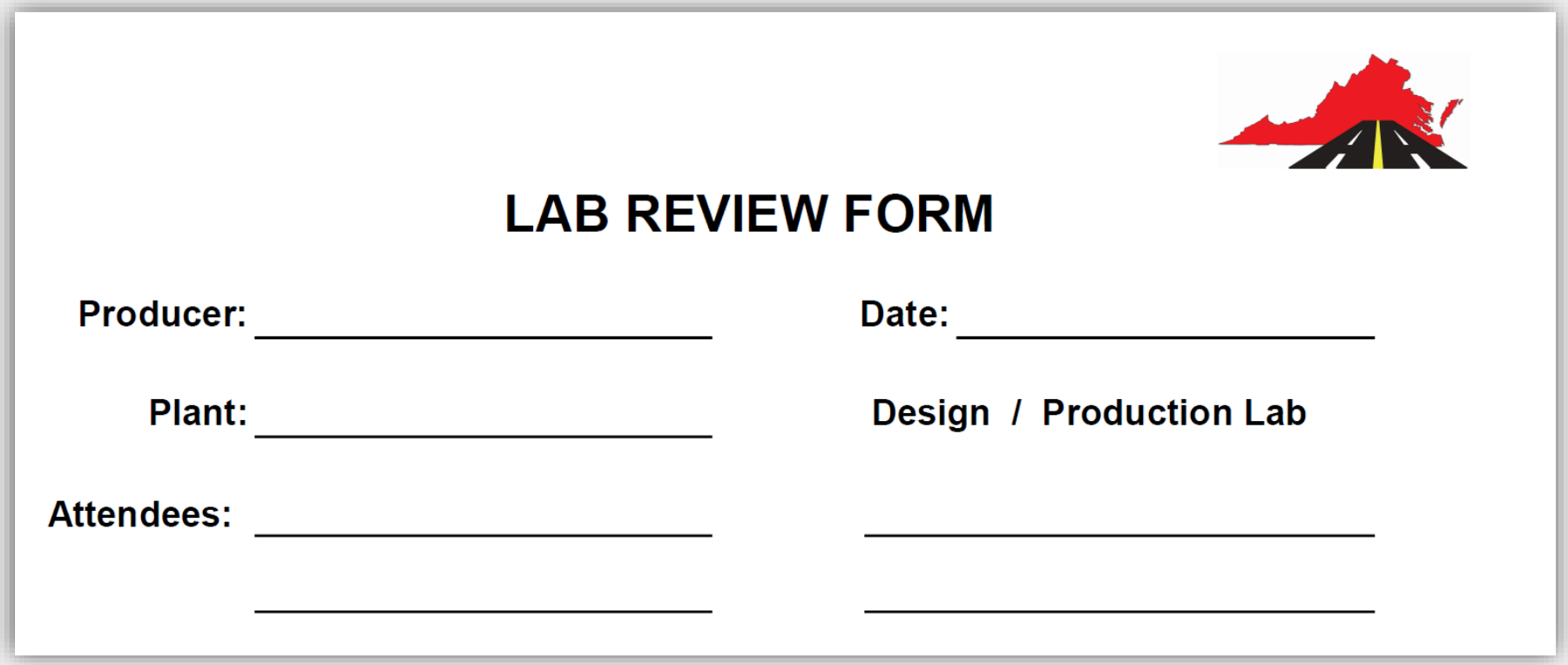

LAB REVIEW FORM

Producer: _____ **Date:** _____

Plant: _____ **Design / Production Lab**

Attendees: _____ _____

_____ _____

file:///C:/Users/David%20Lee/OneDrive%20-%20Virginia%20Asphalt/Documents/Lab%20Reviews/Lab%20Review%20Form%20pdf.pdf

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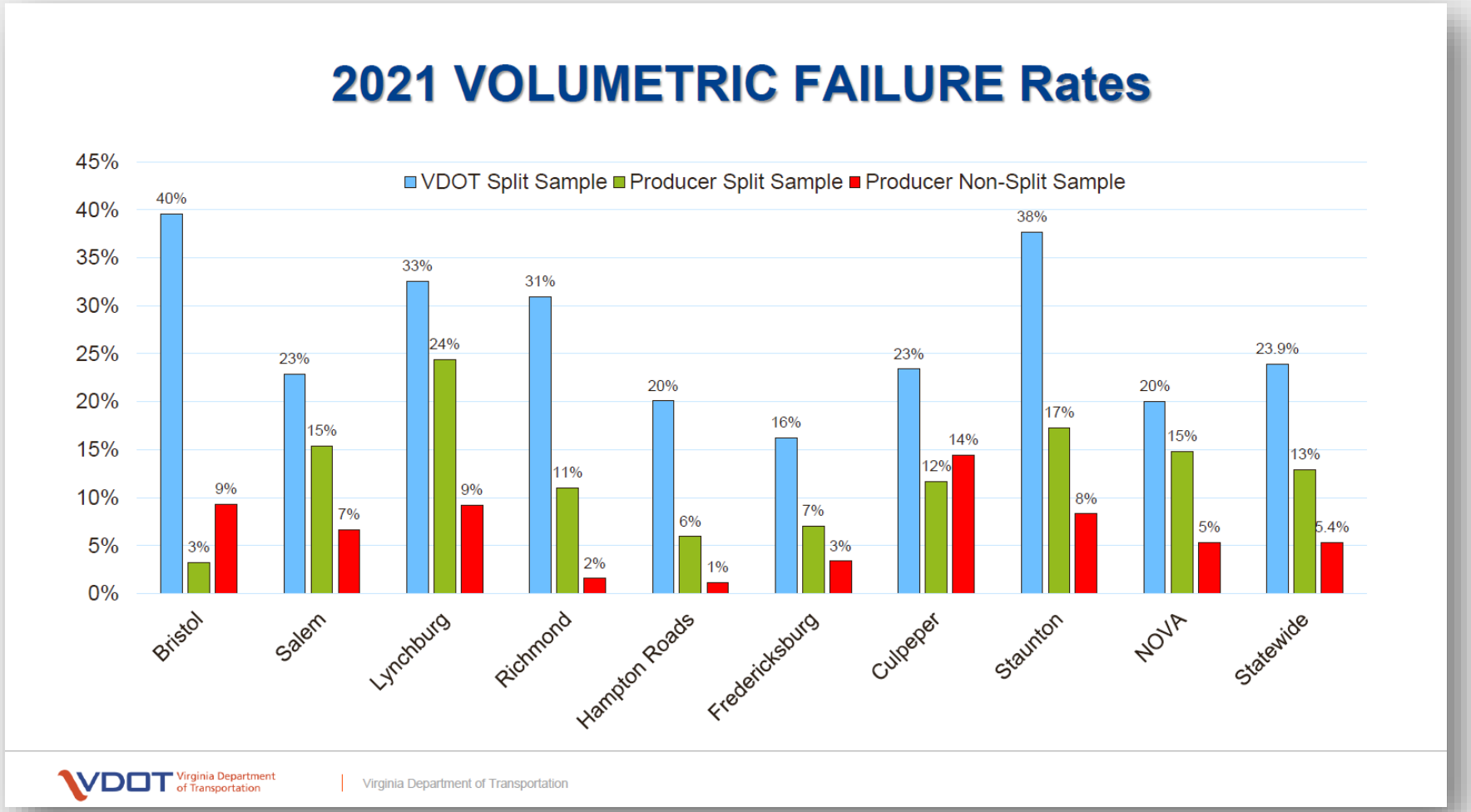
Why?

- VDOT/Producer Comparison Issues
- Test Result Variability
- We've always done it that way!
- The little things don't really matter!
- Wow, I never thought of that!

VDOT/Producer Comparison Issues



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VDOT/Producer Comparison Issues

2021 Gradation/AC FLAGS

Column1	Producer	VDOT	d2S
Total Samples	10887	2908	
1"	336	141	183
3/4"	951	418	155
1/2"	728	383	131
3/8"	968	458	66
No. 4	1714	737	65
No. 8	2347	1008	82
No. 16	9	7	0
No. 30	472	259	54
No. 50	0	0	0
No. 100	0	0	0
No. 200	973	573	26
AC	2002	951	139
Total Gradation/AC (Samples	5942	2276	

No.8 , A/C and No.4 sieves/properties still have the highest flags. 3rd year in a row.

1351 Lots
140 lots with Adjustment Points

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Test Variability

Standard Method of Test for

Theoretical Maximum Specific Gravity (G_{mm}) and Density of Asphalt Mixtures

AASHTO Designation: T 209-20

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Test Variability

15. PRECISION

15.1. Criteria for judging the acceptability of specific gravity test results obtained by this test method are given in the following table:

Table 2—Precision Estimates

Test and Type Index	Standard Deviation (1s)	Acceptable Range of Two Results (d2s)
Test results obtained without use of Section 15		
Method A[a]		
Single-operator precision	0.0051	0.014
Multilaboratory precision	0.0084	0.024
Method B[b]		
Single-operator precision	0.0064	0.018
Multilaboratory precision	0.0103	0.029

[a] Basis of estimate: 1 replicate, 1 material, 344 laboratories.

[b] Basis of estimate: 1 replicate, 1 material, 134 laboratories.

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The Little Things Don't Matter?!

5. APPARATUS

5.1. *Weighing Device*—The weighing device shall have sufficient capacity, be readable to 0.1 percent of the sample mass or better, and conform to the requirements of M 231. The weighing device shall be equipped with a suitable suspension apparatus and holder to permit weighing the specimen while suspended from the center of the scale pan of the weighing device.

5.2. *Suspension Apparatus*—The wire suspending the container shall be the smallest practical size to minimize any possible effects of a variable immersed length. The suspension apparatus shall be constructed to enable the container to be immersed to a depth sufficient to cover it and the test sample during weighing. Care should be exercised to ensure no trapped air bubbles exist under the specimen.

5.3. *Water Bath*—For immersing the specimen in water while suspended under the weighing device, equipped with an overflow outlet for maintaining a constant water level.

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Highlights

- AutoRice
- Dedicated Ignition Furnaces
- Ovens – Horizontal vs. Vertical Flow
- Water Bath Heater
- Auto Aggregate Washer
- Clean Well-Organized Lab

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AutoRice

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Dedicated Ignition Furnaces

When space allows the ability to utilize dedicated ignition furnaces for various mix types (SM-9.5, SM-12.5, IM-19.0, BM-25) can reduce test variability.

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Horizontal vs Vertical Flow

Horizontal or Cross flow ovens allow for more even temperature control throughout the oven.

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Quarter Master

Mechanical methods for reducing sample size can reduce variability and improve efficiency.

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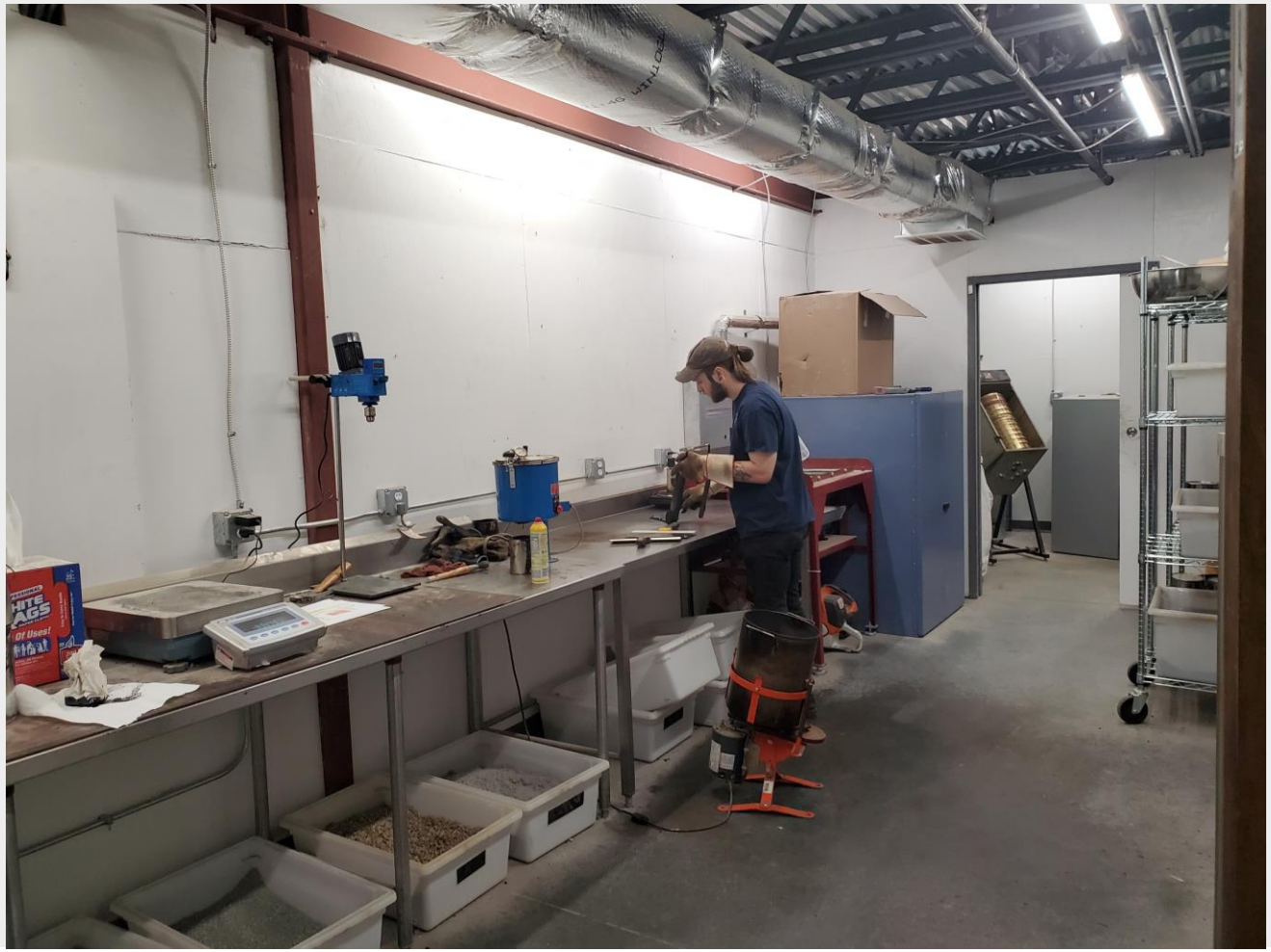
Circulating Water Bath Heater

Automatic Aggregate Washer

Mechanical methods for washing a sample can reduce variability and improve efficiency.

Clean Well-Organized Lab



The best chance for good/consistent results!

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Summary of Findings

VAAES
SUMMARY OF LAB REVIEW FINDINGS
DUDLEY PAVING CORP.
Review Date November 17, 2022

Lab Location: Mobile Laboratory
Homeless, VA 22222

Lab Staff: Mike Dudley | Stephine Dudley

VAAES Reviewer: David Lee

Per the VAAES Lab Review, the following items were found to be deficient for a **Mix Design Lab**:

1. Water Bath Station – AASHTO T 166
   - Requires the wire suspending the container be the smallest practical size, and only the wire may break the water surface.
   - Bath temperature must be 77 ± 1.8°F, need to replace heater and include a circulator.
2. Gradation – AASHTO T 30
   - Requires shaker time be calibrated annually
3. Unit Weight for VCA_{DRC} – AASHTO T 19
   - Requires the measure be calibrated annually
4. Uncompacted Void Content of Fine Aggregate / FAA – AASHTO T 304
   - Need spatula with flat end
   - Measure needs to be calibrated
5. AASHTO R 18 covers the maximum interval between calibrations of some lab equipment:
   - Ovens
   - Thermometers
   - Pycnometers
   - Test Press for TSR

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VAAES ASPHALT LAB REVIEW CERTIFICATE

This is to certify that

Dudley Paving Corp

Laboratory located at

Homeless, VA.

has been reviewed for laboratory equipment and testing procedures on

November 17, 2022

provided by Virginia Asphalt Association Education Services, LLC

VIRGINIA ASPHALT ASSOCIATION

Trenton M. Clark
President, VAA

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Questions

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