



Proposed Amendments to Enhanced Vapor Recovery Regulations

Public Workshop

May 5, 2020

Sacramento, CA via Remote Access

On-Line Access to Workshop

- This workshop is only available via remote access
- Listen Only Conference Line:
Phone: 844-767-5679 Pass Code: 9633952
- Register for the [Webinar](#) to obtain link
- E-mail questions and comments regarding the presentation to: vapor@arb.ca.gov
- Presentation is available at the [Workshop Webpage](#)

Goals for Workshop

- Discuss proposed regulatory amendments
 - Address overpressure alarm issue
 - Certification procedure changes to preserve emission reductions and improve clarity, flexibility, and enforceability
- Obtain feedback to improve the proposed amendments before presenting them to the Board in November 2020

Presentation Includes 5 Sections

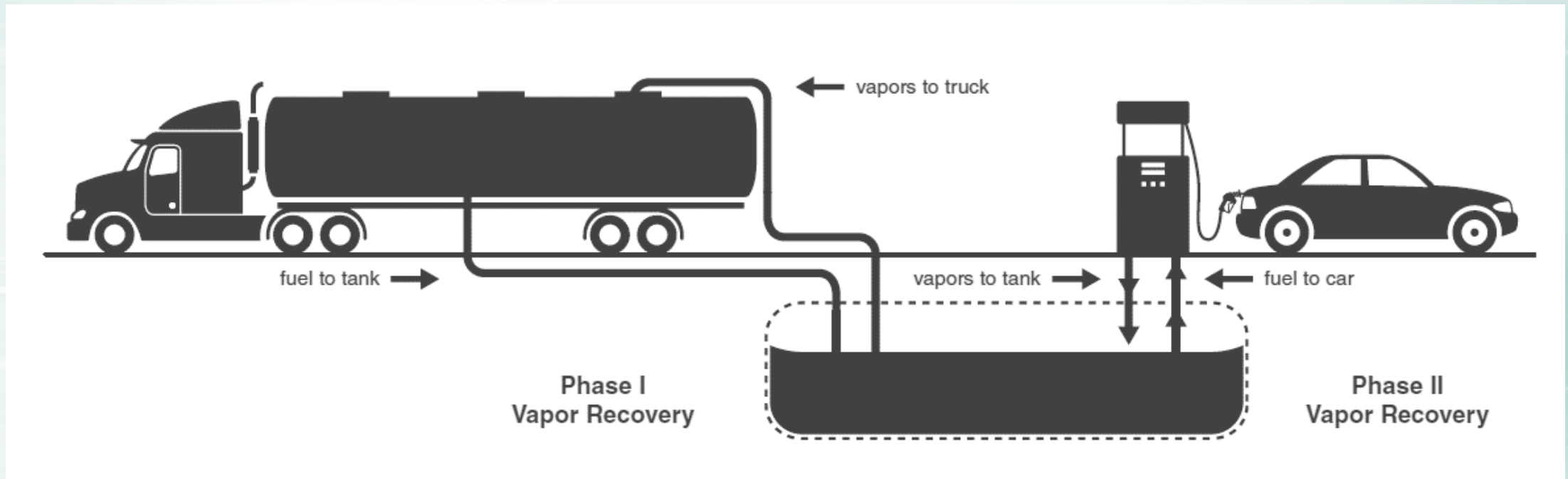
1. Vapor recovery background
2. Change in-station diagnostic (ISD) software to eliminate overpressure alarms
3. Adopt more stringent nozzle spillage standard
4. Change certification procedures to improve clarity, flexibility and enforceability
5. Next steps

Section 1

Vapor Recovery Background

Vapor Recovery Program Statistics

- ~10,000 gasoline dispensing facilities (GDFs) with underground storage tanks and Phase I and II Vapor Recovery
- ~15.5 billion gallons of gasoline consumed in 2018



Vapor Recovery Program Statistics

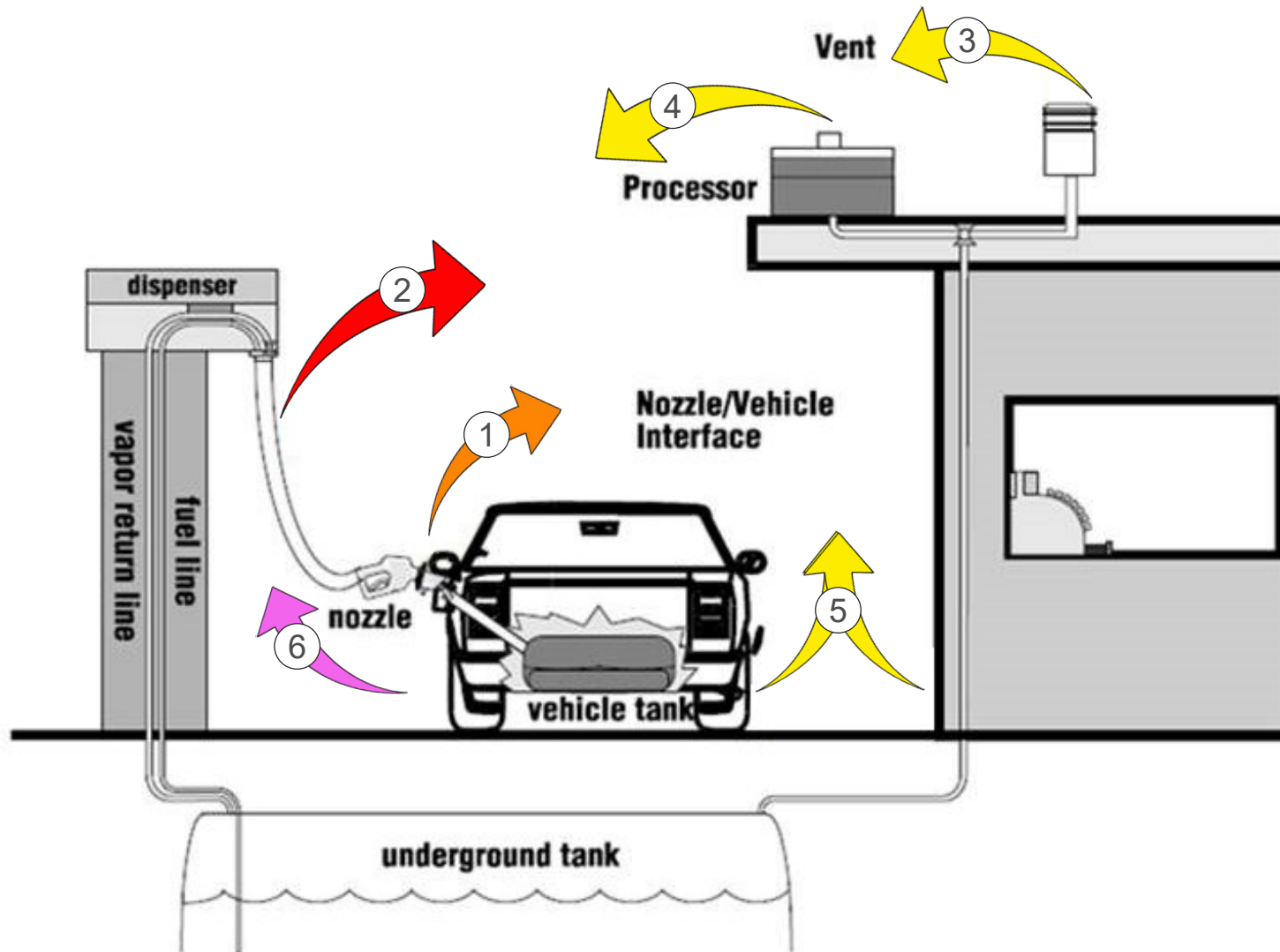
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- 89% dispensed to vehicles with on-board refueling vapor recovery (ORVR) – ORVR & Phase II vapor recovery control ~158 tons/day
- 11% dispensed to vehicles without ORVR - Phase II vapor recovery controls ~19 tons/day
- The entire program Controls ~358 tons per day of Volatile Organic Compounds (VOC) at Gasoline Dispensing Facilities

In-Station-Diagnostics (ISD)

- Approximately 7,400 GDF are equipped with In-Station Diagnostic (ISD) systems
- Purpose of ISD is to alert operators of potential equipment problems so they can initiate timely repairs
- ISD nozzle collection alarms and leak alarms have proven very effective at identifying equipment defects
- CARB studies indicate that 95% of OP alarms are not caused by a repairable equipment defect

GDF Emission Sources



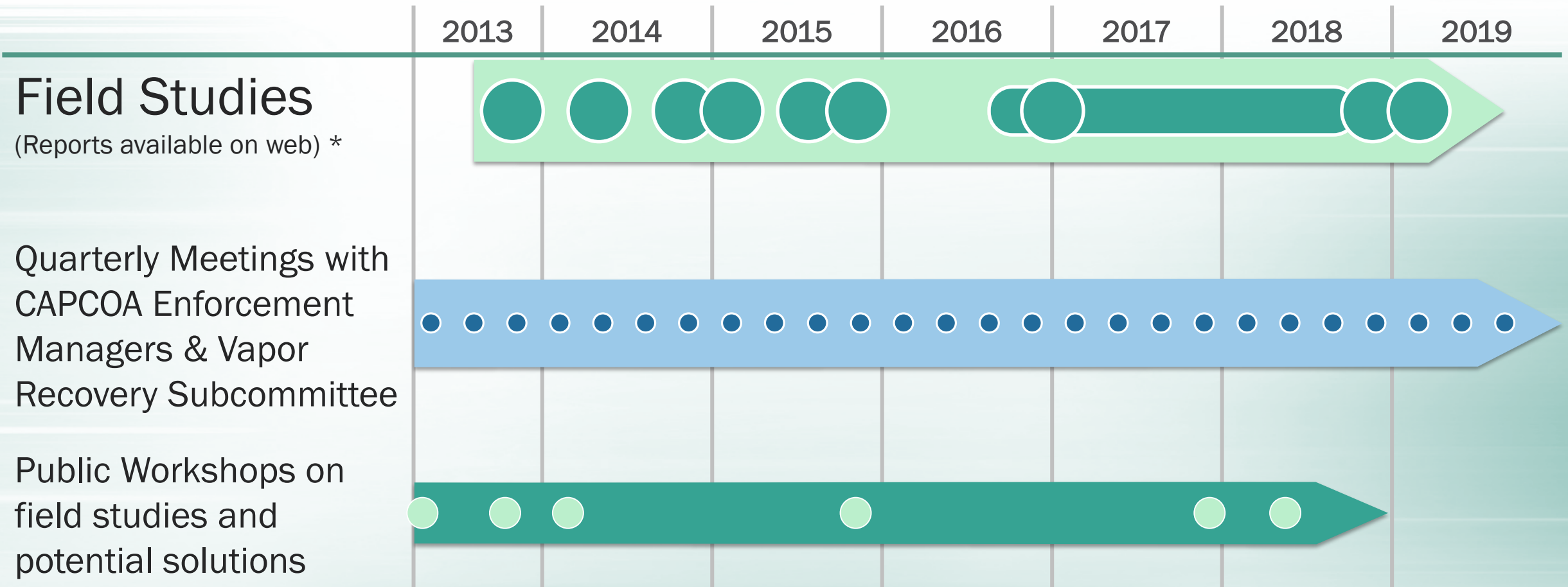
Emission Point

1. Vehicle Fueling
2. Hose Permeation
3. Vent Line
4. Vapor Processor
5. Pressure Driven Fugitives
6. Nozzle Spillage
7. Bulk Fuel Deliveries (not shown)

Section 2

Changes to In-Station Diagnostic (ISD) Software to Eliminate Overpressure Alarms

Collaborative Study of ISD OP Alarms & Pressure Driven Emissions (PDE)

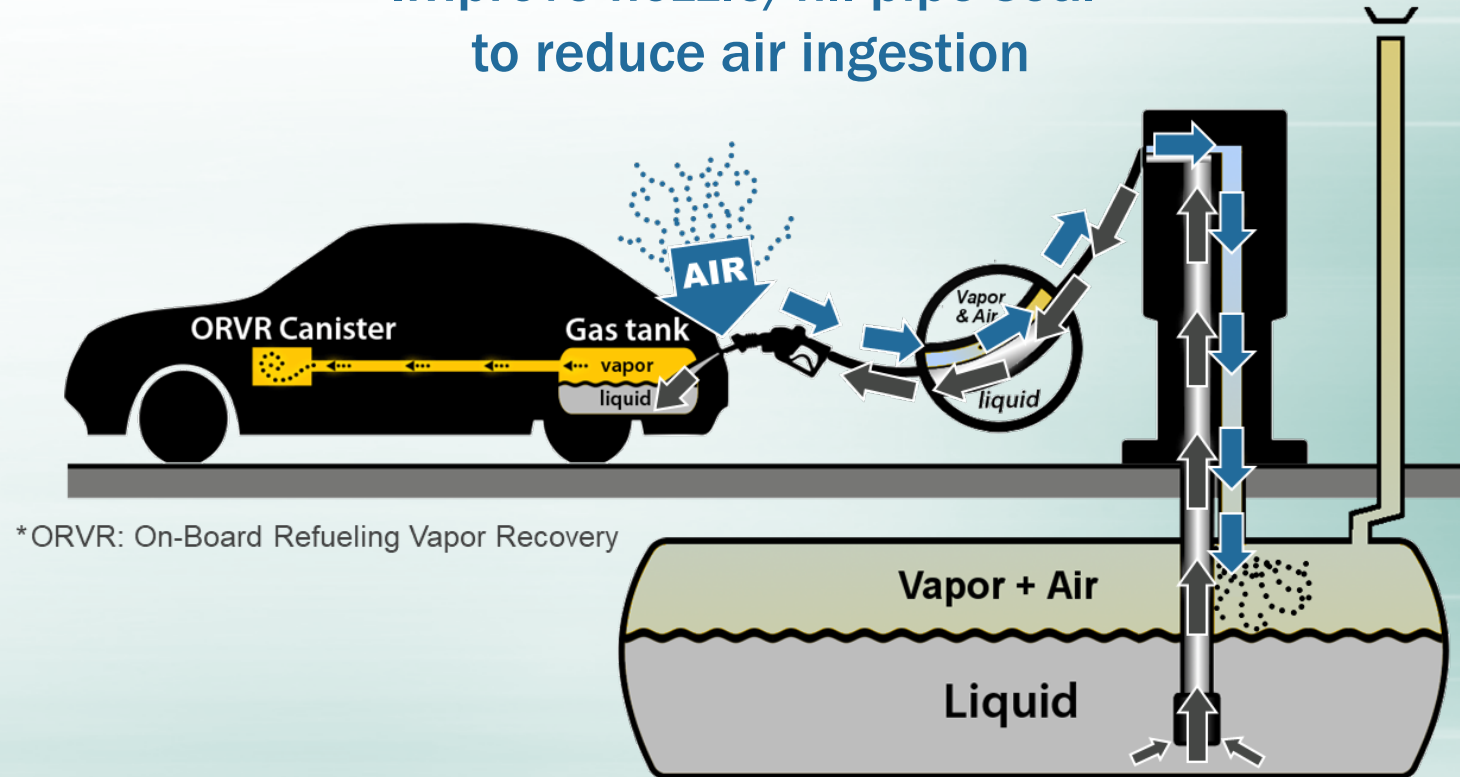


* <https://ww2.arb.ca.gov/resources/documents/overpressure-studies-and-technical-support-documents>

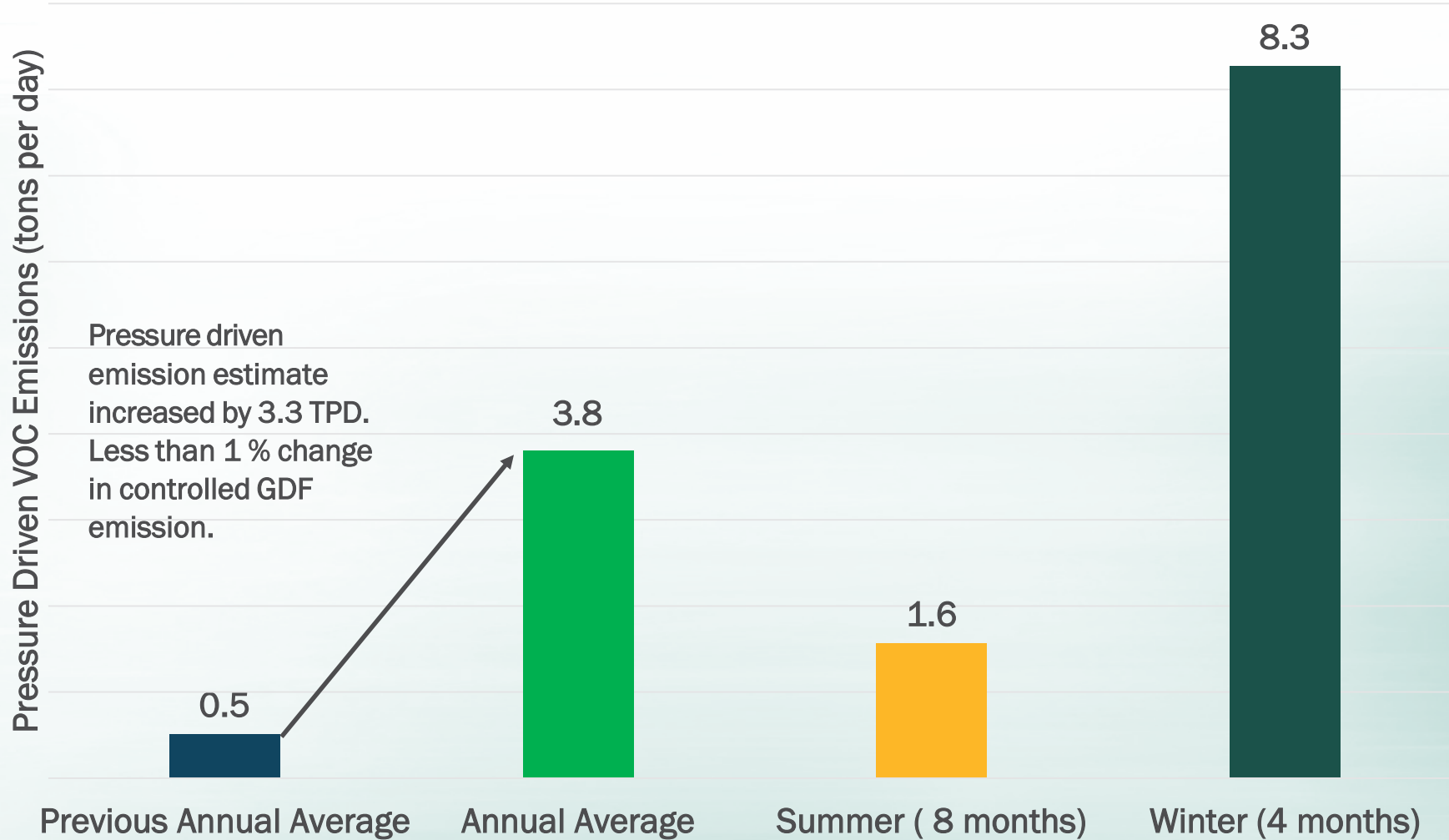
What Causes Overpressure?

- Primary:
 - High Reid Vapor Pressure (RVP) of winter blend gasoline
 - Excess air ingestion during ORVR vehicle fueling
- Secondary:
 - Related to site specific design and operating parameters

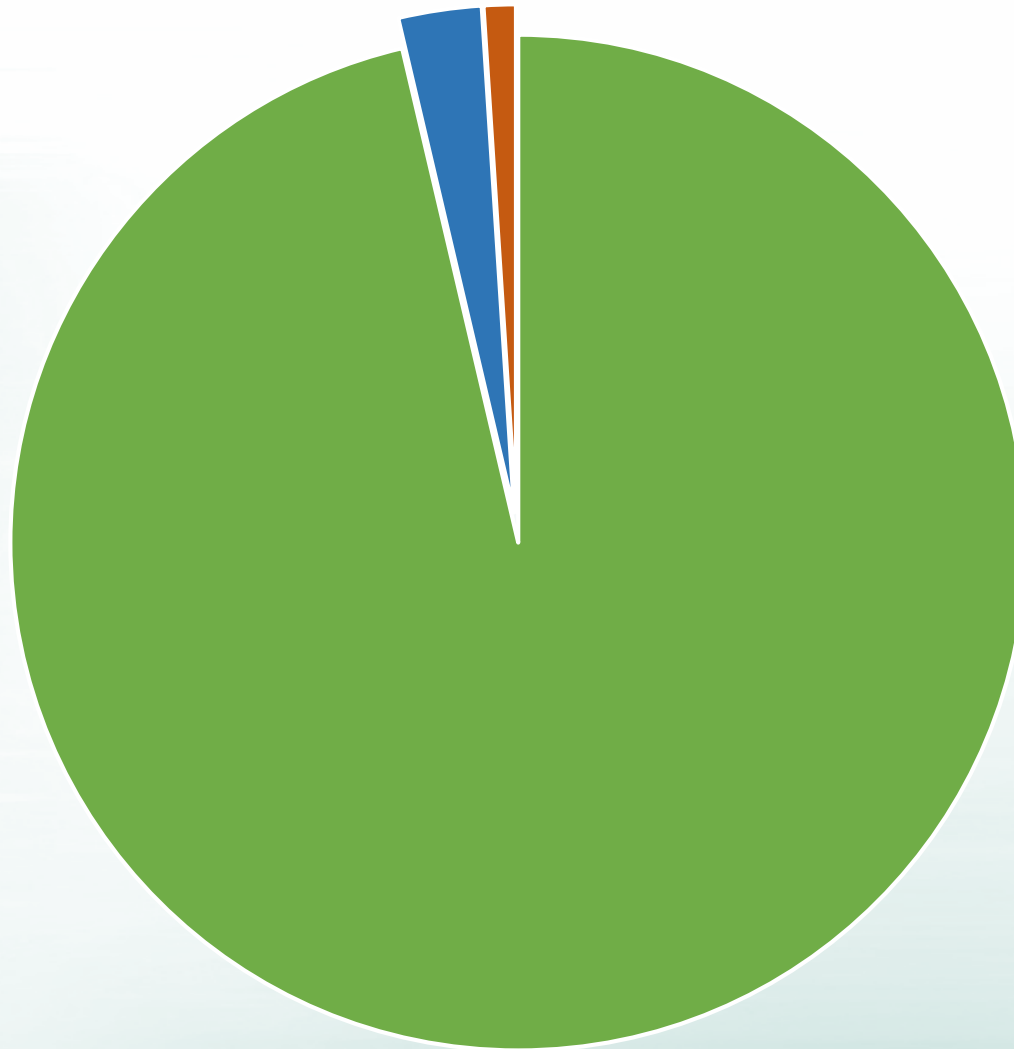
2018-19 Regulatory Amendments:
Improve nozzle/fill pipe seal
to reduce air ingestion



Revised Pressure Driven Emission Estimate



CARB Requirements Control 96% of GDF Emissions



- 357.9 TPD = GDF Emissions Controlled by CARB Requirements
- 9.8 TPD = Non-PDE lost to the Environment
- 3.8 TPD = PDE Lost to the Environment

$$357.9 / 371.5 = 96.3 \%$$

Minimal Impact on Efforts to Attain Ozone Standards

Statewide

Comparison to emissions controlled by Vapor Recovery Program

- PDE do not impact the effectiveness of the statewide vapor recovery program

Regional

Comparison to reduction commitments in ozone attainment plans

- PDE do not impact ozone standard attainment demonstrations for Nonattainment Areas

Local

Comparison to County/Air District project-level thresholds of significance

- PDE will not result in a local or cumulatively significant net increase in ozone

Possible Alternatives for Reducing ISD OP Alarm Frequency

CARB staff's recommended alternative:

1. **Voluntary ISD Software Upgrade:** Turn off ISD OP alarm (lowest cost option, savings for some GDFs, does not attempt to reduce emissions)

Other alternatives considered and dismissed due to cost:

2. **ISD Software & PV Vent Valve Upgrade:** Require GDFs to install upgraded PV vent valve and updated ISD software that uses a site specific "Pressure Driven Emission Factor" rather than "Time at Pressure" for alarm assessment criteria
3. **Vapor Recovery Equipment Upgrade:** Retain current ISD system, require higher capacity vapor processors at all GDFs
4. **Fuel Reformulation:** Limit RVP of Winter Gasoline



CARB Staff's Recommendation

Current ISD Software	Voluntary ISD Software Upgrade
<ul style="list-style-type: none">• ISD OP Alarm occurs when time at pressure exceeds weekly or monthly criteria	<ul style="list-style-type: none">• Eliminate all ISD OP alarms year-round• Increase data storage to improve assessment of PDE by CARB and District staff.<ul style="list-style-type: none">• Two weeks of raw pressure and ullage data• UST ullage pressure data report

Implementation of ISD Upgrade

Applicability	Implementation Strategy
Existing GDFs	<ul style="list-style-type: none">• Voluntary ISD software upgrade based on GDF assessment of savings achieved by eliminating alarm response[^]• Existing ISD allowed for remainder of “useful life”
New GDFs & Major Mods	<ul style="list-style-type: none">• Newest ISD software addressing overpressure will be required• No incremental increase compared to cost of current software.
All GDFs	<ul style="list-style-type: none">• Rescind <u>Advisory 405</u>*

[^] About half of GDFs may not decide to install voluntary upgrade software because they experience few or no OP alarms

* Advisory 405 allows GDF operator to self-clear winter season ISD overpressure alarms.

Potential Costs and Savings

ISD software upgrade to remove OP alarms
and improve pressure information

For GDFs that chose to upgrade ISD software:

- Costs: Software, permitting, installation
 - ~\$1,400 to \$4,900 per GDF, averaging
~\$3,500 per GDF
- Savings: No more overpressure alarm responses for ~4,000 GDFs
 - ~\$11,000 to \$160,000 net savings per GDF over 10 years by avoiding 2 to 22 OP alarm responses per year

Benefits of CARB Staff Recommendation

Eliminates ISD alarms that do not reduce emissions

Provides flexibility for existing GDFs

No new hardware

Could reduce alarm response costs for ~3,800 GDFs

Reduces complacency toward other ISD alarms

Section 3

Adopt More Stringent Nozzle Spillage Standard

Nozzle Spillage

Definition from D-200 of Vapor Recovery Certification Procedures

Spillage is liquid which enters the environment from a dispensing facility, except for liquid which leaves such dispensing facility in a vehicle tank or cargo tank ...

Performance Testing

CARB Test Procedure TP-201.2C - Spillage from Phase II Systems



All Certified Nozzles Outperform Current Standards

Proposal

- Reduce performance standard to 0.05 pounds per 1,000 gallons dispensed (lbs/kgal) from 0.24 lbs/kgal in CP-201 and CP-206, and 0.12 lbs/kgal in CP-207.
- Change in emission factor would reduce estimated spillage emission ~ 4 tons/day

Benefits

- All currently certified nozzles demonstrated compliance with 0.05 lbs/kgal
- Requires no action by station operators, no retrofits needed, administrative cost to nozzle manufacturers is minor

Section 4

Changes to Certification Procedures to Improve Clarity, Flexibility, and Enforceability

Other Proposed Amendments to Certification & Test Procedures

- Revise ISD remote access port requirement (CP-201, 9.1.3) to provide design flexibility
- Samples of certified vapor recovery components will be archived by CARB to document design and materials
- Amend test procedures TP-201.1C and TP-201.1D to address Phase I remote fill drop tube

Remote Fill Drop Tube

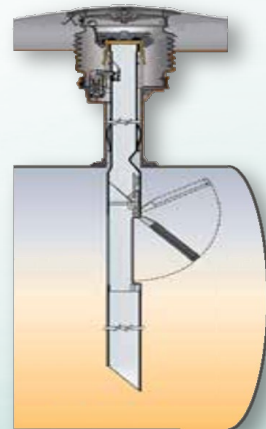
Definition: Phase I product and/or vapor return pathways are offset horizontally from the vertical product and vapor risers installed on the underground storage tank.

Benefit: Allow cargo tankers to drop fuel into the storage tanks from an alternate location without disrupting customer traffic flow and vehicle dispensing operations.

Issue: Remote fill configurations failed to comply with the 5 minute maximum time allowed to pressurize the drop tube

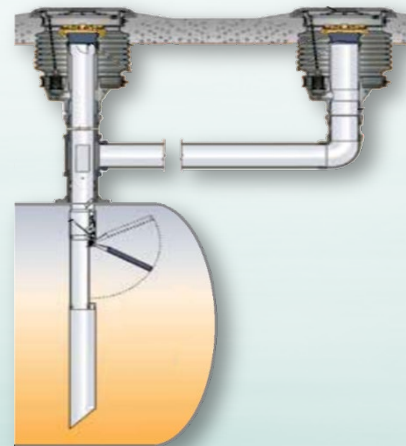
Proposed Change: Revise TP-201.1C and TP-201.1D to specify maximum time to pressurize based on pipe diameter and length

Direct Fill Configuration



VS

Remote Fill Configuration



Other Proposed Amendments to Certification & Test Procedures

(continued)

- Add definitions for nozzle bellows and calibration holes to CARB D-200
- Specify ISD report formatting requirements
- Clarify "existing installation date" regarding Phase II EVR for ASTs in CP-206
- Define the operative and effective dates in CP-207 for recently certified ECO nozzles
- Clarify distinction between performance standards and performance specifications
- Incorporate nozzle dimensions by reference to SAE J285 and J1140
- Correct various typos

Section 5

Next Steps

Proposed Implementation Timeline

CARB Board Hearing:
November 2020

- Rulemaking to:
- (1) Remove ISD OP alarm from CPs & TPs
 - (2) Lower spillage standard
 - (3) Other useful changes

~2022

CARB certifies first ISD software that turns off OP alarms

2023-28

CARB in-use monitoring to assess OP trends

~2026

Rescind Advisory 405

Next Steps

- Consider public comments on preliminary draft regulatory language and draft technical support documents now available on the CARB website

Please submit comments to vapor@arb.ca.gov on or before May 20, 2020.

- Revise proposal and analyses as needed
- Complete “Initial Statement of Reasons” staff report with detailed analyses of potential costs and environmental impacts

Key Dates in Regulatory Process

- October 2, 2020 – Release Initial Statement of Reasons and proposed regulatory amendments for public review
- Oct. 2 – Nov. 16, 2020: 45-day Public Comment Period
- November 19-20, 2020: Board Hearing
- Dec. 2020 – Mar. 2021: Public review of any additional changes directed by the Board
- No later than October 2021: Review and approval by Office of Administrative Law

Proposed Amendments to Enhanced Vapor Recovery Regulations

End of Presentation

