

FLASHPOINT

Special points of interest:

- * Pay your 2019-2020 dues!
- * Spring Seminar & Tradeshow Information
- * 2020 Events Calendar

UPCOMING MEETING INFORMATION:

Date: Tuesday, January 28, 2020

Place: Maggiano's Little Italy
205 Mall Blvd, King of Prussia, PA 19406

5:00 PM: Cocktail hour (Cash Bar)

Dinner to follow

Program: Joint meeting of the AFSA Schuylkill Chapter, NFSA PenJerDel Chapter, and SFPE Philadelphia Delaware Valley. We will be joined by leaders of the three organizations for discussion on what is happening in each of the organizations nationally, as well as locally.

Dinner will be provided

Cost: \$50.00 (members); \$55.00 (non-members)

Inside this issue:

President's Spark	2
Diesel Engine Pressure Limiting Driver Control	3
Spring Seminar & Tradeshow Information	6
Free Training	7
Calendar	8
Upcoming Events	8

INFORMATION AT:

<https://mailchi.mp/77650975b76a/january-2018-meeting-announcement-4762097>

RSVP:

RSVP to AFSA SC Executive Director Ilyse Shapiro at executivedirector@afsasc.org

Officers for 2019-2020

The new officers elected at the May business meeting are as follows:

President: Steve Oliver

1st Vice President: Jack Fairchild

2nd Vice President: Ryan Schartel

Secretary: Tim Murray

Asst. Secretary: Phil Kerschner

Treasurer: John Spitz

Directors 2019-2021: Frank Ellis, Josh Popek

Directors 2018-2020: Jay Stough, Ben Young

President's Spark by Steve Oliver, PE, MBA

Under Pressure

FLASHPOINT

"The purpose of FLASHPOINT is to provide a forum for the transfer of information between members of the Philadelphia-Delaware Valley Chapter of the Society of Fire Protection Engineers (SFPE) and to give the Chapter visibility."

Newsletter/Publicity Committee:

Tim Murray

Information for publication can be submitted to:

dvsfpe@gmail.com

This Newsletter is published 9 or 10 times/year (September through June) and received as part of membership of the Chapter. Membership Dues are \$30.00 collected annually in the Fall of the Year.

Visit our web site at:

www.sfpephiladelphia.org

Articles written are the views of the Author and not necessarily those of the Philadelphia-Delaware Valley Chapter of SFPE. ♦

Waterflow flow and pressure is a very important subject during the initial design stages of any fire sprinkler project. Recently, I was faced with a new building design and determining the general design of the system to meet code required parameters. The building will be 6 stories high and the local code required 100 psi of water pressure at the highest fire hose valve off a combination sprinkler/standpipe. Based on the public water supply available, a fire pump is needed, and there will be a high-pressure condition at the discharge of the fire pump (over 175 psi). So, what is the best way to achieve a code compliant system with high pressure at the discharge of the fire pump? Options for this included:

- 1) Installing Pressure Reducing Valves at each of the floor control valves for floors with pressure over 175psi. This method would also necessitate a 3" drain for testing of PRVs.
 - a. Challenges; Added maintenance of testing PRVs.
- 2) Installing one Pressure Reducing Valve in the fire pump room for floors with pressure over 175psi. Also installing an express main (without PRV) that would feed the upper floors of the building.
 - a. Challenges; Main pipe is duplicated (two runs), which could cause space issues.
- 3) Utilizing high pressure fittings and sprinkler heads on the high-pressure floors.
 - a. Challenges; Dry Pendent and sidewall heads are not offered in a high-pressure variant.
 - b. Option; Some manufacturers have Pressure Deluge Valves that are combination PRV/Deluge valve.
 - c. High pressure fittings may not be recognized by the owner's insurance provider.
- 4) Modify the output of the fire pump with:
 - a. Diesel Engine Pressure Limiting Device (PLD)
 - i. *To get some additional input on this option, I asked Kate Lawler of Equipment Engineers to provide some information. See following article.*
 - b. Electric Pump Variable Speed Controller (VFD)

Each option has its own pros and cons. In this case we were looking for the most cost-effective solution to meet the code requirements. Amongst our design team, we thought that #4 would provide the simplest solution if the constraints could be met. In another job with similar challenge that we completed recently, we went with Option #1 because dry sprinkler heads were required on the 1st floor.

Note: January's meeting is the joint meeting with NFSA and AFSA! Please note, it is not on the 2nd Tuesday. It is to be held Tuesday January 28th at Maggiano's in King of Prussia. A link is provided for sign up and payment information on page 1. Hope to see you there!

-Steve

Equipment

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Fire Pump Systems with Speed Controls: Diesel Engine with Pressure Limiting Driver (PLD) Control

A Pressure Limiting Driver (PLD) on a diesel engine operates as a speed control system. A PLD may operate on the suction, discharge, or both suction and discharge of the fire pump. Here I will be using Clarke engines for fire pump service as an example.

A dedicated sense line to the PLD connector block from discharge side of the pump allows the engine to monitor the system pressure, and adjust the engine RPM to maintain a predetermined set point for minimum suction in the case of suction control models, or maximum discharge in the case of discharge control models. The set points are factory set and are not field adjustable.

For suction control, the PLD ranges from 5-30 PSI, and from 100-350 PSI for the discharge control. The minimum RPM the engine can sustain is 1300 RPM, so applications with PLD engines must be verified with the manufacturer that the engine will be able to operate within these limitations, given the conditions at the installation site. PLD engines have a range of rated engine speeds, depending on the pump that they are paired with.

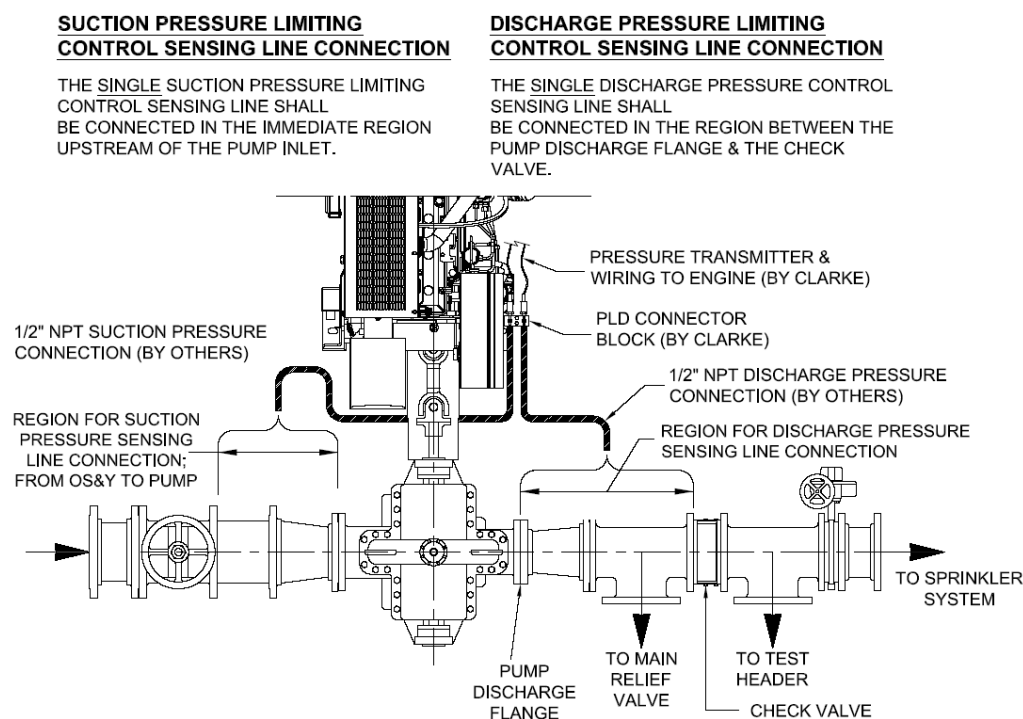


DIAGRAM PER CLARKE

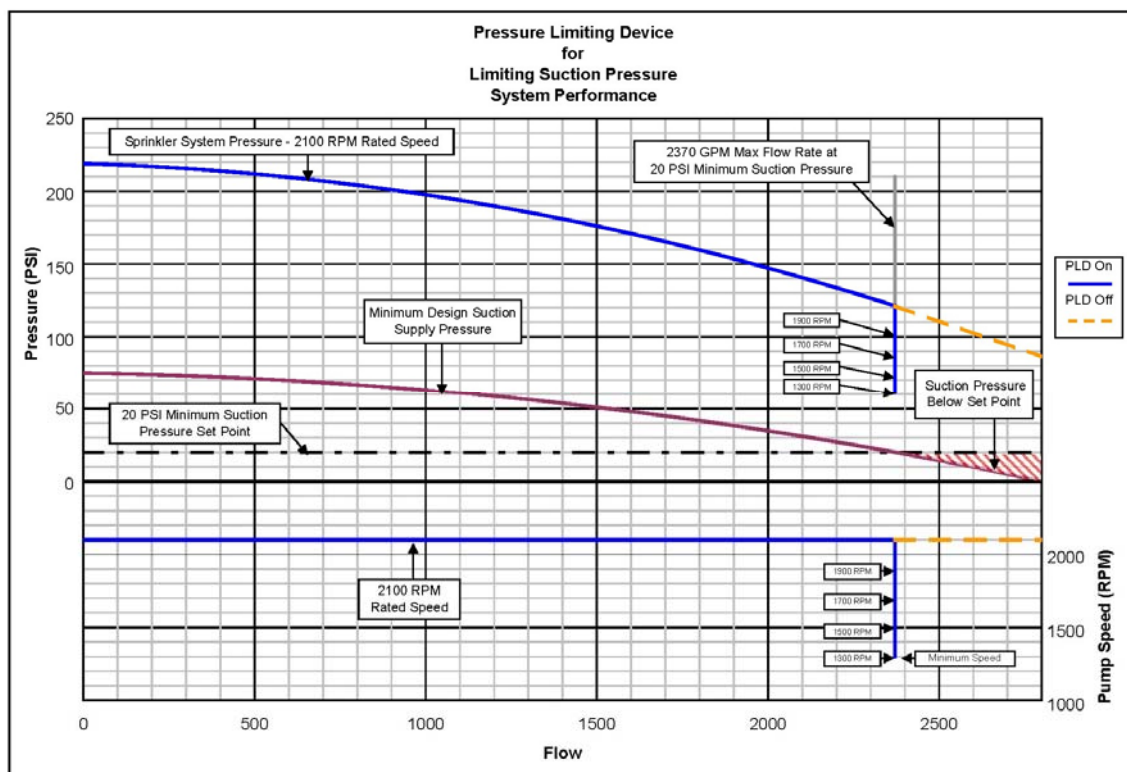
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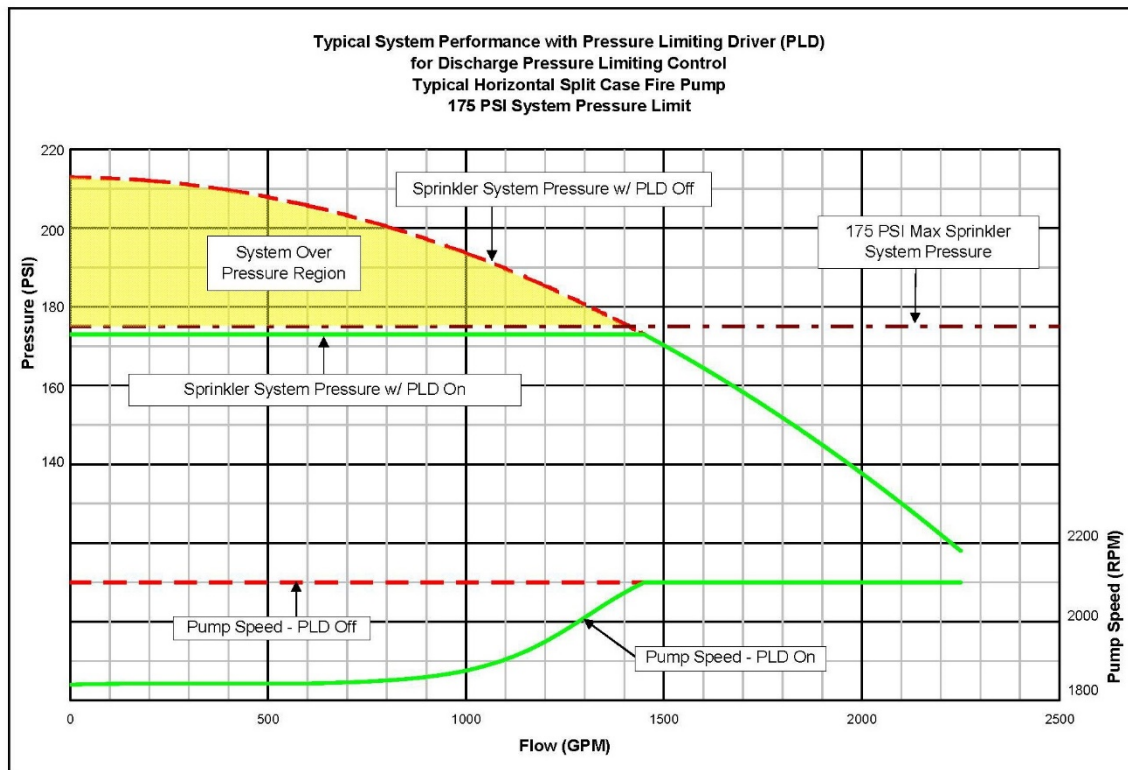
In fire protection systems, the suction PLD models may replace a low suction control valve, depending on the requirements of the local jurisdiction. This also does not shut the engine down while it is running, and if the PLD fails while it is running, the engine will return to rated speed under the standard engine governor.

In the case where the minimum suction pressure cannot be maintained a signal goes to the fire pump control as well.



As with all fire pump systems, it is imperative that alarms from the engine are monitored by the building alarm system. If the suction pressure goes below the set-points, there is a possibility that the pump will run with insufficient water. Since the pump and engine are both cooled through the engine cooling loop, inadequate water will risk overheating the engine, as well as cavitating the fire pump.

For the discharge PLD models, the discharge pressure maximum is typically set around 170 PSI for sprinkler systems. By controlling the system discharge pressure, PRVs can be eliminated. A main relief valve is required. While the pump discharge pressure at rated speed is above the set-point, the engine will control the RPM to keep the system below the set-point.



GRAPH
DIAGRAM PER CLARKE

One concern to be addressed during the design of the job is the potential failure of a discharge control PLD. Although unlikely, it is possible that the PLD will fail to control the engine RPM properly and will run at rated speed. Although under operational PLD conditions, a system designed for 170 PSI max from the fire pump would not require high-pressure rated flanges and fittings, if the PLD control is lost the churn of the pump will be well above the set-point.

Clarke recommends field acceptance testing the pump and engine with the PLD disengaged to verify the pump performance to the factory curve. However, we prefer to test with the PLD engaged, as it will be on a regular basis. The observed points can be mathematically adjusted for the difference in RPM from the rated speed, which allows us to verify the system *as a whole*.

A field acceptance test is verifying the installation of the pump and other equipment is correct, and that the water supply is adequate. The performance of the pump is the factory test curve, and in a new installation it is redundant to test the pump as the factory did.



Spring Seminar & Trade Show April 16, 2020



New Location:
Sheraton—Valley Forge
480 North Gulph Road
King of Prussia, PA 19406

The Spring Seminar and Trade Show Committee is excited to announce that the Keynote Speaker at our 2020 seminar will be Stephen Kerber of UL with his topic “The Evolution of the Residential Fire Environment”

The committee is busy filling the slate with many other presenters with topics that are key to our field / industry today.

The vendor registration is now up and ready for those interested in exhibiting to sign up to join us. We welcome the vendors from past years to join us again in 2020 along with any new vendors who would like to exhibit their products.

*For more information on exhibiting please contact Dave Winder at:
dwinder@suppressionsystems.com or use the link below.*

www.eventbrite.com/e/2020-vendor-registraton-sfpe-pdv-spring-seminar-and-trade-show-tickets-81603080009

Free Training Offered by NFSA

NFSA PenJerDel Chapter Training

2020 Free Educational Training Program - Learn from the Professionals!

The PenJerDel Chapter of the NFSA is pleased to announce the training schedule for 2020. Attendees will receive 6.5 CEU's awarded through the Montgomery County Fire Academy. These **free** programs will include a continental breakfast, lunch, and hand-outs. Space is limited, and we expect these classes to fill-up quickly.

Breakfast is at 8:00 am and class begins at 8:30 am.

For more information or to sign up, there are several options available:

Visit our website: <https://njfsab.org/training-penjerdel-chapter/>

Call our office: 866.226.6006

E-mail Frank Ellis: Ellis@nfsa.org

Standpipe Systems for Fire Protection

Thursday, March 19th, 2020

Coordinating NFPA 25 & 72 Inspection, Testing and Maintenance Requirements

Thursday, May 14th, 2020

NFPA 13, 14, and 20 2016 Edition Update

Thursday, December 17th, 2020

Location of Events:

Montgomery County Fire Academy

1175 Conshohocken Road

Conshohocken, PA 19428

NO SHOW POLICY: Attendees are asked to provide at least 72 hours' notice if they are unable to attend a class that they have registered for. Failure to comply with this policy may result in the attendee being placed on the waiting list for future classes.

January 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15 ASCET Delaware Chap- ter Meeting	16	17	18 Future Cities Competition
19	20	21 ASCET Berks Chapter Meeting	22	23	24	25
26	27	28 JOINT AFSA/NFSA/ SFPE MEETING	29	30	31	

UPCOMING PHILADELPHIA-DELAWARE VALLEY SFPE MEETINGS AND EVENTS:				
Date	Meeting Type	Event	Location	Time
1/18/2019	Community Outreach	Future Cities Competition	Radnor, PA	TBD
1/28/2020	Joint Meeting	Joint AFSA/NFSA/SFPE Meeting	Maggiano's King of Prussia	5:00 PM
2/11/2020	Monthly Meeting	Explosion Venting presented by Explovent	Jacobs Engineering; Conshohocken, PA	5:30 PM
3/10/2020	Monthly Meeting	SFPE National presented by Victoria Valentine	Oliver Fire Protection; & Security; King of Prussia, PA	5:30 PM
4/16/2020	Spring Seminar & Tradeshow	Spring Seminar & Tradeshow	Sheraton Valley Forge	All Day



Philadelphia-Delaware Valley SFPE

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Mission Statement

The Philadelphia/Delaware Valley Chapter purpose is to advance the art and science of fire protection engineering and its allied fields, for the reduction of life and property losses from fire, to maintain high ethical standards on engineering among its members and to foster fire protection education.

Recognition of fire protection engineering as a discrete engineering discipline is a prime goal. Engineering disciplines exist because there is a special body of knowledge based on the fundamentals of mathematics, physics, chemistry, engineering science and economics.

The chapter strives to facilitate sharing of sound engineering experiences and knowledge between its members and the fire protection community in general with an active program of education and scholarship activities.



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