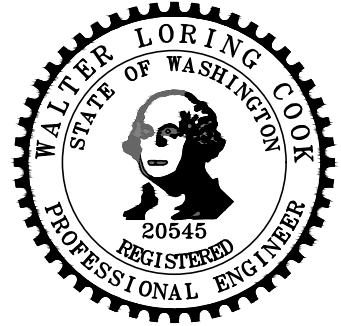


**ATTACHMENT 19 - Maple Valley Fire Protection Plan,
Water Environment Resources, Inc.**

**LAKESIDE INDUSTRIES
MAPLE VALLEY ASPHALT PLANT
FIRE PROTECTION**

Summary of Fire Protection - Water Requirements



General

This report presents the determination of minimum fire flow and water storage. The 2015 WA Fire Code is the primary reference. Appendix B Section 103.3 provide guidance for suburban and rural area where adequate and reliable water supply is not available. The 2015 IFC references the NFPA 1142 method of determining fire protection water requirements.

See attached Figure for proposed location of tank, pump and hydrants.

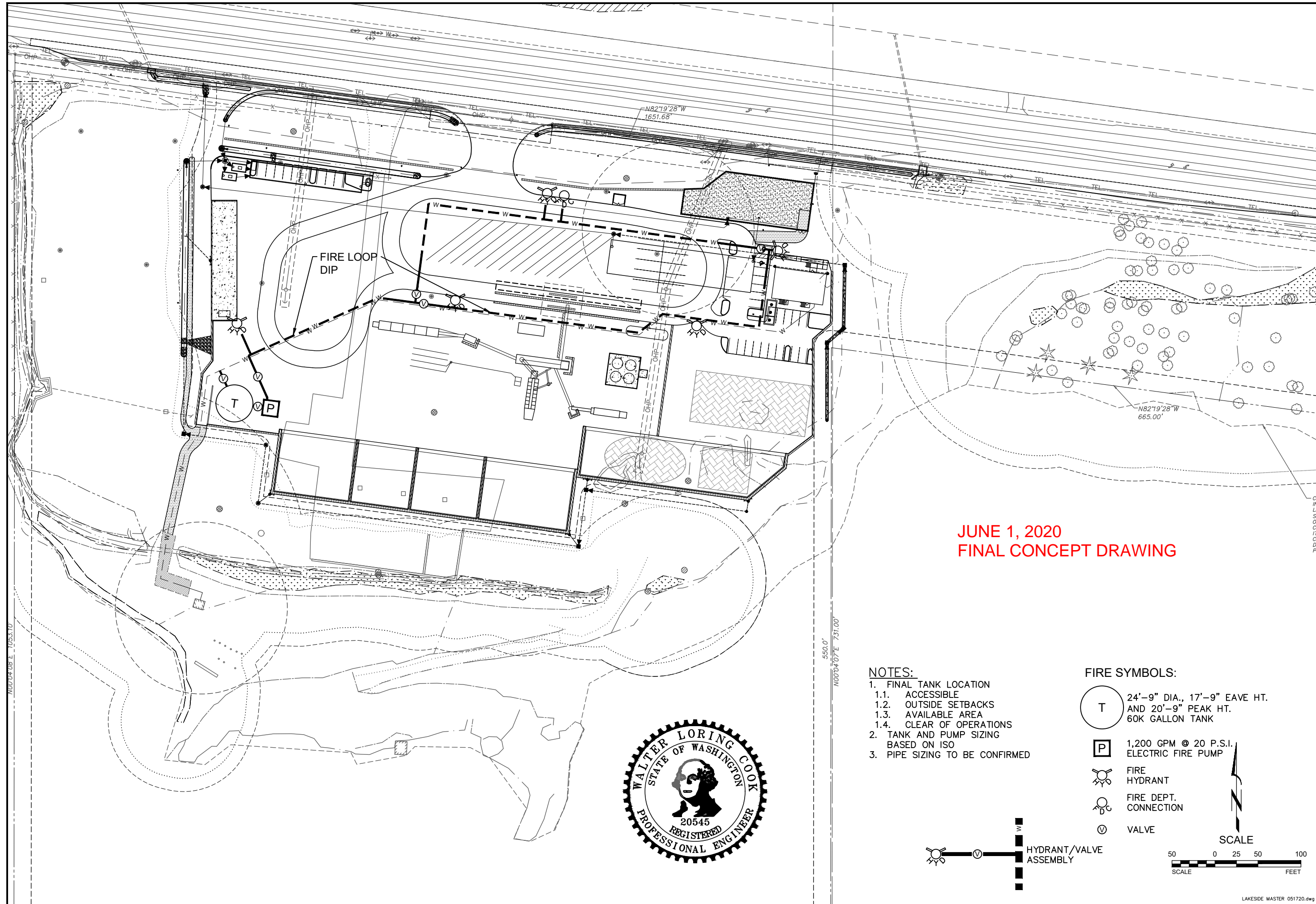
Hydrant Flow Requirements

NFPA 1142 Minimum Water Volume (Wvol)

**Minimum Fire Flow = 1,000 GPM
For 1,000 gpm duration is 60 min.**

NFPA 1142 Table 4.6.1

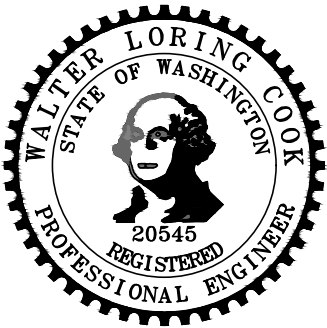
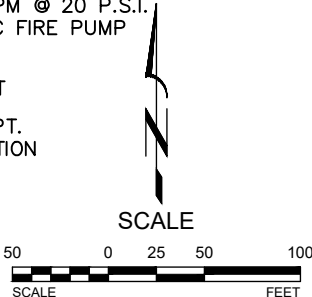
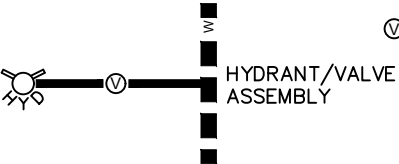
REQUIRED TANK SIZE = 60,000 GALLONS



JUNE 1, 2020
FINAL CONCEPT DRAWING

- NOTES:
- 1. FINAL TANK LOCATION
 - 1.1. ACCESSIBLE
 - 1.2. OUTSIDE SETBACKS
 - 1.3. AVAILABLE AREA
 - 1.4. CLEAR OF OPERATIONS
 - 2. TANK AND PUMP SIZING BASED ON ISO
 - 3. PIPE SIZING TO BE CONFIRMED

- FIRE SYMBOLS:
- T 24'-9" DIA., 17'-9" EAVE HT. AND 20'-9" PEAK HT. 60K GALLON TANK
 - P 1,200 GPM @ 20 P.S.I. ELECTRIC FIRE PUMP
 - HYDRANT FIRE HYDRANT
 - FIRE DEPT. CONNECTION FIRE DEPT. CONNECTION
 - V VALVE



LAKESIDE INDUSTRIES
MAPLE VALLEY
ASPHALT PLANT
FIRE PROTECTION CONCEPT DRAWING

Water Environment Resources Inc.
SUSTAINABLE SOLUTIONS • EXCELLENT RESULTS

13467 SW SUMMERWOOD DR.
TIGARD, OR 97223
(503) 333-3470
WALTER L. COOK P.E.

DATE 5/31/20	
SCALE: 1" = 50'	PROJ. NO.: N/A
DRAWN BY: MJJ	CHECKED BY: WLC
SHEET NO	


FIG-1
OF

Engineering

From: Erb, Ted <Ted.Erb@kingcounty.gov>
Sent: Monday, May 18, 2020 8:49 AM
To: Engineering
Cc: Karen Deal; Bill Dempsey
Subject: RE: Lakeside Fire

This is correct.


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[King County Construction Guidance](#)


Ted Erb, CFPS, CFPE, CBI, CFI-II, WACFI, CFEI
Deputy Fire Marshal
King County Department of Local Services, Permitting Division
Fire Marshal Services
35030 SE Douglas Street, Suite 210
Snoqualmie, WA 98065-9266

Engineering

From: Erb, Ted <Ted.Erb@kingcounty.gov>
Sent: Tuesday, May 26, 2020 10:16 AM
To: Engineering
Cc: Karen Deal; Bill Dempsey
Subject: RE: Tank Size and Hydrant Flow

Good morning. I spoke with the building official and we will approve and allow the duration on 1 hr. on the fire flow...


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<https://kingcounty.gov/depts/local-services/permits/fire-safety/safety-tips.aspx>

<https://homefiresprinkler.org/home-fire-sprinkler-week-2020/>

**Ted Erb**

King County
Deputy Fire Marshal

(206) 263-1972 Work
(206) 992-5830 Mobile
Ted.Erb@kingcounty.gov
www.kingcounty.gov/fire

<https://closeyourdoor.org>

<https://youtu.be/xCp4xjm1TZY>

<https://www.youtube.com/watch?v=VZhvbmQYniA>

From: Engineering <engineering@waltcook.us>

Sent: Friday, May 22, 2020 10:56 AM

To: Erb, Ted <Ted.Erb@kingcounty.gov>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: RE: Tank Size and Hydrant Flow

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Ted,

I consider an hour of supply to be a reasonable solution for this rural environment.

Walt

From: Erb, Ted <Ted.Erb@kingcounty.gov>

Sent: Friday, May 22, 2020 10:53 AM

To: Engineering <engineering@waltcook.us>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: RE: Tank Size and Hydrant Flow

I will speak to the BO/FM next week about that. I think he would as I'm supportive of that. I'm betting we could get down to an hour.

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<https://kingcounty.gov/depts/local-services/permits/fire-safety/safety-tips.aspx>



<https://closeyourdoor.org>

<https://youtu.be/xCp4xjm1TZY>

<https://www.youtube.com/watch?v=VZhvbmqYniA>

From: Engineering <engineering@waltcook.us>

Sent: Friday, May 22, 2020 10:52 AM

To: Erb, Ted <Ted.Erb@kingcounty.gov>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: RE: Tank Size and Hydrant Flow

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Ted,

Thank you for the quick response. Please note the two hour duration are for areas with “adequate and reliable” water supply. Would the Fire Officials consider s shorter duration given this is an area without “adequate and reliable” supply?

Thanks!

Walt

From: Erb, Ted <Ted.Erb@kingcounty.gov>

Sent: Friday, May 22, 2020 10:48 AM


To: Engineering <engineering@waltcook.us>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: RE: Tank Size and Hydrant Flow

Well we would allow the use of 1142 and a flow of 1000 gpm, but if it is silent to duration then the minimum in appendix “B” would be two hours


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<https://closeyourdoor.org>

<https://youtu.be/xCp4xjm1TZY>

<https://www.youtube.com/watch?v=VZhvbmqYniA>

From: Engineering <engineering@waltcook.us>

Sent: Friday, May 22, 2020 9:44 AM

To: Erb, Ted <Ted.Erb@kingcounty.gov>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: Tank Size and Hydrant Flow

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Hi Ted,

Another email about tank size and hydrant flow. Now that we've resolved that sprinklers are not required in the rock storage bins, I'd like to finalize the tank size, flow and duration.

Appendix B of the Fire Code;

Under B105 appears to require a minimum of 1,500 GPM for 2 hours in areas with **"adequate and reliable"** water supply which is not the case for Maple Valley.

NFPA 1142

In table 4.6.1 requires 1,000 GPM and is silent on the duration.

I used the 1,500 GPM rate as I recall your referenced that requirement and it's in the county ISO calculator.

I assumed 1,500 GPM for 30 minutes recommending a 45,000 gallon tank.

Flow and Duration

Actually 1,000 GPM is more consistent with NFPA 1142. The question is **what hydrant flow duration does King County require i.e. 30 min, 60 min or longer?**

We are working towards a full submittal by June 1st. The tank size is pivotal to the submittal.

Any feedback will help.

Walt

Walter L Cook PE

Water Environment Resources, Inc.

13467 SW Summerwood Dr.

Tigard, OR 97223

[503-333-3470](tel:503-333-3470)

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Email From: Ted Erb 8:14 AM 6/2/2020

Walt,

This looks good. I'm thinking we don't need the FDC because we are not sprinklered... Make sure you submit the design letter and email approval I gave to use NFPA 1142.

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<https://homefiresprinkler.org/home-fire-sprinkler-week-2020/>



<https://closeyourdoor.org>

<https://youtu.be/xCp4xjm1TZY>

<https://www.youtube.com/watch?v=VZhvbmqYniA>

From: waltlcook@gmail.com <waltlcook@gmail.com>
Sent: Monday, June 1, 2020 10:14 AM
To: Erb, Ted <Ted.Erb@kingcounty.gov>
Cc: 'Karen Deal' <Karen.Deal@lakesideindustries.com>; 'Bill Dempsey' <Bill.Dempsey@lakesideindustries.com>
Subject: Lakeside - Maple Valley - Fire Flow and Fire Plan Drawing

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Ted,

We would like to formalize our understanding of minimum fire flow, tank size and fire system layout.

I believe this iteration is based on a series of emails between us, over the late two weeks. In summary,

Minimum fire flow = 1,000 GPM for 60 min,
Tank size = 1,000 GPM x 60 min = 60,000 gallons,
Pump capacity = 1,200 GPM.

The attached information is a presentation in detail of the fire flow and tank sizing, along with the latest layout. We reviewed the hydrant locations and spacing with Mark. Once we can formalize the concept sizing included herein, we will begin to prepare construction drawings which when submitted will be subject to permit review and approval.

Regards,

Walt

Walter L Cook PE

Water Environment Resources, Inc.
13467 SW Summerwood Dr.
Tigard, OR 97223
[503-333-3470](tel:503-333-3470)



<https://closeyourdoor.org>

<https://youtu.be/xCp4xjm1TZY>

<https://www.youtube.com/watch?v=VZhvbmqYniA>

From: Engineering <engineering@waltcook.us>

Sent: Monday, May 18, 2020 6:44 AM

To: Erb, Ted <Ted.Erb@kingcounty.gov>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: RE: Lakeside Fire

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Ted,

Thank you, can I take this to mean sprinklers NOT required in the metal roof covered rock storage bins?

Walt

Walter L Cook PE

*Water Environment Resources, Inc.
13467 SW Summerwood Dr.
Tigard, OR 97223*

503-333-3470

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From: Erb, Ted <Ted.Erb@kingcounty.gov>
Sent: Monday, May 18, 2020 6:41 AM
To: Engineering <engineering@waltcook.us>
Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>
Subject: RE: Lakeside Fire

I've talked to the building Official/Fire Marshal and we will approved this approach.

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<https://closeyourdoor.org>

<https://youtu.be/xCp4xjm1TZY>

<https://www.youtube.com/watch?v=VZhvbmgYniA>

From: Engineering <engineering@waltcook.us>

Sent: Thursday, May 7, 2020 11:35 AM

To: Erb, Ted <Ted.Erb@kingcounty.gov>

Cc: Karen Deal <Karen.Deal@lakesideindustries.com>; Bill Dempsey <Bill.Dempsey@lakesideindustries.com>

Subject: Lakeside Fire

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Hi Ted,

We all were encouraged by the communication during our last visit. I'm working on the following and will forward my results,

- We discussed whether sprinklers were required in the rock storage bins with metal roof,
- The current code only mentions NFPA 1142 for rural areas. I do have you calculator based on ISO, which do you prefer?
- NFPA 1142 minimum hydrant is 1,000 GPM, Appendix B where adequate water supply is available requires 1,500 GPM,
- Flow duration of hydrants will be assumed as 30 minutes.

If you can answer any of this I'd appreciate it. I'll continue working on the report update.

Thank you,

Walt

Walter L Cook PE

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Tigard, OR 97223

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