

Guide to high-volume water delivery systems

General characteristics

- **Pump** - High-volume pumps
- **Hose** - Large diameter hose (4"-12" diameter)
- **Sprinklers** – Irrigation or forestry type

Use cases

- Move large volumes of water over long distances
- Filling relay/storage tanks
- Peat fires
- Log-deck protection
- Interface fires
- Infrastructure protection

Considerations for use

The incident is going to dictate how you use these systems. A site visit and deployment plan prior to actually deploying will encourage effective use of equipment.

Some considerations are:

- **Site access** – Suitable for use only when good road access is available. Equipment size and weight limit mobility in forested area.
- **Soft ground / muskeg** – Equipment setup requires ATVs or skid-steers. Soft ground can limit access for equipment setup.
- **Water source** – Systems require large water volume for continuous use.
- **Pump site** – Requires very stable, flat pump site very close to water.
- **Staging footprint** – Large staging area required to host flat-bed trucks, large pumps, hose reels, etc.
- **Rig mats** – May be required during setup and operations. Repeated travel using tracked vehicles can damage ground.
- **Water pressure** – Pumps are generally volume pumps. Pressure output will be lower than Mark-III at times.
- **Elevation change** – Can pose issues since pumps are designed for volume and not pressure.
- **Compatibility with forestry sprinklers** – Depending on system configuration, regular 1-1/2" hose may not be able to tap into line.
- **Re-deployment** – Often slow to tear-down, mobilize, and re-deploy in new location.



Figure 1. Tracked skid steers damaged soft ground. Rig mats were required thereafter.



Figure 2. Large water source required. Pump site requires stable ground. Pump needs to be close to the water.



Figure 3. Large staging area required for equipment.

Performance estimates

Measure	4-inch system	12-inch system
Pressure	100-130 psi	
Casting distance	24-30 m	75-90 m
Rainfall equivalent / hour	Dependent on sprinkler/nozzle and coverage area	
Humidity dome	Transient, does not last	
Setup time	2 hours (ideal conditions)	
Priming system	10 minutes	
Demobilization time	1-3 hours (ideal conditions)	



Figure 4. Hose lays are done using skid steers or UTVs (Figure 5).



Figure 5. Hose lay done with a UTV.

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Figure 6. Compatible sprinklers can vary from Rainbird sprinklers to irrigation sprinklers (Image 7).



Figure 7. An irrigation-style sprinkler used in a 12-inch system.

References

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