



Alberta Diesel Dialysis

**Ensuring the Best fuel quality
at the Most critical time**



Today's electrical grid is an interconnected network for delivering electricity from producers to consumers. The electrical grid provides reliable power to millions of homes and businesses, but electrical failures that affect large areas happen regularly due to extreme weather, natural disasters, and human error.

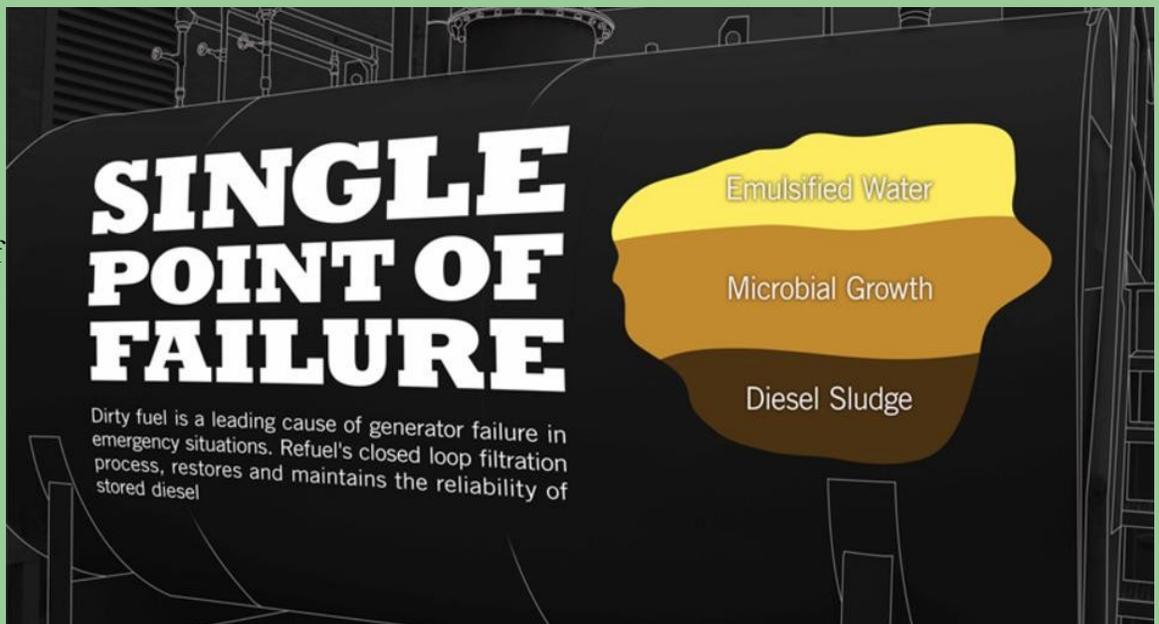
For Data centers, outages and failures can be extremely costly. If the Fuel is contaminated, the generator may not start when needed, not provide the required power load or fail during operation at the most critical time. With no other means of power back up on-site, this could lead to system operational issues an/or a shutdown from 3 - 10 hrs minimum.

For N1 to N 4 sites this can lead to :

- Data room servers overheating.
- Safety issues, having to risk people and equipment to get the site up and running.
- Substantial cost from emergency rentals and repairs.
- Complete Site shut down for days or weeks.
- Possible employment loss.
- Clients losing their operations.
- Contract agreement fees due to operational failure.
- Contracts cancelled.
- Possible lawsuits.

A recent study by the Department of Energy found that financial losses from power outages at data centers ranged from \$20,000 to \$2 million and up per occurrence.

Diesel contamination can occur from many different sources such as transportation chain, temperature changes, storage, handling, and vents. Diesel is not what it was 25 years ago; it has a natural shelf life and is considered an organic. Like all organics, it decays with age. Diesel is also hygroscopic and will absorb moisture from the atmosphere. This process creates emulsified water that is damaging to Engines and Tanks.





Fuel is a Single source of power

Poor fuel quality will lead to a lack of engine performance or cause a shut down that will affect the entire site's operation.



No fuel Polishing

Fuel can begin to degrade 30 - 120 days, with water and contamination present, this can speed up the process and lead to tremendous damages. Fuel filters can plug and starve the engine of fuel. The filter can also go into by pass, This risks the injection system and engine under performing and/or a possible failure during operations. Contamination will also damaged and decrease the tank's life and reliability, leading to costly repair or replacement.

VS



Proactive fuel Polishing

Proactive fuel service will ensure the fuel is meeting or exceeding OEM and Federal requirements. Eliminating any opportunity of water or contamination that would damage tanks and engines. Ensuring clean and dry fuel when needed a most critical time

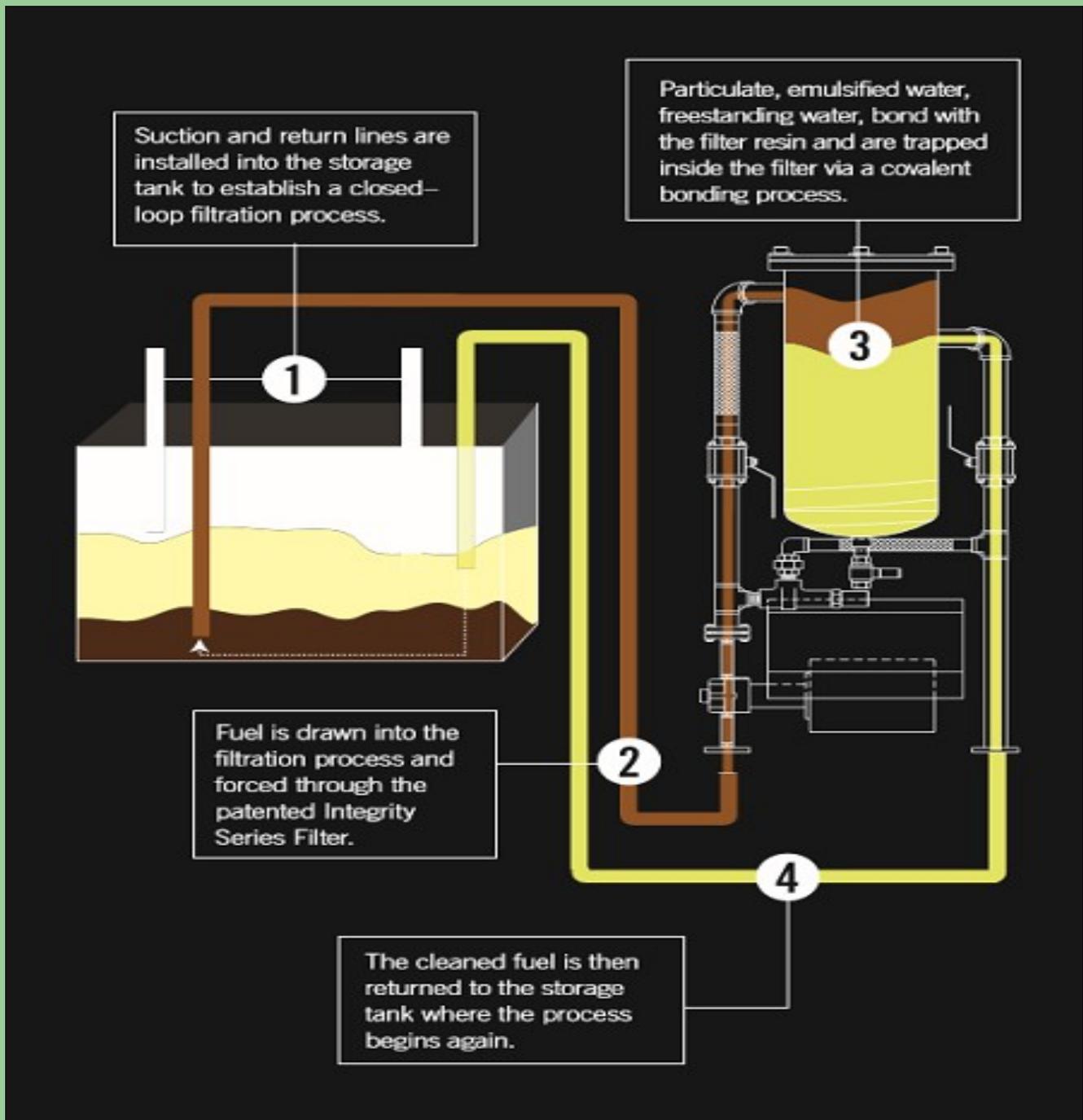
Due to higher fuel efficiency and less required maintenance, diesel-powered generators provide the most reliable form of emergency backup power. With that said, even the best system needs to be regularly exercised and maintained so it can operate as required when needed. When standby generators fail to start or perform as designed, it is usually due to poor fuel maintenance and clogged fuel filters. These common issues can be avoided with a regular fuel maintenance routine performed by an RSI fuel polishing system. Having a well-designed RSI system maintaining the fuel source is one of the best protection against performance issues.

Alberta Diesel Dialysis employs RSI closed-loop filtration process to filter diesel continuously. The system replaces traditional fuel management practices which deploy harsh chemical additives, annual fuel replacement, or continuous operation of engines in emergency and non-emergency situations to burn off fuel reserves.



With the RSI system, Diesel engines will start and run more efficiently, increasing reliability, maintain high performance under heavy loads, and burn less Fuel reducing emissions into the atmosphere. This state-of-the-art technology installed can help LEED facilities apply for LEED points by maintaining fuel quality that reduces the use of fuel disposal replacement.

RSI Systems Solution for fuel maintenance and quality control



Alberta Diesel Dialysis provides RSI Systems for Emergency standby generators & Prime power generators.

The RSI system provides a continuous long-term fuel management solution and eliminates significant gaps present in traditional periodic fuel management practices. The continuous nature of our closed-loop filtration system actively manages fuel quality, keeping the Fuel free of particulate and water contamination while eliminating diesel sludge in fuel tanks.

RSI systems range from 10 GPM up to 400 GPM. Systems are designed and built to the client's requirements. Each system is hand-built with 316 Stainless Steel and socket welded connections. RSI systems are installed in many Critical Data Centres and Hospitals in North America.



(Above is the RSI 100 Gpm, this unit is location in one of the largest USA telecommunication company's data Center in North America. It is insuring the best fuel quality for 1 million plus gallons . These systems shown above polishes the fuel before in enters the tanks, fuel can also be transferred from tank to tank with polishing as needed)



- **RSI Controllers are UL and CSA approved touch screens with real time reports.**
- **RSI systems can be integrated with all types of operational systems.**
- **Can be controlled on-site and remotely.**

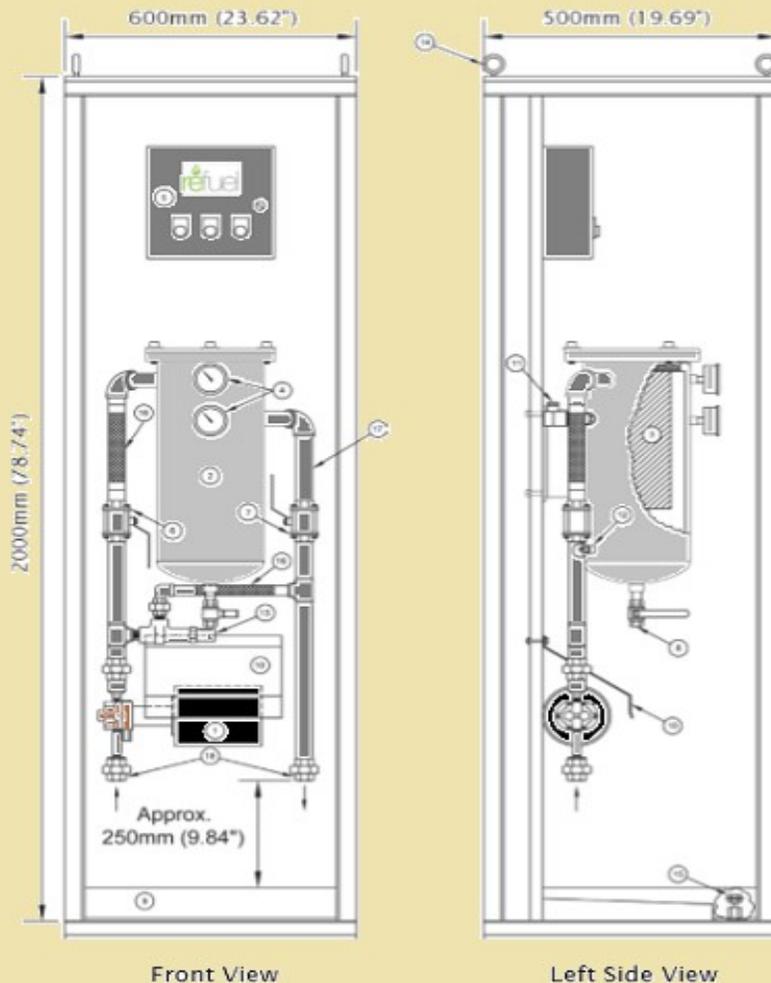
Citizens depend on the Government to keep them safe in times of crisis, so reliable back up power is a necessity for mission-critical operations. A mission-critical government Data center enlisted the RSI system to ensure their readiness should a blackout occur.

The Datacenter had installed top of the line back up generators that were supplied by 5500 Gallon Main tank and 1600 gallon day tank. Although the Fuel was at the highest quality, the Government was concerned about long term storage and how it may affect the warranty because warranty does not cover failure that was caused by contaminated Fuel.

The Data centre needed a permanent solution with a 100% guarantee that would secure the integrity of their fuel reserves. RSI systems ensure performance while protecting the generator and tanks.



(Above : RSI-IN10 Model)



NO.	Description
1	Continuous Duty Pump
2	Stainless Steel Filter Canister
3	ULSD / Bio Fuel Filter Element
4	Liquid Filled Pressure Gauges
5	Control Panel (C.S.A. Approved)
6	Inlet Isolation Valve - 25mm (1")
7	Outlet Isolation Valve -25mm (1")
8	Water Drain Valve 12.5mm (1/2 ")
9	Stainless Steel Drip Tray
10	Stainless Steel Splash Shield
11	Pressure Transmitter
12	Water Sensor
13	Pressure Relief Valve - 12.5mm (1/2")
14	Lift Points
15	Float Switch
16	Stainless Steel Braided Flexline
17	Stainless Steel Welded Piping - 25mm (1")
18	Stainless Steel NPT Union - 25mm (1")

Refuel filtration systems are constructed from high grade materials and adhere to the highest quality control standards. All models are built using stainless steel filter housings, NEMA rated enclosures, UL listed and CSA certified components. Stainless steel socket welding is used to prevent contamination transfer and to eliminate the risk of leakage.

- RSI systems can operate with no interruption to generators. (Above : RSI-IN10 Model)
- Filtrate to 0.5 micron.
- Heavy water and emulsified water filtrated to below 100ppm.
- Microbial growth is removed.
- Reduces fuel consumption.
- Reduces downtime.
- Lowers maintenance frequency and costs
- Lowers environmental footprint.
- RSI systems are more environmentally friendly and cost-effective compared to disposal and refuelling

Manufacturer designed and patented RSI Covalent Bonding Filter

- RSI patented filter breaks the bond between the emulsified water between ULSD and Biofuel.
- Water is drawn into the filter by the covalent bonding the water bonds with the patented filter material and turns the water into a gel.
- The Gel is then trapped in the filter, held until the filter is removed and recycled.
- The Patented covalent bonding process and features self-monitoring technology that automatically triggers a system warning when the filter enters the final stages of its active life

Integrity Series Filter

DIAGRAM A: Flow of Fuel

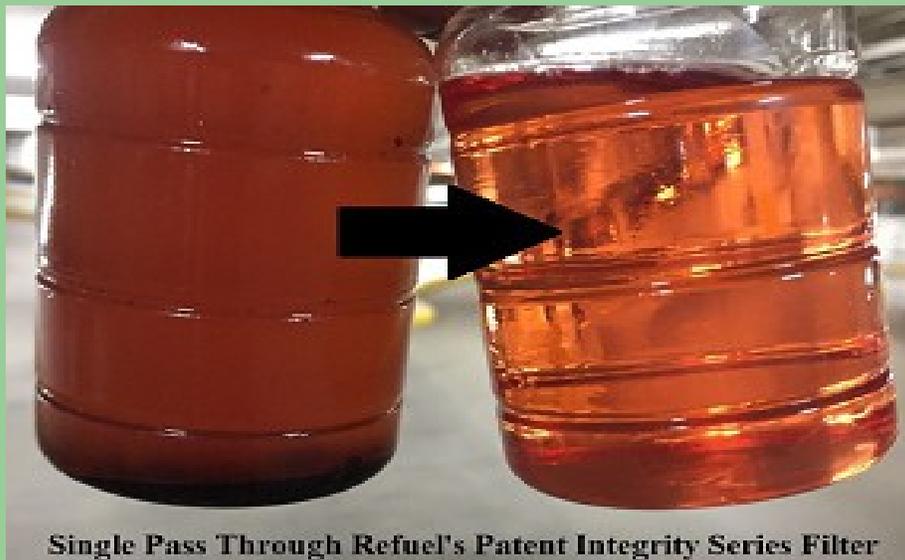
- Outer Filtration Shell
- Internal Covalent Bonding Resin
- Pleated Particulate Filtration Media

Fuel Enters Filter

- 0.5 Micron fine particulate filter
- Will remove emulsified water to below 100ppm
- Bio-blend compatible
- E-85 Ethanol compatible

RSI 18" Filter Specification

- 60psi collapse strength
- Micron rating 0.45
- 99.83%+ absolute particulate filtration to 0.45
- Free standing and emulsified water 0.009% volume/volume
- Recommended change out differential pressure 10psi
- Maximum operating pressure 20psi
- Dimensions 6" x 18"
- Water holding capacity 6 L
- Particulate holding capacity 20lbs



(Left) On-site demonstration was performed with our RSI25 mobile system to display the results of a single pass with our RSI filter.

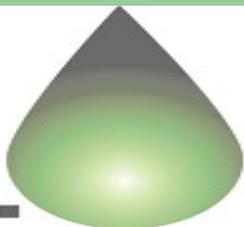
The sample on the left was pulled before any fuel polishing. The RSI system was started; the contaminated Fuel was drawn and processed through. The RSI unit was stopped as the polished Fuel was being discharged back into the tank. The sample on the right shows the results of a single pass through an RSI patented filter.



We've got you covered. We know what we're doing and we're dedicated to providing the best Fuel quality that will prolong the life of all your engines and tanks.

Your satisfaction is our highest priority!

Contact us for a quote or Information and see what our commitment is all about!



Alberta Diesel Dialysis

Fuel Polishing Systems & Service

Western Canada Distributor for ReFuel Systems



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