



Superstorm Sandy Petroleum Shortage After-Action Report

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I. About Riggins

Riggins Oil, family owned and operated since 1926, is a Southern New Jersey business providing a wide range of energy solutions to consumer, commercial, and government customers. Riggins offers wholesale and retail delivery of gasoline, diesel, biodiesel, heating oil, and more to customers in New Jersey, Pennsylvania

II. Situation

On October 29th, Superstorm Sandy hit the New Jersey and New York, causing significant damage to electric utilities and petroleum distribution sites, including refineries, terminals, and pipelines. Many petroleum refineries shut down operations because of damage to their infrastructure or lack of electrical power. The Colonial Pipeline, a main artery of crude oil from the Gulf of Mexico, also shut down during the storm. The combined effect was a significant petroleum supply shortage in affected areas of New Jersey and New York. Demand for fuel for emergency generators skyrocketed, as many critical infrastructure sites were without power for extended periods of time. Additionally, because the refineries and terminals close to the affected areas were also either damaged or without power, petroleum could primarily only be accessed in the Philadelphia and Delaware harbors, causing additional strain on supply.

Riggins Oil survived the storm with minimal damage to its core operations and was able to continuously access supplies of gasoline, diesel, and heating oil after the storm because it maintains a distribution network that has access to ports in Delaware, Philadelphia, and New York. In the two weeks following Sandy, Riggins was able to access and distribute over 7 million gallons of fuel throughout the region. The top priority for the company during the response was to supply fuel to critical infrastructure providing basic services like water and sewer, as well as to essential elements of the emergency response effort like emergency generators at fire and police stations, hospitals, military bases, and communications towers. Riggins supplied over 1 million gallons of fuel to 680 critical government entities across the affected regions, and delivered over 5.5 million gallons of fuel to 1,300 gasoline service stations. The company experienced a 75% increase in call volume in the two weeks following the storm.

III. Findings

Riggins Oil was pleased with the response from state and federal government during and immediately after the storm to stabilize the supply situation in the region. However, we have found that there were three main challenges that limited the effectiveness of our response:

- A. Petroleum operations become exponentially more complex with the increased scale and duration of an emergency
- B. Communications between industry and government entities become challenging and sporadic
- C. Cash reserves become scarce and industry pricing carries significant risk

These challenges are ones faced by many, if not all, petroleum distributors and resellers, and should be the focus for future contingency planning by local, state, and federal government entities involved in emergency response efforts.

A. Petroleum operations become exponentially more complex with the increased scale and duration of an emergency

In the days and weeks after Superstorm Sandy, Riggins Oil experienced a significant increase in fuel orders from entities all across the state. Orders for emergency generator fuel accounted for the majority of these new orders, as many critical infrastructure was without power for days and weeks on end. From an operational standpoint, emergency generators presented a challenging delivery scenario for any distributor because of the small size of many of the tanks, the geographically dispersed locations of each tank, and the sheer number of tanks. Another complicating factor was that many emergency generators were located above ground and in hard to reach areas, meaning that specialized trucks and equipment were needed to access and pump fuel into the tanks. While Riggins maintains a highly diverse fleet of trucks capable of delivering to all types of locations, many companies typically specialize in only one or two types of deliveries. Therefore, the private sector's ability to scale up deliveries to emergency generators during times of crisis may be limited simply by the number of trucks currently on hand.

In addition to the complexity of the delivery location, the length of time needed to deliver product increased substantially after the storm, increasing costs (to be addressed in section C) and limiting trucks available to deliver fuel. This increased time was a result primarily of two factors: limited supply terminals and longer freight times. First, because terminals in the northern part of the state were closed due to power outages and damage, there were fewer terminals with fuel available, leading to long lines of trucks waiting for fuel. Riggins trucks experienced delays at terminals of up to 3-4 hours for a single load. Second, freight times increased because trucks were picking up fuel from terminals in the southern part of the state and delivering it in the northern part of the state (often to multiple, geographically dispersed emergency generator sites). Typically, fuel would be picked up from the closest terminal to a delivery site so that each truck is utilized fully and customers pay less in freight charges and markups. Additionally, deliveries to gasoline stations were complicated by lack of power and long lines of cars. Trucks often encountered traffic and delays in and around stations due to overwhelming demand. These factors all combined to present Riggins with an extremely challenging operational environment.

B. Communications between industry and government entities become challenging and sporadic

One of the biggest challenges in organizing our response after the storm was the prioritization of deliveries. Riggins Oil seeks to find the most effective and efficient way to dispatch our fleet each day, but this becomes even more important during emergencies. When receiving orders from every part of the state, Riggins had to decide the priority level for each customer and dispatch that accordingly. In the 2-3 days immediately following the storm, there was no guidance from the state government on which entities should be prioritized for petroleum deliveries. Later, thanks to the involvement of the Fuel Merchant's Executive Director Eric DeGesero in the State's Emergency Operations Center (EOC), Riggins learned that emergency generators at water and sewer entities should be the top priority, followed by communications towers and first responders. Riggins then adjusted its dispatching to accommodate the critical infrastructure prioritized by the EOC. Riggins also lacked information on the accessibility of roads and highways that were either blocked by storm debris or by emergency response personnel. This meant that our trucks could be

dispatched to a priority location only to be turned away. This lack of information often meant that trucks were dispatched to lower priority locations.

The other critical communication barrier during the storm response was that users often lacked information about their fuel needs. Many customers ordering emergency generator fuel, most often government entities, did not know the consumption time for their generators (how long it would take to burn the fuel in a filled tank), the amount of fuel currently in their tank, and sometimes even the type of fuel the generator required. As a result, many customers were ordering fuel without actually needing a delivery for a number of days. Additionally, many customers would place orders with multiple suppliers at the same time, or would have their tanks filled by the National Guard when they were called in to assist in the crisis. However, there was often no communication that the delivery was no longer needed, which meant that trucks would arrive with product and no tank to fill. The result of this communication breakdown was that critical fuel supplies did not reach other high priority deliveries and trucks were being severely underutilized, worsening and lengthening the fuel crisis statewide.

C. Cash reserves become scarce and pricing carries increased risk

As previously mentioned, Riggins Oil delivered over seven million gallons of fuel in the two weeks following the storm. In order to gain access to this fuel, our company would use credit lines or cash reserves to purchase the fuel from refineries and terminals from Delaware to Philadelphia, and then deliver it to sites in the affected areas. However, we would not receive payment from customers immediately upon delivery, and often not for weeks on end. The significant spike in the number of deliveries and the sheer volume of fuel being moved meant that our company's credit lines with refiners and cash reserves were quickly exhausted. Once out of cash and credit, our company would be forced to shut down operations. Thanks to quick action by the government, banks, and refiners, we were able to narrowly avoid this during the Sandy response, but the situation was dangerously close to becoming a reality on only the third day after the storm.

Related to cash and credit was the increased risk and uncertainty in pricing fuel deliveries, especially related to contractual agreements. As discussed above, the complexity of operations in the aftermath of the storm resulted in additional costs incurred by distributors, namely rapidly changing supply points, increased wait time at terminals, freight times to delivery sites, longer labor hours, and more. These new realities drastically changed our cost structure, adding uncertainty to our pricing scenarios. Because we had little basis for our costs, Riggins had to weigh the risk of recovering those costs versus the potential for accusations of price gouging. If a delivery would increase our company's costs above the threshold set by price gouging legislation, Riggins had to decide whether to lose money on the delivery, raise our price but risk price gouging accusations, or simply refuse the delivery altogether. During an emergency situation like the one faced by our state, this complication limited our effectiveness and significantly increased the risk of fully deploying our capabilities.

In addition to this uncertainty was the challenge of dealing with non-priority customers. Riggins holds many contracts with government entities across the state, including many that are considered lower priority during a statewide emergency like Sandy.

Often, Riggins had to weigh the risk of violating a contract in order to deliver to a high priority location. For instance, in the week after the storm, a school threatened that Riggins would be in violation of its contract if we failed to deliver fuel for its emergency generator, despite the fact that the school was closed due to the storm. Riggins had to weigh the risk of technically violating its contract versus delivering to high priority sites like sewers or communication towers set by the State EOC. This additional risk often meant that fuel was diverted to customers that may not be the highest priority during an emergency.

IV. Recommendations

The challenges faced by our company and many similar companies in our industry during the aftermath of Superstorm Sandy are entirely solvable. We believe that industry and government must come together to fully analyze these issues, understand all relevant perspectives, and develop comprehensive solutions that address the core problems that resulted in the statewide petroleum shortage after the storm. Riggins Oil recommends that the State Legislature commission and fund a cross-sector group of industry and government leaders to conduct this analysis and develop a report. The group should be developed from the membership of the NJ Office of Homeland Security & Preparedness Infrastructure Advisory Committee. This commission should analyze the issues presented in this report and explore potential remedies to apply during states of emergency that may include some of the following:

- Petroleum supply contingency planning - The state should work with private industry to create contingency plans for closed or damaged fuel supply points over an extended period of time.
- State inventory of emergency generators - The state should maintain an inventory of emergency generators with large fuel capacities for deployment to service stations and other critical infrastructure. The state should then develop a program to encourage connection devices to be installed at service stations that would allow them to connect to these generators.
- Mobile fuel trucks - The state should make contingency plans to obtain tank trucks equipped with low pressure nozzles that could be deployed to affected areas to allow private citizens to fill fuel cans for their home emergency generators. This would reduce overreliance on gasoline stations.
- Government emergency generator tank size analysis - The state should analyze the size and capacity of emergency generators and ensure that higher priority entities have larger capacities.
- Education and training on emergency generators - Public sector entities should maintain information on emergency generators including fuel types, consumption times, loads, and train purchasing agents on how to respond during an emergency.

- Emergency communications plan for private sector outreach - Private sector petroleum distributors should be incorporated into state emergency communications plans, especially with regard to road accessibility and critical infrastructure needs. Mechanisms should be developed for two-way communication between industry and government during states of emergency.
- Guidelines for critical entities - The state should establish legal guidelines for entities considered critical during states of emergency and establish contract override provisions for non-critical entities.
- Accelerated public sector payment schedules - Mechanisms should be developed to accelerate payment for fuel deliveries during emergencies to ensure continuity of private sector operations.
- Emergency funding or loan guarantees - Funds or guaranty programs should be authorized to provide temporary emergency funds to ensure continuity of private sector operations. These programs should be initiated at the discretion of the Governor during a state of emergency.
- Clarification or revision of state price gouging laws - The state should clarify or revise price gouging laws to address the highly uncertain cost environment during a state of emergency. In addition, the state should implement strict procedures pertaining to the release of information of any pending investigation until after the investigation is complete and a business is found to be guilty.
- Continue the issuance of environmental waivers - The waivers issued by the Governor were extremely effective in stabilizing the supply situation. This is should be continued in future emergency situations.

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To learn more, visit www.rigginsoil.com

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