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April 23, 2014

Commissioner Bechara Choucair, M.D.  
Chicago Department of Public Health  
333 S. State St., Room 200  
Chicago, IL 60604

Re: 12200 S. Carondolet Ave., Chicago, Illinois – Gulf Sulphur Services Ltd., LLLP  
Request for Variations from Regulations  
Air Pollution Control Rules and Regulations [For control of Emissions from  
the Handling and Storage of Bulk Material Piles]

Dear Commissioner Choucair:

Please accept this correspondence as a request for a number of Variations from *Air Pollution Control Rules and Regulations For Control of Emissions from the Handling and Storage of Bulk Material Piles* promulgated on March 13, 2014 (the “Regulations”) pursuant to Section 8.0 thereof, on behalf of Gulf Sulphur Services Ltd., LLLP (“GSS”). The Variations are sought for GSS’ approximately 4.25 acre sulphur prilling facility located at 12200 S. Carondolet Avenue in Chicago, Illinois (the “Site”), because GSS’ compliance with a number of the Regulations would impose an arbitrary or unreasonable hardship on GSS and its customers, especially given that the Site and sulphur prills (i.e. pellets) at the Site produce very little fugitive dust emissions. These costs are crushing given the relatively small scale of GSS’ operation at the Site. Indeed, GSS is legitimately concerned that if it is unable to obtain the Variations requested below, GSS’ customers may terminate their contracts with GSS once GSS attempts to pass the compliance costs on to them, resulting in the closure of the Site and the loss of almost all of GSS’ investment in the Chicago area, not to mention the loss of jobs and tax revenue for the City of Chicago.

GSS established operations at the Site in January 2012. GSS invested over \$11,500,000 in designing and constructing the Site, representing GSS’ significant commitment to doing business in the City of Chicago. GSS entered into many binding legal contracts with respect to GSS’ operations on the Site. GSS has not received any complaints from its neighbors, the community at large, or its elected officials regarding GSS’ operations at the Site, nor does GSS anticipate receiving any. This is because GSS’ sulphur prilling (i.e. pelletizing) operation produces (unlike some metcoke, petcoke, and coal operations targeted by the Regulations) very little fugitive dust. The fact is that sulphur prill is designed to be fundamentally different from the very types of substances and materials that the Regulations were designed to address, mainly metcoke, petcoke, and coal. GSS prides itself on being an upstanding member of the community and a good neighbor. GSS is committed to operational and environmental safety.

The Site has a Chicago Air Pollution Control Permit and Certification of Operation, a Chicago Manufacturing Establishment Business License, a Chicago Hazardous Material Business License, and an Illinois EPA Joint Construction and Lifetime Operating Permit. The Illinois EPA has registered the Site in the Registration of Smaller Sources (ROSS) program under 35 Ill. Adm. Code § 201.175.

The Site currently receives sulphur in molten (i.e. liquid) form by tank trucks, but has the potential to receive molten sulphur by rail cars. (Molten sulphur obviously produces no fugitive dust.) The molten sulphur is unloaded via pump into a storage tank. The molten sulphur is eventually pumped from the storage tank to an enclosed priller structure. The prilling process involves passing the molten sulphur through forming trays (i.e., trays with small holes) which creates droplets of molten sulphur that fall into a water bath. The droplets solidify upon entering the water bath and the resulting sulphur product is referred to as sulphur prill or formed sulphur – pelletized, sphere-like aggregate material that results in dramatically reduced or insignificant amounts of dust as compared to non-formed sulphur, coal, petcoke and metcoke. Such prills (i.e. pellets) average 4-6 mm in size. After the prill is cooled, the pellets are conveyed out of the enclosed priller structure via open-top conveyors to an outdoor storage pile. The Site’s annual throughput to date of sulphur prill is approximately 6,200 cubic yards (10,816.2 Tons).

*Uncontrolled PM<sub>10</sub> emissions of sulphur prill is very low in comparison to emissions from materials targeted by the Regulations such as coal, petcoke and metcoke.* The fact is that sulphur prill is fundamentally different from such materials. For example, based on similar operations for a stockpile of 75,000 long tons, the emissions for various materials are as follows:

|                            |                   |
|----------------------------|-------------------|
| <b>Sulphur prill</b> ..... | <b>0.24 lb/hr</b> |
| Coal.....                  | 7.31 lb/hr        |
| Petroleum coke.....        | 22.64 lb/hr       |
| Metallurgical coke.....    | 39.66 lb/hr       |

Sulphur prill has a higher density than those materials targeted by the Regulations:

|                            |                              |
|----------------------------|------------------------------|
| <b>Sulphur prill</b> ..... | <b>2.06 g/cm<sup>3</sup></b> |
| Coal.....                  | 1.35 g/cm <sup>3</sup>       |
| Petroleum coke.....        | 1.4 g/cm <sup>3</sup>        |
| Metallurgical coke.....    | 0.8 g/cm <sup>3</sup>        |

Indeed, GSS’ significant investment in sulphur technology at the Site was made, in part, to produce a product that avoids the very problems that the Regulations were enacted to prevent. Sulphur prill is unlike the other materials targeted by the Regulations because it is specifically designed and manufactured to be stored and shipped in a safe and environmentally friendly manner. Sulphur prill, by design, generates almost no or very little fugitive dust during the production, storage, handling and loading stages. Sulphur is a common non-metallic element and is non-carbonaceous. Sulphur is virtually non-toxic and non-reactive with water. In international trade, sulphur is generally shipped as formed sulphur, not as bulk solid material. Formed sulphur (including prills) is preferred, in part, because of the lack of dust. A wet formed sulphur prill has virtually no “dust particulate”

immediately following being placed into a storage pile; therefore, virtually no dust is generated. During formation, the sulphur is annealed into relatively hard- and smooth-surfaced prills. Wet-formed sulphur prill retains moisture from the forming process and has virtually no surface residue (i.e. dust) during its placement on a storage pile. To understand emissions from wet prill sulphur, it is important to know that moisture, which is an integral part of the wet prill production process, is the essential component that thoroughly suppresses what dust is present in this type of sulphur granule.

Although prill sulphur has relatively little surface residue (i.e., dust), a water based, non-toxic, biodegradable dust suppressant (called Envirobind) is sprayed on the formed sulphur to further minimize the chance of fugitive dust. While a very limited amount of fugitive dust may be generated by material storage and material movements, the sulphur prill stored at the site generally remains stationary until it is ready to be transported off-site. Uncontrolled PM<sub>10</sub> emissions from sulphur prill conveying, storage and loading at the Site are approximately 0.24 lb/hr and 1.03 TPY.

The manufacturer of GSS' sulphur forming units, DEVCO USA, LLC ("DEVCO"), recommends storage of formed sulphur in an open storage area based on its experience in all types of climates. DEVCO advises that it has stored sulphur outside at all its operating facilities even with extreme variations in climate, rainfall and temperatures. Due to their size and weight, the prills themselves cannot 'escape' from a properly designed and operated stockpile (such as that found at the Site); the sulphur prills are simply too dense and heavy. DEVCO further instructs that its formed product is produced with water mechanically adhering to the surface, and that enough water remains on the prills to prevent dust from occurring during storage, handling, and loading on conveyances. Based on loading events at the facility in the last year, the moisture content at loading at the Site averages 2.5% (typically ranging between 2% and 3%).

GSS previously provided the Department of Public Health with a sample of sulphur prill; if desired, another sample will be provided upon request.

The outdoor storage pile area at the Site, which consists of approximately 2.46 acres, is surrounded by an asphalt berm, and rests on an engineered foundation comprised of an impermeable membrane on which layers of molten sulphur were poured in formed sections. The sulphur was allowed to cool and harden, creating the sulphur base for the prilled sulphur storage pile area. The sulphur based foundation is preferred to maintain the minimum 99.5% purity during the transfer of the material. The Site's maximum storage capacity for sulphur prill is approximately 86,420 cubic yards. No screening, sorting, crushing, or blending of stockpiled prill occurs at the Site.

When needed for shipping, front-end loaders are used to transfer the prilled sulphur from the storage pile to hoppers that drop the prill into open-top conveyors, which typically transfer the prill to trucks, railcars, and occasionally to barges on the Calumet River. The Site's conveyors are not fully enclosed and were not required to be enclosed when permits were issued to the Site by the Illinois Environmental Protection Agency and the City. The conveyors include:

- One 60' intermodal container loading conveyor (used as a standalone system).
- Four 51' portable conveyors.
- Two radial telestacking conveyors:

- LPT 140 – extends from 92’9” to 139’10” (used for prilling operations);
- LPT 150 – extends from 98’3” to 149’11” (used for barge and railcar loading).

The Site is located in Planned Development No. 1178, which includes an approved site plan and which allows the current operations. PD 1178 was approved by the Chicago City Council in 2010. The Site is located in the Calumet Industrial Corridor and is surrounded by a large Planned Manufacturing District and industrial uses. The nearest residences are located approximately 3,000 feet from the Site. Due to the Site’s immediate area having a low density residential population, this further reduces the probability of potentially impacting the local population from any sulphur dust migrating off-site. If you have any questions about the Site, our sulphur prill, or our operations, or if you would like more scientific or industry data in support of our claims herein, please do not hesitate to contact us.

### **Regulations from which Variations are Requested**

GSS respectfully requests Variations with respect to eight of the Regulations as follows:

1. GSS requests a Variation from the requirement imposed by Regulation **Section 3.0(4)** (titled “**Fugitive Dust Monitoring**”) that a “Facility Owner or Operator must install, operate, and maintain, according to manufacturer’s specifications, permanent, continuous Federal Equivalent Method (FEM) real-time PM10 monitors around the perimeter of the Facility.”

GSS has obtained a quote indicating that the cost to purchase and install four FEM real-time PM10 monitors would be approximately \$500,000 with installation and the associated upgrades to the Site’s motor control center. Additionally, the annual operating expense for this system is estimated to be \$15,000 per year. Compliance with Section 3.0(4) creates an arbitrary hardship because it does not take into account the nature of sulphur prill, which generates very little fugitive dust. Compliance with Section 3.0(4) would be unreasonable from a cost perspective because it would be unnecessary and ineffective to achieve a goal already met by the Site.

2. GSS requests a Variation from the requirement imposed by Regulation **Section 3.0(6)** (titled “**Conveyors**”) that all “conveyors shall be covered or enclosed conveyors in order to reduce or eliminate fugitive dust emissions to the maximum extent practicable.”

The Site is new and contains new equipment, including new conveyors, all of which were approved during the permitting process. GSS has obtained a quote indicating that the initial capital cost to provide covered conveyors will exceed approximately \$125,000. Additionally, the annual maintenance expense associated therewith is estimated to be approximately \$5,000 per year. Compliance with Section 3.0(6) would create an arbitrary hardship because the Regulation does not take into account the nature of sulphur prill, which generates very little fugitive dust. Further, the cost of compliance with Section 3.0(6) would create an unreasonable hardship in light of the fact that covered or enclosed conveyors would target a problem that does not exist at the Site due to the high moisture content of the sulphur prill.

3. GSS requests a Variation from Regulation **Section 3.0(7)** (titled “**Transfer Points**”) which requires that transfer points (among three other alternatives) transfer only “Moist Material”, which is defined as “material with a moisture content of 3% by weight.” GSS requests a Variation to allow the definition of “Moist Material” to include sulphur prill with a moisture content of 2% by weight.

The proposed minimum 2% moisture content level is a function of the unique properties of sulphur prill, based on prilling equipment manufacturer specifications and industry standards; a higher moisture content would not result in an appreciable reduction of dust emissions. Also, sulphur prill is physically resistant to dust generation because it is formed into pellets of relatively uniform size with a smooth surface. After researching the issue, GSS determined that options (a), (b) and (c) under Regulations Section 3.0(7) would each impose an arbitrary or unreasonable hardship on GSS. For example, the initial capital cost of total enclosure of all transfer points (option (a)) could cost up to \$250,000, if not higher. Compliance with Section 3.0(7) would create an arbitrary hardship because the Regulations fail to take into account the nature of sulphur prill, which generates very little fugitive dust. The cost of compliance with Section 3.0(7) would create an unreasonable hardship based on its magnitude combined with the fact that requiring a higher moisture content for sulphur prill (i.e. 3%) would not reduce GSS’ already very low fugitive dust emissions. As noted above, the facility’s prilled sulphur has been tested to have an average moisture content of 2.5% at loading events (usually ranging between 2% and 3%).

4. GSS requests a Variation from the portions of Regulation **Section 3.0(8)** (titled “**Transport**”) which requires transport of Bulk Solid Material by truck to have outgoing trucks “cleaned” and to “pass through a wheel wash station and pass over rumble strips.”

The historical average number of bulk material trucks exiting the Site has been approximately 16 trucks per month, although this number fluctuates based on loading events and customer needs. The truck loading at the Site is the transfer of prilled sulphur into intermodal containers. These containers are completely enclosed and sealed upon exiting the facility and are not opened until they reach their destination and are emptied by the consumer. At GSS’ facility, the exterior of each truck and chassis carrying a container is swept clean of any loose materials and then driven through a wheel washing bath prior to exiting the storage area and exiting the Site. Given this current procedure, GSS believes it is meeting the goal of this Regulation. The Site lacks space to incorporate rumble strips, and as such incurs manual labor costs to sweep the trucks before leaving the facility. Section 3.0(8) fails to take into account the nature of sulphur prill, which generates almost no or very little fugitive dust, so the tractors, trailers, and wheels of GSS’ trucks at the Site are not covered in sulphur dust or residue when leaving or returning to the Site. The cost of installing rumble strips or a more elaborate washing station would impose an unreasonable hardship based on its magnitude combined with the fact that GSS is currently meeting the goal of this regulation today.

5. GSS requests a Variation from Regulation **Section 5.0(2)** (titled “**Height Limit**”) which requires that the height of a pile be limited to 30 feet. In this case, GSS seeks a Variation to allow a height of 42 feet for sulphur prill at the Site.

GSS obtained, and currently maintains, a state permit allowing pile heights of 42 feet. The Site, which was built in 2011, is specifically designed, engineered, and permitted to store sulphur prill (at a height of up to 42 feet) safely, efficiently, and in compliance with commercial objectives. Sulphur prill produces very little fugitive dust, even at heights of 42 feet; due to the size, surface makeup, and weight, sulphur prills cannot “escape” from a properly designed and operated stockpile. GSS relied on the 42 foot height limit granted by the state permit when it recently decided to invest over \$11,500,000 in constructing the Site and in the development of commercial contracts that are dependent upon such height limit. The 42 foot height limit allows for the maximum storage of 75,000 long tons of sulphur prill, and currently GSS already has legally binding contractual obligations with its customers to store 71,500 long tons. Based on our conversations with our engineering firm, the reduction to a maximum pile height of 30 feet as per Section 5.0(2) would reduce GSS’ prill storage capacity by approximately 41%, to approximately 44,000 long tons, and would potentially put GSS in breach of its customer contracts for failure to meet capacity commitments, which could result in the loss of its customers. Even if GSS were able to avoid such breach claims by its customers, such a significant capacity reduction may very well cause GSS’ customers to terminate their relationships with GSS, leading to the closure of the Site. If this Variation is granted, the pile height will typically be lower than 42 feet, but the ability to reach maximum capacity by piling sulphur prills as high as 42 feet needs to be preserved. It creates an unreasonable and arbitrary hardship to impose a lower height limit on the Site where such site was specifically designed and permitted to be safely operated at a greater height. Compliance with Section 5.0(2) would create an arbitrary hardship because the Regulations are not tailored to the nature of sulphur prill, which generates almost no or very little fugitive dust.

6. GSS requests a Variation from Regulation **Section 5.0(3)** (titled “**Protection of Waterways**”) solely with respect to the southwest corner of our sulphur prill stockpile. Regulation 5.0(3) requires that outdoor storage piles shall be set back at least 50 feet from any waterway (subject to an exception for unloading and loading). GSS seeks to maintain its operations according to the setback requirements approved in PD No. 1178.

Prior to commencing operation at the Site in 2012, GSS obtained planned development approval establishing its Site adjacent to the Calumet River. State licensing approvals also ratified the Site’s location adjacent to the river. The storage capacity of the Site is a function of the full use of the storage area, and reduction in storage area results in a reduction in storage capacity. This in turn results in potential contractual liability and ultimately loss of customers (and significant lost revenue) to GSS (as further described in Number 5 above). To the extent helpful to your analysis, during periods when the storage capacity of our piles is at average levels (or approximately 10,000 tons), there will be no material within 50 feet of the river; however, GSS needs to preserve the Site’s maximum capacity in order to make the Site economically viable. Compliance with Section 5.0(3) imposes an arbitrary hardship because it fails to take into account the nature of sulphur prill, which is pelletized and therefore generates very little fugitive dust because the pellets are too large, heavy and solid. The sulphur prills, because of their size, weight and density, are much less likely to be blown from the storage piles compared to the materials that are the focus of the Regulations, such as coal, petcoke and metcoke. The Site has been structured to minimize the likelihood that prilled sulphur will reach the river, including, for example, GSS’ construction of a containment berm around the storage area.

7. GSS requests a Variation from Regulation **Section 5.0(4)** (titled “**High Wind Events**”) which requires that disturbance of piles be suspended during “High Wind Conditions,” defined as average winds exceeding 15 miles per hour over two consecutive five minute intervals of time. In this case, GSS seeks a Variation to allow handling of sulphur prill at the Site with a wind velocity up to 30 miles per hour.

Compliance with Section 5.0(4) would create an arbitrary hardship because the Regulations fail to take into account the nature of sulphur prill, which generates very little fugitive dust in general, and which is unlikely to become airborne unless winds exceed 30 mph because of its size and density. Compliance with Section 5.0(4) would create an unreasonable hardship because a trigger of 15 mph winds would cause GSS to miss many of its customer deadlines under its customer contracts, placing GSS in breach and subjecting GSS to the loss of its customers.

8. GSS requests a Variation from Regulation **Section 5.0(5)** (titled “**Dust Suppressant System**”) which requires the ability at any time to apply chemical stabilizers or to operate moisture systems to prevent fugitive dust emissions. In this case, GSS seeks a Variation to require that sulphur prill be maintained with a moisture content of 2% by weight, without requiring the application of additional moisture to the sulphur prill with a fixed suppressant system.

The proposed 2% moisture content level is a function of the unique properties of sulphur prill, based on prilling equipment manufacturer specifications and industry standards. A higher moisture content (i.e. 3%) will not result in an appreciable reduction of dust emissions. Sulphur prill also tends to maintain a 2% moisture content. Based on loading events at the facility in the last year, the moisture content at loading averages 2.5% (typically ranging between 2% and 3%). Additionally, sulphur prill is physically resistant to dust generation because it is formed into pellets of relatively uniform size with a smooth surface. Further, GSS has obtained an estimate indicating that the initial capital cost to implement a dust suppressant system could cost up to approximately \$250,000. The estimated cost for additional staffing required by such a system is approximately \$252,000 per year. Compliance with Section 5.0(5) would impose an arbitrary hardship because it fails to take into account the nature of sulphur prill, which generates very little fugitive dust compared to other, targeted substances like coal, petcoke and metcoke. The stated purpose of the Regulations to prescribe “reasonable” practices and to minimize fugitive dust emissions, but compliance with Section 5.0(5) would impose an unreasonable hardship upon GSS based on the magnitude of the cost of compliance and the fact that a dust suppressant system at the Site will not result in appreciably reduced dust emissions.

### Conclusion

Aside from Regulations for which Variations are sought, GSS maintains and operates the Site in accordance with all applicable licenses and certifications and complies with all federal, state and local requirements. The Site, which received an IEPA Joint Construction and Lifetime Operating Permit on September 9, 2010, and initiated operations in 2012, is specifically designed, engineered, and permitted to store, handle, load, and transport sulphur prill safely, efficiently, and with very little fugitive dust emissions. GSS’ operations at the Site cause little or no fugitive dust during storage,

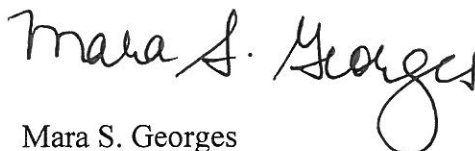
handling, loading and transporting due to the size, weight, moisture content, surface characteristics, and makeup of sulphur prill.

GSS relied in good faith on the prior regulatory environment in Chicago when it invested over \$11,500,000 in designing and constructing the Site. While GSS is able to comply with most of the Regulations, compliance with the Regulations for which GSS has requested Variations herein is not feasible or beneficial and would result in numerous arbitrary and unreasonable hardships on GSS and its customers. As noted above, the projected capital costs of compliance with such regulations is approximately \$1,125,000, with a reoccurring \$272,000 of operating costs annually. It is important to note that these figures do not take into consideration the additional capital and operating costs that GSS will be incurring to meet the other regulations not described above. The costs are prohibitive given the relatively small scale of GSS' operation at the Site. The Regulations, while effective and appropriate with respect to bulk solid material such as coal, petcoke and metcoke, fail to take into account the fact that sulphur prill generates very little fugitive dust and is unlikely to become airborne. Furthermore, the Regulations impose unreasonably high costs for actions that, if taken, would do little to fulfill the stated purpose of the Regulations to prescribe "reasonable practices and minimize emissions." The fact is that sulphur prill is fundamentally different from the very types of substances and materials that the Regulations were enacted to address, mainly coal, petcoke and metcoke. To the extent that increased compliance costs can even be passed to GSS' customers of the Site, it could disincentivize those customers and make the site uneconomical to continue future business, leading to lost revenue, jobs and tax base. To the extent that sulphur inventories in the U.S. get high, the absence of this facility could impact output of some of our customer refineries in the neighboring area. Furthermore, without these Variations the likelihood of GSS acquiring additional business at the Site is virtually eliminated, due to the storage limitations and increased costs associated with the Regulations.

This request is being made by Gulf Sulphur Services Ltd., LLLP, by its General Partner Sulphur Assets Holding Company, LLC, by its manager Savage Services Corporation, by its Senior Vice President and General Manager Jack Cohn and through GSS' outside attorney Mara Georges of the Chicago law firm of Daley and Georges, Ltd.

For the aforementioned reasons, Gulf Sulphur Services Ltd., LLLP respectfully requests approval of the requested Variations from the Regulations. Thank you for your careful consideration of this matter of crucial importance to GSS, its customers, and its employees. If you have any questions about the Site, GSS' sulphur prill, or GSS' operations, or if you would like more scientific or industry data in support of our claims herein, please do not hesitate to contact us.

Sincerely,

A handwritten signature in cursive script that reads "Mara S. Georges". The signature is written in black ink and is positioned above the printed name.


Mara S. Georges



On Behalf of:  
Gulf Sulphur Services Ltd., LLLP

By: Sulphur Assets Holding Company, LLC  
a Delaware limited liability company, as its  
General Partner

By: Savage Services Corporation,  
a Utah corporation, as its manager

By:  4/23/14  
Name: Jack Cohn  
Title: Sr. VP & General Manager

cc: Alderman John Pope

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