# Demler Brothers, LLC

# Manure Processing Facility Project

# PDS2019-MUP19-004

# September 15, 2020

## Operations Plan

The proposed poultry manure processing facility would only process manure from the existing egg ranch operations at Demler Brothers, LLC (Demler Brothers) and would not process manure from off-site locations. The proposed project would be designed to operate fully automatically and would require limited maintenance. However, the proposed project would have 3-5 full-time employees (3 employees currently employed on-site; 2 additional employees may be hired) who would monitor the equipment to ensure the system is operating properly and to assist with loading the pelleted manure onto delivery trucks. The manure processing system would operate every day of the year (besides holidays) from 6:00 a.m. to 10:00 p.m. (16 hours a day). The employees would work full-time, five days a week in a rotating schedule so the facility can operate seven days a week.

### Existing Operation

The existing Demler Brothers Egg Ranch currently houses roughly 2 million chickens that produce approximately 750 tons of manure per week. Henhouses on the ranch can accommodate up to 3 million chickens which could produce approximately 1,125 tons of manure per week. Therefore, for the purpose of the MUP application, it is assumed that the existing egg ranch would operate at full capacity (3 million chickens; 1,125 tons of manure per week). The existing egg ranch is a by- right use under current County zoning and therefore not considered part of the proposed project nor the Major Use Permit application (see MUP Plot Plan).

Currently, the egg ranch has one method for manure collection for both the older and newer hen houses on-site. Conveyor belts inside the hen houses transports the manure into semi-truck trailers, which then haul the manure off-site. However, manure from the older hen houses must be transported to the loading area near the new houses by on-site trucks. The older hen houses (approximately 700,000 chickens) produce approximately 260 tons of manure per week, which requires approximately 26 internal truck trips (truck with a loading capacity of 10 tons). The unprocessed manure is loaded into large semi-trucks and trucked off-site.

At full capacity (3 million chickens) allowed under the existing permits regulating on-site operations, the egg ranch would produce approximately 48 truckloads of manure per week. Trucks are currently loaded Monday through Saturday from 4:00 a.m. to 3:00 p.m. It typically takes approximately 2-3 hours to load one truck. The majority of the trucks leaving the site travel east to the Imperial Valley.



### Proposed Operation

The purpose of the proposed project is to convert poultry manure into valuable, and easily transportable, pellets on-site instead of transporting unprocessed manure off-site. The proposed project would reduce the total volume of manure per week by approximately 30% because the manure would be additionally dried and compacted into pellets. This would reduce the estimated truckloads generated per week from 48 to 30 (at full capacity; 3 million chickens), which would substantially cut down on traffic and emissions associated with the transport of manure from the site. The proposed project would also reduce the amount of ammonia and dust in the air, which would improve odor and health conditions at the project site. Furthermore, as part of the proposed project the dried manure would be converted into organic fertilizer, which is highly desirable to farmers due to the substantial levels of nitrogen, phosphorus and potassium.

The proposed project would include three prefabricated 100 HP electric manure processing units. The entire pelleting process would run on electricity and require no fuel, besides for the trucking of materials. The units could be scaled in phases to accommodate future growth. All machinery for the proposed project, besides conveyor belts and dryers , will be located within the proposed 16,200 sq. ft. building.

***Proposed Operation Features:***

- Manure transport (existing) and conveyor belt system (proposed)
- Manure drying system (dryer)
- Pelleting mill
- Sanitation device
- Cooler
- Bagging device (optional)

***Manure Transport (Existing)***

The proposed project would continue to use the existing manure collection methods within their hen houses. Currently, conveyor belts inside the hen houses transports the manure into semi-truck trailers, which then haul the manure off-site. Instead, manure would be collected and transported directly to the proposed pelleting system on-site. The newer hen houses immediately adjacent to the proposed project would have covered conveyor belts that would transport the manure from the hen houses into the proposed manure processing building. On the way to the pelleting building, the conveyor belts would pass through a drying system that is heated from hot air blown out from the existing fans of the henhouses. The conveyor belts would be self-automated and run on a set schedule. The older hen houses (approximately 700,000 chickens) would require the manure to be transported to the manure processing facility manually through the use of on-site trucks. The older hen houses would produce approximately 260 tons of manure per week which would require approximately 26 internal truck trips (truck with loading capacity of 10 tons).

***Manure Drying System (Dryer)***

From the hen houses, the manure would then enter the drying system to prepare it for the pelleting mill. The dryer would have approximately 4 layers of perforated plates which are pulled through the dryer by means of a rolling chain. Instead of relying on additional energy inputs, the dryer would use the air from

the hen houses via the existing fans, as well as the belts during the drying process to tumble and air dry the manure. The dried manure would then be conveyed from the drying system to the pelleting mill.

***Pelleting Mill***

The dried manure would then be deposited into the top shovel bunker of the pelleting mill to prepare the manure for the pelleting process. First, the manure would pass into a pin mixer where the manure is blended with a small amount of water to facilitate the molding/binding process and if necessary, additional minerals (nitrogen, phosphorous, potassium, etc.) may be added to improve the quality of the fertilizer. These minerals can be purchased over the counter and are not considered hazardous materials or substances. The minerals would be stored in bags and placed on a pallet within the proposed building in a designated area (see **Plot Plan**). The manure would then be conveyed to the pelleting press where it would be steamed and pressed through a die to create a pellet. As the material is pressed through the die, a blade on the output side would spin around to cut the pellets to a desired length. Dies can be exchanged for larger or smaller diameter pellets depending on customer demands. The main benefit of pressing the manure into pellets is that pellets are easier to transport and market to customers. Due to the dry consistency of the manure, water is not a byproduct of palletization process. No water is discharged.

Additionally, an air cleaner would be installed in the building to mitigate potential manure dust and particulates generated by the pelleting process. The air cleaner would collect the dust/particulates and input them back into pelleting mill to reduce waste and improve efficiency of the operations. Doors and windows will remain closed during operation.

***Sanitation Device***

After the manure is pressed into pellets, the manure would be delivered to an electric sanitation device where the pellets are heated to 170-180 degrees Fahrenheit. The purpose of the sanitation device is to take the precautionary step of killing potential germs and pathogens that may be found in poultry manure, such as salmonella. By sanitizing the pellets, the fertilizer would be safer to transport and market to customers.

***Cooler***

During the pellet pressing and sanitation process, the pellets become soft and malleable. To resolve this issue, the pellets are sent through an electric cooling device to increase the hardness and integrity of the pellets. The cooling process also removes some of the remaining moisture. The final product would then be stored in elevated enclosed silos/bins for quick loading into semi-truck trailers. With implementation of the proposed improvements, it would take approximately 5-10 minutes to load a truck instead of the 2-3 hours under existing conditions. At this time, all customers are expected to transport the final product with bulk semi-truck trailers that carry approximately 25 tons per load. Annual output would not be greater than 30,000 tons of pellets. As occurs under existing conditions, trucks would continue to be loaded Monday through Saturday from 4:00 a.m. to 3:00 p.m. The majority of the trucks leaving the property would continue to travel east to the Imperial Valley to deliver the pelleted manure.

***Bagging Device (Optional)***

Bagging the pellets into individual bags is not proposed at this time, but this feature may be added in the future if deemed necessary by customer demand. A bagging device would be a simple add-on at the end of the manure processing system within the building that would not alter the previously described operations.