

Clostridium botulinum Outbreak Associated with Jalapeño Cheese Sauce Served at Valley Oak Food and Fuel in Walnut Grove, California - April 2017

Final Report

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AGENCIES INVOLVED

California Department of Public Health (CDPH), Food and Drug Branch (FDB)
CDPH, Food and Drug Laboratory Branch (FDLB)
CDPH, Microbial Diseases Laboratory (MDL)
CDPH, Division of Communicable Disease Control, Infectious Disease Branch (IDB)
Sacramento County Public Health (SCPH)
Sacramento County Public Health Laboratory (SCPHL)
Sacramento County Environmental Management Department (SCEMD)
San Joaquin County Public Health Services (SJCPHS)
Solano County Public Health (SCPH)
Colusa County Public Health (CCPH)
United States Food and Drug Administration (FDA)

DATES OF INVESTIGATION

April 27, 2017 – September 8, 2017

EXECUTIVE SUMMARY

Foodborne botulism is a rare but potentially fatal illness caused by the ingestion of food containing botulinum toxin. Botulinum toxin is a neurotoxin produced under anaerobic conditions by the bacterium *Clostridium botulinum* (*C. botulinum*). *C. botulinum* is a gram-positive, rod-shaped, anaerobic spore-former that is abundant in the environment. Symptoms of botulism include blurred vision, droopy eyelids, slurred speech, difficulty swallowing, weakness, and ultimately paralysis.

During the months of April and May 2017, the California Department of Public Health (CDPH) collaborated with the Sacramento County Public Health (SCPH), the Sacramento County Environmental Management Department (SCEMD), the US Food and Drug Administration (FDA), the US Centers for Disease Control (CDC), and other local county public health agencies to investigate a cluster of botulism illnesses. There were ten case-patients diagnosed with foodborne botulism. They ranged in age from 16 to 57 years old, with a median age of 34 years. Illness onset dates ranged from April 20, 2017 to May 15, 2017. Seven of the ten cases (70%) were male.

Among the ten cases, nine reported visiting Valley Oak Food & Fuel (VOFF) in Walnut Grove, CA in the week prior to illness. Eight of those nine cases reported consumption of nacho cheese sauce purchased from VOFF. All ten cases were hospitalized and confirmed positive for *C. botulinum* toxin type A or *C. botulinum* toxin-producing organisms. A single case-patient died. One case-patient also happened to be the Manager of VOFF.

California Department of Public Health (CDPH), Food and Drug Branch (FDB), Emergency Response Unit (ERU) initiated an investigation to determine the cause of the botulism illnesses and to prevent any additional cases. During the investigation, a sample of Gehl's Jalapeño cheese sauce was collected from inside a nacho cheese dispensing unit at VOFF. This cheese sample tested positive for *C. botulinum* toxin type A by the CDPH Food and Drug Laboratory Branch (FDLB) in Richmond, CA. Considering the positive *C. botulinum* findings in the jalapeño cheese sauce, the reported exposure to VOFF by case-patients, and a lack of case-patients in any other parts of California or other states, it is likely that this jalapeño cheese sauce was contaminated at VOFF. Collected evidence suggested that the product might have been unintentionally contaminated with *C. botulinum* microorganisms; however, the exact mode of contamination remains unknown.

BACKGROUND

From April 2017 until May 2017, the California Department of Public Health (CDPH), the Sacramento County Public Health (SCPH), the Sacramento County Environmental Management Department (SCEMD), the US Food and Drug Administration (FDA), and other local county public health agencies investigated a cluster of ten hospitalized case-patients diagnosed with foodborne botulism. All case-patients were residents of four Northern California counties: Sacramento (4), San Joaquin (4), Solano (1), and Colusa (1). These patients had illness onset dates that ranged from April 20 until May 15, 2017. Ages of patients ranged from 16 to 57 years old with a median age of 34 years.

Nine of ten cases reported visiting a gas station in Walnut Grove, CA the week prior to illness. Valley Oak Food & Fuel (VOFF) was the only gas station in Walnut Grove. Among the ten cases, eight reported exposure to nacho cheese sauce from VOFF. All ten cases were hospitalized and laboratory confirmed for *C. botulinum* toxin type A or *C. botulinum* toxin-producing organisms. A single case-patient died (Attachment 1).

EPIDEMIOLOGICAL INVESTIGATION

Between April 24 and April 28, 2017, CDPH Infectious Diseases Branch (IDB) received information regarding four hospitalized cases (CA001 to CA004) who exhibited symptoms consistent with botulism. Three of the four cases resided in Sacramento County and one in San Joaquin County. Illness onset ranged from April 20, 2017 to April 25, 2017. All cases were later confirmed positive for *C. botulinum* toxin type A.

Initial interviews conducted by public health investigators did not reveal a common food item consumed by all four patients. Suspected food items mentioned in interviews, included corn (purchased from food cart vendors) and food items dressed with nacho cheese sauce (purchased from an unidentified gas station). Detailed epidemiological information could not be obtained at the time due to case-patients' paralysis and inability to speak.

On May 4, 2017, IDB received information regarding a fifth suspected foodborne botulism case (CA005). [REDACTED] The reported illness onset was April 26, 2017. The case exhibited symptoms consistent with botulism and later developed complete paralysis. This case-patient was later confirmed positive for *C. botulinum* toxin type A.

On May 5, 2017, case-patient CA004 was confirmed as having consumed nacho cheese sauce purchased from a gas station in Walnut Grove. Considering the common food exposures between case-patients CA001-CA005, the outbreak investigation focused on the nacho cheese sauce sold at VOFF.

ENVIRONMENTAL INVESTIGATION

INVESTIGATION AT VOFF – SACRAMENTO COUNTY

Sacramento County staff from Sacramento County Public Health (SCPH) and Sacramento County Environmental Management Department (SCEMD) were the first to deploy to VOFF on May 5, 2017. VOFF is owned by Balvir Kaur, [REDACTED]. An operating Gehl's brand nacho cheese and chili sauce dispenser unit (Hot Top 2 Dual Dispenser, Serial # HT2 389183) was found at the store. Inside the dispenser was an opened, partially empty 5 lb. bag of Gehl's Jalapeño cheese sauce (Gehl Foods item #G05020), printed with a Best By date of "11APR2017". The cheese sauce was approximately four weeks past the Best By date at the time of visit. The temperature of the Gehl's Jalapeño cheese sauce was reported by SCPH to be 111 ° F. Per the Gehl Foods (cheese sauce manufacturer) user guide that was located inside of the dispenser cover and also available at Gehls.com, the minimum hot holding temperature of the cheese sauce when stored inside the dispenser is 140 °F.

SCEMD impounded the cheese and chili sauce dispensing unit and the partial bag of Gehl's Jalapeño cheese sauce (Best By 11APR2017). The impounded items were transferred to the SCPH Laboratory in Sacramento, CA. SCEMD took further regulatory action at VOFF, including the revocation of the county food permit. See report from Sacramento County for details (Attachment 2).

On May 8, 2017, FDB collected the suspect Gehl's Jalapeño cheese sauce samples from SCPHL and delivered them to CDPH Food and Drug Laboratory Branch (FDLB) for analysis. In addition, FDB visited two separate Sam's Club stores in Vacaville, CA and Sacramento, CA to determine if Gehl's brand products were available for purchase. FDB could not locate the suspect product at either store. Sam's Club employees at both stores stated that Gehl's Jalapeño cheese sauce products were not sold at their stores. Through further investigation, FDB was able to locate Gehl's Jalapeño cheese sauce at Pitco Foods in West Sacramento, CA. Pitco Foods was a wholesaler that sold exclusively to retail stores. The Gehl's Jalapeño cheese sauce was sold in 20 lb. boxes containing four 5 lb. (80 oz.) bags per box. Photographs of the product were taken by FDB (Attachment 3).

GEHL'S JALAPEÑO CHEESE SAUCE AND DISPENSER UNIT

Gehl's Jalapeño cheese sauce is manufactured by Gehl Foods, Inc. in Germantown, WI and sold in cases of four 80 oz. (5 lb.) bags per case. Gehl's Jalapeño cheese sauce is a shelf-stable product.

Per the Gehl Foods user guide, the loading date of the cheese sauce should be written on the outside of the bag with a marker prior to loading a cheese sauce bag into the dispenser. Also, the cheese sauce bag must be preheated to 140 °F prior to loading into the dispenser. An unopened bag of cheese sauce can be pre-heated by placing it on top of the cheese sauce bag that has already been loaded into the dispenser. Once the cheese sauce reaches a minimum temperature of 140 °F, the cap is removed from the bag and the puncture tool is inserted into the bag fitment (the portion of bag that attaches to the valve). The puncture tool must be twisted in place to properly pierce the bag. The puncture tool is removed and the valve is inserted and fastened securely to the bag fitment. The bag of cheese sauce is placed inside the dispenser and the valve is pushed down into the U-shaped opening of the dispenser pan to secure it in place. The provided weight is placed on top of the bag to aid in dispensing. The lid and valve guard are securely placed on the dispenser to allow for proper heating. The dispenser should hold the temperature of the cheese sauce to a

minimum of 140 °F when the lid and valve guard are securely in place on the dispenser. See Figure A below for parts used to load the cheese sauce bag into the dispenser.

Once loaded, the cheese sauce can be held inside the dispenser for five days, provided the dispenser remains on and holds the product at a minimum temperature of 140 °F. According to Gehl Foods' user guide, when the cheese sauce bag becomes empty or passes the five-day hot holding time, the cheese sauce bag must be removed from the dispenser and discarded.

Unopened cheese sauce bags are shelf-stable when stored at room temperature. Opened bags, when not being stored at 140°F or above in the warming unit, may be refrigerated between 38 °F and 42 °F for up to seven days (Attachment 4).

Figure A: Parts used to load the cheese sauce bag into the dispenser.



Cheese sauce dispenser



Puncture tool



Valve (dispenser spout)



80 oz. (5 lb.) cheese sauce bag



Weight



Dispenser pan



Valve guard



Lid

INVESTIGATION AT VOFF – 1ST VISIT BY FDB

On May 8, 2017, an investigation team from FDB and SCPH visited VOFF in an attempt to determine how VOFF prepared, handled, and stored the cheese sauce and where and when the suspect cheese sauce was purchased.

The team spoke with [REDACTED] [REDACTED] was cooperative but unfamiliar with the store's day-to-day operations. [REDACTED] did not know where VOFF purchased the nacho cheese sauce; however, he was able to provide purchase records from Sam's Club, Pitco Foods, and Smart & Final. The invoices for February, March, and April 2017 were reviewed, but none of the records showed the purchase of any Gehl's Jalapeño cheese sauce. No additional purchase records were found at VOFF.

The warming case, used to keep the tortilla chips warm for the nachos, was found stored on top of a stainless steel storage cabinet located between the fountain drinks dispenser and the cases of bottled Starbucks coffee drinks. The Gehl's nacho cheese and chili sauce warming dispenser unit, impounded by SCPH on May 5, 2017, would have been located between the chips warming case and the fountain drinks dispenser (yellow circle on Figure B).



Figure B: Photograph of the location where the cheese sauce dispenser was stored at VOFF.

A box of Gehl's Jalapeño cheese sauce was found inside the stainless steel storage cabinet below the chip warming case. The outer cardboard case had been opened, but the contents (four 5 lb. bags of Gehl's Jalapeño cheese sauce, Best By 31DEC2017) were unopened and intact. Four valves (dispenser spouts) were found with the bags of cheese sauce. No puncture tool was found. FDB collected the opened box containing four bags of Gehl's Jalapeño cheese sauce and issued an Evidence/Sample Receipt to VOFF staff.

In addition to the Gehl's Jalapeño cheese sauce, a bag of clear clamshell containers (for tortilla chip portions), and a 5 gallon plastic bucket (containing white sugar) were located in the cabinet. No produce items were observed at the store, with the exception of a 10 lb. bag of potatoes stored inside the walk-in cooler. Kuldip Singh, a VOFF nightshift employee [REDACTED], claimed the bag of potatoes was his and he planned to take them home for personal use. VOFF employees stated that VOFF did not sell produce. It was later determined that the store had previously sold apples, potatoes, and onions.

Later on May 8, 2017, [REDACTED] arrived at VOFF. [REDACTED] was unfamiliar with most of the store operations but was able to provide some information about the cheese dispenser. She mentioned that the nightshift employee cleaned the dispenser every night, but she could not describe the cleaning procedure. [REDACTED] also mentioned that the bag of cheese inside the cheese-warming unit was replaced seven days after opening. The dates

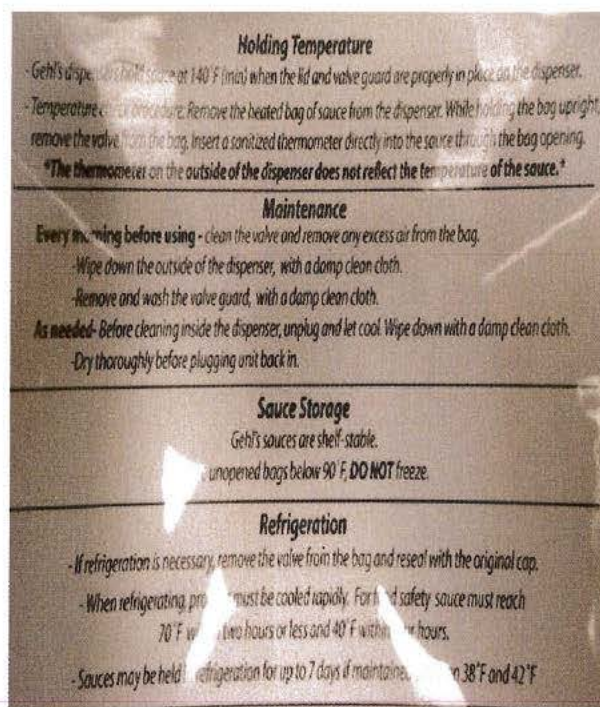
of cheese replacement were not documented and the implicated jalapeno cheese sauce had not been marked with the date it was added to the machine. She also stated that the dispenser was left “turned on” overnight with the bag of cheese sauce left inside. ██████ noted that the stores’ employees never manually verified the temperature of the cheese.

█████ also stated that the cheese dispenser was new to the store and obtained sometime in October or November 2016. The source of the cheese dispenser was unknown.

DISPENSER AND PACKAGING REVIEW

On May 10, 2017, FDB visited the SCPHL to examine the Gehl’s nacho cheese and chili sauce warming dispenser unit. This dispenser unit was delivered to SCPHL and stored there after being impounded by SCPH on May 5, 2017. The goal of the examination was to confirm if a user guide was present on the dispenser. FDB found the user guide on the underside of the dispenser lid. The user guide contained instructions to pre-heat the sauce, load the dispenser, bag replacement, holding temperature, maintenance, storage, refrigeration, trouble shooting, and available parts. The suggested holding temperature for the cheese sauce, as stated on the user guide, was 140 °F (Figure C).

Figure C: Photograph of the User Guide label found underneath the dispenser cover.



Additionally, on May 10, 2017, FDB revisited Pitco Foods in West Sacramento, CA and collected a box of Gehl’s Jalapeño cheese sauce (4 - 5 lb. bags/box). FDB conducted a full review of the product’s exterior and interior packaging (Attachment 5).

On June 6, 2017, FDB collected the Gehl’s nacho cheese and chili sauce warming dispenser unit from SCPHL as evidence.

SUMMARY OF FINDINGS:

- The exterior of cardboard case was printed with the Best By date and instructions for storage.
- Each hermetically sealed plastic bag had a Best By date printed on it.
- Specific instructions for use and the puncture tool (to open the sealed bag) were not inside the case.
- Instructions for use (user guide and instructional video) were found at the Gehl's website.
- As per the Gehl's website, the puncture tool was originally provided with the dispenser unit. The puncture tool was intended for multiple uses and replacement is available for no charge through the Gehl's website as part of the dispenser unit lease.

INVESTIGATION AT VOFF – 2ND VISIT BY FDB

On May 12, 2017, FDB revisited VOFF in an attempt to locate the Gehl's puncture tool that would have been provided with the dispenser. The puncture tool could not be located at VOFF. Kuldip Singh, the nightshift employee, claimed that he never saw a puncture tool; instead, he used a clean disposable plastic knife to open the cheese sauce bag. The box of disposable plastic knives was collected by FDB as evidence (Figure D).



Figure D: Photograph of the box of plastic disposable knives where Mr. Singh obtained the plastic knife used to puncture the cheese sauce bag.

INVESTIGATION AT GEHL FOODS, INC.

Gehl Foods, Inc. is a manufacturer of shelf-stable products such as puddings, Ready-to-Drink (RTD) beverages, creamers, and chili and cheese sauces. The company, based in Germantown, WI, has been in business since 1896.

Gehl Foods leases the Gehl's nacho cheese and chili sauce dispenser units to retail stores. In addition, the firm aseptically manufactures cheese sauces and distributes them throughout the United States.

On May 12, 2017, FDB coordinated with the U.S. Food and Drug Administration (FDA) to determine if Gehl Foods received any reports of foodborne botulism related to its cheese sauce and if retain samples of cheese sauce were available for testing.

Gehl Foods reportedly produced 3500 cases (14,000 bags) of the Jalapeño cheese sauce with Lot Code 11APR2017. Gehl Foods shipped this lot code of Jalapeño cheese sauce to major food distributors in twelve different states in May 2016. Gehl Foods management reported no complaints associated with this particular lot code.

Gehl Foods, Inc. sent three 5 lb. retain samples of the suspected cheese sauce lot code (11APR2017) to the Institute for Environmental Health laboratory (IEH) in Dublin, CA for analysis. According to the IEH report, the bags of retained samples were visually inspected with no discoloration, swelling, or off odor observed. The pH of the product samples

ranged from 5.83 to 6.08. A microscopic examination did not reveal the presence of any microorganism. Microbiological testing results, using Enzyme-Linked Immunosorbent Assay (ELISA), were reportedly negative for *C. botulinum*.

In addition, Gehl Foods' management reported that the dispenser unit collected from VOFF was not originally leased to VOFF. Gehl Foods had no records of ever leasing a dispenser unit to VOFF. The original leaseholder of the dispenser was "Kwik Korner", a convenience store located in Elk Grove, CA.

INVESTIGATION TO DETERMINE HOW VOFF ACQUIRED THE DISPENSER UNIT

The manager of VOFF who reportedly acquired the dispenser was unavailable for interview, due to paralysis and inability to speak. All other employees interviewed could not provide any information on how the dispenser was obtained.

On May 23, 2017, FDB conducted an investigation to determine any connection between VOFF and Kwik Korner.

SUMMARY OF INVESTIGATION:

- Kwik Korner was a convenience store located at 8112 Sheldon Rd Ste. 850 Elk Grove, CA 95758.
- Per Gehl Foods, the dispenser was shipped from Gehl Foods to Kwik Korner, and billed to Tobacco Man (a cigarette store located at 8112 Sheldon Rd Ste 500 Elk Grove, CA 95758).
- Ravinder Behl and Sonia Behl owned Tobacco Man and Kwik Korner. Both stores were located in the same shopping complex in Elk Grove, CA.
- The relationship between Ravinder Behl/Sonia Behl and VOFF was unknown.
- Late in 2016, Kwik Korner closed and Tobacco Man was sold to new owners.
- In 2016, Ravinder Behl and Sonia Behl possibly left California and moved to Utah.

Employees of VOFF stated that the dispenser unit was acquired by the store between October and November 2016. VOFF may have purchased the dispenser directly from Kwik Korner or may have obtained the unit from a third party seller; however, no proof of sale or acquisition record was found. Both the Manager of VOFF and the previous owners of Kwik Korner were unavailable to be interviewed. The supplier of the dispenser to VOFF remained unknown.

TRACEBACK

The invoices collected by FDB at VOFF on May 8, 2017 confirmed that Pitco Foods was a supplier of food items to VOFF. On May 9, 2017, FDB initiated a traceback investigation to determine if Pitco Foods had supplied the suspect cheese sauce to VOFF. Collected records indicated that VOFF purchased a box of Gehl's Jalapeño cheese sauce from Pitco Foods in West Sacramento, CA only once, in October 2016. Considering the Gehl's Jalapeño cheese sauce has a one year Best By date, it was possible that the jalapeño cheese sauce purchased in October 2016 could have had a Best By date of 11APR2017 as this product was packaged in April 2016 and shipped in May 2016. The four unopened bags of Gehl's Jalapeño Cheese sauce collected at VOFF with Best By dates of 31DEC2017 could not have been purchased by VOFF at Pitco Foods in October 2016, as product with a Best By date of 31DEC2017 would have been packaged in December 2016.

FDB staff contacted additional distributors of Gehl Foods products in Northern California to verify if they may have sold Gehl's Jalapeño cheese sauce (11APR2017) to VOFF during the time period of interest. These distributors were also

asked if they had sold any Gehl's Jalapeño cheese sauce to Kwik Korner and Tobacco Man to determine if either of these facilities had purchased Jalapeño cheese sauce that could have been transferred with the warming unit to VOFF.

SUMMARY OF FINDINGS:

- Pitco Foods (Pitco Foods distributor locations in Northern California) - Kwik Korner purchased Gehl's Jalapeño cheese sauce on 8/27/2014. This purchase date was too early to have supplied either the 11APR2017 or 31DEC2017 "Best By" dates.
- C.W. Brower Wholesale Grocer (Modesto, CA) - No customer accounts were located for VOFF, Kwik Korner, or Tobacco Man. This wholesaler sold to the public and allowed walk-in purchases. No store account was needed to make purchases.
- MTC Distributors (Modesto, CA) - No customer accounts were located for VOFF, Kwik Korner, or Tobacco Man. MTC Distributors distributed to retail stores only. This distributor did not sell directly to the public.
- Wilcox Frozen Foods (San Francisco, CA) - This facility sold exclusively to hotels, arenas, and special events. This distributor did not sell directly to the public.
- CoreMark Sacramento (Sacramento, CA) - No customer accounts were located for VOFF, Kwik Korner, or Tobacco Man. CoreMark Sacramento distributed to retail stores only. This distributor did not sell directly to the public.

Findings from the traceback investigation revealed that the bag of Gehl's Jalapeño cheese sauce (11APR2017) implicated in the outbreak may have been purchased by a VOFF employee from Pitco Foods in October 2016. Due to a lack of detailed records at VOFF, FDB was not able to determine with certainty where the implicated bag of Gehl's cheese sauce was purchased.

SAMPLE COLLECTION AND TESTING

On May 5, 2017, SCPH collected the following samples:

- One opened and partially empty 5 lb. bag of Gehl's Jalapeño cheese sauce (Best by 11APR 2017).
- One small bag of dried up cheese scrapings removed from the inside of the nacho cheese dispenser.
- One container of tuna fish/corn sandwich collected from a case-patient's home. The corn, which was later mixed with the tuna, was obtained from a street vendor.

These samples were stored at the SCPH Laboratory and delivered to CDPH Food and Drug Laboratory Branch (FDLB) for analysis on May 8, 2017. Test results were as follows (Attachment 6):

- The cheese sauce (Best By 11APR 2017) and dried cheese scrapings tested positive for *C. botulinum* toxin type A by FDLB using digoxigenin enzyme-linked immunosorbent assay (DIG-ELISA). The DIG-ELISA finding in the cheese sauce was later confirmed by the CDPH Microbial Diseases Laboratory (MDL) using a mouse bioassay protocol. FDLB did not have enough of the dried cheese scrapings after the DIG-ELISA testing to have this result confirmed by mouse bioassay.
- The pH of the cheese sauce (Best By 11APR2017) was 5.95.
- *C. botulinum* toxin was not detected in the tuna/corn sample.

On May 8, 2017, FDB collected four 5 lb. bags of Gehl's Jalapeño cheese sauce (Best By 31DEC2017) at VOFF.

On May 10, 2017, FDB delivered one of the four 5 lb. bags of Gehl's Jalapeño cheese sauce (Best By 31DEC2017) to FDLB for *C. botulinum* toxin, water activity (Aw), and pH testing.

Test results were as follows (Attachment 7):

- Gehl's Jalapeño cheese sauce (Best by 31DEC2017) was negative for *C. botulinum* toxin.
- pH was 5.82
- Aw was 0.98.

ENVIRONMENTAL SAMPLING AT VOFF

On June 13, 2017, FDB conducted an environmental sampling at VOFF in an attempt to isolate *C. botulinum* organisms in the store. The team collected 45 environmental swabs from multiple locations inside the store including the retail area (floors, countertops, product shelving, nacho chip warmer, and cash registers); inside of the walk-in cooler, and interior and exterior surfaces of the fish bait refrigerator and freezer.

On June 21, 2017, FDB received notification from FDLB that *C. botulinum* organisms were not detected in the environmental swabs collected at VOFF.

SUMMARY OF OUTBREAK INVESTIGATION FINDINGS

In April and May 2017 a cluster of ten case-patients were diagnosed with botulism. The cases ranged in age from 16 to 57 years old with a median age of 34 years. Illness onset dates ranged from April 20, 2017 to May 15, 2017. Nine of the ten cases reported exposure to VOFF in the week prior to illness. Eight of those nine cases reported consumption of nacho cheese purchased from VOFF. All ten cases were hospitalized and a single case-patient died.

An environmental investigation was conducted at VOFF to determine the source of botulism. SCPH and SCEMD impounded a Gehl's cheese sauce dispenser and an opened bag of Gehl's Jalapeño cheese sauce (11APR2017) found inside the dispenser. The Jalapeño cheese sauce and dried cheese scrapings collected from inside the cheese dispenser tested presumptive positive for *C. botulinum* toxin type A. The Jalapeño cheese sauce was later confirmed positive for *C. botulinum* toxin type A.

The Gehl's Jalapeño cheese sauce that tested positive for *C. botulinum* toxin was being used by VOFF past the Best By date of 11APR2017 and at a temperature of 111 °F. This temperature was significantly lower than the manufacturer's suggested minimum holding temperature of 140 °F. In addition, this temperature (111 °F) was much lower than the required holding temperature per the California Retail Food Code of 135 °F. VOFF employees stated that they did not conduct any manual temperature checks nor did they document replacement dates of the cheese sauce.

FDB reviewed the labeling and packaging of bags of Gehl's Jalapeño cheese sauce and the dispenser unit. The cheese sauce contained directions for storage ("store unopened below 90 degrees F") and additional directions regarding how to load the bag in the dispensing unit. The case of cheese sauce did not contain any specific directions regarding holding temperatures after opening or the time a bag of opened cheese could be held in the dispensing unit. However, an

inspection of the cheese dispensing unit found the user guide attached underneath the dispenser cover. The user guide indicated that the unit would maintain a minimum temperature of 140 °F when the lid and valve guard were in place. In addition, the user guide also indicated that cheese could be maintained at an elevated temperature in the unit for five days.

Evidence collected to date indicates that the Gehl's Jalapeño cheese sauce that tested positive for *C. botulinum* toxin was likely contaminated at VOFF. VOFF lacked the appropriate tool to open the bags of cheese sauce, did not take temperatures of the cheese sauce to ensure appropriate hot-hold temperatures were maintained, and did not have any records to indicate the bags of cheese sauce were changed at least once every five days. In addition, photos taken on May 5, 2017 indicate that the valve guard was not installed on the dispenser, which may have resulted in temperatures below 140 °F. The environmental health, epidemiological, and laboratory investigations conducted in response to this outbreak all indicate that a single bag of Gehl Foods Jalapeño cheese sauce served to the public at VOFF was the likely cause of illness. The practices noted above at VOFF may have led to the contamination of the cheese sauce and subsequent germination of *C. botulinum* spores and toxin production.

ATTACHMENTS

- ❖ Attachment 1 – CDPH-IDB CA EPI 17-03: Foodborne Botulism Outbreak Associated with Consumption of Jalapeño Nacho Cheese Sauce at a Gas Station, Sacramento region: April-May 2017
- ❖ Attachment 2 – Sacramento County Environmental Management Department (SCEMD) Official Notes to File/Impound Notice/Chain of Custody
- ❖ Attachment 3 – Photographs of Gehl's Jalapeño cheese sauce located at Pitco Foods
- ❖ Attachment 4 – Gehl's Hot Top 2 Dual Dispenser User Guide
- ❖ Attachment 5 – Labeling and Packaging Review
- ❖ Attachment 6 – CDPH-FDLB Analysis Results for Gehl's Jalapeño Cheese Sauce (Best by 11APR2017)
- ❖ Attachment 7 – CDPH-FDLB Analysis Results for Gehl's Jalapeño Cheese Sauce (Best by 31DEC2017)