DEPARTMENT OF HEALTH AND HUMAN SERVICES Public Health Service

Food and Drug Administration
College Park, MD 20740

Memorandum

Date: November 20, 2013

From: Consumer Safety Officer
CFSAN, Office of Compliance, Division of Field Programs and Guidance
Thru: Paige Shelborne Chief, Field Programs Branch (HFS-615)

Subject: FY 2014: Request for Inspections and Sampling for *E.coli, E.coli* O157:H7 or other STEC, *Salmonella* and *Listeria monocytogenes* at Aged / Gouda Cheese Firms (Single District)

DFPG NO: 14-25,

FACTS # 8730813

Priority: Routine

Firms(s): See Attachment A

Listeria monocytogenes OMA Method: AOAC 999.06: See Attachment B.

Listeria monocytogenes OMA Method: AOAC 2004.06: See Attachment C.

Reporting PAC Code: 03037/03037D

To: DIB: MIN-DO

DCB: MIN-DO

Director of Laboratory Branches: All

Info: RFDDs: CER
DD: MIN-DO

PLEASE DISTRIBUTE COPIES OF THIS ASSIGNMENT TO ALL ADDRESSEES AND OTHER APPROPRIATE DISTRICT/REGIONAL PERSONNEL. IF YOUR DISTRICT IS NOT LISTED ON THE ATTACHMENT, THEN CONSIDER THIS COPY FOR INFORMATIONAL PURPOSES ONLY.

NOT FOR PUBLIC DISTRIBUTION

BACKGROUND

Currently, cheese made from raw milk (hereafter, raw milk cheese) is permitted to be marketed provided the cheese is aged for 60 days and the manufacturing facilities meet certain microbiological restrictions on microorganisms in the finished product. However, there is some evidence that 60 days is inadequate to reduce/eliminate *E.coli* O157:H7 from the product, thus posing significant hazard to the consumer. In the fall of 2010, two outbreaks of *E.coli* O157:H7 were caused by raw milk gouda cheese (Bravo Foods) and artisanal cheese (Sally Jackson Company) that had been aged 60 days. In addition, there was a similar outbreak in Canada in 2005 also linked to Gouda cheese made from raw milk that had been aged 60 days.

Listeria monocytogenes contamination and listeriosis have been associated with such foods as raw milk and cheeses (particularly soft-ripened varieties. The ability of *Listeria monocytogenes* to grow at temperatures as low as 0°C (32°F) permits its growth in refrigerated food.

Listeriosis is an atypical foodborne illness of major public health concern because of the severity of the disease (meningitis, septicemia, and abortion), a high case-fatality rate, a long incubation and a predilection for individuals with underlying conditions. *Listeria monocytogenes* differs from most other foodborne pathogens because it is widely distributed, resistant to diverse environmental conditions, including low pH and high NaCl concentrations, and is micro aerobic and psychrophilic. The various ways it can enter food processing plants; its ability to grow and survive for long periods of time in the environment, on foods, and in food processing plants; and its ability to grow at low temperatures and to survive in or on food for prolonged periods under adverse conditions have made it a major concern for many manufacturing industries over the last decades.

A previous soft cheese assignment at http://inside.fda.gov:9003/downloads/ProgramsInitiatives/Food/FieldPrograms/UCM210217.pdf found 30 firms with positive *Listeria* results, http://inside.fda.gov:9003/downloads/ProgramsInitiatives/Food/FieldPrograms/UCM288922.pdf, There was a 24% occurrence of *Listeria* in all the firms inspected under this assignment (30/124) as well as a 20% finding of *Listeria* of all artisanal cheese firms inspected (8/41). Out of the 184 samples collected, 41 were found positive for *Listeria* for a 22% occurrence. Soft cheese firms and artisanal cheese firms continue to have a high risk of contamination posing this risk to the public.

OBJECTIVES

- To conduct a routine surveillance CGMP inspection at each establishment identified on Attachment A;

- To document any measures that the firm has taken to ensure the safety of their products (e.g., testing either of products or environment, process step controls such as any kill step).
- To document the aging conditions of the cheese in terms of length of time and method of storage.
- To collect finished products that has aged at a minimum of 60 days for microbial testing.
- To provide laboratory analyses and supporting documentation necessary for ORA and the Center to consider regulatory action against an establishment and violative product.

Note: These objectives do not preclude the initiation of an environmental sampling if clear mechanisms of routes of contamination or other evidence of product adulteration are encountered. If such action is taken, the Investigator should advise his/her Supervisor immediately so district management can consider expansion of the inspectional team to address these violations and this directed assignment simultaneously.

Implementation

Scheduling Inspections

The firms listed on Attachment A were identified as artisanal and/or raw and Gouda cheese firms on the basis of intelligence gathering. Internet searches combined with reviews of written references and industry-based literature searches were used by the Center in developing Attachment A.

Note on Firms that may not be registered: Work with State partners during these inspections to identify cheese producers/processors that are involved in interstate commerce. The recent *E.coli* O103 recall involved a firm in Missouri that did not register and appears to be distributing product over state lines. http://www.fda.gov/Safety/Recalls/ucm335682.htm?source=govdelivery

Note on Wash-outs: The number of firms each District is asked to inspect is an estimate based on the best inventory/product information available at the time. Districts will not be penalized for not inspecting a firm that does not meet the criteria of the assignment. Visits to firms that do not meet the criteria for inspection under this assignment should be converted to a Washout (Operations 13 – Domestic Investigation) in FACTS. This would not preclude a general GMP inspection being conducted and reported under the appropriate program PAC.

Where the District targets differ from the ORA Annual Field Workplan, the assignment supersedes the planned levels of the Workplan.

Attachment A is an Excel spreadsheet containing 2 tabs described as follows:

Tab 1: Aged Cheese Firms

Tab 2: Gouda Cheese Firms

Districts should first coordinate with the assigned laboratory to coordinate scheduling of the inspections and delivery of samples before sending teams to conduct inspections.

Should your District be unable to perform the assigned inspection, please contact **Rina Bhikha (Patel) at 301-796-5483 or Melinda Chen at 240-402-1471**.

Inspectional

NOTE: Document the following aging conditions and report this under the EIR, "Manufacturing/Design Operations" section

- temperature abuses in the aging process
- physical location
- types of preservatives to inhibit growth

Sample Collection

Note: Collect up to three (3) unique finished products. Unique samples are different types of cheeses depending on what is available at the manufacturer or ones from different lot numbers.

- Priority of cheese samples to collect:
    1. Raw milk, aged
        - Soft, semi-soft
        - Semi-hard
    2. Raw milk, artisanal (artisanal: often made by hand with little mechanization)
    3. Pasturized milk, aged
        - Soft,semi-soft
        - Semi-hard
    4. Pastuerized milk, artisanal
- Perform an OP12 Comprehensive cheese inspection (includes even if firm has pasteurized cheese) for all locations (includes manufacturer, repacker, warehouse) as this will be information that is used under FSMA.

1. Gouda is a semi-hard to hard cheese. It was listed in a separate tab in Attachment A because it can use pasteurized milk.
    - NOTE: If you go to a firm under the Gouda tab in the spreadsheet and you don't find gouda, please follow the above priority of samples for other cheeses.

- Collect domestic, not imported cheese
- Samples are Official under IOM Chapter 4.

Sample Size

Follow the instructions in the Domestic and Import Cheese Compliance Program (7303.037) for sample size and shipment instructions.
http://inside.fda.gov:9003/ProgramsInitiatives/Food/FieldPrograms/ucm181909.htm

- Questions regarding sample collection can be directed to Monica Metz, 240-402-2041
- Indicate on the collection report analyses for *E.coli, E.coli* O157:H7 or other STEC, *Salmonella* and *Listeria monocytogenes* only.

Ship samples to the servicing laboratory for analysis of the finished product.

Sample Shipment

District should notify laboratories of pending sample shipments. Samples should be shipped by UPS Next Day Air Early A.M. shipping for earliest arrival to servicing laboratories. **Shipment for Saturday delivery should be coordinated with the laboratories.** The NSD will not be utilized for this assignment. Ship samples in an insulated transport container with frozen gel packs to keep the samples cold, but not frozen to microbiology field laboratory for analysis within 24 hours.

If samples cannot be processed immediately, refrigerate at 4±2°C (39±2°F). Start sample analysis within 48 ±2h of collection. Samples will be considered invalid past the 48 ±2 hour window.

CHEMICAL SCREENINGS

1) pH

   APHA Standard Methods for the Examination of Dairy Products.
   17th Edition, Chapter 15, page 369, section 9.4.3 (Sample Preparation)

   Blend or grind cheese to provide a uniform sample. The pH for a piece of cheese will vary throughout the sample. Pack the blended sample in a

small container to ensure good electrode contact. Use a spear-tipped electrode to prevent bulb from breaking.

2) Water Activity

Note: pH and water activity should be noted for each individual sub. Report the data as individual subs.

RAPID SCREENING METHODS FOR *LISTERIA*

Finished Cheese Samples

Listeria AOAC Official Method 999.06 *Listeria* in Foods, Enzyme-Linked Immunofluoescent Assay (ELFA) VIDAS LIS Assay Screening Method. Official Methods of Analysis of AOAC International, current edition.

Listeria AOAC Official Method 2004.06. Modified VIDAS. Official Methods of Analysis of AOAC International, current edition.

ORA/ORS Notification: Enumeration of *Listeria monocytogenes* should follow BAM Chapter 10 Section J. Most Probable Number method.
http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm071400.htm

CONFIRMATORY METHOD FOR *LISTERIA*

Use BAM On-Line 2001, at
http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm2006949.htm
Chapter 10, *Listeria monocytogenes*, and Chapter 11, Serodiagnosis of *Listeria monocytogenes* Chapter 10 requires that all Listeria monocytogenes positive samples be enumerated using reserve sample. Questions regarding *Listeria* analysis may be directed to Yi.Chen@fda.hhs.gov, 240-402-2783.

Make two (2) composites from the ten (10) subsamples. Follow BAM Chapter 10 Section C2 for composite scheme.
http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm071400.htm

Refer to Attachment B and Attachment C for OMA methods.

Listeria monocytogenes OMA Method: AOAC 999.06: See Attachment B.

Listeria monocytogenes OMA Method: AOAC 2004.06: See Attachment C.

DETECTION AND CONFIRMATORY METHODS FOR *SALMONELLA*

Two (2) composites per sample will be analyzed. Obtain each composite aseptically, divide the cheese unit in half; take a plug of the cheese, which includes both surfaces from each half of the cheese unit;

Remove 187.5 g from each of the halves in order to obtain a 375-gram composite. To obtain the second composite for each analysis, repeat this process on the other individual unit of cheese.

To obtain the second composite for analysis, repeat this process on the other packages.

Methodology
Examine (2) composites. See BAM Online, Chapter 5, http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm070149.htm. Questions regarding *Salmonella* analysis may be directed to Thomas Hammack (Thomas.Hammack@fda.hhs.gov). Validated rapid methods: AOAC 2001.09 VIDAS ICS

AOAC 2004.03 VIDAS SLM

AOAC 2011.03 VIDAS SLM EASY

Confirmation: BAM Chapter 4

Serology and PFGE required

Antimicrobial testing done as well but no necessary for regulatory action.

Isolation and identification -- BAM On-line at http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm070149.htm#Isol

Chapter 4. Speciation -- Submit cultures on brain heart infusion (BHI) agar slants and provide hardcopy information as directed in BAM, Chapter 5, section E.11(http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm070149.htm#Id) and send to:
Food and Drug Administration ATTN: Al Schwab, HFR-MW400 240 Hennepin Avenue Minneapolis, MN 55401

GENERIC (NON-TOXIGENIC) *E. COLI* ANALYSIS FOR FINISHED CHEESE SAMPLES

For *E.coli*, follow the updated procedure below which will be included in the next version of the cheese program. **Refer to the December 2010 Compliance Policy Guide Sec. 527.300 found at**

http://www.fda.gov/downloads/ICECI/ComplianceManuals/CompliancePolicyGuidanceManual/UCM238465.pdf for the latest policy on *E.coli*.

E.coli Examine each subsample individually.

- **Isolation, identification, and enumeration**: BAM On-Line, at http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm064948.htm Chapter 4. Alternatively, the ColiComplete assay (BioControl) may also be used for the analysis of *E. coli* in cheese as stated in the ORA/ORS Notification No. 2009-10-29. In the event that generic *E. coli* levels exceed the action limit, be sure to perform the E. *coli* confirmation procedure specified in the above Notification. Furthermore, as specified in ORA/ORS Notification No. 2009-11-13, analysis whether using BAM or ColiComplete may be stopped if the levels of *E. coli* will not exceed the action limit.

  ORA/ORS notification 2011-07-25 should be used for *E.coli* in dairy products
  http://inside.fda.gov:9003/downloads/ORA/OfficeofRegionalOperations/DivisionofFieldScience/UCM267505.pdf

Enterohemorrhagic *E. coli*(EHEC)(O157:H7)

- Examine each subsample individually.
- Use the method "Isolation Methods for Enterohemorrhagic *E. coli (EHEC)*", BAM On-Line, at

http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm070080.htm

Chapter 4a, Section K. Screening Method for *E. coli* serotype O157:H7 from foods.

- ***E. coli* O157:H7 PFGE**

  If samples are found to be positive for *E. coli* O157:H7, then submit two (2) positive isolates recovered from each subsample. Submit the culture on Trypticase Soy agar slants in screw cap tubes (13x100mmx125mm) with caps secured tightly. Label each tube with the sample number and sub sample number. Submit copies of the collection report and analytical worksheets. Place cultures in a culture container with an official FDA seal. **Place accompanying records inside the shipping carton but not within the officially sealed culture container**.

Prepare cultures for shipment according to the requirements for shipment of etiological agents.

Send the container by the most rapid mail service available. Maintain duplicate cultures of those submitted for all cases, which are under consideration for regulatory action.

Submit *E. coli* O157.H7 isolates for PFGE analysis to the ORA laboratories designated in the ORA SOP for Routine Subtyping (Document# ORA-LAB2) dated August 6, 2001.

NOTE: If the PCR assay detects a Shigatoxigenic *E.coli* (STEC) other than O157:H7, follow the procedure in Chapter 4a, Section R **of eBAM to isolate the STEC from the enrichment sample and send the isolates to the attention of Peter Feng, CFSAN, for further virulence analysis.**

Dr. Peter Feng,
FDA/CFSAN
5100 Paint Branch Parkway, HFS711
College Park, MD 20740
240-402-1650

RESOURCES AND FACTS REPORTING

Inspections and Investigations:

Refer to the workplan, e.g. Aged Cheese corresponds to the DSC Aged Cheese Assignment column on page 03-3 and the Gouda Cheese corresponds to the DSC Cheese colum on page 03-3.

PAC(s): 03037 – Inspections, Investigations and Sample Collections
03037D – Sample Analyses
Product Code(s): 12A[][][][]
PAF: MIC
Estimated inspection hours: 4 hours/inspection
Estimated sample collection hours: 4 hours/sample collection
Estimated sample analysis hours: 18 hours/sample analysis

NOTE (1): Please remember to report all related sample numbers from related collection reports on Page 2 of the FACTS Maintain Inspection Results Section.

NOTE (2): If any Firms inspected as a part of this assignment were identified by CFSAN as a FSMA High Risk or FSMA Non-High Risk Firm and have been flagged F2 or A2 respectively, then they will receive credit towards these frequencies so long as the visit conducted per this assignment is the first visit to the firm within the appropriate cycle - FY14 to FY17 for High Risk (F2) and FY11 to FY17 for Non-High Risk (A2). For more information regarding "What Counts" towards the FSMA Frequencies and for general information regarding the FY13 Performance Goal, please refer to the following link on the DPEM Web Page: http://inside.fda.gov:9003/ProgramsInitiatives/FieldOperations/ORAContractPerformanceGoals/ucm278915.htm

REGULATORY/ADMINISTRATIVE FOLLOW-UP

Positive findings in cheese product must be reported to the CFSAN/DE assignment contact (Priya.Rathnam@fda.hhs.gov) and the collecting district as soon as possible.

Specimen charge:
The article of food is adulterated under section 402(a)(1) of the Act (21 U.S.C. 342(a)(1) in that it bears or contains a poisonous or deleterious substance, namely [identify pathogen; for example, *E. coli* O157:H7 or *L. monocytogenes*], a human pathogen.

Excessive generic *E.coli* in food supports 402(a)(4). Refer to CPG 7106.08 at http://www.fda.gov/downloads/ICECI/ComplianceManuals/CompliancePolicyGuidanceManual/UCM192468.pdf

The districts should notify their state counterparts of any confirmed positive results, and contact the firm to assess the potential adverse impact on the public health. If product has already been distributed, districts should encourage the firm to take appropriate steps, including voluntary recall.

If the firm doesn't perform a voluntary recall, or if the firm doesn't agree to take action to ensure the product doesn't enter the marketplace, Districts should request a strategy call with CFSAN/Division of Enforcement, Office of Enforcement and Import Operations (OEIO), and Office of Chief Counsel (OCC) to discuss enforcement options, such as pursuing mandatory recall, or administrative detention before seizure, or injunction.

Responding to Possible Regulatory Scenarios; General Information for Internal Purposes Only

For regulatory purposes, refer to the table below. This is general

information; specifics of each situation will need to be considered.

Possible FDA Response to Findings of Pathogens and Adverse Conditions

Scenario	Pathogen* found in finished product?	Pathogen* found in environment	Adverse Conditions Practices	Charge(s)	Possible FDA Response
1	No	No	No	N/A	NAI
2	No	Yes	No	(a)(4) Depending on the number of isolates, sub location and genetic typing	• Request voluntary corrective action – clean, sanitize, sample & verify • Regulatory meeting • Consider warning letter on case-by-case basis • Voluntary or FDA mandated recall of product for scenario 4 (if product is not further heat-treated before consumption)
3	No	No	Yes	(a)(4) Based on conditions	
4	Yes	No	No	(a)(1)	
5	No	Yes	Yes	(a)(4) Depending on the number of isolates and genetic typing	• Request voluntary action, stop shipping; shutdown & clean • Voluntary or FDA mandated recall of product; • Administrative detention • Suspension of
6	Yes	Yes	No	(a)(1) & (a)(4)	
7	Yes	Yes	Yes	(a)(1) & (a)(4)	

					registration • Warning letter

*if PFGE shows resident organism, recommend immediate shut down of operations followed by prompt root cause analysis with robust sampling before cleaning/sanitation to determine potential harborage sites, and consider expansion of any recall as appropriate

Deliberative and Confidential: for Internal FDA USE ONLY

CONTACTS

General Assignment Contact:
Melinda Chen OC/DFP&G/FPB, HFS-615, phone 240-402-1471, Melinda.Chen@fda.hhs.gov; or

Regulatory Contacts:
Priya Rathnam, OC/DE/FAAB, HFS-607, phone 240-402-2078, Priya.Rathnam@fda.hhs.gov

Leslie Hintz, OC/DE/FAAB, HFS-607, phone 240-402-2073, Leslie.Hintz@fda.hhs.gov

CFSAN Scientific Contact:
Donald Zink, CFSAN, Office of Food Safety, HFS-302, phone 240-402-1693, Donald.Zink@fda.hhs.gov

Yi Chen, CFSAN, Office of Regulatory Science, HFS-711, phone 240-402-2783, Yi.Chen@fda.hhs.gov (*Listeria* SME)

Thomas Hammack, CFSAN, Office of Regulatory Science, HFS-711, phone 240-402-2010, Thomas.Hammack@fda.hhs.gov (*Salmonella* SME)

Peter Feng, CFSAN, Office of Regulatory Science, HFS-711, phone 240-402-1650, Peter.Feng@fda.hhs.gov (*E.coli* SME)

CFSAN Program Office Contact:
Monica Metz, CFSAN, Office of Food Safety, HFS-316, phone 240-402-2041 Monica.Metz@fda.hhs.gov

ORA/ORS Scientific Contact
Peggy Carter, ORA/OFS, phone 301-796-6239
Peggy.Carter@fda.hhs.gov

ORA/FFPOB Contacts:
Rina Bhikha (Patel), ORA/OO/OFFO/FFPOB, phone 301-796-5483,
Rina.Bhikha@fda.hhs.gov

TIMEFRAME

The assignment has been designated as Routine Priority.

Inspections and sample collections should begin upon receipt of this assignment and will continue through the end of FY 2014(September 30, 2014). Samples should be completed and worksheets forwarded to the MIN-DO within four weeks of receipt of the sample.

Melinda E. Chen, JD, PhD

Cc:

HFC-1 (Honeyblue)
HFC-130 (Bhikha,Pittman, Chasey, Glasgow)
HFC-141 (McGrath, McLaughlin, Carter)
HFS-300 (Beru)
HFS-302 (Metz)
HFS-315 (Sheehan)
HFS-302 (Zink)
HFS-005 (Beal)
HFS-605 (Thomas)
HFS-607 (Correll, Rathnam, Hintz)
HFS-615 (Chen, Barringer, Shelborne)
HFS-711 (Chen, Feng, Hammack)